SERVICE MANUAL

NEF
Tier 4A (interim) and Stage IIIB
Engine

See the following page for engine model numbers

CNH INDUSTRIAL

Part number 48076861
1st edition English
November 2016
Replaces part numbers 84392377, 84392386, 84392403, 84392428, 84392452, 84586860

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Component	Size	Specification
Oil pump		
First phase	M8	7 - 9 Nm (5.2 - 6.6 lb ft)
Second phase	M8	20 - 28 Nm (14.8 - 20.7 lb ft)
Oil pressure relief valve	M22	72 - 88 Nm (53.1 - 64.9 lb ft)
Oil cooler and oil filter base	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
Oil Filter		Contact + ¾ Turn
Connection on filter base for turbo oil supply	1 ⅛"	20 - 28 Nm (14.8 - 20.7 lb ft)
Turbo lubrication pipe	M12 Nut	8 - 12 Nm (5.9 - 8.9 lb ft)
Turbo lubrication pipe adapter	M12	30 - 40 Nm (22.1 - 29.5 lb ft)
Oil pan		20 - 28 Nm (14.8 - 20.7 lb ft)
Piston spray nozzles	M8	12 - 18 Nm (8.9 - 13.3 lb ft)
Electrical components		
Camshaft sensor	M6 Studs	6 - 10 Nm (4.4 - 7.4 lb ft)
	M6 Nut	8 - 12 Nm (5.9 - 8.9 lb ft)
	M6 Screw	6 - 10 Nm (4.4 - 7.4 lb ft)
Wiring bulkhead	M6 Screw	8 - 12 Nm (5.9 - 8.9 lb ft)
Support bracket for injector wiring	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
Injector wiring		1.25 - 1.75 Nm (0.92 - 1.29 lb ft)
ECU cooling plate	M6 Screw	8 - 12 Nm (5.9 - 8.9 lb ft)
	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
Fuel outlet	M12	10 - 14 Nm (7.4 - 10.3 lb ft)
Fuel inlet	M12	10 - 14 Nm (7.4 - 10.3 lb ft)
Crankshaft speed sensor	M6 Screw	6 - 10 Nm (4.4 - 7.4 lb ft)
Coolant temperature sensor	M14 Screw	17 - 23 Nm (12.5 - 17.0 lb ft)
Oil pressure / Temperature sensor	M5 Screw	5 - 7 Nm (3.7 - 5.2 lb ft)
Fuel pressure sensor		30 - 40 Nm (22.1 - 29.5 lb ft)
Fuel temperature sensor	M14	17 - 23 Nm (12.5 - 17.0 lb ft)
Air pressure / Temperature sensor		5 - 7 Nm (3.7 - 5.2 lb ft)
Engine oil level sensor	M12	10 - 14 Nm (7.4 - 10.3 lb ft)
Alternator support bracket	M10 Screw	37 - 49 Nm (27.3 - 36.1 lb ft)
Alternator tension bracket	M10 Screw	37 - 49 Nm (27.3 - 36.1 lb ft)
Starter		37 - 49 Nm (27.3 - 36.1 lb ft)
Fuel system and components		
Feed pump	M8 Studs	10 - 14 Nm (7.4 - 10.3 lb ft)
High pressure pump gear	M18 Nut	100 - 110 Nm (73.8 - 81.1 lb ft)
Fuel pump	M8 Nut	20 - 28 Nm (14.8 - 20.7 lb ft)
Injector		
First phase	M6 Screw	8.15 - 8.85 Nm (6.0 - 6.5 lb ft)
Second phase	M6 Screw	70 - 80 °
Injector feed connector		45 - 55 Nm (33.2 - 40.6 lb ft)
Common rail	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
High pressure fuel line	M14 Fitting	18 - 22 Nm (13.3 - 16.2 lb ft)
High pressure pipe connector	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
Fuel filter bracket	M12 Screw	71 - 85 Nm (52.4 - 62.7 lb ft)
Fuel filter holder	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
Fuel filter		Contact + ¾ Turn
Cooling system and components		
Engine coolant inlet	M10 Screw	37 - 49 Nm (27.3 - 36.1 lb ft)
Fitting on coolant inlet	90 ° Elbow	20 - 28 Nm (14.8 - 20.7 lb ft)
Compressor cooling pipe		20 - 24 Nm (14.8 - 17.7 lb ft)
Engine coolant drain collector	M6 Screw	8 - 12 Nm (5.9 - 8.9 lb ft)
Water pump	M8 Screw	20 - 28 Nm (14.8 - 20.7 lb ft)
Belt tensioner	M10	37 - 49 Nm (27.3 - 36.1 lb ft)
Idler pulleys	M10	37 - 49 Nm (27.3 - 36.1 lb ft)

