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DYNAMIC BALANCE TONEARM

MA-505

OPERATING MANUAL

MICRO SEIKI

Parts nomenclature

Photo 1

List of parts supplied

1. Counterweight (main)
2. Sub-weight
3. Lateral balance weights (large and small)
4. Headshell
5. Overhang gauge
6. Screwdriver
7. Installation screws
8. Six-sided wrench
9. Output lead

Photo 2

Tonearm installation

• Tonearm installation

1) Using the template provided, decide on the positioning of the tonearm on the motor-board as illustrated in photo 3. The exact method of using these templates (A and B), is explained in detail on the back of template A.

Caution: When selecting the tonearm installation take care that the position chosen does not interfere with the drive motor, but instead will allow smooth operation.

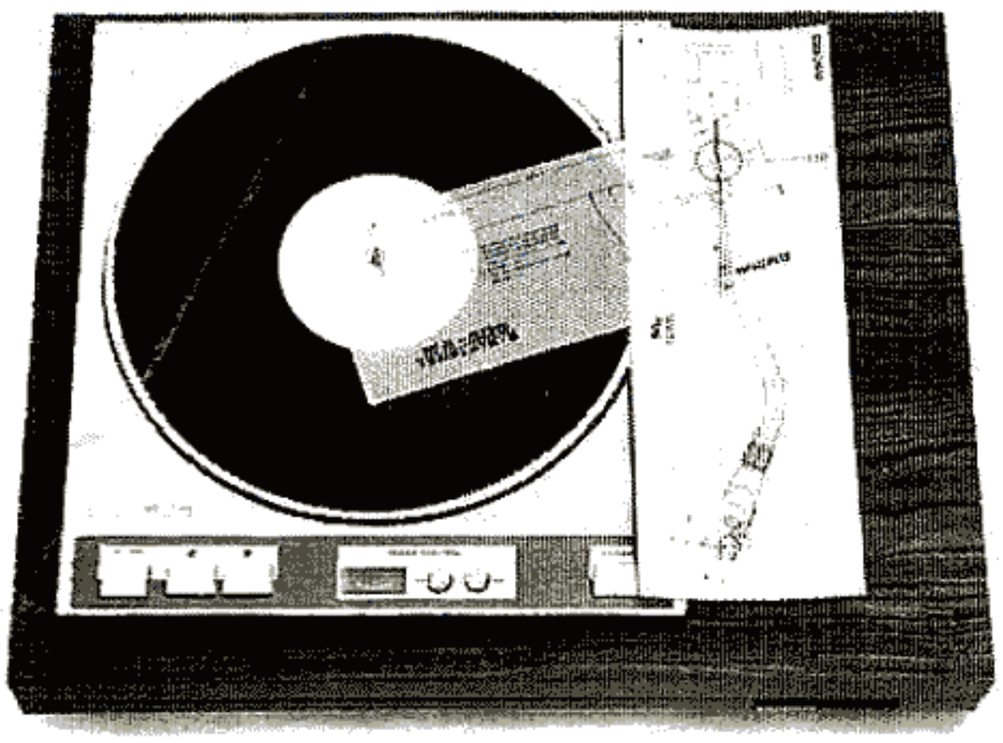


Photo 3

2) Once the location has been fixed, cut holes, using a drill, for the arm base (28 mm wide) and for the installation screws (3 mm wide). The screws used to secure the base are 10 mm long.

3) Remove the tonearm from its packing box and then loosen and detach it from its retaining board, taking care not to lose or misplace the six-sided nut or the retaining screws which will be required for installation (see fig. 1).

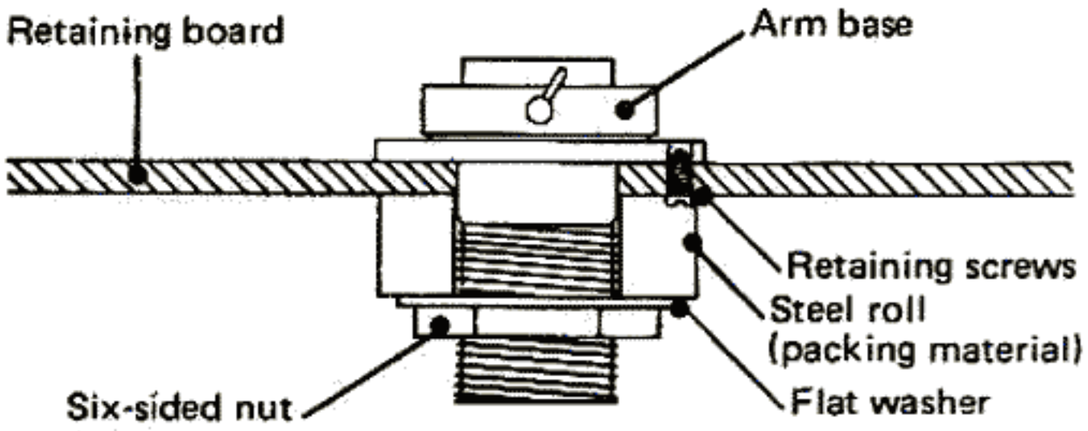


Fig. 1

4) Lead the output lead through the motor-board from below and plug the jack into the groove in the center shaft of the arm as shown in photo 4.

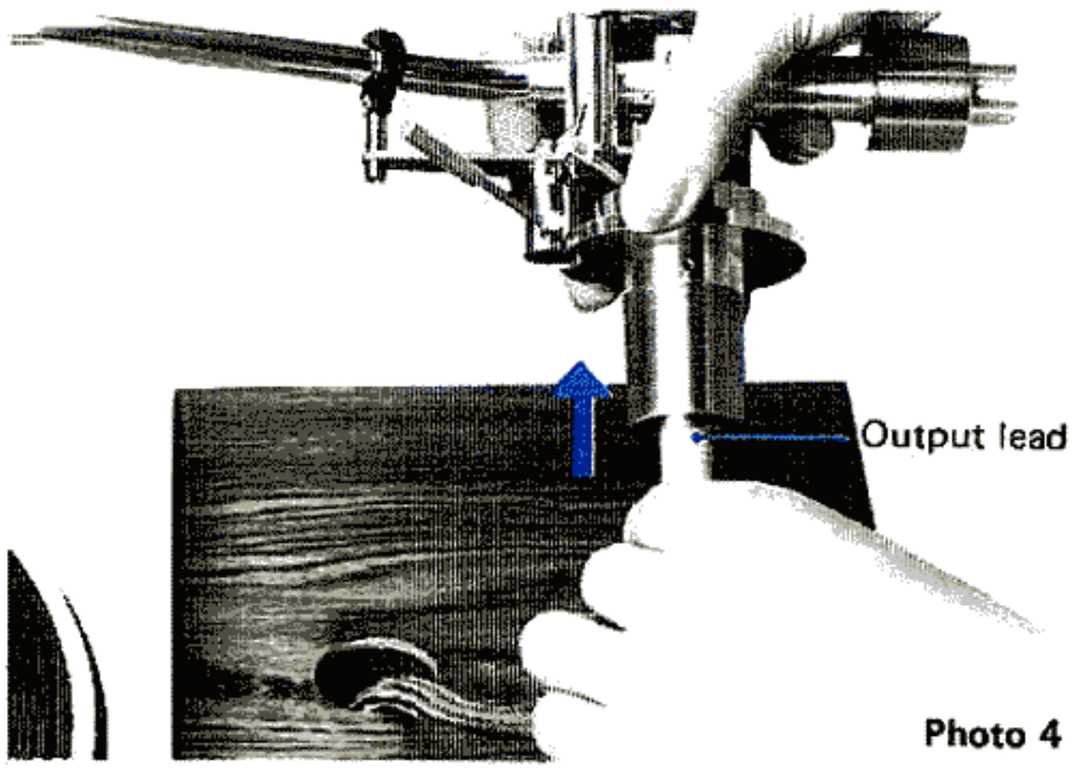


Photo 4

5) Insert the tonearm into the installation hole as shown in fig. 2. Then secure the retaining screws from above. Next secure the base by tightening the nut on the underside of the motorboard. When a board of more than 30 mm thickness is used, cut the hole on the underside as pictured in fig. 3, then install the arm.

