



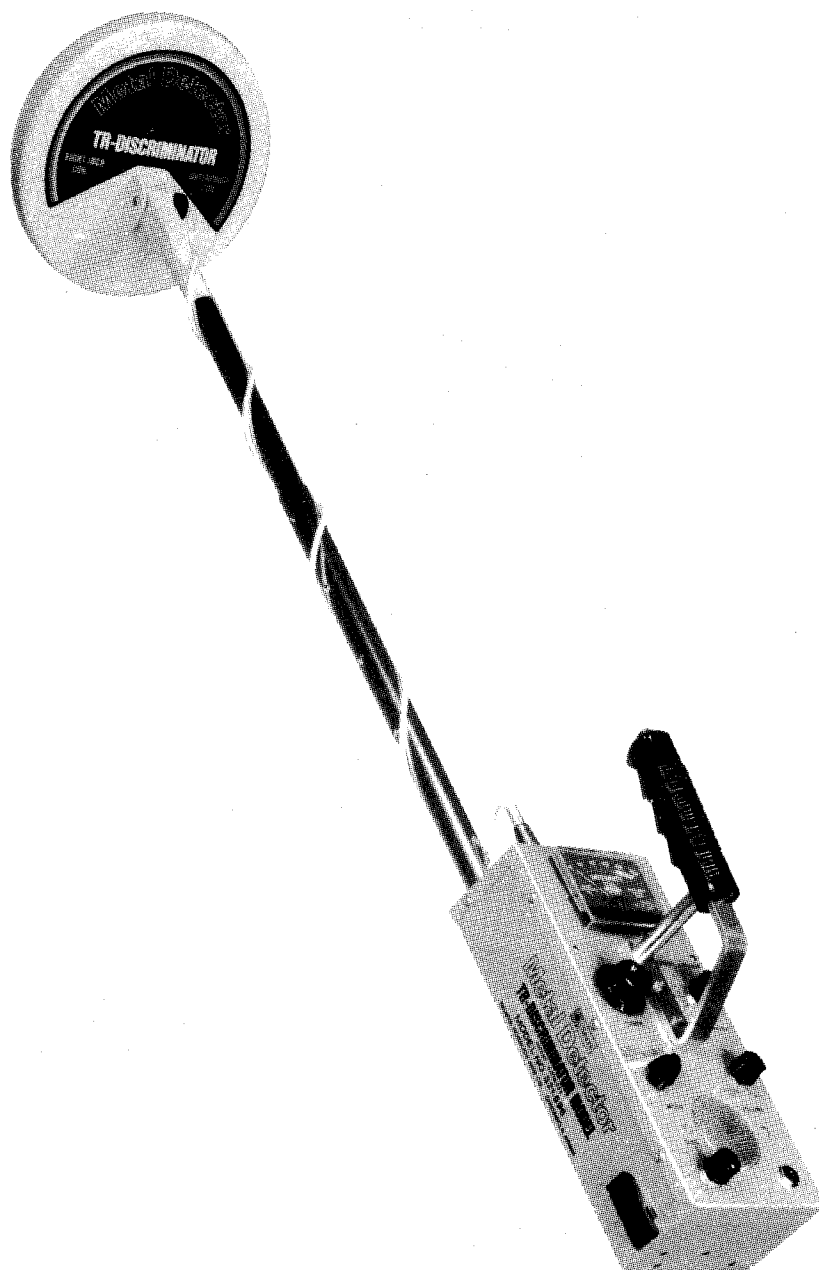
METAL DETECTOR

PUSH BUTTON
TR/Discriminator

MODEL NO.
321.596330

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

OWNER'S MANUAL



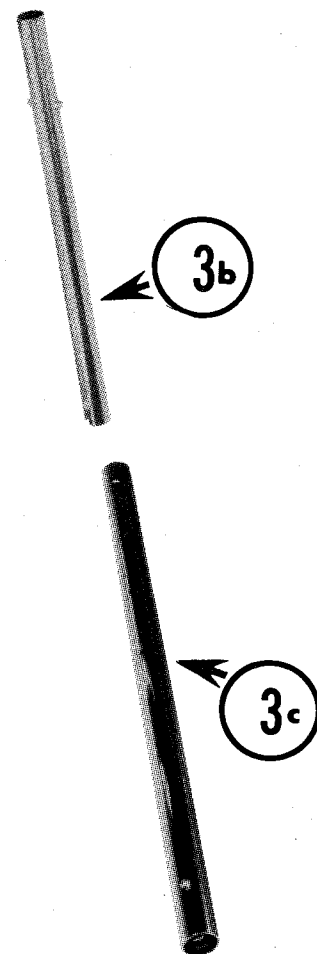
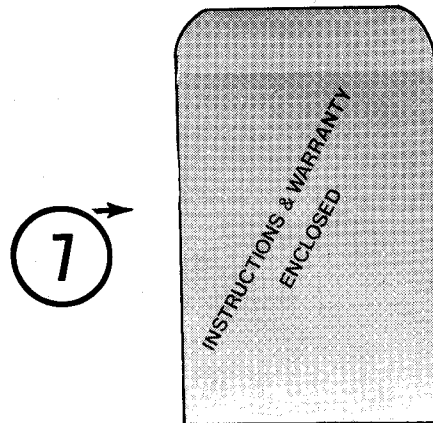
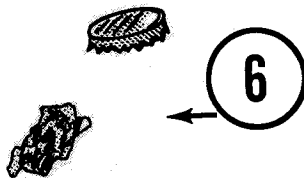
