

# 310K EP/310K

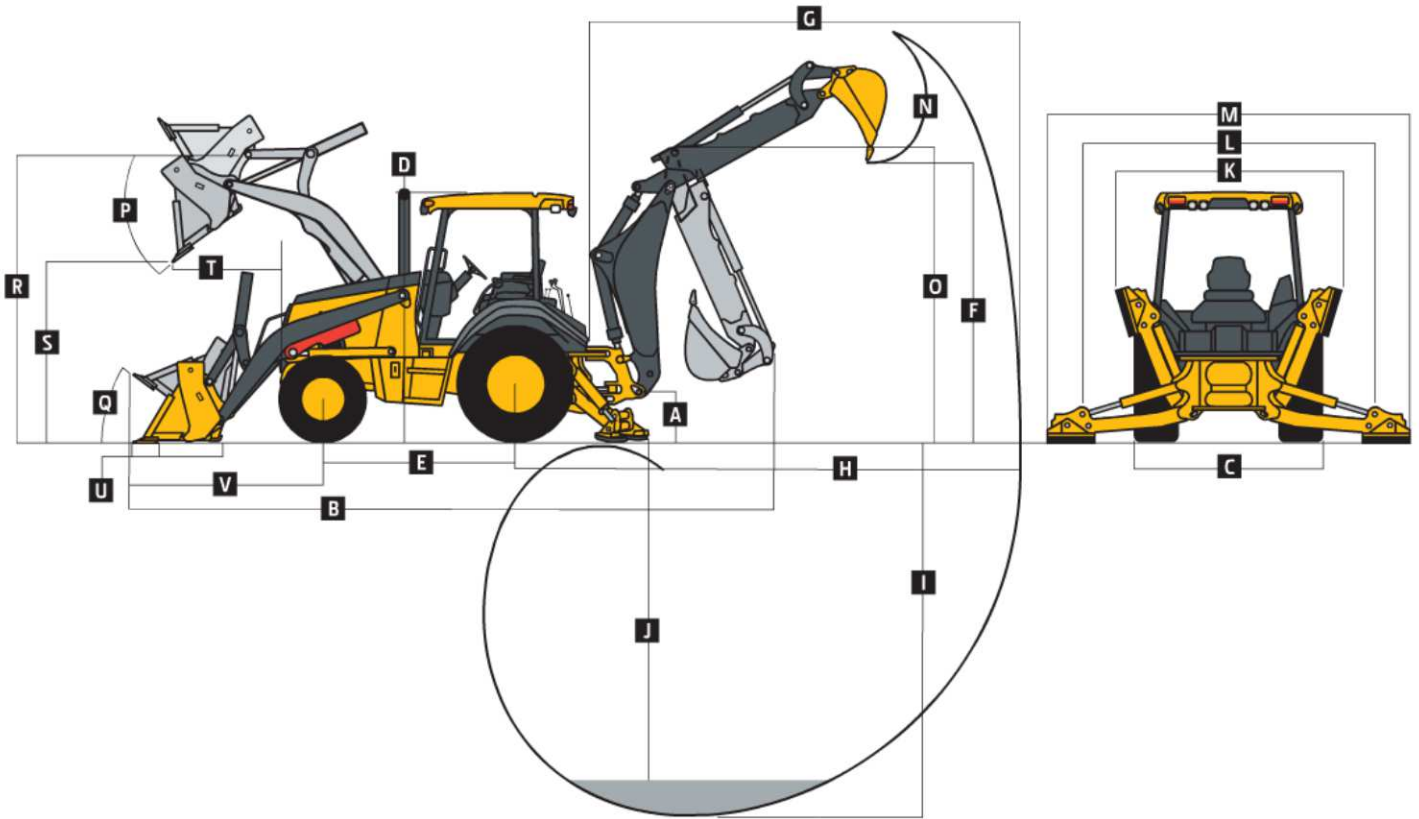
Engine	310K EP			310K				
Manufacturer and Model	John Deere PowerTech™ E 4045HT072 turbo-charged, standard			John Deere PowerTech™ Plus 4045HT073 turbo-charged, standard				
Non-Road Emissions Standard	EPA Interim Tier 4/EU Stage IIIB			EPA Interim Tier 4/EU Stage IIIB				
Displacement	4.5 L (276 cu. in.)			4.5 L (276 cu. in.)				
Net Peak Power (ISO 9249)	52 kW (70 hp) at 2,000 rpm			66 kW (88 hp) at 2,000 rpm				
Net Peak Torque (ISO 9249)	304 Nm (224 lb.-ft.) at 1,300 rpm			374 Nm (276 lb.-ft.) at 1,400 rpm				
Net Torque Rise	38%			39%				
Lubrication	Pressure system with spin-on filter and cooler			Pressure system with spin-on filter and cooler				
Air Cleaner	Dual-stage dry type with safety element and evacuator valve			Dual-stage dry type with safety element and evacuator valve				
<b>Cooling</b>								
Fan Type	Suction type			Electronically controlled, variable-rate suction type				
Engine Coolant Rating	-40 deg. C (-40 deg. F)			-40 deg. C (-40 deg. F)				
Engine Oil Cooler	Oil to water			Oil to water				
<b>Powertrain</b>								
Transmission	4 speed, helical-cut gears, full PowerShift™ transmission with hydraulic reverser standard; electric clutch cutoff on loader lever							
Torque Converter	Single stage, dual phase with 2.63:1 stall ratio, 280 mm (11 in.)							
Maximum Travel Speeds with Standard Engine, Measured with 19.5L-24 Rear Tires	<i>Forward</i>		<i>Reverse</i>		<i>Forward</i>		<i>Reverse</i>	
Gear 1	5.2 km/h (3.3 mph)		6.6 km/h (4.1 mph)		5.6 km/h (3.5 mph)		7.0 km/h (4.4 mph)	
Gear 2	9.6 km/h (5.9 mph)		12.0 km/h (7.5 mph)		10.2 km/h (6.3 mph)		12.9 km/h (8.0 mph)	
Gear 3	19.4 km/h (12.1 mph)		—		20.9 km/h (13.0 mph)		—	
Gear 4	29.9 km/h (18.6 mph)		—		33.1 km/h (20.6 mph)		—	
<b>Axles</b>								
Axle Oscillation, Stop to Stop, Front Axle	22 deg.							
Axle Ratings	<i>Non-Powered Front</i>		<i>Mechanical-Front-Wheel Drive (MFWD) Rear</i>		<i>Non-Powered Front</i>		<i>Mechanical-Front-Wheel Drive (MFWD) Rear</i>	
Static	18 000 kg (39,683 lb.)		12 000 kg (26,455 lb.) 13 000 kg (28,660 lb.)		18 000 kg (39,683 lb.)		12 000 kg (26,455 lb.) 13 000 kg (28,660 lb.)	
