777G

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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777G Off-Highway Truck Specifications

Engine

Engine Model	Cat C32	
Rated Engine Speed	1,800 rpm	
Gross Power – SAE J1995:2014	765 kW	1,025 hp
Net Power – SAE J1349:2011/ ISO 9249:2007	711 kW	953 hp
Engine Power – ISO 14396:2002	752 kW	1,008 hp
Peak Torque Speed @ 1,200 rpm	5286 N·m	3,899 lbf-ft
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.
- Ratings based on SAE J1995 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 2286 m (7,500 ft).
- Meets U.S. EPA Tier 4 Final and EU Stage V emission standards.

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	27.2 km/h	16.9 mph
Forward 5	36.9 km/h	22.9 mph
Forward 6	49.4 km/h	30.7 mph
Forward 7	67.1 km/h	41.7 mph
Reverse	12.4 km/h	7.7 mph

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

Final Drives

Differential Ratio	2.736:1
Planetary Ratio	7.0:1
Total Reduction Ratio	19.1576:1

Brakes

Brake Surface – Front	40 846 cm^2	6,331 in^2
Brake Surface – Rear	102 116 cm^2	15,828 in^2
Brake Standards	ISO 3450:2011	

Body Hoists

Pump Flow – High Idle	458 L/min	120.9 gal/min
Relief Valve Setting – Raise	18 950 kPa	2,750 psi
Relief Valve Setting – Lower	3450 kPa	500 psi
Body Raise Time – High Idle	15.0 seconds	
Body Lower Time – Float	13.0 seconds	
Body Lower Time – High Idle	13.0 seconds	

Capacity – Dual Slope – 100% Fill Factor

Struck	41.9 m^3	54.8 yd^3
Heaped (SAE 2:1)*	60.2 m^3	78.8 yd^3

- Contact your local Cat dealer for body recommendation.

* ISO 6483:1980.

Capacity – X Body – 100% Fill Factor

Struck	43.1 m^3	56.3 yd^3
Heaped (SAE 2:1)*	64.1 m^3	83.8 yd^3

- Contact your local Cat dealer for body recommendation.

* ISO 6483:1980.

Capacity – Coal Bodies – 100% Fill Factor

SAE 2:1 for use with material densities of 1160 kg/m^3 (1,950 lb/yd^3)	89 m^3	116 yd^3
SAE 2:1 for use with material densities of 1040-1160 kg/m^3 (1,750-1,950 lb/yd^3)	106 m^3	139 yd^3
SAE 2:1 for use with material densities of 950-1040 kg/m^3 (1,600-1,750 lb/yd^3)	110 m^3	144 yd^3
SAE 2:1 for use with material densities less than 950 kg/m^3 (1,600 lb/yd^3)	126 m^3	165 yd^3

Weight Distributions – Approximate

Front Axle – Empty	46%
Front Axle – Loaded	33%
Rear Axle – Empty	54%
Rear Axle – Loaded	67%

Suspension

Empty Loaded Cylinder Stroke Front	74.7 mm	2.9 in
Empty Loaded Cylinder Stroke Rear	66.0 mm	2.5 in
Rear Axle Oscillation	5.4°	

Sound

Sound Standards

- The operator Equivalent Sound Pressure Level (Leq) is 73 dB(A) when SAE J1166 FEB2008 is used to measure the value for an enclosed cab. This is a work cycle sound exposure level. The cab was properly installed and maintained. The test was conducted with the cab doors and the cab windows closed.
- The exterior sound pressure level for the standard machine measured at a distance of 15 m (49 ft) according to the test procedures specified in SAE J88:2008, mid-gear moving operation is 83 dB(A).
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in a noisy environment.

Steering

Steering Standards	ISO 5010:2007	
Steer Angle	30.5°	
Turning Diameter – Front	25.3 mm	83 ft
Turning Circle Clearance Diameter	28.4 m	93 ft

ROPS

ROPS/FOPS Standards

- Rollover Protective Structure (ROPS) for 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 FOPS criteria and ISO 13459:2012 Level II FOPS for trainer.

Tires

Standard Tire	27.00R49 (E4)

- Productive capabilities of the 777G 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	1136.0 L 1325.0 L	300.0 gal 350.0 gal
Cooling System	240.0 L	63.4 gal
Crankcase	109.0 L	28.7 gal
Differentials	227.0 L	59.9 gal
Final Drives (each)	76.0 L	20.0 gal
Steering System (includes tank)	53.6 L	14.1 gal
Brake Hoist System (includes tank)	444.0 L	117.0 gal
Brake/Hoist System	322.0 L	85.0 gal
Torque Converter/ Transmission System	138.5 L	36.5 gal

