



# Articulated Dump Truck

**D44**

## Summary of Features

- **44.0 tons [40.0 tonnes] payload.** Heavy-duty wide wedge-shape body gives easy loading and clean load ejection with 20° ducktail for superior load retention. Low load-over height provides versatile loader match.
- **Articulated frame hydraulic steering.** Independent torsion-free front and rear frames. Exceptional maneuverability and reversability. Small turning radius 32'8" (9.96m).
- **All-wheel drive.** Provides exceptional traction and gradeability from mud to rock. Air-actuated selector for 2 or 4-wheel drive allows full versatility. Maximum speed forward and reverse 30 mph (48 km/h).
- **Caterpillar drive train.** Includes engine, powershift transmission and heavy-duty planetary axles with proven reliability.
- **Self-levelling oil-nitrogen suspension.** Absorbs haul road and loading shocks for smooth ride and faster cycle times.
- **Wide-base 33.25 × 29 low pressure radial tires.** Mounted in single formation with equal axle loading to provide optimum flotation and traction in adverse conditions and reduce haul road damage.
- **Standard ROPS/FOPS soundproofed cab** with adjustable air suspended seat.
- **All-wheel expander tube brakes and hydraulic retarder** provide positive fade-free stops and higher speed controlled descents.





# D44 Articulated Dump Truck



## Engine

**Model:** Caterpillar 3408 PCTA eight cylinder turbo-charged and after-cooled 4-stroke diesel with pre-combustion chamber design.

**Flywheel horsepower:**...450 (336 kW) @ 2100 rpm (SAE J816b)

**Max. Torque:**...1390 lb.ft (1885 Nm) @ 1500 rpm (SAE J816b).

*The net power at the flywheel of the vehicle engine operating under SAE standard ambient temperature and barometric conditions, 85°F [29°C] and 29.83" Hg [995 mbar], using 35 API gravity fuel oil at 60°F [15.6°C]. Vehicle engine equipment includes fan, air cleaner, water pump, lubricating oil pump, fuel pump and alternator. Engine will maintain specified power up to 4000' [1219 m] altitude.*

Bore 5.4" (137mm); stroke 6.0" (152mm); displacement 1099 cu. in. (18.0 liters). Adjustment free fuel pumps and valves. Integral inlet manifold porting with two intake and two exhaust valves per cylinder, variable timing fuel system. Pressure lubrication with full-flow filtered oil and oil cooler. Water separator, dry type air cleaner with primary and safety elements, automatic dust ejector and service indicator and high capacity shock-proof radiator fitted as standard.

24-Volt direct electric starting system with glow plugs for pre-heating precombustion chambers. 50-Amp alternator. Two 220-Amp-hour 12-Volt batteries.



## Transmission

**Model:** Caterpillar 988B full powershift transmission remote-mounted from engine. Large-diameter clutch packs for maximum leverage. Planetary gearing for minimum tooth loading. Modulated control for smooth gearshifts. Integral transfer box.

**Torque Converter:** Single phase 2.58:1 stall torque ratio; matched to engine and transmission for high efficiency hauling; reduces shock loads to entire drive train. Lock-up is standard.

**Speeds:** Loaded, with 33.25 × 29 tires.

		1st	2nd	3rd	4th
Forward	mph	5.5	9.9	17.0	30.0
	(km/h)	(8.9)	(15.9)	(27.4)	(48.0)
Reverse	mph	6.2	11.0	19.3	30.0
	(km/h)	(10.0)	(17.7)	(31.1)	(48.0)

Spring-engaged, air released large diameter dog-clutch located in center hitch assembly engages rear drive axle. Dog-clutch automatically engages when park/emergency brake is applied.



## Axles

Two Caterpillar 980B heavy-duty drive axles with fully floating half shafts.

**Reduction Ratios:** Bevel gear 3.16; final drives 5.05; overall 16.05. Spiral bevel ring gear O.D. 17.25" (438mm).

**Differentials:** *Standard:* conventional 4-pinion type in both axles. *Optional:* NoSPIN type in rear axle.

**Two Wheel Drive:** Arrangement with drive to front axle only is optional. Rear Cat axle replaced by heavy duty DJB tag axle.

**Final Drives:** Planetary full-floating ring and sun gears. Long-life Caterpillar duo-cone seals retain lubricant and seal out foreign material.



