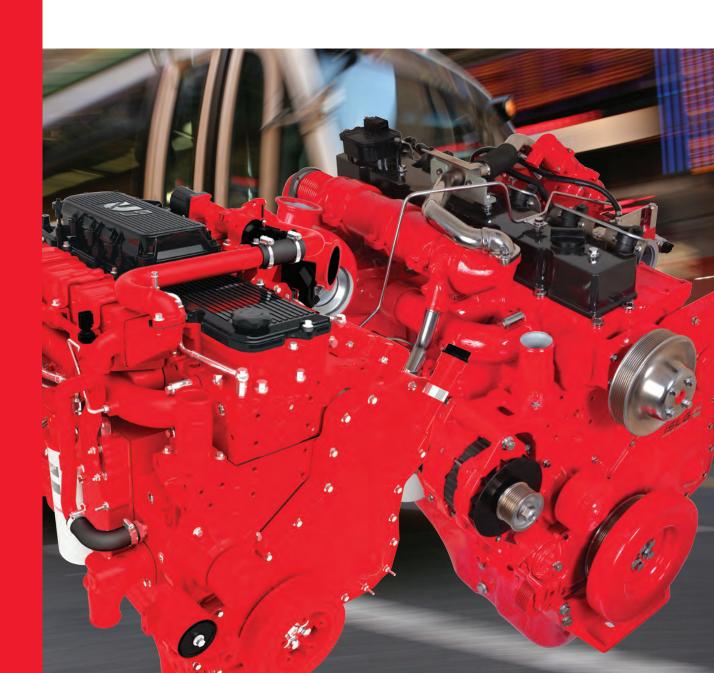


# Smart Efficiency.™

Engines For Urban Transit And Shuttle Applications.





Cummins leadership in the urban transit and shuttle bus market is well established through the combination of proven performance and superior support capabilities that improve reliability while lowering the total cost of ownership.

Cummins full lineup of engines for this market ranges from diesel to natural gas engines to hybrid capable powertrains, from 200 hp to 380 hp (149-283 kW).

Manufactured at the Rocky Mount Engine Plant in North Carolina, the B6.7, $^{\text{TM}}$  L9 $^{\text{TM}}$  and ISL G are Buy America-compliant.

All are backed by Cummins Care – the largest and most capable service and support network in North America, now with even more streamlined and efficient operations – at 1-800-CUMMINS™ (1-800-286-6467). Innovations for 2017 also include a SmartSupport™ proactive parts replacement program for the L9.

That combination of proven reliability, advanced technology, improved fuel efficiency and fueling options to meet every need have combined to make Cummins the No. 1 choice in U.S. urban transit fleets and shuttle operations every year.





#### Clean Diesel Technology.

Cummins is a leader in the total integration of diesel engine and aftertreatment systems that operate at or below industry standards for near-zero emissions. We understand how different duty cycles impact engines in a different manner, and that the right technology matters.

B6.7 hybrid engines come equipped with Cummins Single Module™ aftertreatment system that combines Selective Catalytic Reduction (SCR) and a Diesel Particulate Filter (DPF) into a single unit. The Single Module weighs up to 30 percent less than the unit it is replacing, and takes up to 70 percent less space. The compact size allows it to be positioned closer to the engine, for better heat utilization, fewer regenerations and better fuel economy.



Cummins L9 diesel continues to use our proven modular aftertreatment system, because urban transit buses encounter some of the most severe operating conditions, with multiple stops over short distances, and constantly shifting through the gears. Larger buses require a larger aftertreatment capacity to maintain a high level of reliability and durability, which is why Cummins uses the switchback system for the L9.

#### Alternative Technologies. Natural Gas And Hybrid.

If you operate in a non-attainment zone or a city where air pollution and greenhouse gas (GHG) emissions are a major concern, Cummins has the alternative fuel options that you need. They include the B6.7 Hybrid as well as the ISL G and ISL G Near Zero (NZ) natural gas engines from Cummins Westport.



