

Overload devices are now fitted to most new aerial lifts being sold in Europe. While this has worked acceptably well on boom lifts, it has, as predicted, been a disaster on scissor lifts. And in our opinion is frankly dangerous and requires urgent modification.

When EN280 was at the final stages of its approval process the French government, in a typically stubborn refusal to accept practical compromises, insisted that "it would not play" unless full-blown overload devices were a mandatory requirement of the new standard.

This, in spite of the fact that the industry unanimously insisted that overload devices were simply not "state of the art" at that time.

The rest of Europe capitulated in order to prevent the years of work involved in drafting EN280 being lost. Manufacturers launching new products had to quickly find ways to build a system into their machines.

For booms, this was not difficult, thanks to their smaller platforms and the fact that a number of suppliers had been working on these products for many years to satisfy an earlier demand in France.

On scissor lifts, though, the challenge was far more daunting due to larger platforms, the cantilever effect of roll-out deck extensions, along with their restricted capacities, the huge variations in lift cylinder pressure through the lift cycle and the continually changing friction levels within the scissor stack pivot points.

Until now manufacturers have had two choices, either to fit a pressure gauge on the lift cylinder and a platform height detector on the scissor stack, feeding the two pieces of data into a micro processor which then attempts to detect an overload.

The problem is that certain point loadings or friction spikes cause false readings that then shut down the machine, often leaving the operator stranded on the platform.

The other method involves fitting load pins into the four upper points that connect the platform to the scissor stack. This does provide a more consistent performance thanks to the fact that it eliminates scissor stack friction from the equation. However it is still subject to point load variations that cause false readings and it is very expensive.

The fact is, placing too much weight in a scissor lift at height (most scissors already incorporate a very simple pressure relief to prevent lift off with an overload) has rarely, if ever caused an accident.

On the other hand, loading an article that is light and bulky and catches the wind, acting as a huge sail, does cause instability and does cause accidents. In these instances overload devices provide little or no help with this real situation.

When the platform lift capacity is exceeded on a scissor lift, in most cases the lift actually becomes more stable (depending on scissor stack rigidity) as the load generally falls within the machine's base area, thus adding to the counterweight effect.

The scissor arms and lift cylinder have no problem at all in coping with the load at this height, as structurally they are hardly stressed compared to the lift off position. As an overloaded scissor platform is lowered it reaches a point near the closed position where the arms may well bend, damaging the machine, but it's rarely a life-threatening situation.

On the other hand, we have heard of numerous cases where the platform has detected a false (or real) overload reading and locked out. Most machines will not then allow the operator to do anything, so he is stuck in the raised position, as far as the machine knows with an overload on the platform!

Imagine the case where a platform is overloaded, possibly with bulky items and it is blowing a gale; the scissor starts to sway, possibly now moving outside of the machine's base. Thankfully the extra weight helps to prevent a tip over. However, it is hardly safe. Far better to have been able to lower the machine to safety as one would have been able to had no device been fitted.

Another scenario is when such an overload is connected to an accident in the basket, perhaps an occupant with a heart attack? The machine locks out and cannot be lowered by a co-worker in the platform, and on some units cannot be lowered from the base until a mechanic resets the overload device.

Or imagine the situation that the UK's HSE warned us about recently, where a man falls onto the controls and gets pushed up against an overhead beam, thus trapping him, and preventing him from releasing the controller.

With an overload system, the overload device would eventually trigger, locking out the machine and preventing the platform from being lowered to save the man's life.

There is an argument that the repeated, excessive overloading of a scissor lift, while not causing a stability problem can cause structural damage that leads to premature fatigue, that could then cause a failure at a later date when the machine might not be overloaded.

Such a situation could easily be solved by recording any excessive pressures experienced in the lift cylinder, as one assumes that any excessive load will be

lowered to the ground. This could then create a lockout when closed that forces the owner to carry out a structural inspection.

If all this is too much then, at the very least, there should be a spring-loaded override or reset button on the upper controls. This should be done on a recall basis.

It is our opinion that the insistence of full overload devices, without a platform reset or override facility, has created a dangerous situation. It's an accident waiting to happen.