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**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

Manufacturing and Assembly

registered by Organising Field 06 – Manufacturing, Engineering and 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 7 March 2008**. All correspondence should be marked **Standards Setting – Manufacturing and Assembly** and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Tyre and Tube Repair and Fitting

SAQA QUAL ID		QUALIFICATION TITLE	
60390		National Certificate: Tyre and Tube Repair and Fitting	
ORIGINATOR		PROVIDER	
SGB Manufacturing and Assembly Processes			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National Certificate	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	120	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:

Individuals achieving this qualification will be able to carry out all aspects of tyre replacement, maintenance, repair and fitting processes, within a particular tyre servicing context, and to meet safety, quality and productivity requirements. Qualifying learners will understand tyre construction types and characteristics and fault rectification and will have the skills, knowledge and values to:

- Inspect tyres and determine servicing/repair suitability and requirements.
- Use a range of tools, equipment, materials, products/components and techniques to perform the services required.
- Apply a range of specialised handskills.

The range of options within the elective component will enable the qualifying learner to acquire additional skills required for a particular context.

Qualifying learners will be able to contribute to the achievement of workplace objectives by maintaining quality standards and applying safe, efficient and productive work practices. They will have a basic understanding of the scientific and technological principles and concepts which underpin tyre replacement, maintenance, repair and fitting processes, and will be able to relate these to their own work activities. They will also understand how they should operate within the management, quality and safety systems which govern their workplace.

This qualification will contribute to social upliftment and development by allowing employees to gain recognition for their skills and knowledge through the recognition of prior learning. It provides a basis for further learning and career development.

Rationale:

This qualification recognizes the skills, knowledge and values required to work effectively within the tyre servicing industry. This field is characterized by the provision of tube and tyre

maintenance, repair and fitting services for a range of tyre contexts including passenger, light and heavy commercial vehicles, and industrial, agricultural and off-the-road (OTR) machine/equipment tyres. The qualification is designed to accommodate the particular requirements of each of these contexts.

This qualification provides a broad base of skills, knowledge and values related to tyre and tube repair and fitting as well as enabling the individual to achieve the more specialised skills and knowledge required in particular tyre contexts. It also recognises and accommodates the differing needs resulting from factors such as geographical situation, company type and size, and the tendency towards specialisation. This will enable qualifying learners to adapt to changes within their working environment, and will allow them a greater degree of flexibility in their employment and career path choices.

The outcomes of this qualification combine practical and theoretical learning in the technical, inter-personal and business spheres, which will enable the qualifying learner to perform the operational aspects of the work, function within an organisational context and contribute to value-adding processes in the workplace.

Typical learners would be persons who are currently employed in a tyre servicing environment who have not received formal recognition for their skills and knowledge, and new entrants to the industry.

This qualification recognises skills, knowledge and values relevant to a workplace and requires workplace experience. It is suitable for learners who:

- Attend courses and then apply the knowledge gained to activities in the workplace.
- Are already workers and have acquired the skills and knowledge without attending formal courses.
- Participate in skills programmes and have the appropriate work experience.
- Are part of a learnership programme which integrates structured learning and work experience.
- Acquire their learning through any combination of the above.

Although this is a single qualification which specifically addresses the needs of the tyre tube repair and fitting industry, it also provides a sound basis for further learning and career path development. The elective component offers the opportunity to develop competencies in such areas as management and stores. The skills and knowledge gained would also provide a foundation for small business development in the tyre servicing field.

This qualification will benefit society and the economy as the skills and understanding gained by qualifying learners will improve work standards and efficiency, and contribute to economic growth and the upliftment of employees within the tyre servicing environment. The emphasis in the qualification on quality of service and product will enhance the safety and well-being of all road users. Qualifying learners will also develop an awareness of their role in conserving resources, in behaving responsibly towards the environment in general, and in observing safety and legal requirements.

