



# 770

## 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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# 770 Off-Highway Truck Specifications

## Engine – U.S. EPA Tier 4 Final/EU Stage V

Engine Model	Cat® C15	
Rated Engine Speed	1,700 rpm	
Gross Power – SAE J1995:2014	384 kW	515 hp
Net Power – SAE J1349:2011	356 kW	477 hp
Net Power – ISO 9249	356 kW	477 hp
Net Power – 80/1269/EEC	365 kW	489 hp
Engine Power – ISO 14396	379 kW	508 hp
Peak Torque Speed	1,200 rpm	
Net Torque – SAE J1349:2011	2141 N·m	1,579 lbf·ft
Number of Cylinders	6	
Bore	137 mm	5.4 in
Stroke	171 mm	6.7 in
Displacement	15.2 L	927.6 in <sup>3</sup>

- The power ratings are tested at the reference conditions for the specified standard.
- MIN NET SAE J1349:2011/ISO 9249:2007 Net power advertised is the power available at the flywheel when the engine is equipped with fan at maximum speed, alternator, air intake system, and exhaust system.
- Net torque rise meets SAE J1349.

## Engine – U.S. EPA Tier 3 and 2 Equivalent

Engine Model	Cat C15	
Rated Engine Speed	1,800 rpm	
Gross Power – SAE J1995:2014	381 kW	511 hp
Net Power – SAE J1349:2011	360 kW	483 hp
Net Power – ISO 9249	364 kW	476 hp
Net Power – 80/1269/EEC	365 kW	489 hp
Engine Power – ISO 14396	377 kW	506 hp
Peak Torque Speed	1,300 rpm	
Net Torque – SAE J1349:2011	2280 N·m	1,682 lbf·ft
Number of Cylinders	6	
Bore	137 mm	5.4 in
Stroke	171 mm	6.7 in
Displacement	15.2 L	927.6 in <sup>3</sup>

- The power ratings are tested at the reference conditions for the specified standard.
- Net power advertised is the power available at the rated speed, measured at the flywheel when the engine is equipped with alternator, air cleaner, muffler, and fan.
- MIN NET SAE J1349:2011/ISO 9249:2007 Net power advertised is the power available at the flywheel when the engine is equipped with fan at maximum speed, air intake system, exhaust system, and alternator.
- Net torque rise meets SAE J1349.

## Weights – Approximate – Tier 4 Final/Stage V

Target Gross Machine Weight	71 214 kg	157,000 lb
Chassis Weight	25 378 kg	55,948 lb
Body Weight	7914 kg	17,447 lb

- Chassis weight with 100% fuel, hoist, body mounting group, rims, and tires.
- Body weight is the Flat Floor body with no liner and will vary depending on configuration.

## Weights – Approximate – Tier 3 and 2 Equivalent

Target Gross Machine Weight	71 214 kg	157,000 lb
Chassis Weight	24 900 kg	54,895 lb
Body Weight	7914 kg	17,447 lb

- Chassis weight with 100% fuel, hoist, body mounting group, rims, and tires.
- Body weight is the standard Dual Slope body with no liner and will vary depending on configuration.

## Operating Specifications

Target Payload (100%)	38.0 tonnes	42.5 tons
Maximum Working Payload (110%)	42.5 tonnes	46.8 tons
Maximum Allowable Payload (120%)	46.3 tonnes	51.0 tons
Body Capacity (SAE 2:1)	25.2 m <sup>3</sup>	32.9 yd <sup>3</sup>
Top Speed – Loaded	73.7 km/h	45.8 mph

- Refer to the Caterpillar 10/10/20 Payload Policy for maximum gross machine weight limitations.
- Capacity with Dual Slope body with no liner.

## Transmission – Tier 4 Final/Stage V

Forward 1	11.9 km/h	7.4 mph
Forward 2	16.3 km/h	10.1 mph
Forward 3	22.1 km/h	13.8 mph
Forward 4	29.7 km/h	18.5 mph
Forward 5	40.3 km/h	25.1 mph
Forward 6	54.4 km/h	33.8 mph
Forward 7	73.8 km/h	45.8 mph
Reverse	15.7 km/h	9.7 mph

- Maximum travel speeds with standard 18.00R33 (E4) tires.

## Transmission – Tier 3 and 2 Equivalent

Forward 1	11.9 km/h	7.4 mph
Forward 2	16.3 km/h	10.1 mph
Forward 3	22.0 km/h	13.7 mph
Forward 4	29.6 km/h	18.4 mph
Forward 5	40.2 km/h	25.0 mph
Forward 6	54.2 km/h	33.7 mph
Forward 7	73.5 km/h	45.7 mph
Forward 7 (Vietnam)*	59.0 km/h	36.6 mph
Reverse	15.6 km/h	9.7 mph

- Maximum travel speeds with standard 18.00R33 (E4) tires.
- \*Maximum travel speed limited to 59 km/h for Vietnam arrangement.

## Final Drives

	T4F	T2/T3
Differential Ratio	1.92:1	2.12:1
Planetary Ratio	4.80:1	4.80:1
Total Reduction Ratio	9.26:1	10.176:1

## Brakes

Brake Surface – Front	1395 cm <sup>2</sup>	216 in <sup>2</sup>
Brake Surface – Rear	40 225 cm <sup>2</sup>	6,235 in <sup>2</sup>
Brake Standards	ISO 3450:2011	

- Target gross machine operating weight is 71 214 kg (157,000 lb).

## Body Hoists

Pump Flow – High Idle (Tier 3 and Tier 2)	413 L/min	109.1 gal/min
Pump Flow – High Idle (Tier 4/Stage V)	425 L/min	112.2 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	8.0 seconds	
Body Lower Time – Float	10.0 seconds	

## Capacity – Dual Slope – 100% Fill Factor

Struck	17.6 m <sup>3</sup>	23.01 yd <sup>3</sup>
Heaped (SAE 2:1)*	25.2 m <sup>3</sup>	32.9 yd <sup>3</sup>

• Contact your local Cat dealer for body recommendation.

\*ISO 6483:1980

## Capacity – Flat Floor – 100% Fill Factor

Struck	17.6 m <sup>3</sup>	23.01 yd <sup>3</sup>
Heaped (SAE 2:1)*	25.2 m <sup>3</sup>	32.9 yd <sup>3</sup>

• Contact your local Cat dealer for body recommendation.

\*ISO 6483:1980

## Capacity – Quarry Body – 100% Fill Factor

Struck	17.5 m <sup>3</sup>	22.9 yd <sup>3</sup>
Heaped (SAE 2:1)*	24.9 m <sup>3</sup>	32.6 yd <sup>3</sup>

• Contact your local Cat dealer for body recommendation.

\*ISO 6483:1980

## Weight Distributions – Approximate

Front Axle – Empty	52%
Front Axle – Loaded	34%
Rear Axle – Empty	48%
Rear Axle – Loaded	66%

## Suspension

Empty to Loaded Cylinder Stroke – Front	234 mm	9.2 in
Empty to Loaded Cylinder Stroke – Rear	149 mm	5.9 in
Rear Axle Oscillation	±8.9°	

## Sound – Tier 4 Final/Stage V

Operator Sound Level (ISO 6396:2008)	80 dB(A)
Machine Sound Level (ISO 6395:2008)	117 dB(A)

## Sound – Tier 2

Operator Sound Level (ISO 6396:2008)	81 dB(A)
Machine Sound Level (ISO 6395:2008)	117 dB(A)

- The operator sound pressure level is measured according to the test procedures and conditions specified in ISO 6396:2008 for the standard machine configuration. The measurement was conducted at 70% of the maximum engine cooling fan speed.
- Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors or windows are open for extended periods or in a noisy environment.
- The machine sound power level is measured according to the test procedures and conditions specified in ISO 6395:2008 for the standard machine configuration. The measurement was conducted at 70% of the maximum engine cooling fan speed.

## Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. Refer to the machine labeling for identification of the gas.
- If equipped with R134a (Global Warming Potential = 1430), the system contains 1.9 kg (4.2 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 2.71 metric tonnes (2.99 tons)
- If equipped with R1234yf (Global Warming Potential = 0.501), the system contains 1.85 kg (4.1 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 0.001 metric tonnes (0.001 tons).

