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RELIABILITY IN ACTION



AN OVERLY CROWDED MARKET?

You could easily be forgiven for thinking that the self-propelled boom lift is a mature product with little opportunity for change or improvement or for new entrants. However, the number of manufacturers has exploded in recent years, while innovations are plentiful, partly down to the ongoing growth in the use and demand for powered access.

A key fact in the changes over the past few years has been the rapid growth in the number of Chinese manufacturers, thanks to booming demand in their home market, while the leaders are also participating more widely in the global market. In less than a decade, China has gone from a non-user to become the second largest powered access market in the world. A handful of its more popular brands - Dingli, Sinoboom, LGMG, Zoomlion, Mantall and XCMG - are now producing lifts in numbers unimaginable a decade ago.

The biggest surprise is how quickly North America and Europe have widely accepted platforms from the new Chinese manufacturers and not as some would have you believe based purely on lower prices. The proof here is how fast many rental companies have moved from small low cost Chinese-built micro scissors to purchasing large high unit cost booms and scissors based on quality, design and backup as well as availability. They are no longer seen as 'cheap copies', much of which is down to the massive investment in modern sophisticated production facilities spurred on by a rapidly growing domestic market. This is nothing new - it is exactly how North American manufacturers managed to dominate the European market when it took off in the 1980s. It is also how the German car makers out-classed the previously dominant

British auto industry from the 1960s.

The return of exhibitions such as Vertikal Days, JDL, GIS, Platformers Days and Bauma, means manufacturers once again have a focus for new product launches and a chance to speak to customers. It seems strange therefore that two of the largest and most established boom lift manufacturers - Genie and JLG - appear to have withdrawn from such events, although Genie made a strong appearance at the recent ARA Show and has maintained a presence through local dealers. What it has done, according to some major buyers we have spoken to, is 'leave the door open' to the up and coming manufacturers.

In terms of new product launches, Chinese manufacturers have been most active, with companies like Dingli unveiling new models and concepts at a dizzying pace. This is in part due to employing several engineering teams, compared to the usual one or two. Many have been surprised by the rapid acceptance of larger battery electric boom lifts where China has an advantage thanks to its high levels of research and investment in Electric Vehicles over the past decade - driven by the horrendous pollution, a result of the export of dirty manufacturing by the west - which in turn has provided the country with its strong growth and prosperity. Its odd how things work out. The rapid move towards



It is a big surprise how quickly Chinese platforms have been accepted in North America and Europe



JLG and Genie appear to have shunned many equipment exhibitions

electric may well slow as countries fail to invest in the infrastructure to maintain it. This is likely to play into the hands of companies like Niftylift that has pioneered hybrid power systems for its boom lifts. It recently settled a 'cease & desist' patent complaint with JLG.

BOOM LIFTS

Zoomlion's latest boom is the 186ft ZT58J



Dingli introduced its new lithium powered models topped by the 139ft BT44RT



Most Chinese manufacturers have remained in the 'bread & butter' boom market from 40ft to 135ft. Only Zoomlion and XCMG have attempted to challenge Genie and JLG in the mega boom sector with Zoomlion launching the 217ft ZT68J in 2020. In October it followed this up with its 186ft ZT58J with a working height of 58.8 metres and an outreach up to 25.5 metres with an unrestricted platform capacity of 300kg. Its maximum capacity of 454kg is available at an outreach of up to 22.5 metres.

BIG ZOOMLIONS

At Vertikal Days 2022 Zoomlion launched several new boom lifts including the electric 86ft ZT88JE/ZT26JE, the 32ft ZA32RJE/ZA10RJE compact zero tailswing industrial lift with an 11.5 metre working height and the new 64ft ZA64JE/ZA20JE electric articulating boom lift with a 21.5 metre working height. All three are equipped with a large battery pack and direct electric AC drive motors.

135FT BOOMS

Demand for boom lifts in the 135ft range has also been growing as more rental fleets venture into this market. Having focused on developing and refining its boom lifts up to 85ft, Skyjack is just one manufacturer now looking to go higher as its new plants in Mexico and China come on stream adding essential capacity. Dingli introduced its new lithium powered models topped by the 139ft BT44RT which offers 27.2 metres outreach and 454kg maximum platform capacity at 24.9 metres and greater jib articulation. The BT44RT is just one of three 'larger' Dingli telescopic booms including the 112ft BT36RT, and 129ft BT41RT. Each available in three power variants - Lithium pure electric, Hybrid - with a 'range extender' diesel generator - and straight Deutz diesel for a total of nine new models.