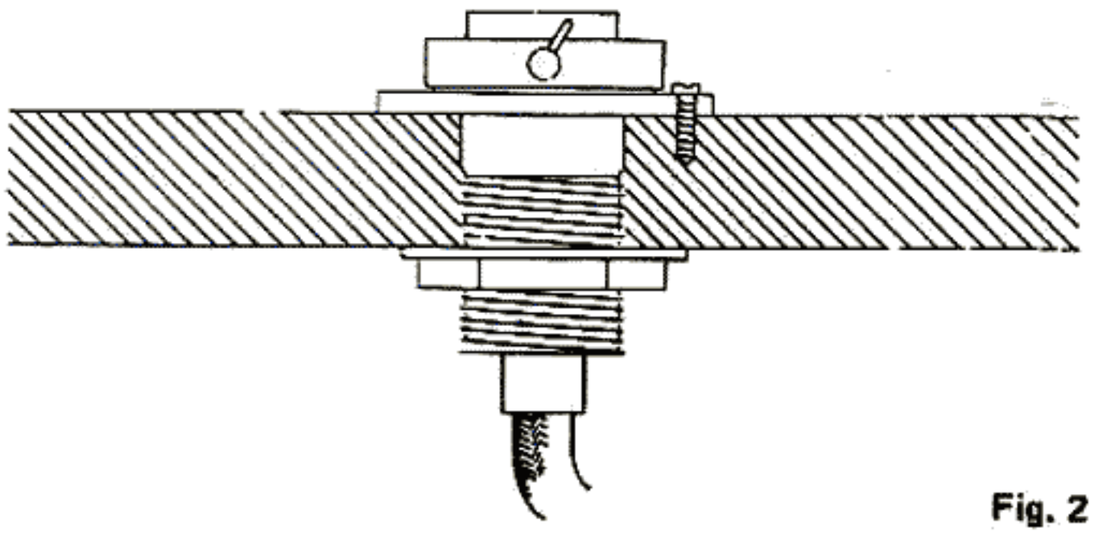


Fig. 2

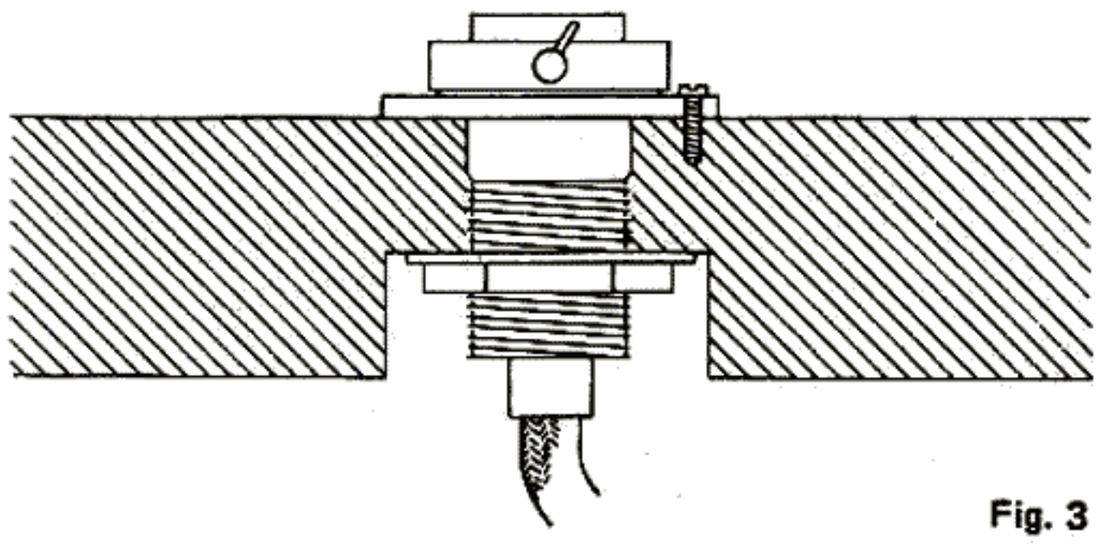


Fig. 3

Tonearm assembly

• Cartridge installation and adjustment

1) Installation

Install the cartridge into the headshell provided using screws of a suitable length (see fig. 4).

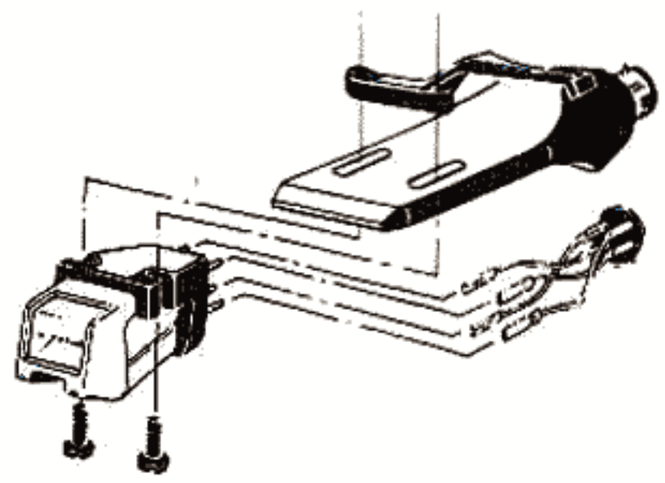


Fig. 4

2) Cartridge connection

Connect the headshell leads to the cartridge using tweezers as shown above. Take care to make these connections correctly as error will lead to hum or output signal failure. The colors of the leads are as follows:

White	Left channel (+)
Blue	Left channel (–)
Red	Right channel (+)
Green	Right channel (–)

3) Overhang adjustment

The MA-505 is designed to operate with minimal tracking error when the overhang is 15 mm. In order to adjust the cartridge correctly, place the enclosed overhang gauge over the headshell as shown in photo 5. Loosen the cartridge securing screws and align the stylus to the ▼ marks on the gauge by moving the cartridge either forward or backward. When a different cartridge is installed in the headshell, be sure to readjust, using the method described above.

