

Overview

This standard identifies the competences you need to carry out corrective maintenance activities on fluid power equipment, on mobile or static plant, in accordance with approved procedures. This will involve dismantling, removing and replacing or repairing faulty components on hydraulic, pneumatic or vacuum equipment, and will include components such as pumps, valves, actuators, sensors, regulators, compressors, pipes and hoses, and other specific fluid power equipment.

You will be expected to cover a range of maintenance activities, such as draining and removing fluids, removing stored pressure, labelling/proof marking to aid reassembly, dismantling components to the required level, setting, checking components for serviceability, aligning and adjusting components, replacing 'lived' items, tightening fasteners to the required torque and making 'off-load' checks, before starting up and testing the maintained equipment, using appropriate techniques and procedures.

Your responsibilities will require you to comply with organisational policy and procedures for the maintenance activities undertaken, and to report any problems with these activities, or with the tools and equipment used, that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work to instructions, alone or in conjunction with others, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will be sufficient to provide a sound basis for your work, and will provide an informed approach to applying maintenance procedures to fluid power equipment. You will have an understanding of dismantling and reassembly methods and procedures, and their application. You will know how the equipment functions, and the purpose of the individual components, in adequate depth to provide a sound basis for carrying out any repair or adjustment. In addition, you will have sufficient depth of knowledge of these components, to ensure that they are fit for purpose and meet the specifications, thus providing a sound basis for carrying out reassembly.

You will understand the safety precautions required when carrying out the maintenance activities, especially those for isolating the equipment, and for taking the necessary safeguards to protect yourself and others in the workplace. You will be required to demonstrate safe working practices throughout.

Performance criteria

You must be able to:

- P1 work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
- P2 follow the relevant maintenance schedules to carry out the required work
- P3 carry out the maintenance activities within the limits of your personal authority
- P4 carry out the maintenance activities in the specified sequence and in an agreed time scale
- P5 maintain/replace system components as required
- P6 deal with problems within your control and report those that cannot be solved
- P7 complete and store all relevant documentation in accordance with organisational requirements
- P8 dispose of waste materials in line with organisational requirements

Knowledge and understanding

You need to know and understand:

- K1 how to work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
- K2 the importance of wearing the appropriate personal protective equipment (PPE), and of keeping the work area clean and tidy
- K3 how to obtain and interpret information from job instructions, drawings, specifications, manufacturers' manuals and other documents needed in the maintenance process
- K4 the procedure for obtaining replacement parts, materials and other consumables necessary for the maintenance activities
- K5 recognition of contaminants, the issues they can create, and the effects and likely symptoms of contamination in the system
- K6 the techniques used to dismantle/assemble fluid power equipment
- K7 the need to establish the cleanliness level of oil in the hydraulic reservoirs
- K8 procedures to be followed to correctly fill hydraulic reservoirs
- K9 how to make adjustments to components/assemblies to ensure that they function correctly
- K10 the basic principles of how the fluid power equipment functions, and the operation and application, of the various units and components
- K11 how to check that tools and equipment are free from damage or defect, are in a safe and usable condition, and are configured correctly for the intended purpose
- K12 the generation of documentation and/or reports following the maintenance activity
- K13 equipment operating and control procedures to be applied during the maintenance activity
- K14 how to use lifting and handling equipment, safely and correctly in the maintenance activity
- K15 the issues associated with the maintenance activity, and how they can be overcome
- K16 the procedure to be adopted for the safe disposal of waste of all types of materials
- K17 the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

Scope/range related to performance criteria

1. Carry out all of the following during the maintenance activity:
 - 1.1. undertake the maintenance activities to cause minimal disruption to normal working
 - 1.2. use the correct issue of maintenance documentation (such as drawings, manuals, maintenance records)
 - 1.3. adhere to procedures or systems in place for risk assessment, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work
 - 1.4. adhere to company specific contamination and control procedures at all times
 - 1.5. ensure the safe isolation of equipment (such as mechanical, electricity, gas, air or fluids)
 - 1.6. ensure that safe access and working arrangements have been provided for the maintenance area
 - 1.7. carry out the fault location activities, using approved procedures
 - 1.8. identify the fault, and consider appropriate corrective action
 - 1.9. in conjunction with others, take actions to resolve the problem
 - 1.10. re-connect and return the equipment to service on completion of the maintenance activities
 - 1.11. dispose of waste items in a safe and environmentally acceptable manner
 - 1.12. leave the work area in a safe and tidy condition

2. Carry out maintenance activities on one of the following types of fluid power equipment:
 - 2.1. pneumatic
 - 2.2. hydraulic
 - 2.3. vacuum

3. Maintain and/or replace six of the following fluid power system components:
 - 3.1. pumps
 - 3.2. motors
 - 3.3. compressors
 - 3.4. sensors
 - 3.5. pistons
 - 3.6. bearings
 - 3.7. receivers

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- 3.8. lubricators
 - 3.9. filters
 - 3.10. spools
 - 3.11. reservoirs
 - 3.12. gaskets and seals
 - 3.13. regulators
 - 3.14. valves
 - 3.15. accumulators
 - 3.16. pipework
 - 3.17. hoses/tubing
 - 3.18. valve solenoid
 - 3.19. actuators/cylinders
 - 3.20. pressure intensifiers
 - 3.21. switches
 - 3.22. other specific components
4. Carry out eight of the following maintenance activities, as applicable to the equipment being maintained:
- 4.1. chocking/supporting actuators/rams/component
 - 4.2. releasing stored pressure
 - 4.3. draining, removing and replacing oil/fluids (as applicable)
 - 4.4. replacing damaged/defective components
 - 4.5. removing and replacing units/components (such as pumps, valves, actuators)
 - 4.6. disconnecting/removing hoses, pipes and tubing
 - 4.7. replacing all 'lived' items (such as seals, filters, gaskets, hoses)
 - 4.8. proof marking/labelling of removed components
 - 4.9. checking components for serviceability
 - 4.10. tightening fastenings to the required torque
 - 4.11. setting, aligning and adjusting replaced components
 - 4.12. making 'off-load' checks before re-pressurising the system
 - 4.13. priming and bleeding the system (where applicable)
 - 4.14. functional/performance testing of the maintained system
5. Maintain fluid power equipment, in accordance with one of the following:
- 5.1. organisational guidelines and codes of practice (such as BFPA guidance documentation)

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- 5.2. equipment manufacturers' operation range
- 5.3. BS, ISO and/or BSEN standards

- 6. Complete one of the following maintenance records and pass it to the appropriate person:
 - 6.1. job cards
 - 6.2. maintenance log or report
 - 6.3. permit to work/formal risk assessment and/or sign on/off procedures
 - 6.4. organisational specific documentation
 - 6.5. electronic reports

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