

310 P

Backhoe Loader



JOHN DEERE





READY TO RUN IN THE REAL WORLD

When owners and operators just like you — the people who know what customers need for their operations to succeed — weighed in on our latest backhoe loaders, we heeded the real-world feedback. You asked for one machine that capably completes the work of two. A powerful overachiever with outstanding loader performance, backhoe capability, and multifunction versatility. Featuring streamlined transitions between front loader and rear backhoe functionality. And packed with productivity-elevating options to match the application. The 310 P-Tier Backhoe is a standout multitasker ready to run — and get more done — in any corner of the working world.

310 P-TIER BACKHOE LOADER

FEATURES

Powerful engine technology

Rugged EPA Final Tier 4 (FT4)/EU Stage IV John Deere PowerTech™ EWL engine boosts power, torque, and reliability compared to previous models. Simple two-valve cylinder-head, wet-sleeve design with replaceable cylinder liners provides uniform cooling and aids in reducing oil breakdown and ring wear. Filters have been redesigned and relocated for easier servicing over earlier models.

Always on the move

Optional limited-slip mechanical-front-wheel drive (MFWD) delivers sure-footed traction in any ground condition. Engage momentary MFWD “on the fly” with a touch of a button on the loader control (included with optional third-function auxiliary loader hydraulics).

Keeping it cool

Field-proven open-center control valve and pump combination delivers high contamination resistance, exceptional swing control and multifunction performance, steady pressure/force control, and reliable operator “feel” compared to other hydraulic systems. Continuous oil flow boosts cooling and filtration, even with all functions in neutral. Cleaner, cooler oil improves system life and promotes uptime.

Get set for a new view

Exclusive to the backhoe industry, our optional rearview camera system with a dedicated eight-inch touchscreen display allows the operator to “overlay the view” to virtually remove the rear machine structure.



EXCLUSIVE
REARVIEW CAMERA

Comfort in the cab

Operator station is wider and features an updated HVAC system that outputs 10-percent more airflow compared to the previous model. Rear and side windows have been restyled for clear visibility. Enjoy the standard adjustable mechanical seat, or opt for an air-suspension or new premium heated and vented seat. New 25-button sealed-switch module on the vertical cab post and eye-level fuel and temperature gauges ease operator awareness and navigation.

Save fuel with economy mode

Standard economy mode can be configured separately between loader and backhoe functions. Activate economy mode for backhoe functions while retaining full power for loader functions. This helps maximize fuel usage in lighter-work applications with minimal effect on machine performance.

Take it easy

Highly populated “palm-on-top” loader-control grip is intuitive and easy to use.

Control the ride

Optional ride control and new manual ride control reduce tire flexing over rough terrain at high speeds with a loaded bucket, reducing material spillage and improving the ride, to boost operator comfort and efficiency.

Hit the ground running

Same-side ground-level service points speed daily checks and fills. Other commonsense features such as quick-change filters, extended service intervals, simple-to-read sight gauges, and easy-access grease zerks help increase uptime.



**CAB COMFORTS ELEVATE THE
OPERATOR EXPERIENCE**



310 P-TIER BACKHOE LOADER



Let there be (more) light

Optional LED 10-light package brightens darker jobsites. Optional four-corner, low-profile LED beacon system and field-kit boom light boost machine visibility to crew and bystanders.

Connected machines

John Deere construction equipment comes with in-base connectivity — free from subscriptions or annual renewals. Analyze critical machine data, track utilization, review diagnostic alerts, and more from **the John Deere Operations Center™**. The Operations Center also enables John Deere Connected Support™, which uses data from thousands of connected machines to proactively address issues before they arise. With your approval, your dealer can also remotely monitor machine health, diagnose problems, and even update machine software without a trip to the jobsite.*

*Availability varies by region and product. Options not available in every country.



310 P-TIER BACKHOE LOADER SPECIFICATIONS

While general information, pictures, and descriptions are provided, some illustrations and text may include product options and accessories NOT AVAILABLE in all regions, and in some countries products and accessories may require modifications or additions to ensure compliance with the local regulations of those countries.

