

EVOLUTION SPORTSTER CAM GEAR NOISE



WHAT CAUSES CAM GEAR NOISE?

Whenever a roller lifter in a Sportster engine passes maximum cam lift, the forces on the cam gear teeth change direction. If there is more than .002 backlash, this change of force will result in an audible "click" as the backlash moves from one side of the tooth to the other. Gear noise always occurs at lower RPM.

Stock EV Sportster cams are made with different gear sizes. They are color coded by size and selectively fitted to engines at the factory to minimum backlash and gear noise during engine operation.

Andrews Products cam gears for EV Sportsters are made with gears in the middle size ranges so the chance of cam gears fitting too tight is slight. Cam gears which have excess backlash may rattle during operation. This clicking (or rattling) sometimes sounds like lifter noise. Unlike whining gears, rattling gears will not cause gear tooth failure or engine damage. If you don't mind the noise, it won't cause any engine problems.

Gears which are operating without enough backlash (fitted too tightly) will whine during operation. This condition is serious and can cause localized gear overheating, tooth failure and engine damage. Cam gears which fit too tight must be corrected with smaller size cam gears.

To fit Andrews Products cams in your EV Sportster engine, a procedure will be described.

MEASURING CAM GEARS FOR PROPER FIT

1. Install all 4 cam gears in cover (see photo) for trial fit.
2. Manually turn all four gears and verify that they roll freely. If there is no

tightness, proceed to step 6.

3. If there is any tightness, remove #4 cam, then #1, then #3, in that order so that the tight fitting parts can be identified.
4. Measure each new cam gear with a micrometer using .108" dia. pins as in diagram on page 12. Do the same with the stock cam gears. Note any differences in size.
5. Andrews Products makes undersize and oversize cam gears for all 3 production EV cam grinds. Unused parts may be returned and exchanged for under or oversized cam gears.
6. Install the cover onto the engine with no pushrods and only the #2 cam gear. Verify that the engine now freely turns. If so, the cam gear backlash is correct and you can continue to reassemble the engine.
7. If the #2 cam drive gear is tight, a smaller pinion gear (from H/D) must be used. (See page 12 for a procedure to determine the correct size of new pinion).
8. Any 2 adjacent cam gears (1-2), (2-3), (3-4) can be installed in the cover to check for proper backlash by comparing the stock parts (2 at a time) to the new ones.
9. Any significant differences in sizes between the stock cam gears and new cam gears should be investigated and understood before proceeding