O P E R A T I N G M A N U A L

TEK-Mate®

Refrigerant Leak Detector

INFICON

Declaration Of Conformity

This is to certify that this equipment, designed and manufactured by INFICON® Inc., 2 Technology Place, East Syracuse, NY 13057 USA meets the essential safety requirements of the European Union and is placed on the market accordingly. It has been constructed in accordance with good engineering practice in safety matters in force in the Community and does not endanger the safety of persons, domestic animals or property when properly installed and maintained and used in applications for which it was made.

Equipment Description	TEK-Mate® Refrigerant Leak Detector
Applicable Directives.	73/23/EEC as amended by 93/68/EEC 89/336/EEC as amended by 93/68 EEC
Applicable Standards	EN 61010-1: 1993 EN55011, Group 1, Class A: 1991 EN50082-1: 1992
CE Implementation Date. . .	March 1, 1997
Authorized Representative .	Gary W. Lewis Vice President, Quality Assurance INFICON Inc.

Any questions relative to this declaration or to the safety of INFICON's products should be directed, in writing to the quality assurance department at the above address.

WARNING

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the instrument.

Contents

TEK-Mate's Features And Specifications

TEK-Mate combines sophisticated technology with durability for an instrument with outstanding sensitivity that's Laboratory Accurate, Toolbox Tough™.

- ❖ Electrochemical heated-diode sensor.
- ❖ "No-reset" detection of CFCs, HCFCs, and HFCs.
- ❖ Automatic adjustment (zeroing) to refrigerants in leak test area.
- ❖ Rugged flexible probe with a foam filter for sensor protection.
- ❖ High/Low leak-sensitivity and ON/OFF in one switch.
- ❖ Variable-pitch audible leak signal.

To get the best performance from your TEK-Mate Leak Detector, please read this manual carefully before you start using it. If you have any questions or need additional assistance, please call 800-344-3304. We'll be happy to help you!

Specifications

Usage	Indoor or Outdoor
Minimum sensitivity to R12, R22, and R134a	0.4 oz/yr (11 g/yr)
Operating temperature range	+32 ˚F to 113 ˚F (0 ˚C to +45 ˚C)[1]
Storage temperature range	+14 ˚F to + 140 ˚F (-10 ˚C to +60 ˚C)
Humidity	95% RH NC Max.
Altitude	6500' (2000 m)
Power Supply	Two “D” cell alkaline batteries
Battery Life	Approximately 16 hours
Pollution degree	2
Overvoltage category	2
Weight (with power cells)	1.28 lb (0.58kg)

[1]May be operated for a limited time in lower temperature environments.

Getting Started

1. Install the batteries and sensor as described below.
2. Slide the OFF-LOW-HIGH Sensitivity switch to the HIGH position.
3. Wait for the TEK-Mate to warm up. A high-pitched audible tone will be heard and the “LEAK” indicator will be illuminated while the TEK-Mate is warming up. When this tone changes to a chirp and the “LEAK” indicator starts flashing, the TEK-Mate is ready to find leaks.
4. Begin checking for leaks.

The INFICON TEK-Mate Refrigerant Leak Detector provides similar responses to all CFC's, HCFC's, HFC's and refrigerant blends (i.e. R-404A, R407c) as well as SF6. There is no need to select the refrigerant you're working with.

How to Install the Alkaline Batteries

1. Remove the battery cover by releasing the latch and sliding the cover down and off the handle.
2. Install two “D” size alkaline batteries as shown in Figure 1.
3. Reinstall the battery cover by aligning it with the handle and sliding it up until the latch engages.

When the batteries are nearing the end of their useful life, the yellow Low Battery indicator illuminates. While the batteries may operate the TEK-Mate up to a period of one hour after the Low Battery indicator illuminates, the batteries should be replaced as quickly as possible.

Figure 1. Properly Installed Alkaline Batteries

How to Install or Change the Sensor

A new TEK-Mate is shipped with its sensor packed separately. The sensor must be installed in the TEK-Mate before use. This specialized sensor will operate for about 100 hours before it will need to be replaced.

1. Remove the rubber sensor cover by lifting at the outer edge.
2. If you are replacing a worn out sensor, remove the worn out sensor by pulling it straight out of the socket and discard it.

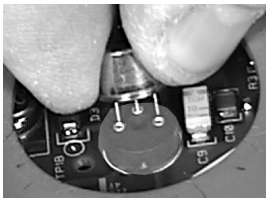
WARNING

If you are replacing the sensor, the worn out sensor may be hot.

