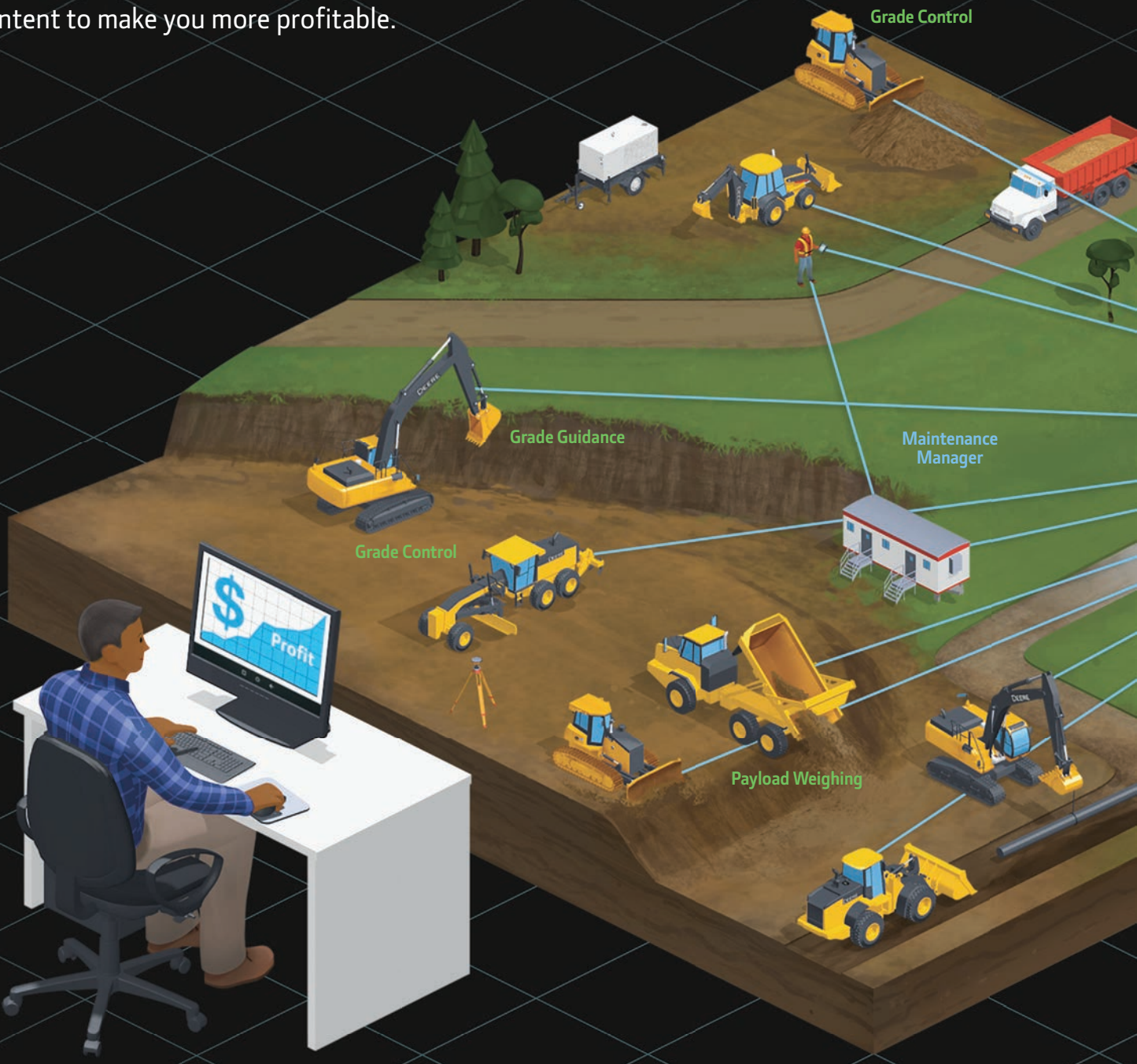
PRECISION CONSTRUCTION

JOHN DEERE

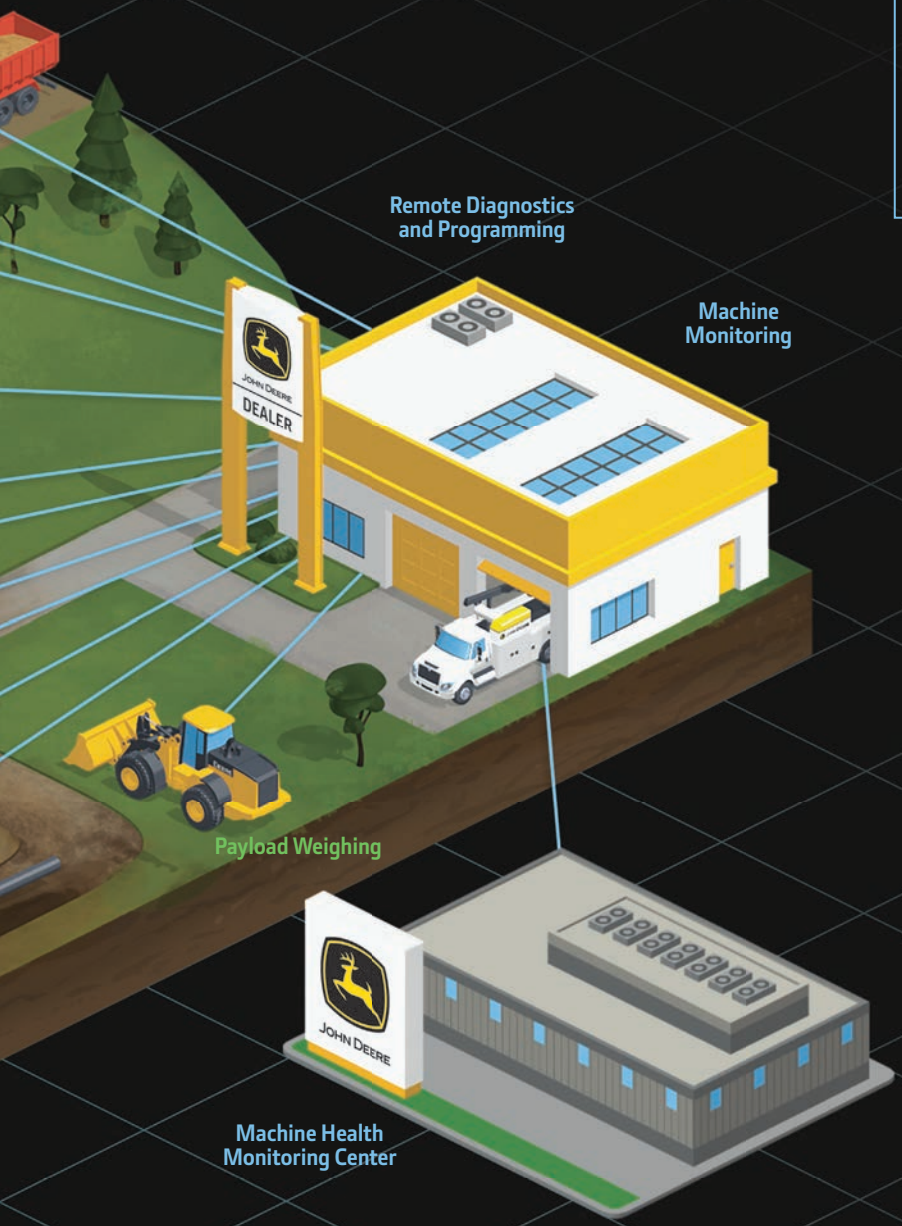
Bringing machines, technology, and your dealer together to make your job easier

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



John Deere Connected Support™

View your mixed-fleet data where you want it

Nearly every fleet includes multiple brands of equipment assets. And most companies want to track their entire fleet in one place to help reduce multiple logins to different telematics portals. The JDLink™ Machine Data Application Programming Interface (API) converts your JDLink data to ISO 15143-3 standards so it can be utilized by the mixed-fleet data-solution provider you prefer.

