The Systematic Approach to Troubleshooting

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Types of Jobs that Require Troubleshooting

- Maintenance Technicians
  - Equipment
  - Facility
  - Electrical

- Operators

- Plant Management

- Engineering

- …Everyone?

Equipment that Needs Troubleshooting

- Motors, Pumps, Blowers
- Electrical Control Panels
- Building Automation Systems/PLC Systems
- Specific Process Equipment
- Variable Frequency Drives
- Emergency Generators
- Mechanical Systems
  - Hydraulic
  - Pneumatic
  - HVAC
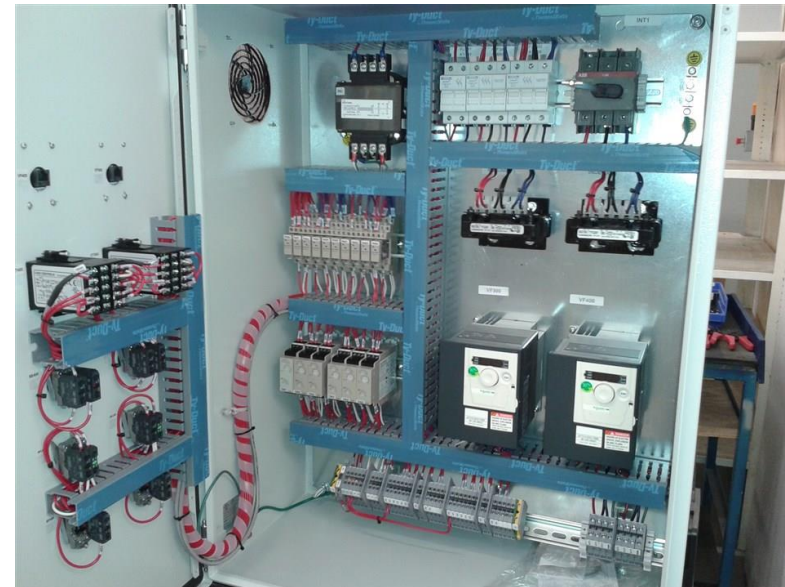
Develop a Logical, Systematic Approach to Troubleshooting

1. Confirm there is something wrong
2. Ask questions…..
3. Use your senses….
4. Gather your PPE
5. Get the prints or documentation
6. Test incoming voltage/pressure
7. Test outgoing voltage/pressure
8. Then Start in the middle

9. Find the problem or bad device
10. Remove the device
11. Test the device
12. Replace/Repair the device
13. Confirm the system is working correctly
14. Fix or order a new device
15. Complete Documentation

The Three Stages of Troubleshooting

- Investigating the Problem
  - Clear statement of the problem
  - Identify and document the symptoms
  - Any recent changes to the system?
- Analysis
  - Brainstorming
  - What are the most likely causes?
  - Test the possible causes
- Implementation
  - Repair the problem
  - Verify the Fix
  - Document, Document, DOCUMENT!

Good Questions to Ask

- What were you trying to do?
- What did you see/hear when the fault occurred?
- When did it happen? Date/Time
- What should be happening?
- What changed with the system recently?
- Try to avoid Yes/No questions. More detail the better.

- WRITE DOWN the answers

Questions?

- If you'd like to learn more about how to train on how to build the troubleshooting skills of your workforce, TPC Training can help!

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