SERVICE MANUAL

Cursor® 10
Tier 4A (interim) and Stage IIIB
Engine

See the following page for engine model numbers

Part number 51421979
2nd edition English
November 2017
Replaces part number 84586905

Basic instructions - Important notice regarding equipment servicing

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

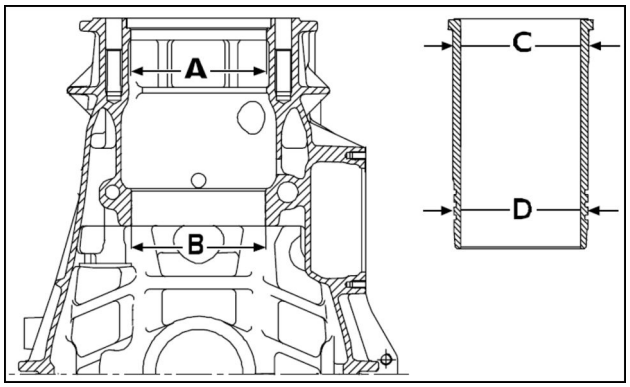
The information in this manual is up-to-date at the date of the publication. It is the policy of the manufacturer for continuous improvement. Some information could not be updated due to modifications of a technical or commercial type, or changes to the laws and regulations of different countries.

In case of questions, refer to your CNH Industrial Sales and Service Networks.

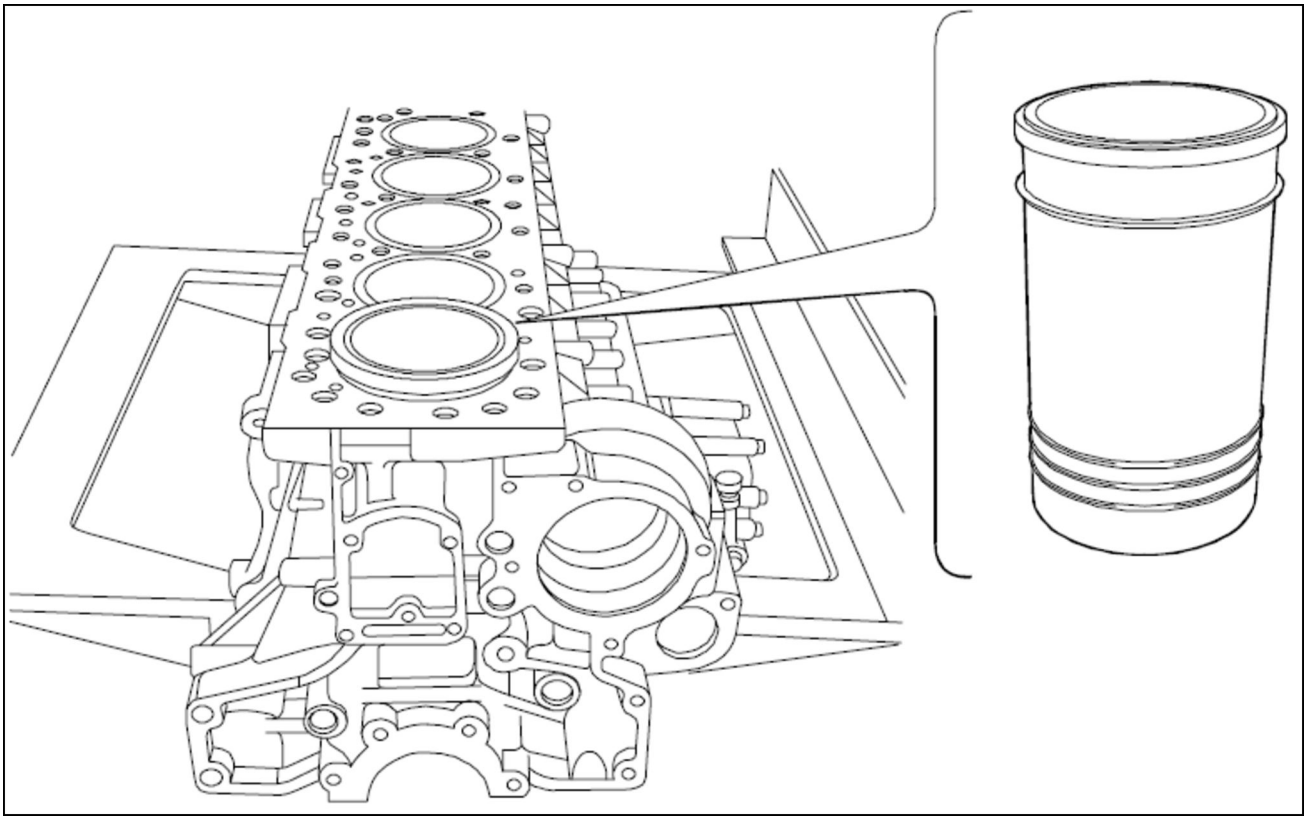
Contents

Engine - 10

5. The diagram shown in the figure gives the outside diameter of the cylinder liner and the inside diameter of its seat. The cylinder liners can, if necessary, be extracted and installed several times in different seats.
   - A = **142.000 – 142.025 mm** (**5.5906 – 5.5915 in**).
   - B = **140.000 – 140.025 mm** (**5.5118 – 5.5128 in**).
   - C = **141.961 – 141.986 mm** (**5.5890 – 5.5900 in**).
   - D = **139.890 – 139.915 mm** (**5.5075 – 5.5085 in**).