## Service Refill Capacities

Fuel Tank	795 L	210.0 gal
Cooling System (Tier 4)	164 L	43.3 gal
Cooling System (Tier 2 Equivalent)	154 L	40.6 gal
Engine Crankcase	90 L	24.0 gal
Differentials and Final Drives	140 L	37.0 gal
Steering Tank	36 L	9.5 gal
Steering System (includes tank)	54 L	14.0 gal
Brake/Hoist Hydraulic Tank	176 L	46.5 gal
Hoist and Brake Hydraulic System	322 L	85.0 gal
Transmission and Converter System (Tier 4)	70 L	18.0 gal
Transmission and Converter System (Tier 2 Equivalent)	61 L	16.1 gal
Front Wheels	3.4 L	1.0 gal

## Steering

Steering Standards	ISO 5010:2019	
Steer Angle	40.5°	
Turning Diameter – Front	17.6 m	57.7 ft
Turning Circle Clearance Diameter	20.3 m	66.6 ft

## Tires

Standard Tire	18.00R33 (E4)
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- Productive capabilities of the 770 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.

## ROPS/FOPS

### ROPS/FOPS Standards

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

# 770 Off-Highway Truck Specifications

## Weight/Payload Calculation – Tier 4 Final/Stage V Examples

		Flat Floor							
Machine Weights Based on Configuration		Without Liner		With Liner		With Rubber Liner		Quarry Body	
Base: Floor/Sidewall/Frontwall	mm (in)	16/10/14 (0.62/0.39/0.55)		16/10/14 (0.62/0.39/0.47)		16/10/14 (0.62/0.39/0.47)		25/14/16 (0.98/0.55/0.62)	
Liner: Floor/Sidewall/Frontwall	mm (in)			16/8/8 (0.62/0.31/0.31)		102/0/0 (4.0/0/0)			
Body Capacity	m <sup>3</sup> (yd <sup>3</sup> )	25.2	(33)	24.9	(32.6)	23.6	(30.9)	24.9	(32.6)
Target Gross Machine Weight	kg (lb)	71 214	(157,001)	71 214	(157,001)	71 214	(157,001)	71 214	(157,001)
Empty Chassis Weight	kg (lb)	24 933	(54,968)	24 933	(54,968)	24 933	(54,968)	24 933	(54,968)
Body System Weight	kg (lb)	7850	(17,306)	10 790	(23,788)	10 095	(25,948)	10 095	(22,256)
Empty Machine Weight	kg (lb)	32 783	(72,274)	35 723	(78,756)	35 028	(80,916)	35 028	(77,224)
Fuel Tank Size	L (gal)	529	(140)	529	(140)	529	(140)	529	(140)
Fuel Tank – 100% Fill	kg (lb)	445	(981)	445	(981)	445	(981)	445	(981)
Empty Machine Operating Weight	kg (lb)	33 228	(73,255)	36 168	(79,737)	35 473	(81,897)	35 473	(78,205)
<b>Payload</b>									
Target Payload (100%)*	kg (lb)	37 986	(83,745)	35 046	(77,264)	35 741	(75,103)	35 741	(78,796)
	tonnes (tons)	38.0	(41.9)	35.0	(38.6)	35.7	(37.6)	35.7	(39.4)
Maximum Payload (110% of Target)*	kg (lb)	41 785	(92,120)	38 551	(84,990)	39 315	(82,614)	39 315	(86,675)
	tonnes (tons)	41.8	(46.1)	38.6	(42.5)	39.3	(41.3)	39.3	(43.3)
Not to Exceed Payload (120% of Target)*	kg (lb)	45 583	(100,494)	42 055	(92,716)	42 889	(90,124)	42 889	(94,555)
	tonnes (tons)	45.6	(50.2)	42.1	(46.4)	42.9	(45.1)	42.9	(47.3)

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

## Sideboards (Optional)

Height		Volume Add		Weight		Maximum Working Payload Material Density**	
155 mm	6.0 in	2.5 m <sup>3</sup>	3.4 yd <sup>3</sup>	366 kg	806 lb	1577 kg	2,646 lb

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

\*\*Based on Quarry body at 90% Body Volume Fill.

**Note:** Empty Chassis Weight is figured without fuel.

## Payload Calculation: Definitions

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

**Empty Machine Weight** = Empty Chassis Weight + Body System Weight

**Maximum Payload** = Target Payload × 1.10 (110%)

# 770 Off-Highway Truck Specifications

## Weight/Payload Calculation – Tier 4 Final/Stage V Examples

Dual Slope					
Machine Weights Based on Configuration		Without Liner		With Liner	
Base: Floor/Sidewall/Frontwall	mm (in)	16/10/12 (0.62/0.39/0.55)		16/10/12 (0.62/0.39/0.55)	
Liner: Floor/Sidewall/Frontwall	mm (in)	16/8/8 (0.62/0.31/0.39)			
Body Capacity	m <sup>3</sup> (yd <sup>3</sup> )	25.2	(33.0)	24.8	(32.6)
Target Gross Machine Weight	kg (lb)	71 214	(157,001)	71 214	(157,001)
Empty Chassis Weight	kg (lb)	24 933	(54,968)	24 933	(54,968)
Body System Weight	kg (lb)	7665	(16,898)	10 560	(23,281)
Empty Machine Weight	kg (lb)	32 598	(71,867)	35 493	(78,249)
Fuel Tank Size	L (gal)	529	(140)	529	(140)
Fuel Tank – 100% Fill	kg (lb)	445	(981)	445	(981)
Empty Machine Operating Weight	kg (lb)	33 043	(72,848)	35 938	(79,230)
<b>Payload</b>					
Target Payload (100%)*	kg (lb)	38 171	(84,153)	35 276	(77,771)
	tonnes (tons)	38.2	(42.1)	35.3	(38.9)
Maximum Payload (110% of Target)*	kg (lb)	41 988	(92,568)	38 804	(85,548)
	tonnes (tons)	42.0	(46.3)	38.8	(42.8)
Not to Exceed Payload (120% of Target)*	kg (lb)	45 805	(100,984)	42 331	(93,325)
	tonnes (tons)	45.8	(50.5)	42.3	(46.7)

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

## Sideboards (Optional)

362-8620							
Height		Volume Add		Weight		Maximum Working Payload Material Density**	
155 mm	6.0 in	2.5 m <sup>3</sup>	3.4 yd <sup>3</sup>	366 kg	806 lb	1577 kg	2,646 lb

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

\*\*Based on Quarry body at 90% Body Volume Fill.

**Note:** Empty Chassis Weight is figured without fuel.

## Payload Calculation: Definitions

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

**Empty Machine Weight** = Empty Chassis Weight + Body System Weight

**Maximum Payload** = Target Payload × 1.10 (110%)

# 770 Off-Highway Truck Specifications

## Weight/Payload Calculation – Tier 3 and 2 Equivalent Examples

Machine Weights Based on Configuration		Flat Floor				Quarry Body	
		Without Liner		With Liner		Without Liner	
Base: Floor/Sidewall/Frontwall	mm (in)	<b>16/10/12</b> <b>(0.62/0.39/0.47)</b>		<b>16/10/14</b> <b>(0.62/0.39/0.47)</b>		<b>25/14/16</b> <b>(0.98/0.55/0.62)</b>	
Liner: Floor/Sidewall/Frontwall	mm (in)			<b>16/8/8</b> <b>(0.62/0.31/0.31)</b>			
Body Capacity	m <sup>3</sup> (yd <sup>3</sup> )	25.2	(33)	24.9	(32.6)	24.9	(32.6)
Target Gross Machine Weight	kg (lb)	71 214	(157,001)	71 214	(157,001)	71 214	(157,001)
Empty Chassis Weight	kg (lb)	24 455	(53,914)	24 455	(53,914)	24 455	(53,914)
Body System Weight	kg (lb)	7850	(17,306)	10 790	(23,788)	10 095	(22,256)
Empty Machine Weight	kg (lb)	32 305	(71,221)	35 245	(77,702)	34 550	(76,170)
Fuel Tank Size	L (gal)	529	(140)	529	(140)	529	(140)
Fuel Tank – 100% Fill	kg (lb)	445	(983)	445	(983)	445	(983)
Empty Machine Operating Weight	kg (lb)	32 750	(72,204)	35 690	(78,685)	34 995	(77,153)
<b>Payload</b>							
Target Payload (100%)*	kg (lb)	38 464	(84,797)	35 524	(78,315)	36 219	(79,848)
	tonnes (tons)	38.5	(42.4)	35.5	(39.2)	36.2	(39.9)
Maximum Payload (110% of Target)*	kg (lb)	42 310	(93,277)	39 076	(86,147)	39 841	(87,832)
	tonnes (tons)	42.3	(46.6)	39.1	(43.1)	39.8	(43.9)
Not to Exceed Payload (120% of Target)*	kg (lb)	46 157	(101,756)	42 629	(93,978)	43 463	(95,817)
	tonnes (tons)	46.2	(50.9)	42.6	(47.0)	43.5	(47.9)

