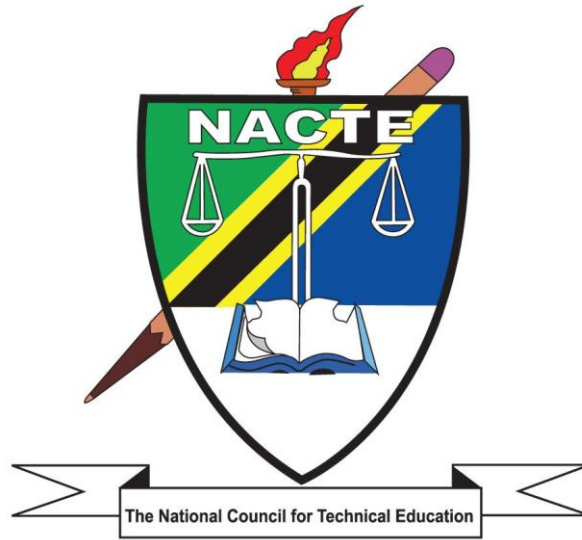


NATIONAL COUNCIL FOR TECHNICAL EDUCATION



NOVEMBER 2022

PROPOSED OCCUPATIONAL STANDARDS

OCCUPATION: AUTOMOTIVE ENGINEERS

LEVEL: NTA 5

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FOREWORD

The National Council for Technical Education (NACTE) is a corporate body established by the National Council for Technical Education Act, Cap.129. The Act provides a legal framework for the Council to coordinate the provision of technical education and training in Tanzania. The mandate of NACTE is three-fold, namely; Regulatory, Quality Assurance and Policy Advisory.

In discharging its mandate, the Council has been charged with the responsibilities, among others, to:

- (a) assist technical institutions in the transmission of knowledge, principles and training in the field of technical education and training for the benefit of the people of Tanzania;
- (b) assist technical institutions in the overall development of the quality of education they provide and to promote and to maintain approved academic standards;
- (c) establish and make awards in technical education which are consistent in standard and comparable to related awards in Tanzania and internationally; and
- (d) ensure that the quality of education required for the awards is met and maintained throughout the duration of the delivery of the course.

In the course of execution of these responsibilities, the Council has been instituting various measures aiming at advancing the quality of training provided in technical institutions in respect of the changing demands of the labour market, both local and international.

To achieve the above obligation, NACTE, under the Ministry of Education, Science and Technology implemented the East Africa skills for Transformation and Regional Integration Project (EASTRIP), a project aiming at promoting regional integration through supporting the regional corridors and sector markets, developing common standards and qualifications, and promoting mobility of students, faculty, and graduates. The project supports the Government of Tanzania to address shortage of skills in five sectors namely:

- (a) Energy;
- (b) Construction;
- (c) Information and Communication Technology (ICT);
- (d) Transportation; and
- (e) Agribusiness.

To address the skills, miss-match and shortage in the five (5) sectors in the country, the project funded, among others, a component of Development of Occupational Standards for Technical and Vocational Education and Training (TVET). In this regard, NACTE endeavoured to identify qualified and highly experienced experts in the five sectors from both the industry and training institutions to carry out the development of Occupational Standards. The exercise was carried out at Morogoro Teachers College – Morogoro from 16th July to 10th August, 2021. The output of the exercise is Occupational Standards for 12 occupations. Occupational standards for Automotive Engineers are among the occupational standards for 12 occupations which have been developed.

Since Occupational Standards are statements of work performance reflecting the ability to successfully complete the functions required in an occupation, as well as the application of knowledge, skills, attitudes and understanding in an occupation, it is the Council's expectations that the developed standards will form a robust base for decision making and provide explicit guidance to policy makers, curriculum developers, educators, employers and other stakeholders in matters related to manpower planning as well as execution of Technical and Vocational Education and Training undertakings.

Prof. J. W. Kondoro

CHAIRMAN

Dar es Salaam

NOVEMBER 2022

ACKNOWLEDGEMENT

The National Council for Technical Education (NACTE) is charged with the mandate to be the Quality Assurance organ of the Government in matters related to Technical and Vocational Education and Training (TVET) and production of qualified manpower for both local and international labour markets. In order to realize this obligation, NACTE endeavours to institute policies, guidelines and standards and to set the quality benchmarks for training institutions.

However, this is only possible if there is a strong base, linking the training institutions on one hand and the demands of the industry/labour market for relevant manpower on the other hand. Therefore, the Council undertook a step to develop Occupational Standards in sectors considered to be the engine to steer the country's desire to achieve an industrial economy. This exercise would not be a success without the input and support from our stakeholders. I am indebted to acknowledge some of them here.

I wish to acknowledge and appreciate the support from the Ministry of Education, Science and Technology through the East Africa skills for Transformation and Regional Integration Project (EASTRIP) for the financial support which facilitated the preparation of this document. I wish also to appreciate Mrs Leah Lukindo and Eng. Dr. Simon Baregu and for the tireless efforts and commitment in facilitating and guiding the standards development process, Ms. Eileen Tzamburakis, Ms. Chausiku Yakweli Ibrahim and Ms. Nuru Shirima for compiling and type setting the final document; and the NACTE Secretariat for coordinating the whole activity.

In a very special way, I wish further to extend my sincere gratitude to this team of wonderful experts who tirelessly dedicated their time and availed their invaluable intellect in the preparation of this document. I would like to recognise the colossal inputs of the following experts:

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In addition, NACTE wishes to further enhance the internationalization of occupational standards and promote the modernization and internationalization of industries, thereby facilitating Tanzania's integration into the international market and expanding its development potential. Therefore, NACTE has invited China-Africa Vocational Education Alliance and China-Africa (Chongqing) Vocational Education Alliance to participate in the development, revision and review of occupational standards documents in collaboration with Chinese vocational institutions, so as to make use of their rich experience in vocational education efforts and rely on China's advanced and complete industrial chain and position in the international market to contribute to the development of vocational education and related industries in Tanzania.

Therefore, I would like to express my sincere gratitude to this specialized team of many Chinese institutions and experts. I thank them for their hard work and dedication, and for contributing their wisdom and experience to the preparation of this document. I would like to thank the following institutions and experts for their support:

S/N	Institute	Name	Title/area of expertise
1	Xianyang Vocational and Technical College	He Wenfeng	Associate Professor/Auto Maintenance
2		Han Le	Senior Engineer/Auto Repair
3		Tao Zhenhua	Technician/Auto Repair
4		Wu Shan	Lecturer/Auto Repair

Finally, I would like to thank all stakeholders in the project approval process for their strong support and for their expert insight and input regarding the validity of the content and the preparation of this document for the general public.

