

# MANUAL TRANSAXLE

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## GENERAL SPECIFICATIONS

Model	
Type	S-speed floor shift
Gear ratio First	3.083
Second	1.947
Third	1.285
Fourth	0.939
Fifth	0.756
Reverse	3.083
Final gear ratio	4.592
Speedometer gear ratio (driven/drive)	32/36

## SERVICE STANDARD

Standard value	
Input shaft front bearing end play	0.01-0.12 mm (0.0004-0.0047 in.)
Input shaft rear bearing end play	0.01-0.09 mm (0.0004-0.0035 in.)
Intermediate shaft front bearing end play	0.01-0.14 mm (0.0004-0.0055 in.)
Intermediate shaft rear bearing end play	0.05-0.10 mm (0.002-0.0039 in.)
Output shaft bearing end play	0.05-0.10 mm (0.002-0.0039 in.)
Differential case end play	0.05-0.10 mm (0.002-0.0039 in.)
Differential side gear and pinion backlash	0.025-0.15 mm (0.001-0.006 in.)
Limit	
Synchronizer ring and clutch gear clearance	0.5 mm (0.02 in.)

## LUBRICANTS

	Recommended lubricant	Quantity
Transaxle oil lit (U.S. gts., Imp.qts.)	Hypoid gear oil, SAE 75W-85W, AP1-GL4	1.8 (1.9, 1.6)
Return spring and bracket sliding part	Multipurpose grease SAE J310, NLG1 NO.2	As required
Drive shaft oil seal lip	Hypoid gear oil, SAE 75W-85W, AP1-GL4	As required
Shift lever bushing	Multipurpose grease SAE J310, NLG1 NO.2	As required

## SEALANTS AND ADHESIVES

	Recommended sealants and adhesives	Quantity
Transaxle case and clutch housing alignment surface	THREE BOND 1216	As required
Transaxle case and rear cover alignment surface	THREE BOND 1216	As required
Differential drive gear bolt	THREE BOND 1303 or LOCTITE 648	As required
Bearing retainer bolt (flush bolt only)	THREE BOND 1303	As required

**SNAP RING FOR ADJUSTMENT AND SPACER**

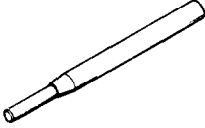

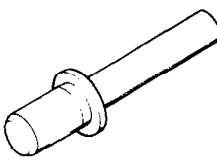
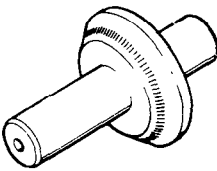
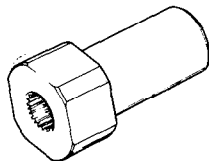
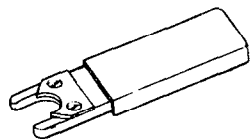
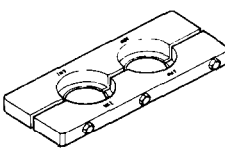
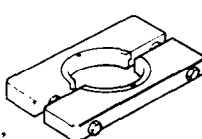
Part name	Thickness mm. (in.)	Identification symbol
Snap ring (For adjustment of input shaft front bearing end play)	2.24 (0.0882) 2.31 (0.0909) 2.38 (0.0937)	None Blue Brown
Snap ring (For adjustment of input shaft rear bearing end play)	1.80 (0.0709) 1.87 (0.0736) 1.94 (0.0764) 2.01 (0.0791) 2.08 (0.0819) 2.15 (0.0846)	Blue White None Green Yellow Brown
Snap ring (For adjustment of intermediate shaft bearing end play)	1.4 (0.0551) 1.5 (0.0591) 1.6 (0.0630) 1.7 (0.0669) 1.8 (0.0708)	Brown None Blue Red White
Spacer: (For adjustment of intermediate shaft end play)	0.62 (0.0244) 0.65 (0.0255) 0.68 (0.0268) 0.71 (0.0280) 0.74 (0.0291) 0.77 (0.0303)	62 65 68 71 74 77
	0.80 (0.0315) 0.83 (0.0327) 0.86 (0.0338) 0.89 (0.0350) 0.92 (0.0362) 0.95 (0.0374) 0.98 (0.0386) 1.01 (0.0394) 1.04 (0.0409) 1.07 (0.0421) 1.10 (0.0433) 1.13 (0.0445) 1.16 (0.0457) 1.19 (0.0468) 1.22 (0.0480) 1.25 (0.0492) 1.28 (0.0504) 1.31 (0.0516) 1.34 (0.0527) 1.37 (0.0539)	80 83 86 89 92 95 98 01 04 07 10 13 16 19 22 25 28 31 34 37

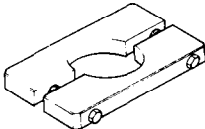
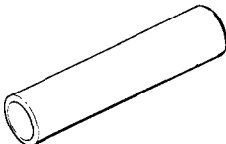
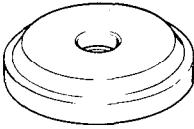
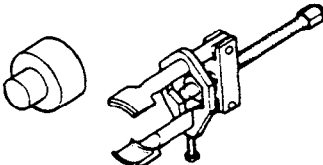
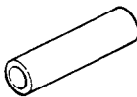
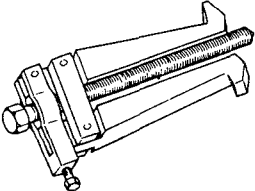
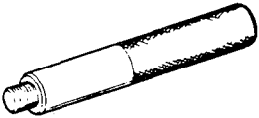
Part name	Thickness mm. (in.)	Identification symbol
Spacer (For adjustment of output shaft end play)	0.74 (0.0291)	74
	0.77(0.0303)	77
	0.80(0.0315)	80
	0.83(0.0327)	83
	0.86(0.0338)	86
	0.89(0.0350)	89
	0.92(0.0362)	92
	0.95(0.0374)	95
	0.98(0.0386)	98
	1.01(0.0398)	01
	1.04(0.0409)	04
	1.07(0.0421)	07
	1.10(0.0433)	10
	1.13(0.0445)	13
	1.16(0.0457)	16
	1.19(0.0468)	19
	1.22(0.0480)	22
	1.25(0.0492)	25
	1.28(0.0504)	28
	1.31(0.0516)	31
	1.34(0.0527)	34
Spacer (For adjustment of differential case end play)	0.80(0.0315)	80
	0.83(0.0327)	83
	0.86(0.0338)	86
	0.89(0.0350)	89
	0.92(0.0362)	92
	0.95(0.0374)	95
	0.98(0.0386)	98
	1.01(0.0398)	01
	1.04(0.0409)	04
	1.07(0.0421)	07
	1.10(0.0421)	10
	1.13(0.0445)	13
	1.16(0.0457)	16
	1.19(0.0469)	19
	1.22(0.0480)	22
Spacer (For adjustment of differential pinion backlash)	0.75-0.82(0.0295-0.0323)	-
	0.83-0.92(0.0327-0.0362)	-
	0.93-1.00(0.0366-0.0394)	-
	1.01-1.08(0.0398-0.0425)	-
	1.09-1.16(0.0429-0.0457)	-

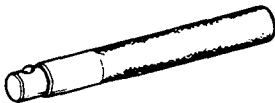
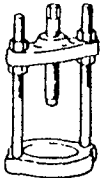
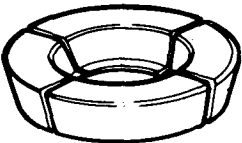
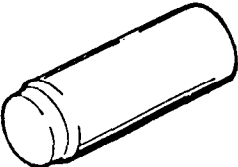
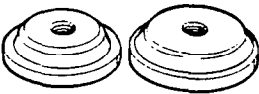
**TIGHTENING TORQUE**

	Nm	Kg.cm	lb.ft
Shift cable and select cable to body	12-15	120-150	9-1
Shift lever assembly to body	9-14	90-140	17-10
Shift lever (A) to bracket assembly	19-28	190-280	13-20
Clutch release cylinder mounting bolts	20-27	200-270	15-19
Clutch tube flare nut	13-17	130-170	9-12
Clutch tube to transaxle assembly	15-22	150-220	11-16
Starter motor mounting bolts	27-34	270-340	20-25
Transaxle mount bracket to transaxle	60-80	600-800	43-58
Transaxle mount bracket to body	90-110	900-1100	65-80
Transaxle mount bracket to tension rod	75-95	750-950	54-69
Tension rod to tension rod bracket	35-55	350-550	25-40
Bell housing cover mounting bolts	8-10	80-100	6-7
Transaxle mounting bolt [12 mm (0.47 in.) diameter bolt]	43-55	430-550	32-39
Transaxle mounting bolt [10 mm (0.39 in.) diameter bolt]	30-35	300-350	22-25
Transaxle mounting bolt [8 mm (0.31 in.) diameter bolt]	8-10	80-100	6-7
Rear cover bolt	15-22	150-220	11-15
Backup lamp switch	30-35	300-350	22-25
Poppet plug	30-42	300-420	22-30
Filler plug	30-35	300-350	22-25
Drain plug	30-35	300-350	22-25
Speedometer sleeve bolt	3-5	30-50	2-4
Input shaft lock nut	140-160	1400-1600	102-115
Intermediate shaft lock nut	140-160	1400-1600	102-115
Reverse idler gear shaft bolt	43-55	430-550	32-39
Transaxle case tightening bolt	35-42	350-420	26-30
Stopper bracket bolt	15-22	150-220	11-15
Restriction ball assembly	30-35	300-350	22-25
Reverse shift lever assembly installation bolt	15-22	150-220	11-15
Bearing retainer bolt	15-22	150-220	11-15
Differential drive gear bolt	130-140	1300-1400	94-10
Interlock plate bolt	20-27	200-270	115-191
Select lever assembly mounting bolt	15-22	150-220	1-15
Reverse brake cone mounting bolts	4.0-5.5	40-55	3-4

## SPECIAL TOOLS

Tool (Number and Name)	Illustration	Use
09414-11000 Lock pin extractor		1) Driving out the spring pin of the clutch shaft 2) Driving out the spring pin of the shift fork
09414-11100 Lock pin installer		Driving in the spring pin of the shift fork
09431-21000 Front oil seal installer		Installation of the input shaft front oil seal
09431-21200 Oil seal installer		Installation of differential oil seal
09432-21101 Input shaft holder		Holding the input shaft when loosening input shaft nut
09432-21201 Snap ring remover		Removal of input shaft snap ring
09432-21300 Removing plate		Removal of input shaft front and rear bearing
09432-33100 Removing plate		1) Removal of intermediate shaft first gear and taper roller bearing 2) Removal of intermediate shaft second gear

Tool (Number and Name)	Illustration	Use
09432-33200 Removing plate		<ol style="list-style-type: none"> <li>1) Removal of taper roller bearing of output shaft.</li> <li>2) Removal of input shaft third, fourth gear and bearing.</li> </ol>
09432-33300 Bearing installer		<ol style="list-style-type: none"> <li>1) Installation of input shaft bearing sleeve.</li> <li>2) Installation of output shaft taper roller bearing.</li> <li>3) Installation of the intermediate shaft front and rear bearing.</li> <li>4) Installation of the input shaft third, fourth gear and bearing.</li> </ol>
09432-33400 Bearing race installer		Installation of intermediate shaft bearing outer race (use with 09500-21000)
09455-21000 Bearing and gear puller		<ol style="list-style-type: none"> <li>1) Removal of intermediate gear and needle bearing.</li> <li>2) Removal of input shaft fifth speed gear sleeve.</li> </ol>
09455-21100 Bearing installer		Installation of differential bearing
09455-32200 Oil seal puller		Removal of output shaft bearing outer race and intermediate shaft bearing outer race
09500-11000 Bar		Installation of differential bearing outer race and output shaft bearing outer race (use with 09532-11500)

Tool (Number and Name)	Illustration	Use
09500-21000 Bar		Installation of intermediate shaft bearing outer race (use with 09432-33400)
09532-11000 Taper roller bearing puller		Removal of the differential case side bearing (use with 09532-11100 and 09532-11301)
09532-11100 Side bearing remove adaptor		Removal of the differential case side bearing (use with 09532-11000 and 09532-11301)
09532-11301 Puller cup		Removal of the differential case side bearing (use with 09532-11000 and 09532-11100)
09532-11500 Pinion bearing outer race installer		<ol style="list-style-type: none"> <li>1) Installation of differential bearing outer race and output shaft bearing outer race (use with 09500-11000)</li> <li>2) Installation of output shaft bearing outer race (use with 09500-11000)</li> </ol>



**TROUBLESHOOTING**

Symptom	Probable cause	Remedy
Vibration, noise	Loose or damaged transaxle and engine-mounts	Tighten or replace mounts
	Inadequate shaft end play	Correct end play
	Worn or damaged gears	Replace gears
	Use of inadequate grade of oil	Replace with specified oil
	Low oil level	Replenish
	Inadequate engine idle speed	Adjust idle speed
Oil leakage	Broken or damaged, oil seal or O-ring	Replace oil seal or O-ring
Hard shift	Faulty control cable	Replace control cable
	Poor contact or wear of synchronizer ring and gear cone	Correct or replace
	Weakened synchronizer spring	Replace synchronizer spring
	Use of inadequate grade of oil	Replace with specified oil
Jumps out of gear	Worn gear shift fork or broken poppet spring	Replace shift fork or poppet spring
	Synchronizer hub to sleeve spline clearance too large	Replace synchronizer hub and sleeve

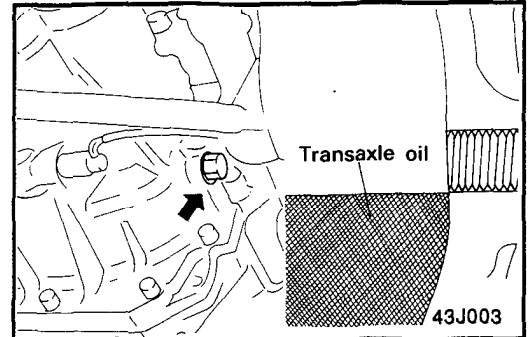
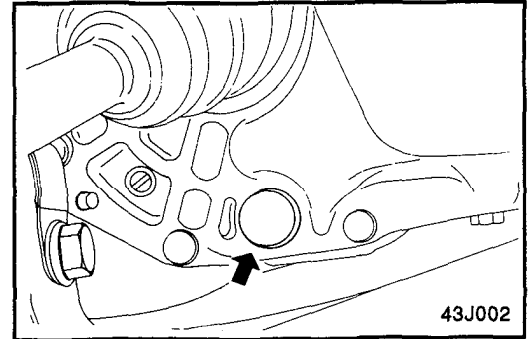
## SERVICE ADJUSTMENT PROCEDURES

### REPLACEMENT OF TRANSAXLE OIL

1. With the vehicle on a flat and level surface, remove the drain plug and drain out the transaxle oil.

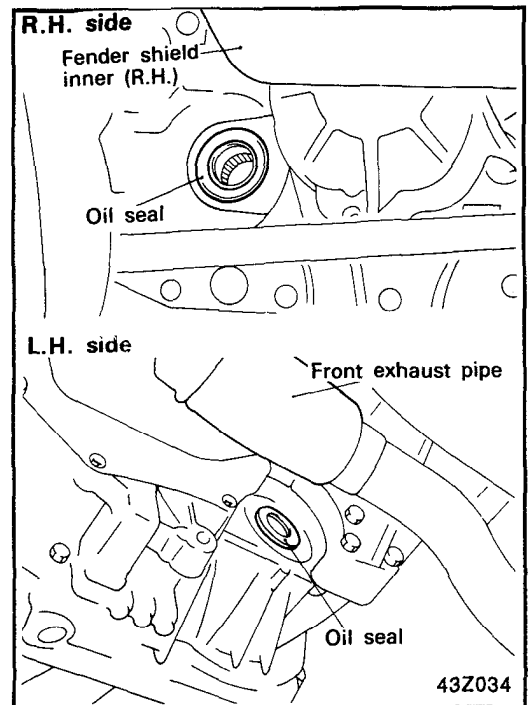
2. Fill transaxle oil (through the filler plug pat) until the oil level is the same level as the plug hole.

**Transaxle oil : Hypoid gear oil, SAE 75W-85W, API-GL4  
[1.8 LIT. (1.9 U.S.qts., 1.6 Imp.qts.)]**

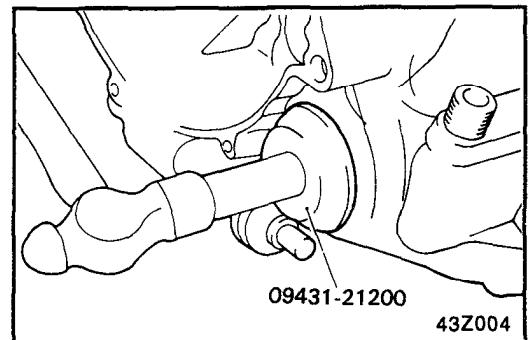


### REPLACEMENT OF DRIVE SHAFT OIL SEALS

1. Disconnect the drive shaft from the transaxle (Refer to drive shaft).
2. Using a flat-tip (-) screwdriver, remove the oil seal.

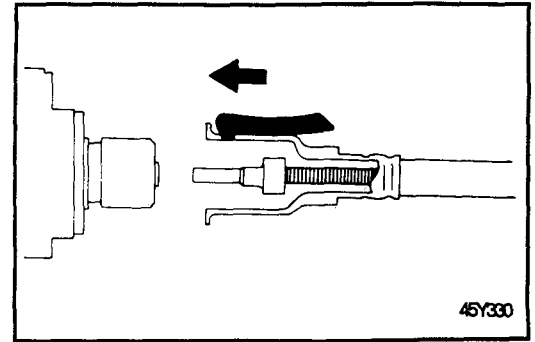


3. Using the special tool (09431-21200), tap the drive shaft oil seal into the transaxle.
4. Apply a coating of the transaxle oil to the lip of the oil seal.



## REPLACEMENT OF SPEEDOMETER CABLE

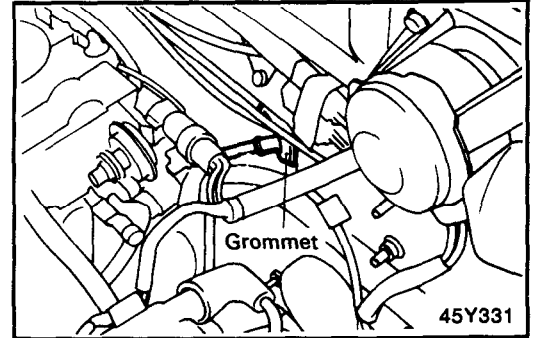
1. Remove the old cable.
2. When connecting the cable to the speedometer, insert the cable until its stopper properly fits to the meter side groove.



3. Install the grommet so that, as shown in the illustration, the cable attachment part and the projecting part are horizontal.

**Caution**

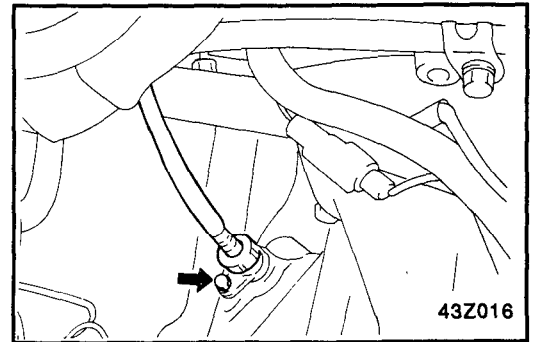
The cable arrangement should be made so that the radius of the cable bend is 150 mm (5.9 in.) or more.



4. At the transaxle end of the speedometer cable, the key joint should be inserted into the transaxle, and the nut tightened.

