

Field Engineering and Technology**Review of *Motor Industry* unit standards**

Subfield	Domain	ID
Motor Industry	Automotive Administration	5777, 15366, 21080, 21673, 22789, 23743
	Automotive Electrical and Electronics	233-235, 3877, 5742, 21667, 21675, 21676, 21707, 24092, 24093, 24105
	Automotive Fuel Systems and Exhaust	240, 11733, 21677, 21678, 24234
	Automotive Heating, Ventilation, and Air Conditioning	15373
	Automotive Plastic Repair	23741
	Automotive Preventive Maintenance	229, 15406, 21680, 21869
	Automotive Refinishing	5720, 5723, 5727, 23994, 24002, 24003, 24005-24008, 24010, 24011, 24013-24021, 24023, 24024
	Automotive Transmission Systems	239, 24307, 24336
	Automotive Workshop Engineering	5743, 21671, 21683, 21684, 21700, 21714, 21715, 21718, 23992, 24393
	Collision Repair	5738, 5744, 5758, 5762, 5766, 5772, 5773, 5776, 5782, 9076, 23977-23979, 23982, 23984, 23993, 23995, 23996
	Engines	231, 244, 19636, 21686-21688, 21717
	Motor Industry – Introductory Skills	3856, 21669, 21670
	Vehicle Bodywork	882, 945, 947, 5740, 5775, 19638, 21695, 21697-21699, 21701, 21702, 21704, 21705, 21709-21712, 22800, 22801, 23986, 23990, 23998, 24085
	Vehicle Braking Systems	242, 5466, 21689, 21720
Vehicle Steering and Suspension	21721, 24564	

MITO New Zealand Incorporated has completed the review of the unit standards listed above.

Date new versions published

April 2016

Planned review date

December 2021

Summary

As a result of work carried out by MITO on the Targeted Review of Qualifications unit standards from the Motor Industry subfield have been reviewed. These unit standards were updated using input from industry and provider representatives. It was decided to set a date for 5 years for a full review to take place.

Main changes

- Changes were made to the titles, outcome statements, evidence requirements, and range statements of the unit standards for clarity and to ensure alignment with relevant industry standards and regulations.
- Explanatory notes were updated to improve consistency and to make the outcomes and evidence requirements clearer and easier to read.
- Credits and levels were updated to better reflect the content of the unit standards.
- Unit standards 21667 and 21707 were replaced by unit standard 29371.
- Unit standard 24234 was replaced by unit standard 29372.
- Unit standard 24336 was replaced by unit standard 29373.
- Unit standard 21712 had duplicate content to unit standard 24008, some content from unit standard 21712 has been moved into unit standard 24008 and unit standard 21712 has been given a review category D.

The last date for assessment of superseded versions of these standards is 31 December 2018. Results will not be accepted where the assessment date is after the last date for assessment of the superseded version of the standard.

Category C unit standards will expire at the end of December 2018

Impact on existing consents to assess

Current consent for			Consent extended to		
Nature of consent	Classification or ID	Level	Nature of consent	Classification or ID	Level
Subfield	Motor Industry	1	Standard	21869	2
Subfield	Motor Industry	2	Standards	240, 3856, 21680, 21683, 21684, 21695, 21697, 21698, 21699, 21702, 21705, 21709, 21710, 29371	3
			Standard	21673, 21711	4
Subfield	Motor Industry	3	Standards	947, 5743, 21673, 21711, 22800, 23978, 24011	4
			Standards	22789, 23979	5
Subfield	Motor Industry	4	Standards	5776, 5777, 22789, 23979, 23995, 24013, 24017	5
Domain	Automotive Administration	2	Standard	21673	4
Domain	Automotive Administration	3	Standard	21673	4
			Standard	22789	5
Domain	Automotive Administration	4	Standard	5777, 22789	5
Domain	Automotive Electrical and Electronics	2	Standard	29371	3
Domain	Automotive Fuel Systems and Exhaust	2	Standard	240	3
Domain	Automotive Preventive Maintenance	1	Standard	21869	2
Domain	Automotive Preventive Maintenance	2	Standard	21680	3
Domain	Automotive Workshop Engineering	2	Standards	21683, 21684	3
Domain	Automotive Workshop Engineering	3	Standard	5743	4
Domain	Motor Industry - Introductory Skills	2	Standard	3856	3
Domain	Vehicle Bodywork	2	Standards	21695, 21697, 21698, 21699, 21702, 21705, 21709, 21710	3
			Standard	21711	4
Domain	Vehicle Bodywork	3	Standards	947, 21711, 22800	4
Standard	21667	2	Standard	29371	3
Standard	21707	2	Standard	29371	3
Standard	24234	2	Standard	29372	2

Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new ID
D	Standard will expire and not be replaced

