MATERIAL HANDLERS

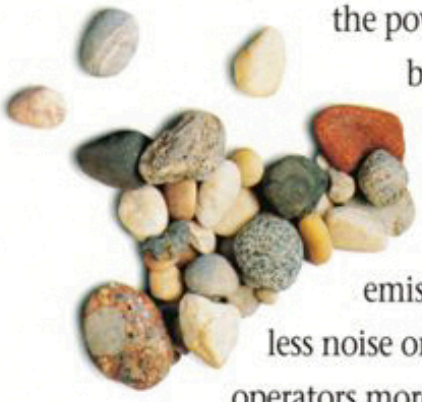
644H MH 744H MH

A machine to handle loose materials and tight schedules.

We told you we weren't kidding about our commitment to material-handling operations. We introduced the 744H MH to prove it. Now we bring you a second material handler – just in case anybody needs more proof.

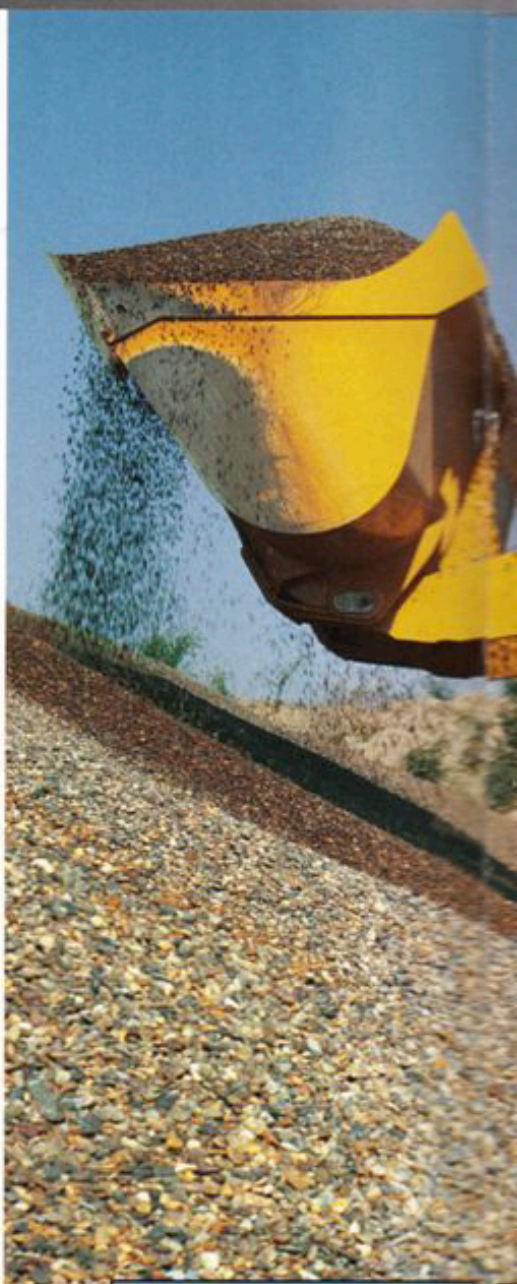
The 644H MH also provides dual-horsepower making it tailor-made for loose-material productivity. It lifts loads higher, reaches farther, and cycles faster in every gear. Studies revealed that the MH configuration yields a machine that's over 10 percent more productive than the standard configuration in 2,650-pounds-per-cubic-yard material-handling conditions.

These material handling loaders also feature the *Loader Performance Management (LPM) System*. It provides computer control of the powertrain for faster and easier bucket fill in a variety of material and underfoot conditions from soft material to hard material. This is a machine that cuts emissions, uses less fuel, and makes less noise on the job – as well as giving operators more energy and stamina by keeping them comfortable.



We said we were serious about meeting the needs of our friends in the material-handling business.

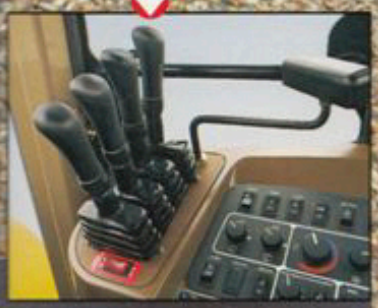
Now you know we meant every word of it.



Dump clearance on the 744H MH is 10 feet 6 inches – higher than both the standard 744H (10 feet) and the 744E (9 feet 10 inches).

The return-to-level option brings the boom and bucket back into position, ready to get right into the next cycle.

The 644H MH is a dual-horsepower machine – 180 SAE net hp (134 kW) in 1st gear and 200 SAE net hp (149 kW) in 2nd through 4th. You'll be impressed by its productivity in truck and hopper loading. Bucket fill is rapid, and easier than with competitive machines. Cycle speeds are faster in every gear.



The quick-shift button gives you two choices: 1. Press once to shift down one gear; then press it again to shift back up. 2. Press once to shift down, then press repeatedly to keep shifting down, all the way to first gear!

The operator's left foot governs braking and locks or unlocks the differential with the convenient foot switch shown in the photo at left. The brake pedal is also used to activate the three-position clutch cutoff.

The park brake is set and released with a switch located at the lower right hand corner of the dash. It automatically engages when the engine is shut off with the ignition key.

John Deere inboard-mounted hydraulic wet-disk brakes self-adjust for wear. Planetary final drives are also mounted inboard. Gear size isn't limited by wheel hub diameter – so the components used can be larger and more durable.

Power is only a word. Getting a truck filled in fewer cycles gives it meaning.

The 644H MH and the 744H MH are American-made material handlers – designed and built at our ISO 9001-certified facilities in Dubuque and Davenport, Iowa.

Both are dual-horsepower machines. The 644H MH checks in with 180 and 200 SAE net horsepower. The 744H MH has horsepower ratings of 240 and 260 SAE net.

Full turn and straight tipping loads are several hundred pounds greater with these material handling configured machines, than with their conventional counterparts.

The computer-controlled *power shift* transmission senses engine power and adjusts the shift accordingly – similar to the latest concepts used in today's high-end cars. Computer control of the hydraulic and injection pumps provides you with easier bucket filling and additional fuel economy.

The return-to-level option brings the boom and bucket back into position, ready to get right into the next cycle.

SMART-SHIFT technology delivers smoother shifts with less delay under all load conditions. The automatic shift feature gives you three choices:

- ***Operator-select manual shift***
- ***Automatic, 1st through 4th***
- ***Automatic, 2nd through 4th.***

The visibility is clearly superior. Climb in and see for yourself.

Operators who have an unobstructed field of vision tend to work with greater confidence – which makes them more productive. The cabs are wider, longer, quieter, and roomier than ever – and the windows are larger and cut lower. There's also an all-glass door, as well as a frameless front windshield. You get a clear view to the ground on both sides.

There's also improved air conditioning capacity. The system is designed to maintain a 49-degree difference between the outside and inside of the cab. So if it gets up to 110 degrees outside, the inside of the cab can still be cooled down to 61 degrees.

The deluxe, microprocessor-controlled dash monitor offers three modes:

The first, normal mode, displays the gear and direction the transmission is running in; whether automatic transmission is selected; and the engine speed (in rpm), hour meter, and voltage.

The second, accessory mode, lets the operator set up the machine to accommodate specific situations. Not everyone in this industry agrees whether automatic should shift from 1st through 4th or from 2nd through 4th. With the accessory mode on the 644H MH, it's up to the operator.

The third mode is diagnostic mode, which displays diagnostic codes at a glance. Passing this data along to your dealer's service people helps them determine the fastest way to get a downed machine up and running – so that the right parts are on the service truck the first time it goes to your jobsite.

