



JOHN DEERE

8 Family of Tractors

PowerTech™ PSX 9.0L engine





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8R/8RT Series horsepower

Model Year 2010

8345 R 345 engine hp, 284 PTO hp

8320 R 320 engine hp, 263 PTO hp

8295 R 295 engine hp, 242 PTO hp

8270 R 270 engine hp, 220 PTO hp

8245 R 245 engine hp, 198 PTO hp

8225 R 225 engine hp, 181 PTO hp

8345 RT 345 engine hp, 275 PTO hp

8320 RT 320 engine hp, 255 PTO hp

8295 RT 295 engine hp, 235 PTO hp

Model Year 2011

8360 R 360 engine hp, 296 PTO hp

8335 R 335 engine hp, 276 PTO hp

8310 R 310 engine hp, 255 PTO hp

8285 R 285 engine hp, 234 PTO hp

8260 R 260 engine hp, 213 PTO hp

8235 R 235 engine hp, 192 PTO hp

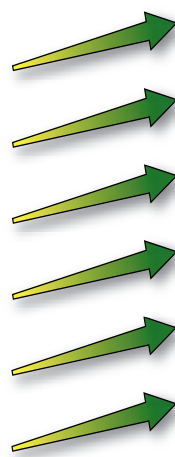
8360 RT 360 engine hp, 288 PTO hp

8335 RT 335 engine hp, 268 PTO hp

8310 RT 310 engine hp, 247 PTO hp

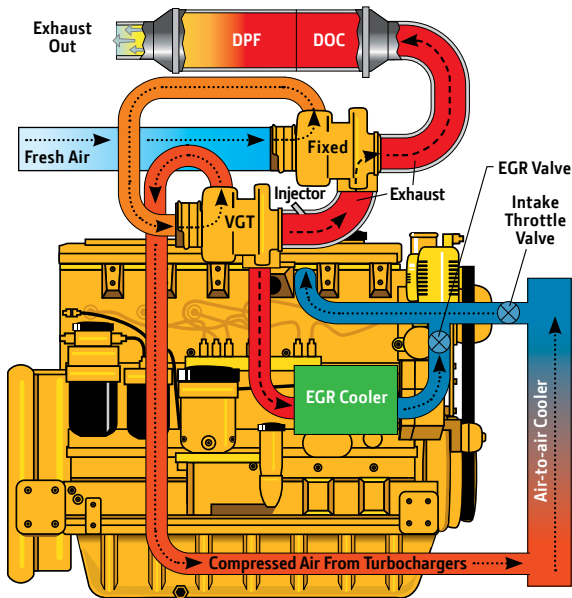
Rated engine hp (ISO), 97/68/EC, at 2,100 engine rpm

Rated PTO (hp SAE) at 2,000 engine rpm



PowerTech PSX 9.0L engine technologies

PowerTech PSX Interim Tier 4 technology

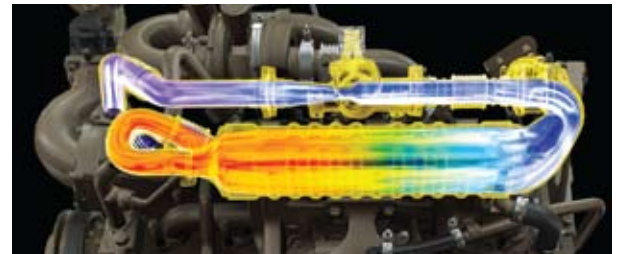


Series turbochargers

Fresh air is first drawn into the low-pressure turbocharger (fixed geometry) and compressed to a higher pressure. The compressed air is then drawn into the high-pressure turbocharger (VGT), where the air is further compressed. The high-pressure air is then routed through a charge air cooler and into the engine's intake manifold. By splitting the work between two turbochargers, both can operate at peak efficiency and at slower rotating speeds — lowering stress on turbocharger components and improving reliability. Series turbocharging delivers more boost pressure than single turbocharger configurations, which results in higher power density, improved low-speed torque, and improved high altitude operation, broadening the operating range of the engine.

Cooled exhaust gas recirculation (EGR)

EGR cools and mixes measured amounts of cooled exhaust gas with incoming fresh air to lower peak combustion temperatures, thereby reducing NO_x.



