6600
ULTRASONIC
LEAK DETECTOR
with LEAK SIZE INDICATORS

OWNER'S MANUAL

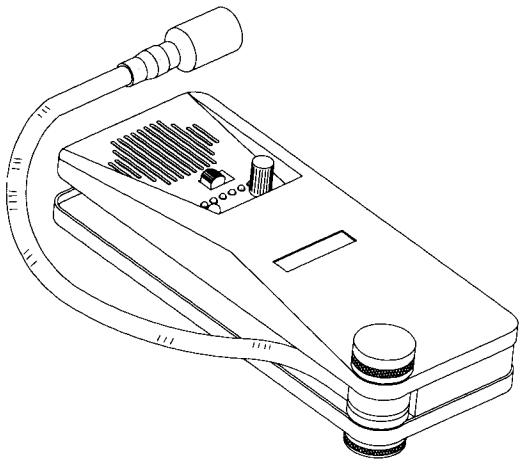


TABLE OF CONTENTS

INTRODUCTION

Congratulations on your decision to purchase the TIF6600 Ultrasonic Leak Detector. You now own one of the most versatile Leak Detectors available today. The TIF6600 actually "listens" for the ultrasonic noise created by vacuum and pressure leaks, rather than sense for specific compounds like halogen or combustible detectors. Therefore it can be used to find leaks of any compound, known or unknown.

Ultrasonic sound is the sound above the range of human hearing, like the sound of a dog whistle; which humans cannot hear but we know makes sound. This same type of sound is generated when a gas moves through a small opening. In this instance sound is created by the turbulence of the moving gas; the greater the flow (the larger the leak) the greater the turbulence and therefore the greater the sound. Whether the gas is moving into or out of the vessel (vacuum or pressure leaks) the sound is still created.

The TIF6600 translates this ultrasonic sound into both visual and audible signals so that the user can home in on the source of the sound (the point of the leak).

An Ultrasonic Leak Detector can therefore be used to find any pressure or vacuum leaks including (but not limited to)air, refrigerant, CO2, Nitrogen, etc.. The compound is not relevant to detection ability. Furthermore, because many other objects generate ultrasound, the TIF6600 may be used to identify such things as slipping belts, worn bearings and high voltage arcing.

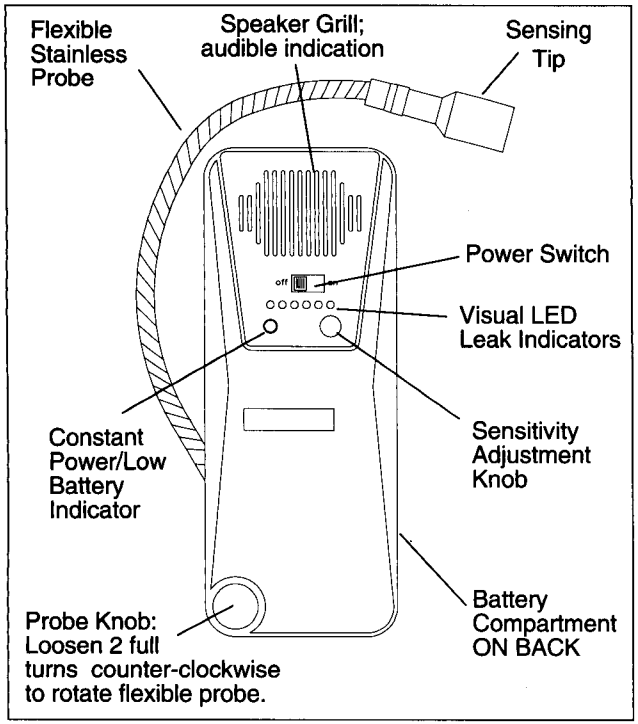
INTRODUCTION

In order to take the greatest advantage of your new tool please read this manual carefully before attempting to operate the unit. Should you experience any difficulty or require technical
assistance, please call our TIF Customer Service Hotline at 1-800-327-5060.

FEATURES

- Detects any pressurized gas leaks, regardless of compound.
- Detects vacuum leaks.
- Audible and visual indication, including leak intensity.
- Instant on, no warm-up period.
- True one handed operation.
- Built-in flexible probe; eliminates costly accessories.
- Constant power/low battery indication.
- Manual sensitivity adjust.
- Not affected by background contamination or windy conditions.
- Completely portable, battery powered.
- Carrying case included.
- Optional transmitter available.
- One year warranty.
- Made in the U.S.A.

PARTS & CONTROLS



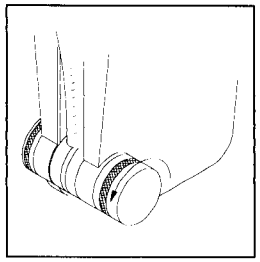
PRECAUTIONS

Please read carefully before operating the TIF6600.

