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Levelling boom lifts

This year has seen the introduction of two new selfpropelled boom lifts equipped with levelling outriggers from manufacturers Dinolift and ATN. This concept is far from new, special one-off modifications to standard boom lifts have been around since the early 1980s, if not before. As long ago as 2004 Spanish manufacturer Matilsa launched the 37ft Parma 13A and 62ft Parma 21D self-propelled booms with levelling jacks. It now produces four models, having since added the 46ft Parma 16D and 53ft Parma 18D.

While units have sold it has been anything but a runaway success. Other boom lifts with outriggers, include the semi self-propelled models from Niftylift, Bil-Jax and Dino etc. These have been regular sellers over many years, but are different products, being much lighter and with outriggers that must be set before the boom is raised, while the Matilsa, ATN and Dino booms are fully self-propelled units with levelling jacks that can be deployed if and when required.

So why now?

So what do ATN and Dino know that encouraged them to launch such products? Might it be related to the fact that North America's ANSI and CSA standards are set to change in January as they, along with European and Australian standards merge under the ISO banner? One of the new requirements is better tilt sensing, complete with cut-out protection. In the past users of boom lifts could ignore or even disable the tilt alarm and work on slopes of five degrees or more although they increased the risk of overturning. So will the new products and the new standards reignite interest in what has until now been a very niche type of platform, while further boosting the semi selfpropelleds?



International Organization for Standardization

The Dino leveller

In April Dino lift unveiled a levelling option for its innovative 66ft

220XSE articulated boom lift with its oversized 1.3 x 2.4 metre platform, 350kg unrestricted platform capacity, pallet loading gate and fork attachment. Four self-levelling jacks allow the fully self-propelled machine to level-up and work on slopes of up to 12 degrees. In all other respects it retains the base machine's specification, including 22 metres working height,13 metres of outreach, around five metres of reach below ground level, 360 degree continuous slew, 180 degrees platform rotation, 150 degrees of jib articulation, four wheel drive, and the 'intelligent driving system', which automatically switches the steer and drive controls, so that forward always means forward. A built-in mechanical secondary guarding system is also included.

So how does the ATN Zebra 16 Stab compare?





All machines will be equipped for the levelling attachment simplifying retrofit at a later time. The first production unit was delivered to Swiss construction and logistics company Christen in June.

The ATN Stab

More recently ATN unveiled the 49ft ATN Zebra 16 Stab articulated Rough Terrain boom, it features a 16.8 metre working height, 9.3 metres of outreach, 45 percent gradeability and 400mm of ground clearance. Its four auto-levelling vertical jacks - deployed from the basket - allow the operator to use the platform anywhere on the jobsite, including slopes or steps. Just one thought though - deploying the outriggers from the basket is a time-saving feature, but as mats are required under the outriggers it may not be quite as advantageous as it seems.

RT booms

The other specifications are similar

	Full Self	Propelled	Semi Self- Propelled alternatives					
	ATN Zebra 16 Stab	Matilsa Parma 16D	Nifty SD170	Bil-Jax 45XA	Nostrolift XS190	Dino 205RXT		
Working Ht	16.4m	15.8m	17.1m	15.5m	18.7m	20.5m		
Outreach	9.3m	7.5m	8.7m	8.2m	8.0m	12.6m		
Platform capacity	230kg	240kg	200kg	226kg	230kg	215kg		
Up & over	7.4m	7.4m	6.3m	6.3m	-	5.9m		
Jib articulation	Yes/133°	No	No	Yes/150°	Yes	No		
Overall dimensions m LxWxH	5.69x 2.44x 2.25	5.7x 2.27x2.2	5.6x 1.6x2.1	5.5x 1.67x1.98	6.3x 2.1x2.3	5.85x 2.11x2.41		
4x4 Drive	Yes	Yes	Yes	Yes	Yes	Yes		
4 wheel steer	No	Yes	No	Yes	Yes	Yes		
Oscillating axle	Yes	Yes	No	No	Yes	Yes		
Weight	7,200kg	7,900kg	2,750kg	2,358kg	3,700kg	4,200kg		
Drive speed	6kph	5kph	8.3kph	7.6kph	3.6kph	4.7kph		
Gradeability	45%	40%	30%	45%	35%	35%		
Outrigger type	Vertical	Vertical	Out and down	Out and down	Out and down	Out and down		

