



FR-60 series

Pick-Up Tonearm

OPERATING INSTRUCTIONS

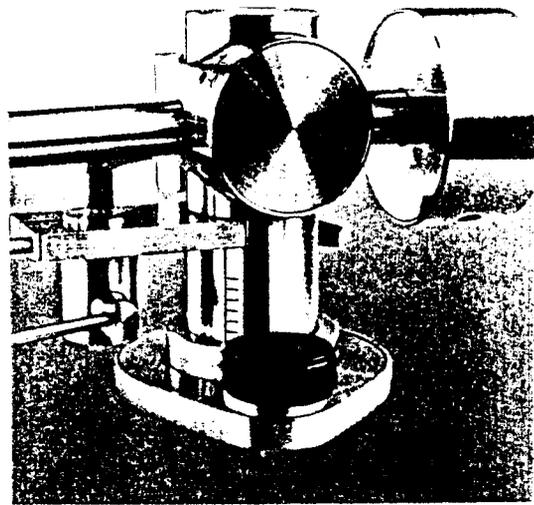
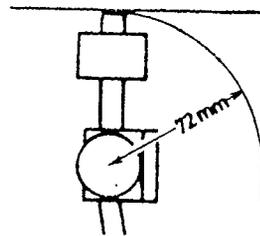
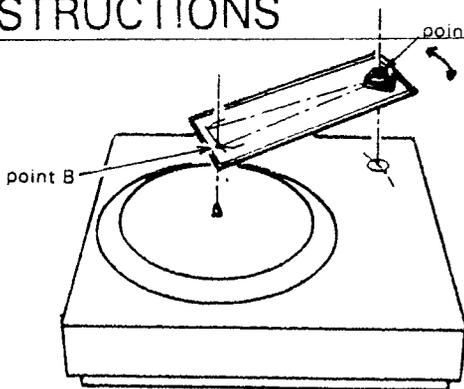
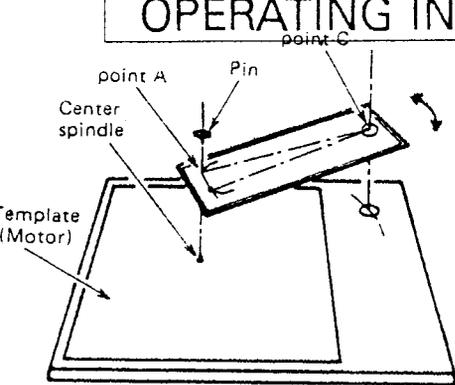


Fig. 1



ESTABLISHING ARM MOUNTING POSITION

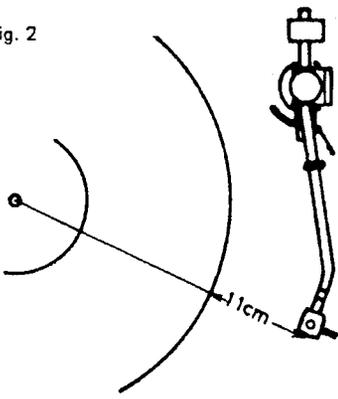
Use the mounting template to decide the correct location for mounting the tone arm.

The reason for having both the A and B points on the template is that the A point is to be used when the turntable motor has not yet been installed. In other words, if you just have a plain mounting board, use point A; if a turntable shaft is in place, use point B by placing the hole over the spindle. (Please ignore points "a" and "b" on the template.)

Note: Correct overhang will be obtained at any location along the arc described by point C. However the following two additional conditions must also be met.

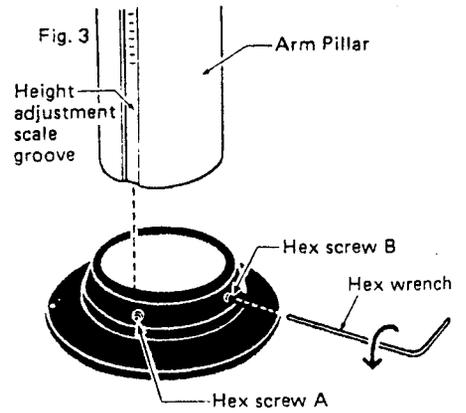
- 1) As shown in Fig. 1, there must be at least 72mm of space left between the mounting position and both nearby edges of the mounting board.

