C H A P T E R ⑦

Maintenance & Troubleshooting

Chapter Objectives

The information in this chapter will enable you to:

- ❑ Maintain the system's components to ensure smooth, efficient operation
- ❑ Isolate and resolve system hardware problems
- ❑ Isolate and resolve system software problems
- ❑ Use this chapter as a quick-reference tool for a description of system error codes

Maintenance

The following system components require periodic maintenance:

- ❑ The Motor
- ❑ The Drive

Spare Parts Table

The following table provides a list of recommended spare parts to use with the CX system.

Part Description	Part Number
Possible Drives	
CX Drive	CX-Drive
CXT Drive	CXT-Drive
DC4 Power Supply (Optional)	DC4
Pkg of 5 Jumpers	43-002345-01
4-Pin Phoenix Connector	43-005560-01
5-Pin Phoenix Connector	43-005561-01

Motor Maintenance

You should inspect all mechanical parts of the motor regularly to ensure that no bolts or couplings have become loose during normal operation. This will prevent minor problems from developing into more serious problems.

The ball bearings used in the Compumotor-supplied motors are not sealed against severe environments, but are permanently lubricated and do not require any maintenance.

You should inspect the motor cables periodically for signs of wear. This inspection interval is duty-cycle, environment, and travel-length dependent. You should not apply excessive tensile force to the cable. Do

not bend the cable beyond a one-inch radius of curvature during normal operation. Tighten all cable connectors.

Drive Maintenance

Check that the drive's heatsink is free of particles and has a free flow of air over its entire surface. Enclosures must be connected to earth ground through a grounding electrode conductor to provide a low-impedance path for ground-fault or noise-induced currents. All earth ground connectors must be continuous and permanent.

Troubleshooting

This section discusses methods to identify, isolate, and resolve problems that may occur with your CX Indexer/Drive.

Problem Isolation

If your system malfunctions, you must identify and isolate the problem. When you accomplish this, you can begin to eradicate and resolve the problem.

The first step is to isolate each system component and ensure that each component functions properly when it is run independently. You may have to dismantle your system and put it back together piece by piece to detect the problem. If you have additional units available, you may want to use them to replace existing components in your system to help identify the source of the problem.

Try to determine if the problem is mechanical, electrical, or software-related. Can you repeat or re-create the problem? Do not attempt to make quick rationalizations about problems. Random events may appear to be related, but they are not necessarily contributing factors to your problem. You must carefully investigate and decipher the events that occurred before the subsequent system problem.

You may be experiencing more than one problem. You must solve one problem at a time. Log (document) all testing and problem isolation procedures. You may need to review and consult these notes later. This will also prevent you from duplicating your testing efforts.

Once you isolate the problem, take the necessary steps to resolve it. Refer to the problem solutions contained in this chapter. If your system's problem persist, contact Compumotor's Applications Department.

Fault LED

The Fault LED may be activated (lit) if one of the following conditions exists.

- The drive is overheating. You may consider cooling the cabinet to the temperature specified in the Hardware reference section. Installing the fan kit would help the problem.
- Short circuit exists in the motor current output. Use the Ohm meter to make sure that there is not a short circuit between channel A, B, or to earth ground.
- A brown-out condition exists. Check the AC input voltage to make sure that you have more than 95VAC.

Motor Stalls

Probable Cause:

If the motor stalls during acceleration, the force requirements may be excessive, the acceleration ramp may be too steep, or the load inertia and forcer (or motor) inertia may be grossly mismatched. Lower acceleration may be required.

A stall may occur if the jumper setting for the current selection is wrong. The motor may not be receiving enough current to operate.

Motor Fails to Run at High Speeds

Probable Causes:

- ❑ It is possible that the motor may not produce enough torque to move a given load at these velocities. Check the speed/torque curve and make sure you are trying to run the motor in the proper range.

Motor is Jerky or Weak

Check that there are no mechanical problems at the load causing highly variable loading condition. Disconnect the motor from the load and run it without a load connected.

References

Information about the equipment referred to may be obtained by calling the numbers listed below.

- ❑ Corcom line filters, (312) 680-7400
- ❑ OPTO-22 optically isolated relays, (714) 891-5861
- ❑ Crydom optically isolated relays, (213) 322-4987
- ❑ Potter Brumfield optically isolated relays, (812) 386-1000
- ❑ General Electric MOVs (315) 456-3266
- ❑ Teal Electronics Corporation–specializing in power line products–(800) 888-TEAL.

Returning The System

If you must return your CX Indexer/Drive to effect repairs or upgrades, use the following procedure:

① Get the serial number and the model number of the defective unit, and a purchase order number to cover repair costs in the event the unit is determined by Parker Compumotor to be out of warranty.

② Before you ship the indexer to Parker Compumotor, have someone from your organization with a technical understanding of the CX Indexer/Drive and its application include answers to the following questions:

- What is the extent of the failure/reason for return?
- How long did it operate?
- How many units are still working?
- How many units failed?
- What was happening when the unit failed (i.e., installing the unit, cycling power, starting other equipment, etc)?
- How was the product configured (in detail)?
- What, if any, cables were modified and how?
- With what equipment is the unit interfaced?
- What was the application?
- What was the system sizing (speed, acceleration, duty cycle, inertia, torque, friction, etc.)?
- What was the system environment (temperature, enclosure, spacing, unit orientation, contaminants, etc.)?
- What upgrades, if any, are required (hardware, software, user guide)?

③ Call Parker Compumotor for a Return Material Authorization (RMA) number. Returned products cannot be accepted without an RMA number. The phone number for Parker Compumotor Applications Department is (800) 358-9070.

④ Ship the unit to:

Parker Compumotor Corporation
5500 Business Park Drive, Suite D
Rohnert Park, CA 94928
Attn: RMA # xxxxxxx