



Vertikal Check!

Does your equipment come up to spec? Is it exactly what you ordered? *Cranes & Access* and its German sister magazine *Kran & Bühne* recently organised the first Vertikal Check in which a team of experts tested six of the leading 16 metre articulated boom platforms

Vertikal Check is designed to allow users and buyers of lifting equipment to directly compare like with like. A team of independent experts was assembled for the tests in which all the principal dimensions and specifications of the machines were mea-

sured according to strictly defined criteria. The results make interesting reading as they highlight the fact that some phrases which are widely used in the industry can mean very different things to different manufacturers.

The test took place in Germany at the end of the annual Platformers' Days meeting. This informal gathering of Germany's access industry takes place in the rural grounds of a hotel/equestrian centre – ideal terrain in which to test the machines. The six machines were checked by Joachim Metzner, managing director of Bertram Access Platforms, Adrian van der Geer, head of engineering at Mateco (one of the largest platform hire companies in Europe), and Reinhard Willenbrock, managing director of Willenbrock Concept. Recording their findings were Tim Whiteman and Ruediger Kopf of *Cranes & Access* and *Kran & Bühne*.

Our test subjects were articulating boom platforms with a working height of around 16 metres. Participating companies were: Genie; Haulotte; JLG; Manitou; Snorkel; and UpRight. The intention was to compare like with like – there is no winner or loser, but there is concrete information to help readers with purchase or hire decisions. Machines were checked in strict alphabetical order and our report is also in alphabetical order. Naturally a whole host of additional factors affect any purchasing decision, notably after sales service, availability, relationship with the supplier and, of course, the price. These factors were not tested – we did ask for list prices, but not all manufacturers were prepared to release these and so they have been omitted from the tables.

The difficulties of comparing like for like, and the need for an impartial check, are shown by the possible interpretations of maximum working radius that we encountered:

- The distance to the end of the basket in its “normal” operating position.
- As above, but with the basket rotated through 90 degrees.
- As above but with 50 centimetres added to give the working radius that an operator can reach with outstretched arms.

Our solution was to agree definitions which are set out in the table and were applied to all the machines. Our test ground was a field rather than a laboratory and so it is worth noting that a tolerance of two centimetres either way and/or two seconds should be allowed. It is also worth noting that measurement of the turning circle took place in a field rather than on concrete.

Our tables summarise our results against those that were in the official catalogues supplied to us in Germany. For completeness we have also included some relevant data that was not tested on the day. ■

Definitions

Working Height:

Platform height plus two metres.

Outreach:

From the central turning point to the end of the basket which was not rotated.

Basket Dimensions:

Measured to the outside of the external edges.

Ground Clearance:

Measured in the middle of the axles

Length, Breadth, Height:

Measured with the basket not folded away.

Transport Dimensions:

With basket folded away.

Slewing:

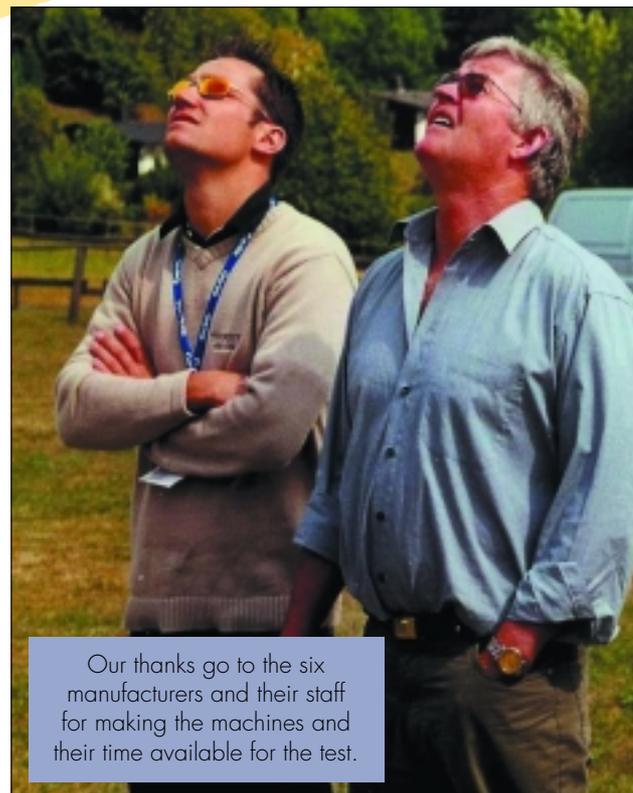
Either continuous or with a stop which was described as 358 degrees.

