

ENGINE	310SE
Type	John Deere 4045T – Turbocharged
Rated power @ 2,200 rpm	88 SAE gross hp (66 kW) 80 SAE net hp (60 kW)
Cylinders	4
Displacement	276 cu. in. (4.524 L)
Fuel consumption, typical	1.3 to 2.3 gal./hr. (4.9 to 8.7 L/h)
Torque rise	42 percent
Maximum net torque	271 lb.-ft. (368 Nm)
Lubrication	pressure system with spin-on filter and cooler
Air cleaner	dual stage dry type with safety element and precleaner
Electrical system	12 volt with 65-amp alternator
Sucker-type cooling fan	

TRANSMISSION	four-speed, helical cut gear, collar shift transmission synchronized in all gears with hydraulic reverser	
Torque converter, single stage, dual phase with 2.63:1 stall ratio	11 in. (280 mm)	
Travel speeds with 19.5L-24 rear tires	<i>Forward</i>	<i>Reverse</i>
Gear 1	3.6 mph (5.8 km/h)	4.0 mph (6.4 km/h)
Gear 2	5.9 mph (9.5 km/h)	6.6 mph (10.6 km/h)
Gear 3	14.4 mph (23.2 km/h)	16.1 mph (25.9 km/h)
Gear 4	24.4 mph (39.3 km/h)	27.2 mph (43.8 km/h)

FINAL DRIVES	heavy-duty, inboard planetary final drives evenly distribute shock loads over three gears
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BRAKES	hydraulic wet disk, mounted inboard, self adjusting and self equalizing
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CAPACITIES	
Fuel tank (with ground level fueling)	36 gal. (136 L)
Engine coolant	17 qt. (16 L)
Engine oil including filter	9 qt. (8.5 L)
Torque converter and transmission	15 qt. (14 L)
Hydraulic system	24 gal. (91 L)
Rear axle	3.5 gal. (13 L)
Mechanical-front-wheel-drive axle	2.3 gal. (8.5 L)

STEERING	hydrostatic power steering and emergency steering conform to ISO5010
Non-powered axle	
Curb turning radius with brakes	11 ft. 9 in. (3.57 m)
Without brakes	13 ft. 3 in. (4.04 m)
Bucket clearance circle with brakes	31 ft. 6 in. (9.61 m)
Without brakes	34 ft. 7 in. (10.55 m)
Steering wheel turns, stop to stop	2.3 to 3.0
Mechanical-front-wheel-drive	
Curb turning radius with brakes	10 ft. 11 in. (3.34 m)
Without brakes	13 ft. 8 in. (4.17 m)
Bucket clearance circle with brakes	29 ft. 9 in. (9.07 m)
Without brakes	35 ft. 3 in. (10.74 m)
Steering wheel turns, stop to stop	2.5
Axle oscillations stop to stop, both axles	22 degrees
Axle ratings (SAE J43)	
Front	18,860 lb. (8555 kg)
Rear	13,670 lb. (6200 kg)

HYDRAULIC SYSTEM	
System	open center
Pressure	
Backhoe	3,625 psi (25 000 kPa)
Loader	3,000 psi (20 700 kPa)
Pump	gear type, tandem with unloader
Flow @ 2,200 rpm	
Backhoe	36 gpm (136 L/min.)
Loader	28 gpm (106 L/min.)
Filter, return oil	10-micron, spin-on enclosed replaceable element

CYLINDERS

310SE

	<i>Bore</i>	<i>Stroke</i>	<i>Rod</i>
Loader boom (2).....	3.15 in. (80 mm)	31.1 in. (790 mm)	1.97 in. (50 mm)
Loader bucket (1).....	3.15 in. (80 mm)	33.7 in. (856 mm)	1.77 in. (45 mm)
Backhoe boom (1).....	4.72 in. (120 mm)	31.3 in. (795 mm)	2.20 in. (56 mm)
Backhoe crowd (1).....	4.53 in. (115 mm)	23.9 in. (607 mm)	2.48 in. (63 mm)
Backhoe bucket (1).....	3.54 in. (90 mm)	31.9 in. (810 mm)	2.20 in. (56 mm)
Backhoe swing (2).....	3.54 in. (90 mm)	10.9 in. (278 mm)	1.97 in. (50 mm)
Backhoe extendable dipperstick (1).....	2.76 in. (70 mm)	42.0 in. (1067 mm)	1.77 in. (45 mm)
Backhoe stabilizer (2).....	3.54 in. (90 mm)	19.7 in. (500 mm)	1.97 in. (50 mm)
Steering (1) non-powered axle.....	1.97 in. (50 mm)	9.49 in. (241 mm)	0.98 in. (25 mm)
Steering (1) MFWD.....	2.56 in. (65 mm)	8.27 in. (210 mm)	1.42 in. (36 mm)

