



Tesoro "The Name That Means Treasure" CORTÉS

CORTÉS OPERATOR INSTRUCTION MANUAL

CONGRATULATIONS!

Your new Tesoro Cortés metal detector is part of a new series of detectors designed to provide you with many happy hours of enjoyment in the most rewarding hobby I can think of—treasure hunting. Ahead of you lie fascinating and exciting experiences as you step into the past—uncovering artifacts lost by past generations, or as you take pleasure in the great outdoors with family and friends searching for precious metals. I wish we could share these experiences with you, and all of us at Tesoro wish you the best of success.

Your Tesoro detector is capable of meeting your needs in a wide range of treasure hunting situations. As with any other metal detector, familiarity with this instrument is probably the limiting factor in determining how successful you can be. I recommend that you read this manual and fully understand how to operate this detector before attempting to use it in the field. As you become more familiar with your detector through practice, your rate of success will increase dramatically.

The Cortés is a precision electronic instrument that will last for years if properly cared for. Treat it right and it won't let you down.

Good Hunting! Jack Gifford

GETTING STARTED - UNPACKING THE BOX

Your Cortés was shipped with these parts:

1 Upper Pole Assembly

Fully assembled, including upper pole stem with handle grip, padded arm bracket and control housing.

1 Middle Pole Assembly With Pole Lock

1 ABS Lower Pole Assembly

Fully assembled, complete with two friction washers, mounting screw, and thumb nut.

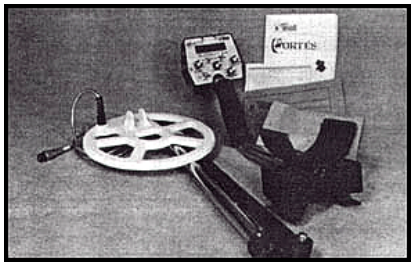
1 9 x 8 Concentric Searchcoil With 3' Cable

2 Battery Packs, Each With 4 AA Batteries

1 Operator Instruction Manual

1 Tesoro Warranty Card

If any of these items are missing, contact the Tesoro Authorized Dealer where you purchased your detector immediately.

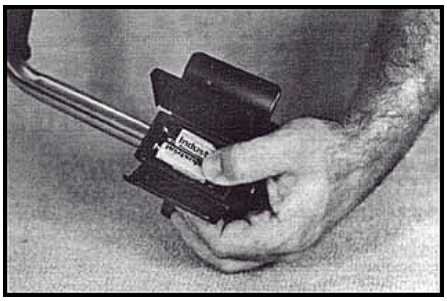


Assembling the Cortés is simple and requires no special tools. Just install the battery packs, mount the searchcoil on the lower pole assembly, connect the pole assemblies together, wrap the excess cable around the pole and plug the cable into the control housing. Finally, adjust the pole length and searchcoil angle and you're ready!

INSTALLING THE BATTERY

The Cortés is powered by 8 AA batteries divided into 2 compartments, which are located in the armrest housing.

Open the battery compartment under the armrest by gently grasping the bottom edge of the door and pulling outward and upwards. (The door is hinged at the top.)



Remove the batteries by pressing down on the right side of the 4-pack battery holder so that the left side of the holder will pop up. Pull out the holder and replace the batteries as needed.

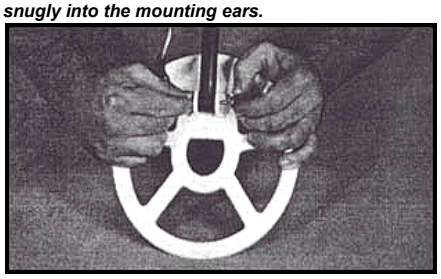
When returning the holder, note the position of the spring clips inside the armrest housing and make sure that the battery pack contacts fit snugly against the springs. Insert the side with the contacts first and then press down on the left edge of the battery holder to reseat the holder.

Snap compartment cover to close.

ASSEMBLING YOUR DETECTOR

1. On the lower pole assembly, remove the mounting screw and thumb nut from the pole tip.
2. Insert the pole tip between the mounting ears of the searchcoil and align the holes of the pole tip and washers with those of the mounting ears.

Note: The pole tip should fit very snugly into the mounting ears.



3. Insert the mounting screw through the holes in the mounting ears and pole tip—entering from the side opposite the cable connection.
4. Install the thumb nut on the mounting screw and tighten by hand.

Note: Do not overtighten the thumb nut. It should be snug but not too difficult to loosen up.

5. On the middle pole assembly, depress the two spring buttons and slide the middle pole assembly into the upper pole assembly until the spring buttons click into the holes, thus locking the two assemblies into place. Tighten the pole lock to secure the two assemblies together.



6. Slide lower pole into middle pole until the spring buttons click into the first set of adjustment holes. Turn pole lock to tighten, thus locking the assembly into place.
7. Wrap the cable around the pole leaving enough slack near the searchcoil to permit searchcoil adjustment. ***Note: Do not allow the cable to flop loosely over the searchcoil. Since the detector is sensitive enough to "see" the tiny wires in the cable, a floppy cable can cause false signals as the searchcoil senses the moving wires.***
8. Plug the male cable end into the female connector on the control housing and tighten the cable thumb nut. You are finished!

