

## **SUSP-11, Rear Wheel Bearing Replacement - Aluminum Trailing Arm**

### **Introduction**

Changing the wheel bearing on an aluminum trailing arm is somewhat different than a steel trailing arm. First, the aluminum trailing arm uses a single sealed bearing as opposed to a double roller bearing arrangement. The single sealed bearing is also a bit more difficult to remove from the trailing arm than the bearings in the steel arm.

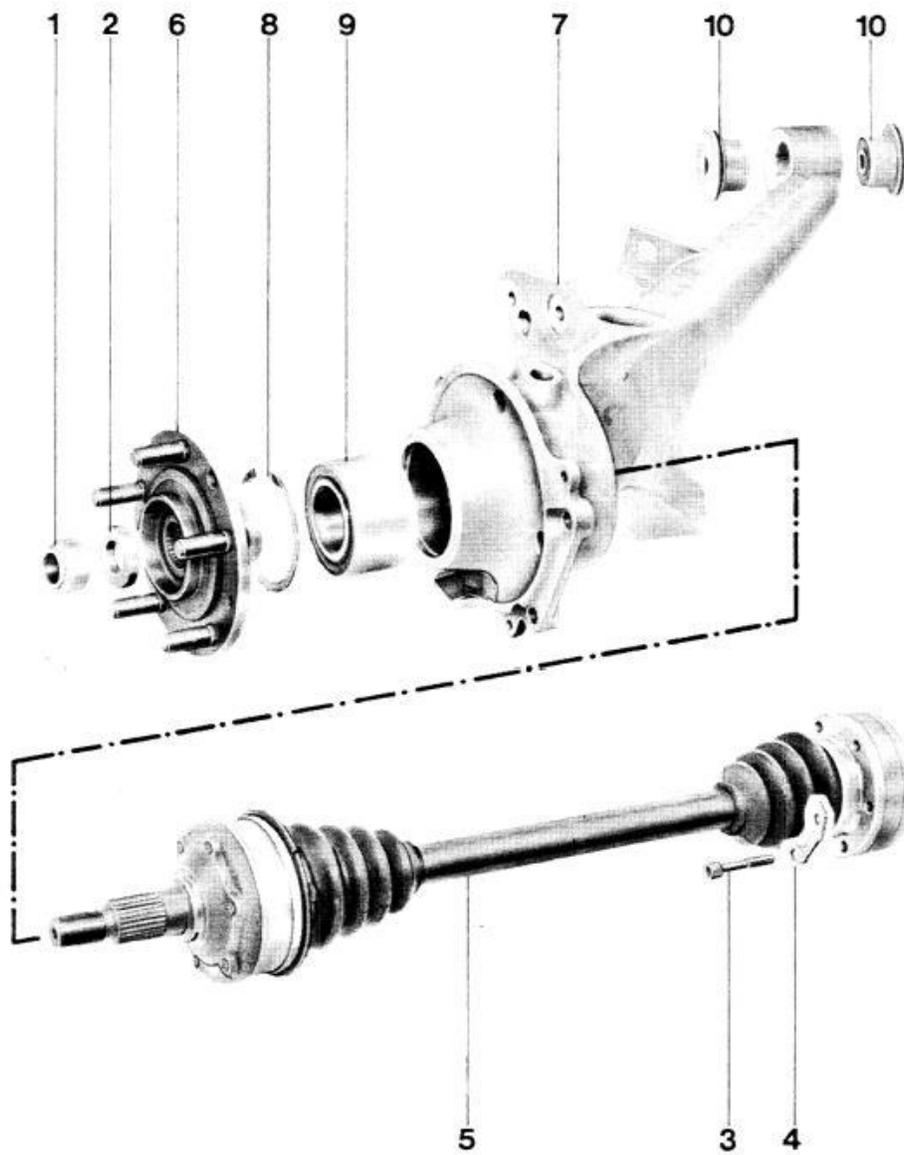
The Porsche factory manual describes removing the wheel bearing after the trailing arm has been removed from the car. The factory shop manual has you heat the trailing arm to 120 - 150 °C (approximately 250 - 300 °F). Then you press the bearing out from the back side of the trailing arm using special tool VW 432.

Now, I'm sure this method works quite well. However, who wants to remove the trailing arm from the car just to replace the wheel bearing? Not me. So, I elected to use a slide hammer bearing puller to remove the bearing from the trailing arm. And, I didn't heat the trailing arm before removing the bearing. The bearing was a bit stubborn to remove. But, I'm sure it would have been much easier if I had heated the trailing arm first. Consequently, this procedure will differ somewhat from the factory shop manual procedure.

