102-002 Maintenance Schedule

Maintenance Service

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 (Section 3)

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

Maintenance Procedures at 12,000 Kilometers [7500 Miles], 250 Hours, or 3 Months (Section 4)

- Charge-Air Cooler - Check
- Charge-Air Piping - Check
- Air Cleaner Restriction - Check

Maintenance Procedures at 24,000 Kilometers [15,000 Miles], 500 Hours, or 6 Months (Section 5)

- Fuel Filter (Spin-On Type) - Change[1]
- Lubricating Oil and Filters - Drain[2]
- Lubricating Oil Filter (Spin-On) - Change[2]
- Coolant Filter (if equipped) - Change
- Supplemental Coolant Additive (SCA) and Antifreeze Concentration - Check[3]
- Radiator Pressure Cap - Check
- Batteries - Check[4]
- Battery Cables and Connections - Check[4]

Maintenance Procedures at 48,000 Kilometers [30,000 Miles], 1000 Hours, or 1 Year (Section 6)

- Cooling System - Test[5]
- Drive Belt, Cooling Fan - Check
- Belt Tensioner, Automatic (Water Pump) - Check

Maintenance Procedures at 96,000 Kilometers [60,000 Miles] or 2000 Hours (Section 7)

- Crankcase Breather Element - Change

Maintenance Procedures at 96,000 Kilometers [60,000 Miles], 2000 Hours, or 2 Years (Section 8)

- Engine Steam Cleaning - Clean
- Vibration Damper, Rubber - Check
- Vibration Damper, Viscous - Check
- Radiator Hoses - Check
- Air Compressor Discharge Lines - Clean

Maintenance Procedures at 241,500 Kilometers [150,000 Miles], 5000 Hours, or 4 Years (Section 9)

- Overhead Set - Adjust[6]
- Engine Brake Assembly - Adjust

Maintenance Procedures at 321,500 Kilometers [200,000 Miles], 6,500 Hours (Section 10)

- Aftertreatment Diesel Particulate Filter - Clean[7]
- Aftertreatment Diesel Exhaust Fluid Dosing Unit Filter - Change

1. Replace the suction side and the pressure side fuel filters at the same time. It is recommended to replace the fuel filters at the same interval as the oil and oil filter are changed. Use the following procedure for fuel filter part number information. Refer to Procedure 018-024 in Section V.
2. The lubricating oil and lubricating oil filter interval can be adjusted based on application, fuel consumption, gross vehicle weight, and idle time. Reference the Oil Drain Intervals table in this procedure.
3. For an engine using standard service interval coolant, the supplemental coolant additive (SCA) and antifreeze levels **must** be tested once every 6 months. Antifreeze is essential for freeze, overheat, and corrosion protection. SCA is essential for liner pitting and scaling protection. Use the following procedure for additional coolant information. Refer to Procedure 018-004 in Section V.
4. Follow the manufacturers' recommended maintenance procedures for the starter, alternator, batteries, electrical components, charge-air cooler, radiator, air compressor, air cleaner, refrigerant compressor, and fan clutch.
5. Test coolant at once per year to determine if the coolant **must** be replaced. If it is determined that the coolant should be replaced, make sure to flush the coolant system. Use the following procedure to flush the coolant system. Refer to Procedure 008-018 in Section 6. Use the following procedure for coolant recommendations and specfications. Refer to Procedure 018-004 in Section V.

6. Reset the valve lash, if needed, to nominal specifications. Refer to Procedure 018-015 in Section V.
7. The aftertreatment diesel particulate filter clean/replace interval is based on the use of lubricating oils that meet the Cummins® Engineering Standard (C.E.S.) 20081 oil specification. If a non-low ash lubricating oil meeting the American Petroleum Institute (API) performance classification CI-4 and/or C.E.S. 20078 is used, the service interval for the aftertreatment systems **must** be reduced to 241,000 Kilometers [150,000 Miles], or 5000 hours.

All low emission EPA 07, EPA 10, EPA 13, EPA Tier 4 Interim/European Union Stage IIIB 2011(174 -751 hp) engine systems equipped with exhaust aftertreatment **must** operate on ultra-low sulfur diesel (ULSD) with a maximum sulfur content of 15 ppm in the United States and 10 ppm in the European Union. Failure to do so can permanently damage engine and aftertreatment systems within a short period of time. This damage could cause the engine to become in operable and affect the warranty coverage on the engine system.

Oil Drain Intervals

See the following table to determine the maximum recommended oil change and oil filter change intervals in kilometers [miles]/hours or months, whichever comes first.

NOTE: Idle time must be factored into calculating average vehicle speed.

The intervals are based on the vehicle's average vehicle speed. Locate your vehicle's average vehicle speed in the first column to determine the oil change/filter change interval to use. If the vehicle is equipped with an hour meter, it is acceptable to use the engine hours listed for the oil change and oil filter change interval.

If the average vehicle speed is unknown and the vehicle is **not** equipped with an hour meter:

1. Reference the Typical Application(s) column. Use the lowest interval listed for your application.
2. Connect an electronic service tool. The electronic service tool can provide the average vehicle speed recorded by the engine's ECM. This can be done at a Cummins® Authorized Repair Location.

NOTE: A Maintenance Monitor feature is available through the engine's ECM. This feature can be enabled by a Cummins® Authorized Repair Location. Reference Sevice Bulletin 2883397.

Vehicle Average Speed	Kilometers	Miles	Hours	Months	Typical Application(s)
Below 5 mph Average	2400	1500	500	6	Shuttle or Transit Bus
5 to 10 mph Average	6450	4000	500	6	Shuttle or Transit Bus Refuse Truck Cement Mixer
10 to 15 mph Average	9650	6000	500	6	

Vehicle Average Speed	Kilometers	Miles	Hours	Months	Typical Application(s)
15 to 20 mph Average	13,700	8500	500	6	Dump Truck Feedlot Truck Yard Spotter
20 to 25 mph Average	16,900	10,500	500	6	Cement Mixer Dump Truck Truck Crane Fire Truck/Emergency Vehicle School Bus Delivery Truck
25 to 30 mph Average	19,300	12,000	500	6	
30 to 40 mph Average	24,100	15,000	500	6	Linehaul Truck Fire Truck/Emergency Vehicle School Bus Motor Coach Bus
Higher than 40 mph Average	32,200	20,000	500	12	Recreational Vehicle

Cummins Inc. bases the oil drain specifications on duty cycle and oil contamination. This contamination occurs in all engines, at varying rates, regardless of the drain interval.

Maintaining the correct oil and filter change interval is a vital factor in preserving the integrity of an engine. Lubricating oil filters **must** be changed when the oil is changed.

Last Modified: 14-Nov-2012