- The TIF6600 is equipped with a highly sensitive microphone in the probe tip. DO NOT allow the probe tip to rub or drag against any surface, as false readings will result.
- Always begin leak checking with the TIF6600 adjusted for greatest sensitivity. This will ensure that no leaks go unnoticed.
- Do not use the TIF6600 to establish acceptable leakage rates on combustible or environmentally harmful gases.
- Keep flexible probe clear of moving parts, machinery, belts, etc...
- Keep dirt and moisture away from speaker and controls.
- Avoid severe mechanical shock and temperature extremes.
- Remove battery before long term (over 30 days) storage.

LEAK DETECTION TECHNIQUES

The versatility of the TIF6600 is increased by its built-in flexible probe. The flex probe can be rotated and bent into a tremendous array of positions in order to get into tight/ dangerous areas or around corners. To loosen and rotate the probe, proceed as below (see diagram).



1. Grasp the knob on the front lower left of the unit.
2. Rotate 2 turns counter-clockwise to loosen probe.
3. Position probe and tighten knob to hold it in position.

Unlike gas specific detectors the TIF6600 is not affected by ambient contaminants or windy conditions. In the event that other ultrasonic sounds are present (as in an automobile engine bay) it will be necessary to ignore this background noise by adjusting the sensitivity.

1. Place the probe tip in the general area to be searched.
2. Switch the unit on and adjust the Sensitivity Control counter-clockwise until the alarm just ceases and no LEDs are lit.
3. Begin searching for leaks.

Sometimes several leaks occur in the same area. Often times there are both small and large leaks. Inevitably the TIF6600 will more readily identify the larger leaks. In this event, repairing the larger leaks first will allow you to more easily locate any smaller leaks.

Be aware that the ultrasonic sound is generally very directional. It does not tend to "turn" around corners (unless reflected) and will not appear on the other side of solid barriers. This knowledge is useful in pinpointing leaks since once a signal is detected the leak source will invariably be in a line of sight from that point.

APPLICATIONS

Following are brief outlines of some of the uses for the TIF6600. Follow the instructions outlined above for these applications unless otherwise noted. Applications are expanded further still when the optional transmitter, TIF6501 is employed; a partial list of applications using the TIF6501 can be found at the end of this section.

1. LOCATING COMPRESSED GAS LEAKS - This includes either compressed gas systems or storage containers.
   A) Air conditioning, refrigeration systems or refrigerant cylinders - remember that the vast majority of refrigerants are heavier than air. Therefore, it is best to do most leak checking on the underside of joints, fittings, etc...

B) Combustible gas systems and cylinders - Such as propane, CNG, hydrogen, acetylene, etc... As a rule of thumb these gases are lighter than air and rise away from the leak source.
C) Compressed air tanks and supply lines.
D) Inert gases used in pressure testing - such as helium and nitrogen; often used for testing the integrity of compressors and vessels.
E) Air brake systems on trucks - these utilize compressed air.
F) Tire and innertube leaks.
G) High pressure duct systems.

2. LOCATING VACUUM LEAKS - The TIF6600 will readily respond to leaks in evacuated systems or vessels as well as leaks in vacuum lines used to activate auxiliary devices. Examples include:

A) Evacuated A/C or refrigeration systems.
B) Automotive vacuum controls - such as inlet manifold, EGR valve, brake boosters, timing advance, etc...
C) Partial vacuum or suction side leaks - such as suction side air leaks on water pumps.

3. LOCATING LEAKS IN CLOSED SYSTEMS - In an instance where a system or container should be sealed but is not under substantial pressure or vacuum, leaks can be found by adding pressure (for example compressed air or nitrogen). Examples include:

A) Heating Systems.
B) Radiators, condensers, and evaporators.
C) Water pipes, sewer pipes, etc...
D) Engine cylinders, pumps, and compressors.

4. OTHER ULTRASONIC SOUNDS - The TIF6600 Ultrasonic Leak Detector is also useful for diagnosing problems with moving machinery or high voltage circuits (since such things generate ultrasound). In such applications it is necessary to establish benchmarks by checking known "good" components. This "good" signal can be compared to subsequent signals as an indication of wear or failure. Examples include:

A) Bearings - point the probe tip at the subject and note the signal indicated, recording for example, the number of LEDs which light. Subsequent checks in the same fashion will indicate any change in ultrasound by a change in signal.
B) Belts and pulleys - Again, certain ultrasound is generated by good and properly adjusted belts. A change in this sound may be indicative of wear.
C) Generators and alternators - same as above.
D) High voltage circuits - similar to the above, ultrasound is generated by arcing and discharges in electrical systems. Changes in these sounds indicate potential problems with insulators, connections, contacts, etc...

