

CARBON FIBER TONEARM

PA-1000

OPERATING INSTRUCTIONS

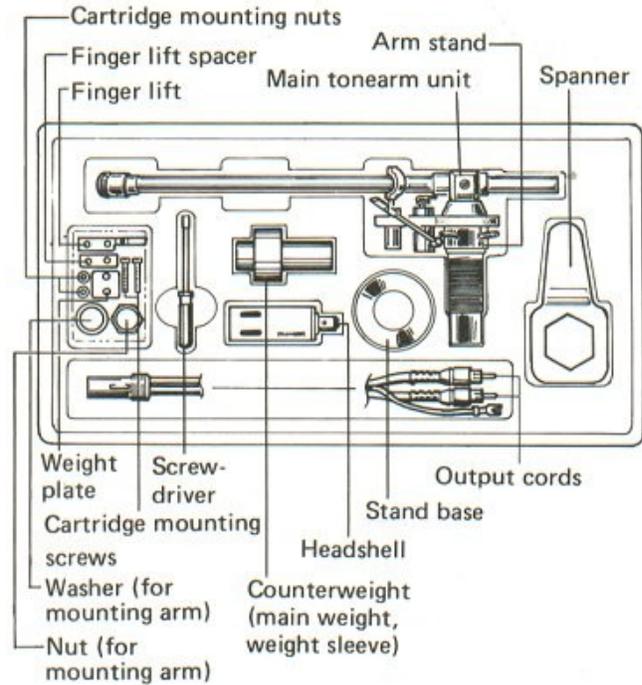


 PIONEER

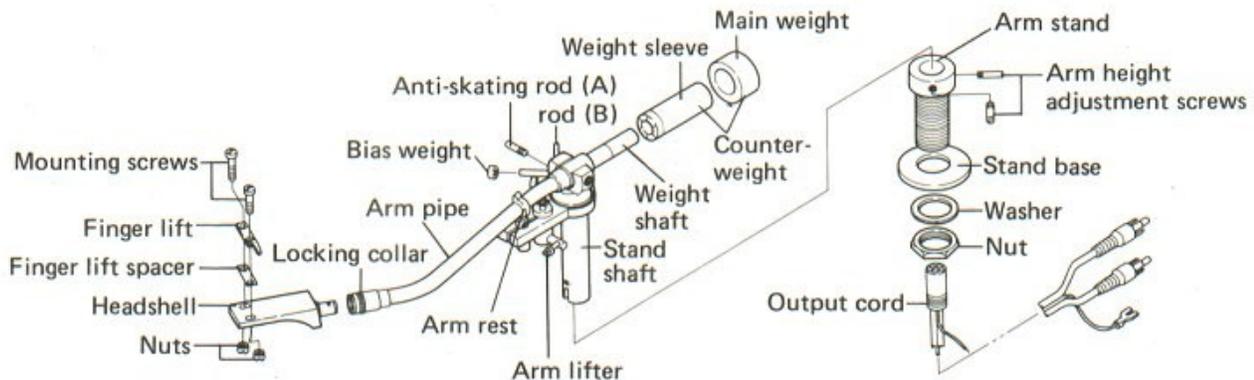
FEATURES

- The PA-1000 employs a super-lightweight and high-elasticity carbon fiber pipe arm which dramatically reduces inertia moment and markedly enhances tracing.
- The PA-1000 also features a universal-type headshell joint which is compatible with ordinary headshells.
- There is an angular contact bearing with an ultra-precision machined rotary shaft and bearing. The critically reduced wear in both the horizontal and vertical directions makes for high-sensitivity and high-performance tracing.
- Last but not least, the rod-type anti-skating mechanism incorporates an angular contact bearing. This insures that the horizontal sensitivity of the arm is in no way impaired and also that a stable anti-skating effect is obtained.