## Brakes

**Service Brake:** Foot-operated self-adjusting hydraulic expander tube on both axles. Pressurized from nitrogen accumulator, charged on priority system by main hydraulics. Eight full brake applications possible with a dead engine for maximum safety.

**Park/Emergency Brake:** Hand-operated multi-disc transmission brake. Failsafe spring-engaged, hydraulically released.

**Retarder:** Hydraulic, integral with torque converter.



## Suspension

Continuous self-levelling oil-nitrogen system on front axle. Leading arm, front axle cradle assembly mounted on front frame with two spherical bearings and two plain thrust bearings. Two hydraulic suspension struts — bore 5.5" (140mm), stroke 8.6" (218mm) — located by spherical bearings and connected hydraulically to suspension level regulating valve and pre-charged oil-nitrogen accumulator.



## Hydraulics

**Pump:** Caterpillar dual vane type operating at 105% engine speed; maximum combined flow 123 US gpm (465 liters/min) @ 2500 psi (170 bars); serves steering, body hoist and suspension systems.

**Tank:** Pressurized with suction strainer and ten micron return line filtration.

**Circuits:** Large bore pipes minimize power loss and heat build-up.

Critical hoses are equivalent in specification to, and interchangeable with Cat XT-3.



## Steering

Articulated frame hydraulic steering. Failsafe hydraulic lock-up valves on steer cylinders maintain steering attitude in the event of hose or pump failure, and improve steering response at all speeds.

Caterpillar hand metering unit, flow priority valve and two double-acting steer cylinders — bore 5.5" (140mm), stroke 25.5" (648mm). Steering pump capacity 83 US gpm (314 liters/min). Caterpillar ground driven steer pump is standard. Turning radius 32'8" (9.96m).

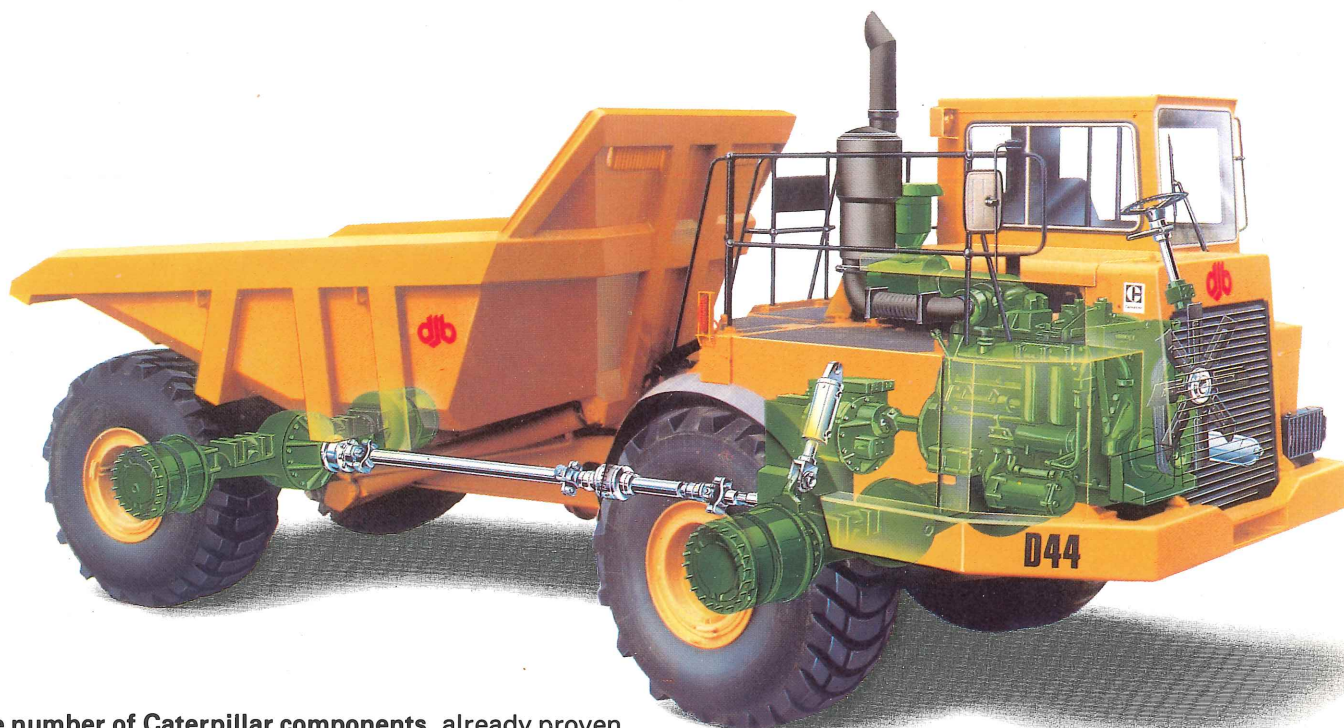


## Body Hoist

Two long-life, flex-free, single-stage, double-acting, hoist cylinders — bore 7.0" (178mm), stroke 70.5" (1790mm); located by spherical bearings. Large overlap provides maximum rigidity when extended.

