higher education & training
Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

Centre of Specialisation
A21

LOGBOOK (TRAINING RECORD)
NOCC-A21 – AUTOMOTIVE MOTOR MECHANIC

Name of Apprentice:	
ID Number:	
TVET College:	
Employer:	

Welcome to the Automotive Motor Mechanic Trade!

Over the next three years you will learn the automotive motor mechanic trade by regularly rotating between a company and a TVET college. You will spend 60-70% of your time at the company and 30-40% of your time at the college. The amount of time you spend at the college reduces over the three year training programme and increases in the workplace, where you will spend more and more time on productive activities.

This is your personal logbook and serves as a record of the workplace training you will receive. It is your responsibility to keep it up-to-date and ensure that your workplace supervisor signs it off every month. ***Be aware that this logbook is proof of your learning and training, and is thus the entrance ticket for your trade test and becoming a fully qualified artisan.***

If you lose it or do not keep it up to date – no one will be able to assist you, as you will have lost the most significant evidence of your training process. **So make sure that you keep this logbook tidy, safe and up-to-date.**

No logbook = no trade test!

On the following pages you will find a number of forms. Please fill each form in fully and correctly. It is essential that the personal information you include is correct as it will be used to identify this logbook as yours. If your contact details change during your apprenticeship, be sure to up-date these in your logbook.

Thanks and enjoy your training!

Fill in WEEKLY!

Get supervisor to sign-off MONTHLY!

No Logbook = No Trade Test!

PERSONAL INFORMATION

APPRENTICE PROFILE, TRADE AND CONTACT INFORMATION

Surname				First name(s)	
Apprentice contact number (cell)					
Residential Address					
Name of parent / guardian (if applicable)				Contact number parent / guardian	
ID number				Age	
Name of medical aid (if you have one)				Medical aid no.	
Driver's license (if applicable)	Yes		No	Means of transport	
Trade Title				Curriculum code	
Apprentice Contract No.					

EMERGENCY CONTACT

In case of an emergency who would you like to be contacted?

Name of emergency contact: ……..……..

Phone number ……..……

HOST COMPANY CONTACT INFORMATION

Name of host company		
Physical address of employer		
P.O. Box address of employer		
Company phone number and email		
Main company contact person (Supervisor/HR)	Name	
	Contact number	
Second company contact person (Mentor)	Name	
	Contact number	

TVET COLLEGE CONTACT INFORMATION

Name of TVET college		
Information on the college campus at which the apprentice is based	Name of campus	
	Physical campus address	
	Campus phone number	
TVET college campus manager	Name	
	Contact number	
TVET college lecturer	Name	
	Contact number	

WHAT YOU NEED TO KNOW ABOUT THIS LOGBOOK

This logbook represents the master record for all work experience completed, and thus needs to be presented when applying for the trade test. It consequently needs to be kept safe at all times.

The logbook contains **three sections**.

- **Section 1:** Contains an **overview of all learning** you will be covering over the entire programme period (**NOCC-A21 Overview**) as well as your **rotation plan** between college and company training blocks.
- **Section 2:** Contains a **weekly journal for company training blocks** where you will keep a daily record of all the things that you are working on/exposed to in the workplace.
- **Section 3:** Contains **all the tasks that you will need to complete in the workplace over the entire training time**.

It is very important that you ensure that Section 2 and Section 3 of this logbook are completed regularly. If you do not keep this logbook up-to-date you will not be eligible to take the trade test at the end of your training programme.

Section 1: NOCC-A21 Overview & Rotation Plan

NOCC-A21 OVERVIEW

Your training programme is called the **National Occupational Curriculum Content for the Artisan of the 21st Century (NOCC-A21)**. The NOCC-A21 is work-driven and practical, and thus organised around real life work situations in the automotive motor mechanic trade.

The following overview shows you all the learning areas and work situations that are covered in the programme.

Learning areas		Work Situations					
A	**Practice the occupation and behave responsibly and professionally in the workplace**	**A1** Comply with legislation, regulations and codes relevant to the occupation	**A2** Receive an induction and orientation to the occupation and the training programme	**A3** Manage personal finances	**A4** Communicate professionally in the workplace		
B	**Work safely and respond to emergencies**	**B1** Perform basic first aid	**B2** Perform basic fire fighting	**B3** Read and respond to safety signage	**B4** Identify, use and care for lifting and support equipment		
C	**Use tools and equipment**	**C1** Identify, use and care for basic hand tools and equipment	**C2** Identify, use and care for workshop tools and equipment	**C3** Identify, use and care for measuring equipment	**C4** Fabricate simple components using basic hand tools	**C5** Perform basic computer operations	
D	**Cut and join metals**	**D1** Arc weld metal to specification	**D2** Gas weld metal to specification	**D3** Gas cut metal to specification			
E	**Remove and install mechanical components**	**E1** Remove, inspect, maintain and install bearings	**E2** Use fasteners, keys and locking devices	**E3** Remove and install gaskets and seals			
F	**Construct and trouble-shoot auto-electric, auto-electronic and fluid power components**	**F1** Construct and trouble-shoot basic auto-electrical circuits	**F2** Construct and trouble-shoot basic auto-electronic circuits	**F3** Construct and trouble-shoot basic pneumatic and hydraulic circuits			
G	**Maintain and service vehicles**	**G1** Access electronic control modules and	**G2** Prepare and service engine	**G3** Test and maintain batteries	**G4** Test and adjust coolant condition	**G5** Bleed air out of diesel fuel	