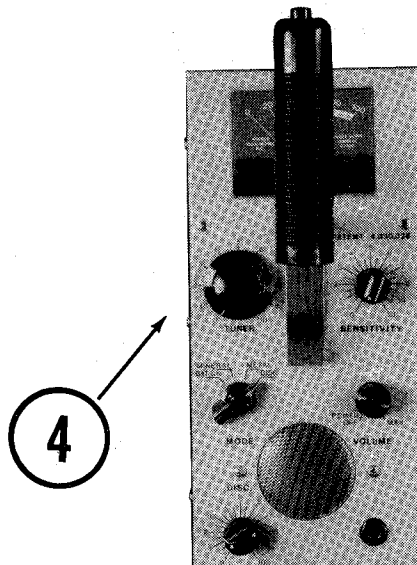
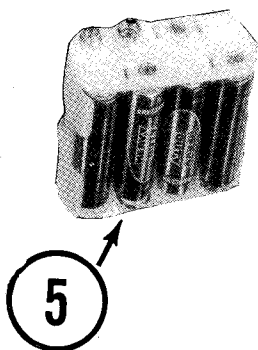
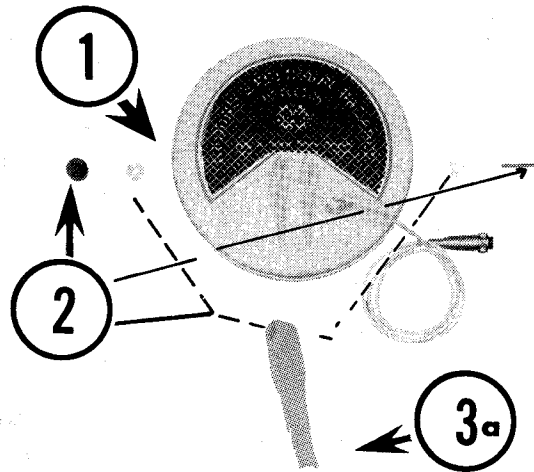
Discriminator

Patent No. 4030026

Unpacking Your MODEL 633

When you unpack your SEARS Metal Detector compare what you've got with the items shown on this page.

