

# The changing face of boom lifts

You might be forgiven for thinking that the self-propelled boom lift sector is a mature market. It is after all more than 65 years since the first self-propelled boom appeared and 50 years since JLG launched the first telescopic boom lift. Yet we have seen more changes and innovation over the past five years than in the previous 25! We take a look at 50 years of JLG, the development of the mega boom and the latest new products.

As far as we know, the very first self-propelled boom lift was the Orchard Girette designed and built by Ted Trump in 1956. Trump ran an agricultural repair business in Oliver, British Columbia, Canada and had introduced a towable platform in 1953, the three wheeled Girette. Both units were conceived for apple picking in what is Canada's wine region - yes it does have one.

## The Cherry Pickers

In the late 1950s John Baerg - a farmer from Dunuba in California's central valley - developed a more refined 21ft self-propelled boom lift for picking fruit - including cherries - and pruning trees, which he called the Tree Farmer. It was a simple

machine with a fixed boom and single person platform, but crucially it could be operated and driven from the basket at height.

In 1961 Carl Ruegg - owner of local manufacturer Selma Trailer - looking for new products to reduce the company's dependence on farm trailers, purchased the designs for the Tree Farmer, shipping the first Selma-built units in 1962. That same year he developed the Tree Master, a more sophisticated version with the same 8.5 metre working height, a larger platform, hydraulic power to the platform and options to appeal to contractors, airlines and other trades. In a bid to shed the agricultural image, Ruegg introduced the Manlift brand



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**boom lifts**

originally as Selma Manlift. Higher machines followed in the form of long twin boom articulated models with platform heights up to 47ft - 16 metres working height.

## The move into rental

Ruegg was also instrumental in getting self-propelled lifts into the rental market when he approached Bob Irving who ran a multi store rental company in the Los Angeles area. He sold him two units and rented him two to help ensure a proper market evaluation. The machines took off after Irving gave his salesman, John Parker, the freedom to give resistant end users a free trial period, before committing to renting them. Irving was later involved in the first self-propelled scissor lift when he encouraged Ruegg to convert a Sky Witch push around scissor lift - but that is another story.

As an aside, Bob Irving and John Parker began assembling their own

scissor lifts under the Marklift brand, named after Irving's son Mark. The business went on to become market leader, but that is also another story.

## 50 years of telescopic

Telescopic boom lifts did not arrive until 1970 when a company called Condor Industries - established a year earlier by three ex Grove crane employees, John L. Grove, Paul Shockey and Ben Stevens - unveiled the 27ft Condorlift 2732 (10m working height). A 65ft boom followed in 1972, and an 80ft - basically a 65ft with outriggers and longer boom - in 1973. That same year the Condor name was dropped in favour of JLG following a legal battle with Calavar over the Condor name but that is also another story. John Grove had refused to use his initials - Landis was his middle name - for the company's products when the business was founded, as



*The first self-propelled boom, the Orchard Girette*



*The original Tree Farmer late 1950s*



*The Selma Manlift Tree Master*

*Note the larger platform and improved controls*



he was still fighting skirmishes with Grove Manufacturing, and feared it might handicap the fledgling business. But in 1973 he gave in and the JLG name was born.

Selma Manlift on the other hand was purchased by Illinois conglomerate Chamberlain in 1973, just as it had shipped its first telescopic model, the 30ft MZ36 (Manlift Zoom 36ft working height) with an 11 metre working height and a list price of \$11,500! In 1979 the company was purchased by Grove as part of the crane company's feud with John Grove and JLG. In 2004 JLG had the last laugh when it acquired the Manlift business, keeping its Toucan mast boom business, but retiring the Manlift boom and scissor lift products.

