

OVERHAUL

TRANSFER CASE

CAUTION: Discard all seals after removal.

NOTE: For identification of special tools, see Fig. 27 and Fig. 28 .

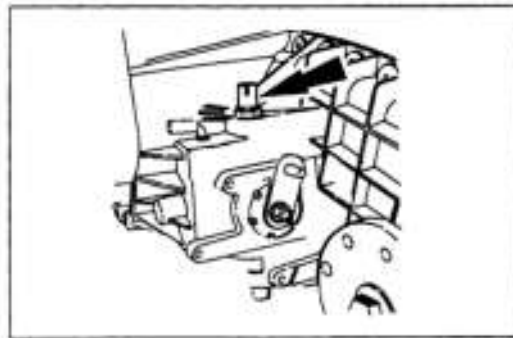
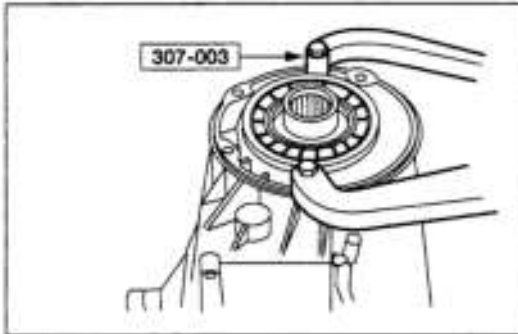
Disassembly

For transfer case disassembly procedure, see Fig. 5 -Fig. 15 .

All transfer cases

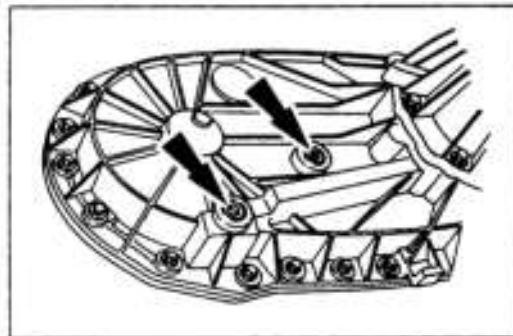
⚠ CAUTION: Discard all nuts, bolts, and retaining rings after removing them from the transfer case. Install all new fasteners during transfer case assembly.

1. Attach the transfer case to the special tool.



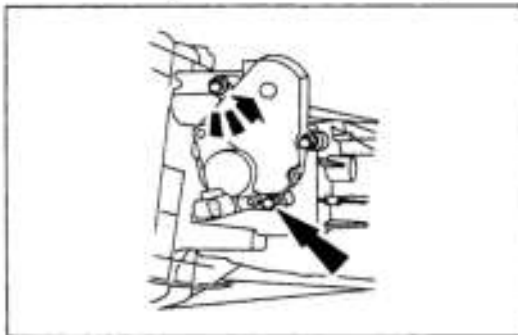
All transfer cases

4. **⚠ CAUTION:** Do not use air tools to remove the plugs.
Remove the drain and fill plugs.

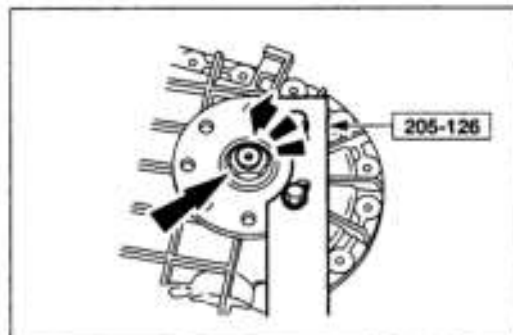


Electric shift transfer case

2. Remove the gearmotor encoder assembly.



5. Remove and discard the nut.
 - Use the special tool to prevent the flange from turning.



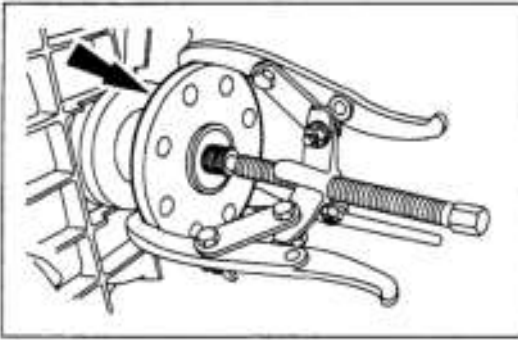
Manual shift transfer case

3. Remove the 3 position switch.

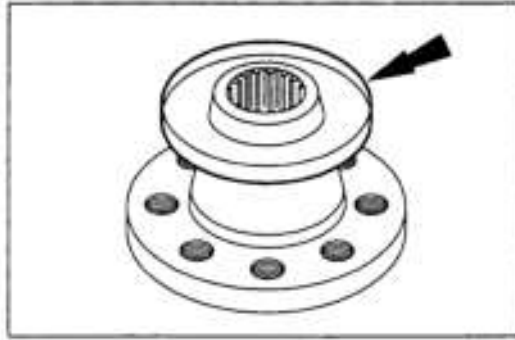
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Fig. 5: Transfer Case Disassembly (1 Of 11)
Courtesy of FORD MOTOR CO.

6. Using a suitable 2- or 3-jaw puller, remove the flange.

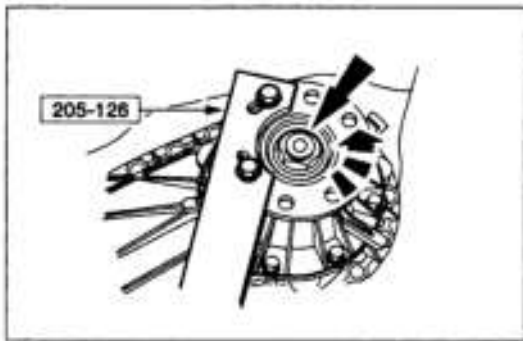


9. Remove the slinger from the front flange and the rear flange, if necessary.

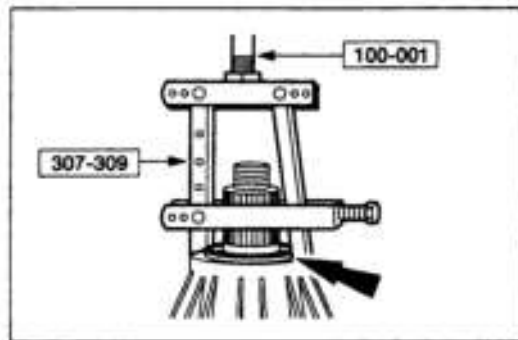


7. Remove and discard the nut.

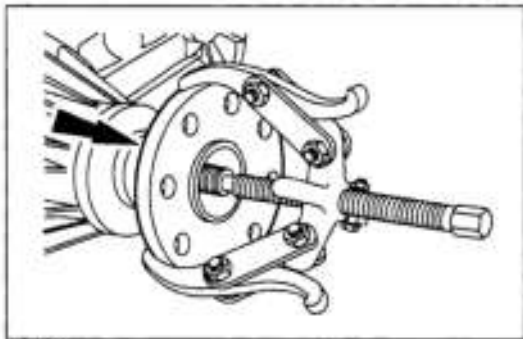
- Use the special tool to prevent the flange from turning.



10. Using the special tools, remove the rear output seal.



8. Using a suitable 2- or 3-jaw puller, remove the flange.



11. Remove and discard the eight bolts retaining the rear retainer to the rear case.

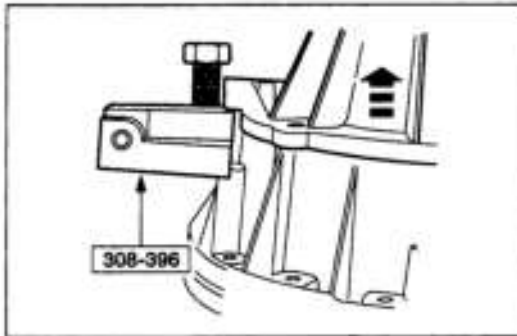


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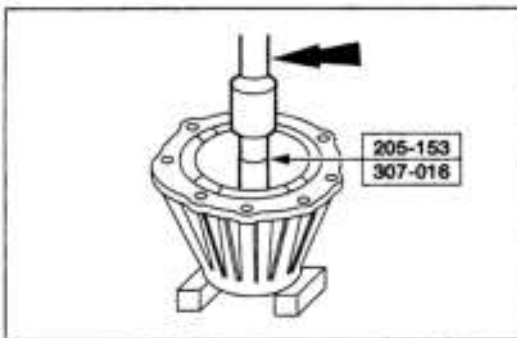
Fig. 6: Transfer Case Disassembly (2 Of 11)
Courtesy of FORD MOTOR CO.

12. Remove the rear retainer.

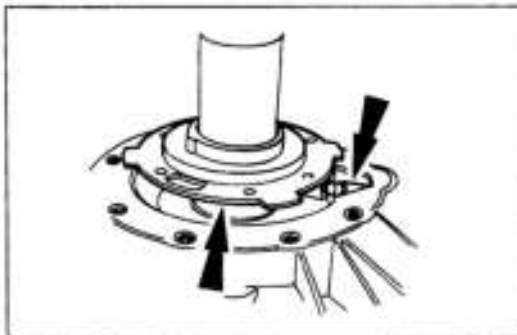
- Use the special tool to separate the rear retainer from the rear case.