Teledyne's Loadrite LR810 weighing system is available as an option on the 644H MH. The LR810's accuracy of plus or minus 1 percent lets you load each truck to its full legal payload.

The spring-applied, hydraulically released park brake automatically engages when the engine is shut off. It can be manually applied with the engine running by flipping a switch at the dash's lower right.

Six different hydraulic system configurations let you order your material handler with the setup that's best for you – from a two-spool valve with single-lever control all the way up to a four-spool valve with four-lever control (shown here). The three- and four-spool valve options also include auxiliary hydraulic lines to the loader's crosstube.

The quick-shift button gives you two choices: 1. Press once to shift down one gear; then press it again to shift back up. 2. Press once to shift down, then press repeatedly to keep shifting down, all the way to first gear!

This right-hand control panel includes controls for windshield wipers, heater, air conditioner, lights, attachment pins, clutch cutoff, and ride control. The ride control option acts as a shock absorber to the boom, keeping material in your bucket and smoothing out your ride in roading applications and rough terrain.

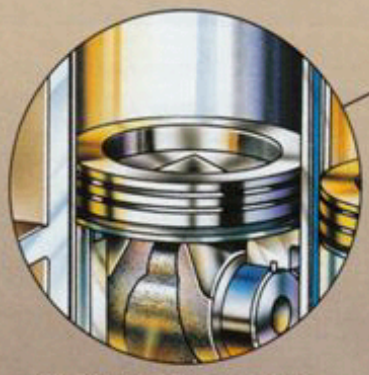
The window on the right side swings open and latches into place, like the cab door. The deluxe suspension seat includes adjustments for operator weight, seat cushion angle, and backrest angle. The armrests are also fully adjustable.

Engines that handle anything a material handling application can throw at it.

Both the 644H MH and the 744H MH use John Deere PowerTech diesel engines that not only conform to EPA and CARB emissions standards for off-road vehicles, but are also in compliance with proposed E.U. (European Union) regulations.

Is performance sacrificed to achieve compliance? Absolutely not! In fact, the 6081H engine used in the 644H MH provides maximum torque of 745 lb.-ft at 1,300 rpm. The John Deere-built 6125A used in the 744H MH provides 943 lb.-ft at 1,500 rpm. And both have a standard torque curve that includes a power bulge feature that reacts to additional loads by automatically boosting engine power to compensate without requiring the operator to downshift.

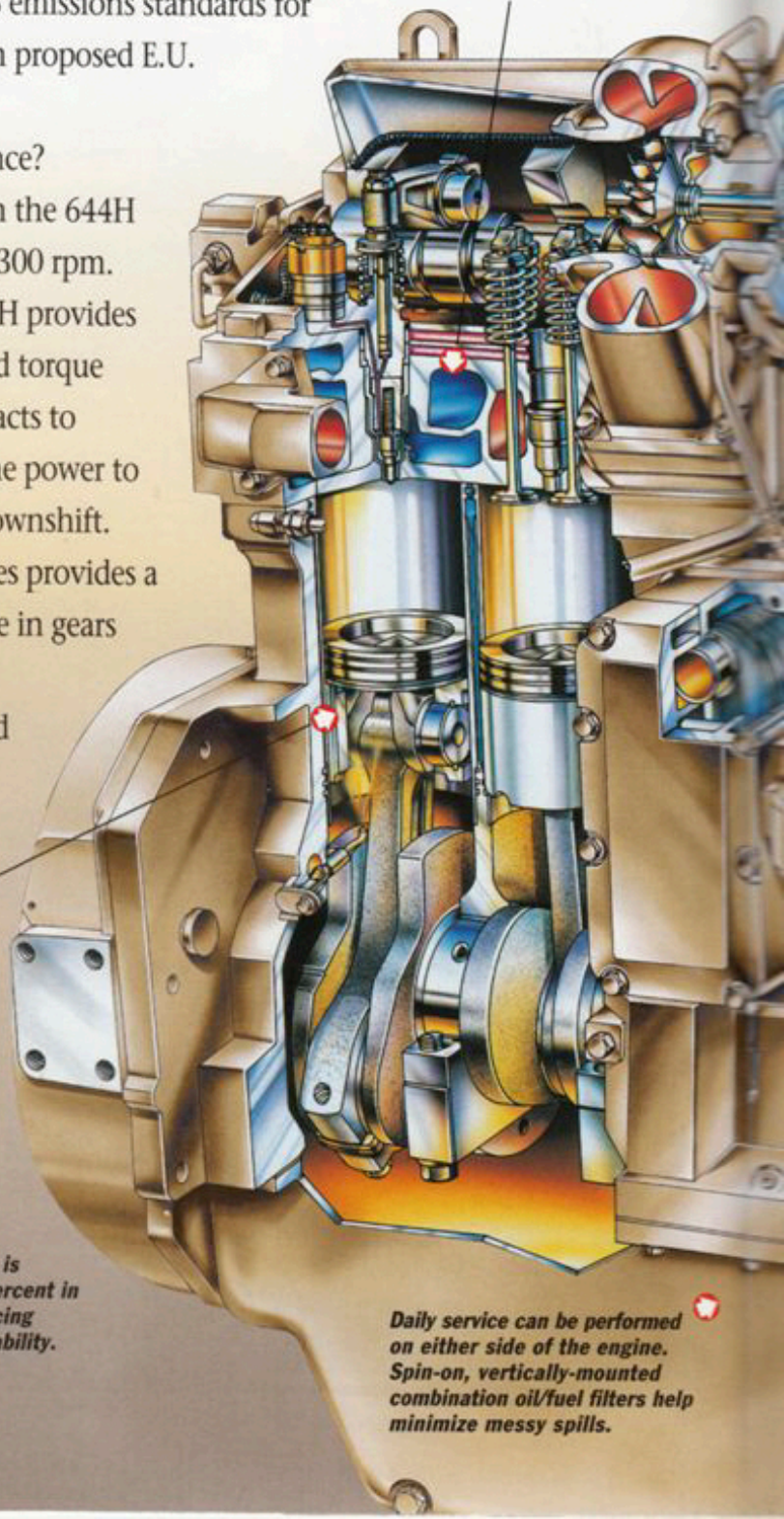
The dual-horsepower feature in both machines provides a lower power setting in first gear, and a higher one in gears two through four. This gives better low-speed driveability in mobile applications, and improved productivity - in other words, getting trucks or hoppers loaded with fewer cycles.



