777

Off-Highway Truck

Technical Specifications

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

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777 Off-Highway Truck Specifications

Engine

Engine Model	Cat® C32B	
Engine Speed	1,800 rpm	
Gross Power – SAE J1995	765 kW	1,026 hp
Net Power – SAE J1349/ ISO 9249:1997	711 kW	953 hp
Net Torque @ 1,200 rpm	5130 N·m	3,784 lbf-ft
Net Torque Rise	36%	
Cylinders	12	
Bore	145 mm	5.7 in
Stroke	162 mm	6.4 in
Displacement	32.1 L	1,959 in^3

- Net power available at the flywheel when the engine is equipped with fan, air cleaner, muffler, and alternator with engine speed at 1,800 rpm.
- Power rating applies at 1,800 rpm when tested under the specified condition for the specified standard in effect at the time of manufacture.
- Ratings based on SAE J1349:2011 standard air conditions of 25°C (77°F) and 100 kPa (29.61 Hg) barometer. Power based on fuel having API gravity of 35 at 16°C (60°F) and an LHV of 42 780 kJ/kg (18,390 BTU/lb) when engine used at 30°C (86°F).
- No engine derating required up to 3048 m (10,000 ft) altitude.
- Meets China Nonroad Stage III emission standards equivalent to U.S. EPA Tier 2.

Transmission

Forward 1	10.9 km/h	6.8 mph
Forward 2	14.8 km/h	9.2 mph
Forward 3	20.1 km/h	12.5 mph
Forward 4	27.1 km/h	16.9 mph
Forward 5	36.8 km/h	22.9 mph
Forward 6	49.4 km/h	30.7 mph
Forward 7	67.1 km/h	41.7 mph
Reverse 1	12.1 km/h	7.5 mph

- Maximum travel speeds with standard 27.00R49 (E4) tires.

Final Drive

Differential Ratio	2.74:1
Planetary Ratio	7.00:1
Total Reduction Ratio	19.16:1

Brakes

Brake Surface – Front Dry	2787 cm^2	432 in^2
Brake Surface – Rear	102 116 cm^2	15,828 in^2
Brake Surface – Front Wet (optional)	40 225 cm^2	6,235 in^2
Brake Standard	ISO 3450:2011	

Body Hoist

Body Raise Time – High Idle	15 seconds
Body Lower Time – Float	13 seconds
Body Power Down – High Idle	13 seconds

Capacity – Dual Slope – 100% Fill Factor

Struck	41.9 m^3	54.8 yd^3
Heaped Volume (SAE 2:1)*	60.1 m^3	78.6 yd^3

- Contact your local Cat dealer for body recommendation.

* ISO 6483:1980

Capacity – Flat Floor – 100% Fill Factor

Struck	43.1 m^3	56.4 yd^3
Heaped Volume (SAE 2:1)*	64.1 m^3	83.8 yd^3

- Contact your local Cat dealer for body recommendation.

* ISO 6483:1980

Weight Distribution – Approximate (Dual Slope)

Front Axle – Empty/Loaded	46% / 30%
Rear Axle – Empty/Loaded	54% / 70%

Weight Distribution – Approximate (Flat Floor)

Front Axle – Empty/Loaded	45% / 28%
Rear Axle – Empty/Loaded	55% / 72%

Suspension

Effective Cylinder Stroke – Front	318 mm	12.5 in
Effective Cylinder Stroke – Rear	165 mm	6.5 in
Rear Axle Oscillation	±5.4°	

Sound

Sound Standards	ISO 6396:2008

- The dynamic operator sound pressure level is 80 dB(A) as per ISO 6396:2008 for cab offered by Caterpillar. The cab was properly installed and maintained. The test was conducted with the cab doors and the cab windows closed.

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 2.0 kg (4.4 lbs) of refrigerant, which has a CO_2 equivalent of 2.86 metric tonnes (3.152 tons).

Steering

Steering Standard	ISO 5010:2007	
Steering Angle	30.5°	
Turning Diameter – Front	25.3 m	83 ft
Turning Circle Clearance Diameter	28.4 m	93.2 ft

- Separate hydraulic system prevents cross contamination.

