




JD	CONSTRUCTION EQUIPMENT DIVISION	BACKHOE
	MODEL NO. 310G	



310G

BACKHOE LOADER

SPECIFICATIONS



Engine	310G
Type	John Deere 4045D - Naturally Aspirated
Rated power @ 2,000 rpm	70 SAE gross hp (51 kW) / 73 SAE net hp (54 kW)
John Deere 4045J with altitude-compensating turbocharger @ 2,000 rpm	83 SAE gross hp (60 kW) / 78 SAE net hp (56 kW)
Cylinders	4
Displacement	276 cu. in. (4,524 L)
Fuel consumption, typical	1.1 to 1.8 gal./hr. (4.2 to 7.2 L/h)
Torque rpm	26 percent
With altitude-compensating turbocharger	34 percent
Maximum net torque	333 lb.-ft. (300 Nm)
With altitude-compensating turbocharger	333 lb.-ft. (315 Nm)
Lubrication	pressure system with spin-on filter and cooler
Air cleaner	dual stage dry type with safety element, evaporator valve, and pre-cleaner
Electrical system	12 volt with 45-amp alternator
Battery type/cooling fan	

Transmission

Four-speed, helical cut gear, collar-shift transmission synchronized in all gears with hydraulic reverse

Torque converter, single stage, dual phase with 2.63:1 stall ratio

Travel speeds with 19.5L-24 rear tires

	Forward	Reverse
Gear 1	3.6 mph (5.8 km/h)	4.0 mph (6.4 km/h)
Gear 2	5.0 mph (8.0 km/h)	6.0 mph (9.6 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, misum planetary final drives evenly distribute shock loads over three gears

Brakes

Power-assisted, hydraulic wet disc, mounted inboard, self adjusting and self equalizing

Capacities

Fuel tank (with ground level tanking)	36 gal. (136 L)
Engine coolant	17 qt. (16 L)
Engine oil including filter	8 qt. (8.5 L)
Torque converter and transmission	10 qt. (14 L)
Hydraulic system	24 gal. (91 L)
Rear axle	3.0 gal. (11 L)
Mechanical front-wheel-drive axle	2.0 gal. (8.5 L)

Steering

Hydrostatic power steering and emergency steering conform to ISO5070

Non-powered axle

Curve turning radius with brakes	11 ft. 8 in. (3.57 m)
Without brakes	12 ft. 3 in. (4.04 m)
Bucket clearance circle with brakes	21 ft. 6 in. (6.61 m)
Without brakes	24 ft. 7 in. (7.52 m)
Steering wheel turns, stop to stop	2.3 to 3.0

Mechanical front-wheel-drive

Curve turning radius with brakes	16 ft. 11 in. (5.24 m)
Without brakes	17 ft. 6 in. (4.17 m)
Bucket clearance circle with brakes	26 ft. 8 in. (8.07 m)
Without brakes	30 ft. 3 in. (9.24 m)
Steering wheel turns, stop to stop	3.0

Axle oscillations stop to stop, both sides

	33 degrees
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Axle ratings (SAE J43)

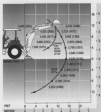
Front	17,340 lb. (7865 kg)
Rear	13,650 lb. (6190 kg)

Hydraulic System

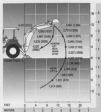
System	open center
Pressure	
Backhoe	3,625 psi (25,000 kPa)
Loader	2,750 psi (19,000 kPa)
Pump	gear type
Flow @ 2,200 rpm	25 gpm (108 L/min)
Filter, return oil	10 micron, spin-on inboard replaceable element

*Lift capacities are over-end values in lb. (kg) according to SAE J271. Figures listed are 87% of the maximum lift force available. Base vehicle includes counterweight.