13. Using the special tools and a suitable press, remove the needle bearing.

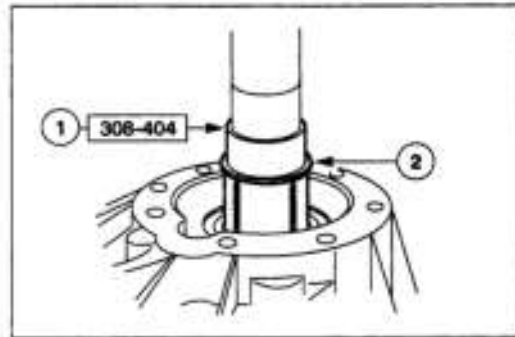


14. Disconnect the oil tube and remove the oil pump assembly.

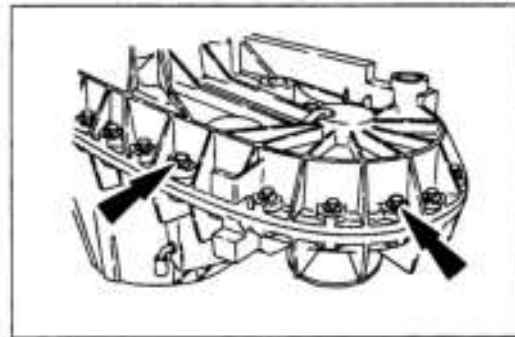


15. Remove and discard the retaining ring.

- 1 Install the special tool.
 - 2 Lift up on the shaft, and remove and discard the retaining ring.
- Remove the special tool.

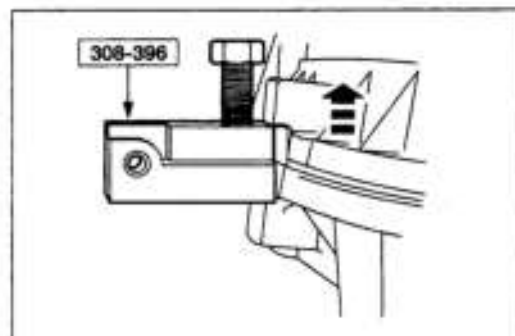


16. Remove and discard the 25 bolts retaining the rear case to the front case.



17. Remove the rear case.

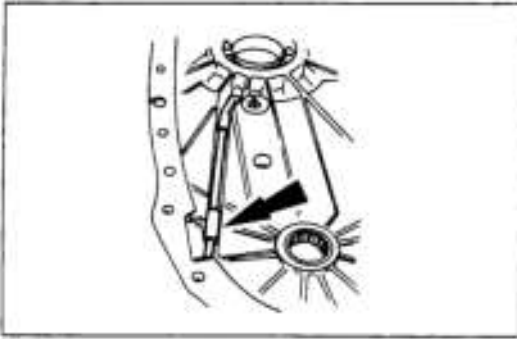
- Use the special tool to separate the case halves.



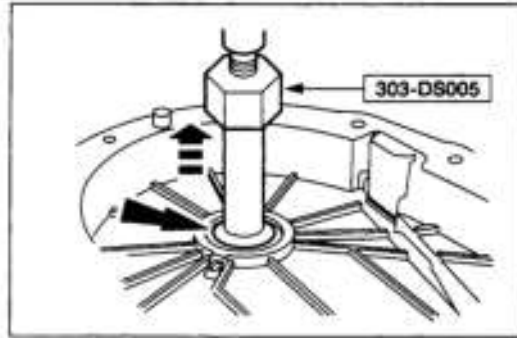
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Fig. 7: Transfer Case Disassembly (3 Of 11)
Courtesy of FORD MOTOR CO.

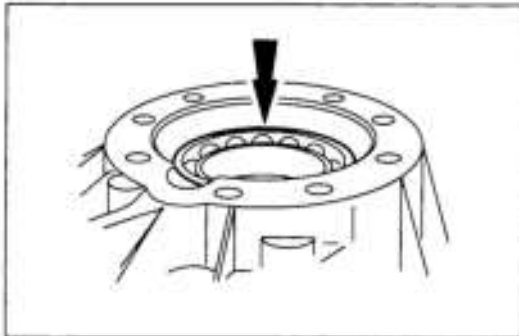
18. Remove the oil tube.



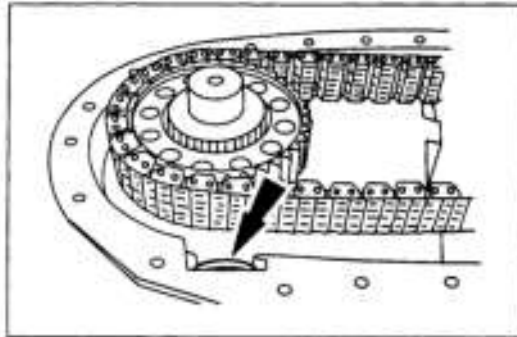
21. Using the special tool, remove the needle bearing.



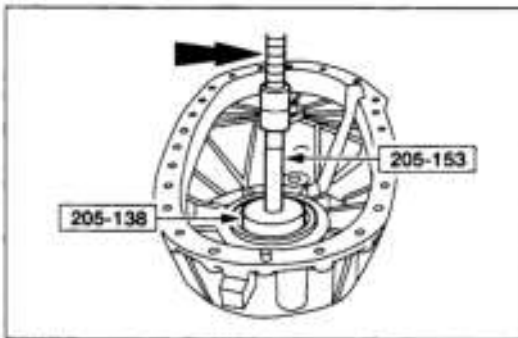
19. Remove the ball bearing retaining ring.



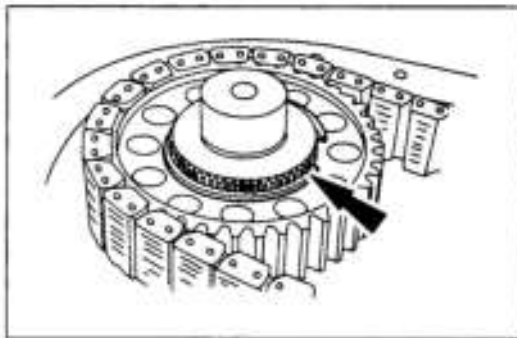
22. Remove the chip collector magnet.



20. Using the special tools and a suitable press, remove the ball bearing.



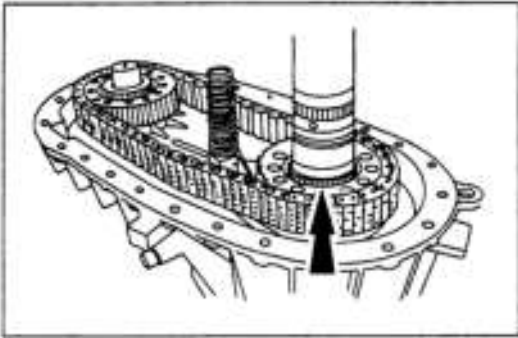
23. Remove the driven sprocket retaining ring.



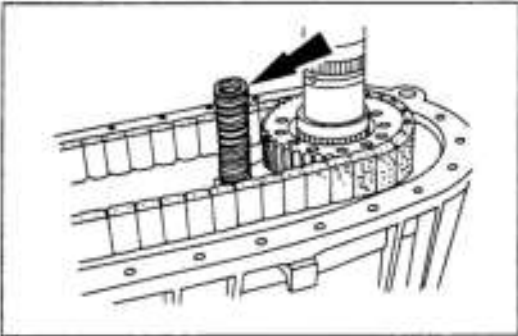
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Fig. 8: Transfer Case Disassembly (4 Of 11)
Courtesy of FORD MOTOR CO.

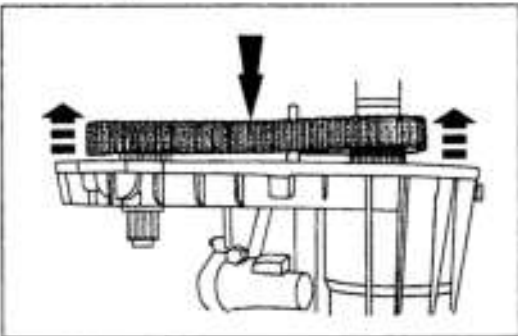
24. Remove the drive sprocket retaining ring.



25. Remove the mode spring.

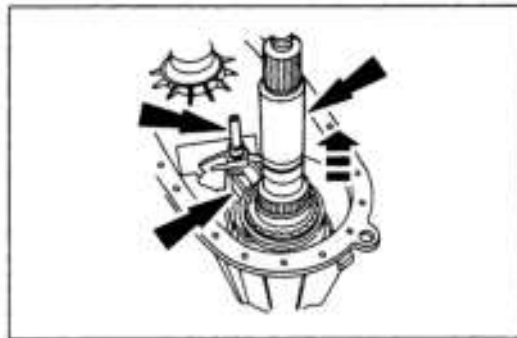


26. Remove the sprockets and chain as an assembly.



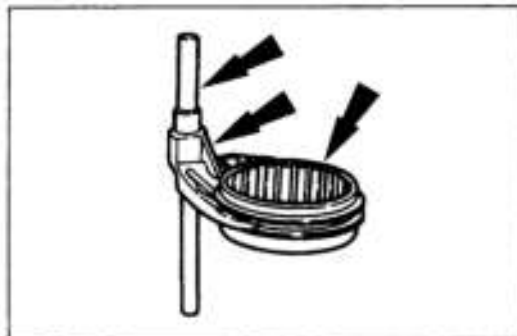
27. Remove the mainshaft and the mode fork assembly as an assembly.

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28. Slide the mode fork and synchronizer sleeve off the mainshaft, and separate the components.

- Mode sleeve for mechanical shift or synchronizer sleeve for electric shift.



29. Place the mainshaft in a soft jawed vise with the threaded end upward.

30. Remove the clutch gear.

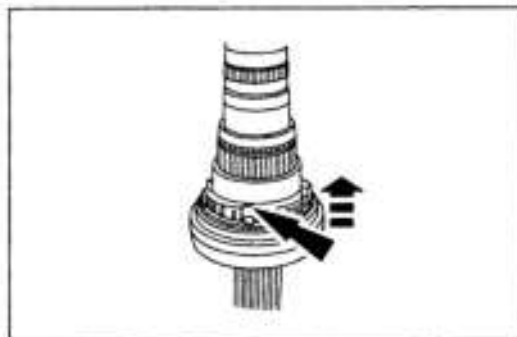
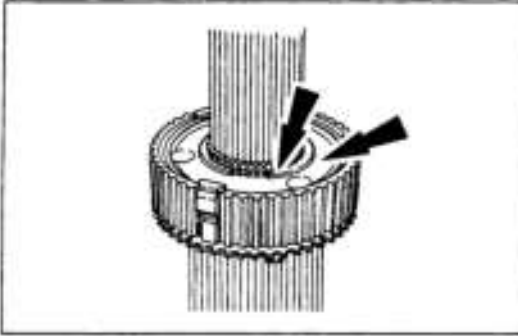


Fig. 9: Transfer Case Disassembly (5 Of 11)
Courtesy of FORD MOTOR CO.

