

# YAMAHA P-520

*Natural Sound Direct Drive Turntable  
Unique Yamaha Optimum Mass, Minimum Resonance Straight Tonearm  
Fully Automatic Operation, Stable FG Servo Direct Drive System  
Slim Design, Light-Touch Controls, Convenient Front Panel Operation  
P-Mount Headshell Supplied, Speed Control*

*Thank you for purchasing the YAMAHA P-520 direct drive turntable.*

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OWNER'S MANUAL



### IMPORTANT!

Please record the serial number of your unit in the space below:

Model : P-520

Serial No. :

The serial number is located on the rear of the cabinet.

Retain this Owner's Manual in a safe place for future reference.

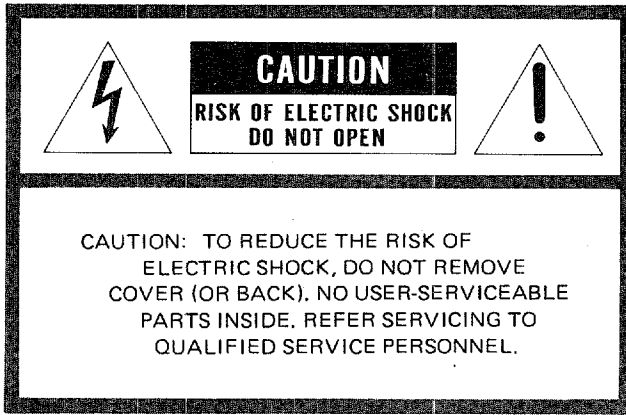
### WARNING

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

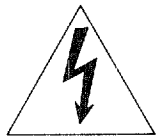
## CAUTION (PREPARED IN ACCORDANCE WITH UL STANDARD 1270)

- 1** Read Instructions — All the safety and operating instructions should be read before the appliance is operated.
- 2** Retain Instructions — The safety and operating instructions should be retained for future reference.
- 3** Read Warnings — All warnings on the appliance and in the operating instructions should be adhered to.
- 4** Follow Instructions — All operating and other instructions should be followed.
- 5** Water and Moisture — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near swimming pool, etc.
- 6** Carts and Stands — The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 7** Wall or Ceiling Mounting — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8** Ventilation — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9** Heat — The appliance should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10** Power Sources — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 11** Power-Cord Protection — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 12** Cleaning — The appliance should be cleaned only as recommended by the manufacturer.
- 13** Nonuse Periods — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14** Object and Liquid Entry — Care should be taken so that objects do not fall into and liquids not spilled into the inside of the appliance.
- 15** Damage Requiring Service — The appliance should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the appliance; or
  - C. The appliance has been exposed to rain; or
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - E. The appliance has been dropped, or the cabinet damaged.
- 16** Servicing — The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.

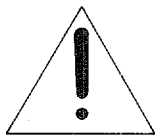
# P-520



- Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## CAUTION: READ THIS BEFORE OPERATING YOUR P-520

1

The P-520 is a sophisticated semi-automatic belt drive turntable. To ensure proper operation for the best possible sound reproduction, please read this manual carefully.

2

Treat the P-520 with the utmost of care, as it is extremely easy to jar fine settings such as tonearm tracking force out of adjustment. If the unit is bumped, it is important that all settings be re-checked.

3

Avoid installing the tonearm side of the P-520 next to the power transformer of your amplifier.

4

Be sure to locate the P-520 in a flat and level place, out of the direct rays of the sun. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Also avoid placing it directly in front of or too close to your speakers.

5

If it becomes necessary to relocate the P-520, do so with extreme care. If possible, repack the unit in its original packing for transportation.

6

Do not attempt to clean the P-520 with chemical solvents as the unit is coated with a mat lacquer. Use a clean, dry cloth.

7

It is extremely important that the stylus tip be kept free of dirt. Regular cleaning ensures the best possible sound reproduction.

8

Keep your records clean. Dirty records reduce the life of the stylus. A stylus with a diamond tip should be replaced after every 200–300 hours of use.

