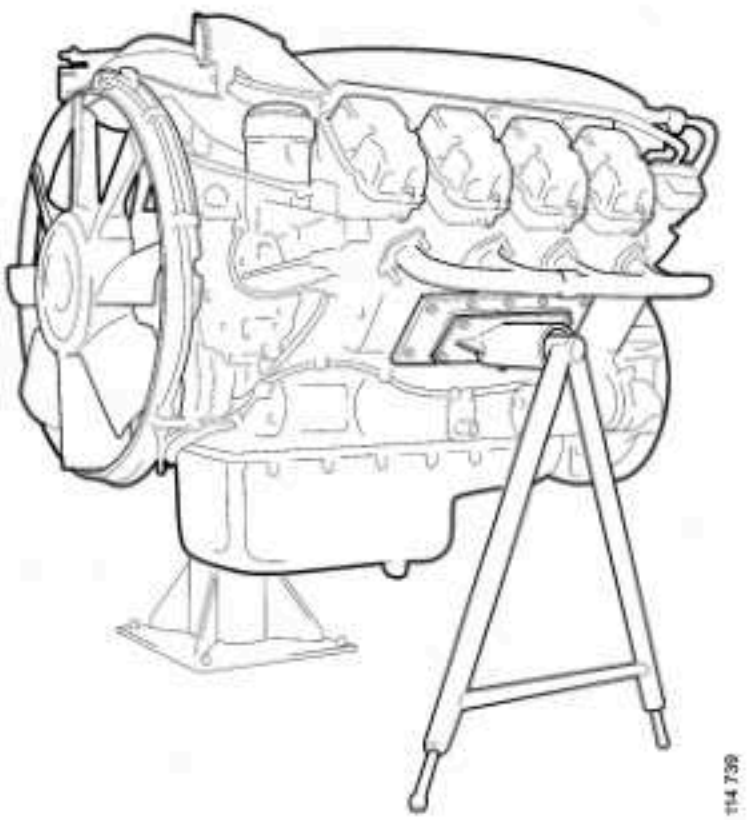
01:05-02

Issue 3 en

SCANIA
Industrial & Marine Engines

Work description- 16-litre engine

Industrial and marine engines



Part No.
1 588 778

© Scania CV AB 2002-09:3

MidWestTech | JCB Scania 16 Litre Industrial & Marine Engine Service Manual | Publicatio... Order the manual at mid-west-tech.com >

Contents

General . . . 4
Specifications . . . 4
General tightening torques . . . 5
Removing and lifting the engine . . . 6
Special tools . . . 6
Lifting and fitting the engine . . . 8
Mounting the engine in a universal stand . . . 9
Special tools . . . 9
Cylinder head . . . 10
Adjusting the valve clearance and unit injectors 11
Adjusting the valve clearance . . . 12
Adjusting the unit injector . . . 12
Order of adjustment . . . 15
Renewing the upper rocker cover gasket . . . 16
Renewing the lower rocker cover gasket . . . 16
Cylinder head . . . 20
Removal . . . 20
Fitting . . . 24
Valves . . . 30
Removal . . . 30
Fitting . . . 30
Checking and machining . . . 31
Valve stem seal . . . 32
Renewal . . . 32
Valve seats . . . 33
Renewal . . . 33
Machining the cylinder head . . . 35
Specifications . . . 35
Work description . . . 37
Valve guides . . . 39
Renewal . . . 39
Sleeves for unit injectors . . . 40
Renewal . . . 40
Cylinder block . . . 42
Overhaul . . . 42
Cylinder liner . . . 43
Removal . . . 43
Fitting . . . 44
Measuring the cylinder liner height . . . 45
Machining cylinder liner height . . . 47
Rear crankshaft seal . . . 52
Renewal . . . 52
Flywheel housing . . . 53
Removal . . . 53
Fitting . . . 54
Closed crankcase ventilation . . . 56
Front timing gear casing . . . 58
Removal . . . 58
Fitting . . . 59
Front crankshaft seal . . . 60
Renewal . . . 60
Crank mechanism . . . 62
Piston and connecting rod . . . 63
Removal . . . 63
Fitting . . . 64
Renewing a piston . . . 66
Connecting rod . . . 69
Checking . . . 69
Renewal of bearing bushing in connecting rod . 71
Flywheel . . . 73
Removal . . . 73
Fitting . . . 74
Support bearing . . . 75
Ring gear . . . 76
Crankshaft . . . 77
Removal . . . 77
Fitting . . . 79
Checking and machining the crankshaft . . . 82
Timing gear . . . 84
Gear drive . . . 84
Intermediate gear . . . 86
Removal . . . 86
Fitting . . . 88
Bearing in intermediate gear . . . 89
Camshaft gear . . . 92
Crankshaft gear . . . 93
Camshaft . . . 95
Removal . . . 95
Fitting . . . 98
Checking camshaft setting . . . 101
Removing the camshaft bearing . . . 102
Fitting the camshaft bearing . . . 106
Fan drive . . . 110
Lubrication system . . . 114
Oil filter . . . 114
Oil cooler . . . 116
Oil cleaner . . . 118
Oil pump . . . 122
Exhaust manifold . . . 124
Turbocharger . . . 125

