

# NAVISTAR® ENGINE GROUP



**OUTSTANDING FUEL ECONOMY | EXCELLENT POWER CHARACTERISTICS  
EXCEPTIONALLY QUIET AND SMOOTH | HIGH STRENGTH WITHOUT ADDED WEIGHT**

# MAXXFORCE®

**BIG BORE**

**ALWAYS PERFORMING.**



# NAVISTAR® ENGINE GROUP

## MAXXFORCE®

ALWAYS PERFORMING.

**WITH NAVISTAR ENGINE GROUP AND MAXXFORCE ENGINES, YOU GET PRODUCTS  
AND AN ORGANIZATION BEHIND THEM THAT ARE ALWAYS PERFORMING.**

For more information on the MaxxForce® 11 and MaxxForce® 13 engines, visit us at [www.MaxxForce.com](http://www.MaxxForce.com). MaxxForce® Advanced Diesel Power is the signature brand for Navistar engines for a wide array of commercial vehicle applications. MaxxForce engines are designed, engineered and built to deliver what you expect—power, performance, reliability and durability.

[www.MaxxForce.com](http://www.MaxxForce.com)

# MAXXFORCE 11 and MAXXFORCE 13

## ALWAYS PERFORMING.

To succeed in a competitive business, you need an engine and an organization behind it that are always performing and working for you. Navistar's MaxxForce® Big Bore engines have revolutionized how the world looks at Class 8 commercial diesels.

Designed specifically for International® brand heavy vehicles, with a combination of technologically advanced materials and components, these engines deliver outstanding fuel economy, excellent power characteristics, an exceptionally smooth and quiet ride, and high strength without added weight. And they're backed by the largest dealer and service network in North America.

Those advantages ensure your business will be "Always Performing."

## GOES THE EXTRA MILE. PER GALLON.

MaxxForce Big Bore engines combine the most advanced engine technologies to deliver more torque and responsiveness at low rpm for outstanding fuel efficiency. A high-pressure common-rail fuel system, dual sequential turbos, effective heat-management system and low-friction design convert the highest percentage of your fuel into power you can use. And that adds up to low cost of ownership.

## BIG POWER FROM STOP SIGN TO RIDGELINE.

One look at the MaxxForce Big Bore engine power curves tells the story. Dual sequential turbos and a high-pressure injection system help deliver peak torque at 1,000 rpm versus typical 1,200 rpm for most competitors. All the power you need, whenever and wherever you need it.

## MAXIMUM RELIABILITY AND DURABILITY.

MaxxForce Big Bore engines are built on a block of compacted graphite iron, a material far stronger than conventional gray iron. CGI provides superior strength, less fatigue and years and years of reliable service. Fractured rod and main bearing caps, along with separate cooling and lube circuits for the block and head, provide unmatched 1.2 million mile B50 durability.

## QUIETLY GOES ABOUT YOUR BUSINESS.

The advanced, ribbed CGI block and high-pressure multi-shot injection system combine to produce 30% lower noise inside the cab and much lower vibration for increased driver comfort. It's also startlingly quiet outside, at idle and in action. The smooth, quiet ride of the MaxxForce Big Bore engine will take you by surprise. See and hear the difference at [www.MaxxForceBigBore.com](http://www.MaxxForceBigBore.com).

## IMPROVED SERVICEABILITY.

Ease of service also sets these new model MaxxForce Big Bore engines apart, because uptime for you is top of mind for us. All key systems and components are easily accessed, from valve cover to oil filter to fuel filter. A single ECM and fewer electrical connections throughout mean less diagnostic and maintenance time.



2010 Emissions Solution: Lower Operating Costs, Less Hassle

## MAXXFORCE ADVANCED EGR

### FULL COMPLIANCE WITHOUT COMPROMISE.

Navistar's MaxxForce Advanced EGR emissions technology prevents NOx from forming in-cylinder. Four key technologies make it work, so you don't have the taxing work of sourcing urea, filling a urea tank and maintaining additional components. The result is optimal performance and low cost of ownership.

#### 1 ADVANCED FUEL INJECTION TECHNOLOGY

Our next-generation fuel injection systems are capable of delivering fuel into the cylinder multiple times per cycle and at higher pressures. Utilization of post-injections along with the main injection event means combustion can take place over a longer period and be more complete, resulting in reduced NOx emissions – as well as better fuel efficiency.

