

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Camshaft timing sprocket x Camshaft	1ZZ-FE	45	460	33
	2ZZ-GE	54	551	40
Valve timing controller assembly x Camshaft	1ZZ-FE	45	460	33
	2ZZ-GE	54	551	40
Chain vibration damper x Cylinder block	1ZZ-FE	11	113	8
	2ZZ-GE	20.5	209	15
Chain tensioner slipper x Cylinder block	1ZZ-FE	18.5	189	14
	2ZZ-GE	20.5	209	15
Timing chain cover				
1ZZ-FE: [See page EM-26]	10 mm head bolt A	13	133	10
	10 mm head bolt C	9	92	80 in.·lbf
	10 mm head bolt others	11	113	8
	12 mm head bolt D	18.5	189	14
2ZZ-GE: [See page EM-26]	Stud (E8)	9.3	95	82 in.·lbf
	Bolt A	21	214	15
	Bolt B	11	113	8
	Bolt C	9.0	92	80 in.·lbf
	Bolt D	9.0	92	80 in.·lbf
	Stud (E8)	9.3	95	82 in.·lbf
RH engine mounting bracket x Timing chain cover	1ZZ-FE	47	479	35
	2ZZ-GE	49	500	36
Driver belt tensioner x Timing chain cover	Bolt			
	1ZZ-FE	69	704	51
	2ZZ-GE	100	1,020	74
	Nut	29	296	21
Crankshaft position sensor x Timing chain cover		9.0	92	80 in.·lbf
Crankshaft pulley x Crankshaft	1ZZ-FE	138	1,409	102
	2ZZ-GE	120	1,200	87
Chain tensioner x Timing chain cover		9.0	92	80 in.·lbf
Cylinder head cover x Cylinder head	1ZZ-FE w/ Washer	9.0	92	80 in.·lbf
	w/o Washer	11	113	8
	2ZZ-GE	10	100	7
No. 1 ventilation pipe x Cylinder head cover		10	100	7
No. 1 ventilation pipe x Intake manifold	2ZZ-GE	25	255	18
RH engine mounting insulator		52	530	38
PS pump x Engine		36	370	27
Camshaft bearing cap x Cylinder head	1ZZ-FE No. 1	23	235	17
	No. 3	13	133	10
	2ZZ-GE	18.5	189	14
Rocker No. 1 and No. 2 shaft x Cylinder head	2ZZ-GE	7.5	76	66 in.·lbf
Oil control valve housing x Cylinder head	2ZZ-GE	9.0	92	80
Oil pressure switch x Cylinder head	2ZZ-GE	13	130	9
Oil control valve filter x Cylinder head	2ZZ-GE	29	300	22
Cylinder head x Cylinder block	1ZZ-FE 1st	49	500	36
	2nd	Turn 90°	Turn 90°	Turn 90°
	2ZZ-GE 1st	35	375	26
	2nd	Turn 180°	Turn 180°	Turn 180°
Water bypass pipe x Cylinder head		9.0	92	80 in.·lbf

Intake manifold x Cylinder head				
1ZZ-FE:		18.5	189	14
2ZZ-GE: (See page EM-66)	Bolt A	27	275	20
	Bolt B	46	469	34
	Bolt others	34	347	25
Intake manifold stay	2ZZ-GE	24	245	18
Exhaust manifold x Cylinder head	1ZZ-FE	37	377	27
	2ZZ-GE	50	510	37
Lower heat insulator x Exhaust manifold	1ZZ-FE	12	123	9
	2ZZ-GE	20	204	15
Upper heat insulator x Exhaust manifold	1ZZ-FE	12	123	9
	2ZZ-GE	20	204	15
Exhaust manifold stay	1ZZ-FE	49	500	37
	2ZZ-GE	50	510	37
Exhaust pipe		43	440	32
Engine ECU box		6.9	70	61 in.·lbf
Engine ECU cover		6.9	70	61 in.·lbf
Air cleaner case		5.0	51	44 in.·lbf
Bearing cap sub-assembly x Cylinder block	12 pointed head 1st	22	225	16
	2nd	44	449	32
	3rd	Turn 45°	Turn 45°	Turn 45°
	4th	Turn 45°	Turn 45°	Turn 45°
	Hexagon head 1ZZ-FE	18.5	189	14
	2ZZ-GE	18	185	13
Screw plug x Bearing cap sub-assembly	2ZZ-GE	43	438	32
Connecting rod cap	1ZZ-FE 1st	20	204	15
	2nd	Turn 90°	Turn 90°	Turn 90°
	2ZZ-GE 1st	30	306	22
	2nd	Turn 90°	Turn 90°	Turn 90°
Oil strainer		9.0	92	80 in.·lbf
Oil pan baffle	2ZZ-GE	9.0	92	80 in.·lbf
Oil pan		9.0	92	80 in.·lbf
Oil filter union		30	306	21
Engine coolant drain union	1ZZ-FE	20	200	14
	2ZZ-GE	25	255	18
Knock sensor		39	400	29
Ventilation case	2ZZ-GE	8.5	87	75 in.·lbf
Water bypass pipe x Cylinder block	1ZZ-FE	9.0	92	80 in.·lbf
	2ZZ-GE			
	Bolt	8.5	87	75 in.·lbf
	Nut	10	100	7
Dipstick guide	1ZZ-FE	11	113	8
	2ZZ-GE	25	255	18
Fly wheel	1st	49	500	36
	2nd	Turn 90°	Turn 90°	Turn 90°
Drive plate		88	897	65