Cooled EGR

Exhaust filters

These engines utilize a catalyzed exhaust filter that contains a diesel oxidation catalyst (DOC) and a diesel particulate filter (DPF). The DOC reacts with exhaust gases to reduce carbon monoxide, hydrocarbons, and some particulate matter (PM). The downstream DPF traps and holds the remaining PM. Trapped particles are oxidized within the DPF through a continuous cleaning process called passive filter cleaning. Passive filter cleaning occurs during normal operating conditions when heat from the exhaust stream and catalysts within the exhaust filter trigger the oxidation of the trapped PM. If passive filter cleaning cannot be achieved due to low temperature, load, or speed, then PM is removed using active filter cleaning — an automatic cleaning process controlled by the exhaust temperature management system.



Exhaust filter

1 Diesel oxidation catalyst (DOC)

2 Diesel particulate filter (DPF)

High-pressure common-rail (HPCR) and engine control unit (ECU)

The HPCR fuel system provides variable common-rail pressure, multiple injections, and higher injection pressures up to 1,975 bar (29,000 psi). It also controls fuel injection timing and provides precise control for the start, duration, and end of injection.

4-valve cylinder head

The 4-valve cylinder head provides excellent airflow resulting in greater low-speed torque and better transient response time by utilizing a U-flow design.

Air-to-air aftercooled

This is the most efficient method of cooling intake air to help reduce engine emissions while maintaining low-speed torque, transient response time, and peak torque. It enables an engine to meet emissions regulations with better fuel economy and the lowest installed costs.

John Deere electronic engine controls

- Faster engine control unit (ECU) manages both the engine and the exhaust filter
- Full authority electronic controls
- Four times the memory, twice the RAM and double the processing speed of Tier 3 ECUs

PowerTech PSX 9.0L engines

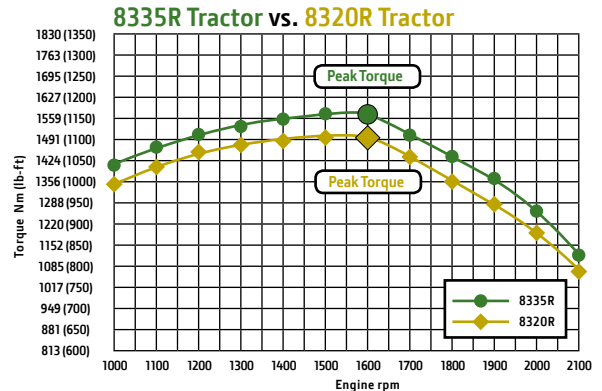
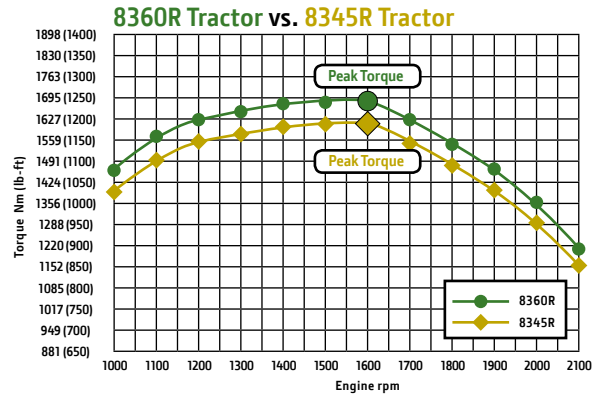
Features and benefits

- Best-in-class power density
- PTO power bulge — 12%
- PTO torque rise — 44%
- Transient response comparable to Tier 3/Stage III A
- Cold-starting capabilities that meet or exceed Tier 3/Stage III A



