



J

LOADERS

644J



POWERLLEL™
LINKAGE

Specifications

Engine

644J POWERLLEL

Manufacturer and Model	John Deere PowerTech Plus™ 6068H	
Non-Road Emission Standards	certified to EPA Tier 3 emissions	
Cylinders	6	
Valves Per Cylinder	4	
Displacement	415 cu. in. (6.8 L)	
Net Peak Power (ISO9249)	232 hp (173 kW) @ 1,700 rpm	
Net Peak Torque (ISO9249)	749 lb.-ft. (1016 Nm) @ 1,400 rpm	
Net Torque Rise	55%	
Fuel System	high-pressure common rail	
Lubrication	full-flow spin-on filter and integral cooler	
Aspiration	turbocharged, charge air cooled	
Air Cleaner	dual element dry type, restriction indicator in cab monitor for service	
Fan Drive	hydraulically driven, proportionally controlled, fan aft of coolers	
Electrical System	24 volt with 80-amp alternator	
Batteries (two 12 volt)	1,400 CCA	

Transmission

Type	countershaft-type PowerShift™	
Torque Converter	single stage, single phase	
Shift Control	electronically modulated, adaptive, load and speed dependent	
Operator Interface	steering-column or hydraulic joystick-mounted F-N-R and gear-select lever, kick-down button on hydraulic lever	
Shift Modes	quick-shift button with two selectable modes: auto/manual, auto to 1st or 2nd, kick down or kick down/up, three clutch cutoff settings adjustable on switch pad	
Travel Speeds*	<i>Forward</i>	<i>Reverse</i>
Gear 1	4.6 mph (7.4 km/h)	4.9 mph (7.9 km/h)
Gear 2	7.6 mph (12.2 km/h)	8.0 mph (12.9 km/h)
Gear 3	14.7 mph (23.7 km/h)	15.5 mph (24.9 km/h)
Gear 4	22.0 mph (35.4 km/h)	

*Equipped with 23.5 R 25 tires.

Axles/Brakes

Final Drives	heavy-duty inboard planetary
Differentials*	hydraulic multi-disc 100% locking front, conventional rear — standard; hydraulic multi-disc 100% locking front and rear — optional
Rear Axle Oscillation, Stop to Stop	26 deg.
Brakes (conform to SAE J1473, ISO3450)	
Service Brakes	hydraulically actuated, inboard, sun-shaft mounted, oil cooled, self adjusting, single disc
Parking Brake	automatic spring applied, hydraulically released, driveline mounted, oil cooled, multi-disc

*Equipped with 23.5 R 25 tires.

Tires

Choice of (with three-piece rims)	Tread Width	Width Over Tires	Change In Vertical Height
23.5 R 25, 1 Star L-3 radial, standard	84.7 in. (2152 mm)	109.1 in. (2770 mm)	0 in. (0 mm)
23.5-25, 20 PR L-3, optional	84.7 in. (2152 mm)	108.9 in. (2767 mm)	+ 0.1 in. (+ 2.5 mm)
Choice of (with five-piece heavy-duty rims)			
23.5 R 25, 1 Star L-3 radial, standard	85.4 in. (2170 mm)	109.1 in. (2770 mm)	0 in. (0 mm)
23.5-25, 20 PR L-3, optional	85.4 in. (2170 mm)	109.6 in. (2785 mm)	+ 0.1 in. (+ 2.5 mm)
750/65 R 25 1 Star L-3T, optional*	86.8 in. (2204 mm)	117.1 in. (2974 mm)	+ 0.4 in. (+ 9.0 mm)
Choice of (with one-piece rims)			
28L-26, 14 PR LS2 Logger, optional*	89.4 in. (2272 mm)	117.4 in. (2983 mm)	+ 0.6 in. (+ 14.0 mm)

*Requires 9-deg. rear axle stops.