RT booms



The 16.8 metre working height auto-levelling vertical jacks deployed from the basket, oscillating axle and solid perforated tyres

to the standard ATN Zebra 16, with oscillating axle, solid perforated tyres, an on-board LCD colour diagnostic screen system with hour meter and a Kubota diesel mounted on a sliding tray to access components. Options include secondary guarding, AC power, compressed air to the platform, a 2.5 kW generator and automatic stop when the machine exceeds a five degree slope.

How does the ATN stack up?

Compared to Matilsa's 16D the ATN features over half a metre more working height, 1.8 metres more outreach, an articulated jib, and is over half a tonne lighter. It is however slightly wider, than the older Matilsa and does not offer four wheel steer which is standard on the Matilsa. So all in all ATN has done a good job with this new model in terms of critical performance features.

However, when buying such a machine it does pay to compare with the semi self-propelled alternatives, which are much much lighter, offer similar reach characteristics, apply a significantly lower ground bearing pressure, and in the case of the Niftylift, are faster when stowed and probably cost considerably less? There will clearly be applications for both, and one The Nifty SD170 is fast and light

thing the semi's cannot do is go out as a regular self-propelled boom lift, which for some smaller to midsized rental fleets will be a serious consideration.

Lighter alternatives

But if the need to work on slopes is the key driver for buying one of these machines, buyers should also consider the semi-self-propelled alternatives, such as the Niftylift SD range which offers working heights of 21 metres, and the three model Dinolift RXT line, which is topped by the 265RXT with its 26.5 metres of working height. They are a lot lighter, for example the 73ft Dinolift 240 weighs just 4.4 tonnes and is around 300mm narrower, yet offers two metres more working height, although not quite as much outreach and considerably less capacity.

New big booms

Both Genie and JLG have launched big boom lifts in the last six months, with JLG unveiling a 150ft articulated in April, while more recently Genie showed its all-new 135ft straight boom.

As we have already covered, the surprise at Bauma was JLG's 150ft 1500AJ Super Boom, which immediately became the world's largest articulated boom lift, a record previously held by the aging JLG 150HAX, which dated back to 1991. The new 1500AJ has 23.5 metres of outreach and an up and over clearance of 18.3 metres, while maximum platform capacity is 450kg or 270kg unrestricted. As you might expect the 1500AJ is more compact than the old 150HAX, both to move and operate, with a stowed width of 2.5 metres compared to just over 3.5 metres, and a working width of five metres compared to 5.5 metres. Total weight is about the same at 26 tonnes. Interestingly it is substantially heavier than the 150ft straight boom but it does include a rotating articulated jib, with the ability to rotate 125 degrees. Deliveries will begin early in the new vear.

and 62ft Parma 21D self-propelled booms with levelling jacks. It now produces four models including the Parma 16D

In 2004 Spanish manufacturer Matilsa launched the 37ft Parma 13A



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When Genie celebrated its 50th anniversary last month it did not limit its efforts to a party for customers and dealers, but took the opportunity to launch and preview new products while announcing details of its plans to meet the new ANSI/CSA/ISO standards that could come into force as soon as January.

