Title	**Maintain pneumatic controllers**		
Level	**4**	**Credits**	**5**

Purpose	People credited with this unit standard are able to: – calibrate a pneumatic controller; and – maintain and repair a pneumatic controller.

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 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.

3 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.
Maintain – planned activity during normal operation, to conserve or keep an item or piece of equipment in a state of repair and to ensure that this is done in a sustainable way.
Repair – unplanned and often urgent work that needs to be carried out to restore plant or equipment to normal operation.

4 Recommended skills and knowledge: Unit 2654, *Demonstrate knowledge of on/off and proportional integral derivative mode control theory and controllers*.

Outcomes and performance criteria

Outcome 1

Calibrate a pneumatic controller.

Performance criteria

1.1 Identify types and causes of typical errors.

Range may include but is not limited to – relay wear, bellows failure.

1.2 Explain and follow safe work procedures.

Range may include but is not limited to – isolation, pressure.

1.3 Select test equipment to match accuracy and range of device.

Range may include but is not limited to – 20-100kPa, 3-15psi gauges and pressure sources.

1.4 Calibrate the controller for indication in accordance with manufacturer's instructions.

Range indication – process variable (input);
setpoint – controlled variable (output);
adjustments – zero, span.

1.5 Test the controller for operation in the control modes selected, and obtain open loop response characteristics.

Range may include but is not limited to – on/off control, proportional, proportional and integral, proportional and derivative, proportional integral and derivative.

1.6 Test the controller for bumpless transfer operation.

1.7 Document test results in accordance with industry requirements.

Outcome 2

Maintain and repair a pneumatic controller.

Performance criteria

2.1 Explain and follow safe work procedures.

Range may include but is not limited to – isolation, pressure.

2.2 Locate, interpret, and apply technical information for maintaining equipment.

2.3 Maintain and repair controllers to ensure continued operation.

Range may include but is not limited to – tools, materials, parts, techniques, specifications.

2.4 Produce maintenance reports 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

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.