

# OPERATING INSTRUCTIONS

TWO-SPEED AUTOMATIC TURNTABLE

## SANSUI FR-3060



*Sansui*

SANSUI ELECTRIC CO., LTD.

Thank you for your choice of the FR-3060 Two-Speed Automatic Turntable. As Japan's foremost audio-only specialist, we are proud and confident of the high performance of this fully automatic turntable. Designed for the utmost in tonal quality and operating convenience, the FR-3060 incorporates a specialized 16-pole synchronous timing motor for precise and smooth automatic lead-in, cut, return and repeat functions. It also features Sansui's unique galvanomagnetic detector mechanism for sensing the automatic return position. Uniquely combining a magnet and a reed switch, this mechanism does not impose any unnatural load on the stylus and enables it to trace the record groove faithfully.

It also has a manual tonearm lifter to ensure convenient yet safe manual operation.

This manual has been prepared to guide you in assembling, operating, and caring for the FR-3060 correctly. May we suggest that you read it once carefully? You'll then be better prepared to enjoy superb stereo sound at its very best.

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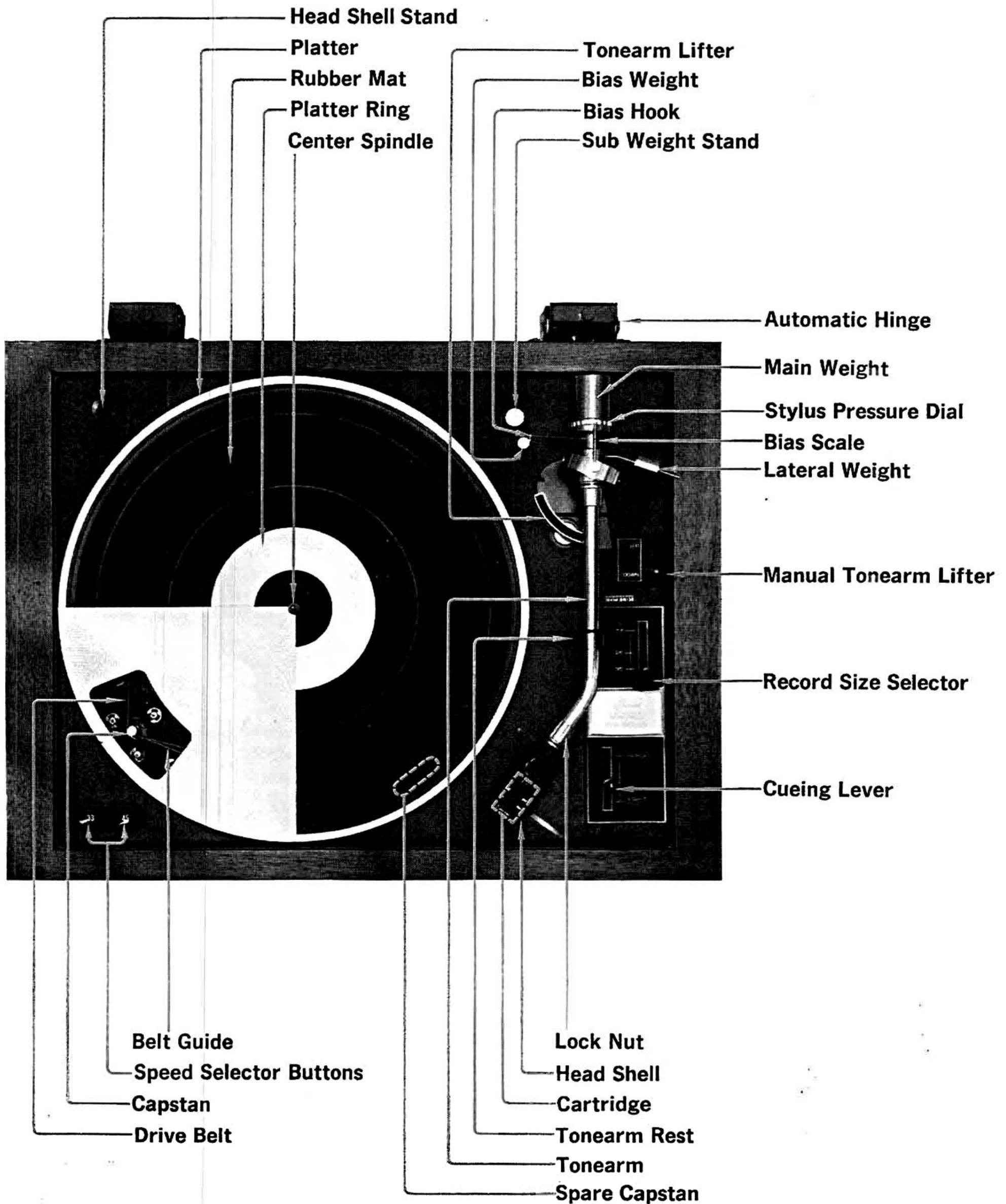
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## Performance Specifications\*

<b>TYPE:</b>	Two-speed belt driven automatic turntable	<b>CARTRIDGE:</b>	Induced magnet type (SC-36)
<b>AUTOMATIC OPERATION:</b>	Automatic lead-in, return, cut and repeat by 4 rpm synchronous motor	<b>FREQUENCY RESPONSE:</b>	10~22,000Hz
<b>PLATTER:</b>	Aluminum die-cast 300mm (11 $\frac{13}{16}$ " ) diameter 1.4kgr (3.1 lbs)	<b>CHANNEL SEPARATION:</b>	25dB at 1,000Hz
<b>MOTOR:</b>	4-pole synchronous	<b>OUTPUT BALANCE:</b>	Within $\pm 0.5$ dB at 1,000Hz
<b>SPEEDS:</b>	33- $\frac{1}{3}$ rpm, 45 rpm	<b>OUTPUT VOLTAGE:</b>	3.5mV at 1,000Hz 50mm/sec.
<b>WOW &amp; FLUTTER:</b>	0.07% WRMS	<b>LOAD IMPEDANCE:</b>	50k $\Omega$
<b>SIGNAL-TO-NOISE RATIO:</b>	47dB	<b>STYLUS:</b>	0.5 mil, diamond spherical (SN-36)
<b>TONEARM:</b>	Statically balanced J-shaped tubular tonearm with lateral balancer, inside force canceler, direct readout stylus pressure dial, 4-contact plug-in head	<b>STYLUS COMPLIANCE:</b>	18 $\times$ 10 <sup>-6</sup> cm/dyne
<b>TONEARM LENGTH:</b>	220mm (8 $\frac{13}{16}$ " )	<b>OPTIMUM STYLUS PRESSURE:</b>	2gr
<b>OVERHANG:</b>	15mm ( $\frac{19}{32}$ " )	<b>WEIGHT:</b>	6.5gr
<b>STYLUS PRESSURE:</b>	0~3gr (with SC-36)	<b>POWER REQUIREMENTS:</b>	120 or 240V, 50 or 60Hz
<b>MAX. CARTRIDGE WEIGHT:</b>	20gr (using headshell and subweight supplied)	<b>POWER CONSUMPTION:</b>	13W
		<b>DIMENSIONS:</b>	464mm(W) $\times$ 195mm(H) $\times$ 353mm(D) 18 $\frac{17}{64}$ in.(W) $\times$ 7 $\frac{11}{16}$ in.(H) $\times$ 13 $\frac{57}{64}$ in.(D)
		<b>WEIGHT:</b>	9.5kgr (20.9 lbs)
		<b>STANDARD ACCESSORIES:</b>	Sub weight, 45 rpm record adaptor, screwdriver, oil, bias weight, removable dust cover with automatic hinges

