

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

Level 3

Credits 168-268 (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 qualifications 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This qualification contained standards that had expired or been replaced by other standards.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
6914	26541
6915	26542
11963	28505
11975	28502

Credit for	Exempt from
12008	11745

This qualification contains expiring standards that have been replaced by later standards. Exemptions have been included in this qualification so people can complete the qualification using either the expiring or replacement standards.

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

Credit for	Exempt from
29372	24234
29582	24077
29579, 29580	21858
29371 or 30571	21707 and 21667

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	August 2008	December 2019
Republished	1	January 2014	December 2019
Review	2	April 2016	December 2019
Republished	2	December 2018	December 2019

Standard Setting Body

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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

Level 3

Credits 168-268 (depending on strand)

Purpose

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] recognises the skills and knowledge required for people in roles within the automotive electrical and mechanical sector of the motor industry that involve general vehicle or equipment repair and service work at an introductory to intermediate level.

The qualification includes a Core Compulsory and Core Elective section common to each of the five strands. This core covers knowledge and skills in generic areas such as health and safety, communication, customer service, and self management, as well as industry specific knowledge and skills including: quality control and industry standards; legislation, tools and equipment used in the industry; new and emerging technology; business responsibilities towards customers; stock security in the workplace; and basic automotive electrics and electronics, fuel systems and exhausts, and engines. Each strand comprises a set of compulsory standards, which reflect the specific requirements of each of the automotive electrical and mechanical industry sectors, and an elective section that 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 3 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 introductory to intermediate 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).

While they are not considered prerequisite qualifications to this qualification, candidates may follow on from the National Certificate in Motor Industry (Foundation Skills) (Level 1) [Ref: 1222] or the National Certificate in Motor Industry (Entry Skills) (Level 2) with strands in Automotive Electrical and Mechanical, and Collision Repair [Ref: 1252], as a number of standards are common to both qualifications. This qualification prepares people and is a prerequisite for the award of 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].

There is significant overlap in the competencies required in the Light Vehicle strand of this qualification with the Underbody and General Service strand of the National Certificate in Motor Industry (Vehicle Servicing) with strands in Brake and Clutch, Exhaust Systems, Radiator Repair, Steering and Suspension, Tyres, Underbody and General Service, and Vehicle Security, with an optional strand in Heavy Vehicle Steering and Suspension [Ref: 1420] as these qualifications are intended for different target audiences. The Underbody and General Service strand is applicable to candidates employed in smaller, generally non-franchise, workshops where a lesser scope of work is able to be undertaken in the workshop, and more complex or specialist work is outsourced to larger or more specialist workshops. The Light Vehicle strand is applicable to candidates employed in workshops that have the expertise and equipment required to undertake a wider scope of work, and the workshop will therefore be able to complete the requirements of most jobs without the need to outsource. As a result of this candidates could logically progress from the Underbody and General Service strand into the Light Vehicle strand as their career develops, but the opposite would neither be logical nor beneficial.

Replacement Information

This qualification and 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] 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

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 1 credits	-	0-4
Level 2 credits	43	0-6
Level 3 credits	11	0-6
Minimum totals	54	6

	Electrical and Electronics Strand		Light Vehicle Strand	
	Compulsory	Elective	Compulsory	Elective
Level 1 credits	-	-	1	-
Level 2 credits	30	0-15	60	0-15
Level 3 credits	72	0-15	116	5-31
Level 4 credits	25	0-6	-	0-11
Minimum totals	127	15	177	31
Qualification total	202		268	

	Motorcycle Strand		Outdoor Power Equipment Strand	
	Compulsory	Elective	Compulsory	Elective
Level 1 credits	-	-	2	-
Level 2 credits	33	0-13	44	0-19
Level 3 credits	77	0-13	39	0-19
Level 4 credits	-	0-4	4	-
Minimum totals	110	13	89	19
Qualification total	183		168	

	Trailer Boat Systems Strand	
	Compulsory	Elective
Level 1 credits	7	-
Level 2 credits	31	0-25
Level 3 credits	79	0-25
Level 4 credits	13	0-9
Minimum totals	130	25
Qualification total	215	

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

- Core Compulsory standards
- Core Elective – A minimum of 6 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

Core Generic > Core Generic > Self-Management

ID	Title	Level	Credit
7123	Demonstrate knowledge of problem solving and apply a problem solving technique to a problem	2	2

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
249	Carry out automotive industry personal workplace requirements	2	5
21078	Demonstrate knowledge of quality control standards in the motor and related industries	3	2
23743	Demonstrate knowledge of general legislation and regulations in the motor industry	3	2

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
898	Identify a wiring diagram and translate information to a circuit in the motor and related industries	3	3
3877	Demonstrate knowledge of protecting vehicle electronics in the motor industry	2	2
21667	Demonstrate knowledge of testing automotive electrical circuits	2	3
21676	Select test equipment and test an automotive electrical circuit	2	4
21707	Demonstrate knowledge of automotive electrical principles	2	6
24105	Demonstrate knowledge of wiring and wiring diagrams used in automotive circuits	3	2
24106	Carry out automotive wiring repairs and replace a wiring circuit	3	2

