SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle Control System

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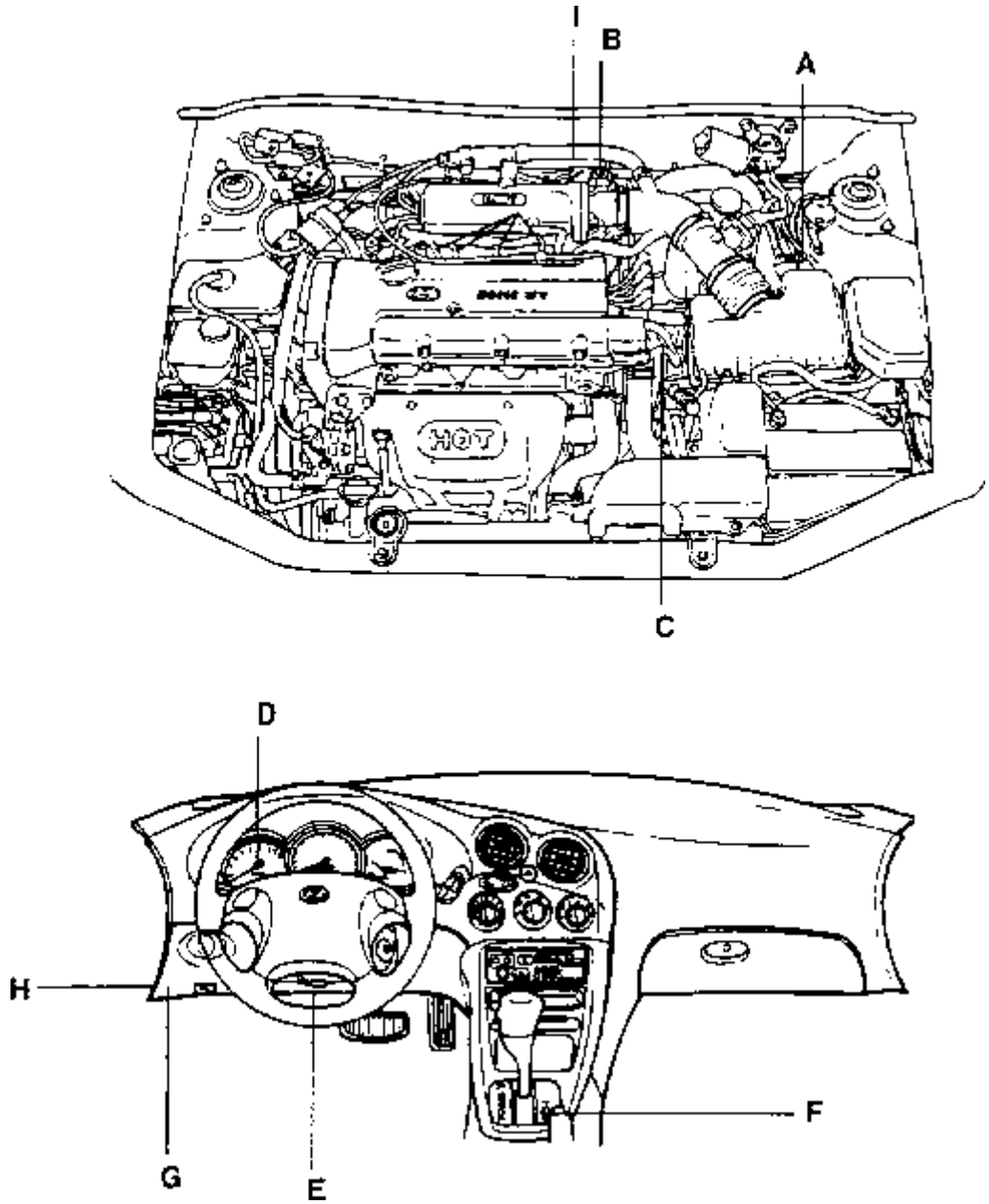
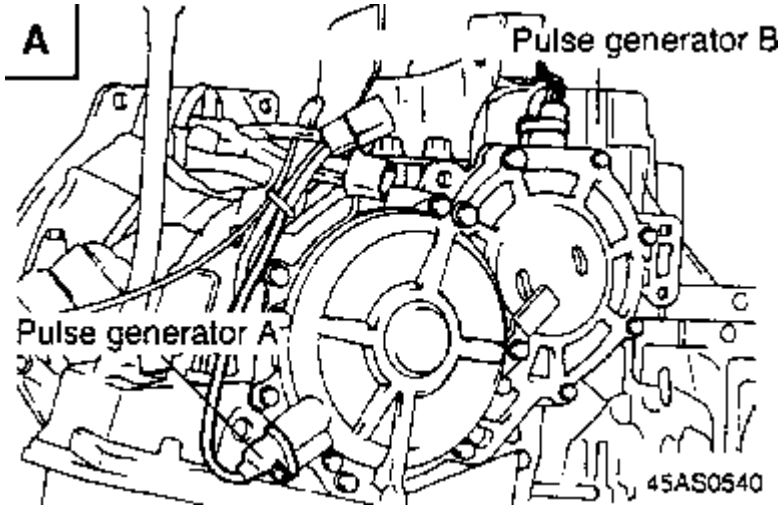
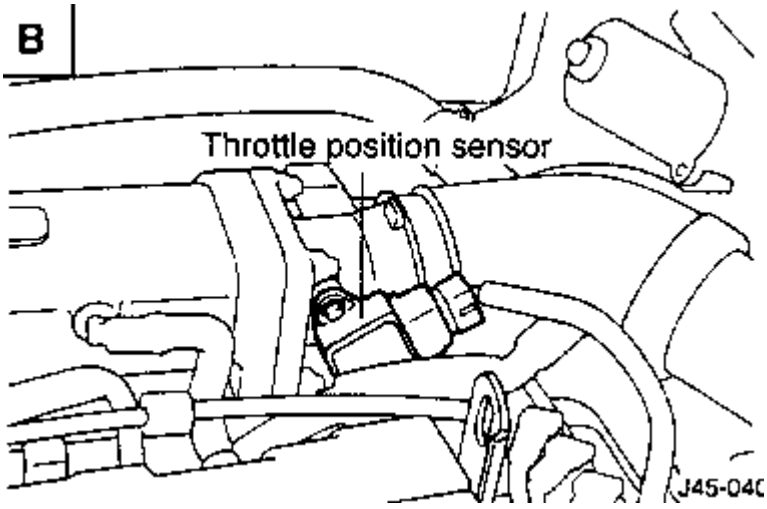
E.L.C. 4-SPEED AUTOMATIC TRANSAXLE CONTROL COMPONENTS



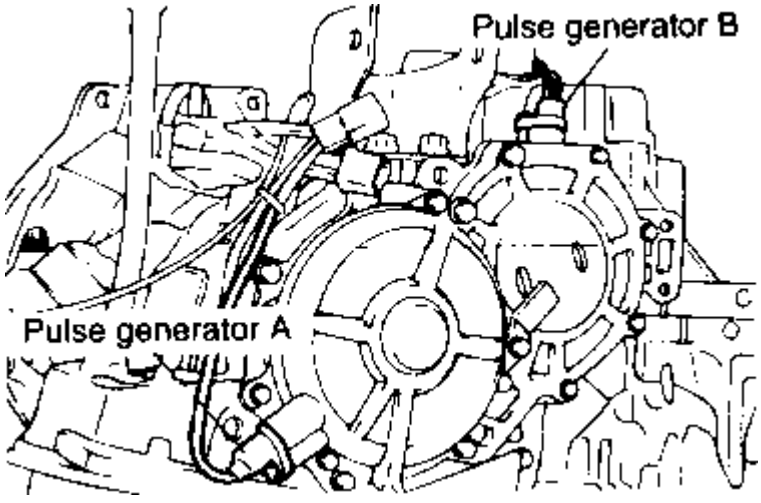
Pulse generator A, B



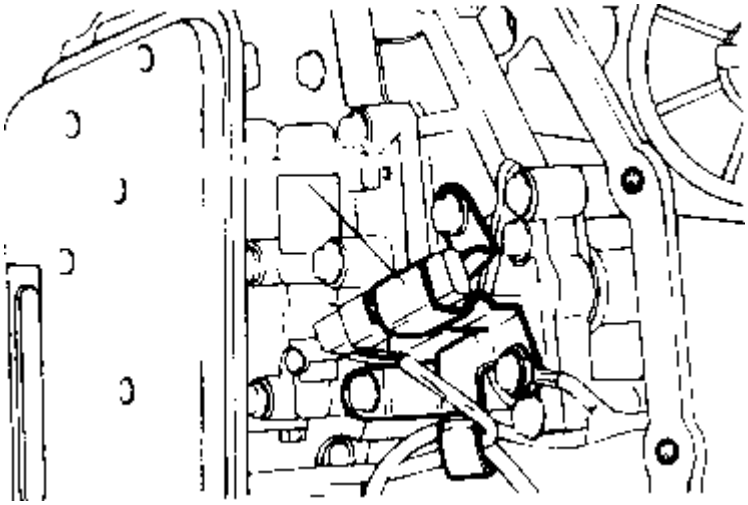
M.F.I. throttle position sensor



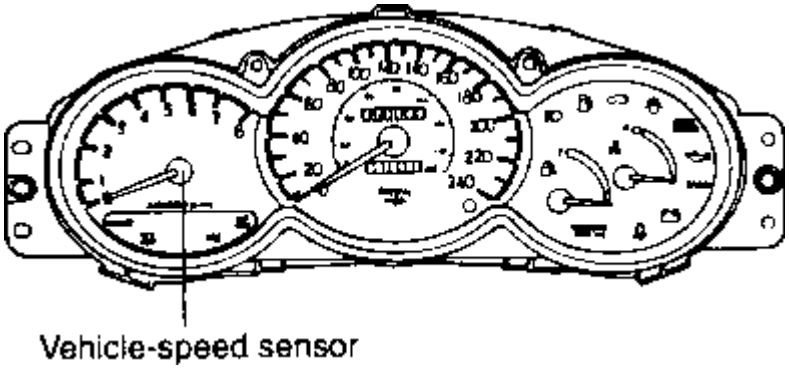
Pulse generator A, B



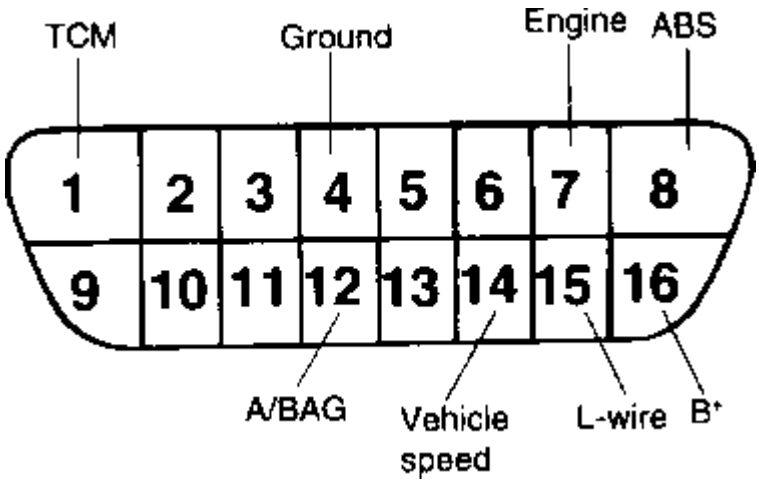
Oil temperature sensor



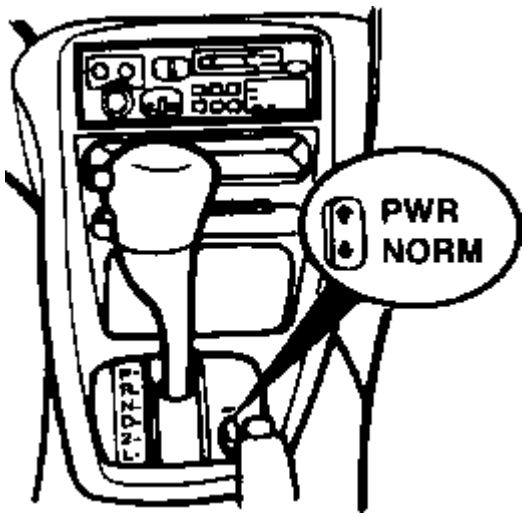
Vehicle-speed sensor



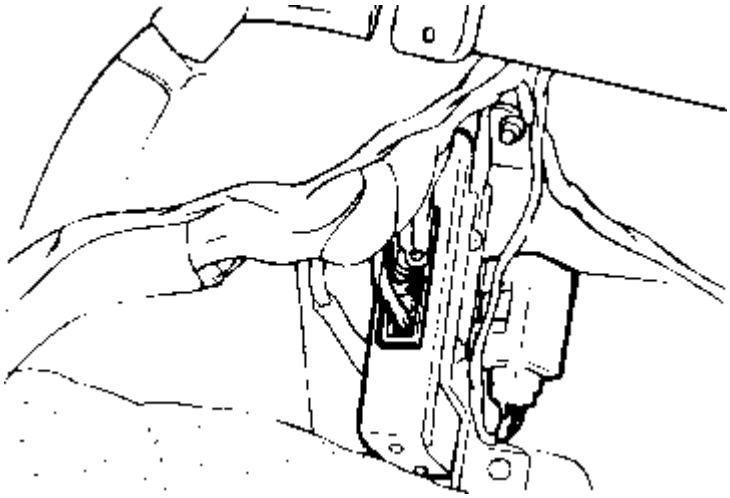
Data link connector



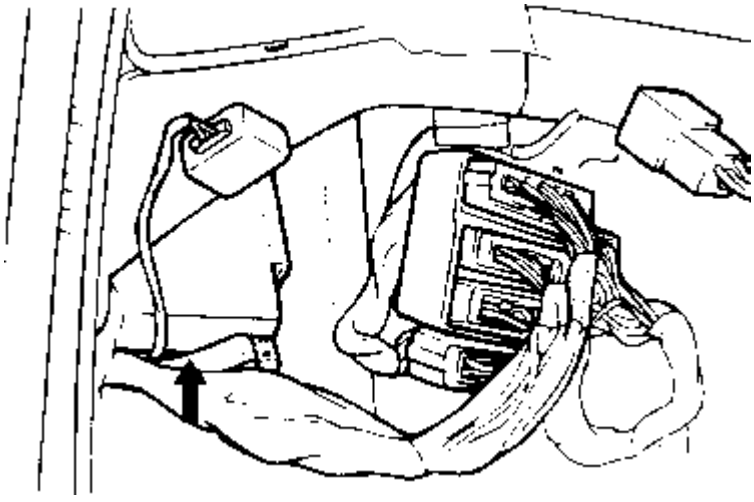
Power (PWR)/Normal (NORM) switch



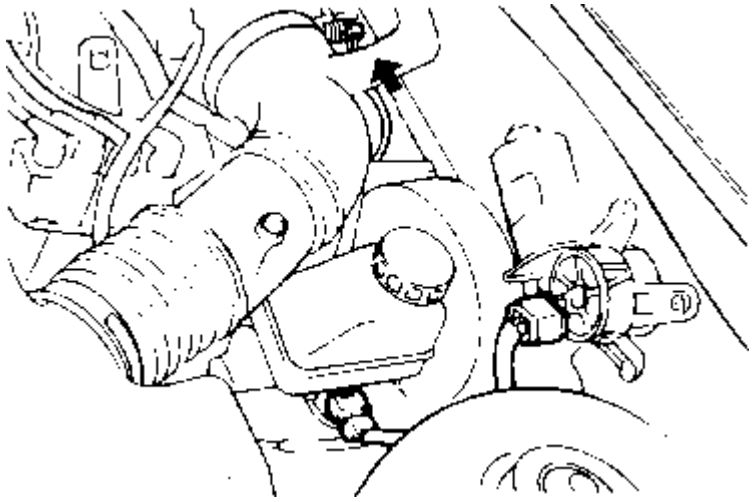
4 A/T control module



M.F.I control module



Closed throttle position switch



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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SPECIFICATIONS

Gear ratio	**M5BF1 Hydraulic type 1.8 (DOHC)**	**2.0 (DOHC)**
First	3.462	3.462
Second	1.950	1.950
Third	1.393	1.393
Fourth	1.061	1.031
Fifth	0.878	0.825
Reverse	3.250	3.250
Final	3.650	3.650
Speedometer (driven/drive)	31/36	31/36

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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SERVICE STANDARD

Standard value	mm (in.)
Input shaft rear bearing end play	0-0.05L (0-0.0019L)
Output shaft rear bearing end play	0.10T-0.15T (0.0039T-0.0059T)
Differential rear bearing end play	0.20T-0.25T (0.0078T-0.0090T)
Gear backlash in differential	0.025-0.150 (0.0009-0.0059)

T: Indicates tightening of -(minus) direction of end play

L: Indicates loosening of +(plus) direction of end pla

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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LUBRICANTS AND GREASE

	Recommended lubricant	Quantity
Transaxle gear oil lit (U.S. Imp. qts.)	Hypoid gear oil, SAE 75W/85W, API-GL4	2.15 (2.25, 1.95)
Transaxle input shaft spline	MOLYWHITE TA NO. 2	As required
Transaxle oil seal lip	RETINAX AM, MOLYTEX GREASE EP 2	As required

SERVICE MANUAL	
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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
Bearing retainer bolt (flush bolt only)	THREE BOND 1303	As required

SNAP RING AND SPACER FOR ADJUSTMENT

Part Name	Thickness mm (in.)	Identification symbol
Spacer (For adjustment of input shaft rear bearing end play)	1.25 (0.0492)	25
	1.28 (0.0504)	28
	1.31 (0.0515)	31
	1.34 (0.0525)	34
	1.37 (0.0539)	37
	1.40 (0.0551)	40
	1.43 (0.0563)	43
	1.46 (0.0574)	46
	1.49 (0.0586)	49
	1.52 (0.0598)	52
	1.55 (0.0610)	55
	1.58 (0.0622)	58
	1.61 (0.0633)	61
	1.64 (0.0645)	64
	1.67 (0.0657)	67
	1.70 (0.0669)	70
	1.73 (0.0681)	73
	1.76 (0.0693)	76
	1.79 (0.0704)	79
	1.82 (0.0716)	82
	1.85 (0.0728)	85
	1.88 (0.0563)	88

Part Name	Thickness mm (in.)	Identification symbol
Spacer (For adjustment of output shaft rear bearing end play)	1.43 (0.0563)	43
	1.46 (0.0574)	46
	1.49 (0.0586)	49
	1.52 (0.0598)	52
	1.55 (0.0610)	55

	1.58 (0.0622)	58
	1.61 (0.0633)	61
	1.61 (0.0645)	64
	1.67 (0.0657)	67
	1.70 (0.0669)	70
	1.73 (0.0681)	73
	1.76 (0.0693)	76
	1.79 (0.0704)	79
	1.82 (0.0716)	82
	1.85 (0.0728)	85
	1.88 (0.0563)	88
	1.91 (0.0752)	91
	1.94 (0.0764)	94
	1.97 (0.0776)	97
	2.00 (0.0787)	00
	2.03 (0.0799)	03
	2.06 (0.0811)	06
	2.09 (0.0823)	09
	2.12 (0.0835)	12

Part Name	**Thickness mm (in.)**	**Identification symbol**
Spacer (For adjustment of differential shaft rear bearing end play)	0.80 (0.0315)	80
	0.83 (0.0326)	83
	0.86 (0.0339)	86
	0.89 (0.0350)	89
	0.92 (0.0362)	92
	0.95 (0.0374)	95
	0.98 (0.0385)	98
	1.01 (0.0397)	01
	1.04 (0.0409)	04
	1.07 (0.0421)	07
	1.10 (0.0433)	10
	1.13 (0.0444)	13
	1.16 (0.0456)	16
	1.19 (0.0468)	19
	1.22 (0.0480)	22
	1.25 (0.1492)	25
	1.28 (0.0504)	28

Part Name	**Thickness mm (in.)**	**Identification symbol**

Spacer (For adjustment of differential pinion back lash)	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)	

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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TIGHTENING TORQUE

	Nm	kg.cm	lb.ft
Shift cable and select cable to body	12-15	120-150	9-11
Shift lever assembly to body	12-15	120-150	9-11
Shift lever to lever (A)	19-28	190-280	13-20
Lever (A) to bracket assembly	19-28	190-280	13-20
Clutch release cylinder mounting bolts	15-22	150-220	11-16
Shift cable and select cable to transaxle	15-22	150-220	11-16
Start motor mounting bolts	27-34	170-340	20-25
Transaxle mount bracket to transaxle	60-80	600-800	43-58
Transaxle mount bracket to body	90-110	900-1100	65-80
Front roll support bracket	60-80	600-800	43-58
Rear roll support bracket	60-80	600-800	43-58
Bell housing cover mounting bolts	8-10	80-100	6-7
Transaxle mounting bolts	43-55	430-550	32-39
Rear cover bolt	15-22	150-220	11-15
Backup light switch	30-35	300-350	22-25
Poppet spring plug	30-42	300-420	22-30
Speedometer sleeve bolt	3-5	30-50	2-4
Input shaft lock nut	140-160	1400-1600	102-115
Output shaft lock nut	140-160	1400-1600	102-115
Clutch housing transaxle case mounting bolt	35-42	350-420	25-31
Select lever assembly mounting bolt	15-22	150-220	11-16
Reverse idler gear shaft bolt	43-55	430-550	32-39
Transaxle case tightening bolt	35-42	350-420	25-31
Reverse shift lever assembly attaching bolt	15-22	150-220	11-15
Bearing retainer bolt	15-22	150-220	11-15
Differential drive gear bolt	130-140	1300-1400	94-101
Interlock plate bolt	20-27	200-270	15-19

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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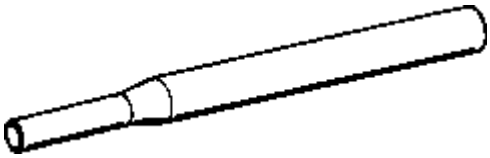
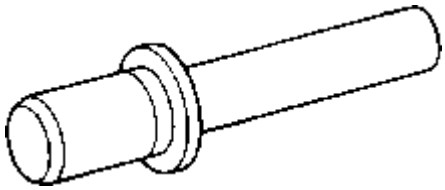
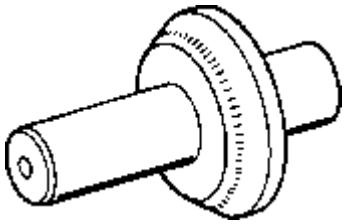
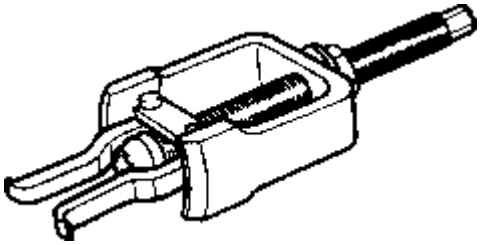
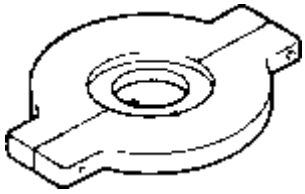
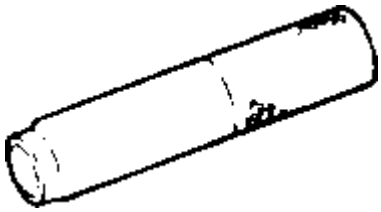
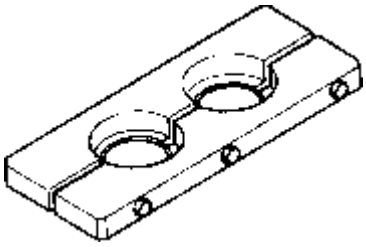
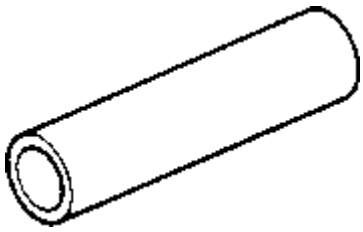
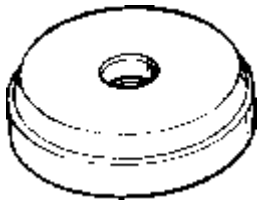
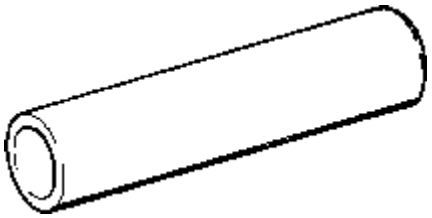
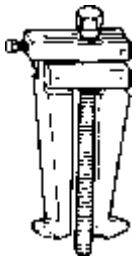
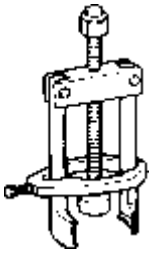
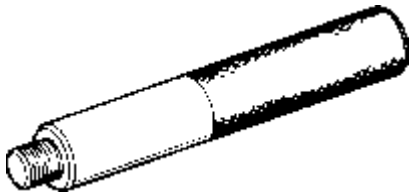
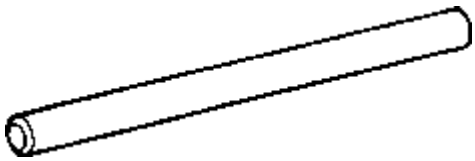
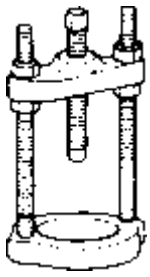
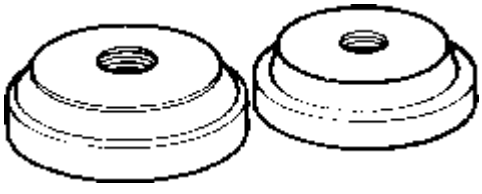
SPECIAL TOOLS

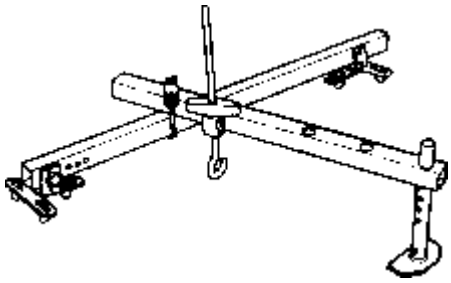
Tool (Number and Name)	Illustration	Use
09414-11000 Lock pin extractor		Driving out the spring pin of the shift fork
09414-11100 Lock pin installer		Driving in the spring pin on the shift fork
09431-21000 Front oil seal installer		Installation of the input shaft front oil seal
09431-21200 Oil seal installer		Installation of differential oil seal
09432-21000 Bearing outer race remover		Removal of input shaft bearing outer race
09432-21400 Taper bearing puller		Removal of input shaft front bearing

		
09432-22000 Bearing installer		Installation of output shaft's gear and sleeve
09432 22100 Bearing outer race installer		Installation of input and output shaft bearing outer race (Use with 09500-11000)

Tool (Number and Name)	**Illustration**	**Use**
09432-29000 Bearing installer		Installation of input shaft front taper roller bearing
09432-33200 Bearing removing plate		Removal of input shaft's gear and ball bearing
09432-33300 Bearing installer		Installation of input shaft bearing
09432-33400 Bearing race installer		Installation of input shaft bearing outer race (Use with 09500-21000)

09455-21100 Bearing installer		Installation of differential bearing
09455-32200 Oil seal puller		Removal of output shaft bearing outer race from clutch housing
09495-33000 Bearing and gear puller		Removal of ball bearing and gear
09500-11000 Bar		Installation of output shaft bearing outer race (Use with 09532-11500)
09517-21400 Drift		Separation of T/M housing from T/M assembly

Tool (Number and Name)	**Illustration**	**Use**
09532-11000 Differential bearing installer		Removal and installation of differential bearing (Use with 09532-11100, 09532-11301)
09532-11500 Pinion bearing outer race installer		Installation of output shaft and differential shaft bearing outer race (Use with 09500-11000)

09400-29000 (J28467-B) Engine support fixture		Removal and installation of transaxle assembly

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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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
	Worn or damaged bearings	Replace bearings
	Use of inferior grade of gear oil	Replace with specified gear 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
	Use of insufficient sealant	Re-seal with specified sealant
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 inferior grade of gear oil	Replace with specified gear oil
Jumps out of gear	Worn gear shift fork or broken poppet spring	Replace shift fork or poppet spring
	Excessive clearance of synchronizer hub to sleeve spline	Replace synchronizer hub and sleeve
	Worn or damaged gears and/or bearings	Replace gears and/or bearings

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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TRANSAXLE GEAR OIL LEVEL INSPECTION

Inspect each component for evidence of leakage. Check the gear oil level by removing the filler plug. If the oil is contaminated, it is necessary to replace it with new oil.

Remove oil filler plug and check oil level with finger.

Oil level must be up to fill hole. If it is below hole, add oil until it runs out, then reinstall plug.

Replace the oil that the transaxle gear oil is noticeably dirty, and that it is not of a suitable viscosity.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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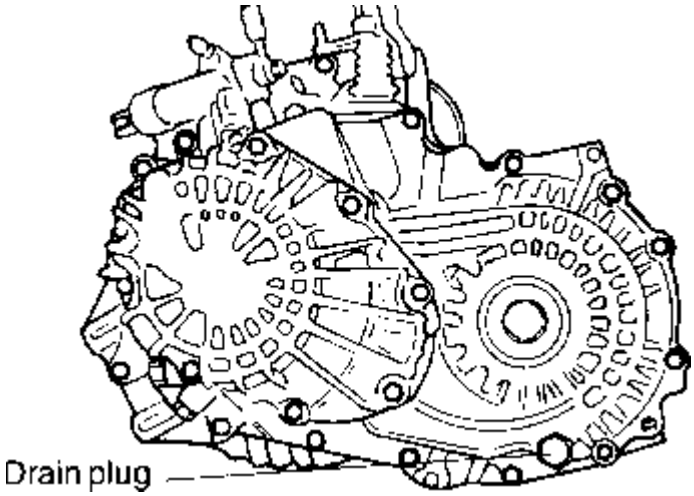
REPLACEMENT OF TRANSAXLE GEAR OIL

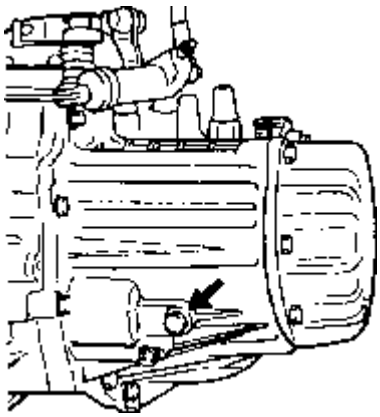
Use HP Gear Oil SAE 75W/85W (API-GL 4)

With the vehicle parked on a level surface, remove the drain plug and drain the transaxle oil.

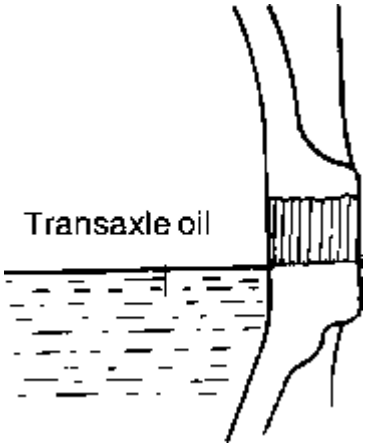


Replace the gasket with a new one and install the drain plug.

TORQUE SPECIFICATION	
Drain plug	30-35 Nm (300-350 kg·cm, 22-25 lb·ft)



Add new oil through the filler plug, filling to the same level as the plug opening.



MEASUREMENT SPECIFICATION	
Transaxle oil total capacity:	2.15 lit (2.27 qt, 1.89 impqt)

TORQUE SPECIFICATION	
Filler plug	30-35 Nm (300-350 kg·cm, 22-25 lb·ft)

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
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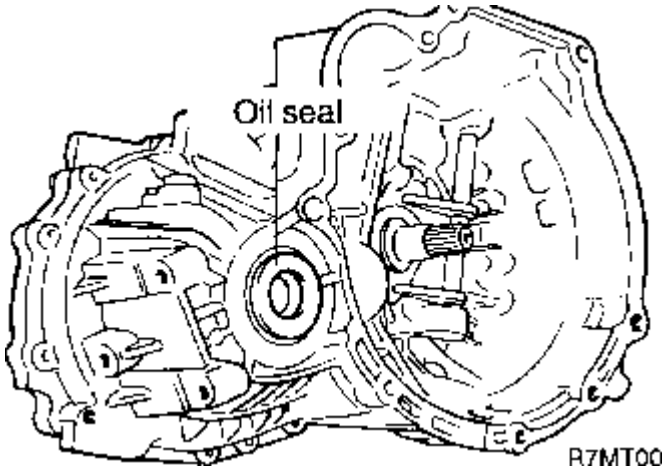
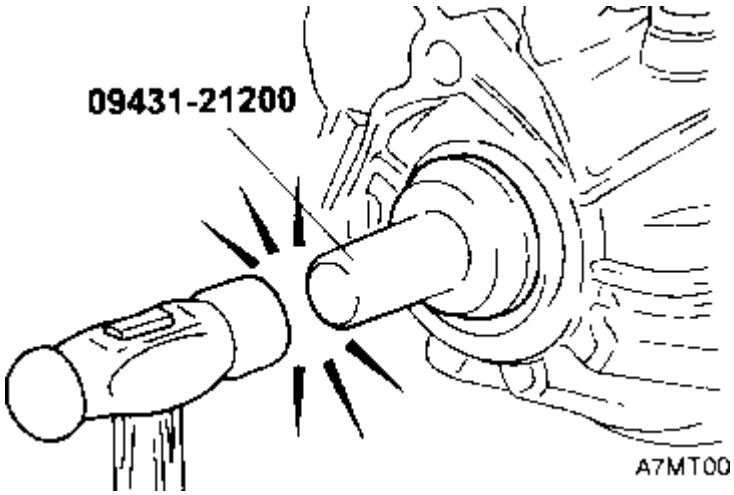
DRIVE SHAFT OIL SEAL REPLACEMENT

Disconnect the drive shaft from the transaxle (Refer to DS GROUP)

Using a flat-tip screwdriver, remove the oil seal.



Using the special tool (09431-21200), tap the drive shaft oil seal into the transaxle.



Apply a coating of gear oil to the lip of the oil seal.

Transaxle gear oil: Hypoid gear oil, SAE 75W/85W conforming to API GL-4 or higher.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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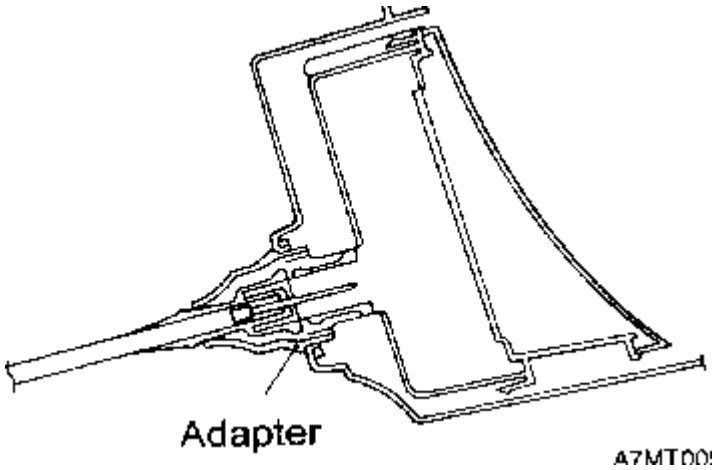
SPEEDOMETER CABLE REPLACEMENT

Correctly insert the adapter into the instrument panel, and fasten the new speedometer cable.

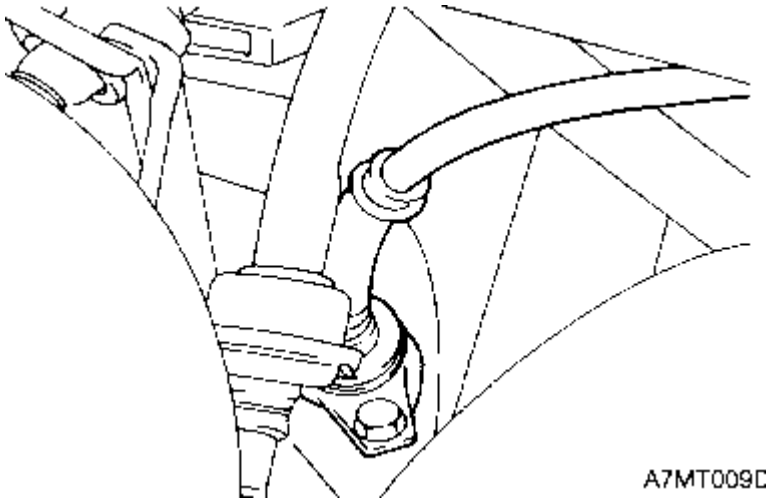


Install the grommet so the cable attachment part and the projecting part are horizontal, as shown in the illustration.

CAUTION

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

At the transaxle, the cable should be inserted into the transaxle, and the nut should be securely tightened.



CAUTION

If the cable is not correctly and securely connected, it may cause the speedometer to read incorrectly or it may produce abnormal noise.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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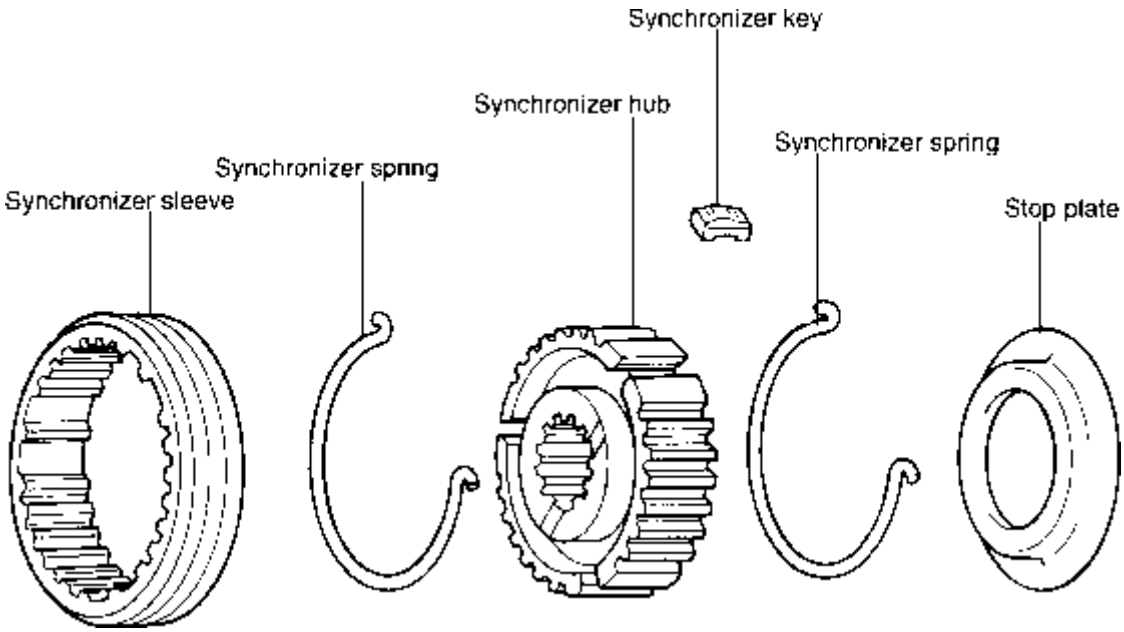
COMPONENTS



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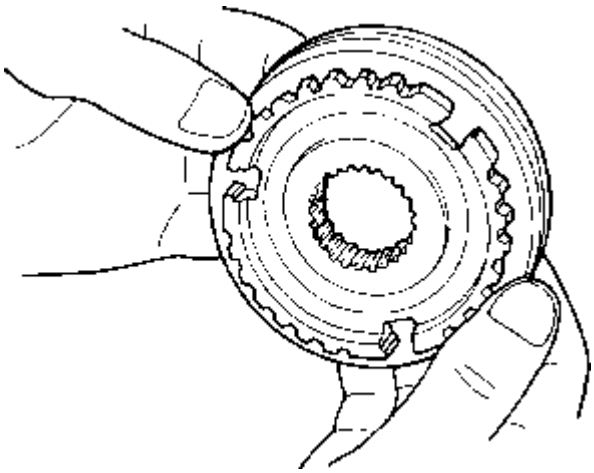
INSPECTION

SYNCHRONIZER SLEEVE AND HUB

Install the synchronizer sleeve on the hub and check that they slide smoothly.



Check that the sleeve is free from damage at its inside front and rear ends.

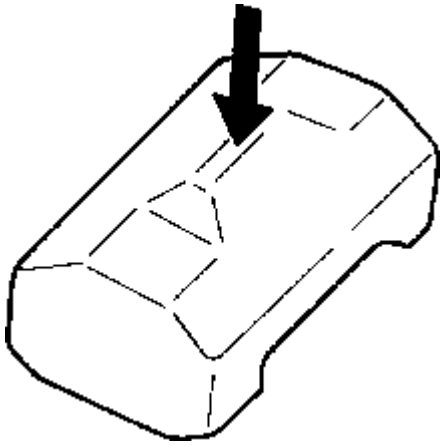
Check for wear of the hub front end (surface in contact with the fifth speed gear).

CAUTION

Replace the synchronizer hub and sleeve as a set.

SYNCHRONIZER KEY AND SPRING

Check for wear of the synchronizer key center protrusion.



Check the spring for weakness, deformation and breakage.

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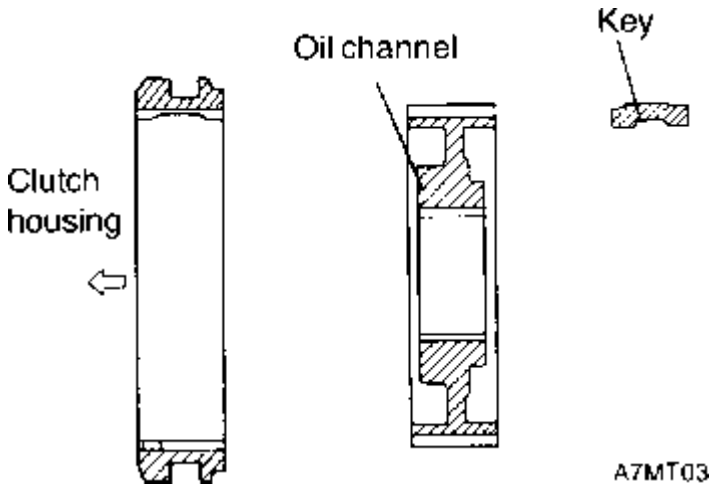
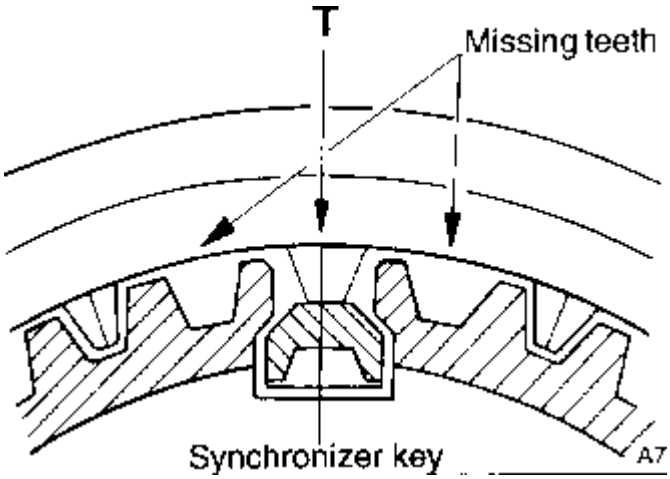
ASSEMBLY

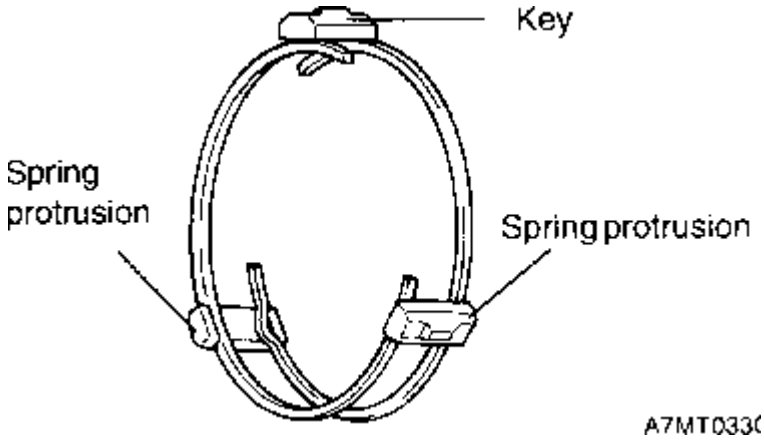
Assembly the synchronizer hub, sleeve and key noting their direction.



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.



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.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
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Transaxle/Transmission	Manual Transaxle System

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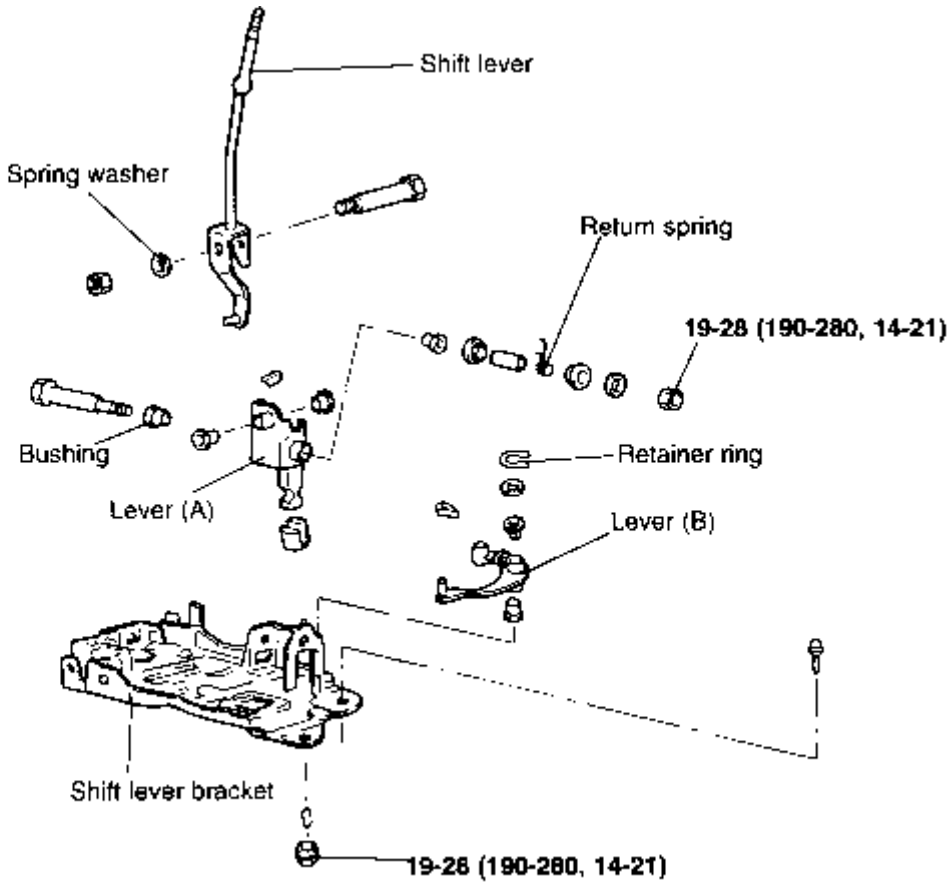
COMPONENTS



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

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INSPECTION

Check the bushing for wear or damage.

Check the return spring for damage or deterioration.

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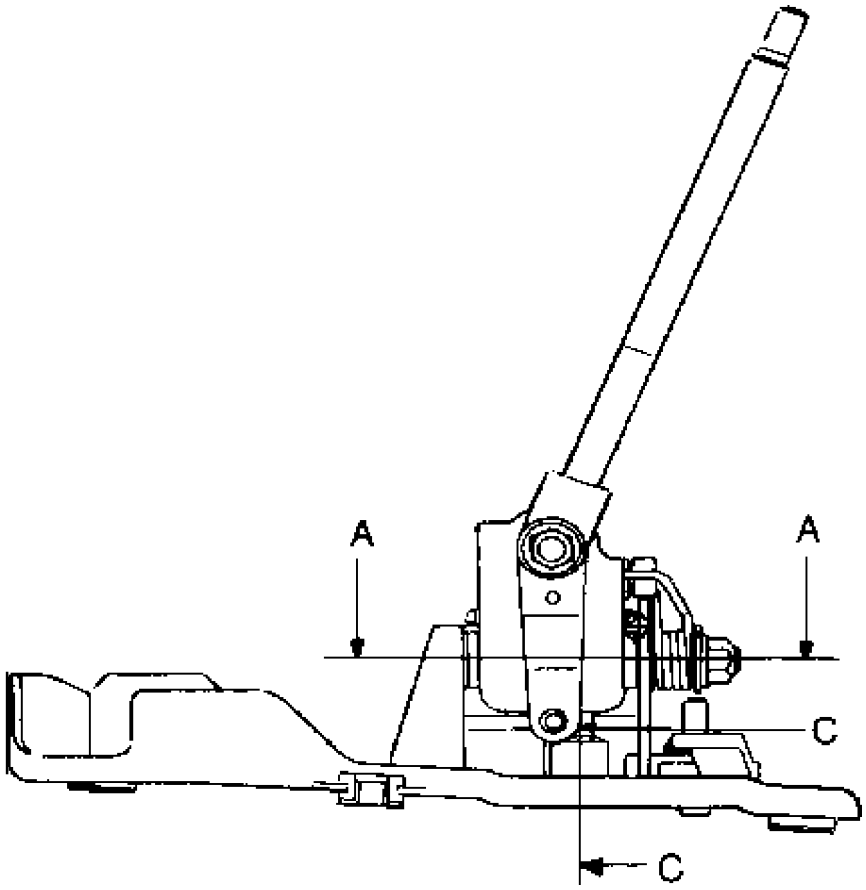
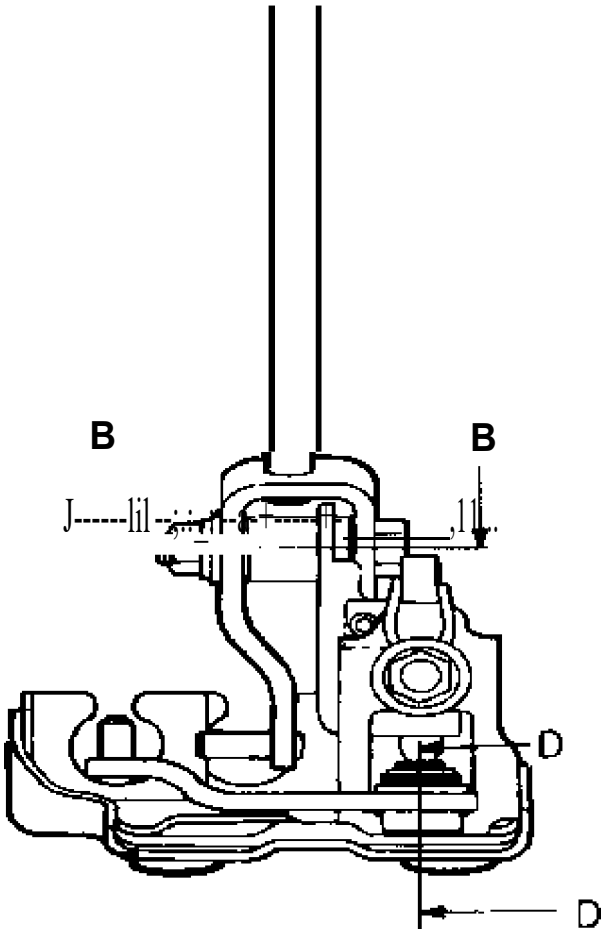
ASSEMBLY

Apply multi-purpose grease to the sliding part of the bushings as shown in the illustration.

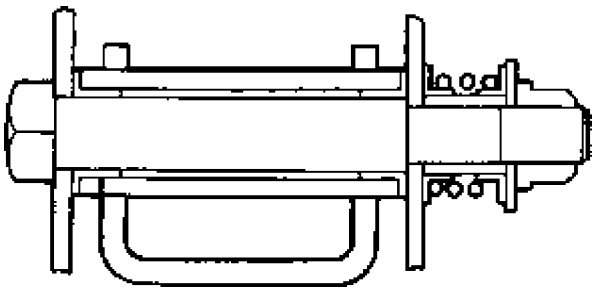
Assembly is reverse of the disassembly.

FRONT

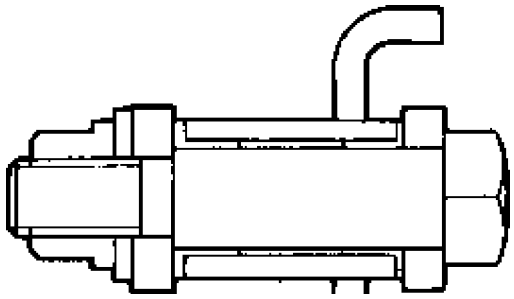




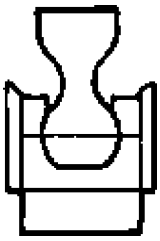
SECTION A-A



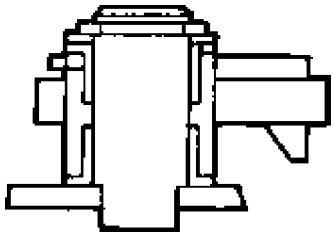
SECTION B-8



SECTION C-C



SECTION D-D



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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Transaxle/Transmission	Manual Transaxle System

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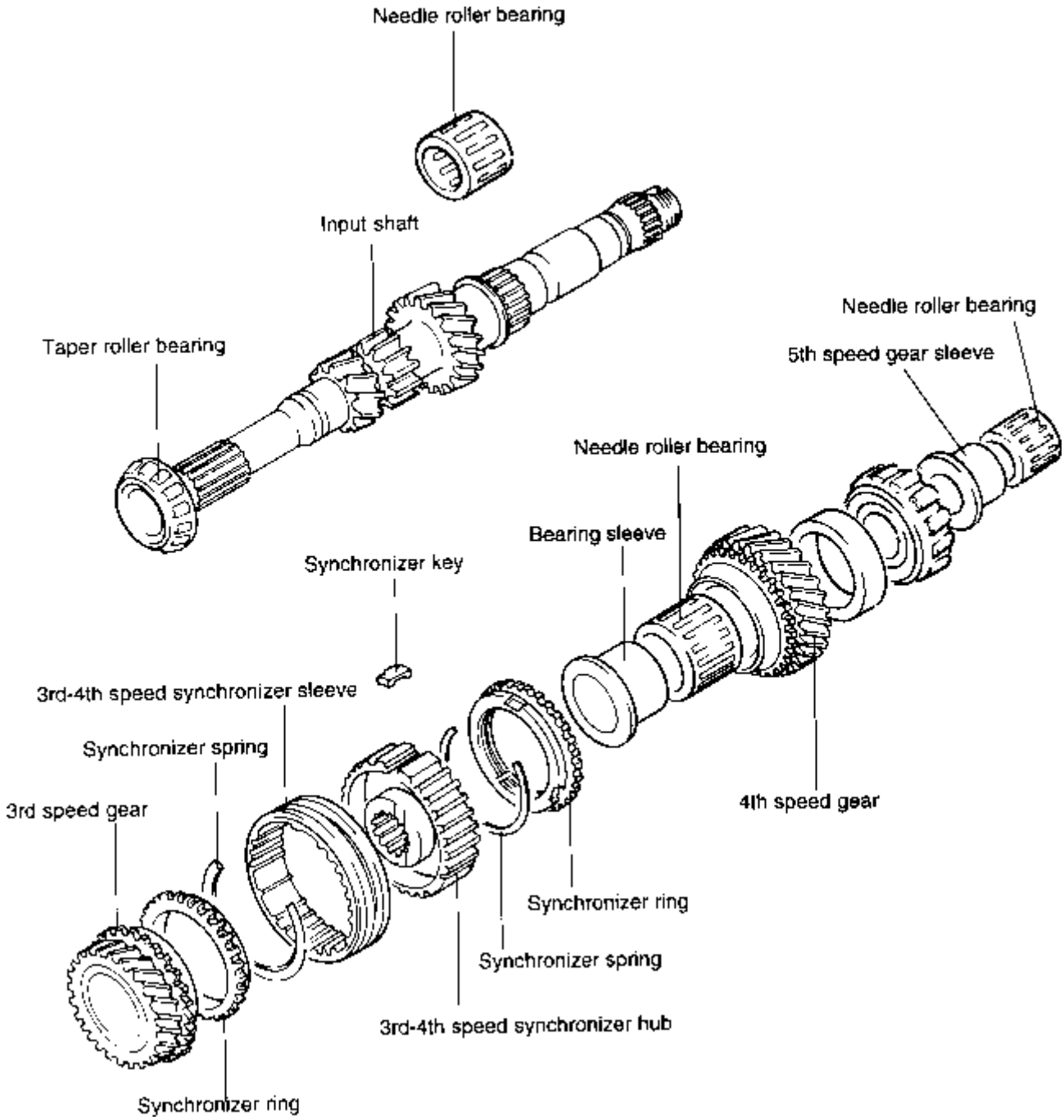
COMPONENTS



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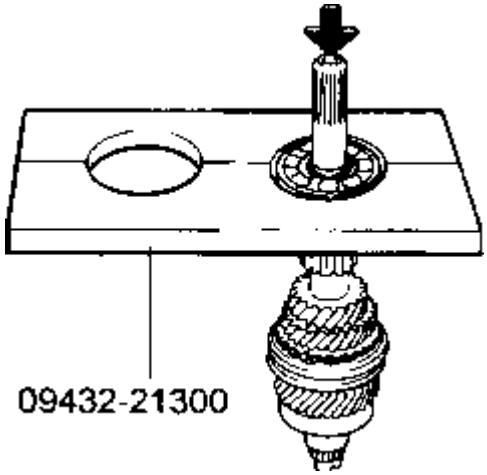
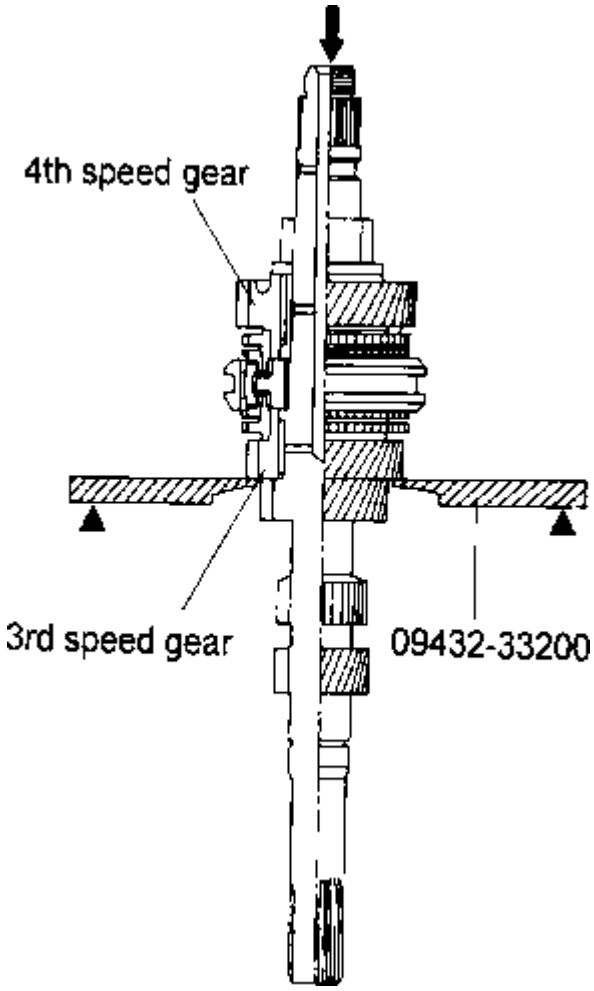
DISASSEMBLY

Remove the front bearing using the special tool (09432-21300).



Remove the inner ring, spacer, 4th gear, needle roller bearing, bearing sleeve, synchronizer rings, 3rd and 4th gear synchronizer hub and sleeve and 3rd gear all together using the special tool (09432-33200).



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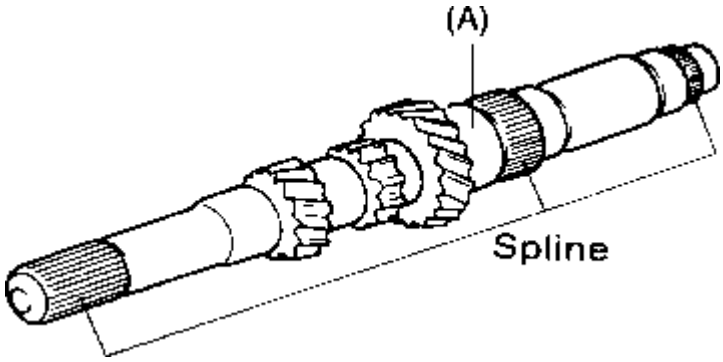
INSPECTION

INPUT SHAFT

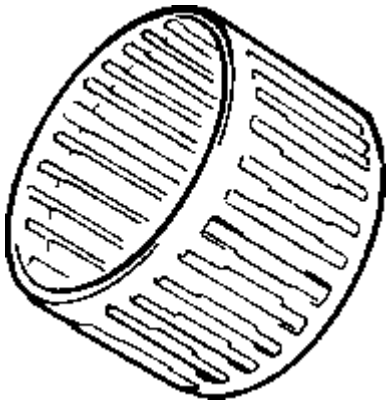
Check the outer surface of the input shaft where the needle roller bearing is mounted for damage or abnormal wear [portion (A)].



Check the splines for damage or wear.

NEEDLE ROLLER BEARING

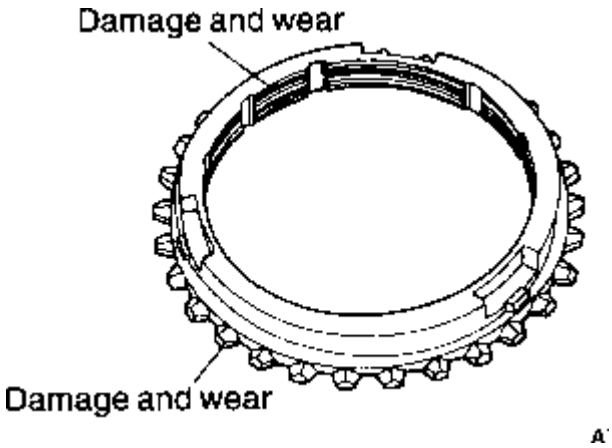
Install the needle roller bearing on the shaft with the bearing sleeve and gear. Check that it rotates smoothly without abnormal noise or play.



Check the needle roller bearing cage for distortion,

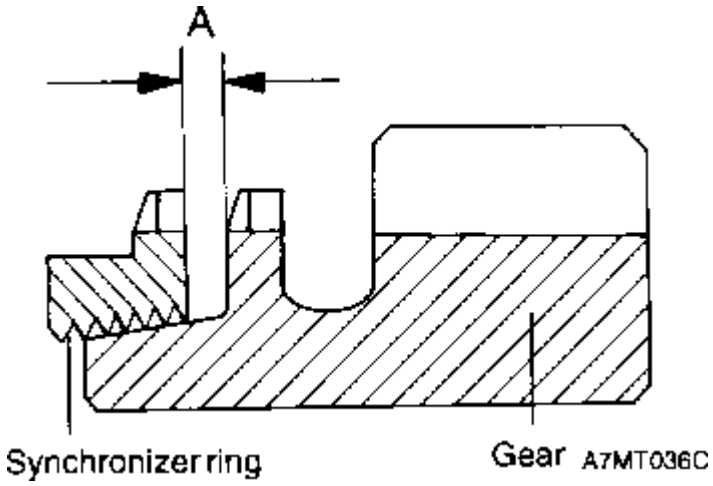
SYNCHRONIZER RING

Check the clutch gear teeth for damage.



Check the internal surface for damage, wear or broken grooves.

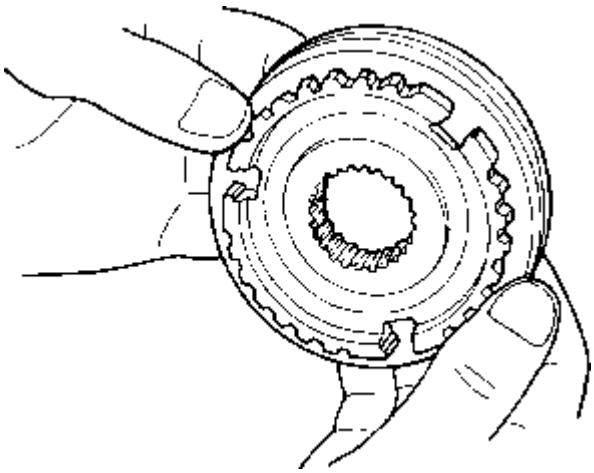
Push the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is not within specifications.



MEASUREMENT SPECIFICATION	
Synchronizer ring	0.5 mm (0.02 in)

SYNCHRONIZER SLEEVE AND HUB

Install the synchronizer sleeve on the hub and check that it slides smoothly.



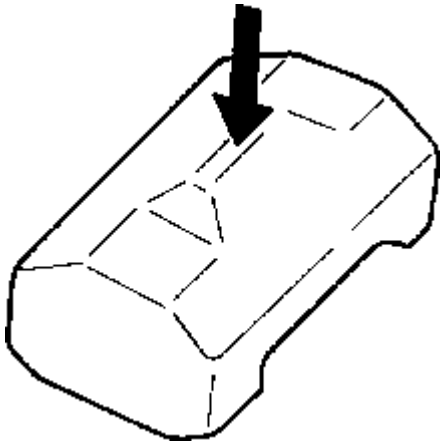
Check that the sleeve is free from damage.

Check for wear of the hub end surfaces (in contact with each gear).

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

SYNCHRONIZER KEY AND SPRING

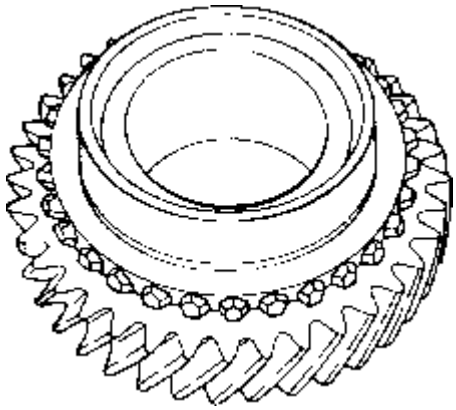
Check for wear of the synchronizer key center protrusion.



Check the spring for weakness, distortion or damage.

GEARS

Check the helical gear and clutch gear teeth for damage or wear.



Check the gear cone for rough surfaces, damage or wear.

Check the gear bore for damage or wear.

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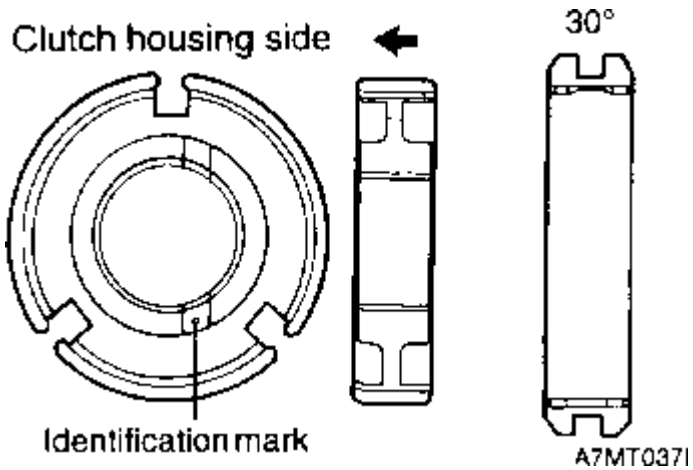
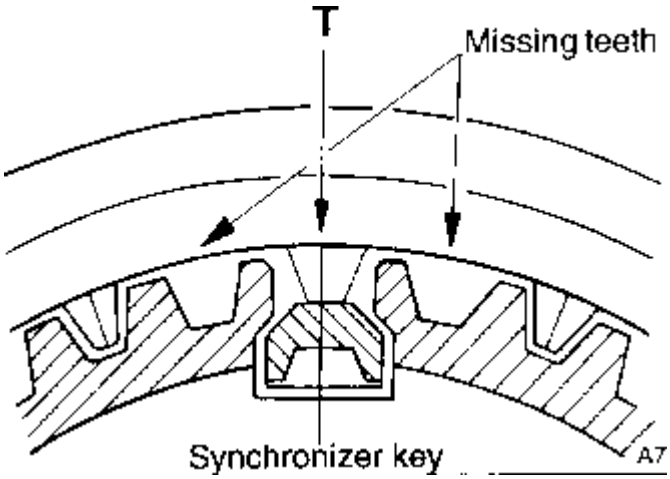
ASSEMBLY

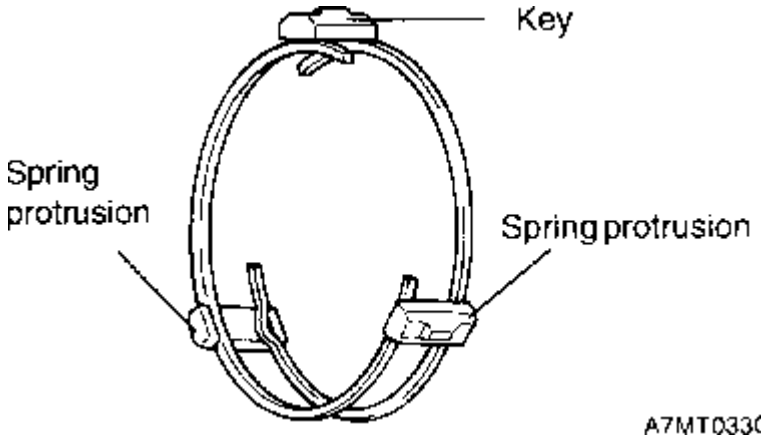
Install the synchronizer hub and sleeve so that they are positioned as shown in the figure.



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



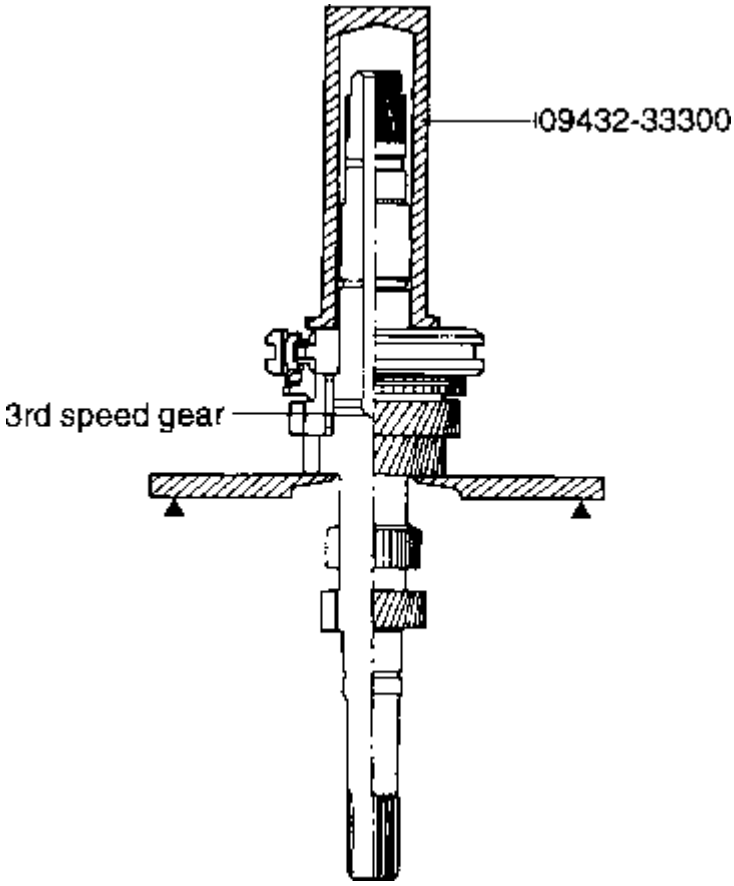
Install the synchronizer spring so that the stepped portions will rest on the synchronizer keys.



CAUTION

When installing the synchronizer springs, make sure they are not facing the same direction.

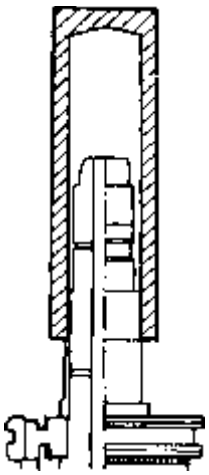
Install the 3rd-4th gear synchronizer assembly on the input shaft using the special tool (09432-33300).



CAUTION

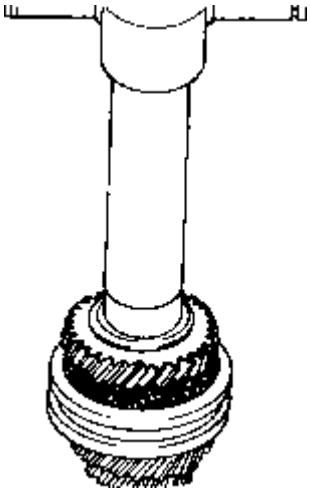
1. **When installing the synchronizer assembly, make sure that the three synchronizer keys are seated correctly in their respective grooves of the synchronizer ring.**
2. **After installing the synchronizer assembly, check that 3rd gear rotates smoothly.**

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

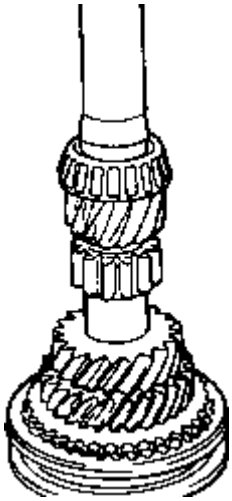


Install the needle bearing and 4th gear on the input shaft.

Install the spacer and sleeve on the input shaft.



Install the taper roller bearing on the input shaft using the special tool (09432-33300).



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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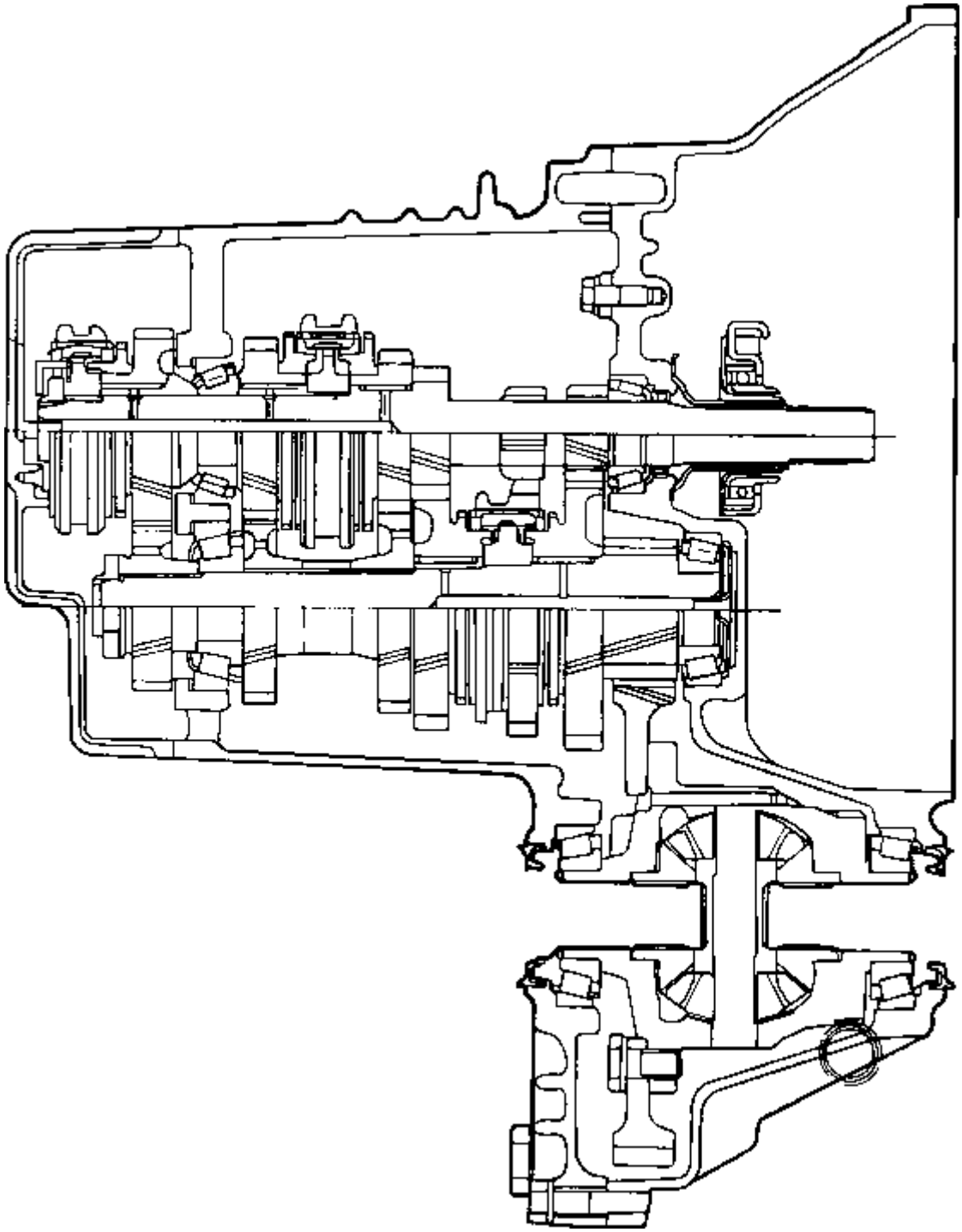
MANUAL TRANSAXLE DIAGRAM



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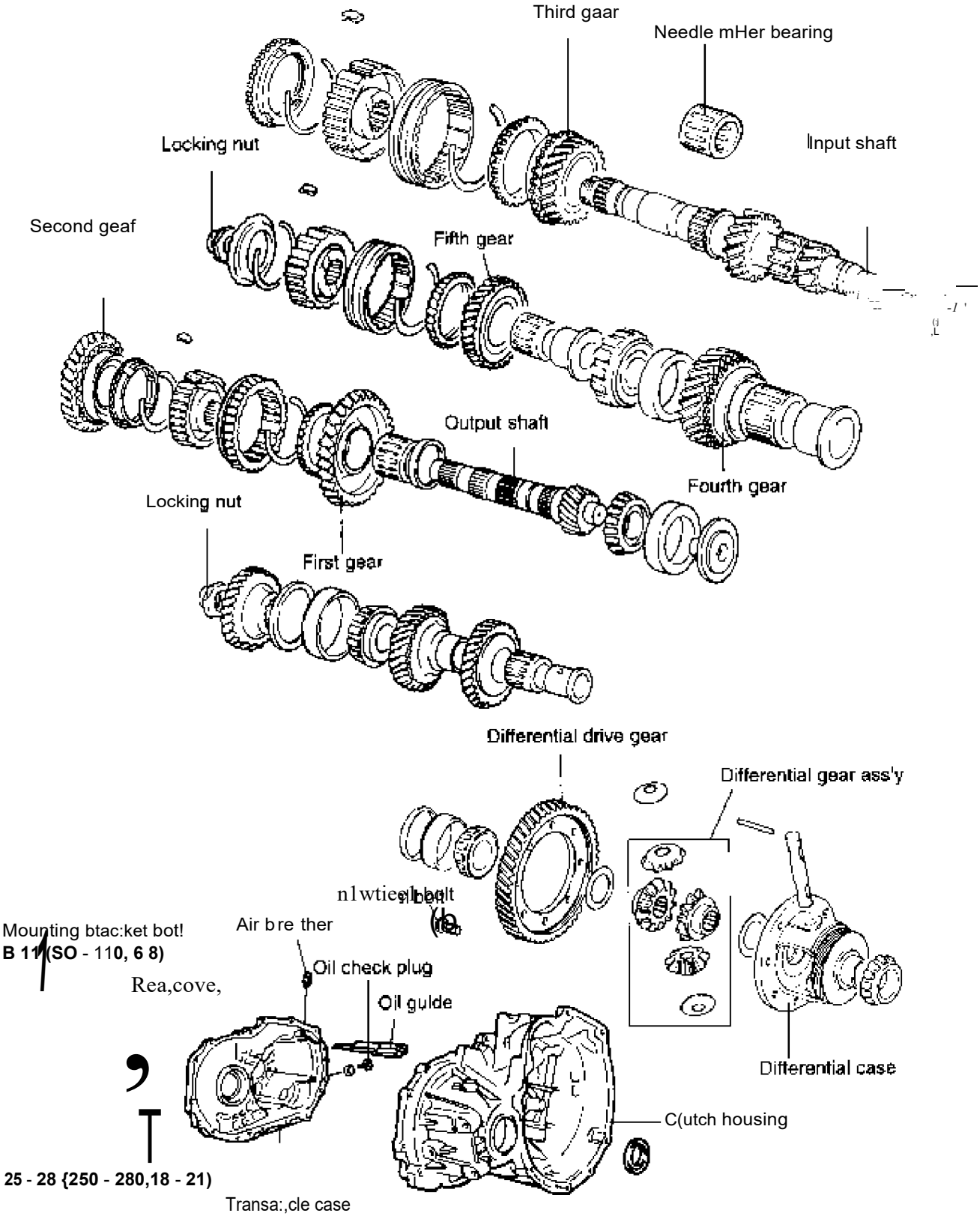
COMPONENTS



TORQUE : Nm {kg.cmt lb.ft)

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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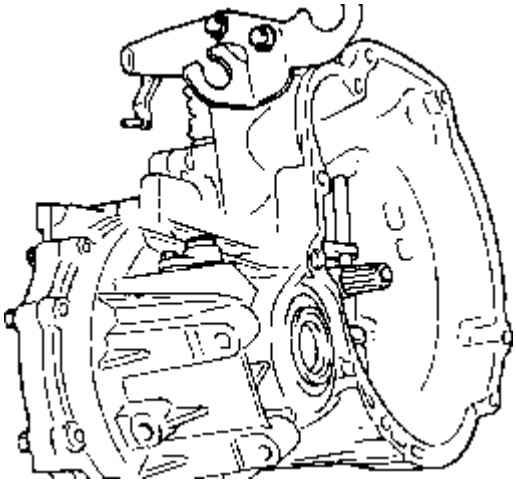
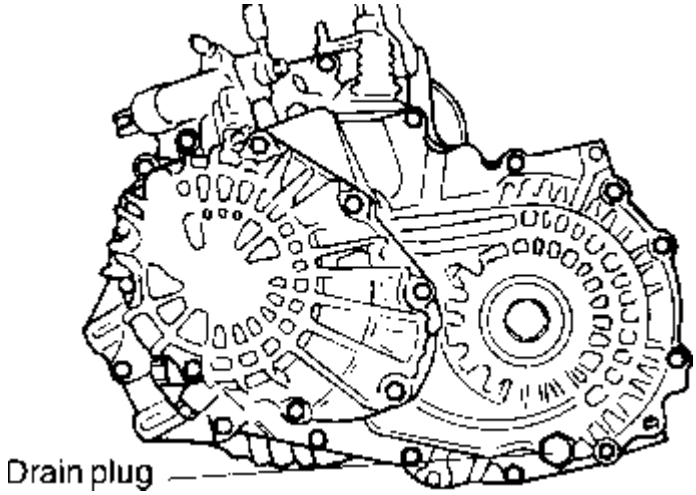
REMOVAL

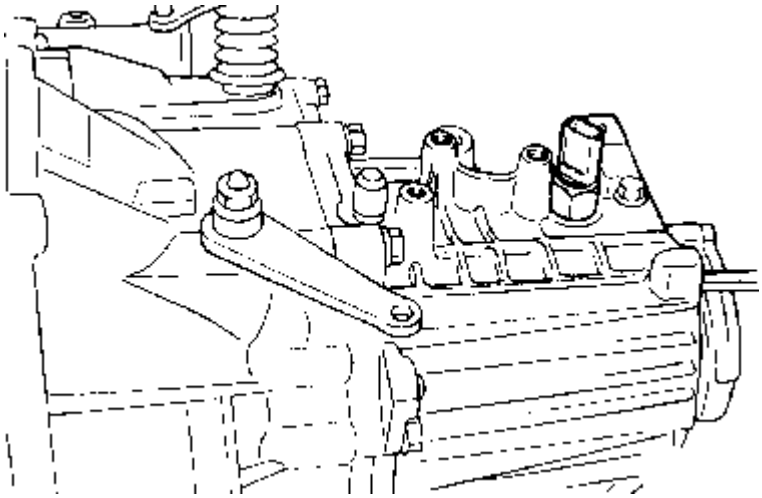
Remove the shift control cable bracket and select lever assembly.



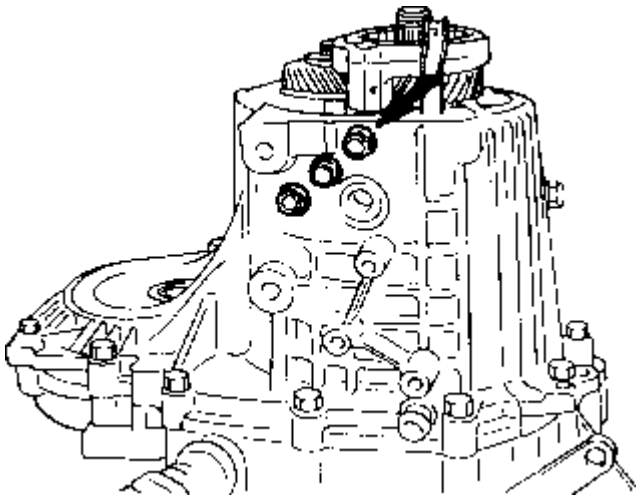
Remove the rear cover bolt and rear cover.



Remove the back up light switch, gasket and mounting bracket.



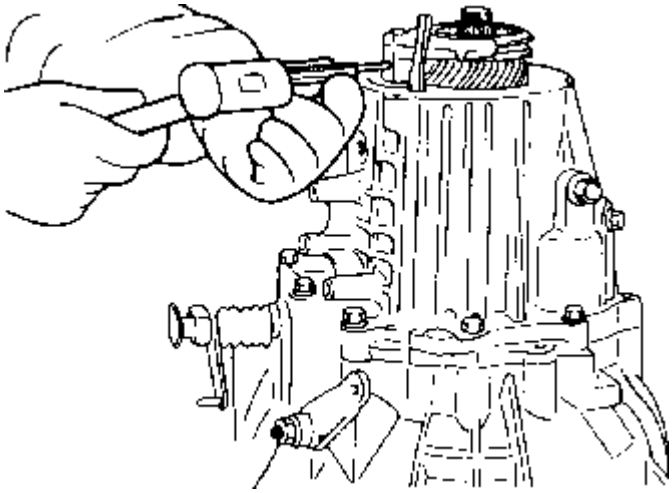
Remove the seal bolts, poppet springs and mounting bracket.



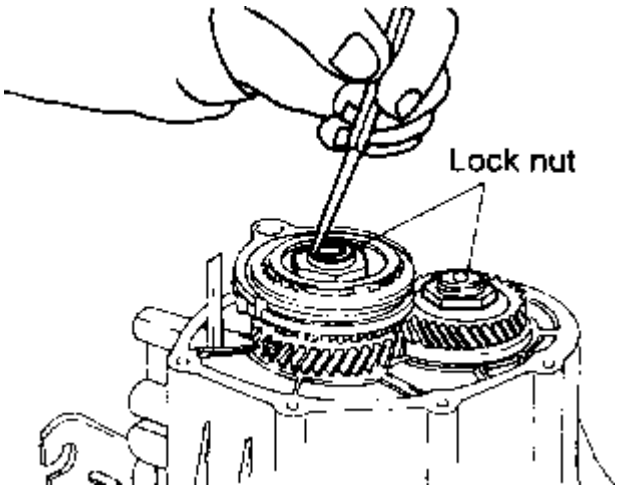
NOTE

Be careful not to lose the springs or balls.

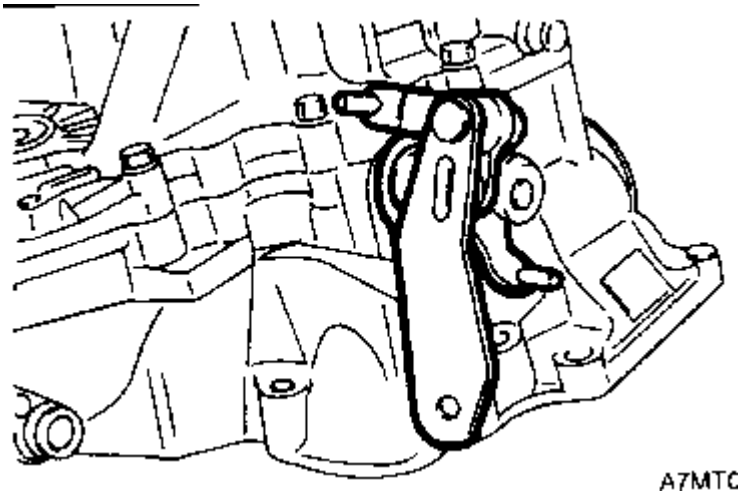
Remove the spring pin of fifth speed shift fork using the special tool (09414-11000).