Note: You will want to adjust the pole length and the searchcoil angle to your preference.



ADJUSTING THE POLE & SEARCHCOIL



The pole length should be adjusted so that the detector does not become uncomfortable or tiring after long periods of use. The detector grip should rest in your hand with your arm relaxed, your elbow straight but not locked, with the pole extending out in front of you at the approximate angle shown in the photo.

You should be able to swing the detector back and forth in front of you—using relaxed *shoulder movement*—while keeping the searchcoil as close to the ground as possible. This swinging movement is often called a "sweep."

The searchcoil should not touch the ground during your sweep. The pole length should be adjusted to allow this without having to lift the detector with your elbow or shoulder. The searchcoil should rest about one inch above the ground while you are standing erect. The angle of the searchcoil should allow the bottom to be parallel to the ground.

The pole length is adjusted by loosening the pole lock, then depressing the spring buttons and extending or shortening the pole until the spring buttons click into the set of holes that give you the most comfortable pole length.

To adjust the searchcoil angle, simply loosen the searchcoil thumb nut slightly and move the searchcoil into the desired position. Tighten the searchcoil thumb nut by hand so that the searchcoil will hold in place.

QUICKSTART - SELF-GUIDED TUTORIAL

The Quickstart is designed to teach you how to use your new Cortés. It provides a quick and easy means of learning your detector and the concepts behind all of the functions.

You will need the following items:

1. Your fully assembled Cortés.
2. An iron target (a small nail or screw will do), an iron washer, a nickel, a zinc penny (1982 or later), a quarter and a couple of different pull tabs.
3. A nonmetal table top or counter.

Here's what you will do:

1. Check Display Readings in DISC Mode
2. Adjust SENSITIVITY
3. Perform Air Test in DISC Mode
4. Perform Air Test in NOTCH Mode
5. Perform Air Test in SUM Mode
6. Adjust THRESHOLD
7. Adjust GROUND BALANCE for Air Test
8. Perform Air Test in ALL METAL Mode
9. Check Back Light Levels

Prepare for the Quickstart

Place your assembled Cortés on the nonmetal surface. Make sure that there are no metal objects near the coil and remove any jewelry from your hands and wrists.



Start with the controls like this:

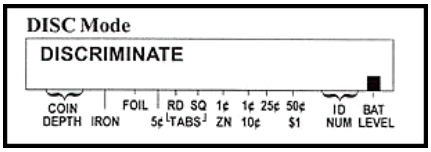
1. THRESHOLD, SENSITIVITY and DISCRIMINATE LEVEL knobs turned completely counterclockwise.
2. MODE, NOTCH and LIGHT switches in the center position.
3. GROUND BALANCE knob in the 12 o'clock position.

Check Display Readings in DISC Mode

Turn the SENSITIVITY knob from OFF to about 2-3. You will hear a quick beep followed by a slight hum that will fade away. This is the detector letting you know that it has been turned on and is ready to go.

The Tesoro Cortés is a Target Identification Detector or T.I.D. The most important feature is the 2 by 16 character display found on the upper half of the detector faceplate. At this time the only thing that should be displayed on your screen is the battery level indicator in the lower right corner and the word DISCRIMINATE. The battery level is a continuous test of the condition of your battery. The indicator will read like a fuel gauge. As the batteries get lower, the bar dips lower. When the bar becomes very small, it is time to change your batteries.

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Pass any target over the coil and read the meter. The information is unimportant at this moment. After about 6 to 10 seconds the screen will clear and the word DISCRIMINATE will appear again. The Cortés will clear the display screen after that amount of time so you will be able to visually see a target even if you do not get an audio response. You may want to take some time to try this out.

As you were waving the targets, you will have noticed that the display has several areas that contain different pieces of information. All of the different segments will be used together to determine the most likely identification of the target while it is still in the ground. As you are practicing, please note that different distances from the coil, orientation of the target, and width of the sweeps or passes over the coil may produce a variety of slightly distinct display readings.

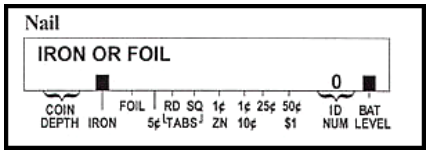
NOTE: A target identification detector is never 100% accurate. If you get a strong, positive audio signal when hunting, dig it, no matter what the display shows. Digging the good audio/bad display target will result in better finds over the long run than ignoring those signals.

The top row of the display shows the target data in the broadest strokes. All targets will fall into one of four categories: Iron or Foil; Nickel, Pull Tab, Ring; Zinc Penny, Screw Cap; Silver Coin, Copper Penny. This brief information will lead you to the bottom row that contains much more detailed data.

