

AUTOMOTIVE SECTOR

Motor cycle Maintenance and repairs

SUMMARY OF LEVEL 1 (AS CLASSIFIED)

MANDATORY AND OPTIONAL UNITS

UNIT	REFERENCE NO.	NOS TITLE	CREDIT VALUE	TOTAL LEARNING HOUR	REMARKS
1	AUT/MTC/001/L1	Health, Safety and Environment	2	20	Mandatory
2	AUT/MTC/002/L1	Communication in Auto Motor-cycle	2	20	Mandatory
3	AUT/MTC/003/L1	Application of Mechanical Fastening Techniques	3	30	Mandatory
4	AUT/MTC/004/L1	Tools and Materials	3	30	Mandatory
5	AUT/MTC/005/L1	Engine System Maintenance	3	30	Optional
6	AUT/MTC/006/L1	Drive Train and Braking system servicing	3	30	Optional
7	AUT/MTC/007/L1	Wheels, tyres, steering & Suspension	3	30	Optional
TOTAL CREDIT VALUE/HOURS			19	190	

NOTE: Learners are required to select 2 units from the optional units

Qualification Purpose: This Qualification covers the competence and knowledge learners need to safely carry out in servicing and routine repairs of auto motorcycles' mechanical, electrical systems and components. The qualification also ensures that the learner is aware of health & safety, the environment, appropriate communication and learns the use of tools and their maintenance. It does not enable the candidate to dismantle 'live' components, for example engine, gearbox.

**Unit: 001 HEALTH, SAFETY AND ENVIRONMENT (HSE) IN AUTOMOTIVE
MOTOR CYCLE INDUSTRY**

Unit reference number: AUT/MTC/001/L1

QCF level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is about the knowledge and skills needed to competently carryout daily activities in an automotive motorcycle workshop while observing relevant work ethics, safety and environment. It includes basic first-aid and fire fighting procedures.

Unit assessment requirements/evidence requirements

This assessment can only be carried out in a real automotive motorcycle workplace.

Assessment method will include

1. Direct Observation (DO)
2. Oral questions
3. Question and Answer (QA)
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)

L.O (Learning outcome)	Criteria:-		Evidence Type				Evidence Ref Page number			
L.O:1 Demonstrate safe work practices and instructions	1.1	Explain safe work practice and instructions								
	1.2	Identify safety signs and symbols								
	1.3	Use signs and symbols correctly								
	1.4	Carry out safe work practices and instructions								
	1.5	Work in accordance with health and safety practices.								
L.O 2: Demonstrate the understanding of safety hazards and risks										
	2.1	Identify work environment hazards								
	2.2	State types of hazard and risks in surface area								
	2.3	State types of hazards and risks in height and depth								

L.O.3: Demonstrate the usage of personal protective equipment (PPE)	3.1	Identify the types of PPEs																		
	3.2	Use PPEs in accordance with instructions																		
	3.3	Select appropriate PPEs																		
	3.4	Service PPEs after use																		
L.O. 4: Demonstrate the ability to take appropriate actions during accident/injury	4.1	Identify first aid facility																		
	4.2	Use basic dressing materials																		
	4.3	Comply to supervisor given instructions																		
	4.4	Communicate accident/injury to the appropriate supervisor																		
L.O. 5: Demonstrate safe work practices and clean work environment	5.1	Use safe access and exit routes in the work environment																		
	5.2	Identify appropriate working tools, materials and equipment																		
	5.3	Use tools and equipment safely in accordance with the supervisors instructions																		
	5.4	Gather all tools, equipment and un used materials for appropriate storage																		
	5.5	Carry out general housekeeping of work environment																		
	5.6	Dispose all wastes appropriately to designated waste facilities																		
L.O: 6. Demonstrate understanding of lifting, loading/offloading and stacking of materials	6.1	Identify lifting and stacking techniques																		
	6.2	Carry out appropriately lifting techniques in loading and offloading of materials without assistance																		
	6.3	Perform correct lifting and loading techniques with mechanical assistance																		
	6.4	Stack materials correctly																		
L.O: 7 Demonstrate understanding of the effects of materials on self and work environment	7.1	Explain the effect of gas, liquid and solid materials on self and work environment																		
	7.2	Identify various types of protection against gaseous, liquid, and solid materials on self and work environment																		
	7.3	Explain appropriate legislative standards with regards to safety																		

Learners Signature:	Date:
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	Date:

		accordance with laid down procedure in the work environment											
L.O: 3.0 Use of various communication means in a work environment													
	3.1	Identify the various communication equipment in the work environment											
	3.2	Use effectively the various communication equipment in a work environment											
	3.3	Pass information effectively to the right personnel											
	3.4	Carry out instructions in line with ethics of the work environment											

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Unit: 003**FASTENING (JOINING) TECHNIQUES USED IN AUTOMOTIVE SERVICES AND REPAIR OPERATIONS****Unit reference number: AUT/MTC/003/L1****QCF level: 1****Credit value: 3****Guided learning hours: 30 HOURS**

Unit Purpose: This unit is about joining materials effectively using mechanical joining and fastening techniques.

