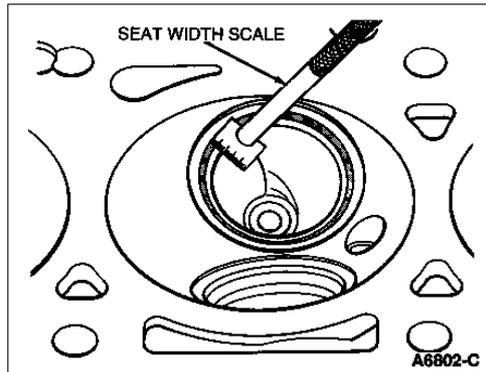


1996 Contour/Mystique

Grind the valve seats of all engines to a true 45 degree angle. Remove only enough stock to clean up pits and grooves or to correct the valve seat runout. After the seat has been refaced, measure valve seat contact width as outlined.

The finished valve seat should contact the approximate center of the valve face. It is good practice to determine where the valve seat contacts the face.

To do this, coat the seat with Prussian Blue and set the valve in place. Rotate the valve with light pressure. If the blue is transferred to the center of the valve face, the contact is satisfactory. If the blue is transferred to the top edge of the valve face, lower the valve seat. If the blue is transferred to the bottom edge of the valve face, raise the valve seat.



If the valve seat width exceeds the maximum limit, remove enough stock from the top edge and/or bottom edge of the seat to reduce the width to specification.

On the intake and exhaust seats, use a 60 degree angle grinding wheel to remove stock from the bottom of the seat (raise the seats). A 30 degree angle wheel is used to remove stock from the top of the seats (lower the seats).

Valves

The critical inspection points and tolerances of the valve are illustrated. Refer to Specifications in [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine) for service limits.

Valves, Inspection

Inspect the valve stem for bends and the end of the stem for grooves or scoring.

Inspect the valve face and the edge of the valve head for pits, grooves or scores. Inspect the stem for a bend condition and the end of the stem for grooves or scores. Check the valve head for signs of burning or erosion, warpage and cracking. Minor pits, grooves, etc., may be removed. Replace severely damaged valves.

Inspect valve spring (6513), valve spring retainers (6514), valve spring retainer keys (6518) and replace any visibly damaged parts.

Valves, Refacing

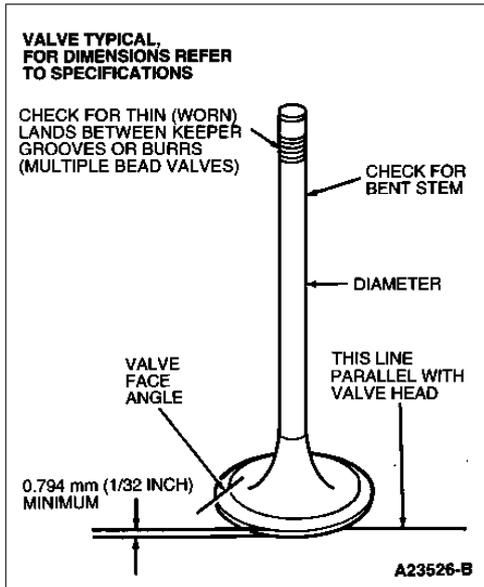
⚠ CAUTION: Replace any excessively worn or damaged valve train parts to prevent poor engine performance upon reassembly.

Minor pits or grooves may be removed. Replace valves that are severely damaged if the face runout cannot be corrected by refinishing or stem clearance exceeds specification. Refer to [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine) for specifications.

Refer to Engine Service in the Rotunda Tool catalog for a description of the various types of valve resurfacing equipment.

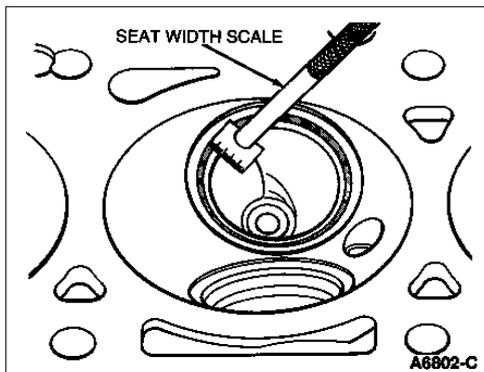
The valve refacing operation should be closely coordinated with the valve seat refacing operations so that the finished angles of the valve face and valve seat will be to specifications and provide a compression-tight fit.

