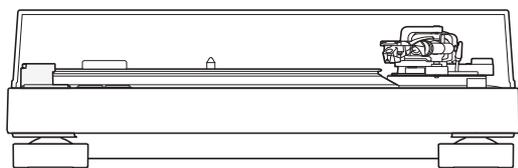
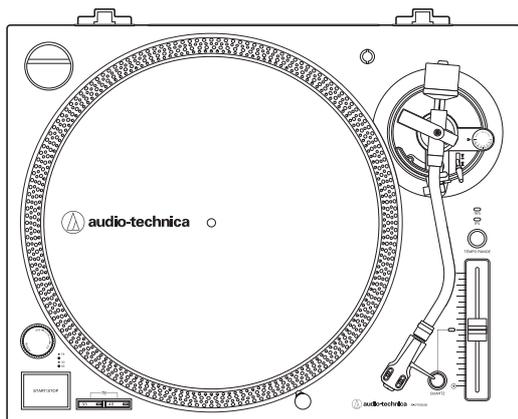




AT-LP120XUSB

User Manual
Direct-Drive Turntable



Introduction

Thank you for purchasing this Audio-Technica product.

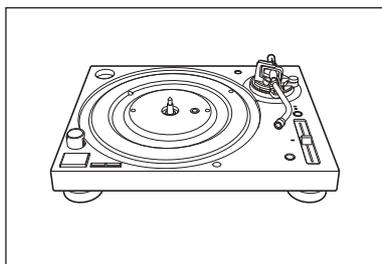
Before using the product, read through this user manual to ensure that you will use the product correctly. Please keep this manual for future reference.

This product can be used only in the countries where the product is sold. Make sure that the operating voltage and the plug of AC adapter of the product are correct for the country you live in.

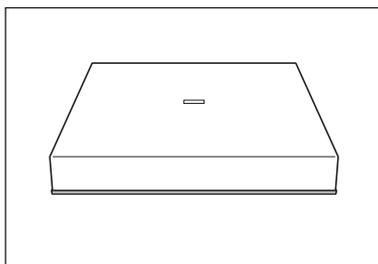
Package contents

Make sure that you have all the included items listed below before using this product.

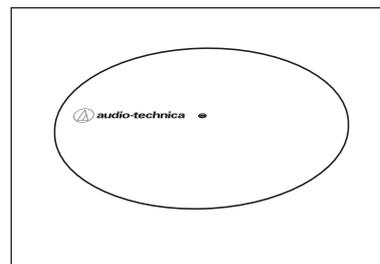
If some items are missing or damaged, contact your local Audio-Technica dealer.



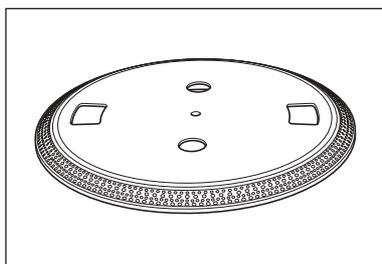
• Turntable body



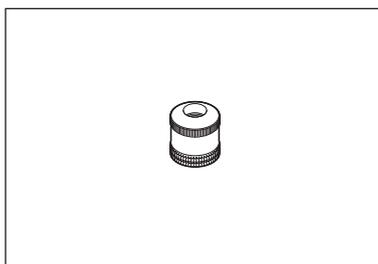
• Dust cover



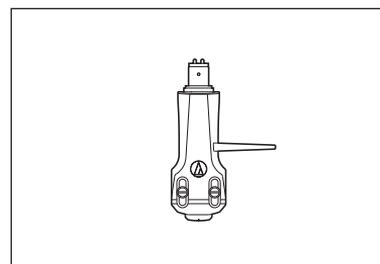
• Felt mat



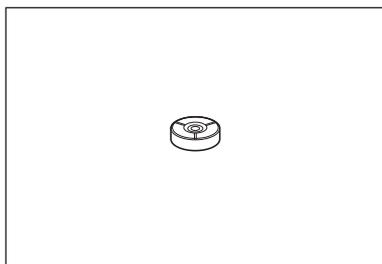
• Platter



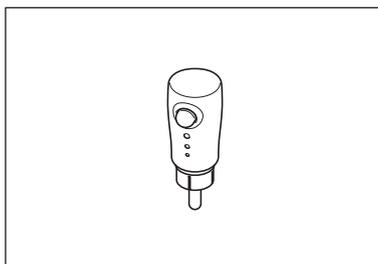
• Counterweight



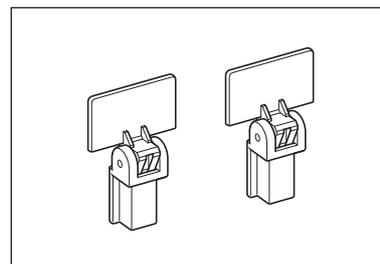
• Headshell (AT-HS6) with VM stereo cartridge (AT-VM95E)



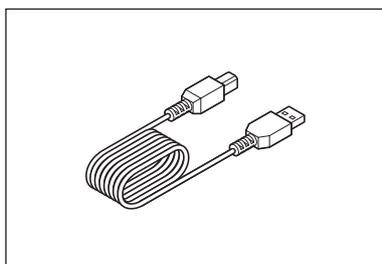
• 45 RPM adapter



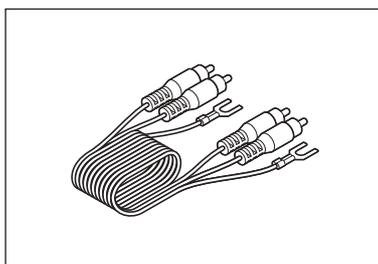
• Stylus target light



• Dust cover hinges



• USB cable (1.9 m (6.2'))



• RCA audio cable (approx. 1.4 m (4.6'))

- AC adapter (approx. 1.3 m (4.3'))
- Quick start guide
- Caution guide

After purchase, we suggest that you save all packaging materials for possible future storage, moving, or shipping.

