

National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 4) with strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport

Level 4

Credits 121-153

This qualification has been **reviewed**. The last date to meet the requirements is 31 December 2019.

Transition Arrangements

This qualification has been reviewed and replaced by the New Zealand Certificate in Heavy Automotive Engineering (Level 5) [Ref: 3119].

The last date for entry into training programmes or courses leading to replaced qualification is 31 December 2017.

The last date to meet the requirements of the replaced qualification is 31 December 2019, when the qualification will be discontinued. From that date no results can be reported against the qualification.

People currently working towards the replaced qualification must complete its requirements or transfer to a programme of study or training leading to a replacement qualification by 31 December 2019.

It is anticipated that no existing candidates will be disadvantaged by these transition arrangements. However, anyone who feels that they have been disadvantaged may appeal to MITO at the address below. Appeals will be considered on a case by case basis.

For detailed information see [Review Summaries](#) on the NZQA website.

NZQF Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	September 2008	December 2019
Review	2	December 2015	December 2019

Standard Setting Body

NZ Motor Industry Training Organisation Inc.
PO Box 10 803
WELLINGTON

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

Any person or organisation may contribute to the review of this qualification by sending feedback to the standard setting body at the above address.

Reviewed

National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 4) with strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport

Level	4
Credits	121-153

Purpose

The National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 4) with strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport [Ref: 1446] recognises the skills and knowledge required for people in roles that involve diagnostic and complex heavy vehicle and equipment repair work at an intermediate to advanced level and who work within the automotive heavy sector of the motor industry.

The qualification includes a core compulsory and core elective section common to each of the four strands. This core covers knowledge and skills primarily in areas of customer interaction such as booking in work, selling goods and services, completing quotations and estimates for jobs, warranties and guarantees, and participating in quality improvement objectives. Also included are industry specific skills and knowledge covering diagnosis and rectification of electrical starting and charging systems, electronic diesel management, driveline, and cooling system faults on heavy vehicles and equipment. The standards in the compulsory section of each strand ensure that the candidate develops and applies knowledge and skills for use in more complex and unfamiliar jobs within their industry sector. The elective section of each strand allows candidates to add further skills that are relevant to their position and/or specific workplace requirements.

The qualification strands recognise the competencies required to work in a range of automotive heavy engineering workplaces in roles involving the overall repair and servicing of the following categories of heavy vehicle, machines, and equipment and their associated components:

- agricultural machines and equipment, including tractors, land maintenance and cultivation implements, and harvesting equipment
- materials handling equipment, including all electric and non-electric forklifts and other fuel or electric powered equipment designed for the movement of goods
- heavy plant and equipment, including construction, off-road, and earth moving equipment
- road transport, including all trucks, buses, heavy trailers and combination units that are deemed 'heavy vehicles' under Land Transport Rule definitions.

This qualification is one of a suite of qualifications developed at the intermediate to advanced level for the motor industry. The qualifications in this suite are grouped to reflect the industry recognised sector subsets of: automotive body, automotive electrical and mechanical engineering, automotive heavy engineering, automotive specialist engineering, and vehicle servicing. In most cases these subsets are also divided into two levels to provide clearer entry and exit points from training.

Industry wished to be able to recognise a minimum and consistent set of fundamental competencies across all roles in all qualifications at each level. This has resulted in a common set of standards that appear consistently across the core sections in all of the Level 4 qualifications in the *Motor Industry* subfield. This structure has been modelled on the *Qualifications Roadmap* (the motor industry career pathway document), which allows a candidate to move more easily between strands of qualifications in similar areas and to transfer skills from this qualification to other motor industry qualifications.

People wishing to obtain information on career pathways, should contact the NZ Motor Industry Training Organisation Incorporated (see contact details below).

