

POTENTIAL OBSTRUCTION TO COOLANT FLOW IN Y-BLOCK TIMING CHAIN COVER

This article discusses a potential casting protrusion that may slow coolant flow in your Y-Block engine. It appears that part of the timing chain cover casting was broken away in the manufacturing process to form the volute opening. Unfortunately, some of the breaks were not as clean as intended and resulted in some of the casting protruding into the volute opening. Figure 1 shows a timing chain cover with an example of a casting protrusion into the volute opening. With the timing chain cover installed on the engine, a casting protrusion is not something you would see unless you were specifically looking for it.

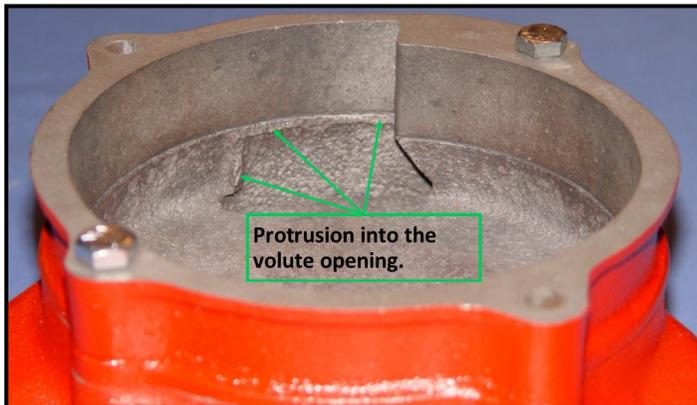


Figure 1.

I had removed and reinstalled my water pump several times with various spacers during flow testing and never saw the protrusion. After I became aware of this potential problem, I removed the water pump to check and found a protrusion close in size to the one pictured in Figure 1.

An angle drill with a 1/2 inch rotary file as shown in Figure 2 is an excellent tool to grind the protrusion away. The one shown is from NAPA, item number 7771619. After the grinding is complete, the water jacket must be thoroughly flushed to remove all grinding debris.



Figure 2.

Figure 3 shows the inner surface of the timing chain cover with which the volute opening should be flush.

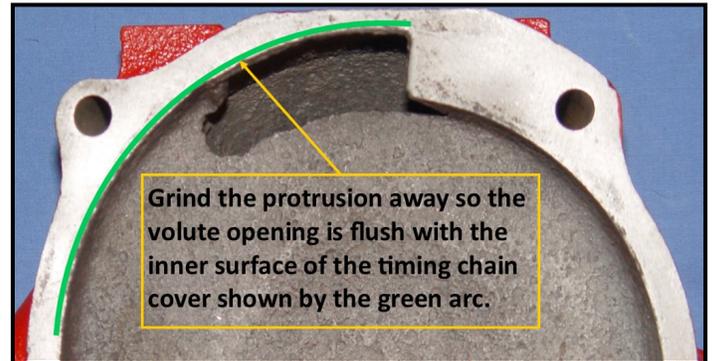


Figure 3.

The protrusion shown in Figure 4 is the worst I have seen to date and had gone unnoticed for over 60 years. Because this issue has only recently come to light, most of us have no idea how clean the break on our timing chain cover is. I suggest you make a note to check the next time you remove the water pump. Also, there is no better time to check for and remove any protrusion that exists than when the timing chain cover is uninstalled. So don't miss this opportunity when you are rebuilding your engine.

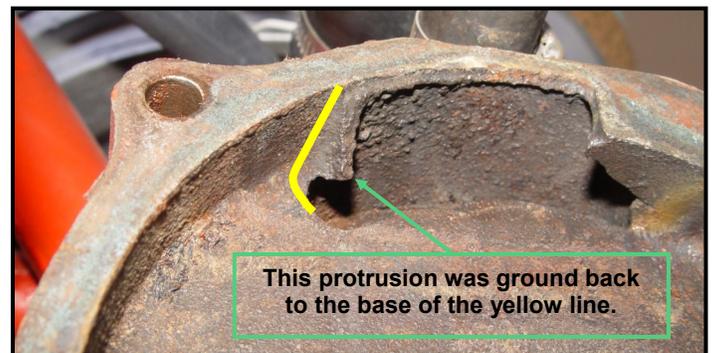


Figure 4.

One final point on this issue is that while its effect is more significant on Thunderbirds because of the spacer installed between the water pump and the timing cover, it applies to all Y-Blocks.

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