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Alternative RT scissors

Every large commercial construction project uses Rough Terrain scissors - the equipment of choice for cladding and roofing, sprinkler installation along with numerous other construction related work. The simple combination of a large working platform, stable workplace, decent lifting capacity and ability to cope with poor ground conditions makes the RT scissor the down to earth everyday workhorse of aerial lifts.

These very attributes make the large RT scissor lift unsuitable for more delicate maintenance and more dainty applications. As a result it is highly dependent on new commercial and infrastructure construction, a sector that tends to suffer badly in times of economic hardship.

In recent years, manufacturers have added numerous features and developments to big scissor lifts in order to gain a competitive advantage by offering attractive benefit-giving features and which may also extend the range of applications to which they are suited.

Working heights have increased to almost 35 metres, capacities have grown to 1,000kg and more, automatic levelling with and without outriggers is now possible, while tall narrow-aisle models have made an appearance. The latest trend is for battery electric powered 4x4 models and a range of lifts that while offering scissor lift features do not

use the traditional 'X' scissor type lift linkage. In spite of all these often very handy features, at the end of the day, the big RT scissor must 'do what it says on the tin' - offer a large stable working platform, with a decent capacity at the required height and not be phased by a bit of mud or uneven terrain.

At this point it would perhaps be useful to include what we consider to be a definition of a scissor lift category. And no it is not limited to those which use an X type scissor lift mechanism.

What's a scissor lift?

First a definition of what we mean when we are talking about scissor lifts in relation to powered access equipment.

"A scissor lift is one where the machine's working envelope moves in a vertical plane, with the main platform largely remaining within the chassis footprint."

Anything with a scissor stack obviously falls within the category



The RT scissor is the equipment of choice for cladding, roofing and sprinkler installation along with numerous other construction related work

as it can only go up and down - extensions and traversing excepted. There are however an increasing number of machines that offer all the attributes of a scissor lift - long platform, good lift capacity with a lift envelope that is largely limited to the vertical plane, but use a telescopic or sigma boom as the lift mechanism. While these are now strictly scissors, the key determinant is the user. If a contractor asks for a 30ft scissor lift, will he be confused if an SL30 sigma lift arrives on site? Or if he wants a 40ft RT scissor will a Manitou 150TP be deemed unacceptable? We are not talking small likes or dislikes here, the key point is will they do exactly the same job or not?

Conversely if a user calls and asks for a 40ft straight boom will he be happy if that same Manitou 150TP turns up? Of course not! While it has a telescopic boom and lifts to more than 40ft it is nothing like what the contractor had in mind and most likely will not do the job.

The scissors that are not scissors

These 'dissident scissors' include:

- Boom mounted platforms such as MEC's new Titan Boom 40S and Manitou 150TP and different again the new Merlo MPR15.
- Articulated sigma lifts such as the Snorkel SL Speed Levels, MEC speed levels and tracked Nagano ng90za

The SL sigma

The most senior of the mainstream RT scissor lifts that do not use a regular X type scissor stack are the sigma lifts. It was UpRight that took this concept into the high volume mainstream market initially with the SL20 launched in 1986. It had all of the specifications of the 'skinny mini' 20ft electric scissor lifts except for the X type scissor lift. It was quick to full height, was priced competitively and best of all did not require the ridiculous scissor guards that many European countries required at the time. It was hugely successful and at its peak in the



Merlo's high-speed MPR15

mid 1990's represented one in two 20ft scissor lifts sold in Europe. In the UK in particular users would call rental companies and ask for an SL20, rather than a 20ft scissor lift. It was only the arrival of the 19ft 'elevator' scissor lifts that killed off not only the SL20 but the entire 20ft sector.

