The following photos and instructions are to install the 928 Motorsports, LLC.

Ball Joint Rebuild Kit.

For the 1978-1986 Porsche 928

Questions? Call our toll free number 877-for-928M or send an e-mail to info@928motorsports.com

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These instructions will allow you to replace the upper ball joint on the 1978 through 1986 Porsche 928 without removing the upper a-arm from the car.

Upper Ball Joint Rebuild Instructions

Step 1: Put the vehicle up on jack stands and remove the front tires

Step 2: Chip away the epoxy moisture barrier from the top of the ball joint. Once all the epoxy is removed you will be able to see the ends of the cir-clip that holds the steel top collar on the top of the ball joint. Now it's time to get out your favorite penetrating solution and spray the top of the ball joint cir-clip area. This will aid in removal of the cir-clip and while you're at it, spray the nut and threads that hold the ball joint to the spindle.

Step 3: The next step is to remove the nut that holds it to the spindle. You may find it is easier to get at the nut if you apply a little pre-load on the front suspension. In this picture, we've lifted the lower a-arm a little bit. It makes it easier to get behind the ball joint and at the nut to work on it. Also, turning the steering wheel hard left (or right) makes it easier too. You should find that a 19mm socket will fit nicely. Remove the nut.

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Step 4: Take a ball joint press or a pickle fork and separate the ball joint pin from the upper spindle. We don't have to worry if the pickle fork tears the boot of the upper ball joint because we're going to be replacing that anyway.

If you did raise the spindle in Step 3 making it easier to get at the nut and loosen it, remove the jack from the rotor so that the suspension is completely unloaded. That will facilitate breaking the ball joint free.

Step 5: Once the ball joint is separated from the upper spindle, you need to use a mechanics pick to get behind the cir-clip that you uncovered in Step 2 and pull it free of the upper a-arm. Photo 6.

Another option is to take a Dremmel tool and make a small groove in the aluminum, that also allows you get behind the cir-clip and pull it out. Photo 7.

This will also facilitate you reinstalling the cir-clip later. This entire cup will be sealed with epoxy when we finish, so the small cut you make with the Dremmel tool will not cause any harm.

Step 6: Once the cir-clip is removed, you will find all the contents of the ball joint easy to lift out. Photo 9.

Here they are laid out on the floor. The ball pin is on the far left, and is the only part we will be re-using. Photo 10.

Clean off the ball pin with a rag and inspect it. Photo 11.

The pin material is made of extremely good steel alloy and it is almost never damaged.

The exception to this would be, where water has gotten into the ball joint, rust may appear on the pin and it will eat into the metal. The small pits that the rust will create in the metal will serve as a grease carrier (like the grooves you see in the bushing). The pin doesn't ever wear out in the ball joint assemblies, it's the cup that does.

Step 7: Now that you have the inside of the ball joint removed, turn your attention to the bottom of the ball joint and remove the rubber boot if it is still there. To remove the rubber boot, you'll find a coiled spring around the base of it. Use your mechanics pick again and get pull that out and then the rubber boot will come off. Clean the inside of the ball joint socket. Photo 12.

A shot of carb spray or break cleaner will do a nice job at cleaning out the inside of the socket making sure that any grit or sand remaining in that socket is washed out before we start reassembling it.

Step 8: After cleaning the upper a-arm joint with rags and carb spray, inspect the ball joint pocket for any wear. Look around the pocket to make sure that it is not out of round or if there is any evidence of rolling on the inside edge. If this is present, it may be necessary to replace the entire a-arm. A damaged a-arm should not be rebuilt and may lead to premature failure of the rebuild kit. Photo 13.

Step 9: Use the conditioning grease included in your kit to lube the bushing and pocket prior to installation. Photo 14.

Coat the outside of the bronze-impregnated aluminum ball joint bushing and the inside of the socket. Place the bushing into the pocket as shown and press it in place with your fingers. Notice that it is directional: It is oval in shape, be sure to line up the oval for the bushings to match the oval that you'll see in the upper a-arm casting. Photo 15.

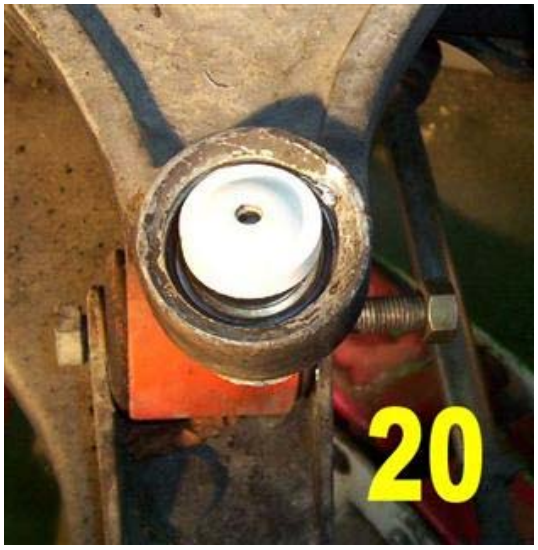
You may make a pushing tool with a wooden dowel if you like, but it is usually not necessary. The 928 Motorsports ball joint bushing is a precise fit into the Porsche 928 upper a-arm and you can press it in place with your fingers. It is all the way down when the top of the ball joint bushing is below the top of the inner lip inside the upper a-arm.

