



## 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
2.3 Characteristics of the sealing flange and the assembly device T10017 and T10134	29
2.4 Renewing crankshaft sealing flange - flywheel end ( assembly tool T10134 )	30
2.5 Renewing crankshaft sealing flange - flywheel end ( assembly tool T10017 )	38
<b>3 Crankshaft: dismantling and fitting</b>	<b>40</b>
3.1 Identification conrod bearings	41
3.2 Colour markings	41
3.3 Crankshaft dimensions	41
<b>4 Piston and conrod: dismantling and assembling</b>	<b>42</b>
4.1 Piston and cylinder dimensions	44
<b>15 - Cylinder head, Valve gear</b>	<b>45</b>
<b>1 Cylinder head: dismantling and fitting</b>	<b>45</b>
1.1 Checking semi-automatic toothed belt tensioning roller check	47
1.2 Toothed belt: removing, installing and tensioning	48
1.3 Cylinder head: dismantling and fitting	52
1.4 Compression ratio: checking	56
<b>2 Servicing valve gear: repairing</b>	<b>59</b>
2.1 Rework valve seats: reworking	61
2.2 Replacing camshaft oil seal change	63
2.3 Remove and install the cylinder head cover and the cam shaft	64
2.4 Valve guides: checking	67
2.5 Renewing valve stem seals: renew	68
<b>17 - Lubrication</b>	<b>71</b>
<b>1 Lubrication system components: dismantling and fitting</b>	<b>71</b>
1.1 Sump: dismantling and fitting	74
1.2 Oil pump dismantling and fitting	76
1.3 Oil pressure sender and oil pressure switch: checking	79
<b>19 - Cooling system</b>	<b>81</b>
<b>1 Cooling system components: dismantling and fitting</b>	<b>81</b>
1.1 Parts of cooling system, body side	81



1.2	Cooling system components, engine side	83
1.3	Coolant hose connection diagram	85
1.4	Coolant: draining and filling cooling system	86
1.5	Radiator: dismantling and fitting	88
1.6	Coolant pump: dismantling and fitting	90
<b>20</b>	<b>- Fuel supply system</b>	<b>92</b>
<b>1</b>	<b>Fuel supply system components: dismantling and fitting</b>	<b>92</b>
1.1	Fuel tank with accessory parts and fuel filter: dismantling and fitting	92
1.2	Safety precautions when working on the fuel supply system	95
1.3	Rules for cleanliness	95
1.4	Fuel delivery unit dismantling and fitting	96
1.5	Fuel gauge sender: dismantling and fitting	97
1.6	Fuel tank: dismantling and fitting	98
1.7	Crash fuel shut off	100
1.8	Fuel pump: checking	100
<b>2</b>	<b>Servicing parts of electronic power control (EPC): repairing</b>	<b>107</b>
2.1	Function of EPC system	107
<b>3</b>	<b>Activated charcoal filter system</b>	<b>109</b>
3.1	Function	109
3.2	Servicing parts of the activated charcoal filter system: repairing	109
3.3	Fuel tank breather: checking	110
<b>24</b>	<b>- Mixture preparation, Injection</b>	<b>112</b>
<b>1</b>	<b>Injection system: repairing</b>	<b>112</b>
1.1	General notes on injection	112
1.2	Fitting locations overview	112
1.3	Injection system components: dismantling and fitting	114
1.4	Intake manifold: dismantling and assembling	117
1.5	Fuel rail with injectors: dismantling and assembling	118
1.6	Air filter housing: dismantling and assembling	118
1.7	Safety precautions	120
1.8	Rules for cleanliness	121
1.9	Technical data	121
<b>2</b>	<b>Checking components</b>	<b>123</b>
2.1	Injectors: checking	123
2.2	Fuel pressure regulator and holding pressure: checking	125
<b>3</b>	<b>Engine control unit</b>	<b>130</b>
3.1	Remove and assemble engine control unit	130
3.2	Adapting components	130
3.3	Interrogate engine control unit fault memory.	131
<b>26</b>	<b>- Exhaust system</b>	<b>133</b>
<b>1</b>	<b>Exhaust system components: dismantling and fitting</b>	<b>133</b>
1.1	Exhaust manifold, front exhaust pipe and catalytic converter with attachments	133
1.2	Silencer with mountings	134
<b>28</b>	<b>- Ignition system</b>	<b>135</b>
<b>1</b>	<b>Ignition system: repairing</b>	<b>135</b>
1.1	General information: ignition system	135
1.2	Ignition system components: dismantling and fitting	135
1.3	Safety precautions	136
1.4	Test data, spark plugs	137