Using microns and a deep vacuum for extra profits

Why should you care about Microns?

The answer is simple - if you're not pulling a deep vacuum to the low micron range, the risk of in-warranty failures and no-charge call backs increases. And only an electronic gauge is accurate enough to show when you reach the necessary micron range suggested by the system manufacturer.

Why 15 microns or better?

During new system set-up, protective caps are removed admitting moisture and air into system components. If air and moisture remain in the system, they collect on the high side reducing system efficiency. This causes a rise in head pressure. The discharge valve gets hotter than normal and organic solids form causing compressor failure.

Moisture in the system can form ice droplets which close off openings in expansion valves and cap tubes, and prevent continuous cooling. Ultimately moisture, air and heat can produce acids and sludge which could cause failures.

During service and parts replacement, the same contaminants can get in again, and you could be called back for repairs by a dissatisfied customer.

Moisture and air can even enter through system leaks. And as the moisture in air increases, so does the amount of contamination. The higher the humidity, the bigger your problem.

A vacuum pump pulls air, moisture and other contaminants out of the system before the system is damaged. The deeper and more complete the vacuum, the more moisture is removed. That's why the YELLOW JACKET® SuperEvac™ pump is engineered for deep vacuums of 15 microns or better.

The purpose of manometers and built-in pump gauges

Manometers provide approximate readings in inches of mercury. It's a start and better than a mechanical gauge for measuring vacuum but cannot provide the readings necessary to assure you of having reached the desired vacuum. 2000 microns, for example, is equivalent to less than 0.1" of mercury which would not be readily noticeable on the manometer or mechanical gauge.

YELLOW JACKET pumps feature a built-in indicator gauge to monitor evacuation. When the indicator is in the green (29" - 30") range, the gauge is telling you to turn on the YELLOW JACKET LCD Vacuum Gauge for the more accurate readings in the micron gauge. The LCD reading gives you the assurance of knowing that the system is safeguarded with a deep enough vacuum.

Specifications

69075 Full Range SuperEvac LCD Vacuum Gauge

Micron range: 760,000 to 1
Sensor: Thermocouple 69073
Resolution: 1 micron (below 1,000 microns)
Operating Temperature: -30ºF to 125ºF
Display: 0.5" LCD
Automatic shut-off: 20 minutes after power-up
Unit size: 12.5"L x 2.4" H x 9"D
Sensor cable: coiled cable extends to 6'
Sensor thread: 1/8" MPT
Sensor adapter: 1/8" FPT x 1/4" Male Flare
Power: 1 "D" cell battery
1/4" Female Flare Coupler: 69071

Repair service

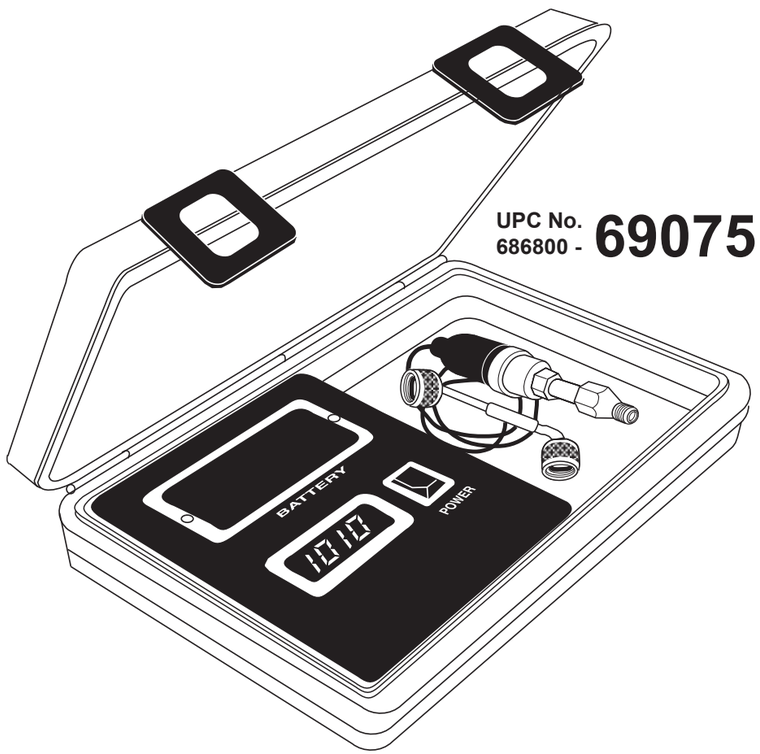
YELLOW JACKET products from Ritchie Engineering Company, Inc. are guaranteed to be free from material and workmanship defects for a period of one year. This guarantee does not cover products which have been altered, abused, misused or improperly maintained.

All returns MUST have an RGA number and proof of purchase/copy of invoice. Please obtain an RGA number from Ritchie Engineering customer service by calling (800)769-8370. **All returns must be pre-paid.**