Engine performance curves

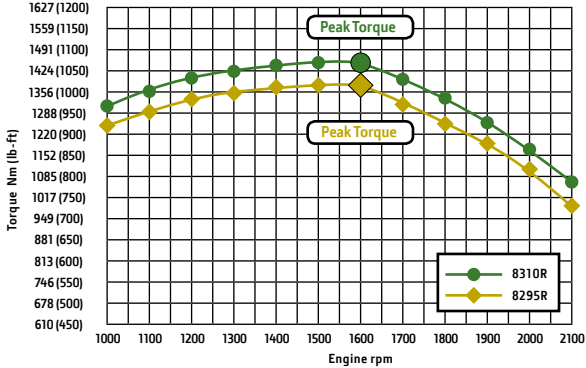
Torque curves



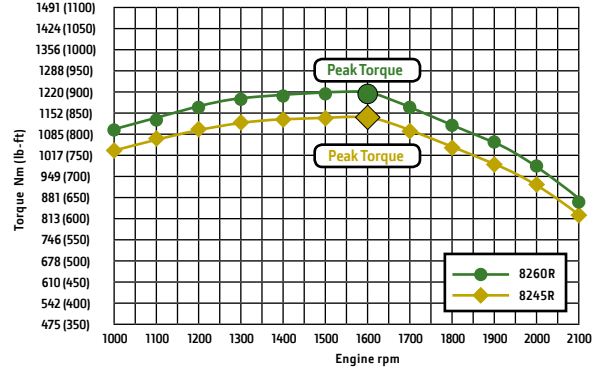
Engine performance curves

Torque curves

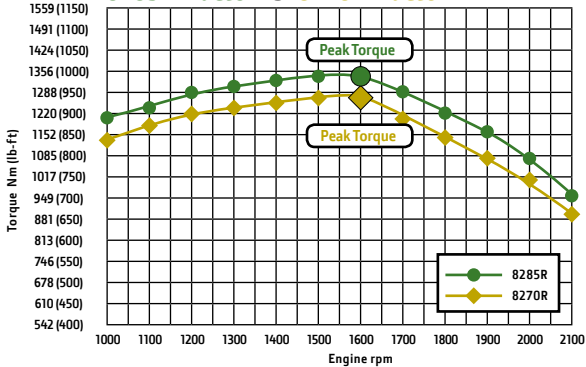
8310R Tractor vs. 8295R Tractor



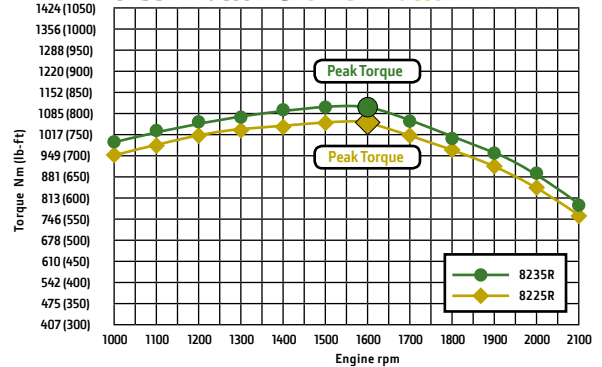
8260R Tractor vs. 8245R Tractor



8285R Tractor vs. 8270R Tractor



8235R Tractor vs. 8225R Tractor



Questions and answers

What's the background on these regulations?

The drive to reduce emissions has been in the works for more than 10 years and has followed a tiered approach. Tier 1 regulations set limits on particulate matter (PM) and nitrogen oxide (NOx) emissions. Final Tier 4 regulations take effect in 2014 and require the air coming out of the exhaust to be virtually as clean as the air going into the engine.

What is PM and NOx?

PM is called “smoke” because it comes out of the exhaust pipe in the form of smoke. It's essentially an incomplete combustion of diesel fuel — just like a smoky fire that provides less heat than a hot, clean-burning fire.

NOx is sometimes called “smog” because it contributes to the formation of atmospheric pollution.

How do John Deere IT4 engines reduce NOx and PM?

John Deere technology to reduce NOx is cooled exhaust gas recirculation (EGR) and to reduce PM is an exhaust filter. EGR lowers NOx and the exhaust filter reduces particulate matter.

What is filter cleaning?

The exhaust filter is integrated into the engine design to provide a simple and reliable solution for reducing PM. A single engine control unit (ECU) manages both the engine and exhaust filter, via an exhaust temperature management (ETM) system, to clean the exhaust filter. If passive filter cleaning cannot be achieved due to low temperature, load, or speed, then PM is removed using active filter cleaning — an automatic cleaning process.

Passive filter cleaning

John Deere engines and exhaust filter components are designed for uninterrupted operation using passive filter cleaning, a natural cleaning process where engine exhaust temperatures are high enough to oxidize the PM trapped in the exhaust filter. The process occurs during normal engine operating conditions.

