



# RV Maintenance and Operation

## ISL 24 Valve Electronic Diesel

### Quick Reference Guide

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## Cooling

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### Routine Maintenance Recommendations

Check every 18,000 mi. / 6 mo.  
Change coolant filter every 18,000 mi. / 6 mo.  
Drain and flush system every 72,000 mi./2 yrs. and refill with heavy-duty coolant - 50/50 mix of water and antifreeze.

Always use antifreeze. In addition to freeze protection, antifreeze is essential for overheat and corrosion protection.

The supplemental coolant additive (SCA) is required with ISL.

### Definition of Heavy-Duty Coolant

A combination of 50/50 water and low silicate antifreeze (ethylene glycol or propylene glycol are acceptable).  
Protects to -34°F. Freeze protection decreases above 68% antifreeze. Antifreeze must meet ASTM D4985 (GM6038M) specs.

### How to Test Coolant Concentration

Refractometer Fleetguard #C2800 is recommended vs. floating ball due to accuracy.

### Water Quality Requirements

Calcium/Magnesium Max. 170ppm as  $\text{CaCO}_3 + \text{MgCO}_3$   
Chloride Max. 40ppm as Cl  
Sulfur Max. 100ppm as  $\text{SO}_4$

A conservative approach to cooling system maintenance would include an analysis of your home-base tap water supply. Your Cummins distributor can provide this service as well as sample bottles and other coolant test devices. Consider using pre-formulated antifreeze when on the road or when water quality is unknown. The use of distilled water is also acceptable.

### Pre-formulated Antifreeze and Supplemental Coolant Additives (SCA)

Pre-formulated antifreeze, such as Fleetguard Compleat, offers a vehicle owner the convenience of a pre-mixed antifreeze solution containing high quality water and the correct chemical balance of antifreeze and SCA.

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## Lubricating Oil

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### Routine Maintenance Recommendations

Oil Drain Interval	Fleetguard Filter
18,000 miles / 1year	LF 9009

Replace oil filter at EVERY oil drain interval.

### Multigrade vs. Straight Weight

Recommend high quality 15W40 oil API CG-4 or CH-4. Why multigrade?

- Reduced deposit formation.
- Improved cranking in low ambient temperatures.
- Shortens time-to-block pressure in low ambients.
- Improved lubrication during high temperature operation.

### Synthetic Oil

May be used in ISL engine provided they meet performance and chemical requirements.

Recommended for use in ambient temperatures consistently below -13°F (-25°C) for improved engine cranking and flowability. Should NOT BE USED to extend oil drain intervals.

### Engine Break-in Oil

Special break-in oil should not be used. If synthetic or synthetic blend oil has been used prior to an engine rebuild, petroleum-based oil should be used for the first oil change interval, after which use of synthetic oil can be resumed.

### 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.



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### Fuel

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#### Routine Maintenance Recommendations

Fuel filter should be changed at EVERY oil change.

Fleetguard fuel filter:

Spin-on Filter	# FS 1022*
Cummins P/N	3944269

\*Denotes to transfer water sensor to new filter.

#### Low Sulfur Fuel and Fuel Lubricity

Fuel additives for lubricity are NOT required by Cummins when using commercially available low sulfur #2 diesel fuel or #1 / #2 winter blend diesel fuels.

#### 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 performance 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.

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### Extended Shutdown Start Procedure

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When starting an engine that has been setting idle for more than 30 days:

1. 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 follow the Troubleshooting Guidelines listed in the Operation and Maintenance Manual for low oil pressure.
2. Idle engine three to five minutes before operating under load.

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### Ether

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Ether MUST NOT be used for ISL engines. The ISL comes equipped from the factory with an integrated grid heater for cold starting.

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### Component Maintenance

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#### Valve Adjustment Interval

**No adjustment required.** Check at 150,000 miles. Reference Operation and Maintenance Manual.

#### 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.

#### Air Compressor (if equipped)

Reference Operation and Maintenance Manual for details.

#### Charge Air Cooler

The long-term integrity of the CAC system is the responsibility of the vehicle and component manufacturers. However, CAC diagnostics can be performed by your Cummins distributor.

#### Vibration Damper

Inspection required at 72,000 mi. / 2 yrs. which includes visual inspection for deformation. Reference Operation and Maintenance Manual for details.

#### Fan Idler Pulley, Hub and Belt Tension

Inspection required at 36,000 mi. / 1 yr. which includes visual inspection of all components. Reference Operation and Maintenance Manual for details.

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### Idle / Warm-up / Cooldown

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#### Excessive Idle

Should be avoided when possible. Results in reduced fuel economy and increased engine wear. An automatic shutdown feature is available. Contact a Cummins distributor for details.

#### Engine Warm-up

Do not operate at full speed/load until coolant temperature reaches normal operating range. Do not operate above low idle until oil pressure is indicated.

#### 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.