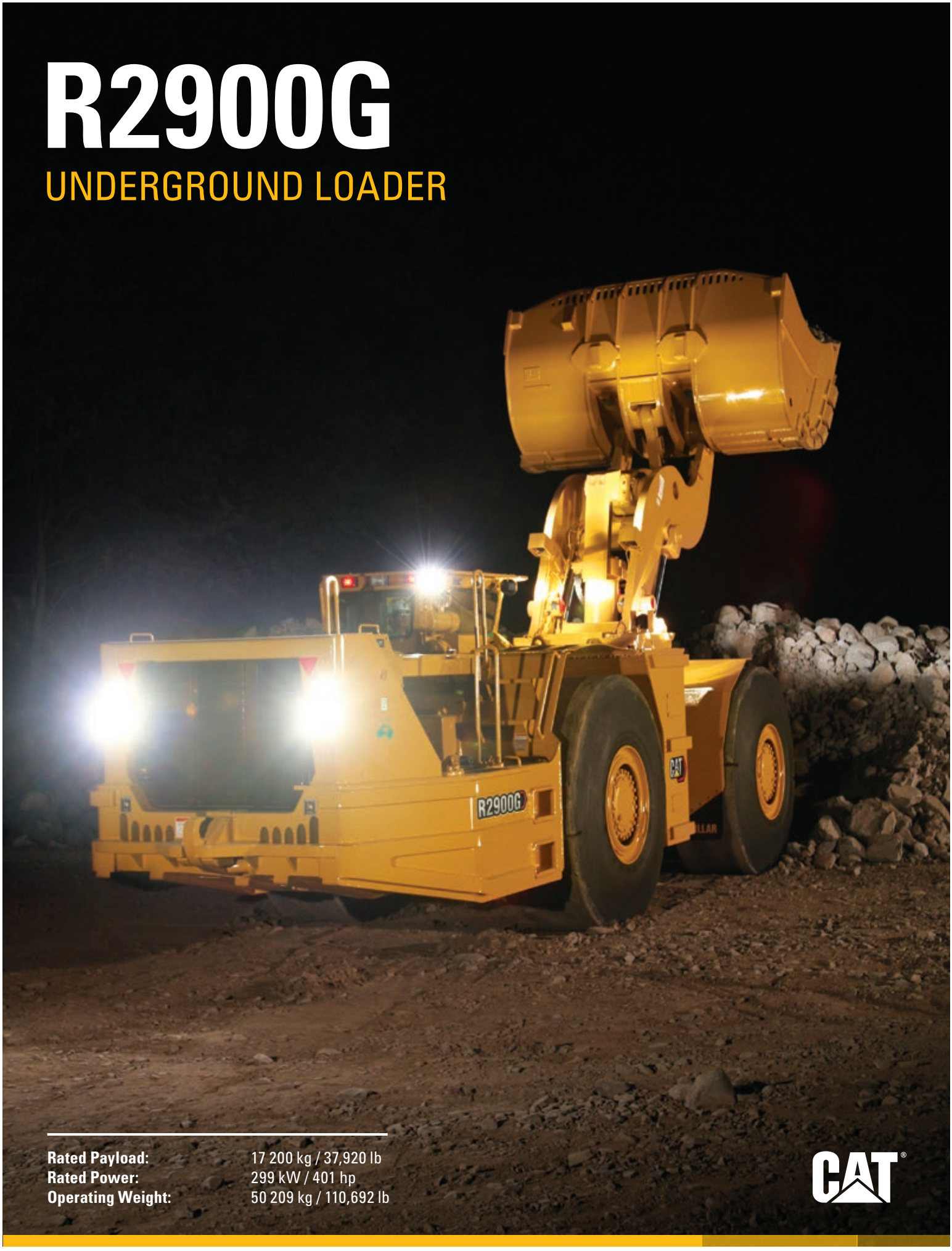
R2900G

UNDERGROUND LOADER



Rated Payload:	17 200 kg / 37,920 lb
Rated Power:	299 kW / 401 hp
Operating Weight:	50 209 kg / 110,692 lb

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 loaders and trucks are designed to help you meet your challenges head-on.

