

National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 4) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems

Level 4

Credits 91-132 (depending on strand)

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 Automotive Electrical Engineering (Level 4) [Ref: 3460]; the New Zealand Certificate in Light Automotive Engineering (Level 4) [Ref: 3450] and New Zealand Certificate in Motorcycle Engineering (Level 4) [Ref: 3447].

The last date for entry into programmes 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.

This qualification contained standards that had expired or been replaced by other standards. For the purposes of this qualification people who have gained credit for the replacement standards are exempt from the requirement to gain credit for the expiring or replaced standards – see table below.

Credit for	Exempt from
11986	28505
11999	28303

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	August 2008	December 2019
Review	2	April 2016	December 2019

Standard Setting Body

NZ Motor Industry Training Organisation (Incorporated)
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Reviewed

National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 4) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems

Level	4
Credits	91-132 (depending on strand)

Purpose

The National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 4) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems [Ref: 1422] recognises the skills and knowledge required for people in roles within the automotive electrical and mechanical sector of the motor industry that involve diagnostic and complex repair work at an intermediate to advanced level.

The qualification includes a Core Compulsory and Core Elective section common to each of the five 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. The standards in the Compulsory section of each strand ensure that the candidate develops and applies knowledge and skills to 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.

In order to recognise a minimum and consistent set of fundamental competencies across all roles in all qualifications at each level, a common set of standards 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.

The qualification strands recognise the competencies required to work in a range of automotive electrical and mechanical workplaces in:

- electrical and electronics roles involved in the overall servicing and repair of electric and electronic components used on all vehicles, equipment and machines
- light vehicle roles involved in the overall servicing and repair of all aspects of the operation of light vehicles and light vehicle components (see below regarding comparison to Underbody and General Service strand)
- motorcycle roles involved in the overall servicing and repair of all aspects of the operation of motorcycles and all-terrain vehicles and their associated components

- outdoor power equipment roles in the overall servicing and repair of electric and petrol powered equipment such as lawnmowers (ride-on and walk-behind types), chainsaws, weed eaters, brush cutters and trimmers, power cutters, and any other outdoor powered equipment which operates a small engine (both hand-held or ride-on)
- trailer boat systems roles involved in the installation, and overall servicing and repair of engines and engine components on trailer boats.

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 points to and exit points from training.

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 National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems [Ref: 1421], 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 Electrical and Mechanical Engineering) (Level 3) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems [Ref: 1421] replaced the National Certificate in Motor Industry (Automotive Electrical Engineering) [Ref: 0137], the National Certificate in Motor Industry (Automotive Engineering) [Ref: 0019], the National Certificate in Motor Industry (Motorcycle Engineering) [Ref: 0015], the National Certificate in Motor Industry (Outdoor Power Equipment Servicing) [Ref: 0697], the National Certificate in Motor Industry (Trailer Boat Systems Engineering) (Level 3) [Ref: 0698], and the National Certificate in Motor Industry (Trailer Boat Systems Engineering) (Level 4) [Ref: 0699].

Special Notes

The award of this qualification is dependent on the award, in the appropriate strand, of the National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems [Ref: 1421]. For the award of this qualification with the Trailer Boat Systems strand, prior award of the National Certificate in Motor Industry (Trailer Boat Systems Engineering) (Level 3) [Ref: 0698] is an alternative dependency. 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	2	0-4
Minimum totals	4	4

	Electrical and Electronics Strand		Light Vehicle Strand	
	Compulsory	Elective	Compulsory	Elective
Level 3 credits	1	0-26	12	0-6
Level 4 credits	50	0-40	93	10-16
Level 5 credits	3	0-14	3	-
Minimum totals	54	40	108	16
Qualification total	102		132	

	Motorcycle Strand		Outdoor Power Equipment Strand	
	Compulsory	Elective	Compulsory	Elective
Level 3 credits	9	-	3	0-16
Level 4 credits	75	0-8	63	1-17
Minimum totals	84	8	66	17
Qualification total	100		91	

	Trailer Boat Systems Strand	
	Compulsory	Elective
Level 2 credits	-	0-4
Level 3 credits	21	0-5
Level 4 credits	52	3-18
Level 5 credits	7	0-6
Minimum totals	80	18
Qualification total	106	

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

- Electrical and Electronics Strand
- Light Vehicle Strand
- Motorcycle Strand
- Outdoor Power Equipment Strand
- Trailer Boat Systems 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

