

TRANSMISSION AND TRANSFER CASE

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MANUAL TRANSMISSION - G56 - SERVICE INFORMATION

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MANUAL TRANSMISSION - G56 - SERVICE INFORMATION

DIAGNOSIS AND TESTING

MANUAL TRANSMISSION - G56

LOW LUBRICANT LEVEL

A low transmission lubricant level is generally the result of a leak, inadequate lubricant fill or incorrect lubricant level check.

Rear transmission leaks will be from the oil seals or component mating surfaces.

Front transmission leaks will be from the front input shaft retainer seal. Lubricant may drip from the clutch housing after extended operation. If leak is severe, it may contaminate the clutch disc.

Lubricant level check can only be made when the vehicle is level and allowing the lubricant to settle for a minute before checking. This will ensure an accurate check and avoid an under or overfill condition.

HARD SHIFTING

Hard shifting is usually caused by low lubricant level, improper or contaminated lubricants. This will cause noise, excessive wear, internal bind, and hard shifting. Substantial lubricant leaks can result in gear, shift rail, synchro, and bearing damage. The first indications of component damage is usually hard shifting and noise.

Shift component damage, clutch adjustment, worn pressure plate or disc are also causes of increased shift effort. If clutch problem is advanced, gear clash during shifts can result. Worn or damaged synchronizer rings can cause gear clash when shifting into any forward gear. In some new or rebuilt transmissions, new synchro rings may tend to stick slightly causing hard or noisy shifts. In most cases, this condition will decline as the rings wear-in.

TRANSMISSION NOISE

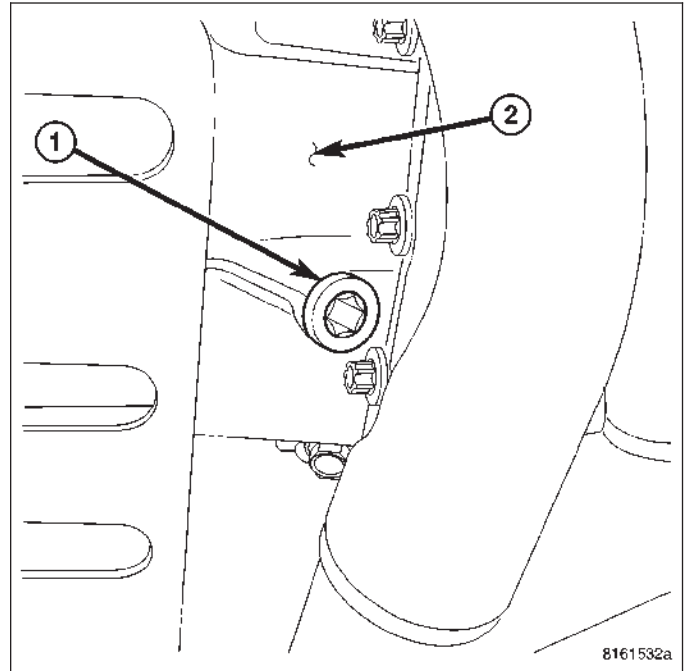
Most manual transmissions make some noise during normal operation. Rotating gears generate a mild whine that is audible, but generally only at extreme speeds.

Severe, highly audible transmission noise is generally the initial indicator of a lubricant problem. Insufficient, improper or contaminated lubricant will promote rapid wear of gears, synchronizer rings, shift rails, forks and bearings. The overheating caused by a lubricant problem, can also lead to gear and bearing damage.

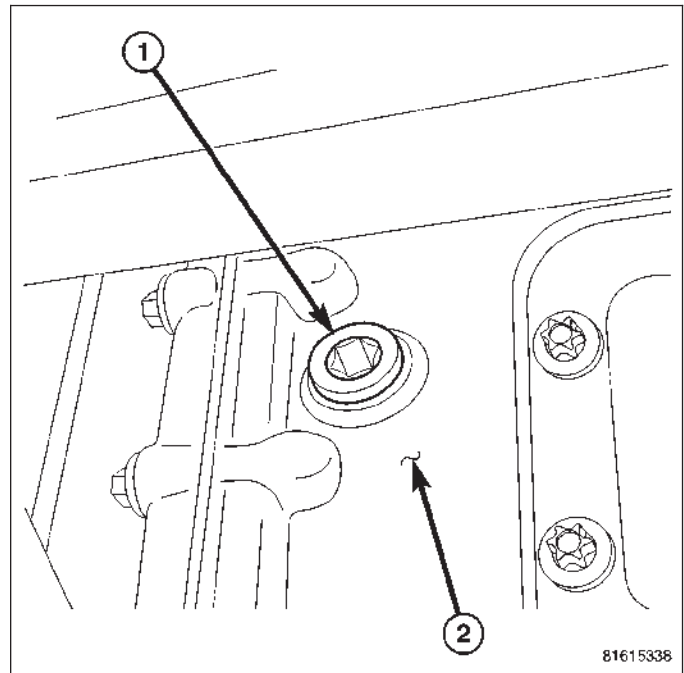
STANDARD PROCEDURE

DRAIN AND FILL

1. Raise and support vehicle.
2. Remove drain plug (1) on transmission (2) and drain fluid.
3. Install drain plug and tighten to 57 N·m (42 ft. lbs.).

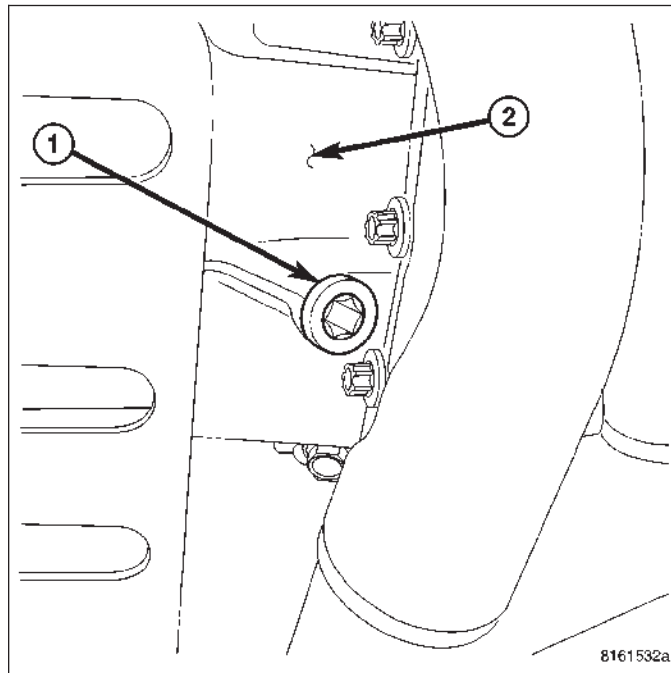


4. Remove fill plug (1) on right side of the transmission (2).
5. Fill transmission even with the bottom of the fill hole.
6. Install fill plug and tighten to 57 N·m (42 ft. lbs.).

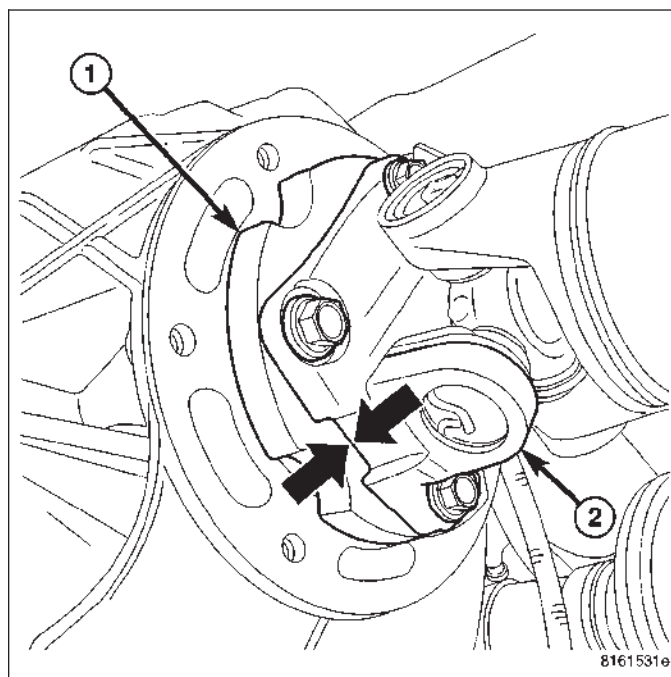


REMOVAL

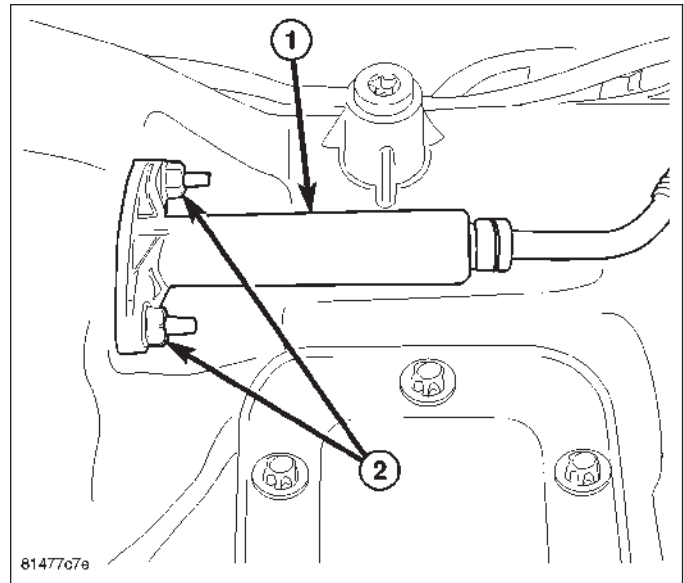
1. With vehicle in neutral, position vehicle on hoist.
2. Disconnect battery negative cable.
3. Remove shift boot bezel screws and slide boot upward on shift lever extension.
4. Remove shift lever extension from the shift tower and lever assembly.
5. Remove 4WD shift boot if equipped.
6. Remove skid plate, if equipped.
7. Remove drain plug (1) from transmission (2) and drain fluid.



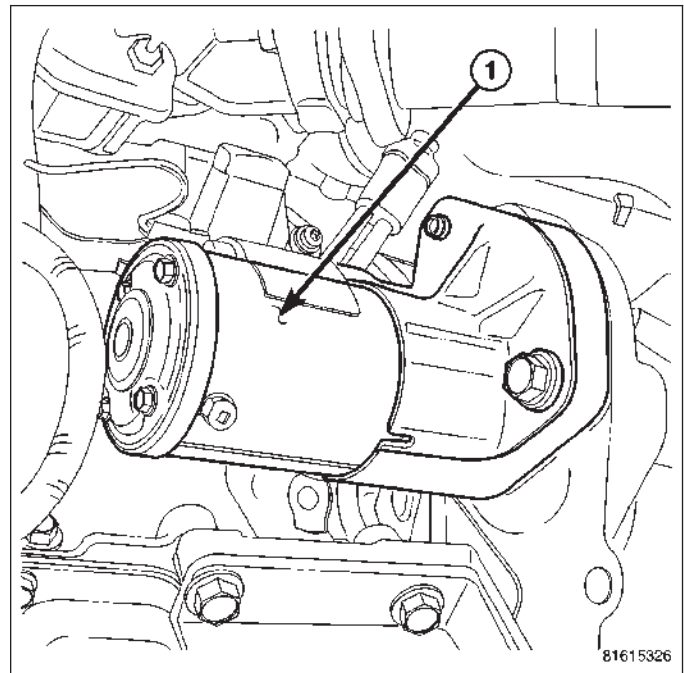
8. Mark transmission flange (1) and propeller shaft (2) for installation reference before removing propeller shaft. If 4x4 equipped mark transfer case and front propeller shaft before removing shaft.



9. Disconnect harness from clips on transmission housing.
10. Remove transfer case linkage 4x4 equipped.
11. Remove transfer case mounting nuts and remove transfer case 4x4 equipped.
12. Remove slave cylinder (1) mounting nuts (2) and remove cylinder.

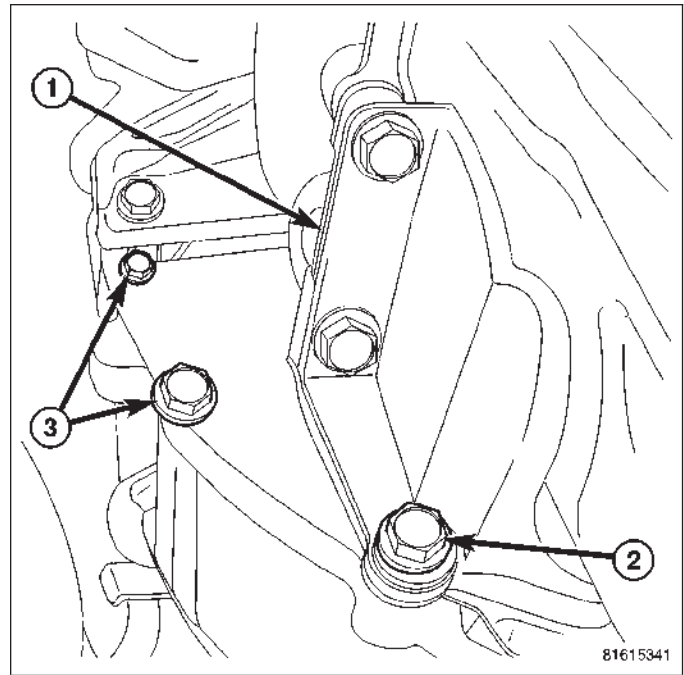


13. Remove starter motor (1) on 5.7L engine.

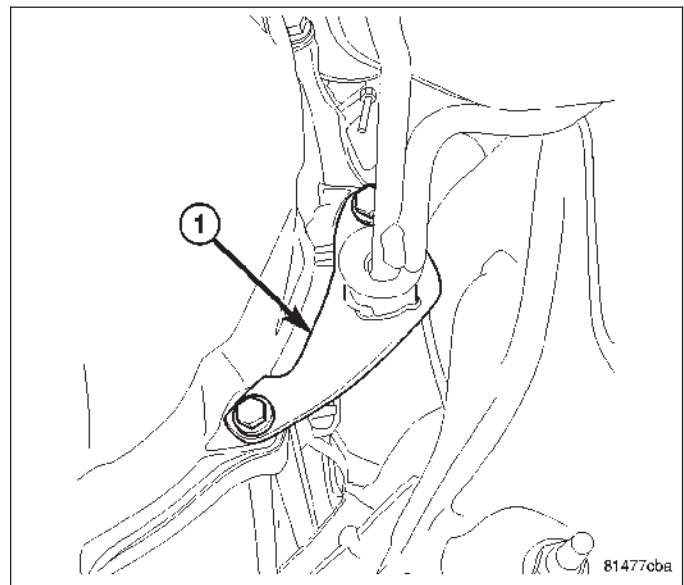


14. Remove structural dust cover (1) clutch housing bolts (2) and dust shield bolts (3) on 5.7L engine.

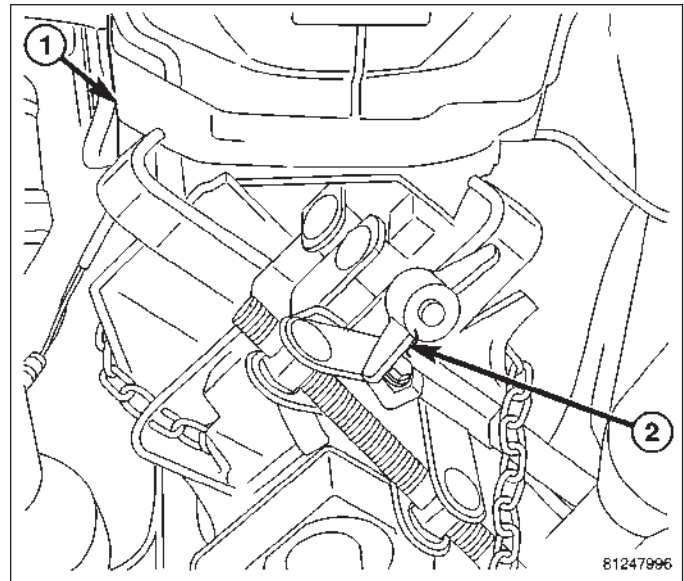
CAUTION: On 5.7L engine do not remove structural dust cover from engine block. If cover is removed clutch housing and structural dust cover must be aligned with the engine.



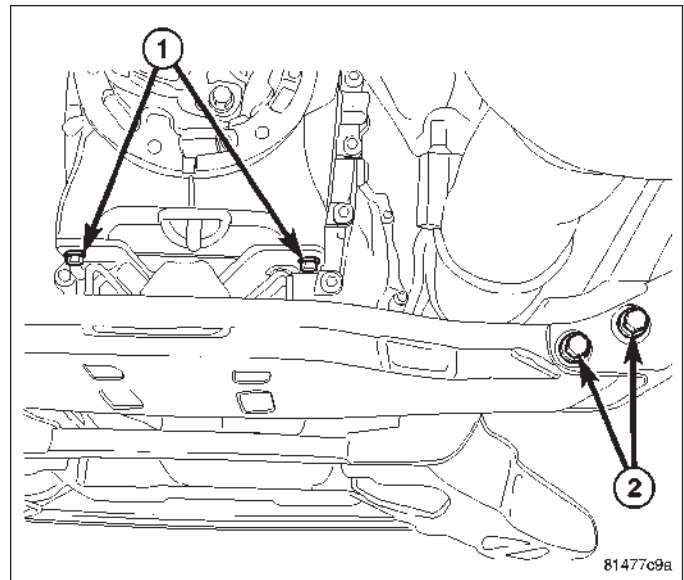
15. Remove exhaust bracket (1) bolts and remove bracket on diesel engine.



16. Support engine with adjustable jack stand and wood block.
17. Support and secure transmission (1) to a transmission jack (2) with safety chains.

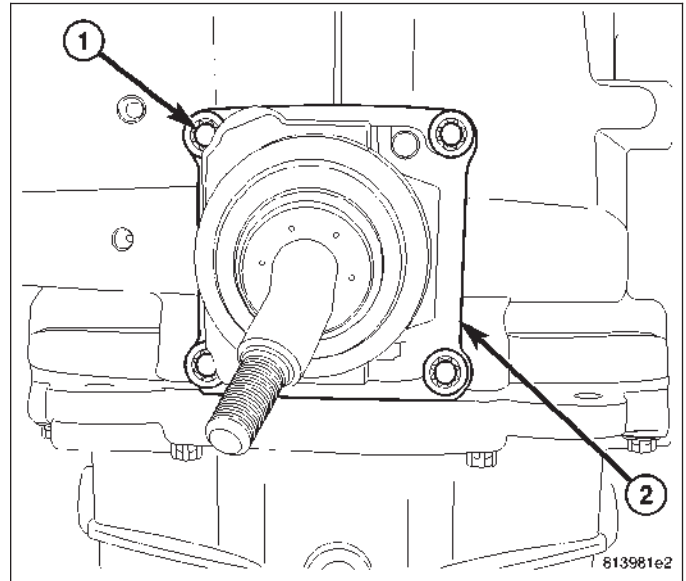


18. Remove transmission mount bolts (1).
19. Remove rear crossmember bolts (2) and remove crossmember with transmission mount.
20. Remove exhaust Y-pipe on 5.7L engine.
21. Remove bolts attaching transmission to the engine.
22. Move transmission rearward until input shaft is clear of clutch disc and pressure plate. Then lower jack and remove transmission from under vehicle.

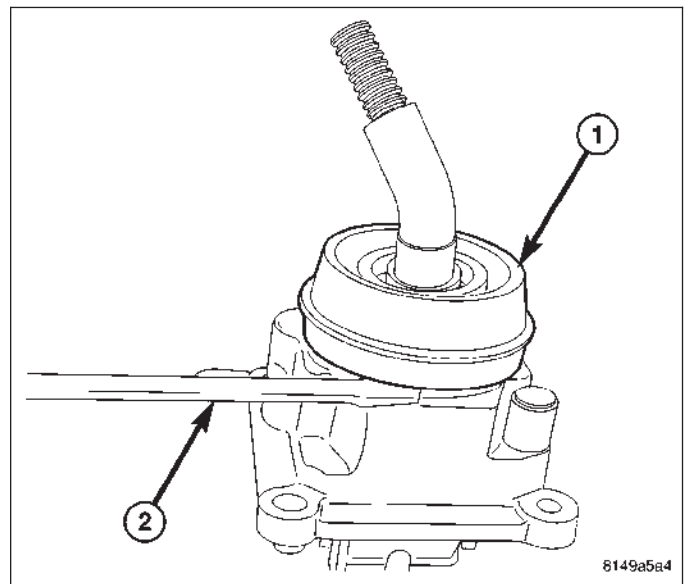


DISASSEMBLY

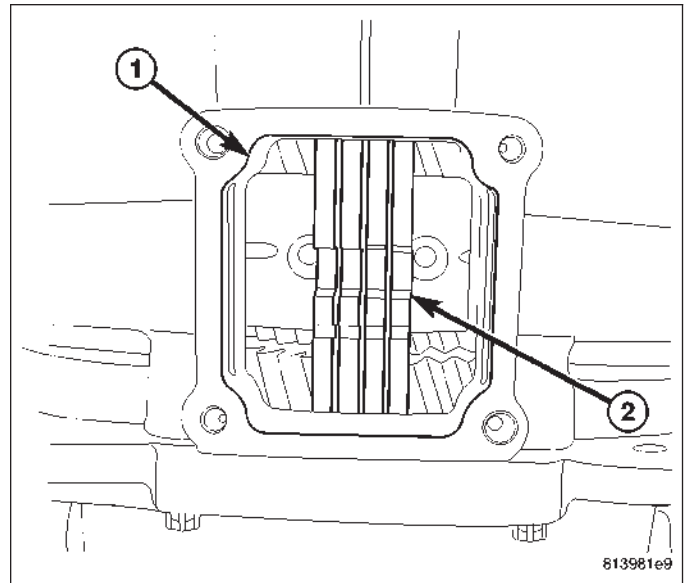
1. Set transmission on rear housing.
2. Remove shift tower bolts (1) and shift tower (2).



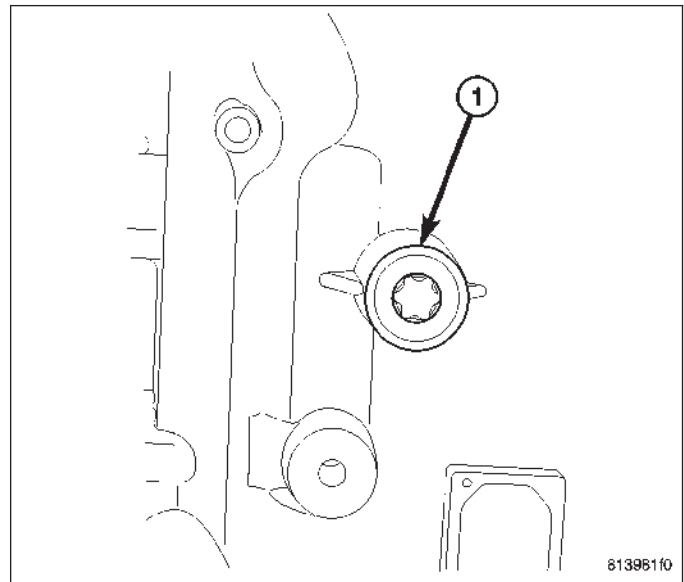
3. Pry off shift tower boot (1) with a screw driver (2).



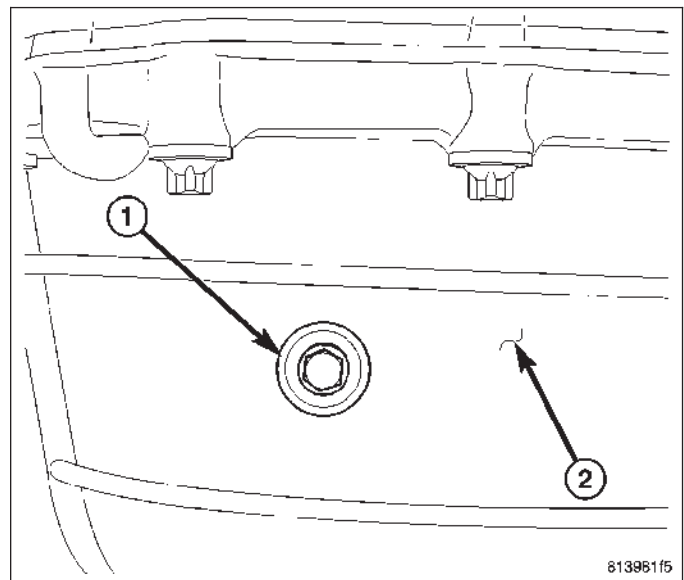
4. Through the shift tower opening (1) align shift rails (2) and install tie strap to shift rails.



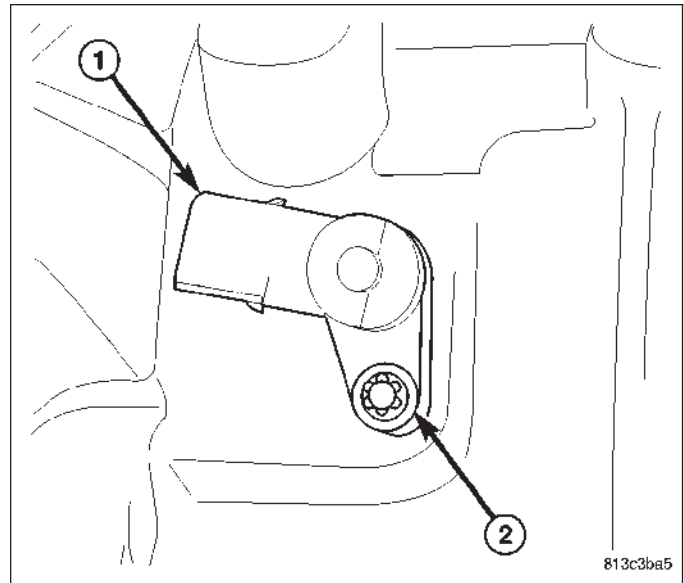
5. Remove 5-6 shift fork pivot pin (1) from both sides of the case.



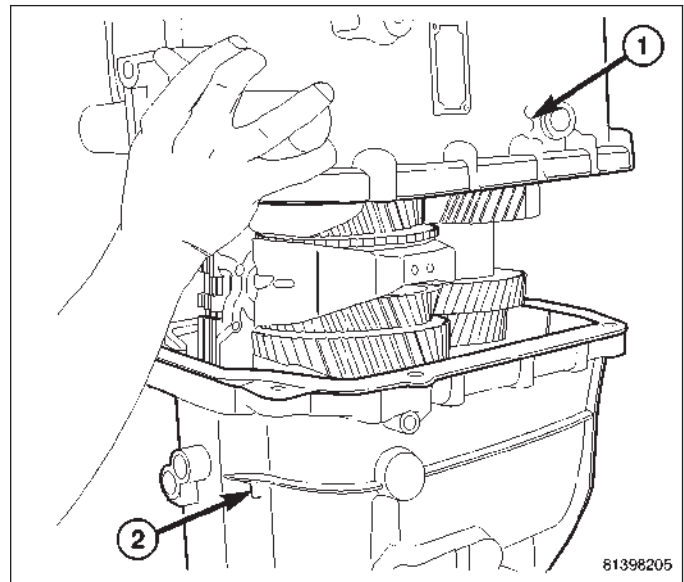
6. Remove reverse idler gear shaft pin (1) from the rear housing (2).



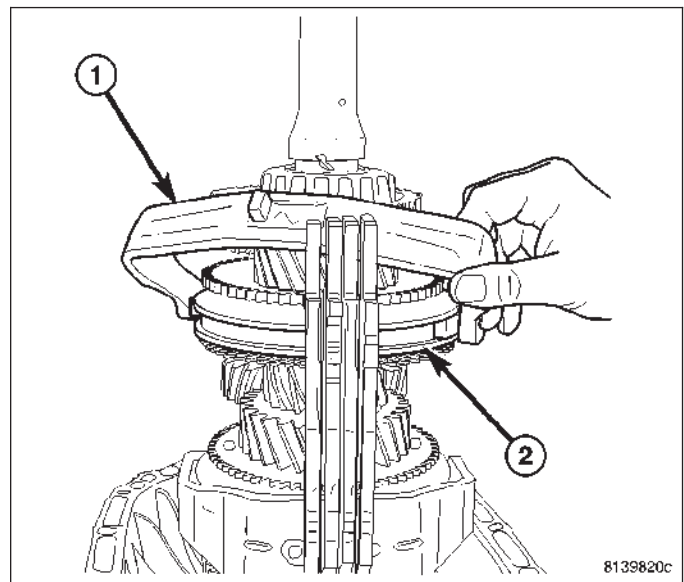
7. Remove back-up lamp switch (1) bolt (2) and remove switch.



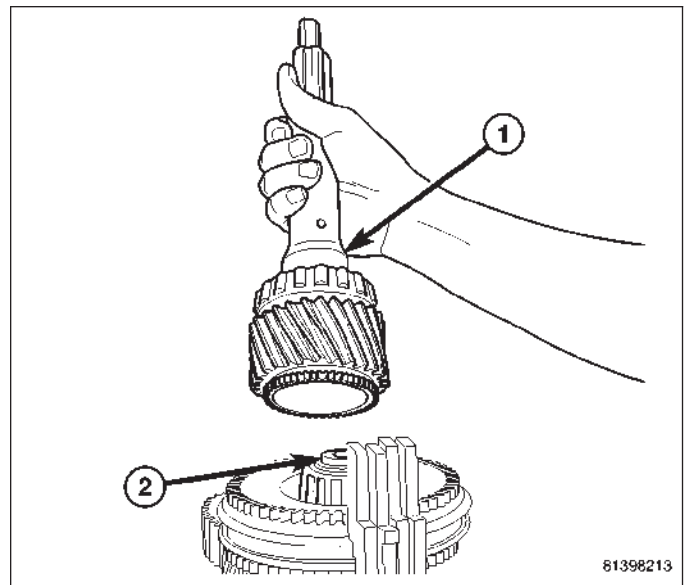
8. Remove transmission housing bolts.
9. Tap housing with dead-blow hammer and lift front housing (1) off rear housing (2).