Turning Circle:

The diameter, not the radius. Measured from the middle of an axle.

Lifting Speed:

Elevation of the basket from touching the ground to full elevation with two people in the basket.



Our thanks go to the six manufacturers and their staff for making the machines and their time available for the test.



retracted and the basket is at ground level.

Our test jury was especially impressed with the “sure footedness” and general feeling of safety the Genie conveyed while being driven. This was combined with simple handling thanks to well laid out proportional controls. Good control of the machine was possible at speed and fast travel around bends presented no difficulties. The control panel has an array of switches, some of which have to be correctly set before the machine

Genie Z-45/25 RT

A noticeable feature of the Genie Z-45/25 RT is the very exact specification. There are a couple of major differences between our figures and those of the manufacturer but these are caused by different measuring systems. Genie measures the true “Turning Radius” which gives a figure half that of the turning circle used by us. The difference in the speed of elevation is also explained by the fact that we measured the time it takes to reach maximum elevation from a position in which all booms and jibs are

can be operated. The machine’s general finish met the panel’s expectations. The fuel tank filler was easy to reach and relatively easy to use. A particular strength of the Genie is the fact that the entire engine can be swung out of the housing – a major plus for maintenance. Good RT capabilities were demonstrated during use off-road. Starting on a gradient was no problem, partly due to the design of the oscillating axles. The judges noted a slight lack of “fine control” during start up. The brakes worked well during a sudden stop and brought the machine safely to a halt. The machine has a modern appearance and is summed up as user and service-engineer friendly (particularly because of the swing-out engine).

Genie Z-45/25 RT

Technical Data (in metres)	Catalogue	Vertikal Check
Working Height	15,86	15,82
Outreach	7,60	7,62
Platform Length	1,83	1,83
Platform Width	0,762	0,760
Ground Clearance	0,254 - 0,33	0,29
Length	6,78	6,715
Width	2,24	2,26
Height	2,08	2,065
Transport Height		2,61
Transport Length		5,78
Slewing	359°	358°
Turning Circle	1,37	3,35
Oscillating Axles	yes	yes
Elevating Speed (in secs)	45	57
Proportional Control System	yes	yes
Steering 2 wheel/4 wheel	2 wheel/4 wheel	4 wheel
Electricity Supply on Platform	yes	yes
All Wheel Drive	2 wheel/4 wheel	4 wheel
Tyre Size	14 * 17,5	14 * 17,5
Tyre Filling	Air/Foam	Air

ITEMS THAT WERE NOT TESTED

Travel Speed	7,72 km/h
Maximum Gradability	45%
Power Supply	27Kw Deutz Diesel
Platform Capacity	227 kg
Total Weight	6668 kg

Haulotte HA16 PX

Technical Data (in metres)	Catalogue	Vertikal Check
Working Height	16,00	15,94
Outreach	9,10	8,77
Platform Length	1,80	1,80
Platform Width	0,80	0,785
Ground Clearance	0,35	0,315
Length	6,95	6,80
Width	2,33	2,24
Height	2,15	2,14
Transport Height		2,47
Transport Length		5,12
Slewing	continuous	continuous
Turning Circle		2,65
Oscillating Axles	no	Diff. Lock
Elevating Speed (in secs)		56
Proportional Control System	yes	yes
Steering 2 wheel/4 wheel	4 wheel	4 wheel
Electricity Supply on Platform		yes
All Wheel Drive	4 wheel	4 wheel
Tyre Size	335 x 80	12,5 x 80
Tyre Filling		Foam

