Technics

R&B series

QUARTZ Synthesizer

Direct Drive Turntable

SL-1015

Operating instructions

The model number of this product may be found on the back of the unit, and the serial number on the bottom of the unit.
Please note the model and serial numbers of this unit in the space provided and retain this booklet as a permanent record of your purchase to aid identification in the event of theft.

MODEL NUMBER _____

SERIAL NUMBER _____

Before operating this set, please read these instructions completely

We want to thank you for selecting the SL-1015.
For optimum performance, we recommend that you read these instructions carefully.
The SL-1015 is a high performance turntable system which consists of a tonearm (EPA-500) designed with compatibility of the cartridge and tonearm in mind a high performance turntable base (SH-15B1) designed with emphasis on its damping characteristics produced by one-piece molding of special viscoelastic material and a quartz synthesized system direct drive turntable (SP-15) capable for the first time in the world of digital pitch control at ±9.9% through 0.1% steps.
If you purchase the optional tonearm unit according to the characteristics of the cartridge you use, you can upgrade your system as easily as replacing the headshell.

Before use

Caution:
Never connect the AC power plug before assembly has been completed.
Attach the dust cover last, so that assembly and adjustments can be made most conveniently.

■ Checklist of parts

Turntable unit (SP-15)	1
(Already attached to the turntable base)	
Turntable platter	1
Turntable mat	1
Dust cover	1
45-rpm adaptor	1
Hexagonal wrench	1
Phono cable	1
Ground wire (GND)	1
Turntable base (SH-15B1)	1
Arm base unit (EPA-B500)	1
(Already attached to the turntable base)	
Arm unit (EPA-A501H)	1
Screw for cartridge	6
Nut for cartridge	2
Shell weight	1
Driver	2
Template	1
Stylus pressure gauge (SH-50P1)	1
Protector for stylus tip set position	1
Gain adjustment weight	1
Battery (G13)	2

Assembly and set-up

■ Installation of turntable platter

1. Place the turntable platter on the center spindle.
   Note:
   The rotor is connected to the underside of the turntable platter. (The magnet of the motor is attached to the turntable platter.) To maintain optimum performance, 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.
   Do not remove or loosen the screws. Should the position of the fixed magnet be altered by loosening the securing screws, the rated performance of the unit cannot be guaranteed. **(See Fig. 2.)**
2. Place the turntable mat on the platter.

■ Attachment of cartridge (See Fig. 3.)

Note:
These instructions are made according to procedures for attachment of a Technics EPC-205C type cartridge.
If another cartridge is to be utilized, please attach it in accordance with the cartridge's own instruction manual.

1. Connect the lead wires to the cartridge. The cartridge terminals are differentiated by color, and the leads should be connected accordingly.
   Red→(R)+(right channel+terminal)
   Green→(R)−(right channel ground terminal)
   White→(L)+(left channel+terminal)
   Blue→(L)−(left channel ground terminal)
2. Use the screws and nuts provided with the cartridge or arm unit to secure the cartridge to the headshell. After this, adjust the overhang. (Refer to the section on **"Adjustment of overhang"**.)
   Note:
   To prevent damage to the stylus assembly, it is recommended that it be removed from the cartridge during installation.
   If the cartridge being used has a lighter side value within the appropriate cartridge weight range and is to be used under a heavy side stylus pressure within the specified stylus pressure range, attach the headshell weight between the headshell and cartridge main body.

■ Concerning the arm clamp (See Fig. 4.)

An arm clamp is employed to lock the rotating section of the gimbal suspension in place. When installing the arm unit or when not using the turntable, lock the tonearm suspension with the clamp.
If the arm clamp is not locked, the pivots will move and if the arm unit has been installed, this might result in damage to the stylus.

■ Installation of the arm unit (See Figs. 5 and 6.)

Align the mounting section of the arm unit with that of the arm base, and while sliding it in the direction of the arrow, insert it until it arrives at the fixed position and stops. Then secure it with the arm-unit lock screw.

Note:
- When installing or removing the arm unit, be sure to turn the amplifier's volume control to **"0"** or turn off the amplifier's power before loosening the arm unit locking screw.
- Please be certain to use the arm unit only when it is locked into position. If not sufficiently tightened, a humming noise will be produced.