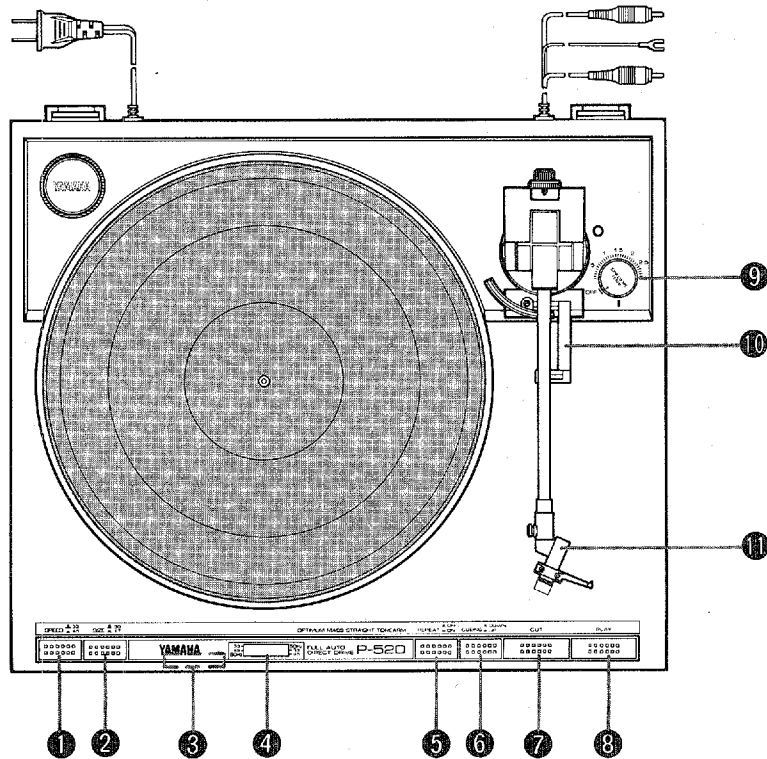
9

Be sure to read the "troubleshooting" section for advice on common operating errors before concluding that your P-520 is faulty.

10

Keep this manual in a safe place for future reference.

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## NAMES OF THE PARTS AND THEIR FUNCTIONS

### 1 SPEED SWITCH

This is used to select the turntable speed.

\* When playing a 33-1/3 rpm record, set the switch to "33" and when playing a 45 rpm record, set the switch to "45".

### 2 RECORD SIZE SELECTOR SWITCH

Set the switch that corresponds to the size of record you wish to play.

Set the switch to the "30" when playing a 30 cm LP and set the switch to "17" with a single or LP measuring 17 cm.

### 3 SPEED CONTROL KNOB

This gives approximately  $\pm 3.0\%$  adjustment in turntable platter rotation speed.

Refer to the section on adjusting the platter speed on page 8.



Speed control knob

### 4 STROBOSCOPE

The P-520 features a stroboscope for accurate indication of turntable speed.

### 5 REPEAT SWITCH

Depress the repeat switch when you want to repeat the same side of the record.

### 6 CUEING SWITCH

This is an oil-damped system which gently raises and lowers the stylus from the record surface.

### 7 CUT SWITCH

Depress this switch when you wish to stop record play. The tonearm will rise and return to the arm rest and the motor will stop.

### 8 PLAY SWITCH

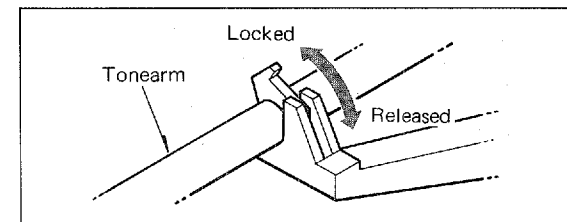
When this switch is depressed, the auto play system is activated. If the cueing switch 6 is in the UP " " position, the stylus will not descend onto the record. For auto play, make sure that the cueing switch is in the DOWN " " position.

### 9 ANTI-SKATING KNOB

This is a spring-lever type anti-skating control. Refer to page 7 for adjustment.

### 10 ARM REST/ARM LOCK

When transporting the turntable, be sure that the tonearm has been secured to the arm rest.



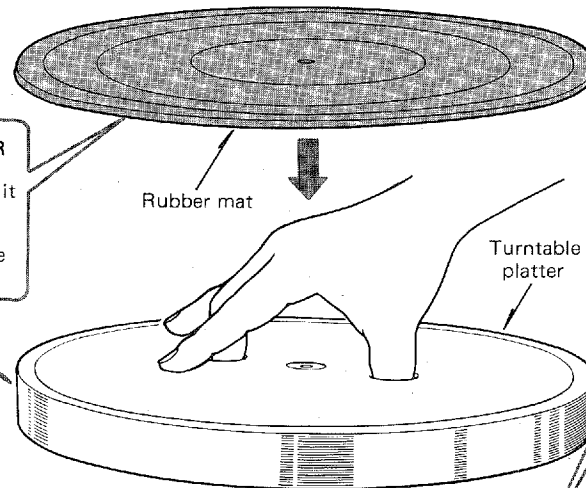
### 11 HEADSHELL

When fitting it into the tonearm pipe, keep it straight and push it into the tonearm end gently so that the connector pins are not damaged in the process.

## ASSEMBLING THE TURNTABLE AND TONEARM

Be sure to unplug the power cord from AC power outlet until assembly has been completed.