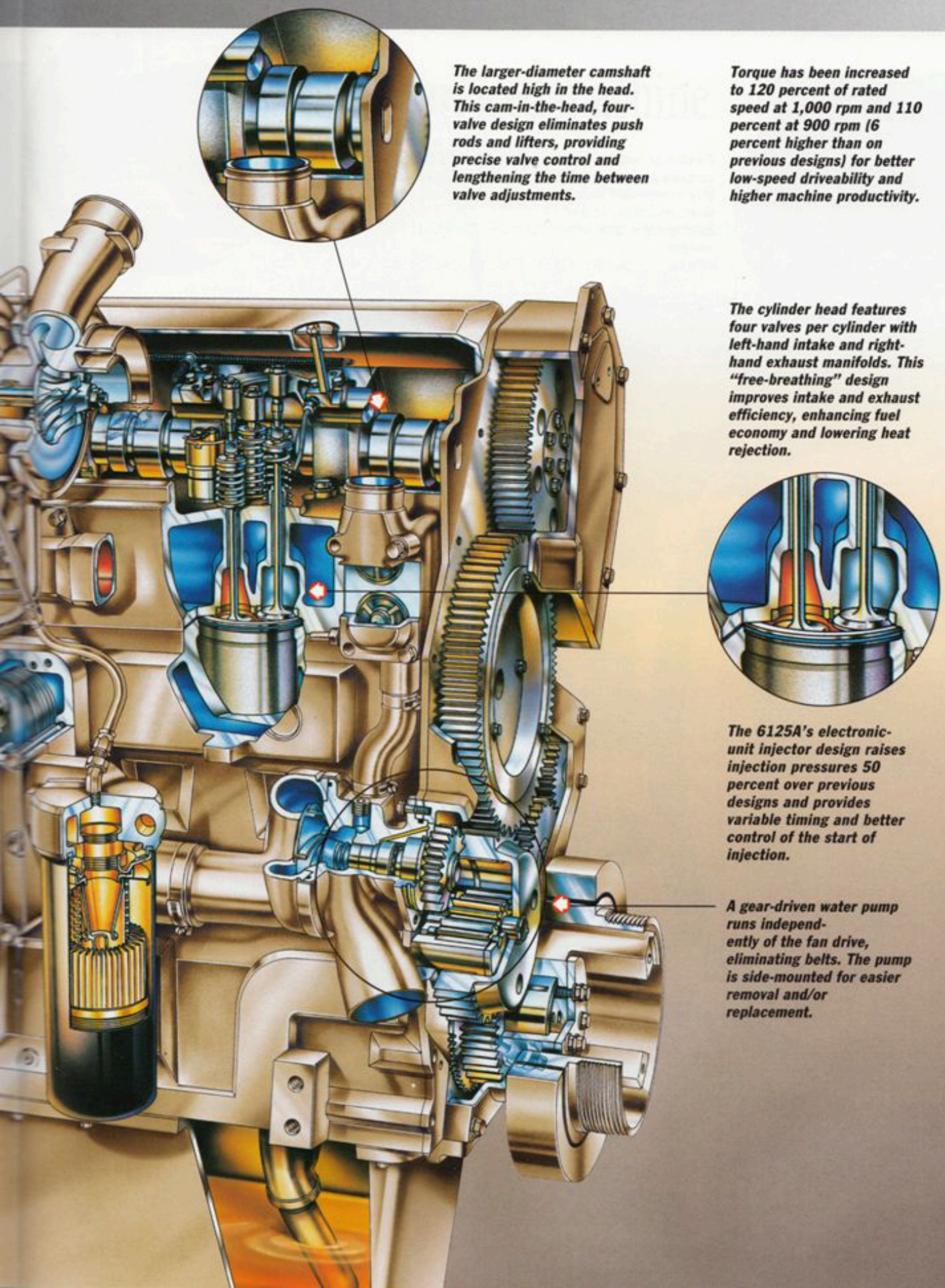
The 6125A's two-piece, high-top-ring steel crown and aluminum skirt piston reduces smoke and other emissions. It also lowers heat transfer, giving the engine better fuel economy, durability, and power.

Cylinder thickness is increased by 17 percent in the 6125A, enhancing durability and reliability.

Directed top-liner cooling reduces head gasket and liner temperatures, makes cylinders last longer, and helps reduce emissions and oil consumption.



Daily service can be performed on either side of the engine. Spin-on, vertically-mounted combination oil/fuel filters help minimize messy spills.



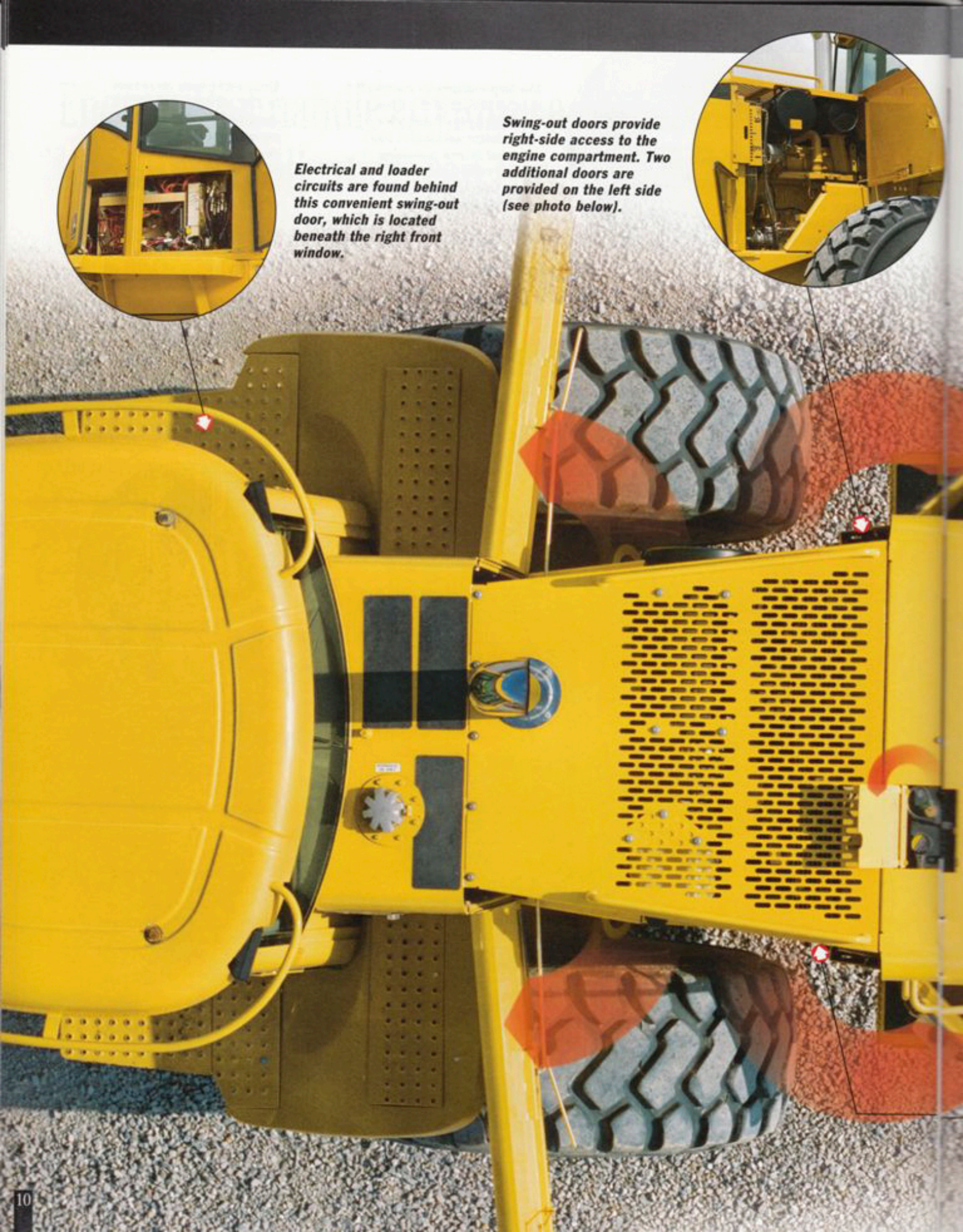
The larger-diameter camshaft is located high in the head. This cam-in-the-head, four-valve design eliminates push rods and lifters, providing precise valve control and lengthening the time between valve adjustments.

Torque has been increased to 120 percent of rated speed at 1,000 rpm and 110 percent at 900 rpm (6 percent higher than on previous designs) for better low-speed driveability and higher machine productivity.

