

TAYLOR MACHINE WORKS, INC.

ENGINE INFORMATION

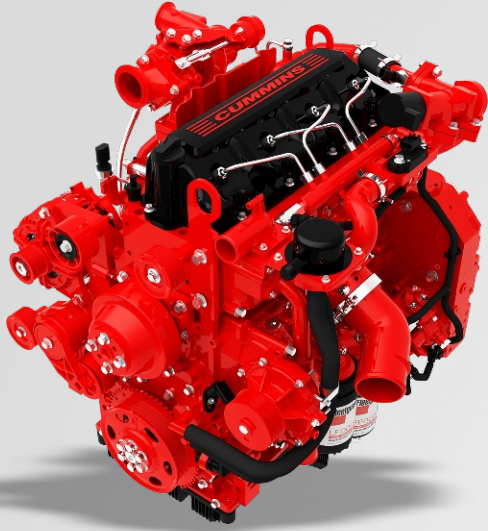
CUMMINS & VOLVO



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Cummins - Tier4 Final

Cummins QSF3.8 (3.8L) 120-hp

Peak torque of 360 ft-lbs at 1600 rpm

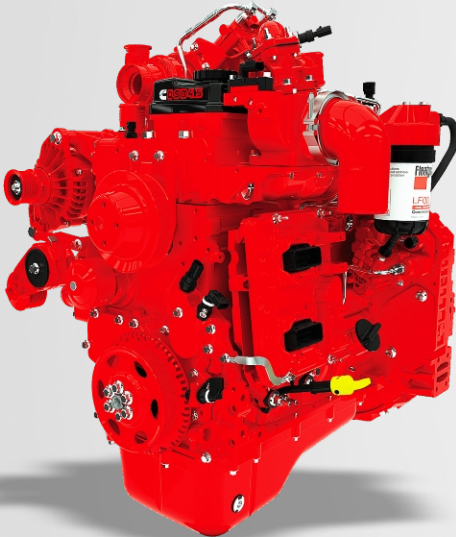
Tier 4 Final electronic turbocharged, charge-air after-cooled 4-cylinder diesel engine.

Standard in the following models:

- X-160
- X-175
- XH-180

A few words about the Cummins engines:

EcoFit Ultra-Low Emission System utilize innovative after-treatment technologies designed to improve equipment performance.



Cummins QSB4.5 (4.5L) 173-hp

Peak torque of 520 ft-lbs at 1500 rpm

Tier 4 Final electronic turbocharged, charge-air after-cooled 4-cylinder diesel engine.

Standard in the following models:

- X-180S*
- X-200S*
- X-220S*
- X-250S* & X-250M*
- X-280S* & X-280M*

* Optional engine in the above models:
Cummins QSB6.7 (6.7L) 173-hp

No “DPFs”! All Taylor Lift Trucks achieve Tier 4 Final Compliance without the need for (DPF) Diesel Particular Filters...

- All Taylor Tier 4 Final diesel engine solutions require (DEF) Diesel Exhaust Fluid.
- All Cummins Tier 4 Final solutions feature (SCR), (CEGR), and (DOC).
- All Volvo Penta Tier 4 Final solutions feature (SCR) and (CEGR).

For an explanation of these features, please refer to the “What is?” section on the following page. For even more information contact your local dealer representative.

What is SCR?

(SCR) Selective Catalytic Reduction is an advanced active emissions control technology system that injects a liquid-reduction agent through a special catalyst into the exhaust stream of a diesel engine. The reduction source is automotive-grade urea (DEF).

What is DEF?

