Equipment Self-Repair

We know uptime is critically important to our customers. It's also important to John Deere and our dealers. From Do-It-Yourself tractor repairs to John Deere Connected Support[™], we're committed to keeping our customers' machines up and running when they need them the most. We also know our customers want to repair their equipment in their own shop and on their own time. That's why repairability is designed into every tractor that we build.

Maintenance, diagnostic, and repair tools are made available to our customers through the following means:



Manuals (Operator, Parts, Service)

All technical and operator manuals can be purchased by customers online through the <u>Technical Information Store</u>. - <u>Manuals and Training</u>

- John Deere Parts & Service



Product & Quick Reference Guides - Quick Reference Guides



Product Service Demonstrations, Training, Seminars or Clinics

- Training and Safety Videos

- Simulators





Fleet Management Information - John Deere Connected Support[™] - JDLink[™]



Other publications with information on service, parts, operation, and safety

- Safety Information
- Operation Training
- Warranty & Protection Plans

On-Board Diagnostics via diagnostics port or wireless interface

JOHN DEERE

Machine issues are identified by a specific Diagnostic Trouble Code (DTC) that can be accessed through the machine display or dash. Some machines allow for the basic description of the DTC to be viewed.

- <u>Remote Display Access</u> (view of operator's display in cab)

- Mobile Apps (access through the John Deere App Center app, available in both <u>Android</u> and <u>iOS</u> app stores)

- Provide operating tips and basic troubleshooting information. Some apps also provide the ability to look up DTCs for more information.



Capabilities – Access to operator and technical manuals, look up diagnostic codes, machine diagnostic connectivity with Electronic Data Link (EDL) and performance machine calibrations.

- For access – contact <u>local John Deere</u> <u>dealer</u> on purchase and support information.

Interested customers are encouraged to contact their local John Deere dealer for more information on those resources. All tools/resources outlined on this page are currently available to customers, independent repair personnel and end users – and will continue to be available in the future.

Equipment Designed with Repairability in Mind

From the Beginning

Our design engineers keep user serviceability top-of-mind during product development, crafting the entire machine – including machines like the 8R tractor – easy to access so serviceability is easier for our customers.



Routine Maintenance Guides, Manuals, Safety and Training

Customers can get access to a digital database of Do-It-Yourself instructions – everything they might need to resolve an equipment issue independently.

- Ag, Turf, and Engine Operator Manuals
- Training and Safety Videos
- Training and Reference Guides
 - o <u>Simulators</u>
 - o Online Training
 - o Ag and Turf Quick Reference Guides
 - o Educational Curriculum

Access to Thousands of Parts

Access to thousands of replacement and maintenance parts for all makes and machines of machines are accessible at any budget. Genuine, remanufactured, and alternative parts are all available online.

<u>PARTS OnSite</u>TM even provides an inventory of parts where customers need them most – in their own shops.

This program is available through participating John Deere dealers who partner with customers to develop a parts inventory strategy that makes the most sense for a customer's machines. There are several different storage options and financing is available through John Deere Financial.



How We Support Our Customers

The Most Responsive Dealer Network in the Industry

Nobody cares more about keeping our customers' equipment up and running than John Deere dealers. With a complete inventory of genuine John Deere parts, highly trained service technicians and a thorough understanding of our customers' businesses, John Deere dealers are committed to keeping their equipment up and running. Plus, they're the most connected dealer network in the industry. Trained, knowledgeable technicians stand ready to support our customers when it matters most.

Customers can quickly and easily find their local dealer through our Dealer Locator tool.

Our support to customers by the numbers:

- Over 1,800 agricultural and turf dealer locations
- Over 500 construction and forestry dealer locations
- Over 16,000 service technicians
- Over 9,000 parts employees
- Over 1,000,000 part numbers
- 9 distribution centers

Dealer Supported Remote Tools

Additionally, remote tools such as <u>Expert Alerts</u>, <u>Service ADVISOR™ Remote</u>, and <u>Remote Display</u> Access allow dealer technicians and farmers to identify and address issues before they impact operations.



