

Stereo and  
Tone Control



## The acoustic guitar: how it works.

The body of an acoustic guitar can be regarded as a structure (consisting of a soundboard, back and sides) that encloses an air chamber. On a guitar, the soundboard and air chamber are resonant at a great many frequencies. A number of variables (such as body size, bracing pattern and materials) help to determine the particular tonal qualities of an instrument. But any acoustic guitar's sound is the result of the body's attempt to reproduce all the frequencies present in a vibrating string. When a note is played, the fundamentals and overtones of the vibrating string are transmitted through the bridge to cause different portions of the top to vibrate. Each peak on the graph below (fig. 1) represents a different mode of top vibration. The guitar is capable of reproducing a complex collection of resonances for any given note.

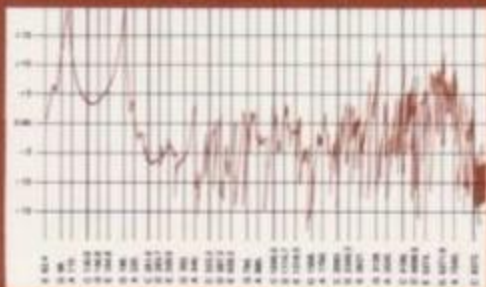


Fig. 1

### Acoustic guitar amplification.

Most pickups and preamplifiers reproduce the bass, midrange and treble ranges with equal intensity. However, certain midrange frequencies must be reduced in volume to achieve an accurate acoustic guitar sound. Ovation's research has led to the development of a pickup and equalized preamp system which is both efficient and accurate.

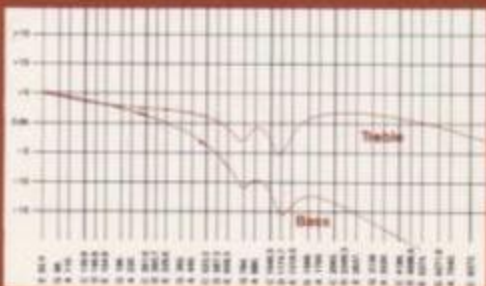


Fig. 2

## Accurate sound begins with the pickup.



When a guitar string is set in motion its vibrations are transmitted to the soundboard by the saddle. This transfer of energy results in top movement corresponding with the harmonic content of the string. The movement of the guitar top, or soundboard, displaces the air inside the guitar body which amplifies and projects the tones generated by

the string's vibration. In short, a guitar is an air pump.

Ovation has found that the most accurate acoustic electric sound is produced when both string and top vibration are captured. Most other guitar pickups are either magnetic string pickups, or transducers which pick up top vibration only. Ovation's six transducers are sensitive to all modes of both top and string vibration.

Located beneath the string saddle, each pickup converts the force of the string's vibration into electrical impulses. Because they are sensitive on both top and bottom, each piezoelectric element is also sensitive to the guitar top's vibration. Ovation's pickup system is more efficient and less prone to feedback than any single pickup fitted in the sound hole, glued to the top or stuck on the bridge.

### Feedback

Feedback is caused when either the amplifier is too loud or the guitar is too close to the amp. Although it can be used as a sustaining effect, most players prefer a minimum of feedback. Because they generate 12 db less feedback than other guitars, Ovation acoustic electrics offer greater control over unwanted feedback.

## Sophisticated electronics shape the signal for a purer sound.

Ovation's pickup system reproduces the entire guitar range with equal intensity. Unmodified response from the pickup has even volume, from note to note.

Most amplified acoustic guitars suffer from too much mid-range. Midrange tends to produce a muddy, "electric" sound. By using a built-in F.E.T. preamplifier, Ovation preserves the guitar's natural acoustic qualities at all volume levels.

The preamp functions like an equalizer to remove unwanted frequencies. Two band rejection filters (at 600 cycles and 1,200 cycles) reduce midrange response to insure a natural acoustic sound. The preamp also reduces hum and lowers line noise. A response curve for the Ovation acoustic electric corresponds in shape to the instrument's acoustic output (fig. 2).

### Volume Control

Every Ovation acoustic electric has a built-in volume control to give the player freedom of movement and dynamic range without amplifier adjustment. See the Ovation Acoustic Owner's Manual for complete instructions on adjustment.