Learning areas		Work Situations					
	and vehicle components	download operational and parameter information	and vehicle sub-systems			systems	
H	**Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies**	**H1** Dismantle, inspect and reassemble cylinder heads	**H2** Dismantle, inspect and reassemble engine sub-assemblies (bottom-end)	**H3** Dismantle, inspect and reassemble lubrication systems	**H4** Dismantle, inspect and reassemble fuel systems	**H5** Dismantle, inspect and reassemble cooling systems	**H6** Remove, dismantle, inspect, repair, refit and reassemble induction and exhaust systems
		H7 Dismantle, inspect and reassemble engine electrical systems (including conventional ignition systems)	**H8** Remove, inspect, repair and refit vehicle engines (commission)				
I	**Remove, dismantle, inspect, repair, reassemble and refit vehicle sub-assemblies**	**I1** Remove, dismantle, inspect, repair, reassemble and refit braking systems	**I2** Remove, dismantle, test, repair, reassemble and refit drive train system components	**I3** Remove, dismantle, inspect, repair, reassemble and refit steering and suspension systems	**I4** Remove, test, repair and refit tyres and balance and align wheels	**I5** Remove, test, repair and refit vehicle air-conditioning systems	
J	**Diagnose and repair electrical and electronically**	**J1** Diagnose and repair starting system faults	**J2** Diagnose and repair charging system faults	**J3** Diagnose and repair lighting system faults	**J4** Diagnose and repair auxiliary electrical system faults	**J5** Diagnose and repair ignition system faults	**J6** Diagnose and repair engine fuel system faults (petrol)

Learning areas		Work Situations					
	controlled vehicle systems	**J7** Diagnose and repair engine fuel system faults (diesel)	**J8** Diagnose and repair forced induction system faults	**J9** Diagnose and repair lubrication system faults	**J10** Diagnose and repair air-conditioning system faults	**J11** Diagnose and repair electronic management system faults	
K	**Diagnose and repair engine and vehicle sub-systems**	**K1** Diagnose and repair engine cooling system faults	**K2** Diagnose and repair clutch faults	**K3** Diagnose and repair, manual transmission front wheel drive gearbox faults	**K4** Diagnose and repair automatic transmission faults	**K5** Diagnose and repair transfer case faults	**K6** Diagnose and repair rear wheel differential faults
		K7 Diagnose and repair electronic braking control faults	**K8** Diagnose and repair exhaust system faults	**K9** Diagnose and repair manual transmission rear wheel drive gearbox faults	**K10** Diagnose and repair (conventional hydraulic) braking faults		
	Trade Test preparation (240 hours)						

ROTATION PLAN

The constant **rotation between learning in a TVET college and gaining real life experience in the world of work** is one of the key factors for a successful apprenticeship programme. In each block of training at the college and work experience at the company, you will be learning new things as well as revising and practicing things learned in previous blocks. This will allow you to build on and improve your expertise as you proceed through the programme.

You can fill in the dates for each of your college and company blocks in the table below.

Rotation scheme for Year 1

	College Block 1	Company Block 1	College Block 2	Company Block 2	College Block 3	Company Block 3
Start Date						
End Date						

Rotation scheme for Year 2

	College Block 1	Company Block 1	College Block 2	Company Block 2	College Block 3	Company Block 3
Start Date						
End Date						

Rotation scheme for Year 3

	College Block 1	Company Block 1	College Block 2	Company Block 2	College Block 3	Company Block 3
Start Date						
End Date						

Section 2:
Weekly Journal

WEEKLY JOURNAL – COMPANY BLOCKS

On the following pages you will find your weekly journal for the time you are at the company. It provides the critical evidence of the work experience have received. Make copies of the weekly journal template provided, as required. **Keep and store these records safely, since if you lose them no one will be able to assist you in retrieving this evidence.**

Important: How to fill in your Weekly Journal:

- Fill in your journal on a weekly basis and have it **signed-off once per week by your employer**. Your **college lecturer should NOT** sign your logbook. The logbook is a record of the work that you performed in the workplace and as such **your college lecturer does not have the authority to sign it.**
- You will find one page per working week. Each week is divided into six days. You need to write a short description of the tasks/activities that you have been involved in and specifically mention the tools, equipment and machinery that you used. **Below is an example** of what is expected in terms of completing your weekly journal.
- **Be specific and detailed.** The example below shows what is meant by being specific. **The journal needs to be a true reflection of what you did**. **If you have only done housekeeping on the specific day, note this. Do not make up activities.**
- Many apprentices complain that they are not receiving relevant exposure to the trade, but this can only be proved, if you have kept an accurate record of what you do in the workplace on a daily basis.

