

# FISHER<sup>®</sup> RESEARCH LABS

## XLT-30

### Acoustical Leak Detector



# 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-30 takes leak detection to a new level. Ultra sensitive sound microphones, combined with a non-distortion amplification system and crystal clear audio headphones make the XLT-30 the leak detector destined to set new standards for the leak professional.

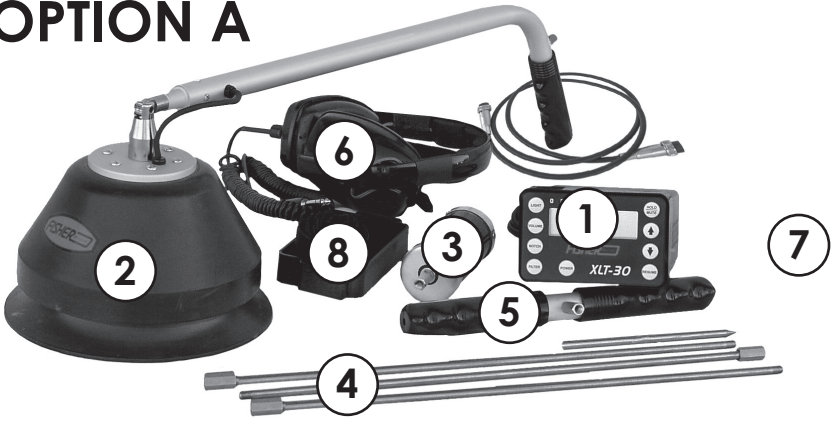
## USING HEADPHONES

Using headphones (not supplied) improves battery life, and prevents the sounds from annoying bystanders.

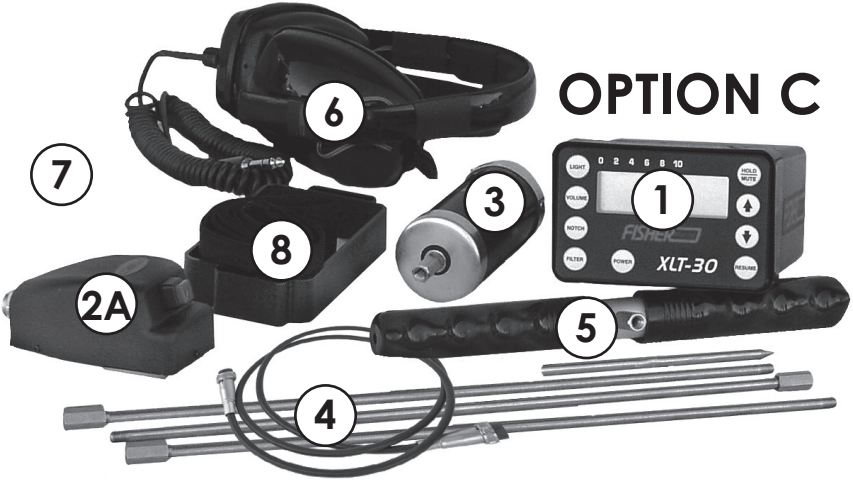
It also allows you to hear subtle changes in the sound more clearly, particularly if searching in a noisy location. For safety reasons, do not use headphones near traffic or where other dangers are present. This device is to be used with interconnecting cables/headphone cables shorter than three meters.

# INSTRUMENT SET

## OPTION A



## OPTION C



## OPTION B



## **1. Control Box**

All listening and filtering controls for the XLT-30 are contained in this sturdy housing. The function of each control is described in the section entitled "Faceplate and Controls".

## **2. Big Foot Sensor - OPTION A**

Also known as the Ground Microphone, this sensor is to be used on hard surfaces, concrete, asphalt, tile, etc. A flexible rubber shield helps prevent outside sounds from interfering with the sounds from the buried pipe. Press and hold the red button near the handle to mute the audio from the probe and suppress loud sounds when the probe is moved.

## **2A. Little Foot Assembly - OPTION C**

About the size of a computer mouse, this small handheld sensor is designed for areas that the Big Foot Sensor can not fit into. The Little Foot assembly is normally used for leak detection inside buildings. Mute is activated by pressing the button in front of the Little Foot Assembly.

