

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 2)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.
Friday, October 15, 1999 04:40PM

SERVICE (IN VEHICLE)

DRIVE AXLE SHAFTS

See appropriate AXLE SHAFT - FRONT article in DRIVE AXLES section.

TRANSAXLE MOUNTS

Removal & Installation

1) Place transmission in Neutral. Unbolt exhaust pipe from manifold. Disconnect speedometer cable from transmission. Remove rear engine mounting bolt. Loosen front engine mounting bolt.

2) Attach hoist to 2 lifting rings. Raise engine and transaxle assembly about 4". Remove bolts attaching front and rear mounts to frame. Remove mounts. To install mounts, reverse removal procedure.

REMOVAL & INSTALLATION

TRANSAXLE

See appropriate TRANSMISSION REMOVAL & INSTALLATION - M/T article in the MANUAL TRANS SERVICE section.

- * For 1983 900, see TRANSMISSION REMOVAL & INSTALLATION - M/T
- * For 1984 900, see TRANSMISSION REMOVAL & INSTALLATION - M/T
- * For 1985 900, see TRANSMISSION REMOVAL & INSTALLATION - M/T
- * For 1986 900, see TRANSMISSION REMOVAL & INSTALLATION - M/T
- * For 1987 900, see TRANSMISSION REMOVAL & INSTALLATION - M/T

TRANSAXLE DISASSEMBLY

NOTE: Prior to disassembly of transmission gears, measure and record ring-to-pinion gear backlash and pinion depth. See PINION DEPTH ADJUSTMENT.

1) Place transaxle assembly on work stand and drain fluid. Remove primary gear housing front and side covers. Remove oil filler plug cover and final drive cover. Measure and record ring-to-pinion gear backlash and pinion depth. Remove axle shaft housing attaching bolts. Using puller, remove housings.

NOTE: When removing axle housings, do not lose spring and plunger located in end of inner shaft. Also, note number and thickness of adjusting shims installed with housings.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 3)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

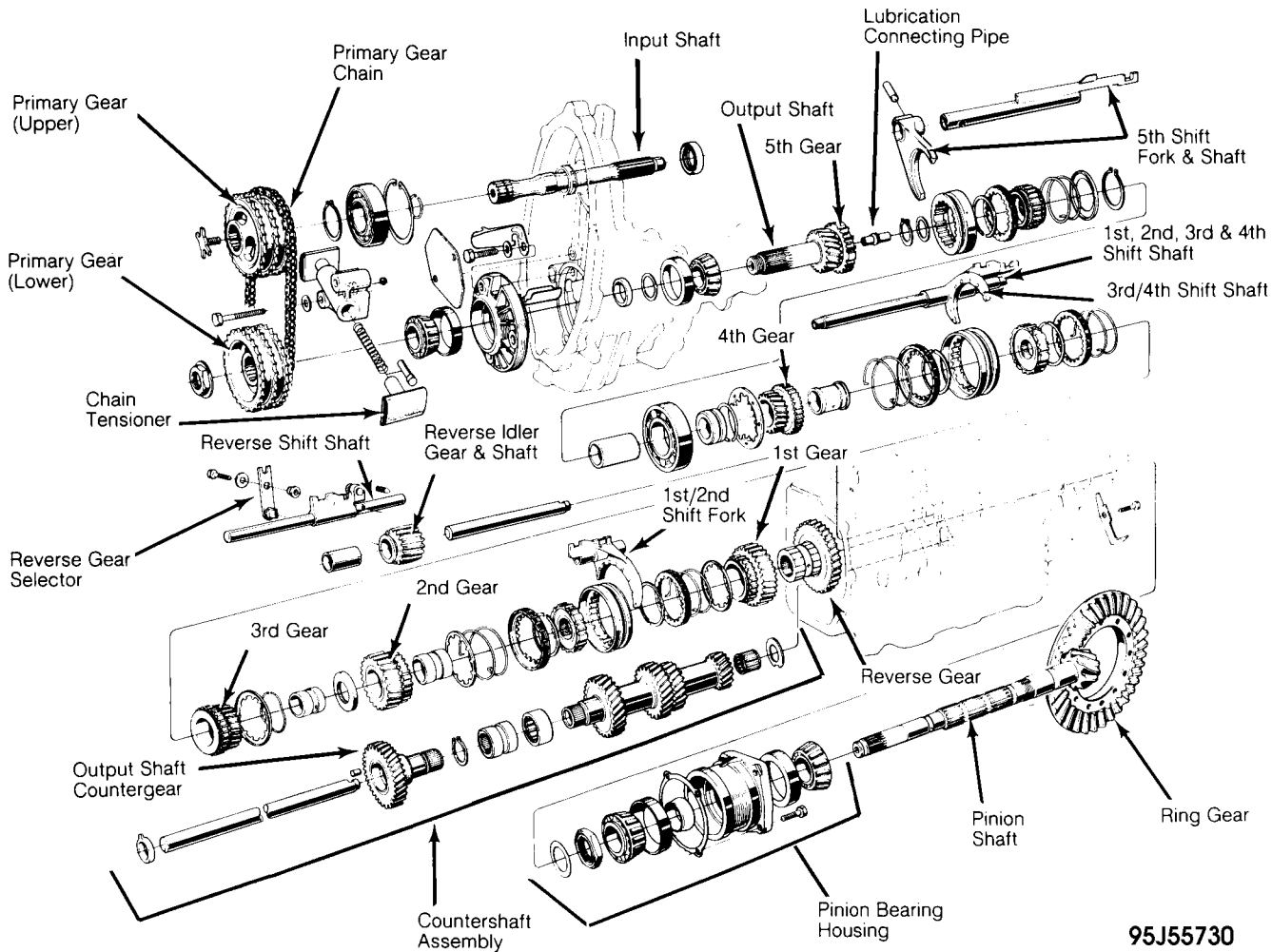


Fig. 1: Exploded View of Transaxle Assembly
Courtesy of Saab-Scania of America, Inc.

2) Tilt differential assembly to one side and remove assembly from case. Remove reverse gear operating lever retaining bolt and lever. Engage reverse gear and 5th gear to lock transmission. Unstake output shaft tab washer (lower primary gear), and remove unit. Remove chain tensioner.

3) Remove snap ring (located behind upper primary gear). Using slide hammer and Puller (87 90 891), remove primary gears and chains simultaneously. Free countershaft gear from output shaft countergear by loosening snap ring and pushing sleeve against countershaft. See Fig. 2.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

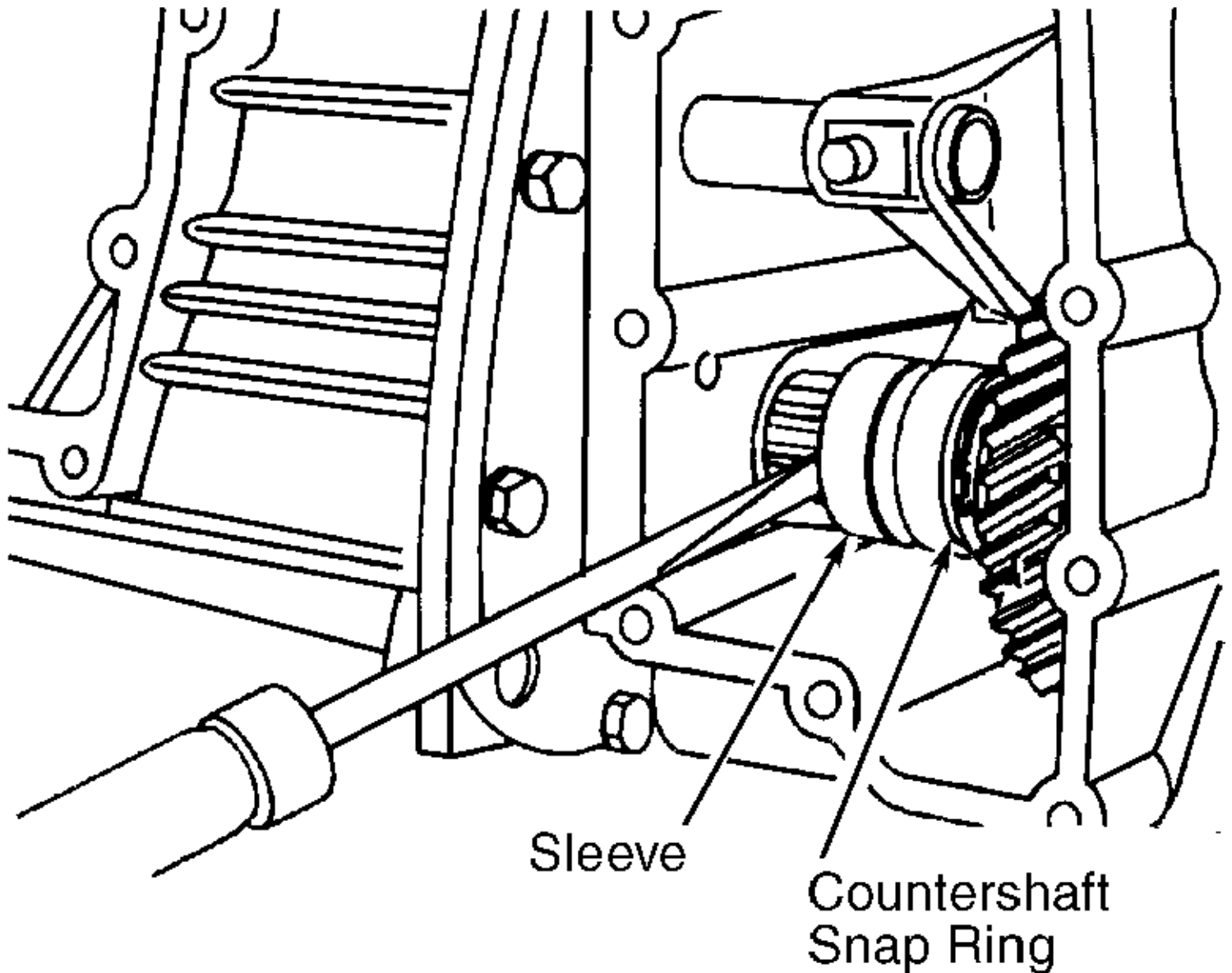
Article Text (p. 4)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93H25129

Fig. 2: Disconnecting Mainshaft Countergear
Courtesy of Saab-Scania of America, Inc.

