

# EGOTERIC

G-0s

Master Clock Generator

Owner's Manual



**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.



The lightning flash with arrowhead symbol, within an equilateral triangle, 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.



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

## IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
  - Do not expose this apparatus to dripps or splashes.
  - Do not place any objects filled with liquids, such as vases, on the apparatus.
  - Do not install this apparatus in a confined space such as a book case or similar unit.
  - The apparatus draws nominal non-operating power from the AC outlet with its POWER switch in the off position.



**WARNING : TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

### CAUTION

- DO NOT REMOVE THE EXTERNAL CASES OR CABINETS TO EXPOSE THE ELECTRONICS. NO USER SERVICEABLE PARTS ARE WITHIN!
- IF YOU ARE EXPERIENCING PROBLEMS WITH THIS PRODUCT, CONTACT TEAC FOR A SERVICE REFERRAL. DO NOT USE THE PRODUCT UNTIL IT HAS BEEN REPAIRED.
- USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

### For U.S.A.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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 or relocate the equipment and/or the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### CAUTION

Changes or modifications to this equipments not expressly approved by TEAC CORPORATION for compliance will void the user's warranty.

This product has been designed and manufactured according to FDA regulations "title 21, CFR, chapter 1, subchapter J, based on the Radiation Control for Health and Safety Act of 1968", and is classified as class 1 laser product. There is not hazardous invisible laser radiation during operation because invisible laser radiation emitted inside of this product is completely confined in the protective housings.

The label required in this regulation is shown ①.

### CAUTION

The product shall not be exposed to dripping or splashing and that no object filled with liquids, such as vases, shall be placed on the product.

Do not install this equipment in a confined space such as a book case or similar unit.

Thank you for choosing TEAC. Read this manual carefully to get the best performance from this unit.

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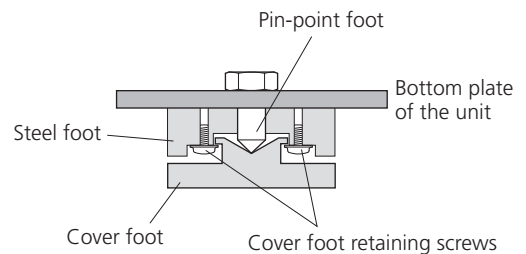
## Read this before operation

- As the unit may become warm during operation, always leave sufficient space around the unit for ventilation.
- The voltage supplied to the unit should match the voltage as printed on the rear panel. If you are in any doubt regarding this matter, consult an electrician.
- Choose the installation location of your unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Also avoid locations subject to vibrations and excessive dust, heat, cold or moisture.
- Do not place the unit on the amplifier/receiver.
- Do not open the cabinet as this might result in damage to the circuitry or electrical shock. If a foreign object should get into the unit, contact your dealer or service company.
- When removing the power plug from the wall outlet, always pull directly on the plug, never yank the cord.
- Do not attempt to clean the unit with chemical solvents as this might damage the finish. Use a clean, dry cloth.
- Keep this manual in a safe place for future reference.

## Placement of the unit

High-quality hardened tool steel is used for the pin-point feet, securely attached to the bottom of the player. Although the cover feet may appear loose, the weight of the unit causes them to be firm and secure, and the design effectively damps and reduces vibration.

- Be careful to avoid injury when moving the unit, on account of its weight. Get someone to help you if necessary.
- To protect floors, etc. you may stick the felt supplied with the unit to the bottom of the cover feet.



## Up to 192 kHz Word Sync clock production

With the advent of digital equipment using higher sampling frequencies than ever, 176.4 kHz and 192 kHz word clocks (sync signals) are made available in addition to conventional 44.1 kHz, 48 kHz, 88.2 kHz and 96 kHz clocks.

As an additional plus, the output circuitry consists of 3 separate channels with a total of 6 output terminals, thus offering the capability of handling a variety of audio equipment controlled by different word clocks. Also, each of the 3 output channels is switch-selectable between 1xFs, 2xFs, and 4xFs, so you can, for example, get an 88.2 kHz and a 176.4 kHz machine synchronized by connecting them to the single G-0s.

## Clocks Generated by Internal High-precision Oscillator

The G-0s uses an advanced rubidium oscillator (monthly precision variation: projected within  $\pm 0.05$ ppb) that generates astonishingly super-accurate clocks.

