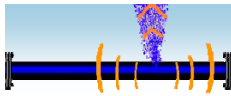


## DETECTING WATER LEAKS USING ACOUSTICS



When a pressurised water pipe is damaged the water leaks out into the surrounding ground at high speed which causes the pipe and soil to vibrate at the exit point. This vibration, or sound, is transmitted by the pipe, and surrounding material. The AQUAPHON A100 and AF100 amplify these noises allowing the leak location to be pinpointed.



- The biggest leaks are not always the loudest - sometimes a large split in a pipe will produce a less clear noise than a small hole particularly with PVC, PE and MDPE pipe materials. For this reason amplifying the noise with an electro acoustic microphone is becoming an essential tool for finding leaks in non metallic networks.
- The sophisticated microphone technology and easy to use help features make the AQUAPHON less reliant on the user's experience and they can "hear" leaks of a far smaller size, and those leaks that are producing less noise. The advanced digital circuitry has eliminated the "hiss" heard by analogue acoustic instruments.



### MINIMUM NOISE LEVEL MEMORY



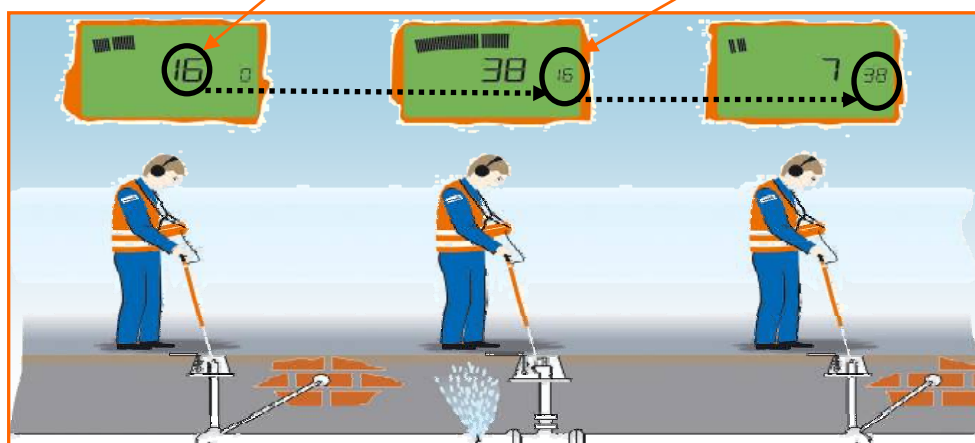
**Preliminary location** of leaks is carried out using the test rod **T4**, a highly sensitive dedicated microphone for listening at valves and hydrants. Plug the **T4** it into the receiver and it is automatically switched on, recognising the type of microphone and selecting the best frequency filter settings to suit. Soundings are carried at valves and hydrants .

#### CURRENT MINIMUM NOISE LEVEL

A leak noise does not fluctuate but traffic and wind noise does. The Aquaphon ignores these interfering noises displaying the quietest moment value during the current test

#### PREVIOUS MINIMUM NOISE LEVEL

Is stored and displayed. Is the sound getting louder or quieter? The higher the number the closer to the leak you are



## GROUND MICROPHONES FOR ALL SURFACES



- When the section of pipeline with the leak has been located pinpointing is carried out using the **BO-4** ground microphone for paved surfaces; it provides superb isolation from extraneous noises including wind thanks to the air isolated rubber cushioned housing.
- On uneven surfaces the **3P-4**, complete with ground spike, is ideal; its tripod foot ensures stable contact with the surface at all times. It can of course also be used on paved surfaces
- A tripod adaptor can be fitted to the **BO-4** which can then be also be used "off road"

## DYNAMIC HEARING PROTECTION



- With normal acoustic detection instruments an uncomfortable, often painful, sound is heard when the test rod slips from the contact point or the headphones are activated too soon or some comedian bangs their foot close to the microphone!
- The AQUAPHON® incorporates a novel technology to eliminate this danger. When a very loud noise is picked up the sound in the headphones is immediately muffled, if the sound increases further the headphones are switched off completely

## FREQUENCY OPTIMISATION



- The filter-optimisation function makes it easier to detect leaks even when the leak noise is very muffled. By activating the frequency filter the receiver takes a noise sample which is analysed and the optimum frequency filters are set to make the sound of the leak particularly clear
- We do not all hear best at the same frequencies and not all leaks produce noise at the same frequencies. To select the frequency range that suits you and the situation best the frequency filters can quickly be changed by the push of a button.
- The Aquaphon remembers your personal preferences and automatically sets these filters next time a microphone is connected.

