

## Engine Specifications

Except where noted, specifications are for both normally aspirated and supercharged engines.

<b>Configuration</b>	90° V8
<b>Number of cylinders</b>	8 (two banks: 'A' bank right, 'B' bank left, cylinder number 1 at front)
<b>Displacement</b>	3996 cc (243.9 cu. in.)
<b>Engine weight</b>	
Normally aspirated	200 kg (441 lb.)
Supercharged	227 kg (500 lb.)
<b>Bore and stroke</b>	86 mm x 86 mm (3.386 in. x 3.386 in.)
<b>Cylinder head</b>	4 valves per cylinder
<b>Compression ratio</b>	
Normally aspirated	10.75 : 1
Supercharged	9.00 : 1
<b>Power output</b>	
Normally aspirated	Horsepower (DIN) 290 @ 6100 rpm Torque 393 Nm (290 lb. ft.) @ 4250 rpm
Supercharged	Horsepower (DIN) 365 @ 6000 rpm Torque 525 Nm (384 lb. ft.) @ 3600 rpm
<b>Firing order</b>	1A, 1B, 4A, 2A, 2B, 3A, 3B, 4B
<b>Valve clearances (cold)</b>	Intake 0.20 mm (0.008 in.) Exhaust 0.25 mm (0.010 in.)
<b>Compression pressure</b>	12 bar (180 psi) ± 10%
<b>Spark plugs</b>	
Normally aspirated	PFR56 - 13E gap 1.3 mm (0.051 in.)
Supercharged	PFR66 - 13E gap 1.3 mm (0.051 in.)
<b>Valve operation</b>	
Normally aspirated	Twin overhead camshafts: chain driven Hydraulically actuated two position variable valve timing for intake camshafts
Supercharged	No variable valve timing
<b>Crankshaft</b>	
Number of main bearings journals	5
Main bearing journal diameter	62 mm (2.441 in.)
Main bearing width	20 mm (0.787 in.)
Main bearing oil clearance	0.025 – 0.050mm (0.001– 0.002 in.)
Crankshaft end float	0.07 – 0.27 mm (0.0027 – 0.010 in.)
Number of connecting rod journals	4
Connecting rod journal diameter	56 mm (2.204 in.)
Connecting rod bearing width	16 mm (0.630 in.)
Connecting rod bearings oil clearance	0.035 – 0.063 mm (0.0014 – 0.0025 in.)
<b>Connecting rods</b>	
Number of connecting rods	8
Center to center dimension	151.75 mm (5.974 in.)

## Pistons

Bare weight 334 ± 5 g (11.75 ± 0.18 oz.)

## Piston rings

Top Barrel faced plasma sprayed compression  
 Middle Napier taper compression  
 Bottom Two piece spring assisted oil control

## Valves

Valve stem diameter 5 mm (0.197 in.)  
 Valve head diameter Intake 34.9 mm (1.374 in.)  
 Exhaust 30.9 mm (1.217 in.)  
 Valve lift 9.0 mm (0.354 in.)

## Valve springs

Free length 45.5 mm (1.791 in.) maximum

## Valve timing

Normally aspirated  
 Intake opens retarded – 5° ATDC  
 advanced – 25° BTDC  
 Intake closes retarded – 65° ABDC  
 advanced – 35° ABDC  
 Exhaust closes 50° BBDC  
 Exhaust opens 10° ATDC  
 Supercharged  
 Intake opens 5° ATDC  
 Intake closes 65° ABDC  
 Exhaust closes 50° BBDC  
 Exhaust opens 10° ATDC

## Camshafts

Bearing diameters 30 mm (1.181 in.)

## Timing gear

Primary timing chain Single roller chain endless riveted 106 links  
 Crankshaft timing sprocket 19 teeth  
 Intake camshaft primary sprocket 38 teeth  
 Secondary timing chain Single roller chain endless riveted 44 links  
 Intake camshaft secondary sprocket 23 teeth  
 Exhaust camshaft secondary sprocket 23 teeth

## Lubrication system

Oil capacity Without oil cooler – 6.5 liters (6.87 qt.)  
 With oil cooler – 7.3 liters (7.71 qt.)  
 Oil pressure 3000 rpm / hot – 3.8 bar (55.1 psi)  
 Idle / hot – 0.7 bar (10.15 psi)  
 Maximum oil flow 45 liter / min. (10 gallons / min.)  
 Maximum oil pressure 6.8 bar (98.6 psi)  
 Oil pressure relief valve 4.5 bar (65.25 psi)  
 Oil pressure switch operation 0.15 – 0.41 bar (2.17 – 6 psi)  
 Oil diverter valve (oil cooler engine only)  
 Start opening 105 °C (221 °F)  
 Fully open 119 °C (246 °F)