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The new standard

Much has been written about the new North American standards ANSI A92 in the USA and CSA B354 in Canada, how they are now harmonised with the ISO and similar to existing European and Australian standards, as well as how they will affect the design of scissor and boom lifts in North America. A few months ago Genie launched its new range of 'dual zone' GS scissors that comply with global standards, but what impact will the changes have on new equipment?

The new standards should have been implemented in December however they have been delayed now until March. The A92 standards were originally approved in 2018 but have faced several 'appeal' hurdles including Tutus Solutions supported in part by the Board of Standards Review (BSR) and the American Rental Association. Tutus produces mesh covers for aerial work platform baskets to prevent small materials dropping from the platform and claims that the text in the new standards requires all aerial lift modifications be approved by the manufacturer effectively means that it does not comply with the Commercial Terms Policy requirement and would prevent it and other companies producing attachments which compete with manufacturers.

The new standards cover the design, calculations, safety requirements and test methods for aerial work platforms (A92.20), as well as safe use (A92.22) and training requirements for operation, inspection, testing and maintenance (A92.24). Most manufacturers, associations and rental companies began talking about the new standards three years ago or so and initially received positive feedback from customers and clients, but this began to fade due to the long time to implementation.

However, even though the standards have been delayed by a few months, manufacturers are already building to the new standards and customers are highlighting the changes to machines as they finalise their spend for 2020. No one buying a new machine wants it to be 'obsolete' shortly after delivery and although there will be some companies that would rather have machines without such frilleries as platform overload systems and slope angle cut-outs, they might just provide a small sales spurt during the first quarter of 2020.

Background

Over the past 20 years or so, aerial work platform standards have separated into two camps, China, Australia, Europe and Korea based on the ISO standards - which appear to have followed Europe's EN280, and the North American camp with Canadian CSA and American ANSI standards.

There have been three major differences between the ANSI/CSA standards and those of the rest of the world, centred around how the operator and the machine interact and the way the standards assign



Skyjack S.JIII 3226



Genie GS-4655

responsibility in relation to capacity, the measurement of the machine tilt angle and how the machine and operator respond when wind is involved.

Rated load

Currently there is a very different approach on who is responsible for monitoring the platform loading. In North America it is the responsibility of the trained operator to use the platform within the maximum platform capacity. In the ISO based standards the use of a trained operator is similar but the responsibility for monitoring the load and ensuring it does not exceed the maximum capacity is down to the manufacturer via an overload system with a cut out. Under the new ANSI A92 regulations there is a similar requirement thus helping eliminate the platform overload abuse often seen on work sites.

Slope/tilt angle

ANSI/CSA machines are usually rated for firm level ground and the slope sensor monitors the actual angle setting off an alarm and flashing lights if the slope exceeds what is considered a safe margin, usually five percent on booms and as low as two percent on slab scissor lifts. However until now the machine operation does not cut out when the alarm goes off. ISO based standards have a rated slope angle on firm level ground, with warning alarm

and lights if the angle is exceeded as well as limiting its movement.

Wind loading

Boom lifts and Rough Terrain scissors are fairly resistant to normal wind levels. However narrow slab scissors are often built for indoor use only, rather than make them wider or heavier. Currently in North America every machine must be physically tested to five degrees beyond their rated angle (usually zero) with an overload and in the least stable configuration, but wind loadings do not have to be considered. ISO standards require stability calculations and tests based on all the individual load factors including wind.

A European Genie GS-1930 for instance is not approved for outdoor use, whereas a GS-1930 in North America can currently be. In Europe Genie offers a slightly wider GS-1932 machine which can be used both indoors and outdoors but it is 50mm wider and significantly heavier than the ANSI machine. This means most manufacturers have different slab scissor ranges that are sold to different regions.