Safety precautions

Although this product was designed to be used safely, failing to use it correctly may result in an accident. To ensure safety, observe all warnings and cautions while using the product.

Important information

Warning:

To prevent fire or shock hazard, do not expose this apparatus to rain or moisture.

Caution:

- Do not expose this apparatus to drips or splashes.
- To avoid electric shock, do not open the cabinet.
- Refer servicing to qualified personnel only.
- Do not expose this apparatus to excessive heat such as sunshine, fire or the like.
- Do not subject this apparatus to strong impact.
- This apparatus should be located close enough to the AC outlet so that you can easily grasp the AC adapter at any time.
- In case of emergency, disconnect the AC adapter quickly.
- Do not place any objects filled with liquids, such as vases, on this apparatus.
- To prevent fire, do not place any naked flame sources (such as lighted candles) on this apparatus.
- Do not install this apparatus in a confined space such as a bookcase or similar unit.
- Install this apparatus only in the place where ventilation is good.
- The rating label is put on the bottom of this apparatus.

For customers in the USA

FCC Notice

Warning:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution:

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety precautions

For customers in Canada

IC statement:

CAN ICES-3 (B)/NMB-3(B)

Notes on use

Turntable body

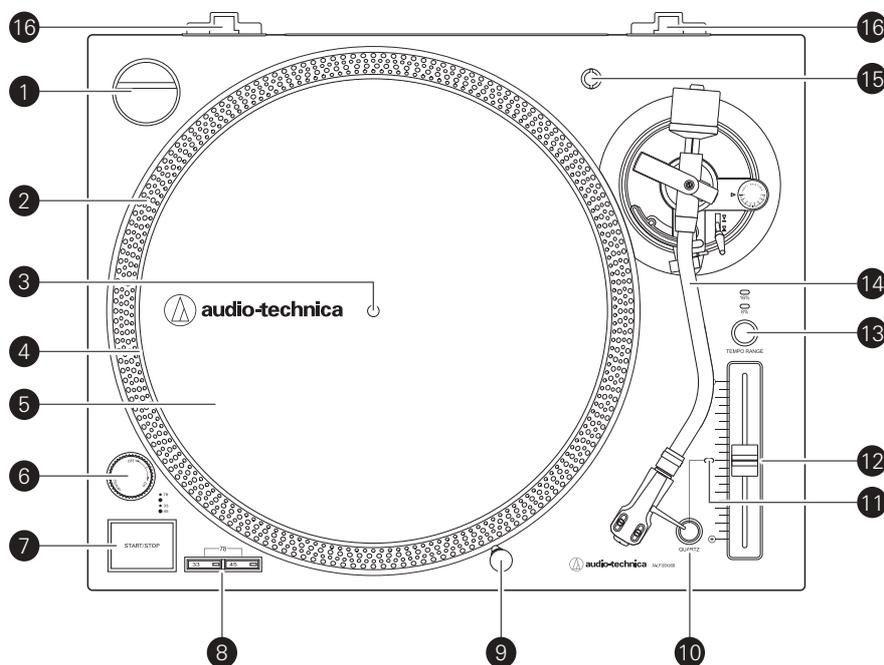
- Do not set and use the product in locations that are considerably hot or humid, dirty, or subject to extreme vibrations.
- The product should be positioned on a flat, level surface.

Cartridge

- Attach the protector to protect the stylus when the product is not in use.
- Do not touch the stylus of the cartridge with your finger.
- Do not allow the cartridge's stylus to bump against the platter or the edge of the record.

Part names and functions

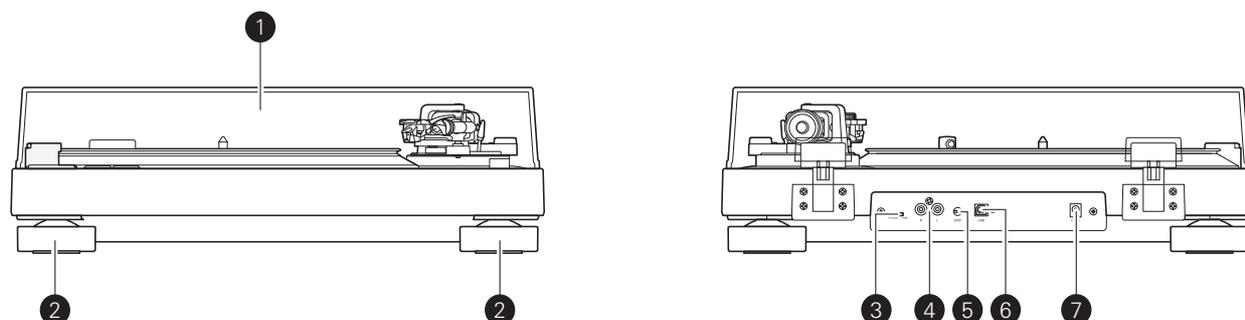
Top view diagram



- 1** 45-RPM adapter (shown in receptacle)
Adapts 7" records with large center holes to fixed center spindle.
- 2** Strobe dots (on platter edge)
Operate in conjunction with stroboscopic light located under the power dial to provide visual indication of accurate platter speeds.
- 3** Spindle
- 4** Platter
Cast aluminum platter mounts directly to center spindle/motor shaft.
- 5** Felt mat
- 6** Power dial
Controls power to the unit.
- 7** START/STOP button
Engages and disengages the motor/platter.
- 8** Platter speed buttons
Select 33 or 45 RPM platter speed. 78 RPM is selected by pressing both the 33 and 45 buttons simultaneously; both buttons should be illuminated.
- 9** Removable stylus target light
Provides illumination directed at the stylus position for easier cueing in low light. Easily plugs into jack on top of turntable deck.
- 10** Quartz button
Turns the pitch function on and off. When the quartz is activated the platter will hold the RPMs at 0% pitch, regardless of the pitch slider position and tempo range control settings.
- 11** Pitch selection indicator
Shows red for standard or locked RPM setting.
- 12** Pitch adjust slide control
Use in conjunction with pitch button to vary the platter's rotational speed. In the center detent position quartz lock is active.
- 13** Tempo range button
Select 8 or 16% tempo range.
- 14** Tonearm
For details, refer to "Tonearm" on p. 5.
- 15** Headshell receptacle
Storage receptacle for extra headshell (not included).
- 16** Dust cover hinge holders
Attachment points for dust cover hinges.

