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ANSI models shown.



The rough make it smooth

The Rough Terrain scissor lift has been around since the birth of the self propelled work platform but now is an indispensable item of equipment. We take a look at the latest developments and trends.

With its sizeable work platform, decent working heights and an ability to traverse the typical UK construction site, the RT scissor lift is a common sight on a wide variety of construction projects. Since our last specific review of the sector almost three years ago there have been few major technical developments - even the tallest platforms are only marginally higher at 32 metres. There have been significant improvements in terms of choice and performance with narrower width models and increased platform capacities and larger deck sizes now available.

At the other end of the size spectrum, there is a flurry of activity in the compact sector with a wide choice of product from Skyjack, Genie, Haulotte, JLG and MEC and a couple of machines offering something completely different such as the Leguan 80SX and the Manitou 150TP.



All change

When Rough Terrain scissor lifts really took off in the UK and Ireland in the mid to late 1990's most UK rental companies bought purely on price, avoiding what they considered to be 'frills' such as four wheel drive and levelling jacks. The rationale behind this was that contractors simply would not pay for these items.

When it came to rental rates, contractors asked for a price for the given working height and cared not a jot for the 'bells and whistles' and if this was not enough the extra options made the machines more complex and so increased the running costs. (Interestingly rental companies in Ireland did not make the same mistake).

This policy came back to haunt the fleet owners when it came time to sell the machines on. Outside of the UK no one was interested in big two-wheel drive scissor lifts with no levelling capability. The resulting resale values caused a lot of grief when the UK market for big scissor lifts took a dive in 2001/2.

These days the market could not be more different, not only has it become almost impossible to buy a Rough Terrain scissor lift without these items as standard, but ultra high-spec heavy-duty lifts such as Holland Lift and JLG-Liftlux are selling exceptionally well in the UK and Ireland, something inconceivable 10 years ago. In fact the UK has become Holland Lift's

C&a rough terrain scissors



second largest export market after Germany, which has always chosen specification over price.

Taking big scissors indoors

Many manufacturers are now also offering smaller wheeled, electric powered versions of these diesel engine machines - increasingly with four wheel drive - for use on finishing or fit-out work inside the building after the concrete floor has been laid. There are also a few manufacturers offering crawler mounted versions but these have not caught the user's imagination in the UK. Ground conditions here do not justify the extra purchase price and running costs for these exotic lifts.

Big diesel scissors have typically been a cladder and roofers tool, and are particularly popular on large shed-type construction where the big extending platforms are sizeable enough to can carry men and materials for fitting the external façade panels. They are also increasingly used on bigger finishing jobs such as ducting, fireproofing, electrical, alarm and sprinkler system installation. Higher lift capacities allow a contractor to take up a great deal more material with him than in the past and therefore dramatically step up his efficiency. In addition to this, the increasing use of lifting aids and manipulators to position larger and longer

lengths of sprinkler tubes requires more lift capacity. This is also being driven of course by the increasingly tight restrictions on manual handling.

These large distribution 'sheds' increasingly have roofs approaching 30 metres, demanding the use of the largest platforms for installing services near the roof line. Until recently the number of such machines available in the UK meant that these lifts were frequently re-rented in from Holland to the point where Dutch companies such as Doornboss kept a fleet of big Holland Lifts stationed in the UK.

A Liftlux installing ducting.



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The first Holland Lift in the UK is with Access Rentals - here working on the new Adidas distribution centre in Trafford Park, Manchester

Check the lift capacity

The biggest scissor lifts, such as the JLG Liftlux 320-20, now offer platform capacities of up to 1,400kg more than enough to cope with a material positioner and a stock of materials for installation. Platform capacities still vary enormously even for similar sized machines, so be sure to check that both the size of the platform and its capacity suit your requirements. MEC for example has 9.1 and 12.5 metre machines with capacities of 454kg but a 7.62 metre unit with 907kg and a 10.06 metre machine that can carry 680kg. And remember, platform capacity is for everything on the deck including men and materials.