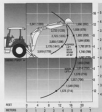
310G Backhoe with Standard Demolition



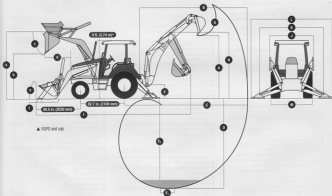
310G Backhoe with 3-ft. 8-in. (1.07 m) EXTENDED DEMOLITION, RETRACTS



310G Backhoe with 3-ft. 8-in. (1.07 m) EXTENDED DEMOLITION, EXTENDS



ROPS HEIGHT, SEE PAGE 11



▲ ROPS and cab

Backhoe	3100		
	With Standard Backhoe*	With Extendable Operator*	
		Retracted	Extended
A Loading height, truck loading position	18 ft, 11 in. (5.52 m)	17 ft, 1 in. (5.20 m)	18 ft, 11 in. (5.74 m)
B Reach from center of swing pivot	17 ft, 10 in. (5.44 m)	18 ft, 1 in. (5.51 m)	21 ft, 5 in. (6.53 m)
C Reach from center of rear axle	21 ft, 4 in. (6.50 m)	21 ft, 7 in. (6.58 m)	24 ft, 11 in. (7.58 m)
D Maximum digging depth	14 ft, 3 in. (4.34 m)	14 ft, 5 in. (4.38 m)	17 ft, 11 in. (5.46 m)
E Digging depth (S&S):			
(1) 2-ft. (610 mm) flat bottom	14 ft, 2 in. (4.32 m)	14 ft, 4 in. (4.37 m)	17 ft, 10 in. (5.44 m)
(2) 6-ft. (2440 mm) flat bottom	13 ft. (3.96 m)	13 ft. 4 in. (4.06 m)	17 ft. (5.18 m)
F Ground clearance, minimum	12 in. (305 mm)	12 in. (305 mm)	12 in. (305 mm)
G Bucket rotation	180 degrees	180 degrees	180 degrees
H Transport height	11 ft, 3 in. (3.43 m)	11 ft, 2 in. (3.40 m)	11 ft, 2 in. (3.40 m)
I Overall length, transport	23 ft, 3 in. (7.09 m)	23 ft, 3 in. (7.09 m)	23 ft, 3 in. (7.09 m)
J Stabilizer width - transport with ROPS	7 ft, 2 in. (2.19 m)	7 ft, 2 in. (2.19 m)	7 ft, 2 in. (2.19 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 line	81.7 in. (2.07 m)	81.7 in. (2.07 m)	81.7 in. (2.07 m)

*Backhoe specifications are with 24-in. x 6.5-cu. ft. (610 mm x 3.18 m³) bucket.

Loader Performance with Bucket Options

	1.85-cu. yd. (0.78 m ³) Heavy-Duty Long Lip	1.57-cu. yd. (0.68 m ³) Heavy-Duty Long Lip	1.25-cu. yd. (0.48 m ³) Heavy-Duty Long Lip	1.57-cu. yd. (0.68 m ³) Multipurpose
Operator control	single lever	single lever	single lever	single lever
Breakout force	8,100 lb. (36,540 N)	7,820 lb. (35,440 N)	7,600 lb. (33,840 N)	7,720 lb. (31,740 N)
Lifting capacity, full height	5,800 lb. (2631 kg)	5,880 lb. (2640 kg)	5,950 lb. (2703 kg)	5,180 lb. (2353 kg)
a Height to bucket hinge pin, maximum	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. (3.38 m)
b Dump clearance, bucket at 45 degrees	8 ft, 10 in. (2.69 m)	8 ft, 10 in. (2.69 m)	8 ft, 2 in. (2.50 m)	8 ft, 6 in. (2.59 m)
c Bucket dump angle, maximum	45 degrees	45 degrees	45 degrees	45 degrees
Reach at full height, bucket at 45 degrees	30 ft 9 in. (789 mm)	30.2 m (797 mm)	31.9 ft. (809 mm)	32.2 m (814 mm)
Rollback angle at ground level	40 degrees	40 degrees	40 degrees	40 degrees
f Digging depth below ground, bucket level	6.3 in. (160 mm)	6.8 in. (175 mm)	6.8 in. (174 mm)	7.8 in. (199 mm)
Raising time to full height	5.2 sec.	5.2 sec.	5.2 sec.	5.2 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 ¹ Maximum height	5.665 ft. (1675 kg)
B ² Maximum reach	5.570 ft. (3328 kg)
C ³ At ground line	7.310 ft. (3319 kg)
D ⁴ Below ground line	4.4 in. (112.7 mm) to bottom of tire / 2.7 in. (68.3 mm) to top of tire



