

# PRECISION CONSTRUCTION



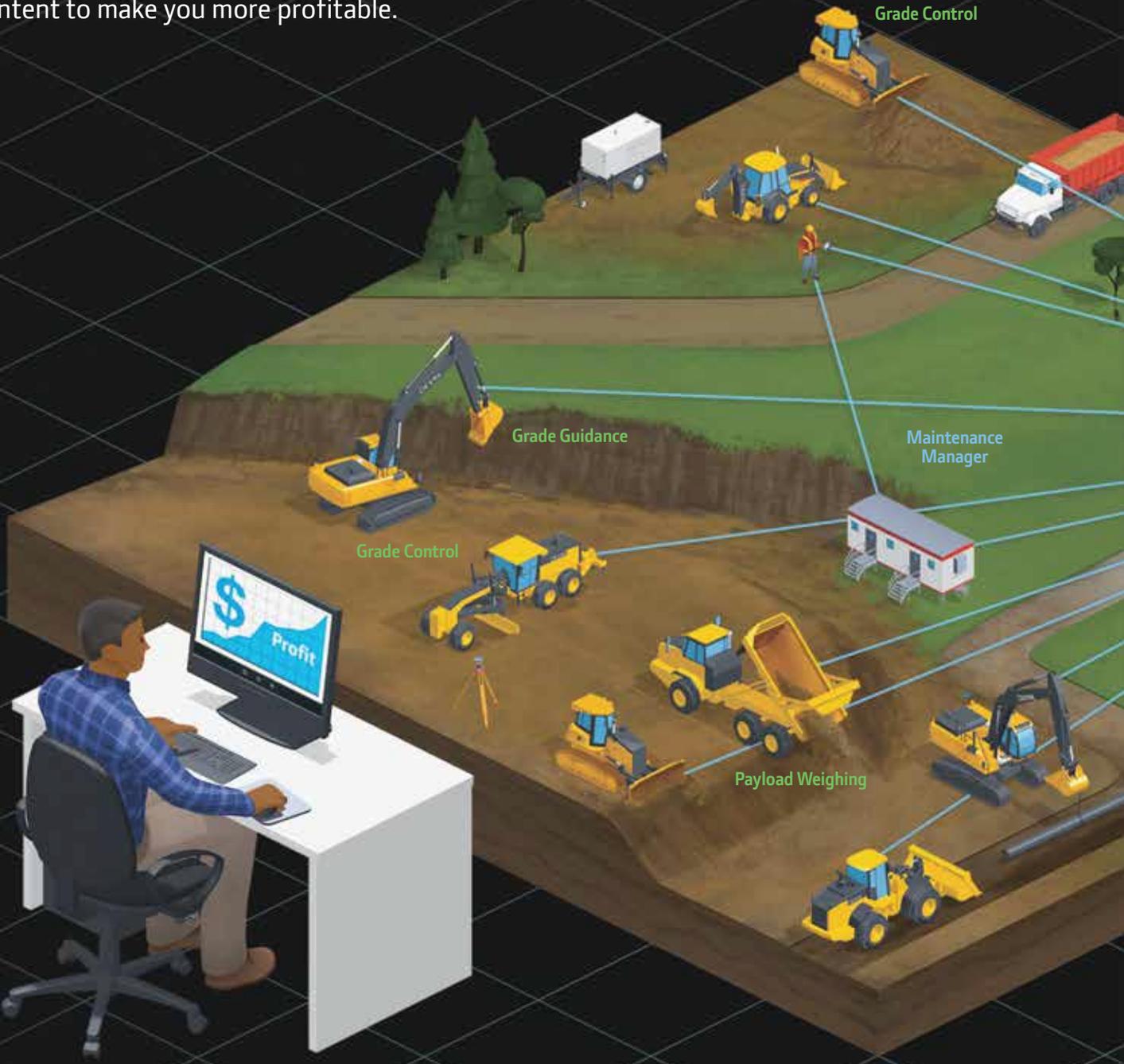
JOHN DEERE



JOHN DEERE CONNECTED SUPPORT™  
MACHINE HEALTH  
REMOTE DIAGNOSTICS AND PROGRAMMING  
JDLINK™  
GRADE MANAGEMENT  
PAYLOAD WEIGHING  
DEALER SUPPORT

# Bringing machines, technology, and your dealer together to make your job easier

Precision Construction turns data into solutions to maximize uptime, lower costs, and help you get more done, more efficiently — all with the intent to make you more profitable.