Fig. 2



Model No.	Diameter
FR-66S	41mm (Approx. 1 5/8 inch)
FR-66 FR-64S FR-64	31mm (Approx. 1 1/4 inch)

Fig. 3



MOUNTING THE ARM

Drill a hole of the diameter listed for your tone arm.

Insert the arm base into the mounting hole and screw on the washer and nut from the bottom, tightening the nut just enough so that the arm base can still rotate freely.

With FR-66S, turn the arm height fine adjustment knob to the highest position so that the hex screws A and B are coming up.

Loosen the hex screw A and B as shown in Fig. 3. Then put the arm into the base and tighten hex screw A at the point where it is lined up with the height adjustment scale groove.

- * Tighten the screw just enough to keep the arm pillar from falling. This screw A serves both to keep the arm pillar from falling and to keep it from turning out of position.

2) To ensure proper operation of the Anti-Skate Device, the distance from the tip of the headshell to the edge of a 30cm record must be about 11cm as shown in Fig. 2. Since this may mean that the head shell touches the dust cover, use the separate full-size diagram to check whether this requirement can be met at the mounting position you have chosen.

The Anti-Skate Device is designed so as not to operate until the arm is removed from the arm Rest and moved a number of centimeters in the direction of the record edge. This makes it easier to achieve correct arm balance.

2

Fig. 4

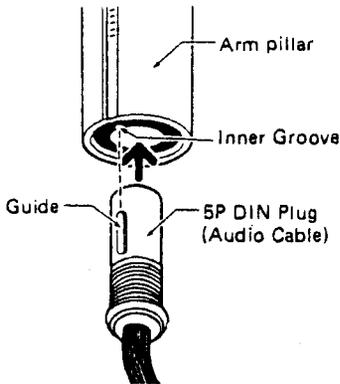


Fig. 5

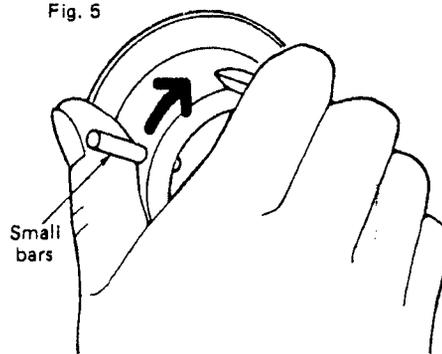
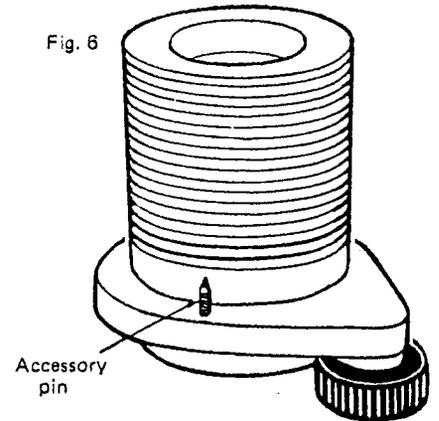


Fig. 6



INSTALLING THE AUDIO CABLE

Install the audio cable as shown in Fig. 4.

ARM BASE MOUNTING ANGLE ADJUSTMENT

As explained in Note 2) above, it is necessary to have distance of 11cm from the head shell to the outer edge of the turntable.

For this purpose, put the ARM IN THE ARM REST and TURN THE ARM BASE to find the correct angle.

- * This does not have to be exactly 11cm; an approximate measurement is fine.

FIXING THE ARM BASE IN PLACE

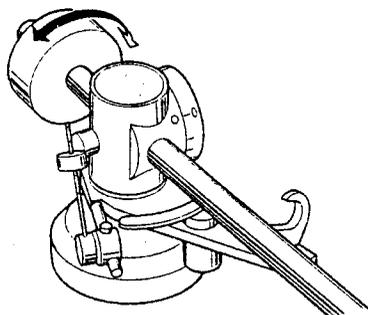
In case of FR-66S, use the provided two small bars into the holes in the arm base nut, and tighten the nut firmly in place as shown in Fig. 5.

When attaching FR-64S/66, use the supplied hexagonal spanner to tighten the arm base into position.

CAUTION: When tightening the arm base nut, be sure not to move the base from its proper angular position as determined earlier.

With FR-66S, you can use tweezers to screw in the small accessory pin as shown in Fig. 6 so as to prevent the base from twisting out of position.

