

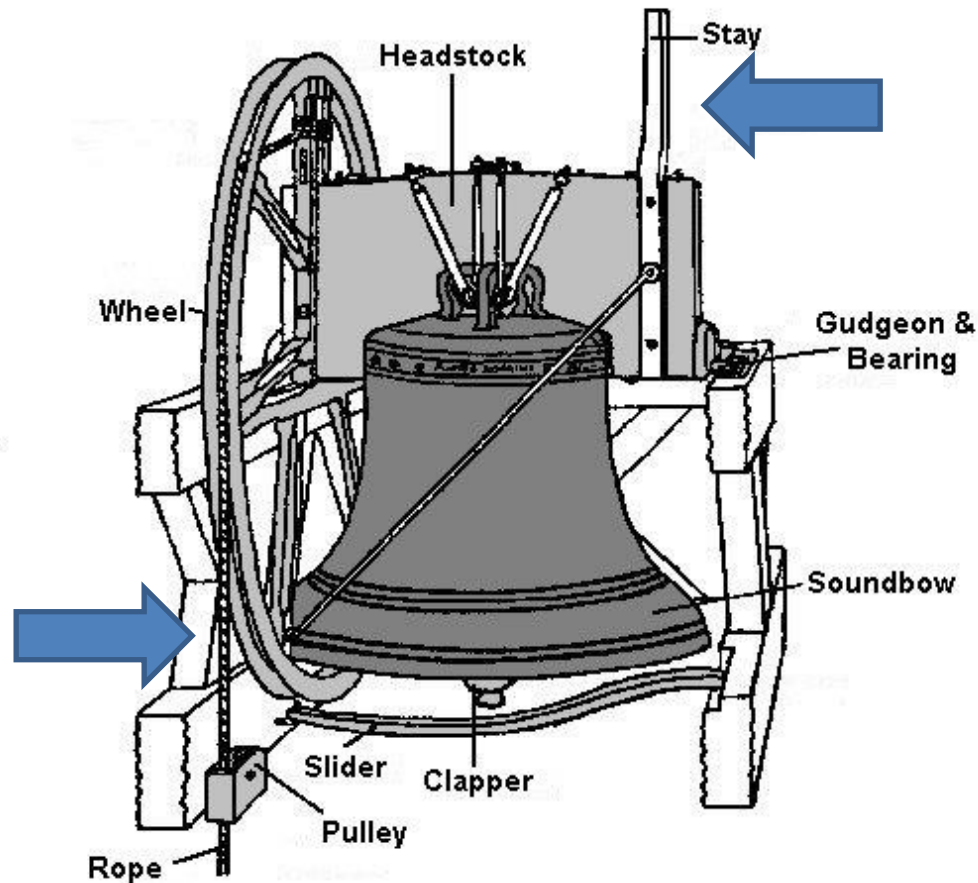
All you ever wanted to know about.....

STAYS

And

ROPE

The bits we are looking at...



Stays – What wood do we use?



Fraxinus excelsior

What do we want from a Stay?

