



## Contents

<b>00 - Technical data</b>	<b>1</b>
<b>1 Technical data</b>	<b>1</b>
1.1 Engine number	1
1.2 Engine data	1
<b>10 - Removing and installing engine</b>	<b>3</b>
<b>1 Engine: dismantling and fitting</b>	<b>3</b>
1.1 Dismantling: notes	4
1.2 Engine: securing engine to assembly stand	6
1.3 Installing: notes	7
1.4 Tightening torques	8
1.5 Engine brackets	8
1.6 Additional information and installation work on vehicles with air conditioning	9
<b>13 - Crankshaft group</b>	<b>11</b>
<b>1 Engine: dismantling and assembling</b>	<b>11</b>
1.1 Ribbed belt: dismantling and fitting	14
<b>2 Sealing flange and engine flywheel: dismantling and fitting</b>	<b>18</b>
2.1 Crankshaft oil seal -belt pulley end: renew	19
2.2 Renewing crankshaft sealing flange flywheel end: renew	21
<b>3 Crankshaft: dismantling and fitting</b>	<b>29</b>
3.1 Identification conrod bearings	30
3.2 Colour markings	30
3.3 Crankshaft dimensions	30
<b>4 Piston and conrod: dismantling and assembling</b>	<b>31</b>
4.1 Piston and cylinder dimensions	33
<b>15 - Cylinder head, Valve gear</b>	<b>34</b>
<b>1 Cylinder head: dismantling and fitting</b>	<b>34</b>
1.1 Checking semi-automatic toothed belt tensioning roller check	36
1.2 Toothed belt: removing, installing and tensioning	37
1.3 Cylinder head: dismantling and fitting	41
1.4 Compression ratio: checking	45
<b>2 Servicing valve gear: repairing</b>	<b>48</b>
2.1 Rework valve seats: reworking	50
2.2 Replacing camshaft oil seal change	52
2.3 Remove and install the cylinder head cover and the cam shaft	53
2.4 Valve guides: checking	56
2.5 Renewing valve stem seals: renew	57
<b>17 - Lubrication</b>	<b>60</b>
<b>1 Lubrication system components: dismantling and fitting</b>	<b>60</b>
1.1 Sump: dismantling and fitting	63
1.2 Oil pump dismantling and fitting	65
1.3 Oil pressure sender and oil pressure switch: checking	68
<b>19 - Cooling system</b>	<b>70</b>
<b>1 Cooling system components: dismantling and fitting</b>	<b>70</b>
1.1 Parts of cooling system, body side	70
1.2 Cooling system components, engine side	72
1.3 Coolant hose connection diagram	74
1.4 Coolant: draining and filling cooling system	75



1.5	Radiator: dismantling and fitting	77
1.6	Coolant pump: dismantling and fitting	79
<b>20</b>	<b>- Fuel supply system</b>	<b>81</b>
<b>1</b>	<b>Fuel supply system components: dismantling and fitting</b>	<b>81</b>
1.1	Fuel tank with accessory parts and fuel filter: dismantling and fitting	81
1.2	Safety precautions when working on the fuel supply system	84
1.3	Rules for cleanliness	84
1.4	Fuel delivery unit dismantling and fitting	85
1.5	Fuel gauge sender: dismantling and fitting	86
1.6	Fuel tank: dismantling and fitting	87
1.7	Crash fuel shut off	89
1.8	Fuel pump: checking	89
<b>2</b>	<b>Servicing parts of electronic power control (EPC): repairing</b>	<b>96</b>
2.1	Function of EPC system	96
<b>3</b>	<b>Activated charcoal filter system</b>	<b>98</b>
3.1	Function	98
3.2	Servicing parts of the activated charcoal filter system: repairing	98
3.3	Fuel tank breather: checking	99
<b>24</b>	<b>- Mixture preparation, Injection</b>	<b>101</b>
<b>1</b>	<b>Injection system: repairing</b>	<b>101</b>
1.1	General notes on injection	101
1.2	Fitting locations overview	101
1.3	Injection system components: dismantling and fitting	103
1.4	Intake manifold: dismantling and assembling	106
1.5	Fuel rail with injectors: dismantling and assembling	107
1.6	Air filter housing: dismantling and assembling	107
1.7	Safety precautions	109
1.8	Rules for cleanliness	110
1.9	Technical data	110
<b>2</b>	<b>Checking components</b>	<b>112</b>
2.1	Injectors: checking	112
2.2	Fuel pressure regulator and holding pressure: checking	114
<b>3</b>	<b>Engine control unit</b>	<b>119</b>
3.1	Remove and assemble engine control unit	119
3.2	Adapting components	119
3.3	Interrogate engine control unit fault memory.	120
<b>26</b>	<b>- Exhaust system</b>	<b>122</b>
<b>1</b>	<b>Exhaust system components: dismantling and fitting</b>	<b>122</b>
1.1	Exhaust manifold, front exhaust pipe and catalytic converter with attachments	122
1.2	Silencer with mountings	123
<b>28</b>	<b>- Ignition system</b>	<b>124</b>
<b>1</b>	<b>Ignition system: repairing</b>	<b>124</b>
1.1	General information: ignition system	124
1.2	Ignition system components: dismantling and fitting	124
1.3	Safety precautions	125
1.4	Test data, spark plugs	126