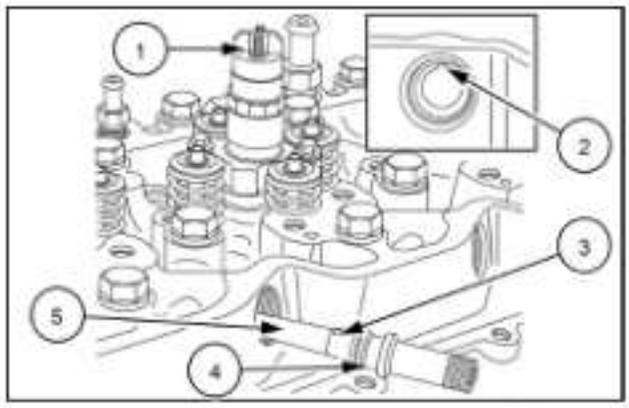
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Fuel injectors Cross tube - Install

NOTICE: *Cross tubes cannot be reused. Replace them with new before installation.*

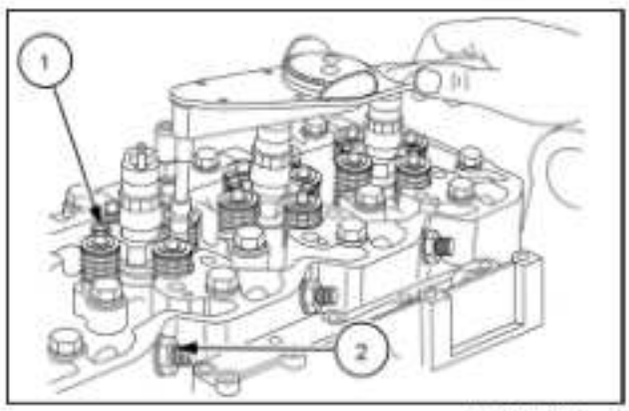
1. Install the o-ring **(4)** on the cross tube **(5)** and lubricate with petroleum jelly.
2. Install the cross tube into the cylinder head so that the positioning ball **(3)** is aligned with the notch in its seat **(2)**.
3. Loosely install the nut on the cross tube.

NOTE: *The injector **(1)** must be loose enough to adjust its position in order to properly seat the cross tube.*



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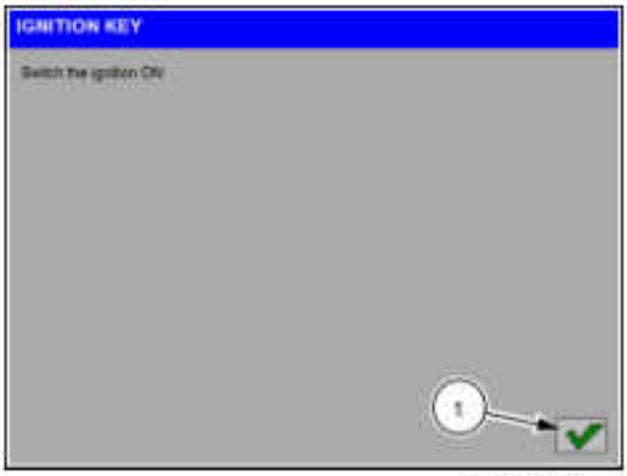
4. Torque the cross tube nut **(2)** to **50 Nm** (**37 lb ft**).
5. Torque the injector bolts. See **Fuel injectors - Install (10.218)** for the full installation procedure.



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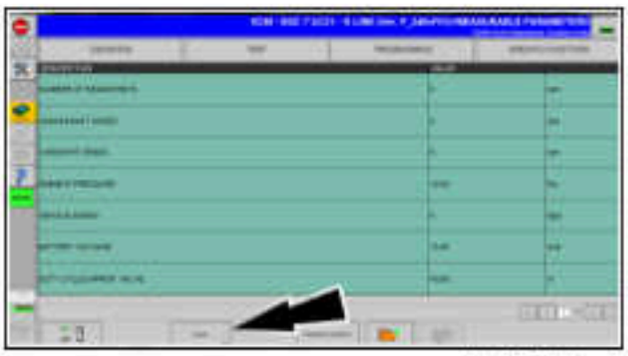
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6. Ignition Key "on" then click the check mark **(1)**.