Part names and functions

Front and rear view diagram

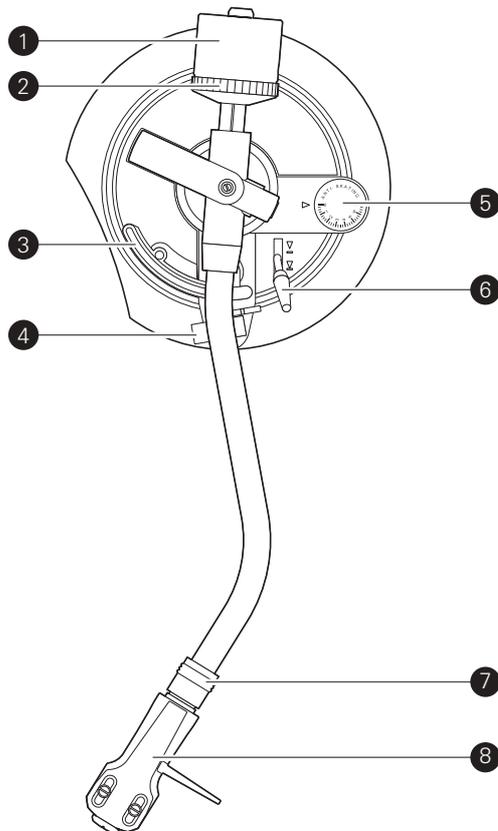


- 1 Dust cover
- 2 Feet
Adjust the level of the product.
- 3 Pre-amplifier selector switch
If using an amplifier with a PHONO input jack, set this switch to the PHONO position. If connecting to the AUX jack of an amplifier, set this switch to the LINE position.
- 4 Stereo output terminals
Connect the RCA audio cable. Connect it to either the amplifier's PHONO input jack or its line input jack. The red terminal is the right channel and the white terminal is the left channel.
- 5 Ground (earth) terminal
Connect the amplifier's ground (earth) terminal to this terminal using the RCA audio cable's ground line.
- 6 USB output
Use this output to connect your turntable to the USB input of your computer.
- 7 Power input jack
Connect the AC adapter.

Part names and functions

Tonearm

- 1 Counterweight
Balances the tonearm and adjusts to provide the proper tracking force.
- 2 Tracking force gauge ring
Use to adjust the tracking force.
- 3 Tonearm lift
Moves the tonearm vertically to and from the face of the record.
- 4 Tonearm rest with clamp
Use the clamp to secure the tonearm so that it does not move.
- 5 Anti-skate control dial
While the record is playing, a force acts on the stylus tip to pull it inward. This force can be counteracted by setting the same values for anti-skate and the tracking force.
- 6 Tonearm lift control lever
Operates the tonearm lift.
- 7 Locking ring
Rotate the ring to the left (counterclockwise) to secure the headshell. To remove the headshell, rotate the ring to the right.
- 8 Headshell
The cartridge (AT-VM95E) is attached to the headshell (AT-HS6).



Preparation for use

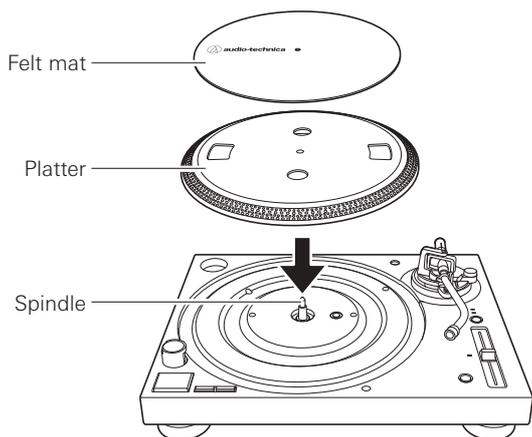
Placing the platter

This product requires some assembly before using it for the first time. Do not connect the AC adapter until assembly is complete.

1. Set the platter on the spindle.

- To avoid damaging the spindle when seating the platter, align the positions of the spindle and the platter's hole, and then slowly seat the platter.
- Make certain that the platter is fully seated on the spindle.

2. Place the felt mat on top of the platter.



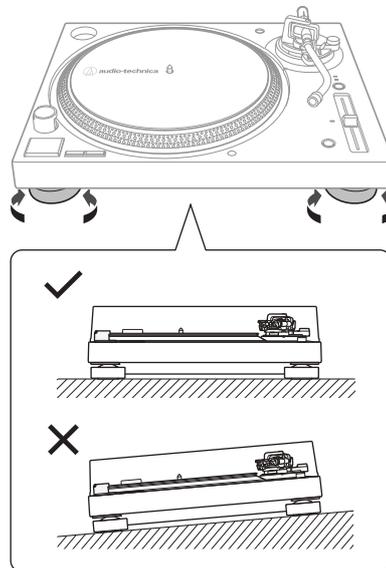
Setting up the turntable

- Position the product on a level surface.
- To avoid the effects of vibrations and acoustic pressure, do not mount the product next to such items as speakers.
- The product may pick up radio static if placed next to a radio. Therefore, try to keep the product away from radios.
- If the product is near equipment (cell phone, etc.) that emits strong radio waves, noise may occur.

Leveling the turntable

1. After positioning the product where you want to use it, adjust the feet so that the product is level.

- Use a level (sold separately) as needed to ensure that the product is level.



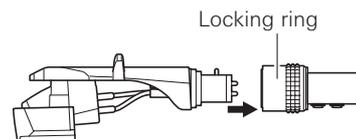
Assembling the tonearm

1. Remove the cable tie used to secure the tonearm at the time of delivery.

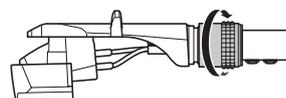
- Use the clamp to temporarily secure the tonearm to the tonearm rest.

