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**Fig. 41: Removing 10 Hexagon Head Lower Crankcase Bolts**  
Courtesy of GENERAL MOTORS CORP.

- Using a screwdriver, pry the lower crankcase apart from the cylinder block at the areas noted (1-5).

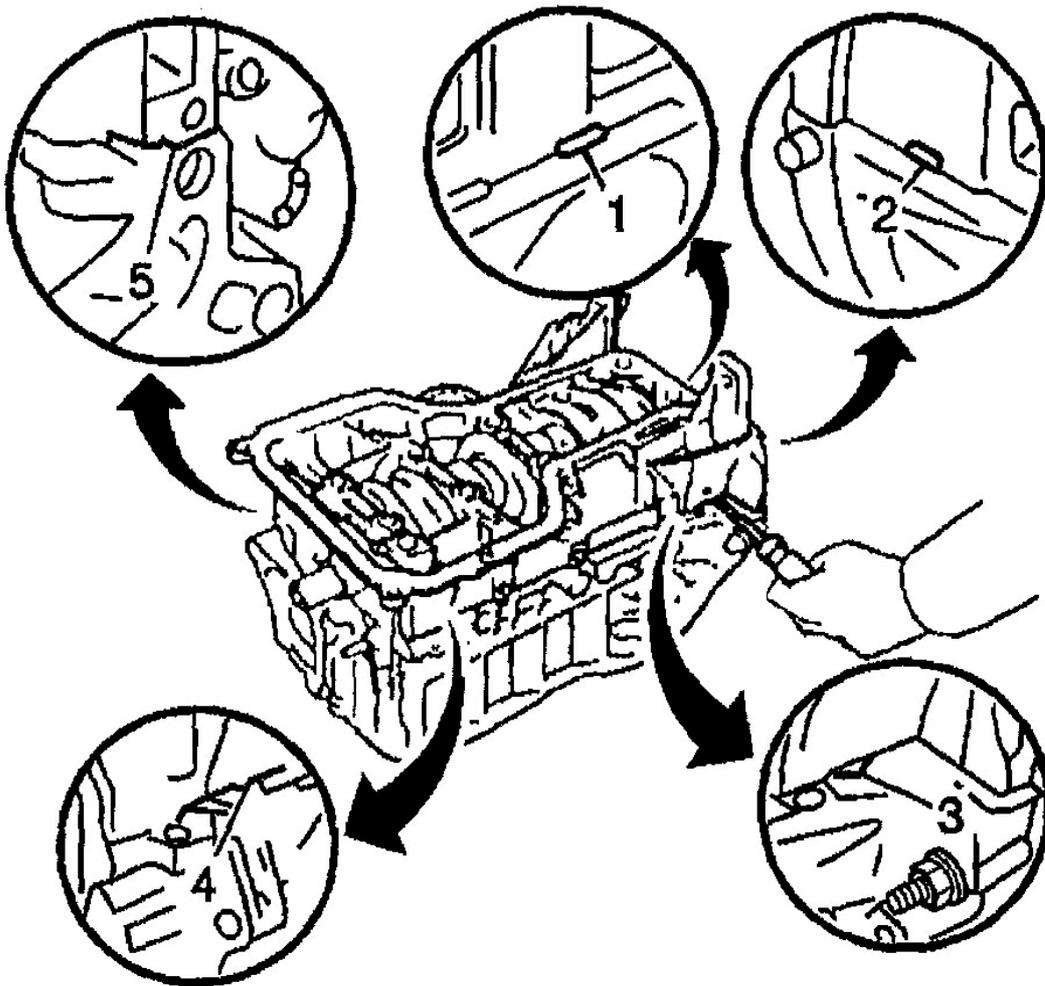
**Important:** Use caution not to gouge the sealing surfaces of the 2 halves of the cylinder block during disassembly.

- Carefully remove the lower crankcase.

**NOTE:** Remove the crankshaft carefully in order to avoid damaging the crankshaft journals, the rod, the main bearing inserts, or the connecting rods.

- Remove the crankshaft from the block.
- Remove the bearing inserts from the block.

