



MAGNETIC LOCATOR



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ISO 9001:2000 CERTIFIED

Metrotech has received ISO 9001:2001 Quality Management System Certification. Metrotech adheres to the quality standard guidelines of ISO 9001:2001 and ensures quality in its design/development, production, installation, and servicing disciplines.

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1 INTRODUCTION

The Metrotech Model 880B Locator is a highly sensitive and discriminating instrument designed to locate only buried magnetic (iron and steel) objects, rejecting those objects that are not magnetic, i.e. aluminum cans, bottle caps, etc. The “fine tuned” sensitivity of the 880B makes it possible to locate magnetic objects at greater depths.

The Metrotech Model 880B provides utility companies, contractors, engineers or surveyors with a very sensitive, yet rugged, instrument for rapid location of buried curb stops, property markers, valve boxes, manhole or vault covers, well casings, and other iron and steel objects. A sensitive, wide-range meter in combination with a frequency modulated, audio tone, enables the operator to identify subtle magnetic fields.

The 880B is rugged, lightweight (less than 2 lb.), water resistant and compact. An automatic battery test is activated when the instrument is turned on.



2 880B EQUIPMENT

2.1 880B Standard Equipment

Standard equipment is listed below and pictured in Figure 2-1.

Model Number	Description
880B	Ferromagnetic Locator
500D109	Carrying Case
600A095-B	Operation Manual

2.2 Technical Specifications

Batteries:	Two 9V Alkaline (Neda 1604A)
Battery Life:	50-60 hours depending on temperature extremes
Control:	Combination On/Off and Sensitivity Knob Automatic battery test when instrument turned on
Meter:	Indicates signal level and battery condition

Speaker:	Approximately 20 Hz idle tone. Tone frequency increases or decreases with gradient field intensity
Weight:	1 lb. 10 oz. (3/4 kg)
Dimensions:	43"L x 2 1/2"W x 1 1/2"T (109 x 6.9 x 3.8 cm)
Temperature:	
Operating:	0° F to +122° F (-10° C to +50° C)
Storage:	-4° F to +158° F (-20° C to +70° C)
Construction:	High Impact UV Resistant Plastic

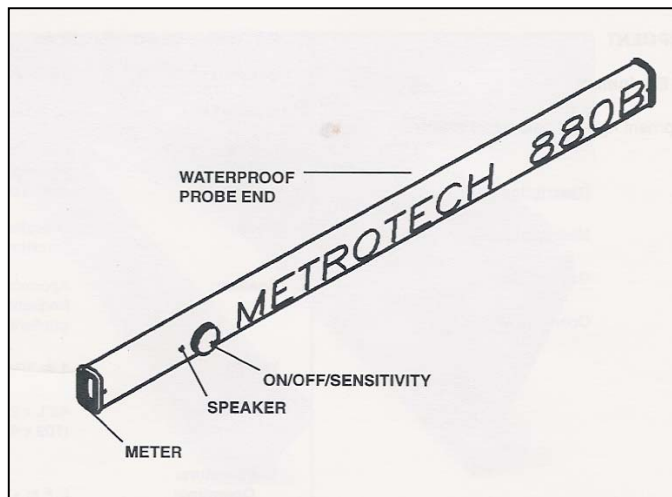


Figure 2-2: 880B Controls and Indicators

2.3 880B: Controls and Indicators

Figure 2-2

Designation

1

METER

The meter needle deflects in response to the presence of a magnetic field. The higher the needle position, the closer you are to an iron or iron and steel object.

BATTERY TEST

When the Receiver is turned ON, the needle should move into the BATT test area of the meter. If it does not, the batteries need to be replaced.

2

ON/OFF/SENSITIVITY KNOB

Turns instrument on and off.

Adjusts the sensitivity of the 880B to the magnetic field coming from a magnetic object. Set as low as possible to avoid picking up other magnetic fields from nearby objects.

3

SPEAKER

Emits an audible tone when 880B is near a magnetic object. The higher the tone, the closer the object.

3 CHECKOUT PROCEDURE

- 1) Hold the unit (in a vertical position) 6 – 12 inches above a 10p nail. Turn the ON/OFF/SENSITIVITY knob to “12 o’clock” position. The unit should display full meter deflection.
- 2) If neither the 880B meter nor speaker respond, replace the batteries. See Section 5.1 for battery replacement instructions. This unit has no other serviceable parts. Return to the factory for evaluation and repairs if the unit will not perform.

