



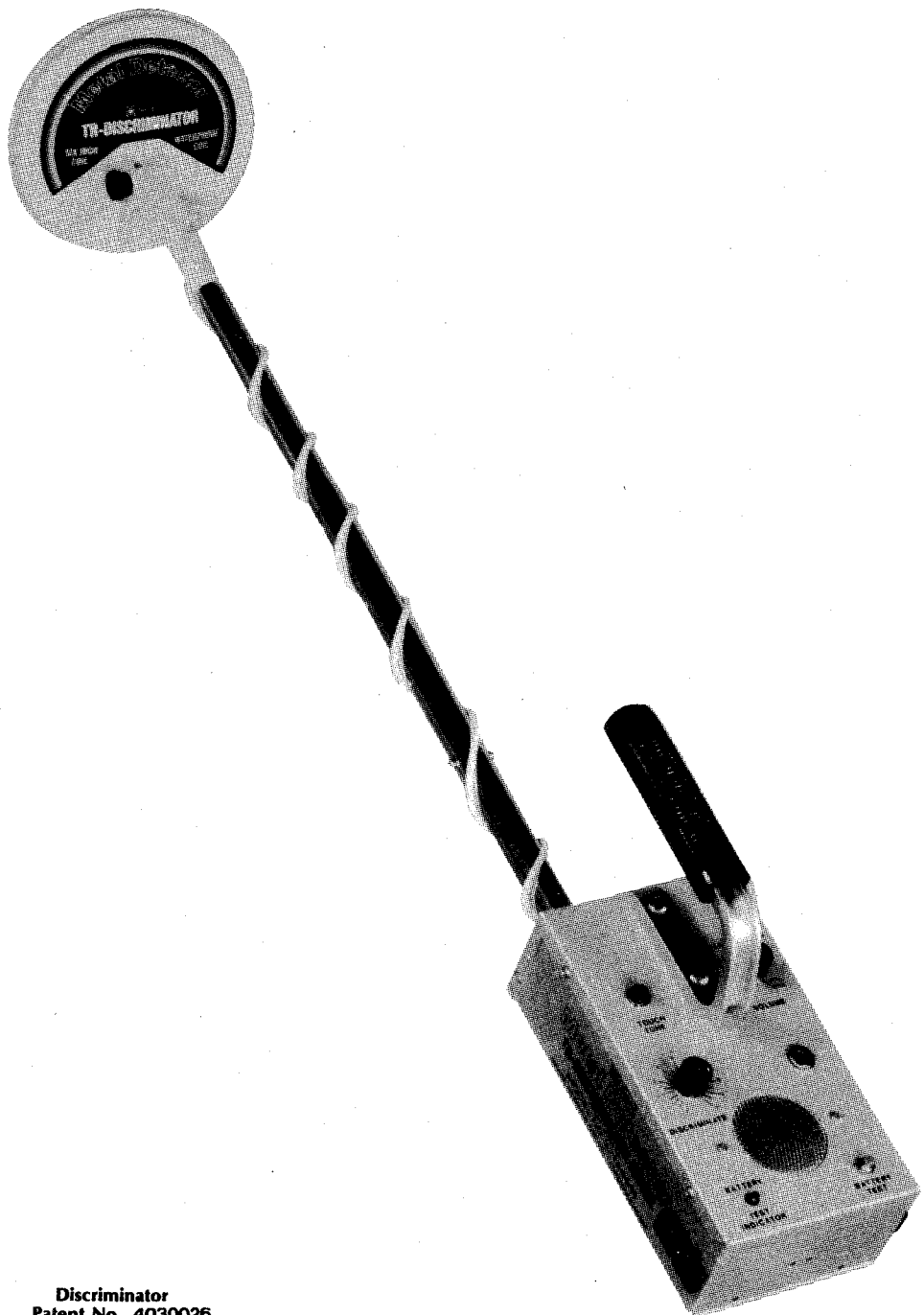
METAL DETECTOR

TOUCH TUNE
TR/Discriminator

MODEL NO.
321.596440

- assembly
- control description
- trouble shooting
- operating procedures
- maintenance

OWNER'S MANUAL



Discriminator
Patent No. 4030026

Familiarizing Yourself with Your Detector

TOUCH TUNE: This button tunes the detector. Simply press and release.