- Strength



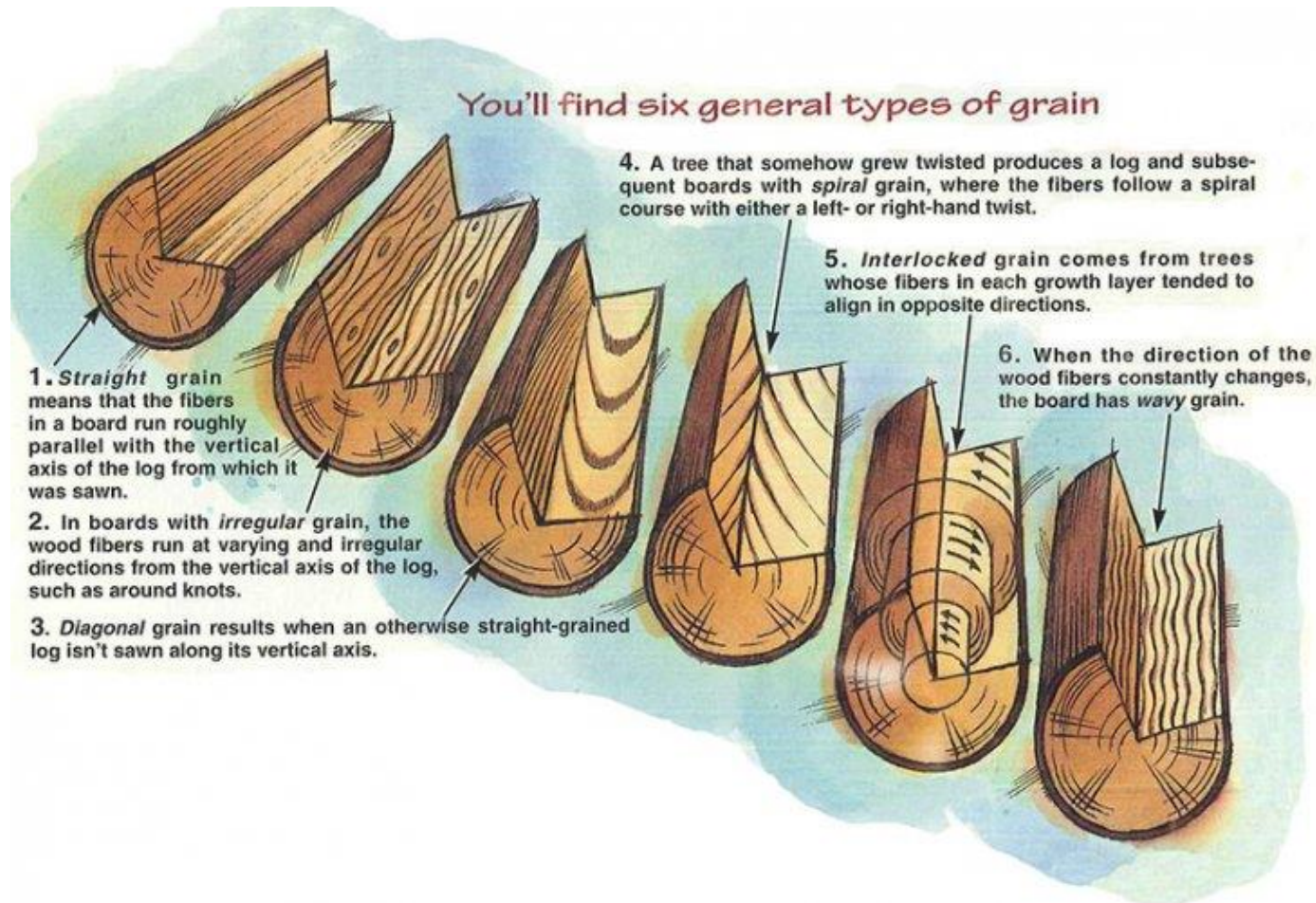
- Elasticity



- Anti Rot

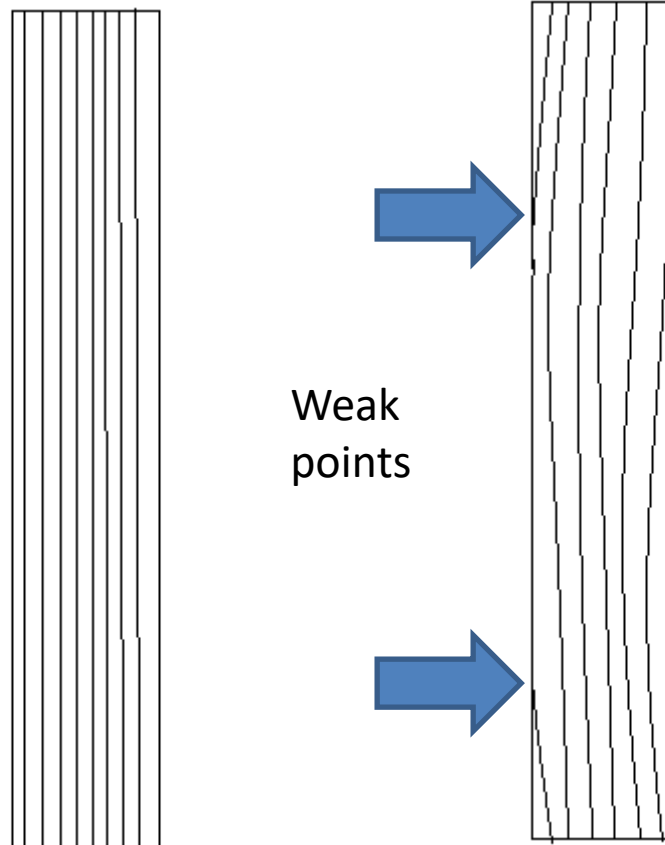


Stays – Why use Ash?



Stays – Why use Ash?

- Straight grain gives strength
- This also gives elasticity
- Hard woods less likely to rot
- If grain not straight, lines
Can form weak spots where
Cracks can occur



Stays – Why use Ash?

The science bit.....

Mechanical characteristics

Modulus of elasticity under bending	13400 N/mm ²
Modulus of rupture under bending	120 N/mm ²
Tension strength	165 N/mm ²