Cylinders	310G		
	Rear	Stroke	Foot
Loader boom (2)	3.15 in. (80 mm)	21.1 in. (530 mm)	1.87 in. (48 mm)
Loader bucket (1)	3.94 in. (90 mm)	29.3 in. (744 mm)	1.87 in. (48 mm)
Backhoe boom (1)	4.33 in. (110 mm)	32.3 in. (827 mm)	2.30 in. (58 mm)
Backhoe crowd (1)	4.33 in. (110 mm)	32.3 in. (826 mm)	2.30 in. (58 mm)
Backhoe bucket (1)	3.15 in. (80 mm)	35.1 in. (895 mm)	1.87 in. (48 mm)
Backhoe swing (2)	3.15 in. (80 mm)	12.3 in. (313 mm)	1.77 in. (45 mm)
Backhoe extendable dipperstick (1)	2.48 in. (63 mm)	41.8 in. (1062 mm)	1.36 in. (35 mm)
Backhoe stabilizer (2)	3.15 in. (80 mm)	18.7 in. (476 mm)	1.87 in. (48 mm)
Steering (1) non-powered axle	1.87 in. (48 mm)	8.49 in. (216 mm)	0.96 in. (25 mm)
Steering (1) MFWD	2.36 in. (60 mm)	8.27 in. (210 mm)	1.42 in. (36 mm)

Tires	Rear	Front
With non-powered front axle	18.0-24, 8 PR 84 17.5-24, 10 PR 84	18.0-16, 8 PR 73 18.0-16, 10 PR 73
With mechanical front-wheel drive	18.0-24, 8 PR 84 18.0-24, 8 PR 84	12-18.5, 8 PR 60S 12-18.5, 8 PR 60S

S&K Operating Weights	
Standard	12,800 lb. (5800 kg)
Cab add	560 lb. (253 kg)
Mechanical front-wheel drive with tire add	370 lb. (168 kg)
Extendable dipperstick excluding required counterweight add	440 lb. (200 kg)
Optional 400-lb. counterweight add	400 lb. (181 kg)
Optional 650-lb. counterweight add	650 lb. (295 kg)
Optional 250-lb. ball-on counterweight add	250 lb. (113 kg)
Backhoe bucket coupler add	130 lb. (59 kg)

See backhoe and loader performance data for bucket weights.

Loader Buckets	Width	Height Capacity	Weight
Heavy-duty long lip*	36 in. (914 mm)	1.80 cu. yd. (5.76 m ³)	718 lb. (325 kg)
Heavy-duty long lip**	36 in. (914 mm)	1.12 cu. yd. (3.66 m ³)	948 lb. (430 kg)
Heavy-duty long lip	36 in. (914 mm)	1.20 cu. yd. (3.66 m ³)	875 lb. (397 kg)
Multipurpose**	36 in. (914 mm)	1.12 cu. yd. (3.66 m ³)	1,450 lb. (658 kg)

*Pre-drilled for auxiliary cutting edge.
**With auxiliary cutting edge and skid shoes standard.

Backhoe Performance	With Standard Backhoe*	With Extendable Dipperstick [†]	Extended
Digging force, bucket cylinder	11,108 lb. (49.8 kN)	11,211 lb. (49.9 kN)	11,211 lb. (49.9 kN)
Digging force, crowd cylinder	7,809 lb. (31.2 kN)	8,792 lb. (39.2 kN)	8,844 lb. (31.3 kN)
Swing arc	180 degrees	180 degrees	180 degrees
Operator control	Two levers	Right foot handle	Right foot handle
Bucket rotation	180 degrees	180 degrees	180 degrees
Stabilizer angle maximum	18 degrees	18 degrees	18 degrees
Leveling angle	14 degrees	14 degrees	14 degrees

*Backhoe specifications are with 24-in. x 6.5-cu. ft. (610 mm x 0.18 m³) bucket.

