

ENGINE

Engine Mechanical - [2GR-FE] (Preparation) - Sienna

2GR-FE ENGINE MECHANICAL

SST

SST

	09201-10000	Valve Guide Bushing Remover & Replacer Set	
	(09201-01050)	Valve Guide Bushing Remover & Replacer 5	
	09201-41020	Valve Stem Oil Seal Replacer	
	09202-70020	Valve Spring Compressor	
	(09202-00010)	Attachment	
	(09202-01010)	Arm	
	(09202-01020)	Set Bolt	
	09213-70011	Crankshaft Pulley Holding Tool	
	(09213-70020)	Bolt	
	09223-15030	Oil Seal & Bearing Replacer	
	09223-22010	Crankshaft Front Oil Seal Replacer	
	09276-75010	Valve Lifter Tool	
	09330-00021	Companion Flange Holding Tool	
	09506-35010	Differential Drive Pinion Rear Bearing Replacer	
	09843-18040	Diagnosis Check Wire No. 2	
	09922-10010	Variable Open Wrench	
	09950-50013	Puller C Set	
	(09951-05010)	Hanger 150	
	(09952-05010)	Slide Arm	
	(09953-05020)	Center Bolt 150	
	(09954-05021)	Claw No. 2	
	09950-70010	Handle Set	
	(09951-07100)	Handle 100	
	(09951-07150)	Handle 150	

RECOMMENDED TOOLS

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	09010-3C100	Set, Hexagon Wrench	
	09010-3C110	Set, Hexagon Socket Wrench	
	(09013-6C100)	Socket Hexagon 5mm	
	(09013-6C130)	Socket Hexagon 10mm	
	09012-2C500	Deep Socket Wrench 17mm	
	09012-2C510	Deep Socket Wrench 19mm	
	09013-1C510	"TORX" Socket Wrench E-type E6	
	09013-1C530	"TORX" Socket Wrench E-type E8	
	09013-1C540	"TORX" Socket Wrench E-type E10	
	09013-7C120	Straight Hexagon 14mm	
	09013-7C310	Bi-hexagon Wrench 10mm	
	09051-1C110	Plastic Hammer	
	09072-1C200	Vernier Calipers 150mm	
	09091-1C100	Oil Pan Seal Cutter	

EQUIPMENT

EQUIPMENT

Brush	-
Caliper gauge	-
Chain Block	-
CO/HC meter	-
Compression gauge	-
Container	-
Cutter (30°)	-
Cutter (45°)	-
Cutter (60°)	-
Cutter (75°)	-
Cylinder gauge	-
Dial indicator	-
Dial indicator with magnetic base	-
Dye penetrant	-

Engine lifter	-
Engine stand	-
Gasket scraper	-
Heater	-
Knife	-
Magnetic finger	-
Micrometer	-
Piston ring compressor	-
Piston ring expander	-
Plastigage	-
Precision straight edge	-
Prussian blue	-
Reamer (5.5 mm)	-
Ridge reamer	-
Soft brush	-
Solvent	-
Steel square	-
Tachometer	-
Thermometer	-
Timing light	-
Torque wrench	-
V-block	-
Wooden block	-

SSM

SSM

Toyota Genuine Seal Packing Black, Three Bond 1207B or equivalent	-
Toyota Genuine Seal Packing 1282B, Three Bond 1282B or equivalent	-
Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent	-
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent	-

ENGINE

Engine Mechanical - [2GR-FE] (Service Specifications) - Sienna

2GR-FE ENGINE MECHANICAL

SERVICE DATA

SERVICE DATA

ENGINE

Ignition timing	Terminals TC and CG of DLC3 connected	8 to 12° BTDC at idle (Transmission in neutral)
	Terminals TC and CG of DLC3 disconnected	9.5 to 24.5° BTDC at idle (Transmission in neutral)
Idle speed		600 to 700 RPM (Transmission in neutral)
Compression	Standard	1.3 MPa (13 kgf/cm ² , 189 psi) or more
	Minimum	0.98 MPa (10 kgf/cm ² , 142 psi)
	Difference	0.1 MPa (1.0 kgf/cm ² , 15 psi) or less

ENGINE UNIT

Journal diameter	No. 1 journal	35.946 to 35.960 mm (1.4152 to 1.4157 in.)
	Other journals	25.959 to 25.975 mm (1.0221 to 1.0226 in.)