Printed in USA P/N 180355C

Full Range SUPEREVAC™ LCD Vacuum Gauge

YELLOW JACKET®



UPC No. 686800 - 69075

Operation and Maintenance

IMPORTANT NOTICES TO PURCHASER

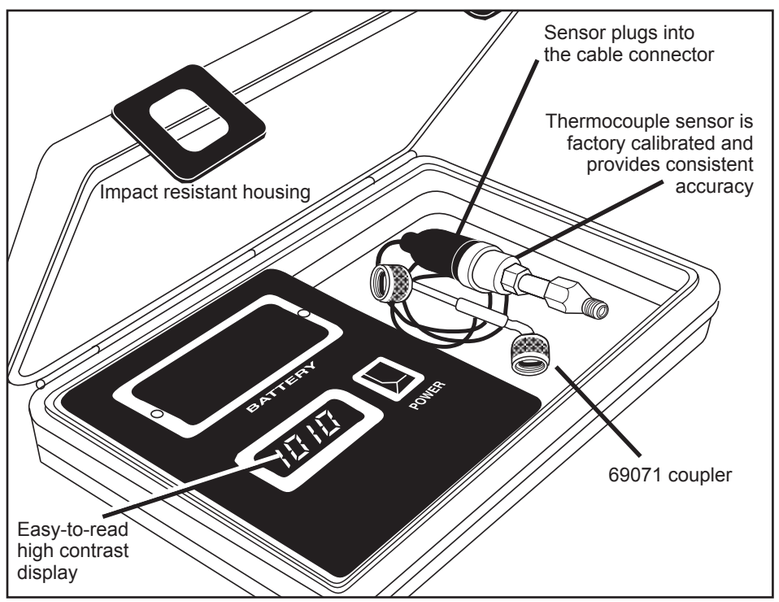
Check for damage immediately. Carton contents include:

- Digital 760,000 to 1 micron gauge mounted on rugged housing
- 6' coiled sensor cable
- Thermocouple sensor with adapter
- All metal coupler (69071)
- Warranty registration card
- Instructions

Warranty and Repair Policy

Prior to shipment, YELLOW JACKET 69075 Vacuum Gauges are calibrated, tested and inspected to assure compliance with specifications.

Manufacturer guarantees that all products are free of manufacturing and material defects to the original owner for one year from the purchase. **In order to protect your warranty, return warranty card within 15 days from date of purchase.** If an instrument should fail during the warranty period, it will be repaired or replaced at no charge at the option of the manufacturer. This warranty does not apply to products that have been altered, misused, or returned solely in need of field service maintenance. Sensor contamination is not covered by warranty. Repairable instruments that are not covered by the condition of the original warranty will be repaired for a nominal fee, F.O.B. shipping point. See back cover for return details. Repairs will carry an independent 90-day guarantee of satisfaction.



Sensor and Gauge Installation and Operation

Thermocouple sensor

Your new YELLOW JACKET 69075 LCD gauge system has a thermocouple sensor. Thermocouple technology has been long proven in laboratory and industrial precision instrumentation for sensing the lower vacuum range. Thermocouple sensors are factory calibrated and exhibit none of the electronic variances of thermistor sensors found in many other electronic vacuum gauges.

Features of your gauge include:

- Sense full micron range of 760,000 to 1 micron.
- Ready-to-use with no adjustments or warm-up. Pre-calibration is repeatable job after job.
- Automatic ambient temperature compensation.
- Stays calibrated after on/off switching and over long evacuations.
- Nickel-plated steel sensor housing.
- Sensors are interchangeable.
- Battery condition display.
- Automatic battery strength compensation.
- Automatic shut-off 20 minutes after power-up

The "thermo" of thermocouple relates to the heat generated in the sensor by electricity. As vacuum increases there are fewer molecules of air or contaminants to cool the thermocouple, and the temperature rises. The change in temperature is transmitted as input through the sensor cable to the gauge's circuitry.

YELLOW JACKET LCD Gauge

A rugged molded case protects the gauge's electronic circuitry. The circuitry controls the electricity flow that heats the sensor elements and translates the temperature readings into micron readings on the high contrast LCD (liquid crystal display).

The gauge is a battery-powered instrument. Normal handling and jarring will not affect the LCD reading.

Basic Set-up Sequence

1. Attach the coupler to the sensor assembly. The coupler provides a convenient method for connecting to the system without adding a significant source of additional molecules.

2. Plug the sensor into the sensor cable.

3. Attach the coupler, sensor and cable to a dry part of the system. The sensor will not work if it becomes filled with system oil.

   Always keep the sensor upright to help prevent contamination and ensure accurate readings.

   If oil inadvertently enters the coupler, the oil must be removed before continuing.

4. Turn on the gauge and the LCD illuminates immediately. If the letters "LobA" appear in the left of the display, the battery is not powerful enough for use and must be replaced.

After the automatic battery condition check, the number 760000 will appear in the display. 760,000 microns is the pressure of one atmosphere. Begin the evacuation. The gauge will monitor the vacuum from 760,000 to 1 micron.

Cleaning the sensor

If a sensor becomes lightly contaminated with oil or other foreign matter, it may be possible to clean it. Disassemble the coupler and sensor from each other. Flush or fill each with a solvent that you know will remove the contaminant. Before reuse, the components should be completely dried or flushed with a volatile solvent to prevent contamination of the AC&R system with moisture.

If the sensor is heavily contaminated, you will need to purchase a 69073 replacement sensor from your YELLOW JACKET wholesaler.

Gauge repair

The LCD gauge is designed for years of trouble-free service. There are no moving parts and the circuitry is secured within the heavy-duty molded case.

If service or recalibration of the LCD unit does become necessary, the instrument must be returned to the factory. Any attempt at field service other than replacing the sensor will void the warranty.

Tips for best evacuation and gauge performance

When pulling a vacuum take the following steps:

1. If the reading on the YELLOW JACKET pump built-in indicator gauge stays in the mid range, there is either high contamination or a large leak in the system. (Throughout the process, remember the refrigerant recovery laws.)

   If you think there is excessive moisture, blow out the AC&R system with dry nitrogen wherever possible. This reduces the amount of contaminants that must be pulled into the pump, and increases evacuation speed.

2. When the built-in indicator gauge on the pump reaches the green (29"-30") range, it is time to **turn on the LCD vacuum gauge.**

3. It is advised to purchase a 69067 ball valve to attach to the sensor. Keeping the valve closed during system pressurization isolates the sensor from the system and helps prevent damage to the sensor.