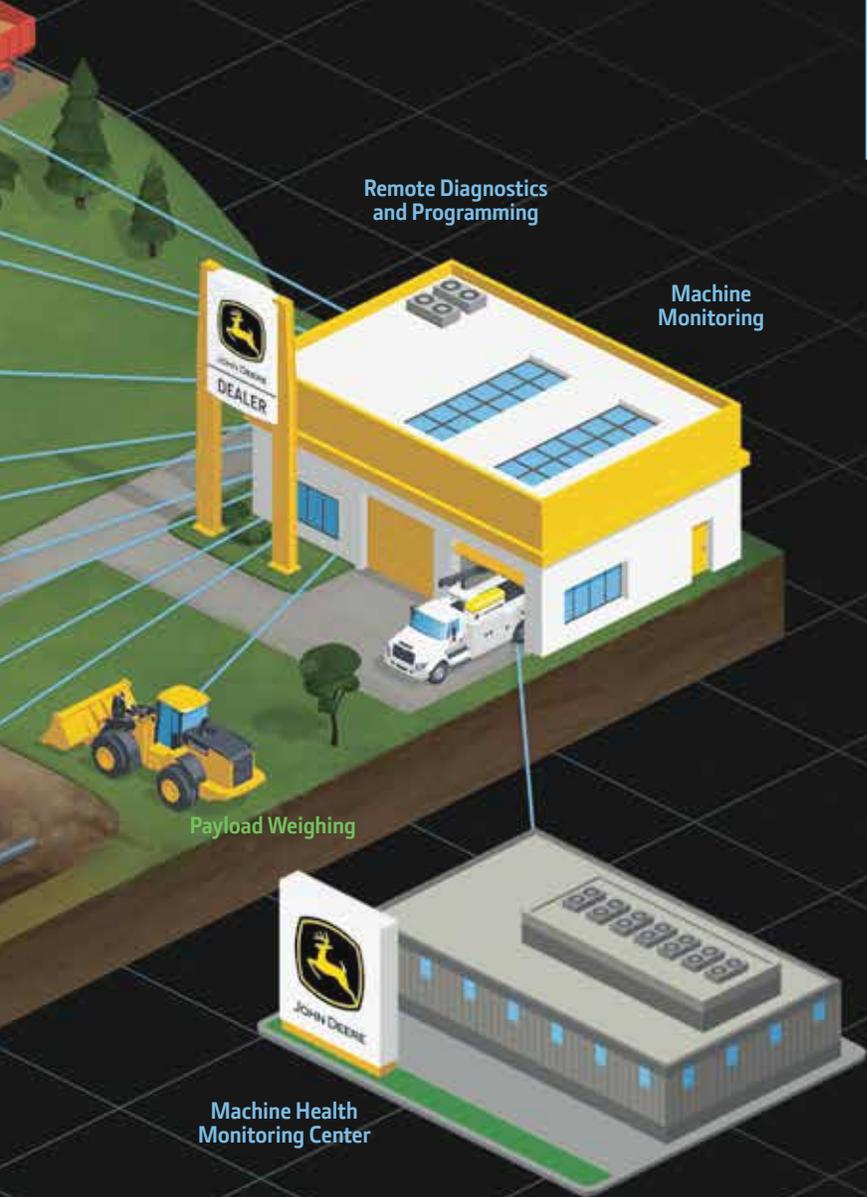




## Precision Construction

*Maximizes uptime and productivity*

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Remote Diagnostics and Programming

Machine Monitoring

Payload Weighing

Machine Health Monitoring Center



# John Deere Connected Support™ The power to see through iron and steel

To maximize the uptime of your equipment, we deliver improved machine health through an advanced dual approach:

Jobsite



Customer



1.  
John Deere  
Dealer Machine  
Monitoring Center



DTC

Diagnostic Trouble Code (DTC)/Machine Data

Communicate

Remote Diagnostics/Programming

Repair Equipment

Send Technician

Dealer Technician



1. Specialists at your dealer's Machine Monitoring Center use the latest connectivity and alert-management tools to filter and analyze the JDLink™ data generated by your machines. They can also incorporate more traditional inputs, such as fluid-analysis results. This enables them to quickly identify critical issues and take action — sometimes before you even know there is a problem.
2. Our central Machine Health Monitoring Centers located inside John Deere Dubuque Works and the Brazil Regional Facility analyze data from thousands of connected machines. Analysts identify trends within the data, determine causes, and develop new and improved preventative maintenance and repair protocols called Expert Alerts. These alerts are deployed to dealer Machine Monitoring Centers to continuously improve the speed and accuracy of machine-health solutions.