Compression strength	52 N/mm ²
Brinell hardness perpendicular to the fibres	38 N/mm ²
Janka Hardness	4.4 kN
Nail withdrawal strength in N per mm depth and mm diameter	16 N/mm ²



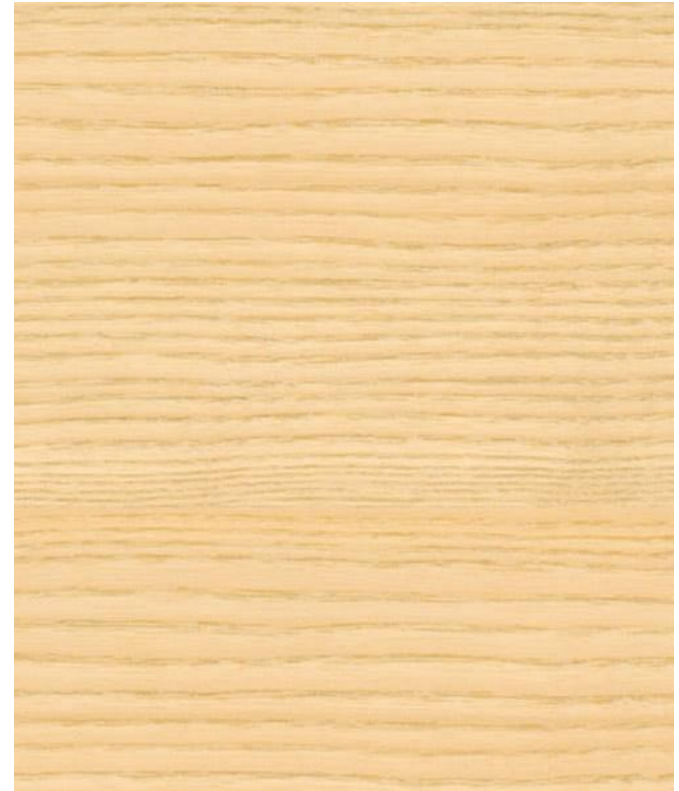
Ash

Mechanical characteristics

Modulus of elasticity under bending	13000 N/mm ²
Modulus of rupture under bending	88 N/mm ²
Tension strength	90 N/mm ²
Compression strength	61 N/mm ²
Brinell hardness perpendicular to the fibres	34 N/mm ²
Janka Hardness	4.5 kN
Nail withdrawal strength in N per mm depth and mm diameter	17 N/mm ²



