

What gives with platform overload devices?

Since 30 June, 2002 and the final adoption of EN280, most aerial work platforms have been required to be equipped with an overload device when applying for a new CE approval. But when the modified standard was being ratified, most experts objected, insisting that devices were simply not "state-of-the-art". Two years on, C&A takes a brief look at what developments this requirement has spurred on.

In very simplistic terms, the accuracy and practicality of these overload devices fall into three main, but broad categories.

1. Boom lifts with pedestal-mounted baskets, where simple, elegant, inexpensive and accurate solutions are readily available.
 2. Booms with end mounted baskets, where moderately priced installations are available, but where accuracy varies along with practicality and reliability.
 3. Most scissor lifts, where the only accurate solutions are costly, often impractical, and potentially unreliable.
- So what solutions has the requirement



Leguan has developed this overload system for its range of skid steer boom lifts that uses an open parallelogram connection between the basket and boom. It is combined with a heavy duty spring and two micro switches, all of which are well protected from the elements.

Must your new machine be fitted with an overload device? The easy answer is "not necessarily".

Two main exceptions exist.

- If the machine was CE approved prior to June 30, 2002, it was most likely not equipped with an overload device. In this case, the approval is still perfectly sound and the lift can be sold without an overload system for as long as the unit is produced.
- If the basket is of a small enough dimension that overloading the platform is supposedly impossible.

practical solution. The advantage of both of the above solutions is that the supplier can provide a complete solution, saving a manufacturer's engineering resources. Some platform producers though have designed their own solutions, one of the most elegant of which is a new option on the Leguan range of skid steer boom lifts. The system uses an open parallelogram connection between the basket and boom, which is combined with a heavy duty spring and two micro switches, all of which are well hidden and protected from the elements.

Scissors

So what about the scissor lift? Any time you talk to overload manufacturers they wax lyrical about their latest devices for boom lifts, citing simplicity, cost and accuracy. Ask what they offer for scissor lifts though, and all you get is groans and silence.

Haulotte is convinced that it can combine lift cylinder pressure with scissor arm position via a simple microprocessor for a relatively simple overload device and intends to patent its solution. However, every other manufacturer and every overload specialist, we spoke with told C&A that making such a device to meet the precise requirements of EN280 was not possible.

Problems with this concept arise in several areas. Firstly, the number of pivot points between the platform and lift cylinder means that friction in the lift mechanism can vary enormously, distorting load readings. Secondly, the large platform area leads to wide variations of forces on the lift cylinder depending on the position of the load. Thirdly, pressure spikes in the lift circuit, as the platform reaches full height, tends to prevent sensible readings at or near maximum height.

Most producers have found that load pins, or strain gauge pins, fitted to the four pivot points connecting the scissor arms to the platform are the most effective. It is relatively expensive though, and rarely as accurate as the rules strictly require. A heavy load on one end of the platform can cause distortions on some units. Most experts believe



The duplicate systems of the 3B6 system for full redundancy.

that the only way to completely comply to the rules is to fit an extra structure under the platform with a measuring device situated between the two, effectively putting a giant

scale between the platform and the top of the scissor arms.

This does, however, place extra weight precisely where it is not wanted, making the unit itself heavier, more costly and perhaps less reliable. It also creates yet another obstacle to expanding the use of these life saving machines.

So how are lifts being approved these days you might ask? Well, it is widely accepted that notified bodies are making allowances and approving machines as long as a device is fitted, even if, strictly speaking, the devices do not completely comply. Thus allowing for "state-of-the-art" and perhaps another example of misguided regulators turning the law into an ass?

3B6 has developed a simple annular ring strain gauge complete with a redundant system that is easy to install, very accurate, inexpensive, neat and simple.



Scissor lifts remain a problem for overload protection system producers.

generated? Looking at the first category, companies such as 3B6 have developed a simple annular ring strain gauge complete with a redundant system that is easy to install, very accurate, inexpensive, neat and simple.

This solves the problem for many small truck-mounted platforms that use pedestal mounted baskets. Pedestal mounting, however, is less appreciated on self-propelled, or larger truck mounted booms and whereas the same system can be used on end-mounted baskets, obtaining consistent accuracy can be a major challenge to the point where few installations meet the regulations in their true sense.

As a result, systems are now appearing on the market, such as those produced by the German producer, Moba, that use a strain gauge combined with a parallelogram action housing. The result is a solid, relatively lightweight block that can be inserted between the boom tip and basket, providing consistent accuracy. The problem, however, is that they are more costly. But when used on all but the smallest booms, they do provide a