

# 315SG

BACKHOE LOADER

SPECIFICATIONS



CONSTRUCTION EQUIPMENT

## Engine

### 315SG

Type .....	John Deere POWERTECH™ 4045T, turbocharged; meets North American EPA and CARB non-road diesel engine regulations effective January 1, 1997; also is certifiable to proposed E.U. (European Union) regulations, which are not yet effective
Rated power .....	92.5 SAE gross hp (69 kW) / 86 SAE net hp (64 kW) @ 2,300 rpm
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 .....	38 percent
Maximum net torque .....	277 lb.-ft. (376 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 16.9-28 rear tires	<i>Forward</i>	<i>Reverse</i>
Gear 1 .....	3.6 mph (5.8 km/h)	4.0 mph (6.4 km/h)
Powershift .....	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)
Powershift .....	5.8 mph (9.3 km/h)	6.7 mph (10.8 km/h)
Gear 3 .....	14.4 mph (23.2 km/h)	16.1 mph (25.9 km/h)
Powershift .....	13.9 mph (22.4 km/h)	16.6 mph (26.7 km/h)
Gear 4 .....	20.5 mph (33.0 km/h)	20.5 mph (33.0 km/h)
Powershift .....	20.5 mph (33.0 km/h)	N/A

## Final Drives

Heavy-duty, inboard 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 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 front axle (Carraro)

Curb turning radius with brakes .....	10 ft. 7 in. (3.23 m)
Without brakes .....	12 ft. 8 in. (3.86 m)
Bucket clearance circle with brakes .....	30 ft. 4 in. (9.25 m)
Without brakes .....	34 ft. 0 in. (10.36 m)
Steering wheel turns, lock to lock	
Non-powered axle .....	3.1
MFWD axle .....	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 .....	14,700 lb. (6670 kg)

## Hydraulic System

System .....	open center
Pressure	
Backhoe .....	3,625 psi (25 000 kPa)
Loader .....	3,625 psi (25 000 kPa)

**Hydraulic System (continued)****315SG**

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**

	<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) .....	2.76 in. (70 mm)	14.6 in. (370 mm)	1.77 in. (45 mm)
Steering (1) non-powered axle.....	2.56 in. (65 mm)	8.39 in. (213 mm)	1.42 in. (36 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	11L-15, 8 PR F3
	16.9-28, 10 PR R4	11L-16, 12 PR F3
	19.5L-24, 8 PR R4	11L-16, 12 PR F3
With mechanical-front-wheel-drive.....	16.9-28, 10 PR R4	12.5/80-18, 10 PR
	19.5L-24, 8 PR R4	12.5/80-18, 10 PR

**SAE Operating Weights**

Standard.....	14,700 lb. (6670 kg)
Cab adds .....	580 lb. (263 kg)
Mechanical-front-wheel-drive with tires adds.....	485 lb. (220 kg)
Extendable dipperstick excluding required counterweight 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.....	92 in. (2340 mm)	1.30 cu. yd. (1.00 m <sup>3</sup> )	1,050 lb. (476 kg)
Multipurpose .....	82 in. (2080 mm)	1.18 cu. yd. (0.91 m <sup>3</sup> )	1,664 lb. (755 kg)
	86 in. (2180 mm)	1.25 cu. yd. (0.96 m <sup>3</sup> )	1,713 lb. (777 kg)
	92 in. (2340 mm)	1.32 cu. yd. (1.01 m <sup>3</sup> )	1,800 lb. (816 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
Leveling angle .....	8 degrees	8 degrees	8 degrees

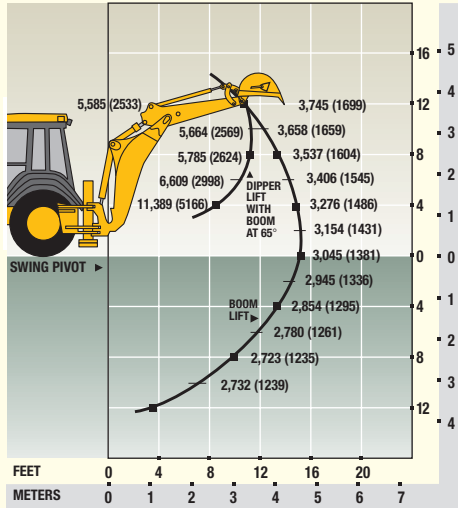
\*Backhoe specifications are with 24-in. x 7.5-cu. ft. (610 mm x 0.21 m<sup>3</sup>) bucket.

