

Setting up your newly modified detector

Depending on your level of upgrade, either the addition of variable front end gain or conversion to variable frequency timings, your detector will exhibit exceptional extra performance on all gold and ground types. The manual tuning control now controls the variable pulse frequency; noise cancellation still works; you only need to adjust the manual tuning a small amount to tune away from the noise.

Set the newly installed variable front end gain control halfway. If the detector has the variable frequency set it to half, try testing on a small bit of gold and increase the frequency, the small gold will give a better signal and will be noticeable at a greater distance.

Now try adjusting the frequency down and test a big metal target at a greater distance. The lower frequency allows the detector to generate a larger pulse and excite the bigger targets at depth. However, some large targets are very conductive and are able to be detected better using higher numbers, gold comes in many shapes and sizes, and it is impossible to have one setting that suits all targets.

To find the best settings for your circumstances, bury a target in the ground of a size that you intend to detect and adjust the variable gain control and variable frequency control to get the best signal with the least ground noise. Refer to the variable frequency chart to find a frequency that suits your target. Reduce the gain and set the frequency for the best signal, then increase the gain until you introduce noise into the detector. Finally, reduce the gain slightly, so the noise just disappears or reduces enough for your liking.

Making hot rocks disappear

You can also use the variable frequency to null out some hot rocks, first, find one while detecting and then ground balance the detector on the ground and put the detector into fixed, then adjust the variable frequency while detecting over the hot rock, you should find a null. Leave the variable frequency on this number and continue detecting, you can now put the detector back into tracking and continue on your way.

This technique may also be used to reduce lead shot, just be careful as it may knock out small gold that is close to the same size. Some hot rocks are impossible to null-out due to their conductive characteristics.

Important note when powering on SD & GP machines

Because of how the SD and GP machines are designed, you must have the variable frequency control turned fully clockwise before powering on the machine. After powering the machine, you can adjust the variable frequency back down.

On older machines that don't support the variable frequency upgrade, we may have installed an MSD or normal/deep switch. Models with an MSD switch should be set to 'S' when powering on, while machines with a normal/deep switch should be set to 'normal.' Again, you can change these settings back to your personal preference after the machine has powered on.

Interaction between variable gain, frequency, ground type and coils

There will be situations that certain settings will be adjusted to compensate for hot ground, poorly made coils, and interaction by using too high a frequency and too much gain. If the ground is hot and the detector is set to get very small gold, it may not be possible to run a much gain as the ground noise will get into the detector electronics and cause loss of performance. Using a lower frequency will allow you to use more gain.

You can also test how good your coils are, run a high frequency and see how much gain you can introduce before the detector goes deaf, this is the residual transmit energy not decaying fast enough and will desensitise the detector.

There are hundreds of variables with coils and ground types. Now you have control of the most important detector functions that you can fully adjust to get the maximum sensitivity and depth in your situation. As you may know, Enhance and Fine Gold have depth loss on big gold due to their short pulse length; and now, you can adjust the frequency to yield larger targets and more depth while preserving the operational characteristics of these modes.

Test the detector in the actual ground you are going to work, test your settings.

It's always good practice to bury test targets in the ground you are going to work. If you are looking for small gold then bury a small target and try to get the clearest signal with minimum ground noise, once achieved, you cannot yield better performance.

When you find a patch, make sure to work it in both high frequencies and low frequencies as different targets have properties that need to be detected with different settings to be found. As an example, in hot ground using a high frequency, a 10oz nugget can not be detected at 6 inches in some circumstances; however, changing to a low frequency, the same nugget could overpower the detector.

These upgrades allow you to get every last bit of performance from your detector. Get to know the detector and be confident in it's improved gold detecting abilities. Most importantly, if you take the time and effort to test the detector you will become as much of an expert as any other professional prospector, you only need to carry out experiments and see the results. Then apply what you have learned to your prospecting.