The ISL G and ISL G NZ operate using Stoichiometric-cooled Exhaust Gas Recirculation (SEGR), which utilizes every atom of oxygen in the combustion process. Oxygen-free exhaust allows the use of a maintenance-free Three-Way Catalyst (TWC) that never needs regeneration or cleaning. The ISL G NZ uses a larger catalyst with closed-crankcase ventilation and a specific engine calibration to reduce emissions to certified near-zero standards (.02 g NOx/bhp hr).

The B6.7 Hybrid uses a steady-state diesel engine to provide power to electric motors for propulsion – a combination that allows the engine to run at the optimum rpm for fuel economy and combustion efficiency.



To provide unparalleled service and support for transit authorities, Cummins now offers the SmartSupport™ program, by which Cummins will proactively replace critical engine components to reduce unscheduled downtime for end customers. The proactive replacement will utilize Cummins Connected Diagnostics™ to keep transit fleets operating with maximum reliability and minimum downtime. SmartSupport is currently available on L9-powered transit applications, but will be cascaded through the lineup in the near future. Contact your local Cummins representative for updates.





#### The Lifeline For Your Engine.

Cummins Connected Diagnostics wirelessly connects your Cummins-powered transit and shuttle buses to product experts at Cummins. Available on 2007 and newer diesel and natural gas engines, Connected Diagnostics instantly transmits key data surrounding the event through your vehicle's existing telematics system to Cummins for immediate analysis.



A notification based on the most probable cause is sent instantly to you via email or the free Connected Diagnostics mobile app, so you know exactly what action to take. That reduces guesswork and allows operators to safely proceed on their trip with the knowledge of the probable cause and information on when service can wait or if it needs to be performed immediately.

Key service event information that can be accessed using the Connected Diagnostics app includes the following:

- Derate notice banner
- Active and inactive faults
- Suggested root cause
- Derate notice details
- Possible performance impact
- Equipment information
- Cummins Service Locator
- Cummins contact information
- Current status of service events

Connected Diagnostics is designed to maintain complete service histories attached to each engine. Information about your transit or shuttle bus fleet is available on the Connected Diagnostics web portal anywhere you have Internet access. Learn more at cumminsengines.com/connected-diagnostics.





Building off of the ISB's proven lineage, the 2017 B6.7 incorporates several system enhancements, providing even better reliability and greater uptime. The VGT Turbocharger leverages the proven heavy-duty bearing system, for better reliability. Additionally, the B6.7 incorporates a Stage 1 NanoNet® fuel filter, for better water separation.

One of the most significant improvements is the use of the Cummins Single Module aftertreatment system, which provides up to a 70 percent reduction in space claim, reduces weight by up to 30 percent and provides better heat management and retention, for improved fuel economy.

#### **B6.7 and B6.7 Hybrid Specifications**

Advertised HP (Diesel) Advertised HP (HYBRID)	200 HP-380 HP 280 HP	149-283 KW 209 KW
Peak Torque	660 LB-FT	896 N•M
Governed Speed	2600 RPM	
Clutch Engagement Torque	400 LB-FT	542 N•M
Number of Cylinders	6	
Engine Weight (Dry)	1,150 LB	522 KG

<sup>\*</sup>Increase over standard muffler; does not include chassis OEM-supplied components.





Cummins B6.7 Hybrid is custom-designed to work in transit bus hybrid diesel-electric propulsion systems. Already in use throughout North America with millions of miles of proven performance, it is clean and reliable.

The B6.7 Hybrid system operates at consistent engine speeds and temperatures, providing a perfect match for the application of the Single Module aftertreatment system. In transit applications, the B6.7 Hybrid system provides up to 5 percent fuel-economy improvements compared with the 2013 ISB6.7 Hybrid. That is a result of an enhanced VGT turbocharger, reduced friction and better thermal management.





The Cummins L9 diesel for 2017 delivers outstanding productivity and the best power-to-weight ratio in its class. Its proven reliability keeps buses in service longer. Transit fleet managers can expect up to 15 percent better fuel economy versus buses purchased 10 years ago. Heavy-duty features such as a replaceable wet liner, roller followers, bypass oil filtration and targeted-piston cooling add years of engine life. But the most important component we put in every L9 engine is the trust that comes from a legacy of over 27 years and 5 million engines. Cummins L9 comes from a family of proven performers with a heritage that gets stronger every year.

