





The name that means Treasure

µMAX Cutlass OPERATOR INSTRUCTION MANUAL

CONGRATULATIONS!

Your new Tesoro µMAX Cutlass 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 µMAX 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 understand fully 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 µMAX Cutlass 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

INTRODUCTION

To be successful in treasure hunting with a detector you must:

- Use a high-performance metal detector designed for the type of treasure hunting you will be doing.
- Learn how to use your metal detector properly.
- Search where there is buried treasure to be found.
- Be persistent.

The µMAX Cutlass was designed for coin hunting and all-purpose use. It will find both smaller and deeper objects under good conditions. Because it is sensitive to all metals, it can be used on a variety of jewelry, relics, gold etc. When using this machine you will also find unwanted "trash" metal such as nails, foil, pull tabs, etc. just as you would with any detector.

This OPERATOR INSTRUCTION MANUAL is designed to help you learn to operate the detector properly for maximum performance in various search conditions. Operating instruction are found in two sections: GETTING STARTED and OPERATING TECHNIQUES. If you are new to metal detecting, we highly recommend reading and following the entire GETTING STARTED section to develop the "feel" of your detector. Then, study and practice the OPERATING TECHNIQUES section to get the best performance from your detector. If you are an experienced detectorist and are familiar with the concepts of metal detecting, you may want to go directly to the OPERATING TECHNIQUES section. Whatever your prior detecting experience is, the more skilled you become at operating this detector, the more rewarding your results will be.

If you are new to treasure hunting with metal detectors, keep in mind that if there are no valuable metal objects buried where you are searching, it won't matter how good your metal detector is or how skilled and persistent you are. To learn more about where to search for treasure check with your local metal detector dealer or book-seller for magazines and books on treasure hunting.

GENERAL DESCRIPTION

The µMAX Cutlass - part of Tesoro's µMAX Series of metal detectors - is one of the first of its kind: an ultra-light weight, compact detector that packs the power and performance of a standard size detector. By eliminating troublesome adjustments and complicated features that cause a loss of performance when not used properly, Tesoro has created an easy to operate, grab and go detector that's perfect for sport and travel.

The µMAX Cutlass is a Transmitter-Receiver (TR) type of detector that operates in the Very Low Frequency (VLF) portion of the Radio Frequency (RF) spectrum. The µMAX Cutlass is a "turn-on-and-go" detector that uses only two controls to provide full VLF capabilities.

The performance of the µMAX Cutlass will satisfy the requirements of the serious detectorists, whether experienced or novice. At the centre of the µMAX Cutlass is a special Hybrid circuit board developed from Surface Mount Technology that incorporates Tesoro's proven High Gain Sensitivity Circuitry. This circuit board helps provide greater depth and more sensitivity to smaller, less conductive metal objects or "targets" such as fine gold jewelry. Its automatic ground rejection circuitry is preset to allow operating in virtually any ground mineralization you might encounter.* The All Metal and Discriminate Modes are motion-based Silent Search, meaning the searchcoil must be moving to detect a metallic target. The motion required, however, is so slight that pinpointing a target is very easy.

The electronic miniaturization of Surface Mount Technology permits the complex, powerful circuitry of the µMAX detectors to fit into a very small space. The result is a detector that is so incredibly light there is no need to body mount the control housing. This exclusive design feature adds to the µMAX Cutlass' ease of use and makes those longer searches more enjoyable.

The µMAX Cutlass comes with an 8" concentric searchcoil for greater depth. Optional search coils are also available. (see OPTIONAL ACCESSORIES).

*Operation may be more difficult in black sand or certain other extreme conditions that pose problems for metal detectors.

GETTING STARTED - UNPACKING THE BOX

Your µMAX Cutlass was shipped with the following:

1 Upper Pole Assembly

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

1 Lower Pole Assembly

Fully assembled, including middle pole stem with knurled nut, lower pole stem, and nylon pole tip complete with two thick friction washers, mounting screw, lock washer and thumb nut.

1 8" round, concentric searchcoil with 3' cable

1 9 Volt Alkaline Battery

1 Extra set of two thin friction washers

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.*

Assembly of the µMAX Cutlass is simple and requires no special tools. Just Install the battery, mount the searchcoil on the lower pole assembly, connect the two 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!