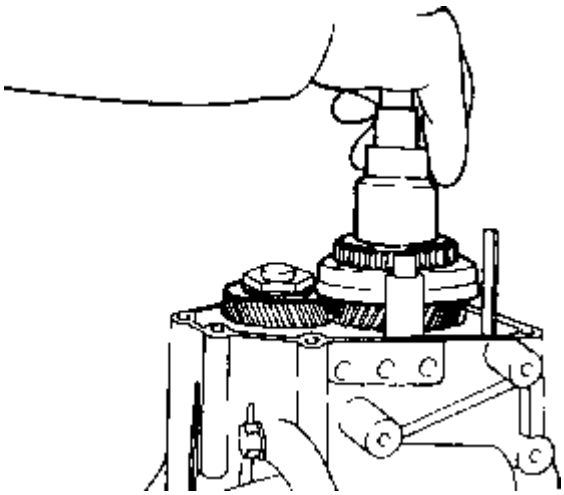
To remove the lock nuts of input shift and output shaft, unstake the lock nuts.



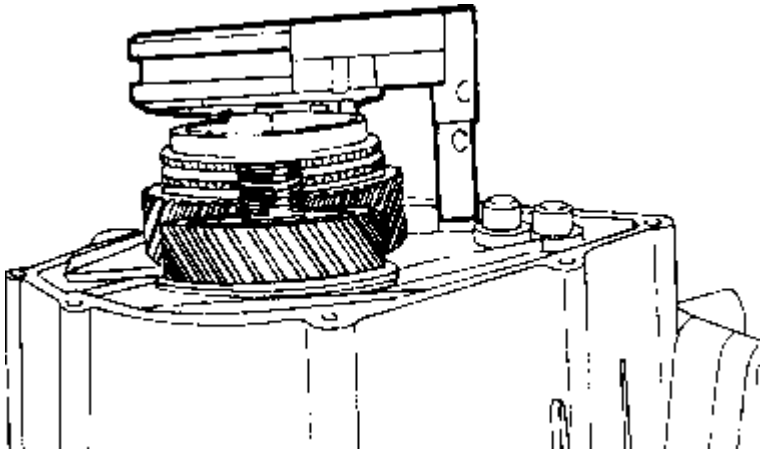
Shift the transaxle into third and fifth gears using the control lever and select lever.



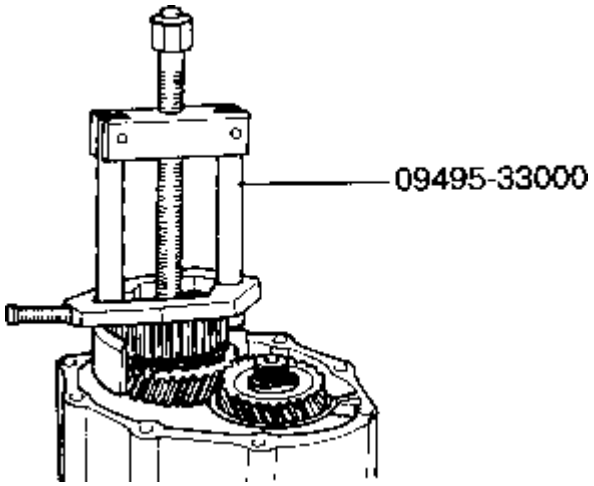
Remove and discard the lock nuts of input shaft and output shaft.



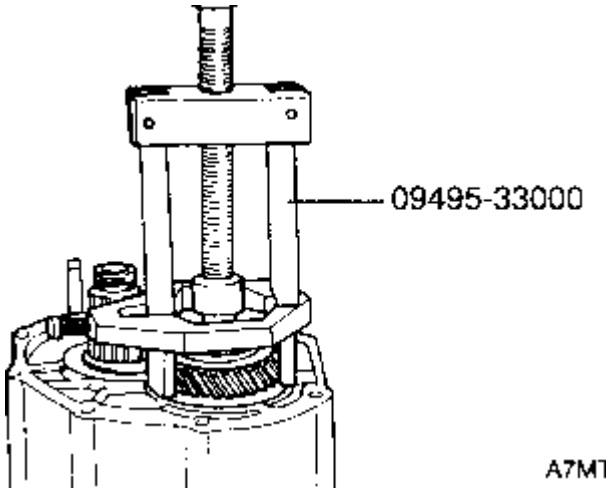
Remove the fifth speed synchronizer sleeve and shift fork.



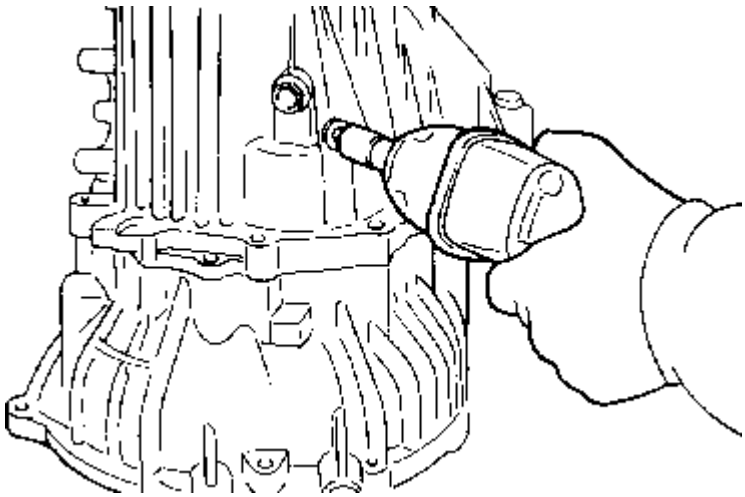
Remove the fifth synchronizer hub and ring with fifth speed gear and needle roller bearing using the special tool (09495-33000)



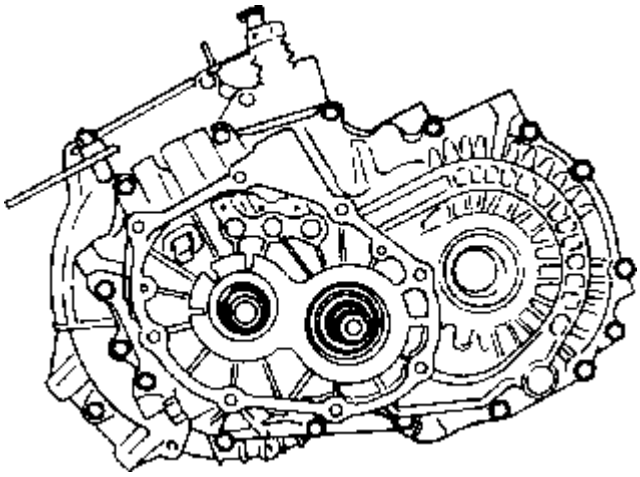
Remove the fifth speed gear on the output shaft using the special tool (09455-21000).



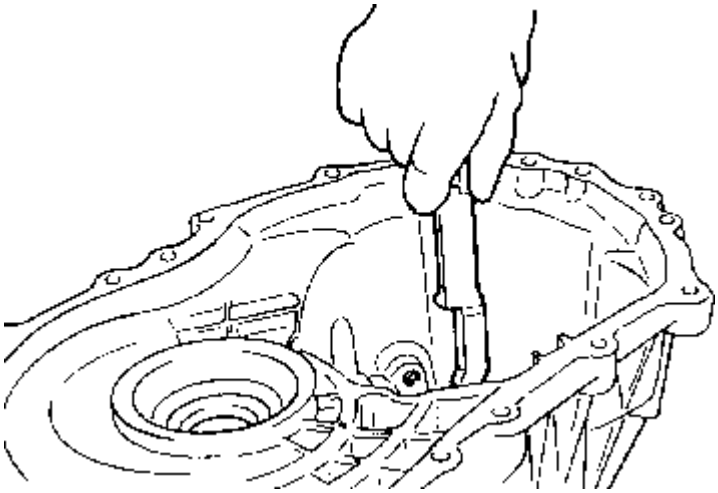
Remove the reverse gear shaft bolt.



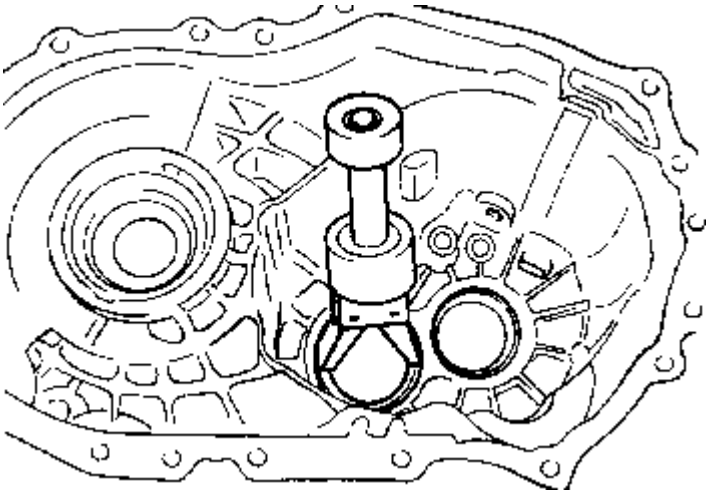
Remove the transaxle case fixing bolts in the clutch housing and then remove the transaxle case.



Remove the oil guides.



Remove the output shaft bearing outer race and spacer using special tool (09455-23000).



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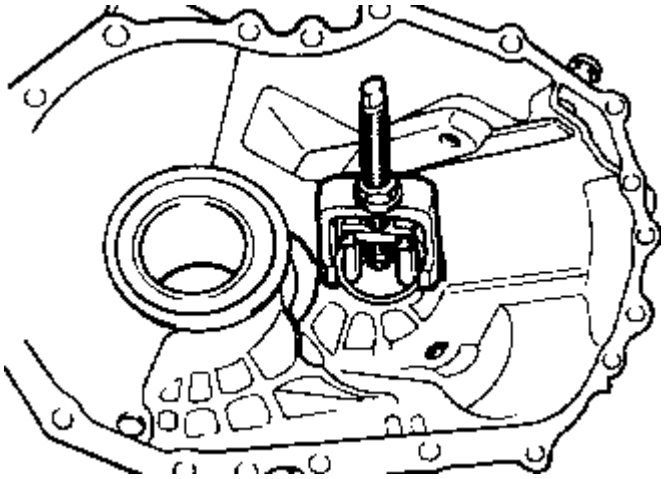
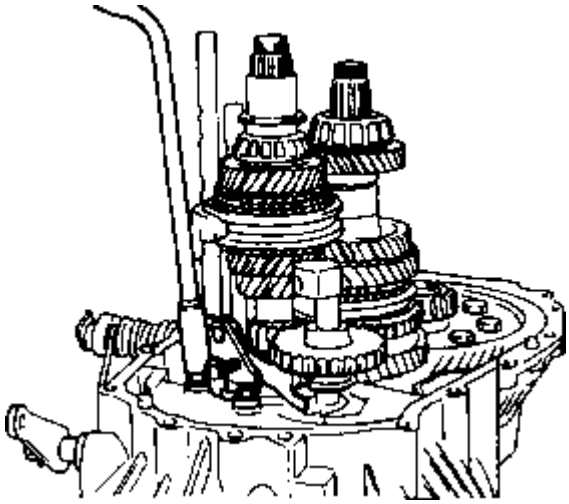
REMOVAL (CONTINUED)

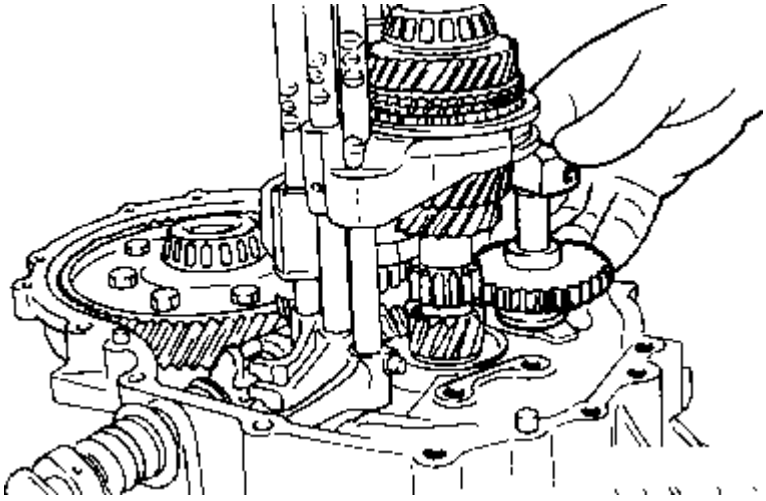
Remove the input shaft bearing outer race and spacer using the special tool (09432-21000).



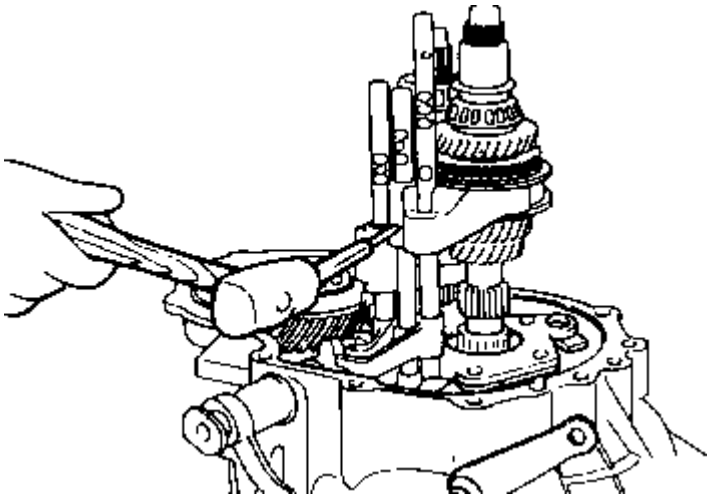
Remove the reverse shift lever.



Remove the reverse gear shaft and the reverse gear.

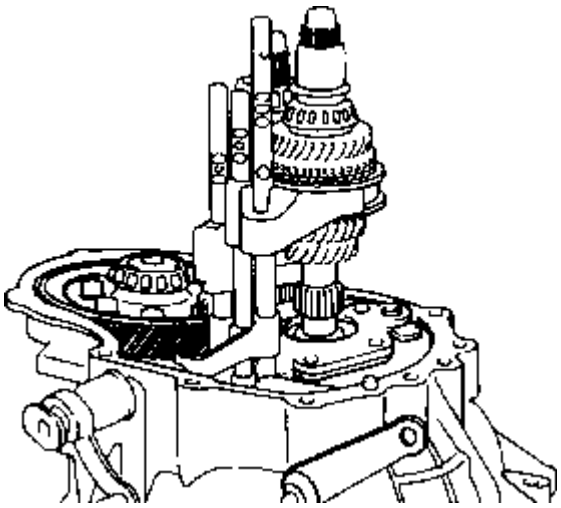


Remove the spring pin of 3rd-4th gear shift fork using the special tool (09414-11000).



Detach the 3rd-4th/5th-reverse shift rail and fork.

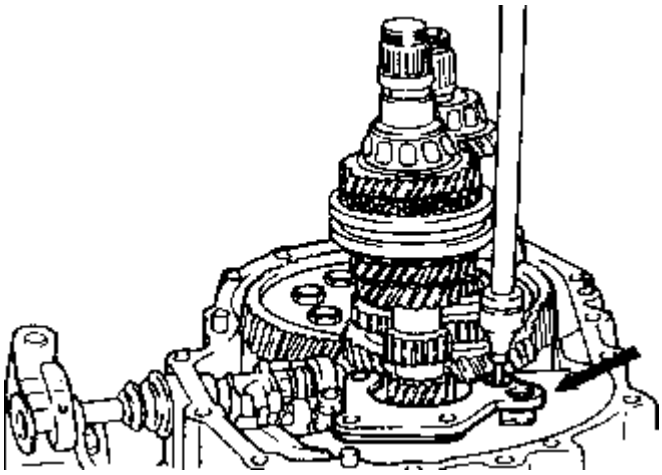
After shifting with first gear, remove the spring pin of 1st-2nd gear shift fork using the special tool (09414-11000).



CAUTION

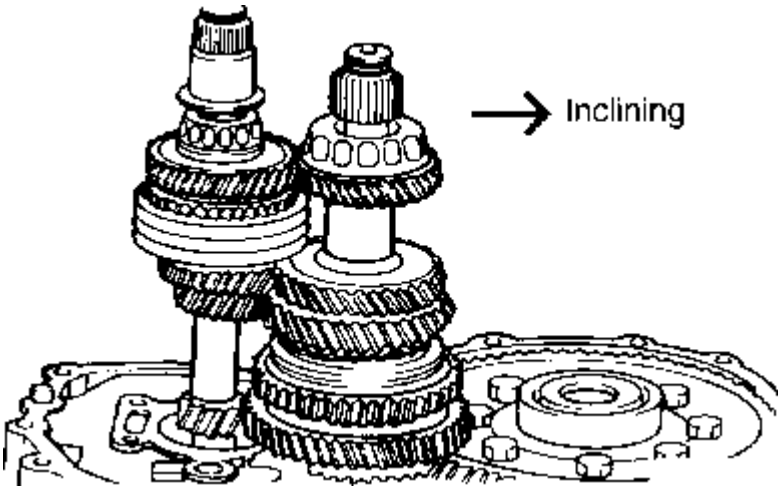
If you remove the spring pin of Ist-2nd shift fork in neutral position, spring pin hits the teeth of 2nd gear. So teeth of 2nd gear are damaged by spring pin.

Remove the input shaft bearing retainer.

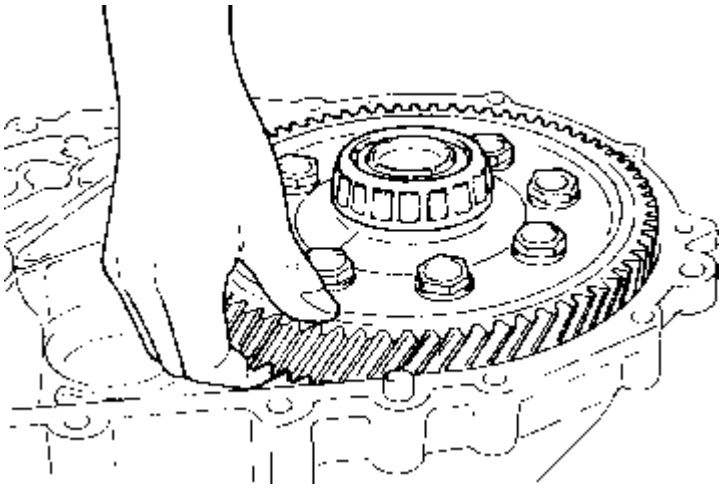


Pull out the input shaft from the clutch housing inclining the output shaft.

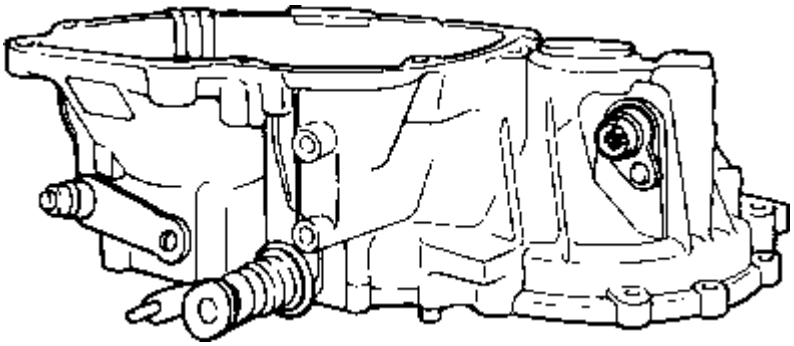
Next put out the output shaft.



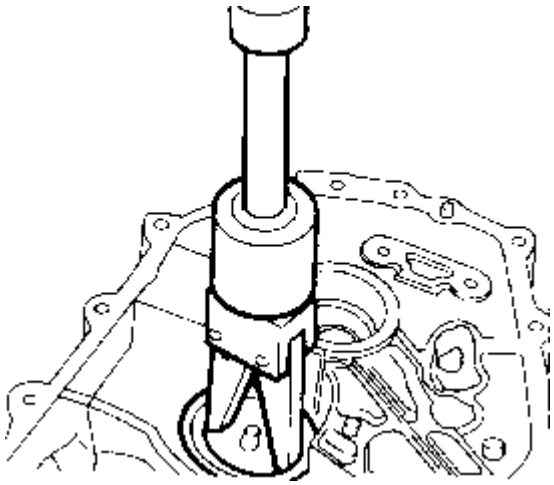
Remove the differential gear assembly.



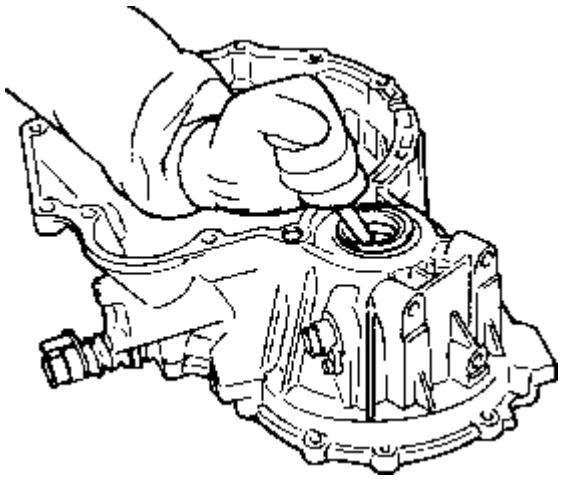
Remove the speedometer driven gear assembly.



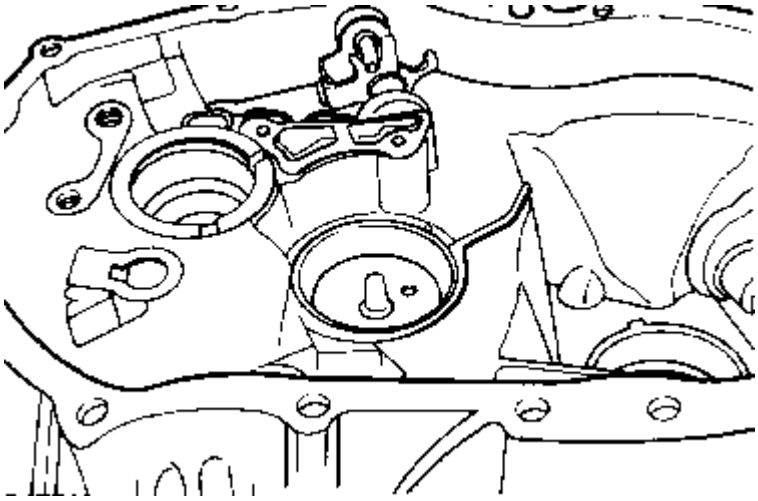
Remove the output shaft bearing outer race using the special tool (09455-32200).



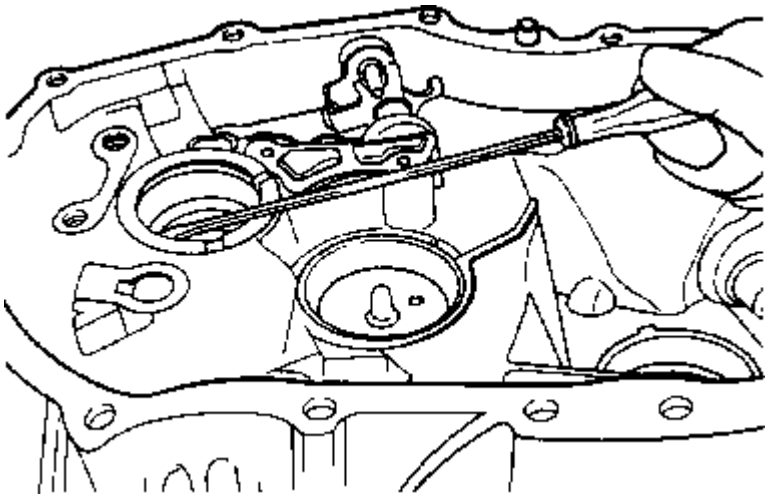
Remove the drive shaft oil seal using the special tool.



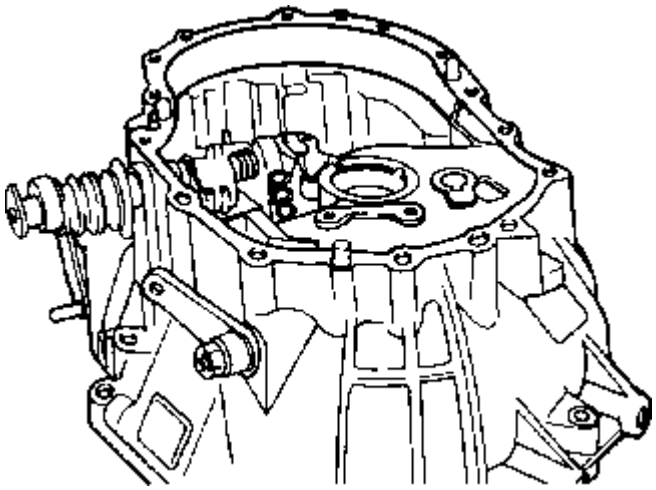
Remove the output shaft oil guide.



Remove the input shaft oil seal.



Remove the control shaft assembly.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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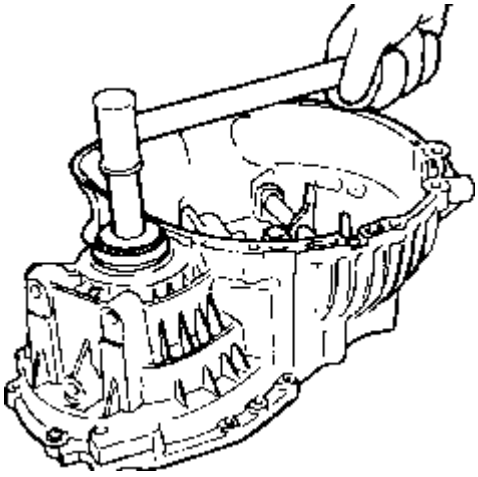
REASSEMBLY

Assembly procedure is the reverse of removal procedure.

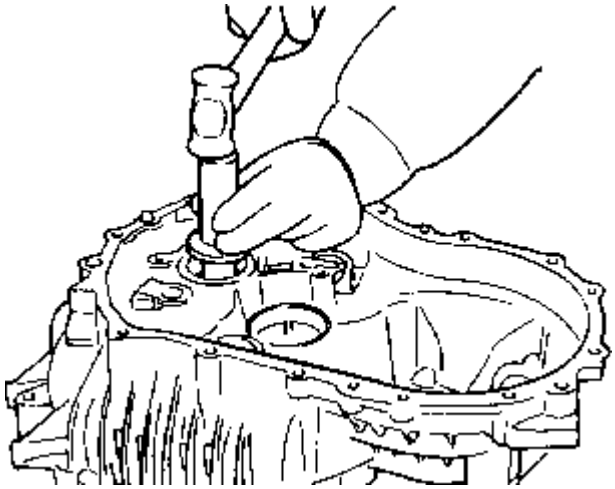
Install the drive shaft oil seal using the special tool (09431-21000).



NOTE

Insert the oil seal straightly.

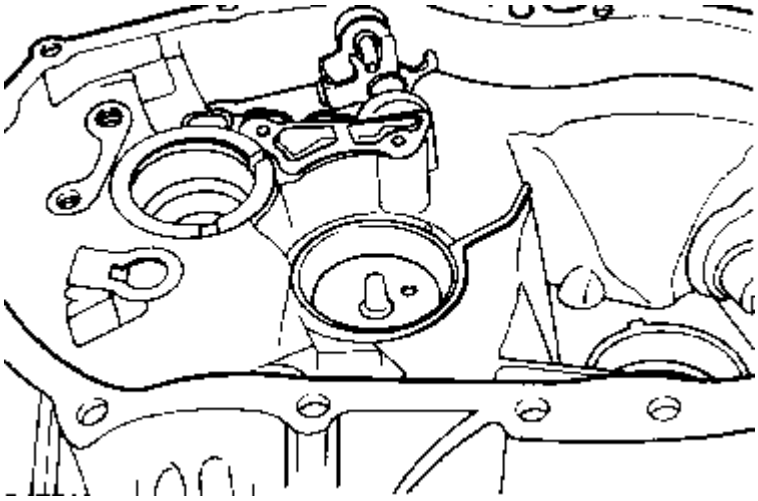
Install the input shaft front oil seal using the special tool (09431-21000).



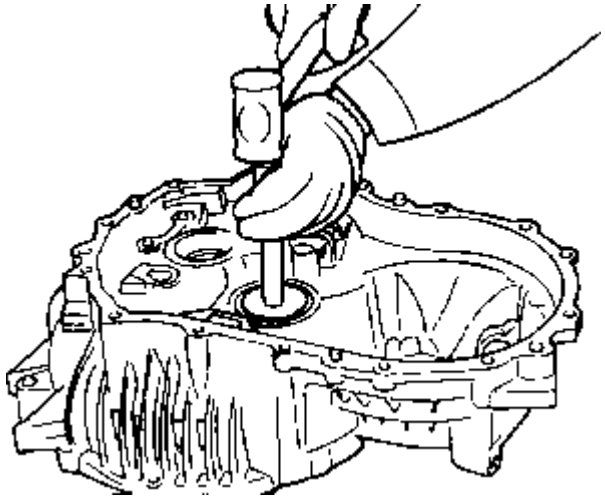
CAUTION

Do not reuse the oil seal.

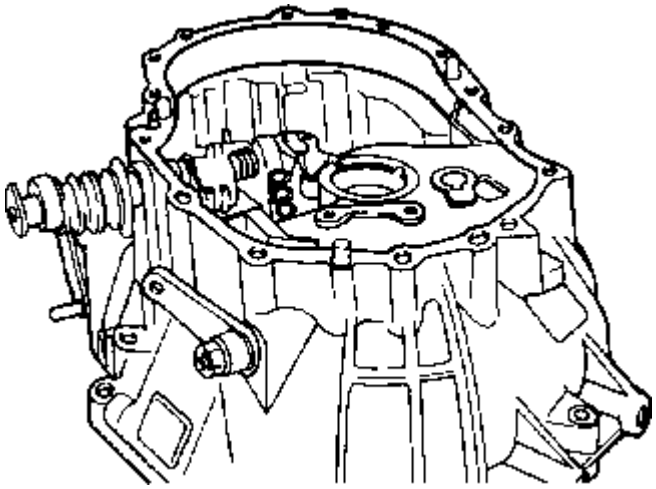
Install the output shaft oil guide in the direction illustrated.



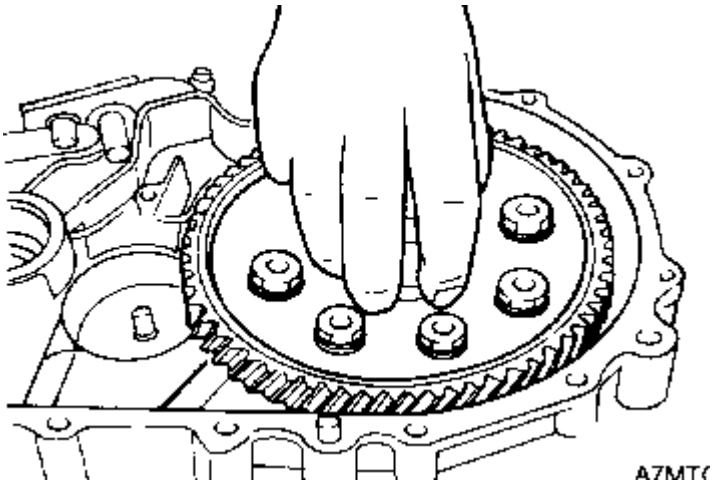
Install the output shaft bearing outer race using the special tools (09532-11500, 09500-11000).



Install the control shaft assembly.

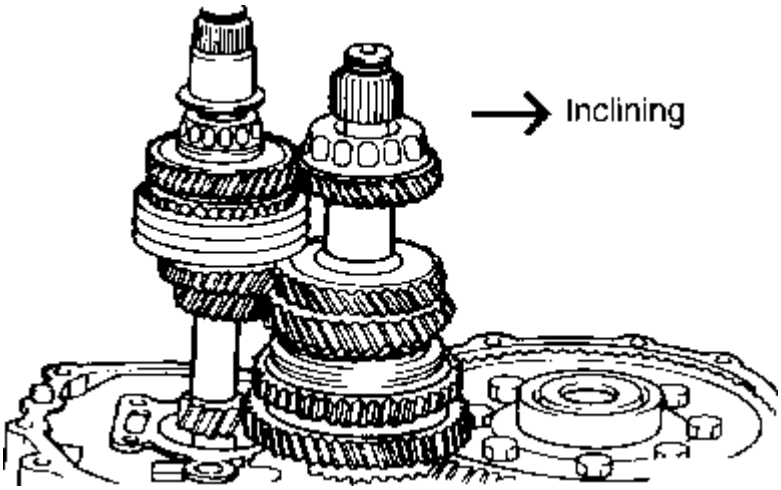


Install the differential gear assembly.

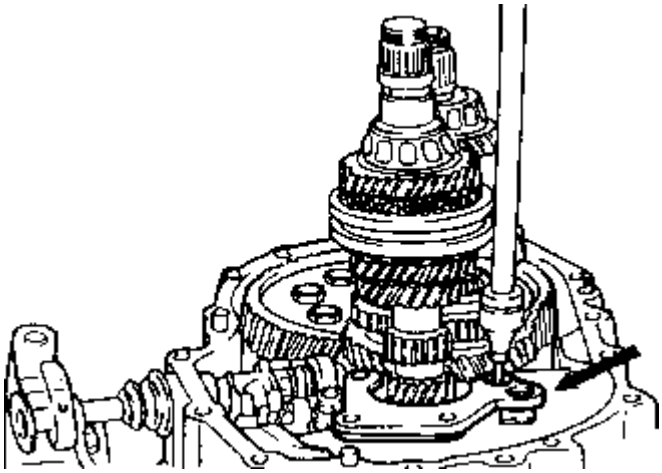


Insert the output shaft, inclining the differential assembly.

Insert the input shaft, inclining the output shaft.



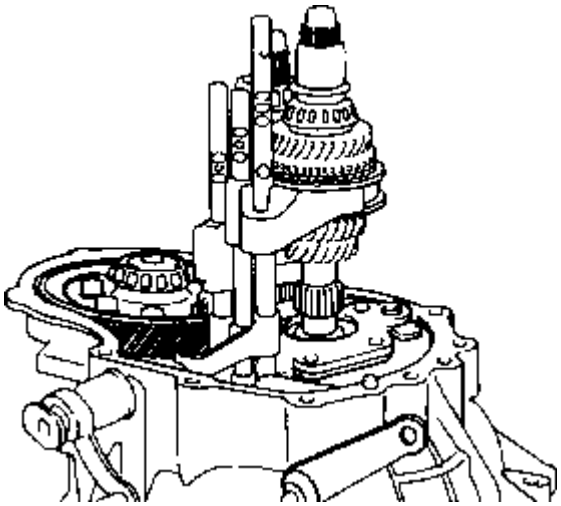
Install the input shaft bearing retainer.



CAUTION

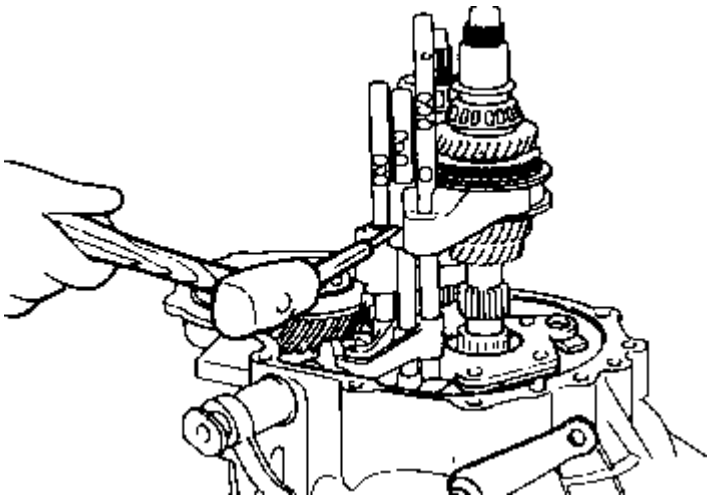
Apply a three BOND 1303 on the hex-bolts.

Reassembly the shift rail assemblies.



place the first and second speed synchronizer sleeve to the second gear position in order to get installing space of 1st 2nd shift rail assembly.
Place the third and fourth speed synchronizer sleeve to neutral position.
Install the shift rail and fork assemblies.
Reassembly of spring pin.

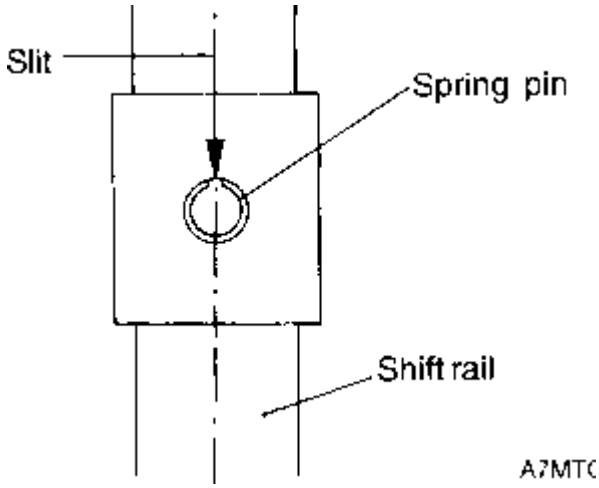
Install the spring pins using the special tool (09414-11100) or pin punch.



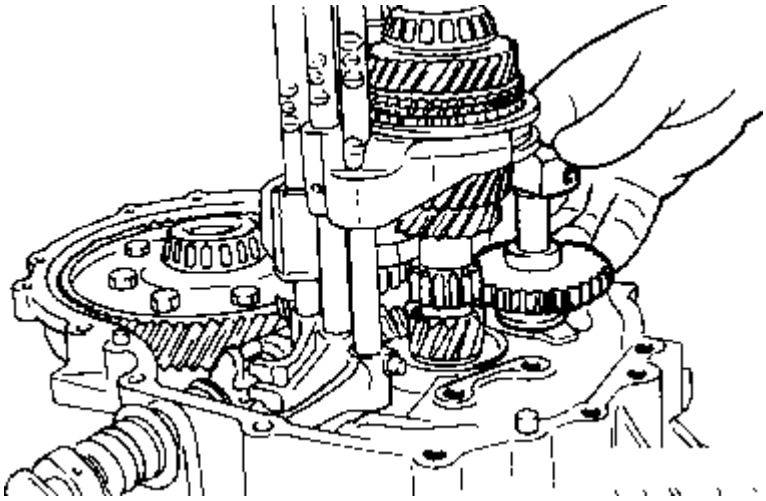
CAUTION

Do not reuse the spring pin.

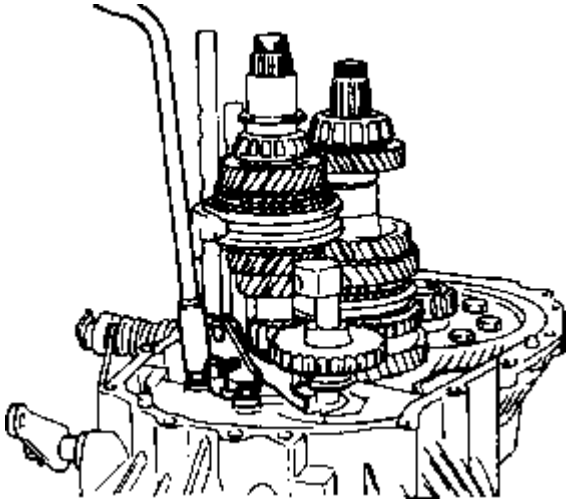
When installing, make sure that the slit of the spring pin is aligned with center line of the shift rail.



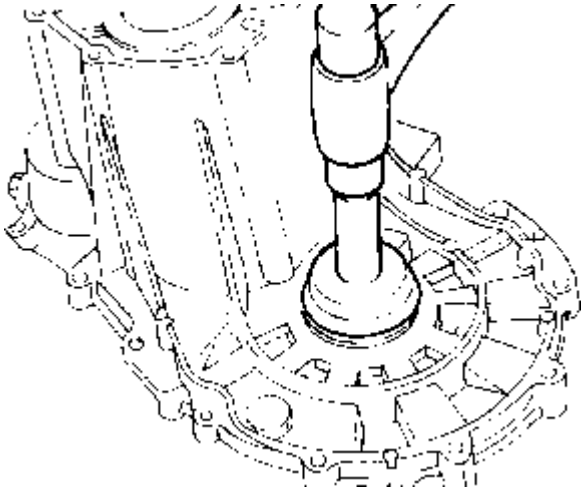
Install the reverse gear shaft and reverse gear in the direction illustrated.



Install the reverse shift lever.



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

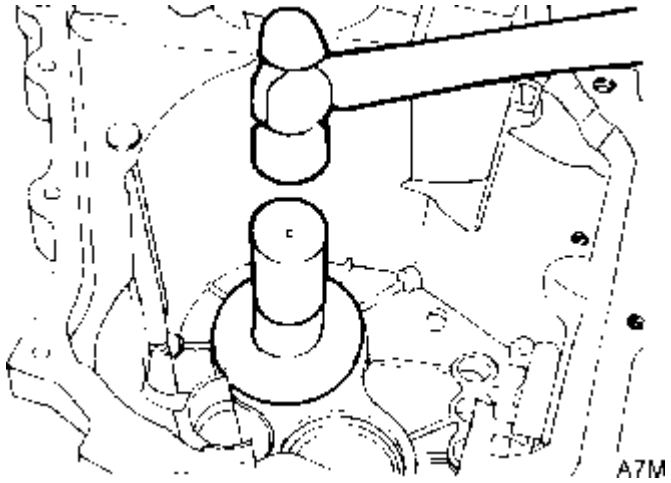


CAUTION

Do not reuse the oil seal.

Install the input shaft bearing outer race and spacer using the special tools (09432-33400, 09500-21000).

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



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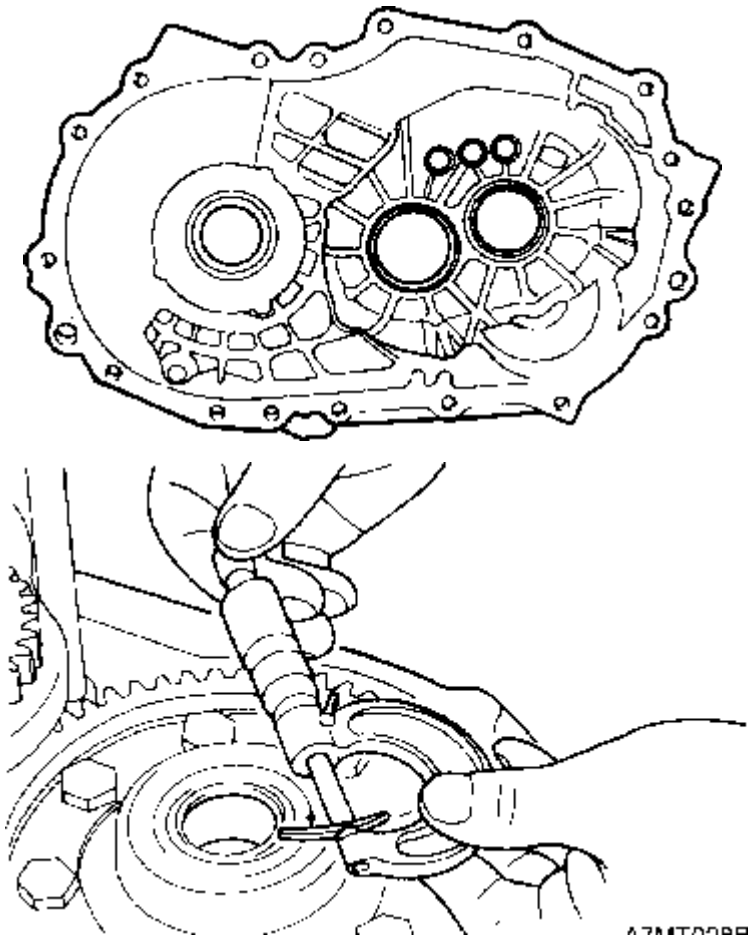
REASSEMBLY (CONTINUED)

Installation of spacer.



Place two pieces of rosin-core solder with 3 mm in diameter on the bearing outer race as illustrated.
Install the transaxle case temporarily and tighten the bolts to the specified torque, then remove the transaxle case.
Detach the crushed solders.
Measure the thickness of the crushed solder. Select and install the proper spacers which complete following specification.

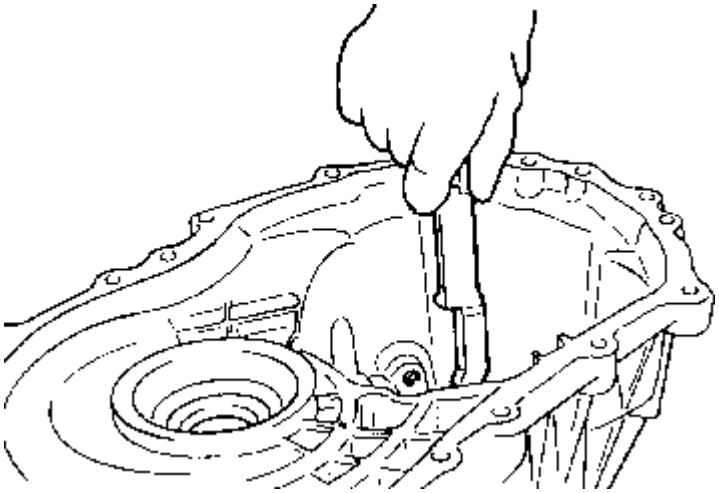
MEASUREMENT SPECIFICATION	
Input shaft rear bearing	0-0.05L mm

end play	
Output shaft rear bearing end play	0.10T-0.15T mm
Differential shaft rear bearing end play	0.20T-0.25T mm

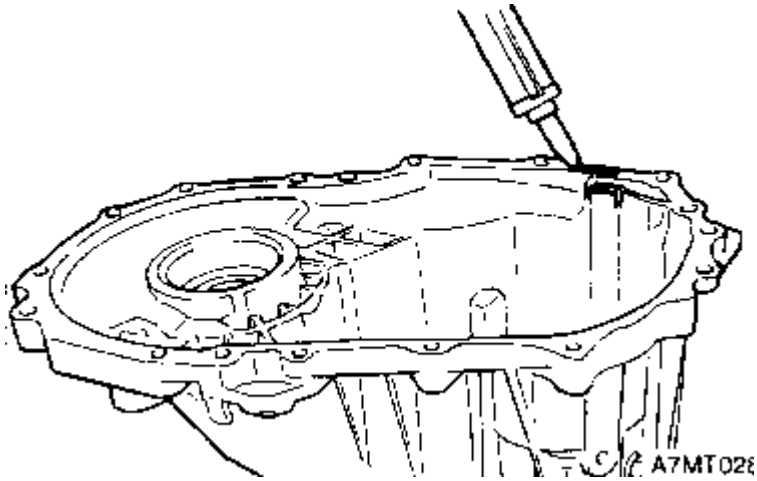
T: Indicates tightening of - (minus) direction of endplay

L: Indicates loosening of + (plus) direction of endplay

Install the oil guide in the transaxle case.

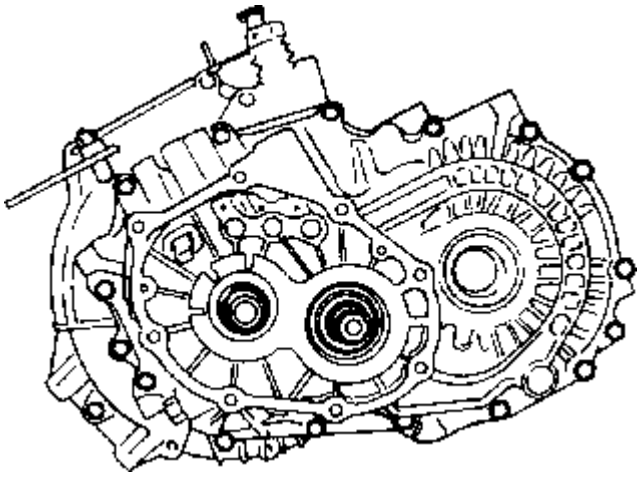


Apply the specified sealant to the clutch housing side of the transaxle case.



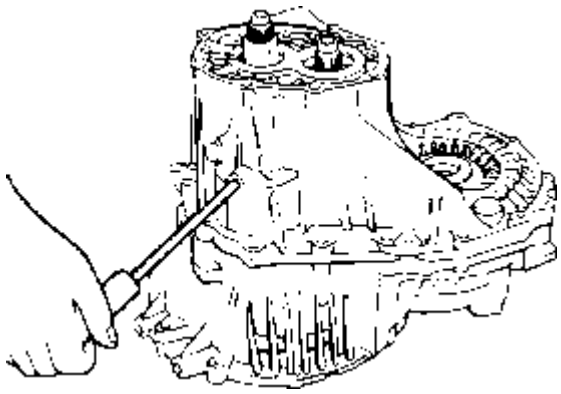
Specified sealant: MS721-40.

Install the transaxle case onto the clutch housing assembly and tighten the bolts.



TORQUE SPECIFICATION	
Transaxle case	35-42 Nm (350-420Kg kg·cm, 26-31 lb·ft)

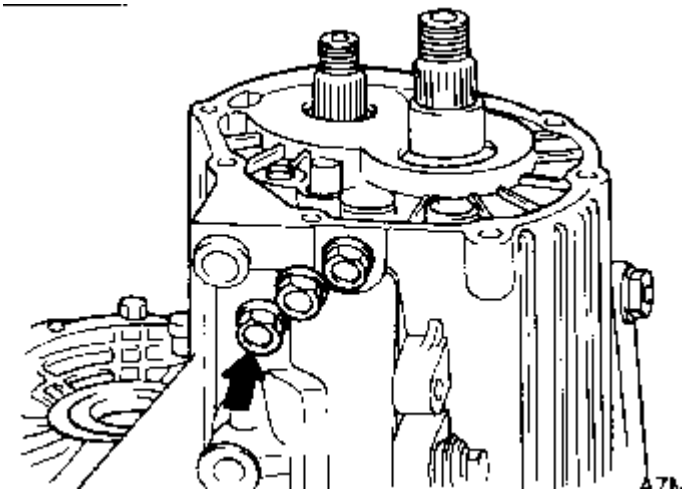
Center the reverse idler gear shaft with screw driver.



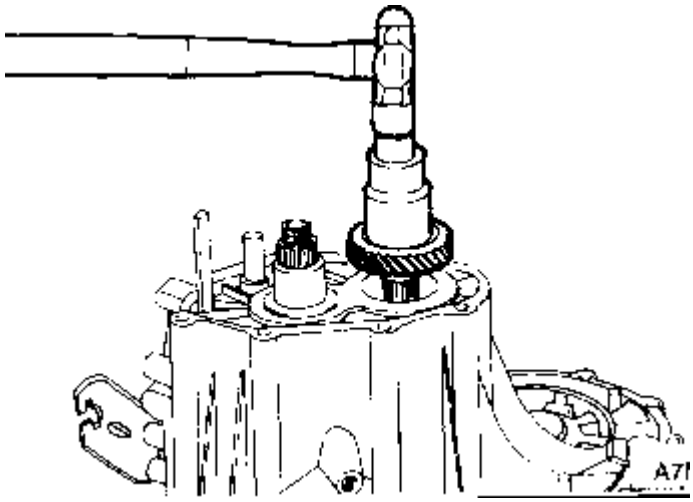
Tighten the reverse idler gear shaft bolt to the specified torque.

TORQUE SPECIFICATION	
Reverse gear shaft bolt	43-55 Nm (430-550 kg·cm, 32-41 lb·ft)

Install poppet balls, poppet springs, and seal bolts.

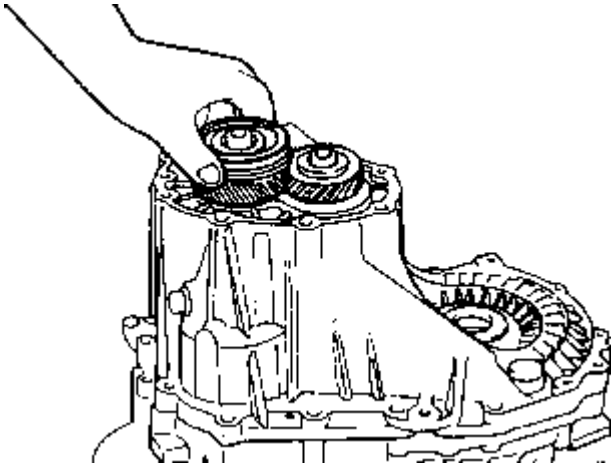


Install the output shaft gear using the special tool (09432-33300).

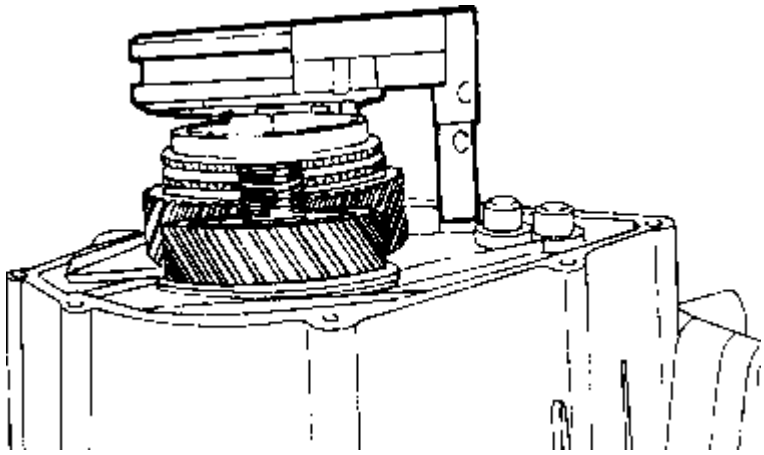


Install the 5th speed gear, needle roller bearing, synchronizer ring and synchronizer hub.

> **CAUTION**
>
> **Place the oil groove of synchronizer hub toward the fifth speed gear.**



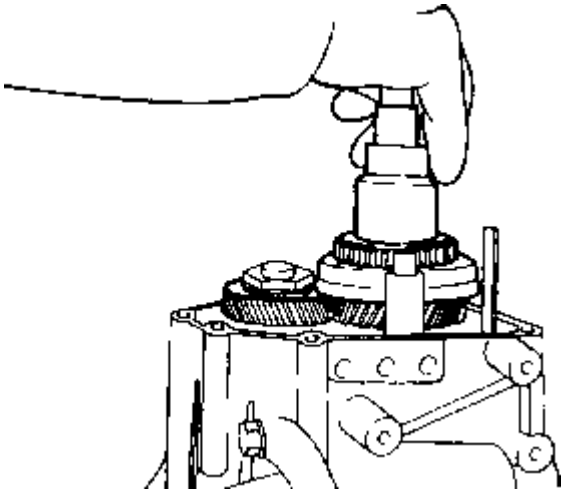
Install the fifth speed gear shift fork and the synchronizer sleeve at the same time.



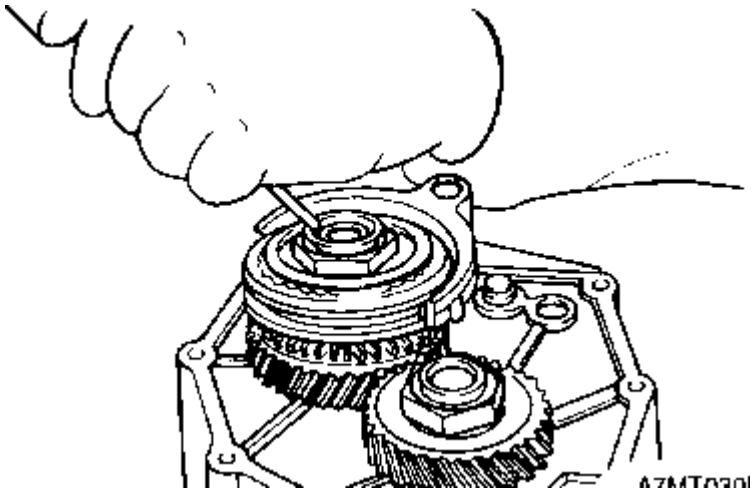
Reassembly of locking nut.

Shift the transaxle into 3rd and 5th gear.
Tighten the lock nut to the specified torque.

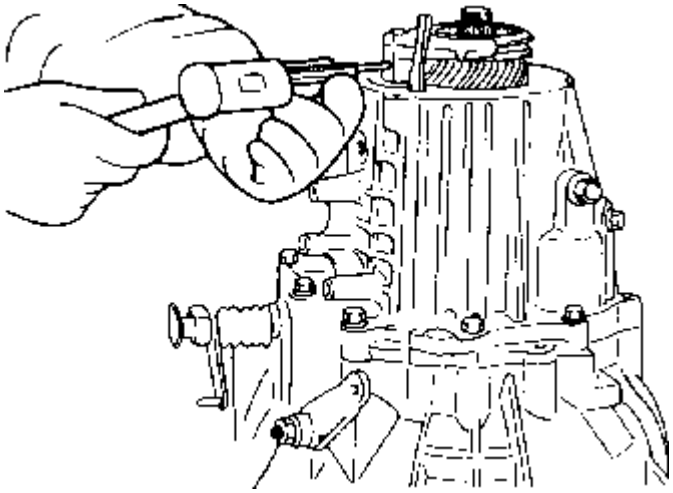
TORQUE SPECIFICATION	
Lock nut	140-160 Nm (1400-1600 kg·cm, 102-115 lb·ft)



Stake the lock nut.



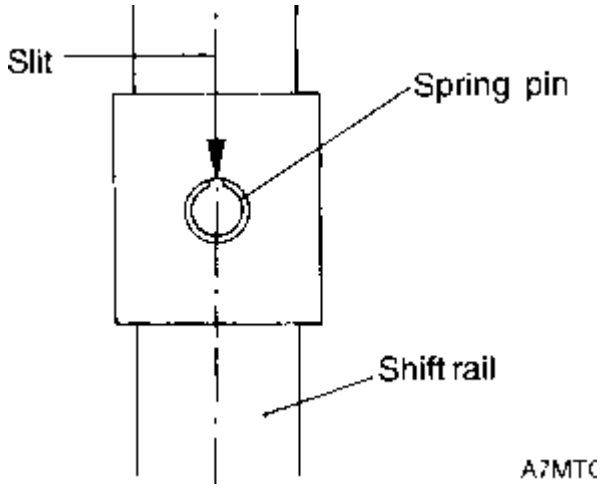
Install the spring pin using the special tool (09414-11100) or pin punch.



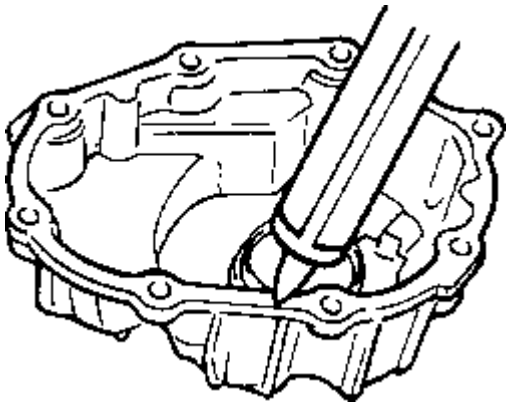
CAUTION

DO not reuse the spring pin.

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

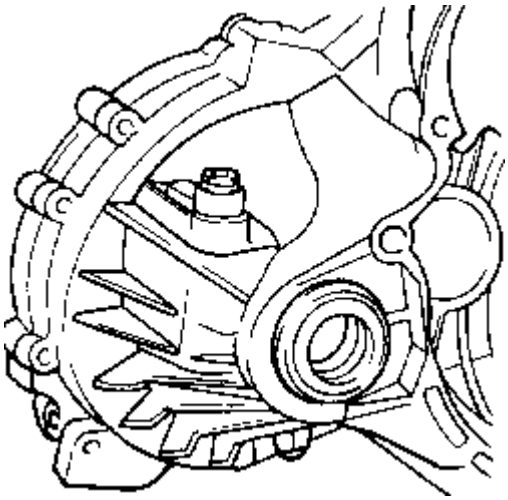


Apply the specified sealant to the rear cover and install the rear cover.



Specified sealant: MS 721-40

Install the speedometer driven gear assembly.

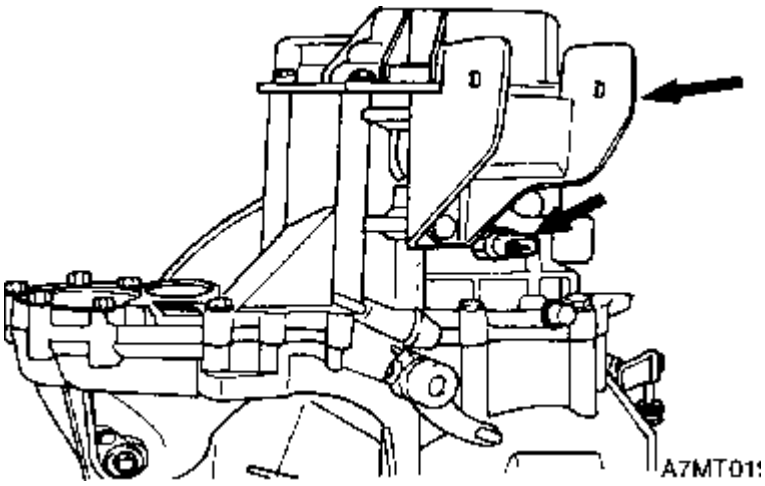


TORQUE SPECIFICATION	
Speedometer driven gear	3-5 Nm (30-50 kg·cm, 2.3-3.6 lb·ft)

Install the back up light switch.

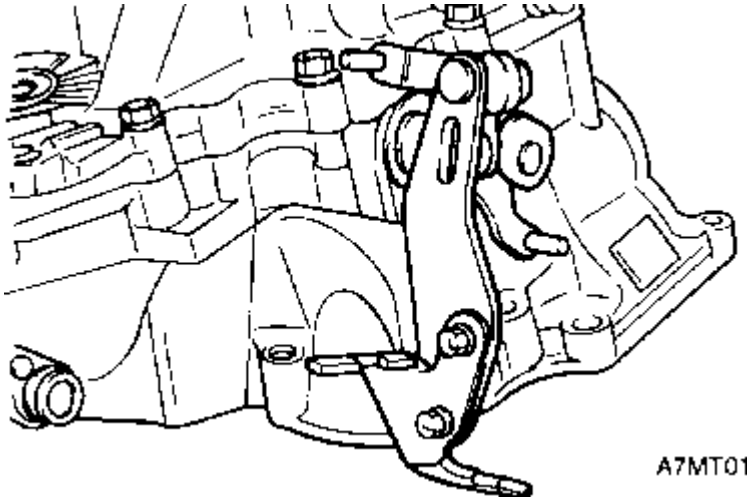
TORQUE SPECIFICATION	
Back up light switch	30-35 Nm (300-350 kg·cm, 22-25 lb·ft)

Install the mounting bracket.



TORQUE SPECIFICATION	
Transaxle mount bracket to transaxle	60-80 Nm (600-800 kg·cm, 43-58 lb·ft)

Install the select lever assembly.



TORQUE SPECIFICATION	
Select lever assembly	15-22 Nm (150-220 kg·cm, 11-16 lb·ft)

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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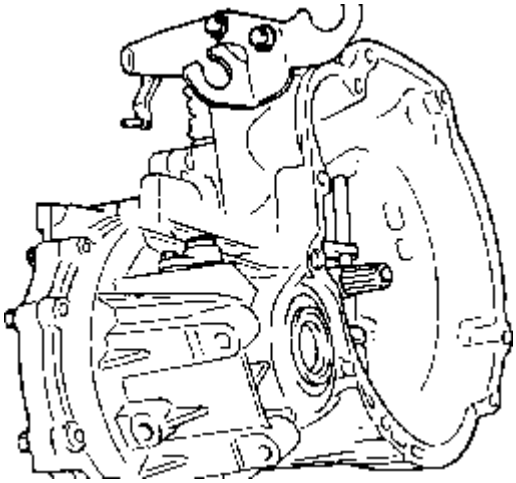
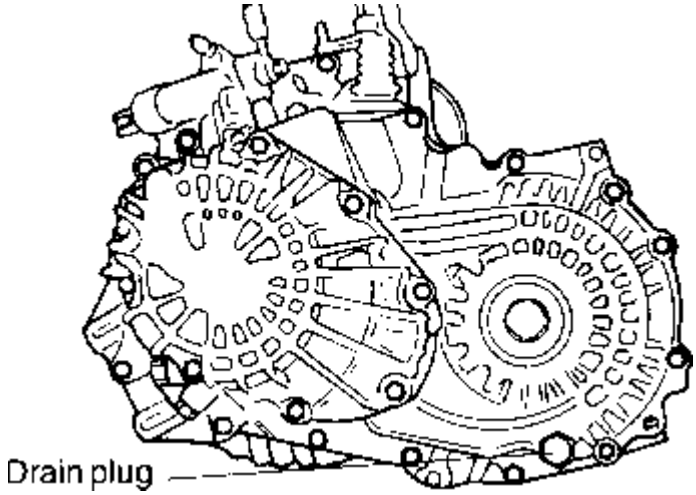
REMOVAL

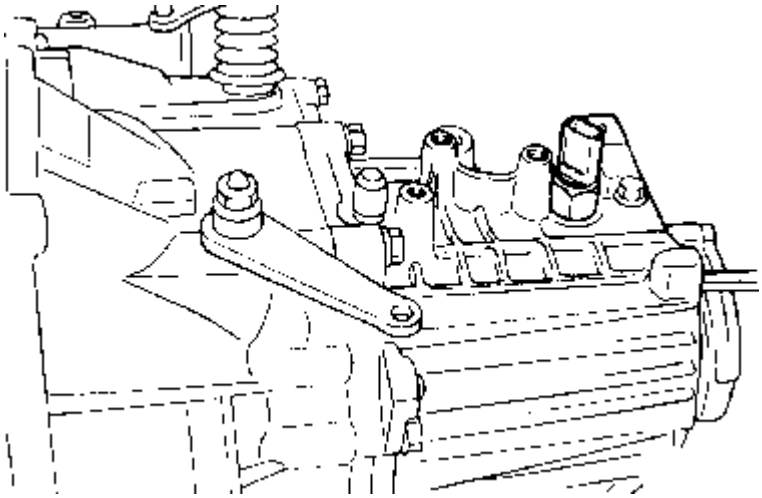
Remove the shift control cable bracket and select lever assembly.



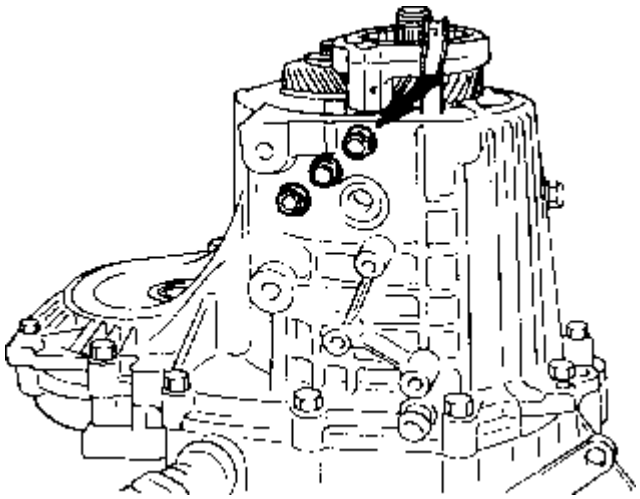
Remove the rear cover bolt and rear cover.



Remove the back up light switch, gasket and mounting bracket.



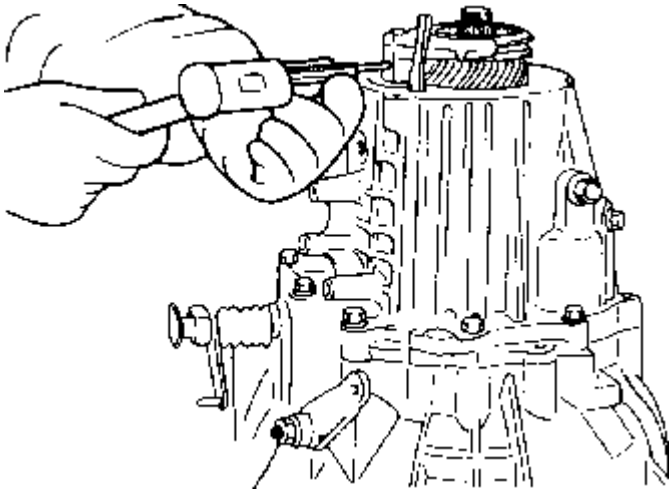
Remove the seal bolts, poppet springs and mounting bracket.



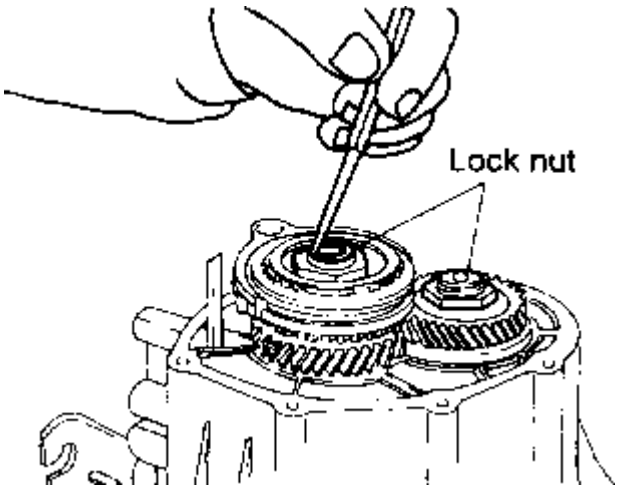
NOTE

Be careful not to lose the springs or balls.

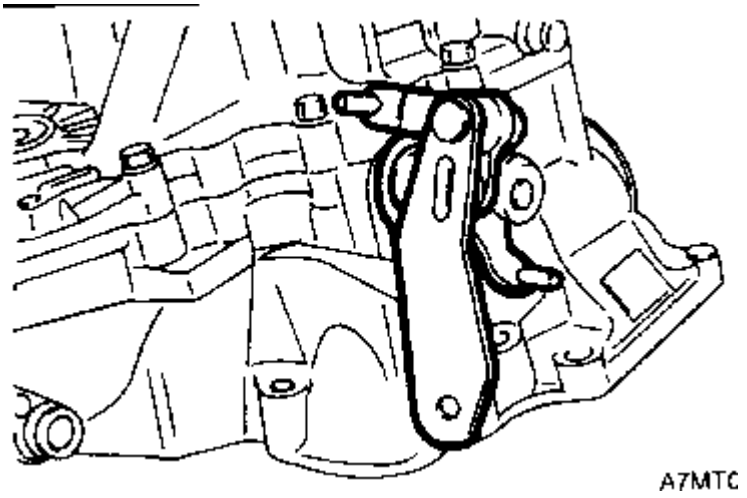
Remove the spring pin of fifth speed shift fork using the special tool (09414-11000).



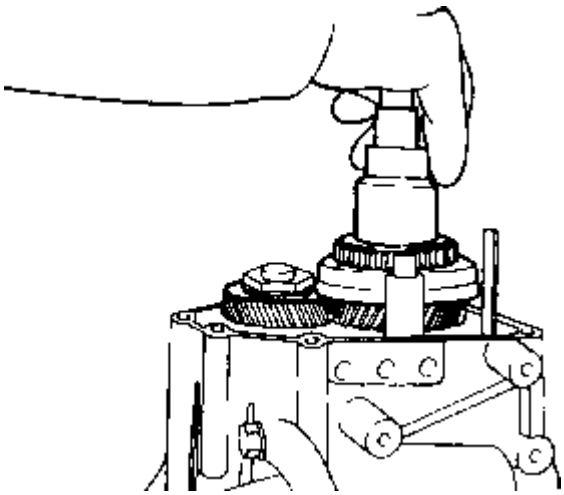
To remove the lock nuts of input shift and output shaft, unstake the lock nuts.



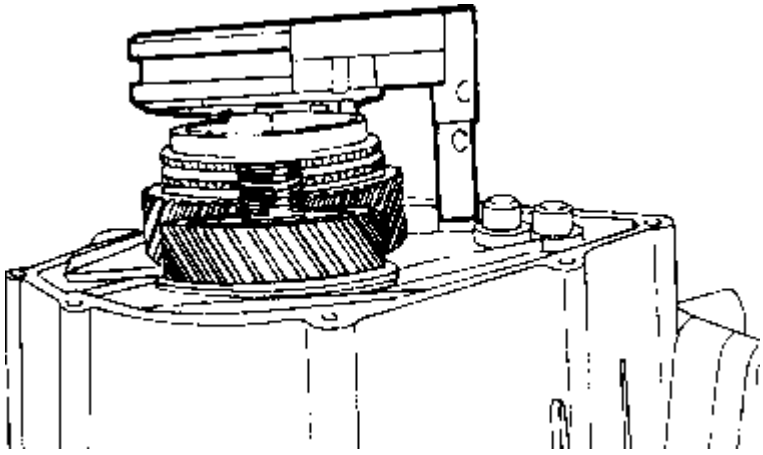
Shift the transaxle into third and fifth gears using the control lever and select lever.



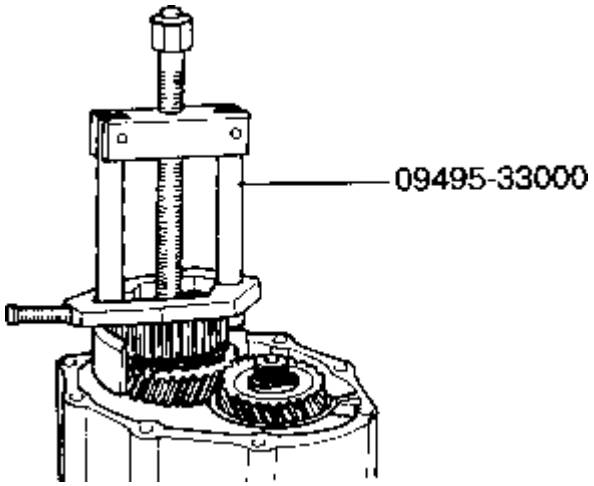
Remove and discard the lock nuts of input shaft and output shaft.



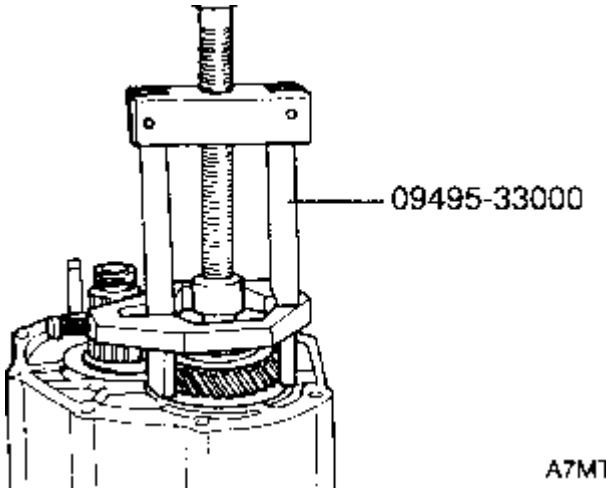
Remove the fifth speed synchronizer sleeve and shift fork.



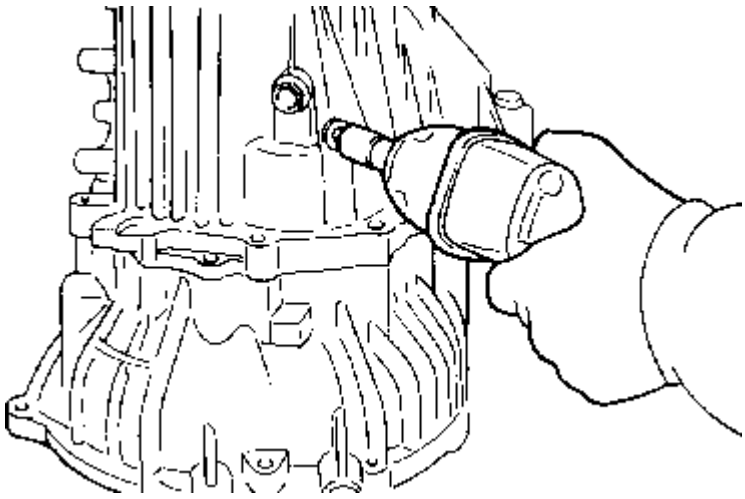
Remove the fifth synchronizer hub and ring with fifth speed gear and needle roller bearing using the special tool (09495-33000)



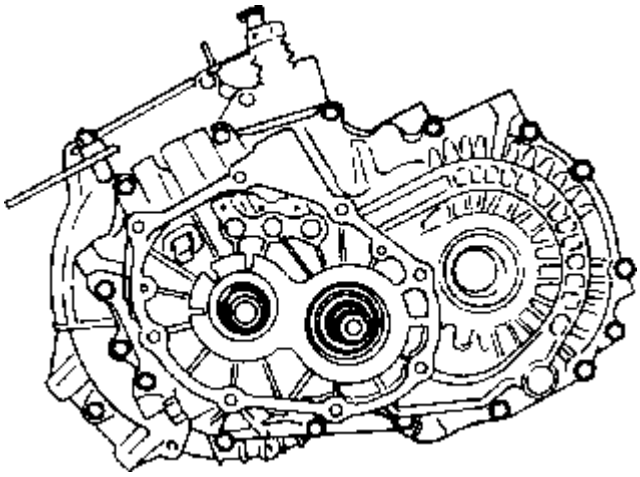
Remove the fifth speed gear on the output shaft using the special tool (09455-21000).



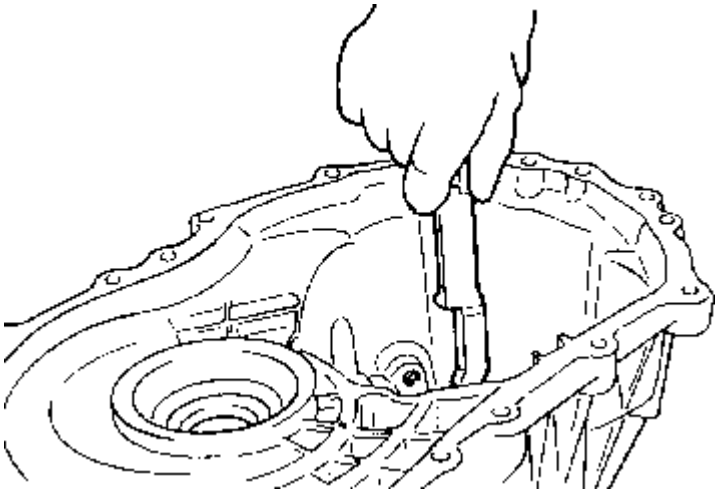
Remove the reverse gear shaft bolt.



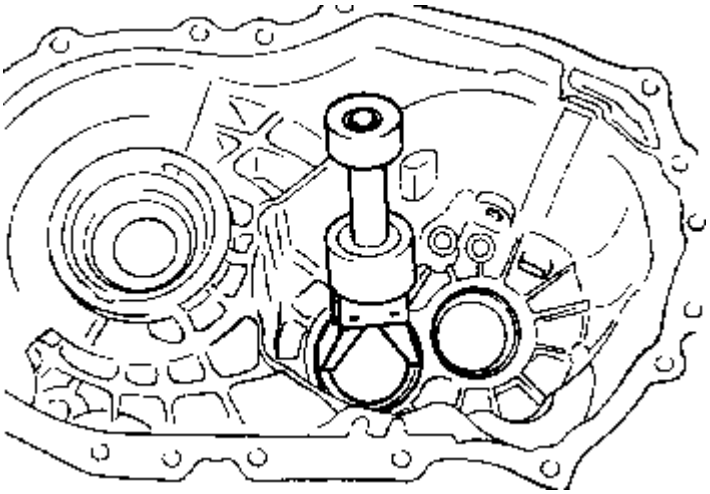
Remove the transaxle case fixing bolts in the clutch housing and then remove the transaxle case.



Remove the oil guides.



Remove the output shaft bearing outer race and spacer using special tool (09455-23000).



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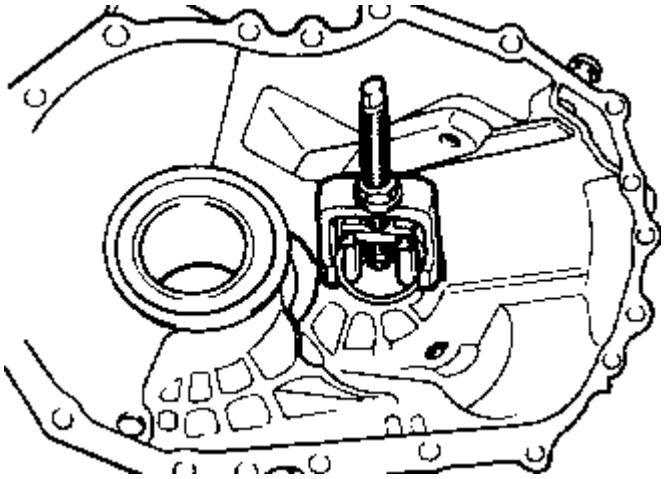
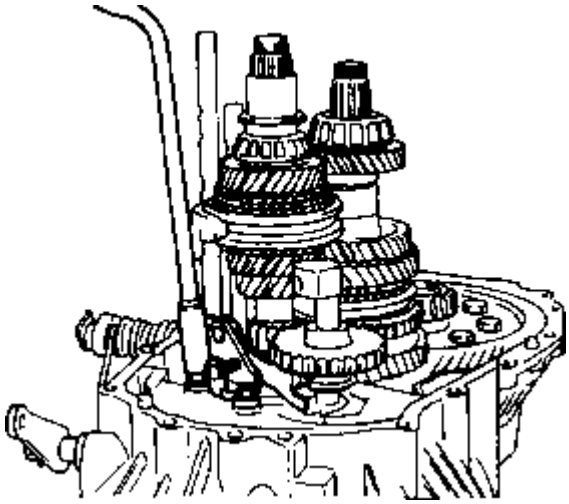
REMOVAL (CONTINUED)

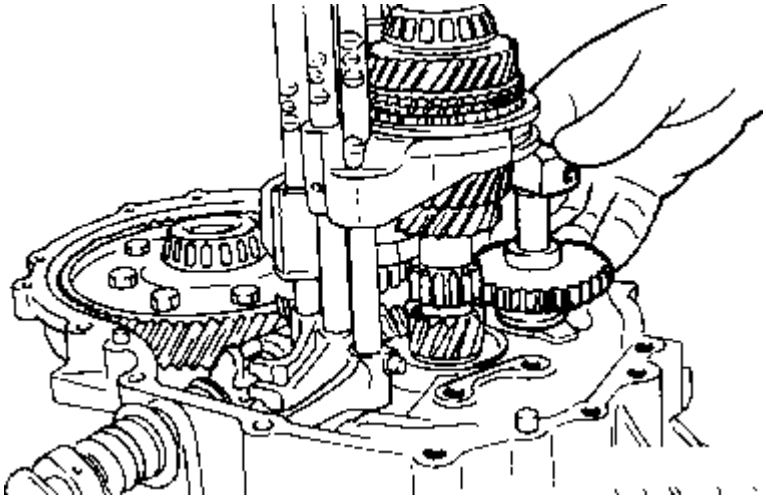
Remove the input shaft bearing outer race and spacer using the special tool (09432-21000).



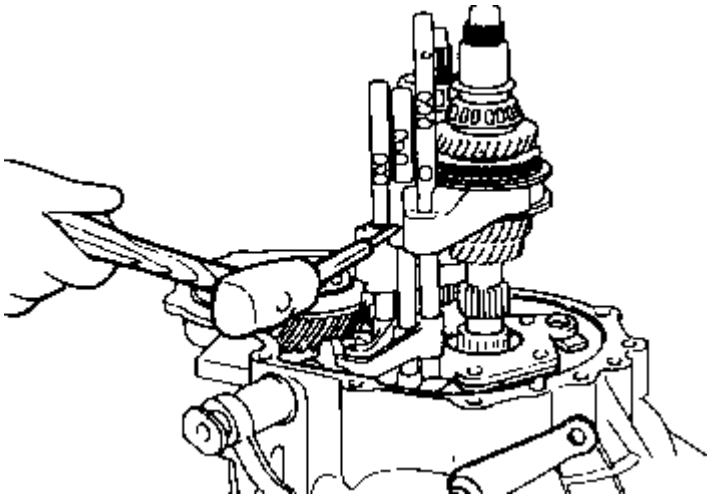
Remove the reverse shift lever.



Remove the reverse gear shaft and the reverse gear.

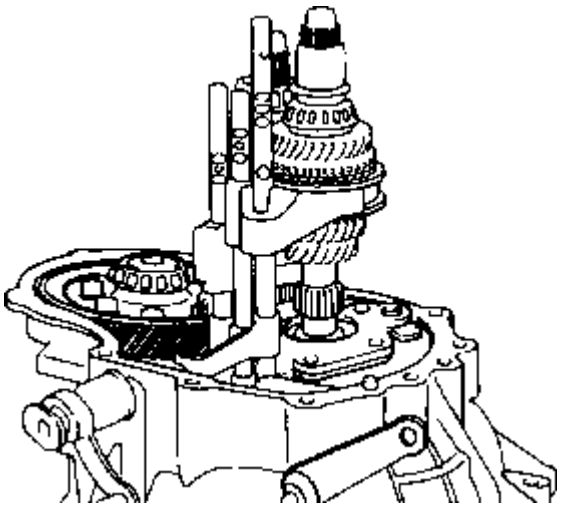


Remove the spring pin of 3rd-4th gear shift fork using the special tool (09414-11000).



Detach the 3rd-4th/5th-reverse shift rail and fork.

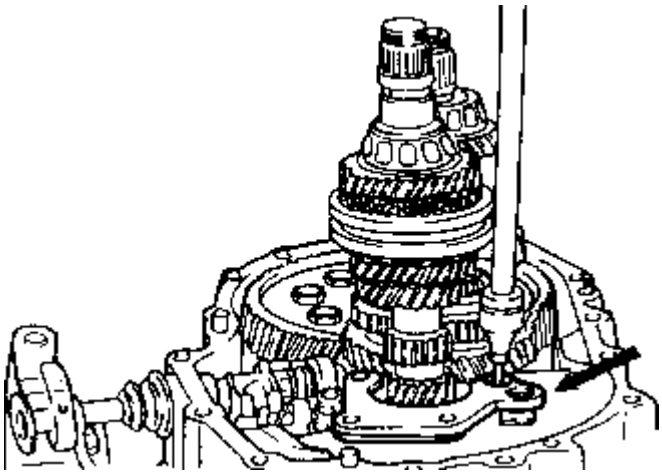
After shifting with first gear, remove the spring pin of 1st-2nd gear shift fork using the special tool (09414-11000).



CAUTION

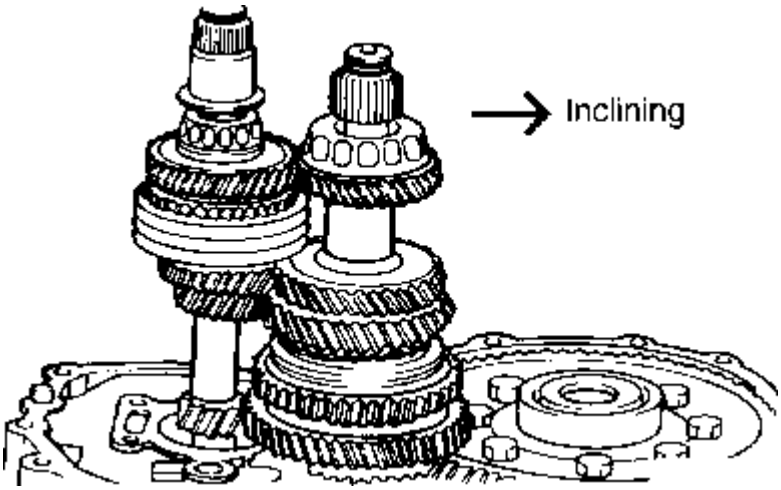
If you remove the spring pin of Ist-2nd shift fork in neutral position, spring pin hits the teeth of 2nd gear. So teeth of 2nd gear are damaged by spring pin.

Remove the input shaft bearing retainer.

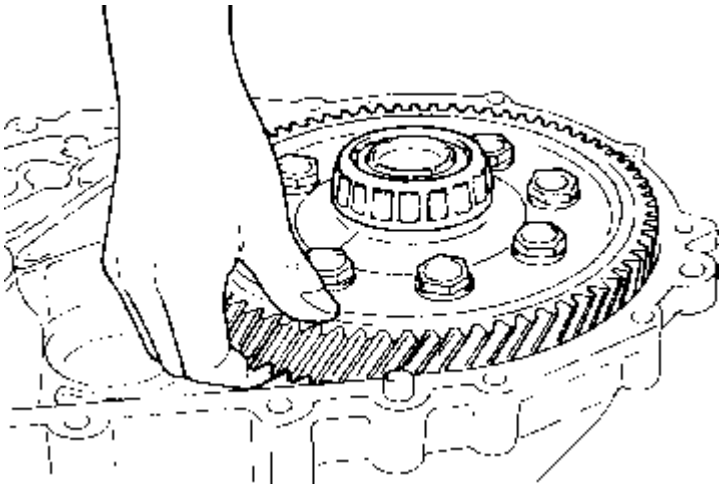


Pull out the input shaft from the clutch housing inclining the output shaft.