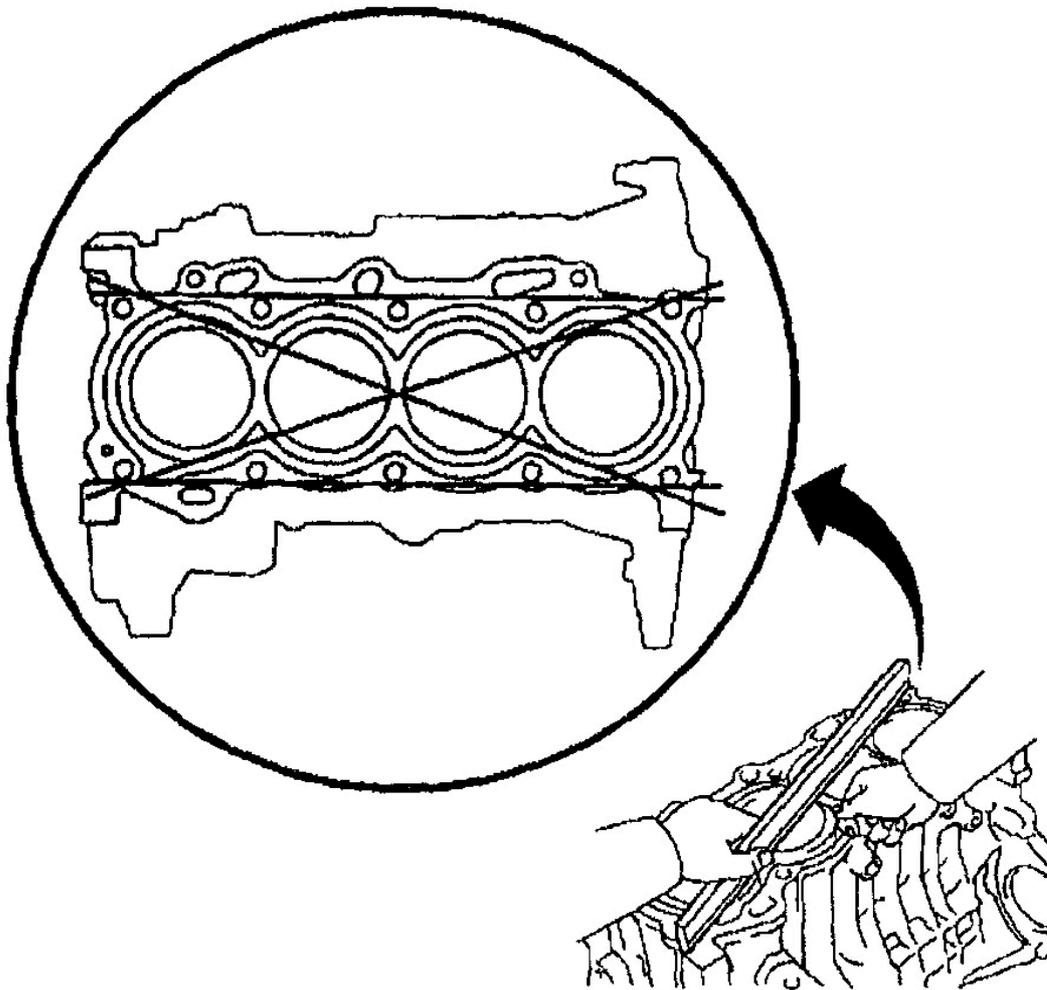
7. Clean the oil, sludge, and carbon.
8. Inspect the oil passages for obstructions.
9. Inspect the keyway.



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**Fig. 42: Removing Crankshaft From The Block**  
**Courtesy of GENERAL MOTORS CORP.**