Camshaft				in.)
	Circuit runout		Maximum	0.04 mm (0.00157 in.)
	Cam lobe height		Standard	44.316 to 44.416 mm (1.7448 to 1.7486 in.)
			Minimum	44.166 mm (1.7388 in.)
	Oil clearance	No. 1 journal	Standard	0.032 to 0.071 mm (0.00126 to 0.00280 in.)
			Maximum	0.10 mm (0.00394 in.)
		Other journals	Standard	0.025 to 0.062 mm (0.000984 to 0.00244 in.)
			Maximum	0.09 mm (0.00354 in.)
	Thrust clearance		Standard	0.08 to 0.13 mm (0.00315 to 0.00512 in.)
			Maximum	0.15 mm (0.00591 in.)
			No. 1 journal	35.946 to 35.960 mm (1.4152 to 1.4157

No. 2 camshaft	Journal diameter			in.)
			Other journals	25.959 to 25.975 mm (1.0221 to 1.0226 in.)
	Circuit runout		Maximum	0.04 mm (0.00157 in.)
	Cam lobe height		Standard	44.262 to 44.362 mm (1.7426 to 1.7465 in.)
			Minimum	44.112 mm (1.7366 in.)
	Oil clearance	No. 1 journal	Standard	0.032 to 0.071 mm (0.00126 to 0.00280 in.)
			Maximum	0.10 mm (0.00394 in.)
		Other journals	Standard	0.025 to 0.062 mm (0.000984 to 0.00244 in.)
			Maximum	0.09 mm (0.00354 in.)
	Thrust clearance		Standard	0.08 to 0.13 mm (0.00315 to 0.00512 in.)
Maximum			0.15 mm (0.00591 in.)	

				in.)
No. 3 camshaft	Journal diameter		No. 1 journal	35.946 to 35.960 mm (1.4152 to 1.4157 in.)
			Other journals	25.959 to 25.975 mm (1.0221 to 1.0226 in.)
	Circuit runout		Maximum	0.04 mm (0.00157 in.)
	Cam lobe height		Standard	44.316 to 44.416 mm (1.7448 to 1.7486 in.)
			Minimum	44.166 mm (1.7388 in.)
	Oil clearance	No. 1 journal	Standard	0.032 to 0.071 mm (0.00126 to 0.00280 in.)
			Maximum	0.10 mm (0.00394 in.)
		Other journals	Standard	0.025 to 0.062 mm (0.000984 to 0.00244 in.)
			Maximum	0.09 mm (0.00354 in.)
				0.08 to 0.13 mm

No. 4 camshaft	Thrust clearance		Standard	(0.00315 to 0.00512 in.)
			Maximum	0.15 mm (0.00591 in.)
	Journal diameter		No. 1 journal	35.946 to 35.960 mm (1.4152 to 1.4157 in.)
			Other journals	25.959 to 25.975 mm (1.0221 to 1.0226 in.)
	Circuit runout		Maximum	0.04 mm (0.00157 in.)
	Cam lobe height		Standard	44.262 to 44.362 mm (1.7426 to 1.7465 in.)
			Minimum	44.112 mm (1.7366 in.)
	Oil clearance	No. 1 journal	Standard	0.032 to 0.071 mm (0.00126 to 0.00280 in.)
			Maximum	0.10 mm (0.00394 in.)
		Other journals	Standard	0.025 to 0.062 mm (0.000984 to 0.00244 in.)

	Thrust clearance		in.)
		Maximum	0.09 mm (0.00354 in.)
		Standard	0.08 to 0.13 mm (0.00315 to 0.00512 in.)
		Maximum	0.15 mm (0.00591 in.)
Cylinder head set bolt	Outside diameter (Measuring point: 103 mm (4.06 in.))	Standard	10.85 to 11.00 mm (0.4272 to 0.4330 in.)
		Minimum	10.70 mm (0.4212 in.)
Chain	Elongation	Maximum	136.9 mm (5.389 in.)
No. 2 chain	Elongation	Maximum	137.6 mm (5.417 in.)
Crankshaft timing gear	Diameter (with chain)	Minimum	61.4 mm (2.418 in.)
Idle sprocket	Diameter (with chain)	Minimum	61.4 mm (2.418 in.)
Idle gear shaft	Idle gear shaft diameter		22.987 to 23.000 mm (0.9050 to 0.9055 in.)
	Idle gear inside diameter		23.020 to 23.030 mm (0.9063 to 0.9067 in.)
			0.020 to