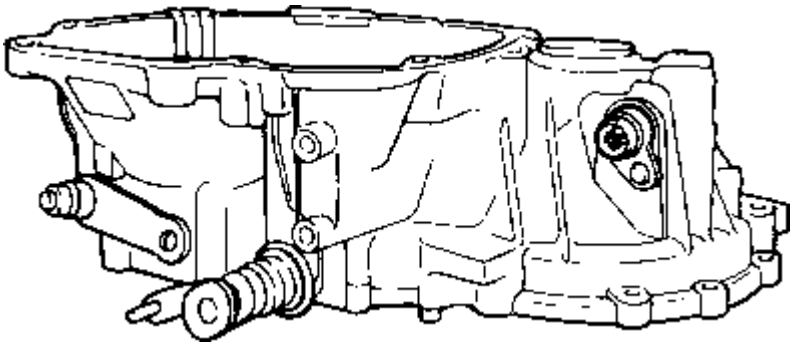
Next put out the output shaft.



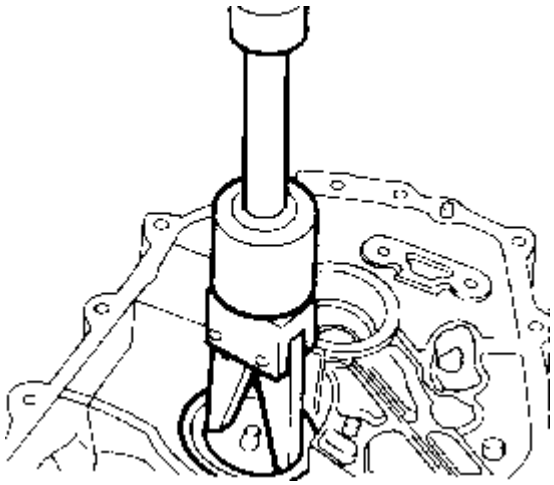
Remove the differential gear assembly.



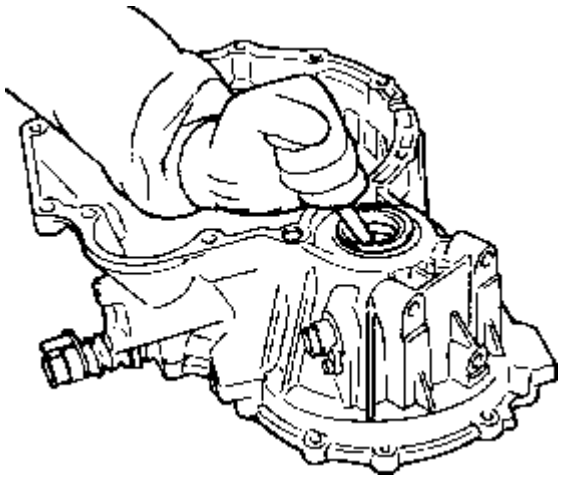
Remove the speedometer driven gear assembly.



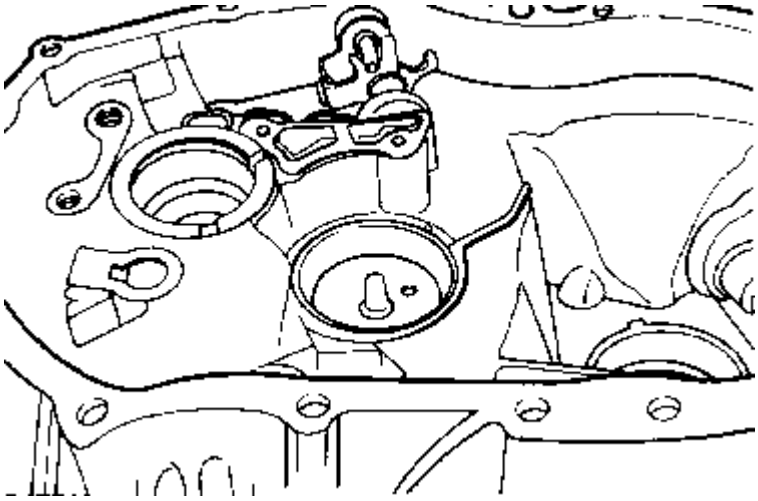
Remove the output shaft bearing outer race using the special tool (09455-32200).



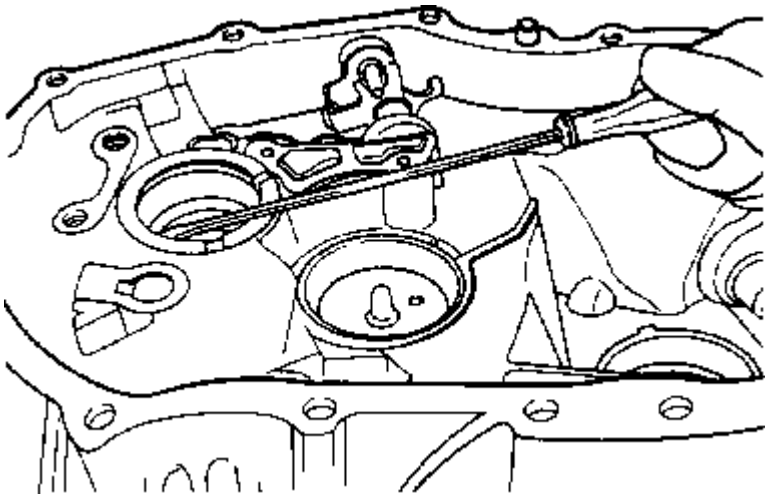
Remove the drive shaft oil seal using the special tool.



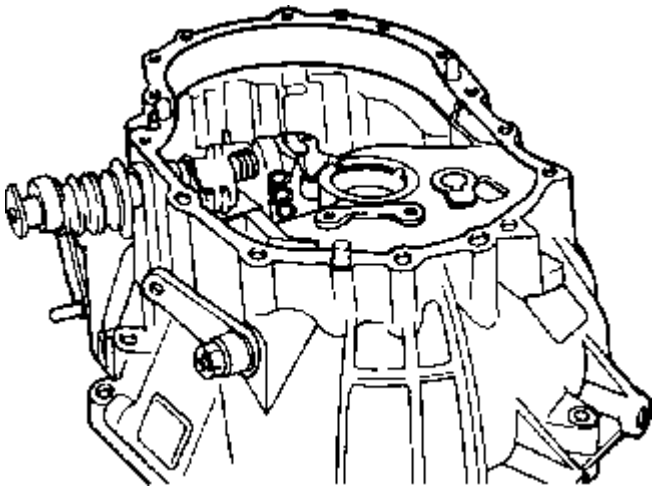
Remove the output shaft oil guide.



Remove the input shaft oil seal.



Remove the control shaft assembly.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Manual Transaxle System

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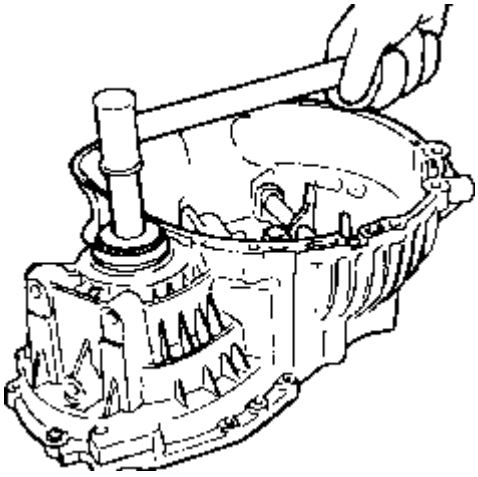
REASSEMBLY

Assembly procedure is the reverse of removal procedure.

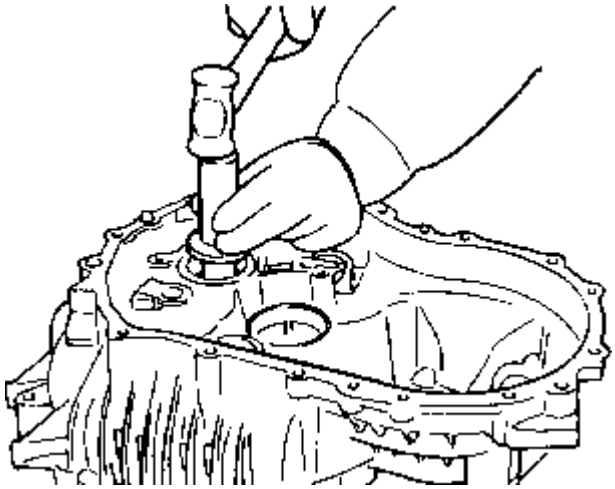
Install the drive shaft oil seal using the special tool (09431-21000).



NOTE

Insert the oil seal straightly.

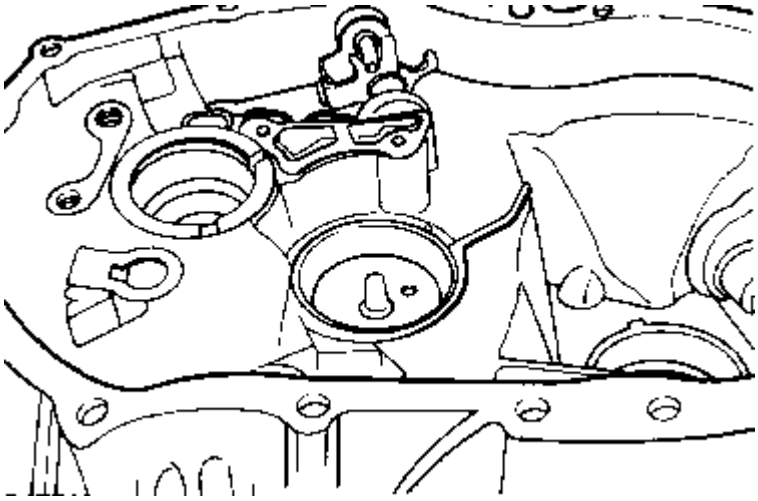
Install the input shaft front oil seal using the special tool (09431-21000).



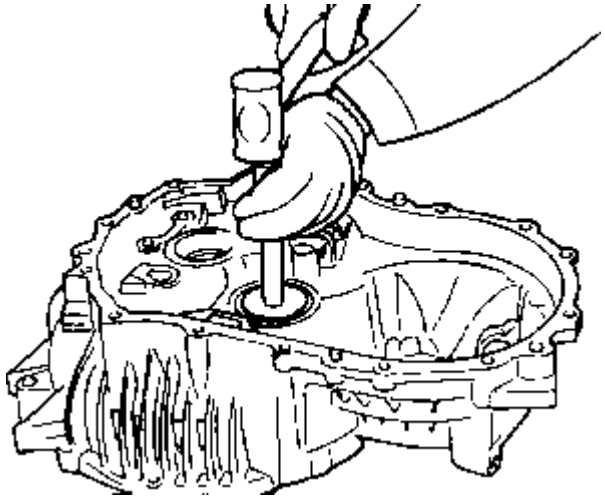
CAUTION

Do not reuse the oil seal.

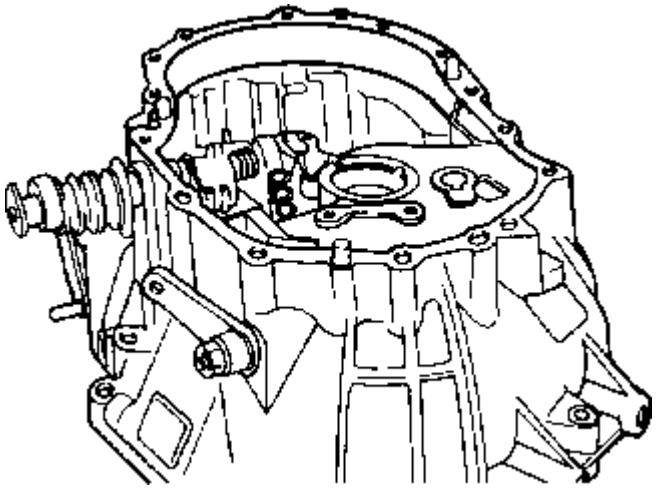
Install the output shaft oil guide in the direction illustrated.



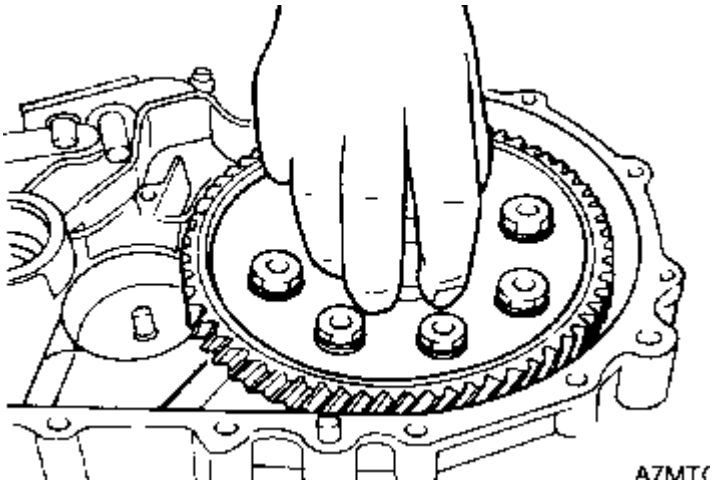
Install the output shaft bearing outer race using the special tools (09532-11500, 09500-11000).



Install the control shaft assembly.

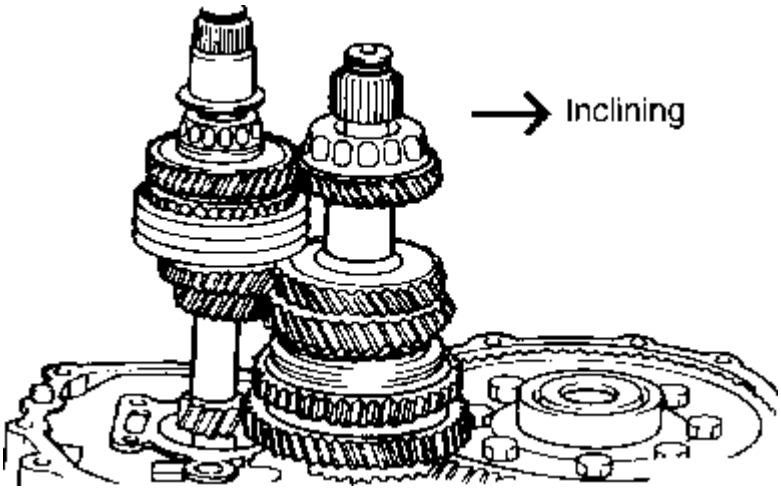


Install the differential gear assembly.

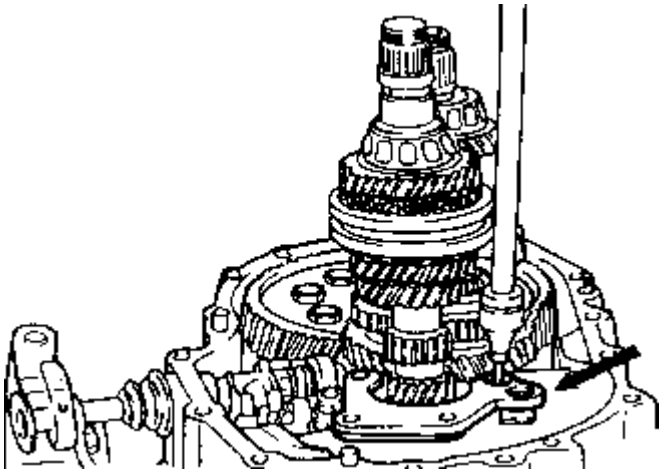


Insert the output shaft, inclining the differential assembly.

Insert the input shaft, inclining the output shaft.



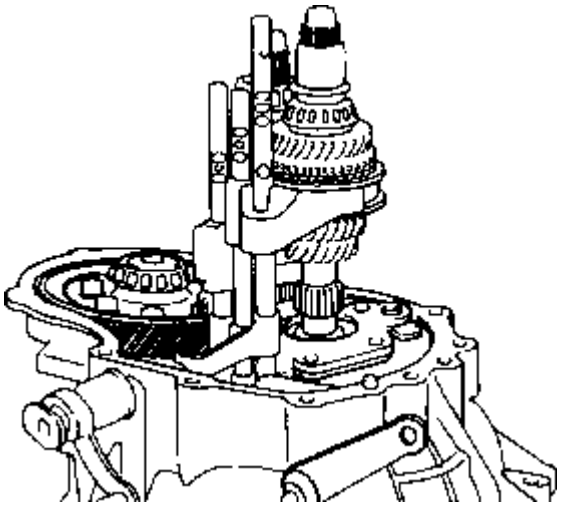
Install the input shaft bearing retainer.



CAUTION

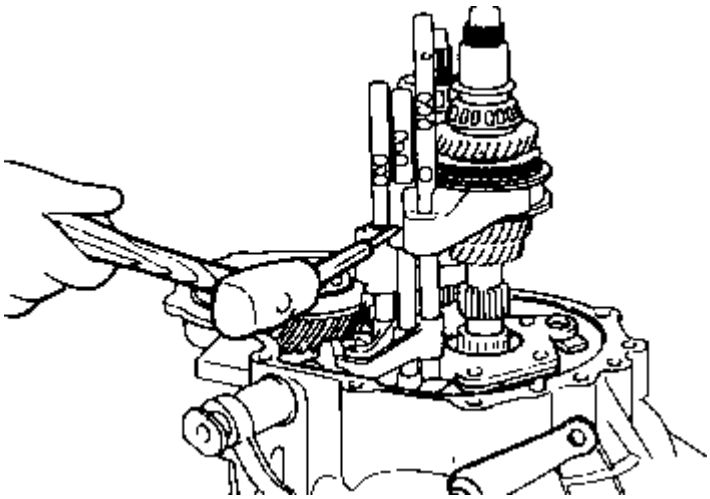
Apply a three BOND 1303 on the hex-bolts.

Reassembly the shift rail assemblies.



place the first and second speed synchronizer sleeve to the second gear position in order to get installing space of 1st 2nd shift rail assembly.
Place the third and fourth speed synchronizer sleeve to neutral position.
Install the shift rail and fork assemblies.
Reassembly of spring pin.

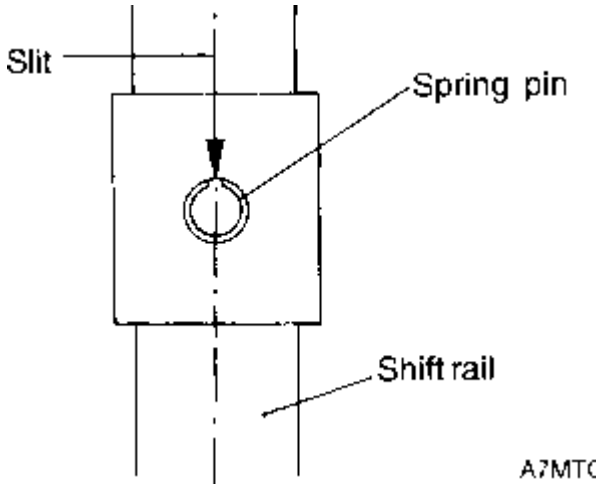
Install the spring pins using the special tool (09414-11100) or pin punch.



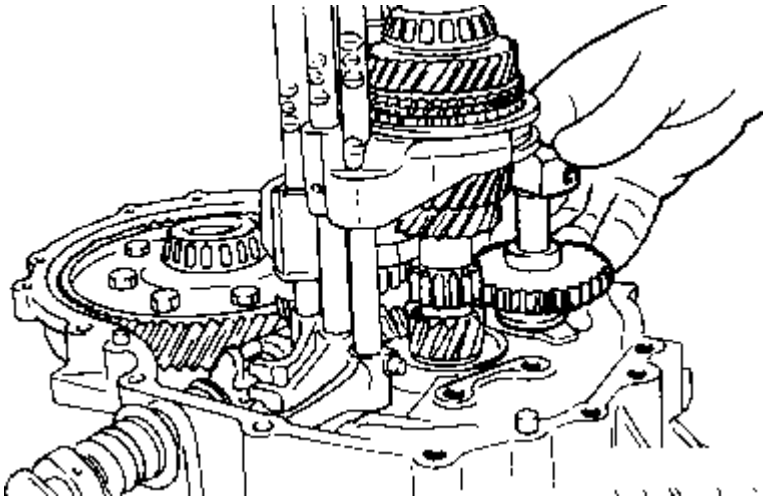
CAUTION

Do not reuse the spring pin.

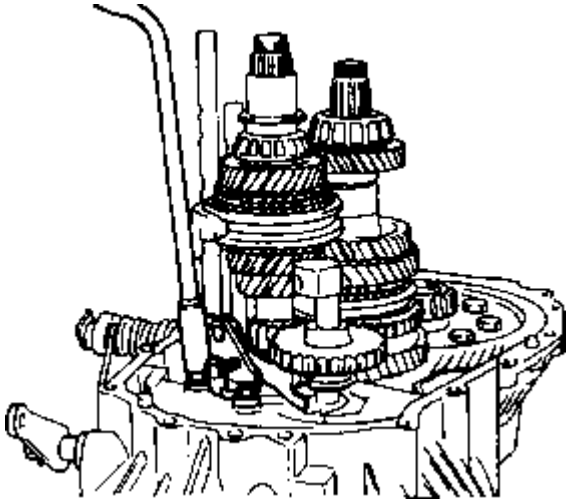
When installing, make sure that the slit of the spring pin is aligned with center line of the shift rail.



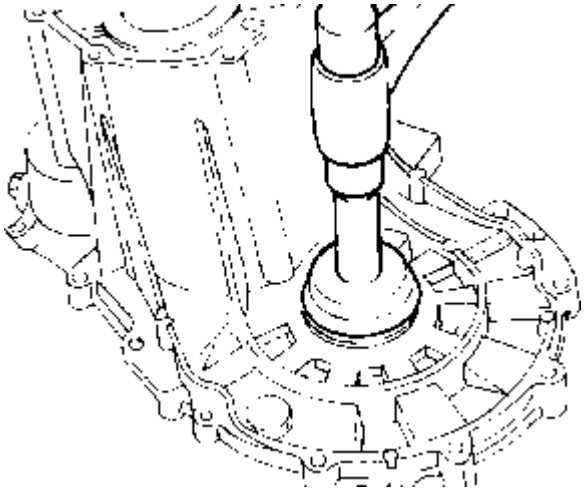
Install the reverse gear shaft and reverse gear in the direction illustrated.



Install the reverse shift lever.



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

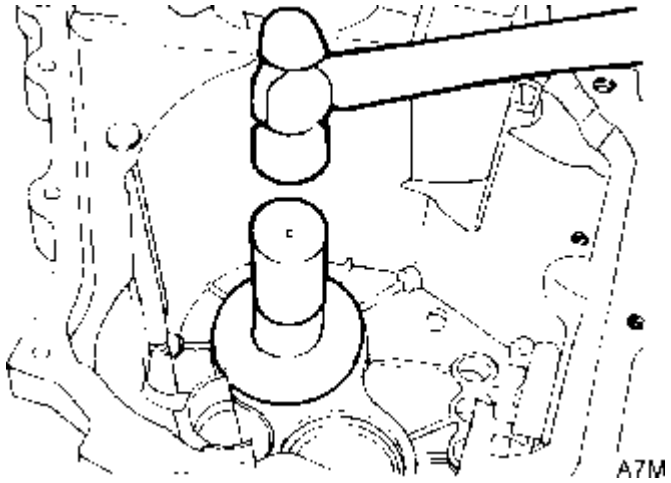


CAUTION

Do not reuse the oil seal.

Install the input shaft bearing outer race and spacer using the special tools (09432-33400, 09500-21000).

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



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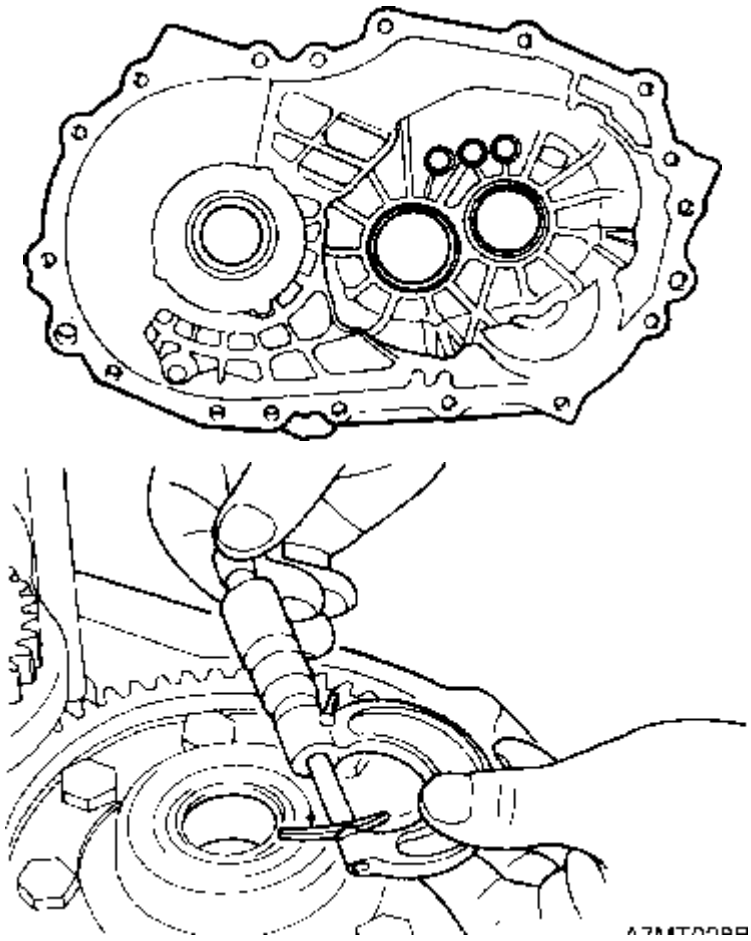
REASSEMBLY (CONTINUED)

Installation of spacer.



Place two pieces of rosin-core solder with 3 mm in diameter on the bearing outer race as illustrated.
Install the transaxle case temporarily and tighten the bolts to the specified torque, then remove the transaxle case.
Detach the crushed solders.
Measure the thickness of the crushed solder. Select and install the proper spacers which complete following specification.

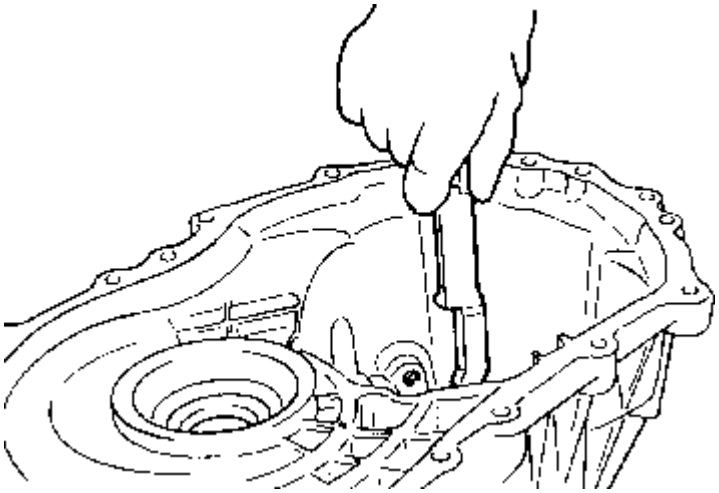
MEASUREMENT SPECIFICATION	
Input shaft rear bearing	0-0.05L mm

end play	
Output shaft rear bearing end play	0.10T-0.15T mm
Differential shaft rear bearing end play	0.20T-0.25T mm

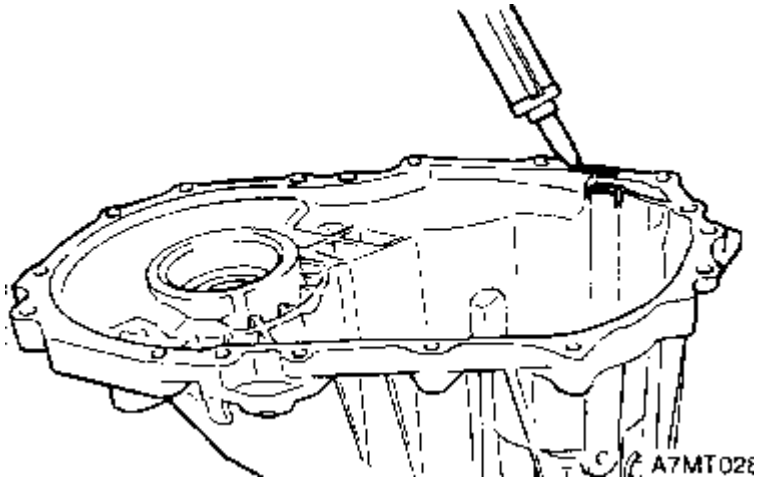
T: Indicates tightening of - (minus) direction of endplay

L: Indicates loosening of + (plus) direction of endplay

Install the oil guide in the transaxle case.

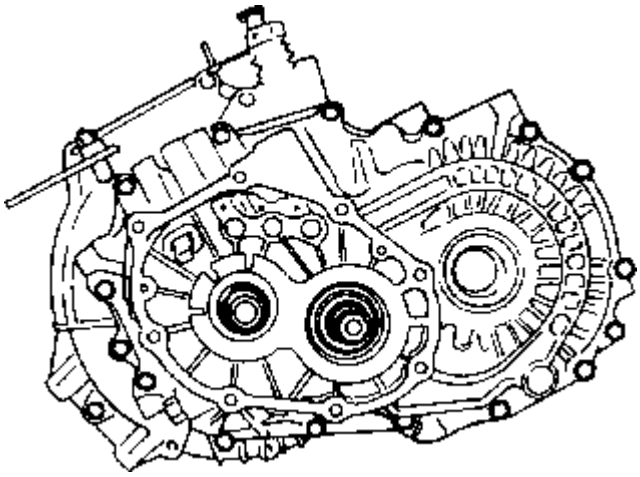


Apply the specified sealant to the clutch housing side of the transaxle case.



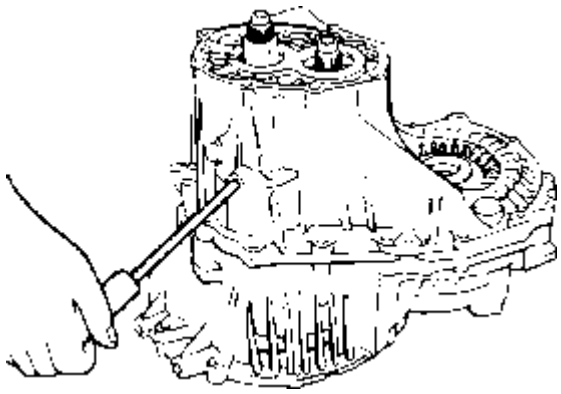
Specified sealant: MS721-40.

Install the transaxle case onto the clutch housing assembly and tighten the bolts.



TORQUE SPECIFICATION	
Transaxle case	35-42 Nm (350-420Kg kg·cm, 26-31 lb·ft)

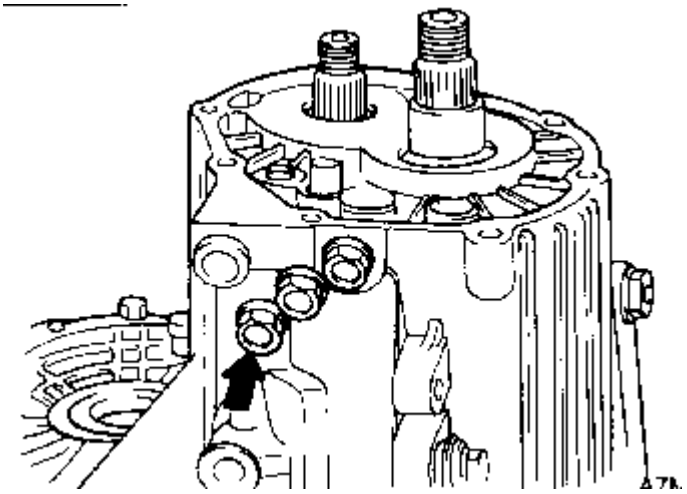
Center the reverse idler gear shaft with screw driver.



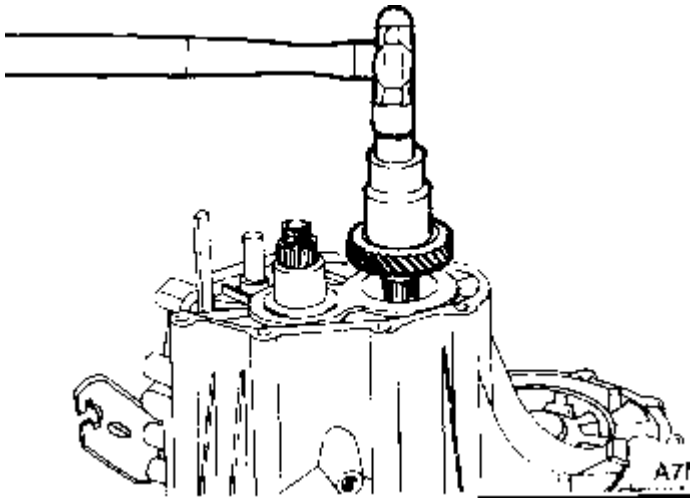
Tighten the reverse idler gear shaft bolt to the specified torque.

TORQUE SPECIFICATION	
Reverse gear shaft bolt	43-55 Nm (430-550 kg·cm, 32-41 lb·ft)

Install poppet balls, poppet springs, and seal bolts.

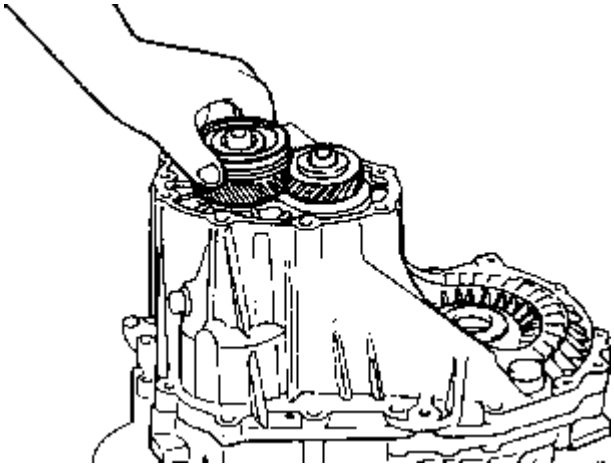


Install the output shaft gear using the special tool (09432-33300).

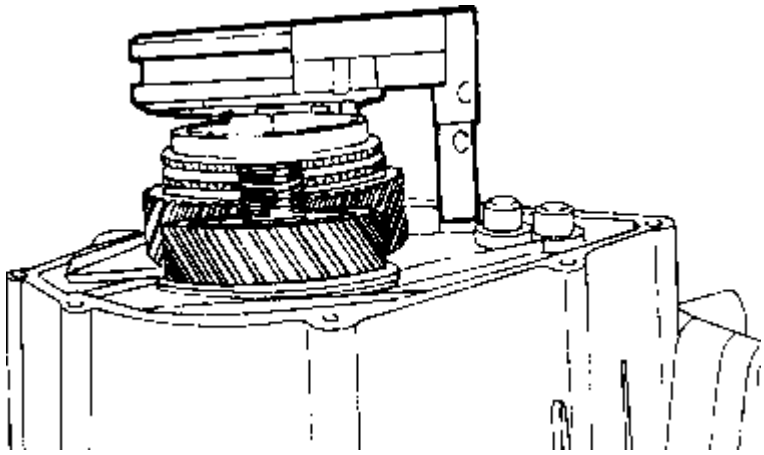


Install the 5th speed gear, needle roller bearing, synchronizer ring and synchronizer hub.

> **CAUTION**
>
> **Place the oil groove of synchronizer hub toward the fifth speed gear.**



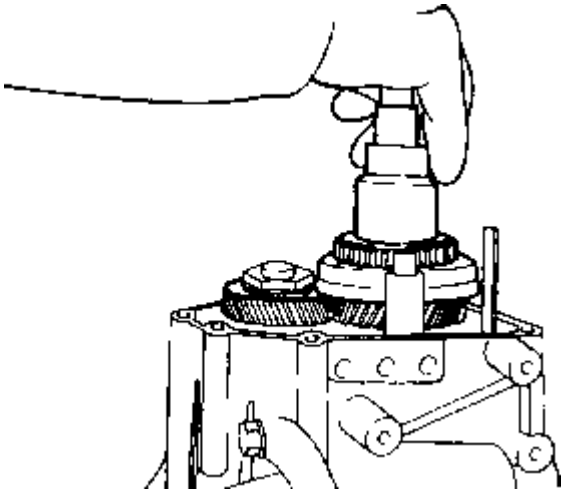
Install the fifth speed gear shift fork and the synchronizer sleeve at the same time.



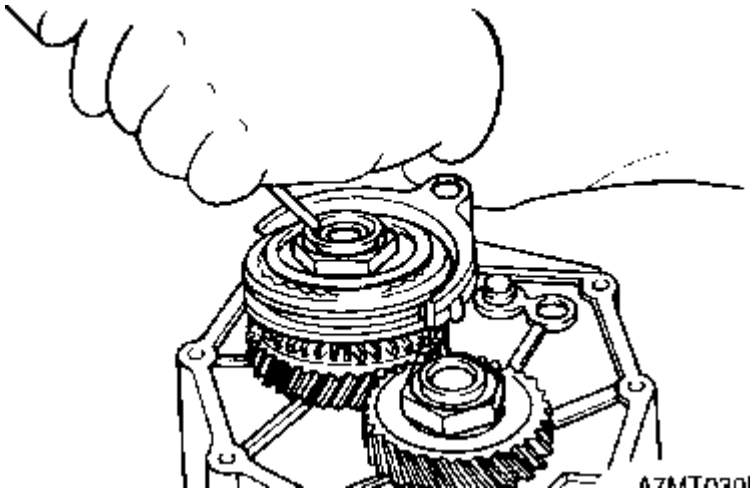
Reassembly of locking nut.

Shift the transaxle into 3rd and 5th gear.
Tighten the lock nut to the specified torque.

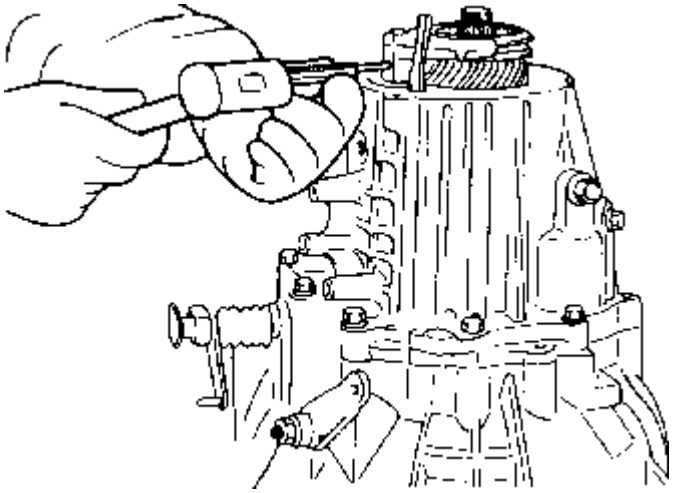
TORQUE SPECIFICATION	
Lock nut	140-160 Nm (1400-1600 kg·cm, 102-115 lb·ft)



Stake the lock nut.



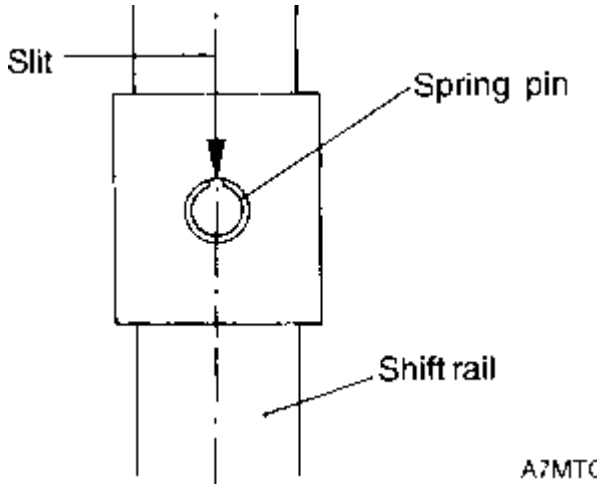
Install the spring pin using the special tool (09414-11100) or pin punch.



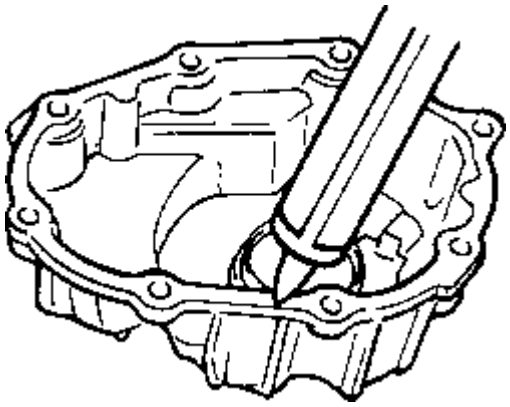
CAUTION

DO not reuse the spring pin.

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

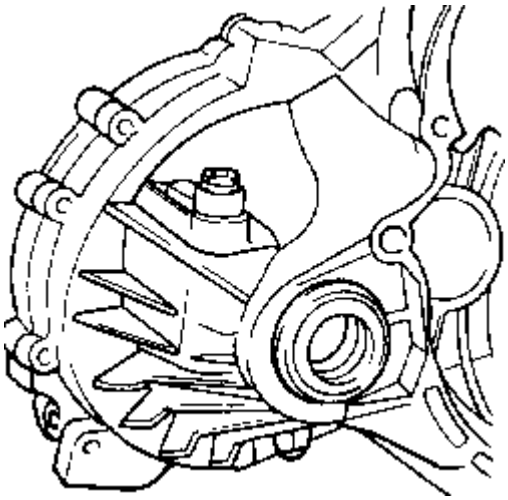


Apply the specified sealant to the rear cover and install the rear cover.



Specified sealant: MS 721-40

Install the speedometer driven gear assembly.

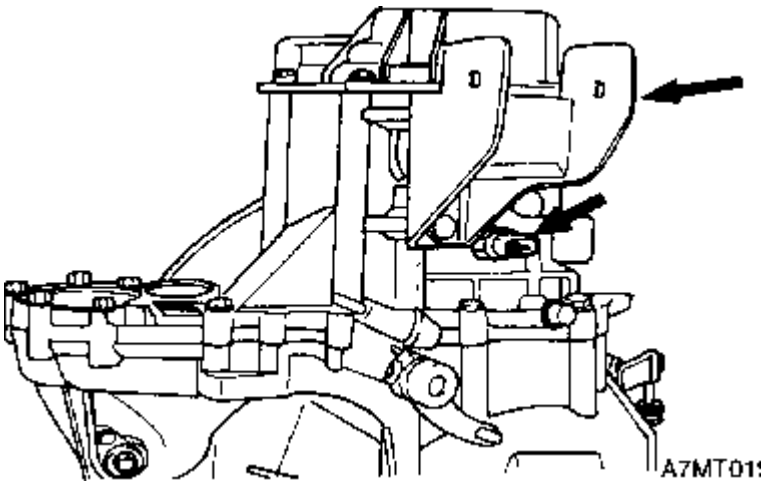


TORQUE SPECIFICATION	
Speedometer driven gear	3-5 Nm (30-50 kg·cm, 2.3-3.6 lb·ft)

Install the back up light switch.

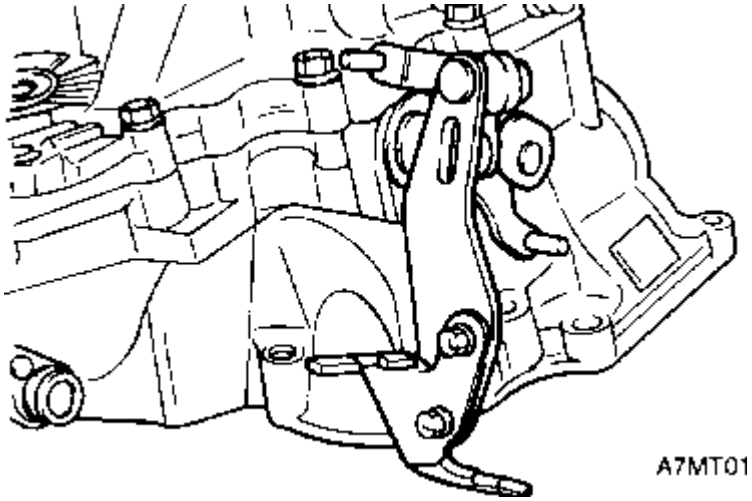
TORQUE SPECIFICATION	
Back up light switch	30-35 Nm (300-350 kg·cm, 22-25 lb·ft)

Install the mounting bracket.



TORQUE SPECIFICATION	
Transaxle mount bracket to transaxle	60-80 Nm (600-800 kg·cm, 43-58 lb·ft)

Install the select lever assembly.



TORQUE SPECIFICATION	
Select lever assembly	15-22 Nm (150-220 kg·cm, 11-16 lb·ft)

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Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
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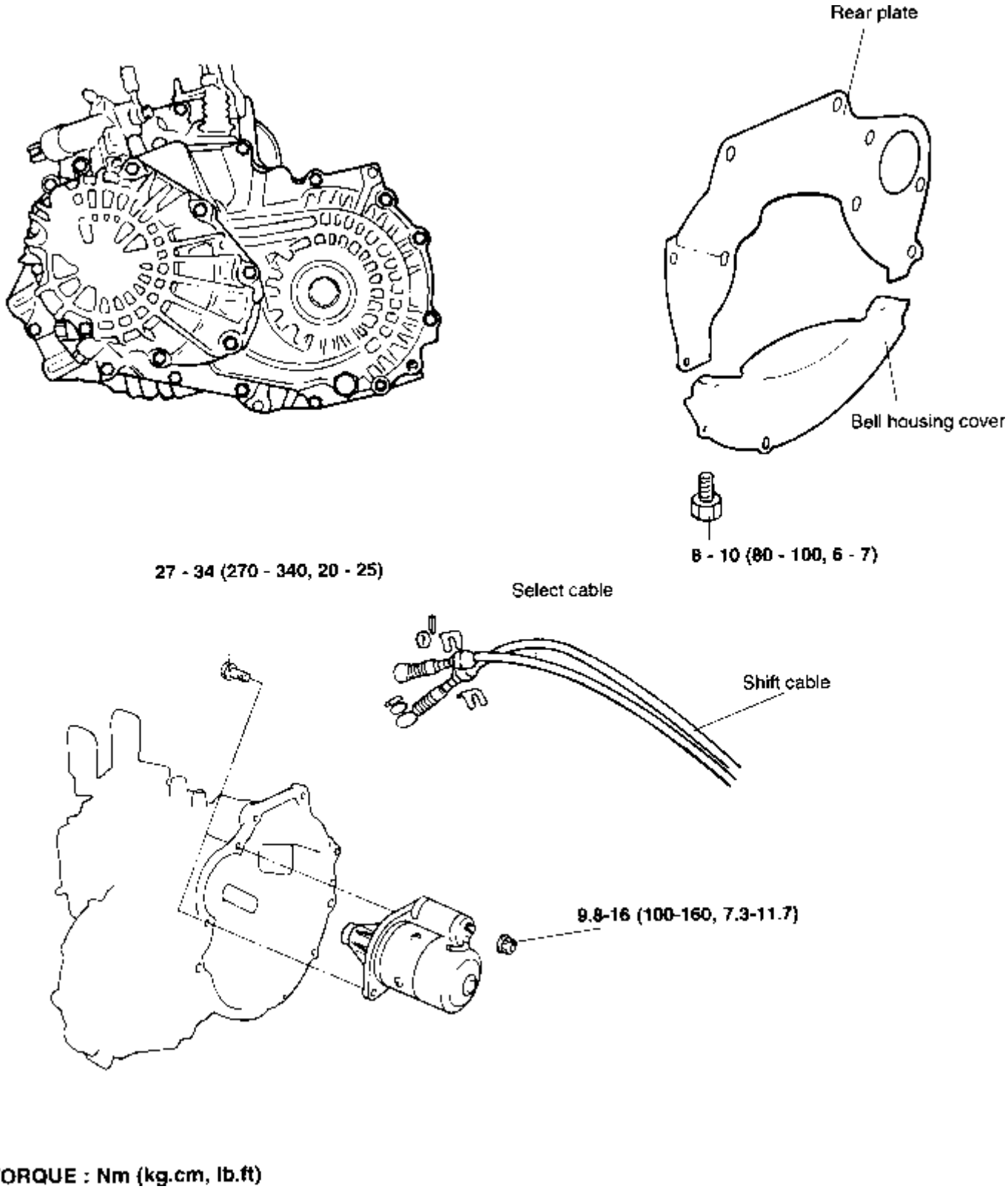
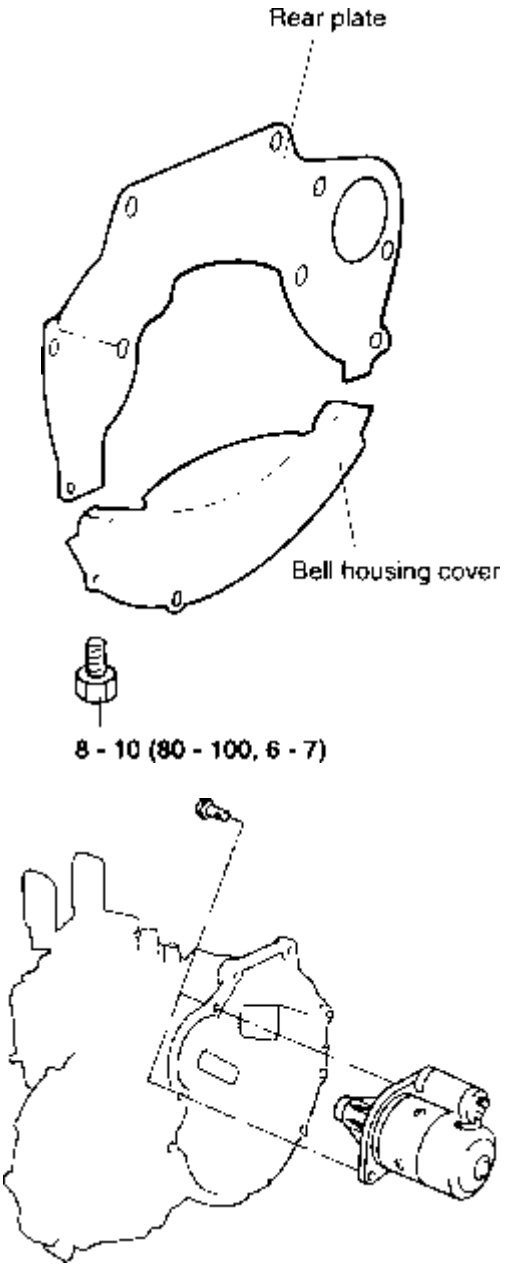
COMPONENTS



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



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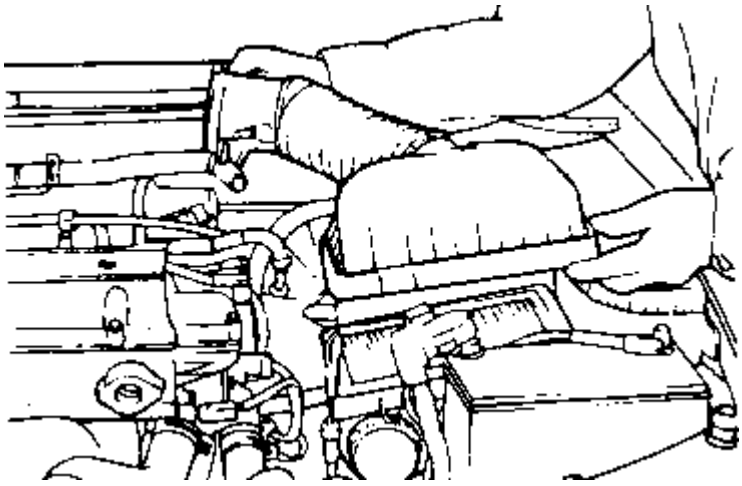
REMOVAL

Remove the battery (-) cable.

Remove the air duct.



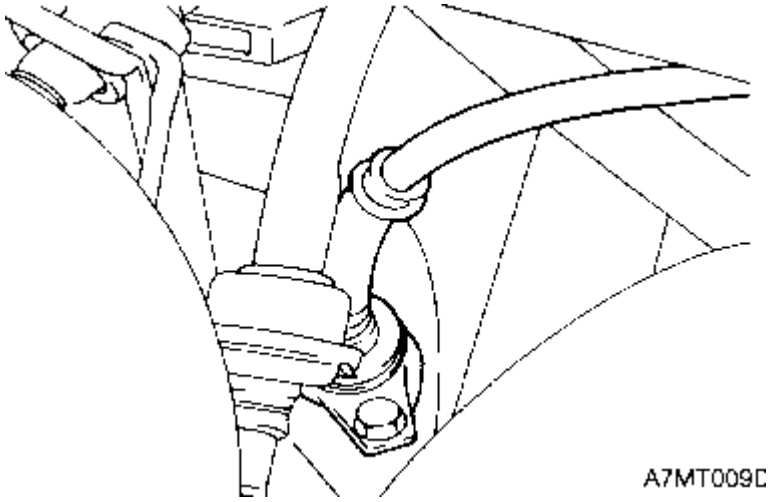
Remove the air cleaner and air flow hose assembly.

Disconnect the backup light switch connector.

Disconnect the clutch tube and clip.

Remove the clutch release cylinder

(Refer to the CLUTCH SECTION)



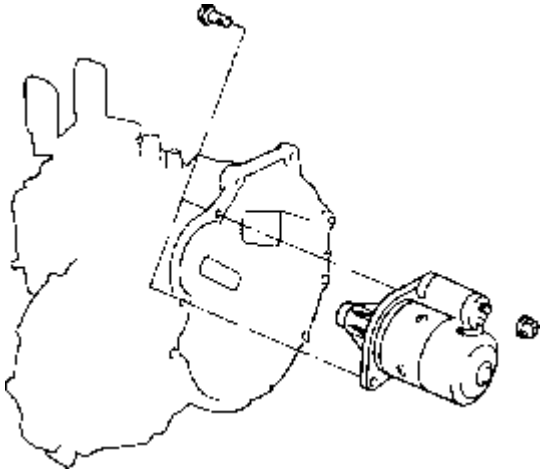
Remove the speedometer cable.

Remove the select cable and shift cable

(Refer to MANUAL TRANSAXLE CONTROL SECTION)

Remove the starter motor mounting bolts.

Remove the transaxle assembly upper connecting bolts.



Attach an engine host to the engine hooks.

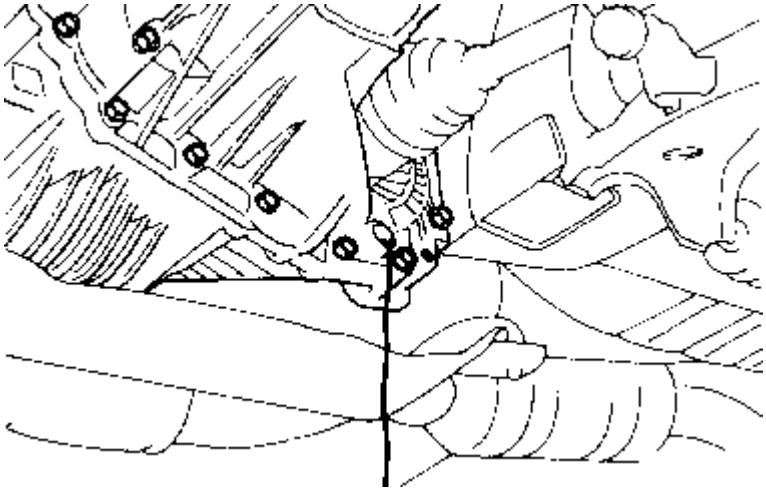
Remove the transaxle mounting bracket and insulator.

Lift up the vehicle.

Remove the front tire.

Remove the under cover.

Remove the drain plug and drain the transaxle gear oil.



Disconnect the tie rod end, lower arm ball joint and drive shaft.

(Refer to the DRIVE SHAFT AND FRONT AXLE SECTION)

Remove the center member.

Remove the transaxle stay.

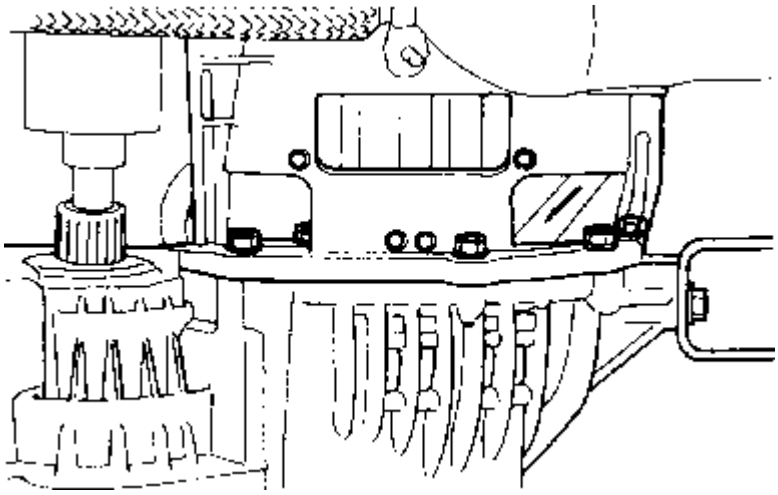
Remove the transaxle rear mounting bracket.

Remove the bell housing cover.

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

Remove the transaxle assembly lower mounting bolts with the transaxle assembly supported by a jack.

Remove the transaxle assembly.



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INSTALLATION

Installation is the reverse of removal.

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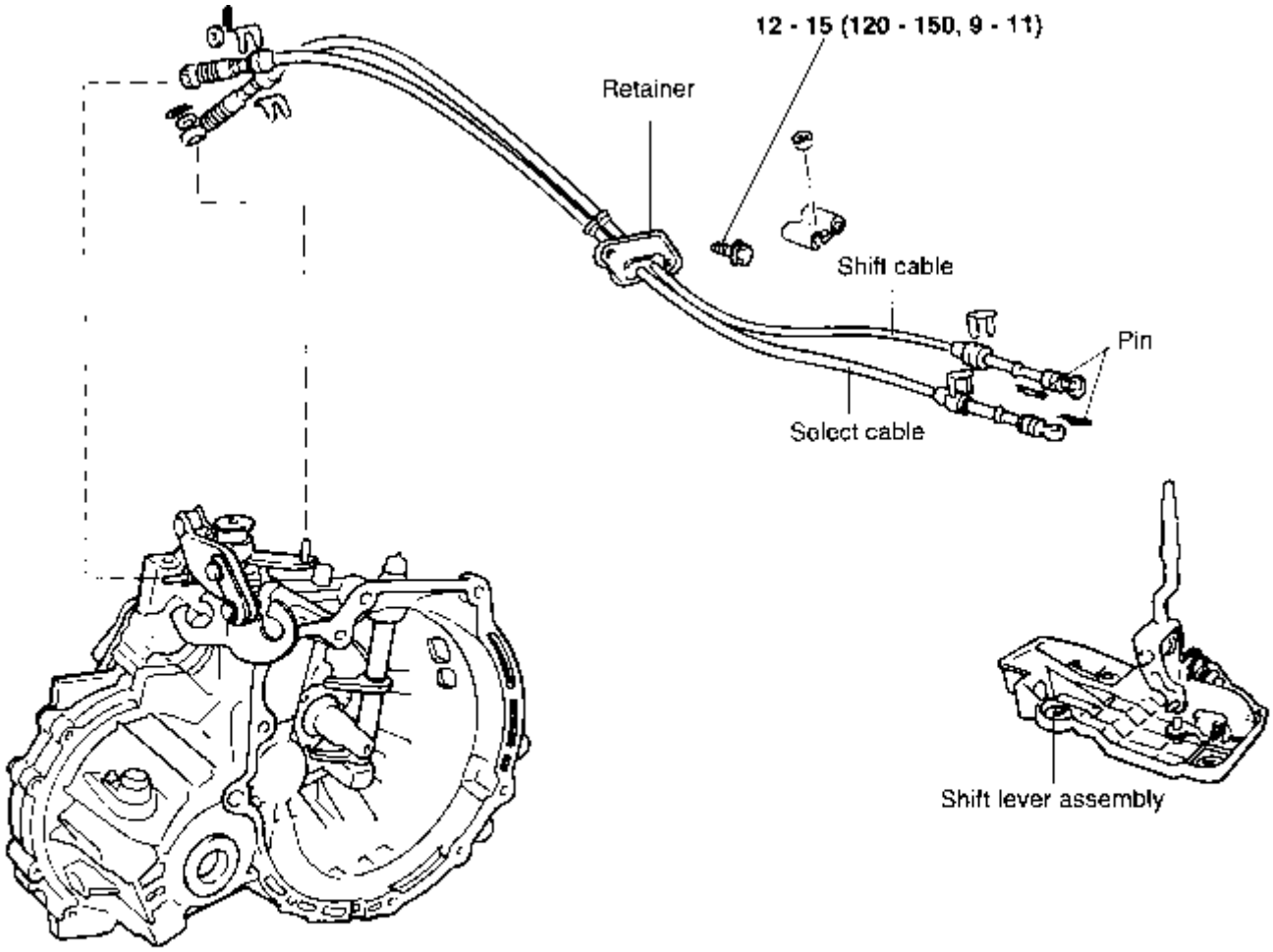
MANUAL TRANSAXLE CONTROL

COMPONENTS



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

A/T

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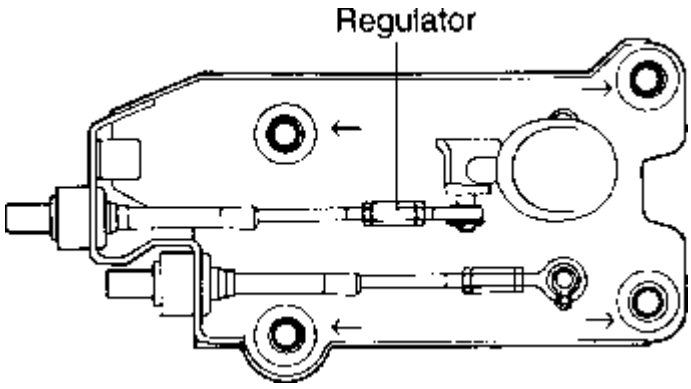
REMOVAL

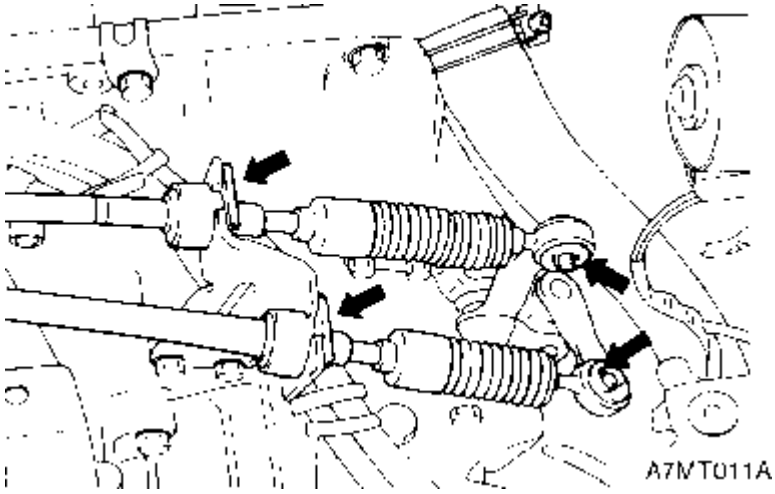
Remove the console assembly (Refer to CONSOLE).



Remove the cotter pins and clips (shift lever side).

Remove the shift lever assembly.

Remove the retainer and bolts.



Remove the cotter pins and clips (Transaxle side).

Remove the shift cable and select cable.

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INSPECTION

Check the select cable for proper operation and damage.

Check the shift cable for proper operation and damage.

Check the boot for damage.

Check each bushing for wear, abrasion, sticking, restricted movement or damage.

Check for a weak or damaged spring.

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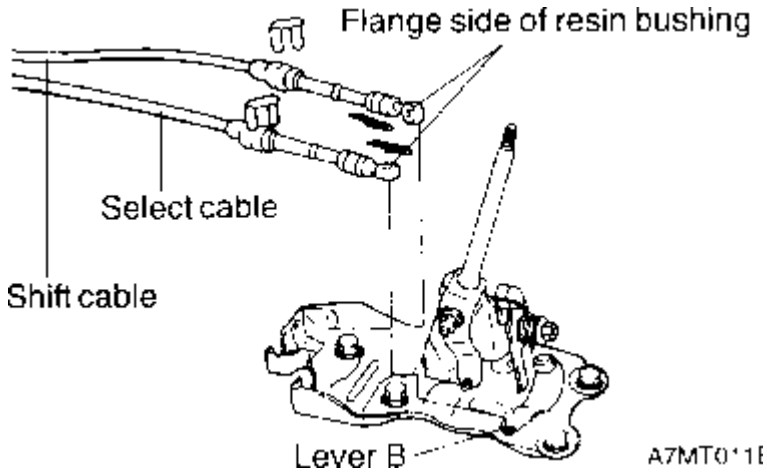
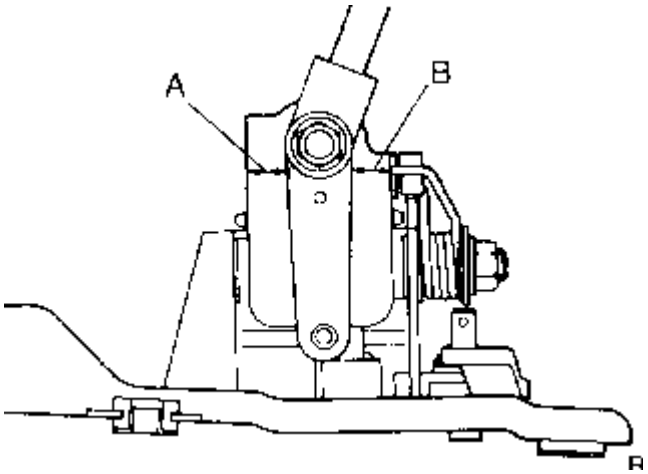
INSTALLATION

Install the shift lever assembly.

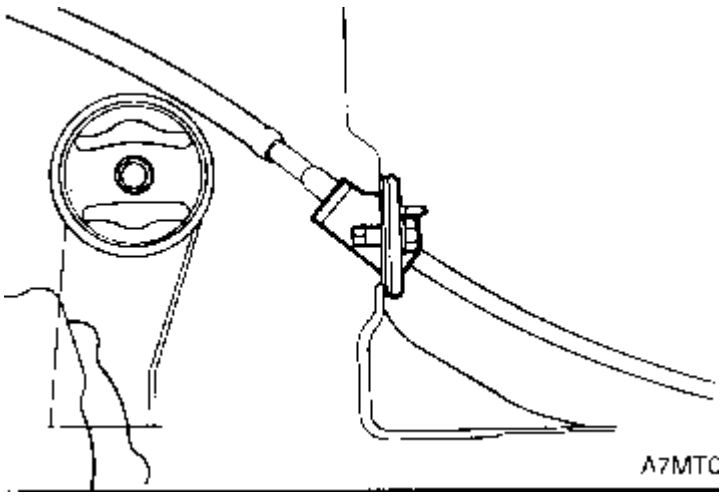
Installation of shift lever and select cable.



Move the transaxle select lever and shift lever to the neutral position.
When connecting the select cable to lever (B), adjust the select cable's length so that lever (B) is at the neutral position.
The flange side of the resin bushing at the select cable end should be at the lever (B) end surface.
The flange side of the resin bushing at the shift cable end should be at the shift levers cotter pin hole.
After connecting the shift cable, check that the dimensions (A) and (B) shown in the illustration are equal.



If the dimensions (A) and (B) are not equal adjust the regulator of shift cable.
Move the shift lever to each position and verify that the shifting is smooth.
Install the retainer and bolts.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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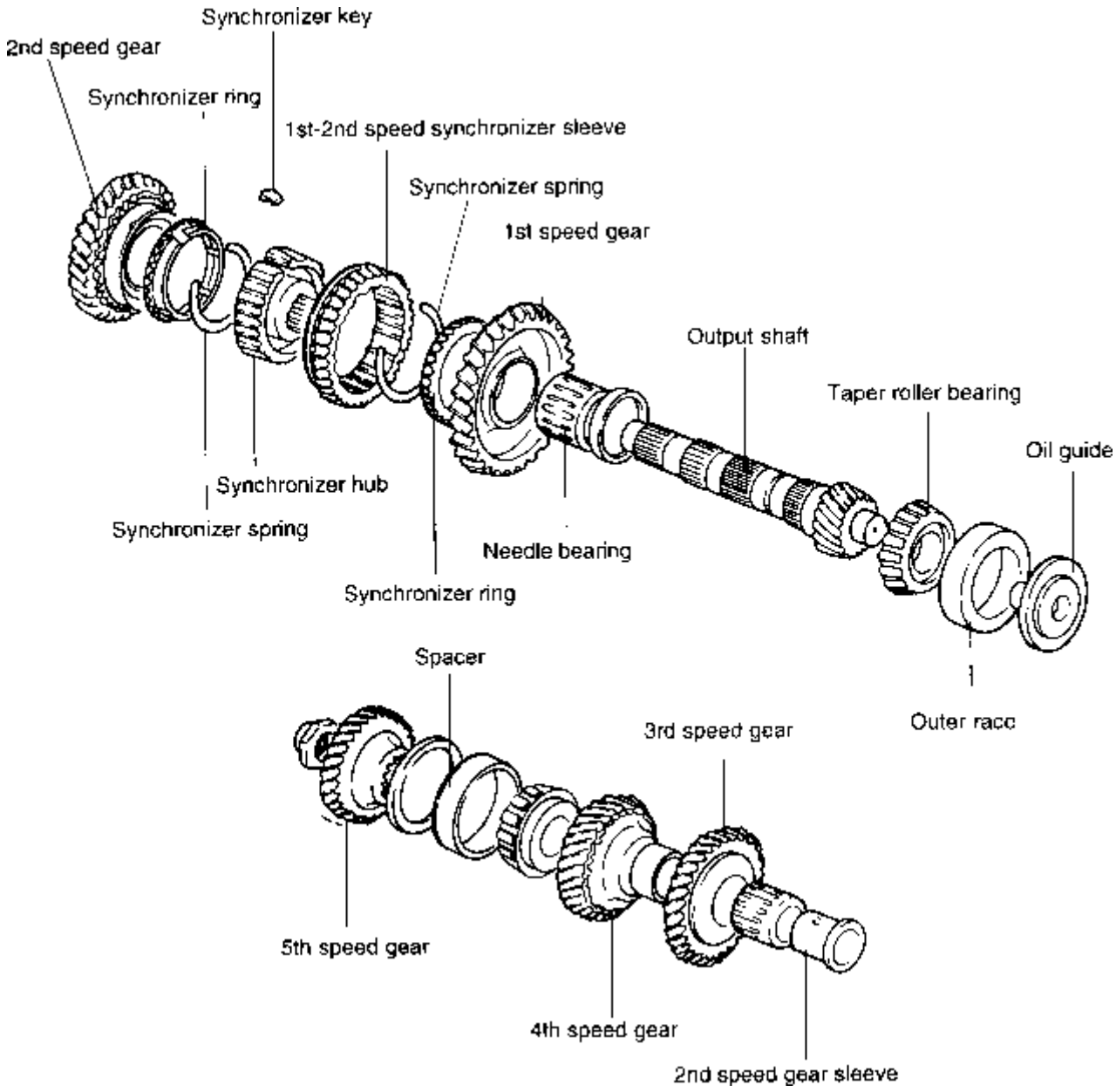
COMPONENTS



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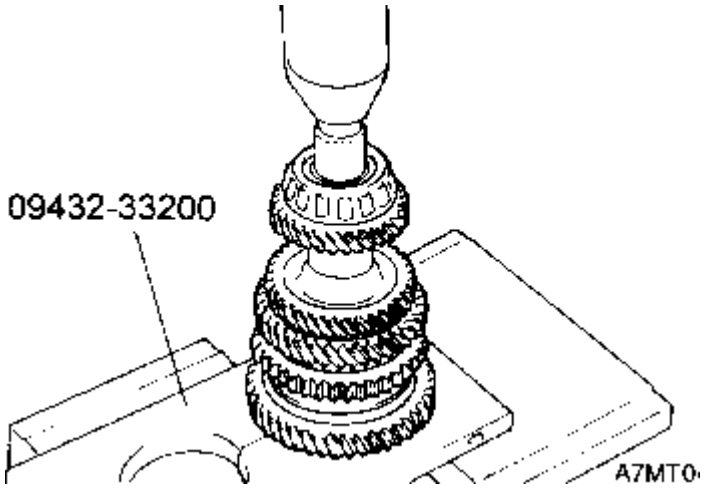
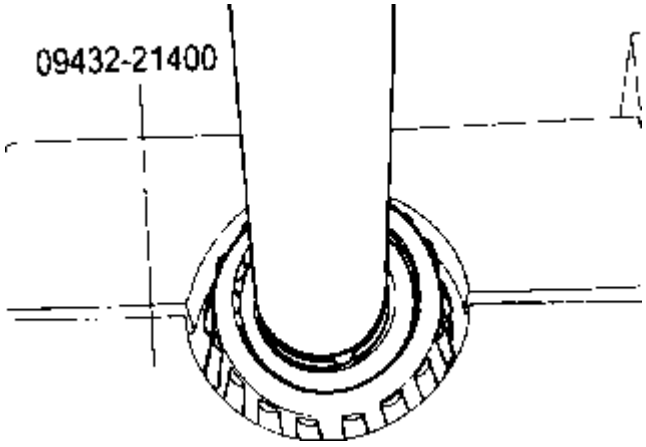
DISASSEMBLY

Remove the taper roller bearing, fourth output gear, spacer, third output gear, second speed gear assembly with second gear sleeve and needle roller bearing, first speed gear assembly with needle roller bearing and spacer and steel ball using the special tool (09432-33200).



Remove the rear taper roller bearing using the special tool (09432-21400).



CAUTION

Do not reuse the bearing removed from the shaft.

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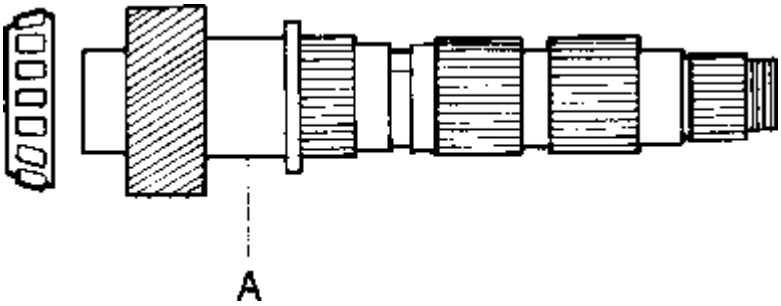
INSPECTION

OUTPUT SHAFT

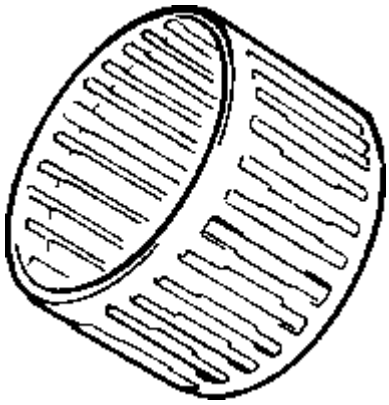
Check the outer surface of the output shaft where the needle bearing is mounted for damage or abnormal wear [portion (A)].



Check the splines for damage or wear.

NEEDLE ROLLER BEARING

Install the needle bearing on the shaft with the bearing sleeve and gear. Check that it rotates smoothly without abnormal noise or play.

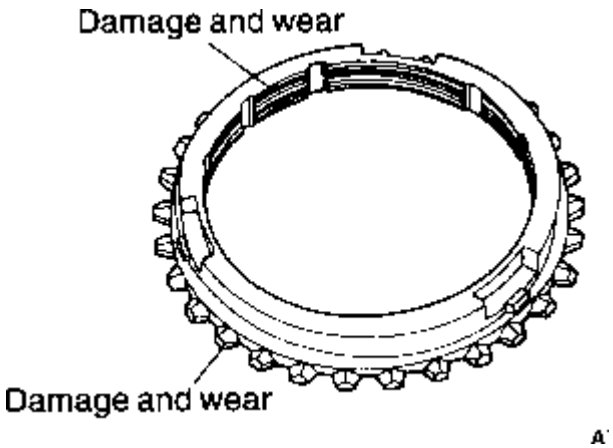


Check the needle bearing cage for distortion.

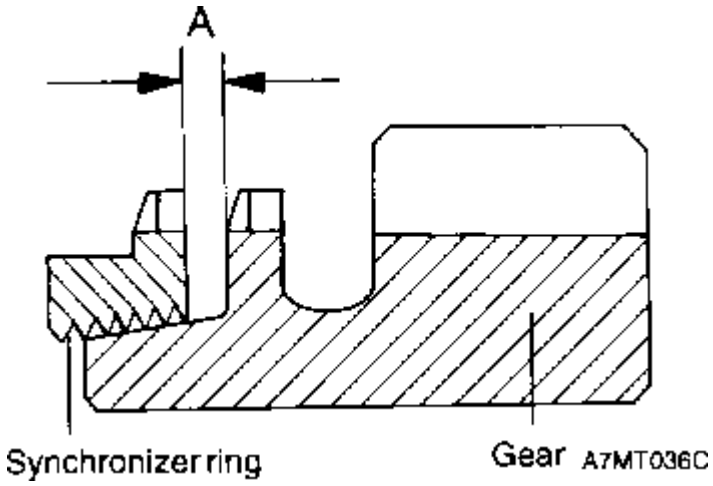
SYNCHRONIZER RING

Check the clutch gear teeth for damage.

Check the internal surface for damage, wear or broken grooves.



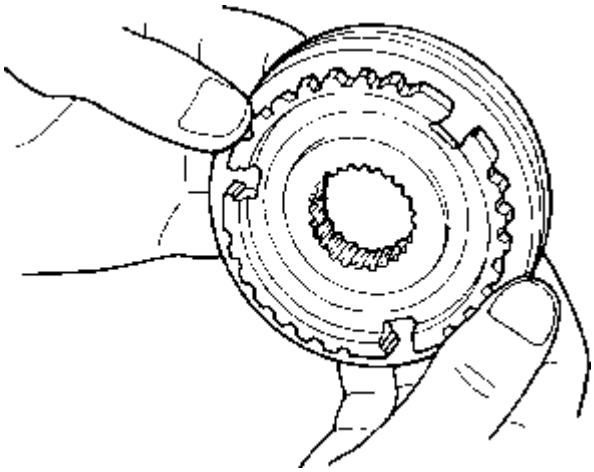
Push the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is not within specifications.



MEASUREMENT SPECIFICATION	
Synchronizer ring	0.5 mm (0.02 in)

SYNCHRONIZER SLEEVE AND HUB

Install the synchronizer sleeve on the hub and check that it slides smoothly.



Check that the sleeve is free from damage.

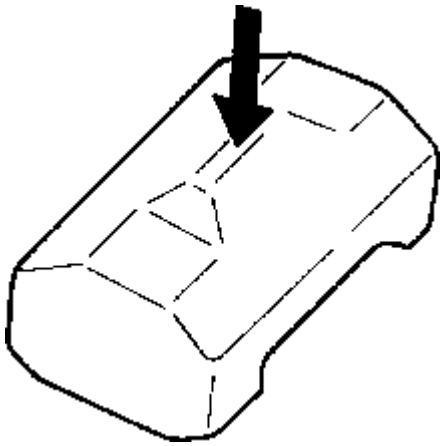
Check for wear of the hub end surfaces (in contact with each gear).

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

SYNCHRONIZER KEY AND SPRING

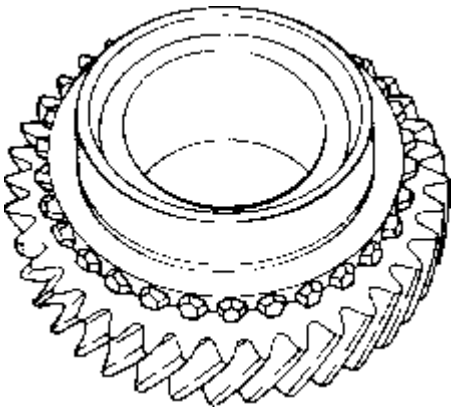
Check for wear of the synchronizer key center protrusion.

Check the spring for weakness, distortion or damage.



GEARS

Check the helical gear and clutch gear teeth for damage or wear.



Check the gear cone for rough surfaces, damage or wear.

Check the gear bore for damage or wear.

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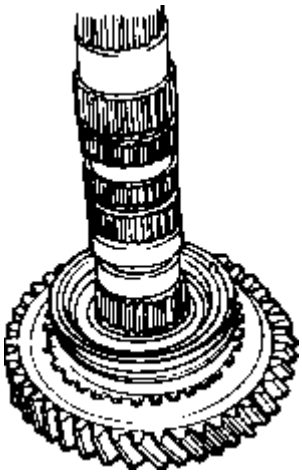
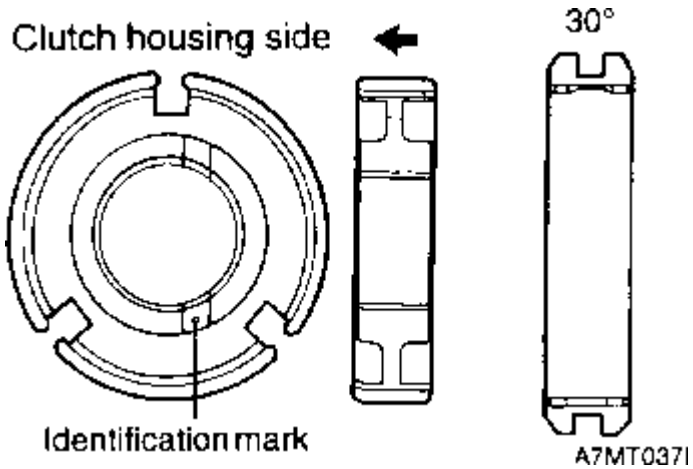
ASSEMBLY

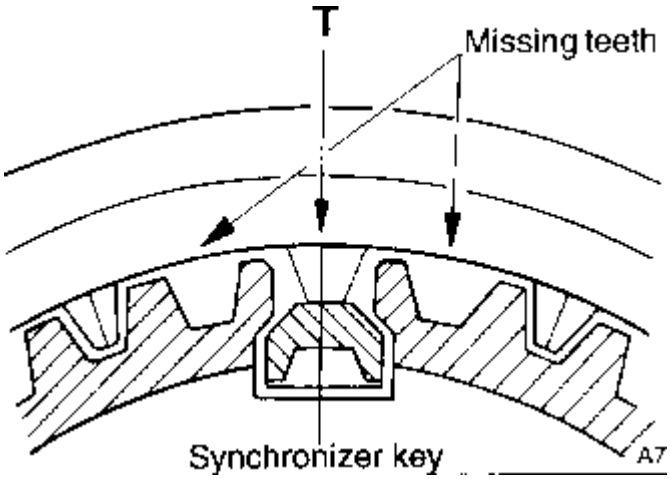
Install the first speed gear assembly with needle bearing.



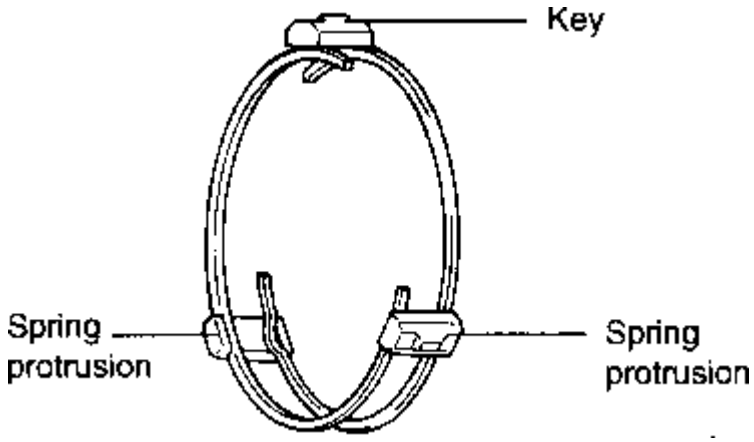
Combine the first-second gear synchronizer hub and sleeve.



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



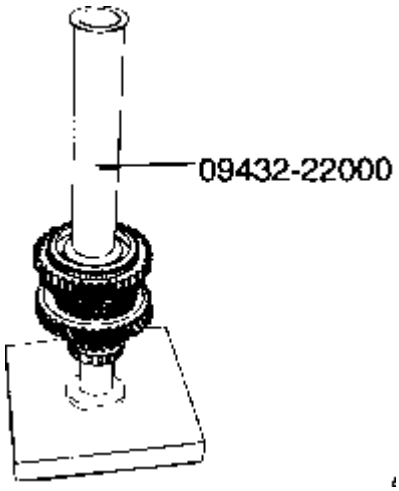
Install the synchronizer spring so that its protrusion may be engaged in the groove of the synchronizer keys.



CAUTION

When installing the synchronizer springs, make sure they are not facing the same direction.

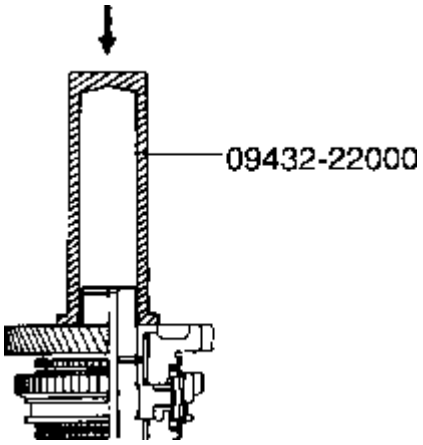
Install the first-second speed gear synchronizer assembly over the output shaft using the special tool (09432-22000).



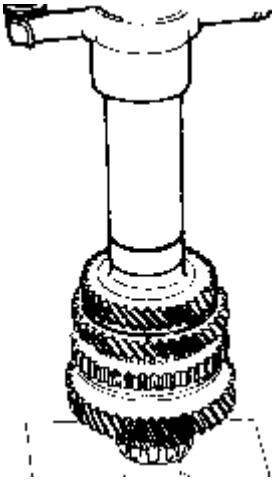
CAUTION

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

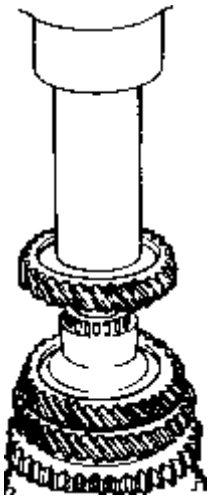
Install the second speed gear with needle roller bearing and bearing sleeve using the special tool (09432-22000).



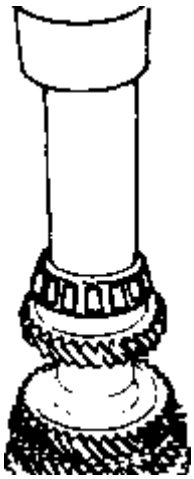
Install the third speed gear and spacer.



Install the fourth speed gear.



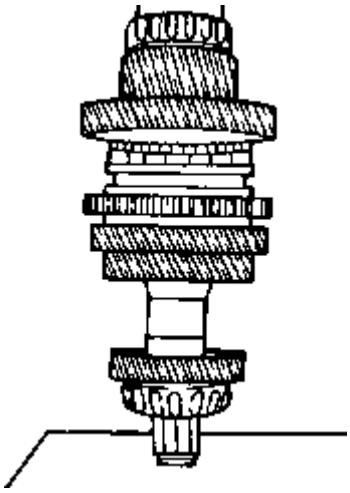
Install the bearing using the special tool (09432-22000).



CAUTION

Do not reuse the bearing removed from the shaft

Install the rear side taper roller bearing using the special tool (09432-22000).