Standards development

In May 2017 CSA launched its new ISO based standards - B354 - then ANSI after several delays launched A92.20 in December 2018. Both the CSA and ANSI have moved more in line with the ISO/EN280 standard



Prior to harmonising its GS scissor range Genie in Europe offered a slightly wider indoor/outdoor GS-1932 machine which was significantly heavier than the ANSI machine

hence harmonising standards around the world. There are still differences such as decals and engines. Europe has Stage 3B and Stage V, North America has Tier 4 final and China has China IV so manufacturers may still have region specific machines, particularly those with diesel power. Genie product manager Mike Flanagan highlights the opportunity to use the change in standards to look at the issue differently. "Taking advantage of change in the North American standards, we had the opportunity to harmonise the Genie GS scissor lift family worldwide, offering a more consistent, productive machine that's simple to use and intuitive to operate, as well as having the flexibility and versatility to be used in a variety of indoor and outdoor applications. The Genie scissor lift line now benefits from commonalities in design, features, options and accessories."



A graphic of the Genie Smart Link PCON control box, with additional buttons for indoor/outdoor use.

"Most European manufacturers divide scissors into indoor and outdoor machines - with indoor narrower and lighter and outdoor wider, heavier and more expensive," adds Chad Hislop of Genie. "We thought there was a better way and wanted to make all our slab scissor fleet capable of working both indoors and outdoors by limiting the height of the machine when in outdoor mode. We did not want to burden our customers with heavier, wider or more costly machines for working outdoors, while managing a mixed fleet of indoor and outdoor machines becomes very challenging for a rental company."

To achieve this Genie developed the Smart Link PCON control box, with two additional buttons - one is pressed for indoor use, while the other is selected for outdoors operation - limiting the maximum work height. If no button is selected the machine will automatically default to the outdoor - lower height - setting. The selection can be

changed while working at height. All machines produced in North America and Europe will feature this technology. Prior to this Genie had to build two different machines. "The machines feature the same platform capacities when working indoors or outdoors but the maximum working height is adjusted downwards by between 50 and 75 percent when working outside, taking into account factors such as machine stability and wind forces up to 12.5 metres a second. The lift and lower speeds will also be reduced on some models," adds Hislop.

Machine abuse?

The system sounds fine in theory however if an operator is working outside and the machine cuts out just below the height required, he can simply push the indoor mode and will gain more height. While this decision will be visible on the lower control panel and can be picked up by the machine telematics you cannot help but think that given the antics and machine abuse by some users - such as standing on guardrails and overloading etc - they would have few qualms by doing this to achieve and exceeding the design criteria of the machine to achieve more working height.



Operators standing on the guardrails to gain more working height

New ANSI/CSA scissors now also have platform load sensing, with Genie using the system that it has used in Europe for the past 20 years which uses a pressure transducer in the lift cylinder and a link angle sensor to work out how high and how much load is in the platform. Other changes required by the new standard include toe boards on all platform entrances,



The Snorkel S3019E stows its scissor stack inside the chassis providing a low stowed platform and step in height

so chain and other flexible gates are being replaced with European style swing gates. The 1.1 metre guardrail height on CE machines is also a requirement, requiring most 19 and 20ft scissor lifts be equipped with folding guardrails to enable them to travel through a standard door height opening.

"There are still a few differences between the standards, but we may find that these will be fully harmonised over the next five years or so," says Hislop. "The new standards make it easier for manufacturers to produce a harmonised machine."

Genie has confirmed that the new ANSI/CSA scissor lifts will cost a little more, due to the addition of the load sensing system, additional weight, gates and folding guardrails but points out that customers will gain a more sophisticated machine while Genie will gain some benefits from integrating some of the technology and building a single global machine. The global specification lifts are already in production in Redmond, Washington and Changzhou, China with the rest of the world coming on stream later in the year.

Snorkel low rider

Keeping the overall height of the scissor as low as possible, Snorkel launched its 19ft S3019E slab scissor lift at last year's Bauma. It features a patent pending design that enables the scissor stack to stow entirely inside the chassis, providing a low stowed platform/step in height and overall stowed machine height of just 1.76 metres. The lift has electric drive and steer eliminating hydraulic hoses, while extending battery life between recharging. Overall width is just 770mm, platform capacity 250kg with a 910mm roll-out deck extension, while overall weight is 1,581kg - rated for one person plus tools for outdoor use.

