

AD45

UNDERGROUND TRUCK



Nominal Payload Capacity:	45 000 kg / 99,208 lb
Gross Machine Mass:	89 250 kg / 196,765 lb
Engine Model:	Cat® C18
Engine Power —	
EU Stage V Engine:	446 kW / 598 hp
Engine Power —	
Tier 3 Engine / VR Engine:	433 kW / 581 hp



**UNDERGROUND
CHALLENGES.**

**INNOVATIVE
SOLUTIONS.**

Underground hard rock mining presents special challenges when it comes to safe, efficient, productive operation — from environmental concerns and rising costs to communications and connectivity challenges. Even simple logistical issues become harder to manage as you dig deeper underground in search of new reserves.

But you want to do more than address these challenges. You want to work harder and turn those challenges into opportunities to improve.



At Caterpillar, we feel the same way. We're committed to listening to your challenges and collaborating with you to find new ways to improve the way you mine. From increasing productivity and reducing emissions to lowering operating costs and reducing maintenance and more, Cat® hard rock underground trucks and loaders are designed to help you meet your challenges head-on.

But we never stop looking for opportunities to innovate and optimize. We continually improve our products and seek out new ways of mining, new ways to reduce impact, and new ways to get more out of game-changers like technology and automation.

No matter what you mine—or how far underground you mine it—you need an equipment provider that understands the unique problems you face, and that has years of experience in solving them. You need a partner like Caterpillar.



CAT[®] AD45

UNDERGROUND TRUCK



A RELIABLE TRUCK WITH EMISSION CONTROL OPTIONS

Powered by a fuel-efficient Cat[®] C18 engine and available with a number of emission reduction solutions, the Cat AD45 underground truck is an ultra-clean diesel machine that can help you drive down costs and meet your sustainability goals while delivering the productivity you demand.

The AD45 is a reliable, efficient performer that's perfectly matched with the next-generation R1700 underground loader for peak production. It's also enhanced by a number of technology features that improve productivity, boost uptime and keep your people safer.

SUPERIOR BRAKE PERFORMANCE

- » Integrated braking system
- » Four-wheel, multiple disc brakes
- » Automatic Retarder Control

BUILT FOR OPERATORS

- » Integrated and isolation mounted protective structures
- » Enhanced visibility and standard cameras
- » Monitoring system for easy access to data
- » Optional enclosed cab with sound suppression



RUGGED DESIGN

- » Sturdy frame and structures
- » Articulating and oscillating hitch
- » Independent suspension cylinders for long life

HAUL MORE EVERY LOAD AND EVERY CYCLE

The AD45 is powered by a Cat C18 engine, which provides efficient fuel management, quick response times, high productivity and exceptional service life. The fuel injection system electronically monitors operator demands and sensor inputs for optimized performance, and an air-to-air aftercooling system improves fuel economy and lowers emissions.

The AD45 can be fitted with an EU Stage V emissions package for mines that require compliance with the strictest emissions standards—or for customers looking to improve air quality and reduce emissions without sacrificing machine performance. We also offer a Ventilation Reduction Package and an optional U.S. EPA Tier 3/ EU Stage IIIA engine, allowing you to customize the AD45 to meet your mine's needs.

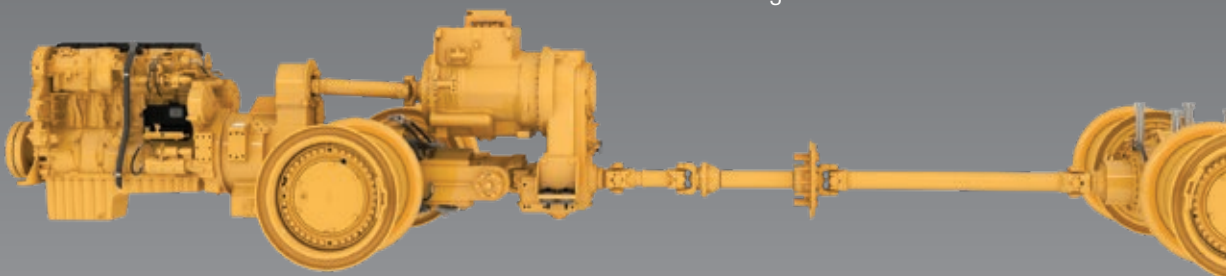


MORE POWER TO THE GROUND

The AD45's mechanical powertrain and power shift transmission offer unmatched operating efficiency and control on steep grades and poor underfoot conditions. The transmission is built tough for long life in rugged conditions, with a lock-up

torque converter and clutch that deliver superior efficiency and a smoother, more comfortable ride.