# NAMES OF PARTS



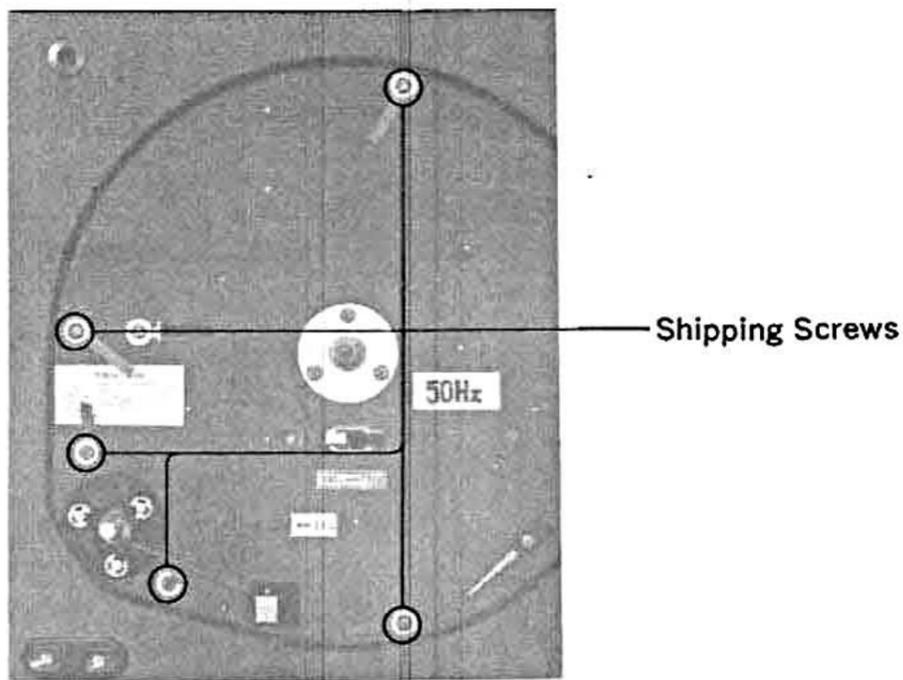
# FITTING PARTS

The FR-3060 is a highly precise instrument. To protect its delicate parts from jarring and shock during shipment, precision parts and heavy parts have been packaged separately. These parts must be first fitted on the turntable proper.

## Platter and Drive Belt

### 1) Remove the Shipping Screws

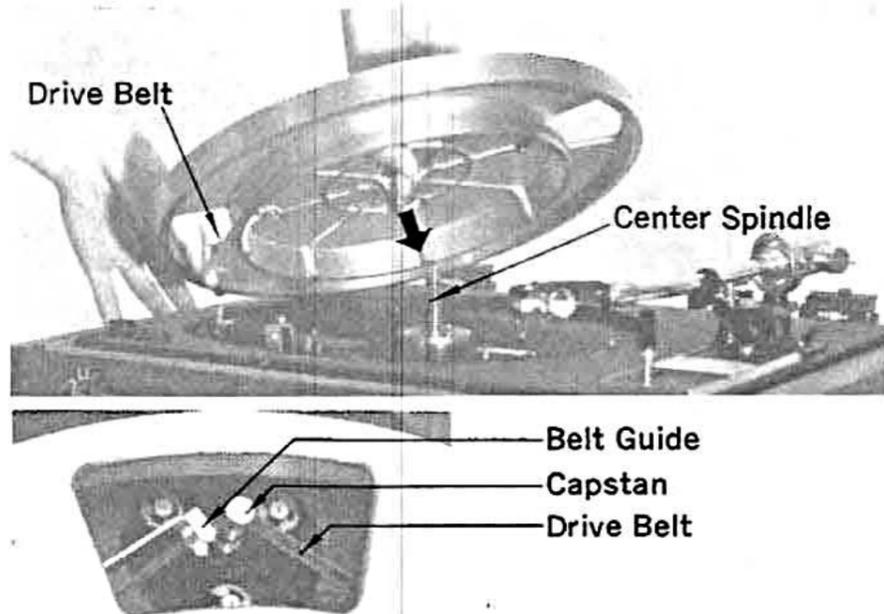
First remove the five red-headed shipping screws. The motor and motor board will then float freely on cushions.



### 2) Hook the Drive Belt

Push the Speed Selector Button for 33 rpm, then mount the platter on the center spindle, holding the drive belt around the inner rim of the platter with your thumb, as illustrated.

Next, pass the drive belt between the two arms of the Belt Guide and hook it around the upper step of the capstan, as illustrated.



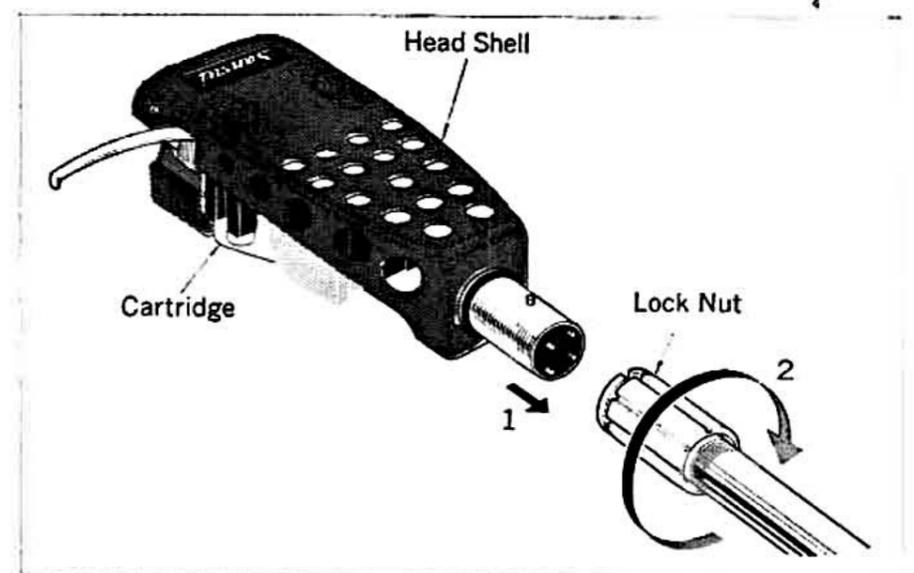
### 3) Place the Rubber Mat on the Platter.

