

<b>Service Circular Number</b>	<b>Date</b>
FC/WA/2011/61	04- September-2011
<b>Engine Family</b>	<b>Fuel Pump Family</b>
6 BT 5.9Lts BS 3 Mech	Rotary
<b>Design Application</b>	<b>Market Application</b>
Automotive	All



## Engine Oil Thickening in BS3 Mechanical Engines

### Purpose:

This service communication outlines guidelines to inspect and correct engine oil thickening and proper application of flushing solvent for engine cleaning on 6 BT 5.9Lts 4Valve BS III Engines. The purpose of this Service Bulletin is to update and simplify Cummins recommendations and guidelines for the end user.

Cummins recommends using only high quality, engine cleaning agent, such as "BARDAHL" engine tune up and flushing solvents available in Market for diesel engine cleaning.

### Scope:

**6BT 5.9Lts BS 3 Mech Engines with Valvoline CI4+ engine oil and Venturi combo filter.**

#### **A. How to differentiate Black and Thick engine oil**

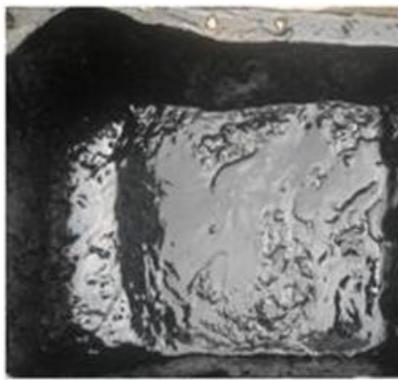
Valvoline Premium Blue Plus engine oil ( fresh oil ) has golden yellow colour ,this oil turns black after few hours of engine operation which is a normal phenomena.



**Fresh Oil**



**Oil (turning black ) after running few hours**



**Thick Oil**

**B. Following process must be followed to carry out flushing of engine oil on complaint engine.**

- Run engine for 15 Min to warm up, clean drain plug area and then open and allow oil to drain out completely.
- Oil in semisolid condition does not flow out from oil passage inside engine easily. Hence sufficient time must be allowed for oil to completely drain out from engine .
- Assemble drain plug and fill engine with recommended oil 10 Ltrs only add one ltr flushing solvent ( Bardhal)
- Run engine in low idle for 45 -60 minutes ,drain the oil and allow to completely dry.
- Remove valve cover and inspect for carbon deposits on valve rocker parts and cover inside.
- If still soot deposits observed in overhead repeat flushing process .
- Remove oil pan and inspect for any sludge deposition ,clean if any.
- Replace oil filter and charge engine with 16.4 Ltrs CI4+ Engine oil.
- Run engine for 10 minutes ,check and verify correct oil level in gauge



**After Flushing**



**Thick oil deposition before flushing.**



**Bardahl solvent.**



**Bardahl Sales  
network.xls**

**C. Following inspection is mandatory to identify reason for oil thickening before specified drain interval even with use of CI 4 + oil and Venturi Combo filter .**

- Check valve clearance and adjust if required. Inlet 0.25 mm ,Exhaust 0.50 mm
- Blow by at High idle maximum permissible 12 inch water column
- Calibrate fuel pump as per Bosch chart (attached)
- Check Injectors for NOP and spray pattern
- Set Fuel pump static timing 1.25 mm
- Run engine and verify oil pressure (low idle 0.65 bar ,high idle 2.5 bar)
- Watch out for any abnormal noise
- Monitor vehicle for next oil change interval