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

Electrical and Electronics Strand

Prior award of National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) [Ref: 1421]

Meet the requirements of all of the following sets

- Electrical and Electronics Compulsory

- Electrical and Electronics Elective

Electrical and Electronics Compulsory

The following standards are required

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
24095	Test for and rectify automotive wiper system faults	4	2
24113	Demonstrate knowledge of automotive instruments and gauges, and testing and rectifying system faults	4	2
24114	Test for and rectify faults in automotive instruments and gauges	4	4
24119	Demonstrate knowledge of vehicle steering and suspension electronic control systems, and testing and rectifying faults	4	3
24121	Demonstrate knowledge of vehicle body electronic control safety systems, and testing and rectifying faults	4	3
24122	Demonstrate knowledge of vehicle body electronic control security systems, and testing and rectifying faults	4	3
24123	Demonstrate knowledge of vehicle comfort and entertainment electronic control systems, and testing and rectifying faults	4	3
24124	Demonstrate knowledge of vehicle powertrain electronic control systems, and testing and rectifying faults	4	3
24141	Demonstrate knowledge of vehicle ABS, TCS, and ESC electronic control systems, and testing and rectifying faults	5	3

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

ID	Title	Level	Credit
15384	Demonstrate knowledge of electronic diesel management	4	4

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
24450	Demonstrate knowledge of vehicle climate control systems, and locating and rectifying faults	4	4

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
893	Diagnose and rectify vehicle emission control system faults	4	3

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
5775	Remove and replace motor vehicle supplementary restraint systems	4	6

Electrical and Electronics Elective

A minimum of 40 credits

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
890	Diagnose and rectify faults in motorcycle or ATV electrical starting and charging systems, and overhaul starter motors	4	4
905	Overhaul heavy duty electric pre-engaged and axial-type starter motors	4	5
907	Install entertainment systems in vehicles, test and rectify installation faults, and replace components	4	4
975	Design a wiring harness for a particular automotive application	4	4
976	Specify the lighting requirements for a passenger coach or special purpose vehicle	5	4
978	Specify the battery and charging system requirements for a passenger coach or special purpose vehicle	5	4
5433	Demonstrate knowledge of electrical and electronic applications for marine use	4	8
5436	Diagnose and rectify faults in marine charging and starting systems	4	4
5458	Demonstrate knowledge of heavy duty starter motor operation	4	4
15374	Diagnose and rectify faults in starting and charging systems, and overhaul starter motors on outdoor powdered equipment	4	4
15377	Diagnose and rectify faults in a motorcycle electronic ignition system	4	4
24115	Diagnose and rectify faults in an engine flywheel ignition system	3	3
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

ID	Title	Level	Credit
24120	Test for and rectify faults in vehicle mechanical and body electronic control systems	4	10
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
24134	Test for and rectify faults in electronically controlled systems used on heavy vehicles or machines	4	5
24135	Test for and rectify faults in electronically controlled systems used on motorcycles	4	3
24139	Install an aftermarket vehicle or machine body control security system	4	4
24142	Test and rectify faults in vehicle ABS, TCS, or ESC electronic control systems	5	6
24144	Demonstrate knowledge of testing for and rectifying faults on a motorcycle electronic ignition system	4	2
24151	Demonstrate knowledge of automotive oscilloscopes	4	2

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

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

ID	Title	Level	Credit
981	Install an automotive air conditioning system	3	3
24443	Prepare to test, test and diagnose faults in an automotive air conditioning system	4	5
24444	Service and rectify faults in an automotive air conditioning system	4	7
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 Workshop Engineering

ID	Title	Level	Credit
15433	Inspect and repair ride-on battery powered equipment	4	8

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

Manufacturing > Boating Industries > Boatbuilding

ID	Title	Level	Credit
11794	Install marine electrical and electronic systems and equipment	3	20

Service Sector > Retail, Distribution, and Sales > Stock Control

ID	Title	Level	Credit
11986	Establish and maintain stock levels in a retail or distribution environment	4	4

Light Vehicle Strand

Prior award of National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) [Ref: 1421]

