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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: SPECIFICATIONS: M20A-FXS ENGINE MECHANICAL: TORQUE SPECIFICATIONS; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

TORQUE SPECIFICATIONS

CAMSHAFT

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 1 camshaft bearing cap, No. 2 camshaft bearing cap, No. 3 camshaft bearing cap and No. 4 camshaft bearing cap x Cylinder head sub-assembly and camshaft housing sub-assembly	28.5	291	21
No. 1 camshaft bearing cap, No. 2 camshaft bearing cap, No. 3 camshaft bearing cap and No. 4 camshaft bearing cap x Camshaft housing sub-assembly	16	163	12
Camshaft timing gear assembly x Intake camshaft sub-assembly	86	877	63
Camshaft timing exhaust gear assembly x Exhaust camshaft sub-assembly	19	194	14

FRONT CRANKSHAFT OIL SEAL

PART TIGHTENED	N*M	KGF*CM	IN.*LBF
No. 1 engine under cover assembly x Vehicle	7.5	76	66

REAR CRANKSHAFT OIL SEAL

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Flywheel sub-assembly x Crankshaft	150	1530	111
Transmission input damper assembly x Flywheel sub-assembly	30	306	22

ENGINE ASSEMBLY (for HEV Model)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
No. 1 engine hanger and No. 2 engine hanger x Cylinder head sub-assembly and engine mounting bracket RH	43	438	32	
Engine mounting insulator sub-assembly RH x Vehicle	72	734	53	

PART TIGHTENED		N*M	KG*CM	FT.*LBF	IN.*LBF
No. 2 earth wire x Engine mounting insulator sub-assembly RH and vehicle		10.5	107	8	
Engine mounting insulator LH x Vehicle		42	428	31	
Front suspension crossmember sub-assembly, center radiator support LH and center radiator support RH x Vehicle	Bolt (A)	141	1438	104	
	Bolt (B)	32	326	24	
	Bolt (C)	12	122	9	
Engine mounting insulator LH and No. 2 engine mounting stay LH x Hybrid vehicle transaxle assembly	Bolt (A), (B), (C)	70	714	52	
	Bolt (D), (E)	8.0	82		71
	Nut	20	204	15	
Engine mounting insulator sub-assembly RH x Engine mounting bracket RH	Bolt	72	734	53	
	Nut	41	418	30	
Front bumper extension sub-assembly LH x Front suspension crossmember sub-assembly		12	122	9	
Front bumper extension sub-assembly RH x Front suspension crossmember sub-assembly		12	122	9	
No. 2 crossmember gusset LH x Front suspension crossmember sub-assembly and vehicle		72	734	53	
No. 2 crossmember gusset RH x Front suspension crossmember sub-assembly and vehicle		72	734	53	
Inverter reserve tank assembly x Engine mounting insulator sub-assembly RH		5.0	51		44
No. 7 engine wire x Vehicle		10	102	7	
Center engine under cover x Vehicle		7.5	76		66

ENGINE ASSEMBLY (for PHEV Model)

PART TIGHTENED		N*M	KGF*CM	FT.*LBF	IN.*LBF
No. 1 engine hanger and No. 2 engine hanger x Cylinder head sub-assembly and engine mounting bracket RH		43	438	32	
Engine mounting insulator sub-assembly RH x Vehicle		72	734	53	
Engine mounting insulator sub-assembly RH x Cooler bracket		9.8	100		87
No. 2 earth wire x Engine mounting insulator sub-assembly RH and vehicle		10.5	107	8	
Radiator reserve tank assembly x Vehicle		5.0	51		44
Engine mounting insulator LH x Vehicle		42	428	31	
Front suspension crossmember sub-assembly, center radiator support LH and center radiator support RH x Vehicle	Bolt (A)	141	1438	104	
	Bolt (B)	32	326	24	
	Bolt (C)	12	122	9	
Engine mounting insulator LH and No. 2 engine mounting stay LH x Hybrid vehicle transaxle assembly	Bolt (A), (B), (C)	70	714	52	
	Bolt (D), (E)	8.0	82		71
	Nut	20	204	15	
Engine mounting insulator sub-assembly RH x Engine mounting bracket RH	Bolt	72	734	53	
	Nut	41	418	30	
Front bumper extension sub-assembly LH x Front suspension crossmember sub-assembly		12	122	9	
Front bumper extension sub-assembly RH x Front suspension crossmember sub-assembly		12	122	9	

