

OIL FILTER LOSSES

4G63 Engine Details

A relatively unknown aspect of the 4g63 and probably most other engines is just how much oil pressure is lost over the oil filter. This is something I didn't investigate until 2011 and; consequently, had no idea how significant it was. All 4g63 oil filters have bypass valves in them. Most of those valves are set at around 20psi. Beyond about 5000rpm, this bypass valve is wide open and free-flowing unfiltered oil to the entire engine. The drop across the filter at this point is this 20psi. All the OEM pressure taps are pre-filter, so what your engine is actually seeing is about 20psi lower than this. This can become a big concern at high rpm if 80psi pre-filter and demand to push oil to the center of the crank for rod oiling starts to get near 60psi. Theoretical requirements to oil the rods start getting up around 50psi around 10k, and there could also be some losses in the passageways post-filter. The main lesson is we're better off being better-informed. Here is a datalog from my car showing pressure pre and post-filter. The pre-filter tap is on my MIVEC feed line before its filter, so that pressure reading does jump around whenever there is a big cam timing change, like just after the launch.