A winning specification

The star of the show was the all-new 135ft Genie SX-135XC telescopic boom on a new 'mini' X-type chassis. The original X chassis was designed for the Z-135/70 which launched in 2005, with an extended overall width of 3.94 metres. But in 2013 Genie launched the 180ft SX180 telescopic boom lift, with a wider version of the X chassis - 5.2 metres when extended. Obviously the extra width was required to take the bigger boom. However at the same time the bigger chassis was placed under the Z-135/70 to create the ZX-135/70. At the time we predicted that the 1.25 metre increase in operating width would not suit everyone, and sure enough feedback since indicates that a more compact 135ft boom is required. The new mini X chassis is just that, with an extended width of 3.94 metres - the same as the original X chassis - although it is entirely new adopting the fabricated design and construction of the big X chassis.

The SX-135XC boasts a working height of 43 metres and a class leading 27.5 metres of outreach, with an impressive working envelope thanks to a new extra-long - 5.48 to 9.14 metres - telescopic jib, with 125 degrees of articulation - 55 degrees below horizontal and 70 degrees above. It also offers six metres of below ground level reach. Maximum platform capacity is 454kg, although this is restricted to a retracted telescopic iib. As soon as it is extended the capacity automatically drops to an unrestricted 300kg. A simple set of three lights on the control panel indicates the capacity mode.

Power comes from a Deutz Tier 4/ Stage 3B diesel, with four wheel drive, oscillating axles and four wheel steer. Overall weight is 21,727kg, with a transport length of 13.3 metres and an overall width of 2.45 metres. Shipments of the new lift are due to begin later this month.







- 6

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a RT booms

So how do the big booms compare?

Model	Platform Height	Outreach unrestricted	Capacity unrestricted	Capacity restricted	Outreach restricted		Jib articulation	Jib Slew	Total weight	Overall length	Working width	Stowed width
JLG 1200SJ	36.7m	21m	230kg	450kg	22.9m	Fixed 2.44m	130º	180°	18,500kg	10.64m	3.81m	2.49m
Genie S-125	38.15m	24.38m	227kg	N/a	24.38m	Fixed 1.52m	135°	No	20,112kg	12.17m	3.35m	2.49m
Haulotte HT43RTJ Pro	40.2m	21m	230kg	450kg	18m	Fixed 2.4m	140°	150°	21,400kg	12.3m	3.3m	2.5m
Genie SX135XC	41m	27.4m	300kg	454kg	23.8m	Telescopic 5.5 to 9.1m	125°	No	21,727kg	13.3m	3.94m	2.49m
JLG 1350 SJP	41m	22m	230kg	450kg	24.4m	Fixed	130º	No	20,400kg	11.86m	3.81m	2.49m
JLG 1500SJP	45.7m	20m	230kg	450kg	24.3m	Telescopic 4.6 to 7.62m	120°	No	22,000kg	13.2m	3.81m	2.49m
Genie SX150	46m	24.4m	340kg	N/a	24.4m	Fixed	135°	60°	22,997kg	13.0m	5.03m	2.49m
JLG1500AJP	46.1m	23.5m	272kg	450kg	21m	Fixed 2.44m	130º	125°	26,027kg	12.1m	5.0m	2.5m

The chart above shows how the new Genie SX135XC stacks up against other straight booms in the 125 to 150ft range. We have also added in the new 150ft JLG articulated.

Meeting the new standards

All manufacturers are currently busy working on meeting the new ANSI and CSA standards which come into force in the new year. Two of the most challenging aspects of the new ISO compliant rules are platform overload systems that will meet with North American customer satisfaction and tilt sensing control. The problem is that regardless of the operating manuals, safe practice and training many boom lift users still overload platforms and operate on slopes, even though most manuals clearly state that they should only be operated within the maxim capacity and only operated on 'firm level ground'.