2. Insert the headshell into the tonearm.

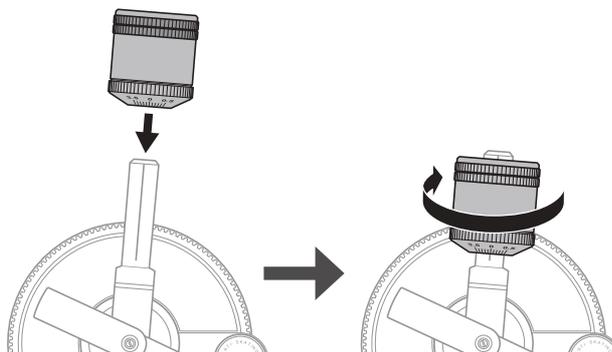
- Hold the right and left edges of the headshell so that you do not damage the stylus or cut the cartridge's wires.



3. With the headshell inserted, turn the locking ring counterclockwise (to the left).



4. With the tracking force gauge ring facing forward, attach the counterweight to the back of the tonearm, and slowly turn it counterclockwise (to the left).



Preparation for use

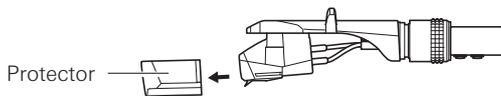
Tonearm balance and tracking force

In order for the cartridge to pick up sound correctly from the record's grooves, the tonearm's balance and tracking force must be adjusted to fit the specifications of the cartridge. If the tonearm's balance and tracking force are not properly adjusted, the record or the cartridge's stylus may become damaged.

- Do not drag the cartridge's stylus across the record or platter when adjusting the tonearm's balance or tracking force. Doing so may damage the stylus.

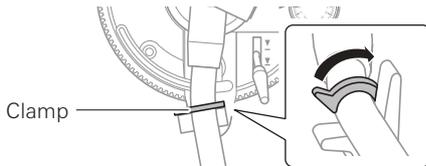
Setting tonearm balance

1. Remove the cartridge's protector.



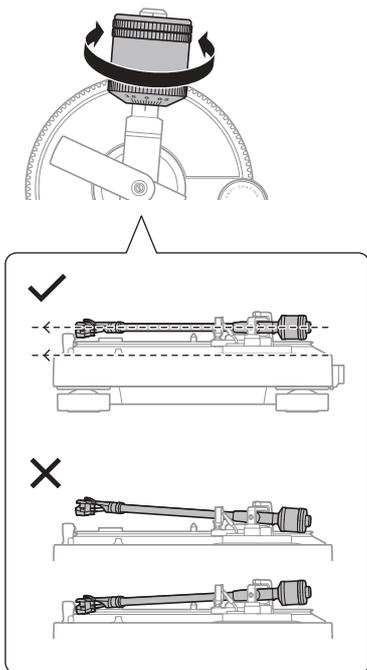
2. While lightly holding the headshell to prevent the tonearm from moving, unlatch the clamp.

- The tonearm is tilted because the balance has yet to be adjusted.



3. While still lightly holding the headshell, turn the counterweight to adjust the tonearm's balance.

- Adjust the balance so that the tonearm is level when you release the headshell.

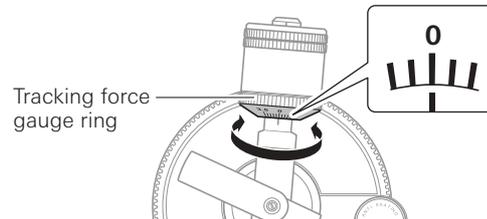


4. Return the tonearm to the tonearm rest and latch the clamp.

Setting tracking force

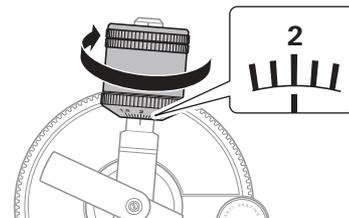
1. While supporting the counterweight so that it does not move, turn the tracking force gauge ring so that its "0" position lines up with the centerline on the back of the tonearm.

- The tracking force is not adjusted simply by turning the tracking force gauge ring.



2. Turn the counterweight and the tracking force gauge ring together counterclockwise (to the left) until the centerline value matches the recommended tracking force value for the cartridge you are using.

- Refer to the cartridge maker's specifications for the recommended tracking force value.
- The standard tracking force value for the cartridge provided with this product is 2.0 g.

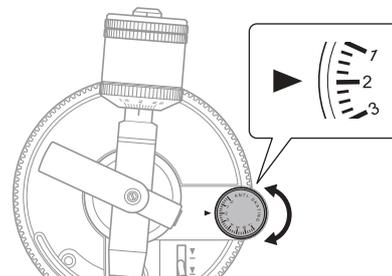


Setting the anti-skate adjustment

While the record is playing, a force acts on the stylus tip to pull it inward. This force can be counteracted by setting the same values for anti-skate and the tracking force.

1. Adjust the anti-skate control dial to have the same value as the tracking force value.

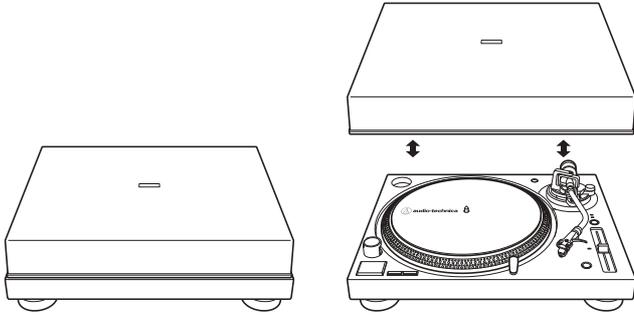
- The standard tracking force value for the cartridge provided with this product is 2.0 g.



Preparation for use

Installing/removing the dust cover

- The dust cover is designed to protect the product's sensitive components when the product is not in use. It should remain off while records are playing.
- Using the dust cover during play may result in record damage or sound degradation.
- Always remove and replace the dust cover carefully.



