NOS VF01 – Inspect, Repair and Replace Standard Light Vehicle Tyres

UNIT OVERVIEW

This unit is about inspecting standard light vehicle tyres to assess their condition and suitability for repair and carrying out necessary repair, replacement or refitting activities.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

Light vehicle tyres

These can be from light vehicles and trailers.

Sources of information

Examples include: tyre manufacturer's publications, Government publications, company documentation, BSI publications.

SCOPE OF THIS UNIT:

1. **Tyres** are:

a. radial
b. cross ply
c. bias belted
d. run flat capable if applicable

2. **Tools and equipment** are:

a. lifting and supporting equipment
b. wheel removal and refitting tools
c. tyre removal and refitting equipment
d. measuring equipment
e. tyre inflation equipment
f. wheel balancing equipment
g. specialist equipment for tyre removal
h. tyre repair tools
i. Tyre Pressure Monitoring Systems (TPMS)

3. **Inspection** covers:

a. wheel rim and fixings
b. tyres
c. valves

4. **Inspection techniques** are:

a. visual
b. measurements of tread depth
c. tyre pressures
d. balance
e. electronic

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection
2. the legal requirements for light vehicle tyres, and the relevant parts of the prevailing British and or European standard for the repair of light vehicle tyres
   The European tyre labelling legislation
3. how to isolate scrapped tyres and dispose of waste materials in your workplace
4. the importance of disposing of waste safely and the consequences of not doing so to others and the environment.
5. the importance of selecting, using and maintaining the appropriate personal protective equipment when inspecting, repairing and replacing light vehicle tyres.
6. the agreed work specification.
7. your workplace procedures for
   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection
8. the requirements for protecting the vehicle and contents from damage before, during and after removing and replacing wheels.
9. the importance of working to agreed timescales and keeping others informed of progress.
10. the relationship between time and cost.
11. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

12. how to select, prepare and use the **tools and equipment** necessary for inspecting, repairing, replacing and refitting light vehicle tyres.

Materials

13. the types of tyre repair materials available (i.e. rubber only plug patch unit and rubber only patch and filler material)
14. the repair material manufacturer's instructions for the type(s) of tyres on which you are working.

Tyre inspection, removal, repair and replacement

15. how to find and use suitable sources of information on standard light vehicle **tyres.**
16. the purpose, function and construction of standard light vehicle **tyres**
17. the common faults associated with standard light vehicle **tyres** and their causes.
18. what a tyre **inspection** should cover
19. the **inspection techniques** associated with light vehicle **tyres** and how to carry them out
20. the importance of taking accurate measurements and ensuring any adjustments are within acceptable tolerances for the vehicle
21. the importance of basing your decision to replace or repair tyres upon the results of your inspection
22. how to remove, repair, replace and refit light vehicle **tyres,** replace valves and remove and replace road wheels
23. the importance of checking the safety and operation of equipment prior to use.
24. how to work safely avoiding injury to yourself, others and damage to **tyres** and wheels
25. the potential risks associated with aged tyres

PERFORMANCE OBJECTIVES

To be competent you must:

a. use suitable personal protective equipment and vehicle coverings throughout all **tyre inspection**, repair and replacement activities.
b. use suitable sources of technical information to support your **inspection**, repair and replacement of **tyres**
c. work in a way which minimises the risk of damage to the vehicle and its systems.
d. confirm that all the **tools and equipment** required are safe prior to use.
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all tyre and wheel defects.
f. conduct all **inspection**, repair and replacement activities following:
   - manufacturers' instructions
   - your workplace procedures
   - health and safety requirements
   - the current BSAU standards for tyre repair
   - the European Tyre Labelling Legislation
g. carry out all **inspection**, repair and replacement activities using:
   - suitable **tools and equipment**
   - the correct **inspection techniques**
   - the correct type, size and construction of tyre
h. clearly identify and record the cause of any tyre, valve or wheel faults following your normal workplace procedures

i. make clear and accurate recommendations for further action to the relevant person(s), when necessary
j. ensure that replaced, refitted **tyres** and valves are fitted correctly and balanced.
k. ensure that all work carried out conforms to any legal requirements prior to releasing the vehicle to the customer.
l. dispose of removed components safely to meet current legal and your workplace requirements.
m. complete all activities within the agreed timescale.
n. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly.

NOS VF02 – Inspect, Repair and Replace High Performance Light Vehicle Tyres

UNIT OVERVIEW

This unit is about inspecting high performance light vehicle tyres to assess their condition and suitability for repair and carrying out necessary repair, replacement or refitting activities.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer.

Sources of information

Examples include: tyre manufacturer's publications, Government publications, company documentation, BSI publications.

SCOPE OF THIS UNIT:

1. High performance light vehicle tyres are

a. those with a W, Y or ZR rating
b. those having an aspect ratio of 50% or below
c. run flat capable if applicable
d. directional, asymmetric and Ultra High Performance tyres (UHP)

2. Tools and equipment are

a. lifting and supporting equipment
b. wheel removal and refitting tools
c. tyre removal and refitting equipment
d. measuring equipment
e. tyre inflation equipment
f. wheel balancing equipment
g. specialist equipment for tyre removal
h. tyre repair tools
i TPMS

3. Inspection covers

a. wheel rim and fixings
b. tyres
c. valves

4. Inspection techniques are

a. visual
b. measurements of tread depth
c. tyre pressures
d. balance
e. electronic

ESSENTIAL KNOWLEDGE

You need to understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection.
2. the legal requirements for light vehicle tyres, and the relevant parts of the prevailing British and or European standard for the repair of **high performance light vehicle tyres**
3**.** The European tyre labelling legislation
4. how to isolate scrapped tyres and dispose of waste materials in your workplace
5. the importance of disposing of waste safely and the consequences of not doing so to others and the environment.
6. the importance of selecting, using and maintaining the appropriate personal protective equipment when inspecting, repairing and replacing **high performance light vehicle tyres**.
7. the agreed work specification.
8. your workplace procedures for
   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection
9. the requirements for protecting the vehicle and contents from damage before, during and after removing and replacing wheels.
10. the importance of working to agreed timescales and keeping others informed of progress.
11. the relationship between time and cost.
12. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

13. how to select, prepare and use the **tools and equipment** necessary for inspecting, repairing, replacing and refitting **high performance light vehicle tyres.**

Materials

14. the types of tyre repair materials available (i.e. rubber only plug patch unit and rubber only patch and filler material)
15. the repair material manufacturer's instructions for the application of repair materials for the type(s) of tyres on which you are working.

Tyre inspection, removal, repair and replacement

16. how to find and use suitable sources of information on **high performance light vehicle tyres.**
17. the purpose, function and construction of **high performance light vehicle tyres**
18. the types and functions of tyre pressure monitoring systems
19. the types of valves used in **high performance light vehicle tyres** and their installation techniques including TPMS where fitted
20. how run flat tyres function
21. the common faults associated with **high performance light vehicle tyres** and their causes.
22. the manufacturer's recommendations on the 'reparability' of their tyres
23. what a tyre **inspection** should cover
24. the **inspection techniques** associated with **high performance light vehicle tyres** and how to conduct them
25. the importance of taking accurate measurements and ensuring any adjustments are within acceptable tolerances for the vehicle
26. the importance of basing your decision to replace or repair tyres upon the results of your inspection
27. how to remove, repair, replace and refit **high performance light vehicle tyres,** wheels and valves.
28. the characteristics of ultra high performance tyres and how they are fitted.
29. the importance of checking the safety and operation of equipment prior to use
30. how to work safely avoiding injury to yourself, others and damage to wheels when removing and refitting **high performance light vehicle tyres**
31. the potential risks associated with aged tyres

PERFORMANCE OBJECTIVES

To be competent you must:

a. select and use suitable personal protective equipment throughout all **high performance light vehicle tyre inspection**, repair and replacement activities.
b. use suitable sources of technical information to support your **inspection**, repair and replacement of **high performance light vehicle tyres**
c. work in a way which minimises the risk of damage to the vehicle and its systems.
d. confirm that all the **tools and equipment** required are safe prior to use.
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all tyre and wheel defects.
f. conduct all **inspection**, repair and replacement activities following:
    - manufacturers' instructions
    - your workplace procedures

- health and safety requirements
- the current industry standard for tyre repair
- the European Tyre Labelling Legislation

g. carry out all **inspection**, repair and replacement activities using:
- suitable **tools and equipment**
- the correct **inspection techniques**
- the correct type, size and construction of tyre

h. clearly identify and record the cause of any tyre, valve or wheel faults following your normal workplace procedures

i. make clear and accurate recommendations for further action to the relevant person(s), when necessary

j. ensure that replaced and refitted **high performance light vehicle tyres** and valves are correctly fitted and balanced

k. ensure that all work carried out conforms to any legal requirements prior to releasing the vehicle to the customer.
and conform to legal requirements prior to releasing the vehicle to the customer.

k. dispose of removed components safely to meet current legal and your workplace requirements.

l. complete all activities within the agreed timescale.

m. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly.