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

ID	Title	Level	Credit
240	Demonstrate knowledge of petrol fuel systems	2	3

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21718	Demonstrate knowledge of hazardous materials used in the motor and related industries	2	2
21858	Demonstrate good work habits and perform safe work practices in the motor and related industries	2	4
21859	Select and use hand tools and workshop equipment for an automotive application	2	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
231	Explain the operation of two and four stroke petrol and diesel engines	2	4

Engineering and Technology > Motor Industry > Motor Industry - Introductory Skills

ID	Title	Level	Credit
3856	Identify emergency procedures in the motor and related industries	2	2
16113	Demonstrate knowledge of safe working practices in an automotive workshop	2	2
21669	Demonstrate knowledge of hand tools and workshop equipment for motor industry applications	2	2

Core Elective

A minimum of 6 credits

Core Generic > Core Generic > Work and Study Skills

ID	Title	Level	Credit
7118	Manage own learning programme	2	3

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit
21672	Demonstrate knowledge of new and emerging technology in the motor industry	2	5
21673	Demonstrate knowledge of maintaining stock security in the motor and related industries	2	2
21708	Maintain stock security in the workplace in the motor and related industries	3	2
24077	Demonstrate knowledge of business responsibilities towards customers within the automotive industry	3	1

Humanities > Communication Skills > Interpersonal Communications

ID	Title	Level	Credit
1277	Communicate information in a specified workplace	2	3

Humanities > Communication Skills > Reading

ID	Title	Level	Credit
2990	Read texts to research information	3	4

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
64	Perform calculations for the workplace	1	2

Electrical and Electronics Strand

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 > Mechanical Engineering > Refrigeration and Air Conditioning

ID	Title	Level	Credit
19666	Demonstrate knowledge of ozone and how it relates to the refrigeration and air conditioning industry	3	3

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
235	Describe automotive ignition systems and their operation	2	4
888	Overhaul starter motors from light vehicles	3	3
895	Diagnose and rectify faults in a conventional-type electronic ignition system on an engine	4	4
897	Diagnose and rectify faults in light vehicle starting and charging systems	4	5
909	Install electrical accessories in vehicles, and test for and rectify faults	3	2
915	Service multiple battery installations on vehicles, machines, and/or units	3	3
5456	Demonstrate knowledge of the operation and testing of automotive alternators and alternator controls	3	4
5462	Demonstrate knowledge of automotive electronic ignition system operation	4	5
5742	Protect electronics when servicing or repairing a vehicle or machine in the motor industry	3	2
16114	Demonstrate knowledge of vehicle security systems and their installation	3	4
21675	Demonstrate knowledge of automotive batteries	2	2
21719	Remove and replace motor vehicle lamps in the motor industry	2	1
24094	Demonstrate knowledge of windscreen wiper and headlamp cleaning systems	3	1

ID	Title	Level	Credit
24127	Demonstrate knowledge of automotive lighting requirements and lighting circuit diagnosis	4	3
24128	Diagnose and rectify lighting circuit faults on vehicles or machines	4	4
24129	Create and measure automotive series-parallel circuits, and calculate values of power in automotive circuits	3	2
24130	Demonstrate knowledge of inductance, capacitors and chokes, and alternating current used in automotive applications	3	3
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
24148	Demonstrate knowledge of engine management systems	3	3
24149	Demonstrate knowledge of overhauling starter motors from light vehicles	3	2
24150	Demonstrate knowledge of overhauling automotive alternators	3	2
24654	Test and rectify faults in automotive alternator circuits, and overhaul an automotive alternator	3	4

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

ID	Title	Level	Credit
5459	Demonstrate knowledge of automotive electronic fuel injection system operation, and fault diagnosis and repair	3	4
5461	Demonstrate knowledge of fuel emissions, and vehicle emission controls	3	4

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

ID	Title	Level	Credit
15373	Demonstrate knowledge of automotive air conditioning	3	4

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
21680	Demonstrate knowledge of automotive lubricants and sealants	2	2

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21671	Carry out general engineering tasks in the motor industry	2	4
21714	Demonstrate knowledge of fastening systems used in the motor industry	2	2
21715	Select and use fastening systems in the motor industry	2	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
21686	Demonstrate knowledge of automotive cooling systems	2	2

Engineering and Technology > Motor Industry > Motor Industry - Introductory Skills

ID	Title	Level	Credit
21668	Demonstrate knowledge of cleaning automotive components	2	2
21670	Demonstrate knowledge of general engineering tasks in the motor industry	2	3

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
912	Remove, repair, and replace vehicle body interior components	3	3
22799	Demonstrate safety precautions on vehicles fitted with air bags and/or seatbelt pre-tensioners	3	1
22800	Describe safe working precautions on vehicles equipped with air bags and seatbelt pre-tensioners	3	2
23980	Demonstrate knowledge of removing and replacing vehicle dash panels and adjacent fittings	3	2
23981	Remove and replace vehicle dash panels and adjacent fittings	4	4
24000	Demonstrate knowledge of motor vehicle restraint systems	3	5

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
21720	Demonstrate knowledge of vehicle braking systems	2	2