ROPS/FOPS Standard

- Rollover protective structure (ROPS) cab offered by Caterpillar meets ISO 3471:2008 for operator and ISO 13459:2012 for trainer.
- Falling objects protective structure (FOPS) meets ISO 3449:2005 Level II for operator and ISO 13459:2012 Level II FOPS for trainer.

Tires

Standard Tire	27.00R49 (E4)

- Productive capabilities of the 777 truck are such that, under certain job conditions, TKPH (TMPH) capabilities of standard or optional tires could be exceeded and, therefore, limit production.
- Caterpillar recommends the customer evaluate all job conditions and consult the tire manufacturer for proper tire selection.

Service Refill Capacities

Fuel Tank	1140 L	300 gal
Cooling System	212 L	56 gal
Crankcase	115 L	30 gal
Differentials	222 L	59 gal
Final Drives (each)	42 L	11 gal
Steering System (includes tank)	60 L	16 gal
Brake/Hoist System	420 L	110 gal
Torque Converter/ Transmission System	125 L	33 gal
Front wheel (each)	7.5 L	2 gal

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Weight/Payload Calculation

		DUAL SLOPE					
		Without Liner		With Liner		With Tail End Liner	
Machine Weights Based on Configuration							
Base: Floor/Sidewall/Frontwall	mm (in)	20/10/12 (0.79/0.39/0.47)		20/10/12 (0.79/0.39/0.47)		20/10/12 (0.79/0.39/0.47)	
Liner: Floor/Sidewall/Frontwall	mm (in)			16/8/8 (0.63/0.31/0.31)		25 (0.98)	
Body Capacity	m^3 (yd^3)	60.1	78.6	59.5	77.8	59.9	78.3
Target Gross Machine Weight	kg (lb)	163 360	360,148	163 360	360,148	163 360	360,148
Empty Chassis Weight	kg (lb)	48 133	106,115	48 133	106,115	48 133	106,115
Body System Weight	kg (lb)	16 070	35,428	21 665	47,763	17 525	38,636
Empty Machine Weight	kg (lb)	64 203	141,543	69 798	153,878	65 658	144,751
Fuel Tank Size	L (gal)	1140	300	1140	300	1140	300
Fuel Tank – 100% Fill	kg (lb)	946	2,086	946	2,086	946	2,086
Empty Machine Operating Weight	kg (lb)	65 149	143,629	70 744	155,964	66 604	146,837
Target Payload	kg (lb)	98 211	216,519	92 616	204,184	96 756	213,311
	tonnes (tons)	98.2	108.3	92.6	102.1	96.8	106.7
Maximum Payload (110% of Target)*	kg (lb)	108 032	238,171	101 878	224,602	106 432	234,642
	tonnes (tons)	108.0	119.1	101.9	112.3	106.4	117.3
Not to Exceed Payload (120% of Target)*	kg (lb)	117 853	259,823	111 139	245,021	116 107	255,973
	tonnes (tons)	117.9	129.9	111.1	122.5	116.1	128.0

*Refer to Caterpillar 10/10/20 Payload Policy.

Payload Calculation: Definitions

Target Payload = Target Gross Machine Weight less Empty Machine Operating Weight
Empty Machine Operating Weight = Empty Chassis Weight + Body System Weight + Fuel
Maximum Payload = Target Payload × 1.10 (110%)

Empty operating weights may vary based on the machine configuration.

Weight/Payload Calculation

		FLAT FLOOR BODY			
		Without Liner		With Liner	
Machine Weights Based on Configuration					
Base: Floor/Sidewall/Frontwall	mm (in)	20/10/12 (0.79/0.39/0.47)		20/10/12 (0.79/0.39/0.47)	
Liner: Floor/Sidewall/Frontwall	mm (in)			16/8/8 (0.63/0.31/0.31)	
Body Capacity	m^3 (yd^3)	64.1	83.8	63.5	83.1
Target Gross Machine Weight	kg (lb)	163 360	360,147	163 360	360,147
Empty Chassis Weight	kg (lb)	48 133	106,115	48 133	106,115
Body System Weight	kg (lb)	15 907	35,069	20 586	45,384
Empty Machine Weight	kg (lb)	64 040	141,184	68 719	151,499
Fuel Tank Size	L (gal)	1140	300	1140	300
Fuel Tank – 100% Fill	kg (lb)	946	2,086	946	2,086
Empty Machine Operating Weight	kg (lb)	64 986	143,270	69 665	153,585
Target Payload	kg (lb)	98 374	216,877	93 695	206,562
	tonnes (tons)	98.4	108.4	93.7	103.2
Maximum Payload (110% of Target)*	kg (lb)	108 211	238,565	103 065	227,218
	tonnes (tons)	108.2	119.2	103.1	113.6
Not to Exceed Payload (120% of Target)*	kg (lb)	118 049	260,252	112 434	247,874
	tonnes (tons)	118.0	130.1	112.4	123.9

*Refer to Caterpillar 10/10/20 Payload Policy.