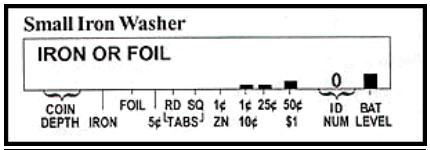
Starting from the bottom left-hand corner of the display, you will find the COIN DEPTH indicator. This section will let you know the approximate depth of the target. In the center of the bottom row is a nine segment bar graph. It will show all of the information the detector saw during the entire coil sweep. Full sweep data information is helpful in determining possible treasure/trash masking and odd-shaped iron. Between the graph and the battery indicator is the ID NUMBER. The ID Number shows the peak part of the signal as a two digit number from 0 to 95. Iron reads as 0 and copper and silver coins read 95. All other targets will read somewhere in between. Take some time to try all of your targets and notice the different readings that you get. The best distance from the coil is somewhere between 4 and 8 inches. If you get closer, you will notice the detector will read LIFT COIL. Moving the target away from the coil slightly will result in a more accurate reading.

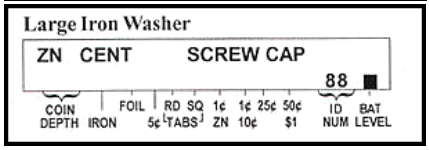
Below are some of the possible readings from various targets. These are not exact and your machine may read slightly different.

Small Iron Target (Screw or Nail): You may not get an audio signal depending on the target size and shape. However, you will get a meter reading.

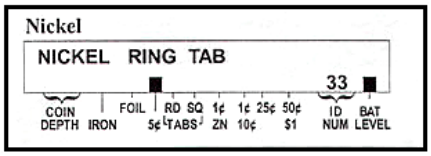


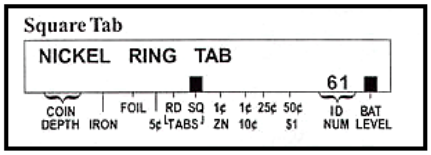
Iron Washer or Odd-Shaped Iron: Odd-shaped iron or iron with holes in it can fool many machines. As it starts to pass under the coil, it may look like a coin. But as it nears the center of the coil, its signal shifts to the more traditional iron signal. Notice the two illustrations below. In the first, the top row reads iron or foil, the bar graph has some peaks in the coin range and the ID number reads 0. In the second, the top row reads zinc cent, screw cap, there is nothing in the bar graph and the ID number reads 88.

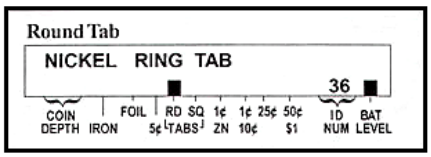


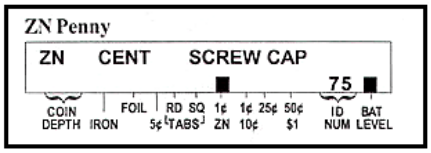


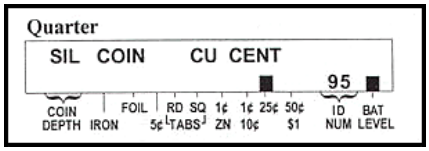
The thing that both of these illustrations have in common is that the various segments of the display do not "agree" with each other. This is a sure sign that you are detecting an odd-shaped piece of iron. Notice on the rest of the illustrations that the bar graph and the ID number show about the same information. When the ID number and the graph "agree," you can be sure that your Cortés is receiving a clean signal.











Adjust SENSITIVITY

The all metal circuit uses a single channel to detect various metals. The discriminate circuit uses two different channels, then amplifies and filters them. The detector will then compare the signals and determine whether or not to beep at the target. While there is a great advantage to ignoring unwanted targets, it can make the circuitry more susceptible to interference. A number of outside conditions such as power lines, highly mineralized soil, and wet salt sand can cause interference.

The SENSITIVITY knob is used to raise or lower the power to the operational amplifiers, which changes the gain. Gain is a measurement of how much a signal is amplified. The higher the gain the more depth and sensitivity to small objects a detector has. Unfortunately, any small interference that is amplified can cause the detector to become erratic. The SENSITIVITY control is used to find the best gain setting in any location without letting the detector become unstable.

The SENSITIVITY knob is numbered from MIN to 10 and then has an orange area called the Max Boost Zone. For normal hunting, anywhere in the numbered zone will work very well. However, the Max Boost will allow you to increase the power to the operational amplifiers to the point of overload. This may cause your detector to become unstable and force you to turn the SENSITIVITY knob to a lower setting. An overload situation will not hurt your detector, but it will maximize the gain that is used by your detector. This can, in certain conditions such as low mineralization in the soil, cause your detector to penetrate deeper into the ground and become more sensitive to small targets.

Take some time to try waving targets in front of the coil with different sensitivity settings. Notice that the higher the sensitivity setting, the farther away from the coil that a target can be and still respond with an audio signal.

