



OWNER'S GUIDE



TDITM

*White's Electronics, Inc. -
Manufacturers of the World's Finest Metal Detectors*

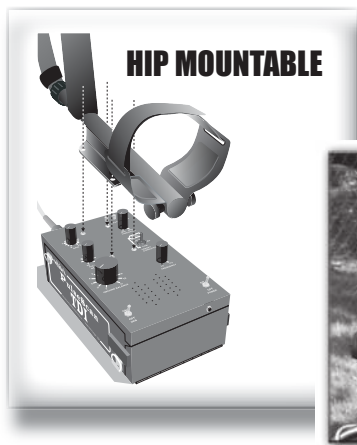
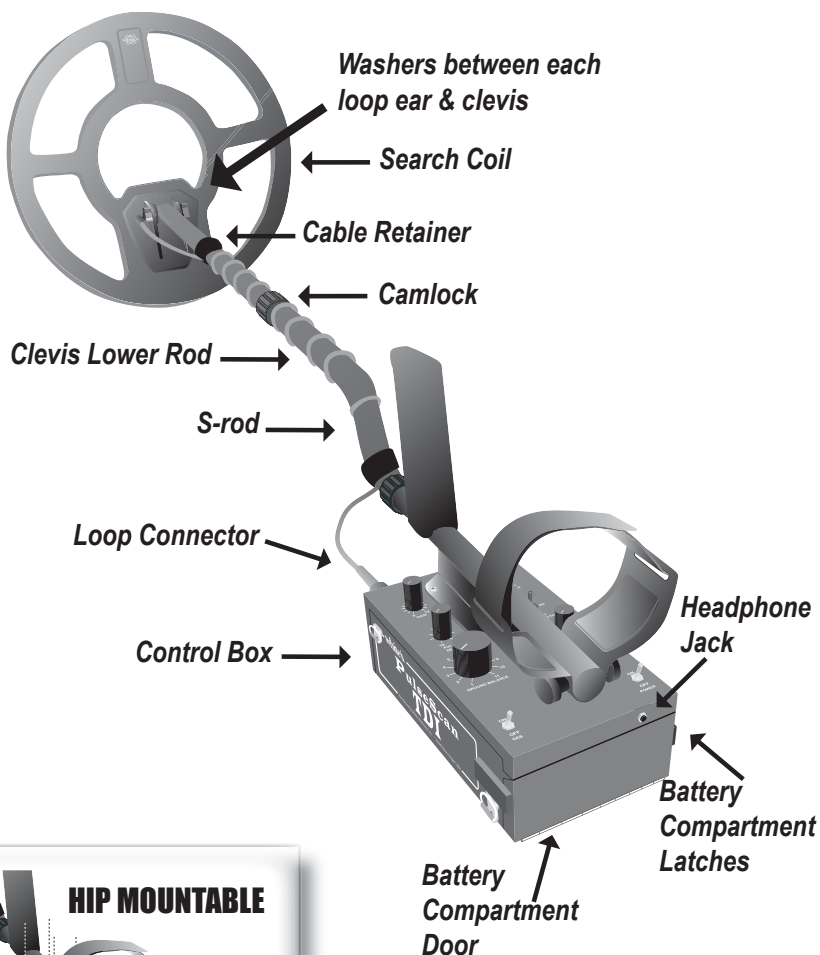
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ASSEMBLY -



ASSEMBLY INSTRUCTIONS -

- 1.** Remove all parts from the shipping carton and check assembly page to make sure all parts are present.
- 2.** Install black rubber washers on fiber clevis/lower rod, insert clevis lower rod onto loop ears. Use only nonmetallic washers, fiber bolt, and fiber thumbnut to secure loop/search coil to clevis/lower fiber rod.
- 3.** Unlock "S" rod cam-lock and insert clevis/lower rod into curved "S" rod so that stainless steel spring clip buttons line up and lock into one of the adjustment holes in the curved "S" rod. Turn cam-lock to secure. The second or third adjustment holes are suitable for average sized adults. Individuals six feet or taller should use fully extended position. Individuals well oversix feet tall should purchase the optional Tall Man Rod accessory.
- 4.** Unravel loop cable and wind the cable around the clevis and rod assembly, first revolution over the top of the rod. Wind cable all the way to the top of the curved "S" rod, about five revolutions. Use the black cable retainers, one near the loop, and one near the top of the curved "S" rod, to hold the loop cable in place.
- 5.** Unlock control box rod cam-lock and insert curved "S" rod so that stainless steel spring clip buttons line up and lock into the rod on top of the control box. The "S" rod is designed to curve up towards the display. However those who prefer to sweep the loop close to their feet may desire to assemble the "S" rod to curve down towards the ground. Turn cam-lock to secure. Plug loop connector into control box, screw lock ring to secure.
- 6.** Grip the instrument by the handle, with your arm in the elbow cup with strap and sweep the loop/search coil over the floor. If the instrument fit feels uncomfortable, readjust clevis/lower rod length with spring clip button and cam-lock so that search coil can be held near the floor without requiring stooping over.
- 7.** Remove the protective paper from the two black arm cup foam pads. Carefully align pads on the inside of the elbow cup, one on each side of the center rod, and press firmly into place.

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8. Adjust the elbow cup strap so that it is loose enough for you to slide your arm in and out without loosening each time you want to set the detector down. The elbow cup strap provides extra leverage and control. However, some prefer not to use it.

9. Install battery as described in next section.

10. It should be noted at this point that the detector may not work as expected indoors due to the high degree of metal used in modern construction. It is best to tune and practice out-of-doors to ensure stable, predictable results. Additionally, freshly buried targets will rarely produce the normal depth results of targets that have been naturally lost and settled in undisturbed ground. Due to the abnormality caused by digging a hole in the ground matrix, and the lack of the normal target to soil reactions, it may take a number of years for freshly-buried targets to respond at true depths. The best way to determine true detection depth is in real search conditions.