Engineering and Technology > Motor Industry > Automotive Administration

ID	Title	Level	Credit	Review Category
5777	Demonstrate knowledge of estimate and quotation procedures in the motor and related industries	4 5	2 6	B
15366	Select automotive workshop products and services, and develop systems and procedures for their use	5	4	B
21080	Provide technical guidance in the motor and related industries	5	4	B
21673	Demonstrate knowledge of maintaining stock security in the motor and related industries	2 4	2	B
22789	Demonstrate knowledge of warranties and guarantees that apply to the motor or related industries Demonstrate knowledge of warranties and guarantees that apply to the motor and related industries	3 5	2 4	B
23743	Demonstrate knowledge of general legislation and regulations in the motor industry	3	2	B

Engineering and Technology > Motor Industry > Automotive Electrical and Electronics

ID	Title	Level	Credit	Review Category
233	Service an automotive battery Service a lead-acid automotive battery	2	2	B
234	Describe automotive starting and charging systems and their operation Demonstrate knowledge of automotive starting and charging systems and their operation	2	4	B
235	Describe automotive ignition systems and their operation Demonstrate knowledge of automotive ignition systems and their operation	2	4	B
3877	Demonstrate knowledge of protecting vehicle electronics in the motor industry	2	2	B

ID	Title	Level	Credit	Review Category
5742	Protect electronics when servicing or repairing a vehicle or machine in the motor industry	3	2	B
21667	Demonstrate knowledge of testing automotive electrical circuits	2	3	C
21707	Demonstrate knowledge of automotive electrical principles	2	6	C
29371	Demonstrate knowledge of automotive electrical principles and circuit testing	3	8	
21675	Demonstrate knowledge of automotive batteries	2	2	B
21676	Select test equipment and test an automotive electrical circuit	2	4	B
24092	Demonstrate knowledge of automotive lighting systems, and headlamp adjustment	3	2	B
24093	Rectify simple vehicle lighting faults, and adjust vehicle lamps	3	3	B
24105	Demonstrate knowledge of wiring and wiring diagrams used in automotive circuits	3	2	B

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

ID	Title	Level	Credit	Review Category
240	Demonstrate knowledge of petrol fuel systems	2 3	3	B
11733	Demonstrate knowledge of vehicle exhaust systems	3	4	B
21677	Demonstrate knowledge of a diesel fuel system	2	2	B
21678	Remove, repair, and/or replace a vehicle and/or machine exhaust system	3	2	B
24234	Perform minor servicing tasks on a petrol fuel system	2	2	C
29372	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	Review Category
15373	Demonstrate knowledge of automotive air conditioning	3	4	B

Engineering and Technology > Motor Industry > Automotive Plastic Repair

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

Engineering and Technology > Motor Industry > Automotive Preventive Maintenance

ID	Title	Level	Credit	Review Category
229	Identify the general locations and functions of motor vehicle systems and main components	2	4	B
15406	Carry out general service checks on light vehicles Carry out general service checks in the motor industry	3	2	B
21680	Demonstrate knowledge of automotive lubricants and sealants	2 3	2 3	B
21869	Remove and replace road wheels in the motor industry	1 2	1	B

Engineering and Technology > Motor Industry > Automotive Refinishing

ID	Title	Level	Credit	Review Category
5720	Paint vehicle panels in solid colour two pack enamel in the automotive refinishing industry Paint vehicle panels in solid colour two pack in the automotive refinishing industry	4	8	B
5723	Paint vehicle panels in basecoat and two pack clearcoat	4	8	B
5727	Check preparation and apply an anti-chip coating and/or texture finish to a vehicle	3	2	B
23994	Demonstrate knowledge of waterborne paint systems in the automotive refinishing industry	4	2	B
24002	Mask a repair for two pack painting in the automotive refinishing industry Mask an area for two pack painting in the automotive refinishing industry	3	3	B
24003	Identify and prepare vehicle body metal for top coats of paint	3	3	B
24005	Use primers, fillers, and sealers, and prepare paint for top coats in the automotive refinishing industry	3	12	B
24006	Demonstrate knowledge of paint scales and mixing machines, and colour matching in the automotive refinishing industry	4	4	B