EQUIPMENT FLEET

DATA FROM EQUIPMENT FLEET GOES INTO JDLINK

DATA STREAMS TO THE API

DATA STREAMS TO THE USER'S PREFERRED PORTAL

THE JDLINK MACHINE DATA API

Meets ISO 15143-3 standards

INCLUDES DATA ELEMENTS SUCH AS:

- HOURS
- LOCATION
- FUEL
- UTILIZATION
- DIAGNOSTIC TROUBLE CODES
- PAYLOAD-SCALE DATA

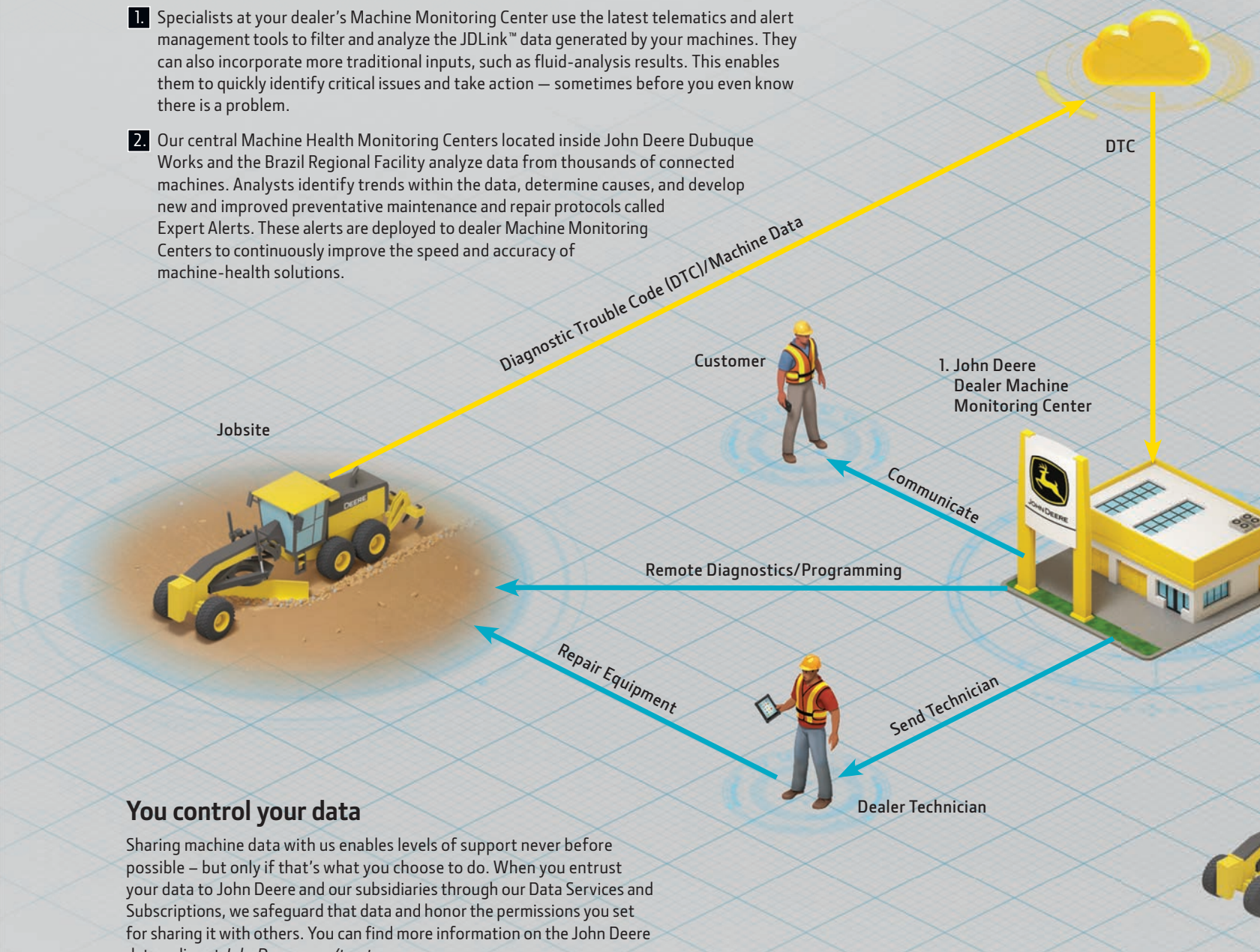
John Deere Connected Support™

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:

1. Specialists at your dealer's Machine Monitoring Center use the latest telematics 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.



