

CAM BREAK-IN INSTRUCTION MANUAL

EVERY PART OF THESE INSTRUCTIONS ARE ABSOLUTELY CRITICAL IF YOU WANT YOUR CAM TO LIVE!

Preparation for this process - Make sure to pre-order 2 gallons of Lucas SAE 30 break in oil (Part # 10631). We always order 4 gallons (and use it for the follow up oil change). You will run this oil straight for the break-in cycle. DO NOT MIX OILS. NORMAL OILS CONTAIN DETERGENTS AND SUSPENSION ADDITIVES. THEY DO NOT MIX AND WILL WIPE OUT A CAM DURING BREAK-IN.

You will run this oil straight for the break-in. DO NOT MIX with anything else!!!. Also order or pick up a 16 oz bottle of Lucas ZDDP additive (Part # 10063) (for your next couple of oil changes to come). We add some to every oil change. ZDDP was removed from oil due to emissions standards as new cars didn't require it. That fact has cost many cams their life, even long after a successful break-in procedure. Again, why risk it for an extra \$3 per oil change.



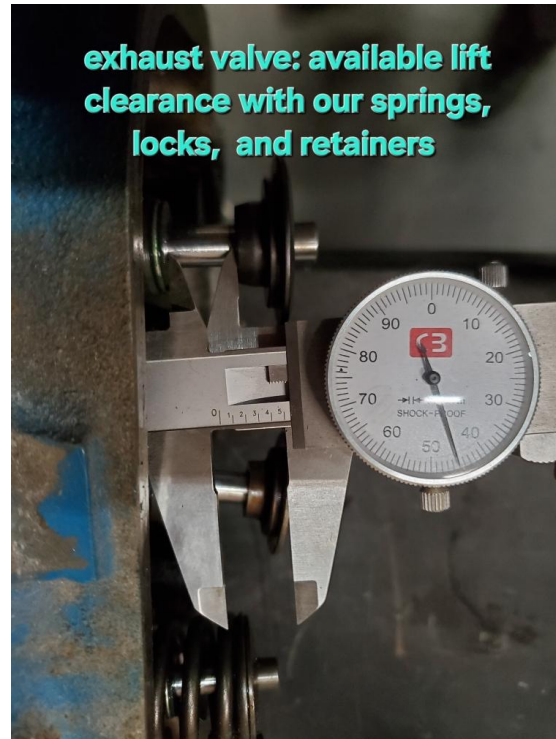
Part # 10631 & Part # 10063

Only use the cam's included break-in assembly lube on the camshaft.
NOTHING ELSE!

Caution – You need to measure your valve retainer to valve seal clearance.

The stock valve spring retainers and locks do not give you enough room to run any cam but stock. You must use our longer springs, offset locks, and retainers to have enough room. Without the spring, you need to put our retainer and locks on the intake and exhaust valve and then measure the gap between to check for clearance. It is rare, but 1 in 200 sets of the EFI 460 heads will still not have enough room. It is usually on the e7te heads from production year 1988. In this event, the heads must be pulled, and a machine shop will need to shave the valve guides down.





We do not pre-soak lifters and you do not need to either. If you do pre-soak them DO NOT DEPRESS THE PLUNGERS AT ANY POINT BEFORE INSTALLING. When installing the lifters in the lifter bores they must be clean, they must move up and down easily and they must rotate in the hole. If any of these is not the case you will wipe out the cam. If one feels tight in the lifter bore swap it around to another hole. If one is not happy STOP and call Howards Cams. DO NOT PROCEED.

YOU HAVE TO PRIME THE ENGINE'S OIL WITH A PRIMING ROD (Part # 27062).

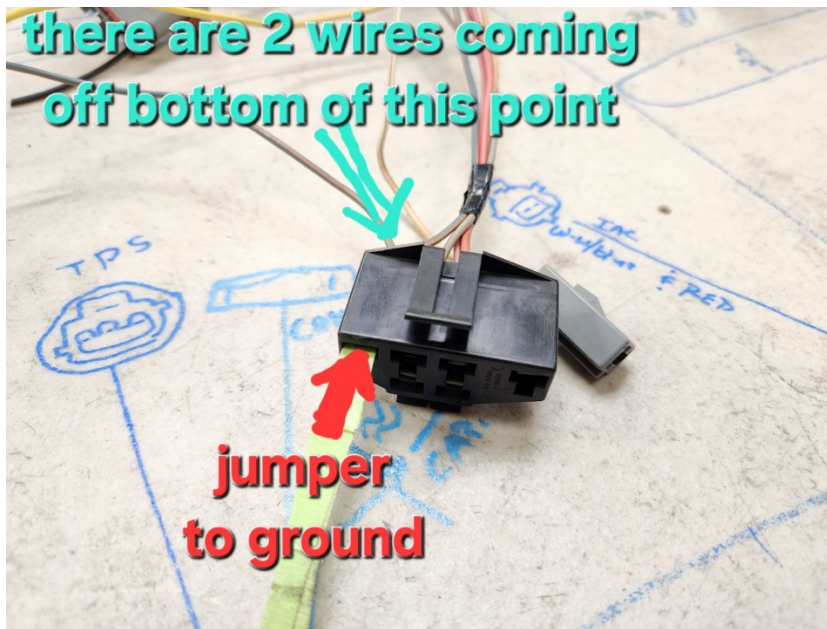
You have to prime the oil pump using a priming tool that only turns the oil pump drive-rod. You will spin this counter clockwise for a while. Make sure your drill is good because it will burn up a cheap drill. Prime the pump well waiting for the resistance to ensure everything is priming, then rotate the engine (while priming) two full revolutions (that way all lifters have come up and down with the pump spinning. You will need to confirm you are at TDC at this point if you are not you will need to TDC the engine. Check your oil level and fill it to the "FULL" mark.

With the engine at TDC install the distributor and point the rotor directly at spark plug post #1. Make sure the timing plug is installed. Don't lock down the distributor. Instead set tension on it to where you can barely turn it.

DO NOT START THE ENGINE YET

Your engine has to start immediately, if you crank on the engine too long without starting it is highly probable to wipe out the camshaft.

Next fully prime the fuel system by bypassing the fuel pump relay at the EEC-IV test port. Prime the fuel for at least two full minutes. (check for fuel leaks). You need to make sure that the engine is ready to immediately start when you hit the key. Make sure that everything is hooked up correctly. All the sensors, EVERYTHING!



ALSO MAKE SURE YOUR BATTERY IS FULLY CHARGED, IF IT IS CRANKING SLOW AND VOLTAGE DROPS HEADING TO THE EFI SYSTEM, IT WILL NOT START.

Grab a helper to work the gas pedal as you may have to turn the distributor. Walk them through what you're about to do and explain the next part. When you do start the engine don't immediately race the engine up to RPM. Let the engine build oil pressure then smoothly but quickly bring it up. We always bring it up to 1800-2500 RPM and then fluctuate smoothly between 1800 and 2500 RPM. Don't spike or drop the RPM

dramatically. Run the engine for 20 minutes to complete the break in cycle. Do not drop rpm's below 1800 rpm at any point. If you notice the headers or manifold are glowing you can advance the distributor to make it run cooler.

DO NOT TURN OFF THE ENGINE DURING THE BREAK-IN CYCLE.

After 20 minutes of break-in you are good you can lower the rpm and time the engine. Most people will immediately drain their oil. It works best while the oil is hot and will flow quickly and bring the break-in material out with the fast-flowing hot oil. If you only got 2 gallons of Lucas SAE break-in oil you can use the ZDDP additive with your oil of choice. Never run Penzoil in anything especially in these motors.