

cps[®]

LS3000B

THE ELIMINATOR™

REFRIGERANT LEAK DETECTOR
DETECTEUR DE FUITE DE REFRIGERANTS
KÄLTEMITTEL LECKSUCHGERÄT
DETECTOR DE FUGAS DE REFRIGERANTES



OWNER'S MANUAL
MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG
MANUAL DE OPERACION

cps[®]

LS3000B

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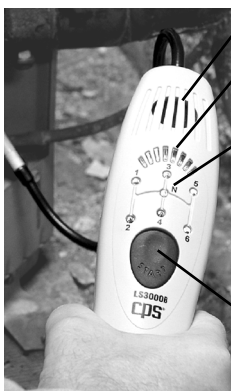


GENERAL SPECIFICATIONS

THE ELIMINATOR™ LS3000B is the world's first truly automatic electronic leak detector requiring absolutely no operation intervention during the leak search process. Controlled by an exclusive **POWERSHIFT™** software, the LS3000B continuously and automatically adjusts critical sensitivity related functions providing optimal leak searching results under any conditions.

FEATURES

- The world's 1st truly automatic electronic leak detector
- Patented microprocessor controlled circuitry
- Exclusive **POWERSHIFT™** software
- New state of the art Cold Cathode Diode (CCD) sensor
- Superior resistance to background contaminants
- Exclusive **TACHOMETER** style LED leak indicators
- Rugged, ergonomically correct housing fits comfortably in your hand
- Up to 75 hours or more of battery life with auto off feature
- Includes hard case, spare CCD sensor and 3 size "C" alkaline batteries
- Detects all CFC/HCFC/HFC refrigerants and blends
- Two year warranty
- Certified to SAE J1627 - CE



High Output Alarm Speaker

8 LED Tachometer Display

Enables user to pinpoint the exact location of a leak source.

LED display for Leak Sizing

Allows user to determine the approximate size of a leak

POWERSHIFT™ SOFTWARE

Automatically controls all sensitivity related settings, simplifying user operation

One Button Operation

For reset, change audible alarm, and shut off

OPERATION FEATURES

TURNING THE INSTRUMENT ON

Click the **START** button once to turn the unit ON.

RESETTING THE INSTRUMENT

At any time during operation, clicking the **START** button resets the instrument to its highest sensitivity level and balances it to ambient conditions.

SWITCHING AUDIBLE ALARMS

The LS3000B incorporates two user selectable audible alarm sounds. At any time during operation,

simply double click the START button to toggle between the two audible alarm options. The instrument will store the current alarm setting when turned OFF, thus becoming the operation alarm the next time the instrument is powered up.

TURNING THE INSTRUMENT OFF

At any time during operation, press and hold down the START button until the LED display turns OFF. This indicates that the unit has been shut down.

SENSOR STATUS INDICATOR

If the sensor is damaged, every other one of the tachometer LED's will light up visibly notifying the user of the problem, and then the instrument turns itself OFF.

LOW BATTERY INDICATOR

When the batteries reach approximately 10% of capacity, the rightmost tachometer LED will stay lit above the LO BAT legend.

CONTROL

Single momentary push-button operates all functions of the unit:

- With the instrument OFF, click the START button once to turn it ON. The instrument is automatically calibrated and ready to search for leaks.
- With the instrument ON, holding the button down for 3 seconds turns the instrument OFF. Audible alarm setting is remembered.
- With the instrument ON, double clicking the button changes the audible alarm from high to low intensity and vice versa.
- With the instrument ON, clicking the button once resets the instrument to maximum sensitivity and nulls out any ambient contamination.

SEARCHING FOR LEAKS

The LS3000B is fully automatic and need only be turned on to begin a leak search. All necessary sensitivity and calibration settings are automatically selected by the unit's advanced POWERSHIFT™ software providing optimal leak searching performance under any conditions.

SAE J1628 Recommended Leak Search Procedure

Note: On automotive A/C systems, test with the engine not in operation.

1. The air conditioning or refrigeration system should be charged with sufficient refrigerant to have a gauge pressure of at least 50 psig/340kPa/3.4 BAR when not in operation. At temperatures below 59°F/15°C, leaks may not be measurable, since this pressure may not be reached.
2. Take care not to contaminate the detector probe tip if the part being tested is contaminated. If the part is particularly dirty, or condensate (moisture)

- is present, it should be wiped off with a dry shop towel or blown off with shop air. No cleaners or solvents should be used, since the detector may be sensitive to their ingredients.
3. 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 should be carefully checked with the detector controls, service ports with caps in place, brazed or welded areas, and areas around attachment points and hold-down on lines and components.
 4. 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.
 5. At each area checked, the probe should be moved around the location at a rate no more than 1-2 in/s (25 to 50mm/s), and no more than .2" (5mm) from the surface, completely around the position. Slower and closer movement of the probe greatly improves the likelihood of finding a leak.
 6. 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.
 7. Leak testing to 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 ten minutes. Next, insert 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 heating/ventilation/air conditioning case to the evaporator, such as the heater duct or a vent duct. If the detector alarm sounds, a leak apparently has been found.
 8. Following any service to the refrigerant system, and any other service that disturbs the refrigerant system, a leak test of the repair and of the service ports of the refrigerant system should be done.

