

# MANUAL TRANS OVERHAUL - TYPE 02A

## Article Text

1998 Volkswagen Passat

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### ARTICLE BEGINNING

1997-98 MANUAL TRANSMISSIONS  
Volkswagen/Audi V.A.G. Type 02A

GTI, Jetta, Passat

### APPLICATION

#### TRANSAXLE APPLICATIONS

AA

Vehicle Application	Transaxle Model
---------------------	-----------------

1997	
GTI VR6 .....	02A.CCM
Jetta (1.9L 4-Cyl. & 2.8L V6) .....	02A.CCM
Passat (1.9L 4-Cyl. & 2.8L V6) .....	02A.CCM

1998	
GTI VR6 .....	02A.CCM
Jetta (1.9L 4-Cyl. & 2.8L V6) .....	02A.CCM
Passat (1.8L, 1.9L 4-Cyl. & 2.8L V6) .....	02A.CCM

AA

### IDENTIFICATION

Volkswagen Audi Group (VAG) transaxle is identified by a type number cast into transaxle case. Code letter and production date information is stamped on a machined surface located on upper portion of transaxle clutch housing surface.

### DESCRIPTION

Type 02A is a 5-speed transaxle consisting of an input shaft, mainshaft/drive pinion shaft and a differential assembly which transfers power to front wheels.

### LUBRICATION

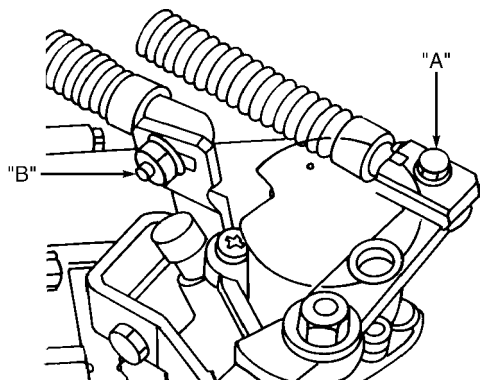
Place vehicle on level surface. Remove oil filler plug. Oil level should be to bottom of filler opening. Add fluid as needed. Use hypoid oil API GL-4, MIL-L2105 SAE 80 or G50 SAE 75W/90 synthetic lubricant. Capacity is 2.1 qts. (2.0L).

### ON-VEHICLE SERVICE

#### SHIFT LINKAGE ADJUSTMENT

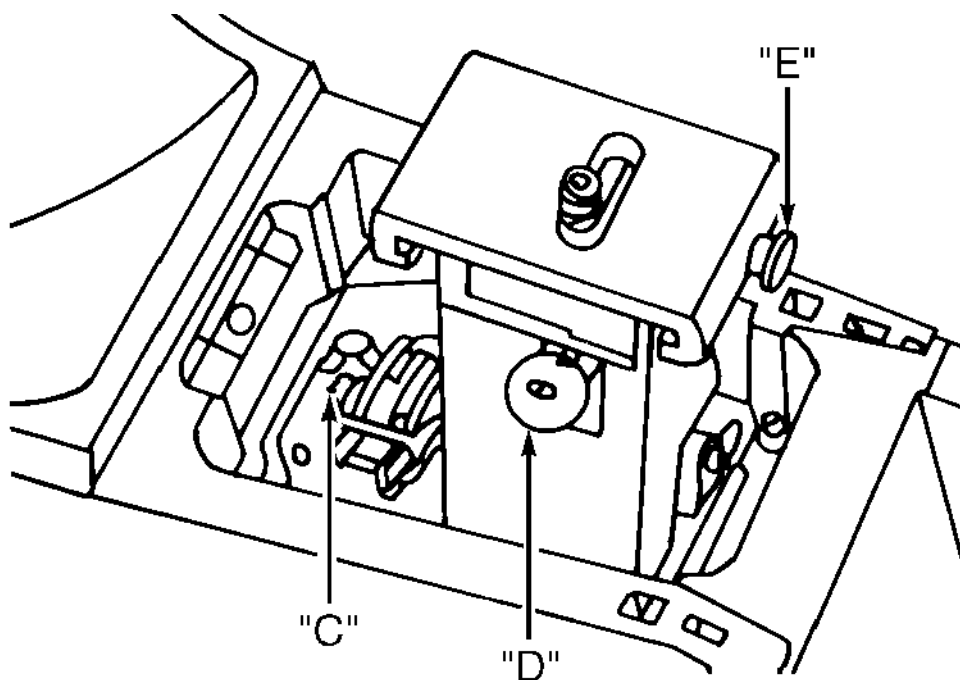
1) Place gear selector lever in "N" position. Remove knob and boot. Remove balance weight. Loosen bolt "A" and nut "B" sufficiently so that operating cables move freely in centering holes. See Fig. 1. Install Shift Linkage Gauge (3192). Loosen bolt "C". See Fig. 2.

2) Pivot locating pin under bearing plate. Tighten nut "D". Place gearshift lever into left detent of slide. Move gearshift lever and slide together to left stop. Tighten slide with bolt "D". Move gearshift lever to right detent. Tighten bolt "E". Move gearshift lever to right detent. Tighten bolt "C".



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Fig. 1: Identifying Centering Holes  
Courtesy of Volkswagen United States, Inc.



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Fig. 2: Installing Shift Linkage Gauge  
Courtesy of Volkswagen United States, Inc.

#### AXLE SHAFTS

See appropriate AXLE SHAFTS article in AXLE SHAFTS & TRANSFER CASES.

#### TROUBLE SHOOTING

See GENERAL TROUBLE SHOOTING article.

## REMOVAL & INSTALLATION

See appropriate MANUAL TRANSMISSION REMOVAL article in TRANSMISSION section.

### TRANSAXLE DISASSEMBLY

#### DISASSEMBLY PROCEDURE

1) Mount transaxle in mounting fixture and drain oil from transaxle. Remove clutch release lever, bearing and guide sleeve. Loosen and remove gearbox housing cover bolts and remove cover. Loosen and remove 5th gear selector fork. See Fig. 3.