Electrical and Electronics Elective

A minimum of 15 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 Electrical and Electronics

ID	Title	Level	Credit
891	Diagnose and rectify faults in a contact breaker (CB) ignition system on an engine	4	2
2326	Overhaul an ignition distributor	3	2
5458	Demonstrate knowledge of heavy duty starter motor operation	4	4
24107	Demonstrate knowledge of an automotive charging system that uses a direct current (dc) generator	3	2
24108	Test for and rectify faults in an automotive direct current (dc) type generator charging system	3	4
24116	Demonstrate knowledge of contact breaker and capacitor discharge ignition systems used on motorcycles and small engines	3	2
24136	Demonstrate knowledge of traction type batteries and their service requirements	3	2
24137	Service traction type batteries used on electric materials handling equipment	3	3
24138	Install an immobiliser system in a vehicle	3	2

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

ID	Title	Level	Credit
21677	Demonstrate knowledge of a diesel fuel system	2	2
21692	Perform minor servicing tasks on a diesel fuel system	2	2
24234	Perform minor servicing tasks on a petrol fuel system	2	2

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

ID	Title	Level	Credit
902	Test a vehicle heating and ventilation system	3	3
24445	Remove and replace automotive air conditioning components	3	2
24447	Recover refrigerant from, and evacuate and charge an automotive air conditioning system	3	2
24448	Demonstrate knowledge of servicing automotive air conditioning systems	3	2

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21683	Demonstrate knowledge of MIG welding in the motor industry	2	2
23992	Use and maintain a gas metal arc welding (GMAW) plant in the motor and related industries	3	5
24393	Heat metal automotive components to aid disassembly and assembly in the motor and related industries	2	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
929	Test and rectify starting aid system faults on a diesel engine	3	2

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
242	Change the fluid and bleed a brake hydraulic system	2	2
21689	Demonstrate knowledge of hydraulic brake fluid, fluid replacement, and brake bleeding procedures	2	2

Engineering and Technology > Motor Industry > Vehicle Recovery

ID	Title	Level	Credit
3387	Respond to vehicle and/or machine breakdown	3	1

Light Vehicle Strand

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 > Mechanical Engineering > Refrigeration and Air Conditioning

ID	Title	Level	Credit
19666	Demonstrate knowledge of ozone and how it relates to the refrigeration and air conditioning industry	3	3

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
233	Service an automotive battery	2	2
234	Describe automotive starting and charging systems and their operation	2	4
235	Describe automotive ignition systems and their operation	2	4
5742	Protect electronics when servicing or repairing a vehicle or machine in the motor industry	3	2
21675	Demonstrate knowledge of automotive batteries	2	2
21719	Remove and replace motor vehicle lamps in the motor industry	2	1
24092	Demonstrate knowledge of automotive lighting systems, and headlamp adjustment	3	2
24093	Rectify simple vehicle lighting faults, and adjust vehicle lamps	3	3
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
24148	Demonstrate knowledge of engine management systems	3	3

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

ID	Title	Level	Credit
5459	Demonstrate knowledge of automotive electronic fuel injection system operation, and fault diagnosis and repair	3	4
5461	Demonstrate knowledge of fuel emissions, and vehicle emission controls	3	4
11733	Demonstrate knowledge of vehicle exhaust systems	3	4
21677	Demonstrate knowledge of a diesel fuel system	2	2

ID	Title	Level	Credit
21678	Remove, repair, and/or replace a vehicle and/or machine exhaust system	3	2
21692	Perform minor servicing tasks on a diesel fuel system	2	2
24179	Demonstrate knowledge of a forced air intake system on an engine	3	4
24234	Perform minor servicing tasks on a petrol fuel system	2	2

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

ID	Title	Level	Credit
902	Test a vehicle heating and ventilation system	3	3
15373	Demonstrate knowledge of automotive air conditioning	3	4

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
229	Identify the general locations and functions of motor vehicle systems and main components	2	4
15406	Carry out general service checks on light vehicles	3	2
21679	Demonstrate knowledge of interchanging and balancing road wheels in the motor industry	2	2
21680	Demonstrate knowledge of automotive lubricants and sealants	2	2
21716	Select and apply lubricants and sealants for automotive and related industry applications	2	1
21869	Remove and replace road wheels in the motor industry	1	1
24338	Service bearings and seals in vehicles or equipment	3	3

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
239	Demonstrate knowledge of automotive manual transmissions	2	2
918	Demonstrate knowledge of light vehicle final drive assembly operation	3	4
920	Describe the construction and operation of manual and semi-automatic transmissions used on light vehicles	3	4
922	Check and rectify faults in manual single plate clutches used on light vehicles	3	2

ID	Title	Level	Credit
24307	Demonstrate knowledge of driveline components on light vehicles	3	2
24308	Rectify driveline faults on light vehicles, and overhaul universal and constant velocity (CV) joints	3	3
24325	Demonstrate knowledge of four-wheel drive (4WD) and all-wheel drive (AWD) systems used on light vehicles	3	3
24332	Diagnose and rectify oil leaks on transmission and driveline components on light vehicles	3	2
24336	Demonstrate knowledge of light vehicle automatic transmissions and their servicing requirements	3	2
24689	Carry out routine maintenance on automotive automatic transmissions	3	4

