

## Double Cardan Universal Joints Replacement (Centering Ball Replacement)

### Tools Required

- J 23694 C.V. Propeller Shaft Seal Installer
- J 23996-1 C.V. Replaceable Ball Installer
- J 23996-2 C.V. Replaceable Ball Remover

**Important:** Production universal joints may not be reassembled. The production bearing cups do not have bearing retainer grooves. Discard all universal joint parts that are removed.

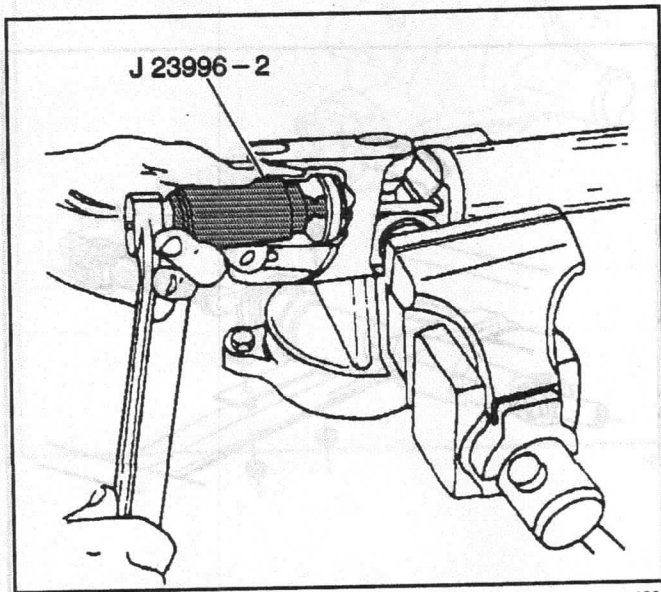
1. Disassemble the flange yoke assembly.
2. Inspect the ball seat insert bushing for wear.
3. If the bushing is worn, replace the ball support yoke and cross assembly.
4. Inspect the seal and ball seats along with the spring and washers.

If any parts show indication of excessive wear or are broken, replace the entire set with a service kit. Always discard the removed seal and replace the seal.

5. Inspect the centering ball surface.
6. If the ball surface shows signs of wear beyond a smooth polish, replace the ball.
7. Clean all of the plastic from the grooves of all the yokes. Drive a small pin or punch through the injection holes in order to remove the plastic.

**Notice:** When a centering ball requires replacement, all ball seat components must be replaced also. A separate ball and seat service kit is available. The kit has two seat springs and the longer spring must be discarded.

8. Disassemble the shaft in a bench vise.
9. Install the ball puller, J 23996-2 over the ball.
10. Tighten the puller nut finger tight.
11. Apply a light coat of multipurpose grease to the jaws of the ball puller tool in order to reduce friction between the jaws and the inside surface of the tool sleeve.
12. Tighten the nut until the ball is removed from the stud.
13. Position a new ball on the stud.



1230

14. Pos  
the  
the
15. Rej  
Do  
(Ba

## Double Repla

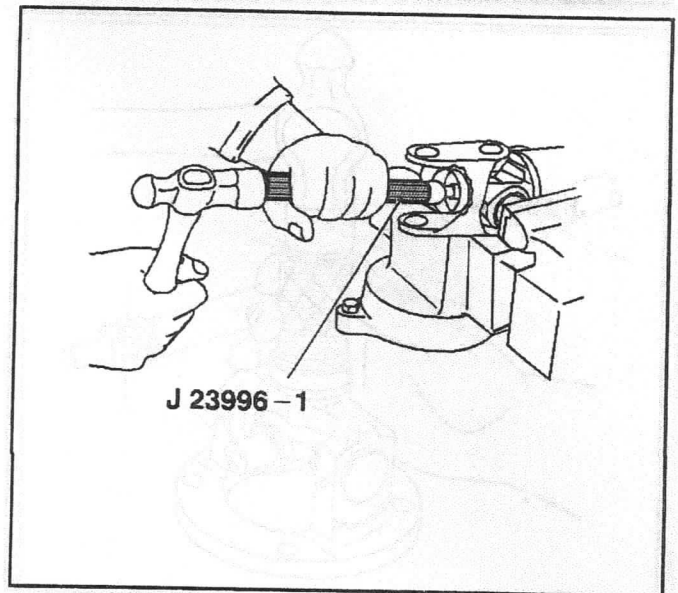
### Tools

- J 2369
1. Re  
Ca  
Ba

### Import

- when p
2. Pr
  3. Re  
the  
se
  4. W  
mi  
ok
  5. Di  
cc
  6. O  
th
  7. Li  
se
  8. TI  
in