Dr. A. B. Rutayuga

EXECUTIVE SECRETARY

Dar es Salaam

NOVEMBER 2022

ABBREVIATIONS

ABS	-	Anti -Lock Braking System
ATF	-	Automatic Transmission Fluid
CAD	-	Computer Aided Design
CBET	-	Competence Based Education and Training
ICT	-	Information Computer Technology
IGT	-	Ignition Timing
IGF	-	Ignition Confirmation
MOPP	-	Maintenance Operating Policy and Procedure
NACTE	-	National Council for Technical Education
NOS	-	National Occupational Standards
OS	-	Occupational Standards
PLC	-	Programmable Logic Controller
PPE	-	Personal Protective Equipment
RPM	-	Revolutions Per Minute
TET	-	Technical Education and Training
TVET	-	Technical and Vocational Education and Training

GLOSSARY OF TERMS

CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues
Competence:	The ability to use knowledge, understanding, practical and thinking skills to perform effectively to the workplace standards required in employment.
Competency:	A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.
Competency-Based Education:	An instructional program that derives its content from validated tasks and bases assessment on the learner's performance
Curriculum:	A description or composite of statements about “what is to be learned” by the trainee/student in a particular instructional programme; a product that states the “intended learning outcomes”.
Educational/Training Programme:	The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.
Occupation:	A specific position requiring the performance of specific tasks – essentially the same tasks are performed by all employees having the same title. (Example: baker)
Occupational Analysis:	A process used to identify the tasks that are important to employees in any given occupation
Occupational Area:	This is a broad grouping of related jobs. Example: food service.
Occupational Competence:	The application of knowledge and skills to perform consistently to the standards required in the work context.
Occupational Standards:	Specific requirements of competences people are expected to demonstrate in a particular occupational area, including knowledge and relevant attitudes. They also act as performance tool of assessment of the pre – scribed

outcomes.

**PERFORMANCE
CRITERIA:**

Indicate the expected end results or outcome in form of evaluative statements.

Skills:

The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.

Standards:

It is a set of statement, which if proved true under working conditions, means that an individual is meeting an expected level and type of performance

Task Analysis:

The process of analysing each task to determine the steps, related knowledge, attitudes, performance standards, tools and materials needed, and safety concerns required of employees performing it.

Tasks:

A work activity that has a definite beginning and ending, is observable or measurable, consists of two or more definite steps, and leads to a product, service, or decision.

**Underpinning
Knowledge:**

This is crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.

Verification Process:

The process of having experts review and conform the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. Tanzania's Development Vision 2025 intends to raise the country's economy to a middle-income status. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical Education has begun the job of drafting Occupational Standards that will eventually be adopted as National Occupational Standards for TET in order to ensure that it meets the needs of the labour market and the country's economic agenda.

National Occupational Standards (NOS) are performance criteria that are matched with labour market demands. Each National Occupation Standard describes functions, performance standards, and knowledge/understanding for one important function or task. They combine skills, knowledge, and attitudes to describe best practice. They are useful tools for establishing job roles, personnel recruiting, supervision, and appraisal, as well as TET standards. They're also helpful for benchmarking and harmonizing qualifications on a national and international level. Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current and consistent in delivery across all public and private institutions.

However, it must be noted that, Occupational Standards and Training standards/qualifications standards are different. Occupational standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical wiring circuits, performs trouble shooting in electrical wiring, etc.) and they are usually defined by employers following procedures agreed upon by all stakeholders. Education and training standards are developed from the activities defined in occupational standards, and they include learning objectives to ensure that the necessary skills and knowledge are developed in a person to enable him or her to function at an agreed level in an occupation. Education and Training standards are used to define curricula in training institutions. It is however critical that there must be a direct link between the occupational standards and the training standards to respond to demands of the labour market.

In TET delivery, Tanzania adopted the Competency-based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge required to meet the occupational standards. Occupational standards are thus the starting

point for developing Competency-based Education and Training (CBET) programs. TET institutions will be required to benchmark their curricula with relevant occupational standards.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training (TET).

The Automotive Engineer Occupation has its own set of occupational standards. The document explains how the occupational standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The Occupational standards development process began with an examination of major documents that guide Tanzanian skill development. The 10-year National Skills Development Strategy (2016-2026) was one of the documents reviewed, and it outlined six (6) economic sectors that should be prioritized when developing skills development programmes. These sectors include: Transport and logistics, Tourism and Hospitality, Agribusiness, Construction, Energy and ICT. NACTE labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a workshop comprised of expert workers and educators with substantial knowledge and experience in the occupation conducted an occupational analysis utilizing the DACUM approach to produce the occupational profile. The analysis resulted in DACUM Charts, which are attached as **Appendix 1** to this document.

The occupational standards were then developed. Experts in Occupational Analysis and Occupational Standards development facilitated the workshop. Interviews, online surveys, and a stakeholder forum were used to validate the occupational standards. Engineers, supervisory technicians on the job, and experienced Automotive ENGINEERS were key informants in the survey to discover occupational trends. This information was used to gain insight from the workplaces regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation. A total of online surveys were completed by experts from the labour market across the country. Apart from the survey aiding in defining the scope for the occupational analysis, they served to engage a wide cross-

section of experts in the occupation. The stakeholders' forum was attended by participants from different parts of the country representing various companies.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR AUTOMOTIVE ENGINEERS

These standards cover a broad range of duties and tasks that can be performed by an Automotive Engineer. However, the occupational standards are not meant to replace individual job descriptions, they are to be used for guidance in defining skill levels and knowledge for the technician in specific settings or positions. The Automotive Engineer may perform tasks in a number of key areas of the occupational standards, but not necessarily in all areas. For example, in large operations other individuals may be employed or designated to perform specific tasks.