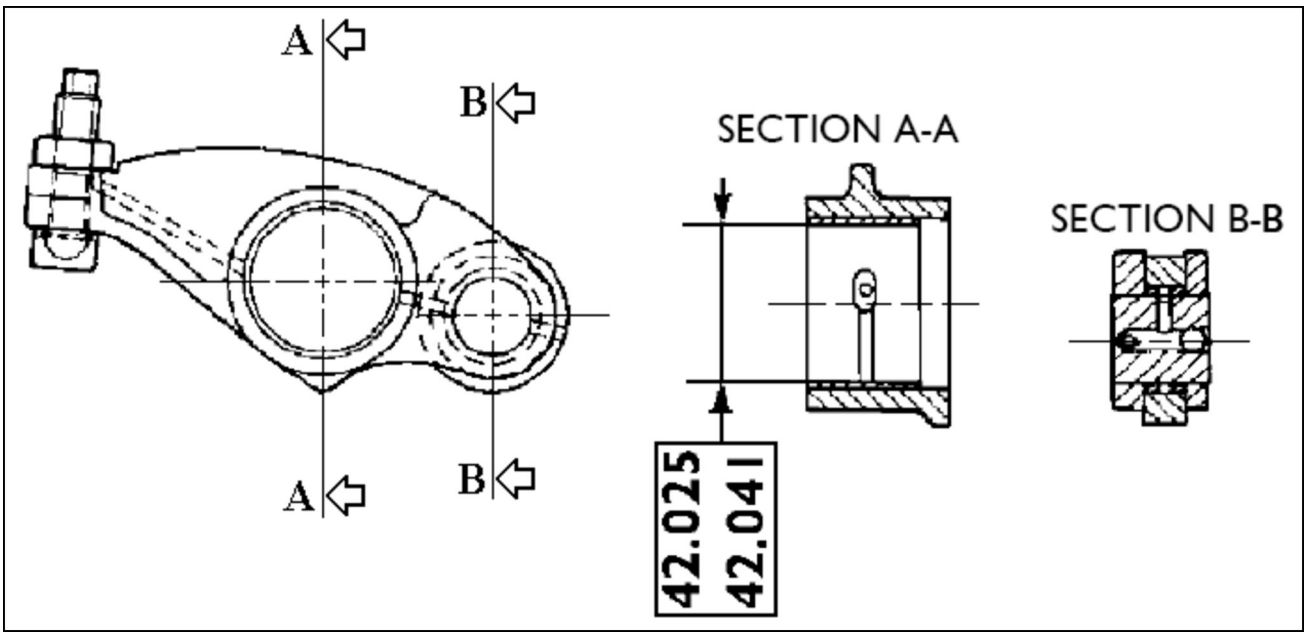


LINERMEASURE3 4



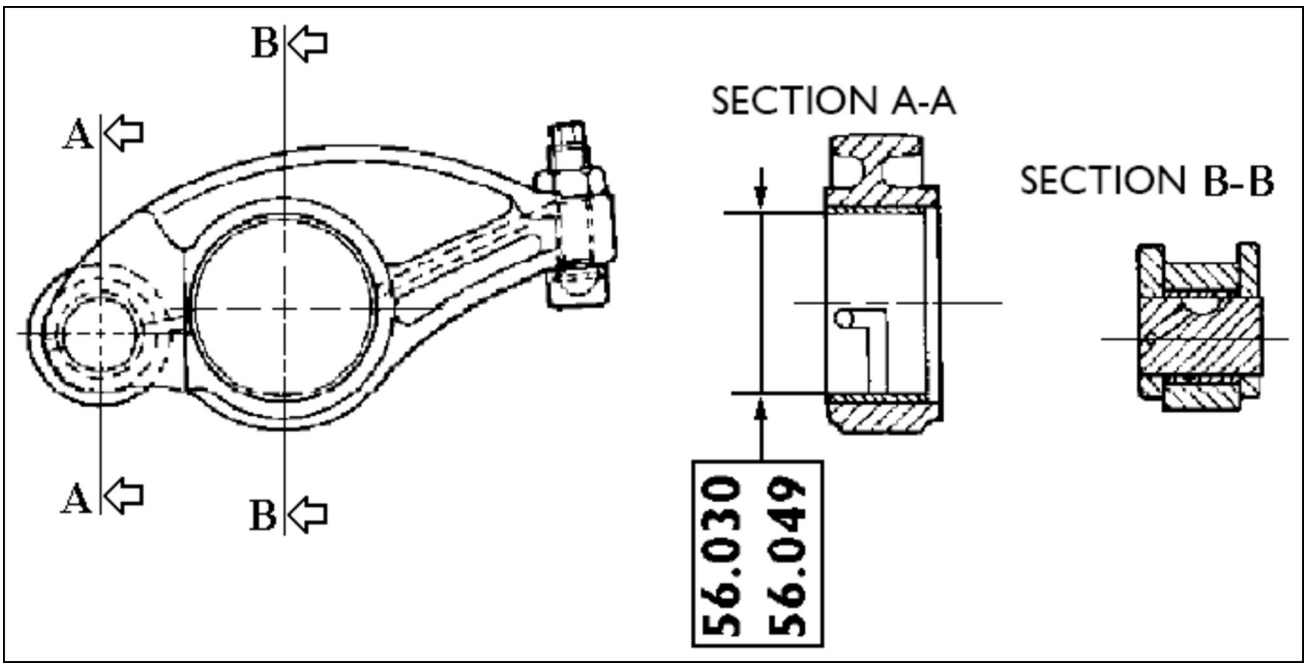
LINERSINBLOCK 5

Crankcase Assembly With Cylinder Liners



EXHAUSTROCKER 4

Intake Rocker
Data shown in mm.

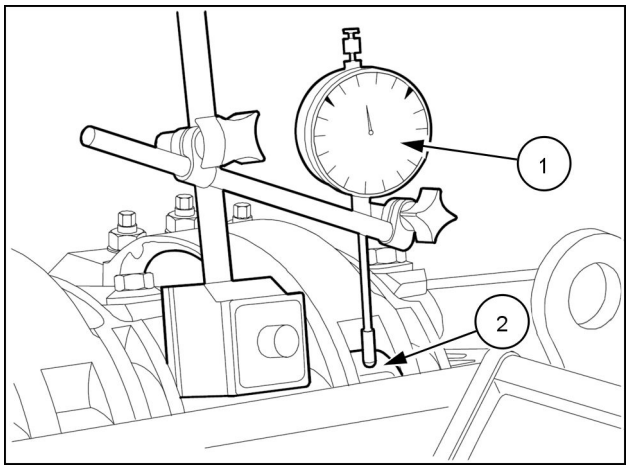


INTAKEROCKER 5

Exhaust Rocker
Data shown in mm.

Camshaft - Timing adjust

1. Set the engine to cylinder number one T.D.C. Refer to **Engine - Service instruction (10.001)** for the proper procedure.
2. Set the dial gauge with the magnetic base **(1)** with the rod on the roller **(2)** of the cylinder number one injector rocker.
3. Pre-load the gauge to **6 mm** (**0.236 in**).
4. Using the tool **380000137**, turn the crankshaft clockwise until the dial gauge reaches the lowest point.
5. Zero the dial gauge.
6. Turn the engine flywheel counterclockwise until the dial gauge gives a reading of **5.34 mm**.

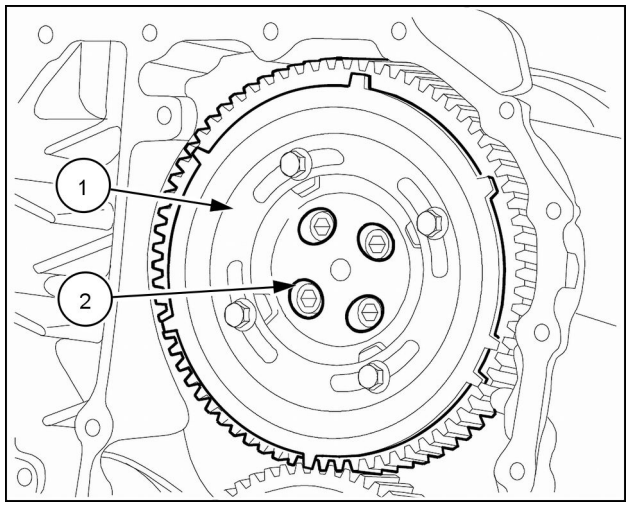


TOPDEADCENTER3 1

7. Loosen the screws securing the cam gear **(1)** to the camshaft and utilize the slots **(2)** on the gear.
8. Turn the engine flywheel appropriately to obtain the conditions described in **Camshaft - Timing check (10.106)**.