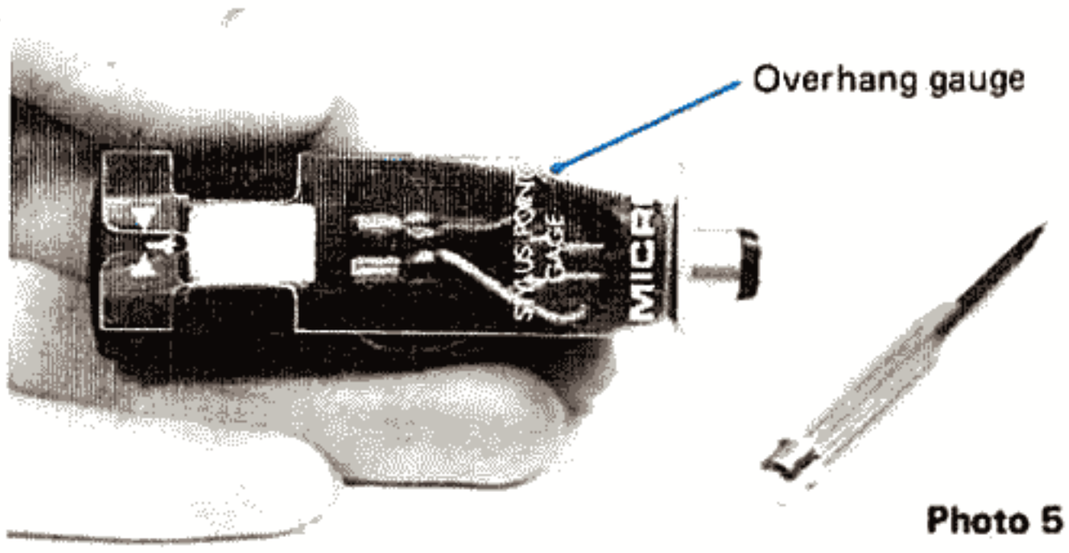


Photo 5

• Tonearm assembly

Secure the tonearm in the arm rest. Then mount the counterweight onto the end of the tonearm shaft, turning it in the direction shown in photo 6.

Photo 6

Next, without exerting undue pressure on the tonearm rotation section, insert the headshell into the front-end of the tonearm shaft and secure it by turning the lock nut.

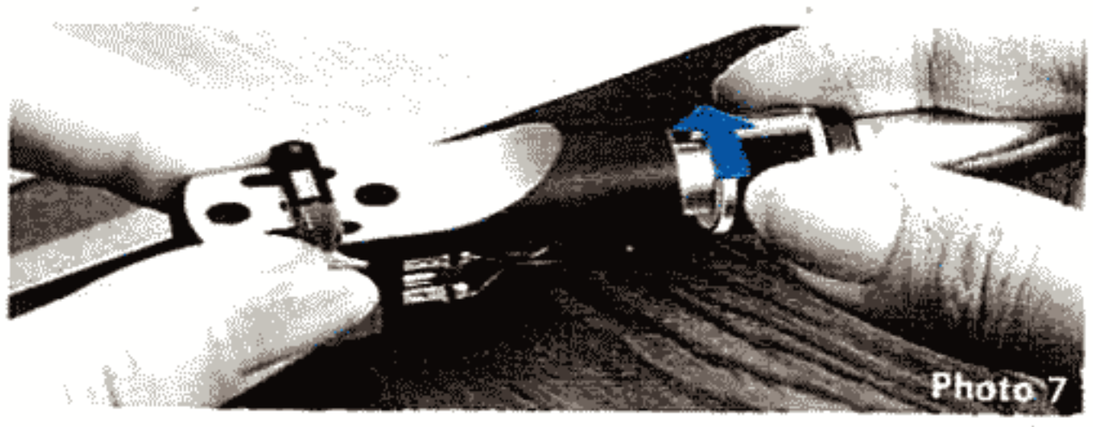


Photo 7

• Tonearm height adjustment

With the arm lift lowered, place the tonearm over a record. Then, watching from the right side of the unit, observe whether the tonearm and the record surface are approximately parallel. Adjust the height as required by loosening the height adjusting screws. Next, once again place the tone arm over the record and loosen the height adjustment lever. Move it to the left and right to obtain fine height adjustment.

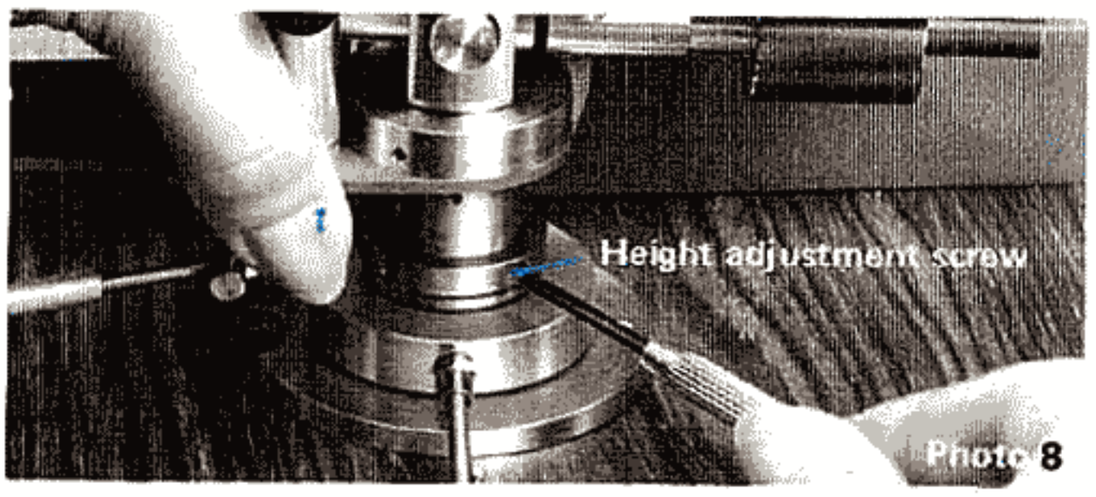


Photo 8

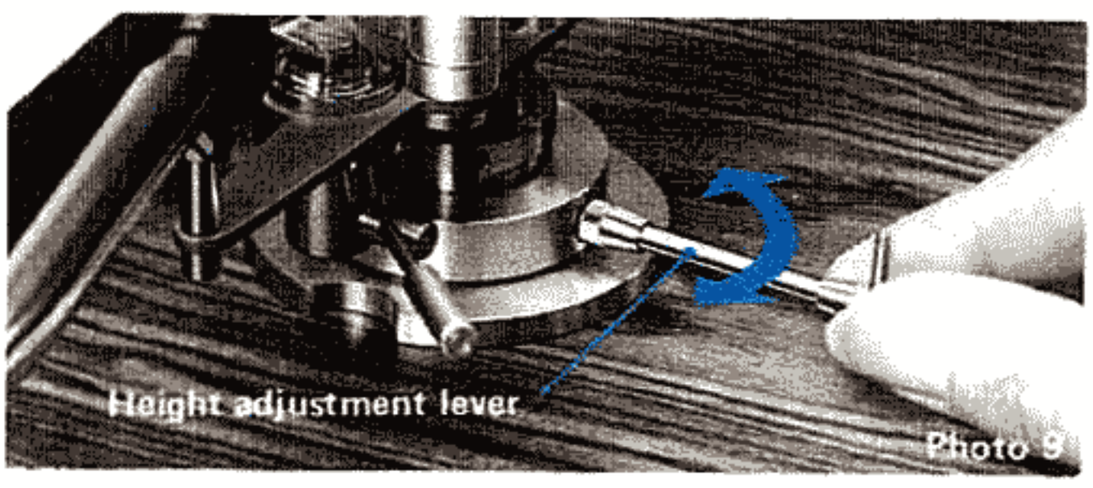


Photo 9

Tonearm abjustment

• Balancing

1) Adjust the green dot on the tracking force adjustment knob scale to the tracking force level line as illustrated in photo 10. (Thus set, the tracking force is zero.)

2) Turn the anti-skating regulation knob in an anti-clockwise direction, as shown by the arrow in photo 10, until it stops.

