

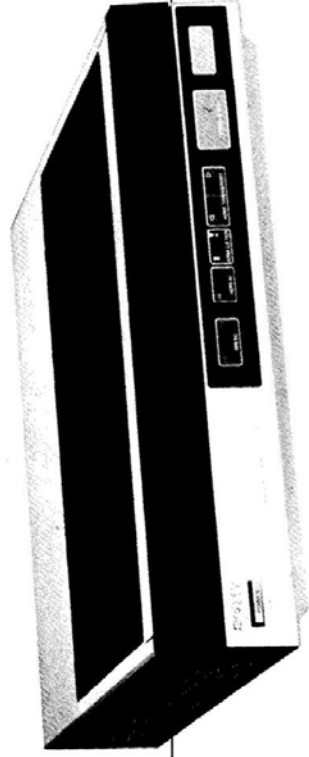
SONY®

STEREO TURNTABLE SYSTEM

PS-FL77/FL77C

OPERATING INSTRUCTIONS

Before operating the unit, please read this manual thoroughly.
This manual should be retained for future reference.



This instruction manual covers the PS-FL77 and PS-FL77C. The PS-FL77 is not supplied with a cartridge, while the PS-FL77C is supplied with a VL-45G cartridge.

Where differences arise between the two models, these are clearly described in the appropriate sections.

OWNER'S RECORD

The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

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WARNING

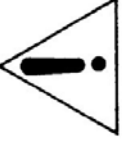
To prevent fire or shock hazard, do not expose the unit to rain or moisture.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
 - relocate this equipment with respect to the receiver
 - move this equipment away from the receiver
 - plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

“How to Identify and Resolve Radio-TV Interference Problems”. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

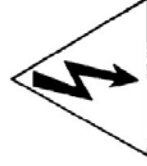




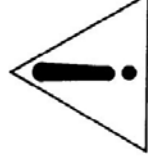
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FEATURES

Unique modular turntable system

When you touch the OPEN/CLOSE key the turntable module will smoothly slide out. Other audio components can be positioned on top of the turntable cabinet.

Servo-controlled linear tracking tonearm

A linear tracking tonearm is designed to duplicate the movement of the head which cuts the record master. Compared with a pivoted tonearm, a linear tracking arm has a very small tracking error (which means greatly reduced harmonic distortion) and almost no pressure on the inside wall of the groove (which means improved tracking ability and channel separation).

Biotracer electronic tonearm

The horizontal and vertical movement of the tonearm is monitored by the Biotracer's own sensors, and this information is transmitted to the tonearm by the tonearm's own linear motors to suppress resonance at low frequencies and to obtain the maximum signal-to-noise ratio.

A microcomputer controls three motors

The movement of the turntable, the tonearm and the turntable module is controlled by a microcomputer. When you press the START/STOP key, the module will close, the turntable will rotate and the tonearm will lower onto the record.

Fully automatic system

With the module closed, automatic record play and tonearm up/down are operated by the "feather-touch" function key on the front panel. The record size is automatically set by a photo sensor system. If no record is on the turntable, the tonearm will not descend but will automatically return to the arm rest. A muting system activates when the tonearm is lifted and is deactivated after the tonearm lowers onto a record so there is no need to turn the amplifier volume down every time a stylus is placed on a record.

Liner torque BSL motor

Direct drive system with Sony's unique BSL (brushless and slotless) motor which has an extremely low noise level and whose smoothness virtually eliminates wow and flutter. Its high torque assure a quick start to 33 $\frac{1}{3}$ rpm after only a half revolution.

Synchronized operation with the Sony cassette decks

When the tonearm lowers onto the lead-in groove of a record, the cassette deck stand-by mode is released and the record mode assumed.

When play finishes, the cassette deck is automatically set first in the record muting mode, then in the pause mode. This synchronized operation is possible with Sony cassette decks equipped with a four-pin remote control jack which is connected with the Sony RM-65 synchro remote control unit.

Wireless remote control operation

Using the optional ST-V7 system control tuner (available only in the USA), various operation — start/stop play, tonearm up/down — can be remotely controlled.

PRECAUTIONS

On safety

- Operate the unit only on 120 V ac, 60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

On installation

- Place the turntable on a level surface.
- Avoid placing the unit near electrical appliances (such as a television, hair dryer, or fluorescent lamp) which may cause hum or noise.
- Place the turntable where it will not be subject to any vibration, such as from speakers, slamming of doors, etc.
- Keep the unit away from direct sunlight, extremes of temperature, and excessive dust and moisture.
- The turntable has resilient feet that isolate the mechanism from external shock and vibration. If the unit has not been placed on a level surface, turn the feet to level the unit.

Level check

Place the stylus over the record, pressing the ◀ key, then lower the stylus onto the record with the ▼ key. When you raise the stylus by pressing the ▼ key again, check the stylus tip movement as follows.

- If the stylus tip does not rise straight up but veers to the right, adjust the right feet high.
- If the stylus tip does not rise straight up but veers to the left side, adjust the left feet high.

