

310SJ



Engine

310SJ

	<i>For use in U.S., Canada, and Europe</i>	<i>For use outside U.S., Canada, and Europe</i>
Manufacturer and Model	John Deere PowerTech™ E 4045HT054 turbocharged, standard	John Deere PowerTech 4045T turbocharged, standard*
Non-Road Emissions Standard	EPA Tier 3/EU Stage IIIA	EPA Tier 2/EU Stage II
Displacement	4.5 L (276 cu. in.)	4.5 L (276 cu. in.)
Net Peak Power (ISO9249)	69 kW (93 hp) @ 2,000 rpm	69 kW (92 hp) @ 2,000 rpm
Net Peak Torque (ISO9249)	392 Nm (288 lb.-ft.) @ 1,300 rpm	384 Nm (282 lb.-ft.) @ 1,400 rpm
Net Torque Rise	47%	46%
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
<i>*This engine not available on 310SJ TMC.</i>		

Cooling

Fan Type	suction
Engine Coolant Rating	-37 deg. C (-34 deg. F)
Engine Oil Cooler	oil to water

Powertrain

Transmission	4-speed, helical-cut gears, full PowerShift™ 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	Forward	Reverse
Gear 1	5.7 km/h (3.5 mph)	7.2 km/h (4.5 mph)
Gear 2	10.4 km/h (6.5 mph)	13.1 km/h (8.1 mph)
Gear 3	21.4 km/h (13.3 mph)	21.1 km/h (13.1 mph)
Gear 4	36.2 km/h (22.5 mph)	N/A

Axles

Axle Oscillations, Stop to Stop (both axles)	22 deg.
Axle Ratings	

	Standard	Mechanical-front-wheel drive	Rear
Static	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.)
Ultimate	32 950 kg (72,642 lb.)	28 200 kg (62,170 lb.)	30 600 kg (67,461 lb.)

Differentials hydraulic locking rear, electric, foot actuated; limited slip front

Steering (ISO5010) hydrostatic power and emergency steering

Axle	Mechanical-front-wheel drive	Non-powered front
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Curb-Turning Radius		
With Brakes	3.58 m (11 ft. 9 in.)	3.44 m (11 ft. 4 in.)
Without Brakes	4.08 m (13 ft. 5 in.)	3.94 m (12 ft. 11 in.)
Bucket Clearance Circle		
With Brakes	10.11 m (33 ft. 2 in.)	9.89 m (32 ft. 5 in.)
Without Brakes	11.05 m (36 ft. 3 in.)	10.76 m (35 ft. 4 in.)
Steering Wheel Turns (lock to lock)	2.7	3.3

Final Drive (mechanical-front wheel and rear axle) heavy-duty, outboard planetary final drives distribute shock loads over 3 gears

Brakes (conform to 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**310SJ**

Main Pump	open center, gear type, tandem with unloader
Pump Flow @ 2,200 rpm	
Backhoe	136 L/m (36 gpm)
Loader	106 L/m (28 gpm)
System Relief Pressure	
Backhoe	24 993 kPa (3,625 psi)
Loader	24 993 kPa (3,625 psi)
Backhoe Controls	two-lever manual standard; pilot controls with pattern select, three-lever manual controls with foot swing, and manual and/or electric auxiliary functions optional
Loader Controls	single-lever control with electric clutch cutoff switch standard; manual auxiliary function optional

Cylinders

Type	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)	120 mm (4.72 in.)	56 mm (2.20 in.)	795 mm (31.30 in.)
Backhoe Crowd (1)	115 mm (4.53 in.)	63 mm (2.48 in.)	603 mm (23.72 in.)
Backhoe Bucket (1)	90 mm (3.54 in.)	56 mm (2.20 in.)	810 mm (31.89 in.)
Heavy-Duty Option (1)	100 mm (3.94 in.)	63 mm (2.48 in.)	810 mm (31.89 in.)
Backhoe Swing (2)	90 mm (3.54 in.)	50 mm (1.97 in.)	278 mm (10.94 in.)
Backhoe Extendable Dipperstick (1)	70 mm (2.76 in.)	40 mm (1.57 in.)	1067 mm (42.01 in.)
Backhoe Stabilizer			
Standard (2)	90 mm (3.54 in.)	50 mm (1.97 in.)	500 mm (19.69 in.)
Longer Optional (2)	100 mm (3.94 in.)	50 mm (1.97 in.)	500 mm (19.69 in.)
Non-Powered Axle (1)	70 mm (2.76 in.)	42 mm (1.65 in.)	213 mm (8.39 in.)
Mechanical-Front-Wheel Drive (1)	67 mm (2.64 in.)	42 mm (1.65 in.)	210 mm (8.27 in.)