Backhoe Buckets	Width	Capacity	Weight
Standard duty	18 in. (457 mm)	4.8 cu. ft. (0.13 m ³)	360 lb. (163 kg)
	24 in. (610 mm)	6.5 cu. ft. (0.18 m ³)	350 lb. (158 kg)
Heavy-duty with lift lip	12 in. (305 mm)	2.8 cu. ft. (0.11 m ³)	240 lb. (109 kg)
	18 in. (457 mm)	3.1 cu. ft. (0.14 m ³)	235 lb. (107 kg)
	24 in. (610 mm)	7.3 cu. ft. (0.21 m ³)	400 lb. (181 kg)
	30 in. (762 mm)	16.0-cu. ft. (0.45 m ³)	445 lb. (202 kg)

Additional Equipment

Key: ■ Standard equipment ▲ Optional or special equipment

Engines

- John Deere Model 4400 - 4.5 liter, 15.5 kW net hp naturally aspirated, isolation mounted
- John Deere Model 4401T - 4.5 liter, 16.5 kW net hp air-fuel-compressing turbocharged, isolation mounted
- Vertical split-in engine oil filter
- Split-in John Deere fuel filter with water separator
- Oil-to-water engine oil cooler
- Backflow, -34°F (-37°C)
- Constant recovery pump
- Serpentine belt with automatic belt tensioner
- Bucket-type cooling fan
- Enclosed safety fan guard
- Real cleaned dry-type air cleaner with secondary valve and preseparator
- Muffler, underhood with curved and exhaust stack
- Electric after starting aid
- Engine coolant heater, 1,000 watts

Power Train

- Torque-shift transmission with torque converter
- Fully synchronized four forward, four reverse speeds / Isolator mounted to subframe
- Transmission oil cooler
- Vertical split-in transmission filter
- Electric forward-neutral-reverse control lever with neutral safety switch interlock
- Electric clutch control on gearshift and loader levers
- Differential lock, electric foot-actuated
- Planetary final drives
- Power-mounted hydraulic reverse brakes (conform to SAE J1473) lock-and, self-aligning, self equalizing
- Park/interengage brake with electric switch control (conforms to SAE J1473); Spring applied, hydraulically released wet multi-disc / Independent of service brake
- Hydraulic power steering with emergency manual mode
- Non-powered front axle
- Mechanical front-axle-drive; Electric control control / Drive shaft guard / Sealed axle
- 11L-56 F3 front tires
- 11L-56 F3 rear tires
- 12-18.8 loadline front tires
- 16.9-24 R4 rear tires
- 17.9L-24 R4 rear tires
- 18.9L-24 R4 rear tires
- Rear wheel spacers for use with chains

Backhoe

- Backhoe with standard dipperstick, 14-1/2, 3-in. digging depth
- Two-lever (Bever) backhoe controls
- Three-lever (Case) backhoe controls
- Four-lever (Ford) backhoe controls
- SAE excavator two-lever backhoe controls
- Backhoe transport lock lever
- Swing lock pin stored in operator's station
- Stabilizer valve with two-direction anti-drift valve
- Planting stabilizers with dirt pad
- Planting stabilizers with reversible pads
- Extended stabilizers
- Stabilizer cylinder guards
- Less bucket, with bucket pins
- Standard-duty backhoe bucket with lift loops

Backhoe (continued)

- Heavy-duty backhoe bucket with lift loops
- Backhoe bucket coupler for "0," "6," and "1" series John Deere buckets, Case buckets, and Ford buckets
- Extendable dipperstick, 3-ft. 8-in. extension
- Auxiliary backhoe valve for augers, thumbs, etc.
- Auxiliary backhoe valve for hammers, compactors
- Auxiliary backhoe plumbing for hammers, compactors
- SAE controlled foot-lowering device valves

Loader

- Hydraulic lift limiting
- Return-to-dig feature
- Single-lever control with electric clutch safety switch
- Bucket-level indicator
- Loader beam service lock
- Auxiliary loader hydraulics with two-lever control
- Loader front coupler
- Less bucket, with bucket pins
- Heavy-duty loader bucket with lift loops, prepositioned for ball-on cutting edge
- Heavy-duty loader buckets with ball-on cutting edges, skid plates, and lift loops
- Multi-purpose loader buckets with ball-on cutting edges, skid plates, and lift loops

Hydraulic System

- 10-gpm (38 L/min.) gear pump, open center system
- Independent hydraulic reservoir
- Hydraulic oil cooler
- "O"-ring face seal connectors
- 10 micron vertical split-in filter