Expert Alerts

<u>Expert Alerts</u> is a proactive monitoring system that notifies dealers (with a customer's permission) of potential machine issues. This allows technicians to diagnose issues remotely and fix them before they become a problem.

Service ADVISOR[™] Remote

With <u>Service ADVISOR Remote</u>, a customer's dealer can remotely analyze Diagnostic Trouble Codes (DTCs) in near real time to isolate potential issues with a customer's machine. Once received by a dealer, DTCs are analyzed to identify the potential cause and initiate a solution, which can include:



- Customer Contact
- Remote Diagnostics/Service
- Possible Service Visit

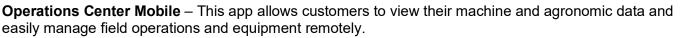
Customer Service ADVISOR[™]

Customer Service ADVISOR[™] is a digital database of operator, diagnostic, and technical manuals for John Deere products. This subscription allows a customer to connect machines with an Electronic Data Link (EDL) to clear and refresh codes, take diagnostic readings, and perform limited calibrations. Customer Service ADVISOR is available for purchase through a customer's local John Deere dealer. A customer can request more information by filling out this form.



Self-Repair Supported through Mobile Apps

John Deere's App Center is a tool that organizes all John Deere mobile apps. It is available for download through both <u>Android</u> and <u>iOS</u> app stores and is **free for use**. Our mobile apps provide operating tips and basic troubleshooting information, with some even providing customers with the ability to look up Diagnostic Trouble Codes (DTCs). The mobile apps outlined below are most relevant to customers who would like to self-repair their equipment.



- Easily analyze all planting/seeding, Application, Harvest, and Tillage data across an organization
- Dashboard of area worked by operation type and field summary cards
- View agronomic information while in poor cell connectivity
- View machine location, hours, fuel levels and performance and efficiency measurements
- View machine security and health alerts including Diagnostic Trouble Codes (DTCs)
- View operator's in-cab display with Remote Display Access (RDA), a desktop and mobile application

EquipmentPlus - This app is intended to provide a quick reference overview of key adjustments, maintenance, and procedures.

- Optimizes a customer's machine through proper machine and monitor setup, as well as maintenance and infield procedures
- Provides setup information for Displays, Receivers, AutoTrac[™] Universal
- Provides tools for connecting MTG 4G LTE to a wireless network, or configuring MTG 4G LTE to receive wireless connections
- <u>Equipment Types</u>: Air Seeders, Balers, Cotton Harvesters, Forage Harvesters, Planters, Sprayers, Sugarcane Harvesters and Tillage equipment

TractorPlus - This app provides information and tools which help customers maintain their equipment more effectively.

- Provides detailed upcoming maintenance recommendations with quick access instructions from Operator's Manual or links to relevant tutorial videos
- Provides updates on fluid capacities and parts information with options to easily purchase via an online shopping cart
- Tracks engine hours, records maintenance history, and quickly links to parts diagrams when a customer might need to identify a repair part
- For Compact Utility Tractor customers there is also a new option to record and visualize work and additional information using your phone's built-in GPS when looking up DTCs
- <u>Equipment Types</u>: select John Deere 1, 2, 3, and 4 family Compact Utility Tractors and 7R, 8R, 8RT, 8RX, 9R, 9RT, and 9RX model tractors (MY19 & MY20)

MowerPlus - The app helps customers determine the best time to mow, communicates expert premow tips, offers maintenance reminders, and provides walk-through guides

Equipment Types: supports residential lawn equipment such as 100 Series, S240, X300, X500, X700, Z200 through Z600, and many similarly-sized older products. It does not presently support tractor models numbered 1000 and larger, such as 1025R.

Machine Modification Implications

Today's Modern Tractors

Our equipment doesn't fit in your pocket like a cell phone or come with fewer than 40 components. Our combines can weigh 15 tons or more and are manufactured with over thousands of parts. The same software that drives improved productivity, efficiency, and sustainability, also controls important safety and environmental features.

That's why modifying software in our equipment is a no-go for us — and why our dealer network, and its highly skilled technicians, provide additional tools and resources when needed. Here are some examples of what can happen if equipment is modified.