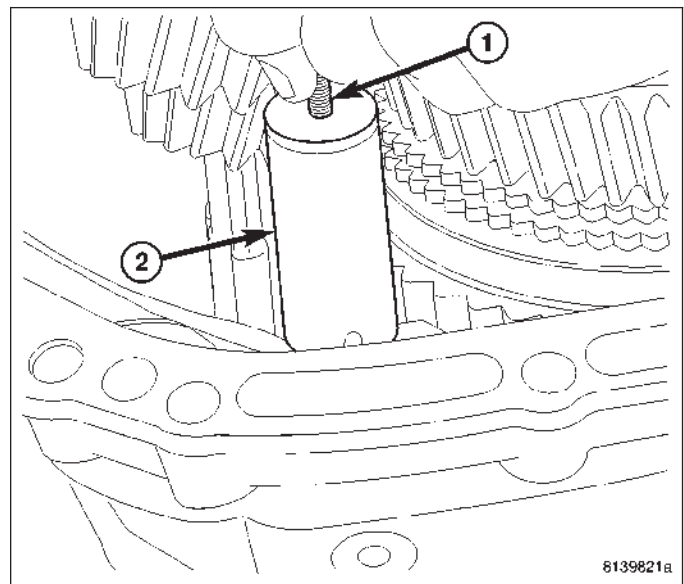
10. Remove 5-6 shift fork (1) from shift rail and synchronizer sleeve (2).



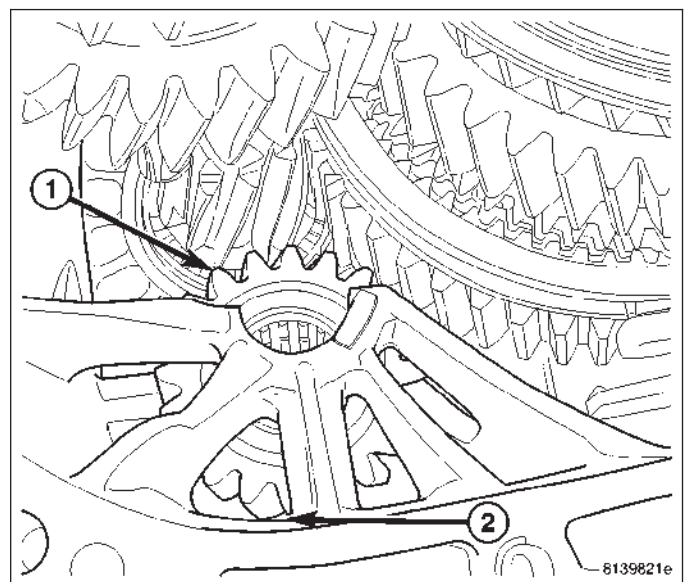
11. Remove input shaft (1) from mainshaft (2).



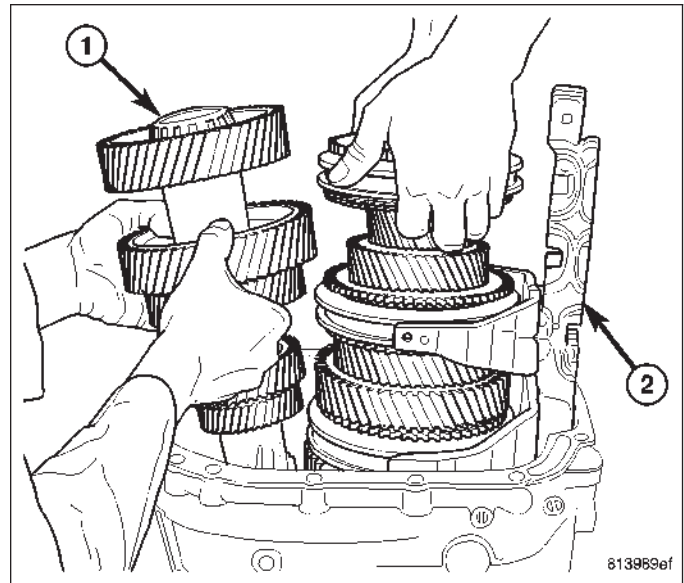
12. Thread a M6x1bolt (1) into the reverse idler gear shaft (2) and pull shaft out of rear housing.



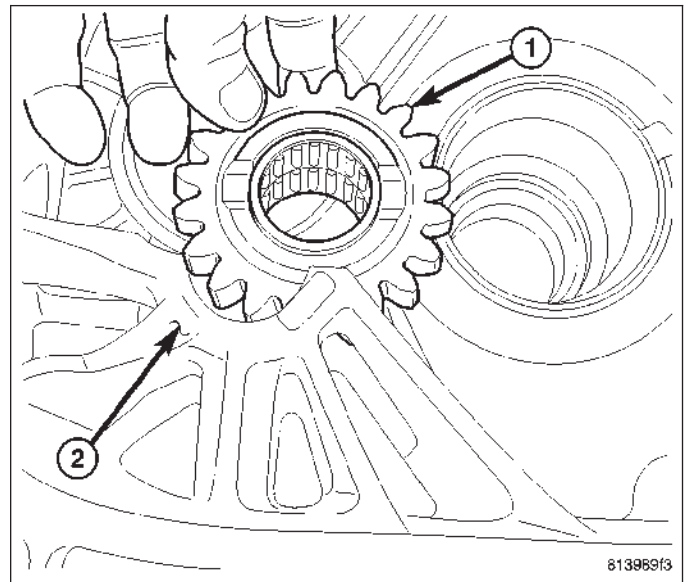
13. Slide reverse idler gear (1) off to the side of the case (2) for disassembly clearance.



- 14. Lift and tilt countershaft (1) then remove mainshaft with shift rails (2).
- 15. Remove countershaft.

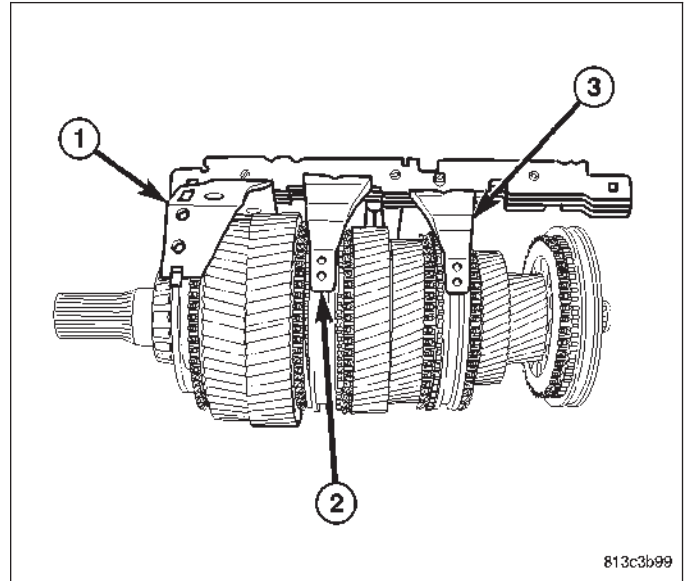


- 16. Remove reverse idler gear (1) from rear housing (2).

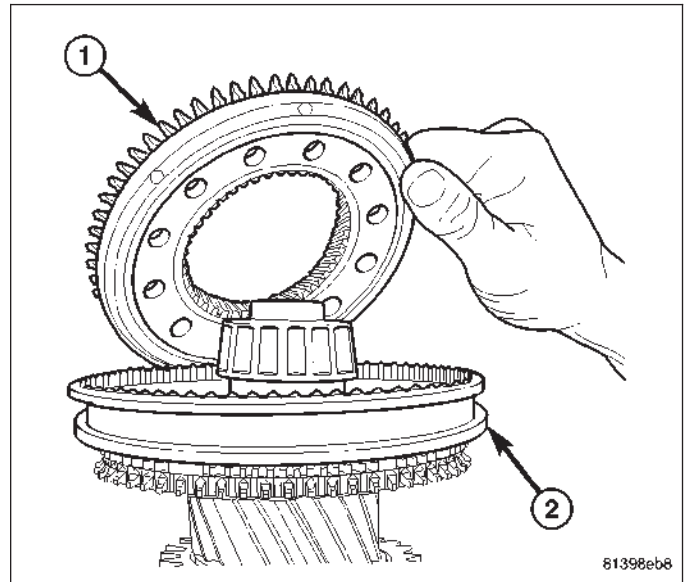


MAINSHAFT

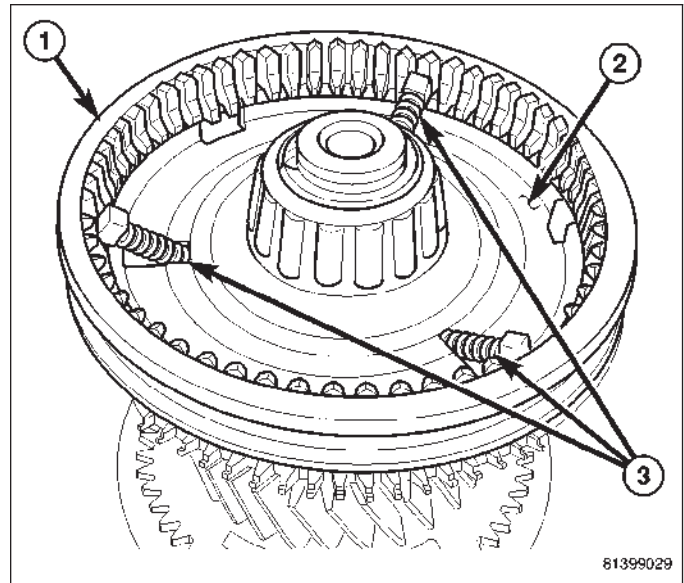
1. Remove reverse (1) 1-2 (2) and 3-4 (3) shift forks and shift rails as an assembly from mainshaft.



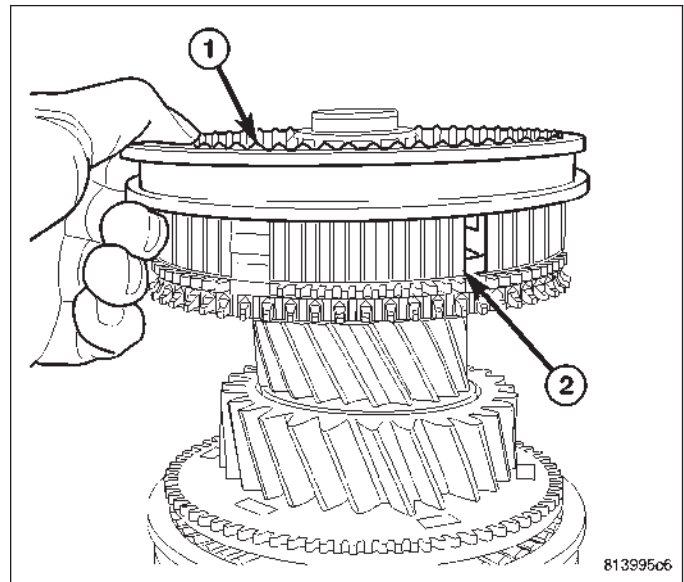
2. Position mainshaft in Fixture 9605 mounted in a vise with sixth gear up.
3. Remove fifth gear synchronizer rings (1) from 5-6 synchronizer hub (2).



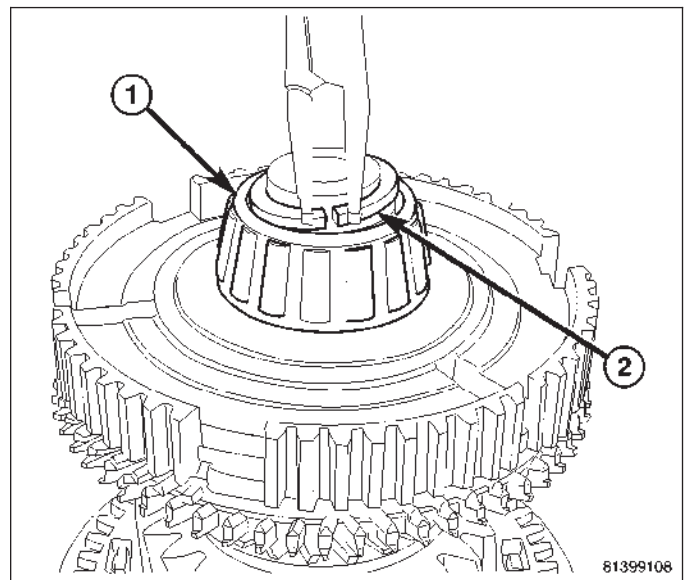
4. Slowly pull 5-6 synchronizer sleeve (1) up on hub (2) enough to remove detents and springs (3).



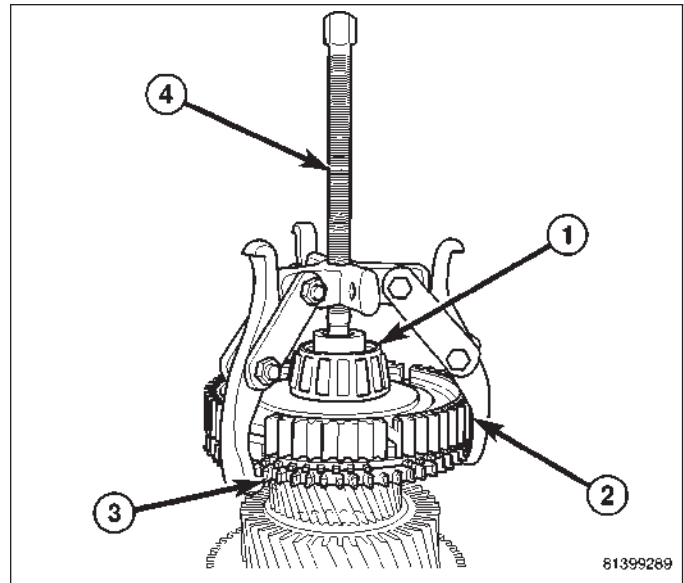
5. Remove 5-6 synchronizer sleeve (1) from hub (2).



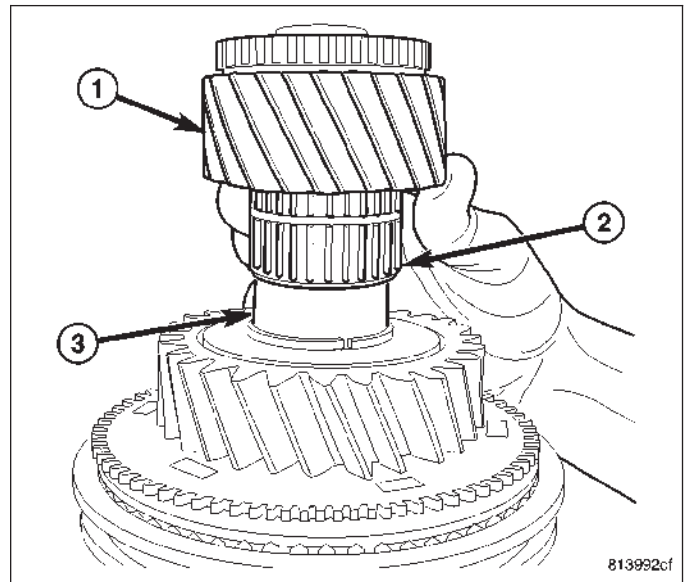
6. Remove mainshaft bearing (1) snap ring (2).



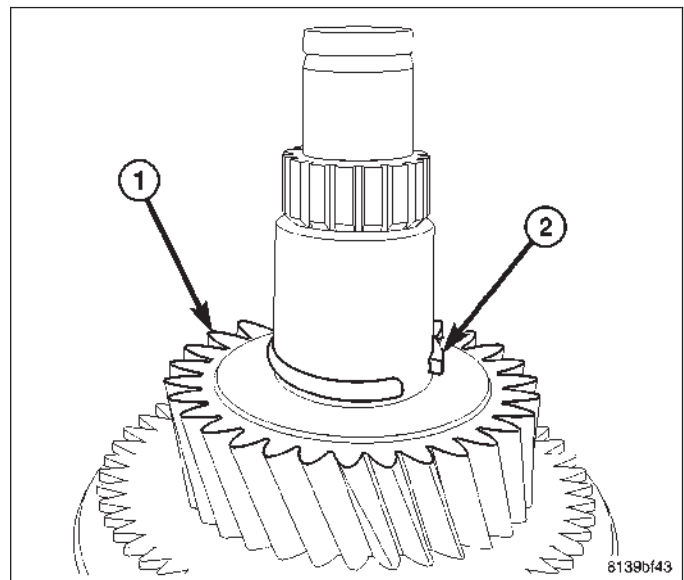
7. Remove mainshaft bearing (1), 5-6 synchronizer hub (2), and sixth gear synchronizer rings (3) with three jaw puller (4). Position puller jaws under sixth gear synchronizer rings (3).



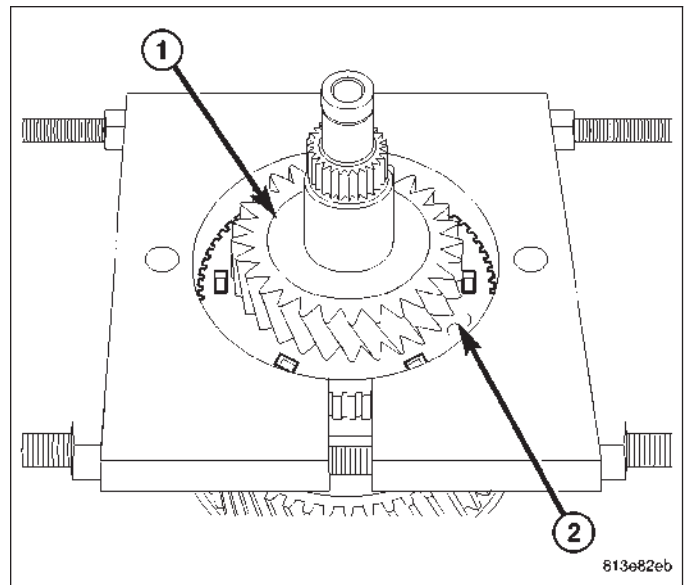
8. Remove sixth gear (1) and bearing (2) from mainshaft (3).



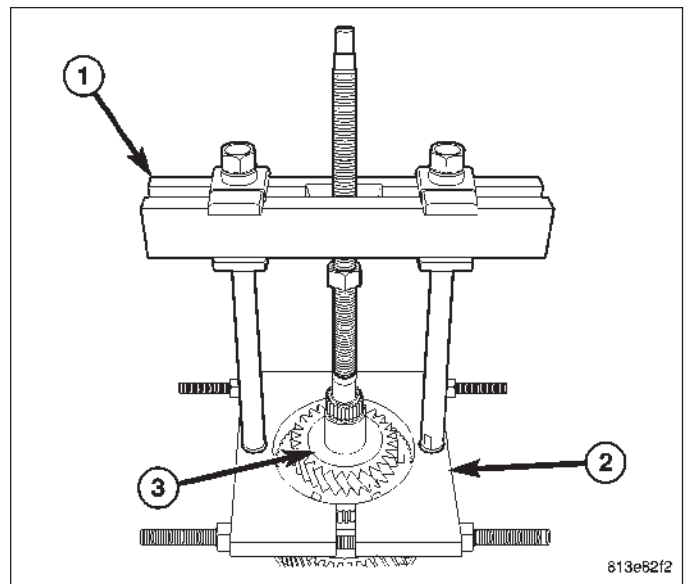
9. Remove fourth gear (1) snap ring (2).



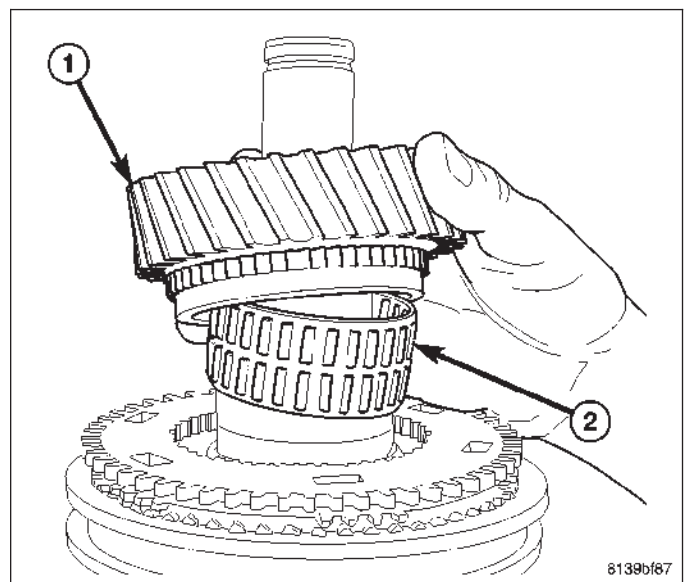
10. Remove fourth gear thrust washer (1) with Puller 9594. Position puller under fourth gear synchronizer stop ring (2).



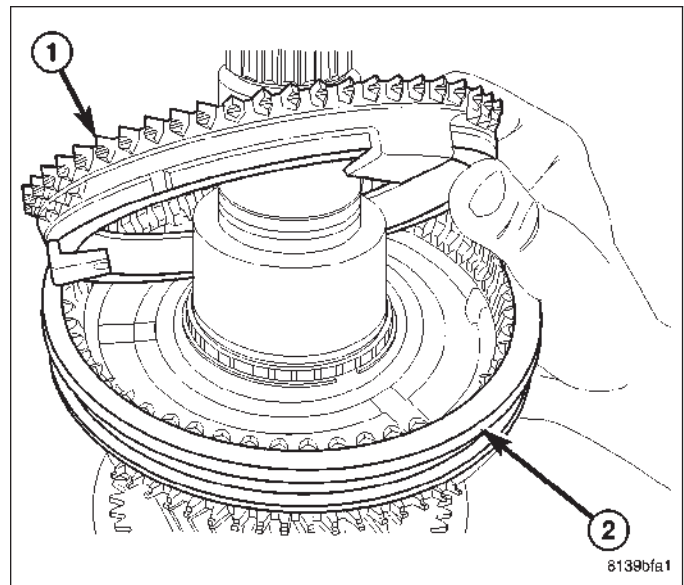
11. Install Bridge 938 (1) into Puller 9594 (2) and remove fourth gear thrust washer (3).



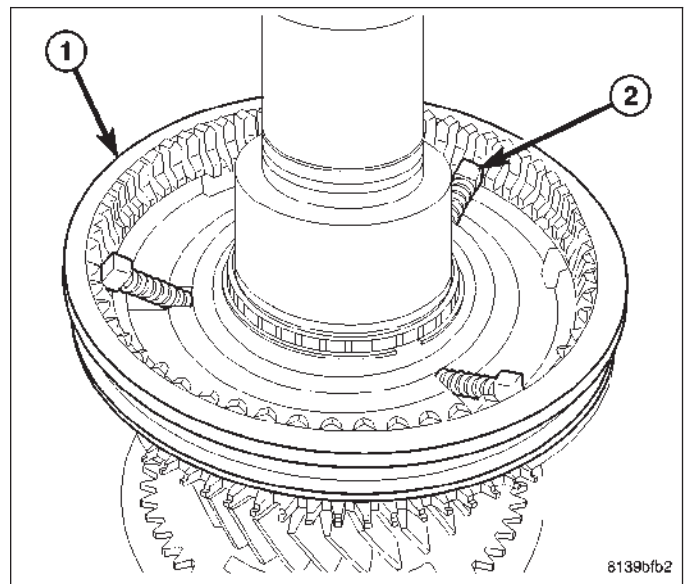
12. Remove fourth gear (1) and bearing (2).



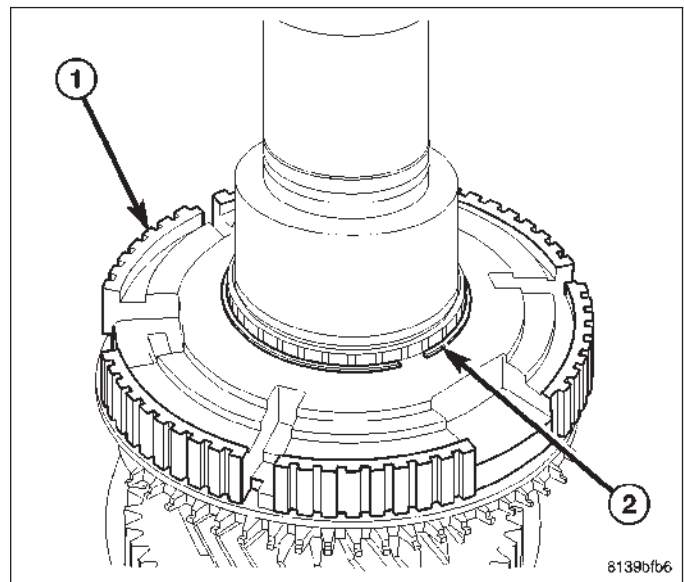
13. Remove fourth gear synchronizer rings (1) from 3-4 synchronizer hub (2) and mark installation reference.



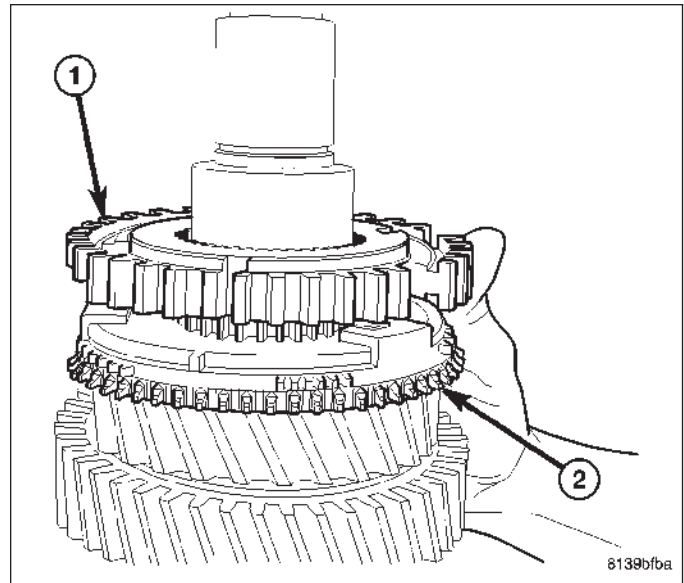
14. Slowly pull 3-4 synchronizer sleeve (1) up on hub enough to remove detents and springs (2).
15. Remove 3-4 synchronizer sleeve (1) from hub.



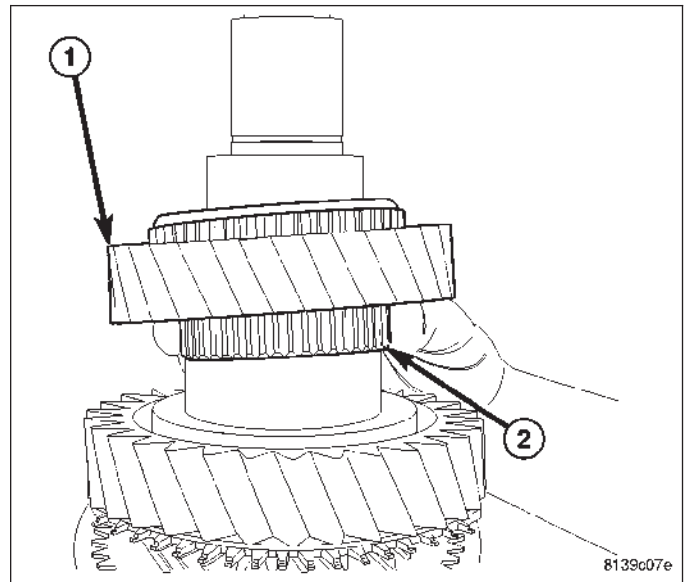
16. Remove 3-4 synchronizer hub (1) snap ring (2).



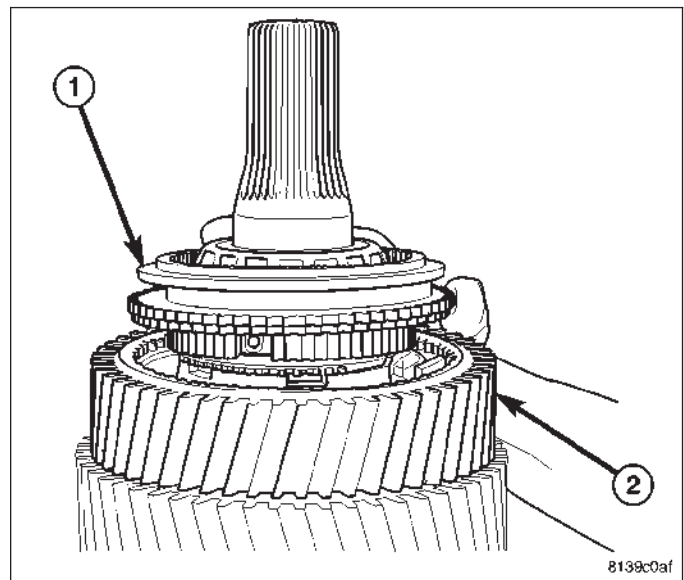
17. Remove 3-4 synchronizer hub (1) and third gear synchronizer rings (2). Mark components for installation reference.



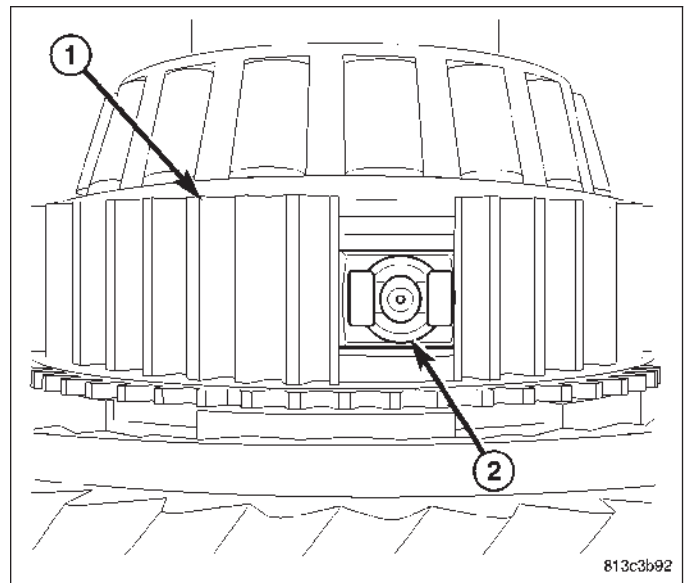
18. Remove third gear (1) and bearing (2).



