National Certificate in Motor Industry (Diesel Fuel Injection Engineering)

Level **4**

Credits **214**

This qualification has been **reviewed**. The last date to meet the requirements is 31 December 2020.

Transition Arrangements

This qualification, the National Certificate in Motor Industry (Automotive Air Conditioning) [Ref: 0002], and the National Certificate in Motor Industry (Automotive Machining) [Ref: 0371] were reviewed in 2008 and have been replaced by the National Certificate in Motor Industry (Automotive Specialist Engineering) (Level 3) with strands in Automotive Heating, Ventilation, and Air Conditioning; Automotive Machining; Diesel Fuel Injection; and Motorsport [Ref: 1415] and the National Certificate in Motor Industry (Automotive Specialist Engineering) (Level 4) with strands in Automotive Heating, Ventilation, and Air Conditioning; Automotive Machining; Diesel Fuel Injection; and Motorsport [Ref: 1416].

For detailed information see Review Summaries on the NZQA website.

Versions 2, 3, 4, 5 and 6 of this qualification contain a standard that has been replaced by another standard, and which will expire in December 2014. Reverse transition has been included in this qualification to allow candidates to complete the qualification using either the expiring standard or the replacement standard.

For the purpose of this qualification, people who have gained credit for the replacement standard are exempt from the requirement to gain credit for the expiring standard – see table below.

Credit for	Exempt from
26862	379

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	January 1996	December 2002
Review	2	September 1999	December 2008
Revision	3	November 2000	December 2008
Review	4	May 2002	December 2012
Review	5	August 2008	December 2012
Revision	6	November 2010	December 2016
Republished	6	January 2014	December 2016
Revision	7	August 2014	December 2020

It is the intention of NZ Motor Industry Training Organisation that no existing trainee should be disadvantaged by these transition arrangements. Any person who considers they have been disadvantaged may appeal to NZ Motor Industry Training Organisation using the contact details below.

Standard Setting Body

NZ Motor Industry Training Organisation (Incorporated)
PO Box 10803
The Terrace
Wellington 6143

Telephone 0800 88 21 21
Facsimile 04 494 0006
Email info@mito.org.nz

National Certificate in Motor Industry (Diesel Fuel Injection Engineering)

Level 4

Credits 214

Purpose

This certificate is designed as the national qualification for people working in the Diesel Fuel Injection Engineering branch of the Motor Industry. Holders of this qualification are able to consult with customers and estimate the cost of repairs; determine faults in diesel fuel systems; overhaul diesel fuel injection pumps and governors; and overhaul injectors.

The certificate is designed for people wishing to work in a safe and professional manner; to maintain standards in the diesel fuel injection industry; and to provide a means of recognising prior learning for those already working in the industry. Details regarding industry recognition and industry registration can be obtained from the NZ Motor Industry Training Organisation in the first instance.

Standards in this qualification have relevance to other automotive engineering qualifications, and people who wish to consider additional standards or qualifications should contact the NZ Motor Industry Training Organisation for advice.

Special Notes

It is expected that most people will undertake training towards this qualification in the form of an apprenticeship with the use of record of achievement books and training manuals. It is recommended that in the first instance, a 'training plan' be developed with the assistance of a NZ Motor Industry Training Organisation representative.

Credit Range

	Compulsory	Elective
Level 1 credits	4	0-4
Level 2 credits	39	0-16
Level 3 credits	23	0-15
Level 4 credits	124	0-24
Minimum totals	190	24

Requirements for Award of Qualification

Award of NZQF National Qualifications

Credit gained for a standard may be used only once to meet the requirements of this qualification.

Unit standards and achievement standards that are equivalent in outcome are mutually exclusive for the purpose of award. The table of mutually exclusive standards is provided on the New Zealand Qualifications Authority (NZQA) website: http://www.nzqa.govt.nz/qualifications-standards/standards/standards-exclusion-list/.

Reviewed standards that continue to recognise the same overall outcome are registered as new versions and retain their identification number (ID). Any version of a standard with the same ID may be used to meet qualification requirements that list the ID and/or that specify the past or current classification of the standard.

Summary of Requirements

- Compulsory standards
- Elective – A minimum of 24 credits as specified

Detailed Requirements

Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
398	Interpret warranties and guarantees that apply to the automotive industry	4	2
934	Cost a job for an automotive repair or service	4	3
946	Book in work for an automotive business	4	4

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
232	Test an automotive electrical circuit	2	8
233	Service an automotive battery	2	2
898	Identify an automotive wiring diagram and translate information to a motor vehicle circuit	3	3

Engineering and Technology > Motor Industry > Automotive Fuel Systems and Exhaust

ID	Title	Level	Credit
241	Describe the operation of a diesel fuel system and perform minor servicing tasks	2	3
917	Remove and replace a diesel fuel injection pump	3	2