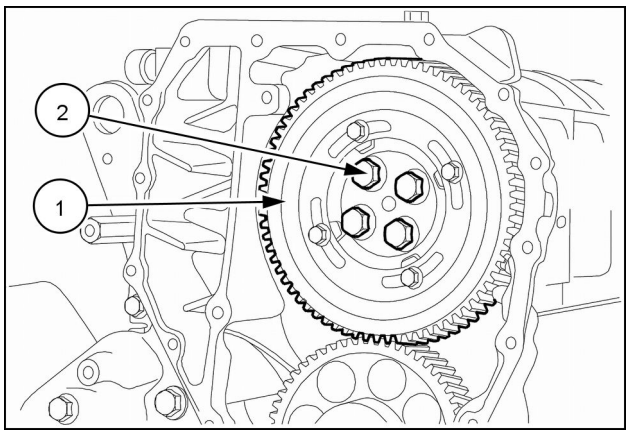
NOTE: *Make sure the reading on the dial gauge does not change while turning the flywheel.*

9. Tighten the screws.



CAMGEAR3 2

10. If the adjustment with the slots is not enough, proceed as follows.
11. Make sure the screws **(2)** securing the gear to the camshaft are tight and turn the engine flywheel clockwise by approximately **180°**.
12. Turn the flywheel counterclockwise until the dial gauge gives a reading of **5.34 mm**.
13. Remove the screws **(2)** securing the camshaft gear and remove the gear **(1)**.



CAMGEAR4 3

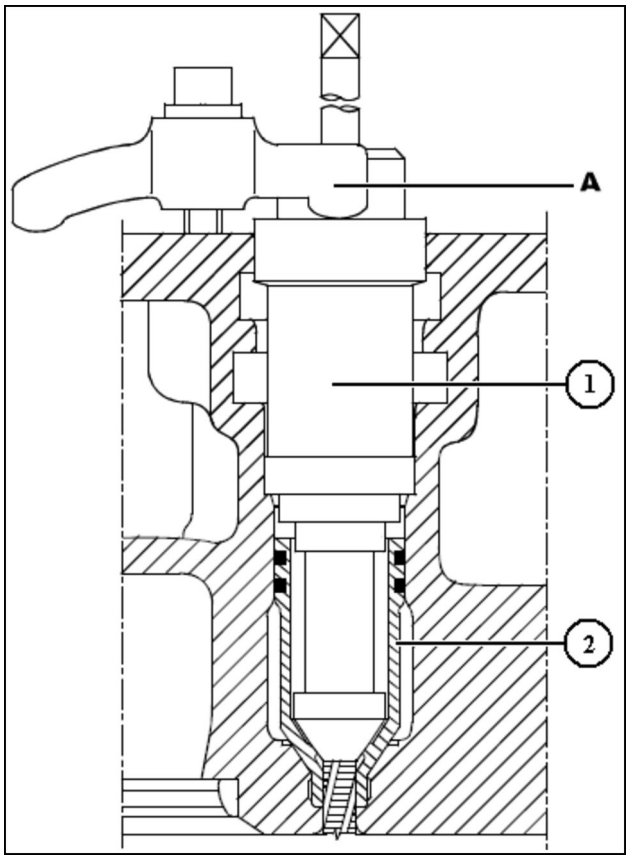
Index

Engine - 10

Valve drive and gears - 106

Cylinder head Injector cup - Replace

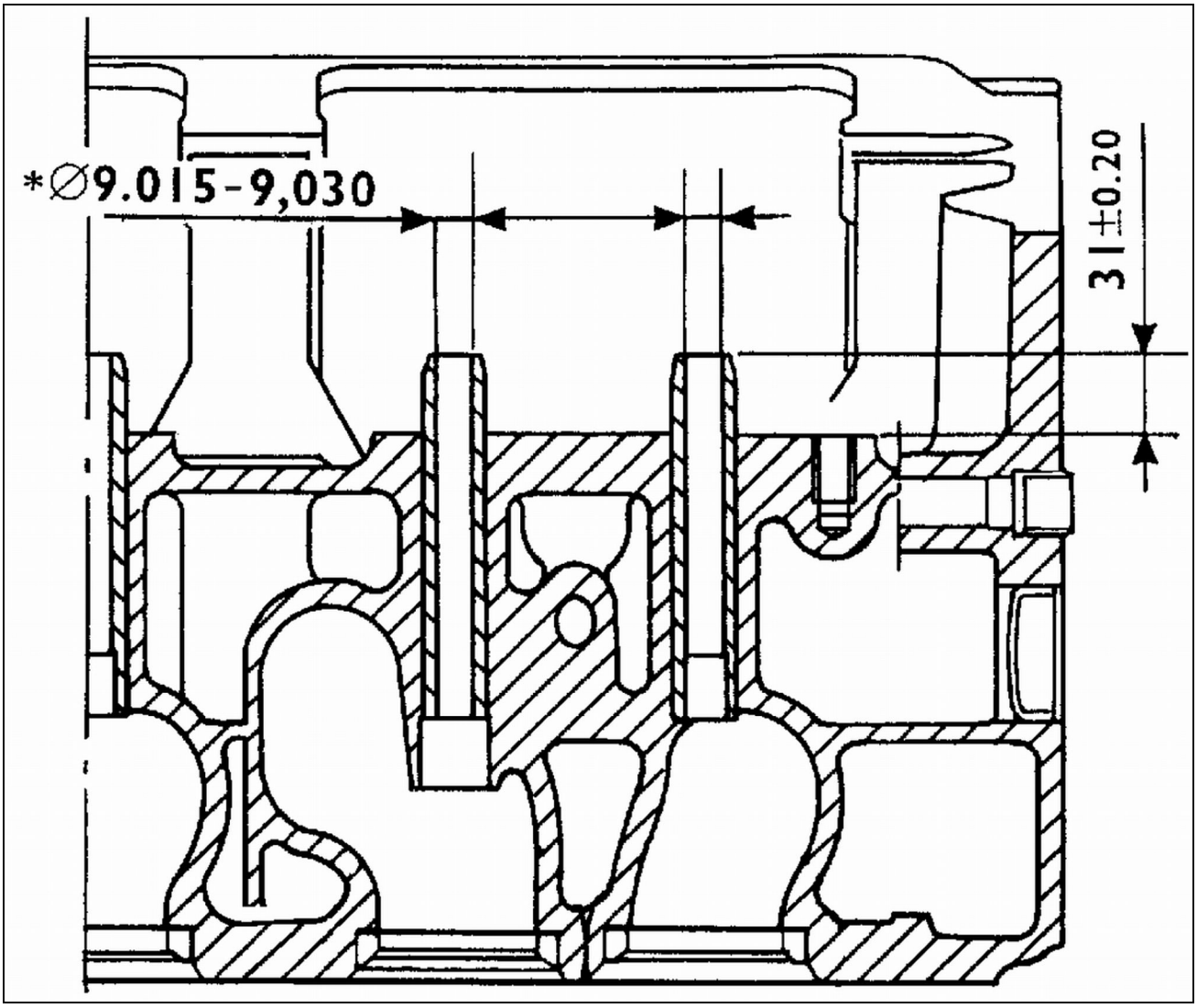
1. To replace the injector cup **(2)**, thread the cup with tool **380000159 (1)**, securing it to the cylinder head by using bracket **(A)**.



