

FISHER *m-SCOPE*®

M-96

Value, Pedestal and Box Locator



Operating Manual

FISHER RESEARCH LABORATORY

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ABOUT YOUR DETECTOR

The Fisher M-Scope Model-96 offers the utility industry an uncomplicated detector for finding paved-over or buried metallic objects. The waterproof search coil and the rugged electronics housing make the M-96 an ideal detector for field utility use.

The entire VLF (Very Low Frequency) operation of the M-96 has been reduced to just two control knobs and a pushbutton. Adjusting these knobs gives the operator maximum depth while eliminating annoying ground effects, usually caused by mineralization in the soil.

The M-96 features state-of-the-art, surface-mount electronics in a sealed control housing.

The Fisher M-96 offers a easy, uncomplicated method of finding buried metallic objects.

CONDENSED OPERATING INSTRUCTIONS

FACTORY PRESET 'TURN-ON-AND-GO' MARKS

Your Fisher M-96 is fairly simple to operate, especially when compared to other metal detectors. Even so, we strongly recommend that you read this entire manual. You'll be able to tune your M-96 to your specific needs and conditions.

But if you just can't wait any longer, and you're an experienced detector user, here's some quick instructions to get you going:

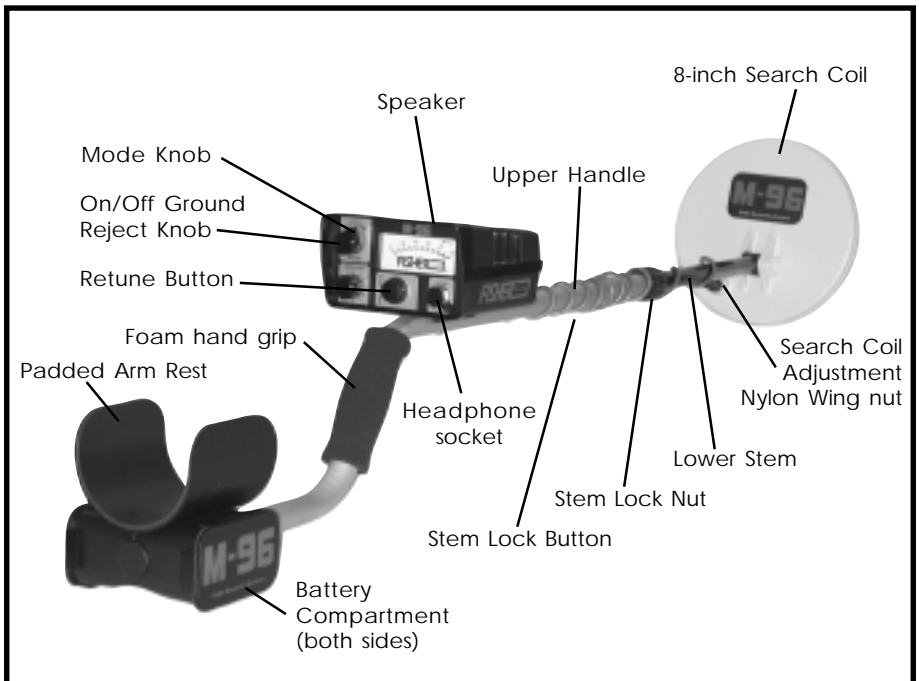
1. Unpack your M-96 carefully, and save the box. It may come in handy if you need to ship the instrument.
2. Take a look inside the lock nut on the upper handle to see if the yellow locking pad is on the left-hand side for a lower handle with a flat on one side. Loosen the locking nut by rotating it fully counterclockwise. This is the configuration for all M-96's up to Serial #62230. Units with Serial #62231 and after have a locking pad at the top and a round lower stem with a stem lock button fitting in one of the holes at two (2) inch intervals on the back side of the upper handle.
3. Slip the lower stem into the upper handle, making sure the flat side of the stem is aligned with the locking pad inside the lock nut, (Serial No. 62230 and before).
4. Adjust the stem length and coil angle so that the search coil rests flat on the ground about 6-12 inches in front of and slightly to the right of your right foot (to the left of your left foot for left handers). Your arm should be straight and relaxed, the grip held loosely. The stem length is adjusted by loosening the nylon wing nut on the search coil.

