

Repairing yacht and boat wooden components and assemblies

Overview

This standard identifies the competences you need to restore yacht or boat wooden components to serviceable condition by repairing, in accordance with approved procedures. You will be required to restore a range of yacht or boat wood components and assemblies and this will include carrying out activities such as cutting out and removing defective/damaged parts, manufacturing new parts, replacing the new parts and reworking the surface finish. You will be required to select the appropriate equipment to use, based on the nature of the repair required, the operations that will need to be carried out and the accuracy required. Repair activities will cover structural components such as deck and hull planks, hatch covers, doors and windows/ports, spars, floors and furniture or trim items such as navigational and helm consoles, bunks, top boxes, storage boxes, ladders, steps, decorative mouldings.

In repairing the components, you will be expected to use a range of hand tools, machine tools, portable power tools, and shaping and fitting techniques, appropriate to the type of material and repair being performed. These activities will include such processes as sawing (hand, machine), drilling/bracing, planing (hand or machine), routing, sanding and morticing and tenoning. Materials to be used may include soft woods, hard woods, plywood, blockwood, hardboard and fibreboard (MDF).

Your responsibilities will require you to comply with organisational policy and procedures for the repairing activities undertaken and to report any problems with these activities or with the tools, equipment or materials used that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of 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 repair procedures to yacht or boat wooden components and assemblies. You will understand the function and operating conditions of the components being repaired, in sufficient depth to determine a suitable repair sequence and to ensure that the repairs carried out are safe and practical in operation. You will also understand the organisational policy on repairing components and its application.

You will understand the safety precautions required when carrying out the repair activities, especially those for using portable power operated tools and wood working machine 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, both ashore and afloat.

Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety legislation, regulations, directives and other relevant guidelines
2. follow the relevant specifications for the component to be repaired
3. prepare the component for repair
4. carry out the repairs within agreed timescale using approved materials and components and methods and procedures
5. ensure that the repaired component meets the specified operating conditions
6. complete relevant documentation in line with organisational procedures, of all repair work carried out

Knowledge and understanding

You need to know and understand:

1. the safe working practices and procedures to be observed when repairing yacht or boat wooden components (including working with machinery; the use of appropriate personal protective equipment; machine guards; operation of machine safety devices; stopping the machine in an emergency; closing the machine down on completion of activities)
2. statutory requirements, risk assessment procedures and relevant requirements of HASAWA, COSHH, Work Equipment Regulations and Wood Working Regulations
3. the health and safety requirements of the work area in which you are carrying out the repair activities and the responsibility they place on you
4. how to recognise and deal with emergencies and the procedures to be followed (such as methods of safely evacuating and closing down of compartments in the case of fire or other major incident, first aid, fire fighting and resuscitation of personnel)
5. the personal protective equipment and clothing (PPE) to be worn during the repairing activities
6. the hazards associated with carrying out repairs to yacht or boat wooden components (such as working in confined spaces using power operated equipment) and how they can be minimised
7. the importance of checking that the machinery used is working correctly, and that the cutting tools are undamaged and are in a safe and sharp condition
8. how to obtain the necessary job instructions, repair drawings and specifications that are used during the repair activities and how to interpret their information
9. how to carry out currency/issue checks of the specifications you are working with
10. the methods and techniques to be followed for repairing the yacht or boat wooden components, in compliance with company procedures
11. the types of repair that can be made to the various components in order to prolong their useful life (such as splicing in new wood or replacing sections of damaged wood)
12. the factors to be taken into account when deciding if a repair is practical and possible (such as cost of repairing against a new unit, safety of repair, age and condition of equipment)
13. the need to liaise with other departments in order to have specialised operations carried out on the craft/vessel (such as removal of electrical/electronic equipment, disconnection of supplies such as gas)