XC models

Genie has been the first manufacturer to declare its hand with its new XC (Xtra Capacity) models with a higher 300kg unrestricted capacity and 454kg with a restricted working envelope. The plan is to add this feature to all machines for 2017. Genie is hoping that with the additional benefits of a higher unrestricted capacity along with a high restricted capacity, will offset any resistance to the built-in overload cut-out system. The capacity status will communicated by three lights on the control panel. For example, if an operator sets out from the ground with 400kg in the platform, a light will inform him that the machine is in the restricted working envelope mode and will limit the machine to that chart. If he sets out with 250kg in the platform the unrestricted light will shine. If he then adds material while at height, the status will change to restricted status. If the platform is already beyond the unrestricted envelope,

or more than 454kg is added, the overload light will come on and the machine will be in cut-out mode, requiring the material to be removed before proceeding. It might require for example that the operator simply move the machine a little closer to the work.

Advanced tilt sensing

As to tilt sensing, Genie is still finalising the details of this, but hopes to be able to offer a benefit by giving its machines a restricted envelope for working on slopes, rather than simply cutting the machine out any time it goes beyond the maximum permitted slope. Once again this could provide greater versatility while remaining within the machines safe working limits. The big guestion is how many permutations to offer - just two modes, or an infinite chart that increases the slope allowed depending on how much boom is out, what angle the boom is at and how much is in the platform? In all likelihood the system that goes into production will be a simple two stage chart such as unrestricted on slopes up to two or three degrees and then perhaps a restricted envelope for slopes of up to say 10 degrees.

What will it cost?

Genie says that the extra costs involved with the XC overload system and advanced tilt sensing will be relatively minor as it will now be able to integrate the overload system into the machine's electronics, eliminating the cost of its current bolt-on system for Europe and those countries currently requiring overload cut-out. It also expects the integrated systems to offer improved accuracy and greater reliability.

Are the Chinese coming?

So far the Chinese aerial lift manufacturers have had made little impact in western markets,



particularly for boom lifts. But both Mantall and Dingli currently working on new products that might help them change that and also updating distribution methods and networks to help them finally break into the European and US boom lift markets. Dingli is without question taking the more radical approach and has already made some solid progress with its slab scissor lift products. It now plans to launch eight allnew boom lifts at Bauma China in November with working heights of 14, 18, 22 and 28 metres designed for Dingli in Italy by Magni, in which it acquired a 20 percent equity stake earlier this year.

So far it is keeping the details of these new models close to its chest, but with Magni involved you can expect something quite innovative, designed and built to a very high standard. As a result, though prices are likely to be at western levels they face the age-old challenge of how to persuade buyers to investment when both the product and the brand does not yet have a well-established global resale value.



Genie

50 years of Genie

Genie formally celebrated its 50th anniversary in September with a series of events at its corporate headquarters and plant in Redmond and a location in central Seattle, Washington, attended by almost 300 customers and distributors. The founder and previous owners were represented at the closing ceremony by the founder's son Ward Bushnell, who was presented with a framed collection of historic photographs.



The story of Genie is very interesting although not as often told as many other companies in the industry. It is a story that reflects what can be achieved when you listen to what customers want, focus on quality and attention to detail and have enough belief to take, what to an outsider looks like a massive risk.

Classic garage start-up

Genie was established by Bud Bushnell in 1966 in the Kirkland area of Seattle, tinkering in his garage with an idea for air powered doors. In June of that year he began working with a company producing an air powered material hoist, however it failed to commercialise the concept and went out of business that September. Bushnell decided that the product 'had legs', purchased the company's inventory, and went into business on his own. He called his new company Genie, apparently because the hissing and rising of his new hoist reminded him of the popular television programme of the time, 'I dream of Genie' - His first product duly became the Genie Hoist.

His fledgling business was given a massive boost in 1968 during a tour of electrical contractors in California to drum up business when by chance he met a group of visiting Japanese businessmen. Impressed with his product and its potential, the company expressed a keen interest in working with the young company. By the end of the year it had placed an order for 1,500 units - an unthinkable volume for the small business. In spite of having no idea at all of how he might produce so many units. let alone finance the materials and receivables, he took the risk and accepted the order and Japan became his first export market.





Genie founder Bud Bushnell (R)



Bud Bushnell in an early Teletower.