INSTALL THE BATTERY

Your µMAX Cutlass is equipped with an automatic battery test circuit so that you can always be sure you are getting top performance. The battery should be checked after the detector has been on for about 10 minutes, and then periodically when used for long durations. For more detailed information go to *Performing the Audio Battery Test* under TUNING YOUR DETECTOR.

To install or replace the battery, first remove the battery door from the back of the control housing. Do this by pressing your thumb firmly on the louvered square - at the bottom of the battery door - and sliding the battery door upward (in the direction of the arrow) while pushing.

Connect a fresh single 9 volt alkaline battery to the battery lead terminals. Make certain the polarity snaps to fit properly. A poor connection may cause the detector to act erratically or fail to operate completely.

Place the battery into the battery compartment laying the terminal end against the foam pad. Replace the battery door by sliding it into place making sure the upper mount slots are in line and the lock tongue is snapped into place.

ASSEMBLING YOUR DETECTOR

1. On the lower pole assembly, grasp the pole tip firmly in one hand. With the other hand, fully depress the two spring buttons on the opposite end of the assembly.
2. Pull the middle stem out far enough for the spring buttons to click into the first set of the adjustment holes - locking the assembly into place again.
3. Remove the mounting screw and thumb nut from the black nylon pole tip.
4. Insert the pole tip between the mounting ears and 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, however, it may be necessary to use the thin friction washers instead.

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

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

7. On the upper pole assembly, depress the two spring buttons and slide the upper assembly into the lower pole assembly until the spring buttons click into the holes - locking the two assemblies into place. Tighten the knurled nut to secure the two assemblies together.

Note: The knurled nut must be loosened in order to connect or detach the two pole pieces. Turning the knurled nut so it moves toward the lower pole as it turns loosens it and vice versa.

8. 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 search coil. 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.

9. Plug the male cable end into the female connector on the control housing and tighten the cable thumb nut. You are finished!

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 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 help you use your new µMAX Cutlass metal detector right away, even if you have never used a metal detector before. Just follow each easy step carefully and you'll quickly see how the basic detector functions work. You'll also be introduced to some important detecting concepts on the way.

Here's what you will need:

1. Your fully assembled µMAX Cutlass metal detector
2. Three newer coins: a penny*, a nickel and a quarter
3. A non-metal table or counter surface
4. Approximately 15 minutes to complete the QuickStart

Here's what you will do:

1. Perform an Audio Battery Test
2. Adjust the SENSITIVITY control
3. Perform an air test in All Metal Mode
4. Perform an air test in Discriminate Mode

Step 1 - Prepare for the QuickStart

Place your assembled µMAX Cutlass on the non-metal surface. Make sure there are no metal objects near the coil. Remove any jewelry from your hands and wrists.

Start with these control settings:

- DISC LEVEL control set to ALL METAL
- SENSITIVTY control set to POWER OFF

Step 2 - Perform an Audio Battery Test

- Turn the SENSIIVITY control from POWER OFF to MIN

You will hear a tone for a few seconds as the battery is automatically tested. When the tone stops the detector is on the controls are ready for adjusting.

Function Demonstrated: How the battery test tone will tell you the battery is working each time the detector is turned on.

NOTE: You should always perform the Audio Battery Test with Mode Switch set to DISC.

Step 3 - Adjust the SENSITIVITY control

- Turn the SENSITIVITY control from MIN to 8

This is a good setting to begin with each time you use your detector. Leave the control at this setting for the rest of the QuickStart.

Function Demonstrated: Where to set the SENSITIVITY control for basic operation.

Step 4 - Perform an air test in All Metal Mode

- Leave the DISC LEVEL control set to ALL METAL
- Leave the SENSITIVITY control set to 8

Hold the quarter in your hand and move the quarter from side to side about 12 inches from the front of the searchcoil bottom.

Gradually move the quarter closer to the searchcoil - as you continue to move it back and forth - until you hear the "beep". This beep is called the "target response sound".

Continue to move the coin to test the target response sound. As you do this, try varying the distance or angle of the coin. Try varying the speed you move the coin. Try holding the cold still and then moving it slightly. Notice the differences in the target response sound with each change.

Repeat the test with each coin. Notice that the detector responds to each coin although the target response sound may vary. Your detector will respond to objects made of any kind of metal if there is movement between the object and the detector. Operating your detector in this way is called a "Silent Search All Metal Mode".

