

MANUAL TRANSAXLE

Identification

Your Taurus or Sable uses a front wheel drive transmission called a transaxle.

A 5-speed fully synchronized manual transaxle is available on the 2.5L and 3.0L SHO Taurus/Sable models. An internally-gated shift mechanism and a single rail shift linkage eliminate the need for periodic shift linkage adjustments. The MTX transaxle is designed to use Type F or Dexron®II automatic transmission fluid as a lubricant. Never use gear oil (GL) in the place of Type F or Dexron®II.

Adjustments

The manual shift mechanism and cables incorporate no adjustable features, therefore adjustments are neither possible or necessary.

Shift Linkage

REMOVAL & INSTALLATION

1. **Disconnect the negative battery cable. Remove the console, shift knob and boot.**
2. **Fold the carpet back from the dash panel to expose the shift cables and cable sealing grommets.**
3. **Remove the rear seat heating duct. Loosen the two screws and remove the cable bracket.**
4. **Pull the cable sealing grommets loose from the floorpan and dash panel.**
5. **Raise and support the vehicle safely.**
6. **Remove the two retaining screws that retain the cables to the bracket assembly.**
7. **Pry the cable sockets off the clamp assembly pivot balls and slide the cable insulators out of the bracket slots.**
8. **Loosen the two bolts retaining the bracket assembly to the transaxle case. Remove the bracket assembly.**
9. **Lower the vehicle. From inside the vehicle pull the shift cables through the sheet metal holes and remove them from the vehicle.**

To install:

10. **From inside the vehicle push the shift cables through the sheet metal holes. The crossover cable goes through the dash panel hole and the selector cable goes through the tunnel hole.**
11. **Seat the cable grommets in the sheet metal holes. Install the cable bracket. Tighten the retaining screws to 17-22 inch lbs. (1.9-2.5 Nm).**
12. **Make sure the crossover cable is secured under the hook on the bracket. A white alignment mark on the cable will assist in where to clip the cable under the hook.**

13. Install the rear seat heat duct. Fold back the carpet over the cables.
14. Install the shifter, shift knob, boot and console.
15. Raise and support the vehicle safely. Install the clamp assembly onto the transaxle input shift shaft. Tighten the retaining nut to 6-10 ft. lbs. (8-14 Nm).
16. Install the bracket assembly to the transaxle case. Tighten the M12 retaining bolt to 22-35 ft. lbs. (30-47 Nm) and the M10 bolt to 16-24 ft. lbs. (22-33 Nm).
17. Feed the shift cables into the slots of the bracket assembly. Retain the cables with two retainers and four bolts. Tighten the bolts 6-10 ft. lbs. (8-14 Nm).
18. Snap the crossover cable socket onto the clamp assembly pivot ball. Position the selector cable rod end with the yellow painted side down. Snap the rod end onto the clamp assembly post.

Shift Handle

REMOVAL & INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the leather wrapped knob by rotating the knob counterclockwise.
3. Remove the console trim surrounding the shift boot by sliding the boot assembly off the shift lever, in order to expose the four screws which connect the boot to the top of the console.
4. Remove the console to expose the shifter assembly. Remove the four bolts retaining the shifter to the floorpan.
5. Pry the two clips holding the shift cables to control assembly and pry the cable sockets off the control assembly pivot balls.
6. Do not bend or kink the cable core rods.

To install:

7. Feed the loose ends of the cables into the control assembly slots. A green painted mark on the shifter and crossover cable will aid in proper alignment.
8. Attach the control assembly to the floorpan J-nuts with four bolts. Tighten the bolts to 49-70 inch lbs. (5.5-7.8 Nm).
9. Seat the cable insulators into the shifter slots. Install new U-clips. Snap the cable sockets onto the shifter pivot balls. Install the console.
10. Slide the boot assembly over the shift lever. Attach it to the console and tighten the retaining screws to 14-21 inch lbs. (1.6-2.3 Nm).
11. Attach the shift knob to the shift lever.
12. Connect the negative battery cable.

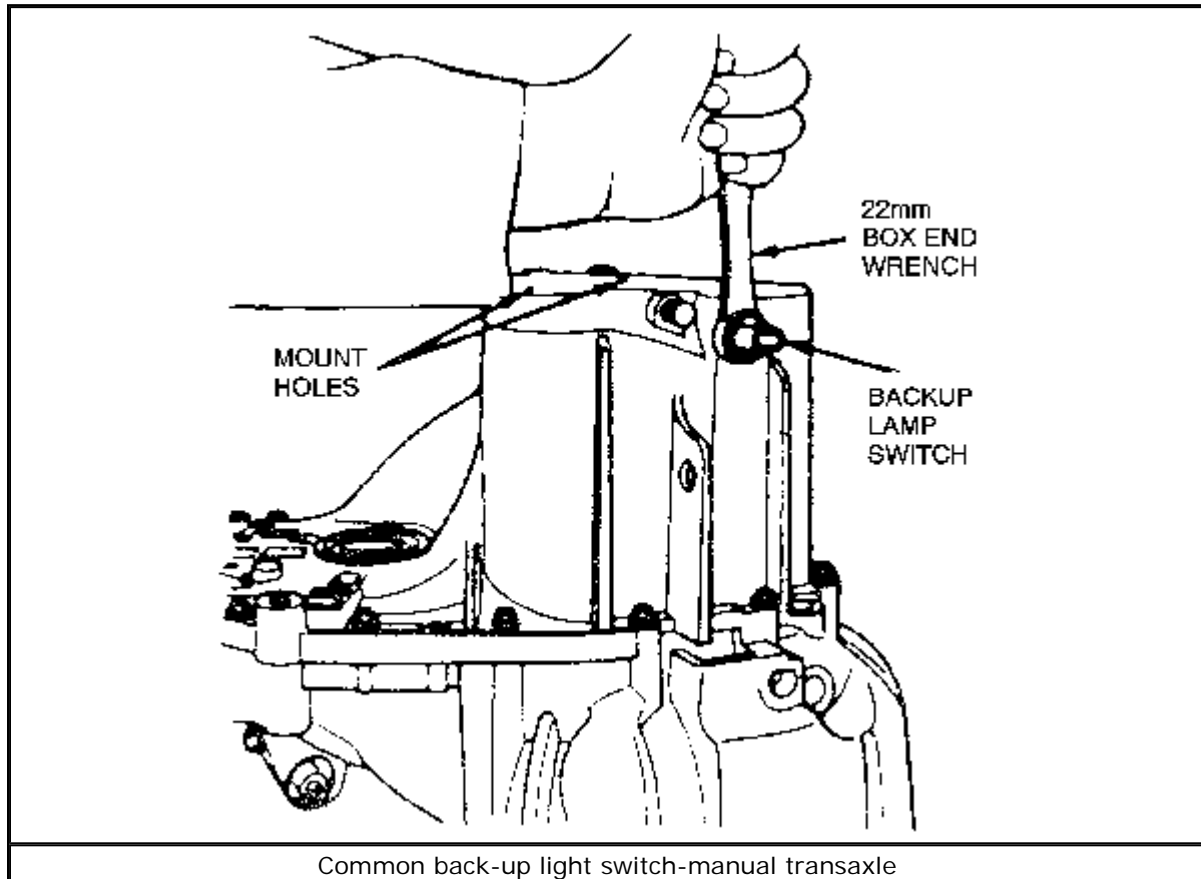
Back-Up Light Switch

REMOVAL & INSTALLATION

The back-up lamp switch is located on the top left side of the transaxle.

1. Disconnect the negative battery cable.
2. Disengage the switch electrical connector.

- Using a 22mm box-end wrench, remove the switch.



[Click to enlarge](#)

To install:

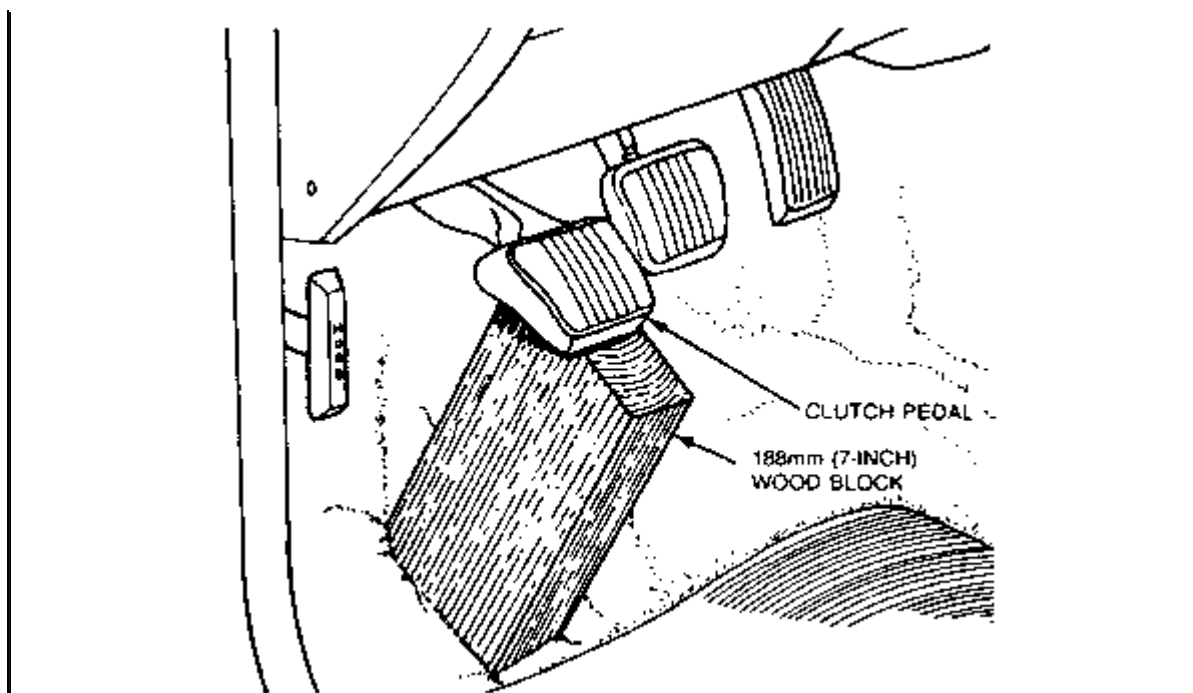
- Apply Pipe Sealant with Teflon® part No. D8AZ-19554-A or equivalent to the threads of the switch. Turn the switch into the transaxle case clockwise and tighten to 12-15 ft. lbs. (16-20 Nm).
- Engage the electrical connector.
- Connect the negative battery cable.

Transaxle

REMOVAL & INSTALLATION

1986-88 Vehicles

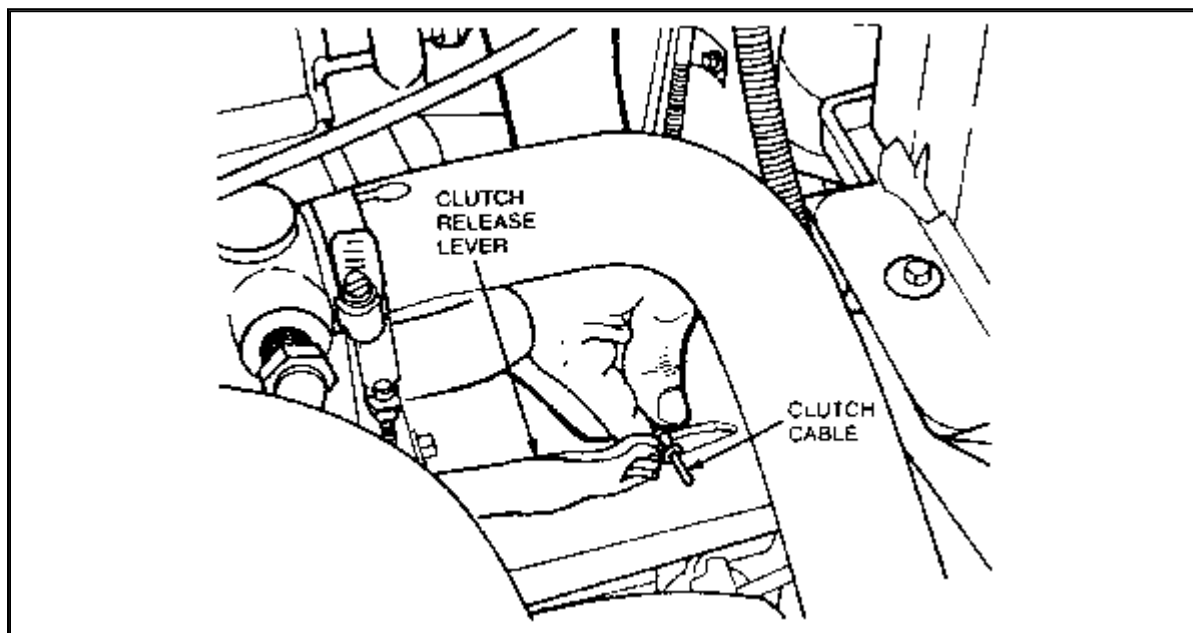
- Disconnect the negative battery cable.
- Wedge a wood block about 7 in. (178mm) long under the clutch pedal to hold the pedal up slightly beyond its normal position.



Wedge a wood block about 7 in. (178mm) long under the clutch pedal to hold the pedal up slightly beyond its normal position

[Click to enlarge](#)

3. Grasp the clutch cable and pull it forward, disconnecting it from the clutch release shaft assembly. Remove the clutch cable casing from the rib on the top surface of the transaxle case.

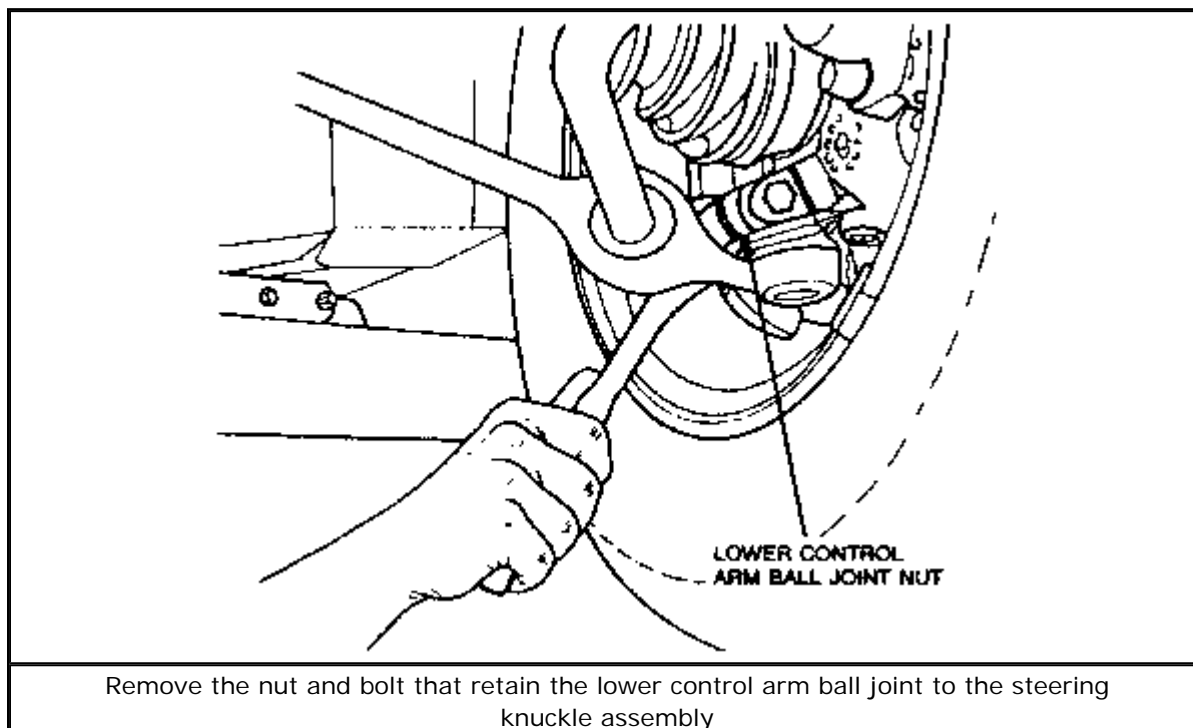


Remove the clutch cable casing from the rib on the top surface of the transaxle case

[Click to enlarge](#)

4. Using a 13mm socket, remove the 2 top transaxle-to-engine mounting bolts.
5. Raise and safely support the vehicle.
6. Using a 15mm socket, remove the nut and bolt that secures the lower control arm ball joint to the steering knuckle assembly. Discard the nut and bolt. Repeat this

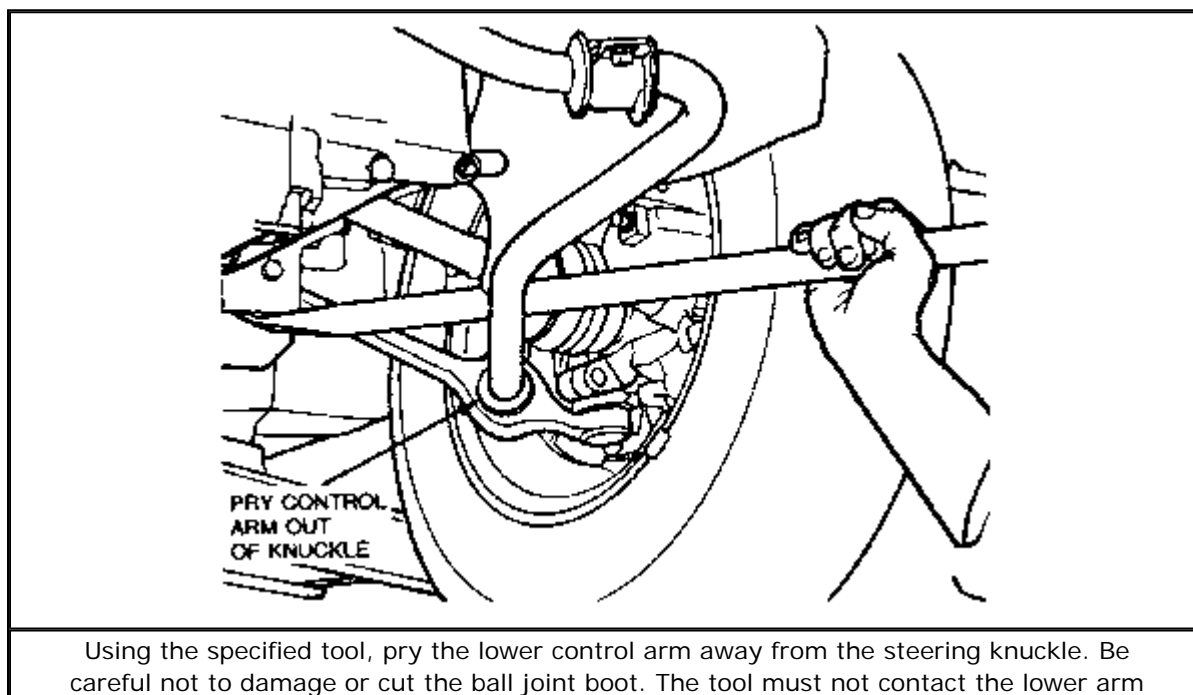
procedure on the opposite side.



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7. Using Tool D83P-4026-A, or equivalent, carefully pry the lower control arm away from the knuckle.

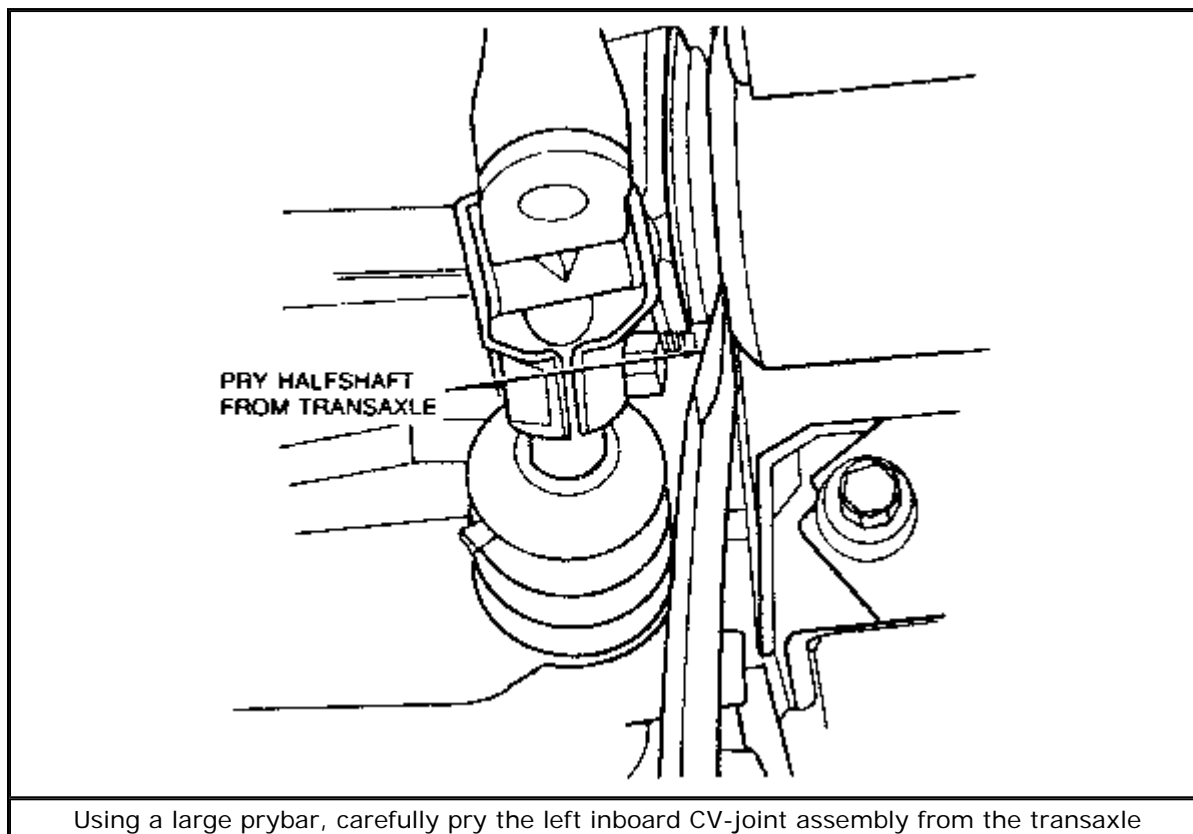
Be careful not to damage or cut the ball joint boot. The prybar must not contact the lower arm.



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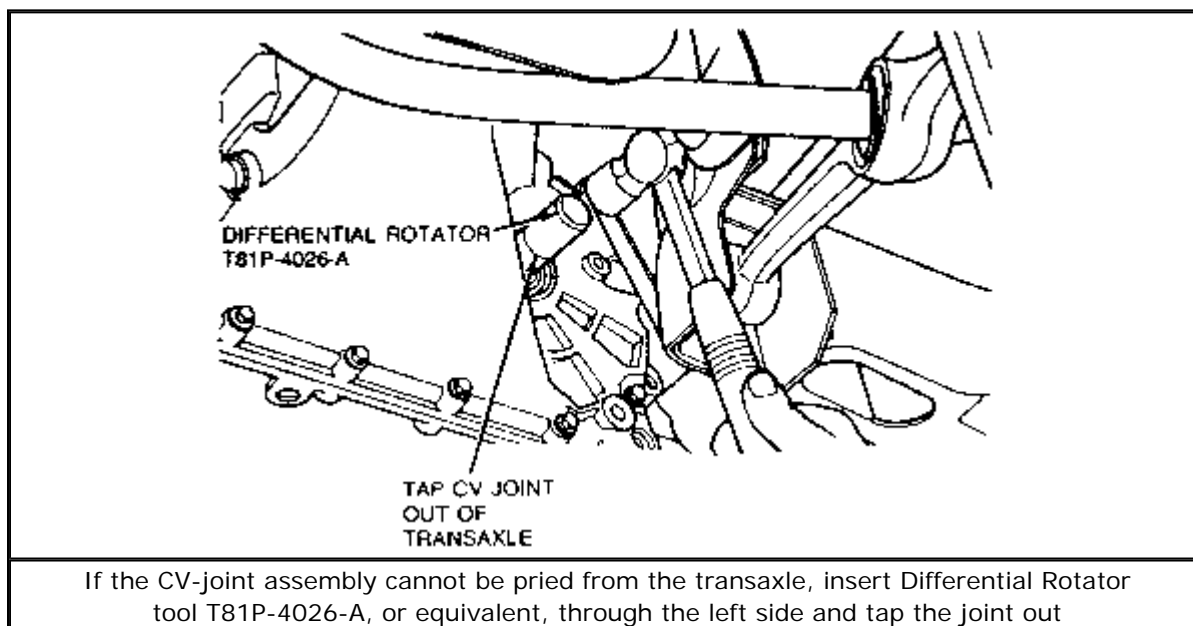
8. Using a large prybar, pry the left inboard CV-joint assembly from the transaxle.

Plug the seal opening to prevent lubricant leakage.



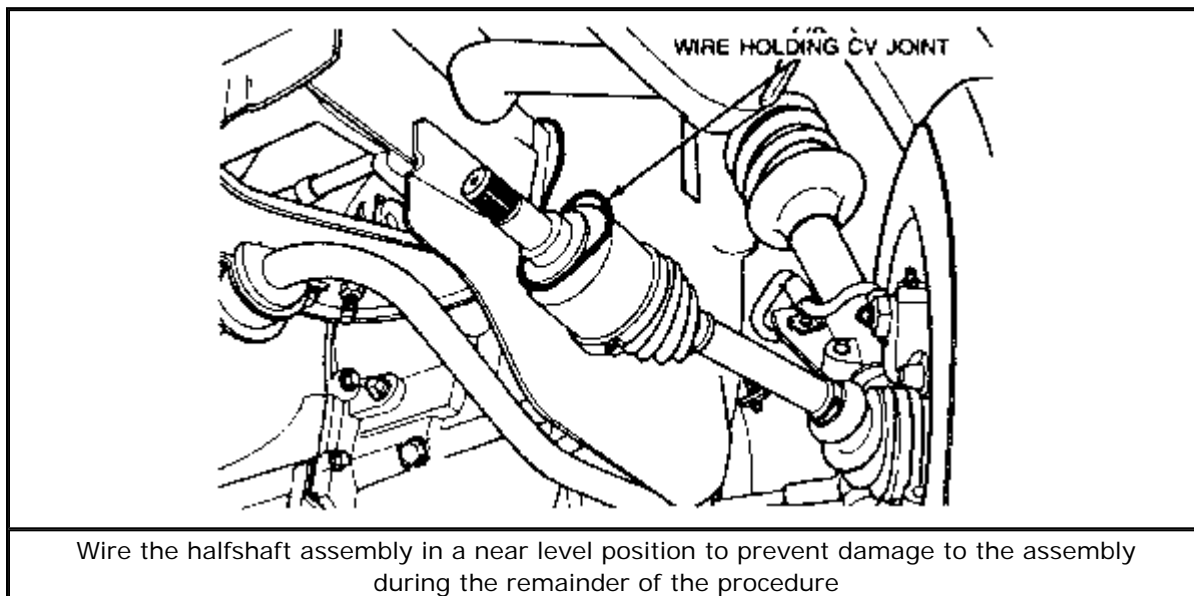
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9. Remove the inboard CV-joint from the transaxle by grasping the left-hand steering knuckle and swinging the knuckle and halfshaft outward from the transaxle. If the CV-joint assembly cannot be pried from the transaxle, insert differential rotator tool T81P-4026-A or equivalent, through the left side and tap the joint out. The tool can be used from either side of transaxle.



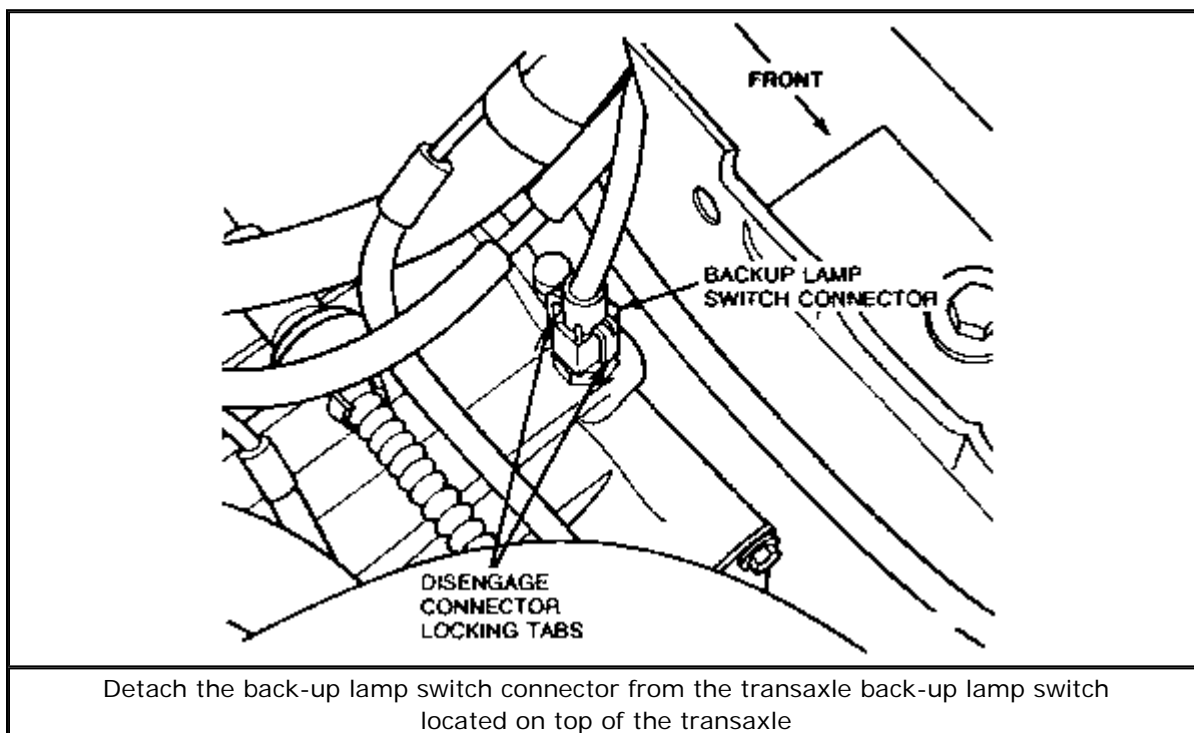
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10. Wire the halfshaft assembly in a near level position to prevent damage to the assembly during the remaining operations. Repeat this procedure on the opposite side.



[Click to enlarge](#)

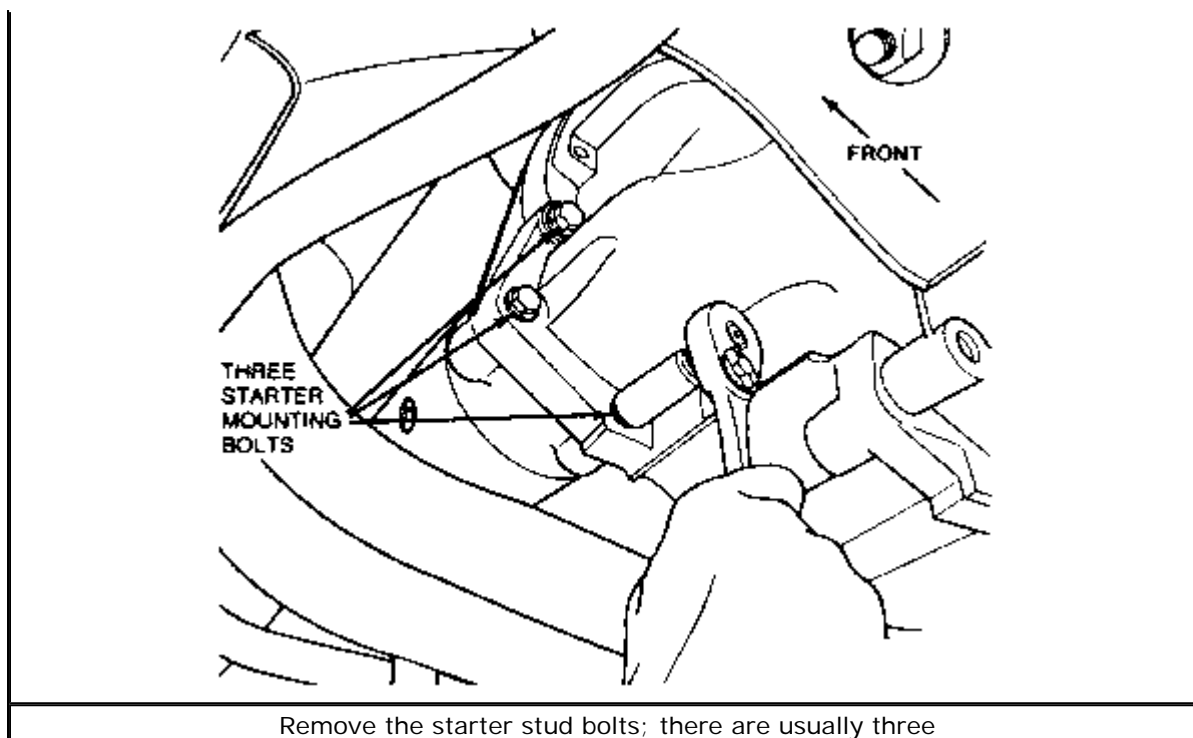
11. Disengage the locking tabs using a small screwdriver, then remove the backup light switch connector from the transaxle backup light switch.



[Click to enlarge](#)

12. Using a deep well socket, remove the starter stud bolts.

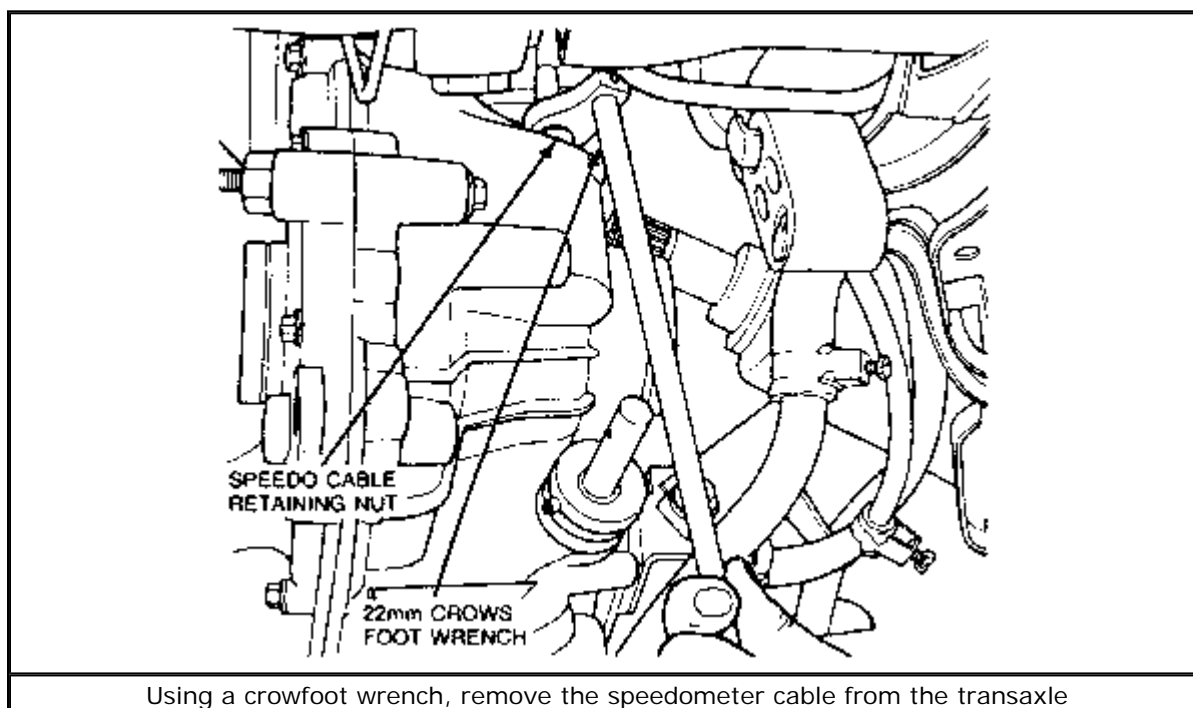




Remove the starter stud bolts; there are usually three

[Click to enlarge](#)

13. Remove the shift mechanism to shift shaft attaching nut and bolt and control selector indicator switch arm. Remove from the shift shaft.
14. Remove the bolts attaching the shift cable and bracket assembly to the transaxle.
15. Using a crowfoot wrench, remove the speedometer cable from the transaxle.

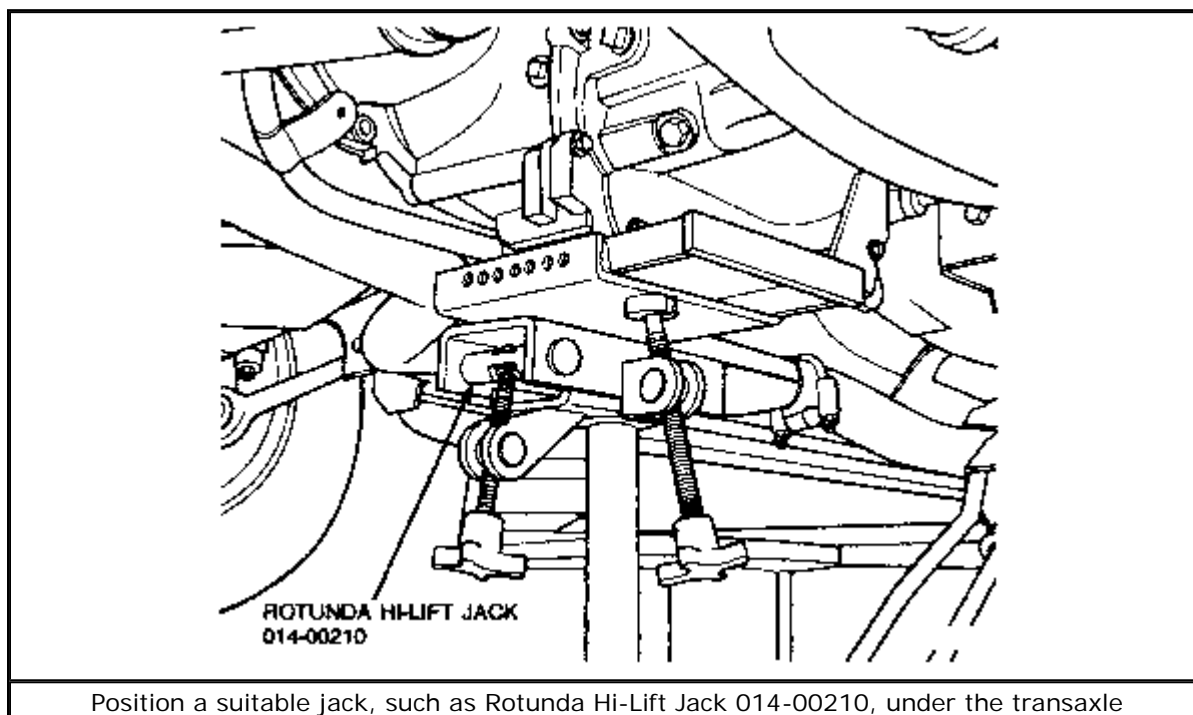


Using a crowfoot wrench, remove the speedometer cable from the transaxle

[Click to enlarge](#)

16. Remove the stiffener brace attaching bolts from the lower position of the clutch housing.

17. Remove the subframe.
18. Position a suitable jack under the transaxle.

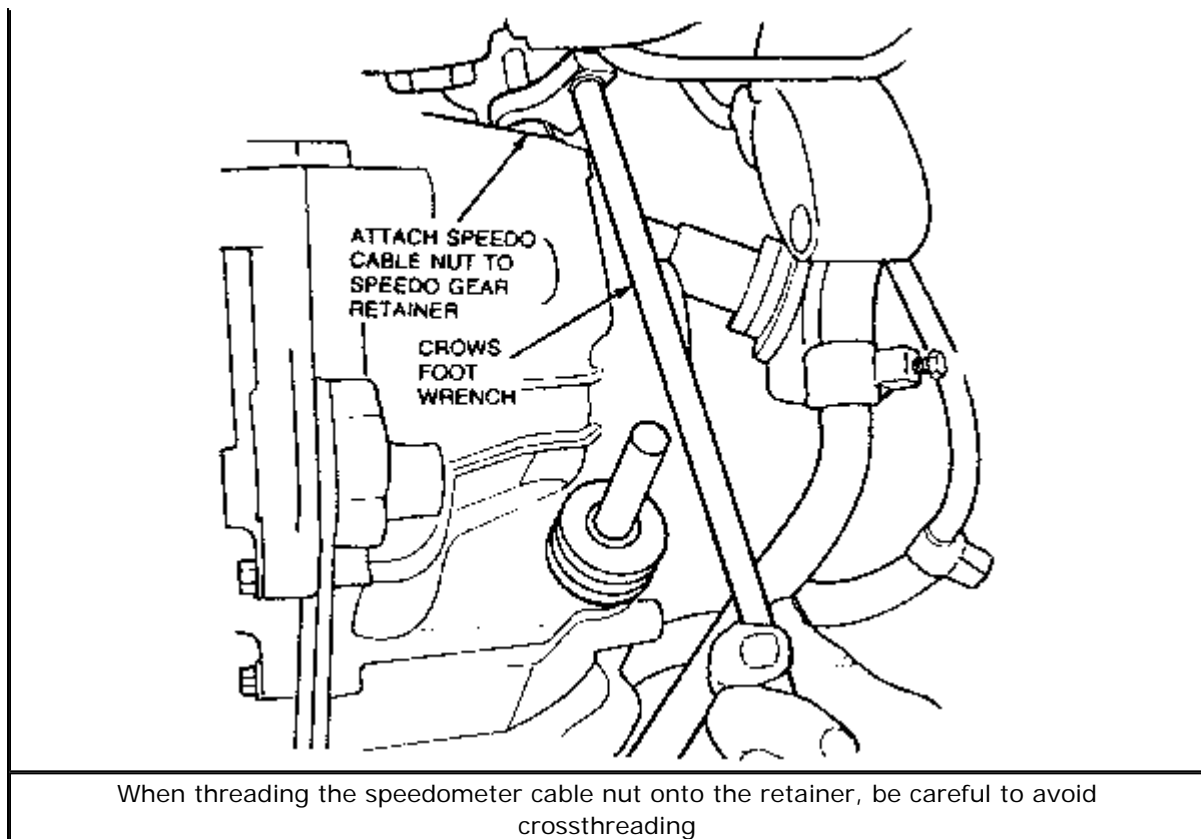


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19. Lower the transaxle support jack.
20. Remove the lower engine to transaxle attaching bolts.
21. Remove the transaxle from the rear face of the engine and lower it from the vehicle.

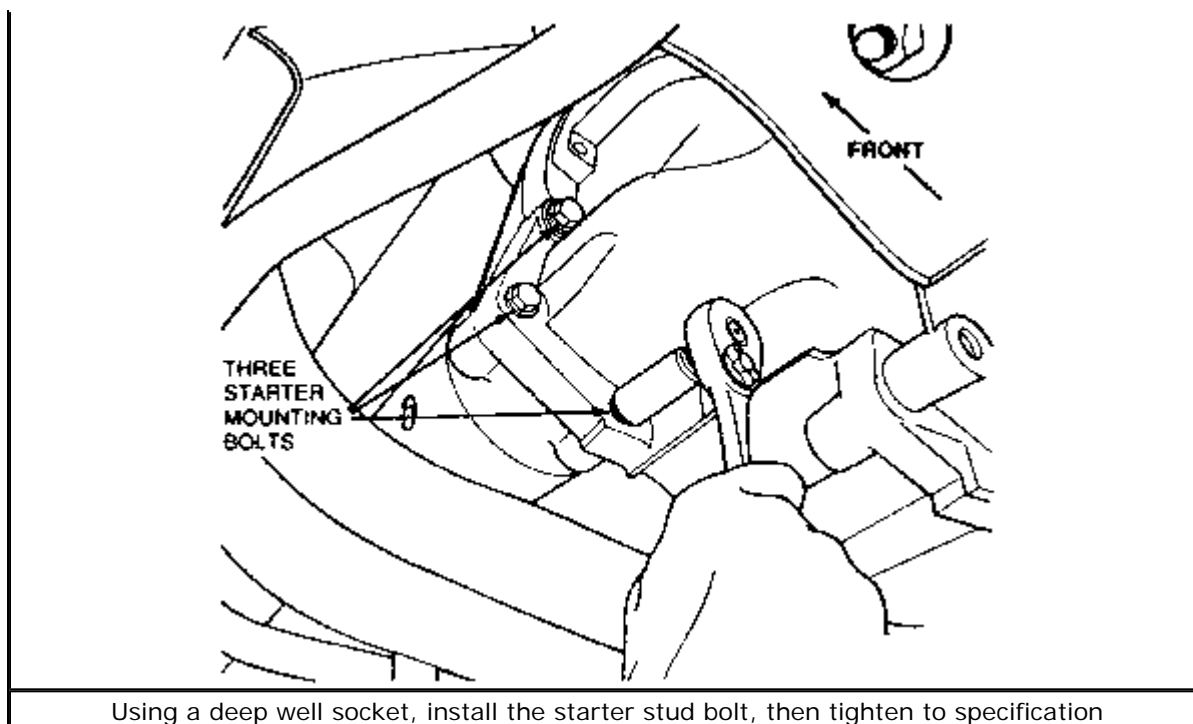
To install:

22. Raise the transaxle into position with the support jack. Engage the input shaft spline into the clutch disc and work the transaxle onto the dowel sleeves. Make sure the transaxle assembly is flush with the rear face of the engine prior to installation of the attaching bolts.
23. Install the lower engine to transaxle attaching bolts and tighten them to 28-31 ft. lbs. (38-42 Nm).
24. Install the speedometer cable. Be careful when threading the cable nut onto the retainer to avoid crossthreading.



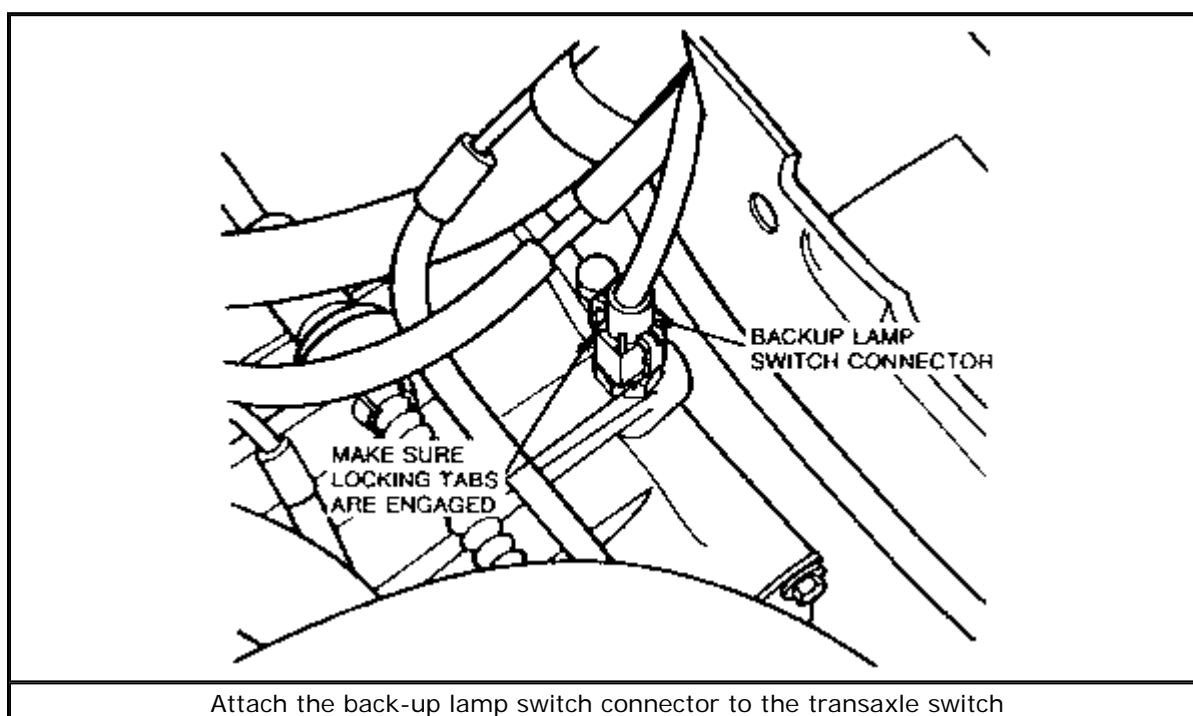
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25. Install the 10M and 12M bolts attaching the the shift cable and bracket to the transaxle. Tighten the 10M bolt to 16-22 ft. lbs. (22-30 Nm) and the 12M bolt to 22-35 ft. lbs. (30-47 Nm).
26. Install the bolt attaching the shift mechanism-to-shift shaft and tighten to 7-10 ft. lbs. (9-14 Nm).
27. Install the 2 bolts that attach the stiffener brace to the lower portion of the clutch housing and tighten to 15-21 ft. lbs. (21-28 Nm).
28. Install the starter stud bolts, then tighten to 30-40 ft. lbs. (41-54 Nm).



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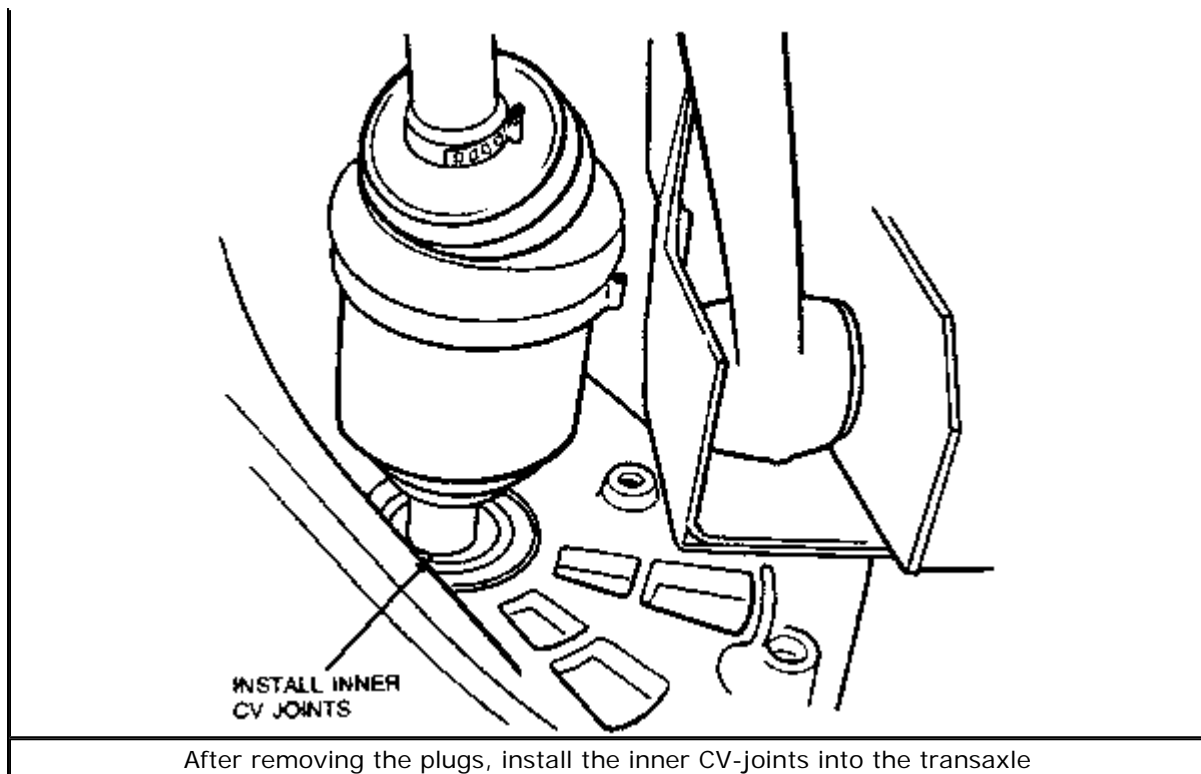
29. Install the backup light switch connector to the transaxle switch.



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30. Remove the seal plugs, then install the inner CV-joints into the transaxle.

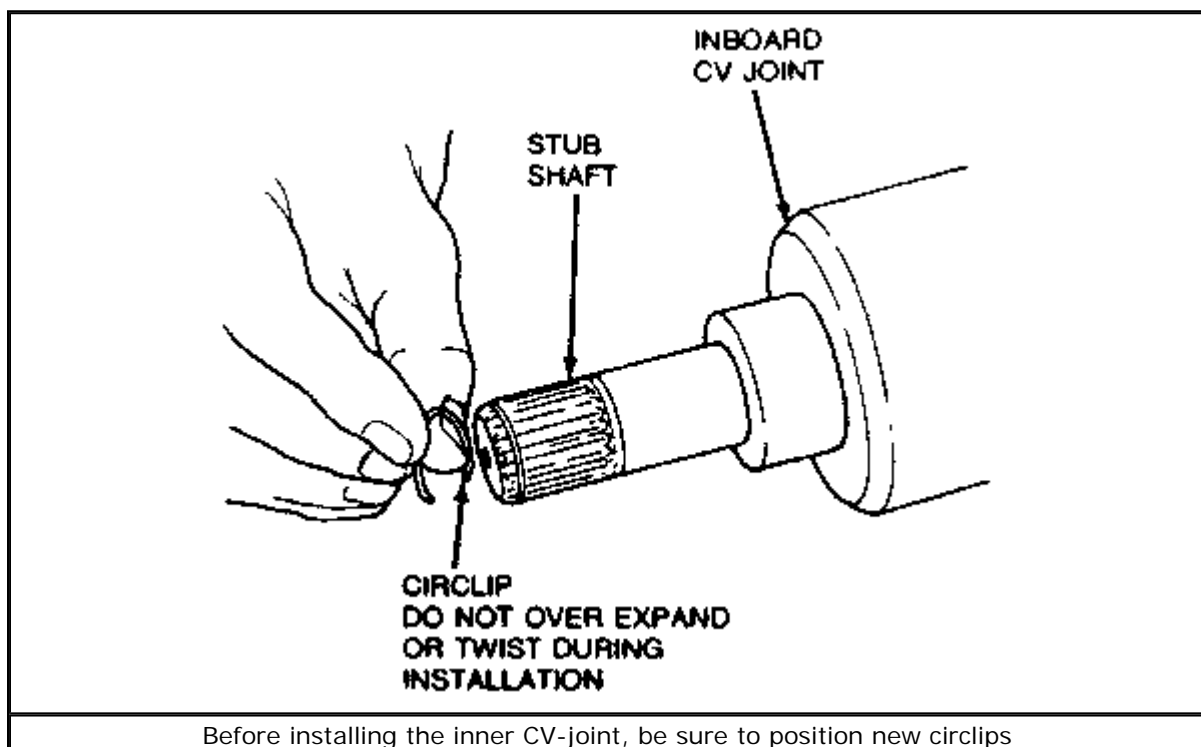




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31. Install the center bearing to the bracket on the right-side halfshaft.

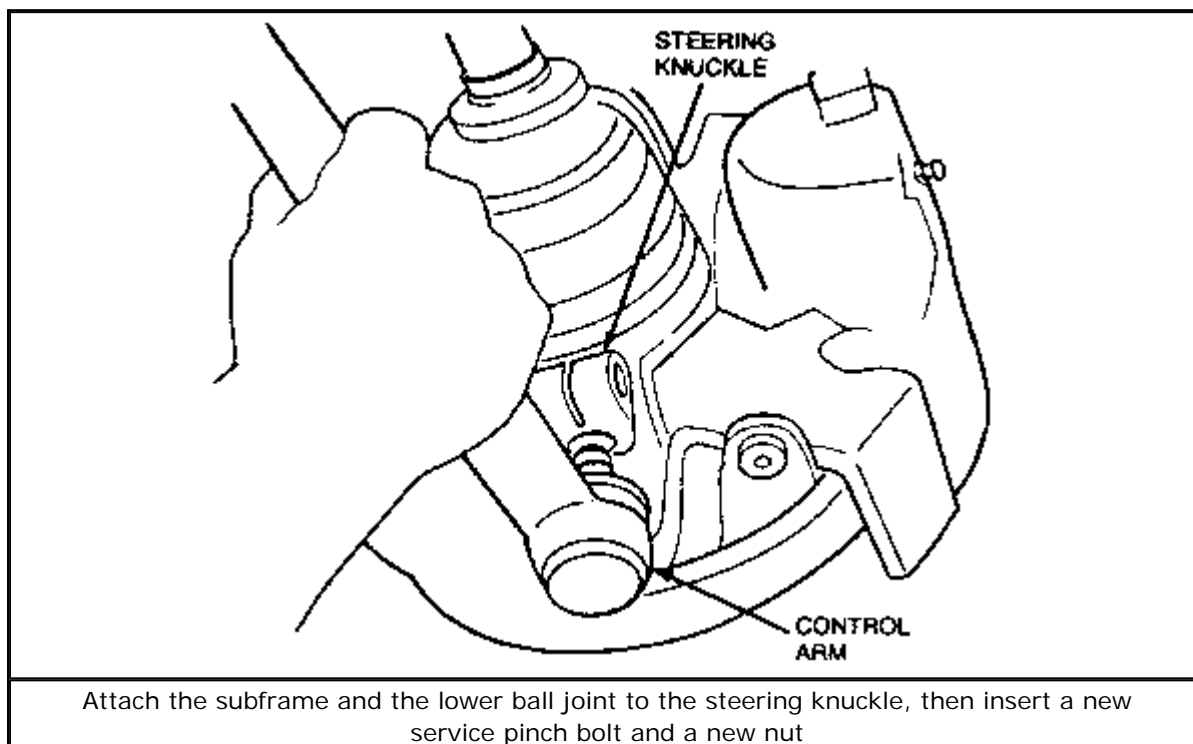
New circlips are required on both inner CV-joints prior to installation.
Make sure both CV-joints are seated in the transaxle.



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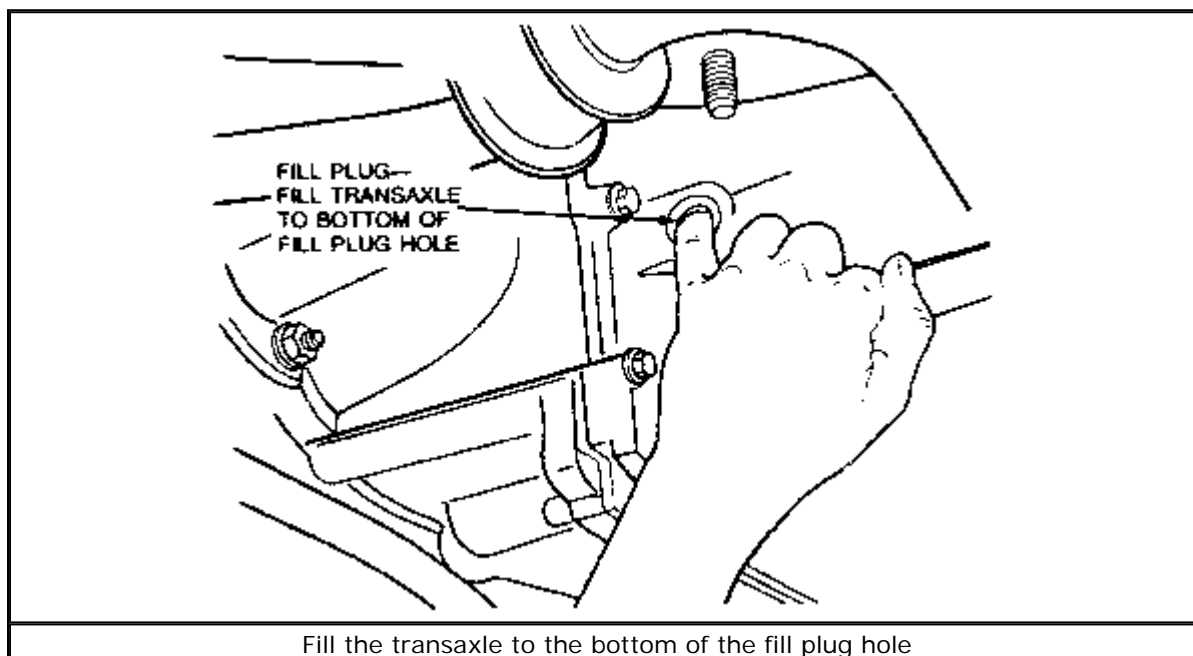
32. Attach the subframe and the lower ball joint to the steering knuckle. Insert a new

service pinch bolt and a new nut. Tighten the nut to 37-44 ft. lbs. (50-60 Nm) but do not tighten the bolt.



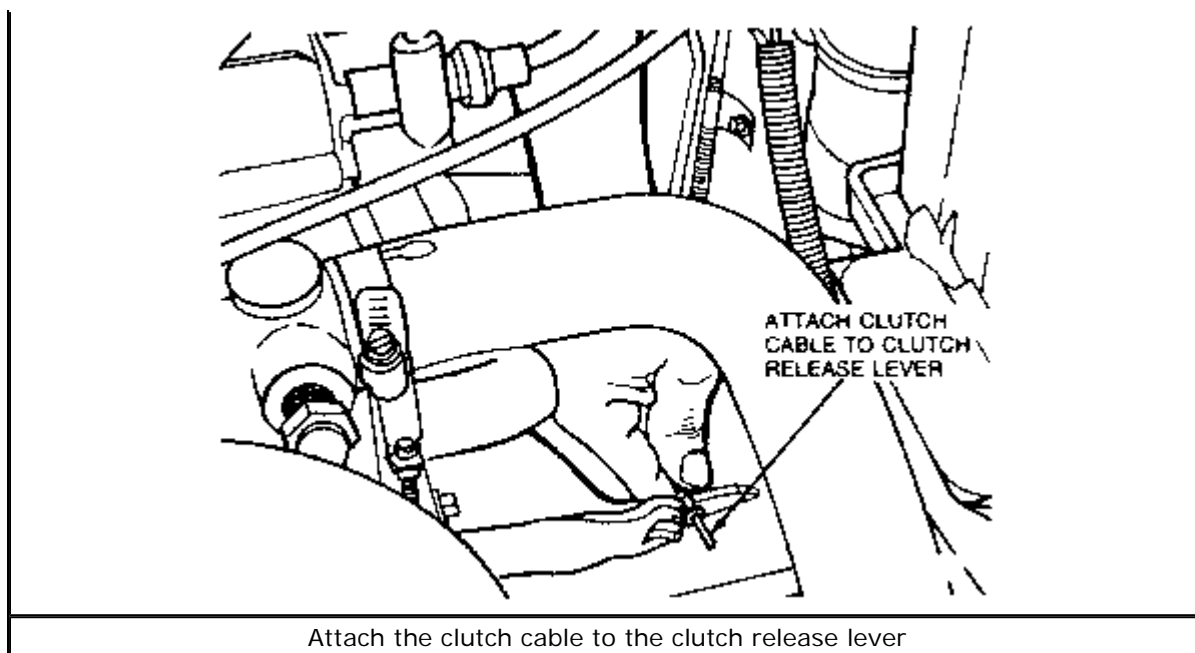
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33. Fill the transaxle with the proper type and quantity of transmission fluid.



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34. Install the top transaxle to engine mounting bolts and tighten to 28-31 ft. lbs. (38-42 Nm).
35. Connect the clutch cable to the clutch release shaft assembly.

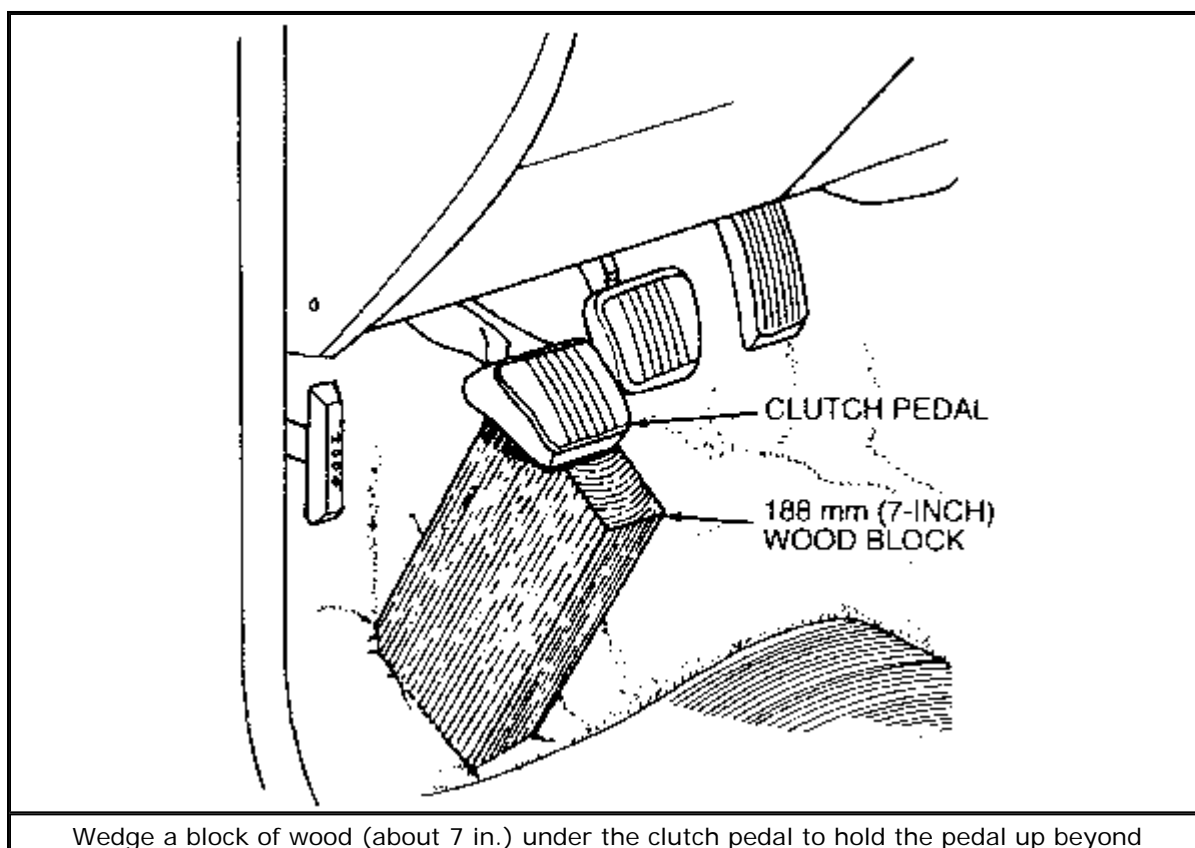


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36. Remove the wood block from under the clutch pedal. Before starting the engine, set the hand brake, then pump the clutch pedal at least 2 times to ensure proper clutch adjustment.

1989-95 Vehicles

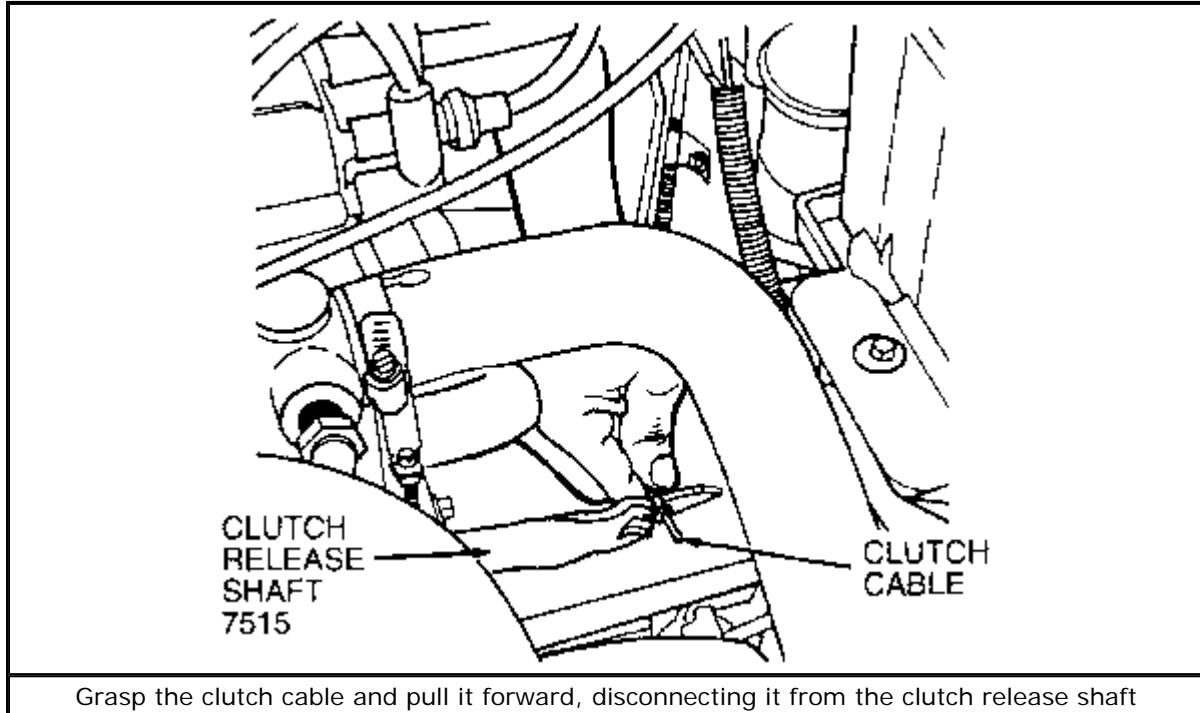
1. Disconnect the negative battery cable.
2. Wedge a 7 in. (178mm) block of wood under the clutch pedal to hold the pedal up beyond it's normal position.



its normal position

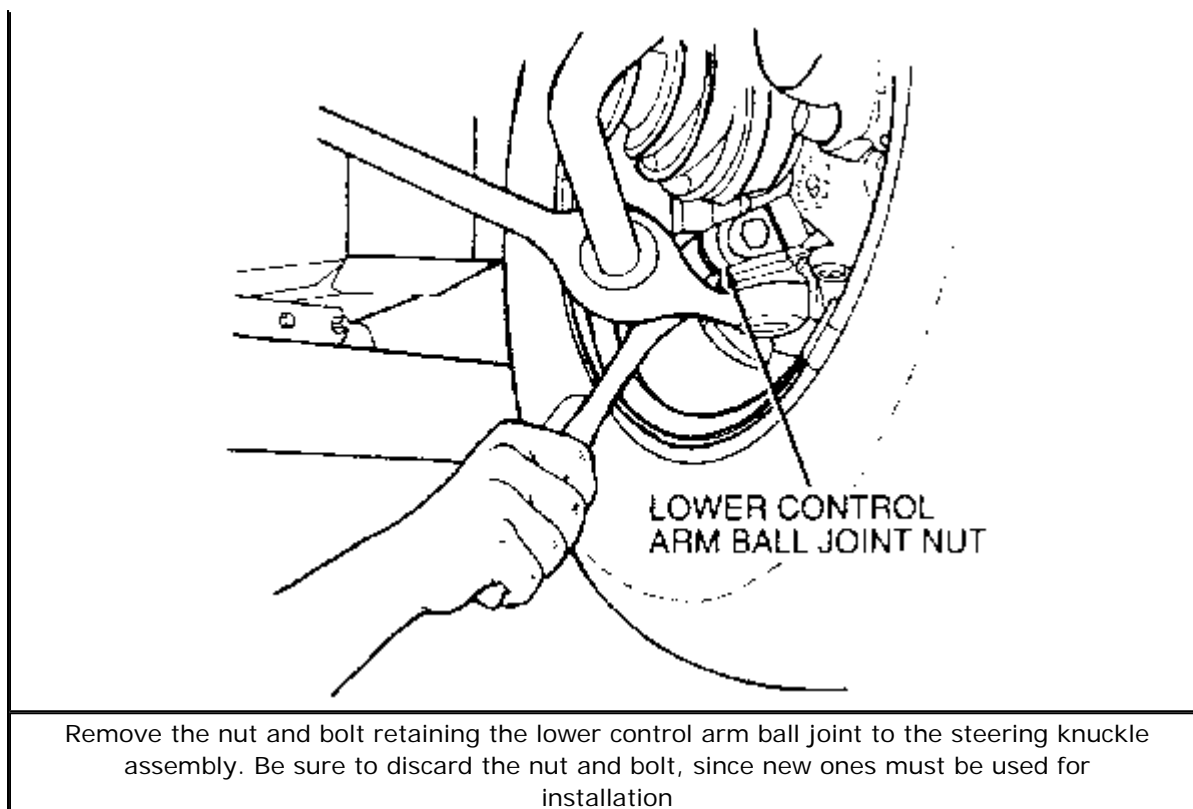
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3. Remove the air cleaner hose.
4. Grasp the clutch cable and pull it forward, disconnecting it from the clutch release shaft assembly.



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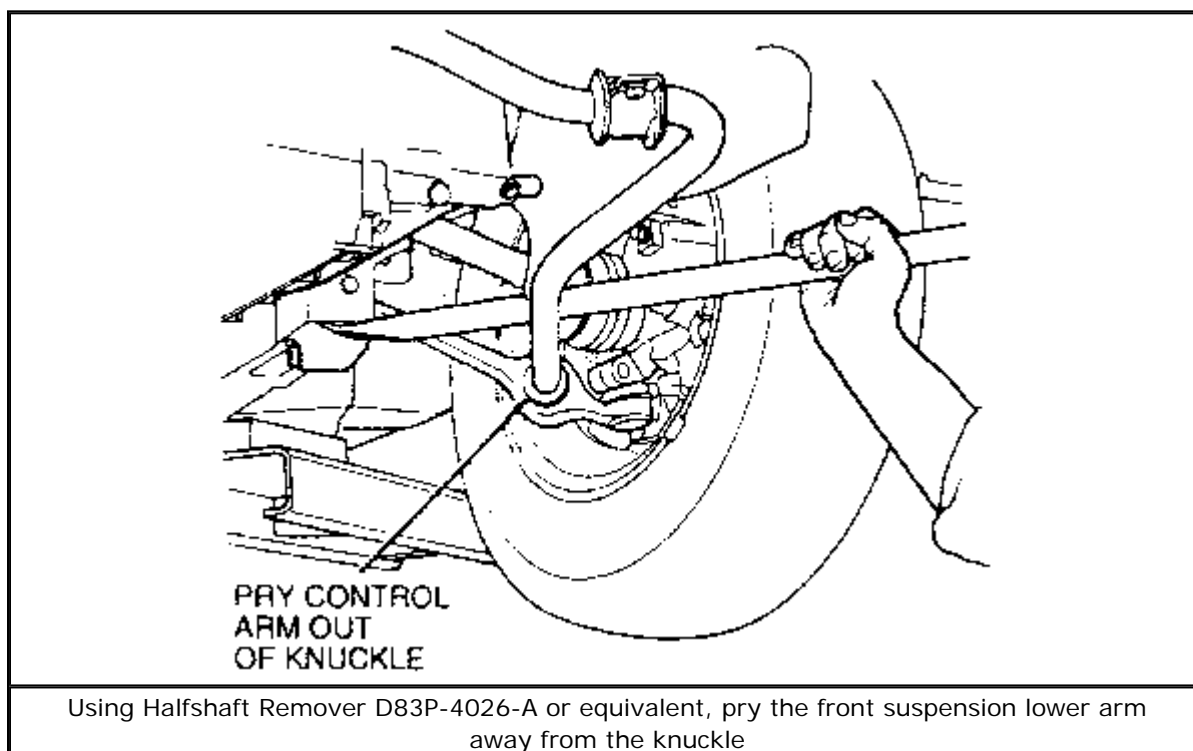
5. Disconnect the clutch cable casing from the rib on top of the transaxle case.
6. Install engine lifting eyes.
7. Tie up the wiring harness and power steering cooler hoses.
8. Disconnect the speedometer cable and speed sensor wire.
9. Support the engine using a suitable engine support fixture.
10. Raise the vehicle and support it safely. Remove the wheel and tire assemblies.
11. Remove the nut and bolt retaining the lower control arm ball joint to the steering knuckle assembly. Discard the removed nut and bolt. Repeat the procedure on the opposite side.



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12. Using a suitable halfshaft remover, pry the lower control arm away from the knuckle.

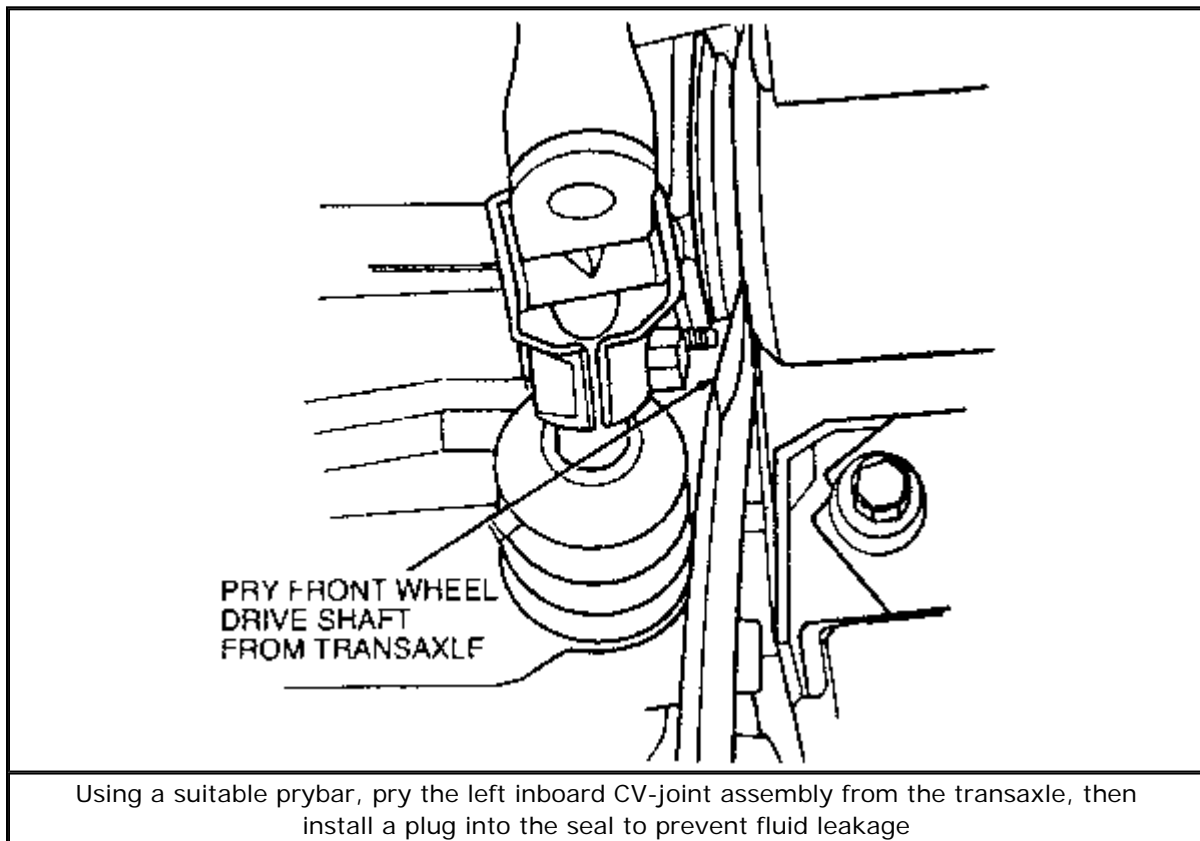
Be careful not to damage or cut the ball joint boot.



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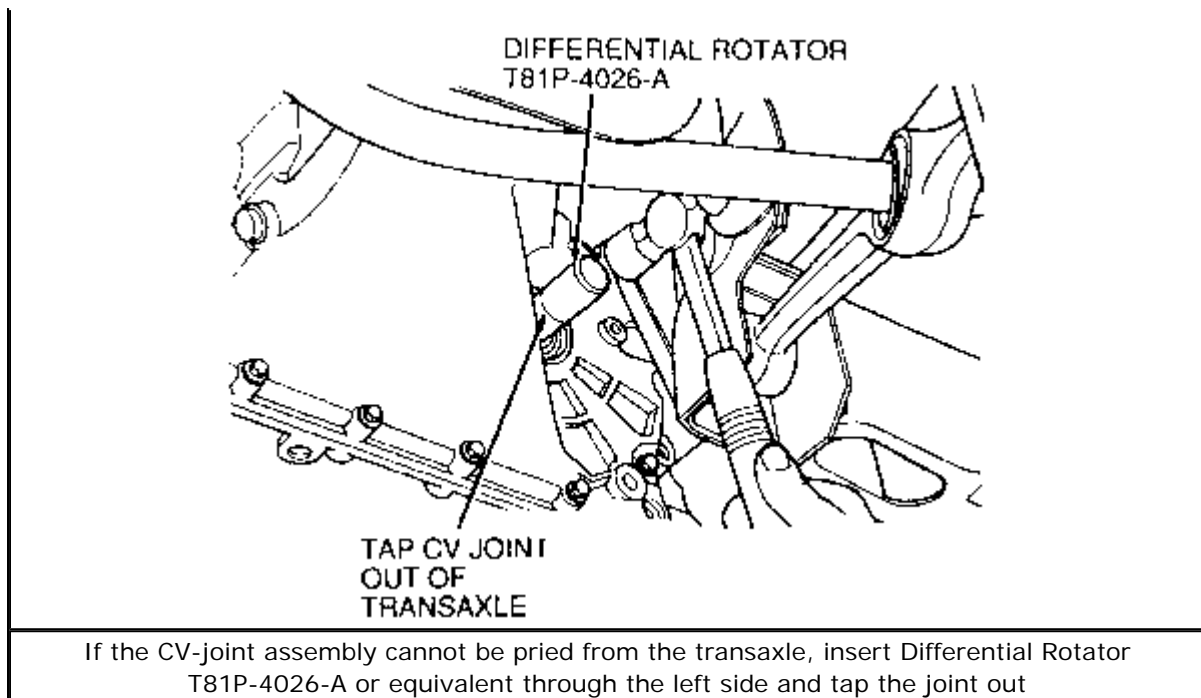
13. Remove the upper nut from the stabilizer bar and separate the stabilizer bar from the knuckle.
14. Remove the tie rod nut and separate the tie rod end from the knuckle.
15. Disconnect the heated oxygen sensor.
16. Remove the catalytic converter assembly.
17. Disconnect the power steering cooler from the subframe and place it aside.
18. Disconnect the battery cable bracket from the subframe.
19. Using a suitable prybar, pry the left inboard CV-joint assembly from the transaxle. Install a plug into the seal to prevent fluid leakage. Remove the CV-joint from the transaxle by grasping the left steering knuckle and swinging the knuckle and halfshaft outward from the transaxle. Repeat the procedure on the right side.

If the CV-joint assembly cannot be pried from the transaxle, insert a suitable tool through the left side and tap the joint out. The tool can be used from either side of the transaxle.



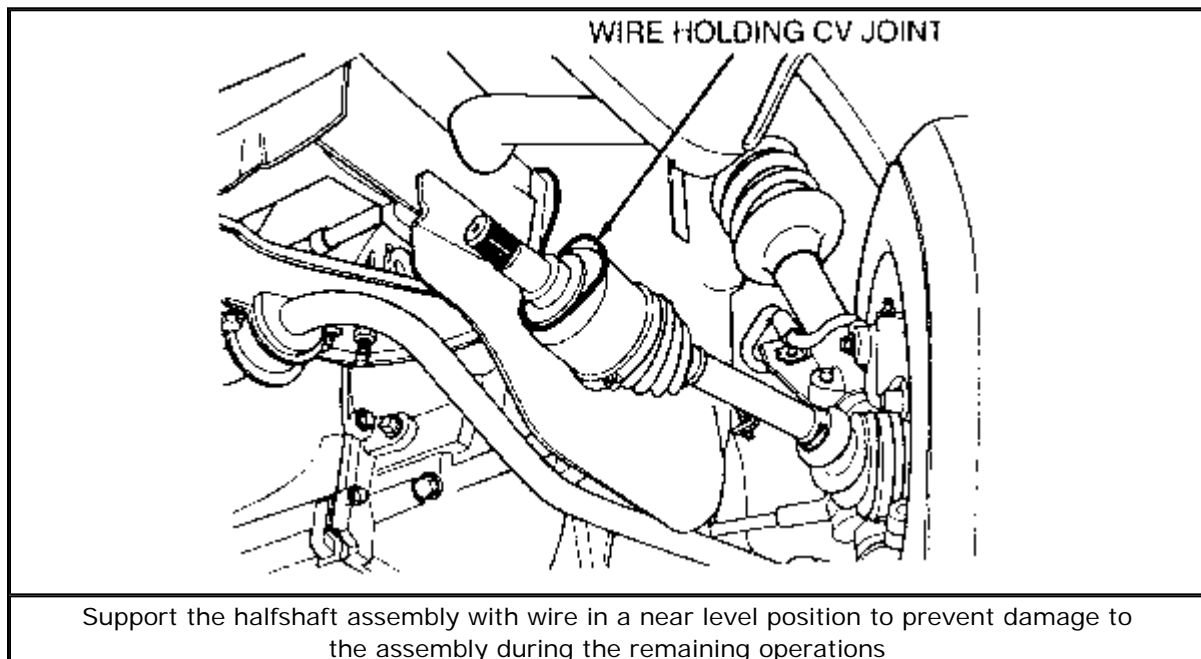
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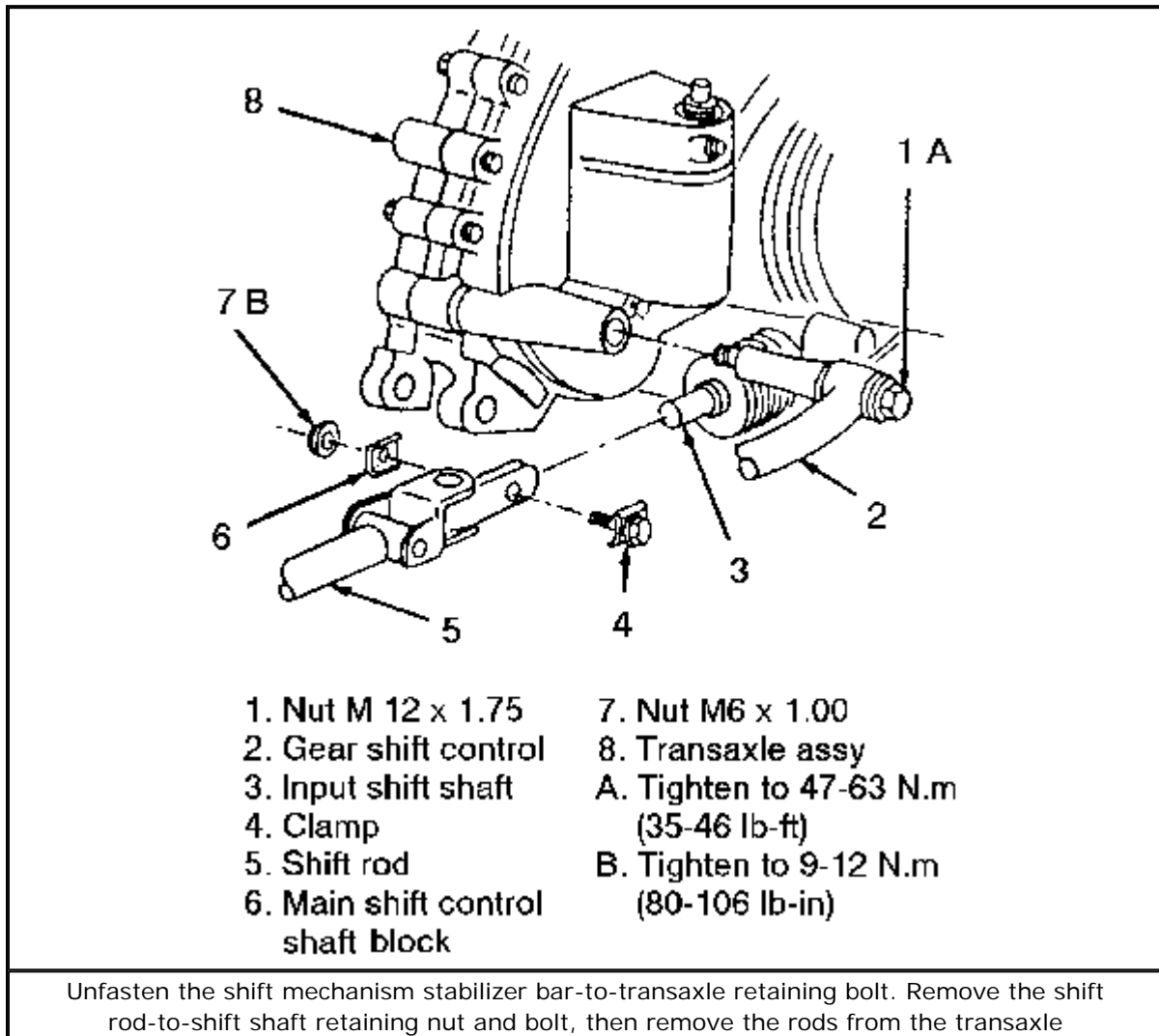
20. Support the halfshaft assembly with wire in a near level position to prevent damage to the assembly during the remaining operations. Repeat the procedure on the opposite side.



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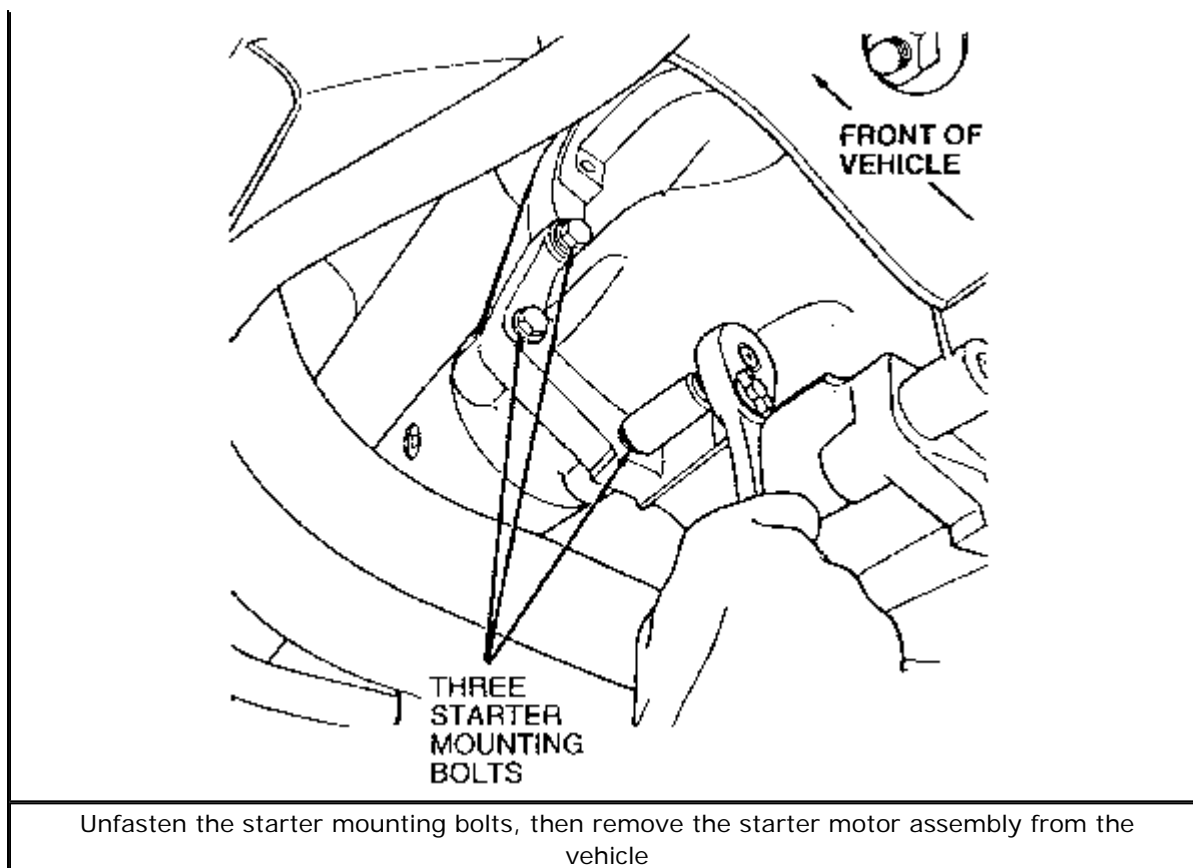
21. Remove the retaining bolts from the center support bearing and remove the right halfshaft from the transaxle.
22. Remove the 2 steering gear retaining nuts from the subframe. Support the steering gear by wiring up the tie rod ends to the coil springs.
23. Remove the transaxle-to-engine retaining bolts.
24. Unfasten the shift mechanism stabilizer bar-to-transaxle retaining bolt. Remove

the shift rod-to-shift shaft retaining nut and bolt, then remove the rods from the transaxle.



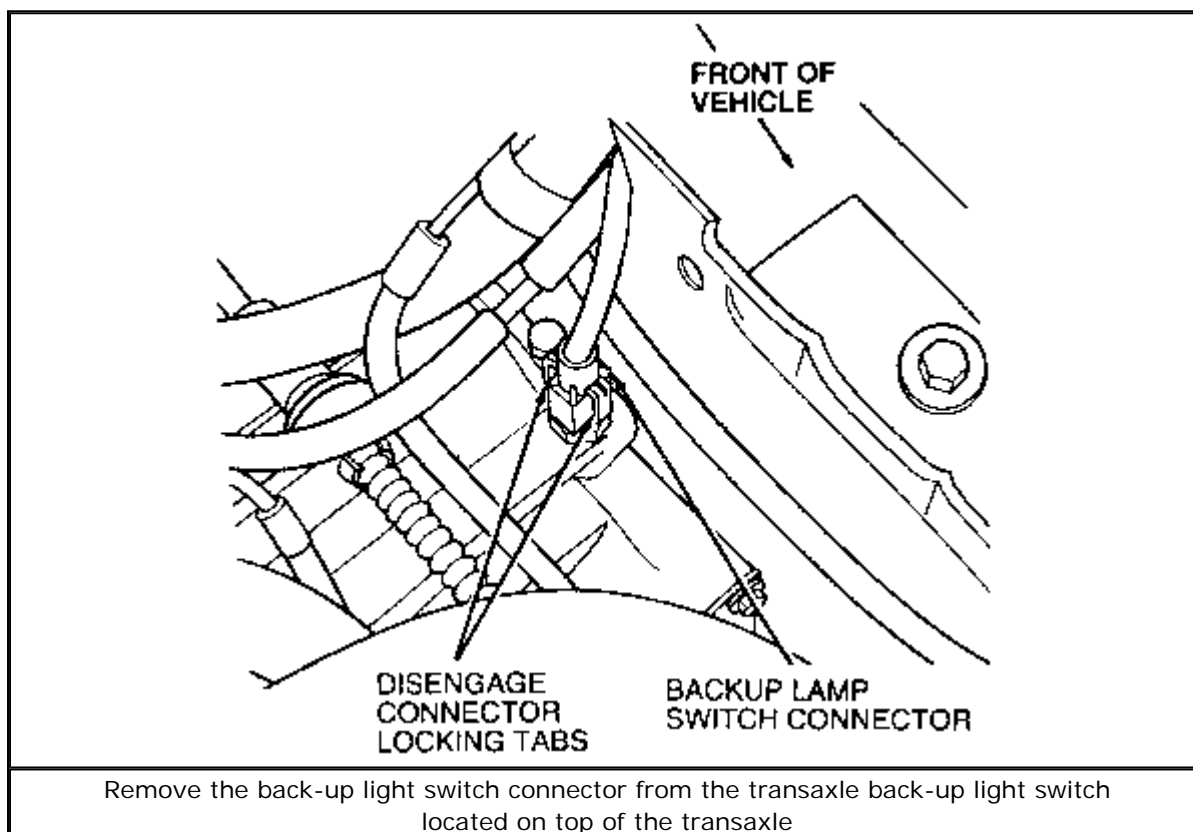
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25. Remove the engine mount bolts.
26. Position jacks under the body mount positions and remove the 4 bolts, lower the subframe and position it aside.
27. Remove the starter mounting bolts, then remove the starter motor assembly.



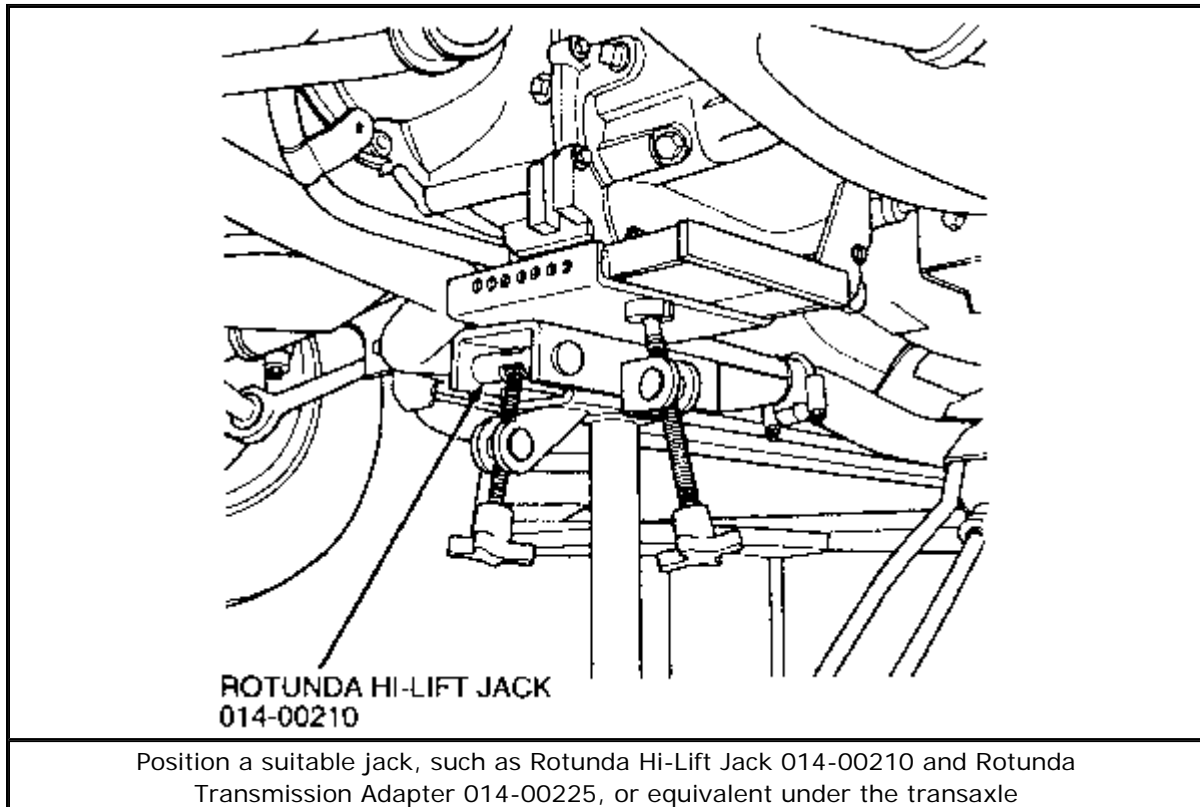
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28. Remove the left engine vibration dampener lower bracket.
29. Using a small screwdriver, remove the backup light switch connector from the transaxle backup light switch, located on top of the transaxle.



[Click to enlarge](#)

30. Position a suitable support jack and adapter under the transaxle.



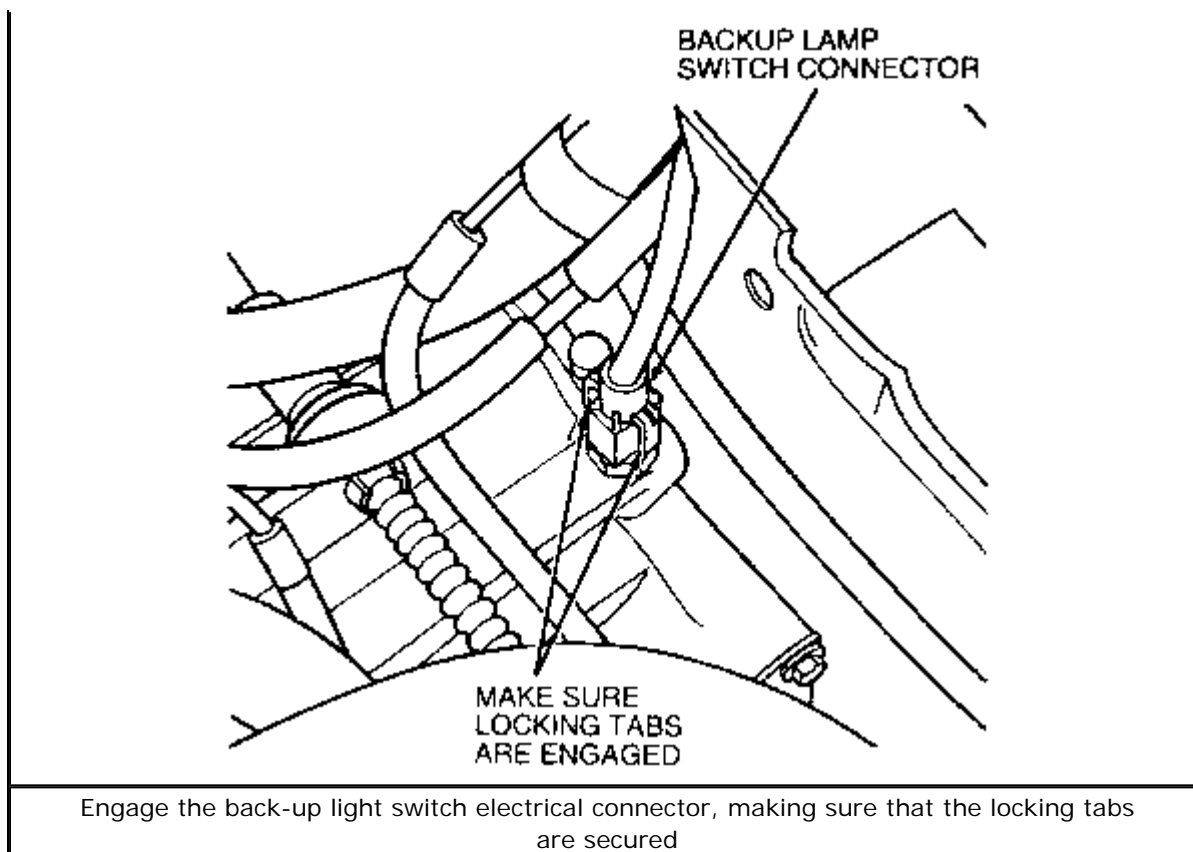
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31. Lower the transaxle, remove it from the engine and lower it from the vehicle.

To install:

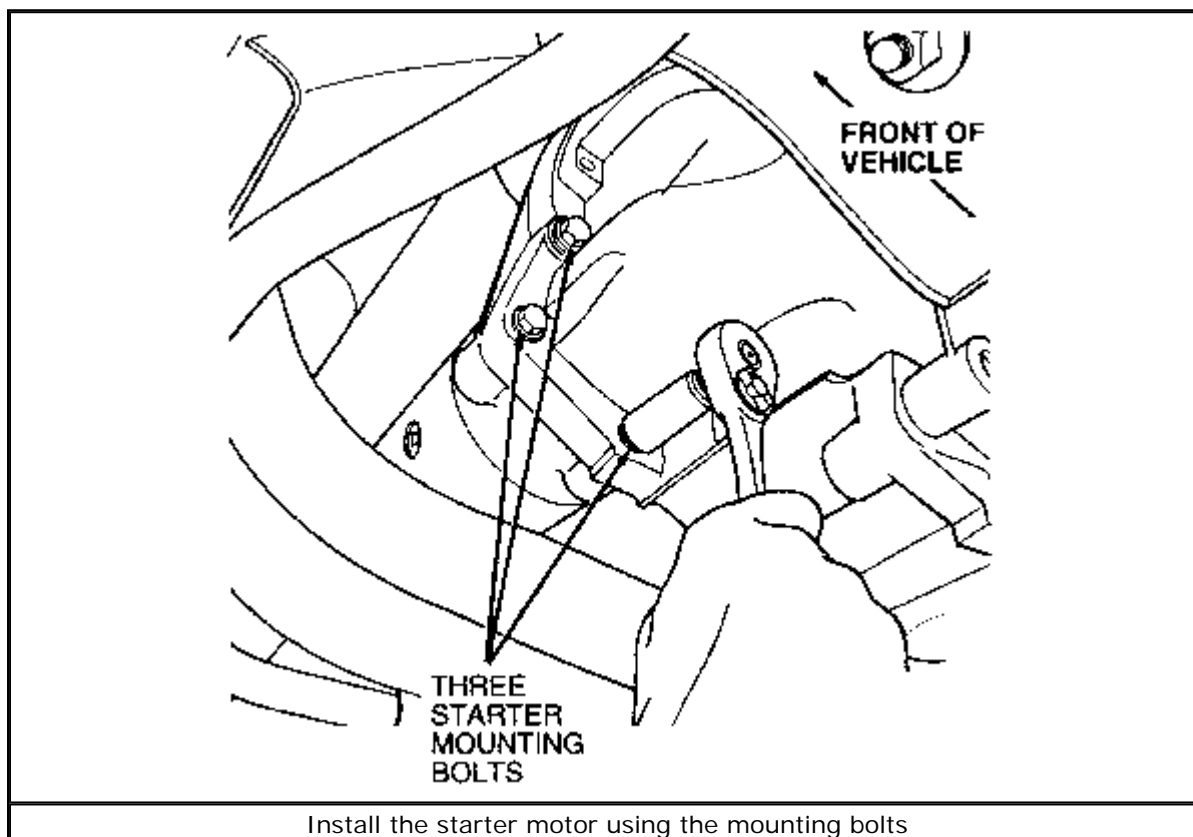
32. Raise the transaxle into position. Engage the input shaft spline into the clutch disc and work the transaxle onto the dowel sleeves. Make sure the transaxle assembly is flush with the rear face of the engine before installation of the retaining bolts.
33. Install the engine to transaxle retaining bolts. Tighten to 28-31 ft. lbs. (38-42 Nm).
34. Engage the backup light switch electrical connector.





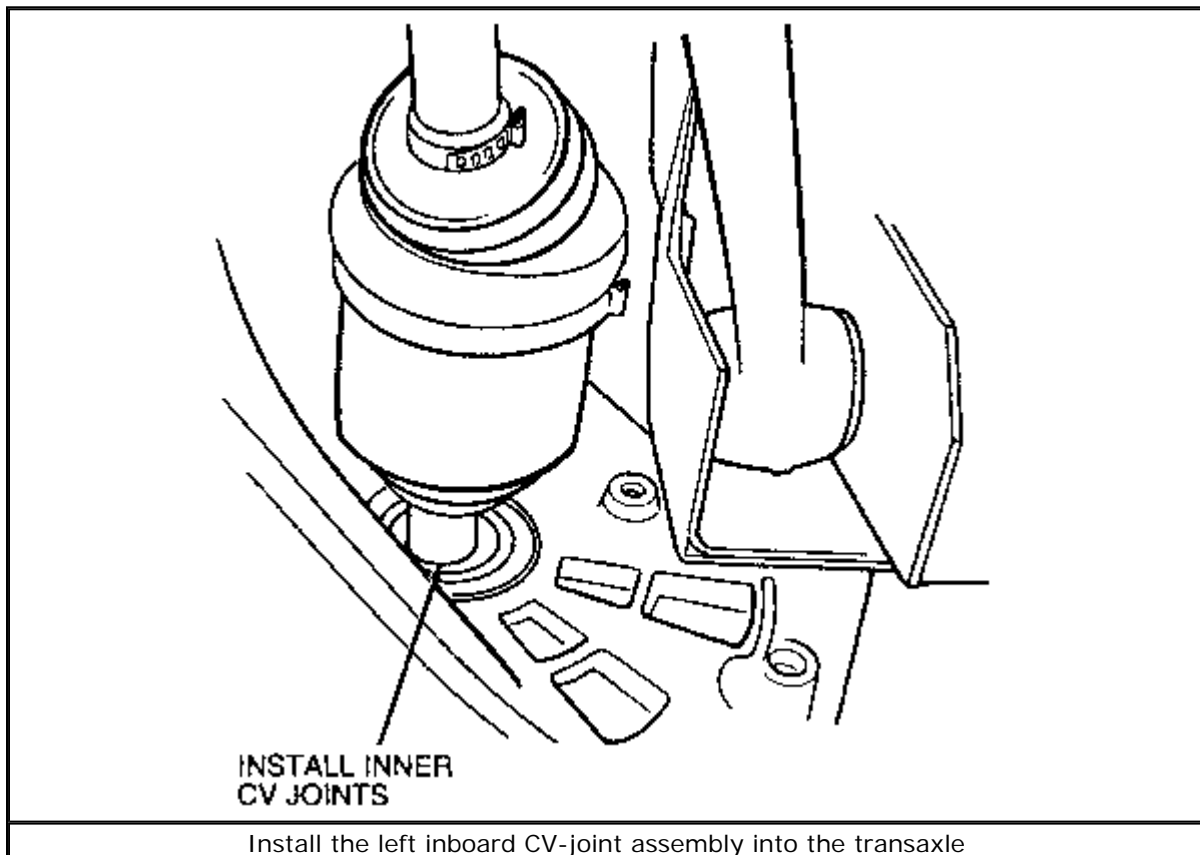
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35. Install the starter motor. Tighten the retaining bolts to 30-40 ft. lbs. (41-54 Nm).

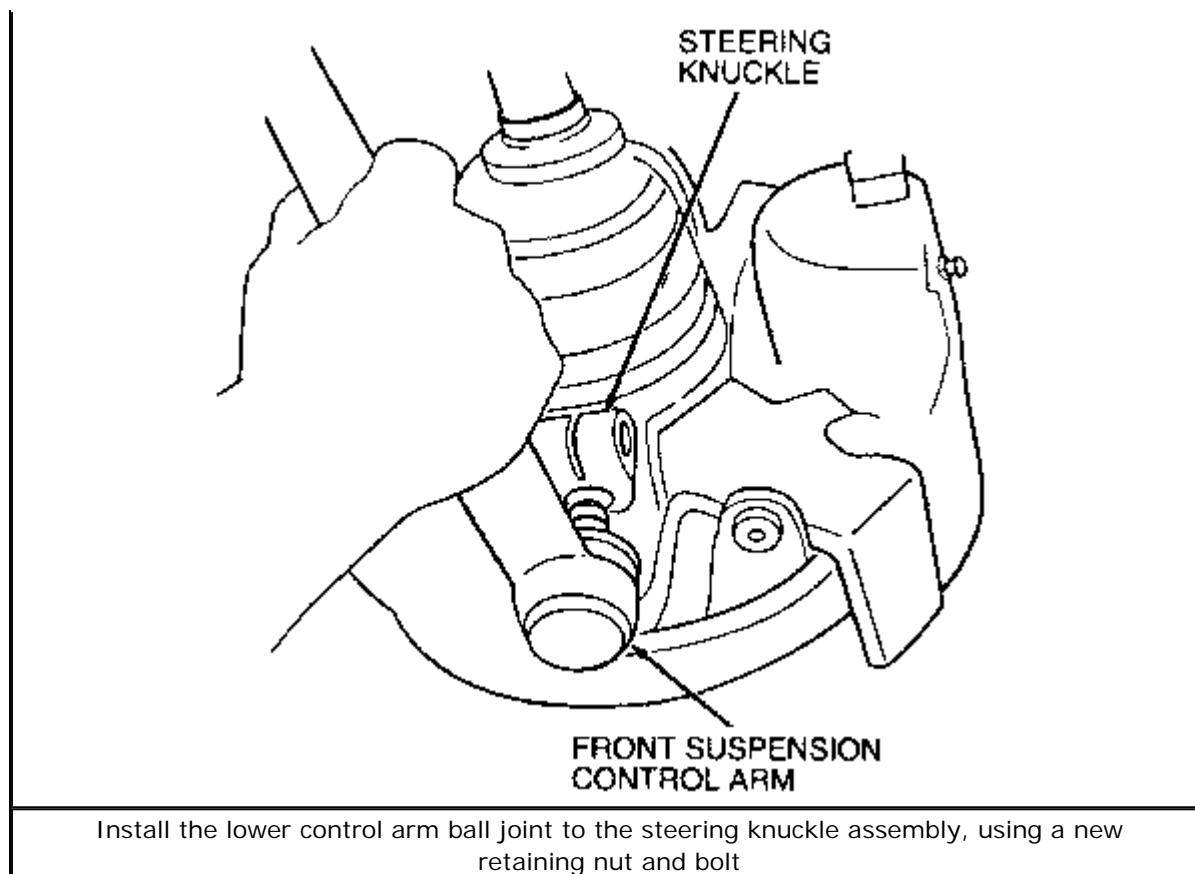


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36. Using jacks, position the subframe and raise it into position. Install the 4 bolts and tighten to 65-85 ft. lbs. (88-115 Nm).
37. Install the left vibration dampener lower bracket.
38. Install the engine mount bolts and tighten to 40-55 ft. lbs. (54-75 Nm).
39. Connect the shift cables to the transaxle.
40. Install the engine to transaxle bolts and tighten to 28-31 ft. lbs. (38-42 Nm).
41. Install the steering gear retaining nuts and tighten to 85-100 ft. lbs. (115-135 Nm).
42. Install the center support bearing retaining bolts and tighten to 85-100 ft. lbs. (115-135 Nm).
43. Install the right halfshaft into the transaxle.
44. Install the left inboard CV-joint assembly into the transaxle.

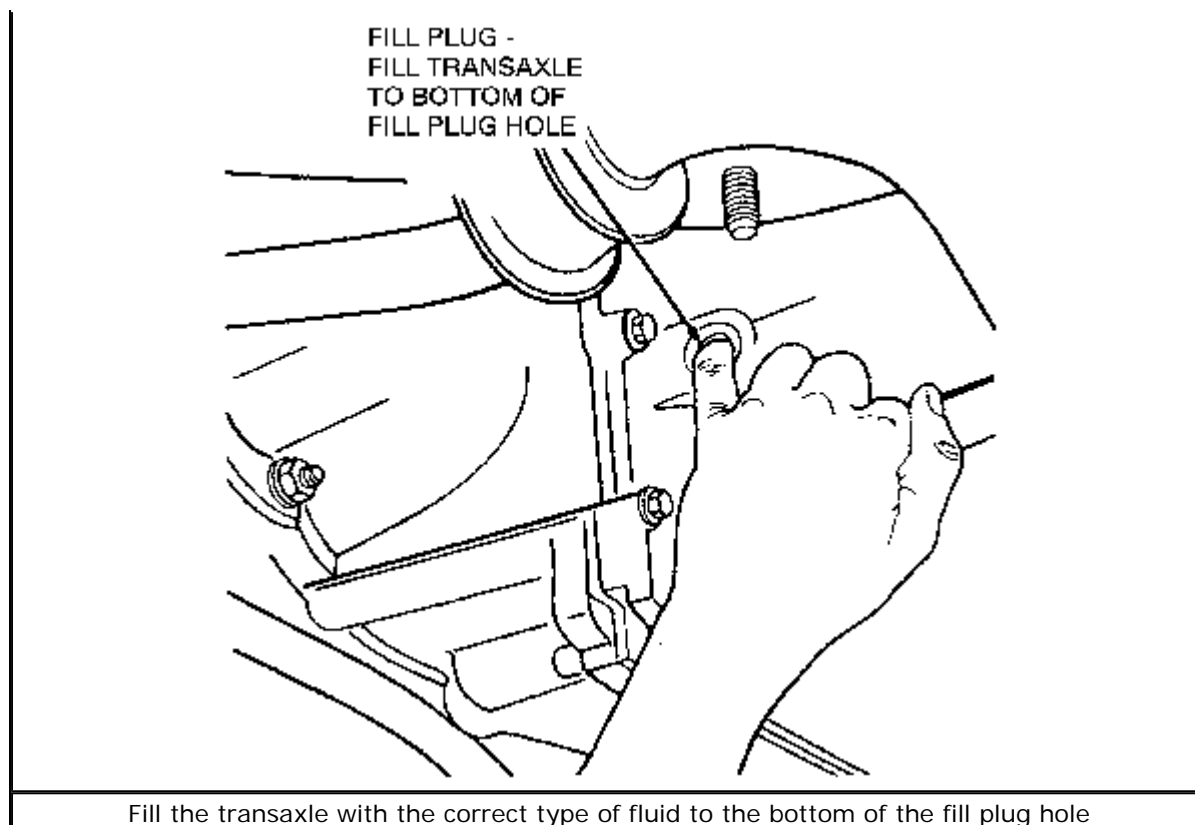


45. Connect the battery cable bracket to the subframe.
46. Connect the power steering cooler to the subframe.
47. Position the catalytic converter, then install retaining bolts and tighten to 25-34 ft. lbs. (34-47 Nm).
48. Connect the heated oxygen sensor.
49. Install the tie rod end in the knuckle and the tie rod retaining nut. Tighten to 35-47 ft. lbs. (47-64 Nm).
50. Position the stabilizer bar to the knuckle, then install the nut.
51. Install the lower control arm ball joint to steering knuckle assembly. Install a new retaining nut and bolt, then tighten to 37-44 ft. lbs. (50-60 Nm).



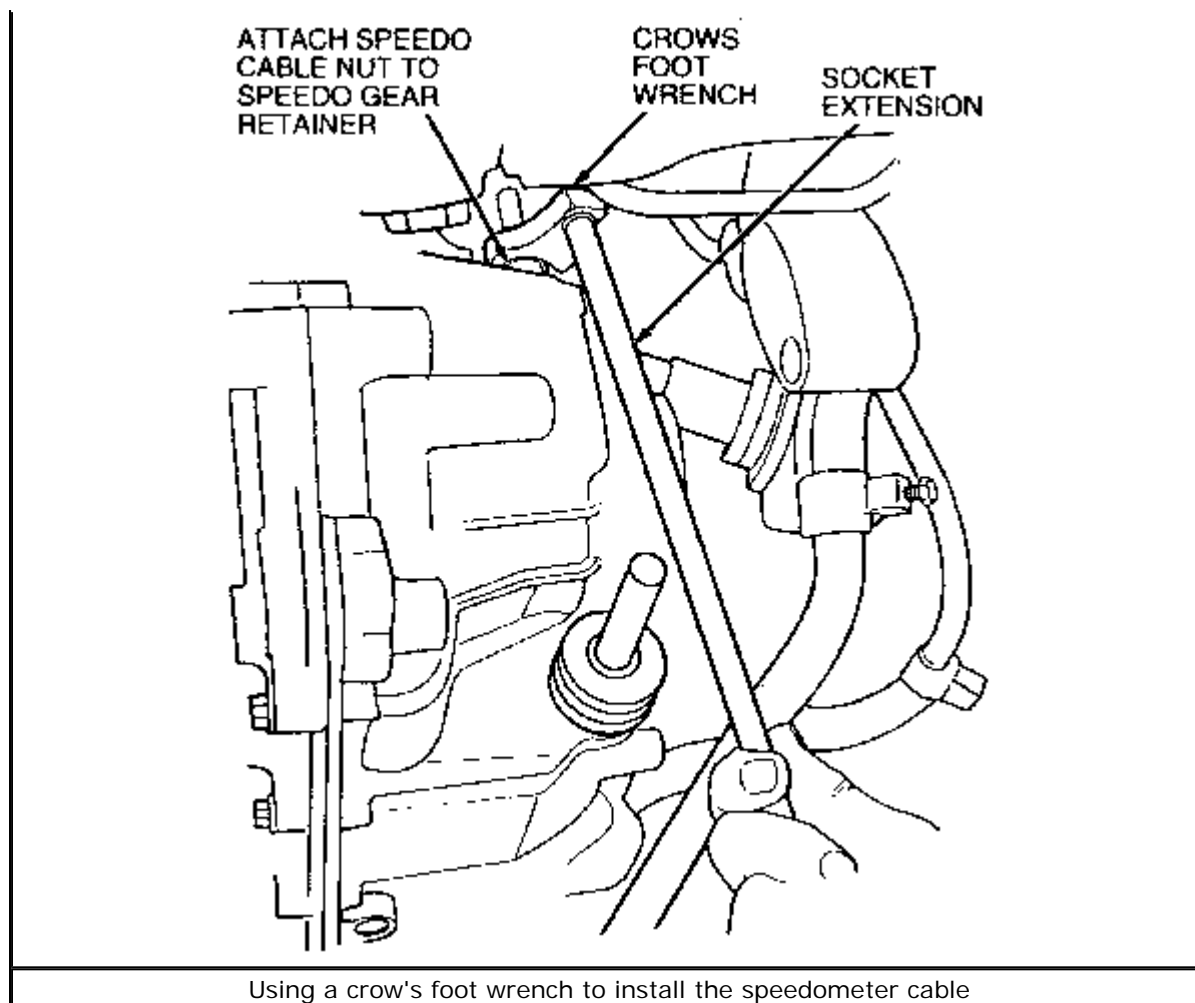
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52. Install the wheel and tire assemblies.
53. Apply Pipe Sealant with Teflon® D8AZ-19554-A or equivalent, to the transaxle fill plug threads, in a clockwise direction, then check the transaxle fluid level. Add the correct type of fluid (Motorcraft MERCON® Multi-Purpose Automatic Transmission Fluid or equivalent) to the bottom of the fill plug hole, then install the fill plug.



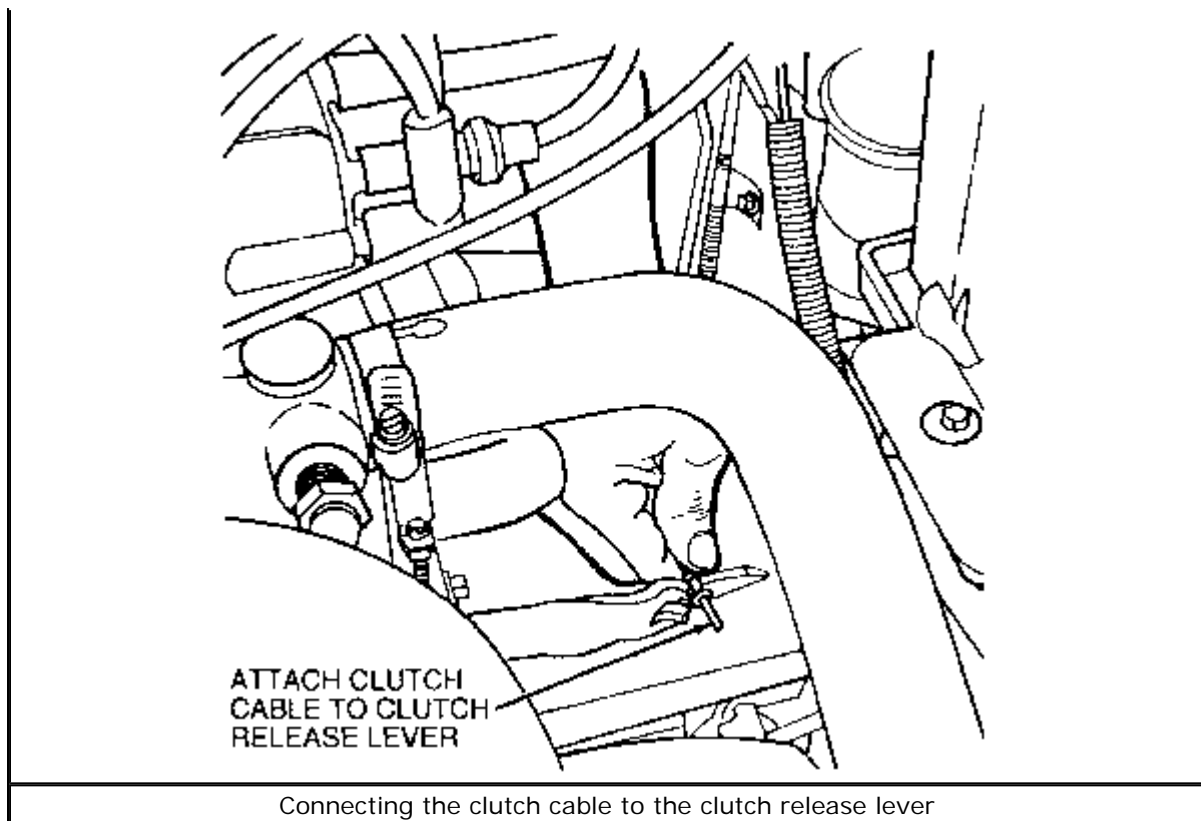
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54. Carefully lower the vehicle.
55. Remove the engine support tool.
56. Using a crows foot wrench, install the speedometer cable. Connect the speedometer cable and speed sensor wire.



[Click to enlarge](#)

57. Remove the engine lifting eyes.
58. Connect the clutch cable to the clutch release lever.



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59. Install the air cleaner hose, then remove the wood block from the clutch pedal.
60. Connect the negative battery cable, then check the transaxle for fluid leaks.

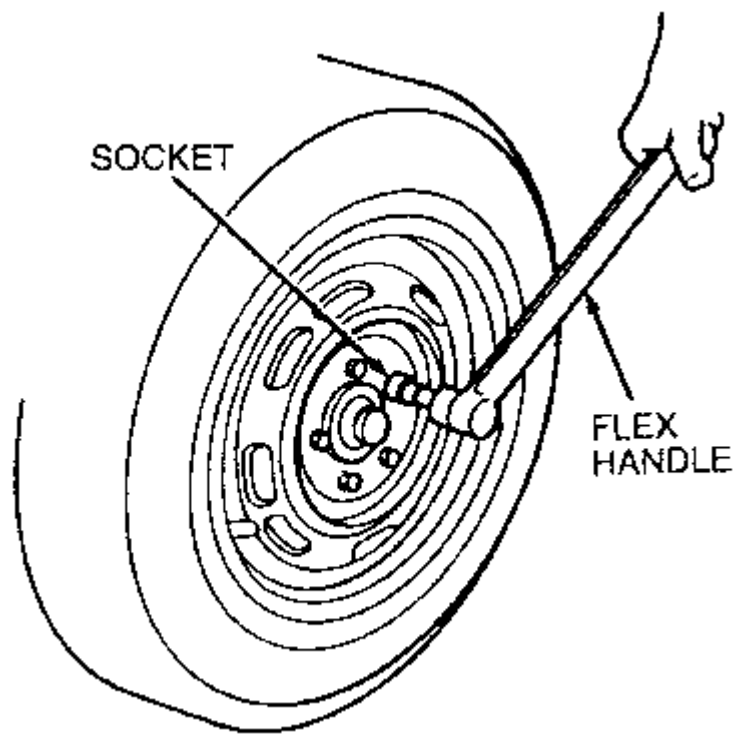
Halfshafts

When removing both the left and right halfshafts, install suitable shipping plugs to prevent dislocation of the differential side gears. Should the gears become misaligned, the differential will have to be removed from the transaxle to re-align the side gears.

Do NOT begin this procedure unless you have the following parts: a new front axle wheel hub retainer, a new lower control arm-to-steering knuckle retaining retaining bolt and nut, a new driveshaft bearing retainer circlip and a new interconnecting shaft driveshaft bearing retainer circlip. Once these parts are removed, they CANNOT be reused. Their torque holding ability or retention capability is reduced during removal.

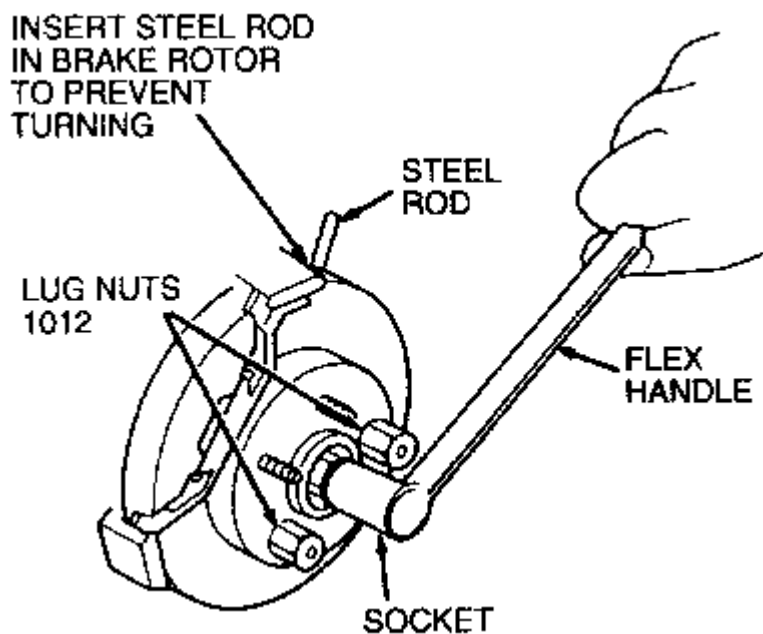
REMOVAL & INSTALLATION

1. Disconnect the negative battery cable. Remove the wheel/hub cover from the wheel and tire assembly, then loosen the wheel lug nuts.



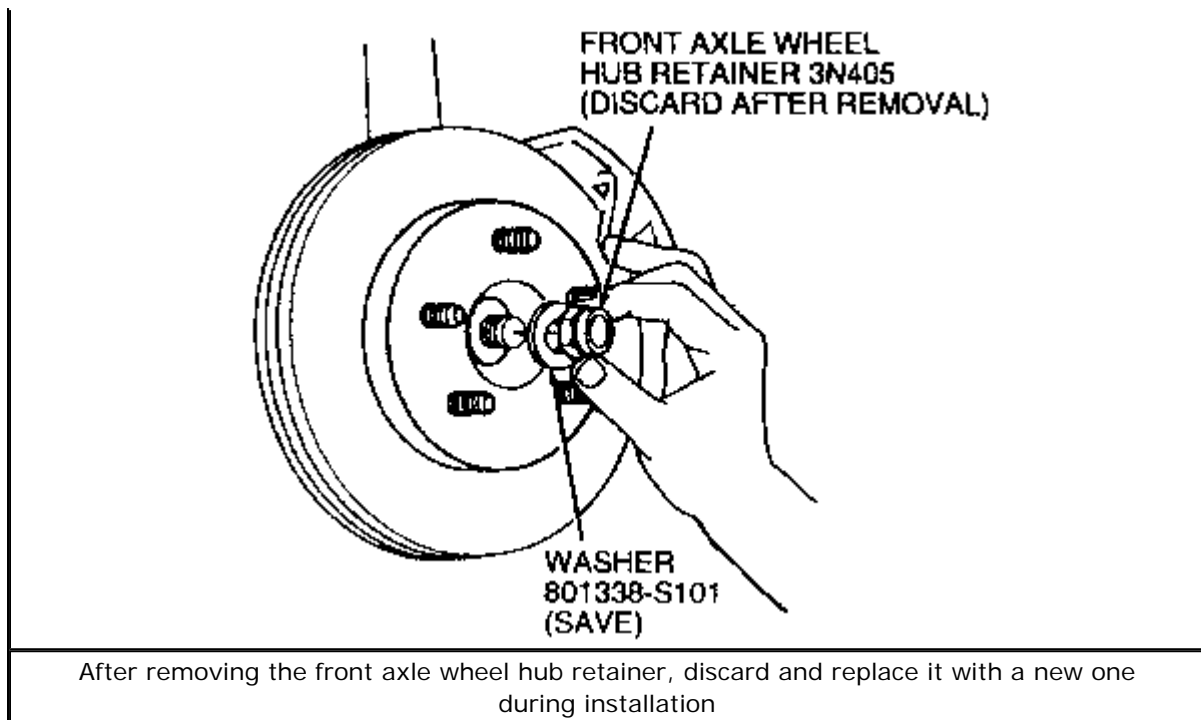
With the vehicle still on the ground, remove the wheel cover from the wheel and tire assembly, then loosen the lug nuts

2. Raise and safely support the vehicle. Remove the wheel and tire assembly, then remove the axle wheel hub nut and washer. Discard the old hub nut.



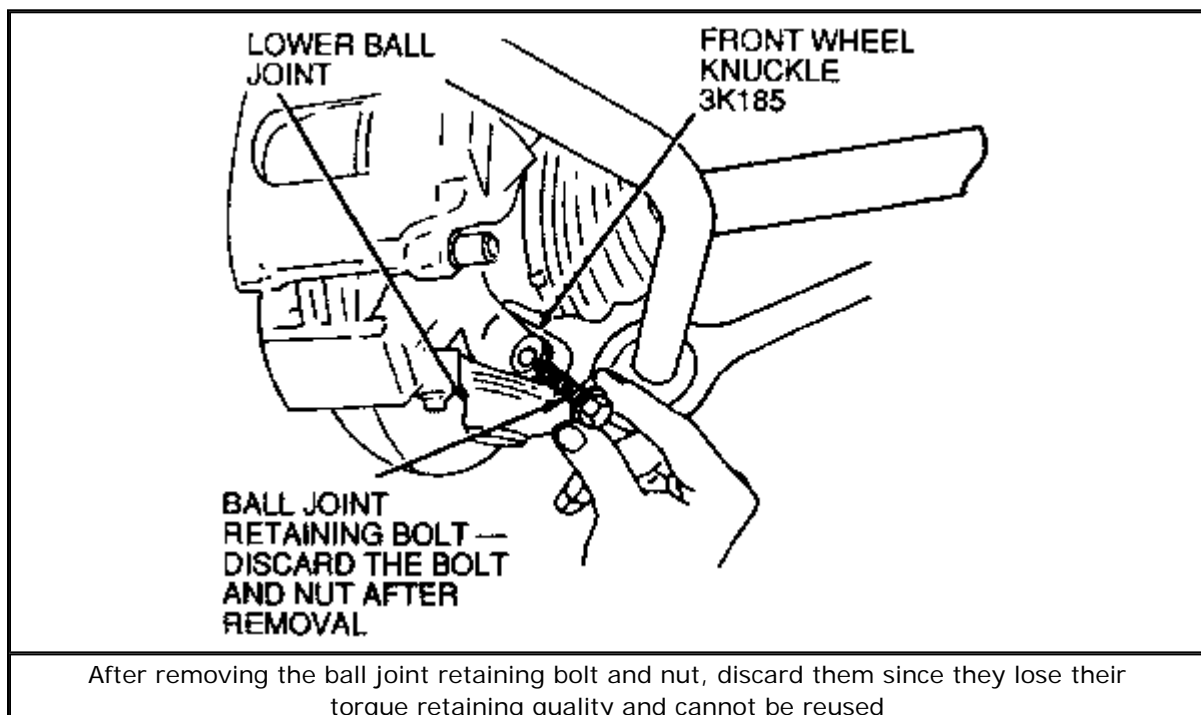
After the vehicle is safely raised, remove the wheel and tire assembly, then remove the axle wheel hub retainer, it is helpful to use a steel rod in the brake rotor to keep it from turning

[Click to enlarge](#)



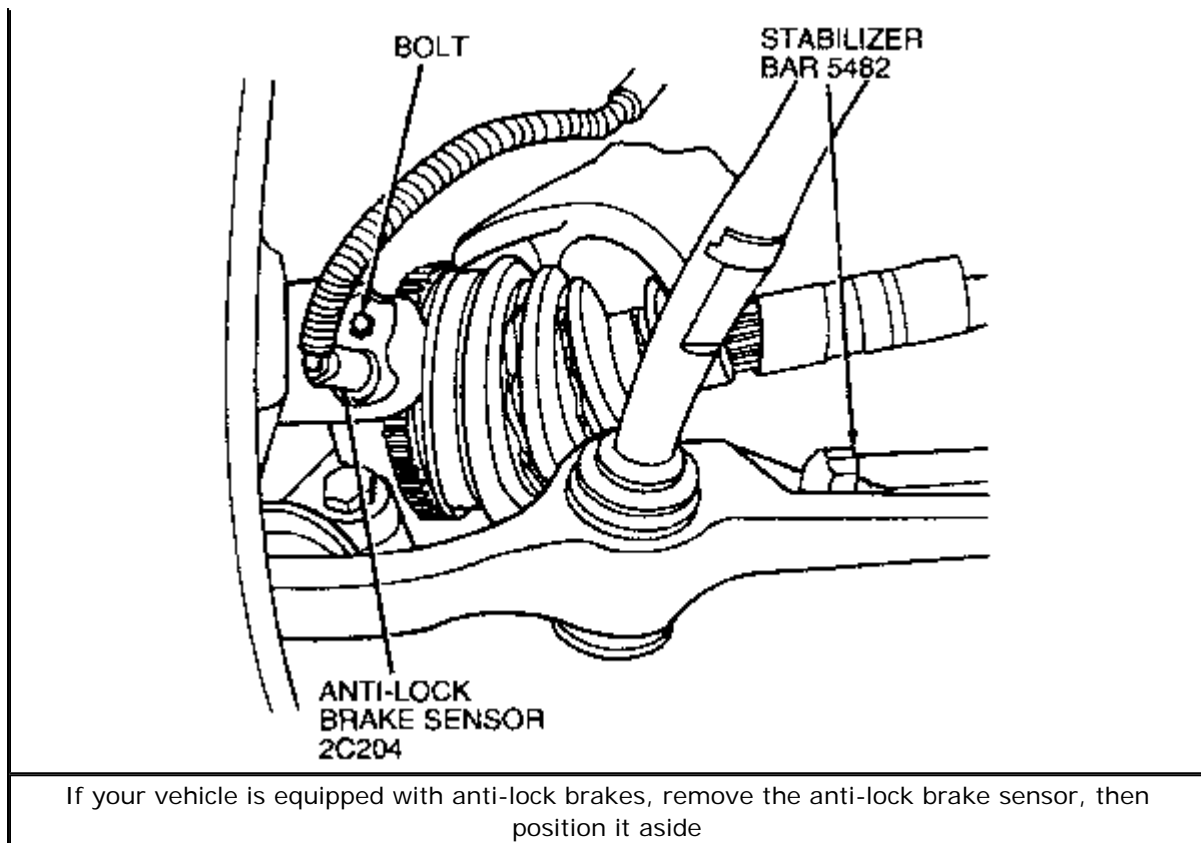
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3. Remove the nut from the ball joint-to-steering knuckle attaching bolt(s).
4. Drive the bolt out of the steering knuckle using a punch and hammer. Discard this bolt and nut after removal.



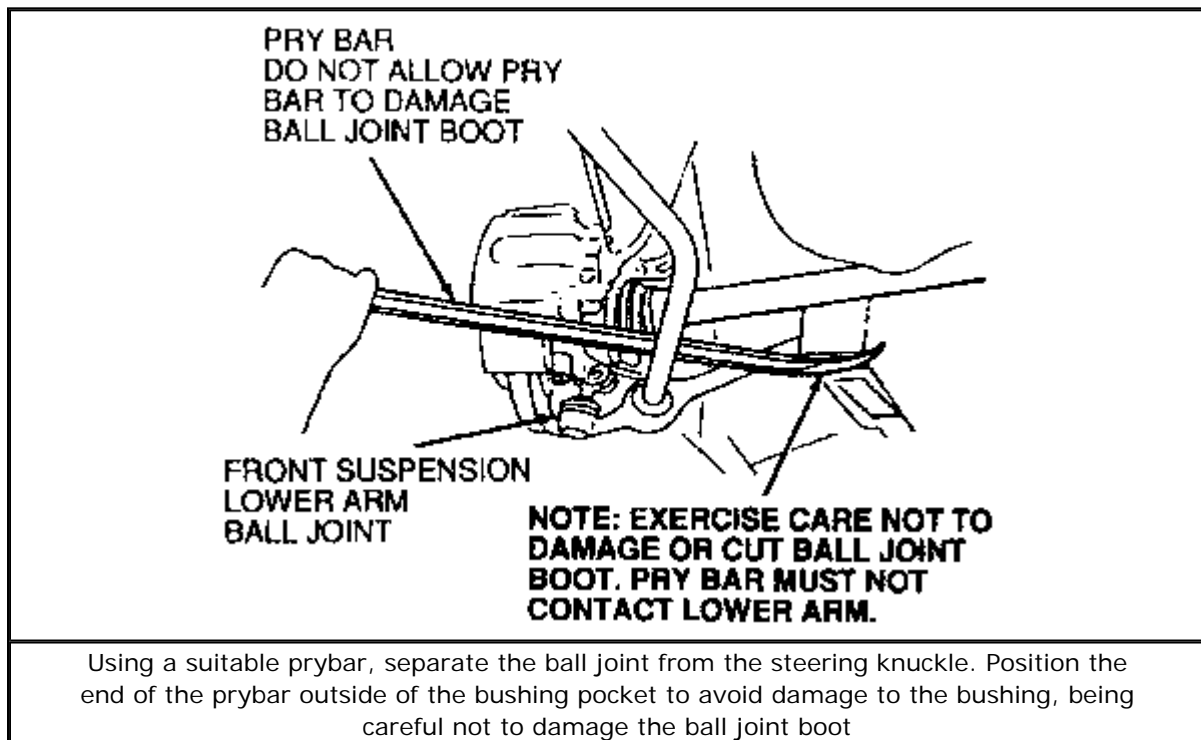
[Click to enlarge](#)

5. If equipped with anti-lock brakes, remove the anti-lock brake sensor and position aside. If equipped with air suspension, remove the height sensor bracket retaining bolt and wire sensor bracket to inner fender. Position the sensor link aside.

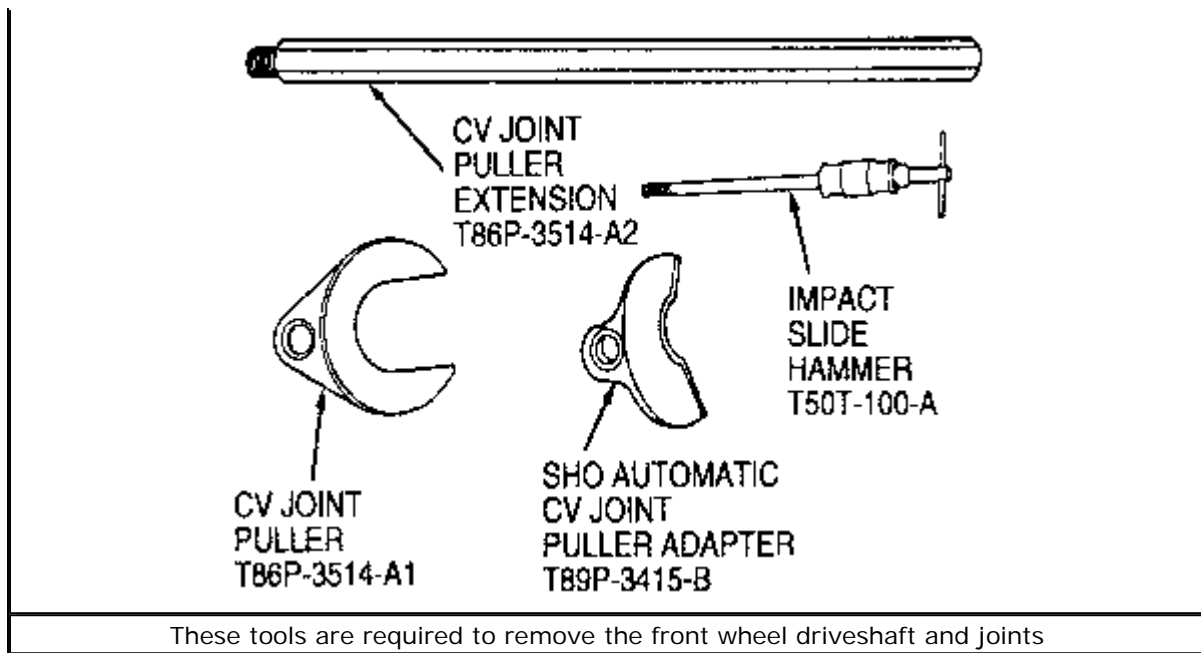


[Click to enlarge](#)

6. Separate the ball joint from the steering knuckle using a suitable prybar. Position the end of the prybar outside of the bushing pocket to avoid damage to the bushing. Use care to prevent damage to the ball joint boot. Remove the stabilizer bar link at the stabilizer bar.



[Click to enlarge](#)

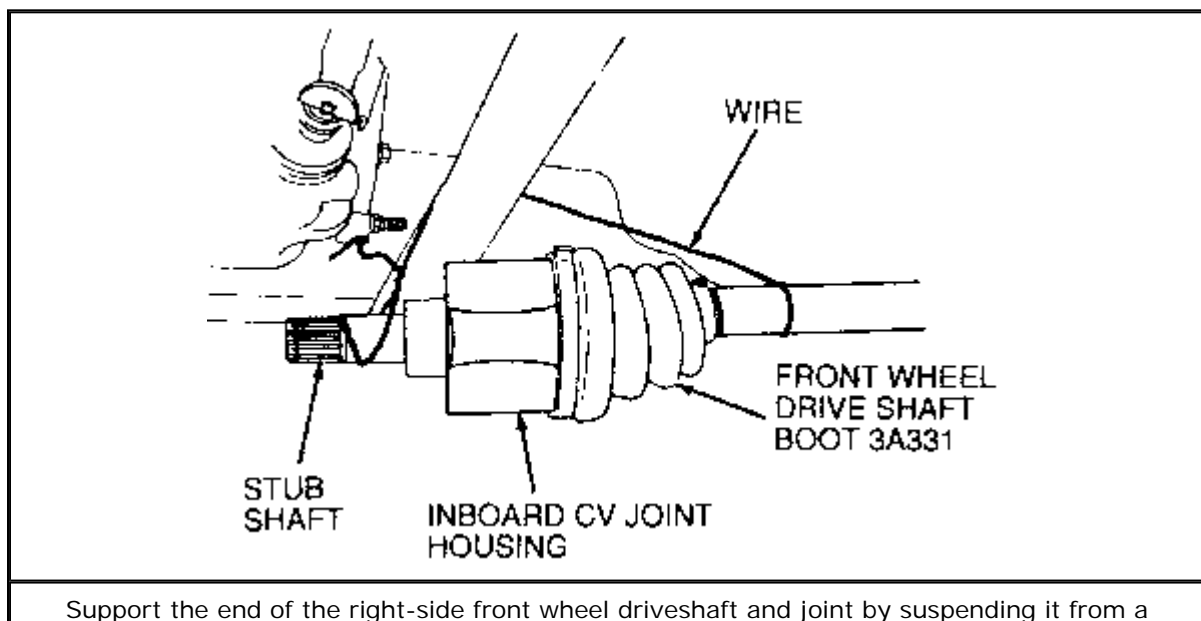


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7. To remove the right halfshaft perform the following:

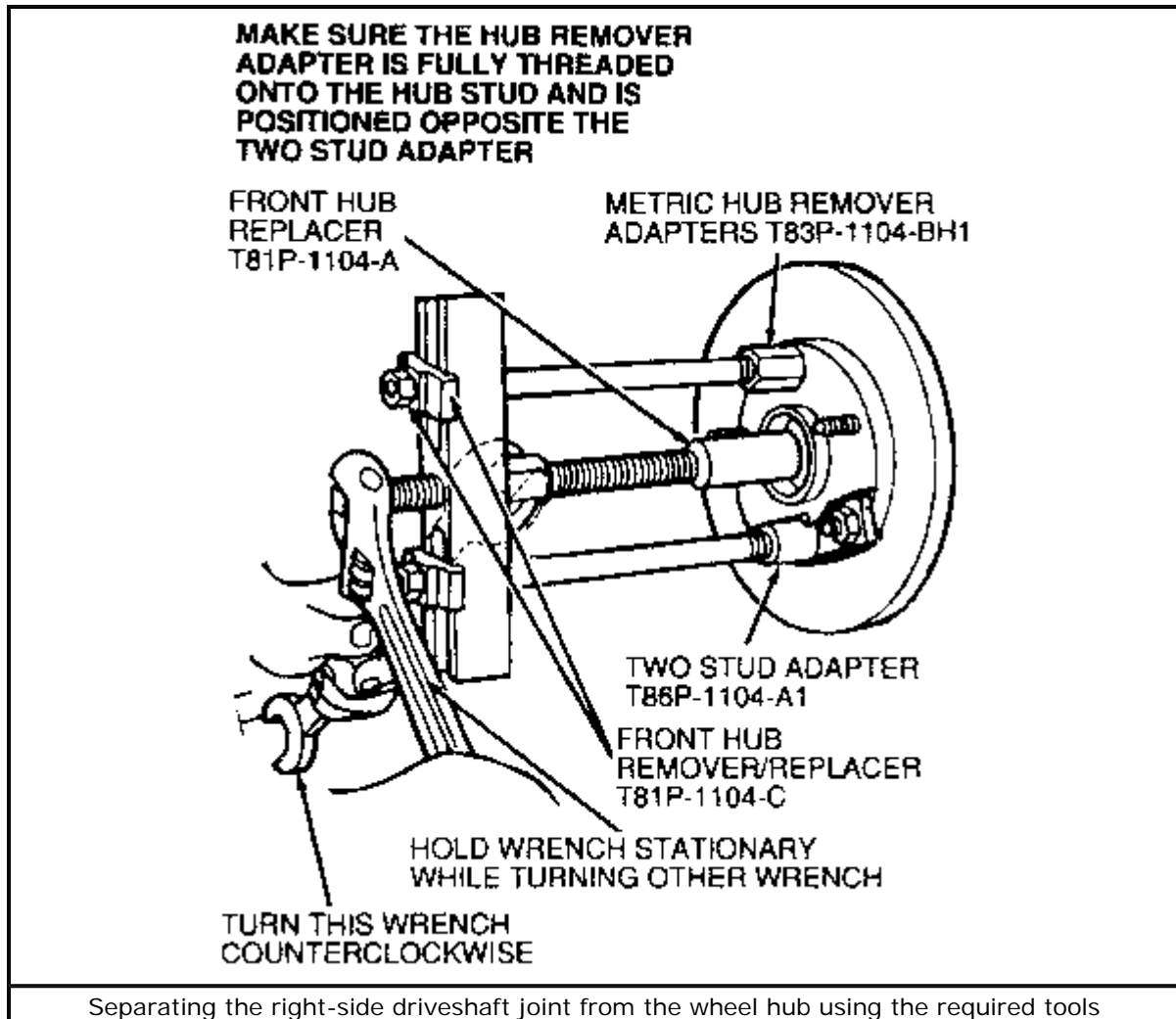
1. Remove the bolts attaching the bearing support to the bracket. Slide the halfshaft out of the transaxle. Support the end of the shaft by suspending it from a convenient underbody component with a piece of wire. Do not allow the shaft to hang unsupported, damage to the outboard CV-joint may occur.
2. Separate the outboard CV-joint from the hub using front hub remover tool T81P-1104-C or equivalent and metric adapter tools T83-P-1104 BH, T86P-1104-AI and T81P-104-A or equivalent.

NEVER use a hammer to separate the outboard CV-joint stubshaft from the hub. Damage to the CV-joint threads and internal components may result. The right-side link shaft and halfshaft assembly is removed as a complete unit.



convenient underbody component with a piece of wire. Do NOT allow it to hang unsupported, as damage to the joint may occur

[Click to enlarge](#)

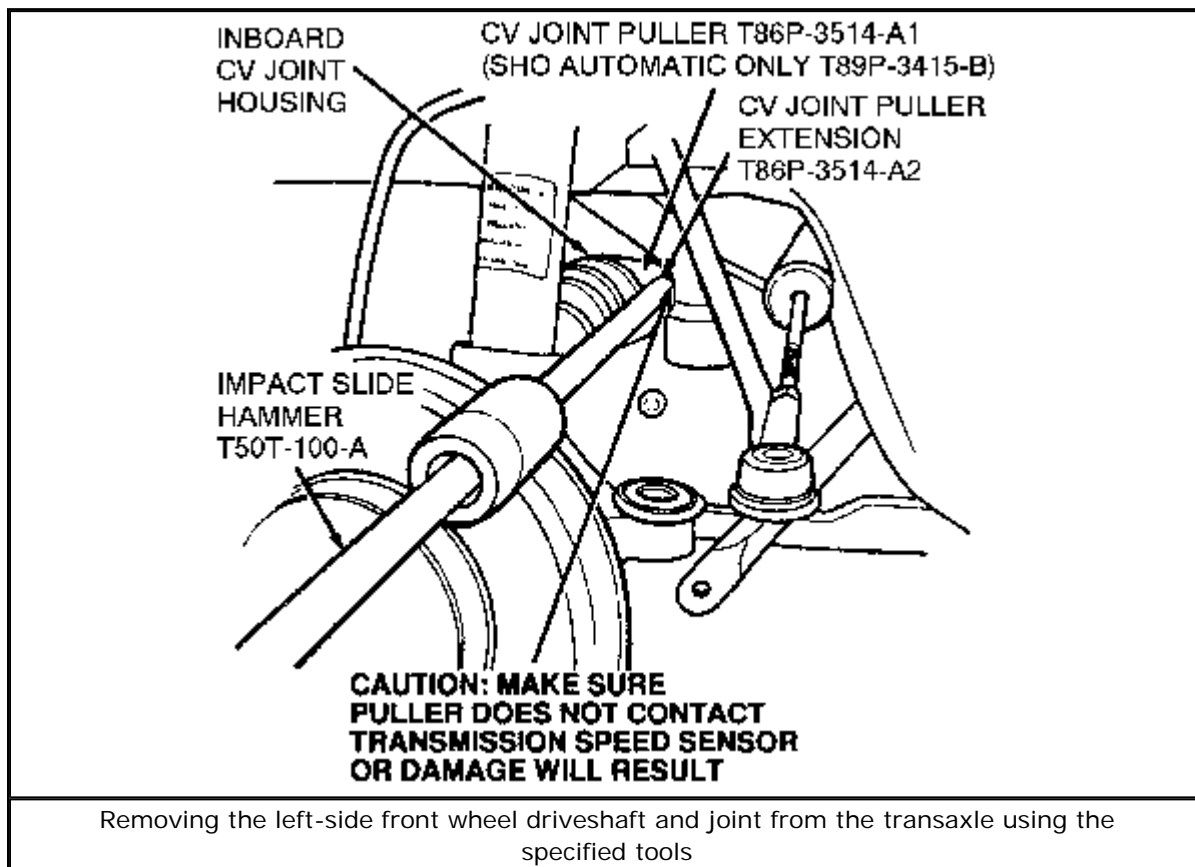


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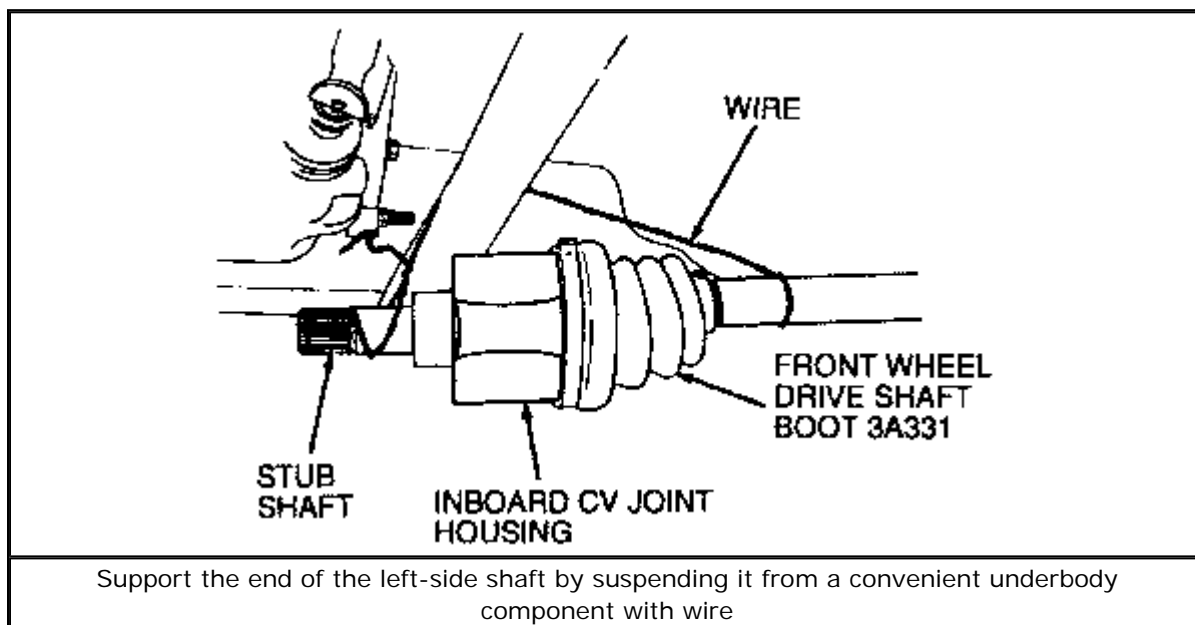
8. To remove the left halfshaft perform the following:

1. Install the CV-joint puller tool T86P-3514-A1 or equivalent, between CV-joint and transaxle case. Turn the steering hub and/or wire strut assembly aside.
2. Screw extension tool T86P-3514-A2 or equivalent, into the CV-joint puller and hand tighten. Screw an impact slide hammer onto the extension and remove the CV-joint.
3. Support the end of the shaft by suspending it from a convenient underbody component with a piece of wire. Do not allow the shaft to hang unsupported, damage to the outboard CV-joint may occur.
4. Separate the outboard CV-joint from the hub using front hub remover tool T81P-1104-C or equivalent and metric adapter tools T83P-1104-BH, T86P-1104-A1 and T81P-1104-A or equivalent.

5. Remove the halfshaft assembly from the vehicle.



[Click to enlarge](#)



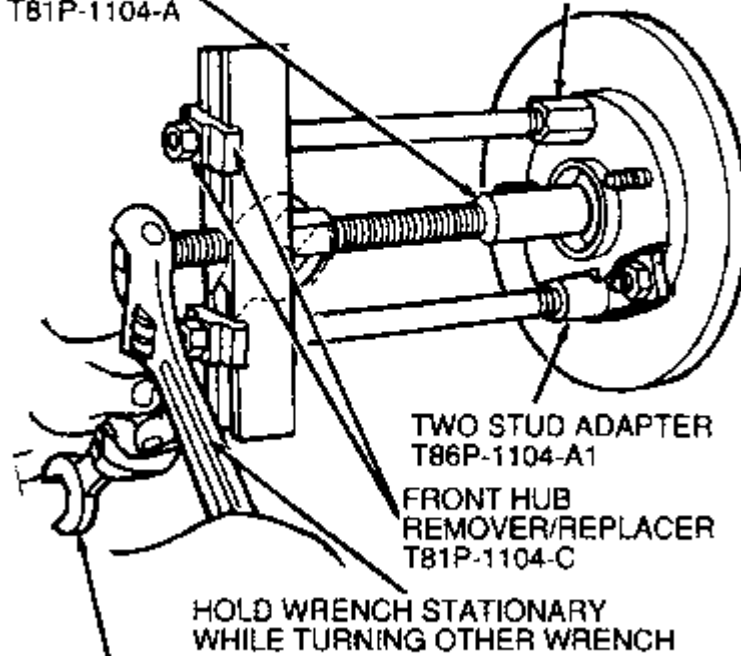
[Click to enlarge](#)



**MAKE SURE THE HUB REMOVER
ADAPTER IS FULLY THREADED
ONTO THE HUB STUD AND IS
POSITIONED OPPOSITE THE
TWO STUD ADAPTER**

FRONT HUB
REPLACER
T81P-1104-A

METRIC HUB REMOVER
ADAPTERS T83P-1104-BH1



TWO STUD ADAPTER
T86P-1104-A1

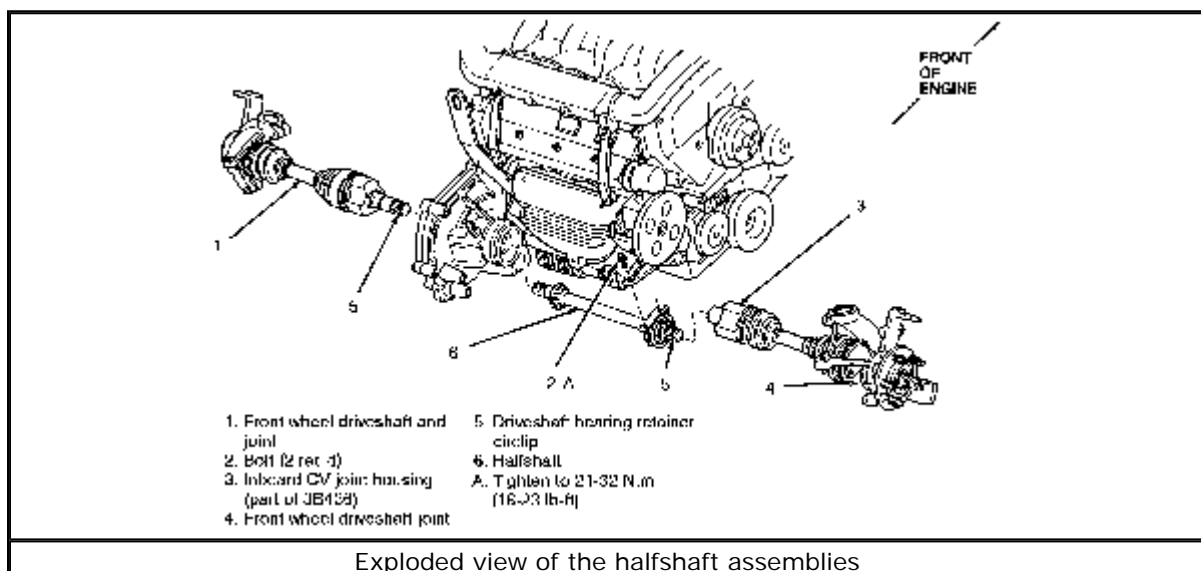
FRONT HUB
REMOVER/REPLACER
T81P-1104-C

HOLD WRENCH STATIONARY
WHILE TURNING OTHER WRENCH

TURN THIS WRENCH
COUNTERCLOCKWISE

Separating the outboard CV-joint from the hub using the specified tools

[Click to enlarge](#)



Exploded view of the halfshaft assemblies

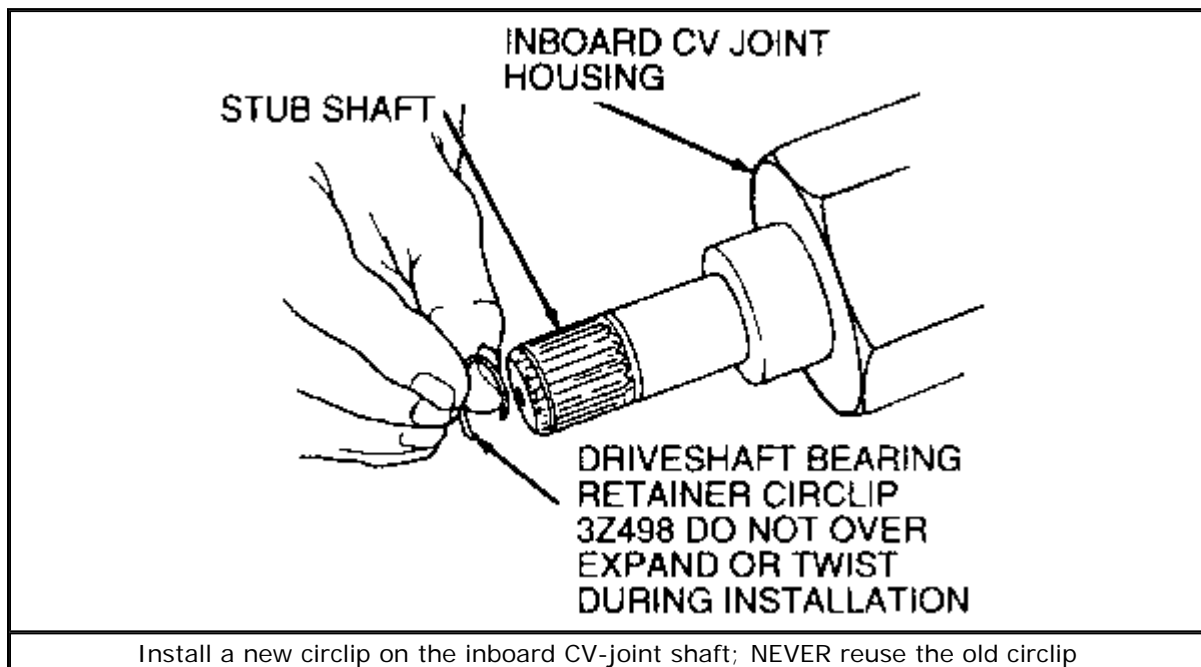
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To install:

9. Install a new circlip on the inboard CV-joint stub shaft and/or link shaft. The outboard CV-joint does not have a circlip. When installing the circlip, start one end

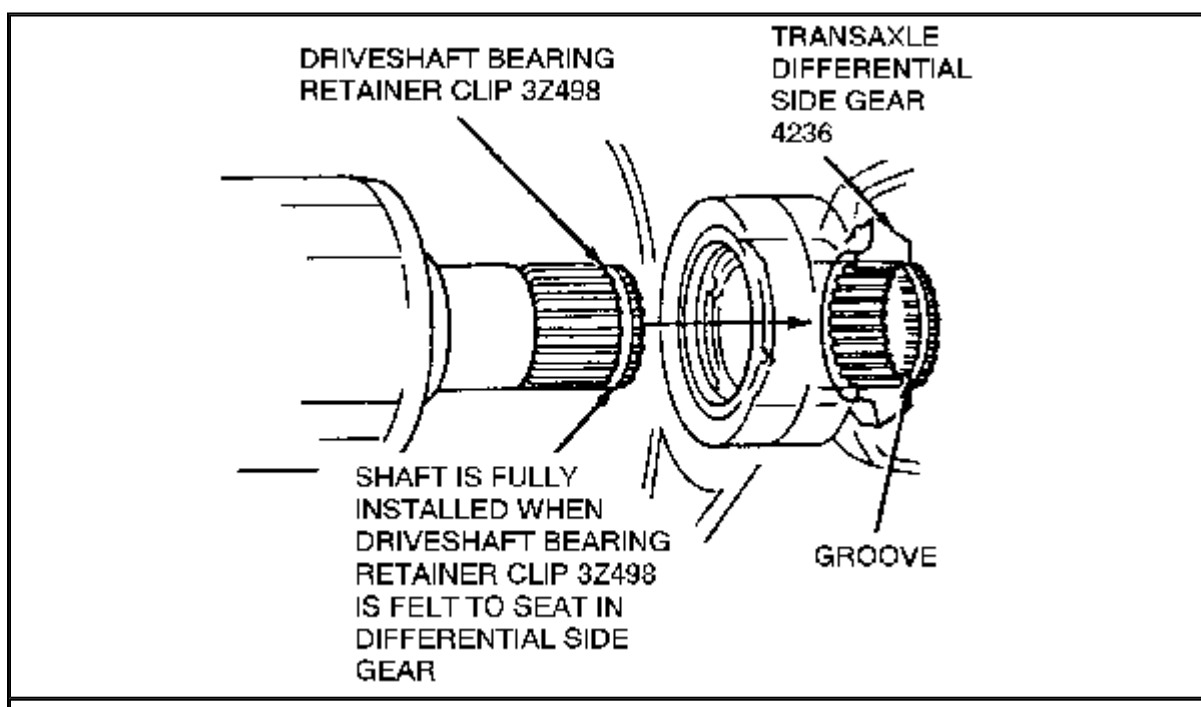
in the groove and work the circlip over the stub shaft end into the groove. This will avoid overexpanding the circlip.

The circlip must not be re-used. A new circlip must be installed each time the inboard CV-joint is installed into the transaxle differential.



- Carefully align the splines of the inboard CV-joint stub shaft with the splines in the differential. Exerting some force, push the CV-joint into the differential until the circlip is felt to seat in the differential side gear. Use care to prevent damage to the differential oil seal. If equipped, tighten the link shaft bearing to 16-23 ft. lbs. (22-31 Nm).

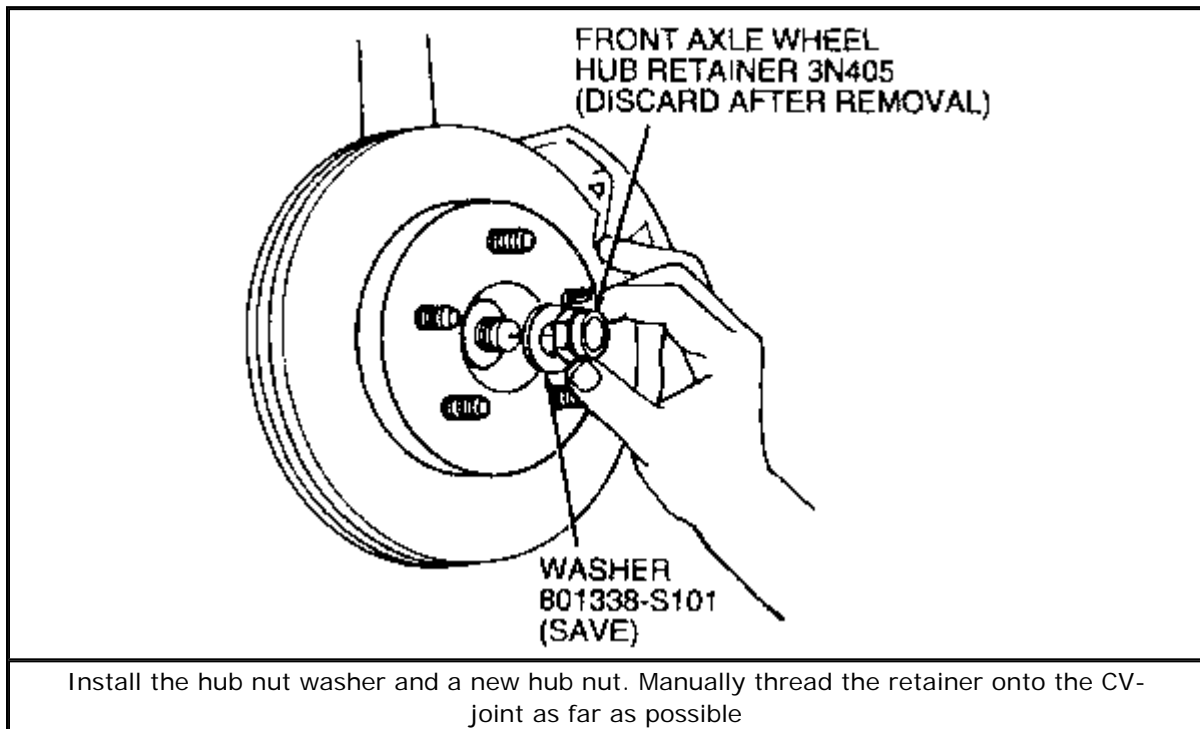
A non-metallic mallet may be used to aid in seating the circlip into the differential side gear groove. If a mallet is necessary, tap only on the outboard CV-joint stub shaft.



Carefully align the splines of the inboard CV-joint stub shaft with the splines in the differential

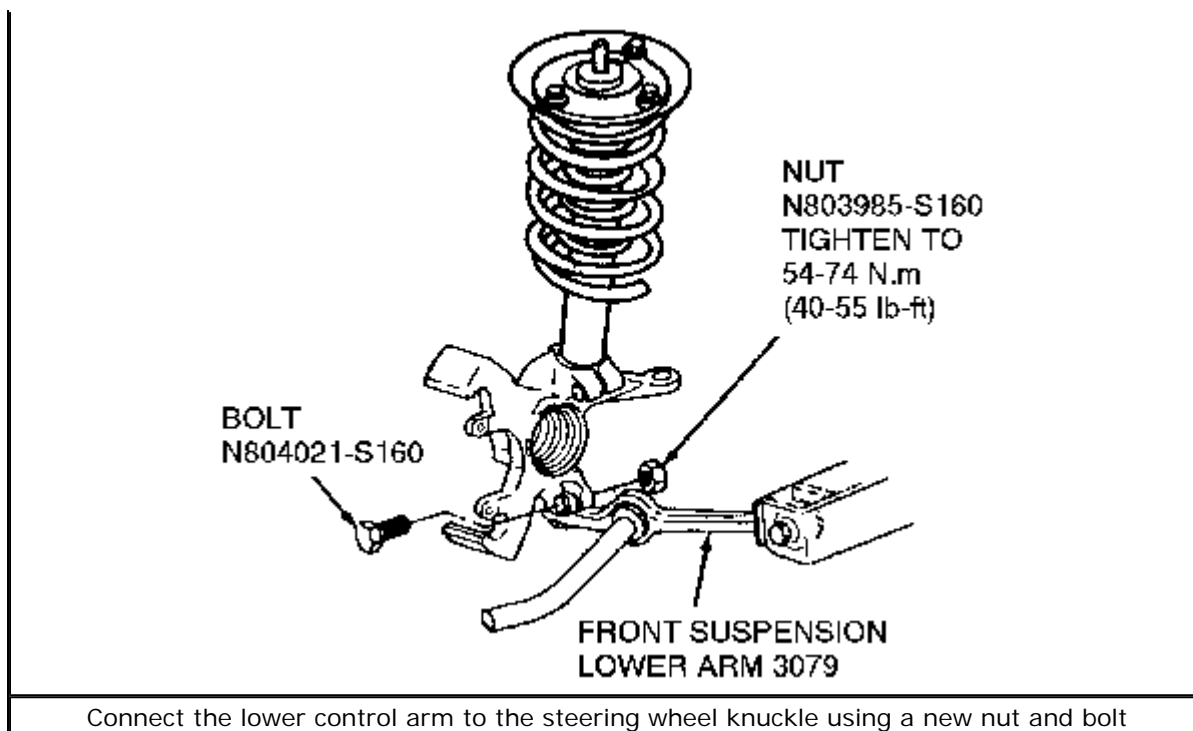
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11. Carefully align the splines of the outboard CV-joint stub shaft with the splines in the hub and push the shaft into the hub as far as possible.
12. Temporarily fasten the rotor to the hub with washers and 2 wheel lug nuts. Insert a steel rod into the rotor and rotate clockwise to contact the knuckle to prevent the rotor from turning during the CV-joint installation.
13. Install the hub nut washer and a new hub nut. Manually thread the retainer onto the CV-joint as far as possible.



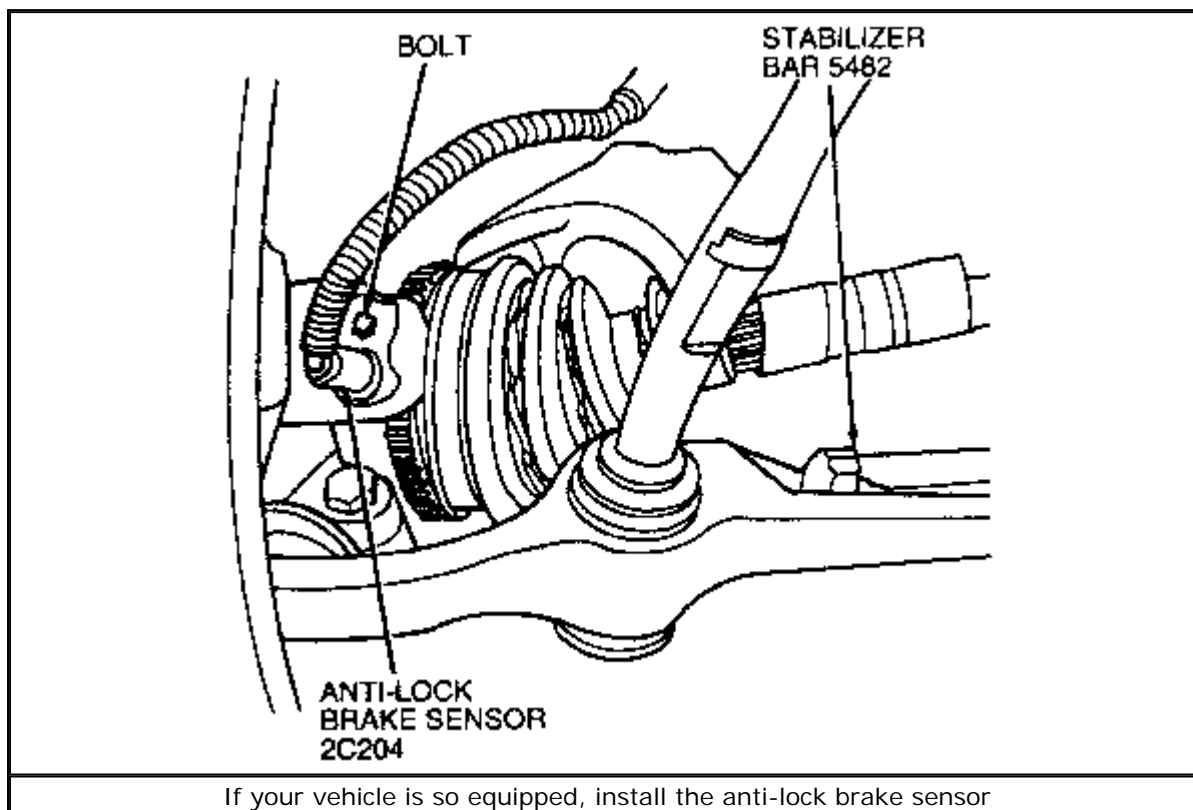
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14. Connect the lower control arm to the steering knuckle using a new nut and bolt. Tighten the nut to 40-55 ft. lbs. (54-74 Nm).



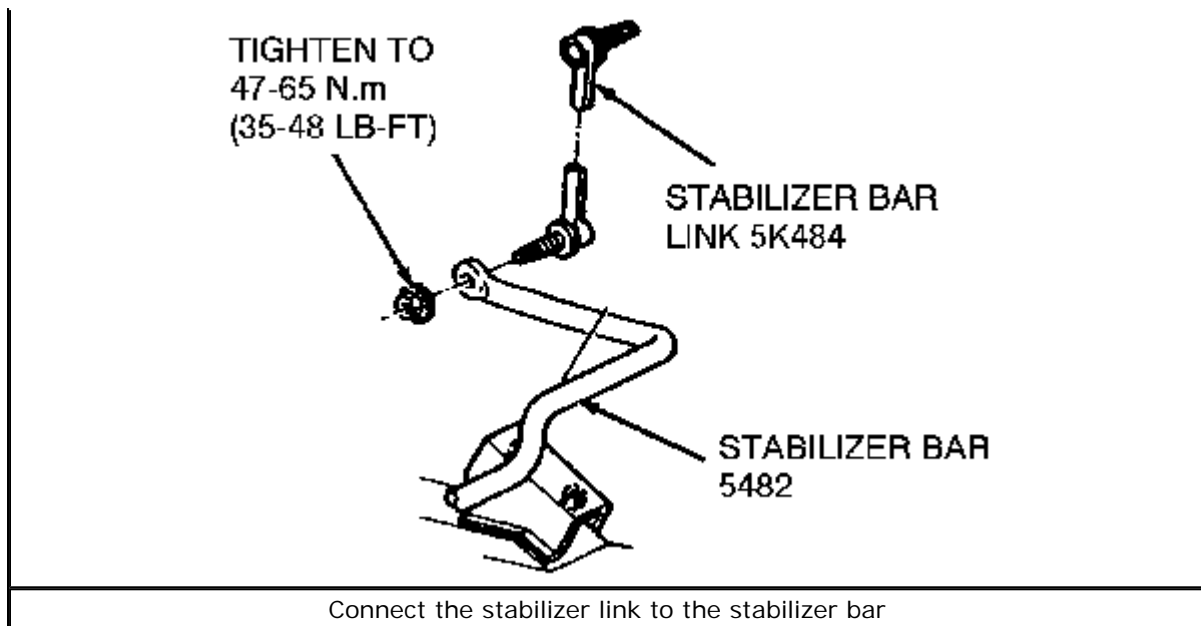
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15. Install the anti-lock brake sensor and/or the ride height sensor bracket, if equipped.



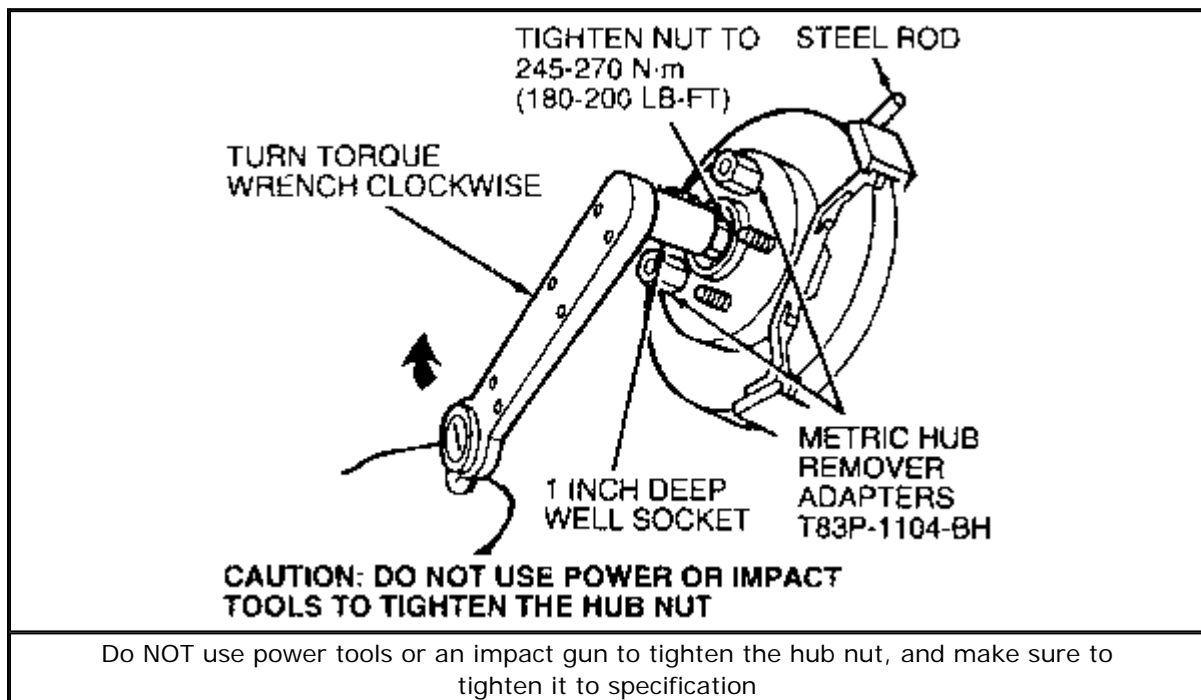
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16. Connect the stabilizer link to the stabilizer bar. Tighten to 35-48 ft. lbs. (47-65 Nm).



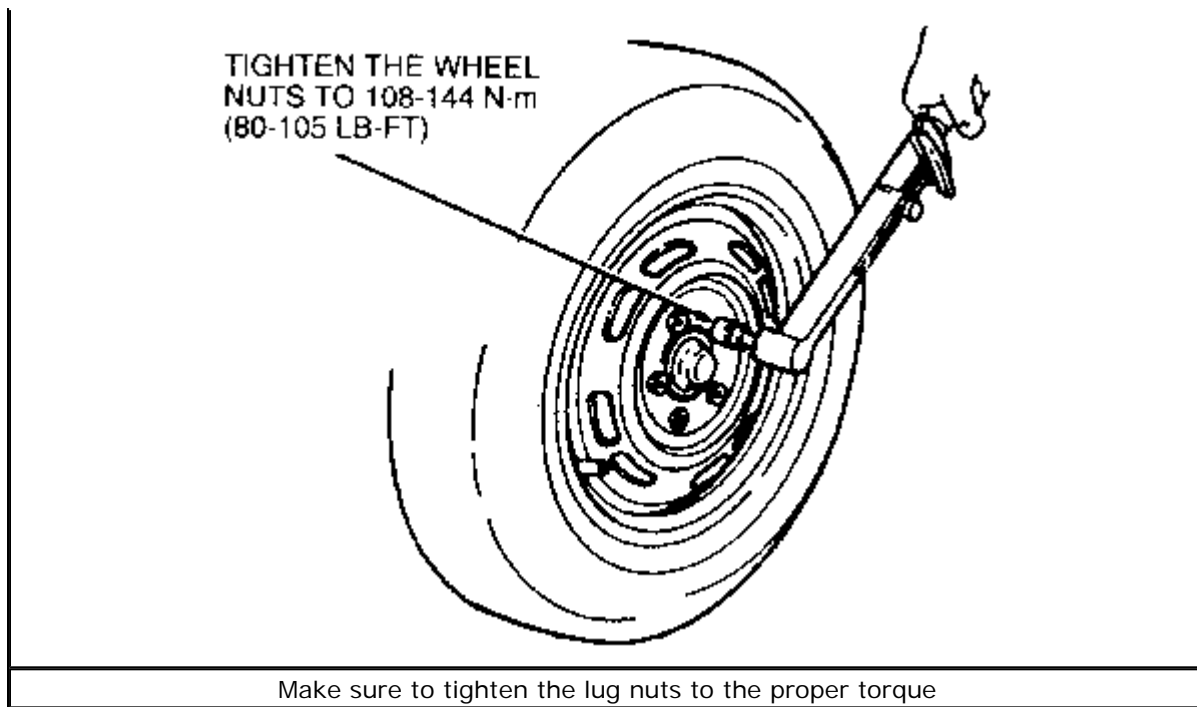
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17. Tighten the hub retainer nut to 180-200 ft. lbs. (245-270 Nm). Remove the steel rod.



[Click to enlarge](#)

18. Install the wheel and tire assembly, then lower the vehicle. Tighten the wheel lug nuts to 80-105 ft. lbs. (108-144 Nm). Fill the transaxle to the proper level with the specified fluid.



[Click to enlarge](#)

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