## Alert monitoring process

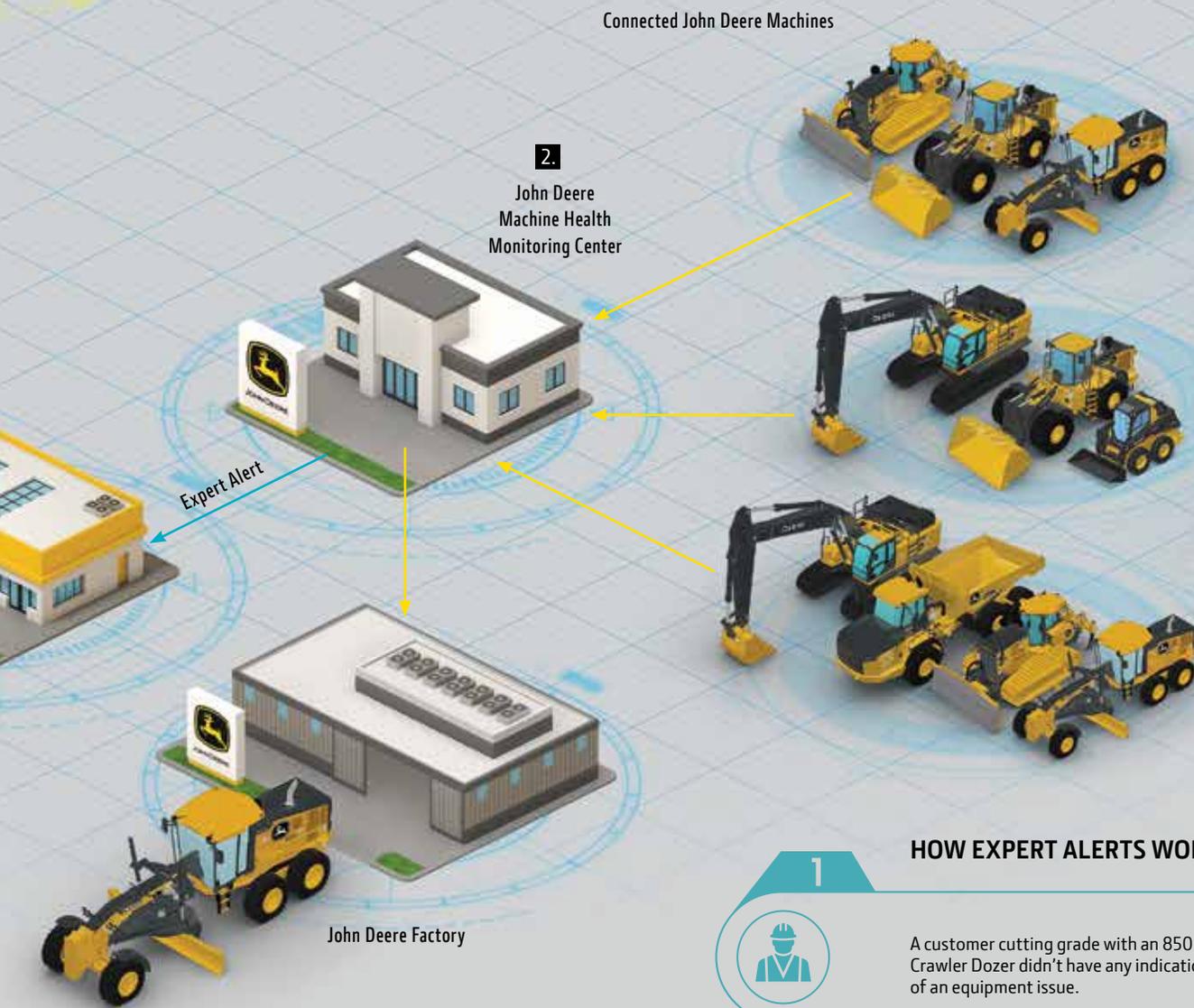
Your motor grader sends a Diagnostic Trouble Code (DTC) to JDLink. When you utilize your dealer's machine monitoring services, the DTC also goes to your dealer's Machine Monitoring Center. The specialists there can let you know if an issue is critical and requires action. They can even perform additional diagnostics and software updates without a trip to the jobsite if needed (see pages 6–7).

Response time is quick, and many times problems can be addressed before they cause downtime. When service technicians do visit the machine, they can often arrive with the parts needed to make the repair already in hand.

While your dealer focuses on addressing issues that may immediately impact you and your fleet, the John Deere Machine Health Monitoring Center continuously analyzes data from thousands of connected machines.

If a specific machine model consistently experiences the same issue, analysts will spot the trend and determine where the problem originates. These insights become Expert Alerts that are proactively sent to your dealer to help repair machines faster and help you avoid unexpected downtime.

In some cases, a machine design or component can even be changed at the factory to prevent future problems on new machines yet to be manufactured.



## You control your data

Sharing machine data with us enables levels of support never before possible – but only if that’s what you choose to do. When you entrust your data to John Deere and our subsidiaries through our Data Services and Subscriptions, we safeguard that data and honor the permissions you set for sharing it with others. You can find more information on the John Deere data policy at [JohnDeere.com/trust](https://www.johndeere.com/trust).

*You can hand over all machine-monitoring responsibilities to your John Deere dealer. Or they can monitor your fleet in conjunction with your own maintenance team.*

## HOW EXPERT ALERTS WORK:

1



A customer cutting grade with an 850K Crawler Dozer didn’t have any indication of an equipment issue.