	Oil clearance	Standard	0.043 mm (0.000787 in.) to 0.00169 in.)
		Maximum	0.093 mm (0.00366 in.)
No. 2 chain tensioner assembly	Worn depth	Maximum	0.9 mm (0.0354 in.)
No. 3 chain tensioner assembly	Worn depth	Maximum	0.9 mm (0.0354 in.)
Chain tensioner slipper	Worn depth	Maximum	1.0 mm (0.0394 in.)
No. 1 chain vibration damper	Worn depth	Maximum	1.0 mm (0.0394 in.)
No. 2 chain vibration damper	Worn depth	Maximum	1.0 mm (0.0394 in.)
Intake manifold		Maximum	0.1 mm (0.00394 in.)
Exhaust manifold		Maximum	0.7 mm (0.0276 in.)

CYLINDER HEAD

Cylinder head sub- assembly	Warpage	Cylinder head lower	Standard	0.05 mm (0.00197 in.)
			Maximum	0.10 mm (0.00394 in.)
		Intake	Standard	0.08 mm (0.00315 in.)
			Maximum	0.10 mm (0.00394 in.)

				in.)
		Exhaust	Standard	0.08 mm (0.00315 in.)
			Maximum	0.10 mm (0.00394 in.)
Intake valve	Valve stem diameter			5.470 to 5.485 mm (0.2154 to 0.2159 in.)
	Margin thickness			Standard 1.0 mm (0.0394 in.)
				Minimum 0.5 mm (0.0197 in.)
	Overall length			Standard 105.85 mm (4.1673 in.)
				Minimum 105.35 mm (4.1476 in.)
Exhaust valve	Valve stem diameter			5.465 to 5.480 mm (0.2152 to 0.2157 in.)
	Margin thickness			Standard 1.0 mm (0.0394 in.)
				Minimum 0.5 mm (0.0197 in.)
	Overall length			Standard 110.40 mm (4.3464 in.)
				Minimum 109.90 mm (4.3268 in.)
				45.91 mm

Inner compression spring	Free length		(1.8075 in.)
	Deviation	Maximum	1.0 mm (0.0394 in.)
	Angle (reference)	Maximum	2°
Intake valve guide bush	Inside diameter		5.510 to 5.530 mm (0.2169 to 0.2177 in.)
	Oil clearance	Standard	0.025 to 0.060 mm (0.000984 to 0.00236 in.)
		Maximum	0.08 mm (0.00315 in.)
	Bush bore diameter	Use STD	10.333 to 10.344 mm (0.4068 to 0.4072 in.)
		Use O/S 0.05	10.383 to 10.394 mm (0.4088 to 0.4092 in.)
	Protrusion height		9.30 to 9.70 mm (0.3661 to 0.3819 in.)
	Inside diameter		5.510 to 5.530 mm (0.2169 to 0.2177 in.)
		Standard	0.030 to 0.065 mm (0.00118 to

Exhaust valve guide bush	Oil clearance		0.00256 in.)
		Maximum	0.10 mm (0.00394 in.)
	Bush bore diameter	Use STD	10.333 to 10.344 mm (0.4068 to 0.4072 in.)
		Use O/S 0.05	10.383 to 10.394 mm (0.4088 to 0.4092 in.)
	Protrusion height		9.30 to 9.70 mm (0.3661 to 0.3819 in.)

CYLINDER BLOCK

Ring pin for cylinder head sub- assembly	Protrusion height		2.5 to 3.5 mm (0.0984 to 0.138 in.)
Straight pin for cylinder head sub- assembly	Protrusion height		17.5 to 19.5 mm (0.689 to 0.768 in.)
Connecting rod thrust clearance		Standard	0.15 to 0.40 mm (0.00591 to 0.0157 in.)
		Maximum	0.50 mm (0.0197 in.)
Connecting rod oil clearance		Standard	0.045 to 0.067 mm (0.00177 to 0.00264

Crankshaft thrust clearance		in.)
	Maximum	0.070 mm (0.00276 in.)
	Standard	0.04 to 0.24 mm (0.00157 to 0.00945 in.)
	Maximum	0.30 mm (0.0118 in.)
Cylinder block warpage	Thrust washer thickness	2.43 to 2.48 mm (0.0957 to 0.0976 in.)
	Maximum	0.07 mm (0.00276 in.)
Cylinder bore diameter	Standard	94.000 to 94.012 mm (3.7008 to 3.7013 in.)
	Maximum	94.13 mm (3.7059 in.)
Piston diameter	Distance	8.9 mm (0.3504 in.)
	Standard	93.960 to 93.980 mm (3.6992 to 3.7000 in.)
	Minimum	93.830 mm (3.6941 in.)
Oil clearance	Standard	0.020 to 0.052 mm (0.000787 to 0.00205 in.)
	Maximum	0.060 mm (0.00236 in.)
		0.05 mm (0.00197 in.)