This qualification will help to achieve the objectives of the NQF as it will contribute to the full development of the learner and provide recognition for skills and knowledge achieved, thereby forming the basis for further advancement in the workplace. It will also allow access to additional learning and career paths within the broader tyre servicing field.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED IN PLACE

The following competencies are assumed for a learner embarking on this qualification:

- Communication, NQF Level 1.
- Mathematical Literacy, NQF Level 1.

Recognition of Prior Learning:

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support should be provided to assist the learner in the process of developing a portfolio. The guidelines for integrated assessment should be used to develop the RPL assessment process. As with integrated assessment, while this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the Exit Level Outcomes.

Access to the Qualification:

There is open access to this qualification. A workplace is, however, a prerequisite to obtaining the relevant work experience and evidence required for the assessment of the Exit Level Outcomes.

QUALIFICATION RULES

The total number of credits for this qualification is 120.

The learner is required to achieve the unit standards listed in the compulsory Fundamental component (39 Credits).

The learner is required to achieve the unit standards listed in the compulsory Core component (59 Credits).

The learner is required to achieve a minimum of 22 Elective credits. The elective unit standards should be chosen in accordance with the requirements of the selected context and the interests of the learner.

The tyre-related unit standards in the Core category reflect mainly the passenger vehicle tyre context. The tyre-related unit standards in the Elective category enable specialisation in the following contexts:

- Light or heavy commercial vehicle tyres.
- Industrial machine/equipment tyres.
- Agricultural machinery/equipment tyres.
- Off-the-road (OTR) machine/equipment tyres (including but not limited to military applications, cranes, earthmoving equipment, mining equipment).

For the agricultural tyre context, the unit standard 'Repair and replace light and heavy commercial vehicle tyres (NLRD ID 9864)' should be contextualised for assessment purposes.

EXIT LEVEL OUTCOMES

1. Perform routine tasks related to removing, repairing, fitting and maintaining tubes and tyres.
2. Recognise common faults in wheels, tyres and tubes and take appropriate corrective action.
3. Collect and process information and communicate issues.
4. Contribute to maintaining a safe and productive work environment.

Critical Cross-field Outcomes:

Level Outcome:

While performing tyre servicing activities, qualifying learners can:

Identify and solve problems in which response displays that responsible decisions, using critical and creative thinking, have been made by:

- Identifying and taking appropriate action in response to routine problems related to tyre replacement, maintenance, repair and fitting activities.
- Evident in all Exit Level Outcomes.

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

- Participating in co-operative work practices to achieve group objectives.
- Evident in all Exit Level Outcomes.

Organise and manage oneself and one's activities responsibly and effectively by:

- Carrying out activities in a systematic manner, in accordance with procedures and safe work practices.
- Evident in all Exit Level Outcomes.

Collect, analyse, organise and critically evaluate information by:

- Collecting and processing information related to tyre replacement, maintenance, repair and fitting activities and determining an appropriate response.
- Evident in all Exit Level Outcomes.

Communicate effectively by using mathematical and/or language skills in the modes of oral and/or written presentations by:

- Recording and reporting information related to tyre servicing activities.
- Interpreting instructions and communicating information.
- Evident in all Exit Level Outcomes.

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

- Applying knowledge of underpinning principles to tyre condition and the use of tools and materials.
- Working in accordance with health and safety regulations.
- Evident in all Exit Level Outcomes.

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

- Applying knowledge of tyre types and characteristics and of maintenance, repair and fitting activities to provide a quality service.
- Evident in all Exit Level Outcomes.

Contribute to the full personal development of each learner and the social and economic development of the society at large by:

- Providing a structured environment within which the learner is able to develop a range of skills which will enhance the learner's contribution to society and the workplace.
- Evident in all Exit Level Outcomes.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

- 1.1 Routine tasks are performed safely and effectively and in accordance with company standards.
- 1.2 Work is performed in accordance with company requirements, manufacturers' specifications and relevant standards.
- 1.3 Tools, equipment, accessories and materials are selected and used in accordance with requirements to remove, fit and maintain tyres and to repair damage to tyres and tubes.
- 1.4 Information related to the process is gathered, interpreted and responded to in accordance with requirements.
- 1.5 The implications of not performing routine tasks as required according to safety and company specifications are explained using practical examples.