But we never stop looking for new ways 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® R2900G

UNDERGROUND LOADER

ENGINEERED FOR PERFORMANCE. DESIGNED FOR COMFORT. BUILT TO LAST.

The Cat R2900G underground loader is designed for high-production, low-cost-per-ton loading and tramming in underground mining applications. An operator favorite, it delivers a safe, comfortable ride in a cab equipped with easy-to-use controls and efficiency-boosting features that optimize performance and maximize productivity. Its compact design provides agile performance combined with rugged construction and simplified maintenance to ensure excellent productivity, long life and low operating costs.

MAXIMIZED OPERATOR EFFICIENCY

» Comfort, handling and ride quality
» Integrated, effortless controls

FACTORY-READY FOR CAT MINESTAR™ SOLUTIONS

» Remote operation
» Machine health monitoring solutions

BUILT TO LAST

Rugged construction and easy maintenance deliver long life with low operating costs

LOAD MORE EVERY CYCLE

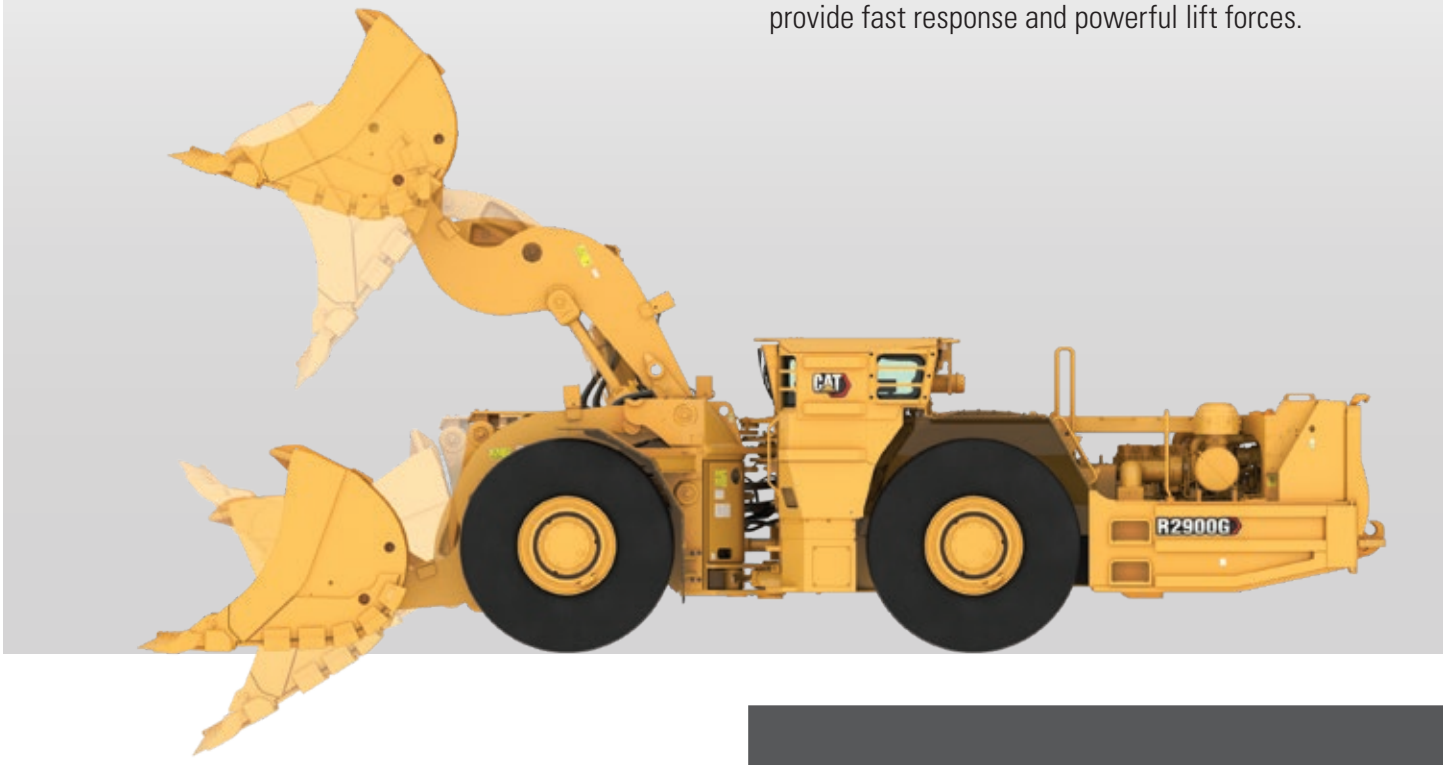
The R2900G delivers fast cycle times, increased operator efficiency, optimized performance and exceptional digging and lifting forces to bring high productivity to your operation.