NOTE: Remember, the longer the shaft, the more you'll have to bend your elbow to keep the coil off the ground and the sooner your arm will get tired. The M-96 is balanced for comfortable searching in a tight semicircle around the front of the operator.

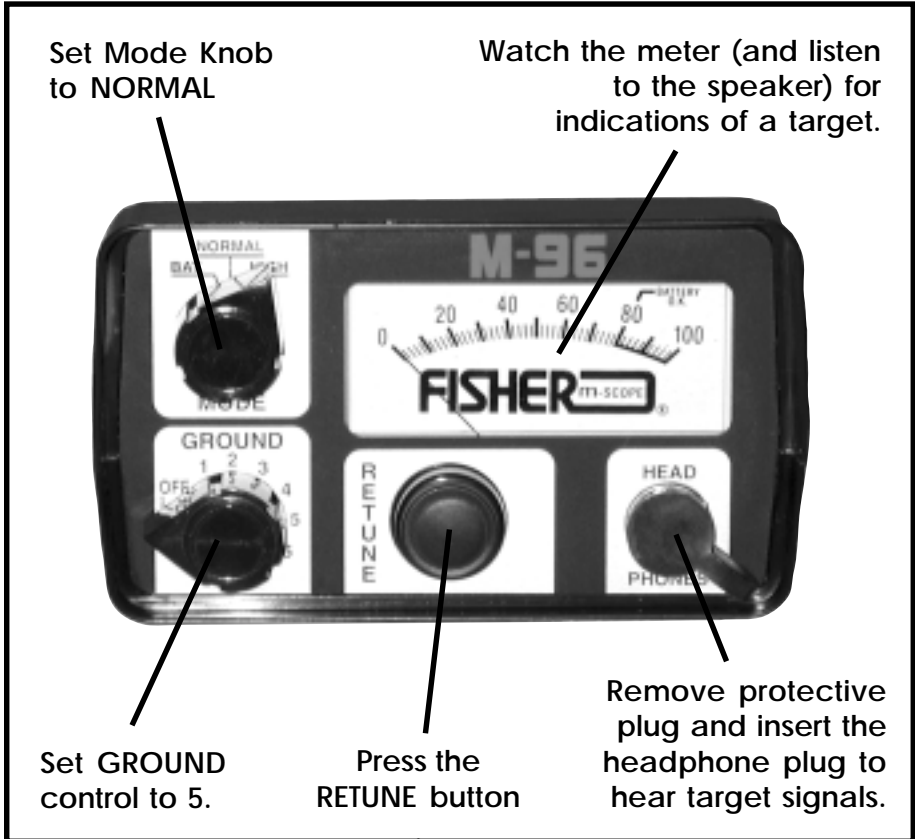
5. With the stem length properly adjusted, wrap the search coil cable snugly around the lower stem and the upper handle. Leave just enough slack near the coil to allow it to be tilted completely backward and forward.

NOTE: A loose cable near the search coil may cause false signals, but don't wrap it so tightly that it pulls against the housing or the coil.

6. Reconnect the coil cable to the control housing. Be careful not to cross thread it and make sure it's snug - but hand tighten only!



START-UP PROCEDURE



Turn-on-and-go factory preset control markers are colored red. The Mode Knob is set to Normal and the Ground Knob is set to 5.

7. With the shaft length and coil angle properly adjusted, you should be able to move into your search position by leaning forward very slightly and raising your arm.
8. If the arm rest is too wide or narrow, you may bend it slightly inward or outward to your exact requirements.
9. Plug your headphones (an accessory) into the headphone jack (if you don't use headphones, you can use the built-in speaker.)

