

Thinking Man's Locator

Innspector Works Differently Than Electromagnetic Equipment

By Amy Chmura

After nearly four years of development and testing, SubSurface Instruments Inc., sold the first units of its newest locator last October. Promoted as the "thinking man's locator," SubSurface's Innspector 07 is a single, handheld unit that weighs about 2.5 pounds.

Company President Ron Davenport demonstrated the locator that was designed to find things traditional locators cannot at The Planet Underground in March for a key group of users including Staking University instructors, one-call professionals, utility representatives and contract locators.

receiver plus cables, the Innspector 07 is ready to go upon pulling it out of the case. There is no set up or calibration, Davenport said.

Holding up the bright yellow piece of equipment, Davenport jokes that he has heard it called everything from a pooper scooper to a squeegee. A member of the demonstration panel notes it looks like a dust pan. Davenport said the simplicity of its structure was part of his design philosophy of keeping it simple.

The panel on the locator contains an on/off knob with an LED indicator to show it is on, off or running low on battery power; left and right target indicator lights and a warning label stating not to look directly into the laser when operating the machine. An internal buzzer sounds only when the laser is on a target.

So how does this piece of equipment work? "It loves edges, sees them and reflects them," Davenport said. This is not ground penetrating radar (GPR), Davenport pointed out although he will sometimes make that comparison as it is something people can understand and a concept they can grasp.

The Innspector 07 does send and receive multiple signals from a transmitter in the center of the unit and two receivers or antenna on both sides. Extremely high frequency signals are transmitted and received along a line thin in height by about the width of the front of the instrument. This return signal is processed on board and is reported by a flashing red LED that becomes steady. When both red LEDs lock onto a target at the same

"This is not meant to replace other locators," Davenport said. "It can be used to verify, to find what you know is there but can't find any other way."

The Innspector 07, Davenport indicated, does not work like other electromagnetic locators. "You can't sweep it back and forth and expect to locate a line," Davenport said. "If your mind is in the right place, you can use it, but you must use what is between your ears first. Think about what you are doing and go slowly."

Davenport takes the Innspector 07 from its case. Designed for portability, the one-piece unit uses four alkaline C batteries that fit in the handle. The unit is 15 inches wide and tapers to 8 inches, and is 1 inch thick tapering to a half inch. Unlike other locators that usually require a transmitter and handheld

time, a red laser pointer automatically spots the target on the surface in a direct line to the target at the angle at which the user has detected the line. The signal it sends out is a very narrow V shape, Davenport pointed out. The on/off knob also controls the sensitivity of the frequency from 3 which is high to 1 which is low.

"The great thing about this locator is that it finds just about everything," Davenport said noting that no piece of equipment is 100 percent accurate all the time. When he says everything, he means everything up to 10 to 12 feet deep from a pipe the size of a pencil to one the size of a baseball bat including metallic pipes and cables to non-metallic pipes and cables. It has found roots in the woods and buried remains of people. The locator is designed to find those things that one knows are somewhere in the area to verify that a drawing is really correct. It was designed for those cases where metallic pipe or cable has been partially replaced by a non-metallic one and where the tracer wire was improperly installed or corrodes or is broken. A technician could begin locating at the metallic pipe and continue locating with the Innspector 07.

Davenport talked about specific instances where the Innspector 07 found pipes and cables within seconds that had taken other workers hours or days to find. "We were able to determine fiber optics in water up to our ankles following storms in Mississippi," he said.

There was another example of the Innspector locating a natural gas line that ran in a building within 20 seconds that took the original crew two days knowing it was there somewhere. On another occasion, Davenport was able to use the locator to find lines that had been placed in the late 1960s. Prior to using this new locator, the only way to verify the lines was to pothole at \$2,000 each.

Since the Innspector does not work like other locators, Davenport suggests that new users take it home and practice. Use it to locate lines they know are there. "It is not meant to go 90 miles per hour,"

Davenport said holding the machine and demonstrating the "get target, step, get target, step and repeat process" will allow the user to

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connect the dots and verify the location of an underground object.

"Once you get the hang of it, you will have great success," Davenport said. "If you can imagine a two-dimensional pencil drawing in your mind of what is below, you can find anything."

During the demonstration, Davenport allowed the user group to "test drive" the machine to locate lines at The Planet

Underground utilizing the lines that are part of its Staking University training facility.

"With the short time I was able to use it, I could see that it may offer a great advantage to the locator trying to find pipe or cables that cannot be found by conventional equipment," said Paul Larkin, Business Manager and Instructor for Staking University. "It is another tool to add to the locating arsenal."

Dave Van Wy, damage prevention manager for JULIE, Inc. (Illinois One-Call System) noted that while this was not the only locator a technician should have in his truck, it could be one of the things that he pulls from the truck when nothing else will work.

Davenport did caution that this piece of equipment does require care. It is not impervious to physical abuse and should not be thrown around in the back of a truck even if it is in its case. **UF**



Ron Davenport, of SubSurface Instruments, Inc., demonstrates the proper way to use the Innspector 07 at The Planet Underground in Manteno, Ill.

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