ENGINE Australia
The Diesel Parts Specialists

ENGINE SPECIFICATIONS

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General

Manufacturer	**TOYOTA**		
Model/Year	**12H-T** (HJ61, 75)	**1985 -**	**Turbocharged**
L/(CID)	3,980cc DIESEL	**No. of Cylinders**	6
Bore & Stroke	91.0mm X 102.0mm		
Firing Order	1 – 4 – 2 – 6 – 3 – 5		
Compression Ratio	18.6 : 1	**Idle Speed**	650 rpm manual
Comp. Pressure @ RPM	3.0 MPa @ 250 rpm	2.0 MPa min.	<200 kPa diff.
Oil Pressure	29 kPa min at idle	**Oil Capacity & Grade**	10.3 ltr dry CC-CD
Injection Timing	11° BTDC static -	Number 1 cylinder on	compression stroke

Block

Bore Diameter Standard	91.000 – 91.030 mm
Maximum Overbore	1.00 mm
Liner Flange Height & Fit	N/A
Crankshaft Housing Bore	74.000 – 74.022 mm
Camshaft Housing Bore	55.000 – 55.025 mm
Block Deck Height	0.20 mm warp limit

Pistons & Rings

Piston to Bore Clearance	0.05 – 0.07 mm @ 9 mm up from bottom of skirt
Piston Protrusion	0.6 mm (0.53 – 0.68 mm)
Gudgeon Pin Diameter	32.000 – 32.012 mm
Gudgeon Pin Clearance	0.004 – 0.012 mm Limit: 0.03 mm
Ring Equipment	Top: 2.5 mm (K), 2nd: 2.5 mm, Oil: 4.00 mm
Piston Ring End Gap	Top & 2nd: 0.20 – 0.47 mm, Oil: 0.15 – 0.49 mm Limit: 1.24 mm
Ring to Groove Clearance	Top: 0.139 – 0.204 mm, 2nd: 0.06 – 0.10 mm, Oil: 0.02 – 0.06 mm

Connecting Rods

Big End Bore	58.000 – 58.020 mm
Pin End Bore	36.000 – 36.030 mm
Centre to Centre	
Big End Width	
Bush ID Finished	32.008 – 32.020 mm
Rod Side Clearance	0.200 – 0.340 mm Limit: 0.40 mm
Bend/Twist	0.05 mm/100mm bend 0.05 mm/100 mm twist

Camshaft

Journal Diameters	1: 51.15 mm 2: 50.95 mm 3: 50.75 mm 4: 50.55 mm
End Play	0.06 – 0.13 mm Limit: 0.3 mm
Oil Clearance	0.03 – 0.08 mm Limit: 0.15 mm
Minimum Lobe Height	**Inlet** 41.71 mm **Exhaust** 42.76 mm **Limit** In 41.2 & Ex 42.3 mm
Bend Limit	0.30 mm circle runout

Crankshaft

Main Journal Standard	69.980 – 70.000 mm
Conrod Journal Standard	54.980 – 55.000 mm
Harmonic Balancer Diam.	
Crank Gear Diameter	
Seal Diameter	
Thrust Thickness	2.930 – 2.980 mm
Main Bearing Clearance	0.032 – 0.068 mm std. Limit: 0.10 mm
Conrod Bearing Clearance	0.030 – 0.070 mm std. Limit: 0.10 mm
Crankshaft End Play	0.040 – 0.240 mm Limit: 0.30 mm
Journal Radius	**Main** **Conrod**

Cylinder Head

Tappet Clearance	**Inlet**	0.20 mm HOT	**Exhaust**	0.36 mm Hot
Head Height	**New**		**Limit**	
Warp Limit		0.2 mm		
Valve Seat Angle	**Inlet**	45°	**Exhaust**	45°
Valve Seat Width	**Inlet**	1.4 – 2.0 mm	**Exhaust**	1.4 – 2.0 mm
Valve Head Margin	**Inlet**	0.9 mm min	**Exhaust**	1.3 mm min
Valve Face Angle	**Inlet**	44.5°	**Exhaust**	44.5°
Valve Length	**Inlet**	120.7 mm	**Exhaust**	120.6 mm
Valve Stem Diameter	**Inlet**	8.973 – 8.989 mm	**Exhaust**	8.954 – 8.970 mm
Valve Guide Height	**Inlet**	14.8 – 15.2 mm	**Exhaust**	14.8 – 15.2 mm
Valve Guide Clear. Std.	**Inlet**	0.021 – 0.057 mm	**Exhaust**	0.040 – 0.076 mm
Valve Guide Clear. Limit	**Inlet**	0.10 mm	**Exhaust**	0.12 mm
Valve Spring Pressure	**Inner**	7.6 kg	**Outer**	22.5 kg
Valve Spring Free Length	**Inner**	44.3 mm	**Outer**	48.1 mm
Valve Spring Install. Height	**Inner**	36.0 mm	**Outer**	40.0 mm
Precom. Chamber Protrus.		N/A – Direct Injection		

Torque Specifications

Main Bolts	13.9 kgf.m OILED			
Conrod Bolts	9.0 kgf.m OILED			
Head Bolts	11.5 kgf.m OILED			
Rocker Arm Bolts	1.85 kgf.m			
Manifold Bolts	**Inlet**	1.85 kgf.m	**Exhaust**	2.1 kgf.m
Flywheel Bolts	12.0 kgf.m OILED			
Harmonic Balancer	45.0 kgf.m			

Torque Sequences