

From: kevin rivette <kgrivette@hotmail.com>
Sent: Wednesday, August 14, 2013 11:27 AM
To: Bill Fink; billfink@sonic.net
Subject: A follow up to my "Toe change" email and a question
Attachments: Bump steer stage 1 correction 8-19-13.jpg; Bump steer stage 2 correction - pic of only front shock.jpg; MOG3W rear shock upper bushing interference.JPG; MOG3W_toe_change_full_scale.PNG; Stock tie rod interferes - Driver front.JPG

Dear Bill,

The M3W is now happy. Five months of work, one flatbed tow and an engine removal and replacement, compensator drive machine work and reassembly as well as front end modifications and I think we now have a car that is a pleasure to drive.

However, I am unhappy that I have not heard anything from the Morgan factory since my email concerning the extreme bump steer issues that all of these cars are experiencing. The email is now about a month old and no response. A real disappointment.

On the positive side I have solved the bump steer issue in a two stage fashion. The first stage involves a simple change of the tie rod ends and the addition of 33 mm spacers, see attached pic. This is a simple fix that can be retrofitted at little cost to all existing cars. To achieve this fix I engaged an expert Silicon Valley suspension firm to diagnosis and remedy the problem. This firm is FatCat Motorsports, <http://fatcatmotorsports.com/index.htm>, and I have added material on them as an attachment to this email. I believe they are one of the best firms for this work and have helped me with my other cars.

When I approached them on July 17th to address the toe change problem they assigned 3 people to it and had the problem solved and the car fitted with the stage 1 modifications within 1 ½ days. Cost around USD 7K. Stage 2 took longer as they had to re-valve the shocks and order the springs and the car was unavailable for 3 weeks due to having repair the compensator drive and refit the compensator nut.

Both mods are now on the car. As you can see from the accompanying graphs the toe issue has been reduced from greater than 1.5 inches over 2+ inches of vertical travel to around 5 mm for the same travel. This was done with the stage 1 enhancements. The stage 2 mods reduce toe change further. All of this is done with existing kingpins and steering rack.

Currently we have set up the car to have a GT ride that is reminiscent to my 2009 997 Carrera instead of the somewhat harsh ride that the car was experiencing. In addition, the road holding is greatly improved. Essentially we went to a 1.7 +/- hertz ride front and rear as opposed to the 2.25 front and 2.5 hertz rear ride the car was experiencing. We also cleaned up hardware issues such as mismatched 12 mm bolts in 13 mm holes and fixed clearance issues that were present in the rear spring attachment points. I have pictures of this if you want to see them.

The car can now be driven quickly with authority and comfort on long trips. I am still planning to make my five thousand mile trip with the Trike in a month.

In addition to the work I have discussed above I am developing other parts for the car that I plan to market. Of course I can market the stage 1 toe correction design above, but maybe the factory would like to offer this as a cost effective way to upgrade the existing cars? I would like to find a way to work together with the company than at odds with them. I have been an owner of over 24 years.

Bill, I really love these cars and I am setting up a small parts company, RS&S Design, to handle the design and sale of parts for the M3W. As part of this venture I was going to redesign the current exhaust system to make it quieter with a mellower the exhaust note. In fact I had planned to develop something akin to the proposed Brooklands exhaust the factory has announced. As I see it, the upper/lower exhaust format will allow the system to incorporate a true baffled muffler, as used in automobiles. This should allow the exhaust to achieve the desired results of mellower note and quieter overall noise while ensuring operating longevity. In the system I am designing the rear pipes extend further to the rear and follow the body curve for a more finished and bespoke look.

I don't know if the factory wants to develop a working relationship, but if they do I am open to it. Such a relationship might be a way to defray some of the costs and frustration I have experienced to this point. I could envision such a relationship that might work in the following manner. I will provide a worldwide fully paid up license to the factory for the stage 1 toe correction modification. This would allow for retrofitting of existing cars cheaply and in an expedited manner as installation is simple and quickly accomplished. For this I would expect the following:

- 1) A no cost access to any new front end upgrades that the factory makes available for the next 12 months (I will cover the installation costs);
- 2) A no cost access to the new Brooklands exhaust system and accompanying hangers that the company has announced (again I will cover the installation costs); and
- 3) That the company mentions on its website that the stage 1 toe correction upgrade was developed in conjunction with RS&S and Fatcat Motorsports.

Please let me know your thoughts on this email.

Thanks

Kevin

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***"For every difficult and complicated question
there is an answer that is simple,
easily understood and wrong"
- H.L. Mencken***

About Fatcat:

Fat Cat Motorsports is a premier suspension designer located in the Silicon Valley of Northern California. The founder and lead 'suspension sculptor', Shaikh Jalal Ahmad, has been an automotive enthusiast since 1997. FCM currently has over 500 vehicles with FCM Elite shock and full coil-over suspensions, each shock individually

assembled and tested in-house. Integrating scientific training (BS Physics '97), empirical race engineering and experience learned at various semiconductor / medical device companies, Shaikh incorporated Fat Cat Motorsports in 2006 to address the dual needs of educating customers and providing top-quality, uniquely-tailored vehicle suspension solutions.

Combining analytical tools such accelerometer and GPS-based telemetry (with added 4-wheel Penny and Giles suspension potentiometers) and CAD/dynamic suspension modeling, FCM focuses on examining details that others overlook. We have been able to characterize and thoughtfully improve every platform we've come across, including Porsche, BMW, Nissan GT-R, Triumph, Mazda, Mitsubishi, Subaru, Honda, Mustang, Corvette and now Morgan. Since 2008, FCM received positive press via numerous racing wins for our customers, plus road evaluations by Edmunds Inside Line, and Autoweek. FCM also won a comparison test against two Bilstein suspensions on the Grassroots Motorsports "Project Turbo Miata".

Fat Cat Motorsports is a member of SEMA and BBB (Better Business Bureau), has an active Youtube Channel (Suspension Truth) promoting customer education on how suspensions work.