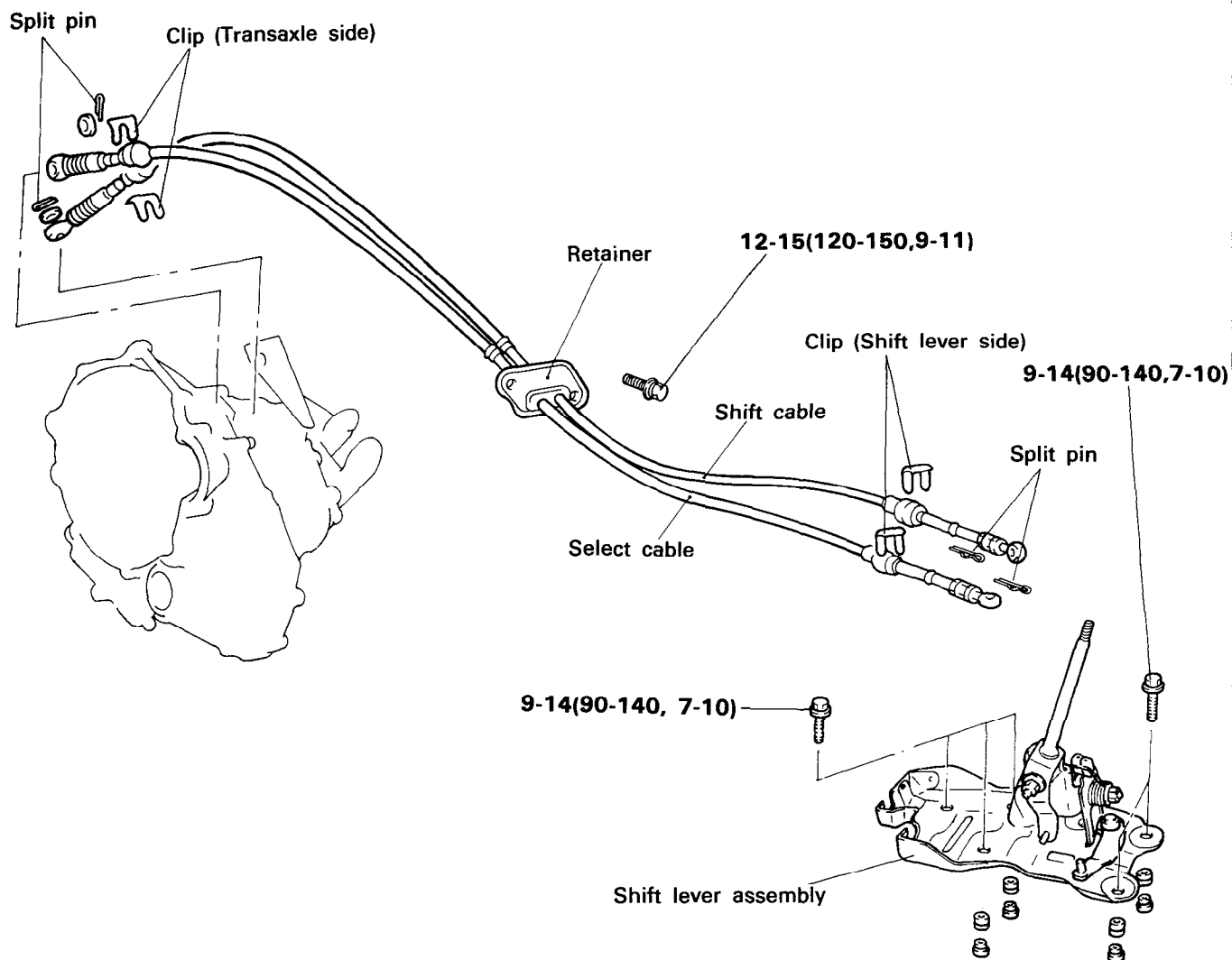
**Caution**

If the cable is not correctly and securely connected, it may cause incorrect reading by the speedometer or abnormal noise.



## MANUAL TRANSAXLE CONTROL

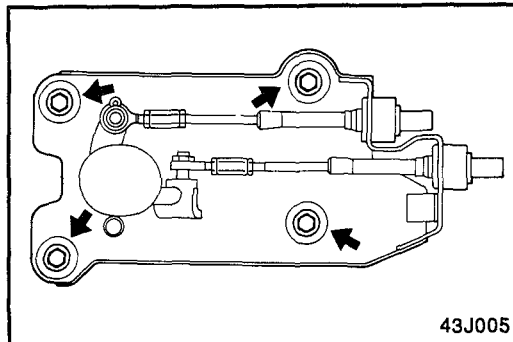
## COMPONENTS



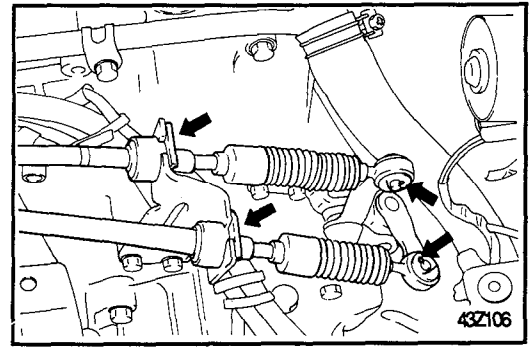
**TORQUE : Nm (kg.cm, lb.ft)**

## REMOVAL

1. Remove the console assembly (Refer to CONSOLE).
2. Remove the split pins and clips (shift lever side).
3. Remove the shift lever assembly.



4. Remove the retainer and bolts.
5. Remove the air cleaner assembly.
6. Remove the split pins and clips (Transaxle side).
7. Remove the shift cable and select cable.

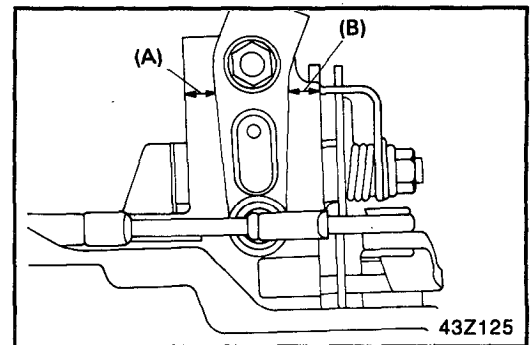
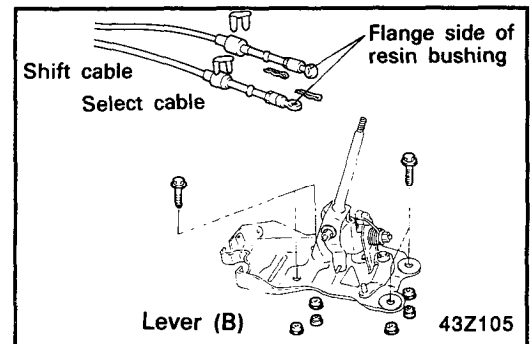


## INSPECTION

1. Check the select cable for operation and for damage.
2. Check the shift cable for proper operation and for damage.
3. Check the boot for damage.
4. Check each bushing for wear, abrasion, sticking, restricted movement or damage.
5. Check for a weak or damaged spring.

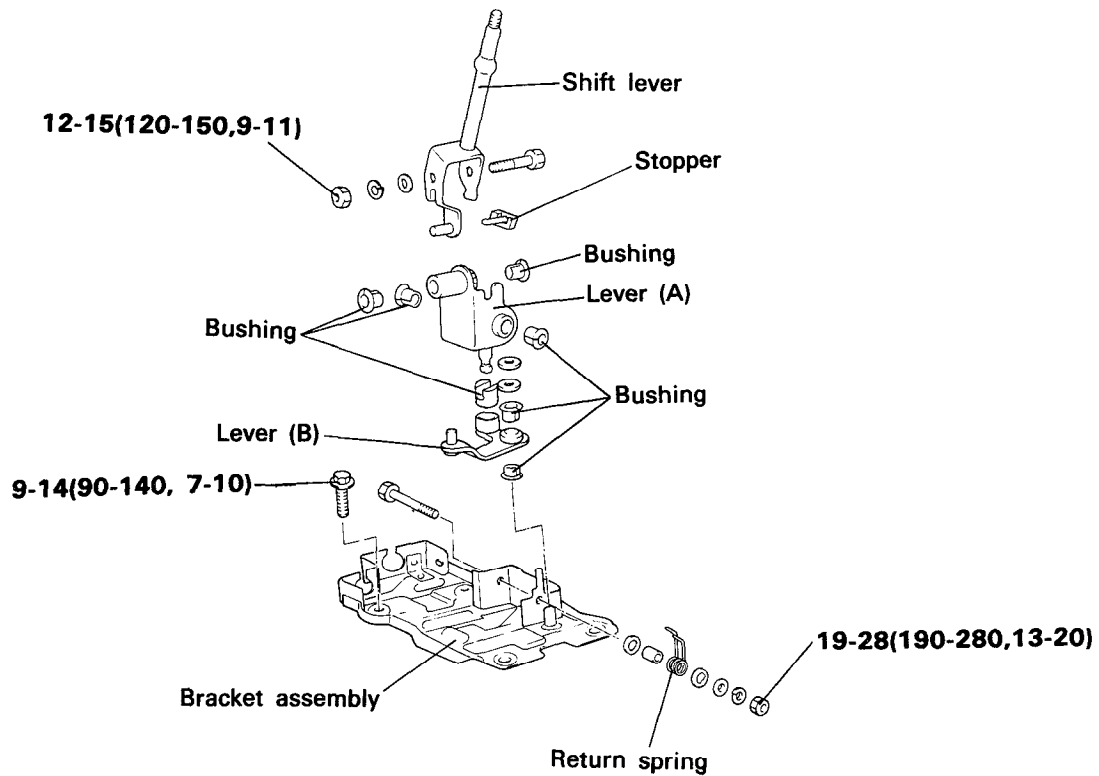
## INSTALLATION

1. Install the shift lever assembly.
2. Installation of shift lever and select cable.
  - 1) Move the transaxle select lever and shift lever to the neutral position.
  - 2) When connecting the select cable to lever(B), adjust the select cable's length so that lever (B) is at the neutral position.
  - 3) The flange side of the resin bushing at the select cable end should be at the lever (B) end surface.
  - 4) The flange side of the resin bushing at the shift cable end should be at the shift lever's cotter pin hole.
  - 5) After connecting the shift cable, check that the dimensions (A) and (B) shown in the illustration are equal.
  - 6) Move the shift lever to each position and verify that the shifting is smooth.
3. Install the retainer and bolts.
4. Install the air cleaner assembly



## SHIFT- LEVER ASSEMBLY

## COMPONENTS



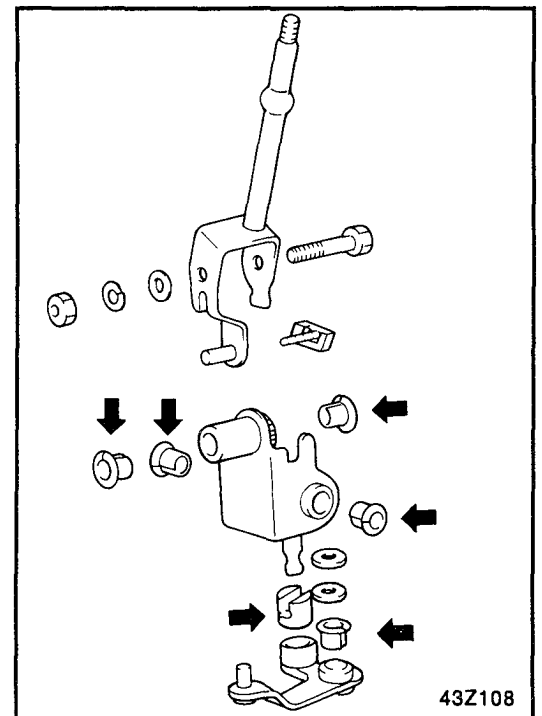
**TORQUE : Nm (kg.cm, lb.ft)**

## INSPECTION

1. Inspect the bushing for wear or damage.
2. Inspect the return spring for damage or deterioration.

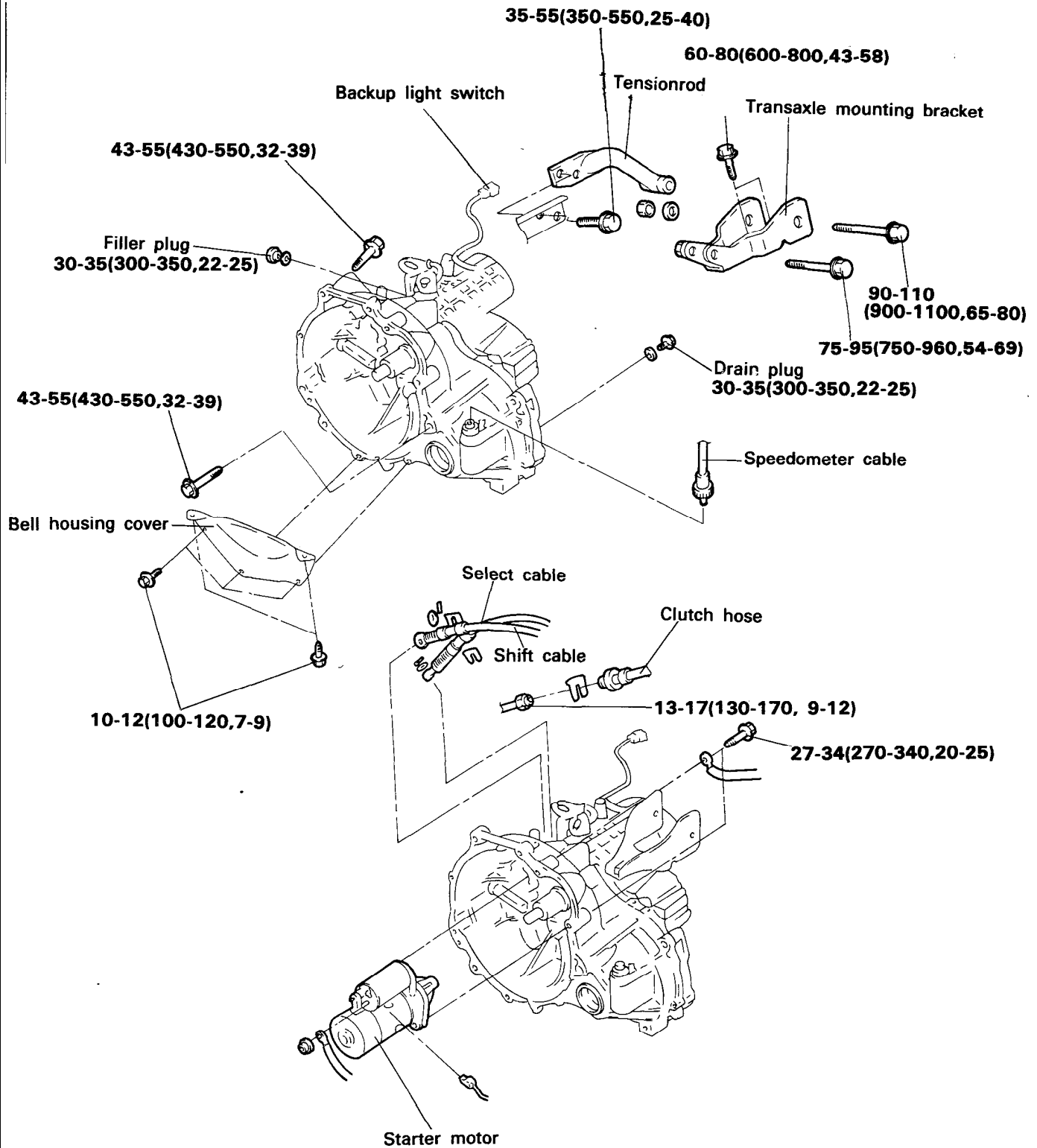
## ASSEMBLY

1. Apply multi-purpose grease to the sliding part of the bushings.
2. Assembly is the reverse of disassembly.



## MANUAL TRANSAXLE

## COMPONENTS



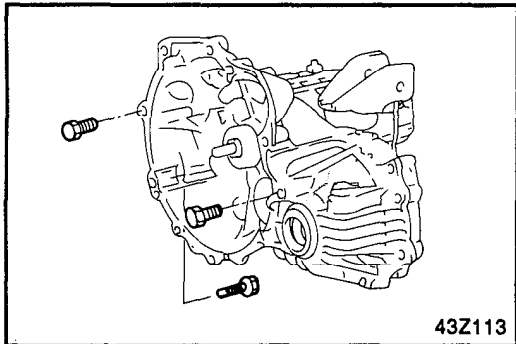
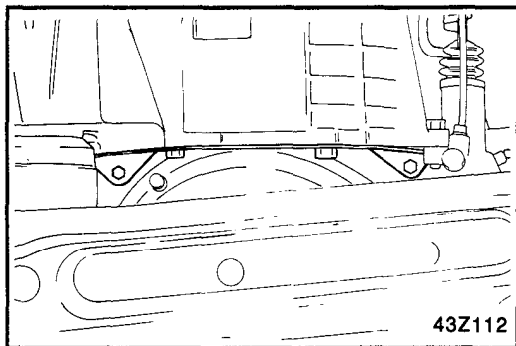
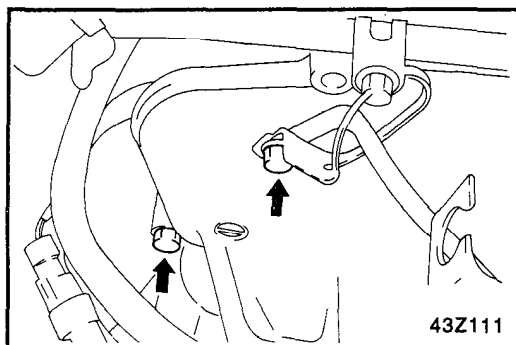
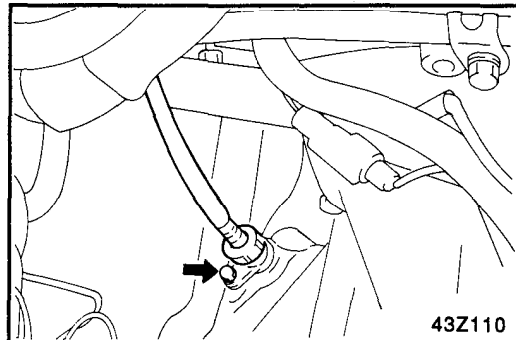
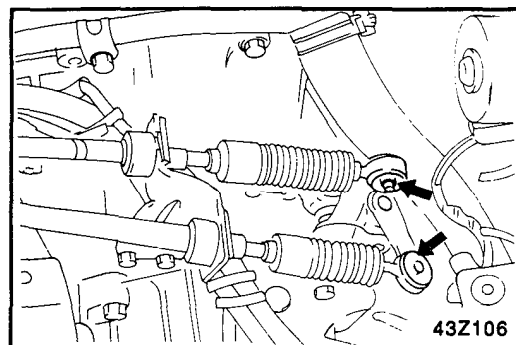
TORQUE : Nm (kg.cm, lb.ft)

**REMOVAL**

1. Remove the clutch release cylinder (Refer to clutch part.)
2. Remove the drain plug and drain the transaxle oil.
3. Remove the air cleaner assembly.
4. Remove the select cable and shift cable (Refer to MANUAL TRANSAXLE CONTROL SECTION)
5. Separate the backup light switch connector.
6. Disconnect the speedometer cable.
7. Remove the starter motor mounting bolts.  
Remove the transaxle assembly upper connecting bolts and transaxle mounting bracket bolt.
8. Remove the splash shield.
9. Disconnect the tie rod end, lower the arm ball joint and drive shaft (Refer to DRIVE SHAFT AND FRONT AXLE SECTION)
10. Remove the bell housing cover.
11. Remove the transaxle assembly lower mounting bolts with the transaxle assembly supported by a jack.
12. Remove the transaxle assembly.

