





The name that means Treasure

Golden Sabre OPERATOR INSTRUCTION MANUAL

CONGRATULATIONS!

Your new TESORO Metal Detector was 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. I wish we could share these experiences with you, and we wish you the best of success.

Your TESORO Metal Detector is capable of meeting your needs in any conceivable treasure hunting situation. As with any detector, operating skill and familiarity with this instrument are probably the limiting factors in determining how successful you will be. We recommend that you read this manual and understand fully before attempting to use the instrument in the field. As you become more familiar with your detector through practice, your rate of success will increase dramatically.

The TESORO Metal Detector is a precision electronic instrument, which will last for years if properly cared for. Treat it right and it won't let you down.

Good Hunting! Jack Gifford

GENERAL DESCRIPTION

The Golden Sabre is high performance VLF metal detector that is capable of rejecting ground mineralization and buried metallic trash simultaneously. It also includes a separately variable notch filter as a part of its discriminate circuitry to enable the operator to either reject a band of targets above the regular discriminate level or to accept only a band of desired targets. The Golden Sabre's Notch Filter can therefore be adjusted to reject pulltabs while still detecting nickels and small gold rings, or can be set to detect only targets likely to be a desired item such as a ring or token. Design emphasis was placed on performance and ease of use while minimizing or eliminating those troublesome adjustments that could cause a loss of performance if not used properly.

The operation of the detector is based on motion, regardless of whether the All Metal or Discriminate mode is selected. This means that the searchcoil must be moving slightly to detect a target. The motion required is so slight that pinpointing is possible in this mode, however a no motion pinpoint mode is included, which with the 8 inch open center searchcoil makes pinpointing a very simple task. The automatic ground rejection circuitry is set to allow operation in virtually any mineralization you might encounter, although operation may be difficult in black sand.

The unit is furnished with an 8" open center concentric searchcoil. We feel that this coil will provide excellent performance in most situations. The open center greatly simplifies pinpointing.

The Golden Sabre can be used as a pole mounted arm rest unit, or as a body mount unit. It can be converted easily without tools.

As with any detector, the familiarity of the user with the instrument will have a great deal to do with how successful the treasure hunter is. We recommend that you read and understand this manual fully before attempting to use the instrument in the field.

Be sure to fill out and mail your warranty registration card to validate your warranty.

ASSEMBLY

The Golden Sabre can be assembled in either of two configurations or easily converted from one to the other. The electronic control housing can be mounted on the arm rest pole, or can be body mounted. Installation of the lower pole and coil is the same for either configuration.

1. Depress the two buttons on the upper end of the lower stem, and slide it into the upper stem. Push the lower stem up so that the buttons click into the third set of holes from the end of the upper stem.
2. Insert the pole tip between the mounting ears of the searchcoil, after removing the screw and thumb nut. Align the holes in the pole tip and those in the mounting ears.
3. Insert the coil mounting screw through the coil and pole tip. Be sure the internal lockwasher is on the screw head side. The screw head should be on the side of the searchcoil where the cable comes out.

4. Install the thumb nut on the screw and tighten by hand.
5. Wind the searchcoil cable around the pole. The connector will either be installed in the control housing or into the extender cable, depending on the configuration desired.

BODY MOUNT

1. Install the coil cable connector into the mating end of the extender cable. Tighten the connector by hand.
2. Hold the connectors against the pole, and clip the cable to the pole just above the connectors.
3. Install the extender cable into the mating connector on the bottom of the control housing. Tighten the connector by hand.
4. The control housing is equipped with a belt loop, but also includes two large holes in the upper chassis which can accommodate the spring clips of most readily available web staps.

NOTE: The extender cable will last much longer in the body mount configuration if some care is taken to spread the necessary flexing over a large area, rather than making a sharp bend away from the pole at the cable clip which would concentrate the flexing in a small area.