Perform Air Test in DISC Mode

As discussed before, the Discriminate Mode is used to filter unwanted targets from good targets. The principle behind this is pretty simple. The detector sends out a signal and then receives it back creating a small electronic field. As metal passes through the field that the detector generates, it causes a change in the received signal. The amount of change that each type of metal causes is fairly constant; therefore, we can tune our detectors to miss targets that we don't want to find. The change is based on the type of conductivity that each target has. The general list of conductive targets is as follows: iron, foil, nickels, gold jewelry, pull tabs, screw tabs, pennies and silver coins starting with dimes and working up to silver dollars. This is very easy to visualize using the bar graph. This list is meant to be a guide only. There is a point that some pull tabs, nickels and gold jewelry overlap. Also, the depth of the target and its orientation in the ground can change the received signal. A coin that is flat to the coil will produce a better signal than a coin that is on edge. Take some time to try different combinations of depths and orientation of your targets and find out how your detector responds.

We are now ready to discriminate targets from each other. We will start with the DISCRIMINATE LEVEL at MIN. Please notice that the DISCRIMINATE LEVEL knob has words that correspond to the items that are discriminated out. While performing the Air Test, notice that your Cortés will continue to display target data for items that do not respond with an audio signal.

All of your targets except the small iron should respond with a good audio signal at the MIN setting. Next, we will turn the DISCRIMINATE LEVEL up to the 5¢ setting. This level is high enough to knock out the nickel. At this time the iron target and

DISCRIMINATE LEVEL up to the 5¢ setting. This level is high enough to knock out the nickel. At this time the iron target and the nickel should give no response, while most of the pull tabs, the zinc penny, and the quarter will give a solid response. The iron washer may fall out at some point or may give a choppy signal all the way up to MAX. But reading the display should give you the indication that it is odd-shaped iron. Next, turn the DISCRIMINATE LEVEL knob just past the PULL TAB marking. At this time most or all of the pull tabs should not give any audio signal. The zinc penny and the quarter should give a strong signal. Now roll the DISCRIMINATE LEVEL all the way to MAX. Notice that the penny has stopped responding and only the quarter is still responding. The discrimination will not go high enough to lose most of the silver coins.

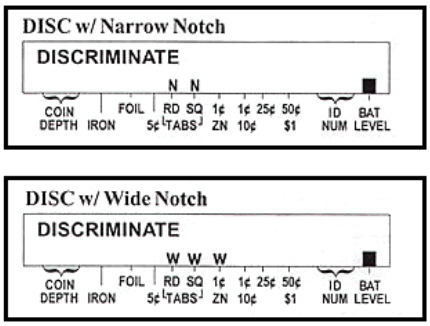
This Air Test was designed to show you quickly how your Discriminate Mode works. Each machine may be a little different from all of the others, so you may want to take some time and try different targets to find responses of your machine. At a later date, you may want to build a test garden to test your detector in the field.

Perform Air Test in NOTCH Mode

There is a very distinct difference between the regular Discriminate and the Notch Filter Discriminate. While both filter out unwanted targets, the regular Discriminate Level knocks out everything below the level it was set at. The Notch Filter Discriminate works only in a certain band and does not affect the targets below or above it. This gives the detector the advantage of discriminating most of the pull tabs and still keeping nickels and gold rings. The Notch Filter Discriminate has two settings—Narrow and Wide. Narrow covers most pull tabs and Wide covers most pull tabs and most screw caps.

Turn the DISCRIMINATE LEVEL down to MIN. Please remember that the regular Discriminate will override the Notch Filter Discriminate. The best settings when using the Notch Filter Discriminate is to have the DISCRIMINATE LEVEL set just high enough to knock out small iron and foil and use the NOTCH switch to define the width of the Notch window.

Flip the NOTCH switch to either NAR. (Narrow) or WIDE. The N will indicate a narrow notch window and will be in the round tab and square tab portion of the graph segments. The wide notch window will cause a W to be in the round tab, square tab and zinc penny segments.



These indications are an easy way to check what part of the scale is being notched out. The notch indicators will only show when there is no target under the coil. When there is a target signal, no matter if the target has been discriminated or not, the display will show the information of the target. Take some time to try various targets and note the response. When you are done, flip the NOTCH switch back into the center position before moving to the next section of the quick start.

NOTE: *No detector can guarantee to discriminate out all of the pull tabs and respond to all of the gold rings. The Cortés has two different notch positions to knock out the most common trash targets. Only the user can determine the right amount of Notch Filter Discrimination that is correct for his/her hunting style and local environment.*

Perform Air Test in SUM Mode

The Sum Mode is a feature that can help identify targets. While the detector is in either the Discriminate or All Metal Mode, the display shows the target information from the entire sweep of the coil. Each time the coil passes over the target, the microprocessor generates a new target ID reading. While this is nice for general searching, it can be confusing while pinpointing. This is where the Sum Mode becomes useful. Pushing the springloaded switch into the Sum Mode causes the detector to start a multi-tone ID and averages all of the coil passes over the target. The tone ID has nine different tones and relates directly to the bar graph segments. The higher up on the graph the target is, the higher the pitch of the audio signal. Averaging the coil passes over the target gives the detectorist the ability to get rid of most of the signal noise that prevents making an accurate target identification.



