



Squire SS-100 Registry

CLBCOM 118

JANUARY - FEBRUARY, 2003

IMPORT/REPLICA NATIONALS, CARLISLE, PA - MAY 16, 17 & 18, 2003

This is a definite go as a Squire SS-100 Registry meeting for this Spring in Carlisle. Most of us will stay at the Clarion Hotel and you can make toll free reservations at 888+254-0637. Many members have committed to attend and from as far away as Michigan, North Carolina and Ontario, all of them with their Squires.

Member Bob Murray is arranging a dedicated spot to park our Squires together as part of the show and Paul Dullaert is driving his Squire all the way from Canada and will be there to demonstrate some of the many improvements he's devised in the past few months. I'll also be there with one of the lowering devices he designed.

And speaking of Paul Dullaert, the rest of this letter is dedicated to those rear spring mounting improvements. Page 3 is an earlier report on things he's done in addition to the spring improvements and pages 4 & 5 to a description & photos of these brackets. By the way, these last two pages were done by Member Paul Helmick on his nifty new color printer. Neat, huh?

So, please plan on joining us in Carlisle if possible. If your Squire SS-100 is running, drive it over. If not, rent a tow dolly and drag it over. We've found from past shows that there's few things at a car show that attract more attention than a work-in-progress. If you plan on being there and have not informed me, would you mind doing so? We'd like some idea of attendance?

THE MOTOR MOUNT REPLACEMENT

search is still on and a lot of members have spent an unbelievable amount of time and energy looking for an exact copy of what we have now. The search goes on but we may have to settle for a place that will rebuild the ones that are now on your Squire. We'll keep you posted.

DUES ARE DUE - AND I HATE THIS PART!

Many members pay a few years in advance and I keep track of it here so if there is no return envelope with this letter, forget about it. If there is an SASE in your letter, dues are \$10 and if you want to make life easier for both of us, pay two or more years at once. I supplement this newsletter fund heavily each year and if you want to help out, I'll gladly accept anything you wish to add.

AND ALWAYS REMEMBER

A well balanced diet is a cookie in each hand.

Beyond the Rear Spring Lowering Brackets

The body is skewed to the right at the rear and left at the front on #35. That is, it isn't on the frame straight and I don't think it could be improved if the body were removed and reinstalled because of the way the frame rails mate with the door sill sections (inverted 'U') of the body. There were 3 noticeable effects of this misalignment:

- 1) The spare tire was not in the centre of the rear body flat. The bumpers were shifted to one side to accommodate the spare.
- 2) The distance between the rear tire and the front of the rear wheel well was significantly greater on the right than on the left.
- 3) When viewed from the rear the left rear tire was outside the body more than the right.

So I have been improving what I can as follows:

For 1) I removed the spare mounting pipe and bumpers. I filled the existing holes in the body. I redrilled holes for the pipe (there was enough material in the chassis mounting plate behind the body). I remounted the bumpers as dictated by the new spare location. This meant some washers on the frame mounting brackets where I ran out of material and the holes on one side had to become open ended slots. Also, the 2 bumper tubes are not the same length so it is only better now and not perfect.

For 2) I measured the wheelbase on both sides and found that the right side could move forward 3/8". This is where I wasn't very smart. I was thinking that both sides should be the same and if they weren't the car would go down the road "crabwise". This is true when the body is on the frame straight. (I've had this problem and had it corrected on 2 previous American cars). However, with a "crabwise" body as a starting point we don't care if the frame goes down the road straight. We want the body to go down the road straight. Nobody observing or driving will ever be able to tell if the frame goes down the road straight or not. So, I got started with an incorrect assumption. I removed the forward bracket from the right side, had the top hole filled and redrilled 3/8" further back. That moved the lower hole 3/8" further forward. If I'd stopped there I would have made the wheelbase the same on both sides and the frame would have tracked straight (body still skewed). But then I started changing multiple variables at the same time (bad practice). I had never had both leaf springs off the car at once and because the rear shackle angle was a little different on both sides I suspected that they weren't the same. So I supported the rear end on blocks and pulled off the left side too. There was more arc (less effective length) on the passenger's side than the driver's side. Since I drive the car alone most often and outweigh my wife by some 80 pounds (thank God), I figured I'd switch sides and put the most arc on the driver's side. Then I got the idea about shortening the master leaf so I figured I'd also turn the springs end for end and do the cutting on the end that had been previously bruised by contact with the frame (for 29 years before the lowering brackets). I had noticed that at rest the rear spring shackles were sloped sharply rearwards. That means when I hit a bump and the springs want to get longer, there is very little shackle travel available. It's another contributor to harsh rear suspension. So I cut 1 3/4" out of each master leaf as close to the rear curl as possible and joined them back together with 2 1/4" long 3/16" thick steel plates (I've heard these called fish plates) top and bottom with four 3/8" bolts. That made the shackles vertical and very able to swing as the springs lengthen. See the variables beginning to add up? Then I reasoned that the new brackets had dropped the front anchors 1 1/2" so the axle moved down (body up) 3/4" but now if I got the rear shackles vertical that would add at least 1" at the rear so now the body would be raised another 1/2". This is beginning to get a bit unsightly. I could lower the body by placing a spacer between the top of the master leaf and the cast brass wedge thingie (is this too technical?) that keys the spring to the axle. I made 1/2" aluminum spacers as that was all I could do with the length available on the U-bolts. Because I now had too many changes, I put the whole mess together and remeasured the wheelbase. I still needed 1/4" to make it right (with the chassis, not the body). Now I had the aluminum spacers I could move the axle forward or back by changing where I screwed the brass wedge to the spacer. So I changed the one on the right but added when I should have subtracted and moved the axle forward when I should have moved it back. I put it all back together and checked the wheelbase again. Horrors! I now had 7/8" difference or 1/2" more than I had started with! Time for a think. So I looked and I thought and I wondered. I saw that the position of the rear wheels in their wells was now virtually identical on both sides which was certainly a visual improvement. I thought about how skewed the chassis would now be and this is when it dawned on me that it didn't matter ... it was the body that mattered. I wondered if I hadn't maybe made things better after all and all I needed to do was try it and see if I could determine if the body was tracking straight.