UpRight then went on to introduce the SL26RT a much larger 26ft (later 30ft) 4x4 version with oscillating axle. On this model the simpler lighter weight sigma lift mechanism gave the SL26 a low weight, high power to weight ratio making it an exceptional RT performer. The Speed Level version came a few years later in late 1990. Poor timing – coming out as a deep and very long recession hit – destroyed sales after what had been a very successful unveiling. The concept has never really recovered from the set back. The current product now marketed under the Snorkel brand,

looks very similar to the original model, but is completely different and far more refined in every way. While the Speed Level is not fully appreciated in many markets, there are some areas where it is highly popular. Switzerland probably has the highest density and the lifts are the machine of choice for a number of applications, with tunnel construction and maintenance work being among the biggest, with leading access rental company Up AG owning more than 30 units. In 2009 Mec set out with the intention to build a better Speed Level. The resulting product certainly looks like a close copy. However one very positive addition that it did make to the concept was the development of a battery electric version which has found a solid following among certain trades. Mec has pioneered the battery electric RT scissor lift

*The Snorkel Speed Level
SL26SL*



concept in the USA with its range of large X type scissor lifts. With direct electric drive and big batteries the electric 4x4 has tremendous drive power along with the advantages of quiet, fume-free operation and lower running costs. Mec's latest speciality machine is the Titan 40S a scissor lift sector boom lift with massive capacity and platform rotation. Interestingly this new model is not yet available with battery power. Mec originally said that it was too big and heavy to be powered by batteries however Holland Lift has proved that is not exactly the case, having introduced a 34 metre, 35 tonne battery powered Megastar which is proving to have exceptional battery performance between charges.

The scissor on a stick

The notion of putting a big scissor-sized platform on the end of a boom originated in Japan with rental company Niken developing the idea in the mid 1980s. It initially built its own units but then a number of manufacturers began to produce them, including Tadano and Aichi. The problem with these units was their high gross weight - and therefore very high cost - to cope with the fact that they had unrestricted outreach.

UpRight developed a product in the early 1990's which combined the concept with its Speed Level system and limited outreach to keep the weight down. A prototype was built and tested but the deep recession of 1992 literally stopped the RT scissor lift market dead in its tracks. So UpRight diverted its attention to small machines, such as the MX19 and TM12, a decision which with hindsight proved to have been very wise. However it killed off the boom scissor project and when the market for RT scissors came back in the late 1990's UpRight was a more conservative business and went for a 'me too' X type RT scissor lift in the LX range.

The 43ft/13 metre platform height Manitou 150TP mirrors the original Japanese boom scissors and is very much like the UpRight that never saw the light of day. It uses a three section telehandler boom, has a restricted but healthy outreach at six metres and large, good capacity (1,000kg) extending platform. The only difference with the original Japanese products and the UpRight prototype is the use of telehandler type front stabilisers, which help keep the overall weight down.



*The electric drive
MEC 3084ES*

A more recent and smaller Japanese alternative is now available from Aichi in its 30ft/nine metre platform height WZ09ASM seen for the first time at this year's Bauma. Like its ancestors, it uses a non-slewing boom with a 3.1 metre by 2.02 metre, 180 degree rotation platform. Weighing a substantial 6.8 tonnes, its maximum platform capacity is 600kg when kept within 1.5 metres of the front axle but it is capable of up to four metres of outreach when the boom is horizontal, but capacity drops to an impractical 100kg.

Fellow Japanese producer Nagano offers a 30ft/9.28 metre platform height tracked unit, the NA90ZA. With 360 degree slew coupled with the telescopic upper boom and 180 degree platform rotation. There are very few platform positions that this machine cannot achieve. Whilst all this independent movement sounds like it might be complicated to operate, Nagano has a simple 'over-ride' switch that allows the operator to travel vertically and parallel to the face of the building or absolutely horizontally using just one lever for each operation, leaving the machine's electronics to sort out



The 13m Manitou 150TP has a 1,000kg capacity and extending platform

how this is achieved. Another nice feature is the 'moveable' undercarriage central track rollers allowing greater stability when travelling over uneven ground.