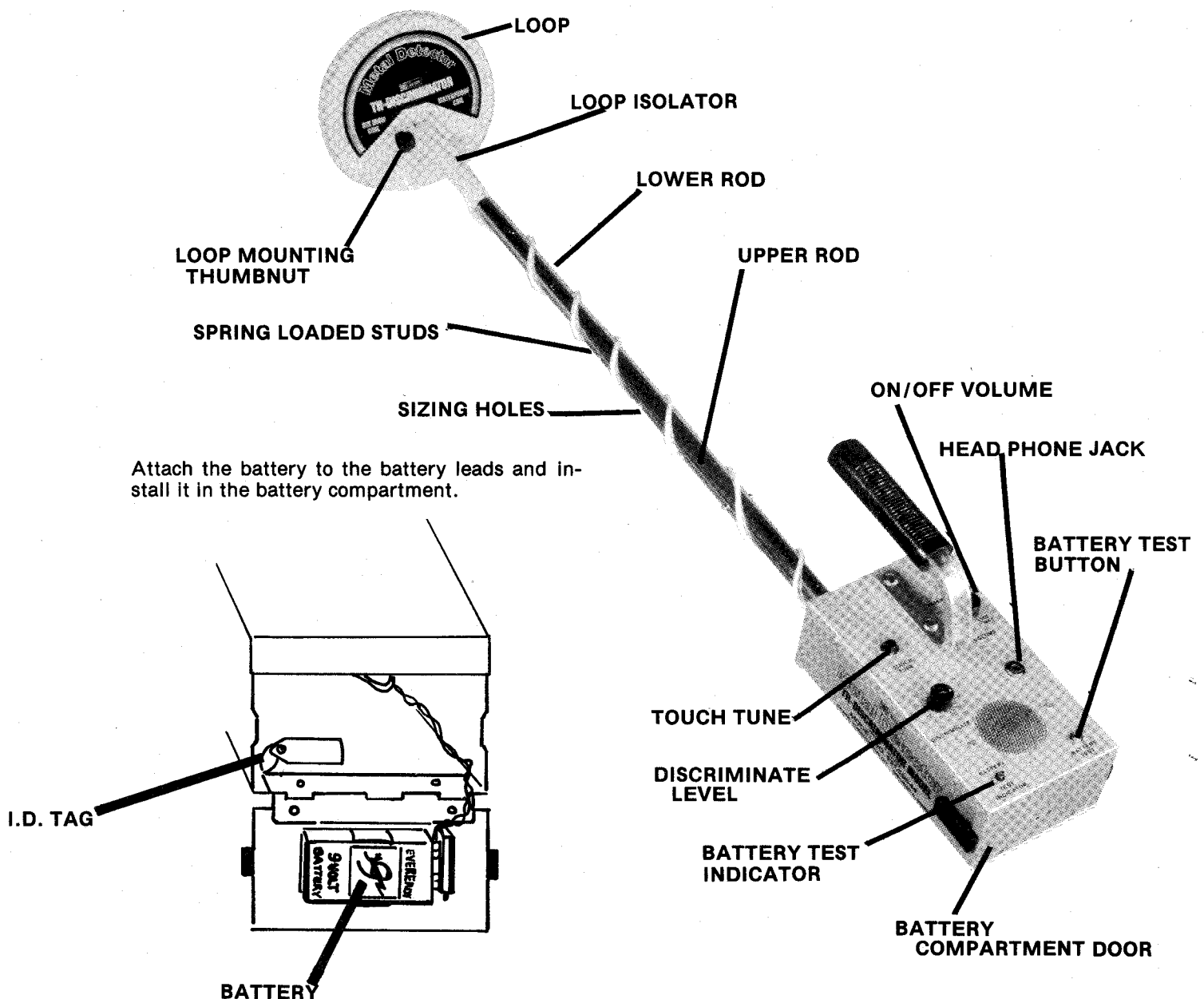
DISCRIMINATE LEVEL: This knob selects the discrimination level. Set this knob to "0" to operate as a normal TR detector. Set this knob between "1" and "4" to reject bottle caps. Set this knob between "5" and "10" to reject Pull Tabs.

