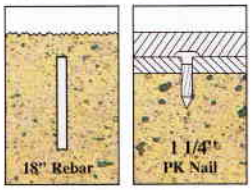
All Purpose

MAC-51Bx

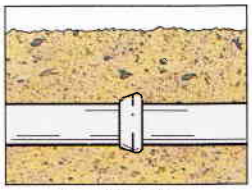
Magnetic, Pipe, Cable and Fault Locator

Up to 9 Feet | Up to 12 Inches



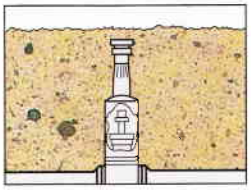
Survey Markers

Up to 10 Feet (4" pipe)



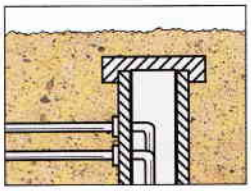
Cast-Iron Pipe

Up To 10 Feet



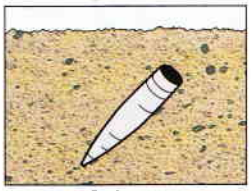
Iron Valve & Curb Boxes

Up to 18 Feet



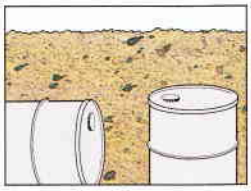
Well Casting

Up to 5 Feet



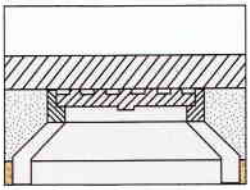
Ordnance

4 to 10 Feet



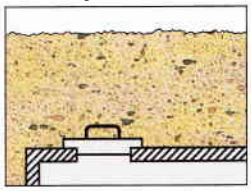
Steel Drum

Up to 10 Feet



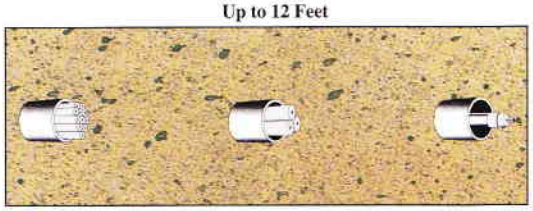
Manhole Cover

Up to 4 Feet



Septic Tank Handles

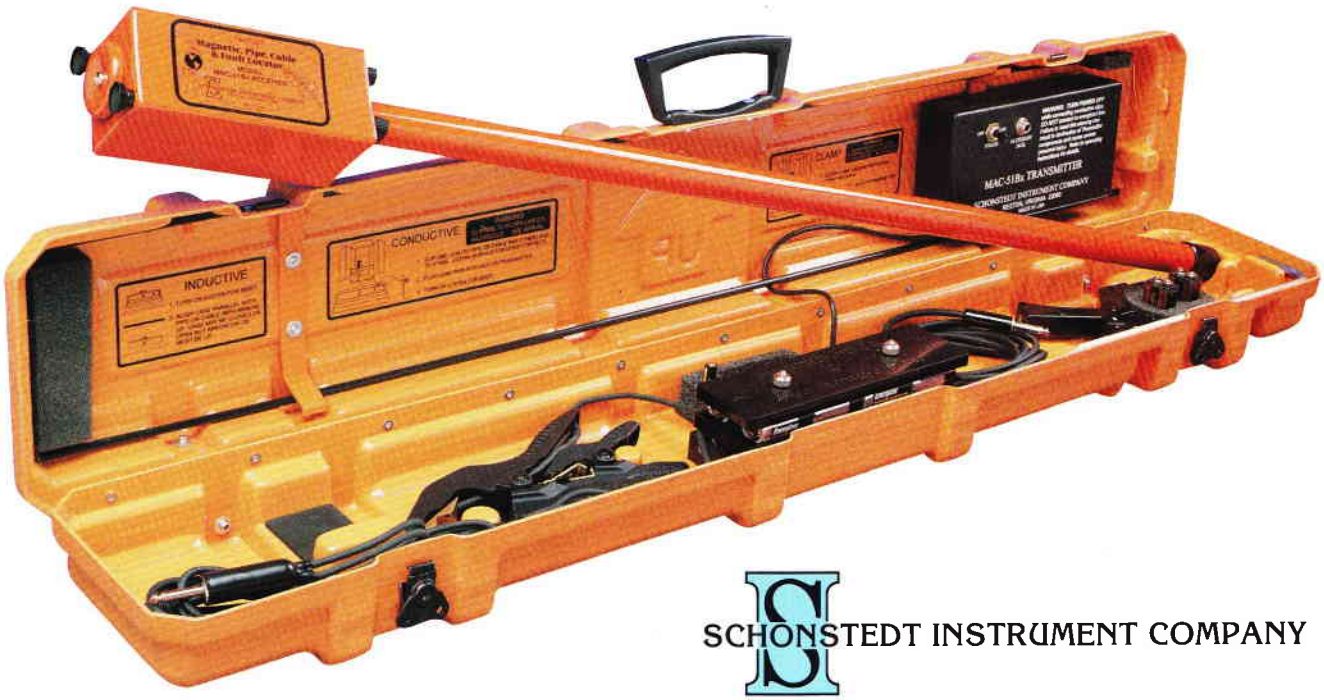
Up to 12 Feet



Telephone, Electric Power, and CATV Cables