11. Hip Or Chest Mounting -

a) On top of the control box, the rod-to-case mounting plate has four Phillips head screws. Remove these four screws and remove the rod/loop/arm cup assembly from the top of the control box. To prevent moisture/dirt from entering the control box, replace the four screws on top the control box (sink all the way) without the rod or mounting plate.

b) Adjust/unravel enough loop cable wrapped around the rod, to allow slack to sweep the rod/loop and connection with the control box. Use two velcro straps provided to secure loop cable around rod.

c) The control box can be worn on ones chest, hip, or waist based on personal preference. Belt hook provided on bottom of control box as well as four "D" rings to attach camera/dog leash connector type straps.

ENGINEERING DESCRIPTION -

Although the new Pulsescan TDI was designed with the Gold Prospector in mind, its features and performance will be just as valuable to Beach & Relic Hunters.

During the development of the PulsescanTDI, we kept in mind the comfort of the user by designing an instrument which would be as light as possible, and easy to operate in addition to producing outstanding performance at an affordable price.

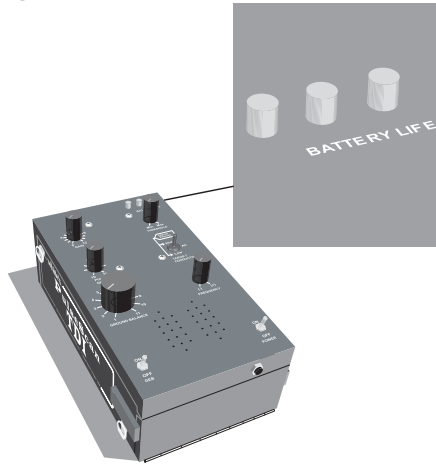
The Pulsescan TDI is a deep searching, very sensitive pulse induction metal detector which incorporates a true user controlled manual ground balancing feature, a byproduct of which is the ability to produce an audio tone, for possible identification of the detected target. User controlled manual balancing of the ground has the additional benefit of giving the user the option of fine tweaking for different situations, thus increasing the probability of hearing the faint signals of small or deep targets. The Manual Ground Balance feature of the Pulsescan TDI can be turned off if the ground mineralization is not severe enough to require it, as then the pulse circuitry itself is able to ignore most ground mineralization by its very nature. In this situation, with the Ground Balance toggle off, there is no audio tone variation - all metal targets will sound alike, and additional depth can be attained.

White's is proud to have been able to work with Eric Foster, of Oxford, England, who enjoys the world wide reputation of being the "Father of Pulse Technology".

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CHARGING SYSTEMS, BATTERIES AND BATTERY CONDITION -

Batteries and Charger



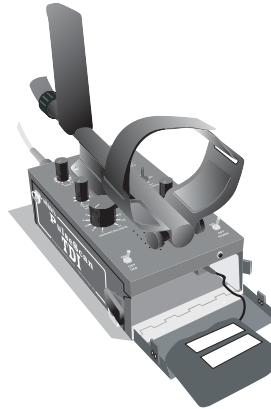
The PulsescanTDI uses a rechargeable Lithium Ion battery pack as the power source. This type of battery can supply the high current levels required by the detector and weights much less than other battery packs that have the same power characteristics. It supplies a nominal voltage of 14.4 volts and approximately 500ma of current to the detector during operation.

RED YELLOW GREEN

●	●	●	→	OPERATIONAL RANGE
●	●		→	CAUTION - Low Battery
●			→	TURN DETECTOR OFF, AND RECHARGE

The Smart Charger (Part Number 509-0040) used for recharging the Lithium Ion batteries is supplied with the detector. It has two internal lights that indicate the status of the charge cycle.

To recharge the battery:

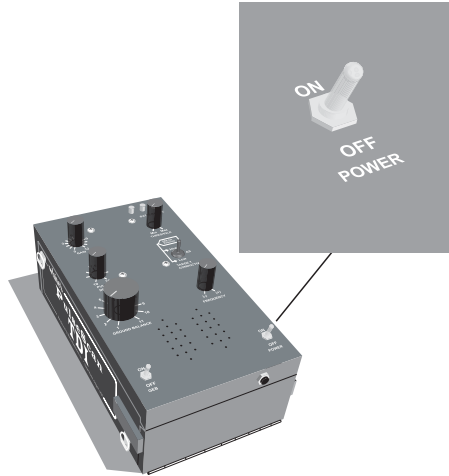


- 1)** Connect the battery pack to the charger and plug the charger into the A.C. outlet.
- 2)** The light in the charger will flash RED-GREEN-RED-GREEN. This is a self check that indicates the charger is operating correctly.
- 3)** The RED light then comes on to indicate the battery is charging.
- 4)** When the battery reaches full charge, a minimum of seven hours, the light will turn GREEN indicating that the battery is ready to use.
- 5)** If the battery is left connected the light will start to cycle between RED and GREEN. Unplug the charger and disconnect the battery.
- 6)** Only use the charger indoors. It is not weatherproof.
- 7)** Do not cover the charger.
- 8)** Do not use the charger in an ambient temperature greater than 140 degrees Fahrenheit or 40 degrees Celsius.
- 9)** Remove the charger from the AC outlet before disconnecting battery.
- 10)** Charger or battery may get very warm during charging.
This is normal.

If the battery has not been used for a long period of time, it is a good idea to recharge before use in the detector.

CONTROLS

POWER -



What it does

This traditional control turns on or off the POWER from the internal, chargeable, Lithium Ion battery pack. The toggle switch incorporates a locking device to prevent accidental movement off or on.

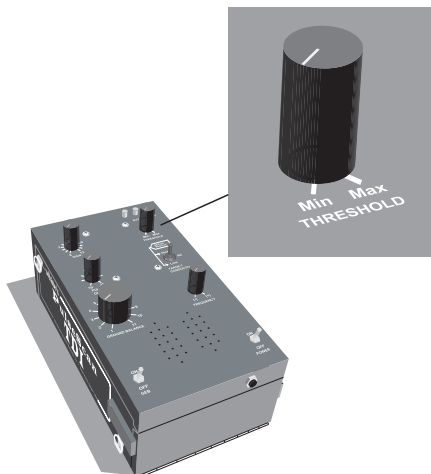
How to use it

The locking mechanism prevents this toggle from accidentally being bumped. This is particularly valuable while operating the various control knobs. Just lift the spring loaded toggle to release the lock and move the toggle.

