

CAT® HAULING SYSTEMS

# MORE WAYS TO WORK.



# MORE THAN A MACHINE. A BUSINESS ADVANTAGE.

**Anyone can buy a machine. But not everyone can turn a profit with it. The reason? You need more than a machine for a successful business. You need answers to questions like these:**

- **What type of material are you moving?**
- **What are the underfoot conditions?**
- **How much material has to be moved?**
- **What is the total job cycle distance?**
- **What are the job site time/production requirements?**

The answers will suggest certain hauling systems, chosen for their ability to deliver the productivity and profitability you need.

Other questions lead to other answers, including how you can access the hauling systems you need... how to place the material you are moving...how to make better use of your current fleet...and how to access the equipment you need through purchase, leasing and renting.

Discuss your projects—and your business goals—with your Cat® dealer. You'll get the right system for the job—equipment that increases productivity and reduces risk.

But most of all, you'll get the answers you need to make better business decisions.

# WHAT TYPE OF MATERIAL ARE YOU MOVING?

Dry or wet? Dirt, sand, gravel or rock?

## What are the densities of the material?

When you're making a serious investment in your business, you need a hauling system that's well matched to the material to be moved.

	Dry Dirt (0-10% Moisture)	Moist Dirt (10-20% Moisture)	Wet Dirt (20-30% Moisture)	Sand River bottom, dune or ball bearing	Sand and Gravel 10-76 mm (0-3 in.)	Rock / Shot Rock [-305 mm (12 in)] less than 50% content	Rock / Shot Rock [-305 mm (12 in)] more than 50% content	Rock / Shot Rock [-305 mm (12 in)] less than 50% content	Rock / Shot Rock [-305 mm (12 in)] more than 50% content	Scrap / Demolition Material Brick, concrete, wood, metal
Articulated Truck	++	++	+	++	++	++	++	++	+	+
Articulated Trucks Ejector Body	++	++	++	++	++	++	++	+	+	+
Articulated Trucks 7460 Ejector	++	++	++	++	++	++	++	++	+	-
Rigid Frame Trucks	++	++	+	++	++	++	++	++	++	++
Rubber Tired Ag Tractor Towed Scraper	++	++	++	++	+	-	-	-	-	-
Rubber Tracked Ag Tractor Towed Scraper	++	++	++	++	-	-	-	-	-	-
Track-Type Tractor Towed Scraper	++	++	++	++	++	++	+	+	+	-
Wheel Tractor-Scraper Push Pull	++	++	++	++	++	++	++	++	+	-
Wheel Tractor-Scraper Push Loading	++	++	++	++	++	++	++	++	++	-
Wheel Tractor-Scraper Elevating	++	++	+	++	++	+	-	-	-	-
Wheel Tractor-Scraper Auger	++	++	++	++	++	++	++	++	-	-
Wheel Tractor-Scraper Self-Loading	++	++	+	++	++	+	-	-	-	-
Track-Type Tractor Slot Dozing	++	++	++	++	++	++	++	+	+	-
Wheel Loader Load & Carry	++	++	++	++	++	++	++	++	++	++

**++ Highly Recommended**

**+ Recommended**

**- Not Recommended**

**++ "Highly Recommended"** system will yield maximum profit and productivity for the jobsite condition. Choosing between "Highly Recommended" systems will require Fleet Production Costing (FPC) analysis of the job and cost per yard or meter.

**+ "Recommended"** system will perform adequately with this jobsite condition. However, productivity or cost could be improved with a "Highly Recommended" system.

**- "Not Recommended"** system will likely result in excessive cost or lost productivity. For best results, choose a "Recommended" or "Highly Recommended" system.

# WHAT ABOUT THE UNDERFOOT CONDITIONS?

Hard or soft? Smooth haul road or greasy, unimproved surface?

The answers to these and other similar questions help ensure you get a hauling system that's optimized for the travel conditions on your worksite. The right system helps maximize job efficiency.