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

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

## Payload Calculation: Definitions

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

**Empty Machine Weight** = Empty Chassis Weight + Body System Weight

**Maximum Payload** = Target Payload × 1.10 (110%)

# 770 Off-Highway Truck Specifications

## Weight/Payload Calculation – Tier 3 and 2 Equivalent Examples

Dual Slope					
Machine Weights Based on Configuration		Without Liner		With Liner	
Base: Floor/Sidewall/Frontwall	mm (in)	16/10/12 (0.62/0.39/0.47)		16/10/12 (0.62/0.39/0.47)	
Liner: Floor/Sidewall/Frontwall	mm (in)			16/8/8 (0.62/0.31/0.31)	
Body Capacity	m <sup>3</sup> (yd <sup>3</sup> )	25.2	(33.0)	24.8	(32.4)
Target Gross Machine Weight	kg (lb)	71 214	(157,001)	71 214	(157,001)
Empty Chassis Weight	kg (lb)	24 455	(53,914)	24 455	(53,914)
Body System Weight	kg (lb)	7665	(16,898)	10 560	(23,281)
Empty Machine Weight	kg (lb)	32 120	(70,813)	35 015	(77,195)
Fuel Tank Size	L (gal)	529	(140)	529	(140)
Fuel Tank – 100% Fill	kg (lb)	445	(983)	445	(983)
Empty Machine Operating Weight	kg (lb)	32 565	(983)	35 460	(78,178)
<b>Payload</b>					
Target Payload (100%)*	kg (lb)	38 649	(85,205)	35 754	(78,822)
	tonnes (tons)	38.6	(42.6)	35.8	(39.4)
Maximum Payload (110% of Target)*	kg (lb)	42 514	(93,725)	39 329	(86,705)
	tonnes (tons)	42.5	(46.9)	39.3	(43.4)
Not to Exceed Payload (120% of Target)*	kg (lb)	46 379	(102,246)	42 905	(94,587)
	tonnes (tons)	46.4	(51.1)	42.9	(47.3)

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

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

## Payload Calculation: Definitions

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

**Empty Machine Weight** = Empty Chassis Weight + Body System Weight

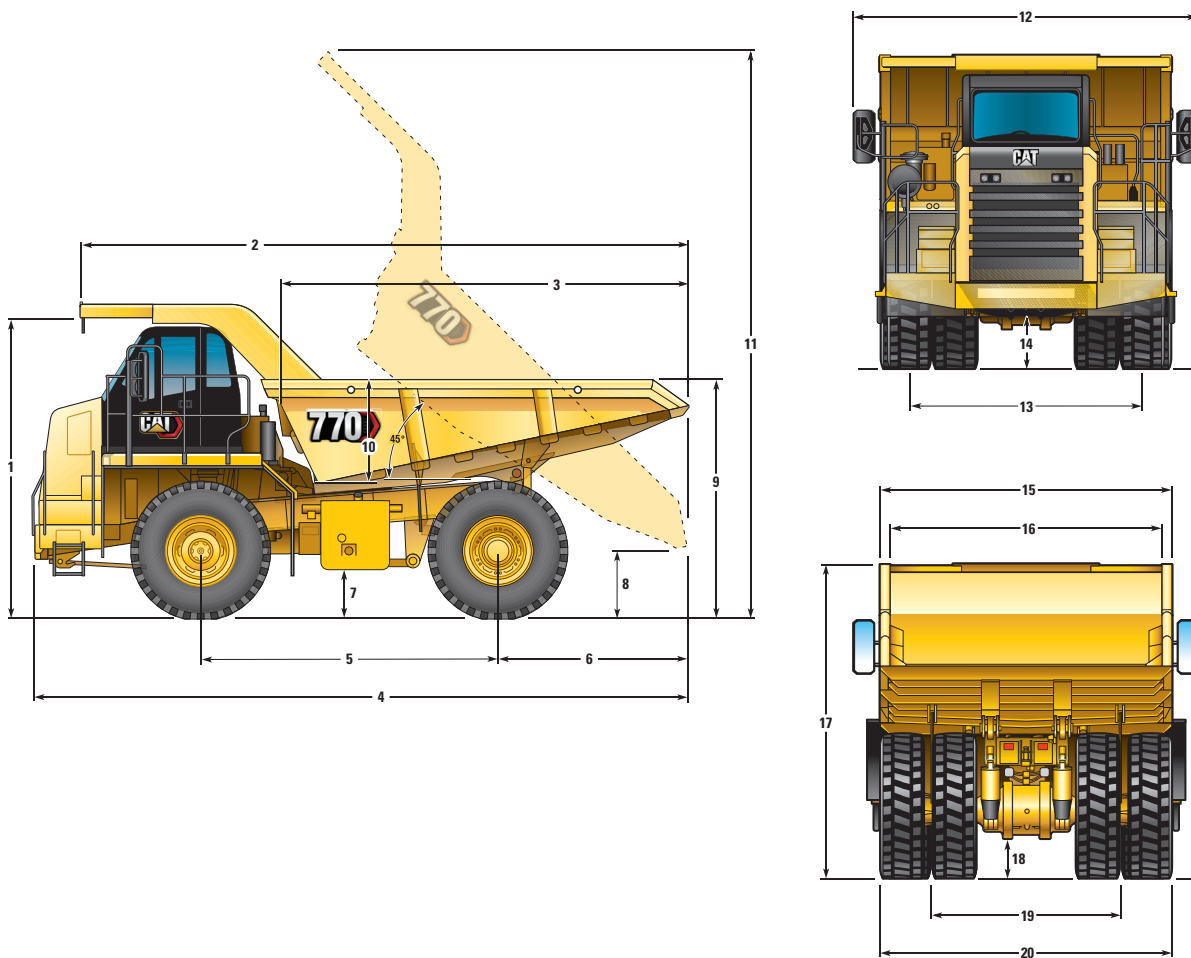
**Maximum Payload** = Target Payload × 1.10 (110%)



# 770 Off-Highway Truck Specifications

## Dimensions – Tier 4 Final/Stage V and Tier 3 and 2 Equivalent

All dimensions are approximate. 770 dimensions reflect a Flat Floor body.