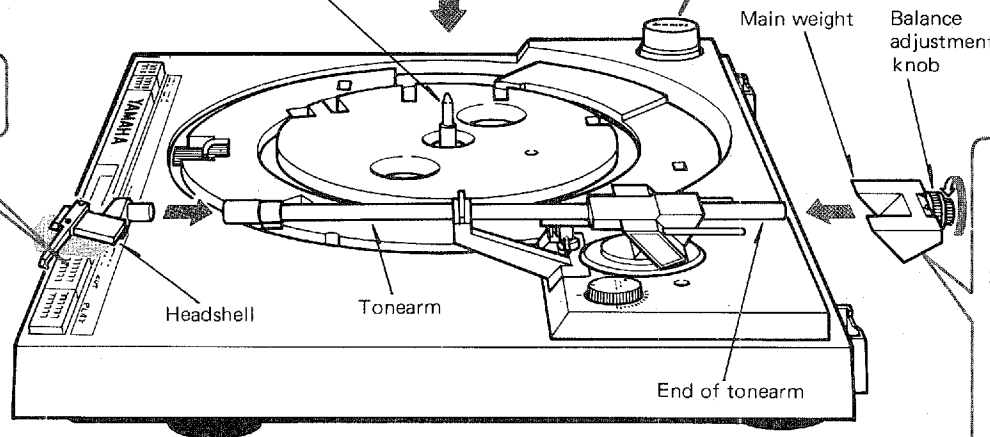
- **MOUNTING THE TURNTABLE PLATTER**
1. Insert your fingers into the two holes in the turntable platter and then securely position it over the shaft. Check to make sure that the platter is securely positioned.
  2. Place the rubber mat on top of the turntable platter.



45 adapter and 33-1/3 rpm record clamp  
In case of 33-1/3 rpm use it as disc clamp.

\*Be sure that the weight faces the right direction.

\* Once the assembly has been completed, be sure to depress the cut switch.



**ACCESSORIES**

Headshell x 1

P-mount Headshell x 1

Cartridge mounting parts x 1

Main weight x 1

45 adaptor and 33-1/3 rpm record clamp x 1

Dust cover hinges

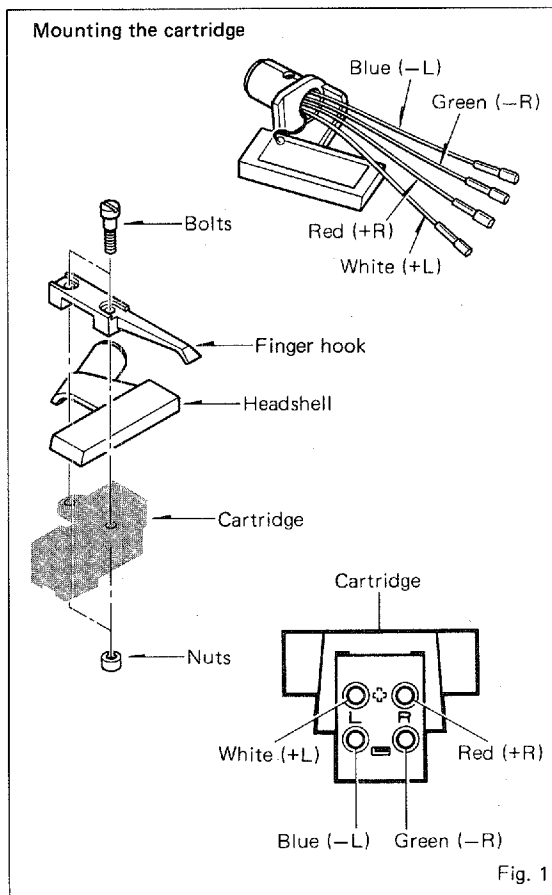
- **MOUNTING THE MAIN WEIGHT**
1. To mount the main weight rotate the Balance adjustment knob in the direction indicated by the arrow.
  2. The grooves inside the main weight and the click stopper on the end of the tonearm interlock, thus when the Balance adjustment knob is rotated in a counter-clockwise direction (as seen from the front of unit) the main weight will smoothly move forward.

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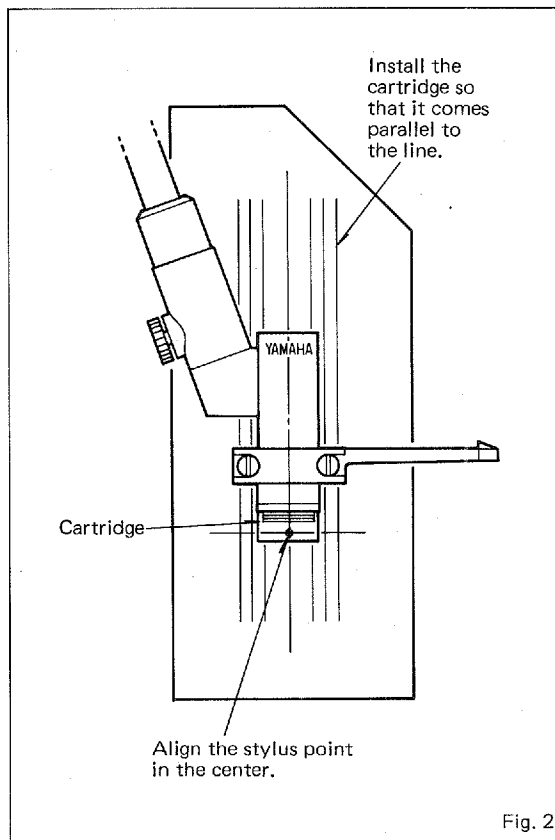
## MOUNTING THE CARTRIDGE

Cartridges with weights ranging from 2.5 to 9 grams may be used with this turntable.