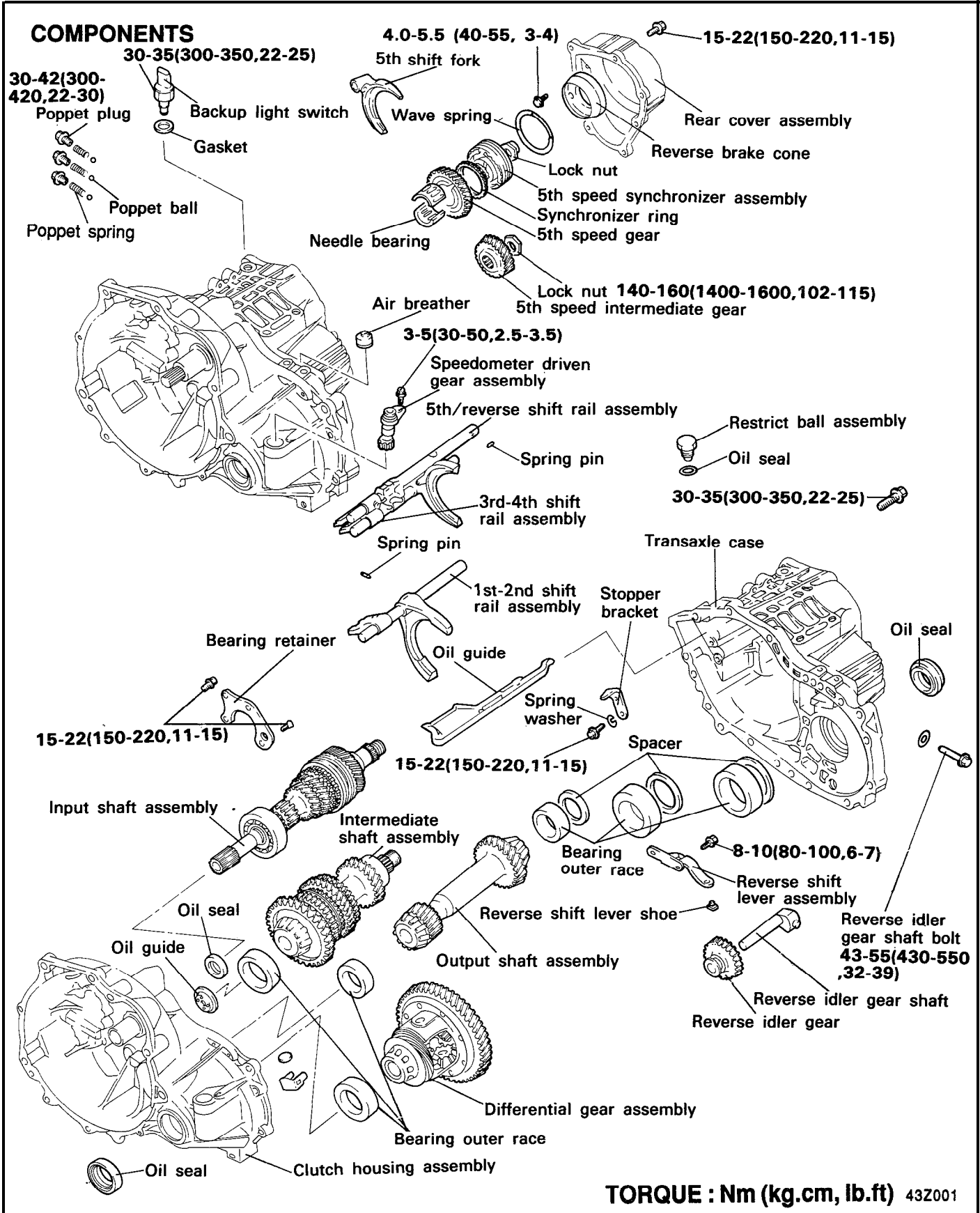
**NOTE**

When supporting the transaxle assembly, make sure that the lifting force is applied to a wide area, not to a small localized area.



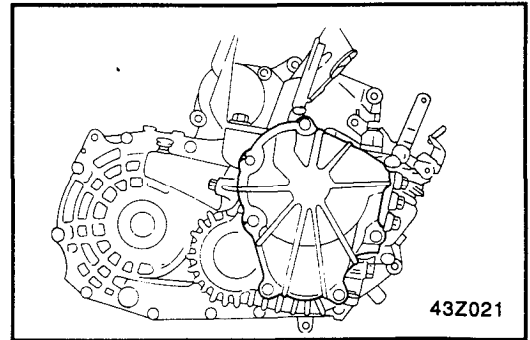


# MANUAL TRANSAXLE ASSEMBLY

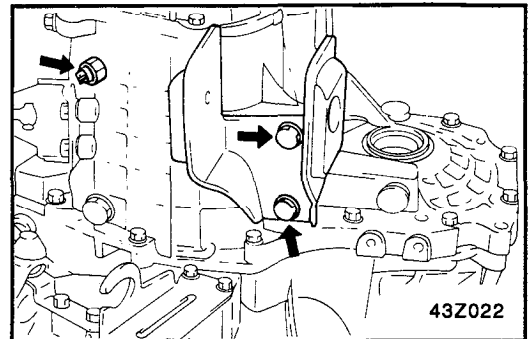


**DISASSEMBLY**

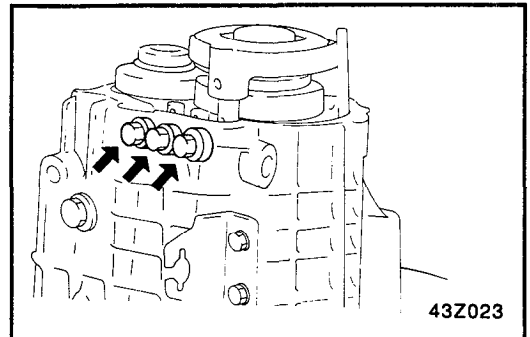
1. Remove the rear cover bolt and rear cover.



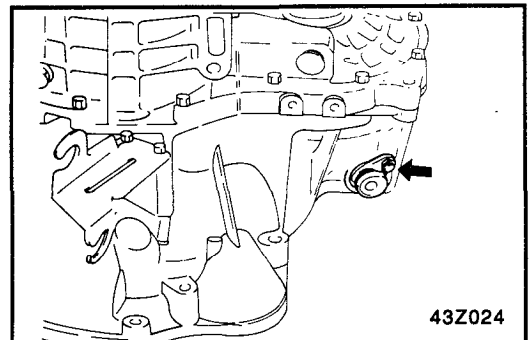
2. Remove the backup light switch, gasket and mounting bracket.



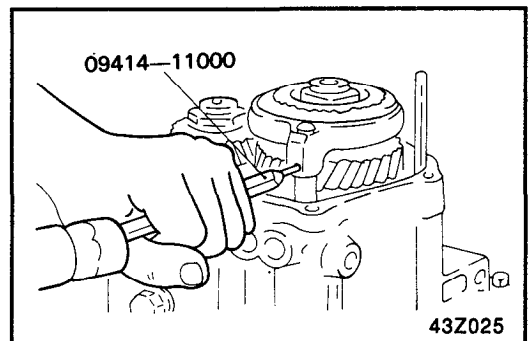
3. Remove the poppet plugs, poppet springs and poppet balls.



4. Remove the speedometer driven gear assembly.

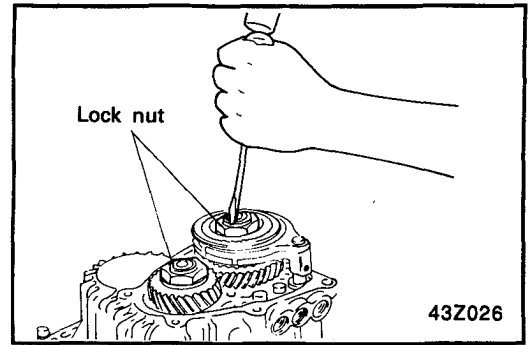


5. Remove the spring pin using the special tool (09414-11000).

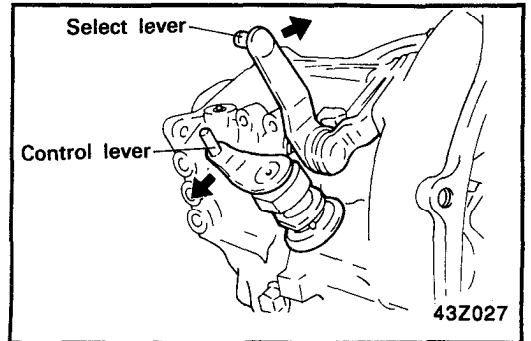


6. Removal of the lock nuts

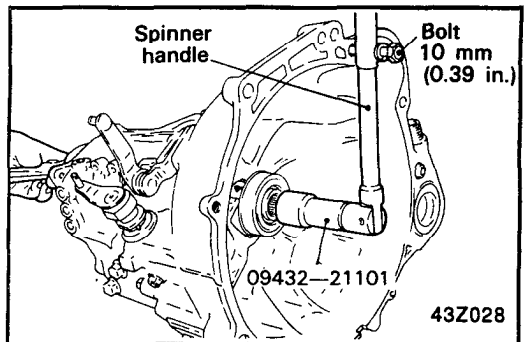
1) Unstake lock nuts of the input shaft and intermediate shaft.



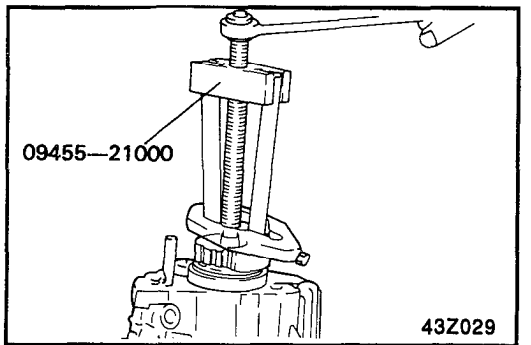
2) Shift the transaxle in reverse using the control lever and select lever.



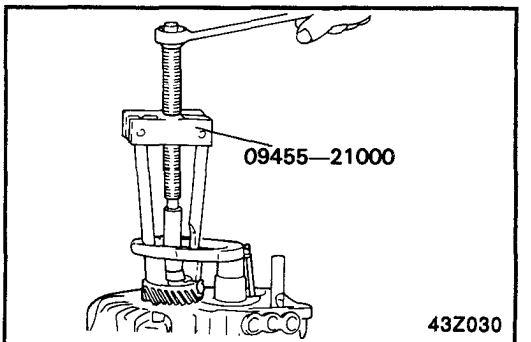
- 3) Install the special tool (09432-21101) onto the input shaft.
- 4) Screw a bolt 10 mm (0.39 in.) into the hole on the periphery of clutch housing and attach a spinner handle to the special tool.
- 5) Remove the lock nut, while using the bolt as a spinner handle stopper.



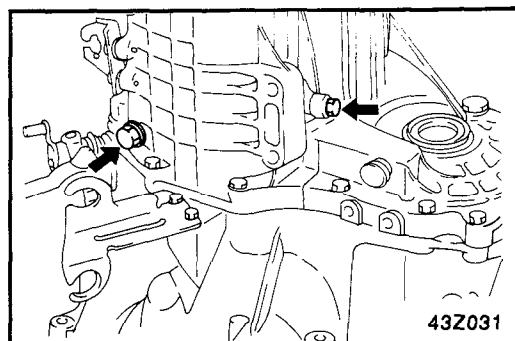
7. Remove the fifth speed synchronizer sleeve and fifth speed shift fork.
8. Remove the fifth speed synchronizer hub, synchronizer ring, fifth speed gear and needle bearing.



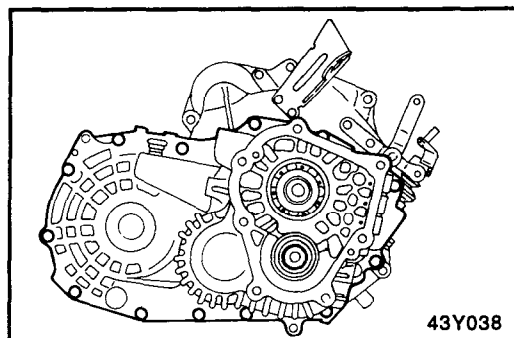
9. Remove the intermediate gear using the special tool (09455 21000).



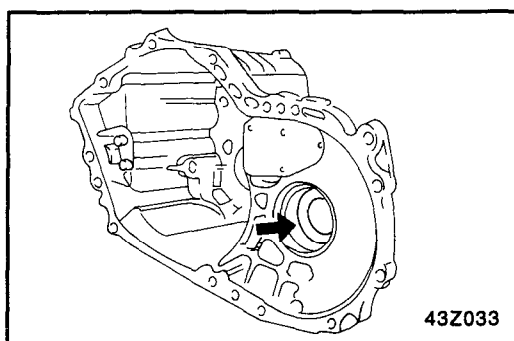
10. Remove the reverse idler gear shaft bolt and restriction ball assembly.



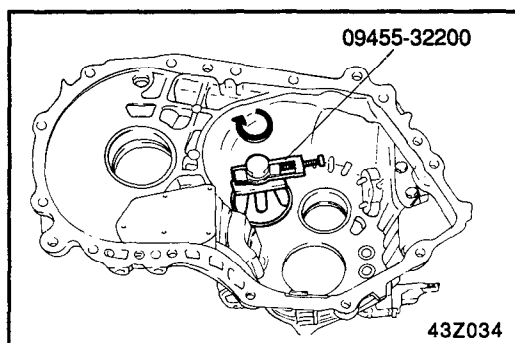
11. Remove the transaxle cover bolts (13 EA) and transaxle cover.



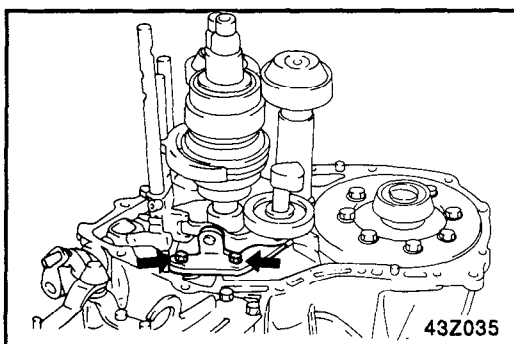
12. Remove the differential oil seal and oil guide.



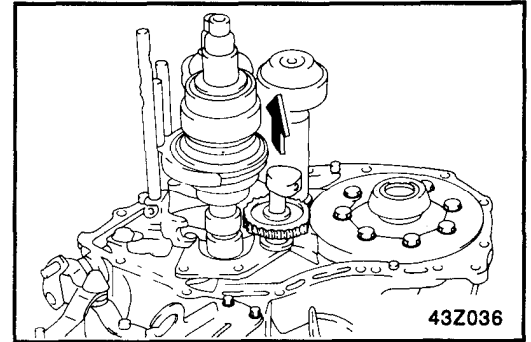
13. Remove the output shaft bearing outer race and spacer using the special tool (09455-32200).  
14. Remove the intermediate shaft bearing outer race and spacer.  
15. Remove the differential bearing outer race and spacer.



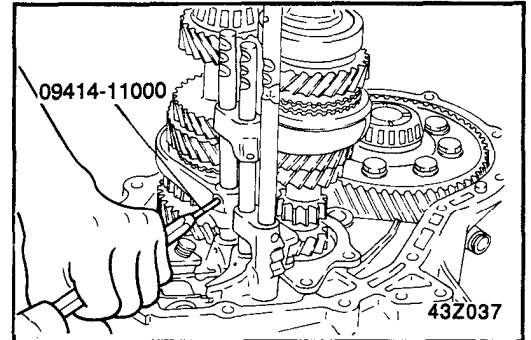
16. Remove the reverse shift lever and the reverse shift shoe.



17. Remove the reverse gear shaft and reverse gear.

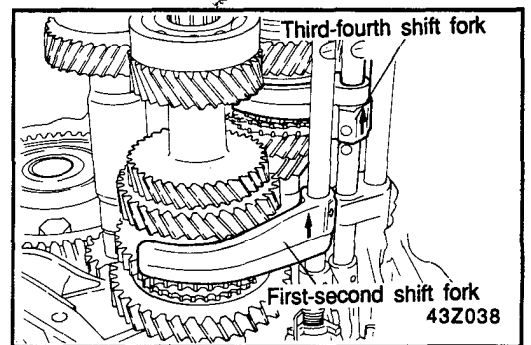


18. Remove the spring pins using the special tool ,(09414-11000).

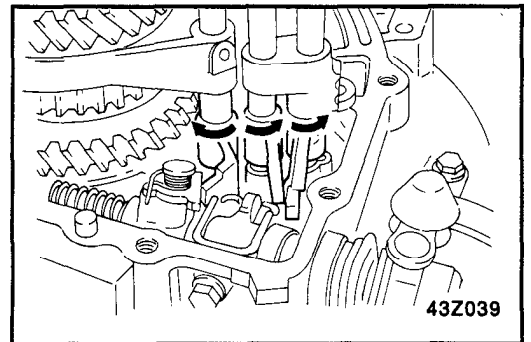


19. Disassembly of shift rail assembly.

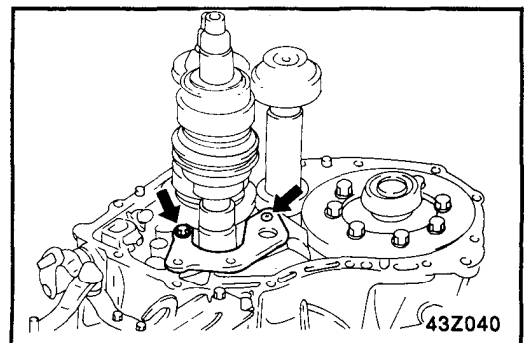
- 1) Shift the first-second speed shift fork to the second speed.
- 2) Shift the third-fourth speed shift fork to the fourth speed.



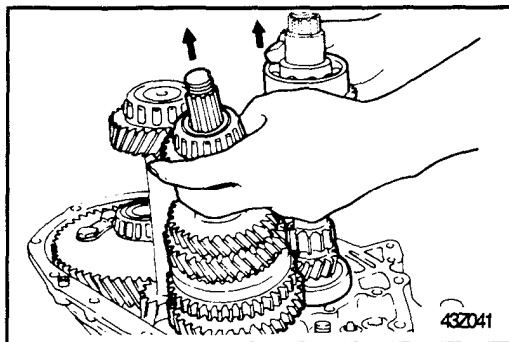
3) Remove the shift rail assembly.



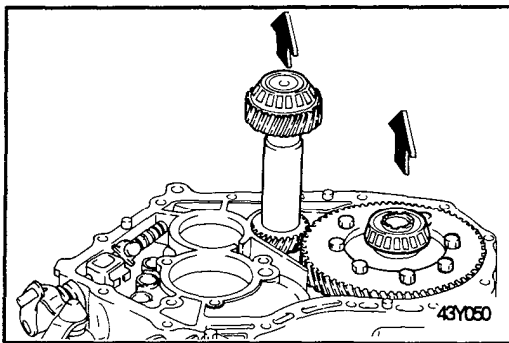
20. Remove the bearing retainer.



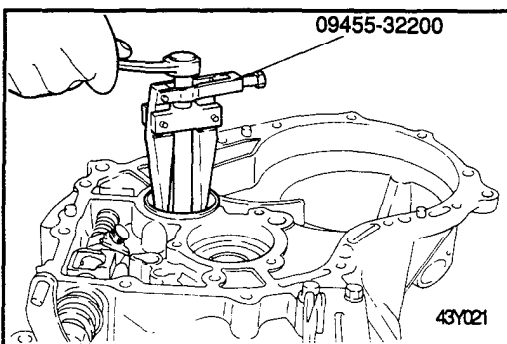
21. Lift up the input shaft assembly and remove the intermediate shaft assembly.



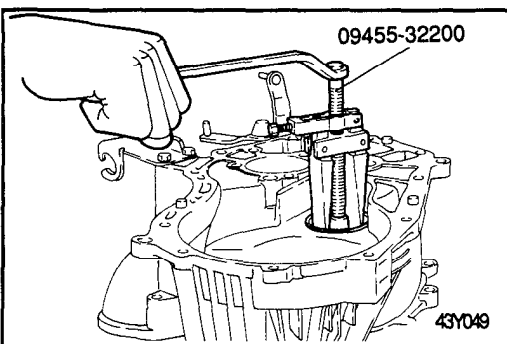
22. Remove the output shaft assembly and differential gear assembly.



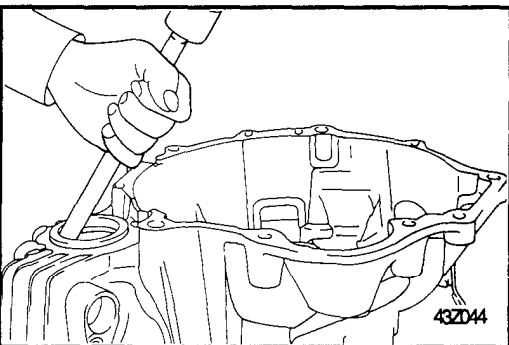
23. Remove the intermediate shaft bearing outer race and spacer and oil guide using the special tool (09455-32200).



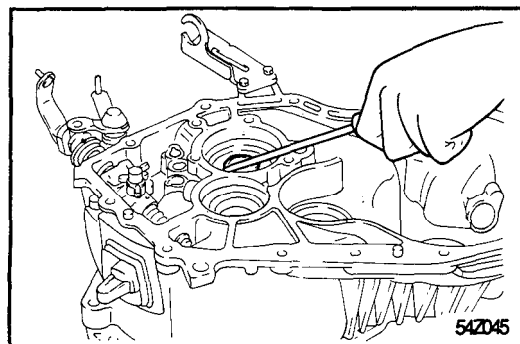
24. Remove the output shaft bearing outer race and spacer using the special tool (09455-32200).



