DETROIT DIESEL

Service Information Bulletin

NUMBER: 4–**01**–11 **S.M. REF.:** Listed in Table **ENGINE:** EPA04 / EPA07 Series 60 **DATE:** April 2011

SUBJECT: CUTTING SERIES 60 COUNTERBORES

ADDITIONS, REVISIONS, OR UPDATES

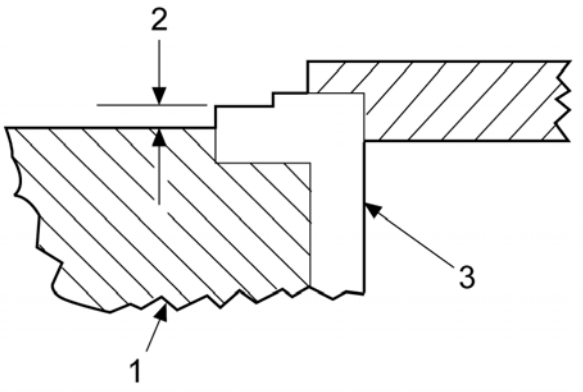
Publication Number	Platform	Section Title	Change	Page Number(s)
DDC-SVC-MAN-0005	EPA07 Series 60	Engine – Additional Information	Procedures to cut the counterbore for repair shims have been added.	Insert as stated.
DDC-SVC-MAN-0004	EPA04 Series 60	Engine – Additional Information	Procedures to cut the counterbore for repair shims have been added.	Insert as stated.

NOTE: Page numbers are based on the most recent version of the individual publication and may be adjusted throughout the annual print cycle.

MACHINING CYLINDER BLOCK COUNTERBORES USING SHIMS

Cutter plate assembly (J–41065) is used with Counterbore tool (PT–2250–B) to machine cylinder block counterbores for the installation of repair shims. See Figure 1.

NOTE:
Use the appropriate Detroit Diesel part when installing the counterbore shims.



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1. Cylinder Block
2. Cylinder Protrusion
3. Cylinder Liner

Figure 1 Cylinder Liner Protrusion

1. Remove cylinder head. Refer to section.
2. Remove oil pan. Refer to section.
3. Remove cylinder liner. Refer to section.
4. Ensure block deck surface and boring tool base plate are clean and free of burrs.
5. Plug all open areas of the engine compartment to seal out any contaminating particles.

NOTE:
Ensure cutter is marked Series 60.

NOTE:
Maintain a sharp cutter bit to ensure the cylinder block counterbore is accurately machined.

6. Retract the cutting bit into the cutting plate.
7. Mount the counterbore cutting tool over the cylinder to be machined. Install mounting bolts into the appropriate cylinder head bolt holes, leaving the bolts loose.

8. Lower the cutting plate (2) to rest in the cylinder bore (1) and rotate the T-handle to center the tool. See Figure 2.

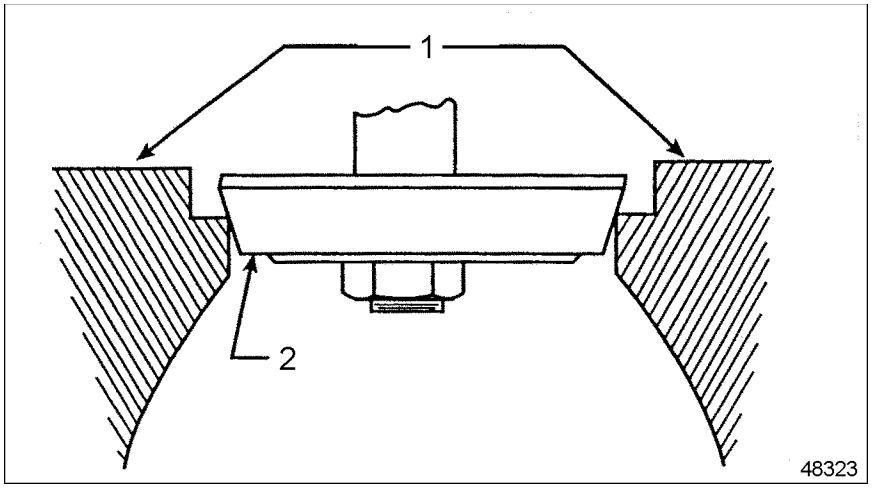

Figure 2 Cutter Plate (PT–2090) Location

9. Torque the two opposing mounting bolts to 68 N·m (50 lb·ft). Verify that the tool is still centered in the bore. If not, then loosen bolts and re-center the tool. If centered, torque the two remaining mounting bolts to 68 N·m (50 lb·ft).
10. Raise the tapered cutting head from the block and insert the spacer block. While there is no load on the tool, extend the cutter bit outward (using a clockwise rotation of the cutting bit screw) until it just touches a 0.15 mm (0.005 in.) feeler gauge or shim placed next to the vertical wall of the counterbore. Tighten the Allen head hold-down screws.

Figure 3 Spacer Block PT 2200–83

11. Remove the spacer block and slowly lower the cutting head into the counterbore. (Be careful not to damage the cutting bit).
12. Adjust the lower locking collar downward until it comes in contact with bronze bushing, and the cutter bit is not resting on lower surface of counterbore. Rotate the T-handle to ensure there is no binding or scraping of the counterbore walls. If so, adjust cutting bit.

13. Slowly back off the lower locking collar until the cutting bit is just touching the lower surface of the counterbore.
14. Set the depth of the cut by using the repair shim. Insert the shim between the locking collars, lower the upper lock collar down until it comes in contact with the shim. Tighten the thumb screw on the top collar.

NOTE:
If cutting more than one counterbore, the shim used to set the depth of the cut in each cylinder **must** be used in that cylinder. Failing to do so may increase/decrease the liner protrusion.

15. Lubricate the tool bushings. Back-off the lower collar by two graduations, 0.0254 mm (0.0001 in.). Rotate the T-handle clockwise with moderate, constant pressure, stopping at random positions to prevent creating a ridge in the counterbore. Continue backing-off the lower collar, two graduations at a time, until the collars come together.
16. Raise the cutting tool from the counterbore and insert depth spacer.
17. Retract the cutting bit into the cutting plate to protect the bit.
18. Remove the cutting tool from engine.
19. Remove all protective material used to seal out any contaminating particles and clean any/all areas that were not protected.
20. Place the shim on the lower ledge of the counterbore.
21. Insert the cylinder liner and measure liner protrusion. Refer to section.
22. Install the cylinder liner. Refer to section.
23. Install the cylinder head. Refer to section.
24. Install the oil pan. Refer to section.

ADDITIONAL SERVICE INFORMATION

Additional service information is available in *Power Service Literature*.

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