

LOG MASTER

# White's Electronics, Inc.

1011 PLEASANT VALLEY ROAD

SWEET HOME, OREGON 97386

## OPERATORS INSTRUCTIONS



*Manufacturers of The World's Largest Line of Mineral and Metal Detectors*

MINERAL AND METAL  
DETECTORS

ELECTRONIC  
MAGNETOMETERS

SUPER GEIGER AND  
SCINTILLATION COUNTERS

ULTRA VIOLET  
LIGHTS

OPERATING INSTRUCTIONS  
for  
LOGMASTER 5-PHM

INTRODUCTION

This instrument has been designed especially for the logging industry to locate nails, bolts, wire or other scrap metal in logs and trees before they get to the saw or chipper.

ASSEMBLY

After you have unpacked your instrument, follow these easy steps for assembly:

1. Fit the two sections of the loop rod together.

NOTE: This is an adjustable rod. To adjust for length, depress the spring clip button, and adjust the smaller section of the rod to the desired length.

2. Fit the lower section of the loop rod into the rod holder, located on the top of the instrument.
3. To install the loop it will be necessary to remove the 8-32 X 1 1/2 " round head bolt from the loop. Next insert the plastic rod extension in position to accept the round head bolt. Place the 8-32 X 1 1/2 " round head bolt through the loop clevis bracket and plastic rod extension. Install the thumb nut on the threaded end of the loop bolt.

CAUTION: Do not over-tighten. Use only enough pressure to make a snug fit. The thumb nut has been designed for hand-tightening. Tools should not be necessary.

4. Next spiral the excess cable around the rod and insert the loop plug into the matching socket on the front panel of the instrument. Turn the locking ring to the right (clockwise) to secure the loop plug.

CAUTION: Do not force the loop socket and plug together. The socket and plug are keyed to allow mating with only the correct pin alignment.

Before you can operate your instrument, it is necessary to install the batteries in the battery compartment located inside the instrument case.

5. Separate the two sections of the instrument case by unsnapping the four (4) hinges, then proceed as follows:
  - a. Connect the 12 Volt battery connector, identified by its WHITE connector.
  - b. Insert the 12 volt battery holder (WHITE pack containing 8-1 1/2 volt penlight batteries) into the battery compartment.

CAUTION: Always observe correct polarity. The Battery Connectors are designed to mate in only one position.

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- c. Connect the 9 volt battery connector, identified by its BLACK connector.
- d. Insert the 9 volt battery holder (BLACK pack containing 6-1 1/2 volt penlight batteries) into the battery compartment.

Assembly is now complete.

#### CONTROL DESCRIPTION

1. FUNCTION SWITCH: The Function switch is a four (4) position switch. The purpose of each of the positions is as follows:
  - A. "OFF": In this position the batteries are disconnected from the electronic circuit.
  - B. "ON": In this position the meter is used as a Signal Intensity Indicator. How this is used will be discussed in the OPERATION PROCEDURES.
  - C. "9" In this position the 9 volt battery is connected to the meter to test the penlights in the 9 volt pack. The reading should be in the Battery Condition Indicator. This is the battery that operates the Speaker system and therefore should be tested with the instrument making a loud sound.
  - D. "12": In this position the 12 volt battery is connected to the meter to test the penlights in the 12 volt pack. The reading should be in the Battery Condition Indicator.
2. "VOLUME CONTROL": This control adjusts the amount of signal in the headphones. Turning the control to the RIGHT increases the amount, while to the LEFT decreases the amount.
3. "TUNER CONTROL": The Tuner is a Ten Turn Control. It adjusts the sensitivity of the instrument. The most sensitive setting is when a small tone is heard in the speaker and the meter is reading slightly up scale (near 20.) When the instrument is adjusted this way a weak target will cause a slight increase in loudness and a slight increase on the meter. If the instrument was adjusted for no tone, then a weak target would not cause an indication. Also if the Tuner is adjusted so the tone is near maximum volume, a small change could not be distinguished.
4. "TERRANEAN ATTENUATOR:: This control does not need to be adjusted unless you are trying to adjust out the effects of the ground. When not in use set in the middle position. This control allows you to adjust the instrument so the mineralization effects of the ground can be eliminated. To make this adjustment proceed as follows:
  - A. Turn the FUNCTION SWITCH to the ON position, and the VOLUME CONTROL fully clockwise.

