

Specifications

(Turntable section)

Type	Direct Drive Automatic Player system Automatic return Automatic shut-off
Drive method	Direct Drive
Motor	Back Electromotive Force Frequency Generator servo DC motor employing one chip IC
Turntable platter	Aluminum die-cast, 33 cm (13")
Turntable speeds	33-1/3 and 45 r.p.m.
Pitch controls	Individual adjustment controls, 10% adjustment range
Wow and flutter	0.03% W.R.M.S. (JIS C5521) ± 0.042% Weighted zero to peak (DIN 45507)
Rumble	- 50 dB (DIN 45539A) - 70 dB (DIN 45539B)

(Tonearm section)

Type	Universal tubular arm, static- balanced type
Effective length	230 mm (9-1/16")
Overhang	15 mm (19/32")
Friction	7 mg (horizontally and vertically)
Effective mass	23 g (6.5 g cartridge weight 1.5 g stylus pressure)
Arm resonance	9.6 Hz (12 × 10 ⁻⁶ cm/dyne cartridge compliance)
Tracking error angle	Within +3° (at the point of 145 mm (5-45/64") from the center) Within +1° (at the point of 55 mm (2-3/16") from the center)
Adjustable stylus pressure range	0 to 4 g (stylus pressure direct reading type)
Cartridge weight range	5 to 11 g
Head shell weight	9.5 g

(Cartridge section)

Type	Moving magnetic stereo cartridge
Frequency response	20 to 25,000 Hz
Output voltage	1.7 to 3.4 mV 1 kHz, 5 cm/s. lateral
Channel separation	22 dB at 1 kHz
Channel balance	Within 2 dB at 1 kHz
Load impedance	47 kΩ to 100 kΩ
Stylus pressure	1.75 ± 0.25 g
Replacement stylus	EPS-35STED

(General)

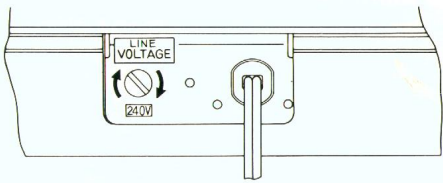
Power supply	AC 120 V 50/60 Hz
Power consumption	8 W
Dimensions	13.9 × 45.3 × 36.6 cm (H × W × D) (5-1/2 × 17-3/4 × 14-3/8 inches)
Weight	8.1 kg (17.8 lbs.)

NOTE

1 AC line voltage selector

This unit employs AC line voltage selector, make sure that the AC line voltage selector is correct to your local voltage before connecting the AC power plug to the socket. If your local voltage is different, please turn the AC line voltage selector with a screwdriver to your local voltage.

Power supply	~ 110/120/220/240 V, 50 or 60 Hz
Power consumption	8 W



2 Cartridge

This unit attaches a moving magnetic cartridge in the parts box.

Technics
by Panasonic

Direct drive automatic player system

SL-1400

Operating instructions



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Division of Matsushita Electric
Corporation of America
One Panasonic Way, Secaucus,
New Jersey 07094

Matsushita Electric of Hawaii, Inc.
320 Waiakamilo Road, Honolulu,
Hawaii 96817

We want to thank you for selecting the SL-1400, DIRECT DRIVE AUTOMATIC PLAYER SYSTEM. For optimum performance, we recommend that you read these instructions carefully.