Automotive Technicians work under minimal supervision of an engineer to inspect, repair, and maintain automobiles and other gasoline, diesel, or alternate-fuelled vehicles. In smaller shops, Technicians complete a wide variety of repairs from simple engine tune-ups to tearing down, repairing, and rebuilding of complete power systems and Body repair. Generally, the Automotive Engineer performs the following duties:

- a) Perform Vehicle General Service
- b) Maintain Petrol and Diesel Engines
- c) Maintain Engine Tune Up
- d) Maintain Transmission Systems
- e) Perform Vehicle Diagnosis
- f) Maintain Hybrid Vehicles
- g) Maintain Brake System
- h) Maintain Suspension Systems
- i) Maintain Steering System
- j) Maintain Starting System
- k) Maintain Charging Systems
- l) Maintain Ignition System
- m) Maintain Lighting Systems
- n) Maintain Automotive air Conditioning System

- o) Maintain Vehicle Body
- p) Maintain Vehicle Safety, Security and Entertainment Systems

The Occupational standards have been clustered into NTA qualification levels i.e., NTA level 4, 5 and 6.

4.0. VALIDITY PERIOD

The occupational standards will be valid for 3-5 years due to the fast-changing nature of technology. The review will proceed in the same manner as the previous one, with new occupational standards being developed based on current labour market information.

5.0. OCCUPATIONAL STANDARDS

5.1. OCCUPATIONAL STANDARDS FOR AUTOMOTIVE ENGINEER NTA - 5

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	PERFORM VEHICLE DIAGNOSIS	DUTY NO.	501
TASK TITLE	CLEAR FAULTS CODES	TASK NO.	5011
PERFORMANCE CRITERIA	A person performing this task must be able to clear Faults Codes as per technical requirements and manufacturer's service manual.		
RANGE STATEMENT	<p>This task can be performed in the automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Washing machine; 5. Power source; 6. Diagnosis Machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Test lamp; 9. Air compressor; 10. Stethoscope; 11. Vacuum gauges; 12. Pressure gauges. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe health and safety when performing the task; 2. Select right tools and equipment for the task; 3. Identify data link connector; 4. Connect Diagnosis Machine; 5. Scan the Vehicle; 6. Read faults codes; 7. Record fault codes; 8. Interpret Faults code; 9. Read data flows; 10. Erase the codes; 11. Check the performance; 12. Clean tools, equipment and workplace; 13. Store tools and equipment safely. 	<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to</p> <ol style="list-style-type: none"> 1.1. Prepare the service schedule for: <ol style="list-style-type: none"> a. Connect Diagnosis Machine; b. Scan the Vehicle; c. Read faults Codes; d. Read data flows; e. Erase the codes. 1.2. Perform online diagnosis. <p>2.0. Principles: The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1 Determining Vehicle Fault codes. <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Reasons for conducting preventive maintenance; 3.2. Preventive maintenance schedule and its importance; 3.3. Vehicle diagnosis and troubleshooting; 3.4. Importance of determining Faults codes. 		

	<p>4.0. Essential skills:</p> <p>4.1. Communication skills;</p> <p>4.2. Customer care skills;</p> <p>4.3. Team work skills;</p> <p>4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Faults codes are cleared as per technical specifications and manufacturer's manual.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Occupational health and safety; 4. Maintenance operating policy and procedure (MOPP); 5. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM VEHICLE DIAGNOSIS	DUTY NO.	501
TASK TITLE	REPAIR POWER TRAIN SENSORS	TASK NO.	5012
PERFORMANCE CRITERIA	A person performing this task must be able to repair power train sensors as per technical requirements and manufacturer's service manual.		
RANGE STATEMENT	<p>This task can be performed in the automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Washing machine; 5. Power source; 6. Diagnosis Machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Test lamp; 9. Air compressor; 10. Stethoscope; 11. Vacuum gauges; 12. Pressure gauges; 13. Vehicles. 		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe health and safety when performing the task; 2. Select right tools and equipment for the task; 3. Check Crankshaft sensor; 4. Check camshaft sensor; 5. Check Fuel pressure sensor; 6. Check Mass air flow sensor; 7. Check Vacuum sensor; 8. Check water temperature sensor; 9. Check oxygen sensor; 10. Erase the trouble codes; 11. Test performance; 12. Clean tools, equipment and work place; 13. Store tools and equipment safely. 	<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Check Crankshaft sensor; 1.2. Check camshaft sensor; 1.3. Check Fuel pressure sensor; 1.4. Check Mass air flow sensor; 1.5. Check Vacuum sensor; 1.6. Check water temperature sensor; 1.7. Check oxygen sensor; 1.8. Check car wiring diagram and service manual; 1.9 Perform online diagnosis. <p>2.0. Principles</p> <p>The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1 Repairing power train sensors. <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Vehicle diagnosis and troubleshooting; 3.2. Importance of repairing Power train sensors. 		

	<p>4.0. Essential skills:</p> <p>4.1. Communication skills;</p> <p>4.2. Customer care skills;</p> <p>4.3. Team work skills;</p> <p>4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Power Train sensors are repaired as per technical specifications and manufacturer's manual.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM VEHICLE DIAGNOSIS	DUTY NO.	501
TASK TITLE	REPAIR CHASSIS AND TRANSMISSION SENSORS	TASK NO.	5013
PERFORMANCE CRITERIA	A person performing this task must be able to repair chassis and transmission sensors as per technical requirements and manufacturer service manual.		
RANGE STATEMENT	This task can be performed in the automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required: 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Washing machine; 5. Power source; 6. Diagnosis Machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Test lamp; 9. Air compressor; 10. Stethoscope; 11. Vacuum gauges; 12. Pressure gauges.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following: 1. Observe health and safety; 2. Select right tools and equipment for the task; 3. Check air bag sensors; 4. Check safety belt sensors; 5. Check Globe Position sensor; 6. Check Object Sensing sensor; 7. Check Stability Control sensor; 8. Check Ultrasonic sensors; 9. Diagnose faults in chassis and transmission sensors; 10. Repair/Replace chassis and transmissions sensors; 11. Clean tools, equipment and workplace; 12. Store tools and equipment safely.	Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Repair chasses and transmission sensors networking; 1.2. Perform online diagnosis; 1.3. Check car wiring diagram and service manual. 2.0. Principles: The person must be able to explain the principles of: 2.1 Repairing chassis and transmission sensors; 2.2 Vehicle diagnosis and troubleshooting. 3.0. Theories: The person must be able to explain: 3.1 Types and functions of sensors in a vehicle; 3.2 Vehicle diagnosis and troubleshooting; 3.3 Causes of faults/malfunction of sensors in a vehicle; 3.4 Means of repair of chassis and transmission sensors in a vehicle; 3.5 Importance of Repair Chasses and transmission		