25. Remove the differential bearing oil seal and the differential bearing outer race.

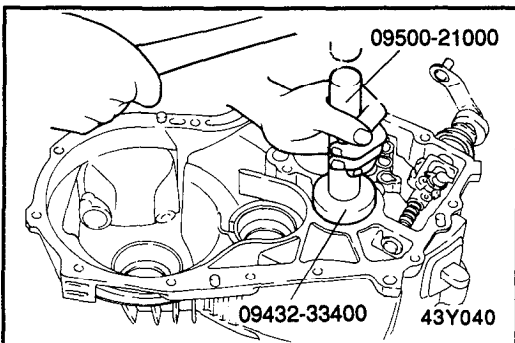
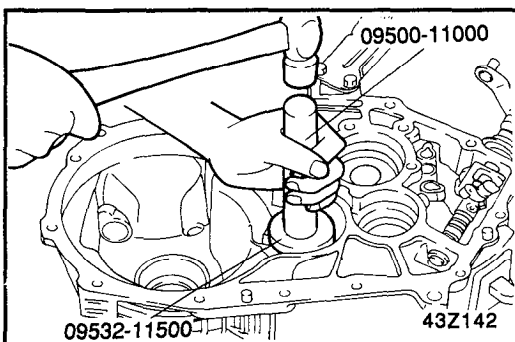
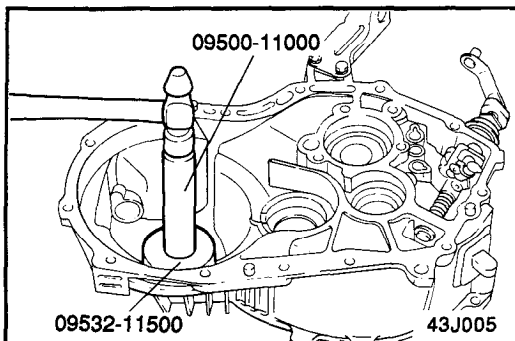
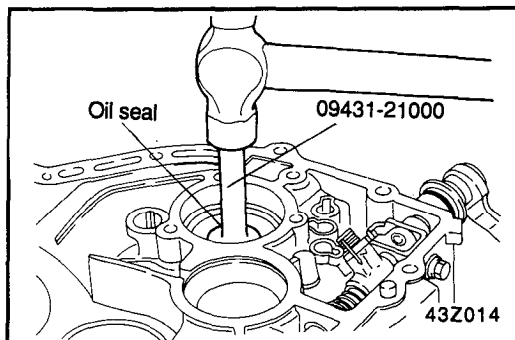
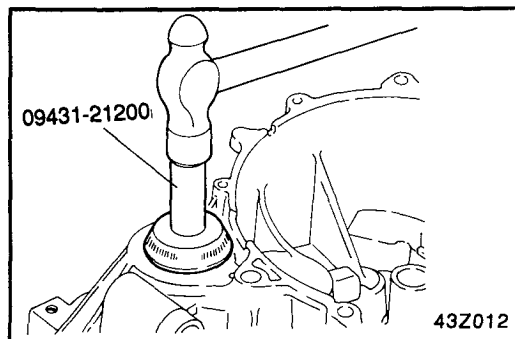


26. Remove the input shaft oil seal.



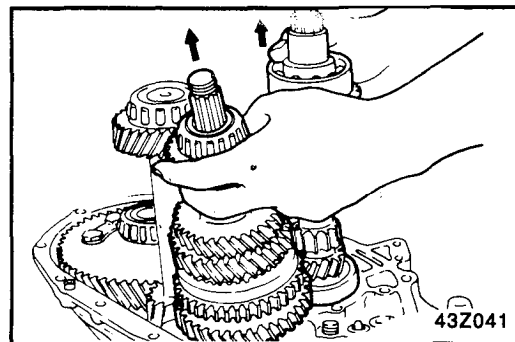
**INSTALLATION**

1. Install the drive shaft oil seal using the special tool (09431-21200).
2. Install the input shaft front oil seal using the special tool (09431-21000).
3. Install the differential gear bearing outer race and spacer using the special tool (09532-11500, 09500-11000).
4. Install the output shaft bearing outer race and spacer using the special tool (09500-11000, 09532-11500).
5. Install the oil guide and intermediate shaft bearing outer race and spacer using the special tools (09500-21000, 09432-33400).

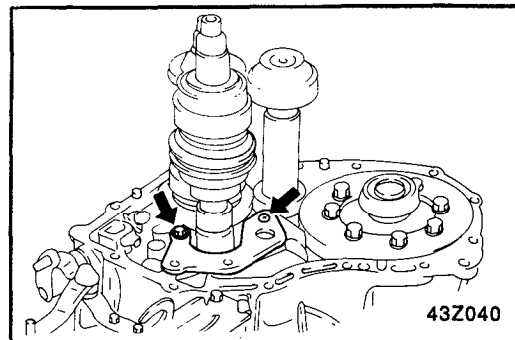




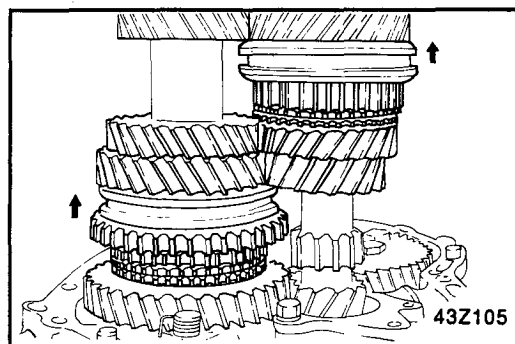
6. Install the differential gear assembly and output shaft assembly.
7. While lifting up the input shaft assembly, install it simultaneously with the intermediate shaft assembly.



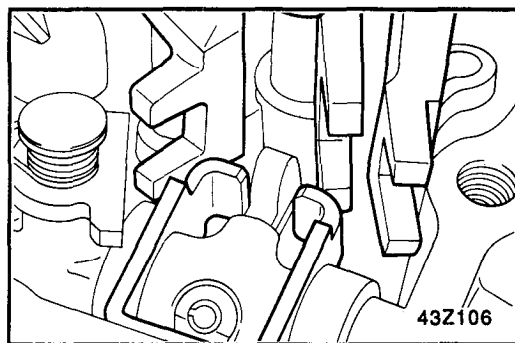
8. Install the retainer.



9. Reassembly of shift rail assembly.
  - 1) Set the first-second speed shift sleeve at second speed.
  - 2) Set the third-fourth speed shift sleeve at fourth speed.
  - 3) Install the first-second shift rail and fork assembly with the select lever pulled to fifth-reverse shift rail side.



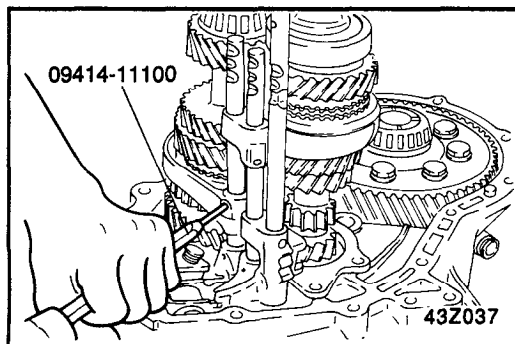
- 4) Install the third-fourth/fifth-reverse shift rail and fork assembly together with the select lever fully pushed to first-second rail side.
- 5) Install the third-fourth/reverse shift rail and fork assembly each other with the select lever fully pushed to first-second rail side.
- 6) Turn the shift rail to engine shift lug.

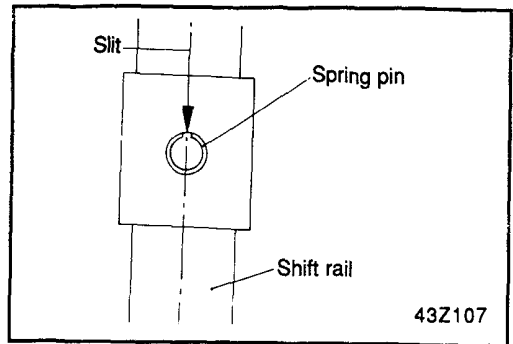


10. Reassembly of spring pin.
  - 1) Install the spring pins using the special tool (09414-11100).
  - 2) When installing, make sure that the slit of the spring pin is aligned with the shift rail center line.

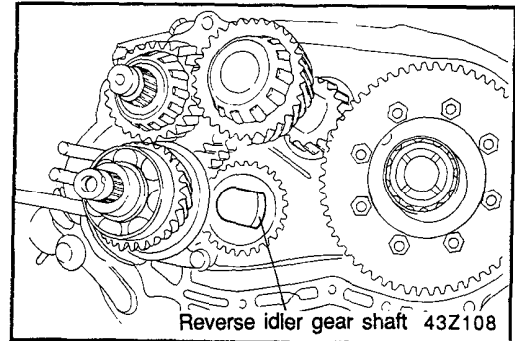
**Caution**

**Do not reuse the spring pins.**

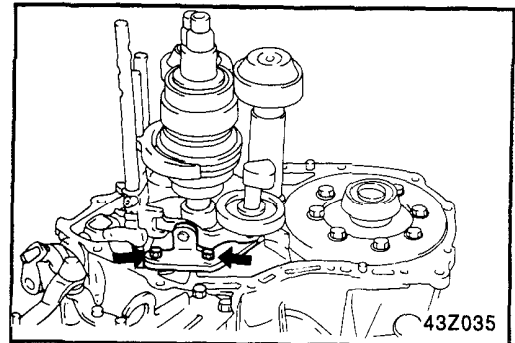




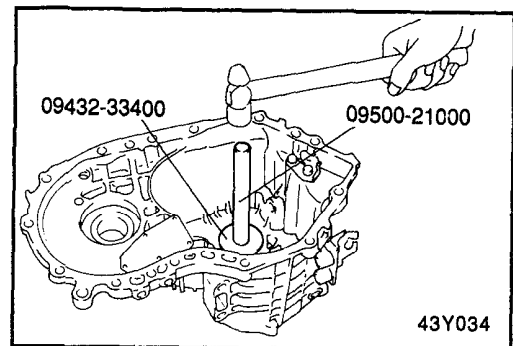
11. Install the reverse gear lever assembly.
12. install the reverse gear shaft and reverse gear in the direction illustrated.



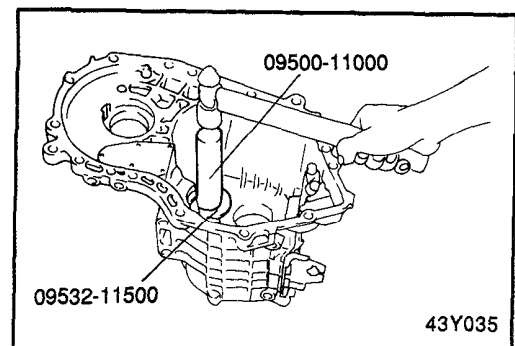
13. Install the reverse shift lever and shoe.



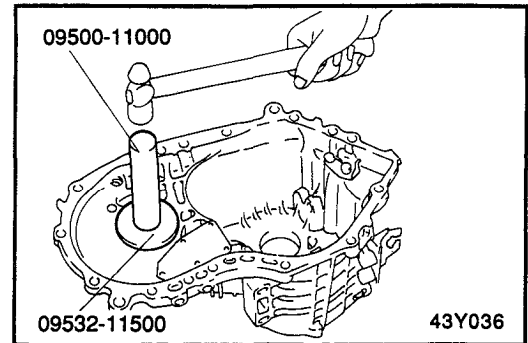
14. Install the intermediate shaft bearing outer race and spacer to the transaxle case using the special tools (09500-21000, 09432-33400).



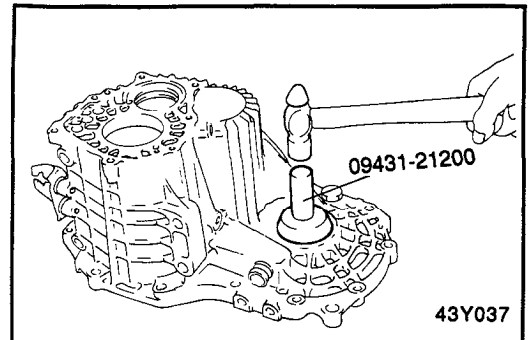
15. Install the output shaft bearing outer race and spacer to the transaxle case using the special tools (09500-11000, 09532-11500).



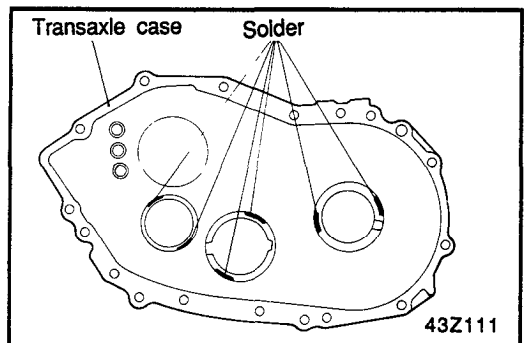
16. Install the differential bearing outer race and spacer to the transaxle case using the special tools (09500-11000, 09532-11500).



17. Install the drive shaft oil seal to the transaxle case using the special tool (09431-21200).



18. Reassembly of spacers (adjustment of end play).
- 1) Place two pieces of solder measuring about 10 mm (0.4 in.) in length and 3 mm (0.12 in.) in diameter on the bearing outer race as shown in the illustration, and install the outer race.
  - 2) Install the transaxle case and tighten the bolts to the specified torque.
  - 3) Remove the transaxle case.
  - 4) Remove the outer races and remove the solder.



- 5) Measure the thickness of the crushed solder with a micrometer and select and install spacer of thickness that gives standard end play.

**Standard value:**

**intermediate shaft end play:**

0.05-0.10 mm (0.002-0.004 in.)

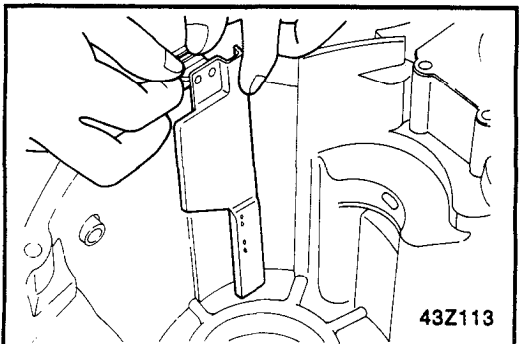
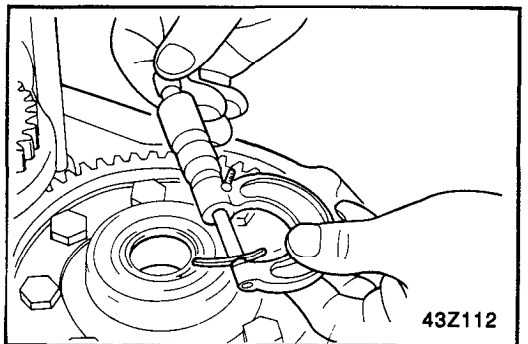
**Output shaft end play:**

0.05-0.10 mm (0.002-0.004 in.)

**Differential case end play:**

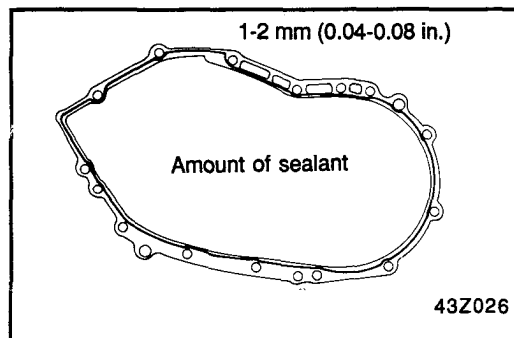
0.05-0.10 mm (0.002-0.004 in.)

19. Install the oil guide to the transaxle case.

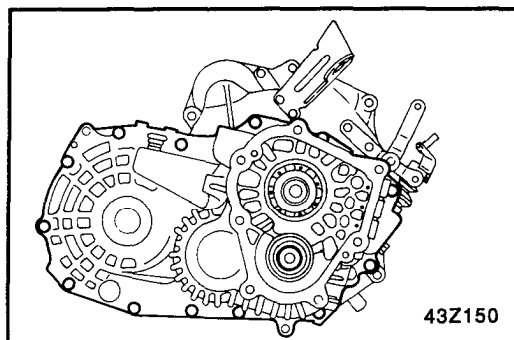


20. Apply specified sealant to the clutch housing side of the transaxle case.

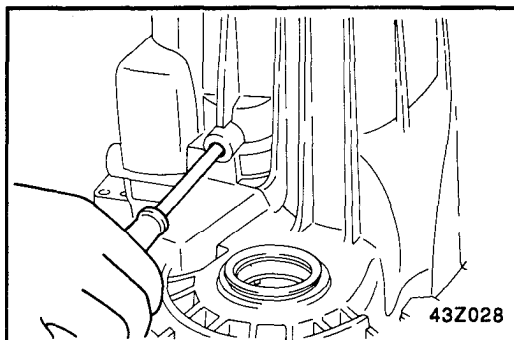
**Specified sealant : THREE BOND 1216**



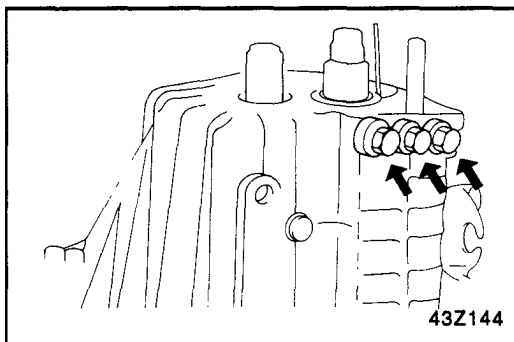
21. install the transaxle case to the clutch housing assembly and tighten the (13) bolts.



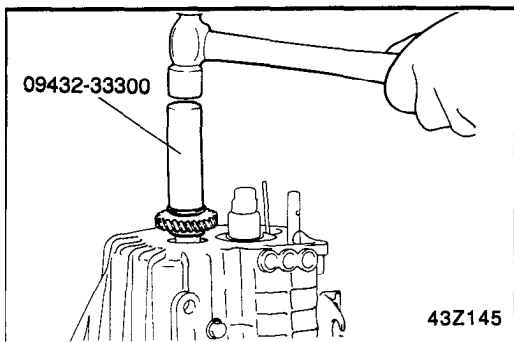
22. Install the restriction ball and gasket.  
 23. Center the shaft with a phillips screwdriver.  
 24. Tighten the reverse idler gear shaft bolt to the specified torque.



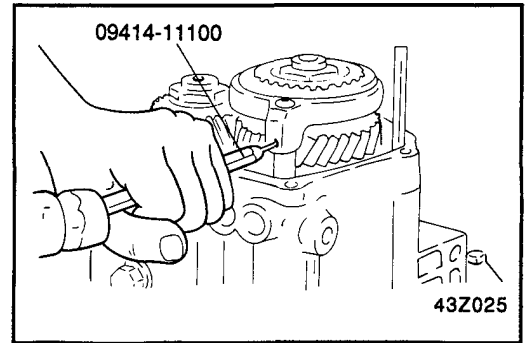
25. Install the poppet balls, poppet springs and poppet plugs.  
 26. Install the backup light assembly.



27. Install the intermediate gear using the special tool (09432-33300).  
 28. Install the fifth speed gear and needle roller bearing synchronizer ring, synchronizer hub.  
 29. Install the fifth speed shift fork and the fifth speed synchronizer sleeve at the same time.



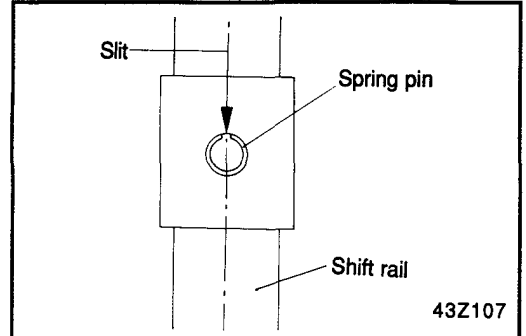
30. Install the spring pin using the special tool (09414-11100).



31. When installing, make sure that the slit of the spring pin is aligned with the shift rail center line.

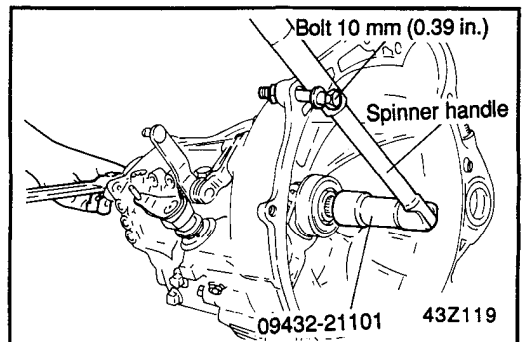
**Caution**

**Do not reuse the spring pin.**

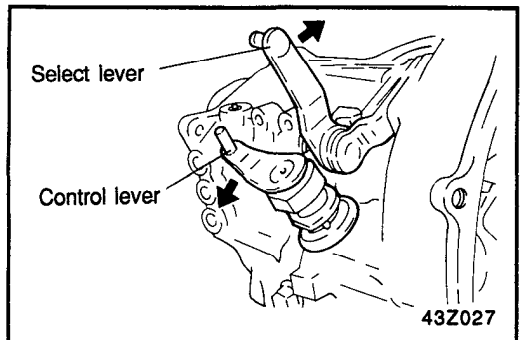


32. Reassembly of lock nuts.

- 1) Install the special tool (09432-21101) onto the input shaft.
- 2) Screw a bolt [10 mm (0.39 in.)] into the hole on the surface of clutch housing and attach a spinner handle to the special tool (09432-21101).