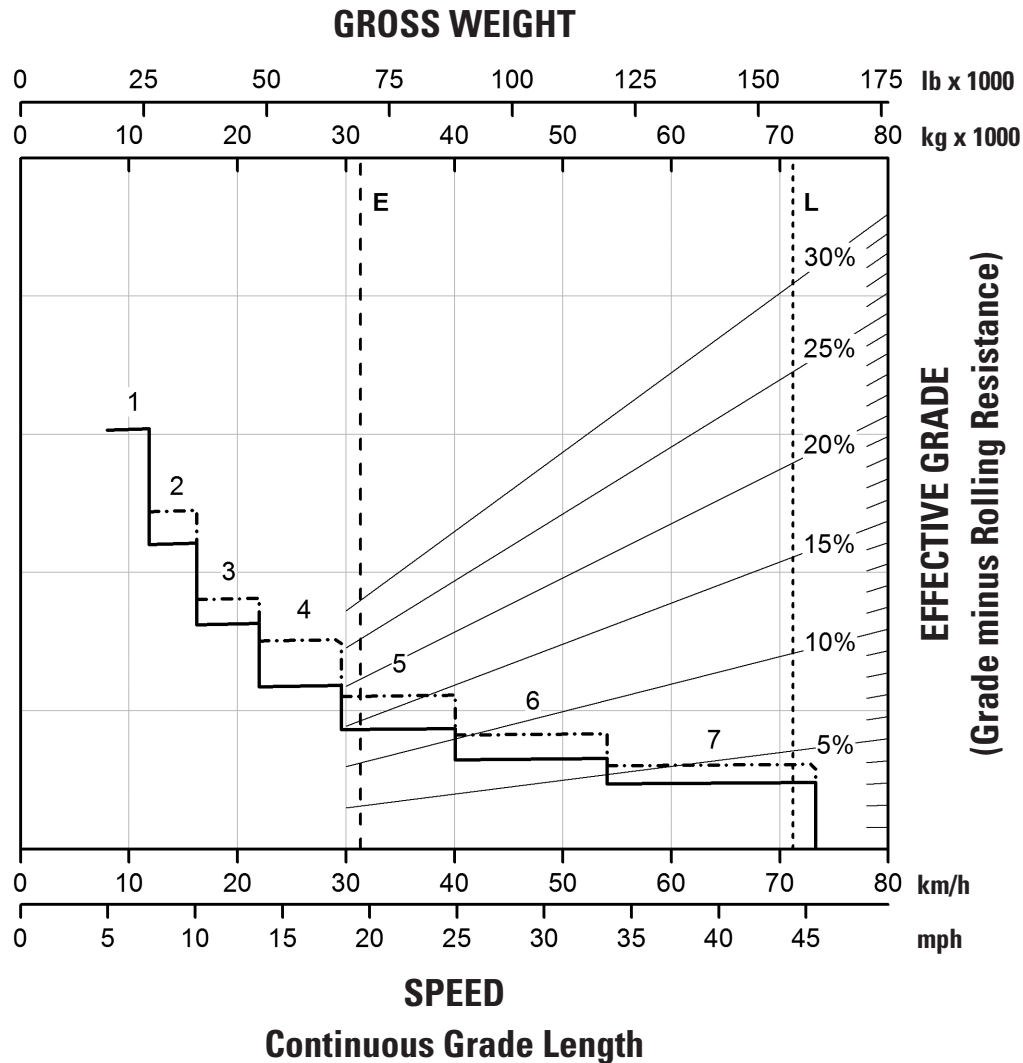
1	Height to Top of ROPS	3857 mm	12.7 ft
2	Overall Body Length	8199 mm	26.8 ft
3	Inside Body Length	5635 mm	18.5 ft
4	Overall Length	8796 mm	28.9 ft
5	Wheelbase	3960 mm	13.0 ft
6	Rear Axle to Tail	2586 mm	8.5 ft
7	Ground Clearance	518 mm	1.6 ft
8	Dump Clearance	506 mm	1.7 ft
9	Loading Height – Empty	3147 mm	10.3 ft
10	Inside Body Depth – Maximum	1404 mm	4.6 ft
11	Overall Height – Body Raised	8255 mm	27.1 ft
12	Operating Width	4780 mm	15.7 ft
13	Centerline Front Tire Width	3110 mm	10.2 ft
14	Engine Guard Clearance	335 mm	1.8 ft
15	Outside Body Width	3931 mm	12.9 ft
16	Inside Body Width	3627 mm	11.9 ft
17	Front Canopy Height	4114 mm	13.5 ft
18	Rear Axle Clearance	548 mm	1.8 ft
19	Centerline Rear Dual Tire Width	2536 mm	8.3 ft
20	Overall Tire Width	3693 mm	12.1 ft



## Retarding Performance – Tier 4 Final/Stage V

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 18.00R33 (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.



### KEY

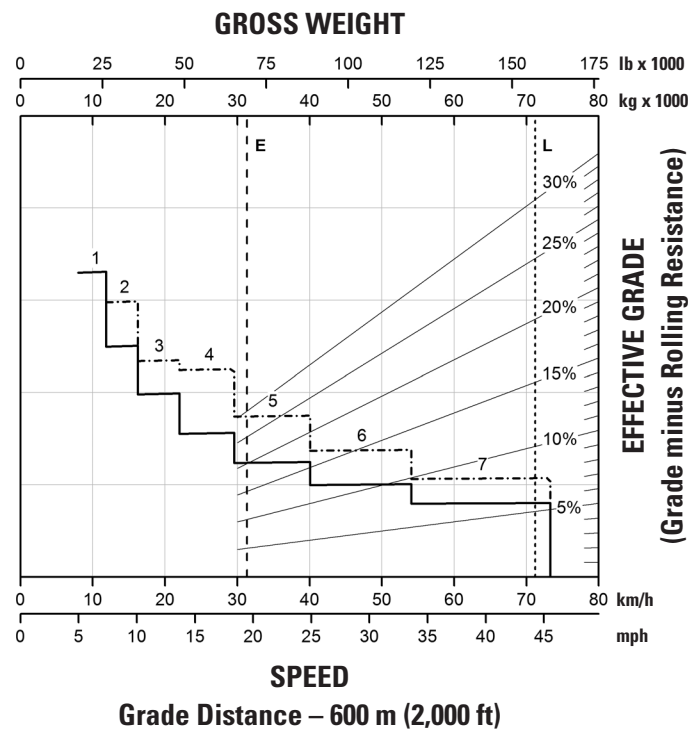
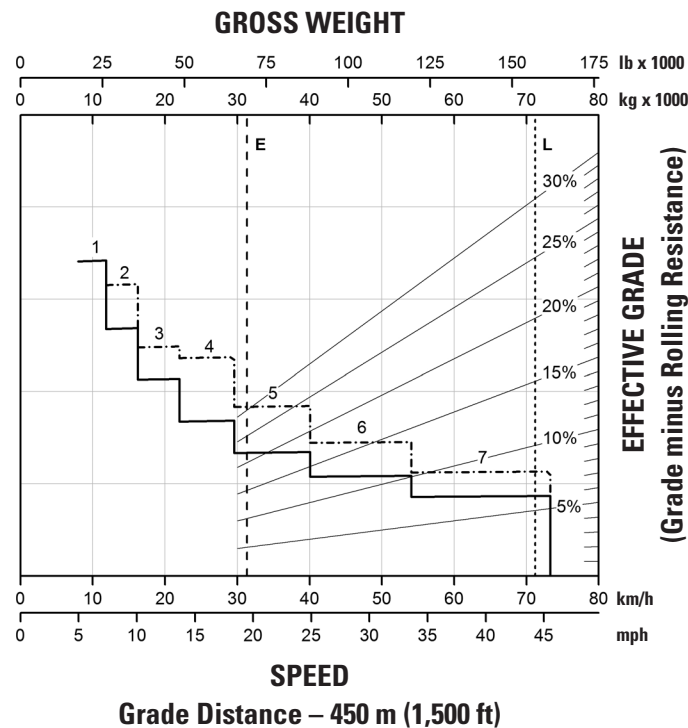
- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear
- 7 – 7th Gear

### KEY

- E – Empty 33 224 kg (73,247 lb)
- L – Target GMW 71 214 kg (157,000 lb)
- With ARC Only
- ARC and Engine Brake