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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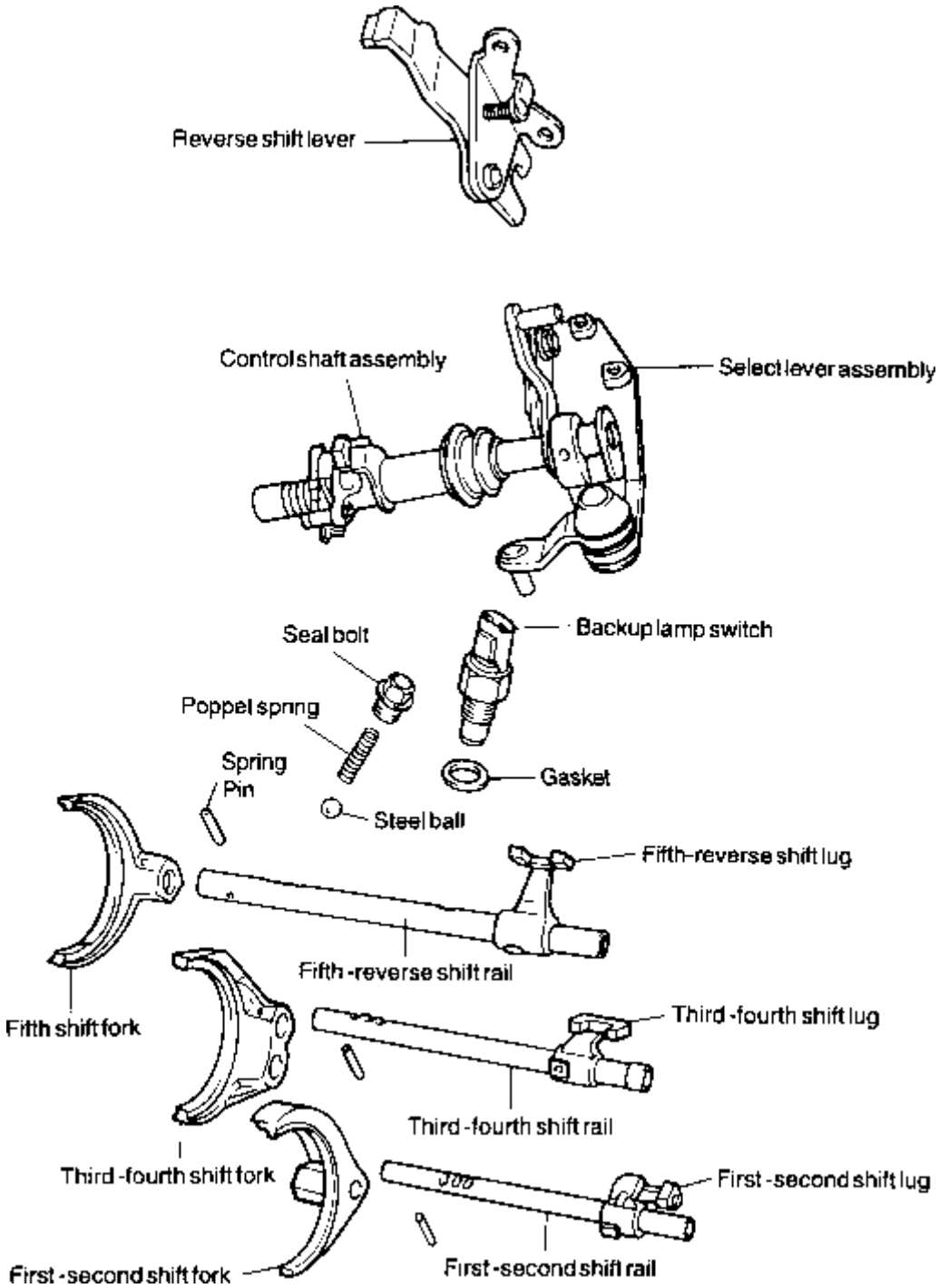
COMPONENTS



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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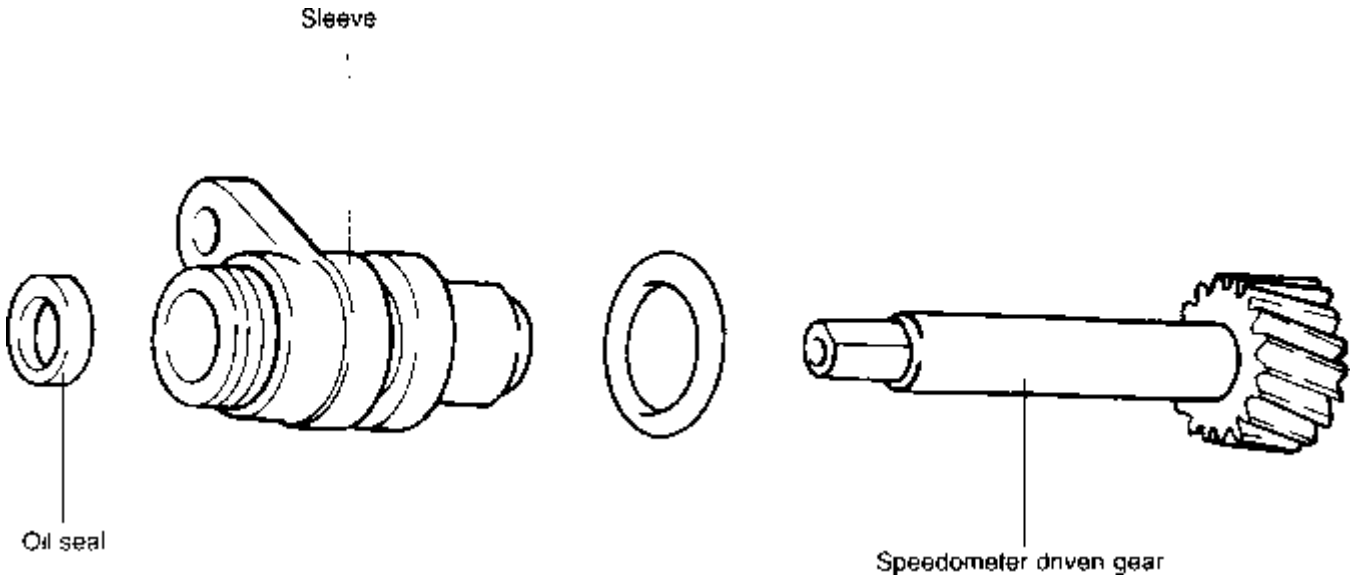
COMPONENTS



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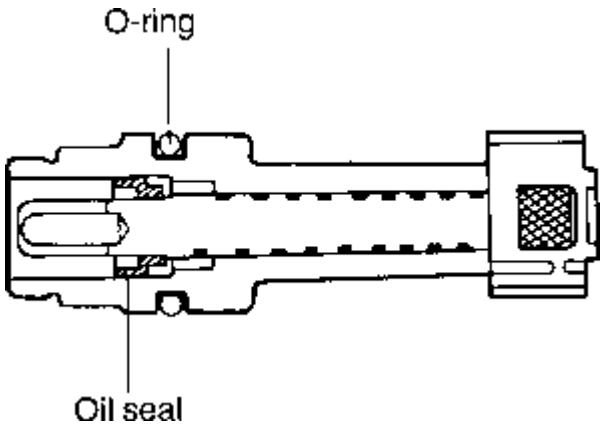
ASSEMBLY

Apply gear oil sparingly to the speedometer driven gear shaft and insert the shaft.



CAUTION

Insert carefully the speedometer driven gear into the clutch housing not to disassemble the speedometer driven gear shaft.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
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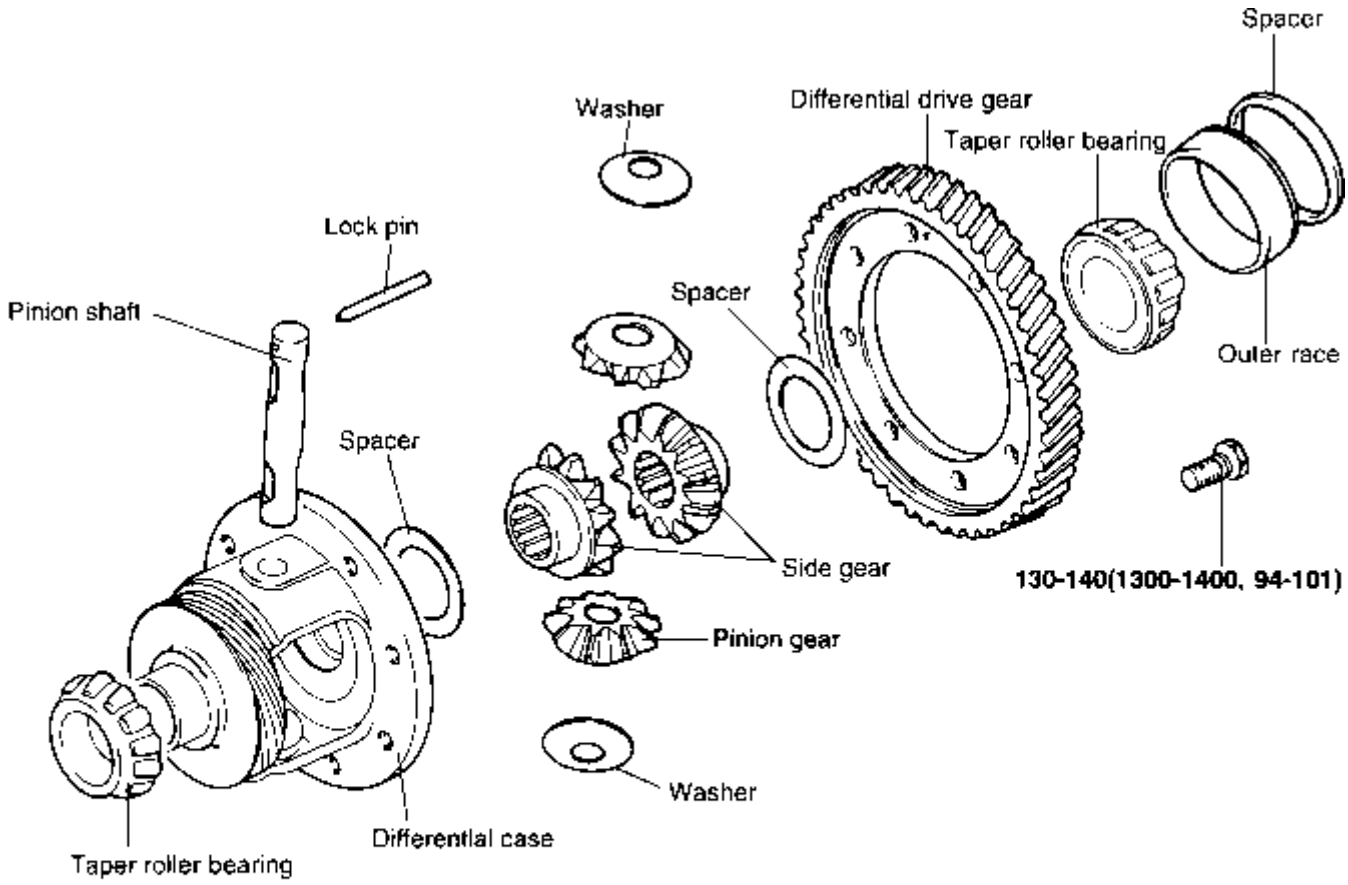
COMPONENTS



TORQUE: Nm (Kg·cm, lb·ft)

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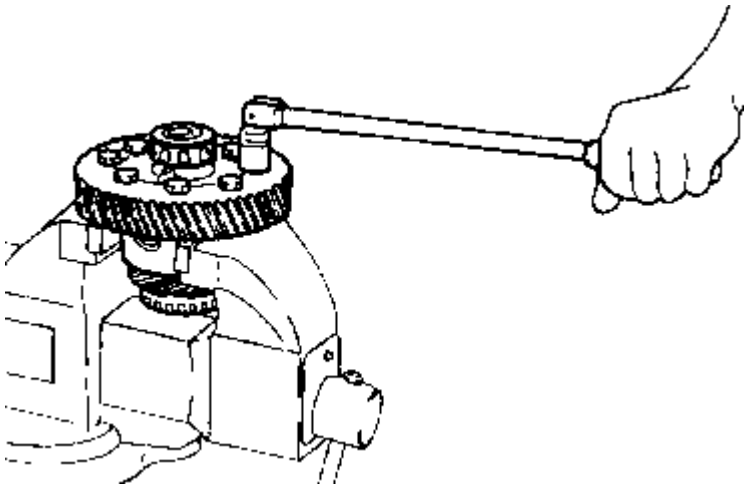
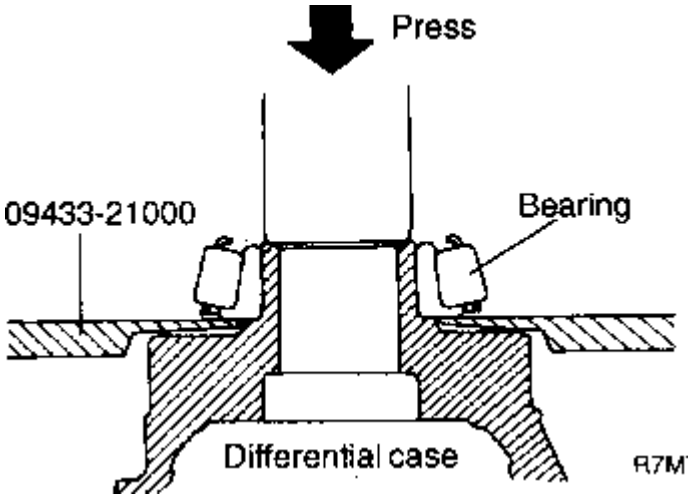
DISASSEMBLY

Clamp the differential case in a vise.

Remove the differential drive gear retaining bolts and remove the differential drive gear from the case.



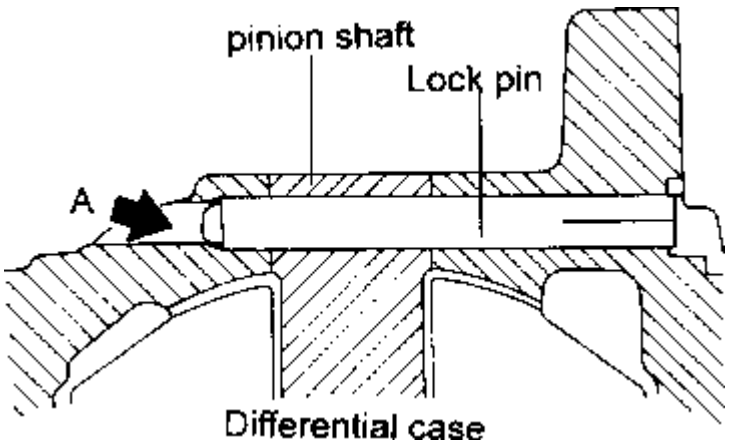
Remove the taper roller bearing using the special tool (09433-21000).



CAUTION

Do not reuse the bearing removed from the shaft,

Drive out the lock pin from the hole A using a punch.



Drive out the pinion shaft.

Remove the pinion gears, washers, side gears and spacers.

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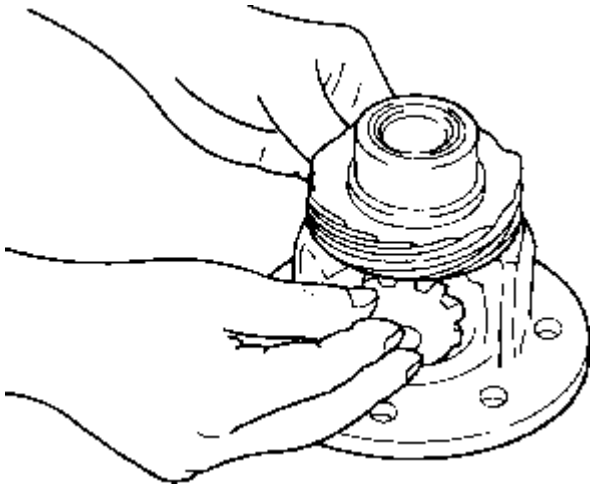
REASSEMBLY

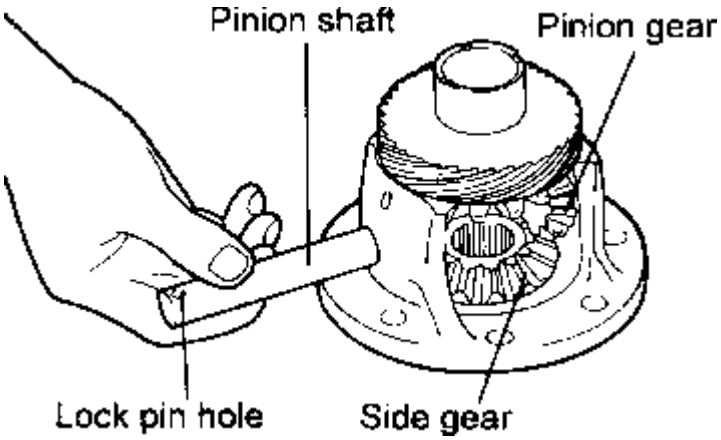
Install the spacer on the back of the side gear and then install the gear in the differential case.



CAUTION

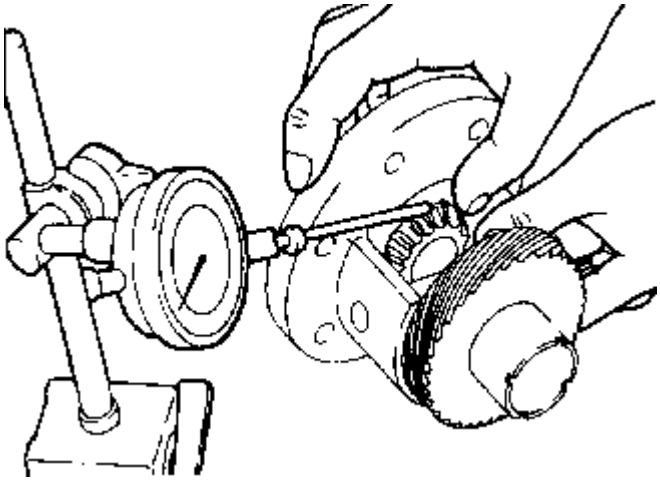
When installing a new side gear, use a spacer of medium thickness. [0.93 - 1.00 mm (0.0366-0.0394 in.)]

Set the washer on the back of each pinion and insert the two pinions to specified position while engaging them with the side gears by turning them.



Inset the pinion shaft.

Measure the backlash between the side gears and pinions.



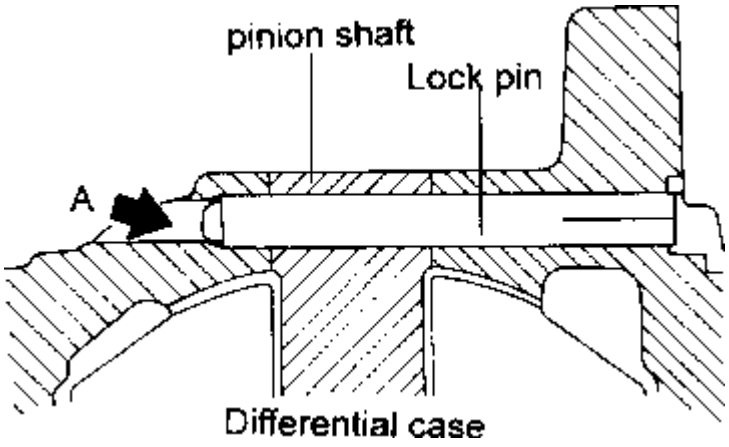
MEASUREMENT SPECIFICATION	
Backlash between the side gears and pinions	0.025-0.150 mm (0.001-0.006 in)

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

CAUTION

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

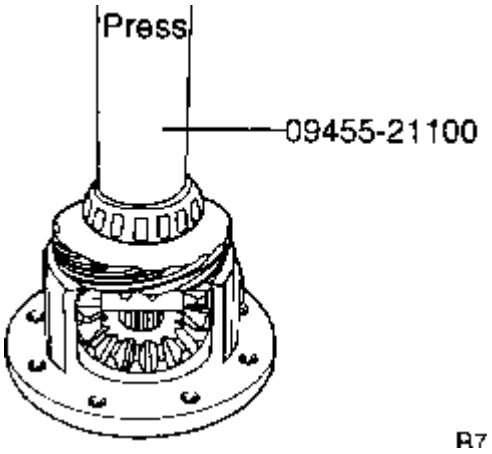
Align the pinion shaft lock pin hole with the case lock pin hole and insert the lock pin.



CAUTION

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

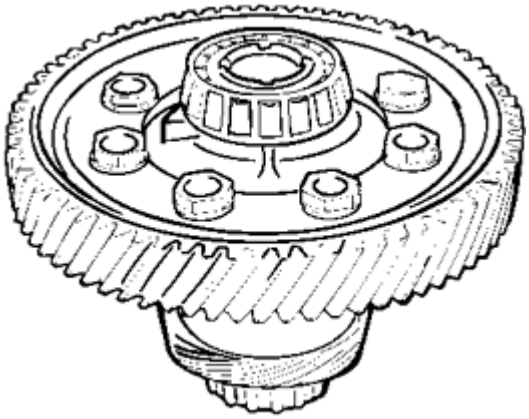
Install the taper roller bearings on both sides of the differential case using the special tool (09455-21100).



CAUTION

when press-fitting the bearing, press on the inner race only.

Apply specified sealant to the entire threads of the bolts. Tighten to specifications using the sequence shown in the illustration. Specified sealant; BM Stud Locking No.2471.



TORQUE SPECIFICATION	
Differential drive gear bolt	130-140 Nm (1300-1400 kg·cm, 94-101 lb·ft)

CAUTION

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

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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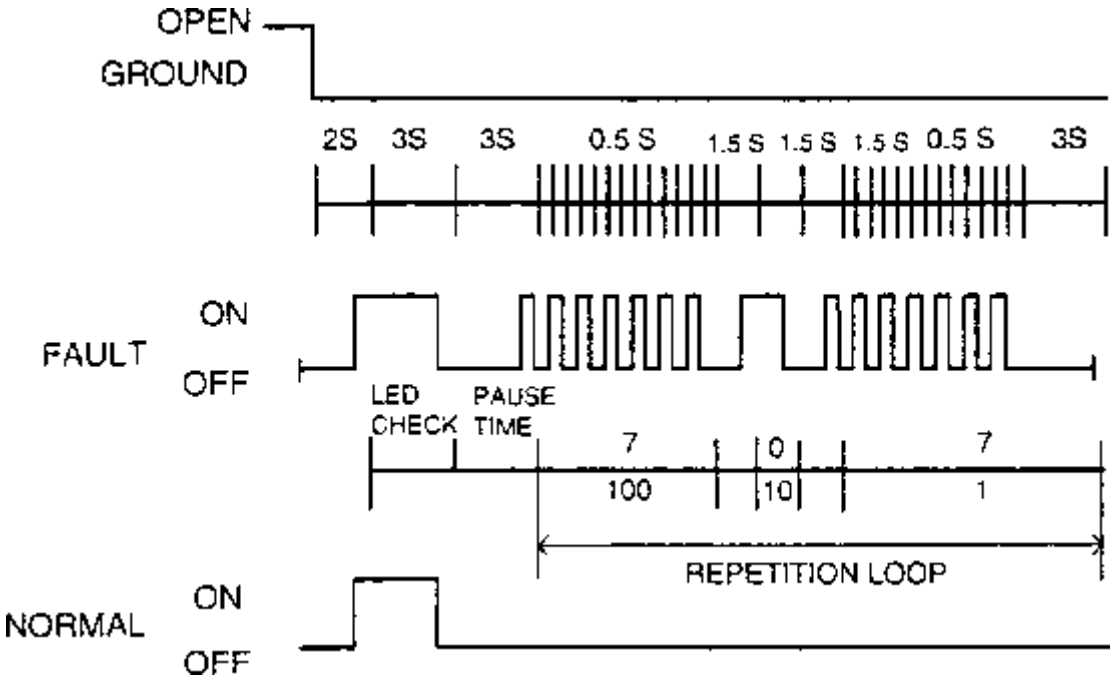
DIAGNOSTIC TROUBLE CODE DESCRIPTION

[READING METHOD] EX: 0707 (TRANSAXLE RANGE SWITCH)



Code	Output pattern (for voltmeter)	Cause	Remedy
P1702		Shorted throttle position sensor circuit	• Check the throttle position sensor connector • Check the throttle position sensor itself • Check the closed throttle position switch • Check the throttle position sensor wiring harness • Check the wiring between ECM and throttle position sensor

P1701		Open throttle position sensor circuit	
P1704		Throttle position sensor malfunction Improperly adjusted throttle position sensor	
P0712		Open fluid temperature sensor circuit	• Fluid temperature sensor connector inspection • Fluid temperature sensor inspection • Fluid temperature sensor wiring harness inspection
P0713		Shorted fluid temperature sensor circuit	
P1709		Open kickdown servo switch circuitShorted kickdown servo switch circuit	• Check the kickdown servo switch connector • Check the kickdown servo switch • Check the kickdown servo switch wiring harness

Code	Output pattern (for voltmeter)	Cause	Remedy
P0727		Open ignition pulse pickup cable circuit	• Check the ignition pulse signal line • Check the wiring between ECM and ignition system
			• Check the closed throttle position switch connector

P1714		Short-circuited or improperly adjusted closed throttle position switch	Check the closed throttle position switch itself • Adjust the closed throttle position switch • Check the closed throttle position switch wiring harness
P0717		Open-circuited pulse generator A	• Check the pulse generator A and pulse generator B • Check the vehicle speed reed switch (for chattering) • Check the pulse generator A and B wiring harness
P0722		Open-circuited pulse generator B	
P0707		No input signal	• Check the transaxle range switch • Check the transaxle range wiring harness • Check the manual control cable
P0708		More than two input signals	
P0752		Open shift control solenoid valve A circuit	• Check the solenoid valve connector • Check the shift control solenoid valve A • Check the shift control solenoid valve A wiring harness
P0753		Shorted shift control solenoid valve A	

		circuit	
P0757		Open shift control solenoid valve B circuit	• Check the shift control solenoid valve connector • Check the shift control solenoid valve B wiring harness • Check the shift control solenoid valve B
P0758		Short shift control solenoid valve B circuit	
P0747		Open pressure control solenoid valve circuit	• Check the pressure control solenoid valve • Check the pressure control solenoid valve wiring harness
P0748		Shorted pressure control solenoid valve circuit	

Code	Output pattern (for voltmeter)	Cause	Remedy
P0743		Open circuit in damper clutch control solenoid valve Short circuit in damper clutch control solenoid valve Defect in the damper clutch system	• Inspection of solenoid valve connector • Individual inspection of damper clutch control solenoid valve • Check the damper clutch control solenoid valve wiring harness • Check the TCM • Inspection of damper clutch hydraulic system
P0742			

			
P0740			
P1744			
P0731		Shifting first gear does not match the engine speed	• Check the pulse generator A and pulse generator B connector • Check the pulse generator A and pulse generator B • Check the one way clutch or rear clutch • Check the pulse generator wiring harness • Kickdown brake slippage
P0732		Shifting second gear does not match the engine speed	
P0733		Shifting to third gear does not match the engine speed	• Check the rear clutch or control system • Check the pulse generator A and pulse generator B connector • Check the pulse generator A and pulse generator B • Check the pulse generator wiring harness • Check the rear clutch slippage or control system • Check the front clutch slippage or control system
			• Check the pulse

P0734		Shifting fourth gear does not match the engine speed	generator A and B connector • Check the pulse generator A and B • Kickdown brake slippage • Check the end clutch or control system • Check the pulse generator wiring harness
-	|	Normal	|

FAIL-SAFE ITEM

Code No.	Output codeOutput pattern (for voltmeter)	Description	Fail-safe	Note (relation tdiagnostic trouble code)
P0717		Open-circuited pulse generator A	Locked in third (D) or second (2,L)	When code No.0717 is generated fourth time
P0722		Open-circuited pulse generator B	Locked in third (D) or second (2,L)	When code No.0722 is generated fourth time
P0752		Open-circuited or shorted shift control solenoid valve A	Lock in third	When code No.0752 or 0753 is generated fourth time
P0753				
P0757		Open-circuited or shorted shift control solenoid valve B	Lock in third gear	When code No.0757 or 0758 is generated fourth time
P0758				
P0747		Open-circuited or shorted pressure control solenoid valve	Locked in third (D) or second (2,L)	When code No.0747 or 0748 is generated fourth time
P0748				

P0731		Gear shifting does not match the engine speed	Locked in third (D) or second (2,L)	When either code No.0731, 0732, 0733 or 0734 is generated fourth time
P0732				
P0733				
P0734				

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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DTC DESCRIPTION (CONTINUED)

CHECKING THE CONTROL SYSTEM (WHEN A SCAN-TOOL IS USED)

Diagnosis items	Check conditions	Normal value	Check items
Throttle position sensor (TP Sensor) • Service data	Accelerator pedal fully released	10-11%	• TP Sensor or circuit harness if nchange occurs • TP Sensor or accelerator pedal cable if gradual change is not noted
	Press accelerator pedal slowly	Varies with accelerator opening	
	Accelerator pedal pressed floor	95-100%	
Fluid temperature sensor • Service data	Cold engine (before starting)	Equivalent to outside air temperature	• Fluid temperature sensor or circuit harness
	While warming up engine	Gradual increase	
	After warming up engine	80-110°C	
Kickdown servo switch • Service data	L range: Idling	ON	• Kickdown servo maladjusted • Kickdown servo switch or circuit harness • Kickdown servo
	D range: first or third gear	ON	
	D range: second or fourth gear	OFF	
Engine speed • Service data	N range :Idling	650-900 rpm	• Ignition system • Ignition signal pick-up circuit harness
	N range: 2,500 rpm (tachometer reading)	2,400-2,600 rpm	
Closed throttle position • Service data	Accelerator pedal fully released	ON	• Closed throttle position switch or circuit harness
	Accelerator pedal pressed very slightly	OFF	
Air conditioning relay signals			• Air conditioning power relay

• Service data	D range: air conditioning idle up	ON	ON signal detection circuit harness
	D range: air conditioning idle OFF	OFF	
Shift position • Service data	D range :idling	CREEP	• TCM • Closed throttle position • Transaxle range switch system • TP Sensor system
	L range :idling	First	
	2 range: second gear	Second	
	D range: overdrive-OFF: third gear	Third	
	D range: overdrive-ON: fourth gear	Fourth	
Pulse generator A • Service data	D range: driving at 50 km/h (31 mph) in third gear	1,600-2,000 rpm	• Pulse generator A or circuit harness • Pulse generator A shielded wire • Incoming noise from outside
	D range: driving at 50 km/h (31 mph) in fourth gear	1,100-1,400 rpm	

CHECKING THE CONTROL SYSTEM (WHEN A SCAN-TOOL IS USED)

Diagnosis items	Check conditions	Normal value	Check items
Pulse generator B • Service data	D range: driving at 50 km/h (31 mph) in third gear	1,600-2,000 rpm	• Pulse generator B or circuit harness • Pulse generator B shielded wire • Incoming noise from outside
	D range: driving at 50 km/h (31 mph) in fourth gear	1,600-2,000 rpm	
Overdrive switch • Service data	Overdrive switch is turned ON	OD-ON	• Overdrive switch or circuit harness
	Overdrive switch is turned OFF	OD-OFF	
Shift pattern switch • Service data	Selection of the Power pattern (including during N pattern control when fluid temperature is low)	PWR	• Shift pattern switch or circuit harness
	Selection of the Normal pattern	ECON	
Transaxle range switch			• Transaxle range switch maladjusted • Transaxle range switch or circuit harness

• Service data	Shift selector lever to P range	P	Manual control cable • If selector lever is inoperative, check shift lock mechanism
	Shift selector lever to R range	R	
	Shift selector lever to N range	N	
	Shift selector lever to D range	D	
	Shift selector lever to 2 range	2	
	Shift selector lever to L range	L	
Vehicle speed sensor • Service data	Keep vehicle stopped	0 km/h	• Vehicle speed sensor if high speed signal is delivered while vehicle is stopping • In other cases, vehicle speed sensor or circuit harness
	Driving at 30 km/h (19 mph)	30 km/h (19 mph)	
	Driving at 50 km/h (31 mph)	50 km/h (31 mph)	
PCSV duty • Service data	D range :idling	80-90%	• When accelerator pedal is slightly pressed while idling in D range, duty should become 95-100% when vehicle is moving • TCM • TP Sensor system • Closed throttle position switch system
	D range: first gear	95-100 %	
	D range: during shift	Varies with condition	
DCCSV slip speed • Service data	D range: third gear 1,500 rpm (tachometer reading)	200-300 rpm	• Damper clutch • Ignition signal wire or pulse generator B system • Inappropriate transaxle fluid pressure • DCCSV
	D range: third gear 3,500 rpm (tachometer reading)	0 rpm	
DCCSV duty	D range: third gear 1,500 rpm		• TCM • TP Sensor system

• Service data	(tachometer reading)	0%	• Pulse generator B system
	D range: third gear 3,500 rpm (tachometer reading)	Varies with load	

INSPECTION OF ELECTRONIC CONTROL SYSTEM COMPONENTS

1. Wiring

Based on the wiring diagram, check whether the continuity and grounding of each harness is OK.

→ No continuity → Improper connection of connector, damaged or disconnected harness, or incorrect wiring conection.

→ Reconnect the connector; repair or replace the harness.

→ Continuity

→ Normal

2. Oil-temperature sensor

Sensor side connector terminal

1 : (-) side
2 : (+) side

Vary the thermo-sensitive part from low temperature to high temperature and check the resistance between the terminal (-) side and (+) side.

→ No continuity (resistance: ∞) → Damaged or disconnected wiring

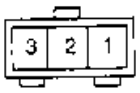
→ Replace the oil-temperature sensor.

→ Changes of the resistance continuous and smooth.

→ Normal

3. Throttle-position sensor (TPS)

Sensor side connector terminal



1: Ground
2: Output
3: Power supply

Check the resistance between terminals 2 and 3 of the TP Sensor.

→ Resistance : high or infinite → Damaged or disconnected wiring

→ Replace the TP Sensor.

→ 3.5-6.5 KΩ/20°C (68°F)

Operate the throttle valve slowly from the idle position to the full open position, and check that the resistance changes between terminals 2 and 3.

→ Changes of the resistance are not continuous. → Poor contact

→ Replace the TP Sensor.

→ Changes of the resistance continuous and smooth.

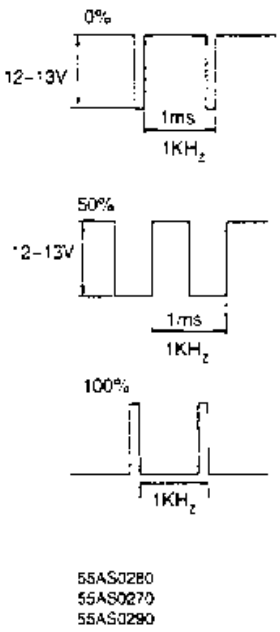
Connect scan tool to the data link connector, start the engine and press accelerator padal slowly and check the voltage.

→ Changes of the voltage are not continuous → Refer to the 3-1 as below

→ 0.25-4.87 V

→ Normal

3-1.Throttle position sensor (PWM signal)



Check for continuity between terminals 19 (TCM connector E 59-1) and 31 (ECM connector C-01)

- No continuity → Damaged or disconnected wiring → Repair the wiring
- Continuity exists → After disconnecting TCM, with selector lever at the N position, and start engine
  Connect oscilloscope to the 19 (TCM connector E59-1)
  - Changes are not occur → Malfunction of the ECM → Replace ECM
  - With the accelerator pedal depressed, Check the wave form changes → Duty ratio is changed → Replace TCM

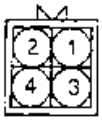
4. Pulse generator A or B

Check the resistance between terminals 1 and 2, 3 and 4.

Resistance: very low or very high → Short-circuit, or damaged or disconnected wiring → Replace the pulse generator.

215-275Ω/20°C (68°F) → Normal

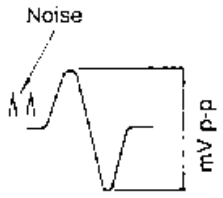
Pulse generator side connector termanl
1-2: pulse generator A
3-4: pulse generator B



5. Pulse generator A or B (check by using an oscillscope)

Connect the pulse generator and body harness, and connect an oscilloscope. Check on a chassis dynamoter or with the front wheels raised.

Oscilloscope wave form



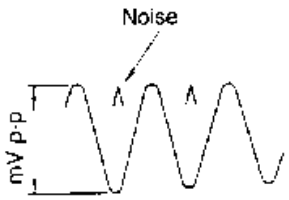
55AS0220

With the selector lever at the "L" position and the engine running at 1,000 rpm, check the voltage waveform between terminals 1 and 2.

Very low voltage → Incorrect installation of the pulse generator, or malfunction of the pulse generator. → Correct the installation condition, or replace the pulse generator.

Noise in the waveform → Improper grounding of the pulse generator circuit's shielded wiring. → Replace the pulse generator.

1,000 mVp-p or higher



55AS0250

With the selector lever at the "L" position and the engine running at 1,000 rpm, check the voltage waveform between terminals 3 and 4.

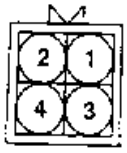
Very low voltage → Incorrect installation of the pulse generator, or malfunction of the pulse generator. → Correct the installation condition, or replace the pulse generator.

Noise in the waveform → Improper grounding of the pulse generator circuit's shielded wiring. → Replace the pulse generator.

500 mVp-p or higher → Normal

6. Pressure-control solenoid valve (PCSV)

Solenoid valve side connector terminal



55ASC180

1: DCCSV
2: PCSV
3: SCSV-B
4: SCSV-A

Check the resistance between terminal 2 of the solenoid valve connector and the transaxle case.

→ Resistance: too low or too high → Short-circuit, or damaged or disconnected wiring → Replace the PCSV

↓

2.9 ± 0.3 Ω/20°C (68°F)

↓

Connect 12V between the transaxle case and terminal 2; switch ON and OFF and check for operation noise.

→ No operation noise. (stroke: 0.3 mm (0.012 in.) or less) → Foreign materiall caught between the valve and guide → Replace the PCSV

↓

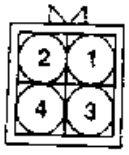
Noise exists.

↓

Normal

7. Shift-control solenoid valve (SCSV) A ro B

Solenoid valve side connector terminal



55ASD180

1: DCCSV
2: PCSV
3: SCSV-B
4: SCSV-A

Check the resistance between terminal 3 or 4 of the solenoid valve connector and transaxle case.
22.3 ± 1.5 Ω/20°C (68°F)

→ too low or too high
No operation → damaged or disconnected wiring → Replace the SCSV.

↓

Connect 12V between the transaxle

↓

case and terminal 3 or 4; switch ON and OFF and check for operation noise of the solenoid valve, and check the valve stroke.
Noise exists.

→ noise.(stroke: 0.25 mm (0.010 in. or less)
Short-circuit, o → Residue accumulated in valve and core. → Replace the SCSV.

↓

Normal

↓

Resistance:

8. Damper clutch system

- Pull the parking brake to set it securely.
- Set the selector lever to P" or N", and start the engine.
- With the engine idling, depress the foot brake firmly.
- Set the selector lever to the R" or D" range.
- Allow the engine to continue idling.
- Normal

Stop the engine

- Improper idle adjustment → Readjust the idling
- Poor closure (sticking) of the damper clutch control solenoid valve. → Replace the damper clutch control solenoid valve.
- Sticking of the clutch control valve → Overhaul the valve body
- Sticking (seizure) of the damper clutch. → Replace the torque converter assembly.

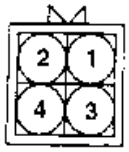
9. Damper clutch control solenoid valve (DCCSV)

Check the resistance between terminal 1 of the solenoid valve connector and the transaxle case.

Resistance; too low or too high → Short-circuit, damaged or disconnected wiring → Replace the DCCSV.

Standard value: 3 Ω/20°C

Solenoid valve side connector terminal



55AS0180

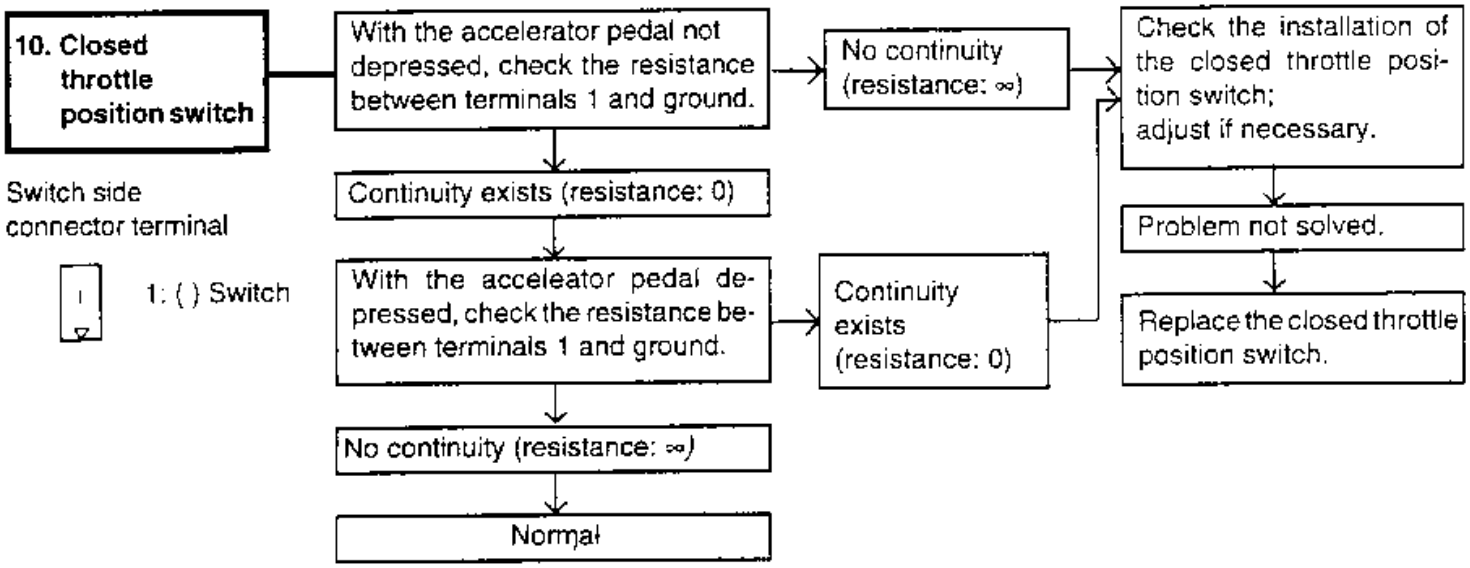
1: DCCSV
2: PCSV
3: SCSV-B
4: SCSV-A

Connect 12V between the transaxle case and terminal 1; switch ON and OFF and check for operation noise.

- Noise exists
- Normal

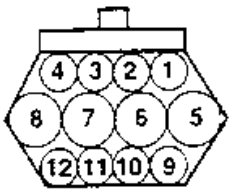
No operation noise. Check for sticking.* (Valve stroke: 0.3 mm (0.012 in. or less) → Foreign material caught between the valve and guide → Replace the DCCSV.

*Sticking is usually at the release side.


10. Closed throttle position switch
With the accelerator pedal not depressed, check the resistance between terminals 1 and ground.
No continuity (resistance: ∞)
Check the installation of the closed throttle position switch; adjust if necessary.
Problem not solved.
Replace the closed throttle position switch.
Continuity exists (resistance: 0)
With the acceleator pedal depressed, check the resistance between terminals 1 and ground.
Continuity exists (resistance: 0)
No continuity (resistance: ∞)
Normal
Switch side connector terminal
1: ( ) Switch

11. Transaxle range switch

Switch side connector terminal



V8AT31CG

In the "P" range, check for continuity between terminals 2 and 12, and terminals 5 and 6.

↓ Continuity exists

In the "R" range, check for continuity between terminals 2 and 11, and terminals 7 and 8.

↓ Continuity exists

In the "N" range, check for continuity between terminals 2 and 9, and terminals 5 and 6.

→ No continuity → Poor contact, damaged or disconnected wiring.

↓ Replace the transaxle range switch

↓ Continuity exists

In the "D" range, check for continuity between terminals 2 and 10.

↓ Continuity exists

In the "2" range, check for continuity between terminals 2 and 1.

↓ Continuity exists

In the "L" range, check for continuity between terminals 2 and 3.

↓ Continuity exists

↓ Normal

12. Kicdown (K/D) servo switch

Check for continuity between the kicdown servo switch terminal 1 and the transaxle case.

- No continuity → Poor contact, or damaged or disconnected wiring → Replace the K/D servo switch.
- Continuity →

Switch side connector terminal

V5AT010H

Start the engine, set to the "D" range, and let the engine idle, check for continuity between the kickdown servo switch terminal and the transaxle case.
NOTE: Be sure the brakes are applied during this check.

- Continuity exists → Poor contact (sticking) → Replace the K/D servo switch.
- No continuity →

Normal

13. Transaxle control module (TCM)

Disconnect the harness (both A and B connectors) from the vehicles TCM. Then connect, (via an intermediate harness for checking), a new TCM to this harness and make a road test.

- The problem does not occur → Malfunction of the original TCM → Install a new TCM.
- Consider the original TCM to be normal, and again check the sensors, wiring, etc.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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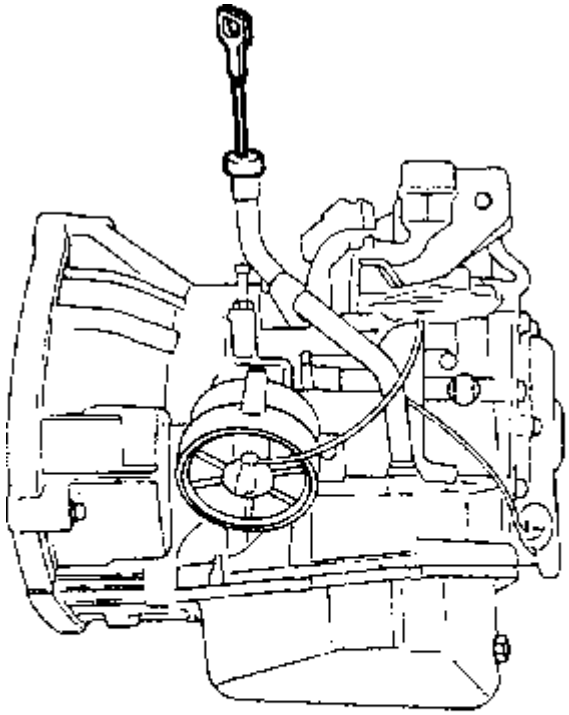
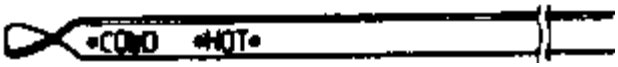
SERVICE ADJUSTMENT PROCEDURES

TRANSAXLE FLUID LEVEL INSPECTION





Drive the vehicle until the fluid temperature reaches normal operating the usual temperature [80-90°C (176-194°F)].

Place the vehicle on a level floor.

Move the selector lever sequentially to every position. This will fill the torque converter and hydraulic system with fluid, then place lever in "N" (Neutral) position.

Before removing the dipstick, wipe all contaminate from area around the dipstick. Then take out the dipstick and check the condition of the fluid.

The transaxle should be overhauled under the following conditions.

- If there is a "burning" odor.
- If the fluid color has become noticeably blacker.
- If there is a noticeably excessive amount of metal particles in the fluid.

Check to see if the fluid level is in the "HOT" range on dipstick. If fluid level is low, add automatic transaxle fluid until the level reaches the "HOT" range.

Transaxle fluid: GENUINE HYUNDAI ATF SP-II, DIAMOND ATF SP-II or AUTRAN MMSP-II.

Low fluid level can cause a variety of abnormal conditions because it allows the pump to take in air along with fluid. Air trapped in the hydraulic system forms bubbles which are compressable. Therefore, pressures will be erratic, causing delayed shifting, slipping clutch and brakes, etc.

Improper filling can also raise fluid level too high. When the transaxle has too much fluid, gears churn up foam and cause the same conditions which occur with low fluid level, resulting in accelerated deterioration of automatic transaxle fluid.

In either case, air bubbles can cause overheating, and fluid oxidation, which can interfere with normal valve, clutch, and servo operation. Foaming can also result in fluid escaping from the transaxle vent where it may be mistaken for a leak.

Be sure to examine the fluid on the dipstick closely.

TRANSAXLE FLUID REPLACEMENT

Refer to GROUP 10-Lubrication and Maintenance.

CONVERTER STALL TEST

Stall test consist of determining maximum engine speed obtained at full throttle in "D' and "R" positions. This test checks torque converter stator overrunning clutch operation, and holding ability of transaxle clutches and low-reverse brake.

> **WARNING**
>
> **During this test, make sure that no one stand in front of or behind vehicle.**

Check transaxle fluid level. Fluid should be at normal operating temperature [80-90°C (176-194°F)]. Engine coolant should also be at normal operating temperature [80-90°C (176-194°F]).

Apply chocks to both rear wheels.

Attach an engine tachometer.

Apply the parking and service brakes fully.

Start the engine.

With the selector lever in the "D" position, depress the accelerator pedal fully to read maximum engine rpm. Do not hold the throttle wide open any longer than is necessary to obtain maximum engine rpm reading, and never longer than 5 seconds at a time. If more than one stall test is required, operate the engine at approximately 1,000 rpm in neutral for 2 minutes to cool the transaxle fluid between tests.

Stall speed: 2,300-2,700 rpm

Place the selector lever in the "R" position and perform the stall test by the same procedure as previously described.

Stall Speed Above Specification in "D"
If stall speed is higher than specification, rear clutch or overrunning clutch of transaxle is slipping. In this case, perform hydraulic test to locate cause of slippage.

Stall Speed Above Specification in "R"
If the stall speed is higher than specification, the front clutch of the transaxle or low-reverse brake is slipping. In this case, perform the hydraulic test to locate the cause of slippage.

Stall Speed Below Specification in "D" and "R"
If the stall speed is lower than specification, insufficient engine output or a faulty torque converter is suspected. Check for engine misfiring, improper ignition timing, or valve clearance etc. If these are good, the torque converter is faulty

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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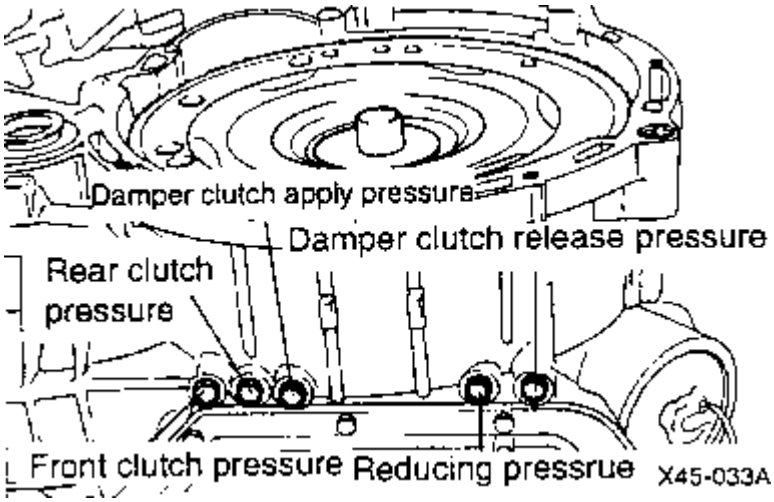
OIL PRESSURE TESTS

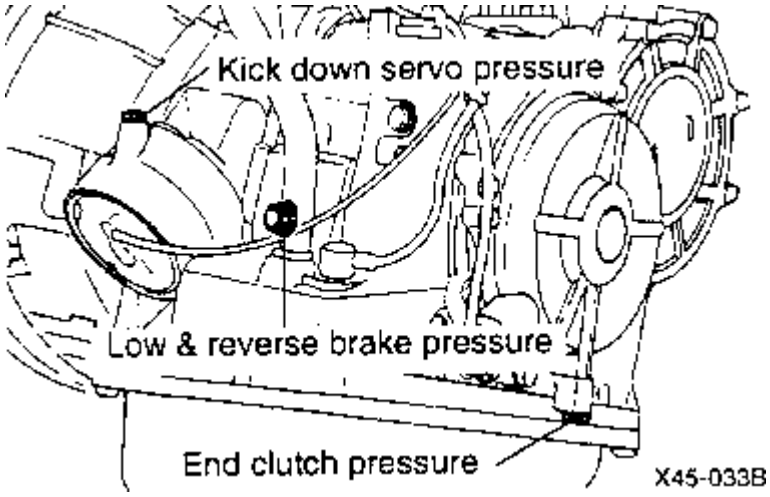
Completely warm up the transaxle.

Raise the front of the vehicle so that the front wheels can be rotated.

Connect an engine tachometer and place it in a position where it's easy to see.



Attach the special oil-pressure gauge (09452-21500) and the adapter (09452-21002) to each oil-pressure outlet port. When the reverse pressure is to be tested, the 3,000 kPa (400 psi) type of gauge should be used.



Measure the oil pressure under various conditions. Check to be sure that the measured results are within the standard value range shown in the "Standard oil pressure table" below.

If the oil pressure is not within the specified range, check and repair as described in the section "Preliminary Steps If Oil Pressure Is Not Normal" on the next page.

Standard Oil Pressure Table

No.	Conditions				Standard oil pressure KPa (psi)							
	Selector lever position	(Reference) vehicle speed km/h (mph)	Engine speed rpm	Shift position	1 Reducing pressure	2 Kickdown servo pressure	3 Front clutch pressure	4 End clutch pressure	5 Low-reverse brake pressure	6 Damper clutch release pressure	7 Damper clutch apply pressure	8 Rear clutch pressure
1	N	0(0)	Idling	Neutral	380-460 (55-67)	–	–		–	*	*	–
2	D	0(0)	Approx.	2nd gear	380-460 (55-67)	90-295 (13-43)	–	–	–	*	*	*
3	D (SW-ON)	110 (68)	2,500 Approx.	4th gear	380-460 (55-67)	840-900 (122-131)	*	840-900 (122-131)	–	490-785 (71-114)	–	840-900 (122-131)
4	D (SW-OFF)	75 (47)	2,500 Approx.	3rd gear	380-460 (55-67)	840-900 (122-131)	820-900 (119-131)	840-900 (122-131)	–	490-785 (71-114)	–	840-900 (122-131)
5	2	50 (31)	2,500 Approx.	2nd gear	380-460 (55-67)	840-900 (122-131)	–	–	–	490-785 (71-114)	–	840-900 (122-131)
6	L	0 (0)	1,000 Approx.	1st gear	380-460 (55-67)	–	–	–	500-630 (73-91)	*	410-500 (59-73)	840-900 (122-131)
7	R	35 (22)	2,500 Approx.	Reverse	380-460 (55-67)	–	1750-2050 (254-297)	-	1750-2050 (254-297)	270-340 (39-49)	420-500 (61-73)	–
		0 (0)	1,000						450 (65) or more	*	*	

NOTE

- must be 19.6 kpa (2.8 psi) or less.
SW-ON: Switch ON the overdrive control switch.
SW-OFF: Switch OFF the overdrive control switch.
*** : Hydraulic pressure is generated, but not the standard value.**

PRELIMINARY STEPS IF OIL PRESSURE IS NOT NORMAL

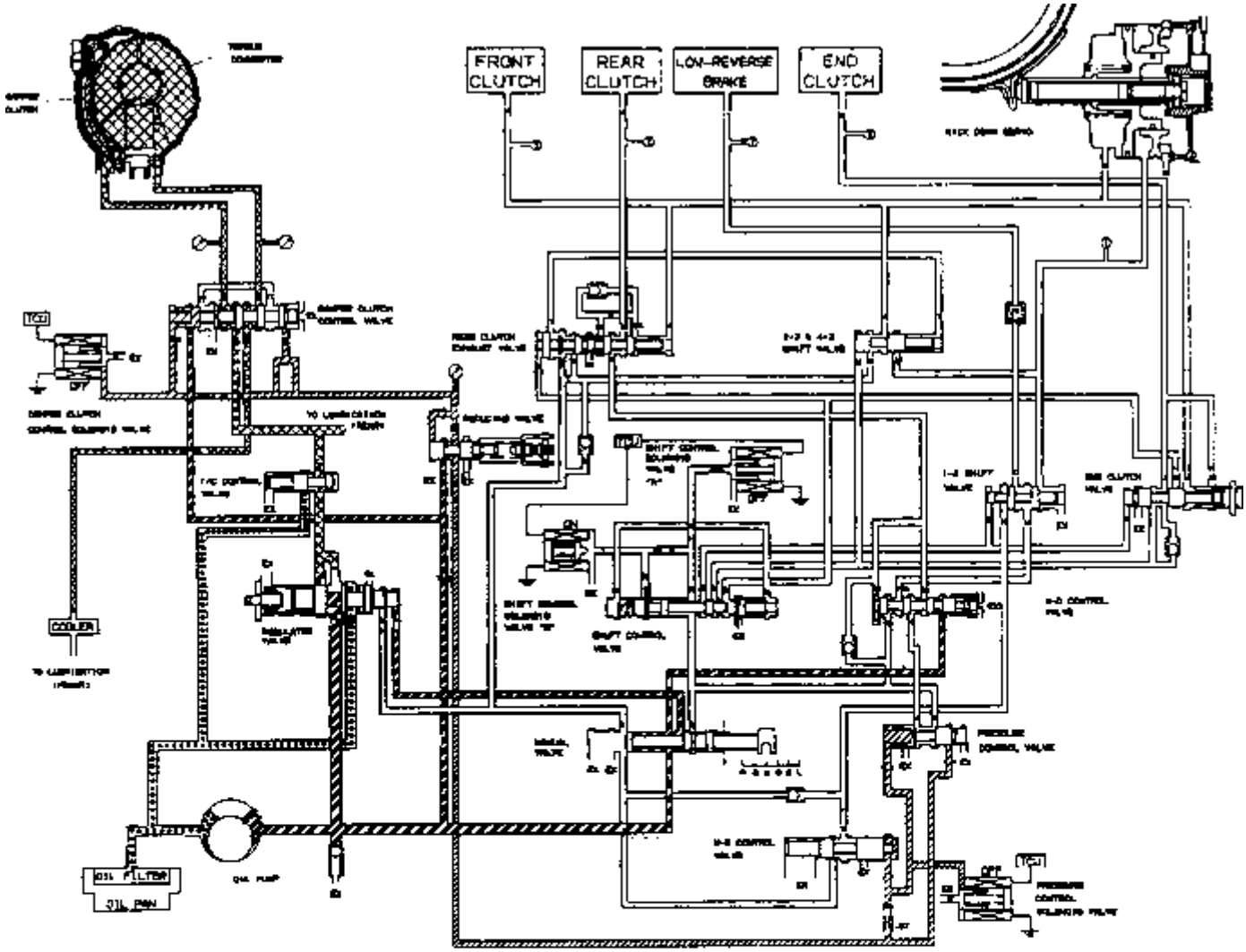
Trouble symptom	Probable cause	Remedy
*Line pressures are all low (or high). **NOTE** ***"Line pressures" refers to oil pressures 2,3,4,5,6,7and 8 in the "Standard oil pressure table" on the previous page.**	Clogging on oil filter	Visually inspect the oil filter; replace the oil filter if it is restricted.
	Improper adjustment of oil pressure (line pressure) regulator valve	Measure line pressure 2 (kickdown brake pressure); if the pressure is not the standard value, readjust the line pressure, or if necessary, replace the valve body assembly.
	Sticking of regulator valve	Check the operation of the regulator valve; repair if necessary, or replace the valve body assembly.

	Looseness of valve body tightening part	Tighten the valve body tightening bolt and installation bolt.
	Improper oil pump discharge pressure	Check the side clearance of the oil pump gear; replace the oil pump assembly if necessary.
Improper reducing pressure	Improper line pressure	Check the 2 kickdown brake pressure (line pressure); if the line pressure is not the standard value, check as described in item 1 above.
	Clogging of the filter (L shaped type) of the reducing pressure circuit	Disassemble the valve body assembly and check the filter; replace the filter if it is restricted.
	Improper adjustment of the reducing pressure	Measure the 1 reducing pressure; if it is not the standard value, readjust, or replace the valve body assembly.
	Sticking of the reducing valve	Check the operation of the reducing valve; if necessary, repair it, or replace the valve body assembly.
	Looseness of valve body tightening part	Tighten the valve body tightening bolt and installation bolt.
Improper kickdown servo pressure	Malfunction of the D-ring or seal ring of the sleeve or kickdown servo piston.	Disassemble the kickdown servo and check whether the seal ring or D-ring is damaged. If it is cut or has scratches, replace the seal ring or D-ring.
	Looseness of valve body tightening part	Tighten the valve body tightening bolt and installation bolt.
	Functional malfunction of the valve body assembly.	Replace the valve body assembly.

Trouble symptom	**Probable cause**	**Remedy**
Improper front clutch pressure	Malfunction of the D-ring or seal ring of the sleeve or kickdown servo piston.	Disassemble the kickdown servo and check whether the seal ring or D-ring is damaged.
	Looseness of valve body tightening part.	If it is cut or has scratches, replace the seal ring or D-ring.
	Malfunction of the valve body assembly.	Tighten the valve body tightening bolt and installation bolt.
	Wear of the front dutch piston or retainer, or malfunction of the D-ring. (Refer to the figure on the next page.)	Replace the valve body assembly.
	Oil pump gasket or seal ring (2) damaged.	Disassemble the transaxle itself and check whether or not there is wear of the front clutch piston and retainer inner circumference, or damage of the D-ring. If there is any wear or damage, replace the piston, retainer, D-ring and/ or seal ring.

Improper end clutch pressure	Malfunction of a D-ring, seal ring of the end clutch or O-ring of the pipe (Refer to the following figure.)	Disassemble the end clutch and check the seal ring, D-ring of the piston, seal ring of the retainer, etc.; replace if there are cuts, soars, scratches or damage.
	Looseness of valve body tightening part.	Tighten the valve body tightening bolt and installation bolt.
	Malfunction of the valve body assembly	Replace the valve body assembly.
Improper low-reverse brake pressure	O-ring between valve body and transaxle damaged or missing	Remove the valve body assembly and check to be sure that the O-ring at the upper surface of the upper valve body is not missing or damaged; install or replace the O-ring if necessary.
	Looseness of valve body tightening part	Tighten the valve body tightening bolt and installation bolt.
	Malfunction of the valve body assembly	Replace the valve body assembly.
	Malfunction of the O-ring of the low-reverse brake piston or the O-ring of the retainer (Refer to the following figure.)	Disassemble the transaxle itself and check the O-ring for damage; replace if there are cuts, scars, scratches or damage.
Improper damper clutch release pressure	Sticking of the damper clutch control solenoid valve (DCCSV) or the damper clutch control valve.	Check the operation of the damper clutch system and the DCCSV.
	Clogging or leaking of the oil cooler and/or lines.	Repair or replace, as necessary, the cooler and/or lines.
	Damaged seal ring of the input shaft (Refer to the following the figure)	Disassemble the transaxle itself and check for damage of the seal ring; replace the seal ring if there is damage.
	Malfunction of the torque converter	Replace the torque converter.
Improper rear clutch pressure	Malfunction of the D-ring or seal ring of the rear clutch.	Disassemble the end clutch and check the seal ring, D-ring of the piston, seal ring of the retainer, etc.; replace if there are cut, scars, scratches or damage.
	Looseness of valve body tightening part.	Tighten the valve body tightening bolt and installation bolt.
	Functional malfunction of the valve body assembly.	Replace the valve body assembly.
Improper damper clutch apply pressure	Same as the probable cause of damper clutch release pressure	Same as the remedy of damper clutch release pressure

NEUTRAL



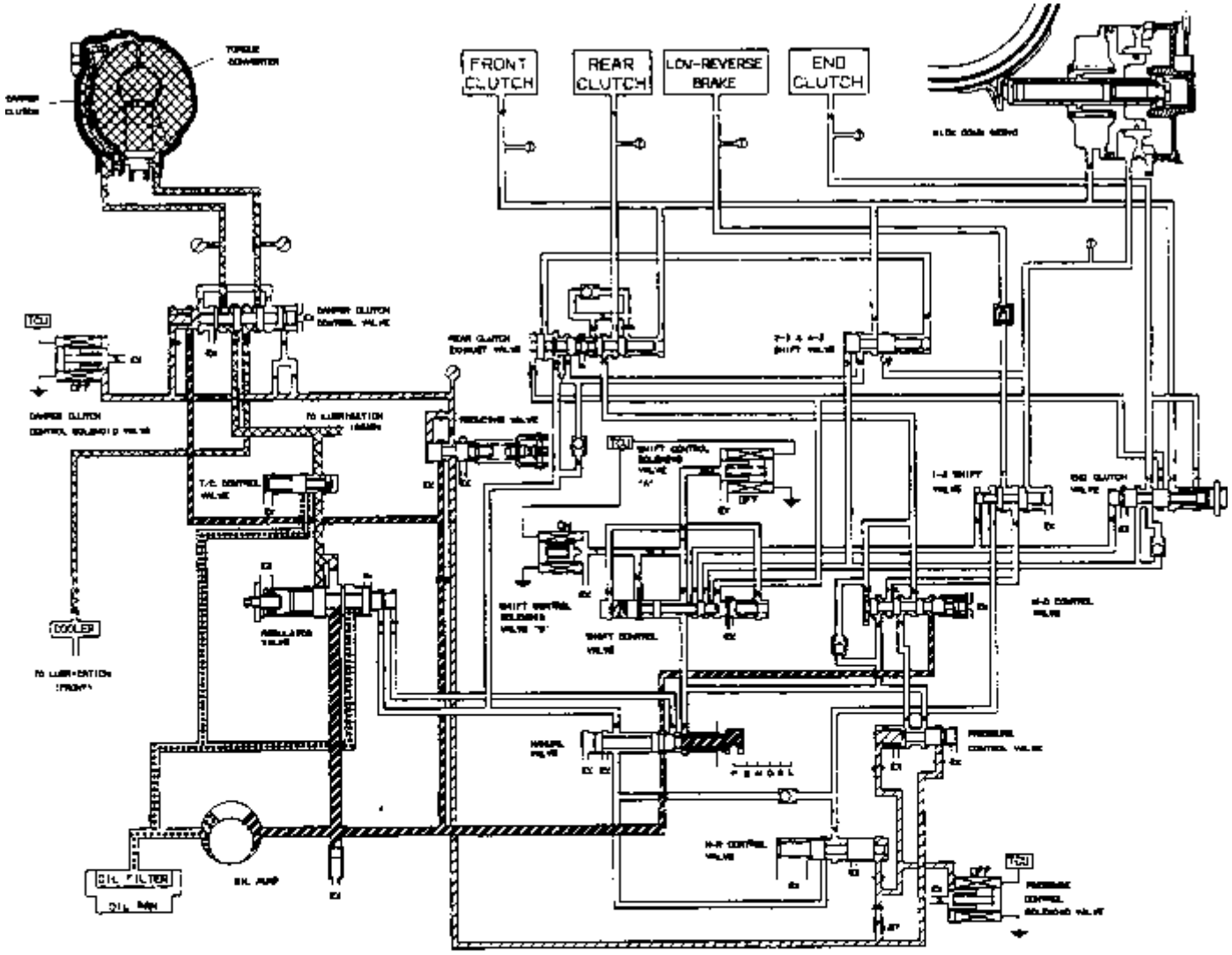
LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

REDUCING PRESSURE

PUMP SUCTION PRESSURE

PARKING



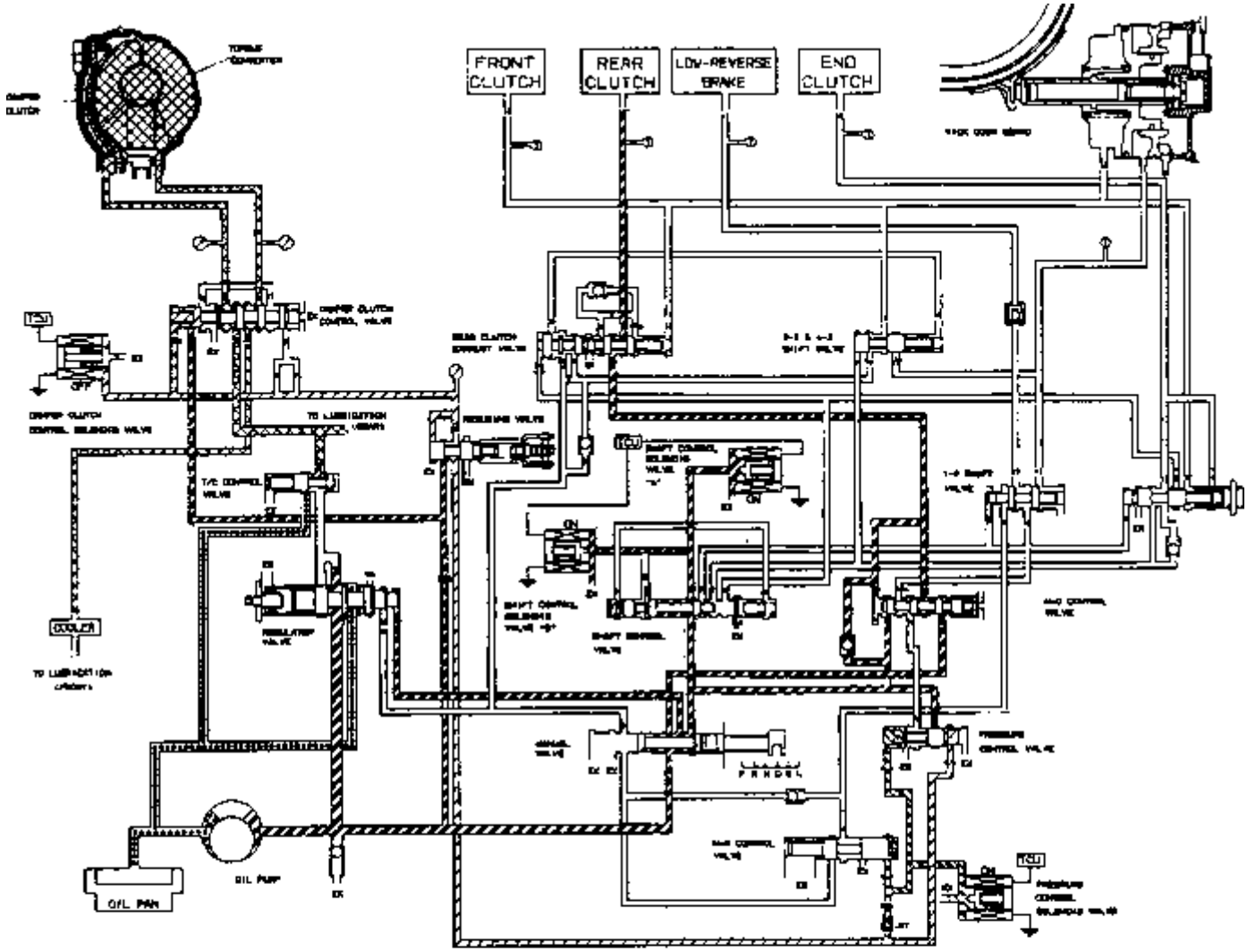
LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

REDUCING PRESSURE

PUMP SUCTION PRESSURE

DRIVE (FIRST)



LINE PRESSURE

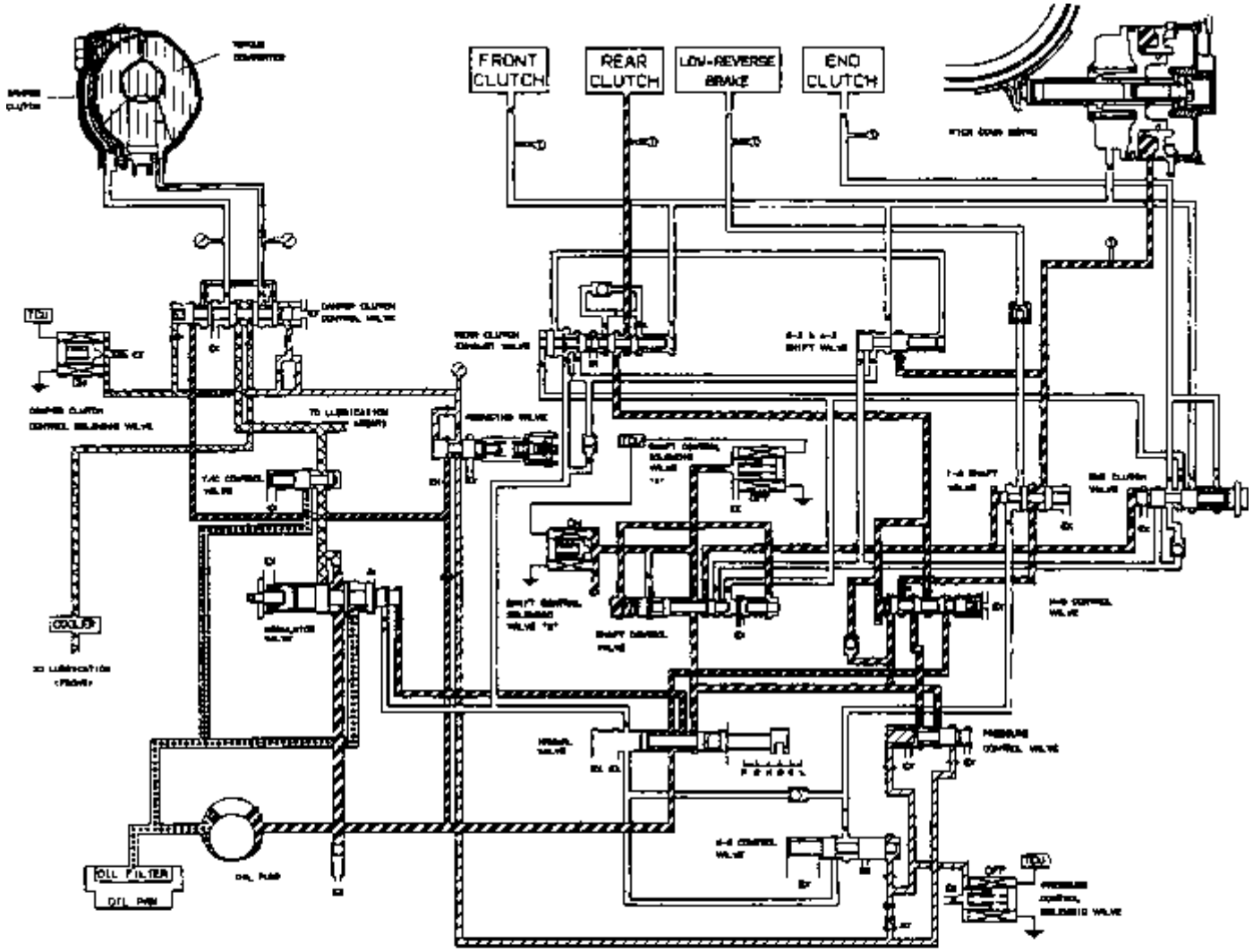
TORQUE CONVERTER AND LUBRICATION PRESSURE

REDUCING PRESSURE

PUMP SUCTION PRESSURE

CONTROL PRESSURE

DRIVE (SECOND)



LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

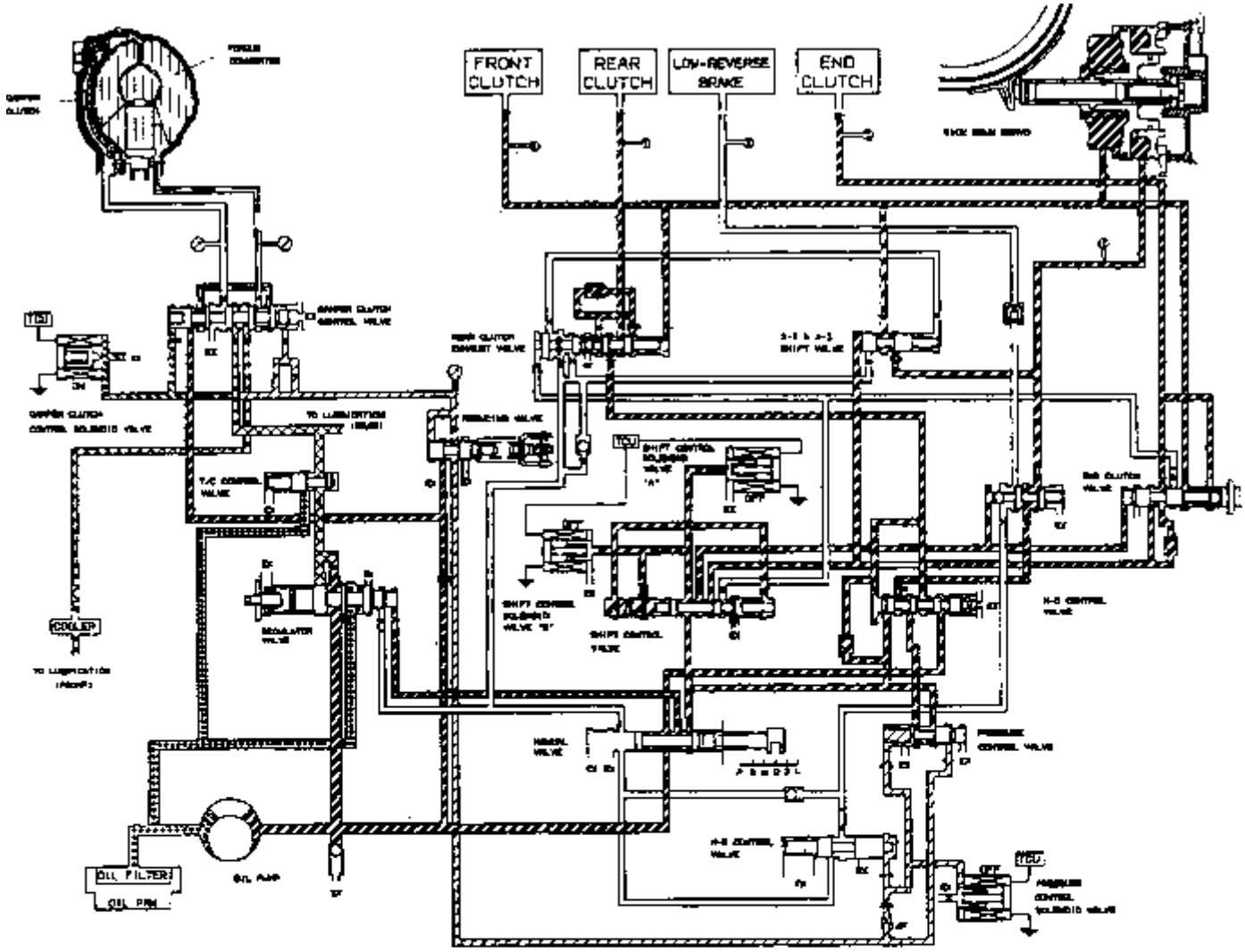
REDUCING PRESSURE

PUMP SUCTION PRESSURE

DAMPER CLUTCH PRESSURE

DAMPER CLUTCH CONTROL SOLENOID VALVE PRESSURE

DRIVE (THIRD)



LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

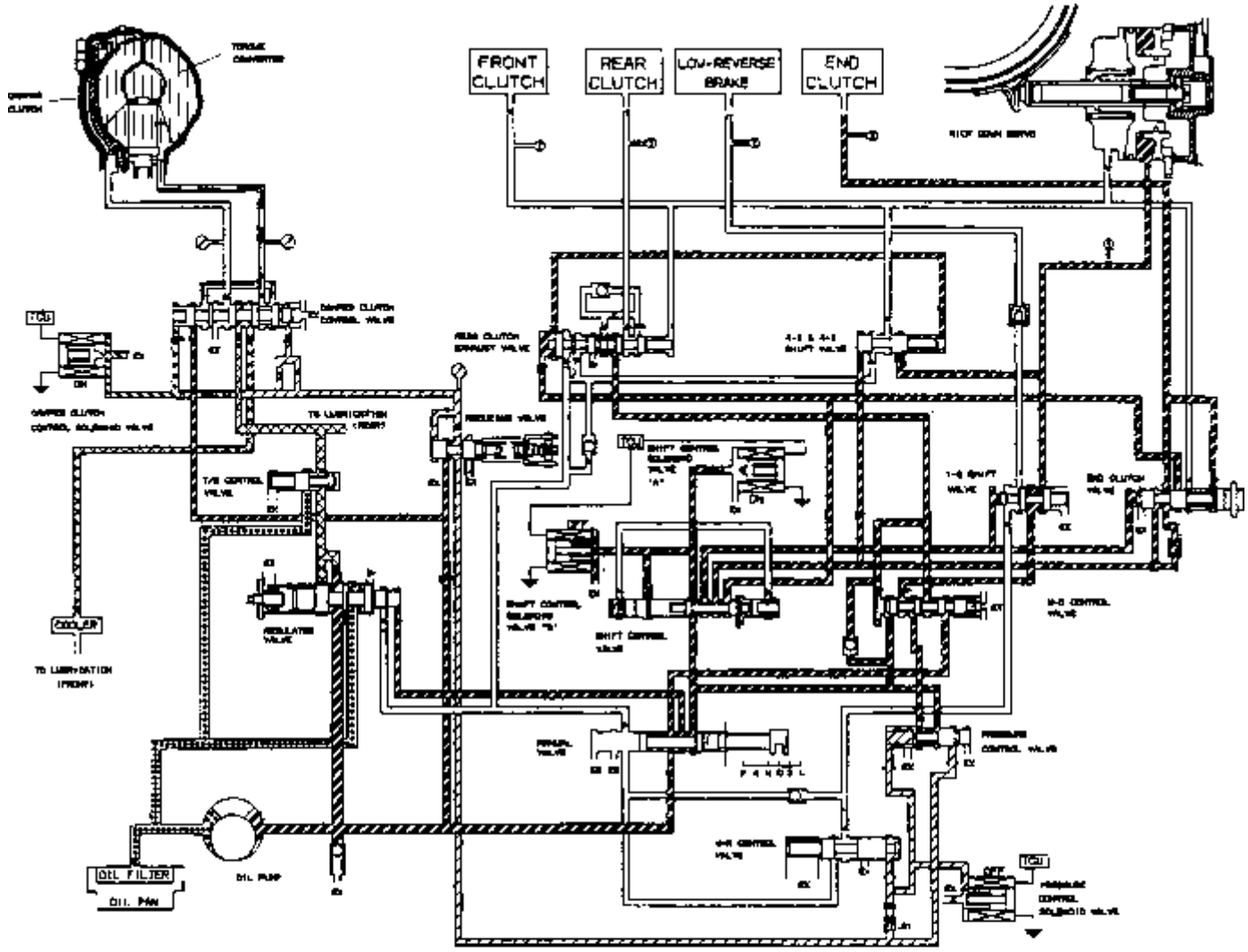
REDUCING PRESSURE

PUMP SUCTION PRESSURE

DAMPER CLUTCH PRESSURE

DAMPER CLUTCH CONTROL SOLENOID VALVE PRESSURE

DRIVE (FOURTH)



LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

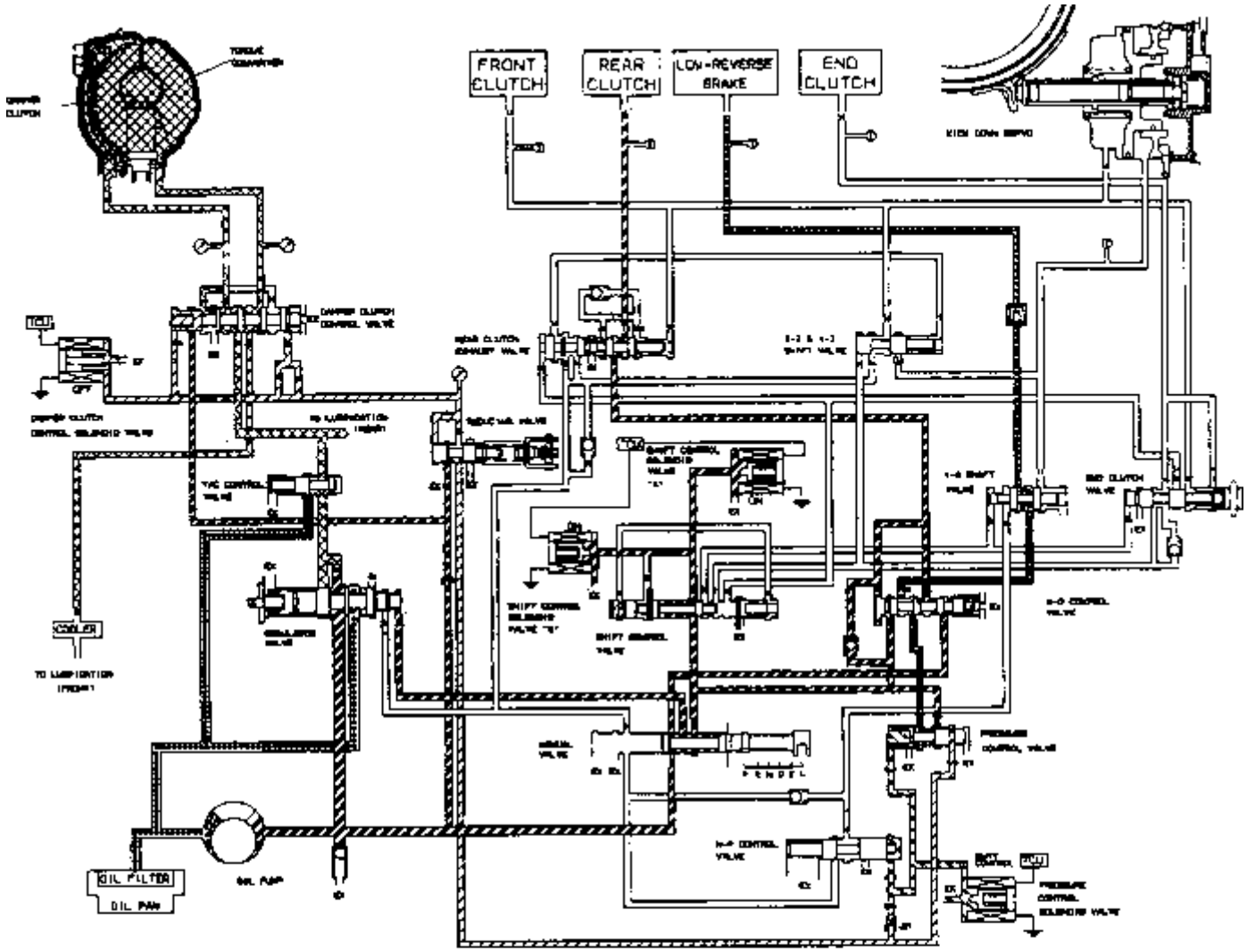
REDUCING PRESSURE

PUMP SUCTION PRESSURE

DAMPER CLUTCH PRESSURE

DAMPER CLUTCH CONTROL SOLENOID VALVE PRESSURE

LOCK UP



LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

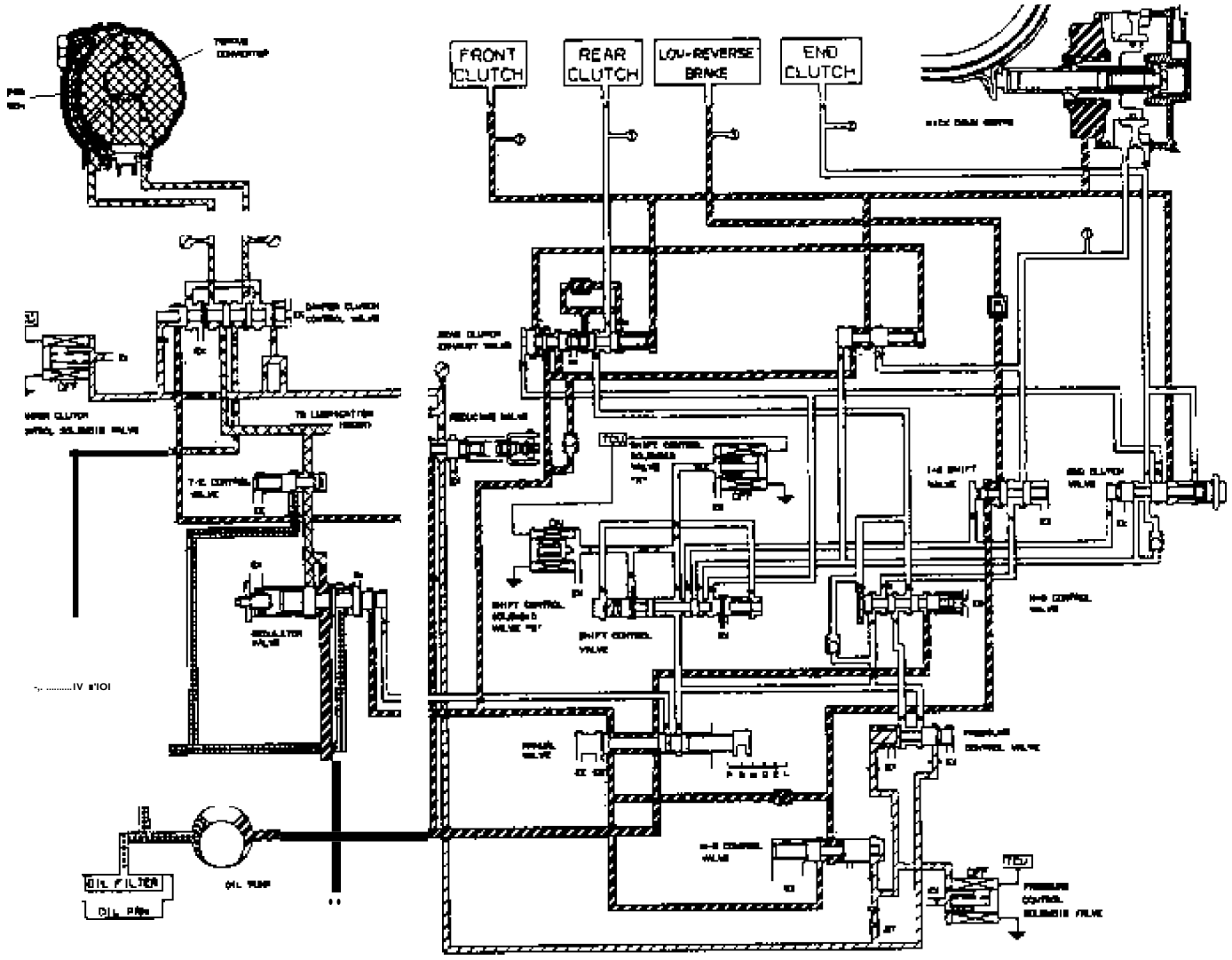
REDUCING PRESSURE

PUMP SUCTION PRESSURE

LINE PRESSURE "L" RANGE

CONTROL PRESSURE

REVERSE



LINE PRESSURE

TORQUE CONVERTER AND LUBRICATION PRESSURE

REDUCING PRESSURE

[:3 PUMP SUCTION PRESSURE

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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SPECIFICATIONS

Type: Automatic four speed with torque converter and internal differentiaI-A4BF1

Torque converter	1.8L/2.0L
Type	With damper clutch
Engine stall speed	2,500 ± 200 rpm
Stall torque ratio	1.9 - 2.0

Transaxle

	1.8L	2.0L
Type	Electronically controlled 4-speed full-automatic	
Gear ratio		
First	2.846	2.551
Second	1.581	1.488
Third	1.000	1.000
Fourth	0.685	0.685
Reverse	2.176	2.176
Final gear ratio	3.977	4.345

Speedometer gear teeth: Drive 36/Driven 31

ELEMENT IN USE AT EACH POSITION OF SELECTOR LEVER

Select lever position	Overdrive control switch	Shifting gear	Engine start	Parking Mecha-nism	Clutch				Brake	
					Front	Rear	End	One way	Kick drum	Low & reverse
Parking	-	Neutral	Possible	O						
Reverse	-	Reverse	-		O					O
Neutral	-	Neutral	Possible							
Drive	ON	1st				O		O		
		2nd				O			O	
		3rd			O	O	O			
		O.D.					O		O	
Drive	OFF	1st				O		O		
		2nd				O			O	
		3rd			O	O	O			
2	-	1st				O		O		
		2nd				O			O	
Low	-	1st				O				O

SERVICE MANUAL	
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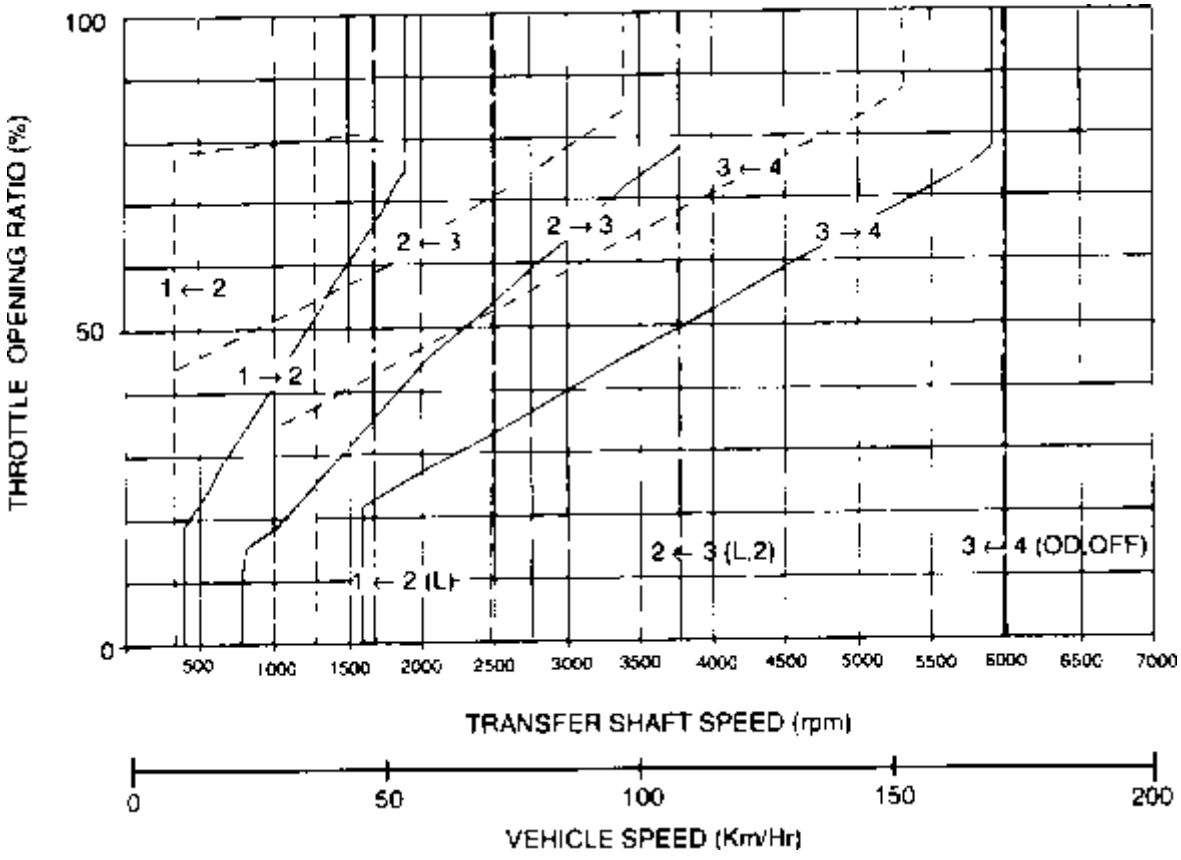
SHIFT PATTERNS

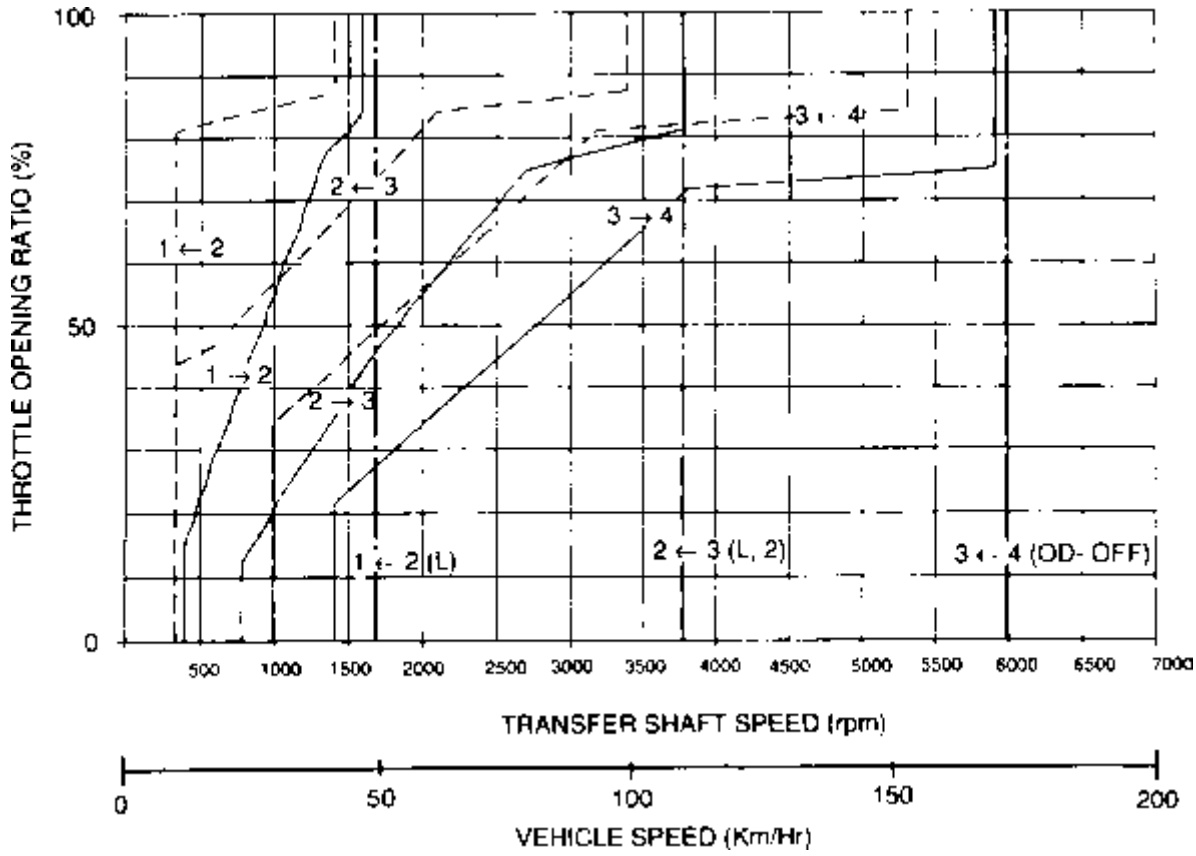
- Two shift patterns are pre-stored in the control module of this transaxle.
- One is the Power pattern (for more powerful performance), and the other is the Normal pattern (for improved fuel consumption and quieter operation).
- The driver can select and switch to the desired pattern by using the Power/Normal select switch on the center console.
- The solid lines shown in these shift patterns indicate up-shifts; the broken lines indicate down-shifts.
- The reason why there is a difference between the shift points for up-shifts and down-shifts is so that up-shifts and down-shifts will not occur frequently when driving at a speed near the shift point.
- When the vehicle is stopped, there is a shift to second gear in order to obtain a suitable "creeping." Then, when the accelerator pedal is depressed, the vehicle starts in first gear.

