

# The Power to Perform

2021 X15 Performance Series delivers premium performance in tractor applications.

Ideal for:



Premium Linehaul



Heavy-haul

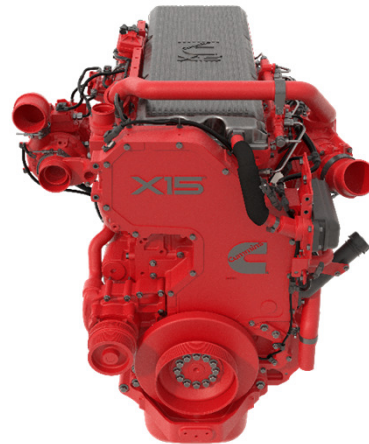


An **expanded** 2021  
portfolio, rooted in a rich  
history of innovation,  
delivers **more** for  
customers who want it  
all from their  
powertrain...

# A Winning Line-Up



Efficiency Series



Productivity Series



Performance Series

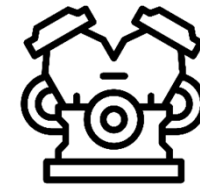
# You Get It All



**Uptime**



**TCO**



**Performance**

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Each engine in this winning line-up  
*delivers it all*

# Performance Series - by the numbers\*

**3**

Optimized ratings designed with the Premium linehauler in mind

**2%**

Fuel economy improvement in base engine over '17 X15 Performance Series

**600 BHP**

Strongest engine brake in the industry

**29%+**

Reduction in maintenance costs in the first 600,000 mi compared to '17 X15

**800,000mi**

DPF maintenance interval

**#1**

Top selling heavy-duty diesel engine in NA since the launch of the X15 platform

\*indicates up-to numbers; figures dependent on duty-cycle, driver behavior, among other factors