10. Inspect the bearing journals and the thrust surfaces for the following conditions:
  - Cracks
  - Chips
  - Gouges



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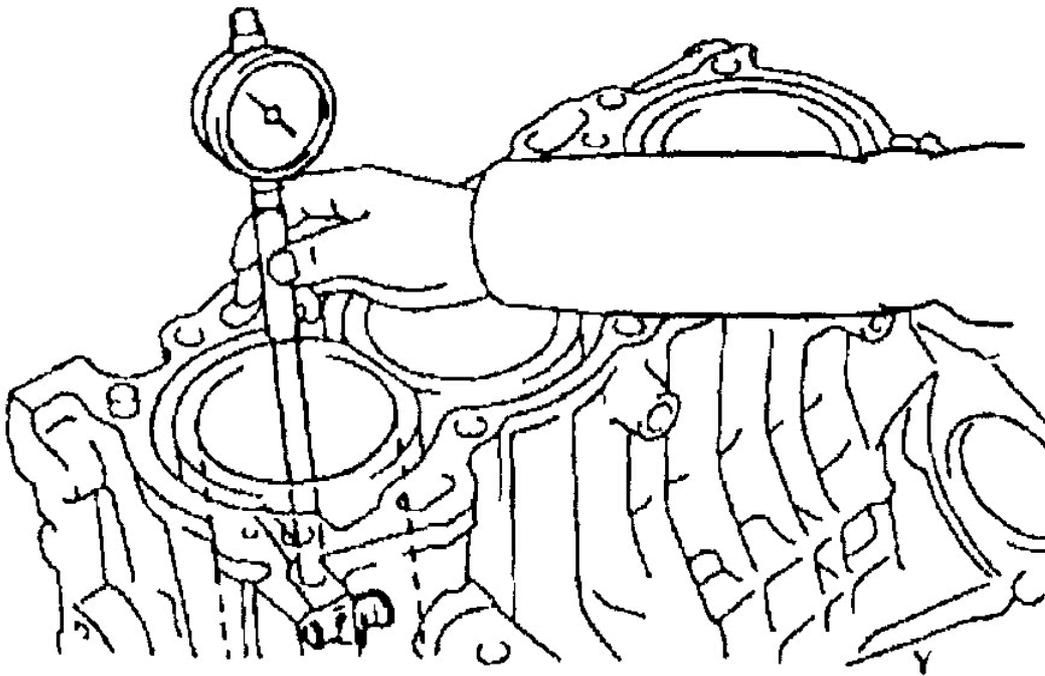
**Fig. 43: Checking Deck Surface For Flatness**  
Courtesy of GENERAL MOTORS CORP.

9. Inspect the lower crankcase rail for nicks. Inspect the front cover attaching area for nicks. Use a flat mill file to remove any nicks.
10. Inspect the cylinder block for any cracks.
11. Visually inspect the cylinder bores for the following items:
  - Excessive wear
  - Excessive ridging
12. Use the J 8087 to inspect the cylinder bores. Inspect for the following items:
  - Taper: maximum = 0.10 mm (0.0039 in)

- Runout: maximum = 0.10 mm (0.0039 in)

**Important:** If the bore is worn beyond the limits, refit the bore with oversized pistons. Select the smallest available oversize piston.

13. Leave sufficient material to allow honing when fitting the piston.



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**Fig. 44: Using J 8087**

Courtesy of GENERAL MOTORS CORP.

#### CRANKSHAFT PULLEY CLEANING AND INSPECTION

1. Clean the crankshaft pulley in solvent.
2. Clean the belt grooves of all dirt or debris with a wire brush.

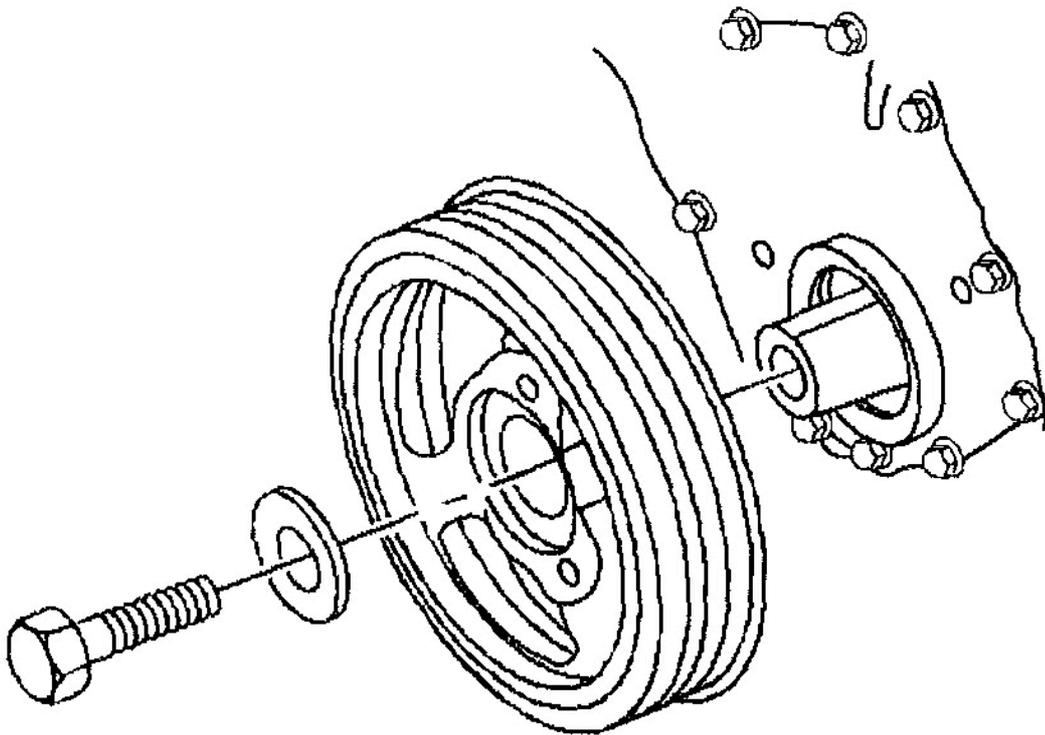
**CAUTION: Wear safety glasses in order to avoid eye damage.**

