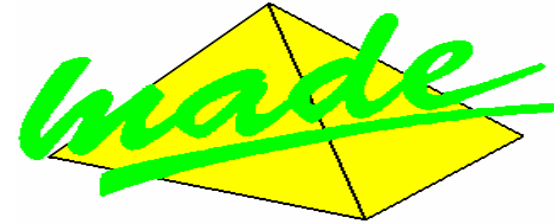
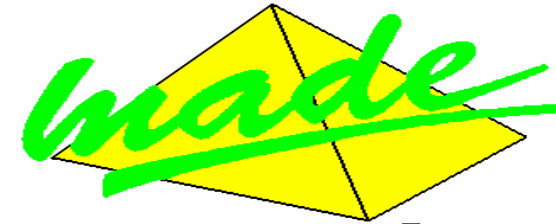


GAS TRACKER by



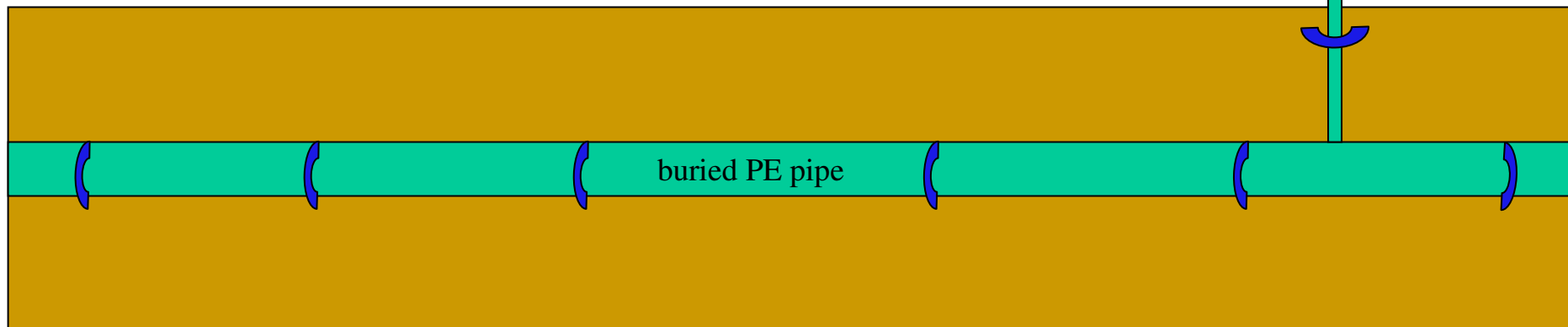
- This system is intended for
Locating and Tracing
buried polyethylene or other plastic gas pipes from the surface.
- Whilst normally used on gas pipes in service, the system will work on “dead” pipes full of air at atmospheric pressure.

GAS TRACKER by

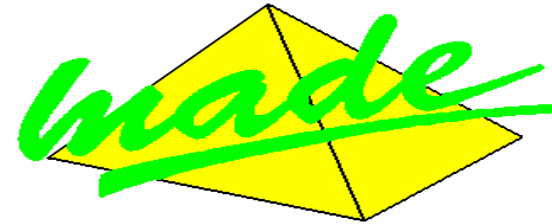


- **Principle :**

- An acoustic wave is injected into the gas and propagates along the pipe *through the gas*, stimulating vibration of the pipe wall and the soil around it. This tiny signal is detected at the surface by a vibration detector, giving the position vertically above the pipe, even in a noisy urban environment.

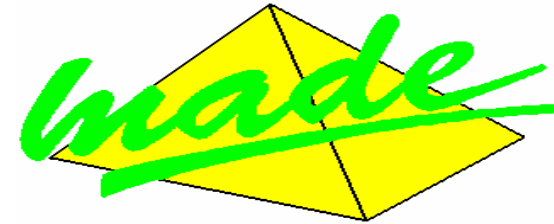


GAS TRACKER by



- The Acoustic Signal is propagated along the pipe in the GAS, and not in the pipe wall.
 - Thus –
 - If the pipe being tracked is in contact with another plastic pipe, the signal will not travel along the wrong pipe
 - The signal can travel along a metal pipe, which cannot be tracked, to a length of plastic pipe which can be tracked.
 - The most common use of this possibility is when the resonant volume is connected to a metal service leading to a plastic main which is tracked.