NOS VF03 – Inspect, Repair and Replace Commercial Vehicle Tyres

UNIT OVERVIEW

This unit is about inspecting commercial vehicle tyres to assess their condition and suitability for repair and carrying out necessary repair, replacement or refitting activities.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

Commercial vehicles

These are medium and large goods vehicles of 3500kgs gross vehicle mass (GVM) and above.

Sources of information

Examples include: tyre manufacturer's publications, Government publications, company documentation, BSI publications.

Tyre safety inflation equipment

Examples include: tyre safety cages and 'bag-it' type inflation devices.

SCOPE OF THIS UNIT:

1. **Commercial vehicle tyres** are fitted to

    a. 17.5, 19.5 and 22.5 diameter code rims
    b. external valve aperture or hole (EVA/EVH, A type, U type) rims
    c. split rims
    d. wide single rims

2. **Tools and equipment** are

    a. lifting and supporting equipment
    b. wheel removal and refitting tools
    c. tyre removal and refitting hand tools
    d. measuring
    e. tyre safety inflation equipment
    f. wheel balancing equipment if applicable

g. tyre re-grooving equipment
h tyre repair tools
i. TPMS

3. Inspection covers

a. wheel rim components and fixings
b. tyres
c. valves
d. tubes
e. flaps

4. Inspection techniques are

a. visual
b. measurements of tread depth
c. tyre pressures
d. TPMS

ESSENTIAL KNOWLEDGE

You need to understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection.
2. the current legal requirements for **commercial vehicle tyres**, and the relevant parts of the prevailing British and or European standard for the repair of **commercial vehicle tyres** BASU159.
3. how to isolate scrapped tyres and dispose of waste materials in your workplace
4. the importance of disposing of waste safely and the consequences of not doing so to others and the environment.
5. the importance of selecting, using and maintaining the appropriate personal protective equipment when inspecting, repairing and replacing **commercial vehicle tyres**.
6. the agreed work specification.
7. your workplace procedures for:
   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection
8. the requirements for protecting the vehicle and contents from damage before, during and after removing and replacing wheels.
9. the importance of working to agreed timescales and keeping others informed of progress.
10. the relationship between time and cost.
11. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

12. how to select, prepare and use the **tools and equipment** necessary for inspecting, repairing, regrooving, replacing and refitting **commercial vehicle tyres,** including the use of specialist bead unseating tools for EVA/AVH rims.

Materials

13. the types of tyre repair materials available (i.e. rubber only plug patch unit and rubber only patch and filler material)
14. the repair material manufacturer's instructions for the application of repair materials for the type(s) of tyres on which you are working.

Tyre inspection, removal, repair and replacement

15. how to find and use suitable sources of information on **commercial vehicle tyres.**
16. the purpose, function and construction of **commercial vehicle tyres**
17. the types and functions of tyre pressure monitoring systems
18. the types of commercial vehicle wheel rims and how to inspect them and their components for compatibility and serviceability
19. the types of valves used in **commercial vehicle tyres** and their installation techniques.
20. the types of commercial vehicle wheel fixings and how to inspect them for compatibility and serviceability BSAU 50
21. the common faults associated with **commercial vehicle tyres** and their possible causes
22. the potential risks associated with aged tyres
23. the manufacturer's recommendations on the 'reparability' of their tyres
24. what a tyre **inspection** should cover
25. the **inspection techniques** associated with **commercial vehicle tyres** and how to conduct them
26. the importance of taking accurate measurements and ensuring any adjustments are within acceptable tolerances for the vehicle
27. the importance of basing your decision to replace or repair tyres upon the results of your inspection
28. how to remove, repair, replace and refit **commercial vehicle tyres,** wheels and valves.
29. how to identify the regroovability of commercial vehicle tyres
30. how to regroove commercial vehicle tyres to manufacturers' recommendations.
31 the importance of checking the safety and operation of equipment prior to use.
32. how to work safely avoiding injury to yourself, others and damage to wheels when removing and refitting **commercial vehicle tyres**

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment throughout all **commercial vehicle tyre inspection**, repair and replacement activities.
b. use suitable sources of technical information to support your **inspection**, repair, regrooving and replacement of **commercial vehicle tyres.**
c. work in a way which minimises the risk of damage to the vehicle and its systems.

d. confirm that all the **tools and equipment** required are safe prior to use.
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all tyre and wheel defects.
f. conduct all **inspection**, repair and replacement activities following:
   - manufacturers' instructions
   - your workplace procedures
   - health and safety requirements
   - the current industry standard for tyre repair
g. carry out all **inspection**, repair and replacement activities using:
   - suitable **tools and equipment**
   - the correct **inspection techniques**
   - the correct type, size and construction of tyre.
h. clearly identify and record the cause of any tyre, valve or wheel faults following your normal workplace procedures
i. make clear and accurate recommendations for further action to the relevant person(s), when necessary
j. ensure that replaced and refitted **commercial vehicle tyres** and valves are correctly fitted
k. ensure regrooved tyres meet manufacturer's and legal requirements prior to release to the customer
l. dispose of removed components and debris safely to meet current legal and your workplace requirements.
m. complete all activities within the agreed timescale.
n. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly.

NOS VF04 – Inspect, Repair and Replace Motorcycle Tyres

UNIT OVERVIEW

This unit is about inspecting motorcycle tyres to assess their condition and suitability for repair and carrying out necessary repair, replacement or refitting activities.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

Motorcycle

Use of this term will also include ATV (all terrain vehicles)s, tricycles, scooters, mopeds and sidecar combinations.

Sources of information

Examples include: tyre manufacturer's publications, Government publications, company documentation, BSI publications.

SCOPE OF THIS UNIT:

1. **Motorcycle tyres** are:

    a. tube type
    b. tubeless type

2. **Tools and equipment** are:

    a. lifting and supporting equipment
    c. tyre removal and refitting tools and equipment
    d. measuring equipment
    e. tyre inflation equipment
    f. wheel balancing equipment
    g. tyre repair tools
    h TPMS

3. **Inspection** covers:

    a. wheel rim and fixings
    b. tyres

c. valves
d. inner tubes

4. Inspection techniques are

a. visual
b. measurements of tread depth
c. tyre pressures
d. balance
e electronic

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and motorcycle protection
2. the current legal requirements for motorcycle tyres, and the relevant parts of the prevailing British and or European standard for the repair of **motorcycle tyres BSAU159**
3. how to isolate scrapped tyres and dispose of waste materials in your workplace
4. the importance of disposing of waste safely and the consequences of not doing so to others and the environment.
5. the importance of selecting, using and maintaining the appropriate personal protective equipment when inspecting, repairing and replacing **motorcycle tyres**
6. the agreed work specification
7. your workplace procedures for:
   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection
8. the requirements for protecting the motorcycle and contents from damage before, during and after removing and replacing wheels
9. the importance of working to agreed timescales and keeping others informed of progress
10. the relationship between time and cost
11. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

12. how to select, prepare and use the **tools and equipment** necessary for inspecting, repairing, replacing and refitting **motorcycle tyres**

Materials

13. the types of tyre repair materials available (i.e. rubber only plug patch unit and rubber only patch and filler material)
14. the repair material manufacturer's instructions for the application of repair materials for the type(s) of tyres on which you are working.