3. Remove the new sensor from its packaging.
4. Carefully align the three sensor leads (small wires coming out of the bottom of the "can") with the three holes in the sensor socket. Insert the leads into the holes by gently pressing straight down on the sensor until the sensor leads contact the bottom of the socket. Be careful not to bend the sensor leads. See Figure 2.

5. Reinstall the rubber sensor cover by pressing it down firmly around the edges. Be sure the edges of the cover are flat against the surface of the detector.

Figure 2. Installing the Sensor



Using Your INFICON TEK-Mate

WARNING

Do not operate this instrument in the presence of gasoline, natural gas, propane, or in other combustible atmospheres.

How To Find Leaks

NOTE: A sudden whipping of the leak detector probe or "blowing" into the sensor tip will affect the air flow over the sensor and cause the instrument to alarm.

1. Place the tip of the leak-detector probe as close as possible to the site of the suspected leak. Try to position the probe within 1/4 inch (5 mm) of the possible leak source.
2. Slowly (approximately 1 to 2 inches/second (25 to 50 mm/second)) move the probe past each possible leakage point.

NOTE: It is important to move the tip of the probe past the leak. If held on a leak, the auto zero feature will gradually zero out the leak signal.

3. When the instrument detects a leak source, it will emit a different audible tone.
4. When the TEK-Mate signals a leak, pull the probe away from the leak for a moment, then bring it back to pinpoint the location. If the refrigerant leak is large, setting the sensitivity switch to LOW will make it easier to find the exact site of the leak.
5. Return the sensitivity switch to HIGH before searching for additional leaks.

   NOTE: When you reset the instrument to HIGH, as when you turn it on initially, the tone will sound continuously then give way to a chirp.
6. When you've finished leak-testing, turn OFF the instrument and store it in a clean place, protected from possible damage.

How To Change the Filter

The foam filter at the probe tip should be replaced if it becomes plugged with water or oil. To replace the filter, simply pull out the old filter (with a paper clip or similar device). Then, push in the new filter.

Cleaning The TEK-Mate's Housing

The TEK-Mate's plastic housing can be cleaned with standard household detergent or isopropyl alcohol. Care should be taken to prevent the cleaner from entering the instrument. Since gasoline and other solvents may damage the plastic, protect your INFICON TEK-Mate from contact with these substances.

Disposing Of The Alkaline Batteries

At the end of the life of a set of alkaline batteries, please dispose of them according to applicable state and local regulations. In the absence of such regulations, Inficon encourages its customers to recycle and/or dispose of the cells through voluntary waste recycling programs.

Troubleshooting

Except for the batteries and the sensor, the internal parts of the TEK-Mate Leak Detector are not user serviceable. If you experience a problem with your TEK-Mate, see the Troubleshooting Table below to determine how to remedy the problem. If you can not remedy the problem, take your TEK-Mate to your wholesaler for warranty evaluation.

PROBLEM	CAUSE	REMEDY
1. Poor sensitivity. The TEK-Mate does not find leaks.	1a. Sensor has reached the end of its useful life.	1a. Replace the sensor. See page 5.
	1b. Power switch set to LOW instead of HIGH	1b. Set the Power Switch to HIGH and scan for the leak again.
2. The TEK-Mate responds slowly to a leak.	2a. Dirty or wet filter.	2a. Replace the filter. See page 7.
	2b. Failure in the pumping system.	2b. Turn the TEK-Mate on and listen for a high-pitched motor sound. If you do not hear the motor, return the TEK-Mate to your wholesaler for warranty evaluation.

	2c. The sensor cover is not sealing.	2c. Make sure the sensor cover is properly installed. See step 5 on page 6.
3. Will not power up.	3a. Batteries are worn out.	3a. Install a new set of batteries. See page 4.
	3b. Batteries have been improperly installed.	3b. Check battery installation as shown in Figure 1. on page 5.
4. False alarms - the TEK-Mate alarms when the probe is moved or bumped.	4a. Sensor leads are bent.	4a. Remove the sensor and inspect the leads. Straighten the leads with needle nose pliers, if necessary, and reinstall the sensor.
	4b. Moisture was absorbed by the sensor during a long period without use.	4b. Run the TEK-Mate for at least 20 minutes. The absorption of moisture does not affect the life or sensitivity of the sensor.

