

FIELD ENGINEERING AND TECHNOLOGY**Review of *Automotive Transmission Systems* unit standards**

Subfield	Domain	Id
Motor Industry	Automotive Transmission Systems	918, 919, 921, 926, 927, 935, 939, 957-959, 2316, 2318-2321, 2331-2333, 2336, 2342, 2343, 3380, 3385, 5441, 8185, 8186, 15415-15424

The NZ Motor Industry Training Organisation (Inc) (MITO) has completed the review of the unit standards listed above.

Date new versions published

February 2008

Planned review date

December 2012

Summary of review and consultation process

This review is part of a major review of the Motor Industry and Outdoor Fabric Product qualifications (QReview) being conducted by MITO. The QReview Steering Group endorsed these standards after major consultation was carried out covering a wide range of stakeholders through focus group meetings and followed by industry wide consultation. These standards will form part of the new qualifications for Vehicle Servicing, Automotive Electrical and Mechanical, Automotive Heavy Engineering, Automotive Specialist Engineering, and Automotive Body.

Main changes resulting from the review

- Credits increased from 6 to 8 in standard 8186; and decreased from 8 to 4 in standard 3385, and from 8 to 5 in standard 15416; to more accurately reflect the learning requirements.
- The level increased from 3 to 4 in standard 919.
- Standards 921, 2342, 2343, 5441, 8185, and 15417 were replaced by new standards that separate theory knowledge from practical outcomes.
- Standards 926 and 927 were collectively replaced by 24309-24313 to separate theory knowledge from practical outcomes and to split the different requirements of motorcycle and all-terrain vehicle transmissions.
- Standards 935 and 15420 were replaced by standard 24689 to remove duplication.
- Standards 958, 15421, and 15422 were collectively replaced by standards 24314 and 24690 to remove existing overlaps and for a more logical separation of skills.
- Standards 957 and 959 were each split and replaced by two new standards 24315 and 24316, and 24317 and 24318 respectively to separate diagnosis from overhauling.

- Standard 15419 was replaced by standard 24330, as there were significant changes to the content.
- Changes were made throughout the standards to titles, special notes, elements, performance criteria, and range statements to update terminology, and reflect changes in technology and legislative requirements.
- Standard 15423 was designated expiring and will not be replaced as it no longer meet industry needs.
- Seven new standards, 24331-24337, were developed to reflect new technology and fill gaps in the existing framework of standards.

Unit standards categorised as category C or D expire at the end of December 2011.

Impact on existing provider accreditations

Current Accreditation for			Accreditation extended to		
Nature of accreditation	Classification or Id	Level	Nature of accreditation	Classification or Id	Level
Subfield	Motor Industry	3	Standards	919, 24310, 24313, 24314	4
Domain	Automotive Transmission Systems	3	Standards	919, 24310, 24313, 24314	4
Standard	921	3	Standards	24307, 24308	3
Standard	926	3	Standards	24309, 24311, 24312	3
				24310, 24313	4
Standard	935	3	Standards	24689	3
Standard	957	4	Standards	24315, 24316	4
Standard	958	3	Standards	24690	3
				24314	4
Standard	959	4	Standards	24317, 24318	4
Standard	2342	4	Standards	24319	3
				24320	4
Standard	8185	4	Standards	24325	3
				24326, 24327	4

Impact on Accreditation and Moderation Action Plan (AMAP)

AMAP 0014 was updated to reflect the changes made to the standards.

Impact on existing qualifications

Qualifications that contain the reviewed standards or classifications are tabled below.

Affected	The qualification lists a reviewed classification (domain or subfield) in an elective set The qualification lists a standard that has changes to level or credits The qualification lists a C or D category standard
Not materially affected	The qualification lists a standard that has a new title The qualification lists a standard that has a new classification

The following MITO qualifications are impacted by the outcome of this review, with the items that generated the affected status in **bold**. These qualifications will be updated as part of the current QReview.