Refill Capacities (U.S.)**644J POWERLLEL**

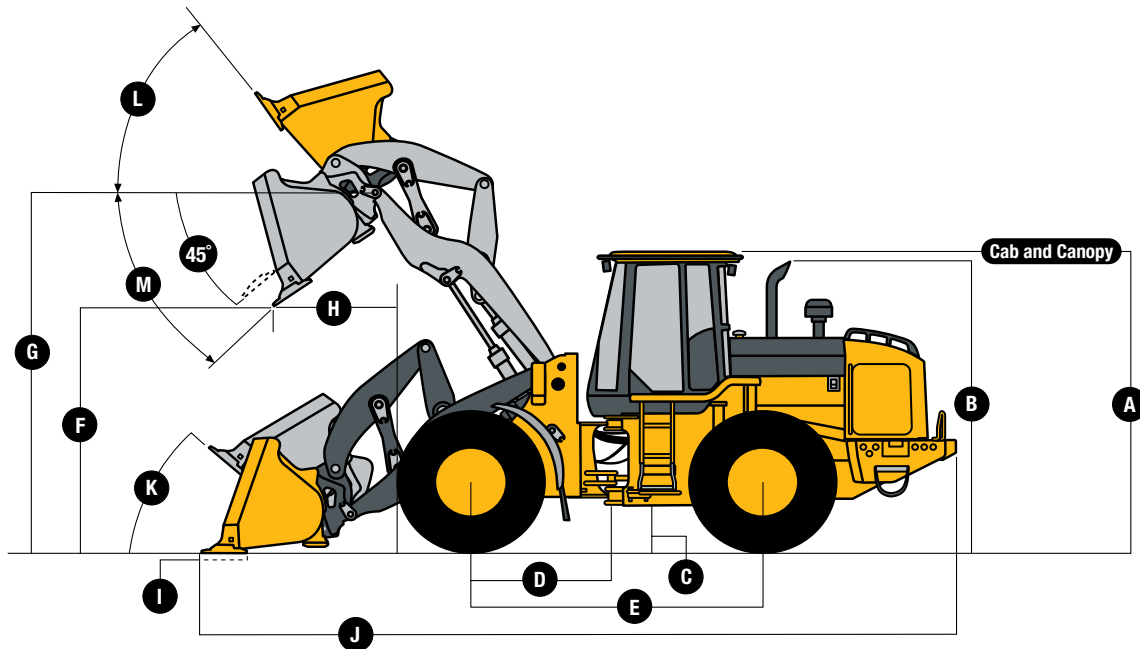
Fuel Tank (with ground-level fueling)	93 gal. (352 L)
Cooling System	31 qt. (29.5 L)
Engine Oil with Vertical Spin-On Filter	26 qt. (24.5 L)
PowerShift Transmission, Including Filter	28 qt. (26.5 L)
Differential, Front and Rear (each axle)	23 qt. (22 L)
Hydraulic Reservoir and Filters	31 gal. (117.3 L)
Wet-Disc Parking Brake	20 oz. (0.6 L)

Hydraulic System/Steering

Pump (loader and steering)	variable-displacement, axial-piston pump; closed-center, pressure-compensating system
Maximum Rated Flow	76 gpm (286 L/m) @ 1,000 psi (6895 kPa)
System Relief Pressure (loader and steering)	3,625 psi (24 993 kPa)
Loader Controls	two-function valve; single- or dual-lever controls; control lever lockout feature; optional third- and fourth-function valve with auxiliary lever
Steering (conforms to SAE J1511)	
Type	power, fully hydraulic
Articulation Angle	80-deg. arc (40 deg. each direction)
Hydraulic Cycle Times	
Raise	5.9 sec.
Dump	1.9 sec.
Lower (float down)	2.8 sec.
Total	10.6 sec.
Maximum Lift Capacity	with 4.0-cu.-yd. (3.0 m ³) coupler bucket with bolt-on edge
Lift at Ground Level	31,506 lb. (14 291 kg)
Lift at Maximum Height	18,651 lb. (8460 kg)
Turning Radius (measured to centerline of out-side tire)	18 ft. 0 in. (5.49 m)

