

## Overview

This standard identifies the competences you need to assemble the rear axle sub-assembly, in accordance with approved procedures. You will be required to assemble a range of rear axle components, including drive or free-running axle, braking and suspension system and associated parts, by using a variety of assembly methods and techniques. You will also be expected to use a range of tools and specialist equipment associated with the assembly methods, and to check that the assembly has been completed to the level of accuracy and quality required by the specification.

Your responsibilities will require you to comply with organisational policy and procedures for the assembly activities undertaken, and to report any problems with the process that you cannot resolve, or that are outside your permitted authority to the relevant people. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you produce.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying procedures appropriate to the assembly of rear axle sub-assemblies. You will understand the assembly methods and techniques used, and their application, and will know about the tooling and ancillary equipment, rear axle components and consumables, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

You will understand the safety precautions required when carrying out the assembly activities. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

## Performance criteria

*You must be able to:*

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. follow the relevant instructions, assembly drawings and any other specifications
3. ensure that the specified components are available and that they are in a usable condition
4. assemble the components in their correct positions, using appropriate methods and techniques
5. secure the components using the specified connectors and securing devices
6. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
7. deal promptly and effectively with problems within your control and report those that cannot be solved
8. ensure that work records are completed, stored securely and available to others as per organisational requirements
9. leave the work area in a safe condition on completion of the activities, as per organisational and legal requirements

## Knowledge and understanding

### *You need to know and understand:*

1. the specific safety precautions to be taken whilst carrying out the activities (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)
2. the health and safety requirements of the work area and activities, and the responsibility they place on you
3. the hazards associated with the activities and how to minimise them and reduce any risks
4. the personal protective equipment and clothing (PPE) to be worn during the activities
5. the procedures for obtaining the various types of drawings, job instructions and specifications that are used during the assembly of rear axle sub-assemblies, and how to interpret them correctly
6. how to identify the components to be used; component identification systems (codes and component orientation indicators)
7. the assembly methods and procedures to be used, and the importance of adhering to these procedures
8. how the components are to be aligned and positioned prior to securing, and the tools and equipment that are used (including jigs and fixtures)
9. the various mechanical fasteners and other components that are used (threaded fasteners, set and self-tap screws, weld nuts and bolts, bearings, seals, gaskets and fasteners)
10. the application of sealants and adhesives within the assembly activities, and the precautions to be taken when working with them
11. the company coding procedure for component variants to meet customer requirements
12. the operational function of the various rear axle sub-assembly components
13. how to adjust rear axle alignment and run-out to meet specifications
14. the use of torque wrenches and the importance of ensuring fasteners are adjusted to the required settings
15. how to apply correct lubrication to the axle and the correct waste disposal of surplus fluids.
16. the consumables, tools and equipment that are used for assembly of the rear

## Assembling the rear axle sub-assembly

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axle sub-assembly

17. the importance of using the specified fasteners for the assembly and why you must not use substitutes
18. how to deal with components or fastening devices that are incorrectly assembled, damaged or have other faults
19. the quality control procedures to be followed during the assembly operations
20. how to conduct any necessary checks to ensure the accuracy and quality of the assembly produced
21. how to recognise defects (incorrect assembly, ineffective fasteners, component damage)
22. the importance of ensuring that the completed assembly is free from left-over items and foreign objects
23. the methods and equipment used to transport, handle and lift the axle units into position, and how to check that the equipment is within its current certification dates
24. the preparations to be undertaken on the components and fixing points, prior to fitting the components into the rear axle sub-assembly
25. how to check that the tools and equipment to be used are correctly calibrated and are in a safe, tested and serviceable condition
26. the importance of ensuring that all tools are used correctly and within their permitted operating range
27. the problems with the assembly operations and the importance of informing appropriate people of non-conformances
28. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve
29. how to access, use and maintain information to comply with organisational requirements and legislation

## Scope/range related to performance criteria

1.

Carry out all of the following during the assembly activities:

- 1.1 obtain and use the appropriate documentation (job instructions, assembly drawings, quality control documentation)
- 1.2 adhere to procedures or systems in place for risk assessment, hazardous substances, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work
- 1.3 check all cables, extension leads or air supply hoses are in a safe, tested and serviceable condition
- 1.4 check all tools and equipment to be used are within current calibration/certification dates
- 1.5 ensure sub-assemblies and components used are free from damage, foreign objects, dirt or other contamination before assembling them
- 1.6 use lifting and slinging equipment in accordance with health and safety guidelines and procedures
- 1.7 use safe and approved techniques to assemble the sub-assemblies and components to the vehicles
- 1.8 return all tools and equipment to the correct location on completion of the assembly activities
- 1.9 leave the work area in a safe and appropriate condition on completion of the activities

2.

Assemble the complete rear axle sub-assembly, to include all of the following:

- 2.1 rear axle assembly
- 2.2 brake assembly
- 2.3 suspension system
- 2.4 vehicle mounting system

3.

Assemble rear axles, using four of the following:

- 3.1 bolts
- 3.2 set/self-tap screws
- 3.3 clip/spring fastenings
- 3.4 drive/interference fits
- 3.5 weld nuts/bolts
- 3.6 pipe fittings/connectors
- 3.7 cable fittings/connectors

4.

Assemble components using three of the following devices:

- 4.1 jigs
- 4.2 power drivers
- 4.3 lifting devices

## Assembling the rear axle sub-assembly

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- 4.4 fixtures
- 4.5 torque drivers
- 4.6 alignment devices
- 4.7 lubrication device
- 4.8 measuring devices
- 4.9 compression devices

5.

Assemble rear axle sub-assemblies, to include twelve of the following components, as applicable to the type of vehicle:

- 5.1 crown and pinion differentials
- 5.2 half shafts
- 5.3 bearings
- 5.4 suspension struts
- 5.5 stabilisers
- 5.6 cables and connections
- 5.7 dampers
- 5.8 seals and gaskets
- 5.9 coil springs
- 5.10 universal joints
- 5.11 pipes and connectors
- 5.12 free-running axle assembly
- 5.13 brake assembly
- 5.14 other specific components

6.

Check assemblies comply with all of the following quality and accuracy standards:

- 6.1 the rear axle sub-assembly is complete
- 6.2 all fastenings are secure and torque loaded to specifications
- 6.3 correct alignment, clearances, balance and run-out of axle sub-assembly is achieved
- 6.4 pipe joints are free from leaks
- 6.5 the assemblies are free from contaminants and comply with specifications

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Assembling the rear axle sub-assembly

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