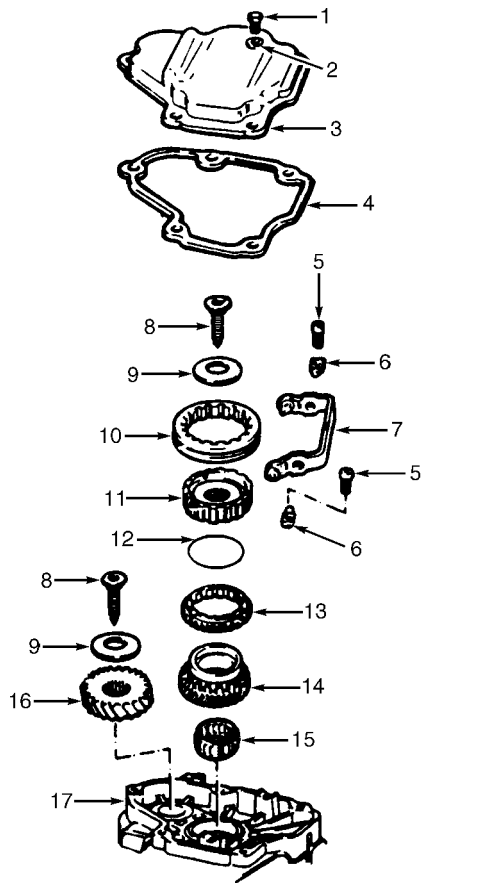
2) To facilitate removal of gears, engage 1st and 5th gears. Remove 5th gear synchronizer assembly retaining bolts. Using a puller, remove synchronizer hub and 5th gear, with needle bearing from shaft. Using a puller, pull off fixed 5th gear.

3) Remove left side axle flange, using 2 bolts to evenly press off flange. Remove reverse idler shaft support bracket, removing inside retaining bolt with 4" (100 mm) Torx T45 key. Shift selector shaft to neutral, then remove gear selector mechanism (2 bolts). See Fig. 4.

4) Remove cover plate and shift fork pivot pins from underside of transaxle. Remove shift fork pivot pins from upper side of transaxle. Remove clutch housing-to-gearbox housing bolts (near differential). Remove remaining bolts "A" from inside clutch housing, but do not remove 4 nuts "B" for output shaft bearing support. See Fig. 5.

5) Remove gearbox housing. If necessary, carefully pry up around protruding flanges to separate housing. Remove shift forks, with selector plates. Remove bolt retaining selector mechanism for reverse gear. See Fig. 6.

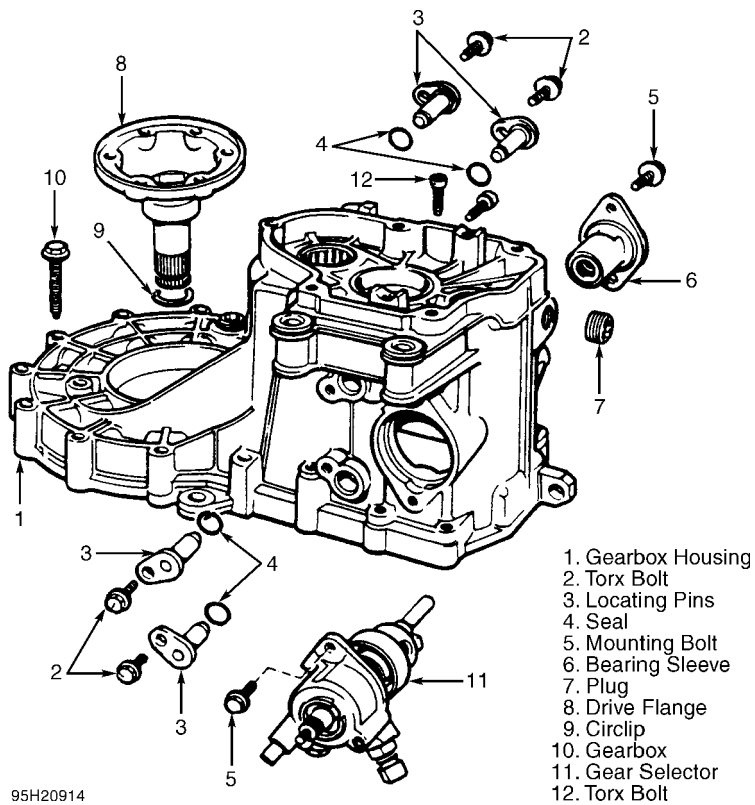
6) Remove 4 nuts from clutch housing for output shaft bearing support. Remove reverse gear, input shaft and output shaft, in that order, from clutch housing. See Fig. 6. Remove right side axle flange, using 2 bolts to evenly separate flange from housing. Remove differential.



- |                           |                          |
|---------------------------|--------------------------|
| 1. Drain Plug             | 10. Synchronizer Ring    |
| 2. Drain Plug Gasket      | 11. Synchronizer Hub     |
| 3. Gearbox Housing Cover  | 12. Spring               |
| 4. Gasket                 | 13. Synchronizer Ring    |
| 5. Bolt                   | 14. Loose Fixed 5th Gear |
| 6. Locking Pins           | 15. Needle Bearing       |
| 7. 5th Gear Selector Fork | 16. Fixed 5th Gear       |
| 8. Bolt                   | 17. Gearbox Housing      |
| 9. Diaphragm Spring       |                          |

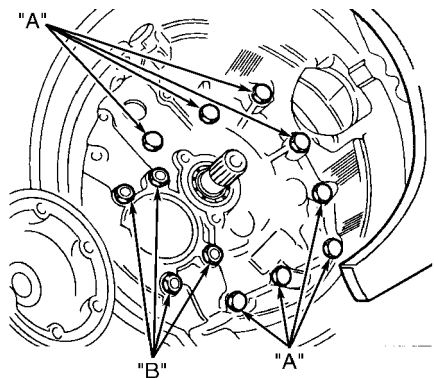
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**Fig. 3: Exploded View Of Gearbox Housing Cover & 5th Gears**  
 Courtesy of Volkswagen United States, Inc.