Step 10: Now, use the conditioning grease to lube the ball portion of the ball pin, insert the pin into the cup so the ball is resting on the lower lip of the upper bushing. Photo 16.

If it will not go in quite all the way, take a nylon-faced hammer and tap the ball pin down into the bushing. Photo 17.

Step 11: Place the sealing ring into the pocket. It should sit just around the inside lip, it should sit completely within the pocket and just around the inner most lip around the ball socket as shown. Photo 18 & 19.

Step 13: Place the white ball joint cap on the pin as shown in Photo 20 and place the either conical spring or serated wave spring on top of the ball joint cap (depending on which kit you have) so that it looks like this. Photo 21.

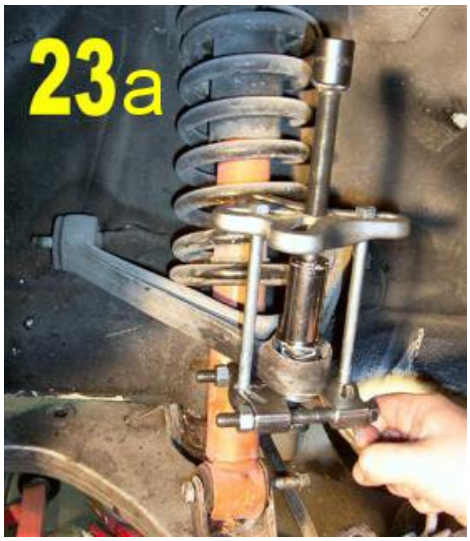


Step 13: Now place the upper plate in place on top of the spring. Photo 22. Make sure the spring is situated so that the smallest diameter is touching this steel plate and the large diameter portion of the spring (if you're using the conical springs) is touching the white bushing cup.

If using the serrated wave spring installation, the two wavy springs are stacked on top of each other, with the shim on the top next to the zerk fitting plate. You will find four wavy springs and two shims in your kit.

Step 14: The next step is to compress the ball joint into the pocket. It is recommended that you use some sockets to function as stand-offs on both sides of the joint. There are many methods that will work, photo 23 shows the simplest method, a 6" c-clamp.

Put the snap ring on top of the upper cup before you compressed it so that it is already where we need it to be once we've compressed the unit.



Here is another method. The outfit you see in this picture 23a is a medium size bearing splitter turned upside down and used underneath the a-arm and then a typical bearing puller on top of the a-arm.

While compressed you need to attach the spiral sealing ring all the way around the sides. Use a screw driver to make sure that the spiral sealing ring is firmly embedded in it's groove before retracting your compressor.

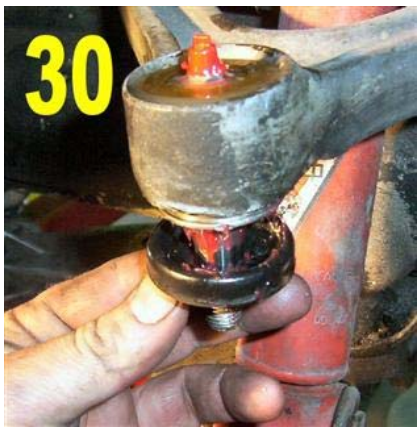
Step 15: The next step is to take a 5-16" wrench and install the zerk fitting in the top and seal the top zerk fitting with the cap provided.
Photos 24 & 25.

Step 16: Now squeeze a small amount of epoxy directly into the upper plate from the two part epoxy provided with the kit. Photo 26.

You don't need a tremendous amount of epoxy, you probably will not use it all. Using a tooth pick, mix the two parts together right in the upper plate. Photo 27.

Step 17: The finished top joint should look like photo 29. Let sit for 1 hour.

Step 18: After the epoxy has firmed up, it is time to install the rubber boot. Turn the boot inside-out and slide it over the ball pin. Press it down until it reaches the final retaining bump for the boot. Photo 30.



Fill the rubber boot with grease with your finger and then press upward on the boot and the boot will roll over the retaining bump inside out and snap into place. Photo 31.

Then rotate the ball joint pin back and forth and let the new boot find it's final resting place. You should discover the new joint is quite stiff, but is able to pivot when you move it by hand.

Now it's time to slide the ball joint pin back in the spindle and tighten the nut. Remember to take a grease gun and add grease to the upper ball joint through the zerk fitting before you drive the car.

Enjoy your new ball joint! When this process is followed correctly, the alignment of the vehicle has not been changed.

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