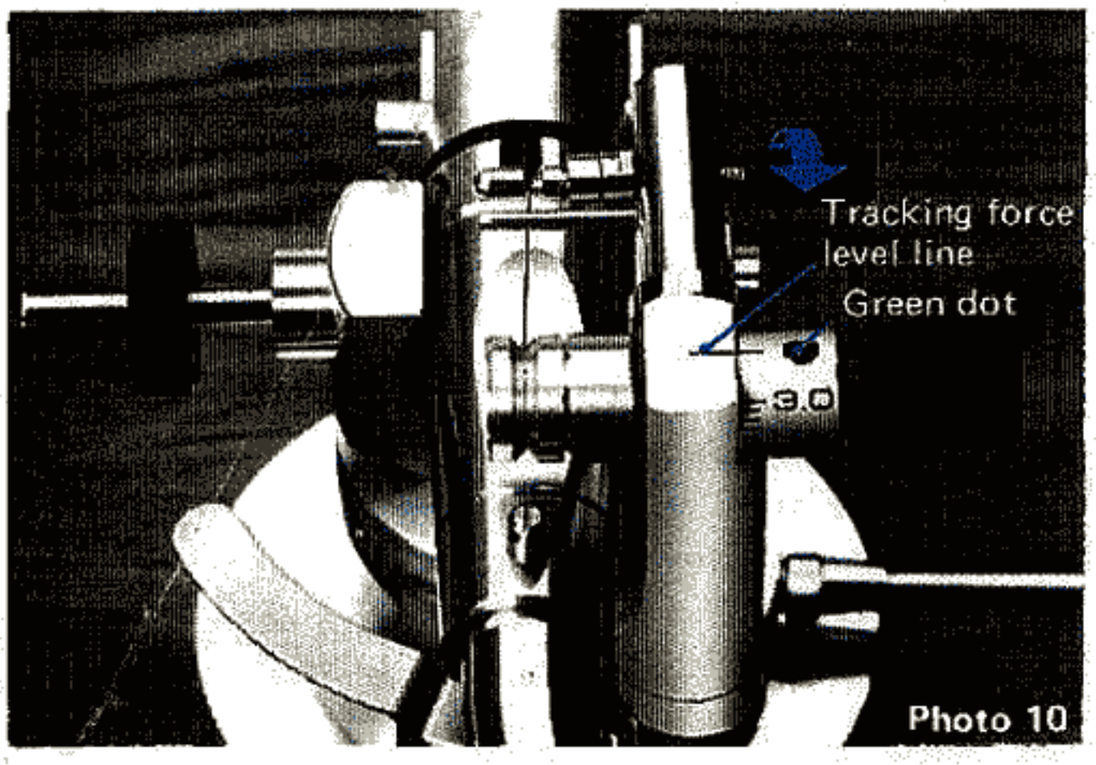


Photo 10

3) Lower the arm lift lever as pictured in photo 11, then release the tonearm from the arm rest. The arm rest is provided with a locking device which should be released before using the tonearm by moving it in the direction indicated by the arrow in fig. 5.

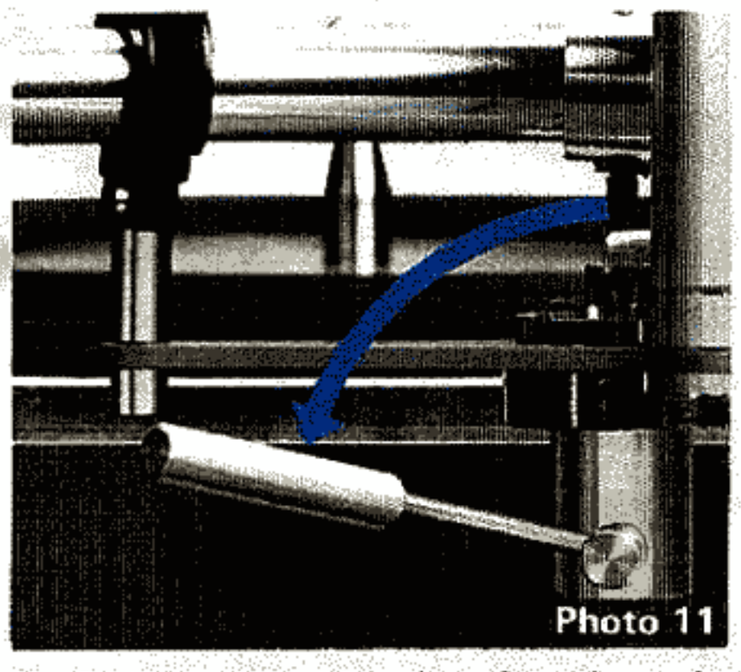
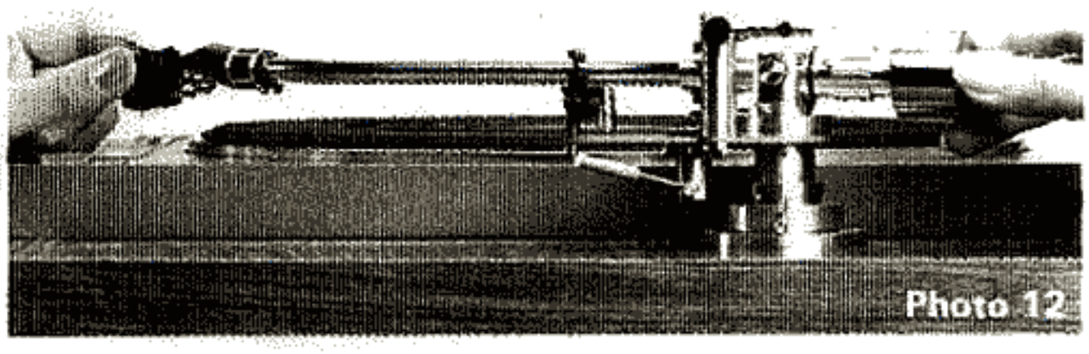

Photo 11

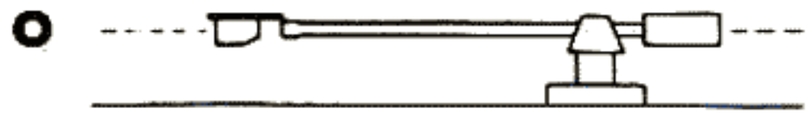

Fig. 5

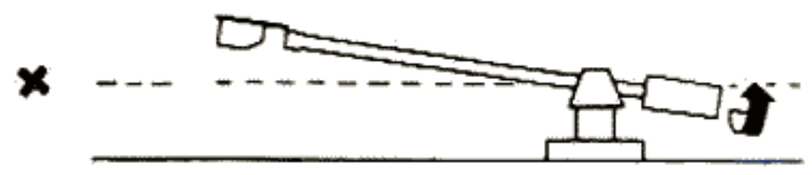
4) Supporting the headshell and counterweight as illustrated in photo 12, turn the counterweight, moving it backward or forward, until the proper balance is achieved.

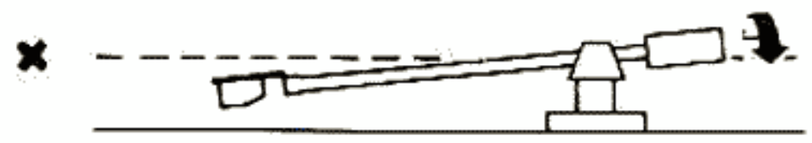

Photo 12

5) Tonearm balance is achieved when (1) the cartridge weight and counterweight cancel each other out; and (2) on release, the tonearm adopts the position shown in fig. 6.