Electrical

Voltage	12 volt
Alternator Rating	90 amp
Lights	4 halogen: 2 front and 2 rear (32,500 candlepower each); turn signals and flashers 2 front and 2 rear; stop and taillights and 2 rear reflectors

Operator Station

Type (SAE J1040)	canopy, isolation mounted, ROPS/FOPS, left/right access, with molded roof
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Tires/Wheels

	<i>Front</i>	<i>Rear</i>
Non-Powered Front Axle	11L-16 SL F-3 (12)	19.5L-24 R-4 (10)
Mechanical-Front-Wheel Drive	12.5/80-18 I-3 (10) 340/80R18 XMCL	19.5L-24 R-4 (10) 500/70R24 XMCL

Serviceability

Hydraulic Oil Filter, Spin-On Enclosed Replaceable Element, Vertically Mounted	6-micron filtration / 1,000 service hours
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Refill Capacities

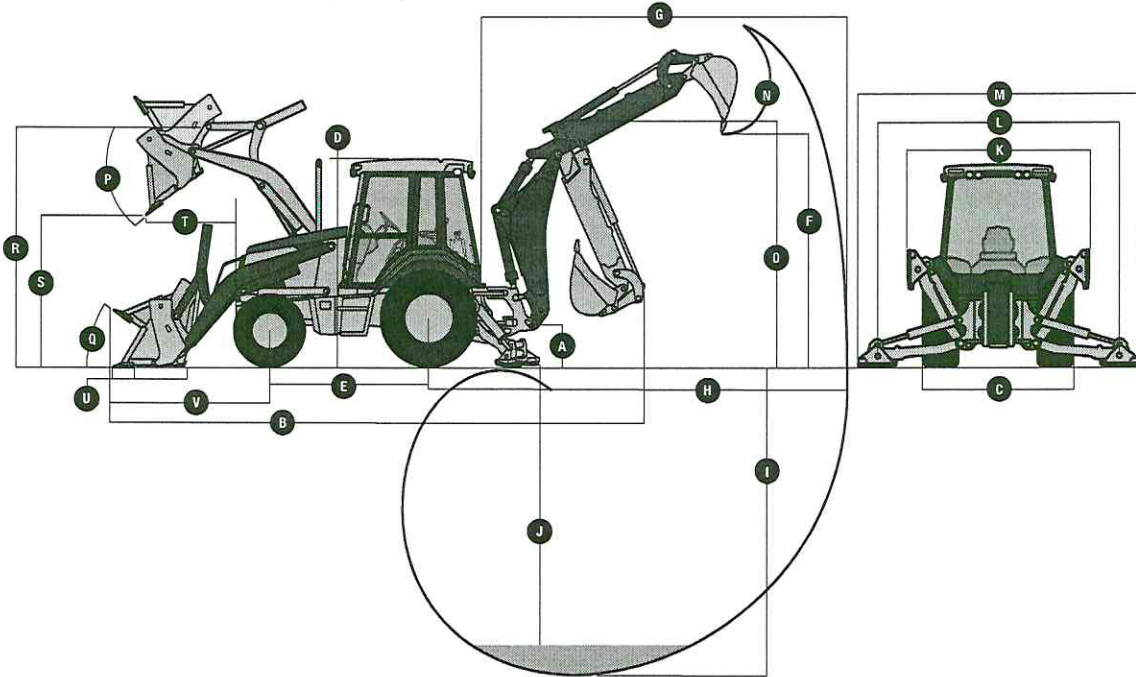
Cooling System	25 L (26 qt.)
Rear Axle	18 L (19 qt.)
Engine Oil (including vertical spin-on filter)	13 L (14 qt.)
Torque Converter and Transmission	15 L (16 qt.)
Fuel Tank (with ground-level fueling)	155 L (41 gal.)
Hydraulic System	91 L (24 gal.)
Hydraulic Reservoir	39 L (10.2 gal.)
Mechanical-Front-Wheel-Drive Housing	
Axle	6.5 L (7 qt.)
Planetary (each)	1 L (1 qt.)

Operating Weights

With Full Fuel Tank, 79-kg (175 lb.) Operator, and Standard Equipment	6580 kg (14,510 lb.)
Typical with Cab, Mechanical-Front-Wheel Drive, Extendable Dipperstick, and 454-kg (1,000 lb.) Counterweight	7728 kg (17,040 lb.)
Optional Components	
Cab	263 kg (580 lb.)
Mechanical-Front-Wheel Drive with Tires	220 kg (485 lb.)
Extendable Dipperstick	222 kg (490 lb.)
Front Loader Coupler	286 kg (630 lb.)
Backhoe Bucket Coupler	63 kg (138 lb.)