Engine		310 P-TIER	
Manufacturer and Model		John Deere PowerTech™ EWL 4.5L 4045HL051 turbocharged for Synchro-Shuttle standard transmission / John Deere PowerTech EWL 4.5L 4045HL052 for PowerShift™ optional transmission	
Non-Road Emission Standard		EPA Final Tier 4/EU Stage IV	
Displacement		4.5 L (276 cu. in.)	
Gross Peak Power		76 kW (102 hp) at 1,600 rpm	
Net Peak Power (ISO 9249)		75 kW (100 hp) at 1,600 rpm	
Net Peak Torque (ISO 9249)		458 Nm (338 lb.-ft.) at 1,500 rpm	
Net Torque Rise		51%	
Lubrication		Pressure system with spin-on filter and cooler	
Air Cleaner		Dual-stage dry type with safety element and evacuator valve	
Cooling			
Fan Type		Electronically controlled, variable-rate, suction-type cooling fan standard	
Engine Coolant Rating		−40 deg. C (−40 deg. F)	
Engine Oil Cooler		Oil to water	
Powertrain			
Synchro-Shuttle Standard Transmission		4-speed manual-range gear-selection transmission with synchronizers and hydraulic reverser; electric clutch cutoff on loader lever and manual range-selection lever	
Torque Converter		Single stage, dual phase with 2.64:1 stall ratio, 300 mm (11.8 in.)	
Maximum Travel Speeds With Standard Engine and 19.5L-24 Rear Tires		Forward	Reverse
Gear 1		5.9 km/h (3.7 mph)	5.9 km/h (3.7 mph)
Gear 2		9.6 km/h (6.0 mph)	9.6 km/h (6.0 mph)
Gear 3		20.9 km/h (13.0 mph)	20.9 km/h (13.0 mph)
Gear 4		38.0 km/h (23.6 mph)	38.0 km/h (23.6 mph)
PowerShift Optional Transmission		4 speed, helical-cut gears, full PowerShift transmission with hydraulic reverser; electric clutch cutoff on loader lever	
Torque Converter		Single stage, dual phase with 2.63:1 stall ratio, 280 mm (11.0 in.)	
Maximum Travel Speeds With Standard Engine and 19.5L-24 Rear Tires		Forward	Reverse
Gear 1		5.3 km/h (3.3 mph)	6.8 km/h (4.2 mph)
Gear 2		9.8 km/h (6.1 mph)	12.4 km/h (7.7 mph)
Gear 3		20.2 km/h (12.6 mph)	—
Gear 4		36.4 km/h (22.6 mph)	—
Axles			
Axle Oscillation, Stop to Stop, Front Axle		22 deg.	
Axle Ratings		Front	Rear
SAE J43		5000 kg (11,000 lb.)	6500 kg (14,300 lb.)
Dynamic		9000 kg (19,800 lb.)	10 000 kg (22,000 lb.)
Static		24 500 kg (54,000 lb.)	26 500 kg (58,400 lb.)
Ultimate		41 500 kg (91,500 lb.)	41 500 kg (91,500 lb.)
Differentials			
Mechanical-Front-Wheel-Drive (MFWD) Axle		Open – standard; automatic, limited-slip traction control – custom or optional	
Rear Axle		Loader-grip actuated, hydraulically engaged 100% mechanical lock	
Steering (ISO 5010)		Hydrostatic power steering and emergency steering	
Axle		MFWD	
Curb-Turning Radius			
With Brakes		3.46 m (11 ft. 4 in.)	
Without Brakes		3.95 m (13 ft. 0 in.)	
Bucket-Clearance Circle			
With Brakes		10.08 m (33 ft. 1 in.)	
Without Brakes		10.80 m (35 ft. 5 in.)	
Steering Wheel Turns (lock to lock)		2.7	
MFWD Axle		Heavy duty, outboard planetary final drives distribute shock loads over 3 gears	
Rear Axle		Heavy duty, outboard planetary final drives distribute shock loads over 3 gears	