OPERATING TIPS

- **WINDY CONDITIONS:** Locating leaks under windy conditions may severely impede the leak searching process. Even very large leaks may be impossible to find as the escaping gas is quickly dissipated into the atmosphere. If necessary, fabricate a gas trap using aluminum foil around joints or fittings or otherwise shield the search area from the wind.
- **WHEN TO RESET THE UNIT:** It is necessary to reset the LS3000B during a leak search if the unit becomes fully saturated, multiple leaks are present or during the leak verification process.
- **LEAK VERIFICATION:** If a suspected leak is

indicated, verify several times by moving the sensor away from the leak area, resetting the unit and then back to the suspected leak. If the instrument indicates a leak three consecutive times, then you have found a leak.

MAINTENANCE

The **ELIMINATOR™ LS3000B** is designed to require a minimal amount of field maintenance. Periodic replacement of the unit's sensor and batteries are the only maintenance needs.

- **LOW BATTERY CONDITION:** When the batteries reach approximately 10% of capacity, the rightmost LED of the tachometer indicator (above the LO BAT symbol) will energize. The other seven LEDs will continue to function as indicators of the leak's relative size.
- **CHANGING THE CCD SENSOR:** The CCD sensor assembly consists of metal and plastic components. Do not attempt to remove one component from the other. Do not use solvents or cleaning solutions for cleaning the sensor. It should be replaced when air vents become clogged. Eventually, the sensor will need to be replaced. This condition is usually indicated by abnormal or erratic performance. With the unit OFF, install the new sensor as ILLUSTRATION 1 demonstrates. CPS recommends that you change the CCD sensor at the beginning of every cooling season and always have a spare sensor available for replacement in the field.



CAUTION:

HIGH VOLTAGE MAY BE PRESENT AT END OF PROBE WHEN SENSOR IS REMOVED.

LS3000B SPECIFICATIONS

SENSOR: State of the art Cold Cathode Discharge Diode.

TYPES OF GASES: Sensitive to all halogenated refrigerants: HFC's, CFC's, HCFC's. Sensitive to all halogenated vapors and gases such as SF6.

SENSITIVITY: Fully automatic sensitivity selection with 6 visible LED range indicators. Maximum sensitivity allows detection of a 0.10 oz/yr (3 g/yr) leak of R-134a (HFC).

LEAK INDICATION

AUDIBLE ALARMS: Two user selectable audible alarm options (High and low intensity alarm tones)

VISUAL ALARMS: TACHOMETER bar graph

display. Eight high intensity LEDs are arranged in a Tachometer-like display indicating leak intensity per the sensitivity range. GEARSHIFT display is arranged in a gearshift pattern. Seven LEDs indicate the current sensitivity range of the unit and subsequent leak size as follows:

GEAR	LEAK SIZE
N	No Leak
1 & 2	Small
3 & 4	Medium
5 & 6	Large

OPERATING TEMPERATURE: -18 to 60°C
(0 to 140°F)

POWER: Three size 'C' alkaline batteries
(NEDA/ANSI 14A)

Continuous Operating battery life at 77°F (25°C):

High intensity alarm: 55 hrs

Low intensity alarm: 75 hrs

Because the instrument turns itself off after 10 min. of inactivity, the actual useful battery life may be longer than stated. See Maintenance section for LO BAT conditions.

DIMENSIONS: Instrument (Lx W xH): 10" x 2.3" x 2"
254mm x 59mm x 51mm

PROBE: 14" (36.5cm) long, .25" (6.4mm) diameter, metal flex probe.

WEIGHT: 1 lbs. 2 oz. (500 grams)

WARRANTY & REPAIR POLICY

CPS® Products, Inc, guarantees that all products are free of manufacturing and material defects for two years. If the equipment should fail during the guarantee period it will be repaired or replaced (at our option) at no charge. This guarantee does not apply to equipment that has been altered, misused, or returned solely in need of field service maintenance. This repair policy does not include equipment that is determined to be beyond economical repair. All products being returned for warranty repair must be accompanied by an original bill of sale and customer contact information.

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