B. Hold the loop in the air, several feet above the ground and away from metal objects. Adjust the tuner for a small tone and a meter reading of approximately 20.

C. Lower the loop toward the ground and observe the reaction. If the meter decreases toward Zero, turn the Terranean Attenuator to the RIGHT (clockwise) until the meter is back to 20.

D. Raise the loop at least 2 feet above the ground and re-adjust the "Tuner" control to bring the meter back to 20 if necessary.

E. Keep repeating this process until you can lower the loop to the ground with only small changes in both sound and meter readings, (the smaller the changes the better). With practice this procedure will become very easy.

NOTE: If you are unable to adjust out the effects of the ground, then you may have been lowering the loop over a metal object. If this is the problem you should move to another spot to make the terranean adjustments.

#### OPERATING PROCEDURES

To operate the instrument proceed as follows: Place the FUNCTION SWITCH in the ON position. Turn the VOLUME CONTROL to a low setting.

CAUTION: When headphones are used, the Volume Control should be turned all the way to the LEFT at first and then gradually increased until the desired level is reached.

#### GROUND USE:

Next adjust the TUNER for a slight tone and lower the loop to the ground. Now adjust the TERRANEAN ATTENUATOR as described under Section 4 of the CONTROL DESCRIPTION. You will notice that if the sound goes quiet, you would turn this control the same direction as you would turn the Volume Control for more sound, and if the sound gets louder, you decrease the sound by turning the control down (to the left.)

Once you have adjusted the instrument, you will be able to locate metals that are non-ferrous, such as coins and ferrous (containing iron) metals as well. This means you will be able to locate knives, guns, and other objects containing iron, at the same time you are looking for coins and other non-ferrous objects.

Now while holding the loop as close to the ground as possible slowly sweep the loop across the ground, making an arc or sweep that covers about 6 feet, then move the loop forward about 3 inches and make another sweep. If using the instrument in short grass, such as a lawn, or park, it is possible to place the loop on the grass and slide it on the top of the grass.

Operating Instructions  
Logmaster 5-PHM

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Bury a metal object an inch or two deep in your yard and practice on it until you get used to the type of sound it makes when you pass over the object. Also change the Tuner and notice how the indication changes.

Detection distances will increase due to the ion migration of corroding targets (halo effect). This will increase the conductivity of the soil immediately around the target. Therefore, the longer an object has been in the ground the easier and deeper it can be detected.

LOGGING USE:

Place the Function Switch in the "ON" position. The Terranean Attenuator should be in the middle position, and the Volume Control should be at a low setting.

Next adjust the Tuner for a slight tone and then you are ready to search for hidden pieces of metal that could damage your saw or chipper. The area that the loop covers depends on the size of the object to be detected. The small objects require overlapping the search pattern by about two inches.

When you detect an object, you will head a loudness change in the headphones, and you will see a deflection on the meter. These readings can be maintained as long as the loop is held directly over the object. As you move the loop away from the object, the sound and the meter will decrease.

**CAUTION:** When this instrument is used near power lines, the audio (sound) may become fuzzy. This is normal and will not damage the instrument. The 60 Hertz (cycle) pick-up will especially be noticed near Fluorescent lights.

MAINTENANCE & SERVICE

1. When using your instrument near SALT WATER, care should be taken to prevent rust. Coat all exposed screws and bolts with Vaseline before usings. When through using the instrument wipe all parts with a cloth to remove dirt and moisture.
2. Do not store or use the instrument in excessively hot or cold temperatures.
3. If the instrument is to be stored for any great length of time, the battery packs should be removed and the batteries removed from the holders. Then store the batteries in a dry, cool place. This is to prevent the batteries from damaging either the instrument or the holders, if one or more of the batteries leak.

4. If your instrument is not functioning properly, refer to the TROUBLE SHOOTING TIPS.

DO NOT attempt to repair the Electronic Circuit. Only the remedies marked: a, b, c, d and g in the TROUBLE SHOOTING TIPS should be attempted by the customer. Unauthorized repairs will void your warranty.

5. Any AA penlight batteries may be used as replacements. Using Headphones and/or low volume settings will increase battery life.

CUSTOMER TROUBLE SHOOTING TIPS

Step #1. Check all knobs to insure that they are not slipping on the shaft. If any knobs are slipping, then tighten the set screw that is located either on the side of the round knobs on or the back of the pointer knobs.

Step #2. Turn the "Function" Switch to the "9" and "12" positions and note the readings on each. If either check reads below the "Battery Condition Indicator", then check each cell separately from that battery holder.