777G Off-Highway Truck Specifications

Weight/Payload Calculation

		X Body (Flat Floor)							
Machine Weights Based on Configuration		**Without Liner**		**With Liner**		**With HD Liner**		**With Rubber Liner**	
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)**		**20/10/12 (0.79/0.39/0.47)**	
Liner: Floor/Sidewall/Frontwall	mm (in)			**12/10/16 (0.47/0.39/0.63)**		**16/10/10 (0.63/0.39/0.39)**		**102/10/10 (4.02/0.39/0.39)**	
Body Capacity	m^3 (yd^3)	64.1	(83.8)	63.5	(83.1)	63.6	(82.8)	60.9	(79.7)
Target Gross Machine Weight	kg (lb)	164 654	(363,000)	164 654	(363,000)	164 654	(363,000)	164 654	(363,000)
Empty Chassis Weight	kg (lb)	51 286	(113,085)	51 286	(113,085)	51 286	(113,085)	51 286	(113,085)
Body System Weight	kg (lb)	15 851	(34,945)	20 676	(45,583)	22 249	(49,501)	23 042	(50,800)
Empty Machine Weight	kg (lb)	67 137	(148,030)	71 962	(158,668)	73 535	(162,586)	74 328	(163,885)
Fuel Tank Size	L (gal)	1136	(300)	1136	(300)	1136	(300)	1136	(300)
Fuel Tank – 100% Fill	kg (lb)	955	(2,106)	955	(2,106)	955	(2,106)	955	(2,106)
Empty Machine Operating Weight	kg (lb)	68 092	(150,136)	72 917	(160,774)	74 490	(164,692)	75 283	(165,991)
Payload									
Target Payload (100%)*	kg (lb)	96 562	(212,864)	91 737	(202,226)	90 164	(198,308)	89 371	(197,009)
	tonnes (tons)	96.6	(106.4)	91.7	(101.1)	90.2	(99.2)	89.4	(98.5)
Maximum Payload (110% of Target)*	kg (lb)	106 218	(234,150)	100 911	(222,449)	99 180	(218,139)	98 308	(216,710)
	tonnes (tons)	106.2	(117.1)	100.9	(111.2)	99.2	(109.1)	98.3	(108.4)
Not to Exceed Payload (120% of Target)*	kg (lb)	115 874	(255,437)	110 084	(242,671)	108 197	(237,970)	107 245	(236,411)
	tonnes (tons)	115.9	(127.7)	110.1	(121.3)	108.2	(119.0)	107.2	(118.2)

*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%)

Weight/Payload Calculation

		Dual Slope					
Machine Weights Based on Configuration		**Without Liner**		**With Liner**		**With Rubber Liner**	
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)			**12/10/12 (0.47/0.39/0.47)**		**102/10/10 (4.02/0.39/0.39)**	
Body Capacity	m^3 (yd^3)	60.1	(78.6)	59.5	(77.8)	57	(74.6)
Target Gross Machine Weight	kg (lb)	164 654	(363,000)	164 654	(363,000)	164 654	(363,000)
Empty Chassis Weight	kg (lb)	51 286	(113,085)	51 286	(113,085)	51 286	(113,085)
Body System Weight	kg (lb)	16 075	(32,954)	21 770	(48,003)	23 017	(50,752)
Empty Machine Weight	kg (lb)	67 361	(146,039)	73 056	(161,088)	74 303	(163,837)
Fuel Tank Size	L (gal)	1136	(300)	1136	(300)	1136	(300)
Fuel Tank – 100% Fill	kg (lb)	955	(2,106)	955	(2,106)	955	(2,106)
Empty Machine Operating Weight	kg (lb)	68 316	(148,145)	74 011	(163,194)	75 258	(165,943)
Payload							
Target Payload (100%)*	kg (lb)	96 338	(214,855)	90 643	(199,806)	89 396	(197,057)
	tonnes (tons)	96.3	(107.4)	90.6	(99.9)	89.4	(98.5)
Maximum Payload (110% of Target)*	kg (lb)	105 972	(236,341)	99 707	(219,787)	98 336	(216,763)
	tonnes (tons)	106.0	(118.2)	99.7	(109.9)	98.3	(108.4)
Not to Exceed Payload (120% of Target)*	kg (lb)	115 606	(257,826)	108 772	(239,767)	107 275	(236,468)
	tonnes (tons)	115.6	(128.9)	108.8	(119.9)	107.3	(118.2)

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

Sideboards (optional)							
Height		**Volume Add**		**Weight**		**Maximum (110%) Material Density****	
mm	(in)	m^3	(yd^3)	kg	(lb)	kg	(lb)
152	(6)	4.0	(5.3)	976	(1,174)	1569	(2,656)
305	(12)	7.9	(10.3)	1513	(1,819)	1469	(2,497)
457	(18)	11.5	(15.1)	2003	(2,408)	1387	(2,361)
610	(24)	14.8	(19.3)	2568	(3,088)	1317	(2,251)
175	(6.9) (X body only)	5.1	(6.7)	852	(1,024)	1472	(2,490)

**All sideboards based on DS lined body. X body sideboard based on X body lined.

Empty Chassis Weight is figured without fuel.