# 770 Off-Highway Truck Specifications

## Retarding Performance – Tier 4 Final/Stage V



**KEY**

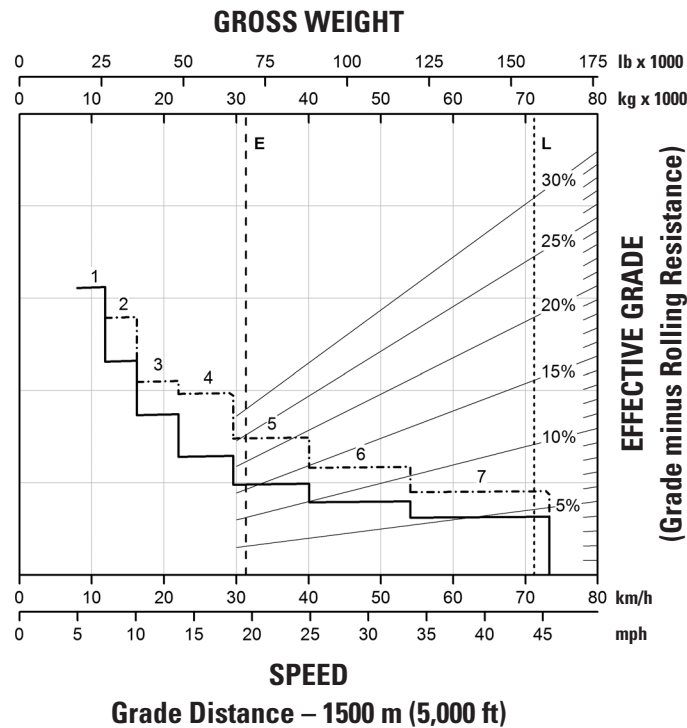
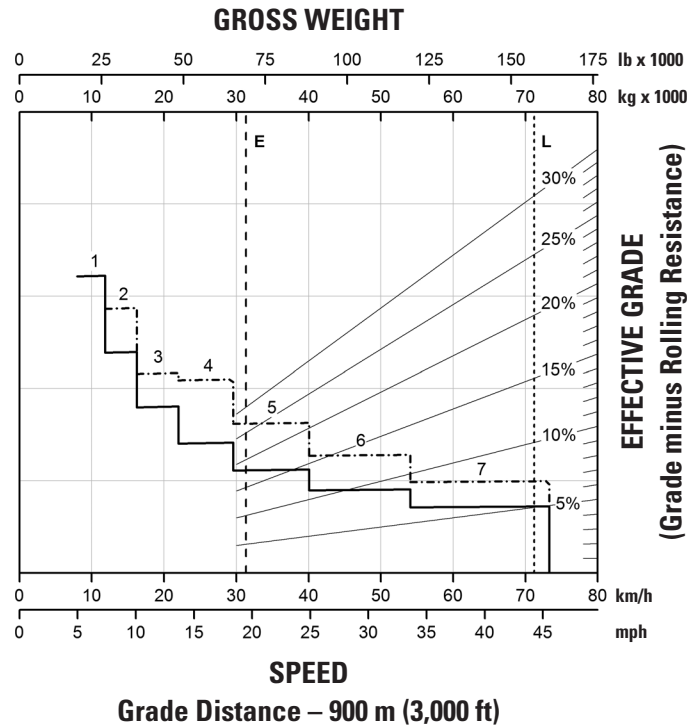
1 – 1st Gear    5 – 5th Gear  
2 – 2nd Gear    6 – 6th Gear  
3 – 3rd Gear    7 – 7th Gear  
4 – 4th Gear

**KEY**

E – Empty 33 224 kg (73,247 lb)  
L – Target GMW 71 214 kg (157,000 lb)  
— with ARC only  
- - - - - ARC and Engine Brake

# 770 Off-Highway Truck Specifications

## Retarding Performance – Tier 4 Final/Stage V



### KEY

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

### KEY

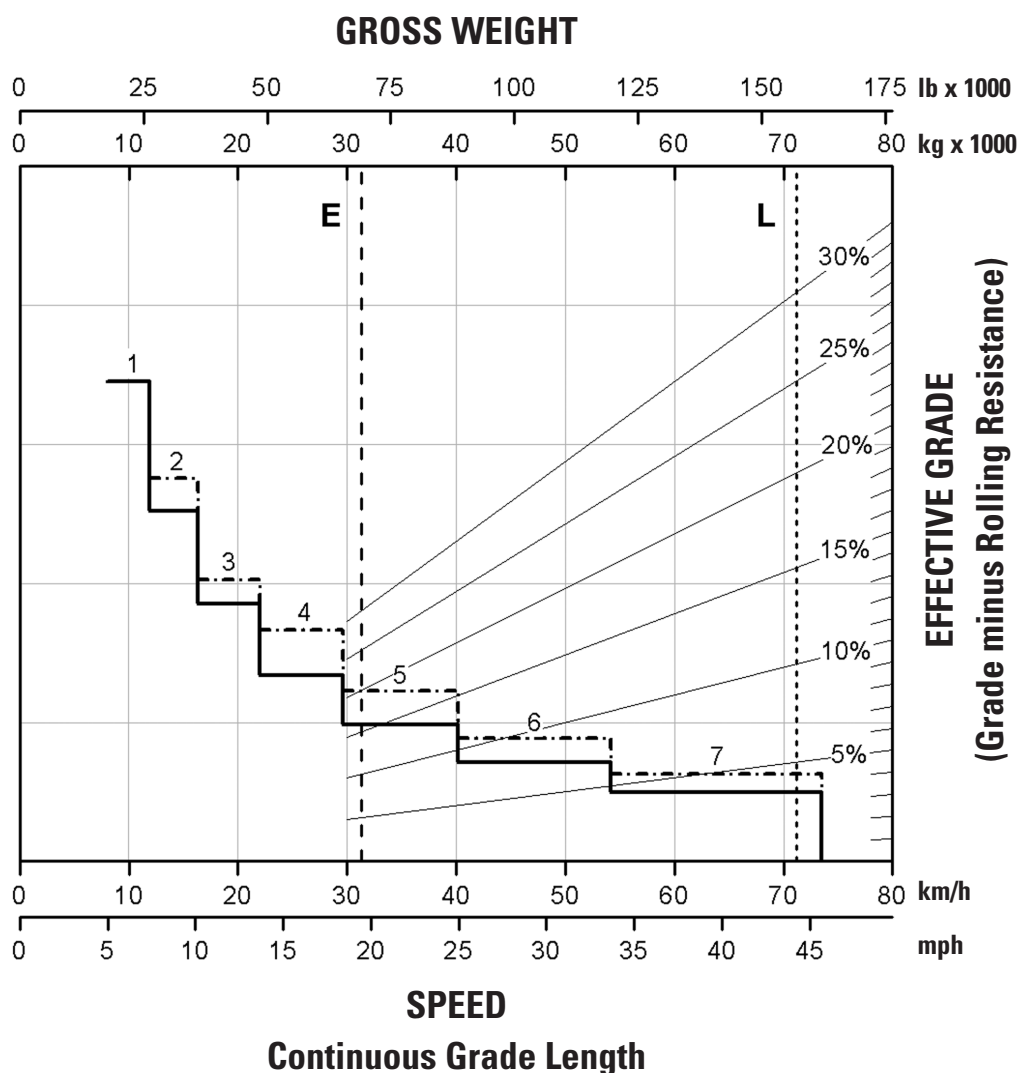
- E – Empty 33 224 kg (73,247 lb)
- L – Target GMW 71 214 kg (157,000 lb)
- with ARC only
- - - - - ARC and Engine Brake

# 770 Off-Highway Truck Specifications

## Retarding Performance – Tier 3 and 2 Equivalent

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 18.00R33 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.