Day	Insert main work experience obtained for each work experience day	
Monday	**DO NOT WRITE:**	**Used power tools and equipment**
	RATHER	Performed a single fillet weld in position 1F on copper using a MIG welding machine
	OR	Cleaned out a MAG weld using a chipping hammer
Tuesday	**DO NOT WRITE:**	**Sales Department only**
	RATHER	Sales Department: Comparison of different offers of service providers for welding/electrical materials in terms of quality, price and delivery time
	OR	Placed orders for electrical supplies
Wednesday		Sick leave/leave
Thursday	**DO NOT WRITE:**	**Non-relevant work for welders**
	RATHER	Swept workshop and washed company cars
	OR	Supporting plumbing department with installation of drainages
	OR	Did nothing and sat around the whole day

WEEKLY JOURNAL

Week: (from / to)	**Department(s)/Area(s):**

Date	Insert main work experience obtained for each day in the company	Hours

Name of apprentice**:**	Name of supervisor**:**
Signature of apprentice:	Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Section 3: Logbook

LOGBOOK

Section three is your formal logbook and proof of experience gained. Once you have performed a task to the required standard your supervisor will sign the task off in your logbook. After all the tasks have been completed, you and your supervisor will both sign-off.

In performing each of the tasks it is essential that you do the following:

- **Wear** appropriate PPE
- **Adhere** to occupational health and safety standards
- **Work according to company policies and procedures**
- Perform a **risk assessment**
- **Safely use and care** for hand, power, measuring tools and equipment according to manufacturer's specifications and workplace procedures
- **Evaluate** your work to ensure that it meets quality standards
- **Perform** housekeeping

When you are learning a task, you will move through a learning process which gradually increases in complexity. The steps usually are:

1) Observing and assisting with a task

2) Performing the task with assistance and under supervision

3) Undertake all task activities without assistance, but under supervision

Your logbook includes space for comments and feedback. Please encourage your supervisor to complete this section. This will help you to know how you are progressing, and where you can improve further.

Completed tasks should be ideally signed off once a month or at the very latest at the end of each company block.

Your employer may not be able to provide you with experience in all the tasks stated in the training record.

Should this be the case then ask your employer to make arrangements for you to obtain the required experience either at a training provider or at a different employer.

Learning Area A: Practice the occupation and behave responsibly and professionally in the workplace

Work situation: A1 Comply with legislation, regulations and codes relevant to the occupation

Work Experience Module QCTO Reference: None	Experience gained
Check completed work for adherence to applicable standards, tolerances and specifications	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area A: Practice the occupation and behave responsibly and professionally in the workplace

Work situation: A2 Receive an induction and orientation to the occupation and the training programme

Work Experience Module **QCTO Reference:** **None**	**Experience gained**
Participate in a company induction that includes: ○ Company vision and mission, operations, specific structures and procedures ○ Company specific expectations with regards to work ethics and values of the business and signing of agreed values to be adhered to ○ Appropriate dress code and behaviour in the workplace ○ Contractual obligations for apprentice and employer (including leave policy, hours of work, shift and weekend work, remuneration and steps to be taken by the apprentice if he/she is unable to come to work) ○ Steps the apprentice should follow in order to raise a grievance ○ The workplace training plan for work experience for apprentices ○ Roles and responsibilities of the apprentice in the company ○ Reporting structures ○ An introduction to co-workers and supervisor	❑
Obtain the relevant PPE	❑
Participate in feedback sessions with supervisor	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area A: Practice the occupation and behave responsibly and professionally in the workplace

Work situation: A3 Manage personal finances

Work Experience Module QCTO Reference: None	Experience gained
Review salary slip and have a structured discussion on the items listed	❑
Draw up a personal budget plan to accommodate fixed costs, particularly costs for monthly travel	❑
Have a discussion on monthly business planning/budgets (how do these relate to personal budgets, where are they similar?)	❑
Perform basic calculations to understand deductions related to legal obligations	❑
Review salary slip and have a structured discussion on the items listed	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area A: Practice the occupation and behave responsibly and professionally in the workplace

Work situation: A4 Communicate professionally in the workplace

Work Experience Module QCTO Reference: None	Experience gained
Participate in a feedback session on work ethics and professional behaviour demonstrated during the training period at the end of the company block	❑
Participate in toolbox talks, meetings and informal discussions and take notes	❑
Report on work results in next morning's toolbox talk	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area B: Work safely and respond to emergencies

Work situation: B1 Perform basic first aid

Work Experience Module QCTO Reference: None	Experience gained
Be inducted to the company's first aid policies and procedures	❑
Participate in company first aid talks	❑
Adhere to company's first aid policies and procedures at all times	❑
Be appointed as a temporary first aider at the workplace if possible	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area B: Work safely and respond to emergencies

Work situation: B2 Perform basic firefighting

Work Experience Module QCTO Reference: None	Experience gained
Be inducted to the company's fire-fighting policies and procedures	❑
Participate in company fire-fighting talks	❑
Adhere to company's fire-fighting policies and procedures at all times	❑
Be appointed as a temporary fire-fighter at the workplace if possible	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area B: Work safely and respond to emergencies

