

# CAT<sup>®</sup> MOTOR GRADER TECHNOLOGIES





# CAT® MOTOR GRADER TECHNOLOGIES

AVAILABLE FOR SELECT MODELS\*

*\*Consult your Cat Dealer for details.*

Cat® Motor Grader Technologies are designed to provide practical and reliable solutions that work effectively across various job sites. These solutions help maximize productivity, enhance safety, and minimize costs. Whether your fleet consists of one machine or many, Cat technologies give you the competitive edge you need to succeed.



## FACTORY-INTEGRATED TECHNOLOGY

The technology designed for Cat motor graders has been specifically created, built, and tested to ensure optimal performance. You can expect seamless functionality that cannot be achieved with third-party add-ons.

- + A wide range of technology options are available to enhance operator safety, comfort, and performance.
- + Automated features assist novice operators in achieving greater efficiency with minimal effort and time.
- + Experienced operators can benefit from reduced strain, less fatigue, and faster, more accurate results.



# CAT TECHNOLOGY

## ELEVATE OPERATOR PRODUCTIVITY

Unlock your equipment's full potential by optimizing every grading pass and operational hour with Cat productivity technology. Experience increased efficiency and performance that will elevate your projects to new heights!





# CAT GRADE

## INCREASED PRECISION IN FEWER PASSES

Cat Grade provides guidance to help operators hit precise grade requirements in less time. Additionally, optional automated controls help reduce resource consumption and operator fatigue.



### GRADE WITH 3D

Grade with 3D adds real-time satellite positioning guidance. This system uses one or two GNSS receivers along with a correctional data source to achieve Real Time Kinematic (RTK) positioning guidance in three-dimensional space.

- + Maintain accuracy across job sites and multiple machines with in-field design plan functionality and control.
- + Set up 2D avoidance zones within the design file to inform operators where not to work within the site plan.
- + Grade 3D systems are compatible with radios and base stations from Trimble, Topcon, and Leica.

### CROSS SLOPE ASSIST

Grade with Cross Slope Assist enables operators to achieve grade faster and more accurately by automating the cross slope of the blade.

- + Reach target grade more quickly to save costs associated with time, labor, fuel, and material consumption.
- + Integrated switches allow for setting and adjusting target cross slope while operating.
- + Establish proper slopes, shoulder elevations and road widths prior to re-rocking maintenance roads.
- + Ensure proper drainage on roads with cross slope. Proper drainage reduces costs and requires less maintenance.

### E-FENCE PROTECTION

Grade with 3D and Cross Slope Assist include factory-installed E-fence capabilities. When activated, the system sets automatic boundaries to prevent the moldboard from contacting the tires and ladder. Plus, it prevents contact between the linkbar and top drawbar.

- + The machine protects itself, freeing the operator to devote full attention to the tasks at hand.
- + With no masts and fully machine-integrated cabling, the potential for machine component damage is virtually eliminated.
- + Use E-fence freely with full control of functions such as moldboard pitch/tip, articulation, wheel lean, etc.



# EXPANDED CAPABILITIES

## GRADE OPTIONS

### GRADE 3D READY

To help minimize initial investment on select models, order the Grade 3D Ready hardware option from the factory and install licenses later as your work demands it. Consult your Cat dealer for more information.

### DIGITAL BLADE SLOPE METER

An entry-level technology that provides real-time blade slope information to help the operator maintain consistent surface slope. This saves time by reducing the dependence on manual grade checking.

### ATTACHMENT-READY OPTION

Your machine comes from the factory ready to easily install 2D or 3D systems, helping you save time and money. Additional attachments may be required based on machine model.

### CROSS SLOPE ASSIST

An integrated 2D system that enables operators to achieve grade faster and more accurately by automating the cross slope of the blade. Other cost-saving benefits include lower fuel consumption and up to 40% less material usage.

### LASER TECHNOLOGY\*

Provides elevation control using manually configured, laser guidance where GNSS systems are impractical or unavailable. This 2D option can be combined with Cross Slope Assist to control both elevation and slope of the blade for full automation blade control.