31. Remove the retaining ring and the synchronizer hub.



Electric shift transfer case

32. Remove the outer ring.



33. Remove the middle ring.



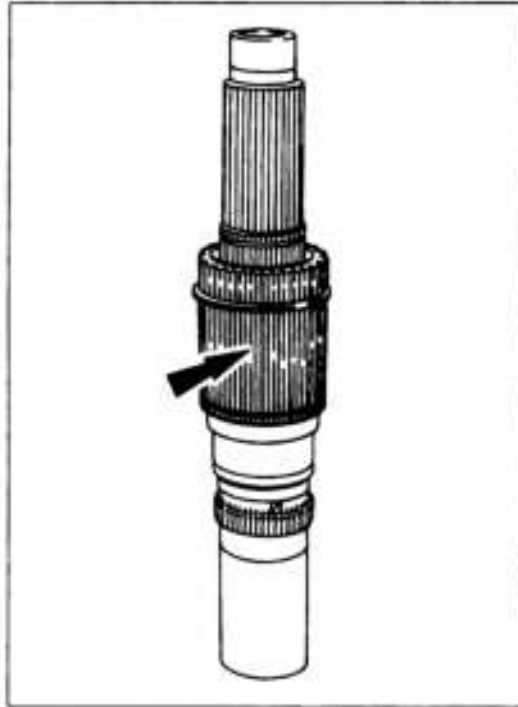
34. Remove the inner ring.

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All transfer cases

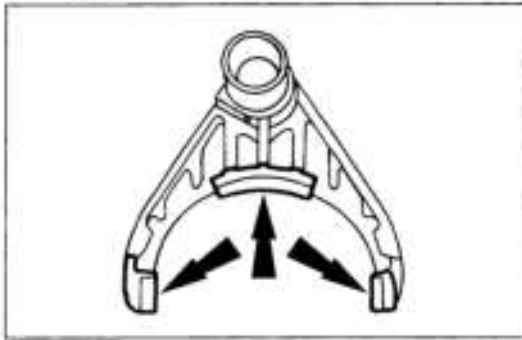
35. Remove the drive sprocket hub.



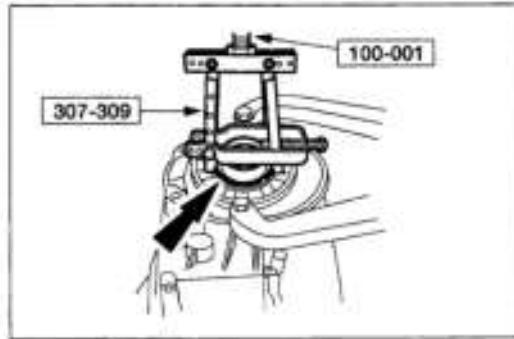
36. Inspect all of the components for wear and damage.

Fig. 10: Transfer Case Disassembly (6 Of 11)
Courtesy of FORD MOTOR CO.

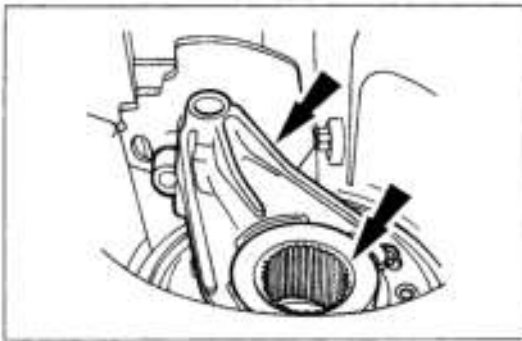
37. Inspect the mode fork pads for wear.



40. Using the special tools, remove the input seal.

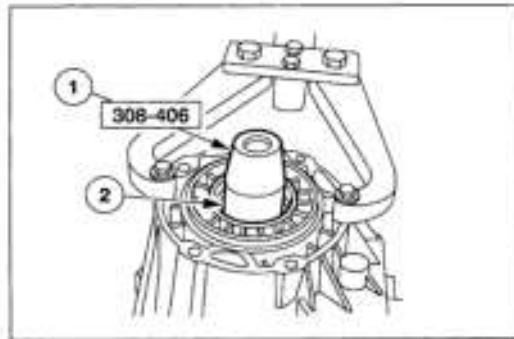


38. **NOTE:** Rotate the sector assembly to the 4-wheel high position for easy removal.
Remove the range fork assembly and the range shift sleeve.



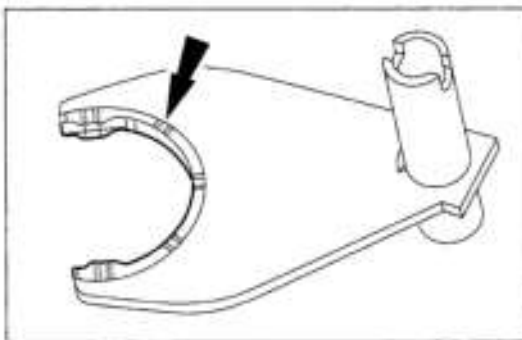
41. Remove and discard the retaining ring.

- 1 Install the special tool.
 - 2 Remove and discard the retaining ring.
- Remove the special tool.



39. **NOTE:** Manual shift range fork shown, electric shift range fork similar.

Inspect the range fork pads for wear. If the pads are worn, discard the range fork, the pads, the mainshaft, and the sleeve.



42. Remove the planetary assembly.

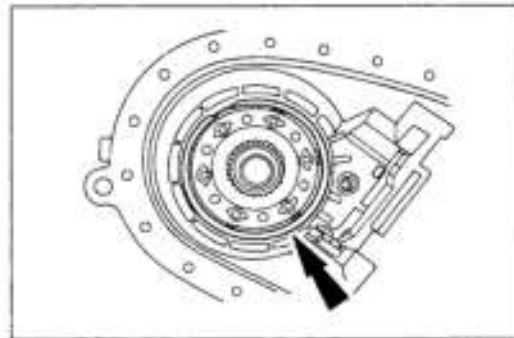
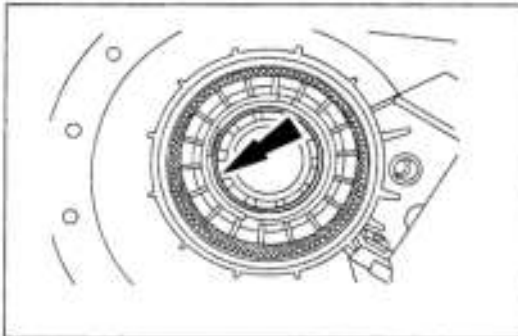
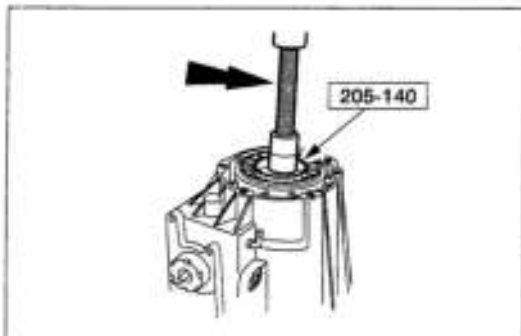


Fig. 11: Transfer Case Disassembly (7 Of 11)
Courtesy of FORD MOTOR CO.

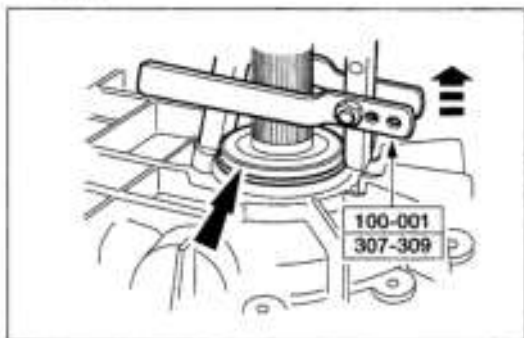
43. Remove the input bearing retaining ring.



44. Using the special tool and a suitable press, remove the front input bearing.



45. Using the special tools, remove the front output seal.

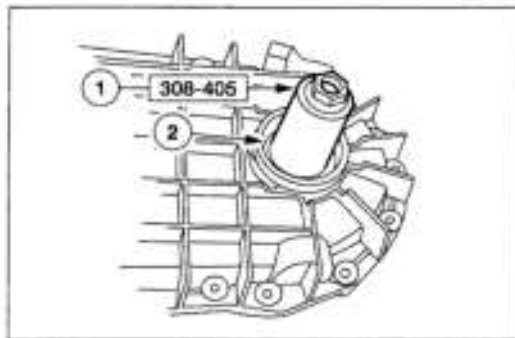


46. Remove and discard the retaining ring.

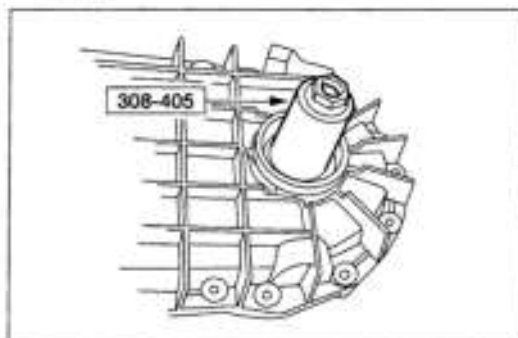
1 Install the special tool.

