

R&R the Radius Ball

Bill Lee
January 2012

I've spent a lot of time the past couple of months rolling around on the creeper underneath my A. In addition to new front brakes (adapting the Bendix brakes off a '48-'53 Ford Pick up), I decided to see what the radius ball looked like.

On occasion, when driving slow and hitting a sharp bump, I would get a banging sound that sounded like it was coming from the area of the radius ball. Not knowing what to expect, I asked for some help from a couple of the club members, and their guidance reassured me that I could do this simple job.



Taking off the nuts on the radius ball cap, I discovered several things. First, there were no cotter pins, no spacers, no springs, and the caps were cast iron. Inside the caps, the ball was encased in a rubber ball.

As you can see the rubber ball was seriously deteriorated.

The original restoration of my car was done about 25 year ago, and the car has just over 4,000 miles on it since then. I suspect that time and continuous oil soak caused the rubber to deteriorate, although the major area of damage is at the bottom of the radius ball.



I did a bit of analysis of the rubber ball and the cast iron caps. I cut the ball around the circumference at the mold line that was still visible on the ball. Looking at the pieces, you can see that the ball is noticeably thinned on the left side in the picture, and that corresponds to the totally disintegrated area that was the front half of the ball. In the picture, the area of the rubber that was on the bottom of the radius ball is at the left of each piece.



Examining the radius ball itself, I found that the ball looked worn on the bottom half. I think the ball was painted totally black when the restoration was done. You can see in the picture that the bottom half of the ball is now bare metal. All signs of "blackness" is gone there, but still is apparent on the top half.

I used a dial caliper and measured the ball as best I could. The ball is supposed to be 1-1/2" diameter. The ball on my car was worn some. It is about .050" small side-to-side (1.450") and about .090" small top-to-bottom (1.410").

I then measured the various dimensions on the cast iron cups and the rubber ball.



The inside diameter of the cast iron cup cavity is 1.850". This dimension was measured at the opening of each piece as well as by measuring the depth of each piece and adding.

The rubber thickness measured on the top of the rubber ball was about .150" while on the side where it had worn, it was only about .110". The rubber thickness was measured after cutting the rubber ball in half (see the second picture).

Adding some numbers: the normal diameter of the radius ball is 1.500". The rubber ball wall thickness is .150" or .300" total. When the rubber ball is surrounding the radius ball, the sum of these dimensions is 1.800". As you can see the rubber encased radius ball is NOT a snug fit within the cavity of the cast iron caps, and this is only exacerbated by the wear apparent on the radius ball on my car.

I think I can safely point at this as the source of the suspension banging I had started to encounter: too much "slop" in the radius ball mount.



A call to Piranio's and Beth sent me the radius ball kit (part #A-3440-A, aka at Snyder's as A-3440-S) The felt isn't part of the kit, I ordered it separately.

I had already obtained the cupped washer.



Assembly was really a trivial exercise. I dragged a floor jack under the car and used a piece of wood as a spacer. The jack was just an easy way to hold the radius ball and wishbone up tight to the bottom of the fly wheel housing while I was assembling all of the pieces.

I first put it all together without the cupped washer, but the two caps were very close to touching when fully tightened, due I presume to the wear on my radius ball. So I took it apart and added the cupped washer. A very liberal dose of grease during assembly was all it took. I had to use some smaller 3/32" cotter pins instead of the 1/8" pins that were in the kit since the holes in the bolts were too small for the 1/8" pins.

Now to get all the other stuff done and get the car back on the road!