# Simplified Ratings

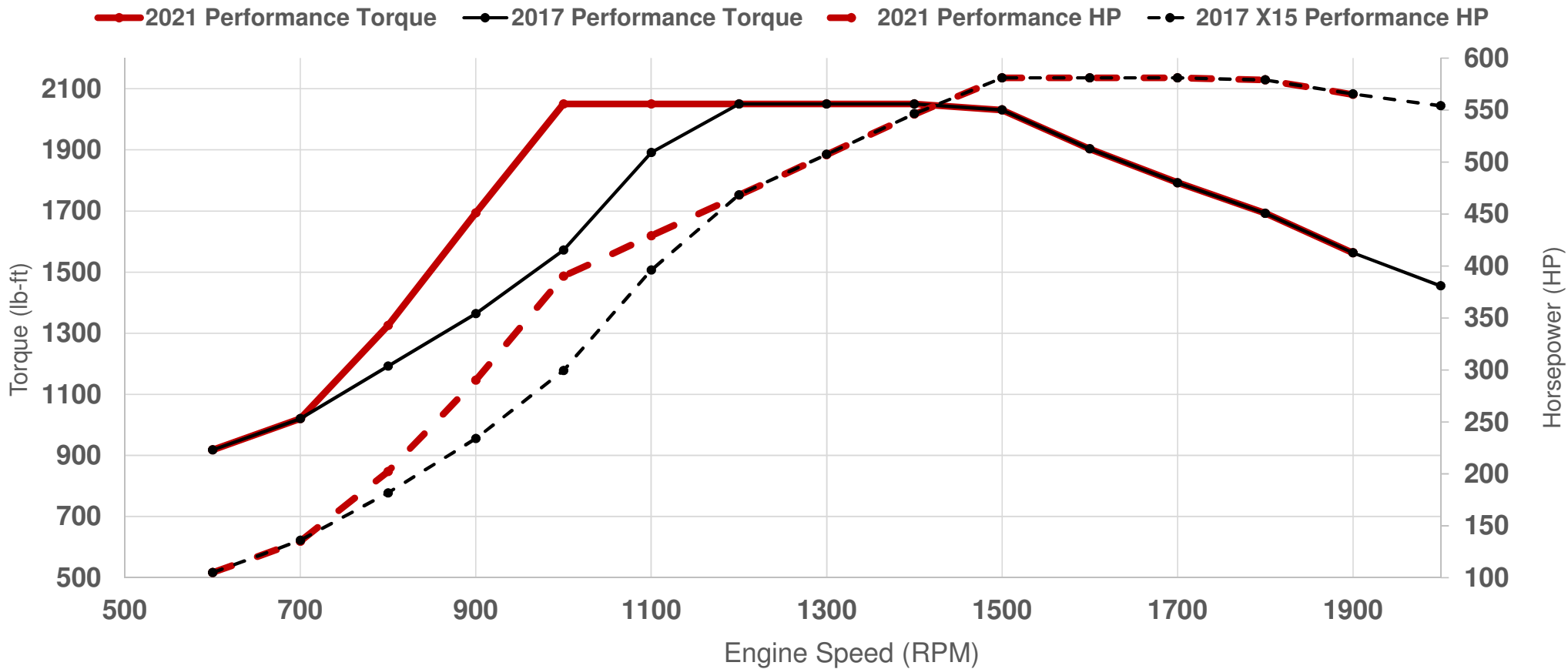
## 2020 Performance Series

	<b>Peak Torque (lb-ft @ RPM)</b>	<b>Governed RPM</b>
<b>X15 485</b>	1650 @ 1150	2000
<b>X15 485</b>	1850 @ 1150	2000
<b>X15 505</b>	1650 @ 1150	2000
<b>X15 505</b>	1850 @ 1150	2000
<b>X15 525</b>	1850 @ 1150	2000
<b>X15 565</b>	1850 @ 1150	2000
<b>X15 565</b>	2050 @ 1150	2000

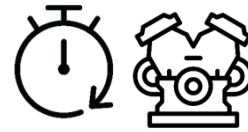
## 2021 Performance Series

	<b>Peak Torque (lb-ft @ RPM)</b>	<b>Governed RPM</b>
<b>X15 525</b>	1850 @ 1000	1900
<b>X15 565</b>	1850 @ 1000	1900
<b>X15 565</b>	2050 @ 1000	1900

# More Power at Lower RPMS



# Enhanced Powertrain Features Now Available for Performance Series



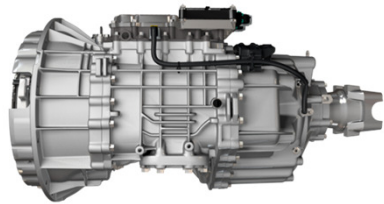
Feature	Description	Transmission Type		
		Manual	Ultrashift Plus	Allison Auto
Torque Rate Limiting	Active control of engine torque transitions during tip-in/tip-out maneuvers for improved NVH	✓		✓
Engine Brake Ramping	Active torque control of engine brake disengagement for improved NVH	✓		✓
SmartCoast	Manages transmission gear selection and engine fueling during coasting events (cruise only)		✓	
Predictive Cruise Control	Dynamically adjusts vehicle speed to minimize fuel consumption using improved knowledge of vehicle and mission parameters	✓	✓	✓
Predictive Road Speed Governor	Modulated vehicle speed near the road speed governor limit based on look ahead data for better fuel economy		✓	✓
SmartCoast +	Integration of SmartCoast and look ahead data to improve coast decision making (cruise only)		✓	