The example in fig. 7 illustrates too much weight at the counterweight end of the tonearm shaft. Turning the counterweight in the direction indicated will achieve correct balancing. On the other hand, the example in fig. 8 shows too little weight at the counterweight end of the tonearm shaft. Turning in clockwise direction as indicated will rectify this imbalance.


Fig. 6


Fig. 7


Fig. 8

• Lateral balancing

When the player unit is perfectly level there are no problems whatsoever regarding lateral balancing. If, however, the player is slightly tilted the stylus tip becomes subject to lateral pressure similar to that of inside force. This condition results in uneven tracking force and can become a source of distortion. It is therefore important to achieve correct lateral balance. Lateral balance may be obtained by following these steps:

1) Set the tracking force level to zero.

2) Plug the large lateral balance weight onto the lateral shaft as shown in photo 13.

3) Raise the rear of the player unit and observe the direction in which the tonearm travels. Slide the lateral balance weight along the shaft in the same direction until the tonearm stops moving.

4) Tighten the lock screws to secure the lateral balance weight(s).

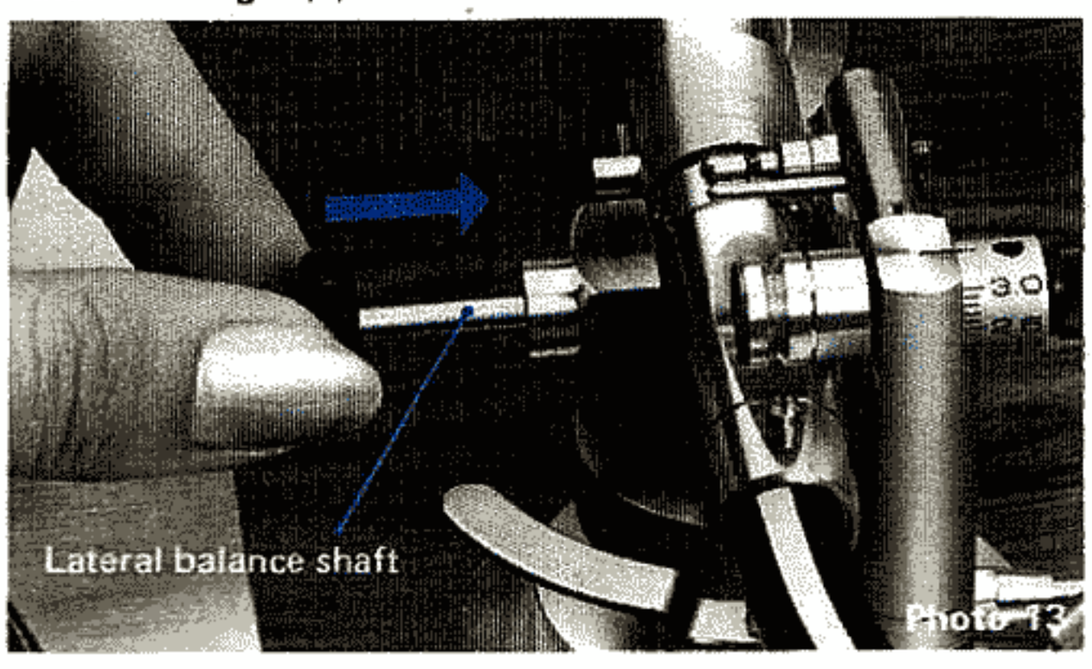


Photo 13



Photo 14

• Application of tracking force

Turn the tracking force adjustment knob and set a value which is suitable for the installed cartridge to the tracking force level line. If, for example, the cartridge to be used operates at a tracking force of 1.5 grams, turn the adjustment knob until the 1.5 mark on the scale is opposite the level line (see photo 15).

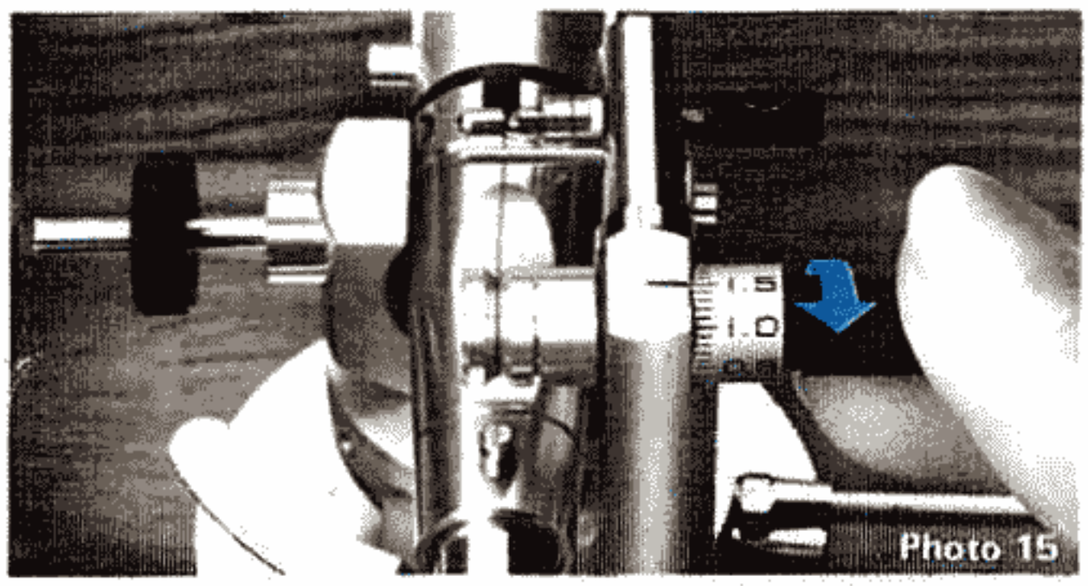


Photo 15

• Regulation of the anti-skating mechanism

The MA-505 anti-skating device can be regulated to conform with stylus tip configurations. When the cartridge to be used has an elliptical stylus, turn the anti-skating regulation knob until the red line on the anti-skating shaft is aligned with that inscribed on the wire guide (see photo 16 and fig. 9). With a spherical stylus align the blue line on the shaft to that on the wire guide. Set this way, corresponding outside force is added, rendering re-regulation unnecessary even when the tracking force is changed.