With self-propelled boom lift platform heights stuck at 110ft JLG and others focused on eliminating the need for outriggers, with hydraulically extending axles appearing for the first time in the late 70s. The next big change came in the 1984 when Genie introduced its first boom, the Z-30/20 articulated boom lift. It was certainly not the first articulated boom, but it was the best and worked and changed the market - but that is another story. The next big breakthrough came 1991 when JLG launched the 150ft 150HAX articulated boom lift - a real beast and only moderately successful.



The JLG 150HAX was a beast.



The 180ft Genie SX-180

### Breaking through 150ft

Platform heights then remained unchanged, topped by the aging JLG 150HAX until April 2013 when Genie unveiled its 180ft SX-180 straight telescopic boom lift with two section rotating articulated jib at Bauma that year. The following year JLG launched

its 185ft 1850SJ with both machines going on to sell well. In late 2018 China's XCMG nudged the envelope with the launch of the 186ft GTBZ 58S, essentially a copy of the JLG 1850SJ. It has not been a great success - at least internationally - although machines have been delivered to a few companies in China.

The first self-propelled telescopic made its debut as the Condorlift.



The Manlift MZ36 in 1973.



The 185ft JLG 1850SJ



The 186ft XCMG GTBZ 58S



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The Snorkel 2100SJ sets new standards in mega boom design

In terms of larger booms we seemed to have hit the ultimate limits, with most manufacturers stating that while a higher self-propelled machine was perfectly possible, transporting such a machine was impractical, and it would require a working footprint as big as a truck mounted lift. However.....

**Snorkel surprises**

The 185ft barrier was blown wide open in March with the surprise launch of the 210ft Snorkel 2100SJ. Not only is it the world's largest self-propelled lift with a working height of 66 metres - 7.6 metres more than the 185ft booms with five metres more outreach - but it also incorporates numerous innovations.

The working envelope is not only extensive - thanks to a 9.1 metre telescopic jib with 128 degrees of articulation - but most of it can be reached with the maximum 454kg platform capacity. The machine only switches to the 300kg unrestricted capacity when the jib is telescoped. The chunky looking chassis features similar X-type swing out 'legs' to the other three mega booms, but they operate quite differently. Each wheel can turn up to 90 degrees, thanks to a double jointed steering crank, allowing the legs to be driven, rather than pushed out. This provides a smooth extension, even when the machine is static, without damaging the ground, causing stress on bearings or tyre scrub. With an overall weight of 36 tonnes this is important. The feature also provides a fifth 'Lateral' steering configuration, meaning it can drive sideways - perfect for parallel parking - in addition to the usual front, rear, crab or coordinated.



The 2100SJ'S unique chassis with 'drive out' extension arms.

While the 2100SJ's weight can be a challenge to transport it is much the same as the others, with an overall transport width of 2.49 metres and stowed length of 14.9 metres.



All four wheels can turn 90 degrees for pure lateral travel

The machine also has a good number of thoughtful features such as a remote lower controller which can function wirelessly or tethered, making loading and unloading both safer and easier. When not in use it clips into a dedicated storage locker. Both upper and lower control panels include a seven inch colour LED screen with multi-lingual user interface, including operator information such as the pre-start procedure in a visual checklist format, service reminders, onboard



The remote lower controller.

**Mega boom comparisons**

| Manufacturer Model         | Snorkel 2100SJ | JLG 1850SJ  | Genie SX-180 | XCMG GTBZ58S |
|----------------------------|----------------|-------------|--------------|--------------|
| Working height             | 66m            | 58.4m       | 56.9m        | 58.6m        |
| Working outreach           | 30.5m          | 25m         | 25m          | 25m          |
| Platform capacity max      | 454kg          | 454kg       | 340kg        | 450kg        |
| Platform cap. unrestricted | 300kg          | 230kg       | 340kg        | 230kg        |
| Jib length                 | Tele 9.1m      | Tele 4-6.1m | 3.05m        | Tele 4-6m    |
| Jib articulation           | 128°           | 120°        | 135°         | 120°         |
| Jib rotation               | No             | No          | Yes - 60°    | No           |
| Working width              | 5.49m          | 5.04m       | 4.72m        | 5.03m        |
| Working base length        | 8.2m*          | 7.0m*       | 6.5m*        | 7.5m*        |
| Travel width               | 2.49m          | 2.49m       | 2.49m        | 2.49m        |
| GVW                        | 36,290kg       | 27,350kg    | 24,950kg     | 27,200kg     |
| Transport length           | 14.9m          | 14.6m       | 13m          | 14.6m        |