TIRES

	<i>Rear</i>	<i>Front</i>
With non-powered front axle.....	16.9-24, 8 PR R4 19.5L-24, 8 PR R4	11L-15, 8 PR F3 11L-16, 12 PR F3
With mechanical-front-wheel-drive.....	19.5L-24, 8 PR R4	12.5/80-18, 10 PR

SAE OPERATING WEIGHTS

Standard.....	13,500 lb. (6123 kg)
Cab adds.....	580 lb. (263 kg)
Mechanical-front-wheel-drive with tires adds.....	485 lb. (220 kg)
Extendable dipperstick excluding required counter-weight adds.....	490 lb. (222 kg)
Optional 400-lb. counterweight adds.....	400 lb. (181 kg)
Optional 650-lb. counterweight adds.....	650 lb. (295 kg)
Optional 250-lb. bolt-on counterweight adds.....	250 lb. (113 kg)
Backhoe bucket coupler adds.....	138 lb. (63 kg)

See backhoe and loader performance data for bucket weights.

LOADER BUCKETS

	<i>Width</i>	<i>Heaped Capacity</i>	<i>Weight</i>
Heavy-duty long lip.....	86 in. (2180 mm) 92 in. (2340 mm)	1.25 cu. yd. (0.96 m ³) 1.30 cu. yd. (1.00 m ³)	875 lb. (397 kg) 1,050 lb. (476 kg)
Multipurpose.....	86 in. (2180 mm) 92 in. (2340 mm)	1.12 cu. yd. (0.86 m ³) 1.25 cu. yd. (0.96 m ³)	1,450 lb. (658 kg) 1,550 lb. (703 kg)

Auxiliary cutting edge and skid shoes are standard on all buckets.

BACKHOE PERFORMANCE

	<i>With Standard Backhoe*</i>	<i>With Extendable Dipperstick*</i>	
		<i>Retracted</i>	<i>Extended</i>
Digging force, bucket cylinder.....	11,990 lb. (53.3 kN)	12,158 lb. (54.1 kN)	12,158 lb. (54.1 kN)
Digging force, crowd cylinder.....	8,090 lb. (36.0 kN)	7,796 lb. (34.7 kN)	5,628 lb. (25.0 kN)
Swing arc.....	180 degrees	180 degrees	180 degrees
Operator control.....	two levers	right foot treadle	right foot treadle
Bucket rotation.....	190 degrees	190 degrees	190 degrees
Stabilizer angle rearward.....	18 degrees	18 degrees	18 degrees
Leveling angle.....	14 degrees	14 degrees	14 degrees