Step 5 - Perform an air test in Discriminate Mode

- Turn the DISC LEVEL control from ALL METAL to MAX

Pass the quarter back and forth in front of the searchcoil bottom. Notice the sound as the coin nears the center of the coil. Now, try the nickel and then the penny. Notice there is no sound with these two coins. The ability of a metal detector to ignore certain types of metal that it encounters is called "discrimination". Using your detector in this way is called a "Silent Search Discriminate Mode".

Control settings to ignore copper and nickel objects will be:

- DISC LEVEL - MAX
- SENSITIVITY - any

- Now move the DISC LEVEL control from MAX to 7

Pass each of the three coins in front of the coil. Notice the quarter and the penny now cause a target response sound.

Control settings to ignore most nickel can be:

- DISC LEVEL - 7
- SENSITIVITY - any

- Now move the DISC LEVEL control from 7 to 4

Pass each of the three coins in front of the searchcoil. Notice all three coins now cause a target response sound.

Control settings to include newer US coins while excluding most iron objects can be:

- DISC LEVEL - 4
- SENSITIVITY - any

Functions Demonstrated: How the Discriminate Mode can be used to distinguish between different types of metal. By adjusting the DISC LEVEL control you can select what type of metal your detector will ignore.

Conclusion

Well done! You have finished the QuickStart Guide and have operated many of the basic detecting features of the µMAX Cutlass. You have also been introduced to the concepts of "Target response sound" and "target discrimination". Now you can begin your journey into the art of metal detecting by actually using your detector to find buried metal. But first, a word about air tests.

The air tests in the QuickStart are of limited value. Metal detectors perform differently in air tests than when in actual use "in the field". Tesoro detectors are specifically designed to deliver the best performance in the field.

The OPERATING TECHNIQUES and TUNING YOUR DETECTOR sections will give you more detailed information on how to set your detector's controls for the best results, especially when using the Discrimination Mode.

The only way you can become proficient at using your detector to find buried treasure is to *use it in the field and learn from experience!* However, we strongly suggest that you read this entire manual to become familiar with all of the features as you continue to use your detector. You

However, we strongly suggest that you read this entire manual to become familiar with all of the features as you continue to use your detector. You have the finest tool available, now all you need is the skill that comes from experience.

TO TURN YOUR DETECTOR OFF:

- **TURN THE SENSITIVITY CONTROL TO POWER OFF**

TO TURN YOUR DETECTOR ON:

- **TURN THE SENSITIVITY CONTROL TO MIN**

OPERATING TECHNIQUES - CONTROLS

The µMAX Cutlass has only two controls, both are mounted on the front panel of the housing for fingertip adjustment. How the controls should be set for peak performance will depend on various search conditions such as ground mineral content, the type of metal you are searching for, and so forth. Use the information in this section and the TUNING YOUR DETECTOR section as a basis for setting the controls on your detector. Using your detector in the field will allow you to learn the detector's responses to these conditions and will guide you in fine tuning the detector's controls.

SENSITIVITY Control

This rotary switch control has three functions:

- Turns the detector ON and OFF
- Activates the automatic Audio Battery Test
- Adjusts the detector's Sensitivity Level

Turning the SENSITIVITY knob counterclockwise completely until it "clicks" turns the detector off by disconnecting the battery from the circuit. The detector should always be turned off when not in use.

Turning the SENSITIVITY knob clockwise past the initial "click" turns the detector on and actives the automatic Audio Battery Test circuit, which will sound that indicates the battery's condition. When the Audio Battery Test is over, the detector's Sensitivity Level can be adjusted.

Turning the SENSITIVITY knob clockwise increases the detector's Sensitivity Level. The level is the normal range up to the number 10. This normal range corresponds with the normal Sensitivity on standard detectors. Turning the SENSITIVITY knob past 10 into the orange area puts the Sensitivity into the MAXBoost range found only the µMAX detectors.

DISC LEVEL Control

This rotary switch control has two functions:

- Sets the detector's operating mode.
- Adjusts the detector's Discrimination Level.

Turning the DISC LEVEL knob completely counterclockwise until it "clicks" puts the detector into the All Metal Mode. Once the detector is in the All Metal Mode no further adjust is made with the DISC LEVEL control.

