

March Edition of Natural Gas Engine Tech Talk

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This Month's Tech Talk Tips

Spark Ignited Engine Coolant Maintenance

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This month's Tech Talk will delve into engine coolant maintenance and required service intervals for Cummins Natural Gas engines. Following Cummins' recommended coolant maintenance guidelines will reduce unscheduled downtime and improve engine life to overhaul.

Currently, all Cummins Natural Gas engines are required to use a coolant that meets **CES 14603**.

The selection of engine coolant **must** be based on the engine model and application. Improper selection of coolant could lead to the following outcomes:

- Cylinder liner and block pitting
- Chemical attack of rubber seals and hoses
- Generalized corrosion
- Negative interaction with cooling system metals
- Possible total engine failure
- Failures not covered under warranty coverage plans

Coolant types should **not** be mixed in the engine. Mixing coolant formulations could result in critical additive depletion and unpredictable performance. In the case of switching from one coolant formulation to another, drain the cooling system completely and refill with the desired coolant.

Contact the coolant manufacturer for specific guidance if coolants must be mixed.

For most applications, the original equipment manufacturer (OEM) originally filled the cooling system. Check with the OEM on the type of coolant used during the initial fill of the cooling system.

- **Test your coolant regularly.** Coolant testing is a powerful tool to understand the health and condition of coolant in and engine. Coolant testing should be used to determine when SCA additions are required, when coolant has reached end of its useful life, and to identify and prevent progressive issues within the cooling system.
- For a list of registered products refer to:
https://quickserve.cummins.com/qs3/qsol/service/serviceproducts/coolant_registration_14603.html

- For detailed testing procedures refer to:
<https://quickserve.cummins.com/qs3/pubsys2/xml/en/procedures/00/00-379-008.html>

Technical Resources:

Jason Bauer's Maintenance Tip Videos – Click Links Below

Maintenance Intervals

<https://www.cumminswestport.com/natural-gas-academy-videos/maintenance-intervals>

Natural Gas Engine Oil

<https://www.cumminswestport.com/natural-gas-academy-videos/natural-gas-engine-oil>

Ignition Coil Maintenance

<https://www.cumminswestport.com/natural-gas-academy-videos/ignition-coil-maintenance>

Fuel Filter Maintenance

<https://www.cumminswestport.com/natural-gas-academy-videos/fuel-filter-maintenance>

Spark Plug Maintenance

<https://www.cumminswestport.com/natural-gas-academy-videos/spark-plug-maintenance>

Tips for Success

<https://www.cumminswestport.com/natural-gas-academy-videos/tips-for-success>

Minimum methane number requirement for Cummins Natural Gas Engines:

C Gas Plus, B Gas Plus, and L Gas Plus	65
ISL G, ISX12 G, ISB6.7 G, and all 2018 engines	75

Fuel Quality Calculator:

<https://www.cumminswestport.com/fuel-quality-calculator>

Recommended Maximum GVW for Best Performance & Efficiency:

B6.7N	33,000lbs
L9N	66,000lbs
ISX12N	80,000lbs

ISB6.7 G & B6.7N Maintenance Intervals	
	Hours
Oil & Filter* - CES 20085	500
Oil & Filter* - CES 20092	750
Conventional Coolant Replacement	1,500
Hybrid Coolant Replacement	4,000
OAT Coolant Replacement	6,000
Spark Plugs	750
Fuel Filter	1,000
Valve Adjustment	1,500
Crankcase Breather	2,000
Ignition Coil Extension	5,000

ISL G & L9N Maintenance Intervals	
	Hours
Oil & Filter* - CES 20085	500
Standard Coolant Filter	500
Extended Service Interval Filter	4,000
Oil & Filter* - CES 20092	1,000
Conventional Coolant Replacement	1,500
Hybrid Coolant Replacement	4,000
OAT Coolant Replacement	6,000
Fuel Filter	1,000
Valve Adjustment	1,000
Spark Plugs	1,500
Crankcase Breather Filter - L9N	2,000
Standard Coolant	2,000
Ignition Coil Extension	10,000

ISX12 G & ISX12 N Maintenance Intervals	
	Hours
Oil & Filter* - CES 20085	500
Oil & Filter* - CES 20092	1,000
Spark Plugs	1,000
Standard Coolant Filter	500
Extended Service Interval Filter	4,000
Conventional Coolant Replacement	1,500
Hybrid Coolant Replacement	4,000
OAT Coolant Replacement	6,000
Valve Adjustment	1,000 / 3,000
Ignition Coil Extension	10,000
Crankcase Breather Filter - ISX12N	10,000