2 Remove and discard the retaining ring.

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47. Remove the special tool and the front output shaft.



48. Remove the front output ball bearing retaining ring.

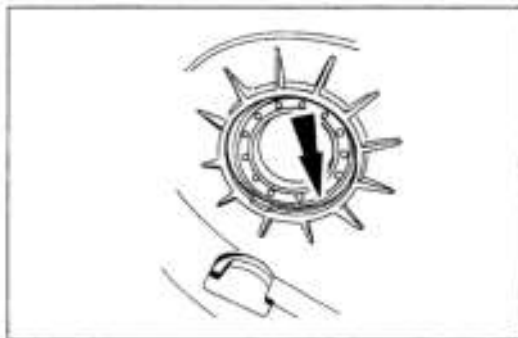
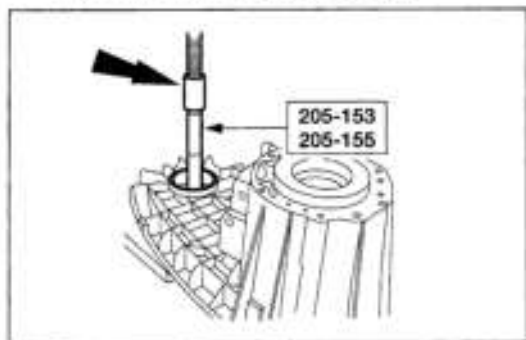
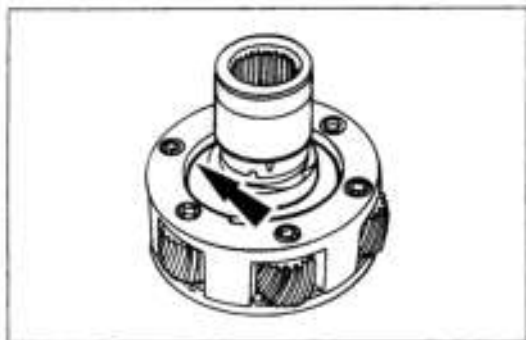


Fig. 12: Transfer Case Disassembly (8 Of 11)
Courtesy of FORD MOTOR CO.

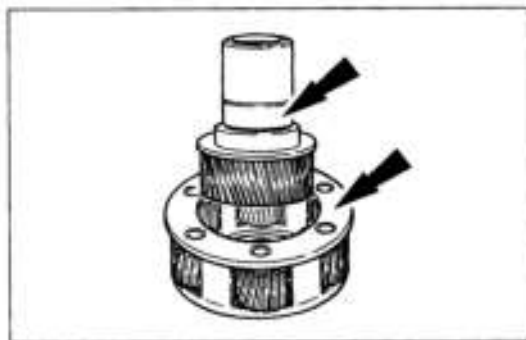
49. Using the special tools and a suitable press, remove the front output ball bearing.



50. Remove the lock plate retaining ring.

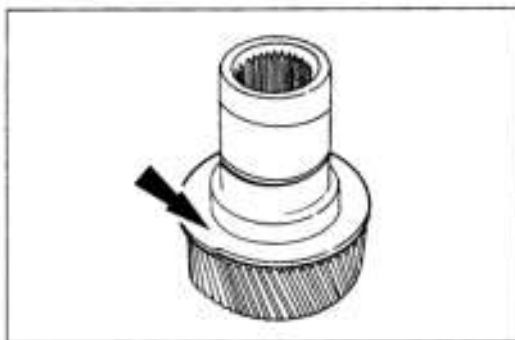


51. Lift out the input gear.

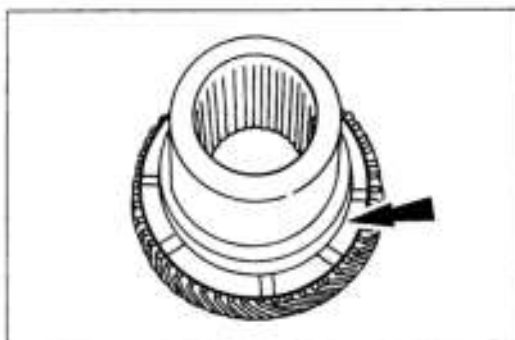


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52. Remove the lock plate.



53. Remove the front input gear thrust washer.



54. Remove the rear input gear thrust washer.

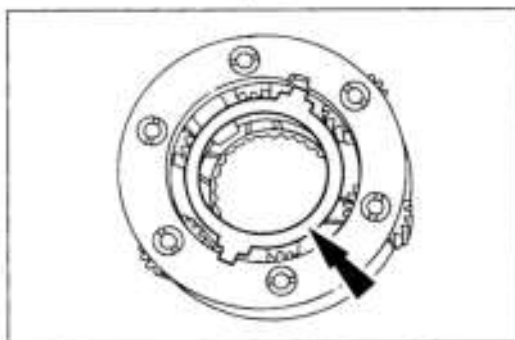
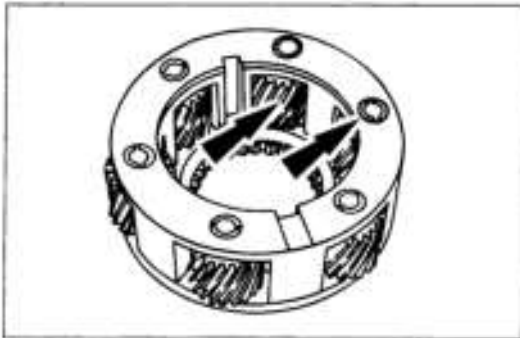


Fig. 13: Transfer Case Disassembly (9 Of 11)
Courtesy of FORD MOTOR CO.

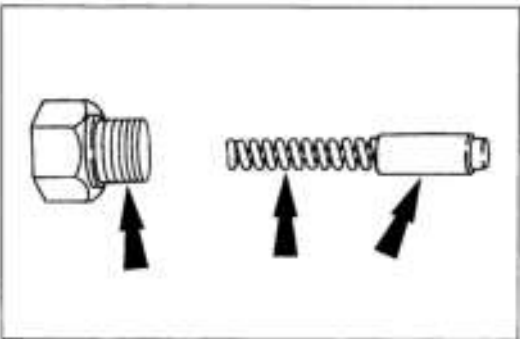
55. Inspect the gear teeth and thrust washers for wear and damage. Discard the planetary gear assembly, if necessary.



56. Remove the poppet assembly.



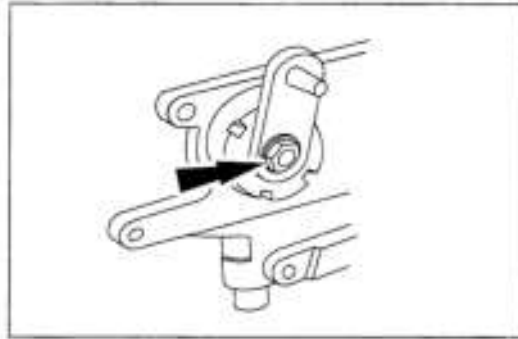
57. **NOTE:** If installing a new poppet spring, it must be like in color to the original poppet spring.
Disassemble the poppet screw, the spring, and the poppet.



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Manual shift transfer case

58. Remove the locknut, the washer, the lever, the spacer, and the sector assembly.



Electric shift transfer case

59. Remove the plastic retainer and the O-ring, and remove the sector assembly.

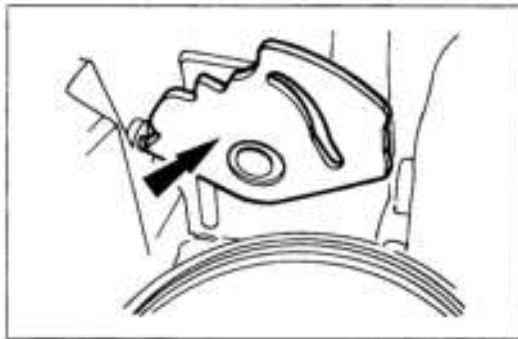
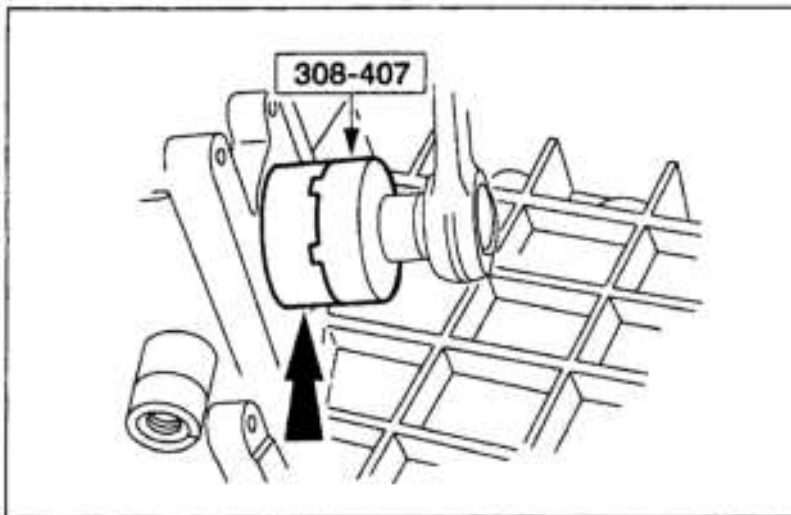


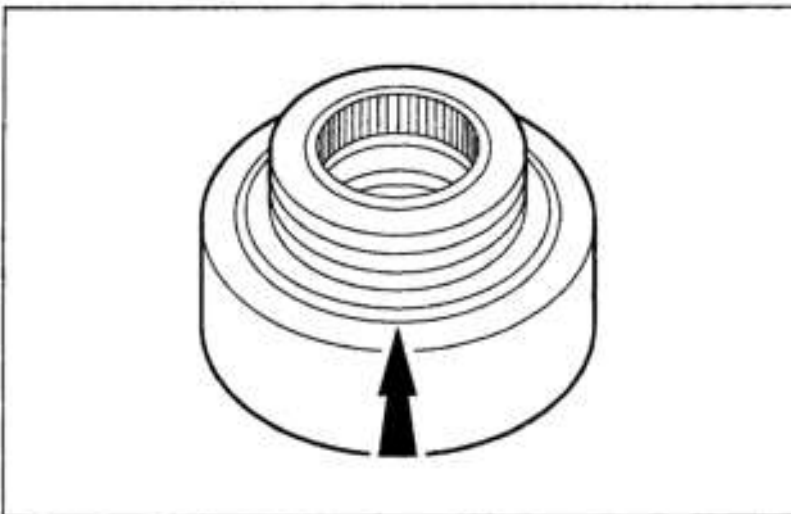
Fig. 14: Transfer Case Disassembly (10 Of 11)
Courtesy of FORD MOTOR CO.