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

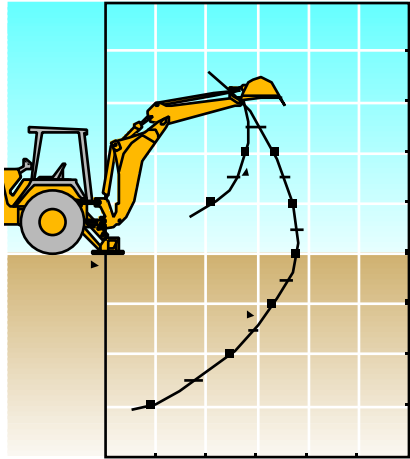
BACKHOE BUCKETS

	<i>Width</i>	<i>Capacity</i>	<i>Weight</i>
Standard duty.....	24 in. (610 mm)	7.5 cu. ft. (0.21 m ³)	350 lb. (159 kg)
Heavy duty with lift loop.....	12 in. (305 mm)	3.3 cu. ft. (0.09 m ³)	295 lb. (134 kg)
	18 in. (457 mm)	5.1 cu. ft. (0.14 m ³)	335 lb. (152 kg)
	24 in. (610 mm)	7.5 cu. ft. (0.21 m ³)	400 lb. (181 kg)
	24 in. (610 mm)	8.8 cu. ft. (0.25 m ³)	420 lb. (191 kg)
	30 in. (762 mm)	10.0 cu. ft. (0.28 m ³)	445 lb. (202 kg)
Severe duty with lift loop.....	36 in. (914 mm)	12.5 cu. ft. (0.35 m ³)	510 lb. (231 kg)
	18 in. (457 mm)	5.1 cu. ft. (0.14 m ³)	362 lb. (164 kg)
	24 in. (610 mm)	7.5 cu. ft. (0.21 m ³)	425 lb. (193 kg)
	24 in. (610 mm)	8.8 cu. ft. (0.25 m ³)	455 lb. (206 kg)
	30 in. (762 mm)	10.0 cu. ft. (0.28 m ³)	475 lb. (215 kg)
Ditch cleaning.....	36 in. (914 mm)	12.5 cu. ft. (0.35 m ³)	510 lb. (231 kg)

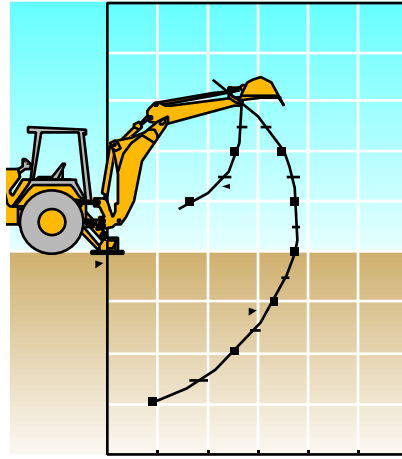
LIFT CAPACITIES * / DIMENSIONS

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

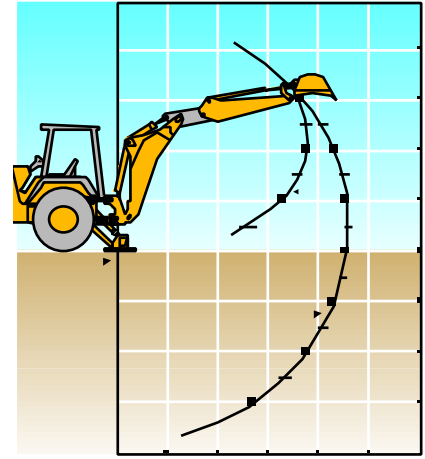
**310SE BACKHOEWITH
STANDARD DIPPERSTICK**



