

## GROUP 22B

# MANUAL TRANSAXLE OVERHAUL

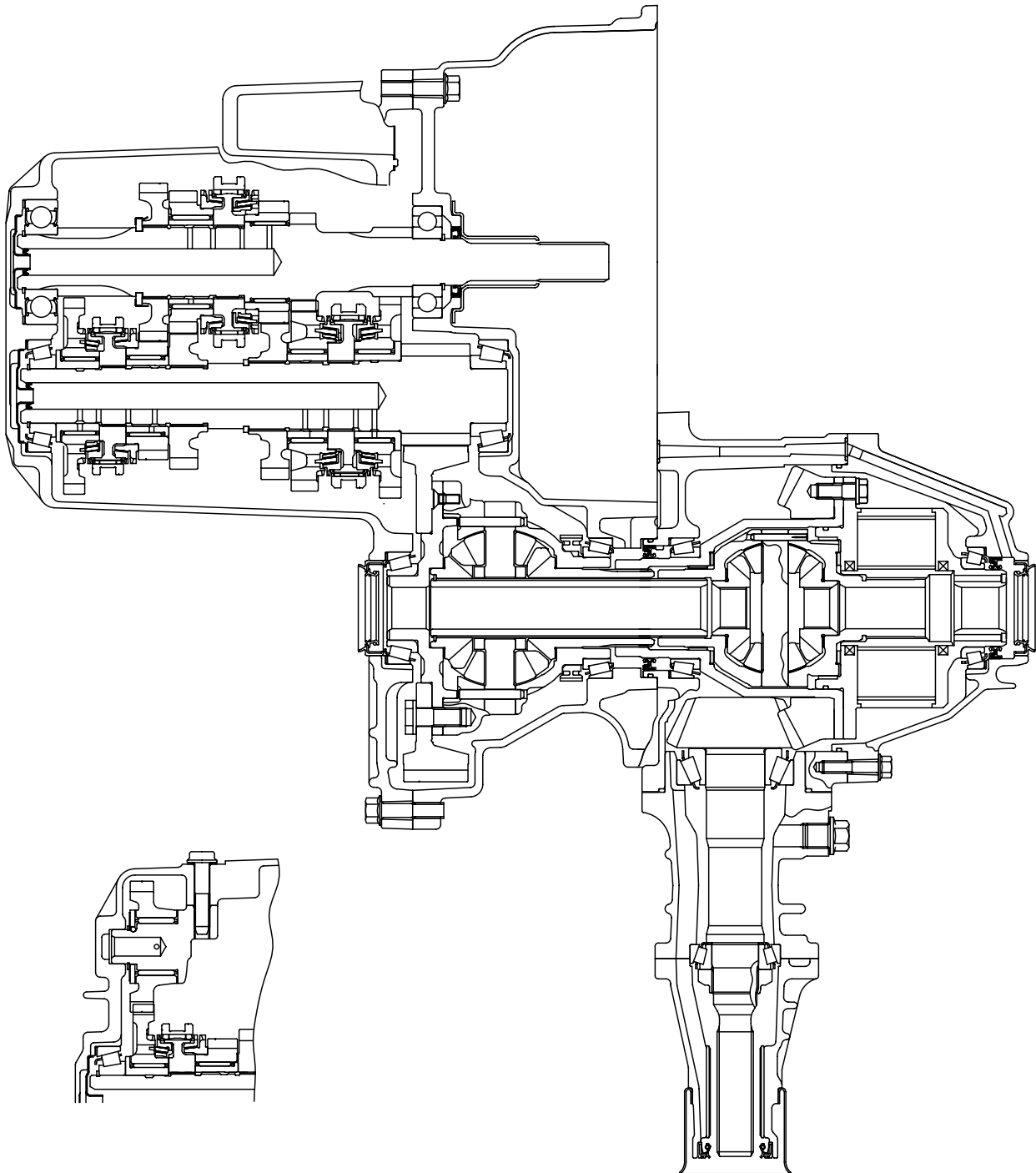
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# GENERAL INFORMATION

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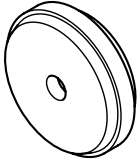
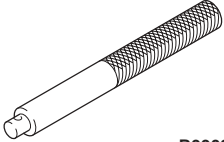
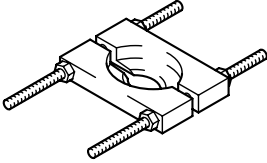
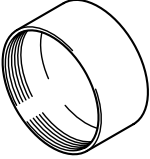
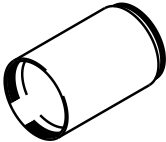
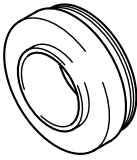
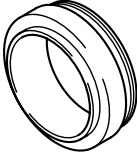
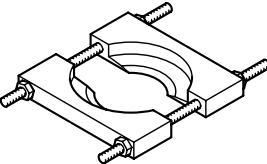
## SECTIONAL VIEW

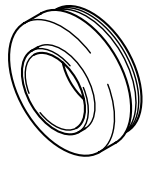
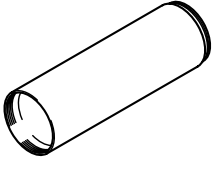
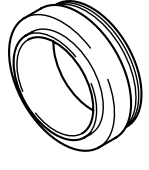
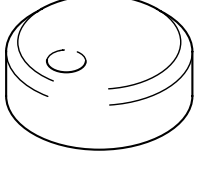
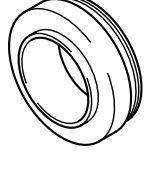
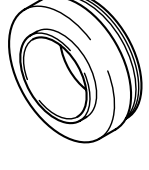
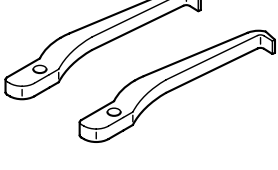
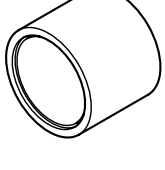


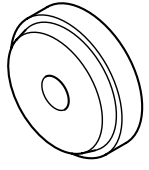
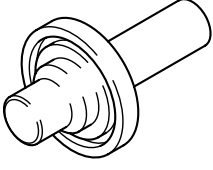
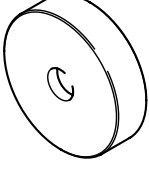
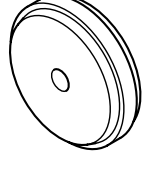
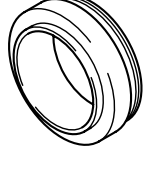
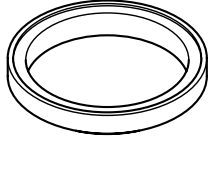
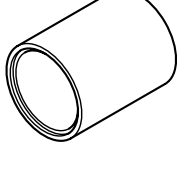
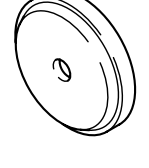
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**SPECIAL TOOLS**

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TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB990935 Installer adapter	MB990935-01 or General service tool	Installation of output shaft taper roller bearing outer race and center differential rear taper roller bearing outer race
 B990938	MB990938 Handle	MB990938-01	Use with Installer adapter
	MD998801 Bearing remover	MD998348-01 or General service tool	Installation and removal of gears, bearings and sleeves
	MD998812 Installer cap	General service tool	Use with Installer and Installer adapter
	MD998813 Installer-100	General service tool	Use with Installer cap and Installer adapter
	MD998818 Installer adapter (38)	MD998818	Installation of input shaft bearing
	MD998825 Installer adapter (52)	General service tool	Installation of 1st speed gear sleeve, 3rd-4th speed synchronizer hub, 4th speed gear sleeve, 5th speed gear and thrust plate stopper
	MD998917 Bearing remover	General service tool	Installation and removal of gears, bearing and sleeves

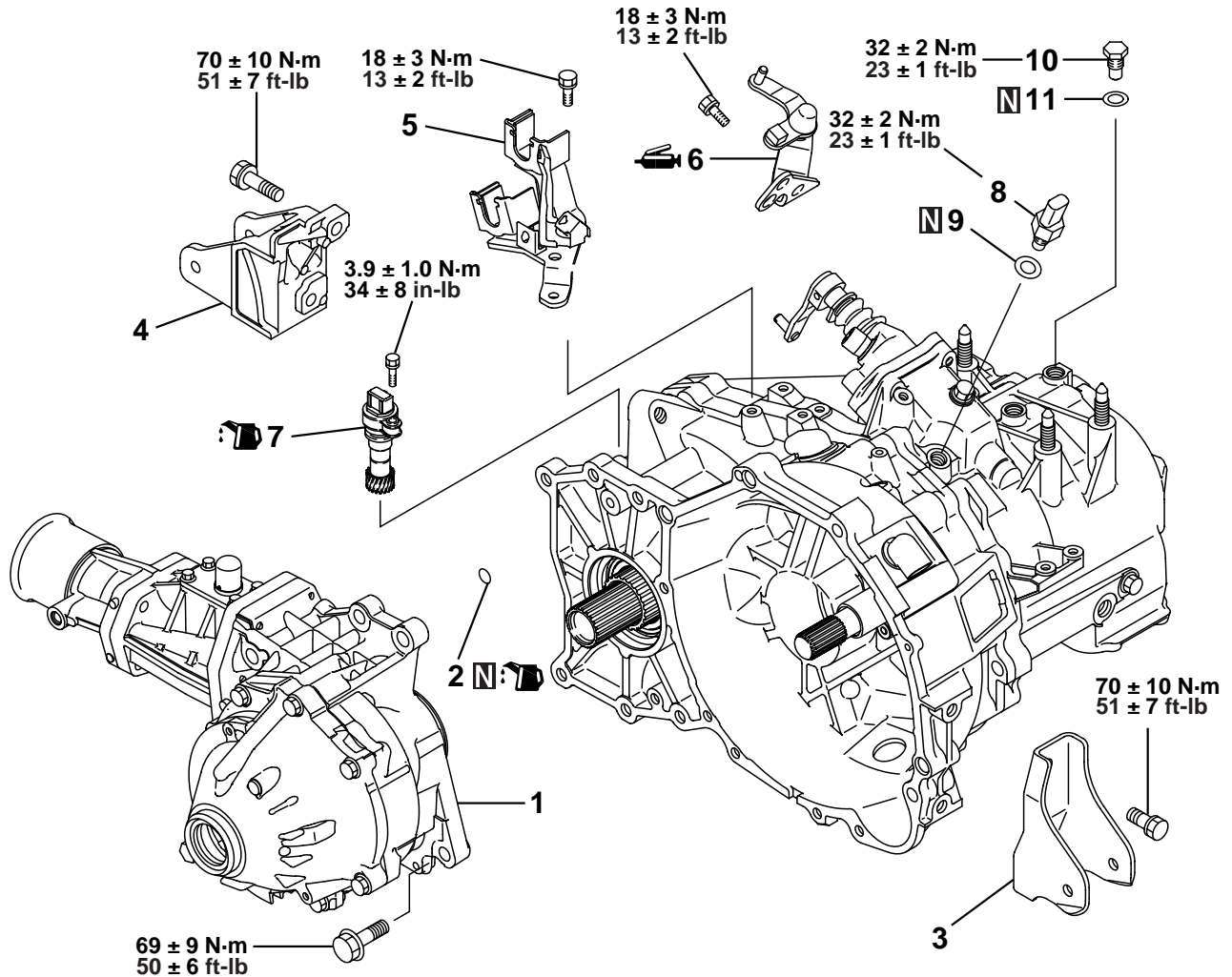
TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MD998819 Installer adapter (40)	General service tool	Installation of output shaft taper roller bearing
	MD998814 Installer-200	MIT304180	Use with Installer cap and Installer adapter
	MD998824 Installer adapter (50)	General service tool	Installation of 1st-2nd speed synchronizer hub, 2nd speed gear sleeve and 3rd speed gear
	MD998364 Camshaft oil seal installer	MD998364-01	Installation of gear, bearing and sleeve
	MD998821 Installer adapter (44)	MD998821	Installation of 4th speed gear, 5th speed gear sleeve and 5th-reverse speed synchronizer hub
	MD998820 Installer adapter (42)	MIT215013	Installation of reverse gear bearing sleeve
	MD999566 Claw	General service tool	Removal of taper roller bearing outer race
	MB991445 Bushing remover and installer base	MB991445	Installation of differential front taper roller bearing outer race

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
	MB990928 Installer adapter	MB990928-01	Installation of input shaft oil seal
	MD998800 Oil seal installer	General service tool	Installation of differential oil seal and transfer oil seal
	MB990930 Installer adapter	MB990930-01	Installation of center differential front taper roller bearing
	MB990937 Installer adapter	MB990937 or General service tool	Installation of center differential front taper roller bearing and transfer oil seal
	MD998824 Installer adapter (50)	General service tool	Installation of center differential rear taper roller bearing
	MB990887 Ring	-	Installation of transfer oil seal
	MB990891 Bushing remover installer base	-	Installation of transfer oil seal
	MB990936 Installer adapter	MB990936-01 or General service tool	Installation of transfer oil seal

# TRANSAXLE

## DISASSEMBLY AND ASSEMBLY

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### DISASSEMBLY STEPS

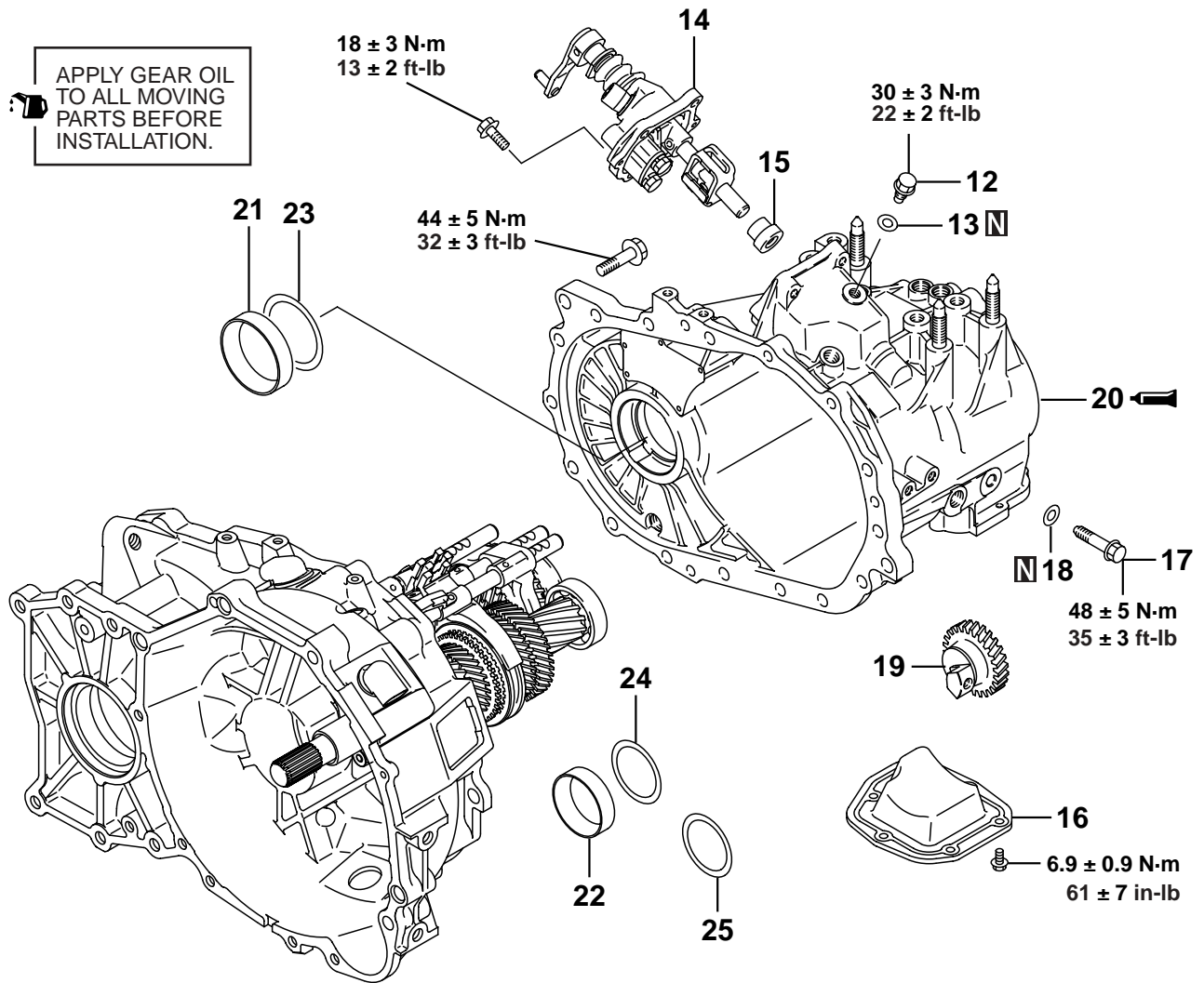
- >>J<<
1. TRANSFER ASSEMBLY
  2. O-RING
  3. ROLL STOPPER BRACKET, FRONT
  4. ROLL STOPPER BRACKET, REAR
  5. SHIFT CABLE BRACKET

### DISASSEMBLY STEPS

- >>I<<      6. SELECT LEVER  
>>H<<      7. SPEEDOMETER GEAR  
                 8. BACKUP LIGHT SWITCH  
                 9. GASKET  
                 10. POPPET  
                 11. GASKET

### Required Special Tools:

- MB990935: Installer Adapter
- MB990938: Handle



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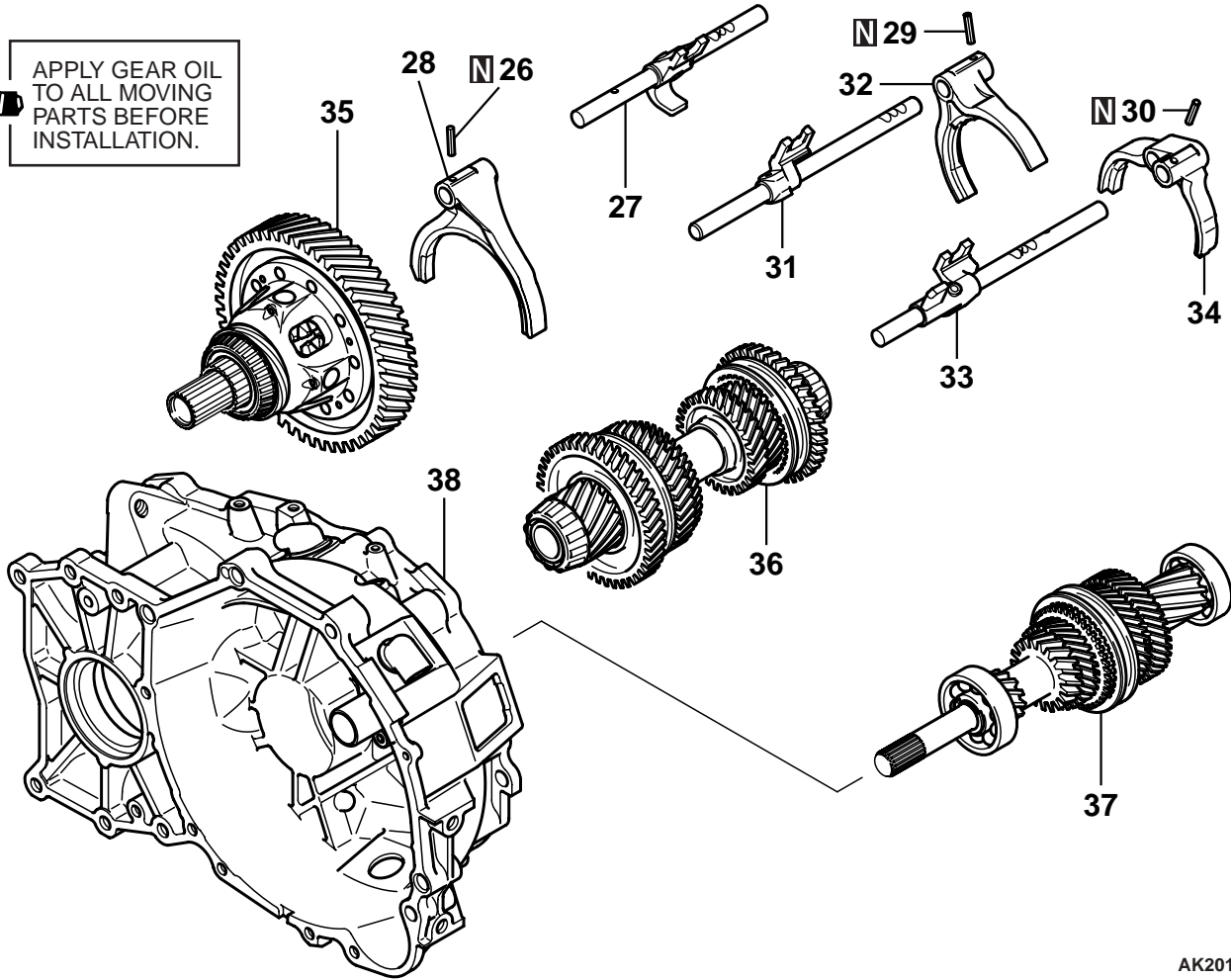
**DISASSEMBLY STEPS**

- 12. INTERLOCK PLATE BOLT
- 13. GASKET
- >>G<< 14. CONTROL HOUSING
- 15. NEUTRAL RETURN SPRING
- >>F<< 16. UNDER COVER
- 17. REVERSE IDLER GEAR SHAFT BOLT
- 18. GASKET

**DISASSEMBLY STEPS**

- >>E<< 19. REVERSE IDLER GEAR
- >>D<< 20. TRANSAXLE CASE
- >>D<< 21. OUTER RACE
- >>D<< 22. OUTER RACE
- >>D<< 23. SPACER
- >>D<< 24. SPACER
- >>D<< 25. SPACER

APPLY GEAR OIL TO ALL MOVING PARTS BEFORE INSTALLATION.