All transfer cases

60. Using the special tool, remove the sector shaft support (motor adapter for electric shift transfer case).



61. Remove and discard the support O-ring seal.



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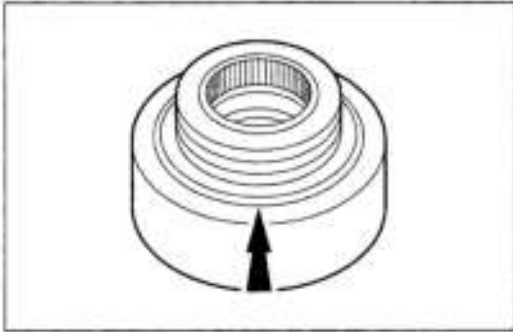
Fig. 15: Transfer Case Disassembly (11 Of 11)
Courtesy of FORD MOTOR CO.

Reassembly

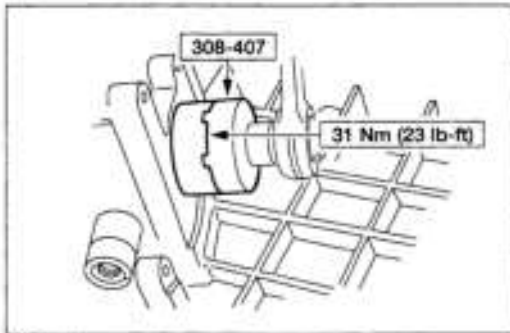
For transfer case reassembly procedure, see **Fig. 16 -Fig. 26** . Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** .

All transfer cases

1. Install a new support O-ring seal.



2. **NOTE:** Prior to installation, coat the threads with pipe sealant.
Using the special tool, install the sector shaft support (motor adapter for electric shift transfer case).



3. Install the sector assembly. On the electric shift transfer case, install the plastic retainer and the O-ring.

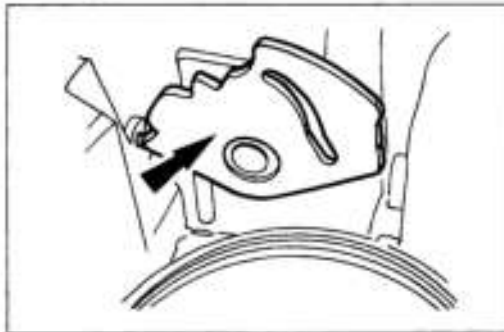
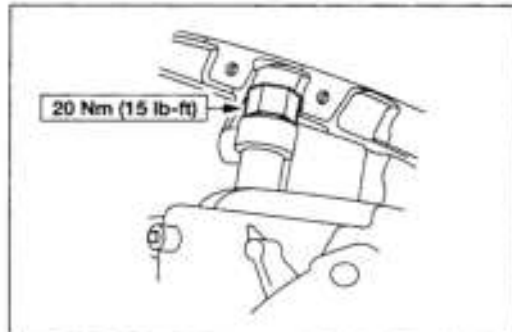
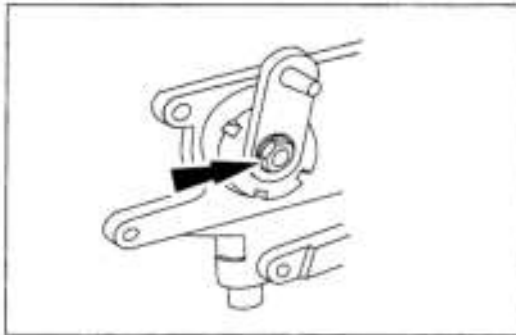


Fig. 16: Transfer Case Reassembly (1 Of 11)
Courtesy of FORD MOTOR CO.

Manual shift transfer case

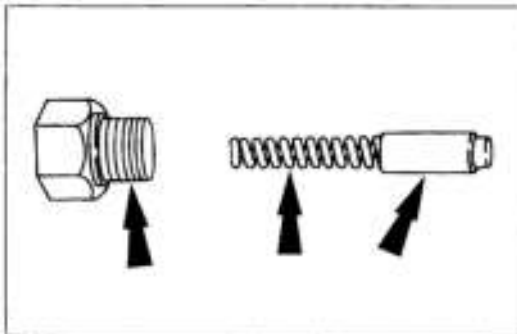
4. Install the spacer, the lever, the washer, and the locknut.



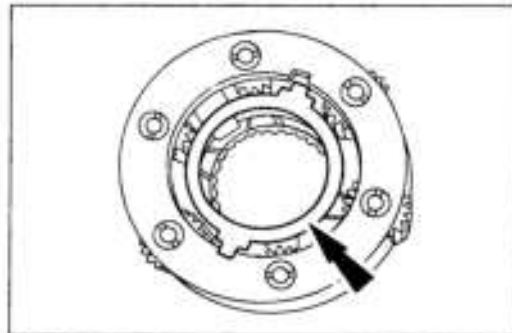
7. Install the rear input gear thrust washer.

All transfer cases

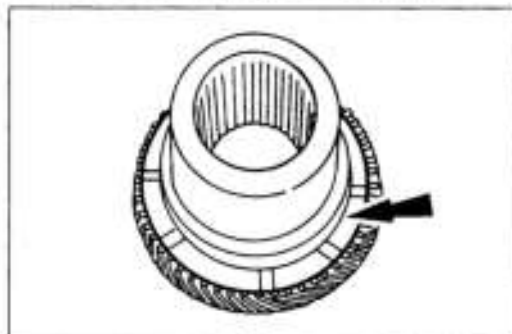
5. **NOTE:** If installing a new poppet spring, it must be like in color to the original poppet spring.
Assemble the poppet screw, the spring, and the poppet.



6. Install the poppet assembly.



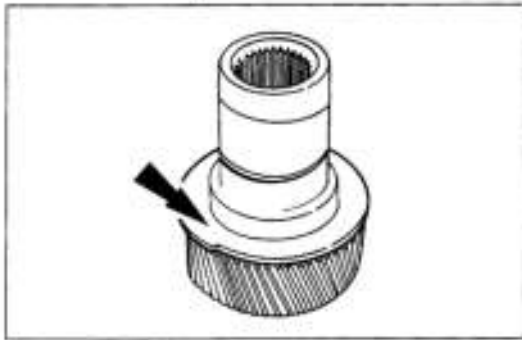
8. Install the front input gear thrust washer.



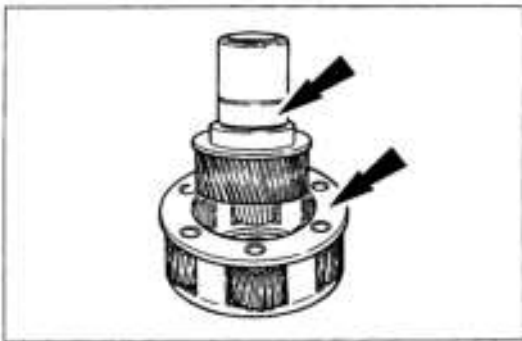
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Fig. 17: Transfer Case Reassembly (2 Of 11)
Courtesy of FORD MOTOR CO.

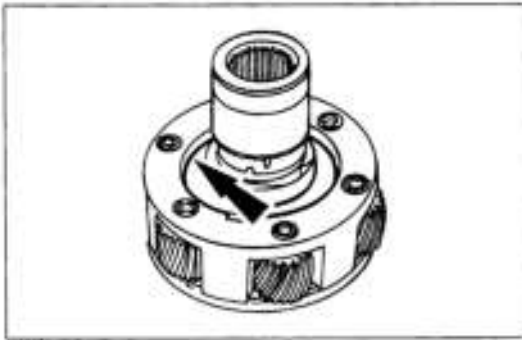
9. **NOTE:** Install the lock plate with the stamped letter E facing outward.
Install the lock plate.



10. Place the input gear into the planetary carrier assembly.

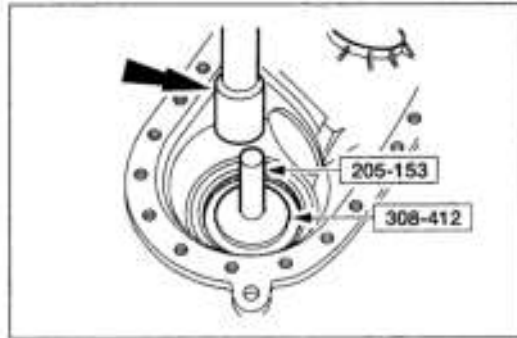


11. Install a new lock plate retaining ring.

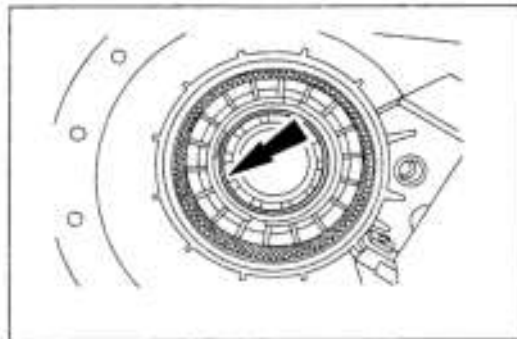


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12. Using the special tools and a suitable press, install a new front input bearing.