## Tonearm

### 1) Untie the vinyl ribbon fastening the tonearm.

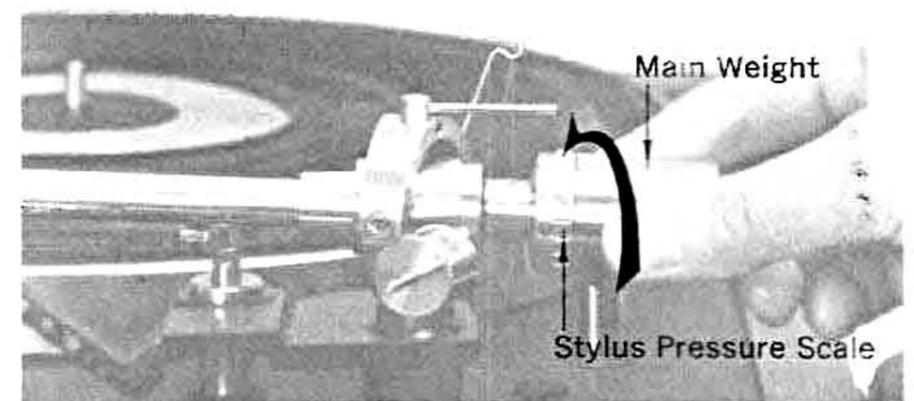
### 2) Fix the head shell.

Insert the cartridge-equipped head shell (supplied) into the lock nut at the tip of the tonearm. Then, pushing it lightly toward the direction of arrow (1), tighten the lock nut by turning it in the direction of arrow (2). For protection, leave the stylus cover on the cartridge while you do this.

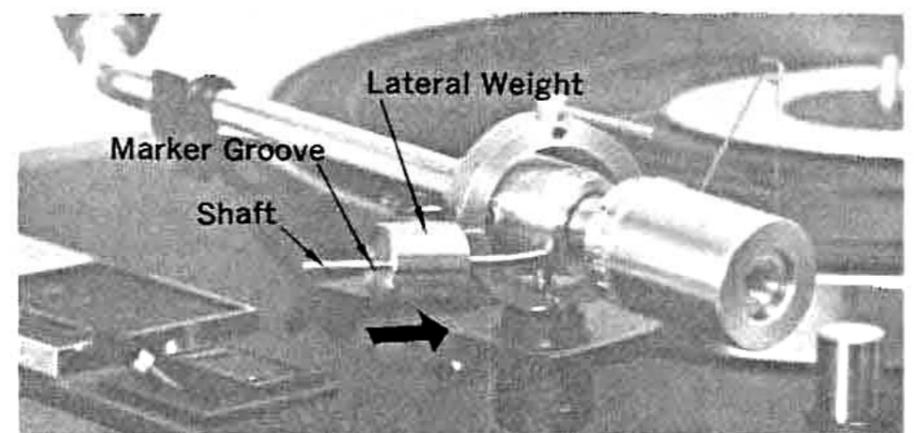


### 3) Load the Main Weight.

Holding the main weight so that its ring groove faces back, load the main weight on the main weight shaft by turning it slowly.



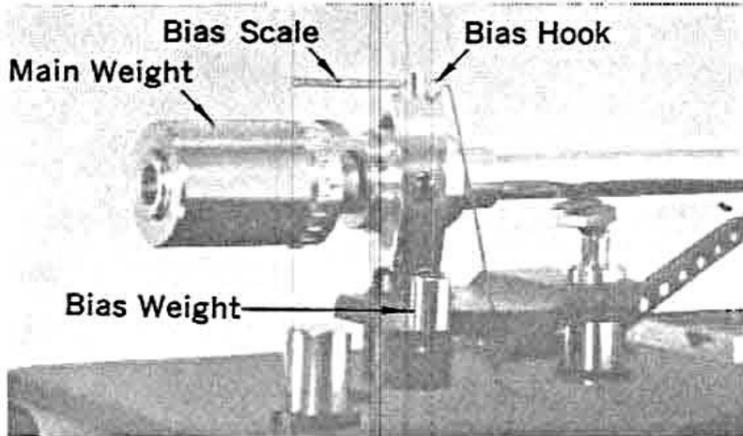
### 4) Insert the lateral weight over to the marker groove on the lateral weight shaft.



# FITTING PARTS

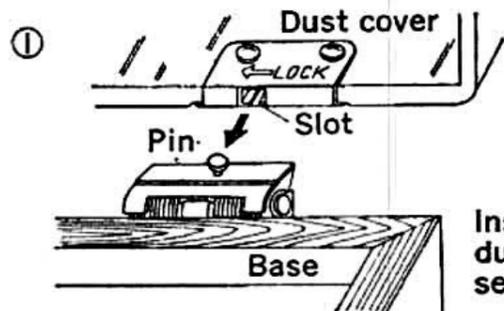
## 5) Install the bias weight.

Hook the bias weight on the fourth graduation (2 grams, colored) from the base of the bias weight scale, then on the bias hook, as shown below.

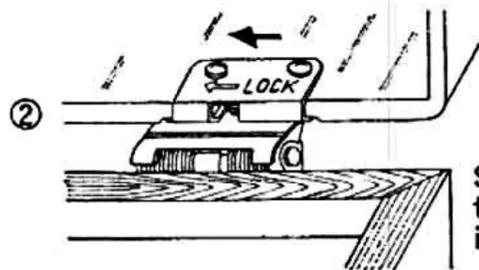


## Dust Cover

Insert the hinge pins of the turntable cabinet into the slots of the dust cover hinges, sliding the dust cover in the direction of arrow until it locks into place, as illustrated below.