Dynamic	7200 kg (15,873 lb.)		6000 kg (13,228 lb.) 7000 kg (15,432 lb.)		7200 kg (15,873 lb.)		6000 kg (13,228 lb.) 7000 kg (15,432 lb.)	
Ultimate	32 950 kg (72,642 lb.)		28 200 kg (62,170 lb.) 30 600 kg (67,461 lb.)		32 950 kg (72,642 lb.)		28 200 kg (62,170 lb.) 30 600 kg (67,461 lb.)	
<b>Differentials</b>								
MFWD Axle	Open – standard; automatic, limited-slip traction control – optional			Open – standard; automatic, limited-slip traction control – optional				
Rear Axle	Foot actuated, hydraulically engaged 100% mechanical lock			Foot actuated, hydraulically engaged 100% mechanical lock				
<b>Steering (ISO 5010)</b>								
Axle	<i>Non-Powered Front</i>		<i>MFWD</i>		<i>Non-Powered Front</i>		<i>MFWD</i>	
Curb-Turning Radius								
With Brakes	3.44 m (11 ft. 4 in.)		3.58 m (11 ft. 9 in.)		3.44 m (11 ft. 4 in.)		3.58 m (11 ft. 9 in.)	
Without Brakes	3.94 m (12 ft. 11 in.)		4.08 m (13 ft. 5 in.)		3.94 m (12 ft. 11 in.)		4.08 m (13 ft. 5 in.)	
Bucket Clearance Circle								
With Brakes	9.89 m (32 ft. 5 in.)		10.11 m (33 ft. 2 in.)		9.89 m (32 ft. 5 in.)		10.11 m (33 ft. 2 in.)	
Without Brakes	10.76 m (35 ft. 4 in.)		11.05 m (36 ft. 3 in.)		10.76 m (35 ft. 4 in.)		11.05 m (36 ft. 3 in.)	
Steering Wheel Turns (lock to lock)	3.2		2.7		3.2		2.7	
Final Drive, Mechanical-Front Wheel and Rear Axle Brakes (ISO 3450)	Heavy duty, outboard planetary final drives distribute shock loads over 3 gears							
Service Parking	Power assisted, hydraulic wet disc, mounted inboard, self-adjusting and self-equalizing Spring applied, hydraulically released, wet, multi-disc, independent of service brakes with electric switch control							
<b>Hydraulics</b>								
Main Pump	Open center, gear type, tandem with unloader			Open center, single gear				
Pump Flow at 2,200 rpm								
Backhoe	119 L/m (31.5 gpm)			106 L/m (28 gpm)				
Loader	98 L/m (26 gpm)			106 L/m (28 gpm)				
System Relief Pressure								
Backhoe	24 993 kPa (3,625 psi)			24 993 kPa (3,625 psi)				
Loader	22 063 kPa (3,200 psi)			22 063 kPa (3,200 psi)				