Setting pre-amplifier selector switch

This product has a built-in phono equalizer function. You can use the product, even if you do not have a phono amplifier or connectable equipment with a built-in phono amplifier, by connecting an active speaker, etc.

Use the pre-amplifier selector switch to set the output, as shown below.

Connectable equipment being used	Position of pre-amplifier selector switch	Where to connect the RCA audio cable
Device with phono input	PHONO	Phono input jack and ground (earth) terminal of connectable equipment
Device without phono input	LINE	AUX or line input jack of connectable equipment
PC sound card	LINE	Sound card's line input jack*1
Device with USB input	LINE	USB input of your computer*2

*1 An audio adapter (sold separately) may be required to connect the RCA audio cable to the PC sound card's line input jack.

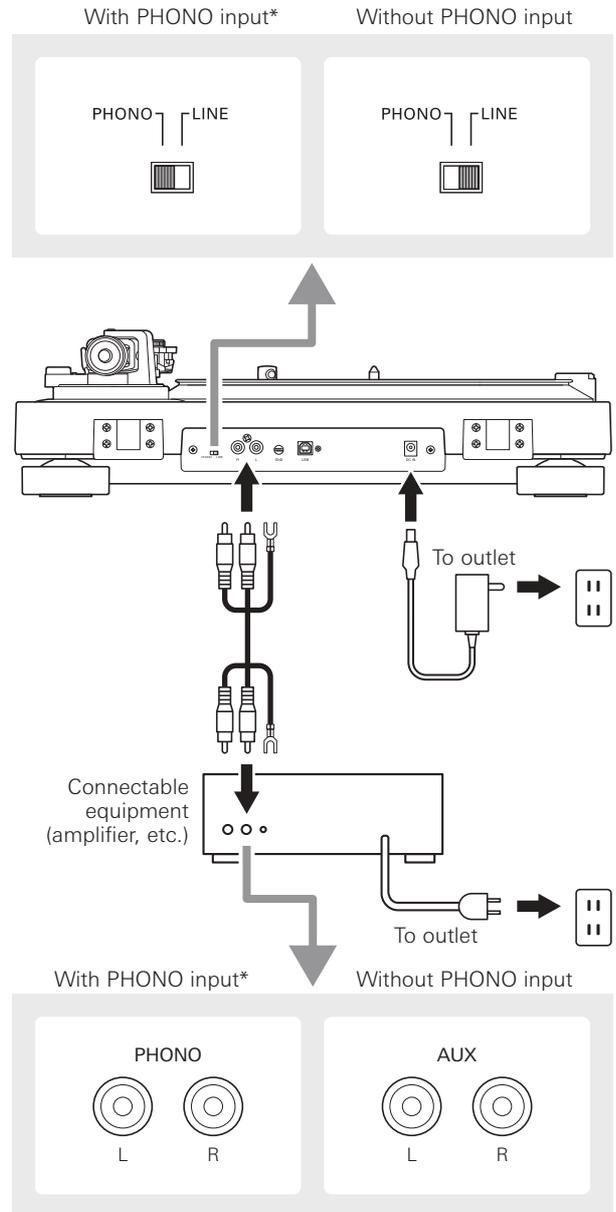
*2 Use included USB cable instead of RCA audio cable to connect.

Connecting to connectable equipment (active speakers, amplifiers, etc.)

Connecting to audio source

Align the settings for the pre-amplifier selector switch and connect the RCA audio cable to an input jack that is compatible with the connectable equipment you are using (amplifier, receiver, active speakers, sound card, etc.).

- The RCA audio cable's red jack is for the right (R) channel, and the white jack is for the left (L) channel.



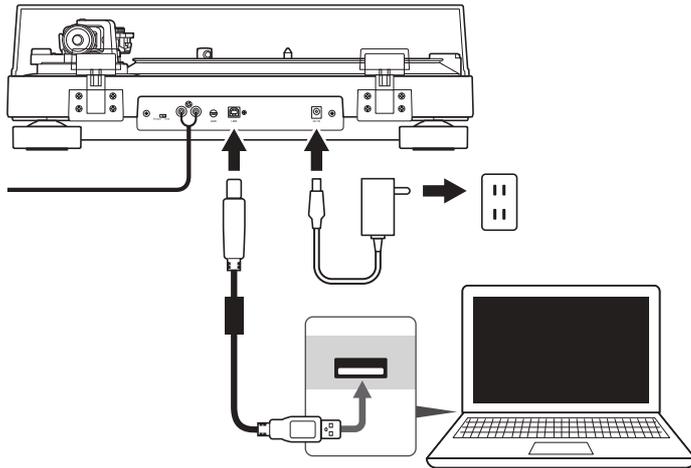
* Depending on the equipment you are connecting, a ground (earth) terminal may exist near the phono input jack. If this is the case, connect to it using the ground line from the RCA audio cable. This will help prevent a low humming noise that might otherwise be heard during playback.

Preparation for use

Connecting to computers with USB input

Follow the settings for the pre-amplifier selector switch to connect the included USB cable to the USB input of your computer.

- The included USB cable connects the product to your computer without need for special drivers.
- Audacity (refer to <http://www.audacityteam.org> for details) and other compatible third-party recording software packages are available, allowing you to record from the product to your computer.
- Be sure to set the pre-amplifier selector switch to the LINE position.



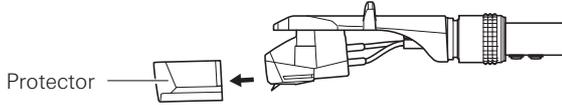
Connecting the AC adapter

Finally, after all audio connections are made, attach the included AC adapter to the product. Then connect the AC adapter's cord to a convenient AC outlet.