4) Remove countershaft and reverse idler shaft retaining plate. Using Extractor (83 90 049), remove countershaft. Remove countershaft gear (with sleeve) and snap ring through side cover.

5) Remove input shaft bearing housing oil catcher bolts and oil catcher. Remove bearing housing bolts. Using slide hammer and Adapter (87 90 917), remove bearing housing.

6) Remove 5th gear selector fork locking stud. Push gear selector toward housing until it stops. Remove fork and slider. Remove 5th gear synchro hub snap ring and shim(s). Remove synchro hub and spacer from pinion shaft.

7) Remove all primary gear housing retaining bolts. Drive dowels into case to separate primary gear housing from transmission housing. The 5th gear selector will remain in housing and may be removed later.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 5)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.
Friday, October 15, 1999 04:40PM

8) Remove countershaft assembly with needle bearings and thrust washer identified for installation in original position. Remove selector shafts (from front) and selectors. Remove 1st and 2nd gear selectors together with respective synchro unit.

9) Reverse selector should be removed while still attached to selector shaft. Remove selector ball, guide pin, reverse idler shaft and reverse idler gear. Remove 4 pinion shaft bearing housing retaining screws. Using Remover (87 90 909), press out pinion.

CLEANING & INSPECTION

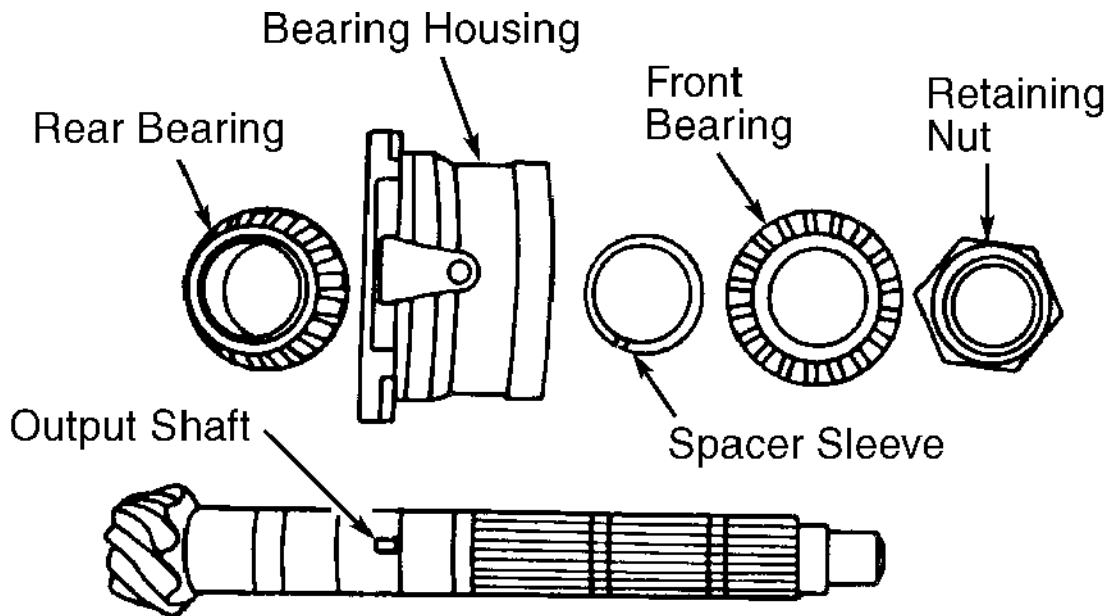
Clean all gasket material from covers and flanges. After washing parts, inspect for unusual wear and discoloration. Check for knicks or chips of mating surfaces. Ensure mating surfaces are flat and smooth.

COMPONENT DISASSEMBLY & REASSEMBLY

PINION SHAFT

Disassembly

Place pinion shaft in holding fixture. Remove pinion bearing retaining nut from shaft. Place shaft in press and press pinion shaft and rear pinion bearing from bearing housing. Press rear bearing from shaft. Using driver, remove pinion bearing outer races from bearing housing. Remove spacer sleeve from housing. See Fig. 3.



93E25134

Fig. 3: Exploded View of Pinion Shaft Assembly
Courtesy of Saab-Scania of America, Inc.

Reassembly

1) Lubricate bearings with ATF. Press bearing outer races into bearing housing. Press rear pinion bearing onto pinion shaft until it butts against stop. Place spacer sleeve onto shaft. Install

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 6)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.
Friday, October 15, 1999 04:40PM

housing over sleeve.

2) Place front bearing on shaft and position shaft in press. Turn housing by hand. Slowly press bearing into housing until resistance is felt. Remove shaft from press.

3) Coat bearing retaining nut threads with Loctite and install nuts, but do not tighten. Install pinion shaft assembly in holding fixture and place in vise. Attach spring pull gauge to housing. See Fig. 4.

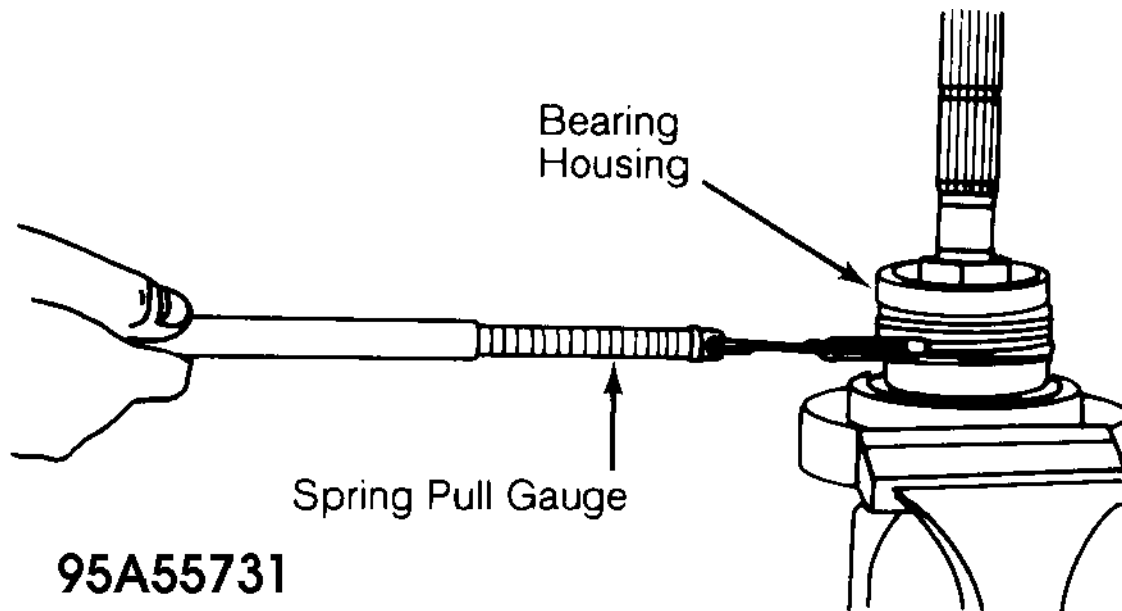


Fig. 4: Checking Pinion Bearing Preload
Courtesy of Saab-Scania of America, Inc.

4) Tighten retaining nut until force required to rotate housing is 10-15 lbs. (4.5-6.8 kg) for new bearings or 4.2-9.2 lbs. (1.9-4.2 kg) for used bearings (1200 miles or more). When correct value is obtained, stake retaining nut.

NOTE: Pinion bearing preload is set to correct specification with retaining nut correctly tightened.

PRIMARY GEAR HOUSING

Disassembly

Remove 4 Allen head screws from input shaft bearing retainer and remove retainer. Drive out bearing using Drift (83 90 106) and Sleeve (83 90 148). Remove needle bearing from primary gear case using a drift. Pry out input shaft oil seal. Remove upper primary gear snap ring. Using Sleeve (87 90 842), press bearing out of upper primary gear.

NOTE: DO NOT remove lever control ball valve. Check that ball moves freely and securely sets on seat. Ball acts at low speeds while going down hills to prevent oil from running from gear case into primary gear housing.

Reassembly

Inspect all parts for wear or damage and replace as

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 7)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

necessary. Press in new input shaft oil seal and needle bearing (mark facing outward in housing). Press input shaft bearing into housing. Install bearing retainer. Apply Loctite to Allen head screw threads. Install and tighten screws.

OUTPUT SHAFT BEARING HOUSING

Disassembly

Remove oil catcher from bearing housing. Being careful not to damage lubrication connection pipe, use Support (83 90 098) and press output shaft from bearing housing. Retain front bearing, spacer and shims. Using Support (87 90 636) and Ring (87 90 933), press rear bearing off output shaft. Using drift, remove bearing outer races from bearing housing.