Start by waving targets across both the outer and inner rings of your 9x8 coil. Notice that you are hearing a single frequency audio tone and that the display may change. Now push the MODE Switch to the SUM position and let go. The switch should spring back to the center position. The SUM Mode is a momentary position only. In the SUM Mode, you will want to shorten your coil sweep down to about 2" to 4". You will be able to duplicate this by waving your target over the inner ring of your 9x8 coil only. Shortening the coil sweep helps to eliminate unwanted ground noise in the field.

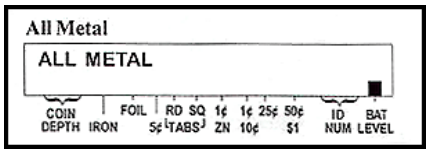
Now push and hold the MODE Switch into the SUM position. As you wave your targets, you will notice the audio signal starts out with a low tone and will shift as the Cortés averages the coil sweeps. After 4 to 7 sweeps, the tone should stop shifting and the display will show the most accurate data available.

Take some time to check all of your targets and notice the different tones and practice shortening your target sweeps

Take some time to check all of your targets and notice the different tones and practice shortening your target sweeps.

Adjust Threshold

Flip the MODE Switch to the farthest right-hand position. This will put your Cortés into the ALL METAL Mode. The All Metal Mode is used to help pinpoint and handle highly mineralized ground. The Cortés uses a factory preset ground balance in the DISCRIMINATE Mode. This will work fine for most hunting conditions, but some areas may have a high enough mineral content to cause a loss of depth and sensitivity. The ALL METAL Mode and its adjustable ground balance was designed to allow you to work in those tougher conditions.



To adjust the threshold tone, turn the THRESHOLD knob clockwise until you hear a slight but steady tone. You will have to turn the knob to somewhere between the 10 o'clock and 1 o'clock position to get the best hum.

The purpose of the threshold tone is to give a reference to judge targets for pinpointing and to adjust the ground balance. (For more information on ground balancing, see the **"Adjust GROUND BALANCE for Air Test"** section below and the **"Ground Balancing in the Field"** section.)

In the field, some targets may be small enough or deep enough that they will not be able to generate an audio signal by themselves. By monitoring a threshold tone, you already have a threshold tone so changes are easier to hear. However, if the threshold is set too soft or too loud, small changes in the signal will be hard to hear. Take some time and find a threshold level that is right for you.

Adjust GROUND BALANCE for Air Test

The ground balance function for your Cortés is a form of discrimination that allows you to tune out the mineralization in the ground that may mask targets or decrease the detector's depth and sensitivity. The GROUND BALANCE knob is on a 3 and ¾ turn potentiometer. While the knob will turn endlessly in either direction, when the knob is at the end of its range, a slight drag will be felt while turning.

NOTE: *The following procedure is for the Air Test only. For directions on ground balancing your Cortés in the field, see the* ***"Ground Balancing in the Field"*** *section.*

To set the GROUND BALANCE knob for the Air Test, turn the knob 5 turns counterclockwise and then turn the knob 2 turns clockwise. This will make sure the GROUND BALANCE knob is just slightly above the middle part of its range. No further turns will be needed for the Air Test.

Perform Air Test in ALL METAL Mode

Once you have set the correct threshold hum and adjusted the ground balance, you are ready to perform an Air Test in the ALL METAL Mode. Your Cortés has a VCO-style ALL METAL Mode. You will find that as targets get closer to the coil, the threshold tone will get louder and higher in pitch.

Try waving your targets in front of the coil. Start from a distance of 10 to 12 inches away from the coil and slowly work your way closer to the coil. Then try starting from 6 inches away from the left or right of your coil and work your way to the center of the coil. Notice the changes of the audio signal.



Your strongest signal will always be closest to the center of the coil. Additional information can also be learned by the signal strength and pitch. A smaller or deeper target will give a less noticeable change in the threshold than a larger or more shallow target will give. Take some time and try all of your targets at different depths to find out how your detector sounds.

Check Back Light Levels

The Cortés has a back lighting system so that you will be able to hunt in darkened conditions. To check the back light levels, shade the display with your cupped hand or turn down the light in the room that you are in. Flip the LIGHT switch from the center position to either the LOW or HIGH position. You should see the display light up. Make sure that you return the LIGHT switch to the center position when you are done using the back light.

NOTE: *Using the LIGHT feature will cause your batteries to drain much faster than during regular use. The Low Level draws less current than the High and will not drain your batteries as quickly.*

Conclusion

Congratulations, you have just finished the Quickstart for your new Cortés detector and in the process have learned quite a lot about your detector. But experience is the best teacher. I would recommend that you get out and practice with your detector as much as possible. Any time spent using your detector will give you valuable experience.