1. Detector Loop
2. Loop Bolt and Thumbnut (with two plastic washers).
3. Loop Rod (three sections)
 - a. Short white plastic section
 - b. Short brass colored metal section
 - c. Long brass colored metal section
4. Instrument
5. Standard 12 Volt Battery Pack
6. Test Samples
7. Large Envelope containing
 - a. Assembly and Operating Instructions
 - b. Warranty Statement and Card



Assembly Instructions

1. ASSEMBLE the TWO ROD SECTIONS as shown in illustration A.

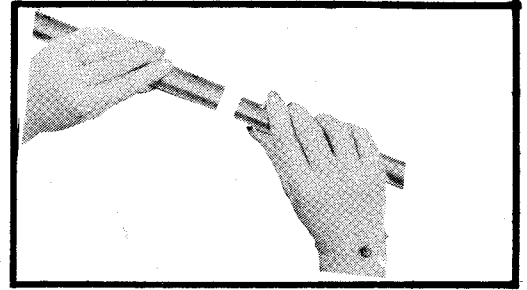


ILLUSTRATION A

2. REMOVE the TWO PLASTIC WASHERS from the LOOP as shown in illustration B.

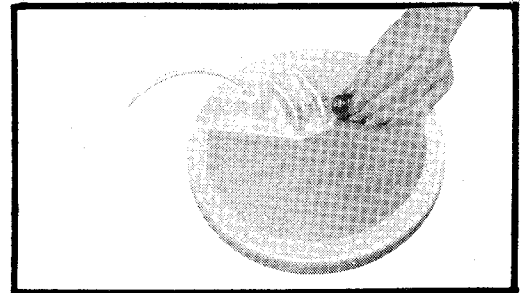


ILLUSTRATION B

CAUTION: NEVER TIGHTEN THE WATERPROOF CABLE FITTING ON THE LOOP!

3. PLACE the TWO WASHERS in the depressions ON the PLASTIC ROD and CONNECT to the LOOP as shown in illustration C.

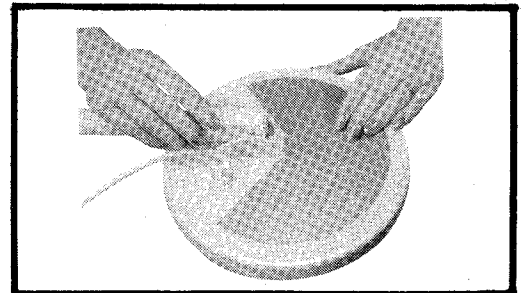


ILLUSTRATION C

4. REINSTALL BOLT and THUMBNUT.

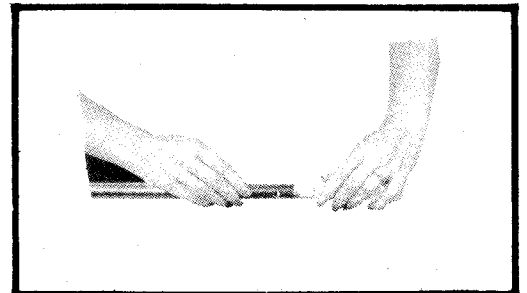


ILLUSTRATION D

5. CONNECT the PLASTIC ROD to the SMALL METAL ROD SECTION as shown in illustration D.

ASSEMBLY [CONT.]

