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- ⌚ Driveable at **full height**
- ⌚ **72V** Lithium-ion batteries

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EQUIPMENT

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An early HR21 4x4 Bi-Energy purchased by UK rental company Elavation



CHANGING LANDSCAPE?

The aerial work platform market has changed dramatically over the past decade or two. Once dominated by a couple of large North American and a few smaller European companies, there are now more manufacturers than ever before. They are also spread over a much wider geographical area, due mostly to the arrival of a number of Chinese manufacturers.

The platforms have also changed technically, especially in the way they are driven and powered. Increasingly stricter emissions legislation has forced contractors to focus more on this matter, presenting an opportunity - or a challenge - for manufacturers. The result is a move away from the internal combustion engine - particularly diesel - towards cleaner, quieter and less polluting equipment. In many major markets electric and hybrid power is now the order of the day, even for larger boom lifts.

Historically boom lifts were petrol/dual fuel or diesel powered, with battery electric versions limited to 45ft booms and smaller. Back then, pollution was not a major consideration, although in Europe noise was becoming an issue in some markets. If asked, manufacturers and rental companies would cite a lack of customer demand for such machines. Battery life on the platforms that were all electric - typically slab electric scissor lifts - was also atrocious, and few buyers/users wanted the same dreadful performance on boom lifts, especially the larger models.

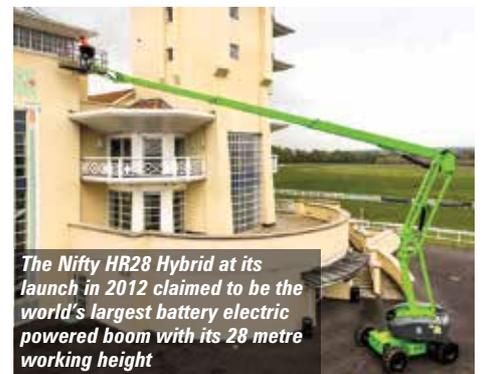
Niftylift played a key role in the move towards larger electric powered boom lifts, with the 62ft HR21 4x4 Bi-Energy in 2007. It followed the almost runaway success of its Bi-Energy package on the 32ft HR12, which came about as a solution for poor battery life on the standard electric model, at the time an issue in the general rental market.

The HR21 combined diesel and electric power in a parallel hybrid type system with electric only mode for zero emission operation. However, while a few environmentally aware rental companies and customers were happy to pay a bit extra for the new technology, the vast majority had no cause to change from diesel power although some canny rental companies spotted an opportunity for product differentiation.

The HR21 was followed by the 86ft HR28 which made its appearance in 2012, with the first units shipped the following year. The company marketed it as the world's largest battery electric powered boom with its 28 metre working height. A second generation Gen 2 Hybrid system followed in 2018.

However, as emissions legislation has tightened and main contractors started looking for cleaner equipment, more manufacturers entered the arena. Some manufacturers continued to resist the move toward larger electric boom lifts, especially in North America, where demand for quieter, cleaner machines was minimal.

One early solution came from the Dutch international sales and rental company Riwal around 2015. Fed up with manufacturers telling it why they did not need big electric boom lifts, it decided to convert a 135ft JLG 1350SJP to battery power, initially for its own use but then for general sale. The move followed its purchase of a large number of big Holland lift scissor lifts with hybrid power packs, and the conversion



The Nifty HR28 Hybrid at its launch in 2012 claimed to be the world's largest battery electric powered boom with its 28 metre working height



The handover of the new battery electric JLG 860SJ in Airnace colours

of a big boom to plug in electric power - not a great solution. Riwal's first external sale of a battery powered big boom lift conversion came in 2016 - an 86ft JLG 860SJ straight telescopic for Swiss company, Airnace - which wanted a

BOOM LIFTS

silent, emission free machine for work in city centres and shopping malls.

This - together with Niftylift's growing sales of Hybrid machines - proved that there was a growing demand for lower emission and quieter big boom lifts. Some Chinese manufacturers clearly spotted an opportunity and began introducing ever larger booms with hybrid and all electric power packs helped by changing battery technology and the advent of electric drive systems.

Today the Chinese manufacturers lead the way when it comes to the largest all electric boom lifts. Dingli, for example, has a range of all electric articulated and telescopic boom lifts from the 30ft BA11NE right up to the 139ft BT44ERT and BA44ERT. Most European and North American manufacturers still seem slow or reluctant to offer such machines with working heights above 28 metres.