Turning the DISC LEVEL knob clockwise past the initial "click" puts the detector into the Discriminate Mode. Once the detector is in the Discriminate Mode the DISC LEVEL control is used to adjust the detector's Discrimination Level.

Turning the DISC LEVEL knob clockwise increases the detector's Discrimination Level.

Controlling Audio Volume

The speaker in the µMAX does not have a volume control. The volume should be sufficient to accurately hear the target response sound in most environments. If more or less volume is required in your particular situation we recommend using a set of good quality headphones with a built in volume control.

TUNING YOUR DETECTOR

Since the most troublesome adjustments of the standard detectors have been automated in the µMAX Cutlass, tuning this detector is simply a matter of:

1. Selecting the operating mode using the DISC LEVEL control.
2. Setting the Sensitivity Level using the SENSITIVITY control.
3. Setting the Discriminate Level using the DISC LEVEL control.

Setting the Discriminate Level does not apply to All Metal Mode.

Selecting the proper operating mode

The µMAX Cutlass offers two operating modes, All Metal Mode and Discriminate Mode. Both of these modes are "Silent Search". This means that the detector will make no sound until it encounters a metal target. Both modes require that the searchcoil be moving slightly for target detection. Both modes are also "mineral free". This means the detector's circuitry has been factor preset to ignore all but the most extreme ground mineral conditions.

The All Metal Mode, as the name implies, will detect all types of metallic targets. This mode is excellent for relic hunting or ghost town searching, as many valuable, desirable artifacts may be made of iron or steel. This mode is also good for beach hunting where the sand allows easy digging and time wasted on digging up trash metal objects is not a major concern.

The Discriminate Mode will allow you to control the detector's response to most of the common trash metal objects found in school yards, parks, and beaches. Discriminate mode is generally used for "coin shooting" such areas where you prefer to avoid wasting time digging up common trash metal such as pull-tabs and aluminum cans. The Discrimination Level you use will determine what types of metal your detector will ignore.

Setting the Sensitivity Level

In lightly to moderately mineralized ground, you can usually set the SENSITIVITY control as high as 8 to 10 (normal maximum setting). In the right conditions you can move the SENSITIVITY into the MAXBoost area for increased depth.

To adjust the Sensitivity Level to your search conditions, turn the control clockwise as far as possible until the detector just begins to "chirp" intermittently. If the chirping is too frequent, simply turn the control counterclockwise just enough to cause the chirping to subside. Once set, this control should not require readjusting unless site conditions change.

Occasionally you may need to reduce the setting to eliminate "false signals" when encountering difficult conditions such as highly mineralized ground on trashy sites or if there are sources of electrical interference present. These false signals are generally short, choppy sounds and can easily be distinguished from a good target response sound. Extreme conditions such as salt-wet sand may require you to lower your Sensitivity setting into the 2 to 5 range.

Setting the Sensitivity Level in MAXBoost

The MAXBoost feature is a high gain boost over and above the normal maximum of 10 and indicated by the orange area on the SENSITIVITY control. Using MAXBoost will cause no harm to your detector but, in certain conditions it can result in the annoying chirping sounds that may make it difficult to hear a good target response sound.

In ideal conditions MAXBoost can add inches of depth to your search with no chirping. In difficult conditions the extra depth will still be there but heavy chirping may make the feature to difficult to use. You must determine when and how much of the MAXboost feature to use for your search site conditions.

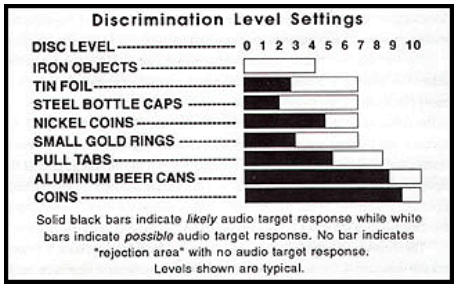
Setting the Discrimination Level

The DISC LEVEL control is used to adjust the detector's response to unwanted metallic trash when operating in the Discriminate Mode. At the lowest setting, the detector will ignore most iron objects, but will still respond to light foil, bottle caps, pull-tabs and most other metal objects. As the Discrimination Level is increased, more of these trash metal objects are ignored and give no target response.

The DISC LEVEL should be set to your desired "rejection level" for the particular area you are searching. We recommend starting at a low setting if you are unsure of how much trash is in the area. Adjust the level higher if you find yourself digging more trash then you like. Remember that with any metal detector, you will lose target response to small gold rings and nickels when discrimination is set at the pull-tab rejection level. So, digging some trash will increase your number of good finds.