	3% – <b>Hard Surface</b> (No tire penetration)	5% – <b>51 mm</b> (2 in) tire penetration	10% – <b>127 mm</b> (5 in) tire penetration	15% – <b>203 mm</b> (8 in) tire penetration	20% – <b>305 mm</b> (12 in) tire penetration	30% – <b>508 mm</b> (20 in) tire penetration	> <b>40% – &gt;635 mm</b> (25 in) tire penetration
Articulated Truck	++	++	++	++	++	+	+
Articulated Trucks Ejector Body	++	++	++	++	++	+	+
Articulated Trucks 7460 Ejector	++	++	++	++	++	++	+
Rigid Frame Trucks	++	++	+	+	-	-	-
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Rubber Tracked Ag Tractor Towed Scraper	++	++	++	++	++	++	+
Track-Type Tractor Towed Scraper	++	++	++	++	++	+	-
Wheel Tractor-Scraper Push Pull	++	++	++	++	++	+	+
Wheel Tractor-Scraper Push Loading	++	++	++	++	+	+	-
Wheel Tractor-Scraper Elevating	++	++	++	++	+	+	-
Wheel Tractor-Scraper Auger	++	++	++	++	++	+	-
Wheel Tractor-Scraper Self-Loading	++	++	++	++	++	+	+
Track-Type Tractor Slot Dozing	++	++	++	++	++	++	+
Wheel Loader Load & Carry	++	++	++	+	-	-	-





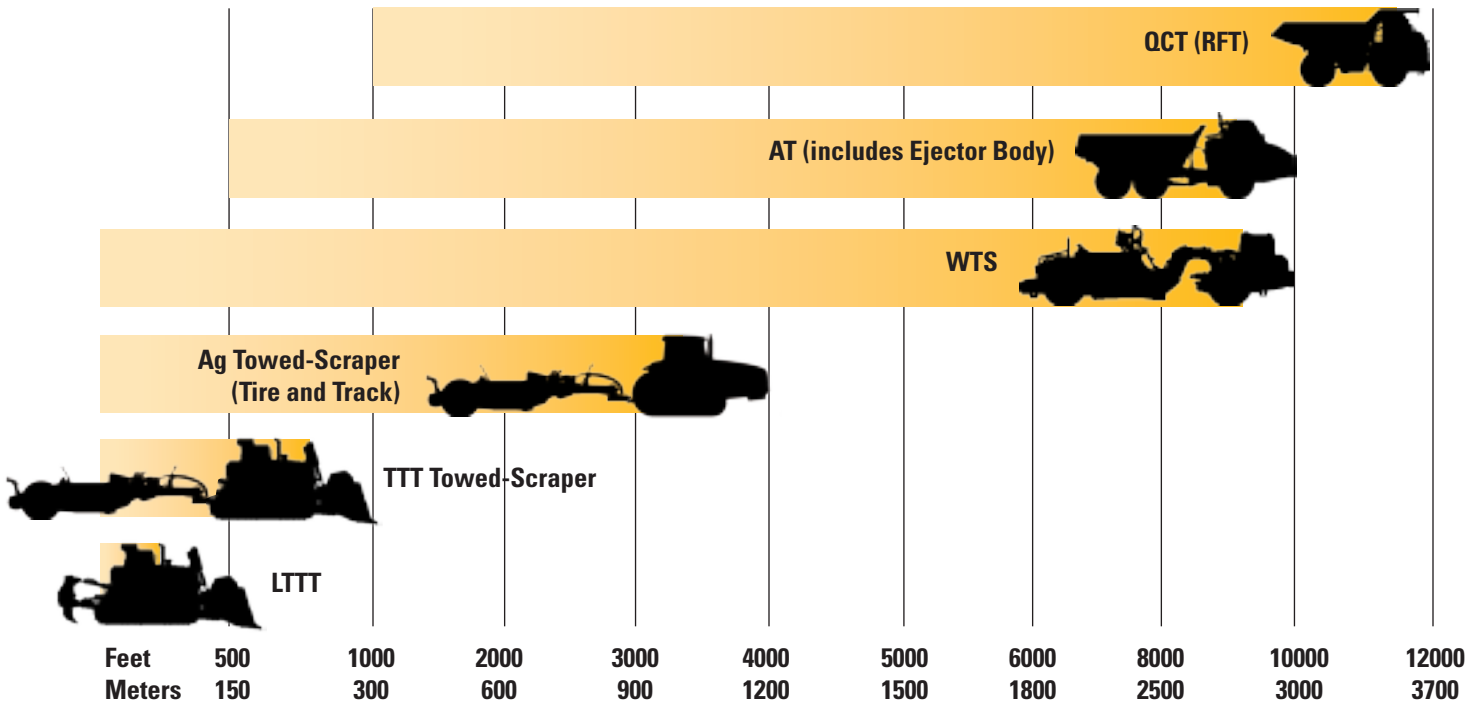
### How much material has to be moved?