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
924	Clean automotive components and maintain cleaning equipment	2	1
21671	Carry out general engineering tasks in the motor industry	2	4

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
243	Carry out basic tuning on a four stroke petrol engine under supervision	2	4
3400	Check a four stroke petrol engine for condition using hand held test equipment	3	4
15446	Remove and replace a light vehicle engine cam belt	3	3
21686	Demonstrate knowledge of automotive cooling systems	2	2
21687	Demonstrate knowledge of basic tuning on a four stroke petrol engine	2	3
21717	Service automotive cooling systems	2	3
24269	Demonstrate knowledge of cooling system operation, and factors that affect system efficiency on vehicles or machines	3	4
24287	Demonstrate knowledge of disassembling, inspecting, and reassembling an engine short block	3	2
24302	Demonstrate knowledge of disassembling, inspecting, and reassembling an engine cylinder head	3	2

Engineering and Technology > Motor Industry > Motor Industry - Introductory Skills

ID	Title	Level	Credit
21668	Demonstrate knowledge of cleaning automotive components	2	2
21670	Demonstrate knowledge of general engineering tasks in the motor industry	2	3

Engineering and Technology > Motor Industry > Tyres

ID	Title	Level	Credit
24457	Demonstrate knowledge of light vehicle tyres and wheels	3	4

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
22799	Demonstrate safety precautions on vehicles fitted with air bags and/or seatbelt pre-tensioners	3	1
22800	Describe safe working precautions on vehicles equipped with air bags and seatbelt pre-tensioners	3	2

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
242	Change the fluid and bleed a brake hydraulic system	2	2
5466	Remove and replace light vehicle brake pads and shoes	3	2
21689	Demonstrate knowledge of hydraulic brake fluid, fluid replacement, and brake bleeding procedures	2	2
21720	Demonstrate knowledge of vehicle braking systems	2	2
23817	Demonstrate knowledge of braking principles and system component operation for light vehicles	3	5
23818	Demonstrate knowledge of braking system fault diagnosis and repair requirements for light vehicles	3	3
24408	Inspect braking system for safe operation on light vehicles, and inspect hydraulic components off the vehicle	3	3

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
21721	Demonstrate knowledge of vehicle steering and suspension systems	2	2
24564	Remove and replace steering and suspension components on motor vehicles or machines	3	3

Light Vehicle Elective

A minimum of 31 credits

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
891	Diagnose and rectify faults in a contact breaker (CB) ignition system on an engine	4	2
895	Diagnose and rectify faults in a conventional-type electronic ignition system on an engine	4	4
897	Diagnose and rectify faults in light vehicle starting and charging systems	4	5
909	Install electrical accessories in vehicles, and test for and rectify faults	3	2
915	Service multiple battery installations on vehicles, machines, and/or units	3	3
5456	Demonstrate knowledge of the operation and testing of automotive alternators and alternator controls	3	4
16114	Demonstrate knowledge of vehicle security systems and their installation	3	4

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

ID	Title	Level	Credit
917	Remove and replace a diesel fuel injection pump	3	2
8183	Demonstrate knowledge of the operation, service checks, fault diagnosis, and repair of carburettors	3	6
15403	Test and diagnose diesel fuel injection systems, and repair fuel delivery systems	3	4
24180	Inspect and test diesel engine intake and exhaust systems	3	4

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

ID	Title	Level	Credit
24448	Demonstrate knowledge of servicing automotive air conditioning systems	3	2

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
942	Carry out a pre-delivery check, rectify defects, and complete the service on a light vehicle	3	3

Engineering and Technology > Motor Industry > Automotive Trailers

ID	Title	Level	Credit
23929	Repair light trailers in the motor and related industries	3	2
23930	Demonstrate knowledge of light trailer servicing requirements	3	2

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
24330	Demonstrate knowledge of automotive continuously variable transmission (CVT) operation and repair procedures	3	4
24690	Remove and replace an automatic transmission from and in a light vehicle	3	2

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21682	Demonstrate knowledge of an oxy-acetylene welding plant in the motor industry	2	2
21683	Demonstrate knowledge of MIG welding in the motor industry	2	2
21685	Use an oxy-acetylene welding plant in the motor industry	2	3
23992	Use and maintain a gas metal arc welding (GMAW) plant in the motor and related industries	3	5

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
244	Disassemble and reassemble a four cylinder four stroke engine to a running state	2	6
24274	Carry out general repairs to a cylinder head that does not require machining	3	2
24275	Disassemble, inspect, and reassemble an engine short block under general supervision	3	3
24306	Carry out general repairs to an engine short block	3	3
24807	Remove, disassemble, inspect, reassemble, and refit an engine cylinder head	3	4

Engineering and Technology > Motor Industry > Tyres

ID	Title	Level	Credit
21722	Balance wheels off a vehicle in the motor industry	2	2
24458	Prepare to repair, and repair punctures in tubes and tubeless tyres on light vehicles	3	5