1. Properly connect the headshell leads to the pins on the cartridge.
2. Loosely mount the cartridge to the headshell with cartridge mounting bolts.

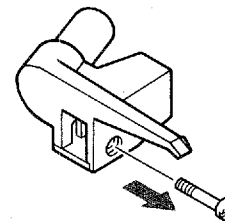


3. Align the stylus with the reverse side of the turntable sheet and after adjusting the overhang, secure the cartridge mounting bolts. Overhang is correct when stylus point contacts the perpendicular line on the reverse side of the turntable sheet lines up with the tip of the stylus.

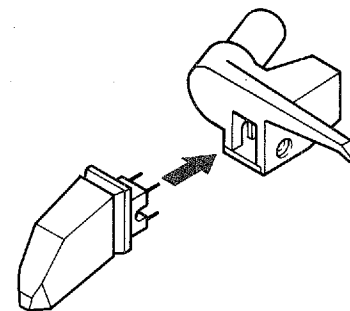


- P-Mount Cartridge  
P-mount headshell is only for P-mount cartridge.  
Mounting is as follows.

1. Loosen the bolt.



2. Push the cartridge straight into the Headshell.



3. Tighten the bolt.

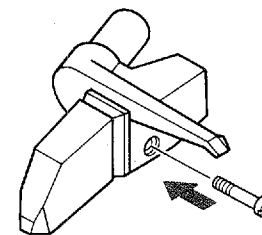
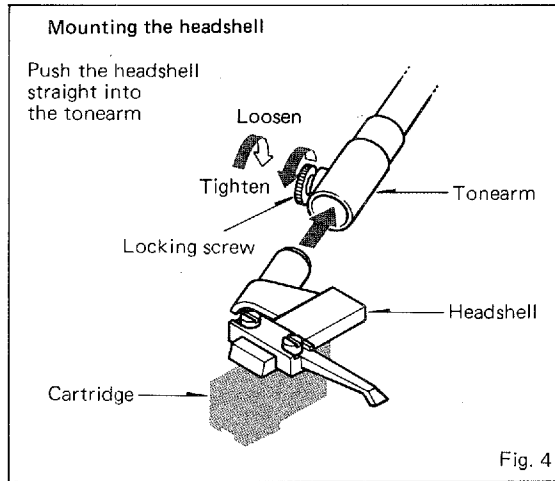


Fig. 3

## MOUNTING THE HEADSHELL

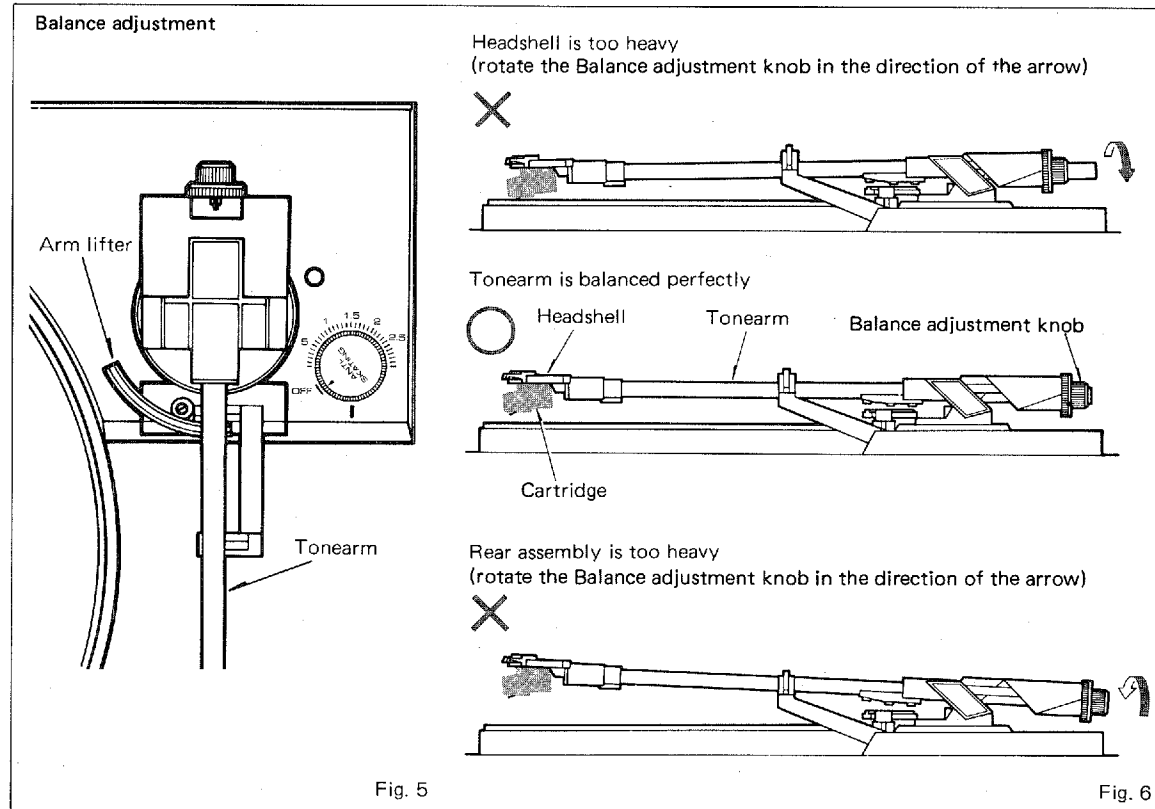
To mount the headshell, loosen the headshell locking screw and insert the headshell with the phono cartridge in place. Next securely tighten the locking screw. Be sure to keep the headshell straight when inserting it into the tonearm as it is very easy to damage the four contact pins inside the headshell.