IMPORTANT -

*You must **LIFT** the Power Switch to release the lock, and move the toggle.*

THRESHOLD -



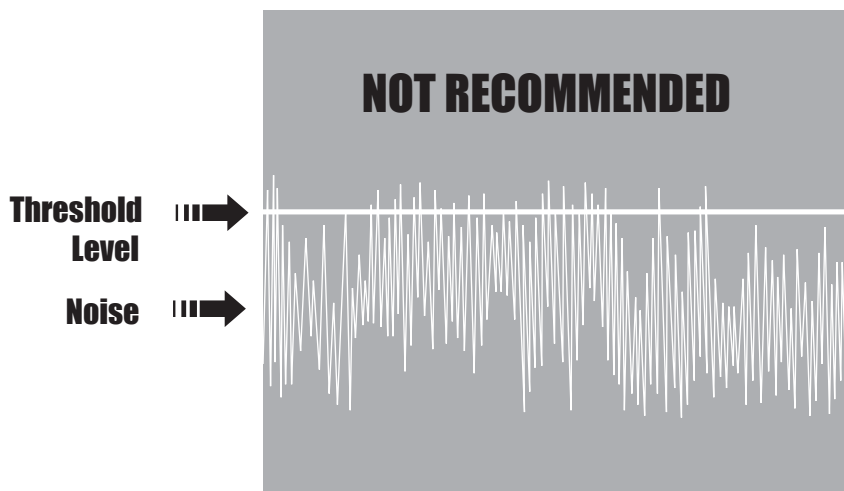
What it does

This control adjusts the threshold of the unit. This is the faint background hum which is present during the normal operation of the Pulsescan TDI. This hum, which is always present, is increased when the knob is turned clockwise.

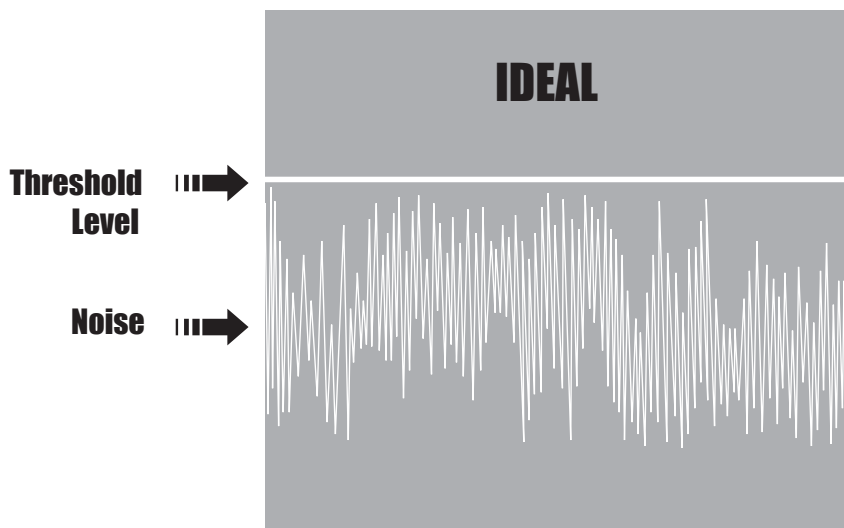
How to use it

In most detectors, including the Pulsescan TDI, the threshold is adjusted to a faintly audible level by turning the knob clockwise. Unique to the Pulsescan TDI, it is best to adjust the threshold past the chatter point, so that the sound is reasonably continuous. Then adjust the headphone volume to a comfortable level.

THRESHOLD LEVELS ...

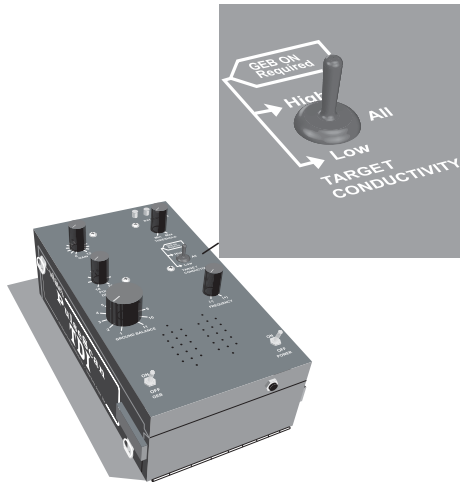


Chatter can be heard in Threshold



Threshold set above chatter so chatter is not heard. Reduce volume with headphones

TARGET CONDUCTIVITY -



What it does

This control allows the user to select whether he wishes to hear only low-conductive targets, only high-conductive targets, or both low and high conductive targets. Low-conductive targets, like small-to-medium sized gold nuggets will make a high-tone sound. High-conductive targets like coins, *except nickels*, will make a low-tone sound. This feature only works if the Gnd Bal toggle is in the on position. When ground balance toggle is off, the switch **must** be set to All or Low, and all signals will sound the same.

How to use it

Set to low for low-conductive metals only, including small to medium-sized gold nuggets, most small to large specimen gold in quartz, small gold rings, very small silver rings and small gold coins, nickels, small thin hammered silver coins, small bronze Roman coins, small boot tacks, lead bird shot, tiny broken bits of iron, aluminum pull tabs, foil and bits and tips of small nails, etc.

Set to high for high-conductive metal only, including all U.S. coins (except nickels), most silver rings, silver U.S. coins, very large gold rings, large gold nuggets, very high content gold nuggets (not common), U.S. gold coins above 2.5 dollars, 24 K gold bullion (e.g. Canadian Maple leaf), small to large nails

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← **ALL**
Both
High and Low Conductivity Targets
RESPOND



← **HIGH**
Only
High Conductivity Targets
RESPOND



← **LOW**
Only
Low Conductivity Targets
RESPOND

when laying flat in the ground and large pieces of iron, large pieces of lead, lead mini balls, lead musket balls, lead loom weights, bronze buckles, bronze weights, bronze artifacts, etc.