Connecting rod out-of alignment	Maximum	in.) per 100 mm (3.94 in.)
Connecting rod twist	Maximum	0.15 mm (0.00591 in.) per 100 mm (3.94 in.)
Piston pin hole inside diameter		22.001 to 22.010 mm (0.8662 to 0.8665 in.)
Piston pin diameter		21.997 to 22.006 mm (0.8660 to 0.8664 in.)
Oil clearance	Standard	0.001 to 0.007 mm (0.0000394 to 0.000276 in.)
	Maximum	0.015 mm (0.000591 in.)
Connecting rod bushing inside diameter		22.005 to 22.014 mm (0.86634 to 0.86669 in.)
Oil clearance	Standard	0.005 to 0.011 mm (0.000197 to 0.000433 in.)
	Maximum	0.030 mm (0.00118 in.)
	No. 1	0.020 to 0.070 mm (0.000787 to 0.00276 in.)
		0.020 to 0.060 mm

Piston ring groove clearance		No. 2	(0.000787 to 0.00236 in.)
		Oil	0.070 to 0.150 mm (0.00276 to 0.00591 in.)
Piston ring end gap	No. 1	Standard	0.22 to 0.32 mm (0.00866 to 0.0126 in.)
		Maximum	0.50 mm (0.0197 in.)
	No. 2	Standard	0.35 to 0.45 mm (0.0138 to 0.0177 in.)
		Maximum	0.85 mm (0.0335 in.)
	Oil (Side rail)	Standard	0.10 to 0.40 mm (0.00394 to 0.0157 in.)
		Maximum	0.60 mm (0.0236 in.)
Connecting rod bolt diameter		Standard	7.2 to 7.3 mm (0.283 to 0.287 in.)
		Minimum	7.0 mm (0.276 in.)
Crankshaft bearing cap set bolt	Diameter (Measuring point: 40 mm (1.57 in.))	Standard	10.8 to 11.0 mm (0.4252 to 0.4331 in.)
		Maximum	10.7 mm (0.4213 in.)
Crankshaft circle runout		Maximum	0.06 mm (0.00236 in.)

			in.)
Main journal diameter			60.988 to 61.000 mm (2.4011 to 2.4016 in.)
Main journal taper and out-of-round		Maximum	0.02 mm (0.000787 in.)
Crank pin diameter			52.992 to 53.000 mm (2.0863 to 2.0866 in.)
Crank pin taper and out-of-round		Maximum	0.02 mm (0.000787 in.)
Crankshaft oil clearance		Standard	0.026 to 0.047 mm (0.00102 to 0.00185 in.)
		Maximum	0.050 mm (0.00197 in.)
Straight pin for cylinder block sub-assembly	Protrusion height	Pin A	23 mm (0.906 in.)
		Pin B	6.0 mm (0.236 in.)
		Pin C	11 mm (0.433 in.)
		Pin D	9.0 mm (0.354 in.)

TORQUE SPECIFICATIONS

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DRIVE BELT

Part Tightened	N*m	kgf*cm	ft.*lbf
Front wheel RH	103	1050	76

CAMSHAFT

Part Tightened	N*m	kgf*cm	ft.*lbf

Camshaft bearing cap x Camshaft housing	1st	10	102	7
	2nd	16	163	12
Camshaft housing x Cylinder head sub-assembly		28	286	21
No. 3 Chain tensioner x Cylinder head sub-assembly		21	214	15
Camshaft timing gear assembly x Camshaft		100	1020	74
Camshaft timing exhaust gear assembly x Camshaft		100	1020	74
No. 2 Chain tensioner x Cylinder head sub-assembly		21	214	15

CYLINDER HEAD GASKET

Part Tightened		N*m	kgf*cm	ft.*lbf
Cylinder head sub-assembly LH x Cylinder block sub-assembly	Recessed head 1st	36	367	27
	2nd	Turn 90°	Turn 90°	Turn 90°
	3rd	Turn 90°	Turn 90°	Turn 90°
	14 mm (0.55 in.) head	30	306	22
Cylinder head sub-assembly RH x	1st	36	367	27
	2nd	Turn 90°	Turn 90°	Turn 90°