POLE MOUNT

1. Remove the knurled nut form the threaded stud on the bottom of the housing between the earphone jack and the coil connector.
2. Slide the belt bracket into the mounting clip on the top of the pole. It will probably be necessary to push up slightly on the belt bracket to help it over the bracket mounting screws. Make sure the threaded stud goes through the hole in the vertical foot at the end of the mounting bracket. Install the knurled nut on the stud and tighten by hand.
3. Install the coil connector into the mating connector on the control housing. Tighten by hand.
4. Store the extender cable and cable clip so they will be available if you desire to convert the unit to a body mount.

CONVERSION

Obviously, converting the detector from body mount configuration to pole mount is simply a matter of removing the extender cable and clip, installing the control housing on the mounting bracket, and reconnecting the coil connector to the control housing. Reverse the procedure to convert from pole to body mount.

If the detector is always going to be used as a body mount, the mounting bracket can be removed from the pole.

ADJUSTMENT

The searchcoil angle and stem length should be adjusted so that the unit is not uncomfortable or tiring after long periods of use. The stem length is adjusted by depressing the spring buttons and extending or shortening the pole till they click into the holes that give you the most comfortable setting. The coil should be about one inch above the ground while standing erect. Adjust the angle of the searchcoil, so that the coil is parallel to the ground. Tighten the searchcoil thumb nut by hand to maintain this setting.

The arm rest on the rear of the handle can be moved forward by removing the screws and nuts, and reinstalling the assembly into the most forward set of holes.

Specifications

Operating Frequency	12 kHz
Searchcoil Type	Concentric
Searchcoil Size	8" diameter
Audio Frequency	Approx. 375 Hz
Audio Output	2 1/4" speaker
Headphone Compatibility	1/4" stereo earphone jack
Weight (may vary slightly)	3 1/2 lbs.
Battery Requirement	12 volts DC (8 AA penlight batteries)
Battery Life (typical)	15 to 30 hours
Optimum Temperature Range	30° to 100° F
Optimum Humidity	0 to 75% R.H.
Operating Modes	All Metal
	Discriminate
	Notch Reject Discriminate
	Notch Accept Discriminate

TESORO Electronics, Inc., reserves the right to modify or improve the design without further notice.

CONTROLS

The control panel of the Golden Sabre is recessed into the chassis base, and a switch guard is installed across the open side. This protects the controls from being accidently mistuned by being hit with your arm, clothing, cables, etc., when the unit is used in the body mount configuration.

1. **ON/OFF, BATTERY TEST, SENSITIVITY CONTROL.** TThe primary function of this control is to reduce the detector's sensitivity to those influences that could make the operation more difficult for you. This knob can also be used to turn the power off and on. Turning the knob completely counterclockwise until it clicks disconnects the batteries from the circuit. When the power is first turned on (clockwise), the detector will automatically test its batteries, and give you an audible indication of their condition. Fresh batteries will also cause a loud audio response which will gradually decay into silence over a period of about 4 or 5 seconds. As the batteries age and become weaker, the initial audio response will be weaker, and will decay quicker. When the response is just a short buzz instead of a long beep, or when there is no audio response, it's time for new batteries. Many things can cause the response of the detector to become erratic as you are using it. Normally you will not hear any sound from the detector unless you pass the coil over a good target. Very large targets or a multitude of closely spared smaller rejected trash targets can cause the detector to emit choppy sputtering sounds. CB radios, radio and TV broadcasting antennas, intense mineralization changes, and other sources of electrical noise can also cause the detector to emit false signals. These signals will generally sound "chopped" and will not be repeatable so you will not have any trouble recognizing them. They can be distracting, though, and turning down the sensitivity control will help reduce them. This will also cause a small loss of target sensitivity, so always run the sensitivity control as high as you can, while still getting smooth operation.
2. **SEARCH MODE SWITCH.** This toggle switch is used to select the All Metal mode of operation or the Discriminate Mode. In All Metal, the detector will find not only the highly conductive non-ferrous metals, but will also find the ferrous metals. This mode would be ideal for relic hunting or ghost town searching, since many desirable artifacts (such as guns) are made of iron and steel. In the Discriminate mode, the detector's response to unwanted trash can be controlled to eliminate digging much of the common metallic trash items found in likely hunting spots. The detector may beep briefly when the switch is changed, but is ready for operation in the selected mode instantly.
3. **DISCRIMINATE LEVEL CONTROL.** This control is used to adjust the detector's response to unwanted metallic trash when used in the Discriminate mode. At the lowest setting "0", the detector will eliminate most iron objects, but will still respond in a positive manner to light foil, bottle caps, pull tabs and most other metallic items. As the knob setting is increased, response to more of these metallic trash items is reversed so that these objects give no response. The decal is labeled to show where some common metallic targets are rejected. Each detector can vary somewhat, so it would be a good idea to test your detector against various targets to determine exactly where they are rejected by your detector. Do this with the notch mode switch in the OFF position.
4. **NOTCH MODE SWITCH.** This toggle switch is used to select the function of the notch filter in the discriminator circuitry. In the reject mode, the target encompassed by the notch will be rejected, and in the accept mode, only those targets encompassed by the notch will be detected. The notch width is factor set to be just wide enough to include the common pull tabs and lift tabs, since rejecting these objects will be its primary use.
5. **NOTCH LEVEL CONTROL.** This control is used to adjust the notch filter response to the desired target level when using the notch discriminate modes. Turning the control completely counterclockwise until it clicks disconnects the notch filter. When using the notch discriminate modes, the notch level should always be above the discriminate level.