Parts identification

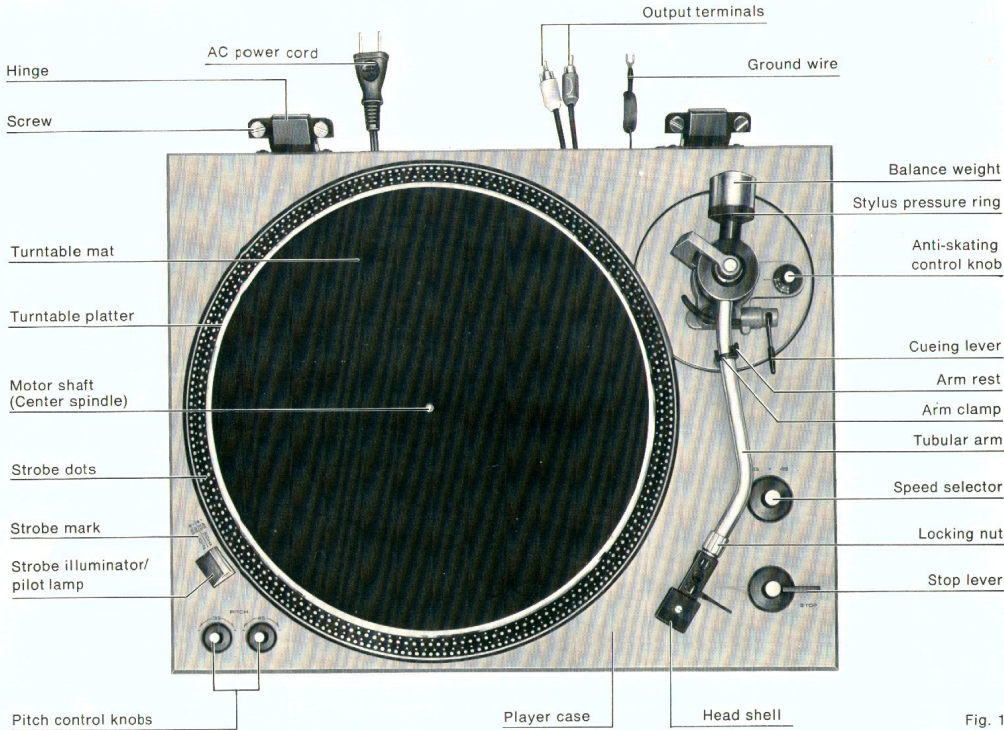


Fig. 1

Assembly and set-up

Caution:
Never connect the AC power plug before the assembly has been completed.
Attach the dust cover at the last stage of the assembling work so that assembling of other parts and adjustments can be made efficiently.

- 1 Check the parts.
- | | | | |
|-------------------|---|-------------------|---|
| Player unit | 1 | 45 r.p.m. adaptor | 1 |
| Turntable platter | 1 | Special oil | 1 |
| Turntable mat | 1 | Balance weight | 1 |
| Dust cover | 1 | Head shell | 1 |
| | | Overhang gauge | 1 |

2 Remove the shipping screws.
Remove the two shipping screws and place them in the retaining holes for future use, when the player must again be transported. (See Figs. 2 and 3)

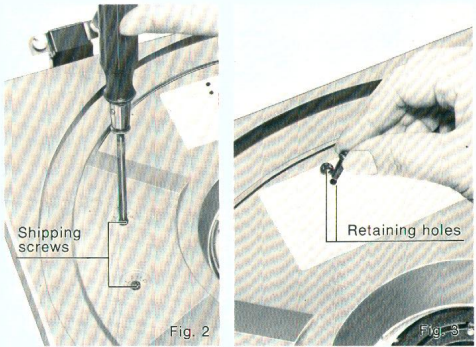


Fig. 2

Fig. 3

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

3 Apply two or three drops of oil to the motor shaft using the furnished oil container. (See Fig. 4)
Although the unit has been lubricated before shipping from the factory, apply a few drops of oil to the motor shaft for assurance. After that, application of two or three drops of oil once every 2000 hours' operation or so is sufficient. The time interval is much longer than that of the former type motors (200-500 hours), so do not apply too much oil, nor more frequent than necessary. Never use any other type of oil.



Fig. 4

4 Remove the protective cover from the rotor of the turntable platter. (See Fig. 5)

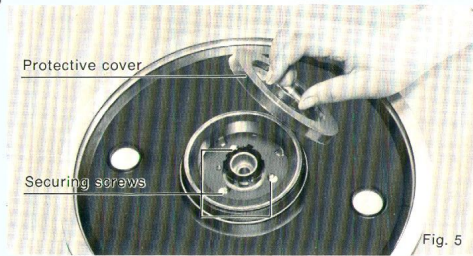


Fig. 5

5 Installation of the turntable platter

1. Place the turntable platter on the motor shaft (center spindle).
2. Place the turntable mat on the platter.

Note:

1) After having placed the turntable mat, manually rotate the turntable platter clockwise (in the direction shown by the arrow) about 10 times, with the tonearm moved towards the center spindle to allow it to automatically return one time. (See Fig. 6) This operation is to ensure that there is no engagement or displacement between the tonearm driving section and the automatic returning mechanism, which may have taken place during transit.