NEW BOOM BRAND

So, what is new in this changing market? There have been several interesting developments in the boom lift sector over the past year. Last September, Italian aerial lift manufacturer Almac announced a new brand - AlmacTech - to be used for an all-new range of articulated boom lifts, the first of which make up its AJ Line.

The move is a major shift for the company away from pioneering niche products into the mainstream self-propelled aerial lift market. It is, the company says, the result of a major survey of its dealers and repeat customers, which led



The Dingli BT44ERT



Dingli's 139ft BT44ERT boom lift

to a focus on machines that are simple, reliable and easy to operate with logical controls. In reality, the new models are more sophisticated than might have been imagined. The AJ Line takes the company - better known for its dynamic self-levelling tracked scissor, boom lifts, cranes and carriers - into the highly competitive wheeled articulated boom lift market.

The first two AJ models are compact industrial units - the 43ft AJ15 and 50ft AJ17. Both use dual risers and a two section telescopic boom topped by an articulating jib with optional 130 degrees lateral rotation. This gives working heights of 15 and 17 metres respectively and an up & over clearance of six and eight metres. Maximum outreach on both is around nine metres - although slightly less on the AJ17 - with the unrestricted maximum platform capacity of 230kg. The key difference between the two machines are the slightly longer risers on the AJ17.

Both have an overall width of 1.5 metres, an overall stowed height of just under two metres, while the overall length with jib tucked for transport is 4.9 and 5.9 metres respectively but that raises the overall height to 2.6 and 2.4 metres. Overall weight is 7,720kg and 8,375kg,

depending on specification, with power provided by a 48 volt, 385Ah battery pack driving AC direct drive wheel motors.

Other features include an active LED interface with clear and intuitive visual feedback, simultaneous control of functions with automatic end of stroke slowing on all hydraulic cylinders, automatic pothole protection, a 'Go-Home' function automatically initiating the boom lift's stow sequence, a vertical 'Wall function' automatically co-ordinating the elevate and telescopic functions to provide a pure vertical lift motion for working on walls, automatic jib tuck for transport and heavy duty steel covers. Viewed purely on specifications, the AJ15 does not stand out in any one area but it is competitive in all as is the AJ17.

Chief executive Andrea Artoni said: "With AlmacTech we are not simply launching a new line of machines - we are starting a journey. The AJ Line embodies our vision of how a



The AlmacTech AJ15



The upper control box



The AR17 has longer riser elements than the AR15 for more up & over height

So how do they stack up against key competitors?

Make Model	Sinoboom AB13ERJN	Dingli BA15NE	Niftylift HR15N	AlmacTech AJ15	Sinoboom AB15ERJN	Dingli BA17NE	Niftylift HR17N	AlmacTech AJ17
Working height	15.0m	15.5m	15.5m	15.0m	16.8m	17.0m	17.0m	17.0m
Outreach	7.4m	9.7m	9.7m	9.0m	7.1m	9.7m	9.7m	8.9m
Up & over clearance	6.0m	5.5m	5.6m	6.0m	8.0m	7.0m	7.0m	8.0m
Jib articulation	140°	130°	150°	130°	100°	130°	150°	130°
Max platform capacity	230kg	225kg	225kg	230kg	230kg	225kg	225kg	230kg
Platform rotation	180°	180°	180°	180°	180°	180°	180°	180°
Overall width	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m	1.5m
Overall height	1.98m	2.07m	1.99m	1.95m	1.98m	2.07m	1.99m	1.95m
Overall stowed length	5.48m	5.06m	4.93m	4.9m	6.98m	5.06m	4.93m	5.9m
Total weight	7,700kg	7,580kg	7,250kg	7,730kg	8,500kg	7,950kg	7,780kg	8,375kg

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Sinoboom AB15ERJN



Sinoboom AB13ERJN

conventional product can be transformed into a new working experience. For us, innovation means listening to the market and turning needs into solutions that simplify, protect and empower operators. On the horizon, new solutions are already set to amaze: a new generation of tracked articulated boom lifts that will take Almac's concept of innovation to even greater heights, opening up application scenarios that are today hard to even imagine."

SINOBOOM EXTENDS 'N' BOOM LINE

Several of the other booms in the table are also recent introductions. Sinoboom added the AB13ERJN and AB15ERJ narrow electric articulating booms with working heights of 15 and 16.8 metres respectively. Their design concept follows that of the AB10ERJN launched in June 2023.