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.*

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.

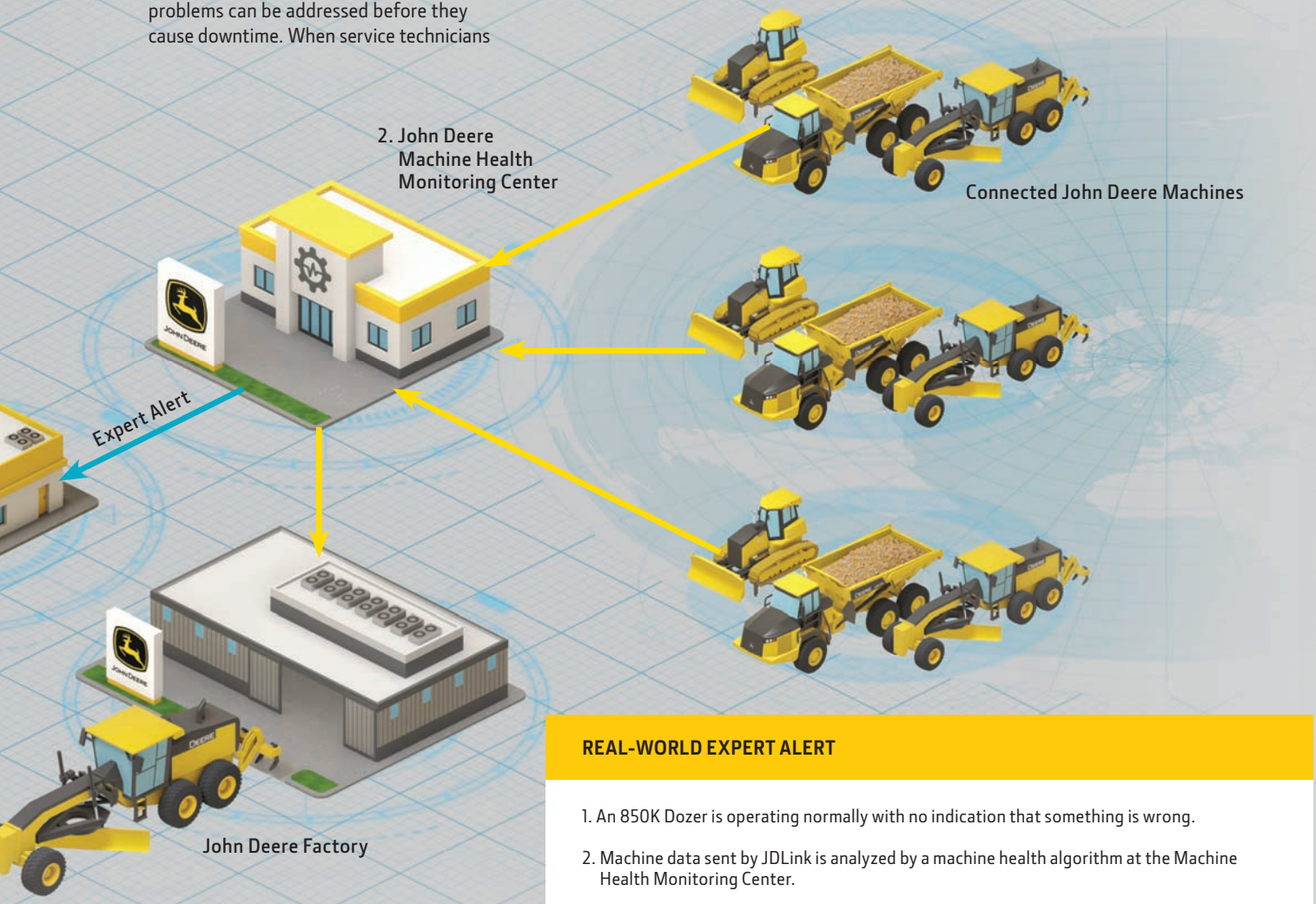
Alert monitoring process

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 8–9).

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.