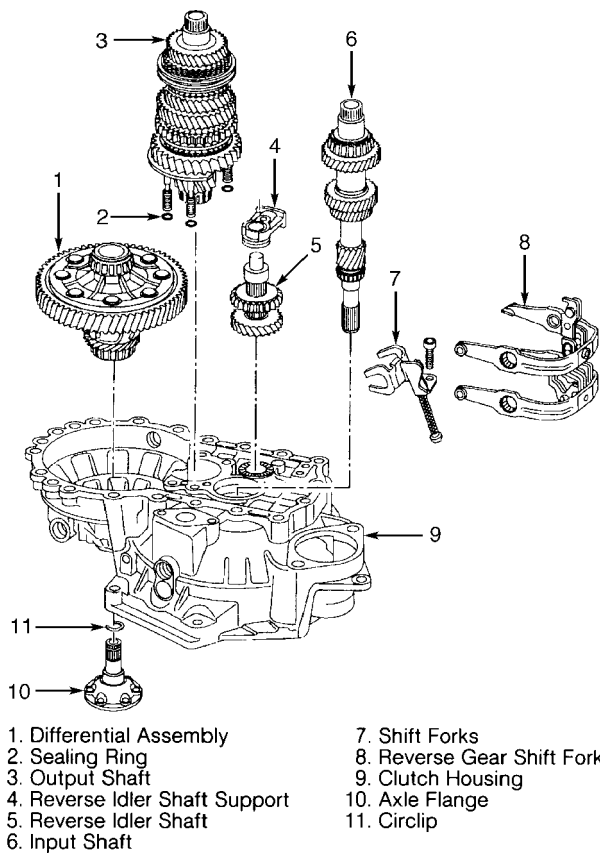
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**Fig. 4: Exploded View Of Gearbox Housing**  
 Courtesy of Volkswagen United States, Inc.



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**Fig. 5: Identifying Inside Clutch Housing Bolts**  
 Courtesy of Volkswagen United States, Inc.



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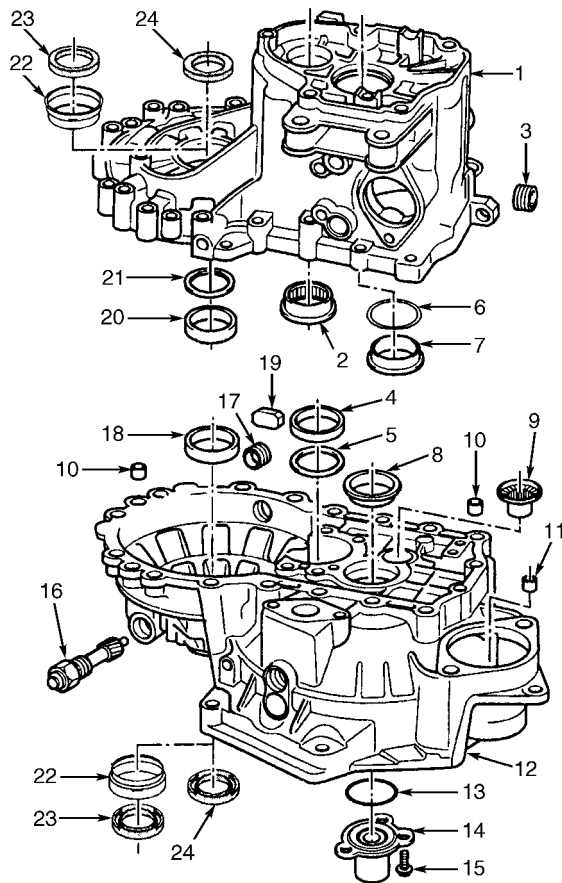
**Fig. 6: Exploded View Of Geartrain & Differential**  
 Courtesy of Volkswagen United States, Inc.

## COMPONENT DISASSEMBLY & REASSEMBLY

### CLUTCH HOUSING

#### Disassembly

1) Remove oil drain plug, locating dowels, differential bearing outer race and shim, magnet, output shaft outer bearing race and adjusting shim. Using puller, extract input shaft needle bearing. See Fig. 7.



- |   |  |
|---|--|
| 1. Transaxle Housing                              | 14. Guide Sleeve                                     |
| 2. Needle Roller Bearing                          | 15. Self-Locking Socket Head Bolt                    |
| 3. Oil Filler Plug                                | 16. Speedometer Drive                                |
| 4. Output Shaft Tapered Roller Bearing Outer Race | 17. Oil Drain Plug                                   |
| 5. Shim   | 18. Differential Tapered Roller Bearing Outer Race   |
| 6. Shim   | 19. Magnet   |
| 7. Input Shaft Tapered Roller Bearing Outer Race  | 20. Differential Tapered Roller Bearing Outer Race   |
| 8. Input Shaft Tapered Roller Bearing Outer Race  | 21. Shim   |
| 9. Needle Bearing                                 | 22. Sleeve (For No. 23)                              |
| 10. Dowel Sleeve                                  | 23. Oil Seal (If Springs Behind Axle Flange Shafts)  |
| 11. Starter Bushing                               | 24. Oil Seal (W/O Springs Behind Axle Flange Shafts) |
| 12. Clutch Housing                                |  |
| 13. "O" Ring                                      |  |

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**Fig. 7: Exploded View Of Transaxle Housing & Clutch Housing**  
 Courtesy of Volkswagen United States, Inc.

2) Unbolt relay lever brackets, relay lever and springs. Extract bushing for starter shaft. Remove threaded plug, input shaft oil seal, drive flange sleeve and oil seal.

#### Inspection

Inspect clutch housing for cracks, worn or galled bearing race bores, stripped threads or damaged case machined surfaces.

#### Reassembly

1) Install drive flange sleeve and oil seal. Install threaded plug and bushing for starter. Install relay lever, brackets and springs.

2) Install input shaft needle bearing using bearing driver. Install shim and bearing outer race for differential assembly. Install

selected adjusting shim and outer bearing race for output shaft. Install locating dowels and oil drain plug. Install magnet on case (secured in place by surface of mating housing).

## GEARBOX HOUSING

### Disassembly

Using a press, remove output shaft needle bearing. Remove differential outer bearing race, adjustment shim and drive flange oil seal. Remove input shaft outer bearing race and shim.