SHIFT PATTERN [FOR 1.8L DOHC]

POWER RANGE

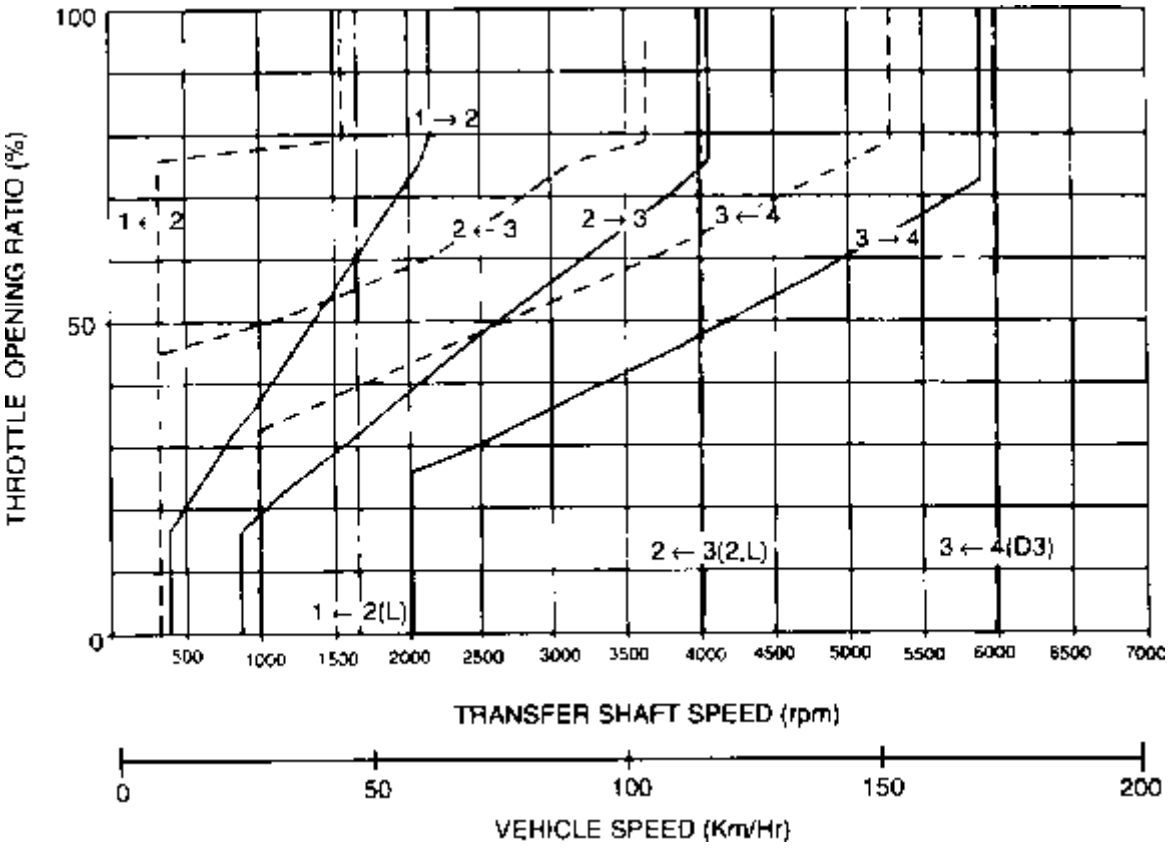


NORMAL RANGE

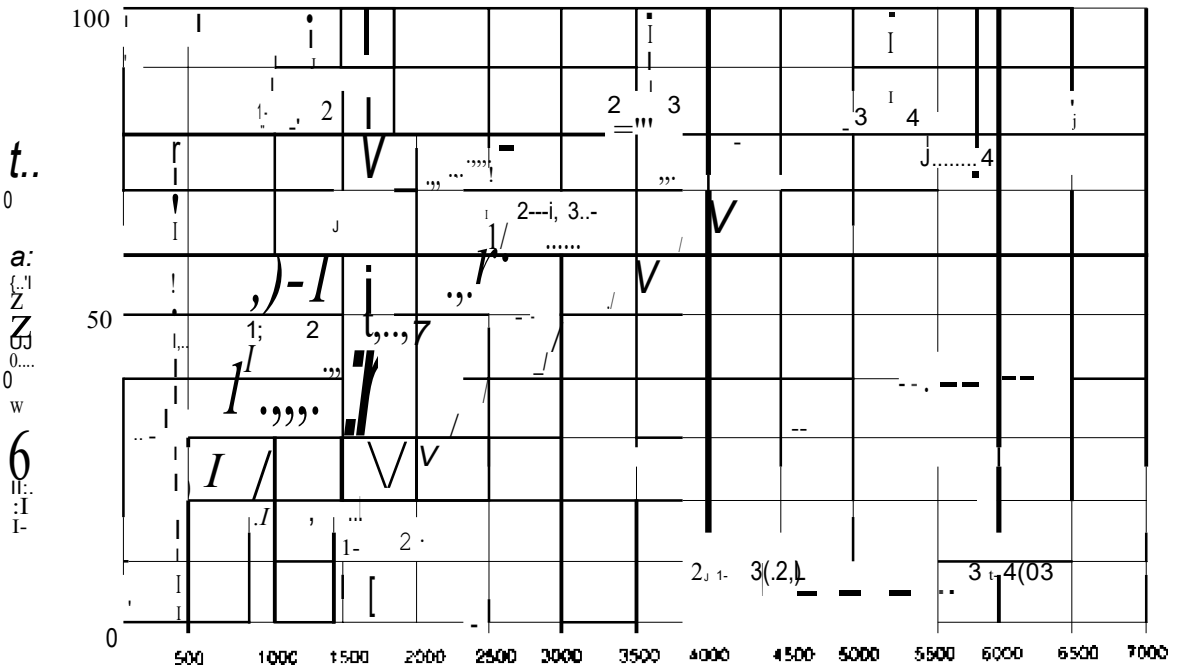


SHIFT PATTERN [FOR 2.0L DOHC]

POWER RANGE



NORMAL RANGE



TRANSFER SHAFr SPEED (rpm)

0 SD 100 150 200

VEHICLE SPE.EO (Km.lf-tr)

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TIGHTENING TORQUE

No.	Tightening parts	Type	Size	Torque kg.m	Torque lb.ft
1	Drive plate to crank shaft	Bolt	M12-11T	13.0-14.0	93-100
2	Drive plate to torque converter	Bolt	M10-8T	4.6-5.3	33-38
3	Transmission to engine	Flange bolt	M10-7T	4.6-5.3	33-38
		Flange bolt	M12-7T	6.0-8.0	43-57
		Bolt	M8-10T	3.0-3.5	22-25
4	Clamp to case	Bolt	M8-4T	0.8-1.0	6-7
5	Cover to bell housing	Bolt	M6-7T	0.8-1.0	6-7
6	Rear plate	Bolt	M6-7T	0.8-1.0	6-7
7	Drain	Plug			
8	Pressure check	Plug	M8-4T	0.8-1.0	6-7
9	Bearing retainer to rear cover	Machine Screw	M8-7T	1.7-2.2	12-16
10	Oil cooler	Connector	M12-4T	1.5-2.2	11-16
11	Differential bearing cap to cap to case	Bolt	M12-7T	6-8	43-57
12	Rear cover to case	Bolt	M8-7T	1.9-2.3	14-16
13	Differential cover to case	Bolt	M8-7T	2.0-2.7	14-19
			M10-7T	4.35.5	31-39
14	End clutch cover to rear cover	Flange bolt	M6-7T	0.6-0.8	4-6
15	Differential bearing retainer to case	Flange bolt	M8-7T	2.0-2.5	14-18
16	Adjust screw	Nut	M10-4T	1.5-2.2	11-16
17	Oil pan to case	Bolt	M6-7T	1.0-1.2	7-9
18	Lock plate to one way clutch outer race	Bolt	M8-11T	3.5-4.5	25-32
19	Differential drive gear	Bolt	M12-11T	13-14	93-100
20	T/M mounting bracket to case	Bolt	M12-7T	6.0-8.0	43-57
21	Pulse generator to case	Flange bolt	M6-7T	1.0-1.2	7-9

22	Manual control lever	Nut	M10-4T	1.7-2.1	12-15
23	Manual control shaft	Set screw	M8-4T	0.8-1.0	6-7
24	Inhibitor switch	Flange bolt	M6-7T	1.0-1.2	7-9
25	Sprag rod support to case	Flange bolt	M8-7T	2.0-2.7	14-19
26	Reaction shaft support assembly to oil pump housing assembly	Flange bolt	M6-7T	1.0-1.2	7-9
27	Oil pump housing assembly to case	Flange bolt	M8-7T	1.9-2.3	14-17
28	End cover to valve body	Flange bolt	M5-7T	0.4-0.6	3-4
29	Valve body to intermediate plate	Flange bolt	M5-7T	0.4-0.6	3-4
30	Solenoid & stopper & block & clamp to intermediate plate	M5-7T	0.4-0.6	3-4	
31	Intermediate plate to case	Flange bolt	M6-7T	1.0-1.2	7-9
32	Jet to lower separating plate	Nut	M5-4T	0.15-0.25	1-2
33	lower valve body to oil filter	Flange bolt	M6-7T	0.5-0.7	4-5
34	Speedometer driven gear sleeve assembly to case	Flange bolt	M6-4T	0.3-0.5	2-4
35	Transfer shaft to transfer driven gear	Nut	M24-7T	20.0-23.0	143-165
36	Shift cable bracket assembly to case	Bolt	M8-7T	1.9-2.3	14-17

SERVICE MANUAL	
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GROUP	
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SERVICE SPECIFICATIONS

Item	Standard 1.8L	Standard 2.0L
Input shaft end play	0.3-1.0 (0.012-0.039 in.)	0.3-1.0 (0.012-0.039 in.
Transfer shaft end play (without pre-load)	0.01 - 0.06 (0.0004-0.0024 in.)	0.01 - 0.06 (0.0004-0.0024 in.)
Oil pump gear side clearance	0.02-0.048 (0.0008-0.0019 in.)	0.02-0.048 (0.0008-0.0019 in.)
Front clutch snap ring clearance	0.7-0.9 (0.028-0.035 in.)	0.7-0.9 (0.028-0.035 in.)
Rear clutch snap ring clearance	0.4-0.6 (0.016 - 0.024 in.)	0.4-0.6 (0.016 - 0.024 in.)
End clutch snap ring clearance	0.4 - 0.65 (0.016 - 0.026 in.)	0.6-0.85 (0.024-0.034 in.)
Low reverse brake end play	0.975 - 1.287 (0.038-0.051 in.)	0.975 - 1.287 (0.038-0.051 in.)
Differential case end play	0 - 0.15 (0-0.006 in.)	0 - 0.15 (0-0.006 in.)
Differential side gear and pinion backlash	0.025 - 0.15 (0.001-0.0059 in.)	0.025 - 0.15 (0.001-0.0059 in.)
Transfer drive gear end play	0 - 0.06 (0-0.0024 in.)	0 - 0.06 (0-0.0024 in.)

SERVICE MANUAL	
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LUBRICANTS

Items	Specified lubricant	Quantity
Transaxle fluid lit. (U.S. qts., Imp.qts.)	GENUINE HYUNDAI ATF SP-II, DIAMOND ATFSP-II OR AUTRAN MMSP-II.	6.6 (6.9, 5.8)
Drive shaft oil seal lip	Automatic transaxle fluid	As required
Sliding part of bushing	Chassis grease SAE J310, NLGI No.0	As required
Selector lever sliding portion	Multipurpose grease SAE J310, NLGI No.2	As required

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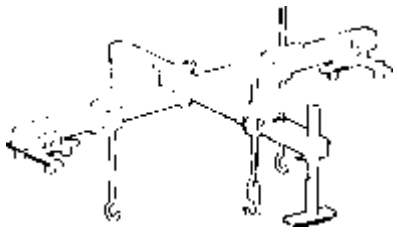
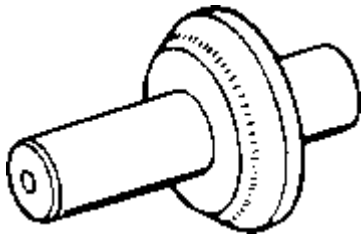
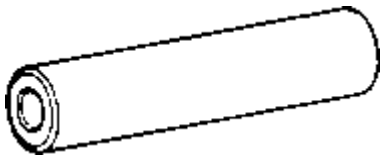
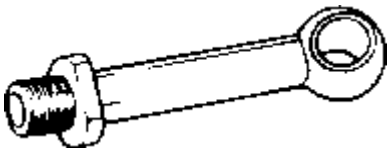
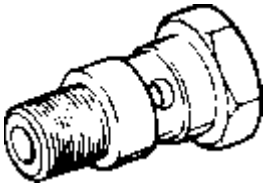
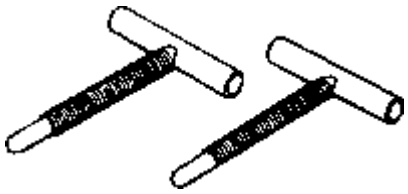
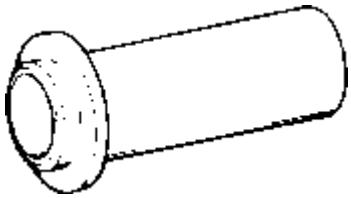
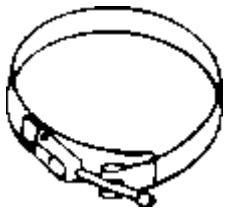
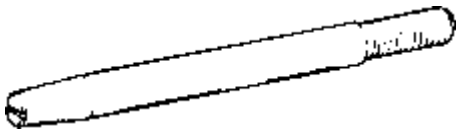
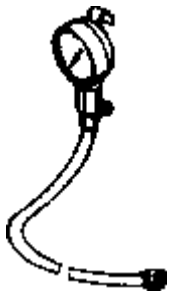
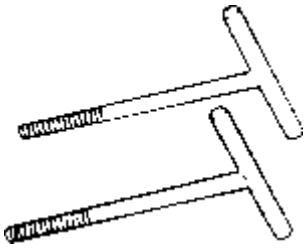
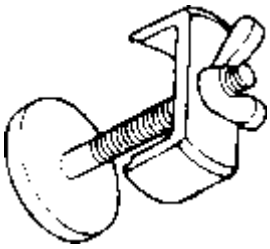
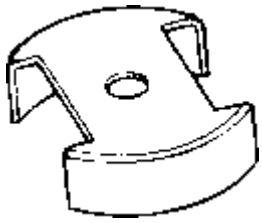
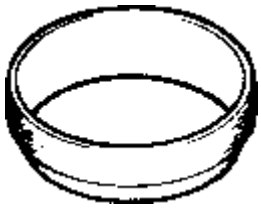
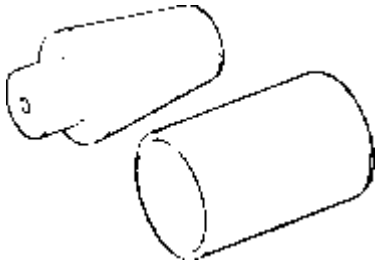
SPECIAL TOOLS

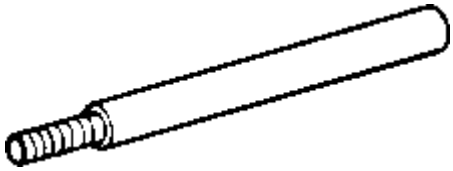
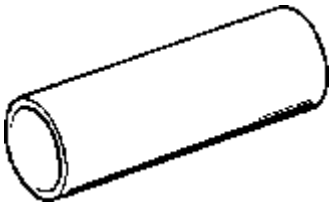
Tool (Number and name)	Illustration	Use
09400-29000 (J28467-B) Engine support fixture		Removal and installation of transaxle assembly
09431-21200 Oil seal installer		Installation of differential oil seal
09432-33800 Bearing installer		Installation of transaxle shaft bearing and transfer shaft drive gear
09433-21000 Removing plate		1. Removing of transfer driven gear taper bearing 2. Removal of differential gear ball bearing
09452-21001 Oil pressure gauge adapter		Measurement of the oil pressure (use with 09452-21500, 09452-21001)
09452-21002 Oil pressure gauge adapter		Measurement of the oil pressure (use with 09452-21500, 09452-21001)

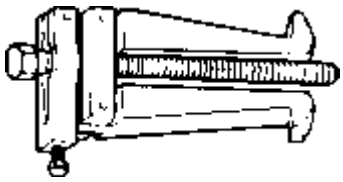
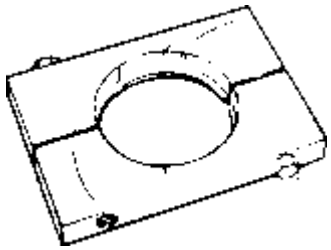
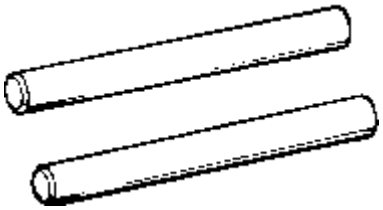
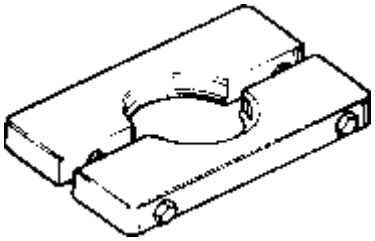
09452-21100 Oil pump remover		Removal of the oil pump

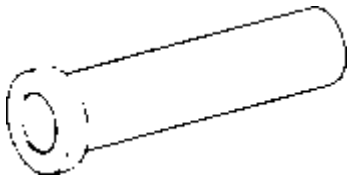
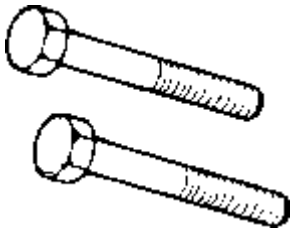
Tool (Number and name)	Illustration	Use
09452-21200 Oil pump oil seal installer		Installation of pump oil seal
09452-21301 Oil pump band		Assembling the oil pump
09452-21401 Guide pin		Installation of the oil pump
09452-21500 Transmission pressure gauge		Measurement of the oil pressure (use with 09452-21001, 09452-21002)
09452-22000 Differential bearing retainer remove		Removal of the differential bearing retainer
09453-21000 Spring compressor		1. Installation of snap ring and front clutch (use with 09453-21100) 2. Removal and installation of rear clutch (use with

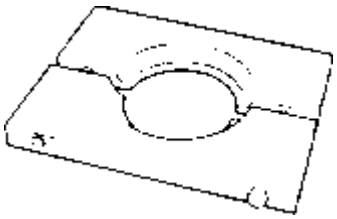
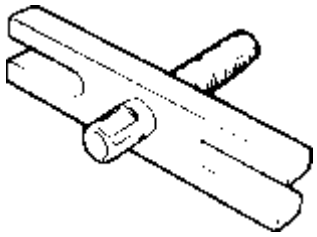
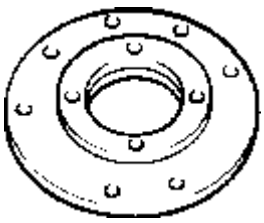
		09453-24000)
09453-21100 Spring compressor		Removal and installation of the rear clutch (use with 09453-21000)

Tool (Number and name)	Illustration	Use
09453-21310 Center support remover and installer		Removal and installation of the center support
09453-21400 Dial gauge support		1. Measurement of the input shaft end play (use with a dial gauge) 2. Measurement of the transfer shaft end play (use with a dial gauge)
09453-24000 Spring compressor		Installation of snap ring and front clutch
09453-29000 Piston oil seal installer guide		Installation of end clutch piston
09453-33000/09453-34000 Snap ring installer		Installation of end clutch snap ring

09453-33100 Dial gauge extension		Measurement of the low and reverse brake end play (use with dial gauge)
09455-21100 Bearing installer		Installation of differentiai ball bearing

Tool (Number and name)	Illustration	Use
09455-322000 Oil seal puller		Removal of transfer drive gear bearing outer race
09455-33000 Transfer drive bearing remover		Removal of transfer shaft drive gear bearing from gear
09455-33200 Bearing installer		1. Installation of ball bearing and transfer drive gear 2. Installation of the side bearing
09456-21000 Guide pin		Assembly of the valve body and transfer plate
09457-22000 Removing plate		Removal of the differential
09457-22100		

Transfer bearing outer race installer		Installation of the transfer bearing outer race
09457-22200 Transfer gear remover bolt		Removal of transfer drive gear (use with 09561-11001)

Tool (Number and name)	**Illustration**	**Use**
09457-34000 Removing plate		Removal and installation of the snap ring and return spring of the front clutch
09526-11001 Transfer driven gear remover		Removal of the transaxle driven gear (use with 09457-22200
09457-29000 Transfer driven gear holder		Removal and installation of the lock nut.

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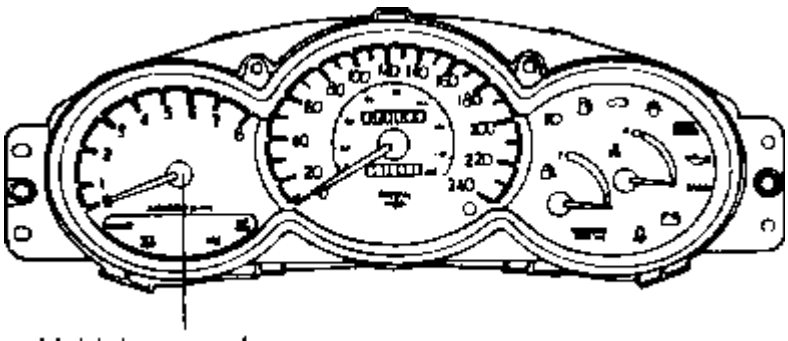
CHECKING PROCEDURE (SELF-DIAGNOSIS)

NOTE

- **As many as ten diagnostic trouble codes, in the sequence of occurrence, can be stored in the Random Access Memory (RAM) incorporated within the control module.**
- **The same diagnostic trouble code can be stored just one time.**
- **If the number of stored diagnostic trouble codes or diagnostic trouble patterns exceeds ten, already stored diagnostic trouble codes will be erased, in sequence beginning with the oldest.**
- **Do not disconnect the battery until all diagnostic trouble codes or diagnostic trouble patterns have been read out, because all stored diagnostic trouble codes or diagnostic trouble patterns will be canceled when the battery is disconnected.**
- **If the auto transaxle fluid temperature reaches over 50°C and 200 times from the initial memory, the fault code will be erased.**
- **If the fail-safe system is activated and the transaxle is locked in third gear, the diagnostic trouble code in the Fail Safe Code Description will be stored in the RAM. Three of these fault codes can be stored.**
- **The cancelation will occur if, with the transaxle locked in 3rd gear, the ignition key is turned to the OFF position, but the diagnostic trouble code is stored in the RAM.**

MALFUNCTION INDICATOR LIGHT (MIL)



Vehicle-speed sensor

A on board diagnostic light comes on to notify the driver that there is any problems on the vehicle. However, when an irregular state returns to normal, the malfunction indicator lamp will go out automatically after 3 driving cycles that have no same fault. Immediately after the ignition switch is turn on, the malfunction indicator light is lit for continuously to indicate that the malfunction indicator light operates normally.

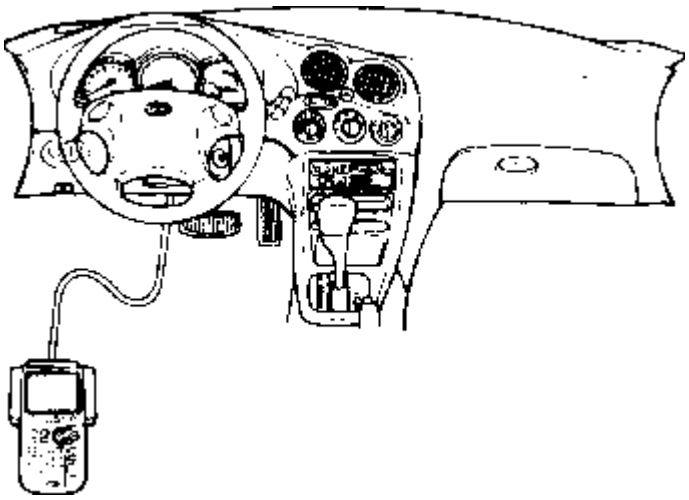
FOLLOWING ITEMS WILL BE INDICATED BY THE MIL.

- Fluid temperature sensor
- Pulse generator A (PG-A)
- Pulse generator B (PG-B)

- Shift control solenoid valve A (SCSV-A)
- Shift control solenoid valve B (SCSV-B)
- Pressure control solenoid valve (PCSV)
- Damper clutch control solenoid valve (DCCSV)
- Shift stage synchronizer
- Ignition pulse
- Throttle position sensor
- Transaxle range switch

INSPECTION PROCEDURE FOR DIAGNOSTIC TROUBLE CODES

USING HI-SCAN



Turn OFF the ignition switch.

Connect the scan tool to the data link connector.

Turn ON the ignition switch.

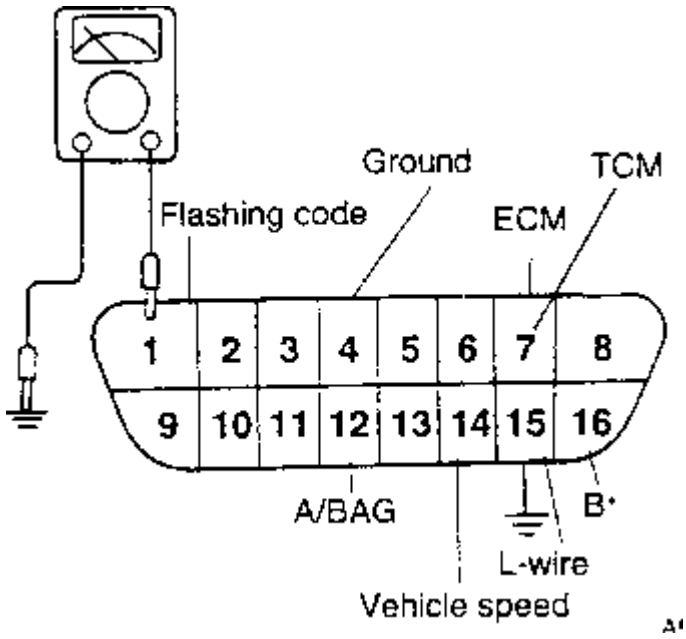
Use the scan tool to check the diagnostic trouble code.

Repair the faulty part from the diagnosis chart.

Erase the diagnostic trouble code.

Disconnect the scan tool.

USING VOLTMETER



Ignition switch ON (Do not start).

Connect the voltmeter to the data link connector (No. 1 pin).

Ground the L-wire (No. 15) in the data link connector.

Output pattern shows on the voltmeter.

Read the output diagnostic trouble codes. Then follow the remedy procedures according to the "DIAGNOSTIC TROUBLE CODE DESCRIPTION" on the following page.

Erase the diagnostic trouble code.

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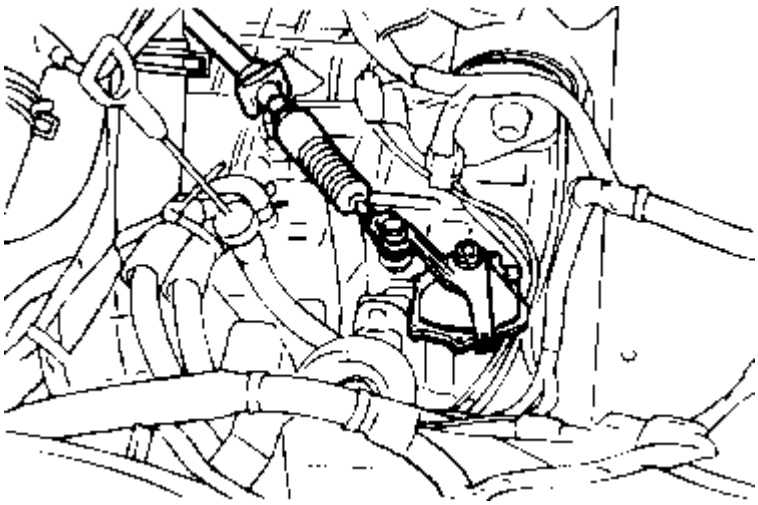
TRANSAXLE RANGE SWITCH ADJUSTMENT

Place the selector lever in the "N" (Neutral) position.

Loosen the manual control lever lock nut to separate the cable and lever.

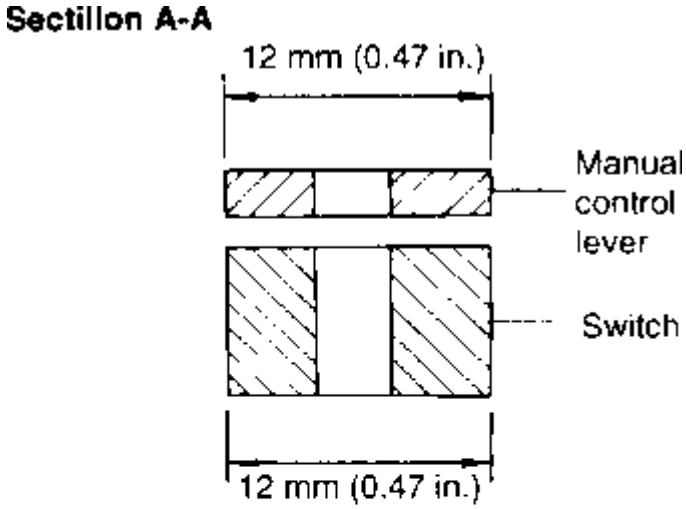


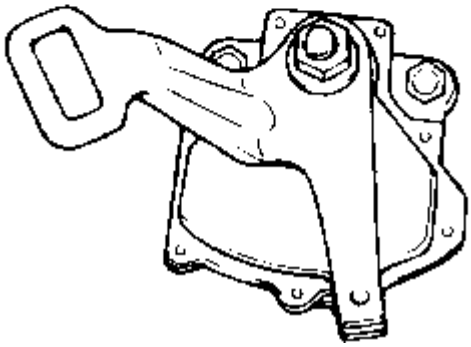
Place the manual control lever in the "N" (Neutral) position.

Turn the transaxle range switch body until the 12 mm (.47 in.) wide end of the manual control lever aligns with the switch body flange [12 mm (0.472 in.) wide portion].

Tighten the attaching bolts (2 pcs.) to the specified torque.

TORQUE SPECIFICATION	
Transaxle Range Switch Attaching Bolt	10-12 Nm (100-120 kg·cm, 7-9 lb·ft)



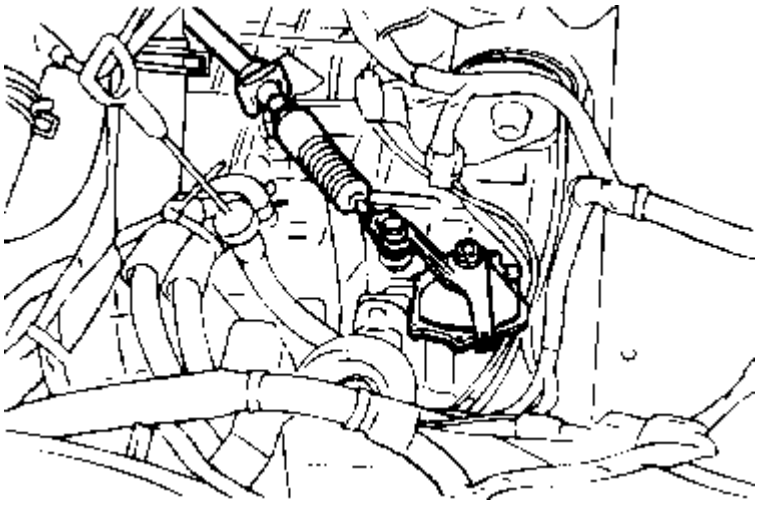


NOTE

When setting up the switch body, be careful O-ring not to drop from the switch body. Tighten the attaching bolts carefully.

Make sure that the selector lever is in the "N" (Neutral) position.

Adjust the flange nut so that there is no slack in the control cable and make sure that the selector lever operates smoothly.



Run the vehicle and confirm that the transaxle is set in each range when the selector lever is shifted to each position

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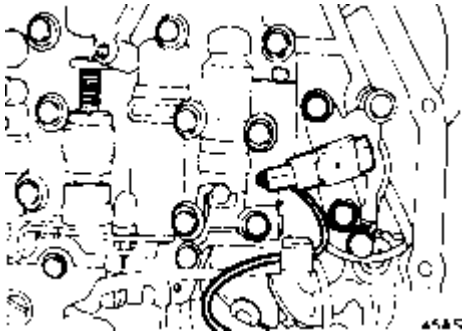
LINE PRESSURE ADJUSTMENT

Drain the automatic transaxle fluid.

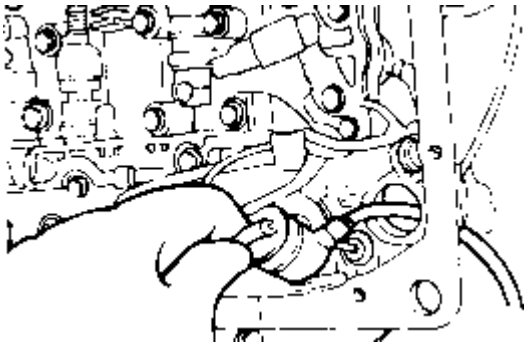
Remove the oil pan.

Remove the oil filter.

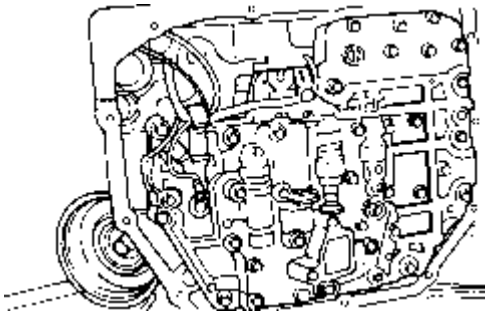
Remove the oil temperature sensor.



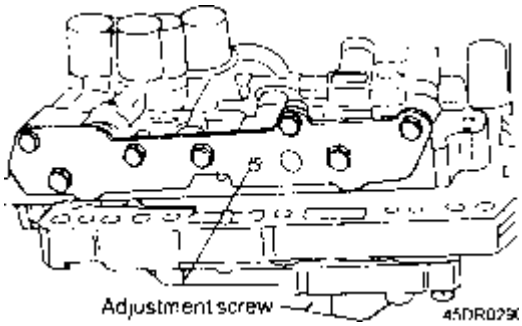
Press the tab of the solenoid valve harness grommet and push in.



Remove the valve body assembly. The manual valve can come out, so be careful not to drop it.



Turn the adjustment screw of the regulator valve and adjust so that the line pressure (kickdown brake pressure) reaches the standard value. When the adjustment screw is turned clockwise, the line pressure becomes higher, when it is turned counter-clockwise, it becomes lower.

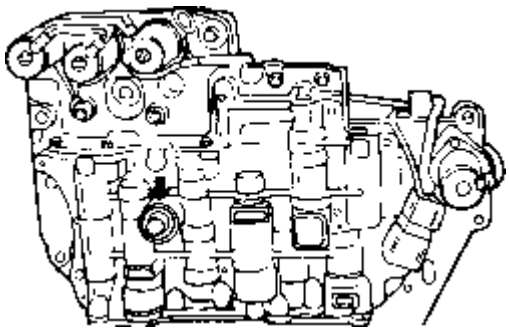


PRESSURE SPECIFICATION	
Standard value	8.77-9.18 kg·cm (860-900 kPa, 122-129 psi)

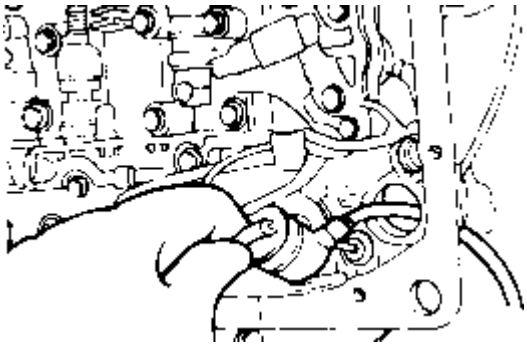
PRESSURE SPECIFICATION	
Oil pressure change for each turn of adjusting screw	0.39 kg·cm (38 kPa, 5.4 psi)

Check to be sure that the O-ring is installed on the upper surface of the valve body at the place shown in the figure.

Replace the O-ring of the solenoid valve connector with a new one.

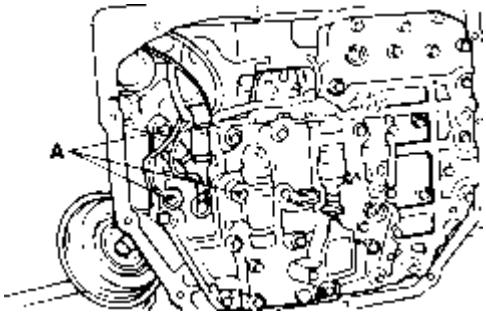


Install the valve body assembly to the case and then insert the solenoid valve connector into the case. Be sure, at this time, that the notched part of the connector faces as shown in the figure. Also be careful that the lead wiring isn't caught.



Tighten the ten (10) valve body assembly mounting bolts to 10-12Nm (100-120 kg.cm, 7-9 lb.ft).

1. A: 25 mm (0.709 in.) long
2. B: 35 mm (0.984 in.) long
3. C: 40 mm (1.575 in.) long



Install the oil filter.

Install a new oil pan gasket with the oil pan.

Pour in the specified amount of Automatic transaxle fluid.

Make the oil pressure test. Readjust if necessary.

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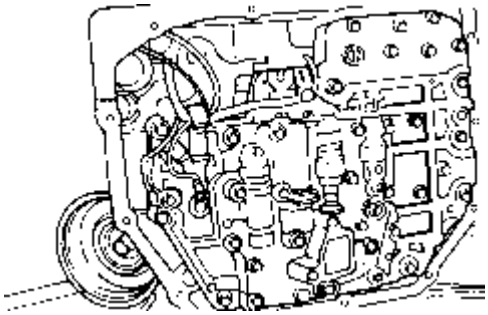
REDUCING PRESSURE ADJUSTMENT



Remove parts up to the oil filter in the same way as for line pressure adjustment. The valve body need not be removed.

Turn the adjustment screw of the lower valve body and adjust so that the reducing pressure is the standard value. When the adjustment screw is turned to the clockwise, the reducing pressure becomes lower; when it is turned to the counter clockwise, it becomes higher.

> **NOTE**
>
> **When adjusting the reducing pressure, aim for the center value (420 kpa, 60 psi) of the standard value allowance.**

SPECIFICATION	
Adjustment screw of the lower valve body	420 ± 20 kPa (4.2 ± 0.2 kg/cm2, 2.6 ± 1 psi)
Oil pressure change for each turn of the adjustment screw	22 kPa (0.22 kg/cm2, 4.3 psi)

Install the oil filter and oil pan in the same way as for adjustment of the line pressure.

Make the oil pressure test. Readjust if necessary.

> **CAUTION**
>
> **This adjustment should be made at an oil temperature of 80-90°C (176-194°F). If the adjustment is made at a temperature that is too high, the line pressure will drop during idling, with the result that it might not be possible to make the correct adjustment.**

SERVICE MANUAL	
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TROUBLESHOOTING

DIAGNOSTIC TROUBLESHOOTING FLOW

Malfunctions of the auto transaxle can lead to other problems, such as those described below:

Improper maintenance and/or adjustments.

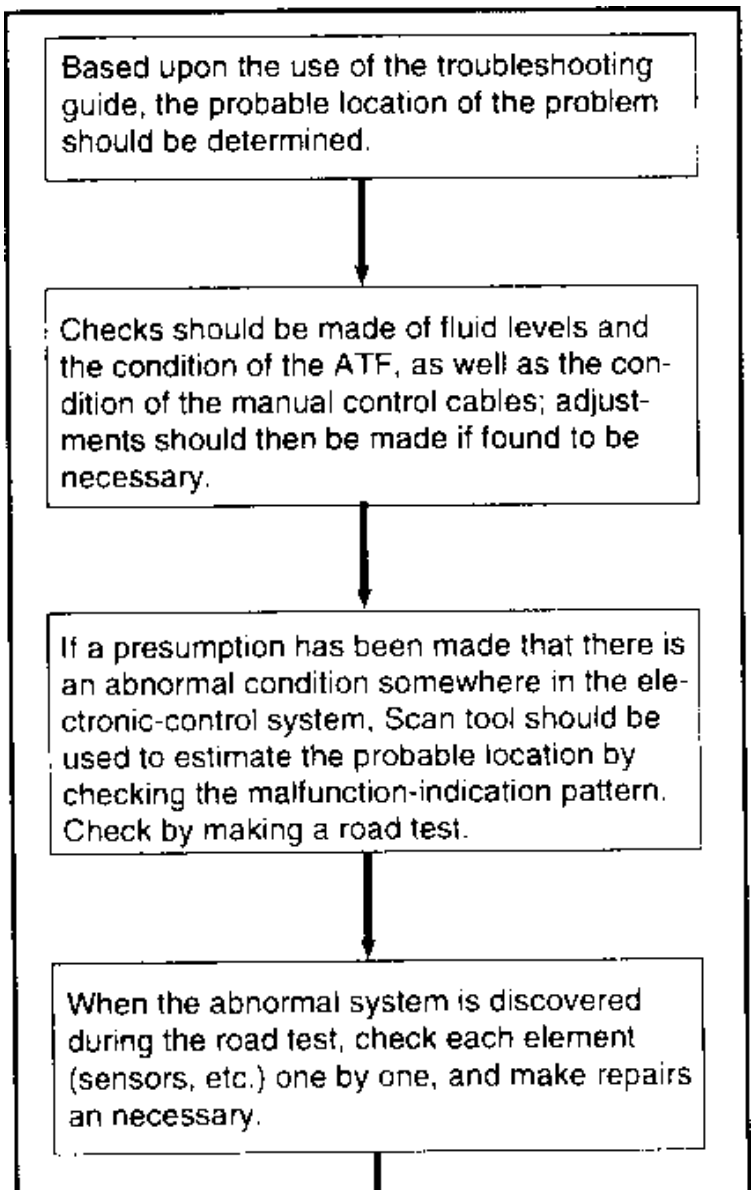
Electronic control malfunctions.

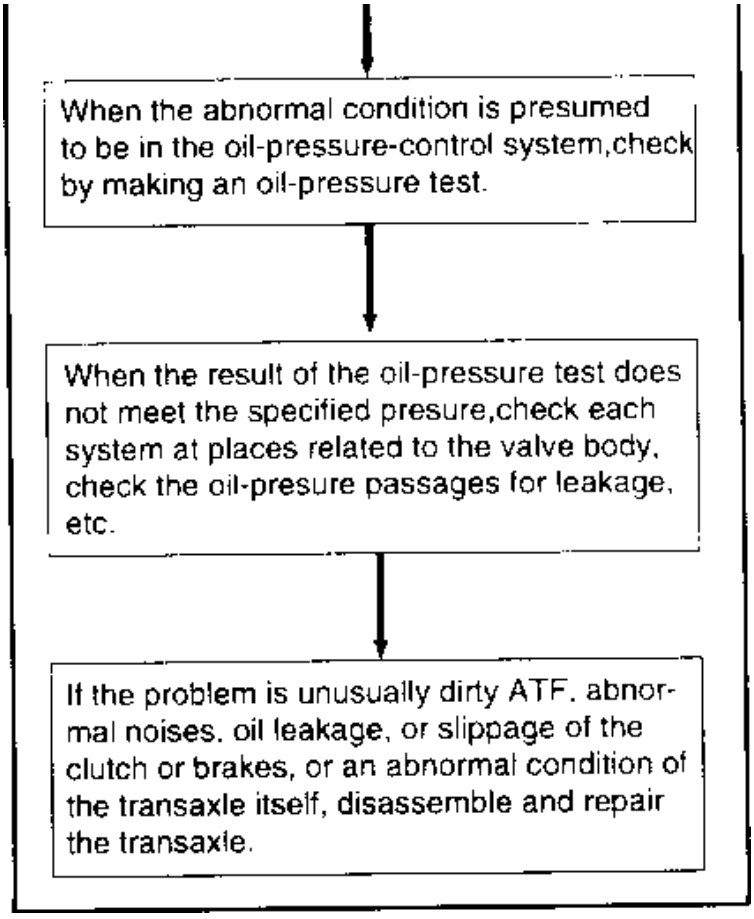
Mechanical functions.

Hydraulic control.

Engine performance malfunctions, etc.

In order to properly troubleshoot the source of these malfunctions, it is essential to methodically question the owner concerning the problem. The driver should also be asked whether or not the problem has occured more than once. Tests should be conducted troubleshooting, as shown in figure.





TROUBLESHOOTING GUIDE

	Problem / Presumed cause	Dn111r1g 11T1poSSlble or abnormal (before stan --Ofll											
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25	Mc1lfunction ol kick.down ser.io swlldl												
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38	Matrunction o1 trans.axle control **module**												x

NOTE : ® **•ndicates items of high priority during inspection.**

Abbrviations: TPS = Throttle Position Sensor, SCSV = Shift Control Solenoid Valve.

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PCSV = Pressure control solenoid valve

DCCSV = **Damper** clutch control solenoid valve

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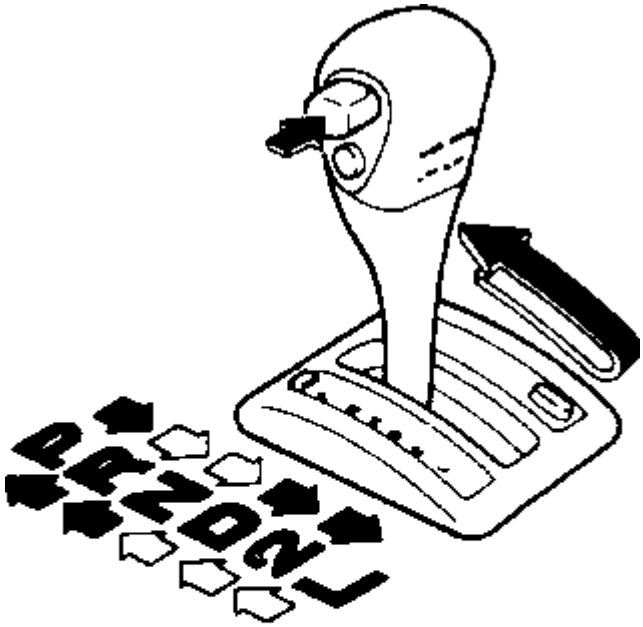
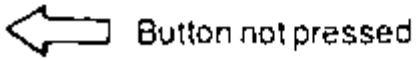
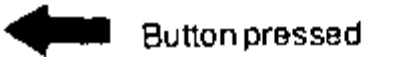
SELECTOR LEVER OPERATION CHECK







Shift the selector lever to each range and check to see that the lever moves smoothly and is controlled. Check to see that the position indicator is correct.

Check to be sure that the selector lever can be shifted to each position (by button operation as shown in the illustration).

Start the engine. Check to see if the vehicle moves forward when the selector lever is shifted from "N" to "D", and moves backward when shifted to "R".

When the shift lever malfunctions, adjust the control cable and the selector lever sleeve. Check for worn shift lever assembly sliding parts.

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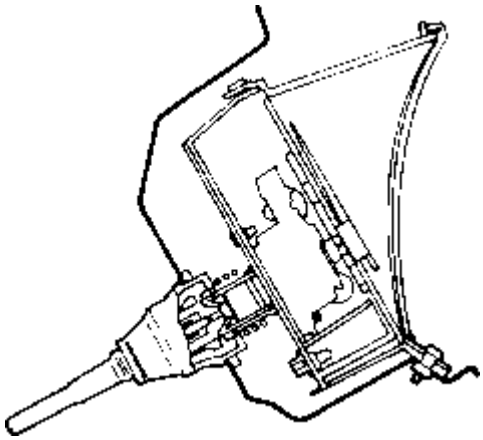
SPEEDOMETER CABLE REPLACEMENT

Correctly insert the adapter into the instrument panel, and fasten the new speedometer cable.

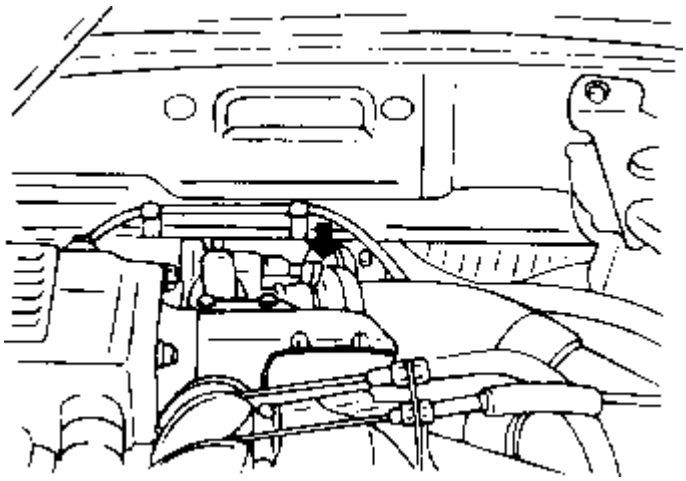
CAUTION

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



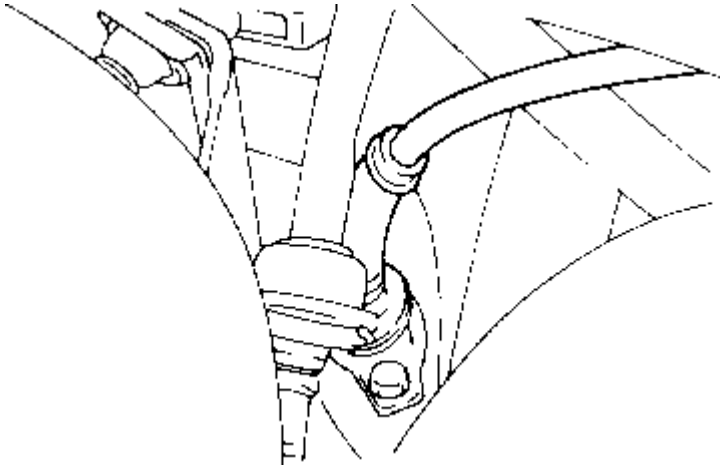
Install the grommet as shown in the illustration so that the cable attachment part and the projection part are horizontal.

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



CAUTION

If the cable is not correctly and securely connected, it may cause an incorrect reading on the speedometer, or abnormal noise. Be sure to connect it correctly.



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MANUAL CONTROL CABLE

Proper manual control linkage adjustment can be determined by checking whether transaxle range switch is performing well.

Apply parking and service brakes securely.

Place the selector lever in "R" range.

Set the ignition key to "ST" position.

Slowly move the selector lever upward until it clicks as it fits in the notch of the "P" range. If the starter motor operates when the lever makes a click, "P" position is correct.

Slowly move the selector lever to the "N" range by the same procedure as in the previous paragraph. If starter motor operates when the selector lever fits into the "N" position, the adjustment is "N" range.

Also check to be sure that the vehicle doesn't begin to move and the lever doesn't stop between P-R-N-D-2-L.

The manual-control cable is properly adjusted if, as described above, the starter motor starts at both the "P" range and the "N" range

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CLOSED THROTTLE POSITION SWITCH CHECK AND ADJUSTMENT

After warming up the engine, make sure that the closed throttle position switch is on with the accelerator pedal in the free state.

NOTE

Check to see that the closed throttle position switch is on or off by checking the voltage between the wire at the closed throttle position switch connector and the ground wire.

- **When the closed throttle position switch is ON: 0V**
- **When the closed throttle position switch is OFF: 12V**

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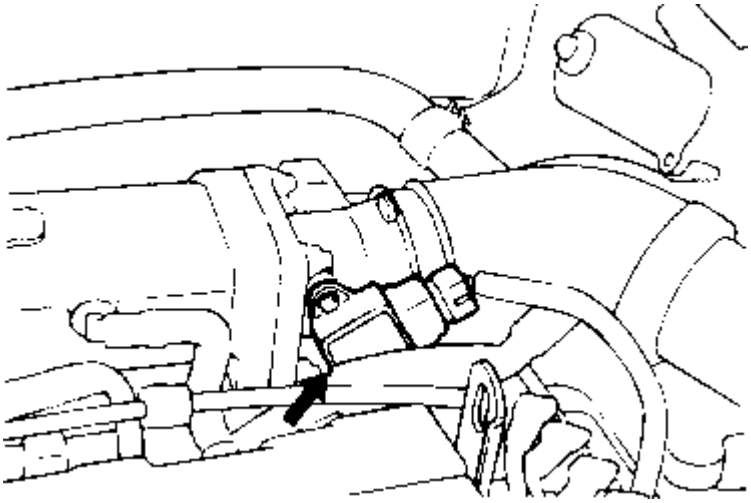
INSPECTION

Refer to FUEL SYSTEM.



NOTE

When checking TP Sensor with Scan tool, read the TP sensor value in ECM Check Mode and adjust referring to FUEL SYSTEM.

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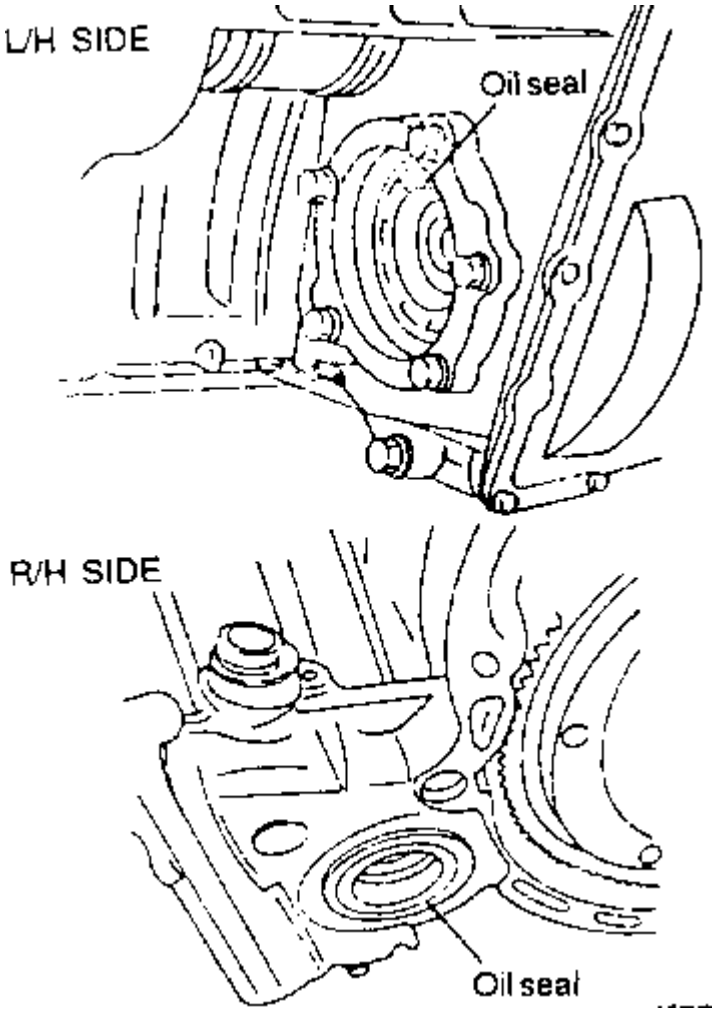
DRIVE SHAFT OIL SEALS REPLACEMENT

Disconnect the drive shaft from the transaxle.

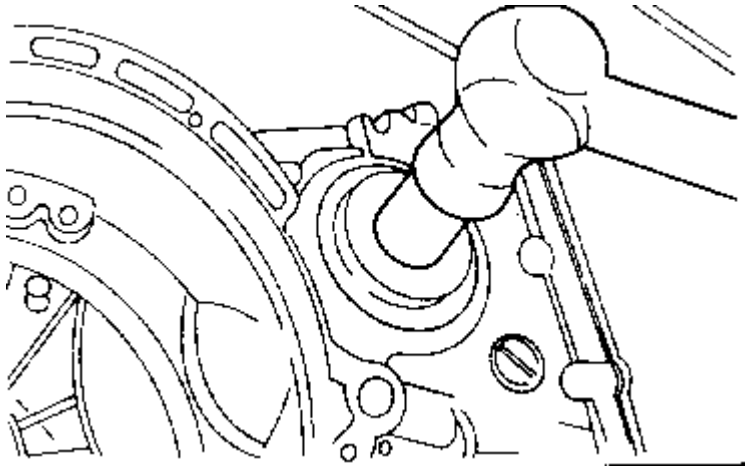
(Refer to DRIVE SHAFT & FRONT AXLE GROUP.)

Using a flat-tip (-) screwdriver, remove the oil seal.



Using the special tool (09431-21200), tap the drive shaft oil seal into the transaxle.

Apply a coating of the automatic transaxle fluid to the lip of the oil seal.



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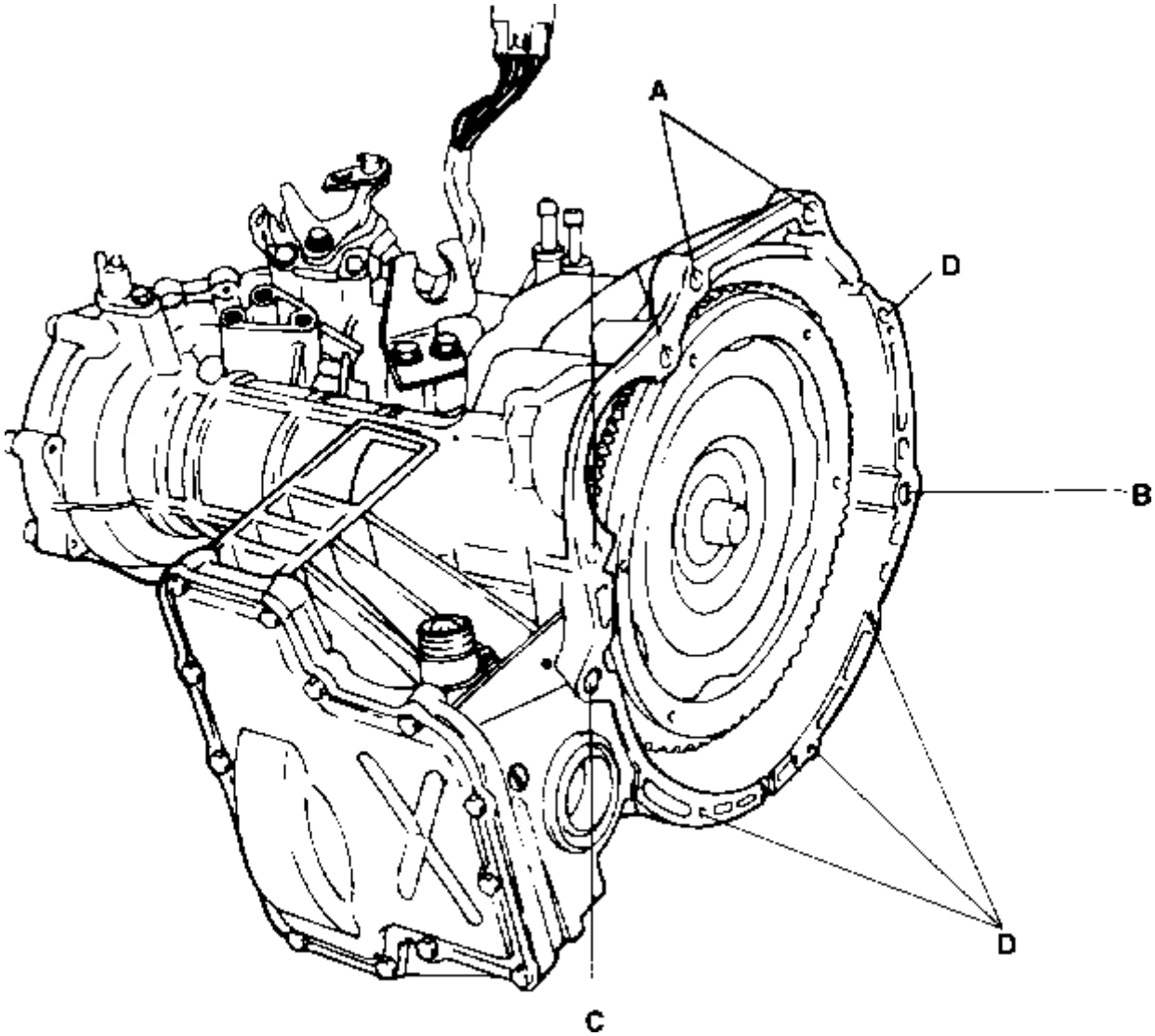
COMPONENTS

COMPONENTS



	Nm	Kg.cm	lb.ft	Size
A	60 - 80	600 - 800	43 - 57	M12 x 7T
B	46 - 53	460 - 530	33 - 38	M10 x 7T
C	3.0 - 3.5	30 - 35	22 - 25	M8 x 10T
D	0.8 - 1.0	8 -10	6 - 7	M6 x 7T

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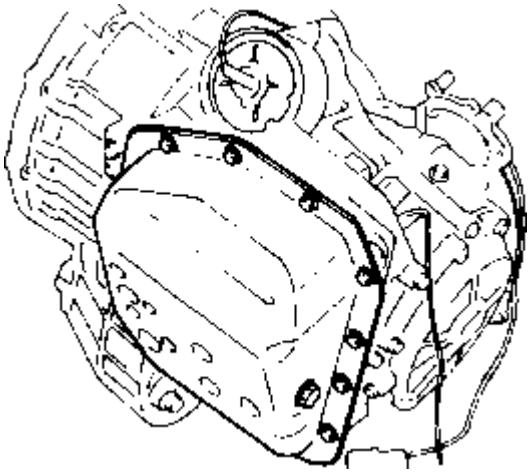
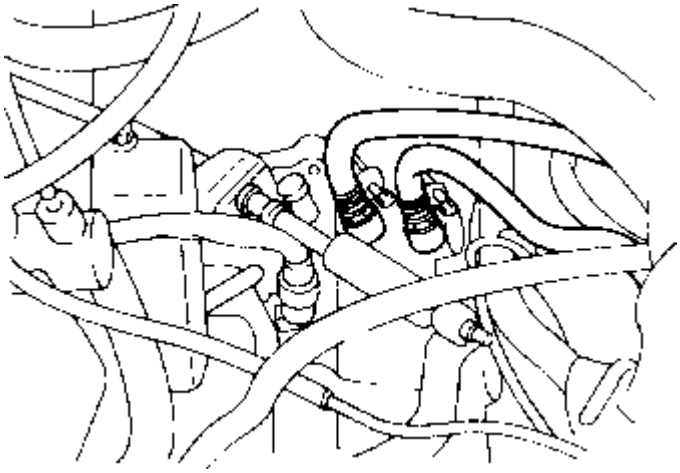
REMOVAL

Remove the drain plug and drain out the transaxle fluid.

Disconnect and remove the air cleaner assembly.



Loosen the mounting clamps and disconnect the return and supply hose.

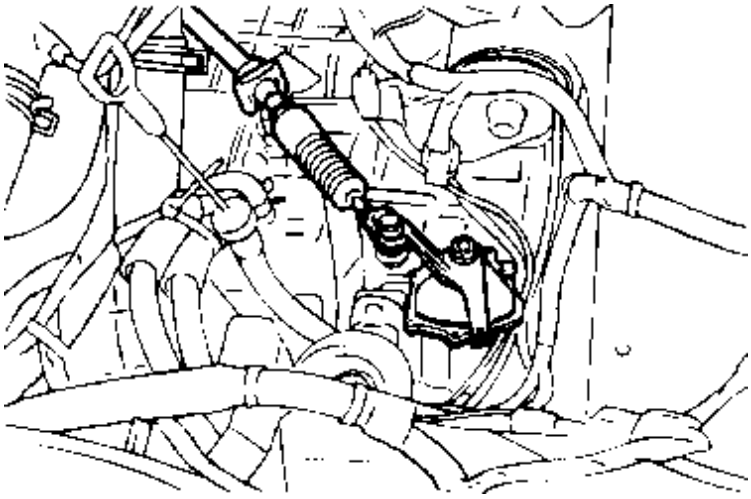


NOTE

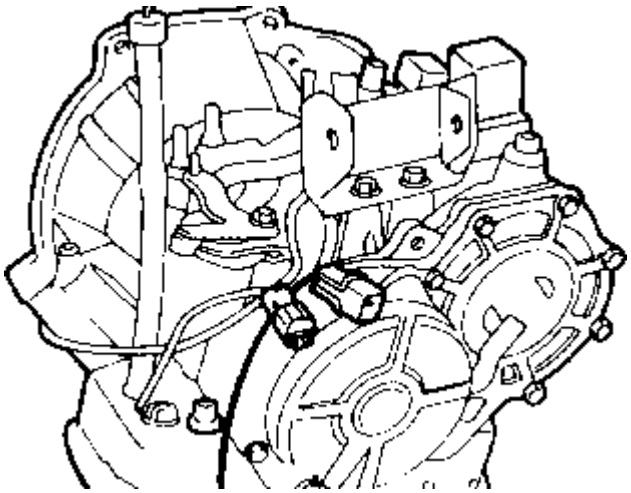
To prevent to entry of dust and foreign matter, plug the disconnected hoses and the transaxle fitting part.

Remove the control cable.

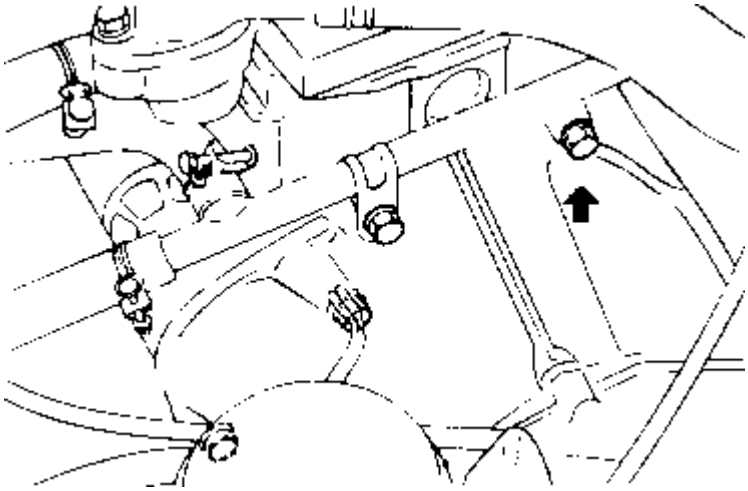
Remove the speedometer cable.



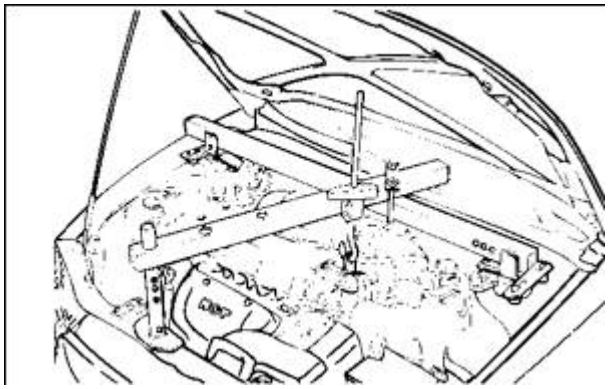
Separate the pulse generator connector, transaxle range switch connector, kickdown servo switch connector, solenoid valve connector and the oil temperature sensor connector.



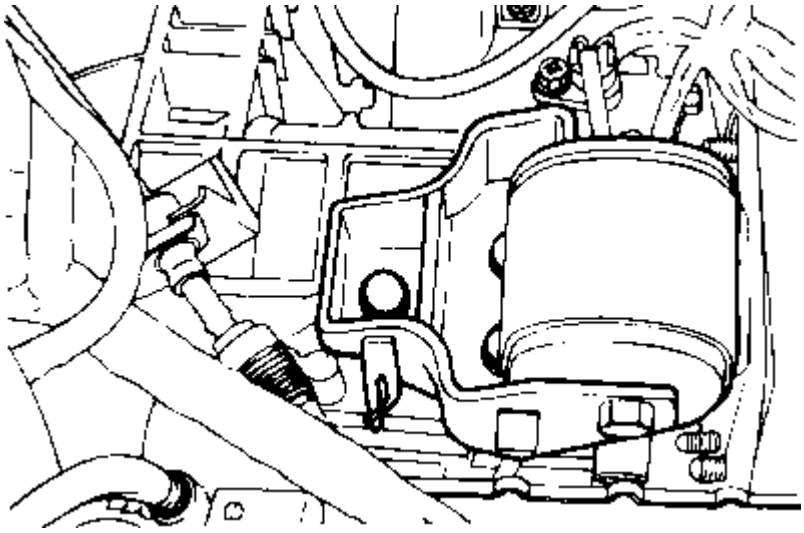
Remove the transaxle-to-engine bolt from the upper portion of the transaxle.



Attach an engine support fixture to the engine hooks, and keep just enough so that there is no pressure on the insulators.

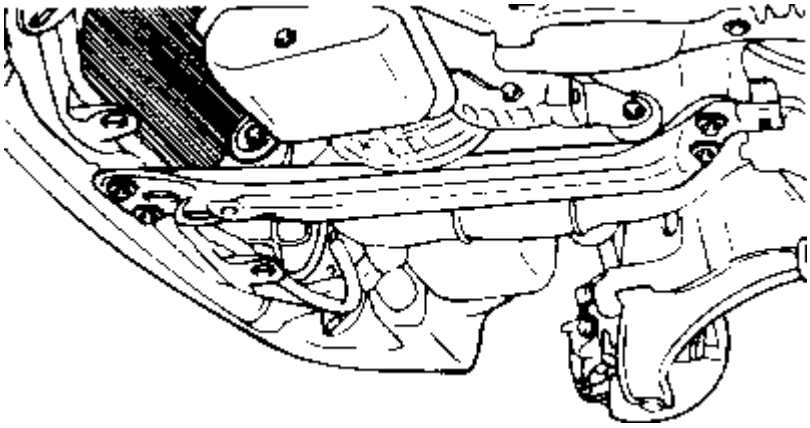


Remove the transaxle mounting bracket.



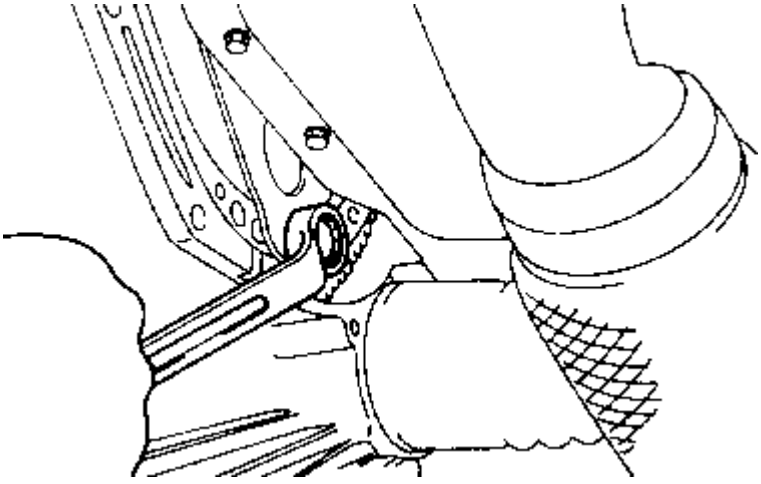
Remove center member and roll stopper mounting bolts.

Remove the lower arm ball joint and drive shaft (Refer to DRIVE SHAFT & FRONT AXLE GROUP)



Remove transaxle stay and bell housing cover.

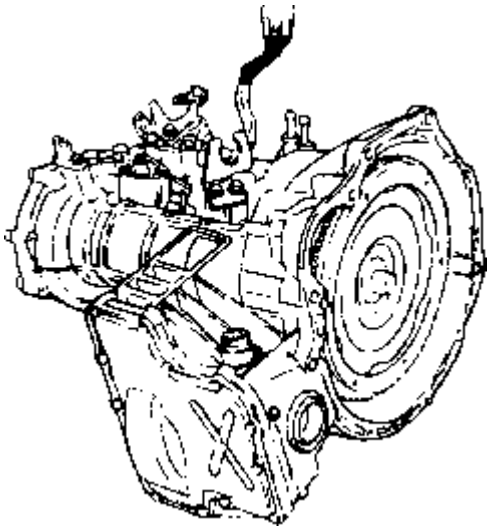
Remove the 3 special bolts connecting the converter to the drive plate.



NOTE

To remove the special bolts of torque converter, turn engine crankshaft with a box wrench to bring one of the bolts to the position appropriate for removal. After removing the bolt, turn the crankshaft in the same manner as above and remove all remaining bolts one after another. Bring the transaxle shift lever into the "N" (Neutral) position.

Remove the remaining connecting bolts while at the same time supporting the transaxle with a floor jack.



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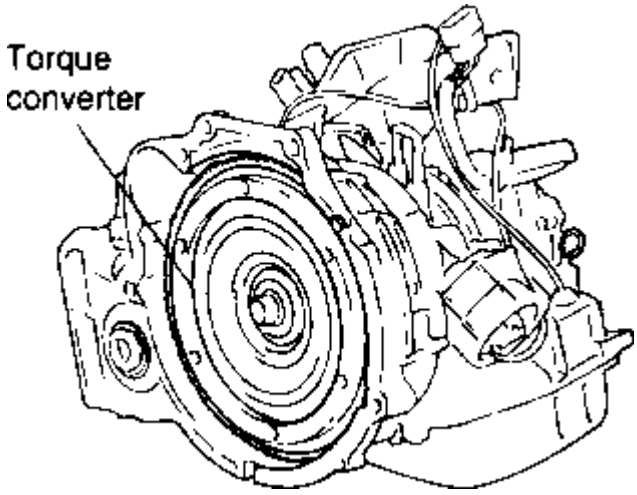
INSTALLATION

Attach the torque converter on the transaxle side and mount the transaxle assembly onto the engine.

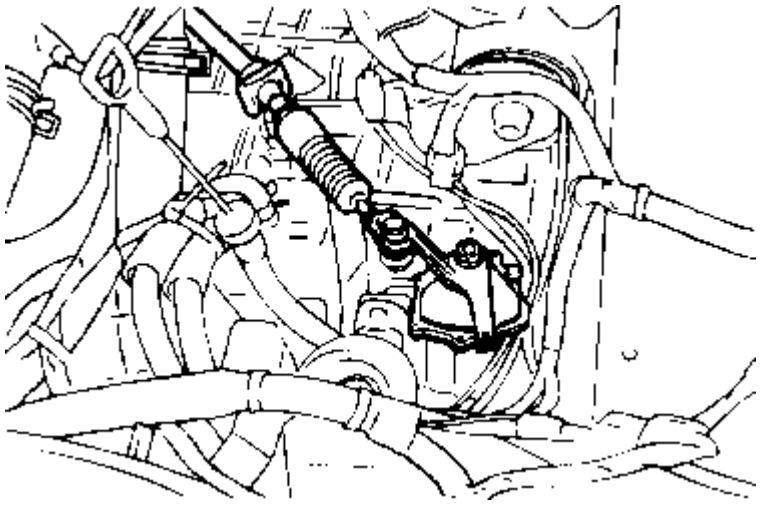
CAUTION

Since the oil seal on the transaxle side may be damaged if the torque converter is first mounted on the engine, make sure that the torque converter is first assembled to the transaxle.



Install the transaxle control cable and adjust as follows:

1. Move the shift lever and the transaxle range switch to the "N" position, and install the control cable.
2. When connecting the control cable to the transaxle mounting bracket, install the clip until it contacts the control cable.
3. Remove any free-play in the control cable by adjusting the nut, then check that the selector lever moves smoothly.
4. Check that the control cable has been adjusted correctly.



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DISASSEMBLY

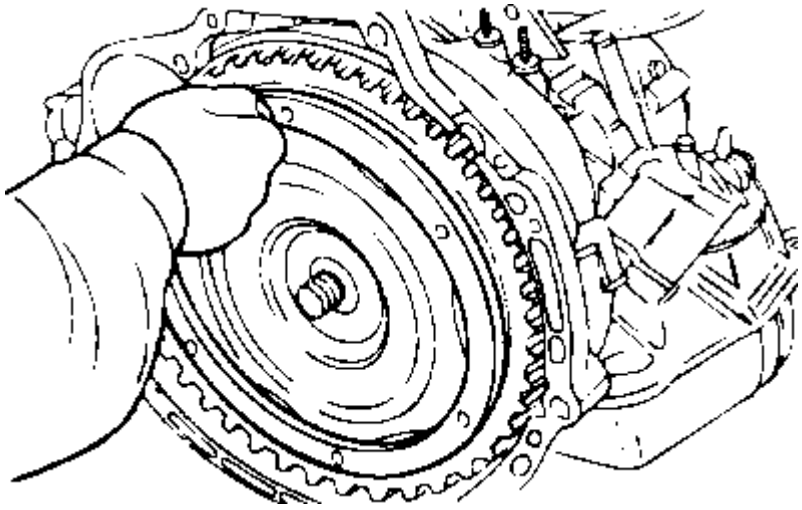
CAUTION

Because the automatic transaxle is composed of component parts of an especially high degree of precision, these parts should be very carefully handled during disassembly and assembly so as not to scar or scratch them.
A rubber mat should be placed on the workbench, and it should always be kept clean.
During disassembly, cloth gloves or rags should not be used. If such items must be used, use articles made of nylon, or use paper towels.
All disassembled parts must be thoroughly cleaned. Metal parts may be cleaned with ordinary detergents, but must be thoroughly air dried.
Clean the clutch disc, resin thrust plate and rubber parts by using ATF (automatic transaxle fluid), being very careful that dust, dirt, etc. do not adhere. If the transaxle main unit is damaged, also disassemble and clean the cooler system as well.

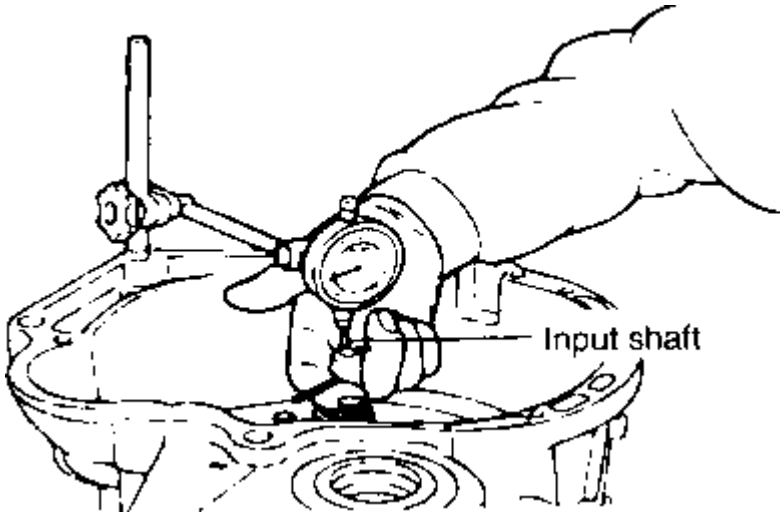
Clean away any sand, mud, etc. adhered around the transaxle.

Place the transaxle assembly on the workbench with the oil pan down.

Remove the torque converter.



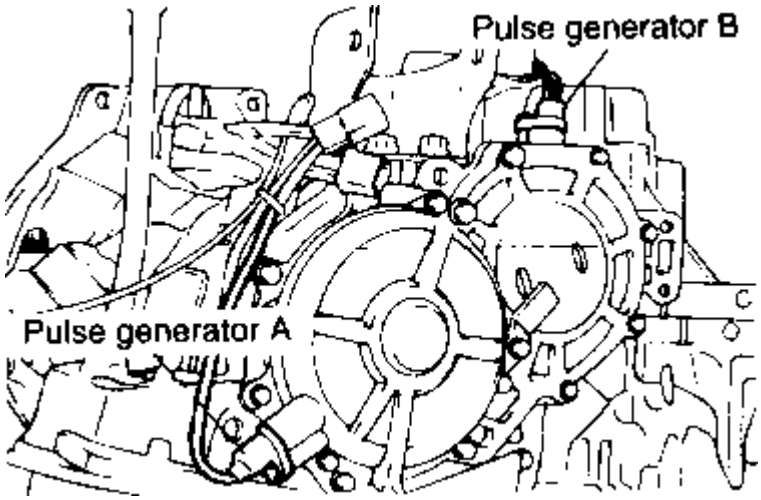
Measuring input shaft end play before disassembly will usually indicate when a thrust washer change is required (except when major parts are replaced).



