

Recreational Vehicle Maintenance and Operation

ISB Series Diesel



Quick Reference Guide

Includes information on 6.7- and 5.9-liter ISB electronic engines, from EPA '98 to current.

Cooling

Routine Maintenance Recommendations

- Check coolant level before every trip.
- Check coolant concentration every 15,000 miles / 6 months or whenever coolant is added to the system. The ISB does not require supplemental coolant additives (SCA).
- Drain/flush cooling system every 60,000 miles / 2 years and refill with heavy-duty coolant (as described below).
 - * Extended coolant drain/flush/fill intervals may be followed when certain requirements are met. For more information on these requirements, refer to the Cummins Coolant Requirements and Maintenance Service, Bulletin 3666132.

Definition of Heavy-Duty Coolant

A combination of 50/50 water and low silicate antifreeze (ethylene glycol or propylene glycol are acceptable) that meets ASTM4985 (GM6038M) specs provides protection to -34°F. In addition to freeze protection, antifreeze is essential for overheat and corrosion protection. Avoid over-concentration, as freeze protection decreases above 68%.

For accuracy, use of a Refractometer (example: Fleetguard No. C2806) to test antifreeze is recommended vs. floating ball device.

Consult Owners Manual for water quality requirements. Fleetguard Water-Check test strips (CC2609) can be used to check water quality. Use of distilled water is acceptable.

Cummins recommends the use of a fully formulated coolant, such as Fleetguard Compleat, that meets ASTM D6210 (EG) or ASTM D6211 (PG) specifications. Consult chassis manufacturer for compatibility with OEM cooling system.

Diesel Exhaust Fluid (DEF)

DEF is reactant used in the SCR system of an engine meeting the EPA 2010 emission regulations. It is a non-toxic, non-polluting, non-flammable liquid that requires no special handling.

- EPA 2010 engines are required to use DEF that meets ISO 22241-1.
- Cummins strongly recommends use of DEF that is API certified.
- For maximum shelf life, store DEF in sealed container to avoid contamination, at temperatures below 78°F (26°C), and avoid exposure to direct sunlight.
- DEF will freeze around 11°F (-12°C) but DEF will not degrade when frozen.

Contact Number

Cummins 1-800-DIESELS™ (1-800-343-7357)
Customer Assistance Center

Always refer to your Owners Manual, for complete information.

Lubricating Oil

Routine Maintenance Recommendations

Check oil level daily. Replace oil filter at EVERY oil drain interval.

Oil Drain Interval 15,000 miles / 12 months

Fleetguard Filter LF3970

Lubricating Oil Recommendations

The primary Cummins recommendation is to use SAE 15W40 oil for normal operation at ambient temperatures above 5°F (-15°C). Consult the Owners Manual or a Cummins distributor for recommendation concerning colder operating temperatures.

	Engines without a Diesel Particulate Filter (DPF)	Engines with DPF or SCR*
Must meet Cummins Engineering Specification (CES)	CES 20078	CES 20081
API Specification	API CI-4/SL	API CJ-4/SL

*A non-low ash oil meeting CES 20078 (API CI-4/SL) can be used with no change to the oil change interval, but will reduce the service interval of the Cummins Particulate Filter.

Synthetic Oil

May be used in ISB engine provided they meet performance and chemical requirements. Should not be used in a new engine until the first oil change interval mileage is reached. Use of synthetic oil does NOT justify extended oil drain intervals.

Recommended for use in ambient temperatures consistently below -13°F (-25°C) for improved engine cranking and flowability.

Engine Break-in Oil

Special break-in oil should not be used.

Supplemental Oil Additives

Supplemental oil additives such as friction-reducers and graphitizers should not be used unless the oil supplier can provide evidence of satisfactory performance. If there is any doubt about suitability of an oil, consult the oil manufacturer for a definitive recommendation, or data to establish that the oil has performed satisfactorily in Cummins engines.

