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# Getting it straight

When it comes to self propelled boom lifts, straight telescopic models are a minority product in Europe. Users tend to prefer articulated booms, forcing rental companies down this route so that the whole thing becomes self perpetuating. This was not always the case. Straight telescopic were the order of the day in the UK and throughout Europe until Genie turned the articulated boom into a mainstream product in the mid 80's.

Today, the straight telescopic has been largely sidelined into heavy duty work such as steel erection and shipyard applications. As a result new product development in this sector has been somewhat slow to the point that it is difficult to differentiate a ten year old boom lift from JLG, Snorkel or Genie from a new model. In fact some of the models being built 10 years ago are still available today with only minor improvements.

It would be wrong however, to say that there have been no changes. The status quo, in terms of specifications, has in fact shifted a fair bit over the years, in spite of the fact that the straight boom market in both North America and Europe is conservative and somewhat resistant to change. Users tend to be highly experienced (don't mix that up with highly skilled or safe) with using booms. They know what they want and they know what they like and don't always



appreciate manufacturers messing with it.

This is a part of the market where the lift is a real tool, usually a key piece of production equipment for

In spite of this lack of interest in 'gadgets', articulated jibs have almost become standard equipment and heaven forbid, rotating articulated jibs are now creeping in, both of



a contractor- quite different from a typical small articulated boom which is often little more than a powered scaffold - something to get you up to the work place.

Heavy users of straight booms look for high function speeds, simple multi-function controls, good platform rigidity and the ability to cope with rough ground. There is little patience with finesse or 'nice' features. Regular users want a highly reliable industrial strength piece of kit that will take the abuse that they regularly hand out.

which have been considered to be 'namby-pamby' fripperies in the past.

More importantly perhaps are the narrower operating widths on larger booms, with extending axles disappearing on anything under 100ft. Tailswings have also reduced and the ability to deal with soft ground has improved beyond all recognition. Standard basket sizes have increased and high capacity models are gaining in popularity. There was a time when if you wanted a big boom you had no



choice but a straight boom. That has been turned on its head and the very highest boom lifts in most manufacturers ranges are now articulated.

### Skyjack returns

Skyjack is in the process of re-entering the boom lift market. In the 1990's it built up a wide range of booms starting with a popular industrial articulating boom lift - the SJB-33N of which a 40ft model came later. The boom it might be best remembered for though was the unique hybrid boom lift the TK series with an SJB 46TK and a 66TK. These machines offered an unusual combination of straight and articulating boom. Their claim to fame was the reach they could achieve below ground level, great for reaching down into a dock, but the extra complexity only endeared them to a few. As soon as they went out of production of course they suddenly became a great machine that everyone wanted.

Selling a different concept in the straight boom market is an uphill battle at best, more so for a new entrant so Skyjack introduced very conventional 65ft and 87ft straight boom models - the SJB65TB and SJB87TB. More than 200 units of each were shipped and a 45ft model was introduced.

However as the company went into the new millennium the lift business became increasingly tough and Skyjack shut its US boom plant, quitting the boom market, seemingly for good. In 2005 the company made the decision to get back into booms. Given the struggle with its more innovative models, it naturally plumped

*Upright is re-launching its boom lift range*



this time for a conservative start with 45 and 65ft straight boom models. The 45ft - SJ45T is now in production (with a 40ft non jib version available) with the CE version due to be unveiled at Bauma.

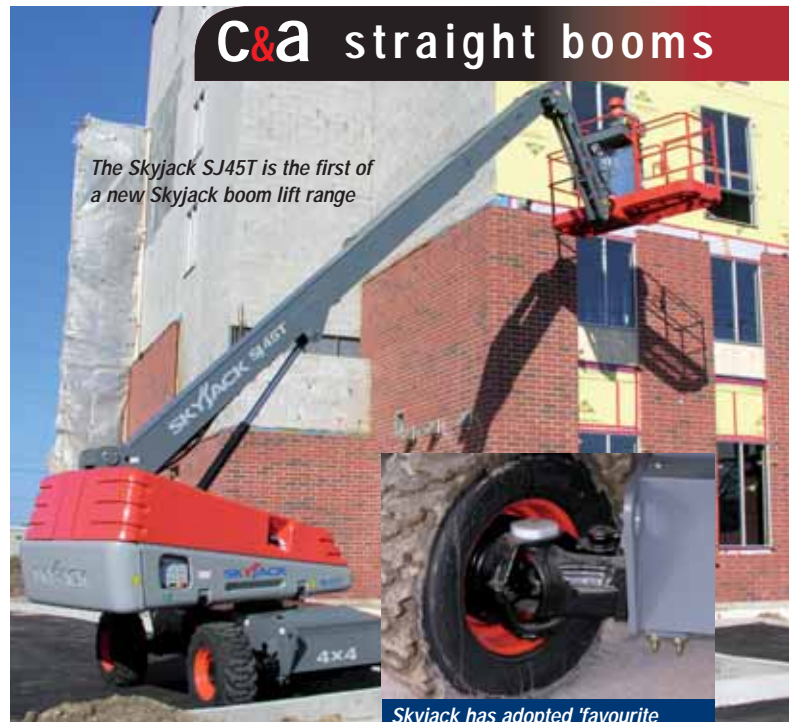
Skyjack's rationale for starting in the 40 to 50ft straight boom sector dates back to 2000. The last boom lift it launched had a similar specification and incorporated all of the lessons it picked up from its boom learning curve, the few units that were sold before the company pulled out of booms have a strong reputation and the model provided a good base for its new machines.