Check the accessory parts before assembly



ASSEMBLY FIGURE

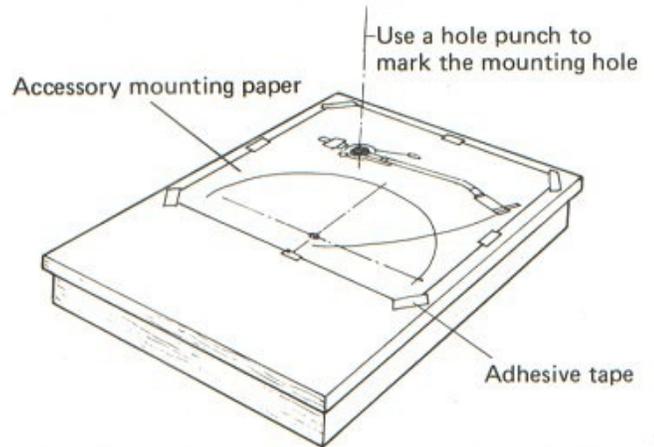


MOUNTING PROCEDURE

1 DETERMINING THE MOUNTING POSITION

Place the accessory mounting paper on the board and use it to determine the mounting position of the tonearm. The PA-1000's operating angle is 57°. Make sure that the tonearm has enough room to maneuver and cover all the grooves on the record, and also that the outer edge of the tonearm and the headshell's finger lift do not come in contact with the side of the turntable's dust cover.

Once you have decided on the mounting position, fix the paper to the board with adhesive tape. Use a hole punch to mark the mounting hole on the board, and then remove the paper.



Refer to the phonomotor's operating instructions when mounting the tonearm.

Fig. 1

2 DRILLING THE HOLE FOR MOUNTING THE TONEARM

Drill a 21mm diameter hole centered on the mark indicating the mounting hole on the board.

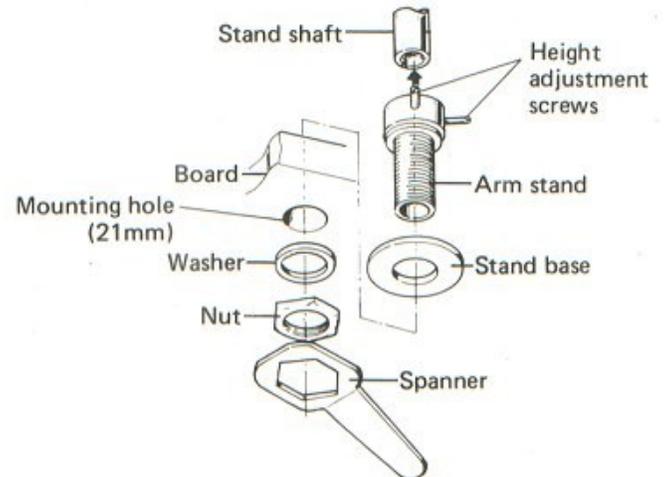


Fig. 2

3 MOUNTING THE ARM STAND

Use the accessory screwdriver to loosen the two height adjustment screws, and then remove the arm stand from the tonearm. Referring to Fig. 2, mount the arm stand onto the board. Tighten the nut so that the angles of the height adjustment screws are set to 45° when looking directly down onto the board (Fig. 3).

NOTE:

Choose a mounting board with a thickness ranging from 15 to 24mm and one which is not warped or defective.

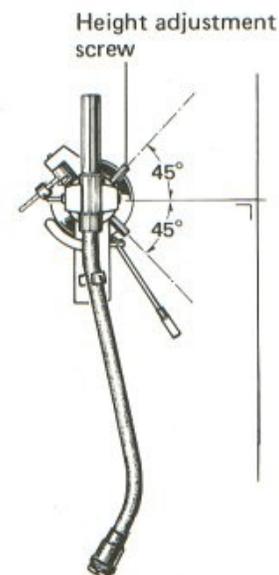


Fig. 3

4 MOUNTING THE TONEARM (Fig. 3)

Insert the stand shaft into the arm stand which you have mounted on the board. And secure with the two height adjustment screws.