Tyre inspection, removal, repair and replacement

15. how to find and use suitable sources of information on **motorcycle tyres.**
16. the purpose, function and construction of **motorcycle tyres**
17. the types of valves used in **motorcycle tyres** and their installation techniques.
18. the common faults associated with **motorcycle tyres** and their possible causes
19. the potential risks associated with aged tyres
20. the manufacturer's recommendations on the 'reparability' of their tyres
21 what a tyre **inspection** should cover
22. the **inspection techniques** associated with **motorcycle tyres** and how to conduct them
23. the importance of taking accurate measurements and ensuring any adjustments are within acceptable tolerances for the motorcycle
24. the importance of basing your decision to replace or repair tyres upon the results of your inspection
25. how to remove, repair, replace and refit **motorcycle tyres,** wheels, tubes and valves.
26. the importance of checking the safety and operation of equipment prior to use.
27. how to work safely avoiding injury to yourself, others and damage to wheels when removing and refitting **motorcycle tyre**

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment throughout all **motorcycle tyre inspection**, repair and replacement activities.
b. use suitable sources of technical information to support your **inspection**, repair and replacement of **motorcycle tyres**
c. work in a way which minimises the risk of damage to the motorcycle and its systems.
d. confirm that all the **tools and equipment** required are safe prior to use.
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all tyre, valve, inner tube and wheel defects.
f. conduct all **inspection**, repair and replacement activities following:
   - manufacturers' instructions
   - your workplace procedures
   - health and safety requirements
   - the current industry standard for tyre repair
g. carry out all **inspection**, repair and replacement activities using:
   - suitable **tools and equipment**
   - the correct **inspection techniques**
   - the correct type and size of component
h. clearly identify and record the cause of any tyre, valve, inner tube or wheel faults following your normal workplace procedures
i. make clear and accurate recommendations for further action to the relevant person(s), when necessary
j. ensure that replaced and refitted **motorcycle tyres,** valves and any inner tubes are correctly fitted and balanced
k. ensure that any work carried out conforms to legal requirements prior to releasing motorcycle to the customer.

l. dispose of removed components safely to meet current legal and your workplace requirements.
m. complete all activities within the agreed timescale.
n. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly.

NOS VF05 – Inspect, Repair and Replace Plant Equipment Tyres

UNIT OVERVIEW

This unit is about inspecting plant equipment tyres to assess their condition and suitability for repair and carrying out necessary repair, replacement or refitting activities.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

Plant equipment

Examples include agricultural, horticultural and construction plant equipment.

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Sources of information

Examples include: tyre manufacturer's publications, Government publications, company documentation, BSI publications.

Workplace

Examples include: workshops, an outdoor plant environment, customer's premises and wherever you would normally work when dealing with plant equipment.

SCOPE OF THIS UNIT:

1. Plant tyres are:

a. tube
b. tubeless

2. Tools and equipment are:

a. lifting and supporting equipment
b. wheel removal and refitting tools
c. tyre and refitting hand tools
d. measuring equipment
e. tyre repair tools

3. **Inspection** covers:

a. wheel rim and fixings
b. tyres
c. valves
d. inner tubes

4. **Inspection techniques** are:

a. visual
b. tyre pressures
c. measurements of tread depth

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. The current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection
2. the legal requirements relating to plant tyres and the movement of vehicles on a plant site
3. the hazards and risks associated with working in plant environments
4. how to isolate scrapped tyres and dispose of waste materials in your workplace
5. the importance of disposing of waste safely and the consequences of not doing so to others and the environment
6. the importance of selecting, using and maintaining the appropriate personal protective equipment when inspecting, repairing and replacing **plant tyres**
7. the agreed work specification
8. your workplace procedures for
   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection
9. the requirements for protecting the vehicle and contents from damage before, during and after removing and replacing wheels
10. the importance of working to agreed timescales and keeping others informed of progress.
11. the relationship between time and cost
12. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

13. how to select, prepare and use the **tools and equipment** necessary for inspecting, repairing, replacing and refitting **plant tyres,** including the use of specialist bead unseating tools

Materials

14. the types of tyre repair materials available (i.e. rubber only plug patch unit and rubber only patch and filler material)
15. the repair material manufacturer's instructions for the application of repair materials for the type(s) of tyres on which you are working.

Tyre inspection, removal, repair and replacement

16. how to find and use suitable sources of information on **plant tyres.**
17. the purpose, function and construction of **plant tyres**
18. the difference between well base (WB) and double well base (DWB) and divided type wheel rims
19. the types of valves used in **plant tyres** and their installation techniques.
20. how to calculate dynamic rolling circumference in order to select the correct replacement tyres
21. how to adjust wheel track to widen or reduce wheel positioning
22. how to improve traction by the use of ballast (i.e. water ballasting, wheel weights, chassis weights)
23. the common faults associated with **plant tyres** and their possible causes
24. the manufacturer's recommendations on the 'reparability' of their tyres
25. what a tyre **inspection** should cover
26. the **inspection techniques** associated with **plant tyres** and how to conduct them
27. the importance of taking accurate measurements and ensuring any adjustments are within acceptable tolerances for the vehicle
28. the importance of basing your decision to replace or repair tyres upon the results of your inspection
29. how to remove, repair, replace and refit **plant tyres,** wheels, valves and tubes
30. how to make the vehicle safe in an outdoor plant environment
31. any biological hazards associated with operating in your working environment
32. the importance of checking the safety and operation of equipment prior to use
33. how to work safely avoiding injury to yourself, others and damage to wheels when removing and refitting **plant tyres**

PERFORMANCE OBJECTIVES

To be competent you must:

a. select and use suitable personal protective equipment throughout all **plant tyre inspection**, repair and replacement activities
b. use suitable sources of technical information to support your **inspection**, repair and replacement of **plant tyres**
c. work in a way which minimises the risk of damage to the vehicle, its systems and the environment
d. confirm that all the **tools and equipment** required are safe prior to use
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all tyre, inner tube, valve and wheel defects
f. conduct all **inspection**, repair and replacement activities following:
    - manufacturers' instructions
    - your workplace procedures
    - health and safety requirements

g. carry out all **inspection**, repair and replacement activities using:
   - suitable **tools and equipment**
   - the correct **inspection techniques**
   - the correct type, size and construction of tyre

h. clearly identify and record the cause of any tyre, valve, inner tube or wheel faults following your normal workplace procedures

i. make clear and accurate recommendations for further action to the relevant person(s), when necessary

j. ensure that replaced and refitted **plant tyres** and valves are correctly fitted

k. ensure that any work carried out conforms to legal requirements prior to releasing the vehicle to the customer

l. dispose of removed components safely to meet current legal and your workplace requirements

m. complete all activities within the agreed timescale

n. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly

NOS VF06 – Inspect, Repair and Replace Industrial Equipment Tyres

UNIT OVERVIEW

This unit is about inspecting industrial equipment tyres to assess their condition and suitability for repair and carrying out necessary repair, replacement or refitting activities

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

Industrial equipment

Examples include: fork lift trucks, cranes and load moving equipment, etc.

Tyre safety inflation equipment

Examples include: tyre safety cages, portal 'H' cages, and 'bag-it' type inflation devices.

Sources of information

Examples include: tyre manufacturer's publications, Government publications, company documentation, BSI publications.

Workplace

Examples include: workshops, an industrial environment such as a factory or warehouse, customer's premises and wherever you would normally work when dealing with industrial equipment.