ISB6.7 G & B6.7N Maintenance Part Numbers		
Component	Cummins Part #	Fleetguard Part #
Oil Filter	4367100	LF14000NN
Fuel Filter	3607140	NG5900
Crankcase Filter	5288839	
Spark Plug Kit**	4376564	
Ignition Coil Extension	5402163	

**Kit includes spark plug and pregreased boot

ISL G & L9N Maintenance Part Numbers		
Component	Cummins Part #	Fleetguard Part #
Oil Filter	4367100	LF14000NN
Fuel Filter	3607140	NG5900
Crankcase Filter*	5288839	
Spark Plug Kit**	5473009	
Ignition Coil Extension	5265337	

* If Equipped

**Kit includes spark plug and pregreased boot

ISX12 G & ISX12 N Maintenance Part Numbers		
Component	Cummins Part #	Fleetguard Part #
Oil Filter	4367100	LF14000NN
Fuel Filter*	3607140	NG5900
Crankcase Filter*	4389517	CV53009
Spark Plug Kit**	4309391	
Ignition Coil Extension	4387015	

* If Equipped

**Kit includes spark plug and pregreased boot

CES 20092 Oil Provider Recommendations

Company Name	Product Name	Vis Grade
Valvoline	Premium Blue 9200 - One Solution 10W-30	10W-30
Valvoline	Premium Blue 9200 - One Solution 15W-40	15W-40

Alternatives

Company Name	Product Name	Vis Grade
Advanced Lubrication Specialties, Inc.	Advantage Ultra Premium Plus 92 SAE 15W-40	15W-40
Advanced Lubrication Specialties, Inc.	Gibraltar Ultra 92 NGE0	15W-40
Advanced Lubrication Specialties, Inc.	Sunoco Super C-3 Gold	15W-40
Association of Independent Oil Distributors	Purus TFO Synthetic Blend CK-4/SN	15W-40
Association of Independent Oil Distributors	Purus TFO Synthetic Blend CK-4/SN	10W-30
Castrol Ltd.	Castrol Duratec ES 15W-40	15W-40
Castrol Ltd.	Castrol Vecton Long Drain NG 15W-40	15W-40
Chevron Products Company	Delo 400 SNG	15W-40
CITGO Petroleum Corporation	Citgard® CNG/LNG Engine Oil 10W-30	10W-30
CITGO Petroleum Corporation	Citgard® CNG/LNG Engine Oil 15W-40	15W-40
ExxonMobil	Mobil Delvac Modern 10W-30 CNG/LNG	10W-30
ExxonMobil	Mobil Delvac Modern 15W-40 CNG/LNG	15W-40
Gulf Oil International Ltd.	Gulfo Fleet Premium 15W-40	15W-40
Petro-Canada Lubricants Inc	Duron GEO LD 10W-30	10W-30

Petro-Canada Lubricants Inc	Duron GEO LD 15W-40	15W-40
Phillips 66 Company	Kendall Super-D NG 15W-40	15W-40
Phillips 66 Company	Phillips 66 Guardol NG	15W-40
Safety-Kleen Systems Inc., dba Kleen Performance	EcoPower 15W-40 NGP	
Safety-Kleen Systems Inc., dba Kleen Performance	Performance Plus 15W-40	
Safety-Kleen Systems Inc., dba Kleen Performance	Performance Plus 15W-40 NGP	15W-40
Safety-Kleen Systems Inc., dba Kleen Performance	ProProtect 15W-40	
Safety-Kleen Systems Inc., dba Kleen Performance	ProProtect 15W-40 NGP	15W-40
Shell	Shell Rotella T4 NG Plus 15W-40	15W-40
SINOPEC LUBRICANT CO. LTD.	Sinopec Tulux G600 CNG/LNG/LPG 15W-40	15W-40
TongYi Petroleum Chemical Co.	TongYi Long Range Gas Engine Oil LPG/CNG	10W-30
TongYi Petroleum Chemical Co.	TongYi Long Range Gas Engine Oil LPG/CNG	15W-40
TongYi Petroleum Chemical Co.	TongYi Long Range Gas Engine Oil LPG/CNG/LNG 15W-40	15W-40
TOTAL LUBRIFIANTS	Total Rubia Gas 9M 15W-40	15W-40
TOTAL LUBRIFIANTS	Total Rubia Gas 9M FE 10W-30	10W-30

https://quickserve.cummins.com/qs3/qsol/service/serviceproducts/oil_registration_20092.html