3. Dry the crankshaft pulley with compressed air.
4. Inspect the crankshaft pulley for the following:

- Worn, grooved, or damaged hub seal surface.

A crankshaft pulley hub seal surface with excessive scoring, grooves, rust or other damage must be replaced.

Minor imperfections on the hub seal surface may be removed with polishing compound or fine grade emery cloth.



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**Fig. 45: Inspecting Crankshaft Pulley**  
Courtesy of GENERAL MOTORS CORP.

**Important:** In order for the belt to track properly, the belt grooves should be free of all dirt or debris.

- Dirty or damaged belt grooves

The pulley belt grooves should be free of any nicks, gouges, or other damage that may not allow the belt to track properly.

Minor imperfections may be removed with a fine file.

- Worn, chunking or deteriorated rubber between the hub and pulley

#### ENGINE FLYWHEEL CLEANING AND INSPECTION

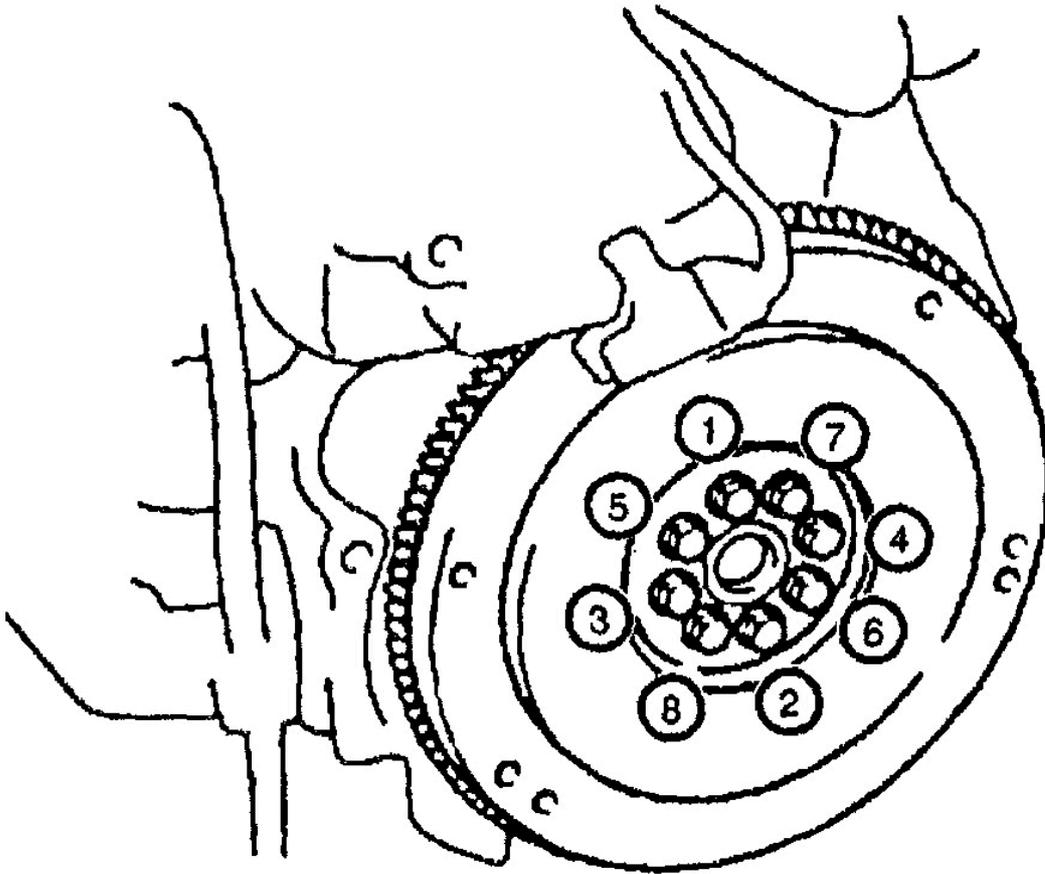
1. Clean the flywheel in solvent.