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**DISASSEMBLY STEPS**

- >>C<< 26. SPRING PIN
- 27. 1ST-2ND SPEED SHIFT RAIL
- 28. 1ST-2ND SPEED SHIFT FORK
- >>C<< 29. SPRING PIN
- <<A>> >>C<< 30. SPRING PIN
- <<B>> >>B<< 31. 3RD-4TH SPEED SHIFT RAIL
- <<B>> >>B<< 32. 3RD-4TH SPEED SHIFT FORK

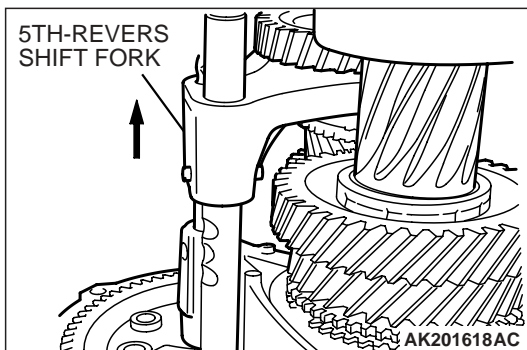
**DISASSEMBLY STEPS**

- <<B>> >>B<< 33. 5TH-REVERSE SPEED SHIFT RAIL
- <<B>> >>B<< 34. 5TH-REVERSE SPEED SHIFT FORK
- <<C>> >>A<< 35. CENTER DIFFERENTIAL
- <<C>> >>A<< 36. OUTPUT SHAFT
- <<C>> >>A<< 37. INPUT SHAFT
- 38. CLUTCH HOUSING

**DISASSEMBLY SERVICE POINTS**

**<<A>> SPRING PIN REMOVAL**

1. Shift the 5th-reverse shift fork in the direction shown in the illustration.
2. Using a pin punch, remove the spring pin from the shift fork and rail.

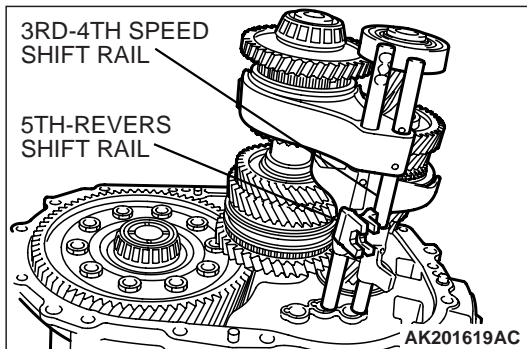


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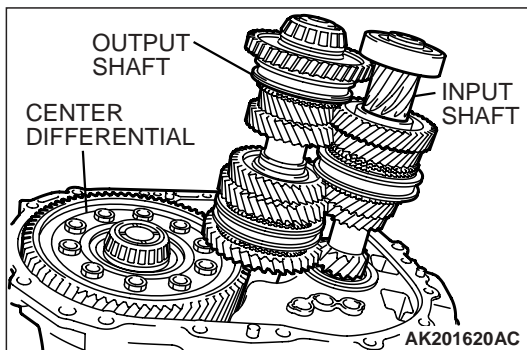
**<<B>> 3RD-4TH SPEED SHIFT RAIL/3RD-4TH SPEED SHIFT FORK/5TH-REVERSE SPEED SHIFT RAIL/5TH-REVERSE SPEED SHIFT FORK REMOVAL**

1. Pull out the shift rails from the shift rail holes in the clutch housing.
2. Remove the shift rails together with the shift forks.



**<<C>> CENTER DIFFERENTIAL/OUTPUT SHAFT/INPUT SHAFT REMOVAL**

Remove the input and output shafts together.

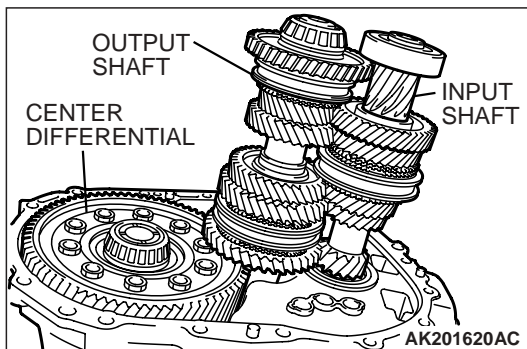


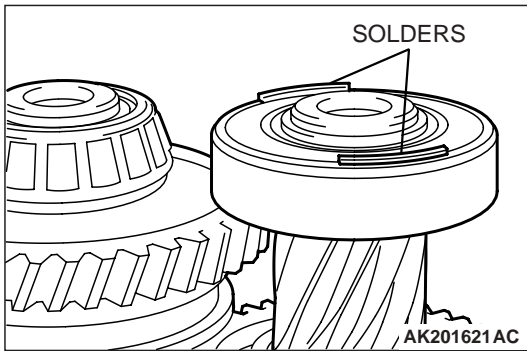
**ADJUSTMENT BEFORE ASSEMBLY**

**SPACER SELECTION FOR ADJUSTING INPUT SHAFT END PLAY/OUTPUT SHAFT PRELOAD/CENTER DIFFERENTIAL PRELOAD**

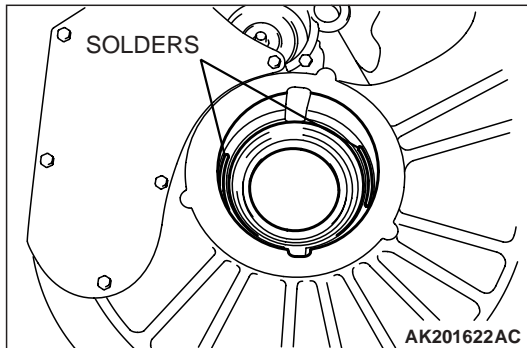
1. Install the input shaft, output shaft and center differential as a set to the clutch housing.

*NOTE: If necessary, replace the input shaft, output shaft, center differential case and/or bearings before carrying out these adjustments.*



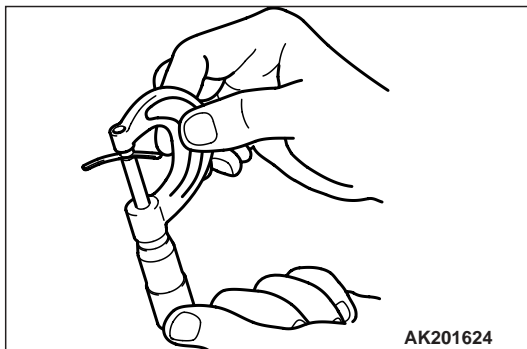
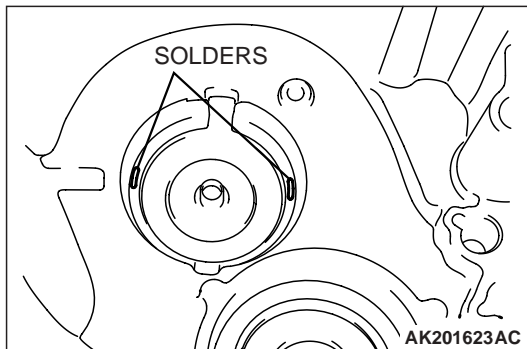


- Put solders [1.6 mm (0.063 inch) diameter, about 10 mm (0.39 inch) long] on the input shaft rear bearing at the positions shown in the illustration.



- Put solders [1.6 mm (0.063 inch) diameter, about 10 mm (0.39 inch) long] on the transaxle case at the positions shown in the illustration.
- Install the bearing outer races of the center differential and output shaft.
- Install the transaxle case and tighten the bolts to the specified torque.

**Tightening torque: 44 ± 5 N·m (32 ± 3 ft·lb)**



- Remove the transaxle case.
- Remove the outer races and take out the crushed solders.
- Measure the thickness of the crushed solder with a micrometer and select spacers that will provide the standard end play/preload value.

**Standard value:**

**Input shaft end play: 0.05 – 0.17 mm (0.0020 – 0.0067 inch)**

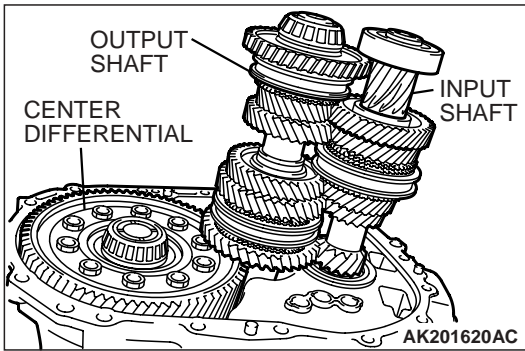
**Output shaft preload: 0.13 – 0.18 mm (0.0051 – 0.0071 inch)**

**Center differential case preload: 0.05 – 0.11 mm (0.0020 – 0.0043 inch)**

**ASSEMBLY SERVICE POINTS**

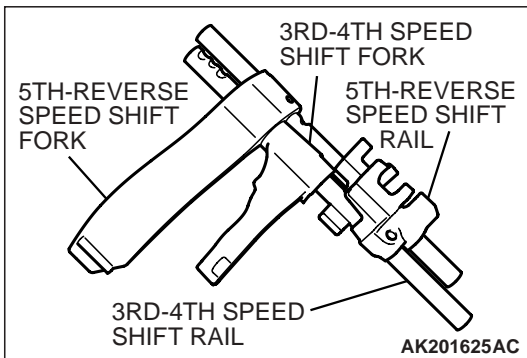
**>>A<< INPUT SHAFT/OUTPUT SHAFT/CENTER DIFFERENTIAL INSTALLATION**

Install the input shaft, output shaft and center differential as a set.

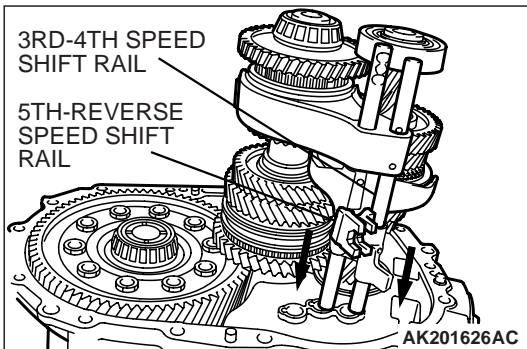


**>>B<< 5TH-REVERSE SPEED SHIFT FORK/5TH-REVERSE SPEED SHIFT RAIL/3RD-4TH SPEED SHIFT FORK/3RD-4TH SPEED SHIFT RAIL INSTALLATION**

1. Assemble the 3rd-4th speed shift rail and fork, and 5th-reverse speed shift rail and fork.

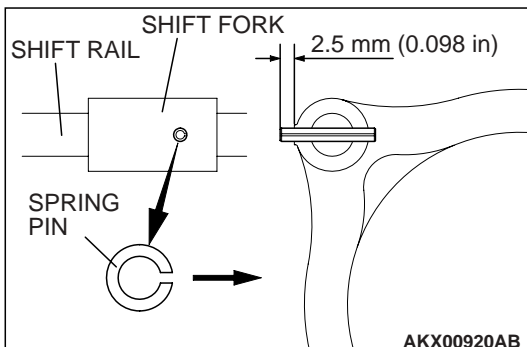


2. Fit each shift fork in the groove of synchronizer sleeve and install the shift fork and rail assembly.
3. Insert the 3rd-4th speed shift rail and 5th speed-reverse shift rail into the rail hole in the clutch housing.



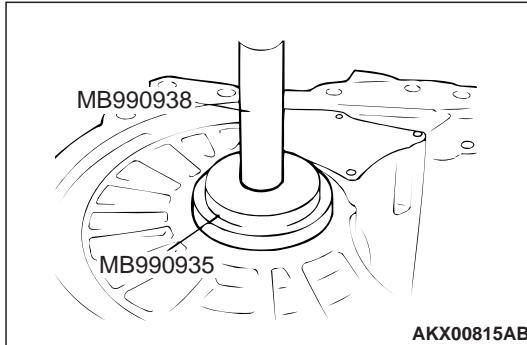
**>>C<< SPRING PIN INSTALLATION**

1. Align the pin holes in the shift rail and shift fork.
2. Insert the new spring pin. Push it in so that the slit and center axis of the rail are aligned.



## &gt;&gt;D&lt;&lt; SPACER AND OUTER RACE INSTALLATION

1. Install the spacer selected in the section "ADJUSTMENT BEFORE ASSEMBLY."
2. Using special tools MB990935 and MB990938, press install the outer race into the transaxle case.



## &gt;&gt;E&lt;&lt; TRANSAXLE CASE INSTALLATION

**⚠ CAUTION**

**Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.**

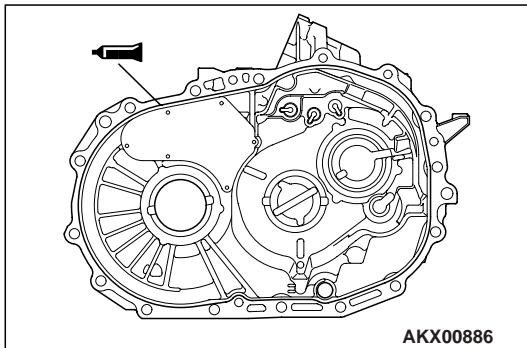
1. Apply a 2 mm (0.08 inch) diameter bead of sealant (Mitsubishi Genuine Part number MD997740 or equivalent) to the illustrated position of the transaxle case.

*NOTE: Be sure to install the transaxle case while the sealant is wet (within 15 minutes).*

2. Install the transaxle case.
3. Tighten the transaxle case mounting bolts to the specified torque.

**Tightening torque: 44 ± 5 N·m (32 ± 3 ft-lb)**

*NOTE: After installation, keep the sealed area away from the oil for approximately one hour.*



## &gt;&gt;F&lt;&lt; UNDER COVER INSTALLATION

**⚠ CAUTION**

**Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.**

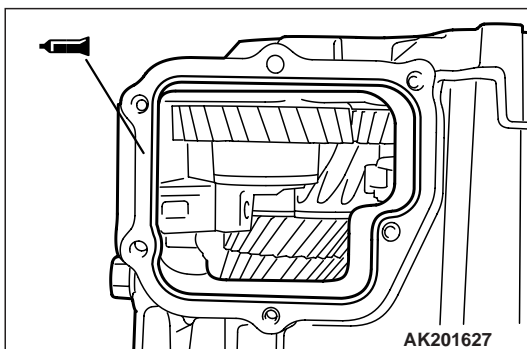
1. Apply a 2 mm (0.08 inch) diameter bead of sealant (Mitsubishi Genuine Part number MD997740 or equivalent) to the illustrated position of the transaxle case.

*NOTE: Be sure to install the case quickly while the sealant is wet (within 15 minutes).*

2. Install the under cover to the transaxle case and tighten the bolts to specified torque.

**Tightening torque: 6.9 ± 0.9 N·m (61 ± 7 in-lb)**

*NOTE: After installation, keep the sealed area away from the oil for approximately one hour.*



>>G<< CONTROL HOUSING INSTALLATION

**⚠ CAUTION**

Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.

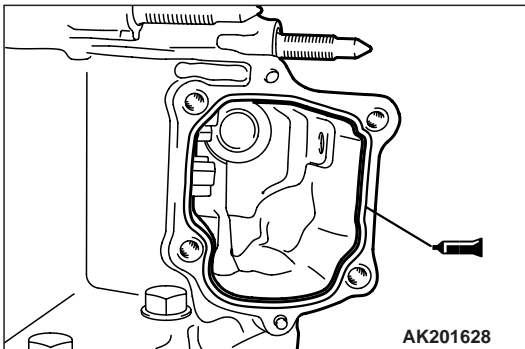
1. Apply a 0.2 mm (0.08 inch) diameter bead of sealant (Mitsubishi Genuine Part number MD997740 or equivalent) to the illustrated position of the transaxle case.

*NOTE: Be sure to install the case quickly while the sealant is wet (within 15 minutes).*

2. Install the control housing to the transaxle case and tighten the bolts to specified torque.

**Tightening torque: 18 ± 3 N·m (13 ± 2 ft-lb)**

*NOTE: After installation, keep the sealed area away from the oil for approximately one hour.*

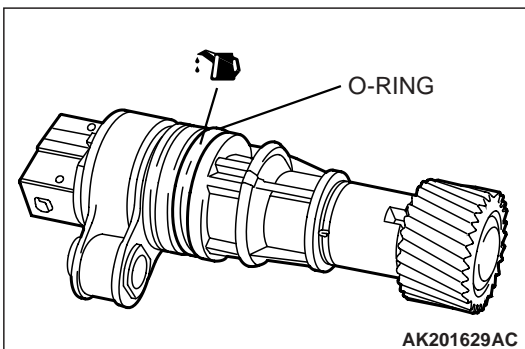


>>H<< SPEEDOMETER GEAR INSTALLATION

1. Apply gear oil (Hypoid gear oil SAE 75W-90 or 75W-85W conforming to API classification GL-4) to the O-ring of the speedometer gear.

2. Tighten the bolt to specified torque.

**Tightening torque: 3.9 ± 1.0 N·m (34 ± 8 in-lb)**

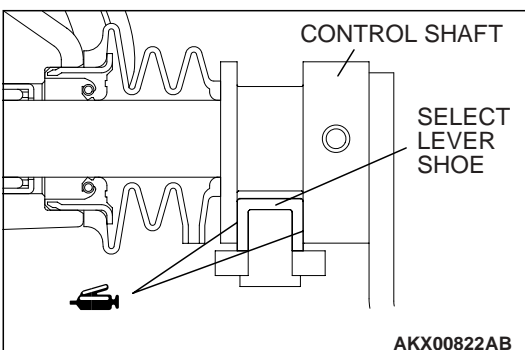


>>I<< SELECT LEVER INSTALLATION

1. Apply grease (Mitsubishi Genuine Part number 0101011 or equivalent) to the control shaft sliding portion of the select lever shoe.

2. Install the select lever and tighten the bolts to specified torque.

**Tightening torque: 18 ± 3 N·m (13 ± 2 ft-lb)**



>>J<< O-RING INSTALLATION

Apply gear oil (Hypoid gear oil SAE 75W-90 or 75W-85W conforming to API classification GL-4) to the O-ring.

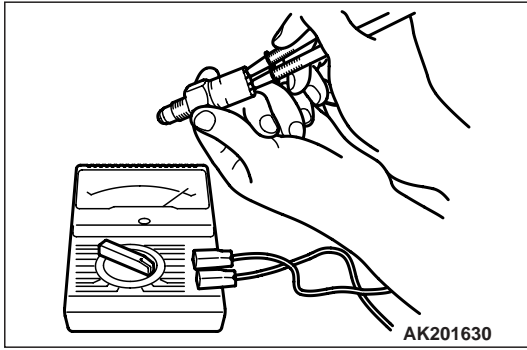
**INSPECTION**

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**BACKUP LIGHT SWITCH**

Check for continuity between terminals.