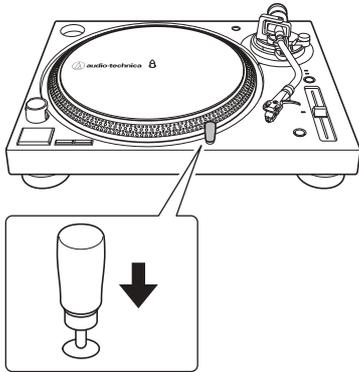
Playing a record

Before playing a record

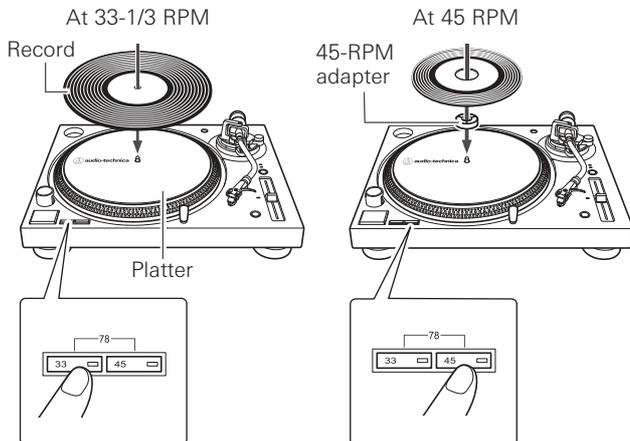
1. Remove the cartridge's protector.
 - If the tonearm is fixed to the tonearm rest, unlatch the clamp.



2. Turn the power dial to the ON position.
 - The speed selector and strobe illuminator will light up.
3. If desired, plug in the stylus target light for illumination of the stylus tip position on the record.



4. Place the record on the platter so that the center hole aligns with the spindle.
 - If playing a 45 RPM record, attach the 45 RPM adapter (see the diagram to the right below).

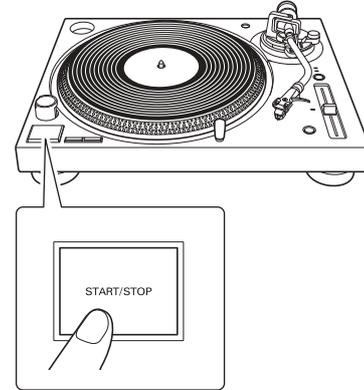


5. Set the platter rotation speed (33/45/78) to match that of the record.
 - To set the platter speed for 78 RPM, press both the 33 and 45 RPM buttons simultaneously.

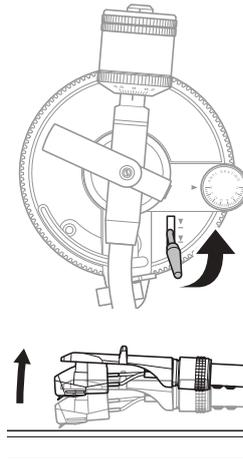
Playing a record

Lower the volume of the amplifier, speakers, etc., sufficiently.

1. Press the START/STOP button.
 - The platter begins to rotate.



2. Raise the tonearm by lifting the tonearm lift control lever to the UP position.



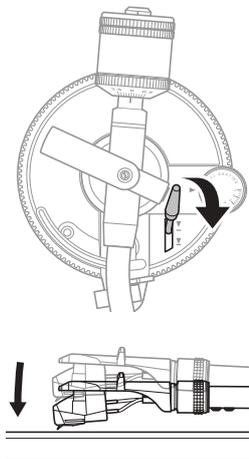
3. Position the tonearm over the desired location (groove) on the record.



Playing a record

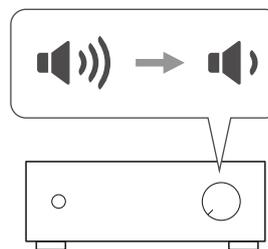
- Lower the tonearm by moving the tonearm lift control lever to the DOWN position. The tonearm descends slowly onto the record and play begins.

- Alternatively, you can skip steps 2 to 4, and use your fingers to lift the headshell, move the tonearm over the desired location on the record, and then place the headshell down to begin playing the record.
- Do not subject the product to strong impact during playback.

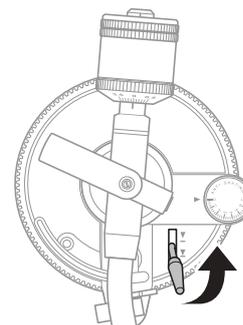


Stopping the record

- Lower the volume of the amplifier, speakers, etc. sufficiently.



- Lift the tonearm lift control lever.



- Return the tonearm to the tonearm rest and fix it with the clamp.

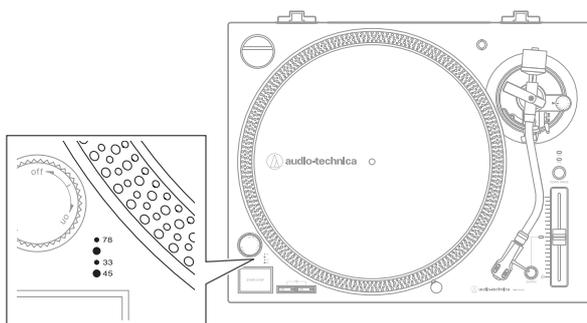


Checking and Adjusting Pitch

- If desired, select an 8 or 16% pitch adjustment range by pressing the tempo range button. Then move the pitch adjust slide control up or down to make pitch adjustments.

- The pitch adjust slide control has center detent position for 0% pitch variation.

- As illuminated by the red light coming from beneath the power dial, observe the strobe dots on the edge of the platter. If the appropriate row of strobe dots appears to be stationary, the platter is moving at the precise rated speed. If the dots appear to be moving to the right, the platter is moving below rated speed; if they appear to be moving to the left, the platter is moving above rated speed.



- If the quartz button is pressed, the internal quartz lock will hold the platter at precise rated speed regardless of the position of the pitch adjust slide control.

- If using the stylus target light, turn it off by removing it from the jack.
- Press the START/STOP button to stop the platter rotation.
 - The platter slows down and rotation stops.
- Turn the power dial to the OFF position.
- Remove the record after the platter has come to a complete stop.

- To prevent the record from becoming scratched or warped, remove it after use.
- Do not use a platter other than the one provided.
- If the product is not used for more than 30 minutes, it will enter a standby mode and the platter speed buttons will blink. To exit standby mode, press the START/STOP button, or turn the power dial to OFF then back to ON.