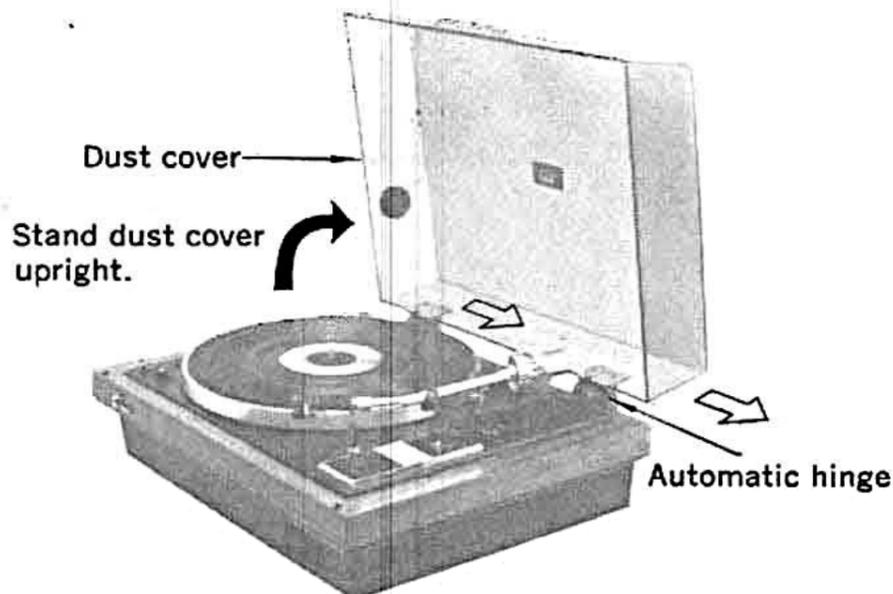


Insert pin in slot and pull dust cover toward yourself.



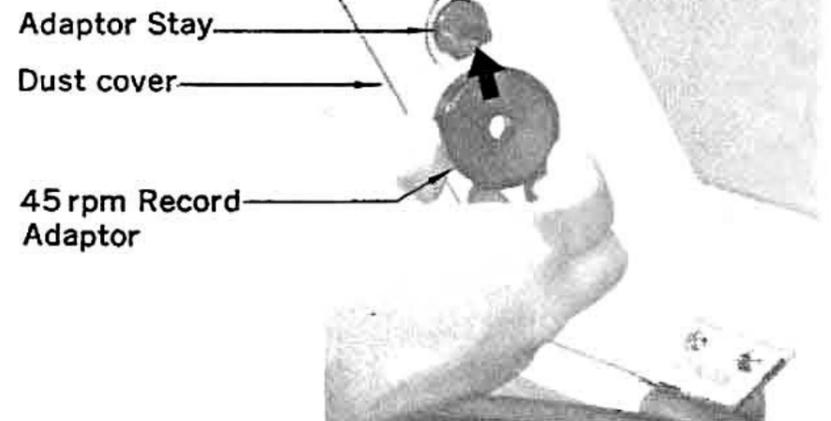
Slide dust cover in direction of arrow until it locks into place.

To unhinge the dust cover, stand it upright, then pull it sideways to the right, as illustrated below.



## 45-rpm Record Adaptor

Keep the 45 rpm record adaptor supplied on the adaptor stay on the left side of the dust cover, as shown.



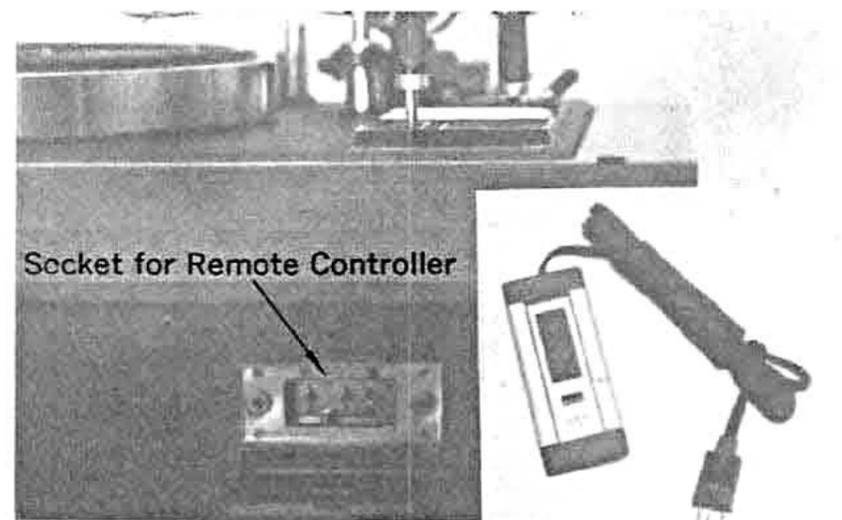
## Head Shell Stand

If you have a cartridge of your own, keep it on this stand, as shown.



## Remote Control

The optional Sansui SRC-6 Remote Controller may be connected to the remote controller inputs of the FR-3060. You will then be able to remote control the turntable for such automatic operations as start, cut and repeat, without leaving your chair every time.



Remote Controller (SRC-6)

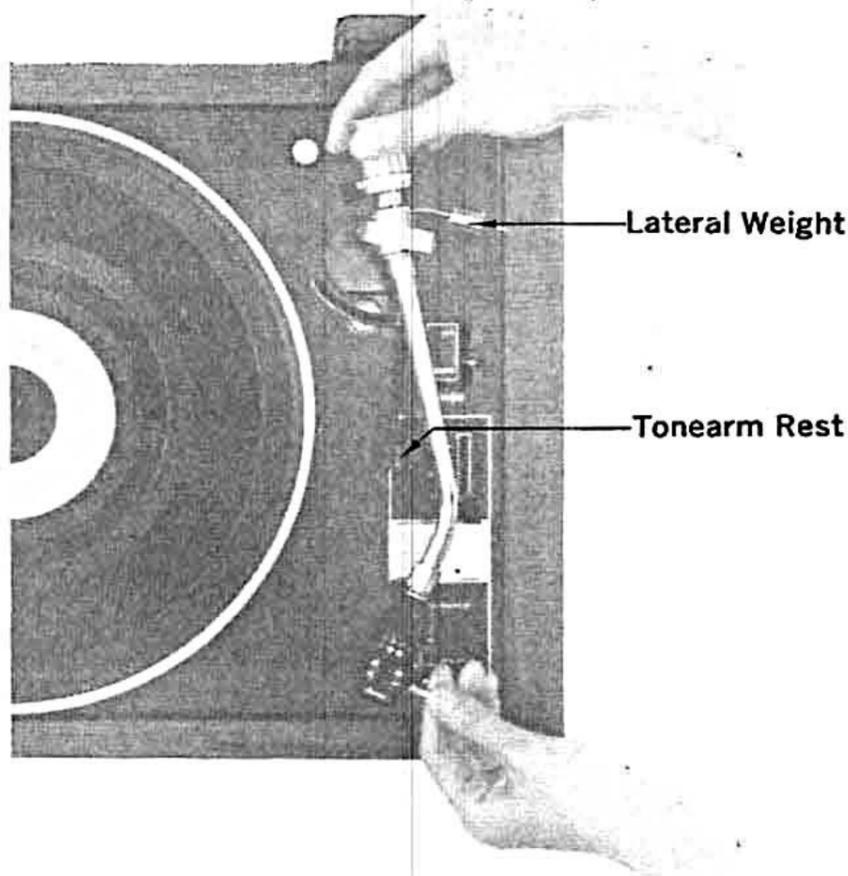
# ADJUSTMENTS

## Lateral Balance

If you use the head shell and cartridge supplied on the turntable, correct lateral balance is achieved simply by setting the lateral weight to the marker groove on the lateral weight shaft.