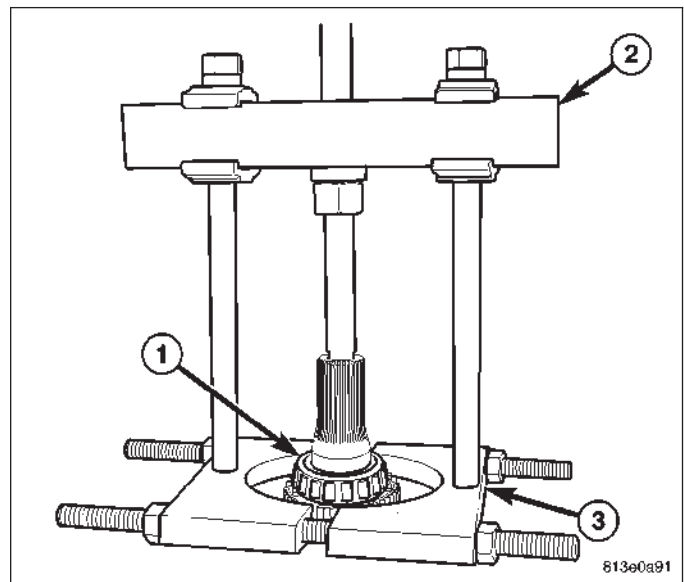
19. Turn mainshaft and Fixture 9605 and secured in vise.
20. Remove 4x4 mainshaft snap ring.
21. Remove reverse gear synchronizer sleeve (1) from reverse gear (2) synchronizer hub.



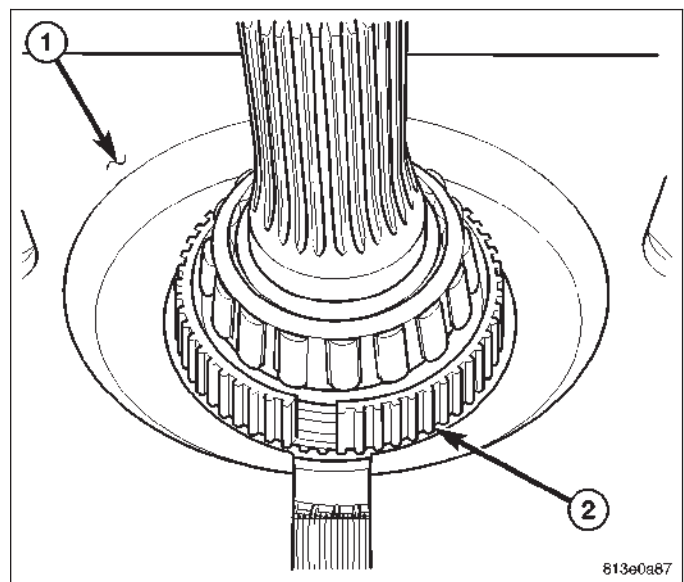
- 22. Remove reverse gear synchronizer hub (1) detents (2).



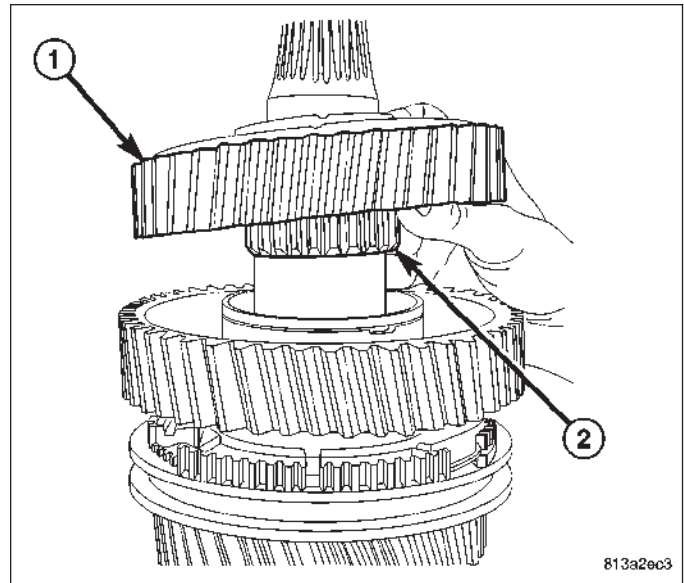
- 23. Remove mainshaft bearing (1) with Bridge 938 (2) and bearing Puller 9647 (3).



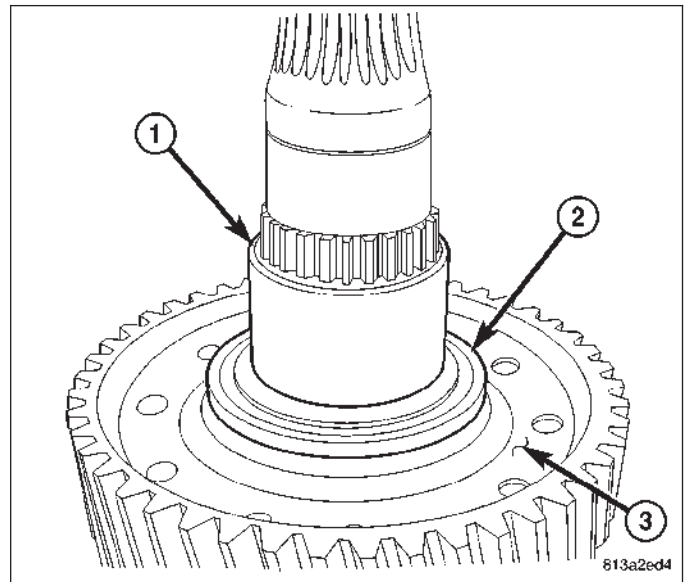
- 24. Position puller (1) behind reverse synchronizer hub and outer blocker ring (2).



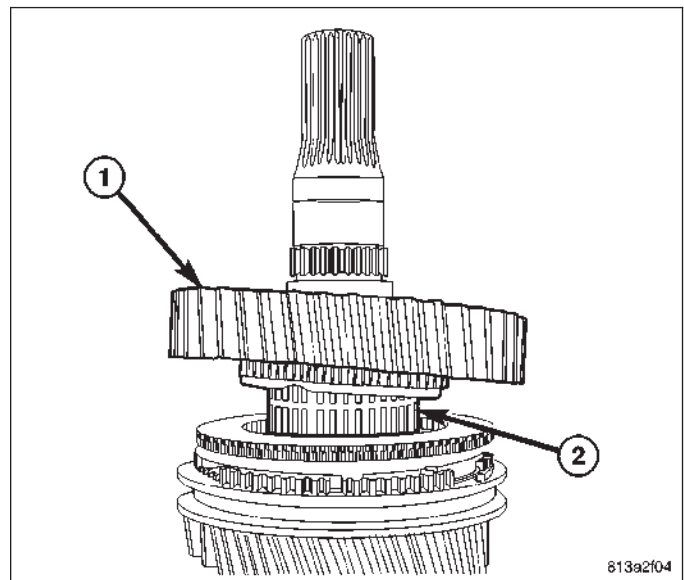
25. Remove reverse gear (1) and bearing (2).



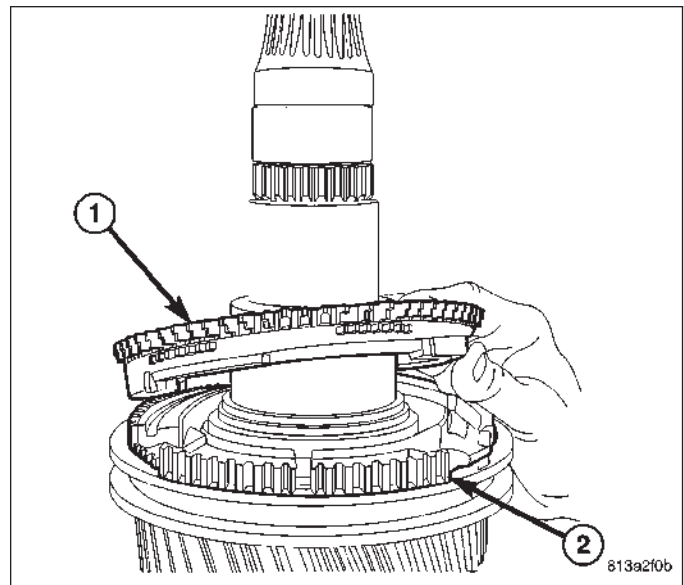
26. Remove reverse gear bearing race (1) and thrust washer (2). Use Puller 9646 and Bridge 938 on first gear (3) to pull off reverse gear bearing race (1) and thrust washer (2).



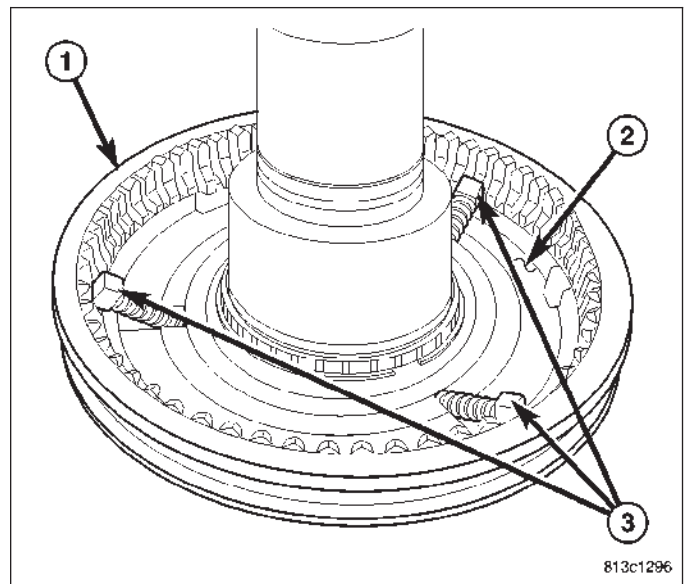
27. Remove first gear (1) and bearing (2).



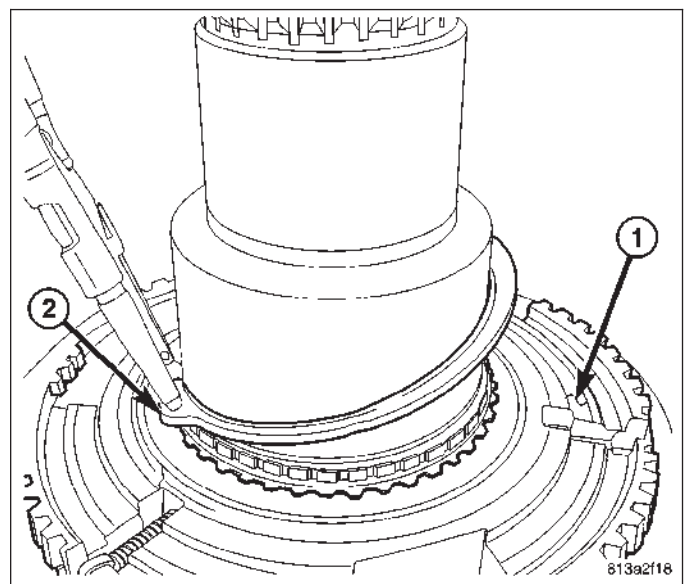
28. Remove first gear synchronizer rings (1) from 1-2 synchronizer hub (2) and mark for installation reference.



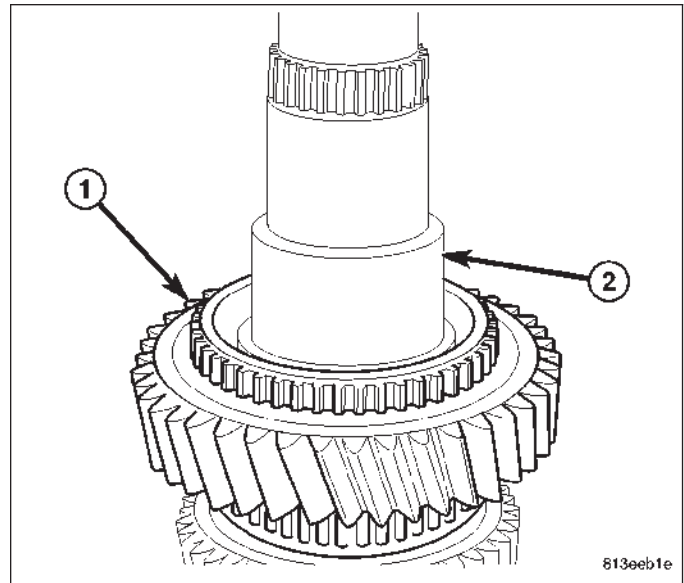
29. Slowly pull 1-2 synchronizer sleeve (1) up on hub (2) enough to remove detents and springs (3).



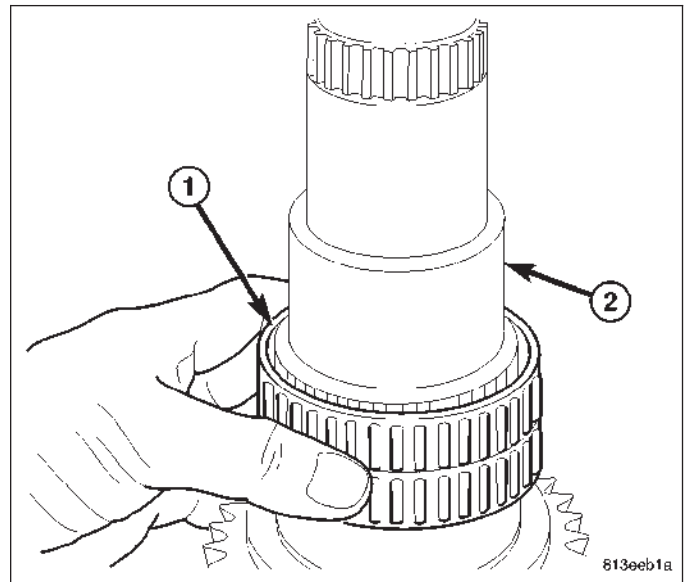
30. Remove 1-2 synchronizer hub (1) snap ring (2) and remove hub with second gear synchronizer rings. Mark components for installation reference.



31. Remove second gear (1) from mainshaft (2).



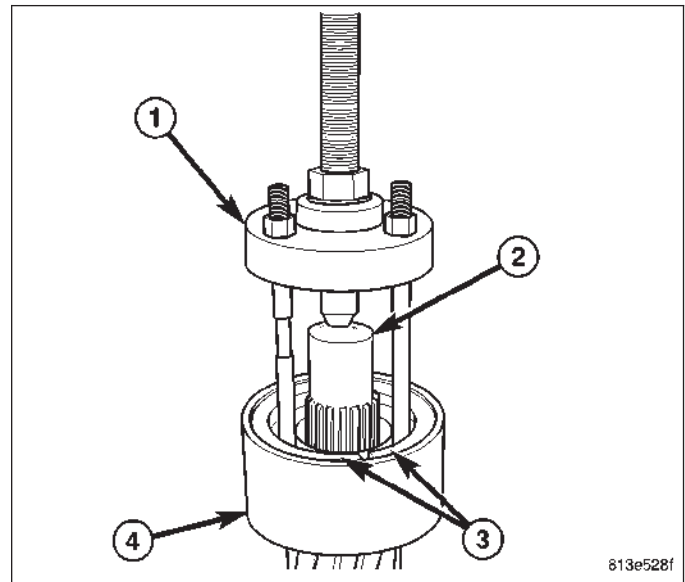
32. Remove second gear bearing (1) from mainshaft (2).



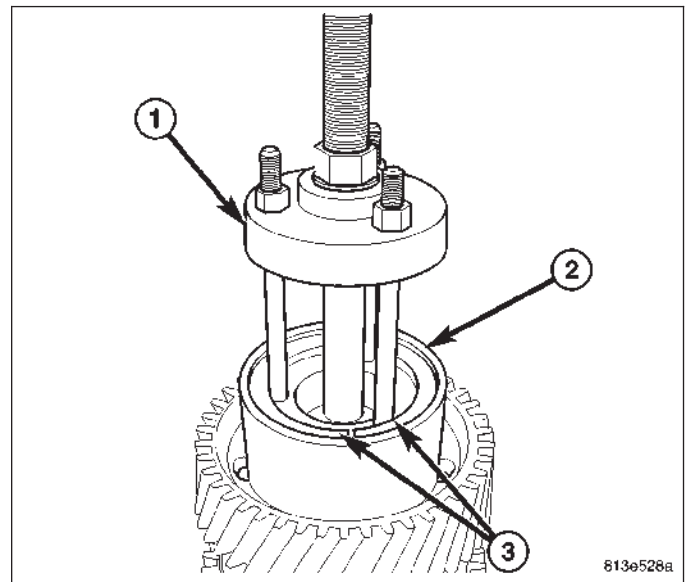
COUNTERSHAFT

NOTE: Bearings are the only component serviced on the countershaft.

1. Remove countershaft rear housing bearing with Puller 6444 (1), Plug 8513A (2), Puller Jaws 9597 (3), Puller Collar 6444-8 (4), Puller Rods 6444-3 and Puller Flange 6444-1. Position Puller Jaws 9597 around bearing and puller flange. Position puller collar around the puller jaws. Tighten the puller bolt and remove countershaft bearing.
2. Remove countershaft first/reverse gear bearing oil slinger from countershaft.

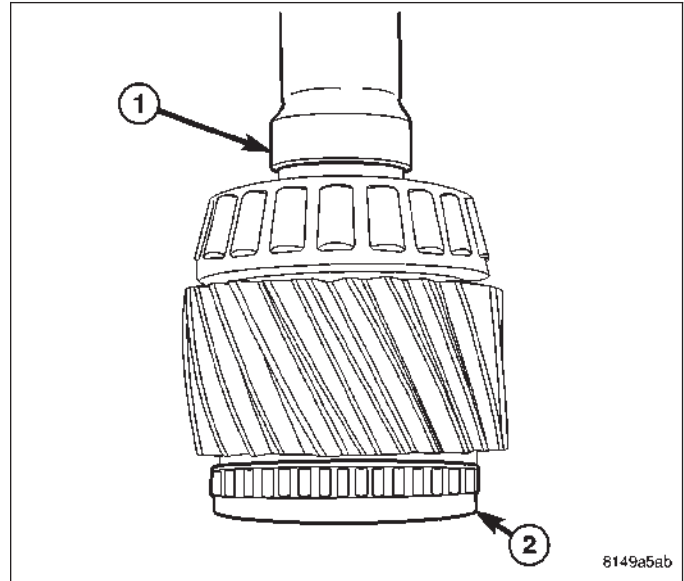


3. Remove countershaft front housing bearing with Puller 6444 (1), Puller Collar 6444-8 (2), Puller Jaws 9597 (3), Puller Rods 6444-3 and Puller Flange 6444-1. Position puller jaws around bearing and puller flange. Position puller collar around the puller jaws. Tighten the puller bolt and remove countershaft bearing.

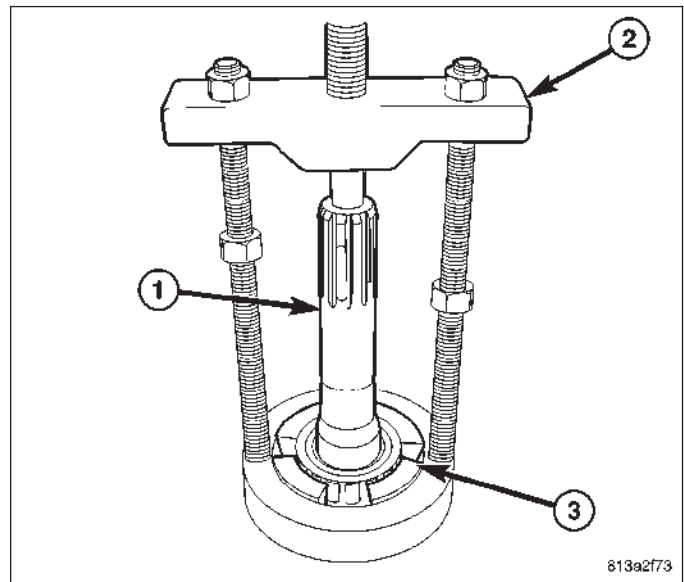


INPUT SHAFT

1. Position input shaft (1) mainshaft bearing seal (2) in a vice then twist input shaft (1) out of the seal (2).

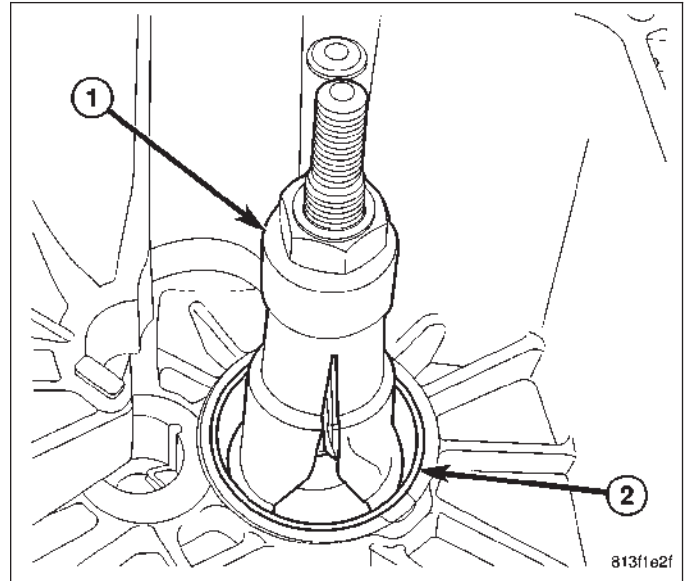


2. Remove input shaft (1) bearing with Puller C-293-PA (2) and Adapters C-293-47 (3).
3. Remove input shaft mainshaft bearing gasket.

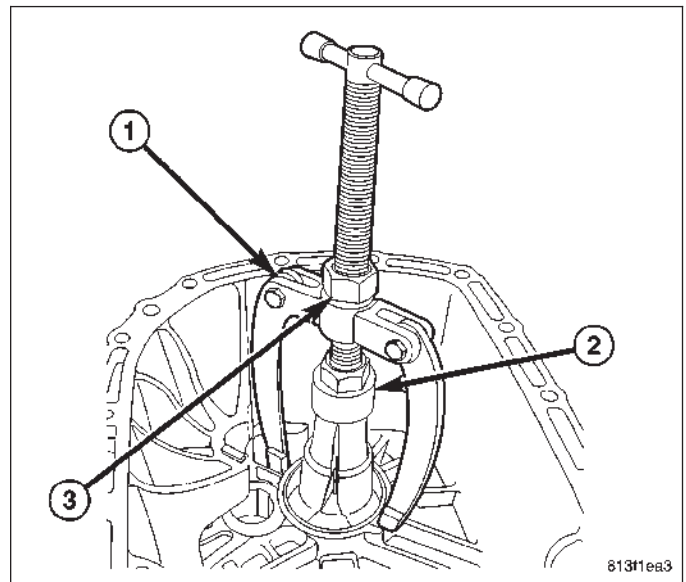


REAR HOUSING

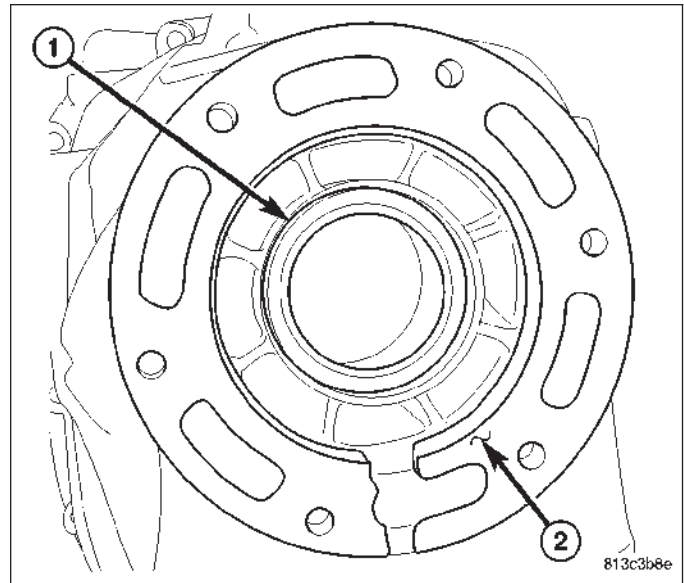
1. Remove countershaft bearing cup and mainshaft bearing cup with Puller 9593 (1) installed in cup (2).



2. Install Remover 8915 (1) on puller (2) and tighten remover nut (3) to pull cups out of the housing.

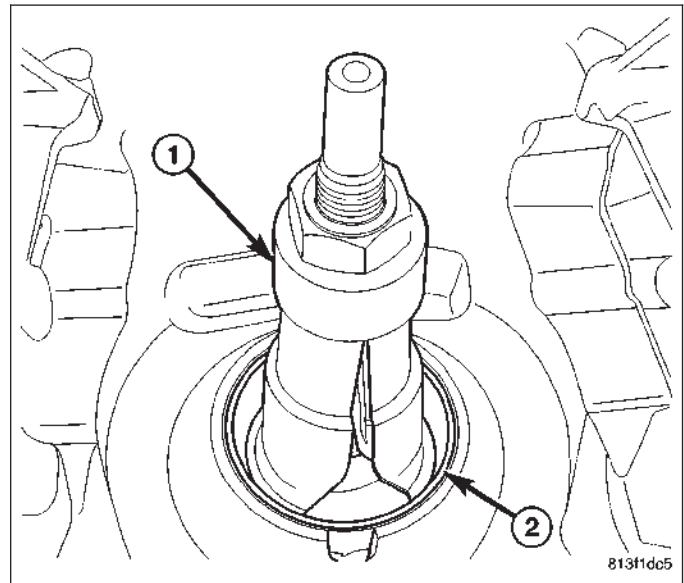


3. Remove output shaft seal (1) from housing (2) with seal pick.

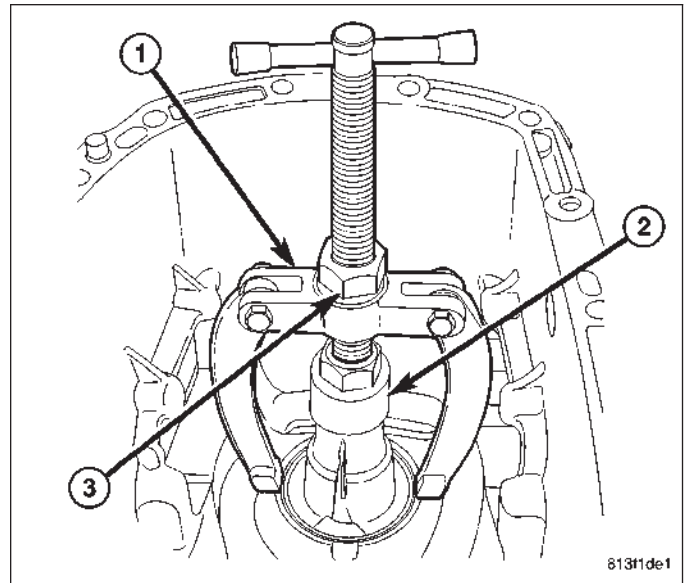


FRONT HOUSING

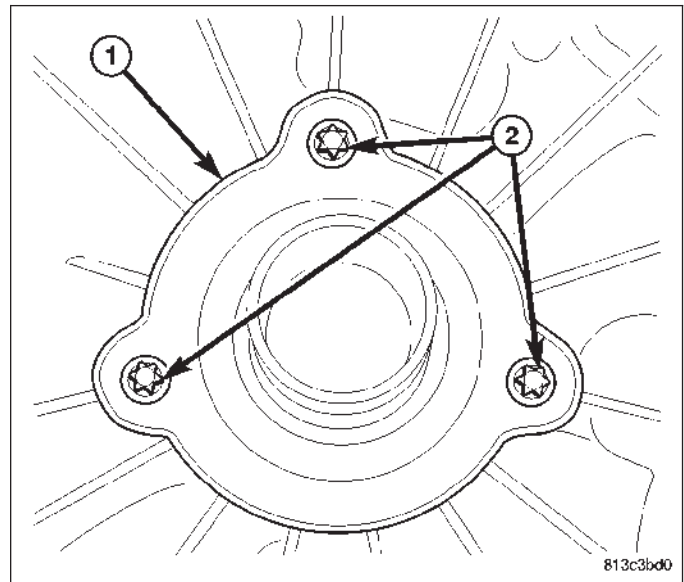
1. Remove countershaft bearing cup and mainshaft bearing cup with Puller 9593 (1) installed in cup (2).



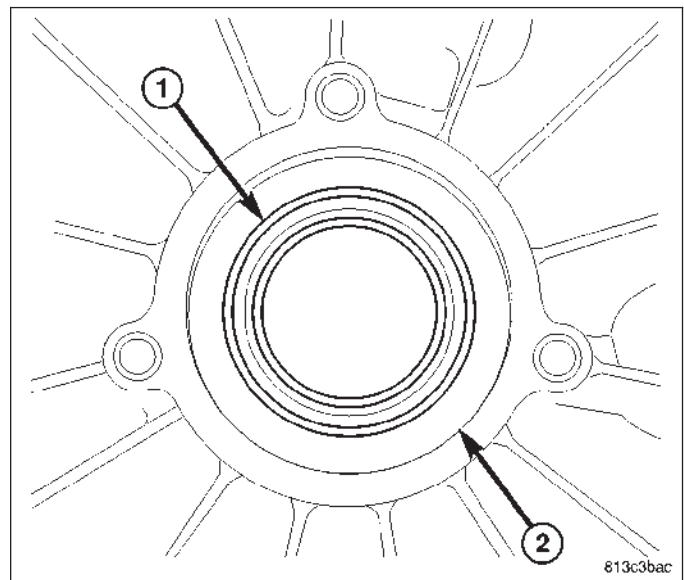
2. Install Remover 8915 (1) on puller (2) and tighten remover nut (3) to pull cups out of the housing. Then remove end-play shims from bearing bores and oil supply washer from mainshaft bearing bore.