Active filter cleaning

If conditions (temperature, load, or speed) for passive filter cleaning cannot be achieved, then PM must be removed using active filter cleaning, an automatic process using exhaust temperature management (ETM). This is another example of the true intelligence of the tractor. ETM adjusts the engine operating parameters automatically and seamlessly, with no operator or vehicle impediment, to complete and optimize the active filter cleaning process. ETM can adjust the injection timing and the air intake and/or inject a small amount of fuel in the exhaust stream for a short duration. The fuel turns to vapor and chemically reacts with catalysts in the DOC. Active filter cleaning only occurs when passive filter cleaning is not possible based on temperatures, load, and speed.

Does the operator have to stop the machine for filter cleaning?

In most cases the filter cleaning process uses exhaust heat created under normal engine operating conditions. When necessary, the engine's control system can raise exhaust temperature to clean the filter. In either case, filter cleaning will not impact machine operation if allowed to occur automatically.

Why not selective catalytic reduction (SCR)?

There are a number of reasons. First is the fact urea is not widely available today. You may have to drive a distance to get to a urea retailer. Its price also can be high and it can be difficult to store. For example, it will freeze in cold temperatures. Not only do you need to store diesel around your operation, you also have to store urea and keep it from freezing. These IT4 regulations take effect in 2011, which is just around the corner, and we believe the infrastructure for the delivery and storage of urea to our rural customers will not be adequate by that time.

Second, we're looking to the end result, and that's Final Tier 4 in 2014. Proven technologies such as cooled EGR and exhaust filters will be the foundation for meeting Final Tier 4 regulations.

If we removed the EGR components from our engines to meet IT4, we would need to put them back on for Final Tier 4. So from a logical engineering progression, it makes more sense to build upon our already-proven cooled EGR technology for IT4 and add the exhaust filter.

Some agricultural-equipment makers are going with SCR. Is this the first time John Deere chose a different path to meet emissions regulations?

Certainly not. Most manufacturers chose a different path to meet Tier 3 emissions regulations. We took the cooled-EGR approach and built the most fuel-efficient tractor ever tested. In fact, the fuel-efficiency record the John Deere 8430 set at the Nebraska Tractor Test Lab¹ established the standard for total-vehicle efficiency by which all tractors have since been measured.

In addition, the John Deere 8320R, which replaced the 8430, was tested at the Nebraska Tractor Test Lab and set two fuel-efficiency records, outperforming every tractor in its class, in these two tests: (1) Drawbar Performance at 75 Percent of Pull at Reduced Engine Speed, which most represents typical fieldwork, and (2) Power Take-Off Performance at Rated Engine Speed.² Then the 8295R³ was tested and broke those records.

With the proven success of the 8030 Series and now the 8R/8RT Series, it's clear we chose the right path then, and we're confident we're choosing the right path now.

1. Nebraska OECD Tractor Test 1873 — Summary 527.
2. Nebraska OECD Tractor Test 1963 — Summary 660.
3. Nebraska OECD Tractor Test 1969 — Summary 730.

Is cooled EGR the right choice for farmers?

Customers worldwide overwhelmingly told us they did not want a second fluid for their farm equipment for IT4. Cooled EGR is a simple solution for the operator that leverages the proven fuel-efficiency of our PowerTech Plus engines and is part of an integrated vehicle design. That's something John Deere excels at as we design, manufacture, and service the engine, drivetrain, hydraulics, exhaust filter, cooling system, and other vehicle systems as part of a complete package to improve performance, convenience, and value. Finally, cooled EGR is easy to maintain. If it needs service, our customers are backed by the most responsive dealer network in the industry. Our dealers and their service technicians will be highly trained on these new engines and can even help you improve total vehicle efficiency.

Does cooled EGR add more complexity than other technologies?

While cooled EGR engines require additional sensors and actuators, the control logic is designed into the engine control unit, which allows the complexity to be transparent. The technology may appear complex to the average individual, but it is the key to the product's function, performance, and reliability. Cooled EGR is a proven technology that is used to control NOx emissions by most on-road diesel engine manufacturers, as well as millions of gasoline and diesel passenger cars.

Myths and facts

Myth: Fuel economy will be significantly affected.

