TU-121 CHROMATIC TUNER

Owner's Manual

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Panel Descriptions

LIGHT Switch
Turns the meter light on/off, allowing you to read the meter even under poor lighting conditions.
To prevent unnecessary battery discharge, turn off the meter light except during actual use.
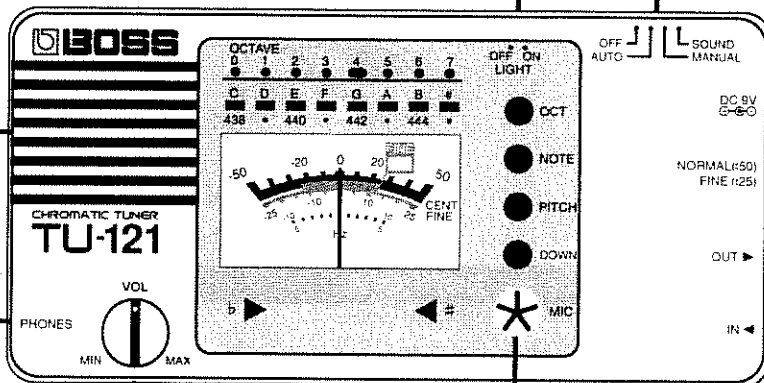
Power/Mode Selection Switch
This switch serves two purposes;it turns the power ON/OFF, and provides selection of the mode. There are 3 modes: AUTO, MANUAL, and SOUND.

Internal Speaker
Reproduces the reference note.

AC Adaptor Jack (DC 9V)
Accepts connection of an AC adaptor (BOSS PSA-Series; optional).

NORMAL/FINE Switch
This switch allows you to change the meter scale. For precise tuning, select the FINE setting.

Scale
NORMAL   ± 50 cents (± 10 Hz)
FINE   ± 25 cents (± 5 Hz)

Tuning Precision
NORMAL   ± 3 cents or less
FINE   ± 1 cent or less

Output (OUT) Jack
Provides output of the signals produced by the instrument connected to the Input jack.
The reference note is not output from the Output jack.

Input (IN) Jack
Connect the instrument you wish to tune to this jack.
The internal microphone will not function when an instrument has been connected to the Input jack.

Volume Knob (VOL)
This knob controls the volume of the reference note that is produced while in the SOUND mode. Rotate the knob clockwise (toward MAX) to increase the volume.
In order for you to always know when the TU-121 is in the SOUND mode, the reference note can still be heard (faintly) even with the volume turned all the way down.

Internal Microphone (MIC)
Used when tuning acoustic instruments.
The internal microphone will not function when an instrument has been connected to the Input jack.

PHONES Jack
Accepts connection of stereo headphones which can then be used to monitor the reference note.
When headphones are connected the reference note will no longer be heard from the internal speaker.

Important notes

When using an AC adaptor, use only the specified device (PSA-Series).
Use of any other power adaptor could result in damage, malfunction,or electric shock.

POWER SUPPLY
• When making any connections with other devices, always turn off the power to all equipment first; this will help prevent damage or malfunction.
• The power supply required for this unit is shown on its nameplate. Ensure that the line voltage of your installation meets this requirement.
• Avoid damaging the power cord; do not step on it, place heavy objects on it etc.
• When disconnecting the AC adaptor from the outlet, grasp the plug itself; never pull on the cord.
• If the unit is to remain unused for a long period of time, unplug the power cord.
• Remove the batteries whenever the unit is not going to be used for an extended period of time.

PLACEMENT
• Do not subject the unit to temperature extremes (eg. direct sunlight in an enclosed vehicle). Avoid using or storing the unit in dusty or humid areas or areas that are subject to high vibration levels.
• Using the unit near power amplifiers (or other equipment containing large transformers) may induce hum.
• This unit may interfere with radio and television reception. Do not use this unit in the vicinity of such receivers.
• Do not expose this unit to temperature extremes (eg. direct sunlight in an enclosed vehicle can deform or discolor the unit) or install it near devices that radiate heat.

BOSS

Note Name/ Pitch Indicator

In the AUTO mode, this indicator displays the name of the input note. In the MANUAL mode, it displays the name of the note being tuned. In the SOUND mode, it displays the name of the reference note. If the PITCH button has been pressed (in any mode), the current reference pitch will be displayed (it will flash for approximately 2 seconds.)