**Backhoe Buckets**

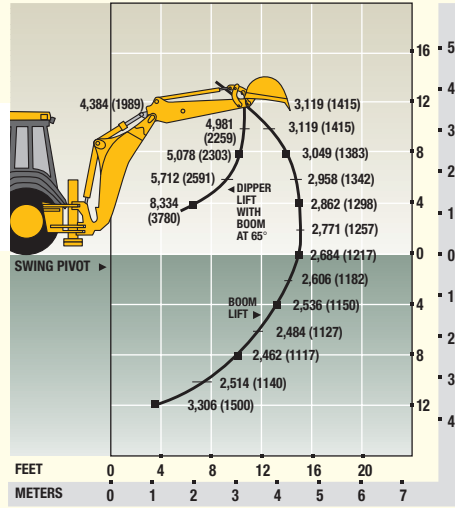
	<i>Width</i>	<i>Capacity</i>	<i>Weight</i>
Standard duty .....	24 in. (610 mm)	7.5 cu. ft. (0.21 m <sup>3</sup> )	350 lb. (159 kg)
Heavy duty with lift loop .....	12 in. (305 mm)	3.3 cu. ft. (0.09 m <sup>3</sup> )	295 lb. (134 kg)
	18 in. (457 mm)	5.1 cu. ft. (0.14 m <sup>3</sup> )	335 lb. (152 kg)
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

\*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.

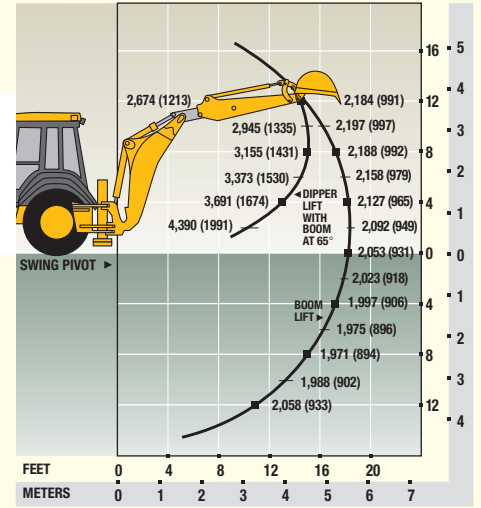
**315SG BACKHOE WITH STANDARD DIPPERSTICK**