Payload Calculation: Definitions

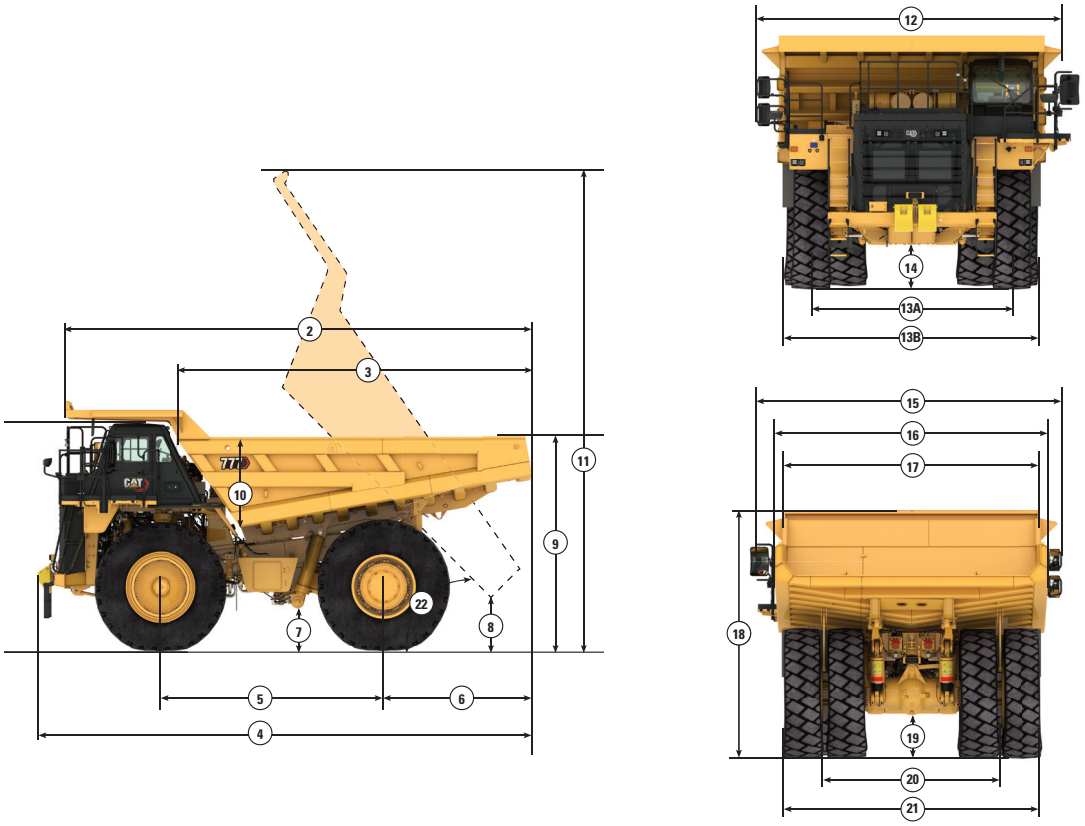
Target Payload = Target Gross Machine Weight less Empty Machine Operating Weight
Empty Machine Operating Weight = Empty Chassis Weight + Body System Weight + Fuel
Maximum Payload = Target Payload × 1.10 (110%)

Empty operating weights may vary based on the machine configuration.

777 Off-Highway Truck Specifications

Dimensions

All dimensions are approximate.

