

<b>ENGINE</b>	<b>310SE</b>
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	

<b>TRANSMISSION</b>	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)

<b>FINAL DRIVES</b>	heavy-duty, inboard planetary final drives evenly distribute shock loads over three gears
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<b>BRAKES</b>	hydraulic wet disk, mounted inboard, self adjusting and self equalizing
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<b>CAPACITIES</b>	
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)

<b>STEERING</b>	hydrostatic power steering and emergency steering conform to ISO5010
<b>Non-powered axle</b>	
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
<b>Mechanical-front-wheel-drive</b>	
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
<b>Axle ratings (SAE J43)</b>	
Front .....	18,860 lb. (8555 kg)
Rear .....	13,670 lb. (6200 kg)

<b>HYDRAULIC SYSTEM</b>	
System .....	open center
<b>Pressure</b>	
Backhoe .....	3,625 psi (25 000 kPa)
Loader .....	3,000 psi (20 700 kPa)
Pump .....	gear type, tandem with unloader
<b>Flow @ 2,200 rpm</b>	
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 <sup>3</sup> ) 1.30 cu. yd. (1.00 m <sup>3</sup> )	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 <sup>3</sup> ) 1.25 cu. yd. (0.96 m <sup>3</sup> )	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 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)
Severe duty with lift loop.....	36 in. (914 mm)	12.5 cu. ft. (0.35 m <sup>3</sup> )	510 lb. (231 kg)
	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)

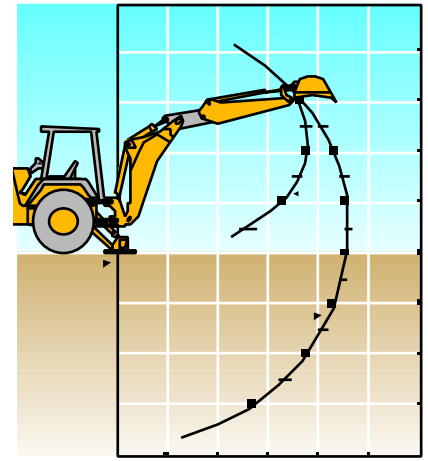
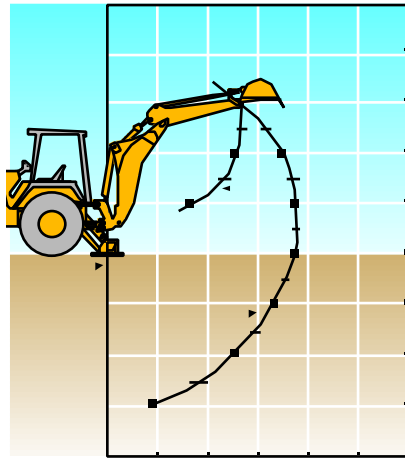
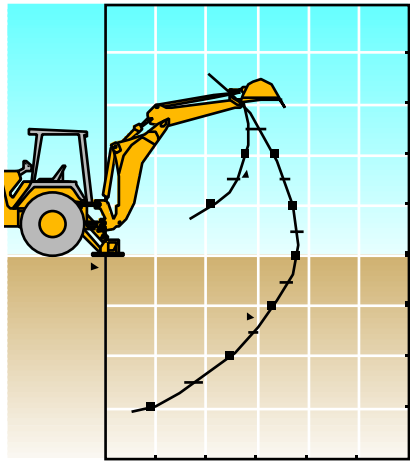
# LIFT CAPACITIES \* / DIMENSIONS

\*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.

