LANLEO8

Apply core land-based engineering principles: servicing and maintenance

Overview

This standard covers the application of core land-based engineering principles: servicing and maintenance. It includes the necessity for service and maintenance operations, the construction and function of service components and the skills required to carry out service and maintenance work including, cleaning before, during and after a service operation, protecting machinery and property from damage, changing and cleaning service items, bleeding and priming fuel, oil, cooling, hydraulic, pneumatic and heating systems, sealing service components, checking machine operation against manufacturers' criteria and making adjustments.

It also covers the inspection and performance testing of machinery for non-conformity, abuse, serviceability, additional repair work, leaks and wear.

This standard is for those who work in land-based engineering and is appropriate for persons working under supervision.

Note: due to current regulations an approved electrician should be involved when working with mains electricity.

Performance criteria

You must be able to:

1. assess land-based vehicles and machines for servicing and maintenance requirements
2. **prepare** machinery and the working area prior to carrying out servicing and maintenance operations
3. apply core land-based engineering principles to service and maintain land-based engineering vehicles and machinery to manufacturers' schedules
4. reinstate the machinery to correct operational condition following a service
5. carry out inspections and assessments of land-based machinery for **conformity** to manufacturers' specifications
6. carry out performance and operational **tests** once servicing and maintenance tasks have been carried out, that relate to the work that has been performed on the machine

Knowledge and understanding

You need to know and understand:

1. how to assess the condition of machinery and prepare it prior to servicing and maintenance operations
2. the reasons for servicing and maintenance operations
3. the actions to be taken at servicing and **maintenance intervals**
4. what is meant by the terms "running in" or "bedding in"
5. **types of filters**, their construction, function and service requirements
6. the procedures for draining **fluids** in service operations
7. the methods of evacuating air from fuel, cooling, heating, braking, and water from hydraulic and pneumatic circuits when carrying out maintenance work
8. the methods used to clean and protect a machine before and during service operations, avoiding paint, trim and bodywork damage, and avoiding the introduction of contaminates
9. how to check and carry out **adjustments**
10. the methods of detecting and eliminating **leakages**
11. the methods used to performance test machinery after servicing and maintenance operations
12. legal implications of **modifying** Falling Object Protection System (FOPS) and/or Roll Over Protection System (ROPS)

Glossary

adjustments - e.g. belt and chain tensions, clearances, cables and linkage settings, tracking

conformity to manufacturers' specifications - e.g. unauthorised modification, excessive loading, poor maintenance, incorrect operator settings, incorrect operation

fluids - e.g. fuel, oil, brake fluid, coolants

leakages - e.g. fuel, oil, air, water, gases

maintenance intervals - e.g. daily, weekly, monthly, annually and at scheduled operating hours

implications of **modifying** - e.g. integrating external equipment and services, drilling, welding

prepare - e.g. clean, protect, make safe, etc.

tests - e.g. deceleration, power, pressure, flow

types of filters - e.g. screen, suction filter, high-pressure filter, centrifugal filter, oil bath, water trap, pre-cleaner, carbon filter, ventilation filter

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