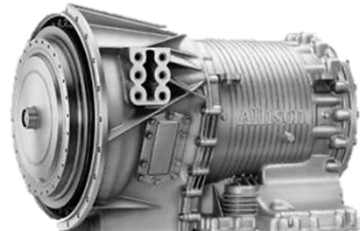
# Integrated Power

## *X15 Performance Series – Transmission Compatibility*



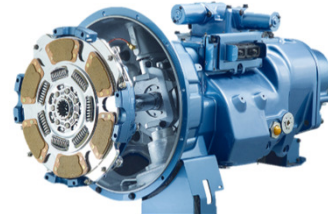
**ECJV  
Endurant**

Overdrive



**Allison**

4000  
4500



**Eaton Automated  
Manual**

**Fuller Advantage:**

- FAS C Ratio\*

**Ultrashift Plus:**

- MHP
- MXP
- VXP
- VCS
- VMS



**Eaton Manual**

**Fuller Advantage:**

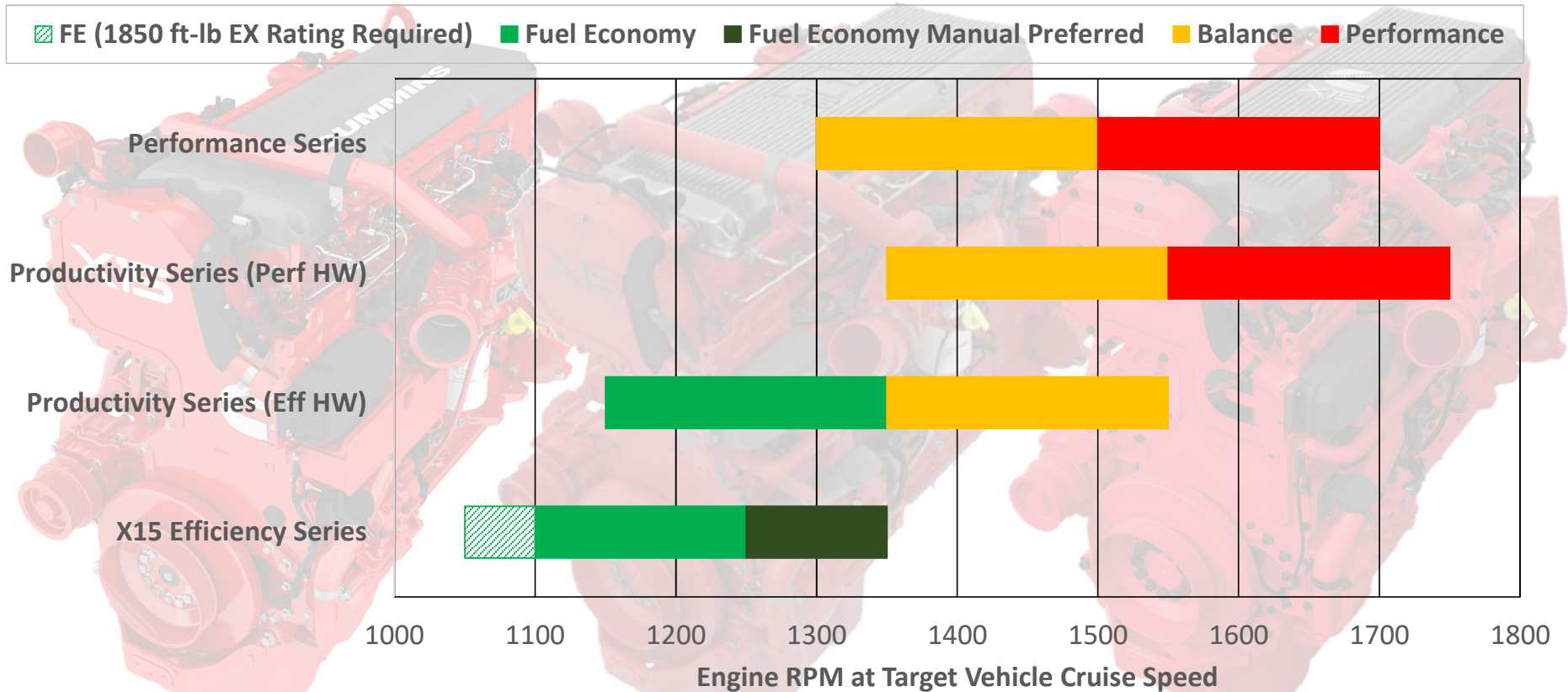
- FAS M

**FR Series:**

- FR-10
- RT-13
- RT-18
- RT-15

*\*Available but phasing out*

# Gearing to Meet Your Objectives



# Key Changes – X15

## Performance Hardware (Performance + Productivity Series)

Efficiency / TCO
Durability / Uptime
Performance

### Turbocharger / Air Handling

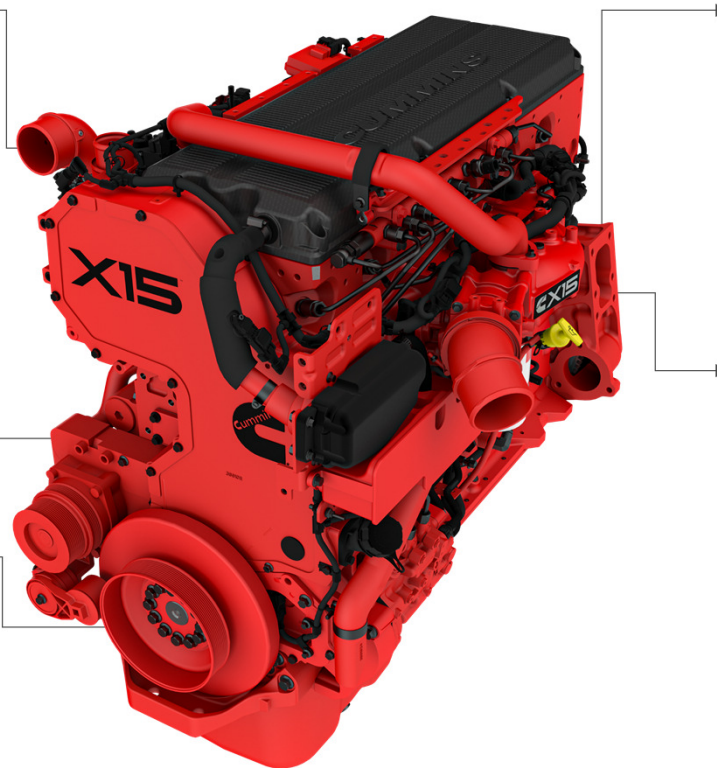
- Compressor wheel changes for increased efficiency and improved engine breathing
- Holistic air compressor noise solution