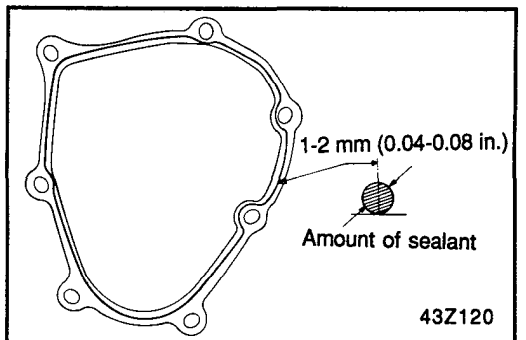


- 3) Shift the transaxle in reverse using control lever and select lever.
- 4) Tighten the lock nut to the specified torque.
- 5) Stake the lock nut.

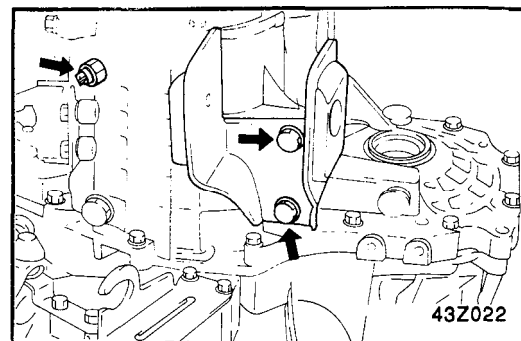


33. Apply the specified sealant to the rear cover and install the rear cover.

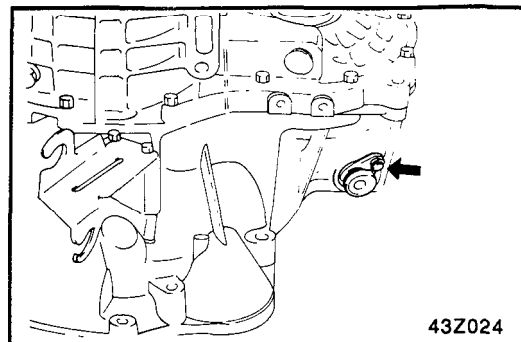
**Specified sealant : THREE BOND 1216**



34. Install the mounting bracket.

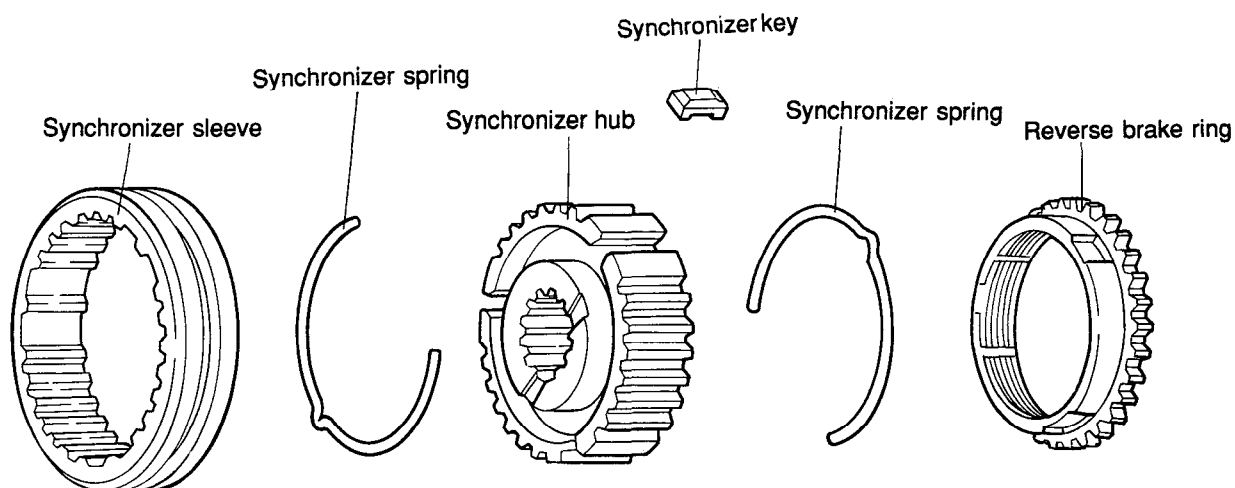


35. Install the speedometer driven gear assembly.



## FIFTH SPEED SYNCHRONIZER ASSEMBLY

## COMPONENTS



## INSPECTION

## SYNCHRONIZER SLEEVE AND HUB

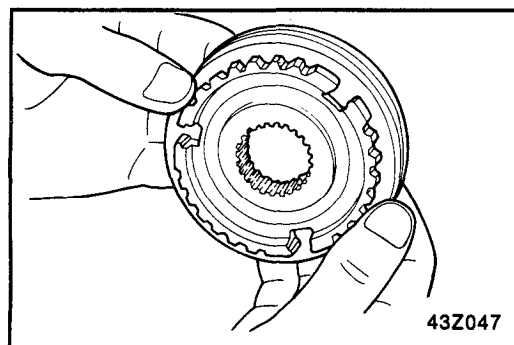
1. Combine the synchronizer sleeve and hub and check that they slide smoothly.
2. Check that the sleeve is free from damage at its inside front and rear ends.
3. Check for wear of the hub front end (surface in contact with the fifth speed gear).

**Caution**

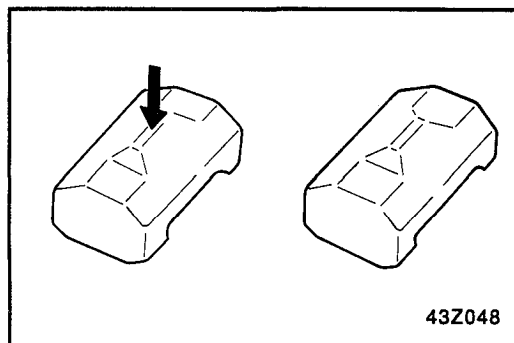
Replace the synchronizer hub and sleeve as a set.

## SYNCHRONIZER KEY AND SPRING

1. Check for wear of the synchronizer key center protrusion.
2. Check the spring for weakness, deformation and breakage.



43Z047



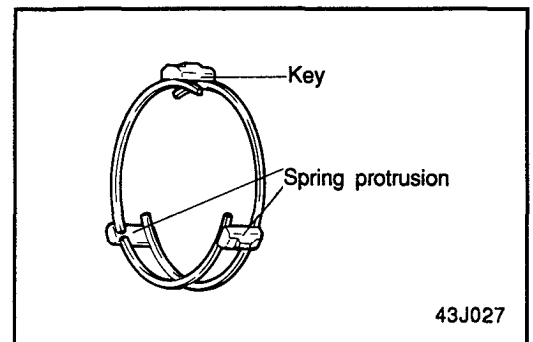
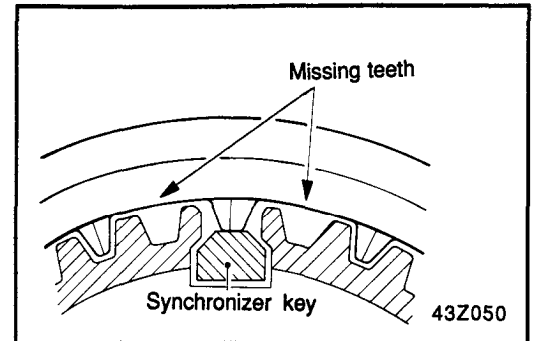
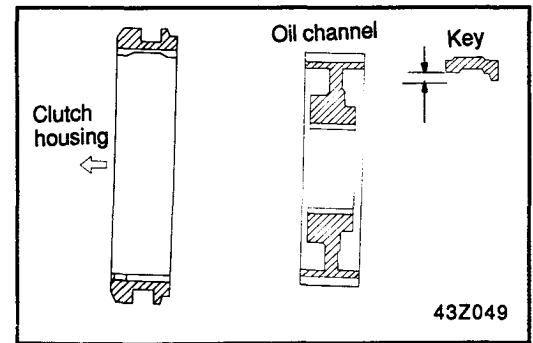
43Z048

**ASSEMBLY**

1. Assemble the synchronizer hub, sleeve and key noting their direction.
2. The synchronizer sleeve has teeth missing at six portions. Assemble the hub to the sleeve so that the center tooth between the two missing teeth will touch the synchronizer key.
3. Install the synchronizer spring so that its protrusion may be engaged in the groove of the synchronizer key.

**Caution**

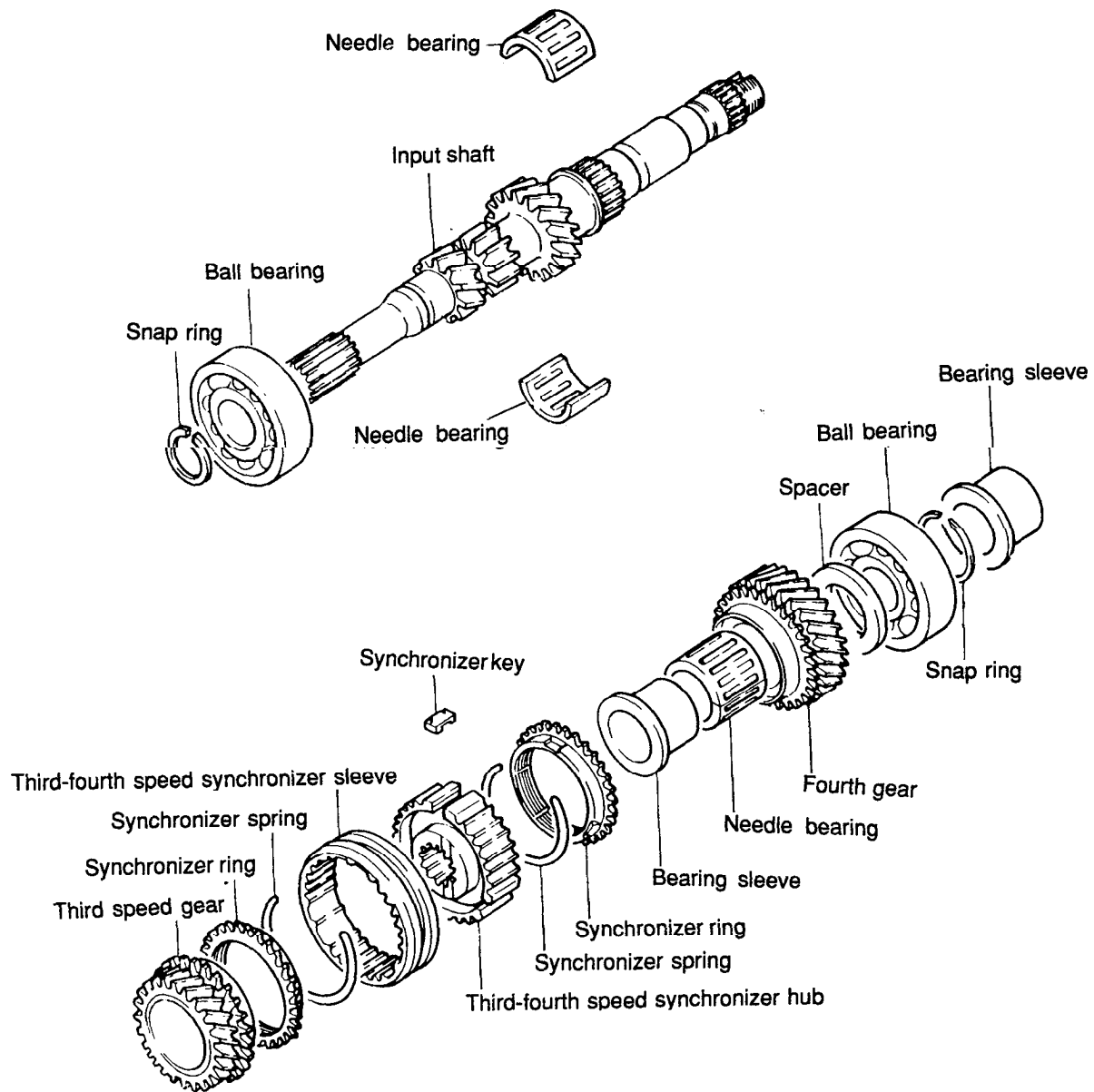
When installing the synchronizer springs, make sure that the front and rear ones are not faced in same direction.





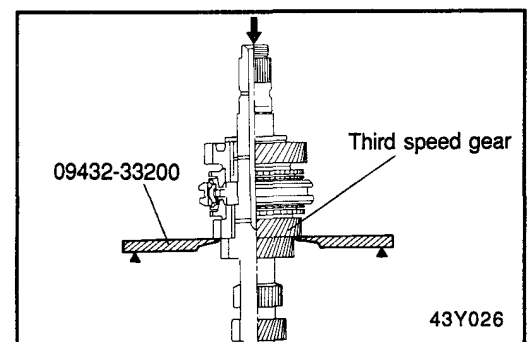
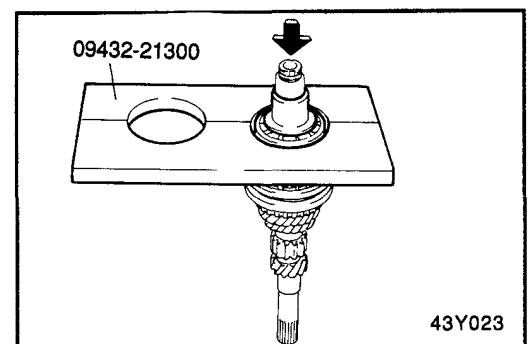
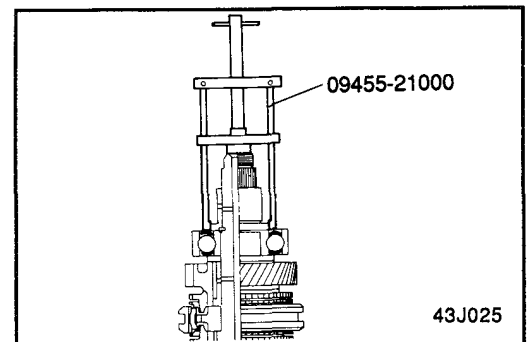
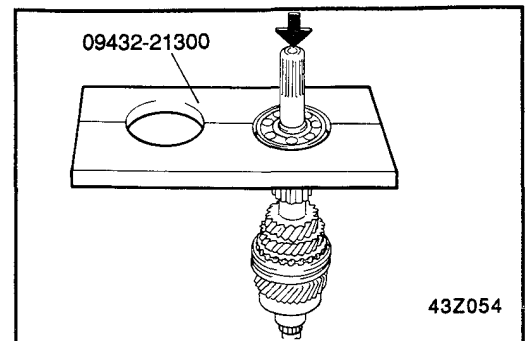
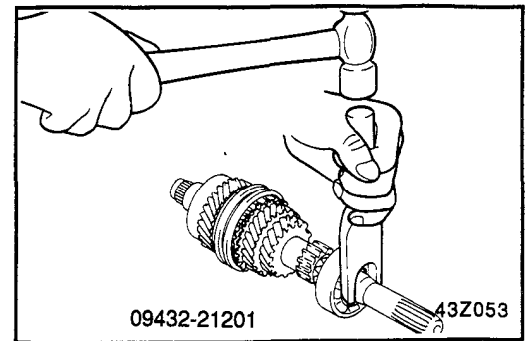
## INPUT SHAFT

## COMPONENTS



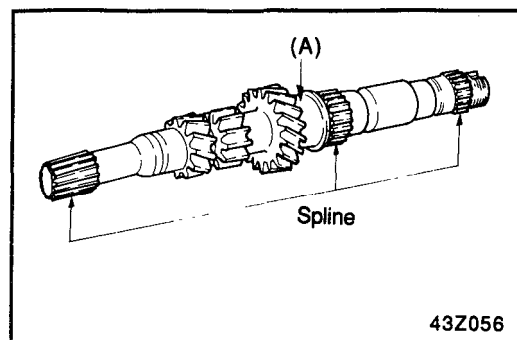
**DISASSEMBLY**

1. Remove the snap ring using the special tool (09432-21201).
2. Remove the front bearing using the special tool (09432-21300).
3. Remove the bearing sleeve using the special tool (09455-21000).
4. Remove the snap ring.
5. Remove the rear bearing using the special tool (09432-21300).
6. Remove the fourth speed gear and needle roller bearing, synchronizer ring, third-fourth speed synchronizer sleeve.
7. Remove the needle roller bearing sleeve, third-fourth synchronizer hub, synchronizer ring, third speed gear, needle roller bearing using the special tool (09432-33200).



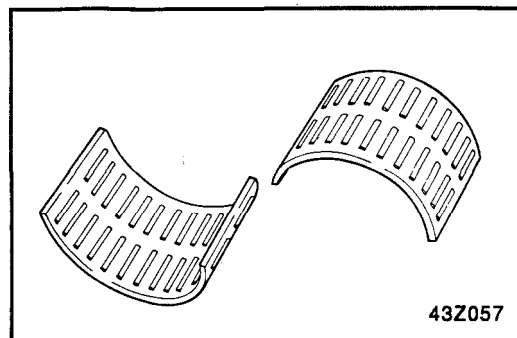
## INSPECTION INPUT SHAFT

1. Check the outer surface of the input shaft where the needle bearing is mounted for damage or abnormal wear [portion (A)].
2. Check the splines for damage or wear.



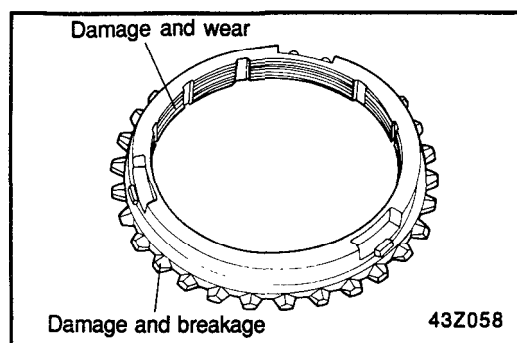
## NEEDLE BEARING

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



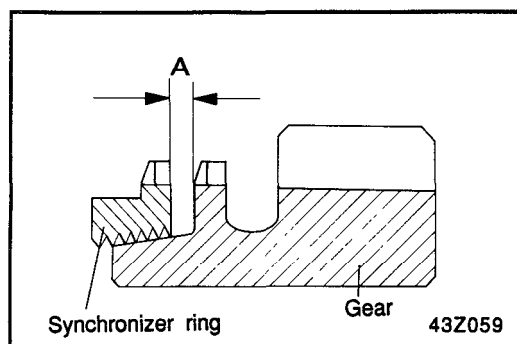
## SYNCHRONIZER RING

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



3. Force the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is out of specification.

**Limit : 0.5 mm (0.02 in.)**

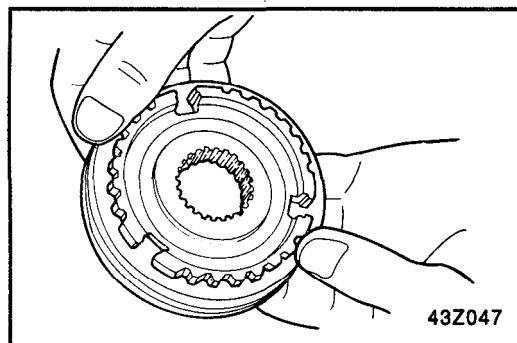


## SYNCHRONIZER SLEEVE AND HUB

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 front and rear ends.
3. Check for wear of the hub end surfaces (in contact with each speed gear).