## **2B. Multi-Sensor - OPTION B**

Fisher's new MULTI-SENSOR has superior leak detection capabilities. In an extremely compact design, Fisher has achieved higher performance, improved audio clarity, improved sensor electronics, and better sensitivity to leaks with less background noise – all with heavy duty characteristics of the trusted Big Foot. The MULTI-SENSOR is used for both the ground microphone and direct contact applications – the one sensor that does it all. Fisher's NEW XLT-30 MULTI-SENSOR combo sets the new standard for leak detection.

## **3. Hydrophonic Cylinder Probe**

This probe is a direct contact probe designed to make direct connection to the pipe, or any portion of the pipe that is accessible. Used in any combination of Sound Rods with the T-Handle, pipes can be accessed to distances up to nearly 6 feet away.

Another feature of the Cylinder Probe is the ability to listen to pipe noise in pipes that are buried in turf, or soft surfaces. Accurate pipe location is essential for the placement of the Ground Rods as close to the pipe as possible.

On top of the Cylinder Probe is a three position toggle switch for mute, listen, and momentary listen. As with all mute controls, learn to use them wisely.

When tightening the sounds rods to the Hydrophonic Probe, secure the connector with a wrench as to not let it twist. Twisting of that connector could damage wiring on the inside of the probe.

#### **4. Sound Rods**

Two different sizes are included with the XLT-30. Rods give the user various lengths for direct or indirect contact to pipes.

#### **5. T-Handle**

This handle is used primarily with the Cylinder Probe and the sound rods.

#### **5A. Multi-Sensor Handle**

This handle is used with the Multi-Sensor

#### **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-30. When the XLT-30 is turned off, any modifications to the Volume, Notch, and Filter will return to the factory presets.

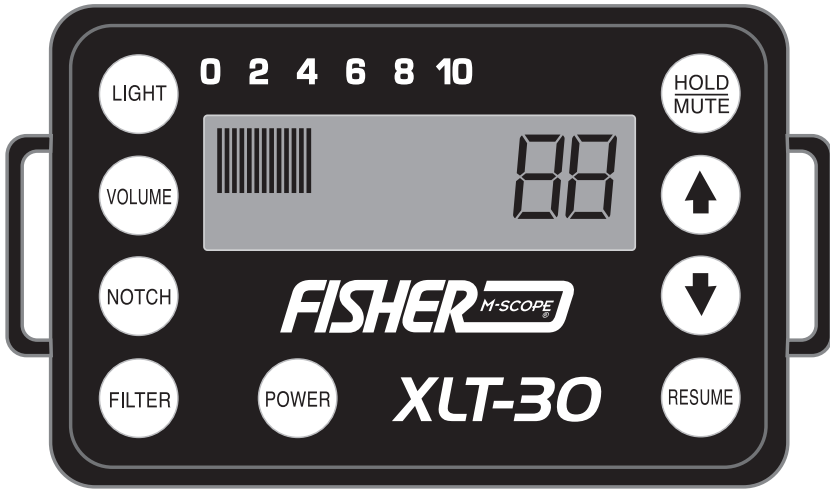
#### **7. Probe Cable (Option A & C)**

This cable attaches at the back of the Control Housing to any of the various probes. Make sure the jack is fully inserted and the lock nut is hand tightened.

#### **8. Carrying Strap/Housing Mounting Bracket**

The attachment system for the XLT-30 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 pad turns the XLT-30 on or off. When the instrument is turned Off, all settings, or modifications to settings default to the preset factory settings.

## LIGHT

Press Light pad to turn the back light on or off. Prolonged use of the back light will have minimal effect on the battery life of the XLT-30.

## VOLUME

Press Volume pad to modify the volume of the XLT-30. The arrow keys (up arrow/down arrow) increase or decrease the volume to the headphones. Use the headphones volume knob to reduce audio as desired.