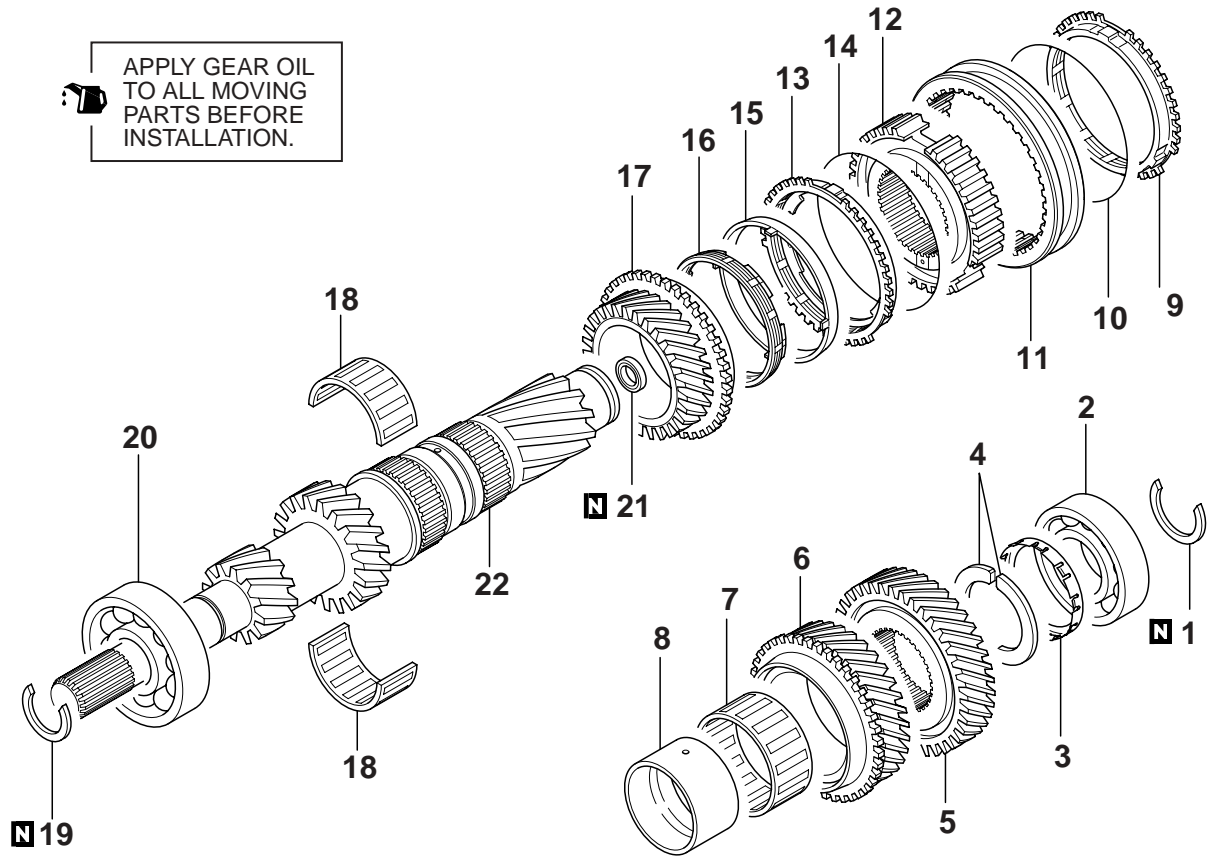
SWITCH CONDITION	CONTINUITY
Pressed	Open
Released	Conductive



**INPUT SHAFT**

**DISASSEMBLY AND ASSEMBLY**

M1222001600087



AKX00877AB

- DISASSEMBLY STEPS**
- <<A>> >>L<< 1. SNAP RING
  - <<B>> >>K<< 2. BALL BEARING
  - <<B>> >>J<< 3. THRUST PLATE STOPPER

- DISASSEMBLY STEPS**
- <<C>> >>I<< 4. THRUST PLATE
  - <<C>> >>H<< 5. 5TH SPEED GEAR
  - <<C>> >>G<< 6. 4TH SPEED GEAR

**DISASSEMBLY STEPS**

- <<D>> >>G<< 7. NEEDLE ROLLER BEARING
- >>D<< 8. 4TH SPEED GEAR SLEEVE
- >>F<< 9. SYNCHRONIZER RING
- >>E<< 10. SYNCHRONIZER SPRING
- >>D<< 11. SYNCHRONIZER SLEEVE
- >>E<< 12. 3RD-4TH SPEED  
SYNCHRONIZER HUB
- >>D<< 13. OUTER SYNCHRONIZER RING
- >>D<< 14. SYNCHRONIZER SPRING
- >>D<< 15. SYNCHRONIZER CONE
- >>D<< 16. INNER SYNCHRONIZER RING
- >>D<< 17. 3RD SPEED GEAR
- >>D<< 18. NEEDLE ROLLER BEARING
- >>C<< 19. SNAP RING
- <<E>> >>B<< 20. BALL BEAR
- >>A<< 21. OIL SEAL
- >>A<< 22. INPUT SHAFT

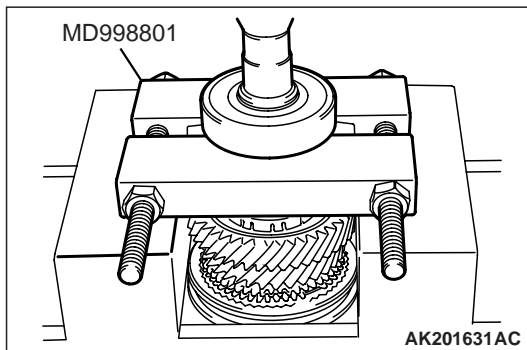
**Required Special Tools:**

- MD998801: Bearing Remover
- MD998812: Installer Cap
- MD998813: Installer-100
- MD998818: Installer Adapter (38)
- MD998825: Installer Adapter (52)

**DISASSEMBLY SERVICE POINTS**

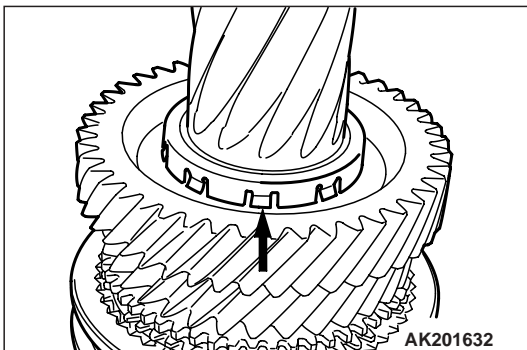
**<<A>> BALL BEARING REMOVAL**

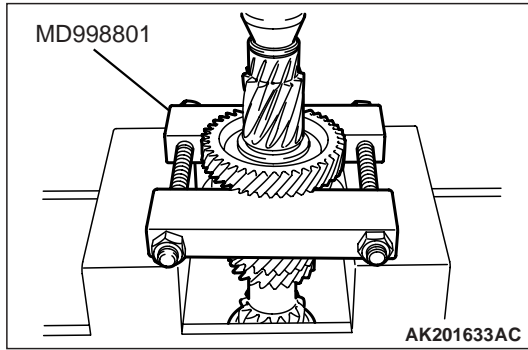
1. Using special tool MD998801, support the ball bearing, and then set them on the press.
2. Push down on the input shaft with the press and extract the ball bearing.



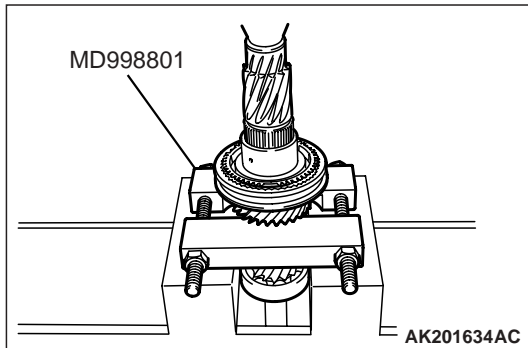
**<<B>> THRUST PLATE STOPPER REMOVAL**

Using a screwdriver, pry up the position shown in the illustration and remove the thrust plate stopper.

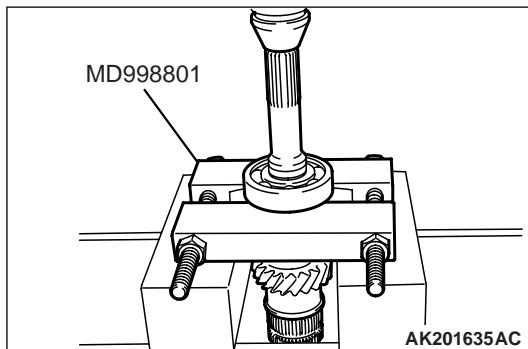


**<<C>>5TH SPEED GEAR REMOVAL**

1. Using special tool MD998801, support the 5th speed gear, and then set them on the press.
2. Push down on the input shaft with the press and take off the 5th speed gear.

**<<D>>4TH SPEED GEAR SLEEVE REMOVAL**

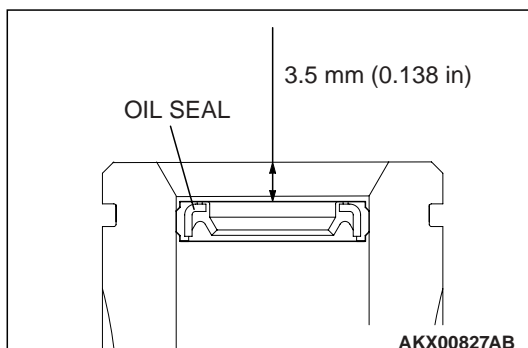
1. Using special tool MD998801, support the 3rd speed gear, and then set them on the press.
2. Push down on the input shaft with the press and remove the 4th speed gear sleeve.

**<<E>> BALL BEARING REMOVAL**

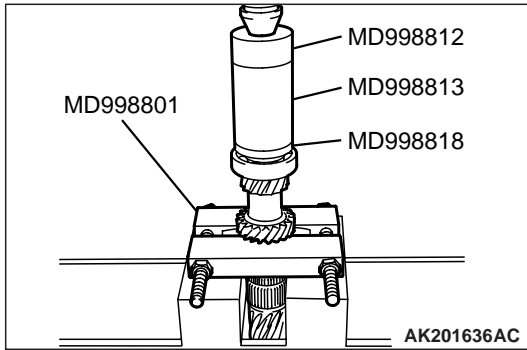
1. Using special tool MD998801, support the ball bearing, and then set them on the press.
2. Push down on the input shaft with the press and extract the ball bearing.

**ASSEMBLY SERVICE POINTS****>>A<< OIL SEAL INSTALLATION**

Install the oil seal into the illustrated position of the input shaft.

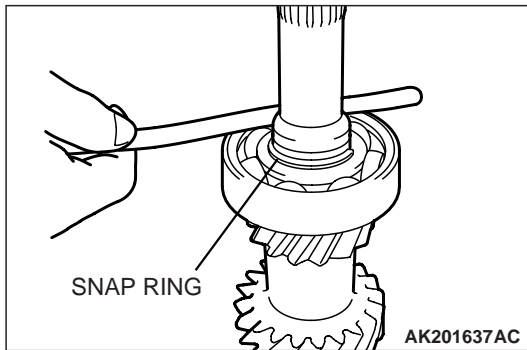






**>>B<< BALL BEARING INSTALLATION**

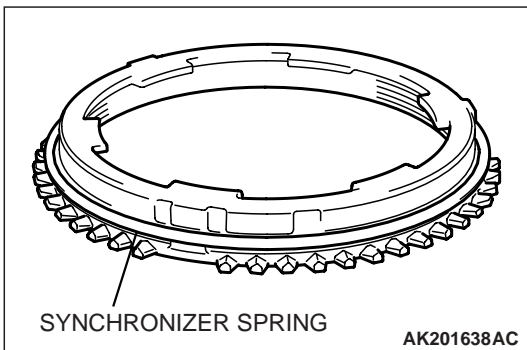
1. Using special tool MD998801, support the 2nd speed gear portion of the input shaft, and then set them on the press.
2. Using special tools MD998812, MD998813 and MD998818, press install the bearing with the press.



**>>C<< SNAP RING INSTALLATION**

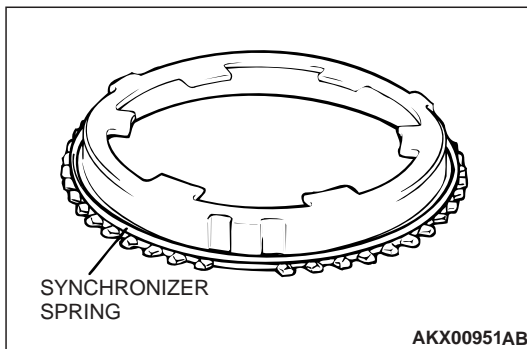
1. Install the thickest snap ring that can be fitted in the snap ring groove of input shaft.
2. Make sure that the ball bearing end play meets the standard value.

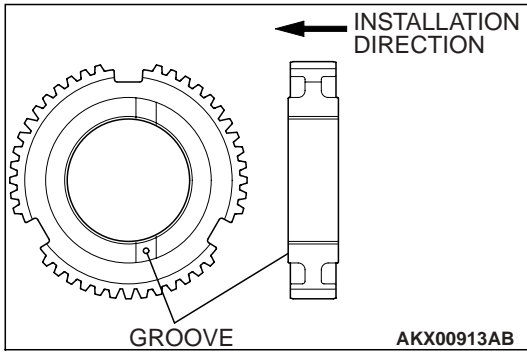
**Standard value: 0 – 0.12 mm (0 – 0.0047 inch)**



**>>D<< SYNCHRONIZER SPRING INSTALLATION**

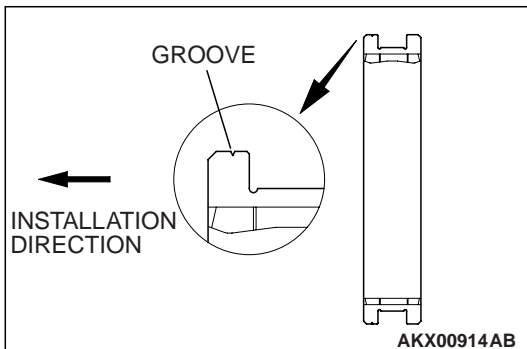
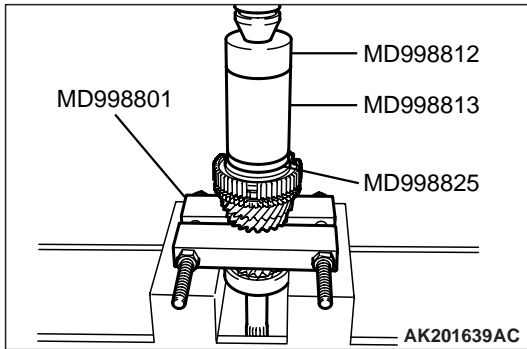
Install the synchronizer spring to the illustrated position of the synchronizer ring and outer synchronizer ring.





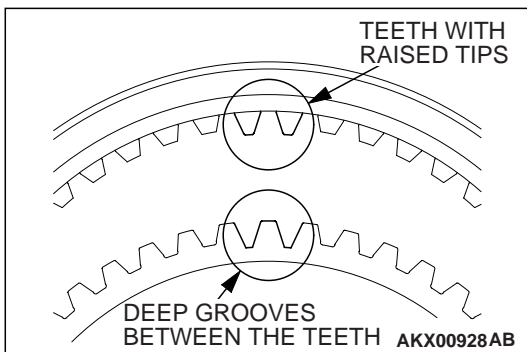
**>>E<< 3RD-4TH SPEED SYNCHRONIZER HUB INSTALLATION**

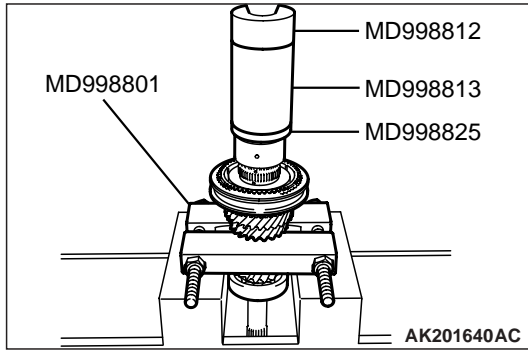
1. Using special tool MD998801, support the 2nd speed gear portion of the input shaft, and then set them on the press.
2. Make sure that the inner synchronizer ring has been perfectly matched to the 3rd speed gear cone.
3. Check the installation direction of the 3rd-4th speed synchronizer hub, and put it on the input shaft.
4. Using special tools MD998812, MD998813 and MD998825, press install the 3rd-4th speed synchronizer hub with the press.
5. Make sure that the outer synchronizer ring can rotate freely.



**>>F<< SYNCHRONIZER SLEEVE INSTALLATION**

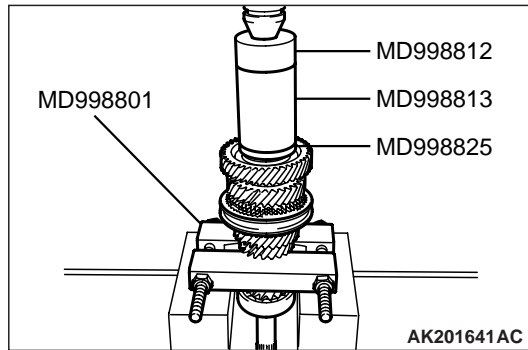
1. Check the installation direction of the synchronizer sleeve, and install it onto the 3rd-4th speed synchronizer hub.
2. Install the synchronizer sleeve so that the areas with teeth that have raised tips (three areas total) are aligned with the areas on the synchronizer hub that have deep grooves between the teeth (three areas total).





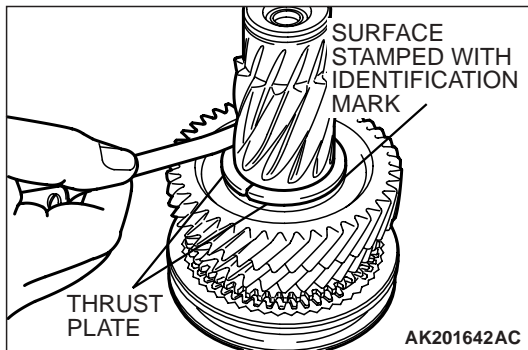
**>>G<< 4TH SPEED GEAR SLEEVE INSTALLATION**

1. Using special tool MD998801, support the 2nd speed gear portion of the input shaft, and then set them on the press.
2. Using special tools MD998812, MD998813 and MD998825, press install the 4th speed gear sleeve with the press.



**>>H<< 5TH SPEED GEAR INSTALLATION**

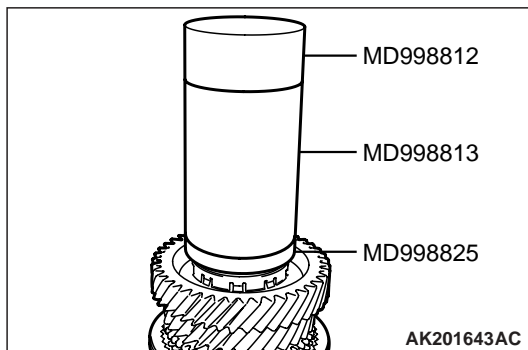
1. Using special tool MD998801, support the 2nd speed gear portion of the input shaft, and then set them on the press.
2. Using special tools MD998812, MD998813 and MD998825, press install the 5th speed gear in the input shaft.



**>>I<< THRUST PLATE INSTALLATION**

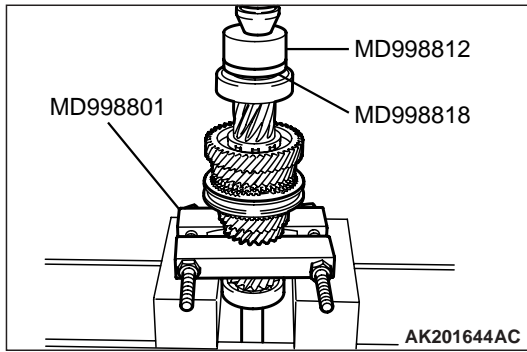
1. Install the thickest thrust plates that can be fitted in the groove of input shaft. Install the thrust plate so the surface stamped with the identification mark is facing up.
2. Make sure that the 5th speed gear end play meets the standard value.

**Standard value: 0 – 0.09 mm (0 – 0.0035 inch)**

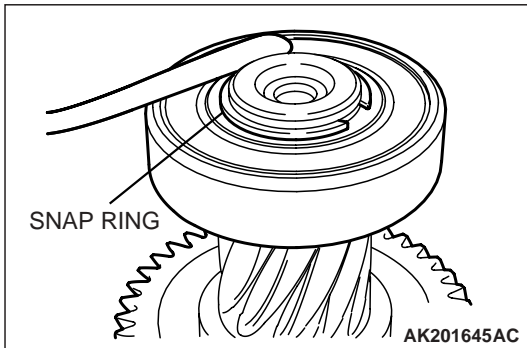


**>>J<< THRUST PLATE STOPPER INSTALLATION**

Install the thrust plate stopper by pressing special tools MD998812, MD998813 and MD998825 by hand. Make sure that it is not tilted.

**>>K<< BALL BEARING INSTALLATION**

1. Using special tool MD998801, support the 2nd speed gear portion of the input shaft, and then set them on the press.
2. Using special tools MD998812 and MD998818, press install the ball bearing in the input shaft.

**>>L<< SNAP RING INSTALLATION**

1. Install the thickest snap ring that can be fitted in the groove of input shaft.
2. Make sure that the ball bearing end play meet the standard value.

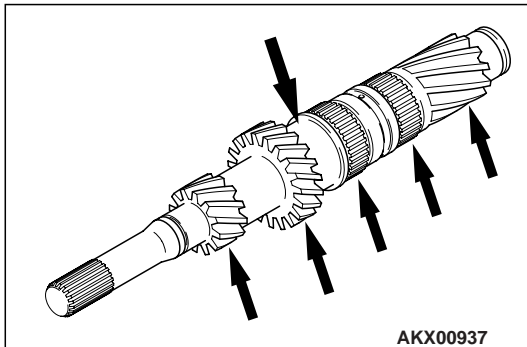
**Standard value: 0 – 0.12 mm (0 – 0.0047 inch)**

## INSPECTION

M1222001700062

### INPUT SHAFT

1. Check the outside diameter of the needle bearing mounting portion for damage, abnormal wear and seizure.
2. Check the splines for damage and wear.
3. Check that the helical gear teeth surfaces are not damaged or worn.

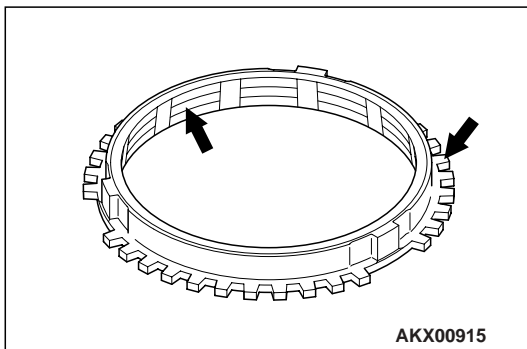


### NEEDLE ROLLER BEARING

1. Combine the needle roller bearing with the input shaft or bearing sleeve and gear, and check that it rotates smoothly without noise or play.
2. Check the needle roller bearing cage for deformation.