## Ready for connection to external oscillators

It is also possible to connect external reference frequency oscillators to the G-0s. Using this capability, you can, for example, readily bring in a higher precision oscillator when made available in the future.

## Universal Clock Output

Some universal players use clocks different from the ones used by CD players to process both the video and audio signals at the same time.

The G-0s comes with a 100 kHz clock output intended for universal players (in PAL FILM mode, the output is switched to 96 kHz). If your universal players are 100 kHz-capable, you can control them by this high-precision clock.

## PAL Film Source-capable Clock Frequencies

The PAL (European TV format) film source is a better image quality than NTSC discs provide. However, PAL video system is standardized at 25 frames per second while the PAL film source discs use the rate of 24 frames per second. So, if these discs are played back without inserting one additional frame per second in the process of conversion, the sound pitch may be higher than is expected. To play PAL film source material correctly, it is necessary to reduce the play speed by 4% and play at 24 frames per second. To meet this requirement, the G-0s is designed to output clock frequencies of 96% of 48/96/192 kHz (i.e., 46.08/92.16/184.32 kHz).

To play PAL film source material, connect the Esoteric UX-1 or any other Universal Player that is equipped to accept 96% clock frequencies.

## Super-rigid Chassis to Ensure Uncompromised Sound Quality

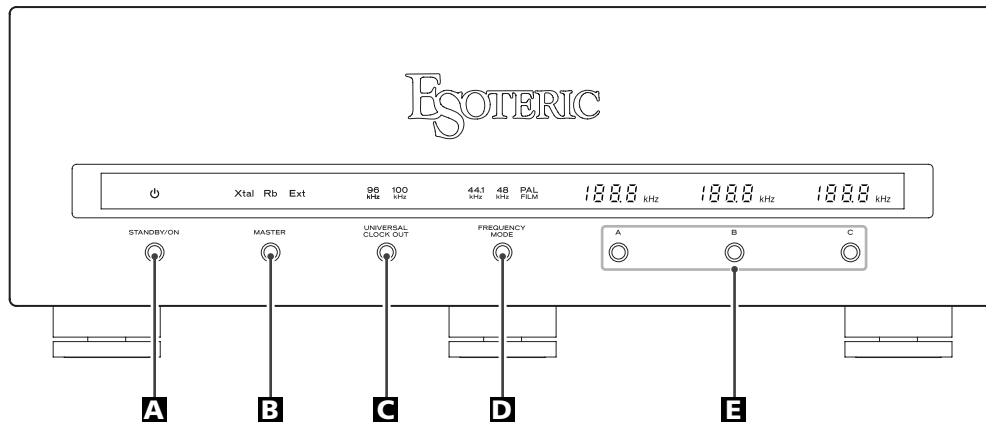
A rigid chassis featuring a total weight of 18 kg (40 pounds) helps to provide a stabilized platform for the clock operation.

- 5-mm thick steel base plate completely eliminates external vibrations.
- Triangular pinpoint feet composed of case-hardened tool steel ensures enhanced stability against vibration.

## Employs carefully selected highest quality components

Tight-tolerance components are carefully hand-picked and secured to the rugged chassis to support the high-precision clock operation.

## Names of Each Control



### **A** STANDBY/ON button

When the Main Power switch on the rear panel is ON, use this button to turn the unit on or to standby. When the unit is on, the indicator lights.

### **B** MASTER button

Press this button to select the signal source you will use for the reference frequency. When the clock signal is stabilized, the indicator for the MASTER button stops blinking and lights steadily.

#### **Xtal:**

When using the clock made by internal crystal oscillator

#### **Rb:**

When using the internal rubidium oscillator as the source clock

#### **Ext:**

When using the input from the reference sourced 10MHz IN terminal

### **C** UNIVERSAL CLOCK OUT button

Use this to switch the Universal Clock output on or off. Universal Clock is the TEAC-ESOTERIC original clock for universal players. When the FREQUENCY MODE is set to 44.1kHz or 48kHz, the frequency of the universal clock is set to 100kHz. When the FREQUENCY MODE is set to PAL FILM, the frequency of the universal clock is set to 96kHz. When OFF is selected, the indicator turns off.

### **D** FREQUENCY MODE button

Use this to select the fundamental frequency of the word clock.

#### **44.1kHz:**

This is generally used for red-book CD players which operate with a 44.1kHz clock standard.

