

Dual or Single Channel Acoustic Detector Systems

DAD™ DUAL CHANNEL SYSTEM



DAD System includes the following components, numbered on photos:

- Two earth probe microphones and cabling.
- Two tri-pods for asphalt and concrete.
- A-T Ballistic Impulse Meter Detection System.
- "0" Center meter for direction to fault.
- Stereo headphones -high quality, comfortable.
- Audio Output Limitation: Automatic ear protection for operator, even when microphone is dropped.
- Foam-lined carrying case.
- Instruction manual; easy to read and learn in a short time.

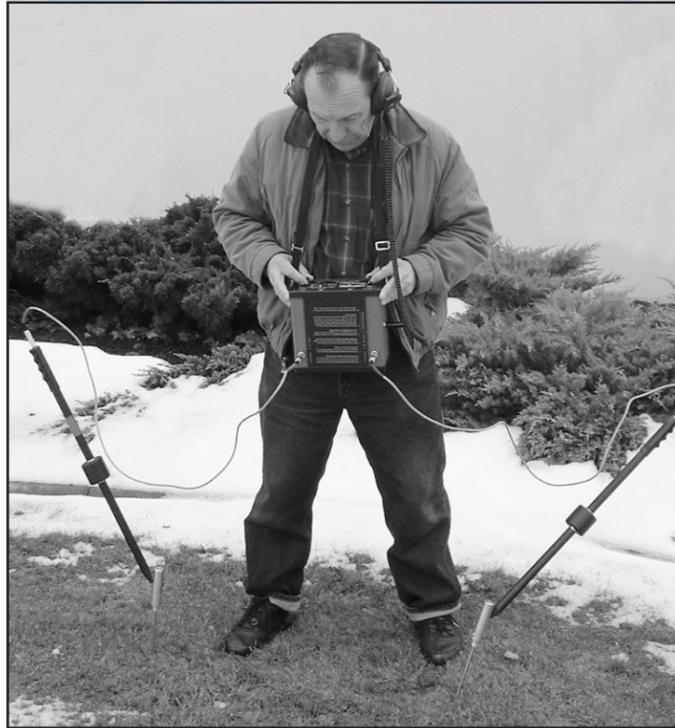
WARRANTY:

The DAD and SUPER DAD carry a one-year warranty against defective materials or workmanship. Aqua-Tronics will repair or replace any part or the complete system at its expense. Turnaround time for service is 72 hours.

Our Representative Serving This Area:

Optional Accessories HAMMER HEAD SPIKE™

Can be driven into frozen ground or the toughest of soil conditions without damage to the microphone.



DUAL CHANNEL SYSTEM

HARD-SOIL STIRRUP PROBE

Now... a probe that pushes down into hard-soil conditions! This hard-soil stirrup probe comes as an accessory to the Aqua-Tronics Acoustical Detector Systems.



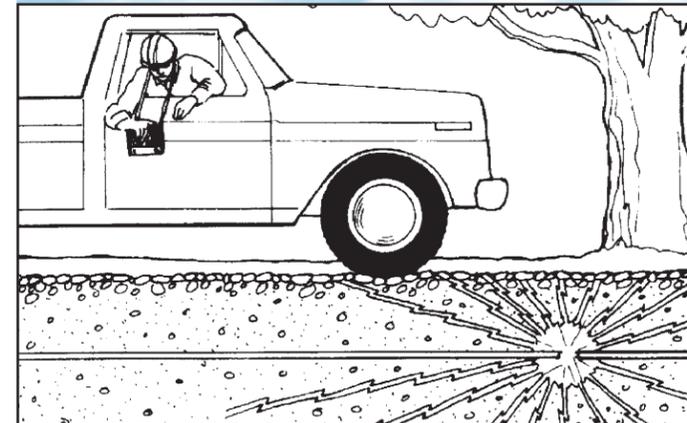
ACOUSTIC AIDS

make any thumper more effective in finding faults



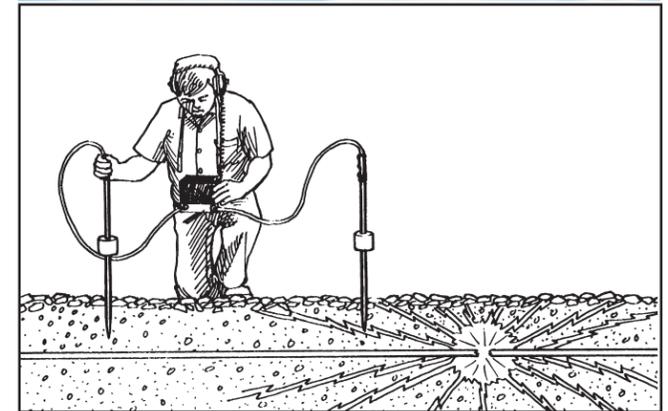
PRE-LOCATING With Magnetics

Ballistics Impulse Detector helps you pre-locate faults rapidly, even from a moving vehicle!



SUPER DAD™ DIGITAL Directional Acoustic Detector DUAL CHANNEL

Points direction to fault from operator with logic trip electronics.



DAD™ ANALOG



SUPER DAD™ AND DAD™ are trade marks of Aqua-Tronics, Inc. Protected under U.S. Patent #4,835,478 with other patents pending.



SETTING THE STANDARD FOR SERVICE

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Save Time Finding Faults In Soft Soil

BALLISTIC IMPULSE DETECTOR

One of the keys to the superior performance of A-T's Acoustic Detector systems is the Ballistic Impulse electronics, which sense the "thump" as it passes down the cable and signals its passage to the operator.