BALANCE THE TONEARM



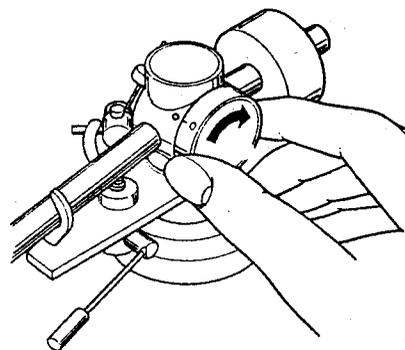
- Set the tracking force scale ring to zero and swing the anti-skating weight shaft up. Slowly rotate the counterweight forward or backward until the tonearm remains parallel to the surface of the turntable.

NOTE:

The screw on the counterweight controls the weight's fit to the weight shaft grooves. It is not used to hold the counterweight in place after it has been adjusted. Set the screw to the proper setting and leave it there.

- Cartridges with a weight between 10 and 32 grams (including the headshell) can be used with the included counterweight. When using cartridges such as the Fidelity Research FR-7 and Ortofon SPU/GT which weigh about 30 grams, use counterweight W-250 (sold separately) to lower the effective mass of the tonearm.

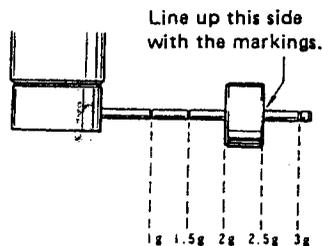
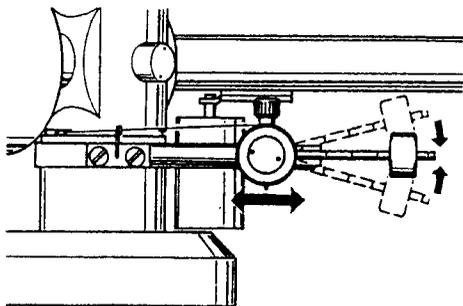
SETTING THE TRACKING FORCE



Turn the tracking force ring until the appropriate force is indicated. The ring starts at 0.5 grams and increases in 0.25 gram steps with each click up to 3.0 grams.

 fidelity-research

SETTING THE ANTI-SKATING FORCE



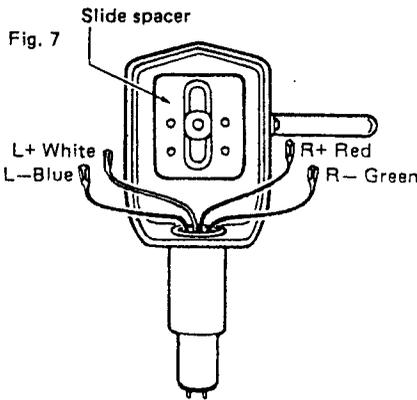
The anti-skating device of the FR-64fx is designed to apply the appropriate amount of anti-skating force when the anti-skating weight shaft is parallel to the turntable surface with the stylus in the outermost grooves of a 30 cm record.

• Adjusting the anti-skating device

Place the stylus in the outermost grooves of a 30 cm record. With the tonearm in that position, raise the cueing lever and perform the following adjustments.

Lower the anti-skating weight shaft to its down (active) position. Loosen the anti-skating device screw and move the unit forward and backward to confirm that the thread is in the track. Move the anti-skating unit forward or backward until the weight shaft is parallel to the turntable surface.

- Loosen the anti-skating weight with screwdriver and adjust the weight to match the tracking force.

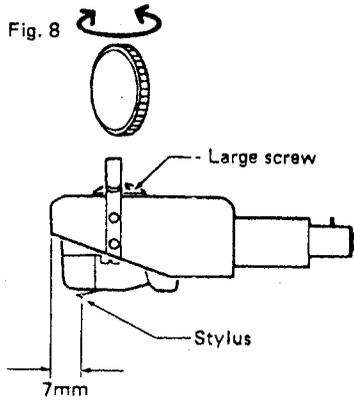


ATTACHING A CARTRIDGE TO THE HEADSHELL

The metal clips attached to the head shell leads are designed for our own cartridges. They may be too wide or too narrow to fit other cartridges. If necessary, carefully adjust the clips with tweezers so that a good tight connection can be made.

