Tree Shears and Grapple Saws

FISA and ARB Association are currently producing a new safety guide 608 relating to Tree Shears and Grapple Saws. It has become evident that we need to alert the industry to some potential issues that need to be taken into immediate operational consideration.

Grapple Saws - Chain shot

Chain shot is the high velocity separation and ejection of a piece or pieces of cutting chain from the end of a broken chain in mechanised felling of timber. Chain shot exposes both machine operators and bystanders to a risk of serious injury or death. Chain shot typically occurs near the drive end of the cutting system but can also come from the bar tip area.

- Confirm with Manufacturer if the Grapple Saw requires chain shot protective device/guard to be fitted – as required by BS EN ISO11850 2011 (amended 2016) Machinery for Forestry: General Safety Requirements Section 4.3.2.3. Ensure tested to BS11837-2011 chain shot guarding systems.*Where manufacturer is awaiting testing, please apply chain shot considerations into your risk assessment as explained in Chain shot what is the risk*
- Ensure chain, saw bar & drive sprockets are in good condition and wear is within allowable limits. Ensure that chains are maintained as per manufacturers' recommendations.
- Ensure you use the correct chain lubrication and flow rates.
- Ensure your machine settings are correct. An over-speeding chain or excessive bar force increases your chances of chain shot.
- Your machine must be fitted with a protective screen; the screen must be tested to BS ISO 21876.
- Be aware of chain shot risk zones – do not cut with front or back of saw box pointing towards the operator.

Tree Shears / Grapple Saws – Risk Zones

You should apply and adopt the risk zone recommended by the Original Equipment Manufacturer of your Grapple Saw / Tree Shear in their operational manual.

In all cases it is highly advisable that a Site Specific Risk Assessment is carried out taking into consideration risk zones, particularly in urban settings, and consideration of landing zones and machine stability, before operations commence. Your risk assessment must detail how you will take reasonable steps to undertake the work safely. When planning the operation other key considerations must include the base machine stability and 'load capacity' of both the cutting head and the base machine. It is advisable that all users contact the equipment manufacturers for guidance on the safety of the equipment. You must consider relevant PUWER / LOLER / ACOP regulations.

Tree Shears – Grapple Saws – PUWER / LOLER Regulations

The use of grapple saws or tree shears is a lifting operation, as defined by the Lifting Operations and Lifting Equipment Regulations (LOLER) as it involves the lowering of a load. Reg 8(1) of LOLER requires that every lifting operation involving lifting equipment is properly planned by a competent person who is appropriately supervised, and carried out in a safe manner.

The plan should address the risks identified by the risk assessment and identify the resources required, the procedures and responsibilities, to ensure that risks are managed and any lifting operation is carried out safely and that the equipment remains safe for the range of lifting operations for which it might be used.

As such, all lifting operations require a lift plan drawn up by a competent person to be in place (consider access to an Appointed Person as defined in BS7121), irrespective of the lifting equipment and accessories being used to undertake the lift e.g. lorry loader crane, mobile crane, telehandler/loader or excavator. Due to the significant hazards and risks posed by tree felling operations a generic plan may be produced, however the plan will need to be reviewed on a site-by-site basis, following the carrying out of a risk assessment, to ensure that it remains relevant and, where necessary, additional controls are put in place.

PUWER reg 4 requires that the base machine should be assessed by a competent person as to its suitability for the operating attachment and its stability when fitted with the attachment. The base machine should also be fitted with Ops (protective screen) BS ISO 21876, FOPs (falling object protection guard), and ROPs (roll over protection system). The machine should also have visible or audible overload warning (loads over 1 tonne), check valves, be marked with SWL and be subject to LOLER thorough examination (if operator not protected by FOPS/OPS/ROPS).

The FISA Plant & Equipment Working Group has released this safety alert in advance of the new FISA 608 Tree Shear & Grapple Saw Safety Guide. The new safety guide will provide an outline of the key safety points associated with this new equipment that is a rapidly growing sector in tree work.