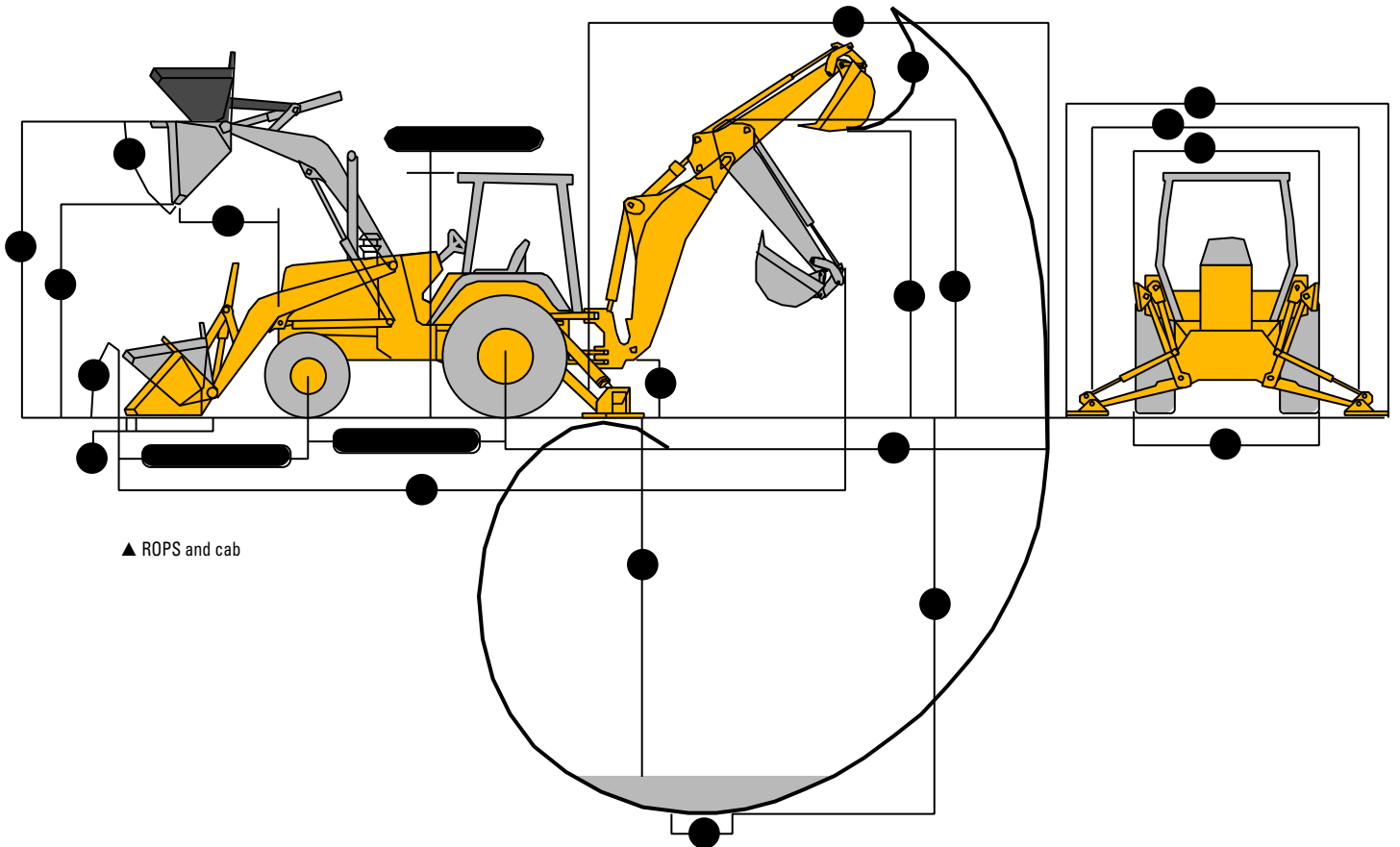
**310SE BACKHOEWITH  
STANDARD DIPPERSTICK**