NOTE: *Mineralization, coil size, and ground balance settings can also reverse the readings. Some low-conductive metals could make a low tone, and/or some high-conductive metals could make a high tone. Set to ALL for both high and low-conductive metals. As long as Gnd Bal is turned on, both high and low tones will be heard.*

When prospecting for gold, it is possible to reject a large nugget when selecting to only hear low-conductive metals. The size where a nugget can be classified as large is not exact as its shape and configuration can also be a factor. However, most all small-to-medium sized gold nuggets will fall in the low-conductive category. ***Prospectors should possibly opt to search while hearing both high and low-conductive metals until a determination is made as to how targets, including trash, are responding.*** If the gold in the area being searched is predominately small to medium sized, then searching in low conductivity only will find most gold, and eliminate most iron trash.

Coin hunters can avoid digging pull tabs, foil and small bits of iron trash by using high conductive only. Relic and beach hunters will ultimately find a way to make use of this innovative feature. There is much to be learned by extensive field use, but the possibilities appear to be endless.

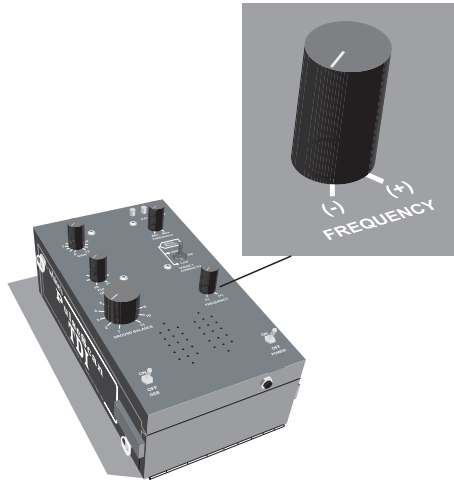
MORE about Target Conductivity is listed under VARIABLE AUDIO on page 28 of this guide.

IMPORTANT -

The Conductivity Toggle only functions when the Ground Balance Toggle is ON. If the Ground Balance Toggle is in the OFF position, you must set the Conductivity Toggle to either ALL or LOW. If the toggle is set to HIGH with Ground Balance OFF, there will be NO SOUND on any target.

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FREQUENCY -



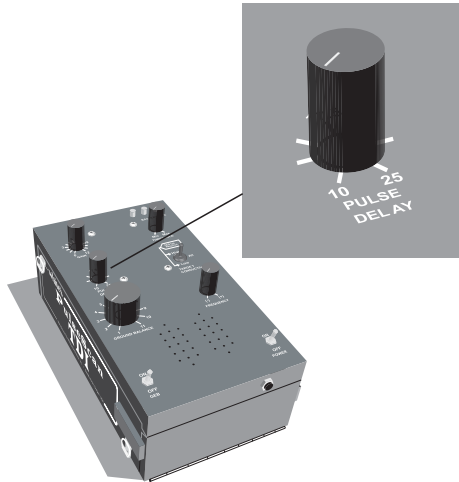
What it does

This control makes small adjustments up or down to the transmitter pulse frequency or rate. This is used to counteract any interference which might be due to outside electromagnetic sources, such as radio stations, microwave, short wave, electric fences, power lines, lightening, electrical storms, or other metal detectors being used nearby. This interference is recognized by a warbling or pulsing of the audio threshold in a repetitive way, and can mask target signals. The Pulsescan TDI has a frequency range of 3.25 kHz to 3.37 kHz pulses per second.

How to use it

Electrical interference is not exclusive to urban areas, where power line harmonics, local radio transmissions, or microwave transmissions can raise havoc with the audio threshold. Getting too close to other metal detectors being operated will also cause this problem. A slight adjustment of the frequency control can help make the audio more stable.

PULSE DELAY -



What it is

The Pulsescan TDI transmits a pulse and then after a time delay, samples the received signal. This is the control knob for adjusting the sample pulse delay. It alters the time between the end of each transmitter pulse, and the start of the receiver sampling period.

How to use it

PULSE DELAY is measured in micro seconds (μS). 10 μS is the lowest setting, which samples as close as possible to end of the transmitter pulse. This setting gives the highest sensitivity to all objects regardless of conductivity. However, raising the pulse delay toward 25 μS is used to maximize the signal to high-conductive metals such as silver or larger targets by suppressing the signal from low conductivity targets. This setting can be set anywhere between 10 μS and 25 μS depending on the circumstances to enhance performance.

If you wish to concentrate on ***detecting low-conductive targets*** you would want to set your Pulse Delay as close to 10 μS as possible to avoid reducing or losing the signal from your target. Low-conductive targets would include small to

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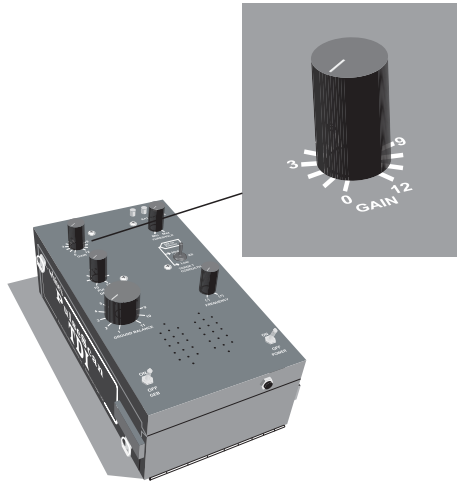
medium gold nuggets, small or thin gold rings, and chains as well as very thin, small hammered silver coins. If you were detecting for thin gold rings at a beach, this would also be the proper setting to achieve the most sensitivity. Of course, at 10 uS you will also hear small bits of iron trash, bits of foil, boot tacks and bits of nails, and very small pieces of lead like bird shot. You may hear nails when swept across the broadside, but not when sweeping from tip to tip. Aluminum pulltabs will also be heard. Very low pulse delays can also result in the detection of conductive salt water when detecting along beaches.

If you were primarily looking for **high conductive metals**, such as silver, **increase the Pulse Delay toward the maximum setting of 25 uSeconds**, thus reducing the signals from very small trash items such as small iron and foil. Large iron usually falls into the category of silver, and gives a stronger signal at higher pulse delays as well.