Reassembly

1) Press rear bearing onto output shaft. Press outer races into bearing housing. Install output shaft, shims, spacer and bearing into bearing housing. Shims must be installed between rear bearing and spacer.

2) Lubricate bearings and press together using Support (83 90 098) and Drift (78 41 075). While pressing, use 3 tons (2722 kg) pressure. Rotate bearing housing against upper and lower bearings 40 times in each direction to seat ball bearings.

3) Install dial indicator. See Fig. 5. Maintain installation pressure and check axial play of bearing housing. Adjust axial play to 0 by inserting correct shim.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

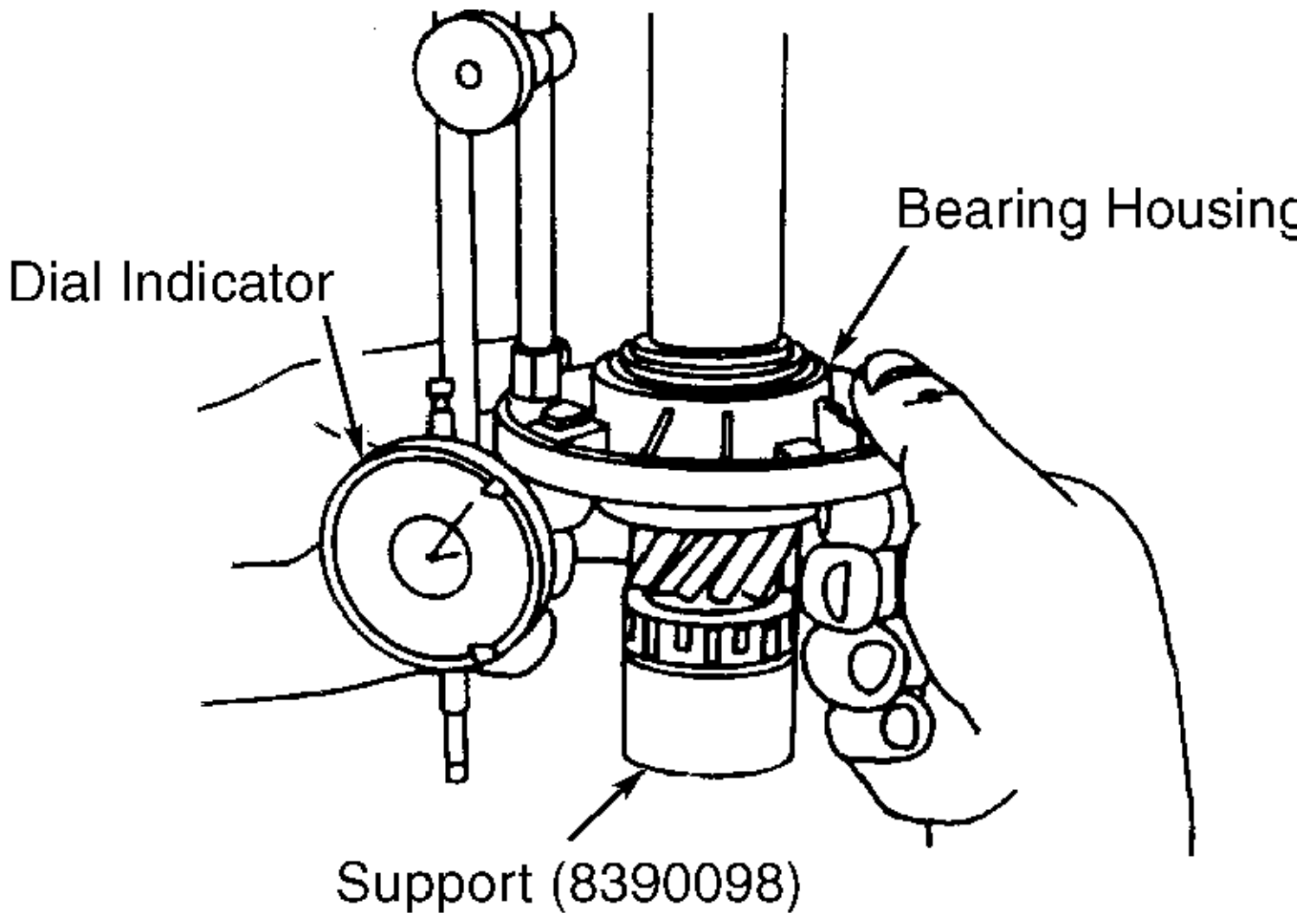
Article Text (p. 8)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93G25136

Fig. 5: Checking Axial Play of Output Shaft Bearing Housing
Courtesy of Saab-Scania of America, Inc.

4) After installing correct shim, recheck axial play. If axial play cannot be removed with shims, replace spacer. Bearings should have no resistance to movement or play. Install oil catcher in bearing housing.

NOTE: Shims are available in .10 mm, .15 mm, .25 mm and .50 mm thicknesses. Spacers are available in 8.08 mm, 8.09 mm, 8.10 mm and 8.11 mm lengths.

SYNCHRO ASSEMBLIES

Disassembly

Synchro rings are removed by removing snap ring which attaches ring to gear. Fifth gear synchro ring is removed by removing snap ring in front of guide ring. DO NOT remove synchro ring snap ring.

Reassembly

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 9)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.
Friday, October 15, 1999 04:40PM

1) Install guide ring for retaining ring. On 3rd and 4th gears only, lock guide rings in place on gears with snap rings.

2) Install retaining spring on gear with long wire end nearest guide ring. Position other end on gear so there are 11 teeth between spring ends (5 teeth on 5th gear). Retaining spring for 1st gear is shorter and softer.

NOTE: Guide rings for 3rd and 4th gears are assembled during production and are peened into position. DO NOT peen replacement guide rings.

3) Install synchro ring onto gear so ends of spring fit into spaces between teeth. Install snap ring.

NOTE: Synchro ring for 2nd gear has molybdenum-coated synchronizing surface for identification.

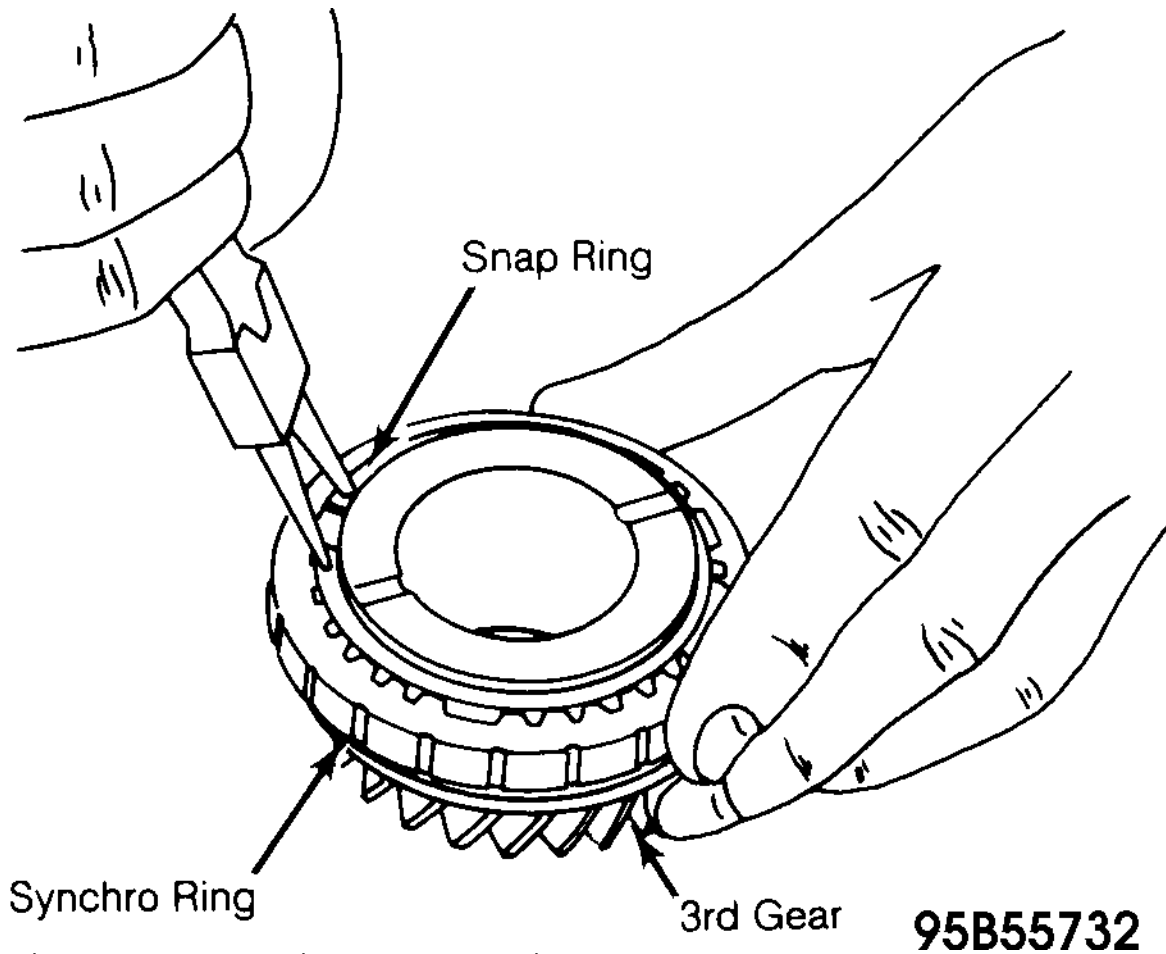


Fig. 6: Separating Synchro Ring from 1st-4th Gears
Courtesy of Saab-Scania of America, Inc.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

