

# ENGINE SPECIFICATIONS

## GENERAL SPECIFICATIONS

### GENERAL SPECIFICATIONS

<b>Application</b>	<b>Specification</b>
Displacement	281 Cu. In. (4.6L)
Bore	3.55" (90.2 mm)
Stroke	3.54" (90.0 mm)
Compression Ratio	9.0:1
Fuel System	SFI

## CRANKSHAFT, MAIN BEARINGS & CONNECTING ROD BEARINGS SPECIFICATIONS

### CRANKSHAFT, MAIN & CONNECTING ROD BEARINGS

<b>Application</b>	<b>In. (mm)</b>
Crankshaft End Play	.005-.012 (.13-.30)
Main Bearings	
Journal Diameter	2.6568-2.6576 (67.483-67.503)
Journal Out-Of-Round & Taper	(1)
Oil Clearance	.0011-.0026 (.027-.065)
Connecting Rod Bearings	
Journal Diameter	2.0861-2.0867 (52.988-53.003)
Journal Out-Of-Round & Taper	(1)
Oil Clearance	.0010-.0027 (.027-.069)
(1) Information is not available.	

## CONNECTING RODS SPECIFICATIONS

### CONNECTING RODS

<b>Application</b>	<b>In. (mm)</b>
Bore Diameter	
Piston Pin Bore	.8645-.8653 (21.959-21.979)
Crankpin Bore	2.2345-2.2392 (56.756-56.876)
Center-To-Center Length	5.933 (150.69)
Maximum Bend	.0015 Per .98 (.038 Per 25)
Maximum Twist	.0020 Per .98 (.050 Per 25)
Side Play	
Standard	.0006-.0177 (.015-.450)
Service Limit	.020 (.50)

## CYLINDER HEAD SPECIFICATIONS

## CYLINDER HEAD

Application	Specification
Maximum Warpage	(1)
Intake & Exhaust Valve Seats	
Seat Angle	45°
Seat Width	
Intake Valve	.05"-.06"(1.3-1.5mm)
Exhaust Valve	.07"-.08"(1.9-2.1mm)
Maximum Seat Runout	.001" (.025 mm)
Valve Guides	
Valve Stem-To-Guide Oil Clearance	
Intake Valve	.0008-.0027" (.020-.069 mm)
Exhaust Valve	1.41" (36 mm)
(1) If maximum warpage exceeds .004" (.10 mm), replace cylinder head.	

## VALVE LASH ADJUSTER SPECIFICATIONS

### VALVE LASH ADJUSTER

Application	In. (mm)
Adjuster Diameter	.629-.630 (15.988-16.000)
Oil Clearance	.0007-.0027 (.018-.069)
Collapsed Gap	.018-.034 (.45-.85)

## PISTONS, PISTON PINS & PISTON RINGS SPECIFICATIONS

### PISTONS, PINS & RINGS

Application	In. (mm)
Pistons	
Clearance	.0005-.0010 (.012-.025)
Diameter <sup>(1)</sup>	
Red	3.550-3.551 (90.177-90.197)
Blue	3.5507-3.5515 (90.190-90.210)
Yellow	3.513-3.5521 (90.203-90.223)
Pins	
Diameter	
Gasoline	.866-.8661 (21.994-21.999)
Natural Gas	.8662-.8663 (22.001-22.003)
Pin-To-Piston Clearance	
Romeo Engine	.0002-.0005 (.005-.011)
Windsor Engine	.0001-.0004 (.003-.012)
Rod Fit	
Romeo Engine	.0006-.0016 (.015-.041)
Windsor Engine	.0003-.0009 (.008-.023)

Rings	
No. 1	
End Gap	
Standard	.005-.010 (.13-.25)
Limit	.030 (.75)
Side Clearance	
Standard	.0016-.0035 (.041-.089)
Limit	.049 (1.24)
No. 2	
End Gap	
Standard	.012-.022 (.30-.56)
Limit	.030 (.75)
Side Clearance	
Standard	.0012-.0031 (.030-.079)
Limit	.049 (1.24)
No. 3 (Oil)	
End Gap (Steel Rail)	.006-.026 (.15-.66)
Side Clearance	
Standard	Snug Fit
Limit	.0006 (.015)
(1) Diameter is determined by color code on piston dome.	

## ENGINE VALVES & VALVE SPRINGS SPECIFICATIONS

### VALVES & VALVE SPRINGS

Application	Specification
Valves	
Intake	
Face Angle	45.5°
Head Diameter	1.75-1.76" (44.37-44.63 mm)
Minimum Margin	.031" (.79 mm)
Stem Diameter	.2746-.2754" (6.975-6.995 mm)
Valve Face Runout	.002" (.05 mm)
Exhaust	
Face Angle	45.5°
Head Diameter	1.339" (34.00 mm)
Minimum Margin	.031" (.79 mm)
Stem Diameter	.2735-.2744" (6.949-6.970 mm)
Valve Face Runout	.002" (.05 mm)
Valve Springs	
Free Length	2.101" (53.37 mm)
Out-Of-Square	2.0 Degrees
<b>Lbs. @ In. (kg @ mm)</b>	
Pressure	

Expedition	
Valve Closed	65 @ 1.57" (29.5 @ 39.9 mm)
Valve Open	150 @ 1.10" (68.0 @ 28.2 mm)
E150 & F150	
Valve Closed	55 @ 1.57" (24.9 @ 40.0 mm)
Valve Open	128 @ 1.10" (58.7 @ 28.0 mm)

## CYLINDER BLOCK SPECIFICATIONS

### CYLINDER BLOCK

Application	In. (mm)
Cylinder Bore	
Standard Diameter <sup>(1)</sup>	
Red	3.550-3.551 (90.177-90.197)
Blue	3.5507-3.5515 (90.190-90.210)
Yellow	3.513-3.5521 (90.203-90.223)
Maximum Taper	.0002 (.005)
Maximum Out-Of-Round	.0008 (.020)
Maximum Deck Warp	.006 (.15)
(1) Diameter is determined by color code.	

## CAMSHAFT SPECIFICATIONS

### CAMSHAFT

Application	In. (mm)
Bearing Bore Diameter	1.0625-1.0635 (26.987-27.012)
End Play	.0010-.0065 (.025-.076)
Journal Diameter	1.060-1.061 (26.936-26.962)
Lobe Lift	.259 (6.58)
Oil Clearance	.001-.003 (.03-.08)