**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.)



**BACKHOE**

**310SE**

	<i>With Standard Backhoe*</i>	<i>With Extendable Dipperstick*</i>	
		<i>Retracted</i>	<i>Extended</i>
<b>A</b> 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>B</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)
<b>C</b> 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)
<b>D</b> Maximum digging depth .....	14 ft. 6 in. (4.42 m)	14 ft. 11 in. (4.55 m)	18 ft. 5 in. (5.61 m)
<b>E</b> 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)
<b>F</b> Ground clearance, minimum .....	13 in. (330 mm)	13 in. (330 mm)	13 in. (330 mm)
<b>G</b> Bucket rotation .....	190 degrees	190 degrees	190 degrees
<b>H</b> Transport height .....	11 ft. 6 in. (3.51 m)	11 ft. 5 in. (3.48 m)	11 ft. 5 in. (3.48 m)
<b>I</b> Overall length, transport .....	23 ft. 6 in. (7.16 m)	23 ft. 6 in. (7.16 m)	23 ft. 6 in. (7.16 m)
<b>J</b> 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)
<b>K</b> Stabilizer spread – operating .....	10 ft. 2 in. (3.10 m)	10 ft. 2 in. (3.10 m)	10 ft. 2 in. (3.10 m)
<b>L</b> 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)
<b>M</b> Width over tires .....	86 in. (2.18 m)	86 in. (2.18 m)	86 in. (2.18 m)

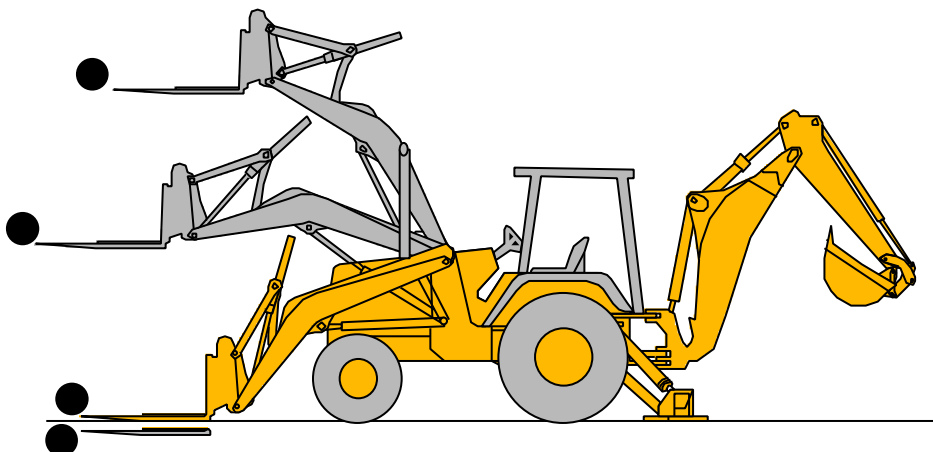
\*Backhoe specifications are with 24-in. x 7.5-cu. ft. (610 mm x 0.21 m<sup>3</sup>) bucket.

**LOADER PERFORMANCE WITH BUCKET OPTIONS**

	<i>1.25 cu. yd. (0.96 m<sup>3</sup>) Heavy-duty Long Lip</i>	<i>1.30 cu. yd. (1.00 m<sup>3</sup>) Heavy-duty Long Lip</i>	<i>1.12 cu. yd. (0.86 m<sup>3</sup>) Multipurpose</i>	<i>1.25 cu. yd. (0.96 m<sup>3</sup>) 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)
<b>a</b> 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>b</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)
<b>c</b> Bucket dump angle, maximum .....	45 degrees	45 degrees	45 degrees	45 degrees
<b>d</b> 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)
<b>e</b> Rollback angle at ground level .....	40 degrees	40 degrees	40 degrees	40 degrees
<b>f</b> 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**