Dimensions with Hi-Vis Coupler and Hook-On Bucket

A Height to Top of Cab and Canopy	11 ft. 2 in. (3.40 m)
B Height to Top of Exhaust	11 ft. 0 in. (3.35 m)
C Ground Clearance	18 in. (460 mm)
D Length from Centerline to Front Axle	5 ft. 3 in. (1.60 m)
E Wheelbase	10 ft. 6 in. (3.21 m)
F Dump Clearance	8 ft. 9 in. (2.66 m)
G Height to Hinge Pin, Fully Raised	13 ft. 4 in. (4.07 m)
H Dump Reach	3 ft. 6.6 in. (1.08 m)
I Maximum Digging Depth	5.6 in. (141 mm)
J Overall Length	27 ft. 9 in. (8.46 m)
K Maximum Rollback at Ground Level	38.5 deg.
L Maximum Rollback, Boom Fully Raised	50.5 deg.
M Maximum Bucket Angle, Fully Raised	50 deg.

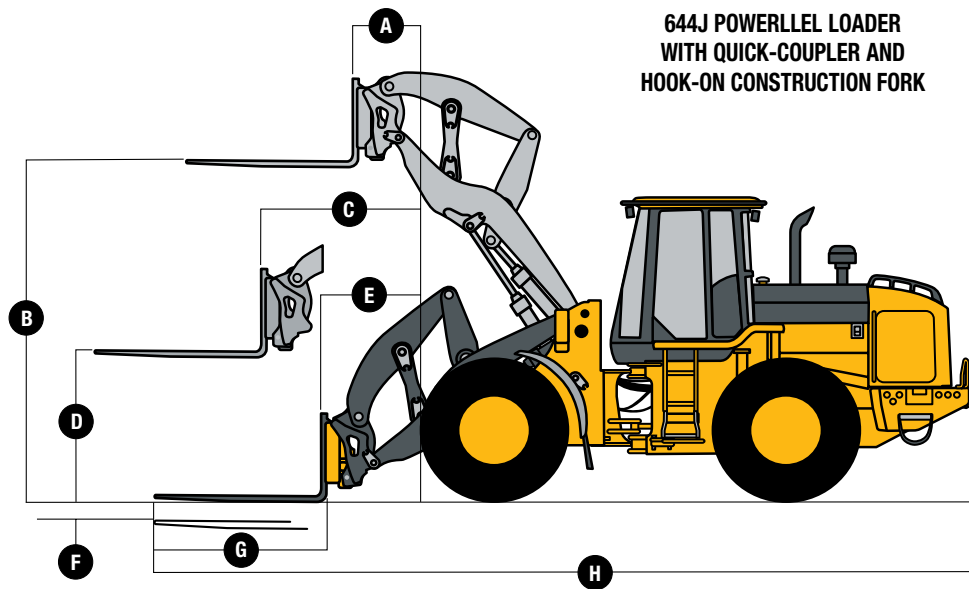


Dimensions with Quick-Coupler and Hook-On Construction Fork

644J POWERLLEL

Tine Length	60 in. (1.52 m) construction fork	72 in. (1.83 m) construction fork	60 in. (1.52 m) logging fork*
A Reach, Fully Raised	32.2 in. (819 mm)	32.2 in. (819 mm)	35.2 in. (895 mm)
B Fork Height, Fully Raised	12 ft. 3 in. (3.74 m)	12 ft. 3 in. (3.74 m)	12 ft. 6 in. (3.81 m)
C Maximum Reach, Fork Level	5 ft. 9 in. (1.76 m)	5 ft. 9 in. (1.76 m)	6 ft. 0 in. (1.83 m)
D Fork Height, Maximum Reach	5 ft. 5 in. (1.66 m)	5 ft. 5 in. (1.66 m)	5 ft. 8 in. (1.74 m)
E Reach, Ground Level	4 ft. 1 in. (1.25 m)	4 ft. 1 in. (1.25 m)	4 ft. 3 in. (1.28 m)
F Depth Below Ground	3 in. (77 mm)	3 in. (77 mm)	0.5 in. (13 mm)
G Tine Length	▲ (see page 5)	▲ (see page 5)	▲ (see page 5)
H Overall Length	▲▲ (see page 5)	▲▲ (see page 5)	▲▲ (see page 5)

*Specs are based on Rockland forks.



