

Cat[®] Command – Enhance Jobsite Safety

Deploying Cat Command to keep users out of the harm's way
in the pipeline industry



2023 IPLOCA Health & Safety Award Entry

About Caterpillar:

Since 1925, Caterpillar Inc. has been helping our customers build a better world – making sustainable progress possible and driving positive change globally

CATERPILLAR[®]

Findings, Challenges & Possible Solutions

Findings & Challenges on pipeline jobsite

- Hazardous work environments, labor shortages, meeting deadlines, off-board remote troubleshooting, pressure to reduce downtime, and support in multi-regions / countries
- Challenges identified include:
 - Steep slope operations:
 - Substantial risks to crew safety, project costs and in-service timelines
 - Extreme ambient and weather conditions:
 - Risk to crew safety and performance
 - Cost control on long trenching applications including operating costs:
 - Appropriate application of technology can reduce project costs
 - Hiring and retention of skilled equipment operators:
 - A company wide cultural and safety challenge



Possible Solutions:

- Relocating equipment operators to safe work environments
- Safe and comfortable operator work environments improve fleet productivity

Solution: Introducing Cat[®] Command: Available For Pipeline Construction

Cat Command provides remote control solutions to help



Boost
Safety, Efficiency, Quality



Reduce
Overall Costs



Improve
Machine Utilization, Jobsite Consistency,
Project Accuracy, Profitability

- Off-board remote control fully integrated with onboard electronics, vision and hydraulic systems help users deliver consistent quality of work with quick response and smooth controls
- Jobs become safer, more comfortable and more precise – without sacrificing user control, feel or accuracy

Remote Control Options: Scalable & flexible system choices



Cat Command Station: Non-Line-of-Sight control

- Enables the user to work remotely in a comfortable, seated “virtual cab” with familiar machine displays and universal control
- Located in a command center onsite or many miles away, this non-line-of-sight technology reduces operator fatigue due to an improved working environment







Cat Command Console: Line-of-Sight control








- Allows user to work safely and comfortably outside of the machine, onsite and in direct visual contact
- Ideal for short-term use and require no onsite communication infrastructure.

Implementation and Results

Safety Enhancements

-  Control the machine from a safe distance
-  Eliminate safety risks in potentially dangerous situations including stockpiles, steep slopes, unstable surfaces and areas with hazardous materials or the possibility of falling debris
-  Less potential for injury while climbing on/off the machine
-  Remove operator risk from machine rollover or sliding

Efficiency Improvements

-  Single user can quickly and easily switch between Cat Command installed machines, and change jobsite locations, with no downtime
-  Select and activate machine features from the Command Station and Command Console as though the operator was in the machine
-  Control the machine with the same response time as sitting in the cab
-  Maintain smooth, precise control from a safe location
-  Ergonomic layout, universal controls and familiar machine displays allow for easy access to machine functions
-  Reduce operator fatigue and improve productivity by eliminating the effects of machine vibration, machine sound and excessive site conditions
-  Allow operators who have had medical concerns to return to work and operate machines earlier

Machine Integration

- » Cat Command Console and Cat Command Station controls are fully integrated with the machine's electronic and hydraulic systems for quick response and smooth control
- » User inputs are sent directly to the machine electronics via a dedicated radio transmitter/receiver, resulting in real-time implement control
- » Cat Command models include easy-to-install Command kits, which include indicator lights and vision systems
- » Ground level switch to toggle between manual and remote operation
- » Can be retro-installed on certain existing Cat machines

Achievements and Customer Testimonials

More than 300 units of Cat Command are currently active globally

SUCCESS STORIES

Cat Command has delivered proven results at a number of customer sites. We partner with customers to get real-world feedback about how the system is performing and use that feedback to continually improve the product and technology.

A cargo handling and logistics company with facilities in several ports along the Gulf Coast is utilizing Cat Command Stations to maneuver Cat small wheel loaders and excavators via non-line of sight remote control. Eliminating the need for people to work in potentially dangerous situations, operators control the machines from the office headquarters. The operator can switch between multiple machines in different locations from the same Command Station, in some cases hundreds of miles apart, with virtually no downtime.



An industrial heavy civil contractor in northern Alabama is improving the safety and efficiency of work on the site of an ash pond with three Cat Command Stations and a Command Console. Operators can maintain machine vision while controlling a Cat excavator from a Command Station set up inside a mobile office trailer.

“ WE HAD A VISION OF A SAFER OPERATION, BEING ABLE TO MOVE OUR TEAM MEMBERS OUT OF THE FIELD AND INTO THE OFFICE. OUR PARTNERSHIP WITH LOUISIANA CAT AND CATERPILLAR HAS GIVEN US THE CONFIDENCE TO ACHIEVE THAT VISION, MAKING OUR OPERATION A SAFER, MORE EFFICIENT AND MORE COST-EFFECTIVE ENVIRONMENT. ”

– JEFF MORTON, VICE PRESIDENT OF FINANCIAL PLANNING AND ANALYSIS, ASSOCIATED TERMINALS

“ CAT COMMAND HAS CHANGED OUR BUSINESS IN A NUMBER OF WAYS. MOST IMPORTANTLY, IT’S INCREASED THE SAFETY OF OUR EMPLOYEES. THIS TECHNOLOGY HAS ALLOWED US TO REMOVE THE OPERATOR FROM HAZARDOUS ACTIVITIES AND PUT THEM IN A TRAILER TO REMOTELY OPERATE EQUIPMENT. ”

– FRANK MONTGOMERY, PRESIDENT, SAIIA