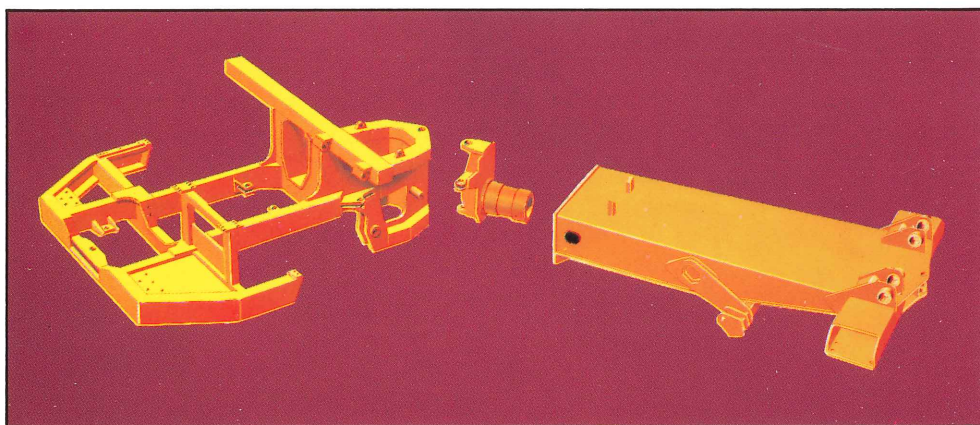
Body Raise.....12 seconds  
Power Down.....9 seconds





A large number of Caterpillar components, already proven worldwide in a wide range of earthmoving equipment, are incorporated in the D44. The drive train, matched for optimum performance and long-life includes; a Caterpillar 3408 PCTA engine — a highly developed unit also used in DJB's D550 articulated truck; Caterpillar 988B powershift transmission with planetary gear design and large diameter oil-cooled clutch packs, giving fully modulated speed and directional changes even under full load; Caterpillar 980B drive axles providing excellent stability and load bearing capacity.

Other Caterpillar components include filters, hydraulic pumps, steering valves, radiator core, batteries, gauges and muffler. The choice of Caterpillar components provides the DJB truck user with the best in performance, reliability and worldwide product support for the lowest operating cost/ton.

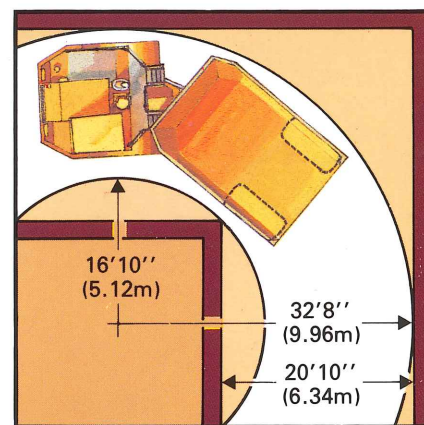


The frame consists of three main components manufactured from 51,520 psi (362 MPa) yield steel:

**The front frame** is an internally-braced deep box-section with an integral heavy-duty bumper and full-box "horse collar" which locates the suspension oil struts and ROPS/FOPS cab.

**DJB's heavy duty articulating/oscillating hitch** significantly reduces torsional stress between front and rear frames, ensuring all-wheel ground contact whatever the ground conditions. It incorporates widely-spaced large diameter spherical bearings for correct alignment of steer cylinders and articulation pivots. Large-diameter readily adjustable plain bearings, designed to cope with extreme service and operational abuse, carry vertical and lateral loads. The hitch also houses the 4-wheel drive clutch mechanism.

**The rear frame** is an enclosed full-box section with internal bracing minimizing longitudinal and lateral stress concentrations and unladen weight, while increasing service life. Body hoist pivots are positioned to reduce frame bending stresses.