Work situation: B3 Read and respond to safety signage

Work Experience Module QCTO Reference: None	Experience gained
Be inducted to the company's safety signage policies and procedures	❑
Adhere to company's safety signage policies and procedures at all times	❑
Secure work area with applicable safety signage at all times	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area B: Work safely and respond to emergencies

Work situation: B4 Identify, use and care for lifting and support equipment

Work Experience Module QCTO Reference: None	Experience gained
Identify the correct lifting and support equipment for each task	❑
Inspect the lifting and support equipment and report any defects using company procedure and documents	❑
Follows required safety procedures when working with lifting and support equipment	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area C: Use Tools and Equipment

Work situation: C1 Identify, use and care for basic hand tools and equipment

Work Experience Module QCTO Reference: None	Experience gained
Identify the correct hand tools for a task and use correctly and safely according to manufacturer's specifications and workplace procedure	❑
Identify and use manufacturer's instructions for hand tools and equipment, as necessary	❑
Follow correct workplace procedures to obtain the required hand tools and equipment for a task	❑
Manage a toolbox and keep it up-to-date	❑
Inspect hand tools and equipment and identify and report defects using the correct procedure and documents	❑
Care, clean, perform basic maintenance on, and correctly store hand tools and equipment according to manufacturer's specifications and workplace procedure	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area C: Use Tools and Equipment

Work situation: C2 Identify, use and care for workshop tools and equipment

Work Experience Module QCTO Reference: None	Experience gained
Identify the correct workshop tools and equipment for a task and use correctly and safely according to manufacturer's specifications and workplace procedure	❑
Identify and use manufacturer's instructions for workshop tools and equipment, as necessary	❑
Follow correct workplace procedures to obtain the required workshop tools and equipment for a task	❑
Inspect workshop tools and equipment and identify and report defects using the correct procedure and documents	❑
Care, clean, perform basic maintenance on, and correctly store workshop tools and equipment according to manufacturer's specifications and workplace procedure	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area C: Use Tools and Equipment

Work situation: C3 Identify, use and care for measuring equipment

Work Experience Module **QCTO Reference:** **NONE**	**Experience gained**
Identify the correct measuring equipment for a task and use correctly and safely according to manufacturer's specifications and workplace procedure	❑
Identify and use manufacturer's instructions for measuring equipment, as necessary	❑
Follow correct workplace procedures to obtain the required measuring equipment for a task	❑
Inspect measuring equipment and identify and report defects using the correct procedure and documents	❑
Care, clean, perform basic maintenance on, and correctly store measuring equipment according to manufacturer's specifications and workplace procedure	❑

Name of apprentice**:** _____ Signature of apprentice:	Name of supervisor**:** _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area C: Use Tools and Equipment

Work situation: C4 Fabricate simple components using basic hand tools

Work Experience Module QCTO Reference: NONE	Experience gained
Plan the workplace task	❑
Identify and select the required materials for fabricating the component	❑
Mark off the material as per specifications	❑
Cut and fabricate the component as required	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area C: Use Tools and Equipment

Work situation: C5 Perform basic computer operations

Work Experience Module QCTO Reference: None	Experience gained
Receive induction to the company's computer system, its main applications and usage related policies	❑

Name of apprentice:	Name of supervisor:
Signature of apprentice:	Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area D: Cut and join metals

Work situation: D1 Arc weld metal to specification

Work Experience Module QCTO Reference: None	Experience gained
Arc weld metal to specification (if required to do so) according to OEM specifications	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area D: Cut and join metals

Work situation: D2 Gas weld metal to specification

Work Experience Module QCTO Reference: None	Experience gained
Gas weld metal to specification (if required to do so) according to OEM specifications	❑

Name of apprentice:	Name of supervisor:
Signature of apprentice:	Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area D: Cut and join metals

Work situation: D3 Gas cut metal to specification

Work Experience Module QCTO Reference: None	Experience gained
Gas cut metal to specification (if required to do so) according to OEM specifications	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area E: Remove and install mechanical components

Work situation: E1 Remove, inspect, maintain and install bearings

Work Experience Module QCTO Reference: None	Experience gained
Plan the workplace task	❑
Identify the type of bearings required	❑
Remove and install various types of bearings as per manufacturer specifications	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area E: Remove and install mechanical components

Work situation: E2 Use fasteners, keys and locking devices

Work Experience Module QCTO Reference: None	Experience gained
Plan the workplace task	❑
Identify the type of locking devices required	❑
Remove and install various types of keys, fasteners and locking devices as per manufacturer specifications	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice:_____ Signature of apprentice:	Name of supervisor:_____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area E: Remove and install mechanical components

Work situation: E3 Remove and install gaskets and seals

Work Experience Module QCTO Reference: None	Experience gained
Plan the workplace task	❑
Identify the type of gaskets and seals required	❑
Remove and install various types of gaskets and seals as per manufacturer specifications	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area F: Construct and trouble-shoot auto-electrical, auto-electronic and fluid power components