The booms feature classic dual riser lift mechanisms, two section telescopic booms and a jib with 140 degrees of articulation on the AB13ERJ and 100 degrees on the AB15ERJ. Maximum outreach is 7.4 metres at an up & over height of six metres on the AB13 and 7.1 metres at a height of eight metres on the AB15. The unrestricted platform capacity on both is 230kg with a full 180 degrees of platform rotation.

Both machines have an overall width of 1.5 metres, and an overall stowed height of just under two metres, while the AB13ERJ is 5.4 metres long when stowed for transport and 5.82 metres for the AB15ERJ. Total weights are 7,700kg and 8,500kg.

Lead acid battery packs are standard with the option of Lithium, driving AC direct drive wheel motors. Slew is 355 degrees with zero tailswing, however, the risers on the AB15 are on the long side, which requires a decent ceiling height in order to be able to slew fully in a tight aisle. They also limit outreach but provide a better up & over reach.

NARROW BOOMS FROM DINGLI

Early last year, Dingli launched the BA15NE and 49ft BA17NE narrow aisle articulated electric boom lifts with maximum working heights of 15.5 and 17 metres respectively. Both models have an overall width of 1.5 metres, and a transport length with the jib tucked of 5.06 metres, with an overall height just over two metres. Total weight is 7,580kg on the BA15 and 7,950kg for the BA17.

The boom lifts employ a classic sigma type dual riser, two section telescopic boom and jib with 130 degrees of articulation. Outreach for both is 9.7 metres at an up & over clearance height of 5.5 metres on the BA15 and seven metres on the BA17. They also feature zero tailswing with the risers fully contained within the width of the machine when fully raised. Maximum unrestricted platform capacity is 225kg. Two wheel drive and steer is standard, but a four wheel drive and steer is available as an option. Power comes from a 48 volt 300Ah battery pack which, when combined with AC electric motors, allows the unit to work at least a full busy shift, and in most applications, considerably longer.

NIFTY GEN 3 HR12S

Niftylift has always been known for low weight compact booms, with decent outreach. The product which got it started and made its name, while creating a totally new market sector, was the 33ft HR12 articulated boom lift, which was developed and launched in the late 1980s and early 1990s. Last year the company celebrated its 40th anniversary and unveiled the third generation of its HR12 boom lifts.

Three models or variations were announced - the All Electric HR12NE, the bi-energy HR12NDE and the first hybrid HR12 in the form of the HR12 4x4 Rough Terrain boom lift. Common features include new display screens, new controls and onboard diagnostics and interface system, identical to that installed on Niftylift's new 65ft HR22 telescopic boom lift.

All three HR12 models have an unrestricted platform capacity of 225kg in the 1050 x 700mm basket, a maximum working height of 12.1 metres and a maximum outreach of 6.4 metres. When stowed, the N series models have an overall width of 1.5 metres, while the 4x4 version measures 1.6 metres wide. Overall heights are 1.98 metres for the N series and 1.99 metres for the 4x4, with all models measuring 4.05 metres in length. The units weigh 3,470kg, with the hybrid adding an extra 20kg.

The HR12NDE - although its name is subject to change - is essentially the NE with the same direct electric wheel motor drive, but with the addition of a diesel generator or range extender. The battery pack is capable of running the machine for up to five days of typical usage on



The three new Niftylift HR12 models



The new Dingli BA17NE



Working outreach of the BA17NE is 9.7m

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Overall Width: 0.8m
Gross Weight: 980kg

ZMP06

Work Height: 7.91m
Overall Height: 1.99m
Gross Weight: 1085kg

ZMP09J

Work Height: 11.2m
Horizontal Outreach: 3.23m
Overall Height: 1.99m

ZMP04

Work Height: 5.82m
Overall Height: 1.72m
Gross Weight: 900kg

ZMP08J

Work Height: 10m
Horizontal Outreach: 3m
Overall Height: 1.99m

ZMP05

Work Height: 6.9m
Overall Height: 1.98m
Gross Weight: 960kg

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a single charge, while the diesel can top up or maintain the batteries or be used for a complete recharge. The hybrid is an all electric unit, but with a hydrogen fuel cell to act as a range extender. The HR12 diesel remains available, with the option of the hybrid.

Niftylift was an early adopter of the hydrogen fuel cell, the company is now in its fourth year of a hydrogen boom lift supply agreement with Speedy Hire, which has taken all production to date - about 250 machines.