EXCEPTIONAL DIGGING AND LIFTING

Powerful Cat hydraulics deliver exceptional digging and lifting forces and fast cycle times. High hydraulic flow rates provide fast hydraulic cylinder response and powerful lift forces. Large-bore tilt and lift cylinders deliver exceptional strength, performance and durability.

Bucket reach and bucket dump angle are superior to those on competitive machines, for better loading and faster bucket emptying.

And the productivity-boosting hydraulic system delivers exceptional digging and lifting forces for fast cycle times, plus high hydraulic flow rates that provide fast response and powerful lift forces.



MAXIMIZED PAYLOAD

The R900G features the Loadrite Payload Control System, which gives operators accurate, real-time updates on payload weights to help them reach maximum bucket capacities while reducing overloading.

FAST CYCLE TIMES

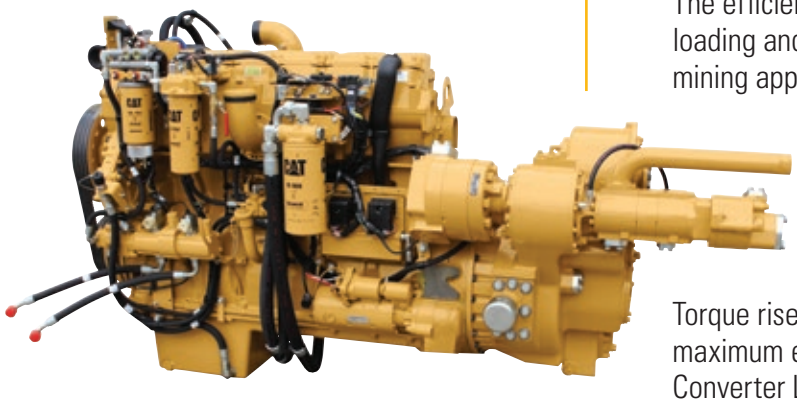
The integrated ride control system gives operators confidence to travel at speeds above 5 km/h (3 mph) during load-and-carry operations for fast cycle times.

EFFICIENCY-BOOSTING FUNCTIONS

The electronic auto shift transmission increases operator efficiencies and optimizes machine performance. The operator can choose between manual or auto shift modes.

The R2900G also features a transmission neutralizer that makes it possible for the operator to engage the service brakes and neutralize the transmission, maintaining high engine rpm for full hydraulic flow, enhancing digging and loading functions.

POWER & PERFORMANCE



The efficient and powerful Cat C15 engine delivers maximum loading and tramming performance in the most demanding mining applications. It provides unequalled lugging force while digging, tramming and traversing steep grades. And the Cat four-speed planetary power shift transmission is matched with the engine to deliver constant power over a wide range of operating speeds.

Torque rise effectively matches transmission shift points for maximum efficiency and fast cycle times. And the Torque Converter Lockup Clutch combines maximum rimpull while in torque converter drive with the efficiency and performance of direct drive when the lockup clutch is engaged.

OPTIMIZED PERFORMANCE

The Mechanically Actuated, Electronic Unit Injection (MEUI™) high-pressure, direct injection fuel system electronically monitors operator demands and sensor inputs to optimize engine performance. Air-to-air aftercooling provides improved fuel economy by packing cooler, denser air into cylinders for more complete combustion of fuel and lower emissions.

VENTILATION-REDUCTION

The Cat C15 engine features the optional Ventilation Reduction (VR) Package, which incorporates selective engine hardware and software to minimize diesel particulate matter in the engine exhaust. Engines equipped with the VR Package feature a significant ventilation rate reduction, a decrease in fuel consumption, and maintained or improved product performance. VR Package availability is subject to regional regulatory compliance. An Optional U.S. EPA Tier 3 and EU Stage III compliant engine is also available.