The cylinder head features four valves per cylinder with left-hand intake and right-hand exhaust manifolds. This "free-breathing" design improves intake and exhaust efficiency, enhancing fuel economy and lowering heat rejection.

The 6125A's electronic-unit injector design raises injection pressures 50 percent over previous designs and provides variable timing and better control of the start of injection.

A gear-driven water pump runs independ-ently of the fan drive, eliminating belts. The pump is side-mounted for easier removal and/or replacement.



Electrical and loader circuits are found behind this convenient swing-out door, which is located beneath the right front window.

Swing-out doors provide right-side access to the engine compartment. Two additional doors are provided on the left side (see photo below).

Providing an easily serviced machine demands an open-door policy.

You've probably already noticed that the effectiveness of your equipment service program is a direct function of how easy (or hard) the equipment is to service. What's easy to do has a better chance of getting done. That's why easy servicing is designed into every John Deere Material Handler.

Four side-shield doors – two on each side of the machine – let you get into the engine compartment to change fuel, air, and oil filters, and check fluid reservoirs. The rear grill swings out, as you can see here, to give you ample access to the radiator. Both the radiator and the oil cooler can be removed without disturbing the other.

Double service doors on each side of the machine provide unparalleled access to the engine compartment for routine servicing. They also speed repairs, getting your loader up faster and back on the job sooner.

The wide-open articulation area gives you easy access to plumbing and steering components. Centralized grease banks help ensure that difficult lube points are serviced regularly. The locking bar for the loader boom is stored here for easy access and top-of-mind awareness.

The rugged locking bar is inserted along one of the boom cylinders to keep the boom and bucket raised during servicing – a safeguard against any sudden loss of hydraulic pressure that might bring the boom down unexpectedly.

	644H MH	744H MH
ENGINE		
Type	John Deere PowerTech® 6081H with altitude-compensating turbocharger and aftercooler; meets North American EPA and CARB non-road diesel engine emission regulations effective January 1, 1997; also is certifiable to proposed E.U. (European Union) regulations, which are not yet effective	John Deere PowerTech® 6125A dual horsepower, turbo-charged and aftercooled; 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		
Gear 1	180 SAE net hp (134 kW), 212 SAE gross hp (158 kW) @ 2,200 rpm	240 SAE net hp (179 kW), 263 SAE gross hp (196 kW) @ 2,000 rpm
Gears 2–4	200 SAE net hp (149 kW), 232 SAE gross hp (173 kW) @ 2,200 rpm	260 SAE net hp (194 kW), 283 SAE gross hp (221 kW) @ 2,000 rpm
Cylinders	6	6
Displacement	496 cu. in. (8.1 L)	766 cu. in. (12.5 L)
Maximum net torque		
Gear 1 (47% torque rise)	734 lb.-ft. (995 Nm) @ 1,300 rpm	980 lb.-ft. (1330 Nm) @ 1,500 rpm
Gears 2–4 (40% torque rise)	745 lb.-ft. (1010 Nm) @ 1,300 rpm	980 lb.-ft. (1330 Nm) @ 1,500 rpm
Lubrication	pressure system with full-flow spin-on filter and cooler	pressure system with full-flow spin-on filter and cooler
Fuel consumption, typical	2.9 to 5.0 gal./hr. (10.9 to 18.8 L/h)	4.0 to 10.0 gal./hr. (15 to 38 L/h)
Cooling fan	blower type, hydraulically driven	blower type
Electrical system	24 volt with 55-amp alternator	24 volt with 55-amp alternator
Batteries (two 12 volt)	750 CCA; reserve capacity: 150 min. – standard / 950 CCA; reserve capacity: 200 min. – optional	950 CCA; reserve capacity: 200 min.
Air cleaner	dual safety element dry type; restriction indicator for service	dual safety element dry type; restriction indicator for service
TRANSMISSION		
Type	single stage, single phase torque converter; countershaft-type power shift with computer control	single stage, dual phase torque converter; countershaft, computer-controlled power shift
Controls	smooth shifts under any power condition provided by computer-controlled electronic shift with individual electronic control over each clutch pack, one low-effort twist-grip shift lever, quick-shift button on hydraulic lever, automatic shift feature is selectable to shift between gears 1–4 or 2–4	smooth shifts under any power condition provided by computer-controlled electronic shift with individual electronic control over each clutch pack, twist-grip shift lever, quick-shift button on hydraulic lever, automatic shift feature is selectable to shift between gears 1–4 or 2–4
Travel speeds*	*Forward* / *Reverse*	*Forward* / *Reverse*
Gear 1	4.9 mph (7.9 km/h) / 5.1 mph (8.3 km/h)	4.6 mph (7.4 km/h) / 4.6 mph (7.4 km/h)
Gear 2	8.4 mph (13.6 km/h) / 8.8 mph (14.2 km/h)	8.6 mph (13.9 km/h) / 8.6 mph (13.9 km/h)
Gear 3	15.7 mph (25.4 km/h) / 16.4 mph (26.7 km/h)	13.1 mph (21.2 km/h) / 19.3 mph (31.0 km/h)
Gear 4	24.0 mph (39.0 km/h)	24.5 mph (39.5 km/h)
*644H MH equipped with 23.5-25 tires; 744H MH equipped with 26.5-25 tires.		
AXLES/BRAKES		
Final drives	heavy-duty planetary, mounted inboard	heavy-duty planetary, mounted inboard
Differentials	conventional front and rear – standard; hydraulic locking front, conventional rear – optional; dual locking front and rear – optional; limited slip front and rear – optional	conventional front and rear – standard; hydraulic locking front – optional; dual locking front and rear – optional
Rear axle oscillation, stop to stop	26 degrees	26 degrees
Maximum rise and fall, single wheel	19.2 in. (488 mm)	19.5 in. (495 mm)
Brakes (conform to SAE J1473, ISO3450)		
Service brakes	inboard-mounted hydraulic wet-disc, bathed in cooling oil, long life self-adjusting	inboard-mounted hydraulic wet-disc, bathed in cooling oil, long life self-adjusting
Parking brake	automatically spring applied, hydraulically released, wet disc bathed in cooling oil	automatically spring applied, hydraulically released, wet disc bathed in cooling oil
HYDRAULIC SYSTEM/STEERING		
Pump (loader and steering)	variable-displacement, axial piston pump; closed-center, pressure-compensating system	two variable-displacement, load-sensing piston pumps; closed-center system
Maximum flow	74 gpm (280 L/min.) @ 1,000 psi (6895 kPa) and 2,200 rpm	112 gpm (423 L/min.) @ 1,000 psi (6900 kPa) and 2,250 rpm
Pressure	loader and steering relief 3,600 psi (24 850 kPa)	loader and steering relief 3,200 psi (22 000 kPa)
Loader controls	two-function valve; single or dual lever controls; control lever lockout feature; optional third- and fourth-function valve with auxiliary lever	two-function valve; single or dual lever controls; control lever lockout feature; optional third-function valve with auxiliary lever
Hydraulic cycle times		
Raise	6.0 sec.	6.1 sec.
Dump	1.2 sec.	1.5 sec.
Lower	3.0 sec. (float down) / 3.5 sec. (power down)	2.8 sec. (float down) / 2.8 sec. (power down)
Total	9.3 sec.	10.4 sec.
Maximum lift capacity	*with 3.5 cu. yd. (2.7 m³) excavating bucket*	*with 5.25 cu. yd. (4.0 m³) stockpiling bucket*
Lift at ground level	33,930 lb. (15 391 kg)	33,410 lb. (15 150 kg)
Lift at maximum height	20,130 lb. (9132 kg)	23,495 lb. (10 655 kg)
Steering (conforms to SAE J1511)		
Type	power, fully hydraulic	power, fully hydraulic
Pressure-relief valve setting	3,600 psi (24 850 kPa)	3,200 psi (22 000 kPa)
Articulation angle	80-degree arc (40 degrees each direction)	80-degree arc (40 degrees each direction)
Turning radius (measured to center-line of outside tire)	18 ft. 0 in. (5500 mm)	20 ft. 2 in. (6.14 m)

