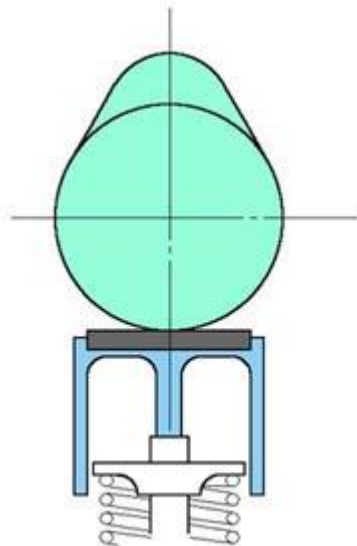


Tutorial: How to measure Maruha Cap shim (lash caps) thickness

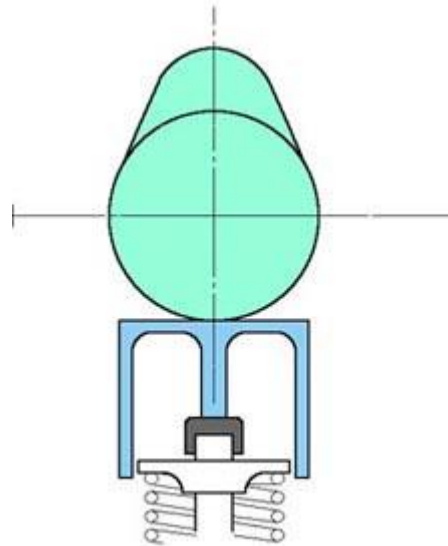
Cap shims (or lash caps) are used in conjunction with solid lifters (or solid shim under buckets) when installing Maruha Fcams and Race cams. These are the pieces that sit between the valve stem end and the camshaft. The only exception is NA8 Fcams that work with OEM hydraulic lifters.

While the solid lifter itself comes as a finished piece, the lash caps come in different sizes for you to match to the valve clearance in your engine head.

OEM camshaft with outershim system NB



Maruha Solid lifter with cap shim system 1.8



The best way to measure what cap shim thickness you need is this:

*For NA6 owners and NA8 users converting to solid lifters, this is the only best method.

1. Remove the OEM camshaft
2. Remove the OEM lifters (NA6, NA8 and NBs will all have different types of lifters)
3. Place the Maruha solid lifters in place and *mark down* each valve (1-8 intake, 9-16 exhaust)
4. Put the Maruha solid lifter profile camshafts back in place
5. Measure the clearance carefully and mark it down
6. Use the following formula
 - a. The clearance you measured minus 8 thou (0.2mm) for intake side
 - b. The clearance you measured minus 10 thou (0.25mm) for exhaust side

The above method means you have to have a set of Maruha solid lifters on hand. It also means that you have to get the shims after you make the measurement with the new solid lifters, unless you already have a huge selection of various sizes of shims on hand (such as Maruha headquarters or Chikara headquarters).

The *second* way to measure what cap shim thickness you need is this:

*This method is suitable for NB1, NB2 1.8 BP engines

*Be sure to *mark down* and label each and every piece of lifters and shims as you measure.

1. Measure the OEM valve clearance, keeping a tidy list 1-8 intake, 9-16 exhaust
2. Remove the OEM outer shim to measure thickness, marking down positions
3. Use the calculation formula: (OEM outer shim) + (OEM clearance - recommended clearance) - 0.2mm = (Maruha cap shim you need)
4. The recommended valve clearance
 - a. 8 thou (0.2mm) for intake side
 - b. 10 thou (0.25mm) for exhaust side
5. Review the measurements and calculated thickness you need for each of the 16 valves. Do you need to order a few extra thicker shims as backup? Do you need to order a few that are slightly thicker from your calculated list? (ie. Calculated thickness of 2.85, order 2.90 instead. Grind or sand down to appropriate thickness during installation).

The above formula is used to give you a very good guess. During actual installation, there will still be slight variations. It might be a good idea to order a few pieces that are slightly thicker and grind it down for a perfect fit.

While it is possible to order all 16 pieces with the same thickness of say 3.20mm and modify it during install, by using this formula, it will cut down on a lot of unnecessary and often tedious work of grinding down the cap shims.

During measuring and installation, please make sure it is absolutely clean and free of any minor debris. Even a small speck the size of a hair or sand can throw off your measurements by a thou or two.