



CARTER MACHINERY
Site Services

CAT Safety Technologies on the Jobsite

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Carter



Our Culture



Safety Risks on the Job Site

- Large equipment blind spots
- Equipment-to-personnel interactions
- Fatigue and operator awareness
- Limited visibility in dust/dark conditions



Our Safety Approach Using Technology

Goal: Reduce Incidents and improve operator confidence



Focus Areas

- Visibility
- Awareness
- Fatigue Monitoring
- Object/People Detection

Safety Systems we Utilize

- Seat Belt Reminder System
- Radar/LiDAR Rear Proximity Detection
- Camera Systems
 - General
 - People Detection
- Driver Safety Systems
- Motion Inhibit
- CAT Command (Remote Control)



Seat Belt Reminder

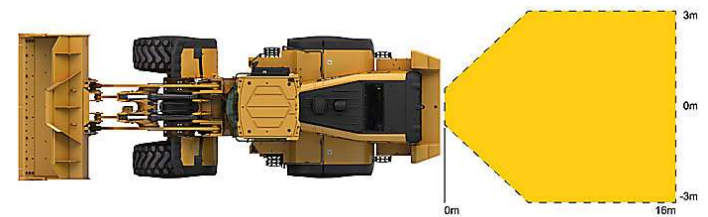
- Real-time Monitoring if operator is buckled
- In-Cab alerts: audible and visual warnings
- Site visibility with an external purple beacon
- Fleet-wide visibility with data integration using VisionLink Productivity
- Available on **All Equipment** including non-CAT



Rear Object Proximity Detection

- Rear Radar/LiDAR systems for people, vehicles, and objects
- Audible and visual alerts to operator based on proximity
- Prevents collisions when machine is in neutral or reverse
- Integrates with rear backup camera
- Available for wheel loaders

- All other machines
 - Radar system that provides audible and visual alerts



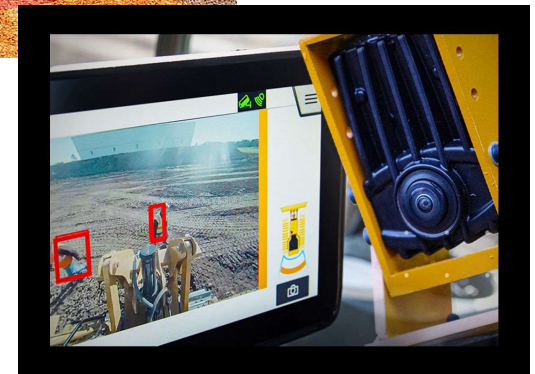
Surround Camera System

- All-around view of activity outside the machine
 - Decreases blind spots
 - Awareness of jobsite activity
- Provides operators with simultaneous views
 - Left side shows camera based on movement
 - Right side shows top-down view of all camera
- Available for **All Equipment** including non-CAT



