

# ENGINE SPECIFICATIONS

## GENERAL SPECIFICATIONS

| Application       | Specification      |
|-------------------|--------------------|
| Displacement      | 241 Cu. In. (4.0L) |
| Bore              | 3.94" (100 mm)     |
| Stroke            | 3.31" (84 mm)      |
| Compression Ratio | 9.0:1              |
| Fuel System       | PFI                |

## CYLINDER BLOCK SPECIFICATIONS

### CYLINDER BLOCK

| Application  | In. (mm)                        |
|--|---------------------------------|
| Cylinder Bore  |                                 |
| Standard Diameter  | 3.9527-3.9543 (100.398-100.439) |
| Maximum Taper  | .010 (.25)                      |
| Maximum Out-Of-Round   |                                 |
| Standard   | .0015 (.038)                    |
| Service Limit  | .005 (.13)                      |
| Maximum Deck Warpage   | (1)                             |
| (1) .003" (.08mm) within a 6" (152 mm) area or .006" (.15 mm) overall. |                                 |

## VALVES & VALVE SPRINGS SPECIFICATIONS

### VALVES & VALVE SPRINGS

| Application                   | In. (mm)                      |
|-------------------------------|-------------------------------|
| Face Angle                    | 44°                           |
| Head Diameter                 |                               |
| Intake                        | 1.71 (43.5)                   |
| Exhaust                       | 1.36 (34.5)                   |
| Stem Diameter                 |                               |
| Intake                        | .3159-.3167 (8.024-8.044)     |
| Exhaust                       | .3149-.3156 (8.998-8.016)     |
| Valve Margin                  | .031 (.79)                    |
| Valve Springs                 |                               |
| Free Length                   | 1.91 (48.5)                   |
| Installed Height              | 1.58-1.61 (40.1-40.9)         |
| Out-Of-Square                 | .078 (1.98)                   |
| Pressure Lbs. @ In. (Kg @ mm) |                               |
| Closed                        | 60-68 @ 1.59 (27-31 @ 37.8)   |
| Open                          | 138-149 @ 1.22 (63-68 @ 31.0) |

## CYLINDER HEAD SPECIFICATIONS

## CYLINDER HEAD

| Application   | In. (mm)                  |
|---|---------------------------|
| Maximum Warpage <sup>(1)</sup>  | .003 (.08)                |
| Valve Seats   |                           |
| Seat Angle  | 45°                       |
| Seat Width  | .060-.079 (1.52-2.00)     |
| Maximum Seat Runout   | .0015 (.038)              |
| Valve Guides  |                           |
| Valve Guide Bore I.D.   | .3174-.3184 (8.062-8.087) |
| Stem-To-Guide Clearance   |                           |
| Intake  | .0008-.0025 (.020-.064)   |
| Exhaust   | .0018-.0035 (.046-.089)   |
| (1) Specification listed is within 6" (152 mm). Overall warpage is .006" (.15 mm). <b>DO NOT</b> machine more than .010" (.25 mm) from original gasket surface. |                           |

## CAMSHAFT SPECIFICATIONS

### CAMSHAFT

| Application           | In. (mm)                  |
|-----------------------|---------------------------|
| Camshaft Bearing I.D. |                           |
| No. 1                 | 1.954-1.955 (49.64-49.66) |
| No. 2                 | 1.939-1.940 (49.26-49.28) |
| No. 3                 | 1.919-1.920 (48.75-48.77) |
| No. 4                 | 1.924-1.925 (48.88-48.90) |
| End Play              |                           |
| Standard              | .025-.064 (.065-.165)     |
| Service Limit         | .009 (.23)                |
| Journal Runout        | .005 (.13)                |
| Lobe Lift Wear Limit  | .005 (.13)                |
| Oil Clearance         |                           |
| Standard              | .0010-.0026 (.025-.066)   |
| Service Limit         | .006 (.15)                |
| Valve Lift            | .4024 (10.220)            |