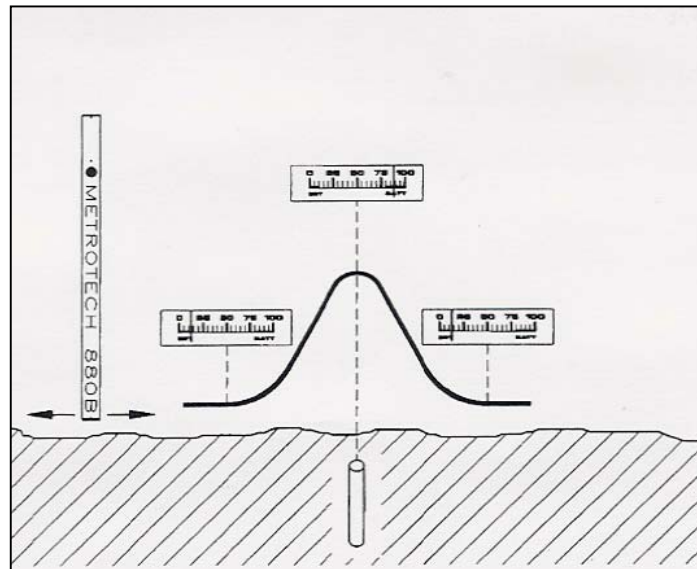


Figure 4-1: Typical Peak Reading

4 OPERATION

The 880B Magnetic Locator locates only those ferrous metals that attract the earth’s magnetic fields, such as iron, nickel, cobalt and their alloys, as well as magnets, such as magnetic markers. Utility objects that contain these metals would include PK nails, marker stakes, valve boxes, cast iron pipe, manhole covers and large iron tanks. It also locates objects that generate their own magnetic field, such as magnets. This discriminating feature of the 880B simplifies the operator’s search for a specific magnetic target.

The size, shape, depth and orientation of the target object will define the “profile” or “signature” indicated on the 880B meter.

To operate the 880B:

- 1) Turn the ON/OFF/SENSITIVITY knob “ON”. An automatic battery test (accompanied by a high squeal) will take place for two seconds. If the needle stays within the green area on the meter, the

battery is good. If it does not, replace the battery. (See Section 6.1) After the battery test, the instrument will switch to the operating mode.

- 2) Turn the ON/OFF/SENSITIVITY knob so that the meter reads in the “SET” position.
- 3) Hold the instrument in front of you and sweep it from side to side, keeping the end of the instrument as close to the ground as possible.
- 4) When the 880B approaches a ferrous target, the audible tone will increase, corresponding to the increase shown on the meter. See Figure 4-1 on page 6. If there is no indication of a signal, increase the sensitivity and search the area again.

Note: For the most accurate readings we recommend that you operate the 880B within the range of 40 to 80 on the meter.

4.1 “Signatures” of Different Targets

The following figures illustrate typical 880B responses to common targets. Note the instrument orientation to the target. With a little experimentation you will become familiar with the “profile”, or “signature” of each object you are trying to locate.