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

■ Adjustment of overhang (See Figs. 7 and 8.)

The overhang on this unit should be 15 mm.
Place the template over the center spindle and align the stylus position with a 15 mm line. Then secure the cartridge in that position. Refer to **"Attachment of cartridge"** section of the text.

Note:

- Please take care not to injure the stylus tip.

■ Adjustment of arm height (See Figs. 9 and 10.)

On this unit, the height of the arm can be varied up to 20 mm by rotating the adjustment ring. The height is indicated in 1 mm increments by the scale.

Note:

During shipment of the arm unit stylus pressure adjustment ring is fixed at the extreme forward position. Loosen the weight lock screw by rotating it counter-clockwise, turn the stylus pressure adjustment ring in a clockwise direction (which makes the stylus pressure lighter), and turn to the zero balance position. Then, turning the adjustment ring 1 full rotation to change the pressure by about 0.5 gram, set the stylus pressure to the value recommended for the cartridge in use.
For cartridges with a heavy weight, turn the stylus pressure adjustment ring up to the rearmost position.

1. Place a record on the turntable and without rotating the platter, gently lower the stylus onto the record.
2. Rotate the arm height adjustment ring until the arm unit appears parallel to the record. **(See Fig. 10.)**

Note:

- Take care not to touch the arm unit at this time. If the arm unit moves, this can result in damage to the stylus.

■ How to use the stylus pressure gauge (SH-50P1)

■ Power source

This unit is driven by 2 silver oxide SR44 type batteries. Before inserting the National G13 batteries provided, please read the **"Caution when inserting batteries"** section thoroughly and insert them properly.
Please refer to the "Chart of Silver Oxide Battery Types" for information concerning batteries in various areas.

Brand	**National**	Eveready	Ray-O-Vac	Mallory	VARTA
Number	**G13**	S76	RS76	MS76	7301

■ Battery insertion

1. Push the battery compartment cover in the direction of "OPEN". **(See Fig. 11-❶.)**
2. Confirm that the 2 silver oxide batteries' [+] and [−] polarities are properly aligned and insert them. Then replace the cover. **(See Fig. 11-❷. 11-❸.)**

■ Adjustment of stylus pressure gauge

In order to obtain precise measurement, each time you use the gauge make adjustments following the procedure shown below:

1. Turn the power switch to [on]. The LED lamp will light up.
2. Turn the zero adjustment knob towards [+] or [−] until the needle indicates [0]. **(See Fig. 12.)**
3. Place the recessed part of the provided gain adjustment weight on the protruding part of the stylus set plate and turn the gain adjustment knob towards [+] or [−] until the needle indicates [▼]. **(See Fig. 13.)**

Note:

Should the needle not indicate [0] even when the zero adjustment knob is rotated, adjust by rotating the zero adjustment knob and the gain adjustment knob fully towards the [+] side, and turn the volume control (Fig. 15) at the bottom portion of the stylus pressure gauge either clockwise or counterclockwise by a screwdriver to bring the needle between [2.5] and [3]. **(See Fig. 12.)**
Subsequently, make zero adjustment according to the procedure in item 2.

Note:

- The stylus pressure gauge should never be placed on the surface of a record.
- When making adjustments using the gauge, wait about 10 seconds after switching the unit on. Also, several seconds are required for the needle to return to the [0] position, but this is caused by a temperature compensation mechanism and is not due to any fault in the performance.
- Do not move the gain control until the zero adjustment has been completed, and do not perform the operations in reverse.
- After use, be sure to switch off the power to prevent unnecessary battery consumption.
  Forgetting to switch off the power will wear out the batteries in about 10 hours, thus making it impossible to use the gauge.

■ Setting the stylus pressure

The stylus pressure gauge is grooved on its side in order to be used in a stable position on the platter. Secure it by placing it on the center spindle. **(See Fig. 14.)**

Note:

If the center spindle of the turntable in use is long, or if any other part except the stylus comes into contact with the stylus pressure gauge, move it slightly away from the spindle. Also, smoother adjustment can be performed if the turntable platter is prevented from rotating.