10. The two knobs can be adjusted with your thumb without removing your hand from the grip, particularly if you're right handed. Set the controls of the MODE and GROUND switches to the red preset marks: NORMAL for the MODE control and 5 for the Ground control. You should hear a tone.
11. Press the RETUNE button.
12. Begin searching. Walk slowly, sweeping the M-96 search coil in front of you in a tight semicircle. Remember, the M-96 is a no-motion detector, meaning the search coil doesn't have to be moving to detect a target.
13. Keep the search coil parallel to the ground.
14. When you get a good, repeatable signal in your headphones and on the M-96 meter, pinpoint the target by passing the search coil over it both side-to-side and top-to-bottom (at 90 degree angles).
15. Watch the meter and listen to the target signal. The target will lie directly beneath the center of the coil when the meter and audio signal peak.
16. Although the M-96 is one of the easiest-to-operate metal detectors available today, skill with a metal detector takes practice. If you're having problems with your search, refer to the detailed operating instructions contained in this manual, beginning on the next page.

SETTING UP



Your search position should be comfortable and relaxed, with the detector grasped loosely in your hand.

FITTING THE DETECTOR TO THE OPERATOR

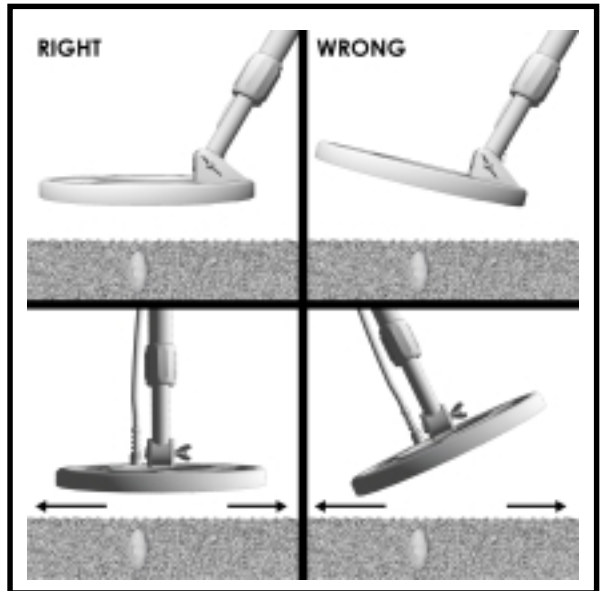
1. Start by gripping the foam hand grip and letting your arm hang comfortably by your side.
2. The length of the handle shaft and the angle of the search coil are both adjustable. Adjust the search coil angle so that it is parallel to the ground.
3. Loosen the lock nut found midway down the shaft, and extend the lower shaft slightly. If the serial number is 62231 or later, there is a stem lock button on the lower shaft that fits at 2 inch intervals in the backside of the upper handle to make it a double locking stem. Be sure that the button engages in the hole closest for your best operating length. After adjusting the length of the shaft, tighten the lock nut with your hand. (Refer to the photo on page 4.) Never use pliers or other mechanical force to tighten this nut.
4. Again, completely grasp the foam handle and let your arm hang at your side with the search coil parallel to the ground. Bring your arm forward and try a few side-to-side motions with the detector. The search coil should be about 1 inch above and parallel to the ground without strain to the operator. If the position feels strained to you, your hand holding the detector is too far in front of you or the shaft length adjustment is too short. Readjust the shaft length as necessary.

NORMAL MODE

The NORMAL MODE of operation is generally used when searching for larger objects, such as manhole covers, telephone pedestals in the snow and valve boxes. The NORMAL MODE, which is marked in red, is also used for locating smaller, shallower objects. No adjustments are required in most search areas, and most small pieces of metallic trash – such as bottle caps, pull tabs and nails – will be ignored.