The transit duty cycle provides a unique challenge in creating consistent exhaust temperatures required for passive Diesel Particulate Filter (DPF) regeneration. In 2017, Cummins is continuing to leverage the product experience and Particulate Matter (PM) storage capacity of the modular aftertreatment system to provide the best solution for reliability and uptime for larger buses while meeting emissions regulations.

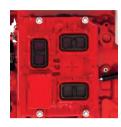
Another SmartEfficiency<sup>™</sup>-driven improvement is the isolated coolant loop for transit buses (using either the L9 or ISL G powertrain), which improves reliability and reduces downtime. A water-to-water heat exchanger will be mounted on the engine to provide heat to the passenger compartments as needed, while providing a self-contained coolant flow to the engine compartment area. This new approach reduces potential coolant leakage and air infiltration for better Exhaust Gas Recirculation (EGR) cooler reliability and durability.

#### **L9 Specifications**

Advertised HP	260-380 HP	194-283 KW
Peak Torque	900-1100 LB-FT	1221-1493 N•M
Governed Speed	2200 RPM	
Clutch Engagement Torque	550 LB-FT	746 N•M
Number of Cylinders	6	
Engine Weight (Dry)	1,697 LB	770 KG

<sup>\*</sup>Increase over standard muffler; does not include chassis OEM-supplied components.

# Diesel Engine Features And Benefits.



### Single High-Capacity Electronic Control Module (ECM)

A higher capacity offers faster processing of more information. It has fully integrated control over the engine and aftertreatment system, for optimized performance, and an improved engine lamp strategy.



#### VGT Turbocharger From Cummins Turbo Technologies

The patented design is widely recognized as an industry performance leader. Electronic actuation improves precision and responsiveness. The turbocharger is a key element in providing exceptional fuel economy and braking horsepower.



#### **Single Module Aftertreatment System**

It is up to 70 percent more compact and 30 percent lighter than the system it is replacing. Better heat utilization results in improved performance and a reduction in the need for regenerations, as well as increased fuel economy. (B6.7 and B6.7 Hybrid)

#### **Modular Aftertreatment System**

The proprietary system consists of a Diesel Particulate Filter (DPF) and Selective Catalytic Reduction (SCR) technology in a switchback configuration. (L9)



### High Pressure Common Rail (HPCR) Fuel System

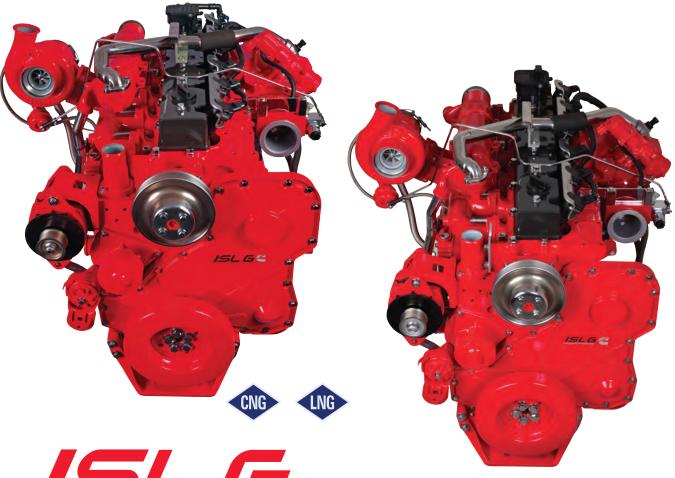
High injection pressures produce quick throttle response at every rpm. Optimized timing increases fuel efficiency and lowers emissions. (B6.7 Hybrid)





#### XPI Fuel System From Cummins Fuel Systems

This system delivers superior performance, even in lower engine rpm range. It enables multiple injection events per cycle, for improved fuel efficiency with quieter, smoother operation.



ISL G

The combination of reduced emissions and no compromise in power or torque has made the ISL G the industry leader. Stoichiometric-cooled Exhaust Gas Recirculation (SEGR) is a big reason. It provides the ideal ratio at which fuel and oxygen are completely consumed. That enables the use of the proprietary Three-Way Catalyst (TWC) - a completely passive device that never needs regeneration or cleaning.

