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The perfect choice for those in the know

When working at height the increasingly popular choice of access equipment is of course powered access and in particular some form of self-propelled lift. The choice at this point is huge but usually boils down to a scissor lift or boom and whether the job requires equipment with just vertical reach or with outreach and slew. One product that fits between the two is the mast boom.

For many users the decision about which machine to use is based on what it used previously and that may well have been dictated by rental company availability and the required height and platform capacity. All too often companies continue using the product they know, regardless of the job to be done. As a result they are likely to be making unnecessary compromises in efficiency and convenience or paying over the odds for a more expensive machine than is really needed - or a combination of all three.

This is certainly the case with companies that have applications that are perfectly suited to mast booms. Perhaps it is worth starting by clarifying what we mean by a mast boom? The mast boom is a machine with a telescopic mast to provide height, slewing capability through at least 180 degrees and a boom or jib to provide variable outreach. So a machine that has a fixed mast and a fixed platform is not a mast boom. Such machines fit into the scissor lift category, as their performance is identical to a scissor lift - they simply use a different lift mechanism to reach a given height.



The mast boom has a telescopic mast for height, slewing capability and a boom or jib for variable outreach



The mast boom is still a niche product apart from France where they are very popular

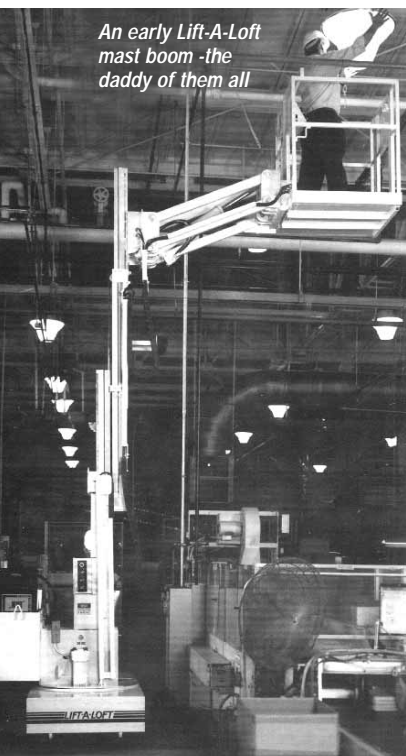
Many users describe this type of lift by using the most popular brand name - Toucan but that is and always has been a brand name for one specific make of mast boom. The fact is that some 20 years after the first mast booms appeared they

are still considered a niche industrial type lift (outside France, where they are very popular that is), only used by the few who understand how perfect they can be for many jobs where a scissor or boom would otherwise be employed.



Gallic preference

So what is different about the work in France I hear you ask? Absolutely nothing! The electrical work, painting, maintenance and other installation and finishing work that they are often used for is exactly the same. The main difference is that the French understand and have ready access to this product type. As with so many types of equipment the reason for the geographic distortion is historic. The concept is not French though. Like so many other forms of self-propelled access it originated in America where the highly innovative manufacturer Lift-A-Loft from Muncie Indiana, came up with the concept as one of a large number of highly original specials that it developed over the years each with a limited production run.



An early Lift-A-Loft mast boom - the daddy of them all

In spite of the company not marketing its products in Europe word got out, mainly through those who travelled to industrial shows like the PEM in Chicago, where they saw them on display, or through US production transplants in Europe, that brought their equipment requirements with them. The problems with the early Lift-A-Loft mast booms were two-fold. First was the cost, as the company clearly treated all of its products as one-off specials, with substantial end-user mark ups to which a few intrepid importers would try and add a margin when selling them on to end-users. Then at one point, sensing that there might be some interesting demand in Europe, the company appointed a master dealer which took the pricing further into the stratosphere. The few brave souls who were so totally sold on the concept that they stumped up the large amount of cash required, then found that they were horribly unreliable (as were many aerial lifts back then), although perfect for their application.

