CAT® MINESTAR™ SYSTEM

COMMAND

AUTONOMOUS SYSTEMS FOR DRILLING, HAULING, DOZING AND UNDERGROUND

CAT®

COMMAND

DRAMATICALLY BOOST SAFETY, PRODUCTIVITY AND AVAILABILITY WITH INTEGRATED AUTONOMOUS, SEMI-AUTONOMOUS AND REMOTE CONTROL EQUIPMENT SOLUTIONS

Combining the Fleet, Terrain, Detect and Health capabilities of Cat® MineStar™ System, Command enables you to implement remote control, semi-autonomous or fully autonomous mining equipment systems—offering unprecedented improvements in operator safety, equipment availability and site productivity.

Command makes next-generation mining a reality, with solutions for hauling, drilling, dozing, longwall and underground hard rock operations.

Taking advantage of proven technologies, as well as significant advances in remote sensing and guidance, Command helps you work more safely and productively in a wide range of harsh or challenging environments. Command systems are proven to work safely and seamlessly with and around other mine site activities, equipment and personnel.

FLEET

TERRAIN

DETECT

HEALTH

COMMAND

INTEGRATING AUTONOMY INTO SITE OPERATIONS

Command gathers and processes data from all Cat MineStar System capability sets. By enabling total integration of machine data, tracking and management information, Command provides a “big picture” look at your entire operation.

This broad view—with the ability to zoom in on single machines or specific groups of assets—is essential for making autonomous operations safe, efficient and productive within the context of other mine activities.

Depending on the needs of your operation, Command can be configured to provide automation on a single machine or on multiple types of equipment across your entire fleet. Command for dozing, drilling or underground can be implemented individually or on a small group of machines. Command for hauling and longwall can take you to full-scale autonomy whenever your operation is ready.

For big or small mines, on the surface or below ground, Command delivers the next generation of mining...now.

COMMAND FOR HAULING

A fully autonomous solution, Command for hauling takes advantage of the most sophisticated perception and on-board intelligence technologies available, enabling Cat mining haul trucks to work safely and productively without human operators. Highly advanced safety systems enable the autonomous trucks to work reliably around other mining equipment, light vehicles and mine site employees.

COMMAND FOR UNDERGROUND

A semi-autonomous system, Command for underground automates the tramming and dumping component of an underground loader's load-haul-dump cycle. The operator has the ability to control the machine from an office or remote location away from the hazards of the underground mine. One or more machines can be controlled at once, enhancing operator safety and optimizing production between multiple machines.

COMMAND FOR DOZING

A remote control system, Command for dozing is available for Cat D10T and D11T Track-Type Tractors. Mining applications include stockpile feeding, leach pad construction, high wall and edge operation. An over-the-shoulder line-of-sight operator console enables control of the machine from a safe distance away from the working area.

COMMAND FOR DRILLING

Command for drilling is being developed to enable fully autonomous drilling. It will enhance safety by keeping operators out of the pit and away from areas where explosives are being used, while increasing drill pattern accuracy and improving the overall efficiency of drilling operations. Built on the proven Terrain for drilling platform, Command for drilling will enable automated tramming and drilling to target locations and depths. It will also provide feedback on material being drilled, which can aid in ore sampling and precise hole loading.

COMMAND FOR LONGWALL

Command for longwall improves safety by removing personnel from the working face. It delivers semi-autonomous control for plows via a remote operator station. Longwall subsystems are linked through a high-speed computer network designed to provide powerful logging, analysis and visualization capabilities that give the operator a clear picture of current and past activity at the face. Semi-autonomous control for shearers is also being developed for safer, more efficient underground coal operations.

CAT® MINESTAR™ SYSTEM

Command is one of a range of capability sets within Cat® MineStar™ System, the industry's broadest, most thoroughly integrated mine operations and mobile equipment management system.

The Command capability set shares data seamlessly with other Cat MineStar System technologies as part of a comprehensive, next-generation mining management system. Cat MineStar System capability sets can be used individually or in combination to create a comprehensive technology system, scalable and configurable to the needs of mining operations of any size, type or complexity. With the ability to track, monitor and manage all types of assets, from fleet-level overviews down to individual machine details, Cat MineStar System gives you the in-depth information you need to manage all mining operations more safely, efficiently and productively.

For more information, visit **cat.com/miningtechnology**

WHEREVER THERE'S MINING, WE'RE THERE.

FLEET TERRAIN DETECT HEALTH COMMAND

PEDJ0117-01