The Nagano lifts were introduced at the APEX show in 2008 and are available in Holland and Belgium under the Nagano brand. For the rest of Europe they are sold as Hanix machines, trading on the reputation of the established mini excavators although to date not many have been sold outside of Holland, where its dealer Kemp has delivered around 25 units.

The Titan

Mec announced its 40ft/12.2 metre platform height Titan 40-S at the start of this year shipping the first CE unit in September. The machine was originally targeted at masonry contractors and is said to combine the benefits of three machines into one. It has the combined capacity of a telehandler (1,800 kg to full height), the work area of an ultra-deck scissor lift (6.7m x

2.28m) plus some of the outreach and rotation of a boom.



The Nagano 'moveable' undercarriage



Nagano NA90ZA

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MEC's Titan Boom 40-S

The Titan may well revolutionise the way some work is performed on site. Whilst the typical RT scissor can cope with a fair degree of rough terrain, its lack of outreach means that when working on external cladding for instance, the machine must work close to and parallel with the new building line which is likely to have been excavated and backfilled during the foundation phase. Not the best place for two wheels of a heavy machine to sit. Where the Titan, Merlo and Nagano type platforms score is the few metres of outreach gained by rotating the basket, allowing the machine to find more stable ground away from the building, as well as over-sailing any immovable obstacles.

With the 40-S basket capable of handling pallet loads up to 1,350kg as well as four workers and tools weighing up to 450kg, here is a machine that has the performance that may just convince a conservative construction industry and speed up specific tasks. The capacity gives the flexibility to



The Titan platform has a capacity of 1,800kg

perform work at height that would normally have required façade scaffolding or perhaps a small mast climber.

By sliding back a centre gate in either side of the Titan's guardrails, a pack of bricks or blocks can be placed in the special load area in the centre of the platform's deck. By using the eight metre telescopic boom, 1.8 metre sliding platform and 180 degree platform rotation the basket can be moved into precisely the right position to reach the work.

The Titan has a similar three steering modes to a telehandler - 4x2, 4x4 and crab steer helping it to move into position in confined spaces. Levelling is automatic and given that the lift is technically a boom with the potential to

experience the catapult effect, the platform is equipped with a running lanyard line on each side of the platform floor.



The Titan Boom's platform with special load area (yellow) and running lanyard line on each side

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The new Penny + Giles hand operated JC1500 joystick – with a high integrity contactless Hall-effect sensing system – is now available. Specific for single-axis operator control of cranes, aerial work platforms and other off-highway vehicle applications.

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The high speed big scissor

Merlo's foray into the aerial lift market continues with its MPR range of telehandler-based platforms and the introduction of the large platform, 1,000kg capacity MPR15 and MPR18 launched at this year's Bauma. With platform heights of 45ft/13.6 metre and 53ft/16 metre, the machines offer excellent working height and lift capacity.

The MPR's large platform also slews through 360 degrees to provide some outreach including lateral outreach over the side of the lift. The 4x4 chassis also features the same three steering modes as the big Mec, but nothing can compete with the MPR's 40kph road travel speed. While this new concept will have some application on regular job sites thanks to its manoeuvrability, high capacity and

extra outreach, it will really score on a number of specific applications such as aircraft on-apron inspections and maintenance; street light maintenance/light head change overs; pruning and trimming avenues of trees and short term RT scissor rental jobs where its ability to drive to the job may save transport costs.