TUNING

Since the most troublesome adjustments of standard detectors have been automated in the Sabre, the tuning procedure for this detector is simply a matter of selecting the desired operating mode, setting the sensitivity level, and the discriminate levels.

Regardless of which mode you select, you should begin operation with maximum sensitivity. In most situations you encounter, you will be able to operate at this setting. If there are sources of electrical interference present, or if the area is extremely trashy or mineralized, your detector may give some false signals. These signals are generally short, choppy sounds which can easily be distinguished form a good target response. Turning down the Sensitivity control will eliminate most of these signals, if necessary.

SELECTING THE PROPER MODE OF OPERATION

The Golden Sabre offers two operating modes, All Metal and Discriminate. Both of these modes are mineral free and requires that the searchcoil be moving slightly for target detection. There is no "threshold" sound present as in most ordinary detectors.

The All Metal mode will detect all manner of metallic targets, as the name implies. This mode is excellent for relic hunting or ghost town searching. This mode is also good for beach hunting, where the sand allows easy digging.

The Discriminate mode will allow you to control the detector's response to most of the common metallic trash items found in most schools, parks, and beaches. This mode is generally used for coinshooting such areas to avoid having to dig most of this common trash. The Notch Filter controls allow you to control the response to the targets in three ways.

When the Notch Mode switch is in the off position, the amount of trash rejection is controlled by the Discriminate Level Control. With the Disc Level Control set at about 2 or 3, the detector should reject foil and ferrous targets, while detecting those targets whose phase response is higher than foil. As the control is increased, more of the remaining targets are rejected. With the control increased to about 6 or 7, all of the targets shown are rejected except the penny and quarter. Note that at this level, the nickel and small gold ring are also rejected as bad targets. Since small gold items may have a phase response as low as foil, you can see that operating a normal discriminator at the pulltab reject level can also cause you to miss a lot of valuable finds. The Notch Filter in the Golden Sabre can help you to overcome this inherent problem of normal

miss a lot of valuable finds. The Notch Filter in the Golden Sabre can help you to overcome this inherent problem of normal discriminators.

In the Notch Reject Mode, the response of the detector can be more closely controlled. The Discriminate level Control is used to set the lower cutoff level, for example, to eliminate ferrous targets, foil, and steel bottle caps. The Notch Filter is then used to reject the narrow band of targets containing pull tabs.

The Notch width is factory set to cover the range of most common pull tabs and lift rings would fall into, but some peculiar tabs may still be detected. If pull tabs have been chopped or mutilated by a lawnmower, the pieces may be detected as nickels, and of course, some valuable items may have the same phase response as pull tabs and be rejected. Still, the Notch Filter allows detection of nickels and small gold rings while rejecting almost all of the pull tab signals. The Notch level should always be set higher than the Disc level.

NOTE: It is possible to adjust the width of the Notch Filter, but we recommend for best result to leave it set as it comes from the factory. If it becomes necessary to readjust the Notch Width to suit particular circumstances, contact your dealer for details.

