



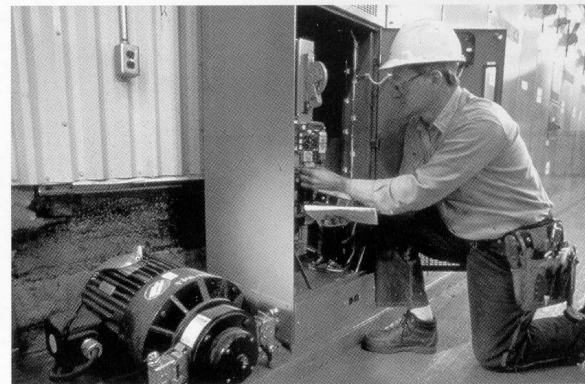
Society of
**Motor
Management**

Tech Tips

Motor Controller Maintenance for Optimum Performance

Because of the numerous mechanical and/or electrical components of motor control equipment, maintenance procedures require special attention and expertise. Here are some general maintenance principles that can be applied to motor controllers:

- Keep control equipment clean. In harsh environments, blow out dirt weekly; quarterly or semi-annual cleaning should be adequate in most other environments. Be sure dust or contaminants are kept off the equipment. This is important because dust may contain conducting materials which could form unwanted circuit paths, resulting in current
- leakage or possible grounds or short circuits. Moving parts should operate easily without excessive friction. Check operation of contactors and relays by hand, checking for any binding or sticking. Look for loose pins, bolts or bearings that may need tightening or replacement.
- Check contacts for pitting and signs of overheating, such as discoloration of metal, charred insulation or odor. Be sure contact pressure is adequate and is the same on all poles. Watch for frayed, flexible leads.
- On essential controls, perform contact-resistance tests with a low-resistance ohmmeter on a regular basis. Proper contact resistance should be about 50 micro-ohms. Record readings for future comparison. This will indicate trends in the condition of contacts for better preventive maintenance.
- Overload relays should receive a thorough inspection and cleaning. Check for proper setting, and recheck that the rating or trip setting takes into account ambient temperature, as well as the higher inrush currents of modern, energy-efficient motors. To ensure reliable operation, relays should be tested and calibrated every one to three years. Special equipment, such as an overload relay tester, can be used to perform these tests.



Routine maintenance and inspection of motor control equipment and auxiliary control devices help ensure continuous reliable performance.

Proper Motor Starter Installation Helps Ensure Reliable Performance

Proper installation of individual electromechanical or solid-state motor starters helps reduce labor costs, boosts reliability and lengthens life of the equipment. Most starters of either type come in enclosures for wall mounting.

Enclosures—Make sure that the enclosure selected is suitable for the field conditions encountered. Also, check the location and environment.

Excessive heat is the greatest enemy of a solid-state starter; dirt and humidity are enemies of electromechanical starters. Always leave ample working space around the equipment.

Location—Be sure not to indiscriminately relocate the starter for convenience without checking that the motor disconnecting means is “in sight from” the motor location. This applies not only to individual motor disconnects but to combination starters that incorporate the motor disconnect in the same enclosure with the motor starter. Note that “in sight from” means that one piece of equipment is visible from the other and is not more than 50 feet away.