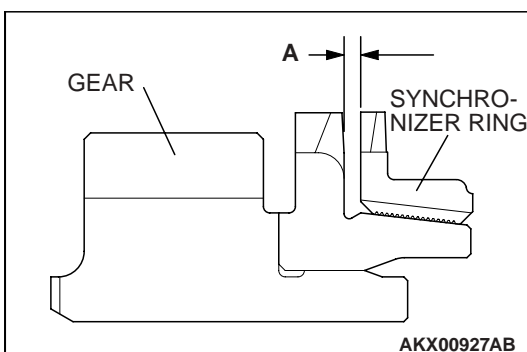
### SYNCHRONIZER RING

1. Check the clutch gear teeth for damage and broken.
2. Check internal surface for damage, wear and broken threads.



3. Force the synchronizer ring toward the clutch gear and check clearance "A". If "A" is less than the limit, replace.

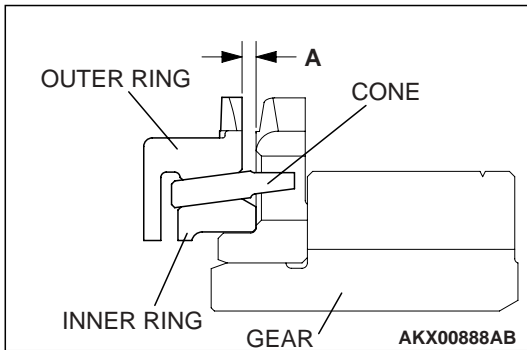
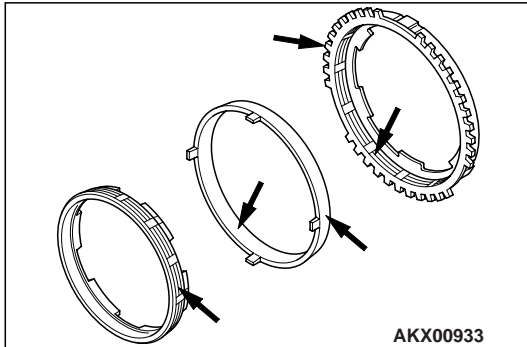
**Minimum limit: 0.5 mm (0.020 inch)**



**OUTER SYNCHRONIZER RING/INNER SYNCHRONIZER RING/SYNCHRONIZER CONE****⚠ CAUTION**

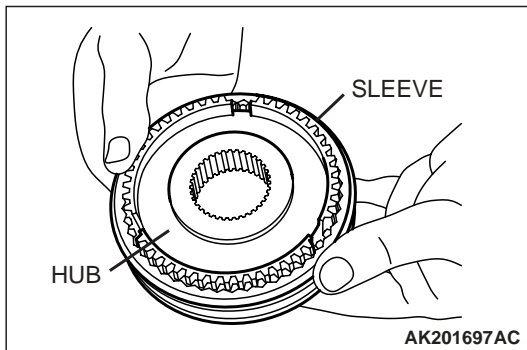
When any of the outer ring, inner ring or cone has to be replaced, replace them as a set.

1. Check to ensure that the clutch gear tooth surface and cone surface are not damaged and broken.



2. Install the outer ring, inner ring and cone, press them against the gear, and check clearance "A." If "A" is less than the limit, replace.

**Minimum limit: 0.5 mm (0.020 inch)**

**SYNCHRONIZER SLEEVE AND HUB**

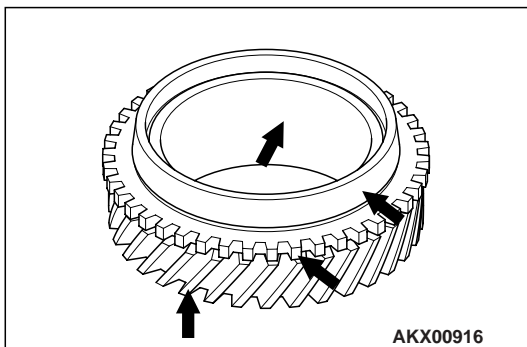
1. Combine the synchronizer sleeve and hub, and check that they slide smoothly.
2. Check that the sleeve is free from damage at its inside splines ends.

**SYNCHRONIZER SPRING**

Check that the spring is not sagging, deformed or broken.

**SPEED GEARS**

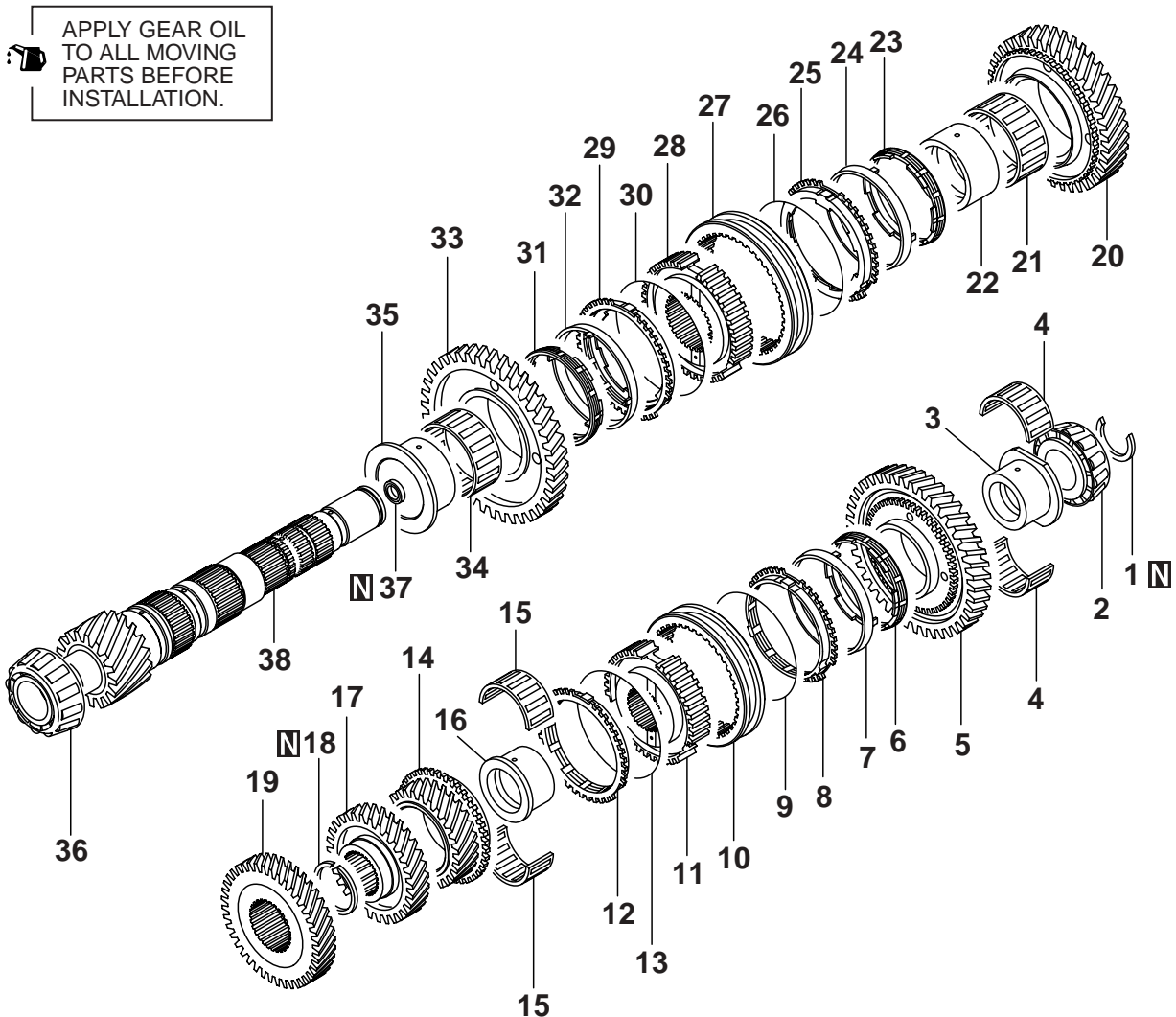
1. Check that the helical and clutch gear tooth surfaces are not damaged or worn.
2. Check that the synchronizer cone surfaces are not roughened, damaged or worn.
3. Check that the gear inside diameter and front and rear surfaces are not damaged and worn.



# OUTPUT SHAFT

## DISASSEMBLY AND ASSEMBLY

M1222002200082



AK203133AC

### DISASSEMBLY STEPS

- >>P<< 1. SNAP RING
- <<A>> >>O<< 2. TAPER ROLLER BEARING
- <<B>> >>N<< 3. REVERSE GEAR BEARING SLEEVE
- 4. NEEDLE ROLLER BEARING
- 5. REVERSE GEAR
- 6. INNER SYNCHRONIZER RING
- 7. SYNCHRONIZER CONE
- 8. OUTER SYNCHRONIZER RING
- >>L<< 9. SYNCHRONIZER SPRING
- >>F<< 10. SYNCHRONIZER SLEEVE
- <<C>> >>M<< 11. 5TH SPEED-REVERSE SYNCHRONIZER HUB
- 12. SYNCHRONIZER RING
- >>L<< 13. SYNCHRONIZER SPRING
- 14. 5TH SPEED GEAR
- 15. NEEDLE ROLLER BEARING
- >>K<< 16. 5TH SPEED GEAR SLEEVE

### DISASSEMBLY STEPS

- >>J<< 17. 4TH SPEED GEAR
- >>I<< 18. SNAP RING
- <<D>> >>H<< 19. 3RD SPEED GEAR
- 20. 2ND SPEED GEAR
- 21. NEEDLE ROLLER BEARING
- <<E>> >>G<< 22. 2ND SPEED GEAR SLEEVE
- 23. INNER SYNCHRONIZER RING
- 24. SYNCHRONIZER CONE
- 25. OUTER SYNCHRONIZER RING
- >>D<< 26. SYNCHRONIZER SPRING
- >>F<< 27. SYNCHRONIZER SLEEVE
- >>E<< 28. 1ST-2ND SPEED SYNCHRONIZER HUB
- >>D<< 29. OUTER SYNCHRONIZER RING
- 30. SYNCHRONIZER SPRING
- 31. INNER SYNCHRONIZER RING
- 32. SYNCHRONIZER CONE
- 33. 1ST SPEED GEAR
- 34. NEEDLE ROLLER BEARING

**DISASSEMBLY STEPS**

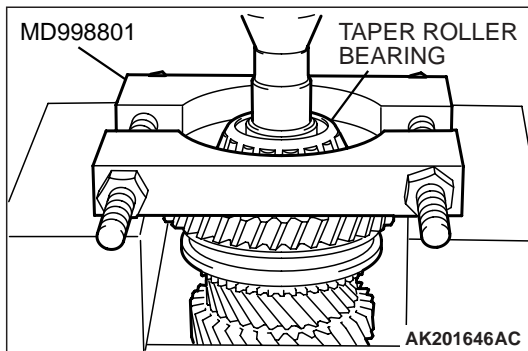
- <<F>> >>C<< 35. 1ST SPEED GEAR SLEEVE  
 <<G>> >>B<< 36. TAPER ROLLER BEARING  
 >>A<< 37. OIL SEAL  
 38. OUTPUT SHAFT

**Required Special Tools:**

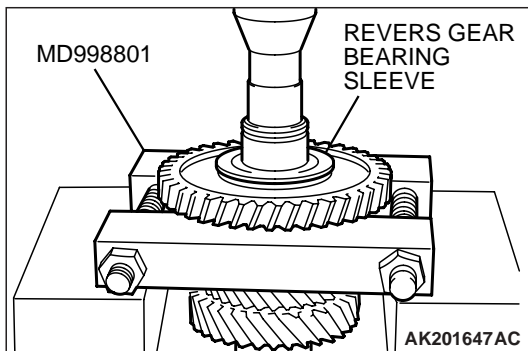
- MD998364: Camshaft Oil Seal Installer
- MD998801: Bearing Remover
- MD998812: Installer Cap
- MD998814: Installer – 200
- MD998819: Installer Adapter (40)
- MD998820: Installer Adapter (42)
- MD998821: Installer Adapter (44)
- MD998824: Installer Adapter (50)
- MD998917: Bearing Remover

**DISASSEMBLY SERVICE POINTS****<<A>> TAPER ROLLER BEARING REMOVAL**

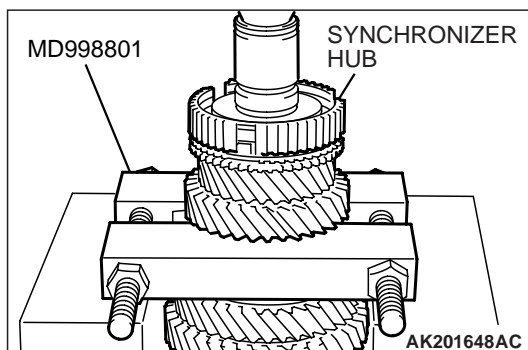
1. Using special tool MD998801, support the taper roller bearing, and then set them on the press.
2. Push down on the output shaft with the press, and take out the taper roller bearing.

**<<B>> REVERSE GEAR BEARING SLEEVE REMOVAL**

1. Using special tool MD998801, support the reverse gear, and then set them on the press.
2. Push down on the output shaft with the press and remove the reverse gear bearing sleeve.

**<<C>> 5TH SPEED-REVERSE SYNCHRONIZER HUB REMOVAL**

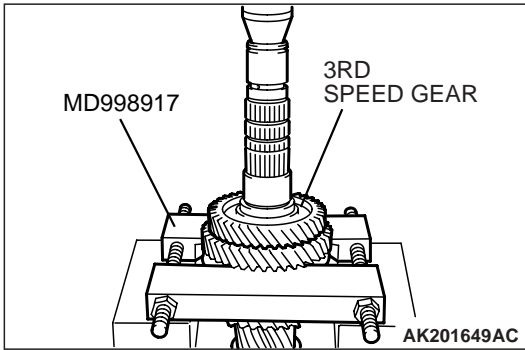
1. Using special tool MD998801, support the 4th speed gear, and then set them on the press.
2. Push down on the output shaft with the press and remove the 5th speed-reverse synchronizer hub.





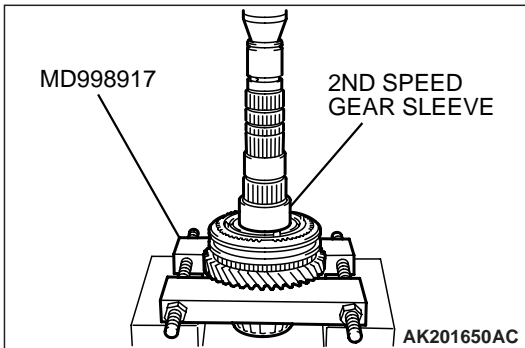
**<<D>> 3RD SPEED GEAR REMOVAL**

1. Using special tool MD998917, support the 2nd speed gear, and then set them on the press.
2. Push down on the output shaft with the press and remove the 3rd speed gear.



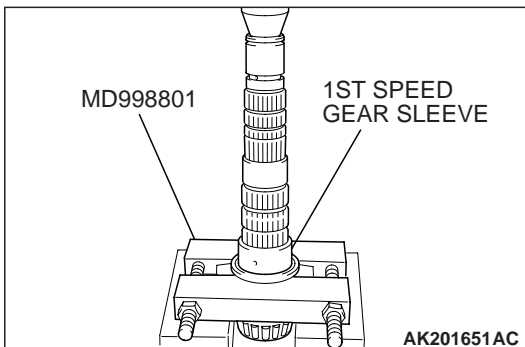
**<<E>> 2ND SPEED GEAR SLEEVE REMOVAL**

1. Using special tool MD998917, support the 1st speed gear, and then set them on the press.
2. Push down on the output shaft with the press and remove the 2nd speed gear sleeve.



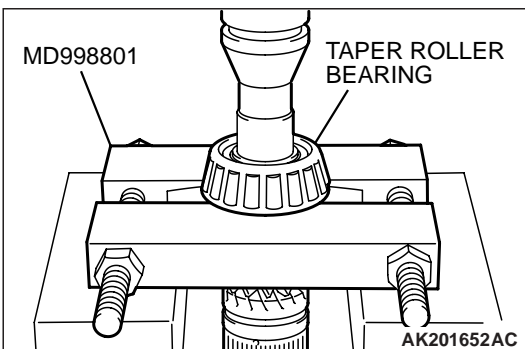
**<<F>> 1ST SPEED GEAR SLEEVE REMOVAL**

1. Using special tool MD998801, support the 1st speed gear sleeve, and then set them on the press.
2. Push down on the output shaft with the press and remove the 1st speed gear sleeve.



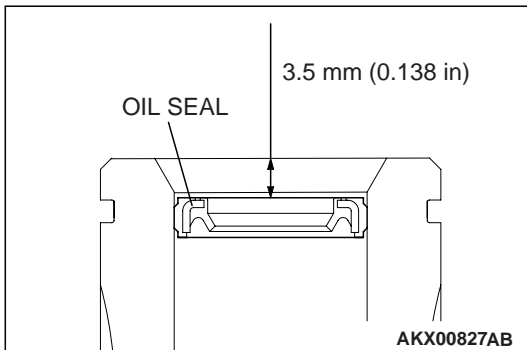
**<<G>> TAPER ROLLER BEARING REMOVAL**

1. Using special tool MD998801, support the taper roller bearing, and then set them on the press.
2. Push down on the output shaft with the press and remove the taper roller bearing.

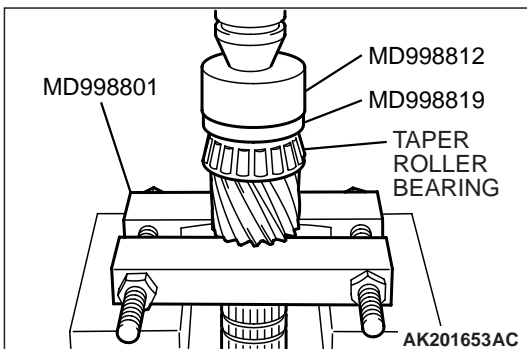


**ASSEMBLY SERVICE POINTS****>>A<< OIL SEAL INSTALLATION**

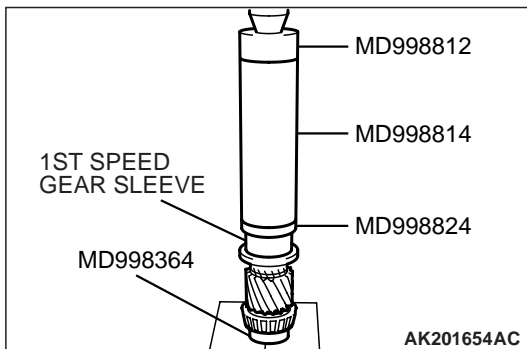
Make sure that the oil seal is pressed into the position shown in the illustration.

**>>B<< TAPER ROLLER BEARING INSTALLATION**

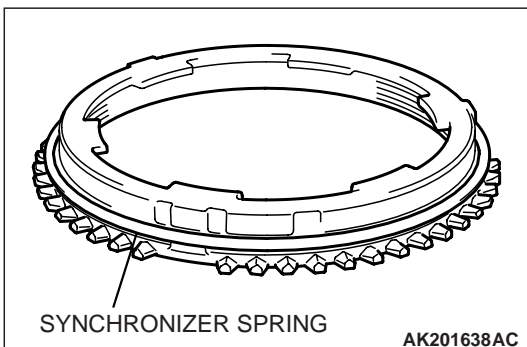
1. Using special tool MD998801, support the output shaft gear, and then set them on the press.
2. Using special tools MD998812 and MD998819, press install the taper roller bearing with the press.

**>>C<< 1ST SPEED GEAR SLEEVE INSTALLATION**

1. Set the output shaft on the press support stand.
2. Using special tools MD998812, MD998814, MD998824 and MD998364, press install the 1st speed gear sleeve with the press.

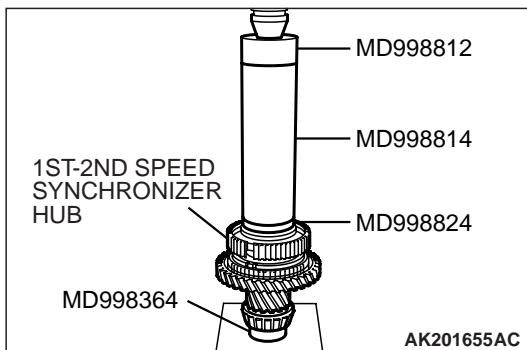
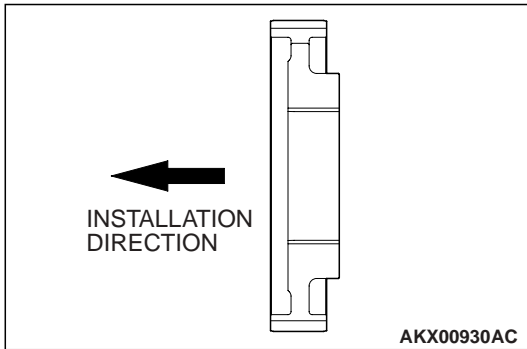
**>>D<< SYNCHRONIZER SPRING INSTALLATION**

Install the synchronizer spring to the illustrated position of the outer synchronizer ring.