Step #3. Turn the "Function" switch to the "ON" position.

Step #4. Turn the "Volume Control" fully clockwise.

Step #5. Turn the Tuner to the right several turns until you either see the meter deflect or hear tone in the speaker. (The maximum number of turns necessary is ten.) After following the above directions, you should notice one or more of the following trouble symptoms:

TROUBLE SYMPTOMS	POSSIBLE DEFECT	REMEDY
1. No Audio (sound or Meter Reading)	a. Bad Batteries	a. Replace
	b. Bad Battery Holder	b. Replace
2. Audio low or weak	c. 9 volt batteries	c. Replace
	d. 9 & 12 volt packs interchanged	d. Correct conditions
3. No Audio but Meter reads	e. Phone Jack	e. Contact Factory
	f. Speaker	f. Contact Factory
	g. Volume control off	g. Rotate 3/4
4. Audio present, but no meter reading	h. Meter	h. Contact Factory
	i. Battery check switch	i. Contact Factory
	j. Diode	j. Contact Factory

T. R. INSTRUMENTS - BALANCE INDUCTION SYSTEM

Our T. R. instruments function on the principal of a balanced condition within the loop. This system employs a modulated RF Oscillator. There are 2 exciter coils within the loop and one pick-up coil. The pick-up coil is positioned and tuned at the time of manufacturing, to be in a state of Null (minimum signal). Referring to the Block Diagram, you will note that the signal from the pick-up coil is then fed into the demodulator system and further on to the amplifying systems driving the meter and speaker.

The signal that is fed into the amplifier systems, are filtered and shaped to give you the audible tone that you hear. When passing a metal or mineral object into the field of the loop, it will distort the electro-magnetic field of the loop, causing more or less signal to be induced into the pick-up coil. This signal in turn, is fed to the amplifying system, giving you the audible and visual responses from the instrument. The responses from a balanced induction system, that indicate detection of an object, is an increasing or decreasing in the volume of the tone.

WARRANTY SERVICE

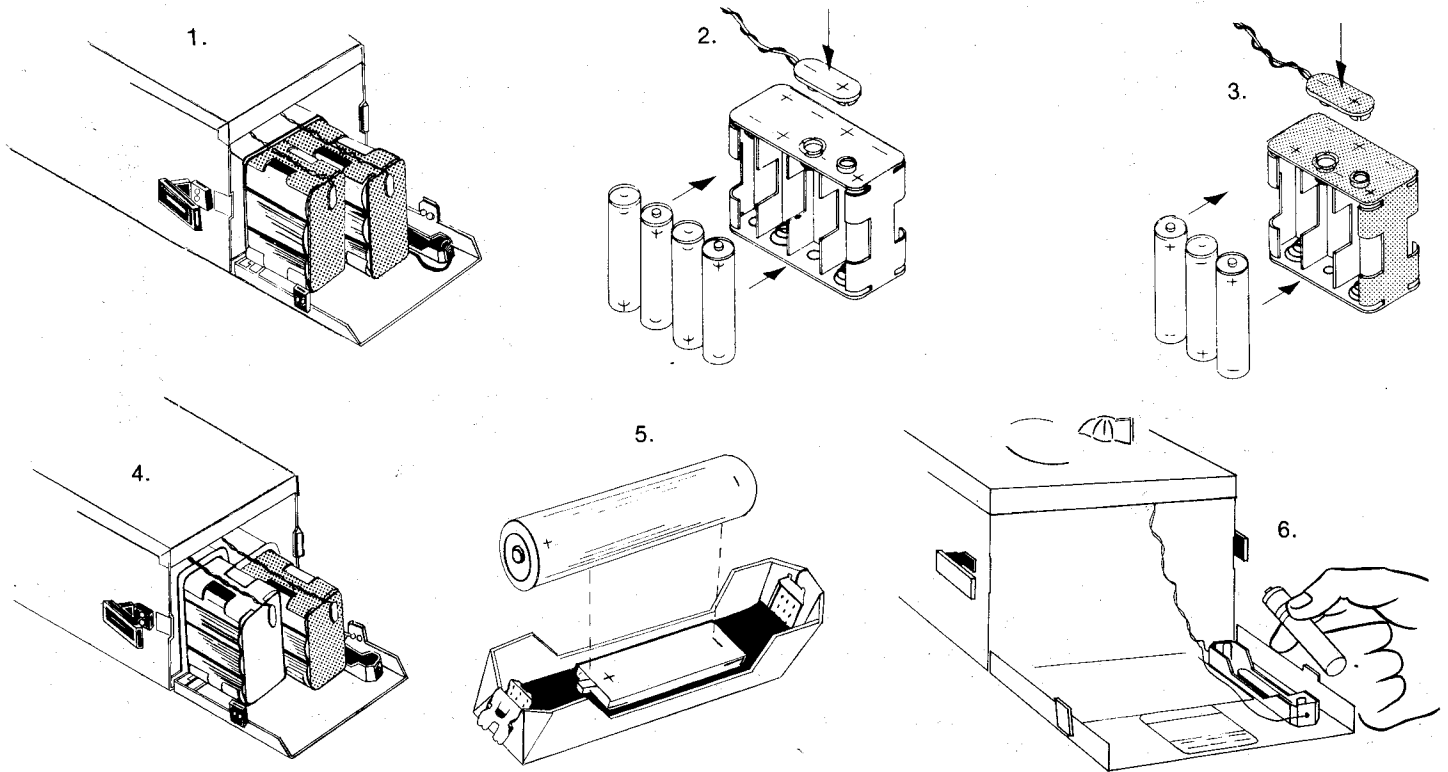
All instruments are covered by a full one (1) year warranty on parts and labor (except batteries) to the original purchaser.

