# SERVICE MANUAL

## F5DFL413A*A001 / F5DFL413A*A002 / F5DFL413B*A006 / F5DFL413C*A003 / F5DFL413D*A003 / F5DFL413D*A004 / F5HFL413A*A001 / F5HFL413B*A001 / F5HFL413B*A002 / F5HFL413C*A001

## Tier 4a

Engine

**Part number 84496722**
1st edition English
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# Contents


INTRODUCTION

Engine ..... 10

Engine and crankcase ..... 10.001

Cylinder heads ..... 10.101

Pan and covers ..... 10.102

Crankshaft and flywheel ..... 10.103

Connecting rods and pistons ..... 10.105

Valve drive and gears ..... 10.106

Fuel filters ..... 10.206

Fuel injection system ..... 10.218

Turbocharger and lines ..... 10.250

Intake and exhaust manifolds and muffler ..... 10.254

Engine lubrication system ..... 10.304

Engine cooling system ..... 10.400

Oil cooler and lines ..... 10.408

Fan and drive ..... 10.414

Exhaust Gas Recirculation (EGR) exhaust treatment ..... 10.501

Electrical systems ..... 55

Engine cooling system ..... 55.012

Engine oil system ..... 55.013

Engine intake and exhaust system ..... 55.014

Engine control system ..... 55.015

Engine starting system ..... 55.201

Cold start aid ..... 55.202

Alternator ..... 55.301




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# Contents

## INTRODUCTION

Foreword - Ecology and the environment ..... 3
Safety rules ..... 4
Basic instructions - Important notice regarding equipment servicing ..... 5
Basic instructions - Shop and assembly ..... 6
Torque - Minimum tightening torques for normal assembly ..... 8



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# Contents

## Engine - 10


Engine and crankcase ..... 10.001
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Cylinder heads ..... 10.101
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Pan and covers ..... 10.102
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Crankshaft and flywheel ..... 10.103
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Connecting rods and pistons ..... 10.105
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Valve drive and gears ..... 10.106
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Fuel filters ..... 10.206
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Fuel injection system ..... 10.218
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Turbocharger and lines ..... 10.250
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Intake and exhaust manifolds and muffler ..... 10.254
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001

Engine lubrication system ..... 10.304
F5DFL413A*A001 , F5DFL413A*A002 , F5DFL413B*A006 , F5DFL413C*A003 , F5DFL413D*A003 , F5DFL413D*A004 , F5HFL413A*A001 , F5HFL413B*A001 , F5HFL413B*A002 , F5HFL413C*A001





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1. Manufacturer's Identification
2. Property Class
3. Clock Marking of Property Class and Manufacturer's Identification (Optional), i.e. marks **60 °** apart indicate Class 10 properties, and marks **120 °** apart indicate Class 8.