This qualification builds on the skills and knowledge developed in the National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport strands [Ref: 1445], each of which is a prerequisite for the award of this qualification. Candidates may choose to progress to the National Certificate in Motor Industry (Advanced Technical) (Level 5) with strands in Automotive Electrical and Mechanical, and Collision Repair [Ref: 1143], the National Certificate in Business (First Line Management) (Level 4) [Ref: 0649] or the National Diploma in Business (Level 5) [Ref: 0783].

Replacement Information

This qualification and the National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) with strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport [Ref: 1445] replaced the National Certificate in Motor Industry (Automotive Heavy Engineering) with strands in Agricultural Equipment, Plant and Equipment, and Road Transport [Ref: 0003].

Special Notes

The award of this qualification is dependent on the award, in the appropriate strand, of the National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) with strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport [Ref: 1446]. NZQA will check this requirement before award of the qualification.

Application for the recognition of current competency should be made to the NZ Motor Industry Training Organisation or an accredited training provider. Credits are not automatic and an assessment of ability is required.

Credit Range

	Core Compulsory	Core Elective
Level 2 credits	-	0-4
Level 3 credits	2	0-4
Level 4 credits	28	0-4
Minimum totals	30	4

	Agricultural Equipment Strand		Materials Handling Equipment Strand	
	Compulsory	Elective	Compulsory	Elective
Level 3 credits	9	0-6	2	0-16
Level 4 credits	54	16-24	59	16-36
Level 5 credits	-	0-2	-	0-4
Minimum totals	63	24	61	36
Qualification total	121		131	

	Plant and Equipment Strand		Road Transport Strand	
	Compulsory	Elective	Compulsory	Elective
Level 3 credits	15	0-7	19	0-8
Level 4 credits	51	21-32	71	17-29
Level 5 credits	-	0-4	-	0-4
Minimum totals	66	32	90	29
Qualification total	132		153	

Requirements for Award of Qualification

Award of NQF 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 in section 7 of the New Zealand Qualifications Authority (NZQA) Rules and Procedures publications available at <http://www.nzqa.govt.nz/ncea/acrp/index.html>.

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

- Core Compulsory standards
- Core Elective – A minimum of 4 credits as specified

One of the following strands is required

- Agricultural Equipment Strand
- Materials Handling Equipment Strand
- Plant and Equipment Strand
- Road Transport Strand

Detailed Requirements

Core Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
5777	Demonstrate knowledge of estimate and quotation procedures in the motor and related industries	4	2
22789	Demonstrate knowledge of warranties and guarantees that apply to the motor or related industries	3	2

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24125	Demonstrate knowledge of testing heavy vehicle or machine electrical starting and charging systems	4	2
24126	Diagnose and rectify faults in heavy vehicle or machine electrical starting and charging systems	4	5

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

ID	Title	Level	Credit
15384	Demonstrate knowledge of electronic diesel management	4	4
19305	Test electronic diesel management systems and replace components	4	4

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2333	Diagnose and rectify driveline faults on heavy vehicles or equipment	4	3

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
24270	Diagnose and rectify faults in vehicle or machine engine cooling systems	4	5
24271	Demonstrate knowledge of diagnosing vehicle or machine cooling system faults and their causes	4	3

Core Elective

A minimum of 4 credits

Business > Business Operations and Development > Quality Management

ID	Title	Level	Credit
8077	Participate in a team to achieve specified quality improvement objectives	3	4

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
946	Book in and receive work for an automotive or related business	3	4
968	Estimate or quote the cost of a repair or service in the motor and related industries	4	4

Service Sector > Retail, Distribution, and Sales > Sales Transactions

ID	Title	Level	Credit
12008	Sell goods and/or services in a retail or distribution environment	2	6

Agricultural Equipment Strand

Prior award of National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) [Ref: 1445]

with Strand Agricultural Equipment

Meet the requirements of all of the following sets

- Agricultural Equipment Compulsory
- Agricultural Equipment Elective

Agricultural Equipment Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24131	Demonstrate knowledge of electronic components and their application in the automotive industry	3	5
24132	Demonstrate knowledge of integrated electronic devices, multiplexing, and microprocessors in the motor industry	3	4
24134	Test for and rectify faults in electronically controlled systems used on heavy vehicles or machines	4	5