3. Remove input shaft retainer (1) bolts (2) and remove retainer.



4. Remove input shaft seal (1) from retainer bore (2) with a seal pick.



CLEANING

Clean gears, shafts, shift components and transmission housings with a standard parts cleaning solvent. Do not use acid or corrosive base solvents. Dry all parts except bearings with compressed air.

Clean shaft bearings with a mild solvent such as MOPAR® degreasing solvent, Gunk® or similar solvents. Do not dry the bearings with compressed air. Allow the bearings to either air dry or wipe them dry with clean shop towels.

INSPECTION

NOTE: Minor corrosion, nicks, or pitting can be smoothed with 400 grit emery and polished out with crocus cloth.

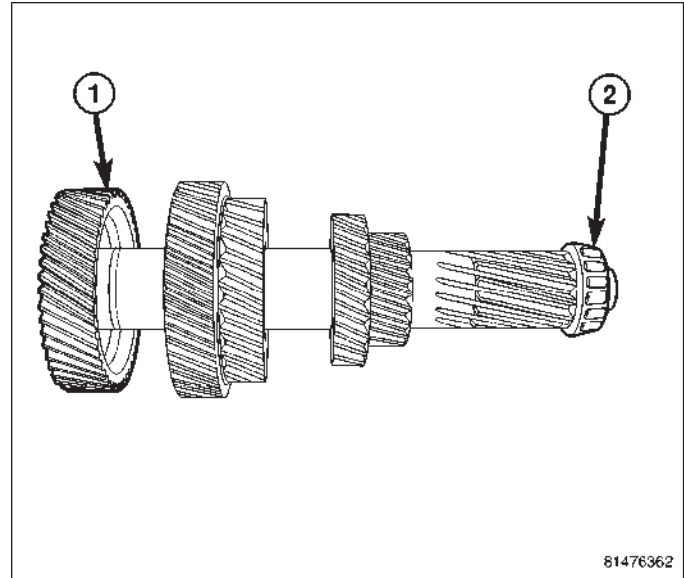
Bearings: Inspect for worn, chipped, cracked, flat-spotted or brinnelled.

Gears: Inspect for worn, chipped or cracked teeth. Inspect bearing surfaces for wear or flat-spotted.

Mainshaft: Inspect for worn splines, snap ring grooves and threads.

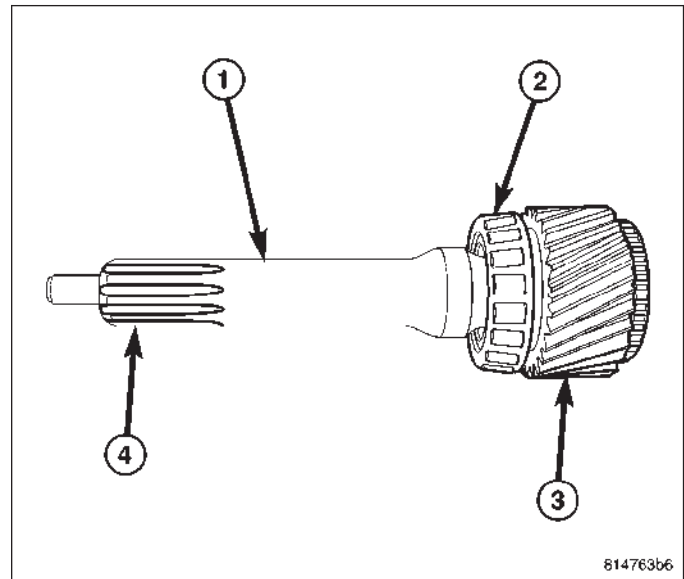
Countershaft: Inspect all gears for worn, chipped or cracked teeth (1). Inspect all bearings (2) and bearing surfaces for wear or flat-spotted. **The countershaft is serviced as an assembly, except for bearings.**

Oil slinger: Inspect first/reverse oil slinger for cracks.



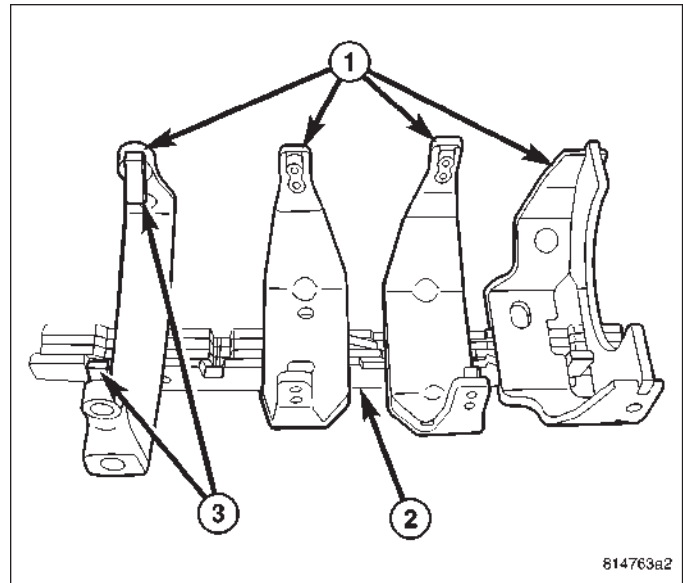
Synchronizer components: Inspect for worn, chipped or cracked teeth and burned or flaking off friction material. **Synchronizer are serviced as an assembly.**

Input Shaft: Inspect shaft (1), bearing (2) surfaces for wear or flat-spotted. Inspect fifth gear (3) for worn, chipped or cracked teeth. Inspect splines (4) for wear and chips.

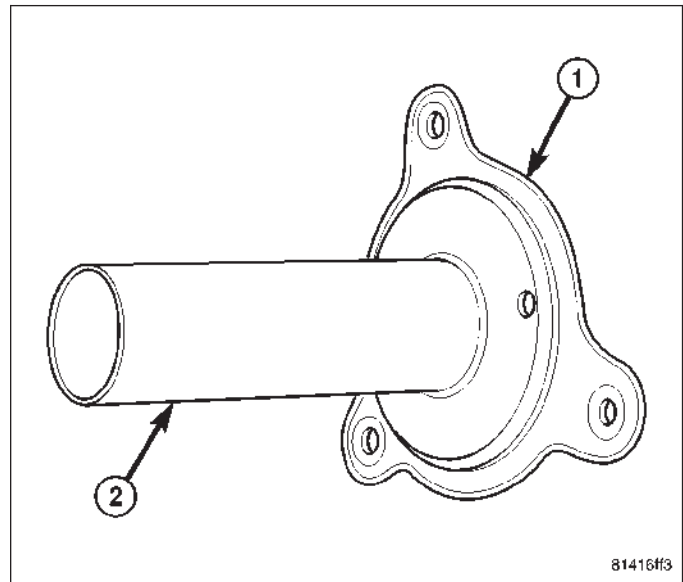


Shift forks and Rails: Inspect shift forks (1) and shoes for wear and distortion. Check fit of fork shoes in synchronizer sleeve to ensure parts fit and work smoothly. Inspect shift rails (2), for wear and distortion. **5-6 shift fork shoes (3) are serviced separately.** Inspect 5-6 shift fork pivot pin O-rings.

Housing/Tail housing: Inspect sealing and mating surfaces are free of burrs and nicks. Inspect alignment dowels are tight and in good condition. Inspect shift rail bushings for wear.



Input Retainer: Inspect release bearing slide surface (2) and sealing surface.



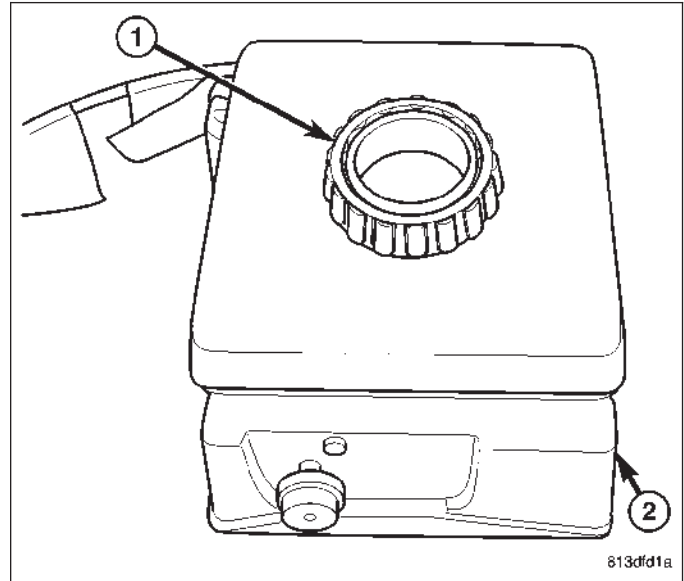
ASSEMBLY

WARNING: Use welding gloves when handling heated components. Failure to follow these instructions will result in personal injury.

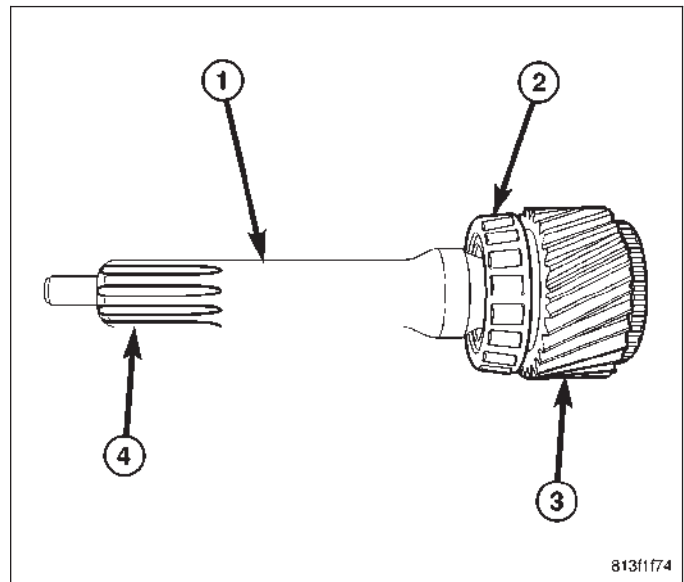
CAUTION: A bearing heater is used to assembly some components. Use only a bearing heater/hot plate and follow manufacture's instructions. Heat components to 100 - 177 Celsius (212° Min. - 350° Max Fahrenheit). Never use an open flame to heat components. Never leave components on heater for and extended amount of time. If component is discolored after heating, the component has been overheated and must not be used. Failure to follow these instructions will result in component damage.

INPUT SHAFT

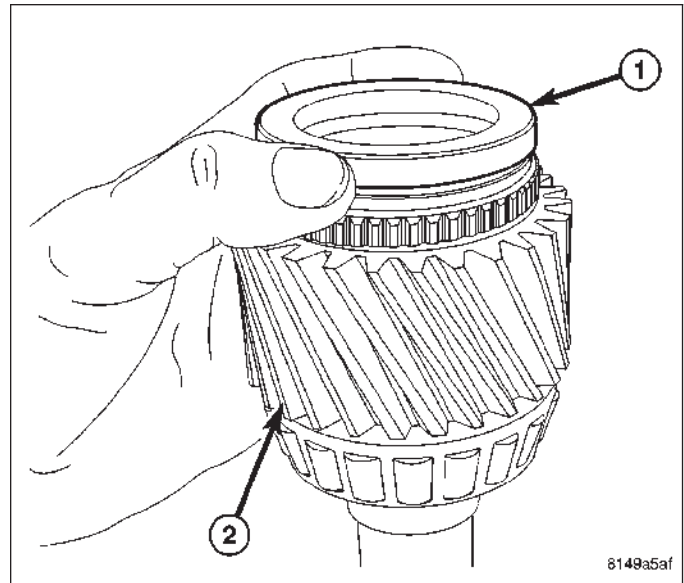
1. Heat input shaft bearing (1) on bearing heater (2) to a maximum of 177 Celsius (350° Fahrenheit).



2. Using welding gloves or tongs, install bearing (2) on input shaft (1).

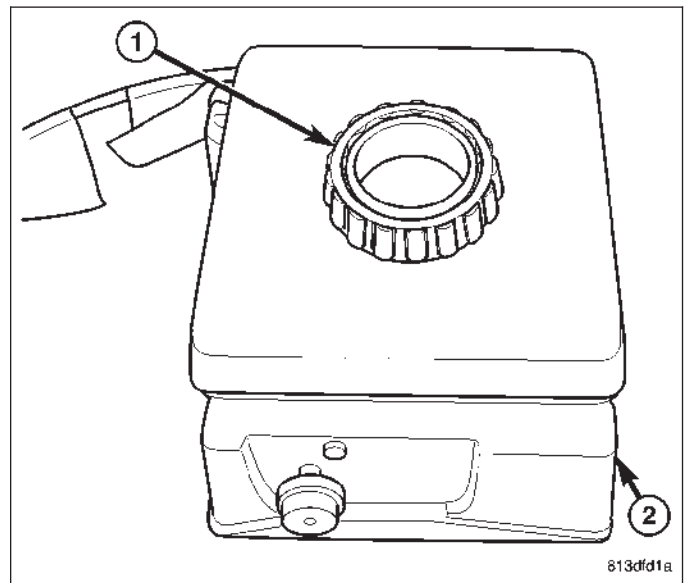


3. Push input shaft mainshaft bearing seal (1) on the end of fifth gear (2).

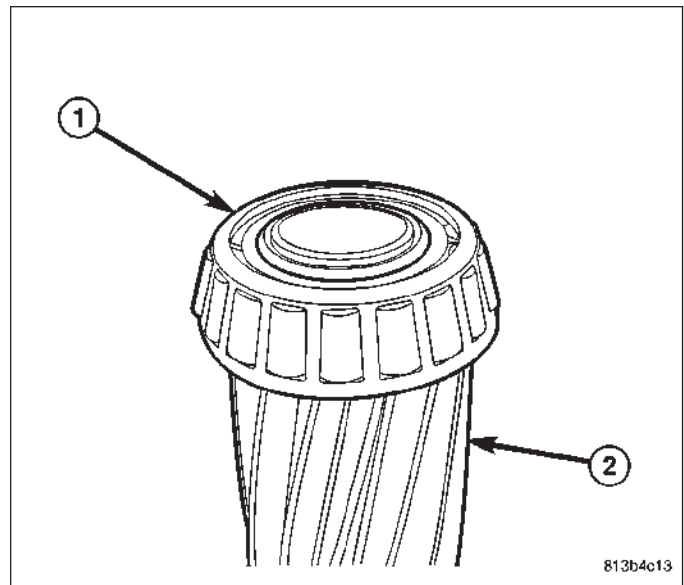


COUNTERSHAFT

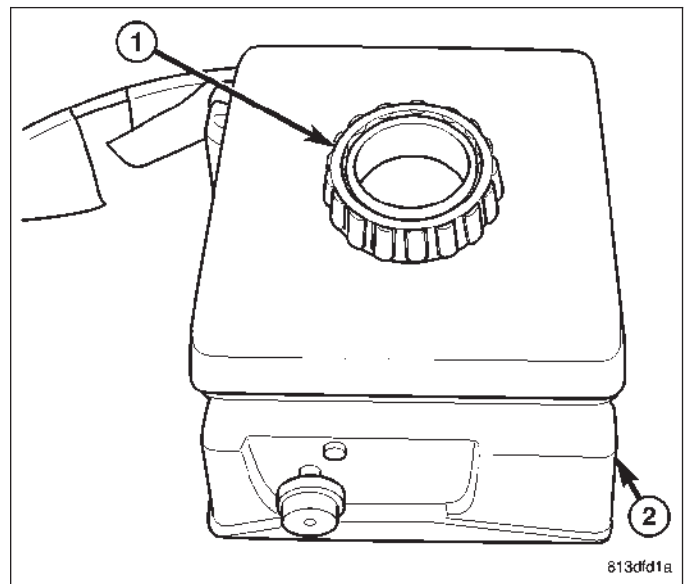
1. Install first/reverse gear bearing oil slinger on the rear housing end of the countershaft.
2. Heat rear housing countershaft bearing (1) on bearing heater (2) to a maximum of 177 Celsius (350° Fahrenheit).



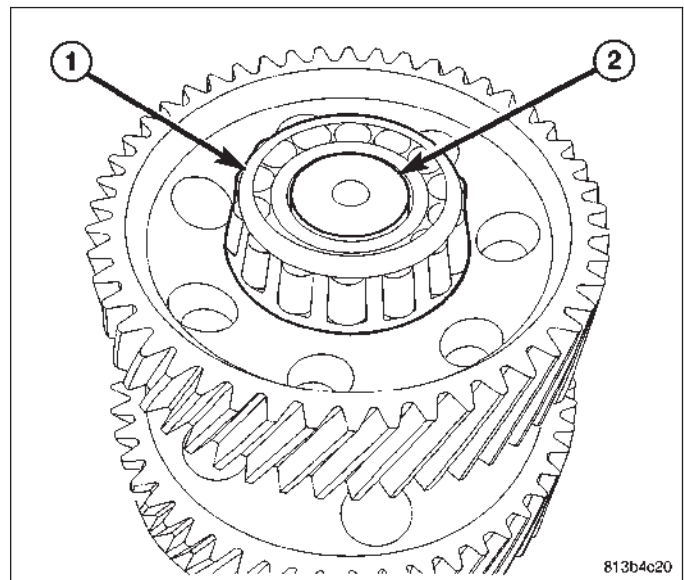
- Using welding gloves or tongs, install countershaft bearing (1) on countershaft (2).



- Heat front housing countershaft bearing (1) on bearing heater (2) to a maximum of 177 Celsius (350° Fahrenheit).

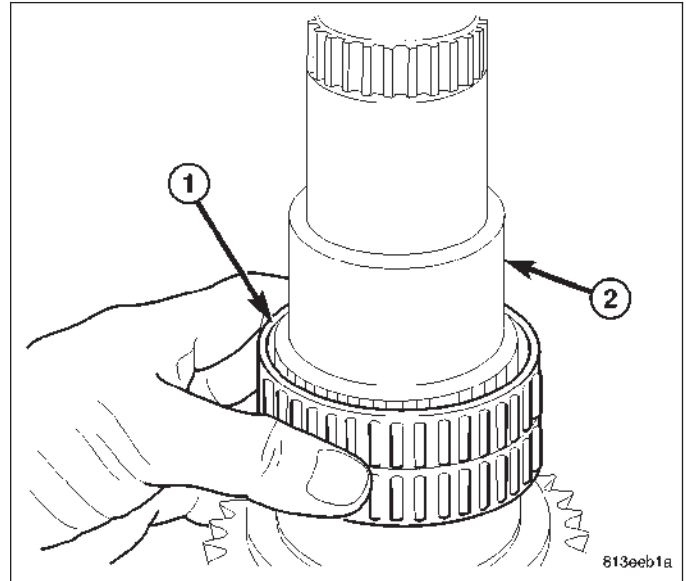


- Using welding gloves or tongs, install front housing countershaft bearing (1) on countershaft (2).

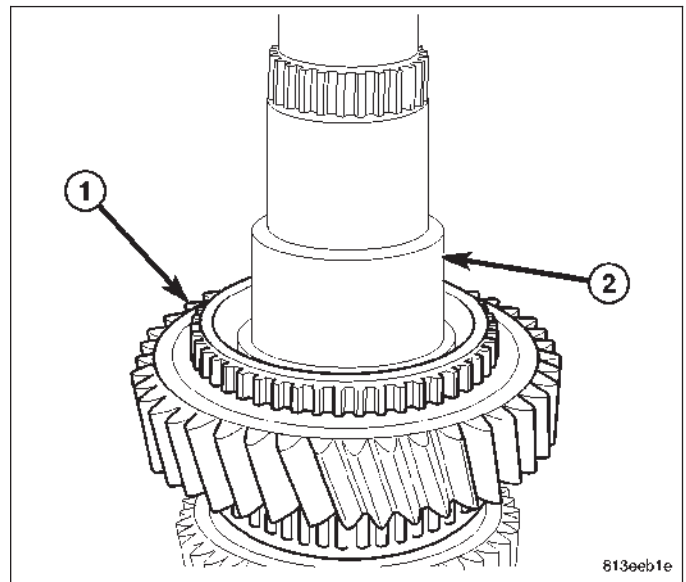


MAINSHAFT

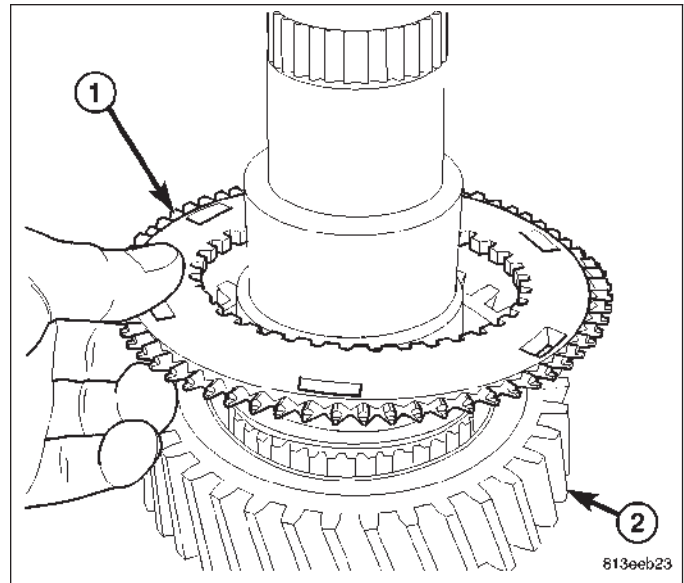
1. Position mainshaft in Fixture 9605 mounted in vise.
2. Install second gear bearing (1) on mainshaft (2).



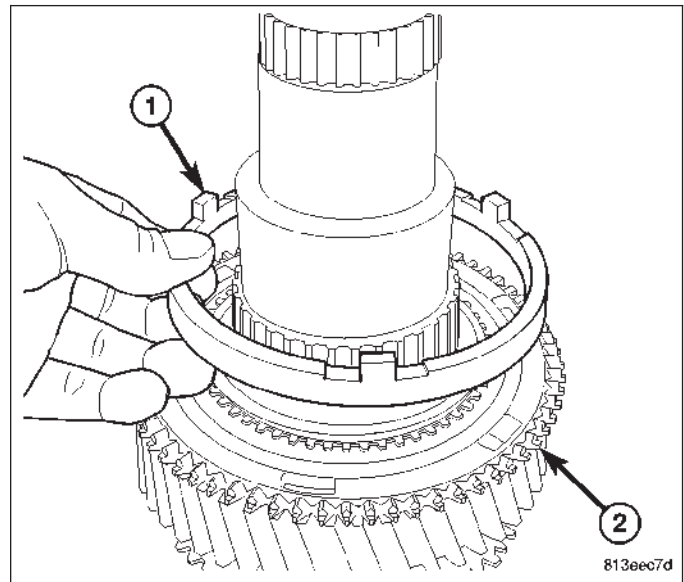
3. Install second gear (1) on mainshaft (2).



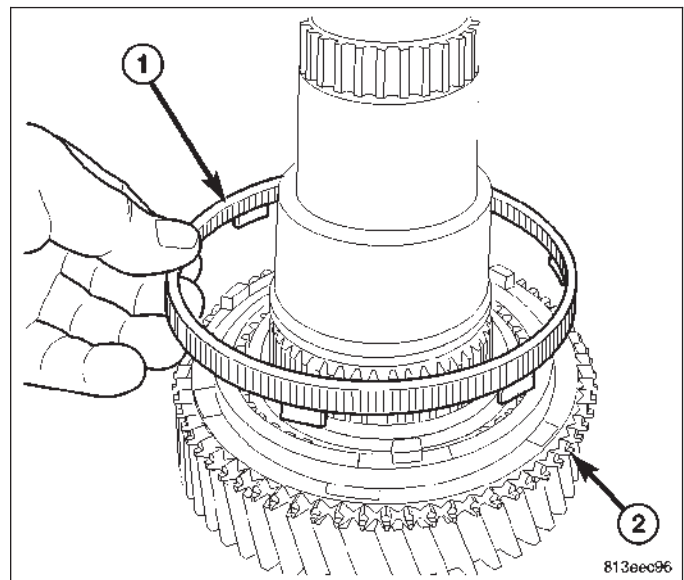
4. Install second gear stop ring (1) with teeth pointing up on second gear (2).



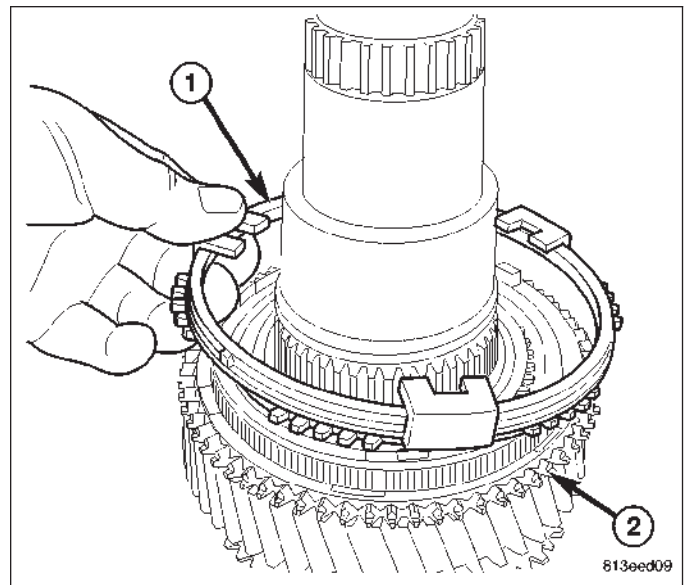
5. Install second gear inner friction ring (1) on stop ring (2).



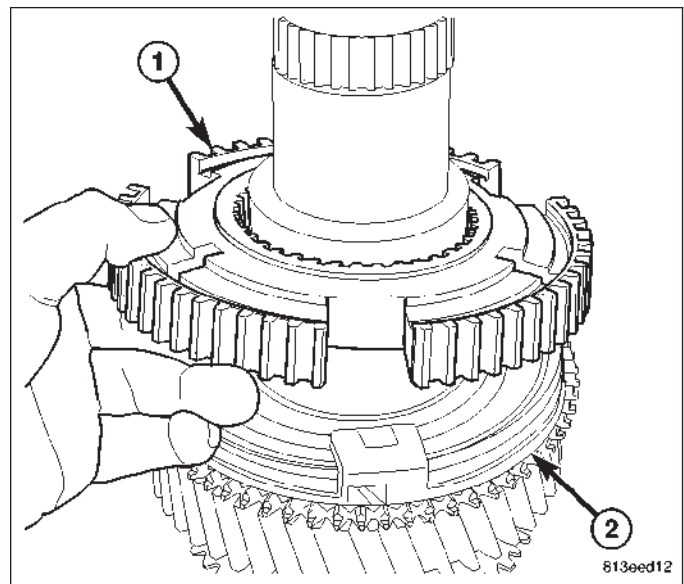
6. Install second gear outer friction ring (1) on stop ring (2).



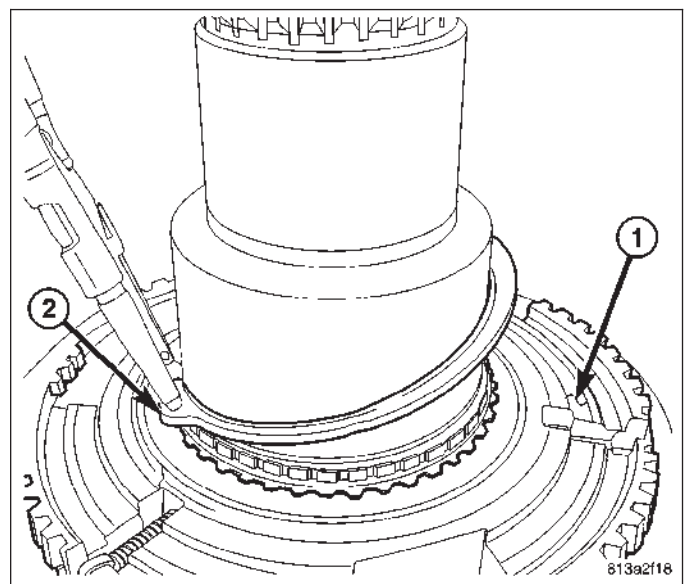
7. Install second gear blocker ring (1) on stop ring (2).



8. Install 1-2 synchronizer hub (1) on mainshaft and synchronizer rings (2).



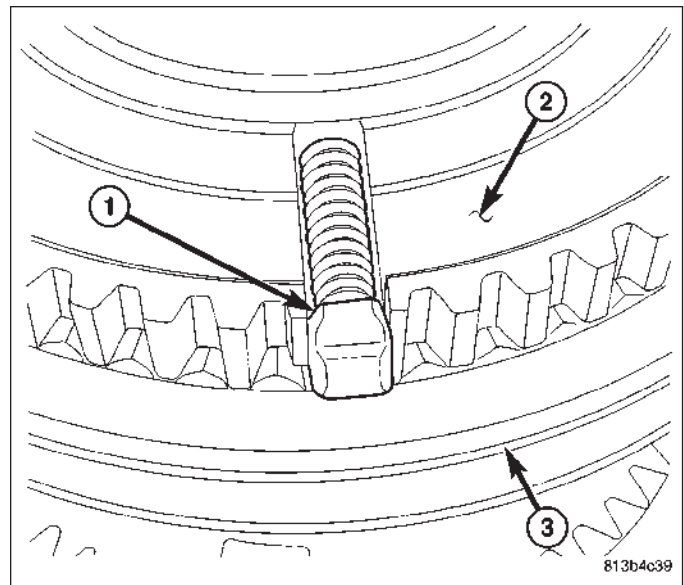
9. Install 1-2 synchronizer hub (1) and hub snap ring (2).