Payload Calculation: Definitions

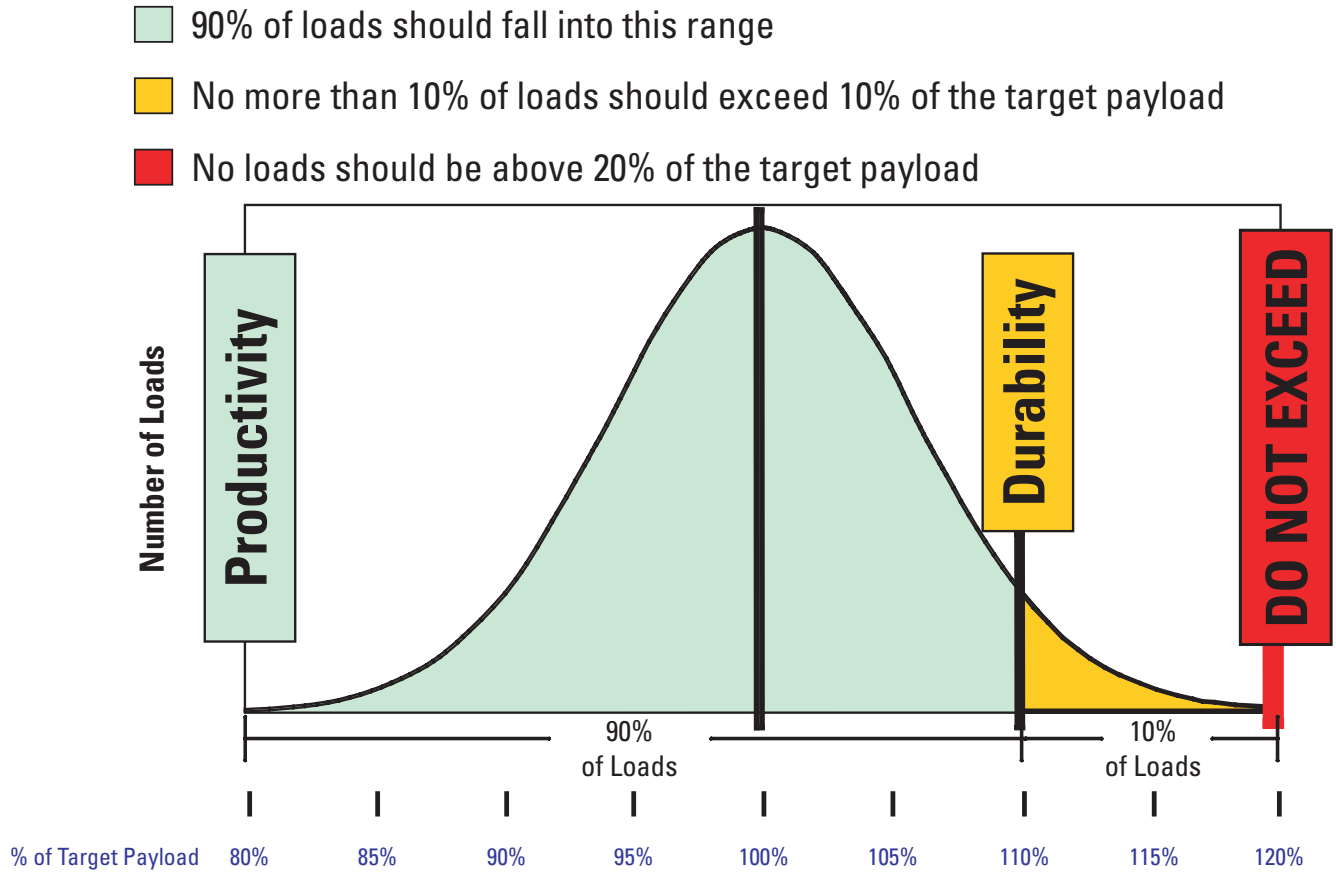
Target Payload = Target Gross Machine Weight less Empty Machine Operating Weight

Empty Machine Operating Weight = Empty Chassis Weight + Body System Weight + Fuel

Maximum Payload = Target Payload × 1.10 (110%)

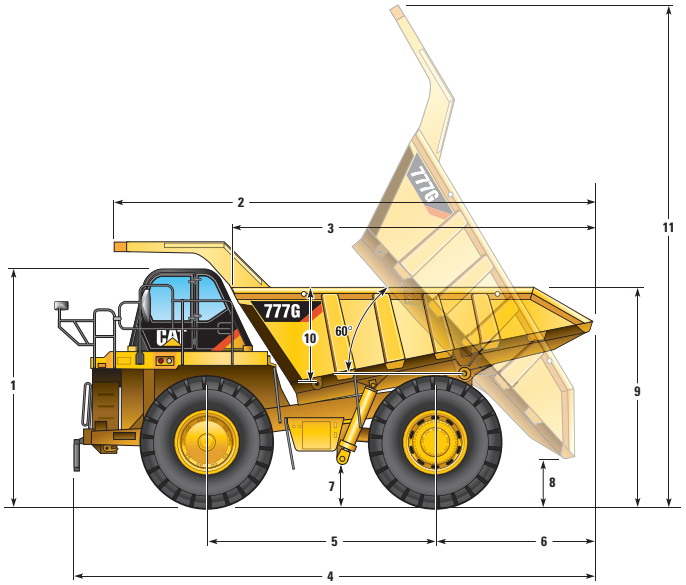
10/10/20 Payload Management Policy for Optimal Machine Life