Overall Dimensions 310SJ

- A Ground Clearance (minimum) 330 mm (13 in.)
- B Overall Length (transport) 7.16 m (23 ft. 6 in.)
- C Width over Tires 2.18 m (7 ft. 2 in.)
- D Height to Top of ROPS/Cab 2.79 m (9 ft. 2 in.)
- E Length from Axle to Axle
 - Non-Powered Front Axle 2.11 m (6 ft. 11 in.)
 - Mechanical-Front-Wheel-Drive Axle 2.14 m (7 ft. 0 in.)



Backhoe Dimensions / Performance 310SJ

Backhoe specifications are with 610-mm x 0.21-m³ (24 in. x 7.5 cu. ft.) bucket

- Bucket Range 305–762 mm (12–30 in.)
- Digging Force
 - Bucket Cylinder 53.3 kN (11,990 lb.)
 - With Heavy-Duty Cylinder Option 67.8 kN (15,236 lb.)
 - Crowd Cylinder 36.0 kN (8,090 lb.)
- Swing Arc 180 deg.
- Operator Control two levers

	With Standard Backhoe	With Optional Extendable Dipperstick Retracted	With Optional Extendable Dipperstick Extended
F Loading Height (truck loading position).....	3.43 m (11 ft. 3 in.)	3.43 m (11 ft. 3 in.)	4.29 m (14 ft. 1 in.)
G Reach from Center of Swing Pivot.....	5.56 m (18 ft. 3 in.)	5.66 m (18 ft. 7 in.)	6.68 m (21 ft. 11 in.)
H Reach from Center of Rear Axle.....	6.63 m (21 ft. 9 in.)	6.73 m (22 ft. 1 in.)	7.72 m (25 ft. 4 in.)
I Digging Depth (SAE maximum).....	4.42 m (14 ft. 6 in.)	4.55 m (14 ft. 11 in.)	5.61 m (18 ft. 5 in.)
J Digging Depth (SAE)			
610-mm (2 ft.) Flat Bottom.....	4.37 m (14 ft. 4 in.)	4.50 m (14 ft. 9 in.)	5.56 m (18 ft. 3 in.)
2440-mm (8 ft.) Flat Bottom.....	4.06 m (13 ft. 4 in.)	4.19 m (13 ft. 9 in.)	5.33 m (17 ft. 6 in.)
K Stabilizer Width (transport).....	2.18 m (7 ft. 2 in.)	2.18 m (7 ft. 2 in.)	2.18 m (7 ft. 2 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.)
Long 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.)
Long 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.....	3.51 m (11 ft. 6 in.)	3.48 m (11 ft. 5 in.)	3.48 m (11 ft. 5 in.)