The below diagram "DISC LEVEL - Discrimination Level Settings" shows the settings where many of the common metal objects are ignored by a typical detector. Each detector can vary a little - due to manufacturing tolerance - so you should experiment with your detector and become familiar with its rejection levels for these trash metal objects.

Earlier motion detectors that operated with a continuous "threshold" sound would give the user a definite indication of trash metal by either "nulling" completely (no sound made temporarily) or by generating short, choppy sounds. Since the µMAX Cutlass' Discriminate Mode is Silent Search and operates without threshold sound, there is no nulling to indicate that the area is extremely trashy. When searching in the Discriminate Mode we recommend that you periodically switch to All Metal Mode and check the area you are searching to get an idea of how much trash is really there.



Performing the Audio Battery Test

Your µMAX Cutlass is equipped with an automatic battery test circuit so that you can always be sure you are getting top performance from it. The battery should be checked after the detector has been on for about 10 minutes and then periodically if you are using it for long periods.

To activate the Audio Battery Test, simply turn the detector off momentarily and then back on again. If the battery is fresh, the detector should emit a continuous and loud "beep" sound that lasts for about 4 or 5 seconds, and then slowly fades into silence. As the battery ages, this sound is less intense and fades out more quickly. When you hear only a brief "buzz" or no sound at all, replace the battery with a fresh one.

If you prefer, a rechargeable Nickel-Cadmium (Ni-Cad) battery can be substitute for the standard 9 volt alkaline battery. Individual 9 volt size Ni-Cad cells, as well as the chargers for them, are readily available at most electronic supply stores. They are installed into your detector in the same manner as non-rechargeable batteries. The Battery Test sound on a Ni-Cad will be weaker than an alkaline in the beginning, but will not weaken as much with use.

FIELD USE

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 µMAX Bandido in its two different operating modes. Check the area in All Metal Mode first to be sure its 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 best tools to help you develop your metal detecting skills.

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. Swing the detector from side to side in about a three foot arc, overlapping succeeding strokes well. This motion is called a "sweep." The µMAX Cutlass 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.

Recognizing the target response sound

When operating in the Discriminate Mode, some "false signals" may be caused by 1) heavy concentrations of trash metal objects, 2) very large trash metal objects, or 3) electrical interference. These signals are generally short, choppy sounds and sound different than "good signals" (good target response sounds).

At the end of your sweep, as you the reverse the coil direction, the detector is most susceptible to trash induced noise. There are two ways to

tell whether these sounds are good deep signals or trash "noise." The first is by repeatability. Trash induced noises will not be regular as you sweep the coil over the suspected target several times, whereas a good target response will be repeatable. The second method is to switch to All Metal Mode and check the target response sound. If the response is weak, it may well be a deep, good target; but if the response is very strong, it is probably trash. Note that a coin close to the surface can give a double beep sound, but it is regular and repeatable. Raising the coil an inch or two will restore the single beep on surface targets.

When searching in the Discriminate Mode, it is best not to use a higher DISC LEVEL setting than necessary. Nickels and most smaller rings are rejected when the DISC LEVEL is set to reject pull tabs on any metal detector that is a TR Discriminator like the µMAX Cutlass. If you don't dig any junk at all, you are surely passing up a lot of good finds as well. Set the DISC LEVEL only high enough to suit the conditions where you are searching. If there is any doubt whether a target is good or not, *dig it.*

Pinpointing a Target

Pinpointing a target is probably best accomplished by "X-ing" the target with the searchcoil. Remember that the detector will beep just as the target passes under the center of the searchcoil. Swing 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 - under the coil center - where the detector beeps. 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.

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.

Target recovery

If the target is shallow and the soil is soft, you may be able to "probe" and find the exact location of the target before you dig it. Since filling all holes after you recover the target is so important, digging a small precise hole is best.

If the target is deep, you may need to dig a larger hole. As you dig, occasionally check the hole with your detector to see if you have moved the object, can probe it, or have already dug it. Be sure to fill all holes after you recover the target.