Niftylift was an early adopter of the hydrogen fuel cell



"The commitment from Speedy allowed us to justify the hydrogen development. It requires a lot of different learning, but we think if you're a manufacturer and not looking at incorporating hydrogen, you're going to be left behind," said technical sales manager Thomas Hadden. "It seems Europe is moving towards electric while North America is moving to hybrids, but there is still a place for diesel, ours are all Stage V/ Tier four, we don't have to do anything to them, no exhaust purification or Ad Blue as we already meet those standards without that complexity and cost, the diesels are as clean as they can be."

NEW HAULOTTE PULSEO

Haulotte has also added a new model to its Pulseo range of all electric aerial work platforms in the form of the 61ft HA20E Rough Terrain articulated boom lift. The new HA20 E and HA20 E Pro - which replace the HA20LE - share most of the structural elements and features of its regular HA20 Rough Terrain models, such as the 20.5 metre working height, maximum outreach



of 11.9 metres with 250kg in the platform, or 10 metres with its 350kg maximum at an up & over clearance height of 8.5 metres.

The overall dimensions are 8.4 metres long, 2.43 metres wide, with a stowed height of 2.47 metres. With the jib tucked for transport, the length is reduced to 6.16 metres, but the overall height is increased to 2.98 metres. Total weight is 9,790kg for the regular model, while the four wheel steer and oscillating axle features on the Pro take it up to 9,940kg.

Power comes from a 72 volt/390AH AGM battery pack driving asynchronous electric wheel and pump motors. An optional diesel powered Range Extender unit can be added and removed within a short space of time, effectively converting it to a hybrid, while also offering the capacity to do a full recharge in around three hours. Non-marking Rough Terrain tyres are standard, as is a six degree tilt tolerance for working off level.

BIGGER BOOMS

Over the past few years, two Chinese manufacturers - Zoomlion Access and XCMG - have been pushing the height envelope with ever greater working heights. Last summer Zoomlion shipped the very first 265ft ZT82J boom lift to Europe, delivered to UK rental company Hire Safe Solutions. The ZT82J is the largest self-propelled boom lift on the market, aimed at major construction projects, along with the petrochemical, and renewable energy markets.

Unveiled towards the end of 2024, the boom lift features a six section main boom, with two telescopic cylinders, one to extend the second section, while the other cylinder telescopes the third section, along with the top three sections. The boom is topped by a 13.1 metre, three section articulating jib for working heights of up to 82.3 metres. Maximum outreach is 35.9 metres



The very first 265ft Zoomlion ZT82J boom to be shipped to Europe



XCMG's 223ft XGS70K

with 250kg or 30 metres with 300kg and 25 metres with the maximum 450kg. Total weight is 48.8 tonnes.

Zoomlion Access deputy general manager Zhang Bin said: "Within just one year, we successfully delivered two record breakers, the ZT72J and ZT82J. Such a quick breakthrough indicates a growing trust on our products and support capabilities. Our continuous investment in R&D and tailored strategy in Europe reflects our long term commitment to delivering best in class solutions."

However, Zoomlion has been pushed by fellow Chinese manufacturer XCMG which introduced the 223ft XCMG XGS70K telescopic boom in 2024. The XGS70K has a five section telescopic boom, topped by a three section jib with 131 degrees of articulation, providing a working height of just under 70 metres and a maximum outreach of 32.5 metres with 230kg in the platform. The maximum platform capacity is 460kg at an outreach of 27 metres, while 300kg is possible at just under 30 metres. Other Chinese aerial work platform manufacturers stop sub 150ft, for example Dingli's largest being the 44 metre hybrid models.

LGMG'S 125FT AMERICAN

At Conexpo in March, LGMG is set to launch the ANSI/CSA version of its upgraded 125ft telescopic boom lift - the T125J-2 and the international version, T38J-2 - which are part of the company's new Series 2 range of platforms. LGMG launched the original T38J in mid-2024, while the Series 2 version made its European debut at Bauma last

year. A key change over the original is a 1,600kg weight reduction, which involved the sacrifice of standard four wheel steer while losing a little outreach.

The diesel powered four wheel drive T125J-2/T38J-2 features a four section telescopic boom topped by an articulating jib for a maximum working height of 40.2 metres and up to 22.3 metres outreach with 300kg in the platform. The maximum platform capacity of 450kg is available at up to 21 metres of outreach. Total weight is 19,100kg, overall width is 2.4 metres retracted and four metres with axles out. The overall length for transport with the jib tucked under is just under 12 metres, with a stowed height of 2.74 metres. An electric version is also available.



