

CONTROLLING OIL CONSUMPTION

by Dick Datson

A very large portion of any excessive oil consumption on a Stude V8 can usually be traced to the cylinder heads. In far to many cases, expensive and needless engine "rebuilt" have produced disappointing results because little attention was paid to the numerous details in cylinder head re-conditioning. My experiences in Re-working cylinder heads for high performance use has taught me many things to check and I will attempt to list them all here.

First, of course, is the condition of the valve covers, studs, and gaskets -- it is amazing how much oil can leak from these if they are in bad condition. If you plan to remove the valve covers its best to have spare covers and seals on hand -- you'll probably need them. Check the sides of the valve covers . Are they bowed from over tightening ? If so, bend them straight again. Valve covers should be tightened only enough to prevent leaking,

Second thing to check is the rocker arm stands. With the valve covers off and the engine idling check around the base of the rocker arm stands If one stand seems to have more oil around or coming from it than the others -- theres something out of order. Metal shavings or other trash may be compressed under the stand or the stand may be a slightly different hieght than the others. This can be checked with a straight edge when you remove the rocker arms. If your engine has been "rebuilt" Its possible that stands from a Stude '6' or other model were installed by accident when the engine was assembled. While all Stude stands are virtually identical, some vary slightly in hieght- enough to cause a leak.

Next thing to check is the rocker arm shafts. These can be checked on or off the car. Slide the rocker arms side ways -- toward the spring and away from the stand (this must be done with the piston at top or bottom so the valves will be closed and no pressure is on the rocker arms. Exceptional looseness, worn spots or grooves on the shaft indicate that The Rocker arms and shafts have been short of oil for some reason at some point in their life -- and should be replaced.

To sum this up, any leak in your roker arm assemblies increases the amount of oil the inadequate oil drain lines must carry away. If oil does not drain from the heads quickly but rather accumulates in the valve covers you can be sure at least part of it will ether leak out the rear corners of the valve covers (where its the deepest) or squeeze past the valve guides and be burned in the engine. The next time the heads are off your V8 check the drian holes. They should be the same size as the dowels -- 3/8". Older model heads have smaller (5/16") which makes matters even worse. They can be easily drilled out to 3/8" with a hand drill.

All this may seem trival but it could cut your oil consumption 10-20%. These minor problems combined with bad valve guides and seals can cause such heavy oil consumption that it's easy to think your engine is completely wornout--- when it isn't. The engine will smoke badly at all speeds, be saturated in oil, and leave big pools of oil on the ground where ever you park.

A friend of mine had a Studebaker Lark which he bought new. By the time it reached 90,000 miles, oil consumption was out of sight, so he pulled the V8 engine out to rebuild it. Like so many others these days, he messed around and never got around to fixing it. Eventually the "county" came by and dragged his car off to the dump. Not having a car, he didn't need a Studebaker engine, so he gave it to me. When I pulled it down I found everything in good order -- with only minor cylinder wear and slightly tired connecting rod bearings. The cause of all the oil consumption was the valve guide seals-- or more correctly, the lack of them. Every seal was busted and laying in the bottom of the valve springs. This guy had lost his Lark because the seals had failed !! How many other Studes have been "junked" for the same reason ??

I've seen more than a hundred Studebaker V8 cylinder heads in the last few years, for one reason or another, and of those that still had valves in them, everyone had at least a few broken valve guide seals.

How about your valve guide seals? How many of them are still in working condition? You can check them by removing your valve covers and looking between the springs. At least a few of them will most likely be laying at the bottom of the springs with their tops knocked out.

There are quite a few brands of teflon valve guide seals on the market and all are a lot better than the original Studebaker seals, which on a V8 are just about useless. (The 'six' is not as sensitive because oil drainage from the area of the valves and rocker arms is more effective.) There are actually two problems in this area and any seal-- original or teflon, will solve one, but only one type of teflon seal will solve both problems.

