



## **VACUUM PUMP COLD WEATHER STARTING**

**By Bernie Williams, President of B.J. Williams Associates**

Vacuum pump cold weather starting problems, regardless of pump manufacturer, can be traced to oil viscosity.

Upon completion of the evacuation process while the system being worked on may have a reading of 400 microns, it is conceivable the micron level within the pump head could be lower than 30 microns. As the entire vacuum head is immersed within the oil reservoir, when the pump motor is turned off oil from the reservoir will be pulled into the head, displacing the vacuum. As the pump sits unused in cold temperature the oil will thicken, eventually becoming the consistency of molasses. When power is next applied to the motor, which is designed to immediately turn at 1725 rpm, low viscosity oil within the stages is being forced to exit into the oil reservoir through very small discharge holes. The net result of this action will be severe strain on the electric motor, causing the motor to rapidly switch on and off until the low viscosity oil has eventually been expelled from the stages.

### **Solution to the problem**

Upon completion of the evacuation, while the pump oil is still hot and any particulate matter and moisture is suspended in the oil, drain the reservoir. After draining replace the drain plug and turn the motor switch on and off twice for a period of 3 to 4 seconds. Again open the drain valve, removing any oil residue from the reservoir. This will remove any remaining contaminated oil from the pump. With the drain valve replaced refill the pump with new vacuum pump oil.

During extreme cold temperatures, place your pump inside the cab of your vehicle while driving to the job site. Heat from the vehicle heater will assist in thawing the pump and in turn increasing the viscosity level of the oil.

These simple procedures will ensure optimum performance from your pump while dramatically reducing excessive strain on the electric motor.