Into this situation came a French/Armenian - Alexis Biramian. Having worked in the US heating ventilation and air conditioning industry with an American company, he was aware of the Lift-A-Loft products and their potential. Returning to the Lyon area of France he joined access and scaffolding manufacturer and rental company Comabi/SGB and while there the company had some concept drawings done for a European-built mast boom. Now it should be said that at this point the story gets very murky... only a few people know exactly what occurred and they have not discussed it fully, while the main protagonists give versions that are quite contradictory. We do

know that Biramian left SGB and founded his own company specialising in access equipment - ABM - later acquired by Haulotte. To cut a long story short, Biramian commissioned a small engineering company near Bordeaux to draw up

detailed design drawings for a mast boom and to build him a prototype. The drawings were done largely by a young engineer by the name of Daniel Duclos. The story at this point becomes even murkier, with only those directly involved sure of what really happened. Suffice to say that the outcome was that Duclos and his partner took over the designs, added some styling, founded a company Delta Systems and named the resulting products the Toucan 860 and 1100. At this stage you could say "and the rest is history". Well not quite.

Breaking the rental blockage

The Toucan was exceptionally well marketed, international dealers were appointed and for the first year or two it sold well and volumes increased steadily as those who could see the immediate benefit snapped them up. However most of the buyers were end-users able to see the unique attributes of a pure vertical lift with ultra-compact dimensions and a slewing superstructure with around three metres of outreach as the solution



The product that sparked the industry - the original Delta Toucan 860

to their specific access problems. Rental companies however did not buy them as they considered them to be an end-user product, while giving the perennial response to any completely new product "no one ever asked for them". We all know that users tend to request what they already know or ask the rental company to tell them what they need - and what they almost always need is what the rental company has in its yard at the time.

Sensing that Delta and the Toucan would settle into a rut, producing x number of machines a year as new end-users were found or existing ones replaced machines, and frustrated by being locked out of over 70 percent of the access market that passed through the hands of rental companies, Duclos realised he had nothing to lose in renting them out himself. After all, he could hardly be accused of competing with his customers as they weren't buying them!

He launched a major sales and marketing campaign to rent his Toucan mast booms, spreading the word throughout France to anyone



ABM introduced a range of mast booms including the Orion with 8 and 10 metre working heights. The company was later acquired by Haulotte and the range discontinued

and everyone who might benefit from using a mast boom in place of a scissor lift or small boom and success soon followed. In some cases users went on to buy their own units, having proven their usefulness while renting. However a larger number of end-users started to ask their normal rental suppliers for mast booms and before too long rental companies were obliged to beat a path to Duclos' door.



Haulotte's first mast boom the HMN10P

Competition arrives

In the meantime Biramian had not been idle either and having seen his concept 'stolen' as he would put it, he built and launched his own two model mast boom product range, naming them the Orion which was a classic mast boom and the Orphée which had no slewing capability. For a while the two battled it out both offering their units for sale or

rent. Haulotte soon joined the fray with its own product the HM10P so more salesmen were out in the market spreading the word. It is for this reason that in France mast booms are so widely used and why for most of the product's life, the country has represented over half the world market for such products. In the States Lift-A-Loft seeing what Duclos was up to, introduced a more stylised and series-production version of its mast booms the AMR40 that looked a little similar to the Toucan. The new model still failed to win over American rental companies or the mass market and the USA remains resistant to the concept to this day. Lift-A-Loft still builds the



The Lift-A-Loft AMR40

AMR40 mast boom with working heights of up to 9.8 metres, which it supplies to a solid customer base. One feature it does now offer is an air powered version which has a particular appeal for sensitive environments. Just to go back a step, Haulotte, as with many other producers over the years, found it hard to make a decent margin with its HM10 and after a few years suspended its aspirations and mast boom production while it reviewed the product and the market.

One wonders if other countries will ever move in the direction of France or whether it will remain an anomaly. One thing is for certain, end-users are becoming a lot more savvy about powered access equipment and what is available, something that publications such as ours work hard to encourage. So it could be argued that the future is promising for the product sector as more potential users become familiar with the concept.