13. Install a new bearing retainer ring.



14. Position the planetary assembly into the front case.

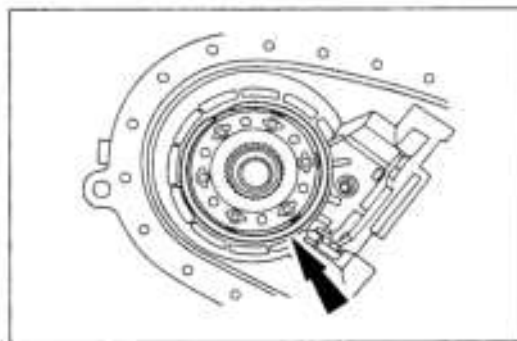
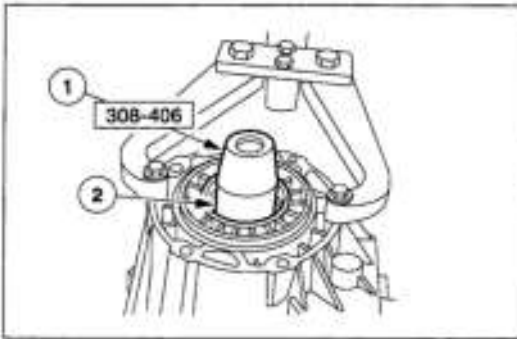


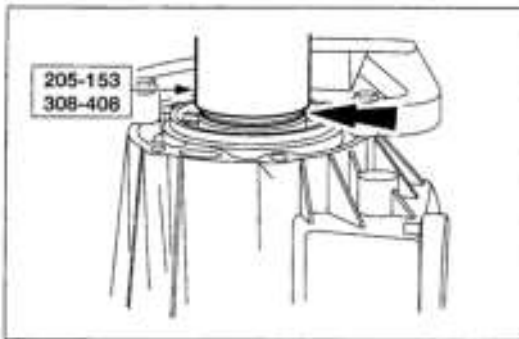
Fig. 18: Transfer Case Reassembly (3 Of 11)
Courtesy of FORD MOTOR CO.

15. Install a new retaining ring.

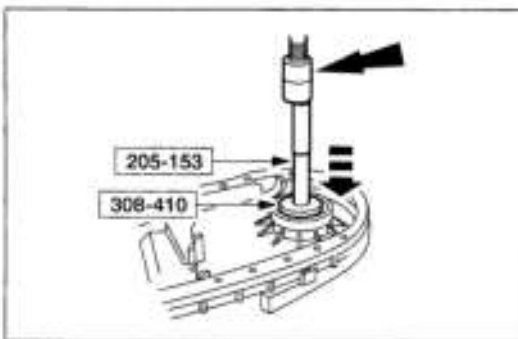
- 1 Install the special tool.
 - 2 Install a new retaining ring.
- Remove the special tool.



16. Using the special tools, install a new input seal.

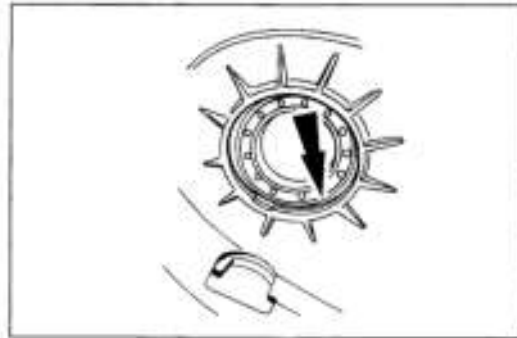


17. Using the special tools and a suitable press, install a new front output ball bearing.

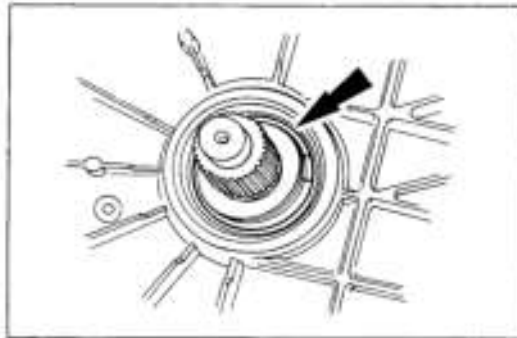


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18. Install a new front output ball bearing retaining ring.



19. Position the front output shaft in the front case.



20. Install a new retaining ring.

- 1 Install the special tool.
 - 2 Install a new retaining ring.
- Remove the special tool.

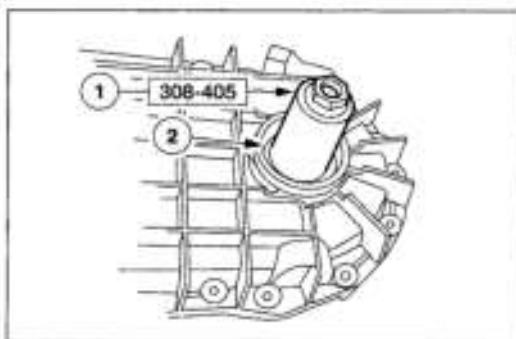
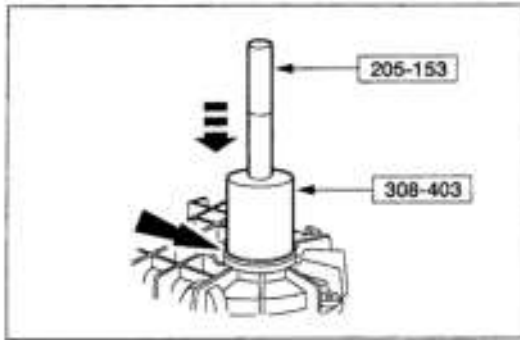
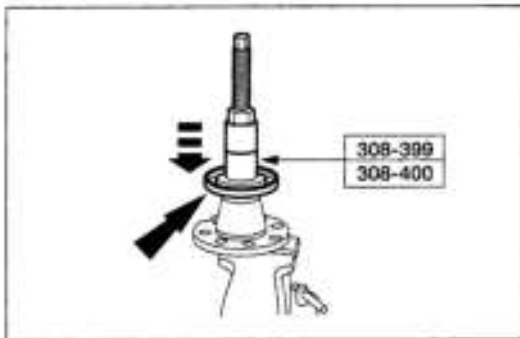


Fig. 19: Transfer Case Reassembly (4 Of 11)
Courtesy of FORD MOTOR CO.

21. Using the special tools, install a new front output seal.

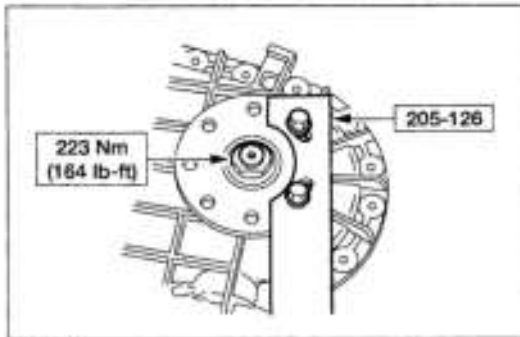


22. Using the special tools, install a new slinger on the front flange, if removed.



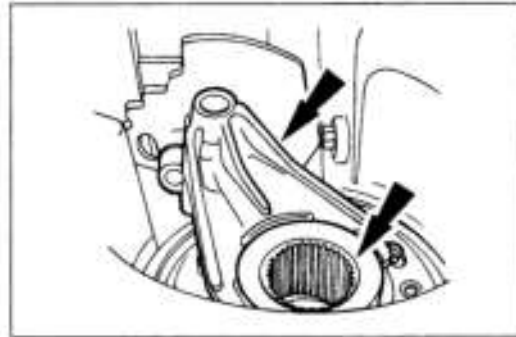
23. Install the front flange.

- Use the special tool to prevent the flange from turning while installing a new nut.



24. **NOTE:** Rotate the sector assembly to the 4-wheel high position for easy installation.

Position the range fork assembly and the range shift sleeve in the front case.



25. Position the drive sprocket hub on the mainshaft.

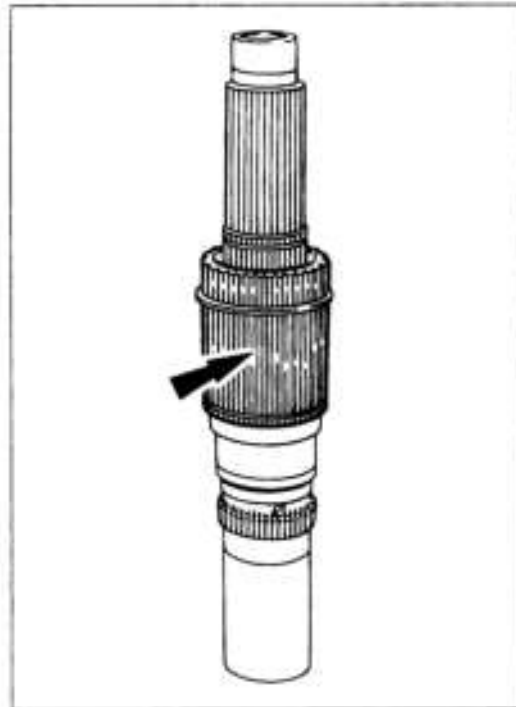


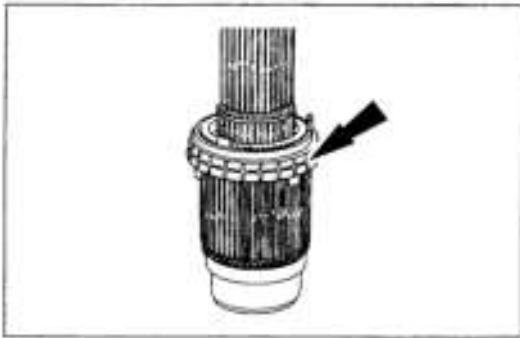
Fig. 20: Transfer Case Reassembly (5 Of 11)
Courtesy of FORD MOTOR CO.

