

1. Title	Install and maintain devices of pneumatic and hydraulic systems		
2. Code	EMSRIN203A		
3. Range	When installing and arranging layout of ships' control and automatic devices and systems, apply the knowledge of pneumatic and hydraulic devices to install and maintain ships' pneumatic and hydraulic control systems.		
4. Level	2		
5. Credit	3		
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Formation of pneumatic and hydraulic systems</p> <ul style="list-style-type: none"> ◆ Know about the principles, pros and cons of open-loop and close-loop control ◆ Know about circulation diagram of pneumatic and hydraulic systems ◆ Know about the working principles of various types of pneumatic and hydraulic pumps ◆ Know about the classification, characteristics and working principles of the following accessories: <ul style="list-style-type: none"> • pneumatic and hydraulic tanks • pneumatic and hydraulic control valves ◆ Know about the effect of chemical and physical characteristics of the working media of pneumatic and hydraulic systems on the systems ◆ Know about the classification and materials of seals ◆ Know about the formation of all auxiliaries (such as pneumatic and hydraulic pipes) <p>6.2 Methods of installing and maintaining pneumatic and hydraulic equipment</p> <ul style="list-style-type: none"> ◆ Connect all kinds of compressors, hydraulic pumps and motors ◆ Install all kinds of pressure receivers and hydraulic tanks ◆ Connect all kinds of pneumatic and hydraulic control valves ◆ Perform simple clean-up and replacement of working media ◆ Connect all auxiliaries <p>6.3 Professionalism in installing and maintaining pneumatic and hydraulic equipment</p> <ul style="list-style-type: none"> ◆ Follow the guidelines to install general ship pneumatic and hydraulic equipment ◆ Follow the guidelines to connect general ship pneumatic and hydraulic systems and all kinds of control loops ◆ Be aware of and correctly locate the source of pneumatic and hydraulic system vibrations and noises 		

7. Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> (i) Capable to implement the installation and basic maintenance of general ship pneumatic and hydraulic systems; and (ii) Capable to correctly select and use appropriate tools to carry out relevant work, and follow instructions to complete the connection of auxiliaries and the installation of all kinds of pneumatic and hydraulic system equipment °
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of automatic devices and systems.</p>