Up to 12 Feet

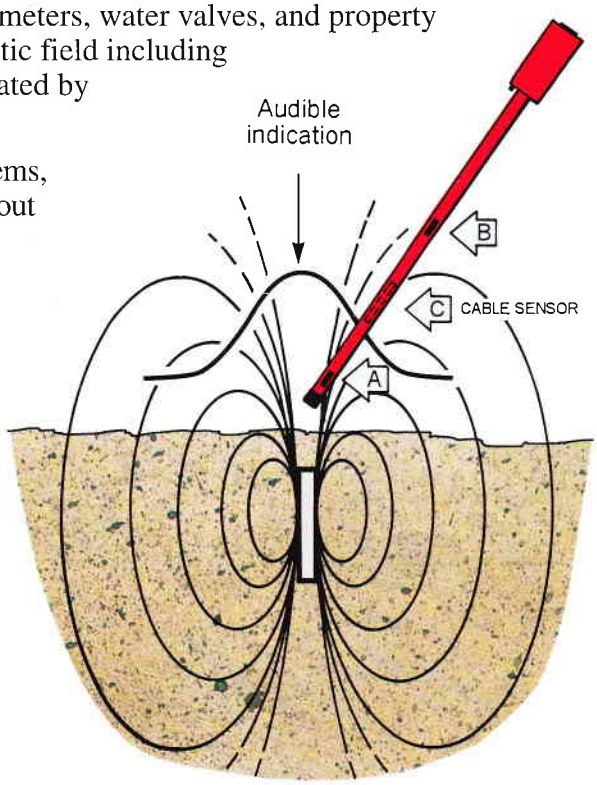
Tracer Wire, Marker Magnet, and Metallic Pipe



SCHONSTEDT INSTRUMENT COMPANY

Magnetic Locating Mode

Only the MAC-51Bx receiver is required when operating in the magnetic mode. Just set the Mode switch to **MAG**, the Gain control to mid-range, and you're ready to locate underground ferrous pipes, water meters, water valves, and property markers — or anything that has a magnetic field including the 50/60Hz electromagnetic field generated by energized power lines.

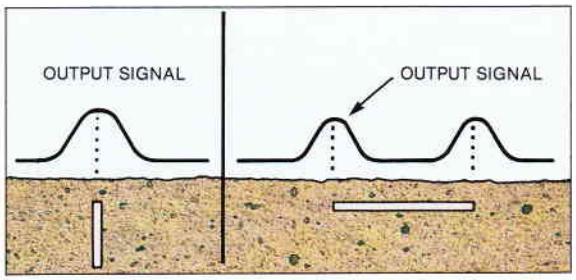


As you walk along without encountering any iron or steel items, the receiver's two magnetic-field sensors (**A** and **B**) balance out the Earth's magnetic field and the frequency of the audible indication will remain at 40 Hz.