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Toucan now settled with JLG

To complete the Duclos saga, he ran into financial difficulties in the late 1990's and sold the Delta business to Grove which added it to its Manlift operation. It kept the Toucan name as its product brand for mast booms and invested heavily in marketing it. The company also introduced special ANSI/American versions of the product under the VR name to try and crack the massive potential in North America but failed to make an impact. The business, complete with its Tonneins production facility, was acquired by JLG in 2004 along with Liftlux scissor lifts and Manlift booms. The acquisition made JLG the market leader in this market overnight and naturally it retained the well-known Toucan brand name for this product sector.

Over the years a number of other companies have dipped their toes into this market, including Niftylift, CTE, UpRight and Manitou. All

struggled to make money at it, Nifty decided to 'pull' its Alley Cat product after having only shipped a few units, while the CTE PSS8/1 and 11/2 which were originally given the name 'Dumbo', never really 'got off the ground'. UpRight on the other hand having introduced a three model MB line persisted, although its presence in the market was somewhat on and off as it suspended the product from time to time or just built them to order. Amazingly two models of the MB product range are still produced and now sold under the Snorkel brand, forming an important part of the company's range- they are one of the few models with active pothole protection.

Second time lucky with Haulotte

After Haulotte suspended its original HM10P mast boom product, it went back to the drawing board and completely changed the design, making its product lighter and less costly to build. The resulting Star 8 and Star 10 models have sold really well and have given the JLG



A Toucan 800 in the Grove Manlift days



The Nifty Alleycat, a great machine but too expensive to build



The Toucan re-badged as a JLG in a classic retail environment



A Snorkel (previously UpRight) MB26E and a perfect mast boom application



The CTE PSS model never really made it far beyond the plant

Toucans a run for their money, eventually obliging the market leader to update its most popular models into the Toucan 8E and Toucan 10E.

Manitou does a double take

Manitou introduced a first class model the VJRT 8 and 10 but after struggling for some time, followed



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Haulotte's second attempt at the mast boom hit the right chord and the Star 10 Ts chasing JLG for market leadership



Manitou's first VJR product, THE 105VJRT, was beautifully executed but too heavy and too costly to build

singer who was also known as the 'Little Sparrow'. With working heights of eight and 10 metres the range also offers models on rubber tracks for low point loadings on delicate flooring.

Spreading the word

It is a self-evident fact that the more salesmen knocking on doors selling an idea or product type, the faster it is likely to take-off. While the mast boom concept continues to expand slowly but steadily in many parts of Europe, the USA is still a market that is stubbornly resistant to the concept. JLG has failed to make much of an impression as did Grove before it and Lift-A-Loft before that. Perhaps now that Genie is active and Haulotte with its improved market coverage through its Bil-Jax acquisition, this will change? The problem will be though that as the economy continues to brighten, the first priority of many rental companies will most likely be to replace existing fleets of booms and scissors, rather than investing in what most of them will consider to be a niche product. To really take-off it the mast boom concept needs a 'champion' or two with the resources and the desire to create the market. This also applies to most of Europe outside of France.

What's on Offer

While a wide range of mast boom variations have been produced over



ATN produces the only tracked mast booms on the market

Haulotte's lead and went back to the drawing board, reintroducing its current two model line up the 80 and the 100VJR Evolution around two to three years ago. Manitou has not yet come close to matching JLG or Haulotte's volumes, but its recent agreement to supply its VJR models to Genie, which markets them as the GR20J and GR26J, could help change this.

With Genie joining Haulotte and JLG perhaps the mast boom's time has come?



That really brings us up to date, but lest you think that the

originator Duclos is no longer involved in the industry- think again. When he sold out to Grove he kept the rental fleet which eventually became

Access Industries and grew rapidly in the late 1990s and early 2000s, but failed and had to be restructured in 2002. It was then the subject of a buy-in and eventual rescue by Butler Capital Partners in 2005 and 2006. It is still a major rental company in France today and Duclos still has a stake in the business. As to his mast boom ideas he used his rental experience to get back into manufacturing in 2000 with ATN also based in

Tonneins (next door to JLG). The company builds several mast boom models with the Piaf name - after the famous



The Manitou VJR 10 Evolution is doing better than its predecessor.

the years, the product that remains the single biggest seller by far is the straight forward 10 metre working height (26ft platform height) mast boom with an overall width of around one metre.

