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VERTIKAL CHECK

Under starters orders.
The five machines line up in the Vertikal Check test area.



Slip slidin' away

The Vertikal Press once again teamed up with a selected group of independent experts at the recent Platformers' Days exhibition in Hohenroda, Germany for the third annual Vertikal Check. This year, straight, telescopic booms in the 22 metre working height class with jib were put to the test.

THE MANUFACTURERS that supplied the equipment at this year's Vertikal Check were greeted with the extra scrutiny of more than 100 pairs of watchful eyes as the event was officially integrated into the Platformers' Days main schedule for the first time. Machines entered by Aichi, Genie, Haulotte, JLG and Manlift were required to be navigated around a particularly sodden test area before receiving a thorough once over from the team of judges. A sixth entry had been intended from UpRight but last demands on deliveries of its SB60 meant a withdrawal from the company.

Passing the final judgements were Adrian van der Geer, technical manager at Mateco, Reinhard Willenbrock, managing director of Germany-based Willenbrock Concept, Rüdiger Kopf, editor of C&A's German sister magazine *Kran & Bühne* and Leigh Sparrow, the new publisher of The Vertikal Press.

As in previous years the Vertikal Check was broken down into three categories, those being: rough terrain and performance checks, including cycle speeds, stability and outreach tests; dimension checks and verifications; and finally, the more subjective machine feature analysis.

For the initial rough terrain test, all five machines performed well on the tough course during practise runs the previous day. Heavy rain before the final test, however, meant that the true rough terrain characteristics of each machine were fully put to the test around the

harsh course. Four of the five units performed extremely well on the tougher course and it soon became apparent that each unit's tyre set-up would be the all-important factor. Unfortunately the Manlift T65J unit sadly developed a fault after a promising start on the first slope of the course and the Manlift team subsequently decided it would be too difficult to sensibly continue and withdrew the machine.



The jury's out. From left to right, the judges were Adrian van der Geer, technical manager at Mateco, Reinhard Willenbrock, managing director of Germany-based Willenbrock Concept, Leigh Sparrow, the new publisher of The Vertikal Press and Rüdiger Kopf, editor of *Cranes & Access'* German sister magazine *Kran & Bühne*.

Among the four remaining units, the biggest surprise came from the Haulotte H21TX, which managed to match, if not exceed the other three

units in the hill climb challenge despite being the only unit without an oscillating axle – all credit to the unit's large diameter Michelin tyres. It has to be said, however, that the machine supplied was without a jib and therefore could not be truly held in comparison to the other units. Not fairing as well in this section was the Genie S65 machine, which clearly found the course more tricky with its smaller, low profile tyres. Saying this, all four wheels kept turning and it completed the course with not too much trouble.

By far the fastest machine on the day was the JLG 660SJ, which displayed a convincing performance of sheer power and speed – its extra wide tyres more than doing the job. Also performing well was the Aichi SP 21AJ, of which early signs of the engine struggling turned out to be misleading as the unit quietly and professionally turned over the course without any hesitation whatsoever – one of the better performances on the day as the round of applause from the spectators clearly marked.

Generally, all four machines that completed the course performed well-above expectation, and provided the perfect example of the importance of tyre selection in severe rough terrain conditions. It also has to be said that a combination of the test area's steep slopes and wet heavy mud on dry sub-terrain was generally seen to be far more challenging than the average poorly prepared job site. All credit to the manufacturers on the day.

GENIE S-65

FIRST UP was the 16.8 metre working height Genie S-65, which despite having the lowest profile tyres, navigated the arduous test area with relative ease. The unit's overall driveability, usability and stability all impressed upon the judges. Credit here has to be given to the unit's oscillating axle and the fact that its engine showed no sign of bogging down under the extreme conditions. A curvaceous design gives the S-65 a modern look, which is slightly let down by an older looking upper control box. Actual control of the machine was good due to proportional control of all major functions. There is good accessibility to the unit's engine and internal components for routine service and repairs due to the fact that the whole engine can be swung out from inside the machine. This said, however, refuelling and level checks cannot be made without opening the machine's external covers. The unit's hydraulics were also said to be easily accessible and safely positioned as was the cylinder of the unit's axle. Between



Genie S-65

the jib and boom, however, several external cables made for an easy target against damage should the area be struck. Compared to other units, the S-65 generally had a shorter outreach but, on the other hand, its outswing had the edge over its competitors.

A unique lift geometry design also makes the unit very light for transportation.

which was said to be easy to understand and use. As with the Genie machine, a swing-out engine and conveniently positioned hydraulics makes for easy maintenance and good accessibility. When opened, a large cover plate gives a good, wide view of the machine's internal components but straps, rather than catches on the sides of the plate, could make handling easier.