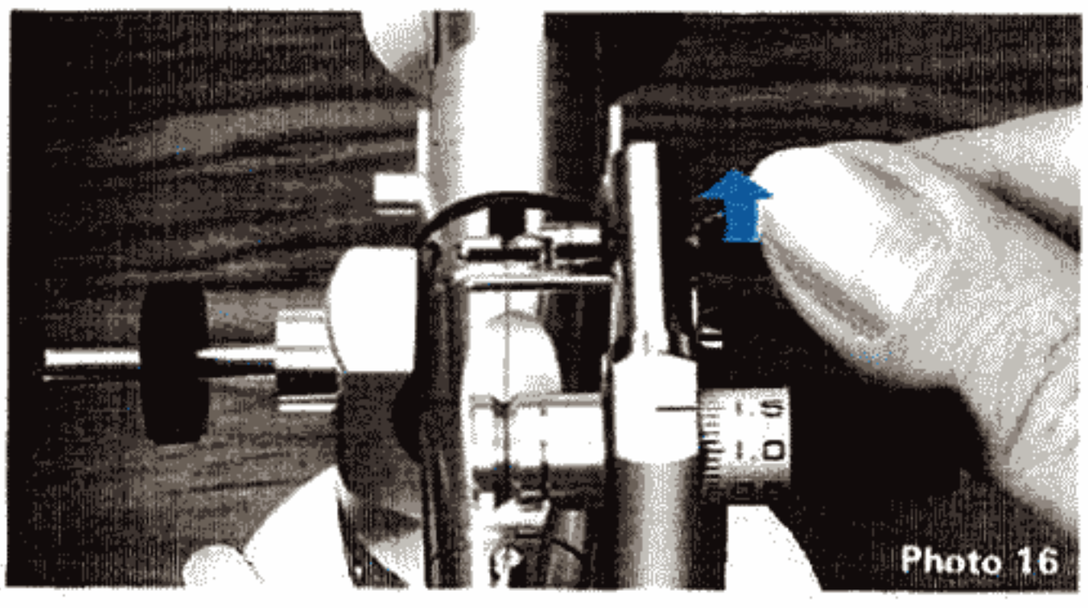


Photo 16

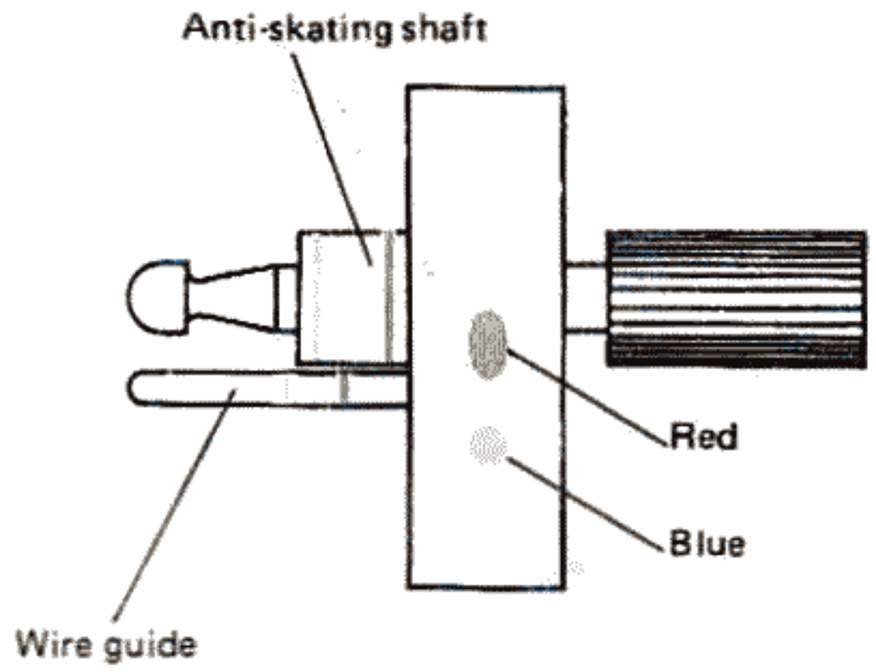


Fig. 9

• Adjustment of the arm lifter operation range

Raise the arm lift lever and move the tonearm to a point above the record surface. Determine whether the distance between the stylus and the record surface is adequate. If necessary, regulate the adjusting screw as illustrated in photo 17.

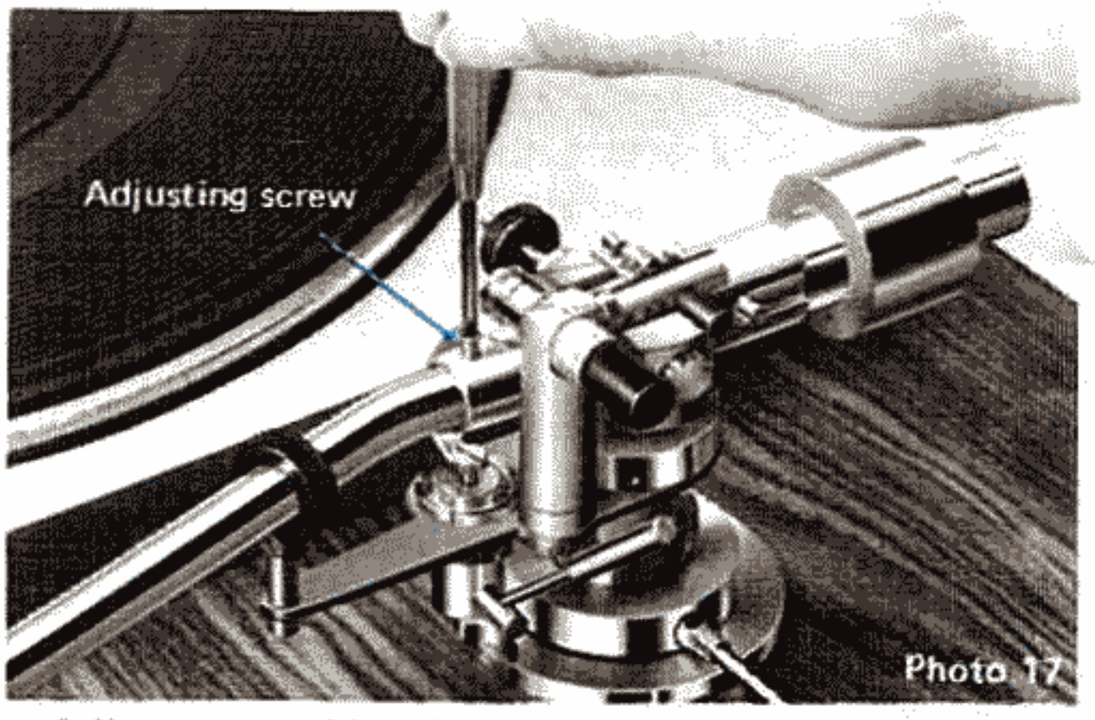


Photo 17

• Adjustment of headshell tilt

If there is headshell tilt after shell change-over, remedy this condition by loosening the clamp screws and correcting the faulty tilt as shown in photo 18. Caution: Do not adjust or tamper with these clamp screws unless necessary.

