I-21 LETTERS Alternate Front Strut Repair

[My ’67] needs a fair amount of work, especially the front end. It will not steer at all. I am going to try to get my rotisserie put together and the car on it over this weekend.

The struts are in good shape but the left strut was very hard to move. I dismantled and inspected it and other than being bone dry, it is in excellent shape. The discussion on the KM forum has led me to try an experiment. I admit to being skeptical about the spring damping ability of 30 wt engine oil. An overhead valve engine has 30 wt oil in the rocker covers and the valve springs compress and expand several hundred times a minute with little or no damping effect from the oil. Added to this is a reluctance to allow the car to drool oil where ever it's parked.

Therefore, I fabricated a sleeve which goes into the top of the inner shock tube with a press fit and creates a land for an "O" ring. This forms a seal between the inner and outer tubes. Then, I drilled and tapped the cinch bolt at the bottom of the upper tube near the weld and installed a grease fitting. I ground a chamfer at the bottom of the top tube, coated the lower tube with chassis grease and put the left strut back together.

I started with two 1” sections of 1 7/8” OD exhaust tubing and some coat hanger wire bent into rings which fit tightly around the tubing. Then, I welded the wire to one end of the tube.

The next step required machining a flange which would be a slip fit inside the upper strut section and turning the OD of the tube to a press-fit inside the lower strut section. I then pressed the sleeve into the top of the lower strut section until there was just room for a 3/32 x 1 7/8” “O” ring to fit in the groove formed by the end of the strut and the sleeve.

That completed the work on the lower section. The next step was to grind a chamfer on the bottom of the upper strut section and install a grease fitting through the welded end of the pinch bolt for the upper section. After pre-lubricating the upper and lower sections with a liberal coating of chassis lube, I re-assembled the struts and made all necessary adjustments.

From now on, a periodic application of chassis grease through the newly installed fittings will keep my struts in good order (and my garage floor clean). It will only require a few shots of grease periodically to keep the strut lubed. I still have to do the right side which I plan to tackle tomorrow. I will take some pictures of the procedure as I go along in case you want an article for *Shop Notes*. **Ed Werick.**

Yes, do let me know how that works out. I think we all agree that the KM “shocks” are less than one might want, yet as a driver of both M2 (no struts on the rear) and M3 (struts all around) I can testify the struts do provide some help.

Here’s my theory. The 30 wt oil has little to do with damping. Its function is to lubricate the strut. The damping, such as it is, I believe is provided primarily by compression and release of air between the two tubes? The oil can play a small role in that process by providing a film that reduces the air flow rate a bit, and mainly by allowing the system to work smoothly.

If I’m correct, your M3 may ride stiff because the air has no place to go. And the solution to that might be to drill a small breather hole. Just a theory and I’m certainly no engineer, so via copies of this message, I’m asking Lee, John and Randy for their thoughts. ***Bob V.***

Bob: Remember Ed, Midget Motors was building these cars at a price, not performance. They were looking for the least costly way to obtain what they needed the part to do. The whole front end is not really designed right. The pivot point is behind the tire, instead of going through its center. So the wheel actually turns around a point that is behind it. One reason it suffers from bump steer. On the M2, which was lighter, it did pretty good, on the M3 it did fair, but with the extra weight on the front end, it tended to wear more between the upper and lower tubes. The back side of the top of the lower tube would wear and the outside at the bottom of the upper tube would wear, eventually wearing them out of round. The oil is mainly for lubrication only. I use 90# oil. They are more or less enclosed springs. **John White**

Yes, MM specified 90 wt gear oil, which Paul Gerhardt says is the same weight as 30 wt motor oil. ***Bob V.***

Bob: I haven't figured that one out yet. 90 seems to be a bit shall we say "stiffer"? I want you to put 90# in your motor and see how it does. Actually don't.... LOL **John**

Yeah, well Paul says it's the same weight. He does not say it serves the same purpose. Be sure you're not comparing it to 10 w 30. ***Bob V.***

Bob: You may be overlooking the fact that I am not going to use ANY oil. Just the chassis lube. Will I be drummed out of the club or struck by lightning? **Ed**

Maybe you'll be our next hero! Keep us posted. Bob V. □

I. Steering