GENIE S-65

Technical Data	Vertikal Check	Catalogue
Working height	21,89	21,90
Horizontal reach	16,85	16,80 [m]
Platform length	1,83	1,83 [m](opt 2,4)
Platform depth	0,77	0,76 [m](opt 0,9)
Ground clearance	0,26	0,30 [m]
Platform rotation (vertical)	± 90	n/a [degrees]
Platform rotation (horizontal)	135	n/a [degrees]
Transport length	9,35	9,24 [m]
Transport width	2,50	2,49 [m]
Transport height	2,73	2,69 [m]
Turntable rotation	continuous	continuous
Oscillating axles	yes	yes
Elevating speed	65	65 [secs]
Tailswing	1,20	1,19 [m]
Control	proportional	proportional
Steering	2-wheel	2-wheel
Power cable to platform	optional	optional
Drive	4-wheel	4-wheel
Tire size	15 - 19,5	15 - 19,5
Tire filling	foam	foam
ITEMS THAT WERE NOT TESTED		
Speed	5,6	[km/h]
Gradeability	45	[per cent]
Motor output	36	[kW]
Lift capacity	227	[kg]
Weight	10,040	[kg]



Although said to be rather old fashioned and basic, the design of Genie's S-65 control box has been built to incorporate a substantial steel protector to prevent damage to its components.

JLG 660SJ

NEXT UP was the 22 metre working height JLG 660SJ, which again impressed with good all-round rough terrain capabilities, sheer power and speed. A combination of higher profile, extra wide tyres, oscillating axle and good ground clearance gave the 660SJ an air of domination over the quickly deteriorating terrain. The judges were also impressed by the machine's modern design and ergonomically designed control box



The JLG control box was voted one of the most modern looking on the day.



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VERTIKAL CHECK

JLG 660 SJ

Technical Data	Vertikal Check	Catalogue	
Working height	21,43	22,12	[m]
Horizontal reach	17,37	17,30	[m]
Platform length	2,44	1,83	[m]
Platform depth	0,92	0,91	[m]
Ground clearance	0,32	0,30	[m]
Platform rotation (vertical)	± 90	n/a	[degrees]
Platform rotation (horizontal)	135	130	[degrees]
Transport length	10,30	10,31	[m]
Transport width	2,45	2,44	[m]
Transport height	2,62	2,56	[m]
Turntable rotation	continuous	continuous	
Oscillating axles	yes	yes	
Elevating speed	95	n/a	[secs]
Tailswing	1,10	1,14	[m]
Control	proportional	proportional	
Steering	2-wheel	2-wheel	
Power cable to platform	optional	optional	
Drive	4-wheel	4-wheel	
Tire size	15 - 19,5	15 - 19,5	
Tire filling	foam	foam	
TEMS THAT WERE NOT TESTED			
Speed		6,4	[km/h]
Gradeability		45	[per cent]
Motor output		48,5	[kW]
Lift capacity		230	[kg]
Weight		13,600	[kg]

Filler and level checks can only be carried out with the plates open. Less connecting cables running between the jib and boom makes the 660SJ less vulnerable to damage. Lacking in protection, however, are the steer cylinders on the front side of the axle which are relatively exposed. Small discrete extras such as connection points inside the machine for jump starting also put the JLG machine in good stead with the judges.

Aichi SP 21AJ

ARGUABLY ONE of the more pricey platforms on the day was the 23 metre working height Aichi SP 21AJ. Once again, a combination of oscillating axles and high profile tyres produced good traction on the Aichi, which



Aichi SP 21AJ

VERTIKAL CHECK

performed well over and around the test site. One immediately noticeable factor, however, is the machine's old-looking design, which unfortunately is not fitting with the advanced technology incorporated into the machine itself.

A definite plus to the machine is the vertical lift or descent function switch. When selected, the telescope and boom up/down functions work automatically in tandem by one-hand operation to provide a vertical descent or ascent against a wall.

