

Recreational Vehicle - ISB Series Diesel Maintenance and Operation



Quick Reference Guide

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:

	10 micron water-separating filter	2 micron primary fuel filter*
No DPF (pre-EPA07)	FS19596	N/A
CM2150 (EPA07) / CM2250 (EPA10)	FS1065*	FF5632
CM2350 (EPA13)	FS1065	FF63008

*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 - CM850 (EPA98):

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 EPA02 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 will run only at idle speed until minimum oil pressure is detected.

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 / 4 years.

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 / Tensioner / Idlers

Inspection required at 30,000 miles / 1 year.

Crankcase Ventilation Filter

Replace every 3rd to 4th Oil Change Interval.
Fleetguard Part # (rear engine mounted filter) CV5060700

Particulate Filter

Clean every 200,000 miles.

DEF Filter

Replace every 200,000 miles.
Cummins Part # 2880298

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.



Cummins Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

Phone: 1-800-DIESELS™ (1-800-343-7357)
Internet: cumminsengines.com

Twitter.com/CumminsEngines
YouTube.com/CumminsEngines

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Includes information on 6.7- and 5.9-liter ISB electronic engines, from EPA98 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 according to chassis manufacturer recommendation.

Engine Coolant Types

There are many types of engine coolants available today.

Traditional Fully Formulated Coolants are typically green in color and must meet Cummins CES14603 specification. These coolants require testing 2 times per year for freeze point and proper additive (SCA) concentration. A refractometer (example: Fleetguard C2806) is more accurate than floating ball hydrometers. 3 way test strips are available in single packs (Fleetguard CC2602B) and 4 packs (Fleetguard CC2602A) to measure SCA concentration. Coolant change is required on a periodic basis - consult the RV manufacturer.

Fill For Life Coolants (example: Fleetcharge®) are typically pink in color. These coolants typically require testing of freeze point 2 times per year with a refractometer to ensure proper concentration. Follow the RV manufacturer's recommendation.

Organic Acid Technology Coolants (example: Fleetguard Compleat ES OAT, Final Charge®, Shell Rotella® ELC) are typically red in color. These coolants typically require testing of freeze point 2 times per year with a refractometer to ensure proper concentration. Follow the RV manufacturer's recommendation.

Always top off with a 50/50 mixture of high quality water (distilled or deionized) and the appropriate coolant suggested by your manufacturer.

Diesel Exhaust Fluid (DEF)

DEF is reactant used in the SCR system of an engine meeting the EPA10 and later emission regulations. It is a non-toxic, non-polluting, non-flammable liquid that requires no special handling.

- EPA10 and later 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 (18 months), 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 Care 1-800-DIESELS™ (1-800-343-7357)
Customer Support Center

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.

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.

Always refer to your Owners Manual, for complete information.