LIGHTER WEIGHT

In the 60 to 80ft market there is a need to make machines easier to transport. Genie unveiled its S-60J and S-80J in 2020, while Dingli has also launched its D series based on its modular low centre of gravity concept. The range comprises seven base models: four articulated booms with working heights of 16, 18, 20 and 22 metres, plus three telescopes with working heights of 16, 18 and 20 metres. All seven are available with three power options - All electric, Hybrid or Diesel. The company has also introduced some M series telescopic boom lifts starting with the 106ft BT34ERT electric and diesel BT34RT, with four section booms and articulated jibs for a 34.1 metre working height, and 454kg platform capacity.

OTHER BOOM LIFTS

Until Zoomlion announced the ZT68J, the largest boom on the market was Snorkel's 210ft 2100SJ shown at Conexpo 2020. At this year's Conexpo the company will show the production version of the new mega boom.

Sinoboom's latest is the 72ft AB22EJ Plus all electric boom, launched at Bauma. With a 24 metre working height its boast three platform capacities - 230, 340 and 454kg - and an overall weight of 10.9 tonnes.

Manitou is pushing into North America and will show the new 85ft TJ85 at Conexpo alongside the 46ft 160 ATJ+E electric and new 53ft 180ATJe. MEC is also set to launch an 85ft boom at Conexpo, its largest to date.

Skyjack will unveil its new lighter weight, 45ft SJ45 AJ and SJ60 AJ articulated booms with smaller engines and Smartorque drive and is hinting that electric booms are coming soon.

LGMG has four new lithium electric and four diesel articulated boom lifts from 30ft to 65ft alongside four telescopic electrics - from 65ft to 92ft. The new models initially intended for



Manitou launched the new 53ft 180ATJe at Bauma

international markets outside of North America are the T20JE, T22JE, T26JE and T28JE with working heights of 21.8, 23.8, 27.9 and 29.8 metres. All four models feature dual - 300kg/450kg - platform capacities and are equipped with 2.4 metre wide triple entry platforms, four wheel drive, four wheel steer and oscillating axles. Overall weights range from 12 to 18.7 tonnes. Other new LGMG booms - dubbed the H-Series - include the new 85ft T85J-H/T26J and the 92ft T92J-H/T28J.

Genie's electric and hybrid versions of its 60ft S-60 light weight telescopic boom lifts are now available in the Americas and Asia Pacific region. The all electric S-60 DC and hybrid S-60 FE were launched at Vertikal Days and at last month's ARA for North America.

JLG's innovative 67ft self levelling 670SJ boom is reviewed on page 18 but its main recent



The 45ft Skyjack SJ45 AJ

news was the acquisition of Italian spider lift manufacturer Hinowa which has more experience with Lithium-ion battery powered platforms than anyone. Hinowa now builds JLG's 45 and 52ft articulated lithium electric booms. JLG has also announced a lithium battery electric conversion kit for older 66ft 660 SJ diesel boom lifts.

JCB has been slow to launch its boom lift range but showed its 48ft AJ48D articulated boom at the ARA show. At Bauma Dinolift unveiled all-electric versions of its 'semi self-propelled' low weight RXT boom lifts. The new RXTE models are derivatives of the two current RXT 4x4 boom lifts with outriggers - the 86ft 280RXTE and 66ft 220 RXTE. The diesel RXTs were previously available with a plug in supplementary power pack for indoor work.

And finally Niftylift launched two new 'low weight' all electric booms - the 45ft HR 15E and 50ft HR17E - at Vertikal Days, both weighing less than five tonnes. ■



JCB has been slow to launch its boom lift range but showed its 48ft AJ48D articulated boom at the ARA show



Dinolift unveiled its all-electric RXTE booms a Bauma



The 'low weight' Nifty HR15E

ELECTRIC power

The Snorkel SR626E is the electric version of the SR626 rough terrain telehandler – an industry first. Its full-time 4-wheel drive is powered by lithium-ion batteries for long-lasting durable performance. Built compact, the SR626E is highly maneuverable with reduced noise and zero emissions that is suitable for indoor use.

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LEVELLING UP

Sloping and uneven jobsites are challenging for traditional self-propelled boom lifts which are usually rated for firm level ground, with tilt alarm lockouts now a requirement at five degrees or less. In late 2021 JLG began shipping its 67ft '670SJ Self Levelling' boom lift. We look at how two contractors have used the new boom lift on real life projects.