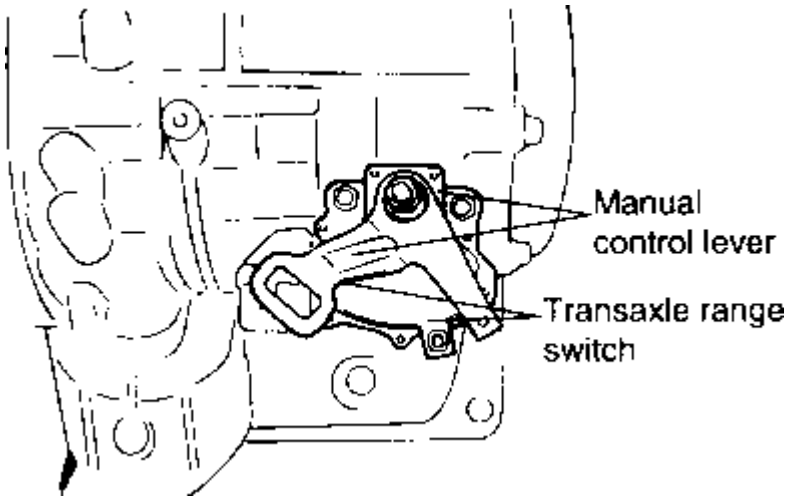
MEASUREMENT SPECIFICATION	
	0.3-1.0 mm (0.012-0.039 in)

Thrust washers are located between the reaction shaft support and rear clutch retainer, and between the reaction shaft support and front clutch retainer. Mount a dial indicator to the converter housing with the dial indicator support. Make sure that the indicator plunger is seated against the end of the input shaft. When checking end play, pull out or push in the input shaft with pliers. Be careful not to scratch the input shaft. Record indicator reading for reference when reassembling the transaxle.

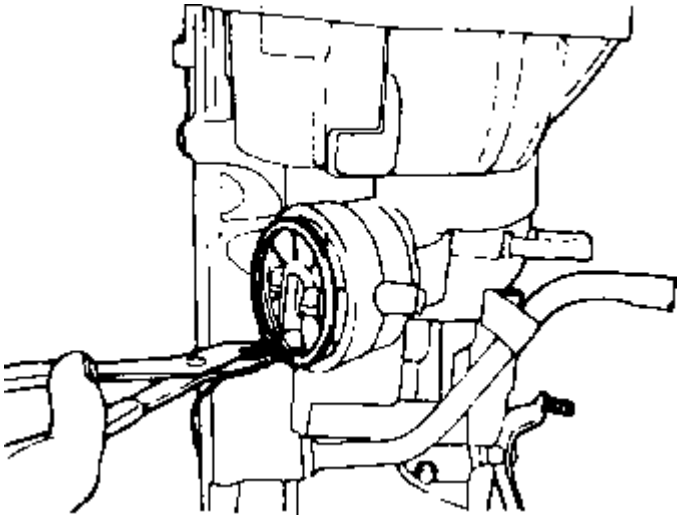
Remove the pulse generators "A" and "B".



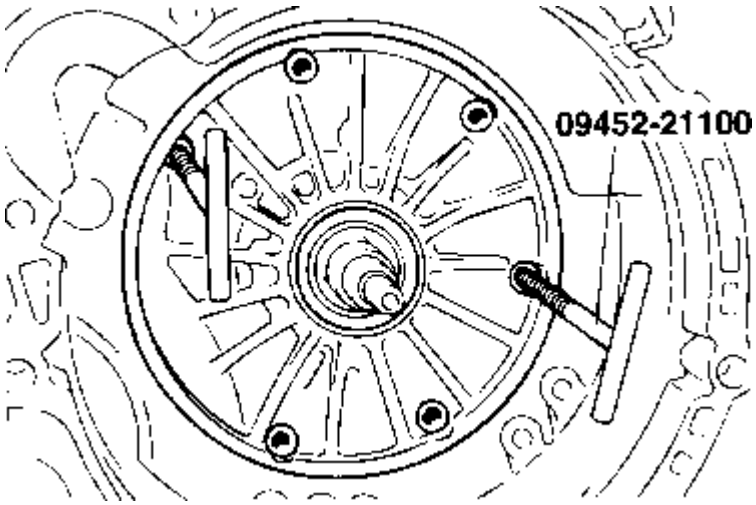
Remove manual control lever, then remove the transaxle range switch.



Remove the snap ring and kickdown servo switch.



Remove 6 bolts, attach the special tools (09452-21100) and remove oil pump assembly.

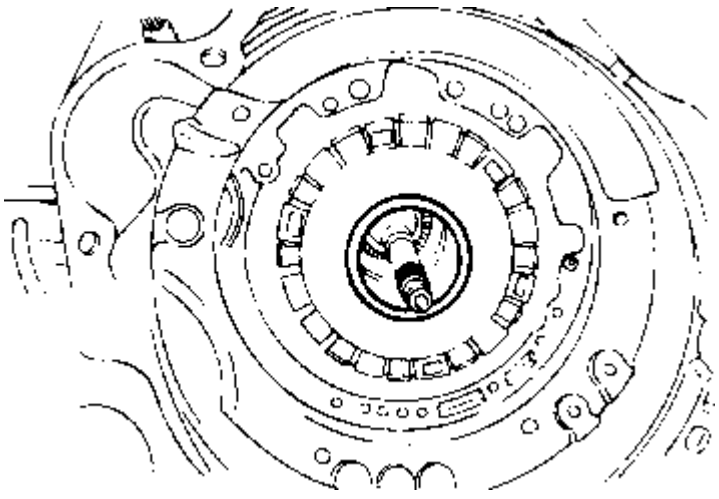


NOTE

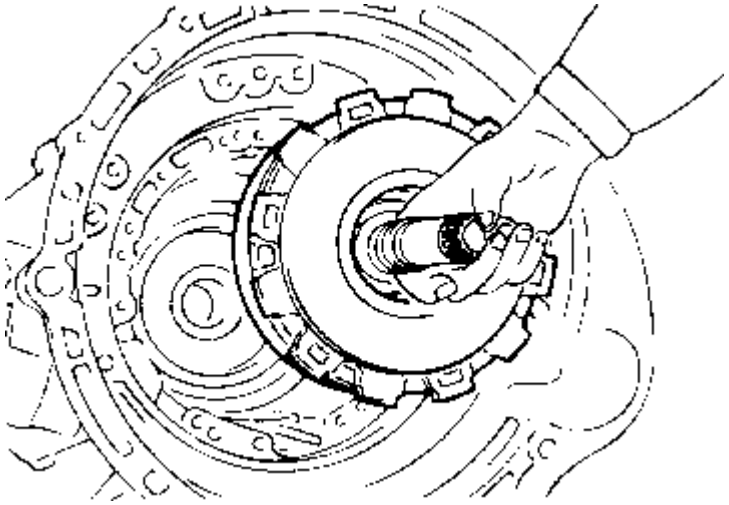
When removing the oil pump assembly, be sure to follow this procedure to prevent the damaged the of onto transaxle case.

1. **Turn the knob of both special service tools simultaneously and uniformly not to be inclined to "B" side.**
2. **While turning the special service tool, tap on the "A" side of the oil pump lightly with rubber or plastic hammer if necessary.**

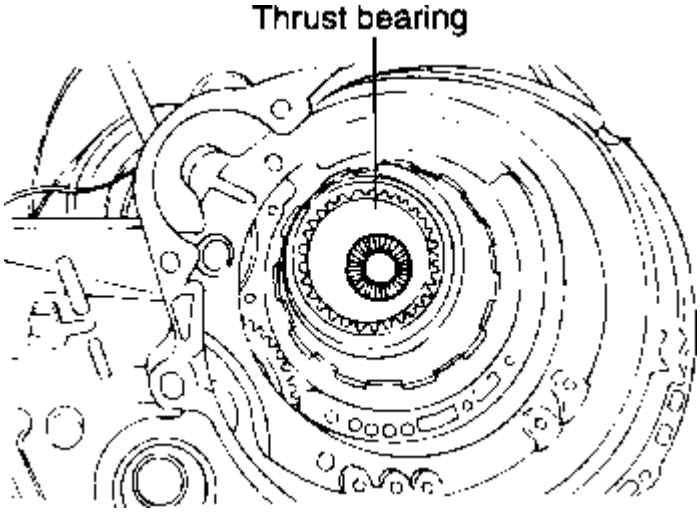
Remove the fiber thrust washer.



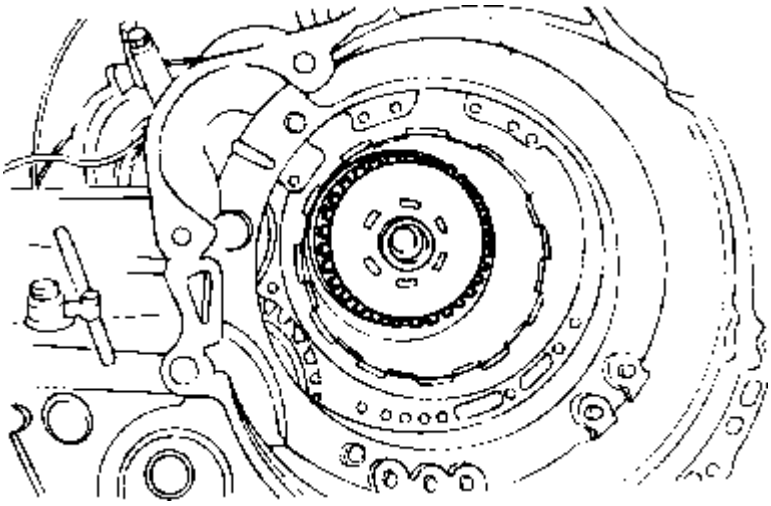
Pull up the input shaft, and remove the front clutch assembly and the rear clutch assembly together.



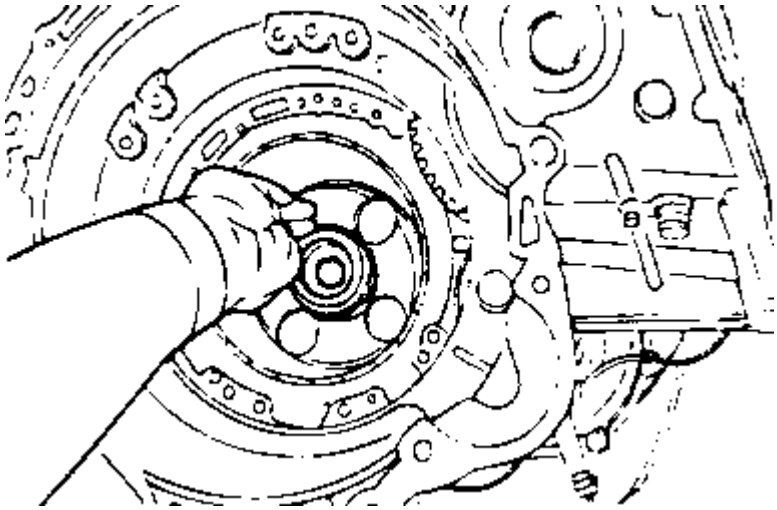
Remove the thrust bearing.



Remove the clutch hub.



Remove the thrust race and bearing.



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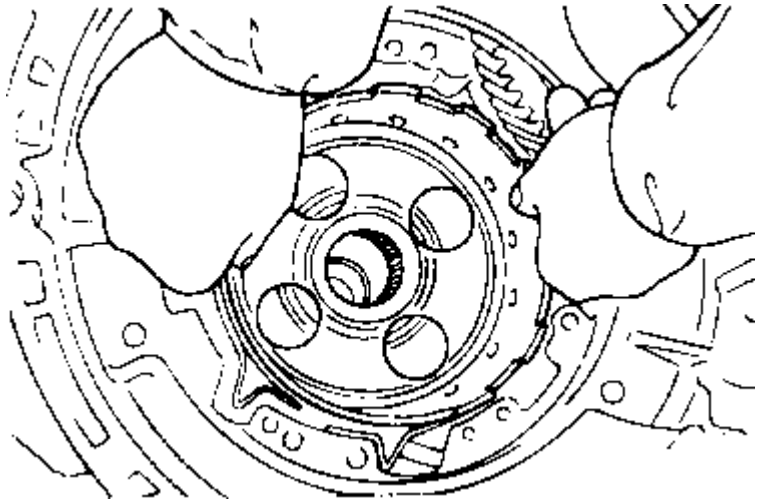
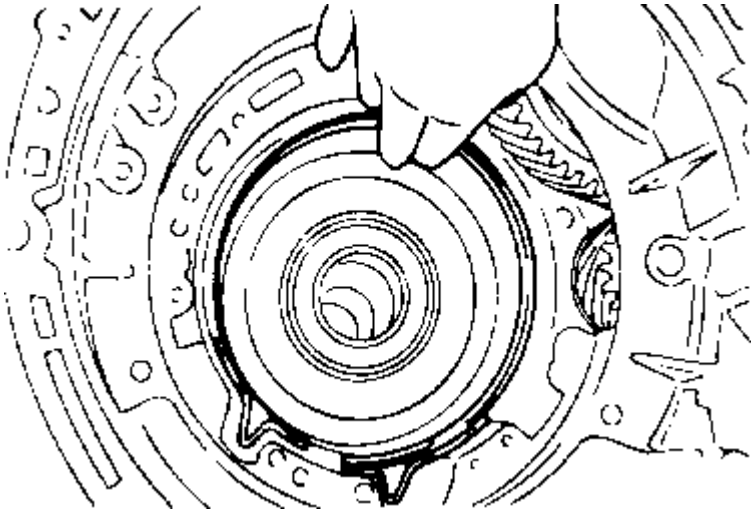
DISASSEMBLY (CONTINUED)

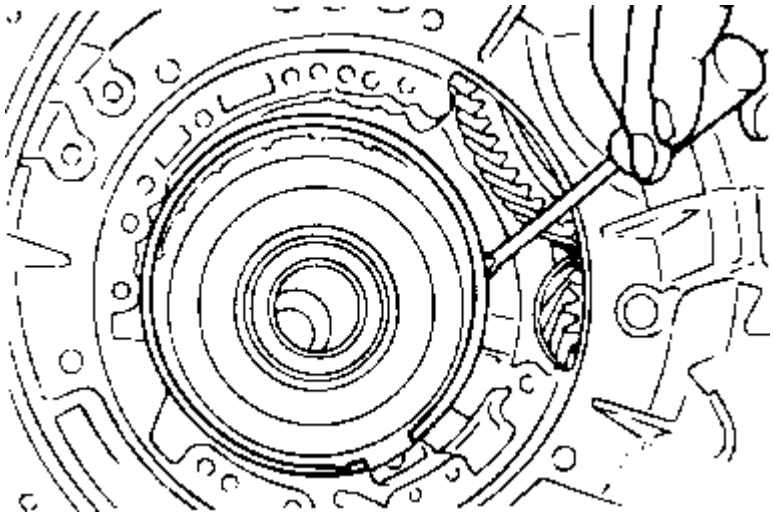
Remove the kickdown drum.



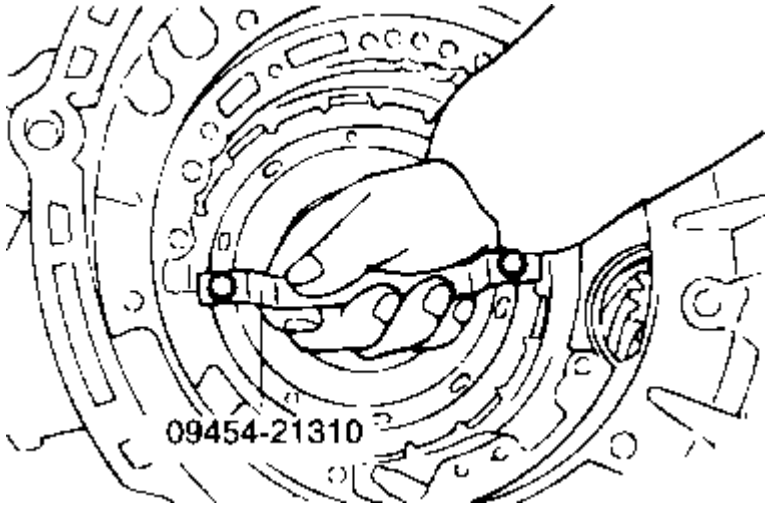
Remove the kickdown band.



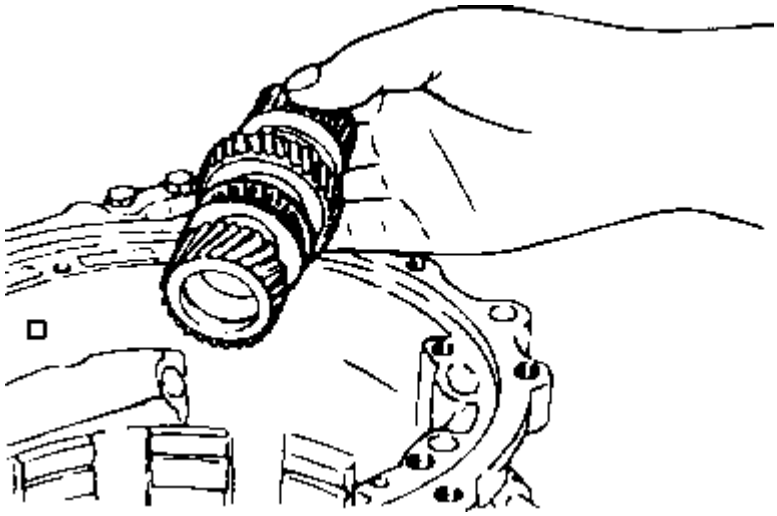
Remove the snap ring.



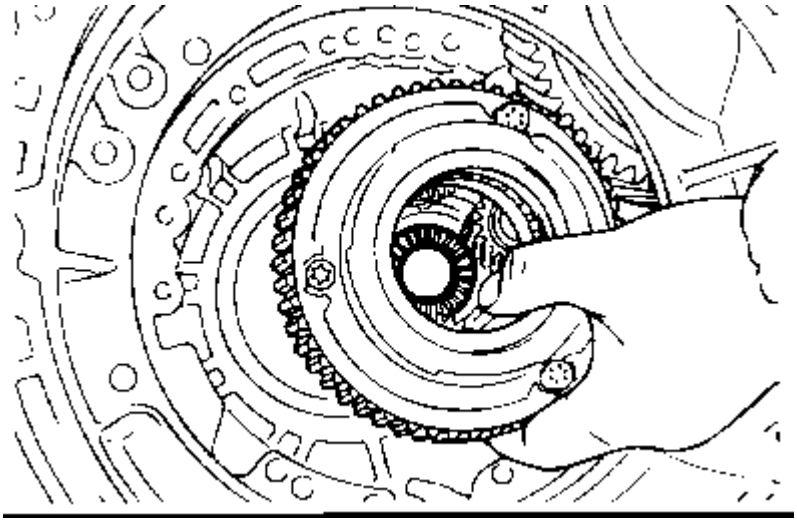
Attach the special tool (09453-21310) on the center support. Holding the handle of the tool, pull the center support straight upward.



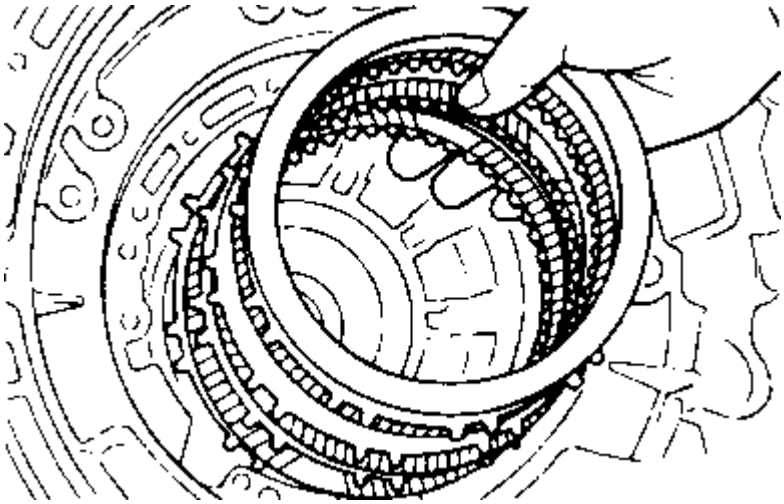
Remove the reverse sun gear and the forward sun gear together.



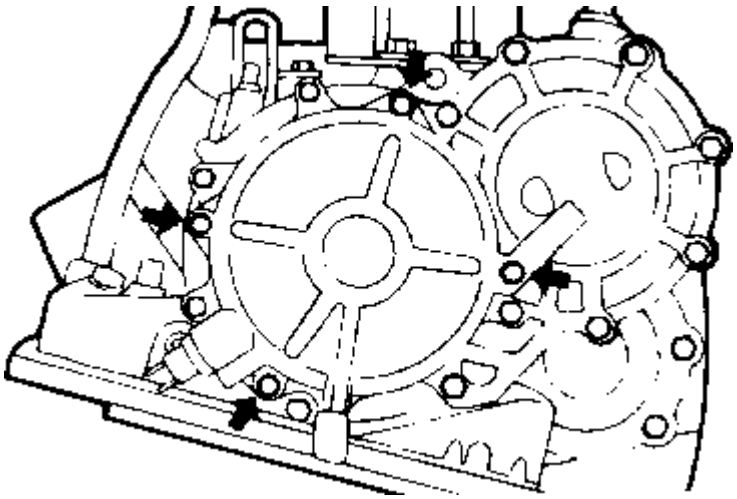
Remove the planet carrier assembly and thrust bearing.



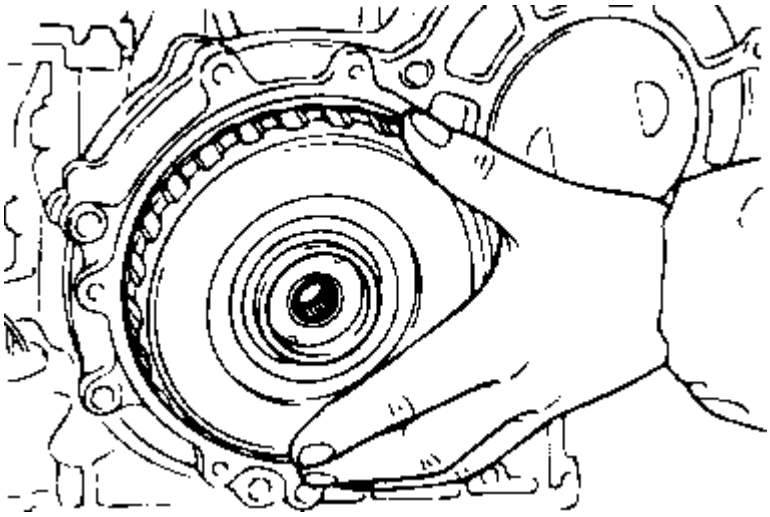
Remove the wave spring, return spring, reaction plate, brake disc, and brake plate.



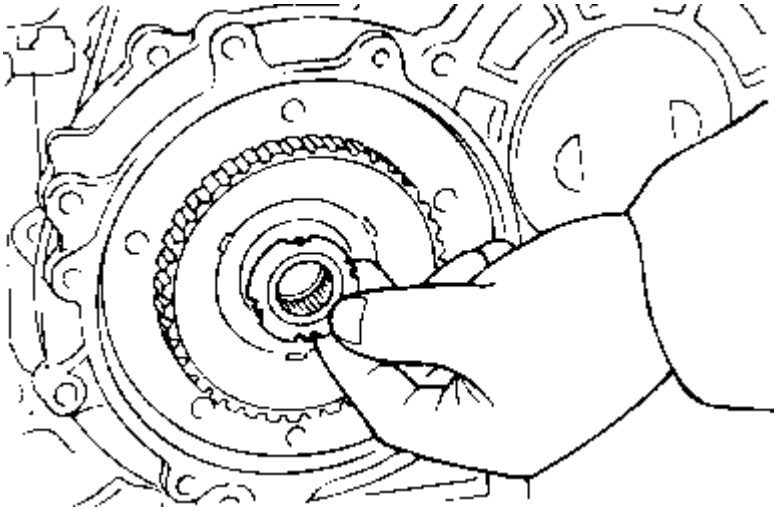
Remove the end clutch cover mounting bolts, the cover holder, and the end clutch cover.



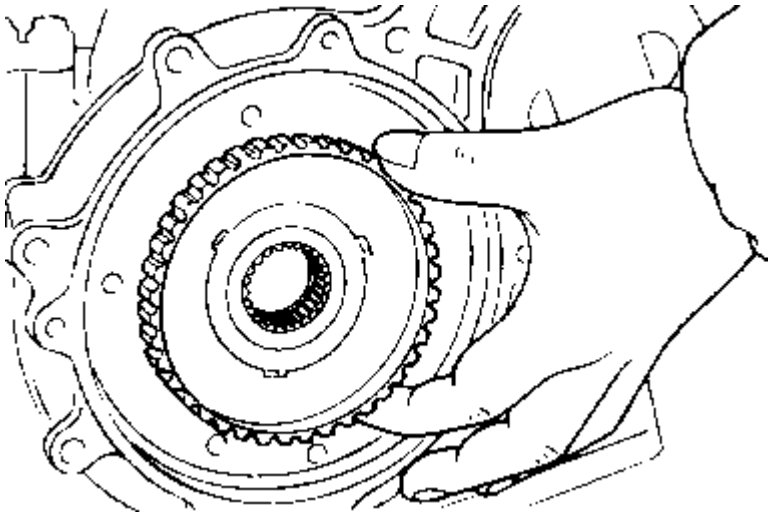
Remove the end clutch assembly.



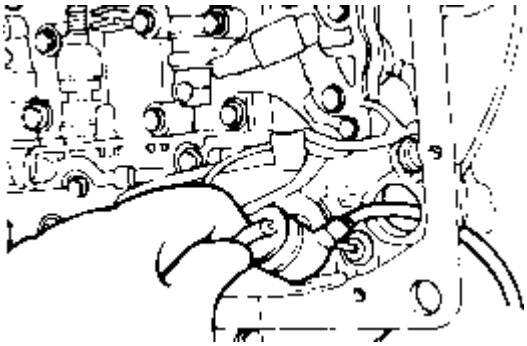
Remove the thrust plate.



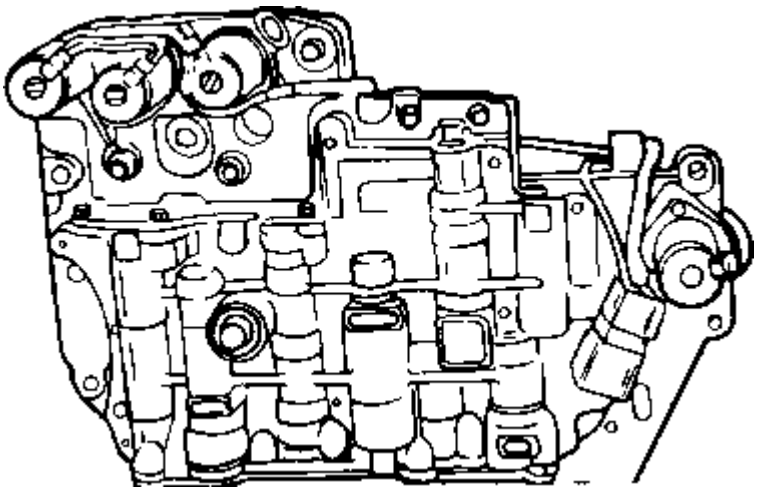
Remove the end clutch hub and thrust bearing.



Press the tab of the solenoid valve harness grommet and push in.



Remove the 10 valve body bolts. Remove the valve body.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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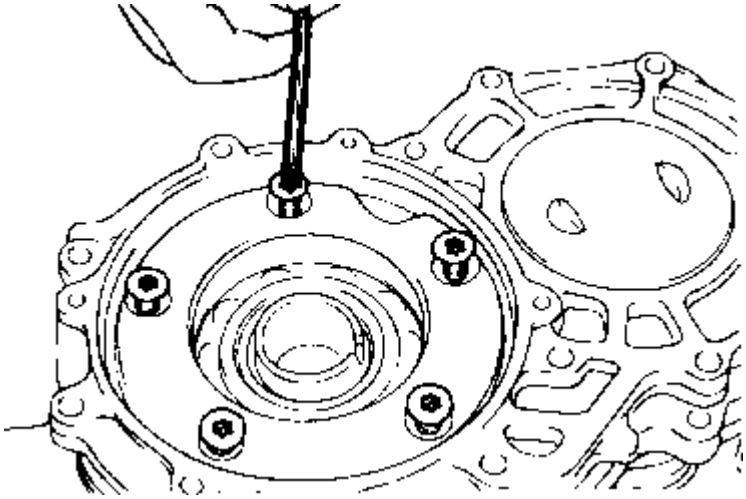
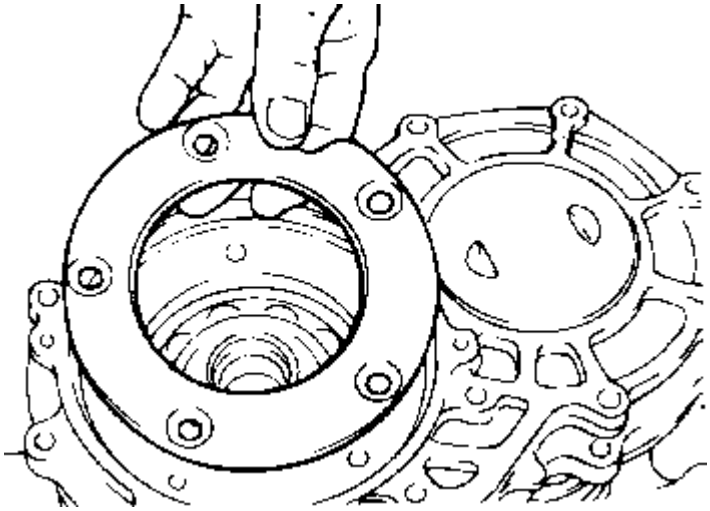
DISASSEMBLY (CONTINUED)

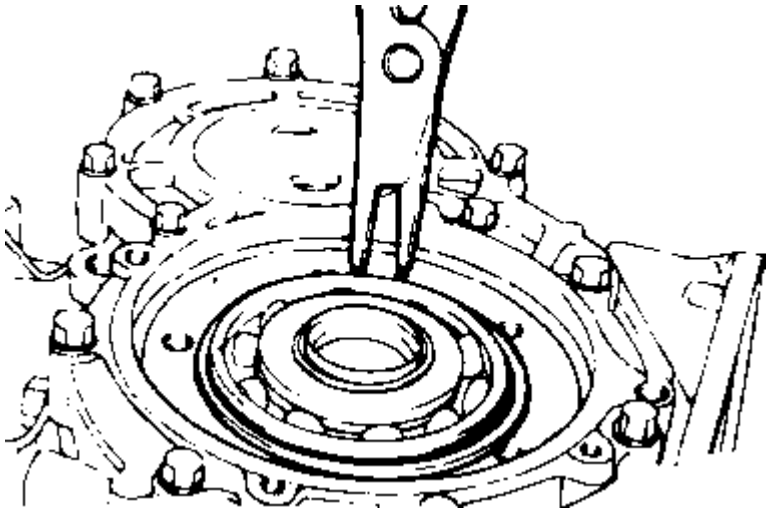
Using an impact driver, loosen and remove the bearing retainer.



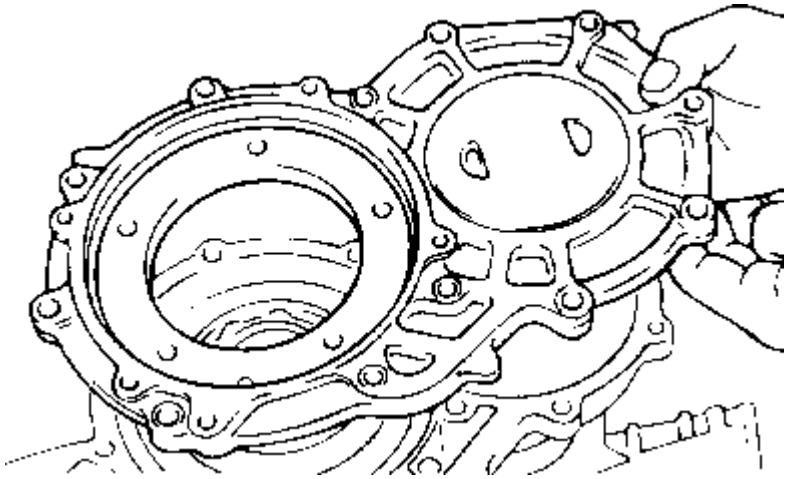
Remove the bearing retainer.



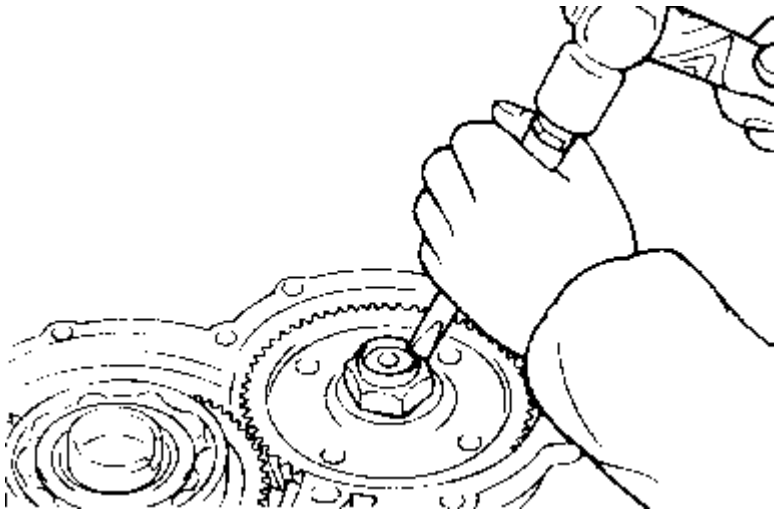
Remove the snap ring from the bearing.



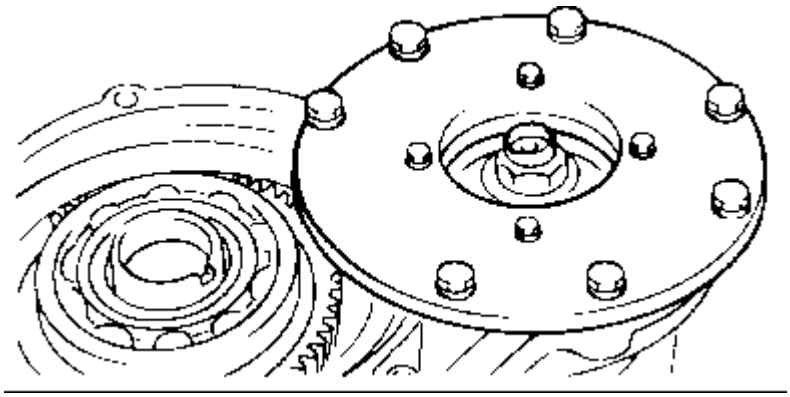
Loosen the rear cover mounting bolts and remove the rear cover.



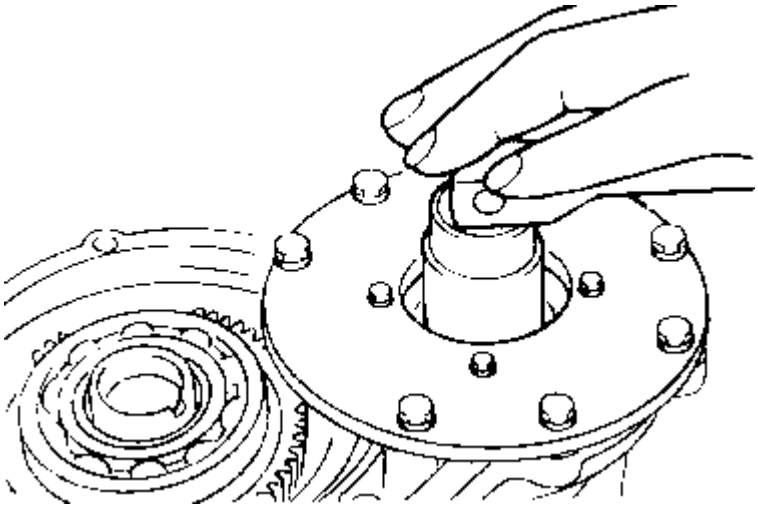
Stand the transfer shaft lock nut caulking by punch.



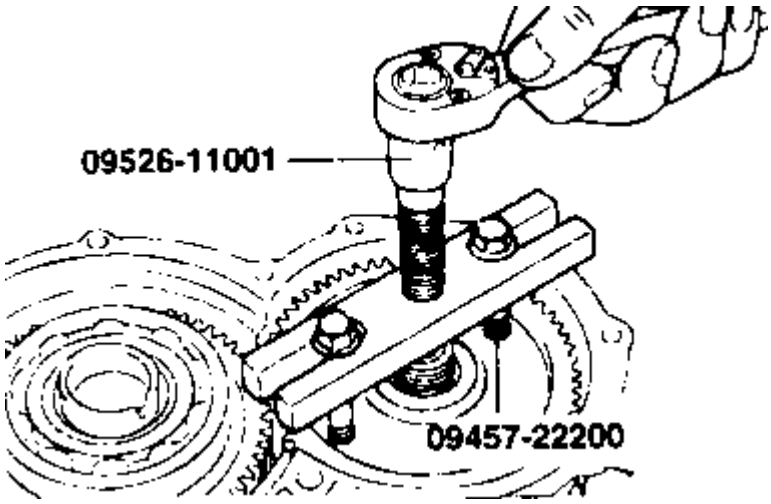
Install the special tool to the transaxle case.



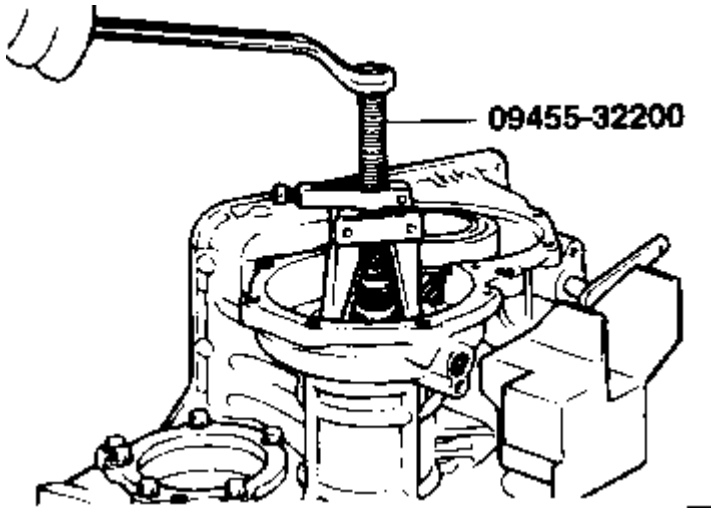
Remove the locking nut.



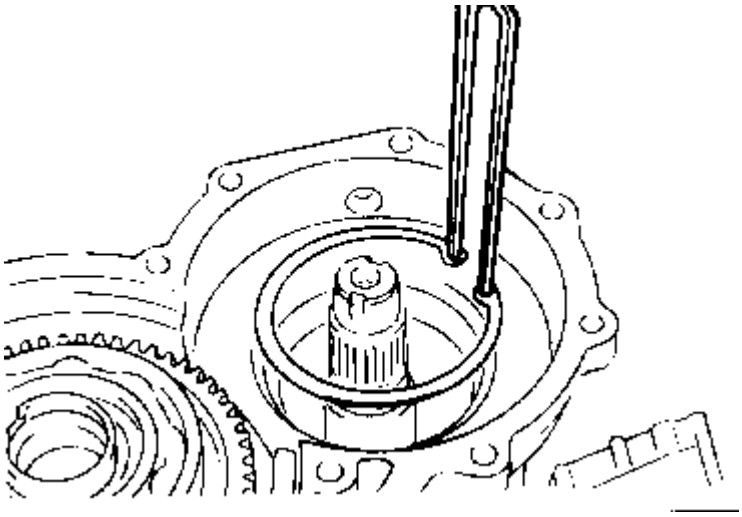
Using the special tool, remove the transfer driven gear



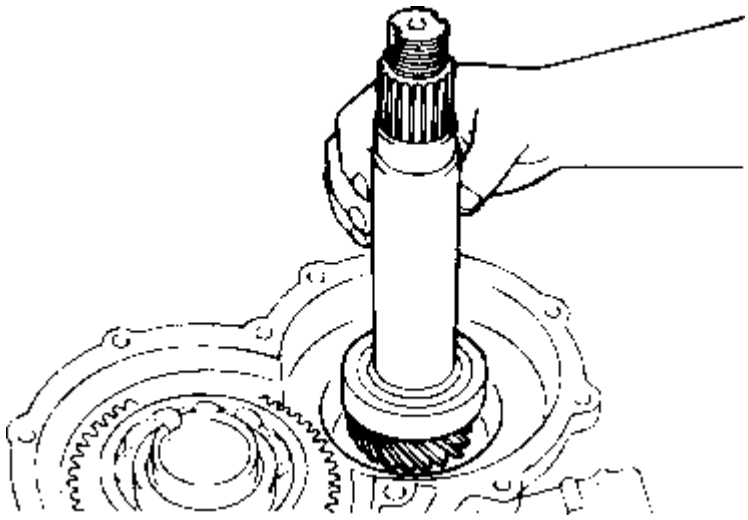
Using the special tool, remove the taper roller bearing outer race. Remove the taper roller bearing outer race.



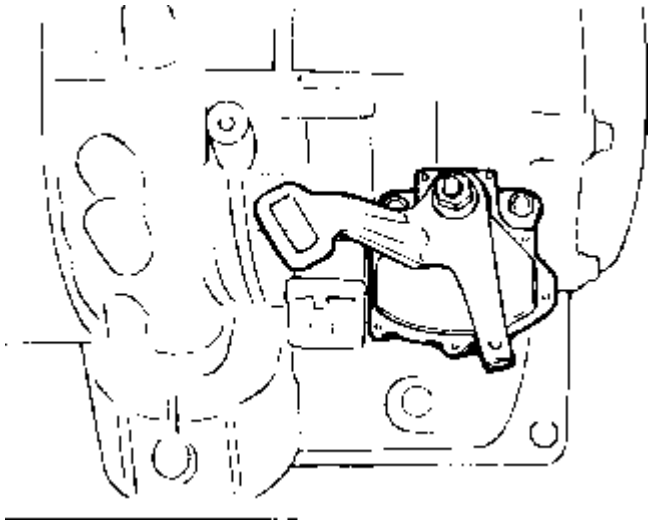
Remove the snap ring.



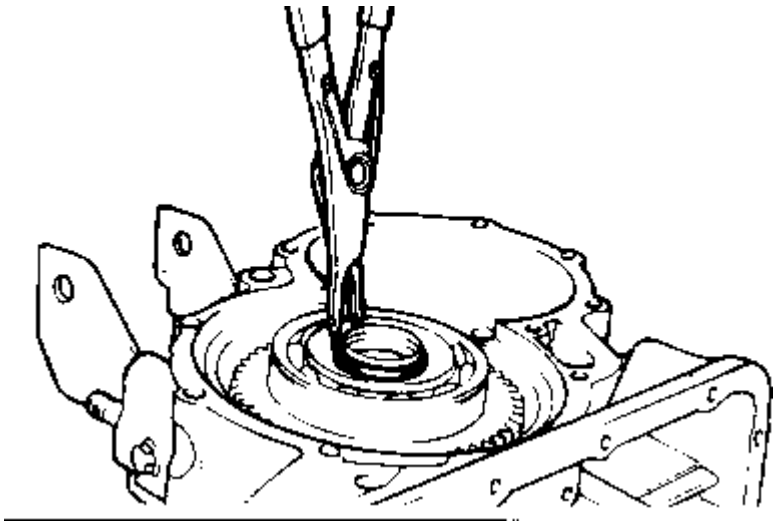
Remove the transaxle shaft and taper roller bearing.



Move the manual control lever from the "P" position to "N" position.



Remove the snap ring from the output flange assembly.



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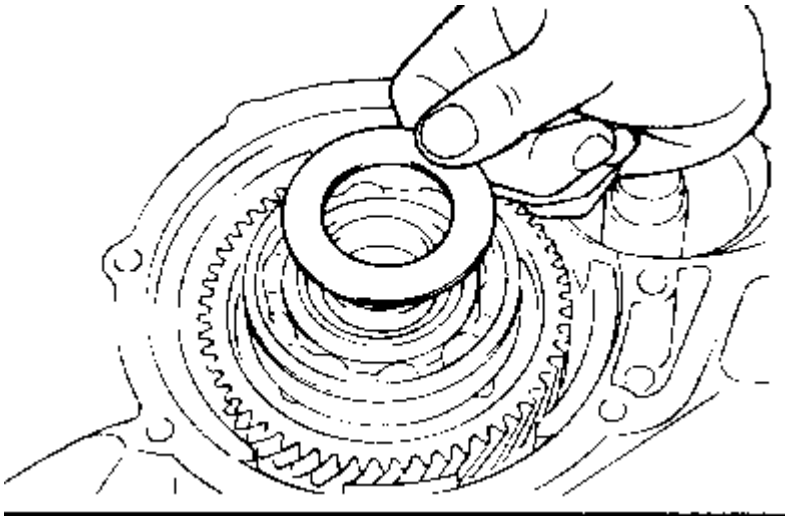
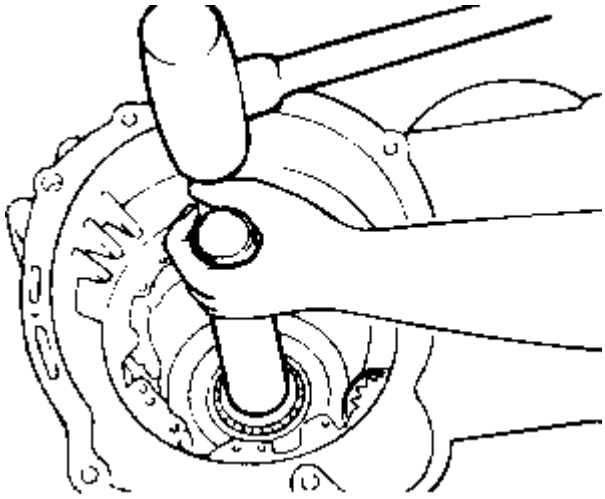
DISASSEMBLY (CONTINUED)

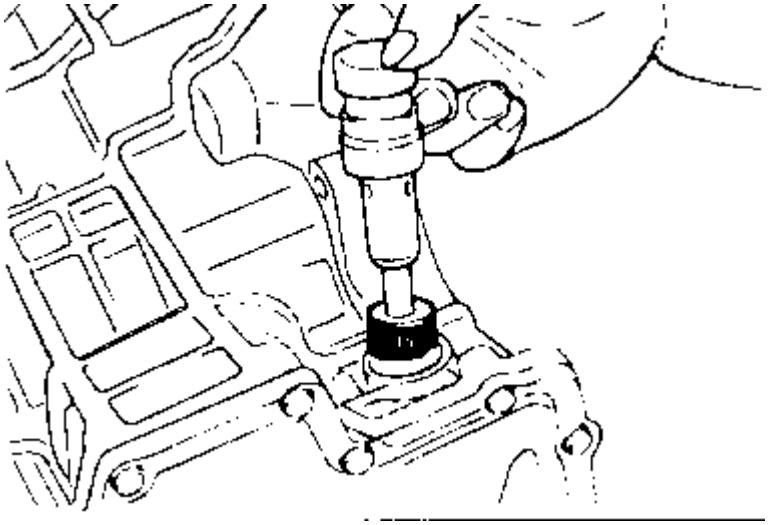
Remove the stopper plate.



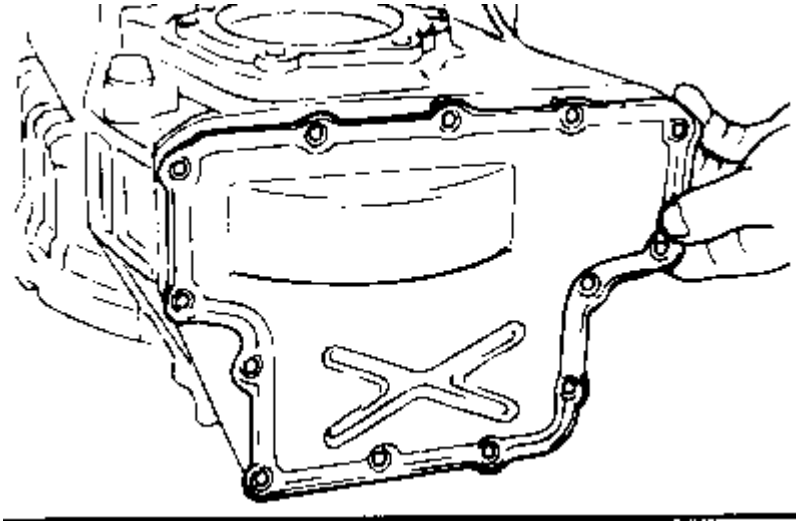
Using the special tool or presser, remove the output flange and drive gear.



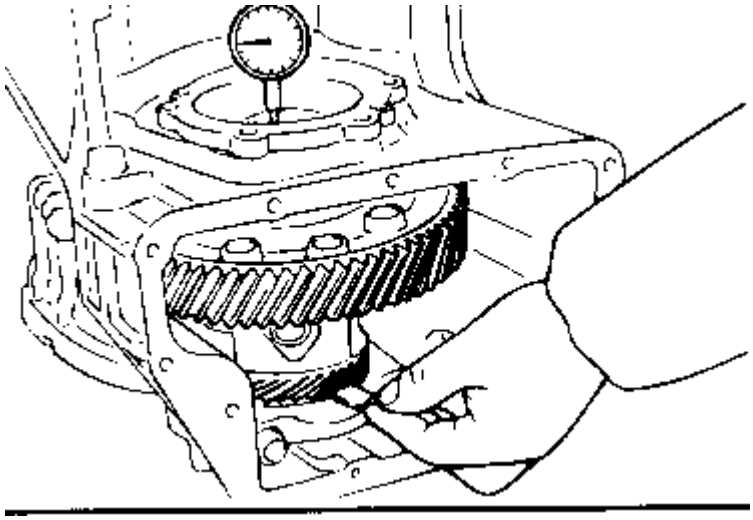
Remove the speedometer sleeve.



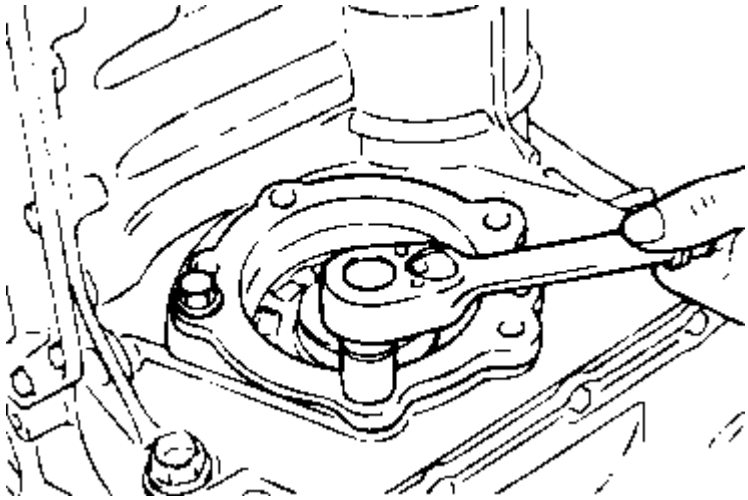
Remove the differential cover and the gasket.



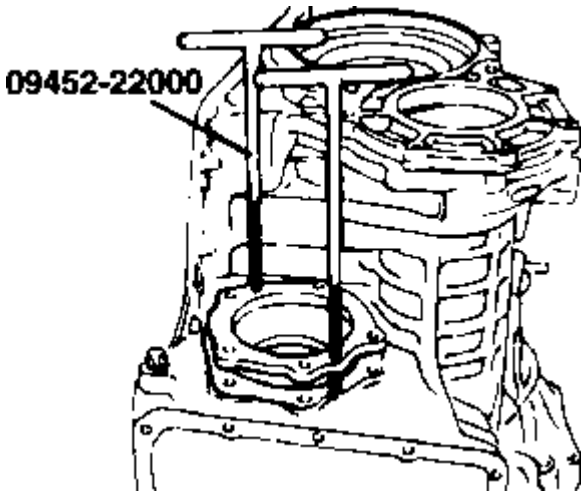
Before removal of the differential gear, measure the end play of the deferential gear with a dial gauge.



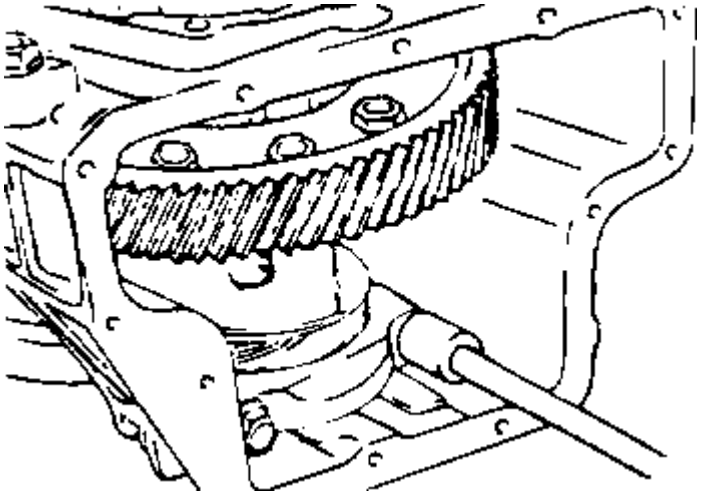
Remove the 5 differentiai bearing retainer mounting bolts.



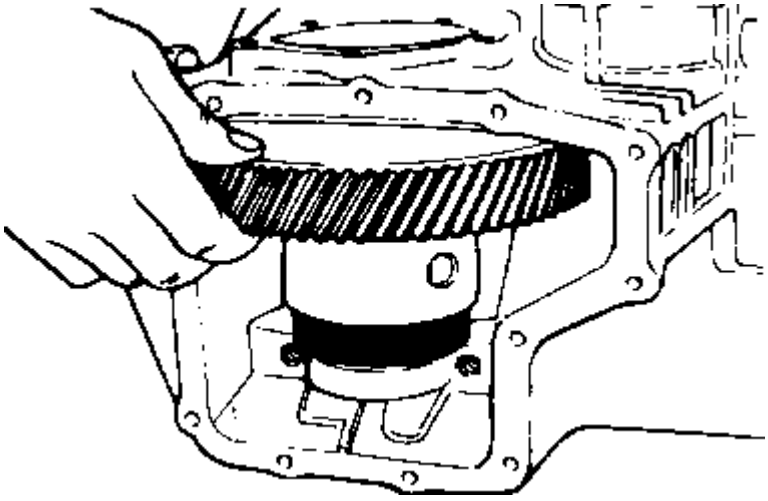
Using the special tool, remove the differential bearing retainer.



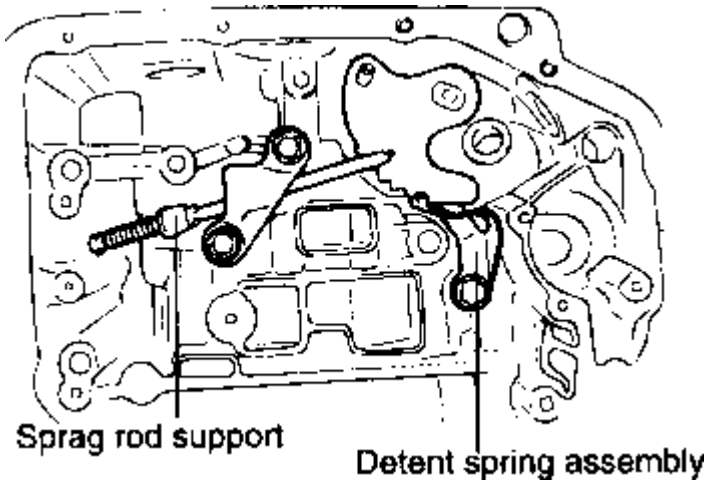
Loosen the mounting bolts and remove the bearing cap.



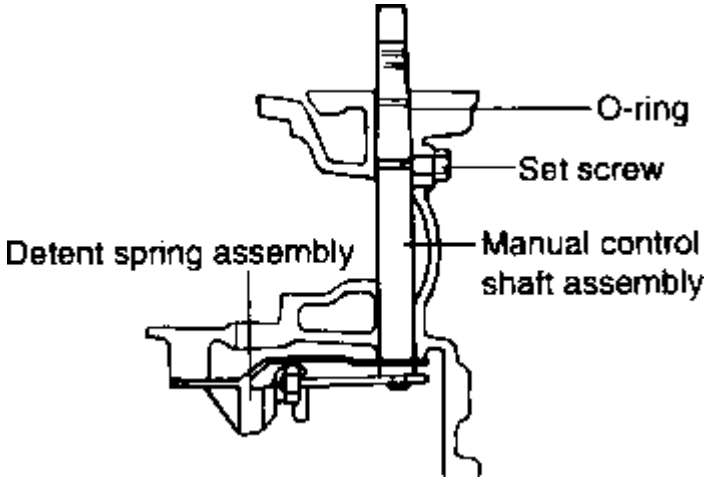
Remove the differential assembly.



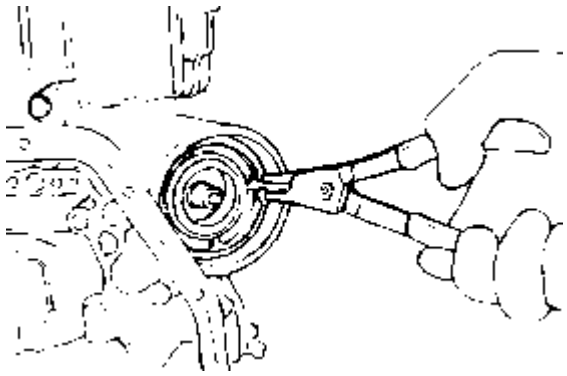
Remove two bolts of the sprag rod support and the bolt of the detent spring assembly.



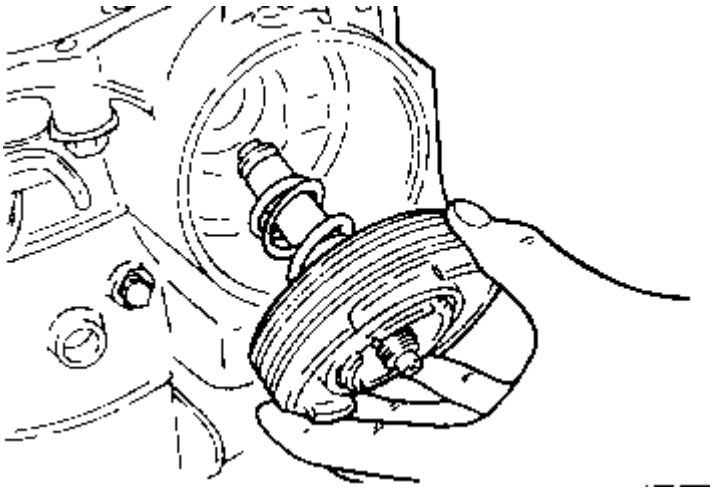
Remove the set screw and the manual control shaft assembly. Remove the sprag rod and the detent spring assembly.



Remove the kickdown servo snap ring.



Remove the kickdown piston assembly.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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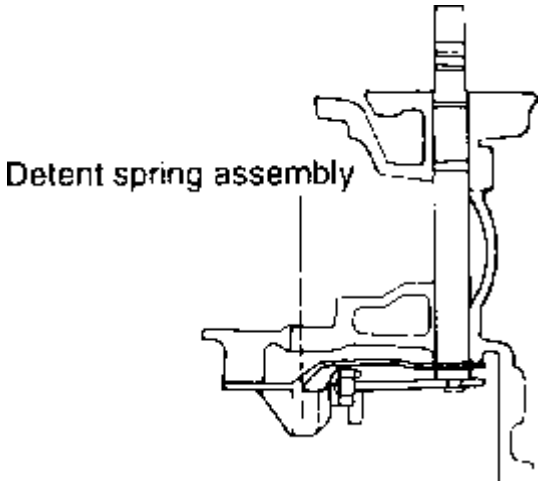
REASSEMBLY

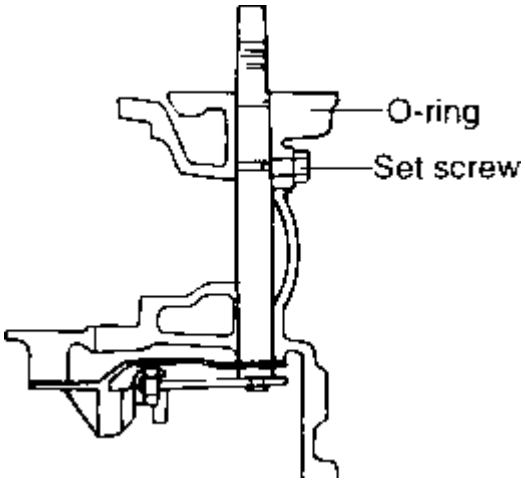
CAUTION

Do not reuse gaskets, oil seals and rubber parts. Replace them with new ones at every reassembly. The O-ring of the oil level dipstick need not be replaced.
Do not use grease other than petrolatum or industrial vaseline. Apply automatic transaxle fluid to friction elements, rotating parts, and sliding parts before installation. Refer to page 104 concerning automatic transaxle fluid. New clutch discs should be immersed in automatic transaxle fluid for a minimum of two hours before installation.
Do not apply sealer or adhesive to gaskets. When bushings must be replaced, replace their complete assembly.
Do not use shop towels during disassembly and reassembly operation. The oil in the cooler should also be replaced.

After installing the detent spring assembly and the sprag rod assembly on manual control shaft, insert manual control shaft into transaxle case and push it fully toward manual control lever. At this time, do not install the O-ring (large one of two O-rings) on manual control shaft.

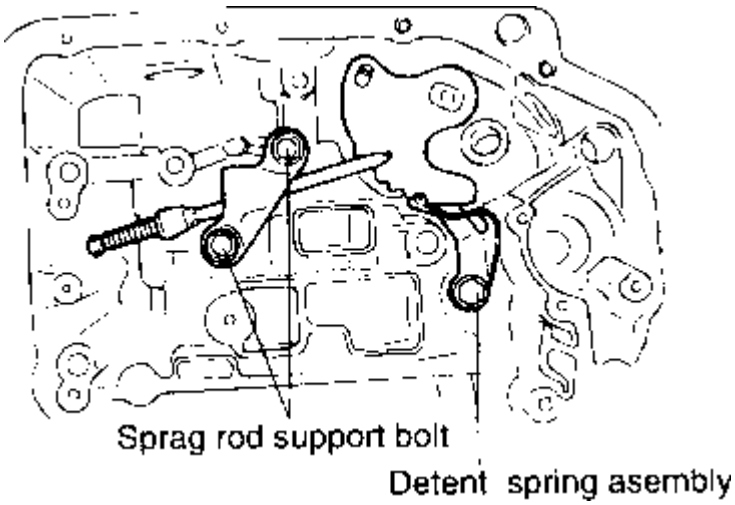


After installing the new O-ring on manual control shaft, draw shaft back into case, then install set screw and gasket.

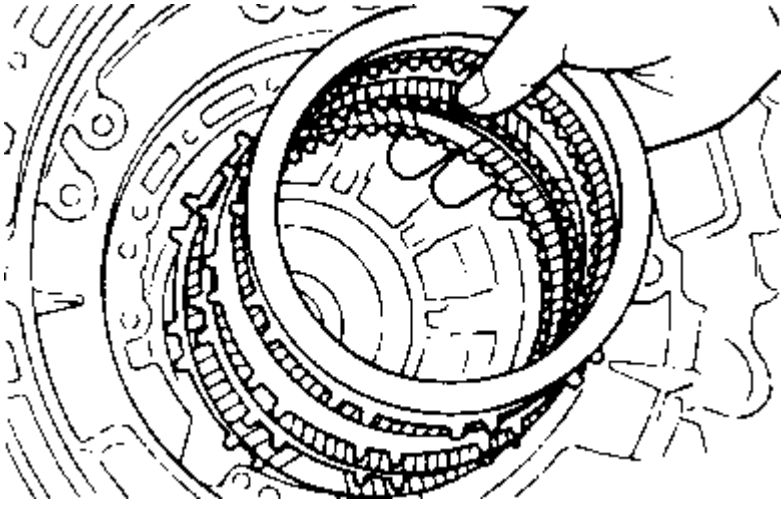


Install the sprag rod support and tighten two bolts. Install the washer and tighten the bolt of the detent spring assembly.

TORQUE SPECIFICATION	
Sprag rod support bolts	20-27 Nm (200-270 kg·cm, 15-19 lb·ft)
Detent. sprag assembly bolt	10-12 Nm (100-120 kg·cm, 7.5-8.4 lb·ft)



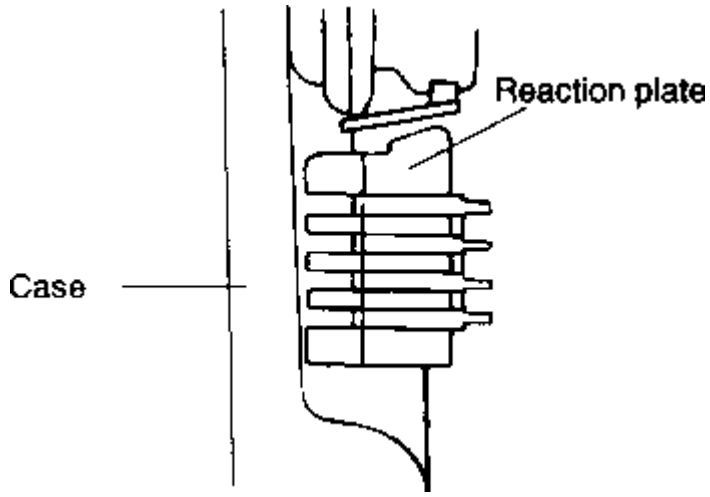
Before assembly of the transaxle, measure the end play of the low-reverse brake, and select a pressure plate to be used so that the end play will be the standard value. Install the brake reaction plate, brake plate and brake disc to the transaxle case.



CAUTION

If new brake discs are used, be sure to immerse them in ATF for a minimum of two hours.

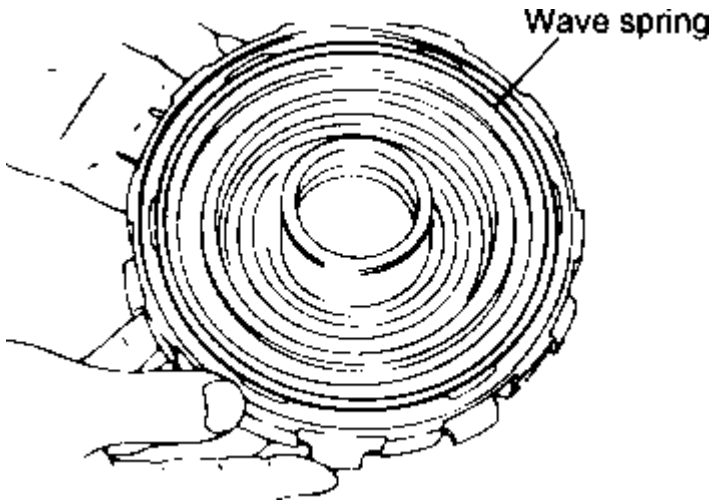
Install the appropriate pressure plate and then install the return spring.



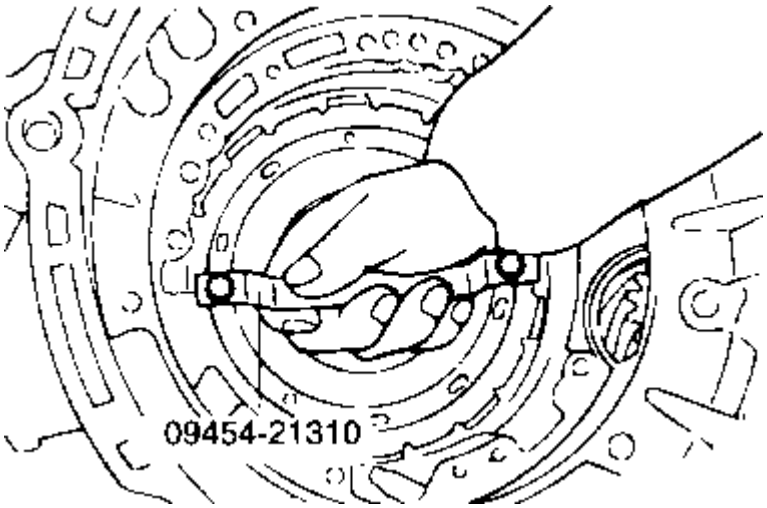
CAUTION

Be sure that the return spring is installed so that it faces in the correct direction.

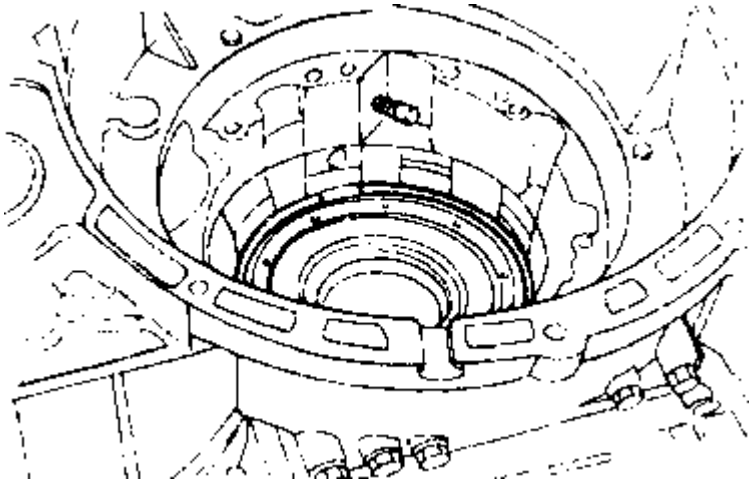
Apply a coating of petroleum jelly to the wave spring and attach it to the center support.



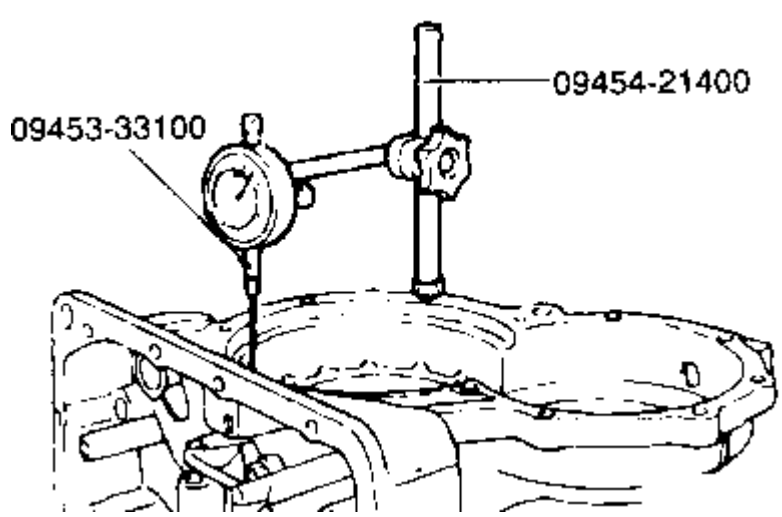
Install the special tool (09453-21310) to the center support.

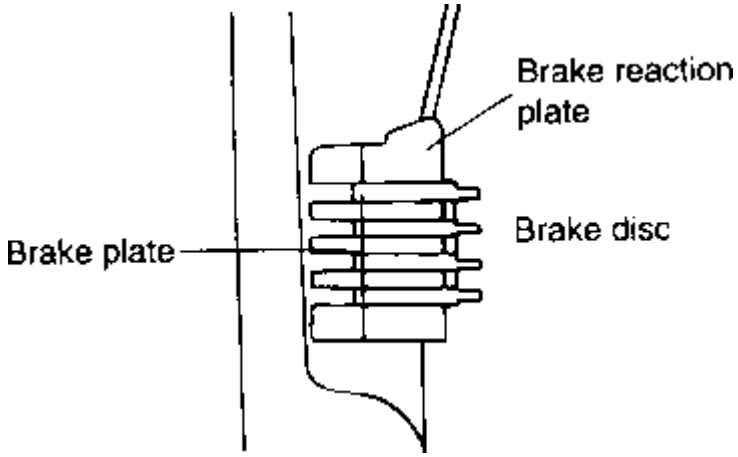


Install the snap ring.



Install the special tools (09454-21400, 09453-33100) and a dial gauge at the rear side of the transaxle case.

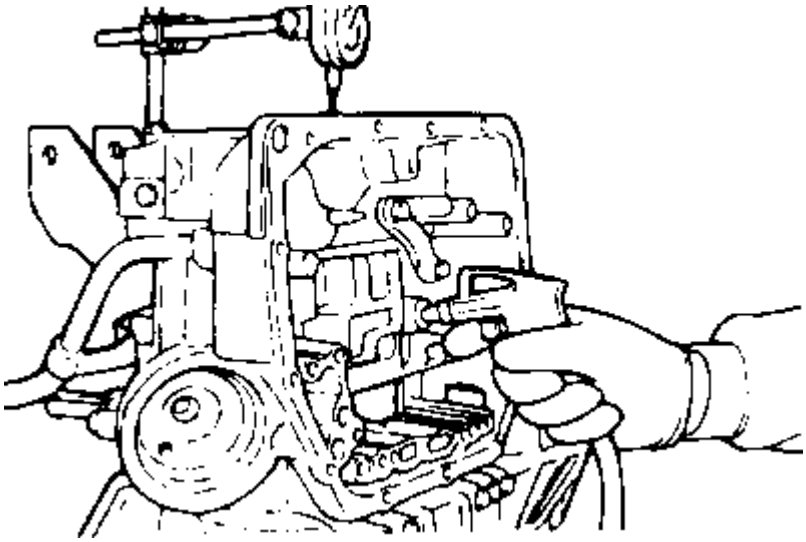




CAUTION

Install the dial gauge so that it contacts the brake reaction plate at a right angle from the transfer idler shaft hole.

Using a manual pump, pump air (5 kg/cm ^{2}) in from the position shown in the illustration. Read the dial indicator gauge, and select the pressure plate that will provide the standard value.

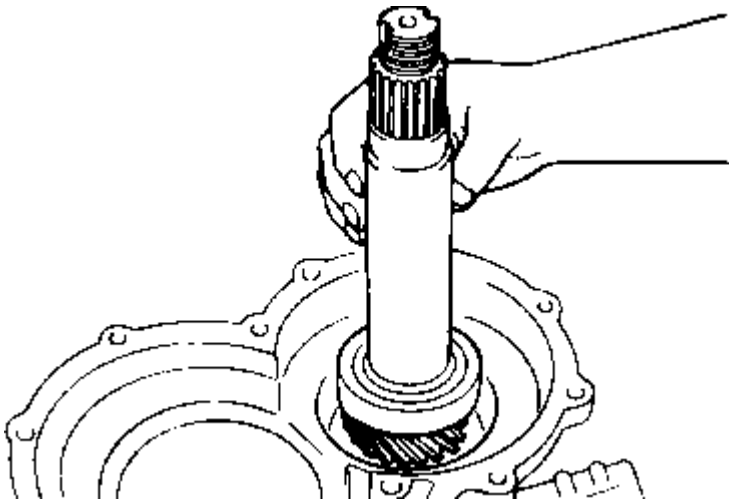


MEASUREMENT SPECIFICATION	
	0.975-1.287 mm (0.038-0.051 in)

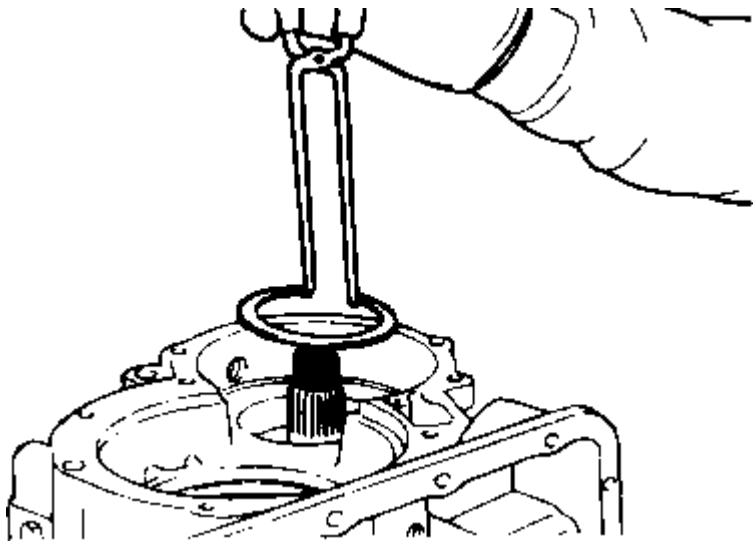
MEASUREMENT SPECIFICATION	
Pressure plate	5.7-7.0 mm

After selecting pressure plate, remove center support, brake plate brake disc, brake reaction plate and pressure plate.

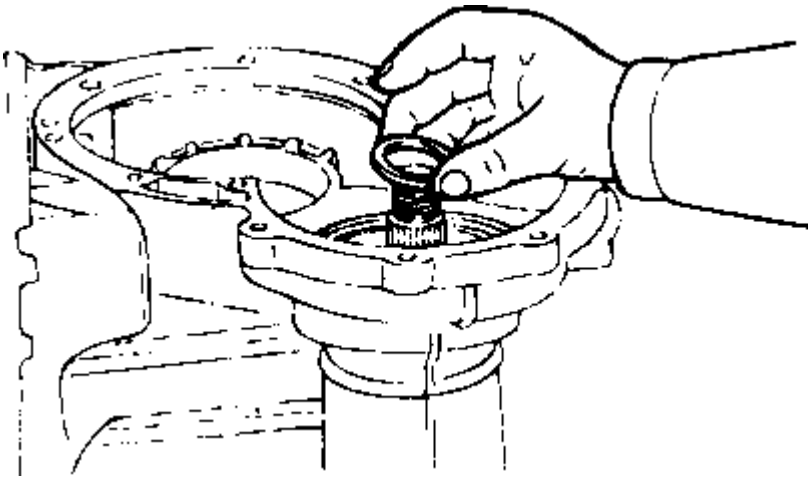
Install the transfer shaft, and press-fit the bearing outer race to the transaxle case.



Install the transfer shaft snap ring.



Insert the spacer on the transfer shaft.



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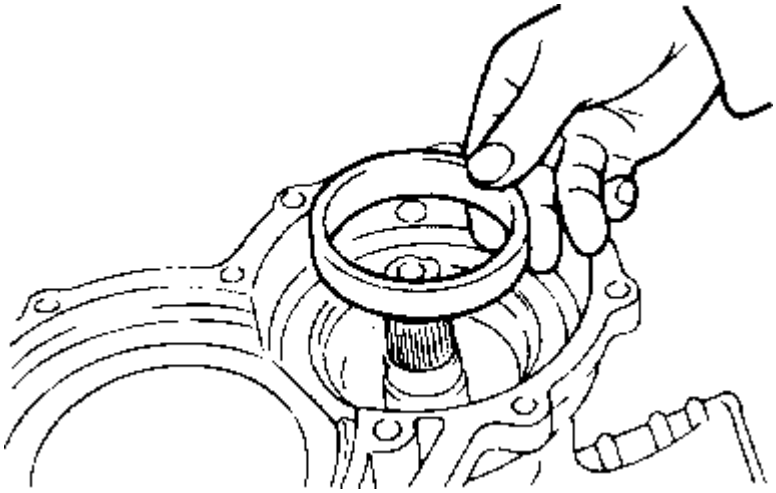
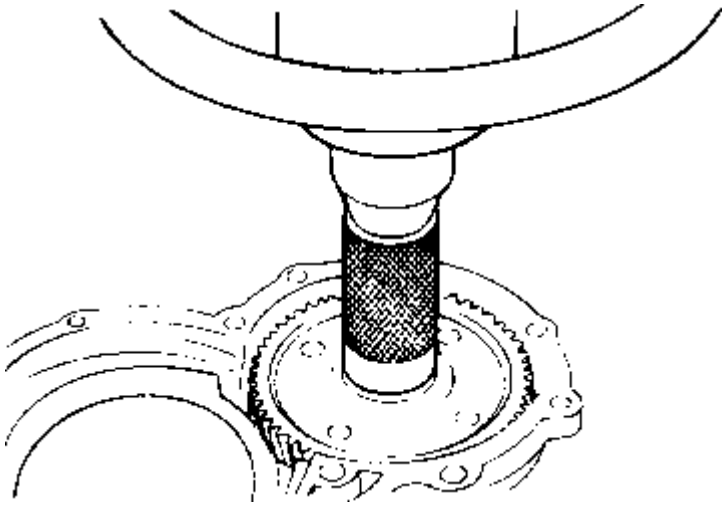
REASSEMBLY (CONTINUED)

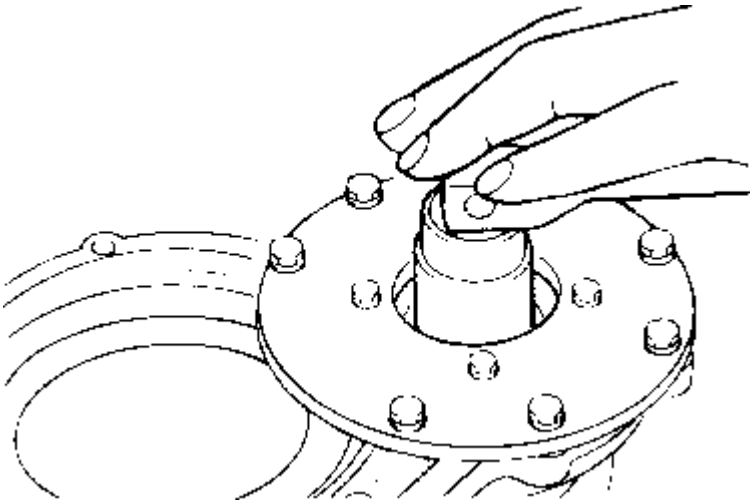
Install the bearing cage on the case.



Press-fit the transfer driven gear to the transfer shaft.

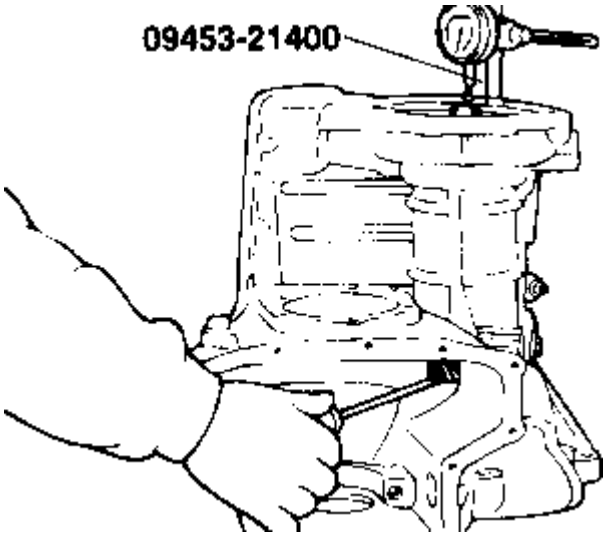


After installing the special tool at the transaxle case, tighten the lock nut to the specified torque.



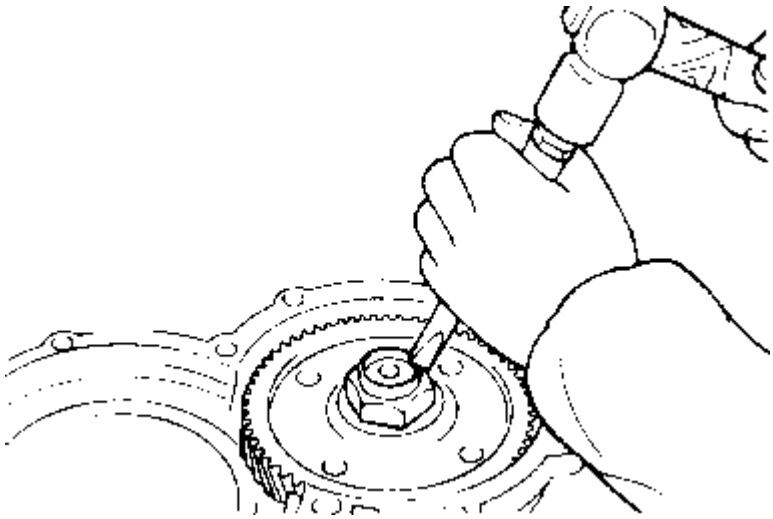
TORQUE SPECIFICATION	
Transfer lock nut	200-230 Nm (2000-2300 kg·cm, 146-166 lb·ft)

After installing the dial gauge, measure the end play of the transfer shaft: then select the spacer(s) needed to obtain the standard value, and refit.

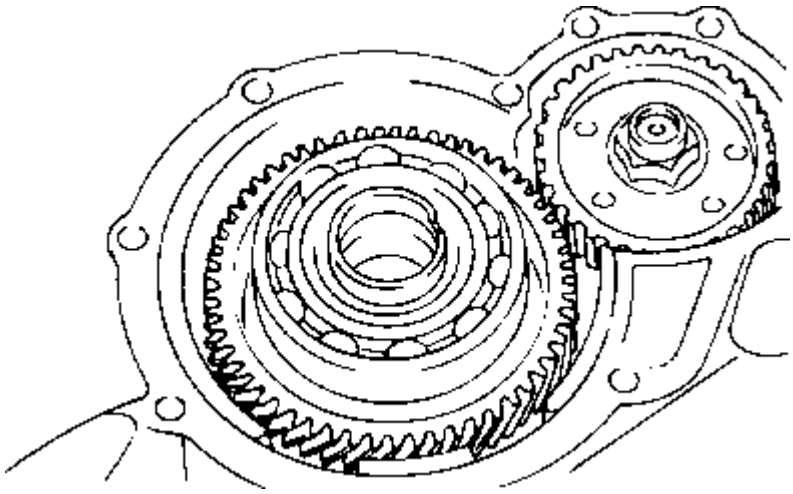


MEASUREMENT SPECIFICATION	
Transfer shaft end play	0-0.06 mm (0-0.002 in)

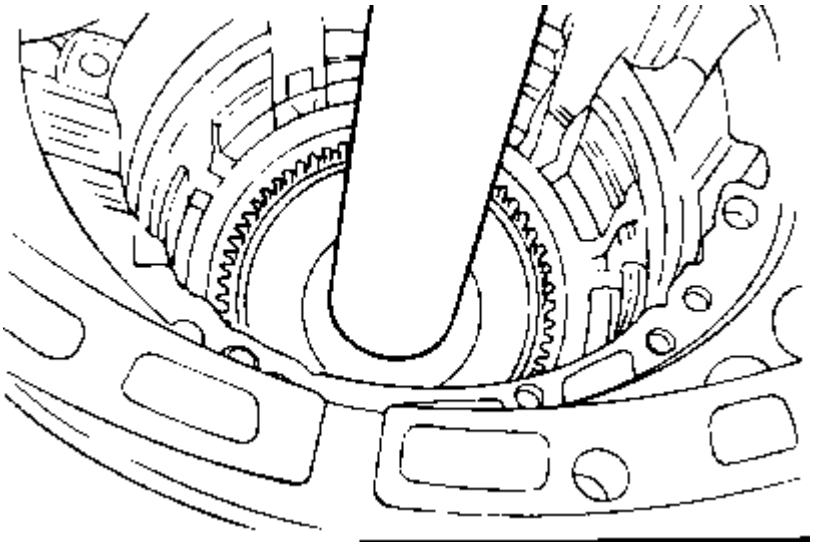
Using a punch, lock the lock nut to prevent rotation.



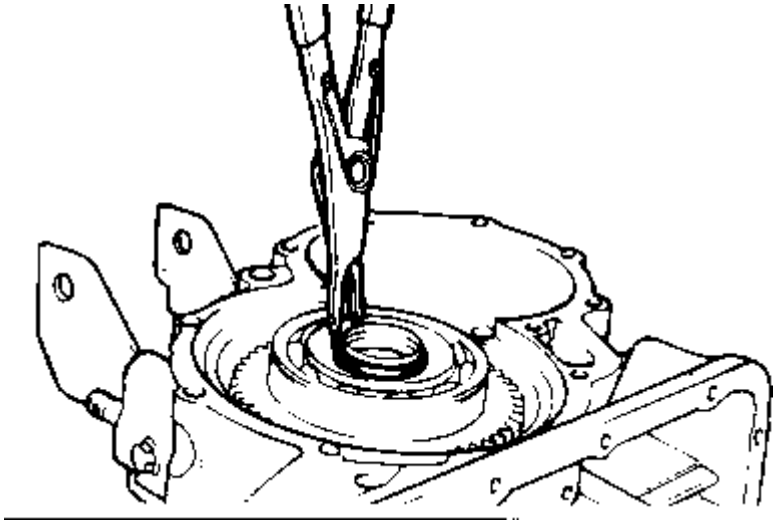
Install the transfer drive gear assembly.



