

**Module number: A 03 d**

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**Credits: ... points**

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Introduction	
<p><b>Description of the subject</b></p> <p>Splicing is the forming of a semi-permanent joint between two wires ropes or two parts of the same wire rope by partly untwisting and then interweaving their strands</p> <p>Wire rope is a type of cable which consists of several strands of metal wire laid (or 'twisted') into a helix. The term cable is often used interchangeably with wire rope. In general, wire rope refers to diameters larger than 3/8 inch. Sizes smaller than this are designated as cable or cords</p> <p>Splicing a wire rope together is one way of making use of wire ropes that are either too short or too damaged to be used on their own, or to form an eye to serve for example as a mooring cable.</p> <p>A splice is capable of attaining a wire's full strength.</p>	<p><b>Required knowledge/skills</b></p> <ul style="list-style-type: none"> <li>- understand the safety implications</li> <li>- Understanding of the way ropes/wires are constructed</li> </ul> <hr/> <p><b>Infrastructure requirements</b></p> <ul style="list-style-type: none"> <li>- Clean and clear working environment</li> </ul>

Objectives
<p><b>At the end of this module, the trainee can:</b></p> <ul style="list-style-type: none"> <li>- remove damaged/corroded/worn sections of steel rope.</li> <li>- join two lengths of wire rope together without reducing the overall tensile strength</li> <li>- measure and put an eye onto the end of a wire</li> </ul>

## Sources and additional learning material

<http://www.boat-building.org/learn-skills/index.php/en/metal/splicing-a-steel-wire/>

## Required tools, machines and material



### Fid

Used to create a gap between strands.



### Whipping Twine

Twine, tape or fine steel wire can be used for whipping the ends of the strands.



### Saw

Strands are cut to length using a hacksaw.



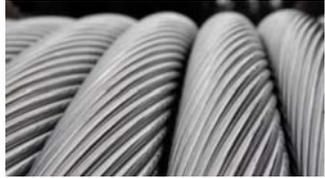
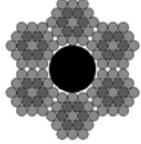
### Fat

Cable and the fid to ensure smoother insertion through the strands.

## More information?

Contact the Medway Queen Preservation Society: [info@medwayqueen.co.uk](mailto:info@medwayqueen.co.uk)

## KNOWLEDGE

Terms	Definition - description - explanation	Visual aids
<b>Wire Rope</b>	A length of rope made from wires twisted together as strands	
<b>Strands</b>	One of the wires twisted together or laid parallel to form a wire rope or cable	<ul style="list-style-type: none"> <li style="display: flex; align-items: center; margin-bottom: 10px;"> <span style="margin-right: 10px;">•</span> <span>Wire</span> </li> <li style="display: flex; align-items: center; margin-bottom: 10px;"> <span style="margin-right: 10px;"></span> <span>Strand</span> </li> <li style="display: flex; align-items: center; margin-bottom: 10px;"> <span style="margin-right: 10px;"></span> <span>Core</span> </li> <li style="display: flex; align-items: center;"> <span style="margin-right: 10px;"></span> <span>Rope</span> </li> </ul>
<b>Twist</b>	Direction of the wires making up the rope	
<b>Whipping</b>	Binding made of a softer twine to act as protection and to hold the wire during splicing operation	
<b>Eye</b>	Loop in the end of a wire rope	

## SKILLS

### Step 1: Determine the size of the eye

Content	Key points	Visual aids
The size of a bollard or cleat for example is used to determine the size of the eye.	The size of the eye is determined such that the cable can be passed smoothly over a bollard or mooring post but also in a way that there is not too much play so as to avoid the loop coming free in an uncontrolled way	

### Step 2: Apply whipping approximately 3 ½ turns from the end

Content	Key points	Visual aids
The whipping is applied such that the cable can be unwound over a length of approximately three to four turns.	The whipping will prevent the strands from fraying further after they have been unwound.	

### Step 3: Unwind the strands up to the whipping

Content	Key points	Visual aids
The wire is unwound up to the whipping	Each individual strand was whipped in advance.	

### Step 4: After determining the size, there are three strands on either side of the standing part.

Content	Key points	Visual aids
The wire is now ready for splicing to begin	The wire should be held securely	

### Step 5: Begin Splicing

Content	Key points	Visual aids
<p>The closest strand on the right-hand side is pushed transversely through the steel cable.</p> <p>Then the closest strand on the right-hand side is now pushed under two strands.</p>	<p>In other words, there will be three strands on both sides.</p> <p>This is done with the assistance of a fid.</p>	

Step 6: Splicing (continued)		
Content	Key points	Visual aids
The third strand is pushed under the remaining free strand on the right-hand side		

Step 7: Splicing (Continued)		
Content	Key points	Visual aids
Now to the left-hand side. The fourth strand that is taken is the furthest strand on the left-hand side. This is pulled under two strands of the standing part. The fifth and the sixth strands are spliced in the same way.	This fourth strand that is pushed through, is the first as it were.	

### Step 8: Splicing (Continued)

Content	Key points	Visual aids
The splice is now continued by continuously turning around its own strand in a spiral, always working with the twist of the cable.	This operation is repeated five times.	

### Step 9: Result

Content	Key points	Visual aids
The splice is ended by "depleting" the splice. Every second strand is spliced once more. The ends are then whipped using the serving mallet.	The ends are then axed off, or ground or sawn off.  The end of the splice is covered with parcelling and whipping.	