Associated Assessment Criteria for Exit Level Outcome 2:

- 2.1 Common faults in wheels, tyres and tubes are identified.
- 2.2 A decision is taken as to whether faults are identified as being within own scope of action/responsibility, or require referral.
- 2.3 Required action is taken to rectify faults within own scope of action/responsibility.
- 2.4 Referred faults are accurately reported to relevant personnel in accordance with company requirements.
- 2.5 The implications of not taking appropriate action in response to common faults and routine problems is explained with examples.

Associated Assessment Criteria for Exit Level Outcome 3:

- 3.1 Relevant information is collected and interpreted.
- 3.2 Information gathered is reported according to company standards.
- 3.3 Requests for information are responded to accurately and courteously.
- 3.4 The importance of communication and documentation in the work environment is understood and explained.

Associated Assessment Criteria for Exit Level Outcome 4:

- 4.1 All required documentation is completed in accordance with company requirements.
- 4.2 Instructions received are accurately interpreted and acted upon in accordance with company requirements.
- 4.3 The work station is maintained in a clean and organised manner in accordance with company standards.
- 4.4 Group objectives and how own role contributes to the process or achievement is understood.

Integrated Assessment:

The integrated assessment should be based on a summative assessment guide. The guide will specify how the assessor will assess different aspects of the performance and will include:

- Evaluating evidence in a portfolio of evidence, particularly projects which integrate various aspects of the qualification and which demonstrate the integration of all aspects of learning: fundamental and core; knowledge, skills and values; the development of the critical outcomes.

- Observing and listening to the learner at work, both in primary activities as well as in other interactions, or in relevant simulations.
- Asking questions and initiating short discussions to test understanding and to verify other evidence.
- Looking at records and reports.
- Formative and summative assessment of unit standards.

Assessment of competence for this qualification is based on experience acquired by the learner in the workplace, within the particular context. The assessment process should cover the explicit tasks required for the qualification as well as the learner's understanding of the relevant concepts and principles. The assessment process should also establish how the learning process has advanced the Critical Cross-field Outcomes.

The learner may choose in which language he/she wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be presented if pertinent to any of the Exit Level Outcomes. Assessors should also evaluate evidence that the learner is able to perform consistently over a period of time.

INTERNATIONAL COMPARABILITY

Internationally, the tyre industry is characterised by large multinational companies which extend their influence throughout the world. The quality and scope of training is determined by international standards for safety and quality in addition to specific product or process issues and localised statutory requirements.

Research was carried out to identify the scope, methods and trends in training for the tyre and tube repair and fitting industry. Most of this training is in-house, company-or franchise-based, or in the form of short courses offered by industry associations and product or equipment suppliers. A few countries, such as the United Kingdom, New Zealand and Australia, offer national qualifications.

Australia:

Australia has been selected for detailed comparison because it has national qualifications for tyre and tube repair and fitting, and because road and industry conditions are similar to those in South Africa.

The Certificate II in Automotive: Mechanical: Tyre Fitting & Repair forms part of a series of qualifications for the automotive industry. It is generic in nature and flexible in order to meet the needs of the various contexts within the tyre industry, which range from light passenger tyres to heavy commercial vehicle and off-the-road (OTR) machine/equipment tyres. This is achieved through a design based on units of competency which are clustered into 'competency groupings' covering three areas:

- Common Core: competencies that are essential to working in any type of industry (compulsory).
- Compulsory Stream: competencies that relate specifically to the equipment and processes of the particular industry.
- Elective: competencies that have a broader or supporting application.

This allows a selection to be made for the particular industry context, with sufficient flexibility to select combinations relevant to individual or enterprise training needs. Learning may comprise a variety of learning methods and programmes, provided that an integration of theoretical learning, practical application and workplace experience is achieved. The learning programme will

typically extend over a period of 12 months. Assessment is workplace based and includes the use of portfolios of evidence.

