

June's Edition of Natural Gas Engine Tech Talk

Jason Bauer, Technical Support Manager

Email: jason.p.bauer@cummins.com

Ph: (812) 447-0516

Bauer lives in Indiana, has a Bachelor's degree from Mechanical Engineering from the University of Michigan, and has been key in the development and support of natural gas engine technology for the last 15 years.

This month's helpful hints: How to get the best life out of your engine ignition components

In general, the ignition coil should last the life of your natural gas engine if the complete ignition system is maintained correctly. The key to this is **on time spark plug changes**. As the spark plug gap increases, higher voltage from the coil is required to jump the gap of the spark plug. This higher voltage put additional stress on the components upstream of the spark plug, which includes the spark plug boot, coil extension, and the coil itself. During spark plug changes, you should inspect the coil and coil extension for damage, signs of arcing, and perform functional testing of the coil and extension. This includes a resistance check of the coil and the extension.

More information on these steps is included in the Operation and Maintenance manual for the respective engine on Quick Serve Online.

<http://quickserv.cummins.com>

Things to Remember about Ignition Components:

1. The ISX12G/N and ISB6.7G/B6.7N have flexible extensions to aid in installation and removal in tight spaces. Do not bend these extensions beyond 90 degrees or damage can occur.
2. The coil extension can be separated from the coil and replaced separately if needed. The extensions typically have a 10,000hr replacement interval. A coil does not need to be replaced if the damage is limited to the extension.
3. If the extension has a translucent heat shrink wrap near the spark plug end of the extension, do not remove this heat shrink, it is providing additional dielectric resistance.
4. Be careful when removing the coils; do not use force to remove them.
5. On ISLG and L9N, the coils should be installed separately from the coil mounting brackets. Failure to do so can cause misalignment and damage to the coils.
6. Don't forget to replace the spark plug boot. The ISX12G/N and ISB6.7G/B6.7N coil extensions have an internal spark plug boot.
7. If you find you are replacing coils, boots and extensions, it is likely due to missed / extended spark plug intervals.
Therefore, we recommend you reevaluate your spark plug intervals.

99% of ignition coils replaced under warranty and returned to Cummins for failure analysis result in NTF (No Trouble Found) when inspected and tested.

Reminder: Spark Plug Replacement Intervals

B6.7N	750 hours
ISL G / L9N	1,500 hours
ISX12 G / ISX12 N	1,000 hours

Did you know?

Gasoline and diesel engines produce about 1 gallon of water vapor for every gallon of fuel burned. Natural gas engines produce about 1.6 gallons of water vapor for every diesel equivalent gallon of fuel burned. Most of this water goes out the exhaust, and on cold days it is not uncommon to see water dripping from exhaust system joints where it has collected in low spots. Roughly 0.5-1% of the exhaust products go out as engine blow-by through the breather system. This vapor is very high in water content and condenses easily on cold surfaces. It's very important that all the breather lines slope in one direction to prevent accumulation of water in a low spot which can freeze on a cold day.

Resources:

B6.7N Engine Maintenance

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	

ISB6.7 G & B6.7N Maintenance Interval	
	Hours
Oil & Filter* - CES 20085	500
Oil & Filter* - CES 20092	750
Spark Plugs	750
Fuel Filter	1,000
Valve Adjustment	1500
Crankcase Breather	2,000
Ignition Coil Extension	5,000

**Kit includes spark plug and pregreased boot

ISL G / L9N Engine Maintenance

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

ISX12N Engine Maintenance

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**

ISX12N Maintenance Intervals	
	Hours
Oil & Filter* - CES20085	500
Oil & Filter* - CES20092	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	

Natural Gas Engines Oil Specifications

CES 20085*
Sulfated Ash Level 0.7-0.9%
Calcium 1,800 – 2,300 ppm
Phosphorous 700 – 900 ppm
Zinc 800-1,000 ppm

CES 20092**
Sulfated Ash Level 0.7-0.9%
Calcium 1,200 maximum ppm
Phosphorous 800 maximum ppm
No specification for Zinc**

Cummins recommends using CES 20092 oil

CES 20092 Oil Provider Recommend

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