



U Can Do It! Replacing Corvette U-Joints

The U-Joint, or universal joint, transfers the motion of your Corvette engine to the wheels and compensates for alignment changes when it's not possible to make a straight connection from the drive shaft to the wheels. Most U-Joints are permanently lubricated these days to ensure proper function, and those that aren't will let you know with noise and vibration if there's trouble brewing. Mid America Motorworks gives you the tips to ensure a smooth ride and steps to replace your U-Joints.

The Importance of U-Joints

If it's time to replace your U-Joints, you'll get some quick indicators. This is because U-Joints work together as a team. When you notice squeaking, vibrations and lurches in your once-smooth ride, it's probably the U-Joints.

When U-Joints fail, it can damage the drive shaft, the yoke on the differential, and the yoke, tail shaft, and output shaft of the transmission itself. Routine maintenance and lubrication of the U-Joints can greatly extend the life of the joint and save you the time of having to replace parts more often than necessary.

Quick Tips to Check U-Joints

• Listen carefully to your Corvette as it is moving. Take note of any squeaking or metallic sounds, as these can indicate a dried out or is under-lubricated U-Joint.

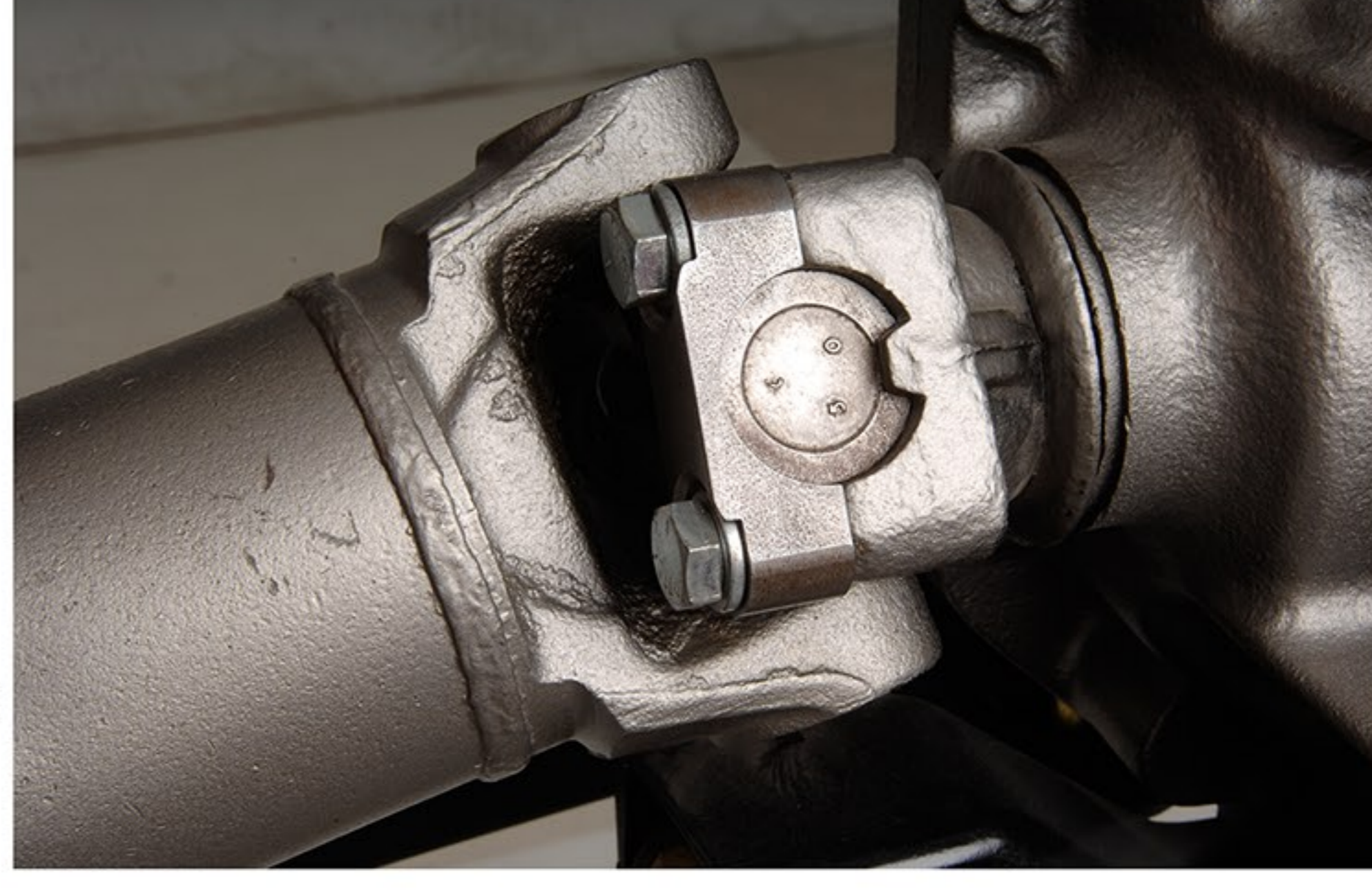
• Any vibration caused by a worn drive shaft U-Joint is usually an indication that the U-Joint is close to failure. If you detect a vibration, do not dismiss it.

