

PREFACE

All instructions and specifications apply to both the Model 450 and Model R450 (rackmount) except where an asterisk (*) appears in the title. In this case the information applies only to the Model 450. A separate section describing features unique to the Model R450 is located on Page 3.

PREPARATION FOR USE

IMPORTANT PRECAUTION: The Model 450 and R450 are designed to be used on either 105-120 or 220-240 Volt, 50/60 Hertz power sources. *IT IS VERY IMPORTANT THAT THE VOLTAGE SELECTOR SWITCH LOCATED ON THE BACK OF THE TUNER IS SET FOR THE PROPER VOLTAGE BEFORE PLUGGING IN THE INSTRUMENT.....FAILURE TO DO SO MAY RESULT IN SEVERE DAMAGE TO THE INSTRUMENT.*

Check to setting of the Voltage Selector Switch located on the back of the tuner. If it must be changed, use a small blade screwdriver and rotate it so the white dot above "110" or "220" (depending upon which voltage you require) lines up with the pointer. You may now proceed and plug the tuner line cord into the power outlet.

The **ON/OFF** switch is located on the left side of the front panel. Sliding this switch up will turn on the power. The strobe lights behind the strobe disc will light immediately and the strobe disc will begin to turn. If the tuner has been subjected to cold temperatures, it may be necessary to start it with the Note Selector set to the note "C". The motor has the maximum starting torque at this setting.

Because the **Peterson Strobe Tuner Model 450** uses all solid state circuitry, it is possible to begin tuning immediately. For maximum accuracy, it is best to allow the instrument to run for a few minutes. This is particularly important if it has been subjected to extreme temperatures, either hot or cold.

Since the pitch of the Model 450 is determined by a highly accurate tuned inductive-capacitive circuit which is voltage and temperature compensated, it is not necessary to calibrate the instrument.

DESCRIPTION & OPERATION OF THE MODEL 450

VERNIER CONTROL

The **VERNIER CONTROL** is located on the right side of the front panel. The purpose of this control is to enable you to raise or lower the reference pitch of the instrument from the standard A=440 HZ. Rotating this control clockwise lowers the pitch, (flat) and rotating it counter-clockwise raises the pitch (sharp). We have provided calibration marks for easy tuning to A=440, A=442 or A=435 standard pitches. Simply line up the desired standard pitch (440,442 or 435) with the indicator line on the front panel (12 o'clock position). The most commonly used pitch, A=440, is located at the "0" position. This control is calibrated in hundredths of a semitone, commonly called "Cents". If the control is moved one division on the scale, the pitch will have been raised (or lowered) 1/100th of the distance between adjacent semitones. If, for example, the Note Selector is set to the note "E", and the **VERNIER CONTROL** is set at 25 cents sharp, the pitch of the tuner would be raised 1/4 of the frequency difference between E and F. Thus, it is possible to tune to any frequency in the entire eight octave range of the instrument. Moving the Vernier Control does not affect the temperament accuracy.

NOTE SELECTOR

To set the tuner for a particular pitch, simply rotate the **NOTE SELECTOR** so that the desired pitch appears at the "12 o'clock" position and lines up with the indicator line on the front panel. The numbers 1-6 under certain notes pertain to the strings of a guitar.

THE STROBE DISC

The sharp and flats signs located above the **STROBE DISC** window indicate the direction the strobe pattern will appear to be rotating if the note sounding is sharp or flat. If the pattern rotates clockwise, the note is sharp, and if it rotates counter-clockwise it is flat. The more off pitch the note is, the faster the pattern will rotate.

The numbers along either side of the STROBE DISC window indicate the octave bands. The octave including A=440 has been indicated on either side of the strobe window. A in Octave 3 is 440HZ. A red transparent filter is used in front of the strobe disc to reduce the affects of glare from ambient light. This improves the overall clarity of the strobe image.

The range of frequencies the Model 450 will tune is as follows:

C-0	32.703 Hz.	B-0	61.735 Hz.
C-1	65.406 Hz.	B-1	123.471 Hz.
C-2	130.813 Hz.	B-2	246.942 Hz.
C-3	261.626 Hz.	B-3	493.883 Hz.
C-4	523.521 Hz.	B-4	987.767 Hz.
C-5	1046.502 Hz.	B-5	1975.533 Hz.
C-6	2093.005 Hz.	B-6	3951.066 Hz.
C-7	4186.009 Hz.	B-7	7902.133 Hz.

C3 (261.626 Hz.) is "Middle C" on a piano.

AUTOMATIC IMAGE CLARIFIER

The Model 450 is equipped with an **AUTOMATIC IMAGE CLARIFIER** which eliminates the need for a contrast control or any type of image clarifying control. Without moving any switches you are able to view any of the eight octaves on the strobe disc. In some cases it may help to get a stronger signal by moving the tuner or by using an external microphone. This is due to standing waves in a room and not to a defect in the tuner or microphone.