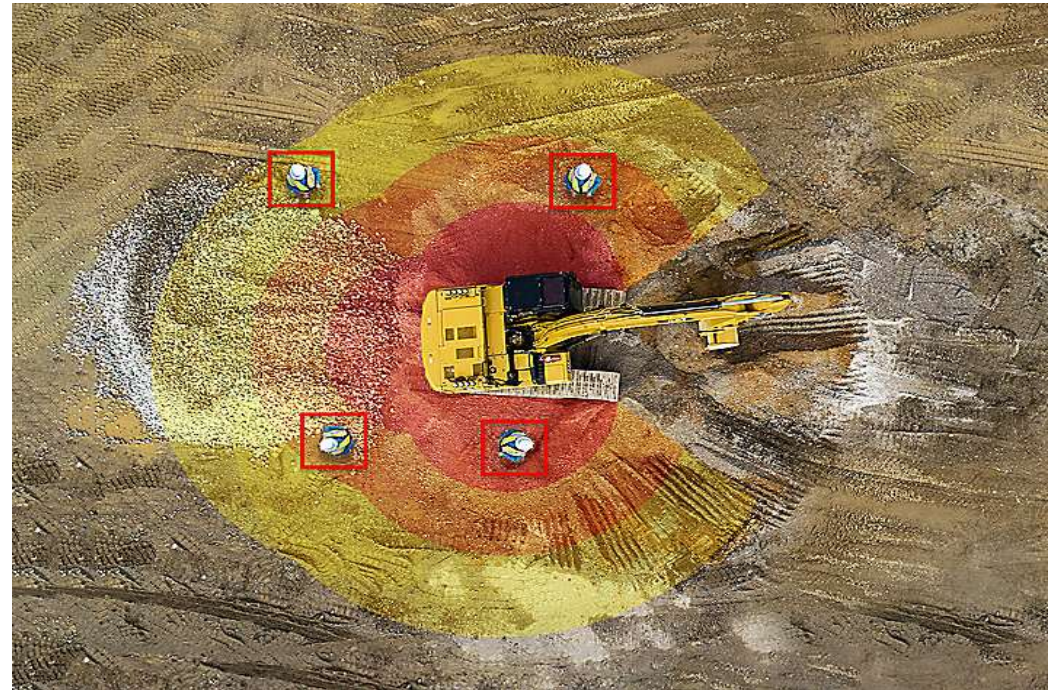
SMART Camera for People Detection

- Rear-facing SMART Camera
- Trained ML model that actively monitors for people
- Monitor in cab that engages with operator
 - Detects people with a red box
 - Provides audible and visual cue
- Integrates with surround camera to give 360° view
- Installed on **All Equipment** including non-CAT



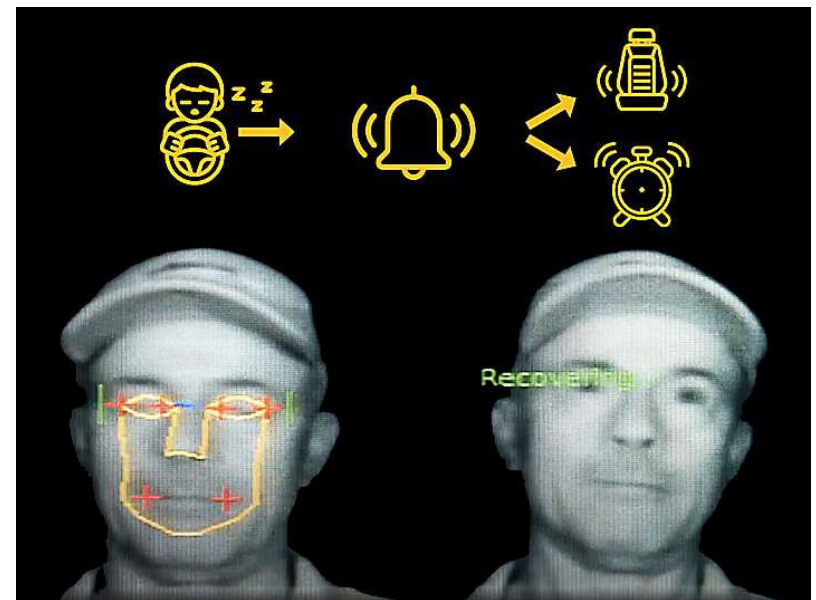
270° People Detection for HEX

- Utilizes three SMART cameras for 270° coverage
- Provides audible and visual cues to operator
- Provides in-Camera and off-camera alerts
- Available for retro-fit on 313-352 HEX
- All others must be factory ordered



Driver Safety System (DSS)

- Identifies when fatigue or distraction may threaten driver attention
- Nudges operator to attention
 - Sound
 - Seat Vibrations
- System captures event data and sends to CAT's monitoring center
- Utilize company's risk intervention plan set at installation
- Ideal for mixed fleet use, most vehicles under 100 mt



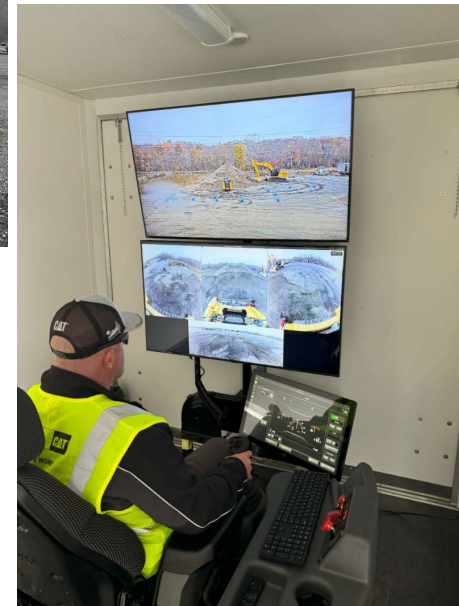
Collision Warning System with Motion Inhibit