Oil Analysis

Oil analysis, as a method to extend drain intervals, is NOT recommended. Different methods of measuring soot, lack of correlation among testing labs, and differing driving patterns and idle time are the basis of the recommendation.

Exhaust Brakes

Exhaust Brakes can not be used on ISB engines with Common Rail Fuel systems. The Variable Geometry Turbocharger takes the place of the exhaust brake and requires no maintenance.

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Fuel

Routine Maintenance Recommendations

Fuel filter should be changed at EVERY oil change. Fuel filters with water drains should be routinely opened to remove captured water.

Fleetguard Part numbers for:

High-Pressure Common Rail:

	No DPF (pre-EPA '07)	CM2150 (EPA '07) / CM2250 (EPA '10)
10 micron water-separating filter	FS19596	FS1065*
2 micron primary fuel filter*	N/A	FF5632

*Change every oil change. If the warning lamp flashes indicating maintenance and water is drained from the 10 micron water-separating filter, the 2 micron filter must also be changed.

VP44 Fuel System:

Top Load Cartridge FS1261
Spin-on Filter FS19519**

**Transfer water sensor/drain to new filter.

Low/Ultra Low Sulfur Diesel (ULSD) Fuel and Fuel Lubricity

Fuel additives for lubricity are NOT required by Cummins when using commercially available #2 diesel fuel or #1 / #2 winter blend diesel fuels. ULSD fuel must be used with engines with a Diesel Particulate Filter (DPF).

Biodiesel

ISB engines that are certified to EPA '02 and later regulations are approved for use with B20 biodiesel. The appropriate ASTM standards must be met.

Biocide Treatment

A biocide or fungicide can help when fuels are prone to contamination with bacteria or fungus (black slime).

Other Fuel Additives

Any fuel additive product should be accompanied with data supporting its performance and benefit. Engine failures caused by incorrect fuel are NOT covered under warranty. It is not the policy of Cummins to test, approve or endorse any product not manufactured or sold by Cummins.

Ether / Cold Start Up

Ether MUST NOT be used for ISB engines. The ISB comes equipped from the factory with an integrated grid heater for cold starting. Use of an engine block heater in temperature below 0°F is recommended for starting aid and reducing time for engine warm-up.

Extended Shutdown Start Procedure

Engine oil pressure must be indicated on gauge within 15 seconds after starting. If oil pressure does NOT register within 15 seconds after starting, shut off engine immediately and contact your local Cummins distributor.

Component Maintenance

The following components require periodic maintenance / inspection. Please refer to the appropriate vehicle / engine manual for details.

Valve Adjustment Interval

Check / adjust at 150,000 miles.

Air Filter and Intake System

Follow RV manufacturer's recommended filter change interval. Visually inspect intake air components at each oil change for cracks or loose connections. Routinely inspect filter minder.

Vibration Damper

Inspection required at 60,000 miles / 2 years which includes visual inspection for deformation.

Front Accessory Drive Belt

Inspection required at 30,000 miles / 1 year which includes visual inspection of all components.

Coalescing Filter

Replace every 3rd to 4th Oil Change Interval.

Fleetguard Part # (valve covered mounted filter) CV5200100

Particulate Filter

Clean every 200,000 miles.

DEF Filter

Replace every 200,000 miles.

Additional details can be found in the 'Maintenance Guidelines' section of the engine's Owners Manual.

Idle / Cooldown

Fast Idle

ISB engines with the common rail fuel system may automatically increase engine speed under cold ambient conditions to decrease time for engine warm-up under idling conditions.

Engine Warm-up

Idling the engine for warm-up is not necessary. When oil pressure is indicated, put motorhome in motion. Operate with a light throttle and limited RPM until coolant temperature reaches approximately 150°F.

Engine Cooldown

Prior to shutdown, an engine should be idled 3-5 minutes after extended full throttle or high power operation. However, under normal driving conditions, such as exiting a highway, engine operation is generally lighter in nature and thereby, the 3-5 minute cooldown is not necessary.



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