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Service Category: General	Section: Specifications	
Model Year: 2008	Model: ES350	Doc ID: RM000002HJE001X
Title: SERVICE SPECIFICATIONS: 2GR-FE ENGINE MECHANICAL: TORQUE SPECIFICATIONS (2008 ES350)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	
Ignition coil assembly x Cylinder head cover sub-assembly	10	102	7	
Engine hanger No. 1 x Cylinder head sub-assembly RH	33	337	24	
Engine hanger No. 2 x Cylinder head sub-assembly LH	33	337	24	
Engine mounting bracket RH x Cylinder block sub-assembly	54	551	40	
Oil level gauge guide No. 1 x Cylinder head sub-assembly	21	214	15	
Oil level gauge guide No. 2 x Cylinder head sub-assembly	21	214	15	
Idler pulley sub-assembly No. 2 x Timing chain cover sub-assembly	43	438	32	
V-ribbed belt tensioner assembly x Cylinder block sub-assembly	43	438	32	
Intake manifold x Cylinder head sub-assembly	21	214	15	
Exhaust manifold sub-assembly RH x Cylinder head sub-assembly RH	21	214	15	
Exhaust manifold sub-assembly LH x Cylinder head sub-assembly LH	21	214	15	
Drive plate & ring gear sub-assembly x Crankshaft	83	850	61	
Air cleaner case x Body	5.0	51	44 in.*lbf	
Intake air resonator sub-assembly x Body	5.0	51	44 in.*lbf	
E.F.I engine coolant temperature x water by-pass joint RR	20	200	14	
Engine assembly with Transaxle x Body	Bolt A	85	867	63
	Bolt B	32	329	24
	Bolt C	85	867	63
	Bolt D	32	329	24
Manifold stay No. 2 x Exhaust manifold sub-assembly LH	34	347	25	
Air cleaner inlet No. 1 x Body	5.0	51	44 in.*lbf	
Air cleaner inlet assembly x Body	5.0	51	44 in.*lbf	
Battery clamp x Body	Bolt	9.0	92	80 in.*lbf
	Nut	3.5	36	31 in.*lbf
Vane pump assembly x Engine assembly	43	438	32	
Pressure feed tube clamp bolt x Engine assembly	9.8	100	87 in.*lbf	
Steering intermediate shaft x Steering gear	35	360	26	

Stabilizer link x Shock absorber		74	755	55
Tie rod assembly x Steering gear		49	500	36
Speed sensor front x Front axle		8.0	82	71 in. * lbf
Front axle hub nut x Front drive shaft		294	2,998	217
Cooler compressor x V-ribbed belt tensioner		25	250	18
Engine mounting control bracket x Engine mounting bracket front No. 1 LH	Bolt	38	387	28
	Nut	23	235	17
Engine assembly w/ Transaxle x Front frame assembly	Bolt	87	887	64
	Nut	95	969	70
Engine mounting insulator FR cable x Engine mounting bracket FR		7.8	80	69 in. * lbf
Transmission control cable assembly x Control shaft lever		13	130	9
Drive shaft bearing bracket x Cylinder block sub-assembly		64	653	47
Exhaust manifold heat insulator No. 2 x Exhaust manifold sub-assembly LH		8.5	87	75 in. * lbf
Oil pressure switch x Oil pan sub-assembly		21	214	15
Engine mounting stay No. 2 RH x Intake manifold		21	214	15
Timing gear cover No. 2 x Chain cover sub-assembly		6.0	61	53 in. * lbf
Engine mounting bracket front No. 1 LH x Chain cover		54	551	40
Engine mounting bracket front No. 1 LH x Stud bolt		10	102	7
Engine oil level sensor x Oil pan sub-assembly		8.2	84	73 in. * lbf
Vacuum switching valve No. 1 x Cylinder head cover sub-assembly		10	102	7
Radio setting condenser x Cylinder head cover sub-assembly		10	102	7
Intake air surge tank assembly x Intake manifold	Bolt	18	184	13
	Nut	16	163	12
Surge tank stay No.1 x Cylinder head cover sub-assembly		21	214	15
Surge tank stay No.1 x Surge tank assembly		21	214	15
Throttle body bracket x Cylinder head cover sub-assembly		21	214	15
Throttle body bracket x Surge tank assembly		21	214	15
Vacuum hose clamp x Throttle body bracket		5.4	55	48 in. * 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. 1 chain tensioner x Cylinder head sub-assembly		10	102	7
No. 2 chain tensioner x Cylinder head sub-assembly		21	214	15
No. 3 chain tensioner x Cylinder head sub-assembly		21	214	15