Oak



Grain is straight and even

General suggestions

- Always a couple of spare roughly sized stays available
- If you have one stay that breaks a lot (a training bell perhaps) keep a spare ready to go!
- If you can get a set of measurements for you stays, do so, it makes life easier

Stay Types

- Plain Stay:
 - By far the most common type



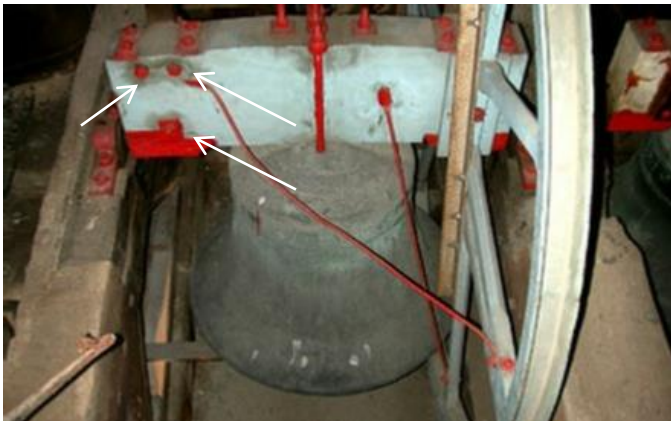
A plain stay resting up against slider with the bell in the “up” position

- Fairly straightforward to fit
 - Been used forever
 - Found on both metal and wooden headstocks

Plain Stays



A plain stay on a wooden headstock, held on by 3 bolts and a metal strap



A plain stay on a metal headstock, just held in place with two bolts

Stay Types

- Hastings Stay
 - Used mostly during the first half of 20th century
 - Invented by the Rev. J. F. Hastings, M. A, who was one time vicar of Martley, in Worcestershire.
 - Only found on “Modern” metal Taylor headstocks
 - More difficult to fix than plain stays, as they need shaping

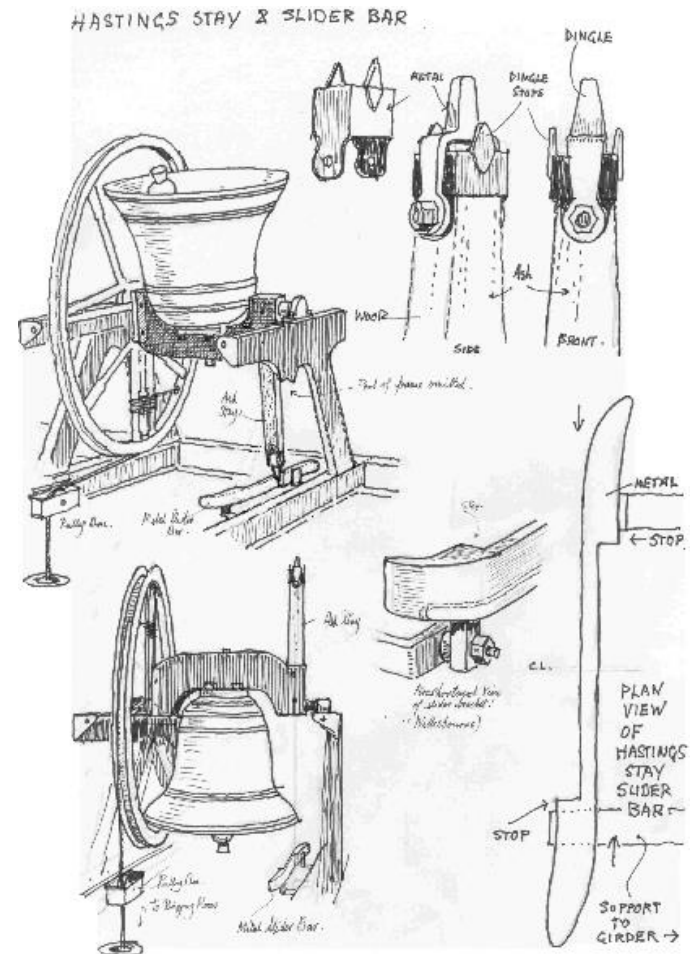
Hastings Stays



Hasting Stay up against end stop

More difficult to fit, what's the point?