### Inspection

Inspect clutch housing for cracks, worn or galled bearing race bores, stripped threads or damaged case machined surfaces.

### Reassembly

Using a press, install output shaft needle bearing. Install outer bearing races and selected adjusting shims for differential and input shaft. Install output flange oil seal(s).

## GEARBOX HOUSING COVER

### Disassembly

Remove gearbox housing cover. Remove clutch lever clip, clutch lever and lever return spring. Remove release bearing, oil seal and release shaft clip. Remove oil filler plug, needle bearing and bearing retainer bolt.

### Inspection

Inspect clutch housing for cracks, worn or galled bearing race bores, stripped threads or damaged case machine surfaces.

### Reassembly

Install oil filler plug, needle bearing and bearing retainer bolt. Install release bearing, release shaft oil seal, release shaft and shaft clip. Install clutch lever, clutch lever return spring, and lever retaining clip.

## INPUT SHAFT ASSEMBLY

### Disassembly

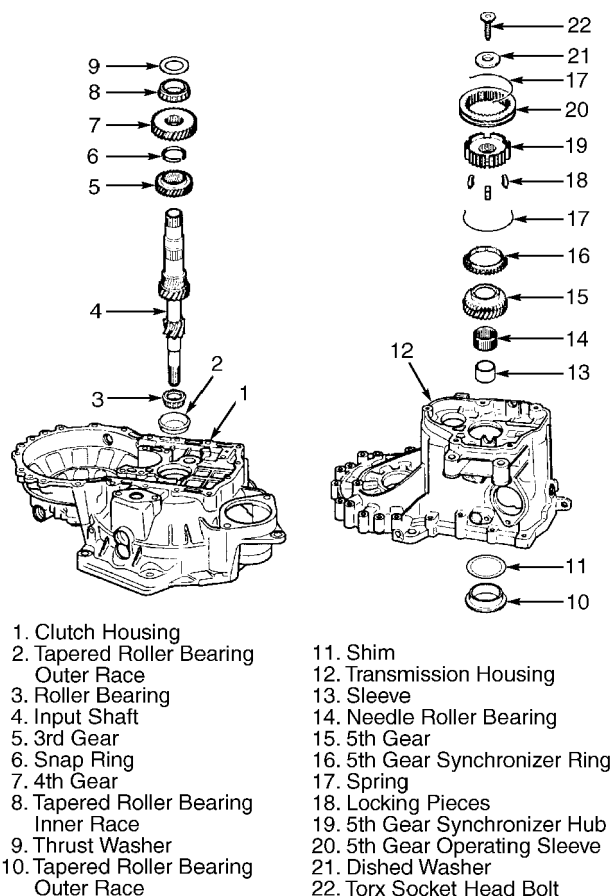
1) Remove Torx socket-head bolt from input shaft end in transaxle housing. Remove dished washer. Use a gear puller to remove 5th gear operating sleeve and synchronizer hub. Remove 5th gear synchronizer ring with cast locking pieces. Disassembly spring and locking pieces. With puller, remove 5th gear. Remove needle roller bearing and press off sleeve. See Fig. 8.

2) Remove transaxle housing from clutch housing. With suitable Drivers (VW 407 and 477h), remove tapered roller bearing outer race from end of input shaft. Using press and Drivers (VW 412, 422 and 401), press off tapered roller bearing inner race from input shaft. Remove thrust washer from end of input shaft

3) Press off tapered roller bearing inner race, along with



4th gear and sleeve. Press off 4th gear, with tapered bearing outer race and sleeve, using press and Drivers (VW 407, 421 and 401). Remove and discard snap ring. Press off 3rd gear, using suitable press and Drivers (VW 408a, 447h and 401).



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**Fig. 8: Exploded View Of Input Shaft**  
 Courtesy of Volkswagen United States, Inc.

### Reassembly

1) Install shim into bottom of transaxle housing and press in tapered roller bearing outer sleeve. Press on sleeve for needle bearing, using Drivers (VW 41-501 and 401). Install tapered roller bearing outer race into clutch housing, using drift. Install inner races into clutch housing, using suitable Drivers (VW 412, 422 and 401).

2) Press 3rd gear onto input shaft, ensuring shoulder point toward 4th gear. Install new snap ring. Press on 4th gear. Press on tapered roller bearing inner race, install thrust washer and press on outer race. Install new shim into bottom of transaxle housing, adjusting thickness as needed. See ADJUSTING INPUT SHAFT PRELOAD.

3) Insert input shaft into clutch housing and position transaxle housing in place, tighten retaining bolts. Press on needle roller bearing sleeve, 5th gear, synchronizer ring, and spring. Assemble 5th gear operating sleeve and synchronizer hub Note proper location of locking pieces in recesses in operating sleeve. Install dished washer. Install Torx bolt into end of input shaft and tighten to 59 ft. lbs. (80 N.m).

## OUTPUT SHAFT ASSEMBLY

### Disassembly

1) Position Separator Plate (Kukko 17/2) under second gear and press off 3rd gear/4th gear synchronizer hub with operating sleeve, 2nd gear, 3rd gear and 4th gear with housing needle roller bearing sleeve. See Fig. 9.

2) Remove circlip. Using a 2-jaw puller, position under bearing carrier and pull off synchronizer sleeve along with 1st/2nd gear synchro-hub assembly. Using appropriate puller, remove tapered roller bearing from output shaft.