6. CONNECT COMPLETE ROD to INSTRUMENT as shown in illustration E.

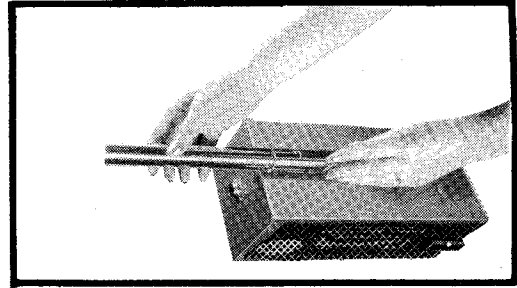


ILLUSTRATION E

7. WRAP the CABLE around the ROD as shown in illustration F.

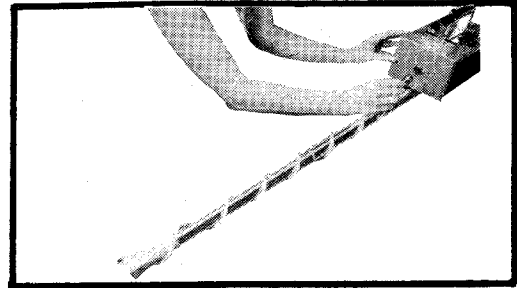


ILLUSTRATION F

8. CONNECT the LOOP CABLE to the top of the INSTRUMENT as shown in illustration G (small slot up).

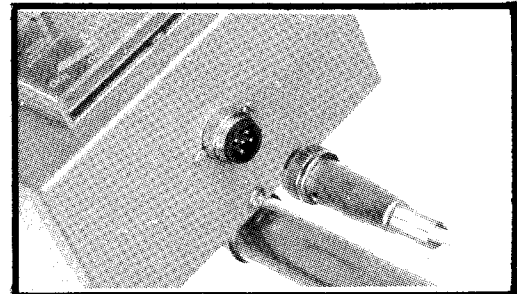


ILLUSTRATION G

9. CONNECT BATTERY CONNECTORS to the BATTERY PACK TERMINALS and INSTALL as shown in illustration H.

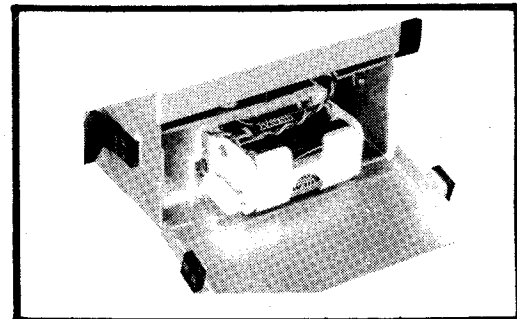
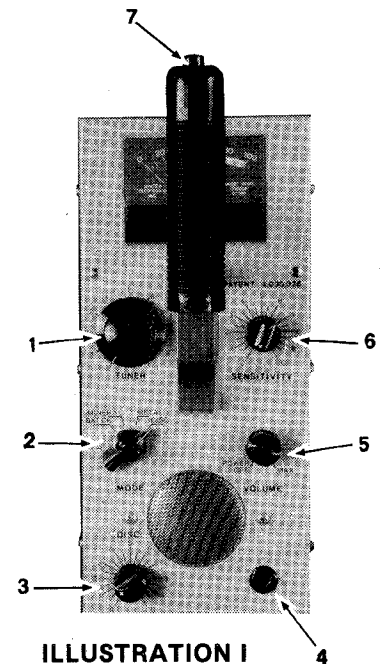


ILLUSTRATION H

Familiarizing Yourself with Your Detector

1. **TUNER** — This control should always be adjusted for a slight tone, sometimes referred to as a **THRESHOLD** tone. If it is adjusted for **NO SOUND** then you may miss some or all objects depending upon how far away you were from the **THRESHOLD**. If you have too much sound an object may not be able to cause any increase in the **LOUDNESS** of the tone.
2. **MODE** — This switch allows you to select the type of operation you want. If you select **"MINERAL"**, then the detector will "sound off" for magnetic objects such as black sand, iron and steel. (The **"MINERAL"** mode is usually used for prospecting by looking for strong deposits of black sand.) If you select **"METAL"**, then you are looking for all metals that don't contain iron. If you select **"DISC"**, then you are going to be rejecting or **DISCRIMINATING** against selected junk metals such as tinfoil, bottle caps, and pull tabs. You can also place the **MODE** switch in **"BAT. CK."** position to check the condition of the batteries.
3. **DISCRIMINATE** — This control allows you to select the amount of discrimination best suited for the area and type of hunting you wish to do. If the area has a lot of **PULL TABS** you will want to use that amount of discrimination, but if you are in an older area that is before the "pull tab era" you will want to lower your amount of discrimination to the **BOTTLE CAP** amount so you can detect **NICKELS** and most rings. Bottle caps are eliminated around 1-3 and pull tabs are eliminated around 7-8.