ID	Title	Level	Credit	Review Category
24007	Prepare, mix and match colours to vehicles in the automotive refinishing industry	4	20	B
24008	Demonstrate knowledge of automotive spray guns, spraying and spray gun defects, and spray gun maintenance	3	2	B
24010	Demonstrate knowledge of workshop and paint drying equipment in the automotive refinishing industry Demonstrate knowledge of workshop and paint curing equipment in the automotive refinishing industry	3	3	B
24011	Use and maintain workshop and paint drying equipment in the automotive refinishing industry Use and maintain workshop and paint curing equipment in the automotive refinishing	3 4	8	B
24013	Identify and repair paint defects in the automotive refinishing industry	4 5	4	B
24014	Demonstrate knowledge of plastic automotive parts and painting automotive plastics	4	2	B
24015	Prepare and paint plastic automotive parts	4	4	B
24016	Demonstrate knowledge of touching up two pack solid and Clear-Over-Base (COB) finishes on a vehicle	4	3	B
24017	Touch up the paintwork on a vehicle using two pack solid and Clear-Over-Base (COB) colours	4 5	15	B
24018	Demonstrate knowledge of touching up pearl finishes Demonstrate knowledge of touching up pearl finishes on a vehicle	4	2	B
24019	Touch up the paintwork on a vehicle using three layer pearl finishes	4	7	B
24020	Demonstrate knowledge of adhesive stripes and graphics in the motor industry Demonstrate knowledge of adhesive graphics in the motor industry	3	1	B
24021	Prepare and apply adhesive stripes and graphics to a vehicle or machine Prepare and apply adhesive graphics to a vehicle or machine	3	3	B
24023	Demonstrate knowledge of methods of and precautions when removing paint from vehicle body panel surfaces	3	2	B
24024	Remove paint from vehicle panels	3	3	B

Engineering and Technology > Motor Industry > Automotive Transmission Systems

ID	Title	Level	Credit	Review Category
239	Demonstrate knowledge of automotive manual transmissions	2	2 3	B
24307	Demonstrate knowledge of driveline components on light vehicles Demonstrate knowledge of vehicle driveline components	3	2	B
24336	Demonstrate knowledge of light vehicle automatic transmissions and their servicing requirements	3	2	C
29373	Demonstrate knowledge of automotive automatic transmissions	3	2	

Engineering and Technology > Motor Industry > Automotive Workshop Engineering

ID	Title	Level	Credit	Review Category
5743	Demonstrate knowledge of metals used on vehicles, and identify the effect of applying heat to metals Demonstrate knowledge of metals used on vehicles, and the effect of applying heat to metals	3 4	4 6	B
21671	Carry out general engineering tasks in the motor industry	2	4	B
21683	Demonstrate knowledge of MIG welding in the motor industry	2 3	2	B
21684	Use a MIG welding plant in the motor industry	2 3	3	B
21700	Store and use hazardous materials in the motor and related industries	2	2	B
21714	Demonstrate knowledge of fastening systems used in the motor industry	2	2	B
21715	Select and use fastening systems in the motor industry	2	2	B
21718	Demonstrate knowledge of hazardous materials used in the motor and related industries Demonstrate knowledge of hazardous materials used in the motor industry	2	2	B
23992	Use and maintain a gas metal arc welding (GMAW) plant in the motor and related industries Use a gas metal arc welding (GMAW) plant in the motor and related industries	3	5 3	B
24393	Heat metal automotive components to aid disassembly and assembly in the motor and related industries	2	2	B

Engineering and Technology > Motor Industry > Collision Repair

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

ID	Title	Level	Credit	Review Category
23977	Use and maintain a hydraulic jack and attachments in the motor industry	3	2 1	B

Engineering and Technology > Motor Industry > Collision Repair

ID	Title	Level	Credit	Review Category
5738	Cut metals to predetermined specifications on and off a vehicle	2	2	B
5744	Demonstrate knowledge of vehicle body construction, and the effect of impact on vehicles	3	4	B
5758	Repair a severely damaged motor vehicle steel panel	4	6	B
5762	Remove and replace a damaged motor vehicle panel attached by adhesives	4	8	B
5766	Demonstrate knowledge of motor vehicle safety systems and working on damaged systems	3	4	B
5772	Demonstrate knowledge of motor vehicle suspension, steering, and brake systems, and the effects of collision	4	6 4	B
5773	Identify and align structural damage on a motor vehicle	4	15	B
5776	Complete repairs of perforated metal corrosion on a motor vehicle structural steel panel	4 5	6	B
5782	Identify and align aluminium structural damage on a motor vehicle	5	10	B
9076	Repair vehicle chassis damage	4	10	B
23978	Demonstrate knowledge of chassis alignment system equipment, measuring systems, and structural damage on a vehicle	3 4	4	B
23979	Use vehicle unibody chassis alignment equipment and measuring systems under supervision Use vehicle unibody chassis alignment equipment and measuring systems	3 5	6	B
23982	Inspect and identify vehicle damage	4	4	B
23984	Remove, repair, and replace damaged motor vehicle plastic bumpers	3	4	B
23993	Demonstrate knowledge of full and sectional panel replacement on motor vehicles	4	2	B
23995	Carry out a full and sectional panel replacement on motor vehicle panels	4 5	20	B
23996	Demonstrate knowledge of repairing and replacing damaged non-structural motor vehicle aluminium panels	4	2	B