Fuel options with the ISL G include compressed natural gas (CNG), liquefied natural gas (LNG) or renewable natural gas (RNG) that has been upgraded to vehicle fuel quality standards.

#### **ISL G And ISL G Near Zero Specifications**

Advertised HP	250-320 HP	186-239 KW
Peak Torque	900-1000 LB-FT	1221-1356 N <b>●</b> M
Governed Speed	2200 RPM	
Clutch Engagement Torque	550 LB-FT	746 N•M
Number of Cylinders	6	
Net Weight (Dry)	1,625 LB	737 KG
Aftertreatment System	Three-Way Catalys	st (TWC)



The Cummins Westport ISL G Near Zero (NZ) offers transit authorities an alternative product certified to optional near-zero emissions standards. The ISL G NZ is built off the current ISL G platform, but uses Closed Crankcase Ventilation (CCV) that prevents crankcase emissions, a larger maintenance-free Three-Way Catalyst (TWC) and a unique engine calibration.

Together, those improvements allow the ISL G NZ to certify to 0.02g/bhp-hr - 90 percent below the current U.S. Environmental Protection Agency (EPA) oxides of nitrogen (NOx) standards - and provide up to a 15 percent reduction in carbon dioxide (CO<sub>2</sub>) emissions. The ISL G NZ is the natural choice when considering alternative energy vehicles in nonattainment areas, and can power transit and shuttle buses up to 66,000 lb gross vehicle weight (GVW).

## Cummins Westport Natural Gas Engines.



#### **Proven Wastegate Turbo**

It's a simple, reliable design from the world leader in turbocharging technology.



#### Stoichiometric-Cooled Exhaust Gas Recirculation

The ideal air/fuel ratio for complete combustion means zero oxygen in the exhaust, which allows use of the passive TWC.



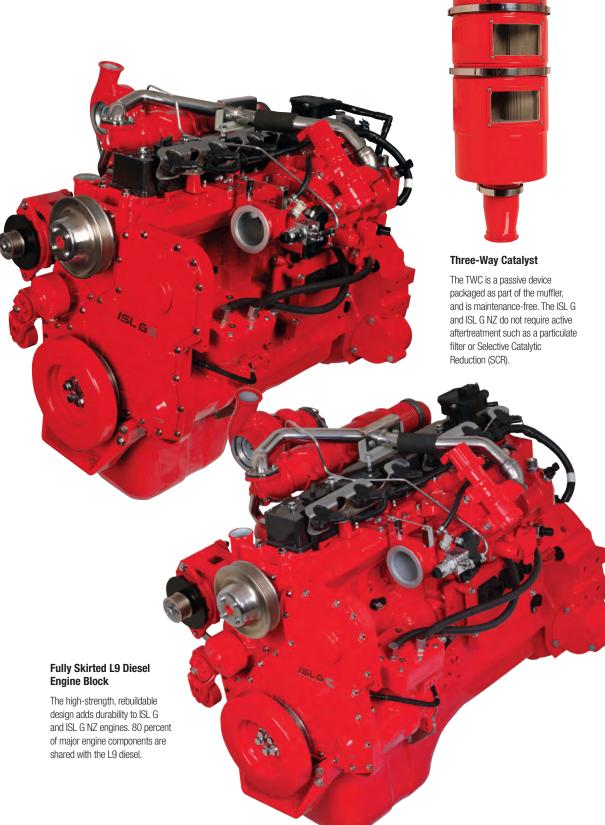
### High-Capacity Electronic Control Module

It provides full motoring and control of engine sensors, the fuel system and the ignition system, and is compatible with Cummins software and other diagnostic service tools.



#### **High-Energy Ignition System**

It provides better performance, longer service intervals and improved spark plug and coil dependability, plus self-diagnostics. A coil-on-plug ignition system eliminates the need for spark plug wires.