If ever in need of service, ship the instrument by insured parcel post, freight, United Parcel System (UPS) or stage, prepaid and enclose a letter advising the nature of your troubles, to the address below.

WHITE'S ELECTRONICS, INC.  
1011 Pleasant Valley Road  
Sweet Home, Oregon 97386

# ILLUSTRATIONS

**NOTE:** To prevent damage in shipping, the batteries have been removed from your instrument and placed in a separate container within the shipping carton. See following diagram for proper installation.



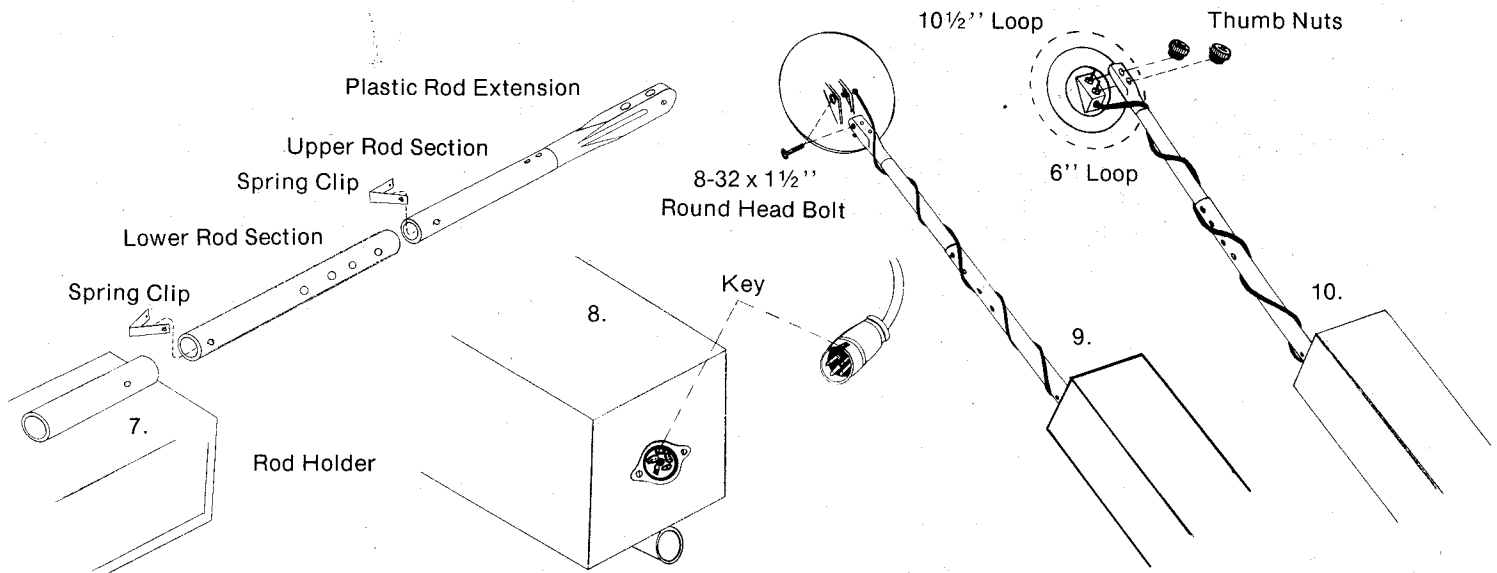
9 volt (6Pak) Black Connection  
12 volt (8 Pak) White Connection