Like the steel trailing arm however, the hardest part of this job may be getting the rear wheel axle nut loose. The reason being is that the axle nut is torqued to 350 ft-lbs. That means if you're using an 18" breaker bar to remove the nut, you have to apply 233 lbs. of weight to the end of the bar. If you're using a 24" breaker bar, you have to apply 175 lbs. of weight to the end of the bar. The problem is that over time, the threads of the axle/nut get a little rust built up on them and then it takes significantly more force than the 350 ft-lb. tightening torque to break the nut free. Sometimes this can double the amount of torque required.

With that in mind, if we assume that the amount of torque required to remove the axle nut has doubled to 700 ft-lbs., it may require a breaker bar as long as 4 feet (48") to get the required weight applied to the end of the breaker bar down to where an average sized individual (175 lbs.) can apply enough force to break the nut free.

I had an experience one time on my own car where I was trying to break the axle nut free where even with a 4 foot breaker bar and myself and a friend standing on the bar, we were unable to break the nut free. Finally, the only way I was able to free the axle nut was to drive the car to a shop that does tires for very large trucks. They loosened both axle nuts using a 3/4" Drive Impact Wrench and then retightened them with a 1/2" Drive Impact Wrench. Then, I drove the car back to my shop where I completed the job. So, if the following procedure for loosening the axle nut doesn't work, you may have to pursue a similar method to remove the nuts.



1. Self-Locking Nut
2. Washer
3. 8 mm cheesehead bolt
4. Backing plate
5. Drive shaft
6. Wheel hub
7. Trailing arm
8. Circlip
9. Sealed bearing
10. Trailing arm rubber mounts

## **Tools**

- Metric Wrench Set
- Metric Socket Set
- Jack Stands
- Floor Jack
- 8 mm Cheesehead Tool
- Slide Hammer Bearing Puller
- Soft Drift and hammer

## **Procedure**

1. Set the emergency brake to assist in removal of the axle nut.
2. Loosen the rear wheel lug nuts on one wheel several turns.
3. Raise that side of the vehicle using a floor jack.
4. Remove the lug nuts and the rear wheel.
5. Remove the cotter pin for the axle.
6. Loosen and remove the axle nut as follows:
  - a. First try loosening the axle nut using an appropriate size socket (32mm or 36mm depending on the vehicle) and long breaker bar. If you're lucky the nut will come off easily and you can proceed to Step 7. If this doesn't work, continue with the next step.
  - b. Place the appropriate size socket on the axle nut. This may be a 32mm or 36mm socket depending on the vehicle. I recommend using an impact socket as a standard socket can easily be destroyed if significant torque is required to break the nut free.
  - c. Attach a breaker bar at least 24" long to the socket in a position parallel to the ground and rest the handle end of the bar on a jack stand (or something similar). Realize that to loosen the nut the breaker bar has to be pointed in the correct direction. For the left wheel, the breaker bar must be pointed toward the rear of the car. For the right side wheel the breaker bar must be pointed toward the front of the car.

### **NOTE**

Make sure that the breaker bar and jack stand are positioned so that they can not damage any of the suspension components or body work when you lower the car.

- d. With the socket and breaker bar in position, slowly lower the floor jack until the weight of the car breaks the axle nuts free.
- e. If this does not work, borrow a 3/4" Drive Impact Wrench or take the car to a shop with a 3/4" Drive Impact Wrench to get the nut loosened.
7. Remove the rear brake pads and calipers.
8. Release the emergency brake.
9. Using a Phillips head screwdriver remove the brake rotor retaining screws.

10. Remove the rotor. They may be difficult to remove. However, the rotors have two threaded M8 holes for bolts to be threaded into for jacking the rotor off of the hub.
11. Using the 8mm cheesehead tool, disconnect the CV joint from the transaxle, pull the axle out of the trailing arm, and set it aside.
12. Using a soft drift and hammer from the inside of the trailing arm, drive the rear hub out of the trailing arm.
13. Remove the parking brake shoes, spreader arm, and brake dust guard.
14. Remove the snap ring (circlip) next to the wheel bearing.
15. Heat the area of the trailing arm around the wheel bearing using a torch. Using a slide hammer puller from the outside of the trailing arm, pull the wheel bearing out of the trailing arm.
16. Place a light coating of grease on the inside of the trailing arm bearing surface. This will ease installation of the new bearing.
17. Using a hammer and a socket that is approximately the same size as the new bearing, tap the new bearing into the trailing arm. Make sure that the bearing goes into the trailing arm evenly to prevent binding.
18. Install the snap ring (circlip) next to the bearing.
19. Install the brake guard, parking brake pads, and spreader arm.
20. Install the rear hub into the trailing
21. Install the hub and axle nut. Torque the axle nut to 500 Nm (368 ft-lbs).
22. Install the brake rotor and secure using the Phillips head screws.
23. Install the brake caliper and pads. Make sure to pump up the brakes prior to driving.
24. Using [BRAKE-05](#), adjust the parking brakes.
25. Install the rear wheel.
26. Lower the vehicle from the floor jack.
27. Repeat the steps above to replace the wheel bearing on the other side.

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