### Cooling System

- Reduced speed water pump for decreased parasitic losses

### Lube System

- Reduced displacement pump and piston cooling nozzle resizing for decreased engine friction



### Connected Features

- New ECM (CM2450) with additional memory
- New software phase and onboard connectivity
- EGR assisted braking software

### Power Cylinder

- Bowl geometry changes for increased compression ratio & higher combustion efficiency
- GDC60 (diamond coated) top ring with reduced tension for decreased engine friction
- Cam lobe profile for improved engine breathing

# Key Changes – X15

## Performance Hardware (Performance + Productivity Series)

Efficiency / TCO
Durability / Uptime
Performance

### Base Engine

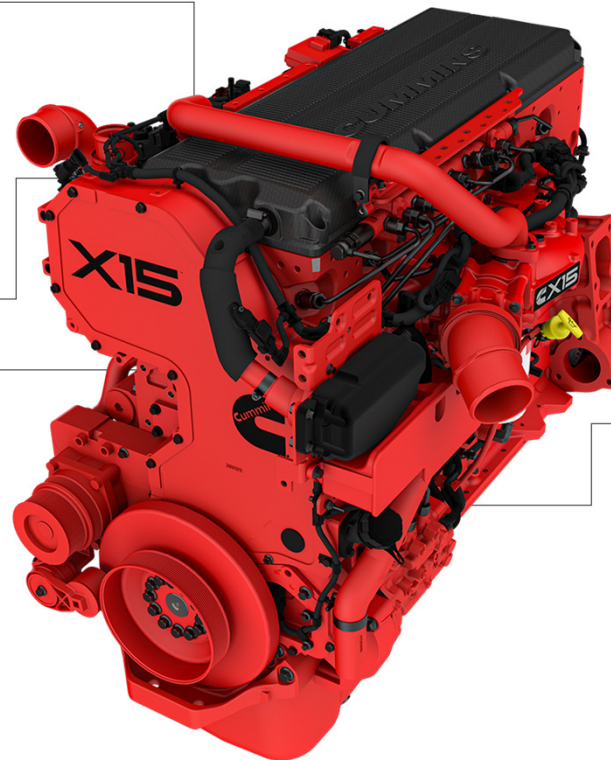
- Further engine optimization with main bearing cap change and larger thrust bearing