BATTERY TEST INDICATOR: Used in conjunction with the battery test button.

BATTERY TEST: With the detector turned on press this button. A good battery will light the battery test indicator.

HEADPHONE JACK: Headphones are great for noisy locations.

ON/OFF VOLUME: This knob turns the unit on and adjusts the volume. For maximum sensitivity, always use maximum volume unless you are using headphones.



UNPACKING AND ASSEMBLY INSTRUCTIONS

1. Lower rod section, search loop and loop cable.
2. Upper rod section, instrument and battery pack.
3. Envelope containing assembly and operating instructions, plus sample coin and bottle cap.

ASSEMBLY

1. Attach the loop assembly to the lower rod by pressing the spring-loaded stud on the isolator, inserting the isolator into the lower rod, and positioning the hole in the rod. (ILLUSTRATION A).

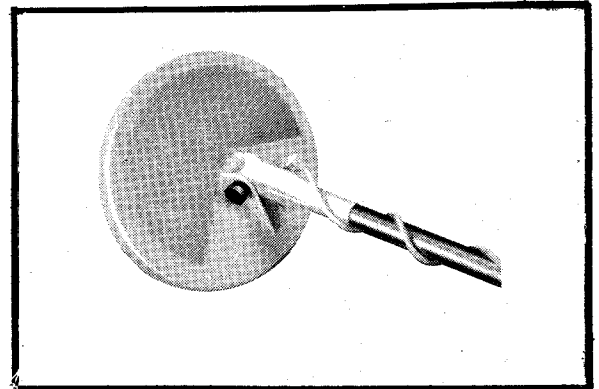


ILLUSTRATION A

2. Attach the lower rod to the upper rod by pressing in the studs and inserting the lower rod into the upper rod. Do not let the studs pop through the holes in the upper rod at this time. (ILLUSTRATION B).

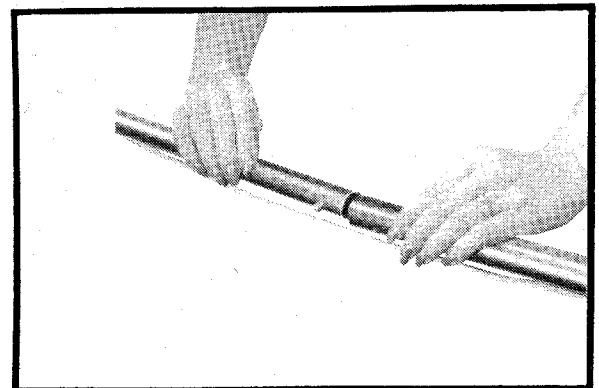


ILLUSTRATION B

3. Wrap the loop cable **loosely** around the assembled rod by rotating the lower rod two or three times and then let the studs pop through the sizing holes (ILLUSTRATION C).

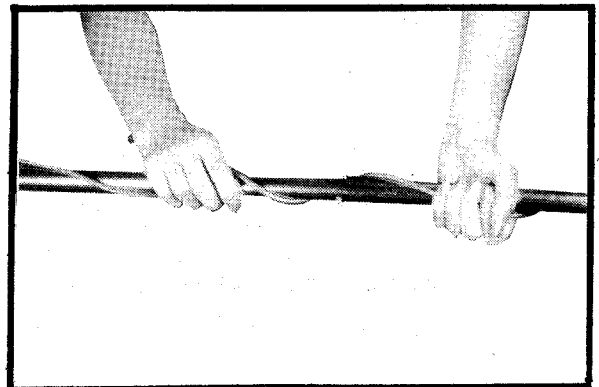


ILLUSTRATION C

How to Tune Your Detector

Tuning your detector properly is extremely important. Read the following instructions carefully and practise the tuning procedure until you can do it without looking at this manual.

Your detector has a Discriminate function that can be activated by turning the Discriminate knob clockwise from its "0" position. The Discriminate function will help eliminate small junk items (bottle caps, tin foil, gum wrappers, and nails). It will also eliminate ferrous objects regardless of size. Remember, a ferrous object is one made mostly of iron (belt buckles, cannon balls, chunks of scrap iron, and tin cans).

