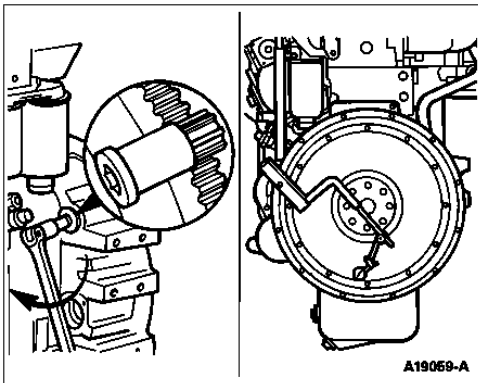


4. NOTE: Loosen the injectors so the engine is easier to rotate.

Use Engine Barring Tool D92T-6000-A or equivalent, to rotate the crankshaft one complete revolution (360 degrees), and note reading on dial indicator. The total indicator reading (TIR) must not exceed 0.127mm (0.0050 inch).



5. If the TIR is greater than the specification, remove the flywheel and inspect the mounting surface for dirt or damage.
6. Also, inspect the mating surface of the crankshaft for dirt or damage. If necessary, replace the crankshaft. Refer to [Section 03B-01](#) .
7. Install the flywheel, and inspect the bore runout again. Replace the flywheel if the runout does not meet specifications.

Service Limit Specifications

Service limit specifications are intended to be a guide only, to be used when overhauling or reconditioning an engine or engine component. A determination can be made whether a component is suitable for continued service or should be replaced for extended service while the engine is disassembled.

Cylinder Block

Cleaning and Inspection

If the engine is disassembled, thoroughly clean the block with solvent. Remove old gasket material from all machined surfaces. Remove all pipe plugs that seal oil passages and clean out all the passages. Blow out all passages, then bolt holes, etc., with compressed air. Make sure threads in the cylinder head bolt holes are clean. Dirt in the threads may cause binding and result in a false torque reading. Use a tap to true-up threads and to remove all deposits.

After the block has been thoroughly cleaned, check it for cracks. Tiny cracks not visible to the naked eye may be detected by coating the suspected area with a mixture of 25 percent kerosene and 75 percent light engine oil. Wipe the part dry and immediately apply a coating of zinc oxide dissolved in wood alcohol. Do not use rubbing alcohol as a substitute. If cracks are present, the coating will become discolored at the damaged area. Replace the block if it is cracked.

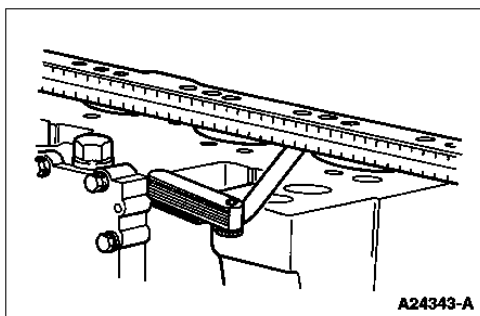
Check all machined surfaces for burrs, nicks, scratches and scores. Remove minor imperfections with an oil stone.

Check the cylinder block for flatness of the cylinder head gasket surface following the procedure and specifications recommended for the cylinder head. The cylinder block can be machined to bring the cylinder head gasket surface within the flatness specifications listed in the specific engine section, but not to exceed 0.254mm (0.010 inch) stock removal from the original gasket surface. Use of an over-thick service gasket is required if stock is removed.

Replace all plugs that show evidence of leakage.

Cylinder Block Distortion

1. Visually inspect the cylinder block head surface for damage.
2. Using a straightedge and feeler gauge, check the surface for flatness. Maximum out-of-flat is 0.075mm (0.003 inch) side to side.



Sand Holes or Porous Engine Castings, Service

Porosity or sand hole(s), which will cause oil seepage or leakage, can occur with modern casting processes. A complete inspection of engine and transmission should be made. If the leak is attributed to the porous condition of the cylinder block or sand hole(s), service can be made with Devcon Aluminum Liquid F2 or equivalent (for ferrous casting repair) meeting Ford Manufacturing Standard M-3D35A(E). **Do not service cracks with this material.** Service with Aluminum Liquid F2 or equivalent must be confined to those cast iron engine component surfaces where the inner wall surface is not exposed to engine coolant pressure or oil pressure. For example:

- Cylinder block surfaces extending along the length of the block, upward from the oil pan rail to the cylinder water jacket, but not including machined areas.
- Lower rear face of the cylinder block.
- Intake manifold casting. Service is not recommended to the intake manifold exhaust crossover section, since temperatures can exceed the recommended temperature limit of 260°C (500° F).
- Cylinder head, along the valve rocker arm cover gasket surface.

The following procedure should be used to service porous areas or sand holes in cast iron.

1. Clean surface to be serviced by grinding or rotary filing to a clean bright metal surface. Chamfer or undercut hole or porosity to a greater depth than rest of cleaned surface. Solid metal must surround hole. Openings larger than 6.35mm (0.25 inch) should not be serviced using Devcon Aluminum Liquid F2 or equivalent. Openings in excess of 6.35mm (1/4 inch) can be drilled, tapped and plugged using common tools. Clean service area thoroughly. Devcon Aluminum Liquid F2 or equivalent will not stick to a dirty or oily surface.
 2. Mix Devcon Aluminum Liquid F2 or equivalent and hardener as directed on container. Stir thoroughly until uniform.
 3. Apply service mixture with a suitable clean tool (putty knife, wood spoon, etc.) forcing Devcon Aluminum Liquid F2 or equivalent into hole or porosity.
 4. Allow service mixture to harden. This can be accomplished by two methods. Heat cure with a 250-watt lamp placed 254mm (10 inches) from serviced surface, or air-dry for 10-12 hours at temperatures above 10° C (50°F).
 5. Sand or grind serviced area to blend with general contour of surrounding surface.
 6. Paint the surface to match the rest of the block.
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Cylinder Walls, FD-1460

If a liner bore is not acceptable for reuse, it must be replaced. Damaged liners cannot be honed or deglazed. This would destroy the cross-hatch pattern needed for oil control. To replace liner, refer to [Section 03B-01](#) .
