102-002 Maintenance Schedule

General Information

Automotive Applications

Perform maintenance at whichever interval occurs first. At each scheduled maintenance interval, perform all previous maintenance checks that are due for scheduled maintenance.

Maintenance Procedures at Daily Interval[1]

- Air Cleaner Restriction - Check
- Air Intake Piping - Check
- Air Tanks and Reservoirs - Drain
- Coolant Level - Check
- Charge Air Piping - Check
- Crankcase Breather Tube - Check
- Drive Belts - Check
- Fan, Cooling - Inspect
- Fuel Water Separator - Drain
- Lubricating Oil Level - Check
- Aftertreatment Exhaust Piping - Check
- Diesel Exhaust Fluid (DEF) Level - Check

Maintenance Procedures at 40,000 Kilometers [25,000 Miles], 800 Hours, or 6 Months[(1) (3)]

- Pressure Fuel Filter - Change
- Fuel Filter Suction - Check
- Lubricating Oil and Filters - Change
- Radiator Pressure Cap - Test
- Supplemental Coolant Additive (SCA) and Antifreeze Concentration - Check
- Charge Air Cooler - Check

Maintenance Procedures at 80,000 Kilometers [50,000 Miles], 1500 Hours, or 1 Year[(2)]

- Air Compressor Discharge Lines - Check
- Air Compressor Air Cleaner Element - Check
- Air Leaks, Air Intake and Exhaust Systems - Check
- Cooling Fan Belt Tensioner - Check

- Coolant Filter - Change (The use of coolant filter is optional when using coolant meeting Cummins® coolant requirements.)
- Engine Wiring Harness - Check

Maintenance Procedures at 200,000 Kilometers [125,000 Miles] or 3000 Hours(5)

- Crankcase Breather Element - Change

Maintenance Procedures at 200,000 Kilometers [125,000 Miles], 3000 Hours, or 2 Years

- Radiator Hoses - Check
- Cold Starting Aid - Check
- Radiator Shutter Assembly - Check
- Vibration Damper, Viscous - Inspect
- Engine Mounting Bolts - Check
- Engine Steam Cleaning - Clean

Maintenance Procedures at 241,000 Kilometers [150,000 Miles] or 4000 Hours

- Aftertreatment Fuel Injector - Clean

Maintenance Procedures at 320,000 Kilometers [200,000 Miles] or 4,500 Hours(4)

- Aftertreatment Diesel Particulate Filter (DPF) - Clean
- Aftertreatment Diesel Exhaust Fluid Dosing Unit Filter - Change

Maintenance Procedures at 400,000 Kilometers [250,000 Miles], 6000 Hours, or 2 Years

- Cooling System - Flush

Maintenance Procedures at 800,000 Kilometers [500,000 Miles], 10,000 Hours, or 5 Years(6)

- Engine Brake Assembly - Test
- Fan Hub, Belt Driven - Check
- Overhead Set - Adjust

1. The lubricating oil and lubricating oil filter intervals are based on Cummins® Engineering Standard 20081 and a normal duty cycle. Oil change intervals can be adjusted based on fuel consumption and whether or **not** the oil meets Cummins® Engineering Standard 20081. See the Oil Drain Intervals Table for Severe Duty and Light Duty drain intervals in this section.
2. Follow the manufacturer's recommended maintenance procedures for the starter, alternator, generator, batteries, electrical components, engine brakes, exhaust brake, charge-air cooler, air compressor, air conditioner compressor, and fan clutch.
3. Test the SCA concentration level every 6 months unless the concentration is over three units; then check at every oil drain interval until the concentration is below three units. Use the following procedure for coolant condemnation limits. Refer to Procedure 018-004 in Section V.
4. The aftertreatment diesel particulate filter intervals can be adjusted, based on the type of engine oil that is used. See the Aftertreatment Cleaning Intervals table for cleaning

intervals. Cummins Inc. recommends exchanging the DPF with a new or ReCon® aftertreatment DPF at the recommended maintenance interval.
5. The crankcase breather element intervals can be adjusted, based on engine blowby. See the Crankcase Breather Element Change Intervals table below.
6. The components of the engine brake that are subjected to wear during normal operation of the engine are available as a kit through Cummins® Inc. Distributors/Dealers. It is recommended to do this maintenance at 800,000 km [500,000 mi], 10,000 hours, or 5 years.

Aftertreatment Cleaning Intervals		
Oil Classification	Kilometers/miles	Hours
CES20081	320,000 [200,000]	4500
CES20078	241,000 [150,000]	4500

Crankcase Breather Element Change Intervals	
Engine Blowby	Interval
Less than 305 mm-H_2O [12 in-H_2O]	200,000 kilometers [150,000 miles] or 3,000 hours
Greater than or equal to 305 mm-H_2O [12 in-H_2O]	120,000 kilometers [75,000 miles] or 1,500 hours

Oil Drain Intervals

The maximum lubricating oil drain interval for the ISX12/ISX11.9 CM2250 engine can be determined by carrying out the following procedure.