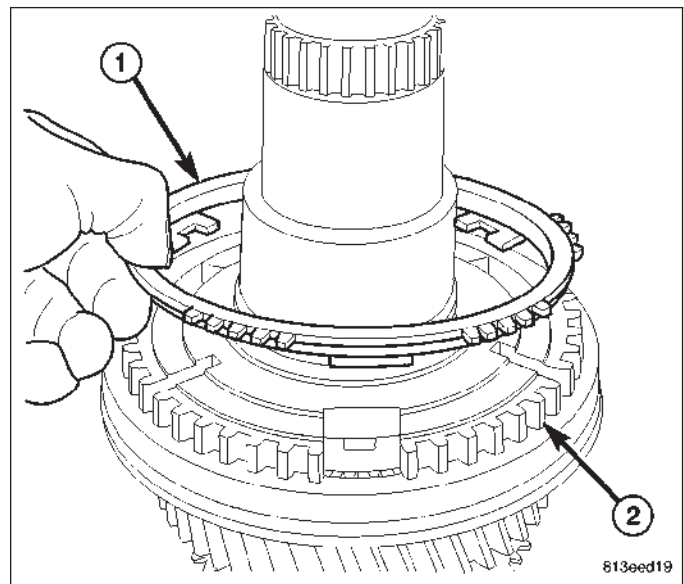
10. Install 1-2 synchronizer sleeve (3) on the hub (2) and push sleeve to the bottom of the hub.

NOTE: 1-2 synchronizer sleeve (3) and hub (2) have one small tooth. They must be aligned to install synchronizer sleeve (3) on hub (2).

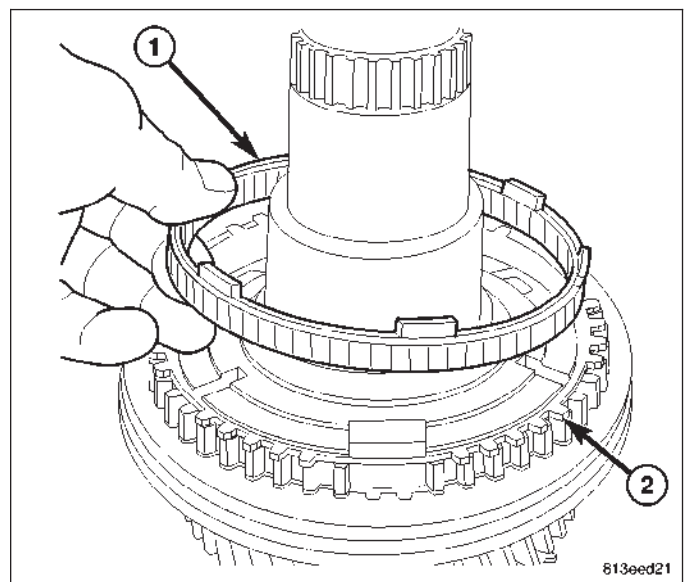
11. Install 1-2 synchronizer detents and springs (1) into synchronizer hub (2) slots. Then push detents behind synchronizer sleeve (3).



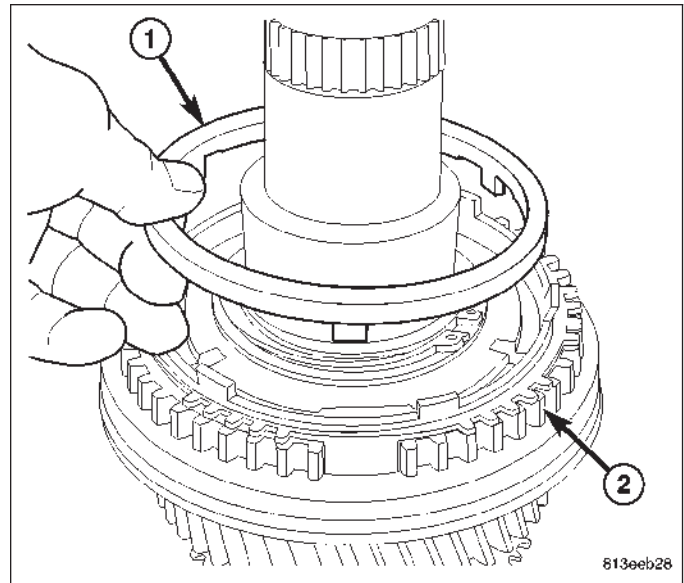
12. Install first gear blocker ring (1) on synchronizer hub (2).



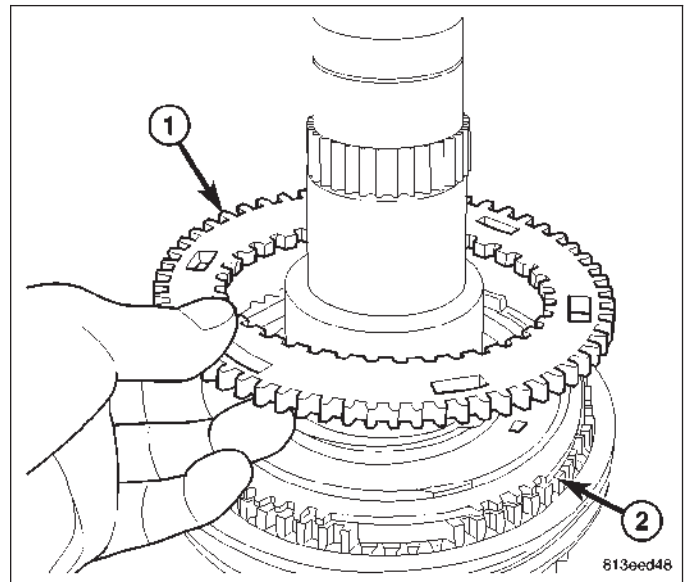
13. Install first gear outer friction ring (1) on synchronizer hub (2).



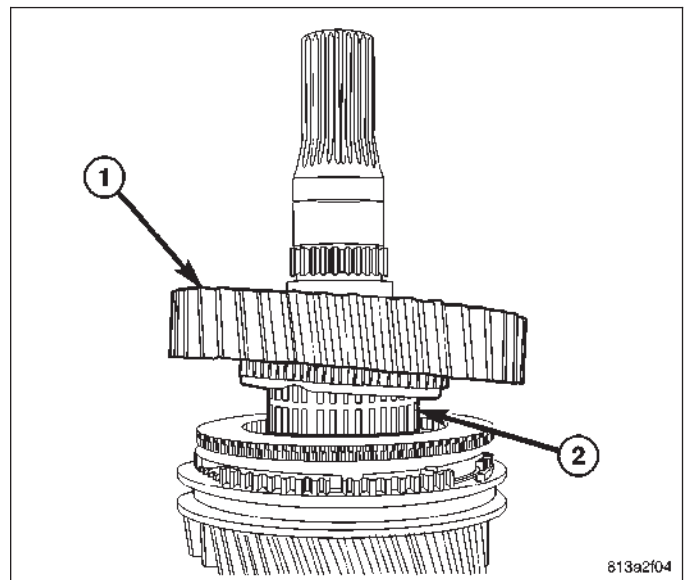
14. Install first gear inner friction ring (1) on synchronizer hub (2).



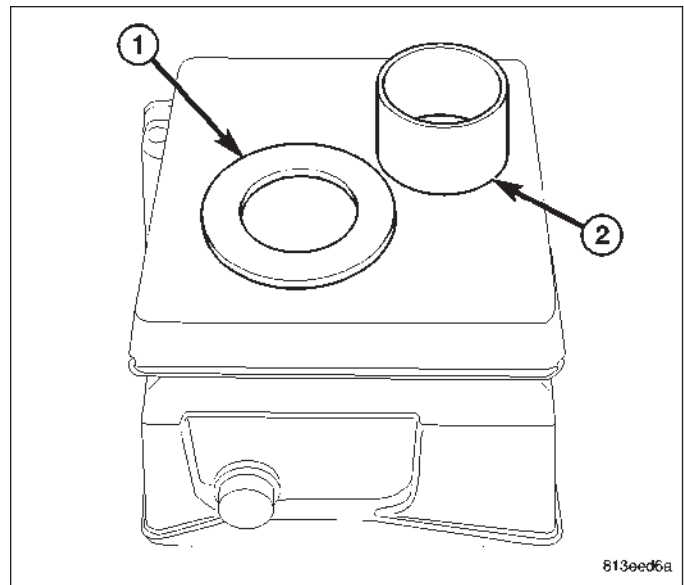
15. Install first gear stop ring (1) with teeth pointing down on synchronizer rings and hub (2).
16. Hold first gear stop ring (1) on synchronizer rings (2) and center 1-2 synchronizer sleeve on the hub.



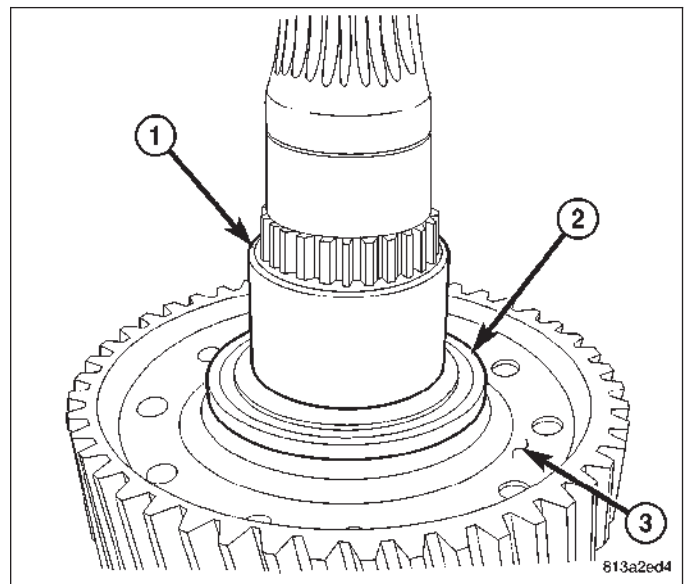
17. Install first gear (1) and bearing (2).



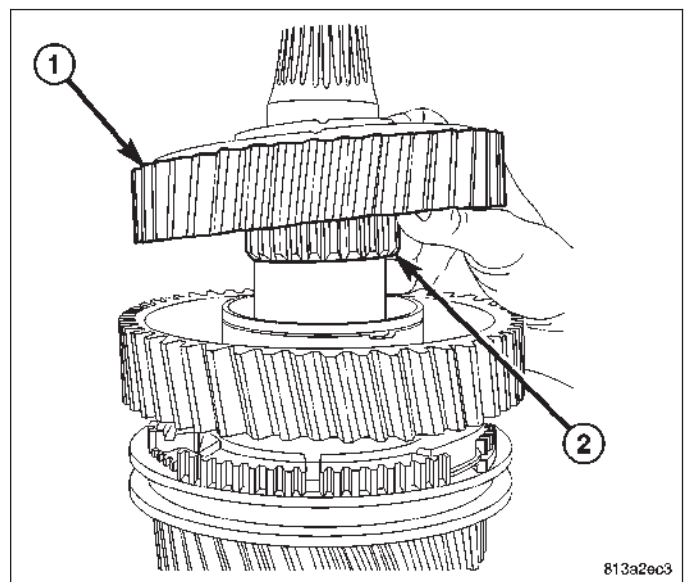
18. Heat thrust washer (1) and reverse gear bearing race (2) on bearing heater to a maximum of 177 Celsius (350° Fahrenheit).



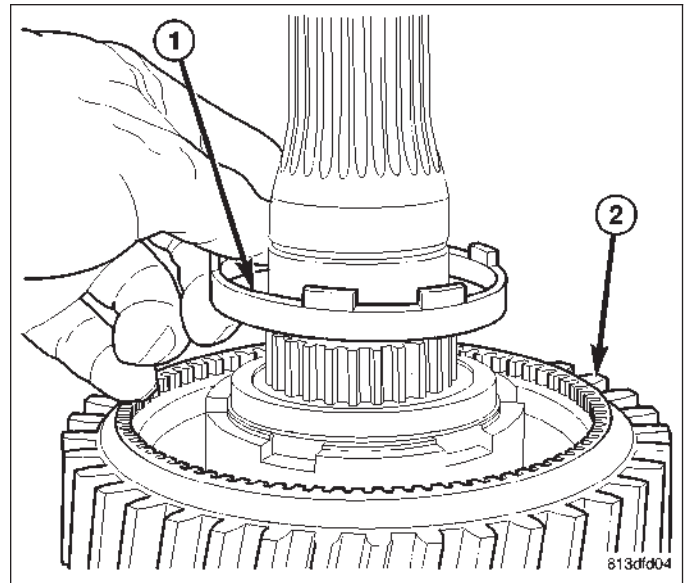
19. Using welding gloves or tongs, install thrust washer (2) and reverse gear bearing race (1) on mainshaft.



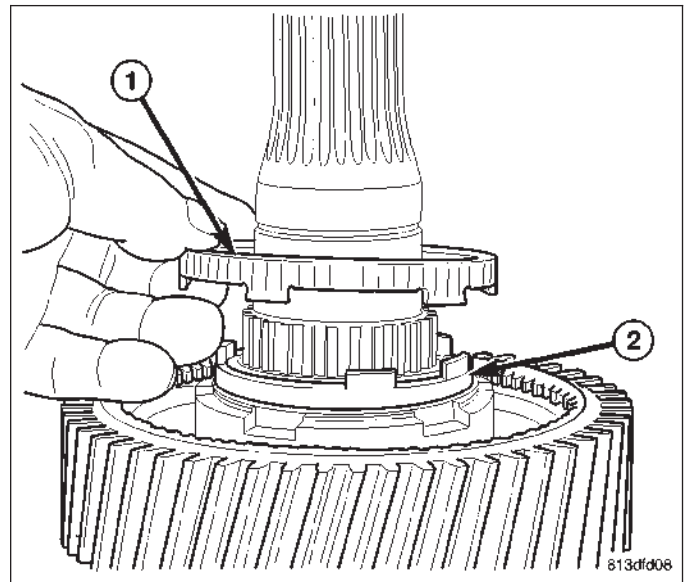
20. Install reverse gear (1) and bearing (2).



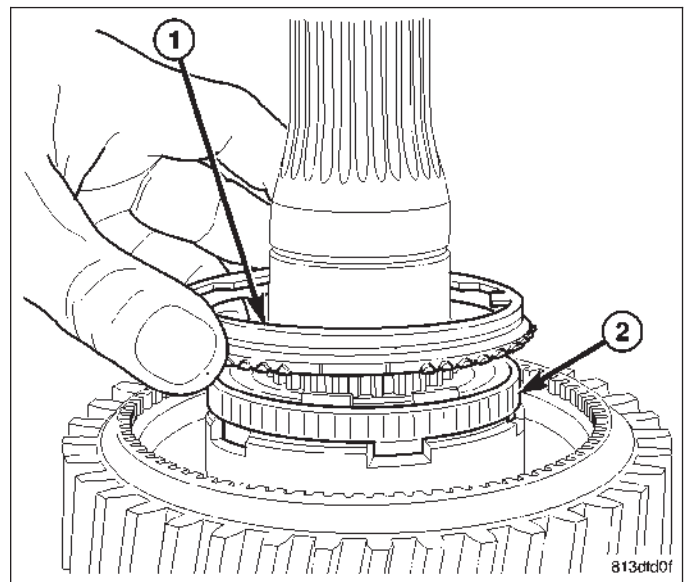
21. Install reverse gear inner friction ring (1) on reverse gear (2).



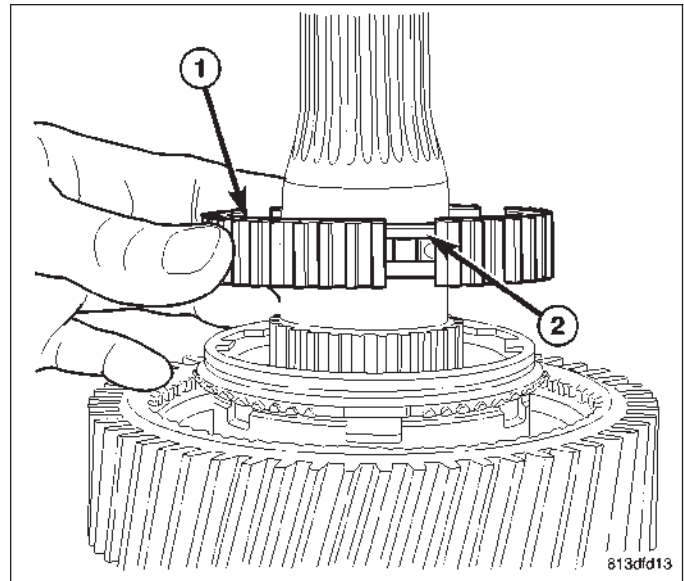
22. Install reverse gear outer friction ring (1) on inner blocker ring (2).



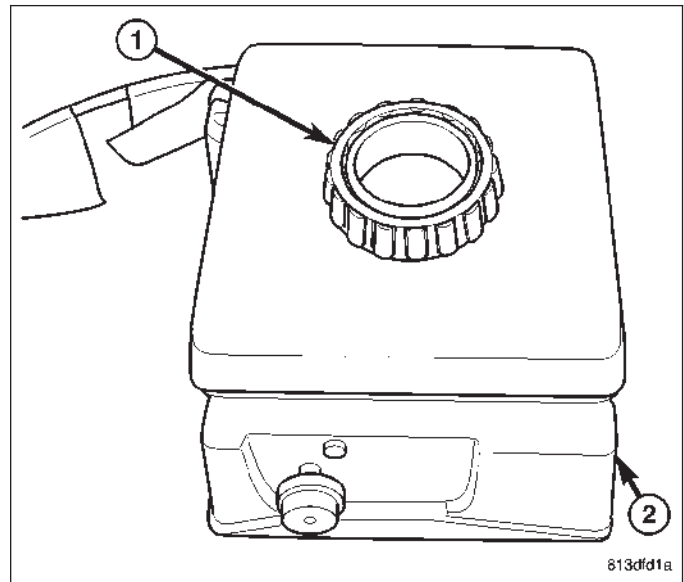
23. Install reverse gear blocker ring (1) on friction ring (2).



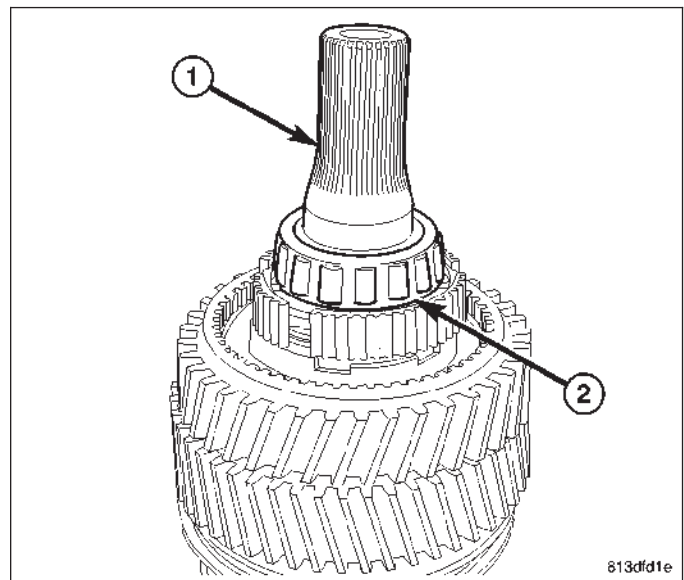
24. Install reverse gear synchronizer hub (1) with snap ring (2) on the top on mainshaft.



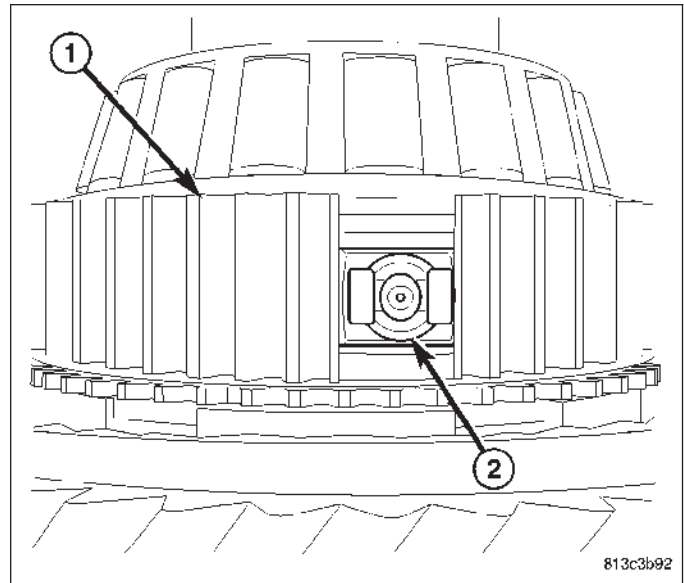
25. Heat mainshaft bearing (1) on bearing heater (2) to a maximum of 177 Celsius (350° Fahrenheit).



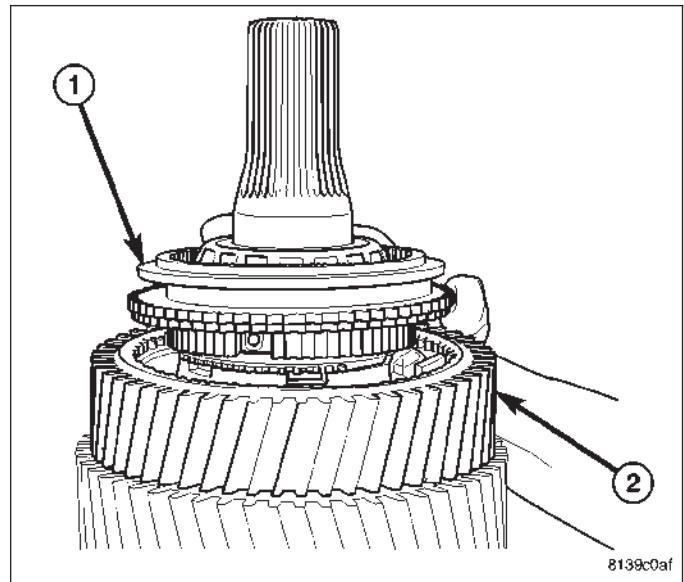
26. Using welding gloves or tongs, install mainshaft (1) bearing (2) on mainshaft.
27. On 4x4 transmission install mainshaft (1) bearing (2) snap ring.



28. Install reverse synchronizer hub (1) detents (2).

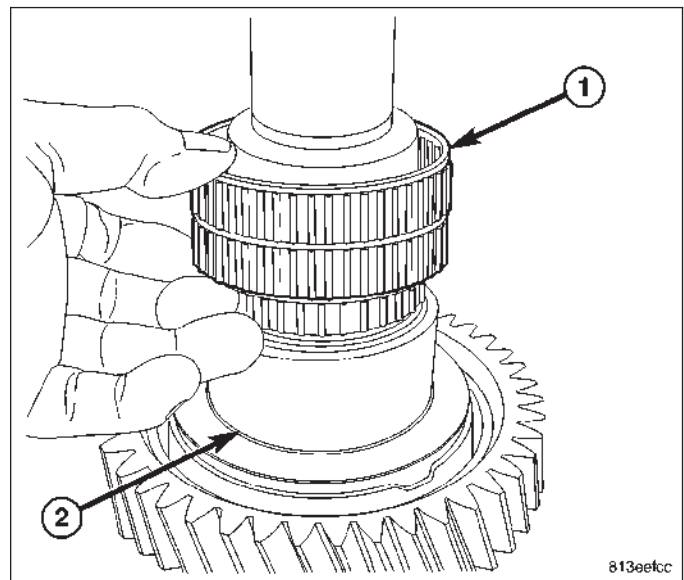


29. Install reverse gear (2) synchronizer sleeve (1) on hub and center sleeve on hub.

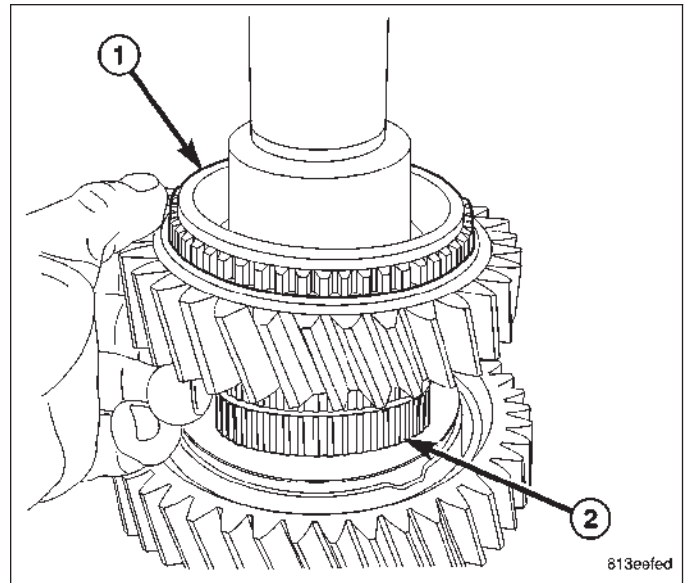


30. Turn mainshaft and Fixture 9605 over and secure in vise.

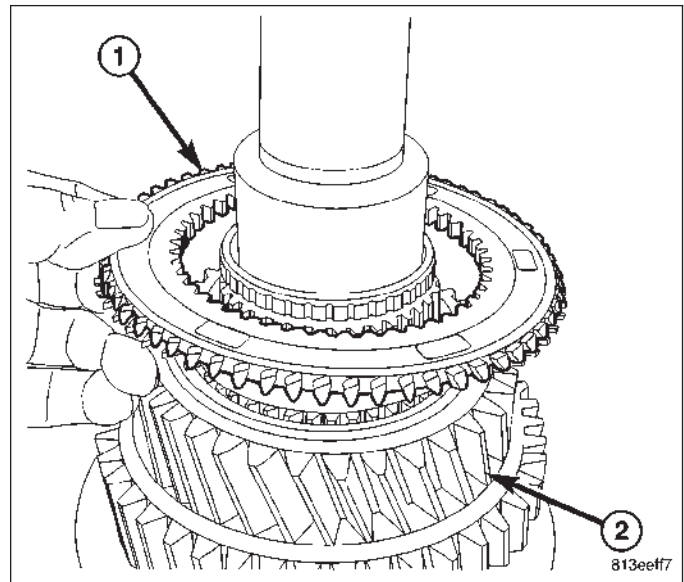
31. Install third gear bearing (1) on mainshaft (2).



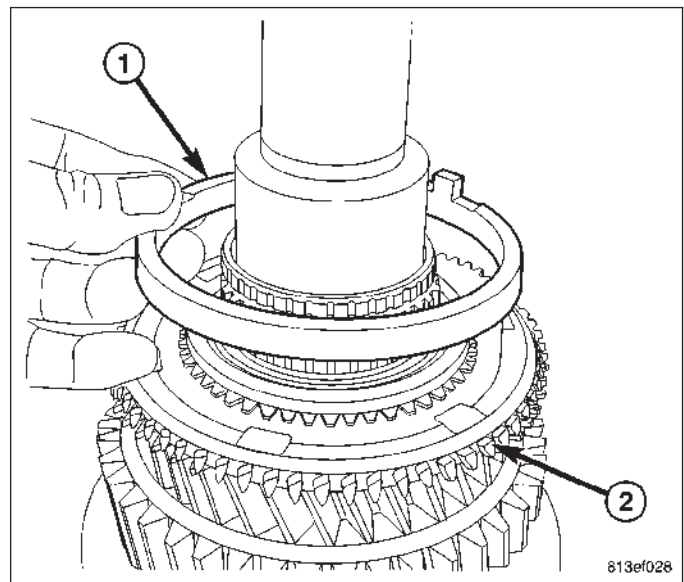
32. Install third gear (1) on mainshaft (2).



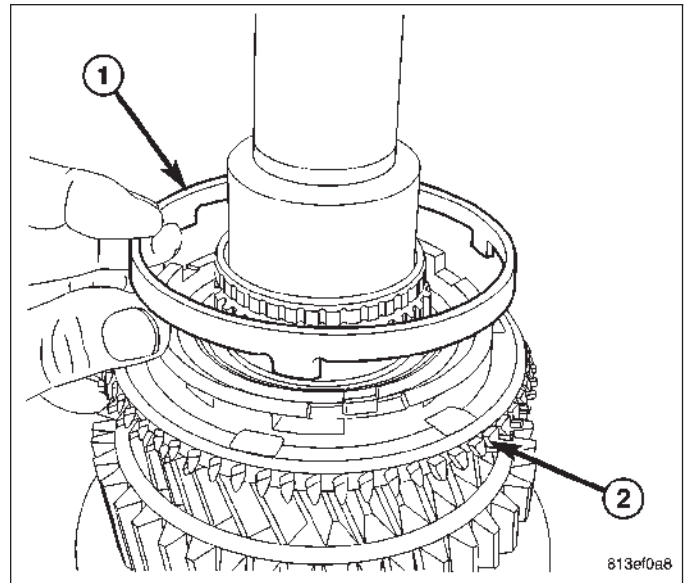
33. Install third gear stop ring (1) with teeth pointing up on third gear (2).



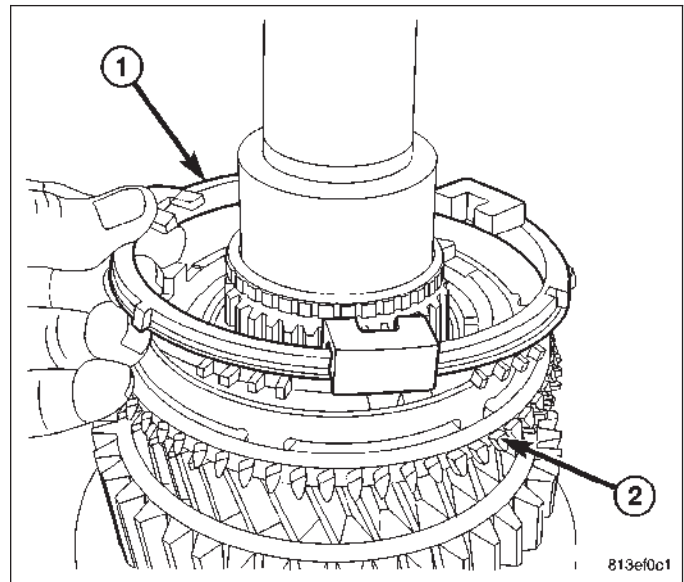
34. Install third gear inner friction ring (1) on stop ring (2).