### KEY

- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear
- 7 – 7th Gear\*

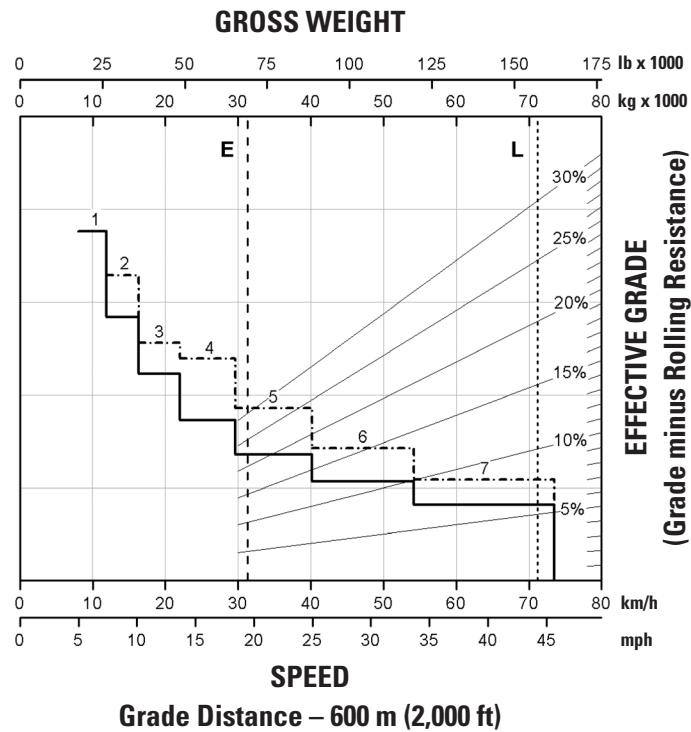
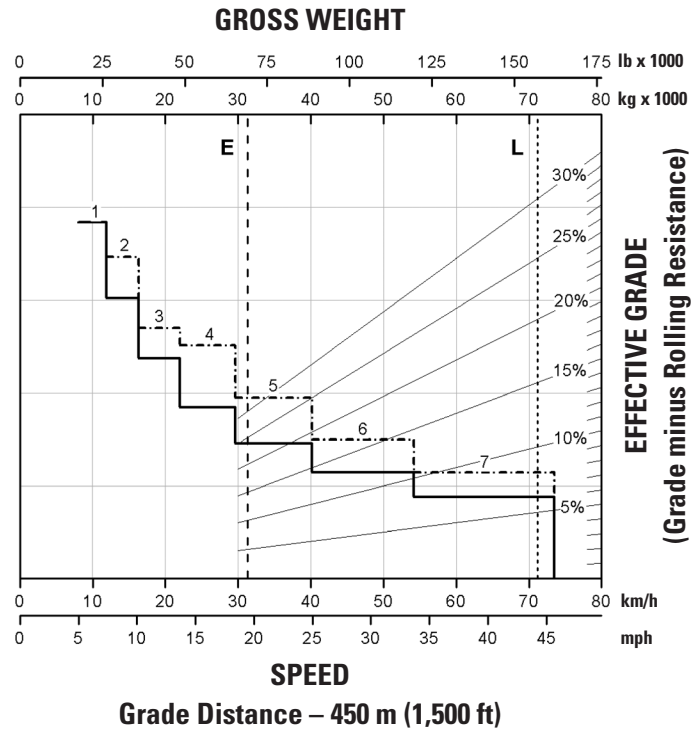
### KEY

- E – Empty 33 224 kg (73,247 lb)
- L – Target GMW 71 214 kg (157,000 lb)
- With ARC Only
- - - - - ARC and Engine Brake

\*7th Gear speed is limited at 59 km/h (36.7 mph)  
for Vietnam market

# 770 Off-Highway Truck Specifications

## Retarding Performance – Tier 3 and 2 Equivalent



### KEY

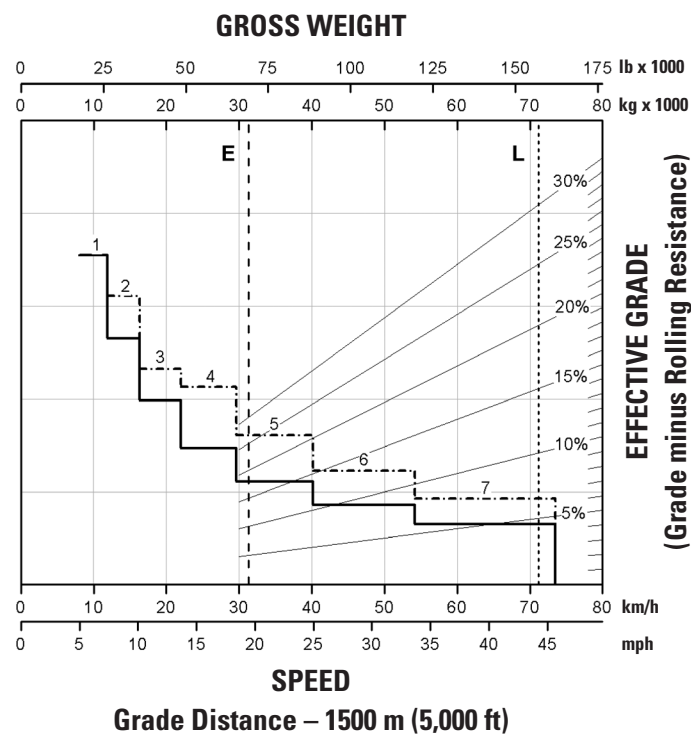
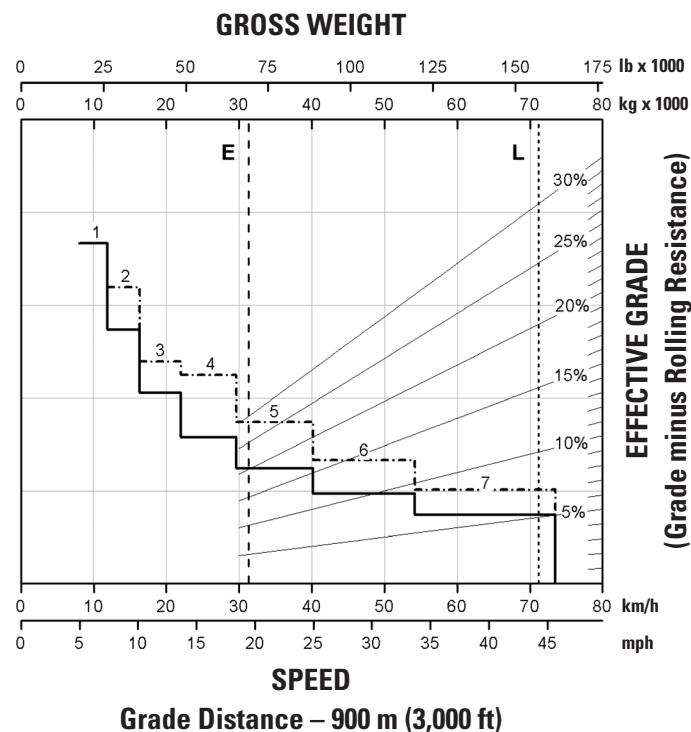
- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear
- 7 – 7th Gear\*

### KEY

- E – Empty 33 224 kg (73,247 lb)
- L – Target GMW 71 214 kg (157,000 lb)
- with ARC only
- - - - - ARC and Engine Brake

\*7th Gear speed is limited at 59 km/h (36.7 mph)  
for Vietnam market

Retarding Performance – Tier 3 and 2 Equivalent



KEY

- 1 – 1st Gear
- 2 – 2nd Gear
- 3 – 3rd Gear
- 4 – 4th Gear
- 5 – 5th Gear
- 6 – 6th Gear
- 7 – 7th Gear\*

KEY

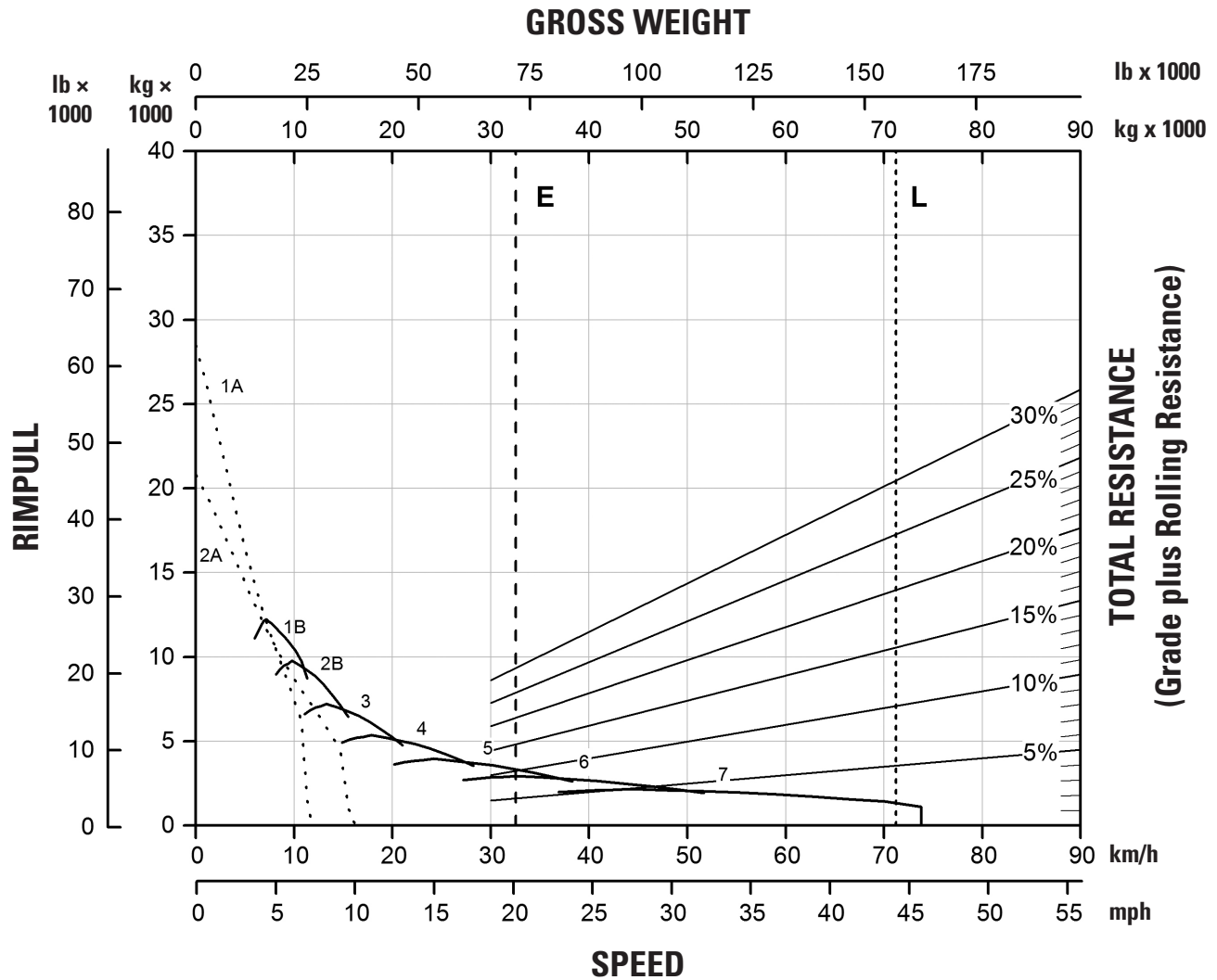
- E – Empty 33 224 kg (73,247 lb)
- L – Target GMW 71 214 kg (157,000 lb)
- with ARC only
- - - - ARC and Engine Brake