2



However, the customer’s John Deere dealer remotely received an Expert Alert indicating low engine-oil pressure for that machine, but not at a level low enough to trigger a diagnostic trouble code (DTC).

3



The dealer contacted the customer and received permission to dispatch a technician to replace the pressure-regulating valve.

## REAL-WORLD RESULT:

*A proactive part replacement of less than \$1,000 saved the customer a \$40,000 engine replacement, excessive downtime, and a larger component failure. And sending the technician with the correct solution, part, and tools helped the dealer optimize support services and staff.*



# John Deere Connected Support™ Faster, less costly repairs

What if your dealer could initiate repair solutions without visiting the jobsite and charging you for a technician’s travel time? The remote diagnostics and programming you get with John Deere Connected Support™ enable your dealer to troubleshoot machine issues from a distance. They can access and reset diagnostic codes and record performance readings remotely and without direct contact.

## Remote performance recordings

If your machine malfunctions at 1,000 rpm, for example, your Deere dealer can use remote diagnostics to record particular machine parameters at that rpm. The technician doesn’t need to be onsite. And readings can be taken at full machine functionality, eliminating downtime.

If parts are needed to fix the problem assessed via remote diagnostics, the technician arrives onsite with the right parts without an initial trip to the field.

## Remote software updates

Using remote programming, your machine can also receive wireless software updates, avoiding a technician having to come to the jobsite with laptop in hand.

Your fleet-management and -maintenance team gains twice the bench strength when your dealer and your machines are connected through remote diagnostics and programming. The advantages to owning John Deere just got a lot more compelling.

# John Deere Connected Support is designed to show how the system works to identify

EXAMPLE

1

## IMPROPER MACHINE OPERATION



**1** JDLINK™ sends “high tire-temperature alert” to the dealer from the jobsite.



**2** Dealer accesses JDLINK website and discovers the front left and right middle tires both have low pressure and high temperature relative to the other four tires.



**3** Dealer calls the customer and makes a REMOTE DIAGNOSTICS connection — absence of additional diagnostic trouble codes confirms machine is healthy.



**4** DEALER confirms overall machine health is fine, but two tires have low tire pressure — which causes increased tire temperature.



**RESULTS:** Dealer detects improper machine condition with the potential to cause premature tire wear and expensive downtime — all without a technician trip to the jobsite.

needed to significantly optimize uptime. These real-world scenarios address equipment issues and enable economical solutions:

EXAMPLE

2

### REMOTE SOFTWARE UPGRADE



1 Dealer receives "high engine oil soot load alert" from **JDLINK**.



2 Dealer assumes excessive idling (a common cause of high soot loads) is the culprit, but the **JDLINK** website shows the machine actively working.



3 Dealer contacts the customer, establishes **REMOTE DIAGNOSTICS** connection, and views the engine misfire reading.



4 **DEALER** matches misfire symptom with a service bulletin that identifies the problem and requires a software update — dealer deploys an Electronic Control Unit (ECU) payload via **REMOTE PROGRAMMING** to update software and resolve the problem.



**RESULTS:** Dealer prevents downtime by correctly diagnosing and repairing the problem remotely.

EXAMPLE

3

### RIGHT PART FOR THE JOBSITE



1 **JDLINK** sends dealer an alert from the jobsite.



2 Dealer technician accesses **JDLINK** and finds the grader is derated.



3 Dealer contacts the customer, establishes **REMOTE DIAGNOSTICS** connection, and collects an Exhaust Gas Recirculation (EGR) flow-sensor reading. The results confirm the sensor failed.



4 **DEALER** sends a technician to the jobsite with a new sensor in hand for onsite repair.



**RESULTS:** Dealer diagnoses problem remotely and sends a technician to the jobsite with the correct part for quick repair, avoiding an initial trip to the jobsite.



# Your connection to enhanced profitability

Now free and standard on most new models, JDLink enables John Deere Connected Support™, provides valuable fleet insights, and helps you utilize other productivity solutions, including grade management and payload weighing.