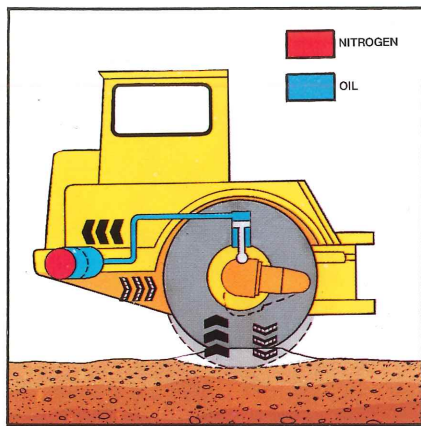


**Small outside turn circle and large inside turn circle** enable DJB trucks to negotiate narrow aisles and tight corners.

Their low narrow profile ensures that they can operate in conditions of limited headroom and width e.g. underground mines and steelworks.

Articulated frame hydraulic steering, giving instantaneous steering response for precise positioning and the Caterpillar 988B full powershift transmission — with 4 speeds forward and reverse, allow fast controlled travel speeds.





**Front-axle suspension** is an oil-nitrogen self-levelling system. As the wheels ride over an obstacle, the front axle rises, forcing oil from the cylinders into the accumulator, compressing the nitrogen. As the wheels move back down over the obstacle the compressed nitrogen forces oil back into the cylinders allowing the wheels to follow the ground contour.

This gives high haul speeds and long frame life. It also allows the rear axle to be direct-mounted — a simpler design reducing maintenance and costs.



**Outstanding Gradeability** is provided by the Caterpillar drive train. The D44 can negotiate a total resistance of 40% at a speed of 1.5 mph (2.4 km/h) enabling it to handle the steepest grades and worst site conditions. Users now have more versatility in planning site layout — particularly in mines and quarries. Haul roads can be steeper (and so shorter) giving access to previously uneconomic areas of the job.

The D44 is also outstanding on downhill grades with its failsafe brakes, responsive hydraulic steering, and integral retarder.



**Traction and flotation** is outstanding due to large-diameter, wide-base, low pressure radial tires and all-wheel drive. A large foot-print area and equal axle loading keeps the D44 hauling in unbelievable conditions. Tires deflect around obstacles which would penetrate normal high pressure tires. Tire life is extended and haul road maintenance reduced.

This all-weather capability extends the work season, improves utilization of the whole equipment fleet and increases overall production.

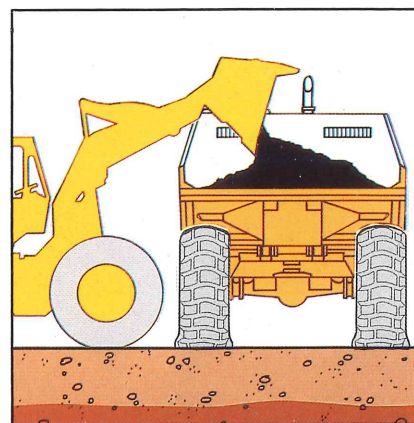


**The ROPS/FOPS cab** mounted on 'Metalistik' bushes to reduce vibration, provides an ergonomically designed environment for operator efficiency and safety throughout the shift. A full range of easy-to-monitor gauges and warning lights/horn are standard. Visibility is improved by the forward-mounted cab and large window area. Tinted laminated front screen and toughened side screens add to safety. A large walk-round deck facilitates routine servicing and ease of access to the cab from either side of the machine.



**Wide-wedge shaped body design** with wrap-around ribs, cushions and reinforces the body against loading shocks. Strength and durability is assured by 145,000 psi (1000 MPa) high-yield, abrasion resistant, heat-treated steel. A 20° ducktail helps retain the load on steep grades. Positioned within the body profile for maximum protection, two double-acting single-stage flex-free hoist cylinders provide fast dump times. A 65° dump angle ensures clean load ejection.

Sidewall and front plate thickness...0.3" (8mm). Bottom plate thickness...0.5" (12mm).



**Low load-over height** of only 9'6" (2.9m) makes the D44 the easiest truck to load in its class, resulting in faster cycle times, higher productivity and reduced costs. DJB's unique body design provides a low center of gravity for maximum stability. The body is compatible with a wide range of loading equipment — particularly hydraulic excavators and draglines. This gives the user greater flexibility in equipment selection as well as the ability to maintain production — regardless of under-foot conditions.