Fact: The John Deere 8R/8RT Series tractors with a Tier 3 PowerTech Plus 9.0L engine featuring cooled EGR were the most fuel efficient tractors ever tested at the Nebraska Tractor Test Lab. For Interim Tier 4, additional EGR and exhaust aftertreatment may impact fuel economy slightly. However the John Deere IT4 solution is limited to consuming a single fluid, diesel fuel, compared to competitive SCR solutions that consume both diesel fuel and urea. So when considering total fluid economy, John Deere will continue to provide world-class fluid economy, minimizing cost of ownership.

Myth: IT4 engines will have higher combustion temperatures than Tier 3 engines.

Fact: John Deere engines, which utilize EGR technology to reduce NOx, have a lower combustion temperature than SCR engines, which enables less NOx to form, making it a cleaner and greener engine technology.

Myth: IT4 engines will have reduced durability.

Fact: John Deere is building on the existing reliable technology we were first to the market with in Tier 3 with the introduction of the 8030 Series Tractors. We have hundreds of thousands of test hours to date on the PowerTech PSX 9.0L in the same or harsher conditions in which our customers operate their tractors in order to give the new owner confidence in a proven technology. Current engine maintenance intervals remain unchanged, or in some case are improved.

Myth: IT4 tractors will experience a loss of power compared to the tractors they replace, or customers will need to buy more horsepower.

Fact: Horsepower and performance will increase for IT4 8R tractors compared to the Tier 3 8R tractors they replace.

Myth: John Deere tractors will be more complicated.

Fact: John Deere takes a building-block approach to engine technology, building upon proven technology to meet the next EPA hurdle, continuously making customer requirements the focus, by utilizing a technology path that makes new regulations John Deere's business and not the customer's. This strategy truly makes the technology simpler for customers. John Deere IT4 technology has been developed so that the technology is transparent to customers. In fact operation of the vehicle will be the same as Tier 3 vehicles. Just fill with diesel fuel and go to work.

Top 10 features of 8R/8RT Series Tractor iPackage

1. ActiveCommand Steering (ACS™) — Enhance control at transport speeds and experience less steering effort with ACS. Dynamic road-wheel offset control, variable ratio steering, the elimination of hand wheel drift, and variable effort steering provide Intelligent breakthroughs in steering technology for the ultimate driving experience.

2. JDLink™ Ultimate Promotion and Service ADVISOR™ Remote Capability — Factory installed telematics hardware and one year JDLink Ultimate subscription at no charge allows two-way tractor communication providing important data for making intelligent decisions in today's operations. With Service ADVISOR Remote dealers spend less time troubleshooting so the tractor spends more time operating in the field.

3. AutoTrac™ and iTEC™ Pro activations — SF1, SF2, or RTK AutoTrac with iTEC Pro provides hands-free guidance in the field with the added intelligence and convenience of automated headland turns.

4. StarFire™ 3000 Receiver — The latest intelligence in satellite receiver technology utilizing both GPS and GLONASS signals with 3D Terrain compensation that adjusts for yaw, pitch, and roll.

5. GreenStar™ 3 Touchscreen CommandCenter and GS3 2630 Display — Two touchscreen displays with an intuitive user interface allow quick access to all the tractor intelligence functions one could ask for. Plus, monitor your implements with the new video capabilities of both the GS3 Touchscreen CommandCenter and GS3 2630. Lock in preferred machine settings with Access Manager password protection to ensure all operators maintain peak performance.

6. 8R Series Premium CommandView™ II Cab with ActiveSeat™ — The most spacious, comfortable, and productive cab in the industry takes a mobile office environment to a whole new level. ActiveSeat comfort paired with simple to use fingertip controls further enhances the operator's experience.

7. IVT™ or PST — John Deere transmissions combine power-saving technology with proven design features ensuring reliability, high efficiency, and convenient operation. Versatile transmission controls are designed to give the operator maximum tractor control with minimum effort for operating today's intelligent machines.

8. 8R ILS™ Front Axle — The iPackage 8R Series Tractor is equipped with an ILS front axle and ActiveSeat. This intelligent suspension technology enables a smooth ride with maximum comfort.

9. Premium Lighting — Add comfort and productivity with Premium Lighting included in the iPackage. The 360-degree field lighting with high-intensity discharge (HID) lights enhances nighttime visibility and extends productivity well past sundown.

