



Australian Government

AURLTD013 Carry out advanced light vehicle wheel alignment operations

Release: 1

AURLTD013 Carry out advanced light vehicle wheel alignment operations

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the skills and knowledge required to carry out advanced light vehicle wheel alignment operations. It involves assessing any modifications made to a steering system against safety and Australian Design Rule (ADR) compliance, carrying out pre-alignment inspection, performing any necessary adjustments, testing the vehicle and completing workplace processes and documentation.

It applies to those working within the automotive light vehicle service and repair or light vehicle wheel alignment industry. The wheel alignment operations include those of four wheel drive (4WD) vehicles, light vehicles, light commercial vehicles or motorsport vehicles. The unit does not apply to agricultural machinery, heavy commercial vehicles, marine vessels, mobile plant machinery or motorcycles.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Pre-requisite Unit

This unit of competency may only be undertaken following completion of the below unit or its equivalent:

- AURLTD006 Carry out light vehicle wheel alignment operations
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Unit Sector

Technical - Steering and Suspension

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Assess compliance of	1.1 Establish purpose for resetting vehicle wheel alignment from

the proposed modification	workplace instructions and confirm with customer 1.2 Assess practicality of modification specifications and discuss with customer 1.3 Assess proposed modification against safety and ADR compliance and adjust if necessary
2. Carry out light vehicle wheel alignment pre-checks	2.1 Test vehicle according to workplace procedures and workplace health and safety requirements to ensure its condition enables light vehicle wheel alignment to be safely conducted 2.2 Obtain and interpret vehicle wheel alignment pre-check information 2.3 Complete vehicle wheel alignment pre-check according to manufacturer and workplace procedures and workplace health and safety requirements 2.4 Identify and report faults according to workplace procedures
3. Adjust light vehicle alignment to achieve required specifications	3.1 Obtain and interpret light vehicle wheel alignment information 3.2 Identify and examine wheel alignment equipment and tools according to manufacturer and workplace procedures 3.3 Connect wheel alignment measuring equipment to vehicle according to manufacturer specifications, workplace procedures and workplace health and safety requirements 3.4 Perform and record wheel alignment measurements according to manufacturer specifications, workplace procedures and workplace health and safety requirements 3.5 Adjust vehicle wheel alignment according to manufacturer specifications, workplace procedures and workplace health and safety requirements 3.6 Perform and record post-adjustment wheel alignment measurements according to manufacturer specifications, workplace procedures and workplace health and safety requirements
4. Complete work processes	4.1 Test vehicle to confirm accuracy of adjustments according to workplace procedures 4.2 Carry out final inspection to ensure work meets workplace expectations and vehicle is ready for use 4.3 Clear work area and dispose of or recycle materials according to workplace procedures 4.4 Complete wheel aligner maintenance, examine and store tools and equipment according to workplace procedures 4.5 Enter alignment adjustment data into customer's vehicle records 4.6 Complete workplace documentation according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	locate relevant sources of information for light vehicle wheel alignment pre-checks and light vehicle wheel alignment efficiently
Reading skills to:	- read and interpret complex information and ideas from workplace procedures, documentation and Australian Design Rules - read and interpret safe operating procedures for wheel alignment equipment from workplace signs, procedures and manufacturer procedures - interpret information from manufacturer specifications and workshop literature when seeking light vehicle wheel alignment specifications
Writing skills to:	legibly and accurately fill out workplace documentation when reporting findings, making recommendations and recording vehicle pre-alignment checks, pre- and post-wheel alignment readings
Numeracy skills to:	- measure steering and suspension system components - use basic mathematical operations, including addition, subtraction and understanding of angles in degrees - calculate distances, tolerances and deviations from manufacturer specifications - understand measurements in metric and imperial units of measurement
Digital literacy skills to:	navigate computer-based wheel alignment software
Technology skills to:	use precision measuring wheel alignment equipment
Planning and organising skills to:	- plan own work requirements - prioritise actions to achieve required outcomes - ensure tasks are completed within workplace timeframes - select and prepare suitable tools and equipment to allow the job to be completed - identify and prepare the appropriate tools and equipment to allow the job to be completed without time wastage
Problem solving skills to:	- determine job requirements and select suitable tools or equipment - assess practicality of customer specifications - recommend steering system alignment adjustments based on safety and ADR compliance