One important thing to remember is that whenever you change your Pulse Delay, you should check and readjust your ground balance if necessary.

MORE about Pulse Delay is listed under PULSE DELAY on page 30 of this Guide.

GAIN -



What it does

Gain controls the sensitivity of the detector, and the range at which the detector will hear a given target. It increases or decreases the amplification of the receive signal. In other words, it determines how deep the detector will hear a target.

How to use it

Ground mineralization gets in the way of hearing target signals. This so-called bad ground can be balanced out by a ground balance procedure (a form of filtering) so that targets can be heard clearly. This process can be accomplished more easily and effectively if the gain is set at an appropriate level.

Never assume that the higher gain is set, the deeper the detector will go. Although environmental noise EMI (electromagnetic interference) can affect the level of gain that can be used, the ground mineralization has the most influence on how high the gain can be set for optimum performance.

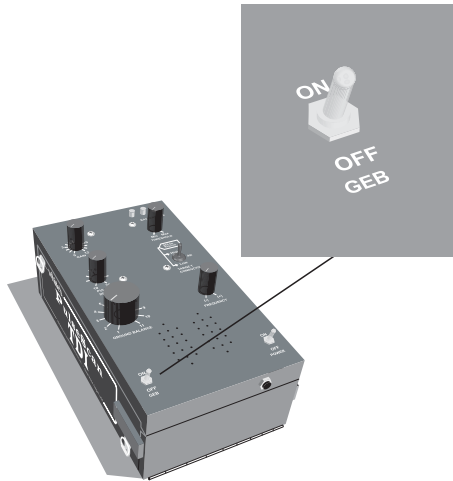
By attempting to use more gain than the ground minerals will allow, the detector circuit can go into overload, and at that setting will not be able to operate properly. In this situation, reducing the gain will allow the detector to be ground balanced, and thus operate correctly.

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You must operate with a threshold which is as smooth as possible, so you can hear the clarity of a true signal, and not be confused by false signals, chatter, or blanking out of the threshold hum. Keeping the detector ground balanced is important, but one of the best ways to keep a smooth operation is to apply the appropriate amount of gain.

The threshold will let you know if the gain is set too high. If it is ***erratic, jumping around, falsing, noisy, gasping*** - ***turn down the gain.***

GROUND BALANCE ON/OFF - TOGGLE



What it does

The Toggle Switch, located below the Ground Balance knob, is used to either enable or disable the ground balancing function (along with the Variable Audio Tone feature). In the ON position, the Manual Ground Balance and the Audio Tone feature are functional.

In the OFF position, the detector reverts to a straight pulse induction detector which hears all metal targets without audio differentiation, and has no manual ground balance control.

How to use it

This toggle must be kept in the On position when you are able to find a ground balance point. In this instance, you have both Manual Ground Balance and Audio Tone. If you can find a setting on the ground balance control where the ground noises go away, then you must leave the Gnd BalToggle on, and select a conductivity option. ***If you are not able to find a ground balance point***, and the detector operates quietly without interference no matter where the control is set, it means that the ground is not mineralized enough to require ground balancing. This means the PulseScan TDI circuitry can handle the ground without manual ground balancing, and the Gnd Bal toggle could be turned off. In this case there are two options -

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Option #1

You may switch the toggle to Off. This eliminates the Ground Balance control, the Audio Tone feature, and the selectable conductivity feature allowing the Pulsescan TDI circuitry to handle the ground mineralization. All targets will sound alike, but you will get better depth.

Option #2

Switch the toggle to On. This activates the Ground Balance, and Audio Tone feature. Then set the Ground Balance as noted in Chart A -

Chart A

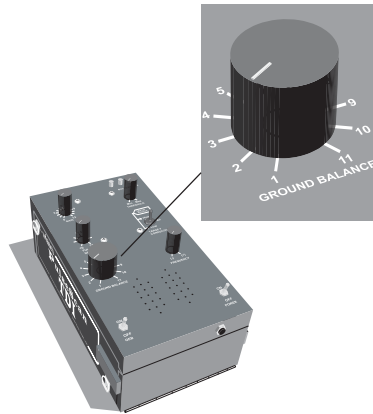
Mandatory settings if you cannot find the ground balance point, and wish to activate the variable Audio Feature.

#1 - If you have set the Pulse Delay at 10 uS, which is recommended for average size gold, set the Ground Balance control at approximately 8.

#2 - If you have set the Pulse Delay midway, set the Ground Balance at approximately 6.

#3 - If you have set the Pulse Delay at 25 uS, which is suggested for beaches, relics, or very large targets, set the Ground Balance at approximately 2.

GROUND BALANCE - KNOB



What it does

This control adjusts or balances the interference from ground mineralization. It is only operative when the Ground Balance toggle switch is in the On position.

How to use it

To ground balance Pulsescan TDI, the search coil is pumped slowly up and down from one inch near the ground to 6 or 8 inches above the ground while listening for a change in sound. ***This process must be done with the Target Conductivity control set to All.***

Start this process with the Gnd Bal Control set at 6 (12 O' clock). Begin pumping the coil slowly up and down toward the ground. You will hear the high tone of low-conductive metal as you approach the ground. Now start turning the Ground Balance knob slowly clockwise as you continue this pumping process. The high tone will usually continue with each pump toward the ground for a short period of time, and then start to fade to no tone other than the threshold hum. Continue the process of pumping slowly, and turning the knob clockwise past the quiet zone. You will begin to hear the low tone as you approach the ground. If the ground has moderate mineralization you may not hear the low tone. At this point, continue with the pumping process, but start to turn the ground balance knob back counter clockwise until you enter the quiet zone again. This area of quiet

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where you hear only the faint hum of the threshold is where the Pulsescan TDI is balanced to the ground. You will have to turn the knob very slowly in very small increments to reach the most exacting point for eliminating ground minerals. At this point, you will most likely notice that the Ground Balance knob is usually between 8 and 9 on the scale.