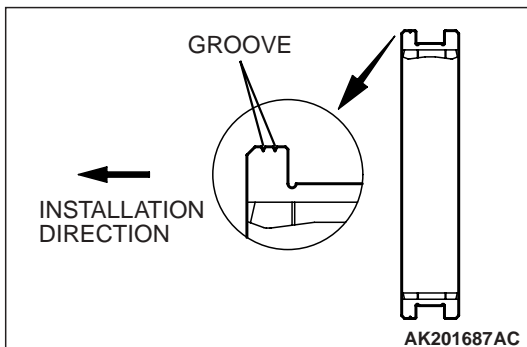
**>>E<< 1ST-2ND SPEED SYNCHRONIZER HUB  
INSTALLATION**

1. Set the output shaft on the press support stand.
2. Check that the 1st-2nd speed synchronizer hub is in the correct installation direction, and put it on the output shaft.
3. Using special tools MD998812, MD998814, MD998824 and MD998364, press install the 1st-2nd speed synchronizer hub with the press.
4. Make sure that the outer synchronizer ring on the 1st speed gear side can rotate freely.

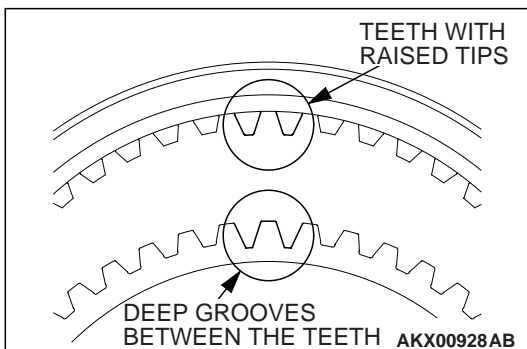


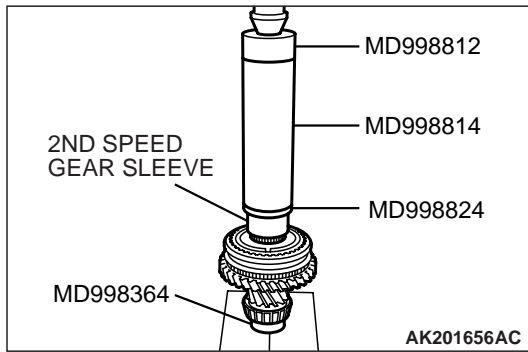
**>>F<< SYNCHRONIZER SLEEVE INSTALLATION**

1. Check that the synchronizer sleeve is in the correct direction for installation, and install it on the 1st-2nd speed synchronizer hub.

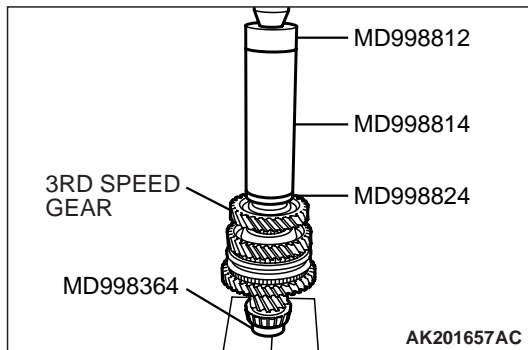


2. Install the synchronizer sleeve so that the areas with teeth that have raised tips (three areas total) are aligned with the areas on the synchronizer hub that have deep grooves between the teeth (three areas total).

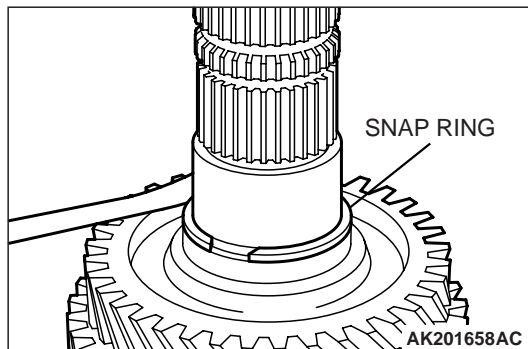


**>>G<< 2ND SPEED GEAR SLEEVE INSTALLATION**

1. Set the output shaft on the press support stand.
2. Using special tools MD998812, MD998813, MD998824 and MD998364, press install the 2nd speed sleeve onto the output shaft.

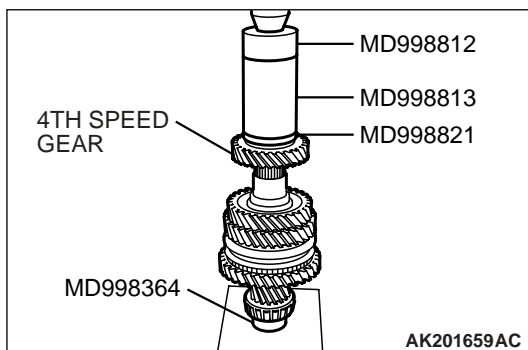
**>>H<< 3RD SPEED GEAR INSTALLATION**

1. Check that the 2nd speed gear and the outer synchronizer ring have been properly installed. Also, make sure the claws on the synchronizer cone (four places) are correctly fitted into the holes in the 2nd speed gear (four places).
2. Using special tools MD998812, MD998814, MD998824 and MD998364, press install the 3rd speed gear onto the output shaft.
3. Make sure that the 2nd speed gear and the outer synchronizer ring can rotate freely.

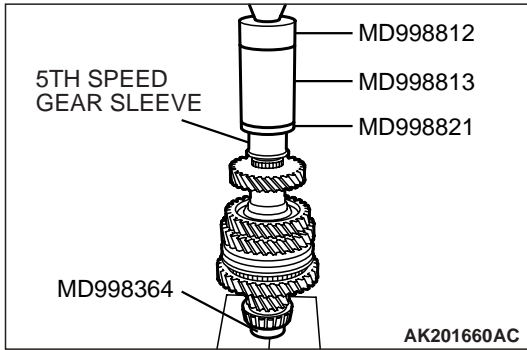
**>>I<< SNAP RING INSTALLATION**

1. Install the thickest snap ring that can be fitted in the groove of output shaft.
2. Make sure that the 3rd speed gear end play meets the standard value.

**Standard value: 0 – 0.09 mm (0 – 0.0035 inch)**

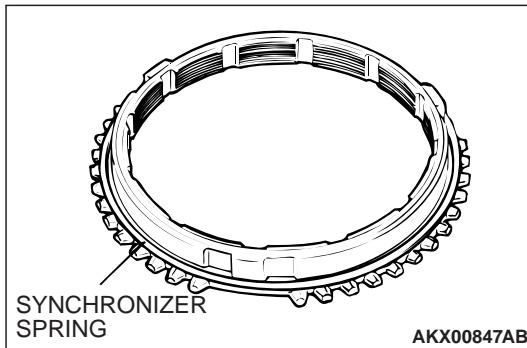
**>>J<< 4TH SPEED GEAR INSTALLATION**

1. Set the output shaft on the press support stand.
2. Using special tools MD998812, MD998813, MD998821 and MD998364, press install the 4th speed gear onto the output shaft.



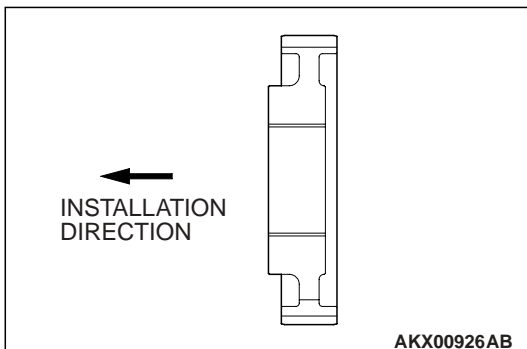
**>>K<< 5TH SPEED GEAR SLEEVE INSTALLATION**

Using special tools MD998812, MD998813, MD998821 and MD998364, press install the 5th speed gear sleeve onto the output shaft.



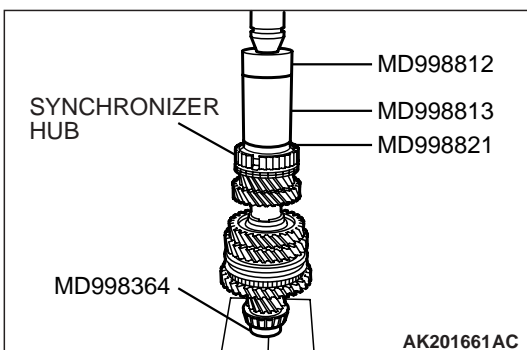
**>>L<< SYNCHRONIZER SPRING INSTALLATION**

Install the synchronizer spring to the illustrated position of the synchronizer ring.

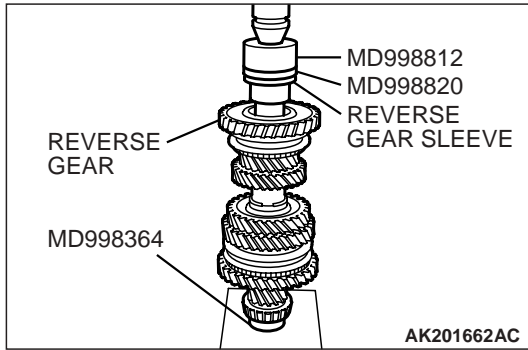


**>>M<< 5TH SPEED-REVERSE SYNCHRONIZER HUB INSTALLATION**

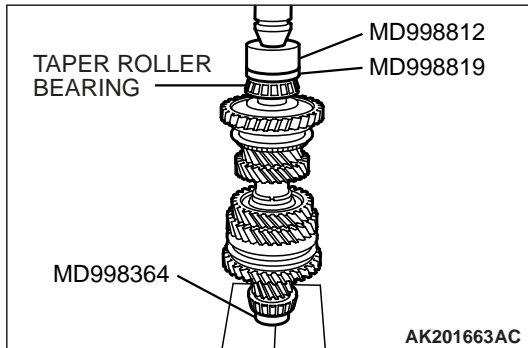
1. Set the output shaft on the press support stand.
2. Make sure that the synchronizer ring is fitted correctly on the cone of the 5th speed gear.
3. Check that the 5th speed-reverse synchronizer hub is oriented correctly for installation, and fit it on the output shaft.



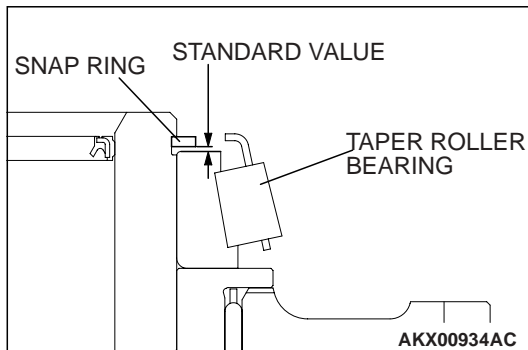
4. Using special tools MD998812, MD998813, MD998821 and MD998364, press install the 5th speed-reverse synchronizer hub with the press.
5. Make sure that the synchronizer ring on the 5th speed gear side can rotate freely.

**>>N<< REVERSE GEAR BEARING SLEEVE INSTALLATION**

1. Make sure the synchronizer ring, reverse gear and needle roller bearing have been correctly installed.
2. Using special tools MD998812, MD998820 and MD998364, press fit the reverse gear sleeve. Make sure that the reverse gear and the synchronizer ring can rotate freely during the pressing process.

**>>O<< TAPER ROLLER BEARING INSTALLATION**

Using special tools MD998812, MD998819 and MD998364, press install the taper roller bearing.

**>>P<< SNAP RING INSTALLATION**

1. Install the thickest snap ring that can be fitted in the groove of output shaft.
2. Make sure that the taper roller bearing end play meets the standard value.

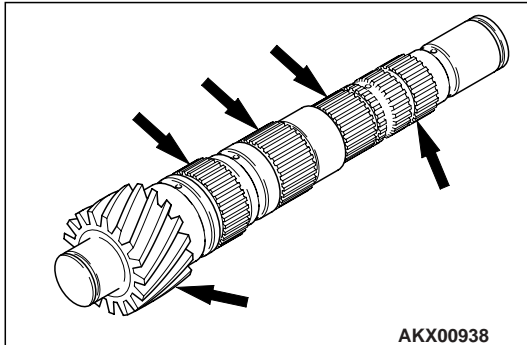
**Standard value: 0 – 0.09 mm (0 – 0.0035 inch)**

## INSPECTION

M1222002300067

### OUTPUT SHAFT

1. Check the splines for damage and wear.
2. Check that the helical gear teeth surfaces are not damaged or worn.

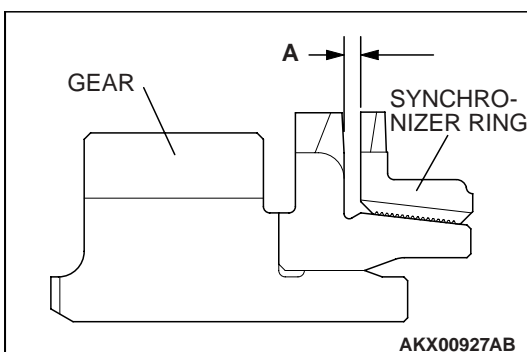
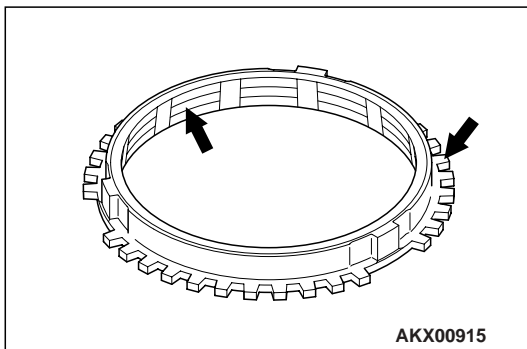


### NEEDLE ROLLER BEARING

1. Combine the needle roller bearing with the bearing sleeve and gear, and check that it rotates smoothly without noise or play.
2. Check the needle roller bearing cage for deformation.

### SYNCHRONIZER RING <FOR 5TH SPEED>

1. Check if the clutch gear teeth are damaged or broken.
2. Check internal surface for damage, wear and broken threads.



3. Force the synchronizer ring toward the clutch gear and check clearance "A". If "A" is less than the limit, replace the synchronizer ring.

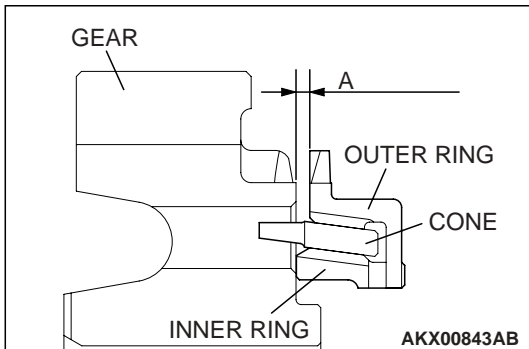
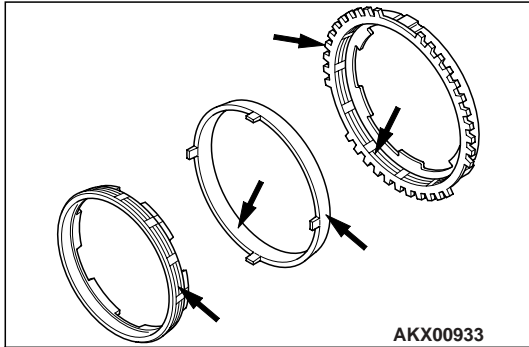
**Minimum limit: 0.5 mm (0.020 inch)**

**OUTER SYNCHRONIZER RING/INNER SYNCHRONIZER RING/SYNCHRONIZER CONE <FOR REVERSE>**

**⚠ CAUTION**

When replacing, replace the outer ring, inner ring and cone as a set.

1. Check that the clutch gear tooth surfaces and cone surfaces are not damaged or broken.



2. Install the outer ring, inner ring and cone, force them toward the gear, and check clearance "A". If "A" is less than the limit, replace them as a set.

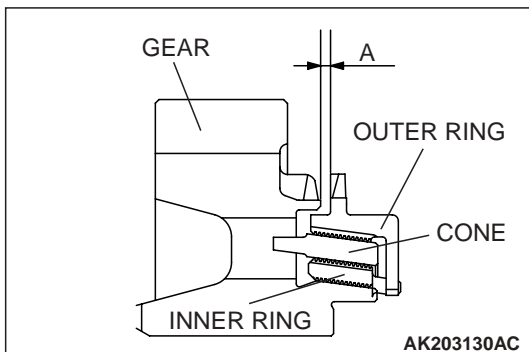
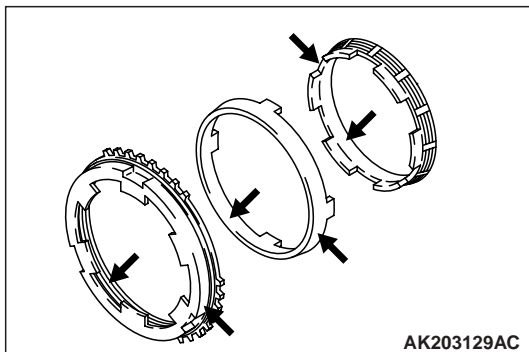
**Minimum limit: 0.5 mm (0.020 inch)**

**OUTER SYNCHRONIZER RING/INNER SYNCHRONIZER RING/SYNCHRONIZER CONE <FOR 1 ST SPEED AND 2 ND SPEED>**

**⚠ CAUTION**

When replacing, replace the outer ring, inner ring and cone as a set.

1. Check that the clutch gear tooth surfaces and cone surfaces are not damaged or broken.



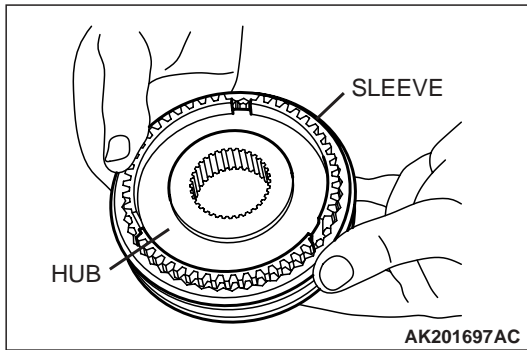
2. Install the outer ring, inner ring and cone, force them toward the gear, and check clearance "A". If "A" is less than the limit, replace them as a set.

**Minimum limit: 0.5 mm (0.020 inch)**



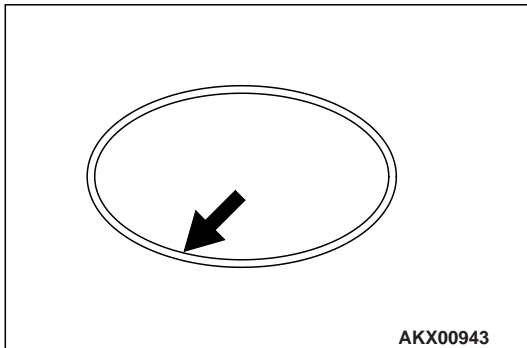
**SYNCHRONIZER SLEEVE AND HUB**

1. Combine the synchronizer sleeve and hub, and check that they slide smoothly.
2. Check that the sleeve is free from damage at its inside splines ends.



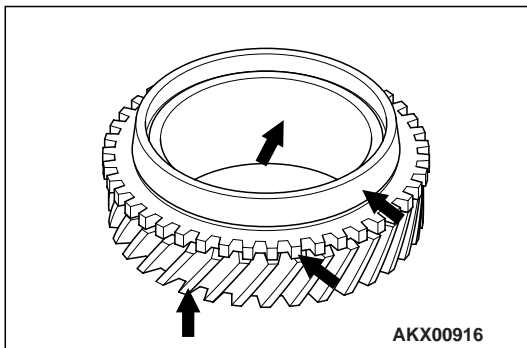
**SYNCHRONIZER SPRING**

Check that the spring is not sagging, deformed or broken.