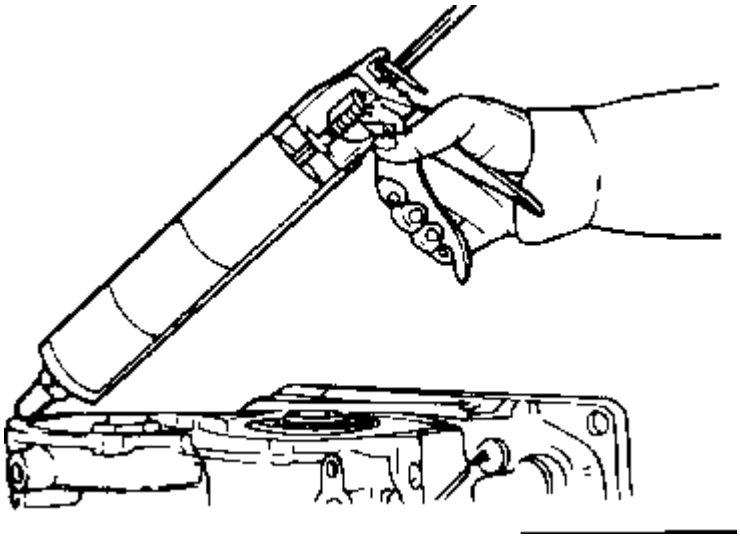
Using the special tool, insert the assembly of the annulus gear into the transfer drive gear.



Install the stopper plate and snap ring.

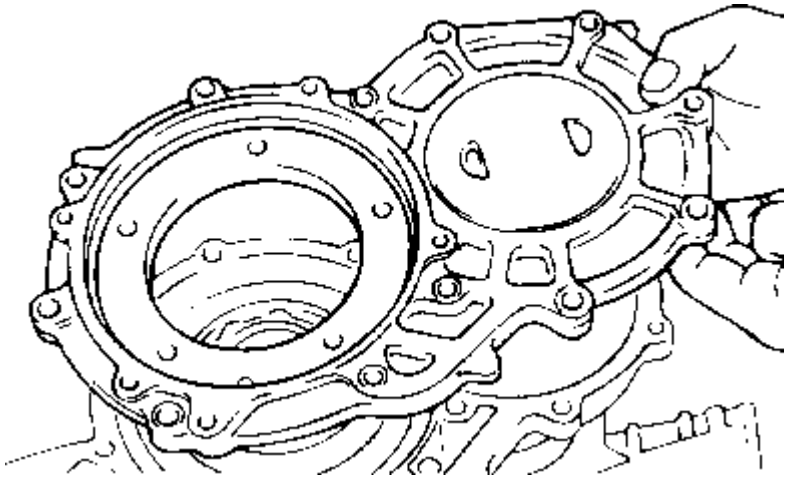


Apply specified sealant to the rear cover.



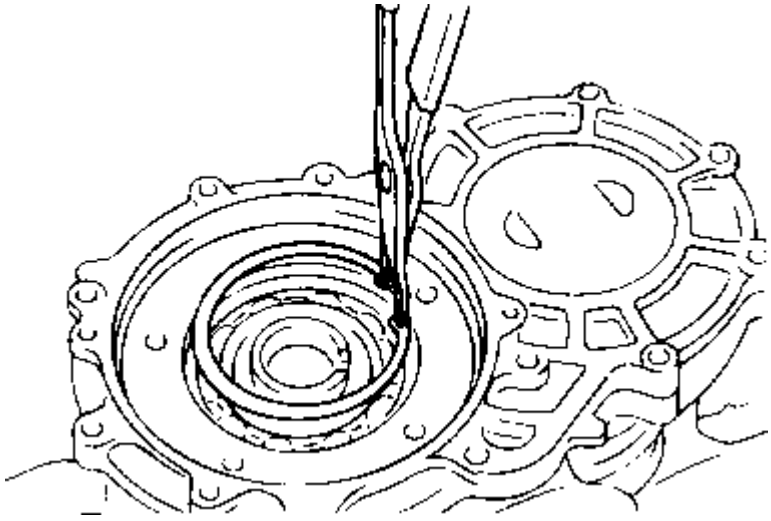
Specified sealant: THREE BOND 1216

Install the rear cover assembly.

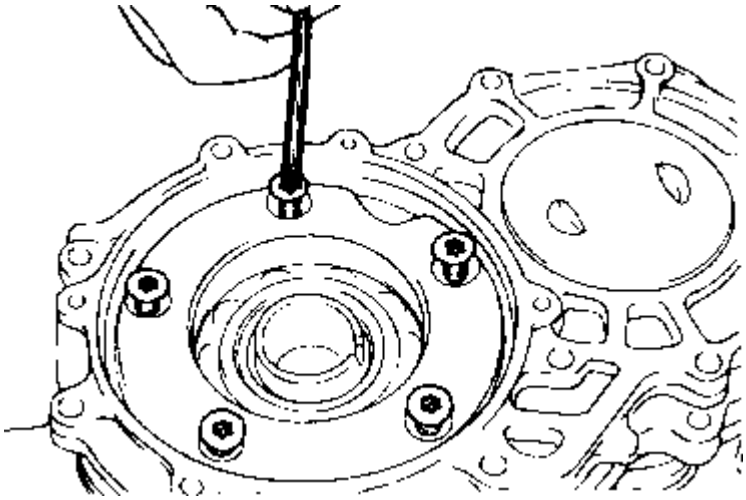


TORQUE SPECIFICATION	
Rear cover	17-22 Nm (170-220 kg·cm, 12.3-15.9 lb·ft)

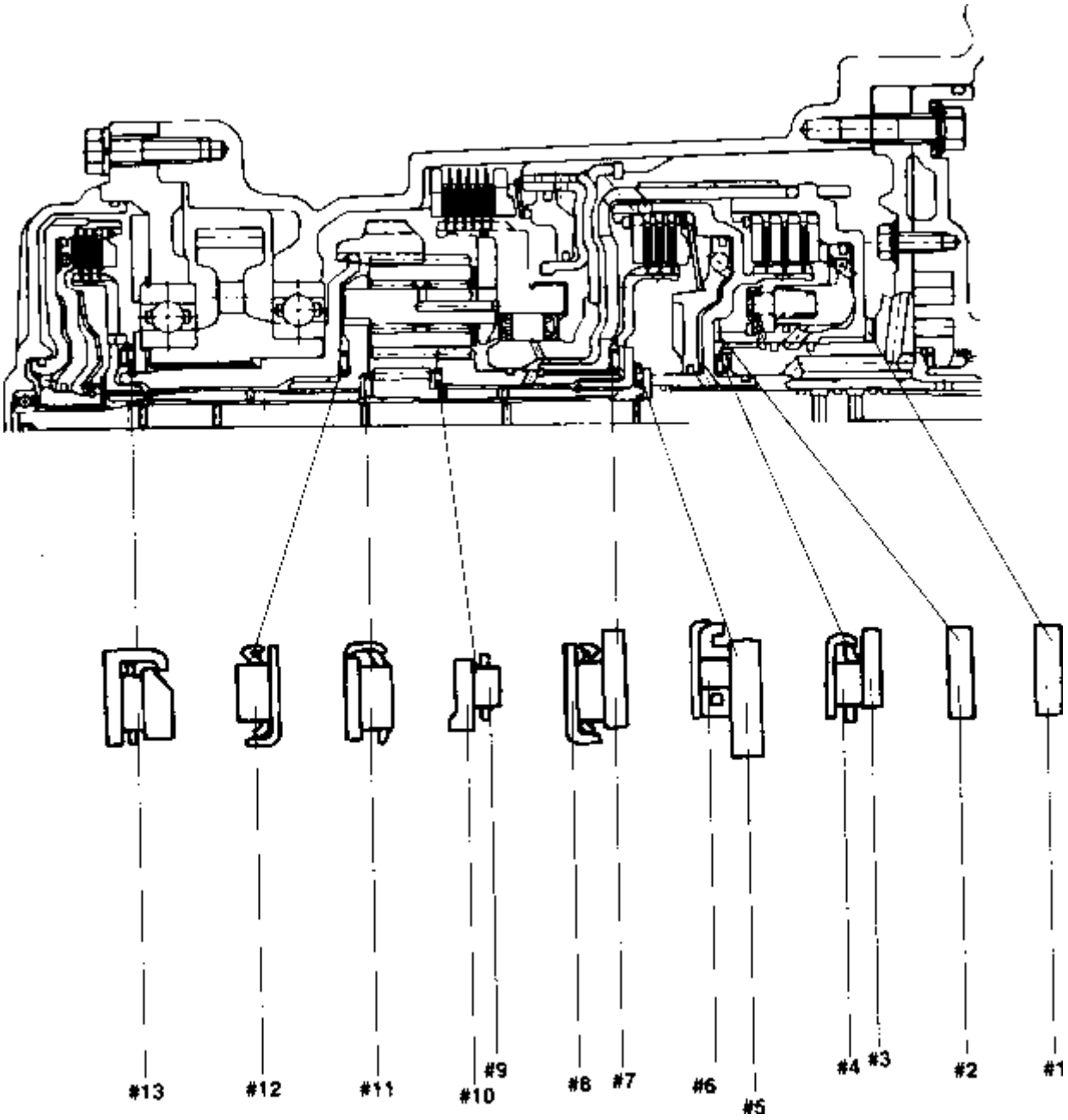
Install snap ring.



Install the bearing retainer. Tighten the screws to the specified torque. Apply a 5 mm (0.2 in.) width of sealant (3M Stud Locking No. 1303). Sealant should not stick out of screw head.



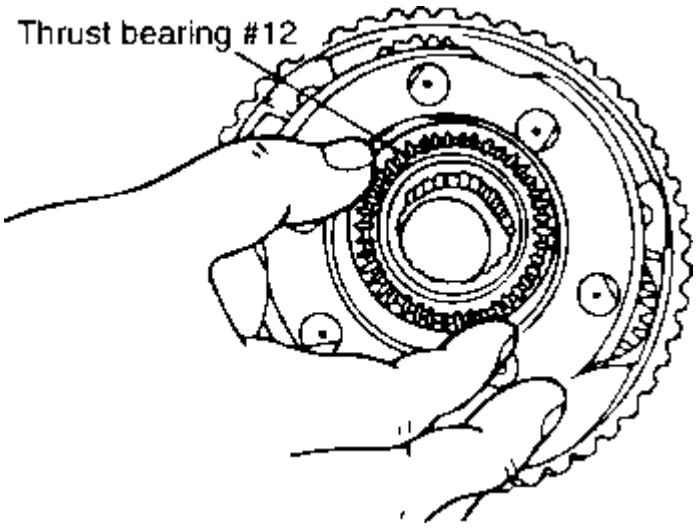
TORQUE SPECIFICATION	
Screw	17-22 Nm (170-220 kg·cm, 13-15 lb·ft)



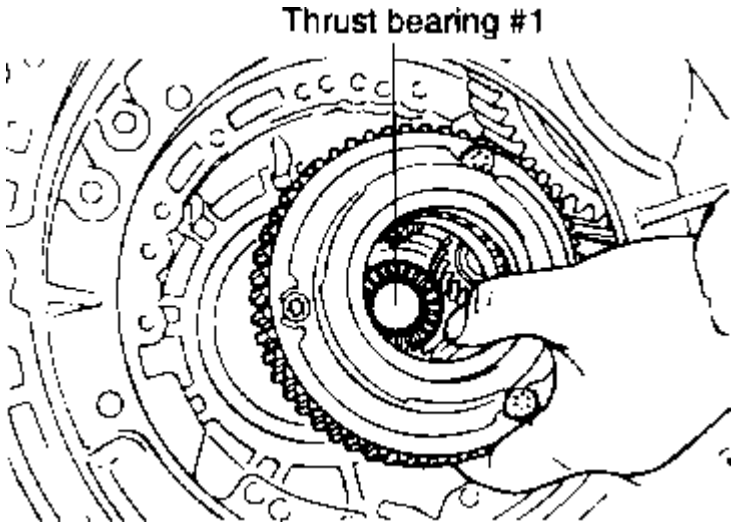
IDENTIFICATION OF THRUST BEARING, AND WASHERS

No	Name	Outer diameter	Inner diameter	Thickness mm (in.)
1	Thrust washer	70 (2.756)	55.7 (2.193)	1.4 (0.055)
				1 .8 (0.071)
				2.2 (0.087)
				2.6 (0.102)
2	Thrust washer	70 (2.756)	55.7 (2.193)	1.8 (0.071)
3	Thrust washer	48.9 (1.925)	37 (1.457)	1.0 (0.039)
				1.2 (0.047)
				1.4 (0.055)
				1.6 (0.063)
				1 .8 (0.071)
				2.0 (0.079)
				2.2 (0.087)
				2.4 (0.094)
4	Front clutch bearing	48.1 (1.88)	34.4 (1.354)	-
5	Thrust bearing race	40 (1.575)	21 (0.827)	2.4 (0.094)
6	Rear clutch bearing	42.6 (1.677)	28 (1.102)	-
7	Thrust bearing race	54 (2.216)	38.7 (1.524)	1.6 (0.063)
8	Bearing	52 (2.047)	36.4 (1.433)	-
9	Planet carrier bearing	41 (1.614)	28 (1.102)	-
10	Thrust bearing race	39 (1.535)	28 (1.102)	1.2 (0.047)
11	Planet carrier bearing	38 (1,496)	22.2 (0.874)	-
12	Bearing	52 (2.047)	36.4 (1.433)	-
13	End clutch bearing	58 (2.283)	44 (1.732)	-

Apply a coating of petroleum jelly to thrust bearing #12 and attach to the planetary carrier.

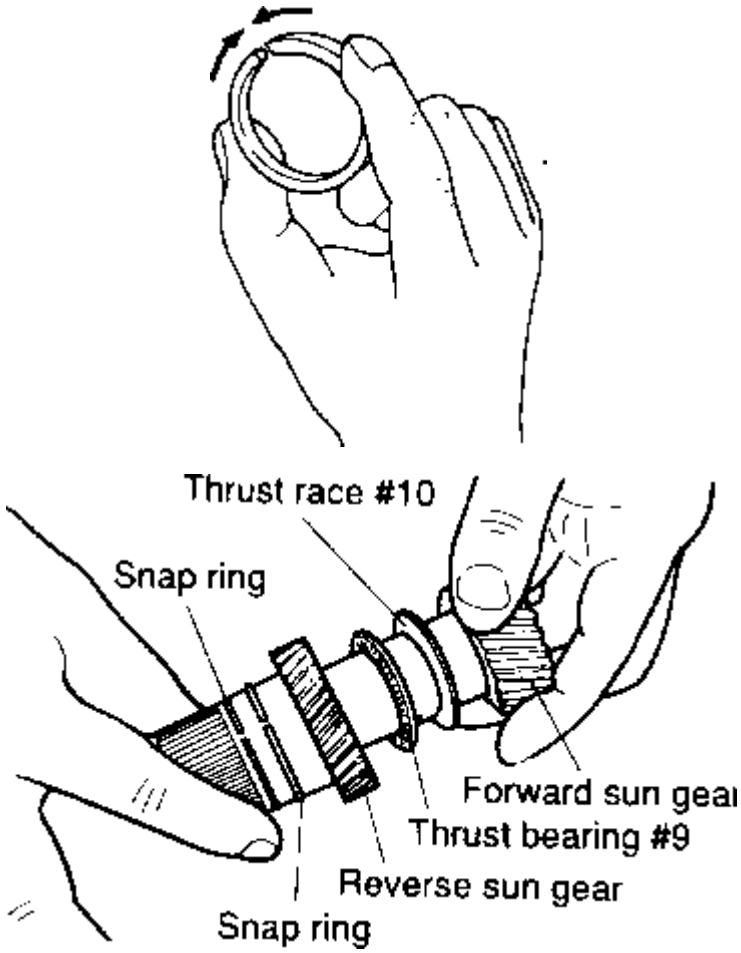


Install the planetary carrier to the case.



Assembly the reverse sun gear and the forward sun gear in the following order.

1. Attach the seal ring and the snap ring to the reverse sun gear. When attaching, squeeze the seal ring as shown in the figure.
2. Attach thrust #9 to the forward sun gear.
3. Attach thrust race #10 to the forward sun gear.
4. Assemble the reverse sun gear, and then the forward sun gear.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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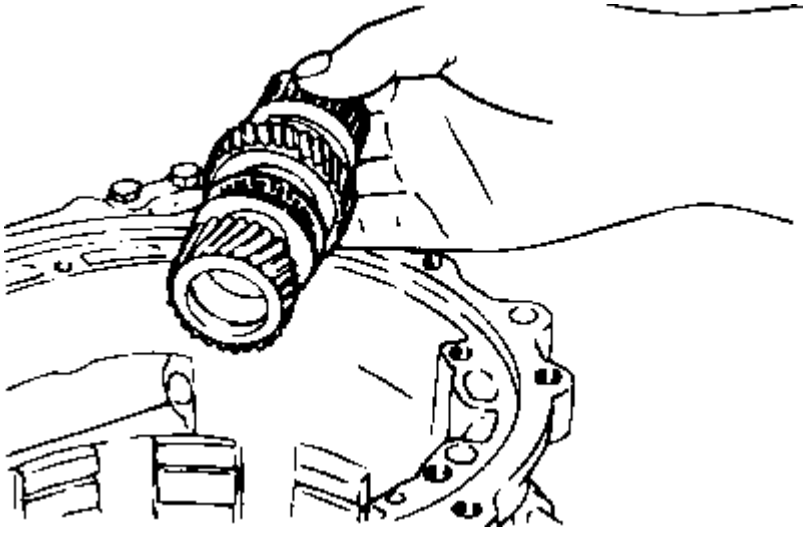
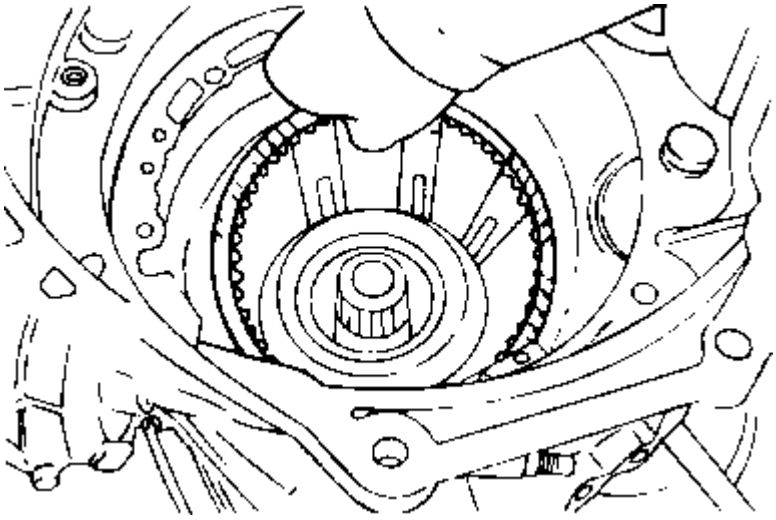
REASSEMBLY (CONTINUED)

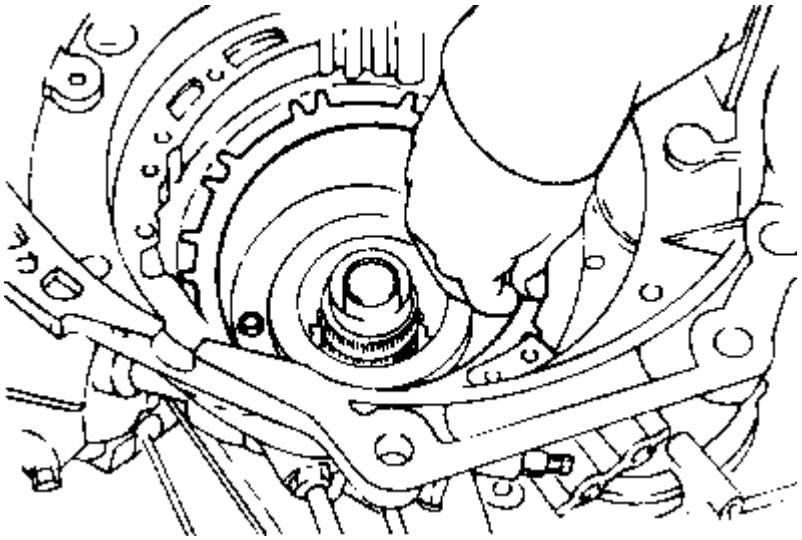
Install both of the previously assembled sun gears inside the planetary carrier.



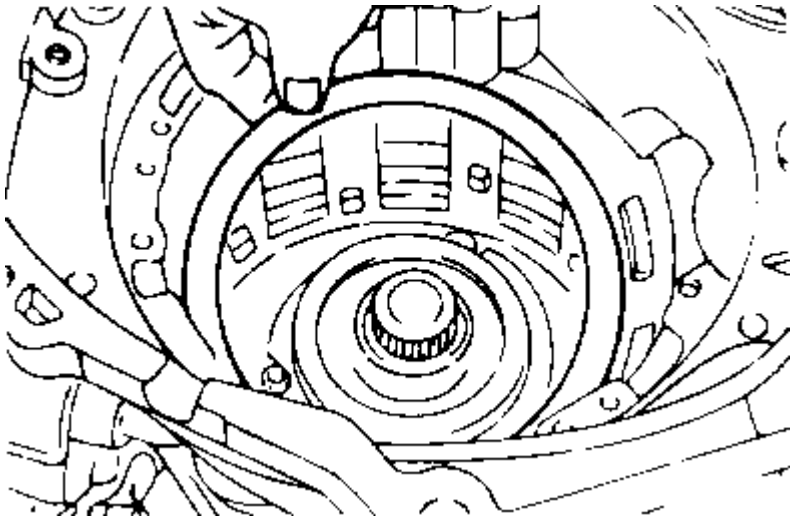
Install the brake disc and brake plate.



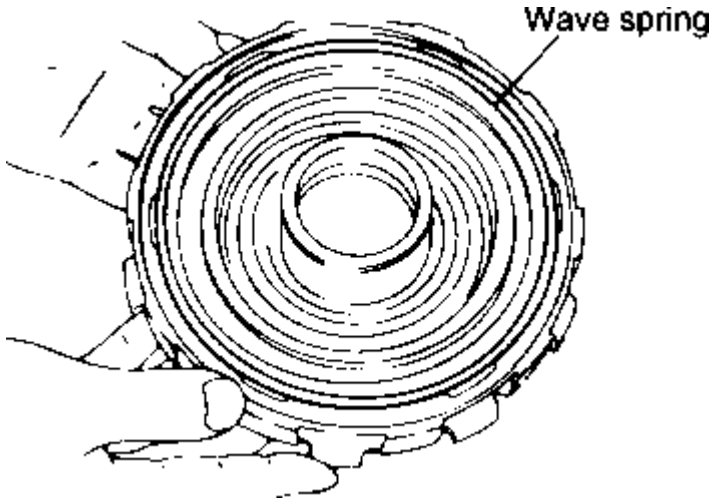
Install the selected brake pressure plate.



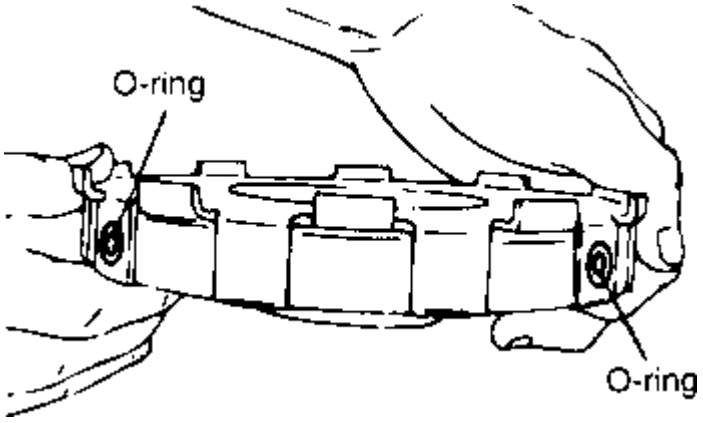
Install the return spring.



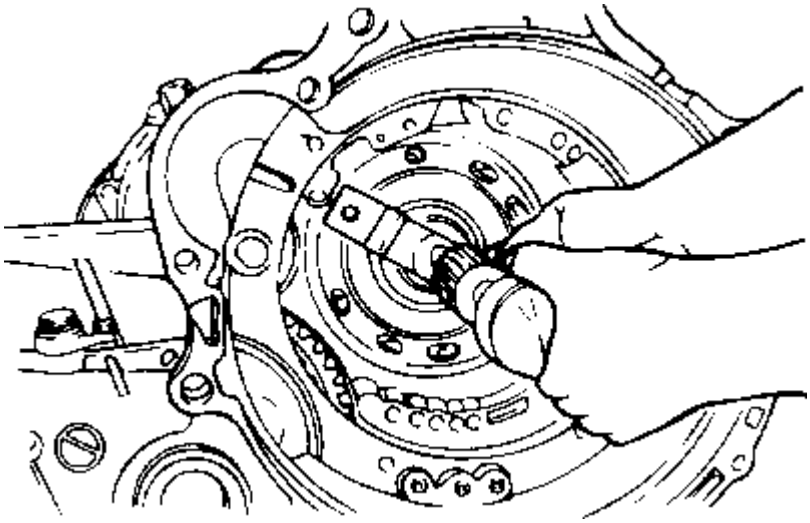
Apply a coating of petroleum jelly to the wave spring and attach it to the center support.



Install the two new O-rings to the center support.



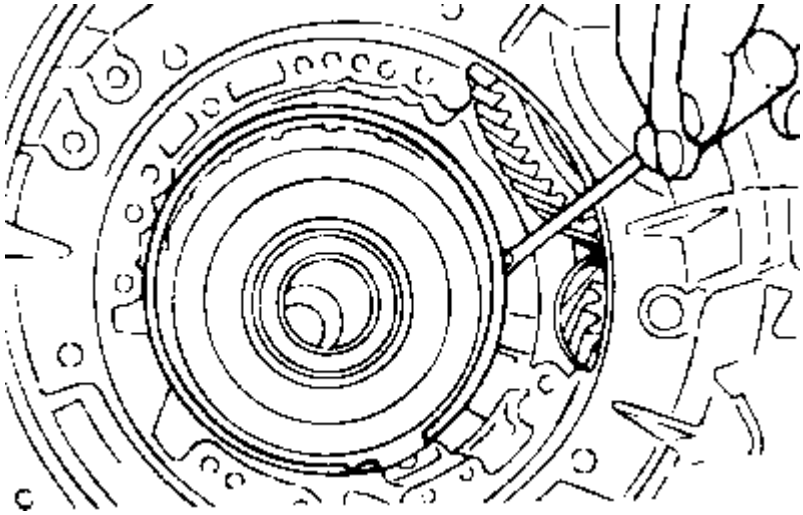
After applying a coating of ATF to the O-rings, install the special tool (09453-21310) to the center support, and install into the case.



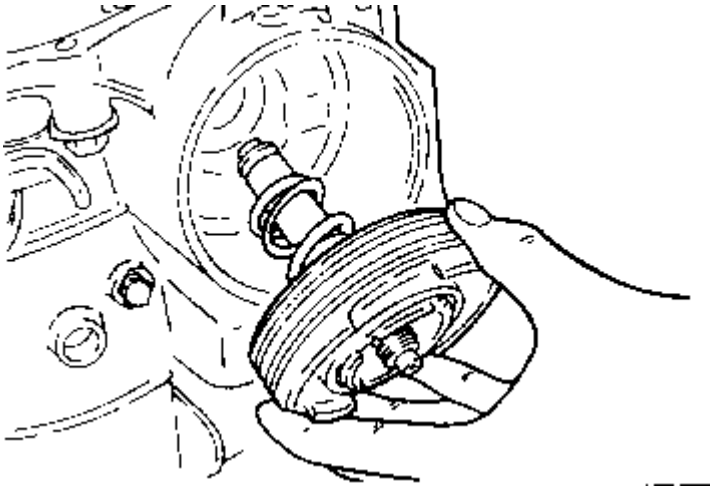
CAUTION

Be sure that the wave spring is not out of position.

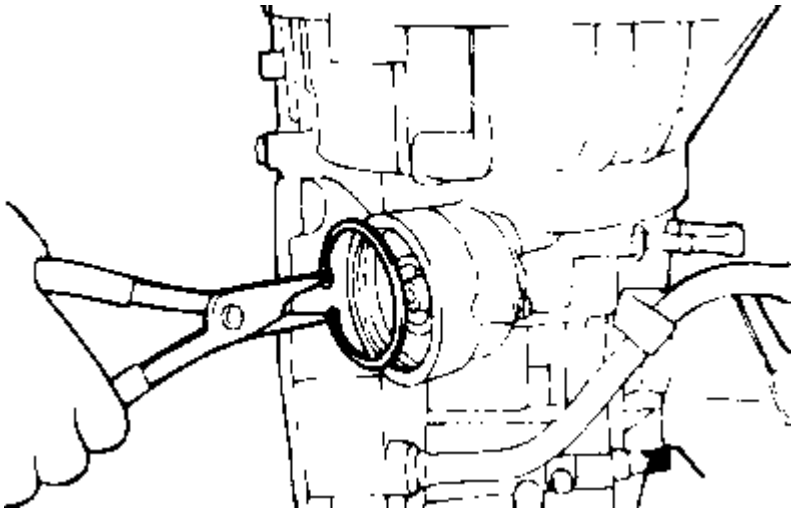
Install the snap ring.



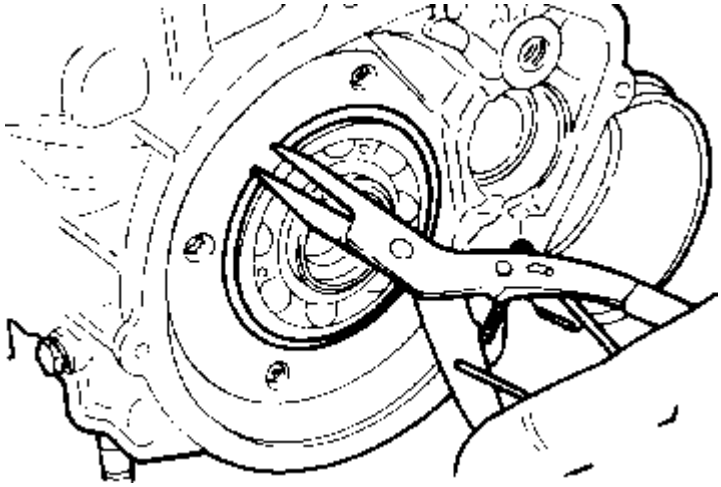
Assemble a new seal ring (large diameter) and D-ring (small audiometer) to the kickdown servo Piston, and install a new O-ring in the groove around the sleeve; then assemble the kickdown servo spring, piston and sleeve in the transaxle case.



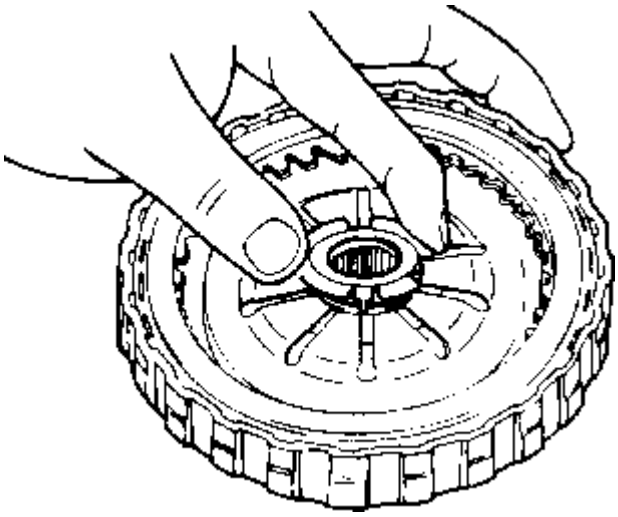
Press the kickdown servo and sleeve, and install the snap ring.



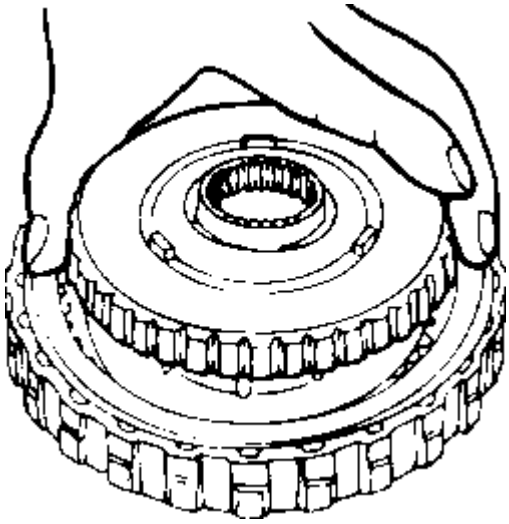
Install the end clutch shaft. Be sure to install the longer spline toward the front as shown.



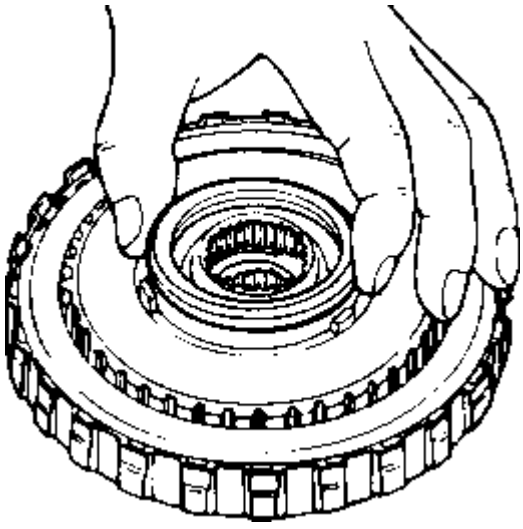
Fit thrust washer toward the return spring at the end clutch side.



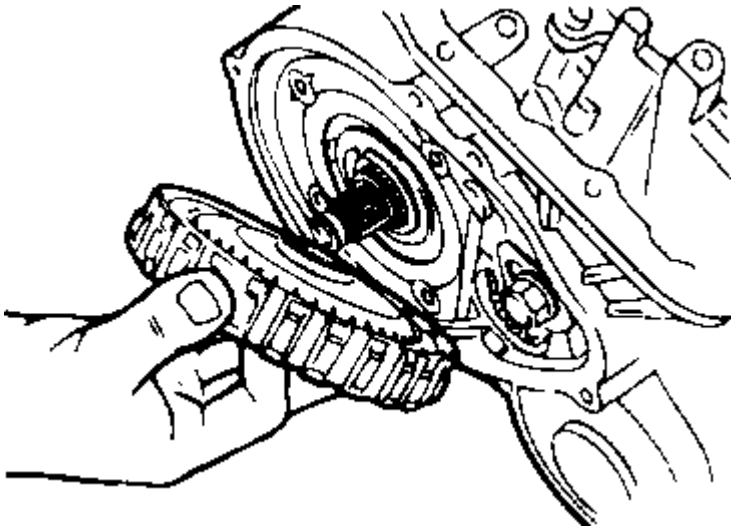
Install the end clutch hub to end clutch.



Attach, using petroleum, thrust bearing #13 to the end clutch hub.



Install the end clutch assembly.



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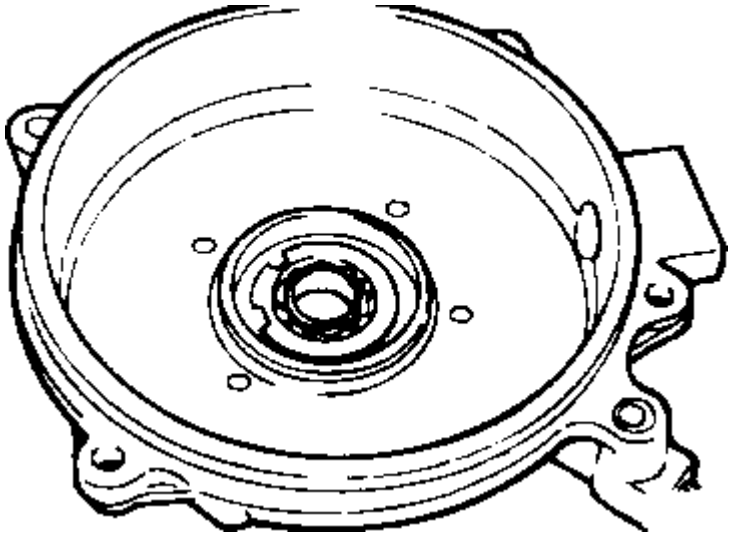
REASSEMBLY (CONTINUED)

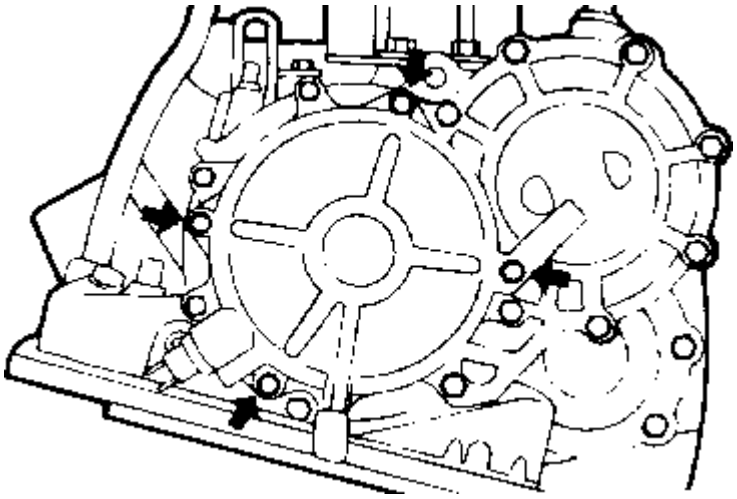
Attach a new O-ring and D-ring to the end clutch cover.



CAUTION

Install so that the D-ring is not twisted. Apply a sufficient amount of automatic transaxle fluid to the bearing.

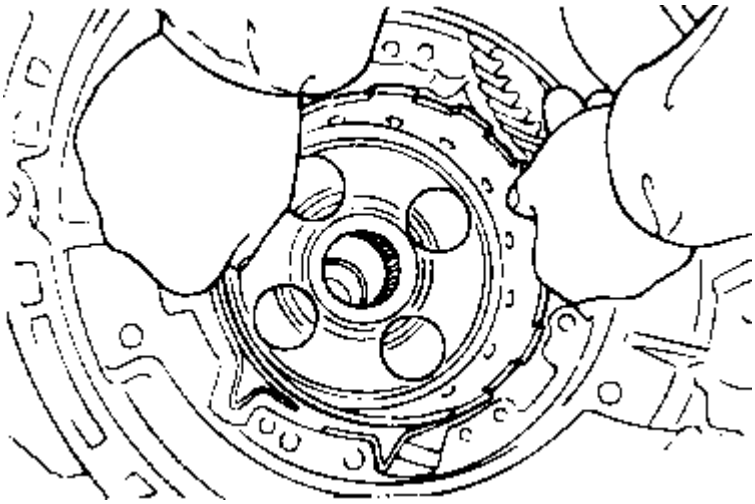
Attach the end cover and fasten it with four bolts.



CAUTION

When installing the end cover, be sure the screw hole is correctly aligned. If the end cover is turned (after it is installed) in order to align with the screw hole, the O-ring and/or the D-ring may be twisted as result.

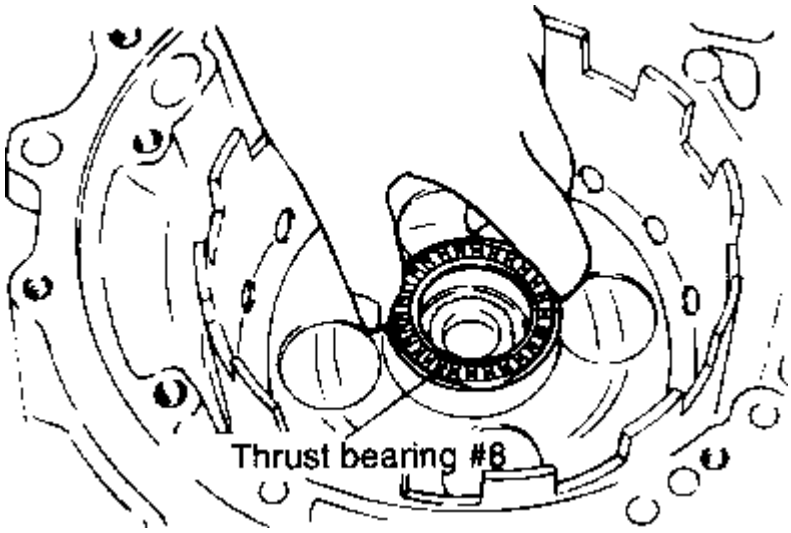
Install kickdown drum with its splines in mesh with the sun gear. Place the kickdown band on the kickdown drum and tighten the kickdown servo adjusting screw to keep the band in position.



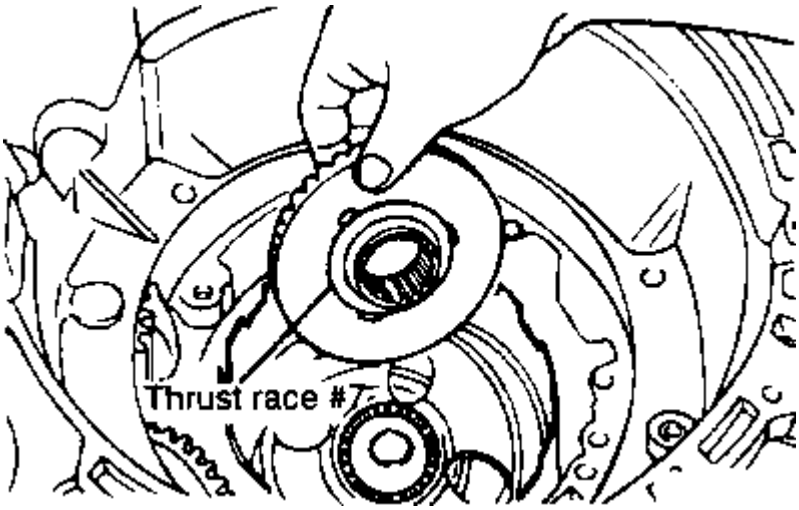
NOTE

Refer to the KICKDOWN SERVO ADJUSTMENT (Page 4540)

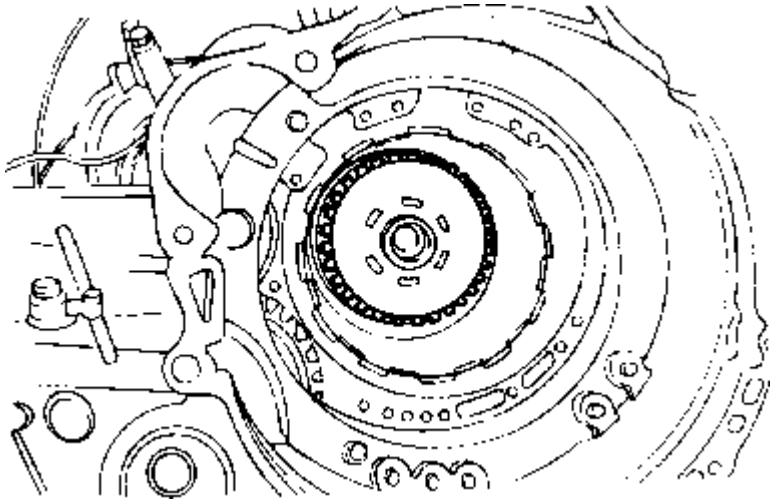
Apply a coating of petroleum jelly to thrust bearing #8, and then attach to the kickdown drum.



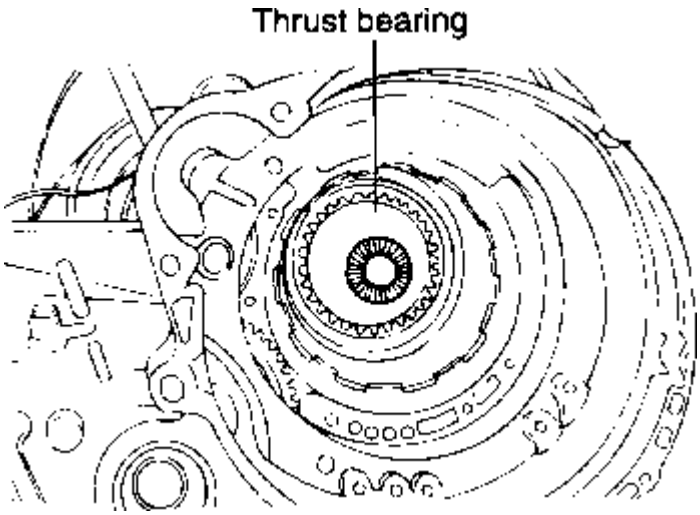
Apply a coating of petroleum jelly to thrust race #7, and then attach to the rear clutch hub.



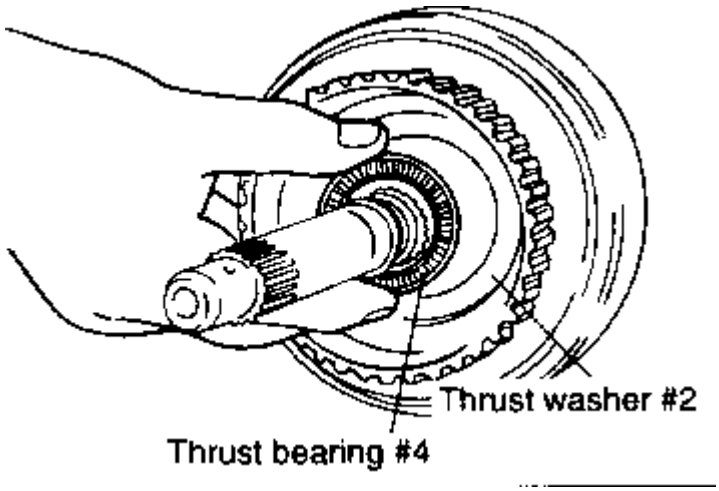
Install the clutch hub to the sun gear spline.



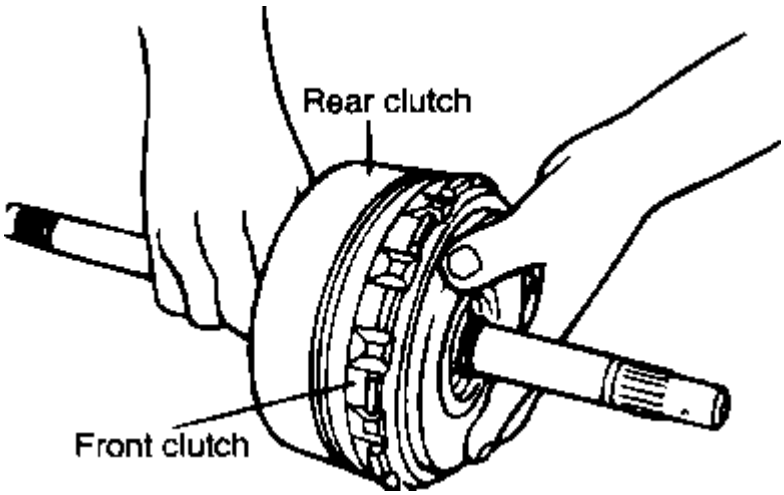
Attach thrust bearing #6 onto the hub using petroleum jelly.



Apply a coating of petroleum jelly to thrust washer #2 and thrust bearing #4. Attach to the rear clutch assembly.

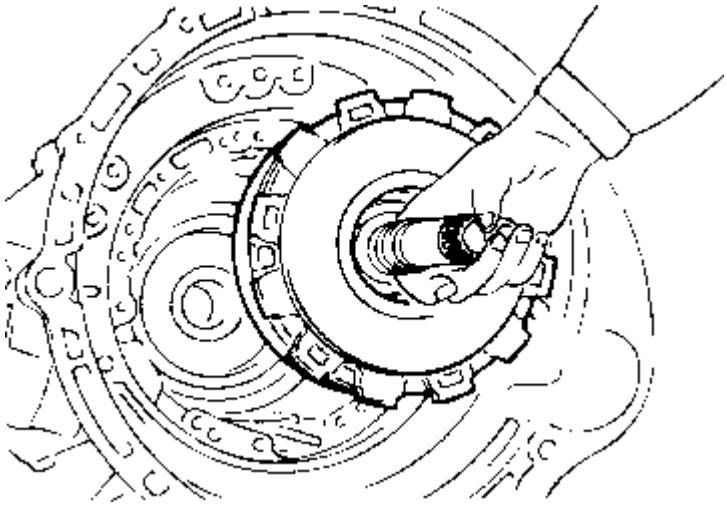


Combine the rear clutch and the front clutch assemblies.



Install the entire clutch assembly.

If end play which was measured and recorded at disassembly is not within standard value, adjust to specification by selecting thrust washer #3.



MEASUREMENT SPECIFICATION	
End play	0.3-1.0 mm (0.012-0.040 in)

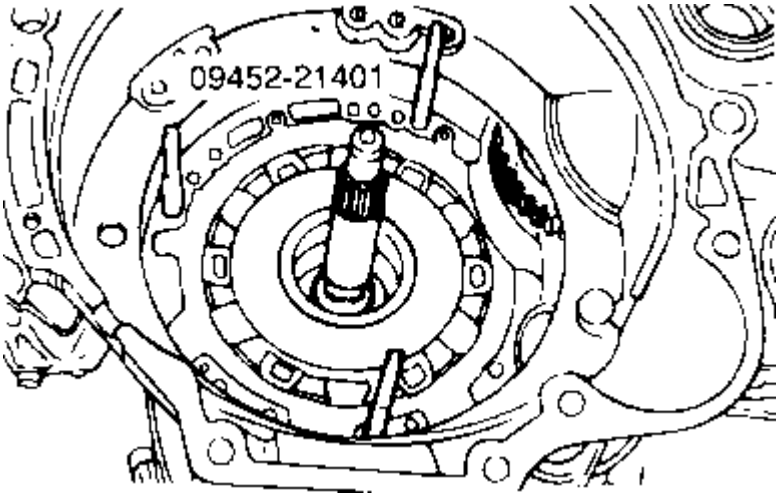
When the thrust washer is replaced with that of a different thickness, also replace thrust washer #1 located between the oil pump and front clutch. Use a washer of proper corresponding thickness corresponding to thrust race. Find correct pair of thrust washers (metal) and thrust washers (fiber) from following table.

Thrust washer #1	Thrust washer #3
Thickness mm (in.)	Thickness mm (in.)
1.4 (0.055)	1.0 (0.039)
1.4 (0.055)	1.2 (0.047)
1.8 (0.071)	1.4 (0.055)
1.8 (0.071)	1.6 (0.063)
2.2 (0.087)	1.8 (0.071)
2.2 (0.087)	2.0 (0.079)
2.6 (0.102)	2.2 (0.087)
2.6 (0. 102)	2.4 (0.094)

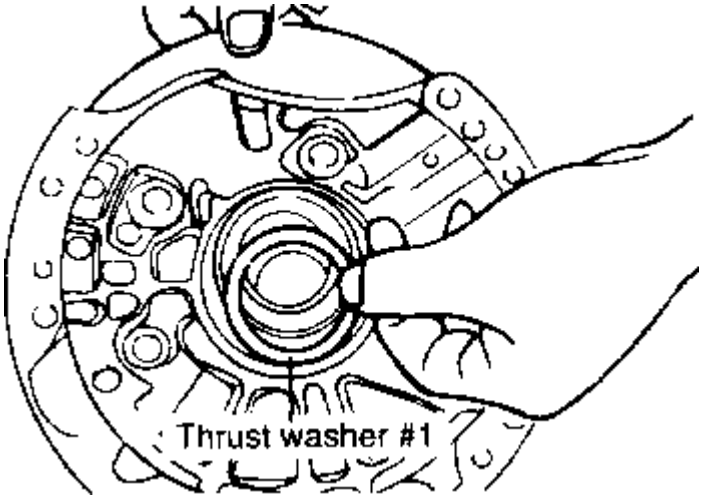
Example: When a different thickness thick thrust washer is selected, a corresponding thrust washer must be paired with it.

Attach the reused thrust washer #1, or the one selected in step 49 to the front clutch by using petroleum jelly.

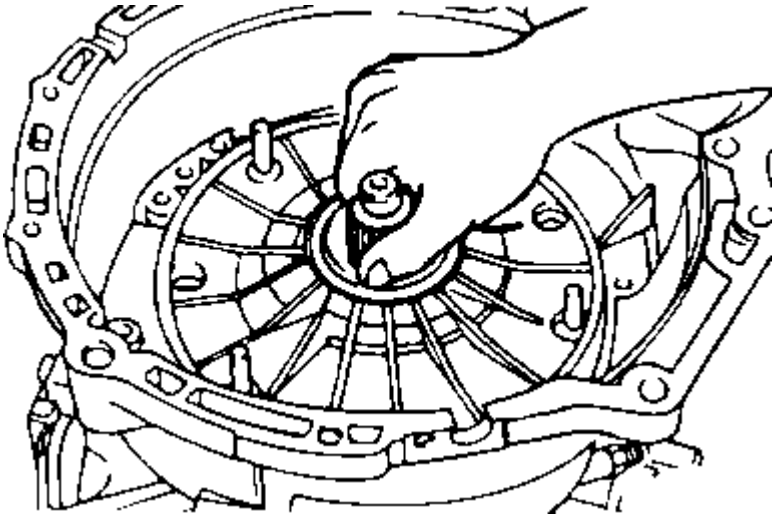
Install the special tool (09452-21401) to the case.



Attach the reused thrust washer #3 or the one selected in step 50 to the oil pump by using petroleum jelly.



Install a new oil pump gasket and the oil pump assembly.



SERVICE MANUAL	
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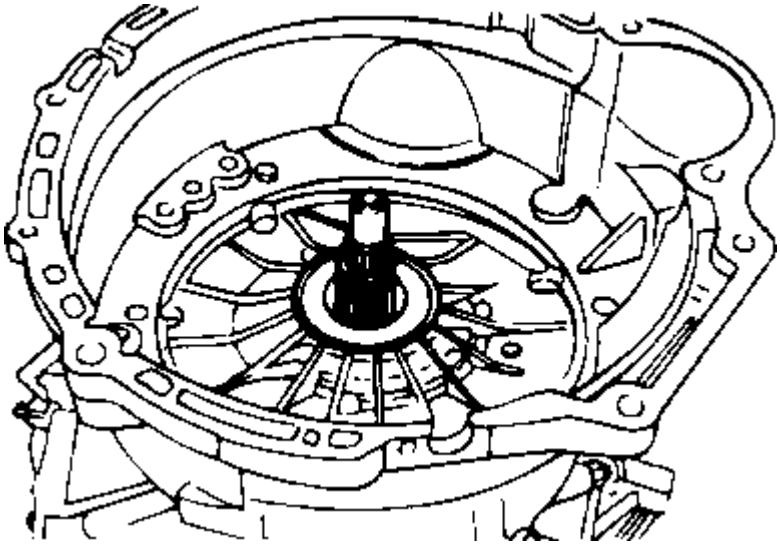
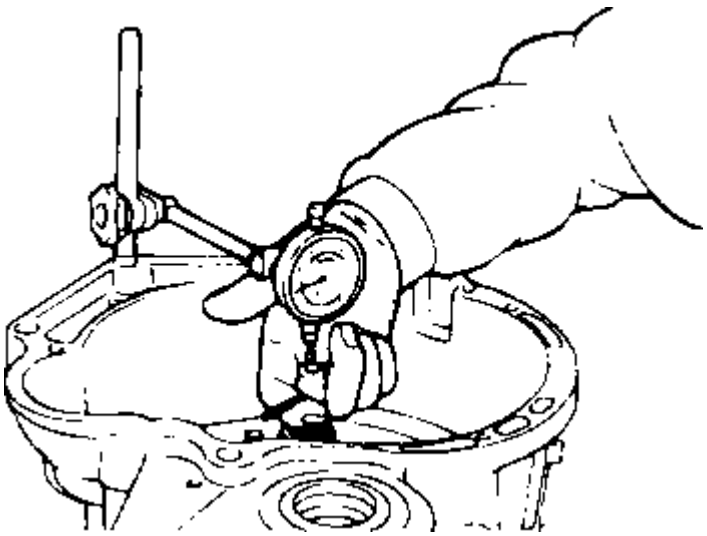
REASSEMBLY (CONTINUED)

Install a new O-ring in the groove of the oil pump housing and lightly apply automatic transaxle fluid to the outside surface of the O-ring.

Install the oil pump assembly by tightening the six bolts evenly. When installing this oil pump assembly, be careful that the thrust washer remains in place.

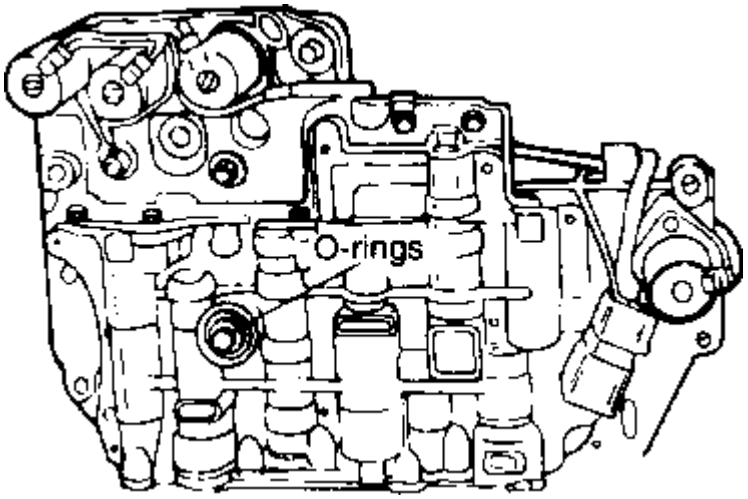


Check the input shaft end play. Readjust if necessary (see step 50).



MEASUREMENT SPECIFICATION	
Input shaft end play	0.3 -1.0 mm (0.012-0.040 in)

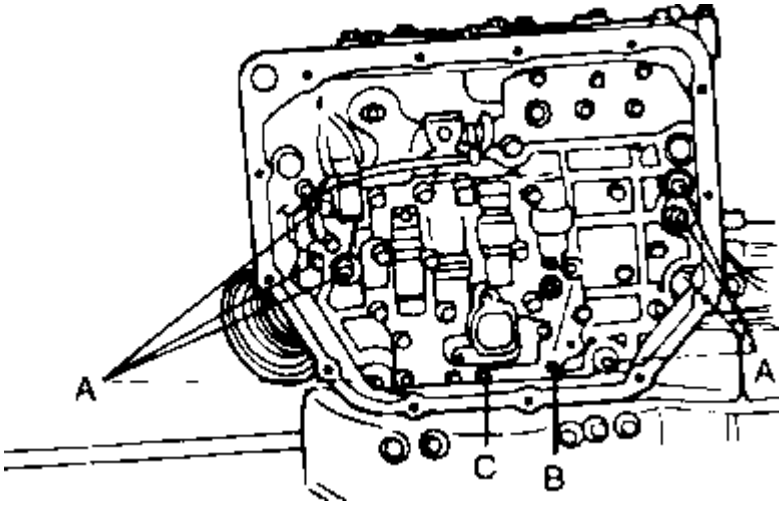
Install the O-ring at the center of the top of the valve body assembly (brake oil pressure passage). Install the valve body assembly to the case, fitting the detent end plate (manual control shaft) pin in the slot of the manual valve.



Replace the O-ring of the solenoid valve connector with a new one.

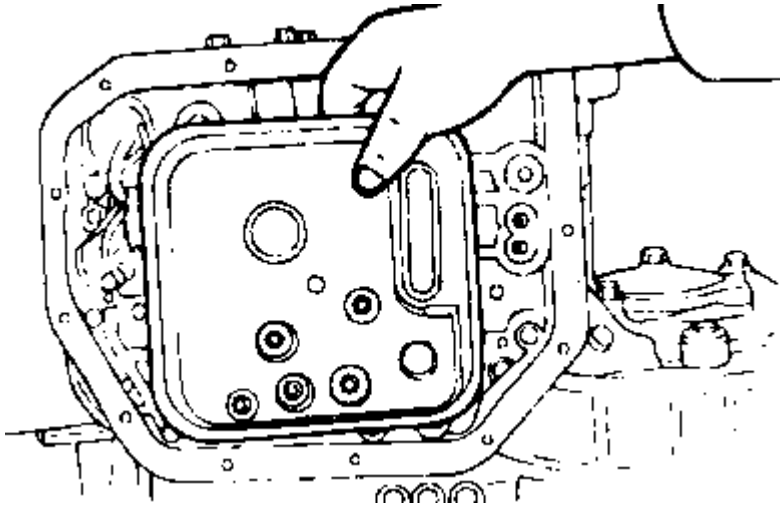
Tighten the valve body assembly mounting bolts to 10-12 Nm (100-120 kg.cm, 7-9 lb.ft)

1. 1) A: 25 mm (0.984 in.)
2. B: 35 mm (0.378 in.) long
3. C: 40 mm (1.575 in.) long

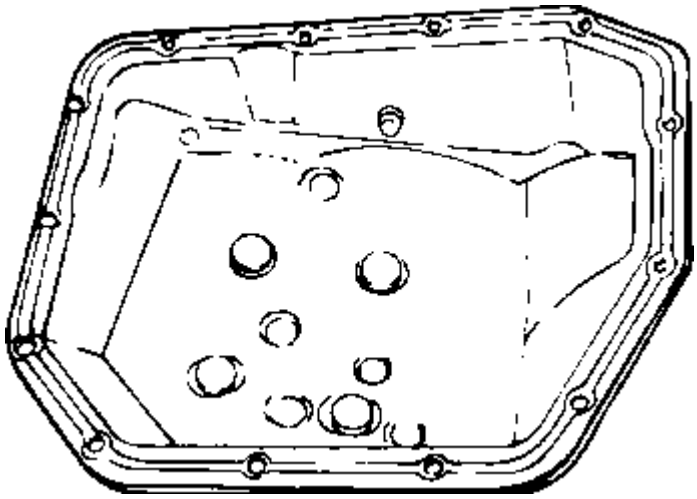


Install the oil filter. Tighten the four oil filter mounting bolts to 5-7 Nm (50-70 kg.cm, 4-5 lb.ft)

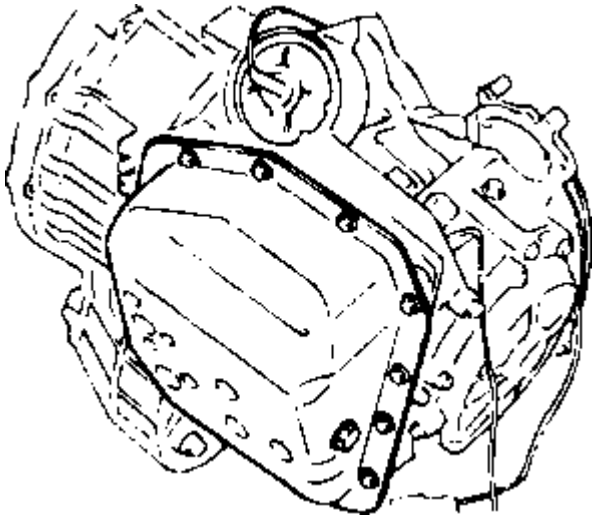
TORQUE SPECIFICATION	
	Nm (kg·cm, lb·ft)



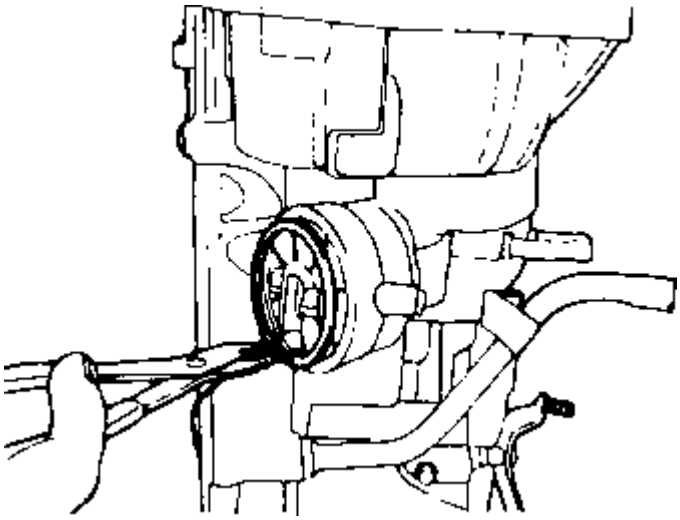
Install five magnets into the five depressions provided in the oil pan.



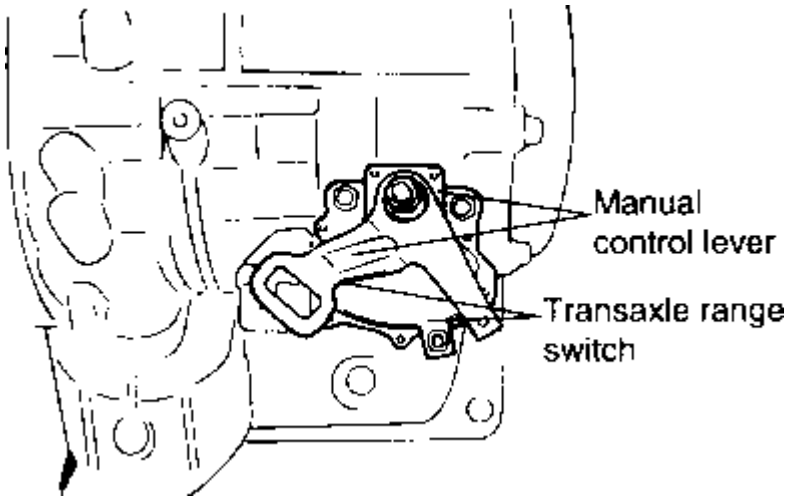
Install a new oil pan gasket and oil pan. Tightening 12 bolts to 10-12 Nm (100-120 kg.cm, 7-9 lb.ft.).



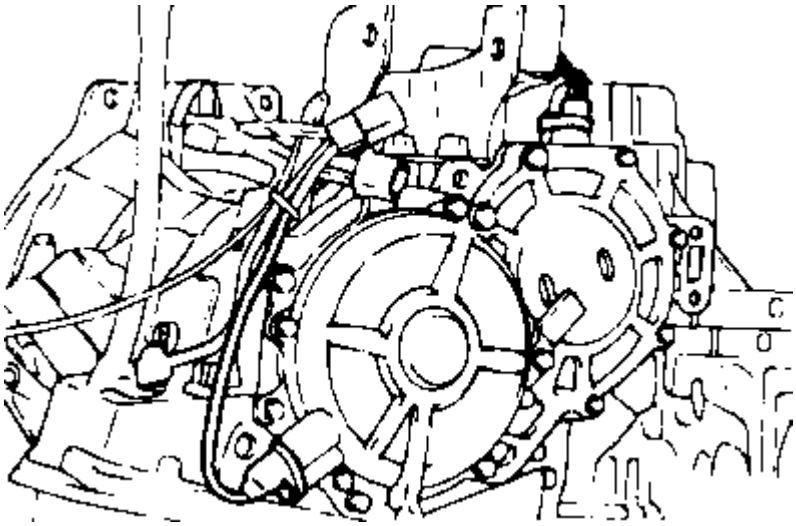
Install a new D-ring to the kickdown servo switch. Press into the case and secure using the proper snap ring.



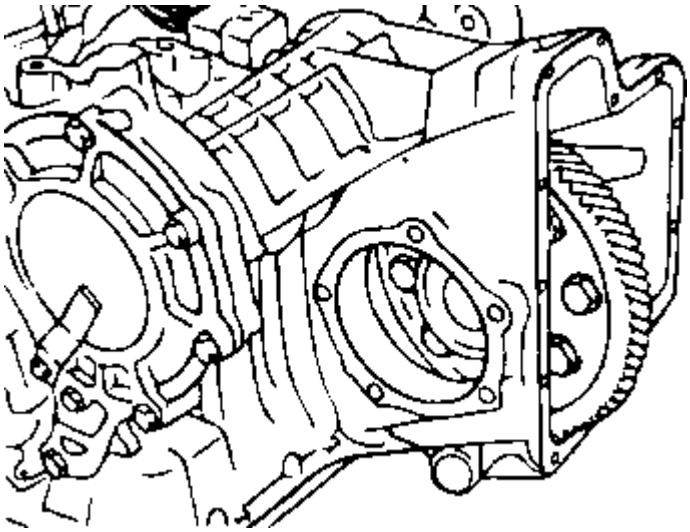
Install the transaxle range switch and manual lever. Adjust the transaxle range switch.



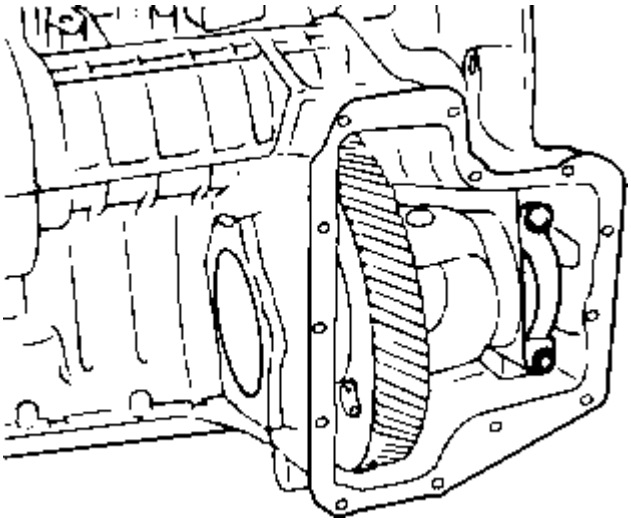
Install the pulse generator A and B.



Install the differential assembly.

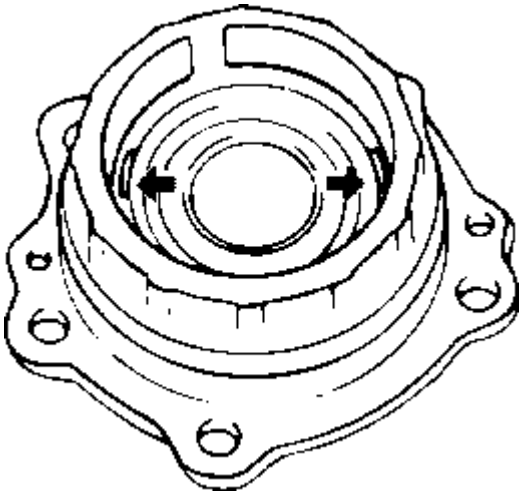


Install the differential bearing cap.



TORQUE SPECIFICATION	
Standard value	60-80 Nm (600-800 kg·cm, 43-58 lb·ft)

Place two pieces of solder, roughly 10 mm (0.4 in.) long and 3 mm (0.12 in.) in diameter, at the position shown on the differential bearing retainer outer race.



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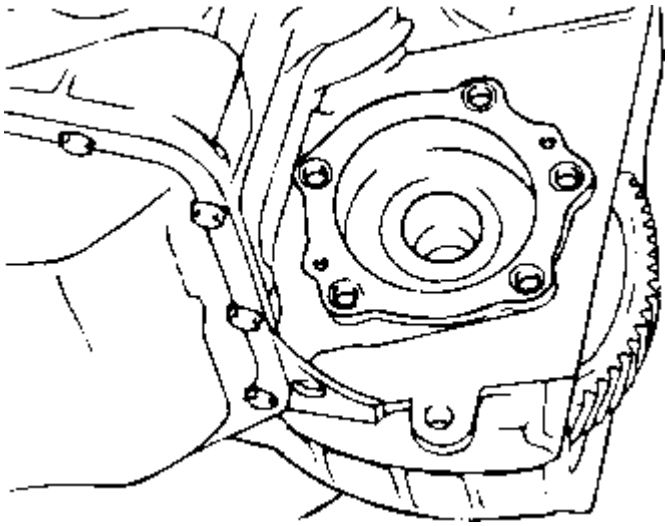
REASSEMBLY (CONTINUED)

Install the differential bearing retainer and tighten the bolts to specified torque.

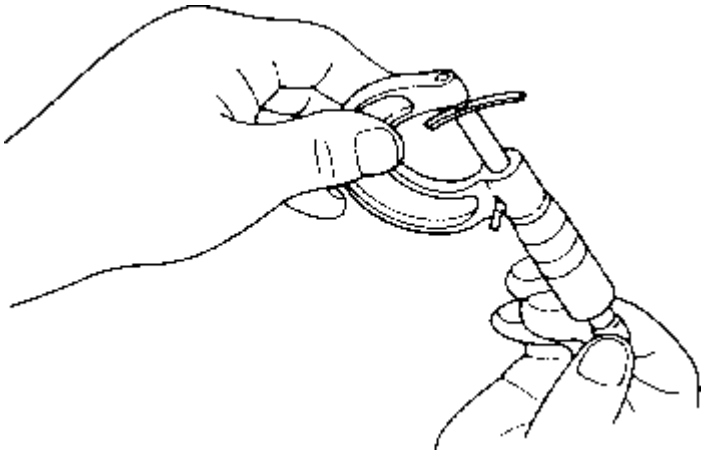


TORQUE SPECIFICATION	
Standard	43-55 Nm (430-550 kg·cm, 31-40 lb·ft)

Remove the differential bearing retainer.

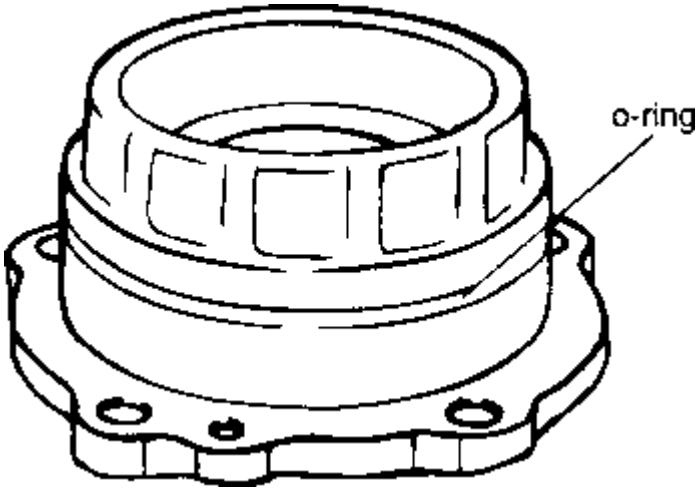
Remove the crushed solder from the outer race of the differential bearing.

Select and install a spacer so that the end play of the differential bearing will bearing will be the standard value.

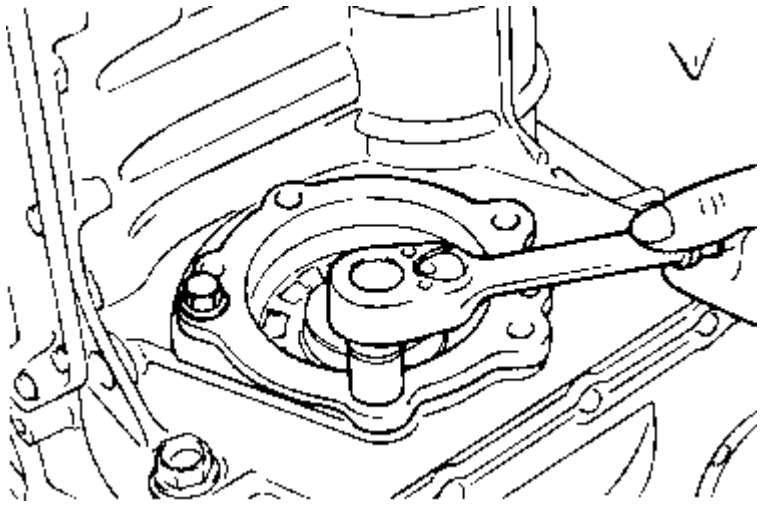


MEASUREMENT SPECIFICATION	
Standard value	0-0.15 mm (0-0.06 in)

Apply the ATF to the new installed O-ring and install the differential bearing retainer.

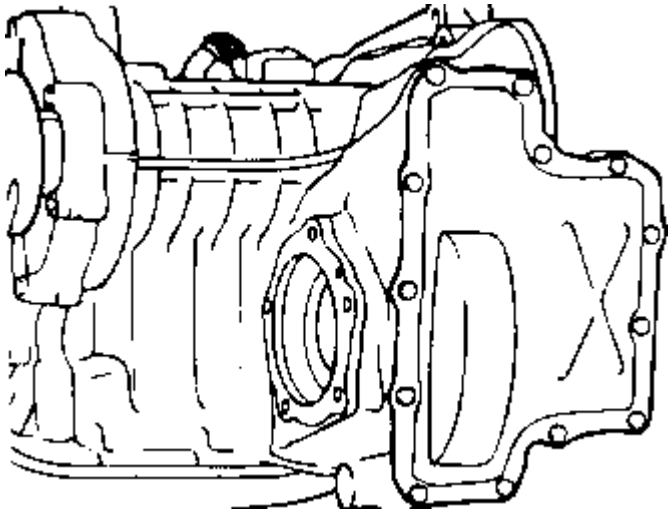


Install the differential bearing retainer and tighten the bolt to specified torque.

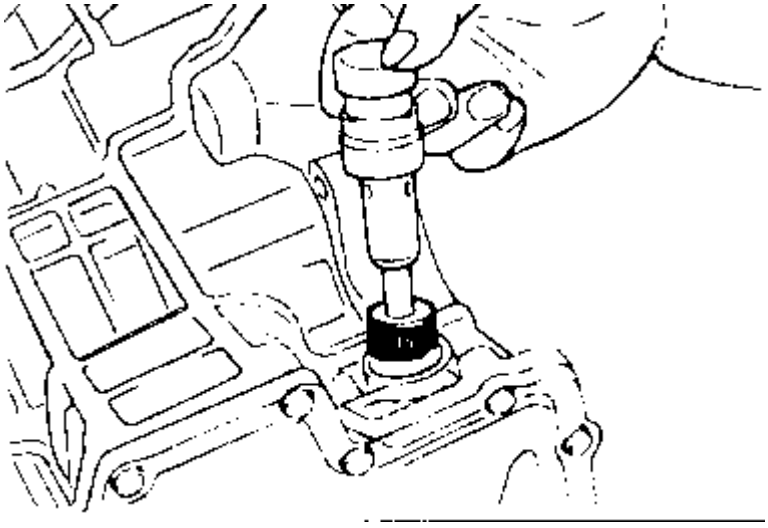


TORQUE SPECIFICATION	
Standard value	43-55 Nm (430-550 kg·cm, 31-40 lb·ft)

Install the differential cover with new gasket.



Install the speedometer driven gear.



After applying automatic transaxle fluid to the outside surface of the oil pump-side cylindrical portion of the torque converter, install the torque converter carefully so as not to damage the seal lip. Make certain that the torque converter is in mesh with oil pump drive gear.

Measure the distance between the ring gear end and the converter housing end. The torque converter has been properly installed when measurement is approximately 12 mm (0.47 in.).

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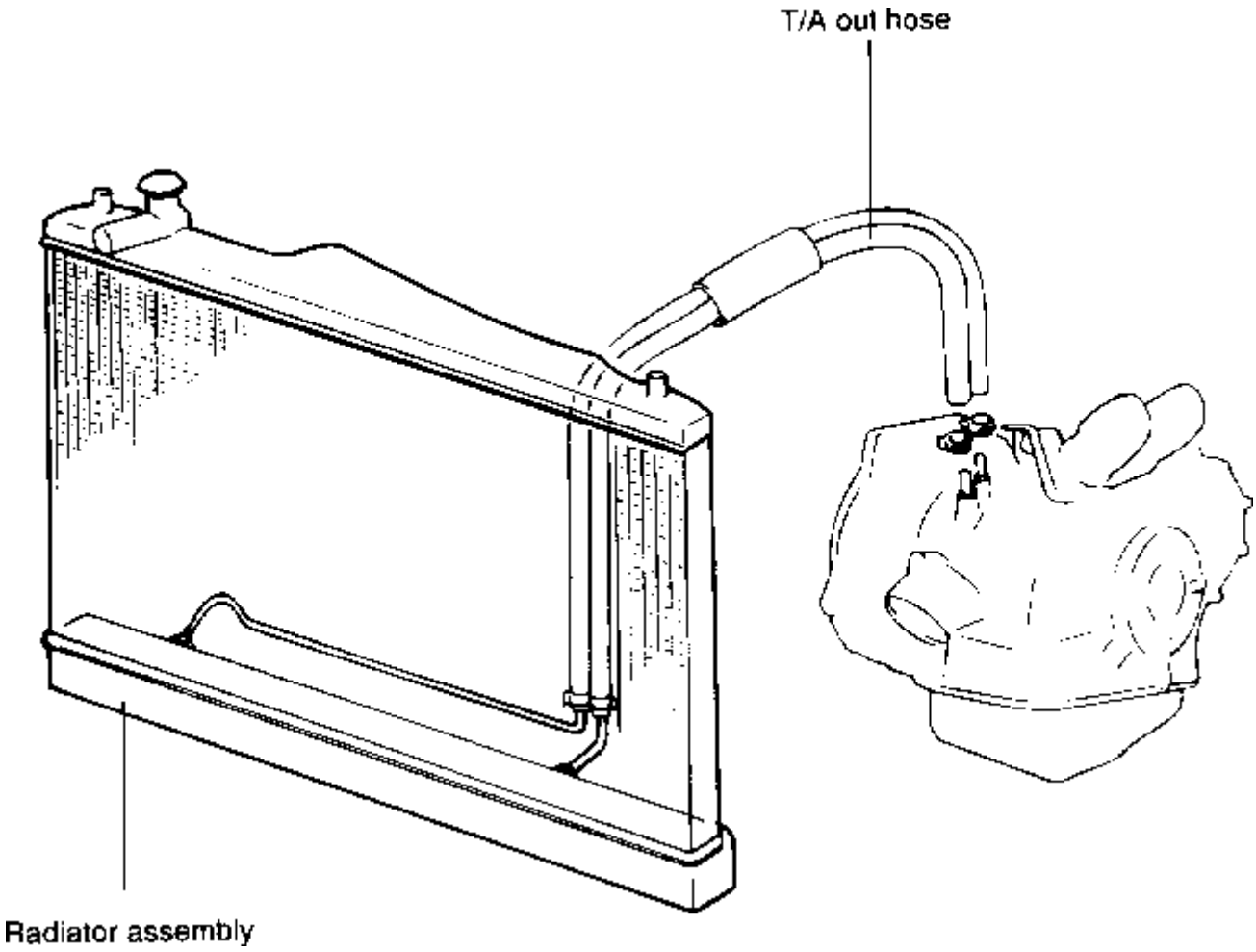

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REMOVAL AND INSTALLATION

Loosen the hose clamps, and then disconnect the transaxle oil cooler hoses.

CAUTION

Plug the ends of the oil cooler hoses and the automatic transaxle port to prevent the transaxle fluid from spilling out and foreign material from getting in. Plug the nipple at the automatic transaxle in order to prevent entrance of foreign material into the automatic transaxle.

NOTE

When removing each part, avoid spilling the transaxle fluid.

Installation is the opposite of removal.

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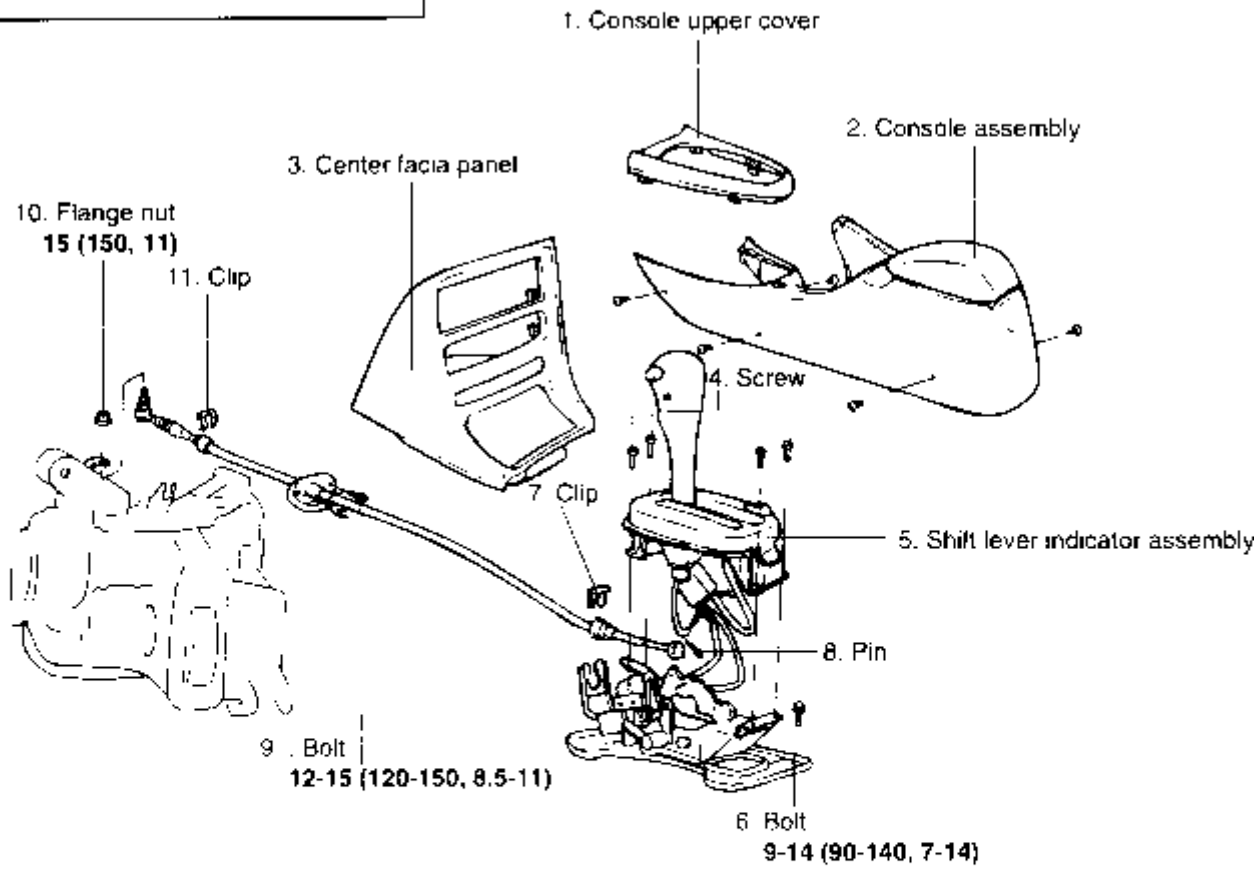
REMOVAL AND INSTALLATION

Caution : SRS
Be careful not to subject the SRS control module to any shock during removal and installation of shift lever assembly



SHIFT LEVER ASSEMBLY REMOVAL STEPS
1. Console upper cover
2. Console assembly
3. Center facia panel
4. Screw
5. Shift lever indicator assembly
6. Bolt

SHIFT LEVER ASSEMBLY REMOVAL STEPS
1. Console upper cover
2. Console assembly
3. Center facia panel
4. Screw
5. Shift lever indicator assembly
6. Clip (No. 7)
7. Pin
8. Bolt (No. 9)
9. Flange nut
10. Clip (No. 11)

TIGHTENING TORQUE : Nm (kg·cm, lb·ft)

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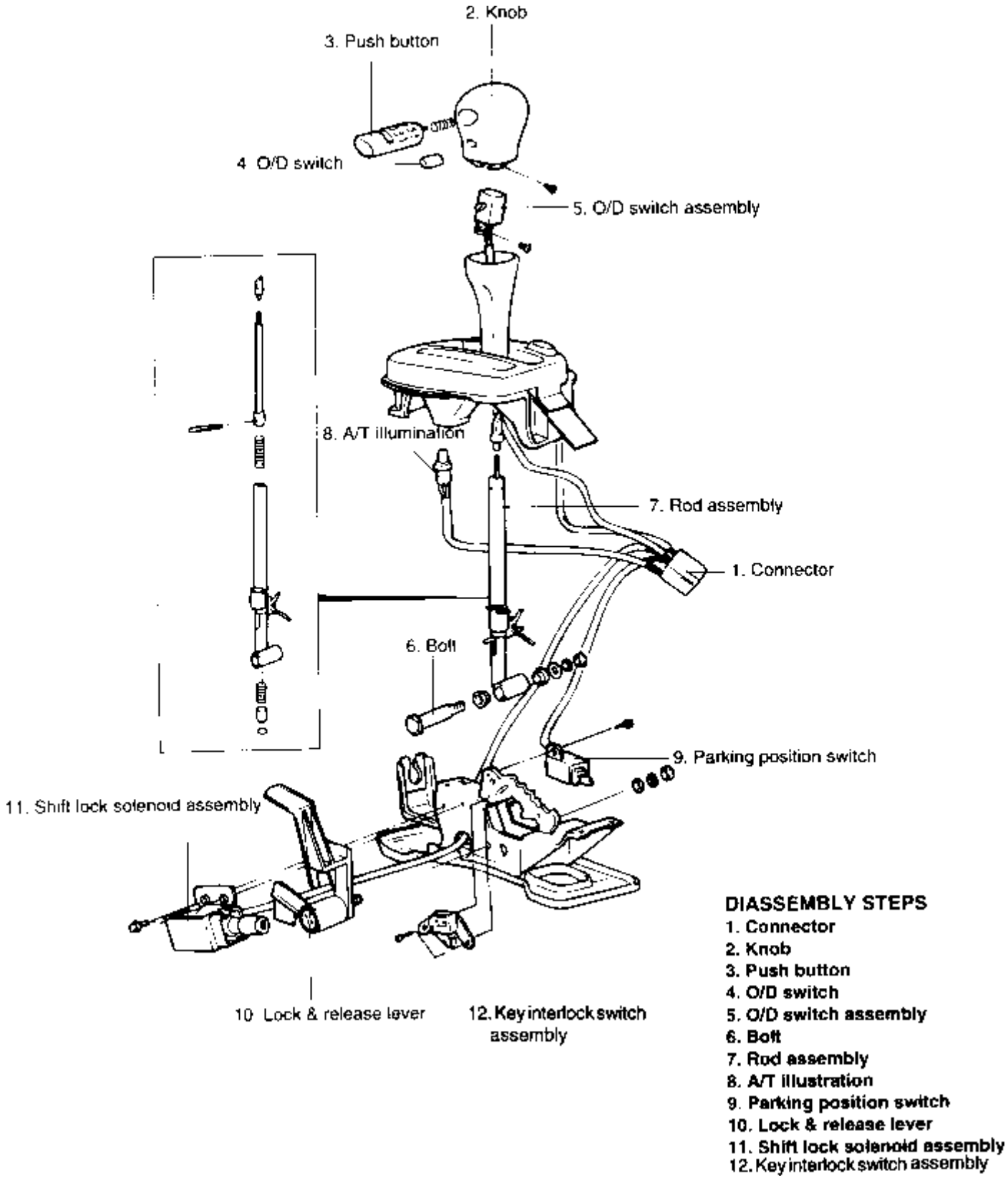


DIASSEMBLY STEPS

1. Connector
2. Knob
3. Push button
4. O/D switch
5. O/D switch assembly
6. Bolt
7. Rod assembly
8. A/T illustration
9. Parking position switch
10. Lock & release lever
11. Shift lock solenoid assembly
12. Key interlock switch assembly

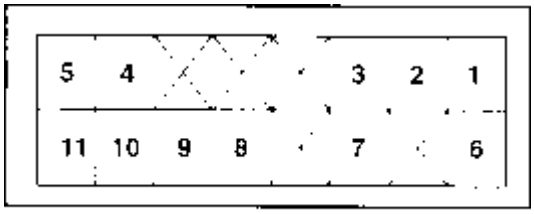
INSPECTION

Check the control cable for function and for damage.