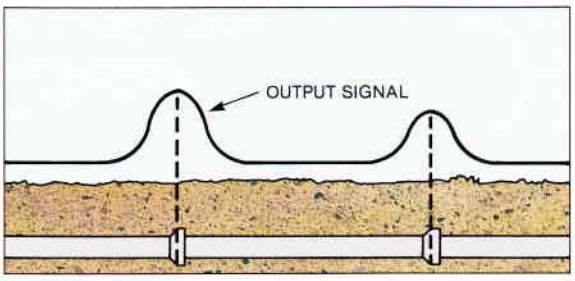
However, as you approach a buried vertical piece of iron pipe, for example, the frequency of the audio indication begins to increase as the strength of the magnetic field becomes stronger at sensor **A** than at sensor **B**. When the tip of the receiver is directly over the pipe, the strength of the magnetic field at sensor **A** is maximum which causes the frequency of the audio signal to peak.

After you've outlined the target area, reduce the sensitivity level and slowly move the receiver back and forth in an X pattern over the area. You'll be amazed at how quickly the well defined peak of the audio signal will pinpoint the target.

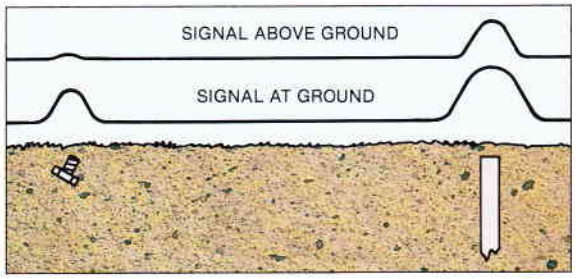
Basic Signal Patterns Provide You With Valuable Information



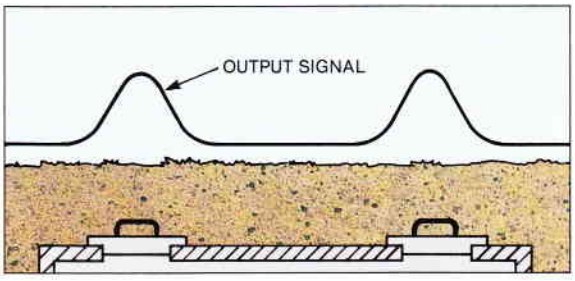
Signal Pattern from Vertical and Horizontal Targets



Signal Pattern Provided by Cast-Iron Pipes



Raising Locator Eliminates Unwanted Signals



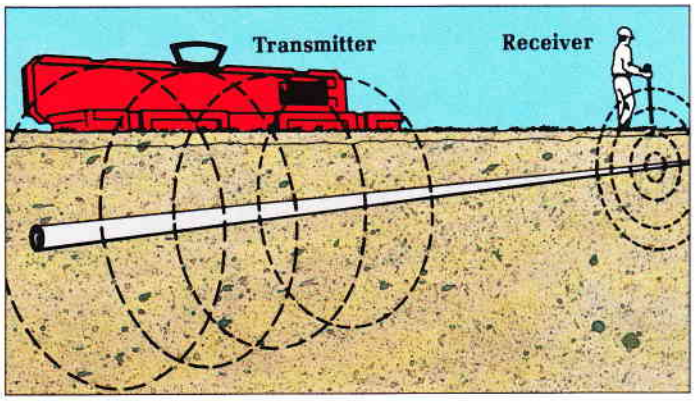
Signal Pattern Provided by Septic Tank Handles

Cable and Line Tracing Mode with Fault Locatin

The MAC-51Bx simultaneously transmits 82.5 kHz (HF) and 571 Hz (LF) signals. This feature lets you select and compare received audio signals from both frequencies along with magnetic information without having to return to the transmitter.

Setting the Receiver's Mode switch to HI allows you to trace the 82.5 kHz signal applied to a continuous metal conductor. The HF signal also jumps gaskets between pipe sections, bad telephone cable bonds and small breaks in a cable's sheath.

