

# TWIN CAM UPGRADE, Part I

*Installing a Dyna ignition, Vance & Hines exhaust, and S&S carb, cam, and rocker box set*

SO YOU FINALLY GOT THE NEW HARLEY you've been coveting for years. All black and full of attitude, your new Night Train Heritage Dyna Sport Touring Ultra Classic is everything you imagined it to be. Only one problem, though. Thanks to the clean air powers that be, you've found that the engine's performance isn't quite what one would reasonably expect from 88 cubic inches. (That's a whopping 1450cc for those of you who are fond of comparing to import displacements.)

Not to worry, Tony, we'll fix your wagon. S&S makes a nice, easy mod for Twin Cams that fattens that power band and wakes up the performance to a more eye-opening level. This package includes a Super E carb and chrome teardrop air cleaner, adjustable steel push rods, and high performance .510" lift cams. Seeing the S&S cams come keyed and not splined, we'll also install an Andrews heat-treated steel cam sprocket and key (#288010), as per S&S' recommendation. We'll top off this S&S kit with a Dyna TC 88-1 single-fire programmable ignition module to tell the spark when to go, and a Vance & Hines 2-into-1 exhaust to help all those fumes make an exit. Just to add a little shine to that otherwise black motor, we'll also add a set of S&S chromed billet rocker boxes.

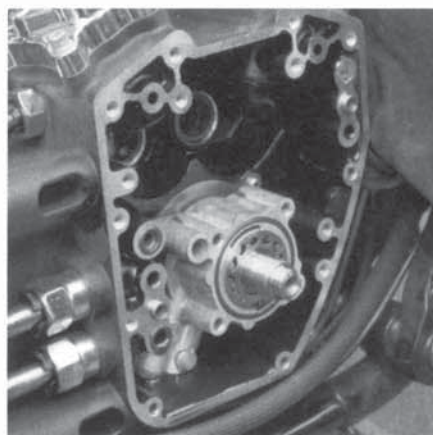
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Before you start the disassembly process and later the assembly, find a

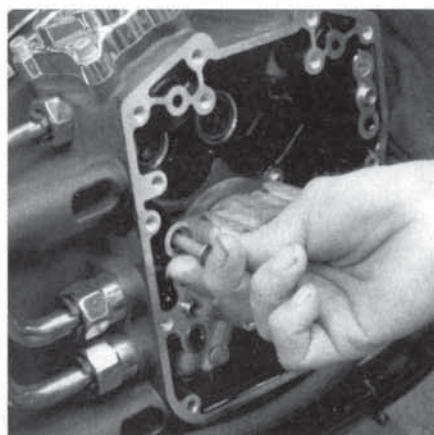
local shop that has the appropriate tools to install the new cams and bearings into the cam support plate. Removing and installing the bearings into the support plate, and later the cams into the bearings, require the use of special tools not usually found in the run-of-the-mill toolbox. Also, if you don't already own one, get a shop manual for your bike. The required torque patterns and values, all of which are more important than ever, are readily available in the manual.

## DISASSEMBLY

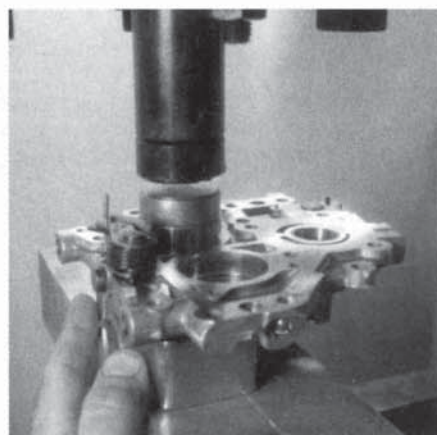
As the little warning sticker on the bike says, disconnect the battery (negative cable first) before doing anything else. You'll also need to remove the dash, fuel



**1** Our starting point: The cam support plate is removed. The oil pump is exposed, but still in position in the gearcase. The push rods and tubes are also removed. The lifters are held in their bores with clips.

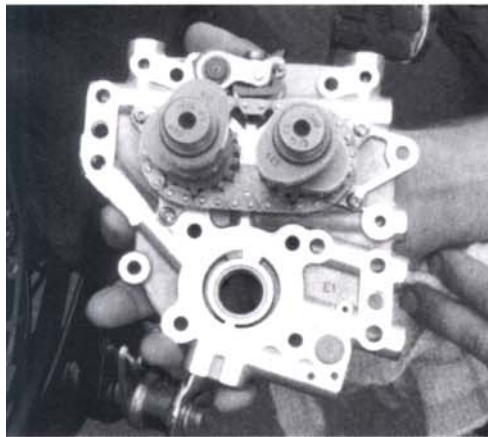


**2** Remove and clean the balancer chain tensioner's screen. Reinstall it with a new O-ring. Also remove the oil pump, as a unit, and replace the O-ring behind the oil pump. Use one of the five upper push rod tube O-rings that come in the H-D cam service kit.

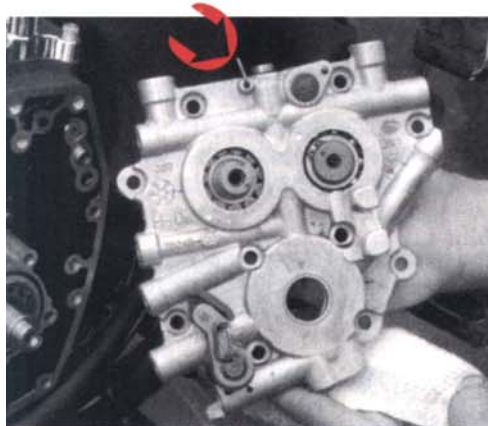


**3** Replace the bearings in the cam support plate with new ones: a ball bearing for the front cam and a roller bearing for the rear on S&S chain-driven camshafts. Reinstall the bearing retaining plate onto the support plate. (Photo by Peter Linney)

PHOTOS BY CHRIS MAIDA



**4** With the cams in the secondary chain (check the dark link) and the marks on the sprocket teeth aligned, press the cams into their bearings in the cam support plate with the proper tool. (Note: You only have to press in the front cam.)



**5** Once the chain tensioner retainer pins, which hold the two tensioners off the cam chain for easier assembly, are in place the support plate is ready to install. Note that the top retainer pin can be pulled out from this side (arrow).

tank, and exhaust system, followed by the air cleaner, carburetor, rocker covers, and breather assemblies. Next you will need to remove the rocker arm carriers. Make sure you remove these by the book, which means turning the four mounting bolts out a quarter turn at a time. Needless as this may seem, it is truly cheap insurance against expensive and needless damage to the carriers. You can then remove the push rods and push rod tubes, lower rocker boxes, top motor mount (trust me, it'll make life a lot easier), and intake manifold.

You can opt to take off the lifter covers and remove the lifters at this point or use clips to keep the lifters in place while

