This chapter covers some of the basic settings of *V3i* including sensitivity, discrimination, audio, and ground balance. It does not cover any settings which alter the fundamental operating mode of the detector. See Chapter 4 for operating modes.

Sensitivity

Once you select a basic program you may need to adjust the sensitivity settings. Most of the *V3i* programs are set up with nominal sensitivities, but some (notably the 'Pro' programs) are set up a little hotter.

Most users believe sensitivity should be run as high as possible. In some cases this is true, but if you find the detector is noisy and falses a lot you probably need to turn it down. There are three primary sensitivity settings, plus a boost mode. Selecting **Sensitivity** from the 6-block menu takes you to the following menu:
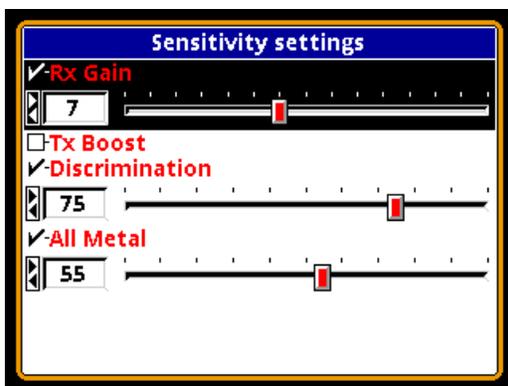
Selecting **Sensitivity** from the Live Control Bar gives you this:
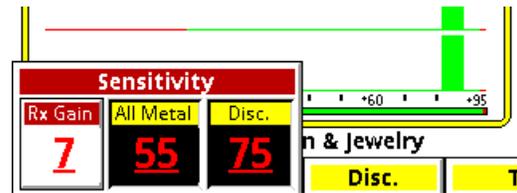
Rx Gain

Rx Gain (sometimes called preamp gain) sets the gain of the receiver's input amplifier. In most cases, you want to set this as high as possible and still maintain stable operation.

Three things can limit the maximum gain setting. The first is external noise, such as electro-magnetic interference (EMI) including 50/60Hz mains and RF. EMI typically shows up as erratic operation and noisy audio. Secondly, in highly mineralized ground excessive gain can cause the input amplifier to overload or operate at close to overload due to the large ground signal, limiting the available range for target detection. Finally, the quality of the loop null can also push the input amplifier toward overload. White's V-compatible loops are designed to minimize null limitations, but third-party loops typically have wide variances in the quality of the null which can require a lower Rx Gain.

EMI affects the lower end of the signal range, which more directly impacts target sensitivity. Both ground signal and loop null affect the upper end of the signal response range, which usually results in a quicker overload. Ground signal and loop null affect target sensitivity only so far as the Rx Gain must be reduced to prevent overload.

Tip: Always address EMI noise by first adjusting the transmit frequency offset. See the Frequency section for more info.

All-Metal Sensitivity

All-Metal Sensitivity (sometimes called *DC sensitivity*) determines the responsiveness of the all-metal channel. Only target signals above the threshold cause an all-metal response, and a higher all-metal sensitivity setting will increase the all-metal audio response rate to targets. This setting affects all-metal modes including pinpoint and mixed-mode, but does not affect normal discrimination mode. Setting this too high will make the all-metal audio chatter. See Chapter XX for a more detailed discussion of audio responses.

Discrimination Sensitivity

Discrimination Sensitivity (sometimes called *AC sensitivity*) determines the responsiveness of the discrimination channel. This is a threshold level, so only target signals above the threshold cause a discrimination response. Setting this too high will cause noise and falsing in the discrimination audio. See Chapter XX for a more detailed discussion of audio responses.

Tx Boost

Tx Boost is transmit boost. When enabled, it triples the transmit voltage applied to the loop (from 10V to 30V) and increases the depth. Using this feature has two major drawbacks: it can overload some loops (reduce the Rx Gain), and **it quickly drains the battery**.