A Cat Diesel Particulate Filter can be used with the VR engine package. The filter complements the VR engine by further reducing particulate matter in the exhaust.

KEEP OPERATORS SAFE, COMFORTABLE & PRODUCTIVE

The R2900G features an operator station that is ergonomically designed for total machine control in a comfortable, productive and safe environment. All controls, levers, switches and gauges are positioned to maximize productivity and minimize operator fatigue.

DESIGNED FOR COMFORT AND SAFETY

The optional sound-suppressed cab provides a quiet, secure working environment. Enclosed design provides fresh, pressurized, temperature-controlled air circulation with air conditioning. The operator station features an integrated Roll Over Protective Structure (ROPS) and Falling Object Protective Structure (FOPS) resiliently mounted to the frame, reducing vibration for a more comfortable ride.

LOW-EFFORT CONTROLS

Low-effort pilot operated joystick controls integrate steering, transmission and implement functions for smoother, faster cycles with less operator fatigue. The added function of a transmission neutralizer override switch on the joystick provides the operator the ability to inch toward a truck when loading without having to remove their foot completely from the pedal, enabling greater control of the machine.

EFFORTLESS OPERATION

The STIC system makes it possible to control the complete mobility of the machine with a single controller. Simple side-to-side motion articulates the machine. Directional shifting (forward / neutral / reverse) is controlled using a three-position rocker switch. The thumb-operated buttons control gear selection.

DESIGNED FOR CONTROL

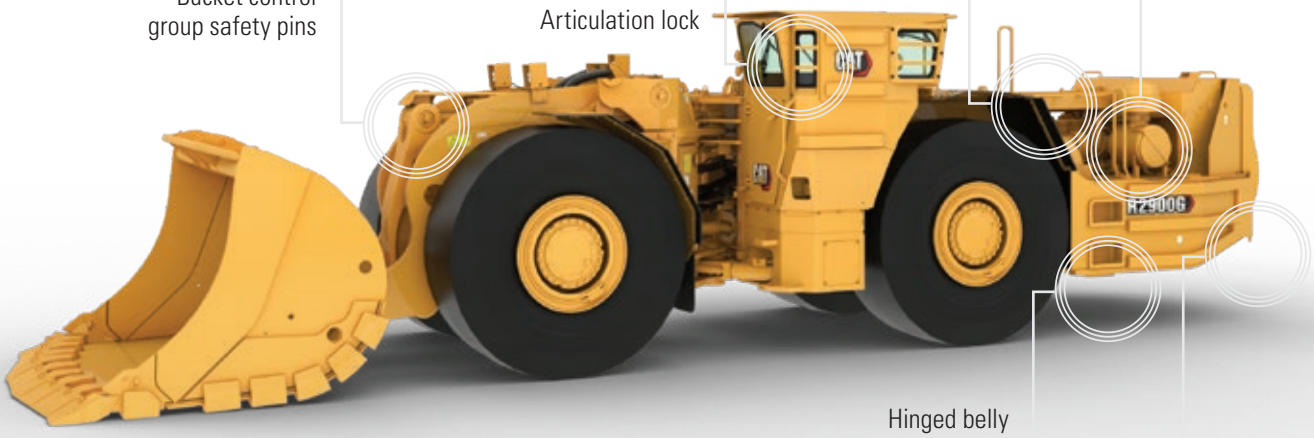
The four-corner oil-cooled braking system provides excellent control. The service brake system is actuated by modulated hydraulic pressure, while the parking brake function is spring-applied and fluid-released. This system assures braking in the event of loss of hydraulic pressure.

OPTIONAL RIDE CONTROL

The optional ride control system uses a nitrogen-filled oil accumulator in the hydraulic lift circuit to act as a shock absorber for the bucket and lift arms. The lift arm and bucket response to movement is dampened over rough ground, reducing fore and aft pitch, improving cycle times and load retention. A smoother, more comfortable ride gives operators the confidence to travel at speeds above 5 km/h (3 mph) during load-and-carry operations.

SAFETY-INFUSED

The R2900G is infused with features to help both operators and service personnel feel safe and confident on the job. Caterpillar has been and continues to be proactive in developing mining machines that meet or exceed safety standards. Safety is an integral part of all machine and systems designs.