14. Position the *J 23996-1* against the ball and drive the tool with a hammer until the ball bottoms on the stud.
15. Replace the ball seats and components. Refer to *Double Cardan Universal Joints Replacement (Ball Seat Assembly)*.



1232

### Double Cardan Universal Joints Replacement (Ball Seat Assembly)

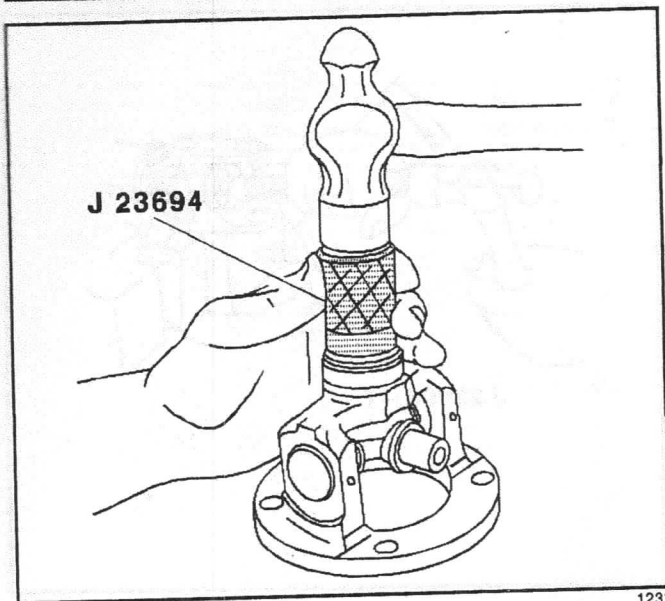
#### Tools Required

*J 23694* Seal Installer

1. Remove the centering ball. Refer to *Double Cardan Universal Joints Replacement (Centering Ball Replacement)*.

**Important:** Take care not to damage the seal bore when prying the seal.

2. Pry the grease seal from the ball seat housing.
3. Remove the large washer, the three seats, the small washer and the spring from the seat housing.
4. Wash the bore of the housing thoroughly with mineral spirits in order to remove all traces of old lubricant.
5. Dry the bore of the housing thoroughly with compressed air.
6. Obtain a ball and seat kit. Discard the longer of the two springs in the kit.
7. Liberally grease the inside diameter of the ball seat housing. Use the grease supplied in the kit.
8. Thoroughly grease and install the following parts in the ball seat housing:
  - 8.1. The spring
  - 8.2. The small washer
  - 8.3. Three seats
  - 8.4. The large washer