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



	310SE		310SE		310SE
<b>ENGINE</b>		Backhoe bucket coupler for "C" and "D" series John Deere buckets, Case buckets, and Cat buckets		Fuel gauge, illuminated electric	
John Deere Model 4045T – 4.5 liter, 80 SAE net hp turbo-charged, isolation mounted	●	Extendable dipperstick, 3 ft. 6 in. extension	■	Gauge package, illuminated electric – Engine coolant temperature / Transmission oil temperature / Alternator volts / Fuel gauge	■
Vertical spin-on engine oil filter	●	Auxiliary backhoe valve for swingers, thumbs, etc.	■	Monitor system with audible and visual warning – Engine air filter restriction indicator / Alternator indicator / Engine coolant temperature indicator with audible warning / Engine oil pressure indicator with audible warning / Hydraulic filter restriction indicator / Torque converter oil temperature indicator / Parking brake on/off indicator with audible warning / Seat belt indicator / Mechanical-front-wheel-drive on/off indicator / Beacon on/off indicator	●
Spin-on John Deere fuel filter with water separator	●	Auxiliary backhoe valve for hammers, compactors	■	Seats and seat belts	■
Oil-to-water engine oil cooler	●	Auxiliary backhoe plumbing for hammers, compactors	■	Non-suspension vinyl swivel seat without armrests	●
Antifreeze, –34°F (–37°C)	●	SAE controlled load lowering device valves	■	Suspension vinyl swivel seat with armrests and lumbar support	■
Coolant recovery tank	●	<b>LOADER</b>		Suspension fabric swivel seat with armrests and lumbar support	■
Serpentine belt with automatic belt tensioner	●	Hydraulic self leveling	●	Air suspension vinyl swivel seat with armrests and lumbar support	■
Sucker-type cooling fan	●	Return-to-dig feature	●	Air suspension fabric swivel seat with armrests and lumbar support	■
Enclosed safety fan guard	●	Single-lever control with electric clutch cutoff switch	●	2-in. seat belt with retractors	●
High ambient temperature engine cooling	●	Bucket-level indicator	●	3-in. seat belt with retractors	■
Dual element dry-type air cleaner	●	Loader boom service lock	●	Cab	●
Muffler, underhood with curved-end exhaust stack	●	Auxiliary loader hydraulics with two-lever control	●	Headliner	●
Chrome exhaust extension	■	Loader front coupler	●	Dome light	●
Electric ether starting aid	■	Loader buckets	●	Left cab door	●
Engine coolant heater, 1,000 watts	■	Less bucket, with bucket pins	●	Right cab door	●
<b>POWER TRAIN</b>		Heavy-duty buckets with bolt-on cutting edge, skid plates, and lift loops	■	Tinted safety glass	●
Powershift transmission – Torque converter with electrically actuated twist grip F-N-R in 1st through 4th gears	■	Multipurpose buckets with bolt-on cutting edge, skid plates, and lift loops	■	Two front and one rear windshield wipers	●
Transmission with powershift reverser and torque converter – Fully synchronized four forward, four reverse speeds / Isolation mounted to mainframe	●	<b>HYDRAULIC SYSTEM</b>		Front windshield washer	■
Transmission oil cooler	●	36 gpm (136 L/min.) tandem gear pump, open center system	●	Fresh air intake heater/defroster/pressurizer – 40,000 Btu/hr. (11.7 kW) heater	●
Vertical spin-on transmission filter	●	Independent hydraulic reservoir	●	Air conditioning – 26,000 Btu/hr. (7.6 kW) output / CFC-free R134a refrigerant	■
Electric forward-neutral-reverse control lever with neutral safety switch interlock	●	Hydraulic oil cooler	●	65-amp alternator	●
Electric clutch cutoff on gearshift and loader levers	●	"O"-ring face seal connectors	●	95-amp alternator	■
Differential lock, electric foot-actuated	●	10-micron vertical spin-on filter	●	AM/FM/weatherband radio	■