REAL-WORLD EXPERT ALERT

1. An 850K Dozer is operating normally with no indication that something is wrong.
2. Machine data sent by JDLink is analyzed by a machine health algorithm at the Machine Health Monitoring Center.
3. Oil-pressure data is compared to data from other 850Ks — the pressure is low but not low enough to trigger a trouble code.
4. The algorithm detects a signature pressure relief valve failure condition and sends an Expert Alert to the local John Deere dealer.
5. The dealer proactively contacts the customer to schedule a repair.

This Expert Alert helped the dealer identify the problem and make the repair to avoid a major component failure without any up-front diagnostics time.

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.

Three real-world examples of how John Deere Connected Support significantly optimizes uptime:

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.

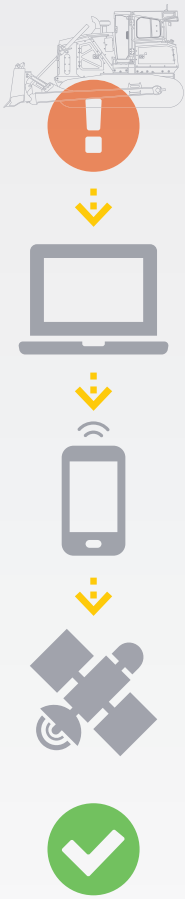
4 **DEALER** confirms overall machine health is fine, but two tires have low tire pressure — which causes increased tire temperature.

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.

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.

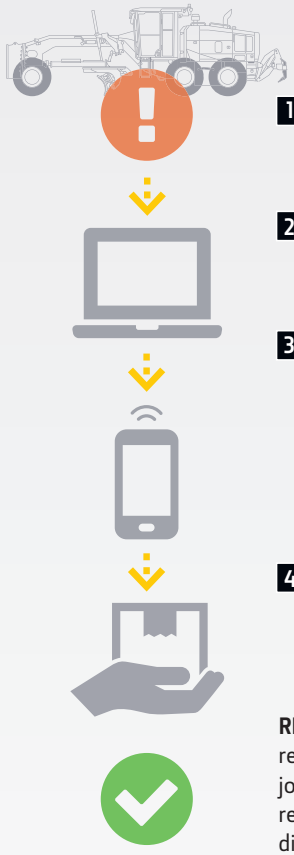
4 **DEALER** matches misfire symptom with a service bulletin that identifies the problem and requires a software update — dealer deploys an Electronic Control Unit (ECU) payload via **REMOTE PROGRAMMING** to update software and resolve the problem.

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 for diagnosing the problem.

Your connection to enhanced profitability

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:

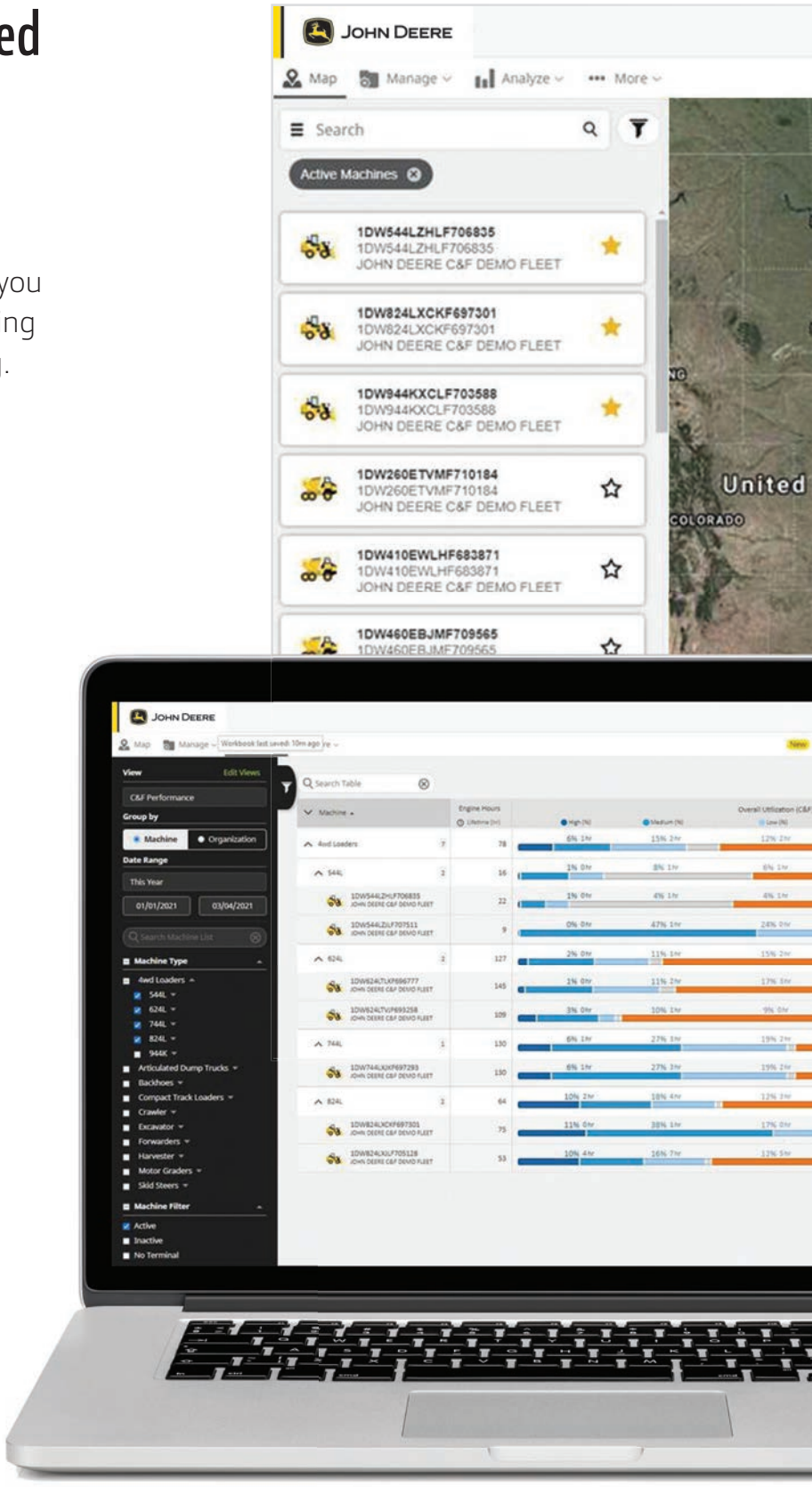
JDLink shows machine location and utilization, time in idle, fuel level, upcoming maintenance, red alerts, and more.