When the thumper produces its output voltage pulse, it also produces a very large electromagnetic wave that surrounds the pulse. As the output voltage pulse travels the route of the cable from the thumper to the fault, the electromagnetic wave travels with it.

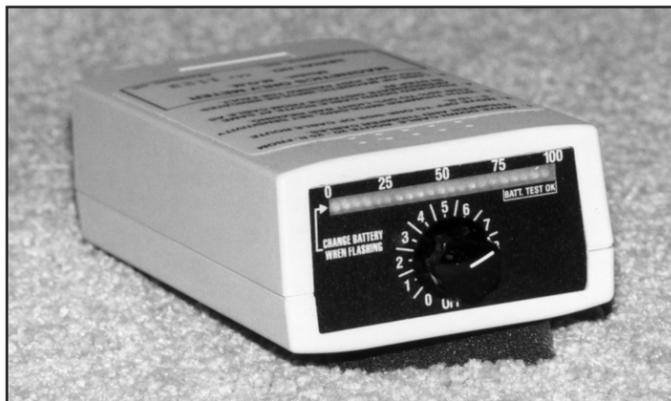
An antenna above ground detects the magnetic wave, which is amplified and displayed each time the thumper voltage pulse goes by the operator on its way to the fault.

So effective is the Aqua-Tronics design, the operator can "see" the impulse wave from cables that are 25 feet underground, beyond the range of other detection systems.

UNIDIRECTIONAL DETECTION SPEEDS SEARCH

Detection also is unidirectional. Unlike others, the A-T system functions with the electronics at any angle with respect to the direction of the cable. This can be especially helpful in the event that a vehicle can be used in prelocation of the fault. Since ultra high gain is built into the electronics and the antenna is unidirectional, the "thump" can be followed by driving near the cable route.

General location of the fault can be determined quickly, because most of the thumper's output energy is lost at the fault and impulse detection is greatly reduced a very short distance past the fault.



MOM™ - 'Magnetics Only Meter' prelocates faults with thumper. Speeds network fault locating.

DETECTOR VISUALLY CONFIRMS AUDIBLE "THUMP"

The Ballistic Impulse indication is helpful also in discriminating between an audible "thump" and background noises. When a thump is heard the A-T Ballistic Impulse indication will also be activated. If the sound heard and the A-T Ballistic Impulse indicator are not activating at the same time, then the sound being heard is not the thump, but probably background noise.

Another benefit from the A-T System is its ability in locating a cable fault on a "Y" splice. The thumper voltage will travel to the fault and the ballistic impulse will be detected only on the faulted branch, if all ends of the "y" system are isolated.

EARTH PROBE MICROPHONE For Soft Surface Listening

A second but equally important advancement is Aqua-Tronics' Earth Probe Microphone, which allows the sound of a "thump" to be heard in soft dirt, sand, snow, barkdust or under water. This earth probe microphone picks up the thumper noise loud and clear even in a high background noise area, such as near a freeway or near motors (such as the thumper generator).



Since background noise will not travel very far in soil, the Earth Probe Microphone eliminates over 80% that is picked up by other types of microphones, but will transmit the "thump" where these others fail.

Earth probe in barkdust with AD-100 system (two probes supplied with dual channel Super DAD and DAD).

Virtually any proficient field worker can operate these systems.

Find Faults When a Thumper Alone Will Not

SUPER DAD and DAD

2 CHANNEL Points Direction to Fault

The *Super DAD and *DAD Directional Acoustic Detectors feature a unique concept in fault location that utilizes the speed of sound to show direction to the fault (thump) from where the operator is standing. This dual channel system is designed to assist in the pinpointing of primary cable faults and can be used with any brand thumper.

The sound of the "thump" emitting from the fault is detected at different times by two different microphones placed over the cable route. A new ultra-high speed clock-echo circuit developed by Aqua-Tronics uses the sound's time-of-arrival differential to determine the direction to the fault in the following method:

One microphone is used until the sound of the thump is heard.

Two microphones are then placed over the route of the cable. The first microphone to pick up the sound of the thump not only triggers the electronics into action, but it shuts down the second microphone's input. The fault indicator points in the direction of the microphone transmitting the sound, which is the direction to the fault from where the operator is standing.

*U.S. Patent #4,835,478 with other patents pending.

SDAD Dual Channel System Features:

- Two earth probe microphones and cabling.
- Two tri-pods for asphalt and concrete.
- A-T Ballistic Impulse Detection System.
- Red and green LED for direction to fault.
- Time based distance to fault.
- **Depth of fault
- **Background noise filtering
- Stereo headphones -high quality, comfortable.
- Audio Output Limitation: Automatic ear protection for operator, even when microphone is dropped.
- Foam-lined carrying case.
- Instruction manual; easy to read and learn in a short time.

**U.S. Patent Pending

SIGNAL CHANGES PAST FAULT

As the microphones are moved down the route of the cable, the direction to fault responds in the same direction until the fault is passed. At this point the trailing microphone will respond first, producing a reverse direction in the direction to fault. The operator knows he has passed the fault and must reverse his search.

The fault can be located even when the sound amplitude is the same over a large area, using triangulation techniques similar to those used with an earth gradient detector.

The SDAD and DAD's combination of logic-trip indication providing direction and the Ballistic Impulse for electromagnetic wave detection greatly speeds the search process.



Some of the linemen have been quoted as saying, "You can take my truck, but you can't take my Super DAD!"



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