#### **Backed By The Best.**

Cummins engines for the shuttle and urban transit bus markets are covered by a comprehensive base warranty that includes parts and labor with no deductible. All of Cummins diesel engines and Cummins Westport natural gas engines come with a 2-year/unlimited-mileage base warranty.

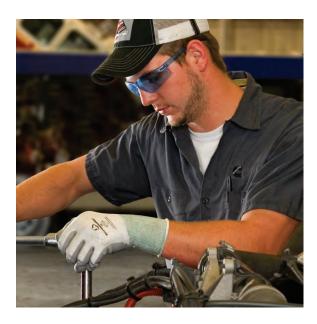
#### Concrete Evidence Of Extended Confidence.

Peace of mind comes standard with the proven track record of Cummins engines. But you can add a measure of long-term financial security to the package with our extended warranty options, which are available for up to 5 years/500,000 miles (804,672 km).



#### Going Beyond Support - Cummins Care.

Cummins has the largest and most capable support network in North America, with over 3,500 authorized locations. And now, Cummins is going beyond support and providing a more streamlined service experience at 1-800-CUMMINS™ (1-800-286-6467). You are instantly connected with a Cummins expert with the product expertise to address your need for information, service assistance, answers about maintenance or warranty issues and more.



# Streamlined Service With Cummins Guidanz<sup>™</sup> Mobile App And INLINE<sup>™</sup> Mini Adapter.

Cummins Guidanz mobile app and INLINE mini adapter enable rapid downloading of engine information using a smartphone or tablet. The app allows users to quickly get prioritized fault codes and other key engine information while standing next to their Cummins-powered transit or shuttle bus. Engine data and repair information can be accessed and easily shared directly from the app with your service team. The Immediate Assessment feature of Guidanz, available at Cummins-certified repair locations, streamlines service operations by condensing the diagnostic process from what used to be a few hours down to a matter of minutes, improving customer uptime and service shop scheduling.





### **B6.7 and B6.7 Hybrid Transit Bus Ratings**

Engine	Advertised	Peak Torque	Governed
Model	HP (kW)	LB-FT (N•m) @ RPM	Speed
B6.7 280	280 (209)	660 (896) @ 1600	2600 RPM

### **B6.7 Shuttle Bus Ratings**

Engine Model	Advertised HP (kW)	Peak Torque LB-FT (N•m) @ RPM	Governed Speed
B6.7 300	300 (224)	660 (895) @ 1600	2600
B6.7 280	280 (209)	660 (895) @ 1600	2600
B6.7 260	260 (194)	660 (895) @ 1600	2600
B6.7 250	250 (186)	660 (895) @ 1600	2600
B6.7 240	240 (179)	560 (759) @ 1600	2600
B6.7 220	220 (164)	600 (813) @ 1600	2600
B6.7 220	220 (164)	520 (705) @ 1600	2600
B6.7 200	200 (149)	520 (705) @ 1600	2600

### **L9 Transit Bus Ratings**

Engine Model	Advertised HP (kW)	Peak Torque LB-FT (N•m) @ RPM	Governed Speed
L9 330	330 (246)	1100 (1491) @ 1300	2200
L9 280	280 (209)	900 (1220) @ 1300	2200

### **L9 Shuttle Bus Ratings**

3			
Engine Model	Advertised HP (kW)	Peak Torque LB-FT (N•m) @ RPM	Governed Speed
L9 380	380 (283)	1250 (1695) @ 1400	2100
L9 370	370 (276)	1250 (1695) @ 1400	2100
L9 350	350 (261)	1150 (1559) @ 1400	2200
L9 350	350 (261)	1000 (1356) @ 1400	2200
L9 330	330 (246)	1000 (1356) @ 1400	2200
L9 300	300 (224)	860 (1166) @ 1300	2200
L9 270	270 (201)	800 (1084) @ 1300	2200
L9 260	260 (194)	720 (976) @ 1300	2200

### **ISL G And ISL G Near Zero Transit Bus Ratings**

Engine Model	Advertised HP (KW)	Peak Torque LB-FT (N∙M) @ RPM	Governed Speed
ISL G 320	320 (239)	1000 (1356) @ 1300	2200
ISL G 280	280 (209)	900 (1220) @ 1300	2200



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