INJECTORCUP 1

Valve guide - Replace

Prior operation:
Cylinder head - Disassemble (10.101)



VALVEGUIDE 1

1. Remove the valve guides by means of tool **380000365**.
2. Install the guides using tools **380000365** and **380000136**.
3. Tool **380000136** determines the exact assembly position of the of the valve guides in the cylinder head. If the tool is not available, the guides need to be driven into the cylinder head so they protrude by **30.8 – 31.2 mm** (**1.213 – 1.228 in**).

Next operation:
Cylinder head - Assemble (10.101)

Connecting rod and piston Connecting rod - Measure

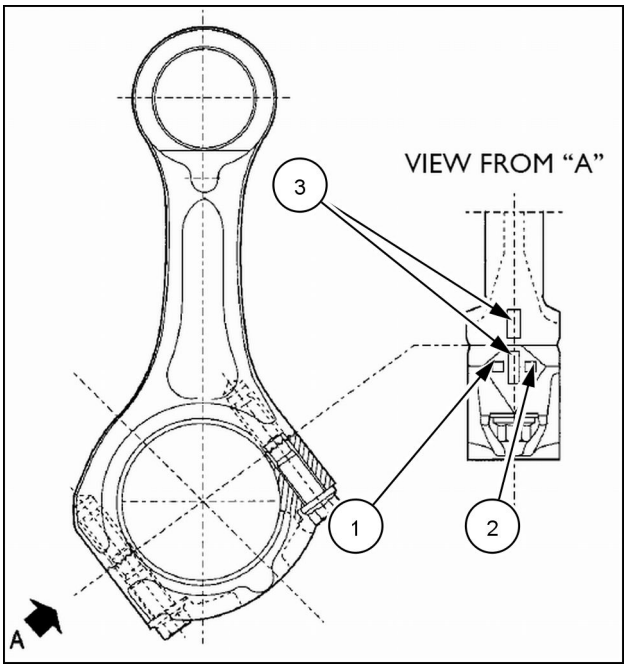
Prior operation:
Connecting rod and piston - Disassemble (10.105)

1. Stamped on the big end of the connecting rods are the data relating to the section in classes relating to the connecting rod seats and weights.

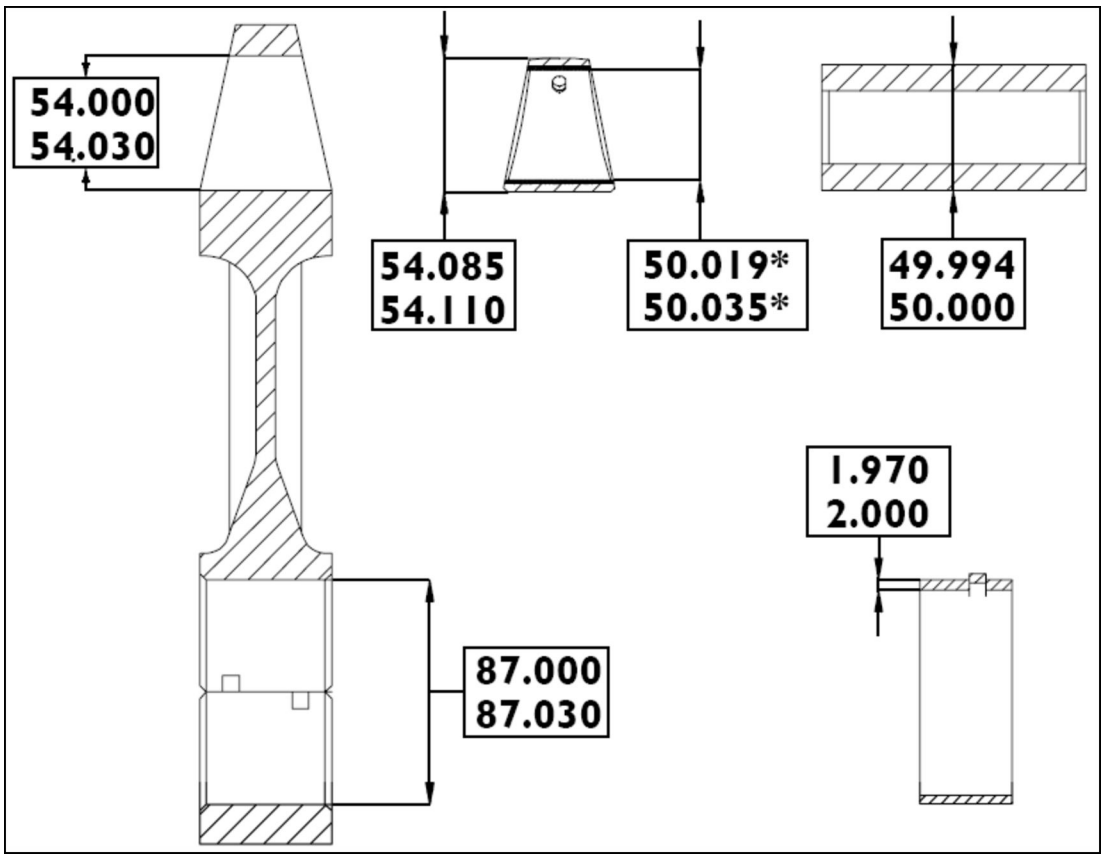
NOTE: *On assembling the connecting rods, check that they are all of the same weight class.*

Connecting rod markings

1. Letter indicating the weight class:
   - A = **4024 – 4054 g** (**141.9 – 143.0 oz**).
   - B = **4055 – 4085 g** (**143.0 – 144.1 oz**).
   - C = **4086 – 4116 g** (**144.1 – 145.2 oz**).
2. Number indicating the diameter selection of the big end bearing seat:
   - 1 = **87.000 – 87.010 mm** (**3.4252 – 3.4256 in**).
   - 2 = **87.011 – 87.020 mm** (**3.4256 – 3.4260 in**).
   - 3 = **87.021 – 87.030 mm** (**3.4260 – 3.4264 in**).
3. Number indicating the diameter selection for the big end bearing housing.