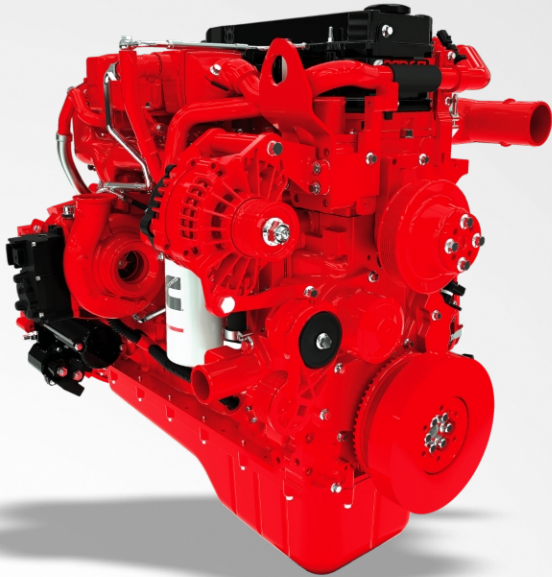
(DEF) Diesel Exhaust Fluid is a water-and-urea solution that’s sprayed into the exhaust stream ahead of the catalyst in the SCR system. DEF helps convert oxides of nitrogen (NOx) in the exhaust into harmless nitrogen and water vapor.

What is DOC?

(DOC) Diesel Oxidation Catalysts are exhaust after-treatment devices that reduce emissions from diesel fueled vehicles and equipment. DOCs generally consist of a precious metal coated flow-through honeycomb structure contained in a stainless steel housing. The exhaust has a catalytic reaction that breaks down the pollutants.

What is CEGR?

(CEGR) Cooled Exhaust Gas Recirculation is a nitrogen oxide (NOx) emissions reduction technique used in diesel engines. CEGR works by recirculating a portion of the engine’s exhaust stream through an air-to-water cooler, then back into the combustion chambers. The cooled gases reduce peak temperatures and NOx formation.



Cummins QSB6.7 (6.7L) 173-hp

Peak torque of 620 ft-lbs at 1500 rpm

Tier 4 Final electronic turbocharged, charge-air after-cooled 6-cylinder diesel engine.

Standard in the following models:

- X-300S thru X-360L
- XH-300L thru XH-360L
- XB-250M thru XB-360L
- XEC-155/6

Cummins QSB6.7 (6.7L) 200-hp

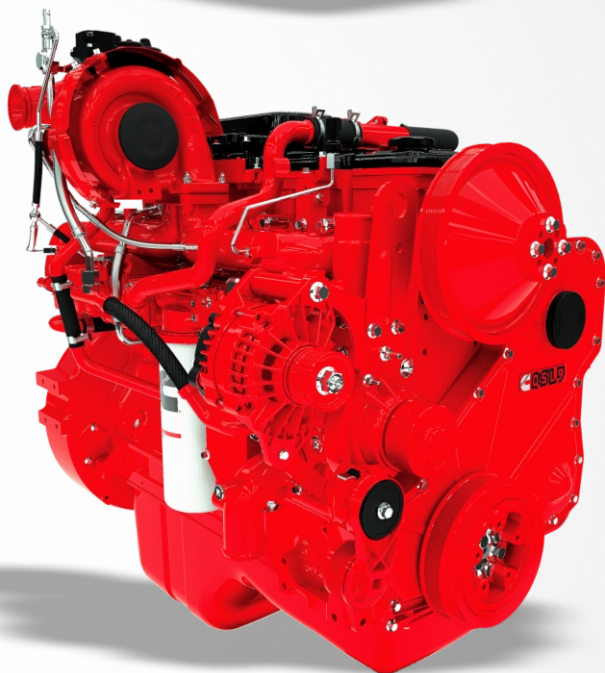
Peak torque of 685 ft-lbs at 1500 rpm

- XH-370M & XH-400L

Cummins QSB6.7 (6.7L) 225-hp

Peak torque of 770 ft-lbs at 1500 rpm

- X-450S thru X-550S
- X-550RC
- XEC-205/6 thru XEC-207/8



Cummins QSL9 (8.9L) 250-hp

Peak torque of 800 ft-lbs at 1500 rpm

Tier 4 Final electronic turbocharged, charge-air after-cooled 6-cylinder diesel engine.