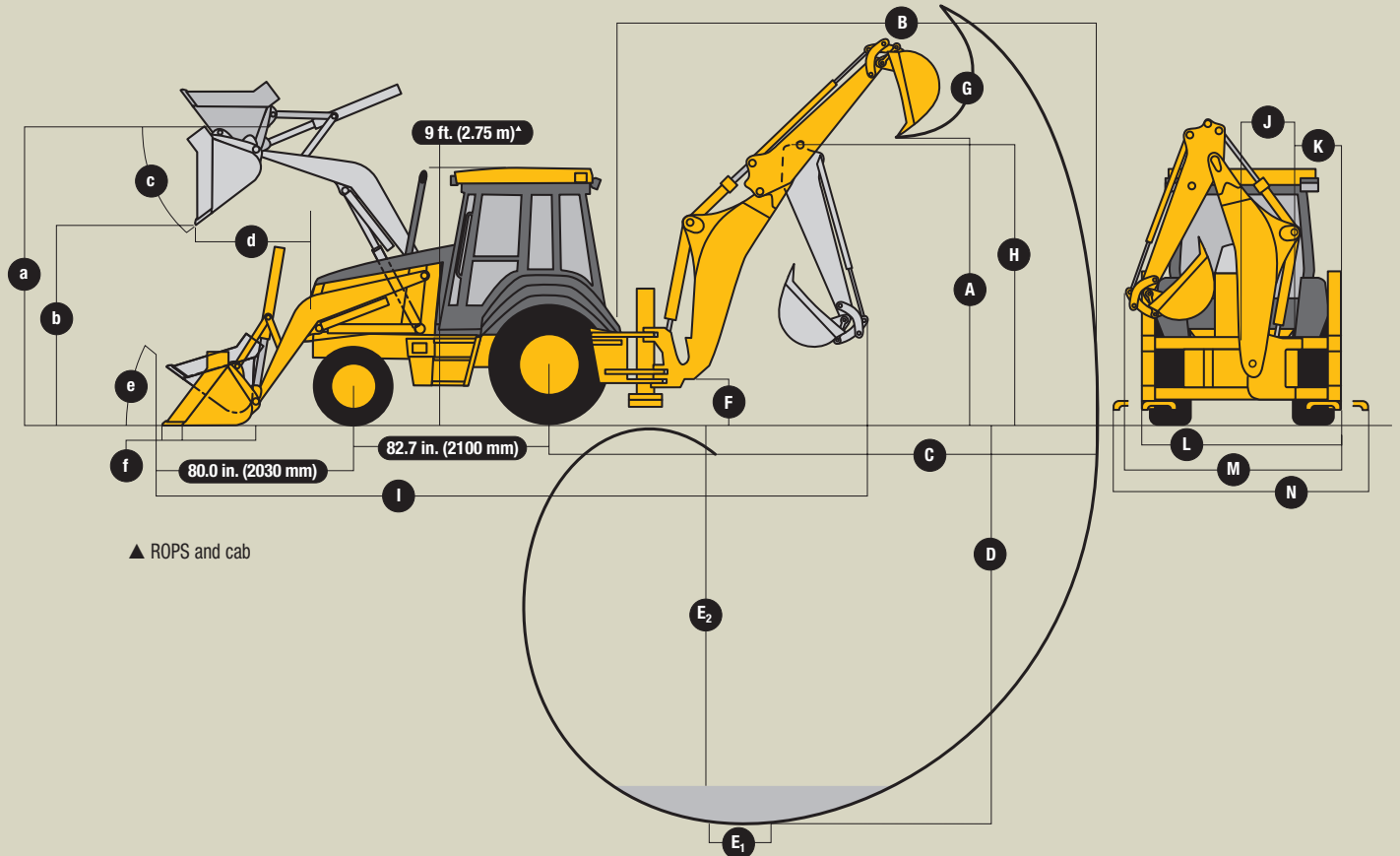
**315SG BACKHOE WITH 3-FT. 6-IN. (1.07 M) EXTENDABLE DIPPERSTICK, RETRACTED**



**315SG BACKHOE WITH 3-FT. 6-IN. (1.07 M) EXTENDABLE DIPPERSTICK, EXTENDED**



**DIMENSIONS (SEE PAGE 15.)**



## Backhoe

## 315SG

	With Standard Backhoe*	With Extendable Dipperstick*	
		Retracted	Extended
A Loading height, truck loading position .....	11 ft. 8 in. (3.56 m)	11 ft. 9 in. (3.58 m)	14 ft. 3 in. (4.34 m)
B Reach from center of swing pivot .....	18 ft. 1 in. (5.56 m)	18 ft. 5 in. (5.61 m)	21 ft. 9 in. (6.63 m)
C Reach from center of rear axle .....	22 ft. 8 in. (6.91 m)	23 ft. (7.01 m)	26 ft. 4 in. (8.03 m)
D Maximum digging depth .....	14 ft. 1 in. (4.29 m)	14 ft. 7 in. (4.42 m)	18 ft. (5.49 m)
E Digging depth (SAE):			
(1) 2-ft. (610 mm) flat bottom .....	13 ft. 11 in. (4.24 m)	14 ft. 5 in. (4.40 m)	17 ft. 10 in. (5.44 m)
(2) 8-ft. (2440 mm) flat bottom .....	12 ft. 11 in. (3.94 m)	13 ft. 5 in. (4.09 m)	17 ft. 1 in. (5.21 m)
F Ground clearance, minimum .....	13.8 in. (350 mm)	13.8 in. (350 mm)	13.8 in. (350 mm)
G Bucket rotation .....	190 degrees	190 degrees	190 degrees
H Transport height .....	12 ft. (3.67 m)	11 ft. 11 in. (3.48 m)	11 ft. 11 in. (3.48 m)
I Overall length, transport .....	17 ft. 3 in. (5.26 m)	17 ft. 3 in. (5.26 m)	17 ft. 3 in. (5.26 m)
J Side-shift from tractor centerline .....	22.9 in. (582 mm)	22.9 in. (582 mm)	22.9 in. (582 mm)
K Wall to swing centerline .....	22.8 in. (580 mm)	22.8 in. (580 mm)	22.8 in. (580 mm)
L Stabilizer width – transport with ROPS .....	7 ft. 7 in. (2.32 m)	7 ft. 7 in. (2.32 m)	7 ft. 7 in. (2.32 m)