New player in slab scissor sector

The electric slab scissor is probably one of the most competitive of all aerial work platform sectors. It is also the most popular in terms of unit sales, typically accounting for more than half of all deliveries.

JCB surprisingly entered the market around three years ago, with a range of machines built in China by Sinoboom. That agreement appears to have ended with production shifted to JCB plants in India. At the time many wondered if JCB would succeed with its new venture and while it might not have achieved the high volume sales to high profile clients in Europe and North America that it was hoping for, it has sold between 3,000 to 4,000 lifts to date, a not insignificant number.

JCB's entry into the scissor lift market, was probably a factor in encouraging Pettibone's decision to also enter with a range of 13 scissors from 12 to 40ft, which it will launch at the ARA in February. The range - built by Chinese manufacturer LGMG - includes three direct electric drive micro models - the 12ft SS1230E, 14ft SS1432E and 19ft SS1932E - along with a full range of regular 810mm and 1.2 metre wide slab electric scissor lifts, all available with a choice of direct



The narrow 26ft Pettibone S2632E



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electric or hydraulic wheel motor drive, they are:

The 32 inch/810mm narrow models:

The 19ft AS1932 or AS1932E

The 26ft AS2632 or AS2632E

And the 46 inch/1.2 metre wide models:

The 26ft AS2646 or AS2646E,

The 32ft AS3246 or AS3246E and

The 40ft AS4046 or AS4046E.

The 'E' signifies the direct electric drive version for each model, while the other is the more traditional hydraulic wheel motor drive configuration. They include a common control box with LED screen and deck extensions as standard.

Why Pettibone feels it is a good idea to diversify into the most competitive sector of the aerial work platform market remains to be seen, however the more companies out there promoting self-propelled aerial lifts over ladders and scaffolds the higher the market penetration. This is also true of the North American market which while well developed, is still far from being mature.

New standard Skyjack RTs

Early last year Skyjack unveiled a new range of Rough Terrain scissor lifts, replacing and extending its existing 88" and 92" wide model range. It will include the 33ft SJ9233, 43ft SJ9243, 53ft SJ9253 and 63ft SJ9263 RT. The SJ9253 RT is Skyjack's largest scissor lift to date with a working height of 18 metres and is the first model in its new full size Rough Terrain range. Skyjack says it aims to start shipping the 33,43 and 53ft machines within the next two to three months, with shipping to the EU likely a month or two later. The 63ft SJ9263 RT will offer a 21 metre working height and is targeted for launch mid-year.

The new models offer greater working heights, increased capacities, faster function speeds with some of the largest decks on the market. The new models also feature an enhanced control system, Elevate telematics and Skyjack's colour coded and numbered wiring system.

Skyjack product manager Corey Connolly said: "The decision to move



The 53ft SJ9253 is currently Skyjack's largest scissor.

forward with a new larger Rough Terrain range is twofold - improve the specifications and performance of our existing models, while also mitigating the cost impact of the new ANSI/CSA standards. Features like our Axldrivetr four wheel drive system and easily accessible service components, remain as standard features in our new Rough Terrain models."

"A key improvement to this range is Skyjack's Smartorque technology,

which provides the machines with greater torque and hydraulic performance, while using less engine horsepower," adds product manager Barry Greenaway. "This system has been used on our TH series of telehandlers since 2015, also meets Euro Stage V in the most efficient way possible and does not require a diesel particulate filter (DPF) or other active exhaust after treatment, a factor that is extremely beneficial to rental companies."