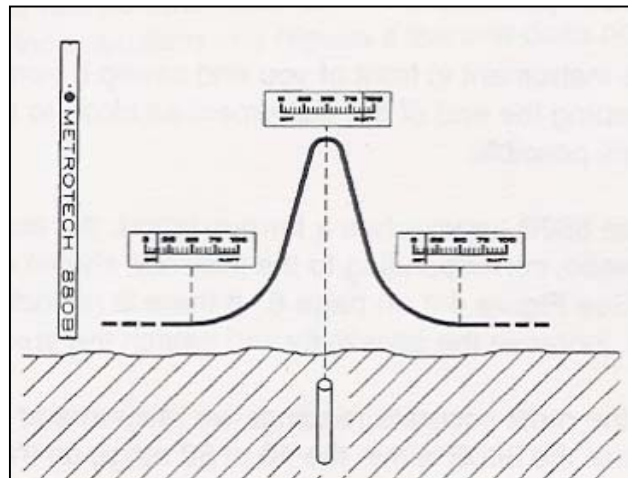


Figure 4-2: Vertical Orientation – Smooth Peak Response

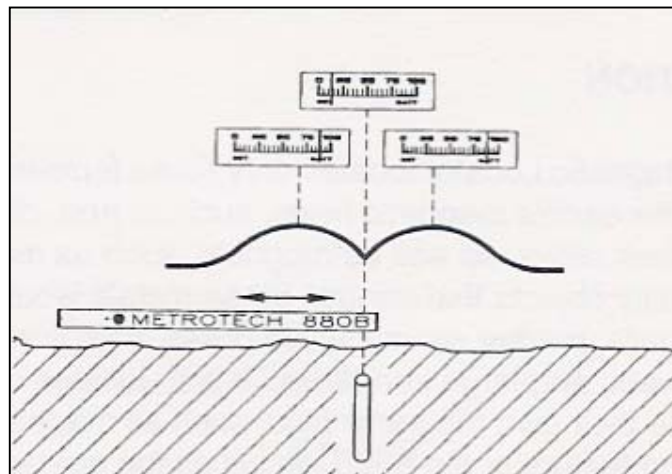


Figure 4-3” Horizontal Orientation – Sharp Pinpointing Null

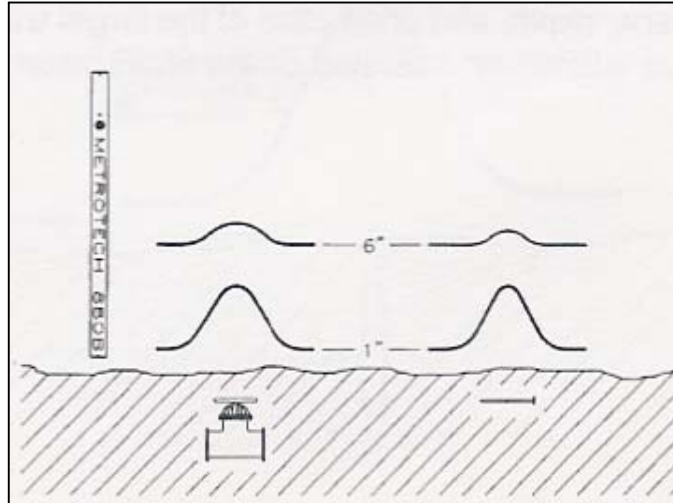


Figure 4-4: Two Readings of Target Depth

4.2 Typical Signatures and Operating Hints

You can develop a good sense of target depth by taking two readings from a target – one with the instrument tip at the ground surface, and one with the end of the 880B four to twelve inches above the ground. The response to a shallow target diminishes more rapidly than that of a deeper target. See Figure 4-4.

Once a target depth has been estimated, a rough idea of its size can be gauged by the amount of sensitivity setting needed to read “25” on the meter.

Long and narrow targets provide the greatest response when the instrument is parallel to the target. See Figure 4-5.

The following figures illustrate typical responses to various objects.