## INCH NON-FLANGED HARDWARE

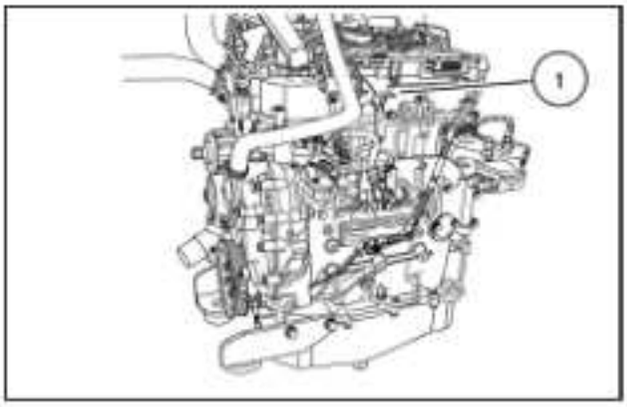
| NOMINAL SIZE | SAE GRADE 5 BOLT and NUT | | SAE GRADE 8 BOLT and NUT | | LOCKNUT GrB W/ Gr5 BOLT | LOCKNUT GrC W/ Gr8 BOLT |
|---|---|---|---|---|---|---|
| | UN-PLATED or PLATED SILVER | PLATED W/ZnCr GOLD | UN-PLATED or PLATED SILVER | PLATED W/ZnCr GOLD | | |
| 1/4 | 8 N·m (71 lb in) | 11 N·m (97 lb in) | 12 N·m (106 lb in) | 16 N·m (142 lb in) | 8.5 N·m (75 lb in) | 12.2 N·m (109 lb in) |
| 5/16 | 17 N·m (150 lb in) | 23 N·m (204 lb in) | 24 N·m (212 lb in) | 32 N·m (283 lb in) | 17.5 N·m (155 lb in) | 25 N·m (220 lb in) |
| 3/8 | 30 N·m (22 lb ft) | 40 N·m (30 lb ft) | 43 N·m (31 lb ft) | 57 N·m (42 lb ft) | 31 N·m (23 lb ft) | 44 N·m (33 lb ft) |
| 7/16 | 48 N·m (36 lb ft) | 65 N·m (48 lb ft) | 68 N·m (50 lb ft) | 91 N·m (67 lb ft) | 50 N·m (37 lb ft) | 71 N·m (53 lb ft) |
| 1/2 | 74 N·m (54 lb ft) | 98 N·m (73 lb ft) | 104 N·m (77 lb ft) | 139 N·m (103 lb ft) | 76 N·m (56 lb ft) | 108 N·m (80 lb ft) |
| 9/16 | 107 N·m (79 lb ft) | 142 N·m (105 lb ft) | 150 N·m (111 lb ft) | 201 N·m (148 lb ft) | 111 N·m (82 lb ft) | 156 N·m (115 lb ft) |
| 5/8 | 147 N·m (108 lb ft) | 196 N·m (145 lb ft) | 208 N·m (153 lb ft) | 277 N·m (204 lb ft) | 153 N·m (113 lb ft) | 215 N·m (159 lb ft) |
| 3/4 | 261 N·m (193 lb ft) | 348 N·m (257 lb ft) | 369 N·m (272 lb ft) | 491 N·m (362 lb ft) | 271 N·m (200 lb ft) | 383 N·m (282 lb ft) |
| 7/8 | 420 N·m (310 lb ft) | 561 N·m (413 lb ft) | 594 N·m (438 lb ft) | 791 N·m (584 lb ft) | 437 N·m (323 lb ft) | 617 N·m (455 lb ft) |
| 1 | 630 N·m (465 lb ft) | 841 N·m (620 lb ft) | 890 N·m (656 lb ft) | 1187 N·m (875 lb ft) | 654 N·m (483 lb ft) | 924 N·m (681 lb ft) |

***NOTE:*** *For Imperial Units,* ***1/4 in*** *and* ***5/16 in*** *hardware torque specifications are shown in pound-inches.* ***3/8 in*** *through* ***1 in*** *hardware torque specifications are shown in pound-feet.*



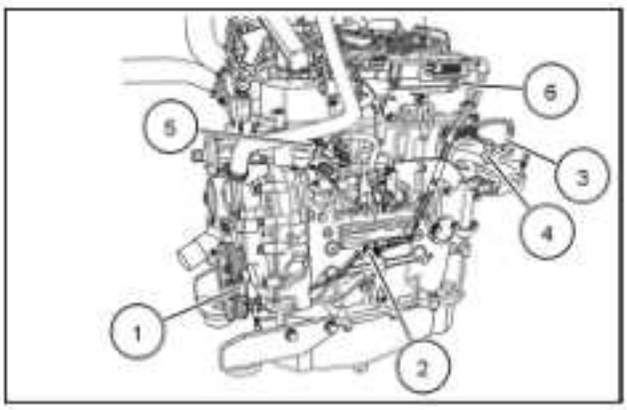
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14. Install the main harness connector bracket **(1)**.