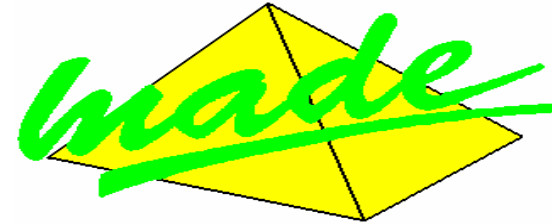
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- **PERFORMANCE :**

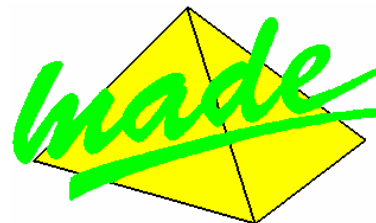
- The pipe can typically be tracked up to 200 meters from the transmitter and this distance can be much more than 300 meters in ideal circumstances.
- The horizontal precision of location is normally better than 20 cm. The depth of the pipe has little effect.
- The maximum allowable gas pressure is 7 bar.
- Electrical power requirement: 3A /12V .
- The transmitter has an internal battery giving over 4 hours operation, or the system can be powered from a vehicle battery (or cigar lighter socket).
- The receiver is able to discriminate the transmitted signal from the surrounding noise (traffic, power tools, etc....).

GAS TRACKER by



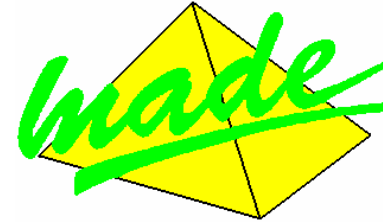
- The system works best from a tarmac road or pavement surface, and paving stones also give good signals. The received signal level is dependant on the compaction of the soil between the pipe and the surface. A road is ideal, whereas shingly or pebbly soil will give lower signals and poor location of the pipe.
- Ensure that the three points of the detector are on a firm surface, and not in cracks between paving stones for example.
- Pipes inserted in ducts or old metal pipes cannot be traced except sometimes intermittently, but the line of the pipe can usually be found by locating the lengths of the plastic pipe which are in contact with the soil, at service connections for example.

GAS TRACKER by

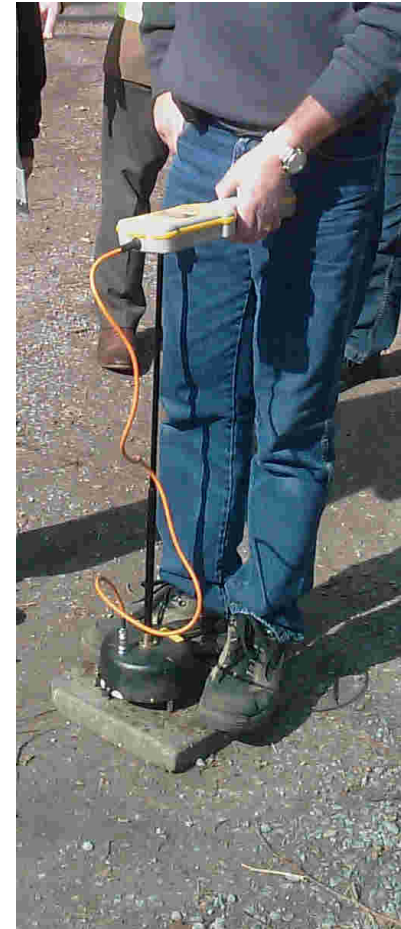


- The system works less well on soft ground, but unprepared ground which has been compacted, for example by vehicle passage, can give good results.
- For soft ground there are two methods
- 1) Push the three pins into the ground until the flat face of the detector is in contact with the soil. (Don't push down on the handle, use your foot)
- Or 2) Place the detector on a small paving slab, preferably whilst standing on this to ensure good contact with the ground Clear away any undergrowth to give a flat, smooth surface for the slab to lie on.