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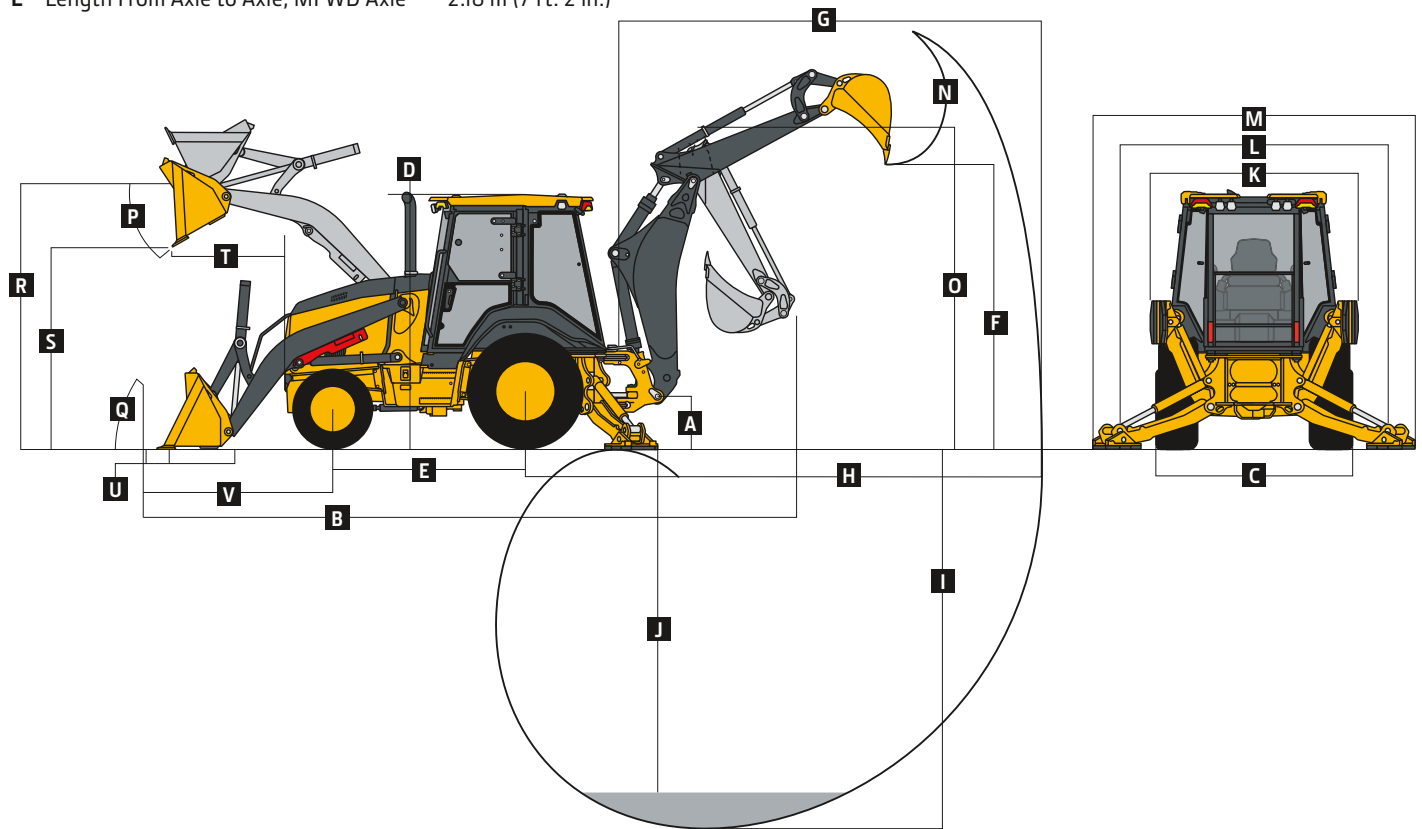
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Powertrain (continued)		310 P-TIER	
Brakes (ISO 3450)			
Service		Power assisted, hydraulic wet disc, mounted inboard, self-adjusting and self-equalizing	
Parking		Spring applied, hydraulically released, wet, multi-disc, independent of service brakes with electric switch control	
Hydraulics			
Main Pump		Open-center system; single-gear pump	
Pump Flow at 2,200 rpm			
Backhoe		110 L/m (28.9 gpm)	
Loader		110 L/m (28.9 gpm)	
System Relief Pressure			
Backhoe		24 993 kPa (3,625 psi)	
Loader		22 063 kPa (3,200 psi)	
Controls			
Backhoe		2-lever mechanical standard; pilot controls with pattern select and manual and/or electrohydraulic (EH) auxiliary functions optional	
Loader		Single-lever control with horn, rear differential lock, electric clutch cutoff switch, and MFWD (momentary) standard; single-lever control with horn, rear differential lock, electric clutch cutoff switch, MFWD (momentary), gear-selection buttons, and EH proportional auxiliary roller optional	
Cylinders			
Heat-treated, chrome-plated, polished rods; hardened steel (replaceable bushings) pivot pins			
	<i>Bore</i>	<i>Rod Diameter</i>	<i>Stroke</i>
Loader Boom (2)	80 mm (3.15 in.)	50 mm (1.97 in.)	790 mm (31.10 in.)
Loader Bucket (1)	90 mm (3.54 in.)	50 mm (1.97 in.)	744 mm (29.29 in.)
Backhoe Boom (1)	110 mm (4.33 in.)	56 mm (2.20 in.)	821 mm (32.32 in.)
Backhoe Crowd (1)	110 mm (4.33 in.)	63 mm (2.48 in.)	553 mm (21.77 in.)
Backhoe Bucket (1)	80 mm (3.15 in.)	50 mm (1.97 in.)	892 mm (35.12 in.)