If you use a different head shell and/or cartridge, however, balance the tonearm laterally by proceeding as follows:

- 1) Take the bias weight off the bias hook and bias scale.
- 2) Take the stylus cover off the cartridge, free the tonearm from the tonearm rest, and move the tonearm over to the right of the tonearm rest.



3) Turn and move the main weight forward or back to balance the tonearm horizontally first.

4) Once the tonearm is balanced horizontally (stylus pressure zero), move the tonearm over to the left of the tonearm rest and raise the back of the cabinet (the side with hinges) by about 10cm (approx. 4 inches). The turntable will be tilted toward the front.

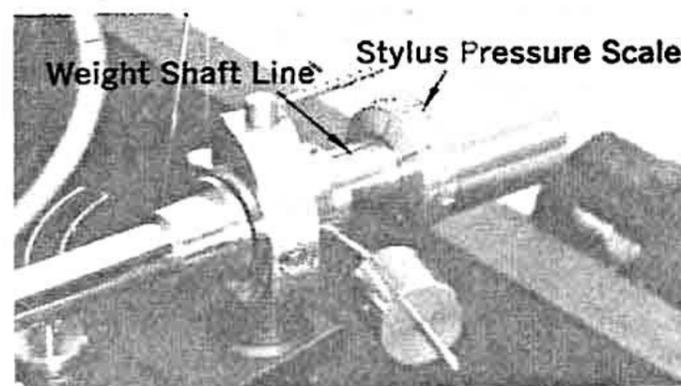
5) Move the lateral weight to a position where the tonearm does not swing sideways. When making this adjustment, be careful that the stylus does not hit the rubber mat or other parts and become damaged.

## Stylus Pressure

1) Balance the tonearm horizontally first by following steps 1) through 3) of 'LATERAL BALANCE.'

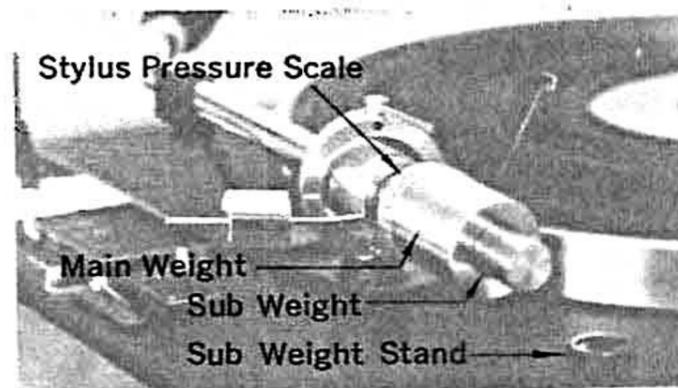
2) With the tonearm balanced horizontally, turn the stylus pressure dial only until its zero mark falls into line with the weight shaft line, without moving the main weight itself.

3) Now turn the main weight counterclockwise (as seen from the front of the turntable) until the required stylus pressure indication comes into line with the weight shaft line. If you are using the cartridge supplied, turn the weight until the numeral '2' meets the weight shaft line.



## If the Sub Weight is Needed

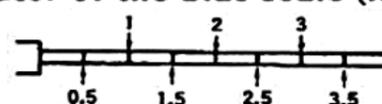
If you want to use a cartridge weighting more than 12 grams, attach the sub weight (supplied in the accessory kit) to the rear of the tonearm, as shown. Otherwise, keep the sub weight on the sub weight stand.



## Inside Force Canceler

This is a mechanism to cancel the 'inside force' (a natural force which pulls the tonearm toward the platter shaft) and enable the pickup stylus to trace the record groove faithfully. It consists of the bias scale, bias weight and bias hook. The bias scale is graduated in steps of 0.5 grams from its base to its tip. Hook the bias weight on the same weight marking as the stylus pressure of the cartridge in use.

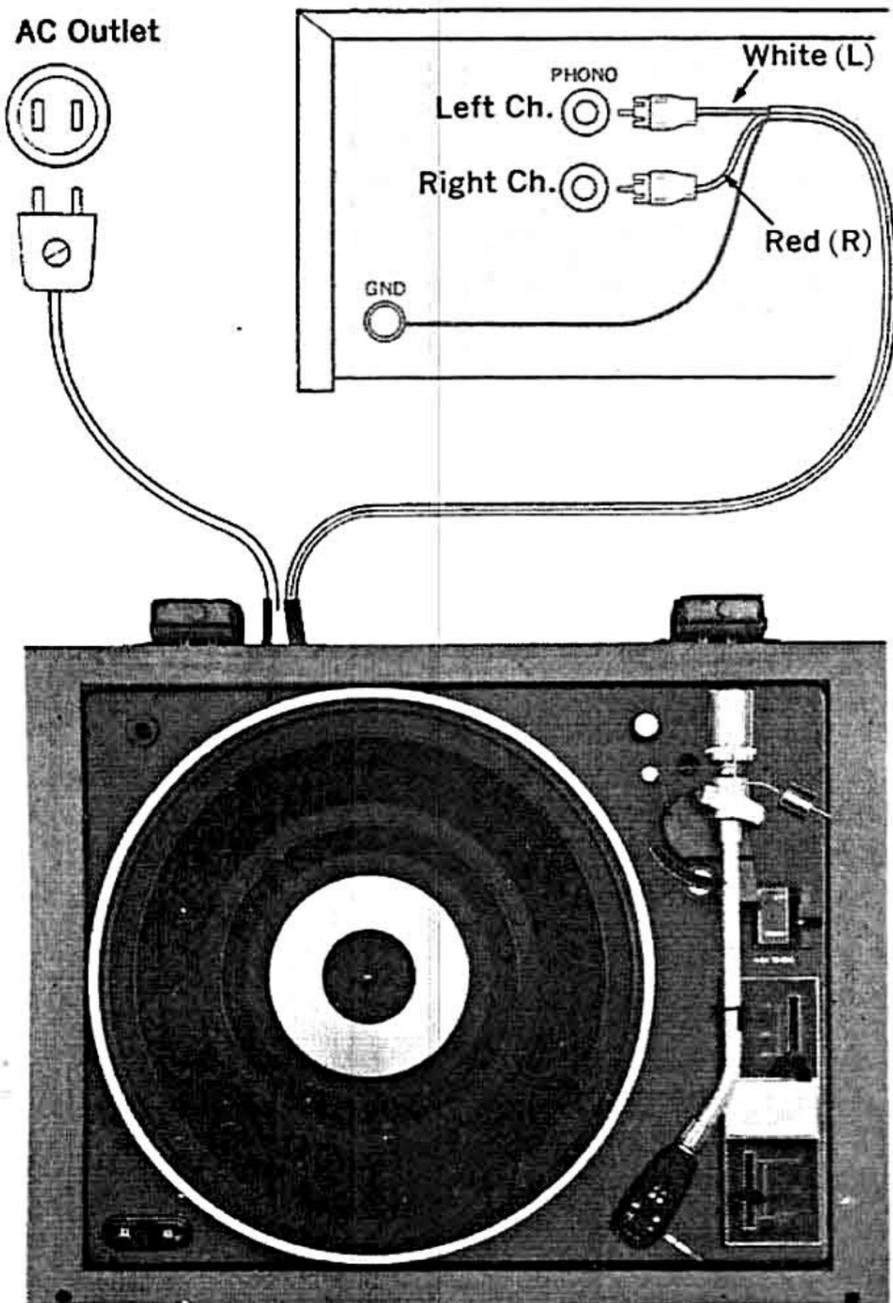
Graduator of the bias scale (in grams)