M Overall width (less loader bucket) .....	91 in. (2.32 m)	93 in. (2.36 m)	93 in. (2.36 m)
N Stabilizer overall width – operating .....	7 ft. 7 in. (2.32 m)	7 ft. 7 in. (2.32 m)	7 ft. 7 in. (2.32 m)

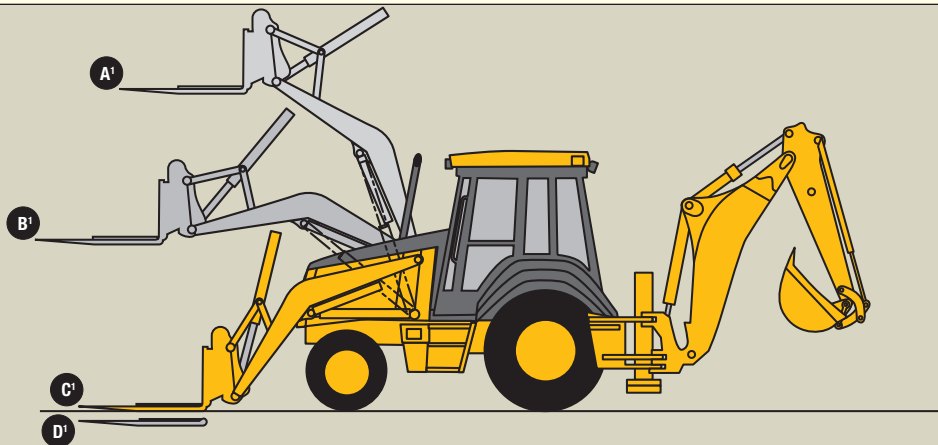
\*Backhoe specifications are with 24-in. x 7.5-cu. ft. (610 mm x 0.21 m<sup>3</sup>) bucket.

### Loader Performance with Bucket Options

	1.30-cu. yd. (1.00 m <sup>3</sup> ) Heavy-Duty Long Lip	1.18-cu. yd. (0.91 m <sup>3</sup> ) Multipurpose	1.25-cu. yd. (0.96 m <sup>3</sup> ) Multipurpose	1.32-cu. yd. (1.01 m <sup>3</sup> ) Multipurpose
Operator control .....	single lever	single lever	single lever	single lever
Breakout force .....	10,300 lb. (45.8 kN)	9,750 lb. (43.4 kN)	9,700 lb. (43.1 kN)	9,650 lb. (42.9 kN)
Lifting capacity, full height .....	7,200 lb. (3266 kg)	6,750 lb. (3061 kg)	6,700 lb. (3039 kg)	6,600 lb. (2993 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. 8 in. (2.64 m)	8 ft. 7 in. (2.62 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 .....	30.1 in. (765 mm)	32.2 in. (818 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 .....	8.1 in. (206 mm)	7.3 in. (185 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 <sup>1</sup> Maximum height .....	5,038 lb. (2287 kg)
B <sup>1</sup> Maximum reach .....	7,462 lb. (3388 kg)
C <sup>1</sup> At ground line .....	9,853 lb. (4473 kg)
D <sup>1</sup> Below ground line .....	4.4 in. (112.7 mm) to bottom of tine / 2.7 in. (68.3 mm) to top of tine



## 3155G Backhoe Loader

**Key:** ● Standard equipment ▲ Optional or special equipment

\*See your John Deere dealer for further information.