Qualification title	Classification or standard in the qualification
National Certificate in Motor Industry (Automotive Engineering) [Ref: 0019]	918, 919 , 921 , 935
National Certificate in Motor Industry (Automotive Heavy Engineering) with strands in Agricultural Equipment, Plant and Equipment, and Road Transport [Ref: 0003]	2316, 2318-2320, 2331-2333, 2336, 2342 , 2343 , 3385 , 5441 , 15418, 15424
National Certificate in Motor Industry (Automotive Servicing) [Ref: 0138]	935
National Certificate in Motor Industry (Automotive Steering, Suspension, and Alignment) with an optional strand in Heavy Commercial Vehicles [Ref: 0246]	918, 921 , 2316
National Certificate in Motor Industry (Brake Service Engineering) [Ref: 0096]	2331, 3380, 15418
National Certificate in Motor Industry (Motorcycle Engineering) [Ref: 0015]	926 , 927 , 939
National Certificate in Motor Industry (Outdoor Power Equipment Servicing) [Ref: 0697]	2342 , 15416

Review Categories and changes to 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

Subfield Motor Industry
Domain Automotive Transmission Systems

Id	Title	Level	Credit	Review Category
918	Describe the operation of final drive assemblies on cars and light commercial vehicles Demonstrate knowledge of light vehicle final drive assembly operation	3	4	B
919	Describe the operation of an automatic transmission used on cars and light commercial vehicles Demonstrate knowledge of light vehicle automatic transmission components and fault diagnosis procedures	3 4	8	B
921	Describe driveline components and rectify driveline faults on cars or light commercial vehicles	3	4	C
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	

Id	Title	Level	Credit	Review Category
926	Demonstrate knowledge of and rectify faults in a motorcycle clutch	3	3	C
927	Demonstrate knowledge of, test, and overhaul a motorcycle transmission	3	5	C
24309	Demonstrate knowledge of motorcycle clutches and transmissions	3	2	
24310	Diagnose faults and overhaul a motorcycle transmission	4	6	
24311	Rectify faults in a motorcycle clutch	3	2	
24312	Demonstrate knowledge of clutches and transmissions used on all-terrain vehicles (ATVs)	3	2	
24313	Diagnose faults and overhaul all-terrain vehicle (ATV) transmissions, sub-transmissions, and shaft drives	4	10	
935	Service an automatic transmission or transaxle assembly	3	2	C
15420	Carry out routine maintenance on automotive automatic transmissions	3	6	C
24689	Carry out routine maintenance on automotive automatic transmissions	3	4	
939	Diagnose and rectify motorcycle final drive faults Carry out diagnosis, servicing, and fault rectification in motorcycle or all-terrain vehicle (ATV) final drives	3	5	B
957	Diagnose and rectify faults in final drive assemblies on cars or light commercial vehicles	4	4	C
24315	Diagnose faults in final drive assemblies on light vehicles	4	2	
24316	Prepare and overhaul a final drive assembly from a light vehicle	4	6	
958	Diagnose and rectify faults in automatic transmissions on cars or light commercial vehicles	4	8	C
15421	Test and diagnose faults in automotive automatic transmissions	4	8	C
15422	Remove and replace an automatic transmission from and in a car or light commercial vehicle	3	2	C
24314	Diagnose faults in automatic transmissions on light vehicles	4	3	
24690	Remove and replace an automatic transmission from and in a light vehicle	3	2	
959	Test and overhaul manual transmissions on cars or light commercial vehicles	4	6	C
24317	Diagnose faults in manual transmissions on light vehicles	4	2	
24318	Overhaul a manual transmission on a light vehicle	4	4	