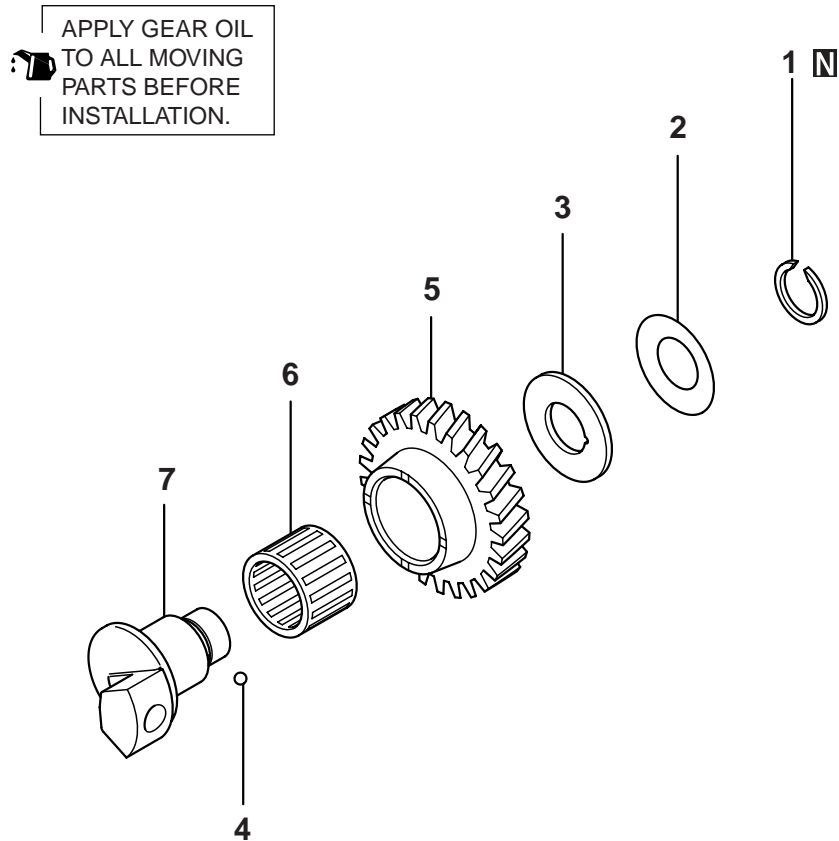
**SPEED GEARS**

1. Check that the helical and clutch gear tooth surfaces are not damaged or worn.
2. Check that the synchronizer cone surfaces are not roughened, damaged or worn.
3. Check that the gear inside diameter and front and rear surfaces are not damaged and worn.



**REVERSE IDLER GEAR****DISASSEMBLY AND ASSEMBLY**

M1222012500062



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**DISASSEMBLY STEPS**

1. SNAP RING
2. CONE SPRING
3. THRUST WASHER
4. STEEL BALL

**DISASSEMBLY STEPS**

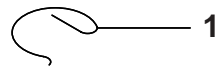
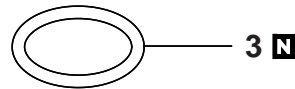
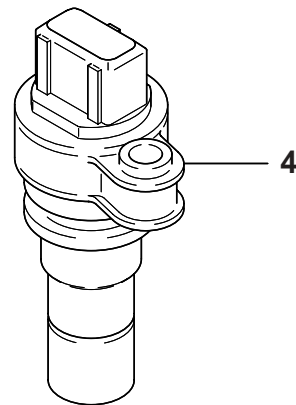
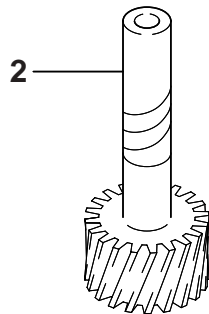
5. REVERSE IDLER GEAR
6. NEEDLE ROLLER BEARING
7. REVERSE IDLER GEAR SHAFT

# SPEEDOMETER GEAR

## DISASSEMBLY AND ASSEMBLY

M1222003400056

 APPLY GEAR OIL  
TO ALL MOVING  
PARTS BEFORE  
INSTALLATION.



AKX00804AB

### DISASSEMBLY STEPS

1. E-CLIP
2. SPEEDOMETER DRIVEN GEAR

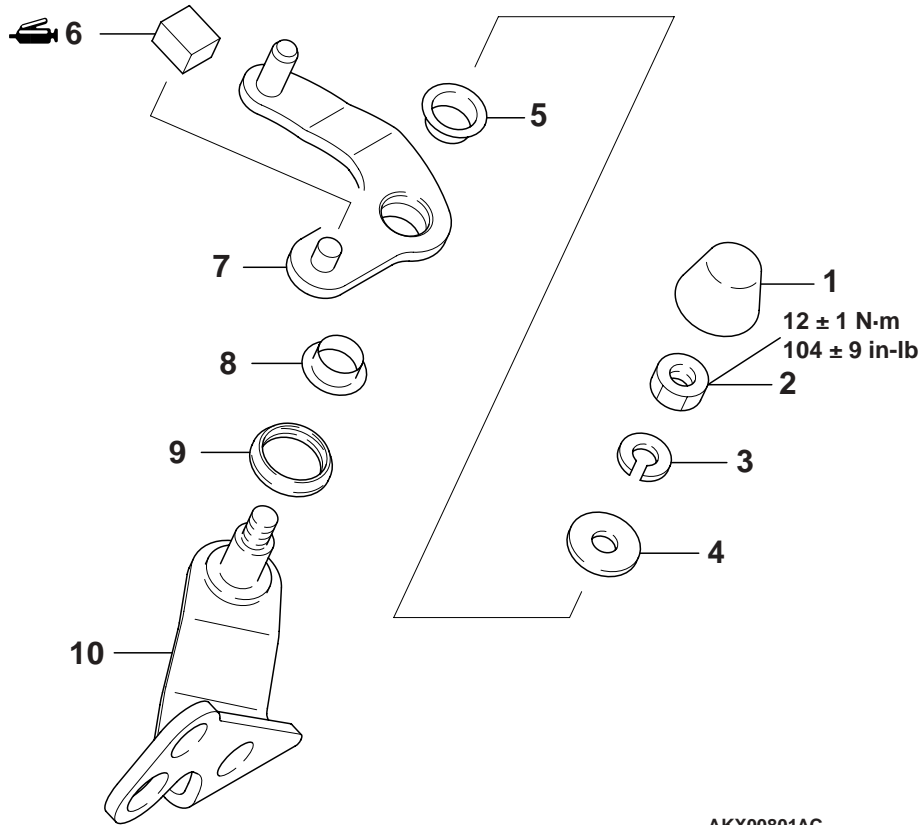
### DISASSEMBLY STEPS

3. O-RING
4. SLEEVE

# SELECT LEVER

## DISASSEMBLY AND ASSEMBLY

M1222012800052



AKX00801AC

### DISASSEMBLY STEPS

1. DUST COVER
2. NUT
3. SPRING WASHER
4. WASHER
- >>A<< 5. SELECT LEVER BUSHING

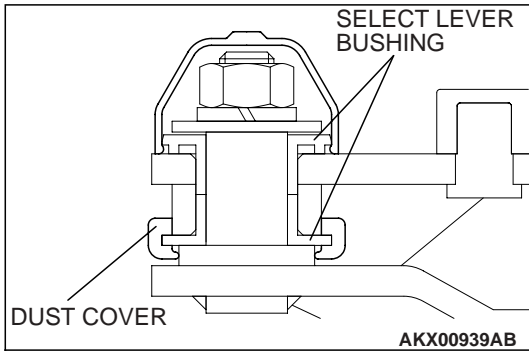
### DISASSEMBLY STEPS

6. SELECT LEVER SHOE
7. SELECT LEVER
- >>A<< 8. SELECT LEVER BUSHING
- >>A<< 9. DUST COVER
10. SELECT LEVER SHAFT

**ASSEMBLY SERVICE POINT**

**>>A<< DUST COVER AND SELECT LEVER BUSHING  
INSTALLATION**

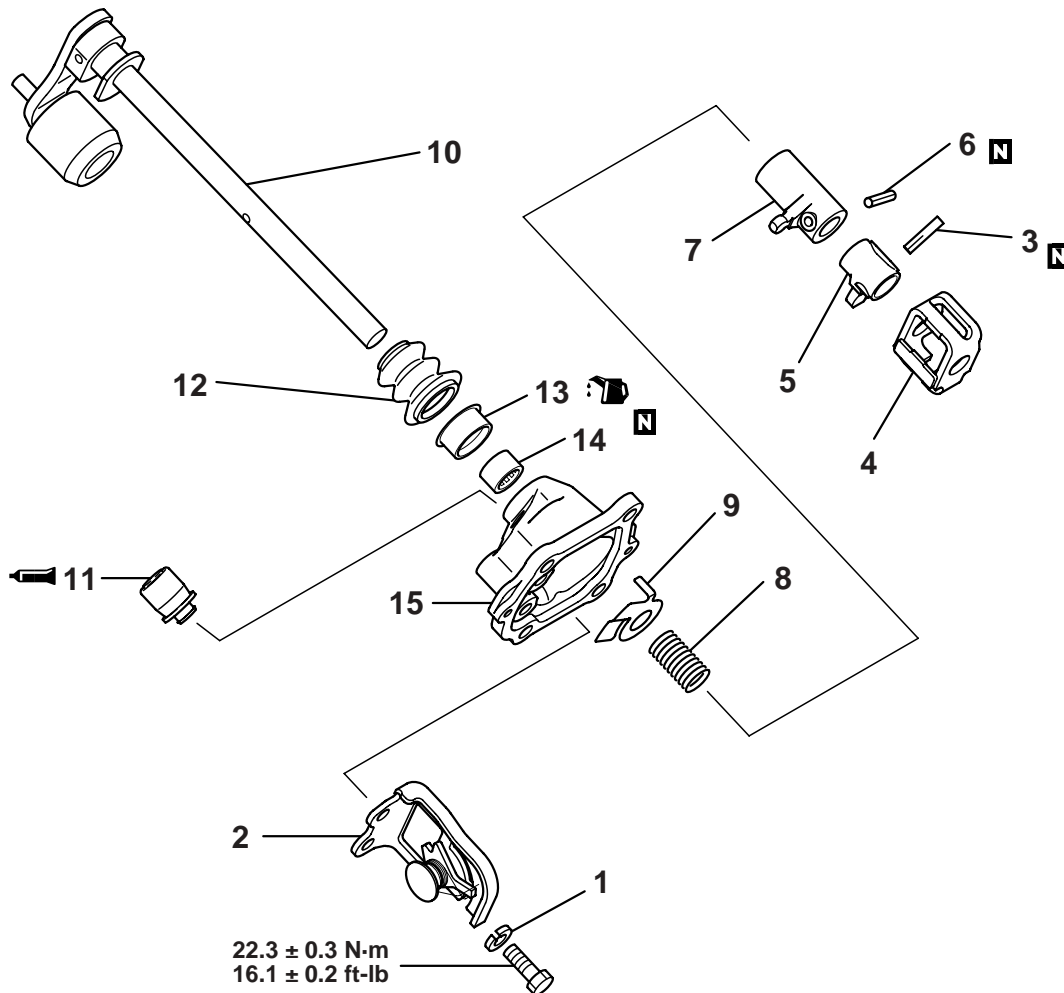
Use the figure to make sure the dust cover and select lever bushing installation direction is correct, and the distinguished parts are correctly assembled.



**CONTROL HOUSING**

**DISASSEMBLY AND ASSEMBLY**

M1222013100120



AK100967AC

**DISASSEMBLY STEPS**

<<A>> >>E<<

1. SPRING WASHER
2. STOPPER BRACKET
3. LOCK PIN
4. INTERLOCK PLATE
5. CONTROL FINGER
- >>D<< 6. SPRING PIN
7. STOPPER BODY
8. SPRING

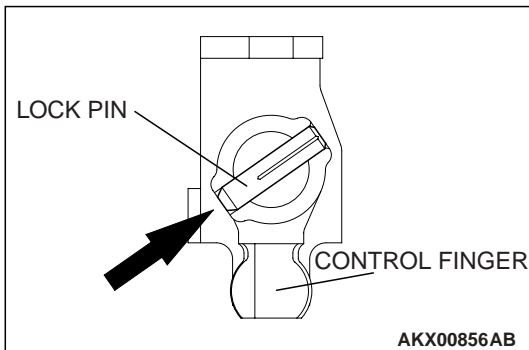
**DISASSEMBLY STEPS (Continued)**

9. SPACER
10. CONTROL SHAFT
- >>C<< 11. AIR BREATHER
12. CONTROL SHAFT BOOT
- >>B<< 13. OIL SEAL
- >>A<< 14. NEEDLE BEARING
15. CONTROL HOUSING

**DISASSEMBLY SERVICE POINT**

**<<A>> LOCK PIN REMOVAL**

Drive out the lock pin from the direction shown.

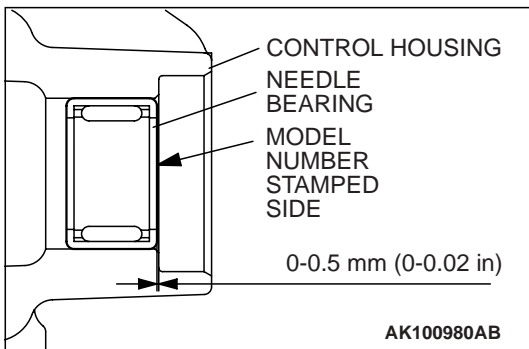


**ASSEMBLY SERVICE POINTS**

**>>A<< NEEDLE BEARING INSTALLATION**

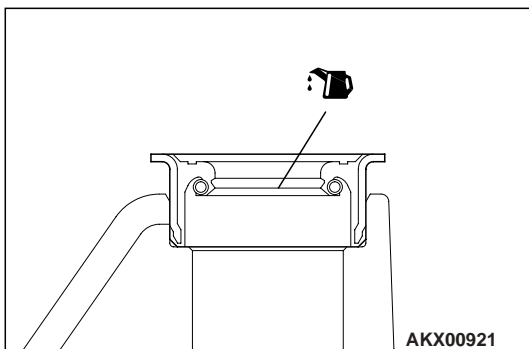
Press fit the needle bearing into the control housing side as shown.

Make sure that the side with the model number stamped on it faces the end of the control housing as shown.



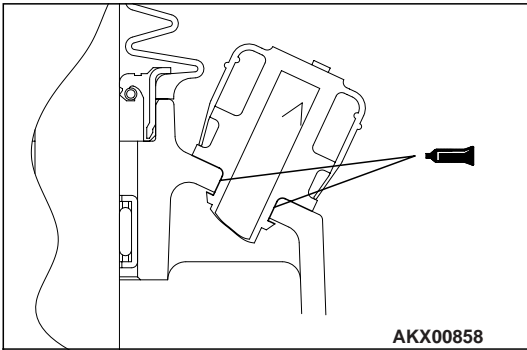
**>>B<< OIL SEAL INSTALLATION**

Apply gear oil (Hypoid gear oil SAE 75W-90 or 75W-85W conforming to API classification GL-4) to the oil seal lip area.

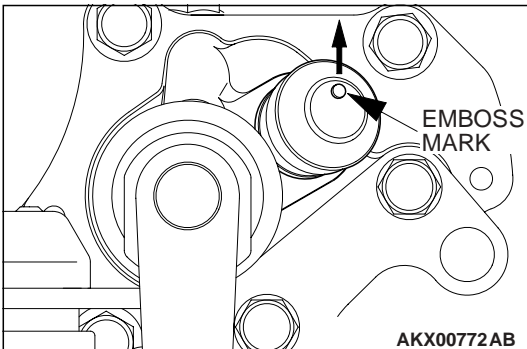


**>>C<< AIR BREATHER INSTALLATION**

1. Apply sealant (3M™ AAD Part Number 8001 or equivalent) to the inserting portion of air breather.

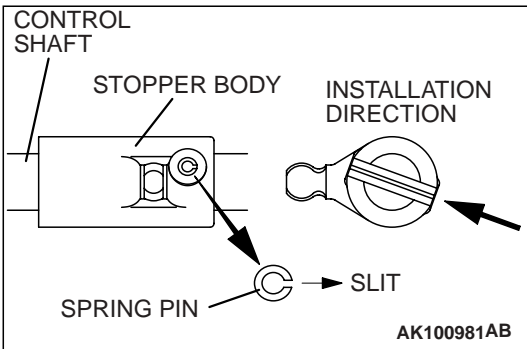


2. Install the air breather so that the embossed mark is in the direction shown in the figure.



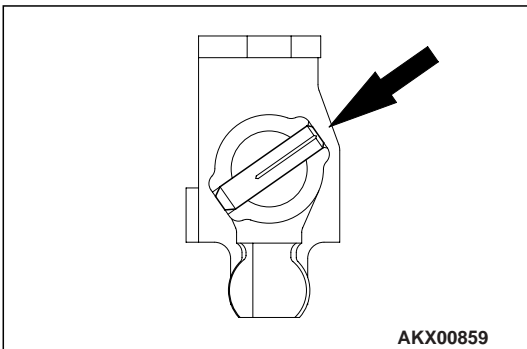
**>>D<< SPRING PIN INSTALLATION**

Drive in the spring pin so that the slit is in the direction shown in the figure.



**>>E<< LOCK PIN INSTALLATION**

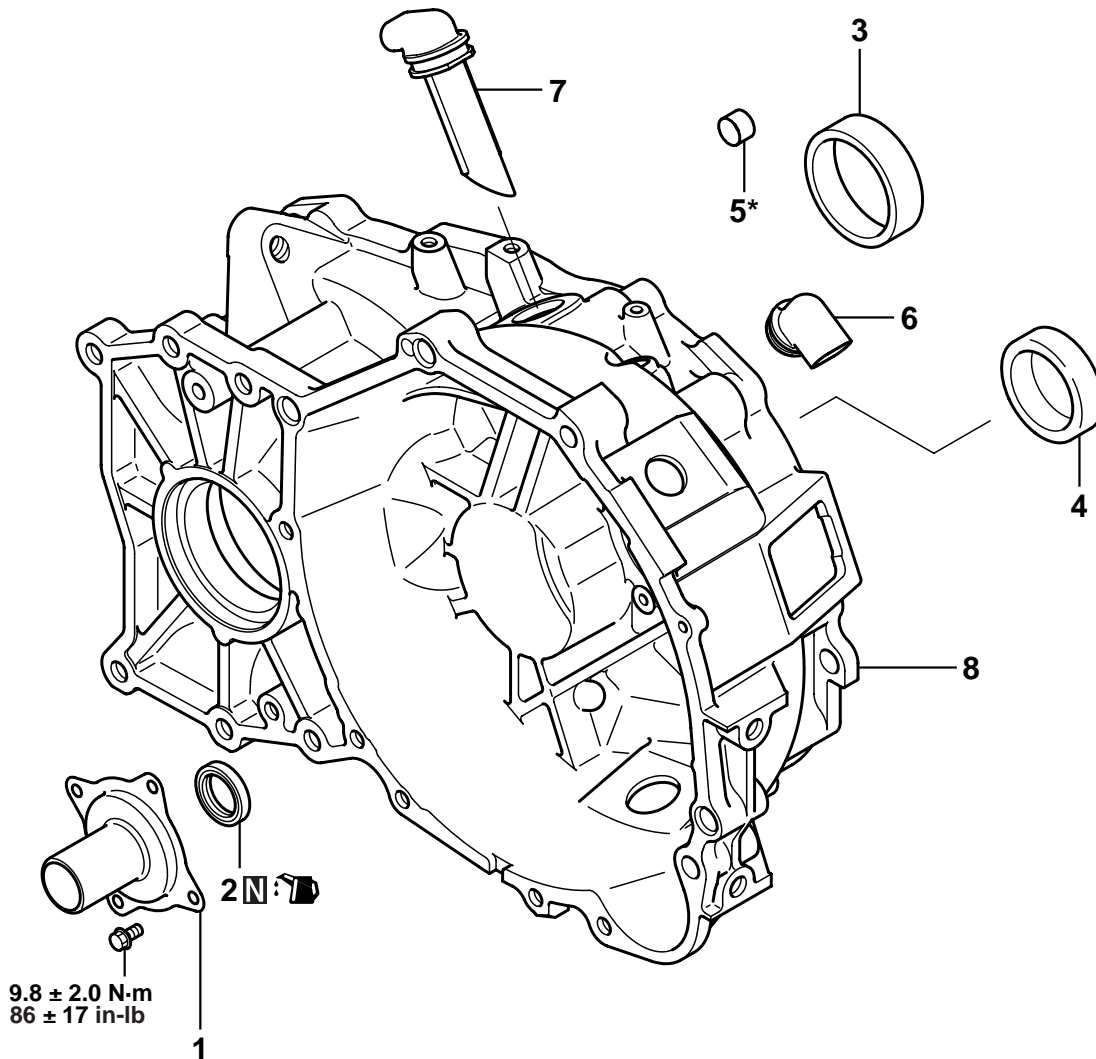
Drive the lock pin in from the direction shown in the figure.



# CLUTCH HOUSING

## DISASSEMBLY AND ASSEMBLY

M1222003700080



AK201683AC

### DISASSEMBLY STEPS

- 1. CLUTCH RELEASE BEARING RETAINER
- >>E<< 2. OIL SEAL
- <<A>> >>D<< 3. OUTER RACE
- <<B>> >>C<< 4. OUTER RACE
- >>B<< 5. BUSHING\*

### DISASSEMBLY STEPS

- >>A<< 6. COVER-A
- >>A<< 7. COVER-B
- 8. CLUTCH HOUSING

NOTE: \*Refer to the needle bearing and bushing installation procedures only when replacing the transaxle case.