If you are searching for coins, rings or jewelry on a beach or in a park then you will probably want to use the Discriminate function to help you eliminate both small junk items and the ferrous objects.

TUNING

1. Rest the loop on the ground and turn the On/Off Volume knob to MAXIMUM (ILLUSTRATION D).
2. Test the battery. A good battery will light the BATTERY TEST indicator when the BATTERY test button is pressed.
3. Set the Discriminate level. Set the Discriminate knob at "0" for normal TR operation without rejection of bottle caps or pull tabs. This setting will reject nails and other ferrous minerals. Set the knob between "1" and "4" to reject bottle caps. Set the knob between "5" and "10" to reject pull tabs.

NOTE: With the knob set at the high settings of Bottle Cap rejection (close to "4") the detector may reject a few nickels and with the knob set to reject Pull Tabs ("5" to "10") the detector will reject all nickels and rings. Therefore, it is best to use the lowest setting possible to avoid this problem.

4. Lift the loop about 1/2 inch off the ground and press and release the Touch Tune button.
5. Lower the loop to the ground and systematically search the area.

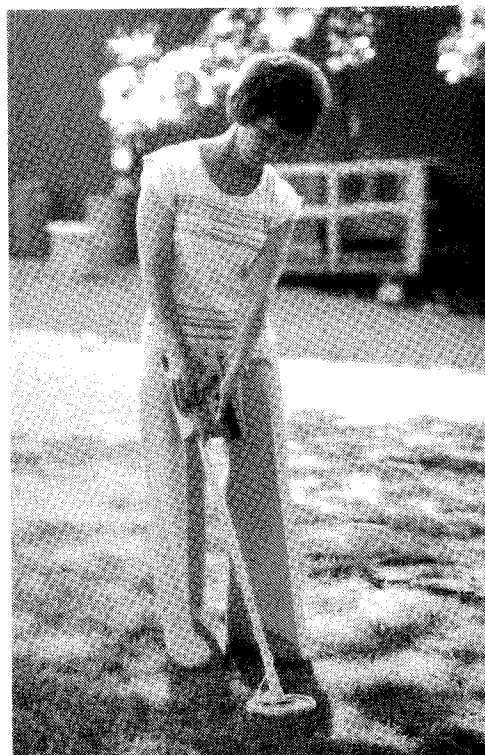


ILLUSTRATION D

(NOTE: If you are searching in an area of rough terrain (a plowed field, for example), it may not be possible to tune your instrument with the loop flat on the ground. In such cases, you should tune the instrument with the loop just barely off the ground, and then search with the loop slightly above that level. It is important to note here that if the loop is raised above the height at which the detector was tuned, a loud tone may be emitted from the speaker. Yet, if the instrument is tuned with the loop higher than necessary, this may result in un-needed loss of detection depth. In both instances, these reactions will interfere with your ability to locate buried objects.)

Searching with Your Detector

To locate hidden or buried objects with a properly tuned detector, systematically sweep the loop from side to side across the area you are working. [ILLUSTRATION E]. With a six inch loop you should take three inch steps, moving the loop ahead the same amount after each sweep. For maximum performance when searching, you should always try to keep the loop at a constant level and as close to the ground as possible, following the tuning procedure outlined earlier in this manual.

It is a good policy to periodically stop and readjust the tuning of your instrument slightly. As you become more experienced however, you will begin to notice whether or not the tuning needs to be readjusted just by the difference in the tone you hear.

After you have located an object you may "Pinpoint" it using the method shown. [ILLUSTRATION F]. First move the loop from side to side to find the strongest signal on axis A, then move the loop from front to back to find the strongest signal on axis B or the "Center Line of MAX. SIGNAL". The strongest signal normally will be located under the center of the loop.