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- An example of soft ground working

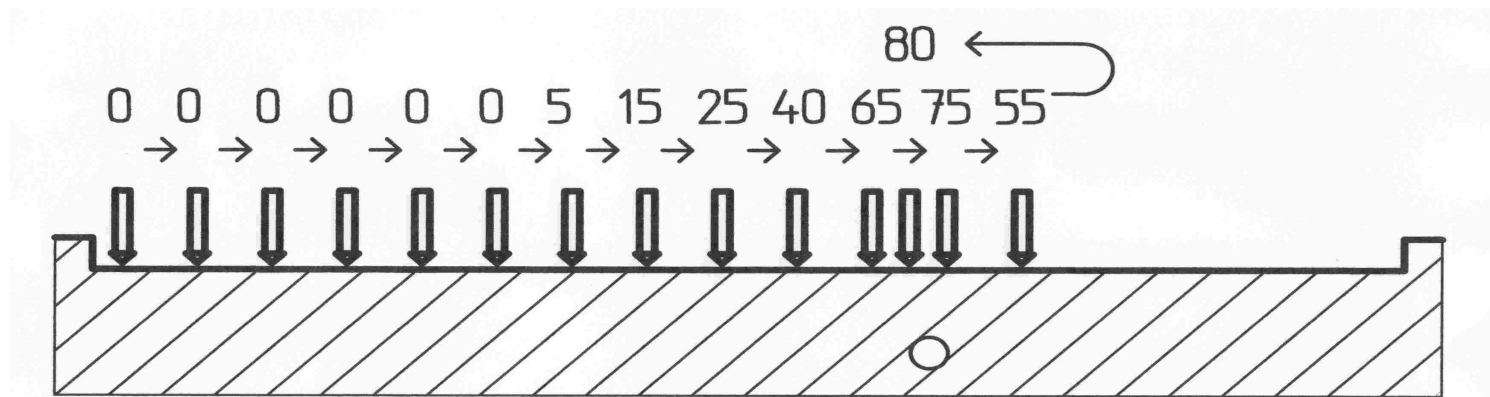


Distributor **A. T. M. S.** 07717763510

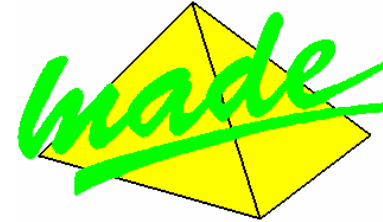
GAS TRACKER by



- The pipe is located by seeking the highest signal at the surface.
- As an example, to find a buried pipe running along a road –

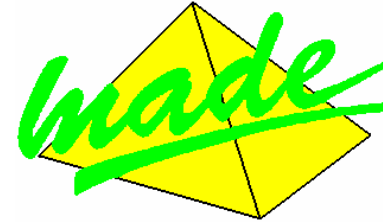


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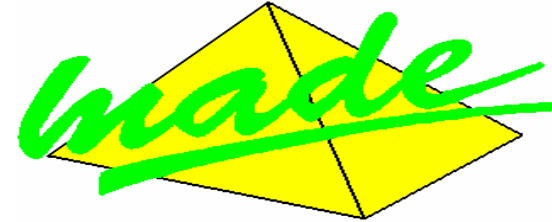
- Using Prelocate mode, start with the reading at one kerb, and if this is zero take 10 to 15 cm steps across the road until some signal is found. Use the gain of 10 unless close to the transmitter.
- Once a stable signal is found, use Pinpoint mode with the appropriate gain and seek the highest value. Make sure the value falls after passing the pipe. Return to the peak position to confirm, but do not take tiny steps to find 1% more as the system is not that accurate.

GAS TRACKER by



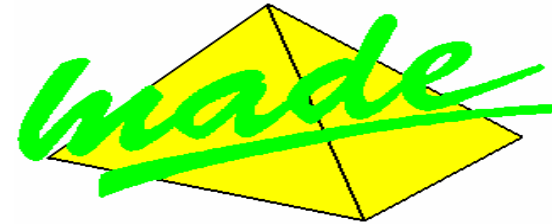
- Another method of locating a main under a road is to follow a service from the meter. Where the signal falls the main has been passed. A connection to one service can enable the tracking of several other services.
- If possible, follow the signal from the transmitter to the area of interest, even if quickly and without accuracy. Prelocate mode speeds this up.
- Always try to establish a « line » of peak readings as this establishes the « lie » of the pipe with confidence.