MICROPHONE INPUT/OUTPUT JACKS

The Model 450 is supplied with a very high quality condensor microphone which is built into the front panel. In most cases this will be all that is necessary for your acoustic tuning needs. However, if necessary, the Model 450 will accept an external microphone. We suggest you use a microphone available from Peterson or purchase a high impedance microphone.

The Model 450 has both Input and Output jacks. When an instrument, such as an electric guitar, is plugged into the Input jack, it immediately disconnects the built-in microphone. By connecting the Output jack to an amplifier, it is possible to hear yourself during tuning and also by leaving the tuner in line during a performance, you can check your tuning at any time. This in line feature will not cause any distortion to the sound of the instrument. Be sure you unplug the output before unplugging your instrument from the tuner. Otherwise, the built-in microphone will be playing through your amplifier and may cause feedback.

MODEL R450 INPUT-OUTPUT JACKS AND MUTE SWITCH

The Model R450 is equipped with additional Input-Output jacks located on the back side of the instrument. These duplicate the jacks located on the front panel and operate in the same manner. Keep in mind that if a guitar or external microphone is plugged into either Input jack, the internal microphone will be disconnected. If you are trying to use the internal microphone and it appears to be inoperative, check to make certain that the Input jack on the rear panel is empty.

The Model R450 also has a **Mute Switch** located next to the Input-Output jacks on the front panel. This switch permits you to shut off the signal to the Output jacks when you are tuning your instrument, thus enabling quiet tuning.

*** CARRYING HANDLE**

The carrying handle also serves as a stand for your tuner. It is secured with plastic knobs on the side of the case. When changing the angle, you have to retighten the knobs to hold the handle in the new position.

TUNING INSTRUCTIONS

Peterson Electro-Musical Products, Inc. has manufactured tuning devices for over thirty five years. In this time it has been rare that we found professional tuners or musicians that agree on methods of tuning with regards to setting temperaments other than equal temperament. For this reason we do not publish suggested methods of tuning musical instruments and suggest that you contact the manufacturer of your instrument. They may have a preferred setting or be able to suggest publications for your reference.

CARE OF YOUR MODEL 450 STROBE TUNER

The Model 450 is a very rugged piece of equipment, however, there are three viewing windows that are vulnerable to damage if care is not taken in transporting the tuner. There is a custom carrying case available for the Model 450. If your tuner will possibly be subjected to any rough handling we strongly suggest that you invest in a carrying case. Please contact your dealer or the factory for details.

The Vernier Control is an extremely accurately calibrated dial. It is suggested that you use care to insure that this dial is not subjected to any abuse.

The viewing areas are an acetate material and should be cleaned with a mild window cleaner. Put a small amount of window cleaner on a clean rag or paper towel and wipe the dirt or smudges from the windows lightly. Never rub hard or spray cleaner directly on the tuner. The front panel can be cleaned in the same manner as the viewing windows.

When cleaning the case we suggest that you use a brush, preferably dry, or with a small amount of clear water. Never use soap as it will leave a residue in the pores/grain of the case.

SERVICE/WARRANTY INFORMATION

ACCURACY

The exceptional accuracy of the **PETERSON STROBE TUNER, MODEL 450** is due to the fact that all of the pitches are controlled by a single oscillator circuit of unusual design (patented) using components of the highest stability. The pitch is not affected by changes in power line voltage and the temperament is derived from precision counting circuits that are not subject to drift or variation.

Recalibration should not be attempted in the field if an accurate standard is not available. Tuning forks can vary greatly depending on quality, temperature and humidity. Do not rely on these except for relative measurements.

WARRANTY

All Peterson Tuners are warranted for a period of one year from the date of purchase. Any tuner that is returned to the factory prepaid within this period will be repaired free of charge, if, in our opinion, it is defective in material or workmanship. Instruments that require repairs due to accidental damage, abuse or operation on power sources other than those specified, will be repaired and charged for at current rates.

RETURNING AN INSTRUMENT

Should it become necessary to return an instrument to the factory, please observe the following instructions:

Use a shipping carton that will allow at least 2" of packing material around the entire instrument. Crumpled newspaper works very well for packing. Mark the carton "**FRAGILE, DELICATE INSTRUMENT**". We suggest shipping via United Parcel Service if possible, or Parcel Post, Special Handling, Insured. Be sure to enclose a letter which describes the difficulty you have experienced, **and your return address**.

Ship the instrument Prepaid to:

PETERSON ELECTRO-MUSICAL PRODUCTS, INC.
11601 South Mayfield Avenue
Alsip, Illinois 60803-2476

Should you have any questions about your instrument please contact the Peterson Sales or Service Departments at:

Telephone: 1 (708) 388-3311
FAX: 1 (708) 388-3341