SCOPE OF THIS UNIT:

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

1. Industrial tyres are

a. pneumatic
b. resilient
c. press on band
d. direct band

2. **Tools and equipment** are

   a. lifting and supporting equipment
   b. wheel removal and refitting tools
   c. tyre removal and refitting equipment
   d. measuring
   e. tyre safety inflation equipment
   f. tyre repair tools

3. **Inspection** covers

   a. wheel rim and fixings
   b. tyres
   c. valves
   d. tubes
   e. flaps

4. **Inspection techniques** are:

   a. visual
   b. tyre pressure
   c. measurement

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection
2. the current legal requirements relating to **industrial tyres**
3. the specific health and safety requirements for the industrial environment(s) in which you are working
4. how to isolate scrapped tyres and dispose of waste materials in your workplace
5. the importance of disposing of waste safely and the consequences of not doing so to others and the environment
6. the importance of selecting, using and maintaining the appropriate personal protective equipment when inspecting, repairing and replacing **industrial tyres**.
7. the agreed work specification
8. your workplace procedures for:

   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection

9. the requirements for protecting the vehicle and contents from damage before, during and after removing and replacing wheels
10. the importance of working to agreed timescales and keeping others informed of progress.
11. the relationship between time and cost
12. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

13. how to select, prepare and use the **tools and equipment** necessary for inspecting, repairing, replacing and refitting **industrial tyres,** including the use of specialist bead unseating tools

Materials

14. the types of tyre repair materials available (i.e. rubber only plug patch unit and rubber only patch and filler material and externally applied repair materials)
15. the repair material manufacturer's instructions for the application of repair materials for the type(s) of tyres on which you are working

Tyre inspection, removal, repair and replacement

16. how to find and use suitable sources of information on **industrial tyres.**
17. the purpose, function and construction of **industrial tyres**
18. the difference between well base (WB) and double well base (DWB) and divided type wheel rims and multi piece wheels
19. the types of valves used in **industrial tyres** and their installation techniques.
20. how to improve traction by the use of ballast (i.e. water ballasting, wheel weights, chassis weights)
21. the common faults associated with **industrial tyres** and their possible causes
22. the manufacturer's recommendations on the 'reparability' of their tyres
23. what a tyre **inspection** should cover
24. the **inspection techniques** associated with **industrial tyres** and how to conduct them
25. the importance of taking accurate measurements and ensuring any adjustments are within acceptable tolerances for the vehicle
26. the importance of basing your decision to replace or repair tyres upon the results of your inspection
27. how to remove, repair, replace and refit **industrial tyres,** wheels and valves
28. how to make the vehicle safe in an outdoor industrial environment
29. the biological and environmental hazards associated with working in the industrial environment
30. the importance of checking the safety and operation of equipment prior to use
31. how to work safely avoiding injury to yourself, others and damage to wheels when removing and refitting **industrial tyres**

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment throughout all **industrial tyre inspection**, repair and replacement activities
b. use suitable sources of technical information to support your **inspection**, repair and replacement of **industrial tyres**
c. work in a way which minimises the risk of damage to the vehicle and its systems.
d. confirm that all the **tools and equipment** required are safe prior to use
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all tyre, valve and wheel defects
f. conduct all **inspection**, repair and replacement activities following:

- manufacturers' instructions
- your workplace procedures
- health and safety requirements

g. carry out all **inspection**, repair and replacement activities using:

- suitable **tools and equipment**
- the correct **inspection techniques**
- the correct type, size and construction of tyre

h. clearly identify and record the cause of any tyre, valve or wheel faults following your normal workplace procedures
i. make clear and accurate recommendations for further action to the relevant person(s), when necessary
j. ensure that replaced and refitted **industrial tyres** and valves are correctly fitted
k. ensure that any work carried out conforms to legal requirements prior to releasing the vehicle to the customer
l. dispose of removed components safely to meet current legal and your workplace requirements
m. complete all activities within the agreed timescale
n. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly

NOS VF07 – Carry Out Light Vehicle Four Wheel Alignment

UNIT OVERVIEW

This unit is about testing and adjusting four wheel alignment to meet required tolerances.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

SCOPE OF THIS UNIT:

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

1. Four wheel alignment pre-checks cover:

a. tyre pressures and condition
b. wheel, wheel bearing and ball joint condition
c. suspension condition and ride height
d. steering wheel free play

2. Four wheel alignment covers:

a. individual toe
b. combined toe
c. steering wheel position
d. thrust angle
e. camber
f. caster
g. KPI/SAI

3. Tools and equipment are:

a. hand tools
b. lifting and supporting equipment
c. specialist alignment measuring equipment
d. turn plates
e. steering clamp
f electronic diagnostic equipment

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational procedures and requirements

1. the current health and safety legislation and workplace procedures relevant to workshop practices, checking equipment and personal and vehicle protection
2. your workplace procedures for:

    - the referral of problems
    - reporting of delays to the completion of work
    - personal protection

3. the importance of working to agreed timescales and keeping others informed of progress
4. the relationship between time and costs
5. your workplace requirements for recording measurements taken and adjustments made
6. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

7. how to select and use the **tools and equipment** used for the measurement and adjustment of four wheel alignment
8. the importance of checking **-** for safety and accuracy
9. how to confirm that measuring and adjustment equipment is safe and, where necessary, calibrated, prior to use

Four wheel alignment

10. the Ackerman principle
11. the principles of caster, camber, KPI/SAI, toe out on turns, thrust angle set back, wheel run out and their effects on tyre wear and vehicle handling
12. the purpose, function and location of steering and suspension system components and how wear can affect wheel alignment
13. the abnormal tyre wear associated with misalignment
14. the importance of taking accurate measurements
15. how to find and use vehicle data relating to working tolerances
16. how to carry out **four wheel alignment pre checks**
17. **four wheel alignment** and adjustment techniques, including the use of weights, how to apply them and record adjustments
18. the importance of ensuring any adjustments are within acceptable tolerances for the vehicle
19. the possible consequences of inaccurate adjustments and the effect on other items
20. how to take and record accurate measurements

21. the importance of checking the operation of adjusted items prior to return to the customer – the implications for safety and customer satisfaction
22. how to check that the adjusted items function correctly
23. how to work safely avoiding injury to yourself, others and damage to vehicles
24. impact of adjustment on electronic systems, for example, tpms, steering wheel angle sensor, ESP and dynamic cruise control

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment and vehicle coverings throughout all **four wheel alignment** activities
b. work in a way which minimises the risk of damage to the vehicle and its systems
c. ensure that your measuring and adjustment equipment is safe, in good working order and, where necessary, calibrated, prior to use
d. conduct all **four wheel alignment pre checks** and **four wheel alignment** activities following:
   - the use of correct technical data
   - the vehicle and equipment manufacturers' recommendations
   - your workplace procedures
   - health and safety requirements
e. carry out all **four wheel alignment** activities using suitable **tools and equipment** and the correct techniques
f. ensure your final adjustments and settings are within the tolerances recommended by the vehicle manufacturer for the vehicle
g. inform the relevant person(s) when adjustments to within the tolerances allowed are not possible
h. make clear and suitable recommendations for any further action to the relevant person(s) clearly and accurately
i. complete all **four wheel alignment** activities within the agreed timescale
j. report any anticipated delays in completion the to relevant person(s) promptly
k. ensure your records of measurements taken and adjustments made are clear and accurate

NOS VF08 – Inspect and Replace Light Vehicle Clutches

UNIT OVERVIEW

This unit is about inspecting and replacing light vehicle clutch components.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer

Clutch assembly

This consists of the drive plate, pressure plate, release bearing and dual mass fly wheel (DMF)

Drive plate

This is also known as the friction plate.

Pressure plate

This is also known as the clutch cover.

Types of clutches and operating systems

Examples include: single/multi-plate, centrifugal, spring and diaphragm types, cable, hydraulic and electronic.

