

J2 TECHNICAL ARTICLE

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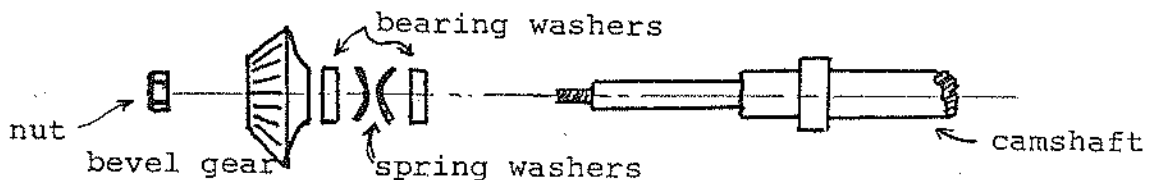
From Octagon Heaven

Source: Mike Hawke and others

CAM SHAFT END PLAY

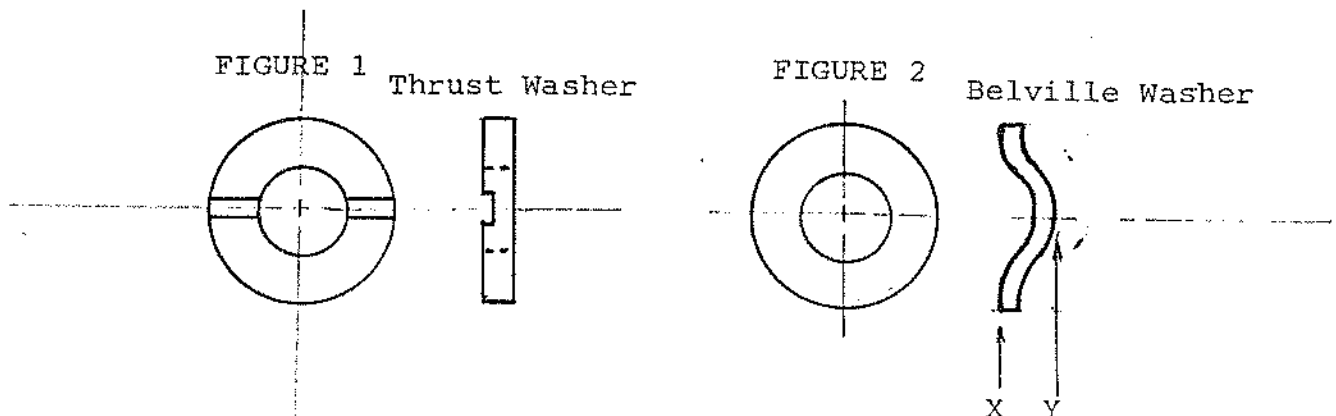
Question: On my camshaft there are two bearing washers with two spring washers between them (see sketch below). Is this correct?

Question: While the fit of the bevel gears is good, there is .003" end play. Is that okay?



The answer to the two questions are interrelater as per my English friends -----

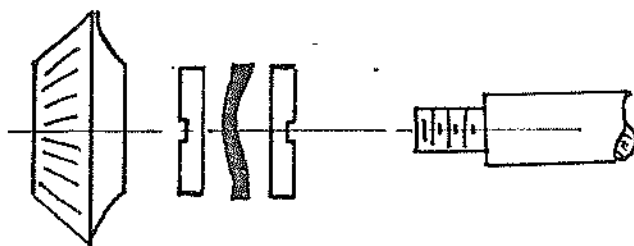
"The washers behind the camshaft bevel gear consist of two Thrust Washers (bearing washers) as shown in figure 1 below, plus a Belville Washer inbetween. This Belville Washer is a larger, stiffer version of the sort of thing you have on the later model rocker shafts.- see figure 2 below.



The Belville washer will wear at points X and Y and eventually break. I am told you can not get new ones so the best thing to do is to make a hardened washer of the exact proper thickness just as they would do in setting up a racing engine. This is done by the following process:

(Over)

1. Set up your bevel gears, blueing the teeth as normal and adjusting the shims at the base of the cylinder head (by the oil drain galle on the vertical shaft of the lower bevel gear.
2. On the camshaft use both thrust washers and pack in between them any washer or what ever material that is on hand to get proper mesh of the gears.
3. When the mesh is correct, take it apart and measure the thickness of the material used as packing and then make a hardened and ground new belville washer of the correct thickness.
4. Reassemble so that you have only the one belville washer between the two Thrust Washers. See the sketch below as the position of the Thrust washers.



5. The end play of 0.003" is probably okay here although I have never measured mine. Yet if you can get it less, you will have a quieter running engine."

Other authorities closely echoed the above, all stating that the belville washer was key to proper fit, control of end play and quiet running engine.

One did say that even a spring washer would maybe be okay.

One said end play should be less that 0.001" and maybe as little as 0.0005".

Editorial thought: A spring washer may help provide the proper spacing but a spring washer would only apply pressure at one point of its 360° surface. Two spring washers may do the trick, but what happens if they move in their positions?

