LANLEO24

Service and repair hydraulic systems on land-based equipment

Overview

This standard covers the service and repair of hydraulic systems on land-based equipment. It includes the diagnosis, removal, service/repair and reinstatement of hydraulic circuits, systems and their components to the manufacturers' specifications, (e.g. high and low pressure hydraulic circuits including combined high/low pressure circuits, fixed and variable displacement circuits, open and closed centre circuits, load sensed circuits or auxiliary systems) and the methods used to control implement working depth and height (e.g. draft or position control).

This standard is for those who work in land-based engineering.

Performance criteria

You must be able to:

1. identify remove and replace hydraulic system components on land-based equipment
2. safely release stored energy in hydraulic systems and circuits
3. assemble or repair pipes and hoses used within hydraulic systems
4. dismantle, service/repair and reinstate hydraulic systems and components to **manufacturers' specifications** and factory settings
5. use **hydraulic system diagnostic tools**
6. prepare the system to be tested and carry out tests

Knowledge and understanding

You need to know and understand:

1. the common symbols used in hydraulic circuit diagrams
2. how to read and interpret hydraulic circuit diagrams to include open centre, closed centre and load sensing
3. how to remove and replace hydraulic components
4. how to dismantle, service/repair and reinstate hydraulic systems and components to manufacturers' specifications.
5. the construction, types and function of **hydraulic system components**
6. how to identify hydraulic pipe and hose types and their appropriate fittings
7. how to assemble and repair hydraulic hoses and pipes
8. how to route and secure hoses and pipes
9. how to carry out diagnostic tests and adjust hydraulic components and systems to manufacturers' specifications and factory settings
10. the primary causes of **hydraulic failures** and their symptoms

Glossary

hydraulic failures and their symptoms - e.g. low oil level, inappropriate oil, contamination, cavitation, overload

hydraulic system components - e.g.

- hydraulic pumps and motors, e.g. fixed and variable displacement
- hydraulic pressure maintaining valves, relief valves, shock valves
- hydraulic control valves, e.g. distributors, solenoid valves, proportional valves, pressure differential valves, pilot operated valves
- hydraulic rams, single, acting, double acting
- hydraulic direction flow valves, flow dividers, orbital valves, priority valves, restrictors
- reservoirs
- accumulators

hydraulic system diagnostic tools - e.g. high and low pressure gauges, pressure differential gauges and flow meter

manufacturers' specifications - e.g. pressure and flow, adjust pressure limiting and relief valves, set draft and position control valves

Links to other NOS

Basic testing and diagnostics is covered in LANLEO30 Inspect and test land-based machinery and equipment.

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