Work situation: F1 Construct and trouble shoot basic auto-electrical circuits

Work Experience Module **QCTO Reference:** **None**	**Experience gained**
Integrated in Learning packages J1, J2 and J3	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area F: Construct and trouble-shoot auto-electrical, auto-electronic and fluid power components

Work situation: F2 Construct and trouble shoot basic auto-electronic circuits

Work Experience Module **QCTO Reference:** **None**	**Experience gained**
Integrated in Learning package J11	❑

Name of apprentice**:** _____ Signature of apprentice:	Name of supervisor**:** _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area F: Construct and trouble-shoot auto-electrical, auto-electronic and fluid power components

Work situation: F3 Construct and trouble-shoot basic pneumatic and hydraulic circuits

Work Experience Module **QCTO Reference:** **None**	**Experience gained**
Plan the workplace task	❑
Identify any of the six specific hydraulic circuits to be constructed from the given diagram	❑
Remove and install various types of hydraulic components as needed according to manufacturer specifications	❑
Identify the type of Electronic Control diagnostic equipment required	❑
Evaluate error codes downloaded and rectify such errors according to manufacturer specifications	❑
Complete finishing operations by checking the ECU once more and reset all error codes	❑
Complete report/checklist	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area G: Maintain and service vehicle and vehicle components

Work situation: G1 Access electronic control modules and download operational and parameter information

Work Experience Module **QCTO Reference:** **WM-01-WE01, WM-01-WE02, WM-01-WE03**	**Experience gained**
Plan the workplace task	❑
Identify the type of Electronic Control diagnostic equipment required for the task	❑
Evaluate error codes downloaded and rectify such errors according to manufacturer specifications	❑
Complete finishing operations by checking the ECU once more and reset all error codes	❑
Complete report/checklist	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area G: Maintain and service vehicle and vehicle components

Work situation: G2 Prepare and service engine and vehicle sub-systems

Work Experience Module **QCTO Reference:** **WM-01-WE01, WM-01-WE02, WM-01-WE03**	**Experience gained**
Plan the workplace task	❑
Identify the type of service to be performed on the given vehicle.	❑
Remove and install various devices as per manufacturer specifications for the type of service	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area G: Maintain and service vehicle and vehicle components

Work situation: G3 Test and maintain batteries

Work Experience Module QCTO Reference: WM-01-WE01, WM-01-WE02, WM-01-WE03	Experience gained
Plan the workplace task	❑
Remove and test batteries as per OEM specifications	❑
Replace battery if required according to OEM specifications	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area G: Maintain and service vehicle and vehicle components

Work situation: G4 Test and adjust coolant condition

Work Experience Module QCTO Reference: WM-01-WE01, WM-01-WE02, WM-01-WE03	Experience gained
Plan the workplace task	❑
Test and adjust coolant condition as required, as per OEM specifications	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area G: Maintain and service vehicle and vehicle components

Work situation: G5 Bleed air out of diesel fuel systems

Work Experience Module **QCTO Reference:** **WM-01-WE01, WM-01-WE02, WM-01-WE03**	**Experience gained**
Plan the workplace task	
Bleed air out of diesel fuel system as required, as per OEM specifications	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H1 Dismantle, inspect and reassemble cylinder heads

Work Experience Module QCTO Reference: WM-02-WE01, WM-02-WE02, WM-02-WE03	Experience gained
Plan the workplace task	❑
Check cylinder head for warpage and cracks once dismantled.	❑
Assess all valve springs, valve guides and valve seats for serviceability	❑
Check width of seats and all other parts to be within OEM specifications.	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H2 Dismantle, inspect and reassemble engine sub-assemblies (bottom end)

Work Experience Module QCTO Reference: WM-02-WE01, WM-02-WE02, WM-02-WE03	Experience gained
Plan the workplace task	❑
Dismantle bottom-end sub-assembly as per manual; remove covers and gears as applicable, oil pump and related cooling / lubricating assembly, remove piston assembly, remove crank shaft, camshaft and other shafts (if applicable)	❑
Measure and report on crank shaft taper, ovality, journal diameter, fillet radius (big-end and main), thrust washer thickness, crank run-out, line bore.	❑
Measure and report on camshaft journal sizes and cam followers, alignment/ run-out, lobe condition and size.	❑
Measure and report on oil pump serviceability and clearances	❑
Measure and report on piston size, ovality, ring groves and gap clearances, gudgeon pin to piston clearance.	❑
Measure and report on connecting rods, alignment, bearing nip/ crush/ draw, small-end bush size.	❑
Fit liners /sleeves where applicable and check sleeve protrusion.	❑
Fit camshaft and cam followers. Check end float.	❑
Assemble crank, main bearing sub-assembly as per specification, torque as per spec sequence with thrust washers, and check oil clearance on big-end and main bearings as well as end-float.	❑
Fit pistons to connecting rod as per directional positions indicated, install rings and the ring gaps must be staggered on the piston.	❑
The pistons and connecting rods must be re-fitted to the same cylinders from which they were removed, and measure piston protrusion.	❑
Fit camshaft and cam followers. Check end float.	❑
Fit all timing gears and set timing.	❑
Prime oil pump and install oil pump assembly	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice**:** Signature of apprentice:	Name of supervisor**:** Signature of supervisor:
Date:	Date:
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Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H3 Dismantle, inspect and reassemble lubrication systems