A selection of units of competency for repairing and fitting tubes and tyres would typically be as follows:

Compulsory Common Core:

- Follow workplace occupational health and safety procedures.
- Use and maintain workplace tools and equipment.
- Contribute to workplace communication.
- Establish relations with customers.

Compulsory Stream:

- Balance tyres/wheels.
- Remove, fit and adjust wheel(s).
- Select tyres and rims for specific applications.
- Remove, repair and fit tyres and tubes.
- Inspect vehicle systems/components and determine preferred repair action.

Electives (3 to be selected from the following typical list):

- Carry out stock control procedures.
- Receive and store stock.
- Apply legal requirements relating to product sales.
- Dispose of waste and maintain a tidy work area.
- Identify, clarify and resolve problems.
- Work with colleagues and customers.
- Maintain industrial machinery in a soil free condition.
- Repair rims.

This selection would be relevant for the heavy (AUR21499) or light (AUR21599) tyre contexts. There is also scope to meet the training requirements of the industrial, agricultural and off-the-road (OTR) tyre contexts.

United Kingdom:

National Vocational Qualifications in Vehicle Fitting Operations (Levels 1, 2 and 3) which cover tyre and tube repair and fitting and which provide evidence of competence in the workplace are available. Learning is provided through traineeships or apprenticeships. These typically consist of a few weeks' induction period followed by one to two years' on-the-job training, together with a theoretical component at a company or college training centre. Training combines theoretical, practical and workplace learning. Assessment is workplace-based. In some cases tyre and tube repair and fitting is combined in a single qualification with other competencies such as exhaust or windscreen fitting, or battery servicing and fitting. Even though national qualifications are available, in practice much of the training is company-based, particularly in more specialised contexts such as that of off-the-road (OTR) tyres.

Conclusion:

The South African qualification is very similar in content and scope to the Australian Certificate II in Automotive: Mechanical: Tyre Fitting & Repair, with the difference that the South African qualification accommodates the various tyre contexts in one qualification. Both qualifications require an integration of theoretical learning and workplace experience, and they share a common approach to assessment. The Australian qualifications do not specify fundamental

learning of the type that the South African qualification does. The scope and level of the 'underpinning skills' listed in the associated units of competency show a close correspondence with the Critical Crossfield Outcomes embedded in the South African qualification.

South African company-based training is similar in nature, content and scope to that provided internationally.

South Africa's expertise in tyre repair is recognised internationally, with South Africa being viewed as the market leader in some areas of technology. The quality of South African training is similarly well-regarded. This expertise, both in technology and in training, is reflected in this qualification.

ARTICULATION OPTIONS

This qualification has been designed and structured so that qualifying learners can move from one context within the tyre servicing field to another. They would have to acquire the specific knowledge related to the new context and adjust their skills and values accordingly.

Further or additional learning and career path development would be possible in the following areas:

- Training.
- Stores.
- Sales.
- Supervisory/management.
- Small business/entrepreneurship.

Horizontal articulation:

This qualification articulates horizontally with the following qualifications:

- ID 49689: National Certificate: Automotive Repair and Maintenance, NQF Level 2.
- ID 60389: National Certificate: Tyre Retreading, NQF Level 2.
- ID 49280: National Certificate: Wholesale and Retail Distribution, NQF Level 2.
- ID 49648: National Certificate: New Venture Creation (SMME), NQF Level 2.

Vertical articulation:

- ID 48764: National Certificate: Wholesale and Retail Sales Practice, NQF Level 3.
- ID 23654: National Certificate: Management, NQF Level 3.