Electric shift transfer case

26. Position the inner ring on the drive sprocket.



27. Position the middle ring on the inner ring.



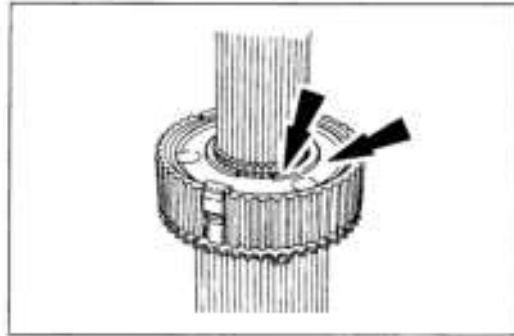
28. Position the outer ring on the middle ring.



All transfer cases

29. Position and rotate the synchronizer hub until it drops into the installed position. Install a new retaining ring.

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30. **NOTE:** The thin side of the synchronizer or mode sleeve must face upward.

Assemble the mode fork, the shift rail, and the sleeve.

- Mode sleeve for mechanical shift or synchronizer sleeve for electric shift.



31. Install the mode fork and the shift rail assembly in the front case.

- The shift rail must bottom in the case.

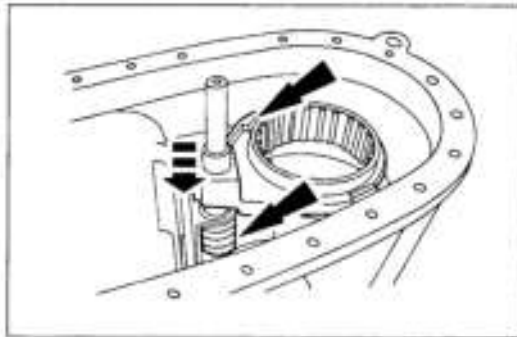

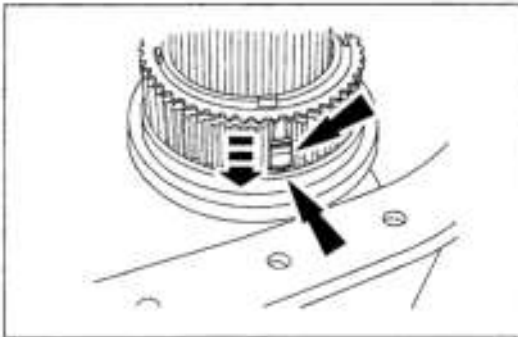


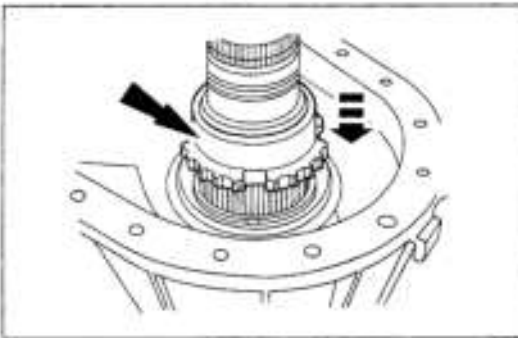
Fig. 21: Transfer Case Reassembly (6 Of 11)
Courtesy of FORD MOTOR CO.

32.  **CAUTION:** Install the mainshaft assembly so that the synchronizer strut bears against one of the synchronizer or mode sleeve teeth.

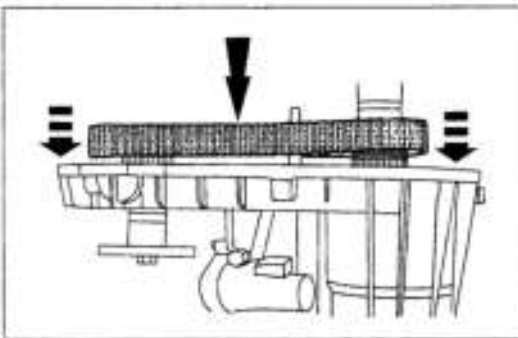
Install the mainshaft.



33. Install the clutch gear.

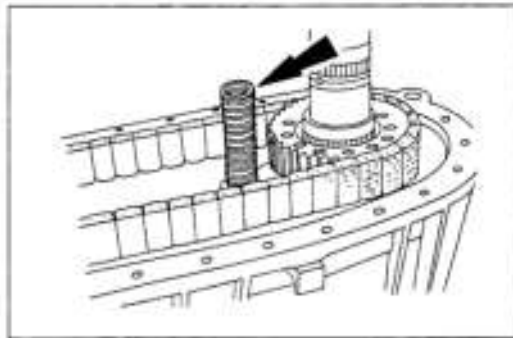


34. Install the drive sprocket, the driven sprocket, and the drive chain as an assembly.

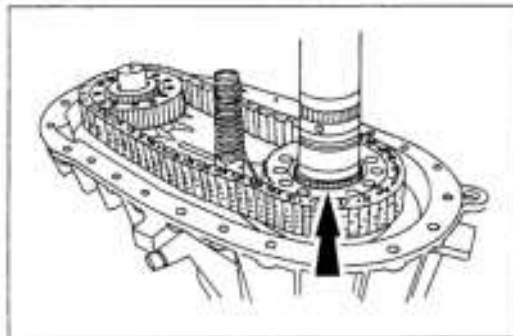


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35. Install the mode spring.



36. Install a new drive sprocket retaining ring.



37. Install a new driven sprocket retaining ring.

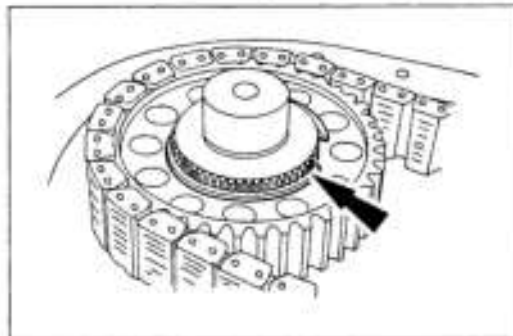
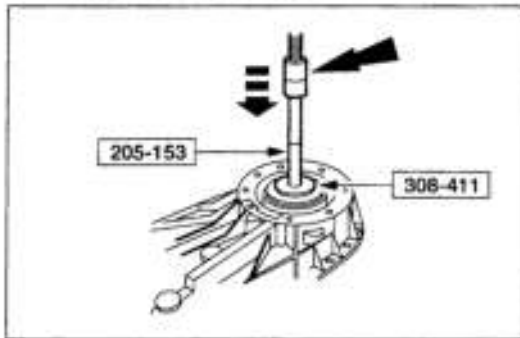
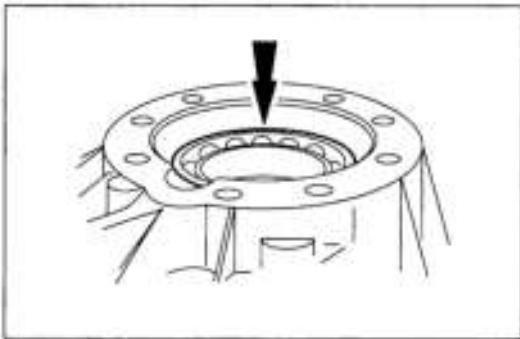


Fig. 22: Transfer Case Reassembly (7 Of 11)
Courtesy of FORD MOTOR CO.

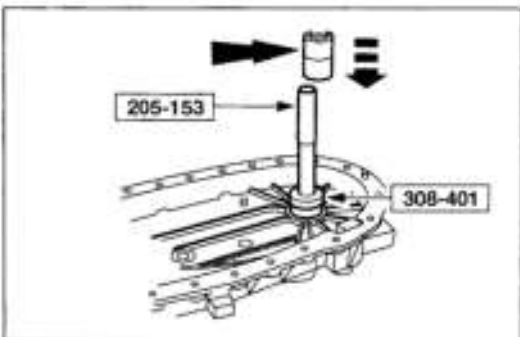
38. Using the special tools and a suitable press, install a new ball bearing.



39. Install a new ball bearing retaining ring.

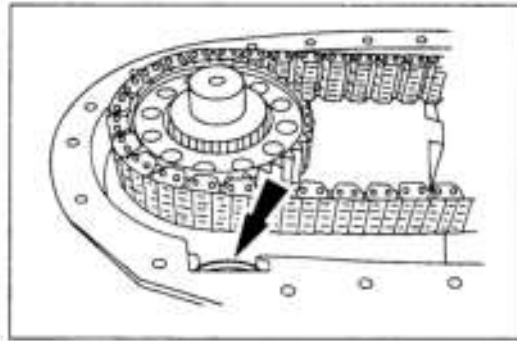


40. **NOTE:** The identification numbers on the bearing must face the special tool.
Using the special tools and a suitable press, install a new needle bearing.

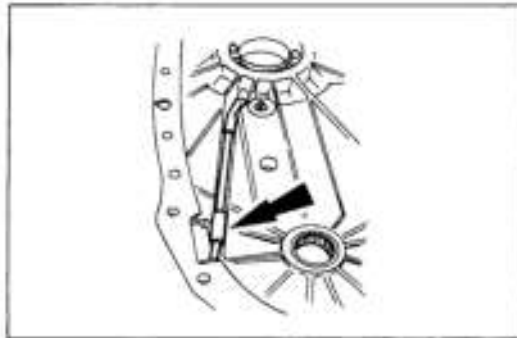


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41. Install the chip collector magnet.



42. Install the oil tube.



43. Clean both case mating surfaces with metal surface cleaner.

44. **NOTE:** The silicone bead must be no larger than 2 mm (0.08 in) in diameter.