## VALVE LIFTERS SPECIFICATIONS

### VALVE LIFTERS

| Application     | In. (mm)                    |
|-----------------|-----------------------------|
| Lifter Diameter | .8742-.8755 (22.205-22.238) |
| Oil Clearance   |                             |
| Standard        | .0005-.0022 (.013-.056)     |
| Service Limit   | .005 (.13)                  |

## CRANKSHAFT MAIN & CONNECTING ROD BEARINGS SPECIFICATIONS

## CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

| Application                        | In. (mm)                         |
|------------------------------------|----------------------------------|
| Crankshaft End Play                |                                  |
| Standard                           | .0020-.0125 (.05-.32)            |
| Service Limit                      | .0125 (.32)                      |
| Main Bearings                      |                                  |
| Journal Diameter                   | 2.2433-2.2441<br>(56.980-57.000) |
| Journal Out-Of-Round               | .0006 (.015)                     |
| Journal Taper Per 1 INCH (25.4 mm) | .0006 (.015)                     |
| Journal Runout (Max.)              | .002 (.05)                       |
| Oil Clearance                      |                                  |
| Desired                            | .0008-.0015<br>(.020-.038)       |
| Allowable                          | .0005-.0019<br>(.013-.048)       |
| Connecting Rod Bearings            |                                  |
| Journal Diameter                   | 2.1252-2.1260<br>(53.980-54.000) |
| Journal Out-Of-Round               | .0006 (.015)                     |
| Journal Taper Per 1 INCH (25.4 mm) | .0006 (.015)                     |
| Oil Clearance                      |                                  |
| Desired                            | .0005-.0022<br>(.013-.056)       |
| Allowable                          | .0003-.0024<br>(.008-.061)       |

## CONNECTING RODS SPECIFICATIONS

### CONNECTING RODS

| Application  | In. (mm)                        |
|--|---------------------------------|
| Bore Diameter  |                                 |
| Pin Bore   | .9432-.9439 (23.957-23.975)     |
| Crankpin Bore  | 2.2370-2.2378 (56.820-56.840)   |
| Center-To-Center Length  | 5.1386-5.1413 (130.520-130.589) |
| Maximum Bend <sup>(1)</sup>  | .002 (.05)                      |
| Maximum Twist <sup>(1)</sup>   | .006 (.15)                      |
| Side Play  |                                 |
| Standard   | .0002-.0025 (.005-.063)         |
| Service Limit  | .014 (.36)                      |
| (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 PINS & RINGS SPECIFICATIONS

**PISTONS PINS & RINGS**

| <b>Application</b>                                 | <b>In. (mm)</b>                 |
|--|---------------------------------|
| <b>Piston</b>                                      |                                 |
| Clearance  | .0008-.0019 (.020-.048)         |
| Diameter <sup>(1)</sup>                            | 3.9524-3.9531 (100.390-100.409) |
| Pin Bore Diameter                                  | .9450-.9452 (24.003-24.008)     |
| <b>Pins</b>  |                                 |
| Diameter   |                                 |
| Red Pin  | .9446-.9448 (23.993-23.998)     |
| Blue Pin   | .9448-.9449 (23.998-24.000)     |
| Length   | 2.84-2.87 (72.1-72.9)           |
| Piston Fit   | .0003-.0006 (.008-.015)         |
| Rod Fit  | Press Fit                       |
| <b>Rings</b>                                       |                                 |
| No. 1 & 2  |                                 |
| End Gap  | .015-.023 (.38-.58)             |
| Side Clearance                                     | .0020.0033 (.051-.084)          |
| No. 3 (Oil)  |                                 |
| End Gap (Steel Rail)                               | .015-.055 (.38-1.40)            |
| Side Clearance                                     | Snug Fit                        |
| (1) Measure at piston pin bore, 90 degrees to pin. |                                 |