No. 297 **20 March 2009**

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with Regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Vehicle Maintenance

registered by Organising Field 06 – Manufacturing, Engineering & Technology, publishes the following Qualification and Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification and Unit Standards. The full Qualification and Unit Standards can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification and Unit Standards should reach SAQA at the address below and ***no later than 20 April 2009.*** All correspondence should be marked **Standards Setting** – SGB for **Vehicle Maintenance** and addressed to

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D. MPHUTHING
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Automotive Manufacturing and Assembly

SAQA QUAL ID	*QUALIFICATION TITLE*		
65809	National Certificate: Automotive Manufacturing and Assembly		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
National Certificate	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	135	Level 2	Regular-Unit Stds Based

This qualification does not replace any other qualification and is not replaced by another qualification.

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

The purpose of the qualification is to provide learners, training providers and employers with the standards and the range of learning required to work effectively in the automotive manufacturing environment and manufacture vehicles to the international standards required by purchasers of new vehicles.

The primary skill that is recognised in this qualification is the ability to apply the theory behind automotive manufacturing to achieve a flexible operator in the motor industry who is able to work as part of a team to assemble a new vehicle on a production line.

This qualification has been designed to accommodate learners from various areas of vehicle manufacturing and to include skills relevant to different automotive manufacturers. This qualification has a generic core section and provides an avenue for learners to specialise in one of the following 4 specialisation areas:

> Body Construction.
> Paint Operations.
> Vehicle Assembly.
> Engine Machining.

Training and assessment will be contextualised to the specialisation area of the learner, and the learner will be required to prove competence in the specialisation area enrolled in. Additional skills required in Logistics, Administration, Quality Assurance and Technical Non-Production areas are not included in this qualification, but these skills could be covered through generic qualifications and/or unit standards that are already in existence.

This qualification is the foundational qualification for a vehicle manufacturer and learners will be able to build on this qualification to achieve higher levels of vehicle manufacturing in the specialisation area selected.

After achieving this qualification learners will be able to:

> Demonstrate understanding of how a vehicle is assembled.
> Communicate with peers and supervisors in an automotive manufacturing context.
> Use and maintain automotive workshop tools and equipment.
> Add value to the production of a motor vehicle in a specialised area.

Rationale:

The Automotive Manufacturing Industry Certificate (AMIC) has been the benchmark for vehicle manufacturers in South Africa for many years, but this certificate has not been aligned to unit standards. This has meant that learners who have gone through the learning process have achieved valuable skills, but have not received any form of recognition for these skills. Various interventions have been entered into over the years to try and align the AMIC programme with SAQA unit standards and qualifications, but it was found that the AMIC programme was more complex than a SAQA qualification and covered various unrelated areas. This difficulty has been addressed by focusing achievement of this qualification on the essential elements of vehicle manufacturing and allowing manufacturers to choose additional existing courses for their learners in more generic areas such as logistics, administration, quality assurance and technical non-production. This means that a qualification can now be developed to give recognition for all people who work in a vehicle manufacturing plant in any of the areas identified as a specialisation for this qualification.

This qualification recognises the skills, knowledge and values relevant in the workplace and will cater for learners who:

> Have attended courses and need to apply the knowledge gained to activities in the workplace.
> Are already workers and have acquired skills and knowledge without having attended formal training.
> Are part of a learnership programme which integrates structured learning and operational experience.

This is the first qualification that provides recognition for vehicle manufacturers who work as part of the vehicle production line, and candidates may continue learning to a higher level within the selected specialisation area. People who have achieved the skills and knowledge outlined in this qualification are normally employed in one of the following areas in vehicle manufacturing:

> Body Construction.
> Paint Operations.
> Vehicle Assembly.
> Engine Machining.

It also provides learners who have gained relevant experience in the workplace with an opportunity to obtain credits through an RPL process.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
Learners registering for this qualification should already have achieved a General Education and Training Certificate at NQF Level 1or equivalent.

If the learner does not already have such a qualification, learning in preparation for this qualification should include:

> Literacy and communication at NQF Level 1.
> Mathematical Literacy at NQF Level 1.

Recognition of Prior Learning:

The structure of this qualification makes the Recognition of Prior Learning possible if the learner is able to demonstrate competence in the knowledge, skills, values and attitudes implicit in this Qualification. Recognition of Prior Learning will be done by means of an Integrated Assessment as mentioned in the previous paragraph.