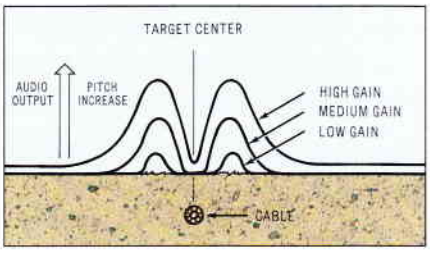
Transmitter Inductive Mode (HF only)
Induction is achieved by placing the transmitter over the target cable/pipe or by using the optional Inductive Signal Clamp. It's the easiest and quickest way of applying a trace signal that is strong enough for tracing most lines. The trace signal generates an alternating magnetic field around the cable which induces a signal into the receiver's cable sensor. You will hear a steady beeping from the transmitter to indicate the power switch is set to ON, unless the batteries



must be replaced. Moving the receiver back and forth as you walk along causes the audio signal to increase in pitch as the receiver is moved to either side of the cable. A sharp null in the audio signal between the two peaks occurs when the receiver's tip is directly over the cable.

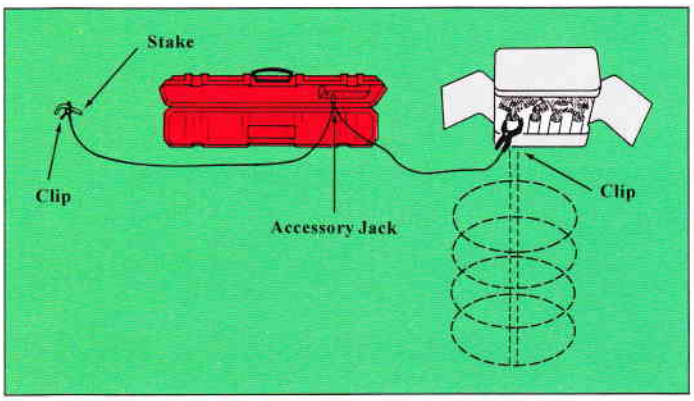
With a little practice, selecting the proper gain level to keep the locator's tip directly over the cable will become second nature to you.

As illustrated, the width of the null is the key to tracing a cable. The width of the null will cover too large an area when the gain is set too low, making it difficult to trace the line. If you set the gain too high, the null will be too narrow to be easily identified.



An induced signal is not as strong as a conductively applied signal. If the line you are tracing is electrically poor or is a leaky conductor, such as a gas or water pipe, the signal will become weak as the distance from the transmitter increases sooner than if you were tracing a copper line which is a good conductor.

Transmitter Conductive Mode
If an exposed section of a target gas or water pipe is accessible, conductive coupling is the most reliable method for applying the trace signal. This mode has to be used to apply both HF and LF frequencies so that you can use all three features on-the-fly. Providing a good electrical contact between the clip and the conductive portion of the target line by removing rust or paint before attaching the clip is very important.

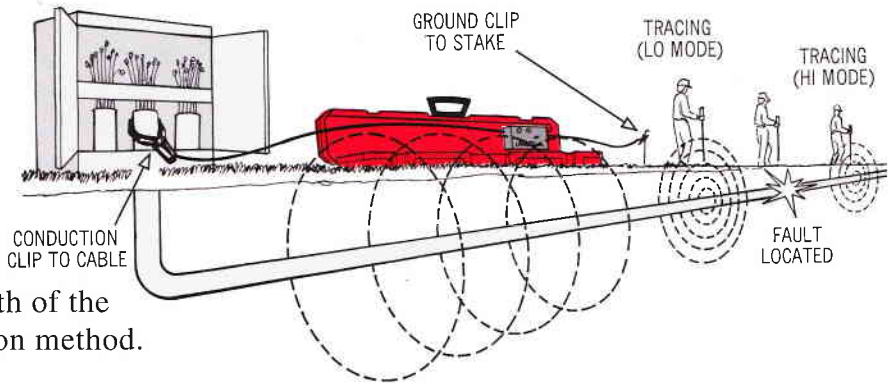


WARNING
Clipping to power lines is dangerous and should not be done. Insulation on the clip is not designed to protect against power line voltages

Combined Use of All Modes

The unique feature of being able to instantly switch between MAG, LO and HI Modes without returning to the transmitter makes the MAC-51Bx the most versatile nd cost-effective underground locator n today's market. You can verify the ype of target (magnetic or nonmagnet- :), in the MAG Mode. Switch to LO lode to trace the cable, locate the fault where the LO signal disappears), and ıen continue tracing beyond the fault y switching to the HI Mode.

ou can determine the approximate depth of the ault by using the traditional triangulation method. Hold the receiver at a 45° angle perpendicular to the cable and put its tip directly over the cable. Slowly move to the side in the direction of the tilt until the receiver detects a second null. The distance between the null over the cable and the second null is the approximate depth of the cable.