On repacking

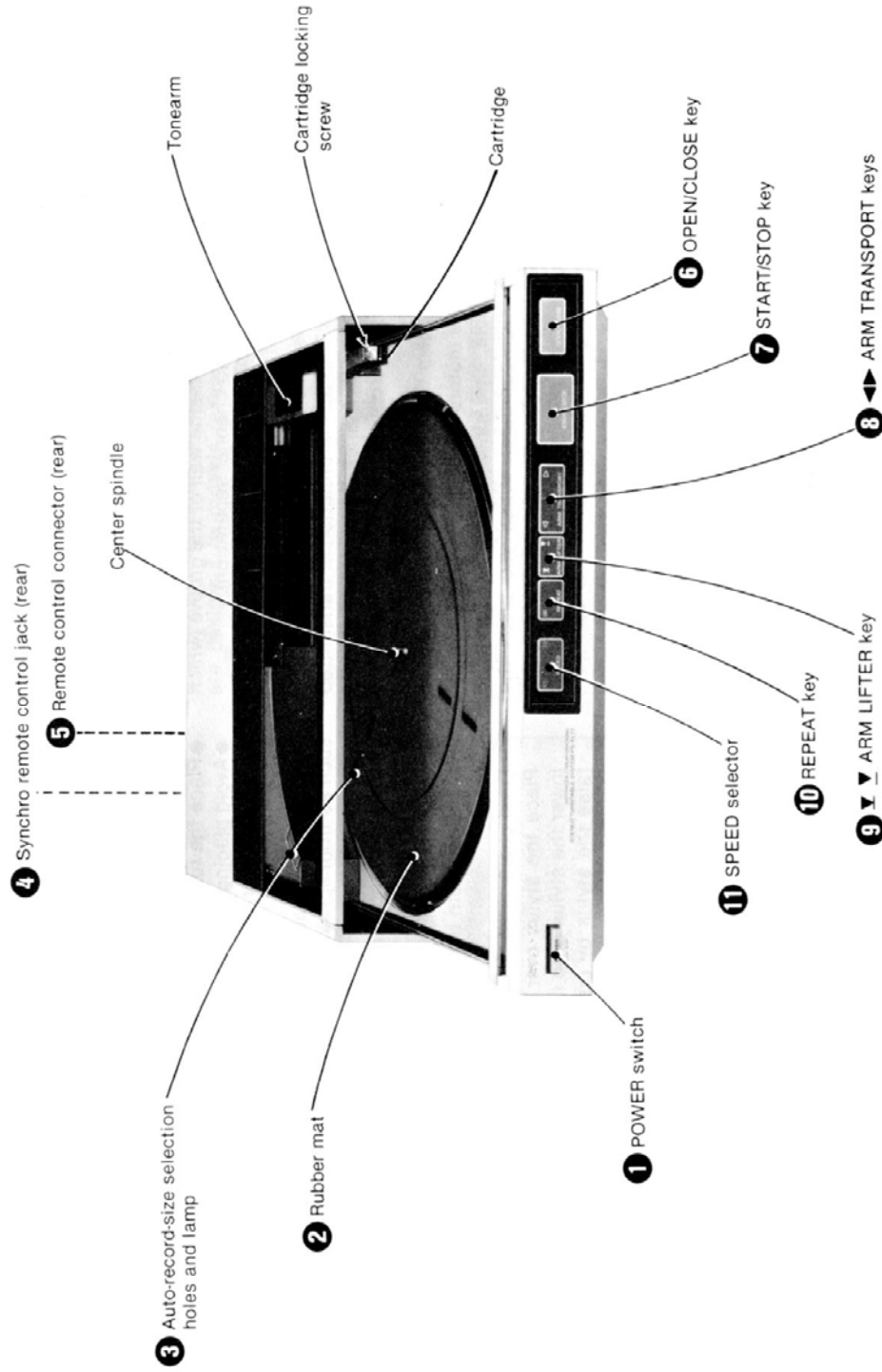
Do not throw away the carton and packing materials. It is an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton box. Before repacking, fix the transit screws in the original positions.

For the customers in the USA

For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

LOCATION AND FUNCTION OF CONTROLS

The photo below shows the assembled PS-FL77C turntable.



1 POWER switch

Press to turn on the turntable. To turn the turntable off, press it again.

2 Rubber mat

Place the rubber mat so that the holes for auto record size selection on the rubber mat and on the platter are matched correctly.

3 Auto-record-size selection holes and lamp

Record size is automatically selected by a beam transmitted from a lamp through the holes on the rubber mat and the platter to the photo detectors underneath the platter. When no record is on the platter, the tonearm will not lower onto the turntable.

4 Synchro remote control jack (rear)

Synchronized recording from disc to tape is possible on specified Sony cassette decks by using the optional RM-65 synchro remote control unit.

5 Remote control connector (rear)

Connect the remote control cord of the optional ST-V7 system control tuner (available only in the USA).

6 OPEN/CLOSE key

With one touch of this key the turntable module automatically opens for loading a record. With another touch the module automatically closes.

7 START/STOP key

Press to start the record playing. To stop during play, press it again.

8 ARM TRANSPORT keys

To move the tonearm inward, press the ◀ key, and to move outward, the ▶ key. The tonearm is raised and continues to move while the key is pressed. The tonearm will stop when the key is released. For fine adjustments, press and immediately release the appropriate key.

9 ARM LIFTER key

This key lifts and lowers the tonearm. When the tonearm is lowered, the turntable starts rotating.

10 REPEAT key

Press this key to repeat play. Repeat play continues until this key is pressed to release it. If the START/STOP key is pressed during repeat play, the tonearm returns to the arm rest and the turntable stops rotating.

11 SPEED selector

Selects the record speed. When the POWER switch is turned on, the speed is always 33 $\frac{1}{3}$ rpm unless the selector is pressed to select 45 rpm.

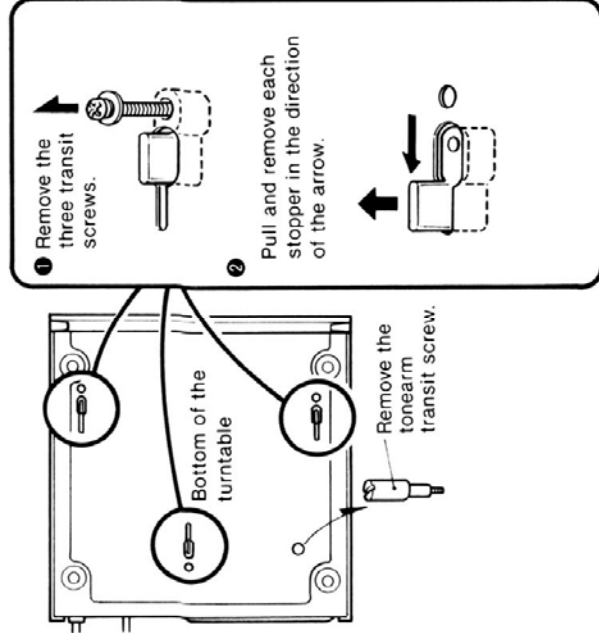
CARTRIDGE INSTALLATION

PS-FL77C: The supplied cartridge has been installed on the tonearm at the factory. The following steps 5 to 11 are not necessary unless you replace the cartridge.