**CAUTION: Wear safety glasses in order to avoid eye damage.**

2. Dry the flywheel with compressed air.
3. Inspect the manual transmission flywheel for the following:
  - Damaged ring gear teeth
  - Loose or improperly positioned ring gear

The ring gear has an interference fit onto the flywheel and should be positioned completely against the flange of the flywheel.

- A scored, grooved or damaged friction surface



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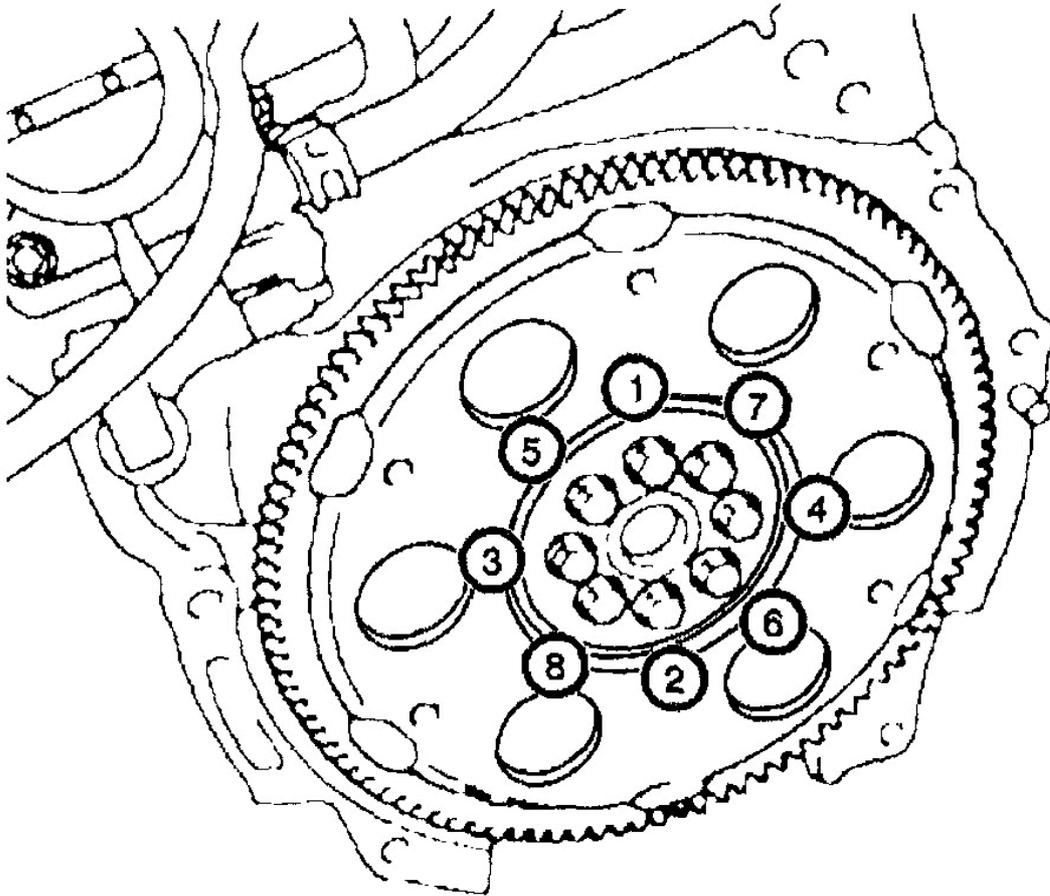
**Fig. 46: Cleaning And Inspecting Engine Flywheel**  
**Courtesy of GENERAL MOTORS CORP.**

4. Inspect the automatic transmission flywheel for the following:

- Damaged ring gear teeth
- Stress cracks around the flywheel-to-crankshaft bolt hole locations

**Important:** Do not attempt to repair the welded areas that retain the ring gear to the flywheel plate. Install a new flywheel.

- Welded areas that retain the ring gear onto the flywheel for cracking



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**Fig. 47: Installing New Flywheel**  
Courtesy of GENERAL MOTORS CORP.

#### CYLINDER BORING AND HONING

**CAUTION: Wear safety glasses in order to avoid eye damage.**

#### Cylinder Honing

1. When honing the cylinder bores, follow the manufacturer's recommendations for equipment use, cleaning, and lubrication.
  - Use only clean sharp stones of the proper grade for the amount of material to be removed.
  - Dull, dirty stones cut unevenly and generate excessive heat.