1. Hold the search coil 3 feet off the ground and away from any metal objects.
2. To test the batteries, turn the MODE knob to BAT and turn the GROUND knob to 5. The meter should read at least 80. If not, replace the batteries.
3. Turn the MODE knob to NORMAL.
4. Push and release the RETUNE button. You should now hear a faint hum from the speaker, and the meter reading about 10. The faint hum you hear is called the “threshold sound.” You are now ready to begin your search.

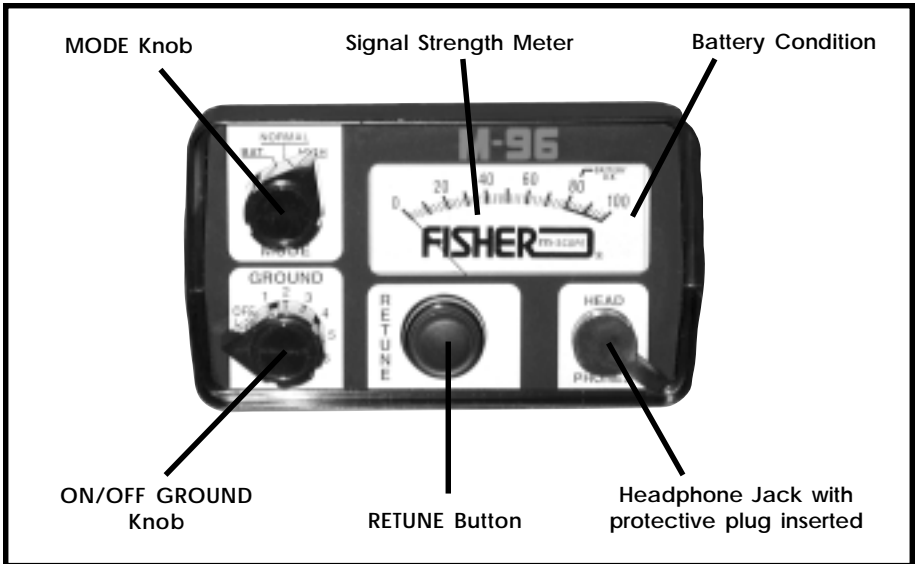
Make sure the search coil is always parallel to the ground while searching.



HIGH MODE

1. Rest the search coil on the ground in an area you are reasonably sure is free of metal objects.
 2. After going through BAT test in the NORMAL MODE, turn the MODE knob to HIGH.
 3. Turn the GROUND knob to 5.
 4. Push and releases the RETUNE button. The meter reading should be about 10 and the speaker should have a slight hum, or "threshold sound."
 5. Raise the coil straight up about 12 inches and note any changes in the meter indication and speaker volume.
 6. If there is little or no change in the meter reading and volume, the M-96 is properly ground adjusted and you are ready to search. If there is a change, proceed to step A or B.
 - A. If the needle and sound level drop when you raise the coil, set the search coil flat on the ground, turn the GROUND knob to 4 and push and release the RETUNE button. Now raise the coil 12 inches from the ground and repeat steps 4 and 5, making minor adjustments to the GROUND knob until the meter reading and sound remain the same whether the search coil is flat on the ground or 12 inches in the air.
 - B. If the needle and sound level increase when you raise the coil, set the coil flat on the ground and turn the GROUND knob to 6, push and release the RETUNE button. Raise the coil 12 inches from the ground and repeat steps 4 and 5, making minor adjustments with the GROUND knob until the meter reading and sound remain the same whether the search coil is flat on the ground or 12 inches in the air.
- The rule of thumb is this: if the volume increases when the coil is raised, turn the GROUND knob up. If the volume decreases, turn the GROUND knob down.

CONTROL PANEL



On/Off GROUND Knob

The ON/OFF GROUND Rejection Knob, when turned fully counterclockwise, clicks into the off position, turning the detector off. By turning the knob clockwise, the detector is turned on. The numbers, ranging from 0 to 10, indicate the degree of ground rejection, or electronic compensation, to counteract ground minerals. Ground mineralization can cause false signals or a false indication that the search coil is close to metal.