The first problem is obvious, the old seals have broken up and any seal in one piece can greatly reduce oil consumption. The second problem is worn valve guides and valve stems --which can really start getting bad at 80,000 or 90,000 miles. To solve this, there are two alternatives -- Replace the valves and resize or replace the valve guides or use a Teflon valve guide seal that fits securely to the valve guide (which is a heck of a lot cheaper) Stock valve guide seals are much larger than the guides, so as the stems and guides wear, more and more oil is sucked past the seals (even if they are in good shape) and into the engine. Other seals teflon and otherwise , fit in various ways , like press-on, clamp-on,

etc. They don't stay on well because the guides are tapered. My experiences have shown that these work loose in a few miles. Manley metal and teflon and perfect circle teflon stay on but require the guides to be cut down with a valve guide "cutter.". Perfect Circle seals are not spring loaded around the valve stem and tend to get sloppy fast when worn guides permit valves to move around. Manley seals are metal housed and have to be driven on the cut-down valve guides with a plastic driver provided with the seals. The seal around the valve stem has a spring in it and is made in such a way that even with badly worn guides and much travel they can move with the valve stem with out apparent damage. This produce a positive seal at both the valve stem and valve guide, regardless of valve guide condition.

These seals can produce amazing results on high mileage cars with bad worn valve stems and guides. The first real test came on a Hawk I purchased for a friend. Its valves were badly burned and it burned oil enough to constantly foul the plugs. Rather than tow it 250 miles to its new home, I gave it a valve job -- installing Manley teflon seals in the process. The effort payed off as the car ran like a new one, using virtually no oil what-so-ever !

Seeing the unbelievable results on this high mileage '57 Hawk, I decided to pull the heads on my well worn 1963 Wagonaire. This car had 108,000 miles on the original 259" engine and seemed worn beyond hope; pouring oil out its breathers and tailpipe at the rate of a quart every 200 miles ! This one would certainly --- (next page)

be a test . When the job was completed , the results were the same as the '57 previously mentioned. Oil consumption dropped to a quart to every 1500 miles! As the new seals wore the oil consumption steadily rose until at about 15,000 miles it had reached a quart to every 5-600 miles . It remained at about this level for about 15,000 more miles ,until the car was sold. It had over 140,000miles on it at that time and was still going over twice the distance on a quart of oil than it oil could go back when it was a relatively young Stude with only 100,000 or so miles on it.(and the stock valve guide seals)

This should certainly illustrate the extreme importance of good valve guides, valve stems, and valve guide seals. It also illustrates that seals (Manley included) are no permanent solution to worn valve guides and stems. However, Manley seals can produce very worthwhile improvement without the high costs of replacing all the valves and valve guides. Manley -type seals are sold under many names (Zorian in my area ,for example). They can usually only be found in the larger Speed Shops as they were designed for use on 'Fuelers! Funny cars, Etc. where excessive leakage past the valve guides is considered serious. They can be recognized under any name because they are virtually all metal ,with only a small spring-loaded teflon seal in the top. They are not as cheap as other teflon seals and are quite FRAGILE ! The teflon seal can be easily damaged unless a small plastic tube (provided with the seals) is used to cover the valve keeper grooves on the valve stems before the seals are slipped on. It is almost impossible to remove the valves from the heads without destroying the effectiveness of the seals , once the seals have been driven into place with the plastic seal driver (provided in the kit with the seals)

Since originally writing this article three years ago, I have seen many of these seals damaged by curious people playing with them -in or out of the heads. Speedshops in my area are, for this reason, somewhat reluctant to sell seals of this nature to individuals because they require more skill to install than the more popular teflon seals like Perfect Circle. Most teflon seals like Manley or Perfect Circle must have the valve guides turned down to except the seals. Any auto machine shop can handle this job on a Stude V8 as it takes the same tool (cutter) as the small -Block Chevy.

Nothing has happened in the last 3 years to change my mind on the results ,tho --- effective valve guide seals can really produce startling results in the area of oil consumption on a high mileage Studebaker V8.

NOTE--- My experiences with the overhead valve Studebaker six cyl. have NOT produced worthwhile improvements over the stock valve guide seals (when they are in good condition)-- Or at least not enough improvement to justify the extra cost of installing teflon seals. The Stude Sixes simply don't have the same problems as the V8.

Dick Datson