This Recognition of Prior Learning may allow:

> For accelerated access to further learning.
> Gaining of credits towards any of the Exit Level Outcomes or unit standards in this qualification.

All recognition of Prior Learning is subject to quality assurance by the relevant accredited Education and Training Quality Assurance Body (ETQA) and must be conducted by a registered workplace assessor. Identified outcomes may have been acquired in a range of economic sectors and these will be considered as appropriate where the candidate provides evidence of the applicability of that learning to this qualification.

Access to the Qualification:

This qualification is open for anyone who wishes to pursue a career in vehicle manufacturing, but prior achievement of the "Learning Assumed to be in Place" would facilitate an easier progression into learning programmes to address the outcomes of this qualification.

QUALIFICATION RULES
The core unit standards identified are applicable across the entire range of specialisation areas applicable to this qualification. Specific unit standards that are required for certain specialisation areas have been identified and listed below. Rules of combination for this qualification are as follows:

> All Fundamental unit standards are compulsory (36 Credits).
> All Core unit standards are compulsory (73 Credits).
> Learners specialising in Body Construction are required to select a minimum of 26 credits from the following list of elective unit standards:
> ID 119753: Perform basic welding/joining of metals; NQF Level 2; 8 Credits.
> ID 262709: Fit and remove doors and panels to a body shell; NQF Level 2; 6 Credits.
> ID 260158: Apply sealers and cavity fillers on vehicles; NQF Level 2; 4 Credits.
> ID 15123: Select and use vehicle lifting equipment; NQF Level 2; NQF Level 3 Credits.
> ID 262711: Prepare metal panels for finishing; NQF Level 3; 12 Credits.
> ID 12481: Sling loads; NQF Level 2; 4 Credits.
> ID 262714: Test welded joints; NQF Level 3; 6 Credits.

Total = 43.

> Learners specialising in Paint Operations are required to select a minimum of 26 credits from the following list of available unit standards:
> ID 260158: Apply sealers and cavity fillers on vehicles; NQF Level 2; 4 Credits.
> ID 260159: Polish automotive painted panels; NQF Level 2; 6 Credits.
> ID 119740: Identify the various types of paint, primers, material and their uses; NQF Level 2; 4 Credits.
> ID 119734: Perform surface preparation on a body panel; NQF Level 2; 8 Credits.
> ID 119742: Perform masking and de-masking on a vehicle; NQF Level 2; 8 Credits.
> ID 119737: Perform basic spray painting; NQF Level 2; 10 Credits.
> ID 260160: Maintain spray painting equipment; NQF Level 2; 4 Credits.

> ID 262733: Remove and fit automobile components; NQF Level 2; 12 Credits.
> ID 244110: Conduct paintless dent removal; NQF Level 3; 9 Credits.

Total = 65 Credits.

> Learners specialising in Vehicle Assembly are required to select a minimum of 26 credits from the following list of available unit standards:
> ID 253440: Assemble mechanical components; NQF Level 2; 12 Credits.
> ID 9877: Assemble components; NQF Level 2; 12 Credits.
> ID 262733: Remove and fit automobile components; NQF Level 2; 12 Credits.
> ID 12211: Build basic auto electrical circuits; NQF Level 2; 16 Credits.
> ID 15123: Select and use vehicle lifting equipment; NQF Level 2; NQF Level 3 Credits.
> ID 244056: Understand the fundamentals of engine technology; NQF Level 3; 4 Credits.
> ID 260158: Apply sealers and cavity fillers on vehicles; NQF Level 2; 4 Credits.
> ID 244686: Demonstrate understanding of the principles of fluid power; NQF Level 2; 6 Credits.
> ID 13219: Maintain static seals in machines and/or equipment; NQF Level 2; 4 Credits.
> ID 262716: Operate fluid filling machines; NQF Level 2 Credits.
> ID 262725: Test vehicle for compliance to manufacturer specifications; NQF Level 3; 4 Credits.

Total = 79 Credits.