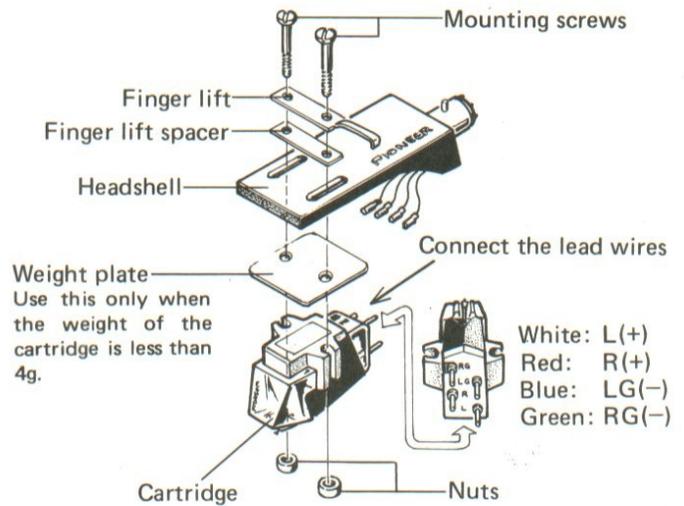


Fig. 4

5 MOUNTING THE CARTRIDGE

Attach your cartridge, the finger lift and spacer to the accessory headshell at the same time (see Fig. 4). Leave the mounting screws loosely tightened because the overhang will have to be adjusted later. If the weight of your cartridge is less than 4g, insert the accessory weight plate between the headshell and the cartridge beforehand. Connect the cartridge and the headshell with the lead wires. Next, insert the headshell into the end of the tonearm and secure with the locking collar (Fig. 5).

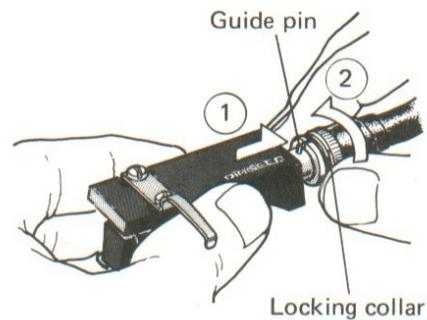


Fig. 5

6 MOUNTING THE MAIN WEIGHT

Slip the counterweight over the end of the weight shaft. As shown in Fig. 6, the counterweight includes both the main weight and the weight sleeve. Slip the main weight onto the near end of the weight sleeve and then mount.

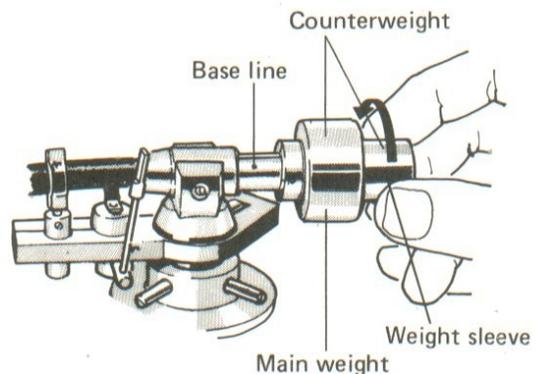


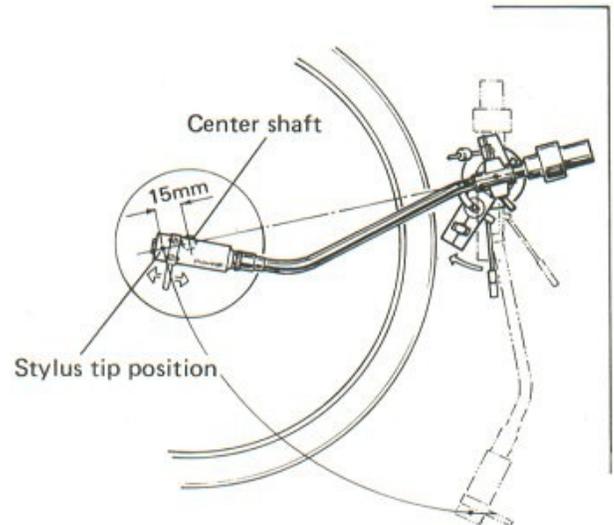
Fig. 6

ADJUSTMENT PROCEDURE

1 ADJUSTING THE OVERHANG

Loosen the arm height adjustment screws and move the tonearm so that the headshell comes as far as the center shaft. Then, tighten the screws.