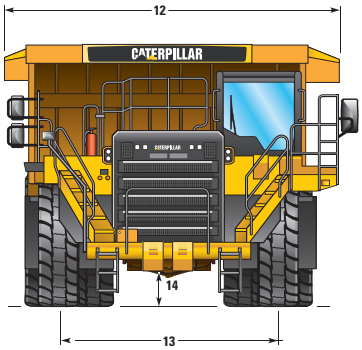
The ideal hauling strategy that maximizes machine and machine component life is to *keep the* **mean** *of all payloads* **at or below the machine's rated target payload**.

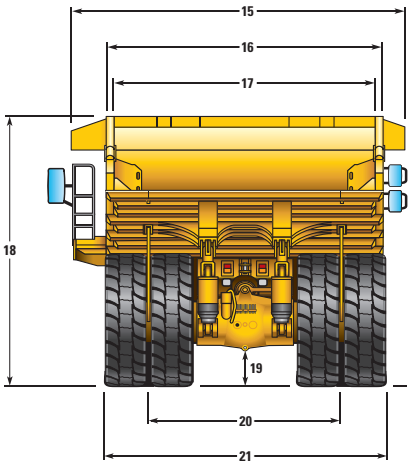


Dimensions

All dimensions are approximate.







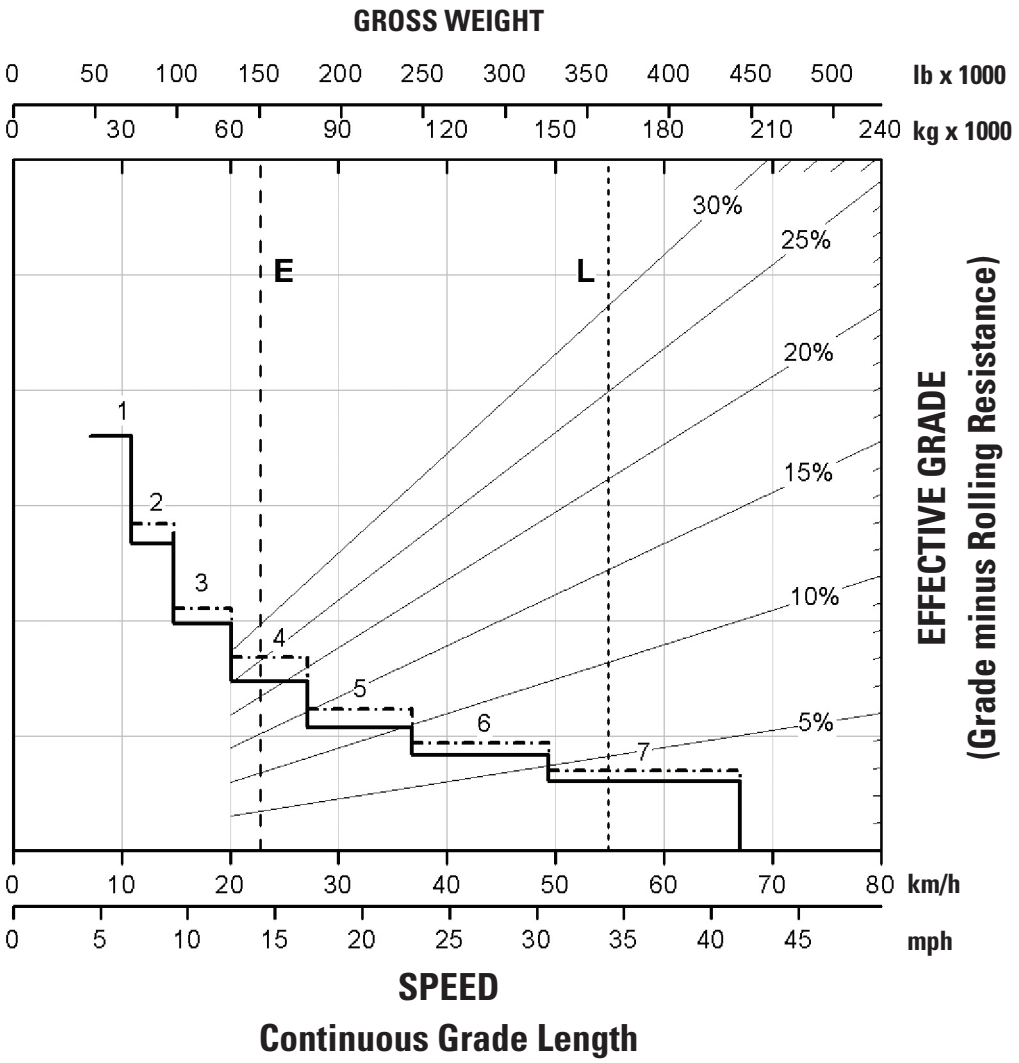
		Dual Slope		X Body		Coal Body 1		Coal Body 2	
1	Height to Top of ROPS	4730 mm	15.50 ft	4730 mm	15.50 ft	4730 mm	15.50 ft	4730 mm	15.50 ft
2	Overall Body Length	9830 mm	32.20 ft	10 070 mm	33.04 ft	10 274 mm	33.71 ft	10 445 mm	34.27 ft
3	Inside Body Length	6580 mm	21.50 ft	7037 mm	23.09 ft	7562 mm	24.81 ft	7734 mm	25.37 ft
4	Overall Length	10 535 mm	34.50 ft	10 758 mm	35.30 ft	10 968 mm	35.98 ft	11 140 mm	36.55 ft
5	Wheelbase	4560 mm	14.96 ft	4560 mm	14.96 ft	4560 mm	14.96 ft	4560 mm	14.96 ft
6	Rear Axle to Tail	3062 mm	10.00 ft	3263 mm	10.71 ft	3473 mm	11.39 ft	3644 mm	11.96 ft
7	Ground Clearance	896 mm	2.94 ft	896 mm	2.94 ft	896 mm	2.94 ft	896 mm	2.94 ft
8	Dump Clearance	965 mm	3.10 ft	893 mm	2.93 ft	935 mm	3.07 ft	821 mm	2.69 ft
9	Loading Height – Empty	4380 mm	14.30 ft	4429 mm	14.53 ft	4851 mm	15.92 ft	5321 mm	17.46 ft
10	Inside Body Depth – Maximum	1895 mm	6.20 ft	1777 mm	5.83 ft	2223 mm	7.29 ft	2693 mm	8.84 ft
