



*"The Right Control
for your Application"*

KB ELECTRONICS, INC.
12095 NW 39th Street, Coral Springs, Florida 33065 USA
(954) 346-4900 FAX (954) 346-3377

SUBJECT: HI-POT TESTING OF KB's AC and DC DRIVES

Most of our AC and DC Drives are Listed by Underwriters Laboratory or UL. One of the requirements of UL 508 is that all AC and DC Drives pass a High Voltage Dielectric Withstand Test, commonly called the Hi-Pot Test. The voltage applied to the control is usually equal to 1,000 volts, plus two times the line voltage rating of the drive. Therefore, the standard hi-pot voltage for 115 VAC drives is 1,250 VAC. For 230 VAC or dual voltage drives, the hi-pot voltage is 1,500 VAC. Every KB AC and DC Drive is hi-pot tested before it leaves the factory, with a UL Certified hi-pot tester, set to the voltages shown above.

For UL Listed equipment, UL requires that customers perform a final Hi-Pot test of their machine with the AC or DC Drive installed. Hi-Pot testing is used to detect any electrical leakage between live metal components and the frame of the machine that is connected to earth ground. This helps prevent electrical shock to the user of the equipment should a live component touch the frame and the user touch the frame and ground at the same time.

It is important that hi-pot testing be done in a prescribed manner. This will avoid damage to sensitive electronic components to our motor speed controls and to the machine. UL specifications allow us to connect the two AC input lines together when testing our AC or DC Drives. This avoids applying high voltage across the SCR's, power diodes or IGBT transistors. All power switches on the machine must also be closed so that electrical continuity is complete between both AC lines. We further recommend that all inputs to the AC or DC Drives be connected together. This prevents leakage in external devices connected to the motor speed controls from causing a drive failure.

For PWM DC Drives that operate at high switching frequencies a capacitor is usually connected from the output circuit to the chassis frame. When Hi-potting these DC Drives it is necessary to use UL Approved DC Hi-pot test equipment.

Complying with these suggestions will ensure the safety of our AC and DC Drive motor speed controls and will meet with UL 508 requirements. Please contact our Regional Sales Managers if you have any questions about Hi-Pot testing.

Sincerely,

Richard Fritts
National Sales Manager