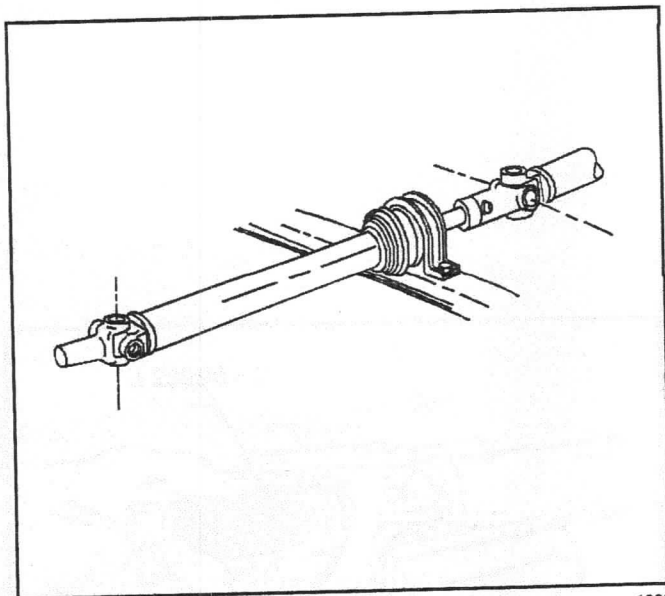
1231

9. Install the grease seal.
  - 9.1. Position the grease seal on the housing with the seal lip facing down into bore.
  - 9.2. Place the *J 23694* over the seal and tap the seal into place. The seal is seated when flush with the housing.
10. Pack the remaining grease from the ball and seat kit in the seat assembly and on the seal. Make sure the inner surfaces of the seats are liberally lubricated.
11. Position the ball support yoke and cross assembly in the flange yoke. Align the reference marks made at disassembly.
12. Install the bearing cups.
13. Check the ball seat assembly. The ball support yoke snaps over the center and moves to the right or left and up or down freely if the constant velocity joint is correctly assembled.

### Center Bearing Replacement

#### Removal Procedure

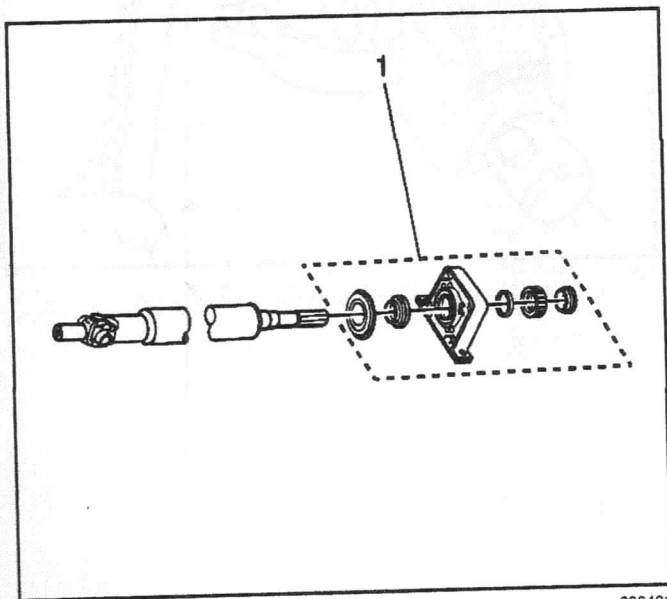
1. Raise and support the vehicle. Refer to *Lifting and Jacking the Vehicle* in General Information.
2. Remove the propeller shaft from the vehicle. Refer to *Propeller Shaft Replacement - Two Piece* in Propeller Shaft.
3. Remove the center bearing using the following steps:
  - 3.1. Stand the propeller shaft on end in a press with the splined end of shaft pointing up.
  - 3.2. Support the center bearing by press bars.
  - 3.3. Press the propeller shaft down on the splined end till the center bearing assembly is off the propeller shaft.



1236

#### Installation Procedure

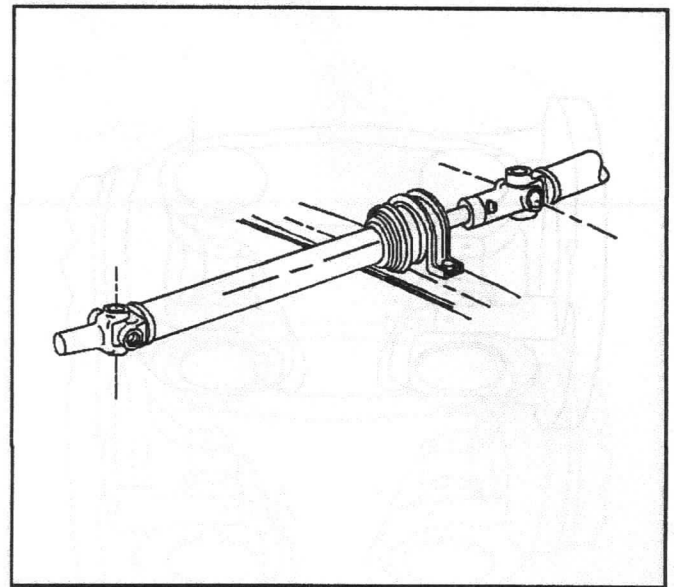
1. Install the center bearing onto the propeller shaft by pressing the center bearing onto the shaft using the press.
2. Ensure that the center bearing is fully seated on the propeller shaft.