The Notch Accept Mode allows the detector to respond only to a narrow band of targets. This may be useful if you are searching for a particular target, such as a lost ring or treasure hunt token. It is also useful to help you classify or identify a target before digging.

The control panel decal is labeled to show the approximate location where some objects respond to Disc Level and Notch Level settings.

Each detector can vary somewhat due to manufacturing tolerance, so you should experiment with your detector and become familiar with the rejection levels for these trash items with your detector.

Earlier motion detectors that operated with "threshold" sound would give the user a definite indication of metallic trash by either nulling completely or by generating short, choppy sounds. Since the Golden Sabre operates without threshold sound, there is no nulling to indicate that the area is extremely trashy, but under such circumstances the detector will probably also emit some short chirpy sounds. These are easy to distinguish from the good target's longer cleaner sound.

FIELD USE

The detector should be held in a position that is comfortable for you. Swing the detector from side to side in about a three foot arc, overlapping succeeding strokes well. This motion is called a “sweep.” The Golden Sabre 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 in Discriminate may even cause a loss of depth in heavily mineralized locations.

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 unit in its various modes. Check the area in All Metal Mode first to be sure its clear of trash then bury the targets at least a foot apart, and from 2 to 6 inches deep to start. Make a map of the test bed 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 rate for best operation.

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 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.

When operating in the Discriminate Mode, some “false signals” may be caused by heavy concentrations of trash metal objects, by very large trash items, or by electrical interference. These signals will sound different than good target signals because they are generally short, choppy 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. Raising the coil an inch or two will also many times cause surface trash false signals to suddenly disappear, while good target responses just become fainter.

If the trash in an area is so heavy that you are getting lots of choppy sounding false signals, it might be good to change to a smaller coil. If this isn't feasible, you can probably get better results by slowing down your sweep speed, and using shorter sweeps. It would be good to hunt the area twice, the second time at right angles to the first time. This technique will probably allow detection of some targets that were hidden by trash the first time due to the sweep direction.

If there is any doubt whether a target is good or not, DIG IT.

If you don't dig any junk at all, you are surely passing up a lot of good finds, too. Set the DISC LEVEL only high enough to suit the conditions where you are searching, and use the Notch Filter if called for.

The Golden Sabre is furnished with an 8" concentric searchcoil with an open center. This coil will yield the best results for most coin hunting situations. Pinpointing is greatly simplified by an open center, since you can now see the actual point on the ground where you will dig instead of logging your eyes on the coil center and trying to follow the coil as you move it out of the way. Optional coils of 4", 7" and 11" are available to allow you to tailor the response of your detector to suit special situations.

The 4" and 7" coils are useful for coinshooting in extremely trashy locations and can actually greatly increase your number of good finds under such conditions, although some loss of depth will be experienced. The smaller coil will allow you

number of good finds under such conditions, although some loss of depth will be experienced. The smaller coil will allow you to detect coins and other good targets much closer to surface trash items. The 11" coil will yield about an extra inch in depth in most areas, and is an excellent coinshooting coil in relatively clean areas. The increased surface area makes pinpointing a little more difficult, and allows trash to hide the good targets a little easier. The 11" coil is also an excellent relic hunting coil and can provide greatly increased depth on larger targets, especially in the All Metal mode where surface junk won't hide the deep targets.

PINPOINTING

Pinpointing a target is usually accomplished by "X-ing" the target with the searchcoil. Remember that the detector will beep just as the target passes the center of the searchcoil. Swing the searchcoil over the target from size to side and then from front to back until you can "zero in" on the exact location of the coil center when the detector beeps. Slowing the sweep speed down will help you pick out the center of the X because the target response will be reduced at very slow speeds and it's easier to correlate the sound with the coil center a slower speeds.

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. In fact, you will be looking at the exact spot in the ground where you want to dig, because of the open coil center.

Reducing the Sensitivity and raising the searchcoil can also help pinpoint by narrowing the response to the target. Practice pinpointing often, and you will soon become more accurate and faster. Be sure to fill all holes after you recover the target. Your local dealer should be able to point out the preferred methods of digging in your area. Two methods are shown here which work most everywhere. Be sure to protect your hobby by leaving the site cleaner than you found it, and with all holes filled.