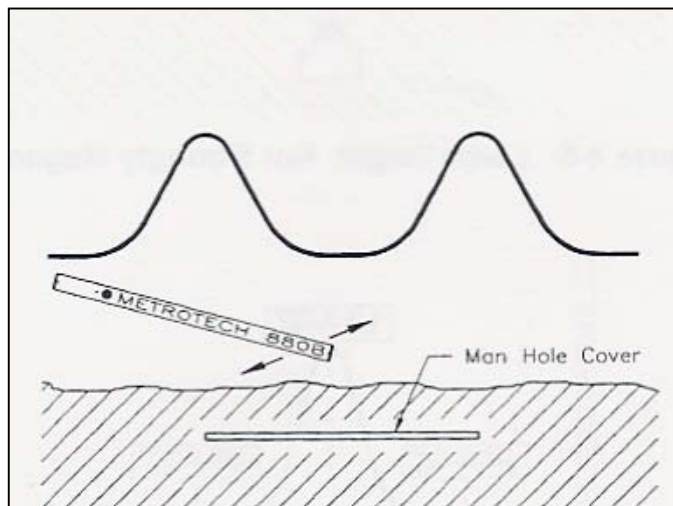


Figure 4-5: Dip Slightly and Move Slowly Across Target

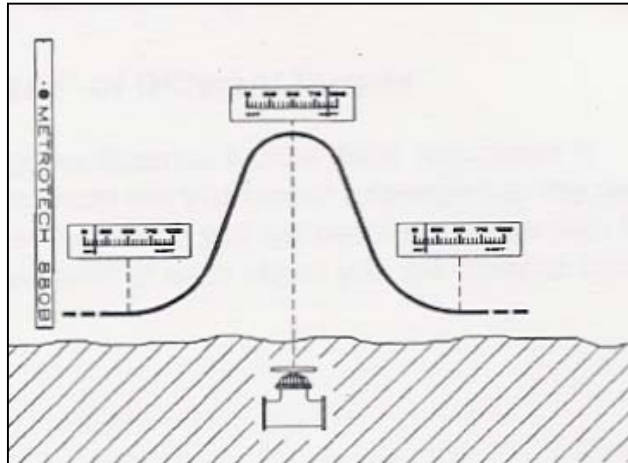


Figure 4-6: Large Target, Not Strongly Magnetized

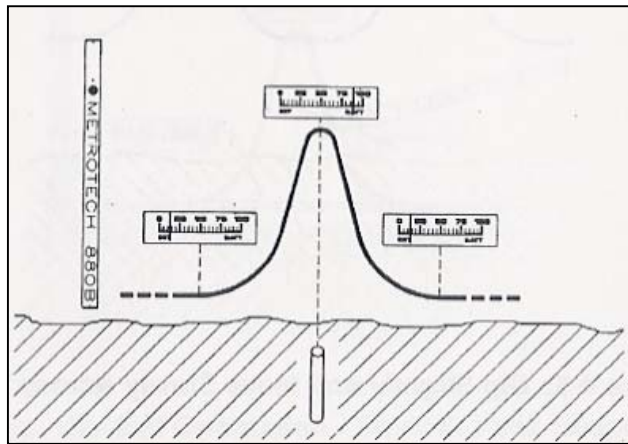


Figure 4-7: Narrow, Vertical Target, Not Strongly Magnetized

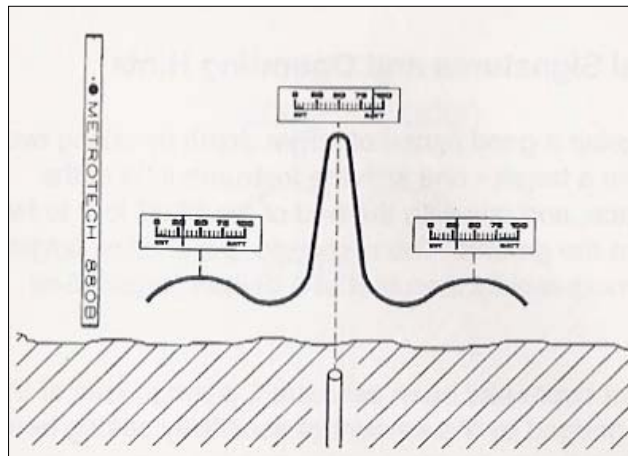


Figure 4-8: Narrow, Vertical, Strongly Magnetized

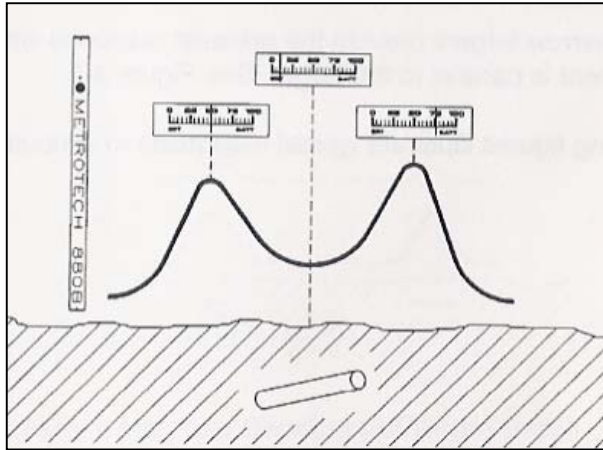


Figure 4-9: Sloping , Narrow Target, Not Strongly Magnetized

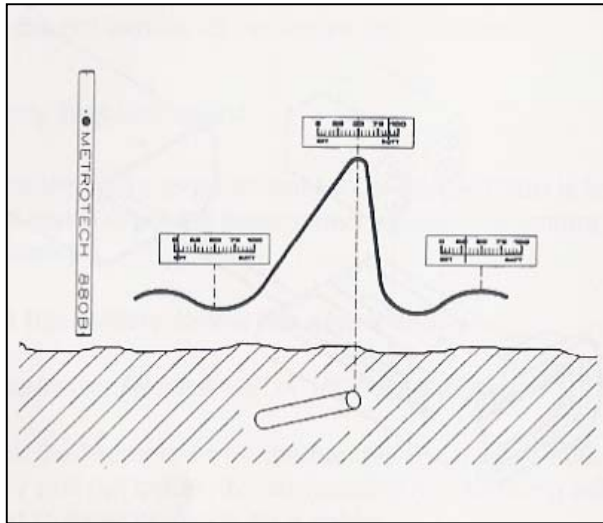


Figure 4-10: Sloping, Narrow, Target Strongly Magnetized

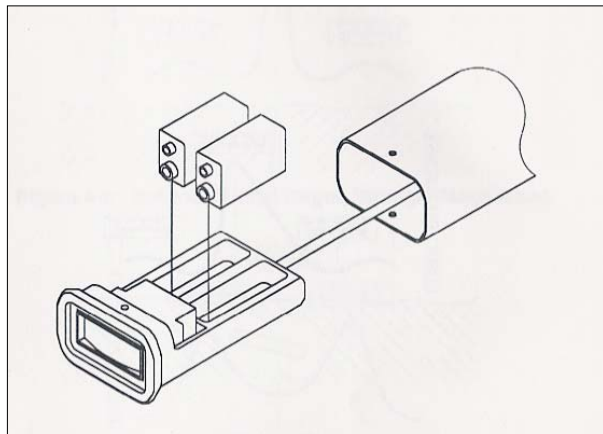


Figure 5-1: Replacing the 880B Receiver Batteries

5 MAINTENANCE

The 880B is designed for rugged, outdoor use, but rough handling should be avoided. Keep the equipment dry, clean and free of grit. Store the 880B (in its carrying case) in a cool, dry place. Do not expose to excessive temperatures.

5.1 Battery Replacement

The only maintenance requirement for Model 880B is to monitor the condition of the battery and replace the battery when necessary.

To replace the battery follow the steps below:

- 1) Have ready two Alkaline NEDA 1604A 9V batteries.
- 2) Unscrew the two screws on the handle end of the 880B. Carefully pull out battery/meter housing (the housing will be attached to inner workings by a cable).
- 3) Remove and replace both batteries.
- 4) Replace battery/meter housing and screw into place.

5.2 SERVICE CENTER INFORMATION

If the equipment does not function properly, replace the batteries as described above. If the equipment still malfunctions, contact one of the Metrotech Customer Service departments:

Metrotech West Coast Service Center

3251 Olcott Street
Santa Clara, CA 95054
Tel: 1-800-638-7682
(International: 1-408-734-1400)
Fax: 1-408-734-1415
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Internet: www.metrotech.com

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Or call the factory for the nearest authorized Metrotech repair station.