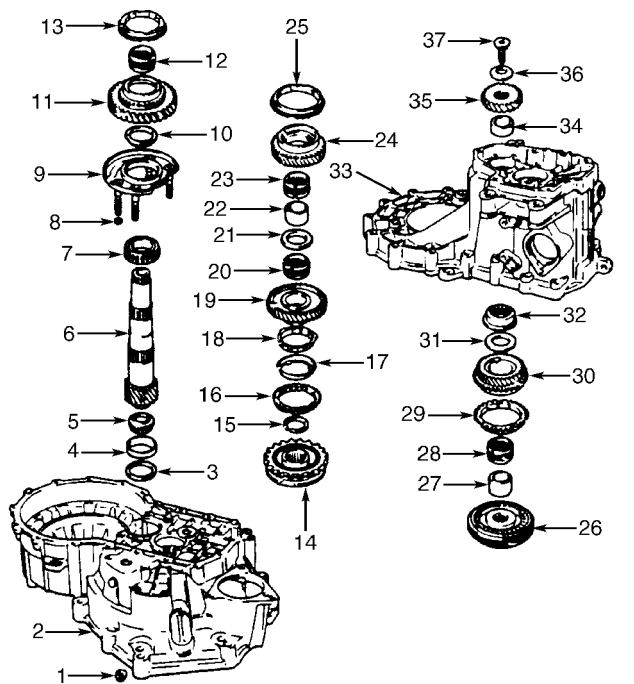
### Inspection

Inspect output shaft and gears for scoring and wear marks. Check gear and synchronizer teeth for wear and chipping. Check synchronizer rings for clearance.

### Reassembly

1) Install tapered bearings on output shaft. Using a press and bearing saddle, install thrust washer, 1st gear, 1st gear synchronizer ring, needle bearing, 1st/2nd gear synchronizer hub assembly, 2nd gear, 2nd gear synchronizer ring, needle bearing and bearing race.

2) Install thrust washer, 3rd gear, 3rd gear synchronizer ring, needle bearing and needle bearing inner race, 3rd/4th synchronizer hub assembly, 4th gear, 4th gear synchronizer ring, needle bearing and race. Place thrust washer on shaft assembly and hold in place with grease. Determine shim thickness. See ADJUSTING OUTPUT SHAFT PRELOAD.



- |                                  |                                |
|----------------------------------|--------------------------------|
| 1. Bearing Carrier Retainer Bolt | 20. Needle Roller Bearing      |
| 2. Clutch Housing                | 21. Thrust Washer              |
| 3. Shim                          | 22. Needle Bearing Race        |
| 4. Outer Race                    | 23. Needle Roller Bearing      |
| 5. Tapered Bearing               | 24. 3rd Gear                   |
| 6. Output Shaft                  | 25. 3rd Gear Synchronizer Ring |
| 7. Tapered Bearing               | 26. Synchronizer Hub Assembly  |
| 8. "O" Ring                      | 27. Needle Bearing Race        |
| 9. Bearing Carrier               | 28. Needle Bearing             |
| 10. Thrust Washer                | 29. Synchronizer Ring          |
| 11. 1st Gear                     | 30. 4th Gear                   |
| 12. Needle Bearing               | 31. Thrust Washer              |
| 13. 1st Gear Synchronizer Ring   | 32. Needle Roller Bearing      |
| 14. Synchronizer Sleeve          | 33. Gearbox Housing            |
| 15. Circlip                      | 34. Needle Roller Bearing      |
| 16. Synchronizer Ring            | 35. 5th Gear                   |
| 17. Outer Ring                   | 36. Diaphragm Spring           |
| 18. Synchronizer Ring            | 37. Bolt                       |
| 19. 2nd Speed Gear               |                                |

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**Fig. 9: Exploded View Of Output Shaft**  
 Courtesy of Volkswagen United States, Inc.

## REVERSE GEAR SHAFT ASSEMBLY

### Disassembly

Following removal of both mounting bolts, remove reverse idler shaft support and needle bearing. If necessary, needle bearing can be pressed out of support. Use puller to extract reverse idler shaft assembly. Pull off reverse gear. Remove and discard circlip. Pull off reverse sliding gear. Pull needle roller bearing from clutch housing. See Fig. 10.

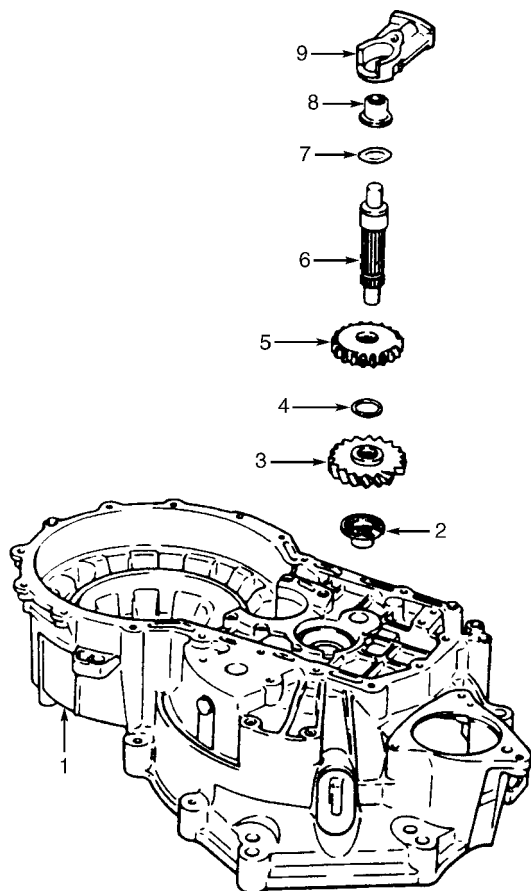
### Inspection

Check gears, shaft and bearings for any signs of wear, corrosion or damage. Replace components as needed.

### Reassembly

Press new needle roller bearing into clutch housing, if removed. Install reverse sliding gear, with new circlip. Ensure sliding gear shoulder faces reverse gear. Install reverse gear. Press

reverse idler shaft assembly into place. Press needle roller bearing into idler shaft support, if removed. Install support retaining bolts.



- |                              |                           |
|------------------------------|---------------------------|
| 1. Clutch Housing            | 6. Reverse Gear Shaft     |
| 2. Axial Roller Bearing      | 7. Washer (If Applicable) |
| 3. Helical Cut Reverse Gear  | 8. Axial Roller Bearing   |
| 4. Circlip                   | 9. Clutch Housing         |
| 5. Straight Cut Reverse Gear |                           |

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**Fig. 10: Exploded View Of Reverse Gear Assembly**  
 Courtesy of Volkswagen United States, Inc.

## DIFFERENTIAL ASSEMBLY

### Disassembly

1) Press tapered roller bearings off both ends of differential housing. Remove ring gear from differential housing if ring gear or housing needs replacement. See Fig. 11.