CONNECTINGROD1 1



CONNECTINGROD2 2

Main data of the bushing, connecting rod, pin and bearing halves.
*** Measurements should be made after installing the bushing.**

Index

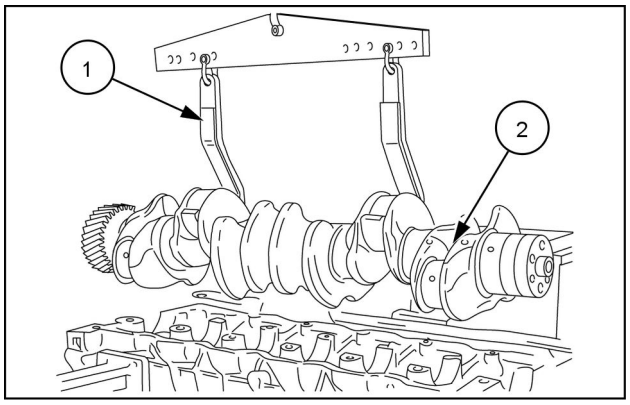
Engine - 10

Connecting rods and pistons - 105

Crankshaft - Remove

Prior operation:
Connecting rod and piston - Remove (10.105)

1. Use tool **380000362 (1)** to remove the crankshaft **(2)**.

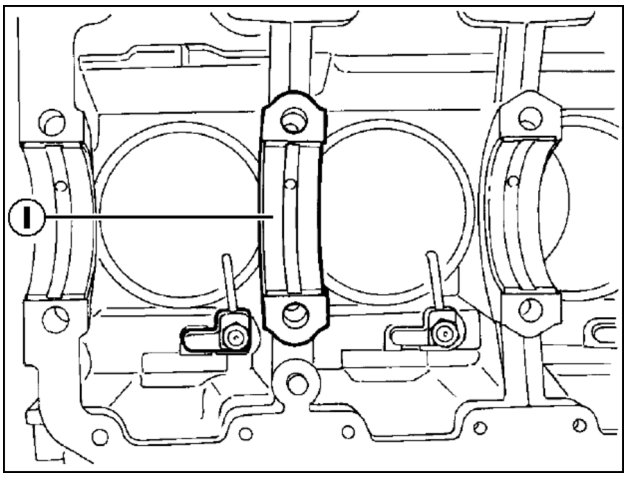


NHIL13ENG0894AA 1

Crankshaft Journal - Clearance

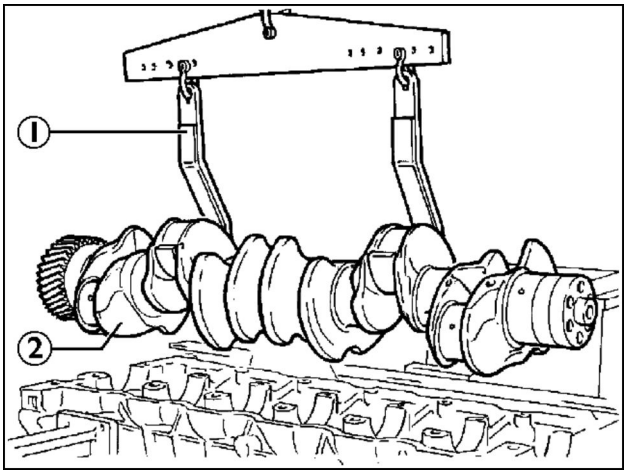
Prior operation:
Crankshaft - Remove (10.103)

1. Install the appropriate main bearing halves **(1)** into their seats in the cylinder block.



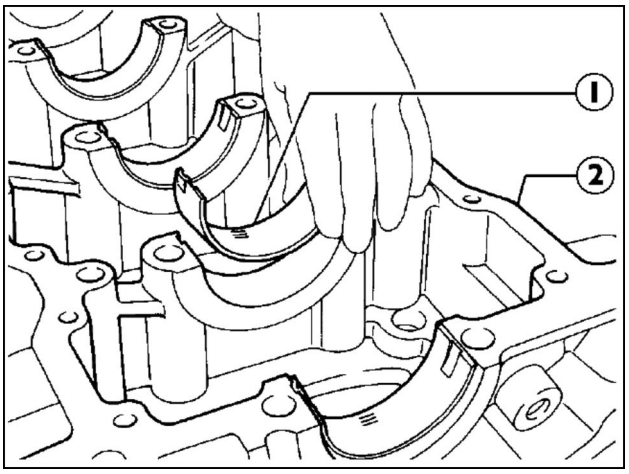
MAINBEARING 1

2. Using the hoist and tool **380000362 (1)**, install the crankshaft **(2)** in the cylinder block.



CRANKSHAFT 2

3. Install the appropriate bearing halves **(1)** into the under block **(2)**.

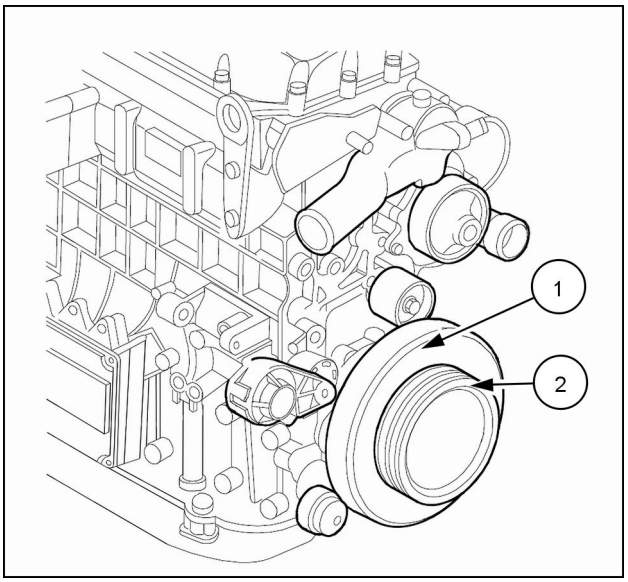


MAINBEARING2 3

Crankshaft damper - Install

Prior operation:
Crankshaft damper - Remove (10.110)

1. Install the vibration damper **(1)** and pulley **(2)** assembly to the crankshaft.
2. Torque the bolts to **70 N·m** (**52 lb ft**) then turn the bolts an additional **50°**.