Cylinder block sub-assembly	3nd	Turn 90°	Turn 90°	Turn 90°
Crankshaft pulley x Crankshaft		250	2550	184
Front wheel RH		103	1050	76

REAR CRANKSHAFT OIL SEAL

Part Tightened	N*m	kgf*cm	ft.*lbf
Drive plate and ring gear sub-assembly x Crankshaft	83	846	61

ENGINE ASSEMBLY

Part Tightened	N*m	kgf*cm	ft.*lbf
No. 1 engine hanger x Cylinder head sub-assembly	33	337	24
No. 2 engine hanger x Cylinder head sub-assembly	33	337	24
Rear engine mounting bracket x Cylinder block	64	649	47
Engine mounting bracket RH x Cylinder block	54	551	40
Rear engine mounting bracket x Stiffener plate RH	Bolt A	34	347
	Bolt B	78	796
Manifold stay x Exhaust			

manifold sub-assembly RH		35	357	26
Manifold stay x Rear engine mounting bracket		34	347	25
Flexible hose bracket clamp sub-assembly x Cylinder head sub-assembly		5.5	56	49 in.*lbf
Rear engine mounting insulator sub-assembly x Automatic transaxle assembly		75	765	55
Front engine mounting insulator x Front engine mounting bracket		87	888	65
Engine mounting insulator LH x Automatic transaxle assembly		95	969	71
Engine mounting insulator RH x Engine mounting bracket RH		95	969	71
Frame side rail plate x Body	Nut	32	327	24
	Bolt A	32	327	24
	Bolt B	85	867	63
Front suspension member brace rear x Body	Nut	32	327	24
	Bolt C	32	327	24
	Bolt D	85	867	63

Drive plate and ring gear sub-assembly x torque converter	41	418	30
Flywheel housing under cover x Automatic transaxle assembly	10	102	7
Engine moving control rod x Engine moving control rod bracket	52	530	38
Engine moving control rod x Body	38	387	28
Engine moving control rod bracket x No. 1 front engine mounting bracket LH	38	387	28
Transmission control cable x Control shaft lever	12	122	9
Engine wire x Engine room junction block	8.4	86	74 in.*lbf
Earth wire x Body	8.4	86	74 in.*lbf
Air cleaner inlet cover assembly seal x Body	8.0	82	71 in.*lbf
Front wheel RH	103	1050	76

ENGINE UNIT

Part Tightened	N*m	kgf*cm	ft.*lbf
Engine rear oil seal retainer x Cylinder block	10	102	7

sub-assembly				
Water inlet pipe x Cylinder block sub- assembly		10	102	7
No. 1 Chain vibration damper x Cylinder block sub-assembly		23	230	17
Idle sprocket assembly x Cylinder block sub-assembly		60	612	44
No. 1 Chain tensioner assembly x Cylinder head sub-assembly		10	102	7
Water pump assembly x Timing chain cover sub- assembly		11	112	8
Timing chain cover sub- assembly x Cylinder head and block	Areas 1: Bolt	21	214	15
	Areas 2: Bolt	21	214	15
	Areas 3: Bolt and nut	21	214	15
	Areas 4: Bolt A	43	438	32
	Areas 4: Except bolt A	21	214	15
Timing chain cover plate x Timing chain cover sub- assembly		9.1	93	81 in.*lbf
Stud bolt x Water inlet		4.0	41	35 in.*lbf

housing				
Water inlet housing x Timing chain cover sub-assembly		10	102	7
Drain cock assembly x Water inlet housing		30	306	22
Drain cock plug x Drain cock assembly		13	130	9
Water inlet x Water inlet housing		10	102	70
Stud bolt x No. 1 front engine mounting bracket LH		10	102	70
No. 1 front engine mounting bracket LH x Timing chain cover sub-assembly		54	550	40
No. 1 oil pan baffle plate x Cylinder block sub-assembly		10	102	7
Oil pan stud bolt x Cylinder block and timing chain cover sub-assembly	Bolt A	10	102	7
	Bolt B	9.0	92	80 in.*lbf
Oil pan sub-assembly x	Bolt A	10	102	7

