IMIVF07
Carry out light vehicle four wheel alignment

Overview

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

Performance criteria

You must be able to:

P1 select and use suitable personal protective equipment and vehicle coverings throughout all **four wheel alignment** activities

P2 work in a way which minimises the risk of damage to the vehicle and its systems

P3 ensure that your measuring and adjustment equipment is safe, in good working order and where necessary, calibrated prior to use

P4 conduct all four wheel alignment **pre-checks** and **four wheel alignment** activities following:

- P4.1 the use of correct technical data
- P4.2 the vehicle and equipment manufacturers' recommendations
- P4.3 your workplace procedures
- P4.4 health and safety requirements

P5 carry out all **four wheel alignment** activities using suitable **tools and equipment** and the correct techniques

P6 ensure your final adjustments and settings are within the tolerances recommended by the vehicle manufacturer for the vehicle

P7 inform the relevant person(s) when adjustments to within the tolerances allowed are not possible

P8 make clear and suitable recommendations for any further action to the relevant person(s)clearly and accurately

P9 complete all **four wheel alignment** activities within the agreed timescale

P10 promptly report any anticipated delays in completion to relevant person(s)

P11 ensure your records of measurements taken and adjustments made are clear and accurate

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1 the current health and safety legislation and workplace procedures relevant to workshop practices, checking equipment and personal and vehicle protection

K2 your workplace procedures for:

- K2.1 the referral of problems
- K2.2 reporting of delays to the completion of work
- K2.3 personal protection

K3 the importance of working to agreed timescales and keeping others informed of progress

K4 the relationship between time and costs

K5 your workplace requirements for recording measurements taken and adjustments made

K6 the importance of promptly reporting anticipated delays to the relevant person(s)

You need to know and understand:

Tools and equipment

K7 how to select and use the **tools and equipment** used for the measurement and adjustment of **four wheel alignment**

K8 the importance of checking for safety and accuracy

K9 how to confirm that measuring and adjustment **equipment** is safe and, where necessary, calibrated prior to use

You need to know and understand:

Four wheel alignment

K10 the Ackerman principle

K11 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

K12 the purpose, function and location of steering and suspension system components and how wear can affect wheel alignment

K13 the abnormal tyre wear associated with misalignment

K14 the importance of taking accurate measurements

K15 how to find and use vehicle data relating to working tolerances

K16 how to carry out four wheel alignment **pre-checks**

K17 **four wheel alignment** and adjustment techniques, including the use of weights, how to apply them and record adjustments

K18 the importance of ensuring any adjustments are within acceptable tolerances for the vehicle

K19 the possible consequences of inaccurate adjustments and the effect on other items

K20 how to take and record accurate measurements

K21 the importance of checking the operation of adjusted items prior to return to the customer

K22 the implications for safety and customer satisfaction

K23 how to check that the adjusted items function correctly

K24 how to work safely avoiding injury to yourself, others and damage to vehicles the impact of adjustment on electronic systems, for example, TPMS, steering wheel angle sensor, ESP dynamic cruise control and ADAS

K25 Advanced Driver Assistance Systems and the implications of working with them

Scope/range

1. Four wheel alignment **pre-checks** include:

1.1. tyre pressures and condition

1.2. wheel and wheel bearing for damage, play and wear

1.3. suspension for damage, play, wear and ride height

1.4. steering assembly for damage, play and wear

2. **Four wheel alignment** includes:

2.1. individual toe

2.2. combined toe

2.3. steering wheel position and steering angle sensor calibration

2.4. thrust angle

2.5. camber

2.6. caster

2.7. KPI/SAI

2.8. set back

3. **Tools and equipment** includes:

3.1. hand tools

3.2. lifting and supporting equipment

3.3. specialist alignment measuring equipment

3.4. turn plates

3.5. steering clamp

3.6. electronic diagnostic equipment

3.7. heating equipment

3.8. penetrating oil

Additional information

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

Glossary

ADAS

Advanced driver-assistance systems, includes systems for driver safety, pedestrian safety, motion/stability control and collision avoidance systems

Agreed timescales

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

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