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Largest Dingli scissor - the 66ft JCPT 2223RTA

Chinese RT scissiors

We have already touched on the growing acceptance of Chinese electric slab scissiors. The country is rapidly becoming the world's largest manufacturer of small scissor lifts, with not only the locally owned producers increasing their volumes, but also the fact that JLG, Genie, Haulotte, Snorkel, Boss, Mec, GMG, PB, UpRight and other western-based companies are building their smaller models there. At the same time the country's local manufacturers are beginning to get some traction in the market for larger scissor lifts. In order to support their efforts and gain contacts and experience they have been hiring industry veterans and senior managers, such as Craig Paylor, Rusty Kaylor, Hans Aarse and Daniel Duclos.

Second generation Dingli

Looking at the Chinese companies making most progress with Rough Terrain scissiors, Dingli has been at the forefront of overseas expansion, and while the vast majority of its success has been with smaller

slab electric scissor lifts, its sales of larger Rough Terrain models have increased substantially in the past 18 months, albeit from a low base. The launch of an upgraded product line - its second generation range in 2018 - has helped in that they perform better and their development showed a willingness to listen and act swiftly. The range of units spans between 33ft and 66ft - working heights from 12 to 22 metres - topped by the 66ft JCPT 2223RTA with an overall width of 2.35 metres, a 750kg maximum platform capacity, self-levelling jacks, 4x4 drive and an overall weight of 13 tonnes.

Some of the first units to arrive in Europe were five 39ft, 363kg capacity JCPT 1418DC electric scissiors delivered to UK rental company Media Access Solutions (MAS) for a specific contract and have performed well.

Lower cost advantages

A problem for all of the Chinese manufacturers is the fact that cost advantages - mostly labour - become an increasingly small proportion the larger the machine. It is entirely possible that when it comes to large RT scissiors a company such as Skyjack may well have a lower cost of production than Dingli although the overhead loadings might well balance things up? The lack of a significant cost advantage, added to the lack of known



The Dingli JCPT 2223RTA self levelling jacks



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residuals are factors that will force the Chinese manufacturers to focus on product design and quality, not to mention back-up and distribution if they are to succeed, particularly with larger models.

LGMG making waves

A relatively late entrant has been LGMG. The company only set up its North American and European operations within the past 12 months but it is already making significant progress. In April the Chinese aerial lift manufacturer confirmed a new cooperation agreement for the European market with Germany's PB Liftechnik. The companies have worked together in the past year or so, with PB badging some of LGMG's slab electric scissor lifts which make up its ECO range. More recently it has begun supplying Pettibone with its new slab electric scissor lift models and has already sold its first Rough Terrain scissor lifts under its own brand. One of the first European companies to take the LGMG RTs was UK sales and rental company Hire Safe Solutions which took delivery of four 53ft LGMG SR1623 scissor lifts in late October. The SR1623 offers a working height of 18 metres, a platform capacity

of 680kg and an overall width of 2.3 metres. Platform length is 3.98 metres, with dual roll out extensions taking it to 6.58 metres. More recently it recruited senior aerial lift manager Phil Graysmark as European region sales director. He spent many years with Genie and was instrumental in the launch of JCB's push into the scissor lift market in 2016.

Big developments at Sinoboom

Sinoboom has also been in the news recently, having launched a 154ft articulated boom lift in the past few months and appointed ex IPAF chief executive Tim Whiteman to run its new Rotterdam-based European operation as well as to advise on global marketing, branding and strategy. In the summer it opened a new operation in France - Sinoboom France - in Tonneins. The operation is headed by access industry veteran and entrepreneur Daniel Duclos.

The company now offers a four model diesel scissor range from the 26ft GTJZ0818D with 10 metre working height to the 53ft GTJZ1623D with 18.2 metres. While both models have a capacity of 680kg the intermediate models with working heights of 12 and 14.2 metres have capacities of 450kg and 365kg respectively. All four are fitted with levelling jacks. With its JCB supply deal now coming to an end it is looking to step up its own activities.



Some of the 53ft LGMG SR1623 scissors delivered to Hire Safe Solutions.