Cylinder block and timing chain cover sub-assembly	Except bolt A	21	214	15
Oil strainer stud bolt x Timing chain cover sub-assembly		4.0	41	35 in.*lbf
Oil strainer sub-assembly x Cylinder block and timing chain cover sub-assembly		10	102	7
Oil pan stud bolt x Oil pan sub-assembly		4.0	41	35 in.*lbf
No. 2 oil pan sub-assembly x Oil pan sub-assembly		10	102	7
Oil pan drain plug x No. 2 oil pan sub-assembly		40	408	30
Cylinder head cover sub-assembly	Bolt A	21	214	15
LH x Cylinder head sub-assembly LH	Except bolt A	10	102	7
Cylinder head cover sub-assembly	Bolt A	21	214	15
RH x Cylinder				

head sub-assembly RH	Except bolt A	10	102	7
Water outlet x Cylinder head sub-assembly		10	102	7
Engine oil level dipstick guide x Cylinder block sub-assembly		21	214	15
No. 1 oil cooler bracket x stud bolt		10	102	7
No. 1 oil cooler bracket x Oil cooler pipe		21	214	15
No. 1 oil cooler bracket x Cylinder block sub-assembly		21	214	15
No. 1 oil cooler bracket x Oil pan sub-assembly		21	214	15
Oil cooler assembly x No. 1 oil cooler bracket		68	693	50
Water by-pass hose clamp x Cylinder block sub-assembly		10	102	7
Cylinder block water drain cock sub-assembly x Cylinder block sub-assembly		25	255	18
Cylinder block water drain cock sub-assembly x Cylinder block water drain cock plug		13	130	9
No. 1 oil pipe union x				

Cylinder block sub-assembly LH	65	663	48
No. 1 oil pipe union x Cylinder head cover sub-assembly LH	65	663	48
Oil pipe union x Cylinder block sub-assembly	65	663	48
Oil pipe union x Cylinder head cover sub-assembly	65	663	48
Oil pipe x Cylinder head sub-assembly	10	102	7
Ventilation valve x Cylinder head cover sub-assembly LH	27	275	20
Engine oil pressure switch assembly x Oil pan sub-assembly	15	153	11
No. 1 vacuum switching valve assembly x Cylinder head cover sub-assembly LH	10	102	7
No. 2 idler pulley sub-assembly x Timing chain cover sub-assembly	54	550	40
No. 2 timing gear cover x Timing chain cover sub-assembly	6.0	61	53 in.*lbf
V-ribbed belt tensioner			

assembly x Cylinder block sub-assembly		43	438	32
Exhaust manifold sub- assembly LH x Cylinder head sub-assembly LH		21	214	15
No. 2 engine oil level dipstick guide x Cylinder head sub-assembly		21	214	15
Exhaust manifold sub- assembly RH x Cylinder head sub-assembly RH		21	214	15
Intake manifold x Cylinder head sub-assembly		21	214	15
Fuel hose protector x Cylinder head sub- assembly	Bolt	21	214	15
	Nut	10	102	7
Fuel hose protector x Intake manifold		21	214	15
No. 2 engine mounting stay RH x Intake manifold		21	214	15
No. 1 surge tank stay x Cylinder head cover sub- assembly		21	214	15
Throttle body bracket x Cylinder head cover sub-		21	214	15

assembly			
No. 1 engine hanger x Cylinder head sub-assembly	33	337	24
No. 2 engine hanger x Cylinder head sub-assembly	33	337	24

CYLINDER HEAD

Part Tightened		N*m	kgf*cm	ft.*lbf
Stud bolt x Cylinder head sub-assembly	Bolts A and B	10	102	7
	Bolt C	4.0	41	35 in.*lbf
No. 1 straight screw plug x Cylinder head sub-assembly		44	449	32
No. 2 straight screw plug x Cylinder head sub-assembly		80	816	59

CYLINDER BLOCK

Part Tightened		N*m	kgf*cm	ft.*lbf
Stud bolt x Cylinder block sub-assembly	Bolt A	10	102	7
	Bolt B	17	173	13
No. 1 oil nozzle sub-assembly x Cylinder block sub-assembly		9.0	92	80 in.*lbf
Main bearing cap x Cylinder block sub-assembly	1st	61	622	45
	2nd	Turn 90°	Turn 90°	Turn 90°
	14 mm head	52	525	38
Connecting	1st	25	255	18

rod cap x Connecting rod	2nd	Turn 90°	Turn 90°	Turn 90°
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