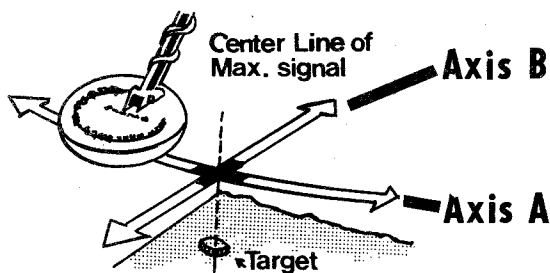


ILLUSTRATION F

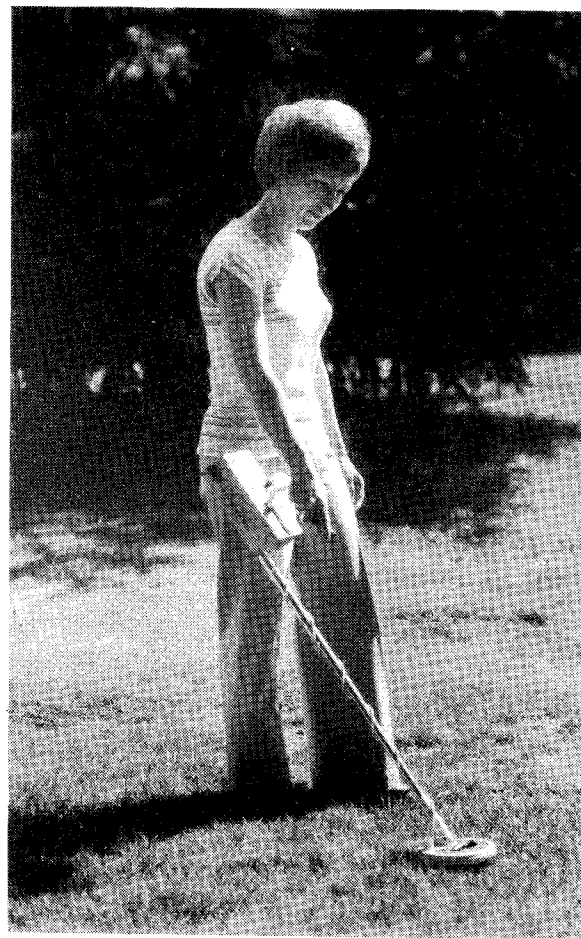


ILLUSTRATION E

Practice makes Perfect

In addition to *learning* the tuning and operating instructions described in this manual, here are a few ideas to help you practice and sharpen your "shooting" skills:

1. Place a small object (the sample that comes with your detector), a medium-sized object (a tin can lid will do nicely), and a large object (a pan from the kitchen) out on the lawn. Leave a few feet between them. Following the instructions given earlier, tune your instrument. Pass the loop over each object, noting how much the volume increases or decreases as you move from object to object.
2. Take two quarters. Place one on top of the grass. A few feet away, dig a small hole, no more than two inches deep, and bury the other coin. Tune your instrument and pass the loop over the coin on the surface, then over the buried coin. Note how the volume increases or decreases as you move from one to the other.
3. Plant a test garden. To become better acquainted with various kinds of buried objects, bury some metal items at known depths. Make sure your test garden is located where you can get to it easily. It's best to make a map of the area, showing what is buried and its depth. Your test garden will help you practice and will also provide a handy method of periodically checking the performance of your instrument.

Proper Care of Your Detector

The following are precautions you should take to protect your instrument from harm, insure its long life, and avoid nullifying the warranty.

Cleaning: The loop and rod or probe are waterproof. They can be cleaned with fresh water and a mild cleanser. After cleaning, however, dry the instrument thoroughly. Caution! The instrument case is not waterproof, and water--if allowed to enter it--may damage electronic components.

Weather Conditions: Protect your detector from excessively cold weather. Freezing can damage the electronic components, the case and/or the batteries. Excessive heat can also damage the instrument. Never leave it in the sun. It's best to lay it in the shade when temporarily not in use. If it's left in a car on a hot day, cover it with a blanket or something similar to protect it from the direct rays of the sun, and then leave the windows slightly open to permit ventilation. Needless to say, protect your detector if you operate it in the rain, as water may get into the instrument case.

Salt Water: Salt water is very corrosive! Immediately after your detector has been exposed to salt water, rinse it thoroughly with fresh water, being careful not to allow water to enter the instrument case. Then wipe it with a cloth dampened with fresh water and dry it thoroughly.