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Check and report on the condition of the oil strainer, filter and relieve valve.	❑
Check oil pump for serviceability and clearances.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H4 Dismantle, inspect and reassemble fuel systems

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Check and install fuel filters, fuel lift pump, injector pump refitted and timing set, fuel line non-return valve, and injectors.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H5 Dismantle, inspect and reassemble cooling systems

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Check and install radiator, core, cooling fan, driving belts, water pump, thermostat, thermo switch, radiator cap and hoses, pulleys and heater if required as per OEM specifications.	❑
Complete finishing operations	
Complete report/checklist	

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Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H6 Remove, dismantle, inspect, repair, refit and reassemble and refit induction and exhaust systems

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Visual inspection of Intercooler, hoses, and manifold for serviceability and leaks, exhaust manifold cracks, exhaust pipe, mufflers, flanges, hangers, supports and exhaust brake assembly.	❑
Perform repairs on induction and exhaust system as required, according to OEM standards	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H7 Dismantle, inspect and reassemble engine electrical systems (including conventional ignition systems)

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Trace faults and report on the starting circuit incl. neutral / safety switching, The ignition circuit incl. glow-plugs and ignition switch system and the charging circuit.	❑
Remove faulty alternator and /or starter and correctly refit, and re-test	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area H: Remove, dismantle, inspect, repair, reassemble and refit engines and engine sub-assemblies

Work situation: H8 Remove, inspect, repair and refit vehicle engines (commission)

Work Experience Module QCTO Reference: WM-04-WE01, WM-04-WE02, WM-04-WE03	Experience gained
Plan the workplace task	❑
Observe the mounting of an engine on a dynamometer.	❑
Observe the engine running on the dynamometer.	❑
Complete the engine test report received from the dyno test centre.	❑
Complete finishing operations	❑
Complete checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
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Learning Area I: Remove, dismantle, inspect, repair, reassemble and refit vehicle sub-assemblies

Work situation: I1 Remove, dismantle, inspect, repair, reassemble and refit braking systems

Work Experience Module **QCTO Reference:** **WM-03-WE01, WM-03-WE02, WM-03-WE03**	**Experience gained**
Plan the workplace task	❑
Trace faults and report on the starting circuit incl. neutral / safety switching, the ignition circuit incl. glow-plugs and ignition switch system and the charging circuit.	❑
Be able to remove faulty brakes and correctly refit, and re-test	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area I: Remove, dismantle, inspect, repair, reassemble and refit vehicle sub-assemblies

Work situation: I2 Remove, dismantle, test, repair, reassemble and refit drive train system components

Work Experience Module **QCTO Reference:** **WM-03-WE01, WM-03-WE02, WM-03-WE03**	**Experience gained**
Plan the workplace task	❑
Remove the drive shaft from the flanges, remove, service and replace the universal joints	❑
Fit the drive shaft to the flanges again.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area I: Remove, dismantle, inspect, repair, reassemble and refit vehicle sub-assemblies

Work situation: I3 Remove, dismantle, inspect, repair, reassemble and refit steering and suspension systems

Work Experience Module **QCTO Reference:** **WM-03-WE01, WM-03-WE02, WM-03-WE03** **WM-04-WE01, WM-04-WE02, WM-04-WE03**	**Experience gained**
Plan the workplace task	❑
Identify the different types of steering units.	❑
Dismantle, clean and assemble the ball and nut steering unit.	❑
Adjust and centralise the steering.	❑
Adjust the front wheel alignment.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area I: Remove, dismantle, inspect, repair, reassemble and refit vehicle sub-assemblies

Work situation: I4 Remove, test, repair and refit tyres, and balance and align wheels

Work Experience Module **QCTO Reference:** **WM-10-WE01, WM-10-WE02, WM-10-WE03**	**Experience gained**
Plan the workplace task	❑
Remove wheels safely from vehicle	❑
Inspect wheels for serviceability	❑
Balance a wheel (not necessarily commercial)	❑
Perform all pre-checks for wheel alignment.	❑
Refit wheels and torque wheel nuts to specification	❑
Perform wheel alignment	❑
Complete finishing operations	❑
Complete checklist	❑

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Learning Area I: Remove, dismantle, inspect, repair, reassemble and refit vehicle sub-assemblies

Work situation: I5 Remove, test, repair and refit vehicle air conditioning systems

Work Experience Module **QCTO Reference:** **WM-06-WE01, WM-06-WE02, WM-06-WE03**	**Experience gained**
Plan the workplace task	❑
Test functionality of complete air conditioning system.	❑
Replace pollen filter	❑
Inspect and replace drive belt	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J1 Diagnose and repair starting system faults

Work Experience Module QCTO Reference: WM-06-WE01, WM-06-WE02, WM-06-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the starting system.	❑
Conduct diagnostic test of a starting system.	❑
Conduct all pre-start checks	❑
Trace and repair all faults in the : a. Starting circuit. b. Ignition circuit.	❑
Perform battery tests correctly.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J2 Diagnose and repair charging system faults