PS-FL77: A commercially available cartridge with a **TAP** label can be installed to this turntable. The optional Sony VL-45G cartridge is recommended.

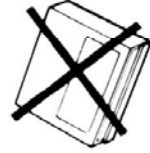
The **TAP** label indicates that a cartridge is a standardized plug-in type.

- 1 Remove the three transit screws and stoppers. Save these screws and stoppers, since they will be required when repacking.

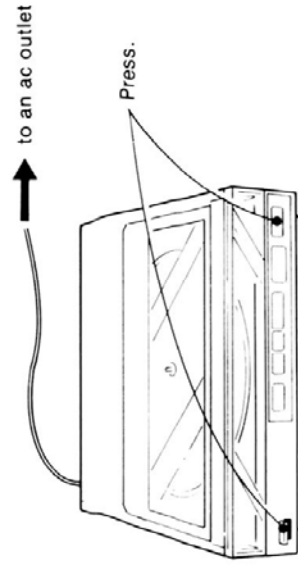


Caution

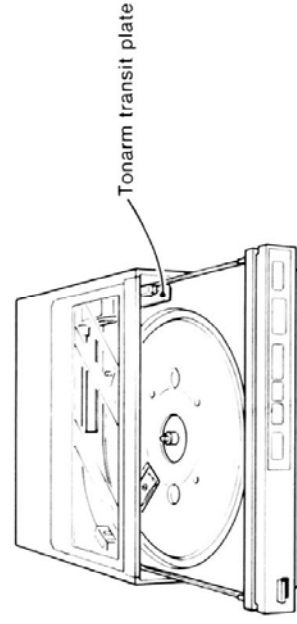
Do not hold the unit so that the front panel faces down after you have removed the transit screws, since this may cause serious damage to the module.



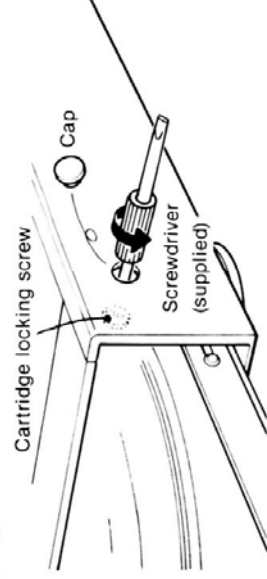
- 2 Remove all packing material and wipe off the cabinet. Save the packing box and materials for possible future use.
- 3 Connect the power cord to an ac outlet, press the POWER switch (⏻ ON) and press the OPEN/CLOSE key. The module will open.



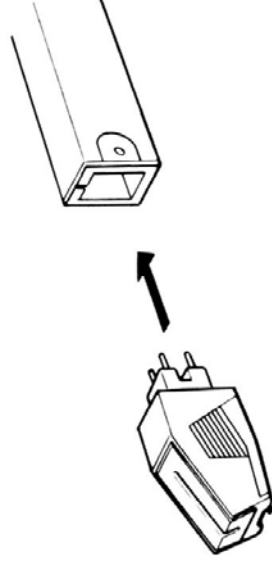
- 4 Remove the tonearm transit plate.



- 5 Remove the rubber mat and platter, if in place. Remove the cap on the right side of the cabinet, insert the supplied screwdriver through the hole and remove the cartridge locking screw with the screwdriver. The screw will cling to the head of the screwdriver.



- 6 Press the ◀ key to move the tonearm inward for easier cartridge installation.
- 7 Press the POWER switch (⏻ OFF).
- 8 Plug the cartridge into the tonearm.

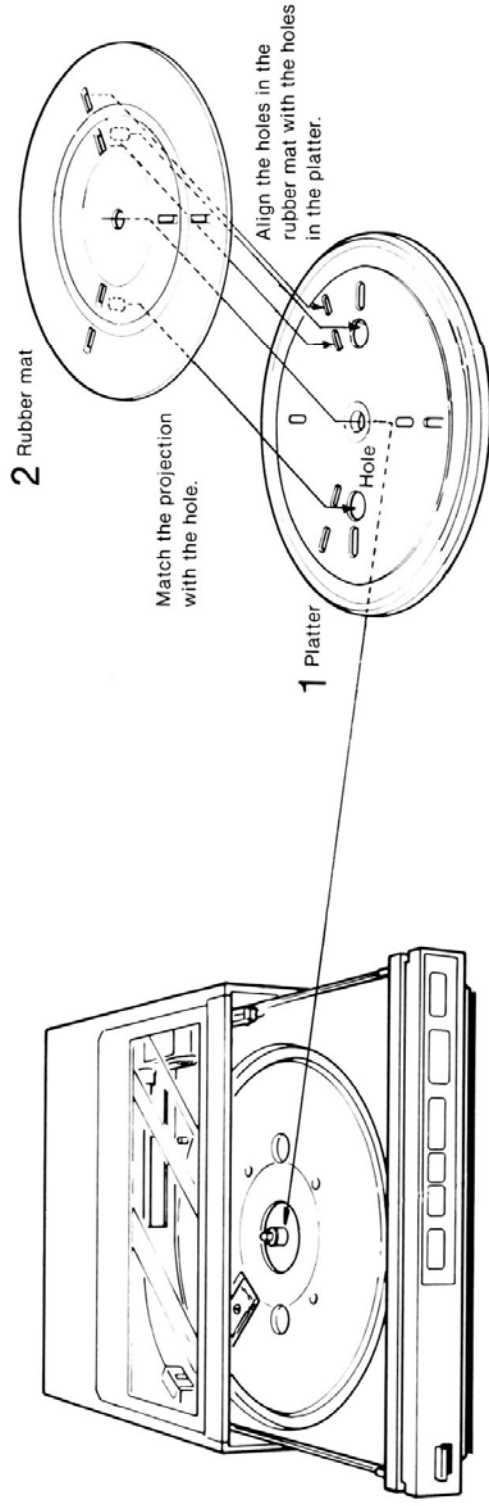


- 9 Press the POWER switch (⏻ ON), and the tonearm will return to the arm rest.
- 10 Tighten the cartridge locking screw to the tonearm, by inserting the screwdriver holding the screw through the hole, and turning it clockwise.
- 11 Replace the cap.