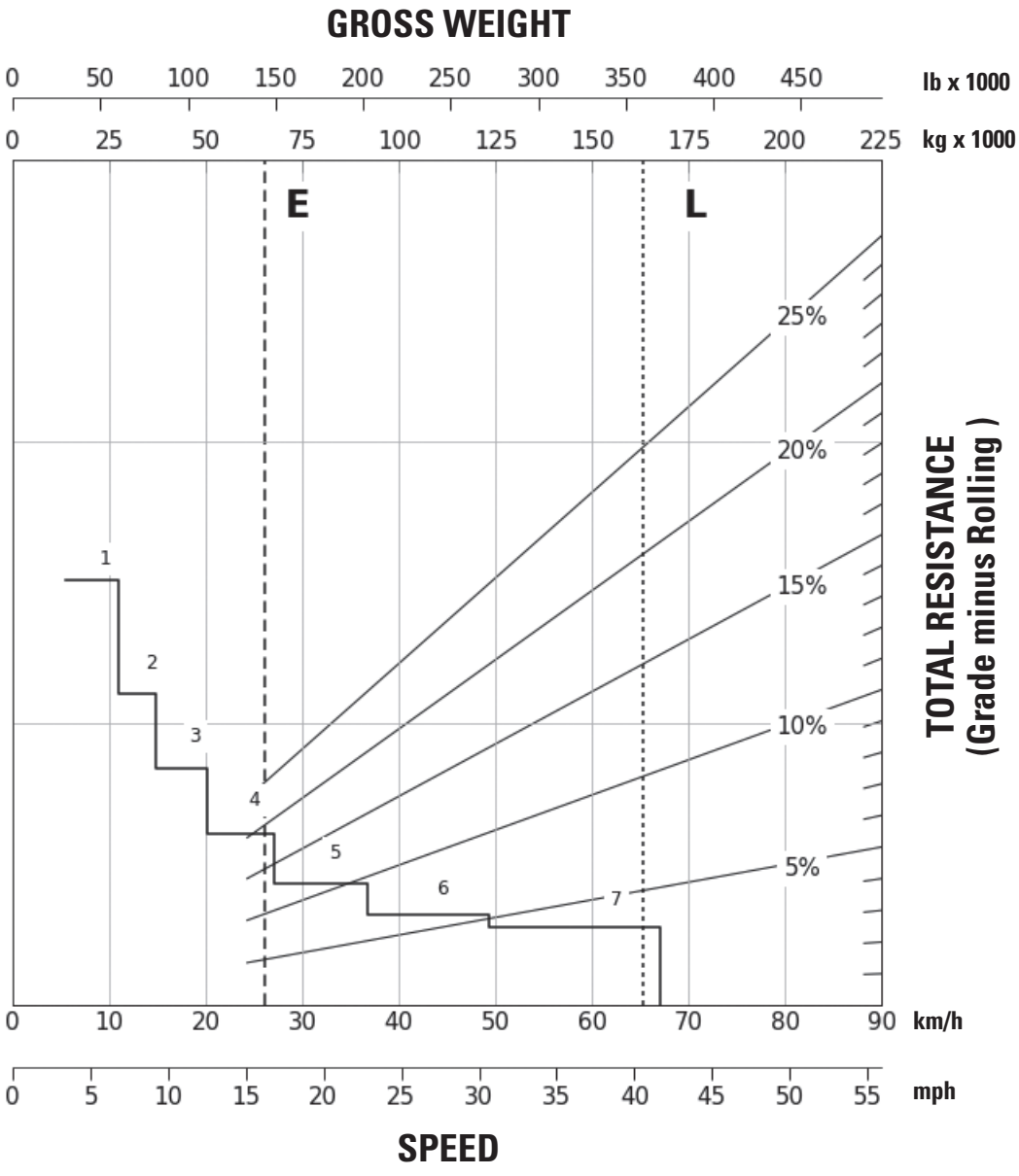


		Dual Slope Body		Flat Floor Body	
		mm	ft	mm	ft
1	Height to Top of ROPS – Loaded	4730	15.52	4730	15.52
2	Overall Body Length	9555	31.35	10 070	33.04
3	Inside Body Length	6920	22.70	7186	23.58
4	Overall Length	10 004	32.82	10 227	33.55
5	Wheel Base	4570	14.99	4570	14.99
6	Rear Axle to Tail	3045	9.99	3265	10.71
7	Ground Clearance	896	2.94	896	2.94
8	Dump Clearance	890	2.92	818	2.68
9	Loading Height – Empty	4380	14.37	4429	14.53
10	Inside Body Depth – Maximum	1895	6.22	1777	5.83
11	Overall Height – Body Raised	9953	32.65	10 071	33.04
12	Operating Width Extended Catwalk	6545	21.47	6545	21.47
13A	Center Line Front Tire Width	4163	13.66	4163	13.66
13B	Overall Front Tire Width	4961	16.28	4961	16.28
14	Engine Guard Clearance	864	2.83	864	2.83
15	Overall Canopy Width	6200	20.34	6200	20.34
16	Outside Body Width	5524	18.12	5689	18.66
17	Inside Body Width	5197	17.05	5450	17.88
18	Front Canopy Height – Loaded	5177	16.98	5370	17.62
19	Rear Axle Clearance	902	2.96	902	2.96
20	Center Line Rear Dual Tire Width	3576	11.73	3576	11.73
21	Overall Tire Width	5262	17.26	5262	17.26
22	Body Dump Angle	49.4°		49.4°	

777 Retarding Performance