Work Experience Module QCTO Reference: WM-06-WE01, WM-06-WE02, WM-06-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the charging system.	❑
Conduct diagnostic test of a starting system.	❑
Perform battery tests correctly.	❑
Trace and repair all faults in the charging circuit.	❑
Complete finishing operations	❑
Follow the correct safety and housekeeping practices.	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J3 Diagnose and repair lighting system faults

Work Experience Module QCTO Reference: WM-06-WE01, WM-06-WE02, WM-06-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the lighting system.	❑
Conduct diagnostic test of the lighting system.	❑
Perform battery tests correctly.	❑
Trace all faults in the lighting system and correct them	❑
Check all wiring, relays and switches	❑
Complete finishing operations	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J4 Diagnose and repair auxiliary electrical system faults

Work Experience Module QCTO Reference: WM-06-WE01, WM-06-WE02, WM-06-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the auxiliary electrical system.	❑
Conduct diagnostic test of the auxiliary electrical system.	❑
Trace all faults in the auxiliary electrical system and correct them	❑
Check all wiring, relays and switches	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J5 Diagnose and repair ignition system faults

Work Experience Module QCTO Reference: WM-06-WE01, WM-06-WE02, WM-06-WE03	Experience gained
Plan the workplace task	❑
Perform required diagnostics on an ignition system	❑
Identify and test the following applicable components on the engine: a) Primary speed / position sensor b) Secondary speed / position sensor c) Coolant temperature sensor d) Coolant level sensor e) Boost temperature sensor f) Fuel temperature sensor g) Oil pressure sensor h) Fuel supply pressure sensor i) Fuel rail pressure sensor j) Crankshaft position sensor k) Camshaft position sensor.	❑
Retrieve the diagnostic trouble codes from the ECM.	❑
Record the following pressures correctly: a) common rail fuel pressure b) boost pressure c) fuel supply pressure. d) intake air temperature e) engine oil pressure	❑
Repair the faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J6 Diagnose and repair engine fuel system faults (petrol)

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Perform required diagnostics on engine fuel system faults	❑
Identify and test the following applicable components on the engine: a) Primary speed / position sensor b) Secondary speed / position sensor c) Coolant temperature sensor d) Coolant level sensor e) Boost temperature sensor f) Fuel temperature sensor g) Oil pressure sensor h) Fuel supply pressure sensor i) Fuel rail pressure sensor j) Crankshaft position sensor k) Camshaft position sensor.	❑
Retrieve the diagnostic trouble codes from the ECM.	❑
Record of the following pressures correctly: a) common rail fuel pressure b) boost pressure c) fuel supply pressure. d) intake air temperature e) engine oil pressure	❑
Repair the faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J7 Diagnose and repair engine fuel system faults (diesel)

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03**	**Experience gained**
Plan the workplace task	❑
Perform required diagnostics on engine fuel system faults	❑
Identify and test the following applicable components on the engine: a) Primary speed / position sensor b) Secondary speed / position sensor c) Coolant temperature sensor d) Coolant level sensor e) Boost temperature sensor f) Fuel temperature sensor g) Oil pressure sensor h) Fuel supply pressure sensor i) Fuel rail pressure sensor j) Crankshaft position sensor k) Camshaft position sensor.	❑
Retrieve the diagnostic trouble codes from the ECM.	❑
Record of the following pressures correctly: a) common rail fuel pressure b) boost pressure c) fuel supply pressure. d) intake air temperature e) engine oil pressure	❑
Repair the faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J8 Diagnose and repair forced induction system faults

Work Experience Module **QCTO Reference:** **WM-02-WE01, WM-02-WE02, WM-02-WE03** **WM-04-WE01, WM-04-WE02, WM-04-WE03**	**Experience gained**
Plan the workplace task	❑
Pre-check all sensors for functionality	❑
Check turbo actuator for functionality	❑
Conduct visual inspection of forced induction system faults	❑
Conduct diagnostic test of forced induction system faults	❑
Identify error codes correctly , record, rectify and clear	❑
Recheck error codes and confirm repair	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J9 Diagnose and repair lubrication system faults

Work Experience Module QCTO Reference: WM-02-WE01, WM-02-WE02, WM-02-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the lubrication system.	❑
Conduct a lubrication system diagnostic test.	❑
Repair all error codes identified	❑
Identify error codes correctly, record, rectify and clear	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J10 Diagnose and repair air conditioning system faults

Work Experience Module QCTO Reference: WM-06-WE01, WM-06-WE02, WM-06-WE03	Experience gained
Plan the workplace task	❑
Test the functionality of the air conditioning system as whole by measuring the air temperature at the vents.	❑
Refer any diagnosed faults to an air conditioning specialist with findings.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area J: Diagnose and repair electrical and electronically controlled vehicle systems