"What about adding a platform and lifting people?"

The idea of lifting people which such a device did not come along until much later triggered in 1970 while attending a trade show. A neighbouring exhibitor, having repeatedly watched Bushnell demonstrating his hoist said: "If you put three of those cylinders together you could put a platform on the top to lift a man."

Back in Seattle he went straight to work and built a prototype, which became the Genie Teletower. The rights to this product were later sold to UpRight in California which continued to build it, both in the USA and Europe as the Air-Lift for many years.

The next breakthrough came when Bushnell devised an extruded aluminium mast, that allowed him to produce larger heavier duty material lifts with a cable lift mechanism rather than gas. The new product line was dubbed the Superlift and it was operated with a hand winch and ratchet. The company still produces them today. A man basket attachment that could be pinned to the forks was also offered, adding another work platform model to the range, and this one without the bounce of the Teletower. This attachment soon evolved into the AWP product range.

In 1978 Bushnell appointed his son in law Bob Wilkerson to head the company and begin to take over the leadership of the business as it expanded. He was soon joined by Roger Brown who was appointed to look after sales. Bud's son Ward Bushnell, a teacher at the time, did not join the company until sometime later. The three men - Wilkerson, Brown and Bushnell junior - became joint owners, working as a team to transform Genie into a global market leader.



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Genie



Genie booms

The most significant breakthrough on the road to leadership of the aerial lift market, came in 1984 when it employed engineer Tim Eaves to design a self-propelled articulated boom lift based on customer feedback. The result of his efforts was the 30ft Z-30/20, followed a little later by the 45ft Z-45/22.

In spite of a claim during the celebrations, the articulated boom was not a Genie invention. It is generally accepted that John Merrick of Ontario, California, originated and patented the concept, which he then licenced



Ward Bushnell, Bob Wilkerson and Roger Brown - the team that made Genie into a world leader.

to a small British company, Gala Engineering of Norfolk. It worked with Merrick to launch the Topper range of articulated trailer mounted lifts, followed by a self-propelled version. Word has it that Merrick tried to sue Genie for breaching his patent. But if there is any truth to this, the two parties clearly came to some sort of settlement and Genie certainly deserves the credit for making the self-propelled articulated boom lift a mainstream access product. The Z-30/20, was quickly followed in 1985 by the Z30/20HD, within a couple of years, articulated boom lifts were the hottest product







The Z-45/22 and its successor the Z-45/25 are without doubt the most successful articulated booms of all time - the 45/20 came along in late 1985.

in town, forcing major boom lift manufacturers - JLG, Mark, Snorkel and Grove - to scramble to develop their own articulated boom lift models.

Even before the Z- booms took off, it was clear that the company needed more production space, the plans to move into self-propelled lifts simply made it more pressing. So in 1982 it purchased a vacant plot in the town of Redmond to the north east of Seattle. Since then the plant has been expanded numerous times into the current facility. And at the start of this year office-staff housed in several offices around the town were brought together in the new 9,300 square metre corporate headquarters.



Bob Wilkerson directs the Redmond ground breaking ceremony in 1982

In spite of the potential that the additional production space offered, Genie was slow to expand from the two core models of the Z-range the Z-45/20 and Z-30/20 - preferring to focus on new and improved versions such as, HD, Bi-energy and Rough Terrain models. Larger boom lifts did not come on stream until the 1990s starting in 1992 with the S-60 which was loosely based on the TKD T-60 manufactured by its German distributor TKD. The T-60 was an excellent machine and it looked as though Genie might just build it under licence, but it chose to make a proper Genie. The S-65 with articulated jib came next, guickly followed by the Z-60/34 in 1993, followed by the Z-30/20N, S-40 and S-85 in 1994, giving the company a relatively full boom lift line-up.