There are two common uses for Tx Boost. One is when hunting an unusually "clean" area where most targets have been cleaned out, and only deep targets remain. TX Boost typically gives about a 1" depth increase. The other is when EMI noise is severe. Reducing the Rx Gain reduces EMI but also reduces target signal strength. Applying Tx Boost increases target signal strength but does not increase EMI noise, so Tx Boost can be used to improve signal-to-noise.

A note about loops: *V3i* uses induction-balanced loops which rely on a "null" between the transmit coil and the receive coil. The quality of the null may determine the point at which the detector overloads, especially when running Tx Boost along with high Rx Gain settings. Null quality varies loop-to-loop, so some loops may overload at lower gain than others.
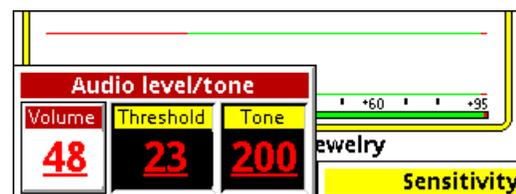

Audio

Selecting **Audio** from the 6-block menu gives this screen:
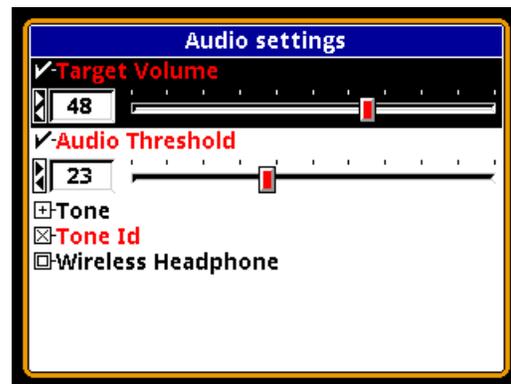
Selecting **Audio Level** from the Live Control Bar gives you this:

Target Volume (or just **Volume**) sets the audio volume level for target responses (the beeps). **Audio Threshold** (or just **Threshold**) sets the volume level for the threshold tone, which is the constant "hum" heard in the absence of a target. In these menus, both target & threshold volumes are applied to the audio output you are currently using: speaker, wired headphones, or wireless headphones. If, for exam-

ple, you set the volume while using the speaker, then plug in a pair of headphones, you may need to readjust the volume for the headphones. The advanced Audio menu includes individual settings for all three audio outputs.

The **Tone** submenu allows you to change the individual tone frequencies. We'll cover this in more detail in Chapter XX. The **Tone ID** selection allows you to turn on/off the multitone target response system. By default, Tone ID is turned on in the factory programs. The **Wireless Headphone** selection lets you enable and disable wireless headphone use, plus set options. This is covered in Chapter XX.


Discrimination

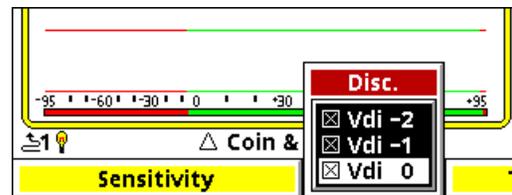Selecting **Disc.** from the 6-block menu gives this screen:
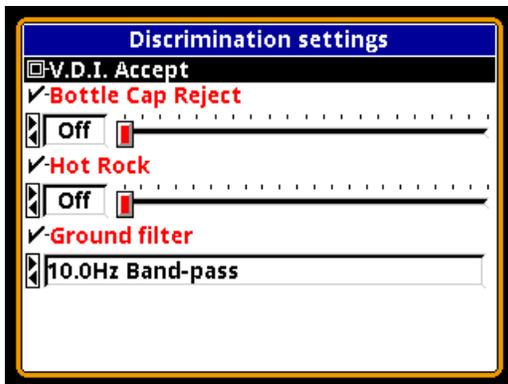
For now we will only cover the first item. The **V.D.I. Accept** menu item can be used to enable and disable target responses for individual VDI numbers. Selecting this option pops up the next screen.