After fitting the lead wires onto the cartridge terminals, attach the cartridge to the slide spacer. The screw length needed may vary with different cartridges. Choose the length that fits best from among those supplied. If none of these fit, we have optional screws of other dimensions available at your audio dealer. The cartridge may be attached at two different positions on the slide spacer. Choose which one is better after reading the following explanation.

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CARTRIDGE POSITION ADJUSTMENT

As shown in Fig. 8, by loosening the large screw on top of the head shell with a coin you can slide the cartridge and spacer forward and backward. The distance from the front of the head shell to the stylus tip should be adjusted so that it is 7mm.

If this cannot be achieved by sliding the spacer, try attaching the cartridge in a different position (on the spacer) or turning the spacer around.

- A difference of 1mm more or less in this distance will not present any practical problems.

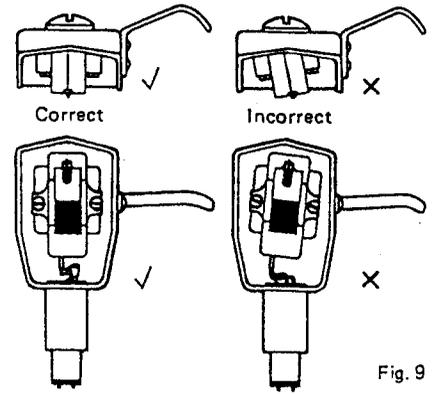
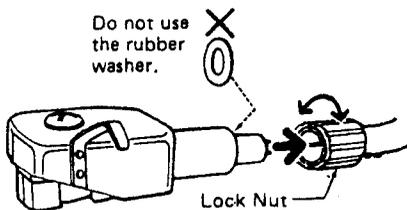


Fig. 9

After adjustment, retighten the large screw in the top of the head shell.

When retightening the screw, don't let the slide spacer and cartridge twist to one side or the other. (See Fig. 9)

Fig. 10

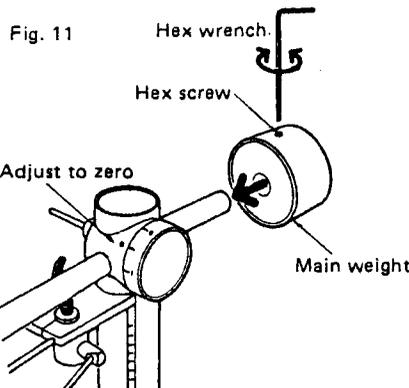


TAKING ZERO BALANCE

Attach the head shell and cartridge to the tonearm.

Note: When using head shells from other manufacturers, remove the rubber washer before attaching the head shell as shown in Fig. 10.

(This is because the locking sleeves used in FR-60 series tonearms establish a firmer connection than conventional type. However the rubber washer would interfere with this improved performance.)



Put the main weight onto the arm. Loosen the screw before doing this.

- On the inside of the weight, you can see a black rubber ring. Slide the weight onto the tonearm with this side of the weight first.

Note: Use the larger weight with FR-66/66S. The smaller weight is only to be used when the larger weight will not give zero balance. (For example when using a head shell from some other manufacturer.)

- As long as balance can be taken with the larger weight, it should be used since effective mass will be smaller.

Turn the tracking force control to zero. Then slide the main weight back and force until zero balance is achieved.

- This adjustment is easier if you rotate the weight while you slide it.

Tighten the hex screw.

Note: If you plan on using several different cartridges and will need to adjust balance often, only tighten the weight enough to prevent slipping.

Fig. 12

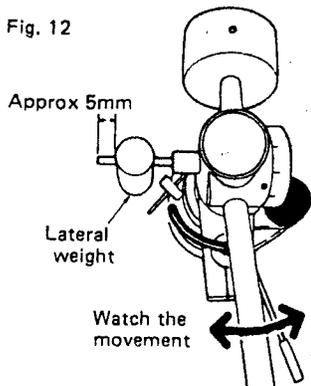
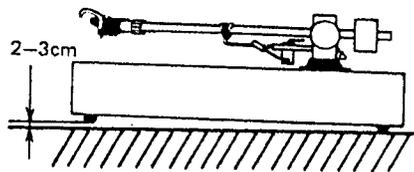


Fig. 13



LATERAL BALANCE ADJUSTMENT

Lateral balance should be performed after completing vertical balance.

Attach the lateral balance weight as shown in Fig. 12 so that there is 5mm between the tip of the shaft and the surface of the weight.

