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A 315 SL backhoe loader by John Deere.



BACKHOE LOADERS: CENTRE-MOUNT OR SIDE-SHIFT?

This feature discusses the differences between centre-mount and side-shift backhoe loaders and casts the spotlight on their respective advantages and applications. We explore the metrics to consider when choosing between the two and highlight some models available in the South African market. By *Mark Botha*.

Discussing the differences between centre-mount and side-shift backhoe loaders, John Deere Construction & Forestry sales manager covering Africa and Middle East, Griffiths Makgate says that, on centre-mount backhoe loaders, the backhoe is mounted to the centre of the machine with fabricated stabilisers that ex-

tend outwards, making it the ideal machine for general construction work where space is not a constraint.

"The machine works in open fields, road building, on farms and in any application that can accommodate the outward stabilisers," he says. John Deere's 310 L model backhoe loader is equipped with standard length stabilisers.



"Side-shift backhoes afford the operator a bigger digging range without having to reposition the backhoe loader while a centre-mount backhoe would require the backhoe loader to be repositioned before resuming digging."

Victor Nemukula, MD
of Shumani Industrial
Equipment.



"Side-shift backhoes are particularly valued in applications such as street repair, underground utility work in congested urban areas; constructing trenches, and digging next to buildings, walls, or other structures."

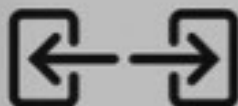
Griffiths Makgate, John Deere
Construction & Forestry sales manager
covering Africa and Middle East.



Caterpillar offers five side-shift models in the southern African region: the Cat 426F2, pictured, and the Cat 428; Cat 432; Cat 434 and Cat 444.



On centre-mount backhoe loaders, the backhoe is mounted to the centre of the machine with fabricated stabilisers that extend outwards



With side-shift backhoe loaders, the operator can easily unlock and shift the backhoe along the H-frame



Side-shift backhoes afford the operator a bigger digging range without having to reposition the backhoe loader



Centre mount TTBs work on construction sites where space is not restricted and their side-shift counterpart is suited to sites where you might have to dig a trench next to a wall or a more confined space



Side-shift backhoe loaders are better suited to work in built-up areas

QUICK TAKE

With side-shift backhoe loaders such as John Deere's 315 SL, the operator can easily unlock and shift the backhoe along the H-frame using a single combination in-cab switch located on the main control panel.

This, says Makgate, eliminates the risk of damaging streets, parking lots or other terrain when manually shifting the backhoe with the rear bucket. He says that, with two hydraulic cylinders to shift the backhoe, the design eliminates the need for a chain-drive or pulley system.



"Backhoe loaders are very common and can be used for a wide variety of tasks including construction, small demolitions, light transportation of building materials, digging holes/excavation, landscaping and breaking asphalt."

Kobus Hartzenberg, Revaro Equipment workshop and equipment parts manager.



"Demand for backhoes in southern Africa is essentially for side-shift models while the demand for centre-pivot models remains low."

Richard Maddocks, backhoe loaders product and application specialist at Caterpillar.

Bronze wear pads are used on the H-frame to reduce friction and improve the durability and wear life of the slide rail. This feature enables offset digging for improved visibility to the trench and the powered side-shift option allows operators to take full advantage of the 315 SL's narrow footprint with vertical stabilisers.

As the name implies, says Revaro Equipment workshop and equipment parts manager Kobus Hartzenberg, a centre-mount or centre-pivot machine is mounted at the centre of the rear frame.

"This is a fixed position from where the stabilisers swing out and down from the sides of the frame."



The 426F2 is a particularly popular model in the southern African region as it is easy to own and operate.



John Deere's 310 L model backhoe loader is equipped with standard length stabilisers.

He says a side-shift backhoe loader is designed with the backhoe's kingpost mounted on a carrier.

"This carrier can slide from one side to the other along a frame with rails that include stabilisers, which are mounted on both sides and can extend vertically."

Victor Nemukula, MD of Shumani Industrial Equipment, says side-shift backhoes afford the operator a bigger digging range without having to reposition the backhoe loader while a centre-mount backhoe would require the backhoe loader to be repositioned before resuming digging.

Centre-mount or side-shift: metrics

On the metrics to consider when deciding between a centre-mount or side-shift backhoe loader, says Rievaro's Hartzberg, the prospective buyer should consider what their project requires of the machine.

"For example, what type of trench they plan to dig or the space that they will have to work with," he says.

According to Makgate, the site requirements and application will be the deciding factors.

"Side-shift backhoes are particularly valued in applications such as street repair; underground utility work in congested urban areas; constructing trenches, and digging next to buildings, walls, or other structures," he says. "Centre-mount backhoes can be used in more general applications."

Nemukula agrees, saying either of the two are capable options, but that the user would have to consider the application in which the machine would be used for, as well as the amount of space available for manoeuvring.

"For example, a centre-mount in a dedicated hammer application such demolition or the breaking of oversized rocks

on a grizzly in a mining application works well. However, in a construction application where you're working in confined spaces, the versatility of a side-shift backhoe loader becomes very useful."

Applications

Hartzberg says backhoe loaders are very common and can be used for a wide variety of tasks including construction, small demolitions, light transportation of building materials, digging holes/excavation, landscaping and breaking asphalt.

He says their relatively small frame and precise control make backhoe loaders "very useful and common" in urban engineering projects such as construction and repairs in areas too small for larger equipment.

"Centre mount TLBs work on construction sites where space is not restricted and their side-shift counterpart is suited to sites where you might have to dig a trench next to a wall or a more confined space."