This screen lists all the VDI numbers from -95 to +95, each with a selection box. A box that is X-ed enables that VDI response, an empty box disables that VDI. This is the primary method of setting up the discrimination pattern for V3i.
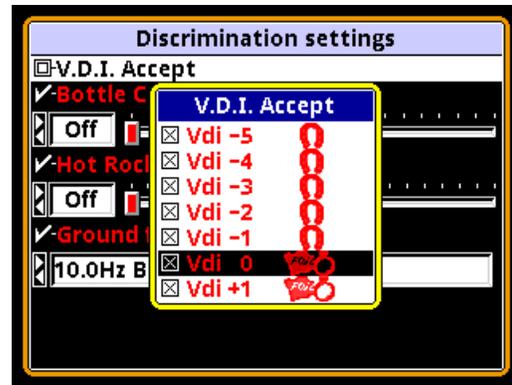
Selecting **Disc.** from the Live Control Bar gives you this:
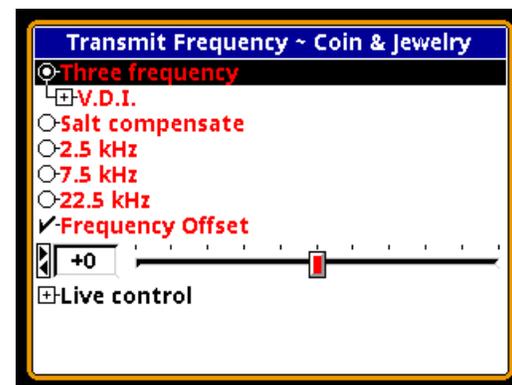

Again, this is a scrollable list of VDI's in which you can individually enable (X-ed) or disable their response.

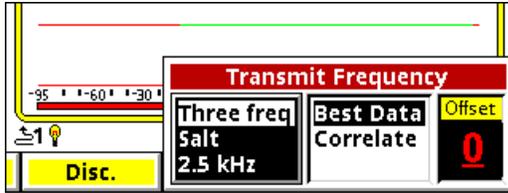Other settings will be covered in subsequent chapters.

Frequency

Selecting **Frequency** from the 6-block menu gives this screen:


The only control we will cover in this chapter

is Frequency Offset. See Chapter 4 for discussion about frequency modes. The Frequency Offset control provides slight offsets (±5 steps) to the selected frequency(ies) and is useful to minimize EMI, especially when hunting near other detectorists. In general, adjust the offset up or down to find the quietest setting.

The Live Control Bar version of this control (above) makes finding the quietest offset easy. Select **Transmit Frequency** and highlight the **Offset** box. Next, with the loop held in the air, pull/hold the trigger to enable pinpoint mode. Watch the pinpoint bars and listen to the audio for noise, and while continuing to hold the trigger adjust the Offset to find the quietest setting. Release the trigger and you're set.

Ground Tracking

Selecting **Ground Tracking** from the 6-block menu gives this screen:

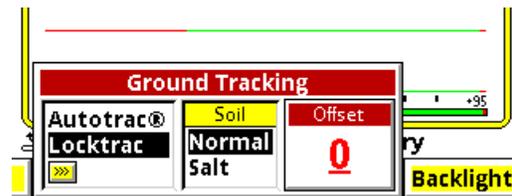Selecting **Ground Tracking** from the Live Control Bar gives you this:
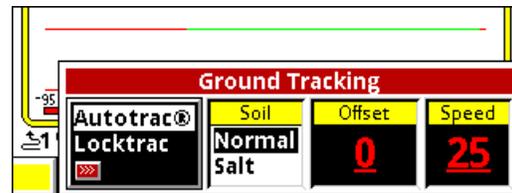
AutoTrac and **LockTrac** select between automatic and manual ground balance. Auto-Trac is the default in most programs. If you select LockTrac, the Live Control popup will change slightly because Soil and Speed are only valid for AutoTrac:

Ground tracking modes and options are covered in detail in Chapter 4.