Return Authorization Procedure

All defective TEK-Mates, or defective replacement parts and accessories, should be returned to your wholesaler for warranty evaluation. If you have any questions, please contact INFICON at 800-344-3304.

NOTE: Do not return you defective unit directly to the factory without first contacting your wholesaler.

Replacement Parts and Accessories

Replacement parts and accessories for your INFICON TEK-Mate Refrigerant Leak Detector are available through the same dealer from whom you bought the instrument.

Plastic storage case 705-401-P2

Replacement sensor 703-020-G1

Tip filters, package of 20 . . . 705-600-G1

Warranty and Liability

INFICON warrants your TEK-Mate Refrigerant Leak Detector to be free from defects of materials or workmanship for two years from the date of purchase. INFICON does not warrant items that deteriorate under normal use, including power cells, sensors and filters. In addition, INFICON does not warrant any instrument that has been subjected to misuse, negligence, or accident, or has been repaired or altered by anyone other than INFICON.

INFICON's liability is limited to instruments returned to INFICON, transportation prepaid, not later than thirty (30) days after the warranty period expires, and which INFICON judges to have malfunctioned because of defective materials or workmanship. INFICON's liability is limited to, at its option, repairing or replacing the defective instrument or part.

This warranty is in lieu of all other warranties, express or implied, whether of merchantability or of fitness for a particular purpose or otherwise. All such other warranties are expressly disclaimed. INFICON shall have no liability in excess of the price paid to INFICON for the instrument plus return transportation charges prepaid. INFICON shall have no liability for any incidental or consequential damages. All such liabilities are excluded.

Special Information For Automotive Technicians

INFICON's TEK-Mate Refrigerant Leak Detector Model #705-202-G1 is design certified by MET Laboratories, Inc. to meet SAE J1627, “Rating Criteria for Electronic Refrigerant Leak Detectors” for R12, R22, and R134a. The following SAE Recommended Practice applies to this instrument and to the use of generally available electronic leak detection methods to service motor vehicle passenger compartment air conditioning systems.

1. The electronic leak detector shall be operated in accordance with the equipment manufacturer's operating instructions.
2. Leak test with the engine not in operation.
3. The A/C system shall be charged with sufficient refrigerant to have a gauge pressure of at least 50 PSI (340 kPa) when not in operation. At temperatures below 59 ˚F (15 ˚C) leaks may not be measurable, since this pressure may not be reached.
4. Take care not to contaminate the detector probe tip if the part being tested is contaminated. If the part is particularly dirty, it should be wiped off with a dry shop towel or blown off with shop air. No cleaners or solvents shall be used, since many electronic detectors are sensitive to their ingredients.
5. Visually trace the entire refrigerant system, and look for signs of air conditioning lubricant leakage, damage, and corrosion on all lines, hoses, and components. Each questionable area shall be carefully checked with the detector probe as well as all fittings, hose-to-line couplings, refrigerant controls, service ports with caps in place, brazed or welded areas, and areas around attachment points and hold-downs on lines and components.

6. Always follow the refrigerant system around in a continuous path so that no areas of potential leaks are missed. If a leak is found, always continue to test the remainder of the system.
7. At each area checked, the probe shall be moved around the location, at a rate no more than 1 to 2 inches/second (25 to 50 mm/second) and no more than 1/4 inch (5 mm) from the surface completely around the position. Slower and closer movement of the probe greatly improves the likelihood of finding a leak.
8. An apparent leak shall be verified at least once by blowing shop air into the area of the suspected leak, if necessary, and repeating the check of the area. In cases of very large leaks, blowing out the area with shop air often helps locate the exact position of the leak.
9. Leak testing of the evaporator core while in the air conditioning module shall be accomplished by turning the air conditioning blower on high for a period of 15 seconds minimum, shutting it off, then waiting for the refrigerant to accumulate in the case for time specified in step 10, then inserting the leak detector probe into the blower resistor-block or condensate drain-hole if no water is present, or into the closest opening in the HVAC case to the evaporator, such as the heater duct or a vent duct. If the detector alarms, a leak apparently has been found.
10. The accumulation time for evaporator testing is 13 minutes.
11. Following any service to the refrigerant system of the vehicle, and any other service which disturbs the refrigerant system, a leak test of the repair and of the service ports of the refrigerant system shall be done.

Laboratory Accurate. Toolbox Tough.™

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