## Body Capacity

		STRUCK	HEAPED SAE 2:1	HEAPED SAE 1:1
Standard Body	yd <sup>3</sup> (m <sup>3</sup> )	22.6 (17.3)	31.1 (23.8)	39.0 (29.8)
6" (150mm) Side Extensions	yd <sup>3</sup> (m <sup>3</sup> )	25.8 (19.7)	34.0 (26.0)	40.0 (30.6)
12" (300mm) Side Extensions	yd <sup>3</sup> (m <sup>3</sup> )	28.7 (21.9)	36.0 (27.5)	42.0 (32.1)



## Operating Weights

		Front Axle	Rear Axle	Totals
Empty	tons (tonnes)	22.0 (20.0)	8.8 (8.0)	30.8 (28.0)
Rated Load	tons (tonnes)	15.0 (13.7)	29.0 (26.3)	44.0 (40.0)
Loaded	tons (tonnes)	37.0 (33.7)	37.8 (34.3)	74.8 (68.0)



## Tires and Wheels

**Standard:** Four Michelin 33.25 × 29 XR type B\*\* radial wide-base low-pressure tires on 23 stud rims, fully interchangeable.

**Optional:** Four Michelin 33.25 × 29 XRDN type B\*\*.

The D44 complies with standard tire manufacturer's recommended speed and load ratings. TON-MPH rating will not normally be exceeded.



## Cab Instrumentation

Gauges for fuel pressure, engine oil pressure, water temperature, transmission oil temperature, air pressure. Tachometer. Ammeter. Speedometer. Electric hourmeter. Air cleaner indicator. Brake system oil pressure indicator.

Warning lights for engine oil pressure, engine water temperature, torque converter oil temperature, 4-wheel drive engaged, park/emergency brake engaged, dump body raised.

Warning horn for brake system oil pressure, engine oil pressure, water temperature.

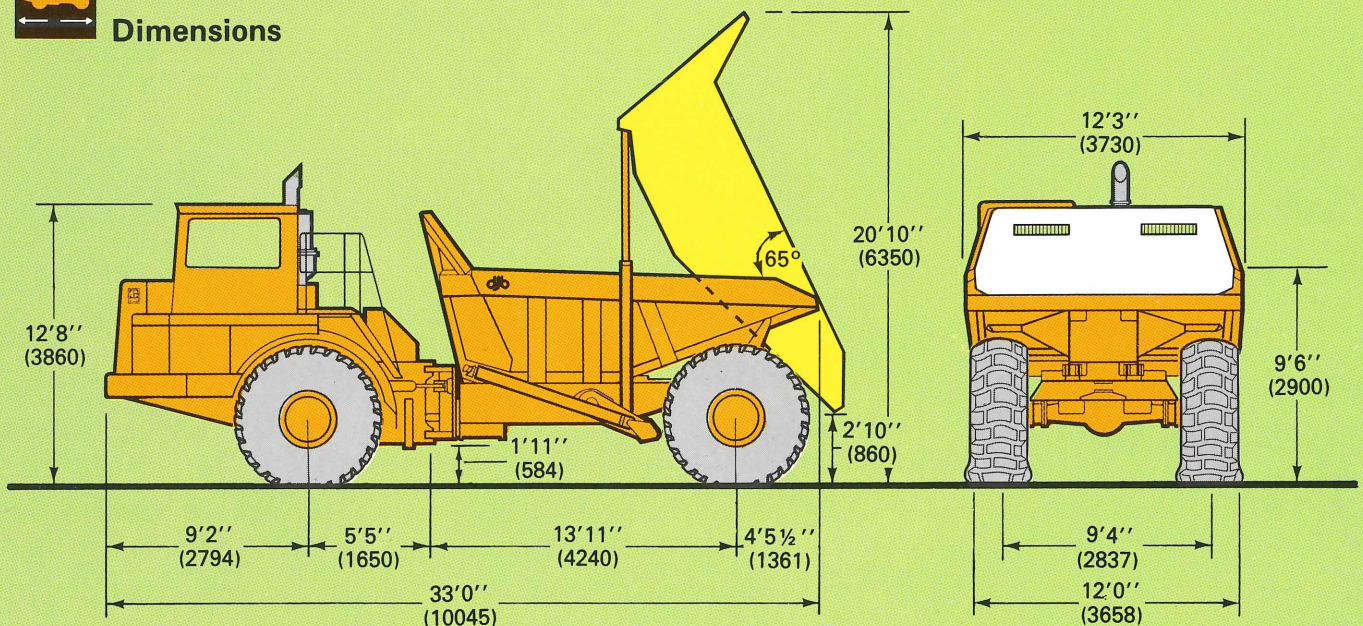


## Service Refill Capacities

	US Gallons	Liters
Fuel Tank	230	871
Cooling System	28	106
Crankcase	12	45
Diff. & Final Drive	9	34
Transmission	27	102
Hydraulic System	128	484



## Dimensions



All dimensions in brackets are in millimeters.