Some Applications Guidelines

. Use the transmitter's **Conductive Mode** or the **Inductive Mode** when you want the **82.5 kHz HF** tracing signal to jump electrical gaps, such as the joint gaskets in iron or steel pipe lines. A **Conductive Mode 571 Hz LF** signal can be traced for distances up to 4,000 feet.

. When using the receiver's **LO Mode** to trace a cable or to locate a fault, the tracing signal must be applied conductively to the target cable. The **571 Hz LF** signal will not jump a fault or bleed onto adjacent cables and pipes. Signal bleeding creates troublesome false indications, particularly in congested underground environments.

. Use the **Magnetic (MAG) Mode** (no transmitter required), when you want the receiver to perform like any other Schonstedt magnetic locator. When first detecting a target, you will find this mode to be very helpful for determining if it is iron or steel, a cable, or an energized power line.

4. Use the transmitter's **Conductive Mode** when switching the receiver "on-the-fly" between **HI, LO, and MAG Modes**. This provides a unique capability for tracing virtually any type of continuous metal conductor. When you use the **Inductive Mode**, only the receiver's **HI** and **MAG** Modes will provide good locating and racing results.

5. With the receiver set to **HI** or **LO**, you will hear a low pitched, idling audio signal. As you move it across the target line, the audio signal peaks on both sides and nulls when it is directly over the line. In the **MAG Mode**, the pitch of the audio signal will increase and peak when you have its tip directly over the line. When an energized power line is approached, the idling pitch changes to a distinctive "burbling sound" which also peaks directly over the line.

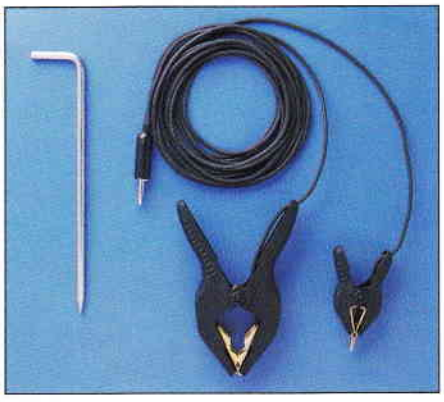
MAC-51BX ... lets you change between HF and LF for Cable/Line Tracing with Fault Locating, and Magnetic Locating Modes "on-the-fly"

Features

- Two active frequencies for cable and line tracing with fault locating
- Passive operation for locating iron and steel targets and energized 50/60Hz power lines
- Inductive and conductive signal coupling
- Extra Heavy Duty Clips and Cable
- Peak and null operation for precise locating
- Discrete sensitivity settings
- Receiver supplied with two environmentally friendly 9-volt lithium batteries
- Piezoelectric speaker
- 45° Depth Measurement
- Patented HeliFlux® Sensors
- Modular construction
- 3-Year warranty

Accessory

Conductive Cable Assembly is used for applying the tracing signal directly to an exposed section of a cable, line or metal conduit for maximum tracing distance and fault locating.



System Description

The MAC-51Bx (the most cost-effective, all-purpose locating system on the market) consists of a receiver and a transmitter that simultaneously transmits on two frequencies — 571 Hz (LF) and 82.5 KHz (HF). The receiver has a three position switch that lets you change modes, "on-the-fly", between **LO**, **HI** and **MAG**, for cable and line tracing with fault locating, pinpointing a ferrous metal target, or identifying and pinpointing an energized 50/60 Hz power line.

In the LO and HI modes, the receiver's audio signal provides a sharp null when its tip is directly over the target. In the MAG mode (no transmitter required) the audio signal peaks when the receiver's tip is over the target.

You can trace the 571 Hz LF signal conductively applied to any continuous metal conductor up to 4000 feet. The receiver's on-the-fly mode-changing feature lets you locate a fault using the LO mode, and then continue on to trace beyond the fault in the HI mode, or trace a metal pipe joined with non-conductive gaskets.