What advantage do Hasting stays offer, and for who?



Drawing of Hasting stay mechanism

My stay is broken, Can I mend it?

Fixing Broken Stays



Many people have tried it!

Some with better results than others

Will never be as strong as a new stay

Can be useful to act as a temporary spare

Any suggestions on how they can be joined together?

Replacing stays – Both types

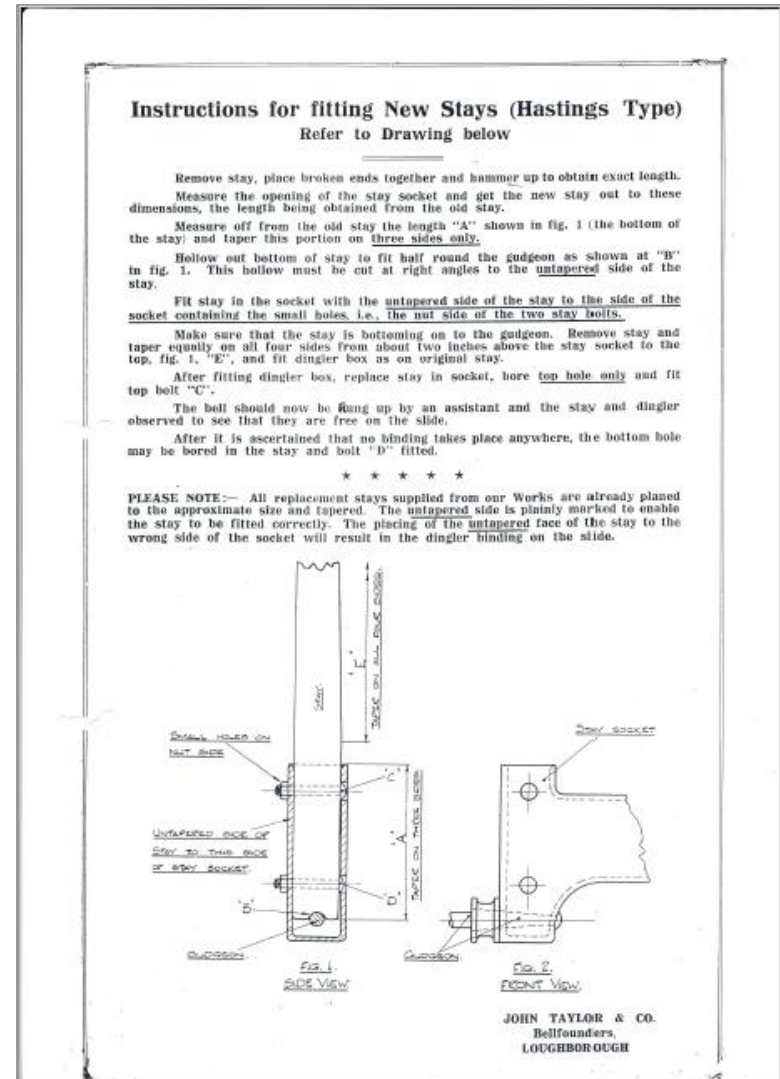
- Remove old stay and join parts back together to get length
- Tools needed:
 - Saw
 - Plane (an electric one if possible)
 - Tape Measure
 - Drill and drill bits
 - Adjustable Spanner
 - Time!