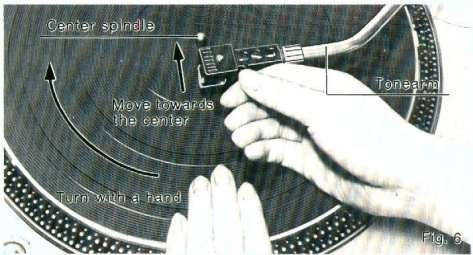


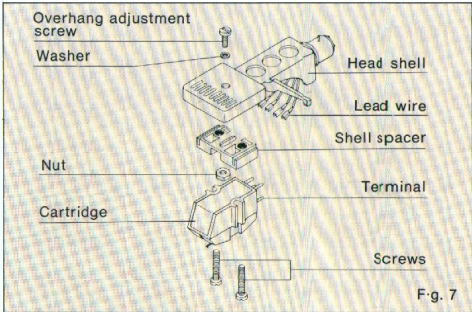
Fig. 6

2) The rotor is connected to the reverse surface of the turntable platter. (The magnet of the motor is attached to the turntable platter.) To maintain optimum performance as specified, extra care should be taken to prevent adhesion of dust or iron filings to the magnet and not to damage the magnet by dropping it.

3) Do not remove the three screws securing the magnet. (See Fig. 5)
Should the position of the fixed magnet be altered by loosening the securing screws, the rated performance of the unit can not be guaranteed.

6 Installation of the cartridge

1. Connect the lead wires to the cartridge terminals.
White (L +)Left channel +
Blue (L -)Left channel -
Red (R +)Right channel +
Green (R -)Right channel -
2. Install the cartridge to the spacer, and tighten it with screws provided with the cartridge. (See Fig. 7)



F-g. 7

3. Insert the head shell into the gauge. (See Fig. 8)
4. Loosen overhang adjustment screw and move the cartridge forward or backward until the stylus tip lines up with the edge of the gauge.
5. Tighten adjustment screw without moving the cartridge.

Note:

- 1) Your cartridge is now adjusted for lowest tracking error and minimum distortion.
- 2) This gauge is exclusively designed for this tonearm.

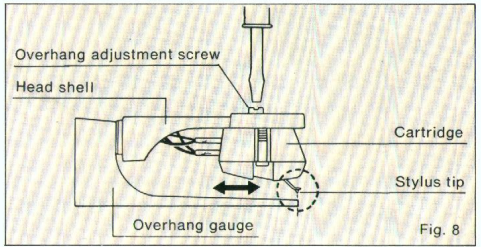


Fig. 8

7 Installation of the head shell (See Fig. 9)

Insert the plug portion of the head shell into the front end of the tubular arm, and turn the locking nut clockwise (in the direction shown by the arrow "A"), with the head shell held horizontally to secure firmly.

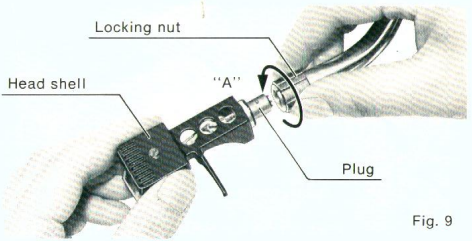


Fig. 9

③ Adjustments of the horizontal "0" balance and the stylus pressure

1. Insert the balance weight onto the rear shaft of the tonearm. (See Fig. 11)
2. Remove the stylus cover, if your cartridge has one.
3. Release the arm clamp (Fig. 10) and detach the tonearm from the arm rest to free the tonearm.

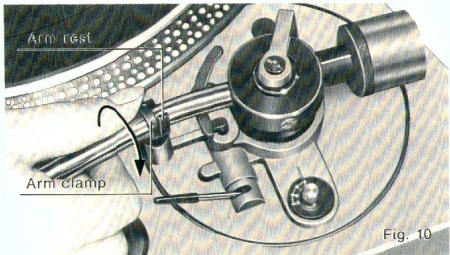


Fig. 10

4. Turn the entire balance weight clockwise (indicated by the arrow "A") or counterclockwise (indicated by the arrow "B") until the tonearm is approximately balanced horizontally. (See Fig. 11)

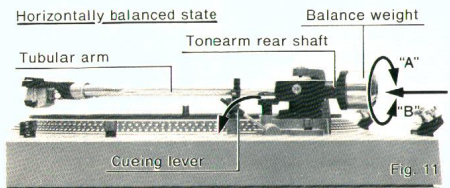


Fig. 11

5. After the tonearm is horizontally balanced, temporarily fix the tonearm by the arm clamp. (Refer to Fig. 12) Hold the balance weight stationary with fingers as shown in Fig. 12 and rotate only the stylus pressure ring to bring the numeral "0" of the ring into alignment with the center line on the tonearm rear shaft. (The adjustment of the horizontal balance is now completed.)