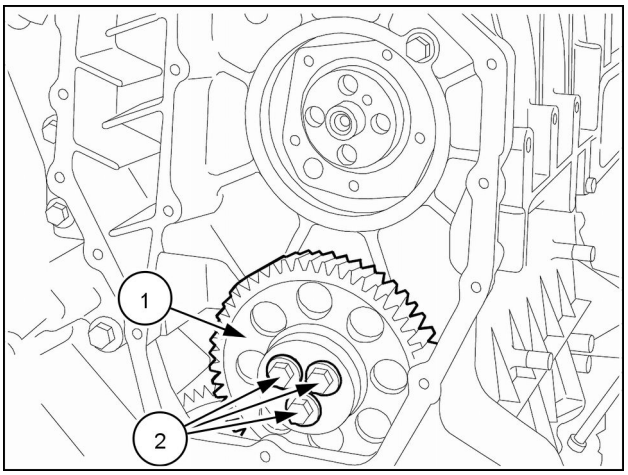
ACCESSORIES 1

Next operation:
Belt - Install (10.414)

Crankcase gears - Remove

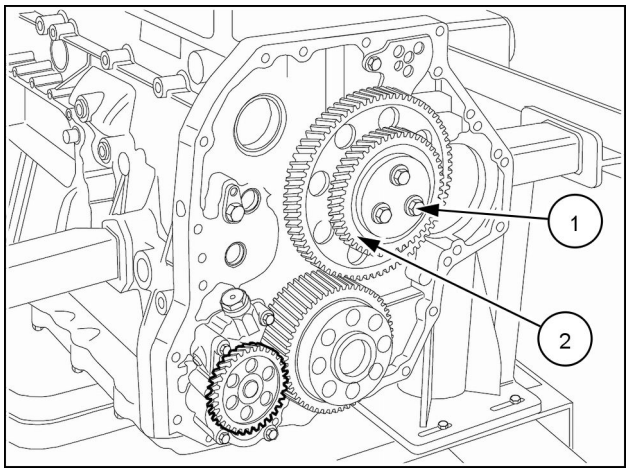
Prior operation:
Camshaft gear - Remove (10.106)

1. Remove the screws **(2)** and remove the upper timing gear **(1)**.



TIMINGGEAR 1

2. Refer to **Engine block cover Rear - Remove (10.102)** before attempting to remove the lower timing gear.
3. Remove the screws **(1)** and remove the lower timing gear **(2)**.

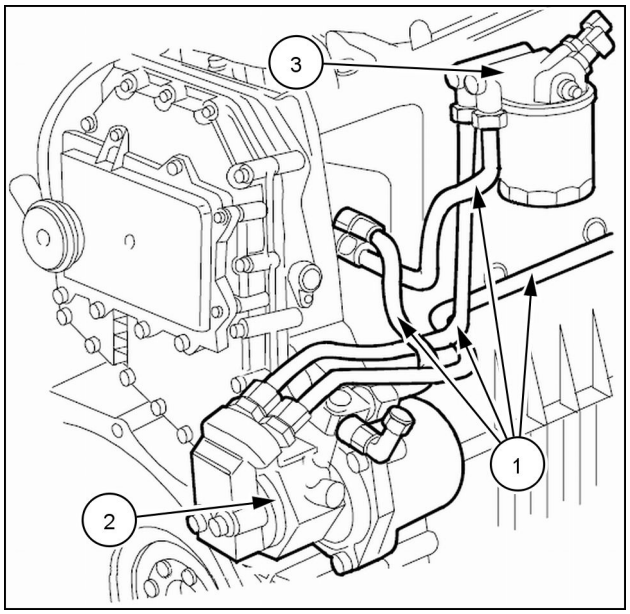


TIMINGGEAR2 2

Next operation:
Crankcase gears - Install (10.114)