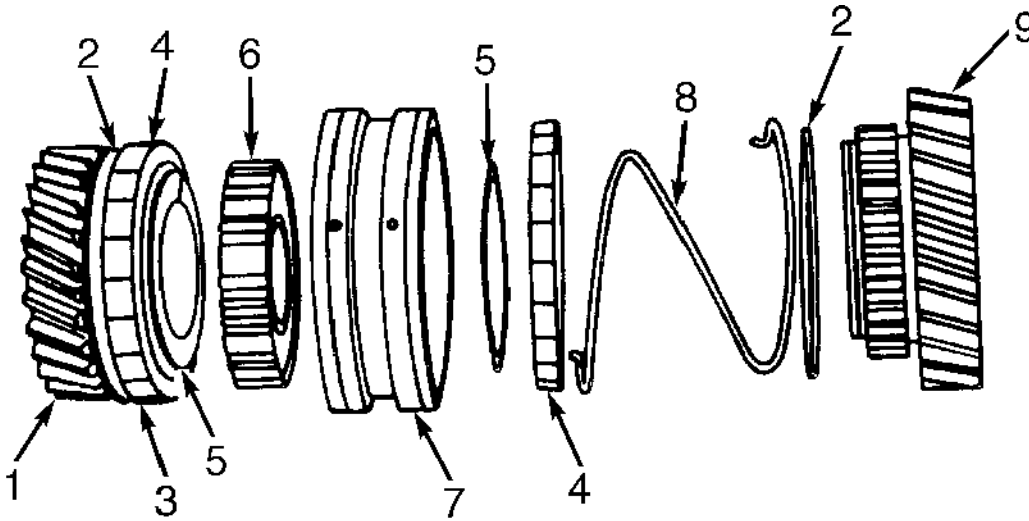
Article Text (p. 10)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

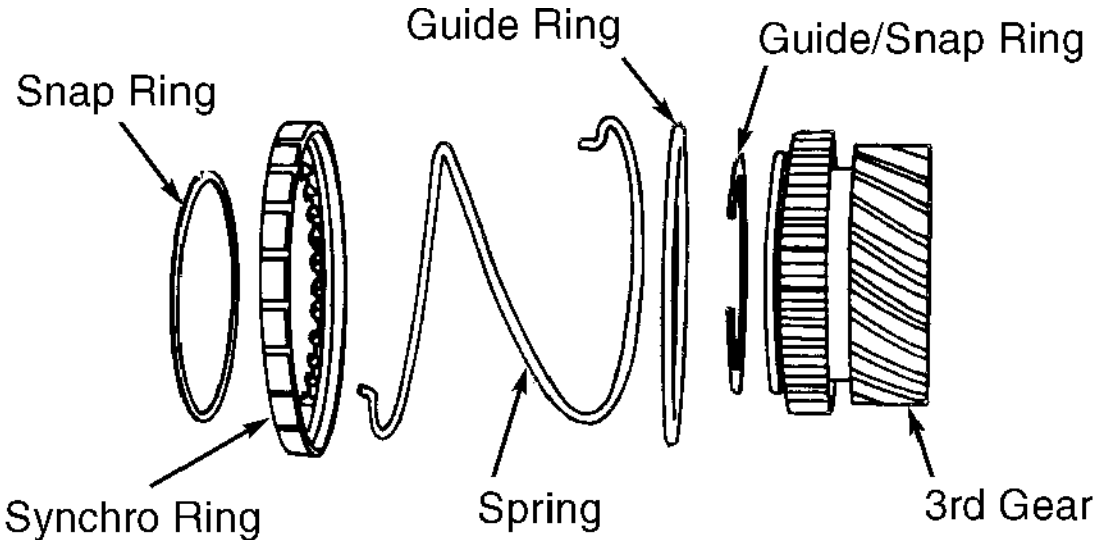
Friday, October 15, 1999 04:40PM



- 1. 2nd Gear
- 2. Guide Ring
- 3. Retaining Ring
- 4. Synchro Ring
- 5. Snap Ring
- 6. Synchro Hub
- 7. Synchro Sleeve
- 8. 1st Gear Spring
- 9. 1st Gear

93J25139

Fig. 7: Exploded View of 1st-2nd Gear Synchro
Courtesy of Saab-Scania of America, Inc.



93C25140

Fig. 8: Exploded View of 3rd Gear Synchro
Courtesy of Saab-Scania of America, Inc.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

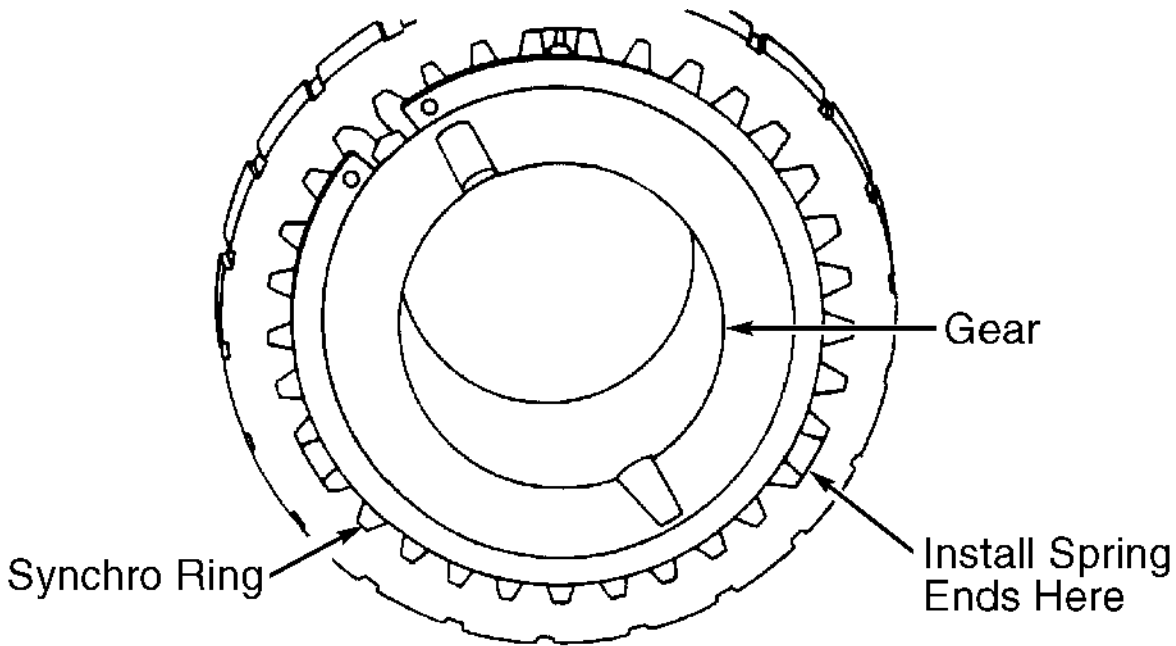
Article Text (p. 11)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93F25143

Fig. 9: Installing Synchro Retaining Spring
Courtesy of Saab-Scania of America, Inc.

INNER AXLE SHAFT & BEARING HOUSING

Disassembly

1) Remove axle shaft snap ring and press axle shaft out of bearing housing. Using screwdriver, remove oil seal from housing taking care not to damage housing. On left side bearing housing, remove shaft and lift out speedometer drive assembly.

2) On both sides, press axle shaft roller bearings from housing. If new differential bearings are to be installed, remove bearing outer races from bearing housing using drift.

NOTE: A washer is located between race and housing on right side to improve lubrication.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