644J POWERLLEL LOADER WITH QUICK-COUPLER AND HOOK-ON CONSTRUCTION FORK

Powerllel Linkage Information with Hi-Vis Coupler and Hook-On Bucket

	General Purpose w/Bolt-On Edge
Bucket Type/Size	
Capacity, Heaped SAE	4.0 cu. yd. (3.0 m ³)
Capacity, Struck SAE	3.5 cu. yd. (2.6 m ³)
Bucket Weight (with coupler)	4,637 lb. (2103 kg)
Bucket Width	9 ft. 9 in. (2.97 m)
Breakout Force, SAE J732C	26,527 lb. (12,029 kg)
Tipping Load, Straight	29,833 lb. (13,532 kg)
Tipping Load, 40-Deg. Full Turn, SAE	25,809 lb. (11,706 kg)
Reach, 45-Deg. Dump, 7-ft. (2.13 m)	
Clearance	5 ft. 5 in. (1.65 m)
Reach, 45-Deg. Dump, Full Height	4 ft. 2 in. (1.26 m)
Dump Clearance, 45 Deg., Full Height	8 ft. 9 in. (2.67 m)
Overall Length, Bucket on Ground	28 ft. 0 in. (8.55 m)
Loader Clearance Circle, Bucket In Carry	
Position	46 ft. 11 in. (14.29 m)
Operating Weight	42,719 lb. (19,377 kg)

Loader operating information is based on machine with standard equipment; cab; rear cast bumper/counterweight; 23.5R25, 1 Star L-3 radial tires; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

Adjustments to Operating

Weights for Powerlrel Linkage

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Adjustments to operating weights and tipping loads for 4.0-cu-yd (3.0 m³) general-purpose coupler bucket with bolt-on cutting edge

Add (+) or deduct (-) lb. (kg) as indicated for loaders with three-piece rims and	Operating Weight	Tipping Load, Straight	Tipping Load, 40-Deg. Full Turn, SAE
Choice of (with three-piece rims) 23.5-25, 20 PR L-3, optional	-289 lb. (-131 kg)	-189 lb. (-86 kg)	-167 lb. (-76 kg)
Choice of (with five-piece heavy-duty rims) 23.5-25, 20 PR L-3, optional	-289 lb. (-131 kg)	-190 lb. (-86 kg)	-167 lb. (-76 kg)
750/65 R 25 1 Star L-3T, optional*	+780 lb. (+354 kg)	+532 lb. (+241 kg)	+469 lb. (+213 kg)
Choice of (with one-piece rims) 28L-26, 14 PR LS2 Logger tires, optional*	-1,071 lb. (-486 kg)	-679 lb. (-308 kg)	-600 lb. (-272 kg)
CaCl ₂ in 23.5 R 25 1 Star rear tires	+2,573 lb. (+1167 kg)	+3,381 lb. (+1534 kg)	+2,985 lb. (+1354 kg)
Optional forestry counterweight package	+1,032 lb. (+468 kg)	+1,523 lb. (+691 kg)	+1,280 lb. (+581 kg)

*Requires 9-deg. rear axle stops.

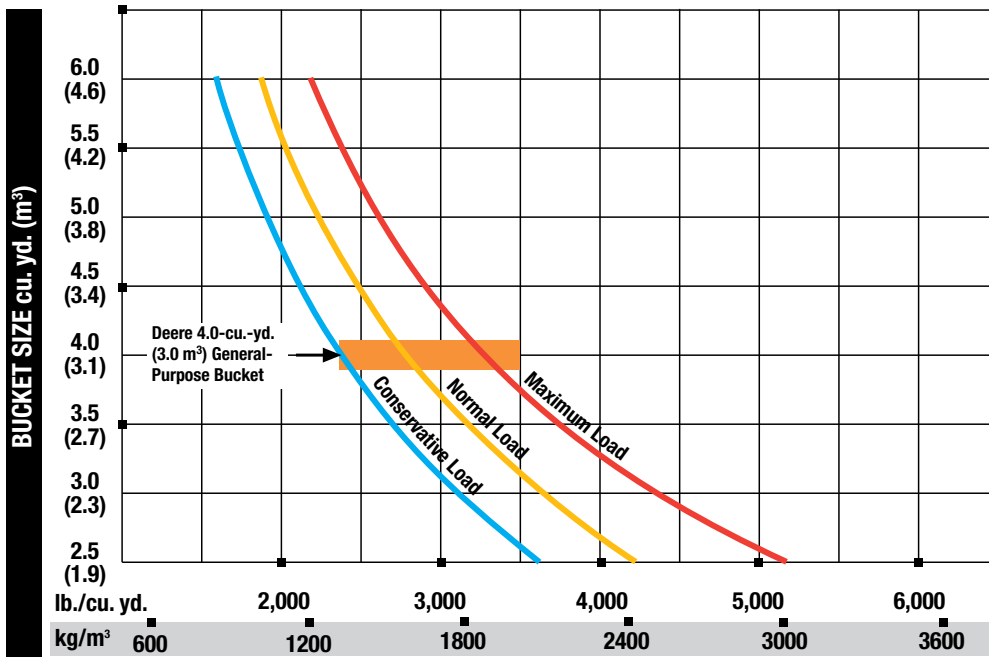
Powerlrel Linkage Information with Quick-Coupler and Hook-On Construction Fork