TIRES

Choice of	*Tread Width*	*Width Over Tires*	*Change In Vertical Height*	*Tread Width*	*Width Over Tires*	*Change In Vertical Height*
20.5-25, 12 PR L2	85.4 in. (2170 mm)	109.3 in. (2777 mm)	– 1.0 in. (– 25 mm)			
20.5-25, 12 PR L3	85.4 in. (2170 mm)	109.3 in. (2777 mm)	– 1.0 in. (– 25 mm)			

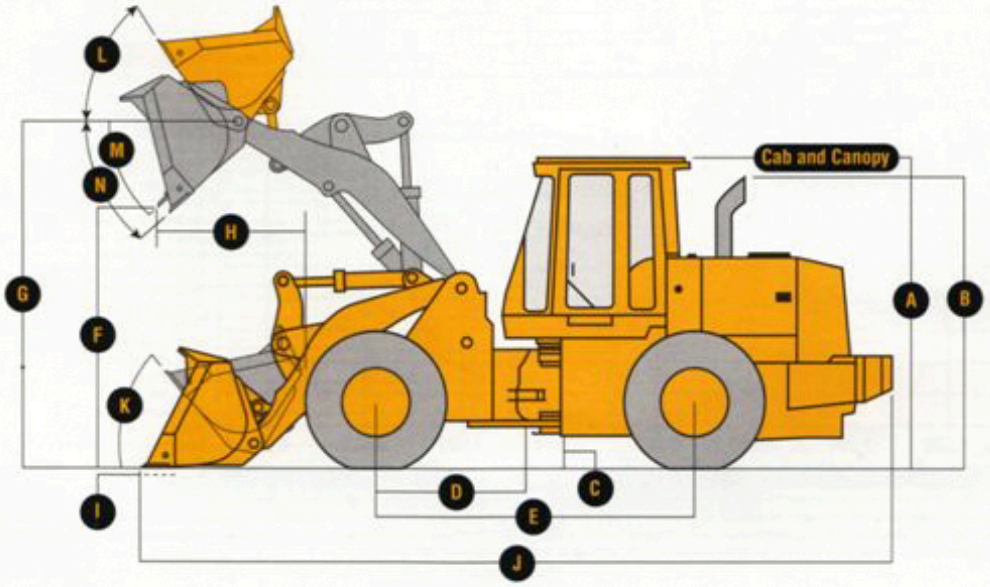
TIRES *(continued)*	644H MH			744H MH		
Choice of *(continued)*	*Tread Width*	*Width Over Tires*	*Change In Vertical Height*	*Tread Width*	*Width Over Tires*	*Change In Vertical Height*
20.5-25, 16 PR L3	85.4 in. (2170 mm)	109.3 in. (2777 mm)	– 1.0 in. (– 25 mm)			
20.5-25, XTLA L2 Michelin Radial	85.4 in. (2170 mm)	106.4 in. (2702 mm)	– 2.7 in. (– 68 mm)			
20.5-25, XTLA L3 Michelin Radial	85.4 in. (2170 mm)	106.2 in. (2697 mm)	– 2.3 in. (– 59 mm)			
23.5-25, 12 PR L2	85.4 in. (2170 mm)	113.1 in. (2874 mm)	0 in. (0 mm)			
23.5-25, 20 PR L3	85.4 in. (2170 mm)	113.4 in. (2881 mm)	0.2 in. (5 mm)			
23.5-25, GP-2B L2 Goodyear Radial	85.4 in. (2170 mm)	113.2 in. (2875 mm)	0.5 in. (12 mm)			
23.5-25, XHAT L3 Michelin Radial	85.4 in. (2170 mm)	109.1 in. (2772 mm)	0.7 in. (18 mm)	88.6 in. (2200 mm)	113.2 in. (2875 mm)	– 3.1 in. (– 78 mm)
26.5-25, 16 PR L2				88.6 in. (2200 mm)	115.8 in. (2940 mm)	– 1.1 in. (– 28 mm)
26.5-25, 20 PR L3				88.6 in. (2200 mm)	116.0 in. (2947 mm)	0
26.5-25, 20 PR L5*				88.6 in. (2200 mm)	115.8 in. (2940 mm)	+ 1.4 in. (+ 35 mm)
26.5-25, GP-2B L2 Goodyear Radial				88.6 in. (2200 mm)	115.5 in. (2935 mm)	0
26.5-25, XHAT L3 Michelin Radial				88.6 in. (2200 mm)	115.6 in. (2937 mm)	– 0.6 in. (– 15 mm)
26.5-25, X-MINE Michelin Radial*				88.6 in. (2200 mm)	116.2 in. (2952 mm)	+ 1.5 in. (+ 39 mm)

*Requires ± 8-degree rear axle stops.

CAPACITIES (U.S.)		
Fuel tank (with ground level fueling)	90 gal. (341 L)	114 gal. (432 L)
Cooling system	31 qt. (29 L)	45 qt. (43 L)
Engine lubrication, including full-flow spin-on filter	26 qt. (25 L)	40 qt. (38 L)
Power shift transmission, including vertical cartridge filter	27 qt. (26 L)	30 qt. (28 L)
Differential (each axle)		
Front and rear	29 qt. (27 L)	49 qt. (46 L)
Loader hydraulic reservoir and filters	31 gal. (117 L)	38 gal. (144 L)
Parking brake	20 oz. (0.600 L)	0.53 qt. (0.5 L)

DIMENSIONS WITH PIN-ON TYPE BUCKET		
A Height to top of cab and canopy	11 ft. 2 in. (3412 mm)	11 ft. 7 in. (3520 mm)
B Height to top of exhaust	11 ft. (3362 mm)	10 ft. 2 in. (3100 mm)
C Ground clearance	18.6 in. (473 mm)	18.3 in. (465 mm)
D Length from centerline to front axle	5 ft. 3 in. (1600 mm)	5 ft. 7 in. (1700 mm)
E Wheelbase	10 ft. 6 in. (3200 mm)	11 ft. 2 in. (3400 mm)
F Dump height	▲ (see page 14)	▲ (see page 15)
G Height to hinge pin, fully raised	13 ft. 8 in. (4156 mm)	14 ft. 10 in. (4510 mm)
H Dump reach	▲▲ (see page 14)	▲▲ (see page 15)
I Maximum digging depth	2.7 in. (69 mm)	3.8 in. (93 mm)
J Overall length	▲▲▲ (see page 14)	▲▲▲ (see page 15)
K Maximum rollback at ground level	40 degrees	45 degrees
L Maximum rollback at full height	55 degrees	52 degrees
M Dump angle at SAE-rated dump height and reach	45 degrees	45 degrees*
N Maximum dump angle at full height	50 degrees	45 degrees*

*40° maximum dump angle with 5.75-cu. yd. (4.4 m^3) bucket.