	<p>sensors.</p> <p>4.0. Essential skills:</p> <p>4.1. Communication skills;</p> <p>4.2. Customer care skills;</p> <p>4.3. Team work skills;</p> <p>4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Chassis and transmission sensors are repaired as per technical specifications and Manufacturer's manual.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed Knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instrument; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MAINTAIN HYBRID VEHICLES	DUTY NO.	502
TASK TITLE	REPAIR HYBRID ENGINE	TASK NO.	5021
PERFORMANCE CRITERIA	A person performing this task must be able to repair a Hybrid Engine as per technical requirements and manufacturer's service manual.		
RANGE STATEMENT	This task can be performed in the automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required: 1. Full set of Automotive tool box; 2. Jack; 3. Pitch/ramp; 4. Air Compressor; 5. Crane wagon; 6. Washing machine; 7. Power source; 8. P.P.E such as Safety Shoes, Glasses, Gloves.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following: 1. Observe safety and health precautions when performing a task; 2. Select right tools and equipment; 3. Check injector nozzles; 4. Clean injector nozzles; 5. Service radiator; 6. Test oil pump; 7. Service sensors; 8. Replace Engine Electronic Control Unit; 9. Clean tools, equipment and the working place; 10. Store tools and equipment.	Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Check injector nozzles; 1.2. Clean injector nozzles; 1.3. Service radiator cores; 1.4. Test oil pump; 1.5. Service sensors; 1.6. Replace Engine Electronic Control Unit; 1.7. Check car wiring diagram and service manual. 2.0. Principles: The person must be able to explain the principles of: 1.1.Repairing Hybrid Vehicles; 2.2. Electric traction. 3.0. Theories: The person must be able to explain: 3.1. Hybrid Vehicle operations and maintenance; 3.2.Components of the hybrid engine and their functions; 3.3.Advantages and disadvantages of hybrid engine cars; 3.4.Common faults in hybrid engines. 4.0. Essential skills: 4.1. Communication skills;		

	<p>4.2. Customer care skills;</p> <p>4.3. Team work skills;</p> <p>4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Hybrid Engine is repaired as per Manufacturer's specifications and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Occupational health and safety; 4. Maintenance operating policy and procedure (MOPP); 5. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN HYBRID VEHICLES	DUTY NO.	502
TASK TITLE	REPAIR HYBRID MOTOR	TASK NO.	5022
PERFORMANCE CRITERIA	A person performing this task must be able to repair Hybrid Motor as per technical requirements and manufacturer's service manual.		
RANGE STATEMENT:	<p>This task can be performed in the automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Jack; 3. Pitch/ramp; 4. Air Compressor; 5. Crane wagon; 6. High pressure vehicle washing machine; 7. Power source; 8. Diagnosis Machines; 9. P.P.E; 10. Multimeter; 11. Clamp meter; 12. Test lamp; 13. Megger Machine. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe safety and health precautions when performing the task; 2. Select proper tools and equipment; 3. Service electrical connectors; 4. Test rotor parts; 5. Test Stator parts; 6. Service Wiring harnesses; 7. Replace hybrid Motor sensors; 8. Replace Electronic Control Unit; 9. Clean tools, equipment and the working place; 10. Store tools and equipment. 	<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Test rotor parts; 1.2. Test Stator parts; 1.3. Service Wiring harnesses; 1.4. Replace hybrid Motor sensors; 1.5. Replace Engine Electronic Control Unit; 1.6. Check car wiring diagram and service manual. <p>2.0. Principles:</p> <p>The person must be able to explain the principles of repairing Hybrid Vehicles.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Hybrid Vehicle operations; 3.2. Components of hybrid car and maintenance; 3.2. Use of right tools and equipment. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 1. Communication skills; 		

	<ol style="list-style-type: none"> 2. Customer care skills; 3. Team work skills; 4. Report writing skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Hybrid motor is repaired and functioning as per manufacturer's specifications and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed Knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Occupational health and safety; 4. Maintenance operating policy and procedure (MOPP); 5. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MAINTAIN HYBRID VEHICLES	DUTY NO.	502
TASK TITLE	REPAIR HYBRID BATTERIES	TASK NO.	5023
PERFORMANCE CRITERIA	A person performing this task must be able to repair Hybrid Batteries as per technical requirements and manufacturer's service manual;		
RANGE STATEMENT	This task can be performed in the automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required: 1. Full set of Automotive tool box; 2. Jack; 3. Pitch/ramp; 4. Air Compressor; 5. Crane wagon; 6. High pressure vehicle washing machine; 7. Power source; 8. Diagnosis Machines; 9. P.P.E, such as Safety Shoes, Glasses, Gloves, Overall; 10. Multimeter; 11. Clamp meter; 12. Test lamp; 13. Megger Machine.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Observe safety and health precautions when performing the task; 2. Select proper tools and equipment for the task; 3. Repair battery terminals; 4. Check electrode; 5. Check case Drain; 6. Inspect cracks; 7. Change batteries; 8. Grease the Terminals; 9. Service battery Electronic Control unit; 10. Repair sensors and Actuators; 11. Clean tools, equipment and the working place; 12. Store tools and equipment.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Repair battery terminals; 1.2. Check electrode; 1.3. Check case Drain; 1.4. Inspect cracks; 1.5. Change batteries; 1.6. Service battery Electronic Control unit; 1.7. Repair sensors and Actuators; 1.8. Check car wiring diagram and service manual. 2.0. Principles: The person must be able to explain the principles of repairing Hybrid Batteries. 3.0. Theories: The person must be able to explain: 3.1. Hybrid Vehicle operations and Maintenance; 3.2 Charging and discharging battery in a hybrid car; 3.3. Care for batteries;	

	<p>3.4. Life time of batteries; 3.5. Functions in the batteries; 3.6. Use of right tools and equipment.</p> <p>4.0. Essential skills: 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Hybrid Batteries are repaired and functioning per Manufacturer's specifications and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Occupational health and safety; 4. Maintenance operating policy and procedure (MOPP).