## BATTERY-PACK ILLUSTRATION

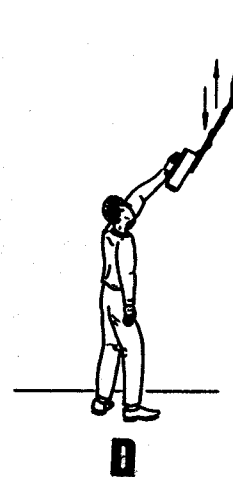
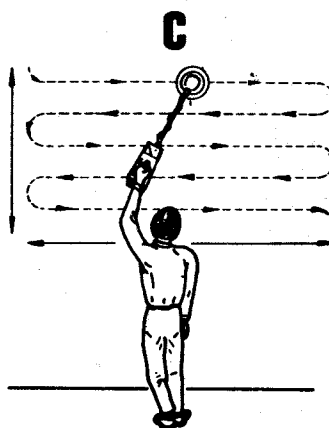
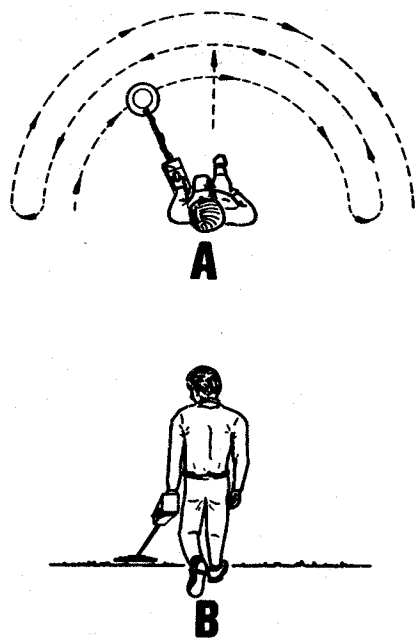
1.5 Volt "AA" [Battery Pack Models]..... EVEREADY 1015    BURGESS 910    RAY-O-VAC #15

When ordering replacement batteries from the factory, please state the instrument model, voltage of batteries and battery number.

## ROD ASSEMBLY, DRAWINGS

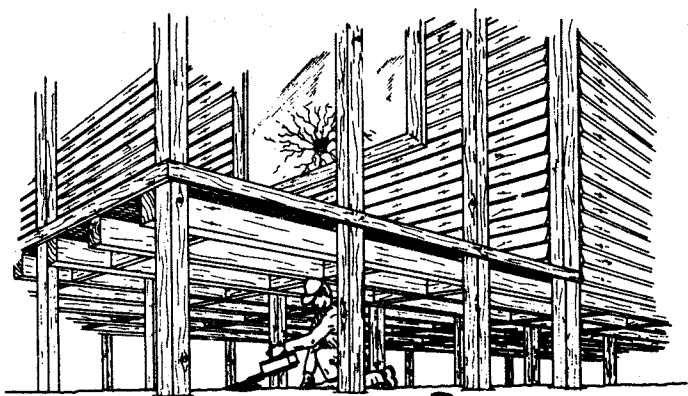


# OPERATING ILLUSTRATIONS



As shown in Diagrams A and B, when you are working on the ground, move forward in a straight line, at the same time, moving the loop from side to side across in front of you. The distance between each swath of the loop is determined by the size of the loop you are using. With a 6" loop you would make a 3" step, with 12" loop you would make a 6" step, and so on. Using this method of hunting enables the hunter to cover more ground, more completely, in less time. For tuning your loop, hold it as close to the ground as possible.

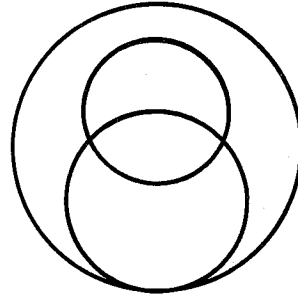
Diagrams C and D show you just one more of the many ways the versatile design of the White's instrument can help you either in prospecting or treasure hunting. This diagram demonstrates the extra ability the design gives in reaching to the out-of-the-way places. This system can be used for checking outcroppings, walls, etc.