1. Loosen the weight lock screw by turning it in a counter-clockwise direction.
2. Free the arm from the arm clamp and let the stylus tip rest upon the indented center part of the stylus plate. Read the stylus pressure. **(See Figs. 15, 16 and 17.)**
3. Then turn the stylus pressure ring in a clockwise direction (the pressure will become lighter) or counter-clockwise (pressure will become heavier), and adjust to the proper stylus pressure. **(See Fig. 16.)**
4. After adjustment, secure the weight lock screw.

Note:

- When turning the stylus pressure adjustment ring be sure to remove the stylus from the gauge before performing adjustments. **(See Fig. 16.)** Also, take care not to injure the stylus tip during this operation.

■ Caution when inserting batteries

Mishandling of batteries can result in leakage or damage.
Please be certain to observe the following:

1. When the batteries become weak, replace all of them; do not attempt to mix old and new batteries.
2. Do not combine different types of batteries together. For example: although they appear interchangeable because they are the same size, mercury batteries

(MR44) and silver oxide batteries (SR44) have different voltage. Also, do not attempt to mix batteries of different brands. This is not only uneconomical, but the unit will not be able to display its performance to the full.

3. After use, be certain to return the unit's power switch to the [off] position. Also, when not utilizing for prolonged periode, remove the batteries from their compartment and store them.
4. Remove worn out batteries and dispose of them promptly.
5. Do not attempt to recharge batteries, or short-circuit, break open, heat or throw into a fire.
6. When changing the batteries, confirm that their contact surfaces, as well as the terminals of the stylus pressure gauge, are clean and uniformly shaped.
   At this time, be sure that the batteries are inserted according to the [+] and [−] indications.

■ Battery life

When the batteries become worn down, the indicator needle will not reach the [▼] point when the gain control knob is turned to [+]. In some cases the LED lamp will light, but the unit will not be effective for stylus pressure measurement. Therefore, replace the batteries. Refer to the section on **"Adjustment of stylus pressure gauge"**.
The life of the batteries during consecutive use is about 10 hours. (National silver oxide G13 batteries used at 20°C.)

Note:
Ordinarily, battery life becomes shorter when used at low temperatures (below around 5°C.). Also, they do not function well in high humidity. Therefore, store them in a dry place with few temperature changes.

■ Adjustment of anti-skating (See Fig. 18.)

After adjusting the stylus pressure, turn the anti-skating control knob to the same value as the stylus pressure setting.

■ Adjustment of arm-lift height

(See Figs. 19 and 20.)
The proper height of the arm lift (the distance of the stylus tip from the disc with the cueing lever in the [up] position) is about 5 to 10 mm. If adjustment becomes necessary, follow the procedure below:

1. Set the cueing lever to the [up] position.
2. Slightly loosen the arm-lift fixing screw, and raise or lower the arm lift. If the arm lift is raised by about 1 mm, the stylus will be raised by about ten times that amount, or about 10 mm.
3. Then, secure the arm lift with the arm-lift fixing screw.

Connections

■ Connect the AC power plug

Connect the AC power plug to an AC wall socket.

■ Installation of the ground wire (GND) to the GND terminal. (See Figs. 21 and 22.)

Connect the phono cable provided to the phono output jacks on the arm base. (The small pin in the center is the ground.) **(See Fig. 23.)**

■ Connect the output terminals (See Fig. 24.)

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

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

■ Installation of the dust cover (See Fig. 25.)

Hold the dust cover at both sides as shown, and insert in the direction of the arrow.
For removing the dust cover, hold the dust cover open in a similar manner and draw it out in the direction of the arrow.

Note:
The tightness of the dust cover during opening and closing has been carefully adjusted before shipping from the factory. Should the dust cover not move smoothly, however, turn the dust cover adjusting screw (Fig. 25) clockwise or counterclockwise for proper tension.