Self levelling now 'de rigueur'

Hydraulic levelling jacks are now standard on all but compact machines. Used to level the machine rather than for additional stability, most now feature a 'single button' self levelling system. Our advice is never buy a Rough Terrain scissor lift, even a compact one, without jacks and secondly specify automatic self levelling. While some owners and users claim it adds complexity - which it certainly does - it will not be long before users will shy away from machines which only offer manual levelling. Platform size is one of the most important requirements on any big scissor lift. Single and double deck extensions add to the working length of the platform without adding to its transportation length. They also offer some outreach to

clear obstacles or overcome the distance between the machine and face of the building if the base of the machine is that much bigger. The largest decks (up to nine metres) also are capable of handling increasingly long cladding panels now exceeding seven metres. It was Canadian-based producer Skyjack which kicked-off the trend towards dual deck extensions when it modified its machines for UK plant hirer David Meek specifically for cladding work more than a decade ago. Dual deck extensions have since increased in popularity throughout Europe and are today an essential option on larger machines.

A new variation on the theme is the side platform extension, while a few companies have built such platforms as specials, particularly for railway maintenance, Iteco showed a small electric IT4680M scissor lift with a 360mm wide side extension at this year's Bauma show - possibly a sign of things to come?

We understand that Holland Lift is currently working on a 27 metre



Iteco showed off its small electric scissor with a 360mm side extension at this year's Bauma show.

scissor lift, the M250-27 with a full-length, 1.2 metre wide side extension which has been specifically developed for UK rental company Access Rentals. Four machines have been ordered which should be delivered to Access Rentals by May 2008.

Something different

Bauma also saw Finnish manufacturer Leguan enter the scissor lift market with its four wheel drive 80SX skid steer type scissor lift which attracted a lot of attention. Developed with Ramirent, one of Europe's largest rental companies, Leguan claims that it is the first machine of its type. Fully self propelled in the stowed position, it requires outriggers to be set before elevating. However the unusual design allows the machine to level on slopes of up to 25 degrees. Currently just one model - a six metre platform height unit with a 3.4 metre long extended



The Leguan 80SX is a skid steer type scissor that is attracting a lot of interest from Europe's largest rental companies.

platform - is available. The company says that it is working on introducing an eight metre machine in the near future. The 80SX is a compact machine, measuring just a metre wide and 2.8 metres long however it put on a very creditable show of its off-road capabilities at Bauma.

Possibly the holder of the most rough terrain, RT scissor lift is the Paus Universa 50 which uses an all-wheel driven carrier vehicle with



One of the Speed Level's most popular applications has been in tunnel construction and maintenance.

articulated steering and a pendulum rear axle for its 'go anywhere' capability. The carrier can be fitted with a variety of fixed superstructures including the scissor platform as well as acrane, concrete mixer and diesel tank to name but a few. The scissor platform has a working height of 5.5 metres and can level on slopes up to plus or minus eight degrees.

The idea of levelling without the need for outriggers has long been an attractive proposition, the machine that has pioneered this more than any other is the UpRight Speed Level, with 26 and 30ft platform heights.

UpRight first showed its SL26 Speed Level prototype at the ARA show in 1990. The first machine featured automatic levelling, possibly the first self propelled lift to do so. However the concept was way too complicated not to mention scary and a much simpler manual levelling system was adopted for the production machines. In spite of a slow start, mainly due to the recession that hit shortly after, thousands of units have been delivered over the 16 years it has been in full production.

The Speed Level was relaunched in 2004 featuring a Perkins engine, new drive train and user friendly automatic levelling. The Speed Level is still highly unusual with its sigma style articulated lift mechanism and up to 13 degrees side to side and



The Paus Universa 50 carrier can be fitted with a number of superstructures including scissor platform.

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Working height 8,0 m
 Width 1,0 m
 Platform 2,25+1,2 m
 Weight 1500 kg



www.leguanlifts.com

nine degrees front to back levelling ability without the need for outriggers. Over the years one of the most popular applications of this machine has been in tunnel construction and maintenance.

Due to its slow start, no other manufacturer has looked at this type of machine or application. With UpRight's sigma construction practically limiting working heights to less than 11 metres the concept was not extended either.

Then last year Manitou, looking to introduce a big scissor lift but not wanting to go head to head with the big access manufacturers, unveiled its 50ft platform height 150TP. With a telehandler telescopic boom, a 6.3 metre extended platform length and 1000kg capacity it is already a decent performer. However it also combines similar levelling capabilities to the Speed Level, levelling fore and aft and side to side without the need for outriggers. It also has the advantage of being able to reach out beyond its base to provide a large working envelope without the need to move.

