

December Edition of Natural Gas Engine Tech Talk

Jason Bauer, Technical Support Manager
Email: jason.p.bauer@cummins.com
Ph: (812) 447-0516

This month's Tech Talk Tips

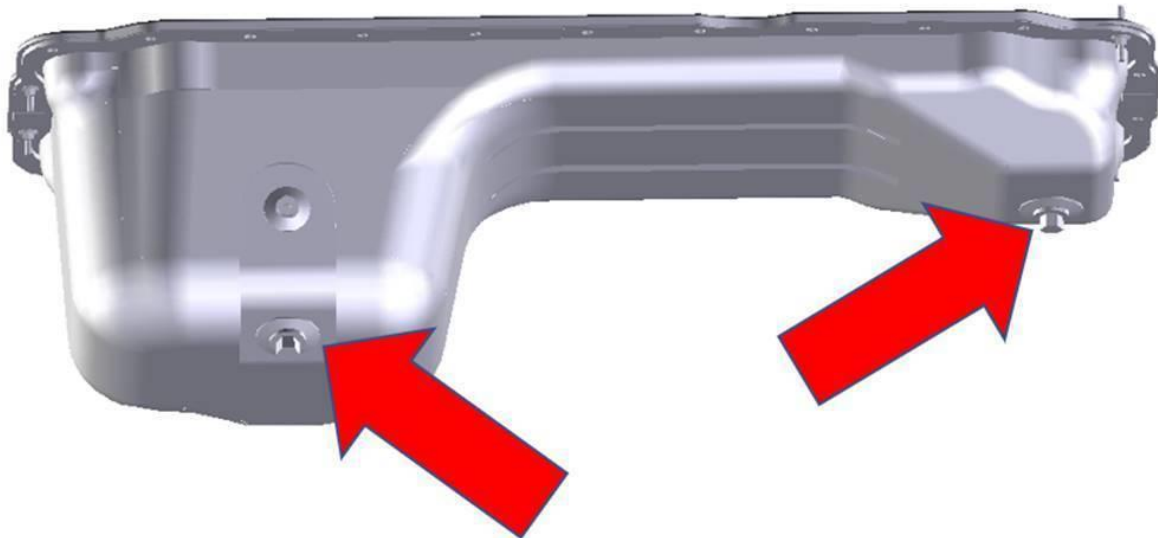
Jason Bauer's New Maintenance Tip Videos – Click Links Below

- [Maintenance Intervals](#)
- [Natural Gas Engine Oil](#)
- [Ignition Coil Maintenance](#)
- [Fuel Filter Maintenance](#)
- [Spark Plug Maintenance](#)
- [Tips for Success](#)

ISX12G and ISX12N Oil Pan Drain Locations

Just as a reminder, the ISX12G and ISX12N oil pans have **two** drain plugs, one of which may be hidden by an engine cross member. If the smaller sump drain plug is not removed, the consequences will result in 10% of the new oil being contaminated with the old oil, resulting in reduced oil capability and a shorter life.

See the image below for reference.



Coolant Maintenance Tips

Below are a couple of tips on properly maintaining coolant for your Cummins Natural Gas engines:

1. CES 14603 coolant registered with Cummins has been tested and approved to ensure longest life and best performance with our natural gas engines. Refer to your Cummins Owner's Manual for proper testing procedures. Note: **Coolant color should not be used to determine when to add or change engine coolant due to oxidation.**

2. Cummins recommends coolant testing once a year to avoid coolant related failures such as liner pitting, water pump failures and generalized engine corrosion.

Cummins Approved Registered Natural Gas Engine Coolants

Company Name	Product Name
Cummins Filtration	ES Compleat
Cummins Filtration	ES Compleat OAT (All versions)
Cummins Filtration	Fleetcool OAT
Cummins Filtration	Fleetguard Fleetcool
Cummins Filtration	Fleetguard Fleetcool EX
Cummins Filtration	FluidPOWER HD Antifreeze
Cummins Filtration	PG Platinum
Cummins Filtration	PG Plus
Cummins Filtration	PGXL HD
Cummins Filtration	PGXL Vital

Alternatives

Company Name	Product Name
BASF-SE	Glysantin G40
CCI CORPORATION	L415
ExxonMobil	Mobil Delvac Extended Life Coolant/Antifreeze
Old World Industries	Final Charge Global ELC
Old World Industries	Fleet Charge
Petronas Lubricants International	ACTIFULL OT
Valvoline	HD Extended Life
Valvoline	Zerex Extended Life Heavy Duty (618-1)
Valvoline	Zerex G05
Valvoline	Zerex G40
Valvoline	Zerex Nitrite Free Extended Life (640-1)
VIDOL	Glyocare Yellow HD

How to Avoid the Most Common Mistakes Fleets Make on Natural Gas Engine Maintenance

1. Establishing Maintenance Intervals

- a. Intervals should be hours of operation, not miles
 - Calculate based upon your fleet's actual average speed (including idle time)
 - Engine hours are best obtained through Insite (no calculation needed)
 - **Example:** (500hr interval) X (Ave MPH from Insite) = miles driven in 500 hrs.
- b. Only use **CES 20092** oil for best additive package
- c. Do all required maintenance **on time** (see Cummins recommended maintenance schedule below)
 - Extended or missed oil drain intervals will lead to engine damage

- Oxidized or depleted engine oil appears to be clean - oxidation is not visible to the naked eye.
- d. Change spark plug before you experience engine skipping (Refer to May's Edition of Tech Talk for more details):
- Prevents unburnt fuel from reaching the catalyst
 - Prevents Check Engine Lights on the dash
 - Use Cummins Genuine Parts

Resources:

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
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
Coolant Filter	500
Oil & Filter* - CES 20092	1,000
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

ISB6.7 G & B6.7N Maintenance Part Numbers		
Component	Cummins Part #	Fleetguard Part #
Oil Filter	3937736	LF3970
Fuel Filter	3607140	NG5900
Crankcase Filter	5288839	x
Spark Plug Kit**	4376564	x
Ignition Coil Extension	5402163	x

**Kit includes spark plug and pregreased boot

ISL G & L9N Maintenance Part Numbers		
Component	Cummins Part #	Fleetguard Part #
Oil Filter	3401544	LF9009
Fuel Filter	3607140	NG5900
Crankcase Filter*	5288839	x
Spark Plug Kit**	5473009	x
Ignition Coil Extension	5265337	x

*If equipped

**Kit includes spark plug and pregreased boot

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

*Per Cummins QSOL

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	x
Ignition Coil Extension	4387015	x

*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
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
CITGO Petroleum Corporation	Citgard® CNG/LNG Engine Oil 10W-30	10W-30
CITGO Petroleum Corporation	Citgard® CNG/LNG Engine Oil 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
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