Hydraulics (continued)		310K EP	310K	
<b>Controls</b>				
Backhoe	2-lever manual standard; pilot controls with pattern select, 3-lever manual controls with foot swing, and manual and/or electric auxiliary functions optional			
Loader	Single-lever control with electric clutch cutoff switch standard; manual auxiliary function (2nd lever) optional			
<b>Cylinders</b>				
<b>310K EP / 310K</b>				
Type	Heat-treated, chrome-plated, polished rods; hardened steel (replaceable bushings) pivot pins			
	<i>Bore</i>	<i>Rod Diameter</i>	<i>Stroke</i>	
<b>Loader Boom (2)</b>	80 mm (3.15 in.)	50 mm (1.97 in.)	790 mm (31.10 in.)	
<b>Loader Bucket (1)</b>	90 mm (3.54 in.)	50 mm (1.97 in.)	744 mm (29.29 in.)	
<b>Backhoe Boom (1)</b>	110 mm (4.33 in.)	56 mm (2.20 in.)	821 mm (32.32 in.)	
<b>Backhoe Crowd (1)</b>	110 mm (4.33 in.)	63 mm (2.48 in.)	553 mm (21.77 in.)	
<b>Backhoe Bucket (1)</b>	80 mm (3.15 in.)	50 mm (1.97 in.)	892 mm (35.12 in.)	
<b>Backhoe Swing (2)</b>	80 mm (3.15 in.)	45 mm (1.77 in.)	310 mm (12.20 in.)	
<b>Backhoe Extendable Dipperstick (1)</b>	63 mm (2.48 in.)	32 mm (1.26 in.)	1062 mm (41.81 in.)	
<b>Backhoe Stabilizer (2)</b>	80 mm (3.15 in.)	50 mm (1.97 in.)	500 mm (19.69 in.)	
<b>Non-Powered Axle (1)</b>	70 mm (2.76 in.)	42 mm (1.65 in.)	213 mm (8.39 in.)	
<b>MFWD (1)</b>	67 mm (2.64 in.)	42 mm (1.65 in.)	210 mm (8.27 in.)	
<b>Electrical</b>				
<b>310K EP</b>		<b>310K</b>		
Voltage	12 volt	12 volt		
Alternator Rating	90 amp	120 amp		
<b>Lights</b>				
10 halogen: 4 front, 4 rear, and 2 side docking (32,500 candlepower each); turn signals and flashers: 2 front and 2 rear; stop and taillights; and 2 rear reflectors				
<b>Operator Station</b>				
Type (SAE J1040)	Canopy, isolation mounted, ROPS/FOPS, left/right access, with molded roof			
<b>Tires/Wheels</b>				
	<i>Front</i>	<i>Rear</i>	<i>Front</i>	<i>Rear</i>
Non-Powered Front Axle	11L-16 F-3 (12)	19.5L-24 R-4 (10)	11L-16 F-3 (12)	19.5L-24 R-4 (10)
	11L-16 F-3 (12)	16.9-28 R-4 (10)	11L-16 F-3 (12)	16.9-28 R-4 (10)
MFWD	12-16.5 NHS (8)	19.5L-24 R-4 (10)	12-16.5 NHS (8)	19.5L-24 R-4 (10)
	305/70D16.5 NHS (10)	19.5L-24 R-4 (10)	305/70D16.5 NHS (10)	19.5L-24 R-4 (10)
	—	—	12.5/80-18 I-3 (12)	19.5L-24 R-4 (10)
	—	—	12.5/80-18 I-3 (12)	21L-24 R-4 (12)
<b>Serviceability</b>				
<b>310K EP / 310K</b>		6-micron filtration; 1,000 break-in/service hours		
Hydraulic Oil Filter, Spin-On Enclosed Replaceable Element				
<b>Refill Capacities</b>				
Cooling System	32.9 L (34.8 qt.)			
Rear Axle	18 L (19 qt.)			
Engine Oil (including vertical spin-on filter)	13 L (13.7 qt.)			
Torque Converter and Transmission	15.1 L (16 qt.)			
Fuel Tank (with ground-level fueling)	155.2 L (41 gal.)			
Hydraulic System	89.3 L (23.6 gal.)			
Hydraulic Reservoir	37.1 L (9.8 gal.)			
MFWD Housing				
Axle	6.5 L (6.9 qt.)			
Planetary (each)	0.9 L (1 qt.)			
<b>Operating Weights</b>				
<b>310K EP</b>		<b>310K</b>		
With Full Fuel Tank, 79-kg (175 lb.) Operator, and Standard Equipment	6311 kg (13,913 lb.)		6364 kg (14,030 lb.)	
Typical with Cab, MFWD, Extendable Dipperstick, and 454-kg (1,000 lb.) Counterweight	7380 kg (16,270 lb.)		7433 kg (16,387 lb.)	
<b>Optional Components (weight difference between base equipment and option)</b>				
Cab	263 kg (580 lb.)		263 kg (580 lb.)	
MFWD with Tires	168 kg (370 lb.)		168 kg (370 lb.)	
Extendable Dipperstick	200 kg (440 lb.)		200 kg (440 lb.)	
Front Loader Coupler	286 kg (630 lb.)		286 kg (630 lb.)	
Backhoe Bucket Coupler	59 kg (130 lb.)		59 kg (130 lb.)	