## ADJUSTING TONEARM BALANCE

Proceed with the balance adjustment after mounting and installing the main weight assembly. Disconnect the power supply to prevent turntable rotation. Also, be sure to set the ANTI-SKATING control to "OFF".

1. Set the cueing switch to the DOWN "■" position and depress the arm lifter.



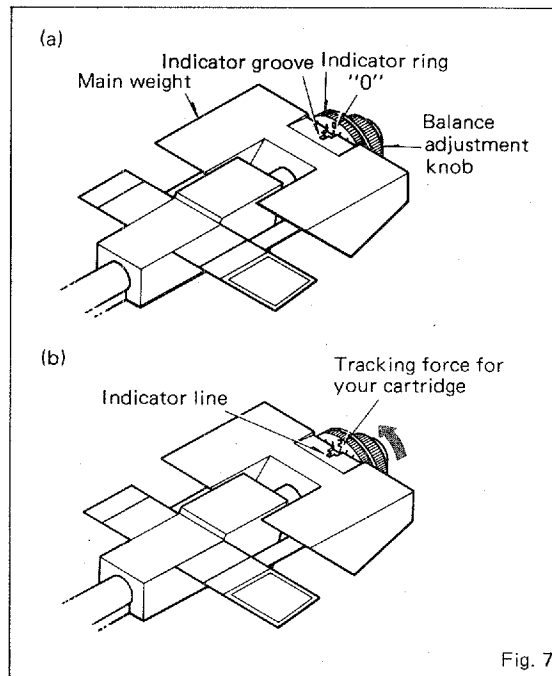
2. First release the arm lock. Then bring the tonearm away from the arm rest.
3. Carefully release the finger hook and check to see if the tonearm is horizontally balanced.
4. Adjust the main weight until the tonearm is in a perfectly horizontal position.
5. Once the tonearm has been balanced, return it to the arm rest.

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## ADJUSTING CARTRIDGE STYLUS TRACKING FORCE

Be careful not to move the main weight after balance adjustment, and turn only the indicator ring on the front of the main weight until the zero "0" comes opposite center of the indicator groove on the tonearm (See Fig. 7-(a))

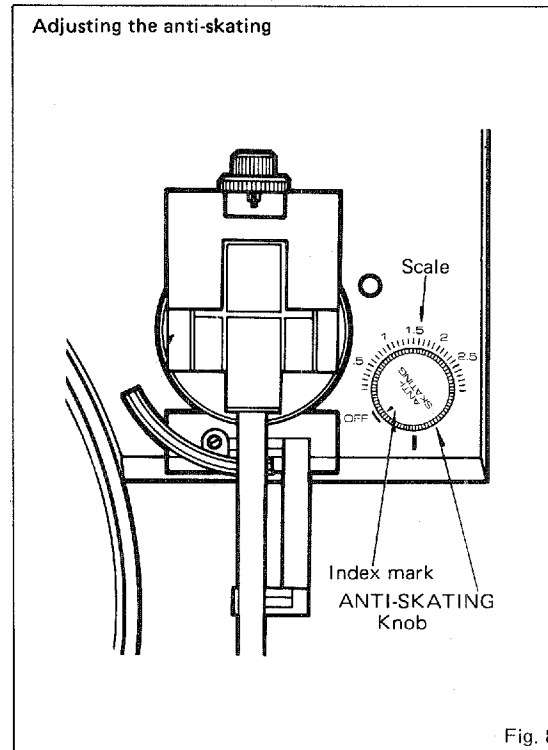
Rotate the Balance adjustment knob slowly in the direction shown in Fig. 7(b), and note that the indicator ring turns with it. Turn the Balance adjustment knob until the Indicator groove on the tonearm is opposite the recommended stylus tracking force for your cartridge.



