

# ENGINE SPECIFICATIONS

## GENERAL SPECIFICATIONS

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Application	Specification
Displacement	300 Cu. In. (4.9L)
Bore	4.00" (101.6 mm)
Stroke	3.98" (101.1 mm)
Compression Ratio	8.8:1
Fuel System	PFI
Horsepower @ RPM	
E150/F150	145 @ 3400
All Others	150 @ 3400
Torque Ft. Lbs. @ RPM	
E150/F150	265 @ 2000
All Others	260 @ 2000

## CRANKSHAFT MAIN BEARINGS & CONNECTING ROD BEARINGS SPECIFICATIONS

### CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

Application	In. (mm)
Crankshaft	
End Play	
Standard	.004-.008 (.10-.20)
Wear Limit	.012 (.30)
Runout	
Standard	.002 (.05)
Wear Limit	.005 (.13)
Main Bearings	
Journal Diameter	2.3982-2.3990 (60.914-60.935)
Journal Out-Of-Round	.0006 (.015)
Journal Taper	.0005 (.013) per 1" (25.4 mm)
Oil Clearance	
Desired	.0008-.0015 (.020-.038)
Allowable	.0009-.0028 (.023-.071)
Connecting Rod Bearings	
Journal Diameter	2.1228-2.1236 (53.919-53.939)
Journal Out-Of-Round	.0006 (.015)
Journal Taper	.0006 (.015) per 1" (25.4 mm)
Oil Clearance	
Desired	.0008-.0015 (.020-.038)
Allowable	.0009-.0027 (.023-.069)

## CONNECTING RODS SPECIFICATIONS

## CONNECTING RODS

Application	In. (mm)
Bore Diameter	
Pin Bore	.9734-.9742 (24.724-24.745)
Crankpin Bore	2.2750-2.2758 (57.785-57.805)
Crankpin Bearing Bore Out-Of-Round	.0006 (.015)
Center-To-Center Length	6.2082-6.2112 (157.688-157.764)
Maximum Bend <sup>(1)</sup>	.012 (.30)
Maximum Twist <sup>(1)</sup>	.024 (.61)
Side Play	
Standard	.006-.013 (.15-.33)
Wear Limit	.018 (.46)
(1) Specification listed is measured at the ends of an 8" (203 mm) bar, 4" (102 mm) on each side of rod center line.	

## PISTONS PISTON PINS & PISTON RINGS SPECIFICATIONS

### PISTONS PINS & RINGS

Application	In. (mm)
Piston	
Clearance	.0010-.0018 (.025-.046)
Diameter <sup>(1)</sup>	
Red Piston	3.9982-3.9988 (101.554-101.570)
Blue Piston	3.9994-4.0000 (101.585-101.600)
Yellow Piston	4.0008-4.0014 (101.620-101.636)
Pins	
Diameter	
Standard	.9749-.9754 (24.762-24.775)
.001" (.03 mm) Oversize	.9760-.9763 (24.790-24.798)
.002" (.05 mm) Oversize	.9770-.9773 (24.816-24.823)
Piston Fit	
Under 8500 Lbs. GVW	.00029-.0005 (.007-.013)
Over 8500 Lbs. GVW	.0003-.0005 (.008-.013)
Rings	
No. 1	
End Gap	.010-.020 (.25-.51)
Side Clearance	
Standard	.0019-.0036 (.048-.091)
Wear Limit	.0056 (.142)

No. 2	
End Gap	.010-.020 (.25-.51)
Side Clearance	
Standard	.002-.004 (.05-.10)
Wear Limit	.006 (.15)
No. 3 (Oil)	
End Gap (Steel Rail)	.010-.035 (.25-.89)
Side Clearance	Snug Fit
(1) Measured at piston pin bore center line, at 90° angle to pin.	

## CYLINDER BLOCK SPECIFICATIONS

### CYLINDER BLOCK

Application	In. (mm)
Cylinder Bore	
Standard Diameter	4.0000-4.0048 (101.600-101.722)
Maximum Taper	.010 (.25)
Maximum Out-Of-Round	.0015 (.038)
Main Bearing Bore Diameter	2.5902-2.5910 (65.791-65.811)
Maximum Deck Warpage	(1)
(1) No more than .003" (.08 mm) within a 6" (152 mm) area, and no more than .006" (.15 mm) overall. <b>DO NOT</b> remove more than .010" (.25 mm) material from original deck if machining is required.	

## ENGINE VALVES & VALVE SPRINGS SPECIFICATIONS

### VALVES & VALVE SPRINGS

Application	In. (mm)
Collapsed Lifter Clearance	
Desired	.125-.175 (3.18-4.45)
Allowable	.100-.200 (2.54-5.08)
Face Angle	45°
Face Runout	.002 (.05)
Head Diameter	
Intake Valve	1.769-1.793 (44.93-45.54)
Exhaust Valve	1.548-1.572 (39.32-39.93)
Minimum Margin	.031 (.79)
Stem Diameter	
Standard	.3415-.3423 (8.677-8.694)
.015" Oversize	.3565-.3573 (9.058-9.075)
.030" Oversize	.3715-.3723 (9.439-9.456)
Valve Springs	
Free Length	

Intake	1.96 (49.78)
Exhaust	1.78 (45.21)
Installed Height	
Intake	1.61-1.67 (40.89-42.42)
Exhaust	1.44-1.50 (36.58-38.10)
Out-Of-Square	.078 (1.98)
Pressure Lbs. @ In. (Kg @ mm)	
Valve Closed	
Intake	66-74 @ 1.640 (30-34 @ 41.65)
Exhaust	66-74 @ 1.470 (30-34 @ 37.34)
Valve Open	
Intake	166-184 @ 1.240 (75-83 @ 31.50)
Exhaust	166-184 @ 1.070 (75-83 @ 27.18)

## CYLINDER HEAD SPECIFICATIONS

### CYLINDER HEAD

Application	In. (mm)
Maximum Warpage	(1)
Valve Seat Angle	45°
Valve Seat Width	
Intake	.060-.080 (1.52-2.03)
Exhaust	.070-.090 (1.78-2.29)
Maximum Seat Runout	.002 (.05)
Valve Guides	
Intake & Exhaust Valve Guide I.D.	.3433-.3443 (8.720-8.745)
Stem-To-Guide Clearance	
Standard	.0010-.0027 (.025-.069)
Wear Limit	.0055 (.140)
(1) No more than .006" (.15 mm) within a 6" (152 mm) area, and no more than .010" (.25 mm) overall. <b>DO NOT</b> remove more than .010" (.25 mm) material from original surface if machining is required.	

## CAMSHAFT SPECIFICATIONS

### CAMSHAFT

Application	In. (mm)
Journal Diameter	2.017-2.018 (51.23-51.26)
Bearing I.D.	2.019-2.020 (51.28-51.31)
End Play	
Standard	.001-.007 (.03-.18)
Wear Limit	.009 (.23)
Journal Runout (Maximum TIR)	.008 (.20)
Lobe Lift	(1) .249 (6.32)
Maximum Lobe Wear	.005 (.13)

Journal-To-Bearing Oil Clearance	
Standard	.001-.003 (.03-.08)
Wear Limit	.006 (.15)
(1) Lobe lift is .247" (6.27 mm) on F150 (Federal emissions) with 2.47:1 or 2.75:1 axle ratio and manual transmission.	

## VALVE LIFTERS SPECIFICATIONS

### VALVE LIFTERS

Application	In. (mm)
Lifter Diameter	.8740-.8745 (22.200-22.212)
Oil Clearance	
Standard	.0007-.0027 (.018-.069)
Wear Limit	.005 (.13)