#### 2 PROPRIETARY COMBUSTION BOWL DESIGN

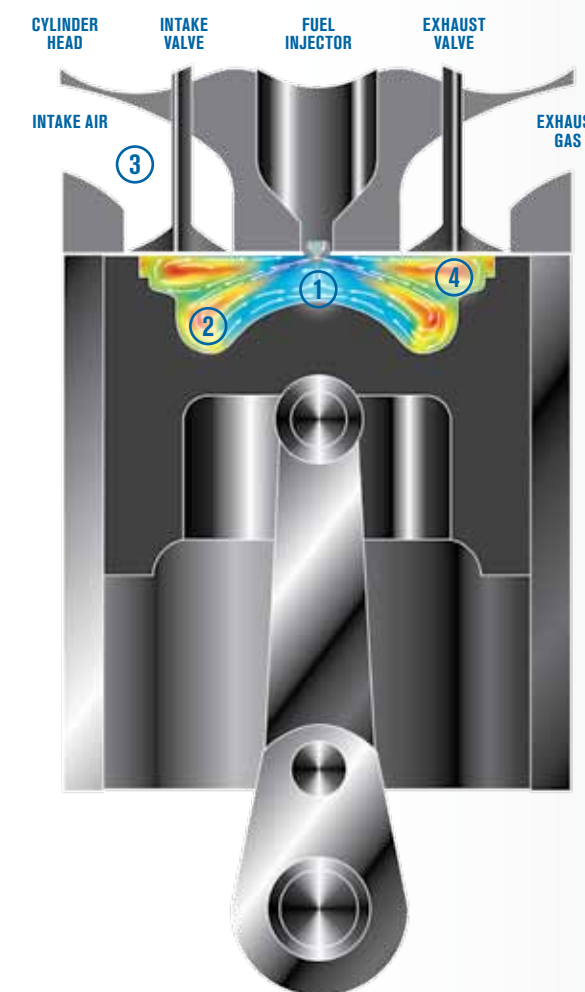
Our redesigned combustion bowl combines with the higher fuel injection pressure to break the fuel up into a finer mist spread more evenly inside the cylinder, resulting in a more complete and cleaner burn. That means more power to the wheels and less soot out the exhaust.

#### 3 ADVANCED AIR MANAGEMENT

Turbo matching and advanced EGR cooling provide improved combustion. The result: a controlled reduction of NOx and particulate matter formation.

#### 4 ELECTRONIC CALIBRATION STRATEGIES

Engine controllers previously utilized pre-programmed look-up tables to determine the fuel-air mixture to burn. Increases in computing power now allow the engine controller to continuously calculate the optimum fuel-air mix to achieve maximum power and efficiency in many different operating conditions.



TO LEARN WHY MAXXFORCE ADVANCED EGR IS THE BEST PATH IN 2010 AND BEYOND, VISIT [WWW.MAXXFORCE.COM/2010](http://WWW.MAXXFORCE.COM/2010).

## TECHNOLOGIES DELIVERING PRODUCT EXCELLENCE.

### HIGH-PRESSURE COMMON-RAIL FUEL SYSTEM

A major key to MaxxForce® Big Bore engine's performance is its advanced fuel system, which features injection pressures of 2,200 bar (approximately 32,000 psi), for precise fuel dosing, injection timing and optimal combustion. The results: better fuel efficiency, quieter operation and in-cylinder reduction of emissions.

### ADVANCED AIR-MANAGEMENT SYSTEM

MaxxForce Big Bore engines use dual sequential turbochargers to deliver powerful performance from stop light to mountaintop.

- The smaller, primary turbo responds quickly for immediate take-off at low engine speeds, and the larger, secondary turbo provides peak power at higher speeds and on steep grades.
- Peak torque is achieved at 1,000 rpm and holds steady to 1,200 rpm, a much lower engine speed than other big bore engines. This reduces gear-shifting needs uphill and allows for shifting at lower speeds when accelerating.
- This system offers performance and reliability without the complexity of a variable geometry turbocharger.



### ADDITIONAL ADVANTAGES:

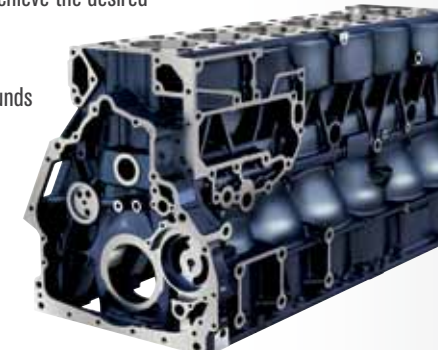
- Fewer electrical connections increase system reliability.
- Pronounced ribbing in the crankcase provides additional noise attenuation.
- Multiple injection events provide optimum fuel/air mixture for more complete combustion, better fuel efficiency and lower noise.
- Premium overhead cam and rolling element valvetrain system reduce friction and operational load to maintain peak efficiency across the power band.
- Interstage cooling between the turbos increases air density to maintain peak power as speeds increase.
- Premium foam-molded wire harness secures wiring and connections for increased reliability and durability.