#### **48kHz:**

This is used for DVD players, DAT recorders, etc. which operate with a 48kHz clock standard.

#### **PAL FILM:**

This is used for reproducing PAL DVD discs at 24 frames/sec.

### **E** Frequency change buttons [A/B/C]

The frequency of the each line (A/B/C) is changeable between 1x/2x/4x of the fundamental frequency and off. Following frequency can be selected for each FREQUENCY MODE.

When OFF is selected, the indicator turns off.

#### **44.1kHz:**

44.1kHz, 88.2kHz, 176.4kHz

#### **48kHz:**

48kHz, 96kHz, 192kHz

#### **PAL FILM:**

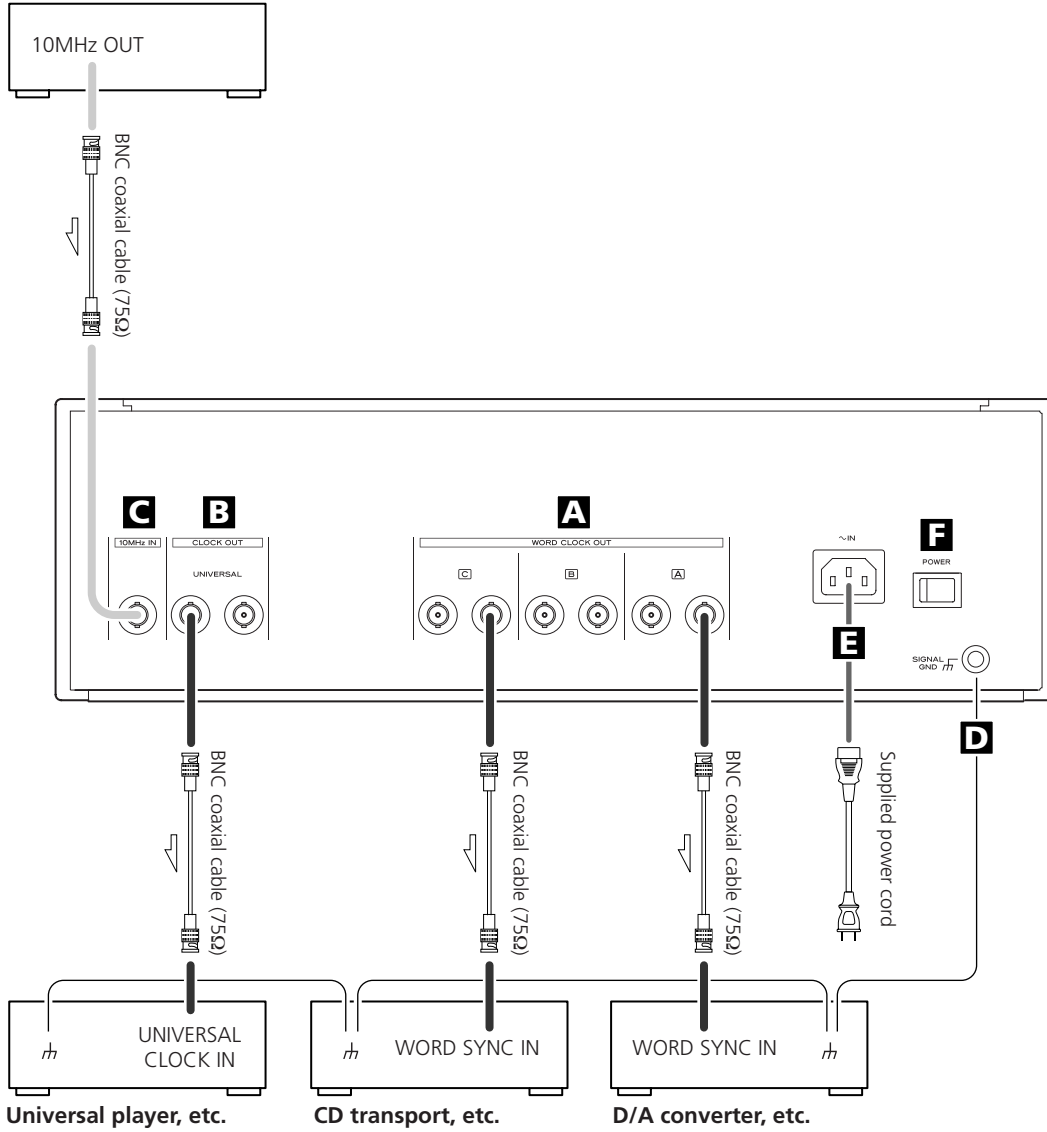
48P (46.08kHz), 96P (92.16kHz), 192P (184.32kHz)

# Connections

## CAUTION:

- Switch off the power to all equipment before making connections.
- Read the instructions of each component you intend to use with this unit.
- Be sure to insert each plug securely. To prevent hum and noise, avoid bundling the signal interconnection cables together with the AC power cord or speaker cables.