GAS TRACKER by



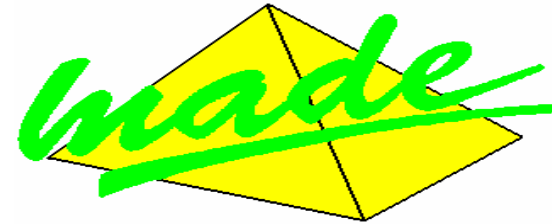
- Installing the **TRANSMITTER**
 - Do **NOT** make the electrical connection between the resonant volume and the transmitter case before the resonant volume has been connected to the gas network and purged.
 - Any point of access to the gas can be used. The best access is via a « top tee » into the main. Frequently, the resonant volume is connected to a customer connection in place of the meter.
 - The system will not trace metal gas pipes from the surface, but a connection can be made to a metal pipe which leads the signal to a plastic pipe which can then be tracked from the surface

GAS TRACKER by



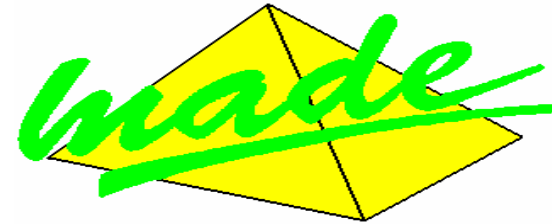
- When using a customer connection -
 1. Close the customer supply valve before disconnecting the meter.
 2. Connect the resonant volume in place of the meter.
 3. **Open** the purge valve.
 4. Open the supply valve *slowly* (5 seconds) to pressurise the resonant volume. This avoids the possibility of damaging the loudspeaker diaphragm or the operation of any pressure-drop sensitive shut off valves that may be upstream.
 5. **Close** the purge valve when the gas is purged,
DO NOT close the service valve as well.
 1. Use a similar procedure for any other type of connection

GAS TRACKER by



- After closing the purge valve, check for leaks at the valve and other connections.
- Now make the electrical connection to the transmitter.
- Press the green « ON » button and transmission begins.
- Check the battery charge state. The green led indicates 4 hours plus duration from a full charge.
- Turn off with the red « OFF » button

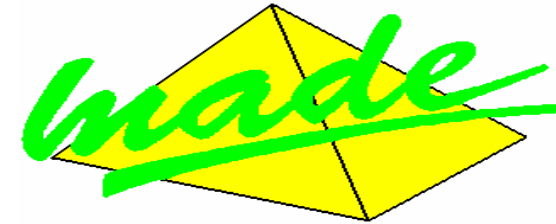
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- Typical transmitter Installation
- Note the « foot » to support the cylinder



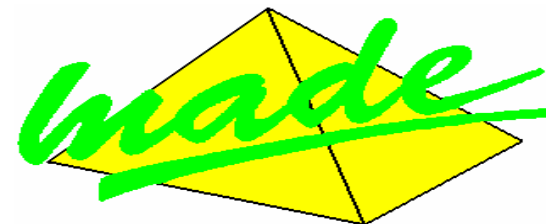
GAS TRACKER by



- Optional extended purge tube and flame trap for indoor installations
- A second purge valve is adjacent to the flame trap

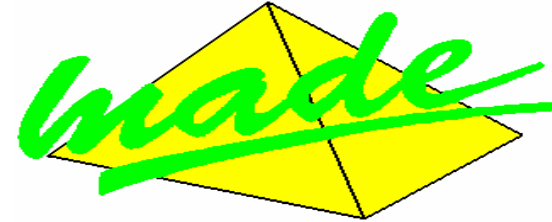


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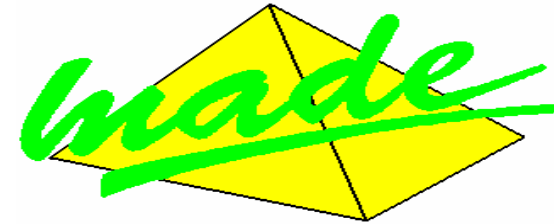
- For extended operation use the power lead supplied. Connect either to a 12V. battery or to a vehicle cigar-lighter socket (do not light a cigar!). Powering the system from an external supply does NOT charge the internal battery.
- **GAS TRACKER is operational equipment which requires application of the relevant security precautions.**
- Once the transmitter is running, the receiver can be used for the detection or identification of pipes.

GAS TRACKER by



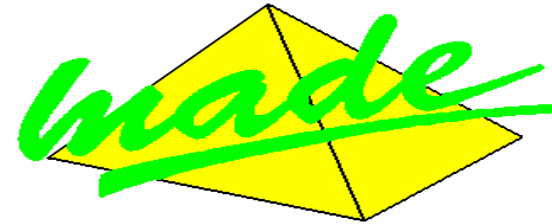
- The **RECEIVER**
- Connect the detector « foot » to the hand-held.
 - Pressing the green button on top of the receiver turns it on and displays manufacturer information, battery state or fault warnings. The red button on top turns it off.
 - Pressing the « PRELOCATE » button starts the continuous search mode with a bargraph display. This is used to begin a search to find an approximate position of the pipe.
 - Pressing the « PINPOINT » button starts analysis of the signal to locate the pipe with precision.