## NOTCH

This control allows the user to mask or reject a small range of frequency response. Its purpose is to eliminate a sound (i. e. motor, humming, fans, etc.) that may be interfering with the leak sound. The notch setting can be moved with the arrow keys.

## FILTER

The XLT-30 has four different filtering modes.

AL (All Frequencies) – This is the No Filter feature of the XLT-30. No modifications to the signal can be made with the arrow keys. Frequency range of the All Frequency setting is from 60 Hz to 6 kHz.

(The following filter modes have a frequency range from 60 Hz to 2.4 kHz)

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 response. The arrow keys are used to move the cursor, selecting a narrow frequency band of choice

## **HOLD/MUTE**

This dual purpose button is both a mute control and a peak hold reset control.

Mute – As the name applies, muting disengages the sound to the user. There is also a control on all listening microphones. Learn to use this control to prevent excessive noise to your ears when the probes are moved.

Hold – The display of the XLT-30 will show the highest sound level recorded. This reading can be reset by pressing this pad. Resetting the Peak Hold clears earlier readings of the Peak sound.

## **ARROW KEYS**

These keys allow features of the XLT-30 to be modified.

## **RESUME**

After any modification has been made to the XLT-30 (VOLUME, NOTCH, or FILTER), depressing the RESUME will return the display screen back to a Meter function (Sound Graph).

# OPERATING INSTRUCTIONS

## Set Up

1. Assemble control housing, headset, and your choice of listening probe. The headset must be plugged in for the XLT-30 to operate.
2. Press POWER pad to turn On the XLT-30. The XLT-30 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 reading of 68 or below will activate the "Low Battery" indicator. The XLT-30 does have a usage buffer between the "Low Battery" indicator and complete system shut down to allow you to complete a job.
3. The XLT-30 always turns on to the default settings. Volume is at the medium setting, filter is in the All Pass (no filter) mode, and the notch control is at the midway point. The display screen will show the sound intensity in a bar graph form (Sound Graph) and two digit display.
4. Familiarize yourself where the mute buttons (and pad) are. Remember to mute the XLT-30 when moving any probe.
5. Press the VOLUME pad to modify headset volume. Use the ARROW pads to increase or decrease the volume. The display screen will show the volume level in a graph form. Press the RESUME pad to exit volume modification and return the display screen to the Sound Graph function. (Remember that the volume can be adjusted at the headphones also.)
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 pad 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, depress the RESUME pad to return to the Sound Graph function of the display screen.



## Use of the Notch Filter

Occasionally, you may come across a sound that may be masking or covering your ability to adequately hear any leaks. This may be caused by nearby motors, fans, or many other annoyances. (Unfortunately, the most common are sounds caused by automobiles and traffic). The XLT-30 has a notch, or reject feature, that will assist in eliminating that sound from your frequency range.

Press the NOTCH pad, and use the ARROW pads to move the cursor to the point where the annoying sound is eliminated or at its weakest. Depress the RESUME pad to set the notch function. (Hint: Depress the FILTER pad to go directly to the FILTER mode. Now you can choose the type of Filter you wish to use AND still have the annoying sound Notched).

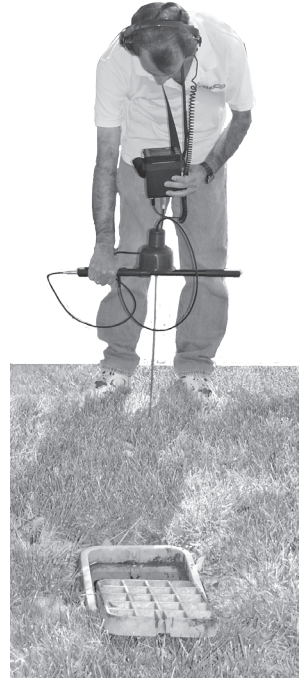
## Use of the Multi-Sensor (OPTION B)

Unlike our other sensor, this new 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 multi-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 our sensor probe. Assemble the T-Handle by snapping both the extension handle and probe handle sections together. Sound rods are then secured to the threaded coupler on the T-Handle assy. Sound rod lengths will be determined on its application.