\*Approximate from drawings

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The fold-away secondary inching controller diagnostics and troubleshooting. The platform features a secondary set of mini 'inching' controls which fold out from the rear guardrail and includes all functions apart from drive, allowing the operator to make fine adjustments to the platform position while facing the work.

### Big articulated booms

As already mentioned, the top end of the articulated boom market remained at 150ft for 29 years, with JLG finally replaced the aging 150HAX in 2016 with the far more practical and attractive 1500AJ, but the same 47 metre working

height. However last October Chinese manufacturer Sinoboom unveiled the 153ft GTZZ46J articulated boom lift. It is similar to the JLG 1500AJ in design concept with a three section telescopic riser/lower boom, three section upper boom and articulating jib.

Although the working height is 48.6 metres, the maximum outreach is claimed as 25.5 metres with the unrestricted capacity of 275kg, while the maximum capacity of 455kg is available to 19.1 metres. Overall weight is 26.3 tonnes. Shipments are planned for later this year, but it is rumoured that two units are already working on a project in China. On the surface the new model adds little in terms of technological breakthroughs, but does offer buyers, particularly in China, with an alternative to the JLG.

### No Genie?

Genie has left the 150ft articulated boom market to JLG, and comparing

the specifications with its well proven 135ft ZX-135/70, you can understand why it might not have invested R&D funds in a 150... the outreach on its 135 is already similar while up & over height is better! And for those that need 48 metres working height it has the 150ft SX-150 telescopic which also has over 24 metres of outreach and 340kg platform capacity.

### More modest developments and innovations

Most manufacturers have been spending their research & development dollars on more mainstream new boom lifts including some exciting and truly innovative models, while others have focused on simpler more cost effective units. Here are some of the latest new product launches.

### Niftylift electric drive

Brand new 'breakthrough' products from Niftylift are far and few between although when they do arrive they tend to be significant, such as the 86ft HR28 4x4 hybrid in 2012. More recently it has tended to focus on the quiet introduction of some serious and fairly major updates to existing models that most other manufacturers would have launched with much 'razzmatazz'. Most recent among these is a substantial upgrade to its well respected 44ft HR15N and 50ft HR17N narrow aisle zero tailswing electric boom lifts. The new lifts feature direct electric drive, with dual DC electric wheel motors on the rear axle, a new multi-functional CANbus electrical control system and choice of Lithium ion or AGM maintenance-free battery packs. The combination of lithium pack and super-efficient drive train is said to offer a Standard Duty Cycle rating of 70, enough for up to four single shifts, based on typical usage. The technology builds on the direct drive and control system introduced on the 63ft all electric HR21E in 2017.

As to specification, the major features remain unchanged with



The HR17NE has 9.7m outreach @7m up&over height



The new Nifty HR15/17NE has direct electric drive and can go four shifts between recharges

both machines sharing the same two section telescopic boom and jib with 150 degrees supported by a dual arm sigma type riser - the riser arms on the HR17 are longer. The specifications are as follows:

| Model             | HR15N   | HR17N   |
|-------------------|---------|---------|
| Working height    | 15.5m   | 17m     |
| Max outreach      | 9.7m    | 9.7m    |
| Up & over height  | 5.5m    | 7.0m    |
| Platform capacity | 225kg   | 225kg   |
| Overall width     | 1.5m    | 1.5m    |
| Transport length  | 4.93m   | 4.93m   |
| GVW               | 7,250kg | 7,780kg |

Niftylift features such as the SioPs built-in anti-entrapment system and Tough Cage are standard as is the new Niftylink telematics and diagnostics suite. A diesel power pack is also available to create a hybrid version.