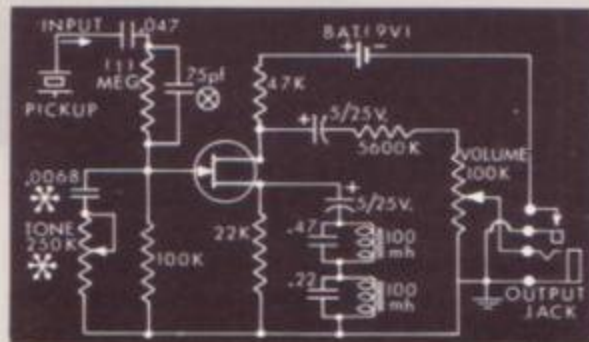
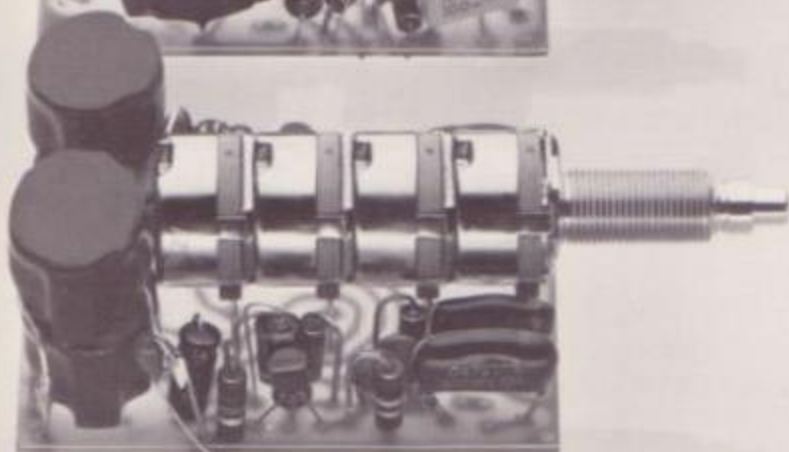
### Tone Control

Several Ovation acoustic electric models now feature a tone control. The tone control has been added to the F.E.T. preamp to permit tone modifications without amplifier adjustment (fig. 2).

### Stereo

Two of Ovation's premium models, the Electric Custom Legend (1619) and the Electric Classic (1613), now feature stereo output. These instruments incorporate two separate preamps (with master volume and master tone controls) in one assembly. Output from strings 1, 3 and 5 goes through one channel; strings 2, 4 and 6 go through the other channel.

The Ovation F.E.T. preamplifier: each version shares the same basic circuitry. Standard preamps (top) feature a volume control; tone control models (center) feature a volume and a tone control mounted on concentric shafts; stereo models (bottom) feature a master volume control and a master tone control for both channels.



⊗ Used only on 12-string guitar preamps.

\* Used only on preamps with tone control.

### Stereo (continued)

The volume and tone controls adjust both channels at the same time. Using the stereo output jack, the guitar may be plugged into two separate amplifiers or into a stereo preamp. When the mono output jack is used, all six strings will play through one channel.

### Pickup jack



As a further refinement, Ovation has added a jack to the end of the wire connecting the pickup to the preamp assembly. This jack simplifies service procedures where it is necessary to remove either the preamp, the pickup assembly or both. The jack also makes action adjustment somewhat easier

by reducing the threat of a broken solder connection when lifting the pickup from the bridge (see the Acoustic Owner's Manual).

### Battery replacement



Ovation's F.E.T. preamp requires .05 milli-amps of power from a 9 volt battery. This allows up to 4,000 hours of continuous operation from one alkaline battery. Most batteries have a shelf life of

approximately 1 year, and should be replaced accordingly. If the voltage of the battery drops below 6 volts, the preamp will distort. The battery should then be changed.

For complete direction on battery replacement, see the Ovation Acoustic Owner's Manual (fig. 6).

### Service

All of the electric components in the Ovation acoustic electric guitar operate far below their rated voltages: service to the preamp should not be required.

If it is necessary to have your Ovation serviced, we recommend that it be returned either to an authorized Ovation dealer, or to the Ovation Factory Service Department. Consult the Acoustic Owner's Manual for further details.

### Control Knob



Ovation acoustic electrics with tone and volume controls have both knobs located in the same position on the guitar. The knob on the center shaft adjusts the volume level, and is graduated from 0 to 10. The knob on the outside shaft adjusts the tone control, and is marked "bass —treble." Because they are

mounted on concentric shafts, the tone and volume controls can be adjusted independently.

### Output Jacks



All Ovation acoustic electric guitars are designed with an output jack located in the bowl. Guitars equipped with stereo have two separate jacks marked "mono" and "stereo."

The mono output jack can be used with any standard guitar cord. On stereo model guitars, the mono jack switches the preamp so that all six strings play through one channel of your amp. When using the stereo jack, it is necessary to use a stereo cord in order to pick up both channels. If a "Y-cord" is plugged through both jacks, the mono jack will automatically switch the guitar to mono operation. Both jacks contain a switch that turns off the battery when the cord is unplugged from the guitar.

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