\*7th Gear speed is limited at 59 km/h (36.7 mph) for Vietnam market

# 770 Off-Highway Truck Specifications

## Gradeability/Speed/Rimpull – Tier 4 Final/Stage V

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.



### KEY

- 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

### KEY

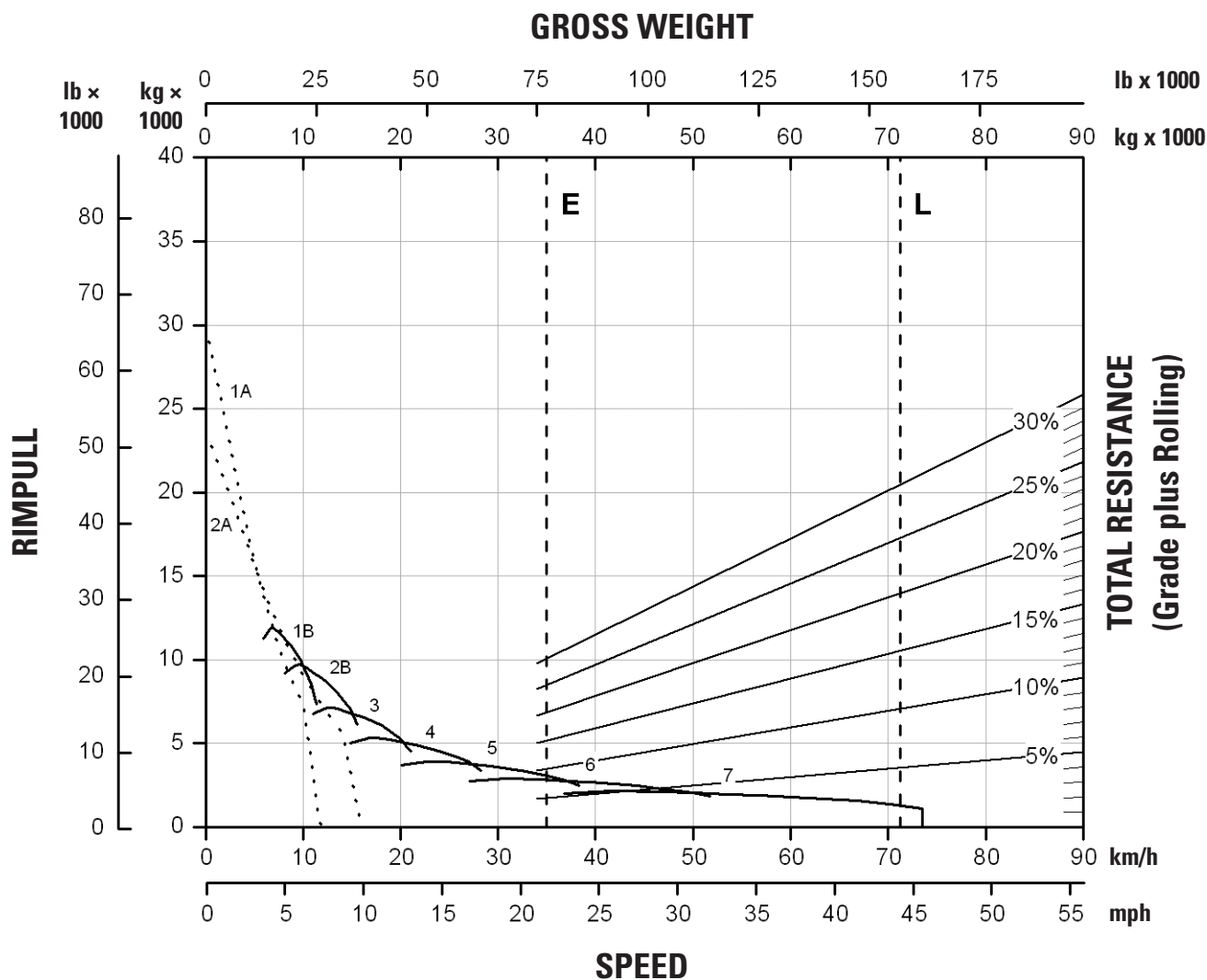
- E – Empty 33 224 kg (73,247 lb)
- L – Target GMW 71 214 kg (157,000 lb)
- With ARC Only
- - - - - ARC and Engine Brake



# 770 Off-Highway Truck Specifications

## Gradeability/Speed/Rimpull – Tier 3 and 2 Equivalent

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.



## Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
<b>POWERTRAIN</b>			<b>OPERATOR ENVIRONMENT</b>		
Air cleaner with precleaner (1)	✓		Advisor display	✓	
Air-to-Air Aftercooler (ATAAC)	✓		Air conditioning	✓	
Automatic cold mode idle control	✓		Coat hook	✓	
Auto neutral idle	✓		Cup holders (4)	✓	
Auto stall	✓		Diagnostic connection port, 24V	✓	
Braking system, hydraulic actuated: Automatic Retarder Control (ARC) (utilizes rear oil-cooled, multiple disc brakes), brake release motor (towing), caliper-disc (front), extended life brakes, oil-cooled – multiple disc (rear), parking, secondary, service	✓		Entertainment radio ready: 5 amp converter, speakers, antenna, wiring harness	✓	
Brake wear indicator (Tier 4/Stage V)	✓		Fluid and fuel system monitoring (Tier 4 only)	✓	
Brake wear indicator (Tier 3 and Tier 2)		✓	Fluid and fuel system monitoring (Tier 3 and Tier 2)		✓
Cat C15 Diesel Engine	✓		Gauges/indicators: service indicator – electronic, brake oil temperature gauge, coolant temperature gauge, hour meter, tachometer, engine overspeed indicator, fuel level, speedometer with odometer, transmission gear indicator	✓	
Cat engine brake		✓	Heater/defroster (11 070 kCal/43,930 BTU)	✓	
Electric start	✓		Hoist lever	✓	
Engine idle shutdown	✓		Horn, electric	✓	
Second gear start	✓		Lights: courtesy, dome	✓	
Transmission – 7-speed automatic powershift with electronic clutch pressure control with advanced productivity electronic control strategy (APECS), body up-shift inhibitor, controlled throttle shifting, directional shift management, downshift inhibitor, neutral start switch, neutral coast inhibitor, reverse shift inhibitor, reverse neutralizer during dumping, programmable top gear selection	✓		Lights, Halogen		✓
Turbocharger	✓		Mirrors	✓	
			Mirrors, heated		✓
			Power port, 12V	✓	
			Visibility package (WAVS)		✓
			Rollover protective structure (ROPS) cab and falling object protective structure (FOPS) cab	✓	
			Seat, full air suspension, 4-point seat belt with shoulder harness	✓	
			Steering wheel – padded, tilt, and telescopic	✓	
			Storage compartment	✓	
			Sun visor, tinted glass	✓	
			Throttle lock	✓	
			Windshield wiper (intermittent) and washer	✓	
<b>ELECTRICAL</b>			<b>TECHNOLOGY PRODUCTS</b>		
Alarm, backup	✓		Product Link™	✓	
Batteries, maintenance-free, 12V (2), 190 amp-hour	✓		Traction Control System (TCS)		✓
Lighting system: backup light, directional signals/hazard warning (front and rear LED), LED headlights with dimmer, operator access courtesy lights	✓		Economy modes, standard and adaptive	✓	
			Advanced health	✓	