## PIPE AND CABLE LOCATION AND TRACING USING THE AF 100



- It may sound obvious but in order to find the leak in a pipe you first need to find the pipe. It makes good sense to combine the two functions into one instrument - The **AQUAPHON AF 100**.

- By plugging in the receiver **A3-S** The **AF 100** (the **A100** does not offer this function) becomes a highly sophisticated pipe and cable locator. It shows you far more than a traditional C.A.T (cable avoidance tool) as it is designed to "trace" not to "avoid" services:

- The depth to the service being traced is displayed - Is it a telecoms service or a water pipe?

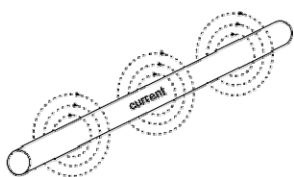
- Minimum and Maximum detection methods - Greater precision using Minimum mode and is particularly useful for tracing pipes

- Six reception frequencies including Radio and 50/60Hz mains frequency

- Line location arrows - Is the pipe to the left or right?



## SIGNAL GENERATORS



- To be detectable by the **A3-S** the line under test must be carrying current (power mode), or re-radiate radio signals (Radio mode). When this is not the case the signal generator G1 or G2 generates a traceable electro magnetic signal:

- 3 output frequencies. (a "standard" C.A.T. has only one) The different frequencies come into their own depending on the distances involved and the composition of the pipe size and joints etc. When using the signal generator with Tyton or rubber jointed pipes use the higher frequencies allows the signal to "jump" the joint and continue being traced whereas a lower frequency might stop at the joint. On the other hand over long distances the lower frequencies travel further.



- Powerful 50W transmitter - G1, (it has adjustable outputs for times when you do not need this amount of output).

- Galvanic or Inductive connection.

- The G1 is powered by an internal rechargeable battery and can run or be recharged from any 12V source or by the cigar lighter accessory lead. Calculate how much you currently spend on batteries for your less powerful signal generator and consider the advantages this can offer

- A full range of accessories is available including fibreglass probes and mini pig transmitters for end line location



## AQUAPHON FEATURES AND KITS



**NETWORK TECHNICIANS' LEAK KIT**



**PLUMBERS' COMPACT INDOOR KIT WITH EM30 MIC**



**LEAK LOCATION COMBINED WITH PIPE LOCATION**

A combined set ideal for domestic leak location. Allows you to trace the metallic pipe into the house and the leak.

All kits can be tailored to your requirements so please call us to discuss your application

- Automatic microphone recognition - best frequency settings automatically selected
- Test Rod T4 with Integrated preamplifier to avoid electrical signal distortion. Wind isolated microphones
- Memory function - no need to remember the last reading; it displays it for you. You will know if the leak is closer or further away
- 12 hours use from inbuilt re-chargeable NiMH batteries
- Four hour rapid charge
- Integral charging with intelligent charging. Microprocessor controlled
- Rechargeable in the case from mains or from 12V cigar lighter lead or permanently hard wired to car or van
- Noise protected headphones with outstanding sound reproduction
- Large illuminated display - excellent for night work
- Displays the Minimum Noise Level (M.N.L.). More useful than the loudest! "Ignores" interfering transient noises
- Lightweight, only 1 kg, ergonomic with padded neoprene neck strap
- Three amplification levels by pushing a button - Hone your area of search right down to low noise levels.
- Frequency range 0-10,000Hz
- User selectable variable filters
- Frequency Filter Optimisation - automatically helps you to identify the best frequency range to use
- Digital Signal Processor with wide dynamic range microphones eliminates the background white noise associated with analogue electro-acoustic devices
- Dimensions (W x H x D) 12.5 x 18 x 6.5 cm
- Available as the **A100** - Electro-acoustic receiver device only or the **AF 100** electro- acoustic and pipe tracing receiver
- Wide choice of microphones available. Kits can be tailored depending on your application