Storage:

If you plan to store your detector for any length of time, unsnap the battery and remove it from the instrument. Whenever your detector is not in use, turn the **VOLUME** knob all the way to the "**PWR OFF**" position.

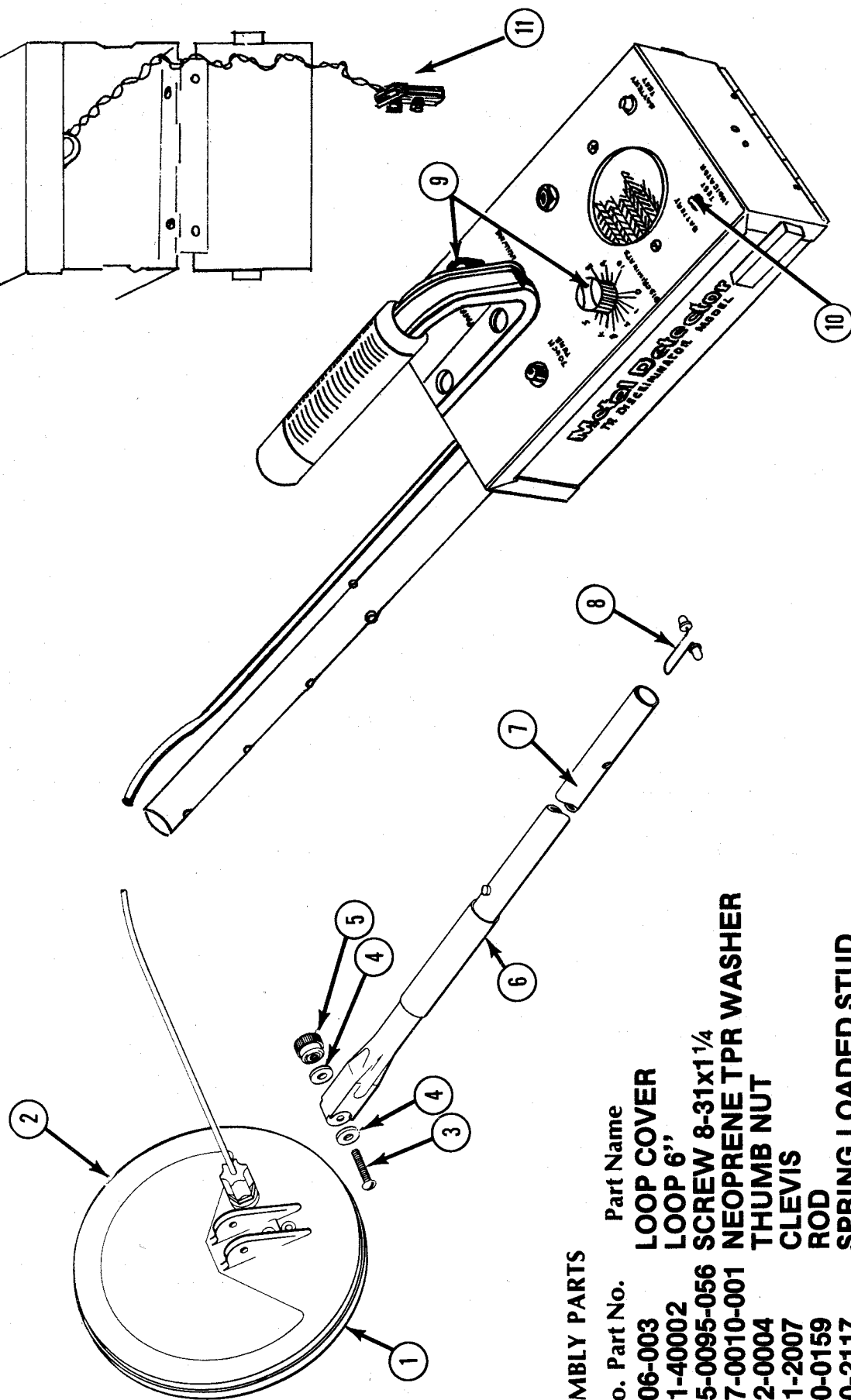
...HELPFUL HINTS AND TIPS...