Manitou claims that it can cover 150 square metres of facade without moving the machine, increasing efficiency and saving time. It can also straddle obstacles inevitably found around buildings under construction. (See box story)

What's available?

In our chart opposite we have listed the main rough terrain scissor lifts on the market with the key performance specifications for comparison. In addition to platform height these include overall platform dimensions - important for transport, storage and working in confined areas.

A key consideration to look at is the difference between the machine's overall width and the width of its

The Manitou 150 TP offers self levelling and the ability to reach beyond its base.



When working in situations such as this, a rigid machine is essential.

C&a rough terrain scissors

platform. By making a narrower platform, a manufacturer can either boost the lift capacity or lower the overall weight without compromising stability - both admirable qualities for certain applications. However, if you are looking for a machine to carry out heavy work on a facade, or if you cannot position the machine right up to the facade, then a scissor lift that has a half metre reach to the edge of the machine will not be attractive.

Lift speed can vary quite widely. Saving a few seconds on the lift to full height is of little consequence on most jobs. However, if you have an application that requires frequent ups and downs, then a slow lift speed will irritate. With rental companies purchasing a wider range of rough terrain and large scissor lifts in increasing numbers there should be no problem finding the ideal machine for the job.

Make/Model	Platform m	Capacity kgs	Deck Ext	Platform Extended m	Length/Width	Lift/lower Secs	Grade %	GVW kgs
Airo SF1000D 4WD	10.2	450	SD	3.21x1.40	2.97x1.70	40/50	30%	3,200
Airo SF1200D 4WD	12.2	700	DD	5.84x1.74	4.02x2.11	40/45	35%	5,870
Airo SF1380D 4WD	14.1	700	DD	6.38x1.88	4.53x2.33	55/60	40%	8,000
Airo SF1700D 4WD	17.3	500	DD	6.38x1.88	4.53x2.33	65/80	40%	9,520
Genie GS2668 RT	7.9	567	SD	3.96x1.55	2.67x1.73	30/35	35%	2,891
Genie GS3268 RT	9.7	454	SD	3.96x1.55	2.67x1.73	40/37	30%	3,632
Genie GS3384 RT	10.1	1,134	DD	6.57x1.83	3.94x2.13	45/29	50%	5,445
Genie GS3390 RT	10.1	1,134	DD	6.57x1.83	3.94x2.29	45/29	50%	5,482
Genie GS4390 RT	13.1	680	DD	6.57x1.83	3.94x2.29	45/39	50%	5,936
Genie GS5390 RT	16.1	680	DD	6.57x1.83	x2.29	55/49	40%	7,537
Haulotte Compact 10 DX	8.2	565	SD	3.7x1.54	2.65x1.80	31/27	40%	-
Haulotte Compact 12 DX	10.1	450	SD	3.7x1.54	2.65x1.80	40/45	40%	3,860
Haulotte H12 SX	10	700	DD	6.0x1.89	4.12x2.25	43/65	45%	5,640
Haulotte H12 SXL	10	700	DD	7.3x1.89	5.30x2.25	43/65	45%	5,700
Haulotte H15 SX	13	500	DD	6.0x1.89	4.12x2.25	46/57	45%	6,180
Haulotte H15 SXL	13	500	DD	7.3x1.89	5.30x2.25	46/57	45%	6,530
Haulotte H18 SXL	16	500	DD	7.3x1.89	5.30x2.25	60/60	45%	7,490
Haulotte H18SX	16	500	DD	6.0x1.89	4.12x2.25	60/60	45%	7,300
Holland Lift B165DL25	16.5	650	SD	6.17x2.30	4.84x2.44	72/48	30%	10,540