OPERATING TECHNIQUES

Ground Balancing In The Field

Ground balancing is not a difficult procedure, but it is critical if you desire maximum depth and stability. It is especially important if you plan to find deep relics or prospect for gold nuggets.

To ground balance in the field, we will start by assuming your detector is turned off. This will be the normal condition of your detector when you start hunting. Ground balancing can be done at any time while you are using the detector. It is not necessary to turn the machine off each time that you ground balance.

Start with the controls in the following positions:

1. SENSITIVITY on OFF.
2. MODE in the ALL METAL position.
3. All other controls will be set during the ground balancing procedure or are not applicable at this time.

Turn the detector on by rolling the SENSITIVITY knob clockwise to about 9 or 10 on the dial. You will hear a quick double beep to let you know the detector is operating. Next adjust the THRESHOLD knob until a slight, steady hum is heard. The machine is now ready to be ground balanced. Next find an area that has no metal targets in the ground, as this may give false readings while in the ground balance procedure.

As shown in the photos, raise your searchcoil about 6 to 8 inches off of the ground. This is high enough so that the detector will no longer read the minerals in the ground. While listening to the threshold sound, lower the searchcoil to about 1 inch off of the ground. As the coil is dropped, the detector will start to read the ground minerals and will give you one of three sounds: 1) The threshold tone will get louder and raise in pitch. This is a positive response. 2) The threshold tone will go quiet, followed by a quick tone. This is called a negative response. 3) There will be no change in the threshold tone as the coil is dropped. This is the balanced response. When you get a balanced response, the detector is telling you that it is ready to hunt.

The positive and negative responses are easy to adjust. If you get a positive response, turn the GROUND BALANCE knob towards the minus sign on the face or in a counterclockwise direction. Getting a negative response means turning the GROUND BALANCE knob towards the plus sign on the faceplate or in a clockwise direction.

Here is an example of balancing: After setting up the detector, you raise the coil and then push it to the ground. As the coil drops, the threshold hum gets louder. You then turn the GROUND BALANCE knob counterclockwise towards the minus sign. You pick up the coil and push down again. This time you get a slight negative response. Turn the GROUND BALANCE knob a little bit towards the positive or in a clockwise direction. When raising and lowering the coil, the threshold made no change as the coil was dropped. At this point the detector is balanced for the area and is ready to hunt.

Ground balancing is a learned skill, one that you should practice often. It is easy to practice almost anywhere—your front or backyard, a local park or a fair-sized flower garden. When you are practicing, make sure that there are no pieces of metal underneath your coil that may cause a target sound.

NOTE: *Please remember that the coil must be lifted straight off of the ground. Swinging the coil in an arc, like a pendulum, will cause false readings and will result in an improper ground balance.*



Lift your detector straight off of the ground about 6 to 8 inches. Keep the coil parallel to the ground.



You must lift your coil straight up. Do not swing it like a pendulum.



Once you have got a steady threshold, quickly lower the coil straight down to approximately 1 inch off of the ground.

Handling Your Detector

The detector should be held in a position that is comfortable for you as shown in the **"Adjusting The Pole & Searchcoil"** section in ***Getting Started***. Swing the detector from side to side in about a three foot arc, overlapping succeeding strokes well. This motion is called a "sweep." The Cortés was designed to get maximum depth without the frantic pace required of earlier motion detectors, so go at a pace that is comfortable for you. In fact, trying to hunt too fast may even cause a loss of depth in heavily mineralized locations.

Regardless of which mode you are using, try to keep your searchcoil height constant and close to the ground. Most people tend to raise the coil at the end of a sweep—much like a pendulum—especially if they are hurrying. Try to avoid this as any increase in height from the ground will cause a corresponding loss of depth.

In areas with well-kept lawns, the easiest way to maintain a constant searchcoil height is to allow the coil to rest on the grass as you sweep from side to side. In rough and rocky areas, it is best not to "scrub" the coil on the ground, as the rocks will act like abrasives and wear away the coil bottom (an optional coil scuff cover will protect against this). Sweep the coil as close to the ground as possible without touching. Hitting the ground or rocks may cause a false signal, much like a desired target would. Sweeping the coil too high above the ground results in a loss of depth.

Pinpointing a Target

When pinpointing a target, the All Metal Mode can offer advantages over the Discriminate Mode, such as no false signals and no need to move the searchcoil to get a target response.

A good method for pinpointing in All Metal Mode is "X-ing" the target with the searchcoil. Remember that the target's response sound is always greatest when the target is directly under the center of the searchcoil. To "X" a target, sweep the searchcoil over the target from side to side and then from front to back until you can identify the center of the X—the spot on the ground where the target response sound is the greatest.

Pinpointing a target in Discriminate Mode is probably best done by "X-ing" as well. Remember that the detector will beep just as the target passes under the center of the searchcoil. Slowing the sweep speed down will help you pick out the center of the X because the target response is reduced at very slow speeds making it easier to correlate the sound with the coil center.

