



Preventive Maintenance of Industrial Control and Drive System Equipment

Preventive Maintenance Checklist

Use the following checklist as a guide in performing preventive maintenance.



ATTENTION: Servicing energized industrial control equipment can be hazardous. Severe injury or death can result from electrical shock, burn, or unintended actuation of controlled equipment.

Recommended practice is to disconnect and lock out control equipment from power sources, and discharge stored energy in capacitors, if present. If it is necessary to work in the vicinity of energized equipment, only qualified personnel should be permitted to perform such work, using all applicable safety practices and protective equipment.

Periodic Inspection

Industrial control equipment should be inspected periodically. Inspection intervals should be based on environmental/operating conditions, and adjusted as indicated by experience. An initial inspection within 3 to 4 months after installation is suggested. Applicable parts of the following guidelines should be used:

Contamination

If inspection reveals that dust, dirt, moisture or other contamination has reached the control equipment, the cause must be eliminated. This could indicate an incorrect or ineffective enclosure, unsealed enclosure openings (conduit or other) or incorrect operating procedures. Dirty, wet or contaminated parts must be replaced unless they can be cleaned effectively by vacuuming or wiping.

Cooling Devices

Inspect blowers and fans used for forced air cooling. Replace any that have bent, chipped, missing blades or if the shaft does not turn freely. Apply power momentarily to check operation. If unit does not operate, check and replace wiring, fuse, blower or fan motor as appropriate. Clean or change air filters as recommended.

❑ **Operating Mechanisms**

Check for proper functioning and freedom from sticking or binding. Replace any broken, deformed or badly worn parts or assemblies according to individual product renewal parts lists. Check and securely retighten (if necessary) any loose fasteners. Lubricate (if specified) per individual product instructions.

Important: Allen-Bradley magnetic starters, contactors and relays are designed to operate without lubrication - do not lubricate these devices. Oil or grease on the pole faces (mating surfaces) of the operating magnet may cause the device to malfunction. Some parts of other devices are factory lubricated. If lubrication during use or maintenance of these devices is needed, it will be specified in their individual instructions. If in doubt, consult the nearest Allen-Bradley sales office for information.

❑ **Contacts**

Check contacts for excessive wear and dirt accumulations. Discoloration and slight pitting are acceptable. Contacts should never be filed. Contact spray cleaners should not be used, their residues may cause sticking, or interfere with electrical continuity. Contacts should only be replaced after silver has become badly worn. Always replace contacts in complete sets to avoid misalignment and uneven contact pressure.

❑ **Terminals**

Loose connections can cause overheating that can lead to equipment malfunction or failure. Check the tightness of all terminals and bus bar connections – securely tighten any loose connections. Replace any parts or wiring damaged by overheating. Also check ground connection integrity.

❑ **Coils**

If a coil exhibits evidence of overheating (cracked, melted or burned insulation), it must be replaced. In that event, check for and correct overvoltage or undervoltage conditions, which can cause coil failure. Be sure to clean any residues of melted coil insulation from other parts of the device or replace such parts.

❑ **Pilot Lights**

Replace any burned out lamps or damaged lenses.

Solid State Devices

Solid state devices require little more than a periodic visual inspection. Printed circuit boards should be inspected to determine whether they are properly seated in the edge connectors. Board locking tabs should also be in place. Necessary replacements should be made only at the PC board or plug-in component level. Solvents should not be used on printed circuit boards. When blowers are used, air filters should be cleaned or changed periodically depending on the specific environmental conditions encountered.



ATTENTION: Use of other than factory recommended test equipment for solid state controls may result in damage to the control or test equipment or unintended actuation of the controlled equipment.

Locking and Interlocking Devices

Check these devices for proper working condition and capability of performing their intended functions.

Replacements

Make any necessary replacements only with Allen-Bradley renewal parts or kits. Assure that parts are properly matched to the model, series and revision level of the equipment.

Final Check Out

After maintenance or repair of industrial controls, always test the control system for proper functioning under controlled conditions that avoid hazards in the event of a control malfunction.

“Keep Good Maintenance Records”

This rule will be most helpful in locating possible intermittent problems by pointing to a particular area of constant trouble within the overall system. Further, good maintenance records will reduce major costly shutdowns by demanding the use of proper test equipment and an appropriate inventory of spare parts.

It is also recommended that a complete record of parameter settings be kept close to the drive for future reference. Some drives also incorporate an operator interface that can store a copy of the parameter settings.

www.rockwellautomation.com

Corporate Headquarters

Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433

Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741

Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

U.S. Allen-Bradley Drives Technical Support

Tel: (1) 262.512.8176, Fax: (1) 262.512.2222, Email: support@drives.ra.rockwell.com, Online: www.ab.com/support/abdrives