Other products include eight metre working height (20ft platform height) models, some - such as the Snorkel MB20N - with an 800mm overall width for single door access and rubber tracked models which can be handy where point loadings are critical. A few larger models are also available, usually with telescopic jibs, and working heights of up to 13 metres (36ft platform height) and between 3.5 and five metres of outreach.

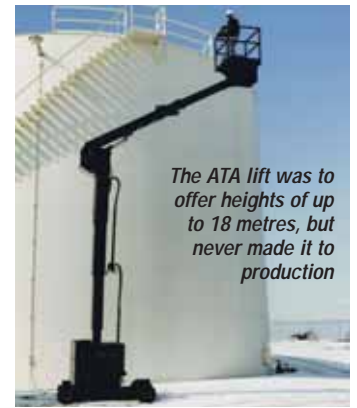


The JLG Toucan 10E in a classic industrial application



The Snorkel MB26J - check on outside use restrictions, some models are better performers outside than others

However these larger models have never really taken off in the mainstream market, with most buyers seeming to prefer to go with the ultra-narrow articulated booms such as the Genie 30/34N and JLG E300, which have largely the same performance but are more mainstream and possibly more versatile. There was an attempt in the early 1990's to introduce 14 and 18 metre mast boom models by a start-up venture Mobile Technology and Equipment.



The ATA lift was to offer heights of up to 18 metres, but never made it to production

A prototype of the 14 metre model was built and tested, but the recession and other issues ended the development before it became a commercial success.

So most manufacturers today focus on two models an eight and a 10 metre or, if you are familiar with using the US scissor and boom designations, 20 and 26ft.

Choosing which is the best model for you will probably come down to the supplier you prefer or who your local dealer is, rather than specification or even pricing. The reason being that all of the products produced today are pretty good and most have very similar specifications. The JLG Toucan is possibly the most refined, with a heritage of thousands of units produced since its launch in the early 1990's, but the others have their merits too.



The largest mast booms today are built by JLG with 12 and 13 metre working heights.



A Genie GR26J working on an overhead crane, more compact than a scissor with better overreach

Make	JLG	JLG	Haulotte	Haulotte	Manitou	Manitou	ATN	ATN	Snorkel	Snorkel	Genie	Genie	ATN	Lift-A-Loft
Model	T 8E	T 10E	Star 8	Star 10	8VJR	10VJR	Piaf 880R	Piaf 1000R	MB20E	MB26	GR20J	GR26J	Piaf 810	AMR40-22
Work height	8.15m	10.1m	8.2m	10.0m	7.7m	9.9m	8.8m	10.0m	8.0m	10.0m	7.7m	9.9m	8.1m	9.8m
Outreach	2.39m	3.08m	3.0m	3.0m	3.25m	3.1m	3.36m	3.46m	2.6m	3.0m	3.25m	3.1m	3.0m	3.0m
Capacity	200kg	200kg	200kg	200kg	200kg	200kg	200kg	200kg	215kg	215kg	200kg	200kg	200kg	227kg
Slew	345°	345°	345°	345°	350°	350°	220°	220°	360°	360°	350°	350°	220°	360 cont.
Platform size cm	90x85	90x70	99x70	99x70	90x75	90x75	90x80	90x80	78x73	78x73	90x75	90 x75	90x80	91x76
O/A Length	2.09m	2.82m	2.59m	2.65m	2.95m	2.82m	2.82m	2.93m	2.48m	2.8m	2.95m	2.82m	2.47m	2.79m
O/A width	990mm	990mm	1,000mm	1,000mm	990mm	990mm	1,003mm	1,003mm	810mm	1,000mm	990mm	990mm	1,200mm	1,004mm
O/A height	1.99m	1.99m	1.99m	1.99m	1.98m	1.99m	1.98m	1.98m	1.98m	1.98m	1.99m	1.99m	1.98m	2.33m
GVW kg	2,120	2,990	2,595	2,760	2,250	2,650	2,600	2,980	2,590	2,660	2,250	2,650	2,200	3,465