Holland Lift B195DL25	19.5	500	DD	7.20x2.30	4.84x2.44	95/45	30%	12,280
Holland Lift G320DL30	31.7	1,000	SD	9.66x2.80	7.02x2.98	180/240	35%	31,200
Holland Lift M250DL27	25	1,000	SD	8.25x2.50	6.57x2.65	120/105	30%	21,910
Holland Lift Q135DL24 4WD	13.5	750	SD	6.06x2.30	4.75x2.44	60/42	30%	8,820
Holland Lift T210DL25	21	1,000	SD	7.32x2.40	5.75x2.49	120/105	25%	17,950
Holland Lift X105DL18 4WD	10.5	500	SD	4.61x1.74	3.50x1.82	48/34	30%	5,360
Holland Lift Y83DL16 4WD	8.3	350	SD	3.55x1.55	2.95x1.66	30/24	30%	3,360
Iteco 10160D	9.9	400	SD	3.50x1.63	3.10x1.70	28/42	35%	3,970
Iteco 12230D	11.5	1,200	DD	7.10x2.12	4.77x2.36	-	40%	9,700
Iteco 15230D	14.9	800	DD	7.10x2.12	4.77x2.36	-	40%	10,500
JLG 260MRT	7.92	587	SD	3.81x1.65	2.67x1.75	27/21	35%	3,338
JLG 3394RT	10.1	1,020	DD	6.25x2.18	3.86x2.39	30/30	45%	5,402
JLG 4394RT	13.1	680	DD	6.25x2.18	3.86x2.39	40/43	45%	6,940
JLG Liftlux 153-22	15.3	750	SD	7.20x2.20	4.59x2.26	45/50	30%	9,060
JLG Liftlux 203-24	20.3	750	SD	7.20x2.30	4.80x2.40	55/60	25%	11,400
JLG Liftlux 210-25	21	1,000	SD	7.55x2.50	5.74x2.50	60/65	30%	15,000
JLG Liftlux 245-12	24.5	600	SD	7.54x1.17	5.37x1.24	125/120	25%	15,350
JLG Liftlux 245-25	24.5	750	SD	7.55x2.50	5.74x2.50	70/80	25%	16,300
JLG Liftlux 260-25	26	1,000	SD	9.60x2.50	6.88x2.50	70/80	25%	24,700
JLG Liftlux 320-30	32	1,400	SD	11.00x2.90	8.40x3.00	116/120	20%	39,800
Leguan 80SX	6	225	SD	3.4x0.92	2.80x1.00	-	-	1,450
Manitou Maniaccess 150 TP	15	1000	SD	6.30x2.30	-	-	-	-
MEC 2591RT	7.6	907	SD	4.57x1.83	3.65x2.31	25/30	45%	3,629
MEC 3072RT	9.14	454	SD	4.01x1.83	2.98x1.83	26/28	45%	3,330
MEC 3391RT	10.1	680	SD	4.57x1.83	3.65x2.31	33/35	45%	3,946
MEC 3772RT	11.3	340	SD	4.01x1.83	2.98x1.83	32/38	40%	3,850
MEC 4191RT	12.5	454	SD	4.57x1.83	3.65x2.31	34/40	45%	4,400
Omega RS120-1000	10	1000	DD	7.50x2.40	4.50x2.40	-	35%	6,800
Omega RS150-800	13	800	DD	7.50x2.40	4.50x2.40	-	35%	9,000
Omega RS180-800	16	800	DD	7.50x2.40	4.50x2.40	-	35%	10,000
Omega RS225-800	20.5	800	DD	7.50x2.40	4.70x2.40	-	25%	15,000
SkyJack 6826 RT	7.9	567	SD	3.94x1.42	2.72x1.73	36/	50%	2,926
SkyJack 6832 RT	9.8	454	SD	3.94x1.42	2.72x1.73	39/	40%	3,497
SkyJack 7127	8.2	680	SD	4.31x1.62	3.23x1.82	43/	30%	3,819
SkyJack 7135	10.7	454	SD	4.31x1.62	3.23x1.82	41/	30%	4,014
SkyJack 8243	13.1	454	SD	4.31x1.62	3.23x2.08	45/	30%	4,808
SkyJack 8831	9.4	1134	SD	5.91x1.78	3.49x2.21	58/	30%	4,386
SkyJack 8841	12.5	771	SD	5.91x1.78	3.49x2.21	56/	30%	4,794
SkyJack 8850	15.2	363	DD	4.31x1.64	3.23x2.24	48/	30%	5,198
SkyJack 9250	15.2	907	DD	7.27x1.88	4.47x2.34	67/	30%	6,668
Snorkel SR2584	7.4	794	SD	4.30x1.80	3.70x2.10	20/	40%	3,266
Snorkel SR2770	8.28	580	SD	3.93x1.65	3.36x1.77	-	-	2,800
Snorkel SR3284	9.7	567	SD	4.30x1.80	3.70x2.10	28/	37%	3,765
Snorkel SR4084	12	340	SD	4.30x1.80	3.80x2.10	35/	32%	4,218
UpRight SL26 Speed Level	8	680	SD	4.23x1.72	3.79x2.13	21/32	35%	3,150
UpRight SL30 Speed Level	9	590	n/a	n/a	4.39x2.13	24/36	35%	3,216
UpRight X27RT	8	580	SD	4.60x1.80	-	-	-	-
UpRight X33RT	10	450	SD	4.60x1.80	-	-	-	-
UpRight X40RT	12	340	SD	5.00x2.10	-	-	-	-