Unit assessment requirements/evidence requirements:

This assessment can only be carried in a real workplace environment in which automotive motor cycle service, repair, and mechanical joining by fastening operations are carried out.

Assessment method will include

1. Direct Observation / oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

L.O (Learning outcome)	Criteria:-		Evidence Type				Evidence Ref Page number				
L.O:1.0 Apply safety measures in metal joining/fastening	1.1	Use appropriate personal protective equipment when carrying out mechanical joining operations.									
	1.2	Protect the motor cycle and its contents effectively when carrying out mechanical joining operation									
	1.3	Ensure that the tools, equipment and PPE you require are in a safe working condition									
	1.4	Dress and protect the repaired area to inhibit corrosion where applicable									
	1.5	Clean and store PPE and equipment in appropriate manner									
	1.6	Conform to health safety and legal requirements									

L.O: 2.0 Use tools and equipment for carrying out mechanical joining operations	2.1	Select the correct tools and equipment for carrying out mechanical joining operations																	
	2.2	Ensure that the tools and equipment and PPE you require are in a safe working condition																	
	2.3	Carry out mechanical joining operations																	
	2.4	Check stability of tooling																	
	L.O. 3 Apply various types of metal joining/ fastening techniques	3.1	Prepare material and align to enable suitable joint to be achieved																
3.2		Polish meeting flanges before joining																	
3.3		Set up your equipment to carry out mechanical joining operations such as: check suitability of joining technique, check suitability of tooling, check consumables																	
3.4		Check integrity of the joint.																	
3.5		Carry out mechanical joining operations within the agreed timescale																	
3.6		Identify common fastener failures																	

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UNIT: 004 SERVICE TOOLS AND EQUIPMENT

Unit reference number: AUT/MTC/004/L1

QCF level: LEVEL 1

Credit value: 3 CREDITS

Guided learning hours: 30 HOURS

Unit Purpose: This unit is about the basic use of tools, materials and waste disposal methods relevant to the automotive motorcycle sector

This unit is about;

1. Interpreting information
2. Adopting safe and healthy working practices
3. Selecting materials and equipment
4. Service and maintenance of workshop tools & equipment
5. Storage of workshop tools and equipment

Unit assessment requirements/evidence requirements

Assessment must be carried out in real workplace environment in which automotive motorcycle services and repair operations are carried out. Simulation is not allowed in this unit and level.

Assessment method will include

1. Direct Observation / oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)
5. Project

L.O (Learning outcome)	Criteria:-	Evidence Type				Evidence Ref Page number			
L.O:1. Select workshop tools and materials	1.1	Identify types of workshop hand tools such as: marking tools, cutting tools, metal removing tools and fastening tools							
	1.2	Identify functions of workshop hand tools listed above							
	1.3	Select correct tools for marking operations							
	1.4	Select correct tools for metal removing operations							

	1.5	Select correct tools for fastening operations																		
	1.6	Select correct tools for cutting operations																		
L.O: 2. Use hand tools appropriately for cutting, filling, marking out and fastening operations.																				
	2.1	Carry out marking out operations																		
	2.2	Carry out filing operations																		
	2.3	Carry -out cutting operations																		
	2.4	Carry -out fastening operation.																		
	2.5	Loose bolts and nuts with correct tools																		
	2.6	Identify problems associated with incorrect use of tools																		
L.O. 3 Select materials for repairs and servicing operations.	3.1	Identify materials for servicing in accordance to the manufacturer's specification such as : engine oil, differential oil, filters plug, grease																		
	3.2	Identify materials for repairs such as: gaskets, sealants, seals. Fittings, fasteners																		
	3.3	Select correct personal protective equipment for different operations																		
	3.4	Assist in servicing operations																		
L.O. 4: Maintain workshop tools	4.1	Service tools as specified by manufacturer's /workshop requirement.																		
	4.2	Use tools as specified by manufacturer's /workshop requirement.																		
	4.3	Store tools as specified by manufacturer's /workshop requirement																		

Assessors Signature:	Date:
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EQA Signature (if sampled)	Date:

UNIT: 005 ENGINE SYSTEM REPAIRS

Unit reference number: AUT/MTC/005/L1

QCF level: LEVEL 1

Credit value: 3

Guided learning hours: 30 HOURS

Unit Purpose: This unit is about conducting routine examination, adjustment and replacement activities as part of the periodic servicing of motorcycle.

Unit assessment requirements/evidence requirements:

This assessment can only be carried in a real workplace environment in which automotive motorcycle service and repair operation are carried out effectively. Live engines and functional motorcycle shall be provided.

