Title | Repair and overhaul valves
---|---
Level | 4
Credits | 5

**Purpose**
People credited with this unit standard are able to: demonstrate knowledge of the principles of operation, analyse and plan, repair and overhaul, test, and report the repair and overhaul of valves.

**Classification**
Electricity Supply > Electricity Supply - Power System Maintenance

**Available grade**
Achieved

**Guidance Information**

1. This unit standard is intended for, but not restricted to, workplace assessment. The range statements within the unit standard can be applied according to industry specific equipment, procedures and processes.

2. Safety of personnel and plant must be a priority throughout the assessment. If the safety requirements are not met the assessment must stop.


4. ‘Industry requirements’ include all industry and documented workplace policies, procedures, specifications, business, and quality management requirements relevant to the workplace in which assessment is carried out.

5. The term ‘repair and overhaul’ includes fault finding, corrective work and minor modifications to generation plant and equipment.

6. This unit standard includes valve actuator and drive mechanism where drive is manual, hydraulic, or pneumatic.

7. This unit standard excludes electrical actuator and controls when part of a control or protective system, hydro control valves of 450mm diameter and above, and porter valves used in hydraulic and pneumatic control systems.
Outcomes and performance criteria

Outcome 1
Demonstrate knowledge of the principles of operation of valves.

Range  includes but is not limited to – regulating, non-return and relief safety valves; gate, globe, cock, needle, butterfly ball, minimum flow, plug, multi-port, parallel slide, shuttle, and diaphragm valves; flow control, isolating, pressure reducing, temperature control, three way diverting valves.

Performance criteria
1.1  The principles of valve operation are described and defined in accordance with manufacturers’ specifications.
1.2  The types and characteristics of valves are described in accordance with industry requirements.

Outcome 2
Analyse and plan valve repair and overhaul requirements.

Range  maintenance records, scope of work, resources, specifications, work plan, drawings, identification of hazards.

Performance criteria
2.1  The need to repair and overhaul is determined in accordance with industry requirements.

Range  includes but is not limited to – defect notification, condition monitoring, failure, trip, loss of performance.

2.2  Work plans are prepared in accordance with industry requirements.
2.3  Prepared plans identify all necessary procedures and resources required for the service in accordance with industry requirements.
2.4  Work plans and specifications are complete, concise, and legible, and reflect identified risk with hazards being identified and eliminated, isolated, or minimised in accordance with industry requirements.
2.5  Work plans and specifications are made available for all personnel involved in implementing the plans within the scheduled time frame and in accordance with industry requirements.
Outcome 3

Repair and overhaul valves.

Range includes but is not limited to – regulating, non-return and relief safety valves; and choose three from the following – gate, globe, cock, needle, butterfly ball, minimum flow, plug, multi-port, parallel slide, shuttle, diaphragm valves, flow control, isolating, pressure reducing, temperature control, three way diverting valves.

Performance criteria

3.1 Isolation of plant and equipment is checked in accordance with industry requirements.

3.2 Valves and components requiring repair and overhaul are identified, analysed, and condition determined in accordance with industry requirements.

3.3 Valves and components are repaired and overhauled in accordance with industry requirements.

Range includes but is not limited to – disassemble valves into component parts, inspect component parts for defects, locate, identify and diagnose defects; assess the need for repair and/or replacement, adjust, rectify, repair defective components, manufacture and/or install replacement components, clean, re-assemble components into valves; includes – lap and reseat valve, check for operation, reset and adjust safety valves.

3.4 Repair and overhaul activities and resources are co-ordinated throughout the duration of the work to minimise disruption to personnel, plant, electricity generation, and the environment in accordance with industry requirements.

Outcome 4

Test valves.

Range exercise valves as per schedules, function test valve and actuator operation, check for isolation or passing under pressure or flow, vibration, temperature, noise, calibration, test readings, alignment, limit switches, indications, test and set relief valve lift pressure.

Performance criteria

4.1 Tests are carried out in accordance with the prepared work plan and industry requirements.

4.2 Test equipment is used in accordance with industry requirements.
Outcome 5

Report repair and overhaul.

Range  repair and overhaul report, job sheet, daily diary, log book, test reports and results, plant history, authorisations, ‘as built’ drawings.

Performance criteria

5.1  Reported information is completed in accordance with industry requirements.

5.2  Maintenance information is recorded in the format required by the asset owner and filed within scheduled timeframe in accordance with industry requirements.

5.3  Any further action required for plant and equipment is identified, recorded, and communicated to appropriate personnel in accordance with industry requirements.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

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Consent and Moderation Requirements (CMR) reference 0120

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.