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
No. 2 crossmember gusset LH x Front suspension crossmember sub-assembly and vehicle	72	734	53	
No. 2 crossmember gusset RH x Front suspension crossmember sub-assembly and vehicle	72	734	53	
No. 1 inverter reserve tank bracket x Engine mounting insulator sub-assembly RH	5.0	51		44
Inverter reserve tank assembly x Engine mounting insulator sub-assembly RH	5.0	51		44
No. 7 engine wire x Vehicle	10	102	7	
Center engine under cover x Vehicle	7.5	76		66

ENGINE UNIT (for HEV Model)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
Stud bolt x Stiffening crankcase assembly	4.0	41		35
Stud bolt x Timing chain cover assembly	4.0	41		35
Stud bolt x Cylinder head sub-assembly	6.5	66		58
Wire harness clamp bracket x Stiffening crankcase assembly	10	102	7	
Straight screw plug x Stiffening crankcase assembly	44	449	32	
Engine blancer assembly x Stiffening crankcase assembly	24	245	18	
Stiffening crankcase assembly x Cylinder block sub-assembly	43	438	32	
Oil strainer sub-assembly x Stiffening crankcase assembly	10	102	7	
Oil pan sub-assembly x Stiffening crankcase assembly	10	102	7	
Oil pan drain plug x oil pan sub-assembly	40	408	30	
Oil filter union x Stiffening crankcase assembly	29.5	301	22	

PART TIGHTENED		N*M	KGF*CM	FT.*LBF	IN.*LBF
Cylinder head sub-assembly x Cylinder block sub-assembly	1st	50	510	37	
	2nd	Turn 90°			
	3rd	Turn 90°			
No. 3 straight screw with head plug x Cylinder head sub-assembly		44	449	32	
No. 1 camshaft bearing cap, No. 2 camshaft bearing cap, No. 3 camshaft bearing cap and No. 4 camshaft bearing cap x Camshaft housing sub-assembly		16	163	12	
No. 1 camshaft bearing cap, No. 2 camshaft bearing cap, No. 3 camshaft bearing cap and No. 4 camshaft bearing cap x Cylinder head sub-assembly and camshaft housing sub-assembly		28.5	291	21	
Fuel pump lifter guide x No. 4 camshaft bearing cap		10	102	7	
Timing chain cover assembly x Cylinder head sub-assembly, camshaft housing sub-assembly, cylinder block sub-assembly, oil pump assembly and stiffening crankcase assembly		27	275	20	
Camshaft timing exhaust gear assembly x Exhaust camshaft sub-assembly		19	194	14	
No. 1 chain vibration damper x Cylinder head sub-assembly and cylinder block sub-assembly		24	245	18	
Chain tensioner slipper x Cylinder head sub-assembly		24	245	18	
No. 1 chain tensioner assembly x Timing chain cover assembly		10	102	7	
Camshaft timing gear assembly x Intake camshaft sub-assembly		86	877	63	
Oil pump drive shaft sprocket x Oil pump assembly		50	510	37	
No. 2 timing chain cover assembly x Timing chain cover assembly		24	245	18	
Engine mounting bracket RH x No. 2 timing chain cover assembly		43	438	32	
Straight screw plug x No. 2 timing chain cover assembly		40	408	30	

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
Cylinder head cover sub-assembly x Camshaft housing sub-assembly	7.5	76		66
water by-pass outlet x Cylinder head sub-assembly	10	102	7	
Water outlet sub-assembly x Cylinder head sub-assembly	10	102	7	
Crankshaft pulley assembly x Crankshaft	260	2651	192	
Wire harness clamp bracket x No. 1 ventilation case	10	102	7	
Wire harness clamp bracket x Camshaft housing sub-assembly	10	102	7	
No. 3 exhaust manifold heat insulator x Cylinder block sub-assembly	16	163	12	
Engine water pump assembly (water inlet housing) x Cylinder block sub-assembly	43	438	32	
Engine oil level dipstick guide x Camshaft housing sub-assembly	10	102	7	
No. 6 engine wire x wire harness clamp bracket	10	102	7	
Sensor wire x water inlet with thermostat sub-assembly	10	102	7	
Water by-pass hose assembly x Cylinder block sub-assembly	21	214	15	
No. 3 water by-pass pipe x Intake manifold	10	102	7	

