DRIVE AXLE - FRONT

1995 Chevrolet Tahoe

1995 Drive Axles - "K" Series Front Axle

Pickup, Suburban, Tahoe, Sierra, Suburban, Yukon

DESCRIPTION

NOTE: This article contains information on 2 slightly different front axle assemblies, one for K2 vehicles and the other for K3 vehicles.

Differential contains a conventional ring and pinion gear set. Right side of axle assembly consists of a solid axle shaft that rides inside of a stationary axle tube. A short stub shaft with CV joint attached is bolted to right inner axle shaft flange. Left drive axle shaft consists of a flexible drive shaft using an inner tripod joint and outer CV joint. Left axle tripod joint housing is bolted to axle carrier output shaft drive flange. CV joint splined/threaded shaft on outer end of drive axle shaft slips through steering knuckle/hub assembly. See Fig. 2.

A thermal actuator solenoid on the right axle tube allows the front axle to be shifted into or out of 4WD while the vehicle is moving (under most conditions). See Fig. 4 or 5. The solenoid contains a coil, fluid, and plunger. When current from the 4WD in/out select switch passes through the coil, heat causes the fluid to change to gas, extending the plunger. This engages or disengages the front axle.

AXLE RATIO IDENTIFICATION

NOTE: See AXLE RATIO IDENTIFICATION article.

LUBRICATION

Ensure vehicle is level. Fill differential with 80W or 80W-90 GL-5 gear lubricant to edge of filler hole. In cold weather, use GM lubricant (PN 12345836).

LUBRICATION CAPACITIES TABLE

Application	Qts. (L)
K2	1.75 (1.66)
K3	2.25 (2.13)

TROUBLE SHOOTING

NOTE: See TROUBLE SHOOTING article in GENERAL INFORMATION.

REMOVAL & INSTALLATION

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

CARRIER CASE MOUNTING BUSHINGS

Removal & Installation

Remove front axle assembly. See FRONT AXLE ASSEMBLY. Using Carrier Bushing Remover/Installer (J-36616), press bushing out of carrier housing. See Fig. 1. To install, reverse tool and press NEW bushing into housing. Repeat procedure for other mounting bushing.

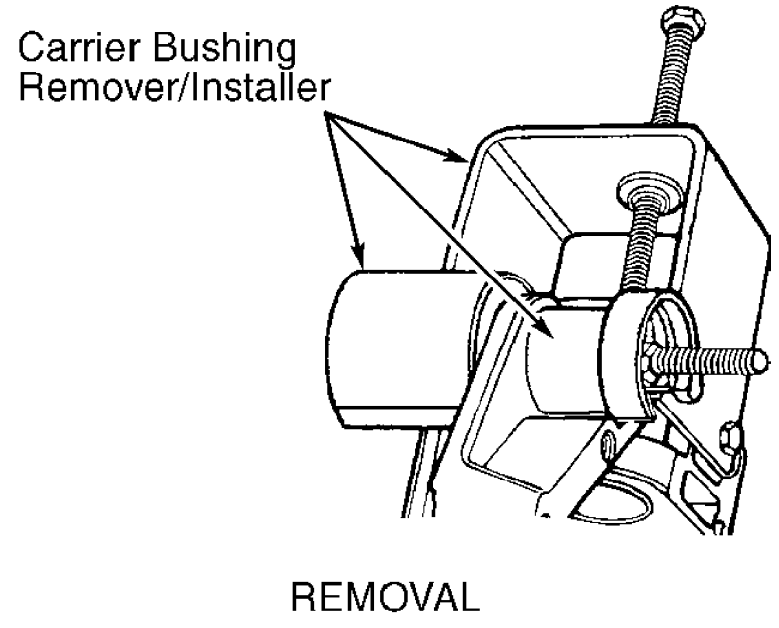


Fig. 1: Removing/Installing Carrier Case Bushing
Courtesy of General Motors Corp.

FRONT AXLE ASSEMBLY

Removal & Installation

1) Disconnect negative battery cable. Raise and support vehicle. Remove skid plate (if equipped). Remove wheels. Remove 6 bolts securing right stub shaft to output shaft flange, and 6 bolts securing left drive axle to output shaft flange. Wire left drive axle and right stub shaft aside.

2) Disconnect drive shaft at pinion yoke. Wrap tape around "U" joint caps to secure in position. Wire drive shaft aside. Disconnect harness connectors for indicator light switch and actuator solenoid at right axle tube. Disconnect vent hose at axle. Remove bolts securing right axle tube to frame rail.

3) Remove lower mounting bolt from axle assembly. Disconnect right side inner tie rod from steering linkage. Remove engine oil filter (if necessary). Support axle assembly using appropriate transmission jack. Remove upper axle assembly mounting bolt. Lower transmission jack, and remove axle assembly from vehicle.

4) To install the axle assembly, reverse the removal procedure. Tighten all retaining nuts and bolts to specification. Refer to TORQUE SPECIFICATIONS.

LEFT DRIVE AXLE SHAFT

Removal

1) Raise and support vehicle. Remove skid plate (if equipped). Remove wheel. Remove stabilizer bar from lower control arm. If both ends of stabilizer bar are being removed, DO NOT mix left and right stabilizer bar components.

CAUTION: DO NOT use wedge type remover tool on tie rod end. Damage to tie rod end will result.

2) Disconnect left outer tie rod end from steering knuckle using Steering Linkage Puller (J-24319-01). Wire tie rod aside. Insert a long drift through caliper and into disc rotor vanes to prevent rotation. Remove axle hub nut and washer from drive axle shaft CV joint. See Fig. 2. Loosen 6 drive axle shaft flange bolts securing tripod joint housing to axle carrier output shaft drive flange.

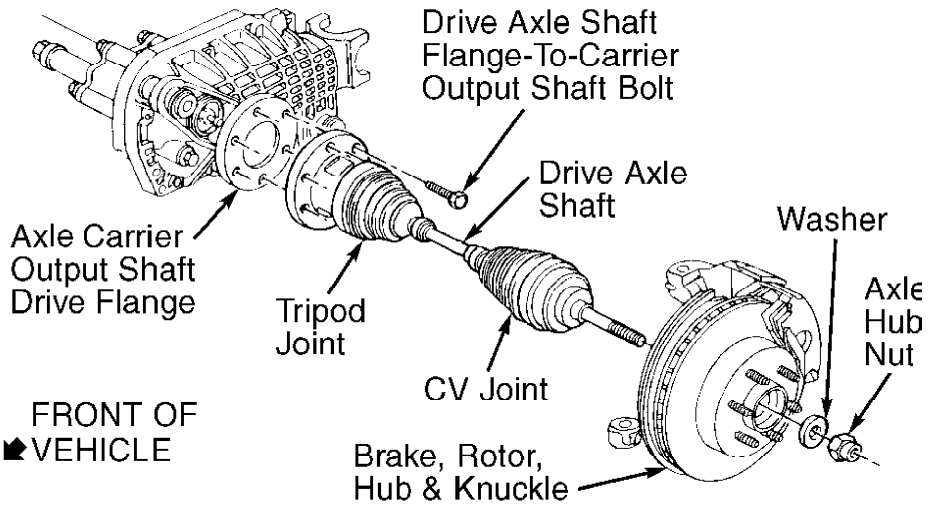


Fig. 2: Left Drive Axle Shaft With Tripod & CV Joints
Courtesy of General Motors Corp.

3) Remove brakeline bracket from upper control arm. Remove shock absorber from lower control arm mounting bracket. Install floor

stand or jack under lower control arm near ball joint to maintain spring tension and lower control arm position.

4) Remove nut securing upper ball joint to steering knuckle. Separate upper ball joint stud from knuckle. Using shop towel, cover lower shock mount ears on lower control arm to prevent CV joint boot damage when removing axle shaft. Install Puller (J-28733) to left rotor to push CV joint splined shaft through hub splines.

5) Remove 6 drive axle shaft flange bolts retaining tripod joint housing to axle carrier output shaft drive flange. DO NOT allow drive axle shaft to hang free. Pull slightly outward on top of steering knuckle to enable drive axle shaft removal. DO NOT stretch brake hose. Remove drive axle shaft.

Installation

1) Before installing drive axle shaft, inspect inner wheel bearing seal on rear of knuckle. Replace, if required, using Seal Installer (J-36605). Lube seal lip.

2) To install the drive axle shaft, reverse removal procedure. Tighten all retaining bolts and nuts to specification. Refer to TORQUE SPECIFICATIONS.

PINION FLANGE & OIL SEAL

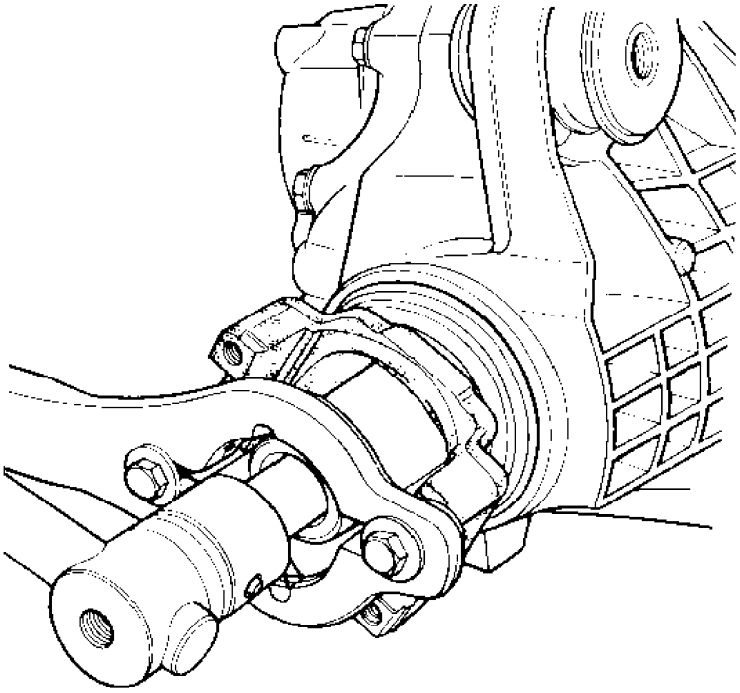
Removal

1) Raise vehicle on hoist. Remove pinion flange retaining bolts. Mark position of drive shaft yoke ear to pinion flange to ensure correct installation. Remove drive shaft from pinion flange, and support shaft aside.