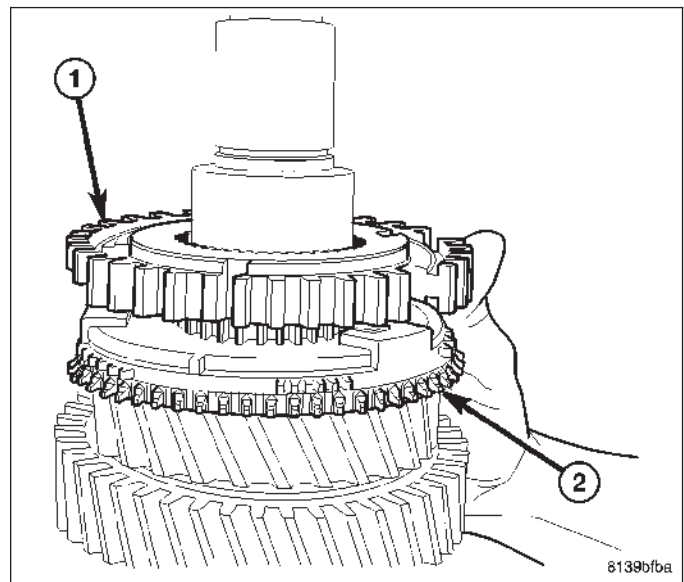
35. Install third gear outer friction ring (1) on stop ring (2).



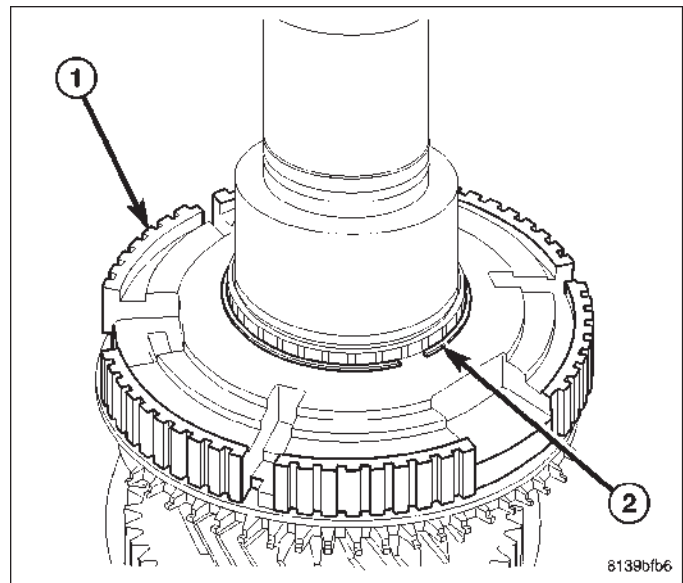
36. Install third gear blocker ring (1) on stop ring (2).



37. Install 3-4 synchronizer hub (1) on third gear synchronizer rings (2).



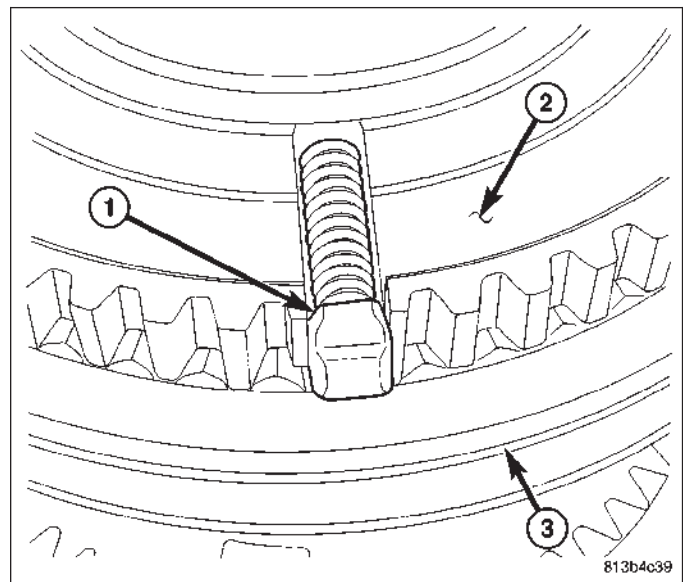
38. Install third gear synchronizer hub (1) snap ring (2).



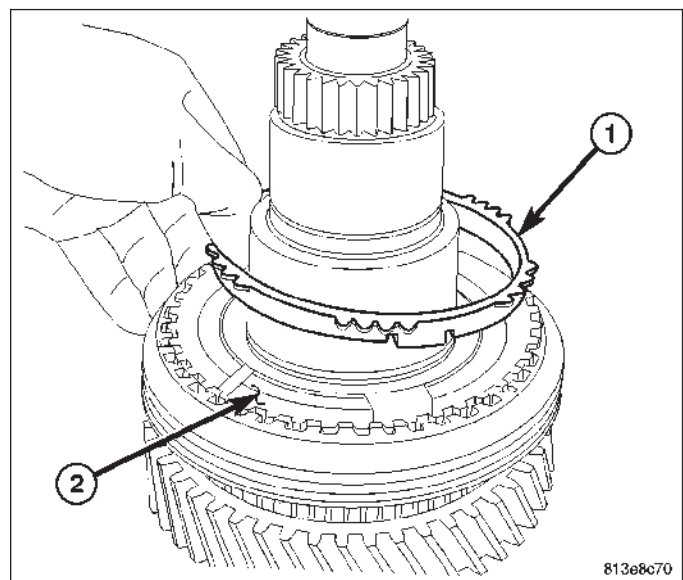
39. Install 3-4 synchronizer sleeve (3) on hub (2) and push sleeve to the bottom of the hub.

NOTE: 3-4 synchronizer sleeve (3) and hub (2) have one small tooth. They must be aligned to install synchronizer sleeve (3).

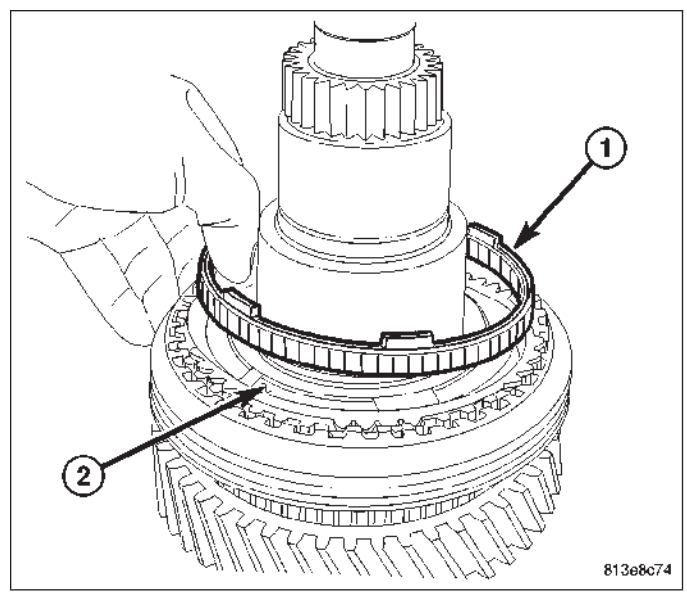
40. Install 3-4 synchronizer detents and springs (1) into synchronizer hub (2) slots. Then push detents (1) behind synchronizer sleeve (3).



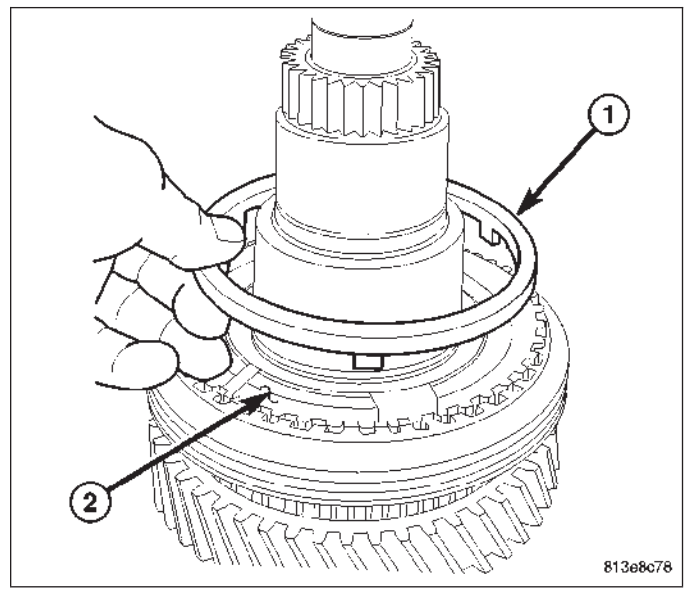
41. Install fourth gear blocker ring (1) on synchronizer hub (2).



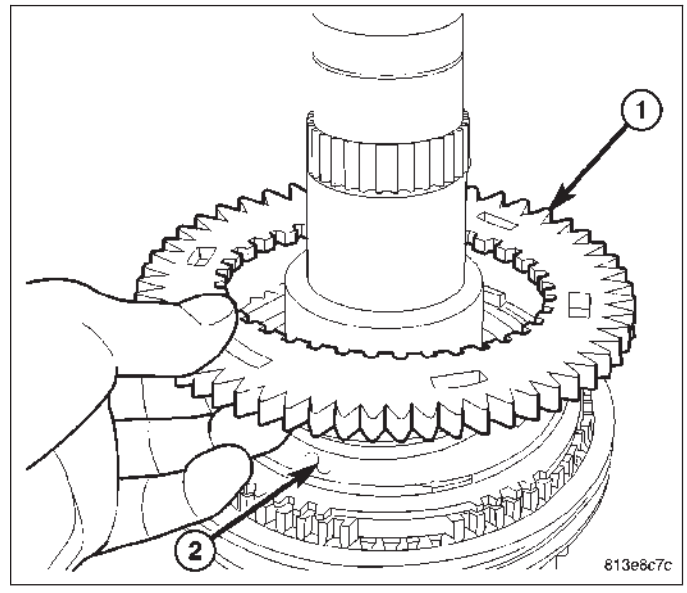
- 42. Install fourth gear outer friction ring (1) on synchronizer hub (2).



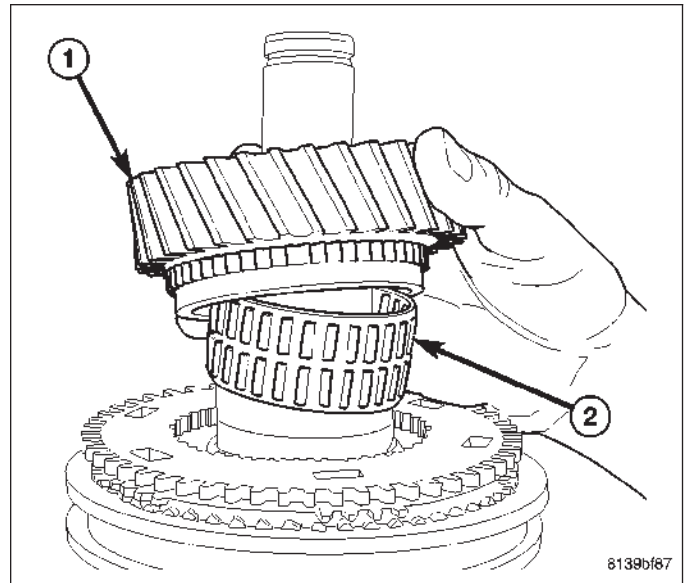
- 43. Install fourth gear inner friction ring (1) on synchronizer hub (2).



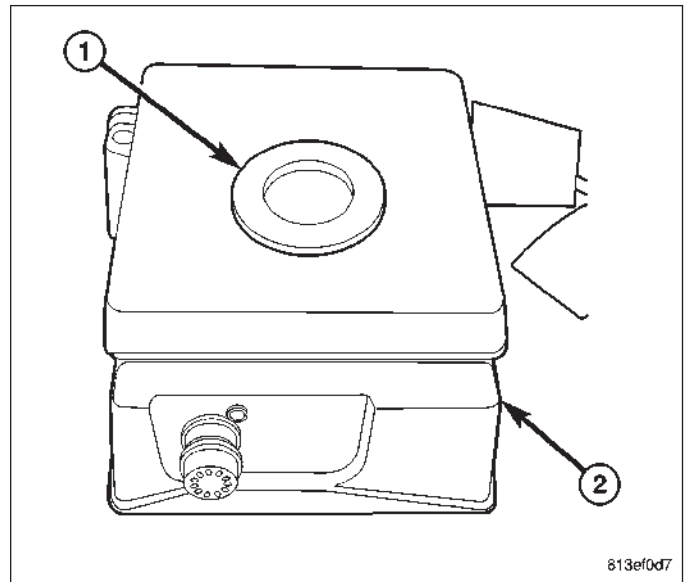
- 44. Install fourth gear stop ring (1) with teeth pointing down on synchronizer hub (2).
- 45. Hold fourth gear stop ring (1) on synchronizer hub (2) and center 3-4 synchronizer sleeve on hub.



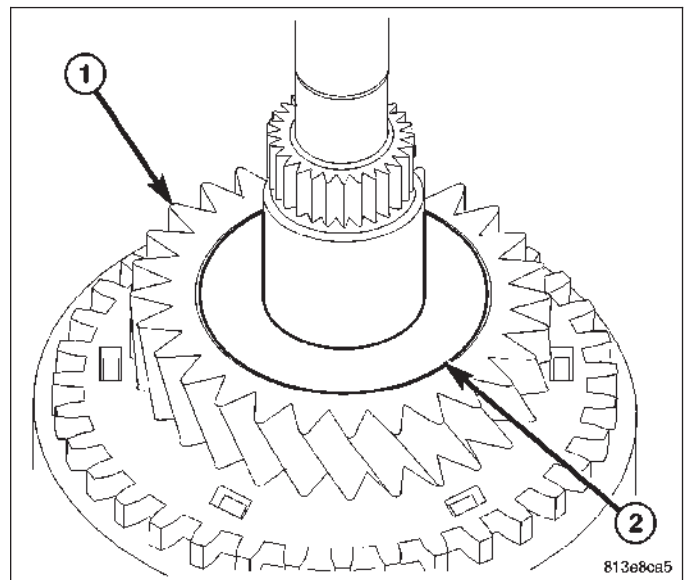
46. Install fourth gear (1) and bearing (2).



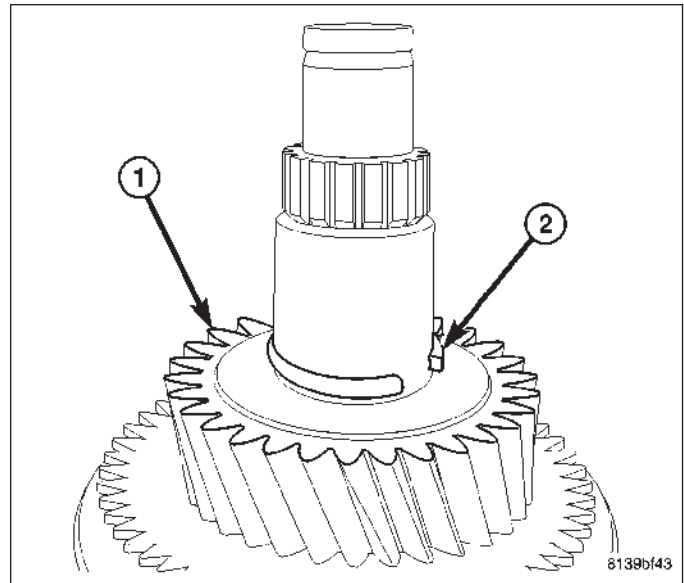
47. Heat fourth gear thrust washer (1) on bearing heater (2) to a maximum of 177 Celsius (350° Fahrenheit).



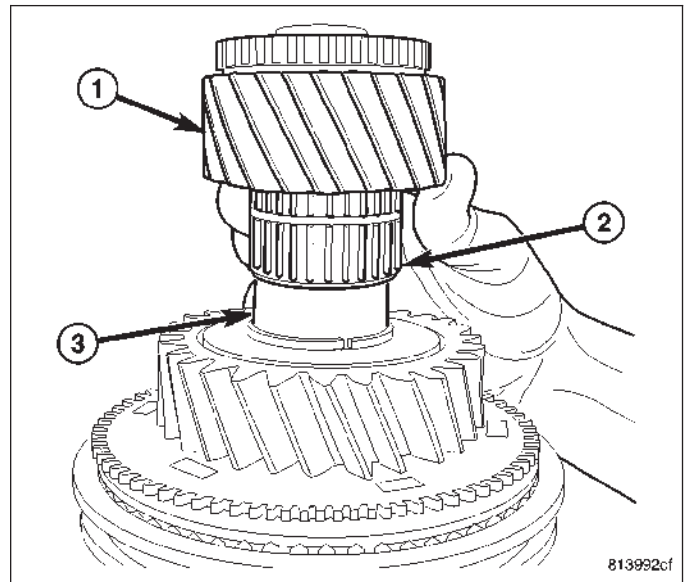
48. Using welding gloves or tongs, install fourth gear (1) thrust washer (2).



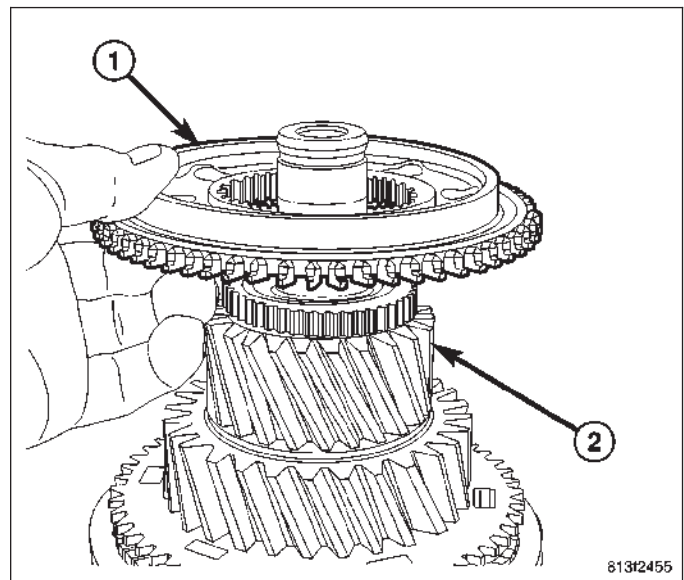
49. Install fourth gear (1) snap ring (2).



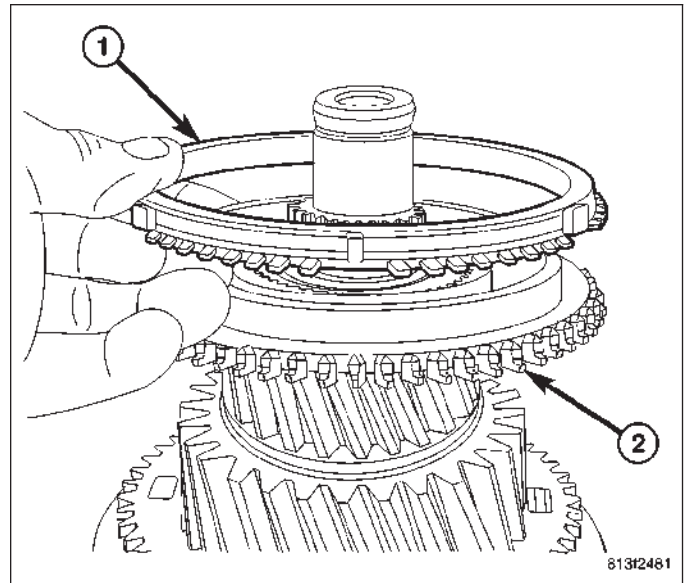
50. Install sixth gear (1) and bearing (2) on mainshaft (3).



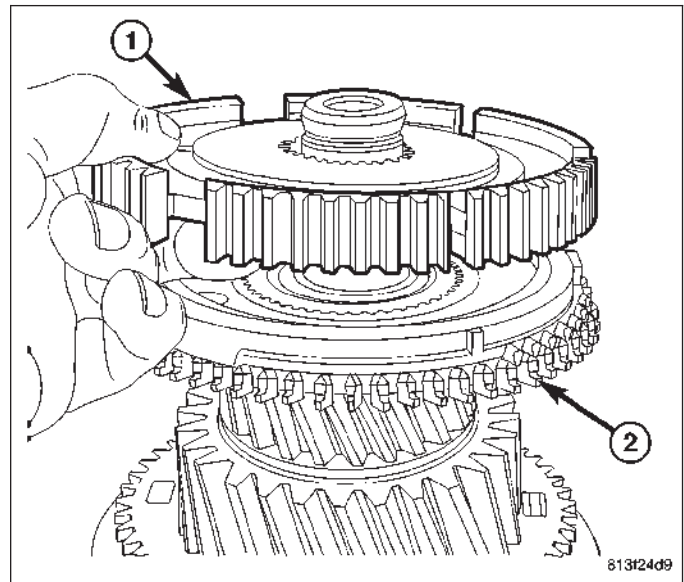
51. Install sixth gear stop ring (1) on sixth gear (2).



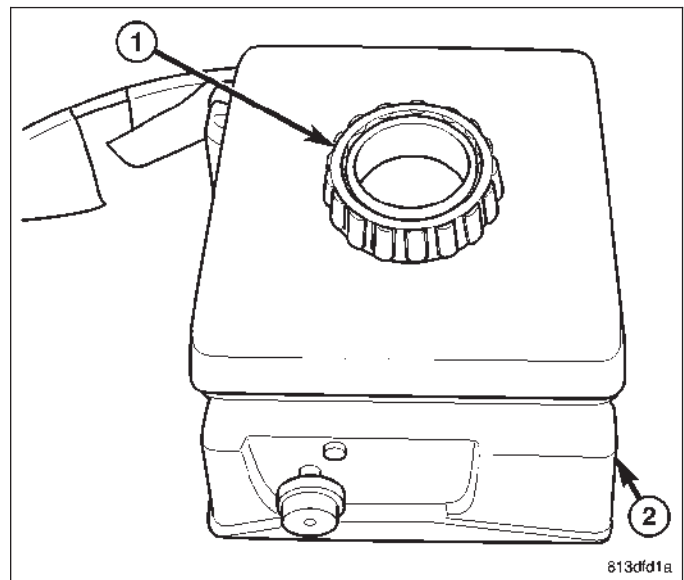
52. Install sixth gear friction ring (1) on stop ring (2).



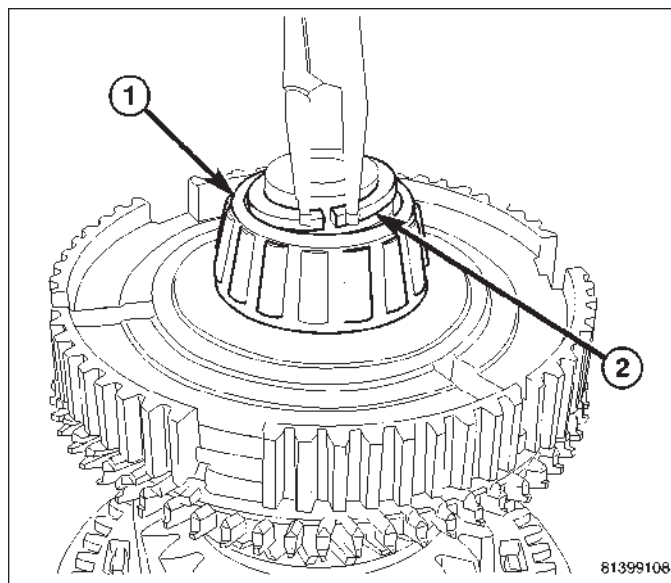
53. Install 5-6 synchronizer hub (1) on sixth gear synchronizer rings (2).



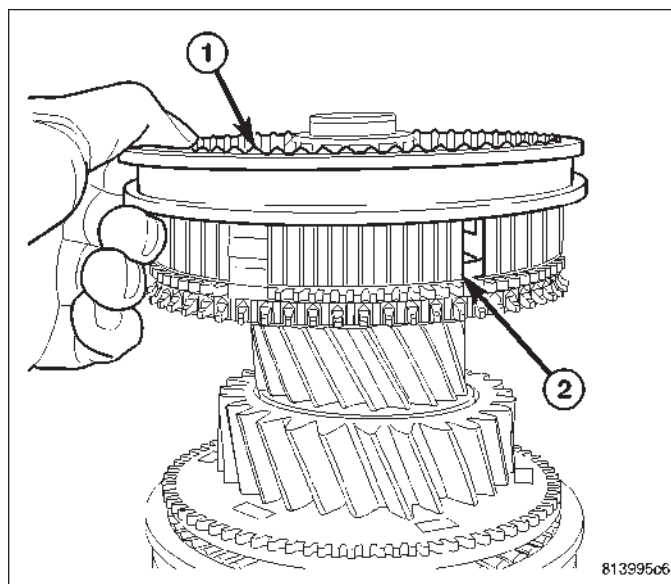
54. Heat mainshaft bearing (1) on bearing heater to a maximum of 177 Celsius (350° Fahrenheit).



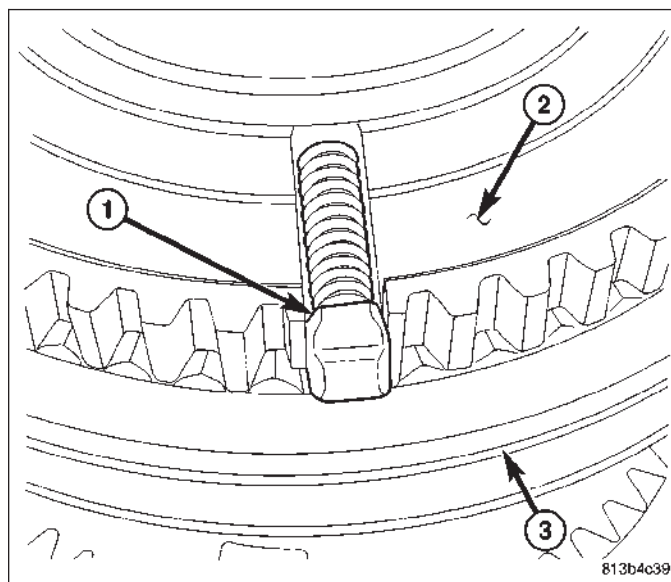
- 55. Using welding gloves or tongs, install mainshaft bearing (1) on mainshaft.
- 56. Install mainshaft bearing (1) snap ring (2).



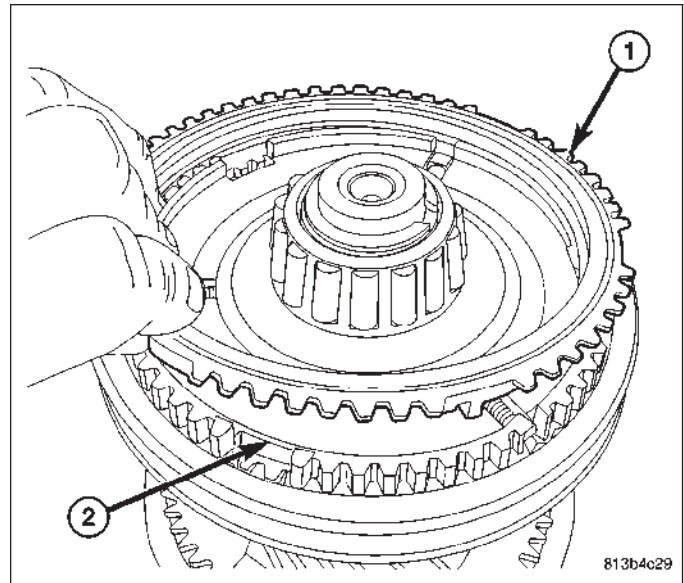
- 57. Install 5-6 synchronizer sleeve (1) on hub (2) and push sleeve to the bottom of the hub.



- 58. Install 5-6 synchronizer detents and springs (1) into synchronizer hub (2) slots. Then push detents behind synchronizer sleeve (3).

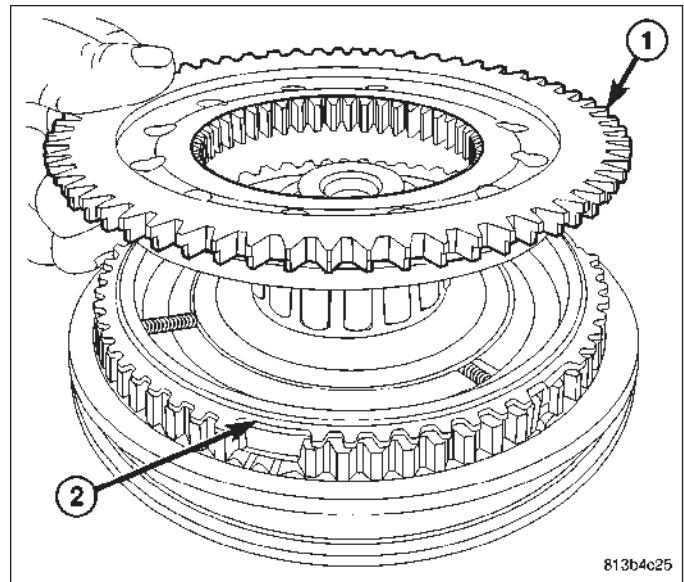


59. Install fifth gear friction ring (1) onto hub (2).



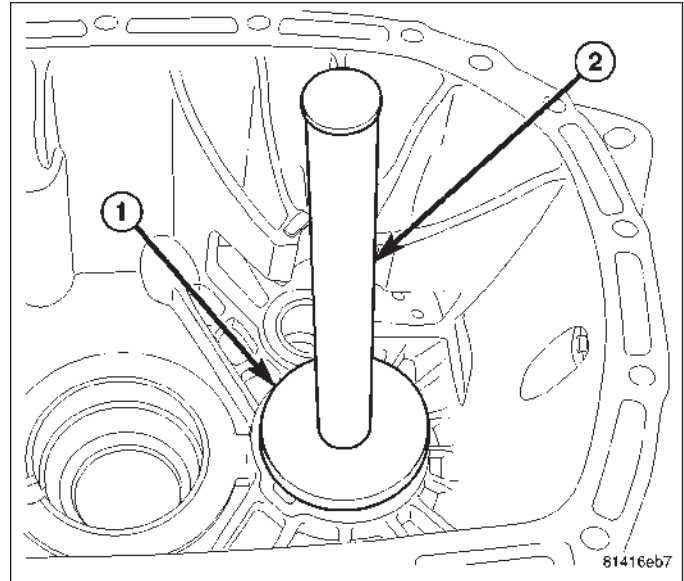
60. Install fifth gear blocker ring with teeth pointing down (1) onto hub (2).