Next, as shown in Fig. 13, lift up the front of the turntable 2-3cm and watch the way the tonearm moves. (If lateral balance is not correct, the tonearm will swing to the right or left.)

Adjust the lateral balance weight until the arm does not swing but stays in one place when the front of the cabinet is lifted.

Tighten the screw.

Note: 1) This adjustment must be carried out with the tonearm in the area where it will not be affected by the anti-skating control as explained earlier.

2) The lateral balance device is provided to correct for the sideways tendency in tonearm movement that occurs when the turntable cabinet is not used on a horizontal stand. Practically speaking, no problems will occur if the turntable is installed level. Therefore, you ordinarily don't need to pay too much attention to this adjustment.

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Fig. 14

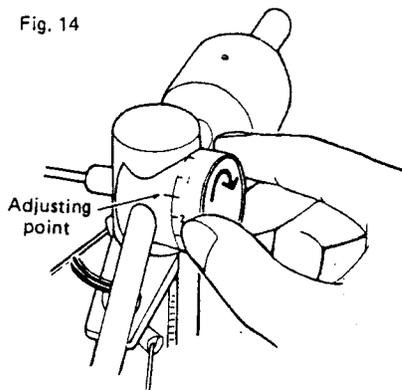


Fig. 15

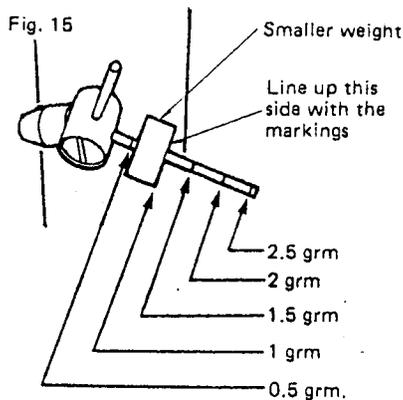
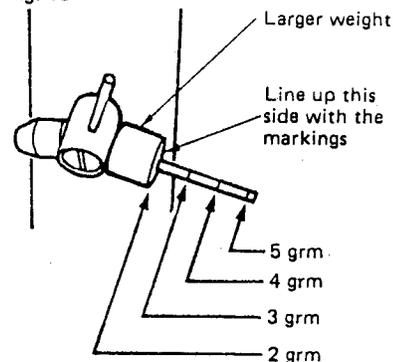


Fig. 16



TRACKING FORCE ADJUSTMENT

Turn the tracking force control ring to the desired position.

- There are click-stops every 0.5 grammes but you can also set the control at any position in between.

ANTI-SKATING CONTROL ADJUSTMENT

Since skating force is mainly dependent on tracking force, the anti-skating control must be adjusted to correspond with the amount of tracking force used.

As shown in Fig. 15, each marking on the shaft indicates 0.5 grams when using the smaller weight.

As shown in Fig. 16, each shaft marking indicates 1 gram, since the larger weight weighs twice as much as the smaller one.

- If you don't tighten the screw on the weight too much, it will be easier to read just when using various cartridges with different amounts of tracking force.

Fig. 17

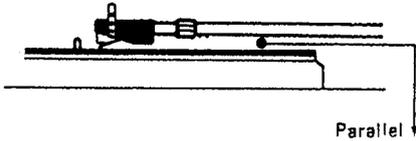
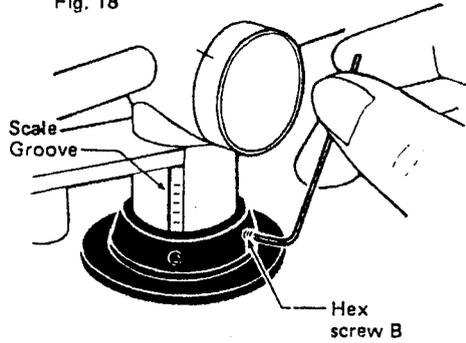


Fig. 18



ARM PILLAR HEIGHT ADJUSTMENT

When a record is played, the arm should be parallel to the record surface as shown in Fig. 17.

* The scale on the side of the arm pillar is an aid for judging the amount of adjustment. It is graduated in 2mm steps.

*NOT NECESSARILY
- VTA MAY NEED
ADJUSTING BY LOWER
OR RAISE ARM AT
BASE*

[FR-64/64S/66]

Apply an appropriate amount of tracking force to the cartridge and place the stylus on the record.

