

## **Engine Specifications in Detail**

<b>Description</b>	<b>Specification</b>
Type	Inline OHV, DOHC
Number of Cylinders	4
Displacement	2.4L (148cu. In)
Bore	87.5 mm
Stroke	101.0mm
Compression Ratio	9.4:1
Firing Order	1-3-4-2
Compression Pressure	1172-1551 kPa (170-225)
Max. Variation Between Cylinders	25%

### **Cylinder Block**

Cylinder Bore Diameter	87.4924-87.5076mm
Out-of-Round (Max)	0.0051mm
Taper (Max)	0.0051mm

### **Pistons**

Piston Diameter	87.463-87.481mm
Clearance at 14mm from bottom of skirt	0.024-0.057mm
Weight	346-356gm
Land Clearance	0.614-0.664mm
Piston Length	66.25mm
Piston Ring Groove Depth No1	4.640-4.784mm
Piston Ring Groove Depth No2	4.575-4.719mm
Piston Ring Groove Depth No3	4.097-4.236mm

### **Piston Pins**

Clearance in Piston	0.005-0.018mm
Clearance in Connecting Rod	Var.
Diameter	21.998-22.003mm
End Play	Var.
Length	72.75-73.25mm

### **Piston Rings**

Ring Gap- Top Compression ring	0.25-0.51mm
Wear Limit	0.8mm
Ring Gap- 2 <sup>nd</sup> Compression Ring	0.23-0.48mm
Wear Limit	0.8mm
Ring Gap-Oil Control Steel Rails	0.25-0.64mm
Wear Limit	1.0mm
Ring Side Clearance Compression Rings	0.030-0.080mm
Wear Limit	0.10mm
Ring Side Clearance- oil Ring Pack	0.012-0.178mm
Ring Width- Compression Rings	1.47-1.50mm
Ring width- Oil ring Pack	2.72-2.88mm

**Connecting Rod**

Bearing Clearance	0.025-0.071mm
Wear Limit	0.075mm
Bore Diameter- Piston Pin	20.96-20.98mm
Bore Diameter- Crankshaft End	53.007-52.993mm
Side Clearance	0.13-0.38mm
Wear Limit	0.40mm
Weight- Total w/out Bearing	565.8gm

**Crankshaft**

Connecting rod Journal Diameter	49.984-50.000mm
Main Bearing journal Diameter	59.992-60.008mm
Journal Out of Round max.	0.0035mm
Journal Taper max.	0.0038mm
End Play	0.09-0.24mm
Wear Limit	0.37mm
Main Bearing Diametrical Clearance	0.018-0.058mm

**Hydraulic Lash Adjuster**

Body Diameter	15.901-15.913mm
Plunger Travel Minimum	3.0mm

**Cylinder Head Camshaft Bearing Bore Diameter**

Journal 1-6	26.020-26.041mm
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**Camshaft**

Journal Diameter 1-6	25.951-25.970mm
Bearing Clearance Diametrical	0.069-0.071mm
End Play	0.05-0.17mm
Lift- Zero Lash Intake	8.25mm
Lift- Zero Lash Exhaust	6.60mm
Intake Valve Timing ABDC /ATDC/Duration	44.3/6.2/218
Exhaust Valve Timing ATDC/BBDC/Duration	1/40/221
Valve overlap	5.4

**Cylinder Head**

Material	Cast Aluminum
Gasket Thickness	1.15mm

**Valve Seat**

Angle	44.5-45
Seat Diameter- Intake	34.37-34.63mm
Seat Diameter- Exhaust	27.06-27.32mm
Runout max.	0.05mm
Valve Seat Width- Intake and Exhaust	0.9-1.3mm
Service Limit -Intake	2.0mm
Service Limit Exhaust	2.5mm

**Valve Guide**

Diameter ID	5.975-6.000mm
Guide Bore Diameter	11.0-11.02mm
Guide Height	13.25-13.75mm

**Valves**

Face Angle –Intake and Exhaust	44.5-45
Head Diameter –Intake	34.67-34.93mm
Head Diameter –Exhaust	28.32-28.52mm
Valve Length- overall intake	112.76-113.32mm
Valve Length- overall exhaust	110.89-111.69mm
Valve Stem Diameter Intake	5.934-5.952mm
Valve Stem Diameter Exhaust	5.906-5.924mm

**Valve Margin**

Intake	1.2-1.7mm
Service Limit	0.95mm
Exhaust	0.985-1.315mm
Service Limit	1.05mm

**Valve Stem Tip Height**

Intake	0.048-0.066mm
Max. allowable	0.076mm
Service Limit	0.25mm
Exhaust	0.0736-0.094mm
Max. allowable	0.101mm
Service Limit	0.25mm

**Valve Spring**

Free Length	48.4mm
Nominal Force (valve closed)	338N at 38.0mm
Nominal Force (valve opened)	607N at 29.75mm
Installed Height	38.00mm
Number of Coils	7.82
Wire Diameter	3.86mm

**Oil Pump**

Clearance Over Rotors	0.10mm
Cover Out of Flat	0.025mm
Inner Rotor Thickness	9.40mm
Outer Rotor Thickness	9.40mm
Outer Rotor Clearance	0.039mm
Outer Rotor Diameter	79.95mm
Tip Clearance Between Rotors	0.20mm

**Oil Pressure**

At Curb idle speed	25kPa
At 3000rpm	170-550kPa