## D44 Standard Equipment

ROPS/FOPS cab with full instrumentation, heater/defroster with circulating fan, two speed ventilating fan, ground steer pump, windshield wiper and washer, mirrors (left and right), 4-way adjustable air-suspended seat, safety belt, sun visor, air horns, tinted safety glass all-round. Two sliding windows.

24-Volt electrical system. Four headlights with dip switch, front light guards. Front side lights. Direction indicator/hazard warning lights. Rear working light, reversing light and back-up alarm, two stop/tail lights and cab interior light.

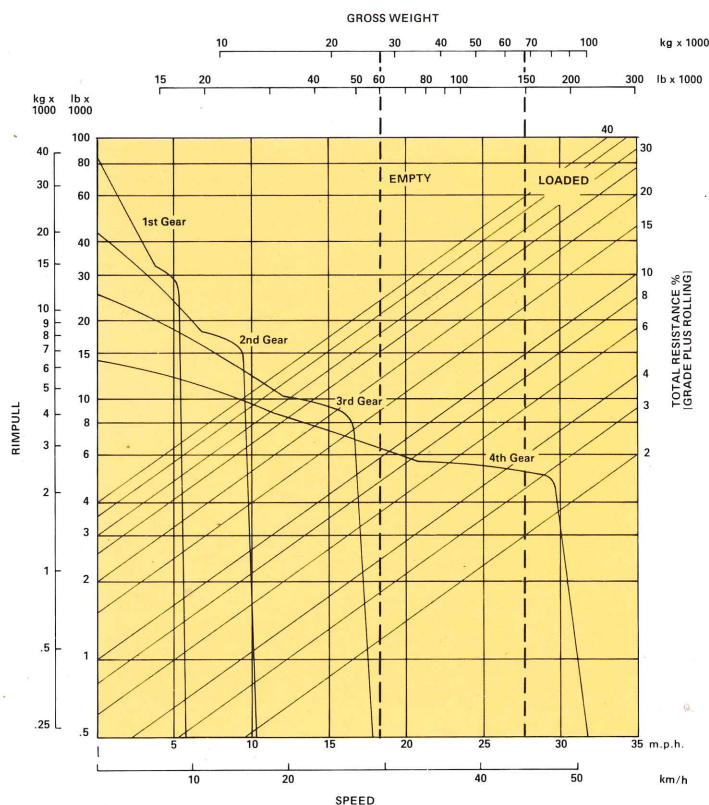
Crankcase, axle and transmission guard, radiator protection grille, battery cover. Lockable tool box. Tow hitches (front and rear). Front tow eyes. Tire inflator and gauge with pressure line. Four 33.25 x 29 Michelin XR type B\*\* radial tires.



## D44 Optional Equipment

33.25 x 29 Michelin XRDN type B\*\* radial tires. Front spillguard extension. High-yield rock wear liner strips. Integral double skin side extensions:- 6" (150mm) or 12" (300mm). Cab air circulating fan and filter (negates FOPS), air conditioning unit (negates FOPS), tachograph. Spectator noise suppression kit. NoSPIN differential in rear axle. Extra front bumper. Crash protection (includes extra front bumper, reinforcement to standard bumper and additional radiator guard). Exhaust scrubbers. Air start (in lieu of standard electric start). External electric start socket. Tool kit for general maintenance. Lockable fuel and hydraulic oil filler caps. Dual steer cab.

## Gradeability/Speed/Rimpull



To determine gradeability performance read from Gross Weight down to % Total Resistance. (Total Resistance equals actual % grade plus 1% for each 20 lb/ton (10 kg/t) of Rolling Resistance).

From this weight-resistance point, read horizontally to the curve with the highest obtainable speed range, then down to Maximum Speed. Usable Rimpull depends upon traction available.

## D44 Derivative Models

**D44 LP** Low Profile Dump Truck; **D44 RT** Rough Terrain Chassis; **D44 DS** Dual Steer Dump Truck; **D44 LM** Light Material Dump Truck.



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