

Overview

This standard identifies the competences you need to carry out corrective maintenance activities on compressed air systems and equipment, in accordance with approved procedures. You will be required to maintain a range of compressed air equipment, which will include compressed air generation, distribution and control systems. This will involve dismantling, removing and replacing faulty or damaged components, including pumps, valves, couplings, receivers, driers, motors, regulators, compressor components, sensors, pipework and hoses, filters, electrical wiring, gaskets and seals. You will be expected to apply a range of dismantling and assembly methods and techniques, such as proof marking/labelling of components to aid the assembly, dismantling components requiring pressure techniques, torque loading, and setting, aligning and adjusting components.

Your responsibilities will require you to comply with organisational policy and procedures for the maintenance activities undertaken, and to report any problems with the maintenance activities, or the tools and equipment used that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You must ensure that all tools, equipment and materials used in the maintenance activities are removed from the work area on completion of the activities, and that all necessary job/task documentation is completed accurately and legibly. You will be expected to work with minimal supervision, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying maintenance procedures on compressed air equipment. You will understand the dismantling and reassembly methods and procedures used, and their application. You will know how the equipment functions, the purpose of the individual components and associated defects, in adequate depth to provide a sound basis for carrying out the maintenance activities, correcting faults and ensuring that the repaired equipment functions to the required specification and remains compliant with all standards and regulations. You will also have sufficient 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

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activities, especially those for isolating the equipment. You will be required to demonstrate safe working practices throughout, and will understand your responsibility for taking the necessary safeguards to protect yourself and others in the workplace.

Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety legislation and other relevant regulations, directives and guidelines
2. follow the relevant maintenance schedules to carry out the required work
3. carry out the maintenance activities within the limits of your personal authority
4. carry out the maintenance activities in the specified sequence and in an agreed timescale
5. report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule
6. complete and store all relevant maintenance documentation in accordance with organisational requirements
7. dispose of waste materials in accordance with safe working practices and approved procedures and leave the work area in a safe condition

Knowledge and understanding

You need to know and understand:

1. the health and safety requirements of the area in which the maintenance activity is to take place
2. the isolation and lock-off procedures or permit-to-work procedure that applies to the compressed air equipment/system being worked on
3. the specific health and safety precautions to be applied during the maintenance procedure, and their effects on others
4. hazards associated with carrying out maintenance activities on compressed air equipment (such as handling oils, greases, stored pressure/force, misuse of tools, using damaged or badly maintained tools and equipment, not following laid-down maintenance procedures), and how to minimise them to reduce any risks
5. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the maintenance process
6. how to obtain and interpret drawings, specifications, manufacturers' manuals and other documents needed in the maintenance process
7. the procedure for obtaining replacement parts, materials and other consumables necessary for the maintenance activities
8. organisational policy on the repair/replacement of components during the maintenance process
9. the sequence to be adopted for the dismantling/reassembly of various types of assemblies used on compressed air equipment
10. the methods and techniques used to dismantle/assemble compressed air equipment (such as release of pressures/force, proof marking, extraction, pressing, alignment)
11. methods of checking components are fit for purpose, how to identify defects and wear characteristics, and the need to replace 'lived' items (such as filters, seals and gaskets)
12. how to make adjustments to components/assemblies to ensure they function correctly
13. the basic principles of how the equipment functions, its operation sequence, the working purpose of individual units/components and how they interact
14. the use of measuring equipment (such as micrometers, verniers, and other measuring devices)

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15. how to check tools and equipment are free from damage or defects, are in a safe and usable condition, and are configured correctly for their intended purpose

16. the generation of maintenance documentation and/or reports following the maintenance activity

17. the equipment operating and control procedures to be applied during the maintenance activity

18. how to use lifting and handling equipment correctly and safely in the maintenance activity

19. the problems associated with the maintenance activity, and how they can be overcome

20.

the organisational procedure to be adopted for the safe disposal of waste of all types of material

21.

the extent of your own authority and to whom you should report if you have problems that you cannot resolve

Scope/range

1.

Carry out all of the following during the maintenance activity:

- 1.1 plan and communicate the maintenance activities to cause minimal disruption to normal working
- 1.2 obtain and use the correct issue of organisational and/or manufacturers' drawings and maintenance documentation
- 1.3 adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work
- 1.4 ensure the safe isolation of equipment (such as mechanical, electricity, air or fluids)
- 1.5 provide and maintain safe access/egress and working arrangements for the maintenance area
- 1.6 carry out the maintenance activities using appropriate techniques and procedures
- 1.7 re-connect and return the system to service on completion of the maintenance activities
- 1.8 record the results of the maintenance activity and report any defects found
- 1.9 dispose of waste materials in accordance with safe working practices and approved procedures and leave the work area in a safe condition

2.

Carry out maintenance activities on all of the following types of equipment:

- 2.1 compressed air generation
- 2.2 compressed air distribution
- 2.3 compressed air control

3.

Carry out all of the following maintenance techniques, as appropriate to the equipment:

- 3.1 testing the system for leaks
- 3.2 marking/labelling of components
- 3.3 dismantling equipment to unit/sub-assembly level
- 3.4 tightening fasteners to the required torque
- 3.5 setting, aligning and adjusting replaced components
- 3.6 making 'off-line' checks before starting up
- 3.7 checking components for serviceability
- 3.8 replacing all 'lived' items (such as batteries, seals, filters)
- 3.9 dismantling units to component level
- 3.10 replacing damaged/defective components
- 3.11 functionally testing the completed system

4.

Maintain and/or replace a range of compressed air equipment and components, to

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include twelve of the following:

- 4.1 pumps
- 4.2 reservoirs
- 4.3 compressors
- 4.4 flexible pipe/hoses
- 4.5 switches
- 4.6 receivers
- 4.7 couplings
- 4.8 silencers
- 4.9 gauges/indicators
- 4.10 electrical wiring
- 4.11 driers
- 4.12 rigid pipe
- 4.13 manifolds
- 4.14 gaskets and sealants
- 4.15 safety devices
- 4.16 motors
- 4.17 vanes
- 4.18 sensors
- 4.19 control equipment
- 4.20 pistons
- 4.21 filters
- 4.22 lubricators
- 4.23 electrical connectors
- 4.24 valves
- 4.25 regulators
- 4.26 separation units
- 4.27 monitoring equipment
- 4.28 belt drives
- 4.29 noise damping equipment

5.

Maintain compressed air systems equipment which complies with one of the following:

- 5.1 organisational guidelines and codes of practice
- 5.2 equipment manufacturer's operation range
- 5.3 BS, ISO and/or BSEN standards

6.

Complete and store all relevant maintenance documentation in accordance with organisational requirements, using one of the following:

- 6.1 job cards
- 6.2 permits to work/formal risk assessment and/or sign-on/off procedures
- 6.3 maintenance log or report
- 6.4 organisational-specific documentation
- 6.5 electronic reports

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