The 150ft JLG1500AJ



The 153ft Sinoboom GTZZ46J

### Top end articulated booms

| Make                  | Sinoboom  | JLG      | Genie           |
|-----------------------|-----------|----------|-----------------|
| Model                 | GTZZ46J   | 1500AJ   | ZX-135/70       |
| Working height        | 48.6m     | 48.2m    | 43.15m          |
| Working outreach      | 25.5m     | 23.5m    | 21.26m          |
| @ Up & Over height    | 17.5m est | 18.4m    | 23m             |
| Platform capacity max | 455kg     | 450kg    | 272kg           |
| Capacity unrestricted | 275kg     | 270kg    | 272kg           |
| Jib length            | 2.45m     | 2.44m    | Tele 3.6 – 6.1m |
| Jib articulation      | 150°      | 130°     | 110°            |
| Jib rotation          | No        | 125°     | No              |
| Working width         | 5.0m      | 5.0m     | 3.94m           |
| Working base length   | 5.5m      | 5.5m     | 5.4m            |
| Transport width       | 2.5m      | 2.5m     | 2.49m           |
| GVW                   | 26,300kg  | 26,027kg | 21,092          |
| Transport length      | 12.3m     | 12.1m    | 12.93m          |

### The mysterious Niftylift HR22S



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There is still no news on the company's first telescopic boom, the 65ft HR22S4x4 hybrid, seen as a prototype at a company event in 2017 - could it be close?

### Skyjack + models

While Skyjack has not announced any sexy new models - just yet - it has been updating existing products - see interview with president Ken McDougal page 47. New versions of its 40/45 and 60/66ft telescopic boom lifts include a new control system, dual platform capacities and a three person rating. The upgraded models carry the '+' suffix. The SJ40T+ and SJ60T+ will only be sold in the Americas, while the 45T+ and 66T+ will be available globally. On the SJ45T+ the 454kg maximum platform capacity is available with up to around 10 metres outreach, while maximum outreach is 12.1 metres with 300kg unrestricted capacity. The SJ66T+ has an outreach of around 14 metres with 454kg capacity, while maximum outreach is 17.4 metres with 272kg. When the platform approaches the edge of the high capacity zone, an amber light warns the operator. If he continues the telescope and boom down functions will stop, obliging him to retract or elevate the boom back into the safe zone. The same warning and lockout occurs when the machine is overloaded in the unrestricted capacity zone, with functions locked until the weight is removed. The emergency lowering system remains active in both cases. The improved control system integrates with Skyjack's Elevate telematics programme, while the usual Skyjack features are all included.

### Haulotte's all American boom

In February Haulotte unveiled the all-new 46ft

HT16 RTJ Pro telescopic boom lift with dual platform capacity, four wheel steer and drive and its latest technology. The new model was designed and will be built at Haulotte's North American facility in Ohio, where it is marketed as the HT46 RTJ Pro.

The new lift has a two section boom topped by a 1.8 metre jib with 133 degrees of articulation - 68 degrees above and 65 degrees below horizontal - with a working height of 16.1 metres, and an outreach of up to 13 metres with the 250kg unrestricted platform capacity. Maximum capacity is 350kg, available up to 11.6 metres outreach. Power comes from a small Stage V Kubota, with Haulotte's Stop Emission system that cuts the engine when idling and no particulate filter. Overall width is 2.29 metres and overall height 2.27 metres or just over three metres when the platform is tucked under for the reduced transport length of 6.68 metres. Overall weight is 7,930kg.

Standard features include oscillating axle, 360 degree continuous slew, Haulotte's Activ' Shield bar, Activ' Lighting System, Activ' Screen on-board diagnostics, a limited slip differential with operator controlled lock, a Universal telematic plug, solid Rough Terrain tyres and rotating beacon.