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

ID	Title	Level	Credit
15405	Repair diesel engine air intake and exhaust systems	4	4
24235	Diagnose and rectify faults in a common rail diesel fuel system	4	3

Engineering and Technology > Motor Industry > Automotive Heating, Ventilation, and Air Conditioning

ID	Title	Level	Credit
24446	Demonstrate knowledge of preparing to test, and testing for faults in an automotive air conditioning system	4	4

Engineering and Technology > Motor Industry > Automotive Hydraulics

ID	Title	Level	Credit
15410	Test and repair hydraulic equipment components on heavy equipment, vehicles, and machines	4	12

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
24323	Demonstrate knowledge of tractor and agricultural machine final drive assemblies	4	4
24324	Diagnose and rectify faults in tractor or agricultural machine final drive assemblies	4	4

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
24279	Tune and test a four stroke diesel engine	4	6

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24417	Diagnose and rectify faults in wheel tractor braking systems	4	5

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
24435	Diagnose and repair faults in heavy machine and equipment suspension systems	4	4
24439	Diagnose and rectify faults in tractor or machine wheel steering systems	4	3

Agricultural Equipment Elective

A minimum of 24 credits

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
934	Cost a job for the supply of a product, repair, or service in the motor and related industries	3	3

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24094	Demonstrate knowledge of windscreen wiper and headlamp cleaning systems	3	1
24095	Test for and rectify automotive wiper system faults	4	2

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

ID	Title	Level	Credit
24191	Demonstrate knowledge of fabricating, assembling and fitting exhaust systems in the motor and related industries	4	2

Engineering and Technology > Motor Industry > Automotive Heating, Ventilation, and Air Conditioning

ID	Title	Level	Credit
906	Test for and rectify vehicle climate control system faults	4	4
24443	Prepare to test, test and diagnose faults in an automotive air conditioning system	4	5
24450	Demonstrate knowledge of vehicle climate control systems, and locating and rectifying faults	4	4

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
2347	Complete a pre-assessment of a motor vehicle to determine compliance with Certificate of Fitness (CoF) requirements	4	2
24348	Implement a schedule for an automotive preventive maintenance programme	5	2

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2320	Diagnose and rectify heavy vehicle or equipment manual transmission faults	4	6
2331	Diagnose and rectify faults in heavy vehicle or equipment clutches	4	4
24320	Diagnose and rectify faults in hydraulic transmission drives on plant or machinery	4	5
24322	Rectify belt and chain drive system faults on plant or machinery	4	3

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
2313	Rectify fuel injection pump drive faults on diesel engines	4	2

ID	Title	Level	Credit
3392	Repair a heavy vehicle diesel engine cylinder head	4	4
3393	Repair a heavy vehicle diesel engine short block	4	8
24278	Demonstrate knowledge of engine performance testing using a dynamometer	4	2
24280	Test engine performance using a dynamometer and determine engine condition	4	1
24281	Demonstrate knowledge of testing and rectifying diesel engine shutdown system faults	4	2
24282	Diagnose and rectify diesel engine shutdown system faults	4	3

Engineering and Technology > Motor Industry > Tractor and Machine Systems

ID	Title	Level	Credit
23937	Demonstrate knowledge of tractor and agricultural machine safety frame and cab requirements, and inspection and repairs	4	2
23938	Inspect and fit tractor and agricultural machine safety frames, and repair guarding	4	3

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
15479	Diagnose and rectify pneumatic brake faults on heavy vehicles, trailers, and machines	4	6
24420	Demonstrate knowledge of hydraulic brakes and testing hydraulic brakes on heavy vehicles or machines	3	2
24421	Test and repair hydraulic brake system components on heavy vehicles or machines	4	3

