FISHER RESEARCH LABS

XLT-17

Operating Manual

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INTRODUCTION

Fisher Research Laboratory has always been a leader in the field of acoustical leak detection. From the early LT-10 through the XLT-30, high quality sound amplification has been synonymous with the Fisher name .

Fishers XLT-17 takes leak detection to a new level. The ultra-sensitive Multi-Sensor, combined with high performance electronics and crystal clear audio headphones provide a new standard for leak detection equipment.

INSTRUMENT SET

INSTRUMENT SET

1. Control Box
All listening and filtering controls for the XLT-17 are contained in this sturdy housing. The function of each control is described in the section entitled "Control Panel."

2. Multi-Sensor
Fisher's MULTI-SENSOR has superior leak detection capabilities. In an extremely compact design, the MULTI-SENSOR provides better sensitivity to leaks, improvs audio clarity, improvs sensor electronics, and less interfering background noise. The MULTI-SENSOR is used for both the ground microphone and direct contact applications – the one sensor that does it all.

3. Sound Rods
Two different sizes are included with the XLT-17. Rods give the user various lengths for direct or indirect contact to pipes.

4. Multi-Sensor Handle
This handle is used with the Multi-Sensor

5. Sensor Cable
This cable attaches at the back of the Control Housing to any of the various sensors, including the Multi-Sensor. Make sure the jack is fully inserted and the lock nut is hand tightened.

6. Headphones
These headphones are designed to deliver the clearest sound with the least distortion. The Volume knob can be used to adjust the audio level. Unplugging the headphones will turn off the XLT-17. (When the XLT-17 is turned off, any modifications to the Volume and Filter will remain at last settings.)

7. Carrying Strap/Housing Mounting Bracket
The attachment system for the XLT-17 consists of a plastic mounting bracket that slides from the bottom of the control housing up to the bezel around the faceplate. There are two slots for attaching an adjustable strap that hangs around the neck of the user.

CONTROL PANEL

POWER
This keypad turns the XLT-17 on or off. When the instrument is turned off, all settings are stored in memory and retained for the next time the XLT-17 is turned on.

VOLUME ARROW KEYPADS
Press Volume arrow keypad, to modify the volume and sensitivity of the XLT-17. The arrow keys (up arrow/down arrow) increase or decrease the audio signal to the headphones. Use the headphone volume knob to reduce audio as desired.

MUTE
As the name implies, muting disengages the sound to the user. There is also a control on all listening microphones. This keypad should be pressed when the sensor is moved to prevent excessive noise to your ears.

FREQUENCY ARROW KEYPADS
These keypads allow the frequency range of the XLT-17 audio filters to be modified.

FILTER

The XLT-17 has four different filtering modes.

AL (All Frequencies) – This is the No Filter feature of the XLT-17. No modifications to the audio can be made with the arrow keys. Frequency range of the All Frequency setting is from 60 Hz to 6 kHz. This mode is often used to begin to listen for the leak noise.

(The following filter modes are often used to pinpoint the location of the leak noise.)

HI (High Range) – This filtering mode allows the user to adjust the response in the higher areas of the frequency range. Use the arrow keys to increase or decrease this frequency response range.

LO (Low Range) – Similar to the previous filter mode, the lowpass filter allows the user to listen to the lower areas of the frequency range. The arrow keys are used to increase or decrease this frequency response range.

FC (Frequency Choice) – This filter could also be called Frequency Select. This mode allows tuning to the frequency that gives the user the best audio response to the leak noise. The arrow keys are used to move the cursor, selecting a narrow frequency band of choice.

OPERATING INSTRUCTIONS

Set Up

1. Assemble control housing, headset, and Multi-Sensor. The headset must be plugged in for the XLT-17 to operate.

2. Familiarize yourself with the location of the mute keypad.
Remember to mute the XLT-17 when moving any sensor.

3. Press POWER keypad to turn on the XLT-17. The XLT-17 goes through a five second warm up before the touch pads are functional. During this time, the display screen gives information of battery level. A battery reading under 5 volts will activate the "Low Battery" indicator. The XLT-17 allows some time between the "Low Battery" indicator and complete system shut down to allow you to complete a job.

4. The XLT-17 always turns on to the last settings used.

5. Press the VOLUME arrow keys to modify headset volume. Use the AR-ROW keypads to increase or decrease the volume. The display screen will show the volume level in a graph form.

6. Begin your leak detection search.

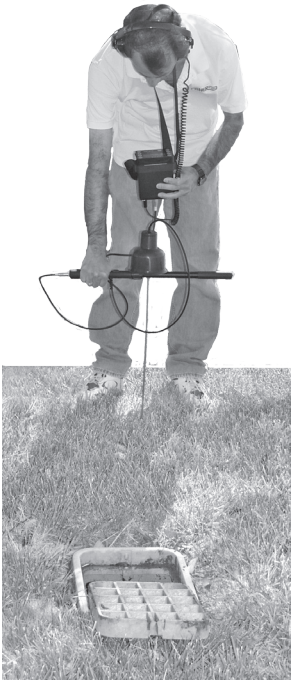
Modifications During Leak Search

Some leaks are small in size, and unrecognizable, or conditions are such that very little leak sound can be recognized, so you may need to make changes to the filter(s) in order to hear leaks. Depending upon the type of pipe composition and soil (ground) type, different filter settings will increase your ability to hear the leak sound.
Adjustment to the filter is done by pressing the FILTER keypad which will allow you to scroll through four different filter types. Frequency range modifications can be made to the HI, LO, and FC filters. As you are choosing your filter, the display screen will give a visual display of the filter type being used, and the frequency range of that filter. After your selection and modification is made, theunit will automatically return to the operating mode after a 5 second delay.

Use of the Multi-Sensor

The multi-sensor was designed for locating leaks in all types of surface conditions. The new sensor construction will allow leak detection to be performed on hard surfaces such as concrete, asphalt, tile, etc, as well as listening to water leaks under turf or soft surfaces.

On hard surfaces, the muti-sensor sensor is used to pick up the vibrations generated by a buried ruptured pipe located underneath sidewalks or paved streets. The rubber housing diaphragm is designed to reduce external sounds while the sensor rests on a hard surface and detects the vibrations traveling underground.



When utilizing the multi-sensor for direct connection to a pipe, or listening to buried pipes located in soft ground or under a turf surface, you will need to use the T-Handle and sound rods included with the unit. Using a threaded spacer provided on the extension handle, carefully attach it directly onto the Multi-Sensor. Assemble the T- Handle by snapping both the extension handle and sensor handle sections together. Sound rods are then secured to the threaded coupler on the T- Handle assy. Sound rod lengths will be determined by its application.

SPECIFICATIONS

Subject to improvement or modification without notice.

Operating Frequency
- 60 Hz – 6 kHz, Gain = 60 db
- 20 Hz – 60 Hz, Gain > 55 dB

Filter Types and Frequency Ranges:
- All Pass:.....60 Hz to 6 kHz
- Low Pass:.....Adjustable cut-off frequency from 150 Hz to 2.4 kHz
- High Pass:.....Adjustable pass band frequency from 150 Hz to 2.4 kHz
- Band Pass: .....Adjustable center frequency from 150 Hz to 2.4 kHz

Output Indications:
- Audio.....High performance headphones (64 ohms)
- Visual.....LCD bargraph and 2-digit numeric display

Grade of Protection .....Splash Proof
Battery Test.....Automatic, real time battery level indicator
Battery Quantity/Type ....Two, 9 Volt alkaline
Battery Life .....50 Hours (approximate)
Carrying Case Dimensions 21"x 6"x 14"
Weight: .....10 lbs

STANDARD EQUIPMENT:
Hard Carrying Case
Operation Manual
Control Unit
Headphones
Muti-Sensor
Carry Strap/Housing Bracket
Sound Rods

Fisher Research Laboratory does not warrant suitability to specific use.
Fisher Research Laboratory shall in no event be liable for any direct, incidental, consequential or indirect damages.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmfill interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.