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Driving at full height

In the UK and Ireland it has always been possible to drive scissor lifts at full height as long as the machine was designed to do so. This was not always true in continental Europe. Germany and Holland did not permit any machine to be driven once the platform was over eight metres platform height and in Italy driving at height was not permitted at all. EN280 changed all that. However some manufacturers and some users prefer to retain the old eight metre cut out devices and even in the UK some safety officers believe that driving at full height on larger scissor lifts should not be permitted.

The argument goes that with a large number of scissor lifts over 15 metres and some over 30 metres, the effect of hitting a kerb or driving onto a slope is magnified and therefore dangerous. While such a view is understandable, every manufacturer we spoke to confirmed that their scissor lifts were fitted with drive and lift cut-outs on their tilt alarms. The majority of companies have them set at two degrees, this in reality prevents a

scissor lift from being driven at height on anything but a smooth level surface.

If a kerb is encountered the larger machines are better placed to absorb it than the narrow aisle electrics. For EN280 every machine must pass a kerb test and it should be remembered that most scissor lifts sold in Europe are built by American producers and still meet ANSI stability rules, which require that the lift withstand a five degree slope in its least stable position with a 30 percent overload. In our view driving at height with big machines is not a high risk situation. The biggest risk for large scissor lifts is the machine working at full elevation in windy conditions with a large object in the platform that acts as a sail or the setting up on three outrigger legs - amazingly still possible on some machines in the UK fleet!

As Holland Lift produces the scissor lifts that can drive at the greatest height we asked its managers for their view on this. They replied that they were not particularly in favour of driving at full height and so fit a

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Holland Lift fits a key switch that limits the machine to driving up to eight metres high. This can be deactivated to allow driving at full height.

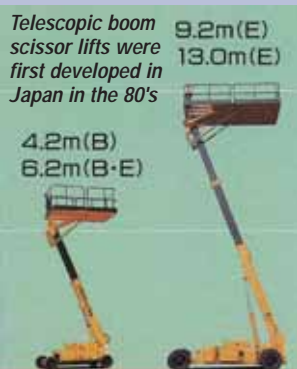
key switch that normally limits the machine to driving up to eight metres high. If the end customer requests drive at full height, the rental company can activate it with the key giving the user additional

instruction on the safety steps he should take, such as only driving on level ground and walking and checking the route before going up in the platform in order to check for voids or obstacles.

Nothing new under the sun

The Manitou 150TP surprised many when it was first unveiled in Paris in 2006. However the concept is anything but new. The first such machines were built in Japan back in the 1980's, with the rental company Niken coming up with the original idea of a scissor platform on a boom. It toured manufacturers in the mid 1980's looking for someone to build such a machine and eventually found a local supplier to satisfy the demands of its own fleet.

Tadano and Aichi have both built boom lifts with large scissor type platforms, but the self propelled



Telescopic boom scissor lifts were first developed in Japan in the 80's

versions have always been way too expensive to generate any volume.

Looking to re-enter the big scissor lift market in 1992, UpRight built a prototype machine very similar to Manitou's 150TP in a range of heights from 30ft to 60ft. The electronics required to limit the working envelope and provide a vertical lift from two hydraulic functions (lift and telescope) were simply not state of the art and with the market for big scissiors nose diving the company stopped development and put all its efforts in a new range of small electric scissiors, including the MX, X and TM12.

So while not a totally new concept, the Manitou combines the very latest controls, a rigid platform, 'Speed Level' levelling capability, a wide working envelope and a low platform loading and transport height, regardless of the machine's platform height.

UpRight developed a very similar machine to the Manitou 150TP in 1992.

