



Steering, Brake & Suspension Specialists

#18-35 - Installation Instructions

Harmonic Balancers for Non-Drilled/Tapped Small Block (265/283/327) Crankshafts

Notes:

When installing CPP's PS808 power steering bracket or needing to utilize a bolt-on double-groove crank pulley (CP38811) on early small-block Chevy engines originally equipped with riveted pulleys, you will need to update harmonic balancers. CPP's #18-35 damper replaces the press-on balancers. To install without having to force on using a heavy hammer, potentially causing major internal engine damage, the crankshaft should be drilled and tapped.

This particular task is ultimately best suited for a professional engine machine shop, preferably with the crank removed from the engine, though there are shops that can perform the job with the crank installed. However, for some it's not financially feasible, so the following exercise is an alternative method for those with the technical savvy, experience, and proper tools*.

What was devised is a dual-purpose drill-and-tap jig for in-vehicle crank snout modification: two solid-steel guide bushings machined to fit (female) a 25/64" drill bit and a 7/16-24 tap, as well as (male) the ID of harmonic balancer to be used with the balancer still installed. For applications where the balancer has been removed, a collar notched to clear the keyway and slide over the crank snout can be used. Performing the job with the balancer on will provide more stability for the drill/tap bushings, though it was done both ways to illustrate the entire process.

(*Even with a low-performance/stock engine, the risk of error can be high when attempting to modify a precision balanced engine component such as the crankshaft: we recommend seeking professional help—a properly-equipped, professional machine shop—if there is even the slightest bit of doubt on your end.)



Instructions:

1. Early small-block Chevy engines (265s as well as some 283/327s) use harmonic balancers with riveted-on pulleys and non-drilled/tapped crankshafts. This needs to be addressed when updating to double-groove pulleys to accommodate power steering and/or other accessories. (Fig 2)



2. Removal of the early-style dampers/pulleys is no different than removing a later-style balancer (using a puller); it's the reinstallation

that ultimately necessitates the drilling/tapping of the crank snout. (Fig 3)



3. CPP's #18-35 harmonic balancer (6-1/8" diameter, 3/4" thick) replaces the early integrated balancer; it's slightly more offset, which benefits pulley spacing, however the timing mark matches up identically. (Fig 4)



4. The existing pilot hole will initially determine how the job proceeds—if it's not deep enough, getting your drill's pilot hole dead-center may be difficult (without having to machine an addition guide to drill a pilot). Verify first before moving forward. (Fig 5)



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5. In lieu of pulling the engine and removing the crankshaft, the DIY method utilizes steel bushings that help guide and align your 25/64 drill bit and 7/16-20 tap. (Fig. 6)



6. The bushings are machined to fit the ID of the balancer mounting hole (1.225"). The inner lip of the balancer may require slight cleaning up with a file or sand paper if it's been hammered on in the past. (Figs. 7-8)



7. The preferred manner to drill and tap the crank is with the balancer still installed, as it provides more stability. Use a new, cobalt (HSCo) bit. Measure the required hole depth based on the length of your replacement balancer bolt and mark bit accordingly. (Fig. 9)



8. Start tapping the threads (using the tap bushing) once the hole has been drilled to depth; keep tap well lubricated with cutting fluid and periodically clean off debris. Cut approximately a half-inch deep, just enough to stabilize tap without bushing. (Fig. 10)



9. If you've already removed the stock balancer, you will need to use a sleeve guide (steel tubing) to stabilize bushing during drilling/tapping. That translated into a piece of 1/8-inch-wall 1-1/2-inch tube, slotted for the crankshaft keyway. (Fig. 11)



10. Use same drilling/tapping procedure as mentioned above with balancer installed; ensure sleeve has snug fit, as any play will affect the accuracy of the drilling. (Figs. 12-13)