> Learners specialising in Engine Machining are required to select a minimum of 26 credits from the following list of available unit standards:
> ID 243014: Operate and monitor computerised numerically controlled (CNC) machining equipment; NQF Level 2; 16 Credits.
> ID 244056: Understand the fundamentals of engine technology; NQF Level 3; 4 Credits.
> ID 13219: Maintain static seals in machines and/or equipment; NQF Level 2; 4 Credits.
> ID 12219: Select, use and care for engineering power tools; NQF Level 2; 6 Credits.
> ID 9878: Complete post-production and finishing operations; NQF Level 2; 12 Credits.
> ID 244338: Operate a production process; NQF Level 2; 15 Credits.

Total = 57 Credits.

EXIT LEVEL OUTCOMES

1. Demonstrate understanding of how a vehicle is manufactured.

2. Communicate with peers and supervisors in an automotive manufacturing context.

3. Use and maintain automotive workshop tools and equipment.

4. Add value to the production of a motor vehicle in a specialised area.

Critical Cross-Field Outcomes:

This qualification addresses the following critical cross-field outcomes, as detailed in the unit standards:

Identify and solve problems and make decisions using critical and creative thinking.

Note:

> The ability of the candidate to identify the type of production line alterations required.

Work effectively with others as a member of a team, group, organisation or community.

Note:

> The ability of the candidate to communicate with peers and supervisors.

Organise and manage themselves and their activities responsibly and effectively.

Note:

> The ability of the candidate to adhere to workplace timeframes and procedures.

Collect, analyse, organise and critically evaluate information.

Note:

> The ability of the candidate to identify potential production problems and act appropriately.

Communicate effectively, using visual, mathematical and/or language skills in the modes of oral and/or written presentations.

Note:

> The ability of the candidate to report on work conducted.

Use science and technology effectively and critically, showing responsibility towards the environment and health of others.

Note:

> The ability of the candidate to use the correct tools and equipment to carry specific work functions.

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

Note:

> The ability of the candidate to support the entire production process.

ASSOCIATED ASSESSMENT CRITERIA
Associated Assessment Criteria for Exit Level Outcome 1:

1.1 The process of manufacture is described for the entire vehicle in accordance with specific manufacturer processes.
1.2 The operation of a production line is described in terms of the process of completing specific functions.
1.3 Differences in vehicles that can be incorporated on the same production line are identified and explained in terms of system changes required.
1.4 The benefits of working on a production line are contrasted to manufacturing vehicles one-by-one.
1.5 The importance of ensuring adequate supply of raw materials for production is described in terms of the consequences to production if resources are depleted.
1.6 The process for checking quality of workmanship is described in accordance with manufacturer specifications.

Associated Assessment Criteria for Exit Level Outcome 2:

2.1 Oral communication is maintained and adapted as required to promote effective interaction in the work context.
2.2 Terminology used is appropriate to the situation and in accordance with normal workplace usage.
2.3 Information related to work tasks is accessed and interpreted from a range of written and oral sources to ensure that work requirements are understood.
2.4 Communication is clear and unambiguous and at an appropriate level for designated target audiences.
2.5 Information communicated is accurate and conveyed in accordance with acceptable timeframes.
2.6 Communication is effective, regular and ongoing.

Associated Assessment Criteria for Exit Level Outcome 3:

3.1 Tools and equipment are selected and used in accordance with their design and are appropriate for the task at hand.
3.2 Tools and equipment required for the scope of work are sourced from available supplies.
3.3 Tools and equipment are checked for condition prior to use.
3.4 Faulty tools are identified and corrective action is taken in accordance with workplace procedures.
Range:
> Corrective action includes replacing, repairing or reporting.
3.5 Tools and equipment are used according to manufacturer operating guidelines.

Associated Assessment Criteria for Exit Level Outcome 4:

4.1 The functions performed within a specialised area are described in accordance with manufacturer operating requirements.
4.2 Specific functions are performed in accordance with workplace requirements.
4.3 Consequences of not completing specific functions to acceptable quality and within agreed timeframes are explained in terms of the impact on the production line.
4.4 Tools, equipment and machinery are used according to manufacturer operating guidelines.
4.5 Potential problems in production are recognised and responded to in a manner that ensures optimal production.
4.6 Minor adjustments to production systems are made according to workplace and manufacturer requirements.
4.7 Work is conducted with due consideration for other team members and overall productivity.
4.8 Work conducted is reported on in accordance with workplace procedures.