▲ Tine Length	60 in. (1.52 m) construction fork	72 in. (1.83 m) construction fork	60 in. (1.52 m) logging fork*
▲▲ Overall Length	29 ft. 6 in. (9.00 m)	30 ft. 6 in. (9.30 m)	30 ft. 2 in. (9.20 m)
Tipping Load, Straight (fork level, load centered forward on tine)	22,595 lb. (10 249 kg)	21,429 lb. (9720 kg)	20,698 lb. (9511 kg)
Tipping Load, 40-Deg. Full Turn (fork level, load centered forward on tine)	19,502 lb. (8846 kg)	18,479 lb. (8382 kg)	17,985 lb. (8158 kg)
Operating Weight	41,711 lb. (18 920 kg)	41,846 lb. (18 981 kg)	43,122 lb. (19 560 kg)

*Specs are based on Rockland forks.

Powerlrel Hook-On Bucket Selection Guide*

644J Powerlrel Quick-Coupler Bucket Selection Guide



MATERIAL (Loose weight)	lb./cu. yd.	kg/m ³
Caliche	2,100	1250
Cinders	1,000	590
Clay and gravel, dry	2,400	1420
Clay and gravel, wet	2,600	1540
Clay, dry	2,500	1480
Clay, natural bed	2,800	1660
Clay, wet	2,800	1660
Coal, anthracite, broken	1,850	1100
Coal, bituminous, broken	1,400	830
Earth, dry, packed	2,550	1510
Earth, loam	2,100	1250
Earth, wet, excavated	2,700	1600
Granite, broken or large crushed	2,800	1660
Gravel, dry	2,550	1510
Gravel, dry 1/2" to 2" (13 to 50 mm)	2,850	1690
Gravel, pit run (graveled sand)	3,250	1930
Gravel, wet 1/2" to 2" (13 to 50 mm)	3,400	2020
Gypsum, crushed	2,700	1600
Limestone, broken or crushed	2,600	1540
Magnetite, iron ore	4,700	2790
Phosphate rock	2,160	1280
Pyrite, iron ore	4,350	2580
Sand and gravel, dry	2,900	1720
Sand and gravel, wet	3,400	2020
Sand, dry	2,400	1420
Sand, wet	3,100	1840
Sandstone, broken	2,550	1510
Shale	2,100	1250
Slag, broken	2,950	1750
Stone, crushed	2,700	1600
Top soil	1,600	950

*This guide, representing bucket sizes not necessarily manufactured by Deere, will help you in selecting proper bucket size for material density, loader configuration, and operating conditions. Optimum bucket size is determined after adding or subtracting all tipping load changes due to optional equipment. The "conservative load" line on this guide is recommended when operating in conditions such as soft ground and unlevel surfaces. The "maximum load" condition on this guide is sometimes utilized when operating on firm ground and level surfaces.

644J POWERLLEL LOADER

Key: ● Standard equipment ▲ Optional equipment

*See your John Deere dealer for further information.