ITEMS THAT WERE NOT TESTED

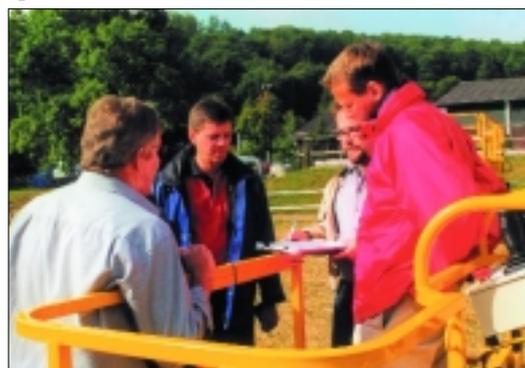
Travel Speed	6,0 km/h
Maximum Gradability	50%
Power Supply	28Kw Deutz Diesel
Platform Capacity	250 kg
Total Weight	7100 kg

but with the most important components easily accessible at the front. The back of the engine where, for example, the starter is mounted, is more difficult to reach. The machine is fitted with a differential lock, instead of the more standard oscillating axles, and has good off-road handling. The judges noticed virtually no difference in performance to machines with an oscillating axle – starting on a slope was, for example, no problem. The brakes reacted well to a sudden stop and brought the machine to a safe halt. The machine has a modern appearance and uses straightforward components and design to give a robust product. Particularly commended was the continuous slewing and the all wheel drive.

Haulotte HA 16 PX

The Haulotte HA 16 PX delivers what the manufacturer promises. The only difference between our results and what was in the catalogue was found when measuring the maximum outreach. Haulotte adds 50 centimetres to allow for the distance that an operator can reach out from the basket (in much the same way that working height is calculated by adding two metres to the platform height). The machine’s compact dimensions made an immediate, and positive, impression.

The control panel was well laid out and easy to understand. During operation the controls were sensitive and allowed “fine” movement. The machine’s general finish met the panel’s expectations. The petrol filler was a little high, at eye-level, but was easily accessible from outside the machine house. The motor is permanently mounted in the housing



JLG 450 AJ

Technical Data (in metres)	Catalogue	Vertikal Check
Working Height	15,72	15,71
Outreach	7,47	7,49
Platform Length	1,83	1,83
Platform Width	0,76	0,77
Ground Clearance	0,28	0,32
Length	6,71	6,68
Width	1,98	2,08
Height	2,24	2,28
Transport Height		2,51
Transport Length		4,98
Slewing	360°	358°
Turning Circle	3,46	3,35
Oscillating Axles	yes	yes
Elevating Speed (in secs)		67
Proportional Control System	yes	yes
Steering 2 wheel/4 wheel	2 wheel	2 wheel
Electricity Supply on Platform		yes
All Wheel Drive	4 wheel/2 wheel	4 wheel
Tyre Size	12*16,5	33*15,5*15
Tyre Filling	Foam	Foam
ITEMS THAT WERE NOT TESTED		
Travel Speed	7,2 km/h	
Maximum Gradability	40%	
Power Supply	35Kw Deutz Diesel	
Platform Capacity	230 kg	
Total Weight	7242 kg	

JLG 450 AJ

There are an enormous number of options and models available in the JLG 450 AJ range. These give varying dimensions and delivery options. The machine tested was already sold to a customer and for this reason was supplied in customer livery and to the customer's specific specifications. This explains the principle differences between figures in the catalogue and the results of our measurements and means that the figures should be treated with a certain amount of tolerance. The wide tyres were, for example, as specified by the customer and increased the overall width of the machine.

The control panel was considered straightforward and the ease of operation was commended. Likewise the



ergonomic design of the control panel and the interior of the basket was favourably received – there is for example a useful space for stowing small tools. The machine drove well, the general control was very good and the steering was good even at speed around relatively tight corners. The machine's general finish met the panel's expectations. Refuelling is easy and maintenance should be straightforward thanks to the swing-out motor.