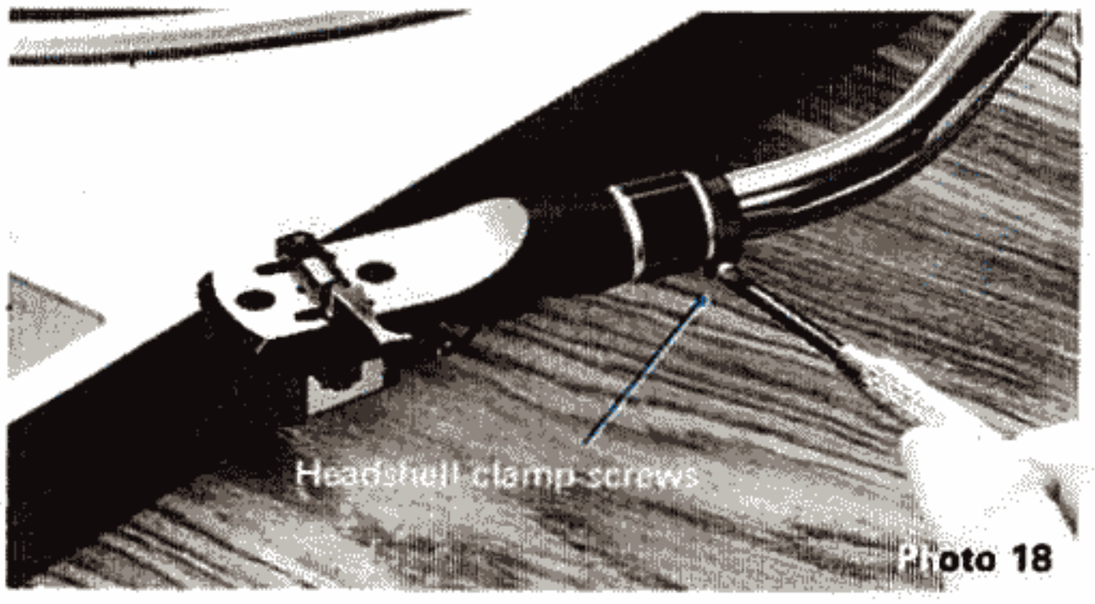


Photo 18

MA-505 features and mechanism

■ MA-505 dynamic balance tonearm for low tracking force

The MA-505, an ideal dynamic balance type tonearm, permits tracking force to be applied linearly during playback. The spring tracking force application system which allows linear tracking force adjustment between 0.25–3 grams, is totally uninfluenced by factors such as turntable location conditions or record pressings. Furthermore, at low tracking force settings, the tracking is exceptionally stable – resulting in unsurpassed performance with high compliance cartridges.

Precision spring and tungsten wire ensure long life and unchanging accuracy.

■ The MA-505 tracking force application spring and tungsten wire ensure lasting quality without the deterioration problems typical of conventional dynamic tonearms.

Set at a tracking force of 3 g, the force applied to the spring is equal to 15 kg/mm^2. The MA-505's spring however, with a breaking point of 45 kg/mm^2, provides an ample reliability margin. Moreover the greatest force applied to the tungsten wire is 65 g; but again, this wire is tested to 4.5 kg, a fact which eliminates snapping or stretching problems.

■ The MA-505 tonearm incorporates many revolutionary features

Tracking force adjustment mechanism

The tracking force adjustment mechanism, independent of the tonearm rotation section, can even be regulated during playback. Thus a tracking force most suited to the listening room conditions can be selected.

Anti-skating device

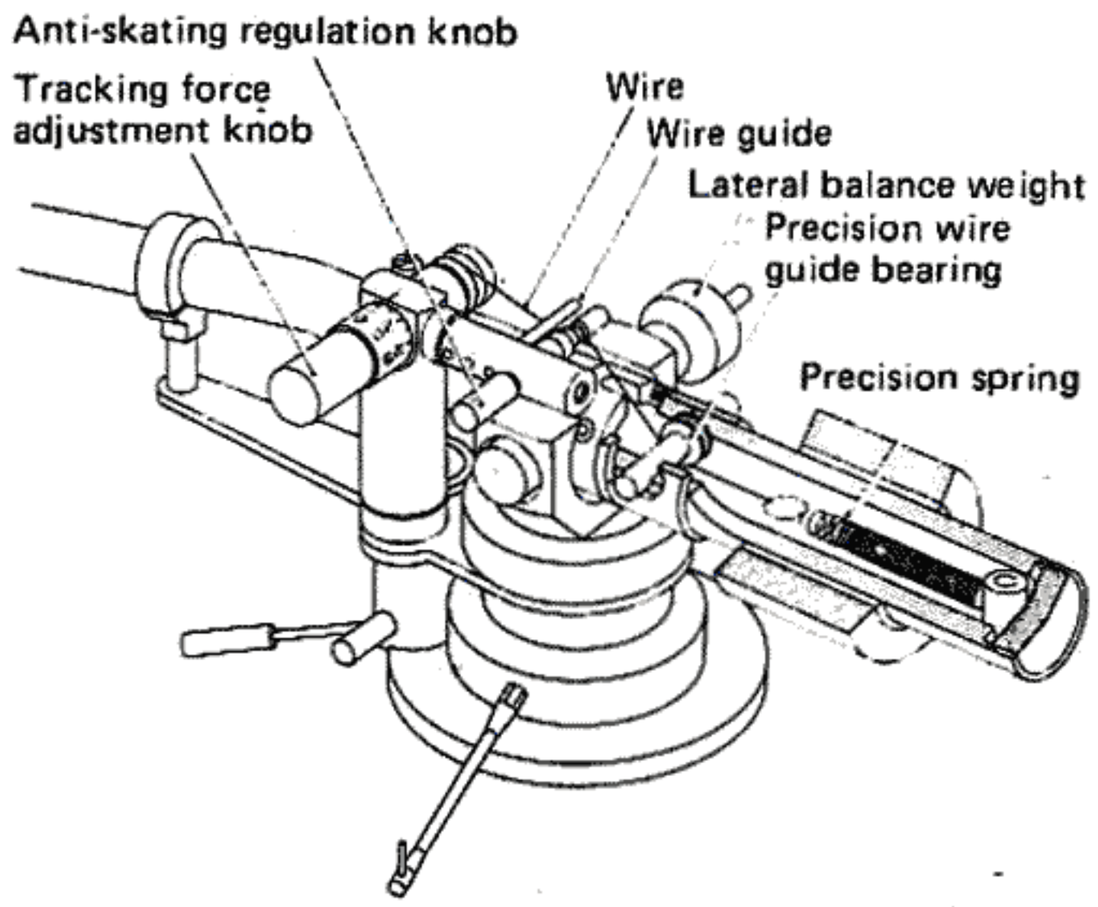
This mechanism can be adjusted to suit different tracking forces or differing stylus configurations.

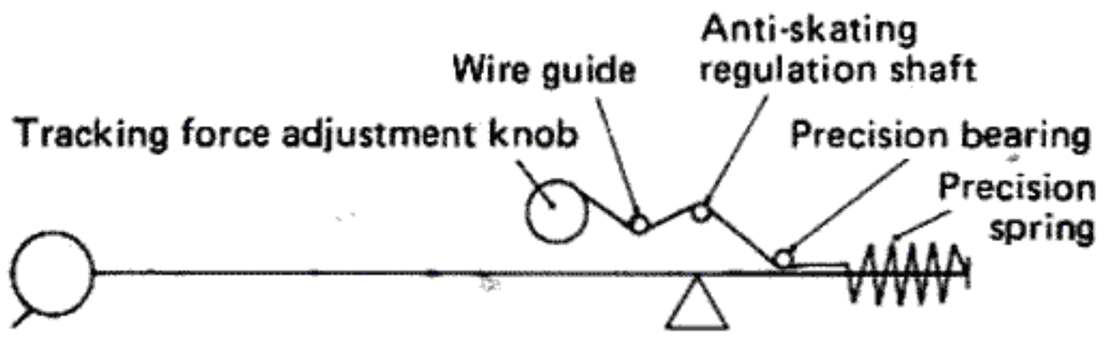
Arm height adjustment mechanism

The tonearm can be adjusted easily by means of this mechanism which incorporates a spring built into the base. Even if adjusted during playback, the tonearm would be unlikely to jump a groove.