### Engine

- John Deere Model 4045T – 4.5 liter, 84 SAE net hp turbocharged, isolation mounted
- Vertical spin-on engine oil filter
- Vertical spin-on fuel filter with water separator
- Vertical spin-on secondary fuel filter
- Oil-to-water engine oil cooler
- Antifreeze, -34°F (-37°C)
- Coolant recovery tank
- Serpentine belt with automatic belt tensioner
- Sucker-type cooling fan
- Enclosed safety fan guard
- ▲ High ambient temperature engine cooling
- Dual-element dry-type air cleaner
- Muffler, underhood with curved-end exhaust stack
- ▲ Chrome exhaust extension
- ▲ Electric ether starting aid
- ▲ Engine coolant heater, 1,000 watts

### Power Train

- Powershift transmission with torque converter: Four forward, three reverse speeds / Isolation mounted to mainframe
- ▲ Transmission with powershift reverser and torque converter: Fully synchronized four forward, four reverse speeds / Isolation mounted to mainframe
- Transmission oil cooler
- Vertical spin-on transmission filter
- Electric forward-neutral-reverse control lever with neutral safety switch interlock
- Electric clutch cutoff on gearshift and loader levers
- Differential lock, electric foot-actuated
- Planetary final drives
- Power-assisted hydraulic service brakes (conform to SAE J1473): Inboard, wet multi-disc, self adjusting and self equalizing
- Parking/emergency brake with electric switch control (conforms to SAE J1473): Spring applied, hydraulically released wet multi-disc / Independent of service brakes
- Hydrostatic power steering with emergency manual mode
- Non-powered front axle
- ▲ Mechanical-front-wheel-drive with limited-slip differential: Electric on/off control / Drive-shaft guard / Sealed axle
- 11L-15 F3 front tires
- ▲ 11L-16 F3 front tires
- ▲ 12.5/80-18 traction front tires
- 16.9-24 R4 rear tires
- ▲ 19.5L-24 R4 rear tires
- ▲ Rear wheel spacers for use with chains

### Backhoe

- Backhoe with standard dipperstick, 14-ft. 6-in. digging depth
- Two-lever (Deere) 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 valves
- Pivoting stabilizers with dirt pads
- ▲ Pivoting stabilizers with reversible pads
- ▲ Extended stabilizers
- ▲ Stabilizer cylinder guards
- Less bucket, with bucket pins

### Backhoe (continued)

- ▲ Standard-duty backhoe bucket with lift loops
- ▲ Heavy-duty backhoe bucket with lift loops
- ▲ Severe-duty backhoe bucket with lift loops
- ▲ Backhoe coupler for "C," "D," "E," and "G" Series John Deere buckets, Case buckets, and Cat buckets
- ▲ Extendable dipperstick, 3-ft. 6-in. extension
- ▲ Auxiliary backhoe valve for swingers, thumbs, etc.
- ▲ Auxiliary backhoe valve for hammers, compactors
- ▲ Auxiliary backhoe plumbing for hammers, compactors
- ▲ Auxiliary backhoe plumbing for swingers, thumbs, etc.
- ▲ SAE-controlled load-lowering device valves
- ▲ Extended stabilizers

### Loader

- Hydraulic self leveling
- Return-to-dig feature
- Single-lever control with electric clutch cutoff switch
- Bucket-level indicator
- Loader boom service lock
- ▲ Ride control
- ▲ Auxiliary loader hydraulics with two-lever control
- ▲ Hydraulic coupler for buckets, forks, etc.
- Less bucket, with bucket pins
- ▲ Heavy-duty loader buckets with bolt-on cutting edges, skid plates, and lift loops
- ▲ Multipurpose loader buckets with bolt-on cutting edges, skid plates, and lift loops