If you change the setting on the Gain or the Pulse Delay, you should adjust the Ground Balance setting if needed. In addition, if you begin to hear ground noises (false signals) you should also adjust the ground balance. Of course, the Gnd Bal toggle must be On to use the Gnd Bal control.

If the Pulsescan TDI does not require ground balancing, there is another option. The Pulsescan TDI can be operated as a standard pulse detector with no variable audio by switching the Gnd Bal toggle OFF. All targets will now sound the same. The upside of this is that the detector will detect deeper. Downside is you dig everything.

If the Pulsescan does achieve ground balance, the Gnd Bal toggle ***must*** be kept On, and both Gnd Bal and the Variable Audio feature will be active. This situation indicates that there is enough iron mineralization to balance.

INITIAL SET-UP -



To get started, set the controls to a mid-range position. For now, the main concern is setting the threshold, and adjusting the settings for the other controls.

#1 - Set the controls to mid-range as follows -

Ground Balance	6	
Conductivity	All	(will only be active when Gnd.Bal. toggle is ON)
Freq.Adj.	12 noon	(If there is interference select a quiet frequency)
Pulse Delay	10 μ S	
Gain	6	
Gnd.Bal. toggle	OFF	
Check your Battery LED for charge level		

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#2 - TURN ON AND ADJUST THRESHOLD

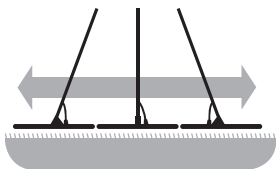
Turn the power switch On and adjust the threshold to a faint hum, as noted under "Description of Controls". The threshold hum should be set just above the chatter point so that the hum is reasonably continuous - faint, but steady.

#3 - GET FAMILIAR WITH A TARGET SOUND

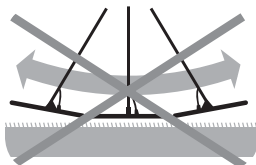
Put a target on the ground to become familiar with the response of the detector. Use a nickel or a gold nugget. Please note that the PulseScan TDI is a motion detector which means that as the search coil passes over the target you hear a response only when the search coil is in motion. Stopping over the target, the signal will disappear and you only hear the threshold hum.

Be sure to use a reasonably sized target, so that you can get a better idea of what a target sounds like. Note that the target audio will get louder, and the pitch will rise as the search coil passes over the target. Now is a good time to adjust the volume on the headphones so that you can hear a good response from the target while being able to hear the continuous hum of the threshold when no target is present.

Sweep the search coil from side-to-side overlapping each pass.



Keep the search coil flat to the ground as you are sweeping from side-to-side.



#4 - DETERMINE IF GROUND BALANCE IS NECESSARY

(With Gnd. Bal. Toggle OFF as on Chart A.)

At this point it is important to find out if there is enough mineralization in the ground to require the Ground Balance control to be activated. Since in the initial setting recommended above, the Gnd.Bal. toggle is set to off there is no active ground balance, and the Pulsescan TDI has only its inherent ground rejection ability working for it.

When the search coil is swept over the ground and there is no ground noise, (the detector runs quietly and smoothly) then there is probably not enough ground to balance. At this point you have two options as already described on Page 22.

a) You may leave the Gnd Bal toggle in the Off position and operate the Pulsescan TDI with no Variable Audio as a straight pulse detector, and dig all targets, or ...

b) If you wish to detect with Variable Audio active, you may switch the Gnd Bal toggle to the On position and activate this capability, and set ground balance according to Chart on page 22.

FINAL ADJUSTMENTS AND YOU ARE ON YOUR WAY

If all has gone well to this point, you might see if you can increase the Gain in small stages. An increase in Gain is desirable in order to increase the depth of detection. Never increase Gain at the expense of the inability to handle ground minerals or environmental interference. As with the operation of all metal detectors, too much Gain will not increase but decrease depth, and the ability to hear targets. It will be up to you to find the proper setting.

If you change the Pulse Delay or the Gain, and you are operating with Gnd Bal toggle on, you must readjust the Ground Balance.

MORE ON VARIABLE AUDIO (low/high tone)

Only if the Gnd Bal toggle is set in the on position will this Variable Audio feature be active. You may then select the type of conductivity feature you wish to use. Either low, high or both low and high. Dependability varies with the size, shape, conductivity, and metal content of the target as well as the type of ground mineralization. In prospecting even the form of the gold (placer, sponge, crystalline etc.) varies, and can make the ability to identify the target difficult as well.

When used for beach hunting and relic hunting, where the occurrence of certain targets can be more predictable, the value of this feature might be more useful. In any case the user should experiment in different locations or applications to determine the level of predictability to be expected.

With some prospecting units on the market, this function is touted as an IRON ID feature. This is not a true description of what is happening, and is why we will call this feature Variable Audio, as that more correctly describes it. What is really going on, is the audio responses heard are a by-product of the ground balancing system, and are actually responding in a particular way to the speed at which the signal from the target decays as the search coil passes over it.

Having tuned out the ground signal, the decay from metallic targets is either faster or slower and does not balance out. Where it falls depends on its size, shape, and conductivity not just whether it is gold or iron. Small to medium gold and nickel coins (which decay faster) can react with a high-pitch tone, while large gold, most silver and copper coins, and most iron (which decay slower) can react with a low pitch. If you depend on this feature to always tell you that the target is gold or iron, you could go wrong. Most smaller gold reacts in a predictable way, but very large gold can react like iron. In addition, very small nails can react like a small nugget.

The Variable Audio feature can be interpreted by the tone which it produces when going over a target. As the search coil passes over a detected target, the signal will get louder as it gets closer to the center of the coil, but the tone will rise or fall depending on the decay speed.

Therefore, on a low-conductive target (small to medium gold, nickel coins, and small iron) the pitch of the audio tone might rise.

When the search coil goes over a high-conductive target (large gold, most silver and copper coins and most large iron) the pitch of the audio tone might fall.

It might be noted that the low tone heard over large non-iron targets is usually smoother than the low tone heard over iron targets which can be irregular. In addition, flat iron or steel objects, such as tin lids and flat sided cans can give a mixed response. This can sound like low tone, high tone, low tone as coil passes over the target. The sweep will have to be slower to notice this. The high-tone response is usually stronger and longer, but with time and practice this can be helpful to identify flat iron.