GAS TRACKER by



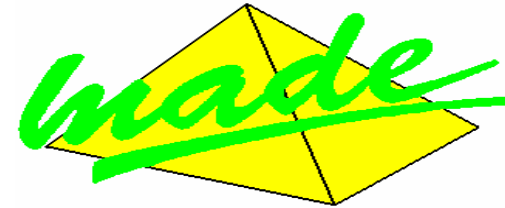
- Prelocate
 - This is the « quick look » mode to locate the pipe approximately or quickly follow it to the position of importance.
- PinPoint
 - This is the mode for accurately locating the pipe. After each analysis period, the display shows a value of the strength of the signal from the transmitter. Once this is displayed, the « foot » can be moved and another press of the « PINPOINT » button starts a new analysis. It also shows the previous five values.

GAS TRACKER by



- **GAIN, or AMPLIFICATION**
 - The normal gain of x 1 is normally used close to the transmitter.
 - If the readings fall below 10% further from the transmitter, change the gain to x 10 using the gain button. The amplifier is associated with the signal filter, so only the signal from the transmitter is amplified.
 - The gain can be changed to x 10 or back to x 1 at any time when in the PRELOCATE mode, which must then be restarted, and between measurements when in the PINPOINT mode.

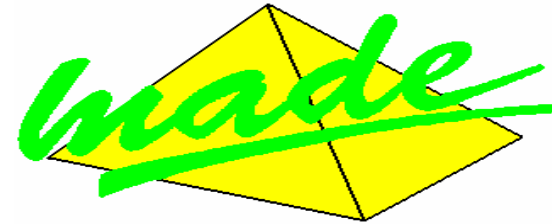
GAS TRACKER by



- Gas Tracker receiver in use.
- The screen backlighting is automatically activated in low ambient light conditions.
- If no button is pressed for 5 mins. The receiver will turn off.

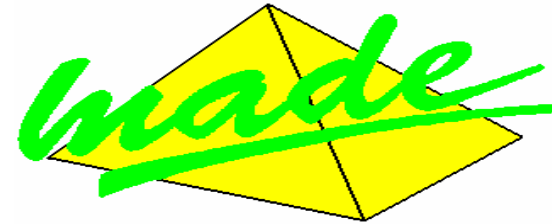


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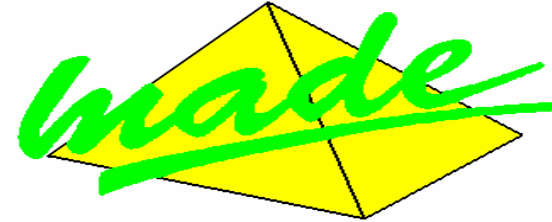
- Typically, the signal level will fall uniformly with distance from the transmitter. However, the signal level is closely related to the compaction of the soil and the coupling between the soil and the surface material, and there may be differences from one paving stone to another, for example.
- When the pipe crosses a road, the signal will typically drop significantly when mounting the pavement, due to the lesser compaction of the soil under the pavement.
- With experience, it is still possible to find the lay of the pipe under even very inconsistent surfacing.

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- After a few measurements, the lay of the pipe will become evident.
- Where the pipe has an elbow, there may be some focussing of the signal inside the curve, giving a locally higher reading. The position of the elbow is usually indicated by the lay of the pipe before and after the turn.
- Whilst soil conditions may hamper the location of a pipe, it is unlikely that the system will give consistent readings where there is *no* pipe.

GAS TRACKER by



BATTERY CHARGING

- After use, or a long period of non-use, the batteries should be re-charged.
- Connecting the mains lead to the socket in the transmitter will charge the transmitter batteries.
- The hand-held is charged from its own charger. It will run for about 8 hours on a charge, and takes about 4 hours to charge.
- The charge level is shown in the hand-held opening screen. Do not leave the hand-held connected to the unpowered charger for long periods.
- Both chargers are fully automatic, and can be left connected overnight, for example. When the LED on the transmitter extinguishes, the batteries are charged.
- When using an external 12 volt supply to power the transmitter, the internal batteries are *not* being charged.