



4/2026 v1

Gen 3 Hemi Camshaft Pinning Kit

Thank you for trusting us to supply these vital parts for your race/swap engine. This fixture has been specifically designed to work with the billet chain sprocket or billet gear from our world class timing sets. We have meticulously designed this kit to give you, our customer the best chance of successfully securing your camshaft connection. Please read the instructions fully and carefully before beginning. We also suggest that you read our pinning recommendation on sheet 2.

What's in the box?

Drill fixture (1)

Socket Head Screw M12 X 1.75 X 80mm (1)

Dowel Pins (2)

15/64" Cobalt Drill Bit (1)

Reamer (1)

Preparing the parts

The camshaft must be removed from the engine to perform this task. Metal shavings will be produced and will get lodged in the original VVT oil passages of the camshaft. Carefully secure the camshaft as it will want to spin when drilling.

Installation

Step 1

Place the drill fixture over the nose of the camshaft and align the cam locating pin with the slotted, 4mm wide hole in the fixture. Secure the drill fixture to the camshaft with the provided socket head screw and tighten securely.

Step 2

Use a sharpie and dial caliper to closely locate and mark both the drill bit (shown below) as well as the reamer to show a depth of 1.10" (see Figure 1). This will allow a clear view of the depth from outside of the drill fixture.



Step 3

Using the drill bit marked in Step 2, drill the camshaft through fixture hole P1 using a drill motor until the mark on the drill bit is flush with the outer surface of the drill fixture. Clear the freshly drilled hole with compressed air.

Step 4

Using the precision reamer marked in Step 2, ream the freshly drilled hole in the camshaft using a drill motor until the mark on the reamer is flush with the outer surface of the drill fixture. Clear the freshly reamed hole with compressed air. Use this opportunity to blow out every hole and clean to make certain they are clear of any shavings or debris.

Step 5

Install the dowel pin into the reamed hole and tap into place using a brass hammer or brass drift/punch until the pin protrudes between .23"-.27" (see Figure 2).

Step 6 (optional, see pinning)

Repeat steps 1 through 5 using fixture hole P2. The newly added dowel pin adds even better alignment for the drill fixture.

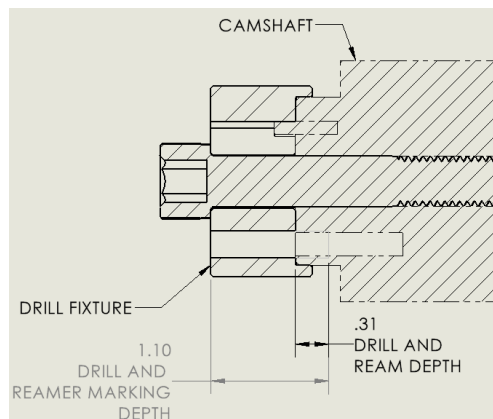


Figure 1

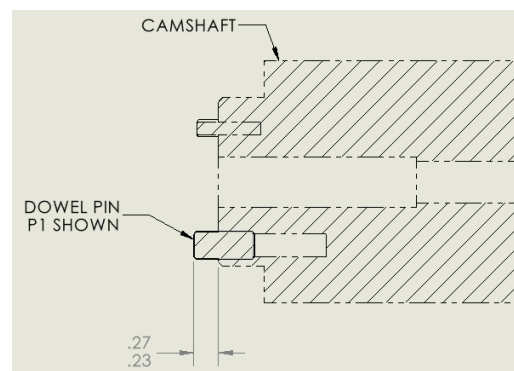


Figure 2

*Camshaft Pinning Recommendation

This recommendation is purely the opinion of Smith Innovation and not to be used as explicit direction. We have had solid results and very few resulting sheared cam locating pins simply from properly torquing the cam bolt/nut to the proper value. We concede that there are extreme situations where the clamped value cannot hold the shock loading of certain performance demands. These can be transbrake use, 2-step, spin/hook (think burnout), big RPM shift drops, backfires, RPM limiters and many more. This is where the extra insurance of pinning the camshaft is recommended. The user can decide to pin one or both locations that the fixture allows, but if it is decided to pin only one location it is recommended to pin the "P1" location.