ID	Title	Level	Credit
15384	Demonstrate knowledge of electronic diesel management	4	4
15385	Demonstrate knowledge of Simms Minimec diesel fuel injection pumps, and overhaul them	4	8
15386	Demonstrate knowledge of DPA type diesel fuel injection pumps, and overhaul them	4	8
15388	Demonstrate knowledge of P type diesel fuel injection pumps, and overhaul them	4	8
15389	Demonstrate knowledge of A type diesel fuel injection pumps, and overhaul them	4	8
15390	Demonstrate knowledge of VE type diesel fuel injection pumps, and overhaul them	4	8
15391	Demonstrate knowledge of RSV type diesel governors, and overhaul them	4	6
15392	Demonstrate knowledge of RQ and RQV type diesel governors, and overhaul either of them	4	6
15393	Demonstrate knowledge of RAD and RFD type diesel governors, and overhaul either of them	4	6
15394	Demonstrate knowledge of R801 and R901 type diesel governors, and overhaul either of them	4	6
15395	Demonstrate knowledge of RLD type diesel governors, and overhaul them	4	6
15396	Demonstrate knowledge of VE diesel injection pump additional devices, and overhaul them	4	8
15397	Demonstrate knowledge of two spring type diesel fuel injectors, and repair them	4	6
15398	Demonstrate knowledge of Stanadyne diesel fuel injection pumps, and overhaul them	4	8
15403	Describe, test and diagnose diesel fuel injection systems, and repair fuel delivery systems	3	6
15404	Demonstrate knowledge of diesel engine air intake and exhaust systems, and inspect and test them	3	6
19302	Demonstrate knowledge of diesel fuel injectors, and repair them	4	4
19304	Describe turbocharger diagnostic procedures and recondition an automotive turbocharger	4	7
19305	Test electronic diesel management systems and replace components	4	4

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
227	Carry out general engineering tasks to repair and make automotive components	2	4
228	Select and use hand tools and workshop equipment for an automotive application	2	5
230	Repair and manufacture automotive components by oxy-acetylene gas welding	2	3

ID	Title	Level	Credit
913	Use the oxy-acetylene process for welding and allied uses in the motor industry	3	4
16113	Demonstrate knowledge of safe working practices in an automotive workshop	2	2

Engineering and Technology > Motor Industry > Engine Repairs

ID	Title	Level	Credit
231	Explain the operation of two and four stroke petrol and diesel engines	2	4
244	Disassemble and assemble a four stroke engine	2	6
929	Test and repair starting aid systems on a diesel engine	3	2
2313	Repair fuel injection pump drives on diesel engines	4	4

Service Sector > Service Sector Skills > Selling Skills

ID	Title	Level	Credit
58	Complete a sales transaction in a given situation	1	2

Service Sector > Service Sector Skills > Service Sector - Core Skills

ID	Title	Level	Credit
56	Attend to customer enquiries face-to-face and on the telephone	1	2
57	Provide customer service in given situations	2	2

Elective
A minimum of 24 credits

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
225	Identify the occupational areas and structure of the New Zealand Automotive Industry	1	2
248	Describe an apprenticeship employment contract for the automotive industry	2	1
391	Prepare a quotation for the supply of an automotive product, repair, or service	3	3
392	Maintain automotive stock and plant security	2	2

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
234	Describe automotive starting and charging systems and their operation	2	4

Engineering and Technology > Motor Industry > Automotive Fuel Systems and Exhaust

ID	Title	Level	Credit
930	Describe turbocharger operation, and service a turbocharger system on a vehicle or machine	3	3
5451	Demonstrate knowledge of Cummins PT diesel fuel pumps, and overhaul them	4	6
5452	Demonstrate knowledge of Cummins diesel fuel injectors, and overhaul them	4	4
15382	Remove and refit a turbocharger to an engine	2	2
15387	Demonstrate knowledge of DPS type diesel fuel injection pumps, and overhaul them	4	8
15399	Describe Caterpillar diesel fuel injection pumps, and overhaul them	4	12
15400	Demonstrate knowledge of DPC type diesel fuel injection pumps, and overhaul them	4	8
15401	Demonstrate knowledge of EP9 type diesel fuel injection pumps, and overhaul them	4	8
15402	Diagnose faults in diesel fuel injectors on an engine, and remove and replace injectors	3	3
15405	Repair diesel engine air intake and exhaust systems	4	4
19303	Demonstrate knowledge of unit type diesel fuel injectors	3	2

Engineering and Technology > Motor Industry > Automotive Preventative Maintenance

ID	Title	Level	Credit
229	Identify the functions and general locations of motor vehicle systems and components	2	5
245	Select and apply lubricants and sealants for automotive and related industry applications	2	2

Engineering and Technology > Motor Industry > Engine Repairs

ID	Title	Level	Credit
15448	Demonstrate knowledge of engine performance testing, and tune and test a 4 stroke diesel engine	4	7

Engineering and Technology > Motor Industry > Vehicle Recovery

ID	Title	Level	Credit
3387	Respond to vehicle breakdown	3	1

Service Sector > Service Sector Skills > Selling Skills

ID	Title	Level	Credit
379	Sell goods and/or services on an in-coming telephone call	3	3

Service Sector > Service Sector Skills > Service Sector - Core Skills

ID	Title	Level	Credit
64	Perform calculations for the workplace	1	2

Transition Arrangements

Version 7 was issued to extend the expiry date of this qualification.