The LGMG T125J-2



The AS-15MCJ

A BIG NEW PLAYER

It has been almost a year since Japanese crane and access manufacturer Tadano launched its Nagano designed/inspired tracked boom lifts. The company acquired Nagano at the end of 2023 and now has a six model range in Europe including two versions of what was the 22ft Nagano O9 - the AA-9MC - and the all electric eAA-9MC with 8.8 metres working height and overall weight of 2,620kg. Also available is the compact AS-12MC with an 11.7 metre working height, the telescopic AS-15MC with 14.6 metre working height and dual platform capacity, and the AS-15MCJ telescopic with an articulating jib and a 14.8 metre working height. And finally, there is the AS-20MC, a 58ft telescopic with rising boom pivot point and a working height of 19.7 metres.

A NEW SKYJACK TELESCOPIC

Skyjack has launched a new 85ft all electric Rough Terrain telescopic boom lift - the SJ28 TE+ - initially destined for the Chinese and Southeast Asian markets hence the metric nomenclature. The battery powered boom lifts will be manufactured at the company's facility in Tianjin, with the first units due to come off the line in February.

The new boom lift features a rising boom



The Skyjack SJ28 TE

pivot point that not only raises the boom but also moves it forward. The boom itself is a straight three section telescopic, topped by a 1.68 metre jib with 130 degrees of articulation. The working height is 28.22 metres with just over 20.5 metres of outreach with 300kg in the 910mm by 2.44 metre platform. The maximum platform capacity of 454kg is available at up to 18.8 metres of outreach. As you might expect for a Rough Terrain boom lift, it is indoor and outdoor rated and has 360 degree continuous slew. One touch auto boom down is standard, as is a basic hostile



Skyjack SJ28 TE 2

environment kit, with cylinder bellows and boom wiper blades.

The overall width is 2.51 metres, overall stowed length 12.49 metres, but the jib can be tucked under for transport to reduce the overall length to 10.85 metres without raising the stowed height of 3.15 metres. Total weight is 16,275kg which is more than a tonne lighter than its 86ft SJ86 T.

Power is provided by a 519Ah/80 volt lithium ion battery pack feeding high performance AC brushless induction motors, one for the hydraulic pump, while the other drives the company's 'Axldrive' axle based drive system. The drive system includes a limited slip differential on the front oscillating axle, with an operator controlled differential lock on the rear. The lift is also equipped with Skyjack's Easydrive direction

sensing system, which ensures the drive joystick moves the machine forward and backwards whether the superstructure is facing the front or the rear. The automatic battery charger is compatible with 220 and 380 volt power outlets and charges from empty to full in five hours at 60A and less than four hours at 80A.



Three entry points - one swing gate and two drop bars - are standard

NEW

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Skyjack's new models all provide the same simple, reliable choice for rental.

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AND GOES HYBRID

Skyjack also introduced its first hybrid boom lifts at Bauma last year. The new articulated hybrid booms include the 45ft SJ45 AJHE+ and 60ft SJ60 AJHE+ and are essentially modified versions of the all electric models it launched in summer 2024. They feature the same direct electric motor driven axle type drivetrain, but with the addition of an HVO ready diesel range extender. The new hybrids feature three operating modes - pure electric, automatic top up, and manual recharging.

ELECTRONIC SECONDARY GUARDING

Forms of electronic secondary guarding - or anti-entrapment as was it was known - have been around for some time. The concept has been pioneered by Australian manufacturer EQQS for scissor lifts, although Californian manufacturer MEC showed a new system at the ARA in 2019 while JLG had its EDS system in 2020. The point is to avoid using the operator as a sandwich filler to activate the trip bar or cable and stop the incident before it occurs.



SINOBOOM CARS

At the end of last year and following several years of development, Sinoboomb launched its new boom lift collision detection and avoidance system called Sinoboomb CARS (Collision Avoidance Radar System).

The system utilises a network of sensors employing ultrasonic and dual fusion radar technology located around the platform which detects three dimensional stationary and moving risks and objects in real time. When a risk is identified, the system initiates a series of automated alerts designed to prevent incidents and protect both the machine and operator.

The alerts come in three stages:

- Early warning: Visual and audible alerts warn operators as the boom lift approaches an obstacle, allowing action before contact.
- Speed reduction: If the boom lift continues towards the obstacle, the system automatically slows its movement.
- Active braking: When danger is imminent, the system automatically stops the machine as a final safeguard. ■



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