Meter

Indicates the amount by which the input note differs from the note name displayed (by the Note Name/Pitch indicator). The meter scale can be changed using the NORMAL/FINE switch.
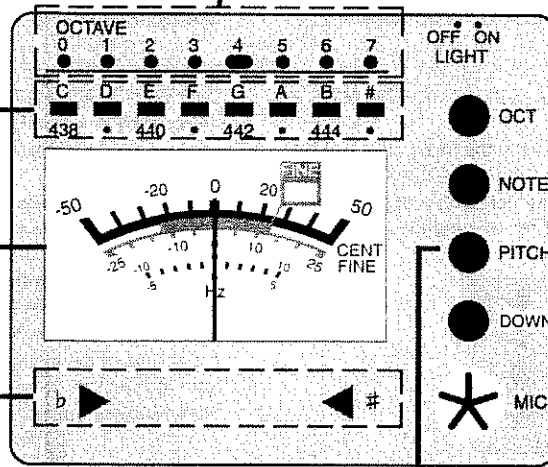
Tuning Guide Indicators

The indicators (" ♭ " and " ♯") light to act as a tuning guide. The degree of precision obtained when both indicators light can be changed using the NORMAL/FINE switch.
when " ♭ " lights: Pitch is low
when " ♯" lights: Pitch is high
when " ♭ " and "♯" light:
　　　　　　　　Pitch is correct

OCTAVE Indicator

Indicates the octave (0-7) of the input note when the TU-121 is in the AUTO or MANUAL mode. In the SOUND mode, it indicates the octave of the reference note.

PITCH Button

Press this button to check/set the reference pitch: Press the PITCH button once to check the current reference pitch via the Note Name/Pitch indicator;it flashes for about 2 seconds.
To change the reference pitch, press the PITCH button once again while the Note Name/Pitch indicator is flashing. Each press of the button changes the pitch by 1 Hz. Press the button enough times to obtain the desired setting for the reference pitch. This can be confirmed by watching for the reference pitch indicator to begin flashing. The reference pitch can be set anywhere between 438 and 445 Hz (in 1 Hz increments) for note A4.

Octave (OCT) Button

Used to set the octave of the reference note that is heard in the SOUND mode (octave 2 to 6). Each press of the OCT (Octave) button will raise the pitch by 1 octave. You can confirm the setting via the OCTAVE indicator.

NOTE Button

Used to select the tuning note while in the MANUAL mode. While in the SOUND mode, it is used to set the reference note. Each press of the NOTE button will raise the pitch by 1 semitone. You can confirm the setting via the Note Name/Pitch indicator.
*If you hold the NOTE button down for more than 1 second, the note names will change in ascending order.

DOWN Button

Press this button to lower the setting for Octave/Note Name/Reference Pitch. For example, to lower the octave, press and hold the DOWN button while pressing the OCT button.

MAINTENANCE

• For everyday cleaning wipe the unit with a soft, dry cloth (or one that has been slightly dampened with water). To remove stubborn dirt, use a mild neutral detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
• Never use benzene, thinners, alcohol or solvents of any kind, to avoid the risk of discoloration and/or deformation.

ADDITIONAL PRECAUTIONS

• Protect the unit from strong impact.
• Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.
• Never strike or apply strong pressure to the meter.
• Should a malfunction occur (or if you suspect there is a problem) discontinue use immediately. Contact qualified service personnel as soon as possible.
• To prevent the risk of electric shock, do not open the unit.

AUTO Mode Tuning

In the AUTO mode, the octave and name of every note you play will be indicated automatically. The AUTO mode can be used in the majority of tuning situations.

The default value for the reference pitch is 440 Hz (for note A4). If you intend to change the reference pitch, do so before you begin tuning.