SCOPE OF THIS UNIT:

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

1. Clutch components are:

a. clutch assembly
b. spigot bearing
c. flywheel
d. operating cable
e. hydraulic clutch components
f. automatic and manual adjusters
g. clutch fork
h. oil seals
i. input shaft
j. inspection cover
k. clutch pedal

l. bell housing
m. gear box
n. driveshaft
o. propshaft

2. Tools and equipment are:

a. hand tools
b. special purpose tools
c. lifting and supporting equipment
d. general workshop equipment
e. electronic

3. Inspection covers:

a. clutch operating systems
b. clutch assembly
c. flywheel
d. oil leaks

4. Inspection techniques are:

a. visual
b. aural
c. measurement
d. functional tests
e. electronic

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational procedures and requirements

1. the current health and safety legislation and workplace procedures relevant to workshop practices, checking equipment and personal and vehicle protection
2. your workplace procedures for:
   - the referral of problems
   - reporting of delays to the completion of work
   - personal protection
3. the importance of disposing of waste safely and the consequences of not doing so to others and the environment
4. the importance of working to agreed timescales and keeping others informed of progress
5. the relationship between time and costs
6. your workplace requirements for recording measurements taken and adjustments made
7. the importance of reporting anticipated delays to the relevant person(s) promptly

Tools and equipment

8. the types, function and use of clutch removal, alignment and replacement **tools and equipment**
9. the importance of checking the safety and operation of equipment prior to use
10. the correct use of diagnostic tools

Inspection and replacement of clutches

11. the different types of clutches and operating systems and how they and their associated components operate
12. the different types of **inspection techniques** and how to carry them out
13. the common faults associated with clutch systems (e.g. slip, drag, judder and noise), their possible cause and how to identify and rectify them
14. the purpose, function and layout of different types of manual transmission
15. the removal and replacement procedures associated with clutch systems, including the effective sequence of working
16. how to make checks and adjustments to clutch operating systems.
17. the importance of taking accurate measurements
18. how to find and use data relating to clutch working tolerances
19. the importance of ensuring any adjustments and set up are within acceptable tolerances for the vehicle
20. how to work safely avoiding injury to yourself, others and damage to the vehicle when inspecting and replacing clutches

PERFORMANCE OBJECTIVES

To be competent you must:

a. select and use suitable personal protective equipment throughout all clutch **inspection** and replacement activities.
b. use suitable sources of technical information to support your **inspection** and replacement of **clutch components**
c. work in a way which minimises the risk of damage to the vehicle and its systems.
d. confirm that all the **tools and equipment** required are safe prior to use.
e. ensure your **inspection techniques** are sufficiently in depth to identify the severity of all **clutch component** defects.
f. conduct all **inspection** and replacement activities following:

- vehicle ,equipment and component manufacturers' recommendations
- your workplace procedures
- health and safety requirements

g. carry out all **inspection**, repair and replacement activities using:

- suitable **tools and equipment**
- the correct **inspection techniques**
- the correct type of replacement component

h. clearly identify and record the possible cause of any **clutch component** faults following your normal workplace procedures
i. make clear and accurate recommendations for further action to the relevant person(s), when necessary
j. ensure that replaced and refitted **clutch components** are correctly fitted and conform to requirements prior to releasing the vehicle to the customer
k. dispose of removed components safely to meet current legal and your workplace requirements
l. complete all activities within the agreed timescale
m. report any anticipated delays in completion and any additional faults identified to the relevant person(s) promptly

NOS VF09 – Inspect and Replace Light Vehicle Exhaust Components

UNIT OVERVIEW

This unit is about inspecting exhaust components for replacement or continued serviceability and removing and replacing components identified as being faulty, damaged, deteriorated or where the customer has requested replacement.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer.

Complete exhaust system

This is a system from front to rear.

Manufacturers

This term can include product and vehicle manufacturers.

Special purpose tools

Examples include exhaust chain cutter, exhaust flaring dolly, thread cutting taps and dies, stud removal tools.

SCOPE OF THIS UNIT:
All of the items listed below form part of this National Occupational Standard

1. Exhaust system components are

a. complete exhaust system (separately or as complete unit)
b. individual component, e.g. silencer, link pipe, tail pipe etc.
c. catalytic converters/diesel particulate filters (DPF)
d. lambda sensor

2. Tools and equipment are

a. hand tools
b. special purpose tools
c. lifting and supporting equipment
d. oxy-acetylene cutting equipment
e. electronic

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection.
2. the current legal requirements relating to vehicle exhaust systems.
3. your workplace procedures for:
    - the referral of problems
    - reporting of delays to the completion of work
    - personal protection
4. how to dispose of removed components in line with health and safety and legal requirements.
5. the importance of working to agreed timescales and keeping others informed of progress.
6. the importance of reporting anticipated delays to the relevant person(s) promptly.
7. the relationship between time and costs.

Tools and equipment

8. the **tools and equipment** used for the removal and replacement of exhausts, for testing and resetting and how to select and use them.
9. how to perform safety and operational checks on **tools and equipment.**
10. if appropriate, how to use oxy-acetylene cutting equipment to make straight through section cuts, female from male and male from female cuts.

Exhaust inspection, removal and replacement operations

11. the purpose, function and layout of vehicle exhaust systems and their associated components.
12. the common faults associated with vehicle **exhaust system components.** .
13. the fault identification methods and procedures associated with vehicle **exhaust system components**.
14. the removal and replacement procedures associated with vehicle exhaust systems, including health and safety requirements.
15. the construction of vehicle **exhaust system components**.
16. when and how to use heat to remove seized components if applicable
17. how to check that replacement components are of the correct type and quality for the vehicle and conform to legal requirements where relevant i.e type approved.
18. how to make adjustments to **exhaust system components**
19. how to check **exhaust system components** are functioning correctly after refitting and or replacement and the importance of doing so before release to the customer.
20. the importance of ensuring customers are advised of the running in procedures for new exhausts prior to leaving your premises.
21. how to work safely avoiding injury to yourself, to others and damage to vehicles.
22. exhaust related emissions control systems.
23. how to remove, replace and clean or rethread broken, damaged or seized exhaust fixings.

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and wear suitable personal protective equipment throughout all **exhaust system component** inspection and replacement activities.
b. seek confirmation that all equipment is safe prior to use.
c. carry out inspections on **exhaust system components** relevant to the faults reported.
d. conduct all inspection and replacement activities following:
    - vehicle, equipment and component manufacturers' recommendations
    - your workplace procedures
    - health and safety requirements
e. ensure your inspection clearly identifies the serviceability of the **exhaust system component** and the cause of any faults identified.
f. make clear and suitable recommendations for further action based upon the results of your inspection to the relevant person(s).
g. carry out removal and replacement activities using:
    - suitable **tools and equipment**
    - the correct techniques
    - suitable exhaust components and fixings
h. ensure that the replacement **exhaust system components** are correctly fitted and aligned prior to releasing the vehicle to the customer.
i. dispose of removed **exhaust system components** safely to comply with legal requirements and your workplace procedures.
j. complete all inspection and replacement activities within the agreed timescale.
k. report any anticipated delays in completion to the relevant person(s) promptly.

NOS VF10 – Inspect, Test and Replace Motor Vehicle Batteries and Related Components

UNIT OVERVIEW

This unit is about carrying out tests to identify faulty batteries, then removal and replacement of them. This unit does not include working on hybrid/electric vehicle battery packs.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer.

Automotive batteries

Examples include standard, low maintenance, maintenance free, gel filled and advanced glass matt (AGM)

Diagnostic equipment

Examples include voltmeter, multimeter, battery test equipment, hydrometer and diagnostic tool

Generators

These can be alternators, dynamos, magnetos.

Vehicles

These can be light vehicles, commercial vehicles and motorcycles, mopeds and scooters.

SCOPE OF THIS UNIT:

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

1. Batteries and components are

a. automotive batteries
b. battery connections
c. battery supports
d. battery hold down device
e. generators
f. drive belt

2. Testing techniques are

a. visual
b. aural
c. functional
d. electronic

3. Tools and equipment

a. hand tools
b. diagnostic equipment

ESSENTIAL KNOWLEDGE

You need to know and understand:

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection.
2. the current legal requirements relating to vehicle **batteries and components**.
3. your workplace procedures for:

- the referral of problems
- reporting of delays to the completion of work
- personal protection
- storage and maintenance of battery stock

4. how to dispose of removed components in line with health and safety and legal requirements.
5. the importance of disposing of waste safely and the consequences of not doing so to others and the environment.
6. the importance of working to agreed timescales and keeping others informed of progress.
7. the importance of reporting anticipated delays to the relevant person(s) promptly.
8. the relationship between time and costs.