606401



3. Install the propeller shaft. Refer to *Propeller Shaft Replacement - Two Piece* in Propeller Shaft.
4. Lower vehicle and test drive.



1236

### Yoke Replacement (Double Cardan Universal Joint )

#### Removal Procedure

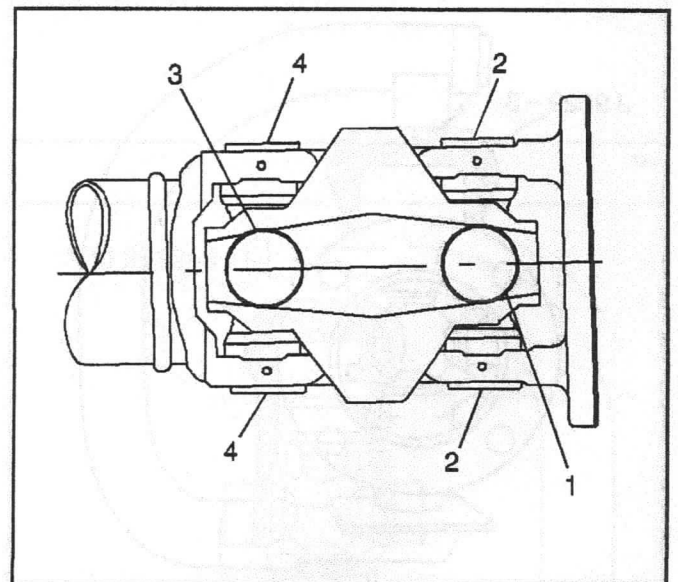
#### Tools Required

- J 23996-2 Ball Puller
- J 9522-3 U Joint Bearing Separator
- J 9522-5 U Joint Bearing Spacer Remover (use with J 9522-3)

**Notice:** Never clamp propeller shaft tubing in a vise. Clamping propeller shaft tubing in a vise could dent or deform the tube causing an imbalance or unsafe condition. Always clamp on one of the yokes and support the shaft horizontally. Avoid damaging the slip yoke sealing surface. Nicks may damage the bushing or cut the lip seal.

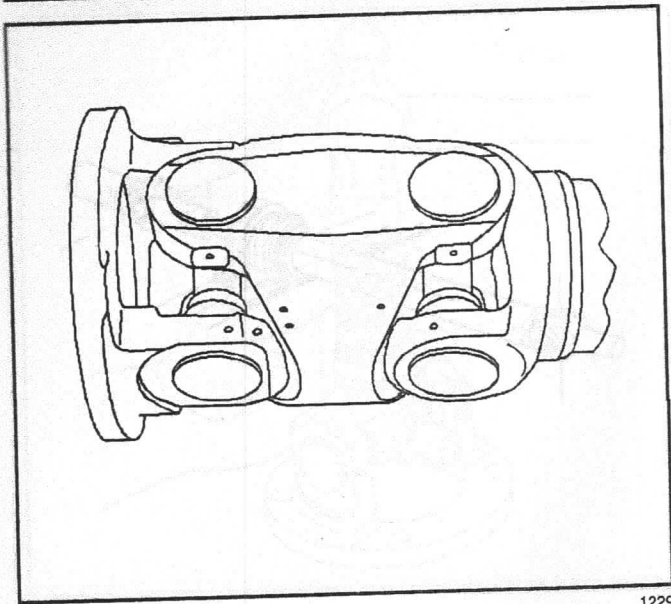
**Notice:** The flange yoke can be replaced without removing bearing cups from the tube yoke or ball support yoke.

1. Remove the bearing cups in the order indicated (1-4). This is the shortest route to the heart of the centering ball system. Perform a close inspection in order to select the correct service method.