## ADJUSTING THE ANTI-SKATING

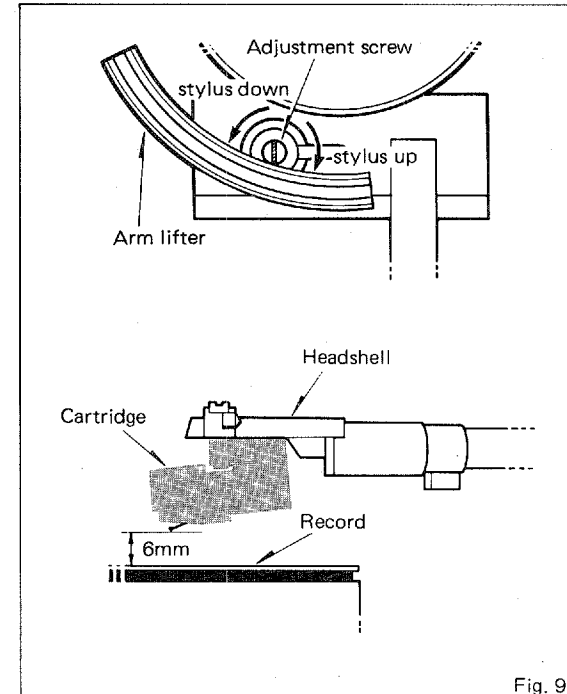
Align the index mark on the anti-skating knob with the scale marking which corresponds to the rated tracking force of your cartridge.

### Adjusting the anti-skating



## STYLUS HEIGHT ADJUSTMENT

When the tonearm is in the up position, the height of the stylus above the record should be about 6mm. If it is more or less than this, loosen the adjustment screw on the arm lifter, and adjust the height of the arm lifter so the distance of the stylus to the record is 6mm.



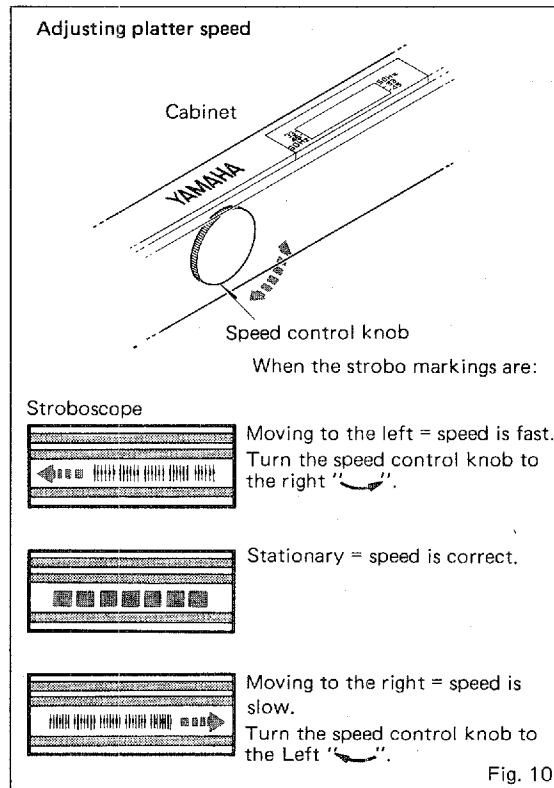


## ADJUSTING PLATTER SPEED

Observe the stroboscope, and adjust the speed control knob at the bottom of the cabinet so that the stripe matching the power line frequency in your area appears to stand still.

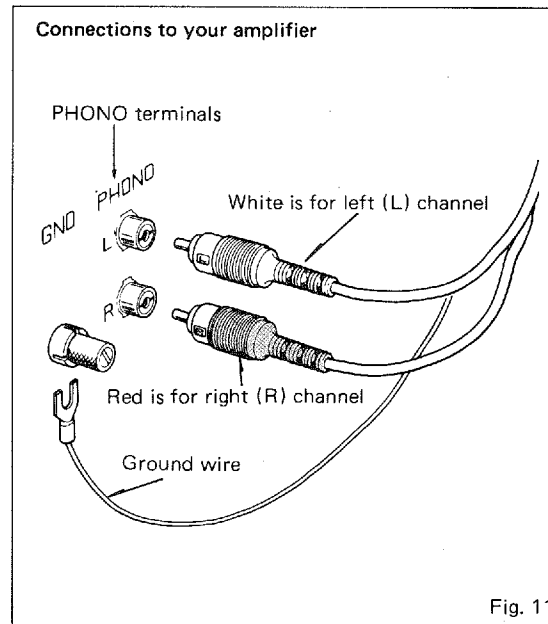
The speed control knob permits an adjustment of up to  $\pm 3.0\%$  in speed.

