



Integrated Manufacturing Systems Troubleshooting

Faults Crossing Shifts Exercise – Instructor Directions

AMTEC

- 1) The 3rd shift changed the variable speed drive on the load conveyor. They did not have a chance to start-up the system and verify its proper operation.
Please start up the system and return it to automatic operation.

Fault inserted: Adjust the variable frequency drive speed on the HMI to “0 %” Remember that there are 2 signals required to enable the drive. Firstly, a digital signal that commands the drive to go forward. Secondly, the analog signal from the HMI to the PLC to the drive that adjusts the speed.

- 2) The 3rd. shift had to replace the unload conveyor “Clear to Unload” Photo Eye and reflector. They did not get the system operational.
Please return the system to full automatic operation.

Fault Inserted: Using the pushbuttons on the switch, change the mode of the switch from “detecting light” to “detecting dark”. Also misalign the reflector to appear as the obvious problem. SEE AMTEC Sensor information in the AMTEC Component Literature folder.

- 3) 3rd. shift replaced the Output module in the Load Conveyor Junction box. They ran out of time to check out the fix.
Please return the system to full automatic operation.

Fault inserted: Turned off circuit breaker that powers the junction box. 4th from the right on the bank of circuit breakers. (Inside the main enclosure)

- 4) 3rd. shift had to change the air pressure switch on the system. They did not have time to check out the repair. Please return the system to full automatic operation.

Fault Inserted: Misadjust the pressure switches range with the programming functions on the switch. SEE AMTEC Sensor information in the AMTEC Component Literature folder.

Instructor Note: The spec. sheets and manuals for the above components should be included with the downloads issued on day one. These should have referenced in passing when the instructor went over the files but not emphasized. Along with these faults... shut off all power and air sources and all E-Stops and open up a safety gate on the system.





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SMC

- 1) The Linear Potentiometer on the bearing station was changed on 3rd. shift. They did not have the time to check it out. Please return the station to full automatic operation.

Fault inserted: Physically back-off the Potentiometer to the point that it is not touching the bearing. The students will have to physically align the switch while viewing the logic in the PLC. Hint: Look for the compare instruction.

- 2) John Chesnay (a very poor technician on 3rd. shift) was messing around with the Body Station last night. The station is no longer functional. Please repair and return the system to full automatic operation.

Fault Inserted: Remove half of the rungs from the main subroutine. The students will have to re-load the program from the laptop. When they compare the actual program to the listings that were provided on day one, they will discover that the program was changed. BE SURE THAT THE INSTRUCTOR POSSESSES THE LATEST AND GREATEST COPY OF THE ACTUAL PROGRAM THAT WAS IN THE PROCESSOR BEFORE INSERTING THIS FAULT.

Again with these faults... shut off the air supply... remove power to the SMC system prior to the start of the troubleshooting.





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