After observing the pillar height, return the arm to armrest.

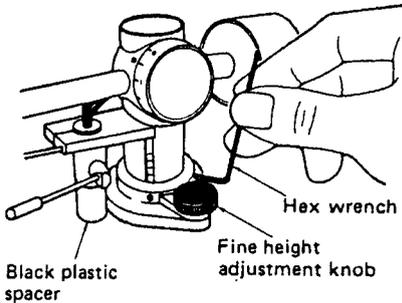
Then raise or lower the arm pillar so that the tonearm pipe is parallel to the surface of the record.

Tighten the hex screw B as shown in Fig. 18.

(This tonearm is designed so that correct height adjustment can be performed as long as the distance from the mounting board to the record surface is between 2.7cm and 6cm. If your turntable is lower than this, remove the base ring and mount the arm base flush with the surface of the mounting board. This will lower the arm pillar height by 3mm.)

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Fig. 19



[FR-66S]

First turn the fine height adjustment knob to raise the height as far as it will go.

Then set the supplied black plastic spacer under the cueing mechanism as shown in Fig. 19, loosen hex screws A and B and temporarily retighten them at the point where the bottom of the cueing device comes to rest on the top of the black plastic spacer.

Note: This procedure is needed to establish the lowest point reachable by the pillar. Otherwise if the arm were lowered with the fine adjustment knob, the bottom of the cueing mechanism would hit the top of the base. Any attempt to force it beyond this point would cause damage.

Now apply an appropriate amount of tracking force to the cartridge and lower the stylus on the record.

After observing the pillar height, return the arm to armrest.

Then raise the arm pillar by unlocking hex screw A & B so that the pillar height is 5-6mm higher than the final pillar height which makes the parallel condition. Tighten the hex screws.

Play a record and use the fine adjustment knob to adjust the arm pillar height so that the tonearm pipe is parallel with the record.

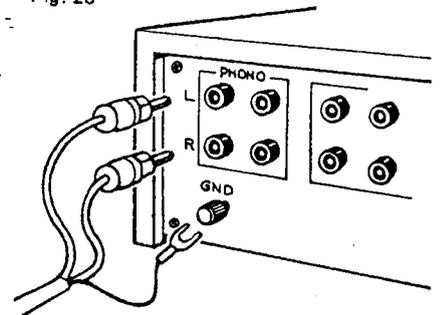
* This may be done while a record is being played without causing any problems.

This arm elevation mechanism makes possible quick pillar height adjustment when several different cartridges are being used on the arm.

* Height may be adjusted with this mechanism by up to 10mm.

CAUTION: DO NOT TURN to lower the fine height adjustment without tightening hex screws A & B, as the screws will hit the top of the base and it may cause the damage.