2) Remove spring pin. Remove pinion shaft, pinion gears and one piece thrust washer.

### Inspection

Inspect gears and pinion shaft for wear, chipping or galling. Inspect thrust washer for wear. Replace components as needed.

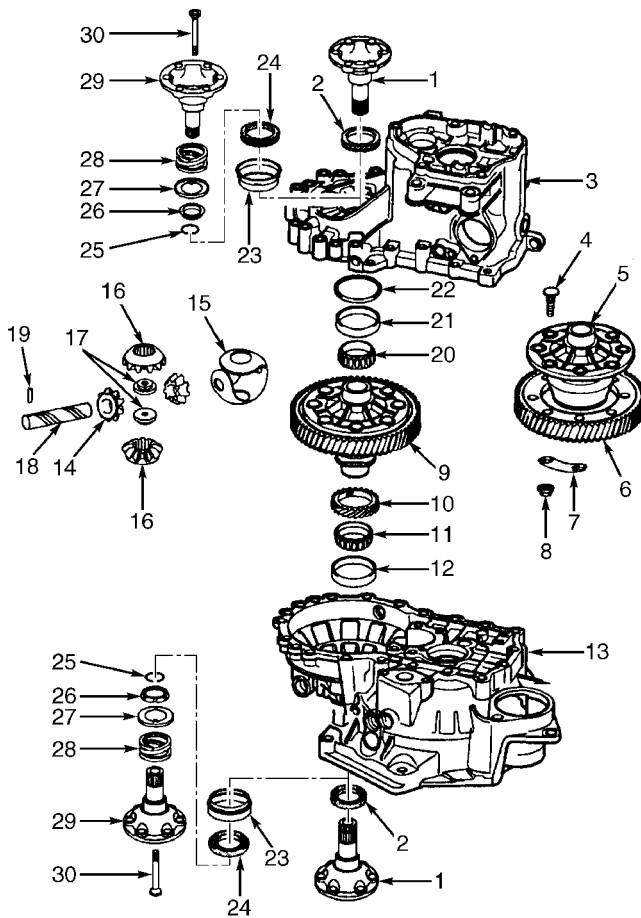
### Reassembly

1) If differential ring gear is being replaced, heat gear to approximately 212°F (100°C) and press onto differential housing using several bolts as guide pins during installation. Use NEW bolts (02A-

498-88A) and tighten to 52 ft. lbs. (70 N.m) and turn an additional 90 degrees.

2) Install one piece thrust washer, pinion gears and pinion shaft into differential case and secure with spring pin. Press tapered bearings onto each end of differential carrier.

**NOTE:** If installing a new ring gear or pinion, be sure both components are a matched set. Use NEW ring gear retaining Bolt Kit (02A 498 088A).



- |   |  |
|---|--|
| 1. Flange Shaft                           | 14. Differential Pinion Gear             |
| 2. Oil Seal<br>(W/O Flange Shaft Springs) | 15. One-Piece Thrust Washer              |
| 3. Gearbox Housing<br>(Transaxle Housing) | 16. Differential Side Gear               |
| 4. Differential Bolts                     | 17. Threaded Piece                       |
| 5. Differential Housing                   | 18. Differential Pinion Shaft            |
| 6. Final Drive Gear<br>(Ring Gear)        | 19. Spring Pin                           |
| 7. Packing Plates                         | 20. Tapered Roller Bearing<br>Inner Race |
| 8. Nuts                                   | 21. Tapered Roller Bearing<br>Outer Race |
| 9. Differential<br>W/Final Drive Gear     | 22. Shim                                 |
| 10. Speedometer Drive Gear                | 23. Sleeve                               |
| 11. Tapered Roller Bearing<br>Inner Race  | 24. Oil Seal                             |
| 12. Tapered Roller Bearing<br>Outer Race  | 25. Circlip                              |
| 13. Clutch Housing                        | 26. Tapered Ring                         |
|   | 27. Thrust Washer                        |
|   | 28. Spring                               |
|   | 29. Axle Flange                          |
|   | 30. Cone Head Bolt                       |

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**Fig. 11: Exploded View Of Differential Assembly**  
Courtesy of Volkswagen United States, Inc.



.026-.027 (.671-.699)	.....	.025 (.650)
.027-.028 (.700-.724)	.....	.026 (.675)
.028-.029 (.725-.749)	.....	.027 (.700)
.029-.030 (.750-.774)	.....	.028 (.725)
.030-.031 (.775-.799)	.....	.029 (.750)
.031-.032 (.800-.824)	.....	.030 (.775)
.032-.033 (.825-.849)	.....	.031 (.800)
.033-.034 (.850-.874)	.....	.032 (.825)
.034-.035 (.875-.899)	.....	.033 (.850)
.035-.036 (.900-.924)	.....	.034 (.875)
.036-.037 (.925-.949)	.....	.035 (.900)
.037-.038 (.950-.974)	.....	.036 (.925)
.038-.039 (.975-.999)	.....	.037 (.950)
.039-.040 (1.0-1.024)	.....	.038 (.975)
.040-.041 (1.025-1.049)	.....	.039 (1.000)
.041-.042 (1.050-1.074)	.....	.040 (1.025)
.042-.043 (1.075-1.099)	.....	.041 (1.050)
.043-.044 (1.100-1.124)	.....	.042 (1.075)
.044-.045 (1.125-1.149)	.....	.043 (1.100)
.045-.046 (1.150-1.174)	.....	.044 (1.125)
.046-.047 (1.175-1.199)	.....	.045 (1.150)
.047-.048 (1.200-1.224)	.....	.046 (1.175)
.048-.049 (1.225-1.249)	.....	.047 (1.200)
.049-.050 (1.250-1.274)	.....	.048 (1.225)
.050-.051 (1.275-1.299)	.....	.049 (1.250)
.051-.052 (1.300-1.324)	.....	.050 (1.275)
.052-.053 (1.325-1.349)	.....	.051 (1.300)
.053-.054 (1.350-1.374)	.....	.052 (1.325)
.054-.055 (1.375-1.399)	.....	.053 (1.350)
.055-.056 (1.400-1.424)	.....	.054 (1.375)
.056-.057 (1.425-1.449)	.....	.055 (1.400)
.057-.058 (1.450-1.474)	.....	.056 (1.425)
.058-.059 (1.475-1.499)	.....	.057 (1.450)
.059-.060 (1.500-1.524)	.....	.058 (1.475)
.060-.061 (1.525-1.549)	.....	.059 (1.500)
.061-.062 (1.550-1.574)	.....	.060 (1.525)
.062-.063 (1.575-1.599)	.....	.061 (1.550)
.063-.064 (1.600-1.624)	.....	.062 (1.575)
.064-.065 (1.625-1.649)	.....	.063 (1.600)
.065-.066 (1.650-1.674)	.....	.064 (1.625)
.066-.067 (1.675-1.699)	.....	.065 (1.650)
.067-.068 (1.700-1.724)	.....	.066 (1.675)
.068-.069 (1.725-1.749)	.....	.067 (1.700)
.069-.070 (1.750-1.774)	.....	.068 (1.725)
.070-.071 (1.775-1.791)	.....	.069 (1.750)