Backhoe Swing (2)	80 mm (3.15 in.)	45 mm (1.77 in.)	310 mm (12.20 in.)
Backhoe Extendable Dipperstick (1)	63 mm (2.48 in.)	32 mm (1.26 in.)	1062 mm (41.81 in.)
Backhoe Stabilizer (2)			
Standard	80 mm (3.15 in.)	50 mm (1.97 in.)	500 mm (19.69 in.)
Extended Optional	100 mm (3.94 in.)	50 mm (1.97 in.)	500 mm (19.69 in.)
MFWD (1)	65 mm (2.56 in.)	40 mm (1.57 in.)	210 mm (8.27 in.)
Electrical			
Voltage		12 volt	
Alternator Rating		145 amp	
Lights		10 halogen: 4 front, 4 rear, and 2 side docking (HB3 [high-beam] bulb); turn signals and flashers: 2 front and 2 rear; stop- and taillights; and 2 rear reflectors; factory-installed option for 10 LED floodlights in lieu of standard halogen light package	
Operator Station			
Type (ISO 3471)		Canopy, isolation mounted, ROPS/FOPS, left/right access, with molded roof; optional fully enclosed cab	
Tires/Wheels			
	<i>Front</i>	<i>Rear</i>	
With MFWD	12-16.5 NHS (12)	19.5L-24 R4 (12)	
	12.5/80-18 R4 (10)	19.5L-24 R4 (12)	
	12.5/80-18 R4 (10)	21L-24 R4 (12)	
	340/80R18 XMCL	500/70R24 XMCL	
	340/80R18 550	500/70R24 550	
	340/80R18 580	500/70R24 580	
Serviceability			
Refill Capacities		Refill Capacities (continued)	
Cooling System		Fuel Tank (with ground-level fueling)	128.7 L (34.0 gal.)
Cab	27.5 L (29.1 qt.)	Diesel Exhaust Fluid (DEF) Tank	13.7 L (3.6 gal.)
Canopy	25.7 L (27.2 qt.)	Hydraulic System	109.8 L (29.0 gal.)
Rear Axle	18.0 L (19.0 qt.)	Hydraulic Reservoir	42.7 L (11.3 gal.)
Engine Oil (including vertical spin-on filter)	13.0 L (13.7 qt.)	MFWD Axle	
Torque Converter and Transmission		Differential Housing	6.5 L (6.9 qt.)
Synchro-Shuttle	18.0 L (19.0 qt.)	Planetary (each)	0.9 L (1.0 qt.)
PowerShift	15.1 L (16.0 qt.)		