Some fine control was necessary during hill starts. The brakes reacted well to a sudden stop and brought the machine to a safe halt. The design of the machine was particularly liked by the Jury as was the easy overview afforded by the instrumentation.

Manitou 165 ATJ

Manitou, still a relative newcomer to the powered access industry, sent its 165 AJ for consideration by our jury. In general terms we found little difference between the dimensions submitted and the results on the day. The main variances were due to different measuring conventions – Manitou, for example, takes maximum outreach to include the 50 centimetres that an operator can reach from the basket. For the ground clearance Manitou gives a maximum figure and a figure for the middle of the axle – this matched the figure obtained by our jury. The 25 centimetre difference in figures for the turning circle is again a question of definitions. We measured from the middle of the axle, Manitou measures from the turned wheel. A special note is also necessary in relation to the figures given for the elevating speed. Our figure of 61 seconds was obtained by starting the machine with the basket extended down as far as possible. The 165 AJ's design allows the main boom to extend low enough for the basket to reach ground level with a horizontal jib – from this position the machine reached maximum elevation in 45 seconds.

The control panel is logically laid out and gives a good overview. The operating controls gave a "faster" reaction than other machines which took a little getting used to. Travelling around a corner at speed also needed a little practice. The machine's general finishing was good and particularly good was the thigh-high fuel tank filler. Access to the fixed engine was



not considered as easy as other models. Noticeable about the machine is the fact that it uses true construction axles and draws on Manitou's experience with telescopic loaders. The mechanical differential lock together with the oscillating axles considerably improves off-road travel. The brakes responded very well to a sudden stop and brought the machine to a safe stop. The machine's appearance is good. Positive features include the all wheel steering, the doubled emergency release system which allowed the platform to be brought to ground level by electro-hydraulic or mechanical-hydraulic methods, and the ability to lower the basket below ground level.

Manitou 165 ATJ

Technical Data (in metres)	Catalogue	Vertikal Check
Working Height	16,50	16,62
Outreach	10,4	9,87
Platform Length	1,80	1,80
Platform Width	0,80	0,785
Ground Clearance	0,375 - 0,447	0,37
Length	7,31	7,38
Width	2,36	2,35
Height	2,34	2,38
Transport Height		2,54
Transport Length	5,45	5,57
Slewing	continuous	continuous
Turning Circle	2,25	2,51
Oscillating Axles	yes	yes
Elevating Speed (in secs)	44	61
Proportional Control System	yes	yes
Steering 2 wheel/4 wheel	4 wheel	4 wheel
Electricity Supply on Platform		yes
All Wheel Drive	4 wheel	4 wheel
Tyre Size	400/70-20	16/70-20
Tyre Filling	Foam	Foam
ITEMS THAT WERE NOT TESTED		
Travel Speed	6,0 km/h	
Maximum Gradability	50%	
Power Supply	47Kw Deutz Diesel	
Platform Capacity	250 kg	
Total Weight	8450 kg	

Snorkel AB50J

Technical Data (in metres)	Catalogue	Vertikal Check
Working Height	17,20	17,30
Outreach	8,50	8,22
Platform Length	1,83	2,02
Platform Width	0,76	0,855
Ground Clearance	0,178	0,17
Length	6,40	6,43
Width	2,30	2,29
Height	2,10	2,08
Transport Height		2,08
Transport Length		6,43
Slewing	360°	358°
Turning Circle		4,23
Oscillating Axles	yes	yes
Elevating Speed (in secs)	no	114
Proportional Control System	yes	yes
Steering 2 wheel/4 wheel	2 wheel/4 wheel	2 wheel
Electricity Supply on Platform	yes	yes
All Wheel Drive		4 wheel
Tyre Size	12 x 16,5	33x15,5x15
Tyre Filling	Air/Foam	Foam
ITEMS THAT WERE NOT TESTED		
Travel Speed	5,6 km/h	
Maximum Gradability	25%	
Power Supply	33,5 Kw Kubota Diesel	
Platform Capacity	227 kg	
Total Weight	6795/6930 kg	