Fuel supply lines Low pressure - Install

1. Connect the fuel lines **(1)** to the fuel pump **(2)** and the fuel filter base **(3)**.



TRANSFERPUMP 1

Contents

Engine - 10

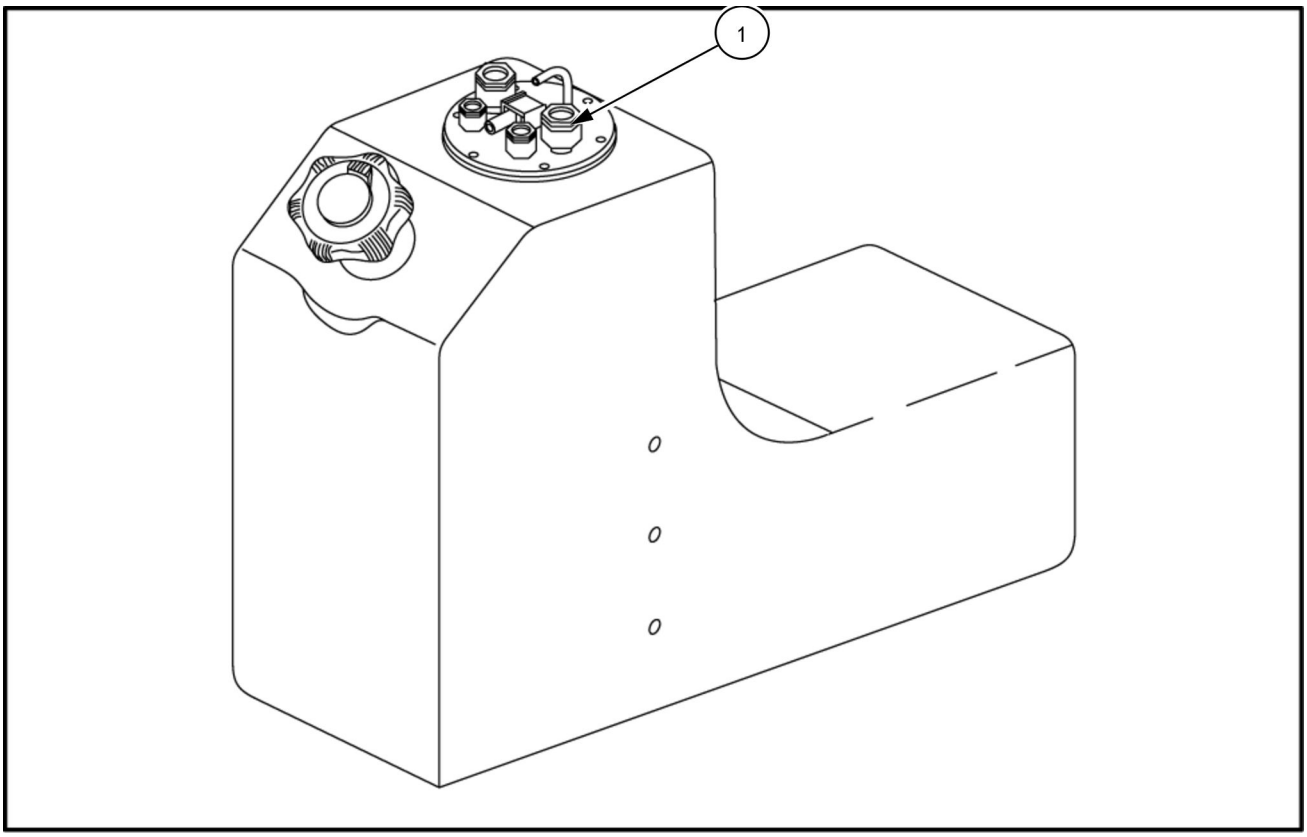
Fuel injection system - 218

Contents

Engine - 10

Intake and exhaust manifolds and muffler - 254

Diesel Exhaust Fluid (DEF)/AdBlue®/ARLA tank - Overview

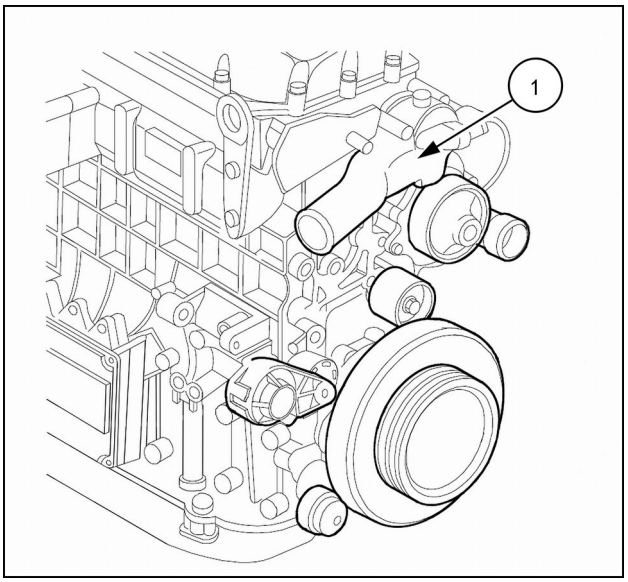


83111724 1

The tank with the level indicator command **(1)** contains the reducing substance necessary for the SCR process, comprising a solution of urea and water (known as DEF/AdBlue®).

Coolant thermostat - Remove

1. Remove the thermostat assembly **(1)**.



ACCESSORIES 1

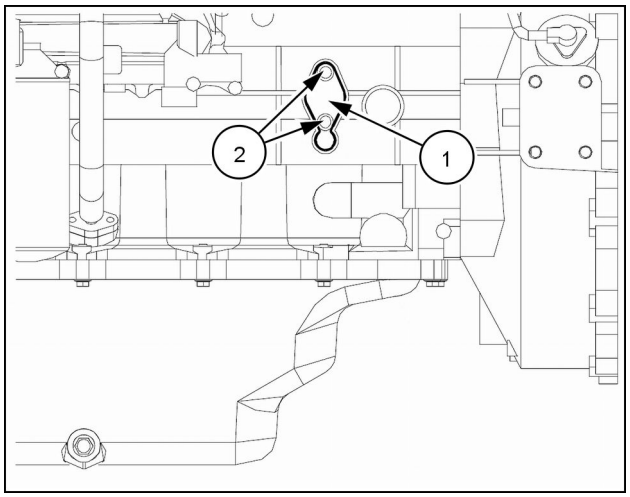
Index

Engine - 10

Fan and drive - 414

Oil pressure valve - Remove

1. Remove the oil pressure adjuster valve **(1)** by removing the two screws **(2)** securing it to the engine block.



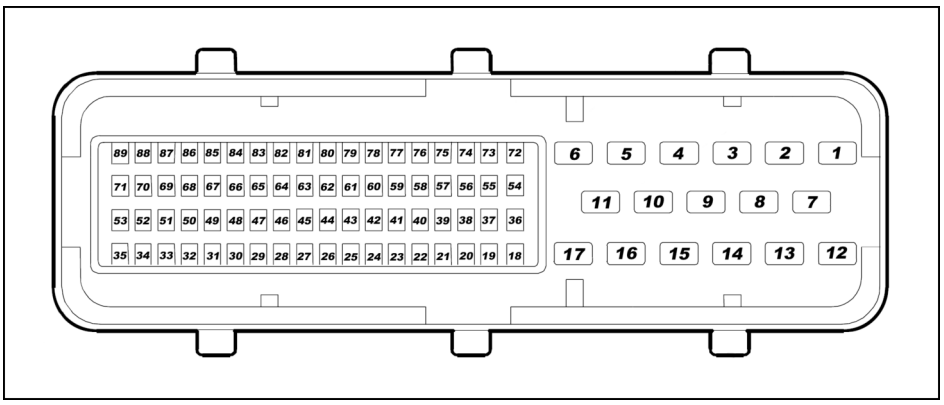
OILPSIREG 1

CNH Industrial America New Holland Site 100 Brubaker Avenue New Holland, Pennsylvania United States 17557

SERVICE - Technical Publications & Tools

PRINTED IN U.S.A.

(53)	-	Free
(54)	-	Free
(55)	-	Free
(56)	-	Free
(57)	-	Free
(58)	-	Free
(59)	-	Free
(60)	-	Free
(61)	-	Free
(62)	-	Free
(63)	-	Free
(64)	-	Free
(65)	-	Free
(66)	-	Free
(67)	-	Free
(68)	-	Free
(69)	-	Free
(70)	-	Free
(71)	-	Free
(72)	-	Free
(73)	-	Free
(74)	-	Free
(75)	9164	Preheating enable relay - (positve)
(76)	-	Free
(77)	-	Free
(78)	-	Free
(79)	-	Free
(80)	-	Free
(81)	-	Free
(82)	-	Free
(83)	-	Free
(84)	-	Free
(85)	-	Free
(86)	-	Free
(87)	-	Free
(88)	-	Free
(89)	2298	EDC control unit diagnosis K line

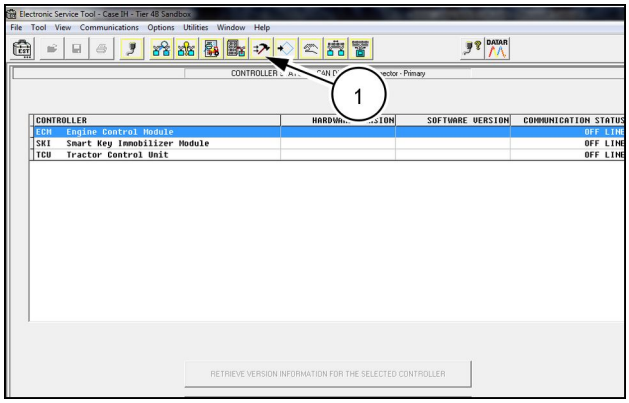


CONNECTORB 4

Chassis connector B

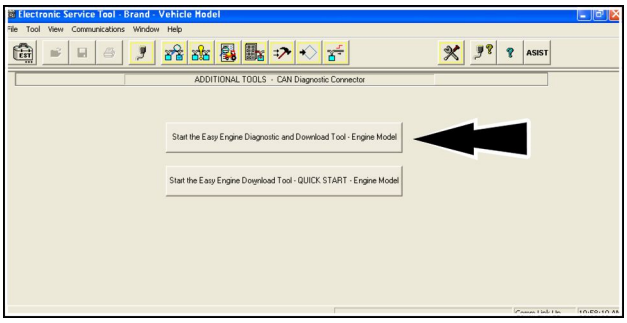
Engine Control Unit (ECU) - View - Recording engine parameters while operating machine

1. Connect the Electronic Service Tool (EST) to a diagnostic port on your machine.
2. Click the “Additional tools” button **(1)**.