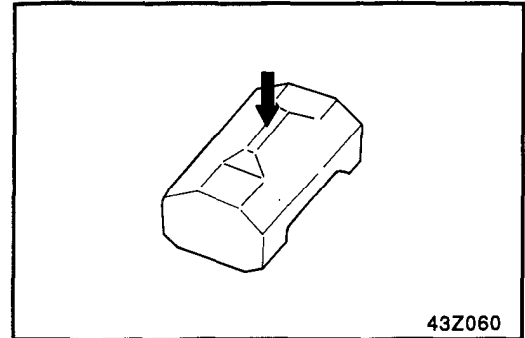
### Caution

**Replace the synchronizer hub and sleeve as a set.**



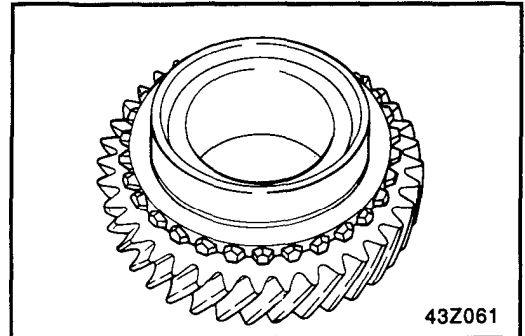
## SYNCHRONIZER KEY AND SPRING

1. Check for wear of the synchronizer key center protrusion.
2. Check the spring for weakness, deformation and breakage.



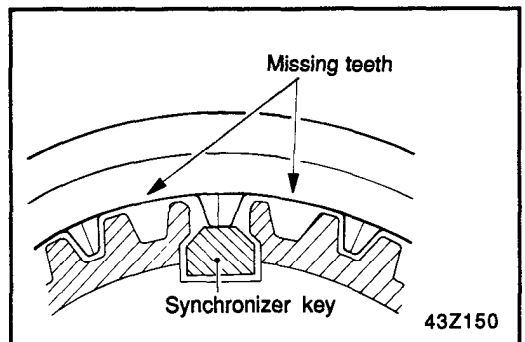
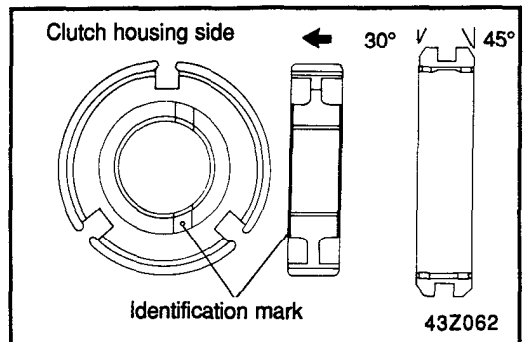
## SPEED GEARS

1. Check the bevel gear and clutch gear teeth for damage and wear.
2. Check the synchronizer cone for rough surface, damage and wear.
3. Check the gear bore and front and rear ends for damage and wear.



## ASSEMBLY

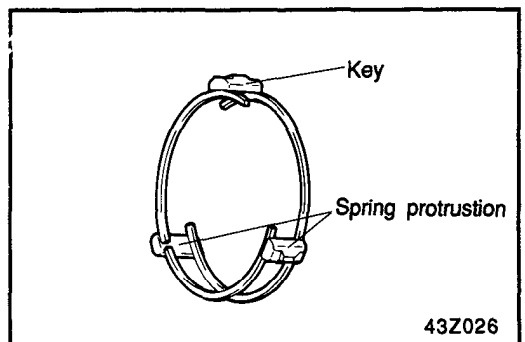
1. Install the synchronizer hub and sleeve so that they are positioned as shown in the figure.
2. The synchronize sleeve has teeth missing at six portions. Assemble the hub to the sleeve so that the center tooth between the two missing teeth will touch the synchronizer key.



3. Install the synchronizer spring so that its protrusion fits into the groove in the synchronizer key.

### Caution

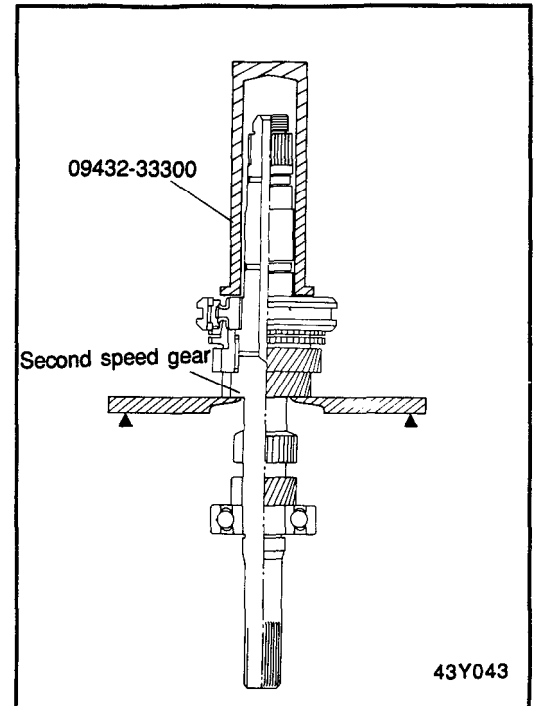
When installing the synchronizer springs, make sure that the front and rear ones are not faced in same direction.



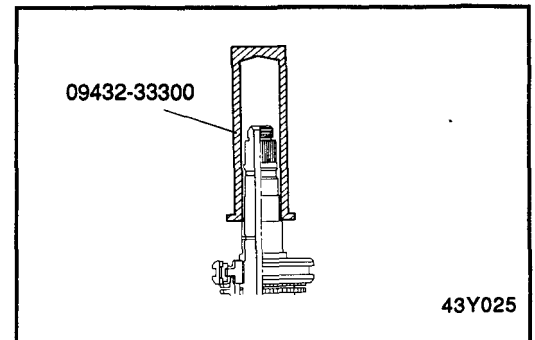
4. Install the needle roller bearing and third speed gear to the input Shaft.
5. Install the third-fourth speed synchronizer assembly over the input shaft using the special tool (09432-33300).

**Caution**

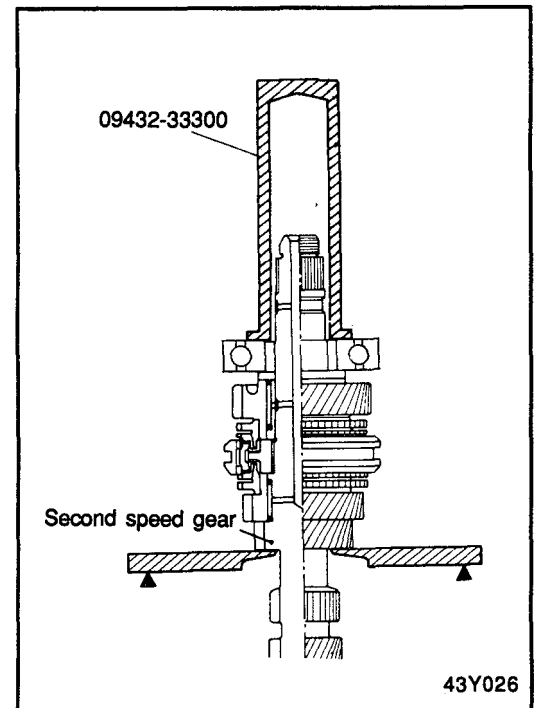
1. When installing the synchronizer assembly, make sure that three synchronizer keys are seated correctly in respective grooves of the synchronizer ring.
2. After installing of the synchronizer assembly, check that the third speed gear rotates smoothly.



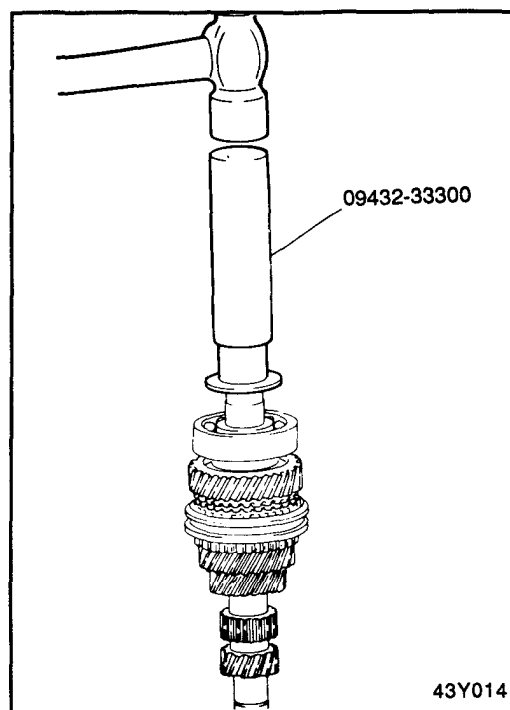
6. Install the needle roller bearing sleeve using the special tool (09432-33300).
7. Install the synchronizer ring, needle roller bearing, fourth gear and spacer.



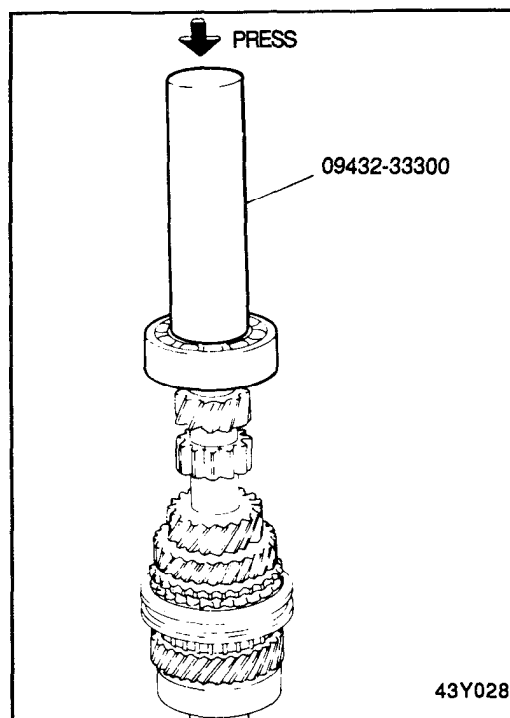
8. Install the rear bearing using the special tool (09432-33300).
9. Install the snap ring.



10. Install the rear bearing sleeve using the special tool (09432-33300).

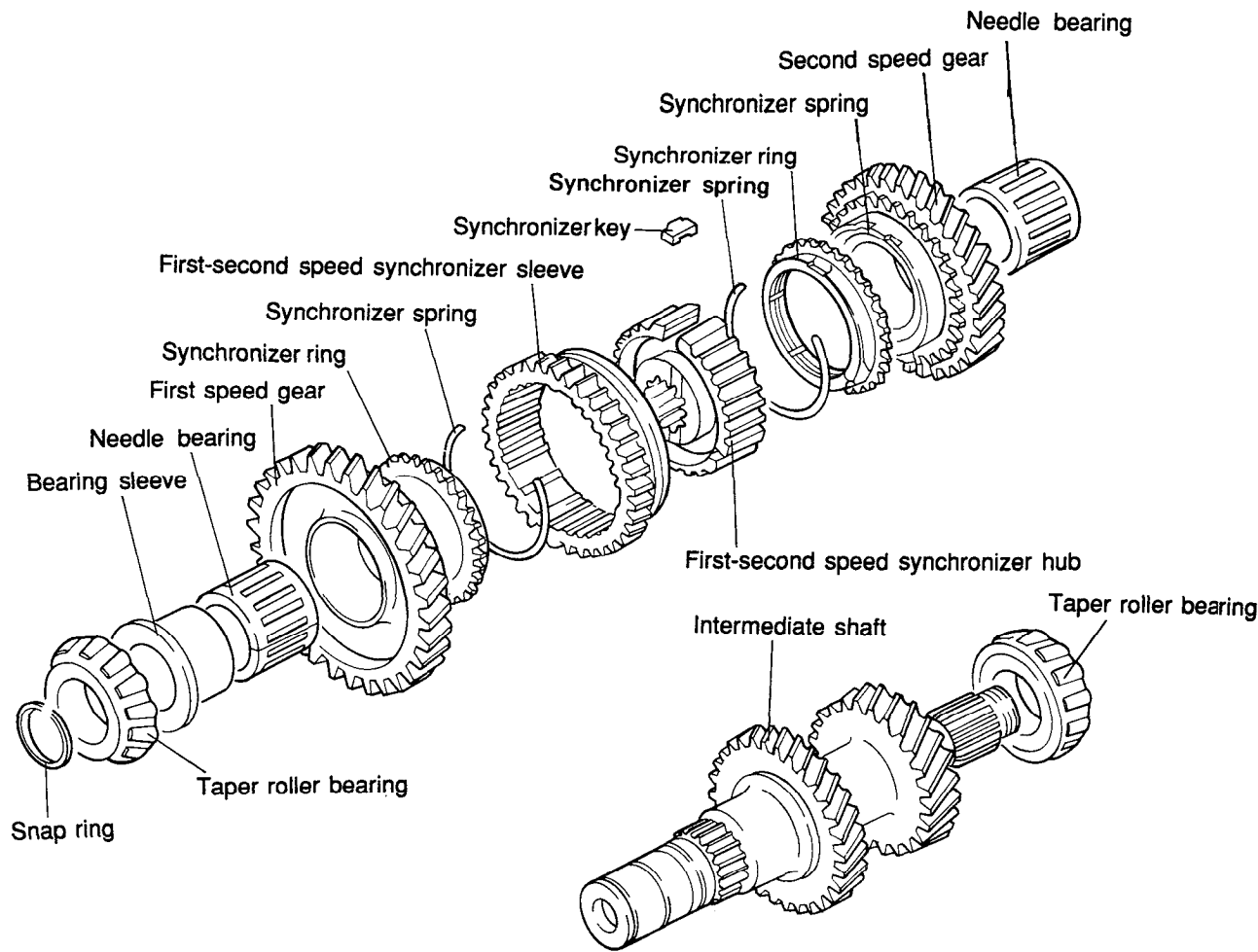


11. Install the front bearing using the special tool (09432-33300).  
12. Install the snap ring.



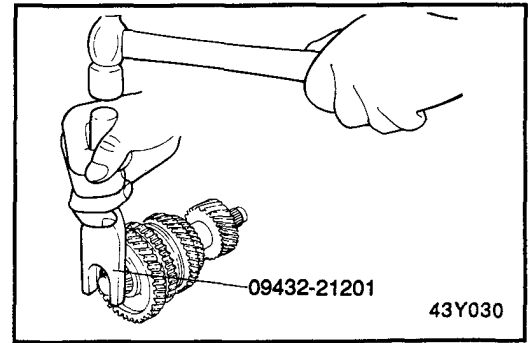
INTERMEDIATE SHAFT

COMPONENTS



**DISASSEMBLY**

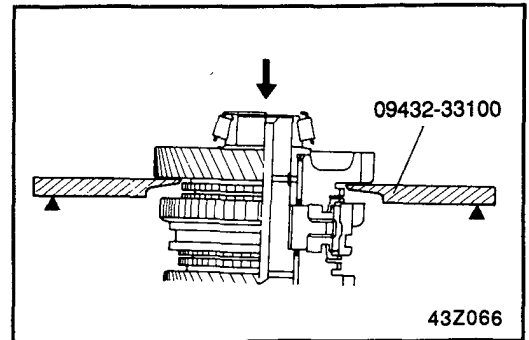
1. Remove the snap ring using the special tool (09432-21201).



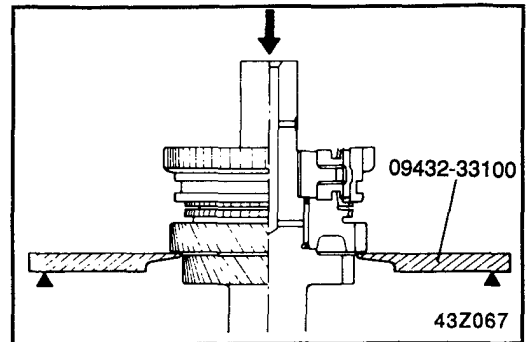
2. Remove the taper roller bearing, first speed gear and bearing sleeve and needle roller bearing using the special tool (09432-33100).

**CAUTION**

1. Do not reuse the bearing removed from the shaft.
2. Replace the inner and outer races of the tapered roller bearing as a set.



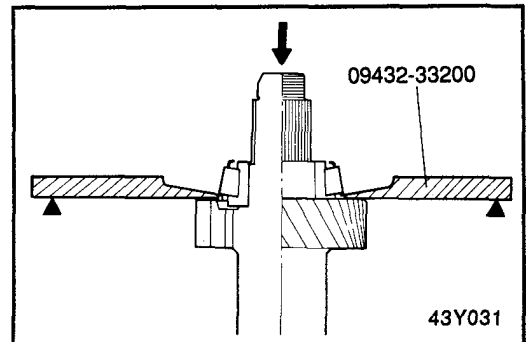
3. Remove the first-second speed synchronizer assembly and second speed gear, needle roller bearing together using the special tool (09432-33100).



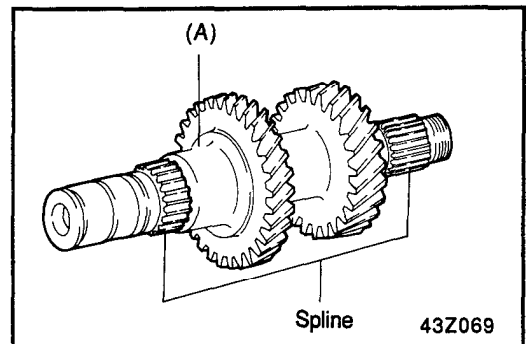
4. Remove the taper roller bearing using the special tool (09432-33200).

**CAUTION**

1. Do not reuse the bearing removed from the shaft.
2. Replace the inner and outer races of the tapered roller bearing as a set.

**INSPECTION****INTERMEDIATE SHAFT**

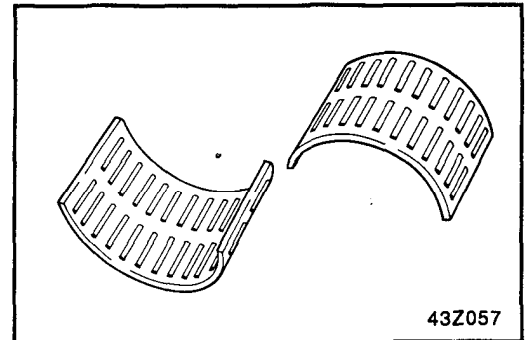
1. Check the outer surface of the intermediate shaft where the needle bearing is mounted for damage or abnormal wear [portion (A)]
2. Check the splines for damage and wear.



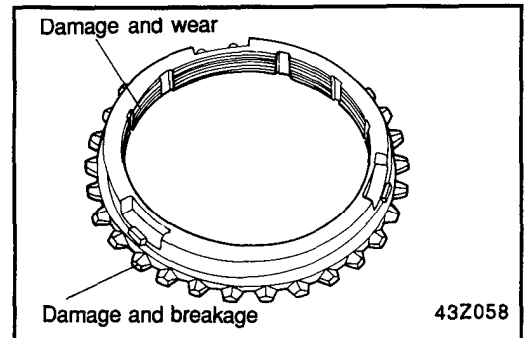


**NEEDLE BEARING**

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

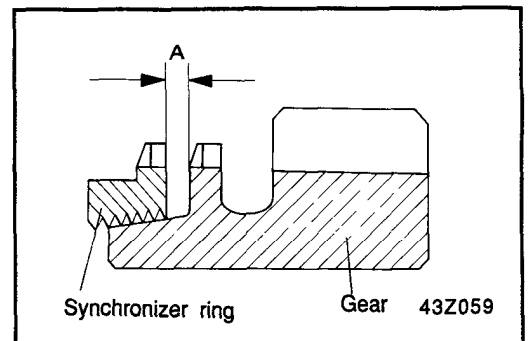
**SYNCHRONIZER RING**

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



3. Force the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is out of specification.

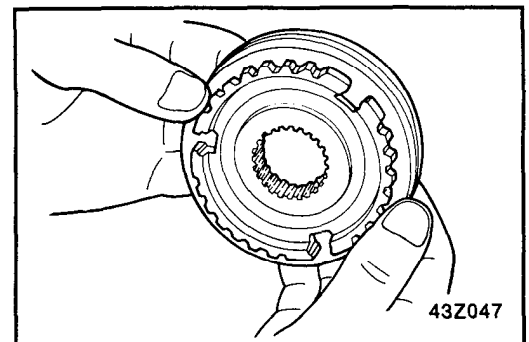
**Limit : 0.5 mm (0.02 in.)**

**SYNCHRONIZER SLEEVE AND HUB**

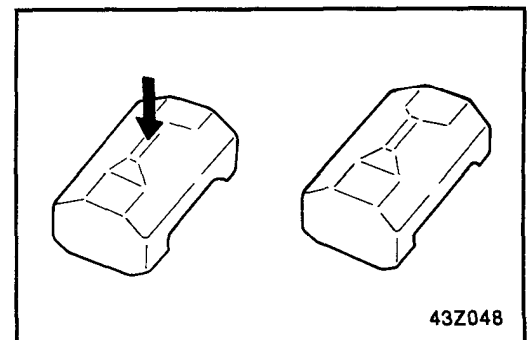
1. Combine the synchronizer sleeve and hub and check that they slide smoothly.
2. Check that the sleeve is free from damage at its inside front and rear ends.
3. Check for wear of the hub end surfaces (in contact with each speed gear).