644H MH PIN-ON TYPE BUCKET INFORMATION

Bucket Type/Size	*Material Handling w/Bolt-on Cutting Edge*	*Material Handling w/Teeth and Segments*	*Material Handling w/Jagz™*	*Stockpiling and General Purpose w/Bolt-on Cutting Edge*	*Stockpiling and General Purpose w/Teeth and Segments*	*Stockpiling and General Purpose w/Jagz™*
Capacity, heaped SAE	4.5 cu. yd. (3.4 m³)	4.5 cu. yd. (3.4 m³)	4.5 cu. yd. (3.4 m³)	4.25 cu. yd. (3.3 m³)	4.25 cu. yd. (3.3 m³)	4.25 cu. yd. (3.3 m3)
Capacity, struck SAE	3.8 cu. yd. (2.9 m³)	3.8 cu. yd. (2.9 m³)	3.8 cu. yd. (2.9 m³)	3.7 cu. yd. (2.8 m³)	3.7 cu. yd. (2.8 m³)	3.7 cu. yd. (2.8 m3)
Bucket width	119.7 in. (3040 mm)	119.7 in. (3040 mm)	119.7 in. (3040 mm)	114.2 in. (2900 mm)	114.2 in. (2900 mm)	114.2 in. (2900 mm)
Breakout force, SAE J732C	34,340 lb. (15 576 kg)	34,340 lb. (15 576 kg)	33,889 lb. (15 372 kg)	34,432 lb. (15 618 kg)	34,432 lb. (15 618 kg)	33,985 lb. (15 416 kg)
Tipping load, straight	30,906 lb. (14 019 kg)	30,765 lb. (13 955 kg)	30,745 lb. (13 946 kg)	31,096 lb. (14 105 kg)	30,933 lb. (14 031 kg)	31,039 lb. (14 079 kg)
Tipping load, 40-degree full turn, SAE	25,999 lb. (11 793 kg)	25,860 lb. (11 730 kg)	25,847 lb. (11 724 kg)	26,182 lb. (11 876 kg)	26,023 lb. (11 804 kg)	26,118 lb. (11 847 kg)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance	65.4 in. (1661 mm)	67.4 in. (1712 mm)	65.9 in. (1675 mm)	65.5 in. (1663 mm)	67.4 in. (1713 mm)	66.0 in. (1676 mm)
▲▲ Reach, 45-degree dump, full height	41.5 in. (1055 mm)	45.8 in. (1163 mm)	42.3 in. (1076 mm)	45.5 in. (1155 mm)	45.6 in. (1158 mm)	42.1 in. (1071 mm)
▲ Dump clearance, 45 degree, full height	116.6 in. (2962 mm)	112.2 in. (2851 mm)	116.4 in. (2958 mm)	116.6 in. (2962 mm)	116.6 in. (2961 mm)	116.4 in. (2958 mm)
▲▲▲ Overall length, bucket on ground	26 ft. 8 in. (7815 mm)	26 ft. 2 in. (7967 mm)	26 ft. 8 in. (7825 mm)	26 ft. 4 in. (8036 mm)	26 ft. 10 in. (8188 mm)	26 ft. 5 in. (8045 mm)
Loader clearance circle, bucket in carry position	42 ft. 8 in. (13 001 mm)	43 ft. (13 097 mm)	42 ft. 8 in. (13 007 mm)	42 ft. 3 in. (12 874 mm)	42 ft. 7 in. (12 970 mm)	42 ft. 3 in. (12 879 mm)
Operating weight	38,927 lb. (17 657 kg)	39,035 lb. (17 706 kg)	39,028 lb. (17 703 kg)	38,728 lb. (17 567 kg)	38,856 lb. (17 625 kg)	38,823 lb. (17 610 kg)

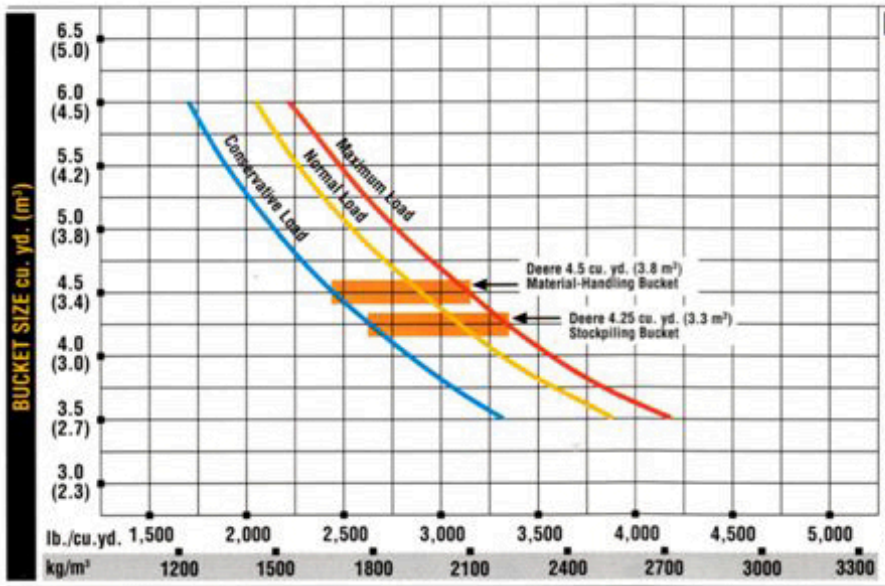
Loader operating information is based on machine with all standard equipment; 23.5-25, 20 PR L3 tires; standard counterweight; ROPS/FOPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

644H MH ADJUSTMENTS TO OPERATING WEIGHTS FOR PIN-ON BUCKETS

Adjustments to operating weights and tipping loads for 4.5 cu. yd. (3.4 m³) material-handling bucket with bolt-on cutting edge

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Straight*	*Tipping Load, 40-Degree Full Turn*
20.5-25, 12 PR L2	– 1,693 lb. (– 768 kg)	– 1,171 lb. (– 531 kg)	– 1,012 lb. (– 459 kg)
20.5-25, 16 PR L3	– 1,576 lb. (– 715 kg)	– 1,089 lb. (– 494 kg)	– 941 lb. (– 427 kg)
20.5-25, XTLA L2 Michelin Radial	– 1,922 lb. (– 872 kg)	– 1,329 lb. (– 603 kg)	– 1,149 lb. (– 521 kg)
20.5-25, XHAT L3 Michelin Radial	– 1,605 lb. (– 728 kg)	– 1,109 lb. (– 503 kg)	– 963 lb. (– 437 kg)
23.5-25, 12 PR L3	– 384 lb. (– 174 kg)	– 265 lb. (– 120 kg)	– 236 lb. (– 107 kg)
23.5-25, GP-2B L2 Goodyear Radial	+ 141 lb. (+ 64 kg)	+ 97 lb. (+ 44 kg)	+ 84 lb. (+ 38 kg)
23.5-25, XHAT L3 Michelin Radial	+ 364 lb. (+ 165 kg)	+ 254 lb. (+ 115 kg)	+ 218 lb. (+ 99 kg)
$CaCl_2$ in 20.5-25 rear tires	+ 2,396 lb. (+ 1087 kg)	+ 3,314 lb. (+ 1503 kg)	+ 2,864 lb. (+ 1299 kg)

644H MH BUCKET SELECTION GUIDE*



MATERIAL (Loose weight)	lb./cu. yd.	kg/m³
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
Topsoil	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.