To adjust the overhang, first bring the headshell as far as the center shaft (Fig. 7). The overhang of the PA-1000 is 15mm. Slide the cartridge forward or backward and adjust so that the overhang is 15mm. Then, tighten the screws on top of the headshell. Make sure that the cartridge is not tilted at all when it is mounted. After you have adjusted the overhang, return the tonearm to its original position (Fig. 3) and then secure with the height adjustment screws.



NOTE:

Do not move the arm to the center shaft without loosening the arm height adjustment screws or this will strain the tonearm shaft.

Fig. 7

2 ADJUSTING THE HORIZONTAL BALANCE

To adjust the horizontal balance, first lower the arm lifter and remove the stylus cover. Take the tonearm off the arm rest and choose a position which is not affected by anti-skating. Adjust as follows (Fig. 8).

Slide the main weight to the front end of the weight sleeve. Then turn the weight sleeve and balance. If you still cannot achieve a balance, slide the main weight back about 2mm, and then turn the weight sleeve again and adjust the balance. Repeat this process until you reach perfect balance. You can move the main weight without turning the set screw.



Fig. 8-A: Tonearm properly balanced

To adjust the horizontal balance, set the arm pipe so that it does not incline toward the main weight side or the headshell side.

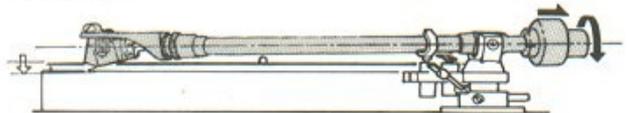


Fig. 8-B: Headshell end is too heavy. Turn the counterweight in the direction of the arrow.



Fig. 8-C: Counterweight end is too heavy. Turn the counterweight in the direction of the arrow.

3 ADJUSTING THE ARM POSITION

Adjusting the position of the arm rest base when you mount the PA-1000 to the Pioneer turntable PLC-590 by using the PLC-590's accessory machined mounting board, you will need to re-adjust the angle of the tonearm's arm rest base slightly.

Please follow the instructions below. This adjustment, however, is not necessary when you attach the PA-1000 by using PA-1000's accessory mounting paper.

Adjusting the angle of the arm rest base

Place a 30cm record on the platter. Lower the arm lifter and allow the stylus tip to settle gently into the outside record groove. Loosen the height adjustment screws and adjust to a position which permits anti-skating rod operation (position where the rod (A) & (B) touch each other. See Fig. 9).

Apply a small amount of tracking force when the stylus tip is not lowered completely onto the record.

Adjusting the height of the arm

Place a record on the platter. Lower the arm lifter and allow the stylus tip to settle gently down on to the record. Take care not to disturb the above adjustment of tonearm's arm rest base. Loosen the height adjustment screws and adjust the height of the arm so that the arm pipe is parallel with the record surface (See Fig. 10).

If you find that the phonomotor is not high enough and you cannot adjust it properly (the range of the PA-1000's height adjustment is 40~65mm), remove the stand base which allows you to make the tonearm about 3mm lower.