### SONIC TECHNOLOGY\*

Another manually-configured, 2D alternative to satellite navigation, sonic technology tracks sound waves to provide elevation control. As with laser technology, it can be combined with Cross Slope Assist for automatic blade control.

### UNIVERSAL TOTAL STATION (UTS)\*

The UTS receiver gets a signal from a stationary transmitter on the jobsite, which provides location and elevation. This receiver is used in conjunction with the Cross Slope Assist sensors to provide 3D control of the moldboard with very high accuracy.

*\*Only available as an aftermarket solution.*

## GNSS SOLUTIONS

Cat motor graders can be configured with GNSS technologies to match a variety of jobsites.

**Single Mast GNSS** uses a 3D position from a single receiver in combination with information from the Cross Slope Assist sensors to automatically control elevation and cross slope.

**Dual Mast GNSS** uses two receivers in combination with Cross Slope Assist sensors to automatically control blade adjustments and moldboard elevation.

**Mastless GNSS** automatically controls elevation and slope without the need for masts on the machine. Mastless GNSS also includes Cat Grade with 3D and E-fence as a factory option.



# SAFETY-FOCUSED TECHNOLOGIES

## PRIORITIZE SAFETY ON YOUR JOBSITE

Maintaining a safe jobsite is crucial for maximizing productivity and minimizing costs. Cat safety technologies help lower risks, allowing operators to perform their tasks effectively.



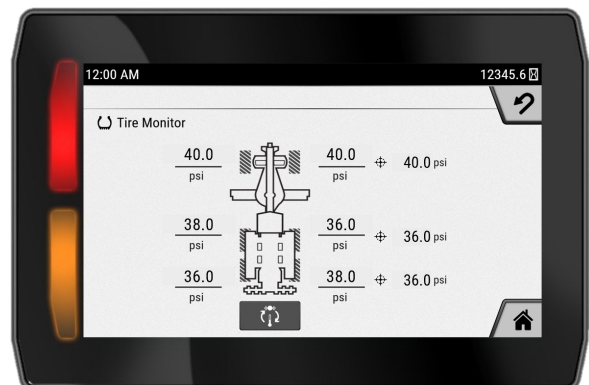
## SEAT BELT REMINDER

The Cat Seat Belt Reminder uses audible and visual alerts to ensure operators stay buckled while operating equipment. This technology detects when the seat belt should be in use by monitoring the machine's parking brake switch.

- + Helps to Improve Jobsite Safety:** Operators are prompted through audible and visual alerts to stay buckled up, helping to reduce the risk of fatal accidents.
- + Increased Monitoring:** Safety incidents are captured through VisionLink™ to keep site managers aware of safety compliance.
- + Optional External Beacon:** An optional, external purple beacon provides a visual alert for those on site to easily monitor potentially unsafe situations. When the machine is in motion and no seat belt is detected, the beacon will illuminate.

## TIRE PRESSURE MONITORING SYSTEM

Tire Pressure Monitoring System (TPMS) allows operators to easily monitor tire pressure from the main machine display, helping to improve machine performance, operator ride, and operating costs.





## CAT DETECT CAMERA SYSTEMS

While Cat motor graders are designed to maximize operator visibility, it can be challenging to constantly monitor what goes on around them. Cat Detect camera systems scale with your jobsite needs to provide increased visibility and help you manage ever-changing conditions that pose unexpected risks that potentially lead to injury or repair costs.

### FRONT AND REAR VISION CAMERAS

#### INCREASE VISIBILITY AROUND THE MACHINE.

Utilize both Front and Rear Vision cameras to improve operator visibility of the jobsite. Two Front Vision cameras can be mounted on your bolster to improve visibility directly in front of the machine. The Rear Vision camera acts as an extra view behind the machine to help reduce blind spots when operating.