Mega scissor from PB

PB Liftechnik also launched the 117ft S370-24 ES 4x4 scissor lift, the company's largest model so far and possibly the largest self-propelled scissor lift on the market. The new battery powered mega scissor lift offers a maximum working height of 37.5 metres, with a massive 10.5 by 2.11 metre platform with a capacity of 750kg, with an indoor rating with up to four people in the platform. It has an overall width of 2.4 metres an overall length of 10.5 metres and weighs 34 tonnes. Four wheel steer plus four wheel drive helps what is a relatively long machine manoeuvre, while inboard jacks provide automatic levelling on uneven ground - important as it needs to be within one degree of level to operate. The unit can also drive at heights of up to 20 metres.

The new mega machine could prove popular for installation work in high rise warehousing, however it is long - around three metres longer than the 112ft Holland Lift HL-340 which was

the highest scissor lift on the market - however the PB is considerably narrower at 2.4 metres compared to almost three metres on the Holland Lift unit, but platform capacity is a trade off at 750kg compared to 1,000kg on the Dutch machine. The PB's platform is almost a metre longer.

The 53ft Sinoboom GTJZ1623D

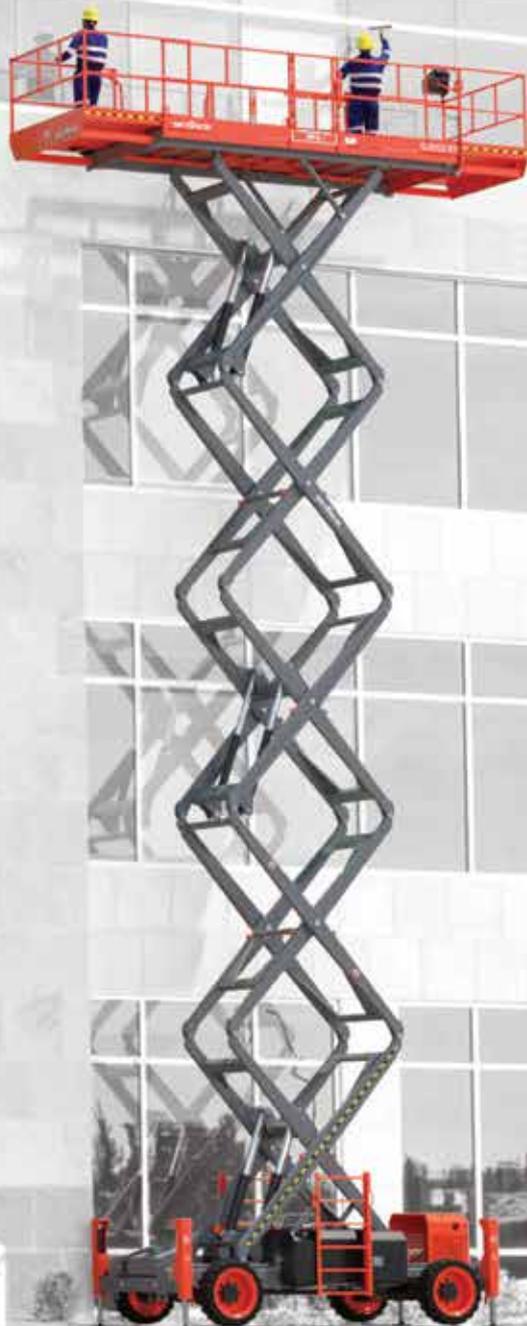


The 53ft LGMG SR1623



PB Liftechnik's 117ft S370-24 ES 4x4 scissor lift - possibly the largest self-propelled scissor lift on the market?





REACH HIGHER

WITH SKYJACK'S NEW RT LINEUP

Skyjack's new range of full-size rough terrain scissor lifts offer higher platform heights and increased capacity ratings. The new range replaces Skyjack's previous 88 and 92 models and consists of the SJ9233, SJ9243, and SJ9253 RT.

Maintaining features common to all Skyjack products, including easily accessible service components and Skyjack's AXLDRIIVE™ system, this new range is also compliant with Euro Stage V emission standards.