

ENGINE - SPECS**SPECIFICATION [Connecting Rod]**

For operations related to connecting rod, < Ref. to , REMOVAL , Cylinder Block. > < Ref. to , INSTALLATION , Cylinder Block. >

SPECIFICATION [Intake And Exhaust Valve]

For operations related to intake and exhaust valve, < Ref. to , REMOVAL , Cylinder Head. > < Ref. to , INSTALLATION , Cylinder Head. >

SPECIFICATION [Piston]

For operations related to piston, < Ref. to , REMOVAL , Cylinder Block. > < Ref. to , INSTALLATION , Cylinder Block. >

SPECIFICATION [Crankshaft]

For operations related to crankshaft, < Ref. to , REMOVAL , Cylinder Block. > < Ref. to , INSTALLATION , Cylinder Block. >

SPECIFICATION [General Description]**ENGINE SPECIFICATIONS**

Engine	Type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine		
	Valve arrangement		Belt driven, double overhead camshaft, 4-valve/cylinder		
	Bore x Stroke	mm (in)	92 x 75 (3.62 x 2.95)		
	Piston displacement	cm ³ (cu in)	1,994 (121.67)		
	Compression ratio		8.0		
	Compression pressure (at 200 - 300 rpm)	kPa (kgf/cm ² PSI)	981 - 1,177 (10 - 12, 142 - 171)		
	Number of piston rings		Pressure ring: 2, Oil ring: 1		
	Intake valve timing	Opening	BTDC 9°		
		Closing	ABDC 51°		
	Exhaust valve timing	Opening	BBDC 53°		
		Closing	ATDC 7°		
	Valve clearance	mm (in)	Intake STD	0.20+/-0.02 (0.0079+/-0.0008)	
			Exhaust STD	0.35+/-0.02 (0.0136+/-0.0008)	
	Idling speed [At neutral position on		rpm	MT	750+/-100 (No load) 800+/-150 (A/C switch ON)

MT or "P" or "N" range on AT]		AT	750+/-100 (No load) 825+/-150 (A/C switch ON)
Firing order			1 --> 3 --> 2 --> 4
Ignition timing	BTDC/rpm		12° +/-10°/750



NOTE: STD: Standard I.D.: Inner Diameter O.D.: Outer Diameter OS: Oversize US: Undersize

GENERAL SPECIFICATIONS

Belt tension adjuster	Protrusion of adjuster rod	mm (in)		5.2 - 6.2 (0.205 - 0.244)	
Belt tensioner	Spacer O.D.	mm (in)		17.955 - 17.975 (0.7069 - 0.7077)	
	Tensioner bushing I.D.	mm (in)		18.0 - 18.08 (0.7087 - 0.7118)	
	Clearance between spacer and bushing	mm (in)	STD	0.025 - 0.125 (0.0010 - 0.0049)	
			Limit	0.175 (0.069)	
Side clearance of spacer	mm (in)	STD	0.2 - 0.55 (0.0079 - 0.0217)		
		Limit	0.81 (0.0319)		
Camshaft	Bend limit	mm (in)		0.020 (0.0079)	
	Thrust clearance	mm (in)	STD	0.068 - 0.116 (0.0026 - 0.0045)	
	Cam lobe height mm (in)	Intake	STD	46.25 - 46.35 (1.821 - 1.825)	
			Limit	46.15 (1.817)	
		Exhaust	STD	46.25 - 46.35 (1.821 - 1.825)	
			Limit	46.15 (1.817)	
	Journal O.D.	mm (in)	STD	Front	37.946 - 37.963 (1.4939 - 1.4946)
				Center rear	29.946 - 29.963 (1.1790 - 1.1796)
Oil clearance	mm (in)	STD	0.037 - 0.072 (0.0015 - 0.0028)		
		Limit	0.10 (0.0039)		
Cylinder head	Surface warpage limit (mating with cylinder head)	mm (in)		0.035 (0.0014)	
	Surface grinding limit	mm (in)		0.3 (0.012)	
	Standard height	mm (in)		127.5 (5.02)	
	Refacing angle			90°	

