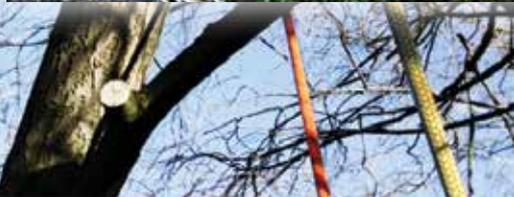


RIGGING

an art form in its own right

ADAM BOURNE HAS BEEN CLIMBING AND PRACTISING ARBORICULTURE FOR 16 YEARS. HERE HE SHARES HIS EXPERIENCE AND KNOWLEDGE OF RIGGING WITH ESSENTIALARB IN THE FIRST OF A THREE-PART MINI SERIES.



I HAVE BEEN CLIMBING AND PRACTISING ARBORICULTURE FOR 16 YEARS. I love my job, especially the rigging aspect because every job is demanding. No two trees are the same so every tree rigging operation is different. One thing you do learn whilst carrying out rigging operations is that there is no substitute for experience and always something new to learn.

As a contract climber you get to work with a wide variety of tree companies, some with a lot of experience in rigging and some with little, if any at all. Things need to be kept as simple as they possibly can. If you overcomplicate things that you think will work, you will mostly just end up costing time and creating risk. Keeping branches small and simple for a start will work much faster and smoother for the staff with little or no experience in rigging.

Rigging is an art form in its own right and whilst we have taken it on as our own we sometimes forget where it came from. Much as we would like to claim we invented it, we didn't!

Rigging is an age-old discipline that we have adopted and utilised from many other professions to meet our industry's needs. Sailors and the rope access industry have both played important roles in our concept of rigging and helped evolve our rigging systems. Some of the equipment we use today hasn't changed much, even some of the techniques we will cover in this article have changed little in decades, we've just adapted them to suit our needs.

SO WHY DO WE NEED TO PRACTISE RIGGING?

An ever-growing population and limited land space available means the industrial industry has bloomed, with the construction of houses in almost every inch of free space allowed on a plot of land. The number of demanding tree reductions or removals, requiring the need for rigging, has grown significantly during these periods. Some developers may argue that the trees are in the wrong place, although more often than not it is the case of the buildings being built too close to the trees.

Simple rigging techniques were brought in in order to eliminate or reduce the risk of any damage to the surrounding flora, fauna and buildings. But, trees grow; needing more advanced

techniques to see the task through safely and efficiently.

PLANNING

In some cases particular trees can be unsuitable, or even unsafe, to climb. Careful planning, risk assessments, method statements and a site brief to all the workers on site should always be completed thoroughly to help you choose the correct and safest method and operation required. When all necessary paperwork and site evaluation have been looked at and discussed and all the risk factors have been removed or counter-measured then you are ready to start thinking about rigging operations and the techniques you will use – how the tree will be worked and who is doing what. It is important to designate roles; this helps to reduce the risk of miscommunication with multiple members of the ground crew.

COMMUNICATION

Communication is key! Climbers and ground crew should be talking and letting each other know what is happening, or about to happen. Plans should be talked through. This is not only vital for safety but also for control measures as well. Sometimes it's hard to see what is happening on the ground from up high in a tree and, vice versa, sometimes even harder to see what the climber is doing from the ground. Ensuring communication reaches each other is essential for fluent and safe rigging. It can take a while to develop an understanding between each other (waving hands or shouting at the top of your voice so the climber can hear you at 70ft+). Simple hand signals, like a thumbs up, works well and can indicate that each worker is ready to go ahead. Once you have established an understanding of each other's way of thinking then your rigging will come into its own.

There are a lot of devices on the market that can help with communications, like Arbcoms or Push To Talk coms (PTT). The beauty of these radio systems is that you can hear someone as if they are right next to you, even near a running chipper (although returning a call next to a chipper isn't advised). This allows for clear instructions to be issued and almost eliminates miscommunication. I like to use these where I can. Crane jobs go much smoother with them as I can keep in contact with the crane



operator at all times, ensuring the controlled lift is discussed, lift route planned and my escape route is clearly talked through to make sure the section of tree doesn't enter that area.