To determine retarding performance: Add lengths of all downhill segments and, using this total, refer to proper retarding chart. Read from gross weight down to the percent effective grade. Effective grade equals actual % grade minus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-effective grade point, read horizontally to the curve with the highest obtainable gear, then down to maximum descent speed brakes can properly handle without exceeding cooling capacity. The following charts are based on these conditions: 32°C (90°F) ambient temperature, at sea level, with 27.00R49 (E4) tires.

NOTE: Select the proper gear to maintain engine rpm at the highest possible level, without overspeeding the engine. If cooling oil overheats, reduce ground speed to allow transmission to shift to the next lower speed range.



CONTINUOUS GRADE LENGTH

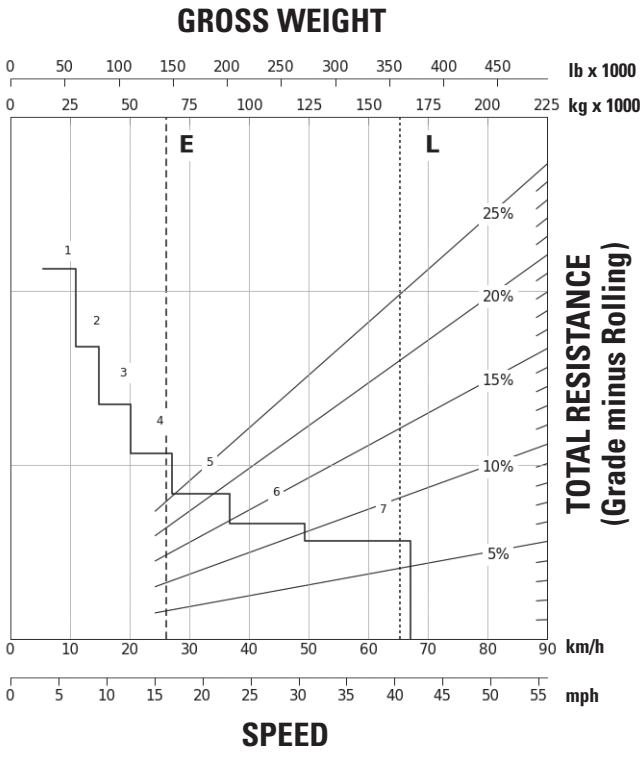
1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear

E — Empty 65 149 kg (143,629 lb)
L — Target GMW 163 360 kg (360,147 lb)

777 Retarding – 450 m (1,500 ft)

E — Empty 65 149 kg (143,629 lb)
L — Target GMW 163 360 kg (360,147 lb)

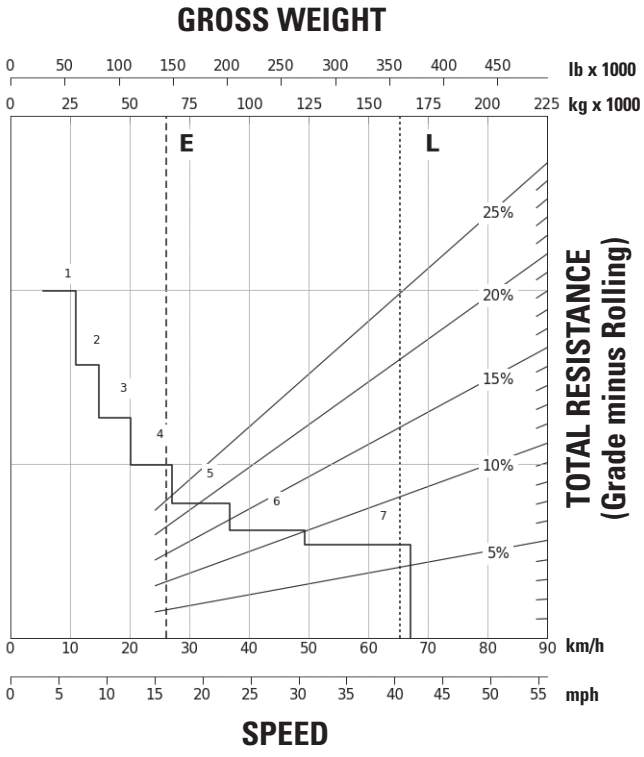
1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear



777 Retarding – 600 m (2,000 ft)

E — Empty 65 149 kg (143,629 lb)
L — Target GMW 163 360 kg (360,147 lb)

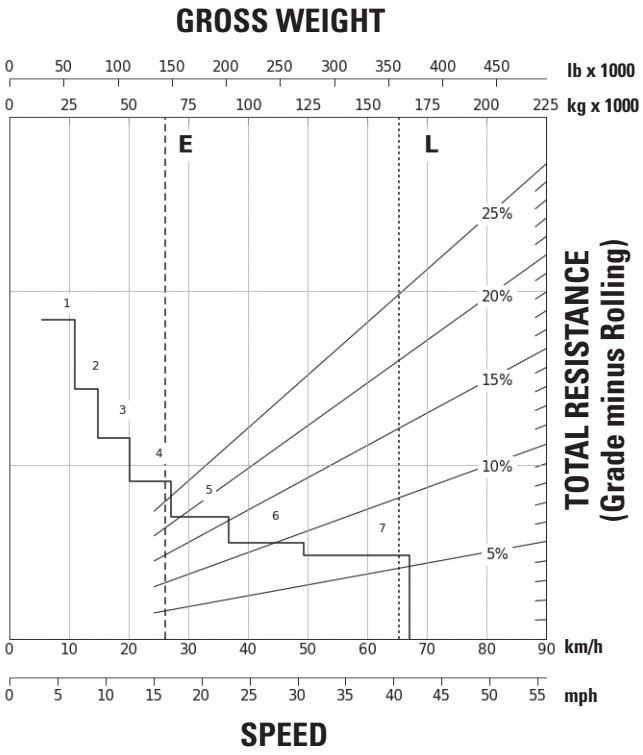
1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear



777 Retarding – 900 m (3,000 ft)

E — Empty 65 149 kg (143,629 lb)
L — Target GMW 163 360 kg (360,147 lb)

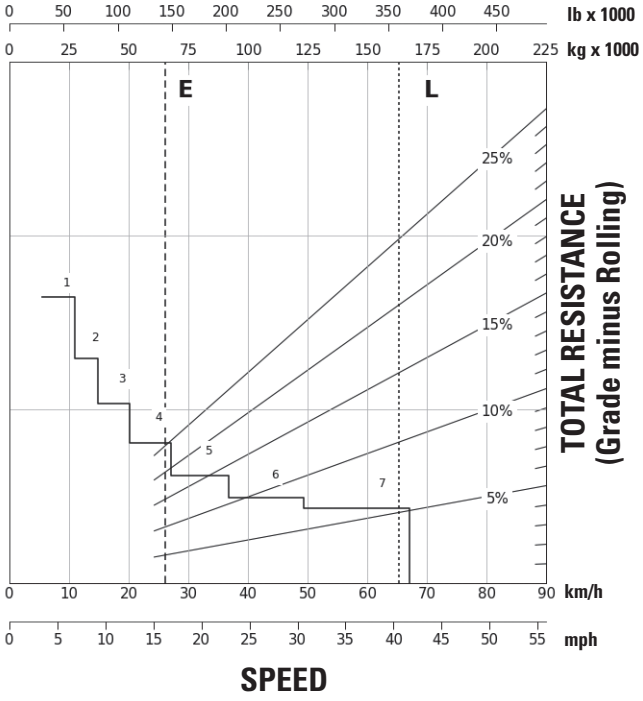
1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear



777 Retarding – 1500 m (5,000 ft)

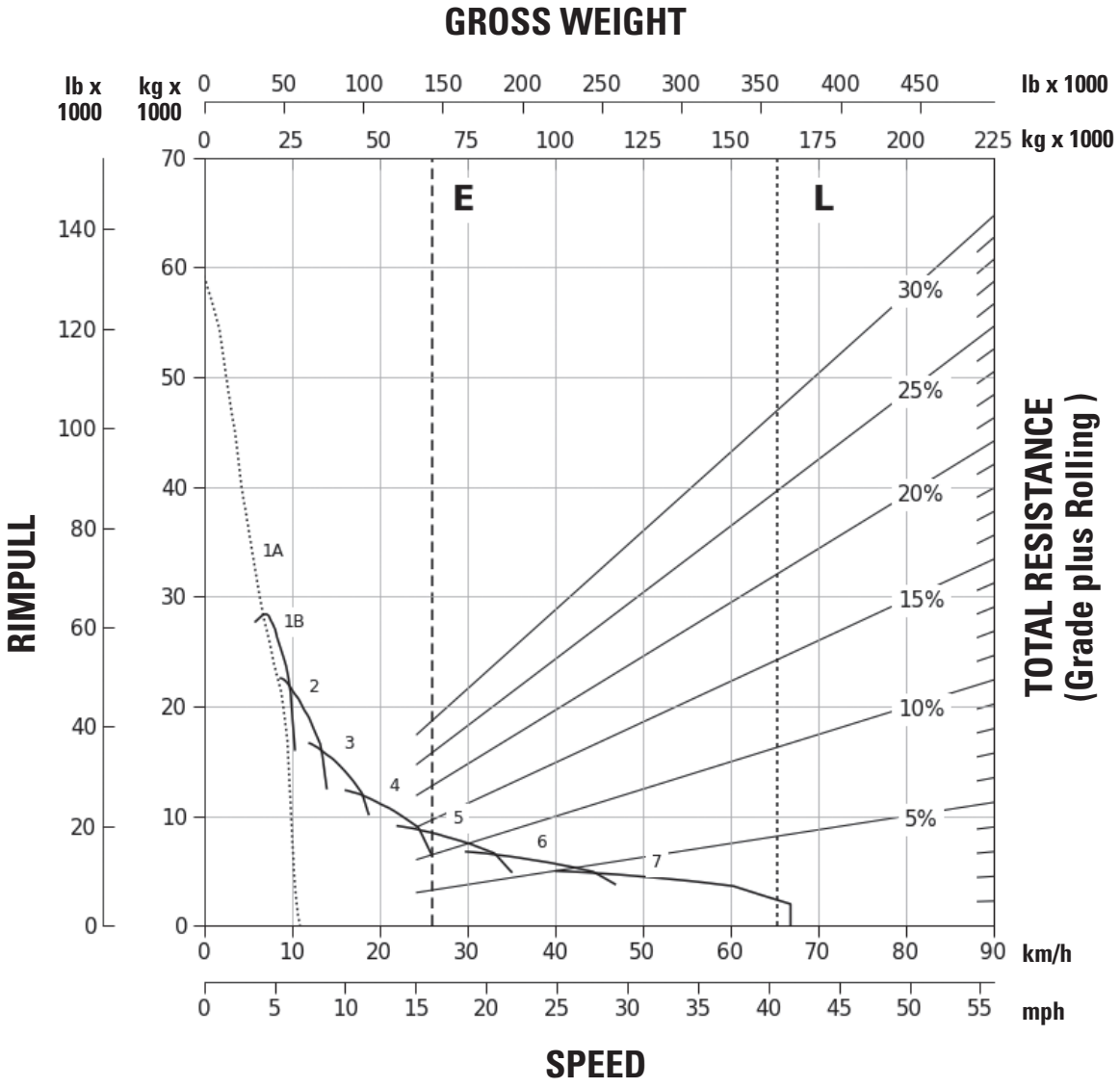
E — Empty 65 149 kg (143,629 lb)
L — Target GMW 163 360 kg (360,147 lb)

1 — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear



777 Gradeability/Speed/Rimpull

To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.



1A — 1st Gear (Torque Converter)
1B — 1st Gear
2 — 2nd Gear
3 — 3rd Gear
4 — 4th Gear
5 — 5th Gear
6 — 6th Gear
7 — 7th Gear

E — Empty 65 149 kg (143,629 lb)
L — Target GMW 163 360 kg (360,147 lb)

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat dealer for details.