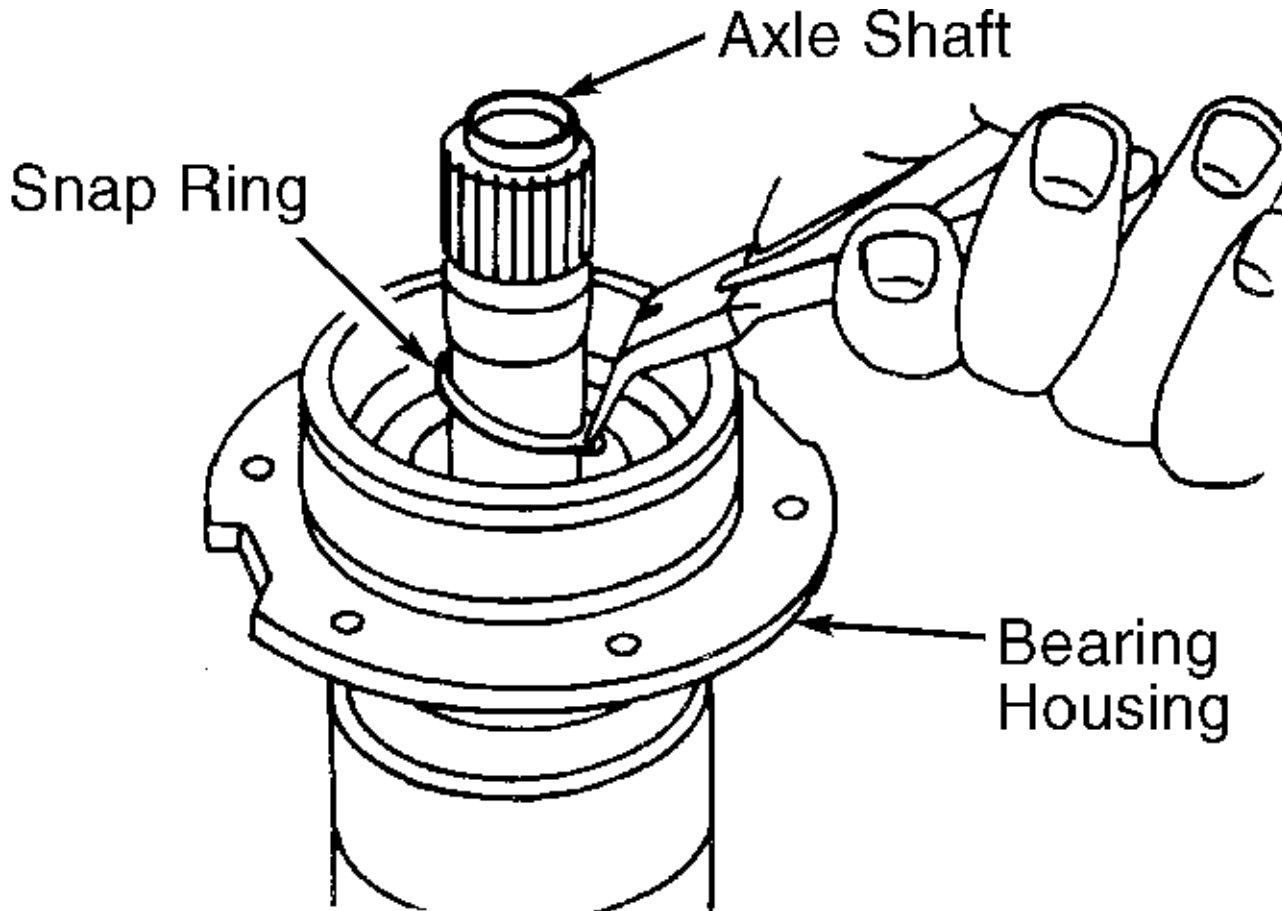
Article Text (p. 12)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93G25144

Fig. 10: Removing Axle Shaft Snap Ring From Housing
Courtesy of Saab-Scania of America, Inc.

Reassembly

Press new axle shaft bearing into housing. Install lubrication washer on right side. Press new differential bearing outer races into bearing housing. Using drift, press bearing housing oil seal into housing until it protrudes .08" (2 mm) above face of housing.

NOTE: Axle shafts will be installed during TRANSAXLE REASSEMBLY & ADJUSTMENT.

DIFFERENTIAL ASSEMBLY

Disassembly

1) If differential bearings require replacement, remove speedometer drive gear from left side. Use puller to remove bearings from differential housing.

2) Remove ring gear bolts and separate ring gear from differential. Remove snap ring and press out pinion shaft. Remove pinion gears, side gears, thrust washers and gear springs from housing.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

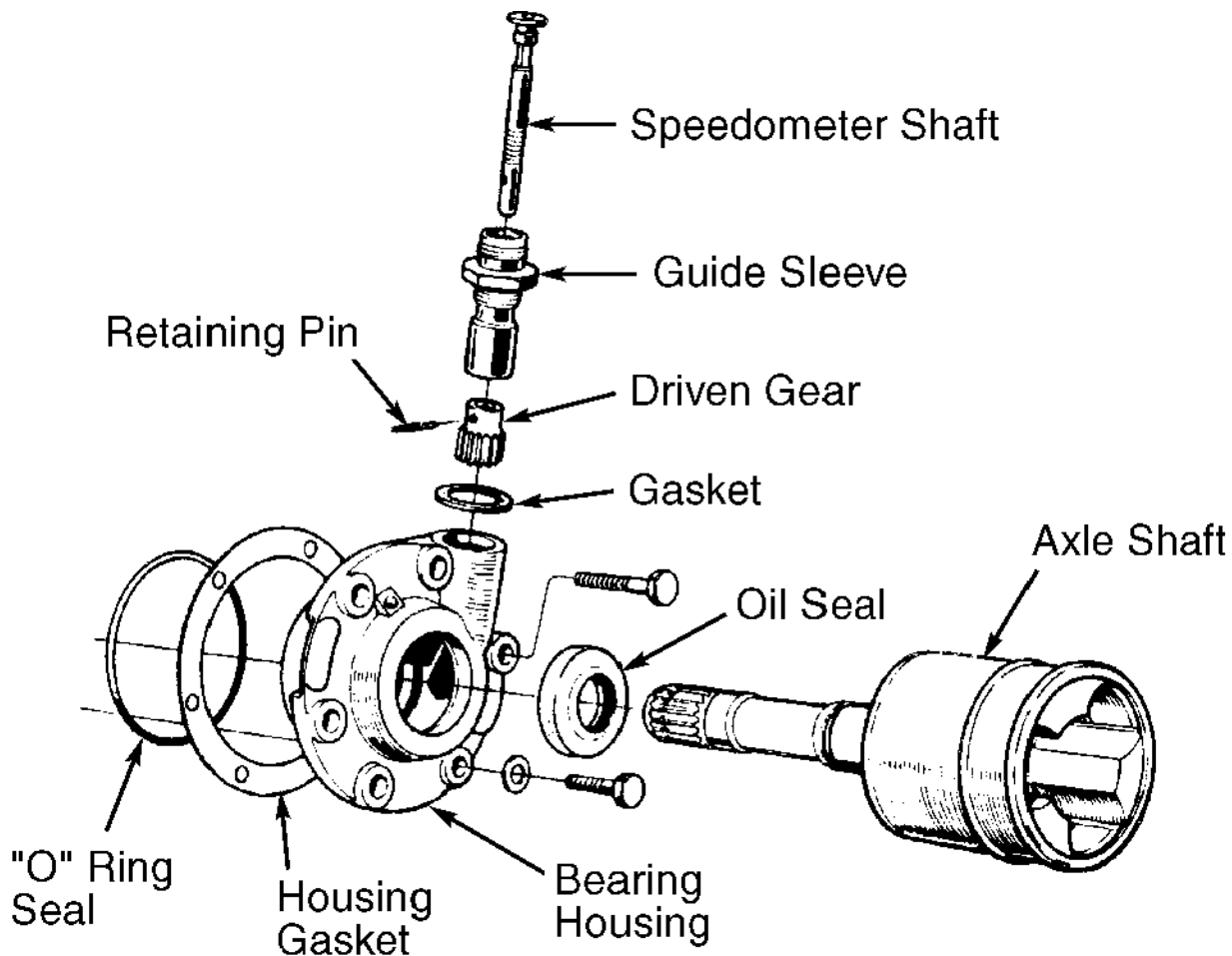
Article Text (p. 13)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93H25145

Fig. 11: Exploded View of Left Side Inner Axle Shaft and Differential Bearing Housing

Courtesy of Saab-Scania of America, Inc.

Reassembly

Install pinion gears and side gears, thrust washers and springs into housing. Install pinion shaft and secure with snap ring. Install ring gear on differential housing. Apply Loctite to threads and install attaching bolts. If removed, press new bearings onto housing. Install speedometer drive gear.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

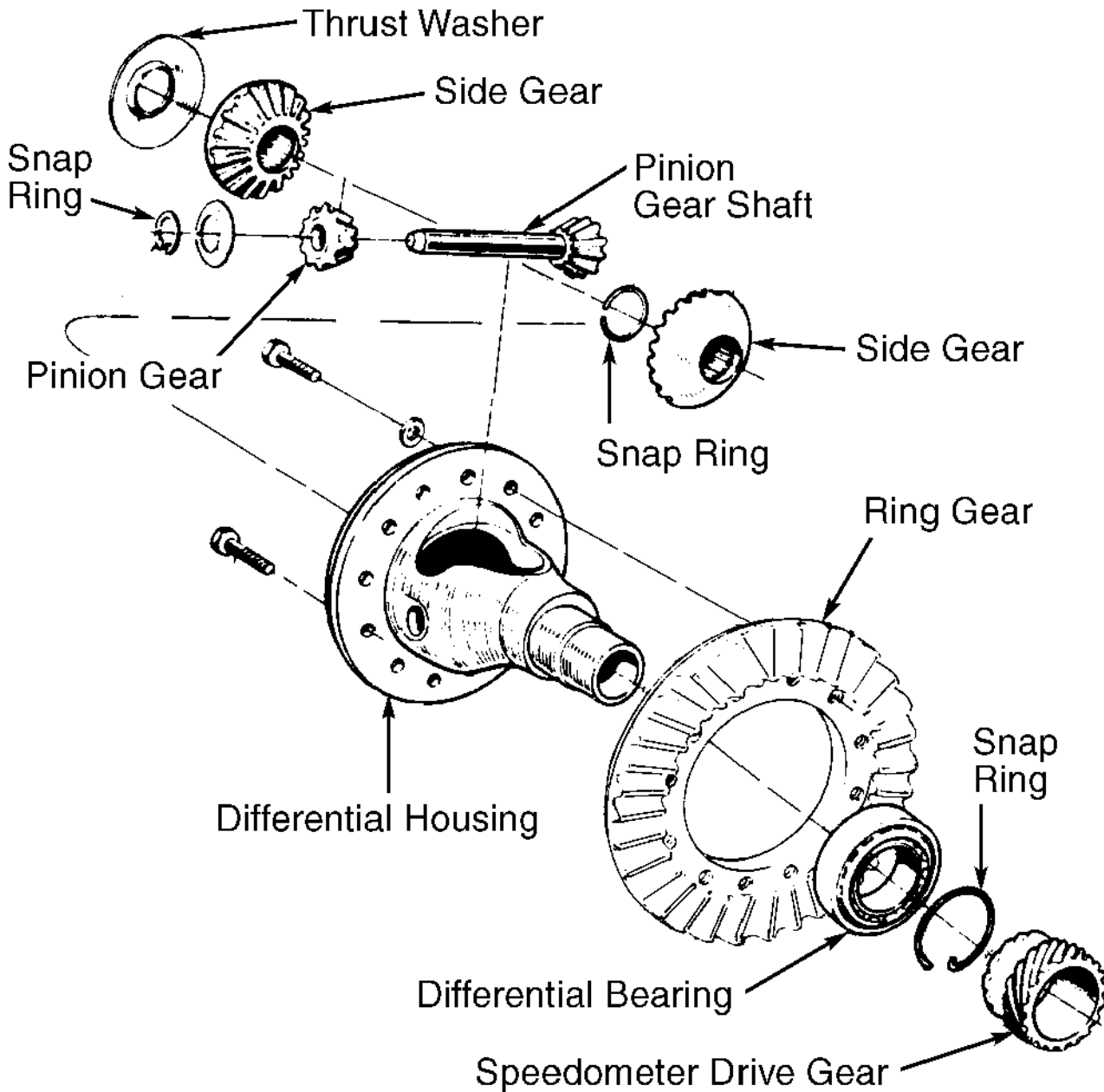
Article Text (p. 14)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93125146