In a side by side specification comparison the new Skyjack does not exactly break new ground, but then that is not what the company set out to do with this product.

### 40/45ft straight booms with jibs

Company model	Skyjack SJ45T	JLG 460SJ	Genie S45	Haulotte HA16TPX	Snorkel TB47J
Platform Height	13.7m	14.02m	13.7m	13.88m	14.2m
Outreach	12.1m	12.34m	11.18m	11.8m	11.9m
Lift capacity	227kg	230kg	227kg	250kg	227kg
Speed	7.2kph	7.2kph	7.7kph	6kph	4.8kph
O/A Width	2.29m	2.34m	2.3m	2.25m	2.4m
O/A Length	8.79m	8.84m	8.48m	8.42m	8.15m
O/A Height	2.39m	2.39m	2.49m	2.21m	2.4m
GVW	7,200kg	7,850kg	6,800kg	6,800kg	6,100kg
Jib	135°	140°	70°	140°	140°
Tailswing	940mm	860mm	860mm	800mm	1,180mm

It is second best in terms of outreach, behind JLG, second place in terms of overall width behind Haulotte and second fastest behind Genie. What it does do though is provide a good all-round specification and according to the company, incorporates simpler, more rugged, easier to service technology. Given that this type of



*The Skyjack SJ45T is the first of a new Skyjack boom lift range*

*Skyjack has adopted 'favourite features' from its big scissors, such as rough terrain axles and analogue electric in its booms*

### UpRight adds booms

Another company looking to re-enter the boom market is UpRight although its approach could not be more different. Rather than starting again, UpRight is looking to reintroduce updated versions of all of the models that it finally stopped producing at the end of 2005, beginning with its articulating booms - the AB46 and AB62. The company is also planning to re-introduce the SB60 and SB80 straight booms possibly with key specification changes. It may also finally launch the SB45 which has been in prototype form since it was first shown at the last Bauma in 2004.

boom is rarely purchased for the millimetre differences in the specifications Skyjack might have a winning package. The challenge will be to persuade buyers to switch from their current boom supplier and to convince the market that the company is serious about getting back into the sector for the long term.

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UpRight's SB60 was unusual in that it was a 60ft boom with jib - most of the other offerings began life as 60ft models with optional jibs making them into 65ft units. UpRight argued that the market was requirement for 60ft and that buyers only selected the 65ft models because they wanted the jib. The company therefore incorporated an extra long (2.4m/8ft) jib into its standard 60ft boom allowing it to keep the main boom to two sections rather than the usual three, improving rigidity while saving weight, complexity and of course, cost. The overall stowed length of the machine was, as a result longer than most. In addition the hydraulics were designed to offer multifunction control. However to reach full height in 60 seconds or less, required simultaneous operation of telescope, lift and jib up functions. The telescope on its own was notoriously slow, although this was later modified. Both of these 'cost saving features' were too radical for a new entrant into the conservative straight boom market and sales were not as strong as the company had hoped.

The other straight boom in the UpRight stable - the SB80 - incorporated the lessons learnt from the SB60 and was generally a good machine from the start, however its telescoping axles are no longer 'state of the art'. The designs purchased by Tanfield include a full update of the SB60 including a three section boom. UpRight will however, face the same challenges as Skyjack in entering this market.

