TB104 (Rev1) - ATC6 Modifications

Overview

This document details the changes made to the M400 ATC controls as of the ATC6 revision. The changes made for the ATC6 modification involve the wiring of the spindle inverter FWD/REV commands to the KOYO instead of the PLC3/3 outputs as previously used. Also, the handling of low air messages is different. If the low air happens during a tool change (M6), then the control is stopped as if the E-stop was pressed. The E-stop must be engaged when the air pressure is normal in order for another tool change to work properly. Another minor change is the way in which the orient complete signal works. In the ATC6 programs, once the orient complete signal is first seen, it is latched until the M19 command is canceled by an M5, or the E-stop is pressed. What happened before is that if the inverter orient signal dropped out for whatever reason, and then the re-orient operation was started again, which would cancel an M15 (air blow and unclamp) and M80 (tool carousel in).

How to change from an ATC3 to an ATC6 model

The physical wiring of the electrical cabinet and the KOYO and Centroid PLC program software must be changed to accommodate the ATC6 modifications. Refer to the schematics K0000041 (ATC3) and K0000072 (ATC6) for comparison between the two wiring schemes and as an aid in following the steps below. Note that these schematics are for M400 ATC's with Mitsubishi inverters, Centroid DC Drives, and Yuasa rotary tables. Other versions with FUJI inverters, Yaskawa AC drives, or Troyke rotary tables, will have different schematics, but the fundamental changes for ATC6 remain the same.

- Do a tool change to tool#1 and then power down the control.
- Locate CNT1, the E-stop contactor. Remove the 95 WHT wire.
- Insert a new wire (from the 95 WHT) going to KOYO OUTMOD1, NO5.
- Remove the 96 BLK wire on CNT1.
- Insert a new wire (from the 96 BLK) going to KOYO OUTMOD1, NO6.
- Place a jumper from KOYO OUTMOD1/C0 to OUTMOD1/C5 and OUTMOD1/C6.
- Replace the PLC3/3 with one having modified connectors and capacitor modifications.
- Replace the OPTIC232 with one having modified connectors.
- Power-up the control.
- Update the KOYO PLC program to either ATC6-16.* or ATC6-20.*, depending upon the number of tool stations. It is recommended that the existing KOYO PLC program be compared against the Centroid factory supplied ATC3 program before the PLC program is overwritten with the ATC6 programs. Refer to technical document ***TB105 -Quick Start KOYO Tutorial*** for instructions on how to do this.
- Update the Centroid PLC software to the ATC6 version, using an ATC6 PLC Program Update Disk. An update disk is available at the Centroid FTP site at ftp.centroidcnc.com. Please read the index.txt file at the FTP site for a description of the available files.

Testing

- Issue an M18 (in MDI) to reset the tool number.

- Start the spindle and verify that forward and reverse operations are both working.

Document History

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