



CAT® UNDERGROUND

HARD ROCK MINING SAFETY

COMMITTED TO HELPING SOLVE THE TOUGHEST UNDERGROUND SAFETY CHALLENGES

Underground hard rock mining is demanding by nature – and it raises safety challenges that can also impact productivity and cost.

From ventilation and environmental constraints to communications, connectivity, and logistics, risks and complexity increase as operations go deeper in search of new reserves.

Caterpillar works with mining customers to reduce operating costs while continuously improving employee safety. We develop reliable mining machines designed to meet or exceed applicable safety standards where required and when properly configured. In collaboration with customers, we focus on adding features that increase value and enhance safety across our products and systems.

Cat® Underground Mining Loaders and Trucks offer a range of safety features. Standard features help support safer operation, maintenance and service. Optional features address site-specific needs to further enhance safety and productivity.

No matter what you mine or how deep you mine it, you need an equipment provider who understands underground challenges and has proven experience solving them.



TRACK, MONITOR, AUTOMATE, AND MANAGE YOUR ASSETS WITH CAT MINESTAR™ SOLUTIONS

Cat underground loaders and trucks can be equipped with Cat MineStar™ Solutions – an integrated suite of technologies that helps customers manage equipment, improve uptime, enhance safety, and automate operations. Whether your site is small or large, simple or complex, Cat MineStar Solutions can help address the everyday challenges of underground mining

CAT MINESTAR DETECT

Detect provides in-cab alerts that can prevent unintended interactions between people and assets. Detect is compatible with mixed fleets, helping improve safety regardless of equipment brand.



CAT MINESTAR COMMAND

Command for underground enables remote operation of underground loaders, allowing you to relocate operators to a safe, comfortable location underground or on the surface.



Explore Cat MineStar

Complete Underground Technology Offerings
www.cat.com/minestarforunderground

We design safety into machines and systems from the start – because it is a top priority.

Below is the complete list of standard and optional safety features for Cat Underground Mining Loaders and Trucks.

Use the tables below to review which safety features are included as standard equipment and which are available as options.

UNDERGROUND MINING LOADERS



HUMAN SAFETY	UNDERGROUND MINING LOADERS	R1300G	R1600H	R1700	R1700 XE	R2900 XE
Access	3-point contact cab and machine access	●	●	●	●	●
	Anti-skid upper deck surfaces	●	●	●	●	●
	Handhold	●	●	●	●	●
	Handrails			○	○	○
Brakes	Brake axle cooling		●	●	●	●
	Brake release pump (portable)	○	○	○	○	○
	Brake release, recovery bar or hook	○	○	○	○	○
	Brakes meet CAN-CSA424.3	●	●	●	●	●
	Brakes meet ISO 3450	●	●	●	●	●
	Brakes, enclosed wet disc, full hydraulic (SAFR™)	●	●	●	●	●
	Residual brake pressure light	●	●	●	●	●
	Transmission neutralizer	●	●	●	n/a*	n/a*
*The electric drive transmissions do not need a neutralizer and can perform a seamless slow creep whilst operating the hydraulics at full capacity.						
Cab/Canopy	Falling object protective structure (FOPS) meets ISO 3449	●	●	●	●	●
	Rollover protective structure (ROPS)/FOPS, enclosed cab	○	○	○	●	●
	ROPS meets ISO 3471	●	●	●	●	●
	Window dual zip seal (enclosed cab)			●	●	●
	Emergency exit(s)	●	●	●	●	●
Controls	Electronic autoshift	●	●	●	●	●
	Remote control recovery bar	○	○	○	○	○
	Remote control, proportional	●	●	●	●	●
	Remote, transmitter receiver		○	○	○	○
	Ride control	○	○	○	○	○
	Secondary steering	●	●	●	●	●
	Steering and Transmission Integrated Control (STIC™) steering	●	●	●	●	●
	Operator Presence System	●	●	●	●	●
External Worker Safety	Back-up alarm	●	●	●	●	●
	Horn, electric	●	●	●	●	●
	Wheel chocks		○	○	○	○
HVAC/ Operator Health	Air conditioning	●	●	●	●	●
	Cab air filter	●	●	●	●	●
	High efficiency cab air filters HEPA					○
	Cab heater (for enclosed cab)	●	●	●		●
	Cab pressurization	●	●	●	●	●
Seat/Comfort	Inertia reel retractable seat belt	●	●	●	●	●
	Tee or air suspension seat	○	○	○	○	○

Standard = ● Compliance notice: Some features marked as "optional" may be required by safety laws, regulations, codes, or standards in your area. Before installing or using this product, check and follow all local requirements that apply where the product will be installed or used.

Optional = ○

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UNDERGROUND MINING LOADERS (CONTINUED)



