IMPROVE SAFETY AND UTILIZATION WITH SEMI-AUTONOMOUS OPERATION.

Safety and equipment utilization are key factors in any underground mine. Cat® Command for underground relocates operators to a safe, comfortable operating station on the surface. That improves utilization by reducing the last-to-first-bucket time during shift changes. It all adds up to more material moved and more profit for your mine’s bottom line.

LHD SYSTEMS

• **Line-of-Site Remote Control Loading** – A portable controller lets operators work from a safe distance while the machine loads under an unsupported roof.

• **Remote + Guidance Operation** – An advanced Remote Operator Station enables control from the surface or an off-site location. Basic system remotely controls load, tram and dump functions. A guidance upgrade supplements steering to minimize drive wall impacts.

• **Semi-Autonomous Operation**
  - **Copilot Mode** – Operators monitor machine location on a mine map as they load, tram and dump, providing directional input using joysticks.
  - **Autopilot Mode** – Allows the machine to tram, dump and return autonomously. The operator then takes control of the loading process.

• **Autonomous Operation** – Combining Autodig functionality with Autopilot Mode provides completely autonomous Load-Haul-Dump cycles.

BENEFITS

**RELOCATE** operators to a safe, comfortable location underground or on the surface.

**PREVENT** collision damage caused by LHD machines contacting tunnel walls.

**IMPROVE** operator comfort, employee retention and operator recruitment.

**ENABLE** control of multiple machines from a single Remote Operator Station.

**OPTIMIZE** shift changes by enabling hot-seat operator exchanges on the surface.

**MONITOR** operations through video, with real-time location and status data.

**CONTINUE** operation through seismic events.

**ELIMINATE** exposure to noise, dust, seismic activity and other underground hazards.

**RETURN** to work quickly after a blast to get production back on track.

**CONFIGURE** zones to regulate machine speed and to establish exclusion areas.

For more information, go to www.cat.com/minestar or contact your local dealer.