Title	**Diagnose complex light vehicle mechanical engine failures and reflect on diagnostic procedures**		
Level	**5**	**Credits**	**10**

Purpose	People credited with this unit standard are able to: diagnose light vehicle complex mechanical engine failures; and reflect on learning experience in response to diagnosing complex mechanical engine failures in a light vehicle.

Classification	Motor Industry > Engines

Available grade	Achieved

Guidance Information

1   Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, and company and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

2   Legislation, regulations and industry standards relevant to this unit standard include but are not limited to the:
Health and Safety at Work Act 2015.

Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

3   Definitions
Company requirements refer to instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.
Service information refers to technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.

4   Range
Complex failures may include faults within multiple systems, intermittent faults, faults caused indirectly by the effect of external systems or caused through system repairs.
Fault diagnosis would require applying a complex investigative diagnostic process to rectify them.
Learning experience involves a reflection on the overall process to form a holistic viewpoint. This may refer to one or more learning experiences.
Mechanical engine failure may include – engine seizure, piston failure, connecting rod or valve breakage.

Outcomes and performance criteria

Outcome 1

Diagnose light vehicle complex mechanical engine failures.

Range   evidence of two different mechanical engine failures, each on a different vehicle is required.

Performance criteria

1.1   Complex mechanical engine failure is analysed.

Range   operator description, inspection, diagnostic testing.

1.2   Cause of mechanical engine failure is determined.

Outcome 2

Reflect on learning experience in response to diagnosing complex mechanical engine failures in a light vehicle.

Performance criteria

2.1   Experience of diagnosing complex mechanical faults in an engine is reflected on and described in relation to the knowledge and analytical skills acquired.

2.2   Improvements to future diagnostic procedures are identified based on own reflection.

Planned review date	31 December 2027

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 January 2023	N/A

Consent and Moderation Requirements (CMR) reference	0014

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

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering, and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.