IMILV11

Overhaul light vehicle mechanical units

Overview

This NOS is about the overhaul of light vehicle mechanical units, for example, engines, gear boxes, final drive assemblies, steering units and components, suspension units and components. The unit covers dismantling, assessment, repair, replacement or adjustment of internal components together with re-assembly and testing.

Performance criteria

You must be able to:

P1 use suitable personal and vehicle protective equipment throughout all **overhauling activities**
P2 use suitable sources of technical information to support your **overhauling activities**
P3 prepare the vehicle mechanical unit and work area for safe working procedures as appropriate to the vehicle
P4 assess and prepare all the equipment required, following manufacturers' instructions, prior to use
P5 prepare, check and use the tools and equipment required correctly and safely throughout all **overhauling activities**
P6 carry out all **overhauling activities** following:
- P6.1 manufacturers' instructions
- P6.2 recognised repair methods
- P6.3 your workplace procedures
- P6.4 health, safety and environmental requirements

P7 work in a way which minimises the risk of:
- P7.1 damage to other components
- P7.2 leakages
- P7.3 contact with hazardous substances

P8 ensure your assessment of the dismantled units identifies accurately the condition and suitability for overhaul
P9 inform the relevant person(s) promptly where an overhaul is uneconomic or unsatisfactory to perform
P10 use testing methods which comply with the manufacturer's requirements
P11 adjust the unit's components correctly, when necessary, to ensure that they operate to meet the vehicle operating requirements
P12 ensure the overhauled units and assemblies conform to the vehicle operating specification and any legal requirements
P13 ensure your overhaul records are accurate, complete and passed to the relevant person(s) promptly in the format required
P14 complete all **overhauling activities** within the agreed timescale
P15 report any anticipated delays in completion to the relevant person(s) promptly

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1 the legal requirements applicable to the units and assemblies overhauled (including road safety requirements)
K2 the legislation and workplace procedures relevant to
- K2.1 health and safety
- K2.2 the environment (including waste disposal)
- K2.3 personal and vehicle protective equipment

K3 your workplace procedures for:
- K3.1 recording **overhaul activities**
- K3.2 reporting the results of tests
- K3.3 the referral of problems
- K3.4 reporting delays to the completion of work

K4 the importance of working to recognised overhauling and repair procedures and processes and obtaining the correct information for overhauling and repair activities to proceed
K5 the importance of, documenting repair information
K6 the importance of working to agreed timescales and keeping others informed of progress
K7 the importance of reporting any anticipated delays to the relevant person(s) promptly

Equipment

K8 how to prepare and check the accuracy and operation of all the overhauling and testing equipment required
K9 how to use all the overhauling and testing equipment required

Mechanical units overhauling activities

K10 how to find, interpret and use sources of information on overhauling procedures and statutory requirements
K11 how the relevant vehicle mechanical units and assemblies operate
K12 how mechanical units and assemblies are constructed, dismantled and reassembled
K13 the possible causes of faults in mechanical units and assemblies
K14 vehicle operating specification for limits, fits and tolerances and where this information can be sourced

K15 how to assess the condition evident within units, sub-assemblies and components
K16 the cost-benefit / relationship between the reconditioning, repair and replacement of components
K17 how to carry out **overhauling activities** for the type(s) of units worked upon
K18 the relationship between test methodology and the faults repaired – the use of appropriate testing methods
K19 how to test and evaluate the performance of overhauled units against the operating specification
K20 how to interpret test results
K21 how to identify the types and causes of mechanical units and assembly failure
K22 how to make suitable adjustments to components and units
K23 how to work safely avoiding personal injury, damage to components leakage and hazardous substances
K24 how to make cost effective recommendations based upon the cost-benefit relationship between the reconditioning, repair and replacement of components

Scope/range

1. Overhaul activities are:

1.1. dismantling
1.2. assessment
1.3. repair
1.4. replacement
1.5. adjustment of internal components
1.6. re-assembly
1.7. functional testing

Glossary

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

Vehicles:
These can be any of the following – light vehicles. Additionally, these vehicles may be SI, CI, Hybrid, Electric or Alternative fuel vehicles.

Alternative fuel:
This is defined as any type of fuel that may be used to power an internal combustion engine, examples would include LPG, bio ethanol etc.

Adjustments:
Examples include, adjustments made to clearances, gaps, settings, pressures, tensions, pre-load and speeds.

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

Assessments:
Examples include those for wear, damage, alignment, corrosion, leakage, distortion and balance.

Equipment:
Examples include hand tools, pullers and presses, measuring instruments, refurbishment tools, general workshop equipment and special service tools.

Functional testing:
This refers to any applicable functional tests carried out after overhaul.

Mechanical units:
Examples are: power units, gear boxes, final drive assemblies, steering units and components, suspension units and components.

Testing methods:
As prescribed by the appropriate technical literature.

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