Tools and equipment

9. the function and use of **diagnostic testing equipment**
10. the **tools and equipment** used for replacing batteries and how to select and use them
11. how to perform safety and operational checks on **tools and equipment.**
12. code saving devices and how and when to use them

Battery fault finding and replacement

13. the purpose, function and layout of automotive batteries and charging system, including smart charging.
14. battery ratings and the circumstances in which differently rated batteries should be fitted.

15. the possible faults associated with batteries and charging systems
16. fault identification methods and procedures and **testing techniques** associated with **batteries and components** (e.g. visual, use of hand held diagnostic equipment, use of battery manufacturer's battery testing equipment).
17. how to interpret test results.
18. the removal and replacement procedures associated with **batteries and components,** including electrolyte filling and health and safety requirements.
19. how to check that replacement **batteries and components** are of the correct type and quality for the vehicle.
20. how to inspect, replace and adjust drive belt tension as required.
21. how to check that **batteries and components** are functioning correctly and the importance of doing so before release to the customer.
22. how to work safely avoiding injury to yourself, to others and damage to vehicles.

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment and vehicle coverings throughout all **battery and component** testing and replacement activities.
b. work in a way which minimises the risk of damage to the vehicle and its systems.
c. carry out tests on **batteries and components** relevant to the faults reported.
d. conduct all testing and replacement activities following:
    - vehicle, equipment and component manufacturers' recommendation
    - your workplace procedures
    - health and safety requirements.

e. ensure your **testing techniques** clearly identify the type of battery or charging system fault(s).
f. make clear and suitable recommendations for further action based upon the results of your inspection to the relevant person(s).
g. carry out removal and replacement activities using:
    - suitable **tools and equipment**
    - the correct techniques
    - suitable replacement **batteries and components**
h. ensure that the replacement battery and charging system function correctly prior to releasing the vehicle to the customer.
i. dispose of removed batteries safely to comply with current legal requirements and your workplace procedures.
j. complete all testing, inspection and replacement activities within the agreed timescale.
k. report any anticipated delays in completion to the relevant person(s) promptly.

NOS VF11 – Inspect and Replace Light Vehicle Suspension Dampers and Springs

UNIT OVERVIEW

This unit is about inspecting and replacing suspension dampers and springs using a variety of equipment and testing techniques.

KEY WORDS AND PHRASES

Agreed time scales

Examples include job times set by your company or agreed with a specific customer.

Specialist tools

Examples include spring compressors, strut guide, strut insert retainer tools, ball joint separators.

SCOPE OF THIS UNIT:

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

1. Suspension dampers are

a. telescopic
b. semi-strut/MacPherson strut
c. gas assisted

2. Springs are:

a. Metallic
b. Rubber
c. pneumatic

3**. Tools and equipment** are

a. hand tools
b. lifting and supporting equipment
c. specialist tools
d. electronic
e. vehicle geometry

3. Testing techniques are

a. damper operation
b. visual
c. audible

d. electronic

ESSENTIAL KNOWLEDGE

You need to understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection.
2. your workplace procedures for:
    - the referral of problems
    - reporting of delays to the completion of work
    - personal protection
3. how to dispose of removed components in line with health and safety requirements.
4. the importance of disposing of waste safely and the consequences of not doing so to others and the environment.
5. the importance of working to agreed timescales and keeping others informed of progress.
5. the importance of reporting anticipated delays to the relevant person(s) promptly.
6. the relationship between time and costs.

Tools and equipment

7. the tools used for the replacement of **suspension dampers and springs** and how to select and use them
8. how to perform safety and operational checks on **tools and equipment**.

Inspection and replacement of suspension dampers and springs

9. the types, purpose, function and location of **suspension dampers and springs.**
10. the possible faults associated with **suspension dampers** and springs
11. the **testing techniques** and procedures associated with **suspension dampers and springs.**
12. the removal and refitting procedures associated with **suspension dampers and springs,** including health and safety requirements.
13. the dangers of and precautions to be taken when using spring compressors.
14. how to check that replacement components are of the correct type and quality for the vehicle and conform to legal requirements where relevant.
15. how to check that components are functioning and adjusted correctly and the importance of doing so before release to the customer.
16. how to check suspension and steering geometry post replacement
17. how to work safely avoiding injury to yourself, to others and damage to vehicles.

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment and vehicle coverings throughout all **suspension damper** testing and replacement activities.
b. work in a way which minimises the risk of damage to the vehicle and its systems.
c. carry out tests on **suspension dampers** and springs relevant to the faultsreported.
d. conduct all testing and replacement activities following:
    - vehicle, equipment and component manufacturers' recommendations
    - your workplace procedures
    - health and safety requirements.
    - legal requirements

e. ensure your **testing techniques** clearly identify the type of **suspension damper and spring** fault(s).
f. make clear and suitable recommendations for further action based upon the results of your inspection to the relevant person(s).
g. carry out removal and replacement activities using:
    - suitable **tools and equipment**
    - the correct techniques
    - suitable **suspension dampers** or springs for the vehicle
h. ensure that vehicle geometry is checked and adjusted to manufacturer's recommendations before release to the customer.
i. ensure that the replacement **suspension dampers and springs** functions correctly prior to releasing the vehicle to the customer.
j. dispose of removed **suspension dampers** and springs safely to comply with your workplace procedures.
k. complete all testing, inspection and replacement activities within the agreed timescale.
l. report any anticipated delays in completion to the relevant person(s) promptly.

NOS VF12 – Inspect, Adjust and Replace Light Vehicle Braking Systems and Components

UNIT OVERVIEW

This unit is about inspecting light vehicle braking systems and replacing and adjusting braking system components.

KEY WORDS AND PHRASES

Adjustments

Examples include handbrake movement, topping up brake fluid level, brake shoe adjustment, pad to disc resetting.

Agreed time scales

Examples include job times set by your company or agreed with a specific customer.

Hydraulic components

Examples include wheel cylinders, callipers, brake pipes, brakes hoses, master cylinder, load proportioning/load sensing valves and ABS components.

Measuring equipment

Examples include micrometers, Vernier Calipers, dial test indicators and manufacturers' specialist measuring equipment.

Special purpose tools

Examples include piston retracting tools, wind back tools, brake shoe horn/lifter, brake shoe clip remover, brake fluid testers and electronic reset tools

Testing equipment

Examples include brake roller tester, brake decelerometer, brake fluid tester, precision measuring equipment, electronic testing equipment

SCOPE OF THIS UNIT:

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

1. Braking system components are

a. brake discs
b. brake pads
c. brake shoes
d brake drums
e hydraulic
f parking brake
g electronic

2. Testing techniques are

a. visual
b. aural
c. measurement
d. functional
e. electronic

3. Tools and equipment are

a. hand tools
b. lifting and supporting equipment
c. special purpose tools
d. brake bleeding equipment
e. measuring
f. electronic

ESSENTIAL KNOWLEDGE

You need to understand:

Legislative and organisational requirements and procedures

1. the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection.
2. the current legal requirements relating to vehicle **braking systems.**
3. your workplace procedures for:
    - the referral of problems
    - reporting of delays to the completion of work
    - personal protection
    - vehicle protection

4. how to dispose of removed components in line with health and safety and legal requirements.

the importance of disposing of waste safely and the consequences of not doing so to others and the environment.

5. the importance of working to agreed timescales and keeping others informed of progress.
6. the importance of reporting anticipated delays to the relevant person(s) promptly.
7. the relationship between time and costs.

