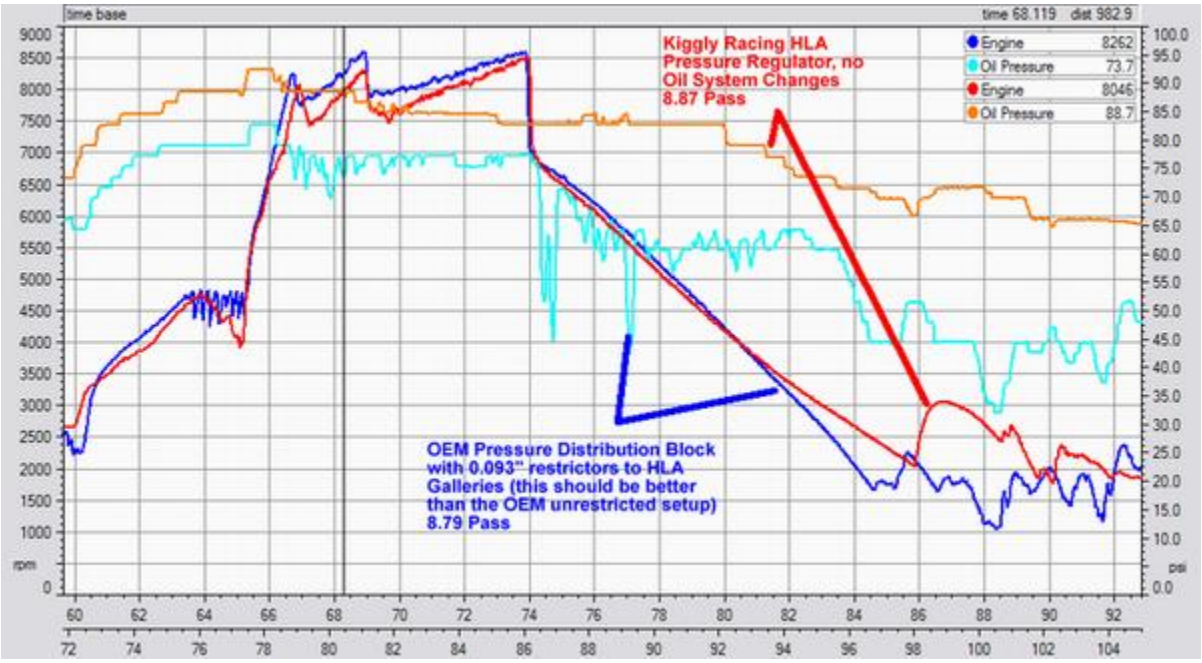
HLA PRESSURE REGULATOR AND LIFTERS

4G63 Engine Details

HLA Pressure Regulator - the main purpose of the HLA pressure regulator we fully engineered, developed, and tested internally was to reduce oil flow to the cylinder head down to an appropriate level to keep the valvetrain properly oiled, but not overload the cylinder head drainbacks and stack up oil in the head. This resulted in far less oil in the catch can and better oil retention in the oil pan. The deaerated oil and reduced oil pressure to the lifters also helps them behave their best and not tick. An example oil pressure trace before and after the regulator is shown below, as well as on the oil pump tech data page. The pressure regulator can help a great deal with oil control and eliminate some short-term oil starvation during transients.



Lifters - generally lifters are no a problem as long as they don't tick and there aren't any valve float or surge issues. If the lifters tick, they need to be fixed so they don't tick. Ticking lifters totally throw off the cam profile and will guaranteed cause float and destroy parts. If there is valve float, the lifters will try to pump up to take up the slack during valve float. This will cause valves to hang open and potentially hit each other or pistons, or just burn up exhaust valves. I've bench tested a 4g63 cylinder head up to 12,600rpm, showing good valvetrain behavior that whole way out with a Crane cam grind and our high pressure beehive springs. Stability was verified with 10,000fps video and everything looked great. You will not cure a lifter pump-up problem by changing the lifters, this is treating the symptom rather than the problem. The 1g lifters have a bigger plunger bore and the 2g/3g/EVO lifters a smaller plunger bore. I didn't see a difference between these or even to solid lifters as long as the valvetrain was in control. If you ever toss a rocker, the valvetrain was already WAY out of control for a while.