## A quick view of vital info:

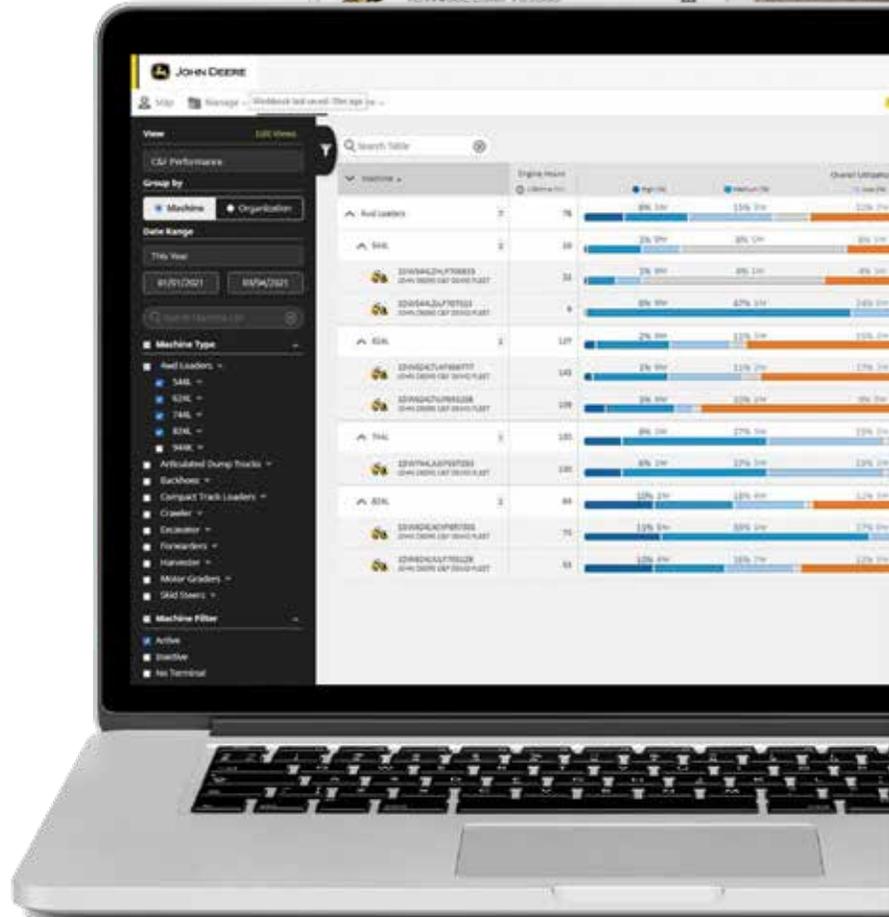
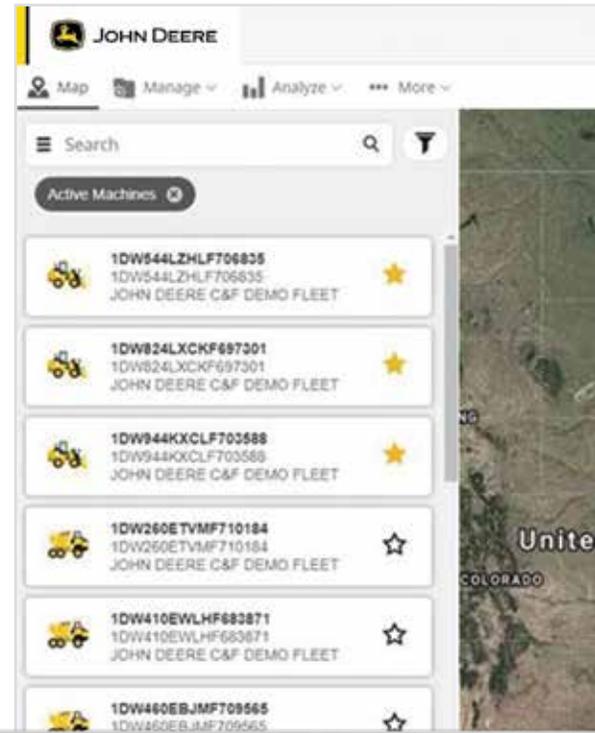
*JDLink shows machine location and utilization, time in idle, fuel level, upcoming maintenance, red alerts, and more.*