MODERATION OPTIONS

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body.
- Assessment and moderation of assessment will be overseen by the relevant Education, Training, Quality, Assurance (ETQA) Body, or by an ETQA that has a Memorandum of Understanding with the ETQA, according to the ETQA's policies and guidelines for assessment and moderation.
- 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 both in individual Unit Standards as well as the integrated competence described in the Qualification.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

For an applicant to register as an assessor, the applicant needs:

- An appropriate qualification with a minimum of 2 years' practical, relevant occupational experience in the field of tyre servicing and repair.
- Be active in the industry and be familiar with the particular aspect of tyre service and technology in which the learner has contextualised his/her skills and knowledge.
- To be declared competent in all the outcomes of the National Assessor Unit Standards as stipulated by South African Qualifications Authority.

NOTES

N/A

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	12461	Communicate at work	Level 2	5
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	12463	Understand and deal with HIV/AIDS	Level 2	3
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	13222	Deal with safety, health and environmental emergencies in the workplace	Level 2	4
Core	12465	Develop a learning plan and a portfolio for assessment	Level 2	6
Core	12466	Explain the individual's role within business	Level 2	4
Core	13220	Keep the work area safe and productive	Level 2	8
Core	13258	Participate in work group activities	Level 2	4
Core	110078	Plan, organise and manage oneself in the organisation	Level 2	2
Core	9867	Remove and replace wheels and tyres, and balance wheels	Level 2	2
Core	12213	Select and use automobile lifting equipment	Level 2	3
Core	9879	Use and care for tools and equipment	Level 2	10
Core	9868	Demonstrate knowledge of, and rectify faults in motor vehicle tyres and wheels	Level 3	7
Core	9869	Repair punctures and fit tyres to wheels	Level 3	9
Elective	13202	Apply study and learning techniques	Level 2	3
Elective	9874	Direct, receive and communicate with customers on the forecourt	Level 2	4
Elective	120313	Investigate work opportunities in order to make a personal employment or work decision	Level 2	2
Elective	9268	Manage basic personal finance	Level 2	6
Elective	117898	Move, pack and maintain stock in a distribution centre/warehouse	Level 2	12
Elective	114902	Operate a computer in a Wholesale/Retail outlet	Level 2	6
Elective	242981	Operate defined purpose lift trucks	Level 2	4
Elective	12484	Perform basic fire fighting	Level 2	4
Elective	12483	Perform basic first aid	Level 2	4
Elective	255456	Remove and replace off-road wheels and tyres	Level 2	8
Elective	12481	Slings loads	Level 2	4

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	15100	Check and adjust steering geometry	Level 3	4
Elective	242978	Operate truck-mounted cranes	Level 3	8
Elective	9865	Remove and replace wheels and tyres from industrial machines and equipment	Level 3	10
Elective	9864	Repair and replace light and heavy commercial vehicle tyres	Level 3	17
Elective	255457	Repair off-road tyres	Level 3	8

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION**None**



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Remove and replace off-road wheels and tyres***

SAQA US ID	UNIT STANDARD TITLE		
255456	Remove and replace off-road wheels and tyres		
ORIGINATOR			PROVIDER
SGB Manufacturing and Assembly Processes			
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

Remove off-road tyre from wheel.

SPECIFIC OUTCOME 2

Refit off-road tyre to wheel.

SPECIFIC OUTCOME 3

Refit wheel to off-road machine/equipment.

SPECIFIC OUTCOME 4

Complete work process.

SPECIFIC OUTCOME 5

Remove wheel from off-road machine/equipment.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60390	National Certificate: Tyre and Tube Repair and Fitting	Level 2



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:**Repair off-road tyres**

SAQA US ID	UNIT STANDARD TITLE		
255457	Repair off-road tyres		
ORIGINATOR		PROVIDER	
SGB Manufacturing and Assembly Processes			
FIELD		SUBFIELD	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	8

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

SPECIFIC OUTCOME 1

Inspect tyre and indicate internal and external injuries/damage.

SPECIFIC OUTCOME 2

Determine repair requirements.

SPECIFIC OUTCOME 3

Carry out repair.

SPECIFIC OUTCOME 4

Complete the work process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60390	National Certificate: Tyre and Tube Repair and Fitting	Level 2