### EGR / Exhaust System

- High perf EGR cooler for improved engine breathing and efficiency gains

### Factory Fit Filtration

- Longer (300mm) fuel filter provided first fit, allowing extended maintenance intervals\*



### Other changes

- New geartrain design for reduced engine noise, especially at idle
- Improved engine shutdown roll, for reduced engine noise

### Fuel System

- Pump Oil to Fuel transfer improvement
- Low pressure fuel line changes due to longer fuel filter

\*MPG and duty cycle dependent

# Expanded ODI

<u>Item</u>	<u>Severe</u> < 5.0mpg	<u>Shorthaul</u> 5.0 – 5.9mpg	<u>Normal</u> 6.0 – 6.9mpg	<u>Light</u> > 7.0mpg
Oil Drain	25,000 mi	50,000 mi	60,000 mi	75,000 mi
Oil Drain with Valvoline PB	30,000 mi	55,000	65,000 mi	80,000 mi
Oil Drain with OilGuard™	Extensions avail	Extensions avail	Extensions avail	Up to 100,000 mi
Fuel Filter*	25,000 mi	50,000 mi	60,000 mi	75,000 mi

If combined percent idle time plus power takeoff (PTO) time is greater than 40% for Shorthaul, Normal, or Light intervals, use the next lower drain interval.

\*For Premium Blue users, the Fuel Filter interval matches the ODI.

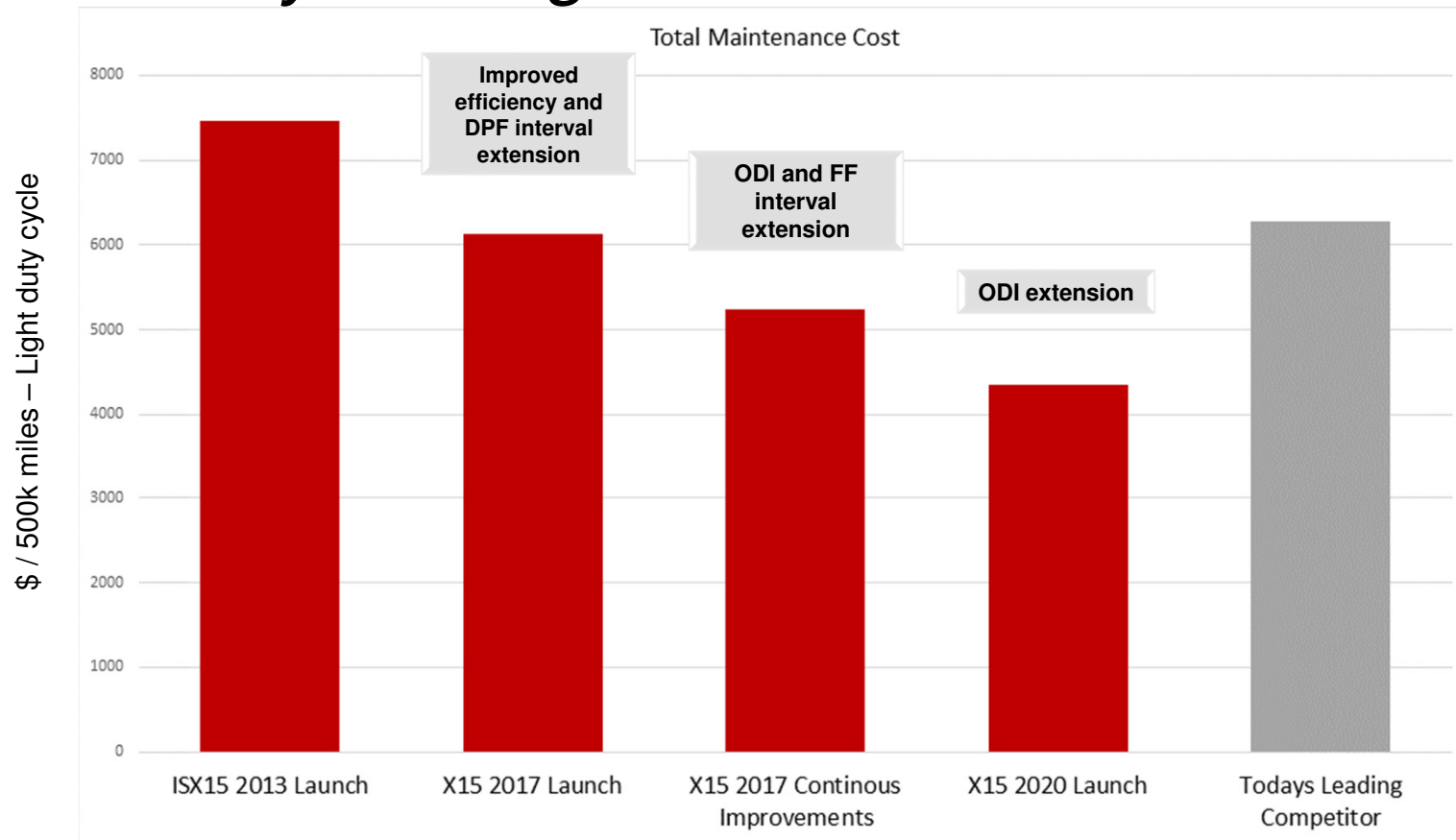
<u>Item</u>	<u>Severe</u> < 5.5mpg	<u>Normal</u> 5.5 – 6.5mpg	<u>Light</u> > 6.5mpg
DPF Ash Maintenance***	250,000 – 400,000 mi	400,000 – 600,000 mi	600,000 – 800,000 mi
DEF	300,000 mi / 6,750 hours		
Valvetrain	500,000 mi / 10,000 hours / 60 months		
Drive Belts	500,000 mi / 10,000 hours / 60 months		
Crankcase Breather	N/A		
HC Doser	N/A		