### Hydraulic System

- 36-gpm (136 L/min.) tandem gear pump, open center system
- Independent hydraulic reservoir
- Swing-down hydraulic oil cooler
- "O"-ring face seal connectors
- 10-micron vertical spin-on filter

### Electrical

- 12-volt system
- 65-amp alternator
- Single battery with 190-min. reserve capacity and 950 CCA
- ▲ Dual batteries with 380-min. reserve capacity and 1,900 CCA
- Positive terminal battery cover
- Blade-type multi-fused circuits
- By-pass start safety cover on starter

### Lights

- Four halogen driving/work lights, 32,500 candlepower each (two front and two rear)
- ▲ Six additional halogen work lights, 32,500 candlepower each (two front, two rear, and two side)
- Two front and two rear turn signal/flashing
- Two rear stop and tail
- Two rear reflectors
- ▲ Rotating beacon
- ▲ Lift guards\*

### Operator's Station

- Modular-design ROPS/FOPS canopy with molded roof (conforms to SAE J1040): Isolation mounted
- Left and right access
- Slip-resistant steps and ergonomically located handholds
- Molded floor mat
- Headliner
- Coat hook
- 12-volt outlets (2)

### Operator's Station (continued)

- Built-in beverage holders
- Built-in Operator's Manual storage compartment with manual
- Interior rearview mirror
- ▲ Outside rearview mirrors
- Hand throttle with fuel-economy setting at 2,100 rpm
- Suspended foot throttle
- ▲ Tilt steering
- Horn
- 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 system 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 on/off indicator with audible warning / Seat belt indicator / Low brake pressure
- Non-suspension vinyl swivel seat without armrests
- ▲ Air suspension fabric swivel seat with armrests, lumbar support, and adjustable backrest
- ▲ Suspension vinyl swivel seat with armrests, lumbar support, and adjustable backrest
- ▲ Suspension fabric swivel seat with armrests, lumbar support, and adjustable backrest
- 2-in. seat belt with retractors
- ▲ 3-in. seat belt with retractors
- ▲ Cab: Headliner, dome light, left and right cab doors, tinted safety glass, one rear and one front windshield wiper, fresh air intake heater/defroster/pressurizer (40,000-Btu/hr. [11.7 kW] heater), and 65-amp alternator standard / Front windshield washer, air conditioning (26,000-Btu/hr. [7.6 kW] output and CFC-free R134a refrigerant), 95-amp alternator, and AM/FM/weatherband radio optional / 12-volt outlets (3)
- ▲ Quarter cab

### Overall Vehicle

- One-piece unitized construction mainframe
- Vehicle tie-downs, two front and one rear
- Remote grease bank for front axle
- Rigid-mounted front bumper
- ▲ 400-lb. (181 kg) front counterweight
- ▲ 650-lb. (295 kg) front counterweight
- ▲ 900-lb. (408 kg) front counterweight
- ▲ 1,150-lb. (522 kg) front counterweight
- ▲ 1,400-lb. (635 kg) front counterweight
- Fuel tank, 36 gal. (136 L), ground-level fueling
- Two-position easy-tilt hood
- ▲ Front grille screen
- Vandal protection for instrument panel, engine hood, toolbox, hydraulic reservoir, radiator, and fuel tank
- Reverse warning alarm: Switchable to 97 dB(A) or 111 dB(A)
- Dent-resistant full-coverage rear fenders
- ▲ Front fenders\*
- ▲ SMV emblem
- ▲ Rental decal kit
- ▲ Special color paint\*
- ▲ Bottom guard\*



Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 70 020, using No. 2-D fuel at 35 API gravity. No derating is required up to 10,000-ft. (3050 m). Gross power is without cooling fan.

Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with SAE standards. Except where otherwise noted, these specifications are based on a unit with 16.9-28, 8 PR R4 rear tires; 11L-16, 12 PR F3 front tires; 1.30-cu. yd. (1.00 m<sup>3</sup>) loader bucket; and 24-in. x 7.5-cu. ft. (610 mm x 0.21 m<sup>3</sup>) backhoe bucket.