Work situation: J11 Diagnose and repair electronic management system faults

Work Experience Module QCTO Reference: WM-04-WE01, WM-04-WE02, WM-04-WE03	Experience gained
Plan the workplace task	❑
Identify one of the following Safety Circuits (Neutral Start Switch; Water Temperature Sensor Speed Sensors; Speed Sensor Failsafe System; Stop Light Switch Sensor System)	❑
On the engine work with: - Primary speed / position sensor, - secondary speed/position sensor - coolant temperature sensor, - coolant level sensor, - Boost temperature sensor - Fuel temperature sensor, - Oil pressure sensor, - Fuel supply pressure sensor - Fuel rail pressure sensor, - Crankshaft position sensor.	❑
Retrieve the diagnostic trouble codes from the ECM.	
Record the following pressures correctly: a) common rail fuel pressure b) boost pressure c) fuel supply pressure. d) intake air temperature e) engine oil pressure	
Repair faults identified	
Complete finishing operations	
Complete report/checklist	

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K1 Diagnose and repair engine cooling system faults

Work Experience Module **QCTO Reference:** **WM-07-WE01, WM-07-WE02, WM-07-WE03**	**Experience gained**
Plan the workplace task	❑
Connect diagnostic tool and record all error codes related to engine cooling system	❑
Check and inspect the following components of the cooling system: -The radiator -The fan -The water pump -The thermostat	❑
Perform required risk assessment for removing and installing cooling systems	❑
Repair cooling system faults identified	❑
Complete finishing operations	❑
Compete report/checklist	❑

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K2 Diagnose and repair clutch faults

Work Experience Module QCTO Reference: WM-09-WE01, WM-09-WE02, WM-09-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the clutch system.	❑
Perform required diagnostic test of the clutch system.	❑
Repair faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice:_____ Signature of apprentice:	Name of supervisor:_____ Signature of supervisor:
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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K3 Diagnose and repair manual transmission, front wheel drive gearbox faults

Work Experience Module **QCTO Reference:** **WM-09-WE01, WM-09-WE02, WM-09-WE03**	**Experience gained**
Plan the workplace task	
Conduct visual inspections of the manual transmission, front wheel drive gearbox faults	❑
Conduct visual inspections of the front wheel drive gearbox faults	
Repair faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K4 Diagnose and repair automatic transmission faults

Work Experience Module QCTO Reference: WM-05-WE01, WM-05-WE02, WM-05-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the automatic transmission.	❑
Conduct an automatic transmission diagnostic test.	❑
Repair faults identified	❑
Perform required risk assessment for diagnosing an automatic transmission.	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K5 Diagnose and repair transfer case faults

Work Experience Module QCTO Reference: WM-09-WE01, WM-09-WE02, WM-09-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the transfer case faults	❑
All the safety procedures were adhered to.	❑
Perform required diagnostic test for transfer case faults	❑
Repair faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K6 Diagnose and repair rear wheel differential faults

Work Experience Module QCTO Reference: WM-05-WE01, WM-05-WE02, WM-05-WE03	Experience gained
Plan the workplace task	❑
Conduct visual inspections of the rear wheel differential faults	❑
Conduct rear wheel differential faults diagnostics test	❑
Repair faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K7 Diagnose and repair electronic braking system faults

Work Experience Module QCTO Reference: WM-09-WE01, WM-09-WE02, WM-09-WE03	Experience gained
Plan the workplace task	❑
Conduct a diagnostic test of the braking system.	❑
Set load sensing valve to given specifications	❑
Slack brakes for disassembling	❑
Inspect and assess the electronic brake system.	❑
Repair faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K8 Diagnose and repair exhaust system faults

Work Experience Module QCTO Reference: WM-07-WE01, WM-07-WE02, WM-07-WE03	Experience gained
Plan the workplace task	❑
Conduct a visual inspection of the complete exhaust system.	❑
Conduct an engine emission diagnostic test, and follow through on error codes related to the exhaust system	❑
Check the Exhaust Gas Recirculation (EGR) system where applicable	❑
Identify the error codes, repair accordingly and recheck	❑
Complete finishing operations	❑
Complete report/checklist	❑

Name of apprentice: _____ Signature of apprentice:	Name of supervisor: _____ Signature of supervisor:
Date:	Date:
Comment apprentice:	Comment supervisor:

Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K9 Diagnose and repair manual transmission, rear wheel drive gearbox faults

Work Experience Module **QCTO Reference:** **WM-09-WE01, WM-09-WE02, WM-09-WE03**	**Experience gained**
Plan the workplace task	❑
Conduct visual inspections of the rear wheel drive gearbox	❑
Conduct a rear wheel drive gearbox diagnostic test.	❑
Repair all error codes identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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Learning Area K: Diagnose and repair engine and vehicle sub-systems

Work situation: K10 Diagnose and repair)conventional hydraulic) braking system faults

Work Experience Module **QCTO Reference:** **WM-09-WE01, WM-09-WE02, WM-09-WE03**	**Experience gained**
Plan the workplace task	❑
Conduct a diagnostic test of the braking system.	❑
Set load sensing valve to given specifications	❑
Slack brakes for disassembling	❑
Inspect and assess the conventional hydraulic brake system.	❑
Repair faults identified	❑
Complete finishing operations	❑
Complete report/checklist	❑

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