• While stopped in a driveway or parking lot with the engine running and your foot on the brake, shift the car from park into reverse. Listen for a clunking or banging noise as it goes into gear. You will often feel it jump when it bangs, indicating a loose U-Joint.

• Park on flat ground and shut the engine off. When the car is safely parked, try turning the drive shaft and note any play in the U-Joints of the shaft. Loose joints can allow the shaft to move a quarter-inch to as much as a half-inch in either direction when turned.

• Insert a large, flat screwdriver into the yoke that connects the drive shaft to the transmission yoke or differential yoke. Try turning the shaft by pushing up or pulling down on the screwdriver. Note any movement in the shaft that would indicate a loose joint.

• Inspect the U-Joints using a flashlight. Look into the yokes for chipped or broken bearing caps, rust or missing bearings and retaining clips. These signs are indications of a severely worn U-Joint.



Types of U-Joints

Greasable U-Joint Pro:

Can be re-greased to ensure the best function. They are typically re-greased on the same schedule as an oil change.

Greasable U-Joint Con:

The U-Joints are hollow in the center, which can compromise the integrity of the joint in situations that can shock your drive train.

Standard vs. End Cap Grease Zerk:

A Grease Zerk is a metal fitting used to lubricate bearings under moderate-to-high pressure using a grease gun. Where a standard Grease Zerk is more difficult to access without removing parts, the End Cap Grease Zerk is positioned in a way to make it easier to re-grease the U-Joint and get back on the road.

Non-Greasable U-Joint Pro:

A non-greasable or sealed U-Joint is a solid piece and typically more durable than the greasable kind.

Non-Greasable U-Joint Con:

No access or ability to add grease to the U-Joint



End Cap Grease Zerk

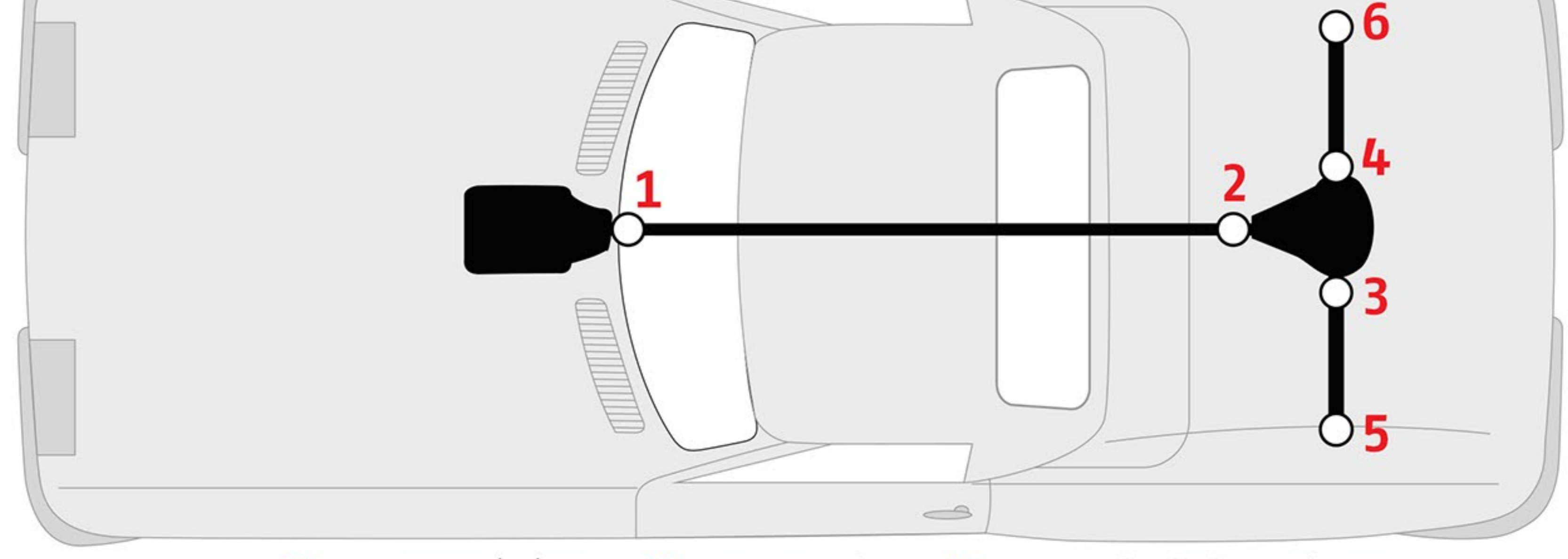


Non-Greasable U-Joint

Your Next Weekend Project

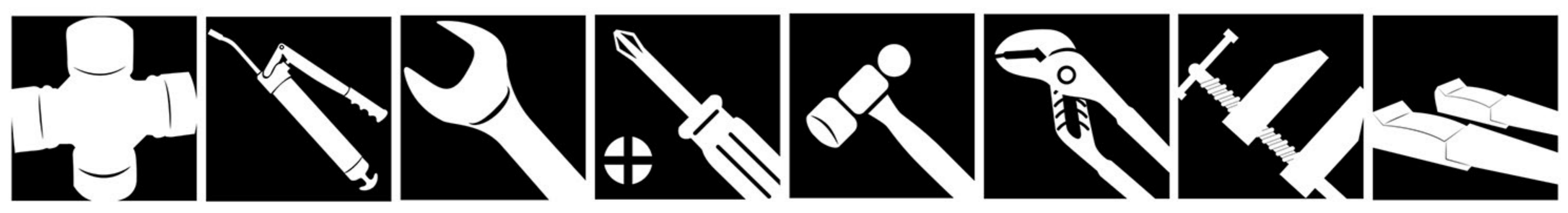
U-Joints should be routinely greased and inspected for signs of wear. A damaged or worn U-Joint can fail and cause severe or even catastrophic damage to your Corvette. Replace factory U-Joints with high-quality aftermarket joints for regular maintenance and longer service from each joint.

Keep in mind that because Corvettes have Independent Rear Suspension, the U-Joints are laid out a little differently.



1 - at Transmission 2 - at Rear Axle 3 - Rear Axle Shaft - Left Inner
4 - Rear Axle Shaft - Right Inner 5 - Rear Axle Shaft - Left Outer 6 - Rear Axle Shaft - Right Outer

Replacement is relatively simple for the garage mechanic, with only a few basic tools required:



Steps to Replacement:

1. Back your Corvette onto ramps so that the rear of the vehicle is lifted off the ground. Engage the parking brake and put the transmission into park. Under the Corvette by the rear axle and gear housing, locate the U-Joint by finding the junction of drive shaft to the rear axle. The U-Joint sits between the two yoke ends of the drive shaft and rear gear housing.