NOTE: This control works only when the **MODE** switch is in the **"DISC"** position.

4. **HEADPHONE JACK** - Headphones are great for noisy locations.
5. **ON/OFF AND VOLUME** - This knob turns the detector on and off and adjusts the volume. For best results, always use maximum volume unless you are using headphones.
6. **SENSITIVITY** — This control compensates for the mineral (iron) content of the soil. The mineral in the soil is itself a target. Therefore, by changing the height of the loop the unit will react the same as if it had located a metal item. If you are in a heavily mineralized area you should use minimum sensitivity so changes in the loop height will not have much effect.

The unit will get greater depth when the sensitivity control is on **MAXIMUM**, but if this control is not set correctly for the area you are searching in, your unit will get little or no depth.

7. **PUSH-BUTTON** — This control acts like an automatic recall system, recalling your main tuner control setting. As long as you push and hold the button in while you set your main tuner, the memory circuit will remember the setting the next time you push and release the button.

How to Tune Your Detector

Tuning your detector properly is extremely important. Read the following instructions carefully and practice 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 MODE knob to the "DISC." position. The Discriminate function will help eliminate small junk items (bottle caps, tinfoil, 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, cannonballs, 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 DISCRIMINATE

NOTE: The tuning procedure below is for Discriminate mode, but Metal and Mineral modes are the same except for steps 3 and 4. [See step 2, page 5].

1. Rest the loop on the ground and turn the On/Off Volume knob to MAXIMUM (ILLUSTRATION J).
2. Test the battery. A good battery will read above 74 on the meter when the MODE switch is in the "BAT. CK." position.
3. Place the "MODE" switch in the "DISC." position.
4. Set the Discriminate level. Set the Discriminate knob at "MIN" for normal TR operation without rejection of screw caps or pull tabs. This setting will reject nails and other ferrous minerals. Set the knob around "1 or 2" to reject bottle caps. Set the knob around "7 or 8" to reject pull tabs.

NOTE: With the Discriminate knob set for Bottle Cap rejection the detector may reject a few nickels, and with the knob set to reject Pull Tabs the detector will reject all nickels and rings. Therefore, it is best to use the lowest setting possible to avoid this problem.

5. Lift the loop about 1/2 inch off the ground and press the button and set the "TUNER" for a slight sound. Release the button.
6. Lower the loop to the ground and systematically search the area.

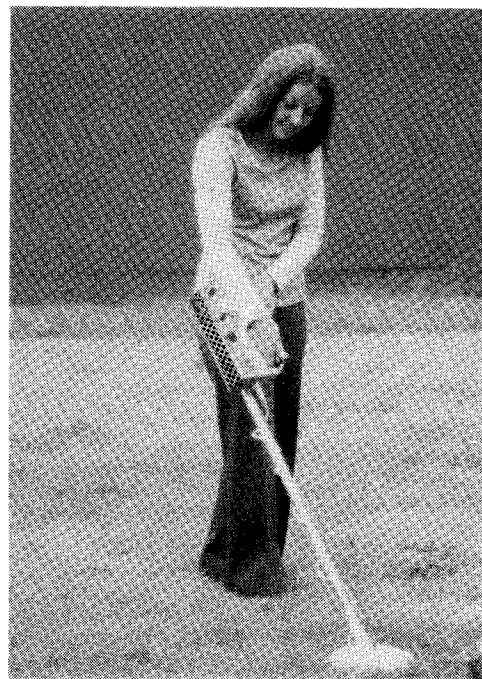


ILLUSTRATION J

[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 an unnecessary loss of detection depth. In both instances, these reactions will interfere with your ability to locate buried objects. If possible, you will want to tune the detector with the loop on the ground.]