Fig. 20

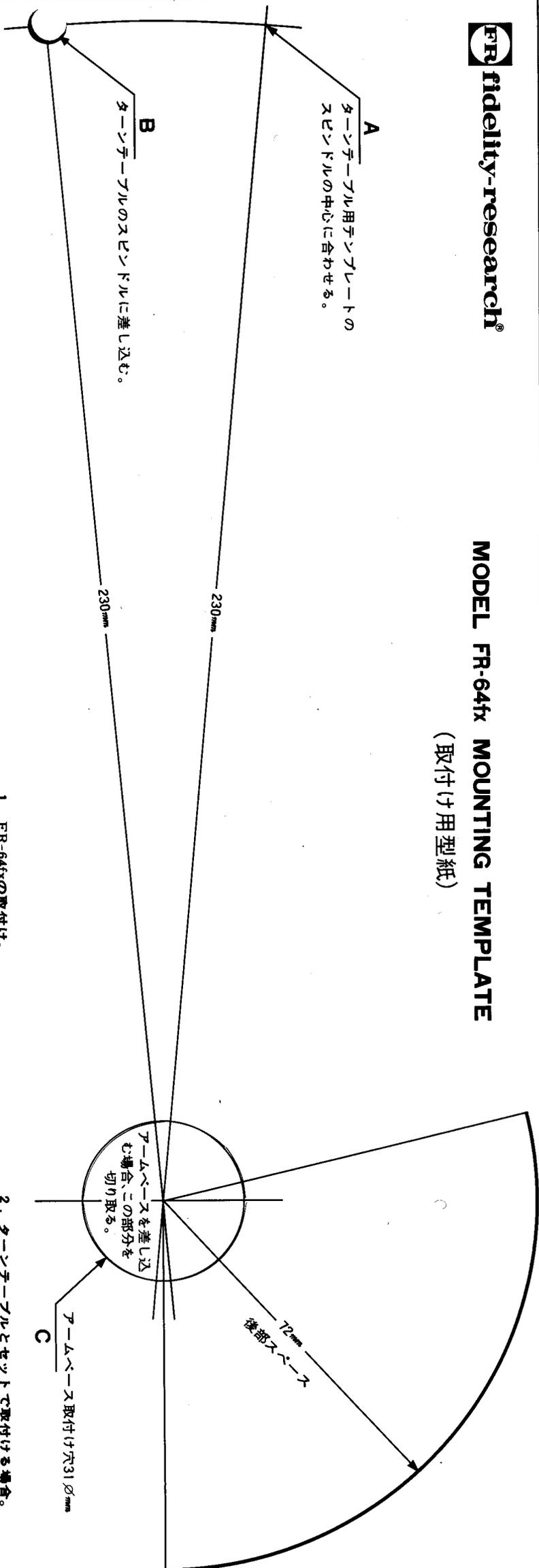


PHONO CABLE CONNECTION

In this cable, the white lead is the left channel, red the right channel, and black is ground. Connect these leads firmly to the proper terminals of your amplifier (or step-up transformer depending on the cartridge you use). Connect the ground line to the ground terminal on the chassis of the unit.

MODEL FR-64fx MOUNTING TEMPLATE

(取付け用型紙)



1. FR-64fxの取付け。

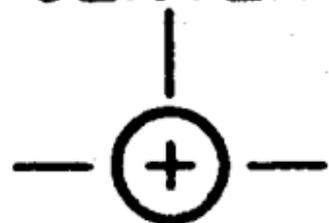
- テンプレートのポイントBをターンテーブルのスピンダルに合わせポイントCにアームベースを差し込みテンプレートを回転させて取付け位置を決めて下さい。
- 取付け位置を決めるときに、メインウェイト、ウェイトシヤフトがアームの動作中（レコード演奏時）グラストカバー等にあたらないうち後部スベースの確認をして下さい。

2. ターンテーブルとセットで取付ける場合。

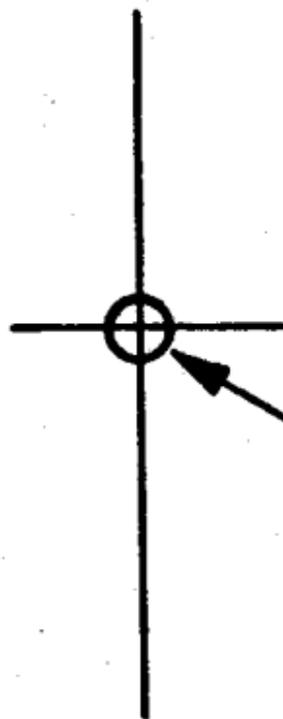
- ターンテーブル用の穴加工をする前にアームの取付け位置を決めて下さい。
- ターンテーブルの位置を決めて、ターンテーブル用テンプレートのスピンダルの中心とアーム用テンプレートのポイントAの位置を合わせピンで止めてアーム用テンプレートを回転させて取付け位置を決めて下さい。
- 後部スベースの確認をして下さい。

*用紙の伸縮により、記入寸法と実寸が多少異なることがあります。記入寸法を確認して下さい。

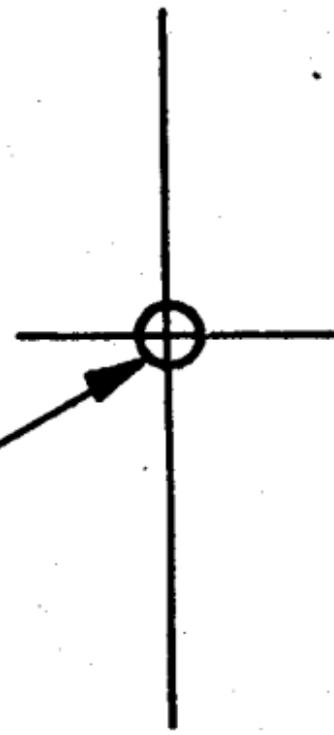
**SPINDLE
CENTER**



$\frac{0.282''}{0.284''}$



NULL RADIUS 1
2.6''



NULL RADIUS 2
4.76''

**STYLUS
TIP**

Two arrows originate from the text 'STYLUS TIP' and point towards the centers of the two null radius circles.