ENGINE UNIT (for PHEV Model)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
Stud bolt x Stiffening crankcase assembly	4.0	41		35
Stud bolt x Timing chain cover assembly	4.0	41		35
Stud bolt x Cylinder head sub-assembly	6.5	66		58
Wire harness clamp bracket x Stiffening crankcase assembly	10	102	7	
Straight screw plug x Stiffening crankcase assembly	44	449	32	

PART TIGHTENED		N*M	KGF*CM	FT.*LBF	IN.*LBF
Engine blancer assembly x Stiffening crankcase assembly		24	245	18	
Stiffening crankcase assembly x Cylinder block sub-assembly		43	438	32	
Oil strainer sub-assembly x Stiffening crankcase assembly		10	102	7	
Oil pan sub-assembly x Stiffening crankcase assembly		10	102	7	
Oil pan drain plug x oil pan sub-assembly		40	408	30	
Oil filter union x Stiffening crankcase assembly		29.5	301	22	
Cylinder head sub-assembly x Cylinder block sub-assembly	1st	50	510	37	
	2nd	Turn 90°			
	3rd	Turn 90°			
No. 3 straight screw with head plug x Cylinder head sub-assembly		44	449	32	
No. 1 camshaft bearing cap, No. 2 camshaft bearing cap, No. 3 camshaft bearing cap and No. 4 camshaft bearing cap x Camshaft housing sub-assembly		16	163	12	
No. 1 camshaft bearing cap, No. 2 camshaft bearing cap, No. 3 camshaft bearing cap and No. 4 camshaft bearing cap x Cylinder head sub-assembly and camshaft housing sub-assembly		28.5	291	21	
Fuel pump lifter guide x No. 4 camshaft bearing cap		10	102	7	
Timing chain cover assembly x Cylinder head sub-assembly, camshaft housing sub-assembly, cylinder block sub-assembly, oil pump assembly and stiffening crankcase assembly		27	275	20	
Camshaft timing exhaust gear assembly x Exhaust camshaft sub-assembly		19	194	14	
No. 1 chain vibration damper x Cylinder head sub-assembly and cylinder block sub-assembly		24	245	18	
Chain tensioner slipper x Cylinder head sub-assembly		24	245	18	

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
No. 1 chain tensioner assembly x Timing chain cover assembly	10	102	7	
Camshaft timing gear assembly x Intake camshaft sub-assembly	86	877	63	
Oil pump drive shaft sprocket x Oil pump assembly	50	510	37	
No. 2 timing chain cover assembly x Timing chain cover assembly	24	245	18	
Engine mounting bracket RH x No. 2 timing chain cover assembly	43	438	32	
Straight screw plug x No. 2 timing chain cover assembly	40	408	30	
Cylinder head cover sub-assembly x Camshaft housing sub-assembly	7.5	76		66
water by-pass outlet x Cylinder head sub-assembly	10	102	7	
Water outlet sub-assembly x Cylinder head sub-assembly	10	102	7	
Crankshaft pulley assembly x Crankshaft	260	2651	192	
Wire harness clamp bracket x No. 1 ventilation case	10	102	7	
Wire harness clamp bracket x Camshaft housing sub-assembly	10	102	7	
No. 3 exhaust manifold heat insulator x Cylinder block sub-assembly	16	163	12	
Engine water pump assembly (water inlet housing) x Cylinder block sub-assembly	43	438	32	
Engine oil level dipstick guide x Camshaft housing sub-assembly	10	102	7	
No. 6 engine wire x wire harness clamp bracket	10	102	7	
Sensor wire x water inlet with thermostat sub-assembly	10	102	7	
Water by-pass hose assembly x Cylinder block sub-assembly	21	214	15	
No. 3 water by-pass pipe x Intake manifold	10	102	7	

CYLINDER HEAD

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	IN.*LBF
Stud bolt x Cylinder head sub-assembly	6.5	66		58
No. 1 straight screw plug x Cylinder head sub-assembly	25	255	18	

CYLINDER BLOCK

PART TIGHTENED	N*M	KGF*CM	FT.*LBF	
No. 2 oil nozzle sub-assembly x Cylinder block sub-assembly	10	102	7	
No. 1 oil nozzle sub-assembly x Cylinder block sub-assembly	10	102	7	
Crankshaft bearing cap x Cylinder block sub-assembly	1st	61	622	45
	2nd	Turn 90°		
Connecting rod bearing cap x Connecting rod sub-assembly	1st	38	387	28
	2nd	Turn 90°		
Cylinder block with head straight screw plug x Cylinder block sub-assembly	44	449	32	
No. 1 ventilation case x Cylinder block sub-assembly	21	214	15	