Integral ROPS Cab, resiliently mounted to the frame

Operator Present System, which protects the machine and operator from uncontrolled machine movements

Large window openings for increased visibility

Push-out safety glass

Suspension seat

Inertia reel retractable seat belt

Lower cab light

Articulation lock

Anti-skid upper deck surfaces

Large grab handles on both sides provide 3-point access to cab and machine when walking onto top deck

Hot and cold side of engine

Bucket control group safety pins

Hinged belly guards

Ground-level compartment sight gauges

Three engine shut-off switches at ground level

+ Rear left side
+ Rear right side
+ Under operator seat

SPEND MORE TIME LOADING AND LESS TIME SERVICING

Reduced downtime and maintenance costs are key contributors to the R2900G's ability to achieve the lowest possible owning and operating costs. With more robust structures, modular and longer-lasting components, parts commonality, more accessible maintenance areas and extended service intervals, the R2900G can be maintained in less time for less money by fewer people — helping you lower cost per ton and keep your machines hard at work.

IMPROVED SERVICE ACCESS

Easy access to daily service points simplifies servicing and reduces time spent on regular maintenance procedures. Ground-level access allows convenient servicing to all tanks, filters, lubrication points and compartment drains, with engine oil and fuel filters installed on cold side of engine, plus fluid-level sight gauges.

DOWNTIME-REDUCING FEATURES

+ Radial seal air filters are easy to change, reducing time required for air filter maintenance.
+ Fluid level checks are made easier with sight gauges.
+ The Cat Electronic Technician (Cat ET) service tool enables quick electronic diagnosis of machine performance and key diagnostic data for effective maintenance and repairs.
+ Electrical connectors are sealed to lock out dust and moisture and harnesses are covered for protection.
+ Wires are color- and number-coded for easy diagnosis and repair.
+ Scheduled Oil Sampling (S·O·S℠) helps prevent minor repairs from becoming major ones. Sample point adapters are fitted standard to the machine.
+ Sealed colleted pins are fitted to all major bucket and lift arm hinge points for longer pin and bushing life. This reduces maintenance costs and extends service intervals. The sealed joints retain lubrication and prevent contaminant entry.
+ Field-proven Cat high pressure XT hydraulic hoses are exceptionally strong and flexible for maximum system reliability and long life in the most demanding conditions. Reusable couplings with O-ring face seals provide superior, leak-free performance and prolong hose assembly life.
+ Upper and lower hitch pins pivot on roller bearings to distribute horizontal and vertical loads over a greater service area. Shim-adjusted preload reduces maintenance time.

THE RIGHT TOOLS FOR THE JOB

OPTIMIZED BUCKET

Four dump bucket sizes are available for the R2900G. They deliver unmatched productivity and structural reliability, featuring two types of cast corners to help strengthen the side plate to bucket lip joint and allow for various cutting edges.

FLEXIBLE AND RELIABLE GROUND ENGAGING TOOLS

Caterpillar offers three types of Ground Engaging Tool (GET) options for the R2900G, so you can customize your machine to meet your site-specific needs and fit with your overall maintenance strategy. Whether you choose modular weld-on, Bolt-On-Half-Arrow (BOHA) or the Durilock™ Lip Shroud system, Cat GET helps you achieve the productivity and the bucket life you desire. In addition, the Cat Bucket Pro App provides real-time data on GET performance to help you plan maintenance, manage inventory and know cost-per-ton.