Cummins Inc. recommends tiered oil drain intervals relative to vehicle duty cycle and quality of lubricant being used.

Step 1. Determine your vehicle type.

- Is your vehicle one of those below?
  - Linehaul truck
  - Coach bus
  - Equipment that accumulates 8,000 miles a month or more.

If **YES** - Select the correct oil drain interval from Table 1 based upon engine duty cycle and oil type used.

If **NO** – Select the correct oil drain interval from Table 2 and 3, based upon application and oil type used.

Step 2. Determine the duty cycle for your vehicle application.

- Follow oil-drain interval Extreme Severe if the vehicle operates under either of the conditions listed in interval Extreme Severe.
- Follow oil-drain interval Severe if the vehicle operates under either of the conditions listed in interval Severe.
- Follow oil-drain interval Normal if the vehicle operates under either of the conditions listed in interval Normal and does **not** meet any of the conditions listed in interval Severe.
- Follow oil-drain interval Light if the vehicle operates under both of the conditions listed in interval Light and does **not** meet any of the conditions listed in interval Severe or interval Normal.

Step 3. Determine type (API or ACEA) and quality of oil that your vehicle application is using.

1. Extending the oil and filter change interval beyond the recommendations will decrease engine life, due to factors such as corrosion, deposits, and wear.
2. Cummins Inc. does **not** currently recommend the use of ACEA E4 or MB 228.5 oil formulations.
3. Any warranty claims that are oil quality-related **must** be accompanied by complete service history details of:
    a. Oil type specification and supplier
    b. Oil filter type and supplier
    c. Oil drain intervals
    d. Injector, valves, engine brake, and lash adjustments.

Table 1: ISX12/ISX11.9 CM2250 Line Haul Oil Drain Interval by Severity of Service

Oil Classification	Extreme Severe Duty 1.27 km/liter [3.0 mpg]	Severe Duty < 2.6 km/liter [6.0 mpg]	Normal Duty 2.6 to 3.0 km/liter [6.0 to 7.0 mpg]	Light Duty > 3.0 km/liter [7.0 mpg]
CES 20081(1) (2)	7,200 km [4,500 mi]	24,000 km [15,000 mi]	40,000 km [25,000 mi]	56,000 km [35,000 mi]
CES 20078(1)(2)	10,000 km [6,000 mi]	32,000 km [20,000 mi]	48,000 km [30,000 mi]	64,000 km [40,000 mi]
The use of Centinel™ or any type of oil blending is prohibited. The use of a high quality filter is mandatory. Refer to Procedure 018-024 in Section V.				

Table 2: Maximum CES 20081 (CJ-4) Oil Drain Intervals by Application

Use the following oil drain intervals for your application (1)				
Vehicle/Equipment	Kilometers	Miles	Hours	Months
Refuse Truck	24,000	15,000	400	6
Mixer/Dumper	24,000	15,000	400	6
Delivery Truck	24,000	15,000	400	6
Fire Truck	24,000	15,000	400	6
Recreational Vehicle	24,000	15,000	400	12

Table 2: Maximum CES 20081 (CJ-4) Oil Drain Intervals by Application

1. Or whichever comes first. If your application accumulates high hours and low mileage, the change interval is determined by hours.
2. Oil Class: CES 20081 (CJ-4)
3. Cummins Inc. requires a lubricating oil filter be used that meets Cummins® Source Approved Method 10,765.
4. Lubricating oil filter LF9001, Part Number 3406809, meet Cummins® Source Approved Method 10,765.

Table 3: Maximum CES 20078 (CI-4) Oil Drain Intervals by Application

Use the following oil drain intervals for your application (1)

Vehicle/Equipment	Kilometers	Miles	Hours	Months
Refuse Truck	32,000	20,000	500	6
Mixer/Dumper	32,000	20,000	500	6
Delivery Truck	32,000	20,000	500	6
Fire Truck	32,000	20,000	500	6
Recreational Vehicle	32,000	20,000	500	12

1. Or whichever comes first. If your application accumulates high hours and low mileage, the change interval is determined by hours.
2. Oil Class: CES 20078 (CI-4)
3. Cummins Inc. requires a lubricating oil filter be used that meets Cummins® Source Approved Method 10,765.
4. Lubricating oil filter LF9001, Part Number 3406809, meets Cummins® Source Approved Method 10,765.

Last Modified: 15-Mar-2016