Meet the requirements of all of the following sets

- Light Vehicle Compulsory
- Light Vehicle Elective

Light Vehicle Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
5462	Demonstrate knowledge of automotive electronic ignition system operation	4	5
24090	Demonstrate knowledge of diagnosing faults in engine management systems	3	1
24091	Inspect, diagnose, and rectify faults in engine management systems	4	6
24119	Demonstrate knowledge of vehicle steering and suspension electronic control systems, and testing and rectifying faults	4	3
24120	Test for and rectify faults in vehicle mechanical and body electronic control systems	4	10
24121	Demonstrate knowledge of vehicle body electronic control safety systems, and testing and rectifying faults	4	3
24122	Demonstrate knowledge of vehicle body electronic control security systems, and testing and rectifying faults	4	3
24123	Demonstrate knowledge of vehicle comfort and entertainment electronic control systems, and testing and rectifying faults	4	3

ID	Title	Level	Credit
24124	Demonstrate knowledge of vehicle powertrain electronic control systems, and testing and rectifying faults	4	3
24141	Demonstrate knowledge of vehicle ABS, TCS, and ESC electronic control systems, and testing and rectifying faults	5	3

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

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
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 Transmission Systems

ID	Title	Level	Credit
919	Demonstrate knowledge of light vehicle automatic transmission components and fault diagnosis procedures	4	8
24315	Diagnose faults in final drive assemblies on light vehicles	4	2
24317	Diagnose faults in manual transmissions on light vehicles	4	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
893	Diagnose and rectify vehicle emission control system faults	4	3
943	Remove and install an engine assembly from and to a light vehicle	3	2
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
24272	Demonstrate knowledge of automotive oscilloscope patterns and conducting a test programme on a four stroke petrol engine	4	1
24273	Test a four stroke petrol engine using relevant test equipment and determine engine condition	4	2

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

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
5775	Remove and replace motor vehicle supplementary restraint systems	4	6
23980	Demonstrate knowledge of removing and replacing vehicle dash panels and adjacent fittings	3	2
24000	Demonstrate knowledge of motor vehicle restraint systems	3	5

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
960	Diagnose and rectify brake system faults on light vehicles	4	4

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
24025	Diagnose suspension and manual steering faults on light vehicles	3	2
24426	Demonstrate knowledge of diagnosing and rectifying vehicle power-assisted steering system faults	4	2
24427	Test, diagnose, and rectify vehicle hydraulic power-assisted steering system faults	4	2

Light Vehicle Elective

A minimum of 16 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
894	Diagnose and rectify faults in a carburetted petrol fuel system	4	4

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

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

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
8186	Dismantle and inspect, overhaul, and reassemble an automatic transmission or transaxle assembly from a light vehicle	4	8
24314	Diagnose faults in automatic transmissions on light vehicles	4	3
24316	Prepare and overhaul a final drive assembly from a light vehicle	4	6
24318	Overhaul a manual transmission on a light vehicle	4	4
24326	Diagnose four-wheel drive (4WD) or all-wheel drive (AWD) system faults on light vehicles	4	2
24327	Rectify four-wheel drive (4WD) or all-wheel drive (AWD) system faults on light vehicles	4	3

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
22803	Locate and rectify vehicle interior water leaks	3	2
23981	Remove and replace vehicle dash panels and adjacent fittings	4	4

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
24428	Overhaul a power steering pump	4	2

Motorcycle Strand

Prior award of National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) [Ref: 1421]

Meet the requirements of all of the following sets

- Motorcycle Compulsory
- Motorcycle Elective

Motorcycle Compulsory

The following standards are required

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
890	Diagnose and rectify faults in motorcycle or ATV electrical starting and charging systems, and overhaul starter motors	4	4
15377	Diagnose and rectify faults in a motorcycle electronic ignition system	4	4
24090	Demonstrate knowledge of diagnosing faults in engine management systems	3	1
24091	Inspect, diagnose, and rectify faults in engine management systems	4	6
24115	Diagnose and rectify faults in an engine flywheel ignition system	3	3
24135	Test for and rectify faults in electronically controlled systems used on motorcycles	4	3
24140	Demonstrate knowledge of the principles of motorcycle electronic control system operation and repair	4	6
24144	Demonstrate knowledge of testing for and rectifying faults on a motorcycle electronic ignition system	4	2

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

ID	Title	Level	Credit
24190	Diagnose and rectify faults in a carburetted motorcycle fuel system	4	4

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
24310	Diagnose faults and overhaul a motorcycle transmission	4	6
24312	Demonstrate knowledge of clutches and transmissions used on all-terrain vehicles (ATVs)	3	2

ID	Title	Level	Credit
24333	Diagnose and rectify faults in an all-terrain vehicle (ATV) clutch	4	4

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
3381	Inspect and repair damaged motorcycles	4	6