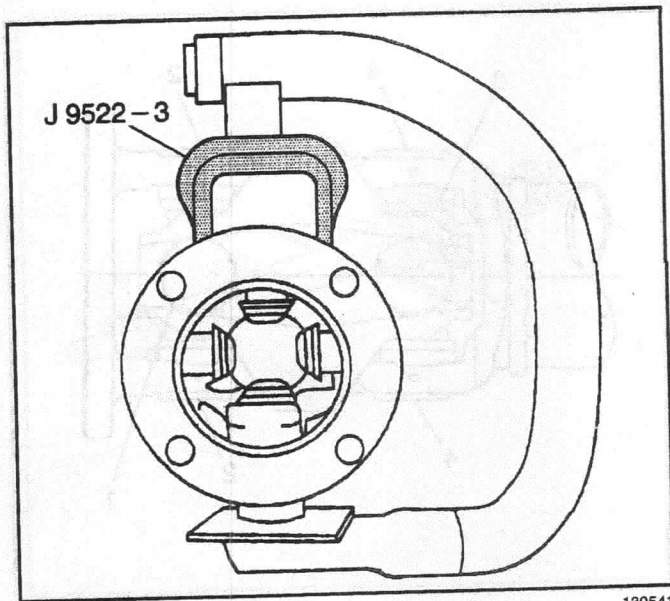


1228

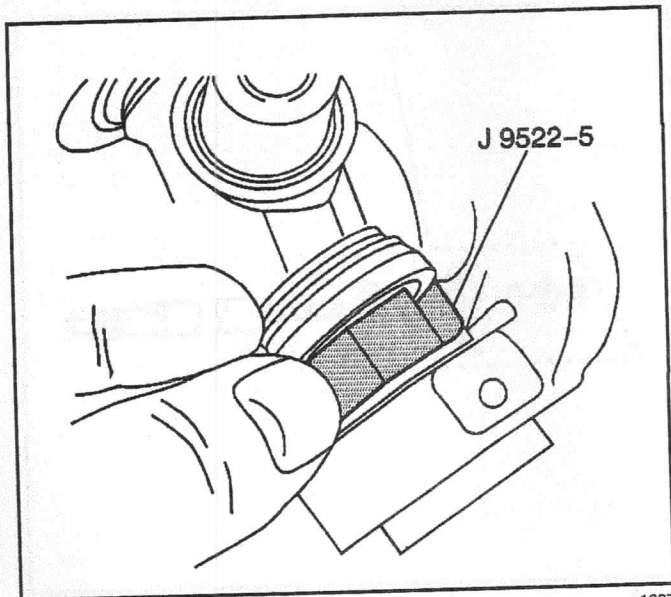
## 4-16 Propeller Shaft



1229



130541



1227

2. Mark all of the yokes before disassembly in order to reassemble the yokes and in order to retain the driveshaft balance.

**Important:** You may not reassemble production universal joints. The production bearing cups do not have bearing retainer grooves. Discard all universal joint parts you remove.

3. Support the propeller shaft in a line horizontal with the table of a press.

4. Place the universal joint so that the lower ear of the yoke is supported on a 30 mm (1 1/8 in) socket.

5. In order to shear the plastic retaining ring on the bearing cup, place the J 9522-5 on the open horizontal bearing cups, and press the lower bearing cup out of the yoke ear.
6. If you have not completely removed the bearing cup, lift the cross and insert the J 9522-5 between the seal and the bearing cup being removed. Continue pressing the bearing cup out of the yoke.
7. Rotate the propeller shaft and press the opposite bearing cup out of the yoke.
8. Inspect the retaining ring grooves for plastic.
9. Inspect each bearing cup bore for burrs or imperfections.

10. Clean the retaining ring.
11. The shaft must be supported from both ends to prevent the shaft from being seated.

### Installation

1. Assemble the bearing cups.
2. Assemble the retaining ring.
3. Assemble the flange with the shaft that will be used.
4. Inspect the shaft.
5. If the yoke is not seated in the socket.

