KENNE BELL Supercharger Gear Noise

Occasionally we receive a call with a customer saying *"I've got this rattling noise coming from the front of the supercharger. It only makes noise at idle and goes away when I increase the engine rpm. The gears must be bad."* No, the gears are not defective. If they were, the noise wouldn't disappear when the rpm was increased. Let's look more closely at gears and couplers.

Worn or misaligned gears emit a constant whining noise at ANY rpm, not just at idle or low rpm. Gear lash (the gap between forward and reverse gear motion) can make a single slight clicking noise when you're in and out of the throttle as will the coupler or the driveshaft/u-joints. Some gear sets such as the "straight cut" gears used in NASCAR cam gear drives or some centrifugal superchargers are inherently noisy at any rpm. These gears are not worn. They are just noisier. Eatons also use the straight cut gears. The Italian made high quality gears used in the Kenne Bell/Autorotor superchargers are the quieter helical cut gears. They are silent at any rpm and virtually indestructible. Although our superchargers are rated at 18,000 maximum rpm, we've drag strip tested the gears at 24,000 rpm. Our Lightning and Cobra superchargers are subjected to more abuse and higher rpm than any of our kits. As of this writing, we have never seen a worn or noisy gear set on these kits.

As previously mentioned, worn or defective gears will be noisy at ANY rpm and becomes noisier as rpm increases. And bad gears do not "rattle" - they "whine" at all rpm. The clicking or rattling noise is caused by an uneven engine idle or surge which creates torsional vibrations that are transmitted to the crankshaft pulley. Some engines use a rubber or viscous dampener in the crank pulley to help absorb these pulse vibrations. Many of the new engine designs eliminate these dampeners and are therefore more sensitive. In any event, a slight lope, whether it be audible as with a cam or an inaudible tune up problem, will result in the crankshaft pulley "jerking" the serpentine belt back and forth. This uneven undampened belt oscillation jerks on the supercharger pulley and shaft which is connected to the supercharger gears with a coupler. The lash/clearance in the coupler is responsible for any noise - not the gears. There is no lash in the supercharger gears. However, there is some normal wear or lash (clearance) in the coupler. This can be felt by turning the supercharger pulley fore and aft. Again, "lash" does not mean there should be any noise. *Note: This lash is very slight 0-.060". A ½" lash indicates the plastic dampener in the coupler is completely gone - melted. The only way to melt the coupler is to overfill the supercharger thereby boiling the oil. This is a rarity, but it has been done.*

The Kenne Bell/Autorotor superchargers are the quietest available. Many of our customers report that when replacing an Eaton or competitors Twin Screw with the Kenne Bell Twin Screw, the Kenne Bell is quieter at any rpm. Larger than stock aftermarket crankshaft pulleys and/or smaller supercharger pulleys will increase noise level simply because they spin the supercharger faster with the same engine speed.

One may have difficulty in believing their engine is responsible for the noise, but it is the obvious culprit as the supercharger cannot mystically decide to begin "jerking" on the belt. It is being DRIVEN by the engine's crankshaft. It performs no DRIVING function and doesn't get out of tune and jerk on the belt.

In every case where we have received superchargers with reported gear noise and subsequently installed them on an identical vehicle, there was "0" noise. Again, there have been no gear failures.

Unless you've installed a rougher idling cam, assume the engine is not idling as smoothly as it once was. Put a scanner on it. Check the AF ratio. It should be at 14.7 and the fuel trim should be within factory specs. Also check the plugs, wires, EGR, IAC and all vacuum lines. Assuming the rattling noise is bad gears will send you down the wrong road for the cure.