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Operating Weights		310 P-TIER
ISO 6016 Operating Mass		7750 kg (17,086 lb.)
ISO 6016 Gross Machinery Mass		9225 kg (20,338 lb.)
With Full Fuel Tank, 75-kg (165 lb.) Operator, Standard Equipment, and Canopy With 204-kg (450 lb.) Counterweight		7356 kg (16,217 lb.)
Typical With Cab, Extendable Dipperstick, and 454-kg (1,000 lb.) Counterweight		8145 kg (17,957 lb.)
Optional Components (weight difference between base equipment and option)		
Cab		346 kg (763 lb.)
Extendable Dipperstick		193 kg (425 lb.)
Front Loader Coupler		316 kg (697 lb.)
Backhoe Bucket Coupler		75 kg (165 lb.)
Overall Dimensions [see line art below]		
A	Ground Clearance, Minimum	247 mm (10 in.)
B	Overall Length, Transport	7.47 m (24 ft. 6 in.)
C	Width Over Tires	2.20 m (7 ft. 3 in.)
D	Height to Top of ROPS/Cab	2.86 m (9 ft. 4 in.)
E	Length From Axle to Axle, MFWD Axle	2.18 m (7 ft. 2 in.)



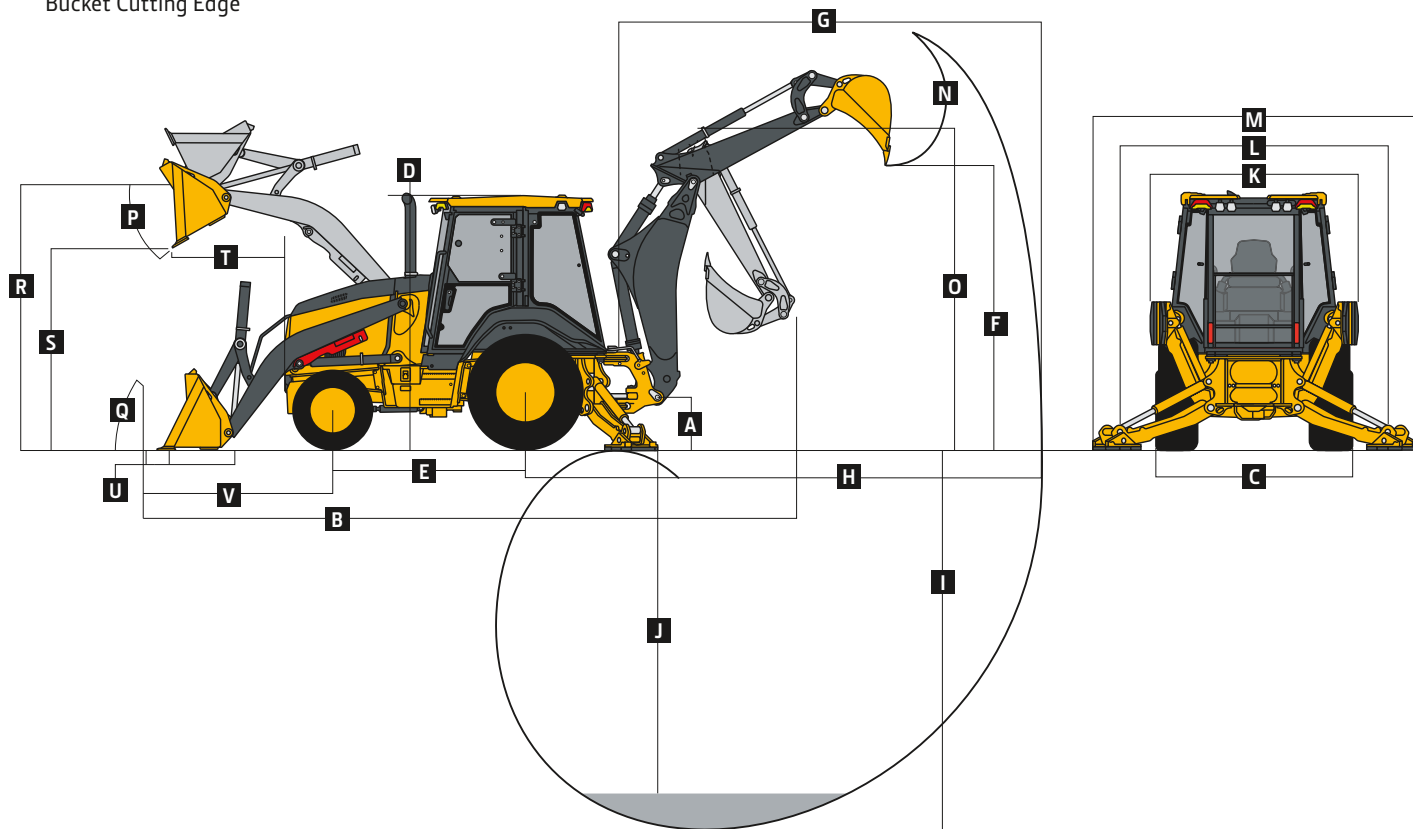
Backhoe Dimensions and Performance				
[see line art below left]		310 P-TIER		
Backhoe specifications are with 610-mm x 0.18-m³ (24 in. x 6.5 cu. ft.) bucket; dipper lift specs are with a boom angle of 65 deg.				
Bucket Range		305–610 mm (12–24 in.)		
Digging Force				
Bucket Cylinder		48.5 kN (10,896 lb.)		
Crowd Cylinder		31.1 kN (7,002 lb.)		
Swing Arc		180 deg.		
Operator Control		2 levers		
		With Optional Extendable Dipperstick		
		With Standard Backhoe	Retracted	Extended
F	Loading Height, Truck Loading Position	3.48 m (11 ft. 5 in.)	3.56 m (11 ft. 8 in.)	4.22 m (13 ft. 10 in.)