Fig. 12: Exploded View of Differential Assembly

Courtesy of Saab-Scania of America, Inc.

TRANSAXLE REASSEMBLY & ADJUSTMENT

PINION DEPTH ADJUSTMENT

NOTE: Pinion bearing preload must be correctly adjusted before adjusting pinion depth. See PINION SHAFT REASSEMBLY. Metric Pinion Depth Adjustment specifications are stamped into end face of pinion shaft gear. See Fig. 13.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

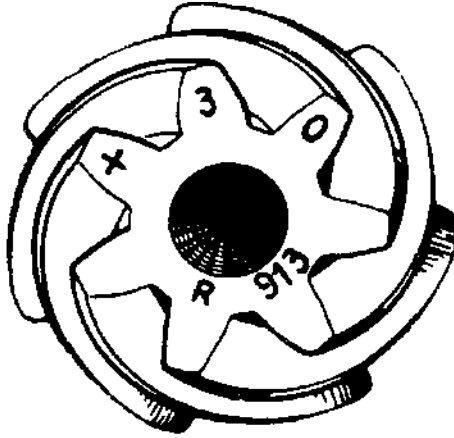
Article Text (p. 15)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



+3 = Measurement For Pinion Depth (+ .03 mm)
R913 = Mating Number (Also Stamped On Ring Gear)
0 = Pinion Not Offset (Not Relevant To Adjustment)

93E25159

Fig. 13: Pinion Shaft Gear Depth Adjustment Specifications
Courtesy of Saab-Scania of America, Inc.

1) Pinion depth must be measured using Saab Measuring Instrument (83 90 155), which consists of measuring jig, attached dial indicator, and gauge block for calibrating dial indicator.

2) To calibrate indicator, place calibration stops of measuring tool against gauge block. Distance between stops and centerline of tool should be 2.362" (60 mm), which is equal to distance from end face of pinion shaft gear to centerline of ring gear.

3) Ensure dial indicator pointer is at zero when measuring tip touches gauge block.

4) Install pinion shaft into transaxle case and tighten bolts. Position measuring tool in transaxle case with measuring tip applied to flat end of pinion gear. See Fig. 14. Record reading.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

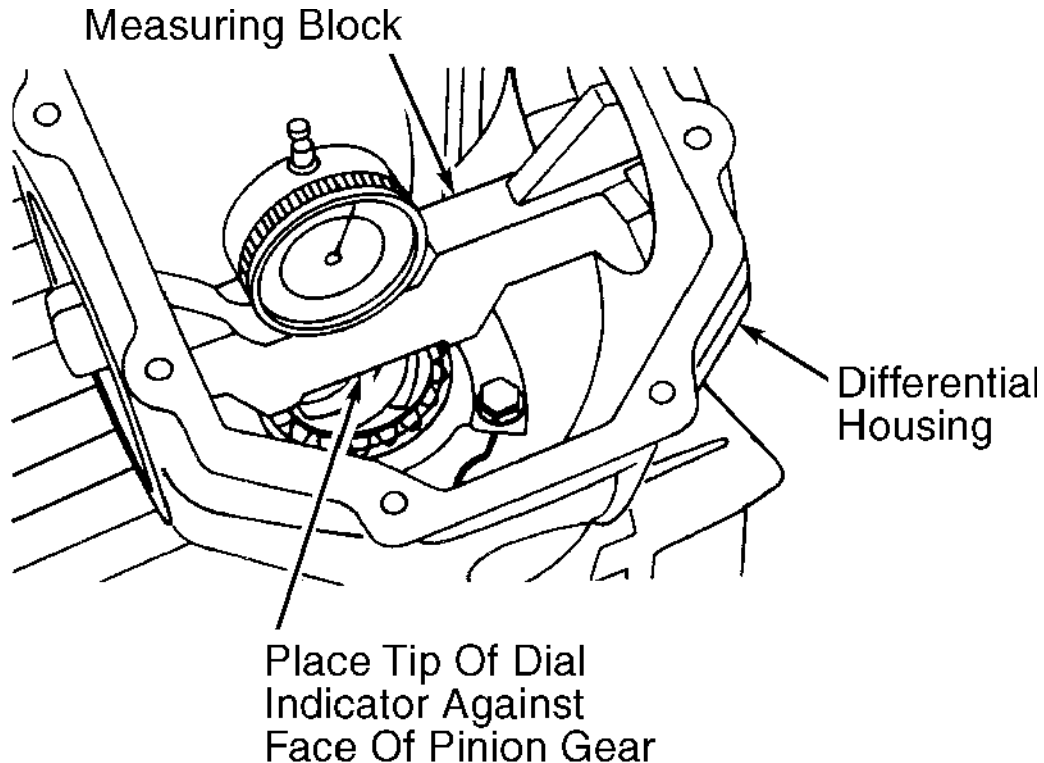
Article Text (p. 16)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM



93H25160
Fig. 14: Measuring Transaxle Case
Courtesy of Saab-Scania of America, Inc.

5) When pinion gear is correctly positioned, dial indicator should read (in hundredths of millimeters; plus or minus) same number as that stamped into pinion (with permitted tolerance of .002" (.05 mm)). For example, if pinion is stamped -7, indicator should read a negative (-) .07 mm with a tolerance of \pm .05 mm.

NOTE: On dial indicator, clockwise movement of needle is positive.

NOTE: If ring and pinion gear set have been in use for over 6000 miles, reassemble pinion shaft to specifications recorded during disassembly.

6) If measured pinion depth is not within specification stamped on pinion gear, pinion shaft must be adjusted. Remove pinion shaft from case and add thicker shim if reading is higher than specifications, reduce shim thickness if reading is lower than specification.

NOTE: Pinion depth adjusting shims are available in following thicknesses: .10 mm, .15 mm, .30 mm, and .50 mm.

7) Reduce or increase shim thickness according to difference between measured value and specified value. Before reinstalling pinion shaft assembly, adjust differential bearing preload. See DIFFERENTIAL BEARING PRELOAD ADJUSTMENT.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 17)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