Options

MT-2 Mini-Transmitter (Mole) is used to trace non-metallic pipes, pinpoint obstructions and locate concrete septic tanks. When attached to a plumber's snake, the Mole emits a signal detectable at depths of 18 feet using the MAC-51Bx Receiver.

Inductive Signal Clamp increases the versatility of the MAC-51Bx by providing a convenient method of selectively applying the trace signal to conductors covered with nonmetallic insulation.

Optional Mini-Transmitter for Tracing Non-Metallic Pipes

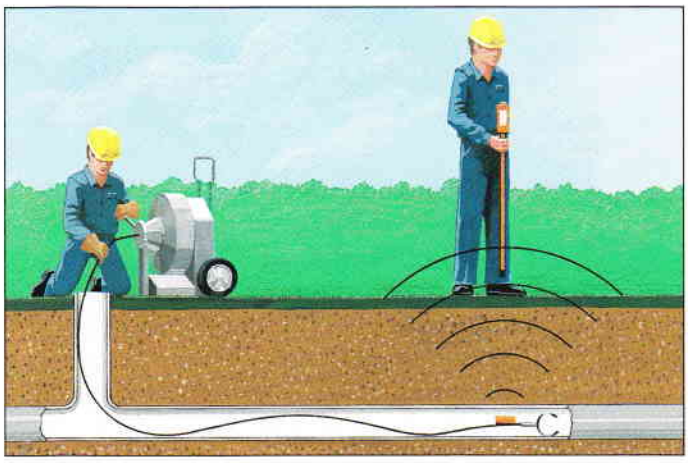
Expands Locating/Tracing Capability

The MT-2 (Mole) is a miniature transmitter designed to be used in conjunction with the MAC-51Bx Receiver. It's just what you need to trace non-metallic pipes, pinpoint obstructions, locate concrete septic tanks, and monitor the course of utility tunneling under highways.

As the mole, attached to the end of a sewer/drain cleaning snake, is pushed through a non-metallic pipe, it emits a strong signal that you can detect and trace at depths up to 18 feet using the MAC-51Bx receiver set to the HI mode.

Provides Years of Trouble-Free Operation

One AAA penlight battery provides up to 25 hours of operation. The battery cap also serves as the On/Off switch. You turn the power off by rotating the battery cap counterclockwise.



Very Easy to Attach

The Mole has one concave surface so it can be secured to a plumber's snake with electrical tape.

MAC-51Bx Specifications

Receiver

Operating Voltage	9 V (2 alkaline or 2 lithium batteries)
Battery Life	60 hrs, alkaline (on & off usage @ 70°F)
	120 hrs, lithium (on & off usage @ 70°F)
Audio Output	Approx. 40 Hz idling tone from speaker Frequency of pulsing tone (increases or decreases) with signal intensity
Weight	2.64 lb. (1.20 kg.)
Operating Temp.	13°F to 140°F (- 25°C to 60°C)
Overall Length	42.3 in. (107.4 cm.)
Waterproof Length	34.5 in. (87.6 cm.)
Nominal Sensor Spacing	20 in. (50.8 cm.)

Transmitter

Operating Voltage	12 V (8 alkaline C-Cell batteries)
Battery Life	60 hours (on & off usage @ 70°F)
RF Output	82.5 kHz modulated at 382 Hz, pulsed at 4.4Hz
	571 Hz pulsed at 4.4 Hz
Audio Indicator	2.58 kHz pulsed at 4.4 Hz
Weight	Approx. 5.5 lb. (2.5 kg.)
Operating Temp	-13°F to 140°F (- 25°C to 60°C)
Overall Size	43.5 in. x 7 in. x 5 in. (110.5 cm. x 17.8 cm. x 12.7 cm.)

(Specifications subject to change without notice)

Corporate Headquarters

Premier Manufacturer of Flux-Gate Magnetometers for over 42 years; and the first to use *environmentally friendly and safe lithium batteries* in a locator product.

Authorized Dealer

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1775 Wiehle Avenue, Reston, VA 22090-5199 USA
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