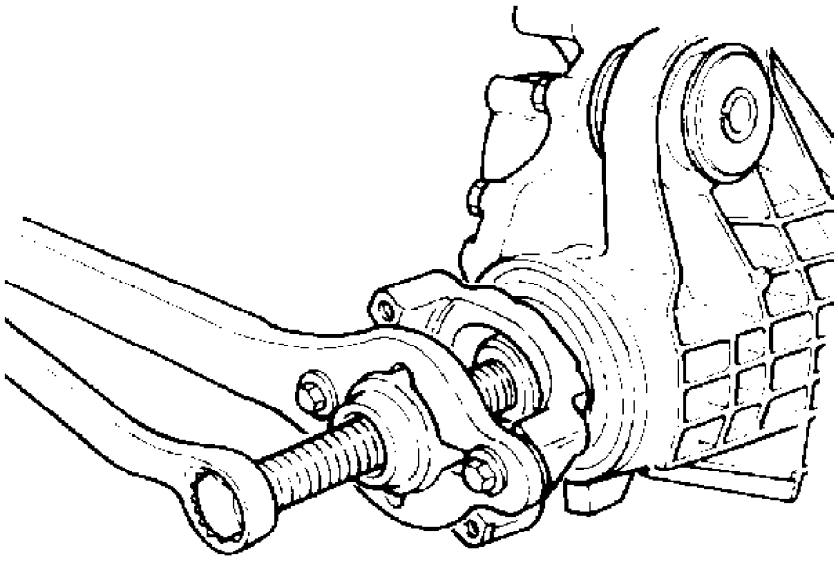
2) Scribe mark pinion, pinion nut and pinion flange to ensure proper alignment and bearing preload during installation. Count and record number of exposed threads on pinion. Using Pinion Flange Remover Set (J-8614-01), hold pinion flange stationary. Using large socket and wrench, remove pinion flange nut and washer.

3) Place drain pan under pinion area of differential carrier. Insert pinion flange remover through pinion flange holder and rotate 90°. Tighten bolt to remove pinion flange. See Fig. 3. Pry pinion seal from housing. DO NOT damage differential carrier or seal running surface on pinion when removing pinion oil seal.

4) Clean pinion flange in solvent and inspect seal surface of pinion flange for nicks, burrs or damage (such as a groove worn into pinion flange by oil seal). Repair or replace as necessary.



PINION NUT REMOVAL



PINION FLANGE REMOVAL

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Fig. 3: Removing Pinion Nut & Flange
Courtesy of General Motors Corp.

CAUTION: DO NOT use "hard-faced" hammer to drive/install flange onto pinion shaft, or ring gear, pinion and flange will be

damaged.

Installation

1) Lubricate pinion flange seal running surface. Lubricate lip of oil seal. Install oil seal using Seal Installer (J-39366). Ensure seal is driven in straight, or aluminum housing will be severely damaged.

2) Install NEW dust deflector onto pinion flange and stake in 3 places. Install pinion flange onto pinion shaft aligning marks made before removal. If required, use soft-faced mallet to tap flange onto pinion.

3) Install pinion nut and tighten to no more than position marked on pinion shaft and flange. Note number of threads exposed. Tighten pinion nut no more than 1/16" beyond alignment marks. If this marked position is exceeded by more than 1/16", remove pinion and install NEW collapsible sleeve. Install drive shaft. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Check gear oil level.

RIGHT AXLE TUBE & INNER AXLE SHAFT

Removal

1) Disconnect negative battery cable. Raise and support vehicle. Remove skid plate (if equipped). Remove wheel. Remove stabilizer bar from both lower control arms. DO NOT mix left and right stabilizer bar components.

2) Disconnect right outer tie rod end from steering knuckle using Steering Linkage Puller (J-24319-01). Wire right outer tie rod linkage aside.

3) Remove stub axle shaft flange bolts from inner axle shaft flange. Turn right wheel outward to loosen stub axle shaft from inner axle shaft flange. Push stub axle shaft toward front of vehicle, and wire aside.

4) Disconnect harness connectors for indicator light switch and actuator solenoid at right axle tube. Place drain pan under drive axle. Remove drain plug and drain lubricant. Remove bolts retaining axle tube to right frame.

5) Remove bolts attaching axle tube to axle carrier. Remove axle tube by pulling away from axle carrier to clear shift shaft. While pulling axle tube away, note shifter fork spring location to keep from losing it. Ensure that open end of tube is pointed upward.

Installation

1) If internal carrier components have been changed, see Reassembly steps 4) through 9) of RIGHT AXLE TUBE ASSEMBLY under OVERHAUL. If internal carrier components have NOT been changed, clean mating surfaces thoroughly to remove any oil residue. Ensure shift shaft spring is in position.

2) Apply sealant (GM 1052942 or Loctite 518) to carrier sealing surfaces. Install axle tube to carrier housing. Tighten bolts to specification. See TORQUE SPECIFICATIONS. Connect stub shaft to inner shaft flange and install 6 bolts. Using a crisscross pattern, tighten bolts evenly.

3) Raise axle tube and install bolts to secure frame to tube. Tighten nuts to specification. Connect tie rod end to steering knuckle. Tighten tie rod nut to specification.

4) Install stabilizer bar, link, nuts and bolts. Tighten bolts securing stabilizer bracket to frame. Tighten nut securing stabilizer bar to lower control arm.

5) Reconnect harness connectors for indicator light switch and actuator solenoid at right axle tube. Install differential carrier drain plug. Fill drive axle with SAE 80W-90 GL5 gear lubricant. To complete installation, reverse removal procedure. Recheck gear oil when vehicle is level.

1. Right Output Axle Shaft
2. Deflector
3. Seal
4. Output Shaft Bearing
5. Axle Tube
6. Axle Tube-To-Carrier Bolt
7. Thrust Washer
8. Connector Gear
9. Snap Ring
10. Actuator Solenoid
13. Indicator Switch
14. Inner Spring
15. Retaining Clip
16. Shift Fork
17. Damper Spring
18. Shift Shaft
20. Shim
21. Pilot Bearing
22. Sleeve
23. Output Shaft
25. Drain Plug
26. Washer
27. Pin
28. Bolt
29. Carrier Case
30. Output Shaft Bearing
31. Insert
32. Sleeve
33. Side Bearing
34. Ring Gear Bolt
35. Differential Case
36. Pin
37. Ring & Pinion Gear
38. Pinion Shim
39. Pinion Bearing
40. Spacer
41. Pinion Bearing
42. Seal
43. Deflector
44. Pinion Flange
45. Washer
46. Nut
48. Mounting Bushing
51. Lock
52. Pinion Shaft
53. Thrust Washer
54. Side Gear
55. Thrust Washer
56. Differential Pinion Gear
59. Left Output Shaft
60. Vent Plug

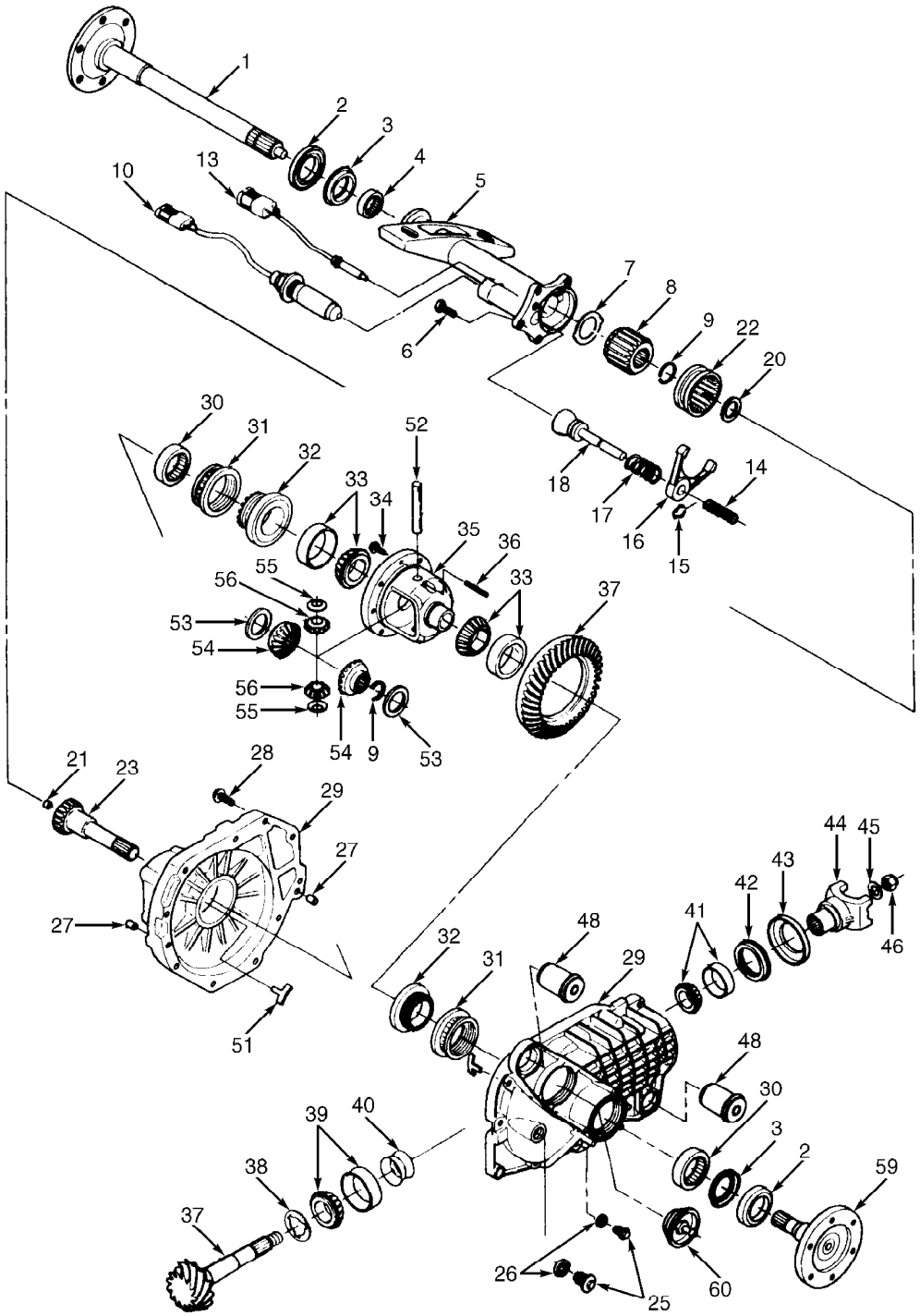

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Fig. 4: Exploded View Of Front Axle Assembly (K2 Series)
Courtesy of General Motors Corp.

1. Right Output Axle Shaft
2. Deflector
3. Seal
4. Output Shaft Bearing
5. Axle Tube
6. Axle Tube-To-Carrier Bolt
7. Thrust Washer
8. Axle Shaft "C" Clip
10. Actuator Solenoid
11. Washer
12. Retaining Ring
13. Indicator Switch
14. Shift Fork Inner Spring
15. Retaining Clip
16. Shift Fork
17. Damper Spring
18. Shift Shaft
20. Shim
21. Pilot Bearing
22. Sleeve
23. Inner Output Shaft
25. Fill & Drain Plugs
26. Washers
27. Pin
28. Bolt
29. Carrier Case
30. Differential Case Bearing
31. Insert
32. Sleeve
33. Side Bearing
34. Ring Gear Bolt
35. Differential Case
36. Pin
37. Ring & Pinion Gear
38. Pinion Shim
39. Pinion Bearing
40. Spacer
41. Pinion Bearing
42. Seal
43. Deflector
44. Pinion Flange
45. Washer
46. Nut
48. Mounting Bushing
51. Lock
52. Pinion Shaft
53. Thrust Washer
54. Side Gear
55. Thrust Washer
56. Differential Pinion Gear
57. Spacer
59. Left Output Shaft
60. Vent Plug
61. Adjuster
62. "O" Ring
63. Retainer Tab
64. Bolt

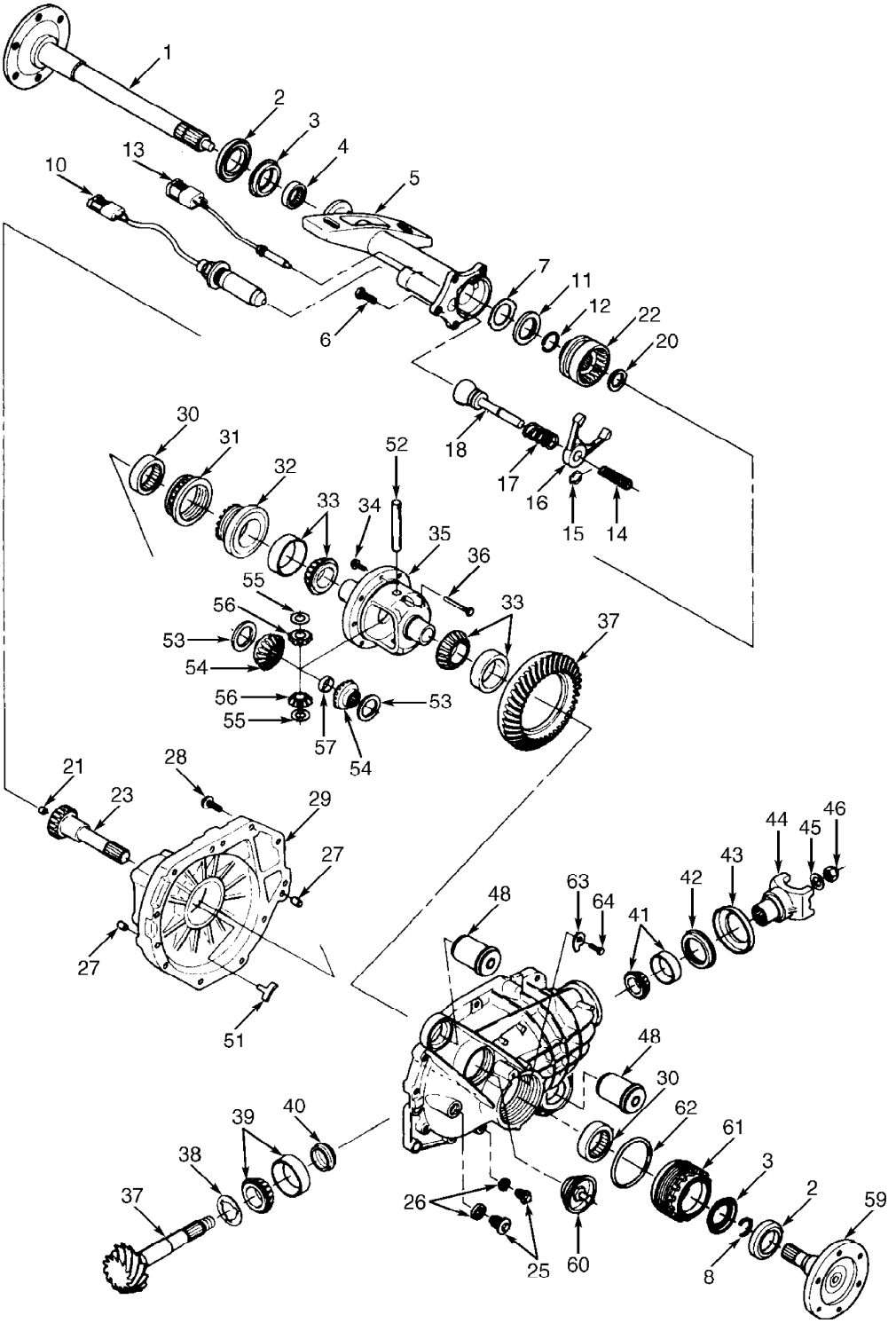


Fig. 5: Exploded View Of Front Axle Assembly (K3 Series)
Courtesy of General Motors Corp.

RIGHT SIDE OUTPUT SHAFT PILOT BEARING

Removal & Installation
Remove right axle tube and inner axle shaft assembly. See

RIGHT AXLE TUBE & INNER AXLE SHAFT. Remove shim (No. 20). See Fig. 4 or 5. Remove pilot bearing using Pilot Bearing Remover (J-34011). Lubricate NEW pilot bearing with wheel bearing grease. Install pilot bearing using Pilot Bearing Installer (J-33842). Install shim (No. 20). To complete installation, reverse removal procedure.

OVERHAUL

RIGHT AXLE TUBE ASSEMBLY

Disassembly

1) Place mounting flange of axle tube assembly in a vise. Remove actuator solenoid and engagement switch from tube. Remove shift shaft, springs, shift fork and differential sleeve (No. 22). See Fig. 4 or 5. Remove snap ring, connector gear (washer on K3), and thrust washer from axle shaft.

2) Using a soft mallet, tap on flange end of axle shaft to remove axle shaft from tube. DO NOT hammer on pilot bearing stem end of axle shaft, severe damage will result. Using a screwdriver, pry out deflector and oil seal.

3) To remove axle bearing from tube, use Bearing Remover (J-29369-1 for K2; J-29369-2 for K3). Using appropriate puller and slide hammer, remove axle bearing.

Cleaning & Inspection

Wash all parts in solvent and dry with compressed air. Inspect all parts for excessive wear and scoring. Inspect connector gear and axle shaft splines for wear, cracks, and twisted splines.

Reassembly

1) Clean gasket surfaces on axle tube and carrier housing. Lubricate NEW bearing using wheel bearing grease. Using Bearing Installer J-36609, install axle bearing into tube. Lightly coat lip of NEW seal with grease. Install seal using Seal Installer (J-36600 for K2; J-22833 for K3).

2) Install deflector to axle shaft (if removed) and insert axle shaft into axle tube. Install thrust washer, ensuring tube slots align with tabs on washer. See Fig. 6. Use wheel bearing grease to hold thrust washer in place.

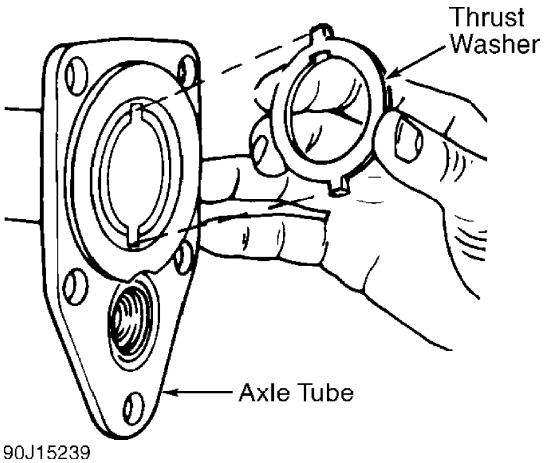


Fig. 6: Installing Axle Tube Thrust Washer
Courtesy of General Motors Corp.

3) On K2, drive connector gear onto end of axle, using a plastic mallet. Install snap ring. On K3, install washer and snap

ring. Ensure snap ring seats properly in groove. On all models, an output shaft shim (part No. 20 in Fig. 4 or 5) of proper thickness must be selected if any of following parts have been changed.

* Differential Case	* Inner Shaft
* Connector Gear (K2)	* Axle Tube
* Output Shaft	* Carrier Case
* Ring and Pinion	* Bearings

If no parts have been changed, go to step 6).

4) If any of listed parts have been changed, use grease to hold ORIGINAL shim in place. Assemble axle tube and inner shaft assembly to carrier (use no sealer at this time). Tighten bolts to specification. See TORQUE SPECIFICATIONS.

5) Install dial indicator onto axle tube with dial indicator shaft at right angle to axle output shaft flange. Check axle shaft end play by pushing and pulling in and out on axle shaft. Maximum end play is .001-.020" (.03-.51 mm). If end play is incorrect, select shim as necessary to bring end play within specification. Remove axle tube from carrier.

6) Ensure axle tube and carrier case sealing surfaces are clean. Install correct shim onto output shaft using wheel bearing grease. Slip damper spring onto shift shaft. Slide shift fork onto shift shaft, ensuring damper spring fits into indentation in shift fork.

7) Install clip, ensuring clip seats properly in shift shaft groove. Install fork tension spring on shift shaft. Insert shift fork into groove in differential sleeve. Install shift fork assembly into tube assembly at same time installing sleeve onto connector gear (axle shaft splines on K3).

8) Apply a bead of Sealant (GM 1052942 or Loctite 518) to axle tube sealing surface. Assemble axle tube to carrier case. Tighten bolts to specification.

9) Inspect shift mechanism operation by inserting a drift into shift actuator hole on axle tube. Rotate axle shaft flange while moving shift mechanism back and forth with drift. Shift mechanism should work smoothly without binding.

10) Apply appropriate sealant (GM 1052942 or Loctite 518) to threads of actuator solenoid and install solenoid onto axle tube. Repeat procedure with switch assembly.

FRONT AXLE ASSEMBLY

Disassembly

1) Remove axle carrier. See FRONT AXLE ASSEMBLY under REMOVAL & INSTALLATION. Remove actuator solenoid and indicator switch from right axle tube. Remove right axle tube and inner axle shaft assembly. See RIGHT AXLE TUBE & INNER AXLE SHAFT under REMOVAL & INSTALLATION.

2) Remove shift shaft assembly consisting of sleeve, damper spring, shift fork, clip and inner spring. Remove shim (No. 20) See Fig. 4 or 5. and output shaft from right side of carrier assembly. Remove left output shaft with deflector from carrier assembly using Remover (J-2619-1). See Fig. 7.

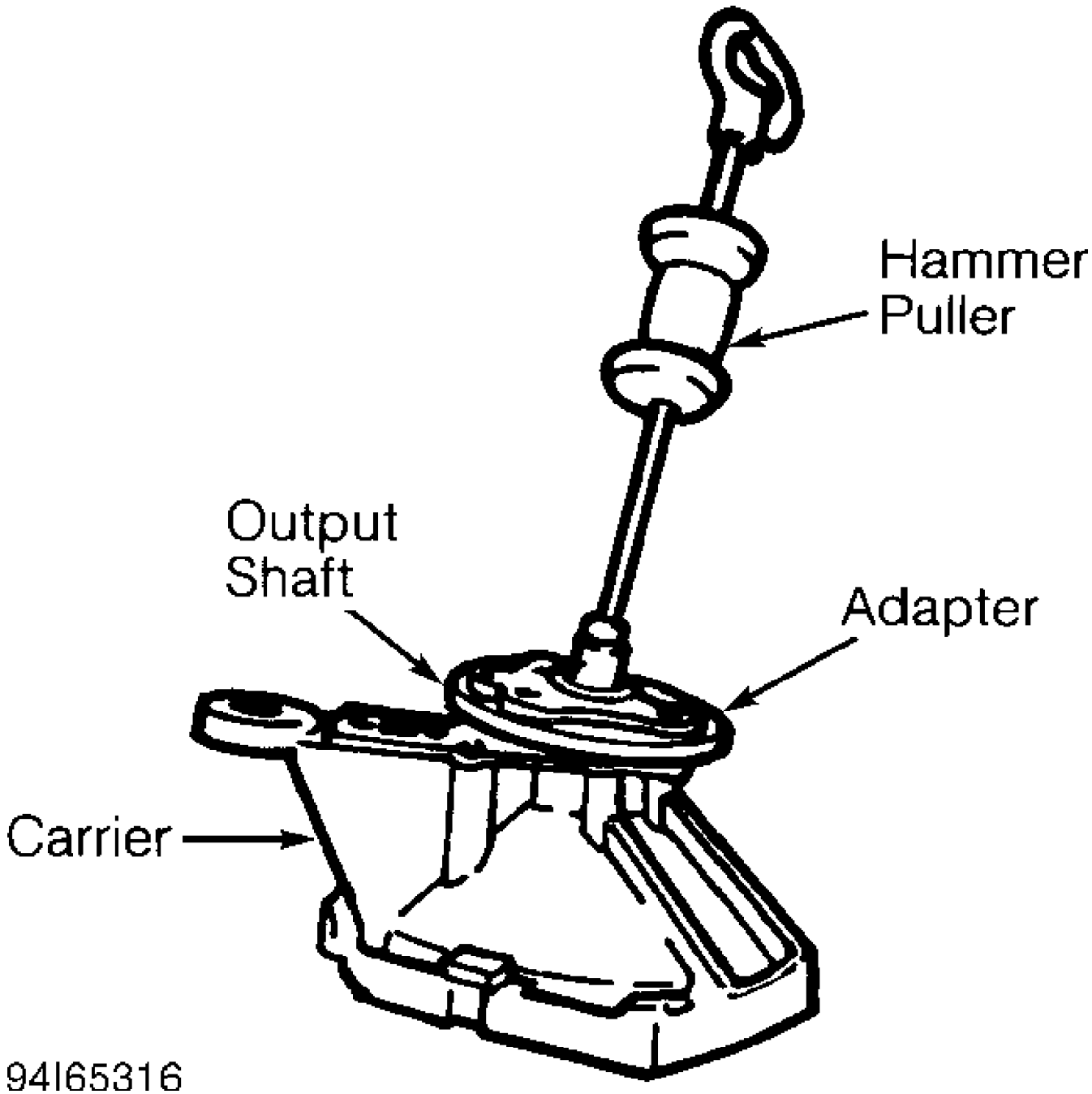


Fig. 7: Removing Left Output Shaft From Carrier
Courtesy of General Motors Corp.

3) Pry out left output flange seal with a screwdriver. Remove left and right output shaft bearings using Bearing Remover (J-29369-1 for K2; J-29369-2 for K3). Remove bolts holding carrier halves together. Tap on lugs provided to separate carrier halves.

4) Pry up on left and right side bearing locks (right side only on K3) and remove differential assembly from carrier. See Fig. 4 or 5. On K3, remove adjuster plug lock and bolt on outer left half of carrier. See Fig. 8.

5) On all models, use Sleeve Adjuster (J-36599) to rotate sleeve, and push side bearings out of bores (right side only on K3).

See Fig. 9. On K3 left side bearing, remove adjuster plug, bearing and "O" ring from left side of carrier by rotating adjuster plug using Adjuster Plug Remover (J-36615). See Fig. 9.

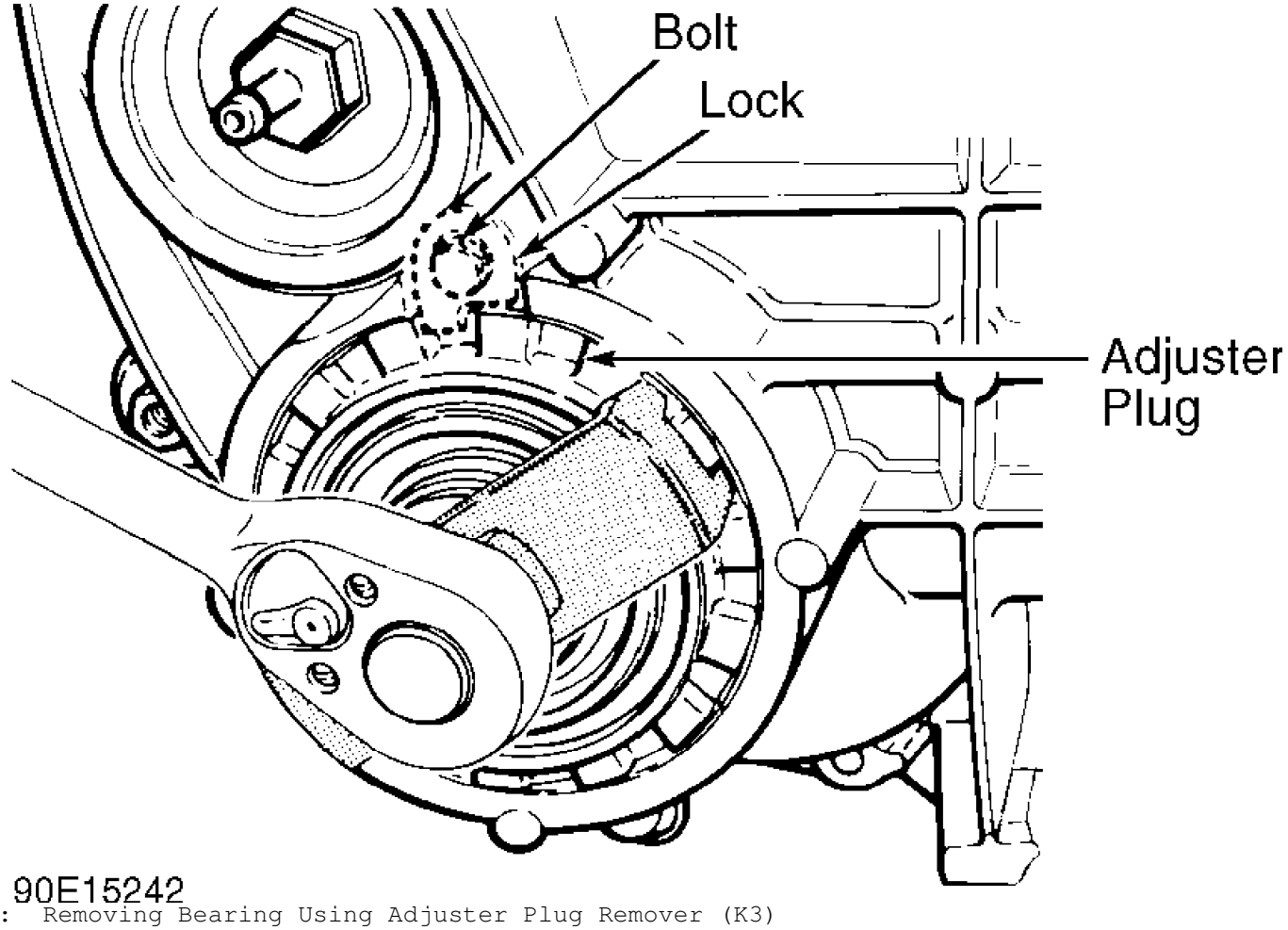


Fig. 8: Removing Bearing Using Adjuster Plug Remover (K3)
Courtesy of General Motors Corp.

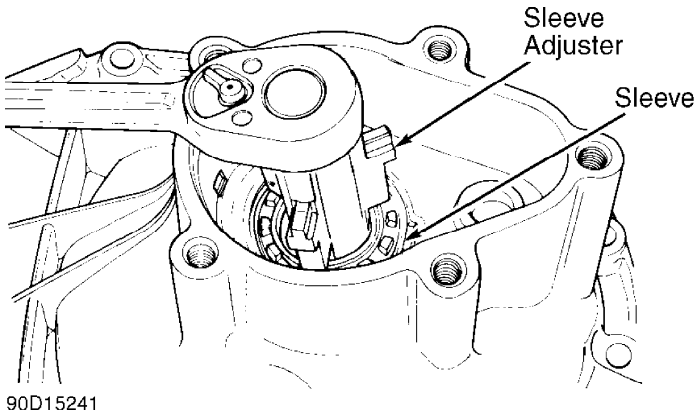


Fig. 9: Removing Bearing Using Sleeve Adjuster
Courtesy of General Motors Corp.

6) Using Pinion Flange Remover Set (J-8614-01), hold pinion flange stationary and remove pinion nut, flat washer and pinion

flange. See Fig. 3. Remove deflector from pinion. Mount left carrier case half in holding fixture from Pinion Service Tool Set (J-36598). See Fig. 10. On K2, use Adapter Plate (J-36598-6). On all models, press pinion from case. Remove pinion with attached shim, inner bearing and spacer as an assembly. Remove collapsible spacer from pinion.

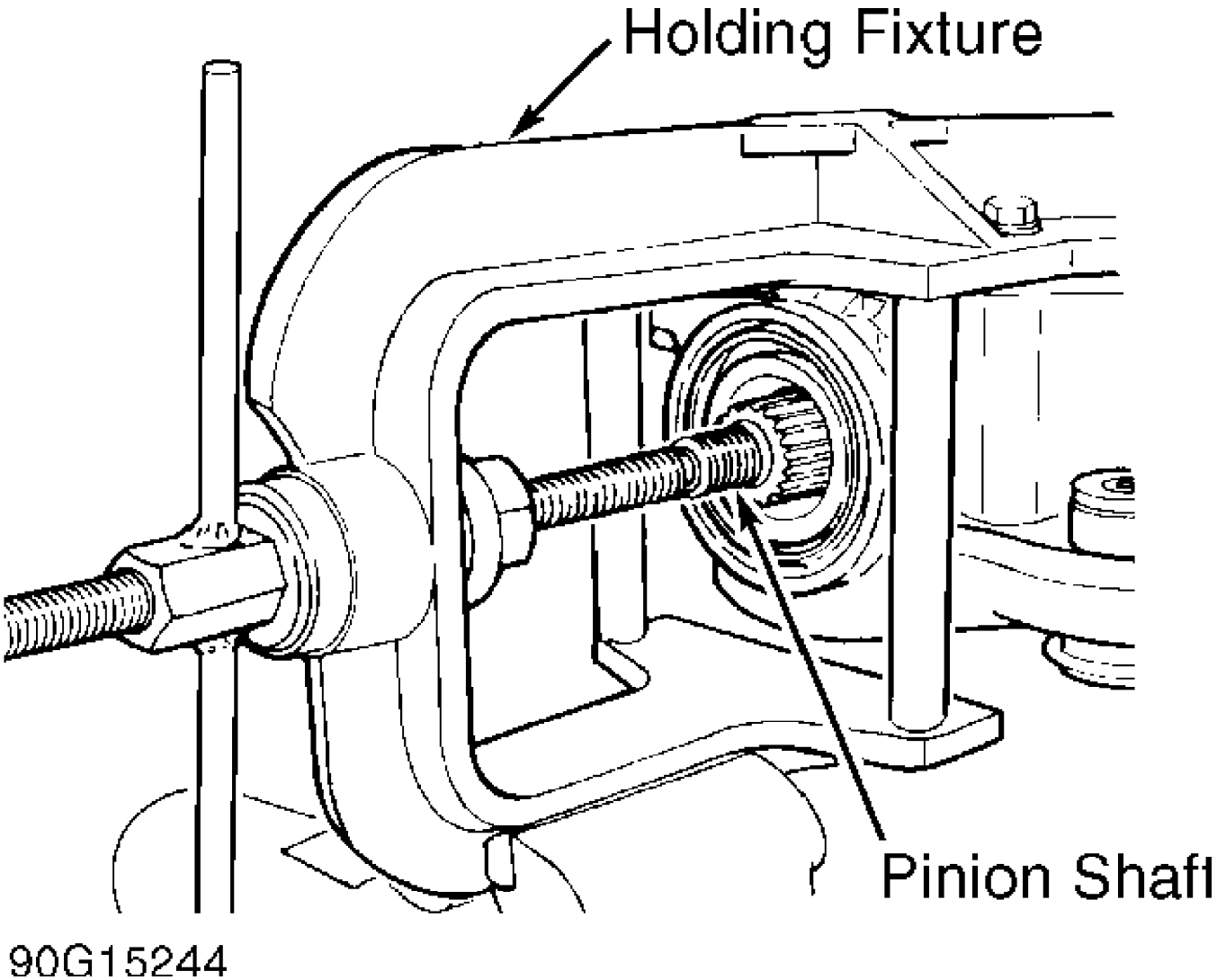


Fig. 10: Pressing Pinion From Carrier
Courtesy of General Motors Corp.

7) Using Pinion Bearing Remover (J-8612-B for K2; J-36606 for K3), press bearing from pinion. See Fig. 11. Remove shim(s) from pinion, keeping shims in order.

8) Using holding fixture and Pinion Service Tool Set (J-36598), remove seal and outer bearing from left half of carrier. Using Adapter Plate (J-36598-6), remove bearing races using same service tool set. See Fig. 12.

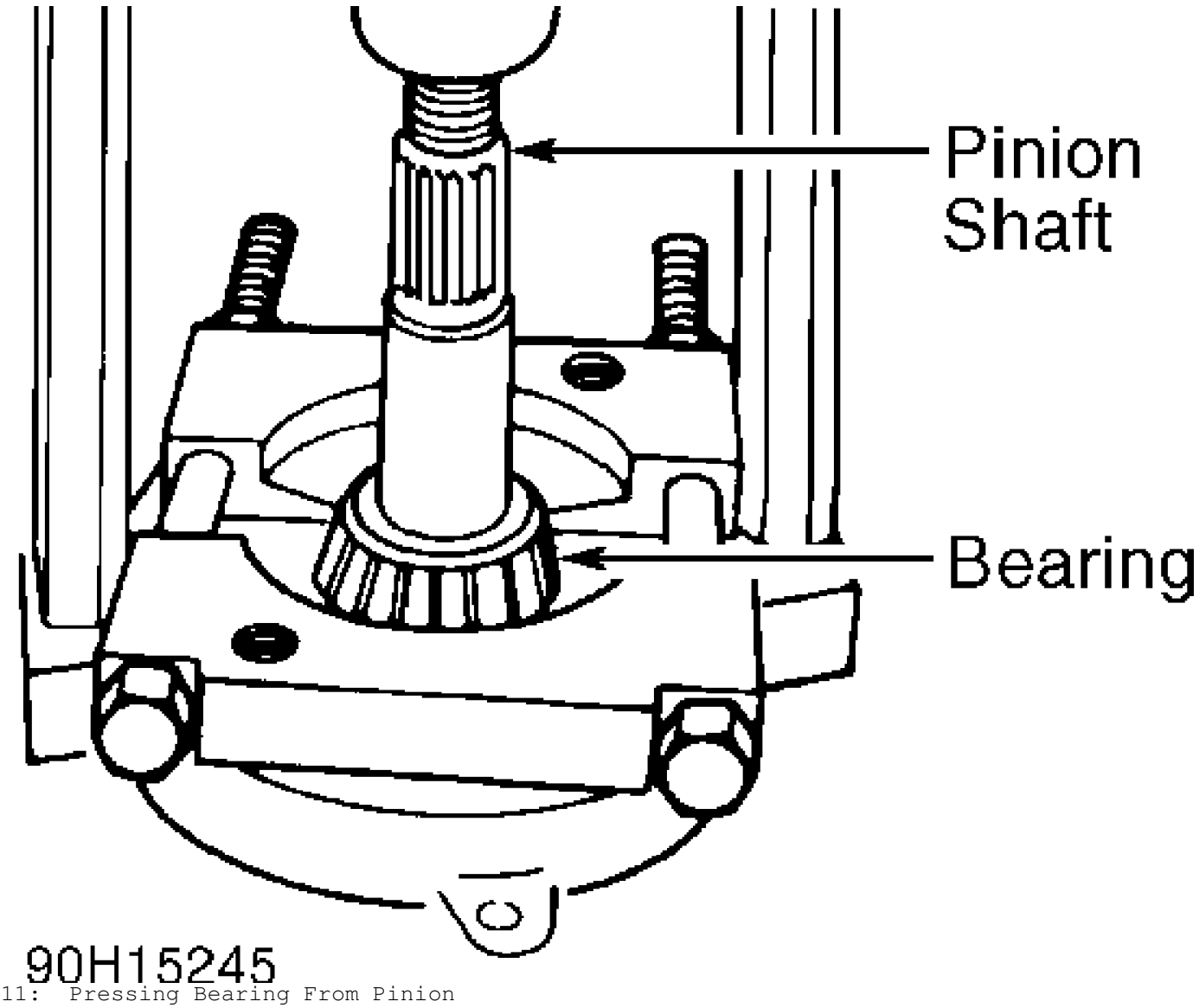


Fig. 11: Pressing Bearing From Pinion
Courtesy of General Motors Corp.

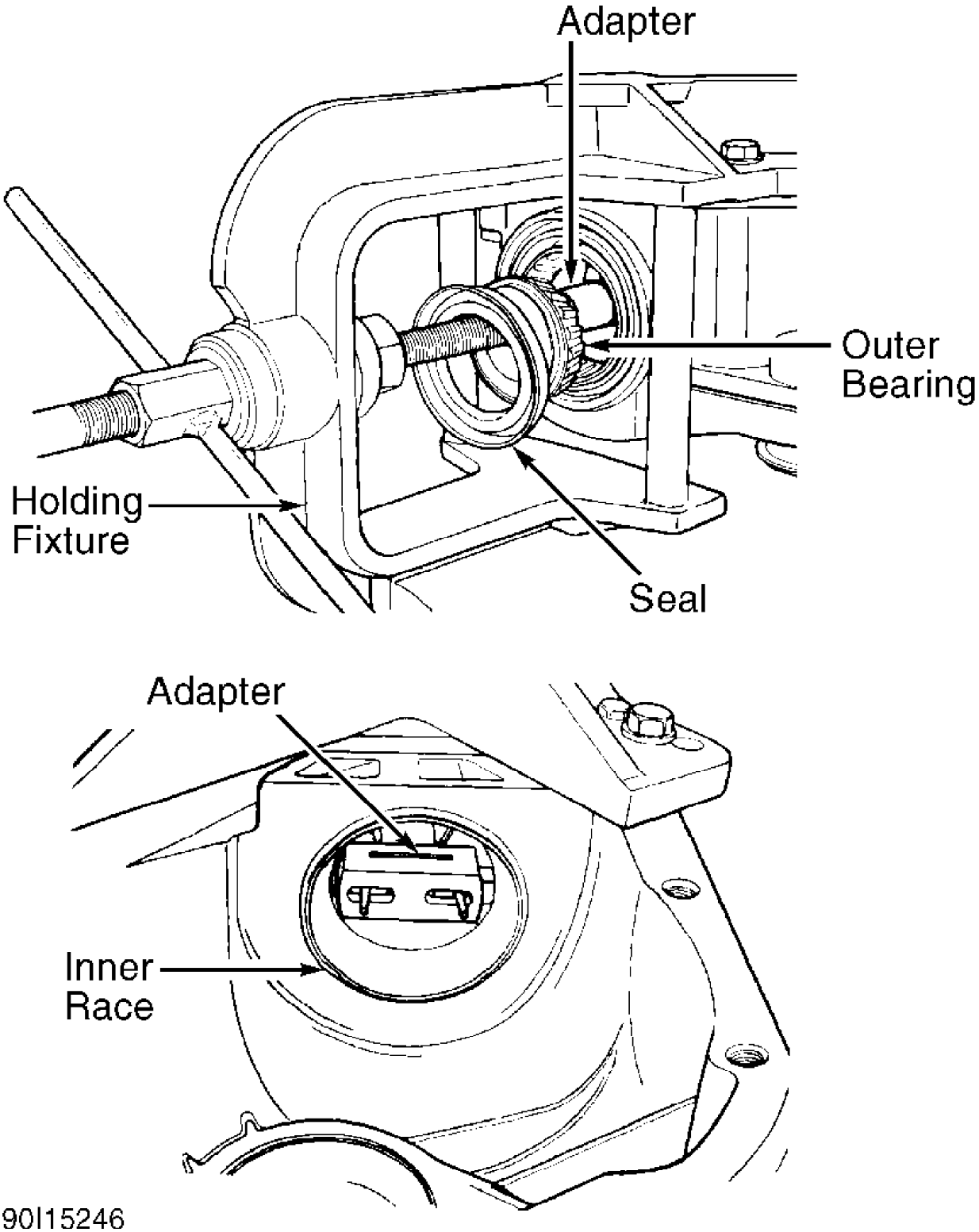


Fig. 12: Removing Outer Bearing, Race, Seal & Inner Race From Carrier
Courtesy of General Motors Corp.

9) Using Puller (J-22888-D) and Adapter (J-8107-2 for K2; J-36597 for K3), remove side bearings from differential case assembly.

See Fig. 13. Remove ring gear bolts (left-hand thread). Using a brass drift, drive ring gear from differential case. DO NOT pry ring gear from differential case, or damage to ring gear and differential case will occur.

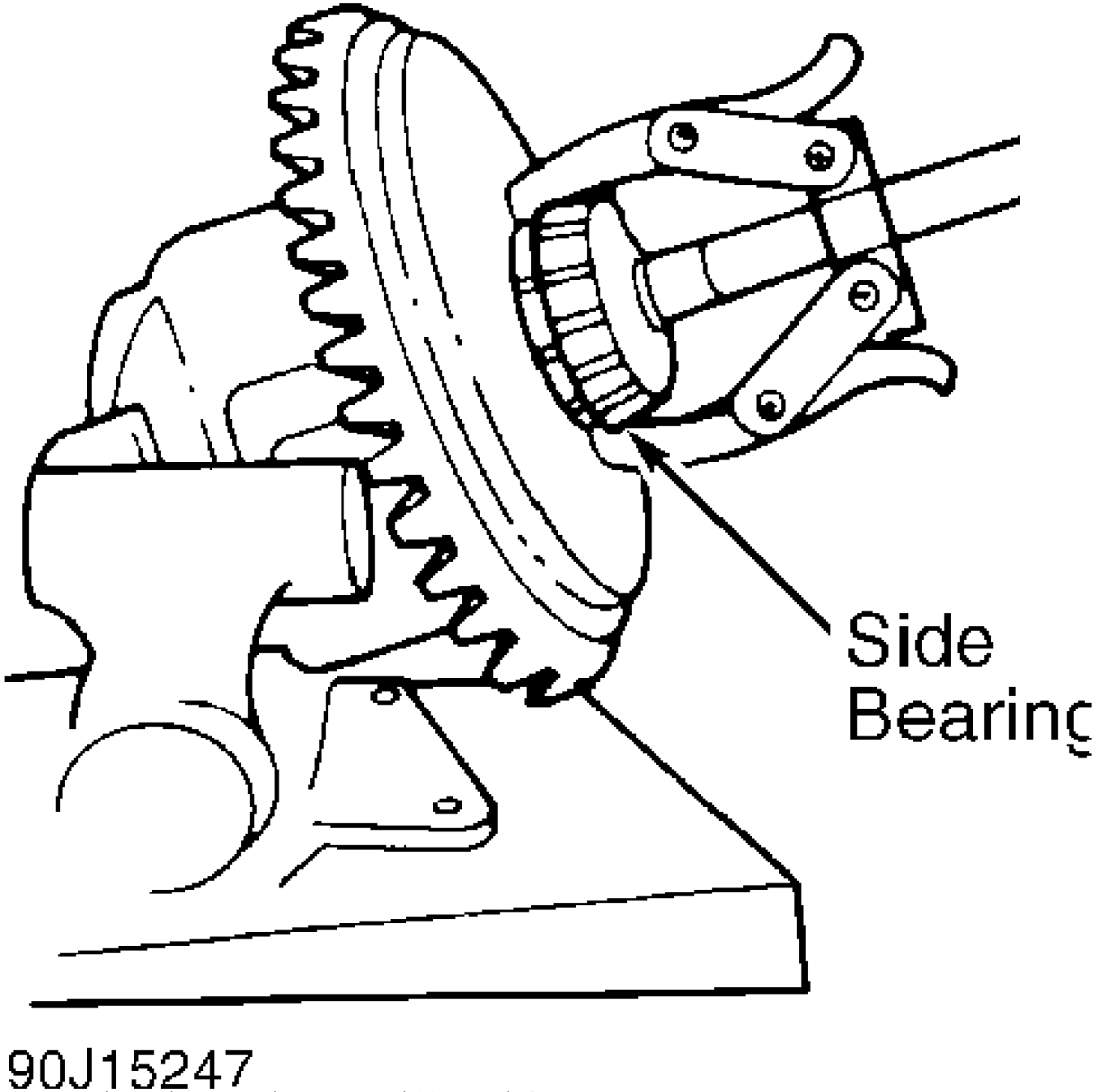


Fig. 13: Removing Side Bearing From Differential
Courtesy of General Motors Corp.

10) On K2, use a drift punch and hammer to drive out roll pin from differential pinion gear shaft. On K3, remove bolt from differential pinion gear shaft. On all models, remove pinion gear shaft. Roll pinion gears and thrust washers out of differential case.

11) Remove side gears and thrust washers, marking side gears

and differential case left and right for reassembly reference. Remove spacer (K3). Using a 6-point socket, remove vent plug. Upper and lower carrier mounting bushings should be replaced using Remover/Installer (J-36616).

Cleaning & Inspection

Clean all parts in solvent. Inspect all parts for excessive wear. Replace as required.

Reassembly

1) To install pinion bearing races, install left carrier case to holding fixture from Pinion Service Set (J-36598). See Fig. 14. On K2, use Adapter Plate (J-36598-6). Lightly lubricate outer and inner pinion bearing races. Using Race Installer (J-36598-3 for K2; J-36598-4 for K3), press in outer pinion race and pull in inner pinion race until both are seated in housing. See Fig. 14. Lubricate inner and outer bearings. Set pinion depth. See DRIVE PINION DEPTH under ADJUSTMENTS.

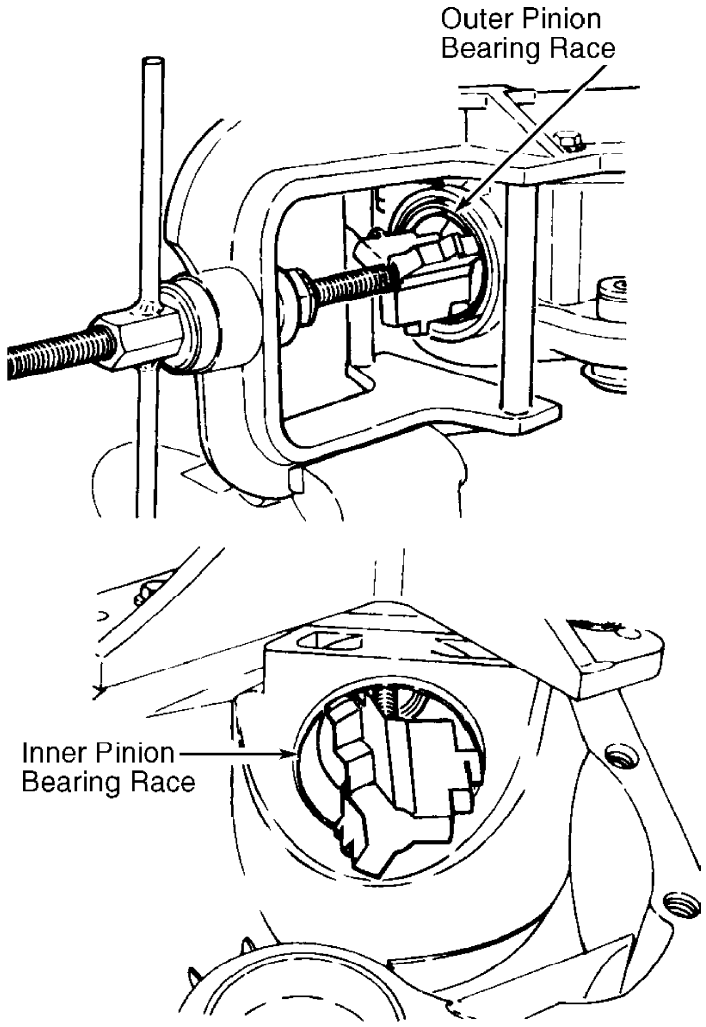


Fig. 14: Installing Pinion Races
Courtesy of General Motors Corp.

2) Install appropriate shim onto pinion. Shim size is determined during pinion depth adjustment. Using Pinion Bearing

Installer (J-35512 for K2; J-36614 for K3), install inner pinion bearing onto pinion. Install NEW collapsible spacer onto pinion shaft. Lubricate outer pinion bearing, and install bearing and pinion seal into carrier case using Seal Installer (J-36366). Insert pinion, with attached inner bearing and collapsible spacer, into carrier case.

3) Install deflector and pinion flange. Apply GM PST sealant to area where pinion threads meet pinion flange. Install pinion washer and nut. Install flange holder. Hold flange while slowly tightening nut and checking pinion flange until no end play is present. DO NOT tighten nut any further.

4) Rotate pinion several times to ensure bearings have been seated. Recheck end play. Set final pinion rotational preload to 15-25 INCH lbs. (1.7-2.8 N.m) by tightening pinion nut in small increments, testing pinion preload between increments. Each increment increases preload by several INCH lbs.

5) If preload specification is exceeded, remove pinion and install NEW collapsible spacer. Once preload has been obtained, rotate pinion several times to ensure bearings have seated and recheck preload.

6) Install side gears and thrust washers into differential case (on K3, install side gear spacer to left side). If old side gears are being reinstalled, place them in their original locations as marked during disassembly.

7) Position one pinion gear between side gears and rotate gears until pinion gear is directly opposite opening in case. Place remaining pinion gear between side gears. Ensure holes in both pinion gears line up. Rotate pinion gears toward opening just enough to allow installation of thrust washers.

8) Install differential pinion gear shaft. Install roll pin (or shaft bolt) through case and into pinion gear shaft. Install ring gear onto differential assembly. Tighten NEW bolts alternately in progressive steps to specification (left-hand thread). Refer to TORQUE SPECIFICATIONS.

9) Press side bearings onto differential assembly using Adapter (J-8092) and Side Bearing Installer (J-22761 for K2; J-29710 for K3). Press bearings onto sleeves (and onto adjuster plug on left side of K3) using Adapter (J-8092) and Bearing Installer (J-36612 for K2; J-36613 for K3).

10) On K3, install NEW "O" ring to adjuster plug. On all models, use sleeve adjusting wrench to install sleeves into carrier case (on left side on K3, install adjuster plug using adjuster plug wrench).

11) Install side bearing races into carrier using Adapter (J-8092) and Race Installer (J-36603). Place differential assembly into left carrier case half. On K2, turn left sleeve inward until backlash is felt between ring and pinion. On K3, turn left adjuster plug inward until backlash is felt between ring and pinion.

12) On all models, remove carrier case from holding fixture, and attach carrier halves together using 4 bolts. If halves DO NOT make complete contact, back out right sleeve. Install carrier case bolts, and tighten to specification. Set ring gear backlash adjustment to specification. See RING GEAR BACKLASH under ADJUSTMENTS.

13) On K2, bend lock tabs over left and right sleeves. On K3, install left adjuster plug lock and bolt, and bend lock tab over right sleeve. On all models, remove 4 bolts holding axle carrier halves together and separate housing halves. Apply Sealant (GM 1052942 or Loctite 518) to one carrier housing surface.

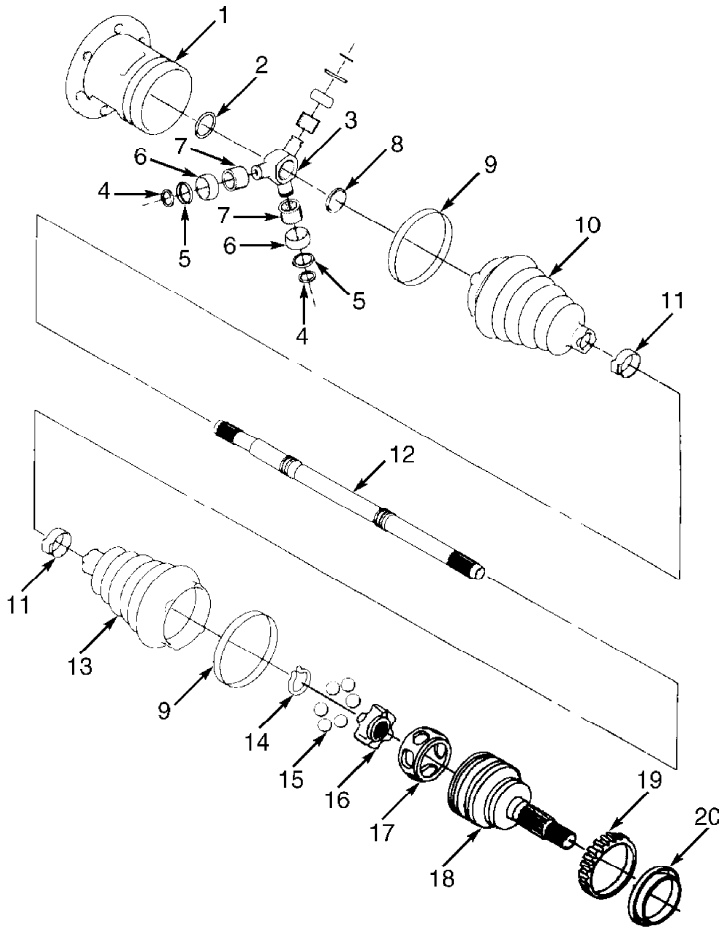
14) Reconnect axle carrier housing halves. Install 10 attaching bolts and tighten to specification. Refer to TORQUE SPECIFICATIONS. Using appropriate Seal Installer (J-36600 for K2; J-22833 for K3), install/drive seal into left side of carrier case. Install deflector onto left output shaft and insert shaft into left side of carrier. Drive shaft into place with a soft-faced mallet.

15) Install NEW pilot bearing into right output shaft using Pilot Bearing Installer (J-33842). Insert right output shaft into right side of carrier. Apply Sealant (GM 1052942 or Loctite 518) to threads of vent plug. Install vent plug into left side of carrier.

16) Install right axle tube and inner shaft assembly. See RIGHT AXLE TUBE & INNER AXLE SHAFT under REMOVAL & INSTALLATION. To complete reassembly, reverse disassembly procedure.

LEFT DRIVE AXLE SHAFT

NOTE: See Fig. 15 for exploded view of left drive axle shaft.



1. Tripod Housing
2. Retainer Ring
3. Spider
4. Needle Retainer Ring
5. Needle Retainer
6. Tripod Ball
7. Needle Roller
8. Spacer Ring
9. Boot Ring
10. Dust Boot
11. Boot Ring
12. Axle Shaft
13. Dust Boot
14. Race Retainer Ring
15. Ball
16. Inner Race
17. Cage
18. Outer Race
19. ABS Sensor Ring
20. Deflector Ring

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Fig. 15: Exploded View Of Left Drive Axle Shaft
Courtesy of General Motors Corp.

ADJUSTMENTS

DRIVE PINION DEPTH

1) Lubricate inner and outer pinion bearings liberally with gear oil. Hold pinion bearings in position and install Pinion Shim Setting Gauge (J-36601-4 for K2; J-36601-3 for K3). Install Dial Indicator (J-29763) onto gauge. See Fig. 16.

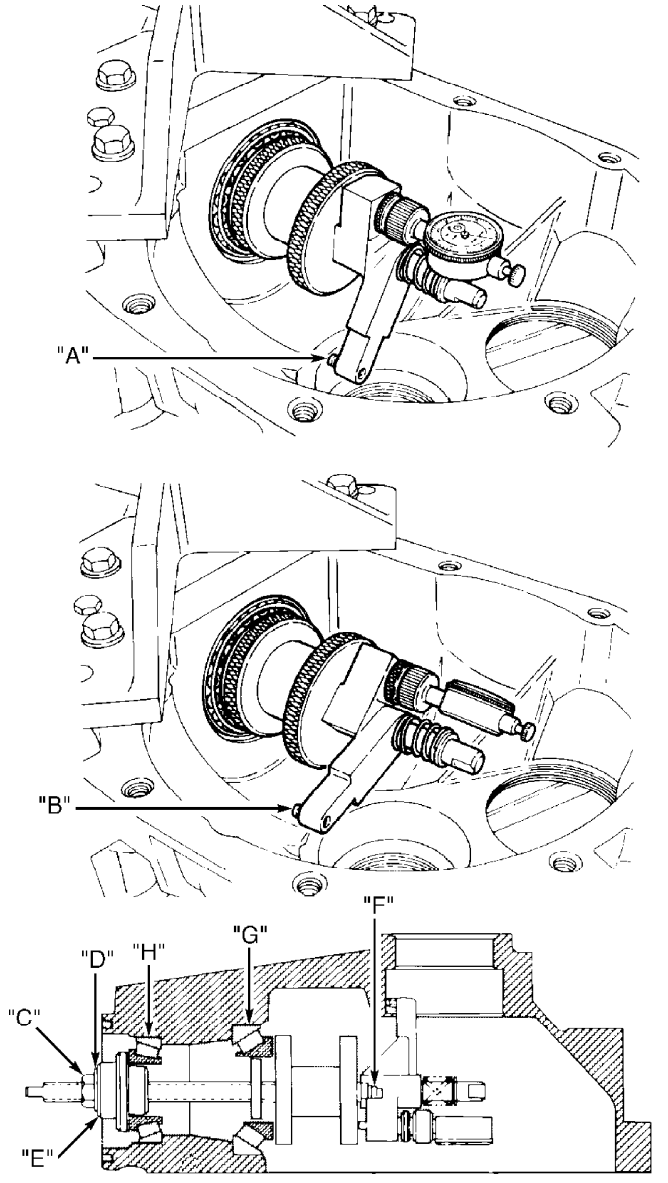

Fig. 16: Pinion Shim Setting Gauge & Dial Indicator Installation
Courtesy of General Motors Corp.

2) With gauge installed, preload inner and outer pinion bearings to 9-14 INCH lbs. (1.0-1.6 N.m) by tightening shim setting

gauge mounting bolt while holding end of gauge shaft with a wrench. Rotate shaft several times to ensure bearings have seated. Recheck preload.

3) Push dial indicator downward until needle rotates about 3/4 turn clockwise. Tighten dial indicator in this position. Set button of pinion shim setting gauge on differential bearing bore. See Fig. 16.

NOTE: 4WD front axle drive pinion gears are nominal or zero, and are not marked on pinion head surface. Shim thickness will equal dial indicator gauge reading.

4) Rotate gauge slowly back and forth until dial indicator reads lowest point of bore. Set dial indicator to zero. Repeat rocking action of gauge to verify zero setting.

5) After satisfactory zero setting is obtained and verified, move gauge button out of differential side bearing bore. Record dial indicator reading. Use a shim that is exactly the same size as this indicator reading.

6) Remove dial indicator and gauge from carrier. Position correct shim on drive pinion. Install drive pinion bearing. Continue at step 2) of Reassembly in FRONT AXLE ASSEMBLY under OVERHAUL.

RING GEAR BACKLASH

1) Using Sleeve Adjusting Wrench (J-36599) and torque wrench, tighten right adjusting sleeve until no backlash is present. Torque measurement should be about 100 ft. lbs. (136 N.m).

2) Using Sleeve Adjusting Wrench (J-36599) for K2 or Adjuster Plug Wrench (J-36615) for K3, tighten left adjusting sleeve until no backlash is present, or until torque is about 100 ft. lbs. (136 N.m).

3) Mark location of adjusting sleeves (and adjuster plug on K3) in relation to carrier halves so notches can be counted when turned. Turn right sleeve OUT 2 notches using sleeve adjusting wrench. Turn left sleeve IN one notch (K2). Turn adjuster plug IN one notch (K3). Rotate pinion several times to seat bearings.

4) Mount base clamp of Dial Indicator Set (J-8001) so gauge plunger button contacts outer edge of pinion flange. Ensure plunger is at right angle to flange. See Fig. 17. Move pinion flange through its free play travel while holding differential carrier and ring gear stationary. Record dial indicator reading. Divide dial indicator reading by 2 to obtain backlash reading.

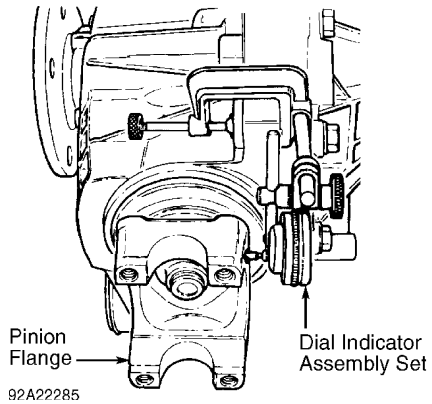

Fig. 17: Measuring Backlash At Pinion Flange
Courtesy of General Motors Corp.

5) Gear backlash at pinion flange should be .003-.010" (.08-.25 mm), with a preferred measurement of .005-.007" (.13-.18 mm). If

backlash is not within specification, turn adjusting sleeves equally as necessary.

6) To increase backlash, turn left sleeve (adjuster plug on K3) in and turn right sleeve out an equal amount. To decrease backlash, turn right sleeve in and turn left sleeve (adjuster plug on K3) out an equal amount. Turning sleeve (or adjuster plug on K3) one notch will change backlash about .003" (.08 mm). DO NOT install/bend sleeve locks yet.

7) When backlash is within specification, perform gear tooth contact pattern check. See GEAR TOOTH CONTACT PATTERNS article in GENERAL INFORMATION. When pattern is satisfactory, continue at step 13) of Reassembly in FRONT AXLE ASSEMBLY under OVERHAUL.

AXLE ASSEMBLY SPECIFICATIONS

AXLE ASSEMBLY SPECIFICATIONS TABLE

Application	In. (mm)
Ring Gear Backlash	
Preferred	.005-.007 (.13-.18)
Allowed	.003-.010 (.08-.25)
Ring Gear Runout (Maximum)	.002 (.05)
	INCH Lbs. (N.m)
Pinion Bearing Preload	15-25 (1.7-2.8)

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Actuator Solenoid	16 (22)
Axle Assembly Mounting (Bushing) Bolt	81 (110)
Axle Hub Nut	173 (235)
Ball Joint Nut (Upper)	61 (83)
Carrier Case Bolt	35 (47)
Drain & Fill Plugs	24 (33)
Drive Axle/Stub Shaft-To-Output Flange Bolt	59 (80)
Right Axle Tube-To-Carrier Bolt	30 (40)
Right Axle Tube-To-Frame Bolt	
K2	30 (40)
K3	74 (100)
Ring Gear Bolt (Left-Hand Thread)	89 (120)
Shock Absorber Lower Mounting Bolt	54 (73)
Skid Plate Screws	25 (34)
Stabilizer Bar Bushing Bracket-To-Frame Bolt	24 (33)
Stabilizer Bar-To-Lower Control Arm Nut	54 (73)
Tie Rod Nut	35 (48)
Wheel Lug Nut (Front)	120 (163)
	INCH Lbs. (N.m)
Switch Housing	44 (5.0)