Additional Metrotech Instruments: Pipe and Cable Locators, Ferromagnetic Locators, Fiber Optic Cable Locating System, Sheath Fault Locators, Acoustic Water Leak Detectors, Electronic Marker Locators.

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DISCLAIMER

When hooking to live power via an inductive clamp, be certain clamp is connected around power line, not directly onto the power line. Please follow your own company's safety standards, and OSHA requirements.

WARRANTY

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, BEYOND THOSE STATED HEREIN.

Metrotech warrants its equipment to be free from defects in workmanship and material under normal and proper use and service for one year from date of purchase by original user. Metrotech assumes no obligation to repair or replace equipment which has been altered or repaired by other than a Metrotech-approved procedure, been subject to misuse, misapplication, improper maintenance, negligence, or accident; has had its serial number or any part thereof altered, defaced or removed; or been used with parts other than those approved by Metrotech. Warranty does not include batteries. Expendable items such as fuses and lamps are excluded.

Any detection product proved defective under this warranty will be repaired or replaced free of charge at the Metrotech Corporation factory or approved Metrotech repair station. The equipment should be returned to our factory by prepaid transportation after requesting and receiving return authorization from our Customer Service Department. Metrotech's obligations are limited to repair or replacement of broken or defective parts which have not been abused, misused, altered, or accidentally damaged, or at the option of Metrotech, to refund of the purchase price. Metrotech assumes no liability for removal or installation costs, consequential damages, or contingent expenses of any other nature.