

ENGINE	644H MH	744H MH
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*		
	<i>Forward</i>	<i>Reverse</i>
Gear 1.....	4.9 mph (7.9 km/h)	5.1 mph (8.3 km/h)
Gear 2.....	8.4 mph (13.6 km/h)	8.8 mph (14.2 km/h)
Gear 3.....	15.7 mph (25.4 km/h)	16.4 mph (26.7 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 m ³) excavating bucket	with 5.25 cu. yd. (4.0 m ³) 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

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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.

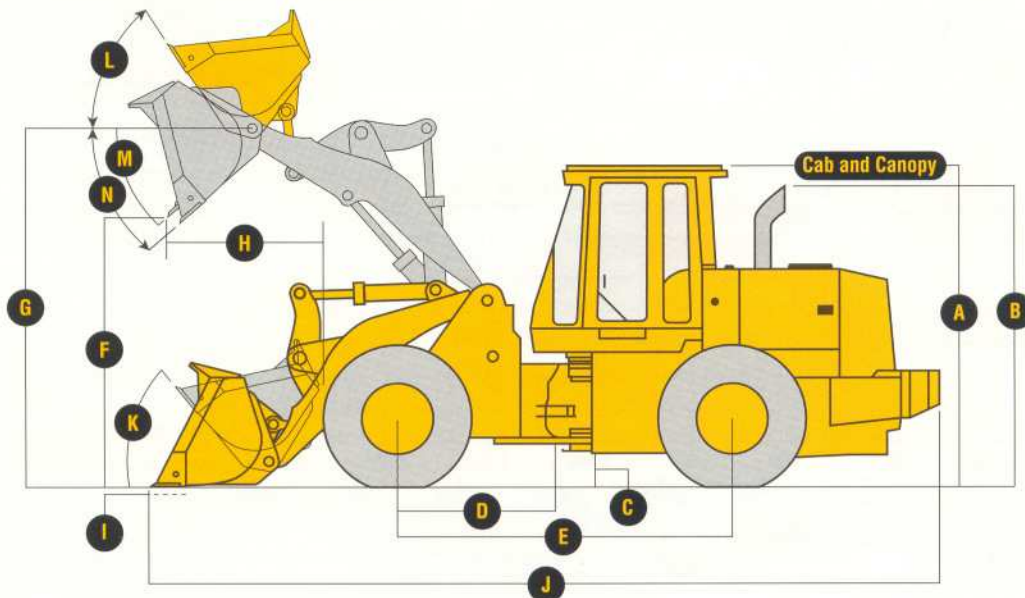
CAPACITIES (U.S.)

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 m³) 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 m ³)	4.5 cu. yd. (3.4 m ³)	4.5 cu. yd. (3.4 m ³)	4.25 cu. yd. (3.3 m ³)	4.25 cu. yd. (3.3 m ³)	4.25 cu. yd. (3.3 m ³)
Capacity, struck SAE	3.8 cu. yd. (2.9 m ³)	3.8 cu. yd. (2.9 m ³)	3.8 cu. yd. (2.9 m ³)	3.7 cu. yd. (2.8 m ³)	3.7 cu. yd. (2.8 m ³)	3.7 cu. yd. (2.8 m ³)
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. (2962 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

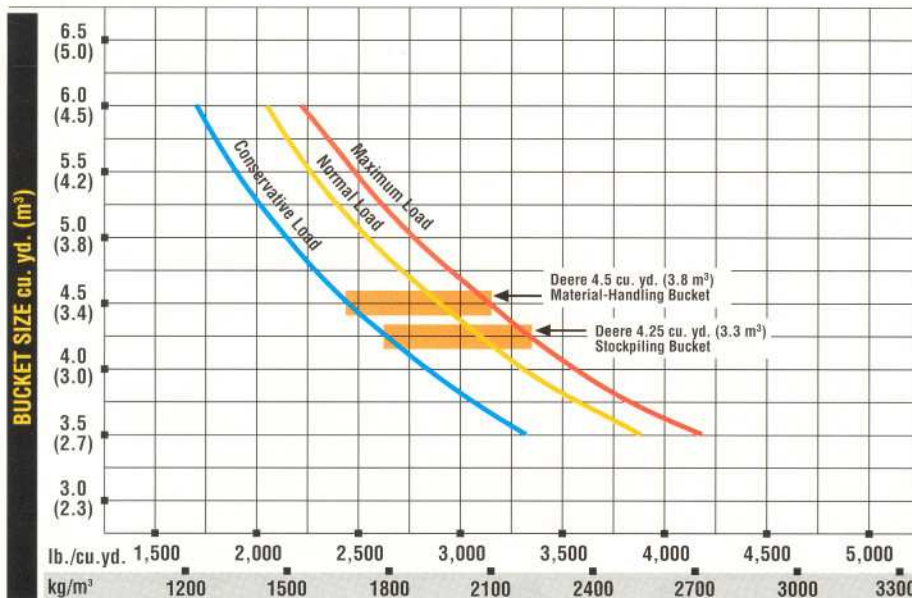
Adjustments to operating weights and tipping loads for 4.5 cu. yd. (3.4 m³) material-handling bucket with bolt-on cutting edge