G	Reach From Center of Swing Pivot	5.42 m (17 ft. 9 in.)	5.48 m (18 ft. 0 in.)	6.50 m (21 ft. 4 in.)
H	Reach From Center of Rear Axle	6.48 m (21 ft. 3 in.)	6.55 m (21 ft. 6 in.)	7.57 m (24 ft. 10 in.)
I	Digging Depth (SAE maximum)	4.15 m (13 ft. 8 in.)	4.23 m (13 ft. 11 in.)	5.29 m (17 ft. 4 in.)
J	Digging Depth (SAE)			
	610-mm (2 ft.) Flat Bottom	4.12 m (13 ft. 6 in.)	4.20 m (13 ft. 9 in.)	5.26 m (17 ft. 3 in.)
	2440-mm (8 ft.) Flat Bottom	3.78 m (12 ft. 5 in.)	3.86 m (12 ft. 8 in.)	5.01 m (16 ft. 5 in.)
K	Stabilizer Width, Transport With Standard Pads, No Guards, and No Sensors			
	Standard Stabilizers	2.19 m (7 ft. 2 in.)	2.19 m (7 ft. 2 in.)	2.19 m (7 ft. 2 in.)
	Extended Stabilizers	2.42 m (7 ft. 11 in.)	2.42 m (7 ft. 11 in.)	2.42 m (7 ft. 11 in.)
L	Stabilizer Spread, Operating			
	Standard Stabilizers	3.10 m (10 ft. 2 in.)	3.10 m (10 ft. 2 in.)	3.10 m (10 ft. 2 in.)
	Extended Stabilizers	3.45 m (11 ft. 4 in.)	3.45 m (11 ft. 4 in.)	3.45 m (11 ft. 4 in.)
M	Stabilizer Overall Width, Operating			
	Standard Stabilizers	3.53 m (11 ft. 7 in.)	3.53 m (11 ft. 7 in.)	3.53 m (11 ft. 7 in.)
	Extended Stabilizers	4.03 m (13 ft. 3 in.)	4.03 m (13 ft. 3 in.)	4.03 m (13 ft. 3 in.)
N	Bucket Rotation	190 deg.	190 deg.	190 deg.
O	Transport Height	3.48 m (11 ft. 5 in.)	3.48 m (11 ft. 5 in.)	3.48 m (11 ft. 5 in.)
Loader Dimensions and Performance [see line art at left]				
P	Bucket Dump Angle, Maximum	45 deg.		
Q	Rollback Angle at Ground Level	40 deg.		