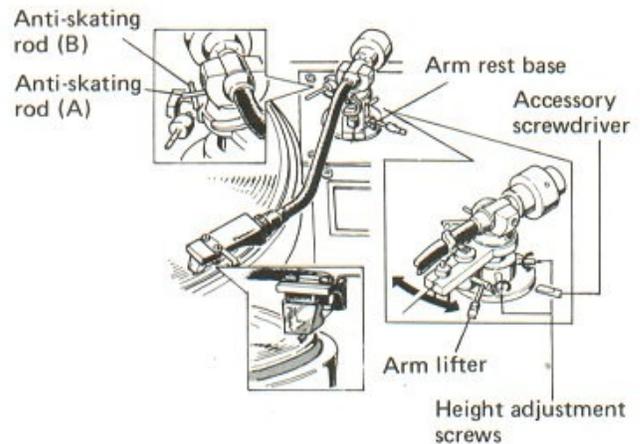


Fig. 9

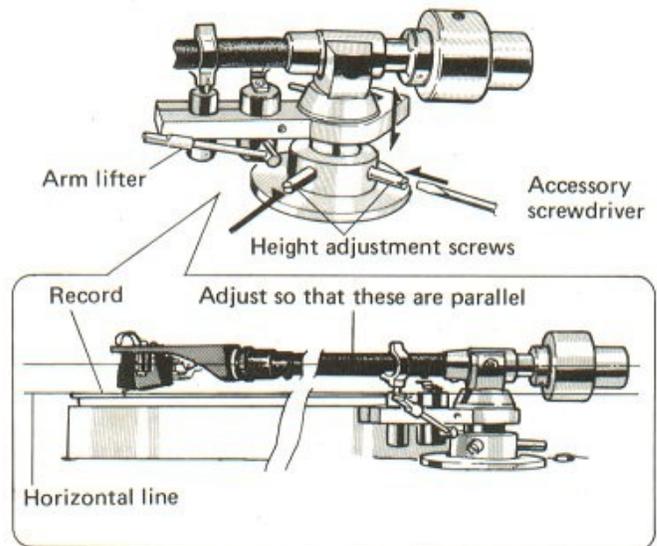


Fig. 10

CONNECTING THE OUTPUT CORDS

- Connect the output cords to the tonearm's stand shaft (see Fig. 11). Align the guide pin on the output cord connector with the slit in the end of the stand shaft, and then insert. The short black wire protruding from the connector is the ground wire for the phonomotor.
- Connect the other end of the output cords to the input terminals on the stereo receiver (amplifier). The white plug (L) is connected to the left channel, and the red plug (R) to the right channel. The black wire with the metal contact at the end is the ground wire. Connect it to the receiver's ground terminal.

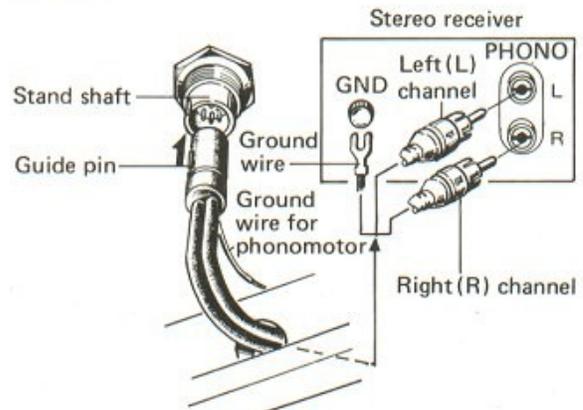


Fig. 11

ADJUSTING THE TRACKING FORCE

First, check for correct horizontal balance. When properly balanced, the tracking force is zero, and so all you have to do is turn the tracking force scale ring and align the red line with the index line on top of the weight shaft. To increase the tracking force, turn the weight sleeve in the direction of the arrow in Fig. 12 and align the scale ring gradation with the index line on the top of the weight shaft. The scale ring's gradations come in 0.5g steps, and a single turn is equivalent to increasing the tracking force by 3g. Adjust to the correct tracking force of your cartridge.

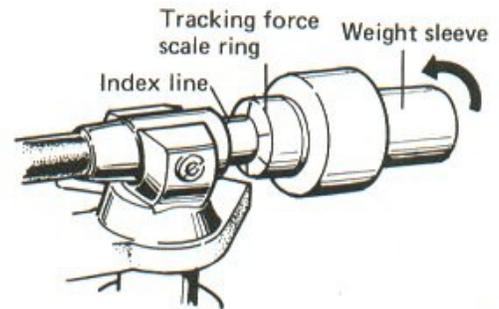


Fig. 12

ADJUSTING THE ANTI-SKATING

The anti-skating value differs according to the tracking force. To adjust, change the position of the bias weight on the bias rod. This is a click-stop bias weight. Make sure you feel it click when adjusting, and then you will know the exact value of the weight being applied at that position. There is no need to loosen the bias weight screw.