**Caution**

**Replace the synchronizer hub and sleeve as a set.**

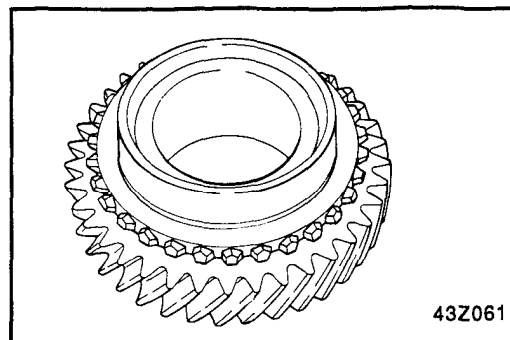
**SYNCHRONIZER KEY AND SPRING**

1. Check for wear of the synchronizer key center protrusion.
2. Check the spring for weakness, deformation or breakage.



## SPEED GEARS

1. Check the bevel gear and clutch gear teeth for damage and wear.
2. Check the synchronizer cone for a rough surface, damage or wear.
3. Check the gear bore and front and rear ends for damage or wear.



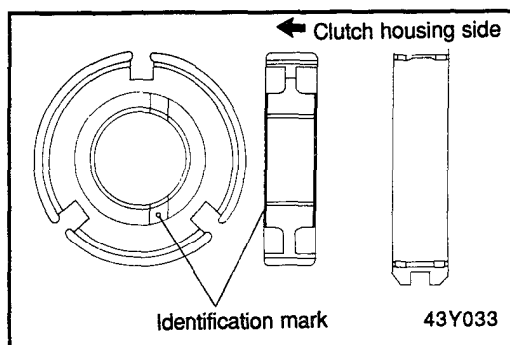
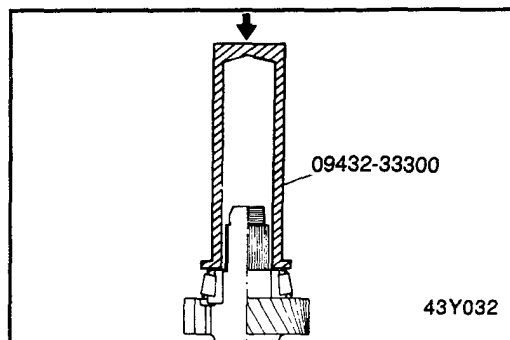
## ASSEMBLY

1. Install the taper roller bearing over the intermediate shaft using the special tool (09432-33300).

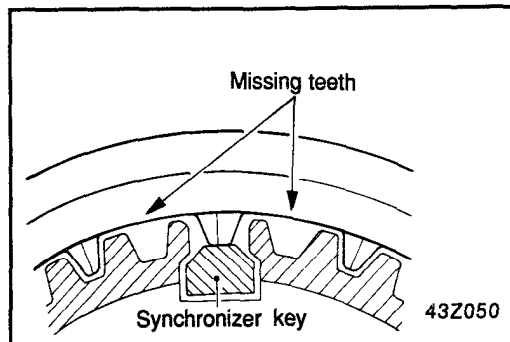
### CAUTION

When installing the bearing, push on the inner race only.

2. Install the first gear synchronizer ring noting its identification mark.
3. Combine the first-second speed synchronizer hub and sleeve.



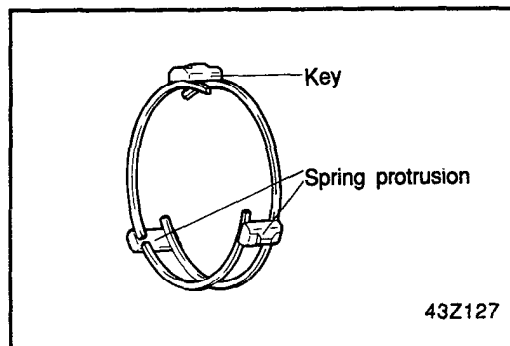
4. The synchronizer sleeve has teeth missing at six portions. Assemble the hub to the sleeve so that the center tooth between the two missing teeth will touch the synchronizer key.



5. Install the synchronizer spring so that its portions fits into the groove in the synchronizer key.

### CAUTION

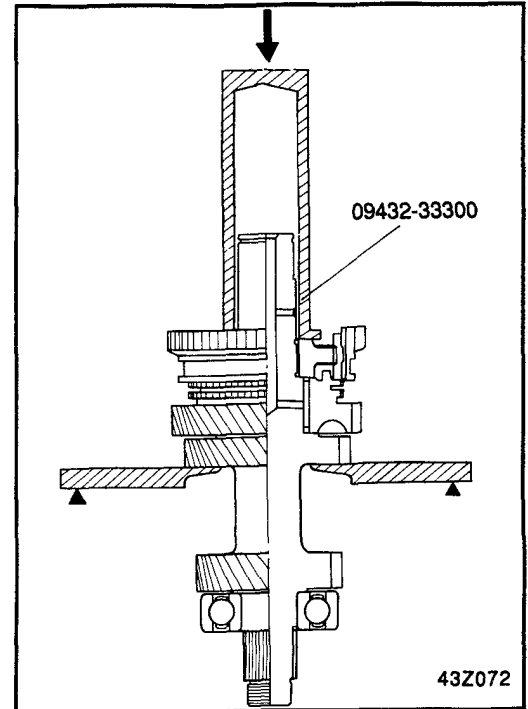
When installing the synchronizer springs, make sure that the front and rear ones are not faced in same direction.



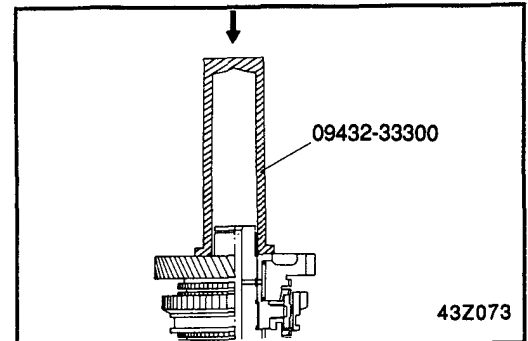
6. Install the needle roller bearing, second gear, first-second speed synchronizer assembly over the intermediate shaft using the special tool (09432-33300).

**CAUTION**

1. When installing the synchronizer assembly, make sure that the three synchronizer keys are seated correctly in their respective grooves of the synchronizer ring.
2. After installation of the synchronizer assembly, check that third gear rotates smoothly.



7. Install the needle roller bearing, first speed gear, bearing sleeve together using the special tool (09432-33300).

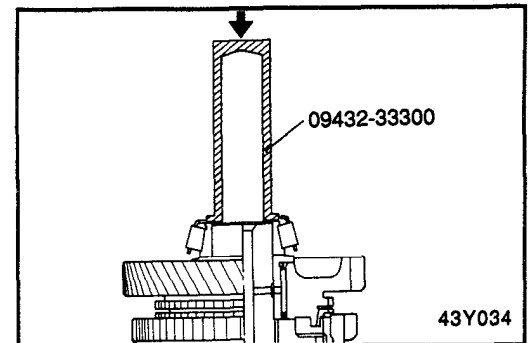


8. Install the taper bearing using the special tool (09432-33300).

**CAUTION**

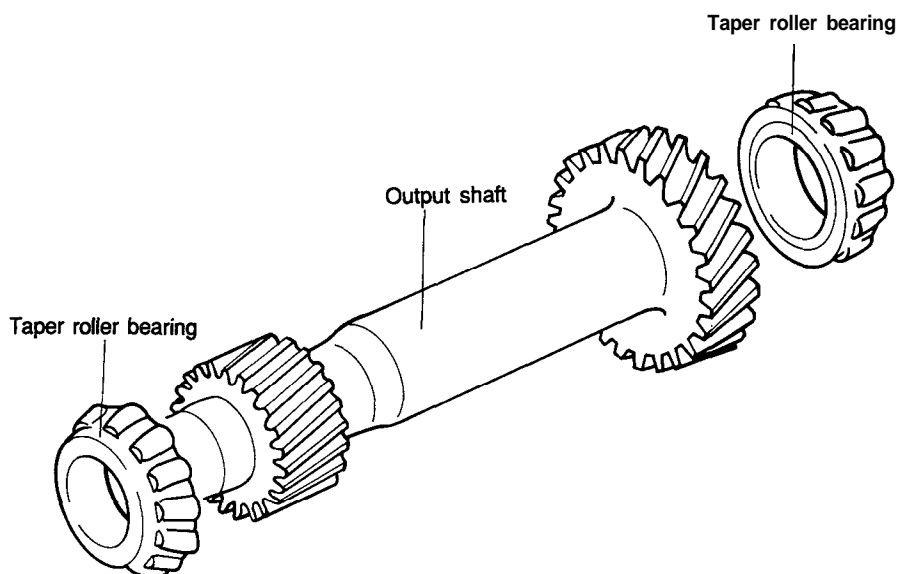
When installing the bearing, push on the inner race only.

9. Install the snap ring.



## OUTPUT SHAFT

## COMPONENTS

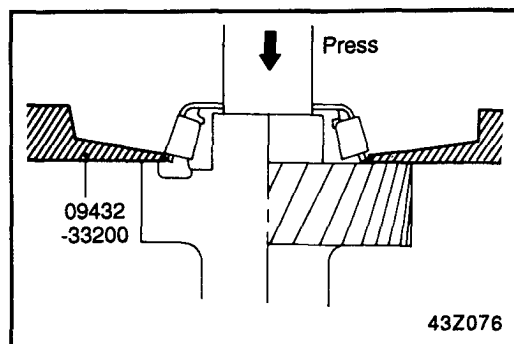


## DISASSEMBLY

1. Remove the tapered roller bearing using the special tool (09432-33200).

**CAUTION**

Do not reuse the bearing removed from the shaft.

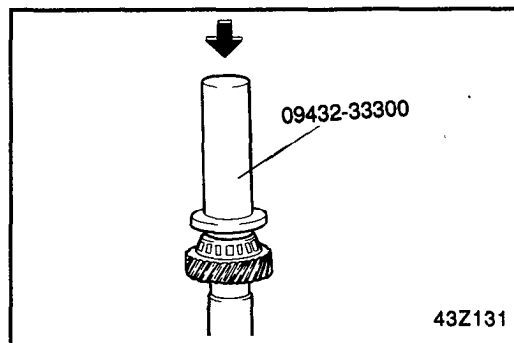


## ASSEMBLY

1. Install the tapered roller bearing using the special tool (09432-33300)

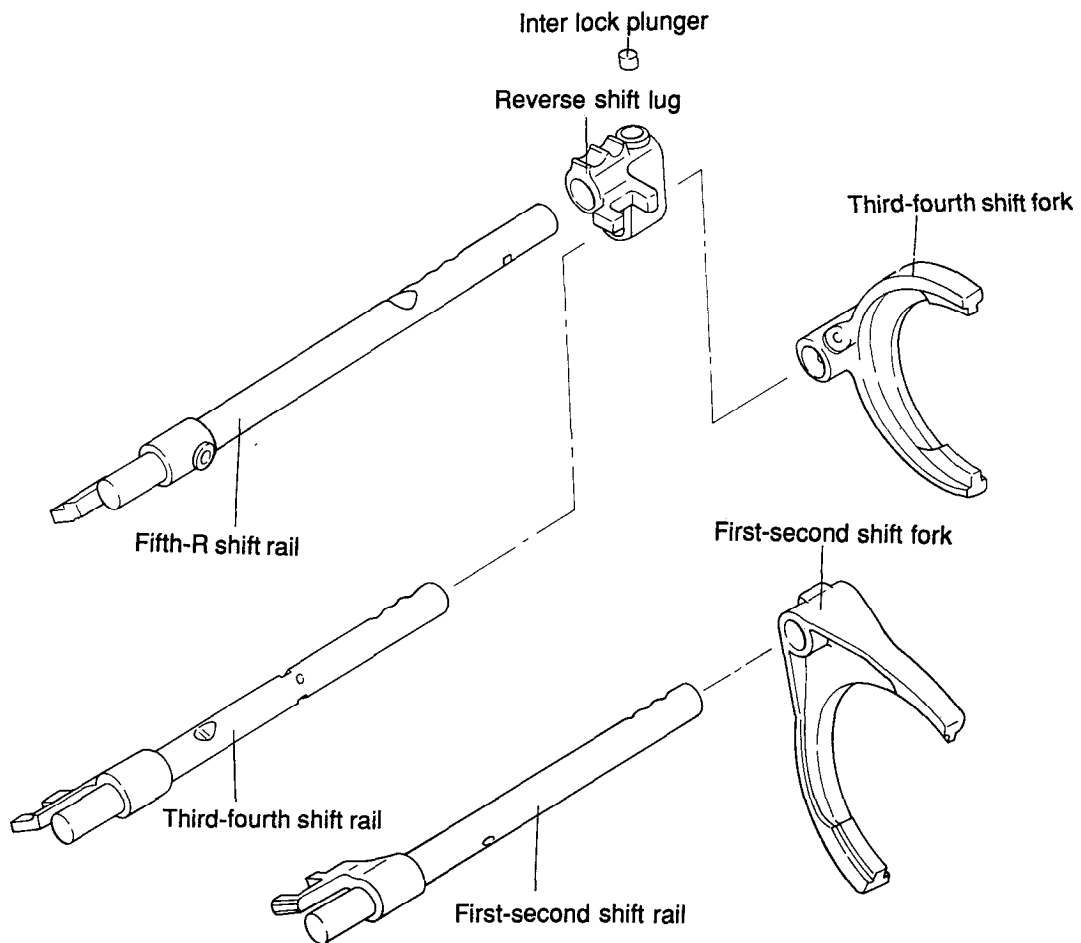
**CAUTION**

When installing the bearing, push on the inner race only.



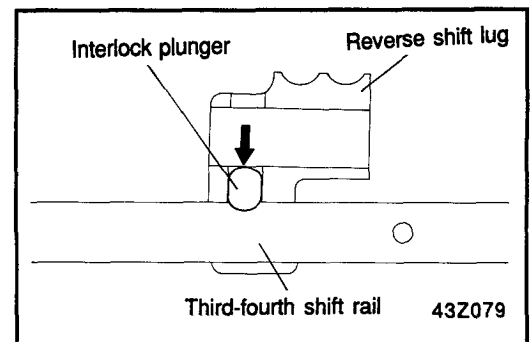
## SHIFT FORK

## COMPONENTS



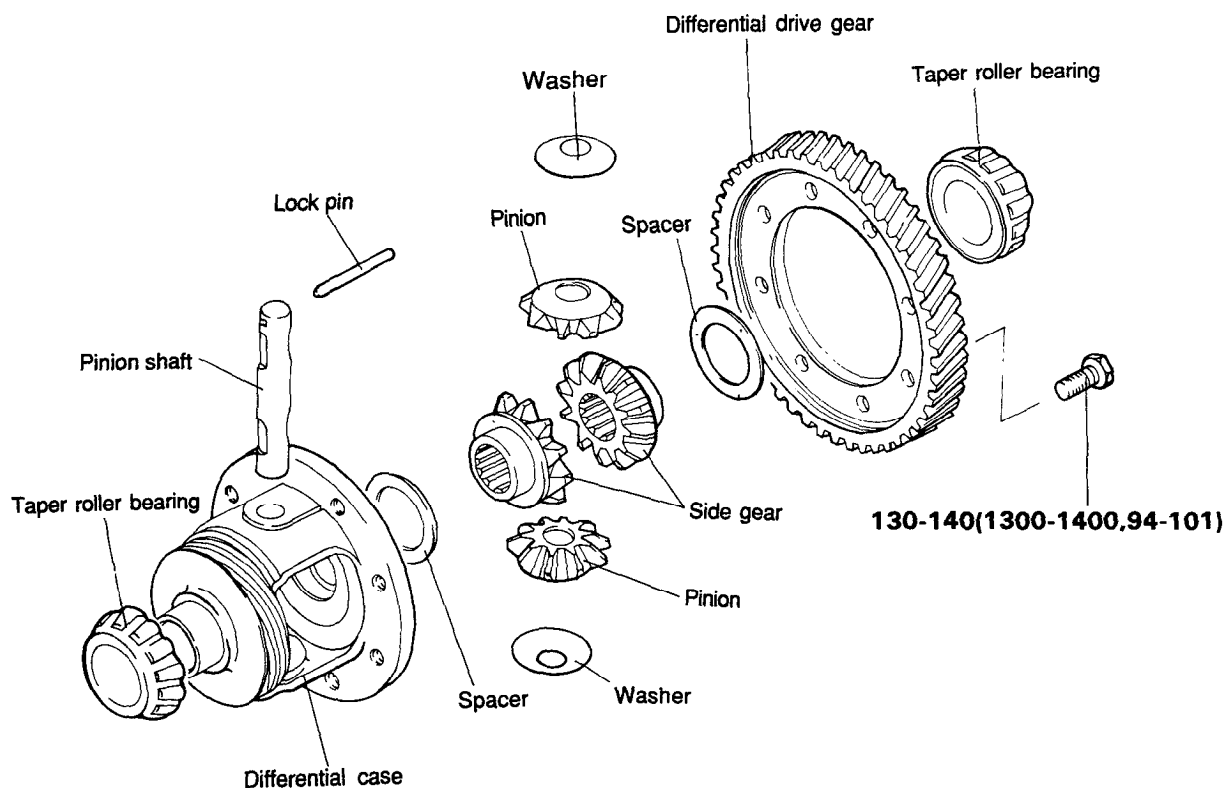
## ASSEMBLY

1. Insert the interlock plunger as illustrated on the third-fourth speed shift rail.



## DIFFERENTIAL

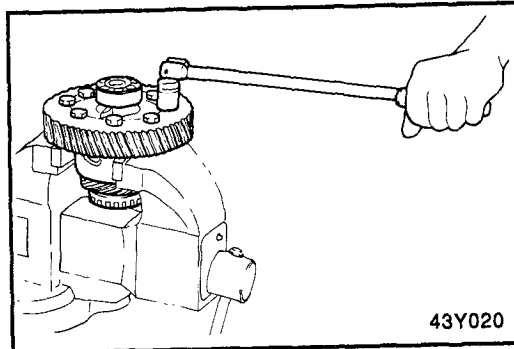
## COMPONENTS



**TORQUE : Nm (kg.cm, lb.ft)**

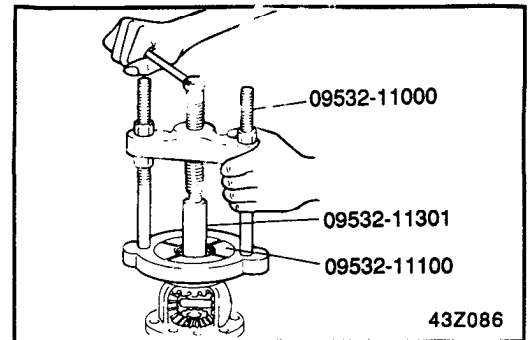
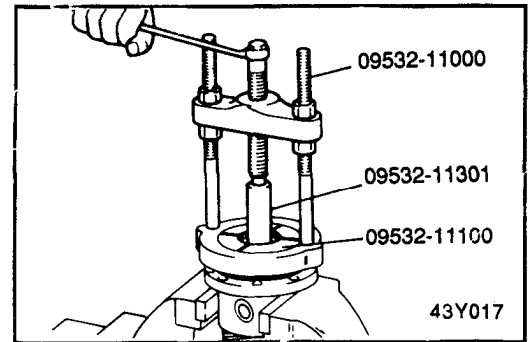
## DISASSEMBLY

1. Clamp the differential case in a vise.
2. Remove the differential drive gear retaining bolts and remove the differential drive gear from differential case.

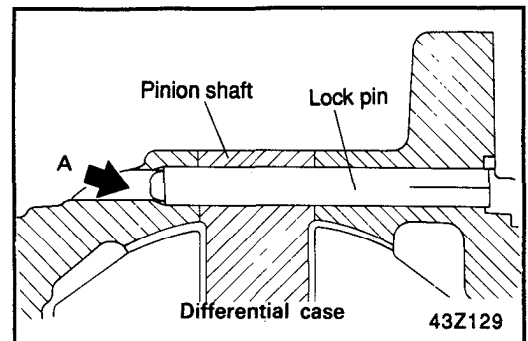


43Y020

3. Remove the taper roller bearings using the special tool (09532-11000, 09532-11100, 09532-11301).



4. Drive out the lock pin from the hole A using a punch.
5. Drive out the pinion shaft.
6. Remove the pinion gears, washers, side gears and spacers.