With practice, you will be better able to use your low tone and high tone to help you get an idea of what kind of target you are detecting and help to eliminate some trash items. However, it is always better in a new area to dig everything until you get an idea of what you are likely to find. Keep in mind that no system is perfect, and when in doubt DIG!

MORE ON PULSE DELAY

Sampling as close as possible to the end of the transmitted pulse gives the highest sensitivity to all metal targets regardless of their content or conductivity. The best signal from all targets is obtained when using a short (10 uS) delay. However, increasing the Pulse Delay beyond 10 uS toward 25 uS will minimize or eliminate the signal from low-conductive targets, so that high-conductors stand out more even though they are giving out less of a signal because they are sampled further down the decay curve. For maximum sensitivity to all targets, you would want to set the Pulse Delay as close to 10 uS as possible. Thus, when positioning the Conductivity Toggle at "ALL", you will hear the familiar high tone if the target is seen as low conductive, and the corresponding low tone if it is seen as high conductive.

As you would expect, a nickel would fall into the same category as gold and will be heard at 10 uS as a high tone, but larger silver and clad coins will produce the low tone. With alloyed gold, the conductivity can vary, so the optimum pulse delay can vary as well. Generally speaking, alloyed gold will be seen as low conductive, so will be seen best at a lower pulse delay (10 uS). 10k or 14k rings will usually react as low conductive, whereas a purer gold ring, (22 k), may react as high conductive . This can also be the case with very pure or large gold coins and gold nuggets. A solid US \$5, \$10 or \$20 gold coin will usually read as high conductive, whereas, a \$2 1/2 gold coin will read low conductive. Pure gold Bullion (24k) like a one ounce Canadian Maple Leaf will read as high conductive as well. This can be the case with a very large gold nugget or a very pure or high gold content nugget, Fortunately, most gold nuggets are of mixed alloy and fall into the low conductive category. Most U.S. gold nuggets read as low conductive, thus producing the familiar high tone. However, most Alaska and Austrian gold which is over 90% gold will read as high conductive with a low sound.

The size and shape (surface area) of the target, not just the type or conductivity of the metal, continues to have a bearing on the optimum setting for the Pulse Delay. It would be a good idea to experiment with different targets at different Pulse Delay settings. This is best done with the Ground Balance switched to off, so that all targets sound the same, and the sensitivity to the target can be observed. In this way, you can observe what happens to certain targets as the Pulse Delay is advanced up from 10 uS. Setting pulse delays can be an important part of operating the PulseScan TDI. After you have seen how the Pulse

Delay affects the signal, you can try the same tests with the Ground Balance on and the Conductivity Toggle to all. At this time you can observe whether the target produces a high tone or a low tone. You can then choose either the low or high settings to observe how the Conductivity Toggle setting can eliminate or accept a target.

The important thing is that you do have control over the Pulse Delay, and therefore over the optimization of the sensitivity of the detector to certain desired targets. The rule of thumb would be to set the Pulse Delay at 10 μ S when prospecting for small to moderate gold nuggets, and set it closer to 25 μ S when hunting on beaches for coins or relic hunting for iron and more conductive metals such as brass.

Since the Pulse Delay setting does affect the Ground Balance process, you will find that you have to ground balance after changing the level of pulse delay. In addition, the level of pulse delay will have an affect on the ability to ground balance.

This was found out during our initial testing of the Pulsescan TDI on an extremely black sand salt water beach. The Pulse Delay was initially set at 10 μ S. At once, we found that we had trouble achieving a clear ground balance point as the extreme negative black sand and salt were too reactive. The audio was too noisy to operate. Lowering the GAIN helped a little, but increasing the Pulse Delay closer to mid-range (around 17.5 μ S) rendered the threshold smooth, and we achieved a clear ground balance point. Even though a Pulse Rate of 10 μ S would have been ideal for detecting for low conductive metals like gold, in this instance, the higher pulse rate allowed for balancing the extreme black sand which was our first concern. Even at the higher pulse rate, our first target was a nickel coin over 12 inches, which has low conductivity just like gold.

WHITE'S WARRANTY

If within two years (24 months) from the original date of purchase, your White's detector fails due to defects in either material or workmanship, White's will repair or replace at its option, all necessary parts without charge for parts or labor.

Simply return the complete detector to the Dealer where you purchased it, or to your nearest Authorized Service Center. The unit must be accompanied by a detailed explanation of the symptoms of the failure. You must provide proof of date-of-purchase before the unit is serviced.

This is a transferable manufacturer warranty, which covers the instrument two years from the original purchase date, regardless of the owner.

Items excluded from the warranty are batteries, accessories that are not standard equipment, shipping/handling costs outside the continental USA, Special Delivery costs (Air Freight, Next Day, 2nd Day, Packaging Services, etc.) and all shipping/handling costs inside the continental USA 90 days after purchase.

White's registers your purchase only if the Sales Registration Card is filled out and returned to the factory address by your dealer soon after original purchase. The purpose of recording this information is to keep you up-to-date regarding White's ongoing research & development.

The warranty does not cover damage caused by accident, misuse, neglect, alterations, modifications, unauthorized service, or prolonged exposure to corrosive compounds, including salt.

Duration of any implied warranty (e.g., merchantability and fitness for a particular purpose) shall not be longer than the stated warranty. Neither the manufacturer or the retailer shall be liable for any incidental or consequential damages. Some states however, do not allow the limitation on the length of implied warranties, or the exclusion of incidental or consequential damages. Therefore, the above limitations may not apply to you.

In addition, the stated warranty gives you specific legal rights, and you may have other rights which vary from state to state.

The foregoing is the only warranty provided by White's as the manufacturer of your metal detector. Any "extended warranty" period beyond two years, which may be provided by a Dealer or other third party on your detector, may be without White's authority, involvement and consent, and might not be honored by White's Electronics, Inc.