Valve seat	Contacting width	mm (in)	Intake	STD	0.85 - 1.15 (0.033 - 0.045)	
				Limit	1.7 (0.067)	
			Exhaust	STD	1.35 - 1.65 (0.053 - 0.064)	
				Limit	2.2 (0.087)	
Valve guide	Inner diameter	mm (in)		6.000 - 6.012 (0.2362 - 0.2367)		
	Protrusion above head	mm (in)		15.8 - 16.2 (0.622 - 0.638)		
Valve	Head edge thickness	mm (in)	Intake	STD	1.0 - 1.4 (0.039 - 0.055)	
				Limit	0.8 (0.031)	
			Exhaust	STD	1.3 - 1.7 (0.051 - 0.067)	
				Limit	0.8 (0.031)	
	Stem diameter	mm (in)		Intake	5.955 - 5.970 (0.2344 - 0.2350)	
				Exhaust	5.945 - 5.960 (0.2341 - 0.2346)	
	Stem oil clearance	mm (in)	STD	Intake	0.030 - 0.057 (0.0012 - 0.0022)	
				Exhaust	0.040 - 0.067 (0.0016 - 0.0026)	
				Limit	- 0.15 (0.0059)	
	Overall length	mm (in)		Intake	104.4 (4.110)	
Exhaust				104.65 (4.120)		
Valve spring	Free length	mm (in)		44.67 (1.759)		
	Squareness			2.5°, 2.0 mm (0.079 in) or less		
	Tension/spring height		N (kgf, lb)/mm (in)	Set	206 - 236 (21.0 - 24.1, 46.3 - 53.1)/36.0 (1.417)	
Lift				485 - 537 (49.5 - 54.8, 109 - 121)/26.0 (1.024)		
Cylinder block	Surface warpage limit (mating with cylinder head)	mm (in)		0.025 (0.00098)		
	Surface grinding limit	mm (in)		0.1 (0.004)		
	Cylinder bore	mm (in)	STD	A	92.005 - 92.015 (3.6222 - 3.6226)	
				B	91.995 - 92.005 (3.6218 - 3.6222)	
	Taper	mm (in)		STD	0.015 (0.0006)	
				Limit	0.050 (0.0020)	
	Out-of-roundness	mm (in)		STD	0.010 (0.0004)	
				Limit	0.050 (0.0020)	
	mm (in)		STD	0.010 - 0.030 (0.0004 - 0.0012)		

	Piston clearance				
	Enlarging (boring) limit		Limit		0.050 (0.0020) 0.5 (0.020)
Piston	Outer diameter	mm (in)	STD	A	91.985 - 91.995 (3.6214 - 3.6218)
				B	91.975 - 91.985 (3.6211 - 3.6214)
			0.25 (0.0098) OS		92.225 - 92.235 (3.6309 - 3.6313)
			0.50 (0.0197) OS		92.475 - 92.485 (3.6407 - 3.6411)
Piston pin	Standard clearance between piston pin and hole in piston	mm (in)	STD	0.004 - 0.008 (0.0002 - 0.0003)	
			Limit	0.020 (0.0008)	
	Degree of fit			Piston pin must be fitted into position with thumb at 20°C (68°F).	
Piston ring	Piston ring gap	mm (in)	Top ring	STD	Outer circle side: 0.20 - 0.25 (0.0079 - 0.0098)
					Inner circle side: 0.20 - 0.30 (0.0079 - 0.0117)
			Second ring	Limit	1.0 (0.039)
				STD	0.40 - 0.50 (0.016 - 0.020)
			Oil ring	Limit	1.0 (0.039)
				STD	0.20 - 0.50 (0.0079 - 0.020)
	Clearance between piston ring and piston ring groove	mm (in)	Top ring	STD	0.04 - 0.08 (0.0016 - 0.0031)
				Limit	0.15 (0.0059)
			Second ring	STD	0.030 - 0.070 (0.0012 - 0.0028)
				Limit	0.15 (0.0059)
Connecting rod	Bend twist per 100 mm (3.94 in) in length	mm (in)	Limit	0.10 (0.0039)	
	Side clearance	mm (in)	STD	0.070 - 0.330 (0.0028 - 0.0130)	
Limit			0.4 (0.016)		
Connecting	Oil clearance	mm (in)	STD	0.026 - 0.052 (0.0010 - 0.0020)	
			STD	1.486 - 1.498 (0.0585 - 0.0590)	
			0.03 (0.0012) US	1.504 - 1.512 (0.0592 - 0.0595)	

rod bearing	Thickness at center portion	mm (in)	0.05 (0.0020) US	1.514 - 1.522 (0.0596 - 0.0599)
			0.25 (0.0098) US	1.614 - 1.622 (0.0635 - 0.0639)
Connecting rod bushing	Clearance between piston pin and bushing	mm (in)	STD Limit	0 - 0.022 (0 - 0.0009) 0.030 (0.0012)
Crankshaft	Bend limit	mm (in)		0.035 (0.0014)
	Crank pin	mm (in)	Out-of-roundness	0.005 (0.0002)
			Grinding limit (diameter)	To 51.750 (2.0374)
	Crank journal	mm (in)	Out-of-roundness	0.005 (0.0002)
			Grinding limit (diameter)	To 51.750 (2.0374)
	Crank pin outer diameter	mm (in)	STD	51.984 - 52.000 (2.0466 - 2.0472)
			0.03 (0.0012) US	51.954 - 51.970 (2.0454 - 2.0461)
			0.05 (0.0020) US	51.934 - 51.950 (2.0447 - 2.0453)
			0.25 (0.0098) US	51.734 - 51.750 (2.0368 - 2.0374)
	Crank journal outer diameter	mm (in)	STD	59.992 - 60.008 (2.3619 - 2.3625)
			0.03 (0.0012) US	59.962 - 59.978 (2.3607 - 2.3613)
			0.05 (0.0020) US	59.942 - 59.958 (2.3599 - 2.3605)
			0.25 (0.0098) US	59.742 - 59.758 (2.3520 - 2.3527)
	Thrust clearance	mm (in)	STD	0.030 - 0.115 (0.0012 - 0.0045)
Limit			0.25 (0.0098)	
			STD	0.010 - 0.030 (0.0004 - 0.0012)