TURNTABLE ASSEMBLY

1 Carefully place the platter on the motor board by fitting the center hole over the center spindle. Be careful that no foreign objects lodge under the platter.

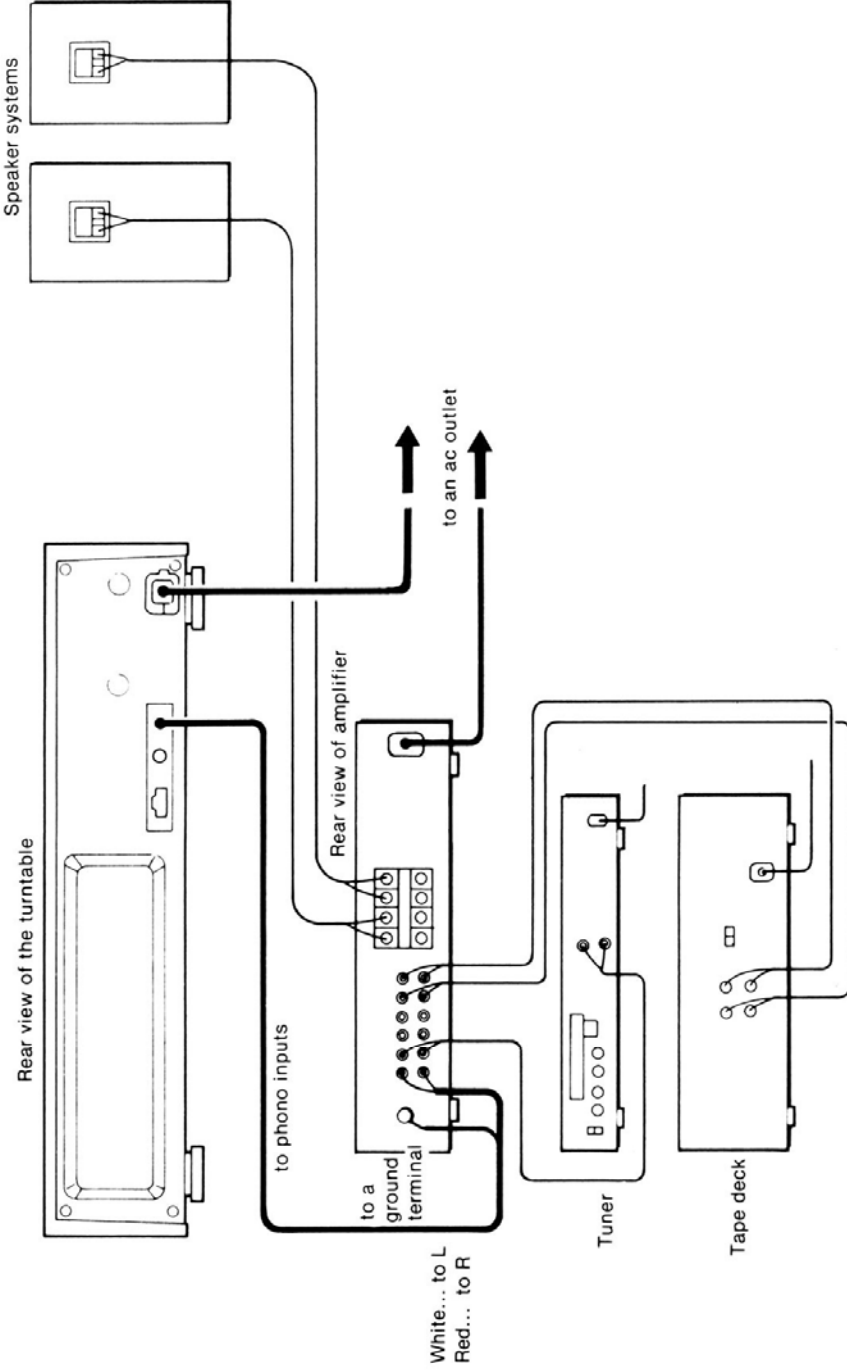
2 Place the rubber mat on the platter, aligning the holes in the rubber mat with the holes in the platter.



CONNECTIONS

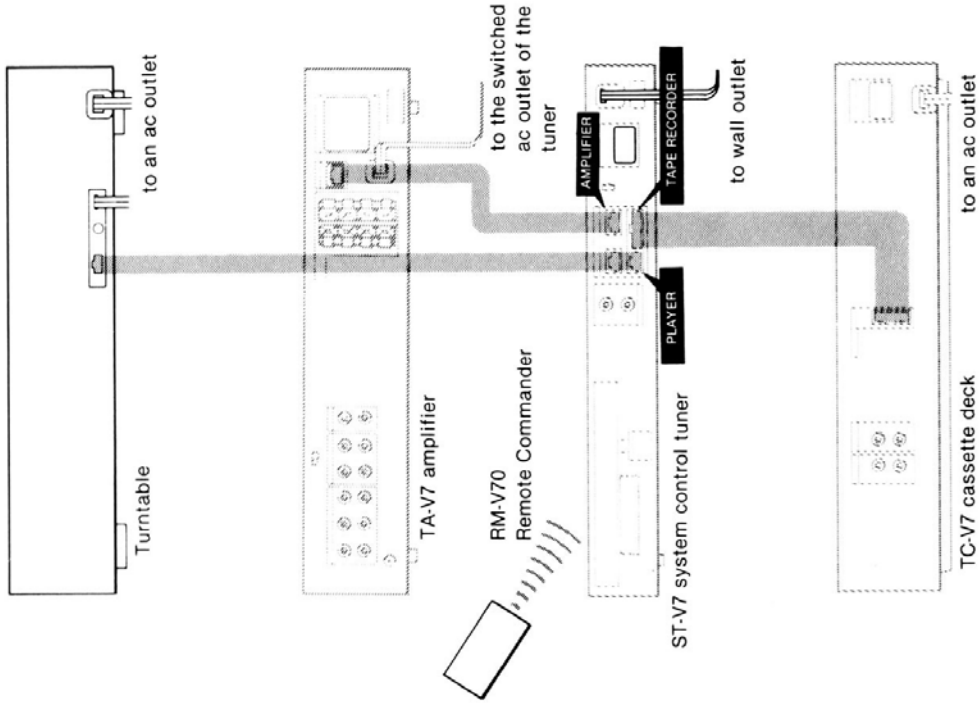
- Turn off the amplifier before making connections.
- Be sure to insert the cable connectors firmly into the jacks. Loose connections may cause hum and noise.