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit
882	Rectify faults associated with a motor vehicle body	3	3
912	Remove, repair, and replace vehicle body interior components	3	3
5468	Fit car and light commercial vehicle accessories	3	3
22927	Locate and rectify vehicle body rattles, vibration, and squeaks	3	3

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
936	Make up brake pipes for a particular braking application	3	1
24409	Prepare and overhaul hydraulic braking system components from light vehicles	3	2
24410	Demonstrate knowledge of machining brake disc rotors and brake drums	3	1
24411	Machine brake disc rotors and brake drums	3	2

Engineering and Technology > Motor Industry > Vehicle Recovery

ID	Title	Level	Credit
3387	Respond to vehicle and/or machine breakdown	3	1
23943	Demonstrate knowledge of flat towing a light vehicle	3	1
23944	Flat tow a light vehicle	3	1

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
884	Dismantle, inspect, and overhaul vehicle manual steering boxes and rack assemblies	3	2
24025	Diagnose suspension and manual steering faults on light vehicles	3	2
24026	Demonstrate knowledge of motor vehicle wheel alignment	3	3
24440	Demonstrate knowledge of electric power steering (EPS) systems	3	1

Motorcycle Strand

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 Electrical and Electronics

ID	Title	Level	Credit
233	Service an automotive battery	2	2
5742	Protect electronics when servicing or repairing a vehicle or machine in the motor industry	3	2
21675	Demonstrate knowledge of automotive batteries	2	2
24093	Rectify simple vehicle lighting faults, and adjust vehicle lamps	3	3
24116	Demonstrate knowledge of contact breaker and capacitor discharge ignition systems used on motorcycles and small engines	3	2
24129	Create and measure automotive series-parallel circuits, and calculate values of power in automotive circuits	3	2
24131	Demonstrate knowledge of electronic components and their application in the automotive industry	3	5
24143	Demonstrate knowledge of starting and charging systems and fault diagnosis on motorcycles or all-terrain vehicles (ATVs)	3	3

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

ID	Title	Level	Credit
24189	Demonstrate knowledge of motorcycle carburettors, and diagnosing fuel system faults and their causes	3	2
24236	Repair and/or replace a motorcycle or all-terrain vehicle (ATV) exhaust system	3	2

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
944	Carry out a pre-delivery check, rectify defects, and complete the service on a motorcycle	3	3
21680	Demonstrate knowledge of automotive lubricants and sealants	2	2
24268	Carry out general service checks on motorcycles	3	2
24346	Select and apply lubricants and sealants for motorcycle or all-terrain vehicle (ATV) applications	2	2

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
939	Carry out diagnosis, servicing, and fault rectification in motorcycle or all-terrain vehicle (ATV) final drives	3	5
24309	Demonstrate knowledge of motorcycle clutches and transmissions	3	2
24311	Rectify faults in a motorcycle clutch	3	2

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
924	Clean automotive components and maintain cleaning equipment	2	1
21671	Carry out general engineering tasks in the motor industry	2	4
21714	Demonstrate knowledge of fastening systems used in the motor industry	2	2
21715	Select and use fastening systems in the motor industry	2	2
24393	Heat metal automotive components to aid disassembly and assembly in the motor and related industries	2	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
15445	Diagnose and rectify motorcycle engine piston and cylinder assembly faults	3	5
21687	Demonstrate knowledge of basic tuning on a four stroke petrol engine	2	3
24285	Demonstrate knowledge of motorcycle engine cooling systems and testing motorcycle engine cooling systems	3	2
24286	Diagnose and rectify faults in a motorcycle engine cooling system	3	3
24294	Demonstrate knowledge of two stroke petrol engines and diagnosing two stroke petrol engine faults	3	2
24300	Check a motorcycle engine for condition and carry out engine tuning requirements	3	4
24301	Disassemble, inspect, and reassemble a multi-cylinder motorcycle engine	3	4

Engineering and Technology > Motor Industry > Motor Industry - Introductory Skills

ID	Title	Level	Credit
21668	Demonstrate knowledge of cleaning automotive components	2	2
21670	Demonstrate knowledge of general engineering tasks in the motor industry	2	3

Engineering and Technology > Motor Industry > Tyres

ID	Title	Level	Credit
24405	Repair punctures and fit tyres to motorcycle and all-terrain vehicle (ATV) wheels	3	2

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit
24412	Demonstrate knowledge of motorcycle braking systems and repair procedures	3	3
24424	Service motorcycle braking systems	3	4

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
24403	Demonstrate knowledge of motorcycle and all-terrain vehicle (ATV) wheel assemblies, tyres, and puncture repairs	3	3
24404	Repair motorcycle wheel assemblies	3	2
24429	Demonstrate knowledge of motorcycle frame, steering, and suspension systems	3	4
24442	Remove and replace motorcycle steering and suspension components	3	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

Motorcycle Elective

A minimum of 13 credits

Engineering and Technology > Mechanical Engineering > Welding

ID	Title	Level	Credit
2677	Weld aluminium with the gas tungsten arc welding process in the downhand positions	3	6
21907	Demonstrate and apply knowledge of safe welding procedures under supervision	2	3