Assessment method will include

1. Direct Observation / oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)
5. Project
6. Work product

L.O (Learning outcome)	Criteria:-	Evidence Type				Evidence Ref Page number			
L.O:1. Demonstrate knowledge of engine configuration.	1.1	Identify types of motorcycle engine. in line vee flat							
	1.2	Identify components of a motor cycle engine, engine block, top cylinder, Crankshaft, piston and rings, connecting rod, main/metal bearings, complete gasket, inner starter, timing chain/adjuster, camshaft, valves							
	1.3	State the function of each component of a motorcycle engine							
	1.4	Describe the operations of a motorcycle engine.							

		two stroke four stroke											
L.O: 2. Service motorcycle engine													
	2.1	Examine the motorcycle system and components following the manufacturer's approved methods											
	2.2	Select correct tools/equipment for servicing a motorcycle engine											
	2.3	Identify genuine filter, plug and lubricants in line with manufacturer's specification											
	2.4	Carry out motorcycle servicing activities such as: Spark plugs cleaning Fuel filter cleaning Air filter cleaning											
	2.5	Change engine oil											
L.O.3 Assist in the servicing of carburettor	3.1	Identify faults by visual inspection, direct observation and sound.											
	3.2	State manufacturer's service information for each machine											
	3.3	Identify tools/equipment for motorcycle carburettor servicing											
	3.4	Assist in dismantling the carburettor to clean jets/nut of blockage											
	3.5	Assist in replacing worn or damage parts.											
	3.6	Assist in assembling the carburettor											

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Unit: 006 DRIVETRAIN & BRAKING SYSTEM SERVICING

Unit reference number: AUT/MTC/006/L1

QCF level: 1

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is about servicing power train, rolling chassis and braking system. It includes the procedures of inspecting and assessing the conditions of the transmission and braking system in line with manufacturers' specifications

Unit assessment requirements/evidence requirements

This assessment can only be carried out in a real automotive motor cycle workplace.

Assessment method will include

1. Direct Observation / oral questions (DO)
2. Question and Answer
3. Witness Testimony (WT)
4. Personal statement (PS)
5. Work product (WP)
6. project

L.O (Learning outcome)	Criteria:-	Evidence Type				Evidence Ref Page number				
L.O:1.Carry out chain and sprockets service of motor cycle.	1.1	Identify the features of the motorcycle gear box								
	1.2	Service the gear system								
	1.3	Replace clutch cable								
	1.2	Carry-out adjustment of chain & sprocket								
	1.3	Identify faults of chain & sprocket								
	1.4	Select correct tools/equipment								
	1.5	Remove the chain & sprocket								
	1.6	Replace damaged parts Sprocket, chain, adjuster Bearing (hub)								
L.O. 2 Carry out braking system service.	2.1	Adjustment of brake liners with the correct tools								
	2.2	Assist to dismantle braking system								
	2.3	Assist to replace damaged parts such as brake liner/springs								

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UNIT: 007 WHEEL TYRES, STEERING & SUSPENSION

Unit reference number: AUT/MTC/007/L1

QCF level: 1

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is about inspecting standard motorcycle tyres and wheels to assess their conditions and suitability. It includes assisting in the replacement and repair procedures for wheels, tyres, steering & suspension.

Unit assessment requirements/evidence requirements;

This assessment can only be carried out in a real automotive motorcycle workshop in which replacement and repair procedures for wheels, tyres, steering & suspensions are carried out.

Assessment method will include

1. Direct Observation / oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)
5. Project
6. Work product

L.O (Learning outcome)	Criteria:-	Evidence Type	Evidence Ref	Page number
L.O:1 Carry-out steering service	1.1	Service the steering bearings such as (top and bottom bearings)		
	1.2	Service the steering bushing		
	1.3	Identify faults relating to steering		
	1.4	Assist to dismantle the steering unit		
	1.5	Assist to replace damaged parts such as: steering bearing (top and bottom) steering bushings		
	1.6	Assist to assemble the steering unit		
L.O: 2. Demonstrate the ability to carry out repair on motorcycle suspension system				
	2.1	Identify faults in shock absorber		
	2.2	Identify faults in suspension bushings		

	2.3	Select correct working tools												
	2.4	Assist to dismantle suspension unit												
	2.5	Assist to replace damaged parts such as: shock absorber(Oil seal and spring)												
	2.6	Assist to replace shock absorber bushings												
	2.7	Assist to assemble the unit												
L.O.3: Carry out repair in tyre and tubes	3.1	Identify types and tubes used in motorcycles												
	3.2	Use correct tools and techniques												
	3.3	Remove tire from the wheel												
	3.4	Check for leakages												
	3.5	Repair tube and tyre												
	3.6	Inflate tyre according to the manufacturer's specification												

Learners Signature:	Date:
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EQA Signature (if sampled)	Date: