

1997 Chevrolet Blazer

1996-97 DRIVE AXLES "T" Series Front Axle

FRONT AXLE ASSEMBLY

Removal & Installation

1. Disconnect negative battery cable. Remove shift cable from vacuum actuator by disengaging lock spring. Push in actuator diaphragm to release cable.
2. Unlock steering wheel. Raise and support vehicle. Remove engine drive belt shield and front axle skid plate (if equipped). Remove wheels. Remove lower shock absorber bolt, and compress shock to gain access to output shaft flange bolts.
3. Disconnect 4WD indicator light connector from switch. Remove 3 bolts securing cable and switch housing. Pull housing away to gain access to cable locking spring. DO NOT unscrew cable coupling nut unless cable is being replaced. See **SHIFT CABLE** .
4. Disconnect shift cable from shift fork shaft by lifting spring over slot in shift fork. Disconnect axle vent hose. Disconnect steering relay rod from idler arm and pitman arm, and pull steering linkage forward. Support axle assembly using appropriate transmission jack.
5. Remove 6 right stub shaft-to-output shaft flange bolts, and 6 left drive axle-to-output shaft flange bolts. Wire left drive axle and right stub shaft aside. Mark front of drive shaft to ensure proper installation. Remove bolts and clamps. Wire drive shaft aside.
6. Remove bolts securing right axle tube to frame rail. Remove mounting bolts from axle assembly. Tip axle assembly counterclockwise while lifting to gain clearance from mounting ears and remove axle assembly. To install, reverse removal procedure. Tighten all bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

LEFT DRIVE AXLE SHAFT

Removal

1. Raise and support vehicle. Remove engine drive belt shield and front axle 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 end aside. Insert a long drift through caliper and into disc rotor vanes to prevent rotation. Remove cotter pin, retainer, axle hub nut and washer from drive axle shaft CV joint. See **Fig. 3** . Loosen 6 drive axle shaft flange bolts retaining tripod joint housing to axle carrier output shaft drive flange.

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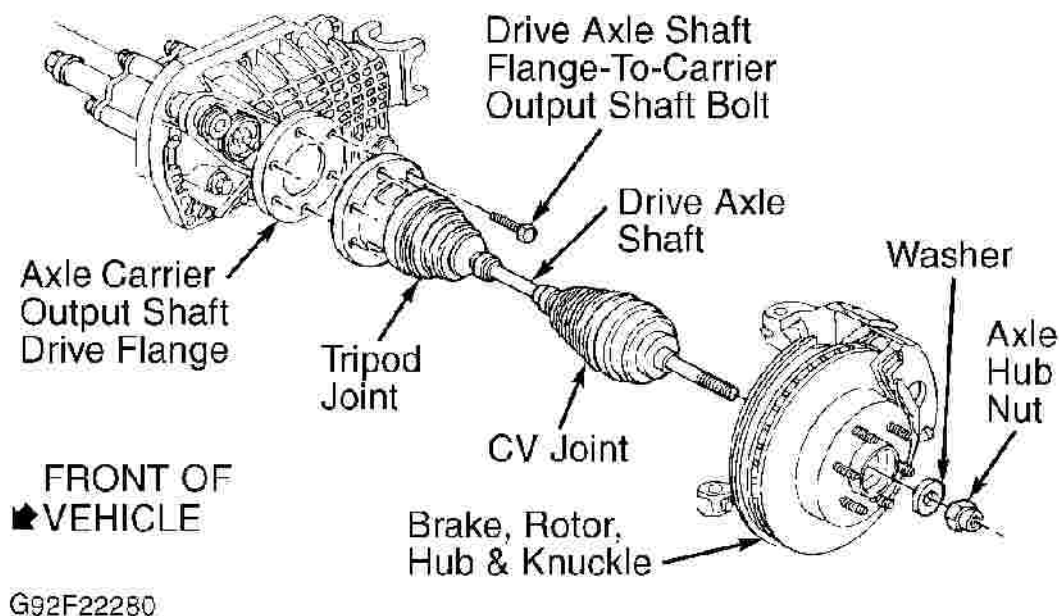


Fig. 3: Left Drive Axle Shaft With Tripod & CV Joints
Courtesy of GENERAL MOTORS CORP.

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 upper control arm ball joint-to-steering knuckle nut. Separate upper control arm 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 rotor to push CV joint splined shaft through hub splines.
5. Remove 6 drive axle shaft flange bolts securing 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-28574). Lube seal lip.
2. To install drive axle shaft, reverse removal procedure. Tighten all bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

PINION FLANGE & OIL SEAL

Removal

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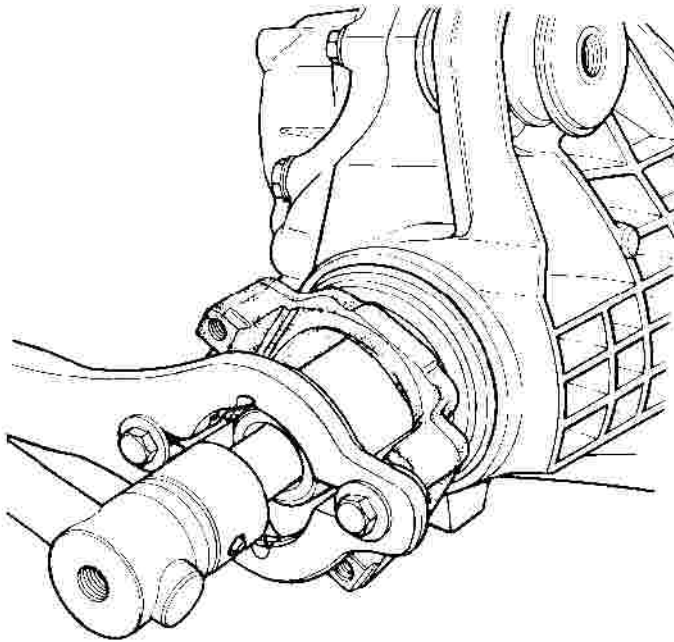
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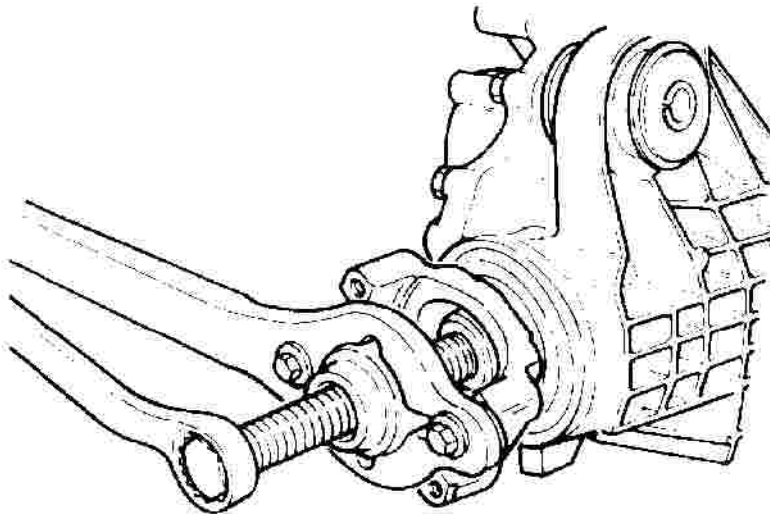
1. Remove bolts and retainers from pinion flange. Mark position of drive shaft to pinion flange to ensure correct installation. Remove drive shaft from pinion flange, and wire shaft aside.
2. Mark pinion flange, pinion shaft and pinion nut to ensure alignment and bearing preload are maintained on installation. Using Pinion Flange Remover Set (J-8614-01), hold pinion flange stationary and remove pinion flange nut and washer. Place drain pan under pinion area of differential carrier. Remove pinion flange and oil seal. See **Fig. 4**.
3. 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.

Installation

1. Lubricate pinion flange surface and sealing lip of oil seal. Install oil seal using seal installer. Install pinion flange onto pinion shaft with marks aligned. Install pinion nut and tighten to position marked on pinion shaft.
2. Tighten nut 1/16" beyond alignment marks. Install drive shaft and tighten bolts to specification. See **TORQUE SPECIFICATIONS**. Check gear oil level.



PINION NUT REMOVAL



PINION FLANGE REMOVAL

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Fig. 4: Removing Pinion Nut & Flange
Courtesy of GENERAL MOTORS CORP.

RIGHT AXLE TUBE & INNER AXLE SHAFT

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Removal

1. Disconnect negative battery cable. Remove shift cable from vacuum actuator by disengaging lock spring. Push in actuator diaphragm to release cable.
2. Unlock steering wheel. Raise and support vehicle. Remove engine drive belt shield and front axle skid plate (if equipped). Remove wheel. Remove stabilizer bar from both lower control arms. DO NOT mix left and right stabilizer bar components.
3. Place a support under right lower control arm, and disconnect right upper ball joint. Remove support so control arm can hang free. Remove stub axle shaft flange bolts from inner axle shaft flange.
4. Disconnect 4WD indicator light connector from switch. Remove 3 bolts securing cable and switch housing. Pull housing away to gain access to cable locking spring. DO NOT unscrew cable coupling nut unless cable is being replaced. See **SHIFT CABLE**.
5. Disconnect shift cable from shift fork shaft by lifting spring over slot in shift fork. Place drain pan under drive axle. Remove drain plug to drain lubricant. Remove bolts securing axle tube to right frame. Remove bolts securing axle tube assembly to carrier.
6. Remove tube assembly by working around drive axle. DO NOT allow sleeve, thrust washers, connector and output shaft to fall out of carrier while removing tube. See **Fig. 5**.

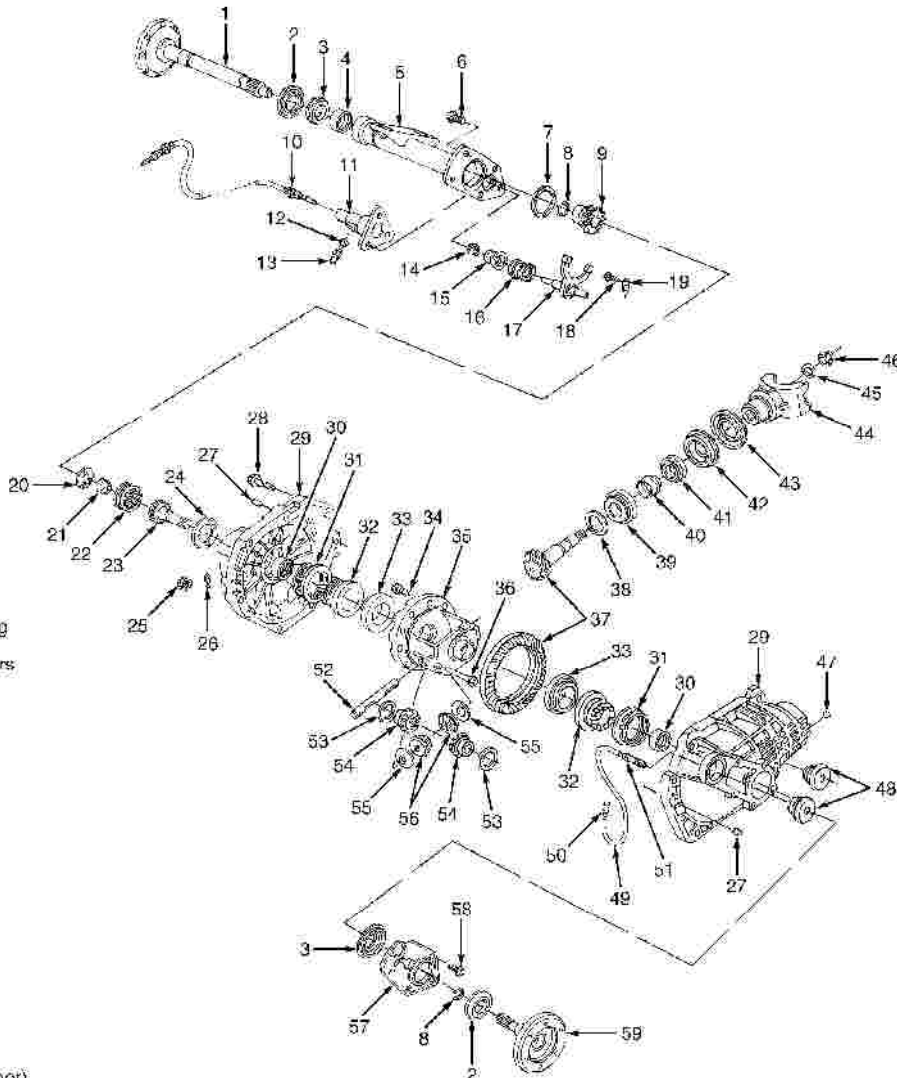
Installation

1. Install sleeve, thrust washers, connector and output shaft in carrier. Apply Sealant (GM 1052942 or Loctite 518) on axle tube to differential surface. Ensure thrust washer is installed with notch aligned with tab on washer. See **Fig. 6**. Use wheel bearing grease to hold thrust washer in place.
2. Install tube and shaft assembly to differential and install one bolt at one o'clock position, but DO NOT tighten. Pull assembly down and install cable, switch housing and 4 remaining bolts. Tighten bolts to specification. See **TORQUE SPECIFICATIONS**.
3. Install 2 bolts securing tube to frame. Tighten bolts to specification. See **TORQUE SPECIFICATIONS**. Inspect shift mechanism operation. To complete installation, reverse removal procedure.

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1. Axle Shaft (Inner)
2. Deflector
3. Seal
4. Bearing
5. Tube
6. Bolt
7. Washer
8. Ring
9. Connector
10. Cable
11. Housing
12. Gasket
13. Switch
14. Spring
15. Seal
16. Spring
17. Shaft
18. Bolt
19. Lock
20. Washer
21. Bearing
22. Sleeve
23. Shaft
24. Washer
25. Plug
26. Washer
27. Pin
28. Bolt
29. Axle Housing
30. Bearing
31. Insert
32. Sleeve
33. Bearing
34. Bolt
35. Differential Housing
36. Screw
37. Ring & Pinion Gears
38. Shim Kit
39. Bearing
40. Spacer
41. Bearing
42. Seal
43. Deflector
44. Flange
45. Washer
46. Nut
47. Plug
48. Rushing
49. Housing
50. Ventilator
51. Connector
52. Shaft
53. Washer
54. Gear
55. Washer
56. Gear
57. Cover
58. Bolt
59. Left Axle Shaft (Inner)



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**Fig. 5: Exploded View Of 4WD "T" Series Front Axle Assembly
Courtesy of GENERAL MOTORS CORP.**

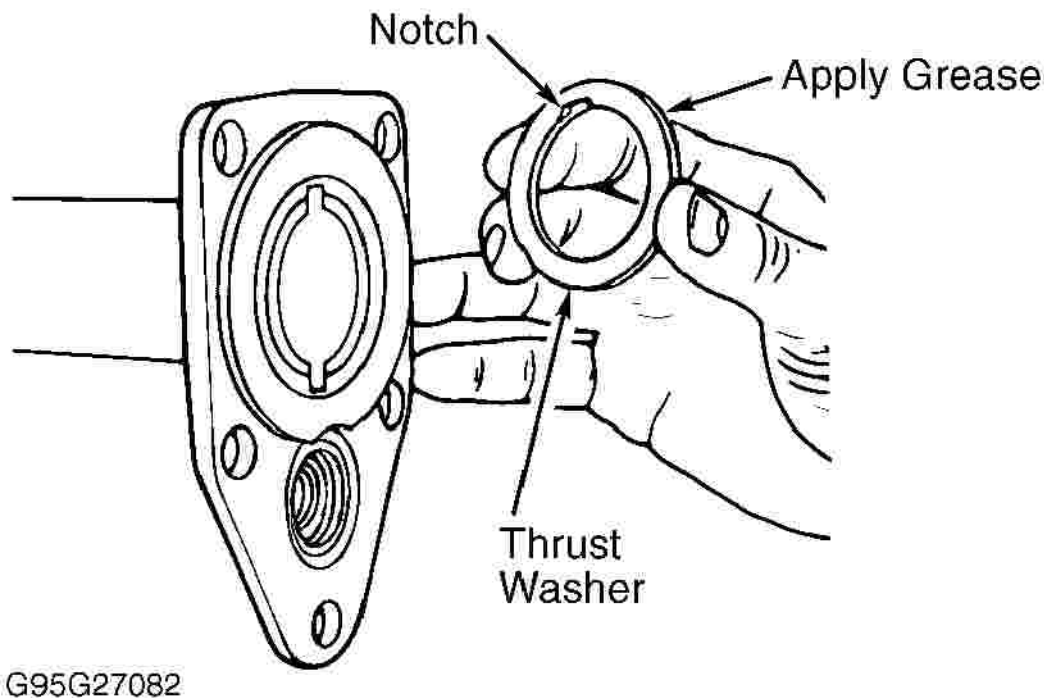


Fig. 6: Installing Axle Tube Thrust Washer
 Courtesy of GENERAL MOTORS CORP.

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 pilot bearing using Pilot Bearing Remover (J-34011). Lubricate NEW pilot bearing with wheel bearing grease. Install NEW pilot bearing using Pilot Bearing Installer (J-33842). To complete installation, reverse removal procedure.

SHIFT CABLE

Removal

1. Disengage shift cable from vacuum actuator by disengaging locking spring. Push actuator diaphragm in to release cable. Squeeze 2 locking fingers of cable with pliers. Pull cable out of bracket hole.
2. Raise and support vehicle. Remove bolts securing cable and switch housing to carrier. DO NOT unscrew coupling nut at this time. Remove shift cable housing from carrier assembly. Pull out about 3/4" (19 mm) of cable. Remove cable end from shift fork shaft. Bend tang of lock spring, then pull cable end from shift fork shaft.

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3. Note cable routing for installation. Unscrew coupler nut and remove shift cable from shift cable housing. Remove cable from vehicle.

Installation

1. Install cable and switch housing to carrier. Tighten mounting bolts to specification. See **TORQUE SPECIFICATIONS**.
2. Guide cable through switch housing into fork shaft hole and push cable in. Cable will snap into place. Start coupling nut by hand to avoid cross threading. Tighten nut to specification. See **TORQUE SPECIFICATIONS**. DO NOT overtighten nut.
3. Connect shift cable to vacuum actuator by pressing cable into bracket hole. Cable and housing will snap into place. Check cable operation.

VACUUM ACTUATOR

Removal & Installation

Disconnect vacuum line from actuator. Remove shift cable. See **SHIFT CABLE**. Remove vacuum actuator bolts and actuator. To install, reverse removal procedure.

FRONT AXLE ASSEMBLY

Disassembly

1. Remove axle carrier. See FRONT AXLE ASSEMBLY under **REMOVAL & INSTALLATION**. Remove right axle tube and inner axle shaft assembly. See **RIGHT AXLE TUBE & INNER AXLE SHAFT** under REMOVAL & INSTALLATION.
2. Remove shift shaft/fork assembly consisting of sleeve, springs and seals. See **Fig. 5**. Remove thrust washer and output shaft from right side of carrier assembly. Remove right output shaft bearing using Bearing Remover (J-34011). Remove washer from right side of carrier assembly.
3. Remove left output flange from carrier assembly by prying on one side with a screwdriver while simultaneously tapping outward on other side with a soft-faced hammer. Remove deflector from output flange. Remove 6 cover-to-carrier bolts securing left side cover. Tap cover to loosen and remove. Pry out left output flange seal with a screwdriver.
4. Remove 10 bolts holding carrier halves together. Insert screwdriver in slots provided (one next to fill plug, one 180 degrees from fill plug) and pry carrier halves apart. See **Fig. 12**.
5. Remove differential assembly from carrier. See **Fig. 5**. Remove both side bearing adjusting sleeve lock tabs. Using Side Bearing Adjusting Wrench (J-33792), rotate adjusting sleeve and push side bearings out of bores. Remove side bearings from adjusting sleeve using Bearing Remover (J-21551).
6. Using Pinion Flange Remover Set (J-8614-01), hold pinion flange stationary and remove pinion nut. See **Fig. 4**. Mount left half of carrier in Holding Fixture (J-33837-1). Use bolts supplied with remover set to install carrier on fixture. See **Fig. 7**. Remove pinion flange and deflector.

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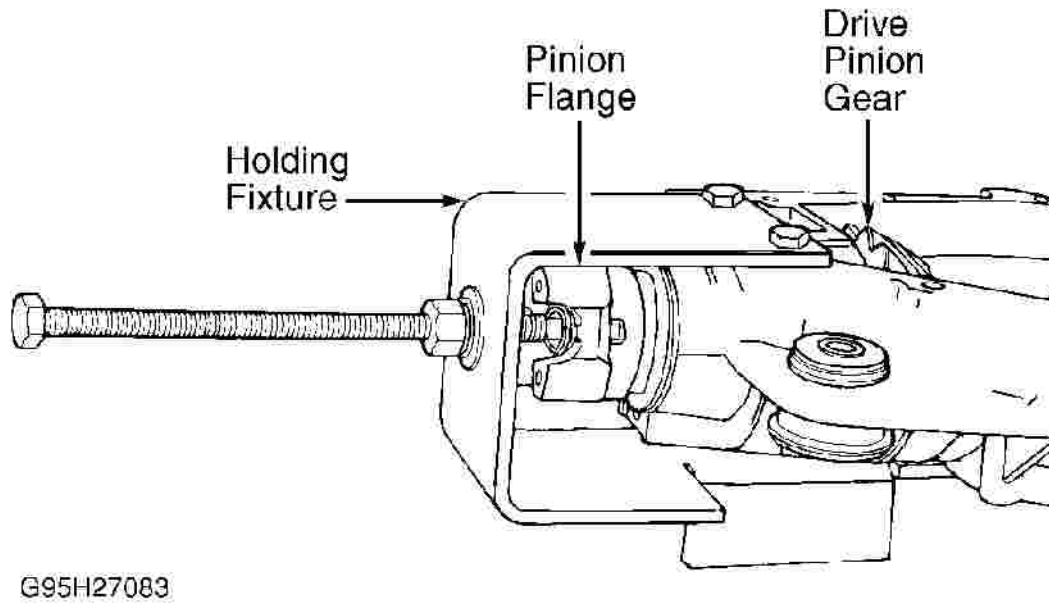
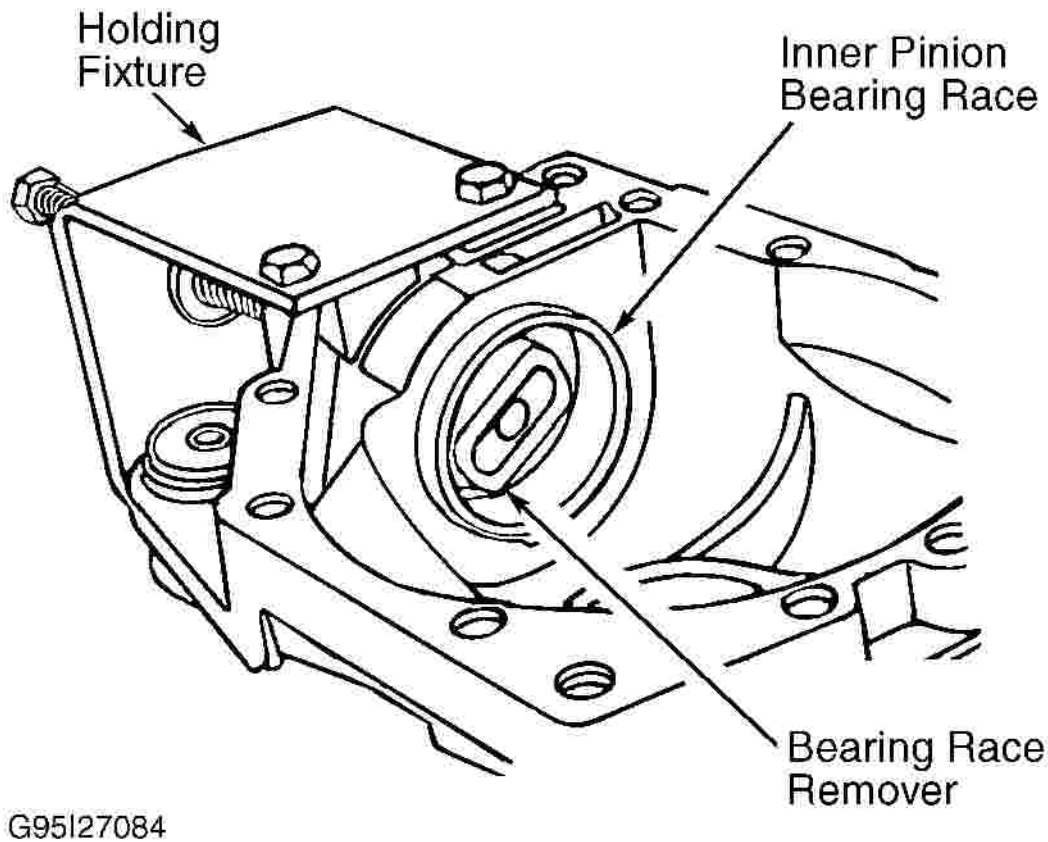


Fig. 7: Installing Pinion Holding Fixture Tool
Courtesy of GENERAL MOTORS CORP.

7. Remove pinion with attached shim, inner bearing and spacer as an assembly. Remove collapsible spacer from pinion. Using Differential Side/Pinion Bearing Remover (J-22912-01), press inner bearing from pinion. Remove shim(s) from pinion, keeping shims in order.
8. Install Bearing Race Remover (J-33837-6) on Holding Fixture (J-33837-1) and remove outer pinion bearing, race and pinion seal. Remove inner pinion bearing race by pushing it out of carrier with bearing race remover installed on Pinion Bearing Remover/Installer Set (J-33837). See **Fig. 8** .



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Fig. 8: Removing Inner Pinion Bearing Race
 Courtesy of GENERAL MOTORS CORP.

9. Using Differential Side/Pinion Bearing Remover (J-22912-01), remove side bearings from differential case assembly. Remove ring gear bolts. Ring gear uses left-hand thread bolts. 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.
10. Remove bolt from differential pinion gear shaft. Remove pinion gear shaft. Roll pinion gears and thrust washers out of differential case. Remove side gears and thrust washers, marking side gears and differential case left and right for reassembly reference. Upper and lower carrier mounting bushings should be replaced using Bushing Remover (J-33791).

Cleaning & Inspection

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

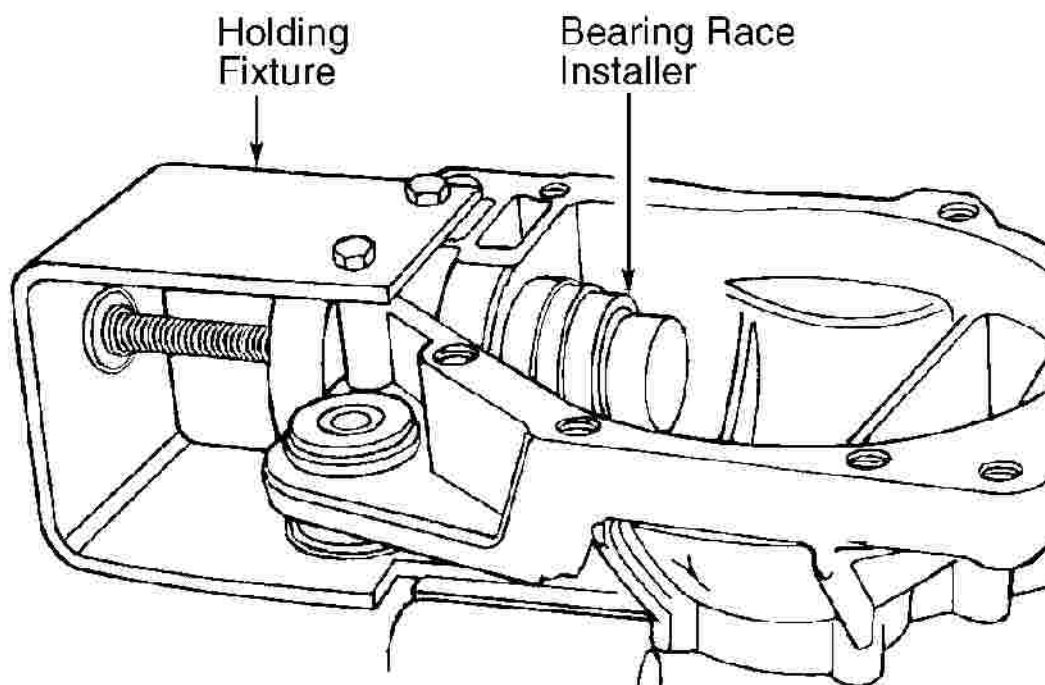
Reassembly

1. Install pinion bearing races using Holding Fixture (I-33837-1) and Bearing Race Installer (I-33837-4)

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until races are seated in carrier. See **Fig. 9**. Lubricate inner and outer bearings, then set pinion depth. See **DRIVE PINION DEPTH** under ADJUSTMENTS.



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Fig. 9: Installing Inner Pinion Bearing Race
Courtesy of GENERAL MOTORS CORP.

2. Install appropriately sized shim onto pinion. Shim size was previously determined during pinion depth adjustment. Using Pinion Bearing Installer (J-33785), 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-33782). 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 same flange holder previously used to remove pinion flange. 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 preload to 15-25 INCH lbs. (1.7-2.8 N.m) by tightening pinion nut in small increments, rotating pinion 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. If old side gears are being reinstalled, ensure they are placed in their original locations as marked during disassembly.

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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 pinion gear shaft bolt. Install ring gear onto differential assembly. Tighten NEW bolts alternately in progressive steps to 60 ft. lbs. (81 N.m). Ring gear uses left-hand thread bolts.
9. Press side bearings onto differential assembly using Side Bearing Installer (J-33790). Press bearings onto sleeves using Bearing Installer (J-33788).
10. Using same side bearing adjusting wrench used during disassembly, install sleeves into carrier case. Install side bearing races into carrier using Race Installer (J-23423-A). Place differential assembly into left carrier case half. Turn left sleeve inward until backlash is felt between ring and pinion.
11. 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 35 ft. lbs. (47 N.m). Set ring gear backlash adjustment to specification. See **RING GEAR BACKLASH** under **ADJUSTMENTS**.
12. Install both side bearing adjusting sleeve lock tabs over left and right sleeves. Remove 4 bolts holding axle carrier halves together and separate carrier halves. Apply Sealant (GM 1052942 or Loctite 518) to one carrier housing surface.
13. Reconnect axle carrier housing halves. Install 10 attaching bolts and tighten to specification. See **TORQUE SPECIFICATIONS**. Install/drive seal into left side cover. Apply Sealant (GM 1052942 or Loctite 518) to left side cover. Install 6 cover-to-carrier bolts securing left side cover and tighten to specification. See **TORQUE SPECIFICATIONS**.
14. Install deflector onto left output shaft and insert shaft into left side of carrier. Drive shaft into place with a soft-faced (brass or plastic) hammer. Install NEW pilot bearing into right output shaft using Pilot Bearing Installer (J-33842). Install washer onto right output shaft, and insert right output shaft into right side of carrier.
15. Install right axle tube and inner axle shaft assembly. See **RIGHT AXLE TUBE & INNER AXLE SHAFT** under **REMOVAL & INSTALLATION**. To complete reassembly, reverse disassembly procedure.