	Standard	Optional
POWER TRAIN		
Auto electric fuel priming pump	✓	
Biodiesel compatibility, B30	✓	
Brake release motor (towing)	✓	
Braking system: Hydraulically actuated brakes with oil cooled multiple disc (rear) and caliper disc (front), hydraulically applied and spring released	✓	
Cat® C32B Engine	✓	
Cat transmission: 7F/1R speed planetary powershift, ECPC control, APECS software, programmable top gear/speed selection, body upshift inhibitor, directional shift management, neutral start switch, neutral coast inhibitor, reverse shift inhibitor, body-up reverse neutralizer, 2nd gear drive, torque shift management, and part throttle shifting	✓	
Economy mode/adaptive economy mode	✓	
Emergency/parking brake, spring applied and hydraulically released	✓	
Engine overspeed protection	✓	
Retarder control – manual	✓	
Water/fuel separator	✓	
Front oil cooled disc brake		✓
Traction control system		✓
Retarder control – automatic		✓
OPERATOR ENVIRONMENT		
Advisor, touchscreen display	✓	
Ash tray	✓	
Coat hook	✓	
Combined gear shift/hoist/park brake lever	✓	
Cup/bottle holder	✓	
Diagnostic connection port	✓	
Horn electric	✓	
HVAC	✓	
Liquid crystal display (LCD), cluster gauge: brake oil temperature, transmission oil temperature, engine coolant temperature, hour meter, tachometer, fuel level gauge, speedometer	✓	
Left side power window	✓	
Mirrors, left and right	✓	
Radio ready	✓	
Right side access door	✓	
ROPS/FOPS cabin	✓	
Seat, trainer with lap belt	✓	
Seat: operator – fully adjustable, air suspension, 4-point seat belt with reminder	✓	
Storage compartment	✓	
Sun visor	✓	
Switches: throttle lock, wipers/washers, hazard lights, headlights, secondary steering, back light adjust, AC on/off, spare, economy mode, egress lamp, Product Link™ disconnect	✓	
Tilt and telescopic steering wheel	✓	
Blind spot mirror		✓
Heated mirror		✓

	Standard	Optional
ELECTRICAL SYSTEM		
Alternator, 150 amp	✓	
Auxiliary jump start receptacle	✓	
Backup alarm	✓	
Backup light, LED	✓	
Directional signal/hazard warning, LED lights	✓	
Electrical system, 10 amp, 24V to 12V converter	✓	
Four batteries, 12V, 190 amp-hour	✓	
Ground-level battery disconnect switch	✓	
Ground-level engine shutdown switch	✓	
Headlights with dimmer, LED	✓	
Operator courtesy lights, LED	✓	
Stop/taillights, LED	✓	
Product Link	✓	
Switch, engine lockout	✓	
Switch, machine lockout	✓	
Two starter motors	✓	
Working lights, LED	✓	
Audio visual backup alarm		✓
Camera system		✓
Cat Detect system		✓
Fog lamp		✓
Truck production management system (TPMS)		✓
Vital Information Management System (VIMS™)		✓
OTHER FEATURES		
Body down indicator	✓	
Body mounting group	✓	
Body safety pin	✓	
Driveline guard	✓	
Engine crankcase guard	✓	
Exhaust body heat system	✓	
Extended life coolant to -35°C (-30°F)	✓	
Ground-level grease fittings	✓	
Hydropneumatic suspension	✓	
Load counter	✓	
Rock ejectors	✓	
Tie down eyes/tow down hooks	✓	
Vandalism protection lock	✓	
Automatic lubrication system (27 kg/40 kg)		✓
Body liner		✓
Body sideboards		✓
Cluster/grouped lubrication system		✓
Cold weather package		✓
Exhaust muffler		✓
Fast fluid fill system		✓
Fast fuel fill system		✓
Fire extinguisher		✓
Fuel tank 1325 L		✓
Hoist quick disconnect		✓
Oil change system – high speed		✓
Spare rim		✓
Wheel chocks		✓

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com.**

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

AEXQ2677-01 (8-2022)
Build Number: 05B
(Afr-ME, Asia Pacific, SE Asia)