Engineering and Technology > Motor Industry > Engines

ID	Title	Level	Credit	Review Category
231	Explain the operation of two and four stroke petrol and diesel engines Demonstrate knowledge of the operation of two and four stroke petrol and diesel engines	2	4	B
244	Disassemble and reassemble a four cylinder four stroke engine to a running state Disassemble and reassemble a four stroke multi-cylinder engine to a running state	2	6	B
19636	Remove and install vehicle engine exterior components	3	2	B
21686	Demonstrate knowledge of automotive cooling systems	2	2	B
21687	Demonstrate knowledge of basic tuning on a four stroke petrol engine	2	3	B
21688	Demonstrate knowledge of disassembling and reassembling a four stroke multi-cylinder engine	2	3	B
21717	Service automotive cooling systems	2	3	B

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

ID	Title	Level	Credit	Review Category
3856	Identify emergency procedures in the motor and related industries	2 3	2	B
21669	Demonstrate knowledge of hand tools and workshop equipment for motor industry applications	2	2	B
21670	Demonstrate knowledge of general engineering tasks in the motor industry	2	3	B

Engineering and Technology > Motor Industry > Vehicle Bodywork

ID	Title	Level	Credit	Review Category
882	Rectify faults associated with a motor vehicle body	3	3	B
945	Remove and replace fixed and movable automotive glass	3	8	B
947	Demonstrate knowledge of vehicle bodywork construction materials and methods	3 4	8	B
5740	Demonstrate knowledge of vehicle identification plates and specifications	2	1	B
5775	Remove and replace motor vehicle supplementary restraint systems	4	6	B
19638	Prepare and assemble vehicle body steel components by bonding	4	6	B

ID	Title	Level	Credit	Review Category
21695	Repair minor panel damage, shrink, and metal finish a repair in the motor body industry Repair minor panel damage, shrink, and metal finish a repair in the collision repair industry	2 3	3	B
21697	Demonstrate knowledge of repairing minor panel damage and shrinking a repair in the motor industry Demonstrate knowledge of repairing minor panel damage and shrinking a repair in the collision repair industry	2 3	2	B
21698	Remove and replace exterior and interior motor body parts and trim in the motor industry	2 3	3	B
21699	Prepare a painted surface and prepare bare metal for painting in the motor body industry	2 3	3	B
21701	Demonstrate knowledge of exterior and interior motor body parts and trim in the motor industry	2	2	B
21702	Demonstrate knowledge of preparing a vehicle body surface for painting, and preparing bare metal	2 3	2	B
21704	Demonstrate knowledge of removing and replacing damaged bolted-on motor body panels	2	2	B
21705	Demonstrate knowledge filling and sanding a repair in the motor body industry Demonstrate knowledge filling and sanding a repair in the motor industry	2 3	2	B
21709	Remove and replace damaged bolted-on motor body panels in the motor body industry Remove and replace damaged bolted-on motor body panels in the motor industry	2 3	2	B
21710	Fill and sand a repair in the motor body industry Fill and sand a repair in the motor industry	2 3	1	B
21711	Demonstrate knowledge of colours and finish coats in the motor body industry Demonstrate knowledge of colours and finish coats in the motor industry	2 4	2 4	B
21712	Demonstrate knowledge of spray guns used in the motor body industry	2	2	D
22800	Describe safe working precautions on vehicles equipped with air bags and seatbelt pre-tensioners Describe safe working practices and precautions on vehicles equipped with air bags and seatbelt pre-tensioners	3 4	2	B

ID	Title	Level	Credit	Review Category
22801	Demonstrate knowledge of adhesives and sealants used in the motor body industry Demonstrate knowledge of adhesives and sealants used in the motor industry	3	4 3	B
23986	Demonstrate knowledge of glass reinforced plastic (GRP) and working with GRP repair kits for motor vehicles	3	2	B
23990	Demonstrate knowledge of motor vehicle fuel tanks, and repairing and replacing fuel tanks Demonstrate knowledge of motor vehicle fuel tanks and replacing fuel tanks	3	2	B
23998	Demonstrate knowledge of vehicle body corrosion and anti-corrosion procedures in the motor and related industries Demonstrate knowledge of vehicle body corrosion and anti-corrosion procedures in the motor industry	3	4	B
24085	Demonstrate knowledge of automotive glass	3	2	B

Engineering and Technology > Motor Industry > Vehicle Braking Systems

ID	Title	Level	Credit	Review Category
242	Change the fluid and bleed a brake hydraulic system	2	2	B
5466	Remove and replace light vehicle brake pads and shoes	3	2	B
21689	Demonstrate knowledge of hydraulic brake fluid, fluid replacement, and brake bleeding procedures	2	2	B
21720	Demonstrate knowledge of vehicle braking systems Demonstrate knowledge of motorcycle, car, light and heavy commercial vehicle braking systems	2	2 3	B

Engineering and Technology > Motor Industry > Vehicle Steering and Suspension

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