# CONNECTIONS AND OPERATING PROCEDURE

## Connecting Power and Output Signal Cables

Connect the power and output signal cables of the turntable to an AC outlet and your amplifier (or receiver), as illustrated below. Take care not to confuse the left and right channels.



### NOTE

#### Tonearm

As the bearing of the tonearm is constructed of delicate, precision-finished parts, never give unnecessary shock to it.

#### Drive Belt

Do not touch the platter while it is revolving. If you do, the drive belt may slip off the platter or be deformed. Never push the Speed Selector Buttons when the platter is still.

## Before Beginning to Play

### 1) Confirm the Lateral Balance and Stylus Pressure.

Confirm again if the lateral balance of the tonearm and the stylus pressure are both proper. If not, adjust as instructed on page 6.

### 2) Confirm the Speed Selector Button.

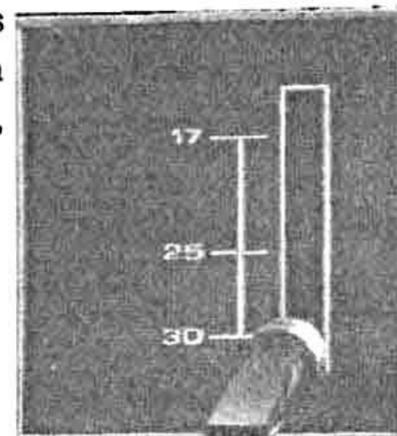
Make certain the correct speed selector button is pushed for the record to be played. If not, change the speed as instructed on page 8.

## Automatic Play

### 1) Push the Manual Tonearm Lifter to DOWN.

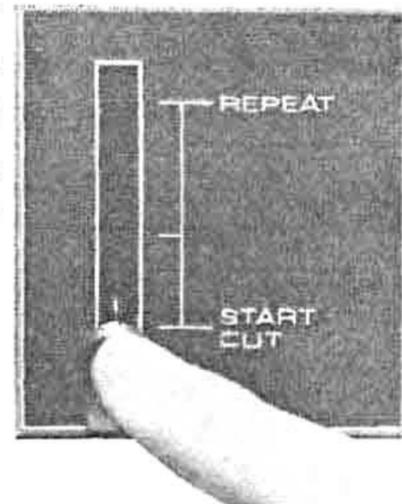
### 2) Set the Record Size Selector.

Set the Record Size Selector to either 30, 25 or 17, depending on the size of the record to be played. The 30, 25 and 17 positions are for 30cm (12"), 25cm (10") and 17cm (7") records, respectively.



### 3) Pull the Cueing Lever to START/CUT. (Ideally, keep the lever there for about a half second.)

Release the lever, and it will return to the upright position of itself. The platter now begins to turn, the tonearm moves to and descends on the edge of the record, and the record begins to play.

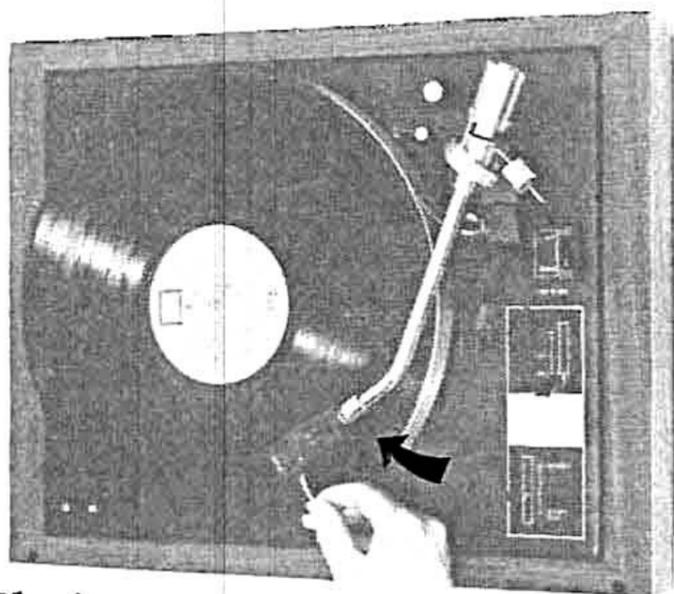


### 4) The Record Ends.

When the tonearm reaches the innermost groove of the record, it will automatically raise itself and return to the tonearm rest, turning off the power supply for the turntable at the same time.

## Manual Play

- 1) Follow steps 1) and 2) of **AUTOMATIC PLAY**.
- 2) Move the tonearm by hand to the desired position on the record.



### 3) Start Playing.

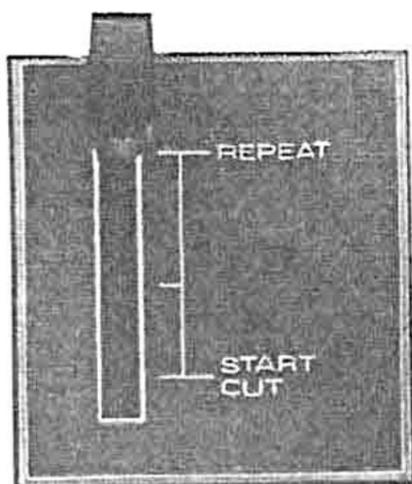
Pull the Cueing Lever to **START/CUT**, and hold it there for about a half second before letting go of it. The platter will begin to revolve and the tonearm will come down quietly on the record to begin playing.

### 4) The Record Ends.

When the tonearm reaches the innermost groove of the record, it will automatically raise itself and return to the tonearm rest, shutting the entire turntable off at the same time.

## Repeat Play

1. Repeat steps 1) and 2) of **AUTOMATIC PLAY**.
2. Push the Cueing Lever to **REPEAT**, and it will be locked there. The turntable will continue to play the same record over and over again.