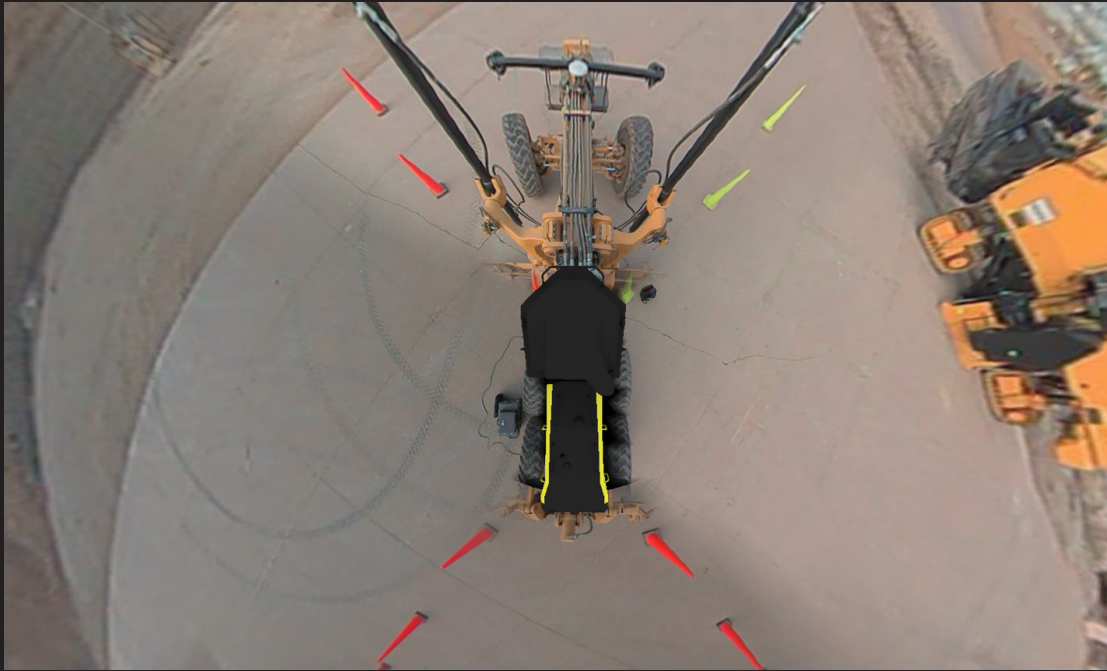
- + System uses rugged, vibration-resistant cameras and a dedicated display to give operators clear views in front of and behind the machine.
- + Provides a split-screen front view integrated into the primary 10-inch LCD touchscreen display.
- + See critical information and alerts while operating.
- + Intended for tight quarters and blind intersections.
- + Cross slope automatics allowed on camera screen.
- + Monitor positioned in the front console to be in sight lines of blade.
- + Front Vision cameras are available as a factory option. On 140, 150, and 160 machines, front vision is integrated into the primary display.





# INCREASE OPERATOR VISIBILITY AND AWARENESS **CAT DETECT WITH SURROUND VISION**

The Surround Vision system uses three additional, external cameras and the in-cab display to provide an overview of the whole area around the machine. Operators can use this optional system to identify potential hazards and help prevent incidents.



## ENHANCE JOBSITE SAFETY

- + The system provides operators with simultaneous views from the front, rear, left, and right cameras.
- + Included are three additional cameras that display a stitched, surround view optimized for rear, front, and side visibility.
- + Reverse movement prompts rear camera to show larger view on the display.
- + Increases awareness of blind spots and jobsite activities to help reduce incidents and maximize productivity.
- + Avoid accidents that possibly result in worker injuries or jobsite shutdowns.
- + Complements other Cat Detect systems to increase vision around the machine.

## WHAT CAN SURROUND VISION DO FOR ME?

- + Greater worksite visibility reduces blind spots, injuries, and repair costs.
- + Cameras help minimize on-the-ground personnel, reducing labor costs.
- + The in-cab display allows operators to easily see from all sides of their cab, increasing comfort and productivity.





# CAT DETECT – PEOPLE DETECTION

IMPROVE SAFETY AROUND OPERATING EQUIPMENT

Cat Detect – People Detection is an intelligent vision camera system that can alert an operator when someone enters a machine’s hazard zone.\* The system highlights people in red bounding boxes on the in-cab monitor to help operators more quickly manage potential risks.