### Genie's new 'J' series

Genie has introduced two models in a new 'J' series of telescopic boom lifts, the 60ft S-60 J and 80ft S-80 J. They are lighter in weight, simpler in design and easier to transport and will run alongside the company's exiting heavy duty S-65XC, S-80 XC and S-85 XC models.

The S-80 J has a three section boom, 1.8 metre jib and 26 metre working height, with up to 16.8 metres of outreach and an

Oscillating axle and solid RT tyres are standard on the Haulotte



The new Genie S-80J weighs 10,433kg



JLG 670SJ Self Levelling

unrestricted platform capacity of 300kg. It weighs just 10.4 tonnes, including four wheel drive and oscillating axles, thanks to its low weight it is also the first 80ft boom available with Genie's four track TraX crawler option.

The S-60 J has a simple two section boom and 1.8 metre articulated jib, offering a working height of 20.5 metres, 12.3 metres of outreach and an unrestricted platform capacity of 300kg. Total transport weight is just 7,550kg - drastically lower than the 11,400kg of the S-65XC. The superstructure also has an additional off-centre transport lock location in order to allow two booms tow take up less space on a trailer.

Power for both models comes from a Kubota Tier 4F/Stage V diesel, driving all four wheels with Genie's active oscillating axles. The Genie Lift Guard Contact Alarm and Connect telematics system are standard with a digital LCD screen at the ground controls providing real time data and troubleshooting. The new models are fully compatible with the Genie Tech Pro Link

handheld diagnostics tool and meet global standards, allowing a single model to easily adapted for sale in North America, Europe or Australia.

### JLG Self Levelling

In March JLG unveiled the final fruits of its five year 'journey' to build a dynamic self-levelling boom lift in the form of the 67ft 670SJ Self Levelling. The programme began back in 2015, with a scale model of the idea appearing at Bauma 2016. A 46ft concept machine was displayed at Conexpo the following year and three years later the pre-production version appears to have passed its initial testing, with production likely by the end of the year.

The boom's wheels are mounted on four vertically 'floating' arms or legs, each controlled by a long stroke hydraulic cylinder with three levelling modes - semi-automatic: with boom retracted and horizontal it travels like a regular boom with an oscillating axle. When it stops on uneven or sloping ground, the tilt sensor records the out of level

The 46ft Haulotte HT16RTJ Pro



The dual capacity Skyjack SJ66T+



The S-80 J is available as a TraX crawler format.



The Genie S-80 J





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**JLG 670SJ**  
Self Levelling at Conexpo

condition, limits boom elevation to a few degrees above horizontal, in the same way as a regular boom complying with the new ANSI standard. However on the 670SJ Self Levelling, when the elevate function stops the machine automatically levels itself, on inclines of up to 10 degrees. Once the chassis is level the boom can be elevated to full height. It is then in dynamic auto-levelling mode allowing the operator to drive the machine at full height with the chassis constantly adjusting to the changing ground conditions and maintaining a level platform. Finally when it comes to transport, once the machine is loaded on a trailer the operator can activate Transport mode which lowers the chassis until its base plate is just over 12mm above the trailer deck, providing a lower load height and centre of gravity.

The 670SJ Self Levelling has four wheel drive and the same three section boom and jib as the regular JLG 660SJ, with a little more working height at 22.5 metres, maximum outreach is 17.4 metres with 250kg, while maximum platform capacity is 340kg.

### Triple capacity JLG HC3

As with other manufacturers JLG has responded to the new ANSI standard requirement for overload control with dual - or in its case triple - platform capacity versions of its boom lifts in the form of the 40ft

400S HC3, 46ft 460SJ HC3, 60ft 600S HC3 and 66ft 660SJ HC3. All four models have an unrestricted platform capacity of 300kg, a maximum platform capacity of 454kg and a third work envelope with 340kg. The new models will run alongside the existing models.