61. Hold fifth gear blocker ring (1) onto hub (2) and center 5-6 synchronizer sleeve on hub (2).

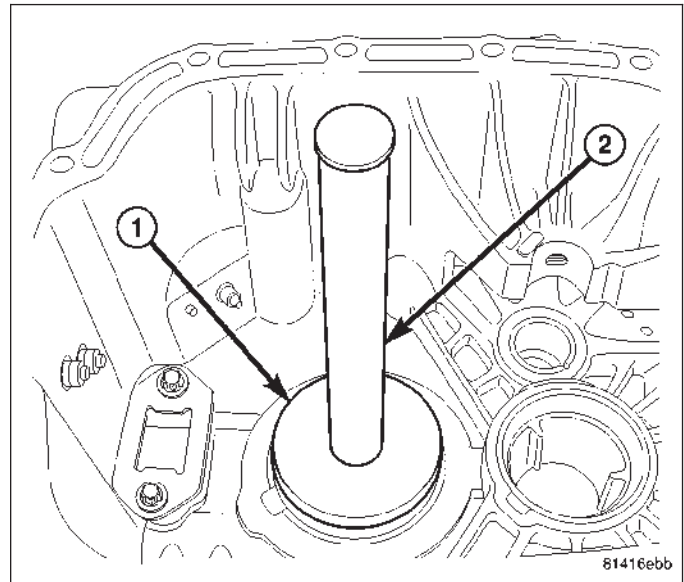


REAR HOUSING

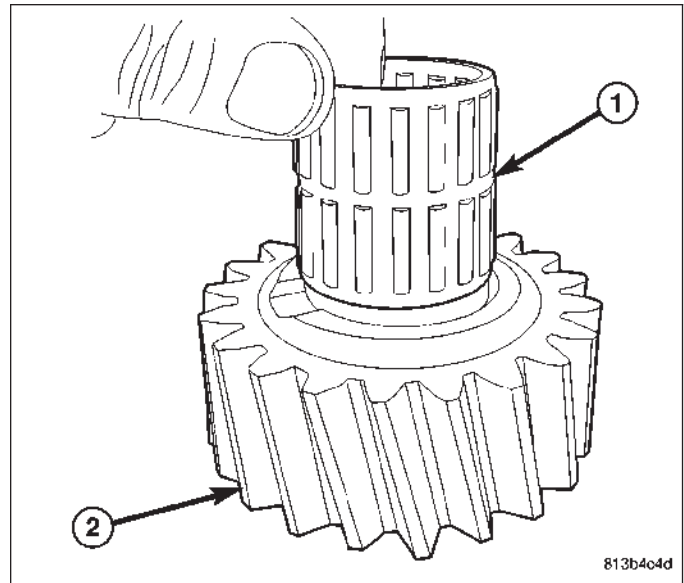
1. Install countershaft bearing cup with Installer 9589 (1) and Handle C-4171 (2).



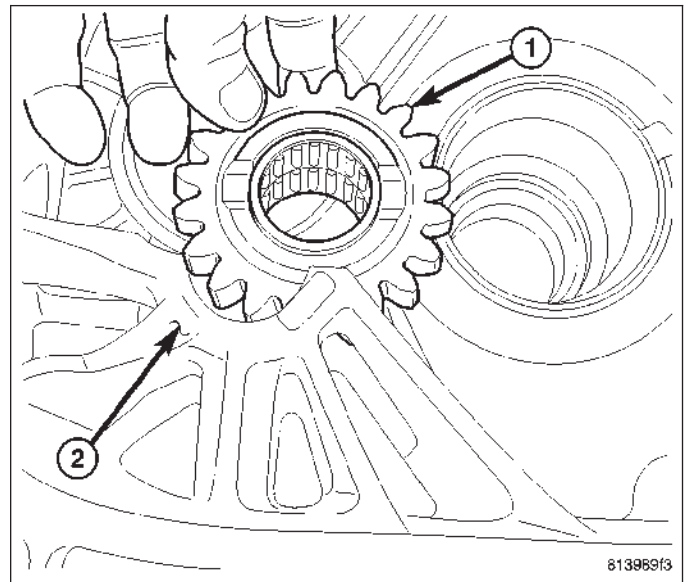
2. Install mainshaft bearing cup with Installer 9588 (1) and Handle C-4171 (2).
3. Install output shaft seal with Installer 9598.



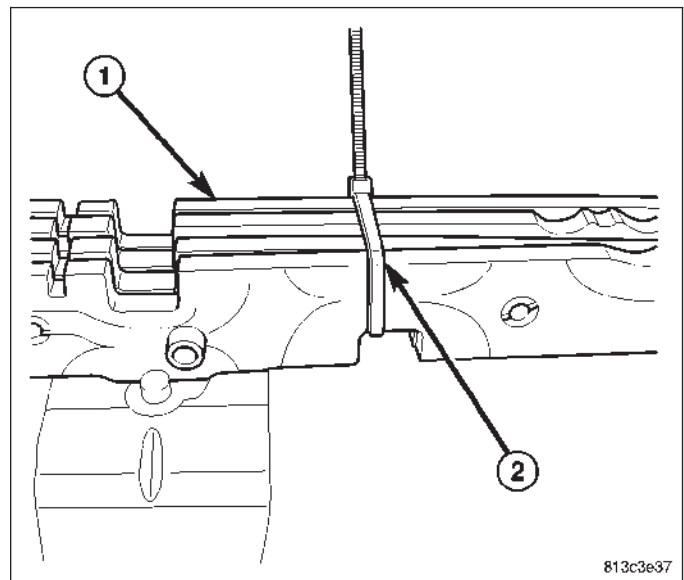
4. Install reverse idler bearing (1) into idler gear (2).



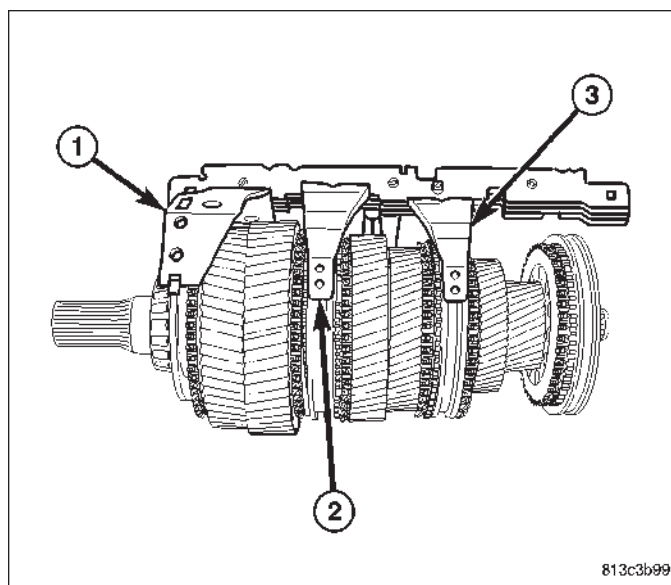
5. Install idler gear (1) into rear housing (2) off to the side. For mainshaft/countershaft installation clearance.



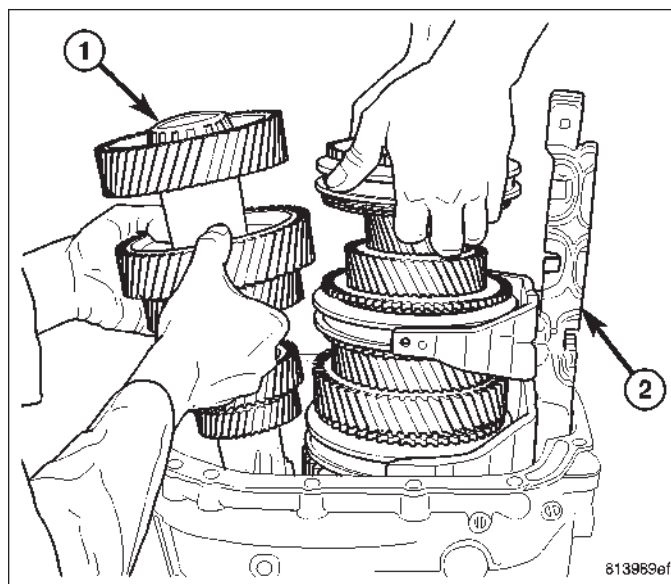
6. Tie strap (2) shift rails (1) together.



7. Install reverse (1), 1-2 (2) and 3-4 (3) shift rails and forks as and assembly on synchronizer sleeves.

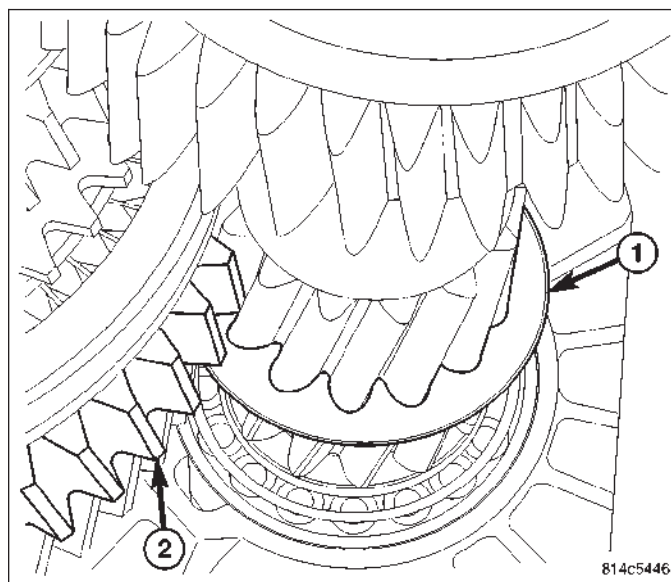


8. Install mainshaft with shift rails (2) into the rear housing. Tilt the mainshaft then tilt the countershaft (1) into the housing.

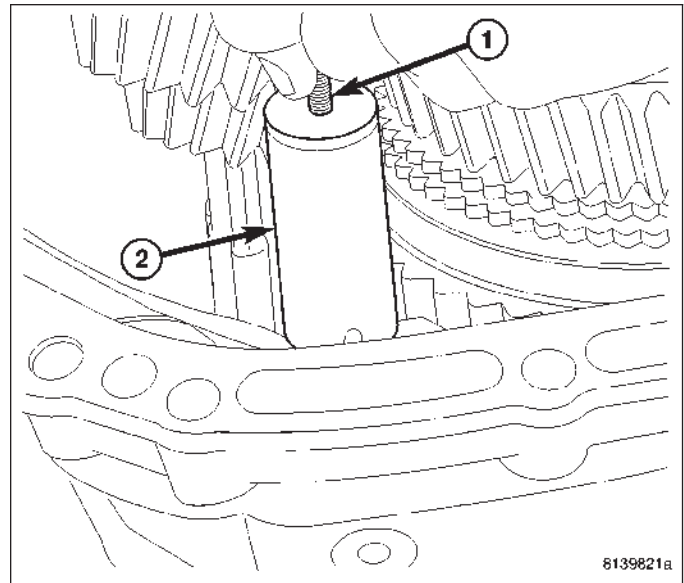


9. Position first/reverse oil slinger (1) between the mainshaft first (2) and reverse gears, then straighten the shafts in the housing.

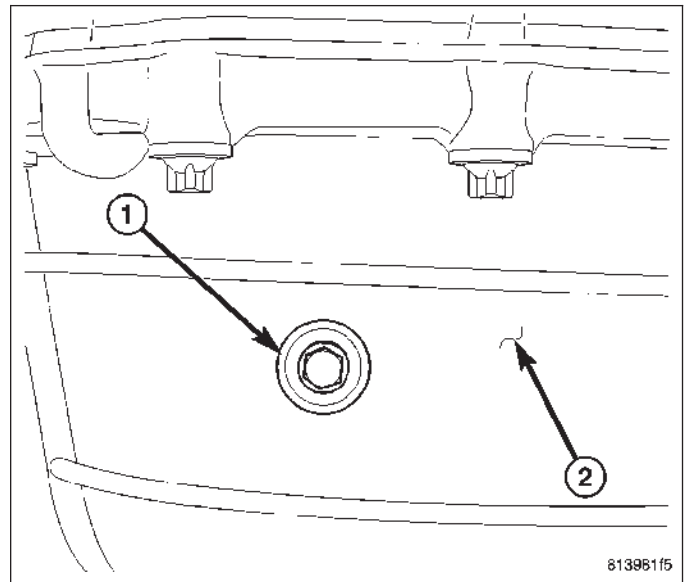
CAUTION: Oil slinger is fragile and can crack during installation. Failure to follow these instructions will result in cracking the oil slinger and lack of oil to first/reverse bearing.



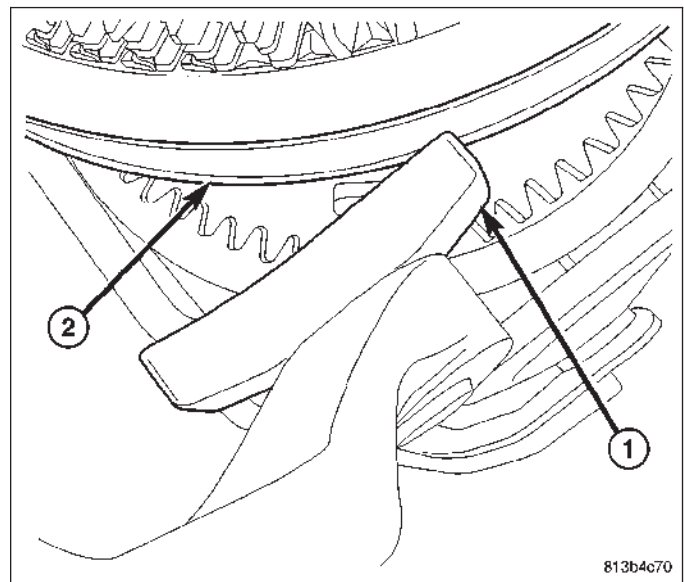
10. Position reverse idler gear and install idler shaft (2) with bolt (1).



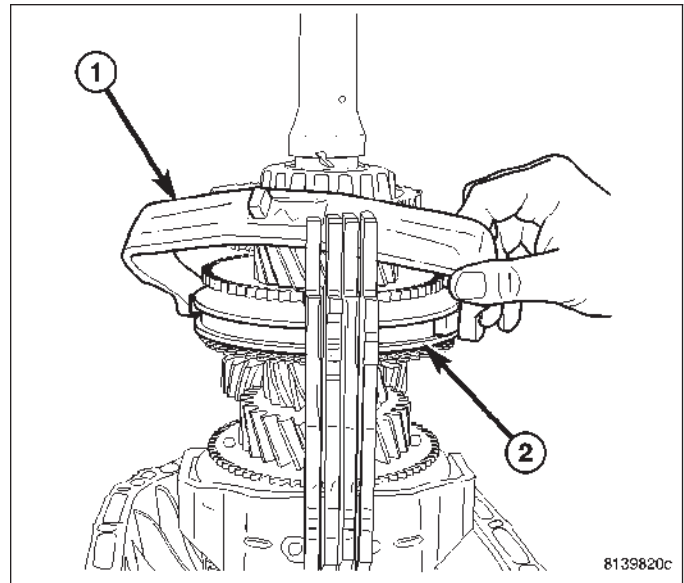
11. Install reverse idler gear shaft pin (1) into rear housing (2) and tighten to 58 N·m (43 ft. lbs.).



12. Install 5-6 shift shoe narrow ends (1) into the 5-6 synchronizer sleeves (2).



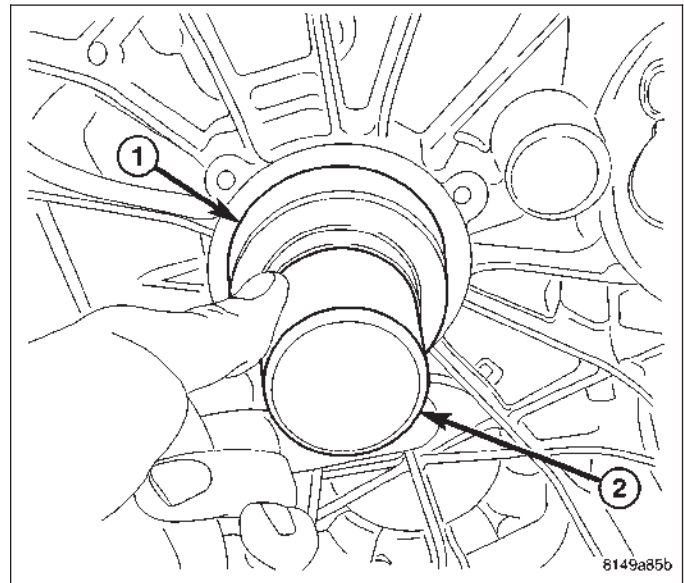
13. Install 5-6 shift fork (1) into the shift rail.



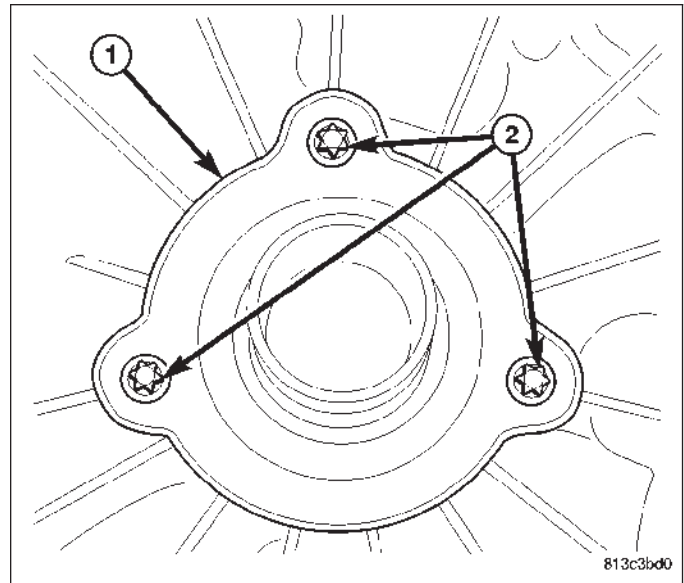
FRONT HOUSING

CAUTION: If mainshaft/bearings or countershaft/bearings are replaced endplay measurements, must taken to ensure proper bearing preload. Failure to follow these instruction will result in bearing damage.

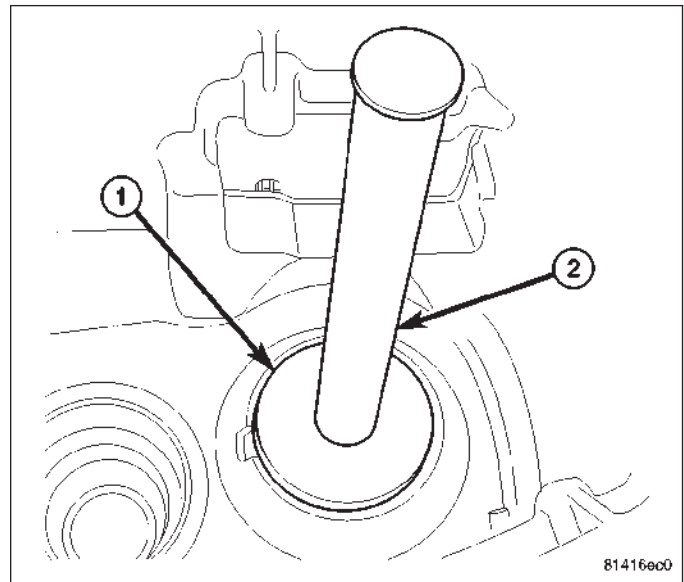
1. Install input shaft seal front housing bore (1) with Installer 9595 (2).



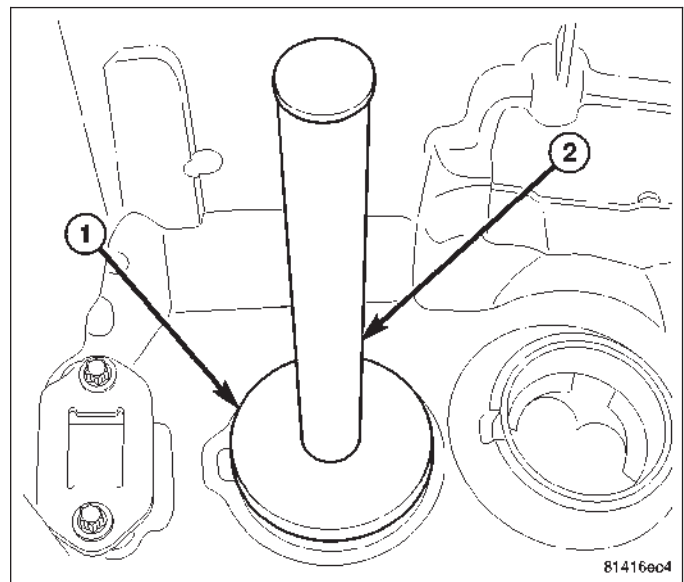
2. Install input shaft retainer (1) and tighten bolts (2) to 23 N·m (17 ft. lbs.).



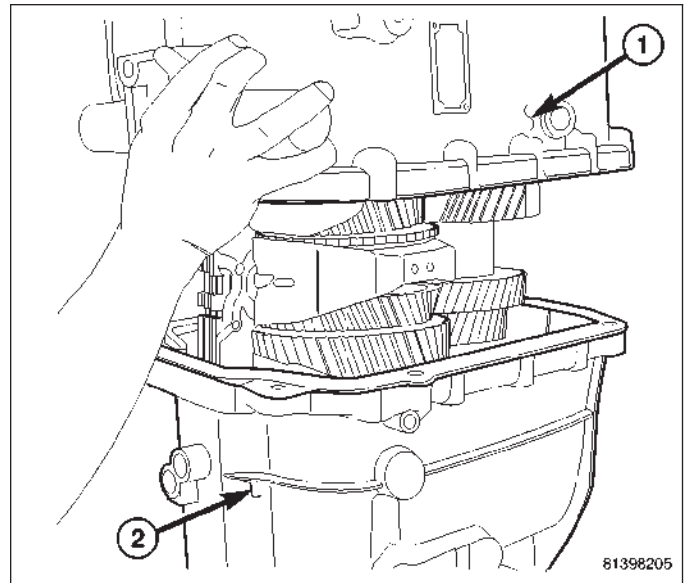
3. Install select end play shims into the countershaft bearing cup bore.
4. Install countershaft bearing cup with Installer 9589 (1) and Handle C-4171 (2).



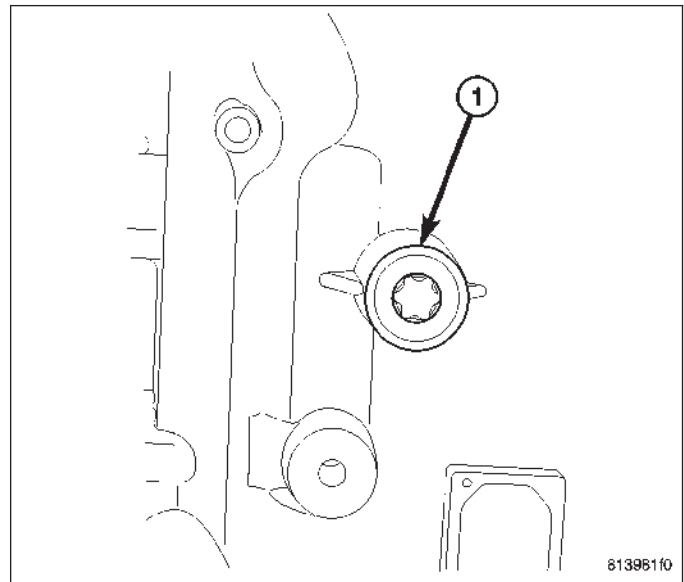
5. Install input shaft bearing oil supply washer and select end play shims into mainshaft bearing cup bore.
6. Install mainshaft bearing cup with Installer 9588 (1) and Handle C-4171 (2).



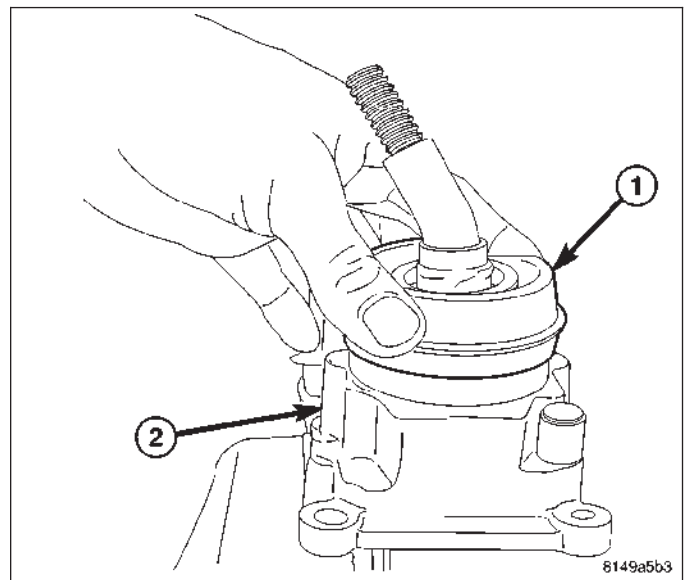
7. Apply Mopar™ Gasket Maker to the rear housing sealing surface.
8. Install front housing (1) onto the rear housing (2).
9. Install housing bolts and tighten to 58 N·m (43 ft. lbs.).



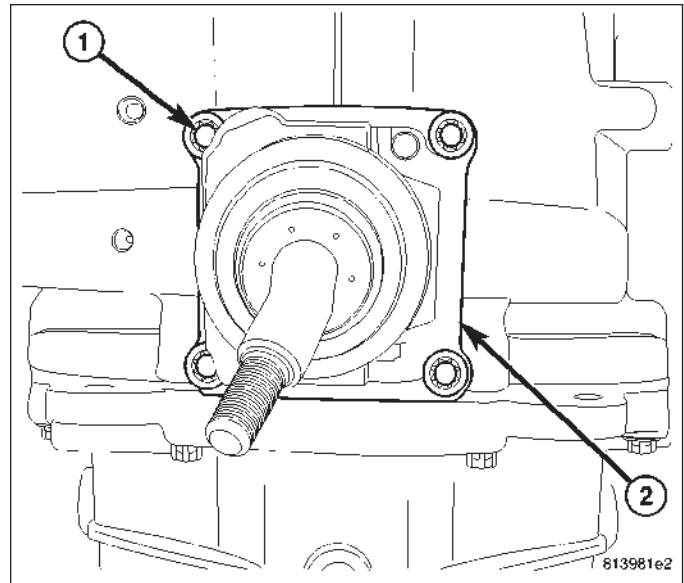
10. Install 5-6 shift fork pins (1) into housing and tighten to 58 N·m (43 ft. lbs.).



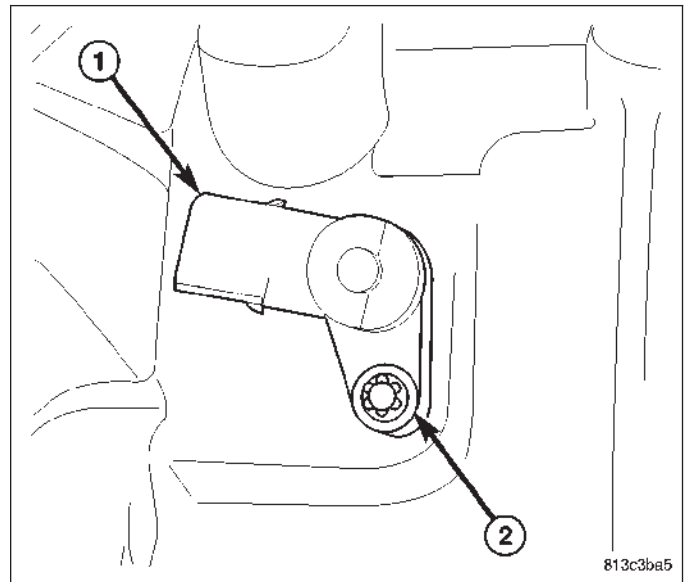
11. Push shift tower boot (1) onto shift tower (2).



12. Remove shift fork tie strap.
13. Apply Mopar™ Gasket Maker to the shift tower opening.
14. Install shift tower (2) and tighten bolts (1) to 23 N·m (17 ft. lbs.).

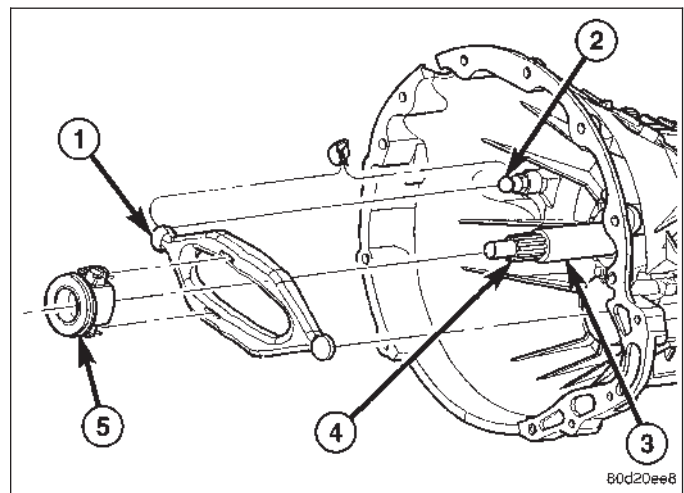


15. Install back up lamp switch (1) and bolt (2).

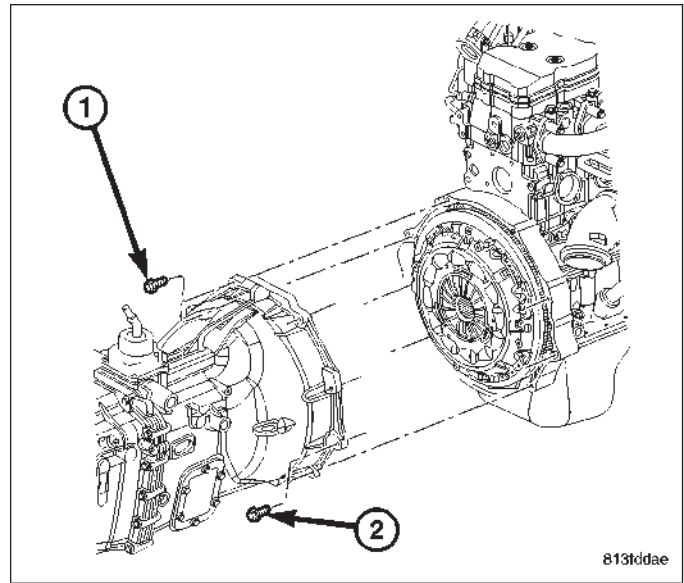


INSTALLATION

1. Clean transmission front housing mounting surface.
2. Apply light coat of Mopar high temperature bearing grease or equivalent to contact surfaces of following components:
 - release fork (1) ball stud (2)
 - release bearing slide surface (3)
 - input shaft splines (4)
 - release bearing bore (5)
 - propeller shaft slip yoke.