Placement

- **Place the unit in a stable and horizontal position where there is little or no vibration.**
- **Locate the unit as far away from the speakers as possible and isolate the unit from sound radiation from them.**
- **Do not place the unit where it is exposed to direct sun, dust, moisture or heat.**
- **Keep it in a well ventilated place.**
- **When a radio is placed too close to the turntable and is played while the turntable is in operation, interference to AM/FM reception may result.**

How to operate

1. Set the power switch/pitch lock knob to the "**on**" position. **(See Fig. 26.)**
   The LED in the speed select button for 33-1/3 rpm, and digital indicators for the speed and pitch will all light up. **(See Fig. 27.)**
   Upon setting the power switch/pitch lock knob to "**on**", the revolutions are changed over to 33-1/3 rpm. at all times.
   If the record to be played is other than a 33-1/3 rpm., depress the speed select button to suit the phono disc to be played.
   When the power switch/pitch lock knob is set to **"pitch lock"**, the pitch control button and speed select button are locked so as not to be actuated even if the buttons are accidentally touched during playing. **(See Fig. 28.)**
   Therefore, for selecting the speeds or operating the pitch control, first set the power switch/pitch lock knob to the position **"on"**
2. Place a record on the turntable mat.
3. Push the start stop button. **(See Fig. 29.)**
   The turntable platter will begin to rotate and reach its constant rotation speed within 0.4 second. (33-1/3 rpm.).
4. Set the cueing lever to the [up] position. **(See Fig. 30.)**
5. Release the lock of the tonearm clamp. **(See Fig. 31.)**
6. Move the tonearm over the record to be played and slide the cueing lever in the "down" direction. **(See Fig. 32.)**
   The tonearm will descend slowly onto the record and play will begin.
7. After play, slide the cueing lever in the "up" direction.
8. Lock the tonearm with the arm clamp, and slide the cueing lever "down".
9. After that set the power switch/pich lock knob to **"off"** **(See Fig. 33.)**

■ How to suspend play

Set the cueing lever to the up position.
The stylus tip of the cartridge will be lifted from the record.

■ How to stop play

Push the start/stop button.
Upon completion of playing, depress the start stop button.
The turntable is instantly (0.4 second) stopped by the double brake system.

Note:
When the power switch/pitch lock knob is set to **"off"** without depressing the start/stop button, the brake mechanism will not function.

■ Pitch control (turntable speed fine adjustment).

The Quartz Synthesizer system is being employed in this unit. A high degree of pitch control accuracy over a wide range (±9.9%) in 0.1% increments can be obtained with the quartz perfectly locked.
The pitch control is continuously variable up to ±9.9% with accurate and easy selection.
The pitch variations which are clearly indicated by the LED digital indicator.
The pitch control can be selected in increments of 0.1% which is below the threshold of human perception.
(See Fig. 34.)
The pitch control also enables you to accurately and precisely tune musical instruments and by varying the pitch slightly, to obtain a different musical note from the record. **(See Fig. 35.)**
For a half-tone change:
+5.9% (♯)
−5.6% (♭)
Another feature of the variable pitch control over a wide range of ±9.9% is that it makes singing along with a melody easy for a chorus, or for playing a record for accompaniment only **(See Fig. 36.)**
By pressing the clear button which is located between the "+" and "−" pitch buttons, you can quickly return the set value to normal playing speed. **(See Fig. 37.)**

Notes and maintenance

■ Be extremely careful about handling the turntable platter. (See Fig. 38.)

Do not detach the turntable platter more than necessary.
Should the turntable platter be removed by necessity be sure to first disconnect the power plug.
Keep your hands off the screws at the reverse surface of the turntable platter and motor portion.
Should these screws be loosened, the rated performance of the unit can not be guaranteed.

■ Wipe the main unit, front control portion, etc. with a dry soft cloth (velvet or the like)

Wipe the dust cover and turntable base with a soft, dry cloth. Never use any cleaners containing alcohol, benzene or thinner, since luster and coating of the dust cover and the turntable base may be lost. Use of a chemical dust cloth and the like should also be avoided. Be sure that the dust cover is not exposed to insecticide spray, as cracks or blurs may result. For removing stubborn finger prints or grease spots, be sure to detach the dust cover or disconnect the AC power plug and use a soft cloth dampened with a mild soap and water solution, and then wipe it with a dry cloth.

