Title	**Maintain control valve actuators and positioners**		
Level	**3**	**Credits**	**5**

Purpose	People credited with this unit standard are able to: – stroke-check control valve actuators and calibrate positioners; and – service control valve actuators and positioners.

Classification	Industrial Measurement and Control > Industrial Measurement and Control - Maintenance

Available grade	Achieved

Guidance Information

1 This unit standard has been developed for learning and assessment in a workplace environment.

2 For control valves or self actuating values refer to Unit 2639, *Maintain and service control valves in accordance with industry requirements.*

3 References
ANSI/ISA-51.1-1979 (R1993) *Process Instrumentation Terminology*;
Electricity Act 1992;
Electricity (Safety) Regulations 2010;
Health and Safety at Work Act 2015 and associated regulations;
ISSN 0114-0663, *New Zealand Electrical Codes of Practice,* available from Worksafe, https://worksafe.govt.nz/;
and all subsequent amendments and replacements.

4 Definitions
Industry requirements – includes all asset owner requirements, manufacturers' specifications; and enterprise requirements which cover the documented workplace policies, procedures, specifications, business requirements; and quality management requirements relevant to the workplace in which the assessment is carried out.
Service – planned activity during normal operation that involves inspection, cleaning, testing, adjusting or making minor repairs to a piece of equipment to ensure that it works properly.

5 Recommended skills and knowledge: Unit 2638, *Demonstrate knowledge of control valves, actuators, and positioners*.

Outcomes and performance criteria

Outcome 1

Stroke-check control valve actuators and calibrate positioners.

Range two control valve actuators, two control valve positioners.

Performance criteria

1.1 Identify hazards in terms of inherent risk.

Range may include but is not limited to – stored energy (springs), moving parts, compressed air.

1.2 Explain and follow safe work procedures.

Range may include but is not limited to – isolations applied, process media drained, trapped-pressure released.

1.3 Select test equipment according to required accuracy and range of devices.

Range may include but is not limited to – pneumatic test-set including regulated air-signal sources and test gauges, DC signal source.

1.4 Identify type and cause of typical errors.

Range may include but is not limited to – packing friction, stem wear, lost motion, weak springs, diaphragm failure, pneumatic leaks, incorrect air supply pressure, incorrect calibration, lost data.

1.5 Calibrate devices as specified by the data sheet.

Range may include but is not limited to – specified air-supply pressure, actuator stroke, actuator bench set, positioner zero, span and characteristic.

1.6 Document test results in accordance with industry requirements.

Outcome 2

Service control valve actuators and positioners.

Performance criteria

2.1 Identify hazards in terms of inherent risk.

Range may include but is not limited to – stored energy (springs), moving parts, compressed air.

2.2 Explain and follow safe work procedures.

Range may include but is not limited to – isolations applied, process media drained, trapped-pressure released.

2.3 Locate, interpret, and apply technical information for servicing equipment.

2.4 Identify types and causes of damage to control valve actuators and positioners.

Range may include but is not limited to – operating environment, vibration, air quality, valve-action, diaphragm failure, stem wear, incorrect set-up and adjustment.

2.5 Service actuators to ensure continued operation.

Range tools, materials, parts, techniques, specifications; actuator types – diaphragm, single acting piston, double acting piston, electric, hydraulic, electro-hydraulic; evidence of two different types is required.

2.6 Service positioners to ensure continued operation.

Range tools, materials, parts, techniques, specifications; positioner types – 4-20mA, pneumatic, force balance, motion balance, electro-pneumatic, digital, electro-hydraulic; evidence of two different types is required.

2.7 Produce reports and documentation in accordance with industry practice.

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

Process	Version	Date	Last Date for Assessment
Registration	1	31 October 1995	31 December 2013
Revision	2	30 October 1997	31 December 2013
Revision	3	3 April 2001	31 December 2013
Review	4	22 June 2001	31 December 2013
Review	5	19 May 2008	31 December 2019
Review	6	21 November 2013	31 December 2027
Rollover and Revision	7	28 June 2018	31 December 2027
Review	8	30 January 2025	31 December 2027

Consent and Moderation Requirements (CMR) reference	0003

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