External rubidium 10MHz oscillator, etc.



## **A** WORD CLOCK OUT terminals

These terminals output precise word synchronization signals. Connect these OUT terminals to the WORD SYNC IN terminals of the other digital equipment, using a commercially available BNC coaxial cable.

- For other connections, read the instructions of each component you intend to use with this unit.
- Each of the A, B, and C channels is switch-selectable between 1xFs, 2xFs, and 4xFs. So you can, for example, connect an 88.2 kHz and a 176.4 kHz machine to the single G-0s and synchronize them. Three buttons (A, B, and C) are provided on the front panel for each channel.

## **B** UNIVERSAL CLOCK OUT terminal

Universal clock signal is an original synchronization format developed by TEAC-Esoteric. These terminals output universal clock signals. Connect these OUT terminals to the UNIVERSAL CLOCK IN terminals of the other matched equipment (ex. UX-1, P-01, etc.), using a commercially available BNC coaxial cable.

## **C** 10MHz IN terminal

You can use the input of external 10MHz reference frequency. Connect this terminal to the output terminal of the external 10MHz oscillator. Use a commercially available BNC coaxial cable for connection.

## **D** SIGNAL GND connection

Use a commercially available PVC-covered cord to connect the signal ground terminal on the unit to the amplifier signal ground.

- Note that this is NOT an electrical safety ground (earth).

## **E** Power cord receptacle

After all other connections have been made, insert the supplied AC power cord into this receptacle, then connect the other end of the power cord into the AC power source. Ensure that your AC voltage corresponds to the voltage marked on the rear panel of the unit. Consult a qualified electrician if you are in doubt.

- In order to avoid the risk of electric shock, fire, or other hazard, only use the supplied power cord or a suitably approved OEM power cord.
- If you are not going to use the unit for some time, disconnect the power cord from the wall socket.

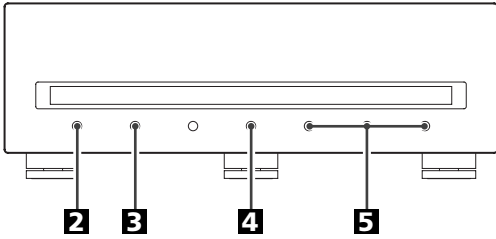
## **F** Main Power switch

Use this to turn the unit on and off.

- When the G-0s is turned on, the process of pre-heating the rubidium oscillator to its operating temperature gets started. It takes several minutes before the oscillator is ready for operation. Keep the unit turned on if you want the oscillator to stabilize more quickly.

The equipment draws nominal non-operating power from the AC outlet with its POWER switch in the OFF position.

# Set Up for Esoteric Units



This is the recommended set up for synchronization with TEAC-ESOTERIC CD units:

P-70, X-01, UX-1, P-01, D-01

**1** Connect WORD CLOCK OUT terminals to WORD SYNC IN terminals of each unit using commercially available BNC coaxial cables.

P-70: turn ON the WORD SYNC IN switch (front panel), then set the PLL filter switch (back panel) to 'MODE2'.

X-01: select 'Word M1 ON' using the CLOCK MODE button.

UX-1: select 'Word ON' using the CLOCK MODE button.

P-01: select 'Rb IN' using the WORD button.

D-01: select 'Rb IN' using the WORD button.

**2** Press the STANDBY/ON button to turn the unit on.



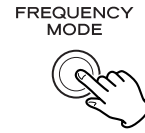
The standby indicator will turn off.

**3** Press the MASTER button to select which oscillator you will use for the reference frequency.

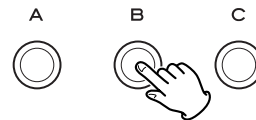


- "Rb" is recommended.