Be sure to fill all holes after you recover the target. Your dealer should be able to explain the preferred methods of digging in your area. Two methods are shown on the next two pages that work most everywhere. Be sure to protect your hobby by leaving the site cleaner than you found it and with *all the holes filled.*

RECOMMENDED RECOVERY METHODS

GENERAL INFORMATION - Optional Accessories

Headphones

Many metal detectorists prefer to use headphones when treasure hunting. Headphones help block out extraneous sounds such as wind noise and also make it easier to hear faint signals. The µMAX Cutlass is equipped with a ¼ inch stereo phone jack. If your favorite headphones have a different size plug, you can use them with a ¼ inch adapter. Since there is no volume control on the detector, only headphones with a built-in volume control will allow volume adjustment for your headphone volume.

Optional Searchcoils

The standard 8 inch round, open center, concentric searchcoil is designed for best all-around performance. Larger searchcoils can give a wider sweep (covering more ground) and more depth especially on larger objects. Smaller searchcoils give better "target separation" - that is, more distinct target response sounds for metal objects buried closely together - which can be useful in hunting in very trashy sites. Very small searchcoils can deliver better response to small targets such as fine gold chains with some sacrifice in depth.

Several optional, high-sensitivity Tesoro searchcoils are available for µMAX. All are round and range in size from 4 inch diameter to 11 inch diameter and come in concentric or wide scan (also called "double D"). They are interchangeable and easy to mount with no special tools required.

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

General Care and Use

General Care

The µMAX Cutlass is a sturdy instrument but it is not designed to withstand abuse. There are several important "DO NOTs" that are important to consider. DO NOT use it to pry rocks loose or to beat bushes out of the way. The searchcoil is waterproof but the electronics box is not, so DO NOT drop the machine or 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 wood stove, in an attic). When transporting it in a car during hot weather, store it on the floor of the passenger compartment if possible. In any case, DO NOT store it in the back of a hatchback style car where the sun could shine on it and high temperatures could build up. 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 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.

TESORO Metal Detectors are sold only through authorized independent dealers, who almost always metal detect themselves. They can provide you with much needed information about how to use your detector, and answer most of your questions about detecting in general.

HAPPY HUNTING
AND THANKS FOR CHOOSING A TESORO.

Specifications

Operating Frequency	12 kHz
Searchcoil Type	Round, open center concentric
Searchcoil Size	8" diameter
Cable Length	Approx. 3’
Audio Frequency	Approx. 760 Hz
Audio Output	1½" speaker and headphone jack
Headphone Compatibility	¼" stereo plug
Weight (may vary slightly)	2.2 lbs.
Battery Requirement	One 9 volt DC (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
Tuning Modes	Auto Tune (fast)
	Normal Tune (manual)

µMAX CUTLASS FEATURES

- **High Gain Sensitivity Circuitry—**designed specifically to deliver greater depth, sensitivity and stability.
- **MAXBoost Feature—**extra power of super high gain can add inches to discrimination search depth in ideal conditions.
- **Ultra-light Weight—**search longer without fatigue.
- **True All-Purpose Detecting—**delivers high performance in the widest variety of detecting uses: gold nuggets, coins, relics, caches, competition.
- **Treasure Hunt Everywhere—**adjustable ground balancing allows true mineral free operation in all operating modes.
- **3 piece Knockdown Pole—**compact for storage and travel.
- **Two Operating Modes—**motion-based All Metal and Discriminate.
- **Two Tuning Modes—**Modes—Normal (manual) and Automatic (fast.)
- **High-sensitivity Searchcoil—**8 inch open center concentric for broad sweep, good pinpointing and deep ground penetration.
- **Economical Use—**up to 20 hours plus on a single battery.
- **Tesoro Lifetime Warranty—**our pledge of quality to you.

What it doesn't have.

A hip mount, arm strap or battery recharging system. These kinds of "built-in accessories" are simply unnecessary in a µMAX detector.

A big, heavy, high-powered speaker. A small, ultra-light machine like the µMAX has no room for a big, heavy speaker. A machine that gets good life out of a single 9 volt battery does not have lots of extra battery power to blast you with sound. Though the µMAX speaker is loud enough for most environements, you may prefer to use headphones. The µMAX will drive standard headphones loud without excessive battery drain.

The simplicity and performance of the µMAX Cutlass make it ideal for the beginner who wants a machine he or she will never outgrow. It is also ideal for the detectorist on a budget who doesn't want to settle for mediocre results.

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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