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
879	Test, diagnose, and rectify faults in a two stroke petrol engine	4	6
15442	Carry out repairs to a motorcycle cylinder head	4	6
15444	Repair a motorcycle engine crankshaft assembly	4	4
24292	Demonstrate knowledge of motorcycle engine cylinder head faults, and their inspection and repair requirements	4	3
24293	Demonstrate knowledge of motorcycle engine crankshaft assembly faults and their inspection and repair requirements	4	1

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24413	Diagnose and rectify brake system faults on a motorcycle	4	4

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
24430	Demonstrate knowledge of diagnosing faults in motorcycle frame, steering, and suspension systems	4	2
24431	Diagnose and rectify faults in motorcycle frames, steering, and suspension systems	4	4

Motorcycle Elective

A minimum of 8 credits

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
24313	Diagnose faults and overhaul all-terrain vehicle (ATV) transmissions, sub-transmissions, and shaft drives	4	10

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
24272	Demonstrate knowledge of automotive oscilloscope patterns and conducting a test programme on a four stroke petrol engine	4	1
24273	Test a four stroke petrol engine using relevant test equipment and determine engine condition	4	2
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

Service Sector > Retail, Distribution, and Sales > Retail and Distribution Core Skills

ID	Title	Level	Credit
11999	Demonstrate product knowledge in a specified area in a retail or distribution environment	4	4

Service Sector > Retail, Distribution, and Sales > Stock Control

ID	Title	Level	Credit
11986	Establish and maintain stock levels in a retail or distribution environment	4	4

Outdoor Power Equipment Strand

Prior award of National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) [Ref: 1421]

Meet the requirements of all of the following sets

- Outdoor Power Equipment Compulsory
- Outdoor Power Equipment Elective

Outdoor Power Equipment Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
15374	Diagnose and rectify faults in starting and charging systems, and overhaul starter motors on outdoor powdered equipment	4	4
24115	Diagnose and rectify faults in an engine flywheel ignition system	3	3

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

ID	Title	Level	Credit
15381	Diagnose and rectify faults in carburetted petrol fuel systems used on outdoor powered equipment	4	4

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
15416	Diagnose and rectify faults in manual drive systems used on outdoor powered equipment	4	5
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
2328	Inspect and repair hand held outdoor power equipment	4	10
15429	Inspect and repair outdoor power equipment	4	20
24390	Inspect and repair walk behind rotary mowers, ride-on mowers, and lawn tractors	4	9

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
15473	Diagnose and rectify brake system faults on ride-on outdoor powered equipment	4	3

Outdoor Power Equipment Elective

A minimum of 17 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 Hydraulics

ID	Title	Level	Credit
2314	Test and service hydraulic systems on equipment, vehicles, and/or machines	3	6
23927	Demonstrate knowledge of automotive hydraulic principles, practices, systems and components	3	4
23928	Demonstrate knowledge of automotive hydraulic circuit diagrams and oil requirements	3	3

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
15430	Inspect and repair walk behind reel mowers	4	10
15432	Inspect and repair ground conditioning and turf equipment	4	15
15433	Inspect and repair ride-on battery powered equipment	4	8

Engineering and Technology > Motor Industry > Engines

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

Service Sector > Retail, Distribution, and Sales > Retail and Distribution Core Skills

ID	Title	Level	Credit
28303	Coordinate product information and placement in a retail environment	4	10

Service Sector > Retail, Distribution, and Sales > Stock Control

ID	Title	Level	Credit
28505	Establish and maintain stock levels, and collate and dispatch customer orders in a retail or distribution facility	4	10

Trailer Boat Systems Strand

Prior award of National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) [Ref: 1421]

Meet the requirements of all of the following sets

- Trailer Boat Systems Compulsory
- Trailer Boat Systems Elective

Trailer Boat Systems Compulsory

The following standards are required

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
977	Demonstrate knowledge of, and recommend, automotive component corrosion prevention requirements	5	7

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
5436	Diagnose and rectify faults in marine charging and starting systems	4	4
24090	Demonstrate knowledge of diagnosing faults in engine management systems	3	1

ID	Title	Level	Credit
24091	Inspect, diagnose, and rectify faults in engine management systems	4	6

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

ID	Title	Level	Credit
24238	Demonstrate knowledge of trailer boat fuel chemistry and fuel service requirements	4	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
879	Test, diagnose, and rectify faults in a two stroke petrol engine	4	6
15438	Diagnose and rectify outboard engine faults	4	4