83119804 9

15. Connect the electrical connections and wire ties to the following components:
    - Camshaft speed sensor **(1)**
    - Crankshaft speed sensor **(2)**
    - Oil pressure sensor **(3)**
    - Fuel temperature sensor **(4)**
    - Fuel heater (if equipped)
    - High pressure pump metering unit **(5)**
    - Fuel pressure sensor **(6)**




83119804 10

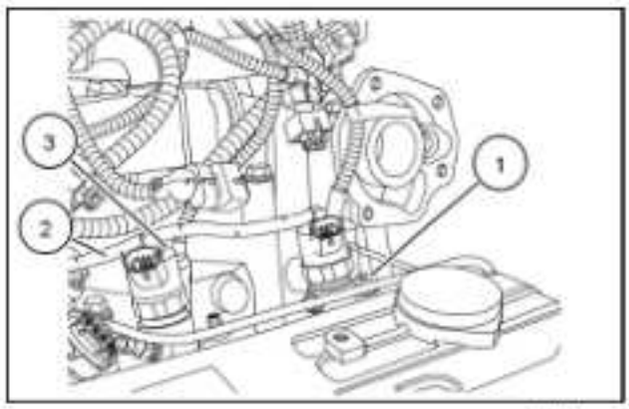


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# Fuel injectors - Install

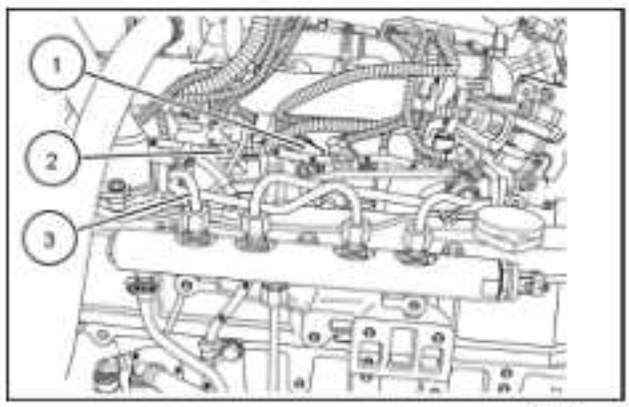
***NOTE:*** *When installing the original injectors, be sure they are installed in the same cylinder from which they were removed. When installing new injectors, the IMA code must be recorded and configured in the Electronic Service Tool (EST). Refer to* ***Electrical system Electronic Service Tool (EST) - Configure (55.000)*** *for the proper procedure.*

1. Install the crush washer onto the injector nozzle.
2. Install the injectors with hold downs into the cylinder head.
3. Loosely install the high pressure fuel lines.
4. Torque the hold down nut **(1)** to **28 N·m** (**21 lb ft**).
5. Install the fuel return lines **(2)** and retain with spring clips **(3)**.



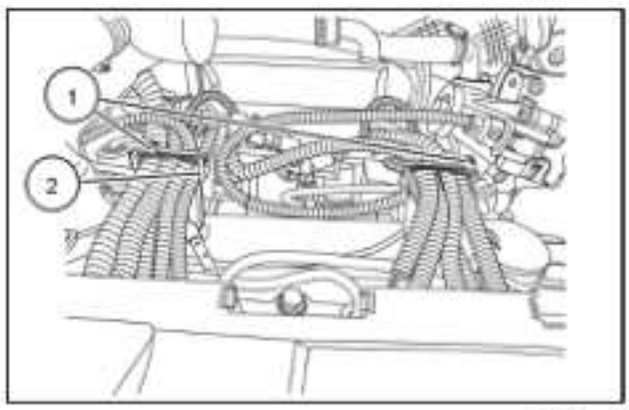

1

6. Tighten the high pressure fuel lines **(3)**.
7. Install the Exhaust Gas Recirculation (EGR) valve. Refer to **Exhaust Gas Recirculation (EGR) valve - Install (10.501)** for the proper procedure.
8. Install the intake manifold temperature/pressure sensor **(1)**.
9. Install the connectors **(2)** for the injectors.




2

10. Bundle the wires as shown and tie them to the wire stands using wire ties **(1)**.




3



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