Arm base

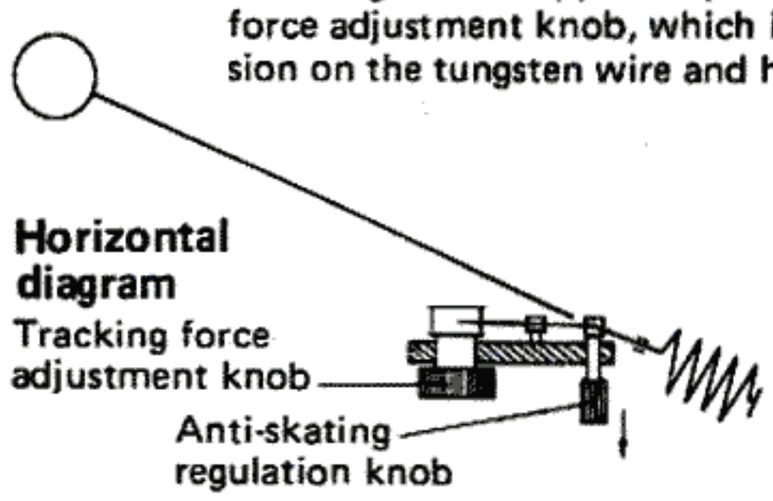
A large-size arm base is employed. Resistant to vibration, this base improves stability to a remarkable level.





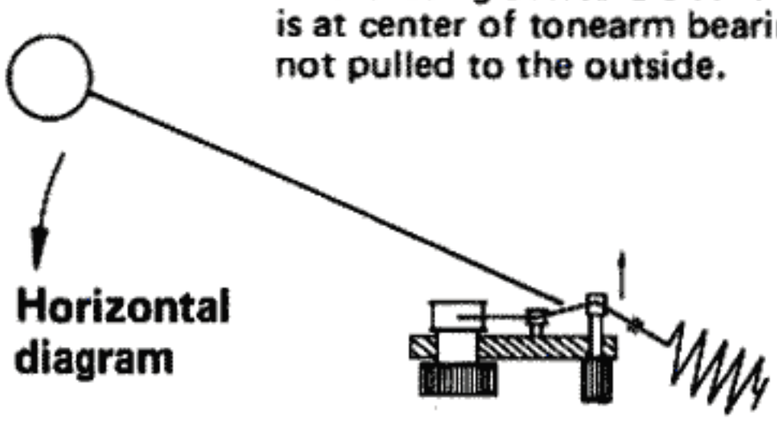
Profile diagram

Tracking force is applied by turning the tracking force adjustment knob, which in turn exerts tension on the tungsten wire and hence to the spring.



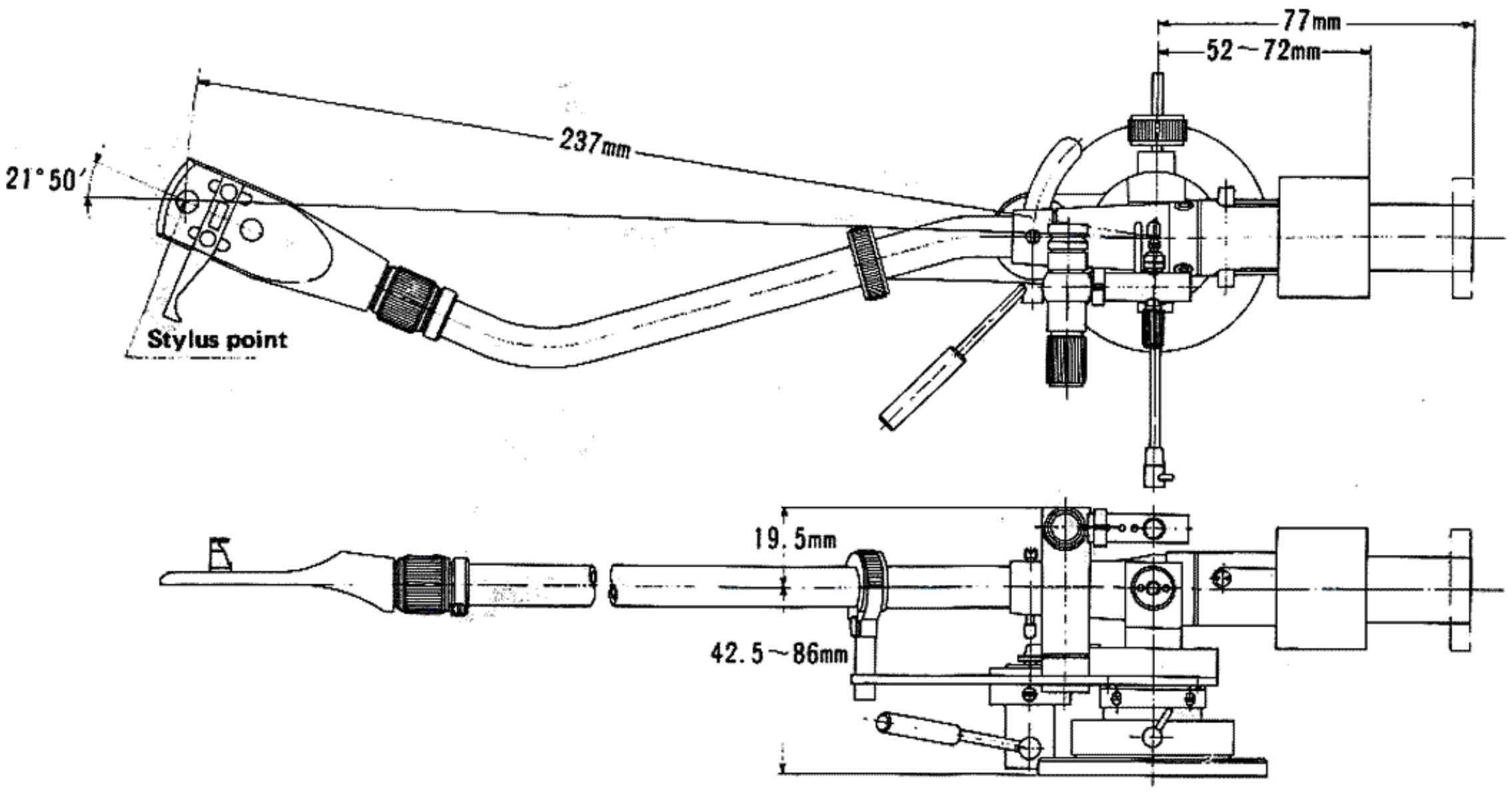
Horizontal diagram

Anti-skating device OUT. The fulcrum of wire is at center of tonearm bearing. Tonearm is not pulled to the outside.



Horizontal diagram

Anti-skating device IN. The fulcrum of wire used for the anti-skating device is now forward: here the arm is pulled to the outside.



• MA-505 specifications

Model	Dynamic balance type universal tone arm
Total length	322 mm (12-11/16″)
Working length	237 mm (9-5/16″)
Overhang	15 mm (19/32″)
Offset angle	21° 50′
Angle of tracking error	Less than 1.5°
Height adjustment range	42–86 mm (1-5/8″~3-3/8″) (measured from the motor board to the cartridge installation surface)
Height adjustment range achieved by lever operation	6 mm (1/4″)
Suitable cartridge weight	4–10 g (0.14~0.35 oz)
Using sub-weight (large)	9.5–16 g (0.34~0.56 oz)
Horizontal movement sensitivity	25 mg
Vertical movement sensitivity	25 mg
Tracking force regulation range	0–3 g scale
Anti-skating device	Spring tension system regulated according to tracking force
Arm lifter	Built-in shock absorber for raising Slow return type Headshell turning mechanism installed
Output lead	Low capacity 5P plug in (55 pF/m) shielded cord
Headshell weight	9.7 g (0.34 oz)
Head connector	SME type 4P connector
Connector	Electroplated in hard metal

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