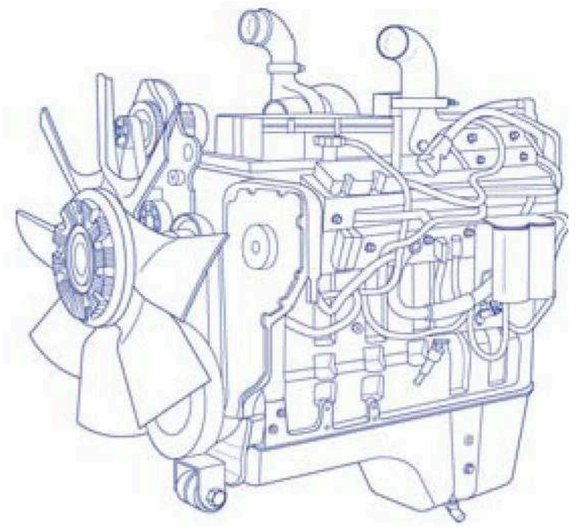


NEW HOLLAND

REPAIR MANUAL

8.3 & 9.0L 6 Cylinder, 24 Valve CNH Engine with High Pressure Common Rail Fuel System

NEW HOLLAND

SERVICE

87515684

2/06

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ENGINE - Problem solving (B.10.A - G.40.A.30)

OPERATION

This guided procedure is designed to deal with a broad base of symptoms related to driveability, performance and power.

- In general, driveability describes vehicle performance on the job. Driveability problems for an engine can be caused by several different factors. Some factors are engine-related; others are not. Before troubleshooting, determine the exact complaint and whether the engine has a real driveability problem or if it simply does not meet the owner/operator expectations.
- Low power is a phrase used to describe many different performance problems. Low power is herein understood as "the inability of the engine to produce the power necessary to move the vehicle at a speed that can be reasonably expected under the given conditions of load, grade, wind, etc.
- Poor acceleration or response is described as the inability of the vehicle to accelerate from a stop or from the bottom of a grade under the given load conditions. It can also refer to a lag in acceleration when the vehicle is working at less than rated speed and load.
- This guided procedure can be used to troubleshoot all the performance based symptoms listed in the table below:

TROUBLESHOOTING

Begin by performing basic troubleshooting procedures:

1. Check for active fault codes or high counts of inactive fault codes.
   - Turn keyswitch ON.
   - Connect INSITE® electronic service tool.
   - Use INSITE® to review fault codes.
   - Follow the guided troubleshooting for the fault code(s).
2. Verify the following items before continuing:
   - Verify the fuel level in the tanks.
   - Verify that there have NOT been any changes to control part list components on the engine.
   - Verify fuel grade is correct for application.
   - Verify the engine is operating within the recommended altitude.
   - Verify engine oil is at the correct level.
   - Verify engine parasitics have NOT changed.
   - Verify engine duty cycle has NOT changed.
   - Verify engine cranking speed is greater than 150 rpm.
   - Verify battery voltage is correct.
3. Proceed to **ENGINE - Testing (B.10.A - G.40.A.20)** to clarify the symptom while interviewing the owner/operator.

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Sensing system Air temperature sensor - Remove (B.30.A.95.80 - F.10.A.10)

Intake manifold air temperature and pressure sensor

1. Disconnect the engine harness connector from the combination air temperature and pressure sensor on the manifold cover.



RGPH05CDC343ABA 1

2. Remove the Torx® screw and remove the sensor from the cover.



RGPH05CDC321ABA 2

Next operation: Sensing system Air temperature sensor - Visual inspection (B.30.A.95.80 - F.40.A.10)

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If internal engine damage is suspected as the cause of excessive blowby, other actions can be performed to confirm the damage. These actions include:

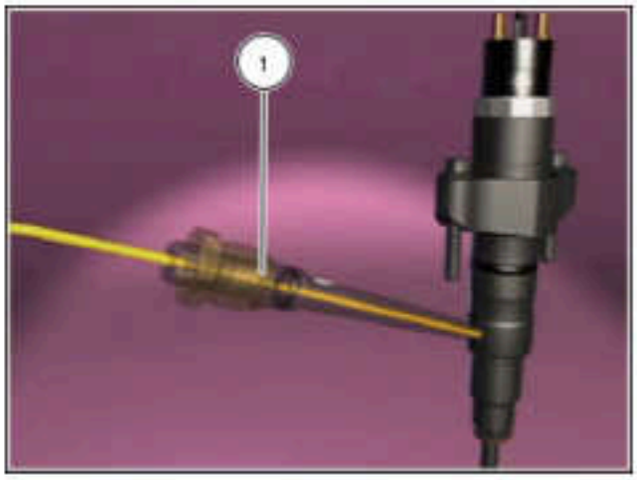
- Confirming engine maintenance practices
- Opening the oil filter and checking for debris
- Taking an oil sample and inspecting for contamination

Blowby conversion

mm (in) of H2O	Liter (cfm) per minute
This table is only valid for the blowby test tool using the 7.67 mm (0.302 in) orifice.	
25.4 mm (1.0 in)	50 l/min (1.766 cfm)
50.8 mm (2.0 in)	84 l/min (2.966 cfm)
76.2 mm (3.0 in)	103 l/min (3.637 cfm)
101.6 mm (4.0 in)	119 l/min (4.202 cfm)
127.0 mm (5.0 in)	133 l/min (4.697 cfm)
152.4 mm (6.0 in)	145 l/min (5.121 cfm)
177.8 mm (7.0 in)	155 l/min (5.474 cfm)
203.2 mm (8.0 in)	164 l/min (5.792 cfm)
228.6 mm (9.0 in)	172 l/min (6.074 cfm)
254.0 mm (10.0 in)	180 l/min (6.357 cfm)
279.4 mm (11.0 in)	187 l/min (6.604 cfm)
304.8 mm (12.0 in)	193 l/min (6.816 cfm)
330.2 mm (13.0 in)	200 l/min (7.063 cfm)
355.6 mm (14.0 in)	206 l/min (7.275 cfm)
381.0 mm (15.0 in)	211 l/min (7.451 cfm)
406.4 mm (16.0 in)	217 l/min (7.663 cfm)
431.8 mm (17.0 in)	222 l/min (7.840 cfm)
457.2 mm (18.0 in)	226 l/min (7.981 cfm)
482.6 mm (19.0 in)	229 l/min (8.087 cfm)
508.0 mm (20.0 in)	235 l/min (8.299 cfm)
533.4 mm (21.0 in)	239 l/min (8.440 cfm)
558.8 mm (22.0 in)	242 l/min (8.546 cfm)
584.2 mm (23.0 in)	246 l/min (8.687 cfm)
609.6 mm (24.0 in)	248 l/min (8.758 cfm)

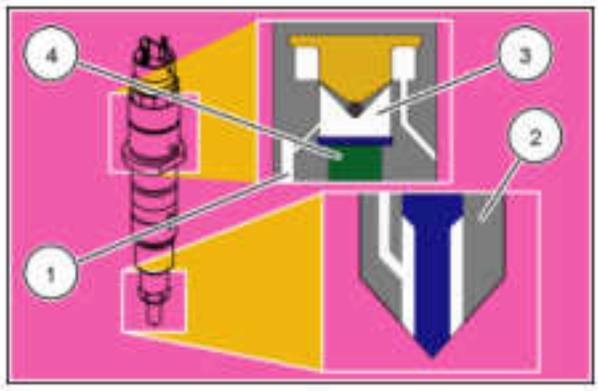
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Edge filters in the high pressure connectors **(1)** collect large particle debris. If an injector is replaced, a new high pressure connector must be installed.

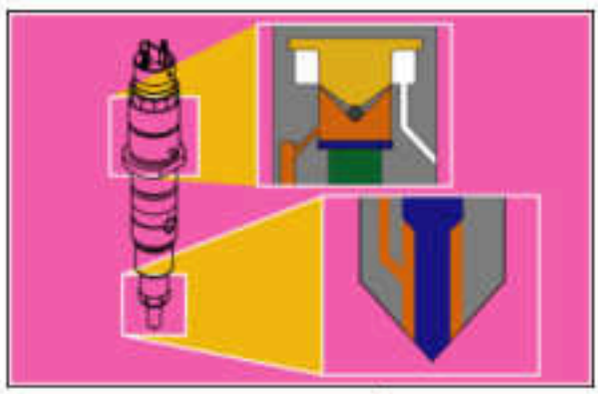


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At the injector, fuel flows through the injector inlet passage **(1)**, pressurizing the injector nozzle **(2)** and the control chamber **(3)** above the injector plunger **(4)**.

