



Australian Government

MSMSUP406 Identify faults in electronic control

Release: 1

MSMSUP406 Identify faults in electronic control

Modification History

Release 1. Supersedes and is equivalent to MSAPMOPS406A Identify problems in electronic control

Application

This unit of competency covers the skills and knowledge required to recognise and diagnose control system faults in electrical/electronic control systems on process equipment. It includes the implementation of appropriate corrective action.

This unit of competency applies to technicians. The technician will be required to apply knowledge of electronic control systems and components to the identification and isolation of faults in equipment. The key factors are the diagnosis and the recommendation of action to resolve routine and non-routine faults, in order to return the equipment to production.

The operator will have detailed operational and process knowledge but is not required to demonstrate 'hands on' operation of equipment as part of this competency.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members and the control room operator, as appropriate.

This unit of competency applies to all common equipment used in the manufacturing industry and should be able to be applied to all equipment using electrical/electronic control systems. It applies to all work environments and sectors within the manufacturing industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Support

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes

Performance criteria describe the performance needed to demonstrate achievement of the element

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|---|--|-----|--|
| 1 | Identify electrical/electronic control system faults | 1.1 | Categorise the types of machine malfunctions due to electrical and/or electronic faults |
| | | 1.2 | Describe the effects on product quality of electrical and/or electronic faults |
| | | 1.3 | Identify possible faulty components from a circuit diagram and knowledge of the function of each component |
| 2 | Identify maintenance requirements | 2.1 | Determine recommended maintenance schedule from manufacturer instructions |
| | | 2.2 | Determine adequacy of current maintenance regime and any special requirements from fault and maintenance history |
| | | 2.3 | Determine criticality of machine to production and/or business |
| | | 2.4 | Develop maintenance schedule and requirements for machine |
| | | 2.5 | Liaise with all relevant stakeholders to ensure schedule is appropriate |
| | | 2.6 | Report outcome to appropriate personnel |
| 3 | Determine appropriate corrective action | 3.1 | Examine other possible faults |
| | | 3.2 | Short list possible fault causes |
| | | 3.3 | Conduct investigations of machine, products or data to determine most likely fault causes |
| | | 3.4 | Take appropriate action to ensure fault is rectified |
| | | 3.5 | Follow up on action to ensure completion in an appropriate timeframe |
| | | 3.6 | Recheck after corrective action to ensure fault has been rectified |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Tools and equipment Tools and equipment include one or more of the following:

- programmable logic controls (PLC) and ancillaries
- solid-state control/switching units
- switches, relays and solenoids
- position and pressure transducers
- temperature controllers

Hazards

Hazards include one or more of the following:

- electricity
- incorrect/failed connections
- insulation failure
- polarity of components
- gas
- equipment malfunction/failure
- industrial (machinery, equipment and product)
- noise, rotational equipment or vibration
- temperature from hot surfaces and equipment
- test equipment
- unauthorised personnel
- other hazards that might arise

Faults

Faults may arise from non-routine causes and must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts to:

- determine faults needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report faults outside area of responsibility to designated person

Non-routine faults are unexpected faults, or variations of previous faults and include one or more of the following:

- loss of flow, power
- power failure
- component malfunction
- poor maintenance procedures
- regular maintenance
- shutdown
- motor failure effect on cycle time
- short shots
- loss of clamp pressure
- no power
- electronic/electrical faults
- analysis with PLC

Operational knowledge includes one or more of the following:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>