### COMPACTED GRAPHITE IRON BLOCK (CGI)

MaxxForce Big Bore engines feature the Class 8 industry's first CGI block. This incredibly strong platform handles the loads that deliver the best combustion and damps vibration and noise. It carries the load without weighing you down.

#### STRONG AS A ROCK, LIGHT AS A FEATHER.

Because CGI is so incredibly strong, castings don't have to be as thick and heavy in order to achieve the desired durability required for heavy-duty diesel. This results in up to 500 pounds of weight savings over traditional big bore engines cast from gray iron – which can translate to greater payload and bigger payback.



# MAXXFORCE 11 and MAXXFORCE 13

## MAXXFORCE 11 SPECS

Engine Type	Diesel, 4-cycle
Configuration	Inline 6-cylinder
Displacement	10.5 L (641 cu. in.)
Bore and Stroke	4.72 in. & 6.10 in. (12 cm & 15.5 cm)
Compression Ratio	16.5:1
Aspiration	Dual Sequential Turbochargers, Intercooler & Aftercooler
Combustion System	Direct Injection
Lubricating System Capacity	42 Quarts (40 L)
Total Engine Weight (dry)	2,400 lbs. (1,089 kg)
Dimensions	L 59 in. x W 37 in. x H 49 in. (L 150 cm x W 94 cm x H 125 cm)
Valves	4 Valves Per Cylinder, Overhead Cam Actuated
Design Life	1,200,000 Mi (1,931,000 km)

## MAXXFORCE 13 SPECS

Engine Type	Diesel, 4-cycle
Configuration	Inline 6-cylinder
Displacement	12.4 L (758 cu. in.)
Bore and Stroke	4.96 in. & 6.54 in. (12.6 cm & 16.6 cm)
Compression Ratio	17:1
Aspiration	Dual Sequential Turbochargers, Intercooler & Aftercooler
Combustion System	Direct Injection
Lubricating System Capacity	42 Quarts (40 L)
Total Engine Weight (dry)	2,400 lbs. (1,089 kg)
Dimensions	L 59 in. x W 37 in. x H 49 in. (L 150 cm x W 94 cm x H 125 cm)
Valves	4 Valves Per Cylinder, Overhead Cam Actuated
Design Life	1,200,000 Mi (1,931,000 km)

## MAXXFORCE® 11 PERFORMANCE DATA

Horsepower (bhp @ 1700 rpm)	Torque Peak (lb-ft @ 1000 rpm)	Gov. Speed (rpm)	Clutch-Engagement Torque (lb-ft @ 800 rpm)
330	1250	1900/2100	686
365*	1250	2100	686
370	1350	1900/2100	770
390	1450	1900/2100	811

## MAXXFORCE® 13 PERFORMANCE DATA

Horsepower (bhp @ 1700 rpm)	Torque Peak (lb-ft @ 1000 rpm)	Gov. Speed (rpm)	Clutch-Engagement Torque (lb-ft @ 800 rpm)
410	1450	1900/2100	828
430	1550	1900/2100	868
430*	1550/1700	1900	868
450*	1700	1900	959
450*	1550/1700	1900	959
475	1700	1900/2100	959