Replacing a broken Hastings Stay



Hasting Stays are tapered

The “official” way as given in Taylor’s notice



Replacing a Broken Hasting Stay

A Different Approach

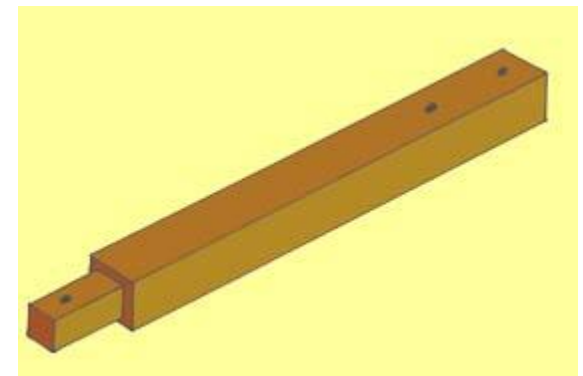
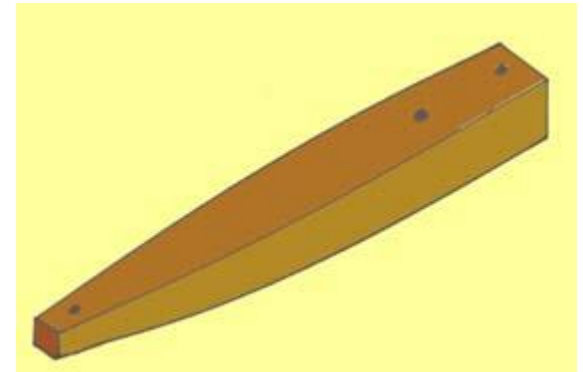
The Whiting Society website gives details on how
To make a square top section Hastings stay.

This is easier to shape than the traditional tapered
design

This can make like a little easier.

See:

<https://www.whittingsociety.org.uk/articles/stay-making/hastings-stay.html>



Replacing a broken Hastings stay

Hasting Stays must be the correct length

What do you think the problems would be if they are not?

Too long

- Binding
- Bell won't stand

Too short

- Bell won't stand
- Bell will go over the balance!



Replacing a Plain Stay

- Easy! (Compared to a Hastings Stay)

- Cut to length
- Plane to size
- Drill holes
- Fit



- Length not so crucial as Hasting, but there are limits. What could be the problems?

Ropes

Two main types of ropes used:

Natural Fibre

There are two natural fibres that are used for making bell ropes:

Flax is the most common type used. Flax can tend to absorb moisture and change length – shorter in winter and longer in summer

Hemp is a little harder wearing than flax, but can be more expensive than flax. Suffers from the same problem, but to a lesser extent

All natural fibres can rot with time. Especially in damp environments



Ropes

Manmade Fibre

Pre-stretched Polyester – Sometimes called Terylene offers a very hard wearing rope that will not absorb water, stretch or rot.

Only used on top ends.

Can cost more than pure Flax or Hemp, but much harder wearing

Orange/Black bands indicate this is military grade, which most rope suppliers use.



Ropes

Sally

Made of wool

Tends to compress over time and become flat



Checking a Rope



Checking a Rope

If it is worn, then it's usually quite obvious!

Check trail end for worn or damaged strands

If tail end hit the floor check these areas carefully

Run hand up the Sally looking for loss of wool, which may indicate a broken strand

Check the garter hole area picture (top) shows what can happen!

Bottom picture shows a Terylene rope, with no wear at all



Changing a Rope

Changing a Rope

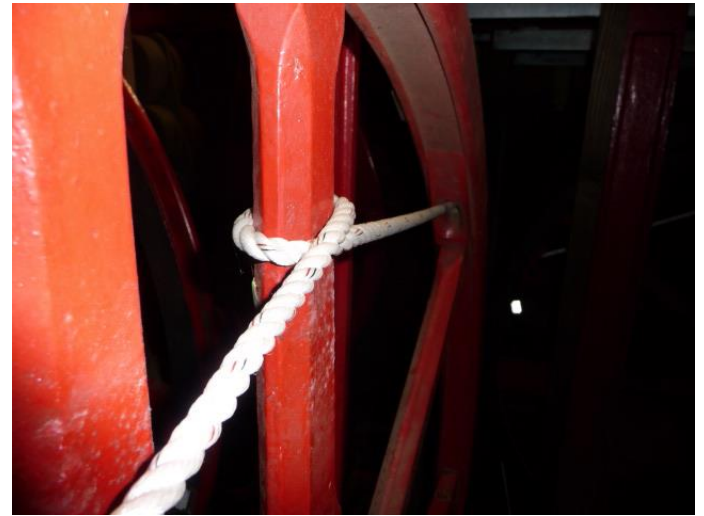
Assuming the old rope is complete, best to tie the new rope the tail end of the old one and pull it up!