Mode Knob

The Mode Knob has three positions: HIGH, NORMAL and BAT (for battery testing). Use HIGH sensitivity when searching for smaller and/or deeper objects. Use NORMAL sensitivity when searching for larger, shallower objects, such as paved-over manhole covers.

RETUNE Button

The Retune Button is located at the bottom center of the control panel. Use it to retune the M-96 to prevailing ground mineralization just before pinpointing.

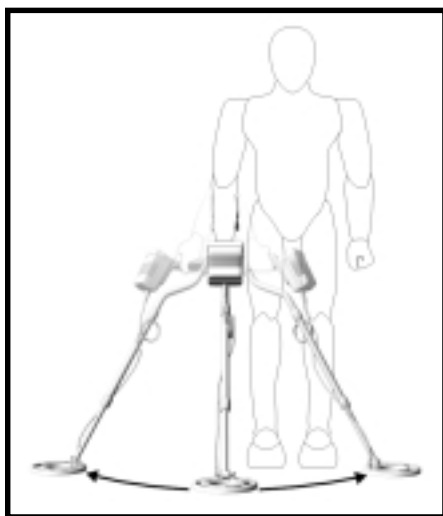
HEADPHONES Jack

The HEADPHONES Jack is located to the right of the RETUNE Button. A plastic plug can be inserted into this jack to keep dirt and water out when not in use.

SEARCH METHODS

It's a good idea to establish a systematic search pattern for your selected area. A systematic approach to searching will avoid aimless wandering, which could cause you to miss the search object and lengthen the amount of time required to do the job.

As you walk along, your sweep pattern should be in a slow, half-circle motion from side-to-side and with the coil as close to the ground as possible. When the M-96 search coil passes over a conductive (metallic) object, it will be indicated by an increase in both sound and meter reading. Because of the sensitivity of the M-96 search coil, a large and/or close-to-the surface object may be detected before the search coil is directly above it. Passing the search coil over the object from several different directions and marking the edges of the object will indicate its central position.



Your search should be slow and methodical, sweeping in a semicircle and overlapping for maximum ground penetration

HELPFUL HINTS

Raising the coil vertically in the air is another method of reducing the target size (as seen by the detector) and pinpointing the target. Because the area of greatest sensitivity is in the center of the search coil, it is very easy to pinpoint the location of any metallic object, large or small. Also, see the section on Pinpointing, beginning on page 12.

1. Hold the search coil about 1 inch or less above the ground and begin your search by sweeping back and forth as shown on page 10.
2. Keep the search coil parallel to and as close to the ground as possible.
3. Overlap your sweeps for uniform depth penetration.
4. Search slowly and systematically. Pay attention to where you are going and where you have been.
5. During your search, the meter reading should remain at about 10 for maximum sensitivity. However, as you pass over changing ground mineralization or metallic trash, the needle may drift up or down slightly. A quick push of the RETUNE button will instantly retune the M-96 to its "threshold" sound.

SEARCHING IN WATER

The search coil is waterproof and the lower handle may be used in water; however, the water must not contract the cable connection at the box, nor should the box itself be immersed.

If you are searching in salt water, be sure to flush the lower handle with fresh water after every use. If not, continual exposure to salt water may cause the nut to freeze up.

PINPOINTING

Accurate pinpointing with the M-96 takes some practice but not much. With a little experience, you should be able to pinpoint buried targets in just a few seconds.

1. Once the presence of a buried target is indicated by a sharp increase in the audio signal and needle movement, continue moving the search coil from side-to-side across the target area in a narrower and narrower search pattern.
2. Stop the search coil over the spot where you receive the loudest response and highest meter reading.
3. Now move the coil slowly forward and straight back a couple of times, again stopping over the strongest response.
4. Move the search coil side-to-side one more time and stop over the strongest signal once again. Your target should be directly below the center of the search coil.
5. For quick and accurate pinpointing of strong signals, push the RETUNE button momentarily, close to, but not over, the target area. This will "detune" the M-96 so that it responds over a smaller area, making pinpointing of the object easier. "Detuning" also reduces depth penetration.