# 770 Off-Highway Truck Specifications

## Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
<b>OTHER</b>			<b>OTHER (CONTINUED)</b>		
Body: Flat Floor, Quarry, Dual Slope		✓	Ground-level grease fittings	✓	
Body heat/diverter box		✓	Rear vision camera (WAVS)		✓
Body down indicator	✓		Reservoirs (separate): brake/converter/hoist, steering, transmission/torque converter	✓	
Body safety pin (secures body in up position)	✓		Rims 15 x 33	✓	
Body sideboards/liner		✓	Rock ejectors	✓	
QR code - parts book	✓		Service platform, left and right side		
Clustered/auto lube		✓	Standard lube/auto lube		✓
Coolant heater		✓	Supplemental steering (automatic)	✓	
Ether aid		✓	Suspension, front and rear	✓	
Extended life coolant to -35° C (-30° F)	✓		Spare rims		✓
Fan, hydraulic demand	✓		Tie down eyes	✓	
Four (4) batteries (Tier 3 and Tier 2 only)		✓	Tow hooks, front/tow pin, rear	✓	
Fuel heater		✓	Wheel chocks		✓
Fuel tank (530 L/140 gal)	✓		Vandalism protection locks	✓	
Guard, driveline	✓		Cab air filter	✓	
Guard, engine compartment	✓		Cab precleaner		✓
Guard, engine crankcase	✓		Truck production management		✓
Guard, mud	✓		Tire management sytem		✓
Ground-level battery disconnect	✓		Adaptor fast fill – fuel		✓
Ground-level engine shutdown	✓		Guard, overhead		✓

The following information applies to the machine at the time of final manufacture as configured for sale in the regions covered in this document. The content of this declaration is valid as of the date issued; however, content related to machine features and specifications are subject to change without notice. For additional information, please see the machine's Operation and Maintenance Manual.

For more information on sustainability in action and our progress, please visit <https://www.caterpillar.com/en/company/sustainability>.

## Engine

- Cat® U.S. EPA Tier 4 and EU Stage V engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) and are compatible\* with ULSD blended with the following lower-carbon intensity fuels\*\* up to:
    - ✓ 20% biodiesel FAME (fatty acid methyl ester)\*\*\*
    - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels
  - Cat engines emitting equivalent to U.S. EPA Tier 2, or equivalent to U.S. EPA Tier 3 and EU Stage IIIA, are compatible\* with diesel fuel blended with the following lower-carbon intensity fuels\*\*\* up to:
    - ✓ 100% biodiesel FAME (fatty acid methyl ester)\*\*
    - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels
- Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.
- \*While Cat engines are compatible with these alternative fuels, some regions may not allow their use.
- \*\*Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.
- \*\*\*Engines with no aftertreatment devices are compatible with higher blends, up to 100% biodiesel (for use of blends higher than 20% biodiesel, consult your Cat dealer).
- \*\*\*\*For use of blends higher than 20% biodiesel, consult your Cat dealer.

## Air Conditioning System

- The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a or R1234yf. Refer to the machine labeling for identification of the gas.
  - If equipped with R134a (Global Warming Potential = 1430), the system contains 1.9 kg (4.2 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 2.71 metric tonnes (2.99 tons)
  - If equipped with R1234yf (Global Warming Potential = 0.501), the system contains 1.85 kg (4.1 lb) of refrigerant which has a CO<sub>2</sub> equivalent of 0.001 metric tonnes (0.001 tons).

## Paint

- Based on best available knowledge, the maximum allowable concentration, measured in parts per million (PPM), of the following heavy metals in paint are:
  - Barium < 0.01%      – Chromium < 0.01%
  - Cadmium < 0.01%      – Lead < 0.01%

## Sound Performance – Tier 4 Final/Stage V

Operator Sound Level (ISO 6396:2008)	80 dB(A)
Machine Sound Level (ISO 6395:2008)	117 dB(A)

- The operator sound pressure level is measured according to the test procedures and conditions specified in ISO 6396:2008 for the standard machine configuration. The measurement was conducted at 70% of the maximum engine cooling fan speed.
- Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors or windows are open for extended periods or in a noisy environment.
- The machine sound power level is measured according to the test procedures and conditions specified in ISO 6395:2008 for the standard machine configuration. The measurement was conducted at 70% of the maximum engine cooling fan speed.

## Sound Performance – Tier 2 Equivalent

Operator Sound Level (ISO 6396:2008)	81 dB(A)
Machine Sound Level (ISO 6395:2008)	117 dB(A)

- The operator sound pressure level is measured according to the test procedures and conditions specified in ISO 6396:2008 for the standard machine configuration. The measurement was conducted at 70% of the maximum engine cooling fan speed.
- Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors or windows are open for extended periods or in a noisy environment.
- The machine sound power level is measured according to the test procedures and conditions specified in ISO 6395:2008 for the standard machine configuration. The measurement was conducted at 70% of the maximum engine cooling fan speed.

## Oils and Fluids

- Caterpillar factory fills with ethylene glycol coolants. Cat Diesel Engine Antifreeze/Coolant (DEAC) and Cat Extended Life Coolant (ELC) can be recycled. Consult your Cat dealer for more information.
- Cat Bio HYDO Advanced is an EU Ecolabel approved biodegradable hydraulic oil.
- Additional fluids are likely to be present, please consult the Operations and Maintenance Manual or the Application and Installation guide for complete fluid recommendations and maintenance intervals.

## Features and Technology

- The following features and technology may contribute to fuel savings and/or carbon reduction. Features may vary. Consult your Cat dealer for details.
  - Automatically optimize fuel consumption with two fuel economy modes: standard and adaptive
  - Adjustable engine idle shutdown conserves fuel when the truck is in park and idle for a preset amount of time
  - Haul at a more fuel-efficient engine speed and gear selection with speed limiting
  - Traction control system modulates power and braking between the two wheel groups, allowing a more appropriate response to ground conditions
  - Longer service life for hydraulic oil filter provides longer life with a 1,000-hour replacement interval

## Recycling

- The materials included in machines are categorized as below with approximate weight percentage. Because of variations of product configurations, the following values in the table may vary.

Material Type	Weight Percentage
Steel	77.75%
Iron	11.30%
Nonferrous Metal	2.08%
Mixed Metal	2.09%
Mixed Metal and Nonmetal	3.10%
Plastic	0.79%
Rubber	0.90%
Mixed Nonmetallic	0.03%
Fluid	0.63%
Other	0.70%
Uncategorized	0.63%
Total	100%

- A machine with higher recyclability rate will ensure more efficient usage of valuable natural resources and enhance end-of-life value of the product. According to ISO 16714 (Earthmoving machinery – Recyclability and recoverability – Terminology and calculation method), recyclability rate is defined as percentage by mass (mass fraction in percent) of the new machine potentially able to be recycled, reused, or both.

All parts in the bill of material are first evaluated by component type based on a list of components defined by the ISO 16714 and Japan CEMA (Construction Equipment Manufacturers Association) standards. Remaining parts are further evaluated for recyclability based on material type.

Because of variations of product configurations, the following value in the table may vary.

Recyclability – 96%
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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](http://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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AEXQ3422-01 (11-2025)  
Replaces: AEXQ3422-00  
Build number: 07  
(Global)