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN BRAKE SYSTEM	DUTY NO.	503
TASK TITLE	REPAIR HYDRAULIC BRAKE SYSTEMS	TASK NO.	5031
PERFORMANCE CRITERIA	A person performing this task must be able to repair hydraulic brake systems as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe safety rules and regulations when performing the task; 2. Select right tools and equipment for the task; 3. Lift the vehicle; 4. Inspect brake system leaks; 5. Inspect brake fluid; 6. Replace brake pipes; 7. Service/replace brake master cylinder; 8. Service/replace wheel cylinders; 9. Fill brake fluid; 10. Drain brake fluid; 11. Test brake performance; 12. Clean tools, equipment and work place; 13. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Perform inspection on hydraulic brake; 1.2. Drain brake fluid; 1.3. Fill brake fluid; 1.4. Adjust brakes; 1.5. Test brake performance; 1.6. Check car service manual. <p>2.0. Principles The person must be able to explain the principles of repairing hydraulic brake systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Function of brake systems to Vehicle; 3.2. Importance of proper type of brake fluid; 3.3. On brake system maintenance. <p>4.0. Essential skills</p> <ol style="list-style-type: none"> 4.1. Customer care skills; 	

	4.2. Team work skills; 4.3. Report writing skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Hydraulic brake system is repaired and functioning as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN BRAKE SYSTEM	DUTY NO.	503
TASK TITLE	REPAIR PNEUMATIC BRAKE SYSTEMS	TASK NO.	5032
PERFORMANCE CRITERIA	A person performing this task must be able to repair pneumatic brake systems as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe health and safety precautions when performing the task; 2. Select tools and equipment required for the task; 3. Lift the vehicle; 4. Inspect brake system leaks; 5. Inspect for air leak; 6. Tighten Bolts and Nuts; 7. Replace brake booster; 8. Adjust brake pedal free play; 9. Service air control Valves; 10. Test brake performance; 11. Clean tools, equipment and work place; 12. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Perform inspection on pneumatic brake; 1.2. Bleed brake system; 1.3. Adjust brakes; 1.4. Test brake performance; 1.5. Check car service manual. <p>2.0. Principles The person must be able to explain the principles of repairing pneumatic brake systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Function of brake systems to Vehicle; 3.2. Categories of brake systems; 3.3. On brake system maintenance; 3.4. Malfunctions in braking system and causes. <p>4.0. Essential skills</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 	

	4.3. Team work skills; 4.4. Report writing skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Pneumatic brake system is repaired as per technical requirements and manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN BRAKE SYSTEM	DUTY NO.	503
TASK TITLE	REPAIR DRUM BRAKES	TASK NO.	5033
PERFORMANCE CRITERIA	A person performing this task must be able to repair drum brakes as per technical requirements and manufacturer's specifications		
RANGE STATEMENT:	<p>This task can be performed in automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select right tools and equipment for the task; 2. Observe safety rule and precautions when performing; 3. Lift the vehicle; 4. Inspect brake system leaks; 5. Dismount tyre; 6. Separate brake drum; 7. Inspect brake block assembly; 8. service wheel cylinders; 9. Replace brake block; 10. Remount brake drum; 11. Remount tyre; 12. Fill brake fluids; 13. Drain brake fluid; 14. Adjust brake; 15. Test brake operations; 16. Clean tools, equipment and work place; 17. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Perform service on drum brake; 1.2. Bleed brake system; 1.3. Adjust brakes; 1.4. Test brake performance; 1.5. Check car service manual. <p>2.0. Principles The person must be able to explain the principles of repairing drum brake systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Function of brake systems to Vehicle; 3.2. Categories of brake systems; 3.3. Brake system maintenance. <p>4.0. Essential skills</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills. 	

DESCRIPTION OF END PRODUCTS/SERVICE	Drum brake is repaired as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN BRAKE SYSTEM	DUTY NO.	503
TASK TITLE	REPAIR DISC BRAKES	TASK NO.	5034
PERFORMANCE CRITERIA	A person performing this task must be able to repair disc brakes as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT:	<p>This task can be performed in automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select tools and requirement required for the task; 2. Observe health safety precautions when performing the task; 3. Chock the vehicle; 4. Inspect brake system leaks; 5. Dismount tyre; 6. Separate brake calliper; 7. Inspect brake calliper assembly; 8. Replace brake calliper; 9. Remount brake callipers; 10. Remount tyre; 11. Fill brake fluids; 12. Bleed brake system; 13. Adjust brake; 14. Test brake operations; 15. Clean tools, equipment and work place; 16. Store tools and equipment. 	<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Perform inspection on disc brake; 1.2. Bleed brake system; 1.3. Adjust brakes; 1.4. Test brake performance; 1.5. Check car service manual. <p>2.0. Principles: The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 1.1.Repairing disc brake systems; 1.2.Dismounting a tyre. <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Function of brake systems to Vehicle; 3.2. Categories of brake systems; 3.3. Disc brake and how it functions; 3.4. On brake system maintenance. <p>4.0. Essential skills</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 		

	4.3. Team work skills; 4.4. Report writing skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Disc brake is repaired and functioning as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN BRAKE SYSTEM	DUTY NO.	503
TASK TITLE	REPAIR HAND BRAKES	TASK NO.	5035
PERFORMANCE CRITERIA	A person performing this task must be able to repair hand brakes as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT:	<p>This task can be performed in automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select right tools and equipment; 2. Observe safety rules and regulations; 3. Chock the vehicle; 4. Inspect brake system leaks; 5. Inspect hand brake mechanism; 6. Replace hand brake block; 7. Replace/adjust handbrake cables; 8. Adjust handbrake; 9. Test hand brake performance; 10. Clean tools, equipment and work place; 11. Store tools and equipment. 	<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Inspect handbrake; 1.2. Adjust handbrake; 1.3. Test handbrake performance; 1.4. Check car service manual. <p>2.0. Principles: The person must be able to explain the principles of:</p> <ol style="list-style-type: none"> 2.1. Repairing hand brake systems. <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Function of handbrake systems on vehicle; 3.2. Categories of brake systems; 3.3. On brake system maintenance; 3.4. Hand brake and how it functions. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills. 		
DESCRIPTION OF END	Hand brake is repaired and functioning as per technical		