Integrated Assessment:

Because assessment practices must be open, transparent, fair, valid, and reliable and ensure that no learner is disadvantaged in any way whatsoever, an integrated assessment approach is incorporated into the Qualification. Learning, teaching and assessment are inextricably linked. Whenever possible, the assessment of knowledge, skills, attitudes and values shown in the exit level outcomes should be integrated.

A variety of methods must be used in assessment tools and activities must be appropriate to the context in which the learner is working. Where it is not possible to assess the learner in the workplace or on-the-job, simulations, case studies, role-plays and other similar techniques should be used to provide a context appropriate to the assessment.

The term 'Integrated Assessment' implies that theoretical and practical components should be assessed together. During integrated assessments the assessor should make use of formative and summative assessment methods and assess combinations of practical, applied, foundational and reflective competencies. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Assessment should ensure that all outcomes, embedded knowledge and critical cross-field outcomes are assessed. The assessment of the critical cross-field outcomes should be integrated with the assessment of specific outcomes and embedded knowledge.

INTERNATIONAL COMPARABILITY

This qualification has been designed to specifically cater for the unique needs of the South African vehicle manufacturers and is at a level below that which most other countries provide training at. The countries looked at for international comparability include Japan, Germany, Thailand, England, Spain, Mexico, Turkey, United States of America and Brazil.

South Africa has adopted a much more labour intensive approach to manufacturing vehicles in order to provide jobs and meet economic requirements. Each of the above countries use skilled artisans to manufacture vehicles, and focus on advanced technology and robotics more than the South African manufacturers. These countries also only employ qualified people in the manufacturing plant, whereas South Africa employs unskilled labour that can be trained to this qualification in a manner that integrates learning and work. Where additional training is required in the other countries, training is conducted off the production line, whereas the training in South Africa is conducted in the plant.

Elements of the Institute of Motor Industry (IMI) in the UK have been used in benchmarking best practice procedures in some of the unit standards used in this qualification. The NVQ qualifications offered in the UK cover all the same objectives of this qualification but at a higher level of complexity. The qualifications are offered as an internship wherein the learner enrols with a college or training centre for the theoretical component, and achieves the practical component in-house. The qualifications are all based on specific levels of performance, and lead to progressive levels of complexity, but are identified as separate qualifications. The learning towards these qualifications is offered through long-term learner-employer relationships, with short-term stints at a training centre. Qualification titles in the UK include:

> Vehicle Mechanical and Electronic Systems, Maintenance and Repair: Level 3: (Q1015916).
> Vehicle Refinishing: Level 3: (Q1017590).
> Vehicle Body Fitting: Level 2: (Q1015913).
> Vehicle Mechanical and Electronic Systems, unit Replacement: Level 2: (Q1015914).

The qualifications offered in Germany are also vocational qualifications with theoretical components being achieved through a specified period at a training centre. The qualifications are aimed at achieving complete competence in all aspects of vehicle manufacturing through a progressive series of qualifications and includes mechanical, electrical and coach works. The training programmes are progressive qualifications of one-year duration each and include ongoing training through workbooks in which the trainee is required to complete evidence of understanding for each month of the registered year of learning. Germany has a requirement that competent people be licensed to operate under the meister (master craftsman) programme, and this licence is valid for a period of two years. The qualification titles offered in Germany include:

> Auto Fachman: Level 1.
> Auto Fachman: Level 2.
> Auto Fachman: Level 3.
> Auto Fachman: Meister.

America uses a system of specialisation areas, with a master technician being identified as a person who is competent in all areas and will be able to assemble any part of a vehicle. The learning is conducted through apprenticeships and has specialisation areas for engine technicians, transmission technicians, steering and suspension technicians, brake technicians, electrical system technicians, heating and air-conditioning technicians, driveability and performance technicians and lubrication technicians.

Other African countries do not have full manufacturing plants, but import semi knocked down units that are then assembled by trained operators without a formal qualification. It is anticipated that this qualification will have a strong appeal within the African market and will provide qualifications for people that would otherwise be unrecognised for their skills and knowledge.

Conclusion:

This qualification focuses on the specific requirements of the South African job market and provides recognition for skills and knowledge at a basic level for learners who have entered into the workforce and are able to assist in the automotive manufacturing and assembly process.

ARTICULATION OPTIONS
This Qualification lends itself to both vertical and horizontal articulation possibilities.