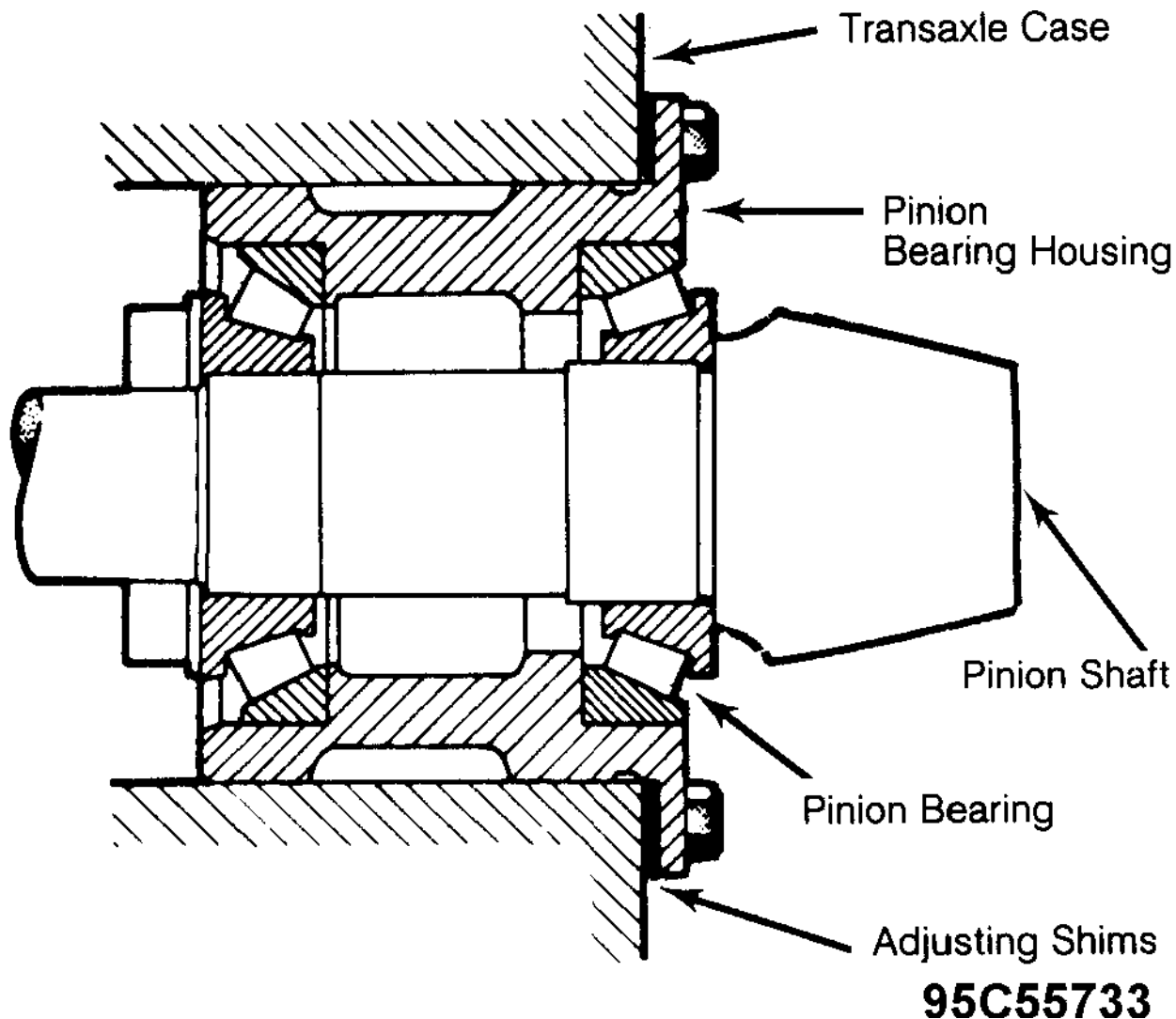


Fig. 15: Pinion Depth Adjusting Shims Location
Courtesy of Saab-Scania of America, Inc.

DIFFERENTIAL BEARING PRELOAD ADJUSTMENT

NOTE: Differential bearing preload must be adjusted prior to installation of pinion shaft.

1) Position differential assembly in transaxle case. Install left axle (side with speedometer drive gear) shaft bearing housing without shims and tighten bolts to 14-18 ft. lbs. (19-24 N.m). Oil differential bearings. Install right side axle shaft bearing housing and tighten attaching bolts to 19 ft. lbs. (26 N.m) while rotating differential assembly.

NOTE: If inner axle shaft is installed in right axle shaft housing, remove spring and plunger before mounting axle shaft housing.

2) Using feeler gauge, measure clearance between right axle housing and transaxle case at 2 points opposite each other. Compute average of 2 measurements, and select adjusting shims which equal the

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 18)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

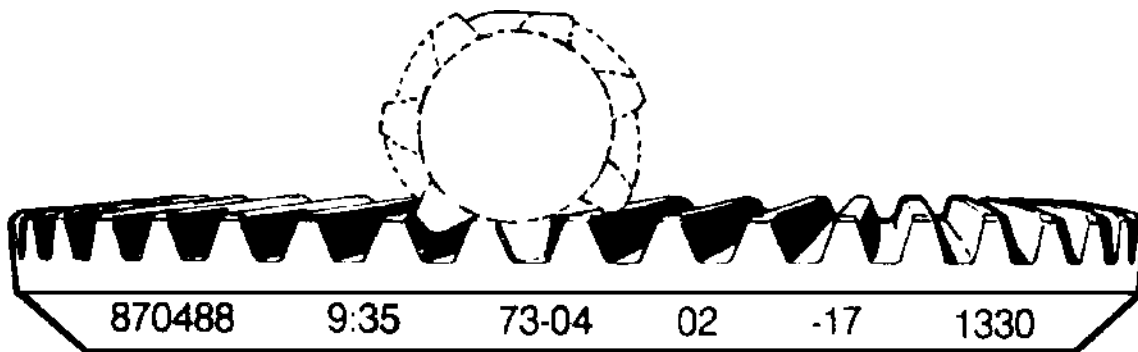
average. Add an additional .008" (.2 mm) in shim thickness to obtain correct bearing preload.

3) Measure bearing preload using an INCH lb. torque wrench. Preload for new, slightly oiled bearings should be 16-24 INCH lbs. (1.8-2.7 N.m). Preload for used bearings (1200 miles or more) should be 7-11 INCH lbs. (.79-1.24 N.m).

NOTE: Right-to-left distribution of shims will be determined during RING GEAR BACKLASH ADJUSTMENT. Up to 4 shims may be combined to obtain correct preload. Shims are available in the following thicknesses: .10 mm, .15 mm, .30 mm and .50 mm.

RING GEAR BACKLASH ADJUSTMENT

NOTE: Ring gear adjustment specifications (in metric) are stamped onto ring gear. See Fig. 16. If ring and pinion gear set have been in use for over 6000 miles, reassemble differential according to specifications recorded during disassembly. Install pinion shaft with shims in housing.



870488 = Part Number

9:35 = Ratio

73-04 = Date Of Manufacture

02 = Material Code

-17 = Specified Ring Gear Backlash of .0067 (.170 mm)

1330 = Mating Number (Also Stamped On Pinion Gear)

93J25170

Fig. 16: Ring Gear Backlash Adjustment Specifications

Courtesy of Saab-Scania of America, Inc.

1) Place differential assembly into transaxle case. Install left side (speedometer drive gear side) axle shaft bearing housing to transaxle case without adjusting shims and tighten attaching bolts to 14-18 ft. lbs. (19-24 N.m). Install right side axle shaft bearing housing along with selected bearing preload adjusting shims. Tighten attaching bolts.

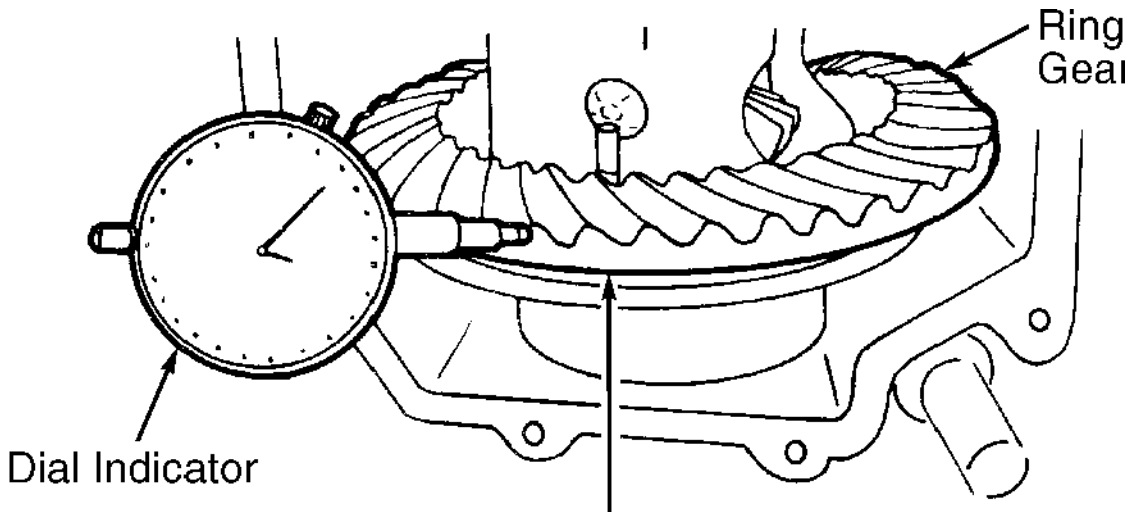
MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 19)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.
Friday, October 15, 1999 04:40PM



Measure Backlash By
Moving Ring Gear Back &
Forth Taking Up Free Play

93A25171

Fig. 17: Measuring Ring Gear Backlash
Courtesy of Saab-Scania of America, Inc.

2) Place dial indicator on transaxle case so indicator tip is touching ring gear teeth. Move ring gear back and forth and measure backlash between ring gear and pinion gear in 4 different locations. If backlash is not to specification, remove both axle shaft housings and move shims as necessary from right side housing to left side.

NOTE: When checking ring gear backlash, reading should not deviate from specification stamped on ring gear if new ring gear is used (or measurements taken during disassembly if ring gear has more than 6000 miles wear), by more than .002" (.05 mm).

3) Reinstall housings with shims and recheck backlash. If not to specifications, repeat adjustment procedure until correct backlash is obtained. DO NOT reduce total thickness of shim pack. Always move shims from one side to the other. After adjustment, remove differential.

TRANSAXLE REASSEMBLY

1) Install 2 Locating Studs (87 90 438) into pinion shaft bearing housing mounting holes. Install preselected pinion depth adjusting shims on bearing housing. Using locating studs as guides, position pinion shaft in transaxle case.

2) Using plastic mallet, gently tap pinion shaft until fully seated in case. Remove locating studs. Apply Loctite to bearing housing mounting bolt threads. Install and tighten bolts.

3) Before installing reverse gear, measure distance from pinion bearing retaining nut to primary gear housing mounting surface on transaxle case. Distance should be 7.677-7.681" (195.0-195.1 mm).

