

Tech Tips

Some members of the Register have observed that I have unquenchable itch to share tips on the mechanics of our MMM cars. It has been suggested that it comes from an unresolved past and that I'm actually working off bad Karma to assure an easier passage to green pastures. Whatever the reason, I forward here another group of tips learned the hard way so that lessons you learn vicariously are the cheapest you learn.

By the time our engines require a rebuild, they often sound like a threshing machine from the 30's whose maintenance program expired after the war. Much of the distressing sound emanates from the top where worn rockers, worn bushings and worn rocker shafts conspire to create a disharmonious choir singing "Help Me" in A Minor. Most all the components will need to be replaced and this is a guide to addressing new parts rather than restoring the old.

Rockers:

The new rockers, when purchased from England, have been heat treated and are exceedingly hard. The observed machining sequence placed the slot through the bushing bore as one of the last of the operations prior to heat treatment. This creates a burr along the inside bore. If not addressed, the following photograph shows what happens when installed onto a new bushing. Notice the slivers of bronze that are generated when the bushing is rotated to obtain valve adjustment.



The remedy is to grasp the rocker in a suitable vice and with a round or half round diamond file, dress this edge so that a chamfer is created on the inside paring line.



There is indeed more rocker preparation required that may or may not be apparent to the rebuilder. The radiuses were more likely machined on a fixture similar to the one shown here that I developed for Bugattis. A surface grinding wheel is profile dressed to the subscribed radius and each rocker ground to the finished profile.

This is evident because the MMM rockers show trace lines across their surfaces when lightly dressed with an Arkansas stone. These edges, although slight, promote premature wear on the cam lobes.



One remedy is to carefully dress each surface with the Arkansas stone and then polish with emory on a buffing wheel. The result will yield an array of surfaces that shine like a mirror and result in much reduced abrasion both to the cam lobes and valve stem ends.



Two additional operations help secure rocker arm success. Dress the sharp edges with a Cratex or felt grit- impregnated wheel and then sonic clean the rockers followed by swabbing with a miniature brush. Inspect with a pin light.



If new rockers and bushings were required for the rebuild, it is likely that rocker shafts are also needed. A temptation might be to "install as delivered." This would be less than prudent. If you were to remove the end plug, nicely installed with hydraulic sealant, you would most likely discover metal shaving residues remaining in the holes bored for the oil holes and locating bolts. This residue has a high risk of obscuring the small holes that feed the cam lobes with damaging

results. They look like the following. (I have an entire bin of these discards).



The remedy is simple. Remove the plug at the end, mount the shaft in a soft jaw vice and bore it out with a 3/16" extended aircraft drill. (On the six cylinder cars, you will have to approach the job from both ends unless you have an exceedingly long extended aircraft drill)



Assembling all these components correctly is another issue but the goal here has been to assure that the components have an increased chance at working harmoniously together. Perhaps with these tips the tune will change to "Thank You" in C Major.

Good Luck,
Chris

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