© Scania CV AB 2002-09:3

MidWestTech | JCB Scania 16 Litre Industrial & Marine Engine Service Manual | Publi... Order the manual at mid-west-tech.com >

Fitting

Tightening torques

Cylinder head bolts:	
First stage	60 Nm
Second stage	150 Nm
Third stage	250 Nm
Fourth stage	90°
Screws for lower rocker cover	26 Nm
Bolt for fork on unit injector.	20 Nm + 75°
Bearing bracket and rocker arm shaft	105 Nm
Screw for upper rocker cover	18 Nm
Adjusting screw lock nut on rocker arm for unit injector	39 Nm
Adjusting screw lock nut on the valve rocker arm	35 Nm
Cable connection, unit injector	2 +/-0.2 Nm
Bolt for exhaust manifold	63 Nm
Bolt for fuel manifold	26 Nm
Banjo screw for overflow line	11 Nm

Special tools

Number	Description	Illustration	Tool board
588 179	Torque screwdriver		

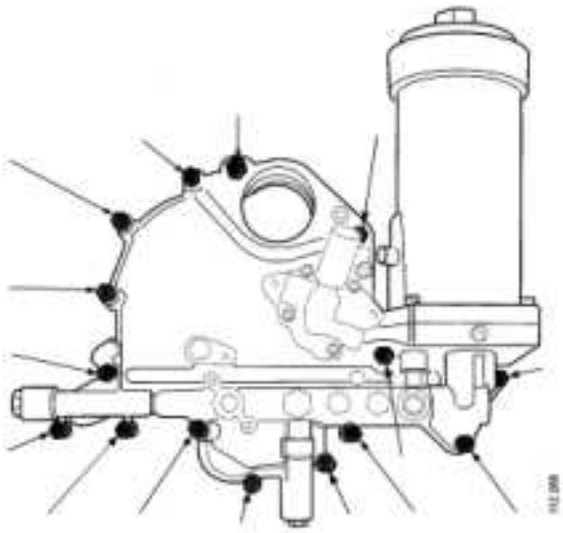
© Scania CV AB 2002-09:3

MidWestTech | JCB Scania 16 Litre Industrial & Marine Engine Service Manual | Publi... Order the manual at mid-west-tech.com >

DI engine:

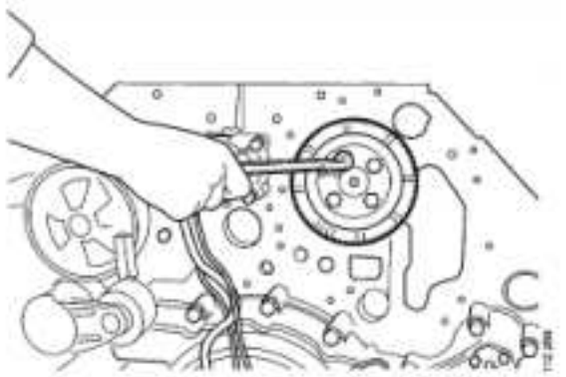
- Remove the catwalk and the pipe between the charge air coolers.
- Remove the expansion tank and belt guard.
- Remove the pipe to the closed crankcase ventilation.

7. Remove the oil cleaner.
8. Remove the poly-V-belts.
9. Remove the alternator.
10. Disconnect the AC compressor on engines with AC and place it to one side. Remove the bracket.
11. Remove the front timing gear housing as described in *Front timing gear housing, removing*.



The front timing gear casing is screwed on with 15 bolts

12. Remove the front camshaft gear.



13. Remove the flywheel as described in *Flywheel, removing*.
14. Remove the flywheel housing as described in *Flywheel housing, removing*.
15. Remove the intermediate gear as described in *Intermediate gear, removing*.
16. Remove the camshaft gear as described in *Camshaft gear, removing*.
17. Disconnect the banjo connections on the front and rear edges of the fuel manifolds.
18. Disconnect the banjo connections to and from the fuel filter.

© Scania CV AB 2002-09:3

MidWestTech | JCB Scania 16 Litre Industrial & Marine Engine Service Manual | Publi... Order the manual at mid-west-tech.com >