Electrical

- 12-volt system
- 60-amp alternator
- Single battery with 100-min. reserve capacity and 700 CCA
- Dual batteries with 100-min. reserve capacity and 1,000 CCA
- Positive terminal battery cover
- Block-type multi-fused circuits
- Sp-gas start safety cover on starter

Lights

- Four halogen driving/work lights, 32,000 candlepower each (two front and two rear)
- Six additional halogen work lights, 21,000 candlepower each (two front, two rear, and two sides)
- Two front and two rear turn signal/flashers
- Two rear stop and fall
- Two rear reflectors
- Reflecting beacon

Operator's Station

- Stabilizer-bridge ROPS/TOPS canopy with padded roof (conforms to SAE J1068); isolation mounted
- Left and right hand access
- Slip-resistant steps and ergonomically located handholds
- Coat hook
- Ball-in beverage holders
- Ball-in Operator's Manual storage compartment with manual

See your John Deere dealer for further information.

Operator's Station (continued)

- Interior rearview mirror
 - Outside rearview mirrors
 - Hand throttle with fuel economy setting at 2,100 rpm
 - Deposited foot throttle
 - Rear
 - Key start switch with electric fuel shutoff
 - Engine coolant temperature gauge, illuminated electronic, with audible warning
 - Oil temperature gauge, illuminated electronic, with audible warning
 - Fuel gauge, illuminated electronic
 - Digital display of engine hours, engine rpm, and coolant voltage
 - Monitor system with audible and visual warnings: Engine air restriction indicator / Engine oil pressure indicator with audible warning / Hydraulic filter restriction indicator / Parking brake safety indicator with audible warning / Cool fan indicator
 - Non-suspension vinyl swivel seat without armrests
 - Suspension vinyl swivel seat with armrests and lumbar support
 - Suspension fabric swivel seat with armrests and lumbar support
 - Air suspension vinyl swivel seat with armrests and lumbar support
 - 2-in. seat belt with retractors
 - 2-in. seat belt with retractors
 - Color headlamps, dome light, left and right cut door, third safety glass, one rear and one front windshield wiper, fresh air intake heater/defroster/precooler (40,000-Btu/hr. [11.7 kW] heater), and 60-amp alternator standard / Front windshield wiper, air conditioning (20,000-Btu/hr. [7.4 kW] output) and CPC-free R134a refrigerant, 60-amp alternator, and AM/FM weatherband radio optional
 - Ride control
- ### Overall Vehicle
- Complete unified construction mainframe
 - Front fenders, two front and one rear
 - Removable grass bank for front axle
 - Rigid front-end bumper
 - 400-lb. (181 kg) front counterweight
 - 600-lb. (268 kg) front counterweight
 - 600-lb. (268 kg) front counterweight
 - 1,400-lb. (632 kg) front counterweight
 - 1,400-lb. (635 kg) front counterweight
 - Fuel tank, 36 gal. (136 L), ground level fueling
 - Two-position easy-fill hood
 - Front grille access
 - Vertical protection for instrument panel, engine access doors, and fuel tank
 - Reverse warning alarm (switchable to 93 dB(A) or 111 dB(A))
 - Door-resistant rear fenders
 - Rear fender extensions
 - Front fender[†]
 - SMV position
 - Revised dorsal rail
 - Special noise panel[†]
 - Quarter cut[†]



Net engine power is with standard equipment including air cleaner, exhaust system, alternator and cooling fan, at standard conditions per SAE J1995 and 100% throttle. Net engine power is with standard equipment including air cleaner, exhaust system, alternator and cooling fan, at standard conditions per SAE J1995 and 100% throttle. Net optional air-fuel-compressing turbocharger 10,000-R, 2000-R. Gross power is without cooling fan.

Specifications and design subject to change without notice. Whenever specifications are in accordance with SAE standards, SAE symbol reference noted. These specifications are based on a unit with 13.9L-24, 10.9R rear tires; 11L-56, 12.9R-24 front tires; 1.00L-16, 10.75R front loader bucket and 24 in. x 13.0 in. R-18.5 mm x 6.10 in. front loader bucket.