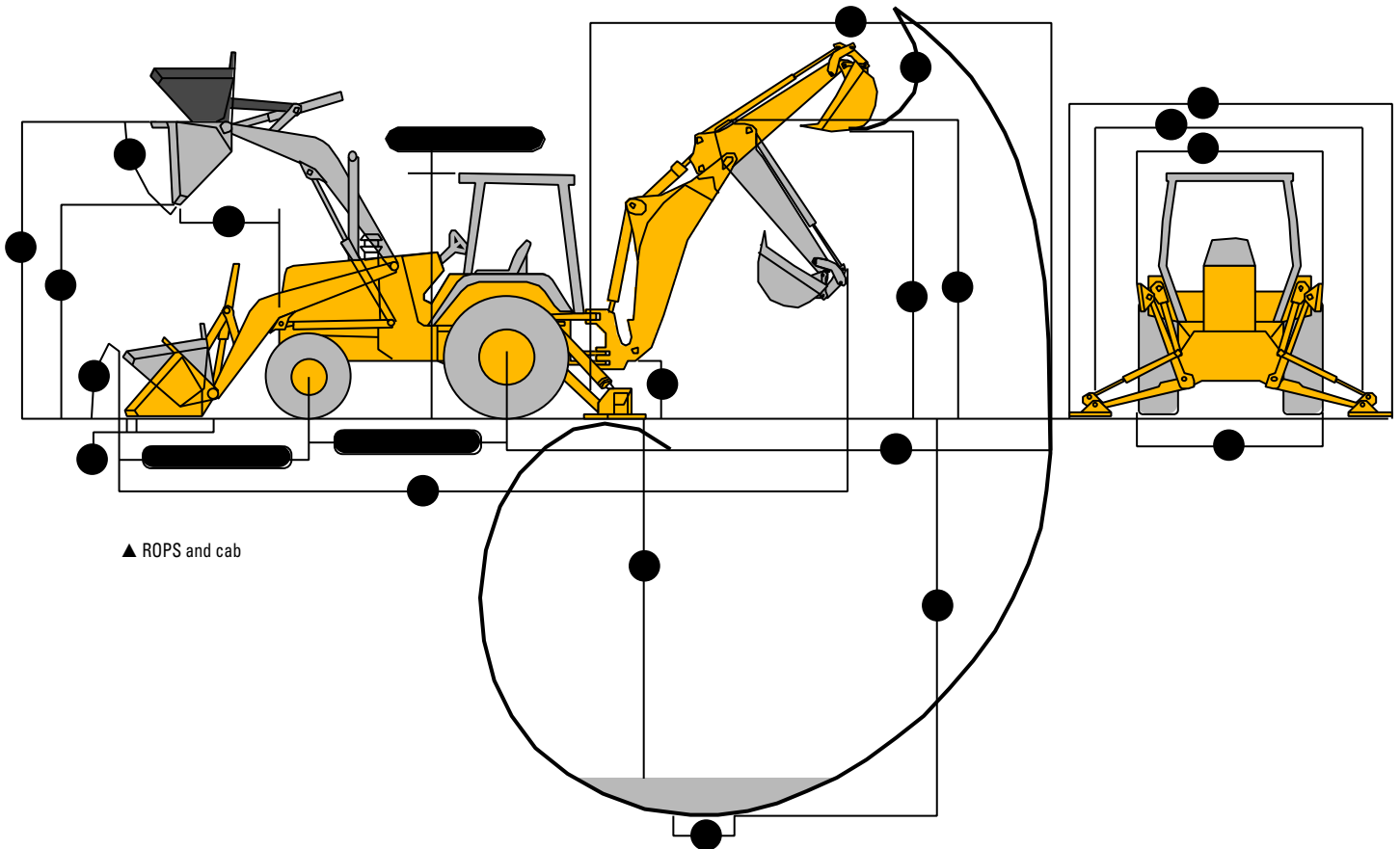
**310SE BACKHOEWITH 3-FT. 6-IN. (1.07 M)
EXTENDABLE DIPPERSTICK, RETRACTED**



**310SE BACKHOEWITH 3-FT. 6-IN. (1.07 M)
EXTENDABLE DIPPERSTICK, EXTENDED**



DIMENSIONS (SEE PAGE 19.)



▲ ROPS and cab

BACKHOE

310SE

	<i>With Standard Backhoe*</i>	<i>With Extendable Dipperstick*</i>	
		<i>Retracted</i>	<i>Extended</i>
A Loading height, truck loading position	11 ft. 3 in. (3.43 m)	11 ft. 7 in. (3.53 m)	14 ft. 1 in. (4.29 m)
B Reach from center of swing pivot	18 ft. 3 in. (5.56 m)	18 ft. 7 in. (5.66 m)	21 ft. 11 in. (6.68 m)
C Reach from center of rear axle	21 ft. 9 in. (6.63 m)	22 ft. 1 in. (6.73 m)	25 ft. 4 in. (7.72 m)
D Maximum digging depth	14 ft. 6 in. (4.42 m)	14 ft. 11 in. (4.55 m)	18 ft. 5 in. (5.61 m)
E Digging depth (SAE):			
(1) 2-ft. (610 mm) flat bottom	14 ft. 4 in. (4.37 m)	14 ft. 9 in. (4.50 m)	18 ft. 3 in. (5.56 m)
(2) 8-ft. (2440 mm) flat bottom	13 ft. 4 in. (4.06 m)	13 ft. 9 in. (4.19 m)	17 ft. 6 in. (5.33 m)
F Ground clearance, minimum	13 in. (330 mm)	13 in. (330 mm)	13 in. (330 mm)
G Bucket rotation	190 degrees	190 degrees	190 degrees
H Transport height	11 ft. 6 in. (3.51 m)	11 ft. 5 in. (3.48 m)	11 ft. 5 in. (3.48 m)
I Overall length, transport	23 ft. 6 in. (7.16 m)	23 ft. 6 in. (7.16 m)	23 ft. 6 in. (7.16 m)
J Stabilizer width – transport with ROPS	7 ft. 2 in. (2.18 m)	7 ft. 2 in. (2.18 m)	7 ft. 2 in. (2.18 m)
K Stabilizer spread – operating	10 ft. 2 in. (3.10 m)	10 ft. 2 in. (3.10 m)	10 ft. 2 in. (3.10 m)
L Stabilizer overall width – operating	11 ft. 7 in. (3.53 m)	11 ft. 7 in. (3.53 m)	11 ft. 7 in. (3.53 m)
M Width over tires	86 in. (2.18 m)	86 in. (2.18 m)	86 in. (2.18 m)