Working on uneven or sloping ground is a fact of life on most job sites, and all too often it is a factor in overturning incidents. Those working on site typically ignore the tilt alarm - traditionally set at five degrees - or disable it. The new ANSI standard in the USA now mandates function cut-outs when the machine's approved operating angle is exceeded. This will have a major impact for boom lift users. Operators will no longer be able to ignore the slope limitations and will either have to reposition the boom, carry out additional site preparation work, use a larger lift to work from further away or use cribbing to level the machine. Some booms can be equipped with levelling jacks, but few companies have been willing to pay for them.

So is the new JLG Self Levelling boom "a solution looking for a problem" as one rental company described it or a game changing machine?

JLG first showed its Self Levelling concept at Conexpo 2017, exhibiting the 670SJ prototype at Conexpo 2020 and based on the feedback began producing them around 18 months ago, initially only available in North America.

The self-levelling chassis can cope with slopes of up to 10 degrees in either direction. The levelling range was based on site surveys, which included talking with operators about ground problems they faced on a day to day basis. The lift has a working height of 22.3 metres, a maximum outreach of 17.5 metres with an unrestricted platform capacity of 250kg or just over 15 metres with the 340kg maximum capacity. It has an overall width of 2.5 metres, an overall length of

10.7 metres and is 2.77 metres high, although this can be lowered to 2.22 metres for transport. It has an all up weight of 11.5 tonnes and apart from the sophisticated display the controls are basically the same as JLG's standard booms.

The self-levelling technology automatically levels the chassis using four independent axles with intelligent sensing technology meaning the boom can be driven at full height over uneven ground with the system actively levelling the chassis as you go.

THREE MODE LEVELLING

The operator can select from three operating modes. 'Auto Level Mode' selected before raising the boom dynamically levels the chassis while driving with the boom in an elevated position.

High-Speed/Manual Levelling Mode allows the machine to travel at the maximum speed when the boom is stowed, with the machine operating much like a standard Rough Terrain boom lift with one axle fixed and one providing the oscillation. Once in the working position the operator can press level and the machine will automatically level up. Once level the boom can be raised.

The third is Shipping Mode, once the lift is loaded on a trailer it lowers the chassis almost to the deck, reducing the transport height.

Initial projects convince Skanska

As an early user of the 670SJ, Skanska USA says it has lowered the risks of 'tip overs', provides operators with a more comfortable ride while traveling at height, can often get closer to the work area and saves time spent levelling the site before work can begin.



Mason Ford, director of sustainability and equipment services at Skanska says: "We have been a supporter of the self-levelling boom since the moment we heard they were building it back in 2017."

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As soon as it was available Skanska put a 670SJ to work on the Lynnwood Link L300 project in Mountlake Terrace, Washington - a four mile raised extension of the Sound Transit rail line outside of Seattle, where Skanska is the sole contractor.

The contract was the perfect test case for the concept, due to the preponderance of unprepared and uneven ground below the girders for the line. Normally Skanska would have used a regular 60ft Rough Terrain boom lift, having carried out significant grading work to level up the ground. At best this can take several hours as well as involving cribbing and blocking, while also requiring additional equipment to carry out the unproductive work. On top of that ground often has to be returned to its original state once the work has been completed, involving more work, time and equipment.

"It would also mean slower project transitions and production, because to carry out a lot of the work, the operator would have to boom down, move the lift on an uneven surface to get to the next prepared work surface, and then raise it back up and stretch back out to do the work," says Ford. "On top of this, the creation of the pad in congested areas may prevent other equipment from accessing the site. It's more than time and direct cost - it's whether you even have the opportunity to make that footprint available. There are even cases where instead of using the 60ft boom lift, we'd have to go to an 80ft, because we needed more outreach to reach the work area."

The 670SJ's LCD screen within the control box provides real time machine status notifying operators if they are nearing the slope limits of the machine, informing them through on-screen icons, rather than a simple audible or illuminated alert.

Skanska has also used the 670SJs on the Hunts Point Peninsula interchange project in New York City and on the State Route 60 road widening project in Southern California. As a result the contractor has purchased further 670SJ's and Ford says they have become an essential part of their fleet.



Electrical installation contract

After requesting a 60ft straight boom to install switchgear and electrical components as part of the Bowman Street substation expansion in Farmingdale, Maine, local contractor Cianbro received a 670SJ instead, and became a convert. Cianbro was also responsible for the earthworks, concrete foundations, steel erection and electrical work for the project.

Chad Burgess, dispatch supervisor for Cianbro says: "The time and cost savings made the most impact for us. Typically on such sites we would need to have earthmoving equipment, including excavators, dump trucks, skid steers and even rollers to prepare the base for the lift. In most cases, the 670SJ has negated the need for such additional equipment, saving time on permits, hiring trucks, the number of operators with special licences and countless other costs. As a result, it can radically change equipment planning and selection, as well as project timelines."