Pausing the record

- After lowering the volume of the amplifier, speakers, etc., sufficiently, lift the tonearm with the tonearm lift control lever.

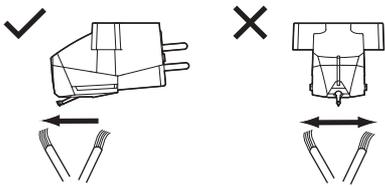
Care

Turntable body

- When the turntable body is dirty or dusty, first disconnect the AC adapter's cord, and then wipe off the dirt and dust with a soft, dry cloth.
- Do not use benzenes, thinners, etc.
- When storing the product for a long time, disconnect the AC adapter's cord from the outlet and wrap the equipment in plastic; do not allow it to become damp.

Stylus tip

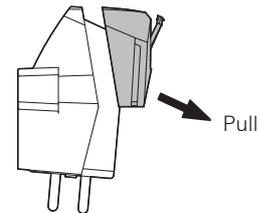
- If dirt and grime are stuck to the stylus tip, clean it before each use.
- We recommend using a stylus cleaner (sold separately) if the stylus tip is considerably dirty. Clean the stylus tip by moving the brush from the rear to the front of the stylus tip.



Replacing the stylus

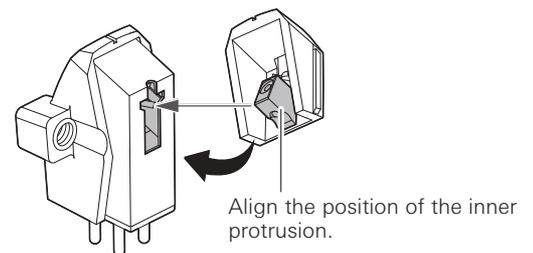
Removing the stylus

- In addition to the deterioration of sound quality, records may also be damaged as the cartridge's stylus tip wears down.
 - As a rule of thumb, replace the stylus after 300 hours of use.
 - Be sure to disconnect the product's AC adapter from the outlet.
1. Release the headshell from the tonearm.
 - Fix the tonearm with the clamp and then remove the headshell gently.
 2. After removing the cartridge's protector, remove the stylus by pulling in the direction of the arrow without touching the cantilever, stylus tip, and magnets.



Installing a new replacement stylus

1. Mount the new replacement stylus to the cartridge.

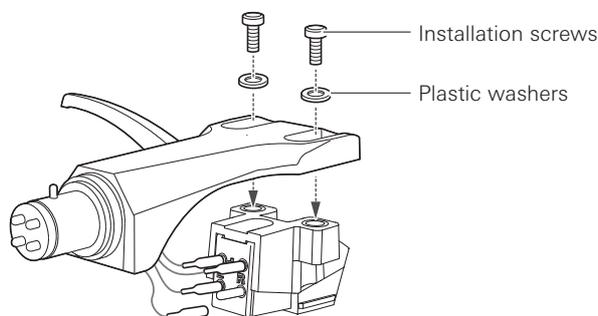


2. Mount the headshell onto the tonearm.

Replacing a cartridge

Refer to the user manual for the cartridge that you will be using if you are replacing the cartridge (AT-VM95E) included with this product with another, commercially available cartridge. After you replace the old cartridge with a new one, you must readjust the overhang and the tonearm's balance and tracking force.

1. **Release the headshell from the tonearm.**
 - Use the clamp to secure the tonearm and then remove the headshell gently.
2. **Remove the stylus from the cartridge.**
3. **Remove the lead tips.**
 - Be careful not to damage the lead tips.
4. **Using a commercially sold, non-metallic slotted screwdriver, remove the installation screws, and then remove the cartridge from the headshell.**
5. **Refer to the user manual for the new cartridge for mounting instructions and connecting to the lead tips.**



6. **Using a commercially sold, non-metallic slotted screwdriver, tighten the screws in both places, and then adjust the overhang.**
 - After the adjustments are complete, tighten the screws securely.
7. **Attach the headshell to the tonearm.**
8. **Adjust the tonearm balance and tracking force.**
 - Refer to "Setting tonearm balance" and "Setting tracking force" on p. 7.

When the turntable is moved

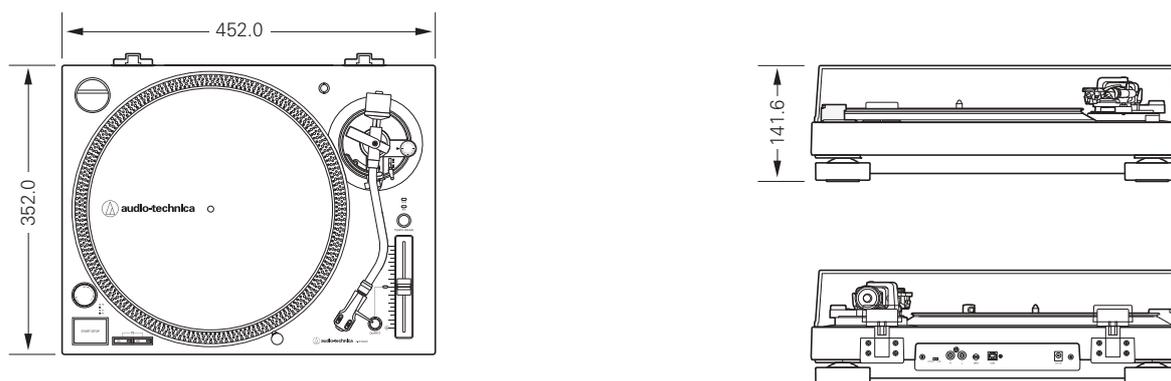
Using the product's original packing materials, wrap the turntable in the reverse order from when you unwrapped it. If you do not have the packaging materials, take the following measures:

- After unplugging the AC adapter from the outlet, remove the platter, and then wrap it so that it does not get damaged. If the product is moved while the platter is still seated, it may damage the spindle.
- Fix the tonearm with the clamp.
- Remove the counterweight.
- Remove the headshell from the tonearm with the cartridge's protector attached, and then wrap the entire headshell assembly so that it does not get damaged.
- Wrap the turntable body with a soft cloth so that it does not get damaged.