Make sure refacer grinding wheels are properly dressed. Refer to the illustration for critical valve dimensions.

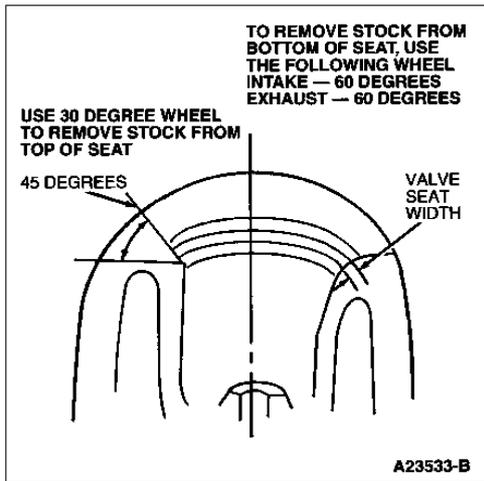


Valve Seat Contact Width

Use a seat width scale or a machinist scale to measure the valve seat width. Reface the valve seat(s) if the width is not within specifications. Refer to [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine) for specifications.

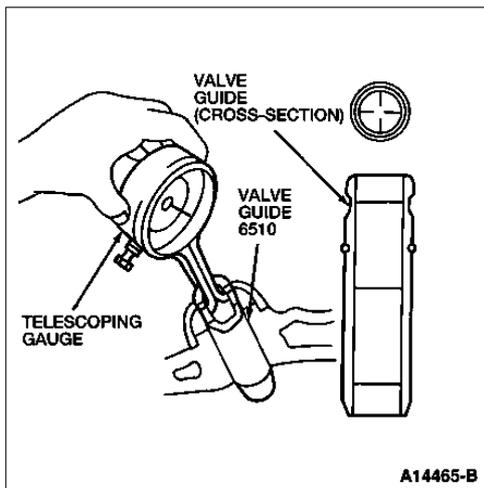


If the valve seat width exceeds the maximum limit, remove enough stock from the top edge and/or bottom edge of the seat to reduce the width to specification.



Valve Guide Inner Diameter

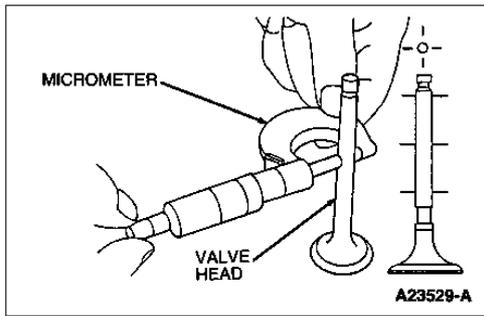
Measure the inner diameter of the valve guides at the points shown.



If valve guide is not within Specifications as listed in [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine), replace the valve guide.

Valve Stem Diameter

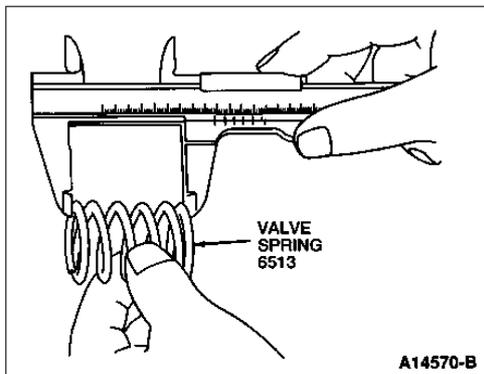
Measure the diameter of each valve stem at the points shown.



If the valve stem diameter is not within specifications as outlined in [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine), replace the valve.

Valve Spring Length Inspection

Measure the free length of each valve spring as shown.