Another easy method is to sweep the coil from side to side across the target in very short sweeps as you slowly move forward and backward across the target. Slow down the sweep rate and shorten the sweeps until you just barely get a response at one spot. The target will be directly below the coil center at this response time.

Another method of pinpointing in Discriminate Mode is to quickly change to the All Metal Mode to check the target response. Remember that the All Metal Mode is not susceptible to the false signals of the Discriminate Mode and can sometimes give a clearer and more consistent response to difficult targets such as a dime buried next to a pull tab. By switching back and forth between modes and comparing the target response sound in All Metal to the target response sound in Discriminate, you can often better identify the likely location of the target.

Finally, raising the searchcoil during pinpointing can also help by narrowing the response to the target. Practice pinpointing often, and you will soon become more accurate and faster.

Planting a Test Garden

To better learn how your detector will perform in the field, it would be helpful to bury some coins and trash metal junk items in an area that you know is clear of other metal objects, and then try the Cortés in the All Metal & Discriminate Modes. Check the area in All Metal Mode to be sure it's clear of trash. Then bury the targets at least 1 foot apart and from 2 to 4 inches deep to start. Make a map of the area to be sure you know what each target is and how deep it is. Practice on these targets to familiarize yourself with your detector's target response. This will also help you learn the proper sweep speed for best operation. This type of practice area is often called a "test garden" or "test bed" and is one of the best tools to help you develop your metal detecting skills.

RECOMMENDED RECOVERY METHODS

GENERAL INFORMATION - CARE AND USE

Basic Care

The Cortés is a sturdy instrument, but it is not designed to withstand abuse. In caring for your Cortés there are several important "DO NOTs" to remember. DO NOT use it to pry rocks loose or to beat bushes out of the way. DO NOT drop the machine into water. DO NOT use it unprotected in the rain. DO NOT leave it exposed at night where dew could form on it. DO NOT store it in places that could get extremely hot (next to a woodstove, in an attic). DO NOT leave it in the trunk of a car or in the back of a hatchback-style car where high temperatures could build up. DO NOT store it with the batteries installed as batteries may leak. DO NOT spray lubricants such as WD-40, or any type of cleaners, solvents, sealants or other chemicals into or onto the electronic parts, switches or controls. And finally, DO NOT attempt to modify or repair the detector's electronics as this will void your detector's warranty.

THE WARRANTY DOES NOT COVER DAMAGE RESULTING FROM AN ACCIDENT, NEGLECT OR ABUSE.

Protecting Your Investment

Often detectorists are disappointed when their new detector slowly becomes less and less responsive and seems to have lost some of its original peak performance. You can help avoid this from happening to your detector by following these basic care and protection guidelines:

- Operate your detector exactly as recommended in this Operator Instruction Manual.
- Use only high-quality alkaline batteries of the correct voltage. Never substitute a different voltage. When using a Ni-Cad battery, always use a separate convertible pack with the proper voltage output for the detector's design.
- Remove the battery from the detector after each use. This will prevent damage to the detector if the battery leaks.
- The searchcoil cable is hard-wired to the searchcoil and protected by a strain relief. Inspect the strain relief frequently to make sure it is firmly attached and intact.
- Keep cables properly wound around the pole stems and protect them during use. Floppy, pinched, or cables that become snagged during use may short, causing erratic noises or unnecessary replacement of the searchcoil.
- Sweep the searchcoil carefully, especially when using around rocks and building foundations. Avoid hitting the searchcoil against hard, solid objects and surfaces.
- Keep your searchcoil slightly off of the ground during the sweep, especially when using in gravel or hard, rocky dirt.
- Always use a properly designed protective scuff cover on the searchcoil. (See "Optional Accessories" in the next section.)
- Remove and clean out scuff covers periodically to avoid buildup of mineralized dirt particles which will affect performance.

- The searchcoil is waterproof and can be submerged in either fresh or salt water. After the searchcoil is used in salt water, rinse it and the lower stem assembly well with fresh water to prevent corrosion of the metal parts.
- The searchcoil is waterproof but the electronics are not, so always prevent any moisture or water from entering the control housing and never allow the cable connectors to become submerged in water.
- If working in or near water, or if there is a possibility of rain, use a protective weather resistant pouch or plastic bag to cover the control housing. Make sure it can "breathe" in order to ensure against condensation buildup inside.
- After each use, clean the detector with a soft cloth to remove dust, moisture, or other contaminants.
- When transporting the detector in a car during hot weather, store it on the floor of the passenger compartment if possible. Using a carry bag gives additional protection. In any case, never allow the detector to roll around unprotected in the trunk or back of a pickup truck.
- Protect your detector from dust, moisture, and extreme temperatures during storage.
- When shipping, use the original factory carton or similar heavy-duty container and provide a minimum one inch of padding around all parts.
- Treat your detector as you would any sensitive electronic instrument. Though ruggedly constructed and designed to withstand the demands of normal treasure hunting, proper care is essential.