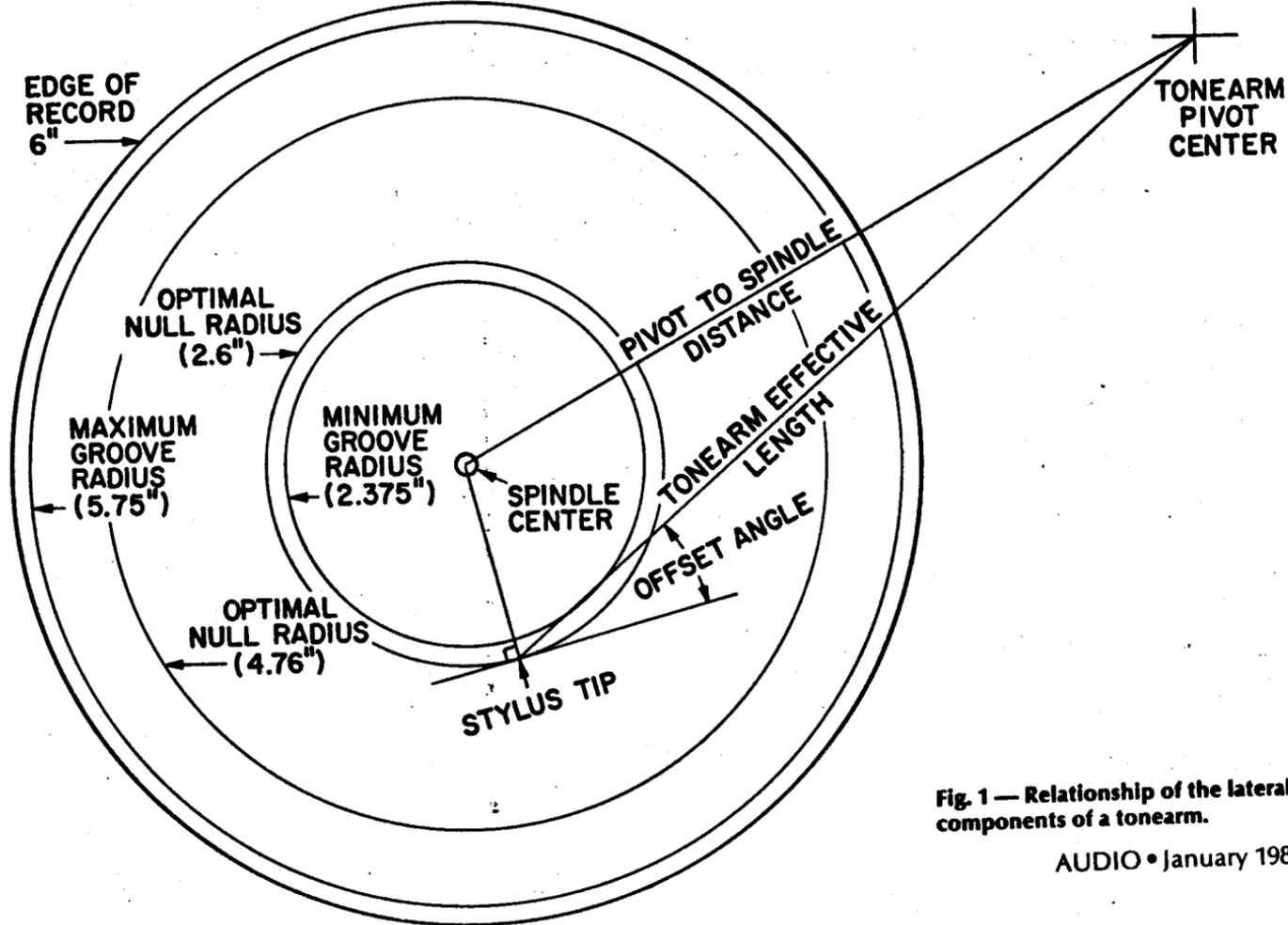


Fig. 1 — Relationship of the lateral components of a tonearm.