Intelligent electronics protect the machine by regulating speed and engine RPM, reducing fuel consumption and simplifying troubleshooting.



A TRUCK YOU CAN DEPEND ON

The AD45 was designed to give customers the long life and enhanced durability they expect from larger Cat machines. Its frame is constructed using box sections with stiff frame beams to resist twisting forces.

An articulating and oscillating hitch helps the truck maintain all-wheel ground contact even in rough terrain, providing better control and reducing stress on the hitch. Two independent, variable-rebound suspension cylinders dissipate haul road forces to extend frame life and give the operator a smooth, comfortable ride.





A COMFORTABLE OPERATOR IS A PRODUCTIVE OPERATOR

The AD45's operator station is ergonomically designed for greater control in a comfortable, productive, safe environment. Controls, levers, switches and gauges are positioned to maximize productivity and minimize operator fatigue. An ergonomic, fully adjustable suspension seat offers superior comfort for long shifts.

We offer both enclosed and open cabs to meet your needs. The open cab is isolation mounted for reduced vibration, while the enclosed cab is fully sealed and offers:

- + Sound and vibration suppression
- + Filtered air
- + HVAC for operator comfort

BUILT FOR CONTROL

The integrated Cat braking system delivers reliable performance and control in even the most extreme underground mining conditions. It combines the service, secondary, parking brake and retarding functions in the same robust system for optimum braking efficiency. Automatic brake modification offers a smoother ride and better control for improved operator comfort and concentration.

Oil-Cooled Multiple Disc Brakes

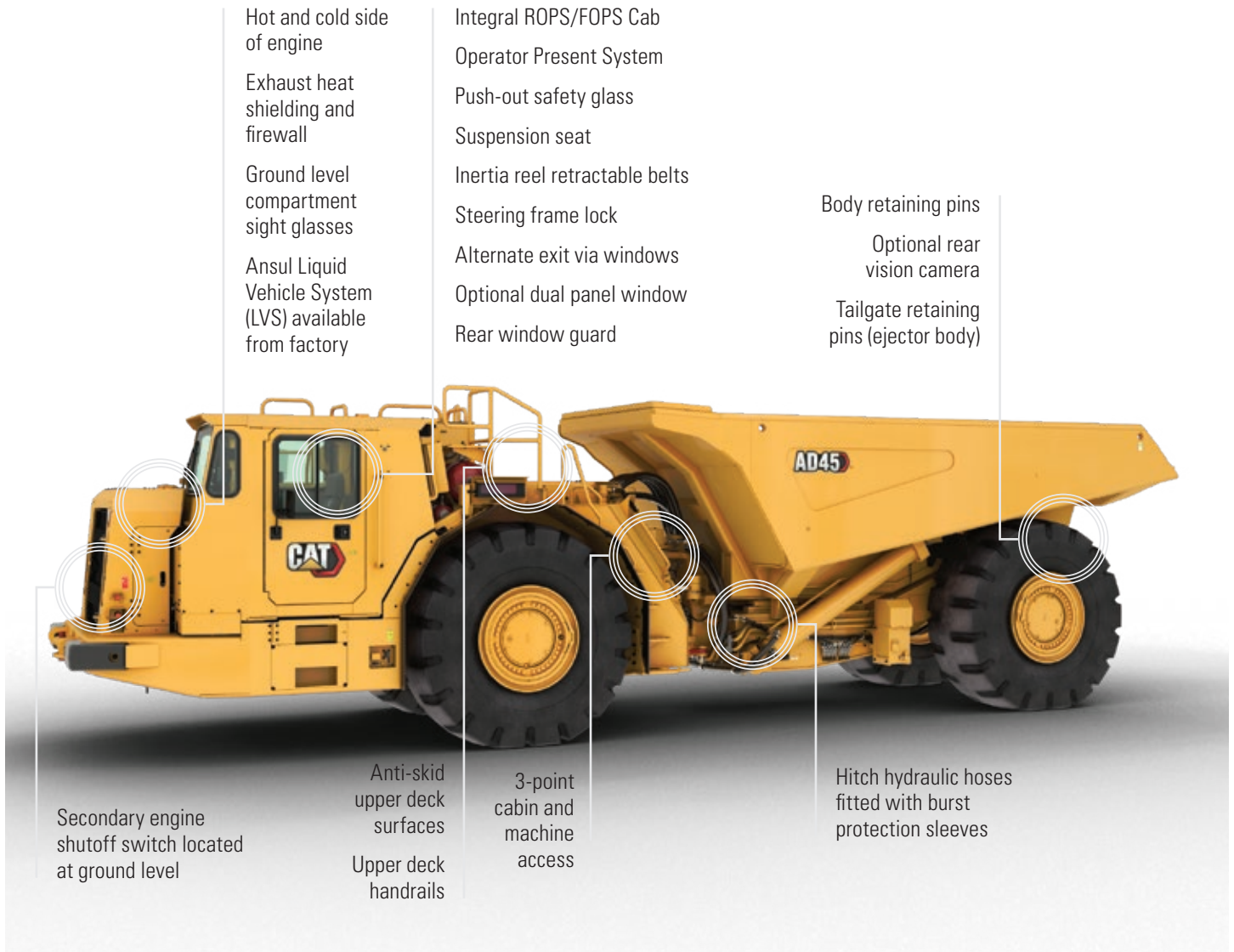
Four-wheel, forced oil-cooled multiple disc service brakes are continuously cooled by water-to-oil heat exchangers for non-fade braking and retarding performance. They are also completely enclosed to prevent contamination and reduce maintenance.