OPERATING INSTRUCTIONS

NOTE: With reference to examples A, B, and C above, be aware that changes in speed may also change the signal. Always test at the same speed at which the reference was taken.

5. FURTHER APPLICATIONS WITH THE OPTIONAL TIF6501 TRANSMITTER - The TIF6501 transmitter (see pg.14) emits an ultrasonic sound to which the TIF6600 responds. Therefore, if it is placed within or behind solid barriers, any cracks or leaks can be detected due to ultrasound passing through them. The following is a partial list of applications; more complete information is included in the TIF6501 Owner's Manual:

   A) Check for leaks in:

Window seals	Door seals
Automobile Trunk/ Hatchback Seals	Refrigerators/ Freezers
Refrigerated Display Cases	Ovens

   B) Check "sealed" systems vessels or tanks - rather than pressurizing such things, as described earlier, the TIF6501 may be used if it can be placed inside such an object. Examples include:

Hot Water Heaters	Heating Oil Tanks
Fresh Water Tanks	Fuel Tanks
Heating Systems (check for cracked heat exchanger)	HVAC Ducting

   C) Locating hidden pipes and conduits - if one end is accessible the transmitter can be inserted (or aimed into) this end and the signal picked up at the other.

MAINTENANCE

- Your new TIF6600 is essentially maintenance free. Except for battery replacement, only common sense is needed to keep the unit trouble free.
- Take heed of the precautions on pg. 5. Before using the unit make certain no dirt or grease is obstructing the sensing tip; this may reduce sensitivity by blocking or absorbing the signals.
- From time to time wipe your unit clean with a damp cloth.
- Never use solvents or immerse the unit.

BATTERY INSTALLATION / REPLACEMENT

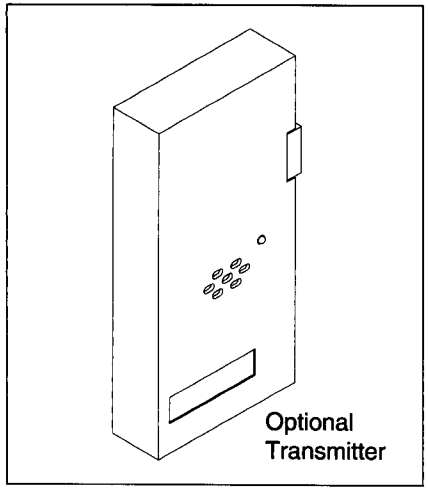
The TIF6600 is equipped with a Constant Power/Low Battery Indicator (see figure on pg. 4). With a good battery installed, this Indicator should glow brightly. When the unit is turned on and the Indicator fails to light, the battery must be replaced. Battery voltage will affect sensitivity.

1. Remove battery compartment cover on back of unit.
   A) Unscrew with a coin or screwdriver.
   B) Gently lift off cover.
2. Disconnect old battery if it is being replaced.
3. Connect a new 9V battery to the pigtail and position battery into foam.
4. Re-install cover and tighten screw.

ACC. & REPLACEMENT PARTS

Your TIF6600 comes with a blow molded carrying case, designed to accommodate the accessory transmitter (TIF6501), one 9V battery and this owner's manual. To obtain replacement parts or accessories please refer to the part numbers below:

Optional Transmitter	P/N: TIF6501
Custom Carrying Case	P/N: TIF548



SPECIFICATIONS

Frequency Response:	14kHz - 100kHz
Power Supply:	9Vdc, one alkaline 9V battery
Operating Temperature:	30°F - 120°F
Battery Life:	8 hours continuous use
Duty Cycle:	Continuous, no limitation
Warm-up Time:	Instantaneous
Response Time:	Instantaneous
Sensitivity:	Dependent on pressure differential and gas viscosity
Unit Weight:	14oz w/battery
Unit Dimensions:	8" x 3" x 1.8"
Probe Length:	12.5"

WARRANTY & REPAIR

Limited Warranty and Repair/Exchange Policy

This instrument has been designed and manufactured to provide unlimited service. Should the unit be inoperative after performing the recommended maintenance, a no-charge repair or replacement will be made to the original purchaser if the claim is made within one year from the date of purchase. This warranty applies to all repairable instruments that have not been tampered with or damaged through improper use.

This warranty does not cover batteries or any other materials that wear out during normal operation of the instrument.

Returning Your Unit For Repair

Before returning your instrument for repair please make sure that you have carefully reviewed the **Unit Maintenance** section of this manual to determine if the problem can be easily repaired. Make sure that the **battery** is working properly **BEFORE returning the unit.**

If the unit still fails to work properly send the unit to the repair facility address on the back cover of this manual. Repaired or replaced tools will carry an additional 90 day warranty. For more information please call (800) 327-5060.