

Cylinder Head Inspection - New and Used

Contributed by Steve Sanchez
Monday, 27 August 2007

Total Flow Products is unique for our long-standing free* cylinder head and intake manifold inspection and evaluation service — any brand, any type, any application. We inspect hundreds of new and used cylinder heads each year. Before buying used heads, a customer may want to know if they are good enough for continued use, modifying or have all the features advertised. Another customer might want to know if new “race ready” heads are actually “ready to race” and will work well with their intake manifold. Sometimes, an inspection is to find a problem that can’t be diagnosed on the engine. Our free* inspection service is perfect for all these purposes.

Is it necessary to inspect brand new heads right out of the box? For decades, regular Total Flow Products customers have said, “Yes!” New heads sent for inspection prior to installation now outnumber used heads. These customers understand that, regardless of who manufactured or sold the heads, our inspection process will save a lot of grief down the road or track. Many customers became regular after having us repair new heads, which we did not inspect. Often, these are pre-assembled, “race ready” heads that were just bolted on — and promptly failed. Years of analyzing such failures have taught us, and our customers, that “brand new” or “race ready” does not necessarily mean “ready to race.” Low priced “race ready” cylinder head assemblies can be found almost anywhere — mail order catalogs, Web sites, etc. Often, the inviting prices result from quantity discount purchases — a pallet of brand name cylinder heads (bare, no components) and a barrel of offshore valves, springs, retainers, etc. Thrown together in a back room, with little attention to clearances, consistent dimensions or matching surfaces, the assembled heads go directly to the “race ready” shelf. These heads are the type we repair most often. Cylinder head manufacturers, whether specializing in low volume or mass produced parts, realize they have no control over components installed in their products. Not wanting liability problems from those components, they generally machine their heads toward the higher limits of their specifications. Valve guides are a little oversized, valve seats a bit wider and combustion chambers a tad larger. This is a compromise, at best, that trades brief high performance and sudden part breakage for reduced performance and drawn out wear. Inexpensive valves tend to be inconsistently machined — from one end of the specified stem diameter range to the other. Oversized valve guides help reduce the problem of larger diameter valve stems sticking in the guide and causing major related component breakage. Instead of sticking in the guide, smaller diameter valve stems wobble. This accelerates valve seal and seat wear and causes performance loss through oil and compression leaks. Whether your heads are used or new, aluminum or cast iron, for restoration, street performance, occasional racing or racing only, we will inspect them for free* and call you with a straight-forward evaluation of their condition and our service recommendations. The Total Flow Products inspection process:

- Visually inspect the head and components for obvious and hidden problems.
- Remove one intake and one exhaust valve, visually check the valve job and blend.
- Check the fit of the valve spring, cup, retainers and locks and their relationship to the valve. Poor matching of these parts is the main problem found in assembled heads.
- Check both valve guides for clearance, dimensions and straightness.
- Lightly lap both valve seats to determine their relationships to the valves.
- Measure both ports to determine if key shapes and dimensions are correct for your application and use.
- Call and report our findings and recommendations.

*NOTE: The inspection and evaluation process is free.

You are responsible for all shipping charges to and from Total Flow Products. Heads and manifold may be hand delivered, by appointment only, and the inspection can be done while you wait. There is never an obligation to have Total Flow Products perform any work we recommend. You may take the heads to a shop of your choice. Total Flow Products will begin work only at your explicit direction. Please DO NOT send questions about this offer via U.S. Mail or e-mail. Instead, call Steve Sanchez direct, at 248-588-4490.