Automatic Retarder Control (ARC)

ARC electronically controls retarding on grade to maintain optimum engine RPM and oil cooling. Additional braking may be applied using the manual retarder or the brake pedal. ARC also allows the operator to maintain optimum engine speeds for faster downhill hauls and greater productivity. The ARC automatically activates when engine speed exceeds factory preset levels.

SAFETY-INFUSED

We continue to be proactive in developing new features that help you ensure the safety of everyone working in, on or around the machine. The AD45 is designed with safety in mind—from excellent visibility to improved access and egress, industry-leading braking and retarding to a secondary engine shutoff switch.



OPERATOR PRESENT SYSTEM

The Operator Present System helps protect the machine and operator from uncontrolled movements. The system automatically engages the parking brake, neutralizes the steering implement and transmission control and shuts down the engine in the event the operator fails to apply the park brake prior to exiting the cab. The engine shutdown configuration can be changed by your Cat dealer using the Cat ET service tool.



Choosing the right body to meet your needs is critical to achieving optimal performance from your machine. The AD45 features two specific body styles, a traditional dump body and an ejector body, so you can choose the most efficient solution for your operation. In addition, the ejector body can be easily removed and replaced with a dump body for a more versatile machine. Your Cat dealer can help you select the right body for your specific application.

— THE —
**RIGHT
BODY**
FOR THE JOB



BODY DESIGN

Drawing on years of experience, Cat truck bodies are designed for long service life and low cost per ton. Cat truck bodies deliver optimal strength, capacity and durability.

BODY/CHASSIS INTEGRATION

Cat truck bodies are designed and matched with the integrated chassis system for optimum structural reliability, durability and long life.

FAST HOIST CYCLE TIMES

Two-stage hoist cylinders provide fast dump cycle times of 13 seconds for raise and 24 seconds for lower with snubbing function enabled to protect the frame and components at the end of the lowering cycle.





MINING SMARTER

THROUGH TECHNOLOGY

The AD45 incorporates technology enhancements that help you get more out of your investment — improving efficiency, boosting productivity and lowering costs.



TRUCK PAYLOAD MANAGEMENT SYSTEM

TPMS allows a mining operation to manage payloads and ensure that trucks are not under- or overloaded. A simple display in the cab gives operators accurate payload information, allowing them to help make sure their trucks are getting the correct amount of material every time.

CAT PRODUCT LINK™ ELITE

Product Link Elite (PLE) is a network management module that helps deliver critical data allowing you to easily monitor and manage the health and performance of your machines. It stores and transfers data both to local sources and Caterpillar or your Cat dealer, making it easy to share data and enabling fast remote support and services.

PLE serves as a connectivity enabler for dealer-provided condition monitoring services. It also integrates with Health Equipment Insights, Cat Equipment Care Advisor and MineStar Fleet and Health for diagnostic and equipment management.