■ Lubrication (See Fig. 39.)

Apply 2 or 3 drops of oil once after every 2000 hours of operation.
The time interval is much longer than that for conventional type motors (200—500 hours).
Please purchase original oil. **(The part number is SFWO 010.)**

■ Do not twist or pull the arm unit's connector pins or the connector on the arm base, or otherwise after their shapes, as this could lead to misconnection. **(See Figs. 40 and 41.)**
Take special caution when installing or removing the arm unit.

■ Do not depress or raise the cueing lever. Use it by sliding it to the right or left. **(See Fig. 42.)**

■ Please be sure to use the tonearm in a horizontal position.

■ Do not push in the arm lift when the fixing screw has been secured. **(Refer to Fig. 20.)**

For longer and safer use of this unit

In order to receive the best service from this unit, and for the safest operation, carefully read the following information.

■ Power source

It is very dangerous to use this unit at a voltage which is different from the rated voltage.
There is danger of combustion if the unit is connected to a power source which is different from the rated voltage.
Be very careful concerning this point.
Direct current cannot be used.
There are some places, such as ships, where direct current is used as the power source. Before connecting the unit, confirm the power source.

■ Connection of power cord

Be sure to never touch the power cord with wet hands because there is danger of electric shock. This is true, of course, of all electric equipment.
Do not pull the power cord.
Never pull the power cord to disconnect it. Always pull the plug only.

■ **Location of unit**
Choose a place which is not in direct sunlight.
Select a place which will assure good ventilation.

■ **Never place heating equipment nearby.**
Be sure to keep stoves and other sources of heat away from this unit, because heat radiated by such equipment may cause deformation of plastic parts or damage the cabinet, or, at worst, cause a fire.

■ **Especially for families with children**
Take care that no small items, such as metal objects, are put inside this unit.
In addition, children should be especially warned not to put anything into the ventilation holes, such as toys or a screwdriver, because these things may cause an electric shock or result in a malfunction of the unit.

■ **If water spills on the unit.**
If water should happen to spill on the unit, from an overturned vase for example, there is danger of fire or electric shock. Disconnect the power plug from the electric outlet immediately, and contact the store from which the unit was purchased.

■ **Reconstruction can cause accidents.**
Absolutely never try to remodel, reconstruct or repair this unit yourself. Do not attempt to touch any internal parts because to do so may result in an electric shock or other accident.

■ **Be sure the power is off.**
After you have finished using this unit, check once more to be sure that the power is off. If the unit is left with the power on for a long period of time, it may not only be damaged, thus shortening its useful life, but may also lead to a dangerous accident.

Features

[Turntable/cabinet section]

■ **Quartz synthesizer system that for the first time in the world has made it possible to achieve a digital pitch control of ±9.9% in 0.1% increments.**

■ **High torque motor of 3 kg·cm with starting time of 0.4 second is capable of instant speed change-over.**

■ **Oversized turntable that cuts off and absorbs external vibrations.**

■ **Whole cabinet produced by one-piece molding with high grade special rubber. Moreover, vibration damping cabinet structure isolates all main components such as turntable, tonearm panel, etc.**

■ **Electronic circuits of more than 3,000 discrete elements concentrated into 4 ICs.**

■ **Highly efficient pulse power supply circuit is employed for the DC power source.**

■ **Highly accurate rotational characteristics with the circular detection F.G.**

■ **Pitch lock mechanism capable of locking the speed selection and pitch control operation.**

■ **Stable and positive mechanism that can stand frequent use for business use, etc. and a switch section with point contacts.**

[Tonearm section]

■ **A "system tonearm" that assures close matching of tonearm and different cartridge characteristics by means of an interchangeable arm unit system.**

■ **Dynamic damping device reduces low-frequency resonance peak by 6 dB or more.**

■ **Gimbal-suspension construction**

■ **Hardened Titanium tapered pipe specially treated with nitrogen.**

■ **Low capacitance, low DC resistance phono cable.**

■ **Helicoid arm height adjusting device permits up to 20 mm variation in height.**

■ **Large-sized heavy zinc (Zn) diecast arm base.**

■ **Two-way damped cueing with stabilized vertical movement.**

■ **Accurate anti-skating control with force acting in the axis of the tonearm's lateral movement.**

■ **Gold-plated low resistance connectors.**

■ **Reinforced carbon fiber headshell with lightweight, low resonance design.**

[Stylus Pressure Gauge]

■ **High-sensitivity design with semiconductor strain gauge.**
A high sensitivity design which employs the piezo resistance effect to change pressure into electric resistance, this unit employs a pair of semiconductor strain gauges to compensate for temperature changes, giving added reliability and extra sensitivity.