644J Engine

- Certified to EPA Tier 3 emissions
- Wet-sleeve cylinder liners
- Electronically controlled fuel system
- Under-hood muffler
- Under-hood dual-element air cleaner with restriction sensor in cab monitor
- Under-hood pre-screened air intake
- Fuel filter/water separator with sensor
- Heavy-duty steel fuel tank guard
- 500-hour spin-on oil filter
- Serpentine drive belt with automatic tensioner
- Automatic derating when system temperatures exceeded
- Starter protection circuit
- Ground-level fueling
- Automatic glow plugs for cold start
- ▲ 110-volt engine coolant heater (required for cold starting below -13°F [-25°C])
- ▲ Chrome exhaust stack
- ▲ Centrifugal engine air pre-cleaner

Cooling

- Heavy-duty trash-resistant high-ambient cooling package
- Two-side access to all coolers
- Cooling system isolated from engine compartment
- Cool-on-demand swing-out fan
- Charge air cooler (air/air – 6 fins per in.)
- Transmission oil cooler (oil/air – 6 fins per in.)
- Hydraulic oil cooler (oil/air – 6 fins per in.)
- Engine radiator (8 fins per in.)
- Integral engine oil cooler
- Fan guard
- ▲ Axle coolers (6.5 fins per in.)
- ▲ Reversing fan drive — auto control with manual override

Powertrain

- ZF torque-converter powershift transmission — 4F/3R
- Electronically controlled, adaptive, load- and speed-dependent shift modulation
- ▲ F-N-R and gearshift in single-lever loader control
- ▲ Steering-column-mounted shift lever with gearshift, F-N-R, and lock
- Auto-shift/manual-shift modes
- Quick-shift button in hydraulic-control lever with two selectable modes
- Transmission clutch disconnect (cutoff) with three selectable settings
- Gear lockout on transmission
- Clutch calibration engaged from cab monitor
- Vertical spin-on transmission filter
- Integral transmission sight gauge/fill tube
- Spring-applied, hydraulically released, sealed, wet-disc park brake
- Heavy-duty inboard planetary final drives
- Front axle with hydraulic locking differential
- ▲ Front and rear axles with hydraulic locking differentials
- Remote-axle breathers
- ▲ Wheel spin-control system

Hydraulic System

- Pressure-compensated load-sensing hydraulic system
- In-cab adjustable automatic bucket/fork positioner
- In-cab adjustable automatic boom height kickout control
- In-cab adjustable automatic boom return-to-carry control

644J Hydraulic System (continued)

- Reservoir sight gauge
- Vertical spin-on hydraulic filters
- Hydraulic function enable/disable button
- Hydraulic diagnostic ports
- Adjustable wristrest
- ▲ Ride control, automatic with monitor-adjustable speed settings
- Two-function hydraulic valve with single-lever joystick control
- ▲ Two-function hydraulic valve with two-lever finger-tip controls
- ▲ Three-function hydraulic valve with single-lever joystick control and auxiliary lever for third function
- ▲ Three-function hydraulic valve with two-lever finger-tip controls, adjustable wristrest, and auxiliary lever for third function
- ▲ Four-function hydraulic valve, with dual single-lever joystick controls
- ▲ Hydraulic conversion kits, two-to-three- and three-to-four-function valves
- ▲ Hydraulic control system for quick-coupler locking pins

Electrical

- 24-volt electrical system
- Solid-state electrical power distribution system
- High-capacity batteries (2), 12 volt with 1,440 CCA, 200-min. rated reserve
- Master electrical disconnect switch
- Alternator, high capacity, 80 amps and 24 volts
- ▲ Alternator, 100 amps
- Lights (conform to SAE 99): Halogen driving with guards / Turn signals and flashers / Stop and taillights
- LED heavy-duty taillights and turn signals
- Work lights, halogen (4): cab front (2) and cab rear (2)
- Horn, with push button in center of steering wheel (conforms to SAE J994, J1446)
- Reverse warning alarm (conforms to SAE J994, J1446)
- Computerized multifunction monitor
- Audible and visual warnings: Amber caution / Red stop / Analog gauges: Engine coolant temperature, transmission oil temperature, fuel level, hydraulic oil temperature, engine oil pressure / Digital instruments: Engine rpm, odometer, transmission gear/direction indicator, speedometer, hour meter / Operator warning lights: Check engine, engine air filter restriction, battery voltage, transmission oil filter restriction, brake pressure, hydraulic oil filter restriction, fasten seat belt, transmission fault, hydraulic oil temperature
- Indicator lights: Park brake / Ride control / Turn signals and warning flashers / Coupler pin disconnect / Engine preheater / Secondary steering / Work lights
- Built-in diagnostics: Fault code retrieval
- ▲ AM/FM/WB stereo radio
- ▲ AM/FM/WB stereo radio with CD
- ▲ 10-amp, 12-volt converter with two power plugs
- Cab wired for rotating beacon
- ▲ Electrical corrosion-prevention package