Two runs at the scissor market

But before all that happened, the company decided to dip its toe into the vertical self-propelled market in 1987. Rather than develop a regular scissor lift model from scratch, it took up the opportunity to acquire the designs and tooling for the Hyster/Fabtek sigma-type lifts. To say that they had not been a particularly successful product line would have been a gross understatement and was obviously the main reason Hyster was selling. However Genie pressed ahead, discontinuing the Fabtek products and completely redesigning them to Genie standards. It took much longer than expected and resulted in a completely new product based on the general Hyster concepts. Looking back, it is hard to see what benefits the acquisition provided.



Genie acquired the designs and tooling for the Hyster/Fabtek range of sigma lifts.

However the 18ft Genie V1832 and 24ft V2470 launched around 1988. were beautifully engineered and built products. But they did not take the market by storm, partly due to the specifications being a little different from the 20/24ft models from established manufacturers, but also due to Genie's lack of volume and high build quality making them expensive. But they did sell in modest volumes and many are still in operation today. After persevering with the V range for a few years without winning a respectable market share, or decent margin, the V models were dropped.



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Genie



After licking its wounds the company set out to design an allnew Genie scissor lift range, this time with the serious aim to win 25 percent share of the market. The resulting products - the GS1530, GS1930, GS2032, GS2046 and GS2646 were launched at the 1997 ARA/Rental show in New Orleans and sold well, taking market share from competitors such as UpRight, Mayville/Mec, Grove Manlift, JLG and Snorkel - which had just dropped the Economy name - while benefiting from the declining fortunes of Mark Lift and Simon which had just been acquired by Terex. The market for scissors was also growing fast, as users switched from ladders and scaffolds.





Rapid expansion, economic cycles and crisis

The late 1990s and early 2000s saw a rapid expansion in both the American and European powered access rental markets and Genie rode the wave more than most, with the aim to become overall market leader. It not only invested heavily in expanding its range, market coverage and facilities, but also supported financing and rental share deals to fast-growing rental companies on both sides of the Atlantic. When recession hit hard in 2001 revenues plunged, and finance companies called in guarantees. Genie found itself in a precarious situation and stepped up plans to find potential buyers. It eventually shocked the market by agreeing a \$75 million deal with Terex, which had a reputation at the time as a 'pile em high sell em cheap' company. It bought up distressed construction equipment companies, slashed costs with a focus on low overheads, with little respect for sales, marketing or product support etc... Not a great match for a company like Genie, which was known for quality products, attention to detail and strong marketing and customer care.



Genie transforms Terex

However - with the Genie acquisition Terex chief executive Ron Defeo made a massive shift in strategy, leaving the owners to manage the business in their own way. Terex followed this with another equally surprising move, buying Demag mobile cranes another high quality customer focused manufacturer. At the time the two deals might be compared to Skoda or Trabant acquiring Mercedes and Volkswagen. It soon became clear however that not only would Terex not set its cost-cutter general - Fil Filipov - loose on Genie, but Genie employees would work with other Terex companies in order to help make them more like Genie! It is fitting that in this year when Terex has restructured itself into three divisions - Genie is the jewel in the crown. Today the company manufactures in Europe, China and North America as it looks to build equipment closer to its customers. Not that the road with Terex was always a smooth one. It has had its



ups and downs over the years, as corporate edicts have been handed down from time to time, which were not always appreciated by customers. But usually the offending policy was withdrawn or adjusted just before causing any terminal damage, so that even at the worst of times the old Genie policy of listening to its customers eventually ruled the day.

But in spite of the odd challenge or two the company has continued to do well, and visiting the factory for the 50th anniversary event, one definitely got the feeling that the company had 'got its Mojo back', if it ever truly lost it. There is also little doubt that the new Terex chief executive John Garrison is a keen follower of the Genie listening policy, which bodes well for both Genie and Terex Cranes. Add to that some of the highly innovative new products and initiatives being rolled out this year and next, such as the new 135ft SX-135 boom lift and solutions for overload and tilt sensing, and the next 50 years looks very bright indeed.



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