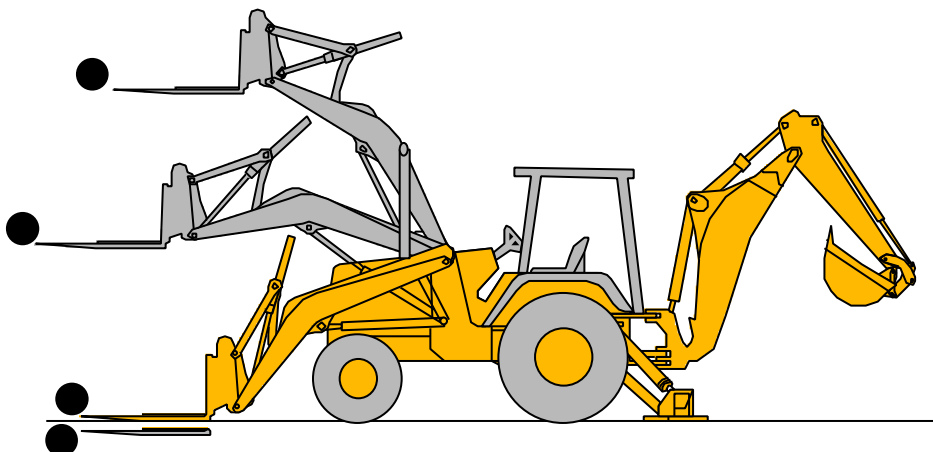
*Backhoe specifications are with 24-in. x 7.5-cu. ft. (610 mm x 0.21 m³) bucket.

LOADER PERFORMANCE WITH BUCKET OPTIONS

	<i>1.25 cu. yd. (0.96 m³) Heavy-duty Long Lip</i>	<i>1.30 cu. yd. (1.00 m³) Heavy-duty Long Lip</i>	<i>1.12 cu. yd. (0.86 m³) Multipurpose</i>	<i>1.25 cu. yd. (0.96 m³) Multipurpose</i>
Operator control	single lever	single lever	single lever	single lever
Breakout force	8,817 lb. (39.2 kN)	8,900 lb. (39.6 kN)	8,325 lb. (37.0 kN)	8,300 lb. (36.9 kN)
Lifting capacity, full height	6,247 lb. (2836 kg)	6,150 lb. (2790 kg)	5,900 lb. (2676 kg)	5,800 lb. (2631 kg)
a Height to bucket hinge pin, maximum	11 ft. 2 in. (3.40 m)	11 ft. 2 in. (3.40 m)	11 ft. 2 in. (3.40 m)	11 ft. 2 in. (3.40 m)
b Dump clearance, bucket at 45 degrees	8 ft. 2 in. (2.59 m)	8 ft. 8 in. (2.64 m)	8 ft. 7 in. (2.62 m)	8 ft. 7 in. (2.62 m)
c Bucket dump angle, maximum	45 degrees	45 degrees	45 degrees	45 degrees
d Reach at full height, bucket at 45 degrees	36.0 in. (911 mm)	30.1 in. (765 mm)	32.2 in. (818 mm)	32.2 in. (818 mm)
e Rollback angle at ground level	40 degrees	40 degrees	40 degrees	40 degrees
f Digging depth below ground, bucket level	5.8 in. (147 mm)	8.1 in. (206 mm)	7.3 in. (185 mm)	7.3 in. (185 mm)
Raising time to full height	4.9 sec.	4.9 sec.	4.9 sec.	4.9 sec.
Bucket dump time	1.1 sec.	1.1 sec.	1.1 sec.	1.1 sec.
Bucket lowering time (power down)	1.9 sec.	1.9 sec.	1.9 sec.	1.9 sec.

LIFT CAPACITY WITH QUICK COUPLER/FORKS

A Maximum height	4,178 lb. (1897 kg)
B Maximum reach	6,191 lb. (2810 kg)
C At ground line	8,232 lb. (3737 kg)
D Below ground line	4.4 in. (112.7 mm) to bottom of tine / 2.7 in. (68.3 mm) to top of tine



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