Your fleet must be properly sized for the amount of material you need to move on the project. Also, to achieve daily production goals, you want to have the equipment within your fleet properly sized and matched to site conditions.

### What is the total job cycle distance?

All Cat® hauling systems are designed and built for endurance. But they are also designed for optimal performance over specific haul lengths. The selection of the proper hauling system for the project improves your production and lowers your cost per load.

### Optimal Loaded Haul Distances



# GOT A MATCH?

The machines within your hauling system must match each other's capabilities, as well as the demands of the worksite. For maximum production and efficiency, we recommend that loading tools and hauling tools match to achieve optimal hauling system performance. As a general rule, a hydraulic excavator should load the defined hauler in four to six passes. Wheel loaders should load the matched hauler in three to five passes.

## What are the job site time/production requirements?

Ultimately, every job is a race against time. But it's a race you can win, time and time again, when your hauling system is well matched to the job. Each system delivers a specific top travel speed at a defined capacity.

## Articulated Trucks Loaded by Hydraulic Excavators and Wheel Loaders

Model	Hydraulic Excavators			
	390/385	374/365	349/345	336/330
725			4	4-5
730			4-5	5-6
735		4	5	
740	3	4-5	6	
730 Ejector			4-5	
740 Ejector	3	4-5	6	

	Wheel Loaders					
	988	980	972	966	962	950
			3	3-4	4	4-5
		3	4	4-5	5	5-6
3	3-4	4-5	5	6		
3-4	4	5	5-6			
		3	4	4-5	5	5-6
3-4	4	5	5-6			

## Rigid Frame Trucks Loaded by Hydraulic Excavators and Wheel Loaders

Model	Hydraulic Excavators	
	390/385	374/365
770	3-4	3-5
772	4-5	6-7
773F	5-6	
775F	6	
777F		

	Wheel Loaders						
	992 STD	992 HL	990 STD	990 HL	988 4.25M	988 3.88M	980 STD
					3-3	3-3	4
			2-2	2-2	4	4	5-5
2-3	2-3	3-4	3-4	3-4	4-5	4-5	
	2-3	3-4	3-4	3-4	5-6	5-6	
4-5	4-5	4-5	4-5	4-5			

Target: 4 to 6 Pass Match for Hex loading Haulers - 3 to 5 Pass Match for Wheel Loaders loading Haulers

## Cat Towed Scrapers with Pull Units

	Track Type Tractors	Ag Tractors
<b>TS180</b>		
Single Scraper	D7	300 – 400 hp (224 – 298 kW)
Tandem Scrapers	D8	400 – 500 hp (298 – 373 kW)
<b>TS220</b>		
Single Scraper	D8	400 – 500 hp (298 – 373 kW)
Tandem Scrapers	D10	500 – 600 hp (373 – 447 kW)
<b>TS185</b>		
Single Scraper	D8	400 – 500 hp (298 – 373 kW)
Tandem Scrapers	D9	500 – 600 hp (373 – 447 kW)
<b>TS225</b>		
Single Scraper	D8	400 – 500 hp (298 – 373 kW)
Tandem Scrapers	D10	500 – 600 hp (373 – 447 kW)

## TTT Push Loading WTS System Match

	D8	D9	D10	D11
<b>621</b>	+	+		
<b>631</b>		+	+	
<b>627</b>	+	+		
<b>637</b>		+	+	
<b>657</b>				+

# HAULING CAPABILITIES FOR ANY JOB

No doubt about it—numerous methods to move material exist. Having multiple hauling systems on a single project gives you even more ways to combine them into a productive fleet. Let's take a look at individual machine capabilities.



## Articulated Trucks

Steep grades, rough terrain and non-existent haul roads call for a hauling unit that can adapt to almost any condition. A Cat® articulated truck delivers productivity in the most inhospitable environments.

Preferred solution for:

- Projects with tight loading areas and/or vertical cuts
- Working in adverse underfoot conditions, including soft cut and fill areas
- Traversing sites with poor or no established haul roads
- Managing routes with steep grades (inclines and declines)
- Handling extended haul distances between cut and fill areas



## Track-Type Tractors

The best way to get the job done is to keep moving. Cat track-type tractors deliver the traction and flotation needed in the worst underfoot conditions.