1. "How deep will it go?" Detection depth is determined by five main factors.
 - a. The **SIZE** of the object.
 - b. The **SIZE** of the loop.
 - c. The **LENGTH OF TIME** the object has been buried.
 - d. The **SKILL** of the operator.
 - e. The ground **MINERAL CONTENT**.

The longer an object has been buried, the better you will be able to detect it. A chemical reaction called a "halo effect" between such objects as silver or copper coins and the surrounding soil may cause your detector to register a much larger increase in volume than might otherwise be expected for a small coin. If the halo effect is strong enough, your detector may continue to register even after you have dug up the coin.

2. "What will my detector locate?" Silver, lead, copper, bottle caps, tin foil, pull tabs, cartridge cases, rings, brass and tin cans are just a few of the conductive objects that can be detected. Your detector will not locate sticks, rags, bones, paper, wood or other non-metallic objects.
3. Learn how to interpret the different types of responses from your detector. A nail lying flat in the ground will sometimes produce a double or single reading depending upon whether your loop passed across it lengthwise or across its width. So it's a good idea to sweep your finds from several different directions to try to learn as much as possible about the object you have located. Coins will usually only produce one reading regardless of sweep direction.
4. Rather than waste time, check around the trees for junk items such as foil, pull tabs, bottle caps, etc. This will frequently indicate whether or not someone has already been in the area with a detector.
5. Always "criss-cross" an area when hunting it.
6. After you have dug up a coin, always check the hole again for more. As many as 10 coins have been found in one hole!
7. When beachcombing the best place to look for coins is near the concession stands.
8. Check the shallow water in swimming areas. Most rings and coins are lost when people enter the water.
9. If you make plans for coinshooting, check the history records of the area.
10. Always carry a plastic bag for your detector in case you get caught in the rain.
11. Never ask permission to treasure hunt over the phone. People tend to visualize you using a pick and shovel, making large holes.
12. Join a local historical society or get acquainted with its members.
13. In lawn areas, use a screwdriver of no more than eight inches as your tool. Limit the size of the hole to a **MAXIMUM** of two inches in diameter. Don't forget to fill in the hole. Public and private officials and property owners will be more likely to allow continued treasure hunting if you do no environmental damage.

Illustrated Parts Listing



ASSEMBLY PARTS

Key No.	Part No.	Part Name
1	4406-003	LOOP COVER
2	501-40002	LOOP 6"
3	535-0095-056	SCREW 8-31x1 1/4
4	737-0010-001	NEOPRENE TPR WASHER
5	402-0004	THUMB NUT
6	501-2007	CLEVIS
7	500-0159	ROD
8	500-2117	SPRING LOADED STUD
9	402-0019	KNOB
10	522-0013	LED
11	523-0017	BATTERY LEAD



SPORTS CENTER

MODEL NO.
321.596440

- assembly
- control description
- trouble shooting
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OWNER'S MANUAL

METAL DETECTOR

TOUCH TUNE TR/Discriminator

When requesting service or replacement parts for your Sears *Metal Detector*, always refer to the serial number plate for the instrument *Model Number*.

All parts listed herein may be ordered from any SEARS, ROEBUCK AND CO. retail or catalog store.

WHEN ORDERING REPAIR PARTS, ALWAYS GIVE THE FOLLOWING INFORMATION:

- | | |
|-----------------|---------------------|
| 1. Part Number | 2. Part Description |
| 3. Model Number | 4. Name of Item |

If the parts are not stocked locally, your order will be electronically transmitted to a Sears Repair Parts Distribution Center for expedited handling.

FULL ONE YEAR WARRANTY ON METAL DETECTOR

For one year from the date of purchase, Sears will repair this Metal Detector free of charge if defective in material or workmanship.

WARRANTY SERVICE IS AVAILABLE BY CONTACTING THE NEAREST SEARS STORE OR SERVICE CENTER IN THE UNITED STATES.

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

SEARS, ROEBUCK AND CO., SEARS TOWER, BSC 41-3, Chicago, IL 60684