

Motorhome Maintenance and Operation

L9™, ISL9, ISC8.3 and C8.3 Engines (300-450 hp)



Quick Reference Guide

Maintenance Intervals*	C8.3 Built 1984-1997		ISC8.3/ISL9 Built 1998-2006		ISC8.3/ISL9 Built 2007-2012		ISC8.3/ISL9/L9 Built 2013+	
	time (mo.)	miles	time (mo.)	miles	time (mo.)	miles	time (mo.)	miles
Check Fluid Levels	daily	n/a	daily	n/a	daily	n/a	daily	n/a
Coolant Testing - SCA	6	n/a	6	n/a	6	n/a	6	n/a
Oil and Oil Filter	3	6,000	6	18,000	12	20,000	18	21,000
Fuel Filters	6	12,000	6	15,000	12	20,000	12	20,000
Valve Lash Check	12	24,000	48	150,000	48	150,000	48	150,000
Vibration Damper Check	24	48,000	24	60,000	24	60,000	24	60,000
Crankcase Breather Filter	n/a	n/a	n/a	n/a	n/a	60,000	n/a	60,000
Coolant Filter**	n/a	50,000	n/a	50,000	n/a	Optional	n/a	Optional
Diesel Particulate Filter	n/a	n/a	n/a	n/a	n/a	200,000	n/a	200,000
DEF Filter	n/a	n/a	n/a	n/a	n/a	200,000***	n/a	200,000

*Intervals reflect whichever occurs first in months or miles.

**Coolant filters are optional. Interval based on no chemical filter and use of liquid SCA.

***For 2010 and later engines.

Filter Part Numbers	C8.3 Built 84-97	ISC8.3 Built 98-02	ISC8.3 Built 03-06	ISL9 Built 07-09	ISL9 Built 10-12	ISL9 Built 13-16	L9 Built 17+
Lubricating Oil Filter	LF9009	LF9009	LF9009	LF9009	LF9009	LF14009+++	LF14009+++
Fuel Filter (Pressure)	FF5032	FS1022	FS1022	FF5636	FF5636	FF63009	FF63009
Fuel Water Separator+	OEM	OEM	OEM	OEM	OEM	OEM	OEM
Coolant Filter++	WF2123	WF2123	WF2123	WF2123	WF2123	Optional	Optional
Crankcase Breather Top Crankcase Breather Rear	n/a	n/a	n/a	CV50603	CV50603 CV50628	CV50603 CV50628	CV50603 CV50628
DEF Dosing Filter	n/a	n/a	n/a	n/a	2880298	2880298	4388378
Oil Recommendation	CK-4 15W40	CK-4 15W40	CK-4 15W40	CK-4 15W40	CK-4 15W40	CK-4 15W40	CK-4 15W40

+Fuel water separators vary by chassis manufacturer.

++WF2123 contains no chemical; add liquid SCA to achieve proper concentration. WF2071 contains SCA chemical.

+++LF9009 may be used if oil is changed annually.

Customer Support

- The most up-to-date and complete information for your engine can be found on QSOL at quickserve.cummins.com.
- To find your nearest Cummins authorized location, go to locator.cummins.com or call 1-800-CUMMINS™ (1-800-286-6467).
- Having the Engine Serial Number (ESN) available ensures correct information. The ESN can be found near the front of the engine on top of the gear housing (passenger side).

Storage

- Store with a full tank of fuel from a high-volume fuel retailer to prevent condensation and microbial growth in fuel tank.
- Completing annual maintenance prior to storage removes corrosive elements in the engine oil and potential microbes in the fuel filter.
- Monthly exercise prolongs engine life. A 30-40 minute drive is best. If driving is not possible, operate the engine until coolant reaches 150°F to recharge system batteries and lubricate internal components. Use the cruise control set switch to enable fast idle.

Operation

- Engine warmup – operate with light throttle for 3-5 minutes.
- Engine cooldown – allow 3-5 minutes before shutting the engine off after full load operation.
- L9 compression brake (high/low setting) can produce up to 370 braking horsepower. L9 VGT exhaust brake (on/off) can produce up to 180 braking horsepower. Turn engine brake off when road conditions are slippery.
- Amber “check engine” light indicates the need to check the vehicle before continuing to operate (leaks, gauges, fluids).
- Red “stop engine” light indicates the need to pull over as soon as it is safely possible. If light is flashing, the engine will shut down within 30 seconds.
- A complete guide to dash lamps related to the engine is contained in Cummins Bulletin 4971518, which can be found on cummins.com.
- Fuel economy can be improved by reducing vehicle speed, keeping tires properly inflated, reducing weight, keeping air conditioning system charged and keeping the radiator clean.