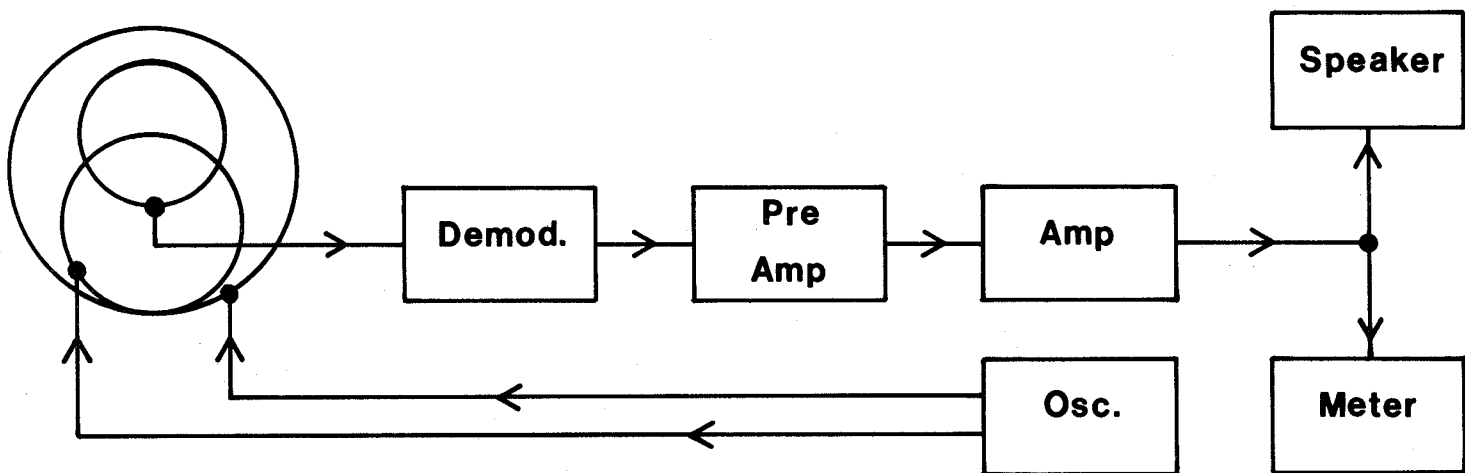
Remember, a lot of old artifacts and treasure have been found under old buildings, as well as in the attics. When going through an old homestead, never overlook any place or area that could represent a good hiding place. So if you are planning such a trip, follow these simple illustrations and prepare your instrument. At a time like this you don't want to pass up any chances.

# BLOCK DIAGRAM OF BALANCED INDUCTION SYSTEM

## MULTI-COIL LOOP



## Basic Diagram Of Operation Of The TR Models



SERVICE CENTER DIRECTORY

CANADA: Abbotsford BC  
White's Electronics Ltd.  
33784 Hazel Street  
Phone 604/853-7155 or 7156

CANADA: Charbonneau's Lapidary Ser.  
4020 Bow Trail SW  
Calgary 5 Alta  
Phone: 403/249-0322

CALIFORNIA: San Diego 92104  
San Diego Coin Exchange  
3784 30th St.  
Phone: 714/296-3131

CALIFORNIA: Redlands 92373  
Burnett Electronics  
24 N. Buena Vista St.  
Phone: 714/792-6309

CALIFORNIA: Mt View 94040  
W. H Haney Co  
240 Castro Street  
Phone: 415-968-8707

CALIFORNIA: Red Bluff 96080  
The Treasure Hut  
Charles Hocker  
628A Reeds Avenue  
Phone: 916/527-3895

COLORADO: Wheatridge 80033  
Metal & Mineral Det.Sls.  
6117 W 38th St.  
Phone: 303/422-4566

CONNECTICUT: Bridgeport 06604  
Waldhaus Electronics  
1132 Norman St  
Phone: 203/335-7985

DELAWARE: Wilmington 19810  
Metal Detectors of Delaware  
2516 Merribrook Rd.  
Phone: 302/475-1229

FLORIDA: N. Miami Beach 33162  
Kenin, Inc.  
1834 N. E. 163rd St.  
Phone: 305/949-76811

GEORGIA, Albany 31702  
Cardinal Services  
318 East Broad Ave.  
Phone: 912/439-2356