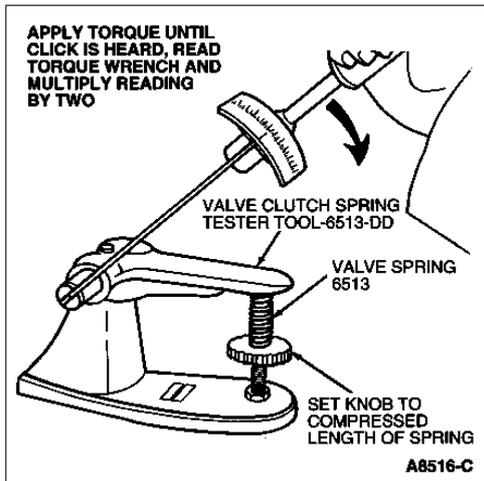


Replace the valve spring if not within specifications as outlined in [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine).

Valve Spring Tension

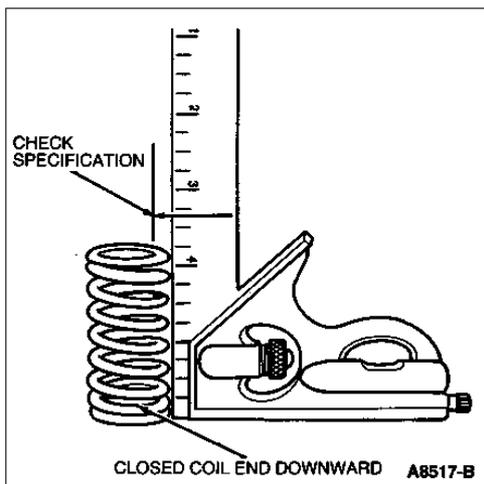
Inspect valve spring, valve spring retainers, and valve spring retainer keys for wear or damage. Replace any damaged parts.

Check the valve springs for proper pressure at the specified valve spring lengths using Valve Clutch Spring Tester TOOL-6513-DD or equivalent. Weak valve springs cause poor engine performance. Replace any valve spring not within specification. For specifications, refer to [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine). Manually rotating the valve springs while installed in the engine will not determine condition of valve springs.



Valve Spring Squareness

Check each valve spring for squareness using a steel square and a flat surface. Stand the valve spring and square on end of the flat surface. Slide the valve spring up to the square. Revolve the valve spring slowly and observe the space between the top coil of the valve spring and the square. Refer to the illustration.



NOTE: Make sure the proper valve spring (color-coded) is installed.

Refer to Specifications in [Section 03-01A](#) (2.0L engine) or [Section 03-01B](#) (2.5L engine) for out-of-square limits. Follow the same procedure for new valve springs before installation.

Rocker Arm

Cleaning

Clean all parts thoroughly. Make sure all oil passages are open.

Inspection

Inspect the roller and valve tappet bore for nicks, scratches, scores or scuffs. Replace any damaged parts.

Intake Manifold

Cleaning

Remove all gasket material from the machined surfaces of the intake manifold (9424). Clean the intake manifold in a suitable solvent and dry it with compressed air.

Inspection

⚠ CAUTION: Remove all filings and foreign matter that may have entered the intake manifold as a result of service or possible damage to the engine may occur.

⚠ CAUTION: To prevent leaks upon start-up, make sure that all pressed in core plugs and tubes are fully seated and tight.

Inspect the intake manifold for cracks, damaged gasket surfaces, or other problems that would make it unfit for further service. Clean the Exhaust Gas Recirculation (EGR) and PCV passages.

Exhaust Manifold

Cleaning

Remove all foreign material from all inlet and outlet seating surfaces of the exhaust manifold.

Inspection

Inspect the cylinder head joining flanges of the exhaust manifold for evidence of exhaust gas leaks.

Inspect the manifolds for cracks, damaged gasket surfaces, or other damage that would make them unfit for further service. Warped or cracked exhaust manifolds must be replaced.

Flexplate Inspection & Automatic Transmission

NOTE: A visual inspection for damage is the only check required for flexplates. Do not use any specifications in flywheel inspections (i.e. run-out, flatness).

Inspect the flexplate and ring gear assembly for visual signs of damage (i.e. cracks, chipped or worn teeth). If damaged replace the flexplate and ring gear assembly.

Flywheel Inspection & Manual Transmission

With the flywheel installed on the crankshaft check the gear face run-out. Refer to flywheel specifications located in Section 08-00.