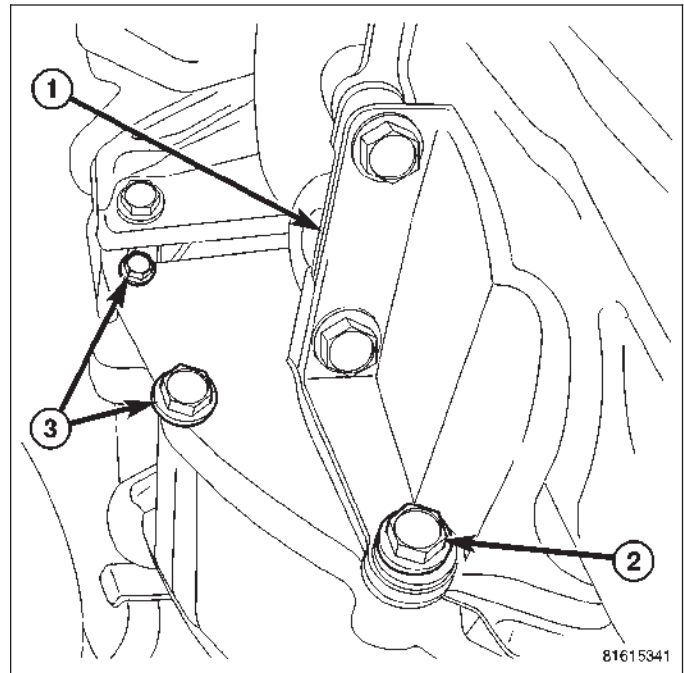


3. Support and secure transmission to jack.
4. Raise and align transmission input shaft with clutch disc, then slide transmission into place.
5. Install exhaust bracket diesel engine.
6. Verify front housing is fully seated.
 - Diesel Engine: Install transmission bolts (1,2) and tighten to 41 N·m (30 ft. lbs.). Tighten the bolts with washers (2) into the transmission to 68 N·m (50 ft. lbs.).
 - 5.7 L Engine: Install transmission top four 3/8 bolts and tighten to 41 N·m (30 ft. lbs.).

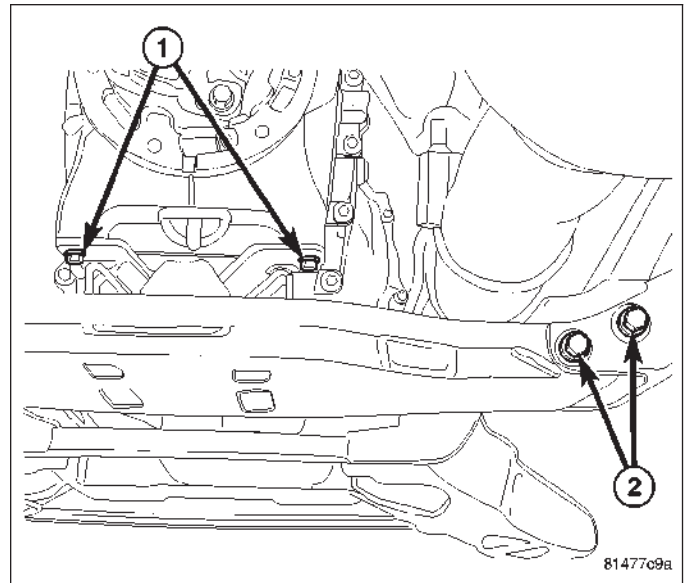


CAUTION: 5.7 L transmission bolts must be installed in the following order. Failure to follow these instructions will stress the engine and transmission.

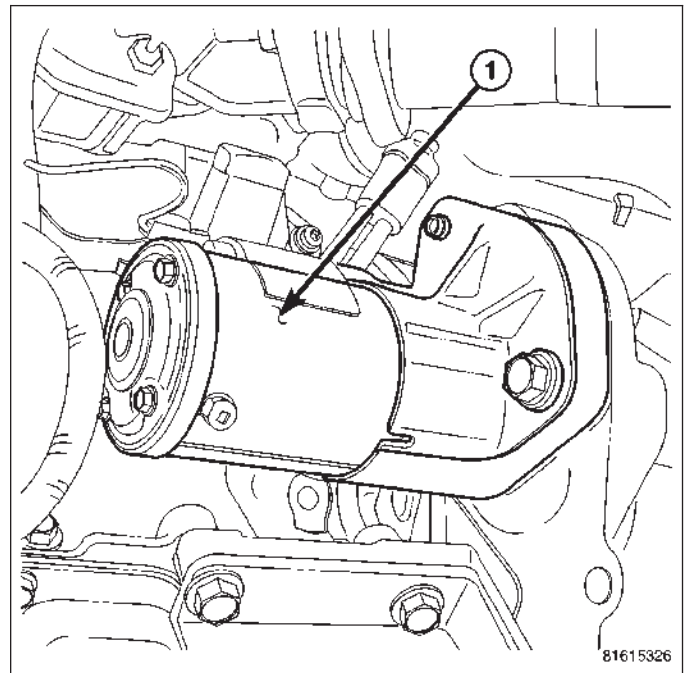
7. Install 5.7 L front dust shield bolts (3) and tighten to 54 N·m (40 ft. lbs.). On 5.7L if structural dust cover was removed, install onto the transmission and engine (Refer to 9 - ENGINE/ENGINE BLOCK/STRUCTURAL COVER - INSTALLATION).
8. Install structural dust cover (1) 7/16 bolts (2) and tighten to 68 N·m (50 ft. lbs.).
9. Install exhaust Y-pipe 5.7L engine.



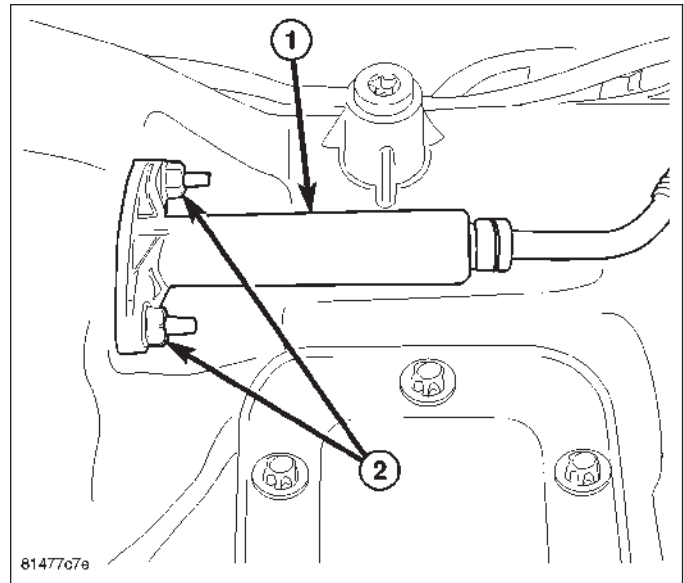
10. Install crossmember and tighten nuts (2) to 102 N·m (75 ft. lbs.).
11. Install transmission mount bolts (1) and tighten to 68 N·m (50 ft. lbs.).



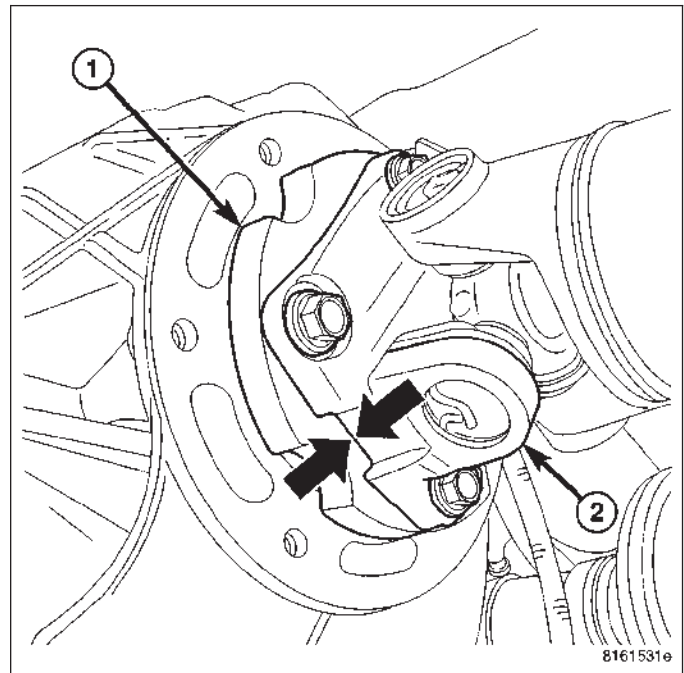
12. Install starter motor (1) 5.7L.



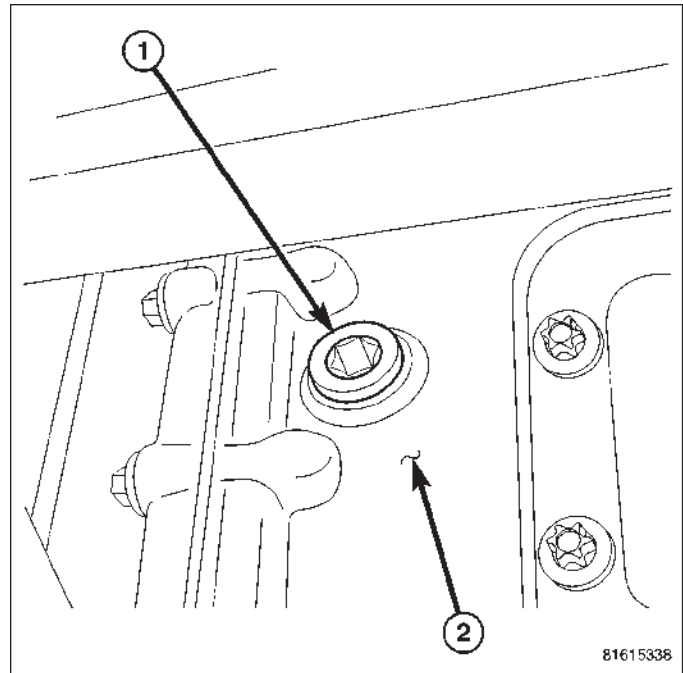
13. Connect transmission harnesses to clips on case and connect switches.
14. Install slave cylinder and tighten cylinder nuts to 23 N·m (200 in. lbs.).
15. Install transfer case and transfer case linkage 4x4 equipped.
16. Remove transmission jack.



17. Install propeller shaft/shafts with reference marks aligned.
18. Install exhaust on the exhaust manifolds.



19. Remove fill plug (1) on transmission (2) and fill to bottom edge of fill plug hole.
20. Install fill plug and tighten to 57 N·m (42 ft. lbs.).
21. Connect battery negative cable.
22. Install shift lever extension on shift tower and lever assembly.
23. Slide boot down on shift lever extension and install shift boot bezel and screws.
24. Install skid plate, if equipped.



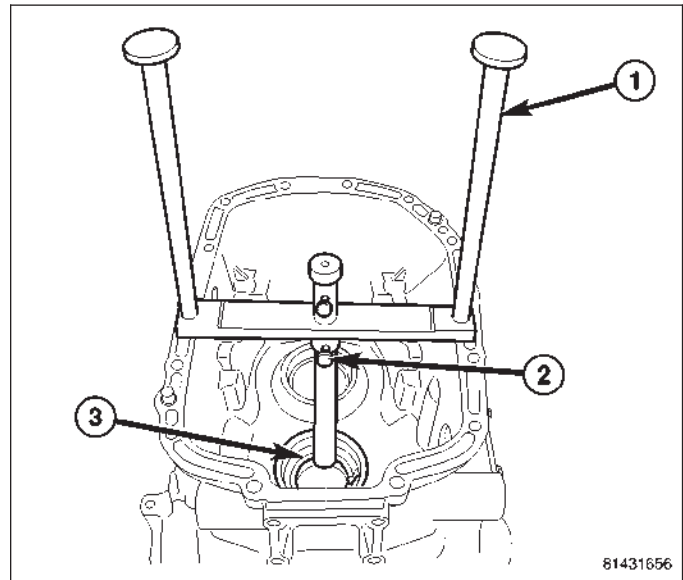
ADJUSTMENTS

MAINSHAFT/COUNTERSHAFT BEARING PRELOAD

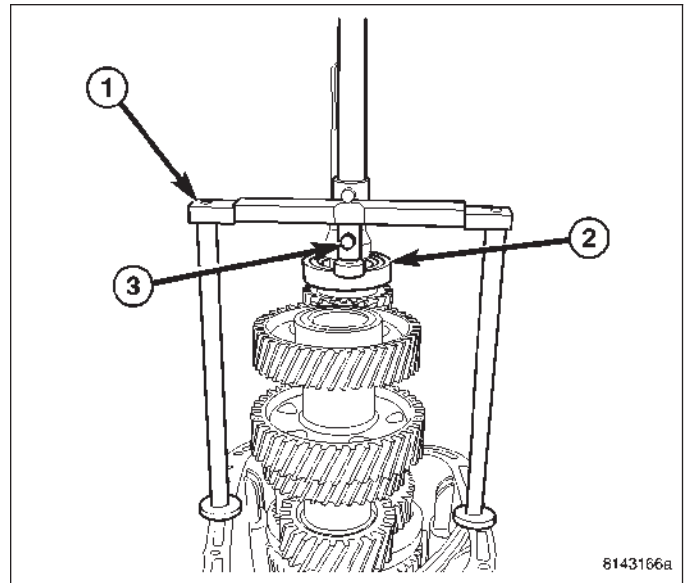
CAUTION: This procedure must be performed any time a mainshaft, countershaft or input shaft bearing or shaft is replaced. Failure to follow these instructions will result in damaging the transmission.

MAINSHAFT

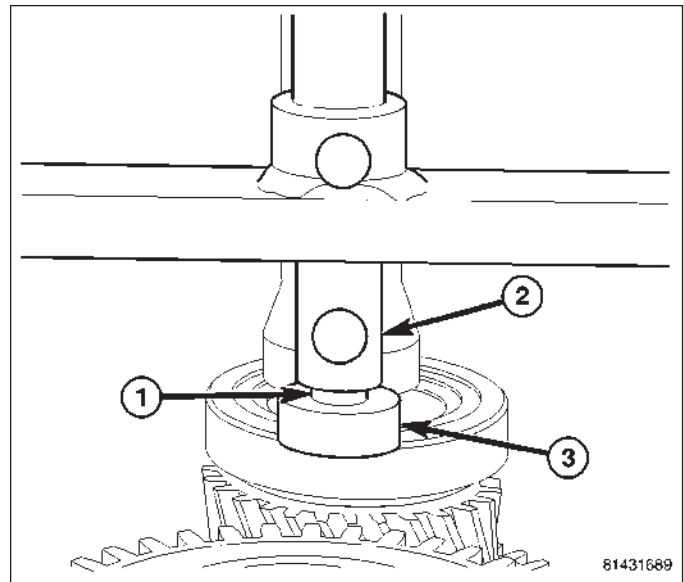
1. Set mainshaft, input shaft and countershaft into the rear housing. Rotate the shafts to seat bearing in rear housing.
2. Remove mainshaft bearing cup, shims and oiler washer from the front housing.
3. Position Measurement Fixture 9592 (1) on front housing over the mainshaft bearing cup bore.
4. Loosen the knob (2) on the fixture and lower the shaft onto the mainshaft bearing cup (3) bore shoulder. Then tighten the knob to hold the shaft.
5. Remove the fixture from the front housing.



6. Place mainshaft shaft bearing cup on mainshaft bearing.
7. Position Fixture 9592 (1) on rear housing over the mainshaft bearing (2).
8. Loosen the knob (3) on the fixture (1). This will allow the rod plunger to drop down on the bearing cup.

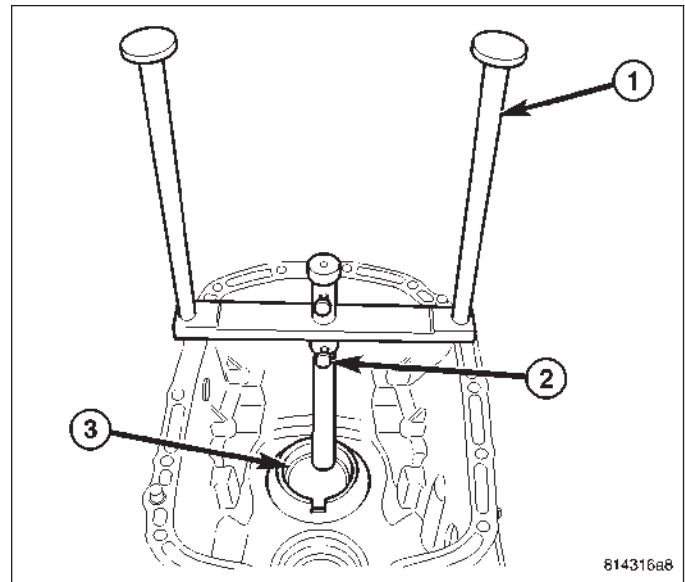


9. Measure the gap (1) between the fixture shaft (2) and the fixture plunger (3). Repeat measurement on the opposite side of the mainshaft cup and bearing. The average of the two measurement, will be the size of the mainshaft select shim.
10. Install new oil supply washer and select shim in front housing mainshaft bearing cup bore and install bearing cup.

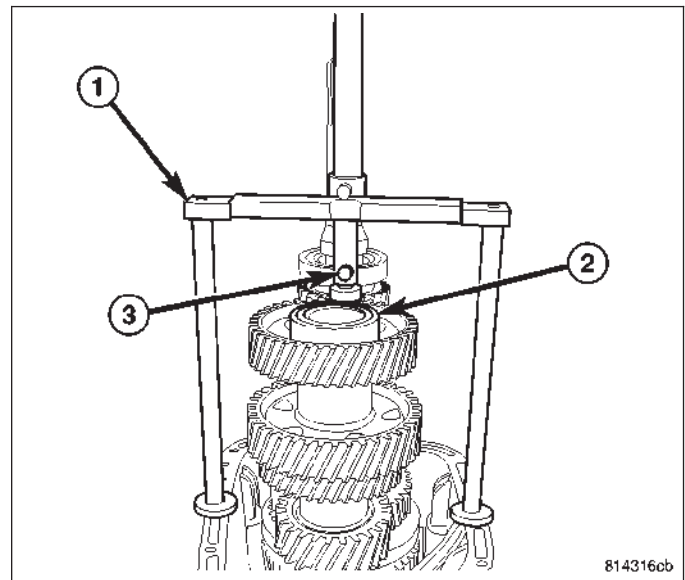


COUNTERSHAFT

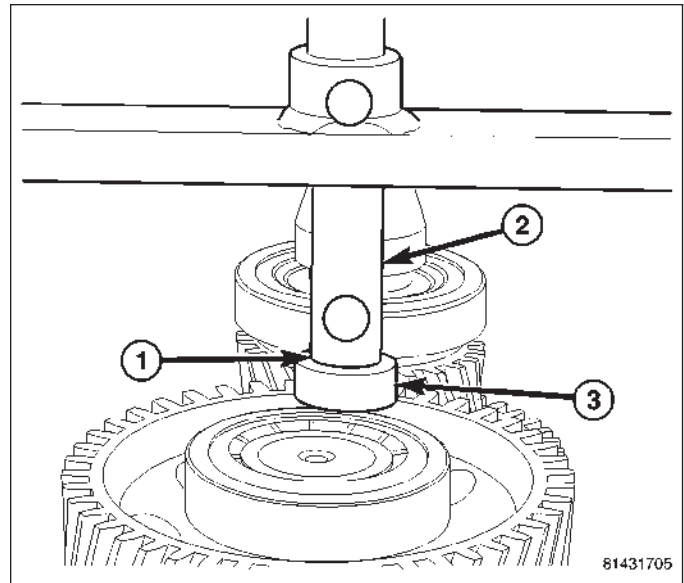
1. Remove countershaft bearing cup and shims from the rear housing.
2. Position Fixture 9592 (1) on rear housing over the countershaft bearing cup bore.
3. Loosen the knob (2) on the fixture and lower the shaft onto the countershaft bearing cup (3) bore shoulder. Then tighten the knob to hold the shaft.
4. Remove the fixture from the front housing.



5. Place countershaft bearing cup on countershaft bearing.
6. Position Fixture 9592 (1) on rear housing over the countershaft bearing (2).
7. Loosen the knob (3) on the fixture (1). This will allow the rod plunger to drop down on the bearing cup.



8. Measure the gap (1) between the fixture shaft (2) and the fixture plunger (3). Repeat measurement on the opposite side of the countershaft cup and bearing. The average of the two measurements, will be the size of the countershaft select shim.
9. Install select shim in front housing countershaft bearing cup bore and install bearing cup.



SPECIFICATIONS

MANUAL TRANSMISSION-G56

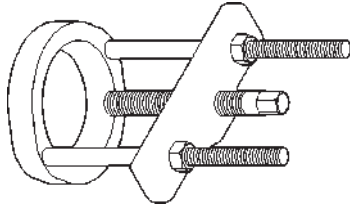
TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Fill Plug	57	42	-
Drain Plug	57	42	-
Front to Rear Housing Bolts	58	43	-
Input Shaft Retainer Bolts	23	17	-
Shift Tower bolts	23	17	-
5-6 Shift Fork Bolts	58	43	-
Shift Rail Support bolts	58	43	-
Reverse Idler Gear Shaft Bolt	58	43	-
P.T.O. Cover Bolts	58	43	-
Clutch Release Pivot Ball	22	16	-

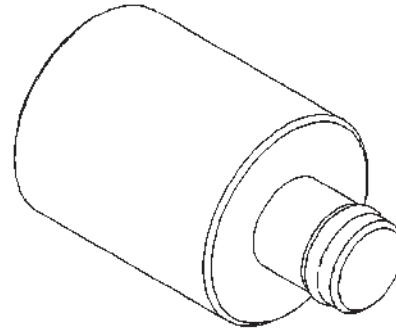
GEAR SPECIFICATIONS

GEAR	RATIO
FIRST	6.29
SECOND	3.48
THIRD	2.10
FOURTH	1.38
FIFTH	1.00
SIXTH	0.79
REVERSE	5.74

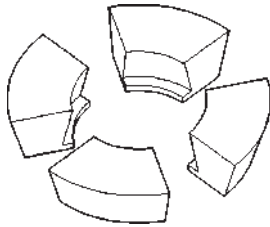
SPECIAL TOOLS



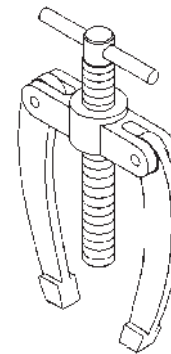
PULLER C-293-PA



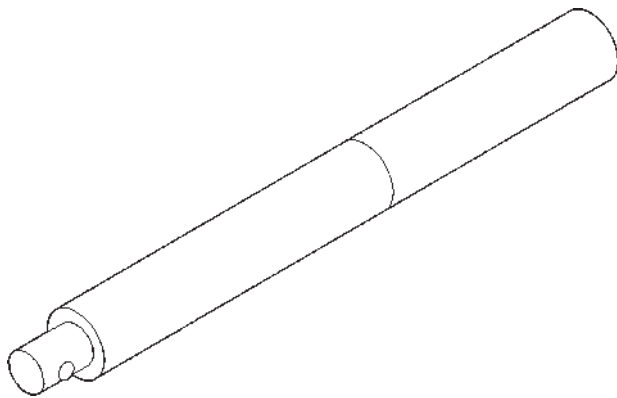
PLUG 8513A



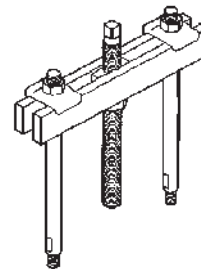
ADAPTERS C-293-47



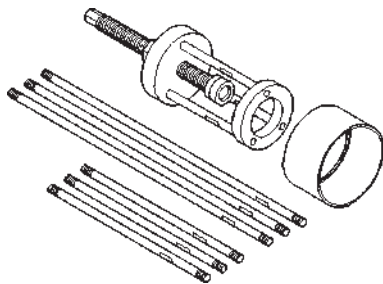
REMOVER 8915



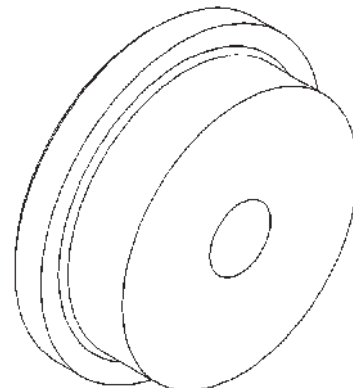
HANDLE C-4171



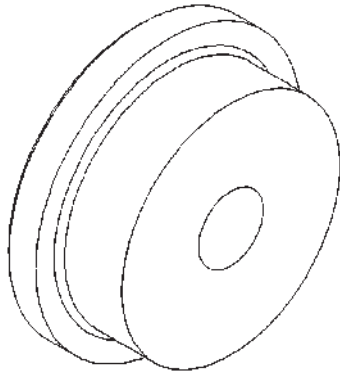
BRIDGE 938



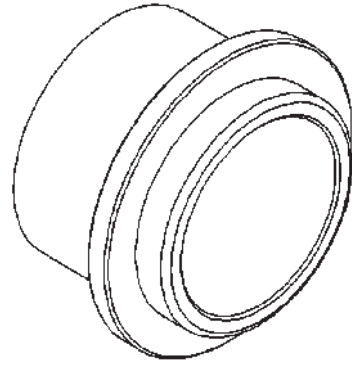
PULLER 6444



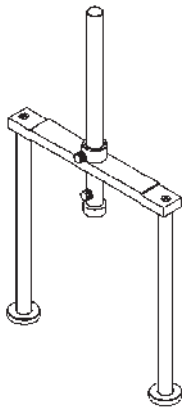
INSTALLER 9588



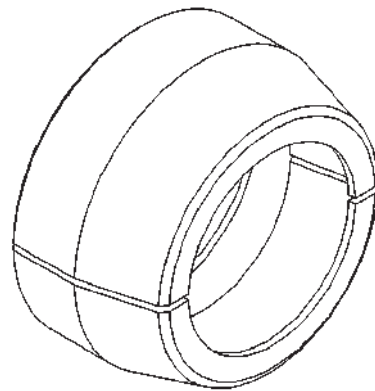
INSTALLER 9589



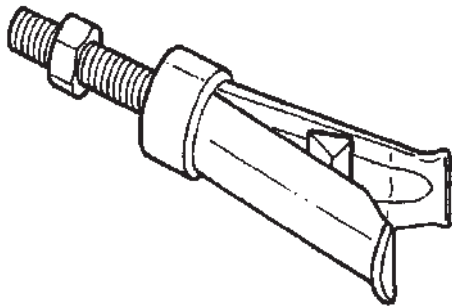
INSTALLER 9595



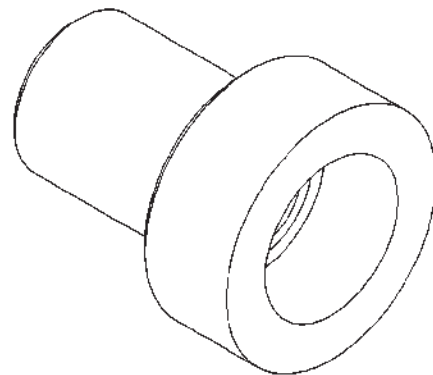
MEASUREMENT FIXTURE 9592



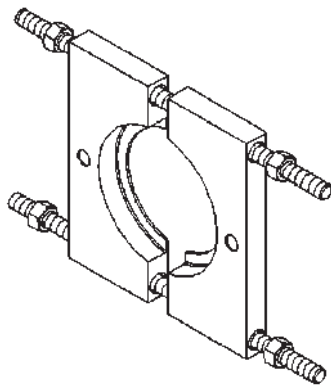
JAWS 9597



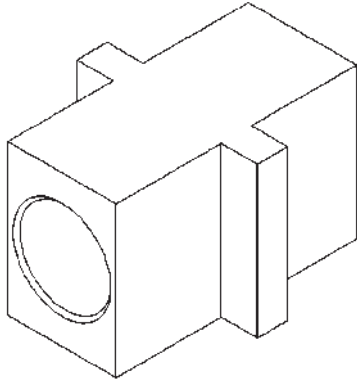
PULLER 9593



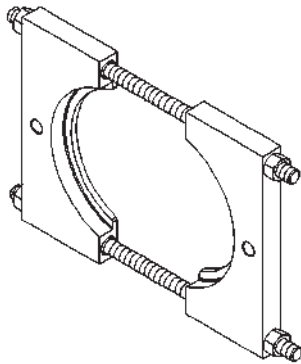
INSTALLER 9598



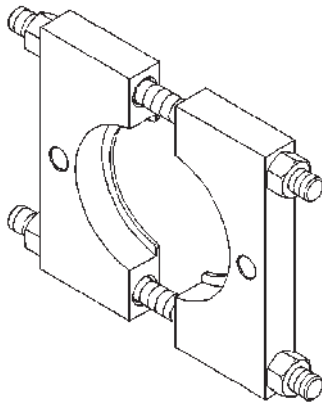
PULLER 9594



FIXTURE 9605



PULLER 9646



PULLER 9647