### Sinoboom

In addition to its new 153ft boom, Sinoboom is finalising CE approvals on the more modest 52ft battery powered GTZZ16EJ. The new boom has dual sigma type risers, two section telescopic boom and jib with 142 degrees of articulation for a 17.7 metre working height, with 9.3 metres outreach at an up and over height of 7.8 metres. Overall width is 1.9 metres, with close to zero tailswing. It should be available later this summer, possibly at the opening of the new Sinoboom Europe facility in July.

### All electric Dingli RT booms

In March China's leading manufacturer Dingli announced plans for a full range of lithium ion battery powered Rough Terrain boom lifts. First out is the articulated 86ft EAB28ERT with a working height of 28.1 metres, and 19.1 metres of outreach at an up and over height of just over nine metres. Maximum platform capacity is 454kg with an unrestricted capacity of 230kg. Performance is said to be the same as the 86ft diesel model with which it shares the vast majority of its componentry, including four wheel drive/steer and telehandler drive line with differential locking. Power however comes from an 80 Volt/520Ah lithium battery pack feeding a large AC electric motor. The machine is equipped with two charging modes, a 1.5 hour quick charge system and a six hour slow charge programme. The company claims that the fully charged battery pack will last three to four typical eight hour shifts



The all-electric 86ft Dingli EAB28ERT



Sinoboom 46J

before needing to be recharged. Dingli is including a five year full replacement warranty on battery pack, triggered if performance declines below 70 percent of rated capacity during that time.

The new model is the first of a seven model electric boom lift line which will also include the 73ft EAB24ERT articulated boom,

and four telescopics - the 92ft ETBJ30ERT, 86ft ETB28ERT, 80ft ETBJ26ERT and 73ft ETB24ERT.

### A smaller telescopic

California-based MEC has launched the all-new 34ft 34-J telescopic boom lift, a more compact full performance Rough Terrain straight telescopic with four wheel drive, oscillating axle, that is more manoeuvrable, lighter in weight, and easier to transport than the typical 40 or 46ft boom lifts.



MEC's full spec 34ft telescopic boom lift

The 34-J has a two section boom and jib with 135 degrees of articulation to provide a working height of 12.2 metres, an outreach of eight metres and an unrestricted platform capacity of 227kg. It includes a full size - 1.83 metre wide by one metre deep - platform with three entrance gates and three fully proportional joystick controllers. The new machine has been developed in cooperation with United Rentals, which says that 40/46ft telescopics are all too often only used for work at heights of six to 10 metres. While there are plenty of articulated booms at this height - such as the Genie Z-34/20IC, Nifty HR12-4x4 and narrow electric booms, telescopics below 40ft simply do not exist.



The triple capacity JLG 660SJ HC3

The 52ft Sinoboom GTZZ16EJ will be available soon

| Make Model       | MEC 34-J  | Nifty HR12 4x4 | Genie Z-34/22ic | Snorkel A38E | Genie Z-33/18 |
|------------------|-----------|----------------|-----------------|--------------|---------------|
| Work height      | 12.2m     | 12.2m          | 12.54m          | 13.5m        | 12m           |
| Outreach         | 8m        | 6.1m           | 6.78m           | 6.1m         | 6.1m          |
| Capacity         | 227kg     | 200kg          | 227kg           | 215kg        | 200kg         |
| O/A width        | 2.33m     | 1.6m           | 1.85m           | 1.5m         | 1.5m          |
| Platform size    | 1.83x1.0m | 1.1x0.65M      | 1.42x0.76m      | 1.11 x0.69m  | 1.17x 0.76m   |
| GVW              | 3,630kg   | 3,470kg        | 4,929kg         | 3,880kg      | 3,665kg       |
| 4x4              | Yes       | Yes            | Yes             | No           | No            |
| Oscillating axle | Yes       | No             | No              | No           | No            |
| Jib              | Yes       | No             | Yes             | No           | No            |