Tools and equipment

8. the **tools and equipment** used for inspection, testing and replacing **braking system** components and how to select and use them.
9. how to perform safety and operational checks on **tools and equipment**

Inspection, adjustment and replacement of braking systems and components

10. the purpose, function and layout of typical braking systems (i.e. single line systems; split circuit systems; including diagonal, triangular and IH systems; disc and drum braking systems; transmission brakes; systems with load sensing valves; parking brake (including electronic systems) and ABS arrangements (including electronic systems); hydraulic fluids)
11. the **testing techniques** and procedures associated with **braking systems**.
12. the removal and replacement procedures associated with brake components, including health and safety requirements.
13. how to identify electronic braking systems, for example ABS, EBD, EBA, ESP
14. how to check that replacement components are of the correct type and quality for the vehicle and conform to legal requirements where relevant .i.e. Regulation 90.
15. how to make adjustments to **braking systems**
16. how to check that components are functioning correctly and the importance of doing so before release to the customer.
17. how to work safely avoiding injury to yourself, to others and damage to vehicles.

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment and vehicle coverings throughout all **braking system** testing and replacement activities.
b. work in a way which minimises the risk of damage to the vehicle and its systems.
c. carry out tests on **braking systems** relevant to the faults reported.
d. conduct all testing and replacement activities following:
    - vehicle, equipment and component manufacturers' recommendations
    - your workplace procedures
    - health and safety requirements.

e. ensure your **diagnostic** techniques clearly identify the possible cause of the **braking system** fault(s).
f. make clear and suitable recommendations for further action based upon the results of your inspection to the relevant person(s).
g. carry out removal and replacement activities using:
    - suitable **tools and equipment**
    - the correct techniques
    - the correct brake components for the vehicle
h. ensure that the replacement **braking system** operates correctly and safely prior to releasing the vehicle to the customer.
i. ensure customers are advised of the bedding in procedures for new brakes prior to leaving your premises.
j. dispose of removed brake components safely to comply with your workplace procedures.
k. complete all brake inspection, adjustment and replacement activities within the agreed timescale.
l. report any anticipated delays in completion to the relevant person(s) promptly.

NOS VF13 – Safe use of Oxyacetylene in Automotive Applications

UNIT OVERVIEW

This unit is about the safe setting up, testing and use of oxyacetylene in automotive applications.

SCOPE OF THIS UNIT:

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

The numbers of scope items specified (below) indicate the minimum requirements for this occupational standard.

You must:

1. Confirm that the equipment is safe and fit for purpose by carrying out **all** of the following checks:
    - regulators, hoses and valves are securely connected and free from leaks and damage
    - the correct gas nozzle is fitted to the cutting torch
    - that a flashback arrestor is fitted to gas equipment
    - gas pressures are set and maintained as instructed
    - the correct procedure is used for lighting, adjusting and extinguishing the cutting flame
    - hoses are safely routed and protected at all times

- gas cylinders are handled and stored safely and correctly

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. The specific safety precautions to be taken when working with thermal cutting equipment in a fabrication environment (general workshop and site safety, fire and explosion prevention, protecting other workers, safety in enclosed/confined spaces; fume control; accident procedure; statutory requirements, risk assessment procedures and relevant requirements of HASAWA, COSHH and Work Equipment Regulations; safe disposal of waste materials).
2. How to select and use the personal protective clothing and equipment that needs to be worn when working with fabrications and thermal cutting equipment examples include leather aprons, gauntlets, eye protection, safety helmets, etc).
3. The correct methods of manual handling relating to moving or lifting heavy materials and components.
4. The hazards associated with thermal cutting (naked flames, fumes and gases, explosive gas mixtures, oxygen enrichment, spatter, hot metal, elevated working, enclosed spaces), and how they can be minimised.
5. Safe working practices and procedures for using thermal equipment in line with British Compressed Gas Association (BCGA) codes of practice, to include setting up procedures, permit-to-work procedures and emergency shutdown procedures.

   The importance of an auditable checklist of the oxy acetylene plant to ensure safe working practices
6. The thermal cutting process (basic principles of thermal cutting and related equipment; the various techniques and their limitation; care of the equipment to ensure that it is safe and ready to use).
7. The gases used in thermal cutting; gas identification and colour codes; their particular characteristics and safety procedures.
8. How to set up the thermal cutting equipment (connection of hoses, regulators and flashback arrestors, selection of cutting torch and nozzle size in relationship to material thickness and operations performed).
9. Preparations prior to cutting (checking connections for leaks, setting gas pressures, setting up the material/workpiece, checking cleanliness of materials used).
10. Setting of operating conditions (flame control and the effects of mixtures and pressures associated with thermal cutting).
11. The correct procedure for lighting and extinguishing the flame, and the importance of following the procedure.
12. Procedures to be followed for cutting specific materials, and why these procedures must always be adhered to.
13. The problems that can occur with thermal cutting, and how they can be avoided; causes of distortion during thermal cutting and methods of controlling distortion.
14. The effects of oil, grease, scale or dirt on the cutting process.
15. The causes of cutting defects, how to recognise them, and methods of correction and prevention.

16. The extent of your own authority and to whom you should report if you have problems that you cannot resolve.

PERFORMANCE OBJECTIVES

To be competent you must:

a. Select and use suitable personal protective equipment throughout all activities.
Work safely at all times, complying with health and safety, and other relevant regulations and guidelines.
b. Confirm that the oxy-fuel assembly is correctly set up prior to use and ready for the heating activities to be carried out.
c. Manipulate the heating equipment safely and correctly in line with operational procedures.
d. Perform thermal cutting operations e.g :

- cut pipe sections straight through
- female from male pipe cuts
- male from female pipe cuts

e. Carry out the necessary checks to the vehicle and surrounding area to ensure correct operation and safety.
f. Deal promptly and effectively with problems within your control and report those that cannot be solved to an appropriate person.
g. Safely light, and shut down the equipment to a safe condition on conclusion of the heating/cutting activities.
h. Safely replace empty bottles observing the necessary health and safety requirements.

NOS VF44 – Receive and Store Automotive Stock

UNIT OVERVIEW

This unit is about receiving parts into storage, putting them into the required location, updating stock control systems and completing necessary documentation in a dealership, fast fit centre, parts distribution centre or similar situation.

KEY WORDS AND PHRASES

Discrepancies:

Examples include shortfalls, order omissions, damages, colour variations, and wrong type of part, etc.

Handling and moving of parts:

This is manual and or mechanically assisted lifting and carrying work, depending on the size and type of parts being handled. It should be noted that individuals who operate fork lift trucks must:

- have completed successfully an approved basic training course in fork lift truck operation, and
- hold a certificate of basic training issued by an approved organisation.

Parts:

These are vehicle parts, any accessories and consumables.

Personal Protective Equipment:

Examples include overalls, safety shoes, gloves, goggles and barrier cream.

SCOPE OF THIS UNIT:

None specified for this unit

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational procedures and requirements

1. your organisation's systems and procedures for:
   - the receipt and storage of goods (including those for 'special order' parts)
   - parts storage, rotation and management
   - update of stock records

- completion of parts receipt and storage documentation

2. the person to whom discrepancies and storage problems should be reported

3. the differing security, safety (e.g. COSHH) and environmental conditions required for parts storage, including the storage and handling of replacement air bags, and the reasons for these.
4. the requirements for and the importance of, wearing personal protective equipment when handling and moving parts.
5. the costs associated with damaged parts and why it is important that damaged parts are reported promptly.