Agricultural Equipment

Track Tractors



Wheeled Tractors



Motion initiation, if modified:

- Machine can move without input from operator

Steering, if modified:

 The tractor could turn unexpectedly in the field or into oncoming traffic when on the road

Interlocks, if modified:

- Tractor could start in gear
- Auto clutch may not function
- Parking brake may not function

PTO & SCV (hydraulic) controls, if modified:

The PTO and/or SCVs could engage an implement

Seat switch, if modified:

- Parking brake could release unexpectedly

Self-Propelled Sprayers



Motion initiation, if modified:

- Machine could move without input from operator

Seat switch, if modified:

- Parking brake could release unexpectedly

Harvesting Equipment

Combines



Seat switch, if modified:

- The header, separator, unloading system could engage unexpectedly, or not engage as intended
- Parking brake could release unexpectedly

Motion initiation, if modified:

- Machine can move without input from operator

Self-Propelled Forage Harvesters



Seat switch, if modified:

- The header, separator, unloading system could engage unexpectedly, or not engage as intended
 Parking brake could release unexpectedly.
- Parking brake could release unexpectedly

Motion initiation, if modified:

 $-\operatorname{Machine}$ can move without input from operator

Cotton Pickers



Seat switch, if modified:

- The header, separator, unloading system could engage unexpectedly, or not engage as intended
- Parking brake could release unexpectedly

Motion initiation, if modified:

- Machine can move without input from operator

Lawn, Garden, and Utility Equipment

Lawn & Garden Tractors



Safety systems, if modified:

- The seat switch may not function correctly, which could result in the mower blades engaging unexpectedly, or not disengaging as intended
- "RIO" (Reverse Implement Option) system may not disengage the mower blades as intended when the machine moves in reverse
- Parking brake could release unexpectedly

Gator[™] Utility Vehicles



Speed sensing, if modified:

- The speed limiter that limits vehicle speed to under 15 MPH if the driver's seatbelt is not connected would not function correctly
- "Supervisor" mode, which limits top vehicle speed, would not function properly

Seat switch, if modified:

- Parking brake could release unexpectedly

Fairway Mowers



Safety systems, if modified:

- The seat switch may not function correctly, which could result in the mower blades engaging unexpectedly, or not disengaging as intended
- Braking system may not stop the mower

Construction Equipment

Crawler Dozer



Motion initiation, if modified:

- Machine can move without input from operator

Steering, if modified:

Machine could turn unexpectedly

Interlocks, if modified: — Machine motion may be initiated

Seat switch, if modified:

- Parking brake could release unexpectedly

Wheel Loaders



Motion initiation, if modified: — Machine could move without input from operator

Steering, if modified: — The loader could turn unexpectedly when in use

Interlocks, if modified: — Parking and shift to neutral may be affected

Seat switch, if modified:

- Parking brake could release unexpectedly

Excavators



Boom movement, if modified:

 Boom could swing, move, and operate without input from operator, or in a manner inconsistent with the input

Interlocks, if modified

- Hydraulics could activate unexpectedly

Seat switch, if modified:

- Parking brake could release unexpectedly

Forestry Equipment

Tracked Feller Bunchers



Skidder

Boom movement, if modified:

 Boom could swing, move, and operate without input from operator, or in a manner inconsistent with the input

Header control, if modified:

- The header may not function as intended

Interlocks, if modified:

- Hydraulics could activate unexpectedly

Seat switch, if modified:

- Parking brake could release unexpectedly

Motion initiation, if modified:

- Incorrect machine motion controls may become active

Steering, if modified:

- The skidder could turn unexpectedly

Interlocks, if modified:

- Starting and braking functions may be affected

Seat switch, if modified:

- Parking brake could release unexpectedly

Forwarders



Motion initiation, if modified:

- Machine could move without input from operator

Steering, if modified:

 The tractor could turn unexpectedly in forest or into oncoming traffic when on the road

Boom control, if modified:

 Boom could swing, move, and operate without input from operator, or in a manner inconsistent with the input

Seat switch, if modified:

- Parking brake could release unexpectedly