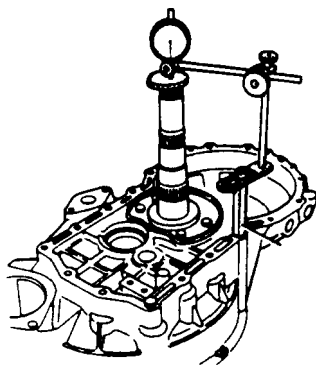
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ADJUSTING OUTPUT SHAFT PRELOAD

NOTE: Resetting is not necessary unless replacing final drive, output shaft bearings, differential assembly or clutch housing.

1) Install output shaft roller bearing outer races into their respective clutch and gearbox housings. Insert a .025" (.65 mm) shim behind clutch housing race. Insert output shaft into clutch housing and install gearbox housing. Tighten plate to 18 ft. lbs. (25 N.m), then turn each bolt an additional 90 degrees. Set up a dial indicator and measure up and down movement of output shaft. See Fig. 13.

2) The specified shim size is obtained by adding a constant of .008" (.20 mm) to recorded dial indicator reading and a .025" (.65 mm) shim value. The sum of these 3 figures will determine shim size to be installed. Shims are available in sizes from .025" (.65 mm) to .055" (1.40 mm) in increments of .002" (.05 mm). Output shaft preload should be 12-18 INCH lbs. (130-180 N.m).



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Fig. 13: Measuring Output Shaft End Play  
Courtesy of Volkswagen United States, Inc.

#### ADJUSTING DIFFERENTIAL PRELOAD

**NOTE:** Adjusting differential preload is not necessary unless replacing gearbox housing, clutch housing, differential housing or differential bearings.

1) Install differential outer bearing races into their respective clutch and gearbox housing. Install differential into clutch housing case and install gearbox housing. Tighten gearbox-to-clutch housing bolts to 18 ft. lbs. (25 N.m) and turn each bolt an additional 90 degrees.

2) Set up dial indicator to measure differential end play. See Fig. 14. The specified bearing shim is obtained by adding a constant value for preload of .015" (.40 mm) to dial indicator measurement. This sum is equal to the needed shim size. Shims are available in various sizes from .025" (.65 mm) to .049" (1.25 mm) in increments of .002" (.05 mm).

3) Differential bearing preload should be 10-28 INCH lbs. (1.1-3.2 N.m) for new bearings and at least 3 INCH lbs. (.30 N.m) for used bearings.



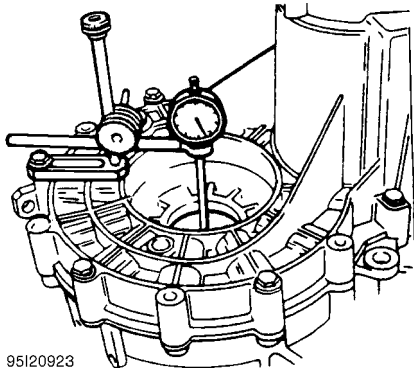


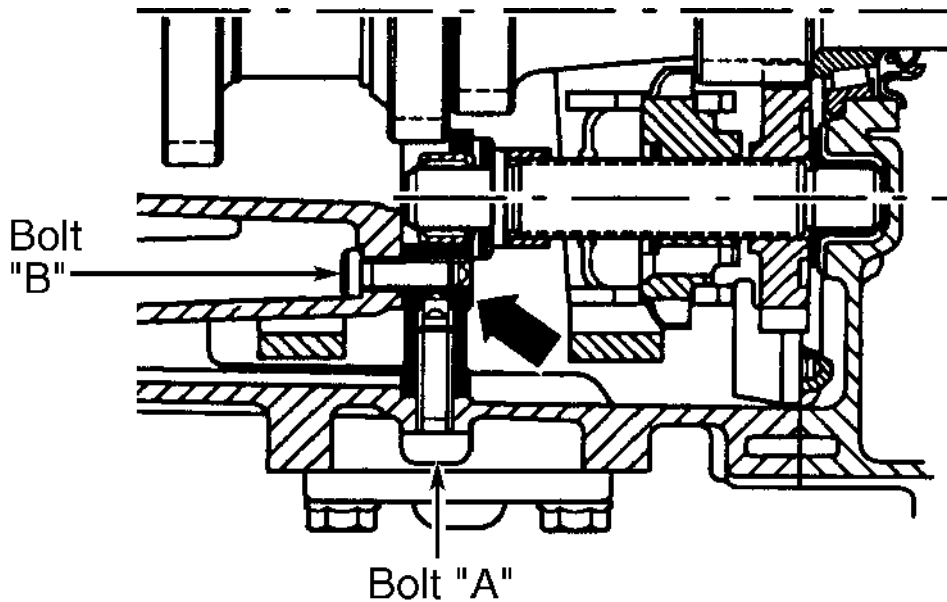
Fig. 14: Measuring Differential Assembly Clearance  
Courtesy of Volkswagen United States, Inc.