2. Two U-Bolts loop over two of the four posts of the U-Joint. They lay over the cup bearings and are secured by two bolts that hold it in place to the rear gear yoke. Use a small wrench and hammer to break loose all four bolts before removing each one. Loosen all the bolts first; then continue to loosen and remove them. Two U-Bolts have four fasteners that secure the U-Joint in place. It is not a good idea to mix and match the U-bolt parts, so keep all matching fasteners together to go back to their original locations during installation. Pull the U-Bolts from around the cup bearings on the U-Joint.

3. Separate the drive shaft from the rear axle by pitching the U-Joint so that the end of the joint that has been freed from the rear axle yoke is pointed away from the rear axle, and the other is pointed closer to the rear axle. Put the vehicle in neutral and turn the drive shaft by hand.

4. As the drive shaft is turned, the position of the free cup bearings will allow for the drive shaft to turn away, and out, from the rear gear yoke. When free, hold the end of the drive shaft above the rear gear yoke and pull the drive shaft out of the back of the transmission. Once free from both the rear gear yoke and the back of the transmission housing, take the drive shaft to the work bench where there is a vise to work with.

5. Extract the U-Joint from the end of the drive shaft yoke by first removing the fasteners that hold it in place. Some yokes secure the U-Joint into position using snap rings that fit inside the yoke at the top of an installed cup bearing and do not allow it to exit. Another yoke clamp that may be holding your U-Joint in place is a ring clamp. You need to either use the screwdriver to get the snap ring out or a pair of pliers to release the pressure of the ring clamp that holds the U-Joint into the drive shaft yoke without nuts or bolts.

6. Squeeze out the cup bearings that are holding the U-Joint in place after the clamps are removed from the yoke. It takes a great deal of pressure to push a U-Joint cup bearing out of its seat in a yoke, but it can be done with a table vise and two sockets. Get one socket that is smaller than the opening of the drive shaft that allows access to the top of the bearing, and another that is bigger than the opening on the other side of the yoke for the bottom bearing to be pushed into.

7. First position the small socket inside the vise, then the yoke with the universal joint, then the large socket. As you tighten the vise, you will push one cap down and out with the smaller socket. You will also be pushing the other end of the universal joint out of its seat.