1.Set the Power/Mode switch to "AUTO."
After the Note Name/Pitch indicator (which shows the current reference pitch) has finished flashing (approx. 2 seconds), the unit is ready.
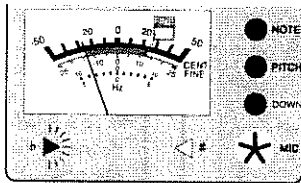
2.Connect your instrument to the Input [IN] jack.
If you wish to tune an acoustic instrument, you will need to use the internal microphone. Place the TU-121 close to the instrument.
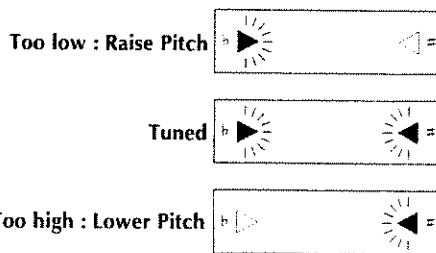
3.Play single notes on the instrument.
(In the case of electronic instruments, turn off all effects and use +pure' tones when possible.)
The note name (and relevant octave) closest to the input note will be indicated by the OCTAVE indicator and the Note Name/Pitch indicator. Additionally, the amount by which the input note differs in pitch from the indicated note name can be checked by viewing the Meter and Tuning Guide indicators.
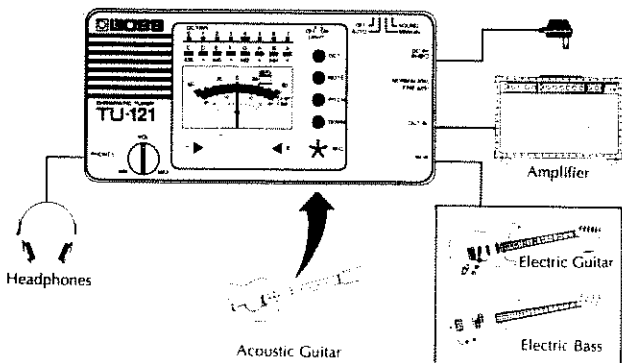
4. Tune the instrument.
When you get the indicator corresponding to the note you wish to tune to light, tune the instrument so both the " ♭ " and " ♯ " Tuning Guide indicators also light. Tune the note so the meter's needle is in the center (at "0").

Too low : Raise Pitch

Tuned

Too high : Lower Pitch

Making the Connections

Headphones

Acoustic Guitar

Amplifier

Electric Guitar

Electric Bass

Even if you are using an AC adaptor, it is a good idea to leave the battery in place. That way you will be able to continue tuning even if the AC adaptor is inadvertently disconnected.

MANUAL Mode Tuning

The MANUAL mode is used when you wish to tune to the pitch of a specific note. It can also be used when you wish to practice playing specific notes, with a wind instrument for example.

The default value for the reference pitch is 440 Hz (for note A4). If you intend to change the reference pitch, do so before you begin tuning.

1.Set the Power/Mode switch to "MANUAL."
After the Note Name/Pitch indicator (which shows the current reference pitch) has finished flashing (approx. 2 seconds), the unit is ready.

2.Connect your instrument to the Input jack.
If you wish to tune an acoustic instrument, you will need to use the internal microphone. Place the TU-121 close to the instrument.
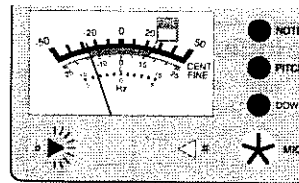
3.Select the note name you wish to tune.
Each press of the NOTE button will raise the pitch by 1 semitone. To lower it by a semitone, press and hold the DOWN button while pressing the NOTE button.

Changes made in the note name setting will be retained in memory even while the power is off.
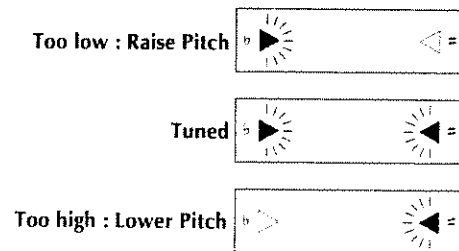
4.Play single notes on the instrument.
(In the case of electronic instruments, turn off all effects and use +pure' tones when possible.)
The octave of the input note and the amount by which the pitch differs from the set note name, are shown by the OCTAVE indicator and the Meter/Tuning Guide Indicators.

5.Tune the instrument.
After getting both the " ♭ " and " ♯ " Tuning Guide indicators to light, tune the instrument so the meter's needle is at "0."

Too low : Raise Pitch

Tuned

Too high : Lower Pitch

Strings / Note Name Table

Guitar (A4=440Hz)

	Note Name / Octave	Frequency
1st String Open	E4	329.6Hz
2nd String Open	B3	246.9Hz
3rd String Open	G3	196.0Hz
4th String Open	D3	146.8Hz
5th String Open	A2	110.0Hz
6th String Open	E2	82.4Hz

Bass (A4=440Hz)

	Note Name / Octave	Frequency
	C3	130.8Hz
1st String Open	G2	98.0Hz
2nd String Open	D2	73.4Hz
3rd String Open	A1	55.0Hz
4th String Open	E1	41.2Hz
	B0	30.9Hz

The Reference Note

The reference note can be heard through the internal speaker to allow the unit to be used like a tuning fork.

