

**General**

<b>Manufacturer</b>	<b>TOYOTA</b>		
<b>Model/Year</b>	<b>2L-TE (4WD Surf)</b>	<b>1988 -</b>	<b>Turbocharged</b>
<b>L/(CID)</b>	2,446cc DIESEL	<b>No. of Cylinders</b>	4
<b>Bore &amp; Stroke</b>	92.0mm X 92.0mm		
<b>Firing Order</b>	1 - 3 - 4 - 2		
<b>Compression Ratio</b>	20.0 : 1	<b>Idle Speed</b>	650 - 750 rpm
<b>Comp. Pressure @ RPM</b>	3.0 MPa @ 250 rpm	2.0 MPa min.	<490 kPa diff.
<b>Oil Pressure</b>	29 kPa min at idle	<b>Oil Capacity &amp; Grade</b>	6.5 ltr dry CC-CD
<b>Injection Timing</b>	0.54 - 0.66 plunger stroke at T.D.C.		

**Block**

<b>Bore Diameter Standard</b>	92.000 - 92.030 mm
<b>Maximum Overbore</b>	1.00 mm
<b>Liner Flange Height &amp; Fit</b>	N/A Repair liners are available.
<b>Crankshaft Housing Bore</b>	66.000 - 66.020 mm
<b>Camshaft Housing Bore</b>	No. 1: 38.015 - 38.027 mm Nos. 2 - 5: 31.015 - 31.027 mm
<b>Block Deck Height</b>	0.20 mm warp limit

**Pistons & Rings**

<b>Piston to Bore Clearance</b>	0.05 - 0.07 mm @ 58.27 - 58.33 mm from crown.
<b>Piston Protrusion</b>	0.68 - 0.97 mm (Graded head gaskets - refer notes.)
<b>Gudgeon Pin Diameter</b>	29.000 - 29.012 mm
<b>Gudgeon Pin Clearance</b>	0.004 - 0.012 mm Limit: 0.05 mm
<b>Ring Equipment</b>	Top: 2.0 mm (½K), 2 <sup>nd</sup> : 2.0 mm; Oil: 4.0 mm.
<b>Piston Ring End Gap</b>	Top: 0.35 - 0.59 mm; 2 <sup>nd</sup> : 0.45 - 0.72 mm; Oil: 0.20 - 0.52 mm.
<b>Ring to Groove Clearance</b>	Top: 0.06 - 0.109mm; 2 <sup>nd</sup> : 0.07 - 0.115 mm; Oil: 0.03 - 0.07 mm.

**Connecting Rods**

<b>Big End Bore</b>	58.004 - 58.024 mm
<b>Pin End Bore</b>	32.000 - 32.021 mm
<b>Centre to Centre</b>	147 mm
<b>Big End Width</b>	
<b>Bush ID Finished</b>	29.008 - 29.020 mm
<b>Rod Side Clearance</b>	0.080 - 0.200 mm Limit: 0.30 mm
<b>Bend/Twist</b>	0.05 mm/100mm bend 0.15 mm/100 mm twist

**Camshaft**

<b>Journal Diameters</b>	1: 34.969 - 34.985 mm 2 - 5: 27.969 - 27.985 mm
<b>End Play</b>	0.08 - 0.28 mm Limit: 0.35 mm
<b>Oil Clearance</b>	0.022 - 0.074 mm Limit: 0.10 mm
<b>Minimum Lobe Height</b>	Inlet 53.45 mm Exhaust 54.99 mm <b>Limit</b> In 52.5 mm & Ex 54.5 mm
<b>Bend Limit</b>	0.10 mm circle runout

## Crankshaft

Main Journal Standard	61.985 – 62.000 mm	
Conrod Journal Standard	54.988 – 55.000 mm	
Harmonic Balancer Diam.		
Crank Gear Diameter		
Seal Diameter		
Thrust Thickness	2.430 – 2.480 mm	
Main Bearing Clearance	0.034 – 0.065 mm std. Limit: 0.10 mm	
Conrod Bearing Clearance	0.036 – 0.064 mm std. Limit: 0.10 mm	
Crankshaft End Play	0.040 – 0.250 mm Limit: 0.30 mm	
Journal Radius	Main	Conrod

## Cylinder Head

Tappet Clearance	Inlet	0.20 – 0.30 mm Cold	Exhaust	0.40 – 0.50 mm Cold
Head Height	New	133 mm	Warp	0.20 mm Limit
Valve Seat Angle	Inlet	45°	Exhaust	45°
Valve Seat Width	Inlet	1.5 – 1.9 mm	Exhaust	1.8 – 2.2 mm
Valve Head Recess	Inlet	0.94 – 1.50 mm	Exhaust	0.94 – 1.50 mm
Valve Head Margin	Inlet	1.1 mm min.	Exhaust	1.2 mm min.
Valve Face Angle	Inlet	44.5°	Exhaust	44.5°
Valve Length	Inlet	103.29 – 103.69 mm	Exhaust	103.14 – 103.54 mm
Valve Stem Diameter	Inlet	7.975 – 7.990 mm	Exhaust	7.960 – 7.975 mm
Valve Guide Height	Inlet	10.8 – 11.2 mm	Exhaust	10.8 – 11.2 mm
Valve Guide Clear. Std.	Inlet	0.020 – 0.055 mm	Exhaust	0.035 – 0.070 mm
Valve Guide Clear. Limit	Inlet	0.08 mm	Exhaust	0.10 mm
Valve Spring Pressure	Yellow	30.7 – 33.9 kg	Blue	30.7 – 33.9 kg
Valve Spring Free Length	Yellow	46.20 mm	Blue	48.54 mm
Valve Spring Install. Height	Yellow	37.0 mm	Blue	37.0 mm
Precom. Chamber Protrus.	-0.03 - +0.03 mm			

## Torque Specifications

Main Bolts	10.5 kgf.m OILED	
Conrod Bolts	5.5 kgf.m + 90° OILED	
Head Bolts	8.0 kgf.m + 90° + 90° OILED	
Cam Cap Bolts	2.55 kgf.m OILED	
Manifold Bolts	Inlet 2.4 kgf.m	Exhaust 5.3 kgf.m
Flywheel Bolts	12.5 kgf.m OILED	
Harmonic Balancer	24.0 kgf.m	

## Torque Sequences

**Head Gasket Selection from Piston Protrusion**

Piston Protrusion	Gasket Size
0.68 – 0.77 mm	Grade B 1.40 – 1.50 mm
0.78 – 0.87 mm	Grade D 1.50 – 1.60 mm
0.88 – 0.97 mm	Grade F 1.60 – 1.70 mm

X bolts – 107 mm long  
Y bolts – 127 mm long