

## **The Most Dangerous Job....**

*by Ken Herrera*

That's what I've always heard about the task of removing and replacing the front dampers (shocks) in a Rolls-Royce or Bentley from the Shadow through the Spirit/Spur series so it was with great fear that I noticed some time ago a large puddle of oil directly under my right front shock. Maybe if I just ignored it, I thought, it would go away. That didn't work. With thoughts of potential cost tormenting my brain I called a fellow RROC member who also happens to own a dealership. "Relax" he told me, "Most of the work is being done by the springs, as long as your ride is okay you can let it slide!" I was somewhat heartened by the words but deep inside I knew the car was not right. I tried ignoring the problem, but could not get past the knowledge that something was amiss. But dare I, a mere mortal, attempt to deal with those deadly springs?? After all, that is the most dangerous job you can do, right?

About a full year of worry later, I spotted an ad on EBay: "Rolls-Royce Tool for Front Suspension Repair".... The price was right at about a third of factory cost and I was assured the tool, RH8809 had only been used three times so I bought it. Days later I spotted an ad for Boge shocks at a very reasonable price, but they would come from Beirut, Lebanon! The feedback on the seller was quite good so I bit. Now I had the tool and the shocks (which by the way turned up even cheaper on EBay from a California source the very week I finished the job!) All I needed was warm weather and my mechanically-minded son to help me tackle what everyone warned me was the most dangerous job you can do on a PMC!

The warm weather finally arrived in Milwaukee in mid-March. My son was home and all was seemingly well. I eagerly grabbed the dampers and the tool and began preparing to do the job with my son at my side (and doing most of the actual work!) when suddenly I noticed something was missing! With my car, a 1988 Silver Spur, I would need adapter plate RH12053! I was crushed! I had gotten up the nerve to try the job only to be dashed at the last moment. I was ready to give up, sell the tool and the dampers and live with a bad suspension.

It was my son who said, "Let's make our own adapter!" I figured I'd gone this far, so why not give it one more try. We found a nice, round bit of hardened steel about a quarter inch thick with the necessary hole in the middle. We drilled 4 holes in it to accept the steels rods that are part of tool RH8809 then used a round file to make the holes oval in shape to allow for wiggle room. (see pictures):



This is NOT by the book but I was convinced because of the strength of the steel that it would work. But I was still very, very scared and told my son the project was off at the first sign that ANYTHING was going wrong.

With visions of a steel spring tearing through the metal plate we both proceeded with supreme care. Chris, my son, had already announced that after the tool was in place we would loosen the mounting bolts on the engine side of the upper spring plate first. That way, he explained, if the spring broke through no one would be leaning over the plate when it happened. That's just one example of how concerned we were about what seemed to us to be the very real possibility that the spring would win the day and ruin a perfectly good project. We even outlined an emergency plan we would follow should the spring prove more powerful than the steel plate. We were ready for any eventuality because we knew this was the most dangerous job! As it turned out it was as easy as slicing bread! The entire job was very straightforward and the only problem we had was with the damper ball joint which, as you will see, refused to budge.

We started by attaching the bottom support plate halves of the retention tool around the lower section of the damper. This job MUST be done while the weight of the car is still resting on a ramp or on the ground. Without that weight there is no way to get the support

plate around the engine side of the damper, it is blocked by control arms and other metal. Once the support plate was in place and securely fastened we carefully threaded the retaining tools' steel shafts through our make-shift adapter plate and down to the support plate. They threaded right in with no problem at all. Chris stayed under the car to guide the rods to the holes and I did the turning up top. Once all four were in place we fit the nuts, washers and thrust race and bearings to the rods and began to tighten them. I expected we'd hit a point where it would be obvious that we had reached the right tightness, but in fact we were actually able to further compress the spring using nothing more than hand power! (As long as the weight of the car was helping us! Once the retention tool carried the full spring load when the car was jacked up we could not do this.) This amazed me and suddenly I was no longer worried about the spring shooting through our little invention! We tightened things down, pulling the spring another inch or so tighter and only then raised the car off the ground and onto jack stands.

With the wheel removed for easy access one could see the compressed spring and the damper, still showing obvious signs of the leak that developed so long ago! The book talks about releasing the bottom of the damper from the damper ball joint assembly but we could not get it to budge!



We spent 30 minutes or more working to release it when we decided to just lift the tower up and see what happened. What happened actually made the job easier! The entire assembly lifted off, leaving the damper behind! Normally you would pull the assembly with damper still inside off, then work to remove the damper, but we ended up with a spring that still had all the damper surrounding parts attached...but no damper. It was very simple to insert the new damper through the spring, the convoluted dust cover, the collar and the spring support plate all of which remained where they belong, inside the spring!

We still had the frozen damper to deal with and Chris came up with an idea: we used a second hydraulic jack placed under the ball joint assembly (after removing the cotter pin and loosening the castellated nut that secured the damper ball pin assembly to the lower triangle levers) and used it to pop the ball joint assembly off of the levers. It was a matter of jacking the control arms up until they hit the rubber stop then one more pump and “POP” the assembly came apart as it should.



We then pulled everything out through the tower and took it to a vice. Since we had also tried to separate just the damper from the ball joint earlier we knew that it, too, was also frozen. After placing the damper in the vice we used a small blowtorch to heat the metal collar where the damper screws into the ball joint and at the first attempt we were able to

pop it loose and unscrew it with ease. I know you're not supposed to heat a damper or put it in a vice, but this one was heading for the garbage anyway and we were very careful to heat only metal and avoid doing any damage to the rubber on the ball joint assembly.

Once that was free it was a very quick job to attach the new damper to the ball joint and to slide it into the tower and then to put everything back in the car.



It had taken us 2 and a half hours to pull everything apart, mostly because of fear, but it took only 30 minutes to put it all back together! In retrospect I'm certain this job can be

done in under two hours with the proper tools and the knowledge we now have. In fact when the weather gets warm again we plan to do the left front assembly!

I learned several important lessons with this job:

1. Respect but don't fear the load in the spring, with the proper tools it can and will be under control at all times. This IS a dangerous job without the proper tools but with them it's very easy to accomplish. (Our club has the tools!)
2. You must have the spring under load to attach the support plate halves. It simply cannot be done if the spring is not under load
3. You can actually speed things up by loosening but not detaching the damper ball joint assembly from the lower triangle levers! Pull the tower out with the spring, but leave the damper behind. The damper will come out with the ball joint assembly all in one piece allowing you to remove the ball joint from the damper on a work bench. You can also attach it to the new damper on the bench.
4. When you have everything reassembled, make sure you leave at least one of the retaining tool rods loosely in place so you can more easily unscrew the bolts that hold the support plate halves together. Once separated remove your final retaining rod.

In summary, with the help of my son I have managed to overcome not only a bad suspension but also my fear of "the most dangerous job you can do on a Rolls-Royce"! I have learned that even a dangerous job is simple and safe when you have the proper tools.