PRODUCTS/SERVICE	requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECNICIAN	OCCUPATION CODE	
DUTY TITLE	MAINTAIN BRAKE SYSTEM	DUTY NO.	503
TASK TITLE	REPAIR ANTILOCK BRAKE SYSTEMS (ABS)	TASK NO.	5036
PERFORMANCE CRITERIA	A person performing this task must be able to repair antilock brake systems (ABS) as per technical requirements and manufacturer's specifications;		
RANGE STATEMENT	This task can be performed in automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required: 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select safety rules and regulations when performing the task; 2. Select right tools and tasks; 3. Inspect modulator; 4. Check ABS relay; 5. Service wheel speed sensor; 6. Replace wheel speed sensors; 7. Identify diagnostics code; 8. Clear ABS Faults codes; 9. Test brake operations; 10. Clean tools, equipment and work place; 11. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Demonstrate the operation of antilock brake systems (ABS); 1.2. Diagnose and troubleshoot ABS; 1.3. Test ABS; 1.4. Check car wiring diagram and service manual. <p>2.0. Principles: The person must be able to explain the principles of repairing Antilock brake systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Antilock brake systems components and operation on modern Vehicles; 3.2. Categories of brake systems; 3.3. ABS maintenance. <p>4.0. Essential skills</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 	

	<p>4.3. Team work skills;</p> <p>4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Antilock brake systems (ABS) are repaired as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN SUSPENSION SYSTEMS	DUTY NO.	504
TASK TITLE	REPAIR SUSPENSION SPRINGS	TASK NO.	5041
PERFORMANCE CRITERIA	A person performing this task must be able to repair suspension springs as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Vehicle washing machine; 5. Vehicle Stopper; 6. Diagnosis machines; 7. P.P.E, such as Safety Shoes, Glasses, Gloves; 8. Stethoscope; 9. Brake dynamometer; 10. Brake fluid testing machine; 11. Spring compressor. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select right tools and equipment for the task; 2. Observe health and safety regulations when performing the task; 3. Inspect leaf springs; 4. Replace leaf springs; 5. Inspect Coil springs; 6. Replace Coil springs; 7. Inspect Torsional bar; 8. Adjust Torsional; 9. Replace Ball joints; 10. Test Suspension Springs; 11. Clean tools, equipment and work place; 12. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods:</p> <p>The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Demonstrate suspension springs; 1.2. Maintain and repair suspension springs; 1.3. Check car service manual. <p>2.0. Principles:</p> <p>The person must be able to explain the principles of repairing suspension springs.</p> <p>3.0. Theories:</p> <p>The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Suspension system components; 3.2. Suspension system operation; 	

	<p>3.3. Suspension system maintenance.</p> <p>4.0. Essential skills:</p> <p>4.1. Communication skills;</p> <p>4.2. Customer care skills;</p> <p>4.3. Team work skills;</p> <p>4.4. Report writing skills.</p>
DESCRIPTION OF END PRODUCTS/SERVICE	Suspension springs are repaired as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MAINTAIN SUSPENSION SYSTEMS	DUTY NO.	504
TASK TITLE	SERVICE SUSPENSION BUSHES	TASK NO.	5042
PERFORMANCE CRITERIA	A person performing this task must be able to service suspension bushes as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required: 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Vehicle washing machine; 6. Vehicle Stopper; 7. Diagnosis machines; 8. P.P.E, such as Safety Shoes, Glasses, Gloves; 9. Brake dynamometer.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following: 1. Select tools and equipment for the task; 2. Observe health and safety when performing the task; 3. Replace spring bushes; 4. Replace wishbone bushes; 5. Replace stabilizer bushes; 6. Replace radius Arm bushes; 7. Replace Stabilizer link bushes; 8. Replace shock absorber bushes; 9. Replace bump stopper bushes; 10. Replace body mounting bushes; 11. Clean tools, equipment and work place; 12. Store tools and equipment.	Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Replace suspension bushes; 1.2. Use press machine; 1.3. Check car service manual. 2.0. Principles: The person must be able to explain the principles of servicing suspension bushes. 3.0. Theories: The person must be able to explain: 3.1. Suspension system components; 3.2. Suspension system operation; 3.3. Suspension system maintenance. 4.0. Essential skills: 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills.		
DESCRIPTION OF END PRODUCTS/SERVICE	Suspension bushes are serviced and functioning as per technical requirements and Manufacturer's specifications.		

CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none">1. Safe handling of working tools;2. Safe handling of measuring instruments;3. Maintenance operating policy and procedure (MOPP);4. Waste disposal methods.
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OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN SUSPENSION SYSTEMS	DUTY NO.	504
TASK TITLE	SERVICE SHOCK ABSORBERS	TASK NO.	5043
PERFORMANCE CRITERIA	A person performing this task must be able to service shock absorbers as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Shock absorber Testing Machine; 6. Vehicle washing machine; 7. Vehicle Stopper; 8. Diagnosis machines; 9. P.P.E, such as Safety Shoes, Glasses, Gloves; 10. Brake dynamometer. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select right tools and equipment for the task; 2. Observe health and safety precautions when performing the task; 3. Inspect shock absorber; 4. Replace shock absorber; 5. Test shock absorber; 6. Clean tools, equipment and work place; 7. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Replace suspension shock absorbers; 1.2. Use Shock absorber testing machine; 1.3. Check car service manual. <p>2.0. Principles: The person must be able to explain the principles of servicing suspension shock absorber.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Suspension system components; 3.2. Suspension system operation; 3.3. Suspension system maintenance. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills. 	

DESCRIPTION OF END PRODUCTS/SERVICE	Shock absorbers are serviced as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN SUSPENSION SYSTEMS	DUTY NO.	504
TASK TITLE	REPAIR SUSPENSION ARMS	TASK NO.	5044
PERFORMANCE CRITERIA	A person performing this task must be able to repair suspension arms as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Shock absorber Testing Machine; 6. Vehicle washing machine; 7. Vehicle Stopper; 8. Diagnosis machines; 9. P.P.E, such as Safety Shoes, Glasses, Gloves; 10. Brake dynamometer. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select right tools and equipment for the task; 2. Observe health and safety precautions when performing the task; 3. Inspect Wishbone arms; 4. Replace Wishbone arms; 5. Inspect radius arms; 6. replace radius arms; 7. Clean tools, equipment and work place; 8. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Replace suspension arms; 1.2. Use press machine; 1.3. Check car service manual. <p>2.0. Principles: The person must be able to explain the principles of servicing suspension arms.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Suspension system components; 3.2. Suspension system operation; 3.3. Suspension system maintenance. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills. 	
DESCRIPTION OF END PRODUCTS/SERVICE		Suspension arms are serviced as per technical requirements and Manufacturer's specifications.	

CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none">1. Safe handling of working tools;2. Safe handling of measuring instruments;3. Maintenance operating policy and procedure (MOPP);4. Waste disposal methods.
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OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN SUSPENSION SYSTEMS	DUTY NO.	504
TASK TITLE	REPAIR AIR SUSPENSION SYSTEM	TASK NO.	5045
PERFORMANCE CRITERIA	A person performing this task must be able to repair air suspension system as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Shock absorber Testing Machine; 6. Vehicle washing machine; 7. Vehicle Stopper; 8. Diagnosis machines; 9. P.P.E, such as Safety Shoes, Glasses, Gloves. 10. Pressure gauges. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe safety and health regulations when performing the task; 2. Select right tools and equipment for the task; 3. Inspect air suspension system; 4. Replace suspension airbags; 5. Service air reservoir tank; 6. Service air Valves; 7. Service Air lines; 8. Test air suspension performance; 9. Clean tools, equipment and work place; 10. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Replace air suspension system components; 1.2. Understand car wiring diagram and service manual. <p>2.0. Principles: The person must be able to explain the principles of servicing air suspension systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Suspension system components; 3.2. Suspension system operation; 3.3. Suspension system maintenance. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills. 	
DESCRIPTION OF END		Air Suspension system is repaired as per technical	

PRODUCTS/SERVICE	requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN SUSPENSION SYSTEMS	DUTY NO.	504
TASK TITLE	REPAIR ELECTRONIC SUSPENSION SYSTEM	TASK NO.	5046
PERFORMANCE CRITERIA	A person performing this task must be able to repair electronic suspension system as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the Supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Shock absorber Testing Machine; 6. Vehicle washing machine; 7. Vehicle Stopper; 8. Diagnosis machines; 9. P.P.E, such as Safety Shoes, Glasses, Gloves; 10. Pressure gauges. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Select right tools and equipment; 2. Observe health and safety regulations; 3. Inspect electronic Suspension components; 4. Service suspension electronic control unit; 5. Service electronic wirings; 6. Test electronic suspension; 7. Clean tools, equipment and workplace; 8. Store tools and equipment properly. 	<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Replace air suspension system components; 1.2. Understand car wiring diagram and service manual. <p>2.0. Principles: The person must be able to explain the principles of servicing electronic suspension systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Electronic suspension system components; 3.2. Electronic suspension system operation; 3.3. Electronic suspension system maintenance. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 4.4. Report writing skills. 		
DESCRIPTION OF END	The Electronic Suspension system is repaired as per		

PRODUCTS/SERVICE	technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN STEERING SYSTEMS	DUTY NO.	505
TASK TITLE	REPAIR STEERING SYSTEM	TASK NO.	5051
PERFORMANCE CRITERIA	A person performing this task must be able to repair steering system as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Level plain; 5. Optic machine wheel alignment; 6. Electronic wheel alignment machine; 7. Vehicle washing machine; 8. Vehicle Stopper; 9. Diagnosis machines; 10. P.P.E, such as Safety Shoes, Glasses, Gloves; 11. Pressure gauges. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe safety precautions when performing the task; 2. Select. proper tools and equipment for the task; 3. Inspect steering system Components; 4. Inspect Steering leaks; 5. Fix steering leaks; 6. Adjust steering gearbox; 7. Tighten bolts and nuts; 8. Top up steering fluid; 9. Clean tool, equipment and work place; 10. Store tools and equipment. 	<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Repair steering system; 1.2. Understand car service manual. <p>2.0. Principles: The person must be able to explain the principles of repairing steering systems.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Steering system components; 3.2. Steering system operation; 3.3. Steering system maintenance; 3.4. Possible faults in steering systems and corrective maintenance. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills; 		

	4.4. Report writing skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Steering system is repaired as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEER	OCCUPATION CODE	
DUTY TITLE	MAINTAIN STEERING SYSTEMS	DUTY NO.	505
TASK TITLE	REPAIR STEERING LINKAGES	TASK NO.	5052
PERFORMANCE CRITERIA	A person performing this task must be able to repair steering linkages as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	<p>This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required:</p> <ol style="list-style-type: none"> 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Level plain; 6. Optic machine wheel alignment; 7. Electronic wheel alignment machine; 8. Vehicle washing machine; 9. Vehicle Stopper; 10. Diagnosis machines; 11. P.P.E, such as Safety Shoes, Glasses, Gloves; 12. Pressure gauges. 		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
<p>The person performing this task must be able to do the following:</p> <ol style="list-style-type: none"> 1. Observe safety precautions when performing the task; 2. Select proper tools and equipment for the task; 3. Inspect steering linkages; 4. replace ball joint; 5. Service Steering Drop Arm; 6. Replace steering drag link; 7. Replace Steering damper; 8. Replace steering track road; 9. Replace tie rod ends; 10. Service steering box; 11. Adjust Steering column; 12. Align steering wheel; 13. Clean tool, equipment and work place; 14. Store tools and equipment. 		<p>Detailed knowledge about:</p> <p>1.0. Methods: The person performing this task must be able to explain how to:</p> <ol style="list-style-type: none"> 1.1. Repair steering system linkages; 1.2. Understand car service manual. <p>2.0. Principles: The person must be able to explain the principles of repairing steering systems linkages.</p> <p>3.0. Theories: The person must be able to explain:</p> <ol style="list-style-type: none"> 3.1. Steering system components; 3.2. Steering system operation; 3.3. Steering system maintenance. <p>4.0. Essential skills:</p> <ol style="list-style-type: none"> 4.1. Customer care skills; 4.2. Team work skills; 4.3. Report writing skills. 	