**Maps:** Current location, location history, and driving directions.

**Alerts:** Diagnostic trouble codes, maintenance, and security.

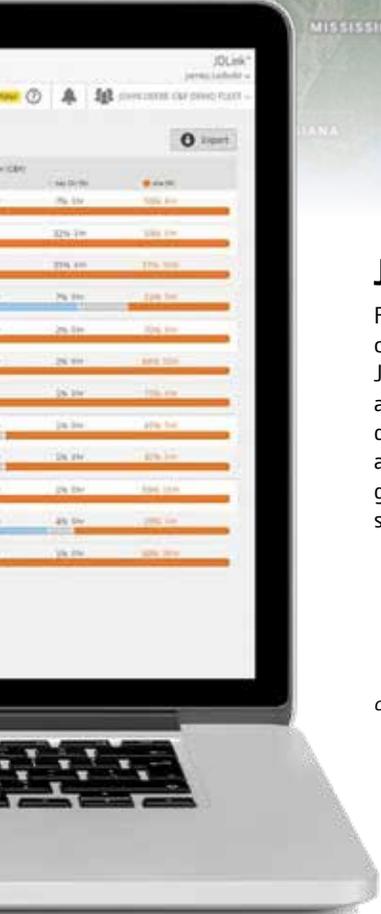
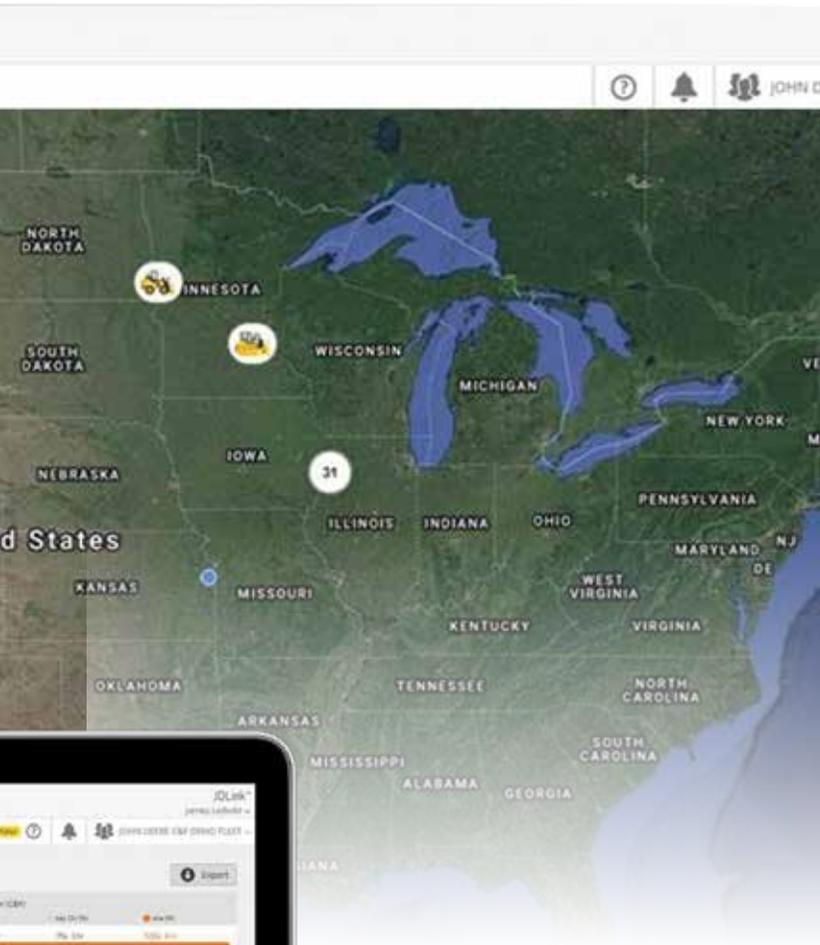
**Engine hours:** Daily, weekly, and cumulative hours for maintenance planning, utilization analysis, and jobsite cost tracking.

**Maintenance:** Enroll in a factory-recommended maintenance plan or a custom maintenance plan to automatically track upcoming intervals due for all your enrolled machines in one place.



**JDLINK GIVES YOU ACCESS TO:**

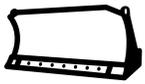
- Geofence and curfew
- Machine hours and location
- Maintenance tracking
- Machine and fleet fuel comparisons
- Operator-productivity indicators
- Diagnostic trouble-code alerts
- Thousands of data points available in Ultimate Data
- And much more!



**JDLINK satellite mode**

For work in extremely remote areas with spotty cell coverage, opt for the JDLINK satellite module. JDLINK transmits via cellular connection when available and switches to satellite mode once a day to transmit data including hours, location, alerts, and many other data sets. Red alerts and geofence violations are sent immediately in both satellite and cellular modes.





# Industry-leading precision grade-management solutions

With John Deere grade-management technology guiding your grades, you can reduce labor, improve accuracy, and enable operators of all skill levels to experience excellent results. Deere provides an economical way to adopt grade-management technology and an easy path for future upgrades as needed. All grade-management options including service, warranty, upgrades, and financing are fully supported by your Deere dealer.

## FUTURE FORWARD *John Deere Grade Management*



REDUCES LABOR



IMPROVES ACCURACY



ENHANCES SPEED



SAVES ON MATERIAL IN EACH OPERATION



ENABLES OPERATORS OF ALL EXPERIENCE LEVELS TO ACHIEVE EXCELLENT RESULTS



SMARTGRADE™ REMOTE SUPPORT



### MOTOR GRADERS

#### CROSS-SLOPE

Standard on all Grade Pro (GP) models, including the 620GP, 622GP, 670GP, 672GP, 770GP, 772GP, 870GP, and 872GP

The John Deere integrated cross-slope system will maintain slope by automatically adjusting one side of the blade while the operator controls the other, and can also be operated and used in “manual mode” as a slope meter. Upgrade to SmartGrade fully integrated grade control with a dealer-installed kit.

#### SMARTGRADE

Industry-first mastless grade-control option available on all GP models including 620GP, 622GP, 670GP, 672GP, 770GP, 772GP, 870GP, and 872GP

With SmartGrade on your motor grader, the blade can be operated in any grading position — pitch, articulation, or circle offset — without the limitations imposed by masted systems. The system is calibrated from the factory so it arrives at the jobsite ready to work. Convenient Automation Suite featuring select machine functions such as Blade Flip, Auto-Articulation, and Machine Presets is also included. Connect to other jobsites via a compatible Trimble or Leica radio.



