

1. Title	Machining of heavy and large work pieces	
2. Code	EMSRRM310A	
3. Range	Carry out repair works for common worn-out work pieces, such as large, heavy and slender transmission shafts or motor rotors, large gear shafts, slender steel plates and cable quills, at servicing workshops; perform tasks of machining accurately, safely and effectively according to drawings.	
4. Level	3	
5. Credit	6	
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Understand the professional requirements on machining of heavy and large work pieces</p> <ul style="list-style-type: none"> <li>◆ Know about the basic principles and proper operation of machining equipment</li> <li>◆ Know about the functions, uses and operation procedures of large, specific machine tools and special fixtures, lifting appliances and cutting tools</li> </ul> <p>6.2 Process of machining and proper practice</p> <ul style="list-style-type: none"> <li>◆ Operate large lathes and heavy presses for processing components and parts of various dimensions (such as parts of 3 metric tons with an axis length of no less than 3m and an axis diameter of as large as 75cm)</li> <li>◆ Work out properly the safe way of placing a work piece on or lifting it from the machine tool in order not to cause damage</li> <li>◆ Adjust accurately the stability, straightness, equilibrium and concentricity of a work piece on the machine tool</li> <li>◆ Select appropriate speeds of machining and reciprocating a work piece and turning speeds of cutting tools</li> <li>◆ Select proper feeds for cutting tools so as to increase surface precision and finish of work pieces</li> <li>◆ Supervise and perform the following tasks according to actual circumstances and conditions: <ul style="list-style-type: none"> <li>• Machining large and heavy components, such as motor rotors, large gear shafts and cable drums</li> <li>• Boring large circumference to make cavity components such as bearing holes and hub bores</li> <li>• Forging heavy components for ships, such as slender steel plates</li> </ul> </li> </ul>	

	<p>6.3 Professionalism in machining heavy and large work pieces</p> <ul style="list-style-type: none"> <li>◆ Align large, heavy and slender transmission shafts and motor rotors, and large gear shafts accurately</li> <li>◆ Adjust the equilibrium of the rotors of large and heavy shafts effectively</li> <li>◆ Examine the consumption and utilization of large and heavy components and advise on machining repairs and modification 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> <p>(i) Capable to instruct co-workers to carry out the processes of laying, lifting and machining large work pieces; and</p> <p>(ii) Capable to handle the work pieces for large marine engine equipment and carry out repairs and modifications of accessories safely and accurately according to instructions.</p>
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of machining for repairs.</p>