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Loader Dimensions and Performance (continued) [see line art below]

	310 P-TIER			
	General-purpose	General-purpose	General-purpose	Multipurpose
Bucket Capacity	0.86 m ³ (1.13 cu. yd.)	0.86 m ³ (1.13 cu. yd.)	1.00 m ³ (1.31 cu. yd.)	0.93 m ³ (1.22 cu. yd.)
Width	2184 mm (86 in.)	2184 mm (86 in.)	2184 mm (86 in.)	2184 mm (86 in.)
Weight	374 kg (826 lb.)	416 kg (918 lb.)	405 kg (893 lb.)	882 kg (1,946 lb.)
Breakout Force	41.5 kN (9,336 lb.)	42.0 kN (9,434 lb.)	39.2 kN (8,807 lb.)	36.4 kN (8,183 lb.)
Lift Capacity, Full Height	2926 kg (6,451 lb.)	2962 kg (6,530 lb.)	2721 kg (5,999 lb.)	2371 kg (5,227 lb.)
R Height to Bucket Hinge Pin, Maximum	3.35 m (11 ft. 0 in.)	3.35 m (11 ft. 0 in.)	3.35 m (11 ft. 0 in.)	3.35 m (11 ft. 0 in.)
S Dump Clearance, Bucket at 45 deg.	2.61 m (8 ft. 7 in.)	2.64 m (8 ft. 8 in.)	2.50 m (8 ft. 3 in.)	2.55 m (8 ft. 4 in.)
T Reach at Full Height, Bucket at 45 deg.	870 mm (34.2 in.)	835 mm (32.9 in.)	976 mm (38.4 in.)	874 mm (34.4 in.)
U Digging Depth Below Ground, Bucket Level	212 mm (8.3 in.)	212 mm (8.3 in.)	212 mm (8.3 in.)	251 mm (9.9 in.)
V Length From Front Axle Centerline to Bucket Cutting Edge	2.09 m (6 ft. 10 in.)	2.04 m (6 ft. 8 in.)	2.24 m (7 ft. 4 in.)	2.16 m (7 ft. 1 in.)



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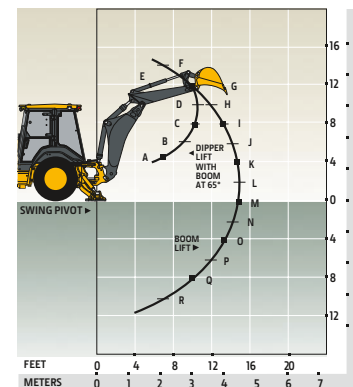
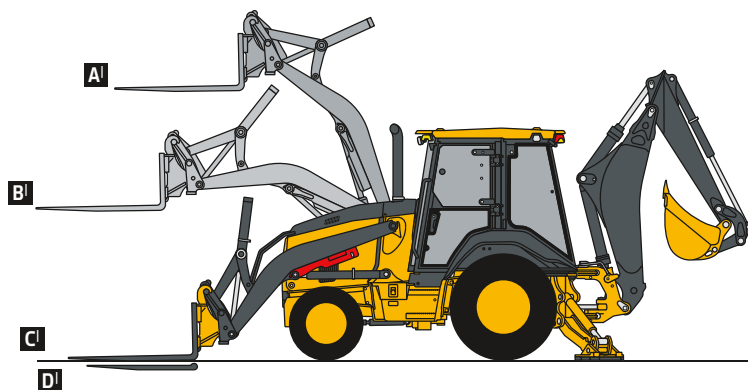
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Lift Capacity With Quick-Coupler Forks

[see line art below center]

310 P-TIER

Hydraulic Capacity	1219-mm (48 in.) Tines	1524-mm (60 in.) Tines
A ¹ Maximum Height	1680 kg (3,704 lb.)	1551 kg (3,419 lb.)
B ¹ Maximum Reach	2655 kg (5,852 lb.)	2504 kg (5,520 lb.)
C ¹ At Ground Line	3471 kg (7,652 lb.)	3271 kg (7,211 lb.)
D ¹ Below Ground Line	278 mm (11.0 in.)	278 mm (11.0 in.)