- Connect the red plug of the connecting cord to the right-channel jack [R] of the amplifier and the white plug to the left-channel jack [L]. Otherwise, the right and left channels will be reversed.
- Leave a little slack in the connecting cord to allow for inadvertent shock or vibration.



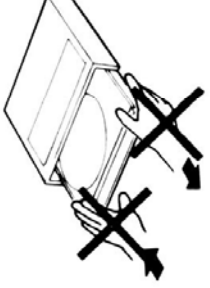
REMOTE CONTROL CORD CONNECTION

Connect this turntable to the optional ST-V7 system control tuner (available only in the USA) using the remote control cord supplied with the tuner. The ST-V7, with its infrared ray sensor, can control various turntable operations as well as the connected amplifier and cassette deck operations by an infrared ray transmitted from the RM-V70 Remote Commander (supplied with the ST-V7). For details, refer to the ST-V7's instruction manual.

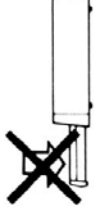


Notes on the module

The OPEN/CLOSE key does not activate when the power is turned off. Never push or pull the module forcibly.



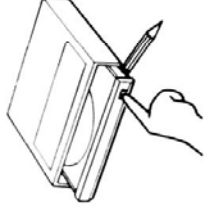
Do not push down on the module.



Do not stop the module when it is moving.



Be careful that no foreign object is caught between the module and the cabinet.



If the foreign object should be caught in this position, press the OPEN/CLOSE key immediately so that the module will move in the opposite direction.

If you leave the foreign object between the module and the cabinet for 10 seconds, the module will automatically move in the opposite direction.

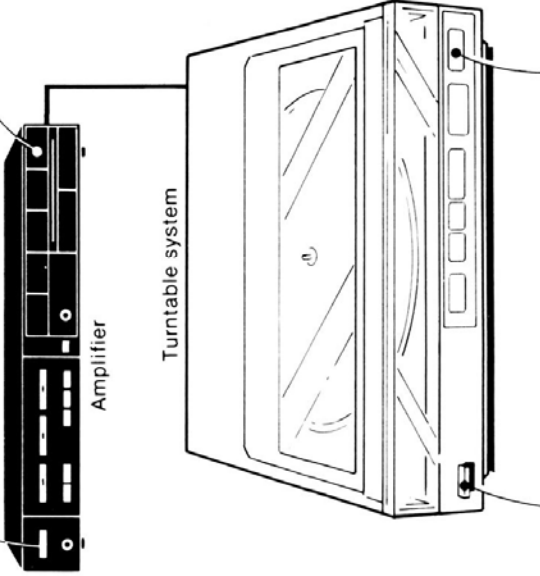
RECORD PLAYING

PREPARATION

Follow the numbered sequence.

1 Turn on the power.

2 Lower the volume and set the input selector to PHONO.



3 Depress to turn on the power.

4 Press the OPEN/CLOSE key to open the module.

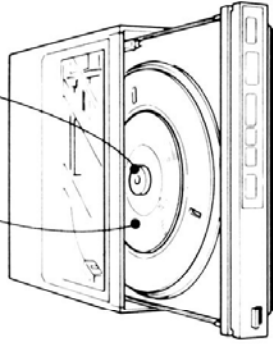
5 Place a record on the platter.

For 30 cm (12 in.) records

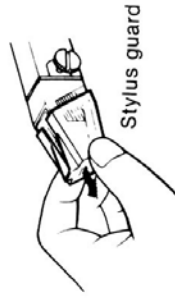


For 17 cm (7 in.) records

45-rpm adaptor (supplied)



6 Remove the stylus guard.



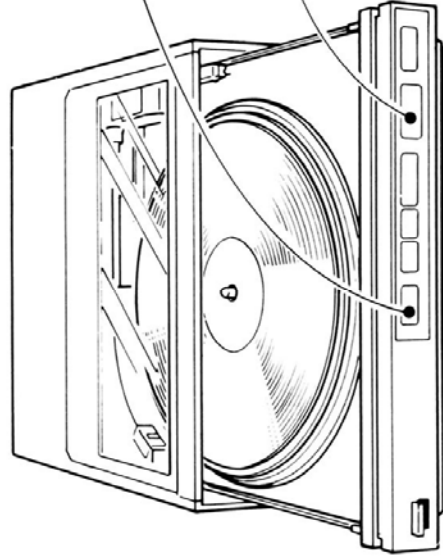
Notes

● If the turntable causes interference to radio and television reception, turn off the turntable or move the turntable away from the receiver.

● A badly warped record cannot be played because it will rub against the tonearm.

AUTO PLAY

The auto-record-size selection function automatically adjusts to either 30 cm (12 inch) or 17 cm (7 inch) records.



1 To play a 45-rpm record, press the SPEED selector. The figure "45" will light up.

2 Press the START/STOP key. Play will begin.

When the tonearm reaches the end of the record, it will automatically return to the arm rest and the turntable will stop.

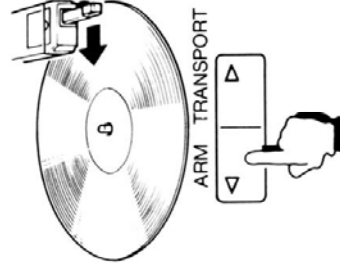
Notes

- 25 cm (10 inch) records and transparent records cannot be played automatically. To play these records, follow the instructions on page 11.
- Turn off the POWER switch after the tonearm returns to the arm rest. If the POWER switch is turned off while the tonearm is returning to the arm rest, when you press the POWER switch the next time the tonearm will return to the arm rest. While the tonearm is moving, the START/STOP key is not activated.