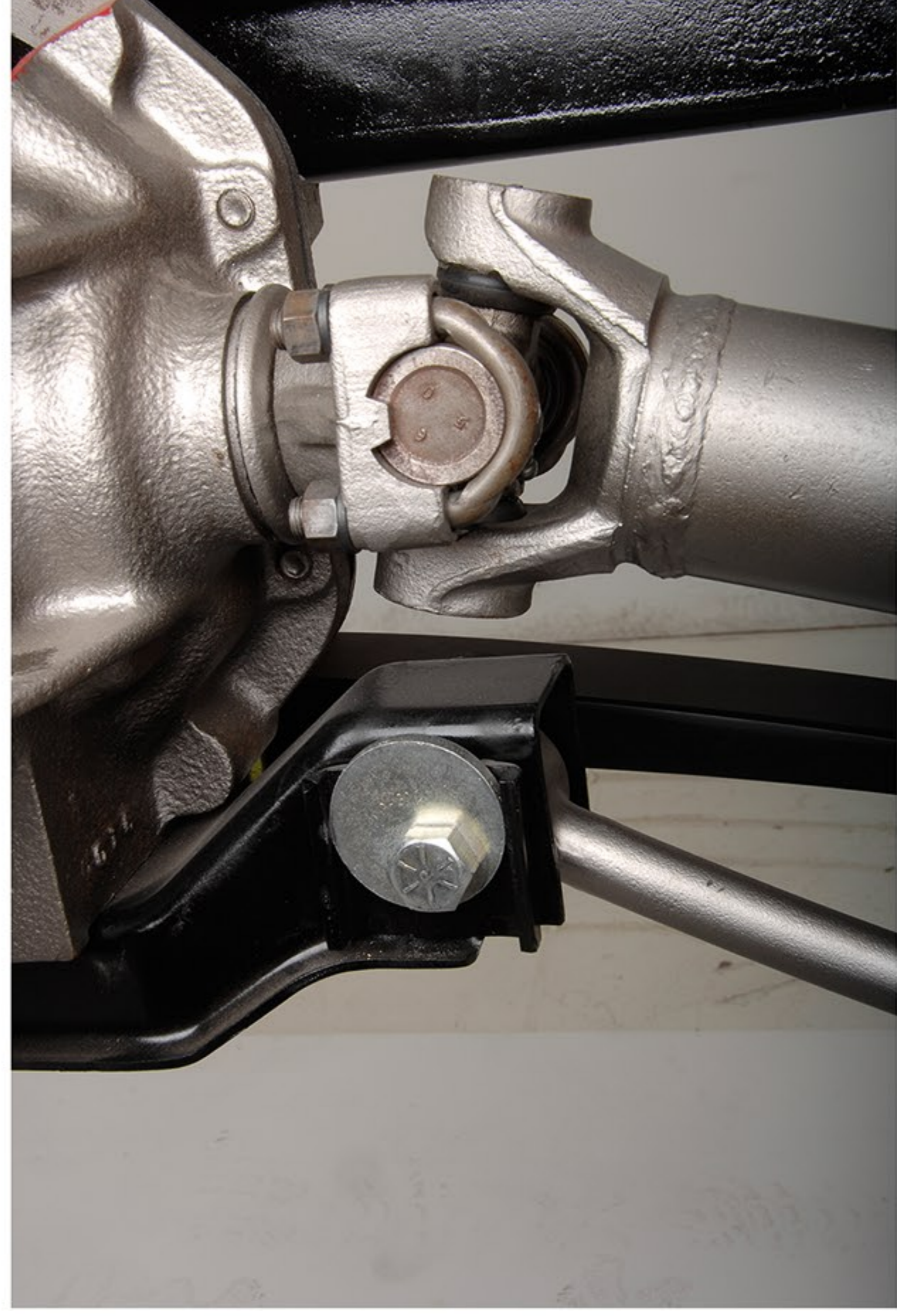
8. Replace the U-Joint with new cup bearings or a whole new joint. To seat the bearings in place, grease the new U-Joint and cup bearings and insert the joint into the two openings that the bearing cups will be seated. Place one bearing cup on the joint and insert it into the seating hole. This cap will be pushed up into the space using the screwdriver to get the snap ring out or a pair of pliers to release the pressure of the ring clamp that holds the U-Joint into the drive shaft yoke without nuts or bolts. After the bearing seats onto the post, it will push the other bearing into place.

9. Use the small socket to continue pushing the U-Joint into position after the bearing has been seated inside the yoke and is even with the inside edge of the opening. The joint should be positioned so that the snap or ring fasteners can secure the U-Joint into position.

10. Get back under your Corvette and hold the drive shaft in position for insertion into the back of the transmission. Hold the yoke end of the drive shaft above the yoke of the rear gear and insert the spindle end of the drive shaft into the opening in the back of the transmission. Push the drive shaft in as far as it can go and then lower the yoke end of the drive shaft down to the yoke of the rear gear.

11. Pitch the U-Joint so that one cup bearing is pointed away from the rear axle and the other is pointed toward the rear axle. As the drive shaft is turned, position the loose bearing cups onto the yoke seats of the rear gear yoke. Replace the U-Bolts around the open cup bearings and tighten securely.

12. Place your Corvette in park and release the parking brake. Start the engine and drive off the ramps to complete the job. If you still experience vibrations or noise, lubricate or tighten the U-Joints where necessary.



Not sure what U-Joint is right for your 1953-1996 Corvette? [Our chart can help!](http://content.mamotorworksmedia.com/production/website/articlefiles/TechTipFiles/U_Joint_Chart_2.pdf) (http://content.mamotorworksmedia.com/production/website/articlefiles/TechTipFiles/U_Joint_Chart_2.pdf)