### EXCAVATORS

#### GRADE GUIDANCE

*Available as an option on 210G/210G LC, 350G LC, and 470G LC*

2D and 3D Grade Guidance has a lower acquisition cost than full grade control. It enables operators to see bucket position relative to job plans or benchmarks. Upgrade to SmartGrade with a dealer-installed kit.

#### SMARTGRADE

*Available as an option on 210G/210G LC, 350G LC, and 470G LC*

SmartGrade is fully integrated into the excavator and provides 2D or 3D grade control. The machine accurately controls the boom and bucket according to the design plan, greatly reducing the need for multiple passes. Virtual-fence limits are also included. Connect to other jobsites via a compatible Trimble or Leica radio.



### SKID STEER LOADERS (SSLs) AND COMPACT TRACK LOADERS (CTLs)

#### GRADE INDICATE

*Available as an option on 330G and 332G SSLs and 331G and 333G CTLs*

With grade indicate on your SSL or CTL, you can assess, alter, and monitor grade from the seat of the cab while working on water-draining, site-prep, and clearing projects within  $\pm 0.5\%$  accuracy.

#### SMARTGRADE

*Industry-exclusive option on the 333G CTL (also available as a field kit on select 333G models)*

The fully integrated 333G CTL solution provides precision 3D grade-control technology on a machine already well known for its versatility and productivity. This solution also leverages key features like a newly designed dozer-blade attachment, EZ Grade software, and DozerMode\* that ease overall machine operation, enabling accurate and productive grades to be made on each and every pass.

*\*Patent pending.*



### CRAWLER DOZERS

#### SLOPE CONTROL

*Available as an option on 450K, 550K, 650K, 700L, 750L, and 850L*

With Slope Control on your crawler dozer, you can maintain a selectable blade position, improve accuracy of work without a GNSS or laser, and utilize real-time mainfall-slope and cross-slope values from the monitor. Upgrade to SmartGrade fully integrated grade control with a dealer-installed kit.

#### SMARTGRADE

*Available as an option on 650K, 700L, 750L, 850L, and 950K*

SmartGrade provides 3D grade control without external masts or cables. Auto SmartGrade automatically adjusts the blade when encountering heavy loads. Connect to other jobsites via a compatible Trimble or Leica radio.



# Work quickly, efficiently, and accurately

John Deere provides an economical way to adopt grade-management technology and an easy path for future upgrades as needed.

JOHN DEERE GRADE-MANAGEMENT OPTIONS	 CRAWLER DOZERS	 MOTOR GRADERS	 EXCAVATORS	 SKID STEERS AND COMPACT TRACK LOADERS
<b>SmartGrade™ fully integrated grade control</b> 3D grade-control system with no external masts or cable is fully supported by your John Deere dealer.	Available on 650K, 700L, 750L, 850L, and 950K	Available on all Grade Pro (GP) models	Available on 210G/210G LC, 350G LC, and 470G LC	Available on 333G Compact Track Loader (CTL)
<b>Slope Control</b> Slope Control eases grading by automatically maintaining the blade position without an external laser or GPS reference, helping both new and veteran operators to hold grade with less effort, fewer corrections, and minimal blade adjustments.	Available on 450K, 550K, 650K, 700L, 750L, and 850L	N/A	N/A	N/A
<b>Cross Slope</b> Automated cross slope simplifies holding a consistent slope by reducing operation to a single lever. Both dual-joystick controls and fingertip armrest controls come equipped with cross slope, are ready to run, and can be easily upgraded to full 3D SmartGrade.	N/A	Available on all Grade Pro (GP) models	N/A	N/A
<b>Grade Guidance</b> Provides information on the cutting-edge location with respect to a 2D reference or 3D design surface. Ideal for digging trenches for pipe, shaping ditches or slopes, or digging structure foundations.	N/A	N/A	Available on 210G/210G LC, 350G LC, and 470G LC	N/A
<b>Grade Indicate</b> Provides an accurate readout in percentages or degrees of the cross slope and mainfall slope of the machine. The relative value readout is well suited when altering grade relative to an existing or reference grade.	N/A	N/A	N/A	Available on 330G and 332G Skid Steers, and 331G and 333G CTLs

Ask your dealer for details on grade-management options.

PRECISION CONSTRUCTION





# Stop guessing

The Payload Weighing System for John Deere wheel loaders is factory installed and fully supported by your John Deere dealer. Onboard weighing enables more efficient loading and allows material movements to be tracked. Available for the 744L, 824L, and 844L Wheel Loaders, the system is fully integrated with our JDLink™ machine-monitoring system, so you can track and visualize payload data. It's also available with an optional printer.