- In some cases the stroboscope stripe will appear to move slightly. This is caused by small fluctuations in the power line voltage and does not mean that something is wrong with the turntable.



## CONNECTIONS TO YOUR AMPLIFIER

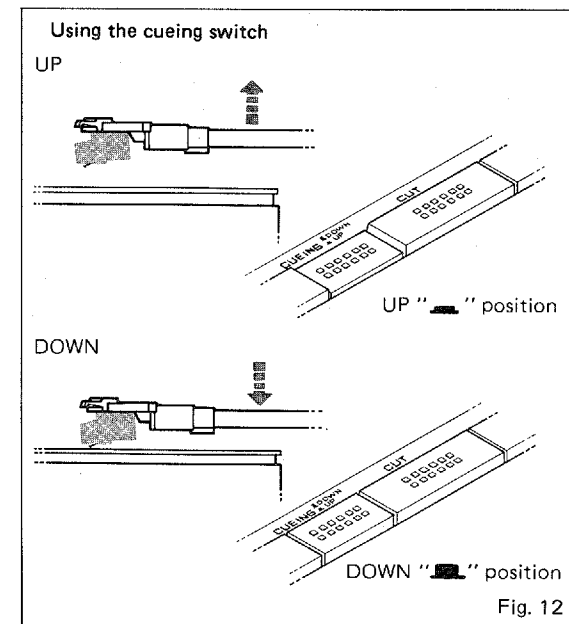
1. Connect the output cords from the rear-panel of the cabinet to the PHONO terminals on the audio amplifier. Make sure that the left and right channels are properly matched. The white cord signifies left (L) channel and the red the right (R) channel.
2. Connect the black ground wire to the GROUND (GND) terminal on the audio amplifier. Depending on the amplifier, better sound is sometimes obtained by not connecting the ground wire.
3. Connect the power plug to the AC wall outlet or to an auxiliary outlet on the audio amplifier.



## USING THE CUEING SWITCH

In normal operation the cueing switch is set in the DOWN position. However, if you wish to interrupt record play in order to play a different track, the cueing switch can be used to gently raise and lower the stylus.

1. Raising the stylus:  
Set the cueing switch to the UP "▲" position. The stylus will immediately rise from the record.
2. Lowering the stylus:  
Set the cueing switch to the DOWN "■" position. The stylus will now descend onto the record and play will begin.



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## PLAYING RECORDS

After you have assembled the turntable, made the necessary adjustments and connected the turntable to the audio amplifier, you are ready to start playing records. Proceed as follows.

**1**

Please check the connecting cords for the turntable, amp and speakers.

- Power cord → AC outlet or amplifier's power outlet
- Output cords → Phono terminals on the amp
- If you are using the ground wire, check to see that it is securely fastened to the amplifier's GND terminal.



**2**

Setting the Turntable into Operation

- Turn the amp's power switch on, and set the input selector to Phono. Set the amp's volume level accordingly.

**3**

Place your selected record on the turntable platter and set the record size selector switch to the size of the record.

- When playing 45 rpm singles, slip the accessory 45 adaptor over the center shaft.  
When playing 33-1/3 rpm records use the adaptor as a record clamp.



**4**

Set the SPEED switch so that it corresponds to the rated speed of the record.



**5**

Make sure that the cueing switch is in the DOWN "■" position.



**6**

Remove the stylus cover.

**7**

Remove the arm rest lock and depress the PLAY switch. Record play will start automatically.



**8**

Record play

- Adjust the amplifier's volume and tone controls to your own preferred levels.



**9**

Once record play has been completed, the tonearm will automatically rise and return to the arm rest and the platter will stop rotating.

- Depress the CUT switch if you want to stop record play.
- Operate the cueing switch (refer to page 8) if you want to interrupt record play.
- If the REPEAT switch has been activated, the unit will indefinitely repeat the same side of the record. Even if the CUT switch is depressed, play will resume again.

## TROUBLESHOOTING

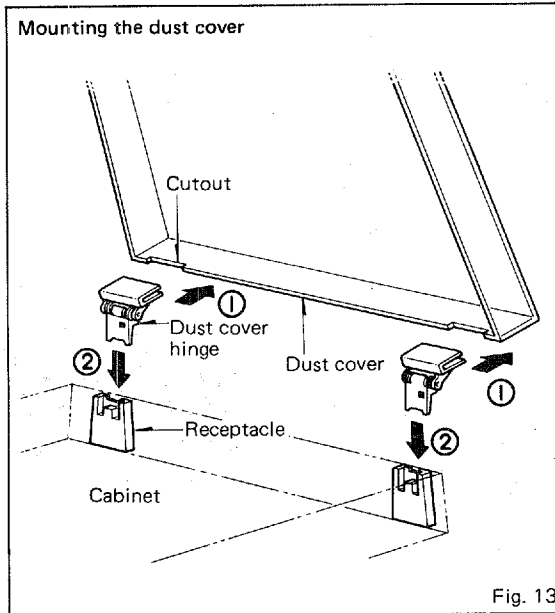
Before assuming that your turntable is faulty, check the following troubleshooting list which details the corrective action you can take yourself without having to call a service engineer. If you have any doubts or queries, get in touch with your nearest YAMAHA dealer.