**4** Select 44.1kHz using the FREQUENCY MODE button.



**5** Select the frequency of the word clock for each line by pressing the A, B or C button.



- Set the frequency as high as the connected units will allow for synchronization.

- P-70: 88.2 kHz
- X-01: 176.4 kHz
- P-01: 176.4 kHz
- D-01: 176.4 kHz

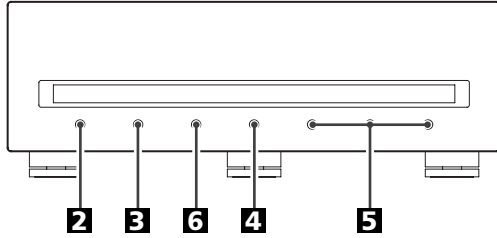
**NOTE:**

If you connect this unit to other manufacturers units, be sure to read the manuals of those devices to confirm the frequency range of synchronization.

Dual AES connection will require you to set the clock frequency at one half of the audio signal frequency.



## Set Up for DVD Players, Universal Players, etc.



This is the recommended set up for synchronizing DVD players, D/A converters and other similar digital devices.

**1** Connect WORD CLOCK OUT terminals to word synchronization input terminals of your units, using commercially available BNC coaxial cables.

If your unit can be synchronized with the universal clock signal (ex. UX-1, P-01, etc.), connect UNIVERSAL CLOCK OUT terminals to the universal clock input terminals of the unit, using a commercially available BNC coaxial cable.

- Set each unit to the slave mode (word synchronization input mode).

**2** Press the STANDBY/ON button to turn the unit on.

The standby indicator will turn off.

**3** Press the MASTER button to select which oscillator you wish to use for the reference frequency.

- "Rb" is recommended.

**4** Select the appropriate frequency mode using the FREQUENCY MODE button.



**48kHz:**

If you intend to play DVD, DAT, etc.

**44.1kHz:**

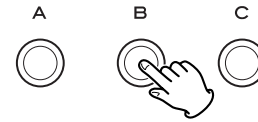
If you intend to play CD.

**PAL FILM:**

If you intend to play PAL DVD discs at 24frames/sec.

- Before you set PAL FILM mode, confirm that the connected unit can be synchronized with the frequency of PAL FILM. UX-1 can be synchronized with the PAL FILM mode.

**5** If your units are connected to the WORD SYNC OUT terminals, select the frequency of the word clock for each line by pressing the A, B or C button.



- Set the frequency as high as the connected units will allow for synchronization.

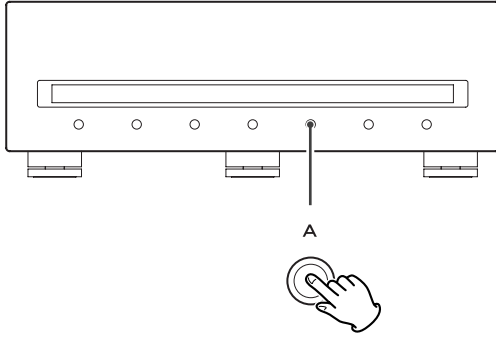
**6** If your units are connected to the UNIVERSAL CLOCK OUT terminals, press the UNIVERSAL CLOCK OUT button to turn it on.



100 kHz signal is output from the terminals when you set the master mode to 44.1kHz or 48kHz. 96 kHz signal is output from the terminals when you set the master mode to PAL FILM.

- Digital output from the digital output terminals may be prohibited depending on the DISC format (ex. SACD). Your D/A converter may not be able to convert all the digital output signals.

## Dimmer



The front display can be dimmed to suit your preferred environment. There are two levels and an "off" setting.

**Press the A button for more than 2 seconds to switch the dimmer mode.**

### LEd OFF 1:

All the illuminations are turned off except the MASTER button indicator (Xtal, Rb, Ext).

### LEd OFF 2:

All the illuminations are turned off.

### LEd ON:

Normal mode.

- Note that the OFF setting is memorized when the power is turned off.
- In OFF mode, when you turn on the power or you operate other buttons, the illuminations turn temporarily on, and after the clock signal is stabilized, it turns off. (After the indicator for the MASTER button stops blinking and lights steadily.)

## Troubleshooting

In case you experience any problem with this unit, please take the time to look through this chart and see if you can solve the problem yourself before you call your dealer or a TEAC service center.