Operator's Station

- Cab (conforms to SAE J1040 ARP88): ROPS/FOPS / Heater/defroster / Multiplane isolation mounted for noise/vibration reduction / Front and rear windshield washers and intermittent wipers / Tinted safety glass
- ▲ Canopy (conforms to SAE J1040 APR88): ROPS/FOPS / Multiplane isolation mounted for noise/vibration reduction / Optional canopy rear window glass, for noise reduction

644J Operator's Station (continued)

- Air conditioning
- Seat, air suspension, deluxe cloth covered with deep foam, high back, lumbar support, adjustable for weight height, fore-aft position, backrest tilt, and armrest angle with backrest extension
- ▲ Seat, air suspension, vinyl, on canopy with backrest extension
- Seat belt, 3 in. (76 mm), with retractor
- Backlit sealed switch module with function indicators
- Cup holder, personal cooler holder, and storage space
- Sun screen and visor
- Tilt steering column
- Rubber floor mat
- Textured steering wheel and spinner knob
- Rearview mirrors, outside (2) and inside (1) (conform to SAE J985)
- Handholds and steps, ergonomically located and slip resistant (conform to SAE J185)

Loader Linkage

- Loader boom service locking bar (conforms to SAE J38)
- Powerlink linkage for visibility and parallel-lift

Buckets and Attachments

- ▲ Deere hook-on buckets with selection of bolt-on cutting edges and teeth-segmented bolt-on cutting edges*
- ▲ Hi-vis coupler which accepts Euro-pattern attachments
- ▲ Bolt-on fork frame guard
- ▲ Hydraulic control system for quick-coupler locking pins, includes all controls in the cab, lines, and valves
- ▲ Deere hook-on construction utility forks for couplers

Tires

- 23.5 R 25, 1 Star L3 Radial
- ▲ 23.5-25, 20 PR L3
- ▲ 750/65 R 25 L3-T*
- ▲ 28L-26, 14 PR LS-2 (single-piece rims)
- Multi-piece rims
- ▲ Heavy-duty rims
- ▲ Less wheels and tires
- ▲ 8-deg. rear axle stops for extra-large tires, 13-deg. oscillation for standard

Other

- ▲ Sound-suppression package (Level 1)
- ▲ Sound-suppression package (Level 2)
- Fenders, front
- ▲ Fenders, full-coverage, front
- ▲ Fenders, full-coverage, front and rear
- ▲ Close-mounted steps
- Articulation locking bar (conforms to SAE J276)
- Front and rear tie-down points
- Vandal protection, includes lockable engine enclosures, right counterweight storage, battery cover, and radiator/fuel/hydraulic and transmission caps
- ▲ Environmental drain valves with hose (engine, transmission, hydraulic oils, and axle coolant)
- ▲ Fluid-sampling ports (engine, transmission, hydraulic, axle oils, and engine coolant)
- ▲ Transmission side frame guards
- ▲ Auxiliary bottom guards, front frame and transmission
- ▲ Lift eyes
- ▲ Fire extinguisher
- ▲ License plate bracket
- ▲ Secondary steering
- ▲ JDLINK™ wireless communication system



JOHN DEERE

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Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan at test conditions. No derating is required up to 10,000-ft. (3050 m) altitude.

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 all standard equipment, 23.5 R 25 radial tires, standard counterweight, ROPS/FOPS cab, full fuel tank, and 175-lb. (79 kg) operator.