11	Overall Height – Body Raised	9953 mm	32.60 ft	10 071 mm	33.04 ft	10 319 mm	33.85 ft	10 319 mm	33.85 ft
12	Operating Width	6687 mm	21.94 ft	6687 mm	21.94 ft	6706 mm	22.00 ft	6706 mm	22.00 ft
13	Front Tire Width	4170 mm	13.68 ft	4170 mm	13.68 ft	4170 mm	13.68 ft	4170 mm	13.68 ft
14	Engine Guard Clearance	864 mm	2.83 ft	864 mm	2.83 ft	864 mm	2.83 ft	864 mm	2.83 ft
15	Overall Canopy Width	6200 mm	20.34 ft	6200 mm	20.34 ft	6404 mm	21.01 ft	6404 mm	21.01 ft
16	Outside Body Width	5524 mm	18.10 ft	5682 mm	18.64 ft	6365 mm	20.88 ft	6368 mm	20.89 ft
17	Inside Body Width	5200 mm	17.00 ft	5450 mm	17.88 ft	6150 mm	20.18 ft	6150 mm	20.18 ft
18	Front Canopy Height	5200 mm	17.00 ft	5370 mm	17.62 ft	5840 mm	19.16 ft	5840 mm	19.16 ft
19	Rear Axle Clearance	902 mm	2.96 ft	902 mm	2.96 ft	902 mm	2.96 ft	902 mm	2.96 ft
20	Rear Dual Tire Width	3576 mm	11.73 ft	3576 mm	11.73 ft	3576 mm	11.73 ft	3576 mm	11.73 ft
21	Overall Tire Width	5223 mm	17.14 ft	5223 mm	17.14 ft	5223 mm	17.14 ft	5223 mm	17.14 ft

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.

777G* Brake Performance
• Continuous Grade Retarding



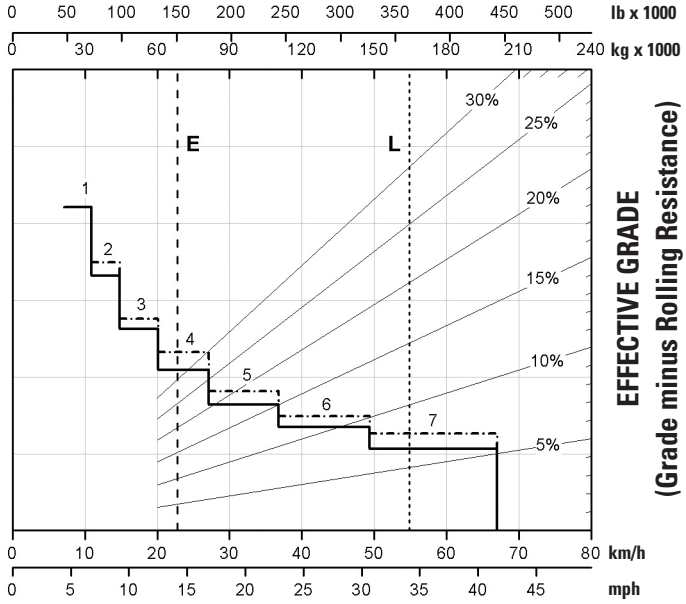
Continuous Grade Length

E — Empty 68 315 kg (150,609 lb)
L — Target GMW 164 654 kg (363,000 lb)
---------- With ARC Only
–·–·– ARC and Engine Brake

