

August's Edition of Natural Gas Engine Tech Talk

Jason Bauer, Technical Support Manager

Email: jason.p.bauer@cummins.com

Ph: (812) 447-0516

Special Invitation to Fleet Equipment Managers: We will be hosting a one-day technical forum in early November featuring covering topics including, "How to get the best experience out of your Cummins natural gas engines." Featured speakers will include design engineers on coolant, lubrication, exhaust treatment, power cylinder, ignition systems and other key engine systems. This is a rare opportunity to hear firsthand from designers, ask questions of engineers responsible for the development of Cummins natural gas engines. **Limited seats available, RSVP via email to Kaley Stahl (kaley.stahl@cummins.com)**

Question of the Month:

"Why is my new CNG vehicle running a lower fuel pressure than it has in the past?"

In 2018, Cummins released the ISX12N with several new product improvements including a new fuel system.

The new fuel system introduced with the ISX12N, has an upper limit for fuel inlet pressure to the engine of 100psi; versus a limit of 150psi for the ISX12G. Drivers and technicians working with the ISX12N will typically see inlet fuel pressure around 75-85psi. The new system has been designed around this lower pressure, lower pressure is not a sign of lower power or lower fuel flow. Any pressure between 60-100 psi is acceptable for full engine performance.

Jason's Technical Update:

1. New Software Now Available: Drivability Improvements with ISX12G & UltraShift Plus / Advantage 10-speed Transmissions

Both Cummins and Eaton released **new engine and transmission software and calibrations** to address the following:

- Intermittent poor acceleration
- Harsh or extended shifts
- Engine lugging to near stall condition during launch
- Stuck in gear (fault code 74)
- Poor low speed maneuverability in "R"

If one or more of these have been experienced, updating calibrations in both the engine and transmission should address the issue if there are no underlying mechanical causes for the poor performance.

To get these improvements you will need:

- Cummins ISX12 G Engine Calibration released after July 1st, 2019
- Eaton transmission software 5570055 or greater
- Verify the Eaton configuration is set up appropriately for the NG engine.

Additional information on how to get the latest calibration can be obtained call: **Cummins (1-800-CUMMINS)** and **Eaton (1-800-826-4357)**

2. Recon ISL G Engines – Notification

Cummins Recon ISL G ReCon engines are shipping with **aluminum pistons**. If you desire to have **steel pistons** (recommended), this must be specified when ordering, expect a **2-week lead time**.

3. Extended life ISX12G/N Cylinder Head Released for Production

As of this week, ISX12N engines are being assembled at the Cummins Jamestown Engine Plant with a cylinder head featuring **new valve** and **seat material**. This new cylinder head (p/n 5547183) is

backwards compatible with the ISX12G, should be available as a service part within the next 30 days. The new valve and seat material will extend the service life of this component.

How to Avoid the Most Common Mistakes Fleets Make on 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

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

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 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