Standard in the following models:

- X-400M thru X-700L
- X-620RR & X-720RR

Volvo Penta - Tier4 Final

TAD1371VE (12.78L) 388-hp

Peak torque of 1149 ft-lbs at 1200 rpm

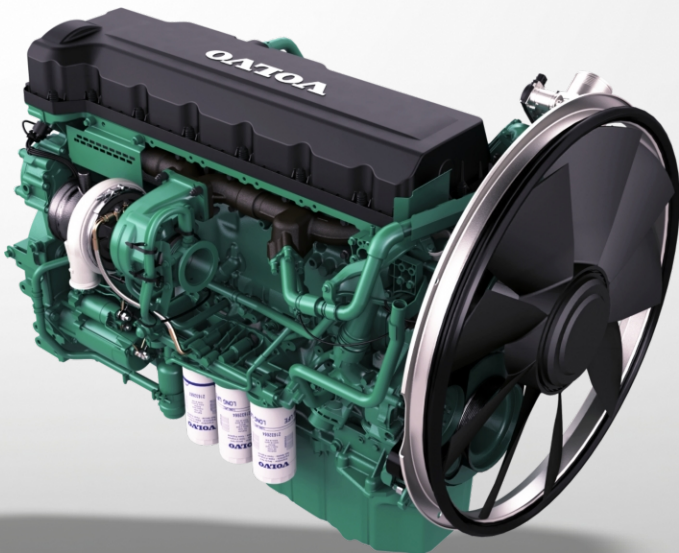
Tier 4 Final electronic turbocharged, charge-air after-cooled 6-cylinder diesel engine.

Standard in the following models:

- X-800S thru X-925L
- XH-925L
- X-1000RC
- XRS-9972
- XLC-975 & XLC-976

A few words about the Volvo Penta engines:

The Volvo Penta TAD1371VE is a powerful, reliable and economical Off-Road Diesel Engine built on the Volvo in-line six concept. Maximum power and torque are available at low rpm and as a result, noise and fuel consumption are both reduced.



Diesel Fuels

EPA Tier 4 engines require a new, higher level of fuel quality for reliable operation. This new level of quality can be a new experience for users. Older engines may have tolerated fuels with contamination, water, or incorrect specifications without long-term, negative consequences. However, use of fuels with this same low quality in new EPA Tier 4 engines can result in increased maintenance costs, reduced efficiency, and possible permanent damage.

WARNING:

- Use only Ultra-Low Sulfur Diesel (ULSD) fuel. ULSD fuels must contain 15 ppm or less sulfur content. Use of high sulfur content fuels will damage fuel and exhaust aftertreatment systems.
- High Pressure Fuel Rails in new Tier 4 engines require a new level of fuel cleanliness. Internal engine components can be damaged by particles as small as 5 microns. High quality fuel filtration and clean fuel must be a priority.
- EPA Tier 4 engine systems include fuel/water separation filters to ensure quality fuel without the presence of water. These filters must be properly maintained to be effective. Excessive water in fuel will cause permanent engine damage.

What precautions can I take to ensure fuel quality?

- Regularly check bulk fuel storage to ensure usage of quality fuels. Periodic testing by independent labs is recommended.
- Use only reputable providers of quality fuel.
- Follow all guidelines in the vehicle Maintenance Manual and engine manufacturer's service information for regular servicing instructions of fuel and filtration systems.
- Never ignore warning information or fault codes given by the engine ECM through the Taylor Integrated Control System (TICS)

Is there a certain type of DEF that must be used?

- DEF purchased for use in Tier 4 Final engines should state certification of the American Petroleum Institute (API), German Institute of Standardization DIN70700, and the International Organization for Standardization ISO 22241-1, and meet AUS – 32 specifications. This will ensure the proper purity and concentration (32.5%) of urea.

Engine Lubricating Oils & Coolant

- CJ-4 (low ash) specification is the recommended oil. CJ-4 is the American Petroleum Institute (API) lube oil specification for engines using exhaust aftertreatment such as a Diesel Particulate Filter (DPF) and cooled Exhaust Gas Recirculation (EGR). Commonly known as "low ash" oil, it is more resistant to heat and leaves lower amounts of ash deposits.
- CI-4 specification is permitted.
- Refer to your particular vehicle's Maintenance Manual or Engine Operator Guide for current lubricating oil specifications. These specifications can vary from specifications on existing engines.
- Ethylene Glycol Antifreeze (Low Silicate) (GM 6038--M or ASTM D3306 & D 6210)

WARNING:

- The use of any fluids, in TIER 4 Final engines, other than those specified may result in engine damage and could effect emissions and result in fines by the E.P.A.