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
909	Install electrical accessories in vehicles, and test for and rectify faults	3	2
15378	Diagnose and rectify faults in a motorcycle contact breaker battery ignition system	4	4

ID	Title	Level	Credit
24092	Demonstrate knowledge of automotive lighting systems, and headlamp adjustment	3	2

Engineering and Technology > Motor Industry > Automotive Plastic Repair

ID	Title	Level	Credit
23741	Demonstrate knowledge of plastics and plastic repairs used in the motor and related industries	3	2
23742	Repair plastic components in the motor and related industries	3	5

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
229	Identify the general locations and functions of motor vehicle systems and main components	2	4
24339	Carry out general service checks on all-terrain vehicles (ATVs)	3	2
24340	Carry out a pre-delivery check, rectify defects, and complete the service on an all-terrain vehicle (ATV)	3	3

Engineering and Technology > Motor Industry > Automotive Sales

ID	Title	Level	Credit
383	Demonstrate knowledge of purchasing and storing automotive parts and accessories	3	3

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21682	Demonstrate knowledge of an oxy-acetylene welding plant in the motor industry	2	2
21683	Demonstrate knowledge of MIG welding in the motor industry	2	2
21685	Use an oxy-acetylene welding plant in the motor industry	2	3
23992	Use and maintain a gas metal arc welding (GMAW) plant in the motor and related industries	3	5

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
24276	Demonstrate knowledge of manual starting systems used on small engines	2	1
24277	Inspect manual starting system components and rectify component faults on a small engine	3	1

Engineering and Technology > Motor Industry > Vehicle Recovery

ID	Title	Level	Credit
3387	Respond to vehicle and/or machine breakdown	3	1

Outdoor Power Equipment Strand

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

Business > Business Administration > Business Administration Services

ID	Title	Level	Credit
327	Document business transactions	2	4

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit
233	Service an automotive battery	2	2
234	Describe automotive starting and charging systems and their operation	2	4
235	Describe automotive ignition systems and their operation	2	4
24116	Demonstrate knowledge of contact breaker and capacitor discharge ignition systems used on motorcycles and small engines	3	2

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

ID	Title	Level	Credit
15380	Demonstrate knowledge of carburettors used on outdoor powered equipment	3	4

Engineering and Technology > Motor Industry > Automotive Plastic Repair

ID	Title	Level	Credit
23741	Demonstrate knowledge of plastics and plastic repairs used in the motor and related industries	3	2

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
247	Prepare a vehicle and/or machine for use and shutdown after use	2	2

ID	Title	Level	Credit
21680	Demonstrate knowledge of automotive lubricants and sealants	2	2
21716	Select and apply lubricants and sealants for automotive and related industry applications	2	1
24338	Service bearings and seals in vehicles or equipment	3	3
24344	Carry out general service checks on chainsaws	3	4
24345	Carry out general service checks on equipment used in the outdoor power equipment industry	3	8

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
239	Demonstrate knowledge of automotive manual transmissions	2	2
15415	Demonstrate knowledge of manual drive systems used on outdoor powered equipment	3	4
24319	Demonstrate knowledge of hydrostatic transmission drives, and testing and diagnosing faults, on plant or machinery	3	2
24321	Demonstrate knowledge of belt and chain drive systems on plant and machinery	3	2

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
924	Clean automotive components and maintain cleaning equipment	2	1
949	Demonstrate knowledge of lawnmower types and applications, and their mechanical operation	2	3
21671	Carry out general engineering tasks in the motor industry	2	4

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
243	Carry out basic tuning on a four stroke petrol engine under supervision	2	4
940	Inspect and rectify governor faults on a small engine	2	2
21687	Demonstrate knowledge of basic tuning on a four stroke petrol engine	2	3

ID	Title	Level	Credit
21691	Disassemble and reassemble a single cylinder or multi-cylinder four stroke engine under supervision	1	2
24276	Demonstrate knowledge of manual starting systems used on small engines	2	1
24277	Inspect manual starting system components and rectify component faults on a small engine	3	1
24294	Demonstrate knowledge of two stroke petrol engines and diagnosing two stroke petrol engine faults	3	2
24295	Demonstrate knowledge of small engine air cooling systems and their test and service procedures	3	2
24296	Test and rectify faults in a small engine air cooling system	3	3

Engineering and Technology > Motor Industry > Motor Industry - Introductory Skills

ID	Title	Level	Credit
21668	Demonstrate knowledge of cleaning automotive components	2	2
21670	Demonstrate knowledge of general engineering tasks in the motor industry	2	3

Outdoor Power Equipment Elective

A minimum of 19 credits

Agriculture, Forestry and Fisheries > Forestry > Non Commercial Forestry Skills

ID	Title	Level	Credit
6917	Operate a chainsaw	3	5

Engineering and Technology > Mechanical Engineering > Welding

ID	Title	Level	Credit
2677	Weld aluminium with the gas tungsten arc welding process in the downhand positions	3	6
21907	Demonstrate and apply knowledge of safe welding procedures under supervision	2	3