Engineering and Technology > Motor Industry > Trailer Boat Systems

ID	Title	Level	Credit
15461	Plan basic equipment layout and rig a trailer boat	4	15
15463	Carry out a sea trial for a trailer boat	4	4
15465	Check and determine the suitability of a propeller for a trailer boat	4	3

Manufacturing > Boating Industries > Boatbuilding

ID	Title	Level	Credit
11794	Install marine electrical and electronic systems and equipment	3	20
23243	Identify and explain the causes and prevention of material deterioration in the marine environment	4	8

Trailer Boat Systems Elective

A minimum of 18 credits

Business > Business Administration > Business Administration Services

ID	Title	Level	Credit
327	Document business transactions	2	4

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 Fuel Systems and Exhaust

ID	Title	Level	Credit
15384	Demonstrate knowledge of electronic diesel management	4	4

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
929	Test and rectify starting aid system faults on a diesel engine	3	2
15434	Diagnose and rectify inboard four stroke diesel engine faults on trailer boats	4	10
15435	Diagnose and rectify inboard petrol engine faults on trailer boats	4	8
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 > Trailer Boat Systems

ID	Title	Level	Credit
15460	Inspect and repair trailer boat inboard driveline components	4	4
15462	Inspect, test, and rectify inboard engine cooling system faults on a trailer boat	4	4
15464	Check and arrange the restoration of previously submerged marine engines, systems, and/or components	5	6
15466	Inspect, test, and repair a trailer boat impeller propulsion system (water jet unit)	4	3
15468	Inspect and repair a hydraulic marine transmission	4	6
15469	Inspect and rebuild trailer boat stern legs	4	8
23936	Carry out basic glass reinforced plastic (GRP) repairs to a trailer boat hull	4	3

Transition Arrangements

Version 1

This qualification and the National Certificate in Motor Industry (Automotive Electrical and Mechanical Engineering) (Level 3) with strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems [Ref: 1421] replaced the National Certificate in Motor Industry (Automotive Electrical Engineering) [Ref: 0137], the National Certificate in Motor Industry (Automotive Engineering) [Ref: 0019], the National Certificate in Motor Industry (Motorcycle Engineering) [Ref: 0015], the National Certificate in Motor Industry (Outdoor Power Equipment Servicing) [Ref: 0697], the National Certificate in Motor Industry (Trailer Boat Systems Engineering) (Level 3) [Ref: 0698], and

the National Certificate in Motor Industry (Trailer Boat Systems Engineering) (Level 4) [Ref: 0699].

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

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

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

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

Differences between new and replaced qualifications

There are substantial differences between the new and replaced qualifications. Changes include:

- The new qualifications have core compulsory and core elective sections.
- The new Level 3 and Level 4 qualifications have strands in Electrical and Electronics, Light Vehicle, Motorcycle, Outdoor Power Equipment, and Trailer Boat Systems with compulsory and elective sections in each strand.
- Candidates must now complete a strand in the Level 3 qualification before they may progress to the corresponding strand in the Level 4 qualification.

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
382	327
385	12008
386	11986
391	934
398	22789
878	24270
881	24443, 24444
886	24272, 24273
887	24094, 24095
896	24025

Credit for	Exempt from
901	24426, 24427, 24428
910	24113, 24114
926, 927	24310, 24312, 24313
927	24310, 24313
931	23927, 23928
951	24181, 24182
957	24315, 24316
958	24314
959	24317, 24318
961	24090, 24091
962	24190
965	24270, 24271
967	24280
971	24281, 24282
973	24413
979	24115
2311	24430, 24431
2339	24117, 24118
2342	24320
2343	24322
2348	24119, 24120, 24121, 24122, 24123, 24124
3391	24270, 24271
3396	24125, 24126
5463	24119, 24121, 24122, 24123, 24124
5469	22803
5755	23980, 23981
8182	24120
8185	24326, 24327
9915, 9916	23243

Credit for	Exempt from
11745	12008
15375	24134
15376	24135
15417	24328, 24329
15421	24314
15426, 15431	24390
15440	24807
15448	24278, 24279
15449	24280
15452	23936
15453	11794
16115	24139

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

Boating Industry Training Organisation
 NZQA
 Retail ITO

Certification

This certificate will display the logos of NZQA, the NZ Motor Industry Training Organisation (Incorporated) 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.

NQF 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.

Reviewed

Reviewed