10. Premium Stereo — Featuring a subwoofer, auxiliary input jack for mp3 players, satellite radio with antenna, and a Bluetooth® cell-phone interface, the Premium Stereo delivers the high performance audio that customers expect.

Why purchase an iPackage Tractor?

Smart Machines + Smart Technology + Smart Support =
A Simple Solution

Simple ordering

Selecting one option code ensures the latest and most advanced AMS and Tractor technology are factory installed. No need to worry about brackets, harnesses or compatibility; factory installation results in the TOTAL INTEGRATED SOLUTION.

Simple operation

John Deere strives to balance simplicity and capability. Purchasing an iPackage Tractor maximizes tractor capability yet maintains the simple operating characteristics John Deere tractors are known for.

Simple economics

Leverage the greatest technologies to increase productivity, efficiency, and profitability. Receive up to a \$2,000 discount when purchasing an iPackage tractor.

It truly is the most intelligent high performance family of tractors in the marketplace.



ActiveCommand Steering (ACS™)

Whether in the field or on the road, ActiveCommand Steering will reduce steering effort, resulting in reduced operator fatigue, as well as improve operator comfort, control, and visibility.

4 key features of ACS

Dynamic road wheel offset control:

- A gyroscope senses tractor yaw and can automatically make small steering adjustments to provide unprecedented line-holding abilities. Drive down a bumpy road and experience how ACS makes it easy for you to keep the tractor straight, even over rough terrain. ACS delivers the ultimate in comfort and control.
- ACS works to prevent over-steering when a sudden obstacle causes the operator to make a quick steering reaction.

Variable ratio steering:

- Approximately 3.5 turns lock-to-lock at in-field speeds for quick headland turns.
- Approximately 5 turns lock-to-lock at transport speeds for improved vehicle control.

Elimination of hand wheel drift:

- Steering wheel drift and slop are eliminated with the ActiveCommand Steering electronic control system.

Variable effort steering:

- Steering-wheel resistance automatically changes with ground speed to deliver light steering effort at slower speeds for less effort during headland turns, and higher steering-wheel torque at transport speeds for better comfort and control.

JDLink Ultimate Promotion

For Model Year 2011 8 Family of tractors, the JDLink Ultimate subscription will be provided for one year at no charge. 8R and 8RT Series tractor owners can view their tractor's geographic location and status and receive machine performance activity. In addition, Service ADVISOR remote will allow the servicing dealer to remotely access the tractor to perform diagnostics from the dealership, enhancing dealer support.

JDLink

For customers and dealers who want to use real-time alerts and information to make decisions to improve their machine utilization with wireless communication between the machine and the office, JDLink™ enables customers and dealers to:

Save money by increasing machine uptime through preventive maintenance and diagnostics.

- Alerts when maintenance is required
- Provides recent diagnostic codes to schedule service when convenient
- Ability to follow up on potential problems seen through code history to prevent inconvenient downtime

Save time by coordinating labor and machine logistics through real time alerts and location optimization.

- Alerts when a machine requires fuel
- Identifies, via website, machine location and the closest fuel truck to keep machine and fuel truck operators running at peak productivity

Increase productivity by improving machine efficiency by understanding machine utilization and output.

- Alerts when a machine has been idling for extended periods of time to address potential fuel cost savings

Service ADVISOR Remote

- Enables dealer to begin diagnostics without leaving the dealership
- Remote programming capability
- Increased uptime through dealer-enabled remote diagnostics
- Enhanced dealer support through remote connectivity

Intelligent Power Management

Intelligent Power Management is an optional feature that provides additional engine horsepower for transport and non-stationary rear PTO applications. Intelligent Power Management increases tractor productivity by maintaining vehicle speed during transport and non-stationary rear PTO applications. Intelligent Power Management also provides versatility for lower frequency rear PTO applications that previously required a higher horsepower tractor, and the added benefit of additional fuel efficiency when operated above rated speed power.

How much additional horsepower?

| Tractor Model | Additional Engine Horsepower |
|---------------|------------------------------|
| 8235R | 35 hp |
| 8260R | 35 hp |
| 8285R | 35 hp |
| 8310R/RT | 35 hp |
| 8335R/RT | 35 hp |
| 8360R/RT | 35 hp |



JOHN DEERE



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