The dissidents

Make	Model	Platform Height/m	Outreach m	Weight Kg	Platform Size/m	Max Platform Capacity/kg	Platform rotation	Levelling degrees
Aichi	WZ09ASM	9.0	4.0	6,800	3.1x2.02	600	180 deg	
Manitou	150TP	13.0	6.0	7,950	5.0x2.0 (6.5 ext)	1,000	N/A	8 S/S 8F/R
MEC	Titan Boom 40-S	12.2	8.0	10,860	6.7x2.28	1,800	180	10 S/S
MEC	2684ES	7.93	N/A	3,630	3.65x1.83 (4.57 ext)	770	N/A	14 S/S 10F/R
MEC	3084ES	9.0	N/A	3,630	4.27x1.83	680	N/A	14 S/S 10F/R
Merlo	MPR15	13.6		11,000	4.0x2.0	1,000	360	9 S/S 5 F/R
Merlo	MPR18	16.0		11,000	4.0x2.0	1,000	360	9 S/S 5 F/R
Nagano	Na90za	9.28	3.0	7,290	3.15x2.05	600	180	
Snorkel	SL26SL	8.0	N/A	3,085	3.66x1.72 (4.23 ext)	680	N/A	13 S/S 9 F/R
Snorkel	SL30SL	10.0	N/A	3,400	4.23x1.72	590	N/A	13 S/S 9 F/R

S/S - side to side F/R - front to rear



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The mega electric RT

In the past few years the large, heavy-duty mega-scissor lifts have broken out of their traditional Dutch/German homeland with Holland-Lift now leading the way mapped out by Liftflux prior to its absorption by JLG. These machines continue to sell well with variations now including ever higher narrow aisle, tracked and electric versions with four wheel drive and four wheel steer.

Other manufacturers of this genre of machine which offer rock solid platforms and big lift capacities include German-based PB Liftechnik which now offers a wide range of such machines and H.A.B. which was formed in 2004 and only started production four years ago. It has recently appointed North-east based truck and van manufacturer Ascendant Access as its dealer for the UK.

Levelling in the rough

In recent years any Rough Terrain scissor lift worth its name has had to offer auto-levelling, mostly with the use of levelling jacks, although in the case of the Speed Levels it meant applying auto-level technology to the platform levelling system. PB clearly saw the benefits of being able to level a scissor lift without the need for jacks, which ideally require mats resulting in a stop and set up procedure. It however also appreciated the benefits of an X type scissor lift mechanism.

The solution? The S151-19E a scissor lift and electric powered at that – that can level without jacks like the speed levels, by using a controllable oscillating front axle with levelling cylinders and independently adjustable ‘floating’ rear wheels. The result is a machine which has incredible levelling capability. PB says that it is also simple – uses the same number of hydraulic cylinders (four) as an outrigger-type machine, but an operator can drive on rough ground and once in position simply operates the lift up function and the machine will automatically find its level before lifting. No need to dismount and position outrigger mats or worry about the bearing pressures if you don’t use them. The controllable active oscillation front axle can level up to 250mm



PB new S151-19 Elevated



Holland Lift XZ-650XL22-TR

whereas the height-adjustable rear axle has a levelling range up to 380mm.

With the machine constantly levelling during driving, PB says that more than 80 percent of the levelling has already been achieved by the time the lift reaches its position speeding the levelling time still further.

The S151-19E uses either a diesel or a high torque, 16kW electro-hydraulic drive system and features an 80 degree crank angle on the steering for a tight turning circle without the need for four wheel steer.



PB Liftechnik's 4x4 S151-19E series

Tracks for when wheels will not do

Tracked scissor platforms are the ultimate ‘go anywhere’ machine and are a niche within the niche although in countries such as Holland and Belgium there is a constant demand with several manufacturers offering product. Omega Platforms has several tracked lifts including its nine metre platform height ultra heavy duty 17.5 tonne machine. Its dual side-deck extensions increase the platform size to six metres by 2.8 metres with a deck capacity of 2,000kg. Holland Lift also has numerous tracked platforms, its most recent is the Monostar XZ-65DXL22-TR – a twin deck extension, 750kg capacity diesel powered platform. The 6.5 metre platform height machine has a maximum gradeability of 35 percent and a 5.9m x 1.95m platform.



Holland Lift 34 metre electric G320 EL30



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