Id	Title	Level	Credit	Review Category
2316	Demonstrate knowledge of heavy vehicle and machine driveline and assembly operation and terminology Demonstrate knowledge of heavy vehicle and machine driveline and drive assembly operation and terminology	3	3	B
2318	Describe the construction and operation of heavy vehicle and equipment manual transmissions Demonstrate knowledge of the construction and operation of heavy vehicle and equipment manual transmissions	3	4	B
2319	Describe the principles and operation of heavy vehicle and equipment automatic transmissions Demonstrate knowledge of heavy vehicle and equipment automatic transmission operation	3	5	B
2320	Repair heavy vehicle or equipment manual transmissions Diagnose and rectify heavy vehicle or equipment manual transmission faults	4	6	B
2321	Diagnose and rectify faults in heavy vehicle or equipment automatic or power shift transmissions	4	8	B
2331	Diagnose and rectify faults in heavy vehicle and/or equipment clutches Diagnose and rectify faults in heavy vehicle or equipment clutches	4	4	B
2332	Diagnose and rectify differential assembly faults on heavy vehicles and/or equipment Diagnose and rectify differential assembly faults on heavy vehicles or equipment	4	6	B
2333	Diagnose and rectify driveline faults on heavy vehicles and/or equipment Diagnose and rectify driveline faults on heavy vehicles or equipment	4	3	B
2336	Diagnose and repair heavy vehicle and/or equipment transmission fluid coupling faults Diagnose and rectify heavy vehicle or equipment transmission fluid coupling faults	3	3	B
2342	Demonstrate knowledge of hydraulic transmission drives on plant and machinery, and repair them	4	5	C
24319	Demonstrate knowledge of hydrostatic transmission drives, and testing and diagnosing faults, on plant or machinery	3	2	
24320	Diagnose and rectify faults in hydraulic transmission drives on plant or machinery	4	5	

Id	Title	Level	Credit	Review Category
2343	Demonstrate knowledge of belt and chain drive systems on heavy equipment, and repair them	4	2	C
24321	Demonstrate knowledge of belt and chain drive systems on plant and machinery	3	2	
24322	Rectify belt and chain drive system faults on plant or machinery	4	3	
3380	Overhaul car and light commercial vehicle clutch cover assemblies Overhaul light vehicle clutch cover assemblies and repair and/or replace associated components	3	2	B
3385	Describe the construction and operation of heavy machinery transmissions Demonstrate knowledge of heavy machine manual and power shift transmissions	3	8 4	B
5441	Describe, diagnose, and rectify faults in tractor and agricultural machine final drive assemblies	4	6	C
24323	Demonstrate knowledge of tractor and agricultural machine final drive assemblies	4	4	
24324	Diagnose and rectify faults in tractor or agricultural machine final drive assemblies	4	4	
8185	Describe four wheel drive (4WD) systems, and diagnose and rectify free-wheeling hub faults	4	4	C
24325	Demonstrate knowledge of four-wheel drive (4WD) and all-wheel drive (AWD) systems used on light vehicles	3	3	
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	
8186	Overhaul an automatic transmission or transaxle assembly from a car or light commercial vehicle Dismantle and inspect, overhaul, and reassemble an automatic transmission or transaxle assembly from a light vehicle	4	6 8	B
15415	Demonstrate knowledge of manual drive systems used on outdoor powered equipment	3	4	B
15416	Test, diagnose, and rectify faults in manual drive systems used on outdoor powered equipment Diagnose and rectify faults in manual drive systems used on outdoor powered equipment	4	8 5	B
15417	Describe driveline components, and check and rectify driveline faults on outdoor powered equipment	3	4	C
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	

Id	Title	Level	Credit	Review Category
15418	Describe the operation and servicing requirements of heavy vehicle and equipment clutches Demonstrate knowledge of the operation and servicing requirements for heavy vehicle and equipment clutches	3	4	B
15419	Demonstrate knowledge of, and recondition an automotive continuously variable transmission (CVT)	4	8	C
24330	Demonstrate knowledge of automotive continuously variable transmission (CVT) operation and repair procedures	3	4	
15423	Recondition a torque converter from a car and/or light commercial vehicle	4	8	D
15424	Identify faults and repair heavy vehicle or equipment hydraulic driveline retarders	4	3	B
24331	Diagnose and rectify faults in heavy vehicle or equipment hydraulic driveline retarders			
24331	Remove and replace heavy vehicle or equipment transmissions and clutches	3	3	New
24332	Diagnose and rectify oil leaks on transmission and driveline components on light vehicles	3	2	New
24333	Diagnose and rectify faults in an all-terrain vehicle (ATV) clutch	4	4	New
24334	Diagnose and rectify faults on the electronic auto-shift on a heavy vehicle manual transmission	4	4	New
24335	Diagnose and rectify faults in forklift automatic transmissions	4	5	New
24336	Demonstrate knowledge of light vehicle automatic transmissions and their servicing requirements	3	2	New
24337	Demonstrate knowledge of automated manual transmissions (AMTs) and AMT shift control operation	3	1	New