### Big deck booms

Straight booms have often been specified with bigger platforms. Almost all 60 and 80ft booms now offer a 2.4 metre wide basket in place of a 1.8 metre, either as standard or as an option. Over the years some users have looked for even larger platforms for specific applications. In the extreme cases some buyers want a big scissor lift platform and capacity with the outreach and slew capabilities of a boom lift - the 'scissor on a stick'

concept. Machines that achieve this have been built by Aichi and Tadano but tend to be very heavy and very expensive. Because of this they have been niche products and both companies have ceased marketing the self propelled versions in Europe. The new Manitou T150 shown at Intermat



The scissor on a stick concept

last year and scheduled for production this spring, satisfies some of this demand, although with limited outreach and no slew it does not fully replace them. Perhaps Manitou will consider fitting the top of this new model to a self propelled boom type chassis? Alternatively if might argue that its integrated telescopic handler platforms meet this demand?

Many buyers though are simply looking for a wide (or long) platform to cover a large façade and handle lightweight but long components. A German company, HAB has reacted to this big platform demand with its 61ft, T20K5 D4WD which features a five metre (16.5ft) wide basket with a 350 kg lift capacity. A full 180 degrees platform rotation allows the machine to be transported with the big platform in place, but it can also be quickly converted to a two metre wide platform



The T20K can be transported on a regular width trailer thanks to a full 90° platform rotation

## C&a straight booms



The HAB T20K5 D4WD features a 5 metre platform (16.5ft) which can be converted to 2 metres

for regular work or to provide a shorter transport length.

HAB took over the TKD straight boom business from Kronau and continues to offer parts and service for those products. Its current range also includes more normal

72 and 86ft boom lifts with articulating jibs and normal sized platforms. The machines are built to a high specification and feature very strong, rigid boom designs and good 4x4 performance thanks to their high ground clearance.

### 60ft straight booms No jibs

Company Model	Snorkel TB60	Genie S60	Genie S60HC	JLG 600	JLG 601S	HAB T20K	Haulotte H21TX	Aichi SP18A
Platform	60ft	60ft	60ft	60ft	60ft	61ft	62ft	60ft
Outreach	15.2m	15.48m	15.48m	15.1m	14.9m	16.5m	17.2m	16.7m
Capacity kg	227	227	350/567	230	230	350	230	227
Width	2.5m	2.49m	2.49m	2.44m	2.44m	2.48m	2.48m	2.43m
Length	9.4m	8.51m	8.51m	8.61m	8.36m	9.23m	9.1m	9.17m
Tailswing	1.5m	1.22m	1.22m	1.14m	1.14m	1.22m	1.1m	1.24m
GVW Kg	9,857	9,385	10,072	10,800	10,330	14,200	11,750	12,100

### 60 ft straight booms With Jibs

Company Model	Snorkel TB66J	Genie S65	JLG 600SJ	JLG 660SJ	HAB T22J	Haulotte H23TPX	Aichi SP18AJ	UpRight SB60
Platform	66ft	65ft	60ft	66ft	72ft	67.7ft	60ft	60ft
Outreach	17.1m	17.1m	15.3m	17.3m	18.5m	19.5m	15.8m	16.0m
Capacity kg	227	227	230	230	250	230	227	227kg
Jib artic.	80°	140°	130°	130°	145°	140°	130°	140°
Width	2.5m	2.49m	2.44m	2.44m	2.46m	2.48m	2.43m	2.44m
Length	10.0m	7.6m	9.55m	10.3m	8.05m	8.1m	10.04m	9.1m
Tailswing	1.5m	1.22m	1.14m	1.14m	1.22m	1.1m	1.24m	1.3m
GVW Kg	11,916	10,102	11,525	13,115	14,200	13,110	12,300	10,750

Notes: Tailswing = Tailswing outside of chassis width. UpRight SB60 out of production since 2006

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The JLG 600 SJ a 60ft with jib



placed right at the rear of the machine providing a long base boom section. As the boom angle increases the superstructure frame lifts, moving the boom pivot point forward as well as upwards thus improving outreach at higher boom angles and avoiding any rearward stability problems thus saving weight. The extra height achieved by the rising pivot point also allows the telescopic boom to be shorter to reach the height, further economising on weight and stowed length.

JLG achieves something similar with its 860SJ and its Hybrid E600J although in the latter model the mechanism is more akin to a regular single stage articulated boom riser, allowing it to use a two section telescopic boom.

**A good idea or a frippery?**

The rotating jib first appeared on an oddball Genie product, the Z20. This was essentially a sigma lift linkage with a jib attached to a platform rotator on top fitted to a bloated scissor lift base. It offered a working envelope similar to that of a mast-boom without the need for slew (it was a 'top slewer' in effect) or multistage masts.

However the concept was too specialised and too heavy for most users and its difficulty to load and unload did not endear it to rental companies. The rotating jib however did catch on big time and was quickly incorporated into industrial, narrow aisle articulating booms and then into 4x4 articulating booms, with Snorkel most recently adding it to an 85ft boom.