Note:

- 1) During the adjustment of the horizontal balance, be sure that the stylus tip of the cartridge does not contact the turntable mat or player case.
 - 2) Ensure that the anti-skating knob is at "0" position. (See Fig. 12)
- There are cases where the tonearm may sway or flow slightly at the position of "0" due to the highly sensitive rotational part of the tonearm, but this side force is trivial and presents no inconvenience.

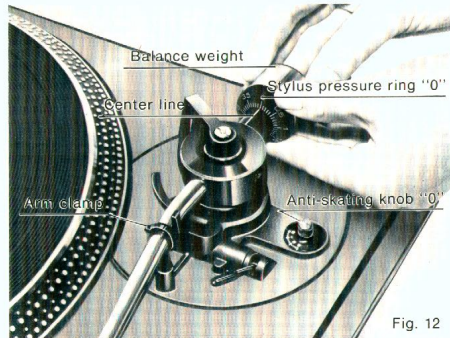


Fig. 12

3. Ensure that the cueing lever is in the lowered position as shown in Fig. 11.
4. Make certain that the speed selector is in "•" position. In the "•" position, the balance adjustment is easily made as the turntable platter remains stationary.
6. After adjusting the horizontal balance, turn the balance weight clockwise in the direction of the arrow and align the correct stylus pressure. (Follow the Cartridge Manufacturer's recommendation.) (See Fig. 13)

Note:

- 1) As the stylus pressure ring rotates together with the balance weight, proper stylus pressure can be selected by directly reading the graduated ring.
- 2) Set the stylus pressure to the maximum value of your cartridge in cases where the record has an extremely high recording level, or where the unit is operated in a room at low temperature or in places in which the record player is liable to be subjected to vibrations.

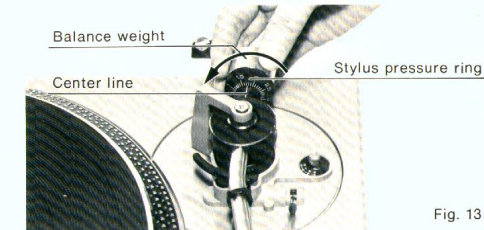


Fig. 13

⑨ Anti-skating force control

Set the anti-skating force control to the same value as that set for stylus pressure. (See Fig. 14)

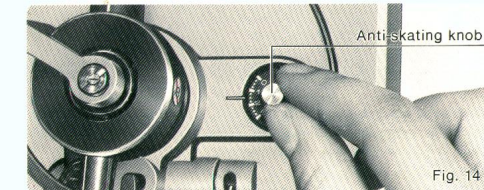


Fig. 14

⑩ Installation of the dust cover (See Fig. 15)

Loosen the securing screws, and place the dust cover into position from directly above, holding both sides, after which retighten the screws securely.

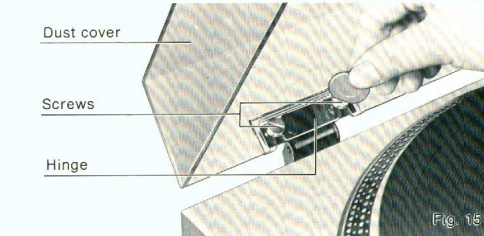


Fig. 15

Note:

In rare cases the dust cover may become the cause of "HOWLING" from vibrations or sound pressure from the speakers. In such cases we recommend that you close the dust cover or remove it during playing. Opening or closing of the dust cover during playing should be made as gently as possible, since this may not only cause harmful player vibrations, but also result in skipping of the stylus.

⑪ Placement

1. Use the player in a stable and horizontal position, where there is little or no vibration.
2. Use the player as far away from the speakers as possible and isolate the player from sound radiation from them. If the speakers are located too close to the player, the vibrations from the speakers affect the player and are again amplified by the amplifier, thus giving rise to the acoustic feedback phenomenon (Howling). Should the player be located in the vicinity of the speakers due to positional limitation, it is recommended to place cushions of felt etc., or blocks under the player and speakers to prevent howling.
3. Do not place the player where it is exposed to direct sun, dust, moisture or heat.
4. Keep it in a well-ventilated place.