"Side-shift backhoe loaders," says Nemukula, "are better suited to work in built-up areas. The side-shift boom allows for operation closer to buildings and busy roads, making it an obvious option for construction and civil contracts." He says the centre-mount backhoe is better suited to applications where hammer work is the main operation.

Ranges

Makgate says John Deere offers the centre-mount John Deere 310 L Backhoe (64 kW at 2 000 rpm) and the John Deere 315 SL Backhoe (69 kW at 2 000 rpm) with optional side-shift.

Key features of these backhoe loaders include 4-wheel drive on command whereby limited-slip differential combined with mechanical front-wheel drive (MFWD) provides true 4x4 performance and excellent traction in any ground conditions by delivering up to 65% of the available power to the wheel with the best traction.

The company's PowerShift™ transmission provides smooth, on-the-go clutchless gear changes for the operator. AutoShift™ automatically shifts the PowerShift™ transmission to the appropriate gear. The control lever is set to the highest gear desired, and the transmission will shift optimally based on engine rpm and ground speed.

A new powered side-shift option for the 315 SL enables smooth side-to-side shifts in under 6 seconds, for more precise backhoe repositioning, especially when working in confined spaces.

"This means that you can move your operation without moving the machine. Its design includes a series of two hydraulic cylinders used to shift the backhoe,"



Revaro Equipment is the distributor of the Revaro brand TLBs in Africa available in 76, 96 and 100 hp.



A Bobcat B730 from Shumani Industrial Equipment.

eliminating the need for a chain-drive or pulley system. It's easily unlocked and controlled via the combination in-cab switch on the main control panel," he says.

Ride Control is a hydraulic option available on all L-Series backhoes. The loader hydraulics of the backhoe act as a shock absorber for the machine when this feature is active.

"The operator will notice a significant improvement in the comfort of the ride as well as improved material retention in the loader bucket during transport operation," says Makgate. "Less time will be spent on site clean-up and more time will be spent on the task at hand."

He says Ride Control also improves the pin and bushing life of the loader by reducing the shock loading in the structures.

The Transmission Quick Shift feature on John Deere's backhoe loaders is new to the L-series.

"A Quick Shift button has been added to the loader control grip on the 315 SL backhoe loader equipped with front auxiliaries," says Makgate. "The operator has two Quick Shift modes. In the first mode, he can downshift one gear with each press of the button. In the second mode, he can downshift one gear with the first button press. On the second button press

the transmission will 'cancel' the downshift, returning the machine to the selected gear."

He says that, if AutoShift is enabled, the second button press will return to AutoShift, allowing the transmission to select the appropriate gear based on speed and load.

"This feature allows the operator to always keep his hands on the steering wheel and the loader lever during truck loading operations. By using the button to quickly shift down when going into the pile and quickly shifting back to the desired gear, the operator can increase productivity during loading operations."

The John Deere Power Tech engine features Eco Mode which, when activated, limits the maximum engine RPM in both loader and backhoe operation for maximum fuel savings. The engine speed is limited to 2 100 RPM when the operator is facing the loader with the transmission in neutral, first or second gear, and it is limited to 2 000 RPM when facing the backhoe.

The company's backhoe loaders feature John Deere's proven Powertech™ Wet-Sleeve engine with replaceable wet-type cylinder liners for superior cooling, reduced oil breakdown and reduced ring wear.

Hartzenberg says Revaro Equipment is the distributor of the Revaro brand TLBs in Africa, available in 76, 96 and 100 hp.

"Revaro backhoe loaders dig deeper, push harder, load higher and exceed all expectations."

He says a comparison study was done between these machines and some of the most popular brands in the world.

"Revaro machines outperformed the competition on all levels and this shows why our backhoe loaders are the best machines for the job at an affordable price in the South African and African markets."

He says backhoe loaders from Revaro are versatile and suited to any environment and weather conditions. Revaro weatherproof cabs and 4x4 capabilities increase productivity as there is less downtime during unfavorable conditions.

"All our backhoe loaders come standard with a side-shift digging arm, enabling the operator to dig closer to permanent structures like buildings and walls. They also offer the option of Quick Hitch, making it simpler, faster and more user friendly to switch between a wide range of attachments."

Revaro backhoe loaders feature Kirloskar engines, Carraro transmissions, Hydro control valves, Casappa pumps, Carraro axles, Danloss brakes and AKG radiator coolers.

Nemukula says the Bobcat B730R from Shumani comes with ROPS and FOPS certification and features a side-shift backhoe configuration. Some of the standard features include 4x4 wheel drive, diff lock and auxiliary hydraulics.

Richard Maddocks, backhoe loaders product and application specialist at Caterpillar, says demand for backhoes in southern Africa is essentially for side-shift models while the demand for centre-pivot models remains low.

He says Caterpillar offers five side-shift models in the region: the Cat 426F2 (68,5 kW); Cat 428 (74,5 kW); Cat 432 (74,5 kW); Cat 434 (74,5 kW) and Cat 444 (74,5 kW).

"The 426F2 is a particularly popular model in the region. It is easy to own and easy to operate. With simple mechanical controls and maintenance made easy, this machine is perfect for new and experienced operators."

The key features of Cat backhoe loaders include a variable displacement piston pump which offers full power at any engine speed, helping to provide class-leading fuel efficiency, especially compared with machines with traditional gear pumps.

A rear differential lock can be engaged on-the-go to increase productivity and reduce fuel burn and tyre wear, especially when working in tough environments. An Excavator Style Boom increases productivity with less machine positioning required.

The Cat 416 is available from Caterpillar for those who specifically need a centre-pivot model. ☉