Troubleshooting

Problem	Solution
The platter does not spin.	<ul style="list-style-type: none"> • Is the AC adapter connected to the outlet? Connect AC adapter to the outlet. • Has the AC adapter's plug come off? Check whether or not the plug is properly attached to the AC adapter.
The platter spins, but there is no sound or the volume is not loud enough.	<ul style="list-style-type: none"> • Is the cartridge's protector still in place? Remove the cartridge's protector. • Is the tonearm in the lift position? Lower the tonearm. • Are the function settings and input for connected equipment (amplifier, etc.) selected correctly? Check whether the settings for the connected equipment are correct. • Is the stylus damaged? Check the stylus and replace it, if necessary. • Is the stylus placed correctly on the body of the cartridge? Check the cartridge and adjust it, if necessary. • Are the setting positions for the pre-amplifier selector switch correct? Check that the pre-amplifier settings are correct, noting the following common problems and their causes: <ul style="list-style-type: none"> - If there is no sound, or if the volume is not loud enough, the product is set to the "PHONO" position and connected to the amplifier's AUX/LINE input. - If the volume is too loud or is distorted, the product is set to the "LINE" position and connected to the amplifier's PHONO input. • Is the tracking force set too heavy? Adjust the tracking force.
The stylus skips.	<ul style="list-style-type: none"> • Is the tracking force set too light or too heavy? Adjust the tracking force. • Is the anti-skate set improperly? Verify anti-skate is set for same value as cartridge tracking force. • Is the record warped? Check the record. • Is the record scratched? Check the record.
There is howling.	<ul style="list-style-type: none"> • Is the product picking up excessive vibrations from the floor, surfaces of the walls, or nearby speakers? Decrease the vibrations or mount the product on a surface that is not subject to the effects of vibrations. • Is the product mounted on an unstable surface? Check whether the surface on which the product is mounted is suitable.
There is noise when the record is playing.	<ul style="list-style-type: none"> • Is there dust on the cartridge's stylus tip? If dust is stuck to the stylus tip, clean it with a commercially sold brush.
The sound when the record is playing is either too fast or too slow.	<ul style="list-style-type: none"> • Are the speed settings for the product correct? Use the platter speed buttons to select the correct speed for the type of record being played. • Is variable pitch engaged? Depress quartz button or return pitch adjust slider to center detent position to engage quartz lock.
Moving pitch adjust slider produces no effect.	<ul style="list-style-type: none"> • If the LED next to the pitch adjust slider center detent position remains red when the slider is moved, quartz lock is engaged. Depress the quartz button to disengage the quartz lock and activate variable pitch. The LED should turn off.
Strobe dots are difficult to see and/or stylus illuminator is very dim.	<ul style="list-style-type: none"> • Excessively bright or fluorescent light interferes with strobe indicator. Hold hand, record jacket, etc. over strobe indicator to shield it from bright light.
Humming is heard during playback.	<ul style="list-style-type: none"> • Is the ground line connected correctly? Make sure the ground line is properly connected. • Is the headshell attached to the tonearm firmly? Make sure the locking ring is tight.

Dimensions



(Unit: mm)

Specifications

Turntable specifications

Type	3-speed, fully manual operation
Motor	DC servo motor
Drive method	Direct drive
Speeds	33-1/3 RPM, 45 RPM, 78 RPM
Turntable platter	Die-cast aluminum
Starting Torque	> 1.0 kgf.cm
Braking System	Electronic brake
Wow and flutter	< 0.2% WRMS (33 RPM) at 3 kHz
Signal-to-noise ratio	> 50 dB
Output levels	
“PHONO”	4 mV nominal at 1 kHz, 5 cm/sec
“LINE (MM)”	240 mV nominal at 1 kHz, 5 cm/sec
Phono Pre-amp gain	36 dB nominal, RIAA equalized

Tonearm specifications

Type	Static balanced S-shaped tonearm
Effective length	230.5 mm
Overhang	16 mm
Maximum tracking error angle	Less than 3°
Stylus pressure adjustment range	0 to 4 g
Applicable cartridge weight range	3.5 to 8.5 g

Cartridge and headshell specifications

Cartridge Model	AT-VM95E
Cartridge Type	VM
Recommended load impedance	47,000 ohms
Output voltage	4.0 mV (1 kHz, 5 cm/sec)
Stylus	0.3 × 0.7 mil bonded elliptical stylus
Cantilever	Aluminum pipe
Tracking force range	1.8 to 2.2 g (2.0 g standard)
Cartridge weight	6.1 g (0.22 oz)
Headshell model	AT-HS6
Headshell weight	9 g (0.32 oz) (including lead wire)
Headshell overhang adjustment	± 5 mm

USB function

A/D, D/A	16 bit 44.1 kHz or 48 kHz USB selectable
Computer interface	USB 1.1 Compliant Windows 7 or above, or MAC OSX or above

General specifications

Power supply requirements	100 to 240 V, 50/60 Hz, 1.5 A Max.
Power consumption	2.8 W
AC Adapter	12 V, 3 A
Dimensions	452.0 mm (17.80") × 352.0 mm (13.86") × 141.6 mm (5.57") (W × D × H)
Weight	8 kg (17.6 lbs) (without dust cover)
Accessories	Dust cover, Felt mat, Platter, Counterweight, Headshell (AT-HS6) with VM stereo cartridge (AT-VM95E), 45-RPM adapter, Stylus target light, Dust cover hinges, USB cable (1.9 m (6.2')), RCA audio cable (approx. 1.4 m (4.6')), AC adapter (approx. 1.3 m (4.3') (AD-SA1230WD)
Replacement stylus (sold separately)	AT-VMN95E
Replacement headshell (sold separately)	AT-HS6

Specifications are subject to change without notice due to improvements.