TO BEGIN RECORD PLAY AT A PARTICULAR POINT

—Manual play

- 1 Press the SPEED selector to play a 45-rpm record. (Press the selector again for a 33 $\frac{1}{3}$ -rpm record.)
- 2 Move the tonearm over the record, pressing the ◀ key. For fine adjustments, press and immediately release the ◀ key or the ▶ key.



- 3 Press the START/STOP key. The module will close and the record will begin playing.



To play the record with the module opened, press the ▼ key.



When the tonearm reaches the end of the record, it will automatically return to the arm rest and the turntable will stop.

Caution

Do not attempt to move the tonearm by hand.

Note

- During manual play, auto repeat function does not activate.

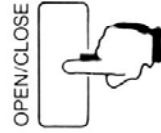
TO LIFT UP THE STYLUS DURING PLAY

To lift the stylus from a record for a moment and then start playing from the same point, press the **▼** key. To lower the tonearm onto the record, press the key again.

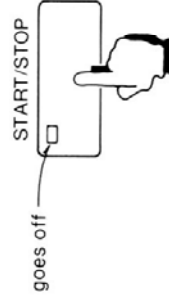


TO STOP DURING PLAY

Press the OPEN/CLOSE key. The tonearm will return to the arm rest, the turntable will stop rotating and the module will open. (When the module has opened, a touch of this key will close the module.)

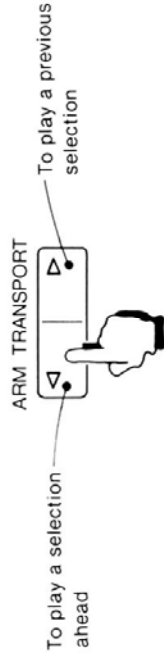


You can stop play by pressing the START/STOP key instead of the OPEN/CLOSE key. In this case, the module will not move.



TO MOVE TO A DIFFERENT PART OF A RECORD WHILE THE RECORD IS PLAYING

1 Press the **◀** or **▶** key.

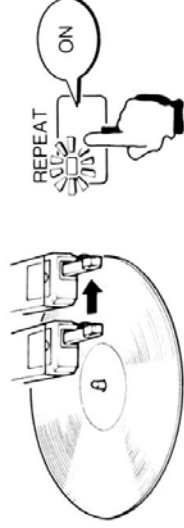


2 Press the **▼** key to start play.

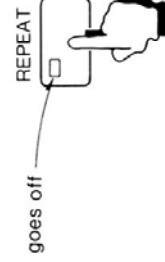


TO REPEAT PLAY

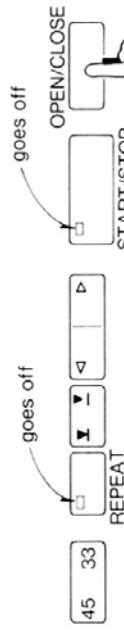
Press the REPEAT key either before or after starting play.



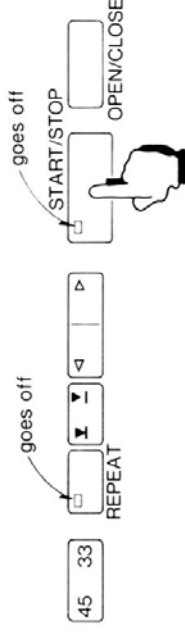
The tonearm continues repeat play unless the key is pressed again to turn off the repeat function.



To stop during repeat play, press the OPEN/CLOSE key or the START/STOP key.



or

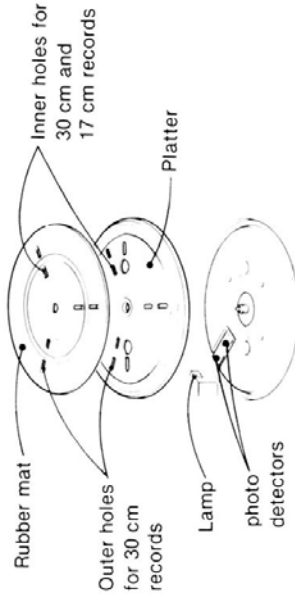


TIPS ON RECORD HANDLING

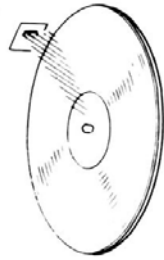
- Before playing, clean the record with a record cleaner or soft cloth. If a spray cleaner is used, make sure that it has dried completely before playing the record. Playing the record before the cleaner has dried may damage the record. It is a good idea to clean the record again before putting it away.
- Handle a record by its edges and do not touch the grooves. Fingerprints on the record surface may encourage an accumulation of dust, resulting in impaired tone.
- Use a commercially available anti-static spray to neutralize the static electricity on a record.
- Avoid exposing a record to direct sunlight or sources of heat, such as a hot-air duct.
- Store your records vertically. They should not be compressed.

HOW THE AUTO-RECORD-SIZE SELECTION WORKS

When the START/STOP key is pressed, the tonearm goes automatically into the lead-in groove, whether the record is 30 cm or 17 cm. A beam from the lamp is transmitted through the holes on the rubber mat and the platter to the photo detectors which activate the auto-record-size selection.

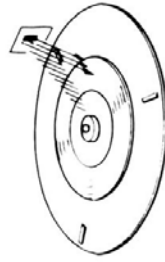


When a 30 cm record is to be played,



both inner and outer holes are covered so no beam is transmitted to the photo detectors.

When a 17 cm record is to be played,



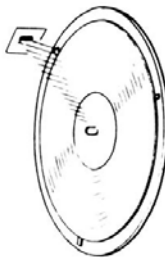
the inner holes are covered so a beam is transmitted through the outer holes to the photo detector.

When there is no record on the platter,



a beam is transmitted through both the inner and outer holes to the photo detectors. Even if the START/STOP key is accidentally pressed, the tonearm does not lower.

When a 25 cm record is to be played,



the tonearm lowers to the same point if a 30 cm record were on the platter, since both the inner and outer holes are covered. To play a 25 cm record, proceed as in "TO BEGIN RECORD PLAY AT A PARTICULAR POINT."