⑫ Connect the AC power plug.

Connect the AC power plug to the AC socket. In cases where the AC power plug is connected to the outlet (AC outlet) of the amplifier, receiver and the like, make sure that the wattage indicated on the outlet corresponds to the turntable's requirements before connecting the power plug.

⑬ Connect the output terminals.

Output terminals	Amplifier or Receiver
L (White)	L Channel
R (Red)	R Channel
E (Spade lug)	GND

Note:

Be sure to connect the ground terminal to the amplifier or receiver. If this connection is not made or is loose, a power source "HUM" will result.

How to play

- ① Set the speed selector to the desired record speed. (See Fig. 16)

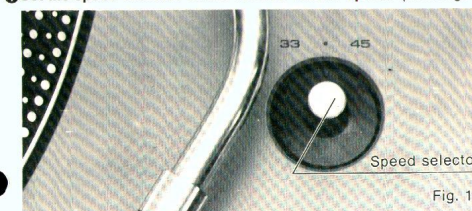


Fig. 16

- ② Release the arm clamp. (Refer to Fig. 10)

- ③ Lift the cueing lever as indicated by the arrow. (See Fig. 17)

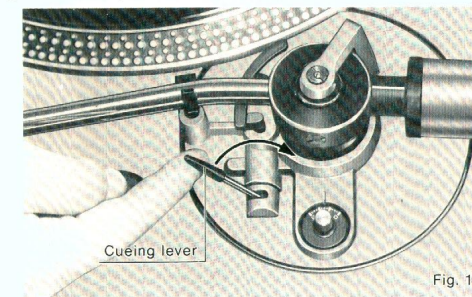


Fig. 17

- ④ Move the tonearm over the record and then lower the cueing lever. The tonearm will descend slowly onto the record and play will begin.

Note:

- 1) When the tonearm is moved towards the record, the power is turned on and the turntable will start rotating. If the speed selector is positioned at "•", the turntable will not rotate, although the strobe illuminator is lit.
- 2) If you play a 45 r.p.m. record with a large center hole, use the furnished adaptor on the center spindle.
- 3) For temporary suspension of playing, raise the cueing lever, and the stylus tip of the cartridge will be raised from the record.
- 4) To stop playing during operation, pull the stop lever toward you. The tonearm will automatically return to the arm rest with the power shut off, and the turntable platter stops rotating.

⑤ When finished playing, the tonearm will automatically return to the arm rest (auto-return) with the power shut off, and the turntable platter will stop rotating.

(The turntable platter will rotate for a short time due to its inertia.)

Adjustments

- ① Adjustment of the arm lift height (See Figs. 18 and 19)

The arm lift height (distance between the stylus tip and record surface when cueing lever is raised) has been adjusted at the factory before shipping to approximately 5 to 10 mm (3/16" to 25/64").

If the clearance becomes too narrow or too wide because of the physical size of the different cartridges on the market turn the adjustment screw clockwise or counterclockwise, at the same time pushing the arm lift down.

Clockwise rotation

—distance between the record and stylus tip is reduced.

Counterclockwise rotation

—distance between the record and stylus tip increases.



Fig. 18

Note:

As the adjusting screw has a hexagon head, be sure to make the adjustment while depressing the arm lift.

- ② Adjustment of tonearm automatic return point (See Fig. 20)

In some cases, the tonearm will tend to return to its rest position before the record has finished playing. In other cases, it will not return to the rest position even after the record has finished. Rotation of this screw in the proper direction will correct either condition.

Clockwise rotation

The tonearm will return to its rest later.

Counterclockwise rotation

The tonearm will return to its rest earlier.

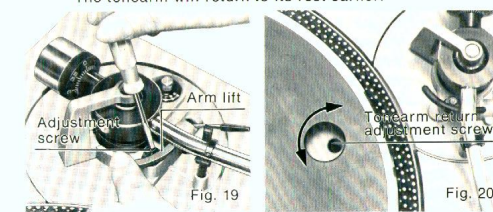


Fig. 19

Fig. 20