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

ID	Title	Level	Credit
21677	Demonstrate knowledge of a diesel fuel system	2	2
21692	Perform minor servicing tasks on a diesel fuel system	2	2
24179	Demonstrate knowledge of a forced air intake system on an engine	3	4

Engineering and Technology > Motor Industry > Automotive Plastic Repair

ID	Title	Level	Credit
23742	Repair plastic components in the motor and related industries	3	5

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit
24328	Demonstrate knowledge of driveline components used on outdoor powered equipment	3	2
24329	Check and rectify driveline faults on outdoor powered equipment	3	3

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
15425	Inspect and repair hand push mowers	2	1
15427	Sharpen and set reel type mower blades and cutting units	3	6
21682	Demonstrate knowledge of an oxy-acetylene welding plant in the motor industry	2	2
21683	Demonstrate knowledge of MIG welding in the motor industry	2	2
21685	Use an oxy-acetylene welding plant in the motor industry	2	3
23992	Use and maintain a gas metal arc welding (GMAW) plant in the motor and related industries	3	5
24372	Manual metal arc weld automotive components	3	4
24373	Demonstrate knowledge of the manual metal arc welding process in the motor industry	3	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
21717	Service automotive cooling systems	2	3

Engineering and Technology > Motor Industry > Tyres

ID	Title	Level	Credit
24458	Prepare to repair, and repair punctures in tubes and tubeless tyres on light vehicles	3	5

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

ID	Title	Level	Credit
21721	Demonstrate knowledge of vehicle steering and suspension systems	2	2

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

ID	Title	Level	Credit
11938	Assist customers to select goods and/or services face to face	2	2
12008	Sell goods and/or services in a retail or distribution environment	2	6

Trailer Boat Systems Strand

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 > Mechanical Engineering > Engineering - Measurement

ID	Title	Level	Credit
4432	Demonstrate knowledge of, and convert, units of measure used in engineering	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
235	Describe automotive ignition systems and their operation	2	4
915	Service multiple battery installations on vehicles, machines, and/or units	3	3
5433	Demonstrate knowledge of electrical and electronic applications for marine use	4	8
5462	Demonstrate knowledge of automotive electronic ignition system operation	4	5
21675	Demonstrate knowledge of automotive batteries	2	2
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

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

ID	Title	Level	Credit
5459	Demonstrate knowledge of automotive electronic fuel injection system operation, and fault diagnosis and repair	3	4

ID	Title	Level	Credit
8183	Demonstrate knowledge of the operation, service checks, fault diagnosis, and repair of carburettors	3	6
24234	Perform minor servicing tasks on a petrol fuel system	2	2

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit
24349	Demonstrate knowledge of marine lubricants and lubrication systems; and marine adhesives, sealants, and gaskets	2	2
24377	Select and apply lubricants, adhesives, and sealants in a marine environment	2	2

Engineering and Technology > Motor Industry > Automotive Trailers

ID	Title	Level	Credit
23933	Demonstrate knowledge of servicing requirements for boat trailer systems and controls	3	2
23934	Inspect, maintain, and repair a boat trailer	3	3

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21700	Store and use hazardous materials in the motor and related industries	2	2

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit
244	Disassemble and reassemble a four cylinder four stroke engine to a running state	2	6
3400	Check a four stroke petrol engine for condition using hand held test equipment	3	4
15436	Demonstrate knowledge of the construction and operation, and servicing requirements of outboard engines	2	4
15437	Service outboard engines	3	4
15439	Demonstrate knowledge of the operation and servicing of open and closed cooling systems on trailer boats	3	4
15447	Install a replacement engine in a trailer boat	3	4
24274	Carry out general repairs to a cylinder head that does not require machining	3	2
24276	Demonstrate knowledge of manual starting systems used on small engines	2	1
24277	Inspect manual starting system components and rectify component faults on a small engine	3	1

Engineering and Technology > Motor Industry > Trailer Boat Systems

ID	Title	Level	Credit
15450	Check and service trailer boat systems and controls	3	4
15451	Demonstrate knowledge of the construction and rigging requirements of trailer boats	3	10
15454	Demonstrate knowledge of trailer boat propeller operation, types, servicing, and installation procedures	3	4
15467	Demonstrate knowledge of the layout and servicing requirements of trailer boat drive trains	3	6
23940	Demonstrate knowledge of trailer boat hydraulic principles and system applications	3	5

Manufacturing > Boating Industries > Marine Sales and Services

ID	Title	Level	Credit
9913	Demonstrate knowledge of the New Zealand boating industry	1	5
9918	Launch and retrieve boats using trailer methods	3	4

Service Sector > Maritime > Sea Survival and Sea Safety

ID	Title	Level	Credit
6915	Maintain personal boating safety in recreational craft by day in sight of land	1	2

Trailer Boat Systems Elective

A minimum of 25 credits

Business > Business Administration > Business Administration Services

ID	Title	Level	Credit
327	Document business transactions	2	4

Engineering and Technology > Mechanical Engineering > Welding

ID	Title	Level	Credit
2677	Weld aluminium with the gas tungsten arc welding process in the downhand positions	3	6
21907	Demonstrate and apply knowledge of safe welding procedures under supervision	2	3