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

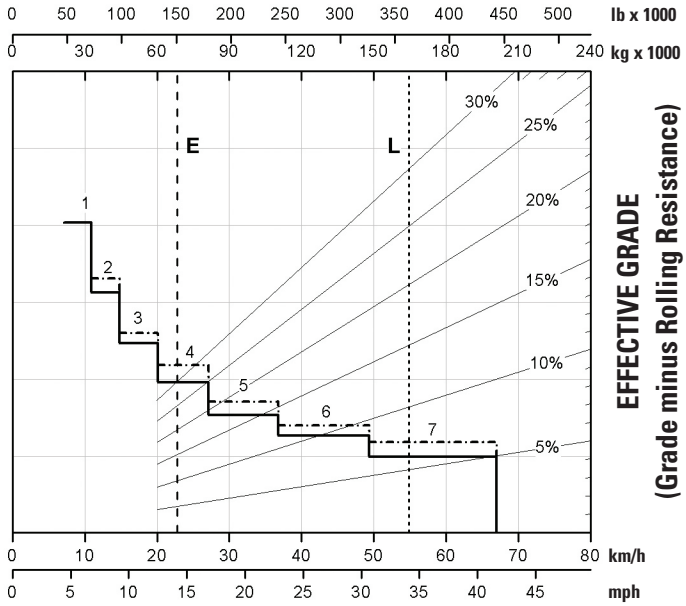
Retarding Performance

777G* Brake Performance
• 450 m (1,500 ft) • 600 m (2,000 ft)
GROSS WEIGHT



Grade Distance – 450 m (1,500 ft)

GROSS WEIGHT



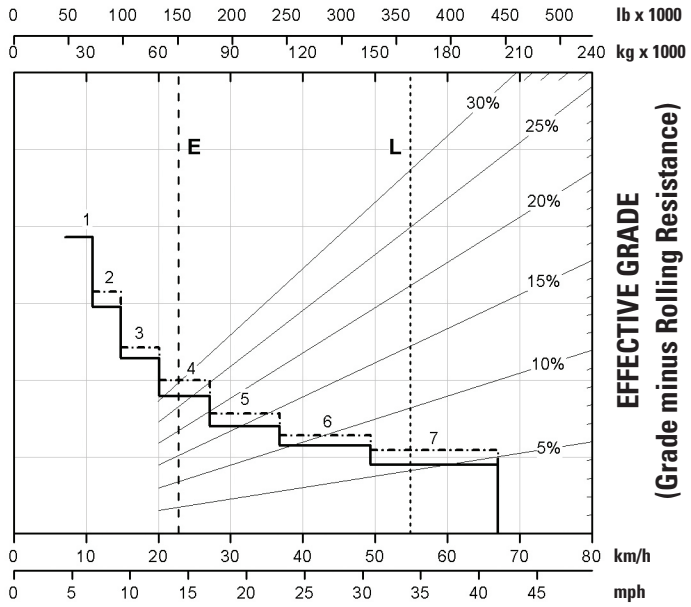
Grade Distance – 600 m (2,000 ft)

E — Empty 67 923 kg (149,744 lb)
L — Target GMW 164 654 kg (363,000 lb)
---------- With ARC Only
–·–·– ARC and Engine Brake

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

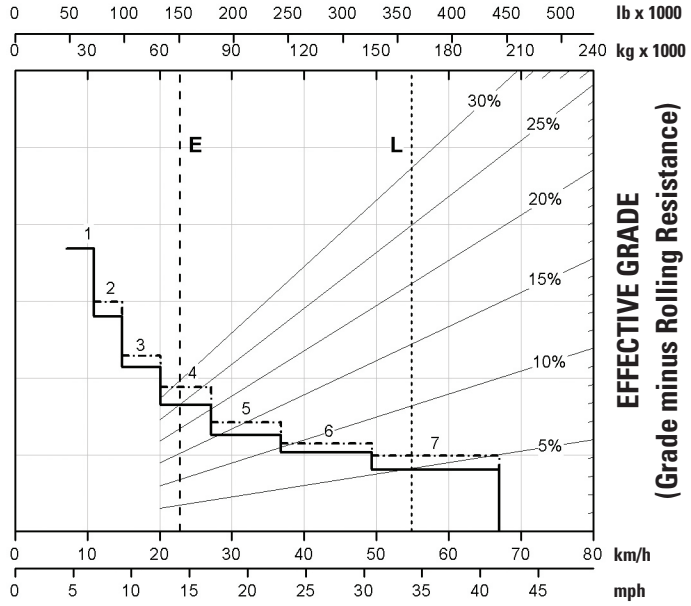
Retarding Performance

777G* Brake Performance
• 900 m (3,000 ft) • 1500 m (5,000 ft)
GROSS WEIGHT



Grade Distance – 900 m (3,000 ft)