**Overall Dimensions**
**310K EP / 310K**

<b>A</b> Ground Clearance, Minimum	305 mm (12 in.)
<b>B</b> Overall Length, Transport	7.09 m (23 ft. 3 in.)
<b>C</b> Width Over Tires	2.18 m (7 ft. 2 in.)
<b>D</b> Height to Top of ROPS/Cab	2.74 m (9 ft. 0 in.)
<b>E</b> Length from Axle to Axle	
Non-Powered Front Axle	2.11 m (6 ft. 11 in.)
MFWD Axle	2.14 m (7 ft. 0 in.)


**Backhoe Dimensions/Performance**
**310K EP / 310K**

Backhoe specifications are with 610-mm x 0.18-m<sup>3</sup> (24 in. x 6.5 cu. ft.) bucket

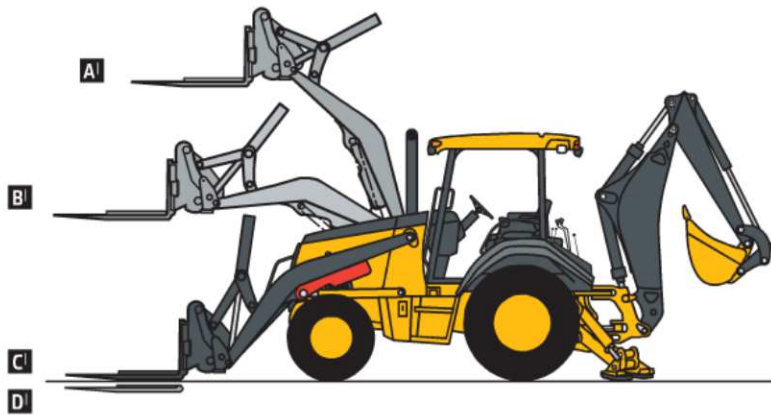
Bucket Range	305–762 mm (12–30 in.)
Digging Force	
Bucket Cylinder	49.4 kN (11,106 lb.)
Crowd Cylinder	31.2 kN (7,006 lb.)
Swing Arc	180 deg.
Operator Control	2 levers
Leveling Angle	14 deg.
Stabilizer Angle Rearward	18 deg.

*With Optional Extendable Dipperstick*

	<i>With Standard Backhoe</i>	<i>Retracted</i>	<i>Extended</i>
<b>F</b> Loading Height, Truck Loading Position	3.33 m (10 ft. 11 in.)	3.38 m (11 ft. 1 in.)	4.24 m (13 ft. 11 in.)
<b>G</b> Reach from Center of Swing Pivot	5.44 m (17 ft. 10 in.)	5.51 m (18 ft. 1 in.)	6.53 m (21 ft. 5 in.)
<b>H</b> Reach from Center of Rear Axle	6.50 m (21 ft. 4 in.)	6.58 m (21 ft. 7 in.)	7.59 m (24 ft. 11 in.)
<b>I</b> Digging Depth (SAE maximum)	4.34 m (14 ft. 3 in.)	4.39 m (14 ft. 5 in.)	5.46 m (17 ft. 11 in.)
<b>J</b> Digging Depth (SAE)			
610-mm (2 ft.) Flat Bottom	4.32 m (14 ft. 2 in.)	4.37 m (14 ft. 4 in.)	5.44 m (17 ft. 10 in.)
2440-mm (8 ft.) Flat Bottom	3.96 m (13 ft. 0 in.)	4.06 m (13 ft. 4 in.)	5.18 m (17 ft. 0 in.)
<b>K</b> Stabilizer Width, Transport	2.18 m (7 ft. 2 in.)	2.18 m (7 ft. 2 in.)	2.18 m (7 ft. 2 in.)
<b>L</b> Stabilizer Spread, Operating	3.10 m (10 ft. 2 in.)	3.10 m (10 ft. 2 in.)	3.10 m (10 ft. 2 in.)
<b>M</b> Stabilizer Overall Width, Operating	3.53 m (11 ft. 7 in.)	3.53 m (11 ft. 7 in.)	3.53 m (11 ft. 7 in.)
<b>N</b> Bucket Rotation	190 deg.	190 deg.	190 deg.
<b>O</b> Transport Height	3.43 m (11 ft. 3 in.)	3.40 m (11 ft. 2 in.)	3.40 m (11 ft. 2 in.)