WHITE'S WARRANTY TRANSFER USA

If for any reason you should sell your Pulsescan TDI prior to the date the warranty expires, the remaining warranty is transferable. This transfer is authorized by calling 1-800-547-6911, and getting an Authorization Number.

Simply fill out the following information, including the Authorization Number, seal it in a stamped envelope, and send it to White's Electronics, 1011 Pleasant Valley Road, Sweet Home, Oregon 97386. The remaining warranty period will then be available to the new owner.

The Warranty Statement applies to both the original owner as well as any secondary owners.



WARRANTY TRANSFER

Original Owner -

Name: _____

Address: (Which appears on the original warranty card):

Instrument Serial # _____

Original Purchase Date: _____

NEW OWNER -

Name: _____

Address: _____

Comments: _____



WHITE'S ELECTRONICS (UK) LTD.
After Sales Service - Limited Warranty

The serial number which is unique to your unit is on a white label inside the battery compartment. Please quote this number on any correspondence regarding your detector.

White's Electronics has always been concerned with the absolute quality of their mineral/metal detectors. Service after the sales is of extreme importance to us and we always do our utmost to ensure that customers are satisfied with our units. If your unit should require servicing or repair, simply return it to us at the factory in Inverness, and we shall carry out the necessary work for you.

ANY WORK CARRIED OUT BY UNAUTHORIZED PERSONS WILL AUTOMATICALLY NULLIFY THE WARRANTY.

If within two years (24 months) from the original date of purchase, your White's detector fails due to defects in either material or workmanship, White's Electronics (UK) Ltd. will repair or replace at its option, all necessary parts without charge for parts or labor.

Simply return the detector to our factory in Inverness, Scotland, giving details of the faults.

Items excluded from the warranty are non-rechargeable batteries and other accessories.

The warranty is not valid unless the Warranty Registration Card is returned to the factory address within 10 days of the original purchase for the purpose of recording that date, which is the actual commencement date of the warranty.

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WHITE'S WARRANTY TRANSFER UK

If for any reason you should sell your Pulsescan TDI prior to the date the warranty expires, the remaining warranty is transferable.

Simply fill out the following information, including the Authorization Number, seal it in a stamped envelope, and send it to

**White's Electronics, (UK) Ltd.
35 Harbour Road
Inverness, Scotland, IV1 1UA.**

White's will then advise you what, if any Warranty is available. The Warranty Statement must be completed with Serial number and information on previous and new owners.



WARRANTY TRANSFER

Original Owner -

Name: _____

Address: (Which appears on the original warranty card):

Instrument Serial # _____

Original Purchase Date: _____

NEW OWNER -

Name: _____

Address: _____

Comments: _____



This warranty does not cover damage to the detector caused by accident, misuse, neglect, alterations, modifications or unauthorized service.

Duration of any implied warranties (e.g., merchantability and fitness for a particular purpose) shall not be longer than the stated warranty.

Neither the manufacturer nor the retailer shall be liable for any incidental or consequential damages resulting from defects or failures of the instrument to perform.

This warranty does not affect your statutory legal rights.

White's Electronics (UK) Ltd.
35 harbour Road - Inverness, Scotland - IV1 1UA
Telephone: (01463) 223456 - Fax: (01463) 224048
e-mail: sales@whelects.demon.co.uk.
Web site: www.whites.co.uk

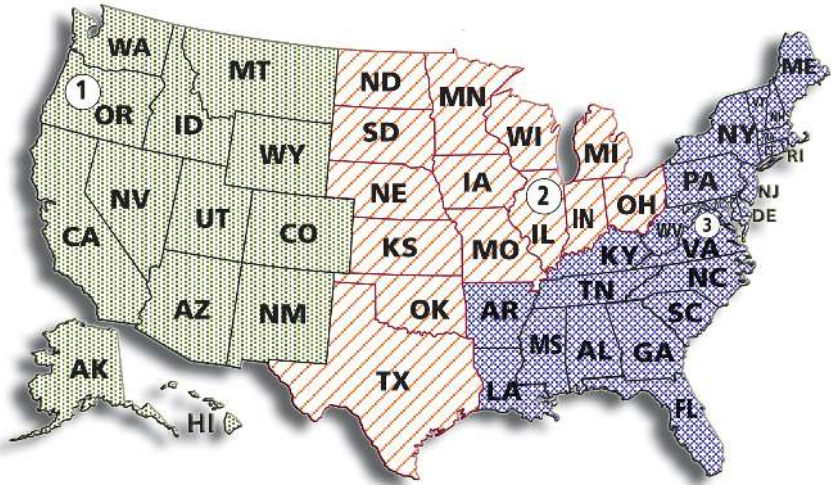


To comply with European Legislation (Directive WEEE) this unit must not be disposed of, at the end of its useful life, in any waste bin or landfill site but must be returned to any White's Dealer/Distributor for proper disposal under the legislation.

Please contact White's Inverness for the details of the nearest dealer/distributor.

WHITE'S WARRANTY SERVICE CENTERS

In the unlikely event your detector requires service please note our following Authorized Service Centers -



USA, ALL OF AMERICAS, PACIFIC RIM

- 1. Centerville Electronics**
9859 Fairview Ave. Manassas, VA 20110
Toll Free: 888-645-0202, Or Toll: 703-367-7999
Fax: 703-367-0868 • E-Mail: bob@cwrelics.com
- 2. Electronic Exploration**
575 West Harrison Lombard, IL 60148
Toll Free: 800-392-3223, Or Toll: 630-620-0618
Fax: 630-620-1005 • E-Mail: tony@ee-il.com
- 3. White's Electronics, Inc.**
1011 Pleasant Valley Road
Sweet Home, OR 97386
Toll: 541-367-6121 Extension 128
E-Mail: tmarshall@whiteselectronics.com
Web Site: www.whiteselectronics.com

UK, EUROPE, NORTHERN ASIA, AFRICA, NEAR EAST, MID EAST

White's UK Ltd.
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Inverness, Scotland IV1 1UA
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Fax: 441-463-224-048
E-Mail: sales@whelects.demon.co.uk
Web Site: www.whites.co.uk



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