Pass the new top end through the garter hole and start to pull the rope up

You will need a helper to get the sally height right

Once you have the right height, rap the rope around the spoke once

Then rap the rope round and round the two spokes until about 3 feet is left



Changing a Rope



Changing a Rope

Rap the remaining rope around the loops already made

When you reach the end, tuck it in securely

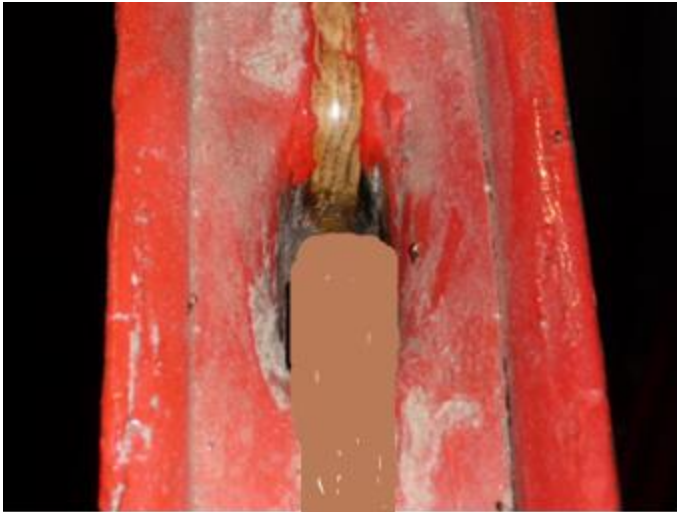
Once done, It is a good idea to mark just inside the garter hole with some tape.

Therefore if you ever have to take the rope off again, you know exactly how much is needed in the wheel to give the correct Sally height



Garter Sleeves

Garter Sleeves



A leather sleeve that fits over the rope in the garter hole

Acts as a strain relief, which is supposed to make the rope last longer.

Can be of some benefit on natural ropes, but not much effect on man made rope

Not so common these days

Could not find a real garter sleeve,
So tried to draw one (Badly)

Help - My rope has broken!



Joining it all back together

Long Splice

Best suited where a rope will pass through or over, such as passing through a ceiling boss or through a pulley block

May be a little more difficult than a short splice

Short Splice

Suited where the rope will not pass through things, but could still be used if spare rope is limited

The choice for splicing on new tail ends

Lots of videos on YouTube showing how to do it, if you would like a go!



Looking After your Ropes

Looking After Ropes



Being made of natural fibre, ropes are subject to rot and mildew if the conditions are right. This also makes cleaning ropes difficult as chemicals can damage it

Keep ropes dry if possible. If bells are not to be rung for some time, then remove the ropes and store them in dry conditions (Mark the garter holes first!)



If you have mold/mildew, dry the rope out then use a brush and vacuum cleaner to remove as much as possible. This may be sufficient.

If you have to wash the rope, use cold water and a little mild hand wash detergent. Do not use biological washing powder as the enzymes will break down the fibres and the rope will break easily

Looking After your Ropes

Looking After Ropes

The cleaned rope should be left to dry naturally out of direct sunlight

You can put the rope in a pillow case and spin dry it to help speed up the drying process.

In these current times, it may be tempting to clean ropes with alcohol type hand gel.

As rope is a natural fibre this will cause the rope to rot over time

Use it on your hands, not the rope!

Infor from a couple of sailing sites



Any Questions?