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/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
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 uneven 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

	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™
Bucket Type/Size	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, heaped 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)
Capacity, struck SAE	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)
Bucket width	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)
Breakout force, SAE J732C	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, straight	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, 35-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)
Tipping load, 40-degree full turn, SAE	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, 7-ft. (2.13 m) clearance	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)
▲▲ Reach, 45-degree dump, 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)

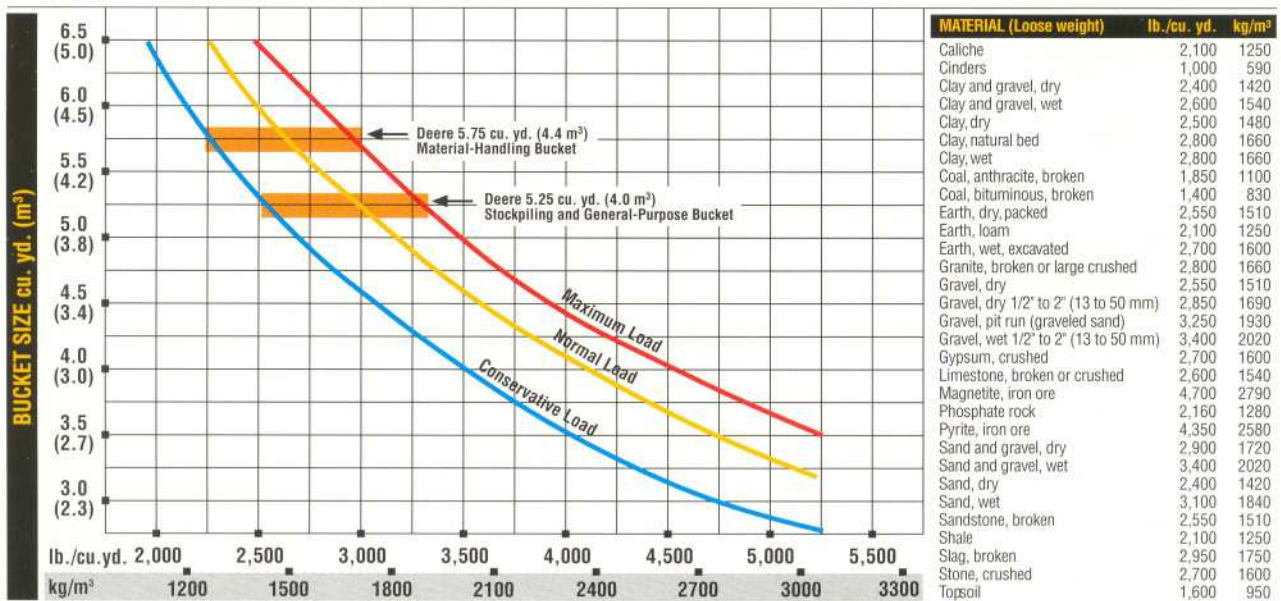
*Dump clearance height and reach for the material-handling bucket are determined with a 40-degree bucket dump angle. Loader operating information is based on machine with all standard equipment; 26.5-25, 20 PR L3 tires; ROPS/FOPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is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



*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 uneven surfaces. The "maximum load" condition on this guide is sometimes utilized when operating on firm ground and level surfaces.