When a transparent record is to be played,



a beam passes through both the inner and outer holes to the detectors so the tonearm does not lower onto the record. To play a 30 cm transparent record, turn the rubber mat 180° so that the inner and outer holes are covered and proceed as in "AUTO PLAY."

To play a 17 cm transparent record, move the tonearm by pressing the ◀ key or ▶ key and press the ▾ key.

When a badly warped record is to be played,



a beam may pass through the holes to the detector and cause a malfunction of the auto-record-size selection.

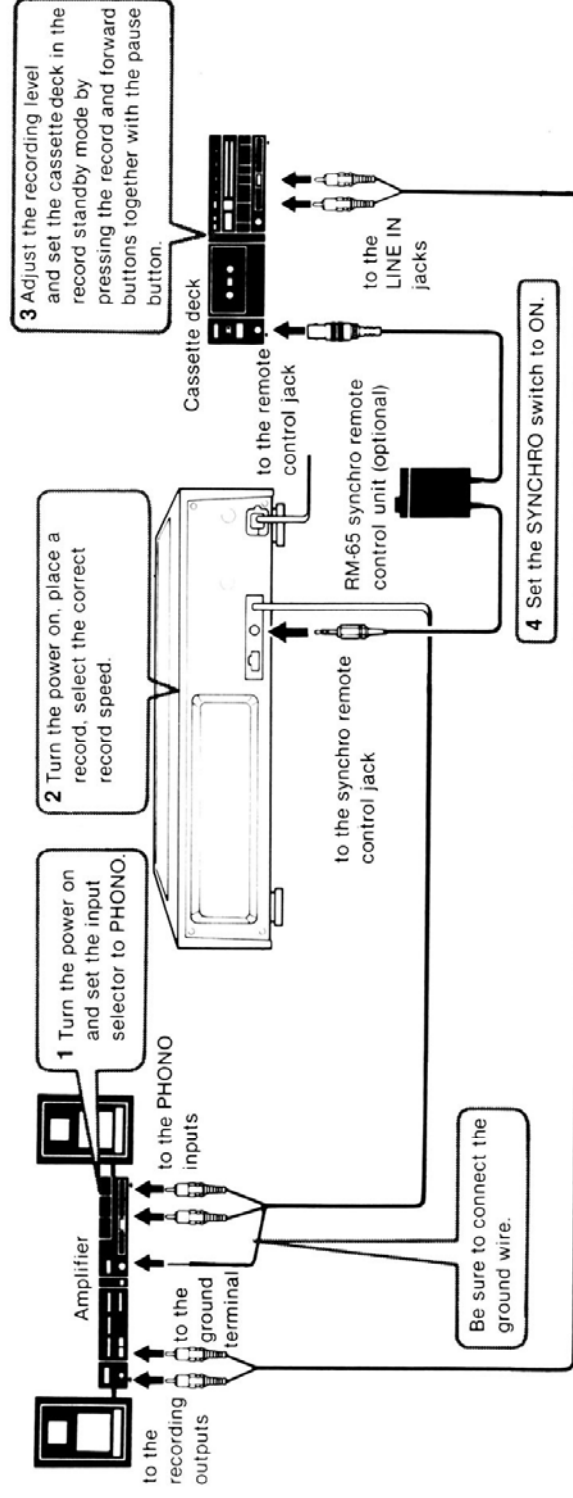
SYNCHRONIZED PLAY OF THE TURNTABLE AND A CASSETTE DECK

—with an RM-65 synchro remote control unit connected

Record recording starts only when the START/STOP or **▼** key is pressed. When the tonearm lowers onto the record, the cassette deck goes into the record mode and, when the START/STOP key is pressed again and the tonearm is lifted up, the deck goes into the auto record muting mode for four seconds, then into the pause mode.

Cassette decks which can be used with your turntable for this special synchronized operation are those Sony models which are equipped with a 4-pin remote control jack. An RM-65 synchro remote control unit (optional) is required to connect the turntable and the cassette deck.

CONNECTION AND PREPARATION



RECORDING

Desired action	Turntable operation	Synchronized operation of the cassette deck
To record from the beginning of a record...	Press the START/STOP key.	When the tonearm lowers onto the record, the pause mode is released and recording begins.
To lift up the tonearm to move to a different point on a record...	Press the ▼ key.	When the tonearm is lifted up, auto-record-muting activates for four seconds, then the pause mode is assumed.
To record from a point some way in the record...	Move the tonearm over the desired point and press the START/STOP or ▼ key.	When the tonearm lowers onto the record, the pause mode is released and recording begins.
To stop recording during record play...	Press the START/STOP key.	When the tonearm is lifted up, auto-record-muting activates for four seconds, then the pause mode is assumed.
When record play ends...	The tonearm returns automatically to the arm rest.	When the tonearm is lifted up, auto-record-muting activates for four seconds, then the pause mode is assumed.

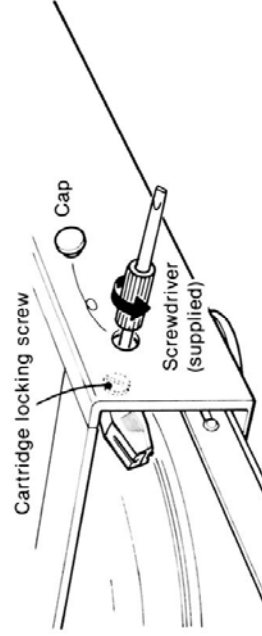
Note : Be sure to set the SYNCHRO switch of the RM-65 to OFF when you do not want to use the synchronized play function.

REPLACING THE STYLUS

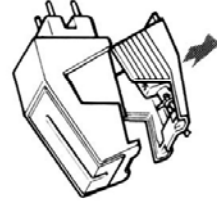
The stylus will lose its effectiveness and begin to damage records after about 400 hours of use.

For the VL-45G cartridge (supplied with the PS-FL77C), an ND-145G replacement stylus is available at your Sony dealer. Handle the stylus carefully as it is very delicate. Install the replacement stylus as follows.

- 1 Depress the POWER switch (ON) and press the OPEN/CLOSE key. The module will open.
- 2 Remove the rubber mat and platter. Remove the cap on the right side of the cabinet, insert the supplied screwdriver through the hole and remove the cartridge locking screw with the screwdriver. The screw will cling to the head of the screwdriver. Then, unplug the cartridge from the tonearm following steps 6 and 7 on page 5.