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 K). With an eight 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 L). 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.

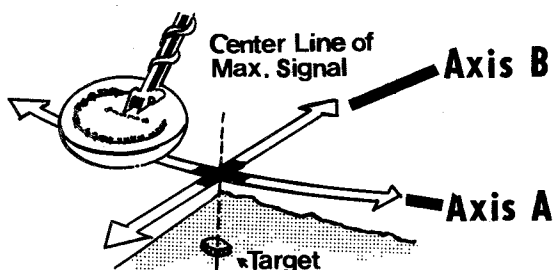


ILLUSTRATION L



ILLUSTRATION K

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 (a dime or quarter), 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 for periodically checking the performance of your instrument.

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, tinfoil, 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. It's a good idea to sweep your finds from several different directions to learn as much as possible about the object you have located. Coins will usually produce only 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 ten 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.

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 (probe) are waterproof. They can be cleaned with fresh water and a mild cleanser. After cleaning thoroughly, dry the instrument. 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 pack, remove it from the instrument and take the batteries out of the holder. Whenever your detector is not in use, turn the Power knob all the way to the "Off" position.

Some Thoughts on Ethics

Treasure hunting is the kind of new hobby that fires the imagination and generates its own enthusiasm. It's the most natural thing in the world to dig as fast as you can the minute you hear that first loud, unmistakable signal. It will be a real thrill to discover what treasure is right beneath your feet.

But stop a minute! Be a little farsighted and consider the long run too.

We strongly urge you to adopt a code of ethics which will preserve the environment and also the rights of treasure hunters to operate detectors with as few restrictions as possible.

Before you even begin a search, check the laws, ordinances or regulations about hunting on publicly owned sites. Abide by the rules. If the area is private property get written permission from the owner to search it. You may find he will be more eager to give permission if you suggest sharing your finds with him or if you offer to search for a specific item he has lost.

About digging: In lawn areas use a screwdriver of no more than six or eight inches as your tool. Limit the size of the hole to a maximum of two inches in diameter, cutting a plug of sod which can be easily replaced after you make your find and fill the hole. Leaving holes is both unsightly and dangerous!