### No power

- ➔ Check the connection to the AC power supply. Check and make sure the AC source is not a switched outlet and that, if it is, the switch is turned on. Make sure there is power to the AC outlet by plugging in another item such as a lamp or fan.
- ➔ Turn on the POWER switch on the rear panel.

### Not synchronized

- ➔ Check to see if the current word clock output is supported by the connected players. If necessary, select a word clock frequency that is appropriate for the individual players. There are occasions where the word clock available for synchronization varies depending on the connection and settings of the individual players. For details, consult the manual for each player.
- ➔ If you are using the PAL FILM mode, check to see whether the connected player supports the PAL FILM frequency (-4% of the standard frequency).
- ➔ Check to see whether the sync outputs on the rear panel are connected to the acceptable sync inputs of the individual players.

### Desired frequency not selectable with A, B, and C buttons

- ➔ Select the proper fundamental frequency in FREQUENCY MODE before operating the buttons.

### Odd sound pitch

- ➔ Do not use the PAL FILM mode for NTSC discs or PAL discs other than film source discs.

**If normal operation cannot be recovered, unplug the power cord from the outlet and plug it in again. This resets the internal micro-computer which can be disturbed during electrical storms, power interruptions, et cetera.**

## Maintenance

If the surface of the unit gets dirty, wipe with a soft cloth or use diluted neutral cleaning liquid. Be sure to remove any fluid completely. Do not use thinner, benzene or alcohol as they may damage the surface of the unit.

# Specifications

**Clock outputs**

44.1 kHz lines . . . . . 44.1 kHz, 88.2 kHz, 176.4 kHz  
 48 kHz lines . . . . . 48 kHz, 96 kHz, 192 kHz  
 PAL FILM lines . . . . . 46.08 kHz, 92.16 kHz, 184.32 kHz  
 UNIVERSAL CLOCK lines . . . . . 100 kHz, 96 kHz

Terminals . . . . . BNC coaxial/75 Ω  
 Output . . . . . rectangular wave

**Accuracy**

Under ±0.05ppb (factory setting, ppb: 10<sup>-9</sup>)

**Stabilized time of the output clock**

If the main power to the Rubidium oscillator is first turned on . . . . . 10 minutes

If the G-0s is in standby mode and the Rubidium oscillator is stabilized . . . . . 0 seconds

MASTER/FREQUENCY MODE switched to output stabilized . . . . . Less than 10 seconds

**Frequency input**

Input . . . . . 10 MHz (under ±10 ppm)  
 Rectangular or Sine wave, 1.4-5 V (peak to peak)  
 Terminal . . . . . BNC coaxial/75 Ω

**General**

Power supply . . . . . AC 120 V, 60 Hz

Power consumption . . . . . 75 W (maximum), 31 W (nominal)

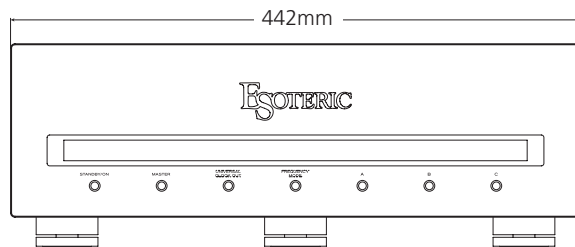
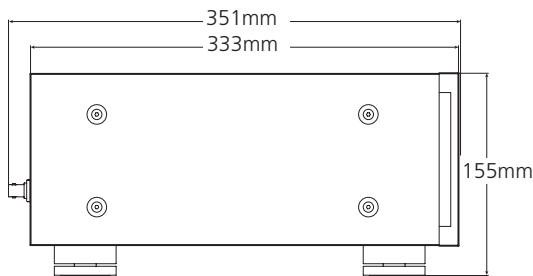
Weight . . . . . 18.5 kg (40.8 lbs)

External dimensions (W x H x D) . . . . . 442 x 155 x 351 mm  
 (17.4" x 6.1" x 13.8")

**Accessories**

Power cord x 1  
 Felt x 3  
 Warranty card x 1  
 Owner's manual x 1

- Design and specifications are subject to change without notice.
- Weight and dimensions are approximate.
- Illustrations may differ slightly from production models.



# TEAC

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This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.

Model number \_\_\_\_\_ Serial number \_\_\_\_\_

1004-MA-0945A