GROSS WEIGHT



Grade Distance – 1500 m (5,000 ft)

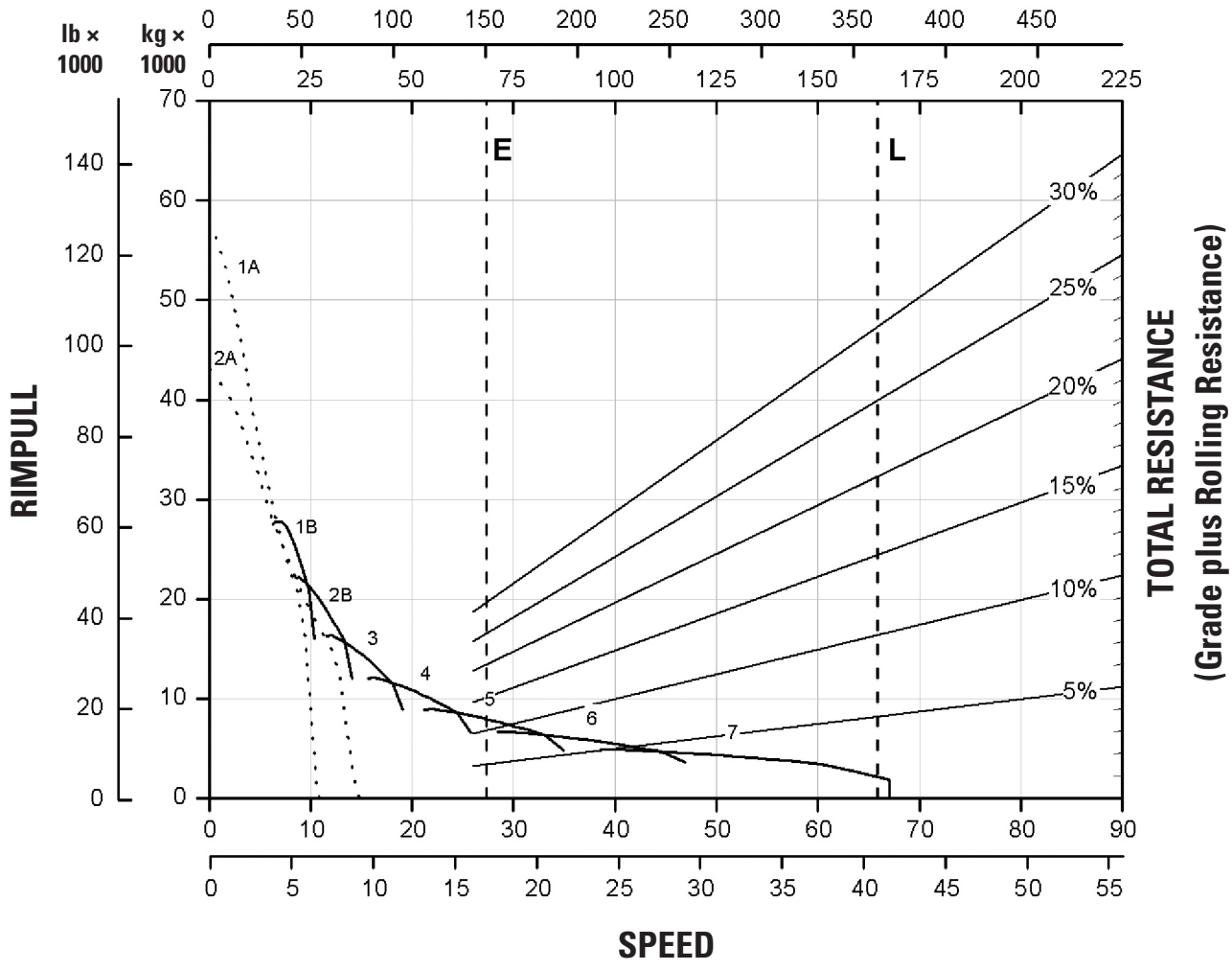
E — Empty 67 923 kg (149,744 lb)
L — Target GMW 164 654 kg (363,000 lb)
---------- With ARC Only
–·–·– ARC and Engine Brake

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

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.