744H MH PIN-ON TYPE BUCKET INFORMATION

Bucket Type/Size	*Material Handling w/Bolt-on Cutting Edge*	*Material Handling w/Teeth and Segments*	*Material Handling w/Jagz™*	*Stockpiling and General Purpose w/Bolt-on Cutting Edge*	*Stockpiling and General Purpose w/Teeth and Segments*	*Stockpiling and General Purpose w/Jagz™*
Capacity, heaped SAE	5.75 cu. yd. (4.4 m³)	5.75 cu. yd. (4.4 m³)	5.75 cu. yd. (4.4 m³)	5.25 cu. yd. (4.0 m³)	5.25 cu. yd. (4.0 m³)	5.25 cu. yd. (4.0 m3)
Capacity, struck SAE	5.00 cu. yd. (3.8 m³)	5.00 cu. yd. (3.8 m³)	5.00 cu. yd. (3.8 m³)	4.50 cu. yd. (3.4 m³)	4.50 cu. yd. (3.4 m³)	4.50 cu. yd. (3.4 m3)
Bucket width	128.9 in. (3275 mm)	128.9 in. (3275 mm)	128.9 in. (3275 mm)	119.7 in. (3040 mm)	119.7 in. (3040 mm)	119.7 in. (3040 mm)
Breakout force, SAE J732C	37,175 lb. (16 860 kg)	37,175 lb. (16 860 kg)	35,930 lb. (16 295 kg)	40,300 lb. (18 280 kg)	40,300 lb. (18 280 kg)	38,930 lb. (17 660 kg)
Tipping load, straight	36,310 lb. (16 470 kg)	35,930 lb. (16 300 kg)	35,650 lb. (16 170 kg)	37,595 lb. (17 053 kg)	37,220 lb. (16 883 kg)	36,965 lb. (16 767 kg)
Tipping load, 35-degree full turn, SAE	31,580 lb. (14 325 kg)	31,210 lb. (14 160 kg)	30,955 lb. (14 040 kg)	32,755 lb. (14 857 kg)	32,390 lb. (14 691 kg)	32,150 lb. (14 584 kg)
Tipping load, 40-degree full turn, SAE	30,420 lb. (13 800 kg)	30,050 lb. (13 630 kg)	29,800 lb. (13 515 kg)	31,510 lb. (14 320 kg)	31,205 lb. (14 155 kg)	30,975 lb. (14 050 kg)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance	74.8 in. (1900 mm)	78.4 in. (1960 mm)	76.4 in. (1910 mm)	80.2 in. (2005 mm)	83.6 in. (2089 mm)	80.8 in. (2021 mm)
▲▲ Reach, 45-degree dump, full height	49.6 in.* (1260 mm)	54.4 in.* (1382 mm)	50.6 in.* (1285 mm)	46.4 in. (1178 mm)	51.3 in. (1302 mm)	47.4 in. (1204 mm)
▲ Dump clearance, 45 degree, full height	126.1 in.* (3202 mm)	122.5 in.* (3111 mm)	125.1 in.* (3177 mm)	128.7 in. (3270 mm)	125.2 in. (3180 mm)	127.8 in. (3245 mm)
▲▲▲ Overall length	28 ft. 11 in. (8925 mm)	29 ft. 5 in. (8970 mm)	29 ft. 1 in. (8860 mm)	28 ft. 7 in. (8719 mm)	29 ft. 1 in. (8864 mm)	28 ft. 9 in. (8757 mm)
Loader clearance circle, bucket in carry position	45 ft. 10 in. (13 965 mm)	46 ft. 1 in. (14 040 mm)	45 ft. 10 in. (13 980 mm)	45 ft. 1 in. (13 738 mm)	45 ft. 4 in. (13 824 mm)	45 ft. 2 in. (13 762 mm)
Operating weight	51,590 lb. (23 400 kg)	51,895 lb. (23 540 kg)	52,030 lb. (23 600 kg)	51,210 lb. (23 230 kg)	51,510 lb. (23 365 kg)	51,620 lb. (23 415 kg)

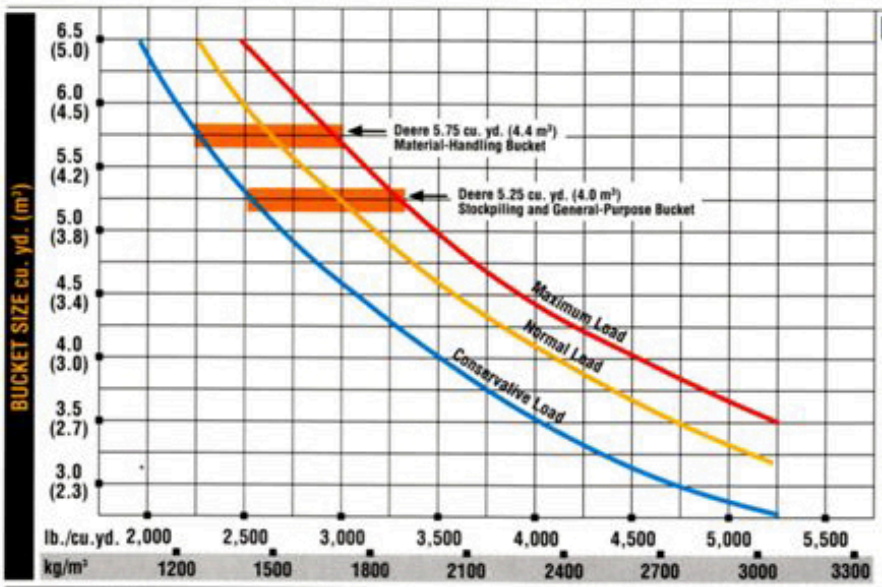
*Dump clearance height and reach for the material-handling bucket are determined with a 40-degree bucket dump angle.
Loader operating information is based on machine with all standard equipment; 26.5-25, 20 PR L3 tires; ROPS/FOPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

744H MH ADJUSTMENTS TO OPERATING WEIGHTS FOR PIN-ON BUCKETS

Adjustments to operating weights and tipping loads for 5.75 cu. yd. (4.4 m³) material-handling bucket with bolt-on cutting edge

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Straight*	*Tipping Load, 35-Degree Full Turn*	*Tipping Load, 40-Degree Full Turn*
23.5-25, XHAT L3 Michelin Radial	– 551 lb. (– 250 kg)	– 375 lb. (– 170 kg)	– 342 lb. (– 155 kg)	– 331 lb. (– 150 kg)
26.5-25, 16 PR L2	– 375 lb. (– 170 kg)	– 258 lb. (– 117 kg)	– 227 lb. (– 103 kg)	– 222 lb. (– 101 kg)
26.5-25, GP-2B L2 Goodyear Radial	+ 397 lb. (+ 180 kg)	+ 273 lb. (+ 124 kg)	+ 240 lb. (+ 109 kg)	+ 234 lb. (+ 106 kg)
26.5-25, XHAT L3 Michelin Radial	+ 397 lb. (+ 180 kg)	+ 273 lb. (+ 124 kg)	+ 240 lb. (+ 109 kg)	+ 234 lb. (+ 106 kg)
26.5-25, X-MINE Michelin Radial	+ 2,875 lb. (+ 1300 kg)	+ 1,956 lb. (+ 887 kg)	+ 1,742 lb. (+ 790 kg)	+ 1,689 lb. (+ 766 kg)
$CaCl_2$ in rear tires	+ 2,875 lb. (+ 1300 kg)	+ 3,947 lb. (+ 1790 kg)	+ 3,506 lb. (+ 1590 kg)	+ 3,396 lb. (+ 1540 kg)

744H MH BUCKET SELECTION GUIDE*



MATERIAL (Loose weight)	lb./cu. yd.	kg/m³
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
Topsoil	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.