### Required Special Tools:

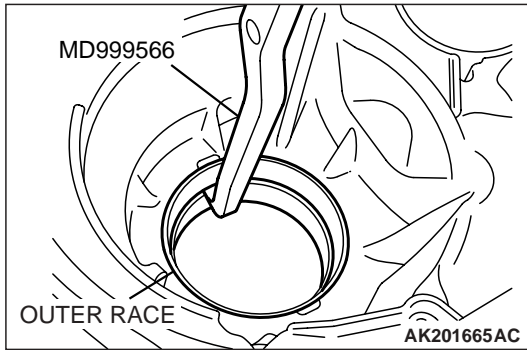
- MB990928: Installer Adapter
- MB990935: Installer Adapter
- MB990938: Handle
- MB991445: Bushing Remover and Installer Base
- MD999566: Claw



**DISASSEMBLY SERVICE POINT**

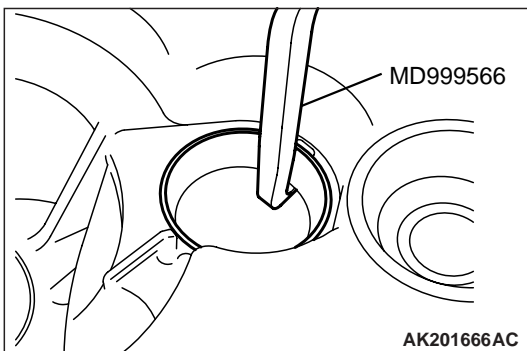
**<<A>> OUTER RACE REMOVAL**

Using special tool MD999566, remove the outer race from the clutch housing.



**<<B>> OUTER RACE REMOVAL**

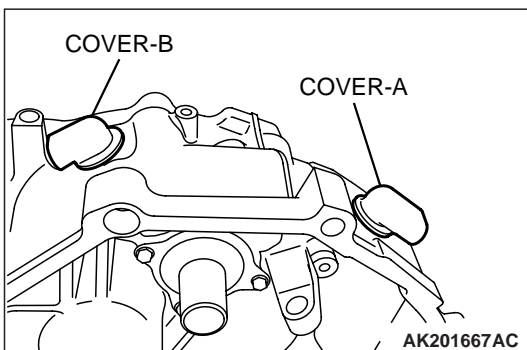
Using special tool MD999566, remove the outer race from the clutch housing.



**ASSEMBLY SERVICE POINTS**

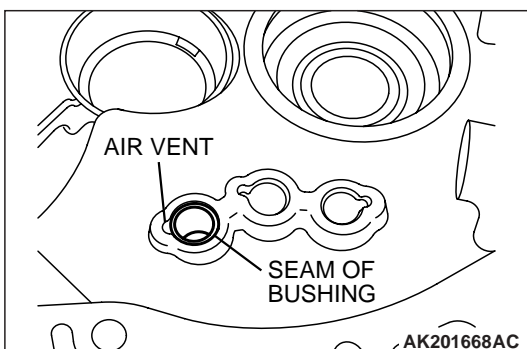
**>>A<< COVER-B/COVER-A INSTALLATION**

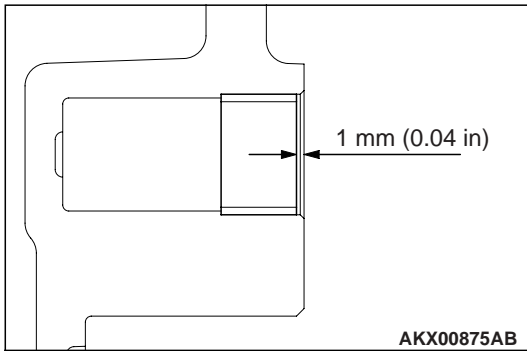
Install the covers directed as shown in the illustration.



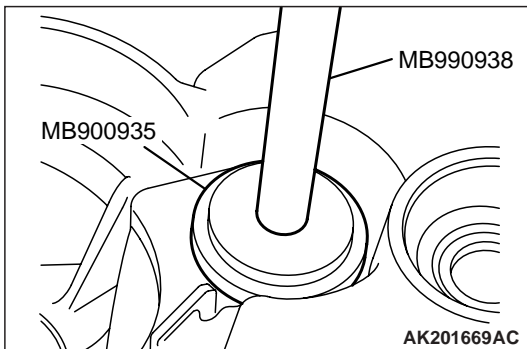
**>>B<< BUSHING INSTALLATION**

1. Press fit the bushing so the seam is away from the air vent.



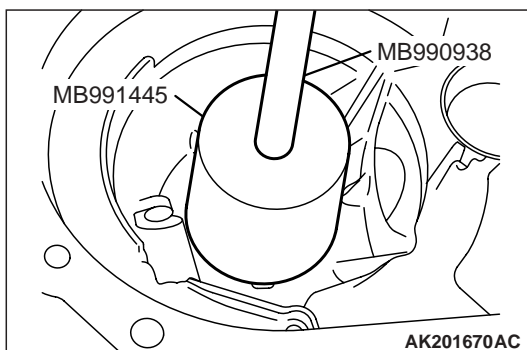


2. Be sure the bushing is fully seated as shown. It must be 1 mm (0.04 inch) below the housing surface.



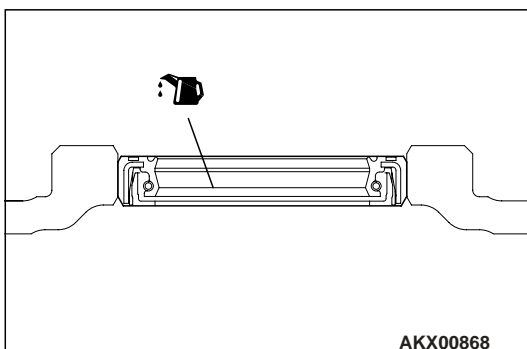
### >>C<< OUTER RACE INSTALLATION

Using special tools MB990938 and MB990935, press fit the outer race into the clutch housing.



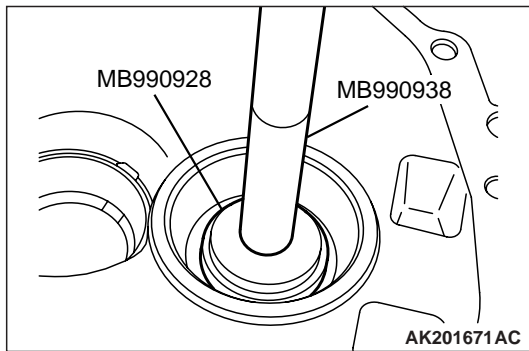
### >>D<< OUTER RACE INSTALLATION

1. Check the installation direction of the outer race.
2. Using special tools MB990938 and MB991445, press fit the outer race into the clutch housing.



### >>E<< OIL SEAL INSTALLATION

1. Apply transmission oil (Hypoid gear oil SAE 75W-90 or 75W-85W conforming to API classification GL-4) to the oil seal lip.

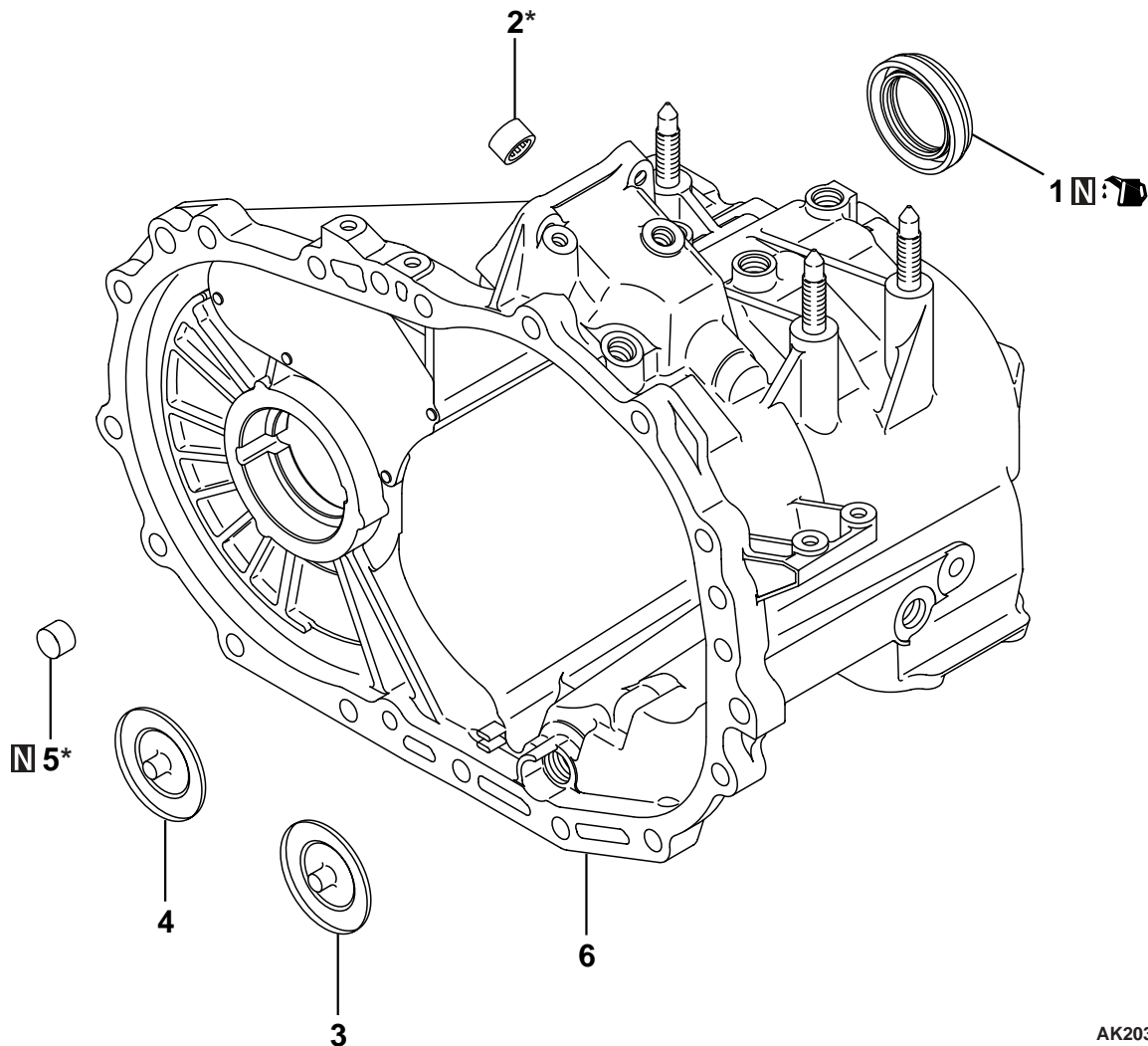


- Using special tools MB990938 and MB990928, press fit the oil seal into the clutch housing.

## TRANSMISSION CASE

### DISASSEMBLY AND ASSEMBLY

M1222013400057



#### DISASSEMBLY STEPS

- >>C<< 1. OIL SEAL
- >>B<< 2. NEEDLE BEARING\*
- 3. OIL GUIDE
- 4. OIL GUIDE

#### DISASSEMBLY STEPS (Continued)

- >>A<< 5. BUSHING\*
- 6. TRANSAXLE

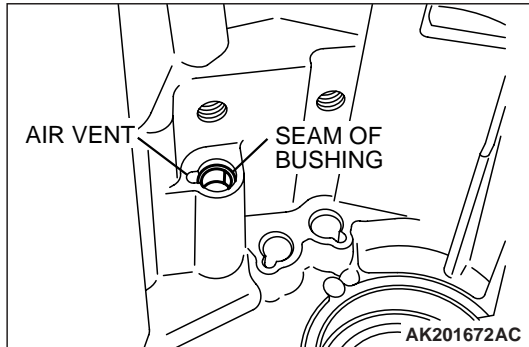
NOTE: \*:Refer to the needle bearing and bushing installation procedures only when replacing the transaxle case.

**Required Special Tools:**

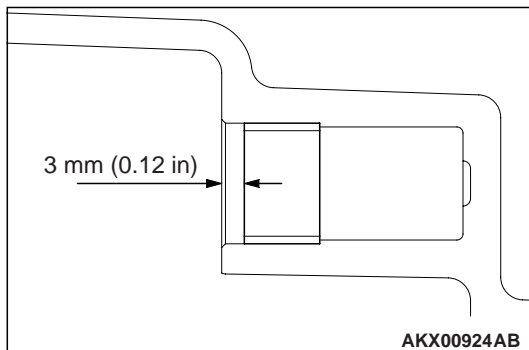
- MD998800: Differential Oil Seal Installer

**ASSEMBLY SERVICE POINTS****>>A<< BUSHING INSTALLATION**

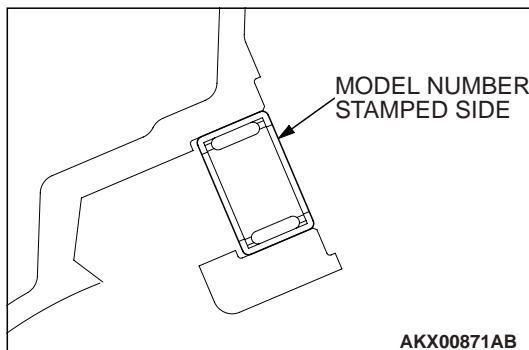
1. Press fit the bushing so the seam is away from the air vent.



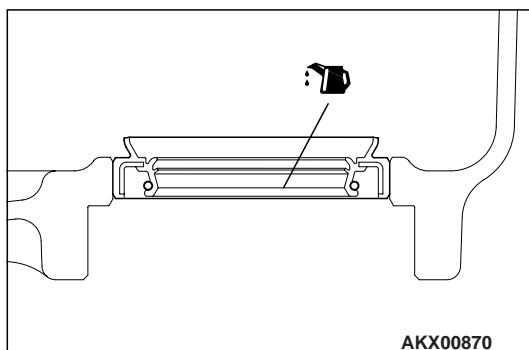
2. Be sure the bushing is fully seated as shown. It must be 3 mm (0.12 inch) below the housing surface.

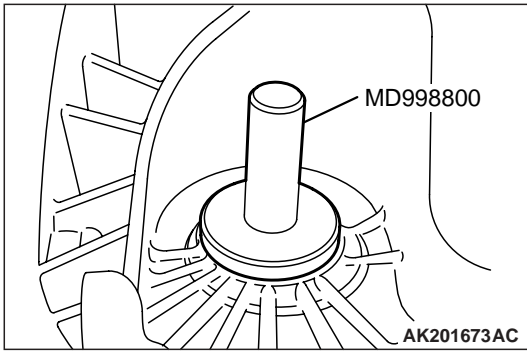
**>>B<< NEEDLE BEARING INSTALLATION**

1. Check the installation direction of the needle bearing.
2. Press fit the needle bearing until it is flush with the case.

**>>C<< OIL SEAL INSTALLATION**

1. Apply gear oil (Hypoid gear oil SAE 75W-90 or 75W-85W conforming to API classification GL-4).



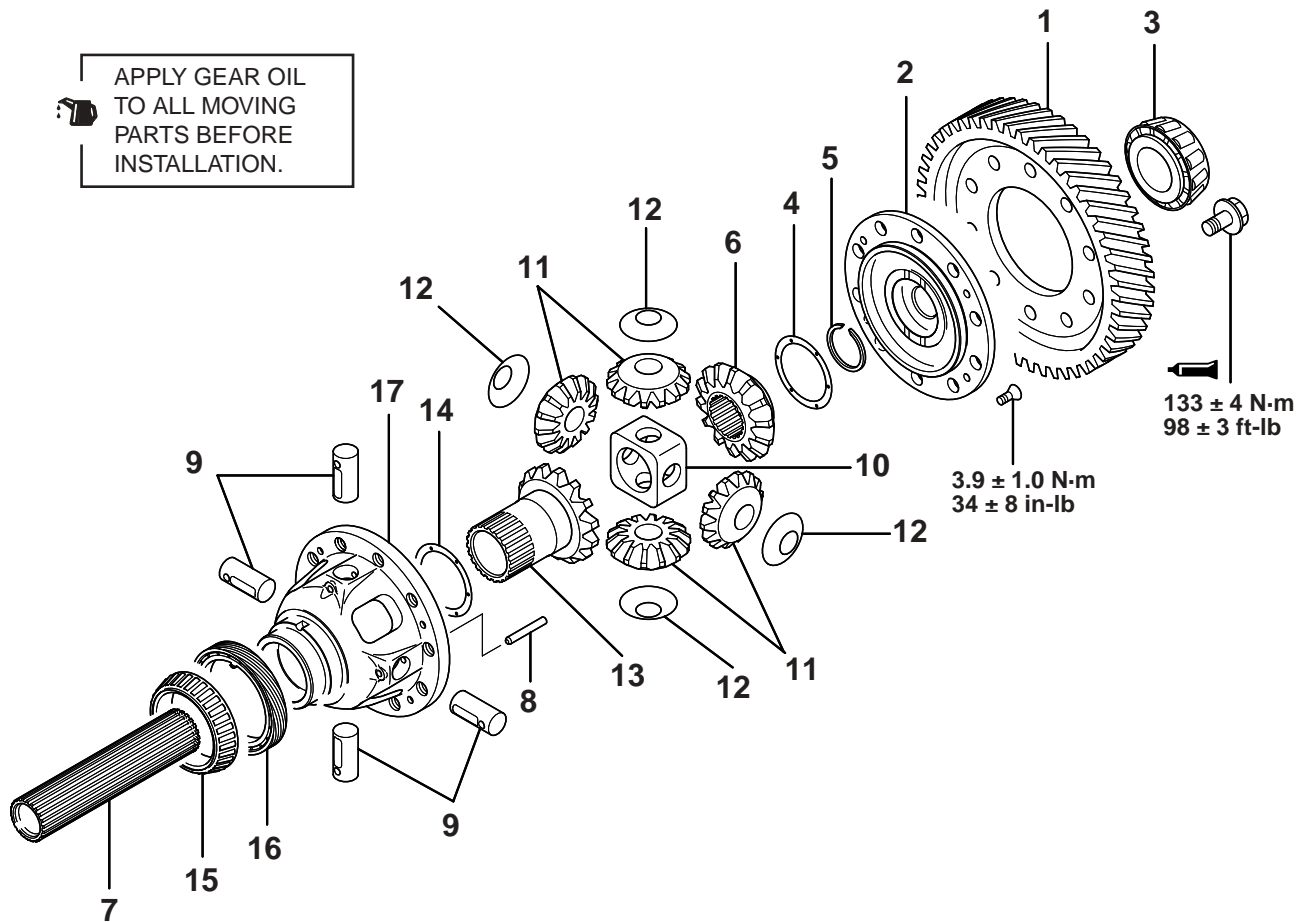


2. Using special tool MD998800, press fit the oil seal into the transaxle case.

## CENTER DIFFERENTIAL

### DISASSEMBLY AND ASSEMBLY

M1222002800039



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- DISASSEMBLY STEPS**
- >>D<< 1. CENTER DIFFERENTIAL DRIVE GEAR
  - >>C<< 2. CENTER DIFFERENTIAL FLANGE
  - <<A>> >>B<< 3. TAPER ROLLER BEARING

- DISASSEMBLY STEPS**
- >>C<< 4. SPACER
  - >>C<< 5. SNAP RING
  - >>C<< 6. SIDE GEAR
  - >>C<< 7. FRONT OUTPUT SHAFT

TSB Revision

**DISASSEMBLY STEPS**

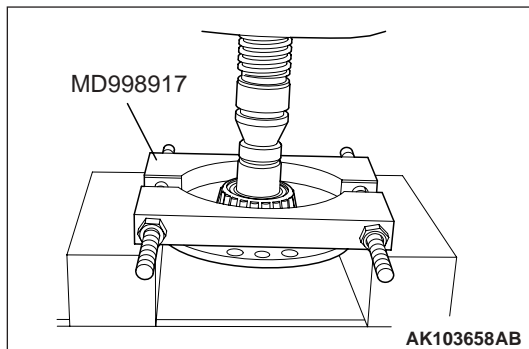
- >>C<< 8. LOCK PIN
- >>C<< 9. PINION SHAFT
- >>C<< 10. PINION SHAFT HOLDER
- >>C<< 11. PINIONS
- >>C<< 12. WASHERS
- >>C<< 13. SIDE GEAR
- >>C<< 14. SPACER
- <<B>> >>A<< 15. TAPER ROLLER BEARING
- 16. SPEED METER DRIVE GEAR
- 17. DIFFERENTIAL CASE

**Required Special Tools:**

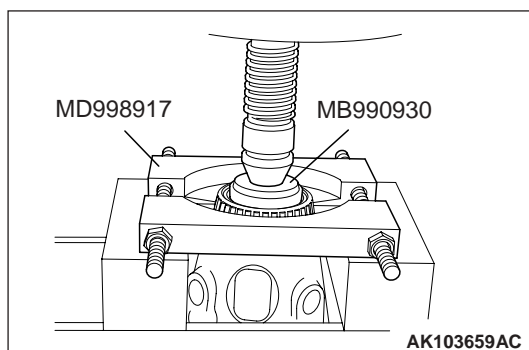
- MD998812: Installer Cap
- MD998917: Bearing Remover
- MB990930: Installer Adapter
- MD998824: Installer Adapter (50)
- MB990937: Installer Adapter

**DISASSEMBLY SERVICE POINT****<<A>> TAPER ROLLER BEARING REMOVAL**

1. Support the taper roller bearing with special tool MD998917, and then set them on the press.
2. Push down on the differential case with the press to remove the bearing.

**<<B>> TAPER ROLLER BEARING REMOVAL**

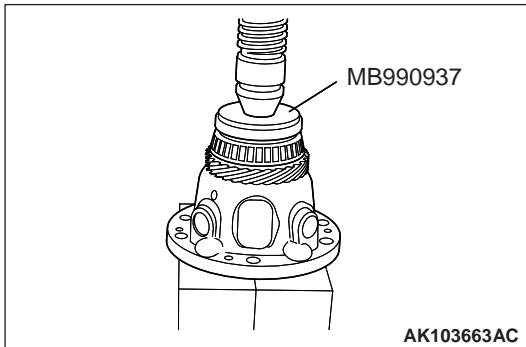
1. Support the taper roller bearing with special tools MD998917 and MB990930, and then set them on the press.
2. Push down on the differential case with the press to remove the bearing.