## TRANSAXLE REASSEMBLY

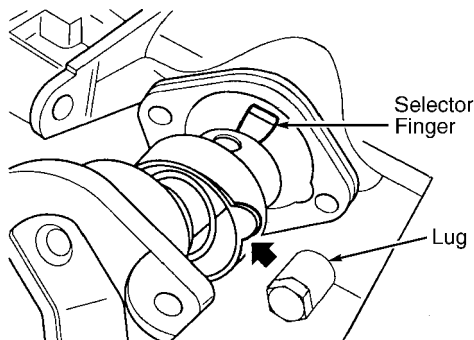
### REASSEMBLY PROCEDURE

1) Install differential. Install input shaft, output shaft and reverse shaft, using new "O" rings on output shaft studs. Install and tighten nuts for output shaft bearing support. Clean any remaining thread locking compound from reverse shaft support threads. Install reverse idler shaft support and reverse gear selector mechanism. Install shift forks with selector plates. Install M8x100 mm stud into reverse shaft support so shaft will be aligned after installing gearbox housing. Align selector plates with selector segments positioned in grooves on operating sleeves. Install transaxle housing.

2) Install reverse shaft support bolts by inserting bolt "a", removing M8x100 mm stud, then inserting and hand-tightening bolt "b". Tighten both bolts to 22 ft. lbs. (30 N.m). See Fig. 15. Align selector mechanism with screwdriver and install pivot pin for selector forks. Install selector shaft by first placing selector rails in Neutral position. Set locating lug "1" in recess in transaxle housing. Position selector shaft so selector finger "2" is inserted in selector rails. See Fig. 16.



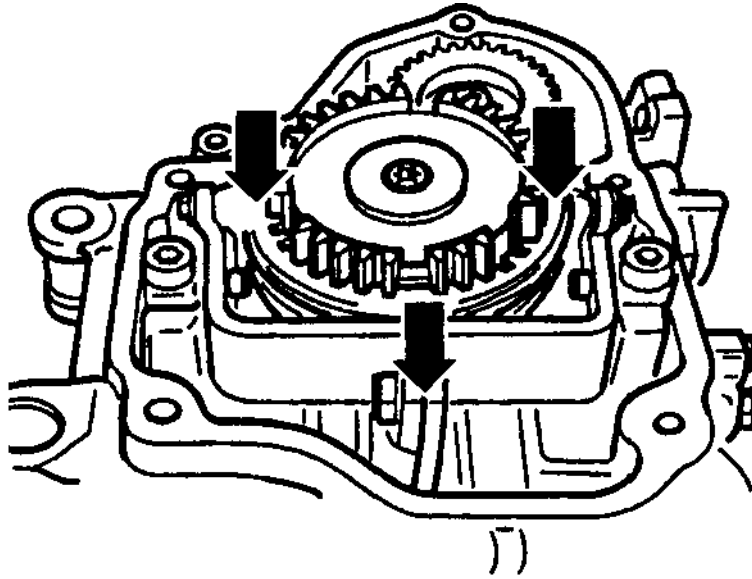
99I04257  
 Fig. 15: Installing Reverse Shaft Support Bolts  
 Courtesy of Volkswagen United States, Inc.



99A04258  
 Fig. 16: Installing Selector Shaft  
 Courtesy of Volkswagen United States, Inc.

3) Install 5th gear so groove around circumference faces toward transaxle housing. Use suitable driver to seat 5th gear. Assemble 5th gear synchronizer hub and operating sleeve so clearance between sleeve and gear teeth is .043-.067" (1.1-1.7 mm). Install assembly with pointed teeth of operating sleeve and high shoulder of synchronizer hub facing transaxle housing. Drive on 5th gear synchronizer hub assembly. Install washers, then hand-tighten bolts for synchronizer hub and 5th gear.

4) Engage 2 gears to lock transaxle and tighten 5th gear synchronizer hub and gear retaining bolts. Install 5th gear selector fork. Engage 5th gear. Loosen bolt "1" under selector fork. Press operating sleeve and selector fork jaws in direction of arrows, then retighten bolt to 18 ft. lbs. (25 N.m). See Fig. 17. Clearance must be less than .008" (.2 mm) between operating sleeve and gear. Disengage 5th gear so operating sleeve is in Neutral position. Synchronizer ring must move freely. Check selection of all gears. If okay, install transaxle housing cover.



NOTE: Shift fork in direction of arrows.

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Fig. 17: Adjusting 5th Gear

Courtesy of Volkswagen United States, Inc.

5) On transaxles without springs behind axle flanges, replace circlips. On transaxles with springs behind axle flanges, install complete axle flange shaft. Install guide sleeves for clutch release bearing, then install clutch.

### TORQUE SPECIFICATIONS

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Application Ft. Lbs. (N.m)

5th Gear Torx Bolt .....	59 (80)
5th Gear Selector Fork Bolts .....	18 (25)
Axle Shaft Heat Shield Bolts .....	24 (33)
Axle Shaft-To-Flange Bolts .....	33 (45)
Drain & Filler Plugs .....	18 (25)
Final Drive Retaining Nuts .....	52 (70)
Flange Cone Head Bolts .....	18 (25)
Input Shaft Torx Bolt .....	59 (80)
Output Shaft Retaining Nuts (1) .....	18 (25)
Pivot Pin Bolts .....	18 (25)
Reverse Gear Selector Fork Torx Bolt .....	18 (25)
Reverse Idler Shaft Support Bolts .....	22 (30)
Selector Mechanism Locking Bolt .....	30 (40)
Speedometer Drive .....	22 (30)
Transaxle Housing Cover Plate Bolts .....	18 (25)
Transaxle Housing Guide Sleeve Bolts .....	15 (20)
Transaxle Housing-To-Engine Bolts	
M7X12 mm .....	7 (10)

M10X160 mm .....	44 (60)
All Others .....	59 (80)
Transaxle Mount, Left Bracket-To-Transaxle .....	18 (25)
Transaxle Mount, Right Bracket-To-Subframe .....	44 (60)

INCH Lbs. (N.m)

Housing Cover Bolts .....	7 (10)
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(1) - Turn fastener an additional 90 degrees.

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END OF ARTICLE