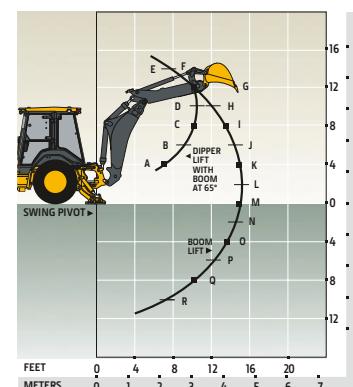
With Standard Dipperstick

Lift Capacities [see line art at right]

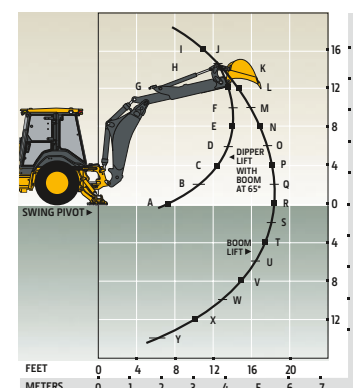
Lift capacities are over-end values in kg (lb.). Figures listed are 100% of the maximum lift force available.

	With 1.06-m (3 ft. 6 in.)	With 1.06-m (3 ft. 6 in.)
With Standard Dipperstick	Extendable Dipperstick, Retracted	Extendable Dipperstick, Extended
A 3726 kg (8,215 lb.)	4064 kg (8,960 lb.)	2886 kg (6,363 lb.)
B 2735 kg (6,031 lb.)	2489 kg (5,487 lb.)	2262 kg (4,986 lb.)
C 2395 kg (5,280 lb.)	2195 kg (4,839 lb.)	1808 kg (3,985 lb.)
D 2344 kg (5,167 lb.)	2150 kg (4,739 lb.)	1624 kg (3,580 lb.)
E 2144 kg (4,727 lb.)	1945 kg (4,287 lb.)	1545 kg (3,407 lb.)
F 1708 kg (3,766 lb.)	1514 kg (3,337 lb.)	1473 kg (3,247 lb.)
G 1674 kg (3,690 lb.)	1485 kg (3,274 lb.)	1319 kg (2,909 lb.)
H 1606 kg (3,541 lb.)	1424 kg (3,140 lb.)	1074 kg (2,369 lb.)
I 1537 kg (3,389 lb.)	1360 kg (2,998 lb.)	900 kg (1,984 lb.)
J 1472 kg (3,245 lb.)	1298 kg (2,862 lb.)	1072 kg (2,364 lb.)
K 1411 kg (3,111 lb.)	1241 kg (2,735 lb.)	1093 kg (2,409 lb.)
L 1356 kg (2,989 lb.)	1188 kg (2,618 lb.)	1081 kg (2,384 lb.)
M 1305 kg (2,877 lb.)	1139 kg (2,510 lb.)	1059 kg (2,334 lb.)
N 1259 kg (2,775 lb.)	1094 kg (2,411 lb.)	1032 kg (2,276 lb.)
O 1216 kg (2,682 lb.)	1053 kg (2,321 lb.)	1004 kg (2,214 lb.)
P 1179 kg (2,599 lb.)	1016 kg (2,240 lb.)	977 kg (2,154 lb.)
Q 1147 kg (2,529 lb.)	985 kg (2,171 lb.)	950 kg (2,095 lb.)
R 1134 kg (2,500 lb.)	969 kg (2,137 lb.)	925 kg (2,040 lb.)
S —	—	902 kg (1,989 lb.)
T —	—	881 kg (1,942 lb.)
U —	—	863 kg (1,902 lb.)
V —	—	848 kg (1,871 lb.)
W —	—	841 kg (1,854 lb.)
X —	—	849 kg (1,873 lb.)
Y —	—	955 kg (2,104 lb.)

Lift capacities are over end with stabilizers down and tires tangent to ground.



With Extendable Dipperstick, Retracted



With Extendable Dipperstick, Extended

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Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan at test conditions specified per ISO 9249. Specifications and design are subject to change without notice. Wherever applicable, specifications are in accordance with ISO standards. Except where otherwise noted, these specifications are based on a unit with 19.5L-24-in. 12PR (R4) tubeless rear and 12-16.5 NHS (12) front tires, and 0.86-m³ (11.3 cu. yd.) loader bucket.



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