Horizontal articulation is possible with any of the specialisation areas within this qualification and also with the following Qualifications:

> ID 22858: National Certificate: Autotronics, NQF Level 2.
> ID 22770: National Certificate: Mechatronics, NQF Level 2.
> ID 64410: National Certificate: Automotive Spray Painting, NQF Level 2.
> ID 64810: National Certificate: Automotive Maintenance and Repair, NQF Level 2.
> ID : National Certificate: Automotive component manufacturing and assembly, NQF Level 2.

Vertical articulation is possible with the following qualifications:

> ID 22859: National Certificate: Autotronics, NQF Level 3.
> ID 22771: National Certificate: Mechatronics, NQF Level 3.
> ID 64409: National Certificate: Automotive Spray Painting, NQF Level 3.
> ID 64809: National Certificate: Automotive Maintenance and Repair, NQF Level 3.
> ID : National Certificate: Automotive component manufacturing and assembly, NQF Level 3.

It is also anticipated that a new qualification for Automotive Manufacturing and Assembly will be developed at NQF level 3.

MODERATION OPTIONS
> Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant Education and Training Quality Assurance Body (ETQA).

> Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation, in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies).

> Moderation must include both internal and external moderation of assessments at exit points of the Qualification, unless ETQA policies specify otherwise. Moderation should also encompass

achievement of the competence described in the ELOs of the Qualification and will include integration of skills relevant to the economic sector.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors must be registered in terms of the requirements of SAQA and the relevant ETQA. In addition, assessors should have:

> A minimum of 3 (three) years' practical, relevant occupational experience.
> A relevant Qualification at NQF Level 3 or higher.
> The ability to meet the outcomes of this qualification.

NOTES

This qualification will be achieved in any one of the specialisation areas identified. Learners may achieve more unit standards, and thereby more credits, than the minimum 130 that have been identified. The additional credits may be made up from any of the other specialisation areas.

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119463	Access and use information from texts	Level 2	5
Fundamental	9009	Apply basic knowledge of statistics and probability to influence the use of data and procedures in order to investigate life related problems	Level 2	3
Fundamental	7480	Demonstrate understanding of rational and irrational numbers and number systems	Level 2	3
Fundamental	9008	Identify, describe, compare, classify, explore shape and motion in 2-and 3-dimensional shapes in different contexts	Level 2	3
Fundamental	119454	Maintain and adapt oral/signed communication	Level 2	5
Fundamental	119460	Use language and communication in occupational learning programmes	Level 2	5
Fundamental	7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	Level 2	2
Fundamental	9007	Work with a range of patterns and functions and solve problems	Level 2	5
Fundamental	119456	Write/present for a defined context	Level 2	5
Core	117902	Use generic functions in a Graphical User Interface (GUI)-environment	Level 1	4
Core	243705	Demonstrate an understanding of quality procedures and practices	Level 2	10
Core	262706	Demonstrate understanding of production systems and production management	Level 2	8
Core	13220	Keep the work area safe and productive	Level 2	8
Core	9876	Operate and monitor machinery	Level 2	12
Core	13221	Perform routine maintenance	Level 2	8
Core	9882	Read and interpret basic engineering drawings	Level 2	8
Core	119744	Select, use and care for engineering hand tools	Level 2	8
Core	12476	Select, use and care for engineering measuring equipment	Level 2	4
Core	12667	Supply raw and processed material to production line	Level 2	3
Elective	260158	Apply sealers and cavity fillers on vehicles	Level 2	4
Elective	9877	Assemble components	Level 2	12
Elective	253440	Assemble mechanical components	Level 2	12
Elective	12211	Build basic auto electrical circuits	Level 2	16
Elective	9878	Complete post-production and finishing operations	Level 2	12
Elective	244686	Demonstrate understanding of the principles of fluid power	Level 2	6
Elective	12466	Explain the individual's role within business	Level 2	4
Elective	262709	Fit and remove doors and panels to a body shell	Level 2	6
Elective	119740	Identify the various types of paint, primers, material and their uses	Level 2	4
Elective	260160	Maintain spray painting equipment	Level 2	4
Elective	13219	Maintain static seals in machines and / or equipment	Level 2	4
Elective	9268	Manage basic personal finance	Level 2	6