RECOMMENDED RECOVERY METHODS

Always obtain permission from the person in charge before hunting on private property, schoolyards, parks, churches, or state parks. Even when relic hunting in the woods, NEER LEAVE A HOLE!, or damage anything on the property.

PROTECT YOUR HOBBY - FILL ALL HOLES

BATTERY REPLACEMENT

The Golden Sabre is equipped with a automatic battery test circuit so that you can always be sure you are getting top performance from it. The batteries should be checked after the detector has been on for about 10 minutes, and then periodically as you are using it for long periods. To activate the battery test circuit, simply turn the detector off momentarily and then back on. The detector should beep loudly if the batteries are fresh. As the batteries age, the sound is less intense, and fades out quicker. When you hear just a brief buzz, or there is no audio at all, replace the batteries.

To replace the batteries, pull the large knobs on the battery door on the front of the unit. The entire door will pop out. Remove the battery pack from the detector, and then remove the batteries from the pack. Place the new penlight batteries into the pack, being sure that you observe the polarity indicators on the inside of the packs. Slide the pack back into the detector, making sure that the battery clip lead is connected to the pack. Install the battery door back onto the detector making sure the plungers are still pulled out. The door should fit over the screw heads and be completely flush with the front panel. Then push the plungers back in to lock the door in place.

Should you desire to do so, rechargeable Nickel-Cadmium batteries can be substituted for standard penlight cells. Individual AA size cells are readily available at most electronic supply stores, as well as the charges for them, and they can be inserted into the standard holder used in your detector. The initial battery check reading will be slightly lower, but will not drop as much with use, until the batteries are completely discharged.

GENERAL CARE AND USE

If the detector is to be stored for a long period of time, it is best to remove the battery pack from the detector. This will prevent internal damage to the detector if the batteries should leak.

The searchcoil is waterproof and may be submerged in either fresh or salt water. Caution should be exercised to prevent water from entering the chassis, where it could damage the electronic circuitry. After the coil is used in salt water, the coil and lower stem assembly should be rinsed well with fresh water to prevent corrosion of the metal parts. When used in the body mount configuration, you should not allow the cable connectors to be submerged. Several waterproof adapters are available through your dealer which will allow you to waterproof the connection between the searchcoil and the extender cable connectors.

There are several good books to help the beginner learn how to use the detector, where to search and how to recover a target without damaging the environment. A good coin shooter can recover a lot of finds and leave the area looking as though he had never been there. Above all, always fill your holes when you have recovered the target.

TESORO Metal Detectors are sold through independent dealers, who are almost always treasure hunters themselves. They can provide you with you much needed information about how to use your detector, how to probe, plug and dig in your locale, and answer most of your questions about treasure hunting in general.

The use of earphones will benefit you in two ways. Most earphones will very effectively block out most of the ambient noise, such as traffic noise and wind noise, which will enable you to better hear the fainter signals caused by the deeper targets. Obviously, the older, more valuable coins will probably be deeper than the ones which were lost last week, so you

should take advantage of anything that will help you hear the weaker signals. Secondly, using earphones will greatly extend the battery life, since it takes much less power to operate them. The Golden Sabre is not equipped with a volume control, but does have a limiting circuit in the earphone jack. If less volume is desired with earphones, you may want to use earphones with a built in volume control. Any good 8 to 16 ohm set with 1/4 inch stereo jack will do.

HAPPY HUNTING, and thank you for purchasing a TESORO.

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.

Under the copyright laws this documentation may not be copied, photocopied, reproduced, translated or reduced to any electronic or machine-readable form, in whole or in part, without the prior written consent of Tesoro Electronics Incorporated, except for the private use of a Silver Sabre Plus owner or operator, or in a manner otherwise described in this documentation.
© 1995-1996 Tesoro Electronics Incorporated. All rights reserved. Printed in the United States.

Tesoro Electronics, Inc. 715 White Spar Road Prescott, AZ, USA 86303 1-928-771-2646