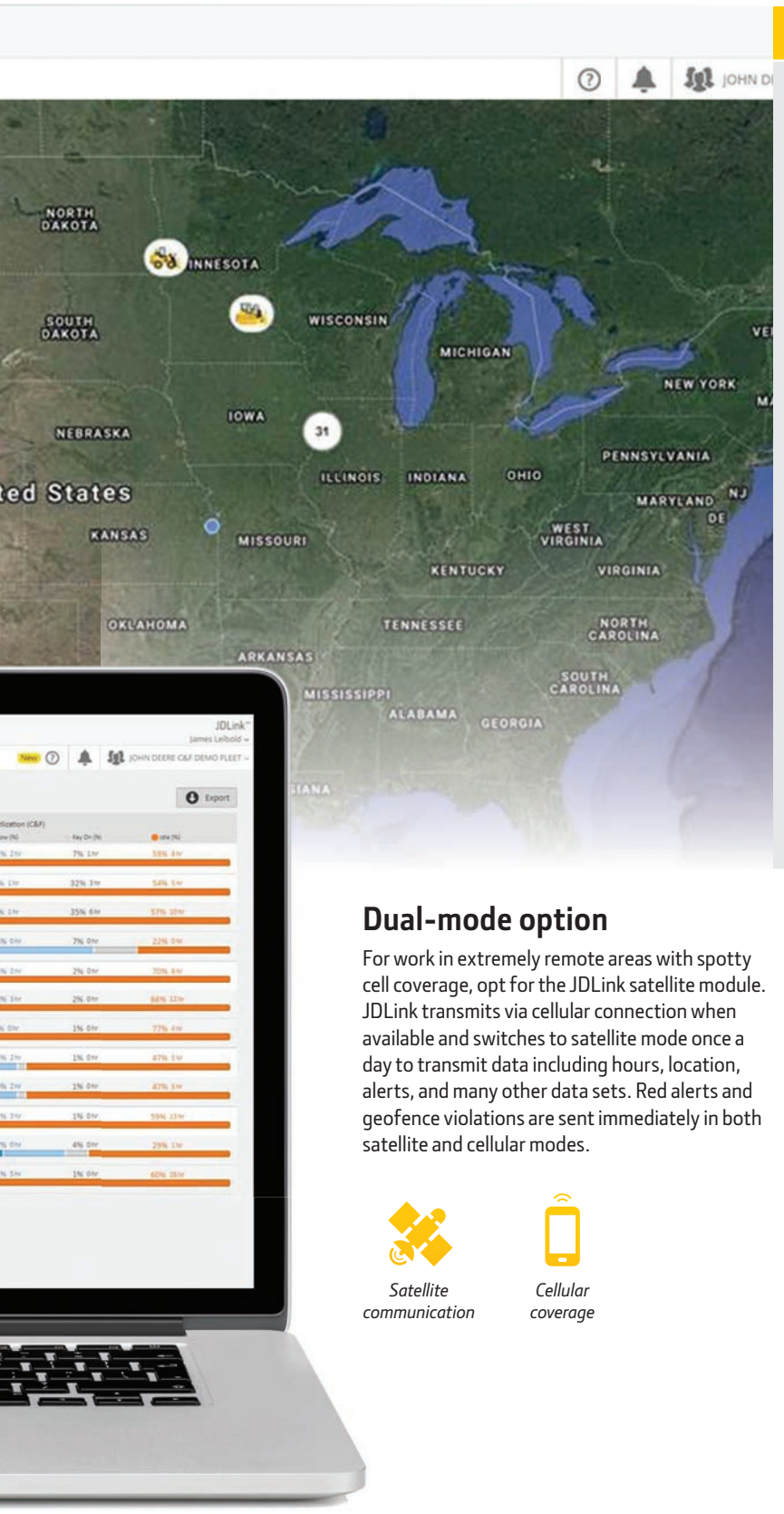
Maps: *Current location, location history, and driving directions.*

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!

Dual-mode option

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.

Satellite communication

Cellular coverage

Industry-leading range of OEM 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.

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 ±0.5% accuracy.

SMARTGRADE

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

The fully integrated, mastless 3D grade-control system enables a rigid load path while dozing, intelligently allowing boom movement for stockpiling material, loading and unloading the machine from a trailer, or any of the myriad tasks this versatile model can master. Connect to other jobsites via a compatible Trimble or Leica radio.

CRAWLER DOZERS

SLOPE CONTROL

Available in 2021 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.

More speed, more profits

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		SKID STEERS AND COMPACT TRACK LOADERS
SmartGrade™ fully integrated grade control 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 333G Compact Track Loader (CTL)
Slope Control 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
Cross Slope 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
Grade Guidance 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		N/A
Grade Indicate 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		Available on 330G and 332G Skid Steers, and 331G and 333G CTLs

Ask your dealer for details on grade-management options.


SmartGrade

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.

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.

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.

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


410E

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 technology 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.

Your dealer's team of technology specialists can:

- Utilize remote-diagnostic and -repair capabilities to lower costs and improve uptime.
- Share data with other dealership departments so they can better serve you.
- Work with you to understand how technologies like SmartGrade™ and payload weighing can benefit your business.
- Provide training if you wish to monitor and act on data in-house.
- Coordinate implementation of an Application Programming Interface (API) for utilizing telematics data in your business system.
- Help with JDLink™ enrollment and activation.
- Monitor incoming data from JDLink systems and communicate those results to you in the way you want, such as documented reports, regular meetings, or as needed.
- Interpret JDLink data to suggest changes to your operation, maximizing productivity and efficiency.
- Analyze machine-health alerts to recommend preventative maintenance that will head off more expensive future downtime.

Whether you prefer to dig into the details or operate hands-off, your dealer's team of technology specialists can help confirm that your Precision Construction experience is exactly how you want it.