When Genie replaced its S60 three years ago it elected to go with an unusual design that places the boom pivot point on a parallelogram riser, almost making it into an articulated boom.

**Old concept**

This concept is far from new, having been used on cranes and trailer lifts in the past to keep overall length of the machine down while enhancing outreach at higher boom angles. The design works by linking the boom lift cylinder to a rising superstructure frame allowing the boom pivot to be

The Genie 65 features an elevating boom pivot point to save weight



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## straight booms C&a



The Haulotte H43TPX demonstrates its rotating jib

When it comes to straight booms however, regular users have even eschewed regular jibs in the past, preferring rigidity and ruggedness over the additional reach potential of a jib. Users have however become more familiar with the benefits of articulating jibs and today they are just about standard equipment on straight booms. Rotating jibs also now beginning to creep into use with both JLG and Haulotte fitting them as standard on their top of the line 135ft models. The concept is likely to become increasingly available on smaller units as time goes by. Whether it will become popular or not remains to be seen, one assumes that given rigidity and complexity issues the concept will not suit the rough and tumble conditions of steel erection or shipyard work.

### Basket case

A look at spare parts usage on straight booms flashes up an interesting fact, straight booms, particularly 40 and 60ft models seem to consume baskets. Yes baskets - platforms - cages - no matter what you call them they seem to last no time on a straight boom. A visit to a typical steel erection job provides the answer behind this oddity, trades such as this use the boom not only to reach the work but also to push, shove the steelwork into place and to help hold it steady while welding or bolting it in place. You might ask why manufacturers don't beef up this part of the lift to cope with this somewhat dubious practice? The main answer is that this would simply transfer the abuse into other components further down the lift mechanism. Building the entire machine to cope with this abuse would create a prohibitively priced

machine. So instead the users that follow this practice almost see the basket as a consumable. The challenge then for manufacturers is to crate a basket that can be quickly replaced or repaired and that does not cost the earth.

JLG has done a good deal of work on some models to modularise the cage so that separate sections can be replaced rather than the whole. Genie on the other hand has focused on cost and offers an attractive price on replacement platforms that can be rapidly changed over.

Some rental companies keep abused and repaired platforms in stock to fit for abusive applications.



Trades such as Steel erection treat boom baskets as a consumable.



Sometimes only a tracked boom will do

### When the going gets rough

All of the straight booms on the market today feature or offer four wheel drive with differential locks or hydraulic flow dividers that ensure constant all wheel drive, enhancing the machine's performance in rough muddy ground.

If buying a boom that offers four wheel drive as an option make sure that you specify it. In Europe most manufacturers do not import or offer two wheel drive straight booms except by non cancellable order. Do not be tempted to save money by ordering a two wheel drive boom - it is a false economy. Four wheel drive not only enhances off road performance, but in most cases it also dramatically improves gradeability, which is essential if you are using the boom on slopes or regularly loading it onto transport. Over and above these practical reasons, when it comes time to sell your boom on, a two wheel drive straight boom is about as attractive as roast pork in a mosque to used boom buyers.

If you are planning to use a boom in soft or slippery conditions, attention should also be directed towards the tyres. Boom lifts are increasingly being fitted with low profile foam filled tyres. These are very attractive in many, if not most applications. They use less foam than bigger tyres, are more rigid and thus provide more stability and should the rubber shred, the big steel rims will keep the boom stable and allow easy recovery. However, when it comes to the worst conditions, the lack of tyre side wall flex and smaller lugs, mean that the tyres quickly fill up with mud turning them into 'slicks'. If heavy mud is to be a regular challenge then select a machine or a tyre option with the largest diameter, high profile side walls and deep lugs. In the extreme this might be a key criteria in your choice of machine.



For the worst ground a large tyre with deep lugs can help

### When it is really tough

There are times when the conditions are so bad that wheeled machines simply will not hack it. In such cases there are a couple of options. JLG and Aichi both produce standard straight boom lifts on self propelled tracked chassis. For more details on this type of boom see *Cranes&Access* October 2006.



The Loegering crawler units can be retrofitted to a boom lift and then converted back again.

An alternative to buying a full crawler mounted boom lift is to use temporary tracks. A number of companies produce web type tracks that fit over the tyres either between the existing wheels or between the rear axle and a spring loaded jockey wheel in between the two to create a half track.

One company that offers these solutions, Loegering, has also introduced a third possibility - separate triangular crawler units that can be exchanged for the regular wheels on a boom lift to create a crawler mounted lift that can be easily converted back into a wheeled machine when the job is over.



A boom for industry, the unusual 14m Kitzler KIB 24/162T straight boom offers four wheel over centre steering and 500kg lift capacity.



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