777G Rimpull-Speed-Gradeability
• 24.00R35 Tires



E — Empty 67 923 kg (149,744 lb)
L — Target GMW 164 654 kg (363,000 lb)

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

777G Off-Highway Truck Standard and Optional Equipment

Standard and Optional Equipment

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

	Standard	Optional
POWER TRAIN		
Air cleaner with precleaner (2)	✓	
Air-to-Air Aftercooler (ATAAC)	✓	
Automatic cold mode idle control	✓	
Autostall	✓	
Braking system: extended life brakes, brake wear indicator, Automatic Retarder Control (ARC) (utilizes oil-cooled, multiple disc brakes), brake release motor (towing), manual retarder (utilizes oil-cooled, multiple disc brakes), oil-cooled and multiple disc (front/rear), parking, secondary, service	✓	
Cat engine brake		✓
Cold weather packages		✓
Electric cold weather start (two starters and four batteries)	✓	
Electric priming pump	✓	
Engine Idle Shutdown	✓	
Ether starting aid	✓	
Exhaust, muffler	✓	
Extended life coolant to -35° C (-30° F)	✓	
Fuel filter/water separator	✓	
Part throttle shifting: 7-speed automatic powershift with torque shift management Electronic Clutch Pressure Control, body up-shift inhibitor, directional shift management, downshift inhibitor, neutral start switch, neutral coast inhibitor, reverse shift inhibitor, reverse neutralizer during dumping, programmable top gear selection	✓	
Transmission: auto neutral idle, APECS software, ECPC	✓	
Turbocharger (2)	✓	
ELECTRICAL		
Alarm, backup	✓	
Alternator, 115 ampere	✓	
Auxiliary jump start receptacle	✓	
Batteries, maintenance-free, 12V (4), 190 amp-hour	✓	
Electrical system, 25 amp, 24V to 12V converter	✓	
Lighting system: backup light (halogen), directional signals/hazard warning (front and rear LED), headlights (halogen) with dimmer, payload (indicator lights), operator access courtesy lights, side profile lights, stop/tail lights (LED), service lights	✓	
OPERATOR ENVIRONMENT		
Advanced Health	✓	
Advisor display	✓	
Air conditioning	✓	

	Standard	Optional
OPERATOR ENVIRONMENT (CONTINUED)		
Ashtray and cigarette lighter	✓	
Auto temp control	✓	
Coat hook	✓	
Cup holders (4)	✓	
Diagnostic connection port, 24V	✓	
Electric left side window control	✓	
Entertainment radio ready: 5 amp converter, speakers, antenna, wiring harness	✓	
Fluid fill service center		✓
Fuel level monitoring	✓	
Foot rest	✓	
Gauges/indicators: brake oil temperature, coolant temperature, hour meter, tachometer, engine overspeed indicator, fuel level, speedometer with odometer, transmission gear indicator	✓	
Heater/defroster (11 070 kCal/43,930 BTU)	✓	
Hoist lever	✓	
Horn, electric	✓	
Lights: dome, courtesy	✓	
Lights, HID		✓
Load counter, automatic	✓	
Mirrors, convex		✓
Mirrors, heated	✓	
Power port, 24V and 12V (2)	✓	
ROPS cab, insulated/sound suppressed	✓	
Seat, Cat Comfort Series III: full air suspension, retractable 4-point seat belt with shoulder harness	✓	
Spare rim		✓
Steering wheel, padded/tilt/telescopic	✓	
Storage compartment	✓	
Sun visor	✓	
Throttle lock	✓	
Tinted, laminated glass	✓	
TPMS	✓	
Visibility package (meets ISO 5006 requirements)		✓
Window, right side, hinged access/egress	✓	
Windshield wiper, intermittent, and washer	✓	
TECHNOLOGY PRODUCTS		
Adaptive economy mode	✓	
Object detection (4 cameras, 4 radars)	✓	
Product Link™ Ready (Level 1)	✓	
TKPH/TMPH (Tons Kilometer Per Hour/ Tons Mile Per Hour)	✓	
Work Area Vision System (WAVS)		✓

Standard and Optional Equipment

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

	Standard	Optional
OTHER		
Attachment zone	✓	
Body down indicator	✓	
Body heat		✓
Body liners		✓
Body sideboards		✓
Body mounting group	✓	
Body safety pin (secures body in up position)	✓	
Cab precleaner		✓
CD-ROM parts book	✓	
Center-mounted rims	✓	
Clustered grease fittings		✓
Driveline guards	✓	
Engine crankcase guards	✓	
Fan and AC guards	✓	
Fuel tank (1136 L/300 gal)	✓	

	Standard	Optional
OTHER (CONTINUED)		
Ground-level battery disconnect	✓	
Ground-level engine shutdown	✓	
Ground-level grease fittings	✓	
Reservoirs (separate): brake/hoist, steering, transmission/torque converter	✓	
Rims 19.5 x 49	✓	
Rock ejectors	✓	
Supplemental steering, automatic	✓	
Tie down eyes	✓	
Tow hooks, front/tow pin, rear	✓	
Traction Control System (TCS) (new version)	✓	
Vandalism protection locks	✓	
Wheel chocks		✓
Wiggins fast fuel	✓	

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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.

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Build Number: RDR
(N Am, Eu)

CAT®