## IMPROVE JOBSITE SAFETY

Reduce the risk of injury for people working around machinery by detecting multiple moving and stationary workers on the jobsite.

## INCREASE OPERATOR AWARENESS

Monitor ever changing jobsite conditions by providing progressive visual and audible safety alerts to the operator based on a person’s proximity to the machine.

## ENHANCE MACHINE SAFETY

Expand machine safety distances for ground personnel with technology that detects individuals with up to 180 degrees of camera coverage.

*\*The system may not detect personnel in certain circumstances, such as people lying down or crouching, or when cameras are impaired by low light conditions (dusk, dawn, overcast), inclement weather (snow, rain, fog), or other similar conditions.*



# CAT MOTOR GRADER TECHNOLOGIES

CONSULT YOUR CAT DEALER FOR MORE INFORMATION







# EQUIPMENT & JOBSITE MANAGEMENT

## LISTEN TO YOUR FLEET WITH THE RIGHT TECHNOLOGY

Track material types and tonnage moved, fuel costs, and machine hours. Pull data for analysis and compare productivity between shifts.

### MAXIMIZE LIFE SPAN

Monitor equipment health, fault codes, and fluid analysis, and keep track of inspection due dates. Order parts and schedule service, all within the same platform.

### MINIMIZE DOWNTIME

Reduce unplanned downtime with critical alerts and service-interval reminders to keep you on top of maintenance.



## CAT INSPECT

Cat Inspect allows you to access your equipment data on your mobile device. This easy-to-use app lets you capture inspection data and integrates with your other Cat data systems so you can keep a close eye on your fleet.

- + **Populates Current Fleet Data**

Save time with auto-populated equipment information and data.

- + **VisionLink™ Integration**

Inspection results can be viewed in Cat equipment management applications, making it easier to track machine health.

- + **Save Time with Digital Inspections**

Digital inspections provide current information for review, retention, sharing, and printing.

## CAT REMOTE SERVICES

Cat Remote Services is a suite of technologies that improve jobsite efficiency. Two of its key functions are Remote Troubleshoot and Remote Flash.

- + **Remote Troubleshoot**

Allows your Cat dealer to perform diagnostic testing on your connected machine remotely, pinpointing potential issues while the machine is in operation. Remote troubleshooting helps to ensure the technician arrives with the correct parts and tools the first time, eliminating additional trips to save you time and money.

- + **Remote Flash**

Allows you to update onboard software without a technician being present, allowing you to initiate software updates when convenient, increasing your overall operating efficiency.





# VISIONLINK™

## MACHINE AND JOBSITE DATA AT YOUR FINGERTIPS

VisionLink™ is a flexible and scalable cloud-based application designed to monitor all aspects of your operations, whether for individual machines or multiple interconnected job sites. It analyzes the collected data to provide insights into fleet utilization, identifies potential friction points, and tracks grade production data. With VisionLink, you can make informed decisions that enhance operational efficiency and boost profits.



### MAXIMIZE UPTIME

Monitor equipment health, fault codes, fluid analysis, and inspection due dates. Reduce unplanned downtime with critical alerts. Order parts and schedule service within the platform.

### ANALYZE PRODUCTION

Track material types and tonnage moved, fuel costs & machine hours. Pull performance data for analysis and compare productivity between shifts.

### OPTIMIZE UTILIZATION

Manage assets by projects, groups, or geofences. Set utilization targets and monitor performance. Make informed, data-based decisions to reduce operating costs.

### PRIORITIZE SAFETY

Enhance operator awareness and worker vigilance on job sites by utilizing situational awareness alerts to mitigate risks and improve safety protocols.