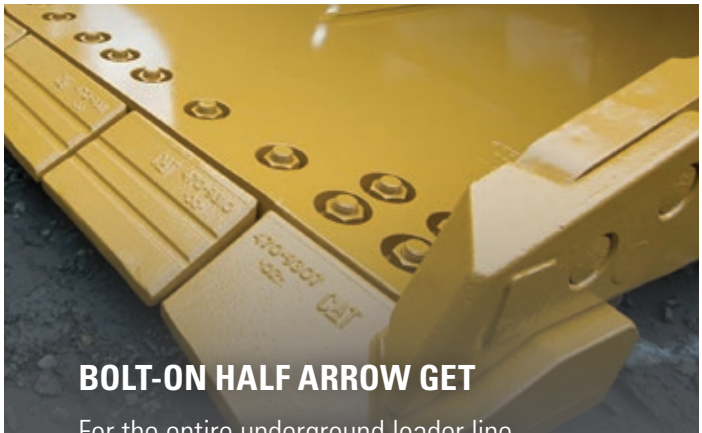
CAT MODULAR SEGMENT WELDED GET SYSTEM

Modular shrouds deliver welded part reliability with the replacement simplicity of a mechanical system. Integrated bevel allows for faster weld installation time — 20% faster than competitive shroud systems — and creates an 18% stronger modular shroud assembly by locking segments together. Wear indicators are visible from the top to help establish maintenance intervals.

DURILOCK LIP SHROUD SYSTEM

The new Durilock Lip Shroud system for underground loader buckets is a flexible, productive option for all Cat underground LHDs. This new system features hammerless installation and maintenance-free retention of GET. Three interchangeable shroud styles allow you to configure your loader to its current application needs — without stopping to change the base edge or retention system.

+ Standard — Wedge shape for general production and development
+ Abrasion — Contoured to put more material on the shroud base
+ Penetration — Less leading-edge material to easily penetrate dense material



BOLT-ON HALF ARROW GET

For the entire underground loader line, Caterpillar now offers Bolt On Half Arrow GET for bucket edges. The system is designed for high abrasion applications where weld-on GET experience high wear rates. With a proven and reliable retention system, the bolt-on GET offer more wear material than standard weld-on GET, and the bolt-on design enables fast and easy removal and replacement. Despite additional wear material, the low-profile front edge eases pile penetration and promotes fast bucket loading.

BOHA GET can reduce changeout times while extending the life of the traditional weld-on GET option — allowing the R2900G to perform even better in heavy, hard-digging rock conditions. BOHA GET are bolted onto the bucket instead of welded — shortening replacement time from as much as 40 hours to as little as one or two. And with no need for welding, they are easier to replace.

A LOADER YOU CAN RELY ON

Rugged Cat structures are the backbone of the R2900G's durability.

STRONG BACKBONE

The R2900G features a frame that is engineered to withstand extreme forces generated during loading and tramming cycles. The precision manufacturing process ensures all structures are consistently built to high quality. Deep penetration and consistent welds throughout the frame ensure structures are solidly fused to provide a sturdy platform for the linkage and the axles.

PROVEN Z-BAR LINKAGE

Proven Z-bar loader linkage geometry generates powerful breakout force and an increased rack back angle for better bucket loading and material retention. Heavy duty steel lift arms with cast steel cross-tube ensures extreme loads encountered during loading and tramming are efficiently dissipated for long service life.

SPREAD HITCH DESIGN

Spread hitch design widens the distance between upper and lower hitch plates to distribute forces and increase bearing life, and thicker hitch plates reduce deflection. Upper and lower hitch pins pivot on roller bearings to distribute horizontal and vertical loads over a greater surface area.

BUILT TO BE REBUILT

The design and manufacturing quality of Cat LHD frames has been proven by our customers — many of whom re-use frames during machine rebuilds to get second and third lives out of their LHDs. The R2900G's frame, powertrain, engine and components are built to be rebuilt — using new, remanufactured or rebuilt parts and components — so you can take advantage of multiple lives of like-new performance at a fraction-of-new price. Reused or remanufactured components can deliver additional cost savings.

CAT® MINESTAR™ SOLUTIONS FOR UNDERGROUND

The R2900G can be equipped with Cat MineStar™, the mining industry's most comprehensive suite of technology offerings. No matter the size, type or complexity of your underground operation, Cat MineStar can help you deal with the challenges you face every day: Controlling costs. Extending equipment life. Working more productively. And keeping people safe.

RUN YOUR R2900G REMOTELY

with MineStar Command for underground

Command for underground enables remote operation of load-haul-dump machines—from simple line-of-sight to full autonomy—providing immediate productivity and efficiency gains and improving safety. Command allows you to relocate operators to a safe, comfortable location underground or on the surface. Automation improves accuracy of tunnel navigation, boosting productivity and reducing machine damage caused by contact with drive walls.