Snorkel AB50J

Snorkel's AB50J was the largest machine that we tested – its maximum working height is 17.20 metres according to the catalogue or 17.30 metres according to our jury. A variety of other differences were noted between the catalogue and our measurements, many of which were due to different measuring conventions. The basket's dimensions, for example, are different because we measured the external dimensions where Snorkel measures internal. The difference in maximum outreach is explained by the fact that Snorkel turns the basket through 90 degrees for measurement purposes. The difference in the turning circle was explained by the fact that Snorkel measures the turning radius and therefore quotes a figure half



that of ours. The exceptionally high figure of 114 seconds for elevating speed is partially explained by the fact that this is a larger machine than the others and has about a metre more of boom. A final difference is that Snorkel describes the standard machine's slewing as being "continuous" – the particular model that we tested was being delivered the next day to a customer that had specified 358 degrees slewing.

The AB50J's control panel has a large number of switches. Control of the unit was therefore a little complex. Nonetheless overall control was described as very precise by our jury who added that the machine was good to operate. The general finishing of the machine was felt to leave room for improvement. The jury also felt that access to the permanently mounted motor could make maintenance difficult. The fuel tank filler was easy to see and the machine was easy to refuel.

Off-road the AB50J surprised the jury with its precise control and good tractability. Starting from a slope was no problem. Power distribution to the wheels was very good. Sudden braking was also very good and brought the machine to a safe stop. The exterior appearance, however, could not be described as typical of today's modern models.

UpRight AB46RT

Two main points of difference arose between the official specifications of the AB46RT and the Vertikal Check findings. The official maximum outreach is 50 centimetres more than ours because UpRight includes the reach of the operator's arms. For turning circle UpRight give turning radius which is thus 50 per cent of our figure.

The control panel is well laid out and completed with some elegant details. Slow travel speed, for example, is engaged via a switch on the joystick. The joystick's grip is also ergonomically designed which contributes to a smoother ride. The machine gives a good ride and is easy to control. The general finish of the machine is excellent, maintenance access to the motor, which is mounted in the lower body, is good. Refuelling is also well organised.

The AB46RT travels well off-road and starting on a slope presented no problems. A feature of the AB46RT is that the front wheels are regulated and will never turn faster than the rear



wheels – this contributes to very good road-holding. Braking in response to a sudden stop was very good and brought the machine to a safe stop. The appearance is very modern and noticeable. A feature of the basket is a swing-away section which the jury recognised as easing access but questioned its day-to-day practicality. Particularly commended were the fact that the motor is in the undercarriage, thus lowering the centre of gravity, and the ergonomic controls and the slow speed switch on the joystick. ■

UpRight AB46RT

Technical Data (in metres)	Catalogue	Vertikal Check
Working Height	16,3	16,32
Outreach	8,0	7,35
Platform Length	1,75	1,76
Platform Width	1,00	0,99
Ground Clearance	0,33	0,30
Length	5,59	5,73
Width	2,01	1,94
Height	2,13	2,19
Transport Height		2,45
Transport Length		5,33
Slewing		358°
Turning Circle	0,91	1,74
Oscillating Axles	yes	yes
Elevating Speed (in secs)	106	77
Proportional Control System	yes	yes
Steering 2 wheel/4 wheel		2 wheel
Electricity Supply on Platform	yes	yes
All Wheel Drive	4 wheel	4 wheel
Tyre Size	14*17,5	14*17,5
Tyre Filling	Air/Foam	Foam
ITEMS THAT WERE NOT TESTED		
Travel Speed	7,24 km/h	
Maximum Gradability	40%	
Power Supply	47Kw Deere Diesel	
Platform Capacity	227 kg	
Total Weight	6650 kg	