GEORGIA: Augusta 30904  
Anthony Radio & TV  
3483 Wrights Crow Rd  
Phone: 404/733-2240

GEORGIA: Gainesville 30501  
Electronic Sales Co  
851 Main SW Drive  
Lakeshore Mall  
Phone: 904/532-3334  
or 532-3177

GEORGIA, Macon 31206  
Bloomfield TV Service  
5570 Bethesda Ave.  
Phone: 912/788-5281

ILLINOIS: Villa Park 60181  
Electronic Exploration  
111 S. Wisconsin  
Phone: 312/834-7060

INDIANA: Elkhart 46514  
White's Electronics Inc.  
Elk Air Industrial Park  
Dexter Drive East  
Phone: 219/264-0602

IOWA: Council Bluffs 51501  
Detector Supply  
209 S. 28th  
Phone: 712/322-1633

IOWA: Davenport 52804  
Spragg Electronics Serv.  
1228 Washington St.  
Phone: 319-323-9921 & 23

KANSAS: Wichita 67213  
Quintin Bonta  
617 Chase Street  
Phone: 316/942-6965

MASSACHUSETTS: Agawam 01001  
E & D Electronic Sales  
83 Parker St.  
Phone: 413/786-7190

MICHIGAN: Muskegon 49441  
Electronic Dist.  
1960 Peck St.  
Phone: 616/726-3196

MINNESOTA: Albert Lea 56007  
Phelps Communication Cntr  
RRi, Box 58  
Phone: 507/373-1111

MISSISSIPPI: Ocean Spgs. 39564  
Clays Sport Shop  
2744 Bienville Blvd  
Magnolia Park Shopping Ctr.  
Phone: 601/875-7183

MISSOURI: St Louis 63110  
Famous Barr Co, Dept 282  
3728 Market St.  
Phone: 314/421-5900 (Ext 358)

MISSOURI: St Louis 63138  
Search Electronics  
1631 Forestedge Dr.  
Phone: 314/355-1347

NEW HAMPSHIRE: Hudson 03051  
Radio Intelligence Comm. Syst  
14 Ridgcrest Drive  
Phone: 603/883-0000

NEW JERSEY: Lincoln Pk. 07035  
Wayne Divers  
25 Oak Street  
Phone: 201/694-9201

N MEXICO: Albuquerque 87108  
Andrews Electric Co.  
109 California St SE  
Phone: 505/265-1567

N MEXICO: Eunice 88231  
J. E. Earhart  
Box 171, 1407 8th St  
Phone: 505/394-2997

NEW YORK: Massapequa 11762  
Atlantic Metal Detector Sales  
1021 Park Blvd.  
Phone: 516/795-3322

NEW YORK: Rochester 14617  
Detection Enterprizes of Rochester  
366 Brookview Drive  
Phone: 716/338-2588

N. DAKOTA: Grand Forks 58201  
McGiffins Coin & Stamp  
103 N. 3rd. St.  
Phone: 701/772-531

OHIO: Minerva 44657  
Blanchard's  
218 N. Market Street  
Phone: 216/868-4544

OHIO: Washington Court House 43160  
Boylan-Cannon Electric  
135 N. Fayette St  
Phone:

OKLAHOMA: Tulsa 74112  
The Treasure Shack  
8500 East Eleventh  
Phone: 918/838-0987

OREGON: Sweet Home 97386  
(Factory)  
White's Electronics, Inc.  
1011 Pleasant Valley Rd  
Phone: 503/367-2138

PENNSYLVANIA: New Cumberland 17070  
Fox Metal Detectors  
313 Bridge St  
Phone: 717/232-4629

RHODE ISLAND: Greene 02827  
Bob's Service  
#135 Benefit St  
Phone: 401/397-3143

TEXAS: Odessa 79760  
Fireball Electronic Met Det. Sls.  
1807 E 8th  
Phone: 915/366-4802

VIRGINIA: Roanoke 24015  
Roanoke TV Service  
1266 Riverland Rd SE  
Phone 703/342-9792

W. VIRGINIA: Charleston 25312  
Roland Barnett  
Rt 4, Box 124,  
Phone:

WASHINGTON: Tacoma 98446  
J. S. Electronics  
10305 Waller Road E  
Phone: 206/531-1736

WISCONSIN: Racine 53405  
Electrascan  
2417 Russet St  
Phone: 414/633-0480



1011 Pleasant Valley Rd.  
Sweet Home, Or. 97386