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

ID	Title	Level	Credit
21677	Demonstrate knowledge of a diesel fuel system	2	2
24179	Demonstrate knowledge of a forced air intake system on an engine	3	4
24180	Inspect and test diesel engine intake and exhaust systems	3	4

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit
21682	Demonstrate knowledge of an oxy-acetylene welding plant in the motor industry	2	2
21683	Demonstrate knowledge of MIG welding in the motor industry	2	2
21685	Use an oxy-acetylene welding plant in the motor industry	2	3
23992	Use and maintain a gas metal arc welding (GMAW) plant in the motor and related industries	3	5
24393	Heat metal automotive components to aid disassembly and assembly in the motor and related industries	2	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

Engineering and Technology > Motor Industry > Trailer Boat Systems

ID	Title	Level	Credit
15455	Demonstrate knowledge of marine hydraulic transmission operation and servicing requirements	3	4

ID	Title	Level	Credit
15456	Demonstrate knowledge of stern drive transmissions and servicing requirements	3	4
15458	Demonstrate knowledge of trailer boat impeller propulsion systems (water jet units) and servicing requirements	3	4
15459	Demonstrate knowledge of trailer boat surface piercing drive units and servicing requirements	3	2
15465	Check and determine the suitability of a propeller for a trailer boat	4	3
23935	Demonstrate knowledge of glass reinforced plastic (GRP) and its repair methods for trailer boat hulls	3	2

Manufacturing > Boating Industries > Boatbuilding

ID	Title	Level	Credit
11794	Install marine electrical and electronic systems and equipment	3	20
18159	Select, use and care for portable power tools used in boatbuilding	2	3

Service Sector > Maritime > Navigation and Seamanship

ID	Title	Level	Credit
20029	Demonstrate knowledge of navigation aids	3	5

Service Sector > Maritime > Sea Survival and Sea Safety

ID	Title	Level	Credit
6914	Control recreational craft by day in sight of land	3	4

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

ID	Title	Level	Credit
11963	Dispatch goods in a retail or distribution environment	2	4
11975	Pick and assemble goods for dispatch in a retail or distribution environment	2	3

Previous versions of the qualification

Version 2 was republished to include exemptions for unit standards 21667, 21707, 21858, 24077, and 24234.

This qualification and 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] 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].

Version 1 of this qualification was republished to include reverse transition arrangements for expired standards 6914 and 6915.

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 qualification the National Certificate in Motor Industry (Automotive Engineering) [Ref: 0019] was December 2009. The last date for assessment of the replaced qualification was 31 December 2016.

The last date for entry in to training programmes or courses for the remaining replaced qualifications is December 2016. The last date for assessment of the replaced qualifications is 31 December 2020.

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.

Version 1 of this qualification contains two expired 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 expired standards – see table below.

Credit for	Exempt from
26541	6914
26542	6915

Version 1 of this qualification contains standards that replace or are being used as substitutes for expiring 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 or substitute standards – see table below.

Credit for	Exempt from
226	21858
227	21670, 21671
228	21669, 21859
230	21682, 21685
232	21676, 21707
236	21686, 21717
237	21720, 21721
238	21722, 21869
241	21677, 21692
245	21680, 21716
382	327
385	12008
391	934
392	21673, 21708
876	23741, 23742
877	24092, 24093
887	24094
889, 5457	24654
896	24025, 24564
899	24105, 24106
904	24107, 24108
913	21685
914	23992
916	24458
921	24307, 24308

Credit for	Exempt from
923	24274, 24807
925	24275, 24306
926, 927	24309, 24311
926	24311
928	24276, 24277
930	24179
933	21678
935	24689
938	24408, 24409
941	23929, 23930
948	24410, 24411
950	24372, 24373
958	24690
962	24189
965	24269
973	24412
979	24116
2311	24429
2327	24403, 24404
2342	24319
2343	24321
2629	22799, 22800
2670	21907
3382	11963, 11975
3388	23943, 23944
3391	24269
3399	24127, 24128
3863	21869

Credit for	Exempt from
3864	21719
3879	21670, 21671
3880	21669, 21859
3883	21714, 21715
3884	21683
3885	21682, 21685
5464	24129, 24130, 24131, 24132
5469	22927
5739	21673, 21708
5754	21678
5755	23980
5757	24105
5767	23743
5771	23992
8184	23817, 23818
8185	24325
8187	24131, 24132
9074	24457, 24458
11738	21678
11777	15447
11745	12008
13039	18159
15375	24131
15376	24131
15379	24136, 24137
15404	24179, 24180
15409	24349, 24377
15414	23933, 23934

Credit for	Exempt from
15417	24328, 24329
15419	24330
15420	24689
15422	24690
15440	24807
15443	24285, 24286
15452	23935
15453	11794
15472	24405
15657	24564
16097	21700, 21718
16098	21858
16115	24138

Other standard setting bodies whose standards are included in the qualification

Competenz
 NZ Marine Industry Training Organisation
 NZQA
 ServiceIQ

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.

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	030503	Engineering and Related Technologies > Automotive Engineering and Technology > Vehicle Mechanics

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.

Review