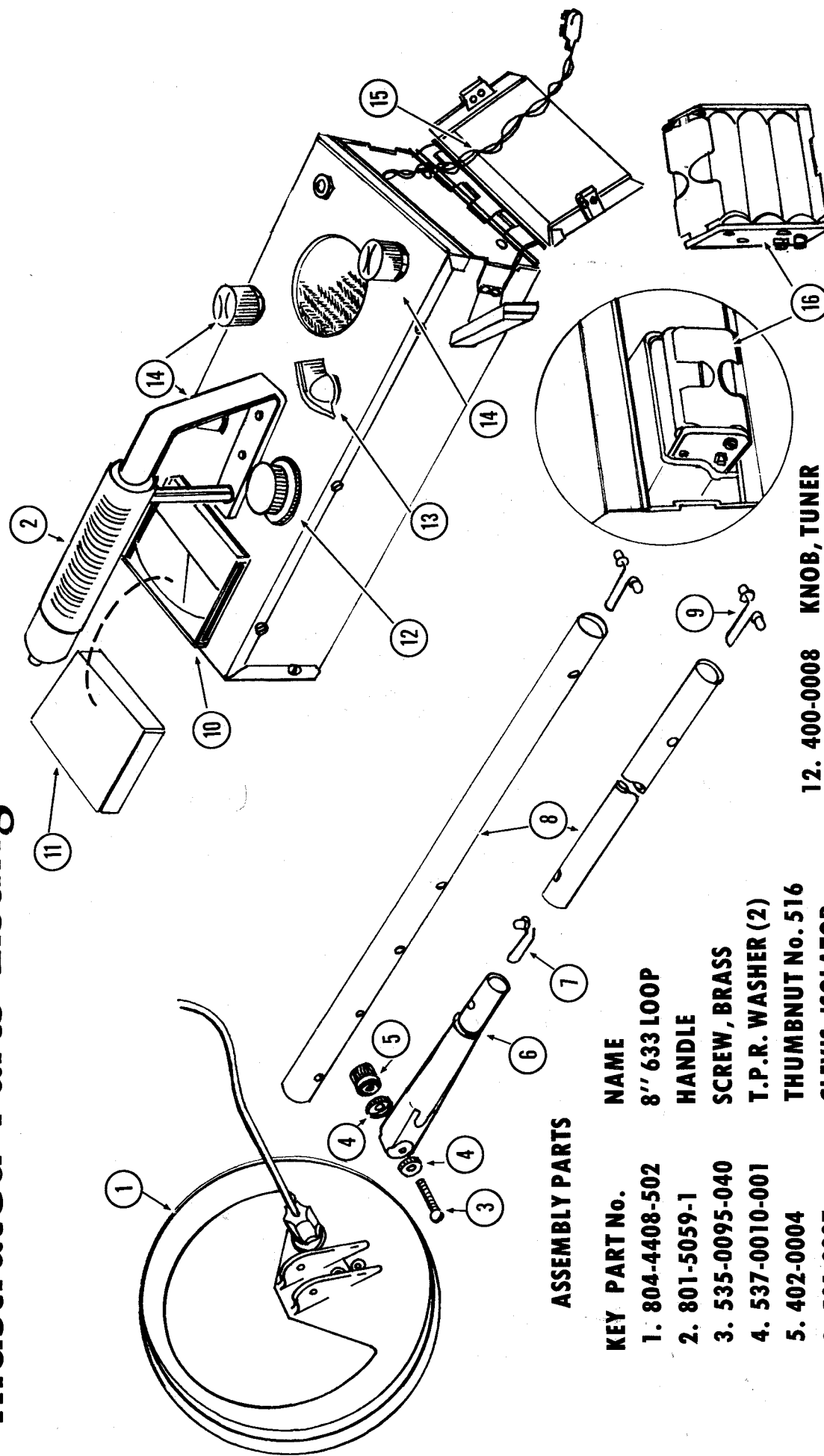
Detectors or detector modes designed for locating large and deeply buried objects should be used with discretion--never in lawn areas--and with careful judgment in other locations. Consider the scar you may leave by your digging before you start. This will vary a lot from one part of the country to another, depending on local soil and climatic conditions.

Public officials and private property owners will be much more likely to allow continued treasure hunting if you do no environmental damage. You may even be able to increase your reputation as an ethical hunter by volunteering to carry out and dispose of whatever trash items you find.

Adoption of these attitudes can only enhance the public's opinion of treasure hunters and assure that many areas, both public and private, remain open to you and your new detector.

...NOTES...

Illustrated Parts Listing



ASSEMBLY PARTS

KEY PART No.	NAME
1. 804-4408-502	8" 633 LOOP
2. 801-5059-1	HANDLE
3. 535-0095-040	SCREW, BRASS
4. 537-0010-001	T.P.R. WASHER (2)
5. 402-0004	THUMBNUt No. 516
6. 501-2007	CLEVIS, ISOLATOR
7. 500-2113	SPRING, LATCH 1B
8. 801-7010	ROD, EXTENSION
9. 500-2111	SPRING, LATCH 2B
10. 400-0025	METER
11. 400-0020	COVER, METER

12. 400-0008	KNOB, TUNER
13. 402-0007	KNOB, POINTER
14. 402-0019	KNOB W/DOT (3)
15. 520-0018	CONNECTOR, BATTERY
16. 523-0006	HOLDER, 12v PENLIGHT



MODEL NO.
321.596330

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

OWNER'S MANUAL

METAL DETECTOR

PUSH BUTTON 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