DESCRIPTION OF END PRODUCTS/SERVICE	Steering system linkages are repaired and functioning as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

OCCUPATION	AUTOMOTIVE ENGINEERING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MAINTAIN STEERING SYSTEMS	DUTY NO.	505
TASK TITLE	PERFORM WHEEL ALIGNMENT	TASK NO.	5053
PERFORMANCE CRITERIA	A person performing this task must be able to perform wheel alignment as per technical requirements and manufacturer's specifications.		
RANGE STATEMENT	This task can be performed in automotive workshop under the supervision of a senior Technician or Automotive/Mechanical Engineer. The following tools and equipment will be required: 1. Full set of Automotive tool box; 2. Pitch/ramp; 3. Air Compressor; 4. Press Machine; 5. Level plain; 6. Optic machine wheel alignment; 7. Electronic wheel alignment machine; 8. Vehicle washing machine; 9. Vehicle Stopper; 10. Diagnosis machines; 11. P.P.E, such as Safety Shoes, Glasses, Gloves; 12. Pressure gauges; 13. Pipe wrench.		
EVIDENCE REQUIREMENTS			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Select right tools and equipment for the task; 2. Observe health and safety precautions when performing the task; 3. Check Steering angles; 4. Adjust Camber angle; 5. Adjust Castor angle; 6. Adjust Toe-in and Toe Out; 7. Check Slip angle; 8. Replace King Pin 9. Clean tools, equipment and work place; 10. Store tools and equipment.		Detailed knowledge about: 1.0. Methods: The person performing this task must be able to explain how to: 1.1. Perform wheel alignment; 1.2. Adjust steering angles; 1.3. Understand car service manual. 2.0. Principles: The person must be able to explain the principles of Vehicle wheel alignment. 3.0. Theories: The person must be able to explain: 3.1. Steering system components; 3.2. Steering angles; 3.3. Steering system maintenance. 4.0. Essential skills: 4.1. Communication skills; 4.2. Customer care skills; 4.3. Team work skills;	

	4.4. Report writing skills.
DESCRIPTION OF END PRODUCTS/SERVICE	Vehicle wheel alignment is performed as per technical requirements and Manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	<p>Detailed Knowledge about:</p> <ol style="list-style-type: none"> 1. Safe handling of working tools; 2. Safe handling of measuring instruments; 3. Maintenance operating policy and procedure (MOPP); 4. Waste disposal methods.

TABLE 1: DACUM CHART FOR AUTOMOTIVE ENGINEER LEVEL 5

DUTTIES	TASKS	ENABLERS
1.0.Perform Vehicle Diagnosis.	1.1. Determine faults codes. 1.2. Repair power train sensors. 1.3. Repair chassis and transmission sensors.	<p>Generic skills and knowledge</p> <ul style="list-style-type: none"> • Using communication skills to work with others, reporting to superiors • Use of manufacturer’s manual • skills and knowledge on OBD I, DLCI, OBD II and DLC II. • Machine elements • Interpretation of technical drawing • Basic Material science <p>Tools and Equipment</p> <ul style="list-style-type: none"> • PPE such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats. • Full Automotive Tool Box • Diagnosis Machine <p>Materials sensors and Actuators as per specifications worker behaviours Team spirit, trustworthy, time management and commitment</p>
2.0. Maintain Hybrid Vehicles.	2.1. Repair hybrid engine. 2.2. Repair hybrid motor. 2.3. Repair hybrid batteries.	<p>Generic skills and knowledge</p> <ul style="list-style-type: none"> • Using communication skills to work with others, reporting to superiors • Use of manufacturer’s manual • skills and knowledge on Automotive Electronics • Knowledge and skills Hybrid Electrical Vehicles

DUTTIES	TASKS	ENABLERS
		<ul style="list-style-type: none"> • Interpretation of technical drawing • Basic Material science <p>Tools and Equipment</p> <ul style="list-style-type: none"> • PPE such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats. • Full Automotive Tool box. • Diagnosis Machine <p>Materials</p> <p>Hybrid vehicle harnesses, Batteries and motor</p> <p>Worker Behaviours</p> <p>Team spirit, trustworthy, time management and commitment</p>
<p>3.0. Maintain Brake System.</p>	<p>3.1. Repair hydraulic brake systems.</p> <p>3.2. Repair pneumatic brake systems.</p> <p>3.3. Repair drum brakes.</p> <p>3.4. Repair disc brakes.</p> <p>3.5. Repair hand brake.</p> <p>3.6. Repair anti-lock brake system (ABS).</p>	<p>Generic skills and knowledge</p> <ul style="list-style-type: none"> • Using communication skills to work with others, reporting to superiors • Use of manufacturer’s manual • skills and knowledge on Automotive Braking Systems. • Machine elements • Interpretation of technical drawing • Basic Material science <p>Tools and Equipment</p> <ul style="list-style-type: none"> • PPE such as Safety Shoes, Glasses, Gloves, • Full Automotive Tool box • Jacks and wheel chocks

DUTTIES	TASKS	ENABLERS
		<p>Material</p> <p>Brake block, pads, discs, drums and wheel speed sensors</p> <p>Brake Fluids</p> <p>Worker Behaviours</p> <p>Team spirit, trustworthy, time management and commitment</p>
<p>4.0. Maintain Suspension systems.</p>	<p>4.1. Repair suspension springs.</p> <p>4.2. Service suspension bushes.</p> <p>4.3. Service shock absorbers.</p> <p>4.4 Repair suspension arms.</p> <p>4.5. Repair air suspension system.</p> <p>4.6. Repair electronic suspension system.</p>	<p>Generic skills and knowledge</p> <ul style="list-style-type: none"> • Using communication skills to work with others, reporting to superiors • Use of manufacturer’s manual • skills and knowledge on Vehicle suspension systems. • Machine elements • Interpretation of technical drawing • Basic Material science <p>Tools and Equipment</p> <ul style="list-style-type: none"> • PPE such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats. • Full Automotive Tool Box • Optic Wheel alignment Machine • Electronic wheel alignment Machine <p>Materials</p> <p>Bushes, Springs, shock absorbers and links as per technical Specifications</p> <p>Worker Behaviours</p>

DUTTIES	TASKS	ENABLERS
		Team spirit, trustworthy, time management and commitment
5.0 Maintain Steering System.	5.1. Repair steering system. 5.2. Repair steering linkages. 5.3. Perform wheel alignment.	<p>Generic skills and knowledge</p> <ul style="list-style-type: none"> • Using communication skills to work with others, reporting to superiors • Use of manufacturer’s manual • skills and knowledge on Vehicle Steering Systems. • Steering Components • Interpretation of technical drawing • Basic Material science <p>Tools and Equipment</p> <ul style="list-style-type: none"> • PPE such as Safety Shoes, Glasses, Gloves, Hearing Protection, Hard Hats. • Full Automotive Tool box • Optic Wheel Alignment Machine • Electronic Wheel Alignment Machine <p>Materials</p> <ul style="list-style-type: none"> • Steering Hydraulic fluids <p>Worker Behaviours</p> <p>Team spirit, trustworthy, time management and commitment</p>