

# SHIM IT!

Venerable hot rod cam grinder Harry Weber gets an extra thousand rpm with a simple valve spring preload kit

by RICH COX

PHOTOGRAPHY: MIKE PARRIS

**W**eb-Cam (formerly Weber Cams) in Santa Ana, California, is widely known for offering the most complete line of motorcycle camshaft profiles. Harry Weber's latest additions are special valve spring safety shims for the Honda XR75, SL100/125, XL175, XL250/350, 160/175 twins, 350 twins and 350-500 four. Recommended for stock as well as high-performance cams, the shims increase spring pressure enabling the retention of stock Honda springs in engine modifications.

Installing shims or heavy-duty valve springs has always been a part of engine hop-uppery, but which application produces the best results at the lowest cost? We had the opportunity to spend an afternoon at Web-Cam discussing their latest offering with the venerable Harry Weber and expressed curiosity as to why he was making shim kits instead of spring kits. Well, Harry feels

shims are the way to go because some spring kits are actually doing more harm than good. To prove his point, he pulled out a handful of cams that had been totally destroyed because the owners had installed too-heavy springs. It seems that larger springs often provide more tension than is necessary, causing cam lobes to flatten and bearing journals to deteriorate. Spring kits also produce a specific pressure that can't be altered; you're stuck with it whether it's right or wrong. Shimming, on the other hand, allows spring pressure adjustment by simply adding or subtracting shims.

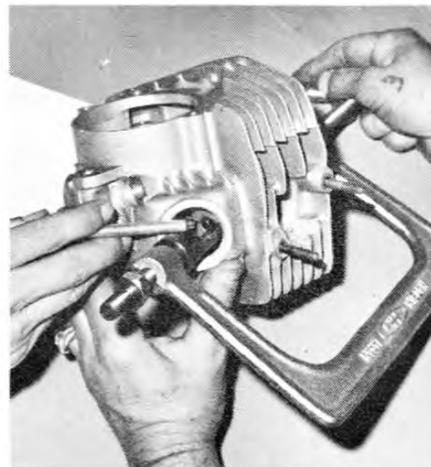
The average cost of a spring kit for a two-valve engine is \$10.95. Web-Cam sells their two-valve shim kit for only \$3.95, four-valve kit for \$4.95 and six-valve kit for \$6.95.

The head and shim kit pictured are for a Honda SL125. Each shim is .015-

inch thick and is placed beneath the larger outer spring; the smaller inner spring is left alone. Using two shims per valve increases valve seat pressure roughly five pounds or about ten percent. Installing three shims produces an extra nine pounds, or about a 20-percent increase. Be careful, however, because over-shimming could cause spring bind. Shim thicknesses and quantities are varied depending upon which model Honda you own, and instructions on the correct number of shims are included in each kit.

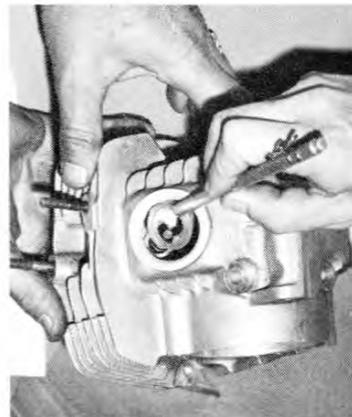
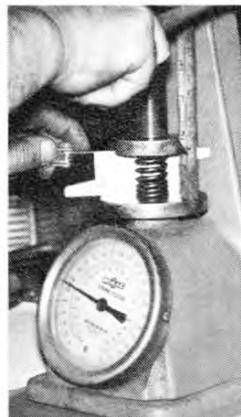
When purchasing shims, remember that the main reason for installing them is their safety provision against engine damage due to valve float; the extra 1000 rpm you may expect is just frosting on the cake. The XL250 and 350 are exceptionally prone to valve float, and a shim kit should definitely be used in this application.

*RIGHT—Although they don't look like much for \$4, these shims are worth their weight in gold. An added 1000 rpm can be expected from the use of the shims without the fear of valve float.*



*LEFT—Once the SL's head is removed, it's necessary to obtain a valve spring compressor either from Honda or an accessory outlet. It takes three hands to operate the tool and a magnetized pencil to keep track of the two valve keepers.*

*RIGHT—The stock spring registers 55 pounds pressure. The 1 5/16 inches on the puller represents preload when the spring is installed in the head.*



*LEFT—Use the same pencil to place the correct quantity of shims down against the stock platform washer. This washer keeps the spring from eating the aluminum head, so don't leave it out.*

*CENTER—Placing two shims under same spring raises the pressure six pounds to total of 61 pounds. Spring tension gauge is the most accurate way to measure spring pressure.*