As said earlier, sometimes the simplest way can be the most effective. This could be as simple as having just a rope, no hardware. The rope is thrown over a crotch/fork above the limb you intend to lower down (also known as natural crotch rigging or natural anchor rigging). This can be very fast, efficient and effective, although very basic, and is sometimes frowned upon because of the damage it can cause from the heat and friction to the cambium if the tree is being retained.

Although most trees are simple when it comes to identifying/setting out the rigging equipment within the crown, you do get the odd tree that needs a little bit more planning.

Establishing a sufficient anchor point and control point are vital and will affect what you're lowering, what you can lower and where it is going to land. Taking this on board, careful thought into where the primary rigging point will be can make all the difference. The same also applies for the control point or friction device. Some relatively small branches may only require the hands of the groundsmen to gently lower the limb down, although this is not ideal as the working and control factors can easily be overloaded once falling weight is added to the small branch.

The use of a friction device (fig-8, portawrap, fixed bollard, Hobbs or GRCS) can aid the rigging to help with productivity, reduce risk and increase working factors by allowing the removal of larger or several smaller limbs at once. Keeping the lowering device and rigging line parallel with the anchor point will help make the rigging run smoother by reducing friction that would be added (natural crotch rigging).

ATTACHING HARDWARE

There are several methods for attaching hardware, such as a pulley, into the tree. Some work differently to others, some are quicker to tie and some require a long piece of rope, often 3–5m with a large eye spliced into the end, also known as a 'dead eye' which can be hitch tied around the stem wood. Other pieces of hardware are adjusted differently such as a loopie or whoopee sling; both can be adjusted to meet the size of their anchor point and girth hitched to the tree. Dead eye slings require the use of a hitch such as a timber or cow hitch to secure them to the anchor point.

KNOWING YOUR LIMITS

The saying 'go big or go home' needs no introduction, but what a lot of climbers don't know is how close they come to the

safe working load (SWL) limits of their equipment, without even realising this important factor. Being aware of timber weight, dynamics forces, lever arm forces on the anchor points and SWL are just as important as your risk assessment was to determine the outcome of your operation.

Ignoring these limits can cause accidents that could result in fatality. Most equipment has its own SWL labelled on it and charts are out there that allow you to calculate timber weights. Rigging shouldn't be rushed and you should never work beyond your current understanding and experience – and never just guess!

If you are concerned about the section you are about to remove, stop and discuss it. A few minutes talking and re-planning are better than a costly insurance claim or a few weeks off due to injury.

Now that we have our rigging line and anchor above the limb or piece we need to remove, we then need to attach the rigging rope. There are many ways to place and tie the rope and all serve their own purpose in what we want the limb/timber to do.

BUTT-TIE

The most common and basic is a butt-tie, where the limb being removed is tied off almost near to where it is being cut (we will get into cuts a bit later as these are just as important as to where you tie off the limb). So, once the limb has been cut, it can be lowered to the ground in a controlled manner with the branch tips landing first.

TIP-TIE

Another common method is tip-tie. This is where the rope is tied off at the tips of the branch and the rigging line controls the sag of the branch as it is cut. This is a good technique if you need to steer the branch away from an object. Once the butt section breaks free this drops towards the earth quickly and can cause some shock loading if you are caught unaware. Used in conjunction with friction devices that can winch, this technique can remove a lot of the forces which impact on the system from shock loading. These can lift limbs parallel with the main stem and allow a controlled and safe rigging operation.

So now we have covered a fraction of some of the basic rigging, we can move on to some more advanced ways of rigging. In part 2 of this article, next issue, we will run through balancing with one or more ropes, more into redirects and how several redirects can help distribute forces around the tree, and rigging from an anchor point below, also known as negative rigging.