Anti-skating settings (Fig. 14)

Tracking force	Bias weight position
0.5g ~ 1.0g	Remove the bias weight.
1.0g ~ 1.5g	Set bias weight to (1).
1.5g ~ 2.0g	Set bias weight to (2).
2.0g ~ 2.5g	Set bias weight to (3).
2.5g ~ 3.0g	Set bias weight to (4).

If you want to eliminate anti-skating use the accessory screwdriver to remove the anti-skating rod (A). When re-mounting this rod, make sure that it goes in between the anti-skating rod (B) and the bias rod.

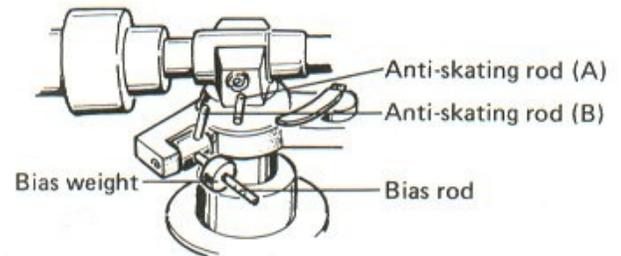


Fig. 13

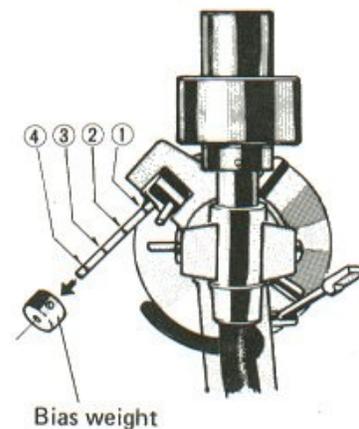


Fig. 14

OPERATION

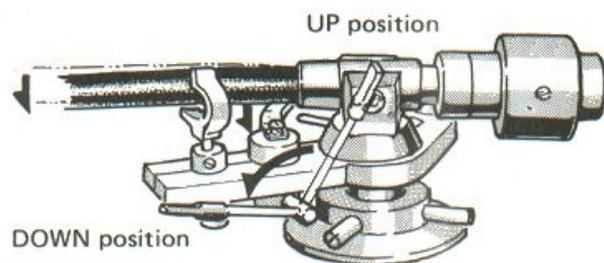


Fig. 15

- 1 Check that the arm lifter is set to the UP position, where it should be kept when you are not playing a record, or before playing a record.
- 2 Move the tonearm to the position over the record which you want to hear.
- 3 Set the arm lifter to the DOWN position. The stylus is gently lowered onto the record and the record begins to play.
- 4 Set the arm lifter gently to the UP position when you want to stop the play part of the way through the record, or after record play. The stylus will be raised.
- 5 Secure the tonearm to the arm rest.

SPECIFICATIONS

Type	Static-balance type, S-shaped, carbon fiber reinforced plastic pipe arm
Effective Arm Length	237mm
Overhang	15.0mm
Offset Angle	21°40'
Tracking Error	+2°, -1°
Variable Range of Tracking Force	0 to 3g
Variable Height Range	40 to 65mm
Headshell	Plug-in type
Usable Cartridge Weight	4g(min.) to 15g(max.)
Subfunctions	Anti-skating force control Arm elevation device Arm height adjusting device
Accessories	Low capacitance output cord; 1 Mounting paper; 1 Spanner; 1 Screwdriver; 1 Cartridge mounting screws, nuts, washers, and weight plate; 1 set

NOTE:

Specifications and the design subject to possible modification without notice due to improvements.