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
972	Repair track gear systems on machines	4	5
15483	Demonstrate knowledge of machine track gear and undercarriage systems and their repair procedures	4	5
24436	Demonstrate knowledge of heavy equipment clutch steering systems and fault diagnosis and repair procedures	4	2
24437	Diagnose faults and repair heavy equipment clutch steering systems	4	4

Materials Handling Equipment Strand

Prior award of National Certificate in Motor Industry (Automotive Heavy Engineering)

(Level 3) [Ref: 1445]

with Strand Materials Handling Equipment

Meet the requirements of all of the following sets

MITO New Zealand Incorporated

SSB Code 101542

MoE Code 9013

© New Zealand Qualifications Authority 2016

- Materials Handling Equipment Compulsory
- Materials Handling Equipment Elective

Materials Handling Equipment Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24117	Demonstrate knowledge of direct and alternating current electric motors used in forklifts and their repair procedures	4	3
24118	Prepare to and rectify faults in forklift direct or alternating current electric motors and speed control systems	4	5
24147	Inspect components, test equipment for condition, and rectify equipment faults in battery powered forklifts	4	6

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

ID	Title	Level	Credit
24181	Demonstrate knowledge of engine tuning procedures and equipment malfunction causes on LPG fuelled vehicles	4	2
24182	Diagnose and rectify faults in a liquefied petroleum gas (LPG) vehicle fuel system	4	3
24185	Demonstrate knowledge of liquefied petroleum gas (LPG) vehicle fuel systems	4	2

Engineering and Technology > Motor Industry > Automotive Hydraulics

ID	Title	Level	Credit
15410	Test and repair hydraulic equipment components on heavy equipment, vehicles, and machines	4	12

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
23958	Diagnose and rectify faults in forklift masts	4	5
24343	Carry out an annual safety inspection on forklifts, and complete an inspection report	4	4

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2332	Diagnose and rectify differential assembly faults on heavy vehicles or equipment	4	6
24335	Diagnose and rectify faults in forklift automatic transmissions	4	5

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24420	Demonstrate knowledge of hydraulic brakes and testing hydraulic brakes on heavy vehicles or machines	3	2
24421	Test and repair hydraulic brake system components on heavy vehicles or machines	4	3

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
24441	Diagnose and rectify faults in steer axle and linkage systems on a forklift	4	3

Materials Handling Equipment Elective

A minimum of 36 credits

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
934	Cost a job for the supply of a product, repair, or service in the motor and related industries	3	3

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24090	Demonstrate knowledge of diagnosing faults in engine management systems	3	1
24091	Inspect, diagnose, and rectify faults in engine management systems	4	6
24094	Demonstrate knowledge of windscreen wiper and headlamp cleaning systems	3	1
24095	Test for and rectify automotive wiper system faults	4	2

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

ID	Title	Level	Credit
24183	Demonstrate knowledge of engine tuning procedures and equipment malfunction causes on CNG fuelled vehicles	4	2
24184	Diagnose and rectify faults in a compressed natural gas (CNG) vehicle fuel system	4	4
24186	Install a liquefied petroleum gas (LPG) vehicle fuel system	4	4
24187	Demonstrate knowledge of compressed natural gas (CNG) vehicle fuel systems	4	2
24188	Install a compressed natural gas (CNG) vehicle fuel system	4	3

ID	Title	Level	Credit
24191	Demonstrate knowledge of fabricating, assembling and fitting exhaust systems in the motor and related industries	4	2
24235	Diagnose and rectify faults in a common rail diesel fuel system	4	3

Engineering and Technology > Motor Industry > Automotive Heating, Ventilation, and Air Conditioning

ID	Title	Level	Credit
906	Test for and rectify vehicle climate control system faults	4	4
24443	Prepare to test, test and diagnose faults in an automotive air conditioning system	4	5
24446	Demonstrate knowledge of preparing to test, and testing for faults in an automotive air conditioning system	4	4
24450	Demonstrate knowledge of vehicle climate control systems, and locating and rectifying faults	4	4

