

AC GUITARS (ACG) FILTER-BASED EQ SYSTEM

If you are used to the normal cut and boost type of EQ using the ACG pre-amp will require a different approach in order to get the most from it.

First a few notes on the principals behind the design and then a few suggestions on how to get the best from it.

Note: *With regard to knob rotation:*

ACW = Backing a knob off or turning it anti-clockwise

CW = Turning a knob up towards maximum or turning it clockwise.

The volume/blend stack.

The volume of the instrument is controlled by the upper ring on the stack while the lower ring controls the mixing of the outputs from the two filter stacks. Turn ACW for the bridge pickup alone and CW for the neck pickup. Intermediate settings allow a mix of the two pickups. The indented centre click gives an equal mix.

The blend in this system is a much more useful sound shaping tool than on most other types of systems due to the ability to independently control the sounds from each pickup. More of which later.

The main element in the pre-amp are the filters one for each pickup.

FILTER

First, a filter lets some parts of the frequency spectrum through and not others. The type of filter determines which part it lets through. Also, the amount of cut-off is important. If it has a sharp or steep cut-off, it is more dramatic.

There is a LOW PASS FILTER for each pickup, the frequency is also variable over quite a broad range; from just allowing the very deepest sounds through, to allowing upper mid-range frequencies of 3kHz. As the frequency control is adjusted, sound ranges from very deep to a much more open sound, taking in more midrange as the control is increased. As it's a low pass filter, the very low bass is always there, but the high frequencies can be progressively opened up.

This aspect of the pre-amp is controlled by the lower ring on the filter stack. Fully ACW giving you a very full deep bass sound. As the knob is turned CW, more of the higher frequencies are let through the filter.

The upper ring of the filter stack controls the overshoot peak. This means that some resonance can be added at the frequency of cut-off to which the filter is tuned. This has the effect of making the sound much richer at the point of the filter frequency. So if the filter is set to a low frequency on the neck pickup, and the overshoot peak is increased, you get a massive reggae style of sound as you're giving resonance to the more fundamental frequencies. If the filter is set higher, it accentuates the harmonics. To give you an idea, if you

rotate the filter control up and down when the peak is turned up, it sounds very much like a wah control.

The upper ring on the filter stack sets the peak level. Fully CW is maximum gain (boost) and when turned ACW the gain is reduced.

There is a filter stack with the above features for each pickup. This allows you complete control over the sound from each pickup totally independently. This is not possible with the more conventional global cut/boost EQ system. The signal from each pickup can then be mixed using the blend control, allowing huge variation in sounds.

Treble stack

The final control is there to address the top end of the spectrum as the filters cut off below the very highest frequencies you can get from roundwound strings. Here we're talking about the high end 'sizzle'. The frequency control also goes well down into the upper mid-range around 1kHz. This is another filter type, a HIGH PASS FILTER in the treble signal path. This sets the frequency above which the treble spectrum is allowed to pass through.

The upper ring controls the gain (boost) applied to the treble frequency while the lower ring controls the frequencies which are allowed through. Turning the frequency ACW allows more of the lower treble spectrum. Setting more CW allows only the higher frequencies of the treble spectrum to pass.

So in summary, with 4 stacked knobs:

- VOLUME/BLEND
- Bridge pickup FILTER FREQUENCY/FILTER PEAK
- Neck pickup FILTER FREQUENCY/FILTER PEAK
- TREBLE FREQUENCY/TREBLE LEVEL

The way I would suggest you start with the pre-amp is to approach it by setting up each pickup separately.

An example.

I would start with the neck pickup setting the filter (lower ring) fully ACW this would give me a really full deep bass sound. If you want you could dial in a little bit of boost (upper ring) to make the bass even more pronounced.

Then on to the bridge pickup. This time open up the filter by turning it CW (lower ring). This will let some higher frequencies through this time. Now turn the upper ring fully clockwise this will boost the top end.

You should now have 2 fairly contrasting sounds from each pickup, now to get the balance which suits you between a fairly heavy bass and a much more cutting treble sound, just use the blend until you find the sound that works for you. Add treble from the treble stack to taste.

If that takes too long and you want to see what the filters can do straight away. Turn the peak gain to maximum (upper ring) hit a string and turn the filter frequency (lower ring) up and down this will give you an idea of what you can do.

INTERNAL CONTROLS

The pre-amp also has some internal control options.

From the pictures of the filter board you will see there is a control to adjust the pickup gain. This control will be set at the minimum when you receive the pre-amp.

The main use for this control is to allow you to use two different types of pickup but still have a balanced volume from them both.

In the basses I make I use a Ceramic magnet in the bridge pickup and an Alnico magnet in the neck pickup. Because of the two different magnet types the output from the pickups is slightly different. The Ceramic pickup has a higher output than the Alnico pickup so I boost the gain on the Alnico pickup slightly to balance out the difference.

This would also allow you to use say a Musicman style pickup with a Jazz style pickup and still be able to balance their respective volumes.

The other internal control is on the main board. This control sets where the signal comes from that feeds the treble control.

This control is set so that the treble feed comes from the bridge pickup. It is in effect a blend control allowing you to choose where the treble feed comes from either the bridge pickup or the neck pickup or anywhere in between.

I hope this will point you in the right direction with your new ACG pre-amp. It is only a starting point as I am sure you will soon find there are a fantastic range of sounds available and finding what best suits you and your style of playing may take a little longer due to the flexibility of the pre-amp.

Best regards

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