

Title	Design a closed circuit hydrostatic transmission power system		
Level	5	Credits	10

Purpose	People credited with this unit standard are able to establish system specifications for, and undertake design of a closed circuit hydrostatic transmission power system.
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Classification	Mechanical Engineering > Fluid Power - Hydraulics
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Available grade	Achieved
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Entry information	
Recommended skills and knowledge	Unit 20608, <i>Design an open circuit, proportional hydraulic power system with closed loop control</i> , or demonstrate equivalent knowledge and skills.

Explanatory notes

- 1 Reference
Health and Safety in Employment Act 1992.
- 2 Definitions
Industry practice – safe and sound practices accepted by the mechanical engineering industry.
Worksite procedures – operational procedures put in place by the candidate's employer. These include site safety procedures, equipment operating procedures, job procedures, quality assurance processes and procedures, and other procedures for the handling and disposal of materials and waste.
- 3 The following apply to this unit standard:
 - a All activities must demonstrate safe working practices.
 - b All activities must be completed independently and reported within reasonable timeframes.
 - c The design and specification of the hydrostatic transmission power system is the outcome of this unit standard. The actual construction of the system is not a requirement of assessment.
- 4 Range
The hydraulic power system designed for this unit standard must be of a closed circuit type with open or closed loop control that includes the use of the following range of components:
 - Variable displacement, main transmission pump.
 - System boost pump and reservoir.

- Hydraulic motor or actuator.
- Boost filter.
- Make-up check valves, hot oil shuttle valve, high-pressure relief valve, boost relief valve.
- Heat exchanger.
- Programmable logic controller (optional).

Outcomes and evidence requirements

Outcome 1

Establish system specifications for a closed circuit hydrostatic transmission power system.

Evidence requirements

- 1.1 Design brief and operational requirements are confirmed with customer in accordance with worksite procedures.
- 1.2 Component functions are confirmed with customer.
- Range relationship between electrical and mechanical sub-systems, the role of specialist hydraulic fluids.
- 1.3 Specifications are drawn up to meet worksite or customer requirements.
- 1.4 Design safety and regulatory requirements are identified and confirmed with customer.
- 1.5 Specifications meet customer's requirements.
- 1.6 Personnel associated with end use and complementary services are identified and consulted in accordance with worksite procedures.
- Range may include but is not limited to – component and consumable materials suppliers, hydraulic specialists, technical writers, staff training personnel.

Outcome 2

Undertake design of a closed circuit hydrostatic transmission power system.

Evidence requirements

- 2.1 Calculations are made to meet operational requirements of system and determine sizing of components to meet design specification.
- Range may include but is not limited to – output torque, motor displacement, pressure, input power, flow, line size.
- 2.2 Terminology and symbols are selected to match specification in accordance with industry practice.

- 2.3 Design meets specification and operational capabilities.
- 2.4 Design and operational capabilities meet safety and regulatory requirements.
- 2.5 Documentation meets specifications and operational requirements in accordance with worksite procedures.

Range bill of materials, operating and maintenance manual, service schedules, circuit diagram, as built drawings; may include but is not limited to - training manuals, labelling and safety information.

Replacement information	This unit standard, unit standard 20608 and unit standard 20609 replaced unit standard 2735.
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Planned review date	31 December 2016
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 May 2004	31 December 2014
Review	2	17 November 2011	N/A

Consent and Moderation Requirements (CMR) reference	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Competenz on qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.