OPTIONAL ACCESSORIES

Tesoro metal detectors and genuine Tesoro accessories are sold only through independent Tesoro Authorized Dealers, who are almost always metal detectorists themselves. They can answer your questions about your Tesoro detector, what accessories may be helpful and about metal detecting in general.

See your Tesoro Authorized Dealer for more information and prices on optional accessories.

Scuff Covers

We highly recommend using a scuff cover to protect your searchcoil at all times. The scuff cover for the Cortés fitted with the 9 x 8 searchcoil is Tesoro Part # SCUF-9x8.

Searchcoils

The 9 x 8 concentric searchcoil provided with the Cortés is designed for best all-around performance. Optional searchcoils may add to your detector's performance.

Smaller searchcoils give better "target separation"—that is, more distinct target response for metal objects buried closely together—which is very useful when hunting trashy sites. Very small searchcoils can deliver the best response and depth to small targets such as fine gold chains with some sacrifice in depth on larger objects. Larger searchcoils give a wider sweep, covering more ground, and provide greater depth especially on larger objects; however, they may not detect some very small objects such as half dimes and will have difficulty in very trashy areas.

Wide scan searchcoils ignore ground mineralization better than concentric searchcoils and may offer improved performance in extreme ground conditions.

Selecting the right optional searchcoil depends on factors such as what you are searching for and search site conditions. No one searchcoil is better than all the rest. Several optional interchangeable searchcoils are available for the Cortés. They are all easy to mount and require no special tools. See the following list of these searchcoils with the Tesoro part # and description.

Tesoro Searchcoils

Tesoro Part #	Description
COIL-4RC	4" round concentric (closed center, white)
COIL-7RC	7" round concentric (closed center, white)
COIL-7RW	7" round wide scan (closed center, white)
COIL-8RC	8" round concentric (open center, brown)
COIL-8.5RW	8½" round wide scan (closed center, white)
COIL-10.5RC	10½" round concentric (closed center, white)
COIL-11RW	11" round wide scan (closed center, white)
COIL-12x10-CL	12 x 10 concentric (spoked, white)

Optional scuff covers are also available for any Tesoro searchcoil.

Headphones

Most metal detectorists prefer to use headphones instead of the detector's built-in speaker. Headphones help block out background noise (such as wind) and make it easier to hear faint signals. Headphones with a built-in volume control will allow you to adjust the sound volume to your preference.

SPECIFICATIONS

Operating Frequency	10 kHz
Searchcoil Type	Concentric
Searchcoil Size	9 x 8
Cable Length	Approx. 3’
Audio Frequency Target ID Tones	Approx. 350 to 800 Hz
Audio Frequency All Metal VCO	Approx. 350 to 950 Hz
Audio Output	2¼” speaker and headphone jack
Headphone Compatibility	¼” stereo plug
Weight (may vary slightly)	2.98 lbs.
Battery Requirement	Eight AA (alkaline)
Battery Life (typical)	10 to 20 hours
Optimum Temperature Range	30° to 100° F
Optimum Humidity	0 to 75% R.H.
Operating Modes	No-motion All Metal
	Silent Search Discriminate
	Sum
	Notch Narrow/Wide

Metal Detectorist's Code of Ethics

1. Always check federal, state, county and local laws before searching. It is your responsibility to "know the law."
2. Abide by all laws, ordinances or regulations that may govern your search and the area you will be in.
3. Never trespass. Always obtain permission prior to entering private property, mineral claims, or underwater salvage leases.
4. Do not damage, deface, destroy, or vandalize any property, including ghost towns and deserted structures, and never tamper with any equipment at the site.
5. Never litter. Always pack out what you take in and remove all trash dug in your search.
6. Fill all holes, regardless how remote the location. Never dig in a way that will damage, be damaging to, or kill any vegetation.
7. Do not build fires, camp at or park in non-designated or restricted areas.
8. Leave all gates and other accesses to land as found.
9. Never contaminate wells, creeks, or any other water supplies.
10. Be courteous, considerate, and thoughtful at all times.
11. Report the discovery of any items of historic significance to the local historical society or proper authorities.
12. Uphold all finders, search and salvage agreements.
13. Promote responsible historical research and artifact recovery and the sharing of knowledge with others.

WARRANTY SERVICE

Your Tesoro metal detector is covered by a Limited Lifetime Warranty, the terms of which are listed below. If your metal detector should require service, you may return it to the Tesoro factory at the address below.

LIMITED LIFETIME WARRANTY

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

This instrument is warranted to be free of defects in material and workmanship as long as it is owned by the original consumer purchaser. This warranty is not transferable and is valid only if the warranty registration card has been completed and mailed within 10 days of purchase.

TESORO will, at its option, repair or replace any instrument covered by this warranty, without charge, except for transportation charges, at its factory in Prescott, Arizona.

This warranty excludes batteries, damage caused by leaky batteries, cable breakage due to flexing on body mount units, and wear of the searchcoil housing. Also excluded are instruments which have been abused, altered, or repaired by an unauthorized party.

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