GET ESSENTIAL OPERATIONAL INFORMATION

with MineStar Fleet for underground

Timely access to accurate information is key to running a productive mine. Fleet for underground provides real-time visibility to cycle time, payload, machine position and other key operational parameters and automatically records and tracks data up and down the value chain. Fleet can help you better understand machine usage, improve shift changes, manage tasks, maximize operational efficiency and more.

ADDRESS RISKS TO PEOPLE AND ASSETS

with MineStar Detect for underground

Detect prevents unintended interactions between people and assets by letting you "see" in the dark. Using a high-precision peer-to-peer proximity detection system coupled with a revolutionary communications and tracking network, Detect can prevent incidents and track people and machines in real time and with no reliance on mine infrastructure. It provides operators continuous awareness of their surroundings, along with the location and status of all personnel and assets.

MAKE INFORMED DECISIONS AND OPTIMIZE YOUR MAINTENANCE STRATEGY

with MineStar Health

Machine health data is critical to helping you improve the reliability of your mining equipment, reduce unplanned downtime and prevent costly failures. MineStar Health products and services enable you to collect and transmit equipment data that enables proactive maintenance services and predictive equipment analysis.

ADDITIONAL TECHNOLOGY SOLUTIONS

+ The Cat Electronic Monitoring System (EMS) provides continuous access to critical machine data to keep the machine performing at a high level.
+ Cat Electronic Technician (ET) enables quick electronic diagnosis of machine performance and key diagnostic data for effective maintenance and repairs.
+ VIMS (Vital Information Management System) GEN3 combines Health Information Monitoring and VIMS capability in one ECM to monitor vital machine health functions; logs data to help identify areas for improvement in repair planning, operator training, site planning, machine health and personnel performance.

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.

The R2900G's C15 engine features the optional Ventilation Reduction (VR) Package, which minimizes diesel particulate matter in the engine exhaust. A Cat Diesel Particulate Filter can be used with the VR engine package. The filter complements the VR engine by further reducing particulate matter in the exhaust.

We are also committed to ongoing research and development into engine compatibility with diesel fuel blended with lower-carbon intensity fuels such as biofuels and renewable fuels, plus power options like electrification. 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 the complete lifecycle of the loader.

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 LHD 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.

TECHNICAL SPECIFICATIONS

See cat.com for complete specifications.

ENGINE		
Engine Model	Cat® C15	
Engine Power – Tier 3 Engine – ISO14396:2002	299 kW	401 hp
Engine Power – VR Engine – ISO14396:2002	299 kW	401 hp
Bore	137.2 mm	5.4 in
Stroke	171.5 mm	6.8 in
Displacement	15.2 L	927.9 in³

TRANSMISSION		
Forward – 1st	5.4 km/h	3.4 mph
Forward – 2nd	9.7 km/h	6.0 mph
Forward – 3rd	17.3 km/h	10.7 mph
Forward – 4th	29.8 km/h	18.5 mph
Reverse – 1st	6.6 km/h	4.1 mph
Reverse – 2nd	11.8 km/h	7.3 mph
Reverse – 3rd	21.0 km/h	13.0 mph
Reverse – 4th	35.5 km/h	22.0 mph

OPERATING SPECIFICATIONS		
Rated Payload	17 200 kg	37,920 lb
Gross Machine Mass – Loaded	70 350 kg	155,095 lb
Static Tipping Load Straight Ahead, Lift Arms Horizontal	39 923 kg	88,015 lb
Static Tipping Load Full Turn, Lift Arms Horizontal	34 069 kg	75,109 lb
Break Out Force (SAE)	27 349 kg	60,298 lb
Bucket Capacity Range	6.3–8.9 m³	8.2–11.6 yd³

HYDRAULIC CYCLE TIMES	
Raise Time	9.2 seconds
Dump Time	3.4 seconds
Lower, empty, float down	3.1 seconds
Total Cycle Time	15.7 seconds

TURNING DIMENSIONS		
Outside Clearance Radius	7323 mm	288.3 in
Inner Clearance Radius	3383 mm	133.2 in
Axle Oscillation	8°	
Articulation Angle	42.5°	