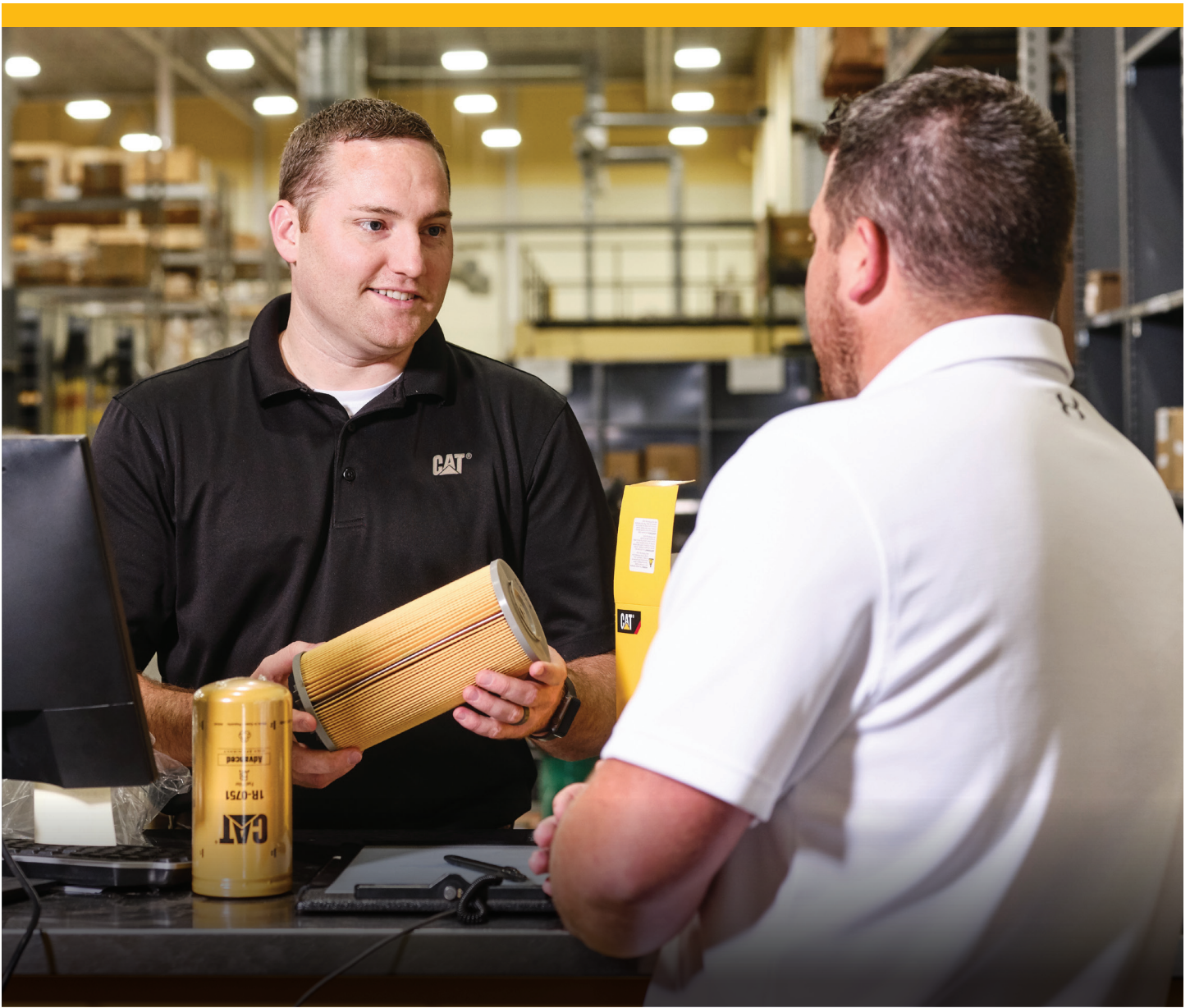




# CAT MOTOR GRADER TECHNOLOGIES

MAXIMIZE PRODUCTIVITY, ENHANCE SAFETY, LOWER COSTS





When you select Cat equipment and technology, you benefit from the support of the largest and most experienced dealer network in the industry.

You gain a partner committed to assisting you and your operation at every stage. Whether you require expert advice or emergency service, your Cat dealer is there for you from day one.

**Cat Motor Grader Technologies May Vary by Region and Model.  
Consult Your Cat Dealer for Details.**



For more complete information on Cat products, dealer services and industry solutions, visit us on the web at [www.cat.com](http://www.cat.com).

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