Sheeting systems uncovered

"Boing!" said Zebedee. "Ouch!" said Florence. Peter Shakespeare looks at the safety concerns surrounding spring-return roller sheeting systems

Most tipper and skip trucks have a bodybuilder-fitted sheeting system. Depending on the manufacturer, systems are available with a number of drive options, from manual to electric to hydraulic, and aim to provide hassle-free sheeting of a tipper body, skip or demountable container.

In the case of manual drive options, several makes of sheets rely on one or multiple industrial-strength springs to provide the motive force to either furl or unfurl them.

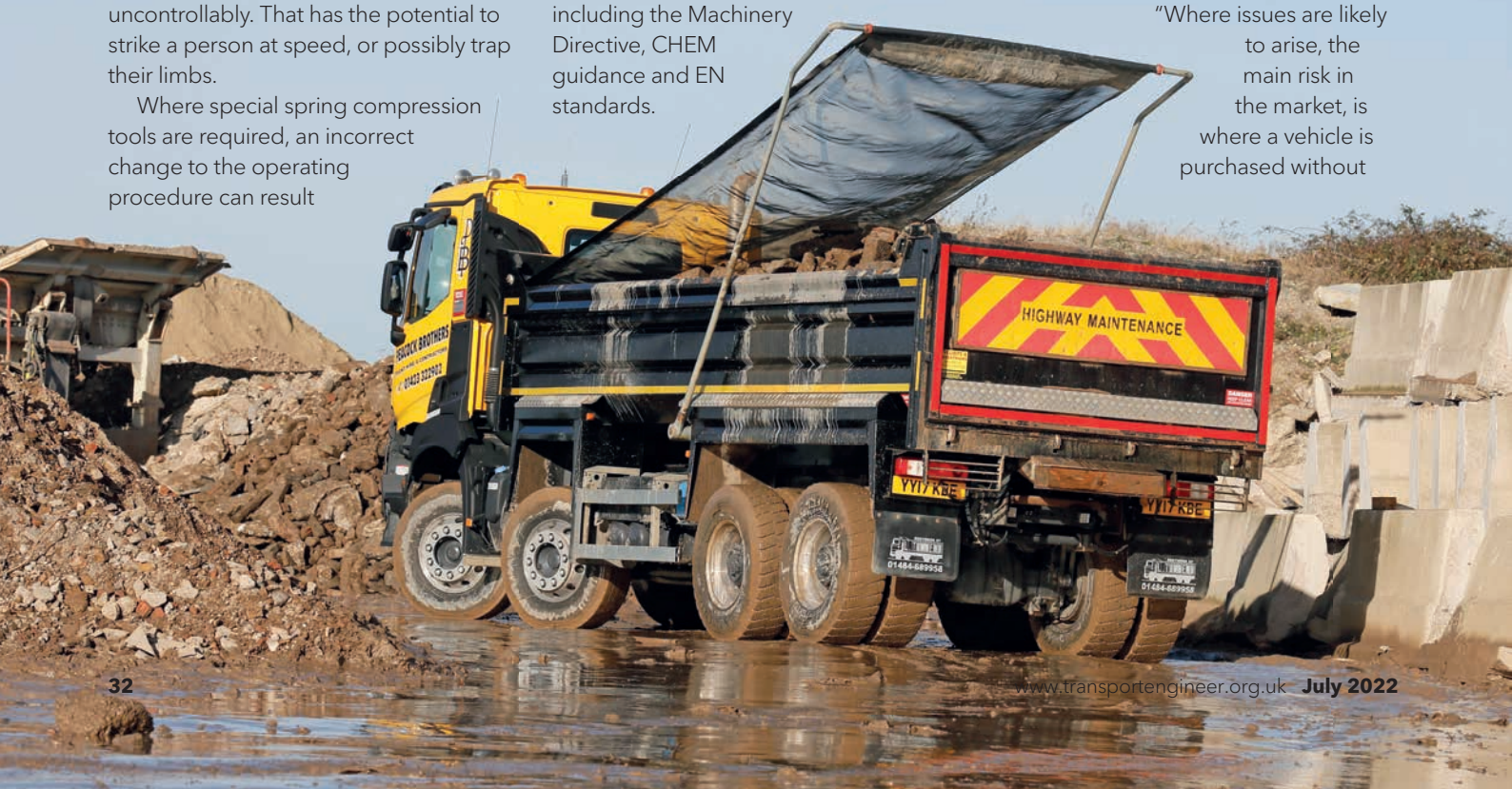
During installation and maintenance operations, there is a requirement for engineers and technicians to work on the mechanisms powered by these springs, but this must not be done while the spring(s) are under tension. If this is ignored, and unless the proper procedures and specialist tools are employed, there is real potential of serious injury or death to the person or people carrying out the operation. This will result from a botched procedure allowing the tension in the powerful spring to be released explosively, causing a sheet roller to spin uncontrollably. That has the potential to strike a person at speed, or possibly trap their limbs.