Parts handling and storage

6. how to perform visual and physical quality checks at the time of receipt of parts.
7. how to locate where parts are stored using the parts information system in operation in your organisation.
8. how to handle and move parts safely
9. how to use the mechanical handling equipment available in your parts operation.
10. how to store parts to make best use of available space.
11. how to store parts to conform with any stock rotation requirements.
12. good housekeeping practices and the consequences of not carrying them out
13. when and where handling equipment should be used

Stock records and stock control

14. how to access and interpret information to determine what parts deliveries are expected.
15. how to update stock records on the receipt of goods.
16. how to complete relevant parts receipt and storage documentation.
17. the parts numbering system for the makes and types of parts you deal with
18. the storage requirements for special and or easily damaged parts (e.g. body panels)
19. how the parts stock control system works

PERFORMANCE OBJECTIVES

To be competent you must:

a. wear suitable personal protective equipment throughout all parts receipt and storage activities.
b. make sure the parts receiving area is clean, tidy and free from obstructions and hazards prior to deliveries of expected orders.
c. accept deliveries after checking they confirm to the type, quality and quantity of parts expected.
d. report any discrepancies in deliveries and storage problems to the relevant person promptly.
e. access available information systems to identify the location for parts correctly.
f. place parts in the correct locations in the time allowed.
g. put parts into storage in a way that makes best use of the space available.
h. put parts into storage in such a way that they can be accessed at the right time according to stock rotation requirements, where applicable.
i. work in a way which minimises the risk of:

- accidents and or injury to yourself and others
- damage to the received parts
- damage to parts already in stock
- damage to facilities

j. enter details of the stock received into the stock control system in a timely and accurate way.
k. receipt and storage documentation is accurate, complete and passed to the relevant person(s) promptly in the required format.

NOS VF45 – Co-ordinate the Receipt and Storage of Automotive Parts

UNIT OVERVIEW

This unit is about taking responsibility for ensuring incoming parts are checked, handled and stored effectively. It includes organising storage facilities, allocating work roles, keeping reliable stock records and monitoring the quality of parts and the way they are stored.

KEY WORDS AND PHRASES

Criteria for evaluating ideas:

Examples include safety, cost effectiveness, use of personnel, contribution to improving productivity and effectiveness of working, potential to improve customer service, etc.

Legal requirements:

These are any current, relevant health and safety and care of substances hazardous to health (COSHH) legislation applicable to the storage of parts.

Parts:

These are vehicle parts, any accessories and consumables.

Relevant people:

Examples include your line manager and other senior colleagues.

Stock Records and Documentation:

Manual or computer based systems, depending on what is in use within your organisation.

Suppliers:

Examples are manufacturers, factors and other motor vehicle parts suppliers.

SCOPE OF THIS UNIT:

1. Requirements relate to:

- type of goods
- quantity of goods
- delivery time

2. Abnormal situations are:

- heavy parts
- large orders
- unscheduled deliveries

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. how to use the stock recording and controlling systems in use in your organisation effectively.
2. your organisation's systems and procedures for:
    - receiving and accepting parts
    - storing and moving parts stock, including maintaining the quality of stock susceptible to damage and or deterioration
    - dealing with discrepancies and late deliveries
    - recording, documentation and parts stock control
    - health, safety and security when receiving and moving parts
    - checking stock condition and the storage of stock
    - removing out of date stock
    - stock rotation if applicable
3. legal requirements applicable to the storage of parts (e.g. air bags)

Organisation and storage of stock

4. how to prepare for the receipt and handling of different types of parts.
5. how to assess and determine storage needs for parts.
6. how to protect vehicle parts from damage and deterioration.
7. how to determine appropriate storage layouts for the storage of parts.
8. how to monitor parts stock storage and movements of stock.
9. the importance of checking incoming parts against requirements promptly after unloading.

Dealing with stock related problems

10. how to solve storage problems efficiently, safely and securely.
11. the causes of parts stock deterioration and how this can be minimised.

Communicating and working with others

12. how to evaluate the profitability of ideas for improving the procedures for moving and storing stock.
13. how to organise and communicate work roles and responsibilities accurately and clearly.
14. who may be called upon to assist with parts deliveries and storage
15. the information staff need in order to receive, move and store parts received efficiently and safely.
16. the **criteria necessary for evaluating ideas**.

PERFORMANCE OBJECTIVES

To be competent you must:

a. when necessary, assemble sufficient competent staff to handle incoming orders before the deliveries are received.
b. allocate and clearly explain roles and responsibilities to all staff involved in storing and moving parts received.
c. ensure that the parts receiving area is clear and that sufficient storage space is prepared before the expected delivery.
d. check that deliveries are unloaded safely and securely.
e. ensure the parts received are checked against **requirements** promptly.
f. ensure that delivery documentation is complete, accurate and processed promptly.
g. check delivery records promptly to see if your organisation's **requirements** have been met by your individual suppliers.
h. when necessary, organise storage facilities to take account of known operational needs, safety requirements and the need to preserve the condition of parts.
i. develop and update contingency plans to cope with **abnormal situations.**
j. maintain a routine for checking stock condition and storage and carry out spot checks at regular intervals.
k. maintain a routine for checking the movement of stock to ensure health and safety and other organisational requirements are being met.
l. take prompt remedial action in line with both legal and organisational requirements to resolve any parts receipt and storage problems.
m. actively encourage individuals to make suggestions for improving the movement and storage of stock.
n. when necessary, implement workable improvements promptly and effectively following approval from the relevant person.
o. keep complete, accurate and up-to-date stock records that can be accessed by everyone who needs them.
p. when requested to do so, provide accurate, up-to-date parts receipt and storage information to relevant people promptly.

NOS VF49 – Process Payment Transactions in the Automotive Retail Environment

UNIT OVERVIEW

This unit is about calculating the cost of parts and services and processing not only cash payments but other forms of payment too, including account payments. You are expected to be able to use the relevant point of sale equipment and be aware of and able to deal with, instances of potential fraud.

KEY WORDS AND PHRASES

Legislation:

Current, relevant legal requirements governing the sale of goods, trade descriptions and consumer protection, data protection act

Non-cash Payments:

Examples include cheques, account payments, credit and debit card payments and electronic transfer.

Parts and services:

These are vehicle parts, any accessories and consumables. Services can be any associated with the retail motor industry.

Sources of information:

Examples include parts and services pricing information, other colleagues and your line manager.

SCOPE OF THIS UNIT:

1. **Payments** are:
- cash
- non-cash

2. **Payment documentation** covers:
- receipts and records
- credit and charge card slips
- credit account slips
- cheques
- records of electronic transfer

ESSENTIAL KNOWLEDGE

You need to know and understand:

Legislative and organisational requirements and procedures

1. your organisation's systems and procedures for:
   - authorising non-cash and credit account transactions
   - verifying account holders
   - calculating and taking payments
   - booking purchases to customer accounts
   - dealing with suspected fraud
2. the relevant rights, duties and responsibilities contained within current versions of consumer legislation.
3. the features of any current parts and or services campaigns and promotions.
4. the limits of your authority for processing payments
5. the limits of your authority for processing a refund
6. the limits of your authority for processing credit notes

Pricing

5. how to identify and check prices in your own parts and services operation.
6. how to get information and advice to deal with pricing problems.
7. how to identify current discounts and special offers (e.g. campaigns and promotions).

Handling payments and payment problems

8. how to keep cash and other payments safe and secure.
9. how to check for and identify counterfeit payments.
10. how to check for stolen cheques, credit cards, charge cards or debit cards.
11. how to deal with customers offering suspect tender or non-cash payments.
12. common methods of calculating payments, including the use of point of sale equipment and manual calculations.
13. the types of payment you are able to receive and accept.
14. the types of transactions errors that can occur and the consequences of failure to report errors.

Customer Care

15. how to balance giving the correct amount of attention to individual customers whilst maintaining a responsibility towards other customers in busy trading periods.
16. the value and importance of customer service to effective trading operations.

PERFORMANCE OBJECTIVES

To be competent you must:

a. identify the price of items accurately.
b. resolve any problems in pricing parts and services promptly by using the sources of information at your disposal.
c. calculate the total price of the transaction correctly.
d. inform customers of the amount due clearly and accurately.
e. confirm the cash amount given by your customer and the change you give them.
f. verify the identity of account holders following your organisation's procedures prior to debiting their account.
g. gain authorisation for accepting non-cash **payments** and processing account debits when the value of the order exceeds the limit you are able to authorise.
h. inform the customer tactfully when authorisation for payment cannot be obtained for non-cash transactions.
i. complete and process **payment documentation** accurately.
j. store payments securely and protect them from theft.
k. be courteous to customers at all times.
l. balance the need to give attention to individual customers whilst ensuring that others are not left without attention.