## SPECIFICATIONS

**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 harmful 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.

# SPECIFICATIONS

## Subject to improvement or modification without notice.

Operating frequency: 60 Hz – 6 kHz, Gain = 95 db  
20 Hz – 60 Hz, Gain > 90 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
- Notch Filter: ..... Adjustable center frequency rejection from 150 Hz to 2.4 kHz
- Can be used simultaneously with any filter option

### Indication of output:

- Audio: ..... High performance head phones (64 ohms)
- Visual:..... LCD bar graph display w/2 digit numerical read out.
- Grade of protection:..... Splash proof
- Battery test..... Automatic
- Type of Battery/Quantity ..... Alkaline 9 volt, 2
- Battery life:..... Approximately 50 hours

### WEIGHT:

Option "A"	Option "B"	Option "C"
19 lbs	10 lbs	9.5 lbs

### ACCESSORIES:

Option "A"	Option "B"	Option "C"
Little Foot	Big Foot	Big Foot
Multi-Sensor	Hydrophonic Cylinder Probe	Multi-Sensor
	Little Foot	

### STANDARD EQUIPMENT:

Option "A"	Option "B"	Option "C"
Plastic case	Plastic case	Plastic case
Operation manual	Operation manual	Operation manual
Control unit	Control unit	Control unit
Head phones	Head phones	Head phones
Big Foot	Multi-Sensor	Little Foot
Hydrophonic Cylinder Probe	Carry Strap	Hydrophonic Cylinder Probe
"T" Handle	Housing Bracket	Probe Cable Assembly
Probe Cable Assembly	Probe Cable Assembly	"T" Handle
Carry Strap	Sound Rods	Carry Strap
Housing Bracket		Housing Bracket
Sound Rods		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.

# FISHER<sup>®</sup> RESEARCH LABS

## QUALITY

Fisher detectors are renowned for their quality. Each detector is handcrafted in the USA with pride.

## PERFORMANCE

The worldwide underground utility industry relies on Fisher. Our instruments are durable, dependable and locate deeper.

## REPUTATION

Fisher produced the first patented metal detector in 1931. For over 85 years, the Fisher logo has been a mark of excellence.

## SERVICE

***Should you have any questions or problems, contact:***

### **FISHER RESEARCH LABS, INC.**

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www.fisherlab.com email: info@fisherlab.com

## 2-YEAR LIMITED WARRANTY

This Fisher instrument has been rigorously tested before shipment. Fisher Research Laboratory (FRL) warrants this instrument to be free of manufacturing defects for a period of 2 years after the original date of consumer purchase. This warranty gives you specific legal rights and you may also have other rights that may vary from state to state. During the warranty period, FRL may elect to repair or replace a defective instrument, free of charge, return postage excluded.

This warranty excludes headphones, all batteries and damage caused by battery leakage regardless of the type of battery used. Also excluded is damage caused by wear, misuse, alterations and negligent handling or any abuse, which in the opinion of FRL, caused the failure.

This warranty is void in the event any unauthorized person opens or repairs the instrument.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. FRL DOES NOT WARRANT SUITABILITY TO SPECIFIC USE. FRL SHALL IN NO EVENT BE LIABLE FOR ANY DIRECT, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES.**

### ***This warranty is non-transferable.***

Maintain proof of purchase. Proof of purchase must accompany warranty claim. Should warranty service become necessary, contact FRL for the name of the nearest authorized Fisher Repair Center or call 915-225-0333 for return authorization. Please include your dated proof of purchase and a complete description of the problem.

### **NOTE TO CUSTOMERS LOCATED OUTSIDE U.S.A.**

This warranty may vary in other countries; check with your distributor for details. Warranty does not cover shipping costs.

### ***Proof of purchase is required to make a claim under this warranty.***

According to FCC part 15.21 Changes or Modifications made to this device not expressly approved by the party responsible for compliance could void the users authority to operate this equipment.

This device complies with FCC Part 15 Subpart B Section 15.109 Class B.  
Not to be used with conductive tracing cables longer than 6.5' ( 1.98 m)