14. how to identify the different types of material used for the repair activities; their different qualities and shortcomings
15. the types and application of portable power tools that can be used for the repair operations
16. how to check that portable power tools and extension cables are in a safe and tested usable condition
17. the capabilities and limitations of the cutting and shaping equipment to be used
18. the importance of ensuring that all machine and portable tools are used correctly and within their permitted operating range
19. how to set up and use dust extraction equipment and the importance of ensuring that this equipment is operating correctly
20. how to check that the cutting tools are in a usable and safe condition and the procedure for changing, sharpening and adjusting these when required
21. the methods used to cut and shape a range of shapes/profiles (such as square, angular, circular/curved profiles, mortise and tenon joints and halving, housing, scarph and mitred joints)
22. recognising defects in the components which would render the materials unfit for the repair activities being carried out (such as cracks/shakes, warps, knots)
23. why it is important to keep the tools and equipment clean and free from damage, to practice good housekeeping of tools and equipment and to maintain a clean and unobstructed working area
24. how to handle and store tools and equipment, safely and correctly
25. the sorts of problem associated with repairs and how to resolve them
26. the standards to be attained and the company/customer quality control procedures
27. the recording documentation to be completed for the repair activities undertaken and where appropriate, the importance of marking and identifying specific pieces of work in relation to the documentation
28. the extent of your own responsibility and whom you should report to if you have problems that you cannot resolve

Scope/range related to performance criteria

1. Carry out **all** of the following during the repair of the yacht or boat wooden components:

1. plan the repair activities to cause minimal removal of equipment and surrounding materials
2. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations
3. ensure the safe isolation of surrounding equipment (such as mechanical, electricity, gas, air or fluids)
4. provide safe access and working arrangements for the work area
5. record the repair using appropriate methods or documentation
6. dispose of waste items in a safe and environmentally acceptable manner and leave the work area in a safe condition

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2. Carry out repairs to **eight** of the following types of yacht or boat wooden components:

1. bulkheads
2. bunks
3. furniture units with drawers
4. furniture units with doors
5. hull frames
6. keel/backbone
7. stem
8. moulds
9. hull planks/strakes
10. deck beams
11. deck planks
12. transom doors and door frames
13. mouldings (such as door frame)
14. ladders
15. steps
16. bulkhead
17. bulwark
18. floors
19. stringers
20. carlins
21. cabin* *

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22. top boxes
23. coach roof
24. helm consoles
25. navigational consoles
26. windows/ports
27. rudder
28. tiller
29. wheel
30. mast
31. hatch/hatch covers
32. engine/machinery bearers

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3. Use a range of methods and techniques to repair the components, to include **six** of the following:

1. sawing (by hand or machine)
2. drilling (by hand or machine)
3. sanding (by hand or machine)
4. planing (by hand or machine)
5. spoke shaving
6. routing
7. carving/shaping
8. chiselling
9. turning
10. jointing (such as mortise and tenon, scarph, housing and having, mitres and dove tail)
11. other specific method

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4. Repair components which combine different features and cover **ten** of the following profiles:

1. flat faces
2. parallel faces
3. square faces
4. angular/tapered faces
5. rebates
6. curved profiles
7. concave profiles
8. convex profiles
9. circular/round profiles
10. chamfers and radii
11. slots/grooves
12. drilled holes
13. tenons

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- 14. mortices
- 15. scarph joints
- 16. halving joints * *
- 17. housing joints
- 18. other specific joints (such as dovetail, combed)

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- 5. Repair components made from different types of material, to include **all** of the following:

- 1. soft woods
- 2. hard woods
- 3. manufactured boards

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- 6. Carry out checks on the completed repair to include **all** of the following:

- 1. dimensionally accurate within job requirements
- 2. free from false tool cuts and material defects
- 3. interlocking components (joints) are secure
- 4. meets the craft/boats operational requirements
- 5. meet company and customer requirements
- 6. has an appropriate cosmetic finish

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- 7. Repair yacht or boat wooden components which complies with **one** of the following:

- 1. BS or ISO standards and procedures
- 2. customer (contractual) standards and requirements
- 3. company standards and procedures
- 4. specific equipment requirements/manufacture's data
- 5. recognised compliance agency/body's standards (such as Lloyds, Boat Safety Scheme, BMEA Code)
- 6. other accepted international standards

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- 8. Complete the relevant documentation in line with organisational procedures, to include **one** from the following and pass it to the appropriate people:

- 1. work authorisation documents
- 2. acceptance documentation

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3. craft/vessel log
4. job cards
5. other specific recording method

Behaviours

Behaviours:

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment

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