	Oil clearance	mm (in)		Limit	0.40 (0.0016)
		Main bearing	Thickness at center	#1, #3	mm (in)
0.03 (0.0012) US	2.017 - 2.020 (0.0794 - 0.0795)				
0.05 (0.0020) US	2.027 - 2.030 (0.0798 - 0.0799)				
0.25 (0.0098) US	2.127 - 2.130 (0.0837 - 0.0839)				
#2, #4, #5	mm (in)			STD	2.000 - 2.013 (0.0787 - 0.0793)
				0.03 (0.0012) US	2.019 - 2.022 (0.0795 - 0.0796)
				0.05 (0.0020) US	2.029 - 2.032 (0.0799 - 0.0800)
				0.25 (0.0098) US	2.129 - 2.132 (0.0838 - 0.0839)

SPECIFICATIONS INDEX

IMPREZA SPECIFICATIONS INDEX

System	Specification/Procedure
Air Conditioning	
Service	SPECIFICATION
Torque	COMPONENT
Axle Shaft Nut (Front)	162 Ft.lb (22.4 kgf-m, 220 N.m)
Axle Shaft Nut (Rear)	140 Ft.lb (19.4 kgf-m, 190 N.m)
Battery	NA
Brakes	
Bleeding Sequence	AIR BLEEDING
Disc/Drum Brakes	SPECIFICATION
Torque	See applicable COMPONENT for torque specifications.
Charging	
Generator	

H4DOTC & H4SO	SPECIFICATION	
Torque		
H4DOTC & H4SO	INSTALLATION	
Drive Belts		
Belt Routing & Adjustment		
H4DOTC	V-BELT	
H4SO	V-BELT	
STi	V-BELT	
Engine Cooling		
General Service Specifications		
H4DOTC	SPECIFICATION	
H4SO	SPECIFICATION	
STi	SPECIFICATION	
Radiator Cap Pressure	14-18 psi (.95-1.25 kg/cm ²)	
Thermostat R & I		
H4DOTC	THERMOSTAT	
H4SO	THERMOSTAT	
STi	Refer to THERMOSTAT	
Water Pump R & I		
H4DOTC	WATER PUMP	
H4SO	WATER PUMP	
STi	Refer to WATER PUMP	
Engine Mechanical		
Compression		
H4DOTC	142-171 psi (981-1,177 kPa, 10-12 kgf/cm ²)	
H4SO	148-185 psi (1,020-1,275 kPa (10.4-13.0 kgf/cm ²)	
Oil Pressure		
At Idle Speed	H4DOTC & H4SO 14 psi (1.0 kg/cm ²)	
At 5,000 RPM	H4DOTC & H4SO 43 psi (3.0 kg/cm ²)	

Overhaul	
H4DOTC	SPECIFICATION
H4SO	SPECIFICATION
STi	SPECIFICATION
Torque	
H4DOTC	See applicable COMPONENT for torque specifications.
H4SO	See applicable COMPONENT for torque specifications.
STi	See applicable COMPONENT for torque specifications.
Fluid Specifications	See FLUIDS under MAINTENANCE tab.
Flywheel/Flex Plate (Drive Plate) Torque	55 Ft.lb (75 N.m)
Fuel System	
Fuel Pressure Test Procedure	
H4DOTC	FUEL PRESSURE
H4SO	FUEL PRESSURE
STi	FUEL PRESSURE
Fuel Filter Location	In-Tank Type
Ignition	
Firing Order & Cylinder Identification	FIRING ORDER & CYLINDER IDENTIFICATION
Ignition Wires (Resistance)	
H4DOTC	Coil On Plug
H4SO	SPARK PLUG CORD
STi	Coil On Plug
Ignition Wires (Routing)	NA
Spark Plug	
H4DOTC	SPARK PLUG
H4SO	SPARK PLUG
STi	SPARK PLUG
Starting	
Starter	
H4DOTC & H4SO	SPECIFICATION
Torque	37 Ft.lb (5.1 kgf-m, 50 N.m)

Wheel Alignment	
Adjustment Specifications	
Front	SPECIFICATION
Rear	SPECIFICATION
Torque	
Front	COMPONENT
Rear	COMPONENT
Wheel & Tire	
Wheel Lug Nut Torque	66 Ft.lb (9.1 kgf-m, 90 N.m)