CAT MINESTAR™ SOLUTIONS

It's no secret that underground mining presents special challenges when it comes to safe, efficient operation. That's why we tailor MineStar Solutions to the unique needs of your environment. Individual technology offerings can be deployed individually or integrated to create a comprehensive technology system that is scalable and configurable to the needs of your operation.

Fleet for underground provides real-time visibility to cycle time, payload and other key operational parameters and automatically records and tracks data up and down the value chain.

Detect for underground uses a high-precision peer-to-peer proximity detection system coupled with a revolutionary communications and tracking network to prevent incidents and track people and machines — wherever they are underground — in real time and with no reliance on mine infrastructure.

MineStar Health products and services enable you to collect and transmit equipment machine health data that enables proactive maintenance services and predictive equipment analysis.



MORE TIME HAULING, LESS TIME SERVICING

The AD45 is designed for ease of maintenance, driving down costs and maintenance times so you can keep working.

SERVICE ACCESS

Easy access to daily service points simplifies servicing and reduces time spent on regular maintenance procedures.

GROUND-LEVEL ACCESS

This feature allows convenient servicing of all tanks, filters, lubrication points and compartment drains. Electric fuel priming and remote mounted fuel filters allow for easier serviceability.

AIR FILTERS

Radial seal air filters are easy to change, reducing time required for air filter maintenance.

SIGHT GAUGES

Fluid level checks are made easier with sight gauges visible from ground level.

DIAGNOSTICS

Cat ET enables quick electronic diagnosis of machine performance and key diagnostic data for effective maintenance and repairs.

SEALED ELECTRICAL CONNECTORS

Electrical connectors are sealed to lock out dust and moisture. Harnesses are covered for protection. Wires are color- and number-coded for easy diagnosis and repair.

SCHEDULED OIL SAMPLING

S-O-SSM helps detect faults early, keeping minor repairs from becoming major ones. Sample point adapters are fitted standard to the machine.

MINING — FOR A — **BETTER WORLD**

Governments and regulatory agencies mandate that you establish and follow environmentally sound policies and practices as you meet the demand for mined materials. We're focused on doing our part to make sure our machines help you meet those regulations. Every piece of Cat equipment is designed to be better and do better. Because the better we mine, the better the world can be.

At Caterpillar, we continue to research alternative energy sources such as biofuels and liquefied natural gas and power options like electrification to find new ways to reduce emissions. Underground mining continues to be an early adopter of sustainable mobile equipment solutions, based on the need for a clean and safe working environment.

In addition, we rebuild and remanufacture parts, components and complete machines to increase the lifespan of equipment — reusing instead of discarding, conserving energy, reducing waste, keeping nonrenewable resources in circulation for multiple lifetimes and minimizing the need for new raw materials. We're also listening to our customers and investigating ways we can help them in their efforts to recycle end-of-life machines and components.

Retrofits and upgrades enhance and improve older machines to incorporate efficiency improvements and emission reductions, and to keep them in production longer to conserve energy, lower emissions and minimize the need for raw materials.



SUPPORTING YOU UNDERGROUND: A TEAM THAT LISTENS, CUSTOMIZES & COLLABORATES

YOUR PARTNER FOR THE COMPLETE EQUIPMENT LIFECYCLE

No one knows more about how to get the most from a piece of Cat equipment than Caterpillar and your local Cat dealer. Our partnership starts with validation and testing of the machine and continues through its complete lifecycle.

The one-of-a-kind Cat dealer support network delivers expert service, integrated solutions, after-sales support, fast and efficient parts fulfillment, world-class rebuild and remanufacturing capabilities and more.

Cat dealers operate as nearly 200 local businesses — each one fully embedded in and committed to the geographic area it serves. That means you work with people you know, who know your business, and who respond on your timeframe.

Caterpillar and Cat dealer personnel will partner with you on site to improve the performance not only of your equipment, but of your overall loading and hauling operation.

You'll have access to parts and service, as well as technicians who are focused on helping you optimize repairs to keep machines productive. And we help with training to ensure your operators have the skills and knowledge they need to work as efficiently and productively as possible.