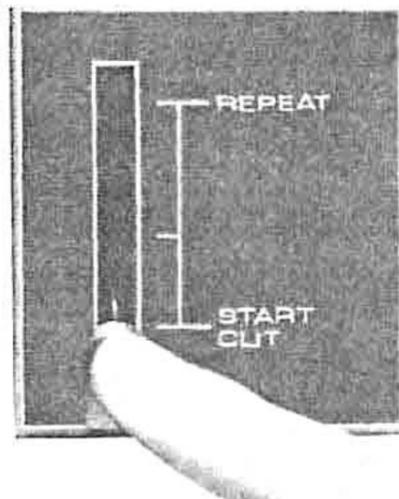
## To Stop Repeat Play

Return the Cueing Lever to the upright position. When the tonearm reaches the innermost groove of the record, it will automatically raise itself and

return to the tonearm rest, shutting the entire turntable off at the same time.

## Rejecting

To stop the turntable at any time while it is in operation, pull the Cueing Lever to **START/CUT** and release after holding it for about a half second. The lever will return to the upright position, the tonearm will rise off the record, return to the tonearm rest and turn off the power supply.



### Important:

If you play a so-called 'sono sheet' or other non-standard records, the automatic return mechanism may fail to function properly. The same also holds if you use a cartridge requiring considerably greater or smaller stylus pressure than 2 grams. In that case, it may be necessary to adjust the stylus landing position along with the stylus pressure and inside force canceler. See page 9 to change the stylus landing position.

## How to Use the Tonearm Lifter

Use to stop playing a record in the middle temporarily. To do so, tilt the lifter toward **UP**. To start playing the record again, tilt it toward **DOWN**. The tonearm will rise and fall gently as you operate the lifter.

## Changing Speeds

1. Keep the tonearm locked in the tonearm rest, and pull the Cueing Lever to **START/CUT**.
2. After the platter begins to revolve, push the desired Speed Selector Button.
3. Pull the Cueing Lever to **START/CUT** once again.
- 4) When the platter stops, the speed change is completed.

### Important:

Always be sure to make a speed change while the platter is spinning.

# CARE AND MAINTENANCE

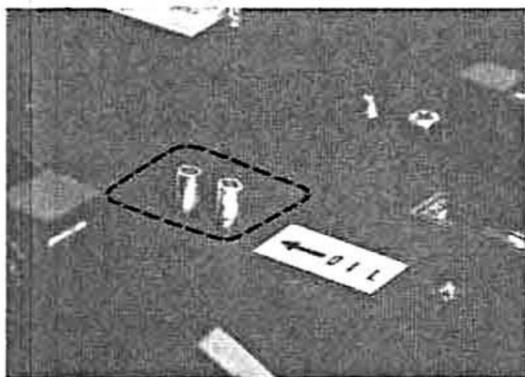
## If You Move to an Area where the Power Voltage/Frequency are Different

The FR-3060 is adjusted to operate at the correct power voltage and frequency of your area in our factory before shipment. If you move after purchasing it and find the power supply voltage and/or frequency are different, it must be re-adjusted to obtain the correct revolution of the platter. Contact the Sansui dealer from whom you purchased the turntable or the Sansui Authorized Service Station nearest you.

## Lubrication

While the need for oiling depends on the length of the time the turntable was operated, it is recommended to lubricate it at least once a year or once every 1,000 hours of use.

Remove the platter and drop a few drops of lubrication oil (supplied) into the oiling orifice shown in the photograph. Be very careful not to stain the drive belt or capstan with the oil. If you have stained by accident, wipe the oil off completely with benzine.



### Important:

The bearing of the center spindle is made of oil-less metal and requires no lubrication.

## Adjusting the Stylus Land/Lift Positions

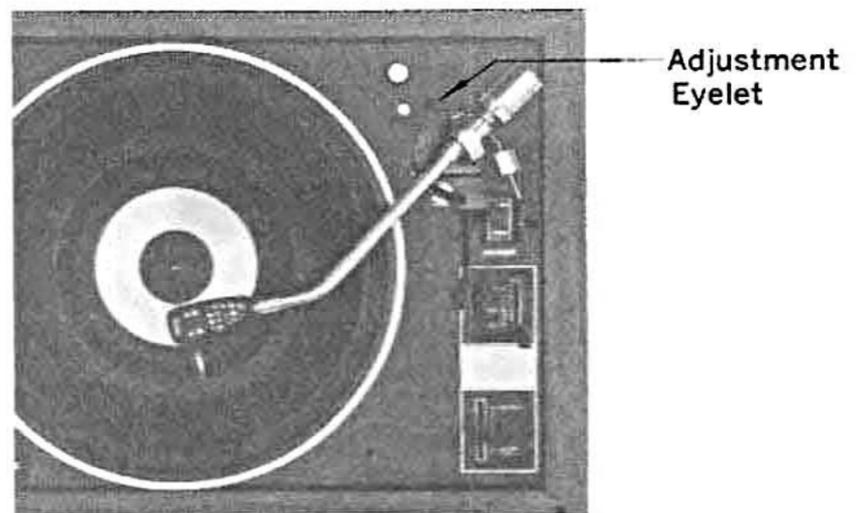
As the turntable is already adjusted so that the stylus lands at and lifts from correct positions of the record, this adjustment is usually unnecessary. Should these positions deviate for some reason, however, remove the rubber bush around the adjustment eyelet (see the photographs in the right column) and adjust them as instructed below:

### 1) Adjusting the Stylus Land Position

Move the tonearm to near the center spindle (to a point about 35mm away from the shaft) and, holding it there, adjust the screw (now visible) inside the adjustment eyelet, using the screwdriver supplied. Turn the screw clockwise if the stylus lands too far into the record, and counterclockwise if it lands too close to the edge of the record. One complete turn of the screw moves the stylus tip by about 1mm.