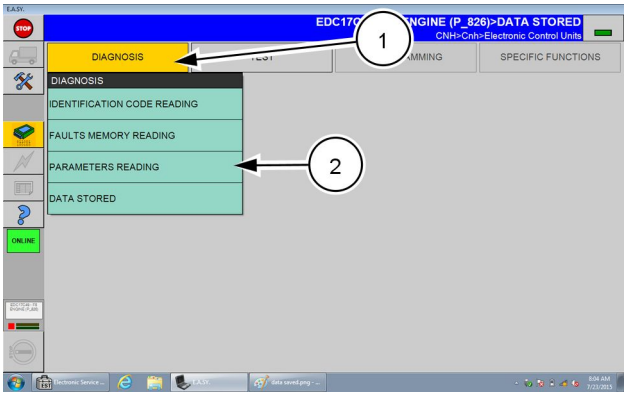
NHPH14ENG0006AA 1

3. Start the Easy Engine software.



NHIL15ENG0222AA 2

4. Under “Diagnosis” **(1)**, click “Parameters Reading” **(2)**.



NHIL15ENG0223AA 3

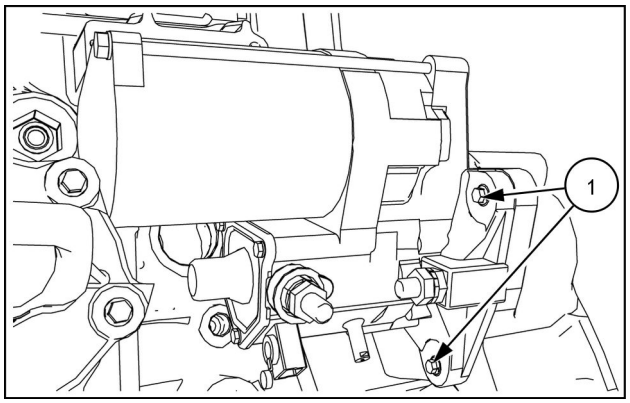
5. Then click on the double arrow icon  .

NOTE: *The selection may be on page 2.*

Engine starter - Remove

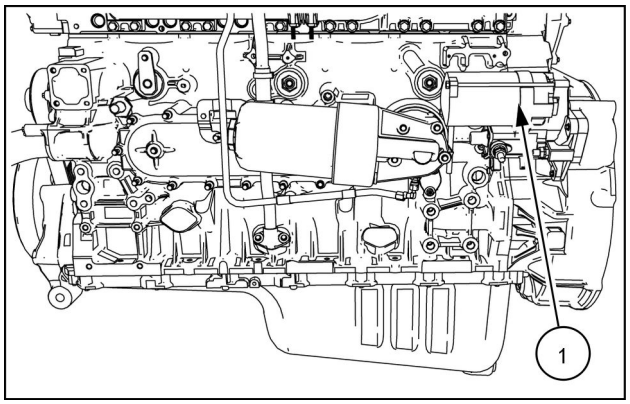
1. Disconnect the cables from the starter and solenoid.
2. Remove the starter retaining bolts **(1)**.

NOTE: *Image shows two of the three retaining bolts.*



NHIL13ENG1417AA 1

3. Remove the starter **(1)** and solenoid as one unit from the rear housing.



NHIL13ENG1402AA 2

Contents

Electrical systems - 55

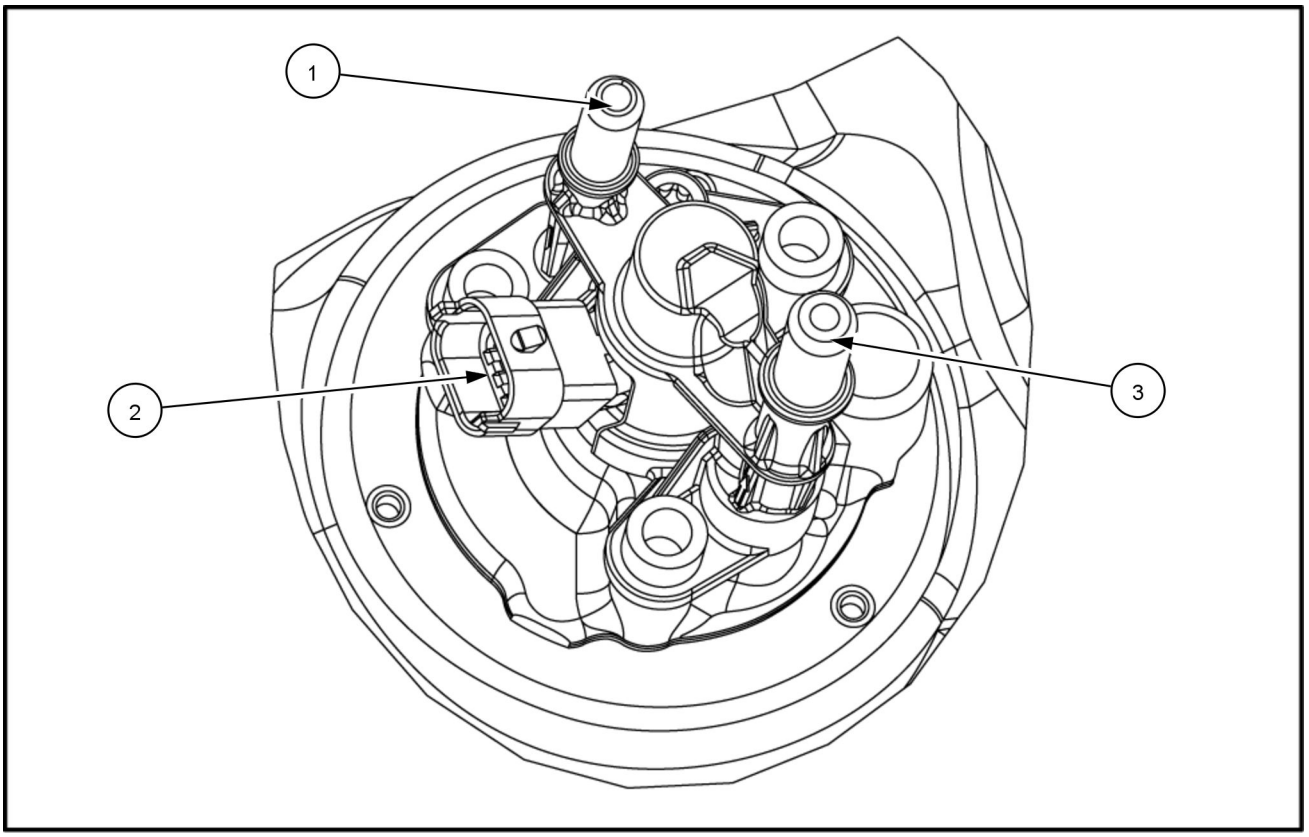
Cold start aid - 202

Contents

Electrical systems - 55

Engine intake and exhaust system - 014

Diesel Exhaust Fluid (DEF)/AdBlue®/ARLA dosing module - Overview



83111727 1

Dosing module

(1) DEF/AdBlue® intake **(2)** Electrical connection **(3)** DEF/ AdBlue® outlet

Has the job of dosing the DEF/AdBlue® solution to be sent into the exhaust pipe upstream of the SCR muffler.