•Note outreach is working outreach, generally 500mm beyond guardrail

The chart above looks at the key comparison points - platform height, platform capacity and outreach of course, but then overall width, Gross Vehicle Weight, stowed length and height and turning radius, are all of interest, after all, these units are ideal tools for working in very confined areas. However as you will see there is very little difference between the main product offerings and interestingly very little difference between the best new products today and the original Toucan of 1992. One key development has been to keep the overall weight for the 10 metre models below three tonnes for easy transport, whether by trailer, 3.5 tonne truck, two axle trailer or in plant with a forklift.

confusion in this area with some manufacturers mixing up turning and clearance radius, two entirely different things. The key point to check is the crank angle of the steering axle wheels, the best almost go to 90 degrees. If you are looking to use the platform outdoors check if the machine has an outdoor rating and what the trade-offs are such as one man or lower capacity. At the same time take a look at the ground clearance available, some units will get hung up in uneven ground, while some have active pothole protection and better ground clearance.



A 10 metre ATN wheeled model

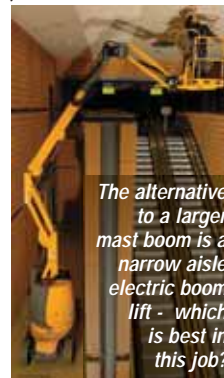
Spec for spec

As we have already mentioned the specifications do not deviate a great deal although one area that might be worth a look is the drive train. Some companies use full traction fork lift-type batteries with automatic top up system, while others use regular large lead acid batteries. One will provide more power, but be more expensive to replace if damaged. If there is a chance of abuse the regular batteries might be best. If you are used to fork lift batteries it should be no problem. Also check for direct electric drive, which will provide longer battery life with excellent gradeability and braking. Turning radius is another area where there is some differentiation, we did not cover this in our chart due to the



JLG produces a 12 and a 13 metre mast boom ideal for specific industrial applications

you will see from the chart below, the key benefits of the big mast booms are their up and over reach - at seven and eight metres they offer almost twice as much as regular boom lifts beating most 46ft (16m working height) booms in this aspect. They are also more compact and for the same width are considerably lighter. Their downside is of course outreach, although at 5.2 metres they are no



The alternative to a larger mast boom is a narrow aisle electric boom lift - which is best in this job?

slouches in this area. In the end whether you chose one of these or a narrow electric boom will depend on the job in hand and the prices you are offered. There is plenty of competition when it comes to narrow aisle booms, but only one supplier for big mast booms.

Small and different

While most products on the market have a working height of eight or 10 metres, French scaffold manufacturer Comabi has produced a smaller seven metre model called the Turbo 7. The unit uses a two section mast and a very unusual bi-fold jib with pedestal mounting to achieve the five metre platform height. The benefits are an 800mm overall width, 1.74 metres overall length and 1,080 kg overall weight - albeit with just 120kg platform capacity. As far as we know the unit has only been produced in small numbers and not sold outside of France. The company later produced a nine metre model with a similar jib design. Comabi did not respond to our requests for more information.



The highly unusual Comabi

Big mast booms compared to narrow aisle electric booms

Make	JLG Toucan	JLG Toucan	JLG	Genie	Genie	Haulotte
Model	1210E	1310E	E300	30/20N	34/22N	HA12CJ
Working Height	12.0m	13.0m	11.14m	11.1m	12.52m	11.7m
Outreach*	5.22m	5.22m	6.6m	7.0m	7.28m	7.0m
Up&Over Height	7.0m	8.0m	3.98m	3.86m	4.65m	4.74m
Capacity	200kg	200kg	230kg	227kg	227kg	250kg
O/A width	1.20m	1.35m	1.22m	1.17m	1.47m	1.20m
Height	1.99m	2.19m	2.01m	2.0m	2.0m	1.99m
Length	3.85m	4.07m	5.49m	5.1m	5.72m	5.36m
Stowed length x Height #	3.85m	4.07m	5.49m	3.5 x 2.08m	4.9 x 2.26m	3.86 x 2.22m
Slew degrees	343°	343°	360°	355°	355°	355°
GVW	5,200kg	5,600kg	7,000kg	6,430kg	5,171kg	6,970kg

* Working outreach -platform edge plus 500mm # with Jib tucked under
blue = mast boom orange = boom lift

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