TIRES	
Tire Size	29.5 × 29

MACHINE DIMENSIONS		
Dump Bucket (STD)	7.2 m³	9.4 yd³
Bucket Width over Cutting Edge	3054 mm	120.2 in
Height – Max Bucket Raised	6179 mm	243.3 in
Height – Max Dump	5427 mm	213.7 in
Height – Max Lift Bucket Pin	4539 mm	178.7 in
Height – Dump Clearance at Max Lift	2868 mm	112.9 in
Height – Digging Depth	52 mm	2.0 in
Height – Ground Clearance	465 mm	18.3 in
Height – Top of Rear Guard	2371 mm	93.3 in
Height – Top of ROPS	2886 mm	113.6 in
Length – Overall (Digging)	11 302 mm	445.0 in
Length – Overall (Tramming)	10949 mm	431.1 in
Length – Wheelbase	3780 mm	148.8 in
Length – Front Axle to Hitch	1890 mm	74.4 in
Length – Rear Axle to Bumper (with auxiliary lines)	3572 mm	140.6 in
Length – Reach	1656 mm	65.2 in
Width – Overall Tire	2898 mm	114.1 in
Width – Machine without Bucket	3010 mm	118.5 in
Width – Machine with Bucket	3176 mm	125.0 in
Recommended Clearance Width	4500 mm	177.2 in
Recommended Clearance Height	4500 mm	177.2 in

STANDARD AND OPTIONAL EQUIPMENT

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

POWER TRAIN	Standard	Optional
Brakes, full hydraulic enclosed wet multiple-disc (SAFR)	x	
Cat C15 ATAAC Diesel Engine, 6-Cylinder	x	
Engine Options (choose from)		
Engine, Ventilation Reduction (VR)		x
Engine, Stage 3		x
Filter, engine, remote mounted	x	
Particulate filter: wall flow/ flow thru		x
Fuel priming aid	x	
Precleaner, engine air intake	x	
Reversible Steering		x
Torque converter with automatic lock up clutch	x	
Transmission, automatic planetary power shift (4F/4R)	x	
Transmission Neutralizer	x	

ELECTRICAL	Standard	Optional
Alarm, reversing	x	
Alternator, 95 amp	x	
Battery Disconnect Switch, Ground Level	x	
Diagnostic Connector	x	
Electric Starting, 24V	x	
Lighting System, Halogen, Front, Rear, Stop	x	
Lighting, LED		x
Low Maintenance Batteries	x	
Receptacle group, auxiliary start	x	
Starting and charging system	x	

OPERATOR ENVIRONMENT	Standard	Optional
Automatic Brake Application (ABA)	x	
Cab, ROPS and/or FOPS certified	x	
Operators Station ROPS/FOPS Enclosed		x
Camera, rear view		x
Horns, electric	x	
Pilot hydraulic implement controls (single joystick)	x	
Instrumentation/gauges	x	
Light, warning, residual brake	x	
Operator Presence System	x	
Seat with retractable seat belt	x	
Secondary Steering System		x

TECHNOLOGY	Standard	Optional
Command for Underground		x
Remote Control Interface (excludes Transmitter and Receiver), includes Warning Lights (Green)		x
VIM Gen3		x
Payload system, Loadrite		x

TIRES, RIMS, AND WHEELS	Standard	Optional
Tire Arrangements (must select)	x	
Tire, 29.5 X 29 2* VSMS Bridgestone		
Tire, 29.5 X R29 VSDL L5 Bridgestone		
Rims (set of 4)	x	

OTHER EQUIPMENT	Standard	Optional
Brake release arrangements, includes steering release: recovery hook or recovery bar		x
Brake axle cooling	x	
Bucket, Dump (7.2 m^3/9.4 yd^3)	x	
Various sizes, dump (6.3 m^3/8.2 yd^3, 8.3 m^3/10.9 yd^3, 8.9 m^3/11.6 yd^3)		x
Cap, radiator, manual release	x	
GET and wear package options		x
Centralised or Automatic lubrication system		x
Fast fill system		x
Fenders, front, rear	x	
Firewall	x	
Fire Suppression system		x
Guard, engine and transmission	x	
Handholds	x	
Handrails		x
Lift arm postioner for return to dig	x	
Lifting Group, Mine Transfer		x
Protection bars, rear frame	x	
Ride Control System		x
Radiator grill, swing out	x	
Service oil sample	x	

R2900G LOADER