Fault	Cause	Cure
Platter does not rotate, although PLAY switch is depressed.	Power cord is not firmly plugged into AC power outlet or into auxiliary power outlet of amplifier.	Connect the power cord securely to the AC power outlet or to the amplifier's auxiliary power outlet.
Platter rotation is too slow (or too fast.)	Speed is not adjusted properly.	Refer to page 8 and adjust the speed.
	Stroboscope has not been observed properly.	Check the frequency and the speed by the stroboscope display and adjust.
Tonearm is not properly balanced when cartridge is replaced.	The cartridge is either too heavy or too light.	The proper cartridge weight ranges from 2.5 to 9 grams. If the weight of the cartridge used is within this range, rebalance the tonearm following fig. 6.
Tonearm does not descend to the record surface.	Cueing switch is in the UP "▲" position.	Set the cueing switch to DOWN "■" position.
There is no sound or low sound although the stylus descends to the record surface.	Poor headshell connector pin connections.	Mount the headshell firmly onto the tonearm.
	Amplifier's volume control is at lowest position.	Turn up the volume control to the required position.
	Poor turntable output cord connections.	Check the connecting terminals on the rear panel and amplifier.
The body of the cartridge catches on the record surface.	Tracking force is too high.	Re-adjust to the proper tracking force.
Reproduced sound is distorted and unpleasant, particularly the treble, with a clicking or scraping noise.	Turntable is not set horizontally.	Install the turntable horizontally.
	Dust on stylus.	Clean the stylus with a stylus cleaning brush.
	Worn stylus.	Replace the stylus.
	Damaged or dusty, dirty record.	Replace with a new record.
	Tracking force is either too high or too low.	Readjust the tracking force for the cartridge to the recommended value.
Reproduced sound quivers and a howl (acoustic feedback) is heard.	Amplifier's treble control is turned up too high.	Try returning the treble control to the FLAT position.
	Installation locations of speaker systems and turntable are too close together or turntable is unstable and vibrations are being transmitted to cause resonance.	Move the turntable to a stable location, move it some distance from the speakers, or change the speaker locations (in particular, avoid installation in corners.)
A loud humming sound is heard during record play.	Poor turntable output cord connections.	Check the connecting terminals on the rear panel and amplifier.
	Poor headshell connector pin connections.	Mount the headshell properly onto the tonearm.

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## MOUNTING THE DUST COVER

1. Fit the dust cover hinges into the two cutouts at the rear of the dust cover, as shown in fig. 13, and slide them into place. (Arrow 1)
2. Next, simultaneously insert the two hinges into the left and right receptacles on the rear of the cabinet. (Arrow 2)
3. It is possible to remove the dust cover. To remove, follow the above procedure in reverse.



## SPECIFICATIONS

### ■ TURNTABLE MOTOR SECTION

Drive System	FG Servo direct drive
Motor	8 Poles coreless DC Hall motor
Turntable Platter	30cm (12") diecast aluminum, Weight 1.0kg (2.2 lbs) (including rubber mat)
Turntable Moment of Inertia	120kg-cm <sup>2</sup> (including rubber mat)
Speed	33-1/3 & 45 r.p.m.
Signal-to-Noise Ratio	Better than 78dB (DIN-B, IEC98A WTD)
Wow and Flutter	Less than 0.015% wrms (FG-direct measurement) Less than 0.025% wrms (Test record Method)

### ■ TONEARM SECTION

Arm Type	Swinging, straight arm
Tonearm Total & Effective Length	300/222mm (11-3/8"/8-3/4")
Overhang	16mm (5/8")
Tracking Force	Static balanced, 0-3g, 0.1g steps
Effective Mass	11g (without cartridge)
Horizontal Tracking Error	-1° to 3°
Anti-Skating	Spring type
Offset Angle	23°
Arm Lifter	Oil damped system
Sensitivity	Vertical 10mg, Horizontal 30mg
Permissible Cartridge	2.5 - 9g
Weight	
Headshell	Resin, shield type Weight 3.2g (including volt, nut and finger hook)

### ■ GENERAL

Power Supplies	AC 120V 60Hz
Power Consumption	7W
Cabinet	BMC (Bulk Molding Compound)
Dust Cover	Removable, transparent
Hinges	Detachable
Dimensions (WxHxD)	435 x 111 x 378mm (17-1/8"x4-3/8"x14-7/8")
Weight	6.2kg (13.6 lbs)

*Specifications subject to change without notice.*