- 3 Detach the stylus assembly by grasping it between the thumb and forefinger and pulling gently in the direction of the arrow.

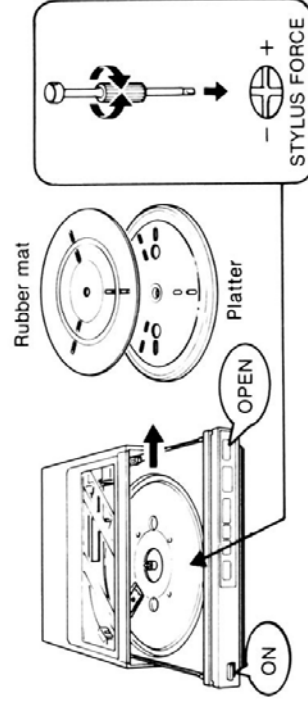


- 4 Insert the new stylus into the cartridge.
- 5 Replace the cartridge following steps 8 to 11 on page 5 and replace the platter and rubber mat.

TRACKING FORCE FINE ADJUSTMENT

The tracking force has been correctly adjusted at the factory. Make fine adjustment only when the tracking force is so light that the stylus skips grooves.

The tracking force adjustment opening is located on the motor board. Insert the supplied screwdriver and turn it clockwise (+) for heavier tracking force or counterclockwise (-) for lighter tracking force.



MAINTENANCE

Stylus

Before playing a record, clean the stylus with a soft brush. Brush the stylus from back to front. Never attempt to clean the stylus with your finger tip. If a fluid stylus cleaner is used, make sure not to moisten the stylus too much.

Cabinet

Clean the cabinet periodically with a soft dry cloth. If the stains are difficult to remove, use a cloth moistened with a mild detergent solution. Do not use solvents such as alcohol, benzine or thinner, since they will damage the finish.

Rubber mat

When the rubber mat becomes dirty, wipe it gently with a soft cloth slightly dampened with water.

Lubrication

The turntable requires no periodic lubrication. The motor shaft is lubricated at the factory for the life of the turntable.

TROUBLE CHECKS

The following trouble checks will help you correct most common problems encountered with a turntable system. Should any problem persist after you have made these checks, consult your nearest Sony service facility. Before proceeding with these trouble checks, first refer to the connections and the operating procedures.

TROUBLES	CAUSES	WHAT TO DO
The tonearm does not lower onto the record.	Transparent or warped record	Play the record referring to page 11.
The tonearm always lowers on the point for 30 cm records.	A rubber mat other than the one supplied being used.	Use the supplied rubber mat.
	Incorrect placement of the supplied rubber mat	Align the holes in the rubber mat with the holes of the platter.
Impaired tone quality	Improper tracking force	Apply proper tracking force (see page 13).
	Dusty stylus	Clean the stylus with a soft brush from back to front.
	Worn stylus	The stylus life is approx. 400 hours. Replace with a new stylus.
No audio from one channel	Loose connection of phono cord	Connect the cord firmly.
Steady low-pitched humming sound	Dirty terminals of the cartridge	Clean the terminals with a soft dry cloth.
	Loose attachment of the cartridge to the tonearm	Tighten the cartridge locking screw firmly.
	Loose attachment of the cartridge to the tonearm	Tighten the cartridge locking screw firmly.
Groove skipping ; tonearm skating ; tonearm not advancing	Ground wire is not connected to the amplifier.	Connect the ground wire to the amplifier.
	Improper tracking force	Apply proper tracking force (see page 13).
	Turntable not level	Place the turntable on a level surface.
Loud rumble or low-frequency howl *	Defective record	
	The turntable is subjected to external vibration.	Place the turntable on a solid surface free from external vibration.
	The turntable is placed too near the speaker.	Locate the turntable as far away from the speaker as possible.

* This is called "acoustic feedback" and is caused when vibrations from the speakers are transmitted through the air or via solid objects (such as the shelves, the cabinet, the floor, etc.) to the turntable, where they are picked up by the stylus, amplified and reproduced through the speakers once again.

SPECIFICATIONS

Turntable
Platter 29 cm (11¹/₂ in.), aluminum-alloy diecast
Motor Linear torque BSL (brushless and slotless) motor
Drive system Direct drive
Control system FG servo control system
Speed 33¹/₃ rpm, 45 rpm
Wow and flutter 0.03% (WRMS)*, 0.035% (WRMS)
Signal-to-noise ratio 75 dB (DIN-B)
Automatic system Lead-in, return, reject, repeat, tonearm up/down, record size selection

Tonearm
Type Electronic tonearm, linear tracking
Pivot-to-stylus length 100 mm (4 in.)
Overall arm length 170 mm (6³/₄ in.)
Tracking error ±0.1°
Tracking force adjustment range 1.25 ±0.25 g
Cartridge plug-in type, 6 g

Cartridge VL-45G (supplied only with the PS-FL77C)

Type Moving magnet type
Frequency response 10 Hz to 20,000 Hz
Output voltage 3.5 mV at 1 kHz, 5 cm/sec., 45°
Load impedance 47 to 100 kilohms
Tracking force 1.0 to 1.5 g (1.25 g recommended)
Stylus Sony ND-145G
Weight 6 g

General

Power requirements 120 V ac, 60 Hz
Power consumption 13 W
Dimensions Approx. 355 × 88 × 370 mm (w/h/d)
(14 × 3¹/₂ × 14⁵/₈ in.)
Weight including projecting parts and controls
Approx. 7.0 kg (15 lbs 7 oz), net
Approx. 8.2 kg (18 lbs 2 oz), in shipping carton

Supplied accessories

45-rpm adaptor (1)
Screwdriver (1)
VL-45G cartridge (1) (supplied only with the PS-FL77C)

Design and specifications are subject to change without notice.

* This new measuring method concerns only the turntable assembly, including the platter. It excludes wow and flutter caused by the tonearm, the cartridge, or the record. Measured by obtaining signal from magnetic pick-up head.