### Universal Joints

#### Removal

#### Tools Required

- J 9522-3
- J 9522-5

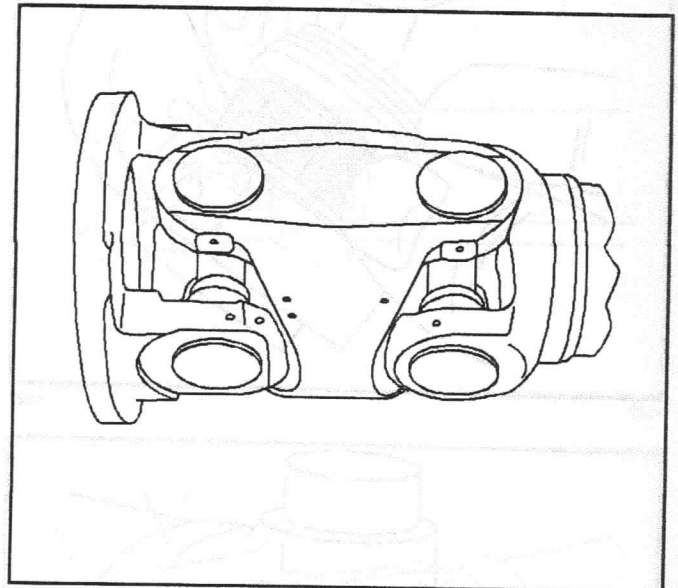
**Notice:** Make sure the damping rings are in good condition and supported when the yoke is being removed.

1. Support the shaft.
2. Mark the ends of the shaft.
3. Place the shaft in the socket.

10. Clean the remains of the sheared plastic bearing retainers from the grooves in the yoke.
11. The sheared plastic may prevent the bearing cups from being pressed into place. This condition prevents the bearing retainers from being properly seated.

### Installation Procedure

1. Assemble the flange yoke on the inner cross of the ball tube yoke.
2. Assemble the bearing cup assemblies.
3. Assemble the ball support yoke cross in the flange yoke. Orient the ball support yoke cross with the tube yoke according to the marks that were drawn during disassembly.
4. Inspect all of the trunnions for freedom of rotation.
5. If the trunnions are too tight, strike the flange yoke sharply with a hammer in order to aid in seating the retaining rings.



1229

### Universal Joints Replacement (Nylon Injected Ring Type)

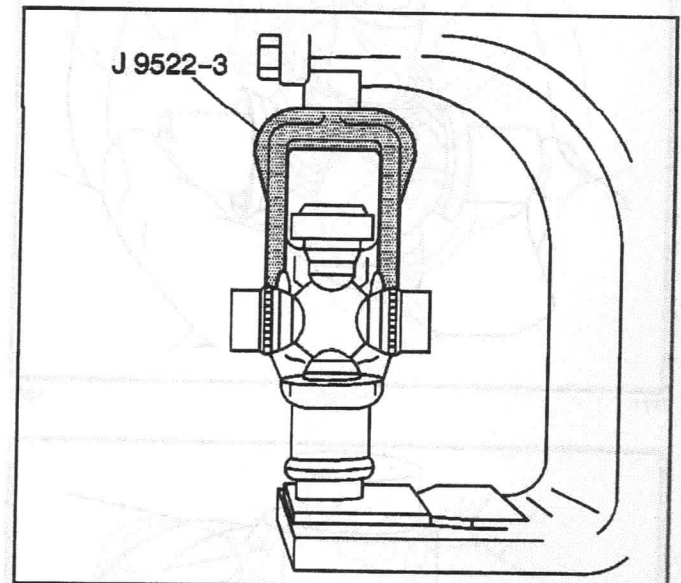
#### Removal Procedure

#### Tools Required

- J 9522-3 U-Joint Bearing Separator
- J 9522-5 U-Joint Bearing Spacer Remover

**Notice:** Never clamp propeller shaft tubing in a vise. Clamping propeller shaft tubing in a vise could dent or deform the tube causing an imbalance or unsafe condition. Always clamp on one of the yokes and support the shaft horizontally. Avoid damaging the slip yoke sealing surface. Nicks may damage the bushing or cut the lip seal.

1. Support the propeller shaft in a line horizontal with the table of a press.
2. Mark the propeller shaft in order to show which end connects to the transmission and which end connects to the rear axle.
3. Place the universal joint so that the lower ear of the yoke is supported on a 30 mm (1 1/8 in) socket.



1222