Camshaft timing gear assembly x Camshaft		100	1,020	74
Camshaft timing exhaust gear assembly x Camshaft		100	1,020	74
Engine rear oil seal retainer x Cylinder block sub-assembly		10	102	7
Knock sensor x Cylinder block sub-assembly		20	204	15
Water inlet pipe x Cylinder block sub-assembly		10	102	7
Cylinder head RH x Cylinder block sub-assembly	1st	36	367	27
	2nd	Turn 90°	Turn 90°	Turn 90°
	3rd	Turn 90°	Turn 90°	Turn 90°
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
No. 1 chain vibration damper x Cylinder block sub-assembly		23	230	17
No. 1 idle gear x Cylinder block sub-assembly		60	612	44
Timing chain cover plate x Timing chain cover sub-assembly		9.1	93	81 in.*lbf
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
Water pump assembly x Timing chain cover sub-assembly		9.1	93	81 in.*lbf
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		10	102	7
Oil pan stud bolt x No. 2 oil pan sub-assembly		4.0	41	35 in.*lbf
Oil cooler stud bolt x Oil pan sub-assembly		9.0	92	80 in.*lbf
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 sub-assembly x Cylinder block and timing chain cover sub-assembly	Bolt A	10	102	7
	Except Bolt A	21	214	15
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
Crankshaft pulley x Crankshaft		250	2,550	184
Cylinder head cover sub-assembly x Cylinder head sub-assembly RH	Bolt A	21	214	15
	Except Bolt A	10	102	7
Cylinder head cover sub-assembly LH x Cylinder head sub-assembly LH	Bolt A	21	214	15
	Except Bolt A	10	102	7
Water outlet x Cylinder head sub-assembly	Bolt	10	102	7
	Nut	10	104	8
Water inlet housing set nut		10	102	7
Stud bolt x Water inlet housing		4.0	41	35 in. *lbf
Water inlet set bolt and nut		10	102	7
Stud bolt x No.1 oil cooler bracket		10	102	7
Oil cooler pipe x No.1 oil cooler bracket	Bolt	21	214	16
	Nut	21	214	16
No.1 oil cooler bracket w/ Oil cooler pipe x Oil pan sub-assembly and Cylinder block sub-assembly	Bolt	21	214	16
	Nut	21	214	16
No.1 oil cooler bracket x Oil cooler assembly		68	693	50
Water by-pass hoses x Clamp		10	102	7
Oil filter cap x Oil pan		25	255	18
Oil filter cap x Drain plug		13	127	9
Camshaft position sensor		10	102	7
Ventilation valve x Cylinder head cover sub-assembly LH		27	275	20
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
Crankshaft position sensor x Cylinder block sub-assembly		10	102	7
Camshaft timing oil control valve assembly x Cylinder head cover		10	102	7
Cylinder block water drain cock sub-assembly x Cylinder block sub-assembly		25	255	18
Drain cock sub-assembly x Water inlet housing		30	306	22
Water drain cock plug x Water drain cock sub-assembly		13	130	9
Drain cock plug x Drain cock sub-assembly		13	130	9
Spark plug x Cylinder head sub-assembly		25	254	18
Stud bolt x Cylinder head sub-assembly	For A and B bolts	10	102	7
	For C Bolts	4.0	41	35 in. *lbf
with Head screw plug x Cylinder head sub-assembly		44	449	32
with Head No. 2 screw plug x Cylinder head sub-assembly		80	816	59
	16 pointed head	61	622	45

Main bearing cap x Cylinder block sub-assembly	1st			
	2nd	Turn 90°	Turn 90°	Turn 90°
	14 mm head	52	525	38
Connecting rod cap x Connecting rod	1st	25	255	18
	2nd	Turn 90°	Turn 90°	Turn 90°
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