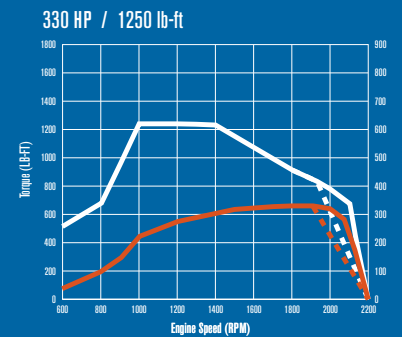
\* New model ratings for 2010

## PREVENTIVE MAINTENANCE INTERVALS

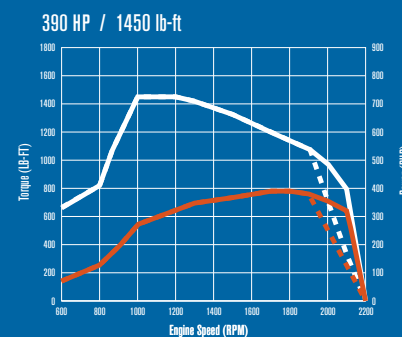
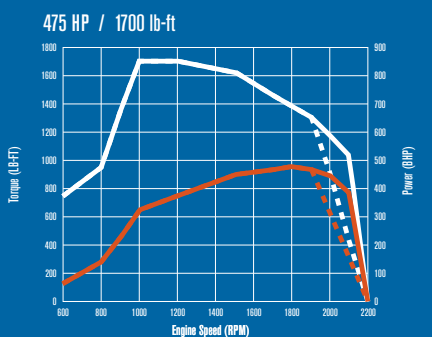
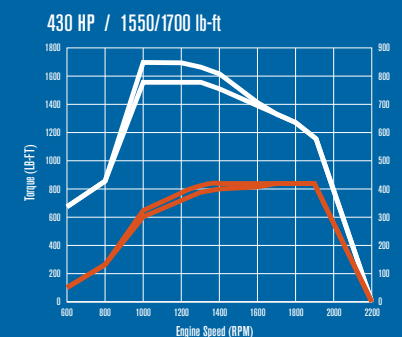
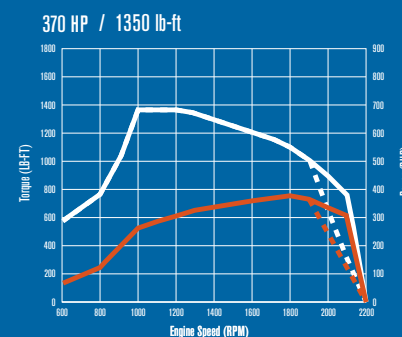
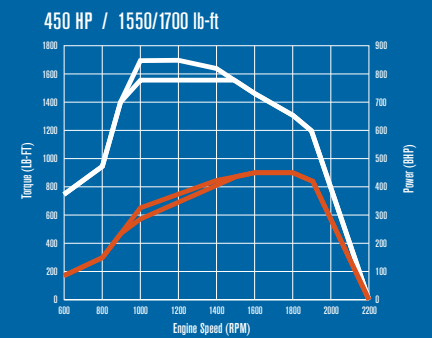
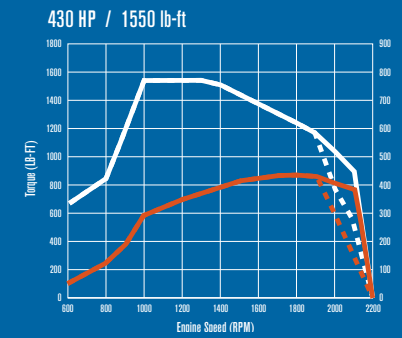
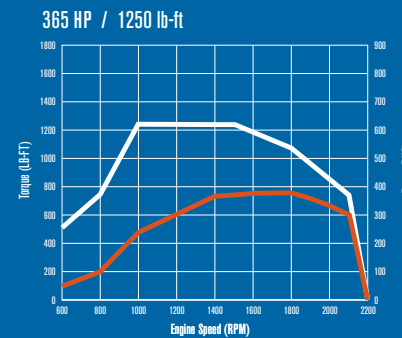
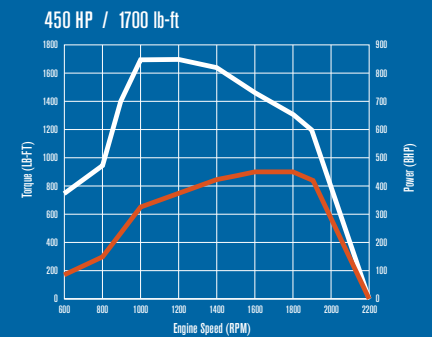
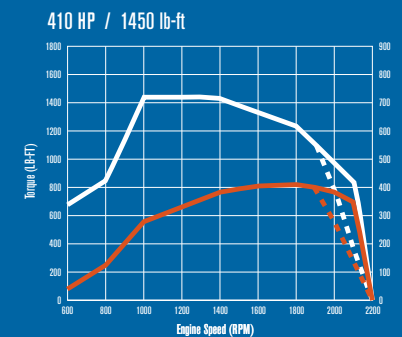
Change Engine Oil, Replace Oil Filter:	25,000 miles (40,234 km) / 12 months / 1,100 hours / 4,200 gallons (15.899 L)
Replace Fuel Filter:	25,000 miles (40,234 km) / 12 months / 1,100 hours / 4,200 gallons (15.899 L)
Replace Coolant*:	600,000 miles (965,606 km) / 6 years / 12,000 hours

\*Add Extended Life Coolant (ECL) Extender @ 300,000 (482,803 km) miles / 3 years / 6,000 hours

### MAXXFORCE 11 PERFORMANCE



### MAXXFORCE 13 PERFORMANCE



SEVERE SERVICE TORQUE RATINGS (2100 RPM)

SEVERE SERVICE HORSEPOWER RATINGS (2100 RPM)

ON-HIGHWAY TORQUE RATINGS (1900 RPM)

ON-HIGHWAY HORSEPOWER RATINGS (1900 RPM)