\*\*\*Cummins recommends using Cummins Remanufactured DPF over cleaning of the DPF at the DPF ash maintenance interval. Users can experience extended DPF ash maintenance using the DPF maintenance fault lamp (FC5383)



# Power to spend less

*With industry-leading maintenance intervals*



# Power to go the distance

## *With base warranty*



### ***Automotive – 2 Year / 250,000 Miles***



#### **100% coverage for:**

Parts and labor on warrantable failures, aftertreatment and consumables used in the repair



#### **No deductible**



#### **Program Assumptions:**

- During Base Engine Warranty, travel or towing is covered when the vehicle is disabled as a result of a warrantable failure
- Failures of belt and hoses supplied by Cummins are covered for the first year of the warranty or the duration of the coverage, whichever occurs first
- Unauthorized modifications to the aftertreatment could negatively affect emissions certification and void warranty

### ***Emissions warranty – 5 Year / 100,000 Miles***

# Power to go the distance

*With extended coverage*



## Your choice between multiple comprehensive packages provides peace of mind

- Protection from unexpected repair costs
- Reduces variability and risk in budget planning
- Helps plan maintenance and repair budgets
- Allows for customization based on application
- Easy to understand





# Power to go the distance

*With an industry-leading service and support network*



# 3700



**Cummins  
authorized  
service locations**

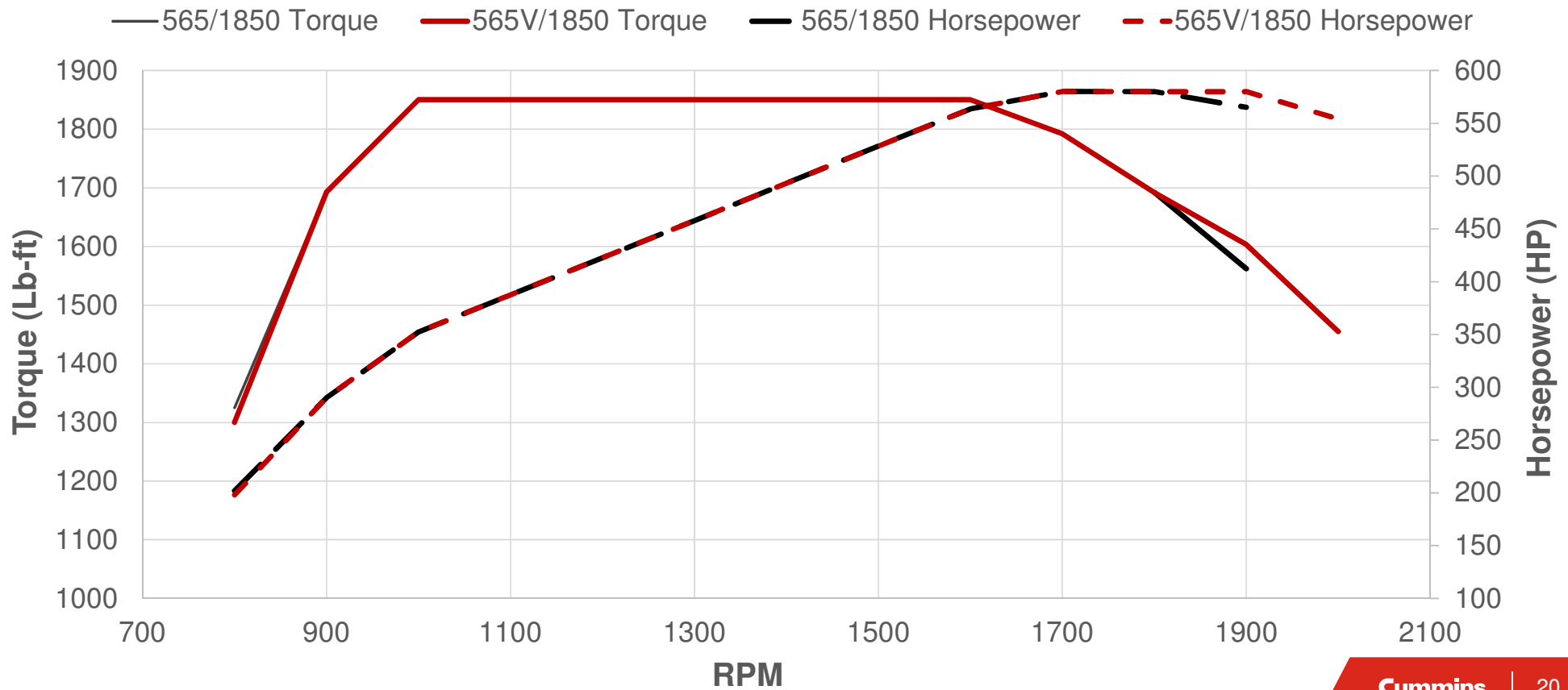


Q+A

# APPENDIX

# 565/1850 – Performance and Productivity

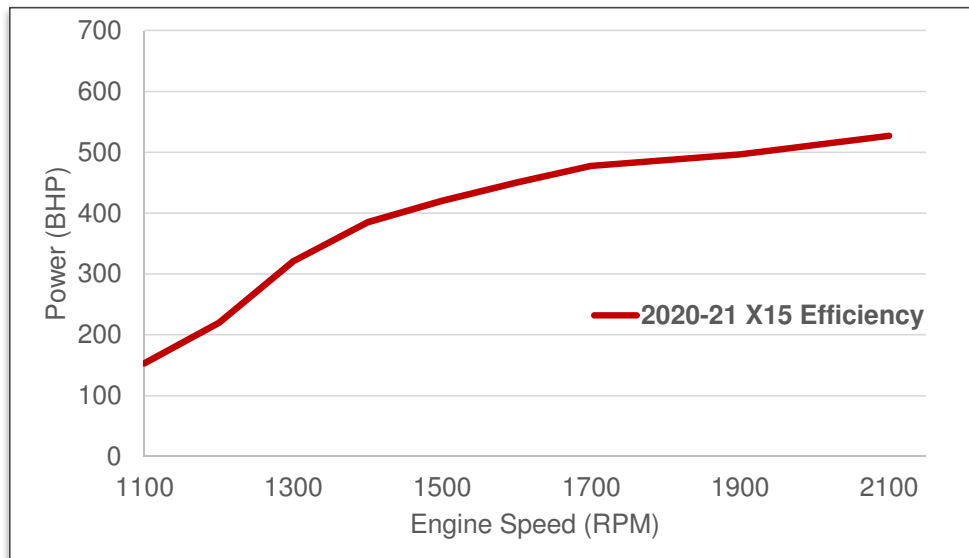
## Torque/Horsepower Comparison



# Industry Leading Engine Brakes

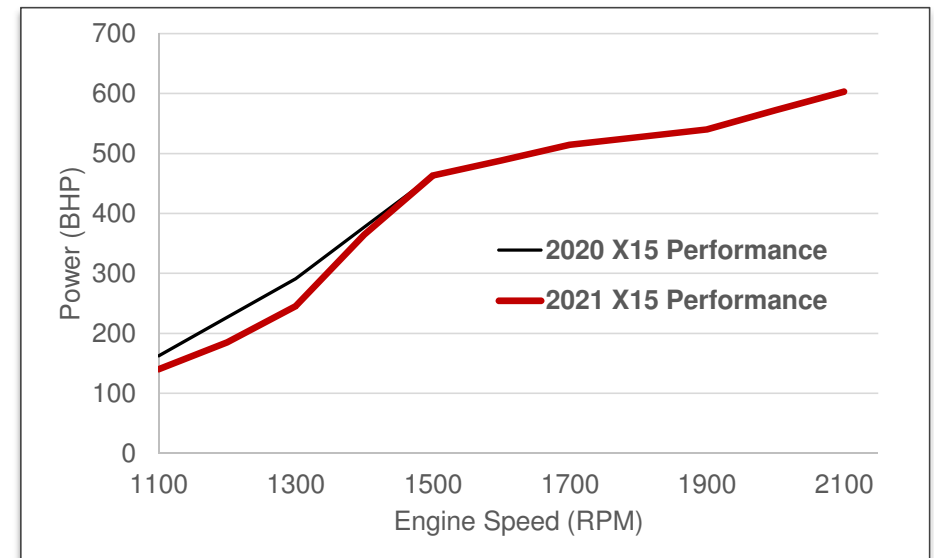
## X15 Efficiency

*(Efficiency Series & Productivity Series)*



## X15 Performance

*(Performance Series & Productivity Series)*



## Performance Series Extended Coverage Options

<p>Complete aftertreatment systems (DOC &amp; DPF &amp; SCR)          Cummins supplied aftertreatment sensors, and probes          Cummins supplied gaskets, mounting hardware, and filters</p>	<p>Aftertreatment Extended Coverage</p> <p>Requires Protection Plan 1 or Protection Plan Plus of greater or equal duration</p>				
<p>Turbocharger          Water Pump          Fuel Pump          Air Compressor          Select engine sensors          Acumen Module</p>	<p><b>PD1</b>  <b>Protection Plan 1</b></p> <p><b>Up to 5 Years / 500,000 miles for Performance Hardware</b>  <b>Travel and Towing options available</b></p>				
<p>Cylinder head assembly          Rocker lever assembly          ECM          Pistons, rings and liners          Lube oil cooler assembly          Cylinder block assembly          Front gear cover          Oil pan          Connecting rod assembly          Lube pump assembly          Camshaft and bushings          Cam follower assemblies          Crank shaft assemblies          EGR cooler, valve, and mixer</p>				<p><b>PD2</b>  <b>Protection Plan 2</b></p> <p><b>Up to 7 Years or 500,000 miles</b>  <b>Travel and Towing options available</b></p>	<p><b>Major Components Coverage</b></p> <p><b>Up to 7 Years / 700,000 miles coverage</b></p>
<p>Cylinder Block Casting          Cylinder Head Casting          Crankshaft Forging          Camshaft Forging          Cam Follower Assembly          Connecting Rods and Caps          Intake Manifold Castings          Aftercooler Housing          Rocker Lever Assembly          Rocker Lever Housing          Gear Train Gears          Brake Housing          Brake Piston          Flywheel          Water Pump</p>					

\*All coverages exclude non-Cummins supplied components.