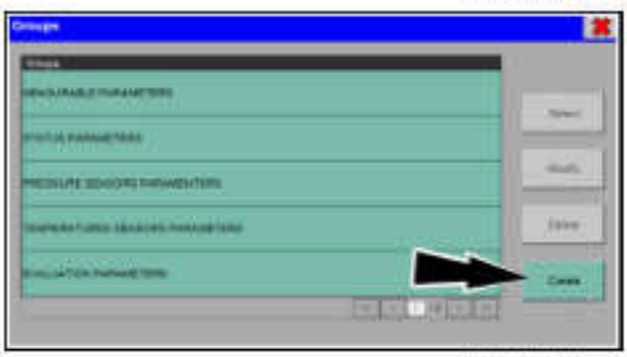
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7. Click on "Groups".



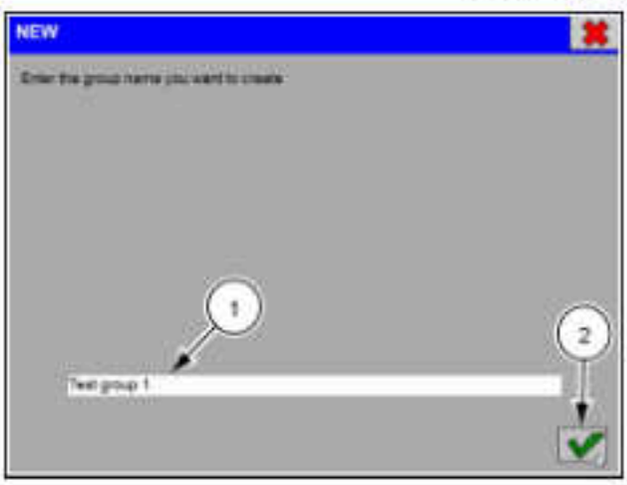
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8. Click on "Create" to build a custom list of engine operating parameters to view.



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9. Enter a name **(1)** for the custom list, then click check mark **(2)**.

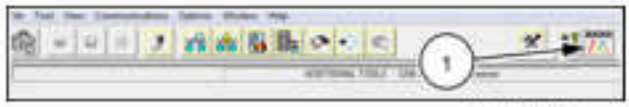


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Fuel injection system - Test using DATAR

1. Select the **DATAR** application **(1)** in the Electronic Service Tool (EST).



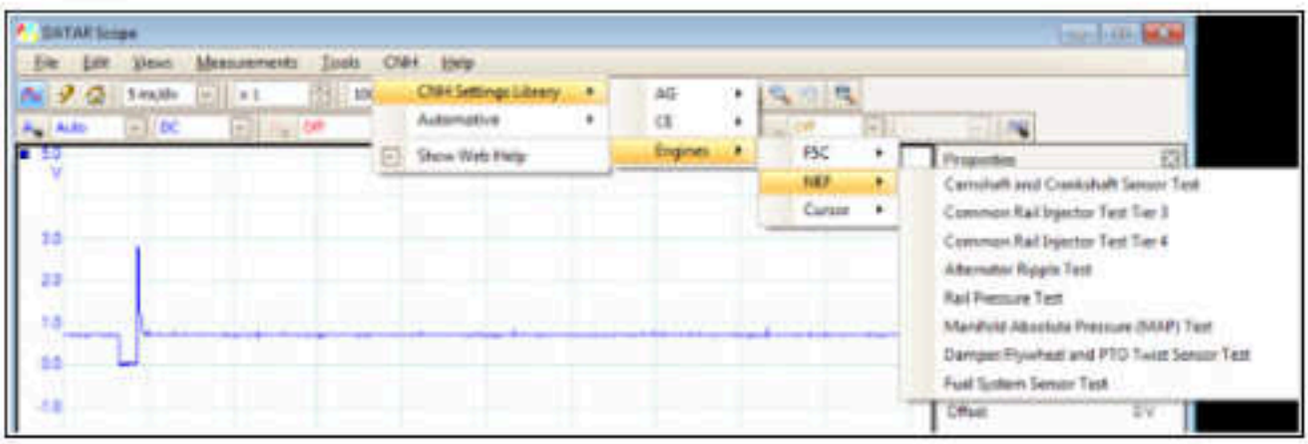
NHL15ENG02484A 1

2. Once the **DATAR** screen is open, select the 'Datar Scope' **(1)**.



NHL15ENG02484A 2

3.
   - Select 'CNH' from the tool bar.
   - Select 'CNH Settings Library'.
   - Select 'Engines'.
   - Select 'NEF'.



NHL15ENG02551AA 3

4. **DATAR** can perform the following fuel system component tests:
   - 'Common Rail Injector Test'
   - 'Rail Pressure Test'
   - 'Fuel System Sensor Test'
5. When the test is selected, follow the on-screen instructions.

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