ENGINE Australia
The Diesel Parts Specialists

ENGINE SPECIFICATIONS

January 2001 ES-TOY08R

General

Manufacturer	**TOYOTA**		
Model/Year	**5L**	**8/1997 -**	
L/(CID)	2,986cc DIESEL	**No. of Cylinders**	4
Bore & Stroke	99.5mm X 96.0mm		
Firing Order	1 – 3 – 4 – 2		
Compression Ratio	22.3 : 1	**Idle Speed**	750 - 850 rpm
Comp. Pressure @ RPM	3.2 MPa @ 250 rpm	2.0 MPa min.	<490 kPa diff.
Oil Pressure	29 kPa min at idle	**Oil Capacity & Grade**	6.5 ltr dry CD/E/F
Injection Timing	Dial indicator and	plunger stroke.	

Block

Bore Diameter Standard	99.500 – 99.530 mm
Maximum Overbore	0.50 mm
Liner Flange Height & Fit	N/A Repair sleeves are available.
Crankshaft Housing Bore	66.000 – 66.020 mm
Camshaft Housing Bore	No. 1: 38.015 – 38.027 mm Nos. 2 – 5: 31.015 – 31.027 mm
Block Deck Height	0.20 mm warp limit

Pistons & Rings

Piston to Bore Clearance	0.04 – 0.06 mm @ 61.27 – 61.33 mm from crown.
Piston Protrusion	0.68 – 0.97 mm (Graded head gaskets – refer notes.)
Gudgeon Pin Diameter	29.000 – 29.012 mm
Gudgeon Pin Clearance	0.004 – 0.012 mm Limit: 0.05 mm
Ring Equipment	Top: 2.0 mm (½K), 2nd: 1.5 mm; Oil: 4.0 mm.
Piston Ring End Gap	Top: 0.35 – 0.59 mm; 2nd: 0.47 – 0.72 mm; Oil: 0.20 – 0.52 mm.
Ring to Groove Clearance	Top: 0.057 – 0.101 mm; 2nd: 0.06 – 0.10 mm; Oil: 0.03 – 0.07 mm.

Connecting Rods

Big End Bore	58.004 – 58.024 mm
Pin End Bore	32.000 – 32.030 mm
Centre to Centre	147 mm
Big End Width	
Bush ID Finished	29.008 – 29.020 mm
Rod Side Clearance	0.080 – 0.300 mm Limit: 0.35 mm
Bend/Twist	0.05 mm/100mm bend 0.15 mm/100 mm twist

Camshaft

Journal Diameters	1: 34.969 – 34.985 mm 2 – 5: 27.969 – 27.985 mm
End Play	0.08 – 0.28 mm Limit: 0.35 mm
Oil Clearance	0.022 – 0.074 mm Limit: 0.10 mm
Minimum Lobe Height	**Inlet** 54.30 mm **Exhaust** 55.00 mm **Limit** In 53.8 mm & Ex 54.5 mm
Bend Limit	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**

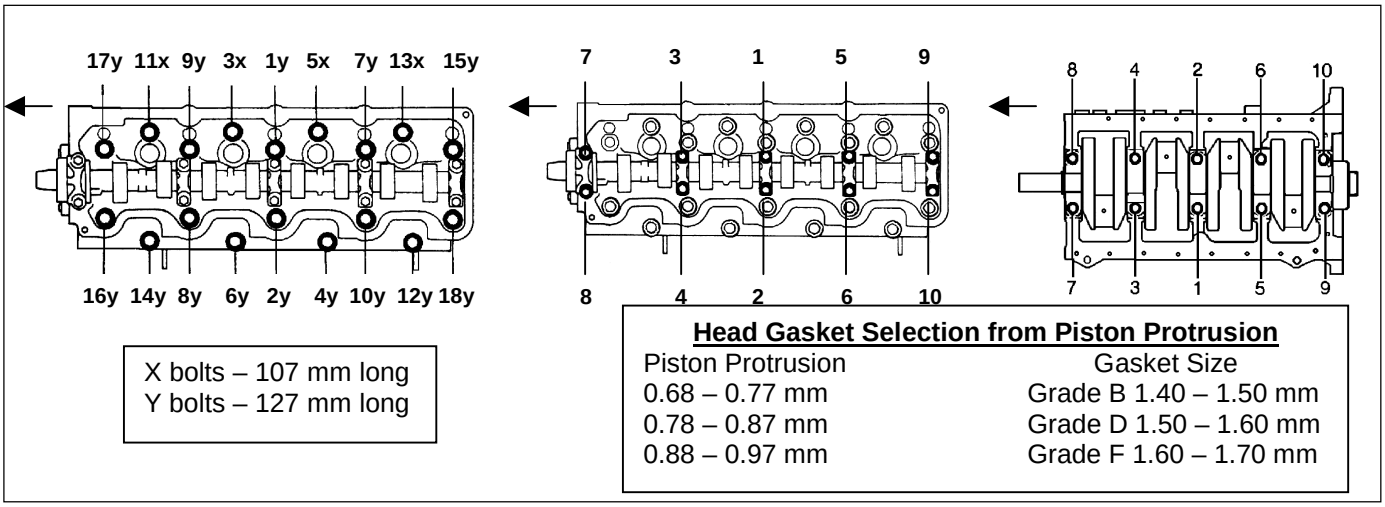
Cylinder Head

Tappet Clearance	**Inlet**	0.20 – 0.30 mm Cold	**Exhaust**	0.40 – 0.50 mm Cold
Head Height	**New**		**Limit**	
Warp Limit		0.2 mm		
Valve Seat Angle	**Inlet**	45°	**Exhaust**	45°
Valve Seat Width	**Inlet**	1.5 – 1.9 mm	**Exhaust**	1.8 – 2.2 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**	104.10 – 104.50 mm	**Exhaust**	103.95 – 104.35 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	**Type A**	30.7 – 33.9 kg	**Type B**	30.7 – 33.9 kg
Valve Spring Free Length	**Type A**	46.20 mm	**Type B**	48.54 mm
Valve Spring Install. Height	**Type A**	37.0 mm	**Type B**	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



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

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