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Cooling System

- Check coolant level before each trip.
- Coolant should be tested for freeze protection, supplemental coolant additive and dilution twice per year. A refractometer (e.g., Fleetguard® CC2806) is much more accurate than floating ball hydrometer. Test strips are also available.
- Maintain coolant according to the chassis manufacturer's recommendations. Some coolants require regular addition of Supplemental Coolant Additives. Most coolants require replacement at five years of service.
- When having your motorhome serviced, insist on using the coolant that was originally used by the chassis manufacturer or equivalent.
- There are many formulations of coolant. It is ideal to use the coolant formulation that the motorhome was originally filled with. Mixing coolant formulations can result in loss of protection of the engine and other components in the cooling system.
- Coolants must meet the Cummins CES14603 or CES14439 specification.
- Engine Coolant Formulations include:
 - Older traditional Heavy Duty Coolants, which are typically green in color. These require testing for SCA concentration at least twice per year. Three-way test strips are available from Fleetguard in 4-packs (CC2602A).
 - Fill for Life Coolants (e.g., Fleetcharge) are typically pink in color. These coolants require testing for SCA concentration and adding chemical as needed.
 - Organic Additive Technology Coolants (e.g., Fleetguard Complete ES OAT, Final Charge, Shell Rotella ELC) can vary in color and may require addition of a chemical extended before the change interval is reached. Ask your chassis manufacturer.
 - Coolant filters may contain chemical additives. Buying "blank" non-chemical filters and using liquid additives if needed is recommended.

Fuel System

- Purchase fuel from high-volume fuel retailers to avoid issues with water or microbe contamination.
- Engines built since 2002 can use up to B20 biodiesel. Pre-2002 engines can use up to B5 biodiesel. It is best to avoid storing your motorhome with biodiesel.
- Install fuel filters dry. If prefilling fuel filters before installation, block the center hole (clean side).
- Cummins engines are designed to run on commercially available diesel fuel with no need for additives. A biocide can help when fuels are prone to contamination (black slime).
- Cummins Bulletin 3379001 on QSOL contains a comprehensive explanation of fuel recommendations.

Air System

- Not maintaining your air system is the most expensive mistake you can make.
- Change air filter based on chassis manufacturer recommendation, or more frequently if operating in dusty conditions.
- The air restriction indicator should not be solely relied upon for air filter replacement.
 - Loose or broken clamps, hoses, or piping can lead to dirt entry into the engine, requiring engine overhaul.

Oil System

- Check oil level before each trip.
- The L9, ISL9, ISC8.3, and C8.3 require one gallon to move the level on the dipstick from add to full. Prefill oil filters prior to installation. Oil capacity varies by oil pan part number.
- For normal engine operation, Cummins recommends the use of a high-quality 15W40 or 10W30 engine oil that meets the requirements of Cummins CES20086 specification (API classification CK-4). API classification FA-4 oils are NOT recommended for motorhomes.
- The use of synthetic oils is allowed but does NOT justify the extension of the oil drain interval.
- Break-in period oil changes are not required on Cummins engines.
- Cummins engines are designed to run on commercially available oils without the need for supplemental additives. Cummins does NOT recommend or require supplemental oil additives.
- Oil analysis can be helpful in detecting contaminants, but does NOT justify the extension of the oil drain interval.

Diesel Exhaust Fluid (DEF)

- Cummins engines built since 2010 require the use of DEF. DEF-equipped engines achieve greater fuel economy.
- DEF is nontoxic, nonpolluting, and nonflammable.
- DEF fluid must meet ISO 22241-1 specification.
- For maximum shelf life (18 months) store DEF in a sealed container at temperatures below 78°F (26°C).
- DEF will freeze at 11°F (-12°C) but will not degrade when frozen. Tanks and lines are designed to accommodate freezing.



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

Phone: 1-800-CUMMINS™ (1-800-286-6467)
cummins.com

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