CAUTION:

The ultra-slow auto-tune circuitry is constantly retuning the M-96 just fast enough to counteract any drift caused by humidity, temperature changes, etc. If the search coil is held for a prolonged period of time over a target, the M-96 will eventually "tune out" the target and the signal will fade. A brief negative-meter response may also result when the coil is moved away from the target. In either case, the M-96 may be instantly retuned to the "threshold" level by pushing the RETUNE button while holding the coil away from the target area.

CHANGING BATTERIES

To change the batteries, slide the side covers on the battery housing located underneath the arm rest in the direction of the arrows. Remove the battery holders one at a time. Replace all 6 AA cells, making sure that each one is inserted with polarity (+ or -) in the same direction as the ones you remove.

The M-96 power supply is located under the arm rest at the top end of the stem.

Grasp either side of the M-96 battery compartment by the top and bottom edges.

Slide the cover about half way off toward the opposite end of the detector.

Grasp the nylon pull tape and dislodge the battery pack by pulling up. Replace all six AA batteries.

Return the battery pack to the compartment, making sure it snaps into place. Also, be careful to keep the nylon pull tape within reach.

Hold the end of the battery pack down, along with the nylon tape, and slide the cover back into position. Repeat steps 1-6 on the other side of the battery compartment.

SPECIFICATIONS

Operating Environment

- +33° F to +120° F (0 to 50° C) with carbon zinc batteries
- 4° F to +120° F (-20 to 50° C) with alkaline batteries
- Search coil submersible in water

Operating Frequency of Search Coil 4.5 KHz

Sensitivity 0.2 mv RMS for full scale
Sensitivity Adjustment Range 12:1

Output IndicationMeter 1 milliamp, 0-100 linear scale
Speaker..... 16 ohm impedance
Headset (optional) 8 ohm impedance
Audio Frequency 450 Hz

Power Supply $\pm 9V$, each consists of 12 x 1.5V AA
batteries in (2) 6-battery packs

Power Consumption (-9V) 13.8 mA,
(+9V) 8 mA min
7.5 - 18.5 mA @ audio threshold
50 mA max

Threshold 50 mA max sound

Battery Life Carbon/Zinc 35-45 hours
Alkaline 100+ hours

Search Coil Configuration 2-D

Weight.....(with 8-inch coil).....3.74 lbs. (1.7 kg)
(with 11-inch coil)4.26 lbs. (1.9 kg)

Dimensions.....Length.....40 to 54 inches adjustable (101 to 137 cm)

Shipping Weight.....(with 8-inch search coil) 7.0 lbs. (3.2 kg)
(with 11-inch search coil) 7.0 lbs. (3.2 kg)

Shipping Dimensions.....5 1/2 x 12 1/4 x 34 3/4 inches
(14 x 31 x 88 cm)





QUALITY

Fisher detectors are renowned for their quality.
Each instrument is hand crafted in the USA with pride

PERFORMANCE

Our detectors are durable, dependable, and search deeper.

REPUTATION

Fisher produced the first patented metal detector in 1931. For over 70 years, the Fisher logo has been a mark of excellence.

2 - YEAR WARRANTY

Fisher believes in the products we produce and backs this belief with a 2 year limited warranty, Warranty may vary outside the United States. See your dealer for details

SERVICE

Fisher is committed to providing you, our valued customer, with superior service. Each and every instrument is rigidly tested and carefully inspected during assembly and before shipment.

Should you have any questions or problems, contact:

FISHER RESEARCH LABORATORY

200 West Willmott Road.,
Los Banos, California 93635

Tel 209.826.3292 Fax 209.826.0416

www.fisherlab.com email:info@fisherlab.com

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