## Go with the flow

Dynamic weighing technology allows operators to weigh without interrupting workflow, with accurate payload targets and overload alarms helping to eliminate excess weight or fines. The system's tare function factors in hopper or pallet weight, while the product mix/blend mode makes it easy to combine different materials.

## Stay in control

From the cab, you can store calibrations for up to 10 unique attachments, view current payload information from the onboard touch-screen monitor, adjust the final load with a live tip-off counter, and use a single multifunction button on the hydraulic controls to keep track of cycles.

## Mind your business

Keep tabs on productivity using JDLink and onboard data. JDLink captures and stores 12 data elements including payload, truck count, bucket count, fuel consumed, and time loading. The onboard database keeps accurate records of products, customers, trucks, haulers, locations, destinations, mix blends, notes, drivers, and job/order names. Export onboard data to a computer via a USB drive, or print receipts from the optional printer.





**PAYLOAD DATA INFORMATION IN JDLINK**

**Payload Job Information**

Machine Measurement	Value
Truck Payload Weight Average (ton)	0.40
Truck Payload Weight Min. (ton)	0.40
Truck Payload Weight Max. (ton)	0.40
Number of Trucks Loaded	1.00

**Payload Weight by Aggregate Index**

Table Visual Interval Trend

Machine Measurement	Payload Weight by Aggregate Index (ton)
0	12.95
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00

*Payload data can be viewed remotely in JDLink.*



**FACTORY INSTALLED AND DEALER SUPPORTED**



**FAST AND ACCURATE PAYLOAD MEASUREMENT**



**ONBOARD WEIGHING SAVES TIME AND FUEL\***



**WEIGH WHILE YOU WORK**

*\*Compared to a loader without a payload weighing system.*

FEATURE	BENEFIT
Color touch-screen display with additional physical keys	Clear, uncluttered display provides intuitive operation
Dynamic weighing technology using inclinometers	Superior weight accuracy and repeatability on sloped terrain
Target load	Set individual product target and establish correct loading
Live last bucket "tip off" at any position	Tip off at the pile or above the truck to quickly achieve target weight
JDLink integration	Track and visualize productivity in JDLink
System "pause" button	Pause current load and come back to it later without losing data
Five memorized pre-selections for repeat job setup	Track totals for different types of material
Printer option with configurable output	Hard copy of load summaries and totals with company logo
Split loading	Confirm trucks and trailers are loaded to correct weight while monitoring overall loads
Multiple attachments	Calibration scale for use with up to 10 buckets/attachments
Tare function	Net weighing for pallets and containers
Adjustable weighing height	Flexible weighing for application
Stores multiple job and blend capabilities, with advanced memory job search and report function	Accurate record keeping, traceability, and stock management
XML data output via serial, ethernet, and USB drive	Efficient data handling
Calibration "nudge"	Quick and easy calibration adjustment to match site reference
Audible overload alarm	Alerts operator when machine is overloaded to reduce tire and machine wear



# Haul more efficiently and track material movement

Onboard payload weighing for John Deere articulated dump trucks (ADTs) provides overload protection, with mirror-mounted load indicators that inform the operator when the truck is nearing capacity.

Payload scales also let the operator track total tonnage and cycles. The system will even calculate carryback after the load is dumped for accurate production values.

Dump-body rollover protection that monitors chassis roll helps reduce the likelihood of a rear tip-over. When the preselected rear chassis side-to-side slope percentage is exceeded, the dump body will not raise.

Onboard weighing can also monitor fore-aft angle and decrease the dump-body angle when backing down a slope to reduce dump-cycle time. Since the truck now recognizes its load, a loaded speed limit can be selected to match the worksite.

## See it all in JDLink™

Back at the office, JDLink payload-data displays help managers and jobsite supervisors monitor offsite truck use. Viewing payload data in JDLink makes it easy to analyze machine utilization and manage a project, plus identify operator trends that can affect productivity. This data can also serve as a valuable reference when bidding future projects.



### ADT PAYLOAD POD FOR JDLink

#### Payload Information

Machine Measurement	Count
Trip Counter (Count)	48.00
Distance Travel While Unloaded (mi.)	1248.42
Average Speed Loaded (mi./hr.)	8.70
Loaded Average Fuel Rate (gal./hr.)	4.88
Unloaded Time (hr.)	332.14
Loaded Idle Time (hr.)	39.81

### MIRROR-MOUNTED LIGHTS



### MONITOR DISPLAY



PRECISION CONSTRUCTION





DEALER SUPPORT

## Your dealer works for you

Precision Construction helps optimize your machines, your uptime, and your jobsites, ultimately leading to improved profits. But don't let the learning curve scare you. Your John Deere dealer employs a team of technology specialists that can help you enjoy the benefits of Precision Construction with as much or as little involvement as you desire.



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**JOHN DEERE**