Where special spring compression tools are required, an incorrect change to the operating procedure can result in the large heavy winding handle tool spinning uncontrollably, unbalancing the operator, causing a fall from height or worse, with potentially devastating consequences if it comes into contact with a human body part.

As far as initial installation is concerned, the tipper or skiploader body manufacturers know exactly what they are doing, and their engineers follow a clearly laid down process. Danny Burns, service manager at skiploader manufacturer Broughton Engineering, says: "All the safety aspects are governed by CHEM (The Container Handling Equipment Manufacturers Association) and cover the safe changing of sheeting systems. There are also standards covering all of this in the form of European standards. In fact for us to put a CE mark on our products, we have to conform to a range of standards, including the Machinery Directive, CHEM guidance and EN standards.

"Over the years I have heard of a couple of instances of people getting hurt while working on sheeting systems incorrectly, but if the correct procedures are followed, generally accidents don't happen. We cover the correct procedures in our operation and maintenance manuals for each type of equipment and for changing the sheet on our equipment. There is a special tool, either supplied with the new vehicle, or available to purchase through our spares and service department, for releasing the tension in the spring and re-tensioning it once servicing on the mechanism is complete. If customers aren't comfortable doing the work themselves, we can do it for them. That said, 90% of our customers are return customers and are very experienced operating and servicing the equipment, so will do the work in house.

"Where issues are likely to arise, the main risk in the market, is where a vehicle is purchased without



a sheeting system and one is fitted through the aftermarket suppliers. This gets around whole vehicle type approval, but the operator may not have any guarantee that it is within width, it is in tolerance and it has been fitted correctly. The other issue with this is the lack of comeback if there is a fault with the sheeting system or an accident occurs because of the lack of regulation."

In terms of maintenance, Broughton Engineering outlines the required periodic maintenance schedule in its product manuals. This mainly covers periodic application of fresh grease to greasing points on the mechanism and checking the sheet roller tension is within limits. But Burns points out that mechanical sheeting systems are also subject to Lifting Operations and Lifting Equipment Regulations (LOLER) and, as such, require a safety inspection annually.

Broughton Engineering's maintenance guides contain detailed instructions covering roller spring tensioning, roller replacement and sheet replacement, all supported by step-by-step illustrations. There are also safety warnings at each stage of the procedure where there could be a danger of injury, or death, caused by an unintended explosive release of spring tension.

MAINTENANCE FREE?

Tipping gear and skip handling equipment manufacturer Harsh says its spring-driven, up-and-over sheet is essentially maintenance free. "Spring-driven sheeting systems, where the sheet operates up, over and along the body, are mostly found in general tipper applications such as aggregates, recyclables and muckaway. Operated by a button from within the cab, the tension held in the retracted sheet is released by an integral motor controlling a sheet roller. Body-side or underbody springs then carry the sheet up and over the load, before being lowered into its closed position at the rear. When retracting the sheet back to behind the body's headboard, tension is then built up in the springs as the sheet is pulled forwards and back into its stored position.

"Given that the bearings supporting the sheet's arms are entirely sealed, they are essentially maintenance free. The springs themselves need little more than frequent checking for any untoward build-up of dirt. If the tipper and its body are washed regularly, then it would be fair to say that the sheeting system's mechanism should be able to entirely look after itself."

Harsh adds the area of concern with this type of sheeting system is the sheet itself, which is often prone to tears or damage due to the irregular loads the sheet is covering, such as bricks, rubble and demolition spoil. Unlike the spring-driven return roller type used on skips and demountable bins, Harsh's up-and-over tipper sheet's underbody spring is tensioned and unwound by the arms as the sheet is furled and unfurled under the control of the roller motor. When the sheet is unfurled, the spring is not under tension, so changing the sheet does not require any specialist tooling to manage the spring tension.

Transcover supplies each sheeting system based on a spring return roller with a ratchet and pawl mechanism to safely apply tension when fitting the sheet, says Rick Oliver, product design manager of the sheeting system manufacturer. He says: "In addition we were recently requested by a major fleet operator to find a solution that can not only be used when applying tension, but also to release tension when required and that can be retrofitted to other non-Transcover models" – its TurnSafe system (pictured, left).

The design, installation, safe operation and maintenance regimes of every type of sheeting system are governed by legislation contained within the Machinery Directive 2006/42/EC. If supplied as part of an original fit to a vehicle, it also falls within scope of whole vehicle type approval.

There are demonstrable risks associated with the installation and maintenance of some types of spring-driven return roller sheets, but the Health and Safety Executive product safety guide for the UK clearly states: "User instructions essential for safety should normally be provided in a printed form. The precise contents of information ... should include: intended use, and ways the product should not be used; the manner of installation; correct use to ensure health and safety; safe maintenance, including cleaning, unblocking, and any inspection and testing." If a load sheeting system cannot be provided with a product safety guide, the advice is: avoid!