HUMAN SAFETY	UNDERGROUND MINING LOADERS	R1300G	R1600H	R1700	R1700 XE	R2900 XE
Serviceability	Bucket control group safety pin	○	○	○	○	○
	Fuel tank, fast fill		○	○		○
	Ground-level access	●	●	●	●	●
	Ground-level compartment sight gauges	●	●	●	●	●
	Ground-level disconnect/isolation switch	●	●	●	●	●
	Ground-level shutdown switch	●	●	●	●	●
	In-cab fluid check					
	Lubrication, semi-central, central or automatic	○	○	○	○	○
	Service fluids, fast fill	○	○	○	○	○
	Service oil sample	○	○	○	○	○
	Steering frame lock	●	●	●	●	●
	Swing-out radiator grill	●	●	●	●	●
	Service bay light			○	○	○
	Tire pressure monitoring		○	○	○	○
Visibility	Dome light	●	●	●	●	●
	External lighting system (front and rear)	●	●	●	●	●
	Lower cab light			●	●	●
	Wiper/washer	●	●	●	●	●
	Truck loading light			○	○	○
	Cameras			○	○	○
MACHINE SAFETY	UNDERGROUND MINING LOADERS	R1300G	R1600H	R1700	R1700 XE	R2900 XE
Guardings	Hinged belly guard	●	●	●	●	●
	Fenders (front and rear)	●	●	●	●	●
	Window protection guards		○	○	○	○
Miscellaneous	Auxiliary start receptacle	○	○	○	○	●
	Fire suppression system			○	○	○
	Heat shields	●	●	●		●
	Hot and cold side of engine	●	●	●		●
	Manual fuel tap shutoff (single or dual)	●	●	●		●
	Payload Monitoring System			○	○	○
	Reflective tape package			○	○	○
SUSTAINABILITY	UNDERGROUND MINING LOADERS	R1300G	R1600H	R1700	R1700 XE	R2900 XE
Sustainability	Exhaust purifier	●	●	●		●
	Exhaust particulate filter	○	○	○		○
	Zero engine exhaust emissions				●	
TECHNOLOGY	UNDERGROUND MINING LOADERS	R1300G	R1600H	R1700	R1700 XE	R2900 XE
Technology	Cat® Minestar™ Detect	○*	○*	○*	○*	○*
	Cat Minestar™ Command		○*	○*		○*

*Optional as retrofit

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Optional = ○

UNDERGROUND MINING TRUCKS



HUMAN SAFETY	UNDERGROUND MINING TRUCKS	AD30	AD45	AD63
Access	3-point contact cab and machine access	●	●	●
	Anti-skid upper deck surfaces	●	●	●
	Handhold	●	●	●
	Handrails			○
Brakes	Brake axle cooling	●	●	●
	Brake release pump (portable)	○	○	○
	Brakes meet CAN-CSA424.3	●	●	●
	Brakes meet ISO 3450	●	●	●
	Brakes, enclosed wet disc, full hydraulic (SAFR™)	●	●	●
	Residual brake pressure light			●
Cab/Canopy	FOPS meets ISO 3449	●	●	●
	ROPS/FOPS, enclosed cab	●	●	●
	ROPS meets ISO 3471	●	●	●
	Window dual-zip seal (enclosed cab)	●	●	●
	Emergency exit(s)	●	●	●
Controls	Electronic autoshift	●	●	●
	Secondary steering	●	●	●
	Operator Presence System	●	●	●
External Worker Safety	Back-up alarm	●	●	●
	Horn, electric	●	●	●
	Wheel chocks	○	○	○
HVAC/ Operator Health	Air conditioning	●	●	●
	Cab air filter	●	●	●
	High efficiency cab air filters HEPA			○
	Cab heater (for enclosed cab)	●	●	●
	Cab pressurization	●	●	●
Seat/Comfort	Inertia reel retractable seat belt	●	●	●
	Tee or air suspension seat	○	○	○

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Optional = ○

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UNDERGROUND MINING TRUCKS (CONTINUED)



HUMAN SAFETY	UNDERGROUND MINING TRUCKS	AD30	AD45	AD63
Serviceability	Truck body retaining pin	●	●	●
	Fuel tank, fast fill	○	○	○
	Ground-level access	●	●	●
	Ground-level compartment sight gauges	●	●	●
	Ground-level disconnect/isolation switch	●	●	●
	Ground-level shutdown switch	●	●	●
	Lubrication, semi-central, central or automatic	○	○	○
	Service fluids, fast fill	○	○	○
	Service oil sample	○	○	○
	Steering frame lock	●	●	●
	Swing-out radiator grill	●	●	●
	Dual service platform access	●	●	●
	Tilt cab			●
Visibility	Dome light	●	●	●
	External lighting system (front and rear)	●	●	●
	Lower cab light	●	●	●
	Wiper/washer	●	●	●
	Cameras	○	○	○
MACHINE SAFETY	UNDERGROUND MINING TRUCKS	AD30	AD45	AD63
Guardings	Hinged belly guard	●	●	●
Miscellaneous	Auxiliary start receptacle	●	●	●
	Fire suppression system		○	○
	Heat shields	●	●	●
	Hot and cold side of engine	●	●	
	Manual fuel tap shutoff (single or dual)	●	●	●
	Payload Monitoring System	○	○	○
	Reflective tape package	○	○	○
SUSTAINABILITY	UNDERGROUND MINING TRUCKS	AD30	AD45	AD63
Sustainability	Exhaust purifier	●	●	●
	Exhaust particulate filter	○	○	○
TECHNOLOGY	UNDERGROUND MINING TRUCKS	AD30	AD45	AD63
Technology	Cat Minestar™ Detect	○*	○*	○*

*Optional as retrofit

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CATERPILLAR SAFETY SERVICES

Safety has always been central to Caterpillar's work. As we strengthened our own safety culture, we found many of the challenges we faced were the same ones other organizations face every day.

Since the 1970s, Caterpillar Safety Services has supported hundreds of organizations worldwide in building stronger safety cultures. We've learned that sustainable success depends on resilience.

Caterpillar Safety Services helped catalyze improvement within Caterpillar, and those same solutions now help organizations across industries strengthen safety performance over time. Wherever you are in your safety journey, we can help you establish the foundation and build the capabilities for a more resilient culture.

With locations across the globe, Caterpillar Safety Services supports customers worldwide.

Find out how we can help your organization

www.cat.com/safety





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

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