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AURLTD013 Carry out advanced light vehicle wheel alignment operations (Release 1)	AURLTD003 Reset steering system alignment adjustments to customer specifications (Release 1)	Title change to reflect outcomes of the unit. Addition of a pre-requisite. Wording changes to ensure compliance with Standards for Training Packages. Re-wording of performance criteria and elements. Removal of references to OHS requirements. Removal of range of conditions. Addition of technology skills to foundation skills. Addition of assessor requirements.	Not equivalent

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Assessment Requirements for AURLTD013 Carry out advanced light vehicle wheel alignment operations

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Performance Evidence

The candidate must demonstrate they can perform the following according to the standards defined in the elements, performance criteria and foundation skills of this unit.

The candidate must demonstrate advanced light vehicle wheel alignment operations to customer specifications that safely follows workplace procedures to meet required outcomes. This includes:

- measuring, recording and adjusting all of the following angles on all four wheels of two different light vehicles:
 - camber
 - caster
 - steering axis inclination (SAI)
 - toe (toe-in and toe-out)
 - toe-out on turns
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Knowledge Evidence

The candidate must demonstrate the following knowledge:

Key policies and procedures for carrying out light vehicle wheel alignment operations, including:

- how to locate and interpret manufacturers specifications, Australian Design Rules and workplace procedures for carrying out light vehicle wheel alignment pre-checks and light vehicle wheel alignment operations
- workplace procedures for communicating with customers
- the following workplace health and safety requirements relating to light vehicle wheel alignment:
 - procedures for using air jacks
- environmental requirements for carrying out advanced light vehicle wheel alignment operations

- steering system reset procedures to calibrate on-board system sensors with the steering geometry
- vehicle wheel alignment pre-check procedures, including:
 - assessing steering system alignment adjustments against safety and Australian Design Rule (ADR) compliance
 - road testing
 - analysing tyre wear
 - determining wheel run-out
 - determining vehicle height
 - checking frame alignment
- measuring and adjusting steering angles procedures, including:
 - caster
 - camber
 - toe-in
 - toe-out on turns
- workplace housekeeping and documentation procedures

Steering geometry and wheel alignment angles, including:

- Ackermann principle of steering
- camber
- caster
- SAI
- thrust angle
- toe-in and toe-out
- toe-out on turns
- included angle
- point of intersection
- scrub radius

Key reasons for making non-standard alignment settings on driving and ride characteristics, including:

- fitting modified road springs
- fitting revised shock absorbers
- fitting modified sway bars
- altering ride height
- fitting non-standard wheel and tyre combinations
- variations to understeer and oversteer
- off-road use

Key types and uses of wheel alignment systems, including:

- laser aligners
- visual aligners
- camera aligners
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Assessment Conditions

The assessment must:

- include access to:
 - automotive repair workplace or simulated workplace that reflects workplace conditions - where simulation is used, it must reflect real working conditions by modelling industry operating conditions and contingencies, as well as, using suitable facilities, equipment and resources
 - repair orders and workplace instructions relating to wheel alignment activity
 - workplace procedures relating to wheel alignment activity
 - manufacturer steering system alignment specifications required to complete wheel alignment activity
 - Australian Design Rules
 - two different vehicles requiring steering system adjustments to the angles specified in the performance evidence
 - tools, equipment and materials required for carrying out advanced light vehicle wheel alignment operations
- be demonstrated in the workplace or in a simulated environment that reflects workplace conditions
- be conducted in a safe environment
- be assessed in compliance with relevant policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed
- confirm consistent performance can be applied in a range of relevant workplace circumstances

Assessor requirements

Assessors of this unit must:

- satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards
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