Operators on the job reported similar benefits as Skanska. "They liked that the platform wasn't moving around when travelling around," says

Burgess. "Not only does the smoother ride of the 670SJ cause less fatigue on the operators, but it also minimises equipment contact. In a substation, our primary concern is preventing aerial platforms from contacting the equipment. When travelling, the JLG 670SJ keeps the platform stationary. This feature helped avoid unintentional equipment contact."

"Companies performing work in cities where one side of the machine needs to be on a sidewalk would also benefit from this unit. The cost savings we have seen are endless."





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Desmond Soh



Sinoboom at Bauma: the new SPA33HJ spiderlift and the ML340EJ mast boom



GOING GLOBAL BUT STAYING LOCAL

Privately-owned Chinese aerial lift manufacturer Sinoboom has been in expansion mode for the past 15 years, evolving from follower to innovator and now claims to be the leading premium aerial work platform manufacturer from Asia. At Bauma, the company launched its first spider lift and several new scissors and booms. Mark Darwin spoke with Group Chief Operating Officer, Desmond Soh about the company and the changing landscape for Chinese manufacturers.

Over the past few years, the perception of Chinese access equipment has changed dramatically. But this can be no surprise to those that have witnessed the cultural and industrial changes within the country over the past 40 years.

“Over the past three decades, I have had the privilege to witness the transformation of rural china into being the world’s second largest economy. China has come a long way from the early 1980’s when 500 million bicycles were on the roads every morning. Now China which has become the world’s largest automobile market and its shoddy transport system now has ultra-high speed trains that travel at 330km/h.”

“Every year China produces about two million graduate engineers, even if sceptics claim that half are not qualified by international standards, we are still staring at massive engineering talent that will continue to power China’s economy.”

Originally from Singapore, Soh lived in China for more than two decades and is an aerial industry veteran who helped nurture and develop the Chinese powered access market into becoming

the second largest market through a US-China Work Safety Public Private Partnership promoting work at height safety.

China eventually passed its first Work at Height regulations on 5th December 2012 however enforcement took a couple of years - the trigger coming with a massive mastclimber/scaffold collapse at Feng Cheng Power Plant in 2016 that caused public outrage.

“China has the world’s largest construction industry with about 40 million construction workers but like many other countries around the world it is shrinking as it struggles to recruit the younger generation,” he said. “Coupled with China’s former one child policy, the population is rapidly greying. In fact, China now is the world’s fastest ageing population resulting in a shrinking workforce and severe manpower shortages in various sectors of the economy.”

As a result labour costs for the average construction worker have more than quadrupled from \$3 an hour in the early 1990s to \$12 to \$15 an hour today - and it is still rising leading more companies to look for increased efficiencies and productivity.



BUT WHY ARE CHINESE COMPANIES EXPORTING MORE PRODUCTS TO EUROPE AND NORTH AMERICA?

“All companies want to increase sales, make more profit and become a market leader,” says Soh. “Sinoboom aspires to be the world’s number three aerial lift manufacturer.”

“Industry recognises us as the leading premier brand because of our robust design, the use of trusted components, good aftersales service & support and total cost of ownership and our focus on customer satisfaction.”

“We focus relentlessly on engineering innovation, quality and reliability of our products and match that with strong aftersales support. For example, our parts order fulfilment rate is at about 95 percent.”

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AERIAL PLATFORMS

“At Sinoboom, we do not cut corners to compete on price. Instead we focus on providing true value for our customers,” he said. “We offer both cost competitive and high quality products through full factory automation where robots have reduced our reliance on workforce requirements.”

“Every company has its DNA. Our owner/founder chairman Steven Liu and global CEO Susan Xu have instilled the core values of honesty, integrity, respect and excellence in everything we do, as well as continuous engineering innovation and hard work to earn us place as a supplier of choice and partners in access. As a result, we are now the leading Asian brand in Europe and many other parts of the world. Our company has a strong presence in Europe, North America, East Asia, Southeast Asia and down under in Australia & New Zealand where many large national rental companies choose Sinoboom.”

WHAT ABOUT DIFFERENCES IN EASTERN AND WESTERN CULTURE?

“Presently, I work for a true blue Chinese manufacturer but have been thoroughly trained in the western-style management,” he says. “Yes, there are major cultural differences and some can be quite challenging. For example, in the West, most would answer a direct question with a ‘Yes’ or a ‘No’ response. In China there is always a third answer, where it’s neither a yes or no. As such, in business negotiations that can be very confusing.”