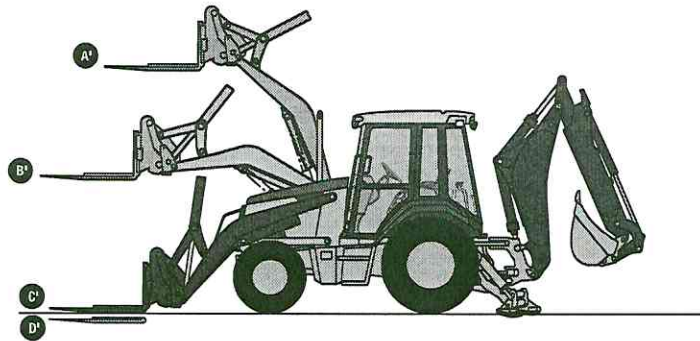
Loader Dimensions / Performance

310SJ

P	Bucket Dump Angle (maximum)	45 deg.					
Q	Rollback Angle at Ground Level	40 deg.					
Bucket Capacity		<i>Heavy-duty</i>	<i>Heavy-duty</i>	<i>Heavy-duty long lip</i>	<i>Heavy-duty</i>	<i>Multipurpose</i>	<i>Multipurpose</i>
		0.77 m ³ (1.00 cu. yd.)	0.86 m ³ (1.12 cu. yd.)	0.96 m ³ (1.25 cu. yd.)	1.00 m ³ (1.31 cu. yd.)	0.96 m ³ (1.25 cu. yd.)	1.00 m ³ (1.31 cu. yd.)
Width		2184 mm (86 in.)	2184 mm (86 in.)	2184 mm (86 in.)	2337 mm (92 in.)	2184 mm (86 in.)	2337 mm (92 in.)
Weight		363 kg (800 lb.)	390 kg (860 lb.)	405 kg (892 lb.)	521 kg (1,148 lb.)	795 kg (1,750 lb.)	817 kg (1,800 lb.)
Breakout Force		49.6 kN (11,160 lb.)	49.2 kN (11,051 lb.)	45.4 kN (10,210 lb.)	45.8 kN (10,300 lb.)	43.1 kN (9,700 lb.)	42.9 kN (9,650 lb.)
Lift Capacity (full height)		3368 kg (7,419 lb.)	3338 kg (7,353 lb.)	3332 kg (7,340 lb.)	3269 kg (7,200 lb.)	3042 kg (6,700 lb.)	2996 kg (6,600 lb.)
R	Height to Bucket Hinge Pin (maximum)	3.40 m (11 ft. 2 in.)					
S	Dump Clearance (bucket at 45 deg.)	2.69 m (8 ft. 10 in.)					
T	Reach at Full Height (bucket at 45 deg.)	785 mm (30.9 in.)					
U	Digging Depth Below Ground (bucket level)	160 mm (6.3 in.)					
V	Length From Front Axle Centerline to Bucket Cutting Edge	2.03 m (6 ft. 8 in.)					

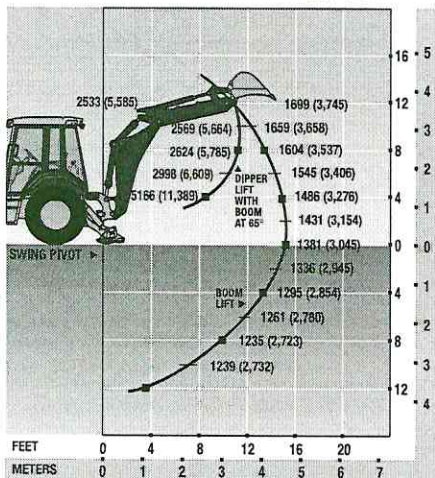
Lift Capacity with Quick-Coupler / Forks

Hydraulic Capacity	1219-mm (48 in.) tines	1524-mm (60 in.) tines
A ¹ Maximum Height	2073 kg (4,570 lb.)	1891 kg (4,170 lb.)
B ¹ Maximum Reach	3162 kg (6,971 lb.)	3003 kg (6,621 lb.)
C ¹ At Ground Line	4145 kg (9,138 lb.)	3883 kg (8,561 lb.)
D ¹ Below Ground Line	211 mm (8.3 in.)	211 mm (8.3 in.)

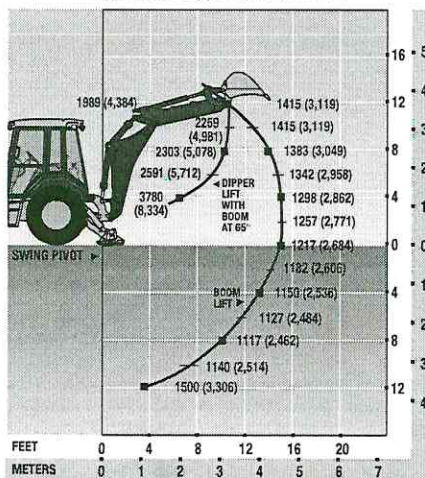


Lift capacities are over-end values in kg (lb.) according to SAE J31. Figures listed are 87% of the maximum lift force available. Base vehicle includes counterweight.

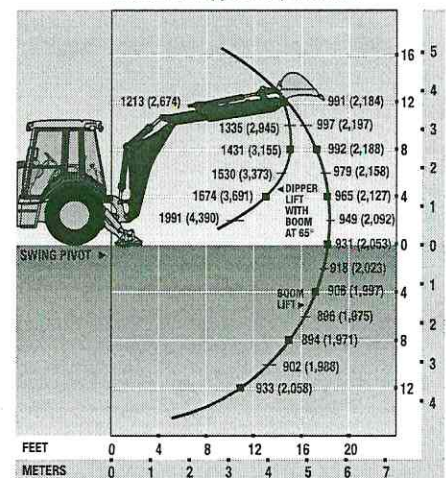
310SJ Backhoe with Standard Dipperstick



310SJ Backhoe with 1.07-m (3 ft. 6 in.) Extendable Dipperstick, Retracted



310SJ Backhoe with 1.07-m (3 ft. 6 in.) Extendable Dipperstick, Extended



For more detailed spec information and available options, log on to www.JohnDeere.com.