

Overview

This NOS is about removing and replacing units and components where dismantling and re-assembly of quad bike steering, brakes, suspension systems, including wheels and tyres, are required. It is also about evaluating the performance of replaced units and components. The units and components concerned are those not replaced as part of normal routine, quad bike maintenance (servicing) activities.

For the purposes of this standard a quad bike is a motorcycle-derived all-terrain vehicle (ATV) which you sit astride with four or more wheels.

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**Performance
criteria**

- You must be able to:
- P1 use suitable personal and vehicle protective equipment throughout all removal and replacement activities
 - P2 ensure the quad bike and the work area is safe prior to work commencing
 - P3 support your removal and replacement activities by reviewing:
 - P3.1 quad bike technical data
 - P3.2 removal and replacement procedures
 - P3.3 legal requirements
 - P4 prepare, test and use all the **equipment** required following manufacturer's instructions
 - P5 carry out all removal and replacement activities following:
 - P5.1 manufacturer's instructions
 - P5.2 your workplace procedures
 - P5.3 health and safety requirements
 - P6 work in a way which minimises the risk of:
 - P6.1 damage to other quad bike systems
 - P6.2 damage to other quad bike components and units
 - P6.3 contact with leakage
 - P6.4 contact with hazardous substances
 - P6.5 injury to self and others
 - P7 ensure replaced **steering, brakes and suspension units and components** conform to the quad bike operating specification and any relevant legal requirements
 - P8 record and report any steering, brakes and suspension units and components that do not conform to legal requirements"
 - P9 record and report any additional faults you notice during the course of your work promptly
 - P10 use suitable **testing methods** to evaluate the performance of the reassembled system accurately
 - P11 ensure the reassembled system performs to the quad bike operating specification and meets any legal requirements prior to return to the customer
 - P12 ensure your records are accurate, complete and passed to the relevant person(s) promptly in the format required

IMIMCQ04

Remove and replace quad bike steering, brakes and suspension units and components



P13 complete all removal and replacement activities within the agreed timescale

P14 report any expected delays in completion to the relevant person(s) promptly

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Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

- K1 the legal requirements relating to the quad bike (including road safety requirements)
- K2 the health and safety legislation, environmental requirements and workplace procedures relevant to quad bike maintenance activities and personal and quad bike protection
- K3 your workplace procedures for:
 - K3.1 recording removal and replacement information
 - K3.2 the referral of problems
 - K3.3 reporting delays to the completion of work
- K4 the importance of documenting removal and replacement information
- K5 the importance of working to agreed timescales and keeping others informed of progress
- K6 the relationship between time and cost
- K7 the importance of reporting anticipated delays to the relevant person(s) promptly

Use of technical information

- K8 how to find, interpret and use sources of information applicable to **unit and component** removal and replacement within the **steering, brakes and suspension** systems
- K9 the importance of using the correct sources of technical information
- K10 the purpose of and how to use identification codes

Electrical and electronic principles

- K11 electrical and electronic principles associated with quad bike ABS systems, traction control, electronically linked brakes including types of sensors, actuators and motors
- K12 types of circuit protection and why these are necessary
- K13 electrical safety procedures

- K14 how electrical circuits work
- K15 electrical symbols, units and terms
- K16 the operation of electrical and electronic control systems
- K17 the hazards associated with high voltage electrical systems

Steering, brakes and suspension system operation and construction

- K18 how different steering systems and their related units and components (including wheels) are constructed and their operation for those quad bikes worked upon
- K19 how brake systems, including mechanically and hydraulically linked brakes, and their related units and components are constructed and their operation for those quad bikes worked upon
- K20 how suspension systems and their related units and components are constructed and their operation for those quad bikes worked upon

Equipment

- K21 how to prepare, test and use all the removal and replacement equipment required

Steering, brakes and suspension system unit and component removal and replacement

- K22 how to remove and replace steering, brakes and suspension system mechanical, electrical and hydraulic units and components (including wheels)
- K23 how to select and use appropriate gaskets, sealants, seals, fittings, fasteners, locking devices, brake, steering and suspension fluids
- K24 how to test and evaluate the performance of replacement steering, brakes and suspension system units and components and how to compare the reassembled system against the quad bike operating specifications and any legal requirements
- K25 the relationship between testing methods and the steering, brakes and suspension system units and components replaced – the use of appropriate test methods

- K26 when replacement units and components must meet the original equipment specification (OES) for warranty or other requirements
- K27 how to work safely avoiding damage to other quad bike systems, components and units, contact with leakage and hazardous substances and injury to self and others

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Scope/range

All of the items listed below form part of this National Occupational Standard.

- 1 **Equipment** is:
 - 1.1. hand tools
 - 1.2. electrical, electronic and computer-based
 - 1.3. special workshop tools
 - 1.4. general workshop equipment
- 2 **Testing methods** are:
 - 2.1. sensory
 - 2.2. functional
 - 2.3. measurement
 - 2.4. simulated
- 3 **Steering units and components** are:
 - 3.1. steering dampers
 - 3.2. head bearings
 - 3.3. steering arms/rods
 - 3.4. steering knuckle
 - 3.5. steering gaiters
 - 3.6. steering yoke
 - 3.7. lock stops
- 4 **Brake units and components** are:
 - 4.1. brake linings/pads
 - 4.2. hydraulic brake lines/pipes
 - 4.3. brake cables
 - 4.4. brakes linkages/rods (this does not include operating levers)
 - 4.5. brake master cylinder
 - 4.6. brake fluid
 - 4.7. advanced braking systems (ABS) and servo components
- 5 **Suspension units and components** are:
 - 5.1. 'A' arms
 - 5.2. suspension arms
 - 5.3. trailing arms
 - 5.4. dampers

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- 5.5. road springs
- 5.6. strut assemblies
- 5.7. suspension bushes
- 5.8. ball joints
- 5.9. suspension fluid

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Additional information

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

Agreed timescales

Examples include manufacturer's recommended work times, job times set by your company or a job time agreed with a specific customer

Units and components

Any unit or component from the steering, brakes or suspension systems defined in the Scoping Statement above

Functional testing

Examples include use of brake tester, road test, bounce test

Sensory testing methods

These may include looking, listening, smelling and touching for heat.

Steering and suspension system

For the purposes of this unit, this will also include wheels and tyres

Quad Bike

For the purposes of this standard a quad bike is a motorcycle-derived all-terrain vehicle (ATV) which you sit astride with four or more wheels.

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