Engineering and Technology > Motor Industry > Automotive Pneumatics

ID	Title	Level	Credit
990	Test and repair an air operated engine starting system	4	3
2340	Demonstrate knowledge of pneumatic system principles and operation for heavy vehicles and equipment	3	6

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
24347	Analyse automotive preventive maintenance programmes	5	2
24348	Implement a schedule for an automotive preventive maintenance programme	5	2

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2320	Diagnose and rectify heavy vehicle or equipment manual transmission faults	4	6
2331	Diagnose and rectify faults in heavy vehicle or equipment clutches	4	4
24320	Diagnose and rectify faults in hydraulic transmission drives on plant or machinery	4	5

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
11722	Inspect and repair driveshaft (propeller shaft) assemblies	4	15
15433	Inspect and repair ride-on battery powered equipment	4	8

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
893	Diagnose and rectify vehicle emission control system faults	4	3
2313	Rectify fuel injection pump drive faults on diesel engines	4	2
2335	Repower heavy vehicles or equipment	4	3
3392	Repair a heavy vehicle diesel engine cylinder head	4	4
3393	Repair a heavy vehicle diesel engine short block	4	8
24279	Tune and test a four stroke diesel engine	4	6
24281	Demonstrate knowledge of testing and rectifying diesel engine shutdown system faults	4	2
24282	Diagnose and rectify diesel engine shutdown system faults	4	3
24287	Demonstrate knowledge of disassembling, inspecting, and reassembling an engine short block	3	2
24288	Demonstrate knowledge of repowering heavy vehicles or equipment	4	1
24289	Diagnose and rectify faults in auxiliary engines on heavy vehicles or equipment	4	5

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24423	Inspect and repair heavy vehicle and equipment disc brakes	3	3

Plant and Equipment Strand

Prior award of National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) [Ref: 1445]

with Strand Plant and Equipment

Meet the requirements of all of the following sets

- Plant and Equipment Compulsory
- Plant and Equipment Elective

Plant and Equipment Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24131	Demonstrate knowledge of electronic components and their application in the automotive industry	3	5
24132	Demonstrate knowledge of integrated electronic devices, multiplexing, and microprocessors in the motor industry	3	4
24134	Test for and rectify faults in electronically controlled systems used on heavy vehicles or machines	4	5

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

ID	Title	Level	Credit
24237	Demonstrate knowledge of the operation and testing of vehicle diesel emission controls	3	4

Engineering and Technology > Motor Industry > Automotive Hydraulics

ID	Title	Level	Credit
15410	Test and repair hydraulic equipment components on heavy equipment, vehicles, and machines	4	12

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2321	Diagnose and rectify faults in heavy vehicle or equipment automatic or power shift transmissions	4	8
2332	Diagnose and rectify differential assembly faults on heavy vehicles or equipment	4	6

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
24278	Demonstrate knowledge of engine performance testing using a dynamometer	4	2
24279	Tune and test a four stroke diesel engine	4	6

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24420	Demonstrate knowledge of hydraulic brakes and testing hydraulic brakes on heavy vehicles or machines	3	2
24421	Test and repair hydraulic brake system components on heavy vehicles or machines	4	3

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
15483	Demonstrate knowledge of machine track gear and undercarriage systems and their repair procedures	4	5

ID	Title	Level	Credit
24435	Diagnose and repair faults in heavy machine and equipment suspension systems	4	4

Plant and Equipment Elective

A minimum of 32 credits

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
934	Cost a job for the supply of a product, repair, or service in the motor and related industries	3	3

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24094	Demonstrate knowledge of windscreen wiper and headlamp cleaning systems	3	1
24095	Test for and rectify automotive wiper system faults	4	2

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

ID	Title	Level	Credit
15405	Repair diesel engine air intake and exhaust systems	4	4
24191	Demonstrate knowledge of fabricating, assembling and fitting exhaust systems in the motor and related industries	4	2
24235	Diagnose and rectify faults in a common rail diesel fuel system	4	3

Engineering and Technology > Motor Industry > Automotive Heating, Ventilation, and Air Conditioning

ID	Title	Level	Credit
906	Test for and rectify vehicle climate control system faults	4	4
24443	Prepare to test, test and diagnose faults in an automotive air conditioning system	4	5
24446	Demonstrate knowledge of preparing to test, and testing for faults in an automotive air conditioning system	4	4
24450	Demonstrate knowledge of vehicle climate control systems, and locating and rectifying faults	4	4

Engineering and Technology > Motor Industry > Automotive Pneumatics

ID	Title	Level	Credit
990	Test and repair an air operated engine starting system	4	3

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
2347	Complete a pre-assessment of a motor vehicle to determine compliance with Certificate of Fitness (CoF) requirements	4	2
24347	Analyse automotive preventive maintenance programmes	5	2
24348	Implement a schedule for an automotive preventive maintenance programme	5	2

Engineering and Technology > Motor Industry > Automotive Sales

ID	Title	Level	Credit
380	Carry out an appraisal of a vehicle, machine or product in the motor or related industries	4	4

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2320	Diagnose and rectify heavy vehicle or equipment manual transmission faults	4	6
2331	Diagnose and rectify faults in heavy vehicle or equipment clutches	4	4
15424	Diagnose and rectify faults in heavy vehicle or equipment hydraulic driveline retarders	4	3
24320	Diagnose and rectify faults in hydraulic transmission drives on plant or machinery	4	5
24322	Rectify belt and chain drive system faults on plant or machinery	4	3

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
2344	Diagnose and repair winches and pulley block assemblies on heavy machinery or equipment	4	2
24374	Demonstrate knowledge of hard facing automotive components	4	3
24375	Hard face automotive components using an electric or oxy-acetylene welding process	4	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
980	Service engine driven stationary and mobile generators and power units, and rectify control system faults	4	3
2313	Rectify fuel injection pump drive faults on diesel engines	4	2
2335	Repower heavy vehicles or equipment	4	3

ID	Title	Level	Credit
3392	Repair a heavy vehicle diesel engine cylinder head	4	4
3393	Repair a heavy vehicle diesel engine short block	4	8
24280	Test engine performance using a dynamometer and determine engine condition	4	1
24281	Demonstrate knowledge of testing and rectifying diesel engine shutdown system faults	4	2
24282	Diagnose and rectify diesel engine shutdown system faults	4	3
24288	Demonstrate knowledge of repowering heavy vehicles or equipment	4	1
24289	Diagnose and rectify faults in auxiliary engines on heavy vehicles or equipment	4	5

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
15479	Diagnose and rectify pneumatic brake faults on heavy vehicles, trailers, and machines	4	6

Engineering and Technology > Motor Industry > Vehicle Recovery

ID	Title	Level	Credit
23941	Demonstrate knowledge of salvage and recovery procedures to recover heavy vehicles and on-road machines	3	3
23942	Recover heavy vehicles and/or on-road machines and maintain towing and lifting equipment	4	3

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
972	Repair track gear systems on machines	4	5
24436	Demonstrate knowledge of heavy equipment clutch steering systems and fault diagnosis and repair procedures	4	2
24437	Diagnose faults and repair heavy equipment clutch steering systems	4	4

Road Transport Strand

Prior award of National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) [Ref: 1445]

with Strand Road Transport

Meet the requirements of all of the following sets

- Road Transport Compulsory
- Road Transport Elective

Road Transport Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24131	Demonstrate knowledge of electronic components and their application in the automotive industry	3	5
24132	Demonstrate knowledge of integrated electronic devices, multiplexing, and microprocessors in the motor industry	3	4
24134	Test for and rectify faults in electronically controlled systems used on heavy vehicles or machines	4	5

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

ID	Title	Level	Credit
15405	Repair diesel engine air intake and exhaust systems	4	4
24237	Demonstrate knowledge of the operation and testing of vehicle diesel emission controls	3	4

Engineering and Technology > Motor Industry > Automotive Heating, Ventilation, and Air Conditioning

ID	Title	Level	Credit
24450	Demonstrate knowledge of vehicle climate control systems, and locating and rectifying faults	4	4

Engineering and Technology > Motor Industry > Automotive Hydraulics

ID	Title	Level	Credit
2314	Test and service hydraulic systems on equipment, vehicles, and/or machines	3	6

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
2320	Diagnose and rectify heavy vehicle or equipment manual transmission faults	4	6
2321	Diagnose and rectify faults in heavy vehicle or equipment automatic or power shift transmissions	4	8
2331	Diagnose and rectify faults in heavy vehicle or equipment clutches	4	4
2332	Diagnose and rectify differential assembly faults on heavy vehicles or equipment	4	6

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
24278	Demonstrate knowledge of engine performance testing using a dynamometer	4	2
24279	Tune and test a four stroke diesel engine	4	6
24283	Demonstrate knowledge of diesel engine braking systems and exhaust braking systems, and diagnosing and rectifying faults	4	2
24284	Diagnose and rectify faults in diesel engine braking systems and exhaust braking systems	4	3

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
15479	Diagnose and rectify pneumatic brake faults on heavy vehicles, trailers, and machines	4	6

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
2312	Repair road transport heavy vehicle steering systems	4	4
15482	Demonstrate knowledge of heavy vehicle and trailer wheel alignment procedures	4	5
24433	Diagnose suspension failure on a heavy vehicle and repair components	4	6

Road Transport Elective

A minimum of 29 credits

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
934	Cost a job for the supply of a product, repair, or service in the motor and related industries	3	3

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
24094	Demonstrate knowledge of windscreen wiper and headlamp cleaning systems	3	1
24095	Test for and rectify automotive wiper system faults	4	2

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

ID	Title	Level	Credit
24191	Demonstrate knowledge of fabricating, assembling and fitting exhaust systems in the motor and related industries	4	2

ID	Title	Level	Credit
24235	Diagnose and rectify faults in a common rail diesel fuel system	4	3

Engineering and Technology > Motor Industry > Automotive Heating, Ventilation, and Air Conditioning

ID	Title	Level	Credit
906	Test for and rectify vehicle climate control system faults	4	4
24443	Prepare to test, test and diagnose faults in an automotive air conditioning system	4	5
24446	Demonstrate knowledge of preparing to test, and testing for faults in an automotive air conditioning system	4	4

Engineering and Technology > Motor Industry > Automotive Hydraulics

ID	Title	Level	Credit
15410	Test and repair hydraulic equipment components on heavy equipment, vehicles, and machines	4	12

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
2347	Complete a pre-assessment of a motor vehicle to determine compliance with Certificate of Fitness (CoF) requirements	4	2
24347	Analyse automotive preventive maintenance programmes	5	2
24348	Implement a schedule for an automotive preventive maintenance programme	5	2

Engineering and Technology > Motor Industry > Automotive Sales

ID	Title	Level	Credit
380	Carry out an appraisal of a vehicle, machine or product in the motor or related industries	4	4

Engineering and Technology > Motor Industry > Automotive Trailers

ID	Title	Level	Credit
23931	Demonstrate knowledge of heavy trailer systems	4	2
23932	Maintain and repair heavy trailers and semi-trailers	4	13

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
15424	Diagnose and rectify faults in heavy vehicle or equipment hydraulic driveline retarders	4	3
24334	Diagnose and rectify faults on the electronic auto-shift on a heavy vehicle manual transmission	4	4

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
980	Service engine driven stationary and mobile generators and power units, and rectify control system faults	4	3
2313	Rectify fuel injection pump drive faults on diesel engines	4	2
2335	Repower heavy vehicles or equipment	4	3
3392	Repair a heavy vehicle diesel engine cylinder head	4	4
3393	Repair a heavy vehicle diesel engine short block	4	8
24280	Test engine performance using a dynamometer and determine engine condition	4	1
24281	Demonstrate knowledge of testing and rectifying diesel engine shutdown system faults	4	2
24282	Diagnose and rectify diesel engine shutdown system faults	4	3
24288	Demonstrate knowledge of repowering heavy vehicles or equipment	4	1
24289	Diagnose and rectify faults in auxiliary engines on heavy vehicles or equipment	4	5

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
2345	Diagnose faults in heavy vehicle and equipment chassis	4	3

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24421	Test and repair hydraulic brake system components on heavy vehicles or machines	4	3

Engineering and Technology > Motor Industry > Vehicle Recovery

ID	Title	Level	Credit
23942	Recover heavy vehicles and/or on-road machines and maintain towing and lifting equipment	4	3

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
883	Check and adjust vehicle front and rear wheel alignment	3	4
3398	Disassemble, inspect, and overhaul power steering boxes and power steering rack assemblies	4	3

Transition Arrangements

Version 1

This qualification and the National Certificate in Motor Industry (Automotive Heavy Engineering) (Level 3) with strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport [Ref: 1445] replaced the National Certificate in Motor Industry (Automotive Heavy Engineering) with strands in Agricultural Equipment, Plant and Equipment, and Road Transport [Ref: 0003].

Programmes leading to the new qualifications are being introduced from 2008. People currently working towards the replaced qualification may either complete the requirements for that qualification or transfer their results to one or more of these qualifications.

The last date for entry to training programmes or courses for the replaced qualification is December 2009. The last date for assessment of the replaced qualification is 31 December 2012.

Industry will continue to recognise the former qualification, so there should be no need to 'upgrade' by those who have already achieved it.

Differences between new and replaced qualifications

There are substantial differences between the new and replaced qualifications.

Changes to structure and content include

- The new qualifications have core compulsory and core elective sections.
- Ref 1445 and Ref: 1446 have strands in Agricultural Equipment, Materials Handling Equipment, Plant and Equipment, and Road Transport with compulsory and elective sections in each strand.
- Candidates must now complete a strand in Ref: 1445 before they may progress to the corresponding strand in Ref: 1446.

For detailed information see [Review Summaries](#) on the NZQA website.

This qualification contains standards that replace or have been substituted for 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
391	934
398	22789
878	24270
881	24443
887	24094, 24095
951	24181, 24182
952	24183, 24184
953	24185, 24186
954	24187, 24188
961	24090, 24091
964	24347, 24348
965	24270, 24271
967	24280
971	24281, 24282
2310	24375
2315	24433
2317	24283, 24284
2330	24435
2338	23942
2339	24117, 24118
2341	23931, 23932
2342	24320
2343	24322
2346	24436, 24437
3391	24270, 24271

Credit for	Exempt from
3394	24191
3395	24374, 24375
3396	24125, 24126
5437	24417
5439	23937, 23938
5441	24323, 24324
5443	24439
5464	24131, 24132
8187	24131, 24132
15375	24131, 24134
15376	24131
15448	24278, 24279
15449	24280
15470	23958
15478	24420, 24421
15480	24423

It is anticipated that no existing trainees will be disadvantaged by these transition arrangements. Any person who feels they have been disadvantaged by these transition arrangements should contact MITO at the following address. All appeals will be considered on a case-by-case basis.

Other standard setting bodies whose standards are included in the qualification

NZQA
Retail Institute

Certification

This certificate will display the logos of NZQA, the NZ Motor Industry Training Organisation Inc and the accredited organisation.

Classification

This qualification is classified according to the NQF classification system 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	030503	Engineering and Related Technologies > Automotive Engineering and Technology > Vehicle Mechanics

Quality Management Systems

Providers and Industry Training Organisations must be accredited by a recognised Quality Assurance Body before they can register credits from assessment against standards. Accredited providers and Industry Training Organisations assessing against standards must engage with the moderation system that applies to those standards. Accreditation requirements and the moderation system are outlined in the associated Accreditation and Moderation Action Plan (AMAP) for each standard.

REVIEWING