

1. Title	Repair high-speed engines and water-jet propellers of ships
2. Code	EMSRRM315A
3. Range	Apply the knowledge of repairing high-speed engines and water-jet propelling equipment to repairs of high-speed propelling system of ships and to repairs and replacements of relevant parts of these engines and equipment so as to ensure their normal operation.
4. Level	3
5. Credit	6
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Operating principles of high-speed engines and water-jet propellers of ships</p> <ul style="list-style-type: none"> <li>◆ Know the followings about high-speed engines of ships <ul style="list-style-type: none"> <li>• Definition of high-speed engines of ships and their basic structure</li> <li>• Overall layout of high-speed engines and required operation</li> <li>• Structural characteristics and operating principles of the main components of high-speed engines of ships, such as base, shaft, crank, bearing, camshaft and axle drive</li> </ul> </li> <li>◆ Know about water-jet propellers <ul style="list-style-type: none"> <li>• Working principles and technical data</li> <li>• Overall layout and names and functions of main components</li> <li>• Types of control systems and their specifications</li> </ul> </li> </ul> <p>6.2 General repair items related to high-speed engines and water-jet propellers for ships</p> <ul style="list-style-type: none"> <li>◆ Interpret and understand the technical instructions of operation manuals and repair manuals</li> <li>◆ Record repair data properly, such as operation hours and working conditions of main components and identification of general failure of sections according to instructions and preventives against damage</li> <li>◆ Relate possible impact of the accessory devices of a high-speed engine to the failure of the main machine in operation</li> <li>◆ Survey, align, maintain and repair the high-speed engine units of ships, including pedestal, main components and operating systems, according to repair instructions</li> <li>◆ Master the drive arrangements of ship engines and water-jet propellers, such as the maintenance data and normal positions relating to alignment of slave axis and axial line , and speed relay</li> <li>◆ Master the proper procedures of removing, repairing, replacing, aligning and assembling the main components of water-jet propellers for ships</li> </ul>

	<p>6.3 Professionalism in repairing high-speed engines and water-jet propellers for ships</p> <ul style="list-style-type: none"> <li>◆ Make the following preparations for maintaining, repairing and replacing the parts of high-speed engines and water-jet propellers for ships: <ul style="list-style-type: none"> <li>• Selecting appropriate instruments, materials and parts according to manufacturer’s instructions and repair requirements</li> <li>• Referring to installation and repair guidelines and implementing appropriate activities for maintenance and repairs</li> <li>• Implementing the work according to the urgency of repair items</li> <li>• Coordinating with other repair teams when carrying out repairs</li> </ul> </li> <li>◆ Examine the consumption of general components, machinery, devices, equipment and control modules and give advice on repairs if necessary</li> <li>◆ Compile simple repair reports</li> </ul>
7. Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> <li>(i) Capable to select and use appropriate methods to examine the damaged components of high-speed engines and water-jet propellers for ships and adopt appropriate measures to survey, align, repair and replace the damaged parts;</li> <li>(ii) Capable to understand the instructions of the installation and repair manuals and follow light signals and use appropriate testing instruments to identify the sections where failures usually occur and adopt preventives against damage; and</li> <li>(iii) Capable to select and use appropriate instruments, materials and parts to implement regular maintenance and preventive repairs for high-speed engines and water-jet propellers for ships in general according to instructions.</li> </ul>
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of machinery and repairs of internal combustion engines.</p>