Component protection on this machine is also another strong point. All four hydraulic circuits are fitted with permanent pressure gauges and all hydraulic cylinders are fitted with protective cylinder bellows. All drive and

AICHI SP 21AJ

Technical Data	Vertikal Check	Catalogue	
Working height	22,05	23,00	[m]
Horizontal reach	17,70	17,80	[m]
Platform length	1,83	1,80	[m]
Platform depth	0,79	0,75	[m]
Ground clearance	0,26	0,255	[m]
Platform rotation (vertical)	± 90	n/a	[degrees]
Platform rotation (horizontal)	135	135	[degrees]
Transport length	11,58	11,57	[m]
Transport width	2,42	2,43	[m]
Transport height	2,60	2,64	[m]
Turntable rotation	continuous	continuous	
Oscillating axles	yes	yes	
Elevating speed	81	46	[secs]
Tailswing	1,10	n/a	[m]
Control	proportional	proportional	
Steering	2-wheel	2-wheel	
Power cable to platform	optional	optional	
Drive	4-wheel	4-wheel	
Tire size	15 - 19,5	15 - 19,5	
Tire filling	foam	foam	
ITEMS THAT WERE NOT TESTED			
Speed		5,5	[km/h]
Gradeability		45	[per cent]
Motor output		44,3	[kW]
Lift capacity		227	[kg]
Weight		14,300	[kg]





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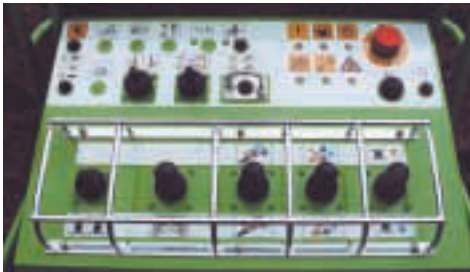
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The controls on the Aichi machine are protected by a grid and sit in a lockable steel enclosure.

boom cylinders are also well-protected. Hoses on the steer axle also have substantial protective bars, as does the unit's control box which is also located in a lockable steel enclosure. The steer and drive functions themselves, however, are at opposite sides of the control box, which forces two-hand operation for the drive functions. Accessibility to the unit's internal components is not a positive point on this platform. The engine is reachable from the front and side but does not include a swing-out feature as found on some of the other machines. As the biggest machine in the contest the SP 21AJ has the biggest working height and outreach, which, on the other hand, also makes it the longest and heaviest machine for transportation.

Haulotte H21TX

Unfortunately, analysis of Haulotte's entry was fairly limited because it was the only machine supplied without a jib. Fortunately for Haulotte, however, this was due to good unit sales of the machine in previous weeks. However, despite being the only entry without oscillating axles, and weighing in at 13 tonnes, the H21TX easily matched, if not exceeded, the other units in completing the hill climb and generally navigating the rough terrain course. The main reason for this was the unit's much larger diameter Michelin tyres, which gave it the best

HAULOTTE H21TX

Technical Data	Vertical Check	Catalogue	
Working height	21,02	20,86	[m]
Horizontal reach	16,50	17,00	[m]
Platform length	1,80	0,80	[m]
Platform depth	0,79	1,80	[m]
Ground clearance	0,35	0,34	[m]
Platform rotation (vertical)	no jib	no jib	
Platform rotation (horizontal)	no jib	no jib	
Transport length	9,10*	8,91*	[m]
Transport width	2,48	2,48	[m]
Transport height	2,88	2,82	[m]
Turntable rotation	continuous	continuous	
Oscillating axles	no	no	
Elevating speed	64*	60*	[secs]
Tailswing	1,08	1,06	[m]
Control	proportional	proportional	
Steering	2-wheel	2-wheel	
Power cable to platform	optional	optional	
Drive	4-wheel	4-wheel	
Tire size	15 - 22,5	11,75 - 22,5	
Tire filling	foam	foam	
ITEMS THAT WERE NOT TESTED			
Speed		5,0	[km/h]
Gradeability		40	[per cent]
Motor output		39	[kW]
Lift capacity		350	[kg]
Weight		13,100	[kg]

*No Jib, therefore no comparison to the other machines

VERTIKAL CHECK



Manlift's T65J unit developed a fault after a promising start on the first slope of the course and was subsequently withdrawn for the contest.

traction out of all four units. Comparisons were hard to make, however, because the unit's centre of gravity was more central over both axles than on the other machines. Other strong points of the platform include its modern design and a clear and simply designed control box. Unlike the other machines, refuelling and checking fuel and hydraulic oil levels on the H21TX can all be carried out without opening the side covers, which themselves are lockable. Maintenance could be a little difficult on this machine as some of its components are not that easily accessible.

The hydraulic section, on the other hand, is relatively easy to maintain as it is easy to reach. Praise was also given to the unit's clean boom-to-basket connection and hydraulic component

and cable protection. Again, it must be remembered that the unit was supplied without a jib and was therefore not as complex as its competitors. Exposed steer rods on the machine's front axle are fairly prone to damage from alien objects. Also left exposed is the boom back-up cable and platform overload adjusters.

Vertikal Check

A high platform entry level may also pose problems for a shorter operator. Arguably one of the less expensive platforms entered into the Vertikal Check, the H21TX's all-round simplicity stood the machine in good stead. **C&A**



Haulotte H21TX