1.Set the Power/Mode switch to "SOUND."
The reference note will be heard from the internal speaker.

2.Set an appropriate level with the volume [VOL] knob.

3.Use the OCT button to set the octave for the reference note, and use the NOTE button to set the note name. Any note within the range of C2 to B6 is acceptable.

*When headphones are connected to the PHONES jack, the reference note will no longer be heard from the internal speaker.
*Any setting changes you make will be retained in memory even while the power is off.

Changing the Reference Pitch

Perform the steps below to change the reference pitch (the tuning of the reference note).

1.Set the Power/Mode switch to "AUTO," "MANUAL," or "SOUND."

2.Check the current reference pitch.
Press the PITCH button once, and the Note Name/Pitch indicator (which shows the current reference pitch) will flash for about 2 seconds.

3.Adjust the reference pitch.
While the Note Name/Pitch indicator is flashing, press the PITCH button once again. Each press of the button raises the pitch by 1 Hz. Press the button enough times to obtain the desired setting for the reference pitch. This can be confirmed by watching for the desired reference pitch indicator to begin flashing. The reference pitch be set anywhere between 438 to 445 Hz (in 1 Hz increments) for note A4. If you make no further changes in the reference pitch for a few seconds, the Note Name/Pitch indicator will go out, and the unit reverts to the tuning mode.

*Changes made in the reference pitch will be retained in memory even while the power is off.

Backup Feature

Any changes you make in the settings for the reference pitch, the note name in the MANUAL mode, or the reference note, will be retained in memory even while the power is off. However, if the battery is exhausted, the unit will revert to the following default settings:
    Reference Pitch   : 440 Hz
    MANUAL Mode Note Name : A
    Reference Note   : A4

*You can set the note name for the MANUAL mode and the reference note to the default settings (at any time) by simultaneously pressing the OCT and NOTE buttons.

Changing the Battery

When the battery is nearly exhausted, the two Tuning Guide indicators (" ♭" and " ♯") will begin flashing. At this point, the TU-121 will not function properly. Replace the battery.

*The battery check feature will not function in the SOUND mode.
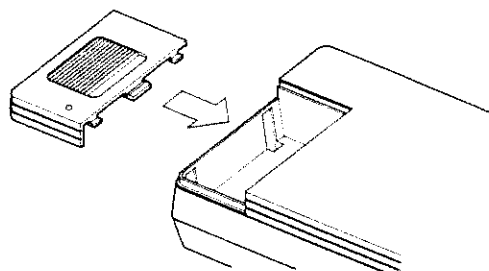*Be sure to carefully observe the battery's polarity (+/-).
*You can avoid loosing any of the stored settings by having an AC adaptor continue to supply power while you are changing the battery.

1.Press down and slide off the lid of the battery compartment (located on the bottom of the unit).

2.Remove the old battery and disconnect the snap cord connected to it.

3.Connect the snap cord to the new battery.

4.Place the battery inside the compartment and slide the lid back into place.

Specifications

TU-121:Chromatic Tuner

Standard Pitch	: 438Hz to 445Hz 1Hz step
Tuning Range	: A0(27.5Hz) to B7(3951.1Hz)
Tuning Accuracy	: ±1 cent
Input Impedance	: 1MΩ
Controls	: Power/Mode Selection Switch, LIGHT Switch, NORMAL/FINE Switch, Octave Button, NOTE Button, PITCH Button, DOWN Button, Volume Knob
Indicators	: OCTAVE Indicator, Note Name/Pitch Indicator, Meter, Tuning Guide Indicators
Connectors	: Input Jack, Output Jack, PHONES Jack, AC Adaptor Jack
Sound Range	: C2(65.4Hz) to B6(1975.5Hz)
Power Supply	: DC9V:Dry Battery(9V type), AC Adaptor PSA-Series
Current Draw	: 80mA (SOUND MODE:A4 , LIGHT OFF) , 140mA (MAX)

*Expected battery life under continued use (These Figures will vary depending on the actual conditions of use.):
    Carbon   : approx. 1.5hours
    Alkaline : approx. 6hours

Dimensions	: 160(W)X76(D)X34(H)mm 6-5/16(W)X3(D)X1-3/8(H)inches
Weight	: 230g / 9oz
Accessories	: Owner's Manual Dry Battery S-006P(6F22/9V)X1 Soft case

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26020816

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