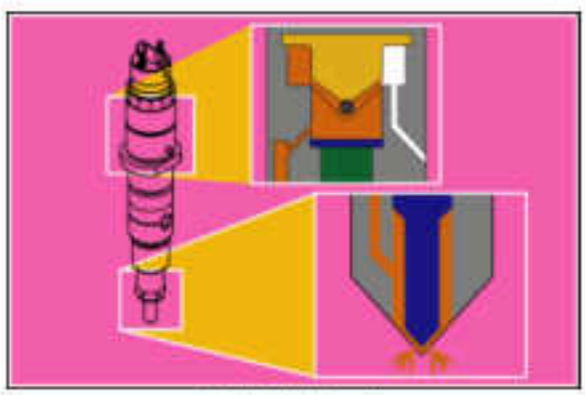


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Injection begins when the ECM energizes the coil and allows the valve ball to lift off of its seat. This allows fuel to flow out of the control chamber to drain, reducing the pressure in the chamber. The reduced pressure in the control chamber above the plunger allows the needle to lift off of its seat and high pressure fuel to flow into the cylinder from the nozzle.



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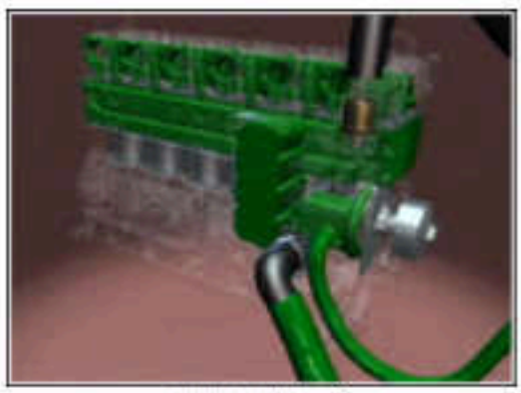
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The coolant in the lower water jacket in the cylinder head connects to the upper water jacket through a series of passages in the cylinder head.



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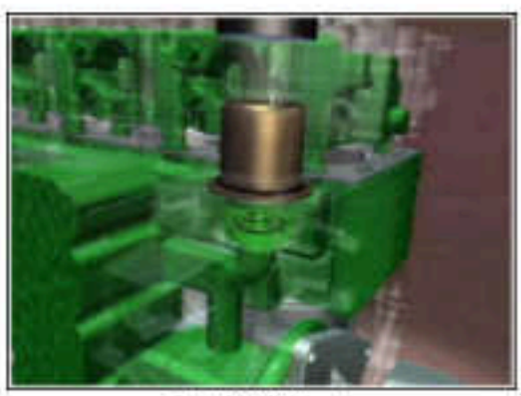
The coolant then flows across the cylinder head, down into the upper water manifold in the engine block, and then forward to the integral thermostat housing.



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When the engine is below **82 °C** (**180 °F**), the thermostat is closed, allowing the coolant to bypass the radiator and flow back to the water pump inlet through an internal drilling in the cylinder block.

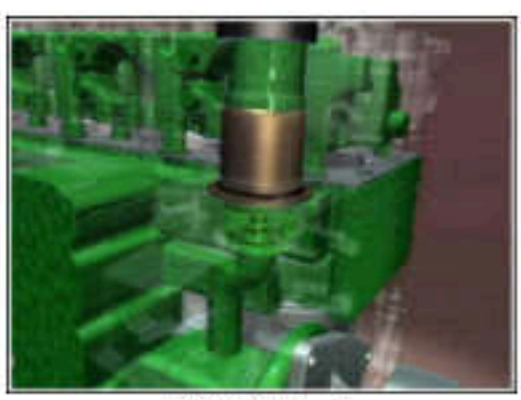
As the coolant temperature increases to **82 °C** (**180 °F**), the thermostat starts to open and coolant flow to the bypass begins to be restricted.



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When the engine operating temperature increases to **91 °C** (**195 °F**), the thermostat completely opens blocking the bypass passage to the water pump and opening the outlet to the radiator.

The engine must never be operated without a thermostat. Without a thermostat the coolant recirculates, bypassing the radiator, causing the engine to overheat.



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