We also work alongside you to ensure you achieve maximum value throughout the life of your equipment. Together with our Cat dealer network, we customize service offerings to provide a maintenance solution that fits your operation — whether you want to perform the majority of service yourself, or you're looking for an onsite partner to manage your maintenance organization. We're also consultants who can help you make smart decisions about buying, operating, maintaining, repairing, rebuilding and replacing equipment.

MAXIMIZE THE VALUE OF YOUR EQUIPMENT



Your journey with a piece of Cat equipment begins when you decide to make the purchase. But that's just the first of many decisions you'll need to make throughout its lifecycle. Caterpillar and Cat dealers offer dozens of equipment management services that help you take care of your machine after it goes to work — from individual offerings that augment your own capabilities to comprehensive solutions that allow you to outsource the management of your fleet.

Together with Cat dealers, we go beyond supporting individual products to focus on complete operations:

- + Providing services that ensure you have machines available when you need them.
- + Helping you better understand how to optimize equipment performance and maximize its life.
- + Leveraging equipment health data and sophisticated analytics to enable a preventive approach to maintenance.
- + Helping you make smart decisions about buying, operating, maintaining, repairing, rebuilding and replacing equipment.
- + Helping you choose the right repair option at the right time in the equipment lifecycle to keep machines on the job.



TECHNICAL SPECIFICATIONS

See cat.com for complete specifications.

ENGINE		
Engine Model	Cat® C18	
Engine Power – VR Engine – ISO 14396:2002	433 kW	581 hp
Engine Power – U.S. EPA Tier 3/ EU Stage IIIA Equivalent Engine – ISO 14396:2002	433 kW	581 hp
Engine Power – Stage V Engine – ISO 14396:2002	446 kW	598 hp
Bore	145 mm	5.7 in
Stroke	183 mm	7.2 in
Displacement	18.1 L	1104.5 in ³

TRANSMISSION		
Forward – 1st	7.0 km/h	4.4 mph
Forward – 2nd	9.5 km/h	5.9 mph
Forward – 3rd	12.9 km/h	8.0 mph
Forward – 4th	17.3 km/h	10.8 mph
Forward – 5th	23.5 km/h	14.6 mph
Forward – 6th	31.7 km/h	19.7 mph
Forward – 7th	42.4 km/h	26.4 mph
Reverse – 1st	6.8 km/h	4.2 mph
Reverse – 2nd	9.0 km/h	5.6 mph
+ Maximum travel speeds with standard 29.5 × R29 tires.		

OPERATING SPECIFICATIONS		
Nominal Payload Capacity	45,000 kg	99,208 lb
Gross Machine Mass	89 250 kg	196,765 lb

WEIGHT DISTRIBUTION		
	Stage V Engine Model	Other Engine Models
Empty		
Front Axle	70.7%	69.3%
Rear Axle	29.3%	30.7%
Loaded		
Front Axle	46.8%	45.5%
Rear Axle	53.2%	54.5%

BODY CAPACITIES		
Dump Body – 1	18.00 m ³	23.6 yd ³
Dump Body – 2 (Standard)	21.30 m ³	27.9 yd ³
Dump Body – 3	25.10 m ³	32.8 yd ³
Ejector Body	22.90 m ³	29.9 yd ³
+ Heaped SAE 2:1		

BODY HOIST		
	Stage V Engine Model	Other Engine Models
Raise Time	15.0 sec	14.0 sec
Dump Time	21.0 sec	21.0 sec
Total Cycle Time	36.0 sec	35.0 sec

TURNING DIMENSIONS		
Outside Clearance Radius	9420 mm	371 in
Inside Turning Radius	5310 m ³	209 yd ³
Frame Oscillation	10°	
Articulation Angle	42.5°	

MACHINE DIMENSIONS		
Dump Body (STD)	21.3 m ³	27.9 yd ³
Height – Top of Empty Body	3035 mm	119.5 in
Height – Top of ROPS	2820 mm	111.0 in
Height – Body Loading	2924 mm	115.1 in
Height – Dump Clearance	659 mm	25.9 in
Height – Top of Raised Body	6361 mm	250.4 in
Height – Ground Clearance	441 mm	17.4 in
Height – Top of Load (SAE 2:1)	3628 mm	142.8 in
Length – Maximum Body Raised	11 620 mm	457.5 in
Length – Overall Body Down	11196 mm	440.8 in
Length – Front Axle to Front Bumper	3720 mm	146.5 in
Length – Front Axle to Hitch	1920 mm	75.6 in
Length – Wheel Base	5570 mm	219.3 in
Length – Rear Axle to Tail	1906 mm	75.0 in
Length – Rear Wheel to Raised Body	1275 mm	50.2 in
Width – Overall Tire	3020 mm	118.9 in
Width – Machine with Body	3020 mm	118.9 in
Width – Machine without Body	3020 mm	118.9 in
Recommended Clearance Width*	4500 mm	177.2 in
Recommended Clearance Height*	4500 mm	177.2 in
* Clearance dimensions are for reference only.		