	644H MH	744H MH
ENGINE		
Antifreeze, –34°F (–37°C)	●	●
Coolant recovery tank	●	●
Fan safety guard	●	●
Muffler, under hood with large vertical exhaust stack	●	●
Chrome exhaust stack	■	
Environmentally friendly engine oil drain	●	●
Engine oil cooler	●	●
Quick-release fuel filter and water separator	●	●
Ether start aid (for cold starts)	■	■
Engine air heater (for cold starts)	■	
Engine coolant heater, 1,000 watts, 110 volts	■	■
Heavy-duty trash-resistant cooling package	■	■
Desert and high-altitude cooling package	■	■
Special application trash screens, axle seal guard, etc.*	■	■
POWER TRAIN		
TC/PS transmission, computer-controlled electronic soft shift, automatic shift and quick-shift features included	●	●
Loader performance management system*	●	●
Conventional-type differentials, front and rear	●	●
Front axle with hydraulic locking differential	■	■
Front and rear axles with hydraulic locking differentials	■	■
Front and rear axles with limited-slip differentials	■	
HYDRAULIC SYSTEM		
Automatic bucket return-to-dig control	●	●
Automatic boom height kickout control	●	●
Automatic boom return-to-carry control	■	■
Reservoir sight gauge	●	●
Spin-on hydraulic filters, vertical mounting	●	●
Hydraulic lever lockout	●	●
Two-function hydraulic valve with joystick control	●	●
Two-function hydraulic valve with two levers and adjustable wristrest	■	■
Three-function hydraulic valve with joystick control and auxiliary lever for third function	■	■
Three-function hydraulic valve with two levers and adjustable wristrest and auxiliary lever for third function	■	■
Four-function hydraulic valve with dual joystick controls	■	
Hydraulic conversion kits	■	■
Two- to three-function valves	■	■
Three- to four-function valves	■	
Hydraulic system oil cooler (for continuous running attachments and extreme temperatures)	●	●
Ride control, automatic type	■	■
ELECTRICAL		
24-volt electrical system	●	●
Batteries, standard (2), 12 volt with 750 CCA, 150-min. rated reserve	●	
Batteries, high capacity (2), 12 volt with 950 CCA, 200-min. rated reserve	■	●
Batteries, high capacity (2), 12 volt with 1,000 CCA, 320-min. rated reserve		■
Master electrical disconnect switch	■	■
Alternator, 55 amps and 24 volts	●	●
Alternator, high capacity, 80 amps and 24 volts	■	■
Alternator trash covers	■	■

	644H MH	744H MH
Lights	●	●
Driving with guards / Turn signals and flashers / Stop and taillights / Conform to SAE 99		
Work lights, front (2) and rear (2)	■	●
Horn, with push button in center of steering wheel	●	●
Conforms to SAE J994, J1446		
Reverse warning alarm	●	●
Conforms to SAE J994, J1446		
Deluxe monitor and alarm system, multi-function computerized electronic	●	●
Audible and visual warnings include		
Message center display: 12-character message board / Accessory settings / Diagnostic fault code messages		
Analog instruments: Engine coolant temperature / Transmission oil temperature / Fuel level / Speedometer / Engine oil pressure / Hydraulic oil temperature		
Digital instruments: Engine rpm / Selectable battery voltage or odometer / Transmission gear indicator / Hourmeter		
Operator warning lights: Coolant level / Engine oil pressure / Engine air filter / Battery voltage / Transmission filter restriction / Brake pressure / Hydraulic oil temperature / Hydraulic oil filter / Fasten seat belt / Park brake actuated		
Indicator lights: Turn signals / Warning flashers / Work lights		
Built-in diagnostics: Fault code retrieval / Message center		
Push-button selection: Three clutch cut-off adjustments / Two automatic transmission sequences / Two quick-shift button sequences		
Radio-ready cab, fused 24-volt radio electrical lead, and fused lead for optional Deere 5-amp and 10-amp voltage converters	●	●
24-volt to 12-volt radio converter, 5 amp with receptacle	■	
24-volt to 12-volt radio converter, 10 amp with receptacle	■	■
24-volt AM/FM stereo radio with clock	■	■
Cab wired for rotating beacon	■	●
OPERATOR'S STATION		
Canopy	●	●
ROPS/FOPS / Multiplane isolation mounted for noise/vibration reduction / Conforms to SAE J1040 APR88		
Canopy rear window glass, for noise reduction	●	
Cab	■	■
ROPS/FOPS / Heater/defroster / Multiplane isolation mounted for noise/vibration reduction / Front and rear windshield washers and intermittent wipers / Tinted safety glass / Conforms to SAE J1040 APR88		
Air conditioning (factory or dealer installed)	■	■
Seat belt, 3 in. (76 mm), with retractor	●	●
Seat, deluxe cloth covered with deep foam, high back, mechanical suspension, adjustable for weight-height, fore-aft position, backrest tilt, and armrest angle	●	●
Seat, air suspension, deluxe cloth covered	■	■

	644H MH	744H MH
Seat backrest extension	■	■
Cup holder, personal cooler holder	●	●
Storage compartment for operator's manual and other items	●	●
Rubber floormat	●	●
Tilt steering column	●	●
Steering wheel, textured with spinner knob	●	●
Rearview mirrors, outside (2) and inside (2) 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	●	●
Z-bar loader linkage provides "high bucket breakout"	●	
High-lift boom*	■	■
BUCKETS AND ATTACHMENTS		
Full line of Deere pin-on buckets with selection of bolt-on cutting edges, JAGZ™ cutting edges, and teeth-segmented bolt-on cutting edges*	■	■
Quick coupler which accepts JRB attachments*	■	■
Quick coupler which accepts Caterpillar® tool-carrier attachments*	■	■
Hydraulic control system for quick-coupler locking pins, includes all controls in the cab, lines, and valves	■	■
Full line of construction utility forks, pallet forks, extendible boom with hook, and other attachments for couplers*	■	
TIRES		
20.5-25, 12 PR L2	●	
20.5-25, 12 PR L3	■	
20.5-25, 16 PR L3	■	
20.5-25, XTLA L2 Michelin Radial	■	
20-5-25, XHAT L3 Michelin Radial	■	
23.5-25, 12 PR L2	■	
23.5-25, 20 PR L3	■	
23.5-25, GP-2B L2 Goodyear Radial	■	
23.5-25, XHAT L3 Michelin Radial	■	■
28L-26, 14 PR LS-2, Steel-Ply Logger	■	
26.5-25, 16 PR L2		■
26.5-25, 20 PR L3		●
26.5-25, GP-2B L2 Goodyear Radial		■
26.5-25, XHAT L3 Michelin Radial		■
26.5-25, X-MINE Michelin Radial		■
Multi-piece rims	●	
Less wheels and tires	■	■
OTHER		
Fenders, front and rear	■	●
Articulation locking bar Conforms to SAE J276	●	●
Vandal protection, includes lockable engine enclosure, rear grille, and fuel fill	●	●
Counterweight, built-in	●	●
Drawbar, with locking pin	●	●
Transmission side frame guards	■	■
Bottom guard, rear		●
Bottom guards, front frame and transmission	■	■
Lift and tie-down hooks	■	■
Fire extinguisher	■	■
License plate bracket	■	
Secondary steering	■	■
Material weighing system*	■	■

KEY: ● Standard equipment ■ Optional or special equipment

*See your John Deere dealer for further information.

JOHN DEERE

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) altitude. 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 units with all standard equipment, ROPS/FOPS cabs, full fuel tanks, and 175-lb. (79 kg) operators; 644H MH unit with 23.5-25, 20 PR L3 tires; and 744H MH unit with 26.5-25, 20 PR L3 tires.

DKA644HMH Litho in U.S.A. (98-11)