http://www.engr.colostate.edu/~radare/trailarmrebuild.htm

Radius Arm Rebuild:

After extensive searching for help/hints on rebuilding the Mini's rear radius arms, I decided to make my own.

Rebuilding the radius arms requires three basic steps: removal of the old bearing and bushing, installation of the new bearing and bushing and resizing the bushing to fit the new shaft. For parts, I used the GSV1125 kit that is readily available.

Removal of the old bearing and bushing:

Begin by making cuts in the bushing using a hacksaw. I found that only three cuts were necessary and fewer may work too. Be careful to cut only through the bushing; you don't want to cut into the cast-iron arm.

Use a drift punch to bend the edge of one of the cuts into the bore. Use a small screwdriver or chisel to pry the bushing out of the bore.

After removal of the bushing, pull out the plastic liner. The liner is larger in diameter on the bearing side and has to be broken to remove it through the bushing side. I used a small screwdriver to crack the liner and then pulled it out using needle-nosed pliers.

Wedge the sized end of the old shaft onto the bearing and drive out the old bearing. This takes patience as there is a lot of old grease inside the arm.

A comparison of the old parts versus the new parts.

Installation of new bushing and bearing:

To press the bearing and bushing into the arm, I made the following device.

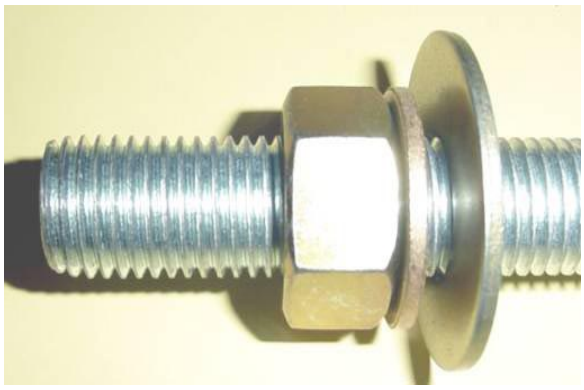
I used the following parts:

3/4" threaded rod, 10 threads per inch

2 - 3/4" grade-8 nuts

2 - 3/4" flat washers

2 - 3/4" thrust washers



Insert the plastic liner into the arm and then slide the replacement bearing onto the shaft, followed by the flat washer, thrust washer and nut. Tighten both nuts onto the trailing arm and carefully press the bearing into the shaft.

Continue until the bearing is fully seated.

Follow the same approach to press the bushing into the shaft.

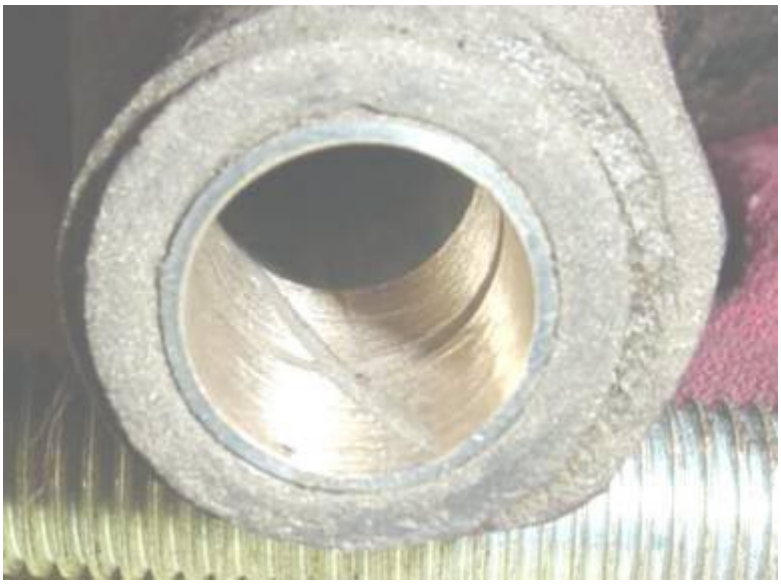
Sizing of the bushing:

The bushing must now be sized to allow the shaft to fit into the arm. There are several ways to do this. The most accurate would entail taking the assembled arm to a machine shop and having it line-bored with the bearing. You can also purchase the proper reamer (expensive) and do it yourself.

I am a sucker for doing things myself so the machine shop approach is out. To size the bushing, I used a brake-cylinder hone. I know, hones are not designed to remove material, just to clean up surfaces, however, the cylinder hone works very will for this purpose as the bronze bushing is rather soft and the hone tends to maintain a concentric bore.

Insert the hone into the bushing and run the drill at medium speed. Push the hone into the cylinder until the edge of it passes the end of the bushing. Pull it out until the end passes the end of the bushing. Keep this up, moving at a slow, even pace, cautiously removing material. Be very careful to keep the hone centered in the bushing or low-spots will form and the bearing will become out-of-round.

Every so often, stop the drill, remove the hone and test fit the shaft.



When the shaft just slides into the bearing, you should be done. The shaft should fit tightly and have a slight drag on it when you rotate it.