4) To accurately measure distance, set depth gauge to proper

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 20)

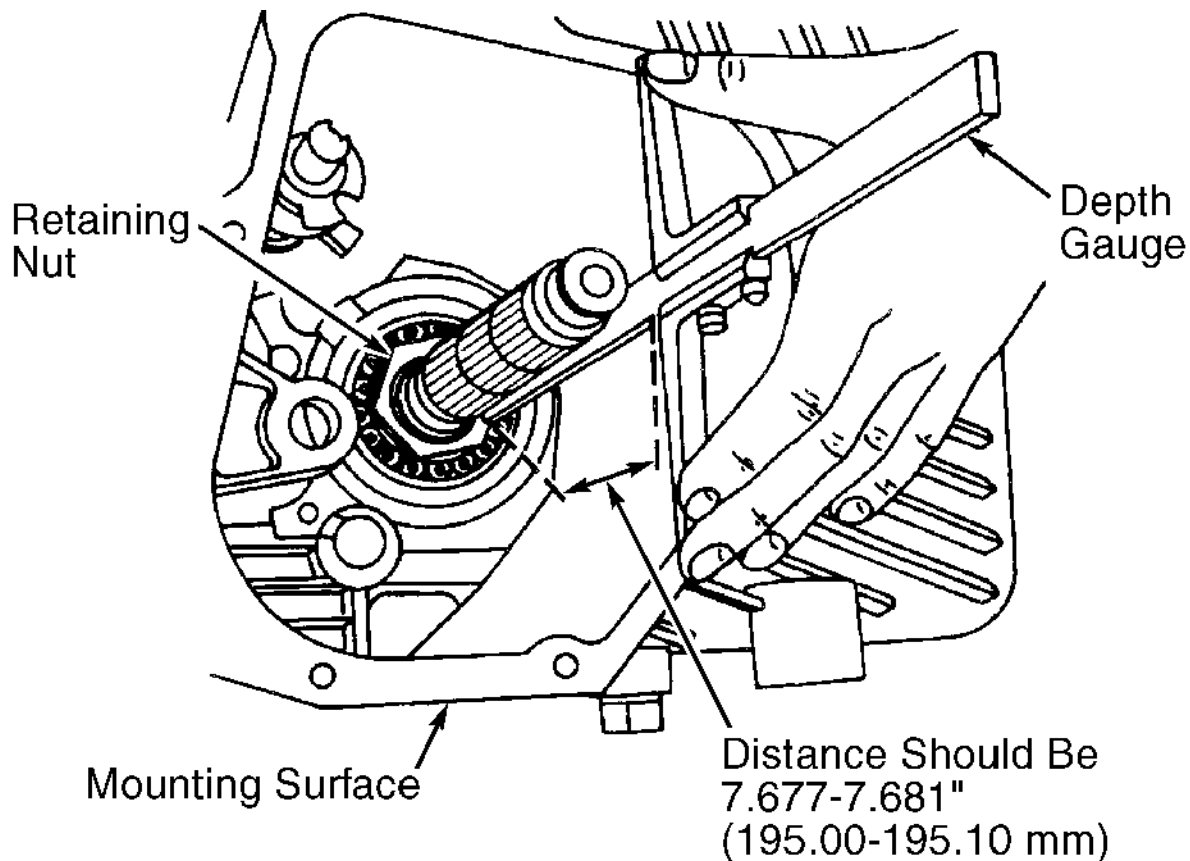
1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

distance and install onto case. See Fig. 18. Measure distance between end of depth gauge and retaining nut using feeler gauge. Install shim of thickness equal to that of feeler gauge.



93B25172

Fig. 18: Measuring Retaining Nut Depth
Courtesy of Saab-Scania of America, Inc.

5) Using micrometer, measure thickness of shim removed during disassembly. If original shim thickness equals required shim thickness, reinstall original shim. If not, install shim of proper thickness. Shims are available in thicknesses of .012" (.3 mm), .016" (.4 mm) and .02" (.05 mm). Install shim between retaining nut and reverse gear.

6) Install reverse gear on pinion shaft. Fit 1st gear on bearing sleeve of reverse gear. Install 1st-2nd synchro hub onto pinion shaft. Insert 1st-2nd gear shift fork into 1st-2nd coupling sleeve and install onto synchro hub.

7) Install 2nd gear sleeve using Installer (83 90 148). Install 2nd gear onto sleeve. Install 3rd gear spacer and sleeve on pinion shaft. Install 3rd gear on sleeve.

8) Install 3rd-4th synchro hub onto pinion shaft. Install 3rd-4th gear shift fork into 3rd-4th gear coupling sleeve and install on synchro hub. Install 4th gear bushing onto pinion shaft. Install 4th gear onto bushing. Install selector shaft with double lock out guide pin.

9) Place transmission gears in Neutral. Install gear shift rail for 1st-2nd and 3rd-4th gearshift forks. Install reverse operating lever onto reverse selector shaft. Apply Loctite to shaft

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 21)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

stop bolt. Install and tighten stop bolt. Install 5th gear selector onto reverse selector shaft.

10) Install countershaft gear needle bearing into countershaft gear. Install countershaft gear into housing. While aligning countershaft, install countershaft gear shaft just enough to hold gears in position. Thrust washer will be installed later.

11) Install 5th gear spacer, 5th gear synchro hub and snap ring onto pinion shaft. Measure distance between coupling sleeve and hub using feeler gauge so there is no play between parts on pinion shaft. Shims are available in .012" (.3 mm) and .016" (.4 mm) thicknesses.

12) Remove snap ring, hub and spacer. Apply sealing compound to gasket surfaces of primary gear housing. Install gasket and housing to transmission housing.

13) Install spacer and 5th gear synchro hub on output shaft. Install shims selected to provide zero play between parts on shaft. Install snap ring, 5th gear operating sleeve and selector fork.

14) Install 3 Output Shaft Guide Pins (87 90 438) into lower primary gear bearing housing mounting bolt holes. Insert output shaft with bearing housing, oil catcher and oil connecting pipe installed on Adapter (87 90 917). Install lower primary gear socket between adapter and bearing housing.

15) Using slide hammer, insert bearing housing and output shaft assembly so bearing housing is seated and output shaft meets operating sleeve. Install output shaft countershaft thrust washer, coated with grease, so tab fits into recess of case.

16) Slide output shaft countergear onto shaft and install sleeve, bearings and snap ring. Install countershaft in case and slide gear toward thrust washer to allow alignment of gear for final installation.

17) Install operating sleeve onto countershaft and insert snap ring into recess. Install countergear thrust washer. Using Installer (83 90 049), insert countergear shaft so it locks in position. Install reverse idler gear and spindle. Using installer, insert reverse idler gear shaft until it locks in position.

18) Install locking plate into primary gear cover. Seal locking plate and threads with Loctite. Install and tighten bolts. Install upper primary gear and chain assembly. Ensure hole for lower primary gear tab washer is facing outward. Install chain tensioner. Coat threads of chain tensioner bolts with Loctite. Install and tighten bolts.

19) Lock pinion shaft by engaging reverse gear and 5th gear. Install pinion shaft nut and tighten. Bend 1 nut tab into hole provided in lower primary gear. Install reverse gear operating lever and tighten bolt.

20) Seal bolt with Loctite. Install differential unit. Install selector ball and gearbox top cover gasket and cover. Install primary gear housing gasket and cover.

FINAL ASSEMBLY

1) Remove axle shaft housing from transaxle. Press axle housings onto axle shaft, then install snap rings to secure shafts in place. Install speedometer drive assembly into left axle shaft housing.

MANUAL TRANS OVERHAUL - SAAB 5-SPEED TRANSAXLE

Article Text (p. 22)

1990 Saab 900

For 123 123 123 123 123

© 1997 Mitchell Repair Information Company, All Rights Reserved.

Friday, October 15, 1999 04:40PM

2) Install "O" rings onto both housings. Install spring and plunger in end of axle shaft. Install axle shaft housings onto transaxle case, making sure correct adjusting shims are in place on each housing. Install and tighten bolts.

3) Recheck backlash adjustment and readjust if necessary. Install rear cover on transaxle case and tighten attaching bolts. Fill transaxle to correct fluid level.

TORQUE SPECIFICATIONS

AA

Application	Ft. Lbs. (N.m)
All 8 mm Bolts (1985-87)	14-18 (19-24)
(1988-92)	17-21 (23-28)
Axle Shaft Housing Bolts (1985-87)	14-18 (19-24)
(1988-92)	17-21 (23-28)
Bearing Housing Bolt	17-21 (23-28)
Chain Tensioner Bolts	17-21 (23-28)
Differential Cover Bolts	17-21 (23-28)
Front Hub Nut	251-266 (340-361)
Hub-To-Rotor Bolts	22-36 (30-49)
Input Shaft Nut (1985-87)	67-81 (91-110)
(1988-92)	66-81 (90-110)
Output Shaft Nut In Clutch Hub	30-44 (40-60)
Output Shaft Retaining Nut	17-21 (23-28)
Pinion Bearing Housing	15-18 (20-24)
Pinion Shaft Retaining Nut	30-45 (41-61)
Reverse Gear Locking Plate Bolt	17-21 (23-28)
Ring Gear Attaching Bolts	
(1985-87)	30-45 (41-61)
(1988-90) (8 mm)	59-84 (80-100)
(1988-90) (10 mm)	59-84 (80-100)
(1991-92)	59-84 (80-100)
Speedometer Drive Shaft	21-36 (28-49)
Transmission Housing Bolts	17-21 (23-28)

INCH Lbs. (N.m)

Primary Chain Case Bolts	84-124 (9.5-14)
--------------------------------	-----------------

AA

END OF ARTICLE