



## 102-002 Maintenance Schedule

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### General Information

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For your convenience, listed below are the section numbers that contain specific instructions for performing the maintenance checks.

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)**

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

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

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

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

- Fuel Filter (Spin-On Type) - Change<sup>1</sup>
- Lubricating Oil and Filters - Change<sup>2</sup>
- Engine Coolant Antifreeze - Check
- Batteries - Check
- Battery Cables and Connections - Check
- Radiator Pressure Cap - Check

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

- Drive Belt, Cooling Fan - Check
- Cooling Fan Belt Tensioner - Inspect for Reuse
- Air Compressor Discharge Lines - Check

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

- Cooling System - Check<sup>3</sup>
- Vibration Damper, Viscous - Check
- Engine Steam Cleaning - Clean
- Radiator Hoses - Check

## **Maintenance Procedures at 120,000 Kilometers [75,000 Miles] or 2500 Hours (Section 8)**

- Crankcase Ventilation Filter - Change

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

- Overhead Set - Adjust

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

- Aftertreatment Diesel Particulate Filter - Clean<sup>4</sup>
- Aftertreatment Diesel Exhaust Fluid Dosing Unit Filter - Change

### NOTES:

1. If the oil drain interval being used is greater than 24,000 Kilometers [15,000 mi], as determined by the Oil Drain Intervals section below, the fuel filter change can be extended until the oil drain interval.
2. The oil drain intervals are based on an engine equipped with a 14.2 liter [15 qt] capacity lubricating oil pan and a normal duty cycle. For detailed information on oil drain intervals for a specific application/duty cycle, see the Oil Drain Intervals section of this procedure.
3. Check the coolant for correct formulation.
4. 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/SL and/or C.E.S. 20078 is used, the service intervals for the aftertreatment systems will be reduced to 241,000 km [150,000 mi] or 5000 Hours.

Follow the manufacturer's recommended maintenance procedures for the starter, alternator, generator, batteries, electrical components, charge air cooler, radiator, air compressor, air cleaner, refrigerant compressor, and fan clutch.

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 inoperable and affect the warranty coverage on the engine system.

## Oil Drain Intervals

The lubricating oil and lubricating oil filter interval can be adjusted based on application, fuel consumption, gross vehicle weight, and idle time.

Use the following questions to determine the maximum recommended oil change and filter change intervals in kilometers, miles, hours, or months, whichever comes first.

Is the vehicle one of those listed below?

- Delivery Truck
- School Bus
- Fire Truck or Emergency Vehicle

If Yes, select the correct oil drain interval from Table 1. If No, is the vehicle one of those listed below?

- Refuse Truck
- Mixer Truck or Dump Truck

If Yes, select the correct oil drain interval from Table 2. If No, is the vehicle one of those listed below?

- Shuttle Bus
- Transit Bus

If Yes, select the correct oil drain interval from Table 3.

If the vehicle is a recreational vehicle or a vehicle that is **not** listed, select the correct oil drain interval from Table 4.

Table 1: Maximum Oil Drain Interval	
(A) Severe-Duty (If Vehicle Meets Any of These Conditions)	(B) Normal-Duty (If Vehicle Meets Both Conditions)
Average fuel economy is less than 2.98 km/liter [7 mpg], or idle time is 40 percent or greater, or vehicle operates in dusty conditions, or gross vehicle weight is greater than 20,865 kg [46,000 lb].	Average fuel economy is greater than 2.98 km/liter [7 mpg] and gross vehicle weight is less than 20,865 kg [46,000 lb].
Vehicle uses the severe-duty oil drain interval (A)	Vehicle uses the normal-duty oil drain interval (B)
If equipped with a 14.2 liter [15 qt] oil pan <sup>1</sup> : 14,500 km [9000 mi], 500 hours, 6 months, or 7571 liters [2000 gallons] of fuel, whichever comes first.	If equipped with a 14.2 liter [15 qt] oil pan <sup>1</sup> : 24,000 km [15,000 mi], 500 hours, 6 months, or 7571 liters [2000 gallons] of fuel, whichever comes first.

Table 1: Maximum Oil Drain Interval

(A) Severe-Duty (If Vehicle Meets Any of These Conditions)	(B) Normal-Duty (If Vehicle Meets Both Conditions)
If equipped with a 17 liter [18 qt] oil pan <sup>1</sup> : 19,000 km [12,000 mi], 550 hours, 6 months, or 7571 liters [2000 gallons] of fuel, whichever comes first.	If equipped with an 18 liter [19 qt] oil pan <sup>1</sup> : 32,000 km [20,000 mi], 550 hours, 6 months, or 7571 liters [2000 gallons] of fuel, whichever comes first.

Table 2: Oil Drain Interval

	With 14.2 liter [15 qt] oil pan <sup>1</sup>				With 18 liter [19 qt] oil pan <sup>1</sup>			
	Kilometers	Miles	Hours	Months	Kilometers	Miles	Hours	Months
<b>Refuse Truck, Mixer or Dump Truck</b>								
Below 10 mph average	4850	3000	500	6	6450	4000	550	6
10 to 15 mph average	9650	6000	500	6	12,500	8000	550	6
15 to 20 mph average	13,750	8500	500	6	17,750	11,000	550	6
20 to 25 mph average	14,500	9000	500	6	19,000	12,000	550	6
Above 25 mph average	19,000	12,000	500	6	25,750	16,000	550	6

Table 3: Oil Drain Interval

	With 14.2 liter [15 qt] oil pan <sup>1</sup>				With 18 liter [19 qt] oil pan <sup>1</sup>			
	Kilometers	Miles	Hours	Months	Kilometers	Miles	Hours	Months
<b>Shuttle or Transit Bus</b>								
2 to 4 mph average	2400	1500	500	6	3250	2000	550	6
4 to 6 mph average	4850	3000	500	6	6450	4000	550	6
6 to 8 mph average	6450	4000	500	6	9000	5500	550	6
8 to 10 mph average	8050	5000	500	6	11,250	7000	550	6
10 to 15 mph average	9650	6000	500	6	12,500	8000	550	6

Table 4: Oil Drain Interval

Vehicle/Equipment	With 14.2 liter [15 qt] oil pan <sup>1</sup>				With 18 liter [19 qt] oil pan <sup>1</sup>			
	Kilometers	Miles	Hours	Months	Kilometers	Miles	Hours	Months
Recreational Vehicle	24,000	15,000	500	12	32,000	20,000	550	12
Truck Crane	14,500	9000	500	6	19,000	12,000	550	6
Yard Spotter	14,500	9000	500	6	19,000	12,000	550	6

Table 4: Oil Drain Interval

	With 14.2 liter [15 qt] oil pan <sup>1</sup>				With 18 liter [19 qt] oil pan <sup>1</sup>			
Vehicle/Equipment	Kilometers	Miles	Hours	Months	Kilometers	Miles	Hours	Months
All Others	14,500	9000	500	6	19,000	12,000	550	6

1. If the type/oil capacity of the oil pan is **not** known:
  - a. Contact a Cummins® Distributor/Dealer
  - b. Determine the capacity of the oil pan option for the engine being serviced. Use QuickServe™ Online and the engine serial number.
  - c. For the first oil drain interval, use the 14.2 liter [15 qt] oil drain interval. When filling the engine with oil, determine the oil capacity of the oil pan.

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