■ **Large, easy-to-read meter with direct figure readout.**

■ **LED lamp power "on" indicator.**

Specifications

■ General

Power supply:	120 V AC, 50 or 60 Hz,
Power consumption:	11 W
Dimensions: (W×H×D)	56.6×17.0×46.5 cm (22-9/32" ×6-11/16" ×18-19/64")
Weight:	23.5 kg (51.96 lb.)

■ Turntable section (SP-15)

Type:	Quartz phase-locked direct drive with quartz synthesizer pitch control
Drive method:	Direct Drive
Motor:	Brushless DC motor
Drive control method:	Quartz-phase-locked control
Turntable platter:	Aluminum die-cast, diameter 33.9 cm (13-11/32 inches) weight 2.7 kg (5.9 lb)
Moment of inertia:	380 kg·cm² (130 lb·in²)
Turntable speeds:	33-1/3, 45 and 78.26 rpm
Turntable speed fine adjustment:	Adjustable up to ±9.9% in 0.1% increments by digital indication
Starting torque:	3 kg·cm (2.61 lb·in)
Build-up time:	0.4 s. to 33-1/3 rpm
Braking time:	0.4 s. from 33-1/3 rpm
Braking system:	Electronic and mechanical braking
Speed fluctuation due to load torque:	0% within 2.5 kg·cm (2.2 lb·in)
Speed drift:	With in ±0.002%
Wow and flutter:	0.008% WRMS* 0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)
Rumble:	−56 dB (IEC 98A Unweighted) −78 dB (IEC 98A Weighted)

*This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter. Measured by obtaining signal from built-in frequency generator of motor assembly.

■ Tonearm section (EPA-B500, EPA-A501H)

Type:	Arm base with arm unit interchangeability
Pivot construction:	Gimbal suspension type
Arm pipe:	Titanum-nitride (TiN) tapered pipe
Effective length:	250 mm
Rear stub length:	Min. 68 mm to max. 85.5 mm (from the tonearm fulcrum).
Arm height range:	Min. 42 mm~max. 62 mm (from the surface of the base to the arm pipe) (Helicoid portion 20 mm)
Overhang:	15 mm
Lateral tracking error:	+1°6′ at the inner groove, 30 cm record +2°6′ at the outer groove, 30 cm record
Friction:	Under 7 mg (lateral, vertical)
Effective arm mass:	8 g (wighout cartridge)
Applicable cartridge compliance (dynamic, 100 Hz):	10~14×10⁻⁶ cm/dyne*
Applicable cartridge weight:	5~7 g
Resonance peak:	Below 6 dB
DC resistance of phono cable:	39.5 mΩ/m
Capacitance of phono cable:	41.5 pF/m
Diameter of arm base mounting hole:	∅62 mm

*The compliance of Technics cartridge is in reference to dynamic compliance.
In cases where compliance is indicated by staticcompliance, convert it into a value of approximately 1/2 to obtain the dynamic compliance.

■ Stylus pressure gauge (SH-50P1)

Type:	Semiconductor strain gauge electronic stylus pressure gauge, with "0" point adjustment and gain control mechanism
Power source:	DC 3 V, Silver oxide battery (SR44 type)×2
Stylus pressure measurement range:	0.5~3 g
Semiconductors used:	Semiconductor strain gauge . 2 Transistor . . . . . 2 LED 1
Dimensions:	14.7(W)×5.2(D)×2.4(H) cm
Weight:	125 g

Specifications subject to change without notice.
Weight and dimensions shown are approximate.