- Utilizes Rear Object Detection and People Detection
- If machine is stationary, prevents direct reverse gear
- Disengages when operator is in neutral and danger is gone
- Available for **CAT MWL**
- Coming soon... Collision mitigation system (CMS)



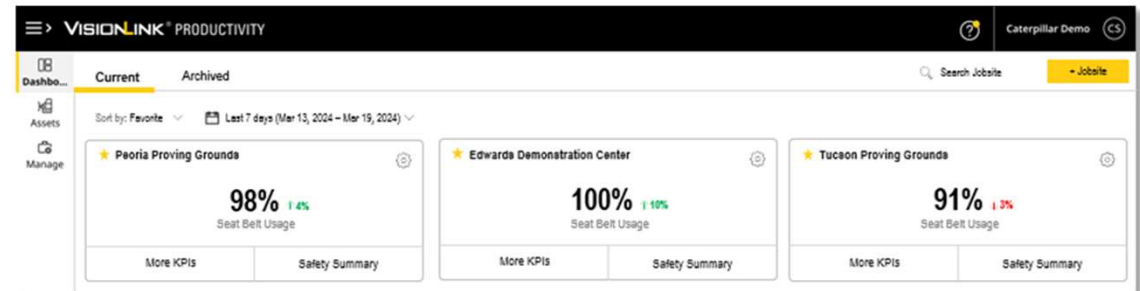
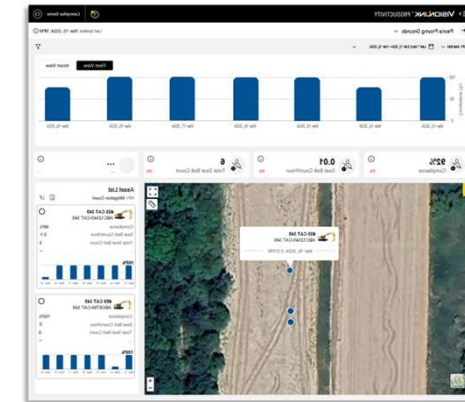
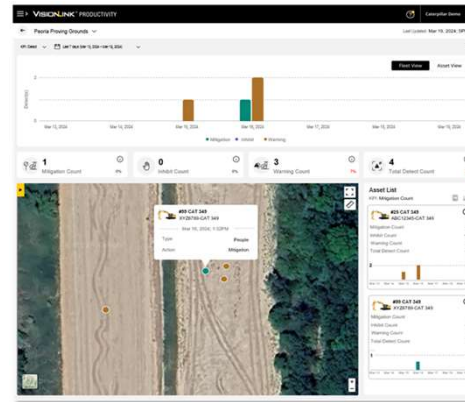
CAT Command Remote Control Technology

- Line-of-Site operation up to 400 meters away
- Non-Line-of-Site utilizing command station
 - Can be run anywhere with the right infrastructure
 - Reduce operator fatigue and improves productivity
- Available on SSL, CTL, STTT, MTTT, LTTT, HEX, SWL, and MWL



VisionLink Productivity

- Productivity Management Tool integrating Safety alerts
- Seatbelt data
- CAT Detect with SMART camera and Motion Inhibit
- Jobsite and asset views
- Reports



Benefits

- Enhanced operator confidence
- Reduction in equipment damage and downtime
- Lower incident rates
- Compliance with safety regulations now and future
- Improved productivity through safer operations



Looking Ahead: Future of Safety Technology

- Integration with autonomous and semi-autonomous haulage
- AI-enhanced detection
- More predictive safety features
- Future regulations by industry



Conclusion/Questions?

- Our safety technologies are designed to keep people safe, equipment productive, and the jobsite running smoothly.



Learn More

cartermachinery.com/site-services

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