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	262716	Operate a fluid filling machine	Level 2	2
Elective	244338	Operate a production process	Level 2	15
Elective	243014	Operate and monitor computerised numerically controlled (CNC) machining equipment	Level 2	16
Elective	119737	Perform basic Spray Painting	Level 2	10
Elective	119753	Perform basic welding/joining of metals	Level 2	8
Elective	119742	Perform masking and de-masking on a vehicle	Level 2	8
Elective	119734	Perform surface preparation on a body panel	Level 2	8
Elective	260159	Polish automotive painted panels	Level 2	6
Elective	262733	Remove and fit automobile components	Level 2	12
Elective	15123	Select and use vehicle lifting equipment	Level 2	3
Elective	12219	Select, use and care for engineering power tools	Level 2	6
Elective	12481	Sling loads	Level 2	4
Elective	244110	Conduct paintless dent removal	Level 3	9
Elective	262711	Prepare metal panels for finishing	Level 3	12
Elective	262725	Test vehicle for compliance to manufacturer specifications	Level 3	4
Elective	262714	Test welded joints	Level 3	6
Elective	244056	Understand the fundamentals of engine technology	Level 3	4

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate understanding of production systems and production management

SAQA US ID	*UNIT STANDARD TITLE*		
262706	Demonstrate understanding of production systems and production management		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 2	8

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Demonstrate understanding of production and production systems.

SPECIFIC OUTCOME 2
Demonstrate knowledge of basic managerial tasks.

SPECIFIC OUTCOME 3
Demonstrate knowledge of additional production management tasks.

SPECIFIC OUTCOME 4
Demonstrate knowledge of the process of setting production goals and objectives.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fit and remove doors and panels to a body shell

SAQA US ID	*UNIT STANDARD TITLE*		
262709	Fit and remove doors and panels to a body shell		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 2	6

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Demonstrate knowledge of the removal and fitment process.

SPECIFIC OUTCOME 2
Remove doors and body panels.

SPECIFIC OUTCOME 3
Fit doors and body panels.

SPECIFIC OUTCOME 4
Restore work area, complete and process documentation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Prepare metal panels for finishing

SAQA US ID	*UNIT STANDARD TITLE*		
262711	Prepare metal panels for finishing		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	12

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Inspect panels for metal forming defects.

SPECIFIC OUTCOME 2
Repair identified defects.

SPECIFIC OUTCOME 3
Clean metal panels.

SPECIFIC OUTCOME 4
Confirm status of panel and report to relevant personnel.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Test welded joints

SAQA US ID	*UNIT STANDARD TITLE*		
262714	Test welded joints		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Demonstrate knowledge of different types of welds.

SPECIFIC OUTCOME 2
Test strength of welds.

SPECIFIC OUTCOME 3
Understand safety requirements.

SPECIFIC OUTCOME 4
Report on tests.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate a fluid filling machine

SAQA US ID	*UNIT STANDARD TITLE*		
262716	Operate a fluid filling machine		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 2	2

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Start machine for filling operations.

SPECIFIC OUTCOME 2
Demonstrate knowledge of fluids used in vehicles.

SPECIFIC OUTCOME 3
Fill vehicle systems.

SPECIFIC OUTCOME 4
Identify and rectify filling faults.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Test vehicle for compliance to manufacturer specifications

SAQA US ID	*UNIT STANDARD TITLE*		
262725	Test vehicle for compliance to manufacturer specifications		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Demonstrate knowledge of the importance of testing vehicles.

SPECIFIC OUTCOME 2
Test functionality of vehicle systems and components in static conditions.

SPECIFIC OUTCOME 3
Test for water leaks.

SPECIFIC OUTCOME 4
Test functionality of vehicle systems and components in dynamic conditions.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Remove and fit automobile components

SAQA US ID	*UNIT STANDARD TITLE*		
262733	Remove and fit automobile components		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 2	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
12214	Remove and fit automobile mechanical and electrical components	Level 2	12	Will occur as soon as 262733 is registered
119738	Remove automotive components	Level 2	4	Will occur as soon as 262733 is registered
119748	Install Automotive components	Level 2	6	Will occur as soon as 262733 is registered

SPECIFIC OUTCOME 1
Prepare to remove or fit components.

SPECIFIC OUTCOME 2
Remove and fit components.

SPECIFIC OUTCOME 3
Inspect and test fitted components.

SPECIFIC OUTCOME 4
Apply safety procedures during the removal and fitting process.

SPECIFIC OUTCOME 5
Restore work area, complete and process documentation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2