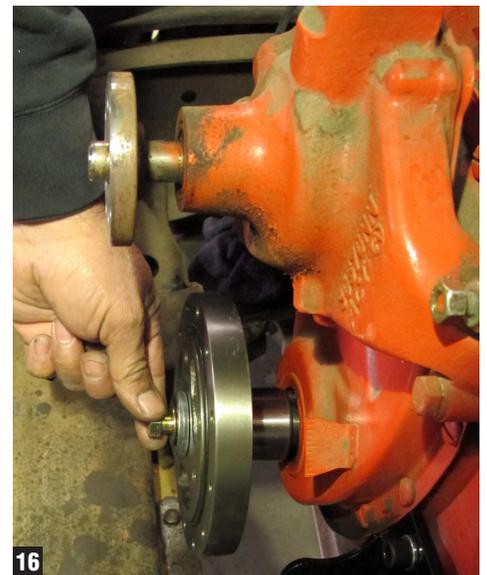
11. After cutting the initial half-inch of threads, remove sleeve/bushing and finish remaining depth. (Fig. 14)



12. Always keep the tap well-oiled with cutting fluid and wipe off the metal debris regularly to ensure your crank threads are sharp and clean. Install the new balancer bolt prior to putting the balancer on to verify threads are accurate. (Fig. 15)



13. Use an oversized 7/16-20 bolt to initially install the balancer—make sure to avoid bottoming the bolt out (and possibly damaging the new threads) in the process. (Fig. 16)

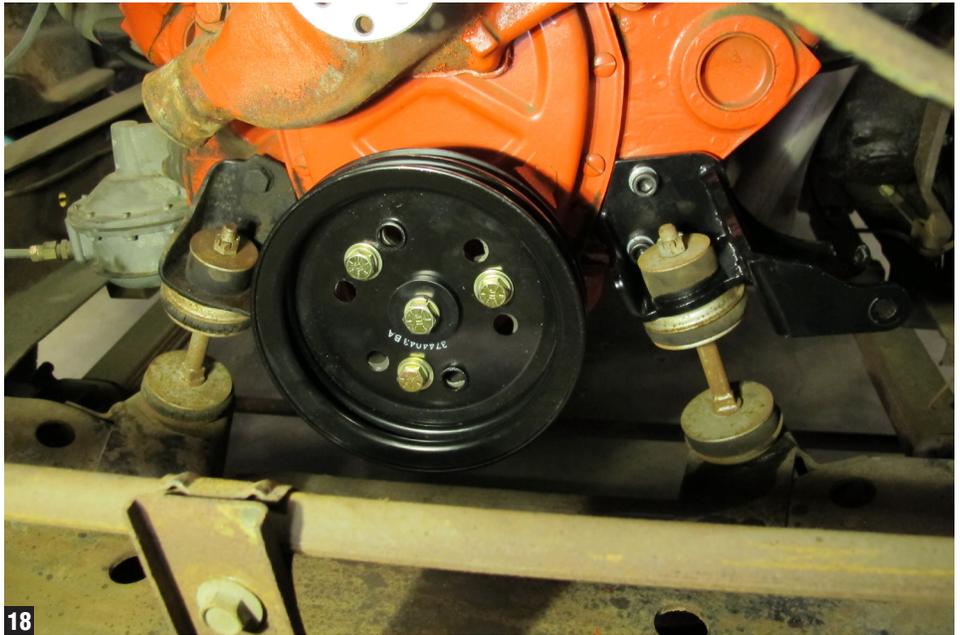


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14. The CPP #18-35 balancer will appear to be sticking out further than the stock one (earlier comparison shows the difference in physical makeup); do not attempt to force balancer to sit beneath timing indicator—there should be roughly a 1/4-inch gap. (Fig 17)



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15. Install new pulley(s) and secure with new balancer bolt, spacer, and lock washer. (Fig 18)

GENERAL TORQUE SPECIFICATIONS:					
1/4"	grade 5	10lb/ft	1/4"	grade 8	14lb/ft
5/16"	grade 5	19lb/ft	5/16"	grade 8	29lb/ft
3/8"	grade 5	33lb/ft	3/8"	grade 8	47lb/ft
7/16"	grade 5	54lb/ft	7/16"	grade 8	78lb/ft
1/2"	grade 5	78lb/ft	1/2"	grade 8	119lb/ft
9/16"	grade 5	114lb/ft	9/16"	grade 8	169lb/ft
5/8"	grade 5	154lb/ft	5/8"	grade 8	230lb/ft

NOTE: With 18" and larger wheels we recommend 1/2" wheel studs. The larger the wheel diameter, the greater the force is on the wheel studs. Please inquire about replacement wheel stud kits available from CPP.

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