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| 1. Title      | Repair and maintain ship's main engine equipment   |
| 2. Code       | EMSRRM202A   |
| 3. Range      | Apply, under instruction, the basic knowledge of marine engineering to repairing or replacing the fixed and moving components of ship's main engine equipment (such as internal combustion engines for ships and low to medium speed (below 1500RPM) diesel engines and transmission mechanisms); assist in removing relevant parts and components for repairs and reconditioning at dockyards or repair workshops.  |
| 4. Level      | 2  |
| 5. Credit     | 8  |
| 6. Competency | <p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Basic knowledge of ship's main engine equipment</p> <ul style="list-style-type: none"> <li>◆ Know about the main parts and components of ship's main engine equipment and their basic operating principles <ul style="list-style-type: none"> <li>• Overall layout of a turbine and steam cycle</li> <li>• Application of gear reducer/gearbox or power reduction</li> <li>• Co-ordination and lubrication of reduction gear</li> <li>• Layout and structure of internal combustion engines (diesel oil and gasoline)</li> <li>• Cooling and lubricating cycles of low to medium speed diesel engines</li> <li>• Overall layout of transmission system and propelling devices</li> <li>• Structure and maintenance of common ship boilers</li> </ul> </li> <li>◆ Know about the causes of common failures of engine equipment and the remedies <ul style="list-style-type: none"> <li>• Difficult or unable to start</li> <li>• Insufficient power or stopping operation</li> <li>• Excessive vibration or abnormal sounds</li> <li>• Smoky or turbid exhaust</li> <li>• Thinning, deteriorating and dripping of lubricating oil</li> <li>• Running obstruction or discharge difficulty</li> </ul> </li> </ul> |

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|                        | <p>6.2 Methods and procedures of repairing and maintaining ship's main engine equipment</p> <ul style="list-style-type: none"> <li>◆ Assist in cleaning, removing, repairing and reinstalling the fixed and moving components of an engine according to instructions</li> <li>◆ Assist in repairing and reconditioning the main fixed and moving components of engine equipment, such as turbine shaft, turbine blades, gear, roller bearing, piston rods, cylinder heads, cylinders, thrust bearing, crossheads, crankshafts, overspeed governors, rotary devices, turbochargers, gearboxes and speed variators according to the maintenance procedures of machine manufacturers</li> <li>◆ Use general repairing tools for the fixed and moving components of ship's main engine equipment effectively</li> </ul> <p>6.3 Professionalism in repairing and maintaining ship's main engine equipment</p> <ul style="list-style-type: none"> <li>◆ Observe the parts positions which are usually subject to wear, burn, tear, oxidation and corrosion and give advice on repairs and replacement if necessary</li> <li>◆ Identify the sections where failures usually occur and assist in implementing preventive measures against damage</li> <li>◆ Describe the details of repairs and maintenance clearly</li> </ul> |
| 7. Assessment Criteria | <p>The integrated outcome requirements of this unit of competency are:</p> <p>(i) Capable to assist in repairing and maintaining the main fixed and moving components of general ship's main engine equipment; and</p> <p>(ii) Capable to select and use appropriate tools to perform relevant tasks according to the established maintenance procedures and maintenance manuals of machine manufacturers.</p>   |
| 8. Remarks             | <p>The credit value of this unit of competency is set on the presumption that the person already possesses basic mechanical knowledge and general competency of a mechanic.</p>  |