For 3) I realized I could move the axle to the right by biasing the aluminum spacers relative to the brass wedges. This affected the U-bolts but if I only moved the 3/16" that I needed, I could get away with it and even make it insignificant if I put a slight sideways bend in one of each pair of U-bolts. So I did that and the wheels now protrude beyond the body exactly the same amount on each side. I like that a lot.

There were two factors I kept in mind through all of this:

- 1) I did not want to pull the forward end of the driveshaft any further back from the transmission than it already was. Fortunately when I look at pictures of original SS100's or my scale models I see that the rear wheels were very close to the forward edge of the wheelwells. Those two considerations made it easy to decide to move the right wheel forward, not the left wheel back.
- 2) Because the body is skewed on the frame and because the driveshaft tunnel in the body is too small (it should have had more generous clearance) I discovered that the driveshaft had hit the rear right edge of the tunnel a few times and I had filled a small

hole in the fibreglass. This may have happened many years ago and may have been caused by overloading or abusive driving over rough terrain. If I moved the axle to the right I would make this possible interference worse so I resolved to accept some raising of the body and consider lowering the rubber axle travel stops at some time in the future if it became necessary.

Now for the road test. I found suspension compliance good over bumps but still on the sports car firm side which I deem to be in character and completely acceptable. The rear suspension is now completely silent; all the old clicks and groans are gone since the addition of the lowering brackets. The steering wheel is rotated a bit when the car is going straight so it will have to be repositioned to make it straight again. I found a long straight painted line in an empty parking lot. I drove beside it and parked, got out and walked back fifty feet to observe parallelism of the body to the line. I tried the other side. I straddled the line. I've been following cars on my motorcycle for years and I can spot the skewed ones easily but I can't follow myself in the Squire and chances are the lack of a slab-sided body would make it very difficult to judge. The parking lot evaluation was the best thing I could think of. My conclusion was that it is so close to straight that a saner person than I would be quite happy with it. However, I'm going to make another aluminum spacer for the right side and I'm going to move the wheel back that 1/4" that I went the wrong way. That should make the body track straight enough for me. I'll have to live with the gap to the fender well being slightly more on the right than on the left but not as bad as it was before. Compromise and be happy.

LOWERING THE FRONT MOUNTING POINT OF THE REAR LEAF SPRINGS

There is an error in the mounting of the forward ends of the leaf springs on many Squires. The curled end of the master leaf fits too far up into a sort of welded box feature on the frame. The result is that the flat of the leaf bears against the frame feature when it tries to flex upwards in response to a bump in the road. This has the effect of stiffening the spring and making the ride more harsh than it should be. It also makes noises and bruises the upper surface of the master leaf.

It would be good if we could just move the thru-bolt hole down a half an inch or so. Unfortunately we can't get at the box feature with a drill because the body is in the way on both the inside and the outside. Some cars are known to have had extra plates with new bolt holes welded on and that is certainly one solution. However it's a bit worrying to be welding so close to flammable fiberglass and not everyone wants to trust their precious Squire to someone else.

Wouldn't it be nice if we could have a bolt-on solution? Just take out the thru bolt, remove the spring, maybe drill one hole, install a new bracket, and bolt the spring back in a new lower position. So, I designed such a bracket and the design layout for it appeared as page 3 of CLBCOM #117. I made detail drawings of the parts and an assembly drawing of how to weld them together and had them made by a small local machine shop. I would be happy to send anyone copies of the drawings just for the asking.

Now the brackets are installed on my #35 and I am well pleased with the results. The rear suspension is absolutely silent and can absorb a mighty bump without damage to my teeth. It's still sports car stiff but that's quite in keeping with the character of the car.

The following photographs show the installed left side bracket from outboard rear, inboard rear, and outboard front below.