Planetary final drives	●	<b>ELECTRICAL</b>		Ride control	■
Hydraulic service brakes – Inboard, wet multi-disc, self adjusting and self equalizing / Conform to SAE J1473	●	12-volt system	●	<b>OVERALL VEHICLE</b>	
Parking/emergency brake with electric switch control – Spring applied, hydraulically released wet multi-disc / Independent of service brakes / Conforms to SAE J1473	●	65-amp alternator	●	One-piece unitized construction mainframe	●
Hydrostatic power steering with emergency manual mode	●	Single battery with 150-min. reserve capacity and 750 CCA	●	Vehicle tiedowns, two front and one rear	●
Non-powered front axle	●	Dual batteries with 300-min. reserve capacity and 1,500 CCA	●	Remote grease bank for front axle	●
Mechanical-front-wheel-drive with limited slip differential – Electric on/off control / Drive-shaft guard / Sealed axle	●	Positive terminal battery cover	●	Rigid mounted front bumper	●
Tires	■	Blade-type multi-fused circuits	●	Front counterweights	■
11L-15 F3 front tires	●	By-pass start safety cover on starter	●	400 lb. (181 kg)	■
11L-16 F3 front tires	■	<b>LIGHTS</b>		650 lb. (295 kg)	■
12.5/80-18 traction front tires	●	Two front halogen driving/work lights, 32,500 candlepower each	■	900 lb. (408 kg)	■
16.9-24 R4 rear tires	●	Two additional front halogen work lights, 32,500 candlepower each	■	1,150 lb. (522 kg)	■
19.5L-24 R4 rear tires	●	Two rear halogen work lights, 32,500 candlepower each	■	1,400 lb. (635 kg)	■
Rear wheel spacers for use with chains	■	Two front and two rear turn signal/flashing	■	Fuel tank, 36 gal. (136 L), ground level fueling	●
<b>BACKHOE</b>		Two rear stop and tail	■	Engine sideshields with sliding service access door	●
Backhoe with standard dipperstick, 14 ft. 6 in. digging depth	●	Two rear reflectors	■	Front grille screen	■
Backhoe controls	●	Rotating beacon	■	Vandal protection for instrument panel, engine access doors, and fuel tank	●
Two-lever (Deere) controls	●	<b>OPERATOR'S STATION</b>		Reverse warning alarm – Switchable to 97 dB(A) or 111 dB(A)	●
Three-lever (Case) controls	●	Modular-design ROPS/FOPS canopy with molded roof – Isolation mounted / Conforms to SAE J1040	●	Dent-resistant rear fenders	●
Four-lever (Ford) controls	■	Left and right front access	●	Rear fender extensions	■
SAE excavator two-lever controls	■	Slip-resistant steps and ergonomically located handholds	■	Front fenders*	■
Backhoe transport lock lever	■	Molded floor mat	■	SMV emblem	■
Swing lock pin stored in operator's station	■	Headliner	●	Rental decal kit	■
Stabilizer valve with two-direction anti-drift valves	■	Coat hook	●	Special color paint*	■
Pivoting stabilizers	■	Built-in beverage and Thermos® bottle holders	●	Quarter cab*	■
With dirt pads	■	Built-in Operator's Manual storage compartment with manual	●		
With reversible pads	■	Interior rearview mirror	●		
Stabilizer cylinder guards	■	Outside rearview mirrors	●		
Backhoe buckets	■	Hand throttle with fuel economy setting at 2,100 rpm	■		
Less bucket, with bucket pins	●	Suspended foot throttle	■		
Standard duty with lift loops	■	Tilt steering	■		
Heavy duty with lift loops	■	Horn	●		
Severe duty with lift loops	■	Key start switch with electric fuel shutoff	■		
		Hourmeter, illuminated electric	■		
		Tachometer/hourmeter, illuminated electric	■		

**KEY:** ● Standard equipment ■ Optional or special equipment

\*See your John Deere dealer for further information.



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 feet (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 19.5L-24, 8 PR R4 rear tires, 11L-16, 12 PR F3 front tires, 1.12 cu. yd. (0.86 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.