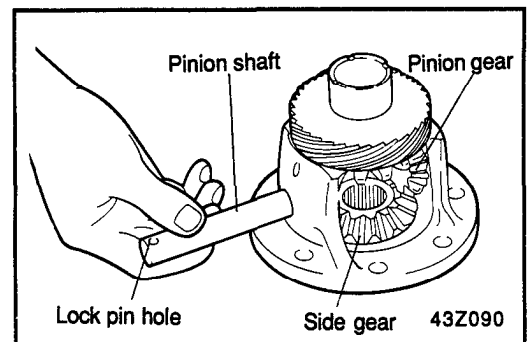
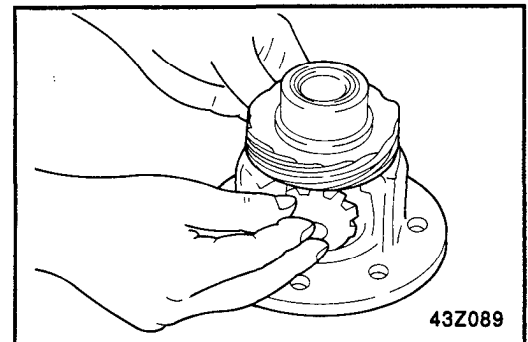


## ASSEMBLY

1. Install the spacer on the back of the side gear and then install the gear in the differential case.

### CAUTION

1. When installing a new side gear, use a spacer of medium thickness [0.93-1.00 mm (0.036-0.04 in.)]
  2. Do not reuse the lock pin.
  3. The lock pin head must be sunk below the flange surface of the differential case.
2. Set the washer on the back of each pinion and insert the two pinions to the specified position while engaging them with the side gears by turning them.
  3. Insert the pinion shaft.



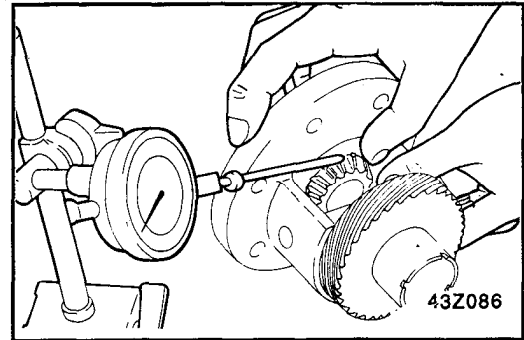
4. Measure the backlash between the side gears and pinions.

**Standard value : 0.025-0.150 mm  
(0.001-0.006 in.)**

5. If the backlash is out of specification, disassemble and use the correct spacer, reassemble and remeasure.

**CAUTION**

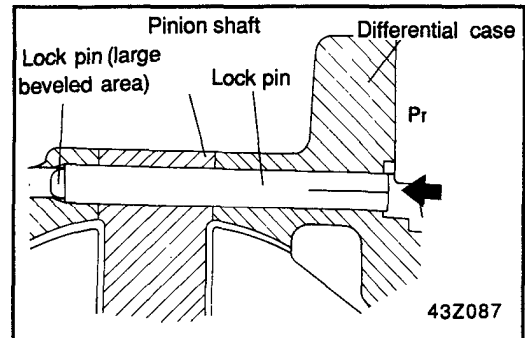
**Adjust the backlash of both side gears to the same specification.**



6. Align the pinion shaft lock pin hole with the case lock pin hole and insert the lock pin,

**CAUTION**

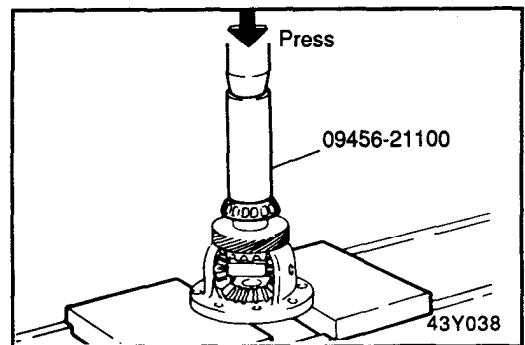
1. Do not reuse the lock pin.
2. The lock pin head must be below the flange surface of the differential case.



7. Install the taper roller bearings on both sides of the differential case using the special tool (09455-21100).

**CAUTION**

**When press-fitting the bearings, push the inner race only.**

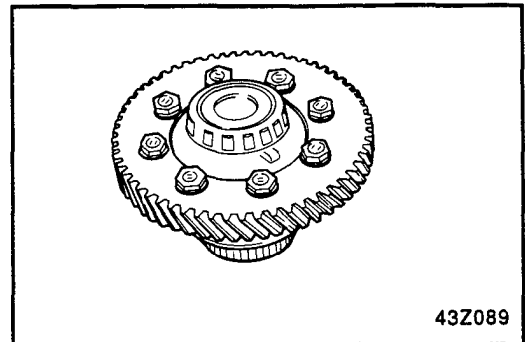


8. Apply specified sealant to the entire threads of the bolt and tighten in the order shown in figure to the specified torque with the differential case clamped in a vise.

**Specified sealant : 3M Stud Locking No.4170**

**CAUTION**

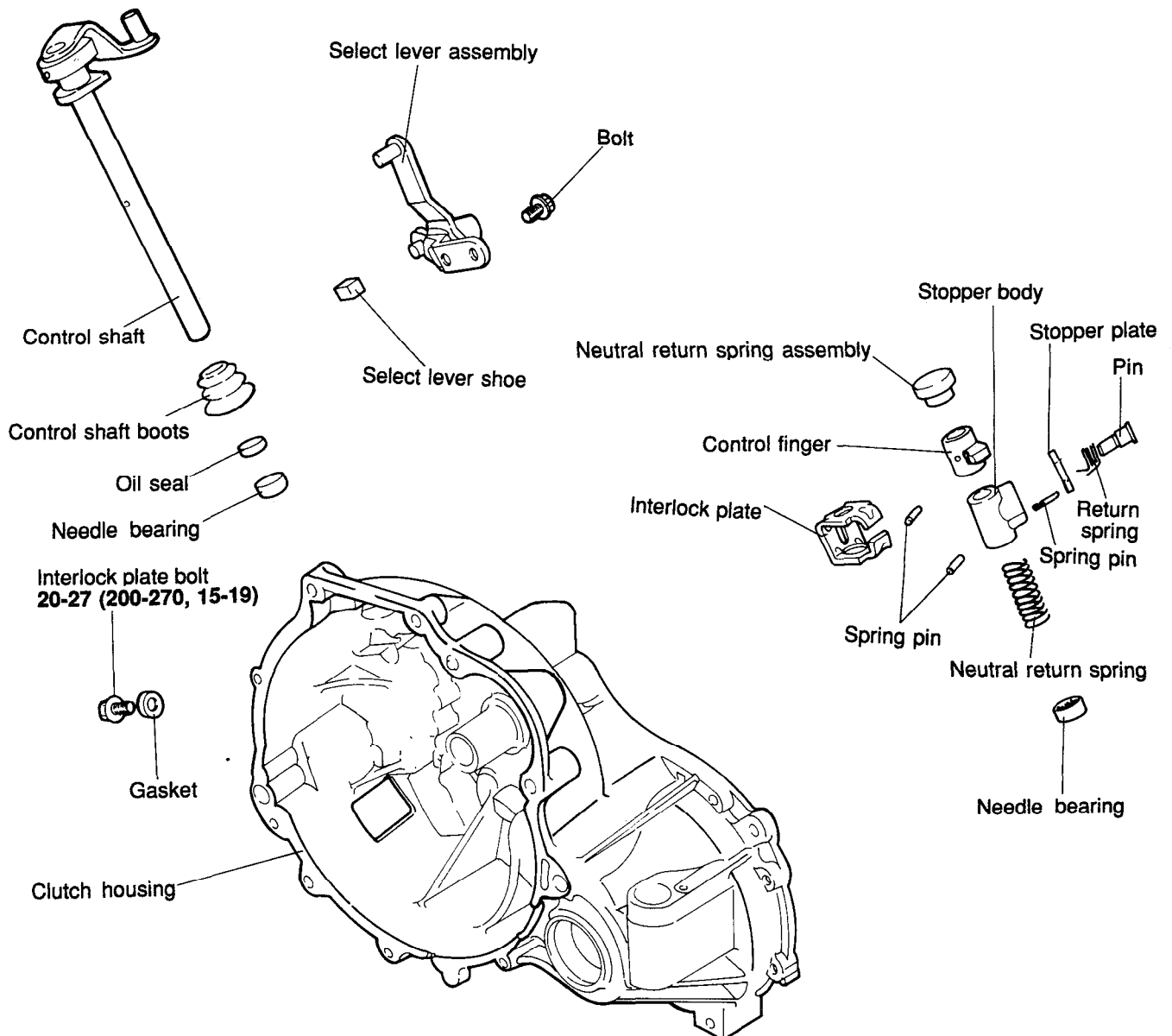
**If a bolt is reused, remove the old sealant from the threads.**





## CLUTCH HOUSING

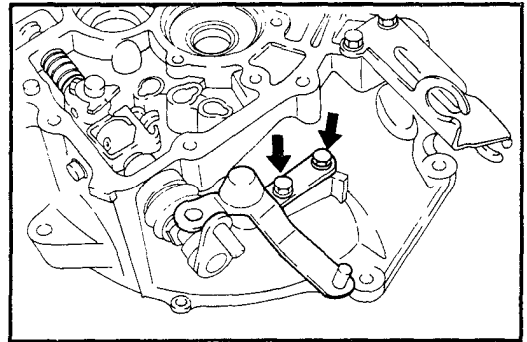
## COMPONENTS



**TORQUE : Nm (kg.cm, lb.ft)**

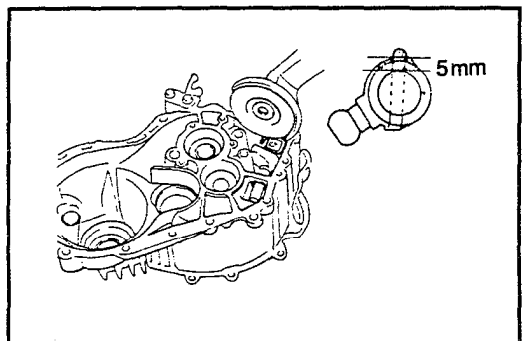
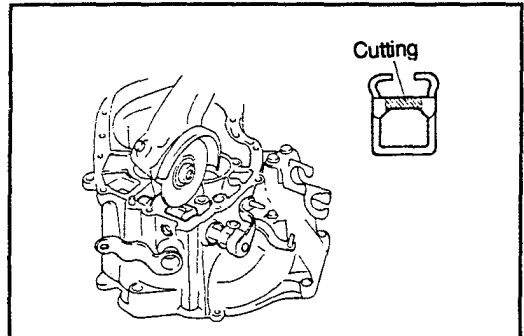
**DISASSEMBLY**

1. Remove the select lever assembly and the select lever shoe.
2. Remove the interlock plate bolt and gasket.

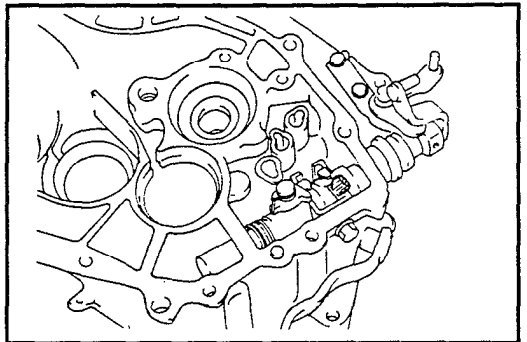
**FIRST METHOD**

If using following procedure, you should replace the shifting control shaft ass'y as new one.  
This method is recommended as removal procedures in case that the clutch housing is normal and shifting control shaft is abnormal

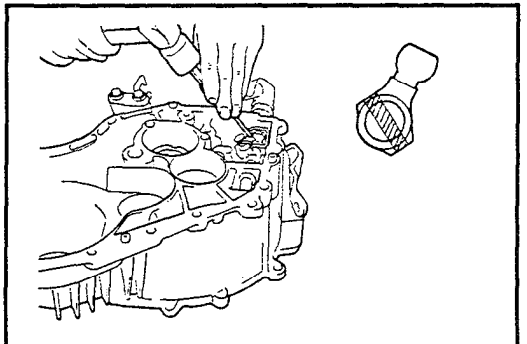
3. Cut the interlock plate which prevent the shifting control shafts turning, as shown in figure.
4. Grind the head of lock pin and shifting control shaft over 5mm.



5. Turn the shifting control shaft to the opposite side.



6. Remove the lock pin from the shifting control shift by punching the bottom of the lock pin using the special tool (09414-11000).

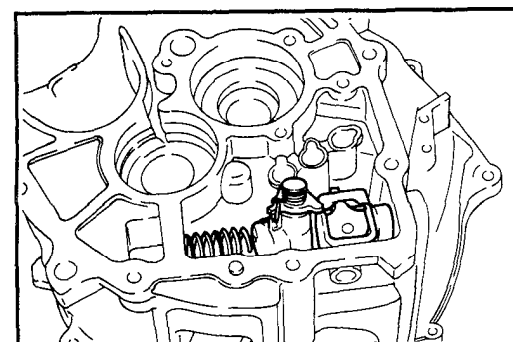
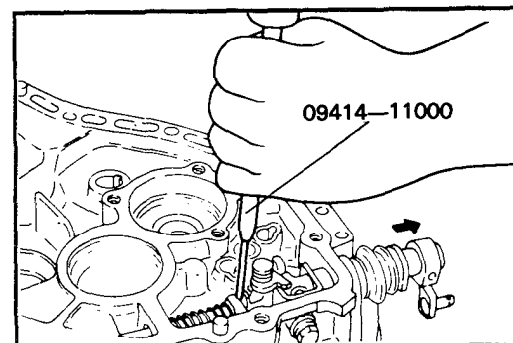
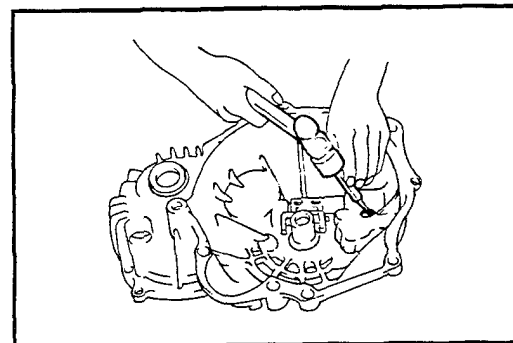
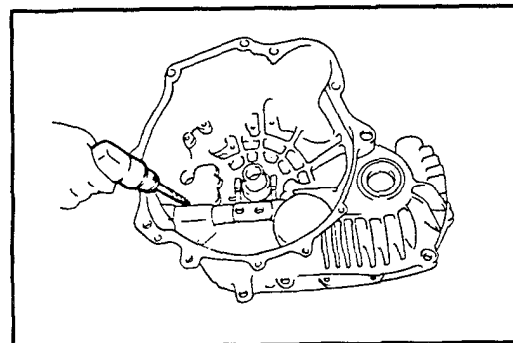


**SECOND METHOD**

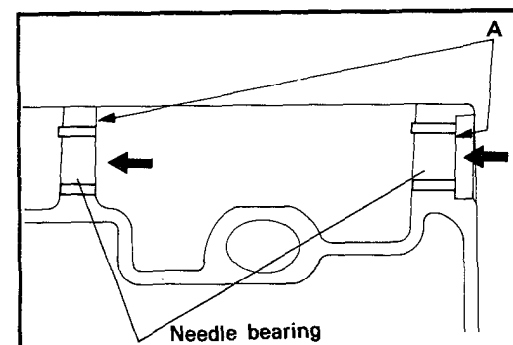
If using following method, you should replace the clutch housing as new one.

This method is recommended in case that the clutch housing is abnormal such as crack, oil leaking, etc.

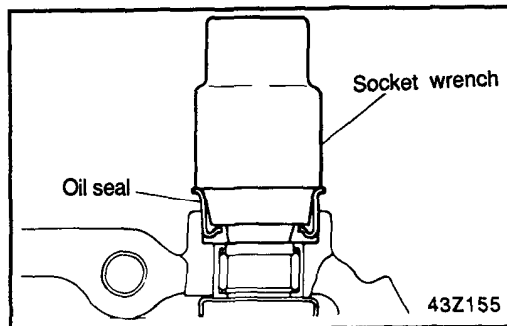
7. Drill the clutch housing to the inside as shown in figure.
8. Punch and remove the lock pin, inserting the punch through its hole.
9. Drive out the spring pin from the stopper body using the special tool (09414-11000).
10. Pull out the control shaft and remove the control shaft boots and oil seal.
11. Remove the neutral return spring assembly, control finger, interlock plate, stopper body, neutral return spring.
12. Remove the control shaft oil seal the needle bearings.

**ASSEMBLY**

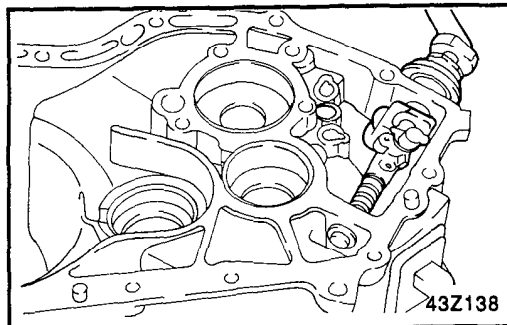
1. Install the needle bearing flush with the surface A of the clutch housing.



- 2 Install the control shaft oil seal using a socket wrench.



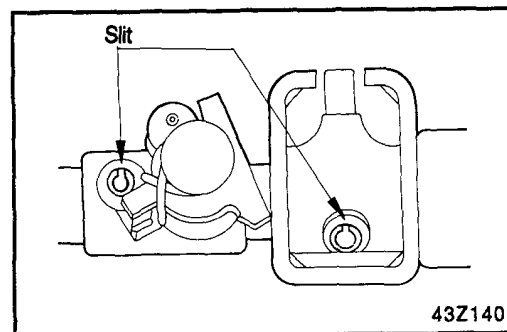
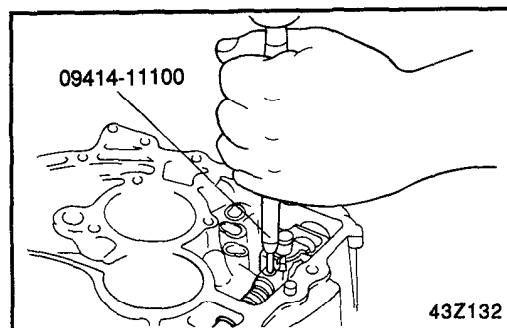
3. Install the neutral return spring assembly, control finger, interlock plate, stopper body, neutral return spring with the control shaft.



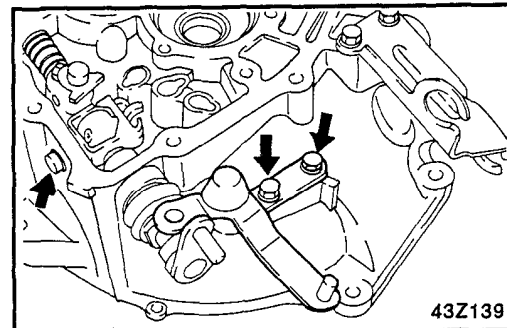
4. Install new spring pins using the special tool (09414-11100).

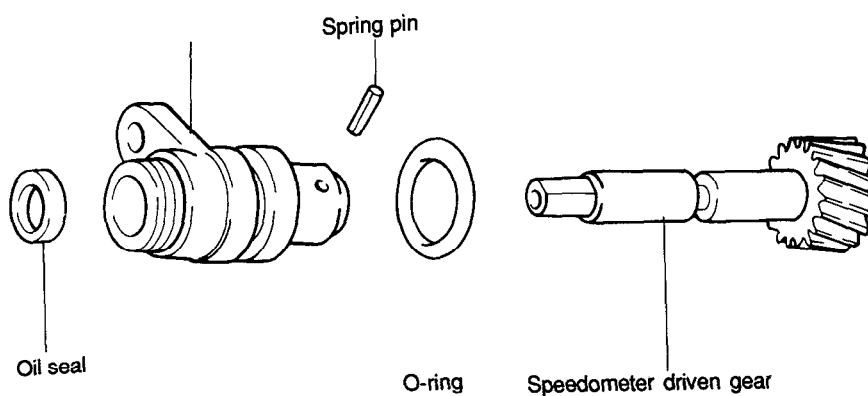
**Caution**

1. Do not reuse the spring pins.
2. Install the spring pins with their slit at right angle to the control shaft center.



5. Install the interlock plate bolt and gasket.
6. Install the select lever assembly and select shoe.



**SPEEDOMETER DRIVEN GEAR ASSEMBLY****COMPONENTS****ASSEMBLY**

1. Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft
2. Install the spring pin in such a way that it slit does not face the gear shaft.