#### \* Adjusting the Stylus Land Position

-  If the stylus lands too inward
-  If the stylus lands too outward

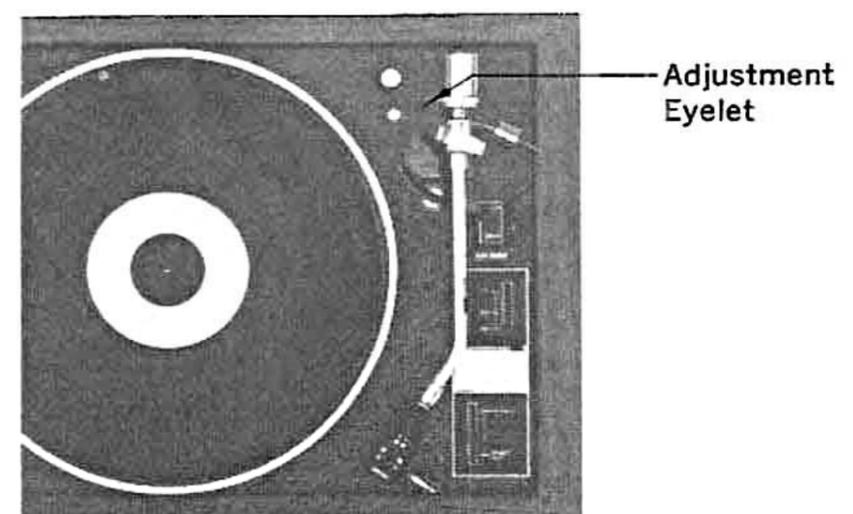


### 2) Adjusting the Stylus Lift Position

Return the tonearm to the tonearm rest by hand and keeping it there, adjust the screw inside the adjustment eyelet, using the screwdriver supplied. Turn the screw clockwise if the stylus lifts too soon, and counterclockwise if it lifts too late. One complete turn of the screw moves the stylus tip by about 1mm.

#### \* Adjusting the Stylus Lift Position

-  If the stylus lifts too soon
-  If the stylus lifts too late

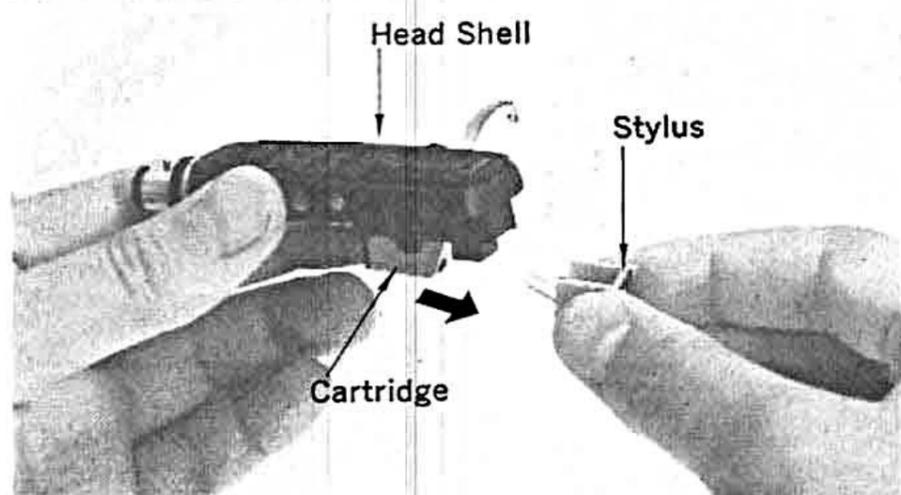


## When the Stylus is Worn

If the sound is distorted or shaky, it is probably because the record is scratched or because the stylus is worn.

Made of diamond, the stylus on the FR-3060 is good for about 500 hours of use.

If the cause of the unpleasant sound is thought to be a worn stylus, replace it with a new stylus. A replacement stylus, designated the Sansui SN-36, is available at your nearest Sansui dealer.



## Keep the Stylus Tip Clean

If dust or other foreign matters stay on the stylus tip, not only the tone quality of reproduced sound deteriorates, but both the stylus and the record are damaged. To prevent this, clean the stylus tip with a soft brush from time to time. Touching the stylus with a finger or giving shock to it by other means is completely prohibited. Doing so may shorten the service life of the cartridge or may cause permanent damage to it.

## Induced Hum

The high-performance induced magnet cartridge on the FR-3060 is susceptible to the influence of a magnetic field, such as may be produced by a nearby electric sewing machine, fan, other motor-equipped appliances or a large transformer. If such condition is present, loud hum noise may be heard. It can be usually eliminated by simply moving the appliance away from the turntable.

To avoid the influence of the power supply transformer of your amplifier, it is advisable to install the turntable opposite to the side of the amplifier where the transformer is located.

## Howling

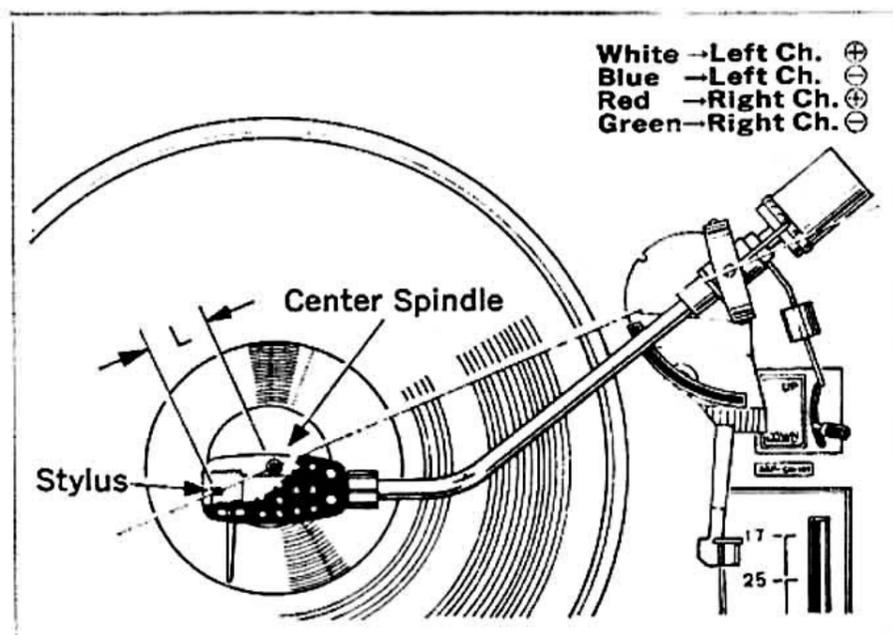
You may hear loud oscillating noise while the turntable is playing a record. This is called howling, and is caused because the turntable is placed too close to speakers. The sound pressure and vibration produced by the speakers are conveyed through the air or floor and picked up by the cartridge of the turntable, amplified and reproduced out of the speakers as sound again.

To correct this condition, move the turntable as far away as possible from the speakers or take special precautions to prevent the vibration of the speakers from reaching the turntable.

## Connecting a Different Cartridge

If you wish to use a different cartridge, mount it on the head shell so as to leave a proper 'overhang'—the distance between the stylus tip and the center of the platter shaft when the tonearm is moved closest to the platter shaft (the distance indicated as L in the illustration below). The correct overhang for the FR-3060 is 15mm (19/32 inches).

The lead wires of the head shell are color-coded as follows:



## 45-rpm Adaptor

To play 45 rpm records with large holes in the center, fit the 45 rpm record adaptor (supplied) on the center spindle.

## Transportation

If the need ever arises again to transport the FR-3060, be sure to pack it in the same manner as it was before you unpacked it.