Previous versions of the qualification

Version 6 was republished to include reverse transition arrangements for expiring standard 379.

Version 6 was issued to extend the expiry date of this qualification.

Version 5 was issued to indicate that this qualification is expiring.

This qualification, the National Certificate in Motor Industry (Automotive Air Conditioning) [Ref: 0002], and the National Certificate in Motor Industry (Automotive Machining) [Ref: 0371] have been replaced by the National Certificate in Motor Industry (Automotive Specialist Engineering) (Level 3) with strands in Automotive Heating, Ventilation, and Air Conditioning; Automotive Machining; Diesel Fuel Injection; and Motorsport [Ref: 1415] and the National Certificate in Motor Industry (Automotive Specialist Engineering) (Level 4) with strands in Automotive Heating, Ventilation, and Air Conditioning; Automotive Machining; Diesel Fuel Injection; and Motorsport [Ref: 1416].

Version 4 was reviewed and issued to take account of the automotive fuel systems and exhaust standards review.

Changes to structure and content

- standards 5444 and 5453 replaced by 19302, and standard 15383 replaced by 19304 in the compulsory section;
- new standard 19305 added to the compulsory section;
- standards 15387 and 15400 moved from the compulsory to the elective section;
- standard 5450 replaced by 19303 in the elective section;
- standard 5454 deleted from the elective section;
- total credits for the qualification decreased from 226 to 214.

People who are already engaged in training towards earlier versions of this qualification may either complete the requirements for that version or transfer their results to version 4.

This qualification contains standards that replace earlier standards. For the purposes of this qualification, people who have gained credit for the expiring standards are exempt from the requirement to gain credit for the replacement standards – see table below.

Credit for	Exempt from
903	15403 and 15404
970	15405
885 and 908	15448
5429	15382 and 19304
5430	15385
5444 and 5453	19302
5445	15386
5446	15398
5447	15388
5448	15389
5449	15399
5450	19303
5455	15390
15383	19304

Some standards specified in this qualification are considered similar in nature to other MITO standards. MITO recommends that people holding credit for those standards should apply for recognition of prior learning (RPL) as indicated in the table below.

Credit held for	Apply for RPL for
226	16113

Version 3 of this qualification was issued in order to extend the last date for the award of version 1 to December 2002. The content of the qualification was not changed from version 2.

Version 2 was issued as part of a Motor Industry standard review.

All existing training providers and MITO Customer Services Managers have been notified of the changes and all new programmes and apprenticeships from May 2002 lead to the award of this version of the qualification.

Version 1 replaced the Trade Certificate in Fuel Injection Engineering with the National Certificate in Motor Industry (Fuel Injection Engineering). The Trade Certificate continues to be recognised by NZQA, the NZ Motor Industry Training Organisation, and the motor industry. There is no requirement for holders of that qualification to seek a national certificate.

Details regarding this qualification are included in MITO publications. Enquiries to NZ Motor Industry Training Organisation (Freephone: 0800 88 2121) or visit the MITO web site at http://www.mito.org.nz.

Any person who considers they have been disadvantaged by these transition arrangements is requested to contact the NZ Motor Industry Training Organisation.

Other standard setting bodies whose standards are included in the qualification

Retail ITO

Certification

This certificate will display the logos of NZQA, the NZ Motor Industry Training Organisation (Incorporated) and the organisation that has been granted consent to assess against standards that meet the requirements of the qualification (accredited).

Classification

This qualification is classified according to the classification system listed on the Directory of Assessment Standards (DAS) and the New Zealand Standard Classification of Education (NZSCED) system as specified below.

DAS Classification		**NZSCED**	
Code	**Description**	**Code**	**Description**
257	Engineering and Technology > Motor Industry	030599	Engineering and Related Technologies > Automotive Engineering and Technology > Automotive Engineering and Technology not elsewhere classified

Quality Management Systems
Providers and Industry Training Organisations must be granted consent to assess by a recognised Quality Assurance Body before they can register credits from assessment against standards. Organisation with consent to assess and Industry Training Organisations assessing against standards must engage with the moderation system that applies to those standards. Consent to assess requirements and the moderation system are outlined in the associated Consent and Moderation Requirements (CMR) for each standard.

Prerequisite Diagram