**ASSEMBLY SERVICE POINTS**

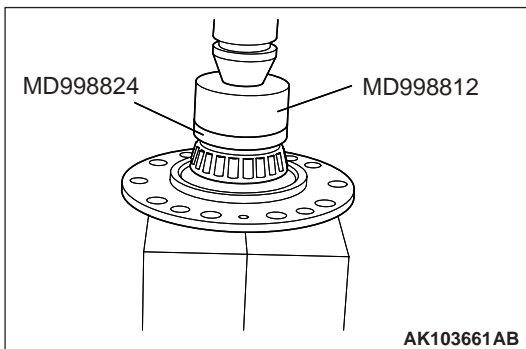
**>>A<< TAPER ROLLER BEARING INSTALLATION**

Using special tool MB990937, press install the taper roller bearing.



**>>B<< TAPER ROLLER BEARING INSTALLATION**

Using special tools MD998812 and MD998824, press install the taper roller bearing.



**>>C<< SPACER, SIDE GEAR, WASHER, PINION AND PINION SHAFT, PINION SHAFT HOLDER, LOCK PIN, FRONT OUTPUT SHAFT, SNAP RING, CENTER DIFFERENTIAL FLANGE, INSTALLATION**

1. Mount a spacer on the back surface of the side gear, and then install the side gear in the differential case.

*NOTE: When a new side gear is to be installed, use a medium thickness spacer [0.93 to 1.00 mm (0.0366 to 0.0395 inch)].*

2. Place the washers on the back of the pinions, and simultaneously mesh the four pieces with the side gears. Place them into position while rotating them. Then, install the pinion shaft holder.

3. Insert the pinion shaft.

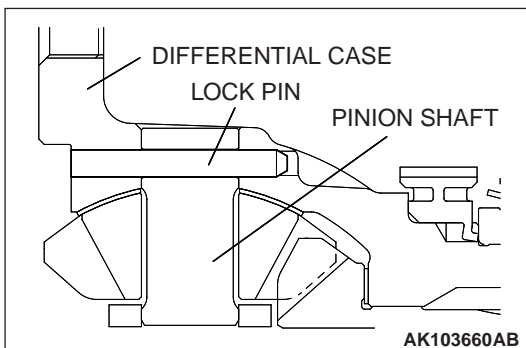
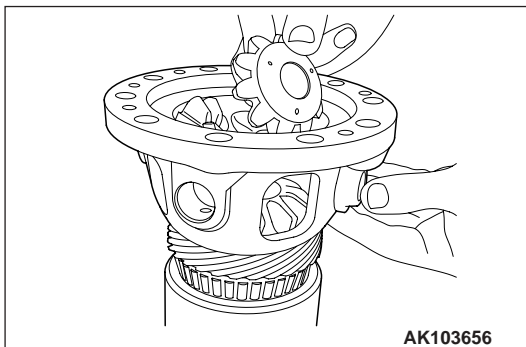
4. Install the lock pin so that it will be oriented in the direction shown.

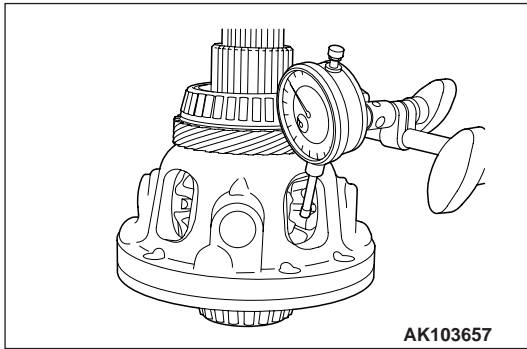
5. Install the front output shaft on the side gear, and install the snap ring.

6. Mount a spacer on the back surface of the side gear, and then install the side gear in the differential case.

*NOTE: When a new side gear is to be installed, use a medium thickness spacer [0.93 to 1.00 mm (0.0366 to 0.0395 inch)].*

7. Install the center differential flange by aligning the matching marks, and temporarily tighten the four machine screws.





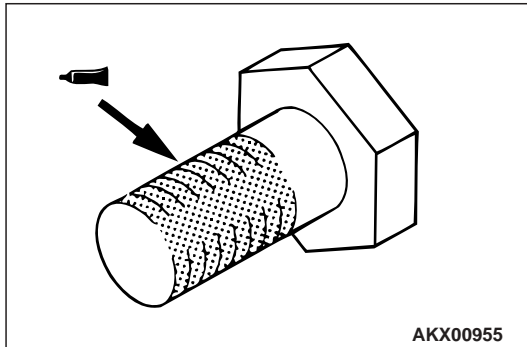
8. Measure the backlash between the side gear and pinion.

**Standard value:**

**0.025 – 0.150 mm (0.0010 – 0.0059 inch)**

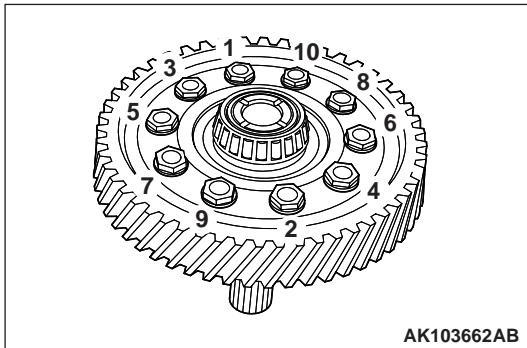
9. If the backlash is out of the standard value, select a spacer and re-measure the backlash.

*NOTE: Adjust until the backlash on both sides are equal.*



### >>D<< DIFFERENTIAL DRIVE GEAR INSTALLATION

1. Apply sealant (3M™ AAD Part Number 8730 or 8731 or equivalent) to the entire threaded portion of the bolt.



2. Tighten to the specified torque in the illustrated sequence.

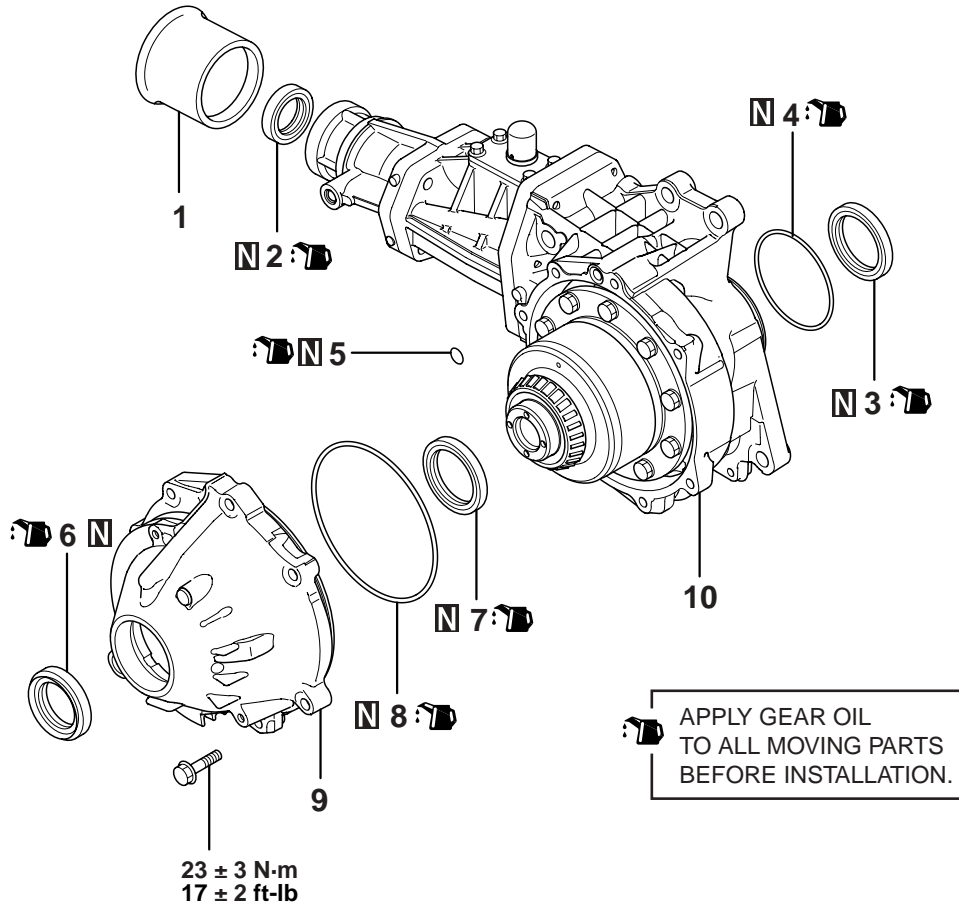
**Tightening torque: 133 ± 4 N·m (98 ± 3 ft-lb)**



# TRANSFER

## DISASSEMBLY AND ASSEMBLY

M1222004000039



AK101413 AE

### DISASSEMBLY STEPS

- 1. DUST SEAL GUIDE
- >>E<< 2. OIL SEAL
- >>D<< 3. OIL SEAL
- >>A<< 4. O-RING
- >>A<< 5. O-RING

### DISASSEMBLY STEPS

- >>C<< 6. OIL SEAL
- >>B<< 7. OIL SEAL
- >>A<< 8. O-RING
- 9. TRANSFER COVER
- 10. TRANSFER

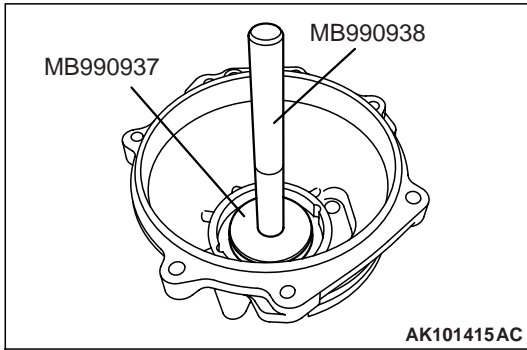
### Required Special Tools:

- MD998800: Oil Seal Installer
- MB990938: Handle
- MB990937: Installer Adapter
- MB990887: Ring
- MB990891: Bushing Remover Installer Base
- MB990936: Installer Adapter

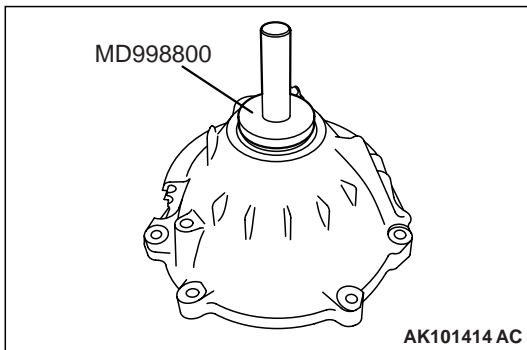
### ASSEMBLY SERVICE POINT

#### >>A<< O-RING INSTALLATION

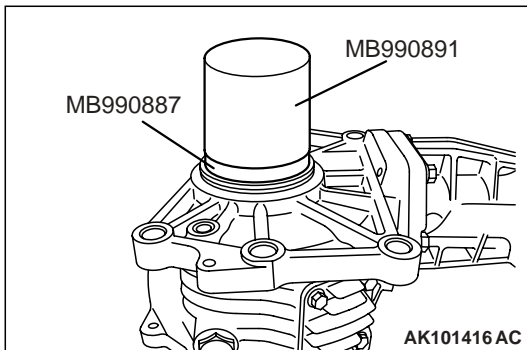
Install a O-ring to the transfer, and apply gear oil (Hypoid gear oil API classification GL-5 SAE 90) to the O-ring.

**>>B<< OIL SEAL INSTALLATION**

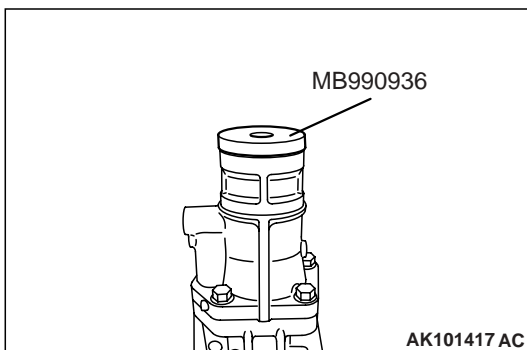
1. Apply gear oil (Hypoid gear oil API classification GL-5 SAE 90).
2. Using special tools MB990937 and MB990938, press fit the oil seal into the transfer cover.

**>>C<< OIL SEAL INSTALLATION**

1. Apply gear oil (Hypoid gear oil API classification GL-5 SAE 90).
2. Using special tool MD998800, press fit the oil seal into the transfer cover.

**>>D<< OIL SEAL INSTALLATION**

1. Apply gear oil (Hypoid gear oil API classification GL-5 SAE 90).
2. Using special tools MB990887 and MB990891, press fit the oil seal into the transfer.

**>>E<< OIL SEAL INSTALLATION**

1. Apply gear oil (Hypoid gear oil API classification GL-5 SAE 90).
2. Using special tool MB990936, press fit the oil seal into the transfer.

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

M1222012100086

#### TRANSAXLE

ITEMS	SPECIFICATIONS
Under cover mounting bolt	6.9 ± 0.9 N·m (61 ± 7 in-lb)
Interlock plate bolt	30 ± 3 N·m (22 ± 2 ft-lb)
Clutch housing-transaxle case mounting bolt	44 ± 5 N·m (32 ± 3 ft-lb)
Clutch release bearing retainer mounting bolt	9.8 ± 2.0 N·m (86 ± 17 in-lb)
Control housing mounting bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Shift cable bracket mounting bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Speedometer gear mounting bolt	3.9 ± 1.0 N·m (34 ± 8 in-lb)
Stopper bracket mounting bolt	22.3 ± 0.3 N·m (16.1 ± 0.2 ft-lb)
Select lever mounting bolt	18 ± 3 N·m (13 ± 2 ft-lb)
Select lever mounting nut	12 ± 1 N·m (104 ± 9 in-lb)
Differential drive gear mounting bolt	133 ± 4 N·m (98 ± 3 ft-lb)
Backup light switch	32 ± 2 N·m (23 ± 1 ft-lb)
Poppet spring	32 ± 2 N·m (23 ± 1 ft-lb)
Reverse idler gear shaft mounting bolt	48 ± 5 N·m (35 ± 3 ft-lb)
Roll stopper bracket mounting bolt	70 ± 10 N·m (51 ± 7 ft-lb)

#### TRANSFER

ITEMS	SPECIFICATIONS
Transfer-clutch housing mounting bolt	69 ± 9 N·m (50 ± 6 ft-lb)
Transfer cover mounting bolt	23 ± 3 N·m (17 ± 2 ft-lb)

### GENERAL SPECIFICATIONS

M1222000200105

ITEMS	SPECIFICATIONS	
Model	W5M51-2-X5BB	
Applicable engine	4G63	
Type	5-speed transaxle floor shift	
Gear ratio	1st	2.928
	2nd	1.950
	3rd	1.407
	4th	1.096
	5th	0.720
	Reverse	3.416
Final reduction ratio	4.529	
Speedometer gear ratio (driven/drive)	28/36	
Transfer gear ratio	0.3018	

## SERVICE SPECIFICATIONS

M1222000300083

ITEMS	STANDARD VALUE	MINIMUM LIMIT
Input shaft end play mm (in)	0.05 – 0.17 (0.0020 – 0.0067)	–
Input shaft front bearing end play mm (in)	0 – 0.12 (0 – 0.0047)	–
Input shaft rear bearing end play mm (in)	0 – 0.12 (0 – 0.0047)	–
Input shaft 5th speed gear end play mm (in)	0 – 0.09 (0 – 0.0035)	–
Output shaft preload mm (in)	0.13 – 0.18 (0.0051 – 0.0071)	–
Output shaft taper roller bearing end play mm (in)	0 – 0.09 (0 – 0.0035)	–
Output shaft 3rd speed gear end play mm (in)	0 – 0.09 (0 – 0.0035)	–
Center differential pinion backlash mm (in)	0.025 – 0.150 (0.0010 – 0.0059)	–
Center differential case preload mm (in)	0.05 – 0.11 (0.0020 – 0.0043)	–
Synchronizer ring back surface to gear clearance mm (in)	–	0.5 (0.020)

## SEALANTS AND ADHESIVES

M1222000500087

ITEM	SPECIFIED SEALANT
Clutch housing-transaxle case mating surface	MITSUBISHI Genuine sealant part No. MD997740 or equivalent
Control housing-transaxle case mating surface	
Under cover-transaxle case mating surface	
Air breather	3M™AAD Part No.8001 or equivalent
Center differential drive gear bolt	3M™AAD Part No.8730 or 8731 or equivalent

## LUBRICANTS

M1222000400057

## TRANSAXLE

ITEMS	SPECIFIED SEALANTS
Speedometer gear O-ring	Hypoid gear oil SAE 75W-90 or 75W-85W conforming to API classification GL-4
Control shaft oil seal lip gear oil	
Input shaft oil seal lip gear oil	
Driveshaft oil seal lip gear oil	
Each O-ring	
Select lever shoe	MITSUBISHI genuine grease part No.0101011 or equivalent

## TRANSFER

ITEMS	SPECIFIED SEALANTS
Each O-ring	Hypoid gear oil API classification GL-5 SAE 90
Each oil seal	

**SNAP RINGS, SPACERS AND THRUST PLATE FOR ADJUSTMENT**

M1222012000108

**Spacer**

**(For adjustment of input shaft end play)**

<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>	<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>
1.34 (0.0528)	34	1.61 (0.0634)	61
1.43 (0.0563)	43	1.70 (0.0669)	70
1.52 (0.0598)	52	1.79 (0.0705)	79

**Snap ring**

**(For adjustment of input shaft front bearing end play)**

<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>	<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>
1.43 (0.0563)	Green (2)	1.59 (0.0626)	Yellow (2)
1.51 (0.0594)	White (2)		

**Snap ring**

**(For adjustment of input shaft rear bearing end play)**

<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>	<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>
1.44 (0.0567)	None	1.58 (0.0622)	Brown
1.51 (0.0594)	Blue		

**Thrust plate**

**(For adjustment of input shaft 5th speed gear end play)**

<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>	<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>
3.82 (0.1504)	0	3.98 (0.1567)	6
3.86 (0.1520)	2	4.02 (0.1583)	7
3.90 (0.1535)	3	4.06 (0.1598)	8
3.94 (0.1551)	5	4.10 (0.1614)	9

**Spacer**

**(For adjustment of output shaft preload)**

<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>	<b>THICKNESS mm (in)</b>	<b>IDENTIFICATION SYMBOL</b>
0.86 (0.0339)	86	1.19 (0.0469)	L
0.89 (0.0350)	89	1.22 (0.0480)	G
0.92 (0.0362)	92	1.25 (0.0492)	M
0.95 (0.0374)	95	1.28 (0.0504)	N
0.98 (0.0386)	98	1.31 (0.0516)	E
1.01 (0.0398)	01	1.34 (0.0528)	O
1.04 (0.0409)	04	1.37 (0.0539)	P
1.07 (0.0421)	07	1.40 (0.0551)	None
1.10 (0.0433)	J	1.43 (0.0563)	Q
1.13 (0.0445)	D	1.46 (0.0575)	R
1.16 (0.0457)	K		

**Snap ring**

(For adjustment of output shaft rear bearing end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
1.36 (0.0535)	Yellow	1.55 (0.0610)	White
1.40 (0.0551)	Green	1.58 (0.0622)	Brown
1.44 (0.0567)	None	1.63 (0.0642)	Orange
1.48 (0.0583)	Black	1.68 (0.0661)	Blue
1.51 (0.0594)	Blue		

**Snap ring**

(For adjustment of output shaft 3rd speed gear end play)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
2.81 (0.1106)	None	2.97 (0.1169)	Green
2.85 (0.1122)	Blue	3.01 (0.1185)	Black
2.89 (0.1138)	Brown	3.05 (0.1201)	White
2.93 (0.1154)	Yellow	3.09 (0.1217)	Orange

**Spacer**

(For adjustment of center differential case preload)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
0.74 (0.0292)	74	1.04 (0.0409)	04
0.77 (0.0303)	77	1.07 (0.0421)	07
0.80 (0.0315)	80	1.10 (0.0433)	J
0.83 (0.0327)	83	1.13 (0.0445)	D
0.86 (0.0339)	86	1.16 (0.0457)	K
0.89 (0.0350)	89	1.19 (0.0469)	L
0.92 (0.0362)	92	1.22 (0.0480)	G
0.95 (0.0374)	95	1.25 (0.0492)	M
0.98 (0.0386)	98	1.28 (0.0504)	N
1.01 (0.0398)	01	1.31 (0.0516)	E

**Spacer**

(For adjustment of center differential case backlash)

THICKNESS mm (in)	IDENTIFICATION SYMBOL	THICKNESS mm (in)	IDENTIFICATION SYMBOL
0.6 (0.0236)	—	0.9 (0.0354)	—
0.7 (0.0276)	—	1.0 (0.0394)	—
0.8 (0.0315)	—	1.1 (0.0433)	—