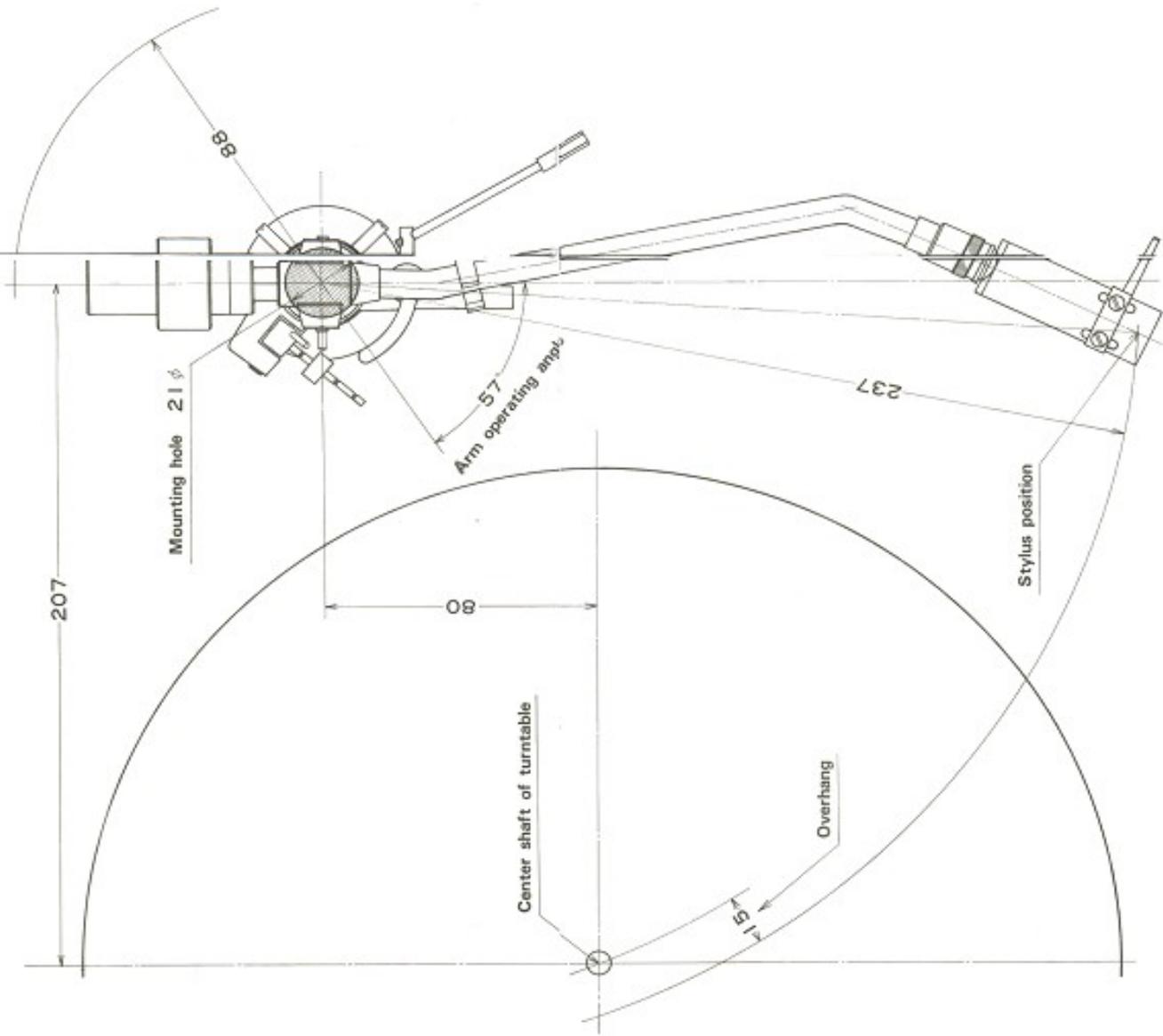
OPERATING PRECAUTIONS

- Support the tonearm firmly when you want to change over the headshell or else you will strain the tonearm shaft.
- There is no need to lubricate.

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PA-1000 MOUNTING PAPER

Unit : mm



USING THE MOUNTING PAPER

- Be sure to read the instructions booklet before you attempt to attach the mounting paper.
- Place the paper on the board on which the PA-1000 is mounted. Make ample allowance so that the tonearm does not come into contact with the dust cover while records are playing.
- Once you have determined the position, stick the paper to the board with adhesive tape and mark the position of the hole which you are going to drill into the board.
- Drill the hole for mounting.
- Assemble the PA-1000 according to the instructions laid down in the instructions booklet.
- Remember that the mounting paper size may differ from the actual size since it may expand or contract due to the humidity. Make allowances for this when drilling the hole.

Example of drilling the hole