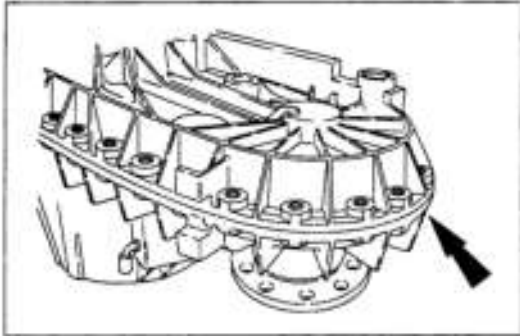
Apply a bead of silicone gasket and sealant to the joint face of the case.

- The bead must be on the inside of the bolt holes, toward the inside of the case.

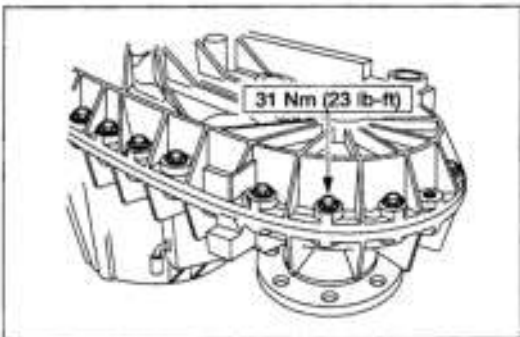
Fig. 23: Transfer Case Reassembly (8 Of 11)

Courtesy of FORD MOTOR CO.

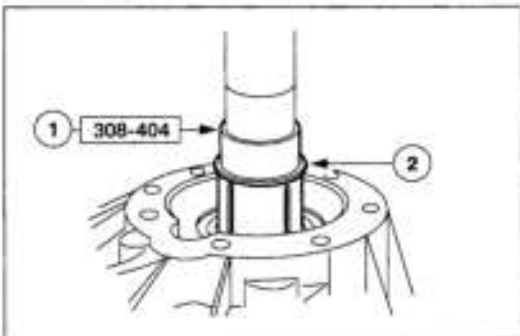
45. Position the rear case half onto the front case half.



46. **NOTE:** Use a crisscross pattern when tightening the bolts.
Install the 25 new bolts retaining the rear case to the front case.

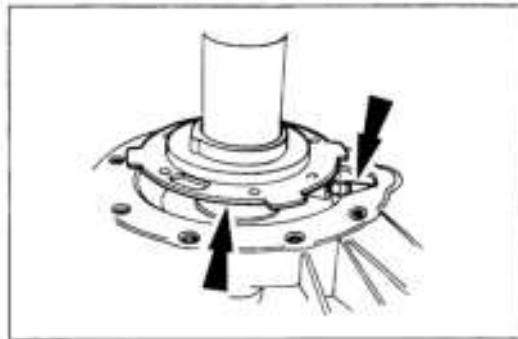


47. Install the new retaining ring.
1 Install the special tool.
2 Install the new retaining ring.
• Remove the special tool.

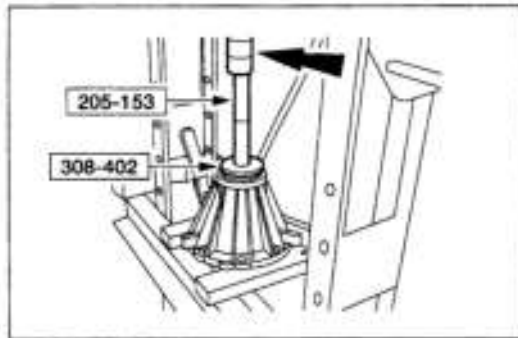


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48. **NOTE:** Prior to assembly, verify that the O-ring is in the oil pump pickup inlet.
Slide the oil pump assembly onto the mainshaft and connect the oil tube.



49. **NOTE:** The identification numbers on the needle bearing must face the special tool.
Using the special tools and a suitable press, install a new needle bearing.



50. Clean the rear case and rear retainer mating surfaces with metal surface cleaner.

Fig. 24: Transfer Case Reassembly (9 Of 11)
Courtesy of FORD MOTOR CO.

51. Apply a bead of silicone gasket and sealant to the rear retainer joint face.



52. Position the rear retainer on the rear case.

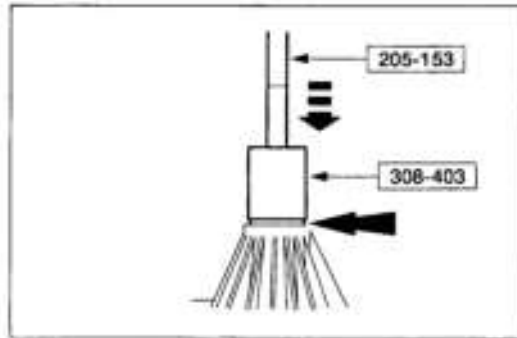


53. Install the eight new bolts retaining the rear retainer to the case.

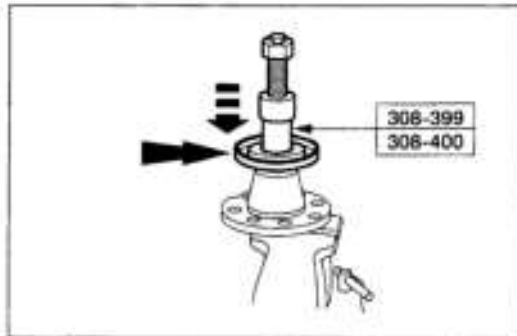


54. Using the special tools, install a new rear output seal.

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55. Using the special tools, install a new slinger on the rear flange, if removed.



56. Install the rear flange.

- Use the special tool to prevent the flange from turning while installing a new nut.

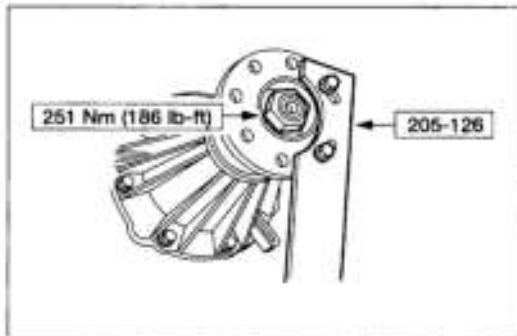
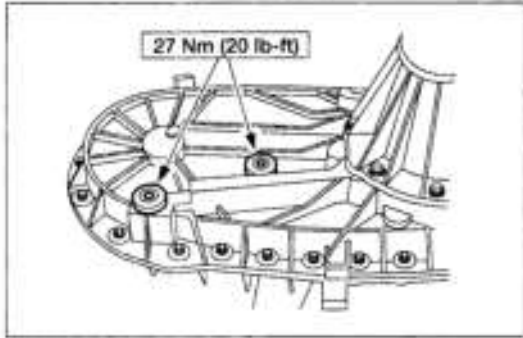


Fig. 25: Transfer Case Reassembly (10 Of 11)
Courtesy of FORD MOTOR CO.

57.  **CAUTION: Do not use air tools.**

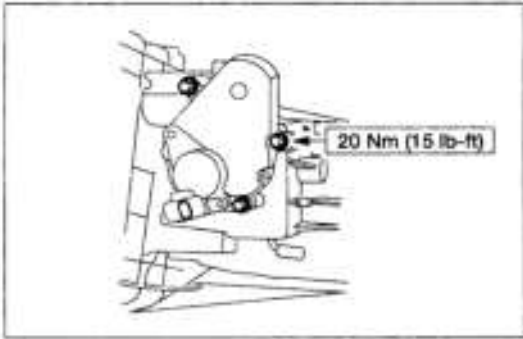
Install the drain and fill plugs.



Electric shift transfer case

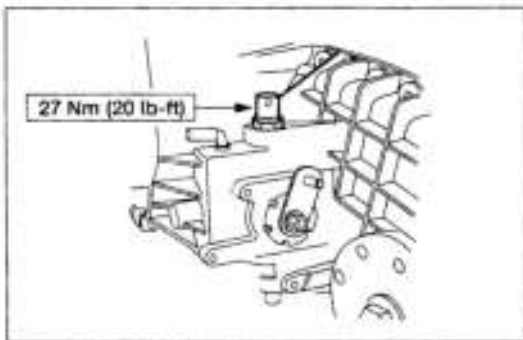
58. **NOTE:** Apply a coat of multi-purpose grease to the motor adapter.

Install the gearmotor encoder assembly.



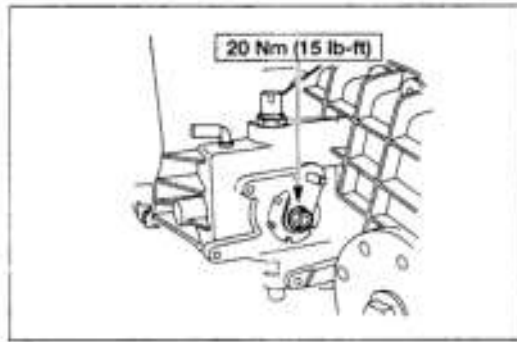
Manual shift transfer case

59. Install the 3 position switch.



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60. Tighten the nut.



All transfer cases

61. Remove the transfer case from the special tool.

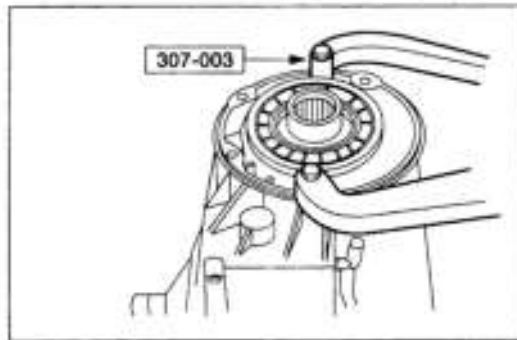


Fig. 26: Transfer Case Reassembly (11 Of 11)
Courtesy of FORD MOTOR CO.