“Most Chinese companies operate at the speed of the high speed train, however we all know, fast can translate into slow. In the West, strategic decisions often go through a rigorous process followed by strategy deployment, whereas in the East quick decisions might lead to oversights. At Sinoboom, I try to include the best of the East and West to achieve the vision of becoming a truly international global company.”

For example, Sinoboom now uses state of the art management tools such as Windchill for engineering, SAP for enterprise wide management, SRM for global sourcing, Salesforce.com for CRM and Siemens MOM for high tech manufacturing.

“A company must have consistent execution to enable long-term sustainable growth. Not many Chinese/Asian companies achieve success in the global arena, at Sinoboom we believe that we have all the building blocks for success, so keep a lookout for us in the coming years as we go international in a big way.”

MARKET SHARE

“The size of an enterprise is only a relative reference, often big does not translate into being better or stronger. On the contrary, big can mean bureaucracy, lacking in agility and responsiveness,” he said. “As an aerial platform manufacturer that is 100 percent dedicated to developing aerial solutions, we are very focussed in addressing needs and requirements of each market we operate in as we have the advantage of not being distracted by other non-aerial products.”

“Primarily, we serve customers that value performance, high quality and durability. Our products are time proven and we offer the most



complete range. As such, we have the highest market share in our target market segment.”

At Bauma, Sinoboom launched several new products including the 72ft /AB22EJ Plus articulated boom, the ML10 EJ boom lift, a new AC drive, lithium battery scissor lift, and a spider lift - the SPA33HJ - in a new partnership with Danish manufacturer Falcon Lifts.

FALCON PARTNERSHIP

“Our strategic partnership with Falcon Lifts opens up exciting opportunities for both our companies but more importantly serving our customers with another product line to meet their total needs,” said Soh. “For example, in the near future we could possibly expand our manufacturing capability in Poland to scale up significant volumes to meet market demand.”



Thyge Mikkelsen of Falcon with Susan Xu of Sinoboom at the signing of the partnership at Bauma

WOULD YOU PARTNER WITH OTHERS?

“The next partnership will be very interesting. One possible product would be telehandlers where there is high demand,” he said. “On this front, we are now at the initial stages of our alliance with a renowned brand from Europe. Combining both our strengths we could possibly in future, incorporate lithium powered solutions for this product.”

China is now the world’s largest electric vehicle market and an off-shoot of this is the rapid development of lithium batteries.

“The industrial boom in China in the 1990’s resulted in heavy pollution and back then China had to set 100 day goals for Blue Skies and they celebrate when they achieve their goal,” he said. “The benefits of heavy investments in renewable energies over the past decade have resulted in more Blue Skies. This technology is now being applied to the aerial sector because lithium battery supply chain has been very well developed. Currently Sinoboom has a full range of lithium powered scissors and booms and we

want to see that benefit applied to other product lines in future.”

TECHNOLOGY DEVELOPMENTS

“Talking about innovation, our new generation of scissors and boom lifts are designed with two philosophies, zero multi-meters and zero service manuals for service support or product diagnostics,” said Soh. “For example, we introduced the industry’s largest seven inch smart screen on our boom lifts - it is a game changer. The smart screen is able to precisely indicate which part of the boom is having issues, allowing quick diagnostics and trouble shooting. It makes it entirely user-friendly for job sites and rental customers.”

“What is even more exciting is that each of our products comes standard with Telematics Ready connector. In the internet of things (IoT), our customers can do remote diagnostics and even perform software upgrades. With rising labour costs and skilled labour shortage, customers are able to reduce downtime and improve return on investments.”

AI IS THE FUTURE

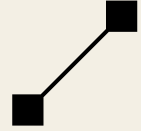
“AI is the next major development. The cost is high at the moment but economies of scale will reduce prices. An example of AI and boom lifts is in ship maintenance and repainting the hull in dry dock. AI can be used to carry out the work without human operators because the ship is one giant flat surface and AI can do a better job than humans. We already have that solution, but it is the timing of adoption that is critical.”

GOING GLOBAL

“In Changsha, Hunan, we are building Sinoboom City and our new world headquarters. Globally, we are strengthening our foot print and overall capability. Our ability to hire global talent speaks volumes of our brand and market recognition.”

“Whether it’s ANSI, CE, CSA etc. standards, we are ready in all aspects. More importantly we are expanding our product support centres to truly serve our customers. For example, in North America, we are expanding and relocating soon to our new North American headquarters. At the product support centre will be a product training centre, ground support and parts support etc.”

“In mature markets such as Europe, Australia, North America we are gaining positive momentum,” he said, “however to achieve success, we firmly believe in ‘going global but staying local’. That fundamentally is our cornerstone for success.” ■



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