Loader Dimensions/Performance		310K EP / 310K			
<b>P</b> Bucket Dump Angle, Maximum		45 deg.			
<b>Q</b> Rollback Angle at Ground Level		40 deg.			
		<i>Heavy-duty</i>	<i>Heavy-duty</i>	<i>Heavy-duty long lip</i>	<i>Multipurpose</i>
Bucket Capacity		0.77 m <sup>3</sup> (1.00 cu. yd.)	0.86 m <sup>3</sup> (1.12 cu. yd.)	0.96 m <sup>3</sup> (1.25 cu. yd.)	0.96 m <sup>3</sup> (1.25 cu. yd.)
Width		2184 mm (86 in.)	2184 mm (86 in.)	2184 mm (86 in.)	2184 mm (86 in.)
Weight		363 kg (800 lb.)	390 kg (860 lb.)	405 kg (892 lb.)	794 kg (1,750 lb.)
Breakout Force		41.6 kN (9,350 lb.)	42.3 kN (9,500 lb.)	39.9 kN (8,975 lb.)	36.4 kN (8,175 lb.)
Lift Capacity, Full Height		2994 kg (6,600 lb.)	3073 kg (6,775 lb.)	2846 kg (6,275 lb.)	2280 kg (5,028 lb.)
<b>R</b> Height to Bucket Hinge Pin, Maximum		3.38 m (11 ft. 1 in.)	3.38 m (11 ft. 1 in.)	3.38 m (11 ft. 1 in.)	3.38 m (11 ft. 1 in.)
<b>S</b> Dump Clearance, Bucket at 45 deg.		2.69 m (8 ft. 10 in.)	2.69 m (8 ft. 10 in.)	2.48 m (8 ft. 2 in.)	2.59 m (8 ft. 6 in.)
<b>T</b> Reach at Full Height, Bucket at 45 deg.		785 mm (30.9 in.)	767 mm (30.2 in.)	809 mm (31.9 in.)	818 mm (32.2 in.)
<b>U</b> Digging Depth Below Ground, Bucket Level		160 mm (6.3 in.)	175 mm (6.9 in.)	147 mm (5.8 in.)	197 mm (7.8 in.)
<b>V</b> Length from Front Axle Centerline to Bucket Cutting Edge		2.03 m (6 ft. 8 in.)	2.03 m (6 ft. 8 in.)	2.18 m (7 ft. 2 in.)	2.20 m (7 ft. 3 in.)

Lift Capacity with Quick-Coupler/Forks		310K EP / 310K	
<b>Hydraulic Capacity</b>		1219-mm (48 in.) Tines	1524-mm (60 in.) Tines
<b>A</b> <sup>1</sup> Maximum Height		1746 kg (3,850 lb.)	1556 kg (3,430 lb.)
<b>B</b> <sup>1</sup> Maximum Reach		2688 kg (5,925 lb.)	2467 kg (5,438 lb.)
<b>C</b> <sup>1</sup> At Ground Line		3493 kg (7,700 lb.)	3269 kg (7,207 lb.)
<b>D</b> <sup>1</sup> Below Ground Line		262 mm (10.3 in.)	262 mm (10.3 in.)



Lift capacities are over-end values in kg (lb.) according to SAE J31. Figures listed are 87% of the maximum lift force available. Base vehicle includes counterweight.  
 310K EP / 310K Backhoe with Standard Dipperstick      310K EP / 310K Backhoe with 1.07-m (3 ft. 6 in.) Extendable Dipperstick, Retracted      310K EP / 310K Backhoe with 1.07-m (3 ft. 6 in.) Extendable Dipperstick, Extended