TIRES, RIMS, AND WHEELS		
	Standard	Optional
Tires (choose from)	x	
Tire, 29.5 × R29 VSNT Bridgestone		
Tire, 29.5 × R29 VSDL Bridgestone		
Rims (set of 4)	x	

STANDARD AND OPTIONAL EQUIPMENT

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

POWERTRAIN		
	Standard	Optional
Brake retarder control, automatic	x	
Brakes: All wheel disc, Oil cooled	x	
Parking brakes, four wheels	x	
Control throttle shifting	x	
Cat C18 six cylinder diesel engine, Air-to-air aftercooler (ATAAC)	x	
Engine options, choose from:		
Engine, Stage V		x
Engine, Ventilation Reduction (VR)		x
Equivalent to Tier 3		x
After-treatment options (for use with VR engine only) Diesel Particulate Filter - (DPF) (flow through) filter		x
Fast Fill System		x
Four wheel drive	x	
Fuel priming aid	x	
Park Brake Switch Engagement – Push to Apply/Pull to Apply		x
Precleaner, engine air intake	x	
Secondary steering		x
Transmission, automatic planetary power shift (7F/2R)	x	
Torque converter with automatic lockup	x	
Torque converter, high altitude, 3000m (9,842ft) and up		x

ELECTRICAL		
	Standard	Optional
Alarm, reversing	x	
Alternator, 95 amp	x	
Disconnect switch, ground level	x	
Electric starting, 24V	x	
Lights, LED:Headlights with dimmer switch; Brake and tail lights; Reversing light; Work light	x	
Battery Shutdown		
Ground Level Isolation, In Cab Isolation Switch		x
Ground Level Isolation, Engine Shutdown Switch		x
Ground Level Isolation, In Cab Isolation, Engine Shutdown Switch		x
Receptacle Group, auxiliary start	x	
Starting and Charging system	x	

TECHNOLOGY		
	Standard	Optional
Product Link Elite – Machine health information	x	
Truck Payload Measurement System (TPMS)		x

OPERATOR ENVIRONMENT		
	Standard	Optional
Cab, ROPS/FOPS certified		
Open	x	
Enclosed		x
Caterpillar Electronic Monitoring System (CEMS), dash instrument panels	x	
Operator Presence System	x	
Automatic Brake Application (ABA)	x	
Brake Pressure Gauges		x
Gauges	x	
Indicator lights	x	
Low hydraulic oil level alarm	x	
Mirrors, rear view	x	
Seat, suspension operator seat with retractable seat belt	x	
Seat, trainer/passenger with seat belt	x	
Steering wheel, tilt/telescopic	x	

OTHER EQUIPMENT		
	Standard	Optional
Adapters, oil sample	x	
Alarm, tray up	x	
Ansul Fire Suppression, Wet		x
Axle suspension, front	x	
Belly guards	x	
Bumpers, front, rubber	x	
Cap, radiator, manual release	x	
Cameras		
Color, rear facing		x
Color, loading		x
Catalytic exhaust purifier/muffler	x	
Covers, exhaust	x	
Dual fuel tanks	x	
Handholds and Handrails	x	
Handrail extension		x
Hitch, articulated and oscillated	x	
Dump body (21.3 m ³ /27.9 yd ³)	x	
Dump body (18.0 m ³ /23.5 yd ³ ; 25.1 m ³ /32.8 yd ³)		x
Ejector Body (22.9 m ³ /30.0 yd ³)		x
Body Liners, Wear Plate, Wear Protection Option		x
Fluids – Arctic Fuel, Arctic Coolant		x
Cover, Anti Vandalism for Shipping		x
Lubrication System		
Automatic, dump or ejector body		x
Centralized, ejector body		x
Minetransfer		x
Scheduled Oil Sampling (S-O-S SM) port	x	



AD45 TRUCK

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

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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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