



Contents

00 - Technical data	1
1 Technical data	1
1.1 Engine data	1
10 - Removing and installing engine	2
1 Removing and installing engine	2
1.1 Removing engine	3
13 - Crankshaft group	14
1 Dismantling and assembling engine	14
1.1 Assembly overview - part I, toothed belt drive	15
1.2 Assembly overview - part II, cylinder block	18
1.3 Removing and installing poly V-belt	19
1.4 Checking alignment of poly V-belt	20
2 Removing and installing sealing flange and drive plate	22
2.1 Assembly overview	22
2.2 Removing and installing drive plate	23
2.3 Removing and installing sealing flange at drive plate end	25
2.4 Renewing crankshaft oil seal, vibration damper end	27
15 - Cylinder head, valve gear	29
1 Cylinder head	29
1.1 Assembly overview	29
1.2 Removing and installing right cylinder head cover	31
1.3 Removing and installing left cylinder head cover	33
1.4 Removing, installing and tensioning toothed belt	35
1.5 Removing and installing left cylinder head	41
1.6 Removing and installing right cylinder head	45
1.7 Checking compression	49
2 Repairing valve gear	51
2.1 Camshafts, checking axial clearance	54
2.2 Renewing camshaft oil seals	55
2.3 Renewing Hall sender seals	56
2.4 Removing and installing camshafts and variable camshaft timing adjusters	57
2.5 Removing and installing roller rocker finger	63
2.6 Renewing valve stem seals	63
2.7 Checking valve guides	66
2.8 Reworking valve seats	67
17 - Lubrication	69
1 Removing and installing parts of lubrication system	69
1.1 Engine oil	69
1.2 Oil capacities:	69
1.3 Dismantling and assembling oil filter housing	70
1.4 Removing and installing oil sump	71
1.5 Checking oil pressure and oil pressure switch	76
19 - Cooling	78
1 Removing and installing parts of cooling system	78
1.1 Assembly overview - radiator	78
1.2 Assembly overview - radiator fan	80
1.3 Removing and installing fan support with fan	80
1.4 Assembly overview - parts of cooling system, engine side, front	81



1.5	Assembly overview - parts of cooling system, engine side, rear	82
1.6	Assembly overview - parts of cooling system, body side	84
1.7	Coolant hose schematic diagram	85
1.8	Checking water pump V36	86
1.9	Draining and filling coolant	87
1.10	Removing and installing radiator	90
1.11	Removing and installing coolant pump and thermostat	91
1.12	Checking cooling system for leaks	92
20 - Fuel supply system	94
1	Parts of fuel supply system	94
1.1	Assembly overview - fuel tank with attachments	94
1.2	Assembly overview - fuel filter	96
1.3	Renewing fuel filter	97
1.4	Schematic diagram of fuel lines and components in fuel tank	98
1.5	Safety precautions when working on fuel supply system	100
1.6	Rules for cleanliness	100
1.7	Emptying fuel tank	101
1.8	Removing and installing fuel delivery unit, fuel gauge sender and suction-jet pumps	103
1.9	Removing and installing fuel tank with attached components	104
1.10	Checking fuel pumps	108
1.11	Checking delivery rate of pumps	109
1.12	Checking non-return valve of right pump	112
1.13	Checking non-return valve of left pump	114
2	Electronic power control (EPC)	116
3	Activated charcoal filter system	118
3.1	Assembly overview - activated charcoal filter system	118
3.2	Checking fuel system for leaks	119
4	Activated charcoal filter system (vehicles for USA and Canada)	123
4.1	Assembly overview - activated charcoal filter system	124
4.2	Checking fuel system for leaks	125
24 - Mixture preparation - injection	132
1	Repairing injection system	132
1.1	Assembly overview - intake manifold	132
1.2	Removing and installing intake manifold	133
1.3	Assembly overview - fuel rail	136
1.4	Removing and installing injectors	137
1.5	Assembly overview - air filter	139
1.6	Assembly overview - vacuum hose assembly on intake manifold	140
1.7	Safety precautions	142
1.8	Rules for cleanliness	142
1.9	Technical data	142
2	Checking components	144
2.1	Checking injectors	144
2.2	Checking fuel pressure regulator and holding pressure	147
3	Engine control unit	150
3.1	Removing and installing engine control unit	150
3.2	Reading and erasing engine control unit fault memory	150
26 - Exhaust system	152
1	Removing and installing parts of exhaust system	152
1.1	Assembly overview - exhaust manifold with starter catalytic converters and attachments	152
1.2	Removing and installing Lambda probes	154



1.3	Assembly overview - silencers with mountings	157
2	Secondary air system	160
2.1	Assembly overview - removing and installing parts of secondary air system	160
28 - Ignition system	162	
1	Repairing ignition system	162
1.1	Assembly overview - parts of ignition system	162
1.2	Safety precautions	163
1.3	Removing and installing ignition coils with output stage	163
1.4	Test data, spark plugs	165