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

Tier 4a

Engine

SERVICE MANUAL

Part number 84496807
1st edition English
April 2012

CASE CONSTRUCTION

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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

MidWestTech | Case F5DFL413A*A001, F5DFL413A*A002, F5DFL413B*A006, F5DFL... Order the manual at mid-west-tech.com >

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

MidWestTech | Case F5DFL413A*A001, F5DFL413A*A002, F5DFL413B*A006, F5DFL... Order the manual at mid-west-tech.com >

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.

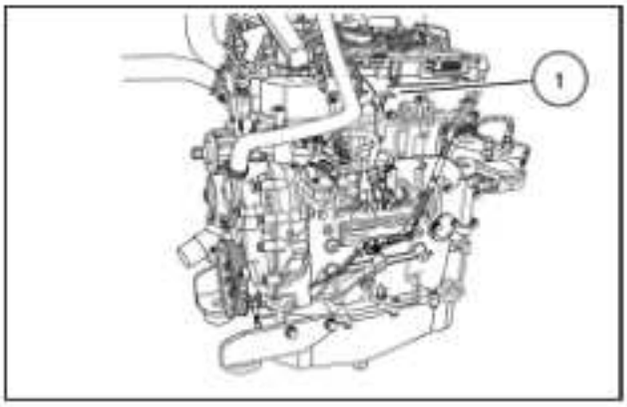
INCH NON-FLANGED HARDWARE

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.*

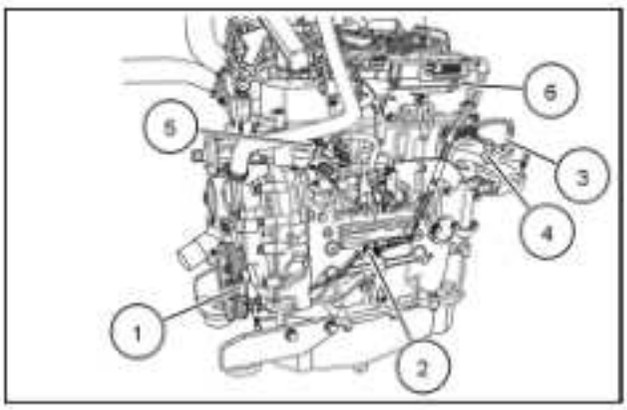
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14. Install the main harness connector bracket **(1)**.



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)**



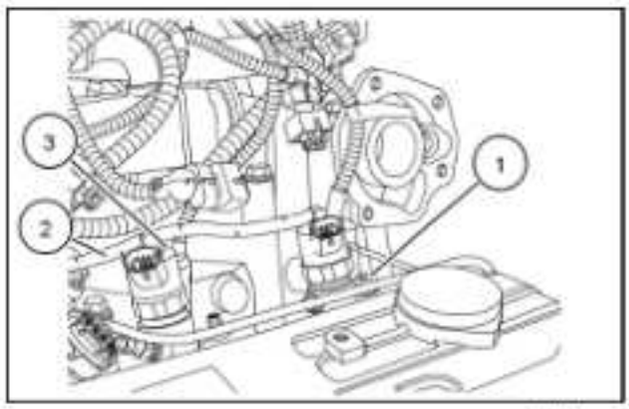
10

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Fuel injectors - Install

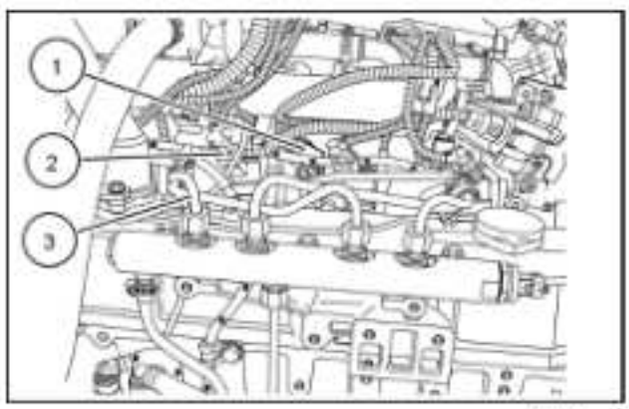
NOTE: *When installing the original injectors, be sure they are installed in the same cylinder from which they were removed. When installing new injectors, the IMA code must be recorded and configured in the Electronic Service Tool (EST). Refer to* ***Electrical system Electronic Service Tool (EST) -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



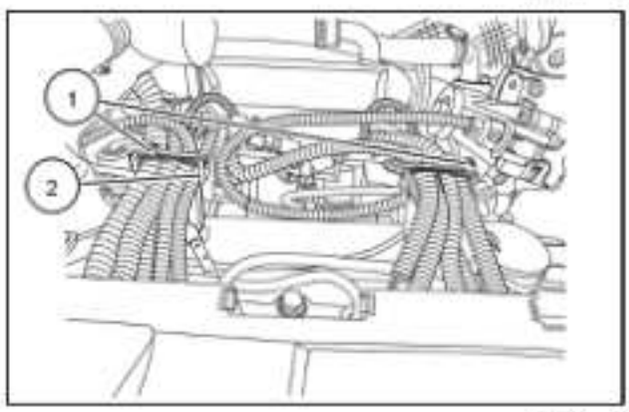
1

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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