Preferred solution for:

- Limited haul distances in slot-dozing applications
- Large job sites or long-term projects
- Hard, dense and abrasive materials
- All-season operation in adverse weather conditions
- Working with a single-engine wheel tractor-scraper



## Towed Scrapers

Site preparation is just that: preparation for the next job. Highly maneuverable Cat towed scrapers keep you loading on the go so everyone on the job site can meet their deadlines.

Preferred solution for:

- Working in soft/poor underfoot conditions
- Movement of sand and dirt (no rocks or non-compressible material)
- Multiple applications such as residential construction, commercial construction, road building and landfill cell construction
- Traveling along flat haul roads and surfaces
- Applications requiring shallow cuts or light material stripping



## Quarry and Construction Trucks

Long hauls and heavy loads call for Cat rigid-frame trucks that are pass-matched to loading tools to improve cycle times and maximize productivity.

Preferred solution for:

- Traveling at high speed along well-maintained haul roads to loading and dump areas
- Hauling a broad range of material types using different liner packages
- Load times of two minutes or less for optimal production with a pass-matched wheel loader or hydraulic excavator
- Managing long haul distances and varying grades
- Large, multi-year projects, continuous running projects with high volumes of material



## Wheel Tractor-Scrapers

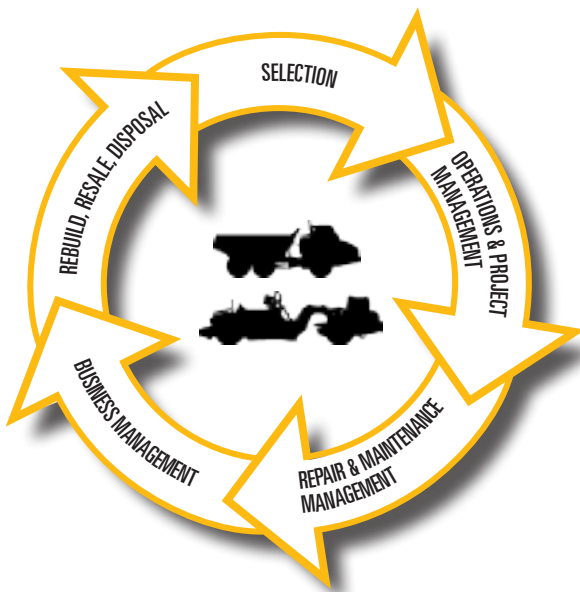
Single or tandem engine, tandem engine push-pull, open bowl, elevator, auger. With so many configurations available, if your hauling system calls for a Cat wheel tractor-scraper, you'll be able to specify a great match to your site and application.

Preferred solution for:

- Completing large projects within tight deadlines, including road construction, airports, dams, and large-scale residential and commercial development
- Moving high volumes of material under short time constraints
- Executing short to long loaded hauls from load to dump areas
- Traveling at high speed along well-developed haul roads
- Meeting project needs for high horsepower-to-weight ratios
- Moving a variety of material types, including some rock

# DEDICATED TO YOUR SUCCESS

Your hauling system must match your business goals. It must support the work you're doing today and allow you to adapt as opportunities change.



## Lifecycle Solutions

- Selection: What do I need to efficiently get the job done?
- Operations and Project Management: How can I achieve more productivity and efficiency?
- Repair and Maintenance Management: How can I develop capabilities that will lower my risk to obtain optimum life, availability and utilization?
- Business Management: How do I get data to manage my business that will enable proactive fleet management decisions?
- Rebuild/Resale/Disposal: What is the most cost-effective lifecycle plan for my assets?

Caterpillar and Cat® dealers can help you answer the questions that arise throughout the equipment lifecycle.

We deliver productivity solutions in the way that makes the most business sense for you, whether you lease, rent or buy the pieces of your hauling system.

Financing, insurance, maintenance plans? Talk to us. Need help with productivity studies or operator training? Count on us.

It takes more than a machine to move material profitably. It takes a partner dedicated to the success of your business.

**Let's start hauling.**

## **Managing production costs**

Caterpillar and Cat dealers are committed to delivering clear, concise and consistent recommendations on hauling system selection. Working with customers around the globe helps us understand different challenges and customer solutions on a regional basis.

When you receive a Fleet Production and Cost Analysis from us, you get a recommendation customized to your specific application needs and further refined by the characteristics of your worksite.

Our goal is to help you manage your production costs through the acquisition of the optimum hauling system for your needs.

We want you to have the information to select the proper hauling system based on facts and experience relevant to your operations.

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