Check the bushing for wear or damage.

Check the spring for damage or deterioration.

Check the overdrive switch for continuity.



COMPONENT SIDE CONNECTOR

Switch position	1	2	3
OD is operating (ON)	○	○	
OD is not operating (OFF)	○		○

○—○ : Continuity

Check the movement of shift control solenoid by applying battery voltage at terminal 4 and 5.

Check the PWR/NORM switch for continuity.

Switch position	6	7	Remark
Normal	○	○	No continuity
Power	○	○	

○—○ : Continuity

Check continuity between indicator light terminal 8 and 9.

Check continuity between parking position switch terminal 10 and 11 in free road.

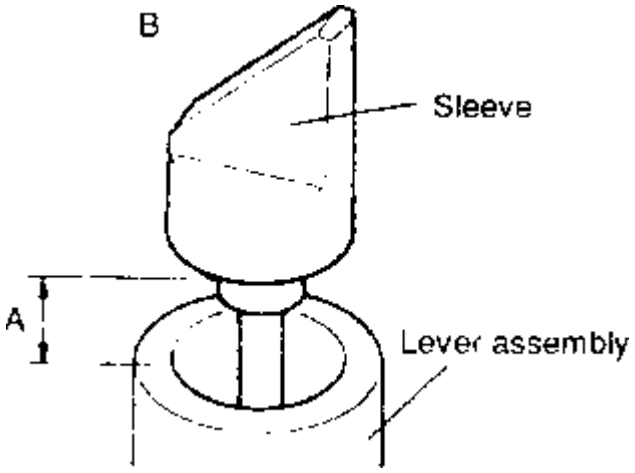
Check no continuity between parking position switch terminal 10 and 11 while pressing the switch.

INSTALLATION

SELECTOR KNOB INSTALLATION

Place the shift lever in the "N" position, and then turn the cam adjusting so that the clearance between the cam adjusting and the lever assembly are within the standard value.

MEASUREMENT SPECIFICATION	
Standard value (A)	15.2-15.9 mm (0.598-0.625 in)



NOTE

Be sure to face B of the adjusting cam to the push button (driver's side)

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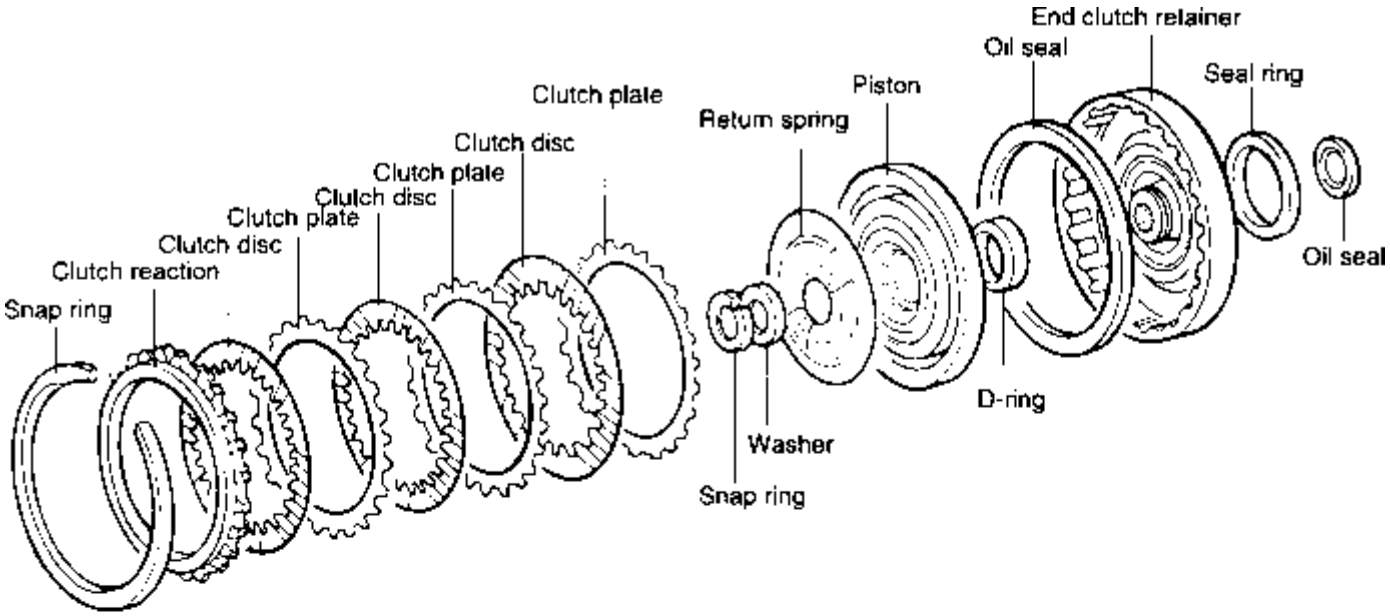
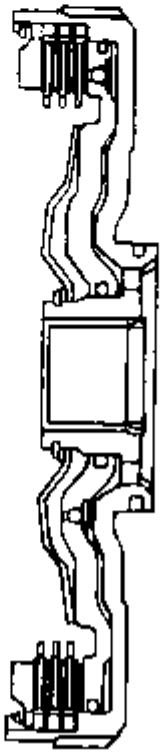
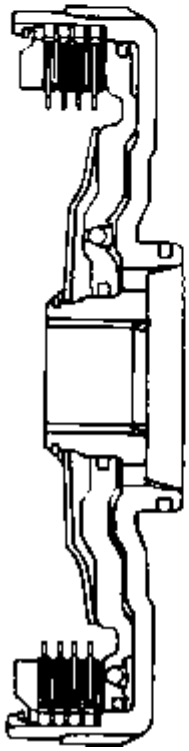


[1.8 L]



[2.0 L]



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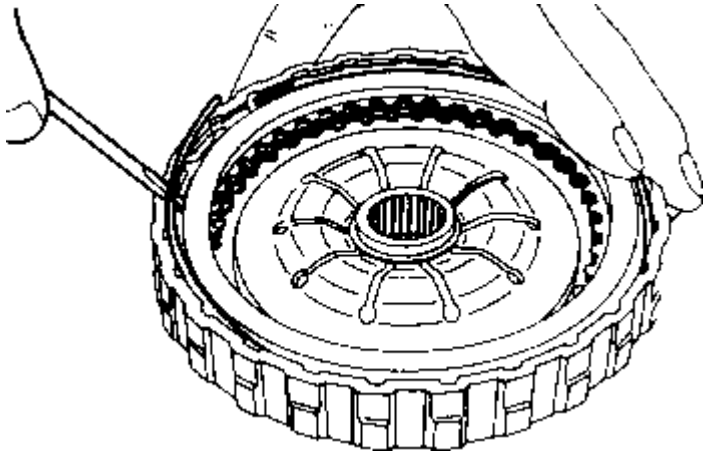
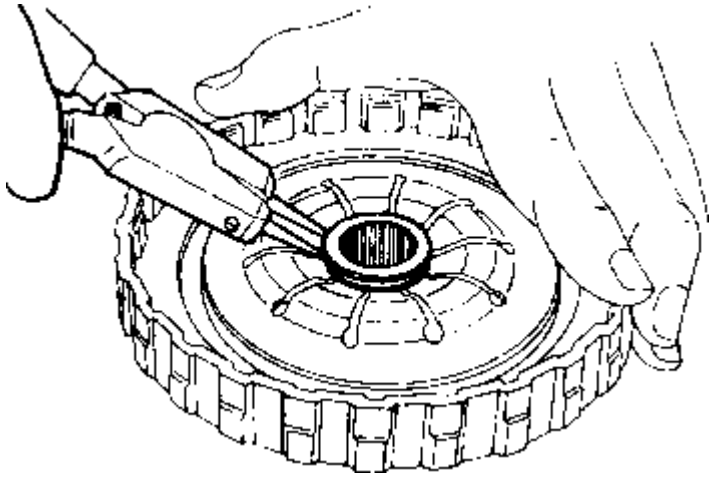
DISASSEMBLY

Remove the snap ring, clutch reaction plate, clutch disc, and the clutch plate. If the disc and plate are reused note the installation order and direction when they are disassembled.



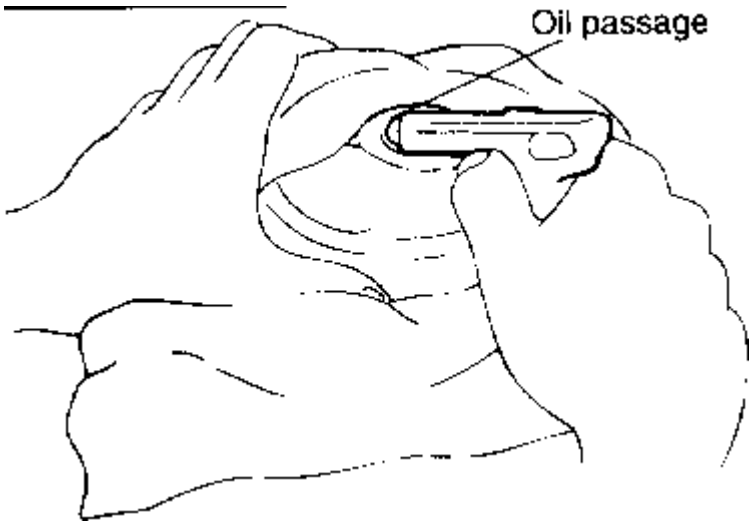
Remove the snap ring with snap-ring, pliers, and then remove the washer and return spring.



Remove the piston. If it is difficult to remove, face the piston side downward, and, with the retainer on a base, blow air in through the oil passage on the rear surface.

Remove the seal ring from the retainer.

Remove the two D-section rings and oil seal from the piston.



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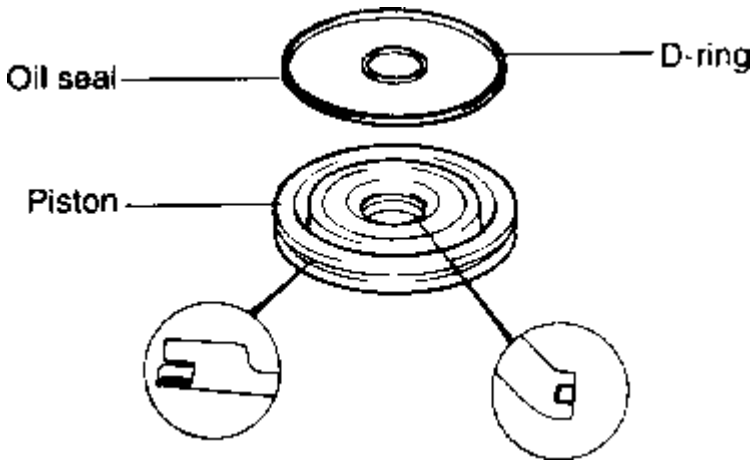
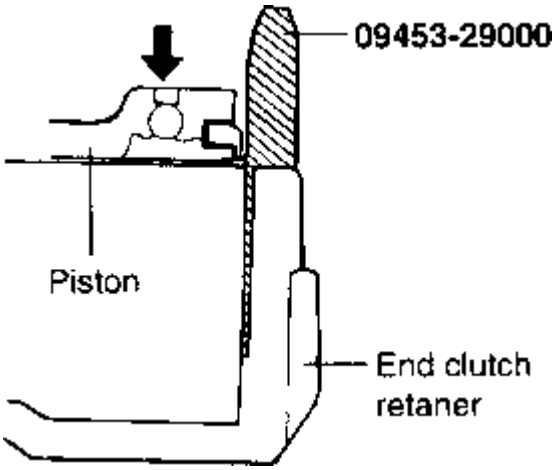
REASSEMBLY

Install the D-section rings and oil seal in the piston inner and outer groove.

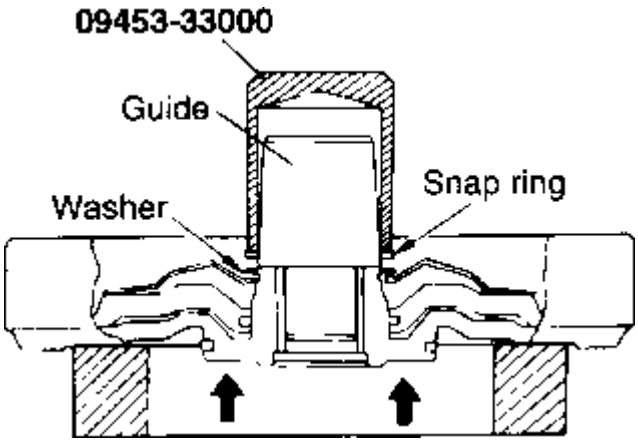


Install the piston to the end clutch retainer using the special tool.

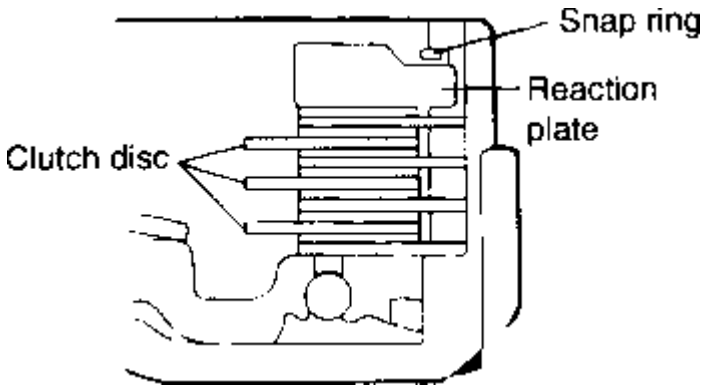


Install the return spring and washer.

After fitting a new snap ring into the guide of the special tool (09453-33000), install the retainer. Push the snap ring as far down on the guide as possible. Attach the installer and press until the snap ring enters the groove. Do not press more than necessary. The places indicated by arrows in the illustration (center projections) are not to be supported.



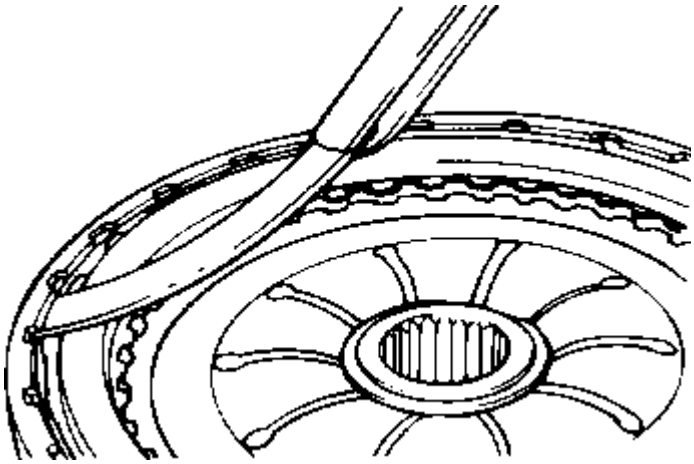
Install the clutch plate, clutch disc and reaction plate to the end clutch retainer. If the reaction plate, clutch plate and clutch disc are reused, install them in the same order in which they were disassembled. Apply a coating of automatic transaxle fluid.



CAUTION

When new clutch discs are used, soak them in automatic transaxle fluid for 2 hours before installing them.

Install the snap ring. Check that the clearance between the snap ring and the clutch reaction plate. To check the clearance, hold the circumference of the clutch reaction plate down with 50N (11 lb.) force. If clearance is out of specifications, adjust the clearance by selecting the proper snap ring.



MEASUREMENT SPECIFICATION	
Clearance between the snap ring and the clutch reaction plate (1.8L)	0.4-0.65 mm (0.016-0.026 in)
Clearance between the snap ring and the clutch reaction plate (2.0L)	0.6-0.85 mm (0.024-0.034 in)

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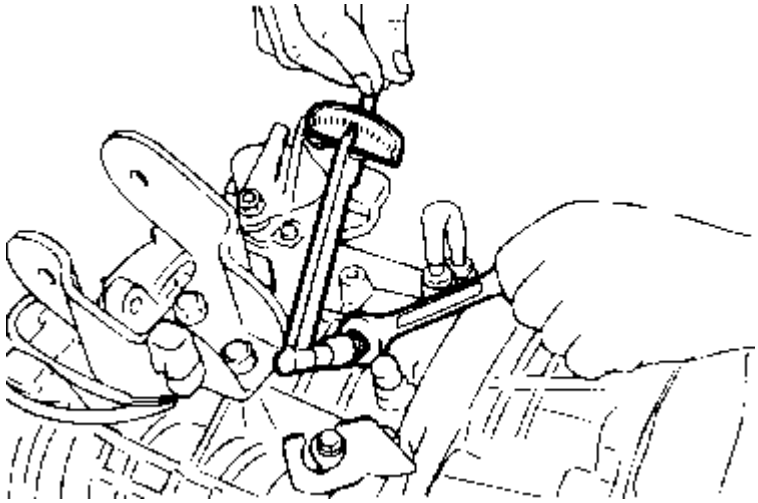
KICK DOWN SERVO ADJUSTMENT



Completely remove all dirt and other contaminating materials adhered around the kick down adjusting screw.

Loosen the lock nut and turn the adjusting screw the end of it.

Loosen and tighten the adjusting screw two times, and then finish tighten the adjusting screw at a torque of 5 Nm (50 kg.cm, 7.2 lb.ft).

Loosen again the adjusting screw 3 to 3-1/3 turns.

White holding with 7 mm wrench socket so that the adjusting screw won't turn, tighten the lock nut to the specified torque.

TORQUE SPECIFICATION	
Lock nut	15-22 Nm (150-220 kg·cm, 11-16 lb·ft)

NOTE

Before assembling, apply sealant (DC780) to center portion of the adjusting screw

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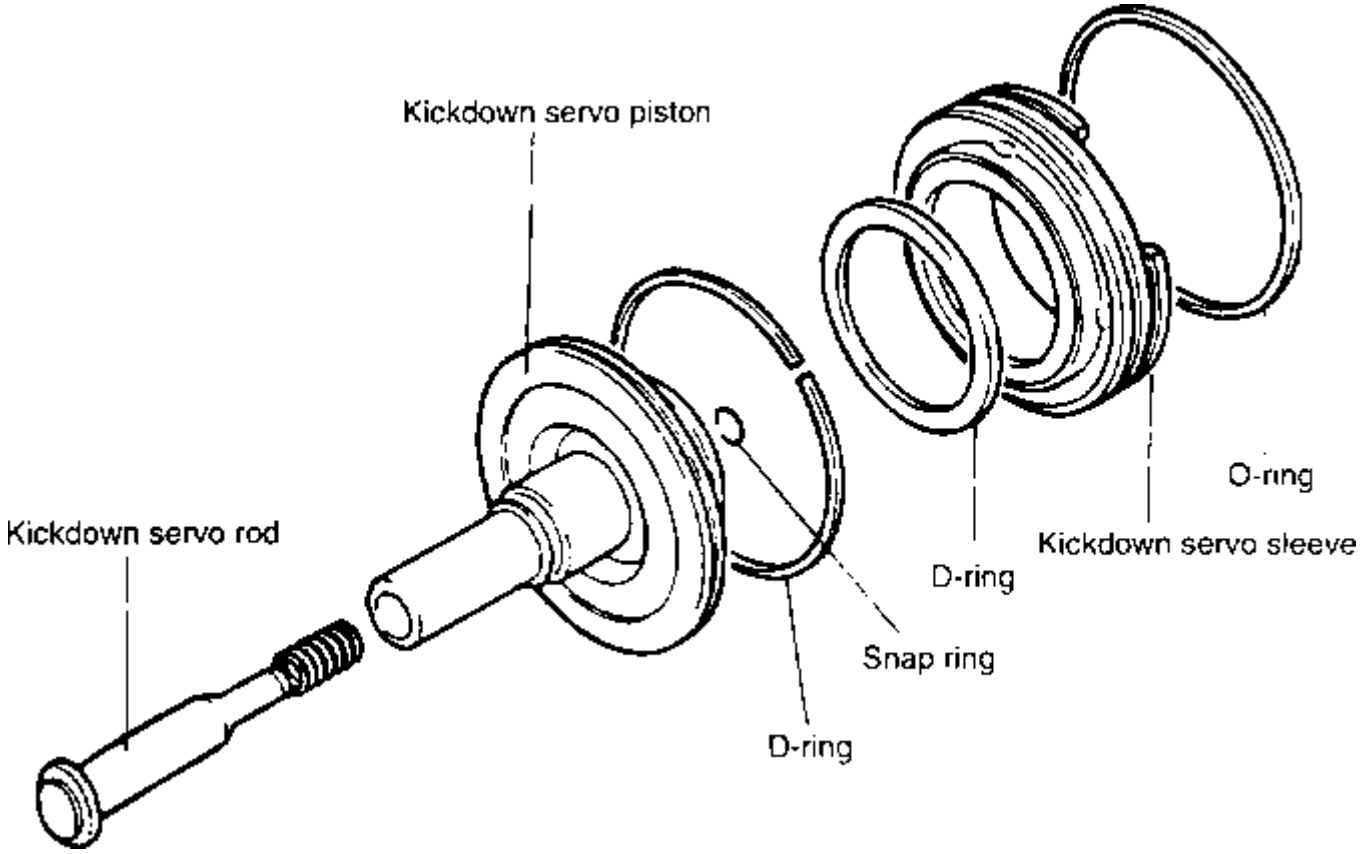

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REASSEMBLY

Install the rod and nut to the kickdown servo piston.

Install two new D-rings (one large and one small) around the circumference of the piston, and then apply a coating of ATF to the D-rings.

Install the kickdown servo piston in the sleeve.

Install a new O-ring around the circumference of the sleeve, and apply a coating of ATF to the O-ring

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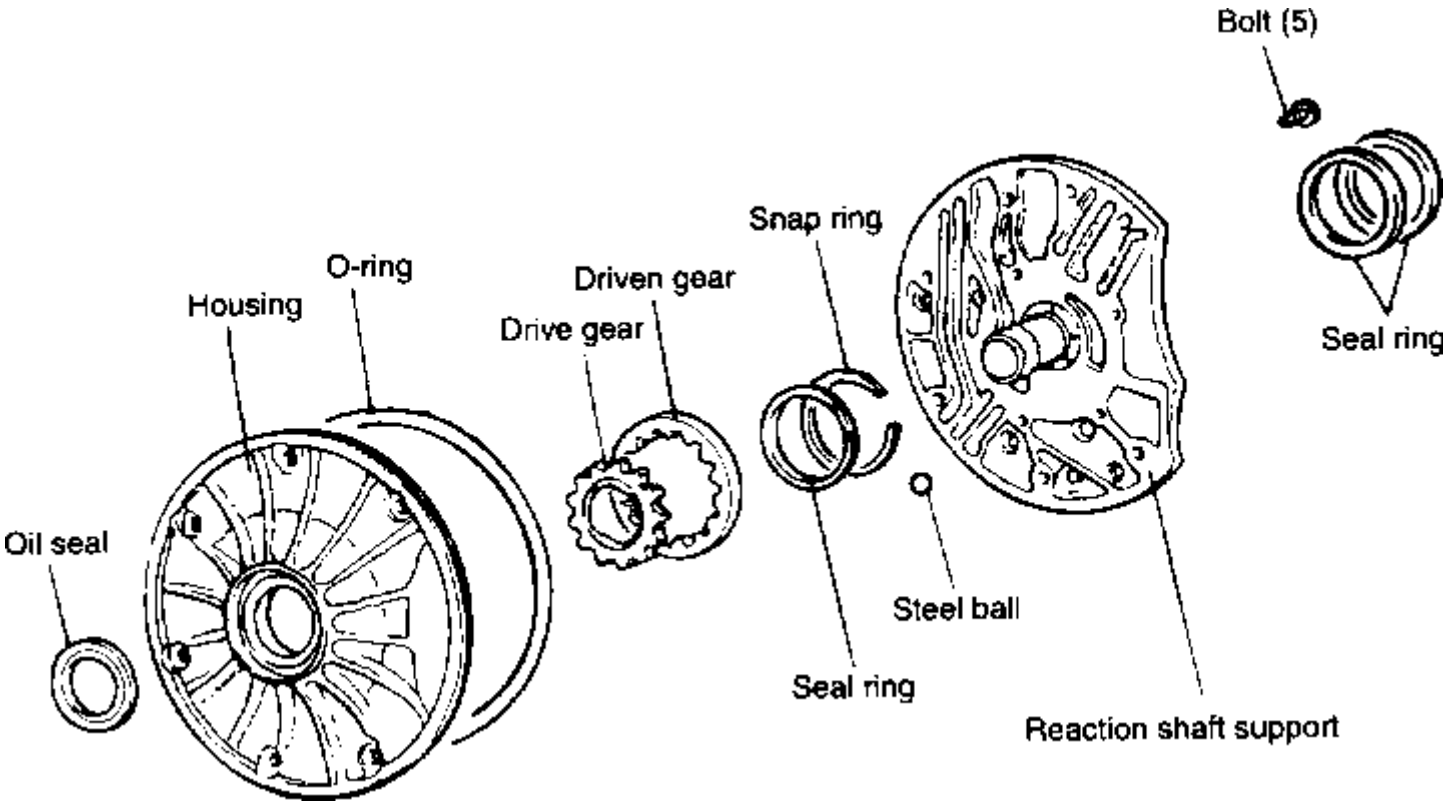

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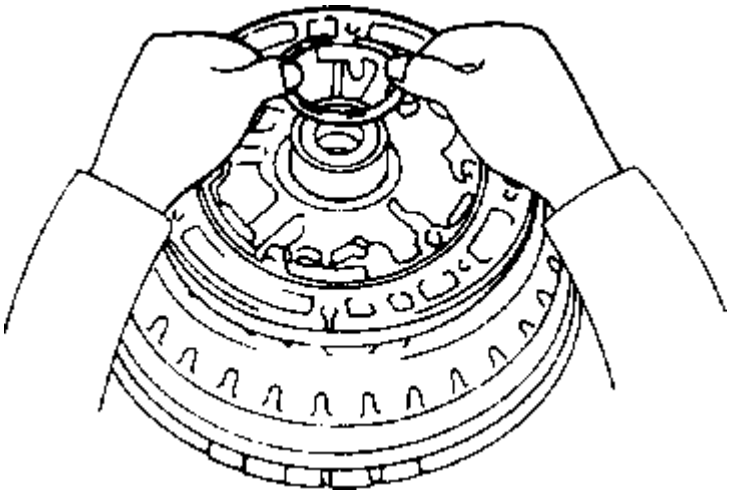
DISASSEMBLY

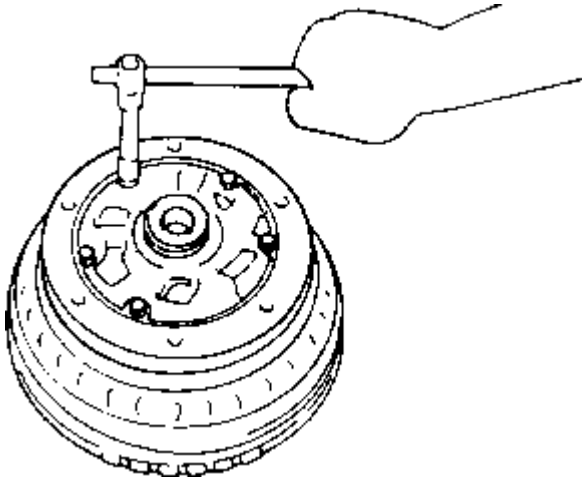
Place the oil pump body on the torque converter.

Remove the two seal rings and O-ring.



Remove five volts and remove reaction shaft support from housing.

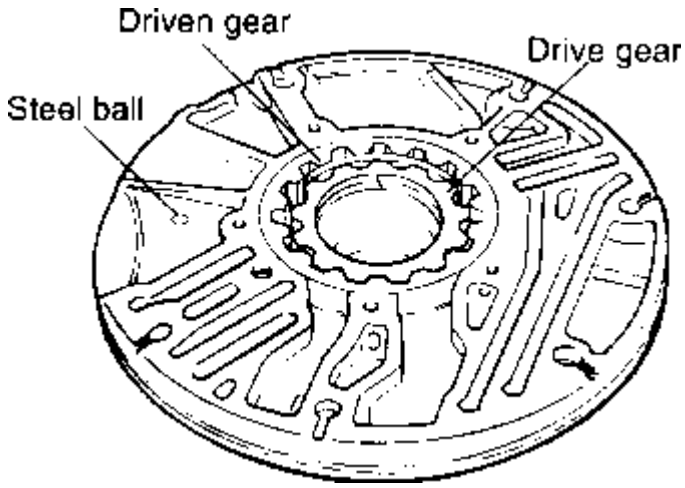
Remove the oil pump body from the torque converter.



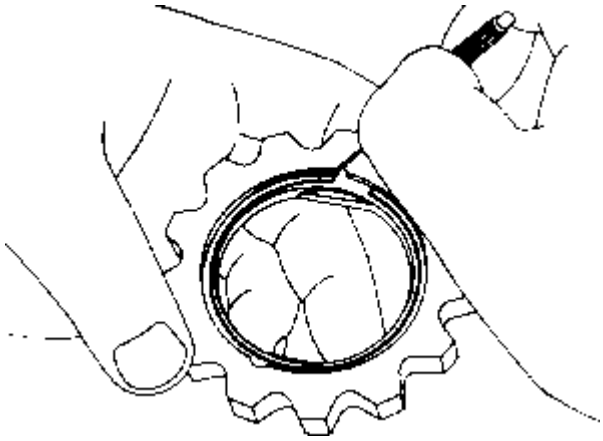
Make reassembly alignment marks on drive and driven gear.

Remove oil pump drive and driven gears from pump housing.

Remove the steel ball from housing.



Remove the snap ring and the oil seal from the oil pump drive gear.



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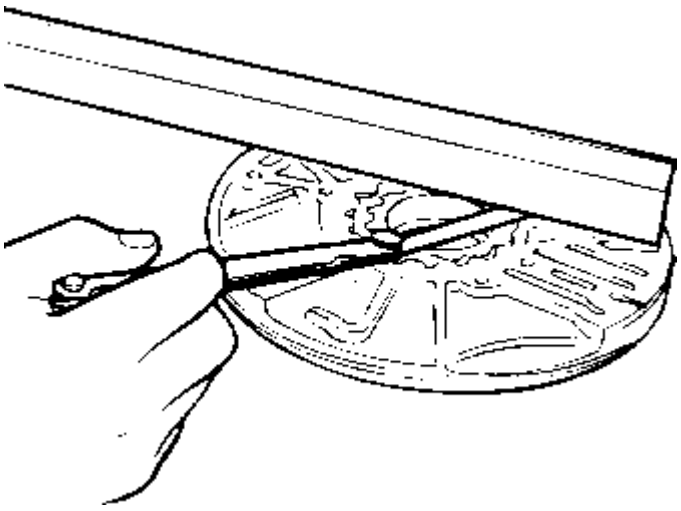
INSPECTION

Measure the side clearance of the oil pump gear. If the clearance exceeds the standard value, or if an inspection of

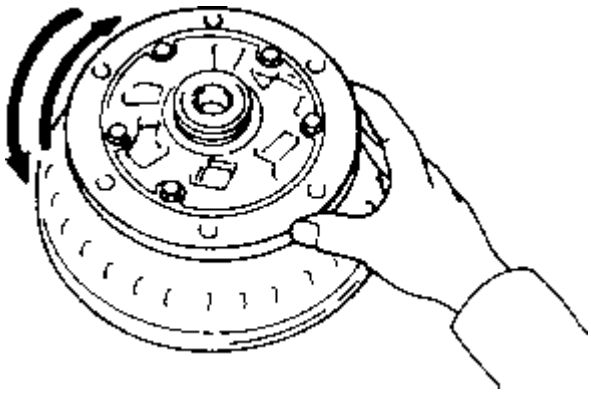
the surface area (of the oil pump housing) that contacts the oil pump gear reveals indications of interference, replace the entire oil pump assembly.

SPECIFICATION	
Standard value	0.02-0.048 mm (0.0008-0.0019)



Check the surface of the reaction shaft support that contacts oil pump gear. If there are indications of interference, replace the entire oil pump assembly.

Check oil pump drive rotation.



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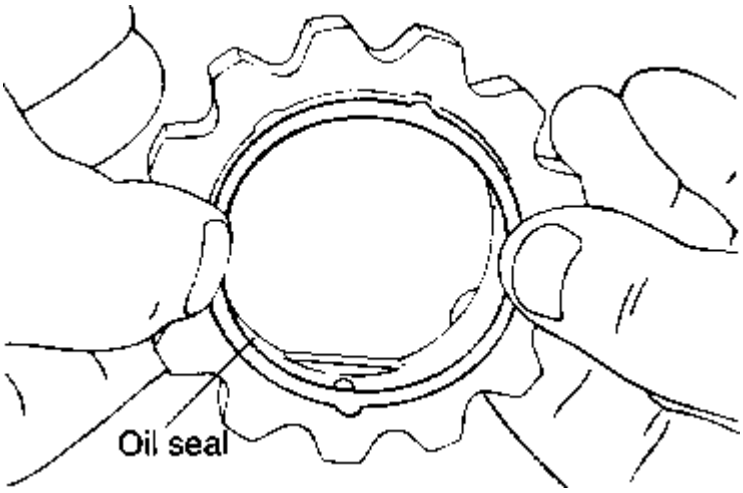
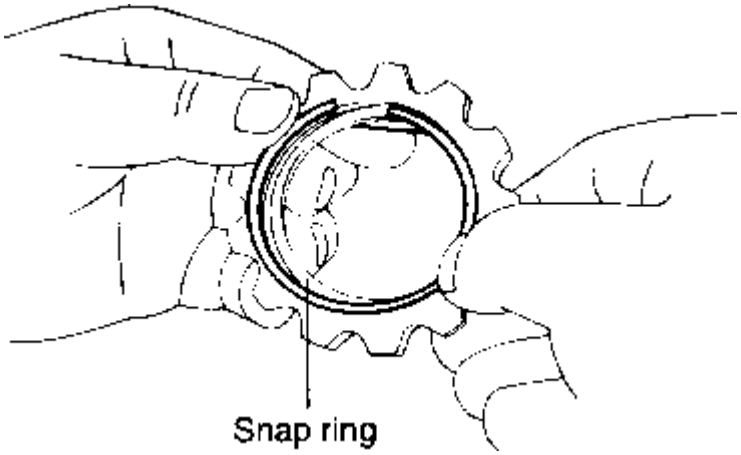
REASSEMBLY

Install the oil seal to the oil pump drive gear.



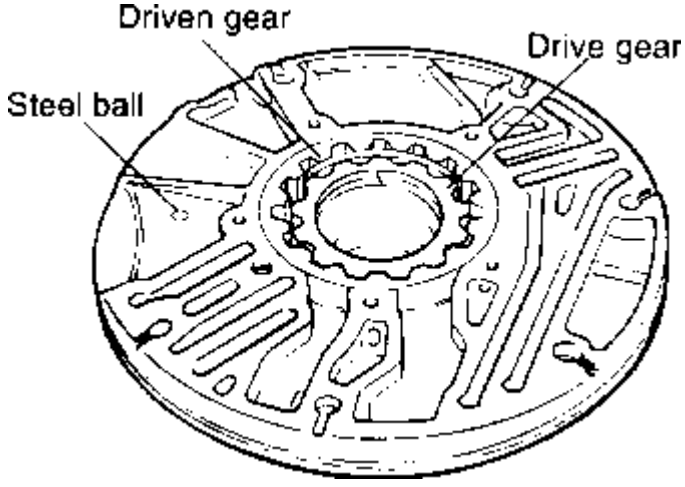
Install the snap ring.



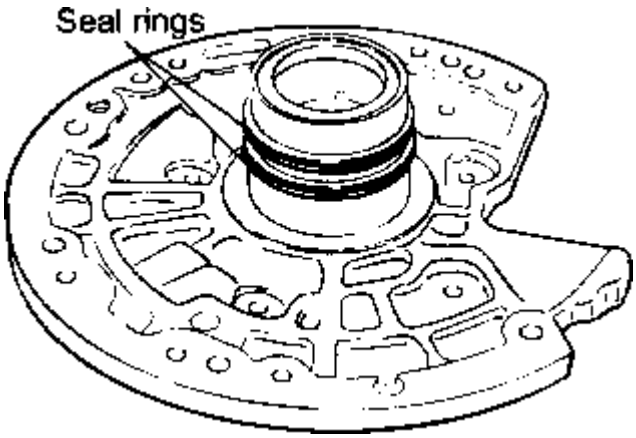
After immersing the drive and driven gears in automatic transaxle fluid, install them into pump housing. When reusing gears, install with mating marks properly aligned.

Fit a new O-ring into the groove at the inner circumference of the drive gear.

Install the steel ball in the hole as shown in the illustration.



Install the two seal rings, coated with automatic transaxle fluid, to the reaction shaft support.

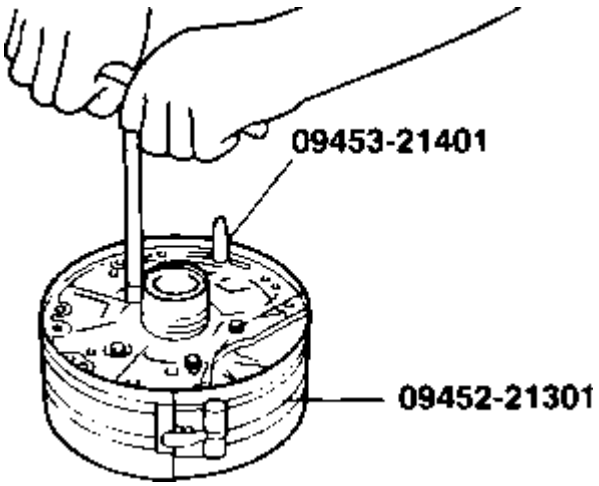


Make sure that oil pump gear turns freely.

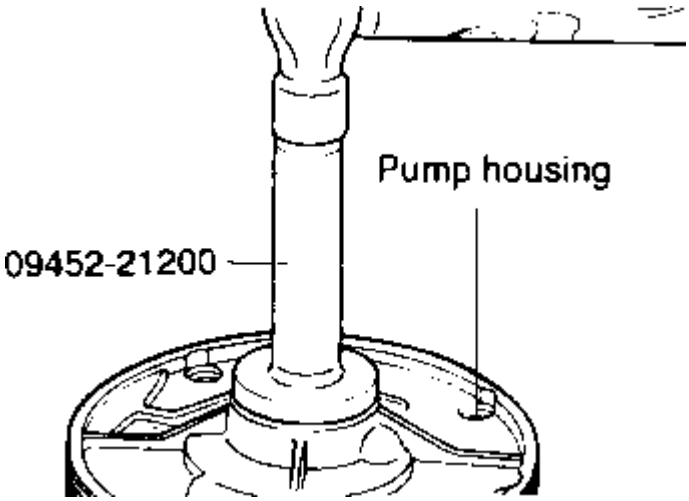
Install a new O-ring in the groove provided in the circumference of the pump housing and apply petroleum jelly to the circumference of the O-ring.

Loosely install the reaction shaft support on the pump housing. Tighten the five bolts finger tight.

With the reaction shaft support properly positioned on the pump housing, using special tools (09452-21401, 0945221301) tighten the five bolts to 10-12 Nm, (100-120 kg.cm, 7-9 lb.ft).



Using the special tool (09452-21200), install the oil seal to the pump housing. Apply a thin coat of automatic transaxle fluid to the lip of the oil seal before installation.



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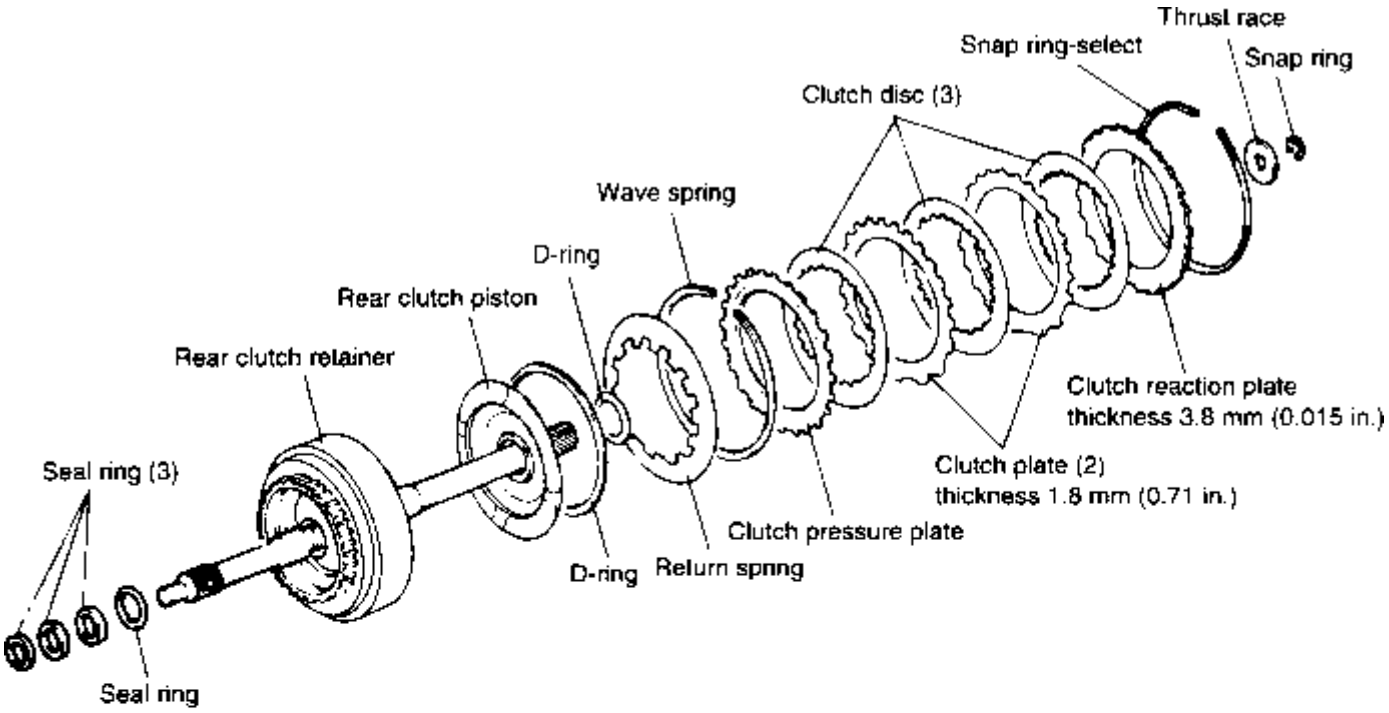

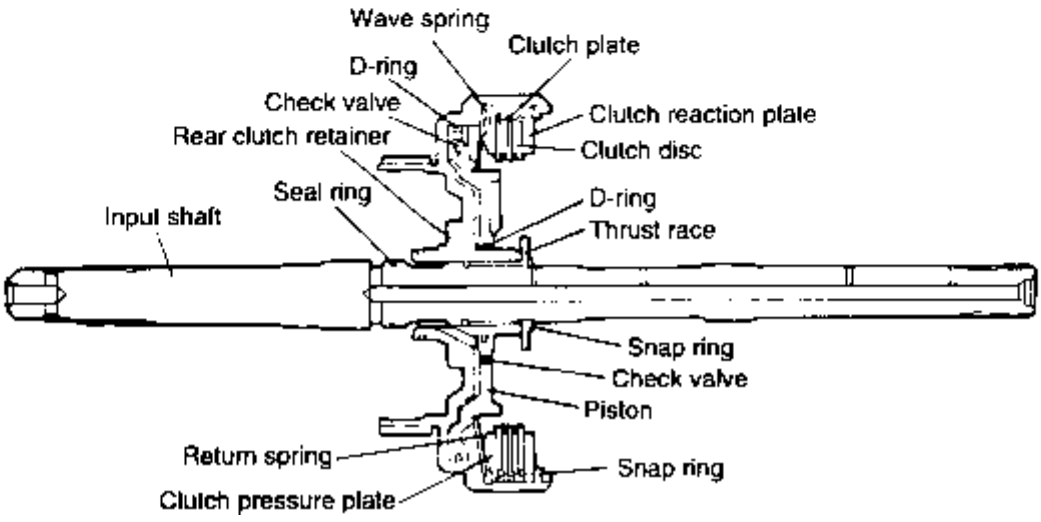

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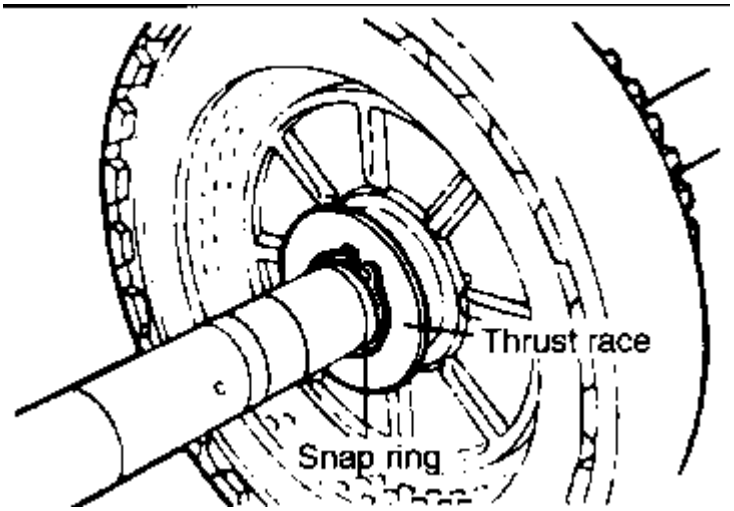
DISASSEMBLY

Remove the snap ring and thrust race.

Remove the input shaft from the rear clutch retainer.

Remove the snap ring from the clutch retainer.



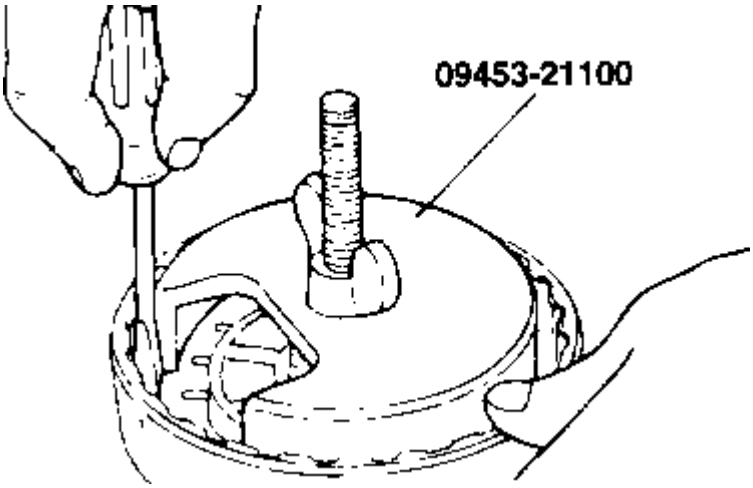
Remove the clutch reaction plate, three clutch plates, two clutch discs and clutch pressure plate from the retainer.

Compress the return spring by using the spring compressor.

Using a screwdriver, remove the wave spring.

Remove the return spring and piston.

Remove the two D-section rings from piston.



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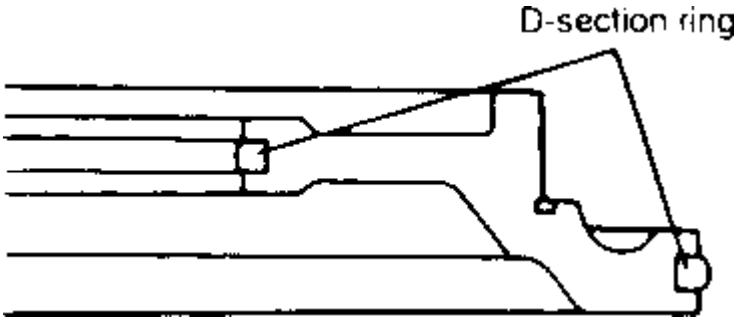
REASSEMBLY

Install the D-section rings in the grooves in the outside and inside surfaces of the piston.

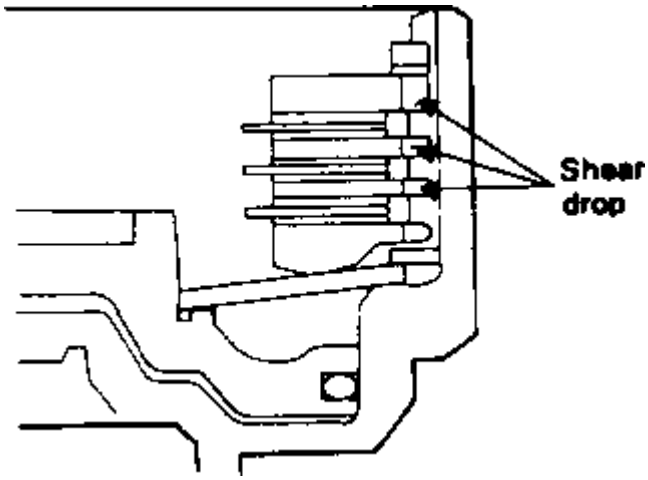
After applying automatic transaxle fluid to the outside surface of the D-section rings, push the piston into the rear clutch retainer by hand.

Install the return spring on the piston.

Compress the return spring with the snap ring, by pushing down with a screwdriver and setting the snap ring in its groove.



Install clutch pressure plate, two clutch discs, clutch plate and clutch reaction plate into the rear clutch retainer. When the reaction plate, clutch plate and clutch disc are removed, reinstall them by reversing the order of disassembly. Prior to installing, apply automatic transaxle fluid to the plates and discs.

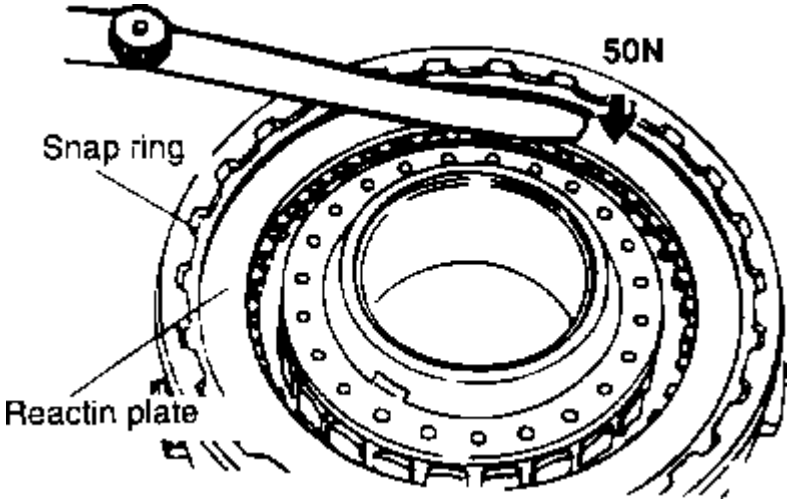


CAUTION

When new clutch discs are used, immerse them in automatic transaxle fluid for a minimum of two hours prior to installation.

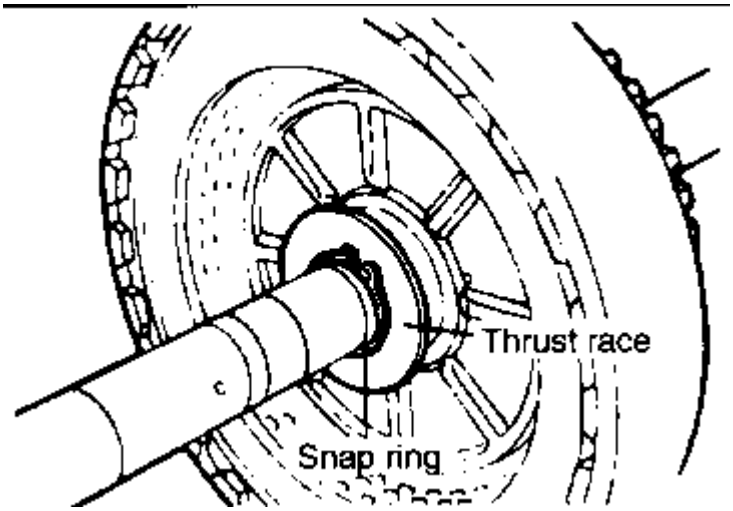
Install the snap ring. Check to see that the clearance between the snap ring and clutch reaction plate is 0.4-0.6 mm (0.016-0.024 in). To check clearance, hold the entire circumference of the clutch reaction plate down with 50N (11 lbs) force. If clearance is out of specification, adjust by selecting the proper snap ring. Snap rings are the same as those used for the front clutch.

Insert the input shaft into the clutch retainer.



Install the thrust race, and snap ring.

Install the three seal rings to the grooves in the input shaft.


Thrust race
Snap ring

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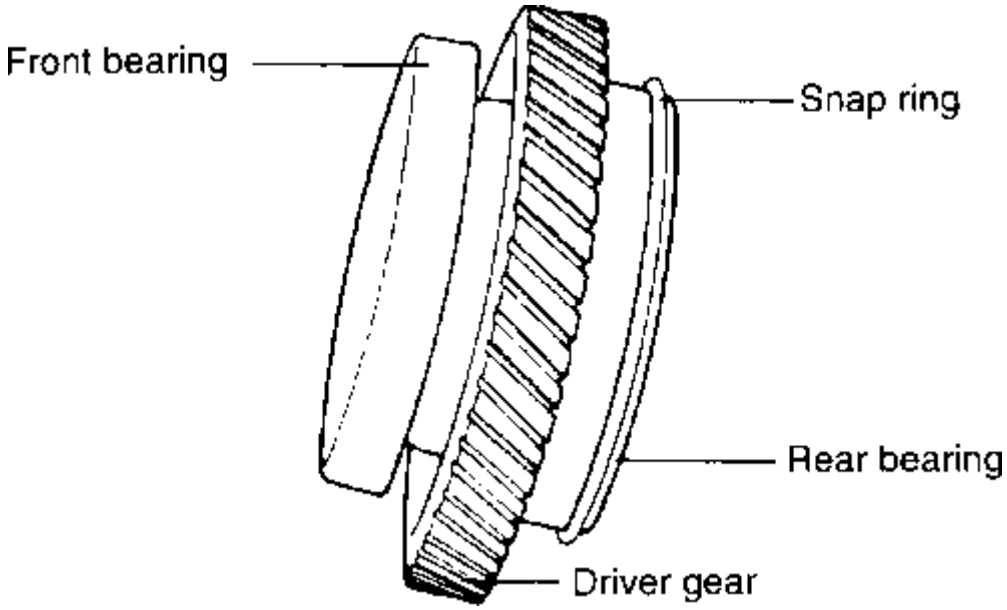

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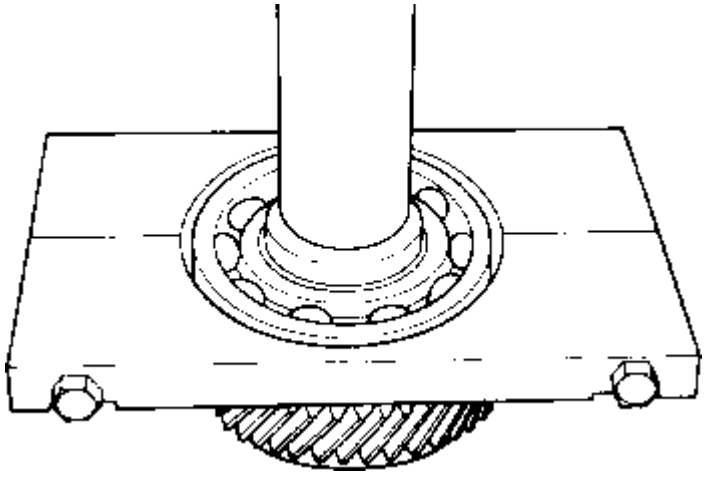
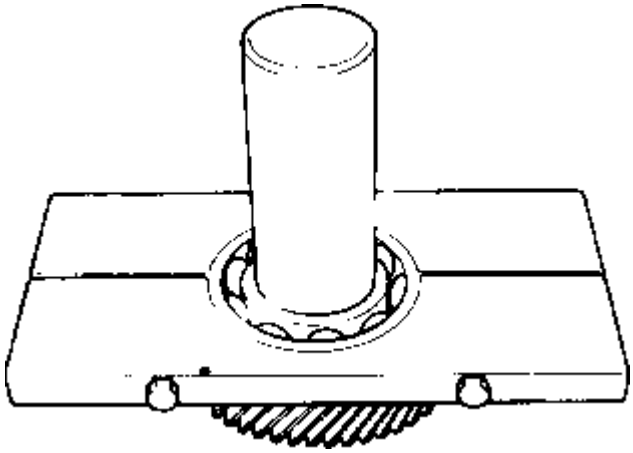
DISASSEMBLY

Using special tool (09457-34000), pull off the front bearing from transfer drive gear.



Using special tool (09457-22000) , pull off the rear bearing from transfer drive gear.



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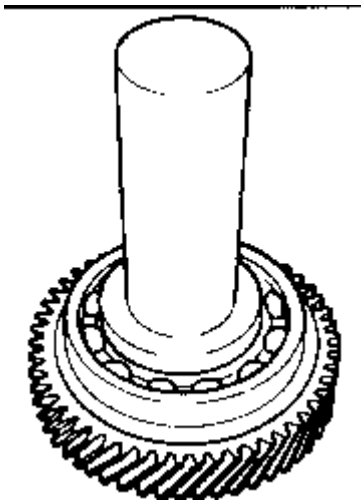
REASSEMBLY

Using special tool (09452-21200), press the front bearing and the rear bearing onto the transfer drive gear.



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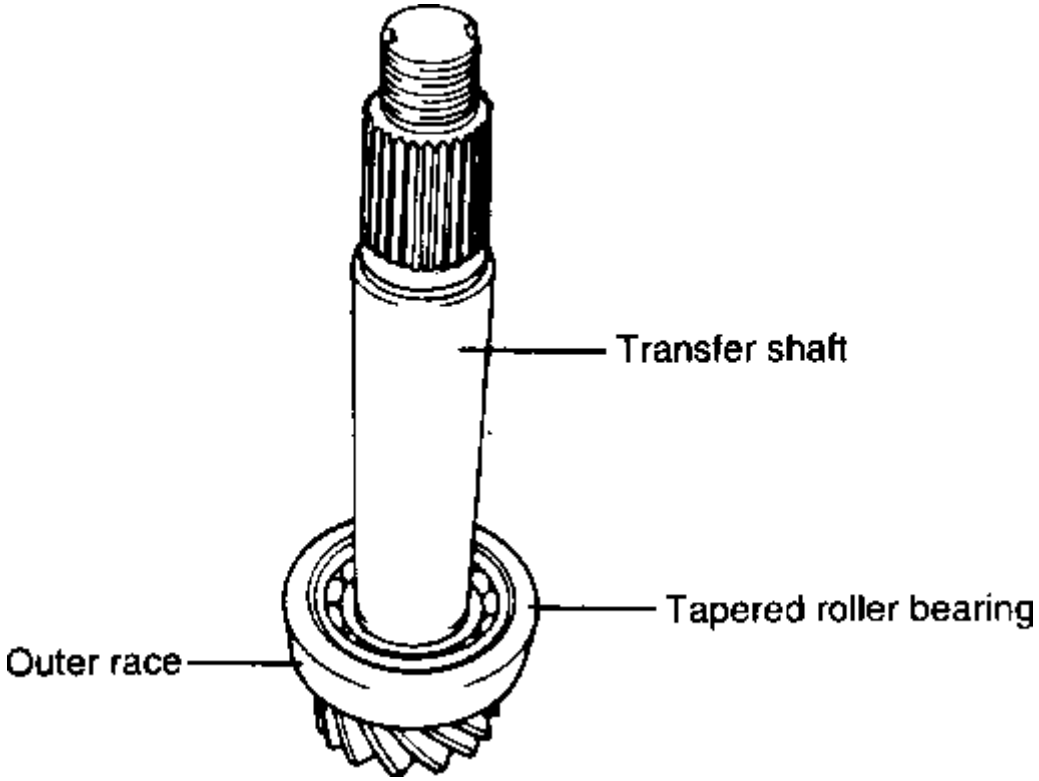

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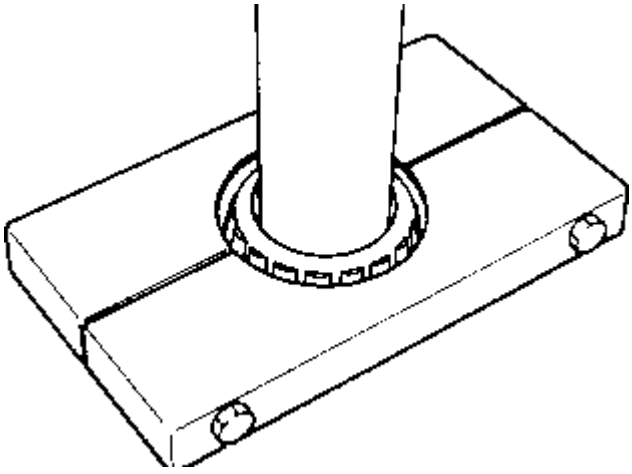
DISASSEMBLY

Using special tool (09433-21000), remove the bearing from the transfer shaft.



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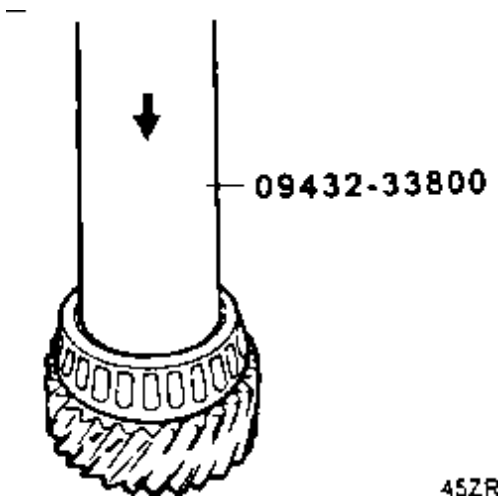
REASSEMBLY

Press the bearing inner race on to the transfer shaft.



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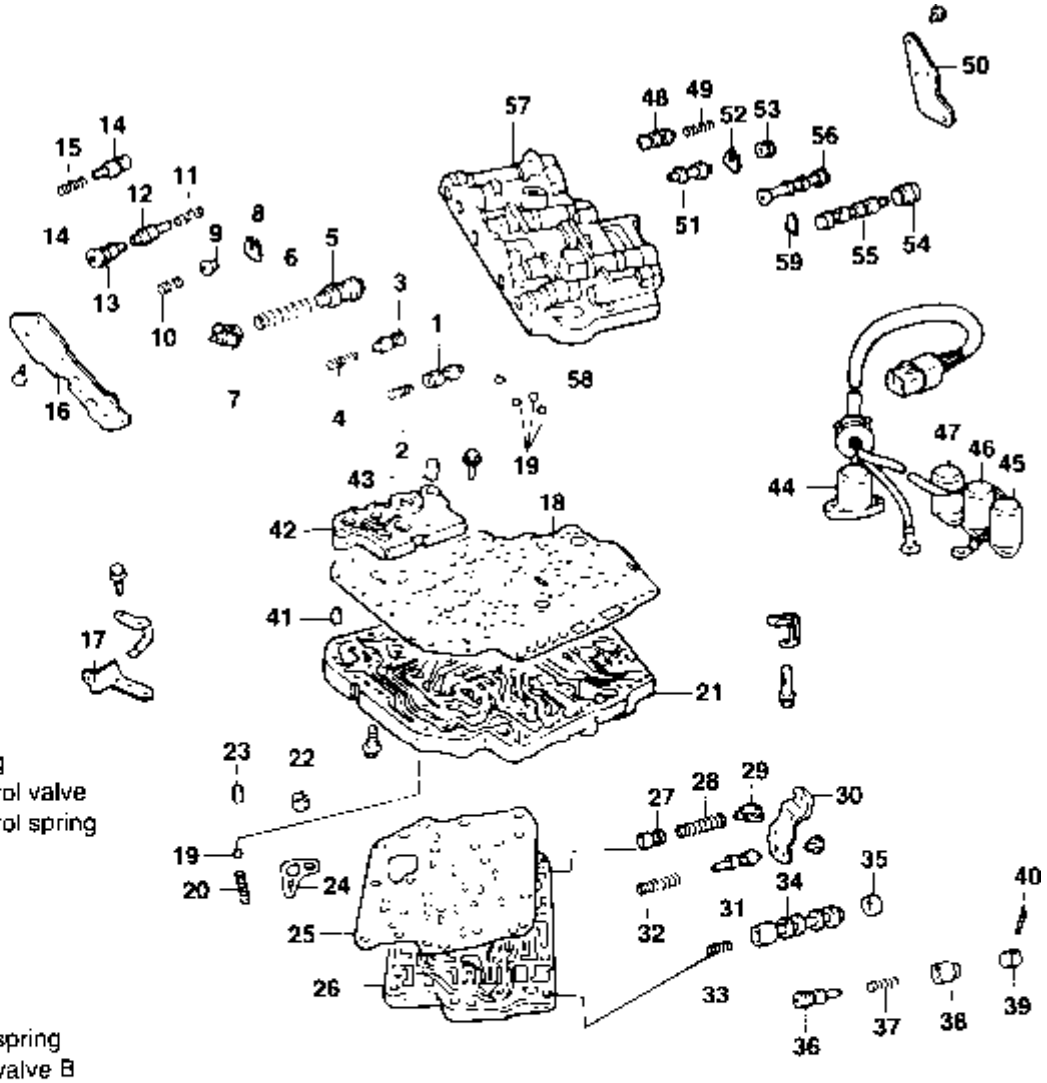
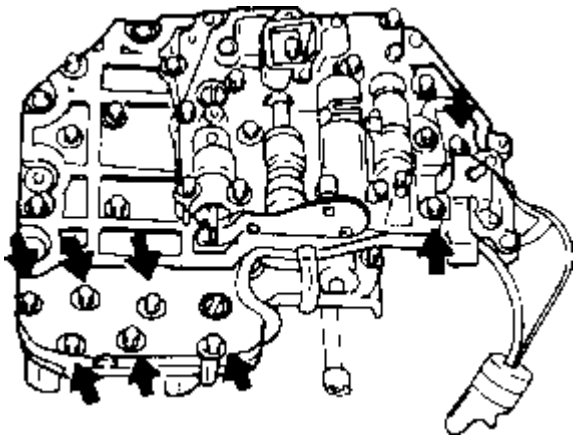


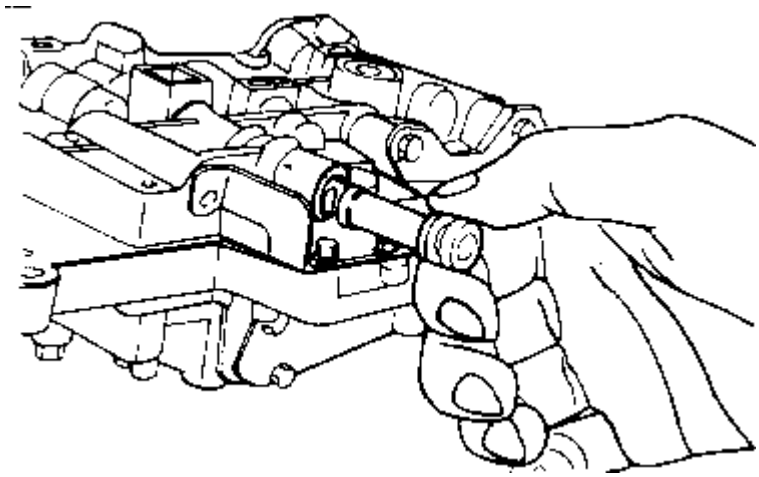
1. Pressure control valve
2. Pressure control spring
3. Torque converter control valve
4. Torque converter control spring
5. Regulator valve
6. Regulator valve
7. Adjusting screw
8. Stopper plate
9. Shift control plate
10. Shift control spring
11. Rear clutch exhaust spring
12. Rear clutch exhaust valve B
13. Rear clutch exhaust valve A
14. 2nd-3rd/4th-3rd shift valve
15. 2nd-3rd/4th-3rd shift spring
16. Front end cover
17. Valve stopper
18. Upper separating plate
19. Steel ball
20. Relief spring
21. Intermediate plate
22. Nut
23. Jet
24. Oil filter
25. Lower separating plate
26. Lower valve body
27. Reducing valve
28. Reducing spring
29. Adjusting screw
30. End cover
31. N-R control/accumulator valve
32. N-R control/accumulator spring
33. Damper clutch control spring
34. Damper clutch control valve
35. Damper clutch control sleeve
36. End clutch valve
37. End clutch spring
38. End clutch plug
39. Stopper
40. Pin
41. Down bushing
42. Block
43. Pipe
44. Pressure control solenoid valve (PCSV)
45. Shift control solenoid valve B (SCSV-B)
46. Shift control solenoid valve A (SCSV-A)
47. Damper clutch control solenoid valve (DCCSV)
48. 1-2 shift valve
49. 1-2 shift spring
50. Rear end cover
51. Shift control valve
52. Stopper plate
53. Shift control valve
54. N-D control plug B
55. N-D control valve
56. Manual valve
57. Upper valve body
58. Teflon ball
59. N-D plate

DISASSEMBLY

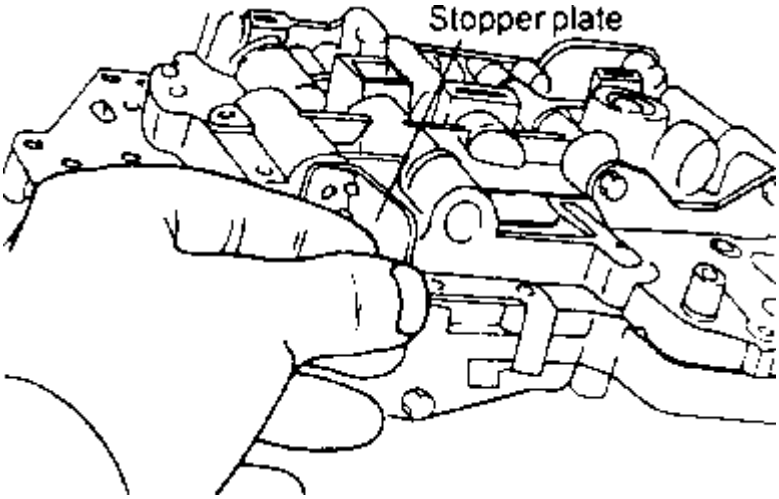
Remove the 4 solenoid valves and the oil temperature sensor bracket.



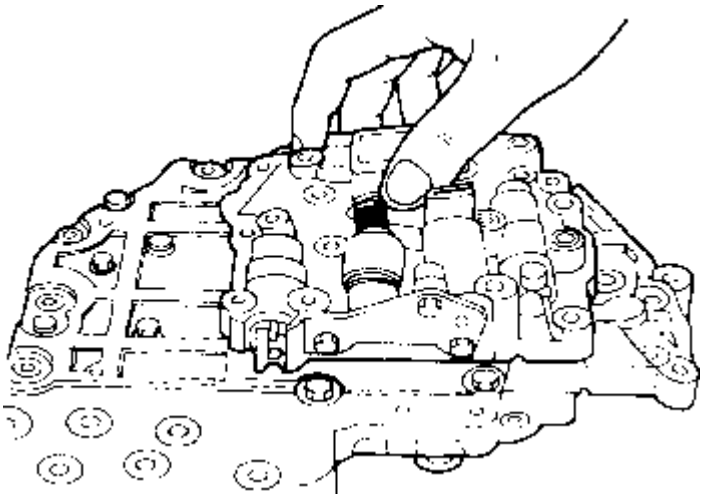
Remove the manual valve.



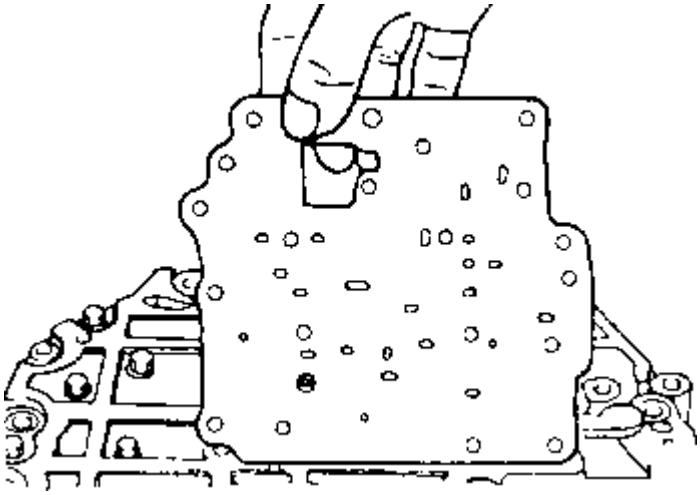
Remove the valve stopper and clamp.



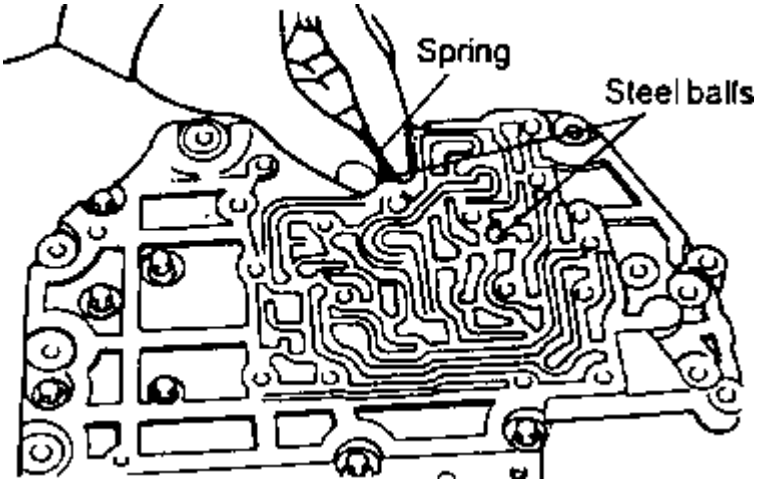
Remove the bolts (15), and then remove the lower valve body.



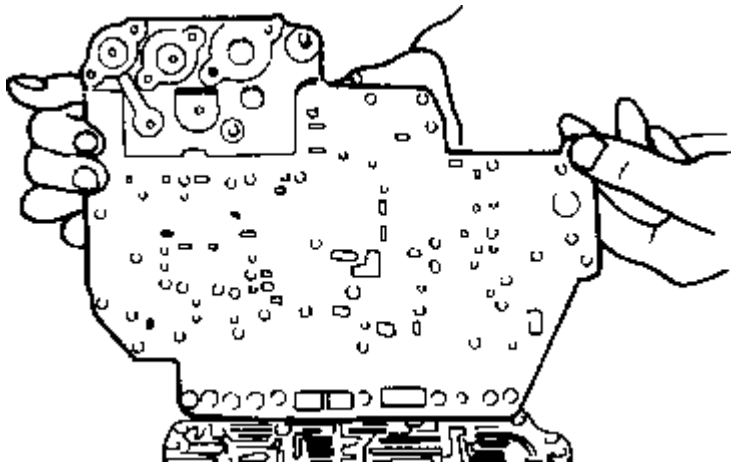
Remove the separating plate.



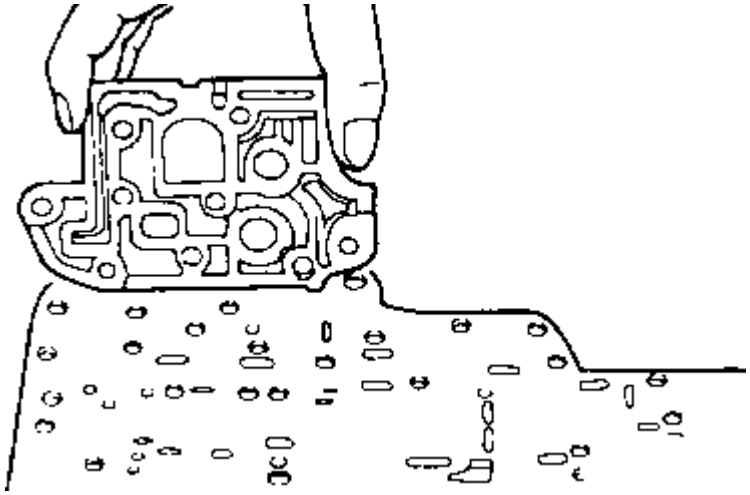
Remove the relief spring, two steel balls and oil filter from the intermediate plate.



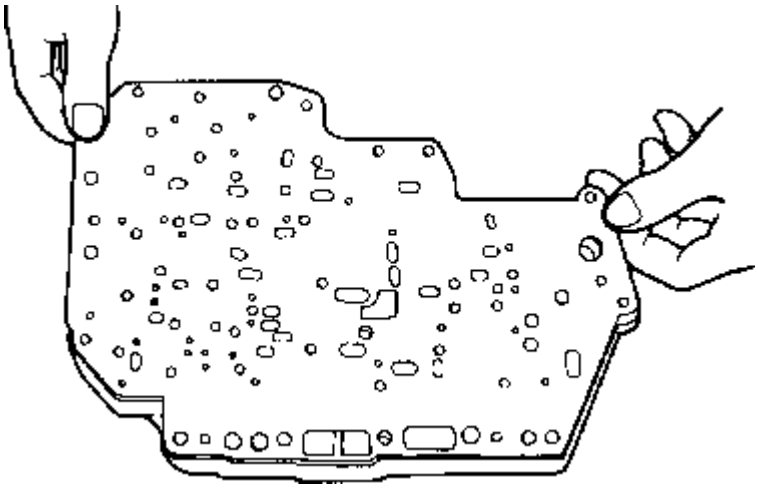
Remove the bolts (7), and then remove the intermediate plate and upper separation plate.



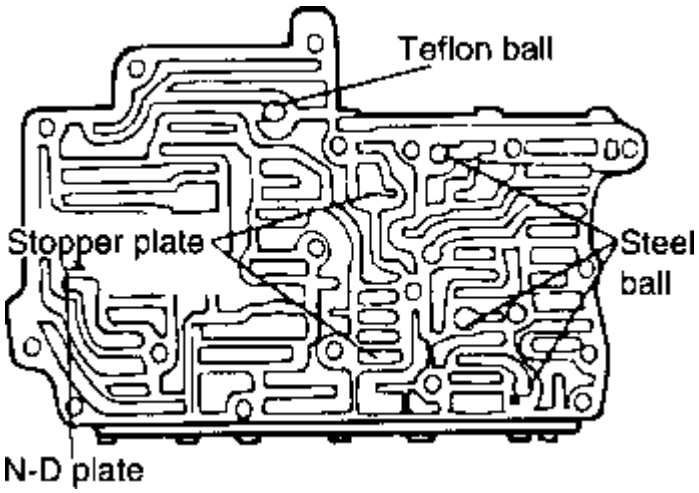
Remove the block.



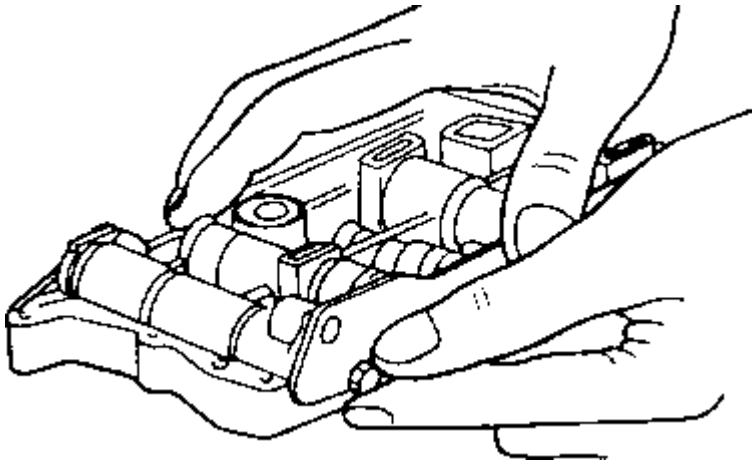
Remove the upper separating plate.



Remove, from the upper valve body, the three steel balls, the teflon ball, two stopper plates and N-D plate.



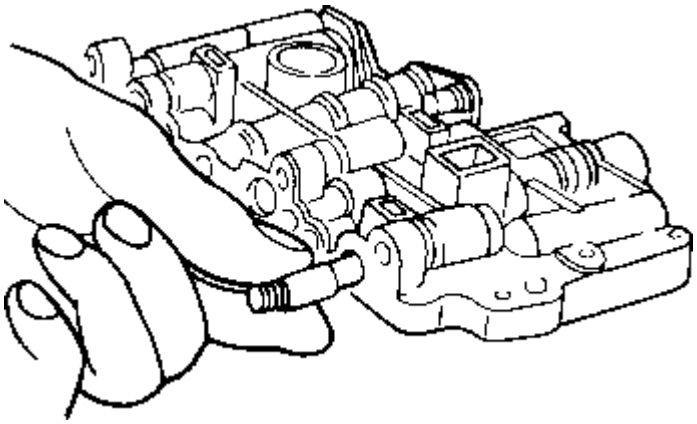
Remove, from the upper valve body, the seven bolts; then remove the front end cover and the adjustment screw.



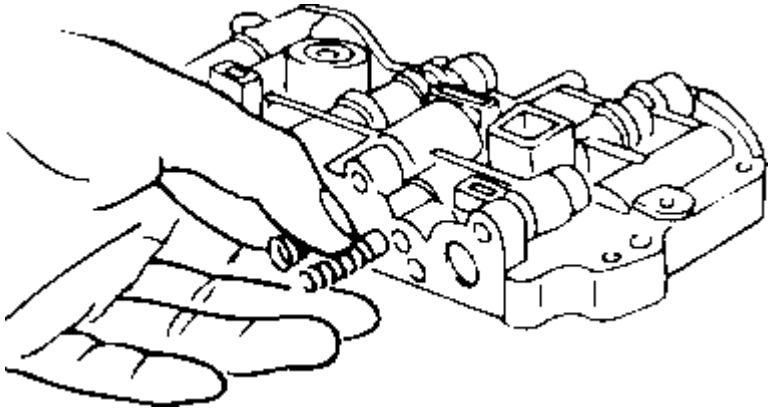
CAUTION

When removing the bolts, be sure to firmly press the front end cover (as shown in the illustration) so as to prevent the spring from causing the adjustment screw to pop out.

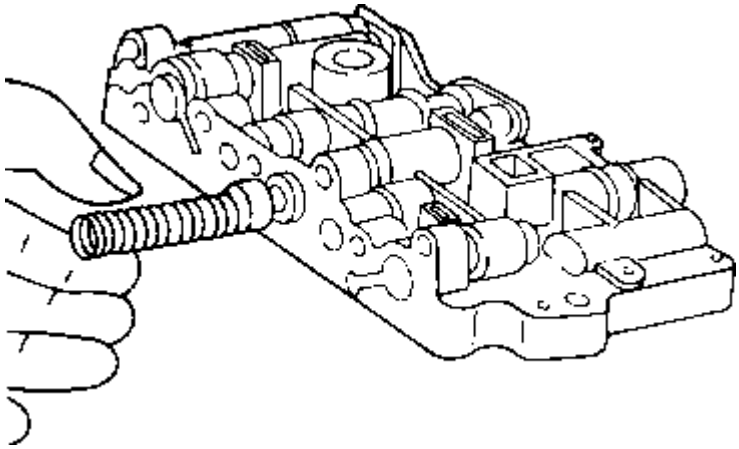
Remove the pressure control spring and the pressure control valve.



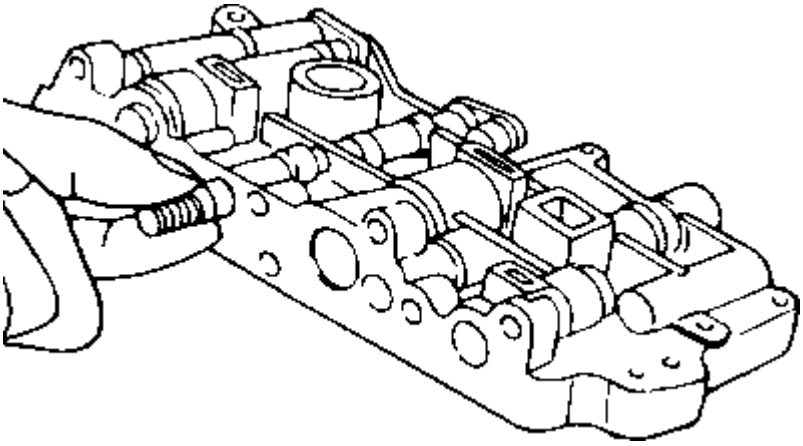
Remove the torque converter control spring and the torque converter control valve.



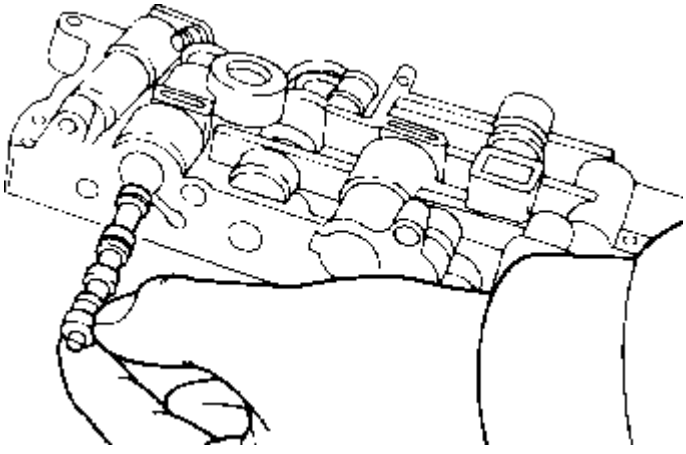
Remove the regulator spring and the regulator valve.



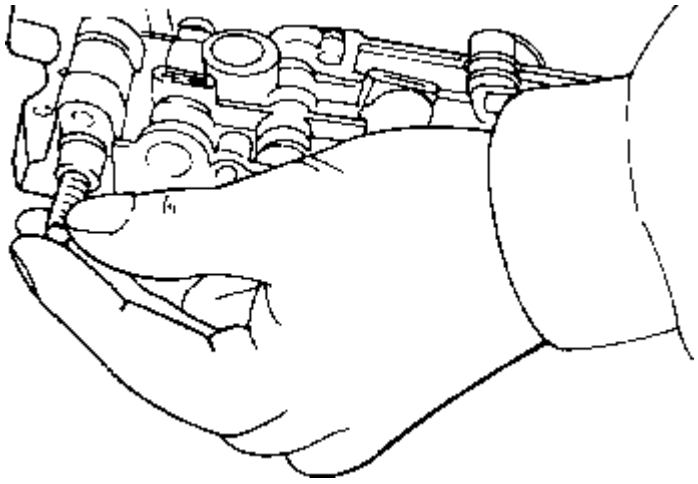
Remove the shift-control spring and shift-control plug A.



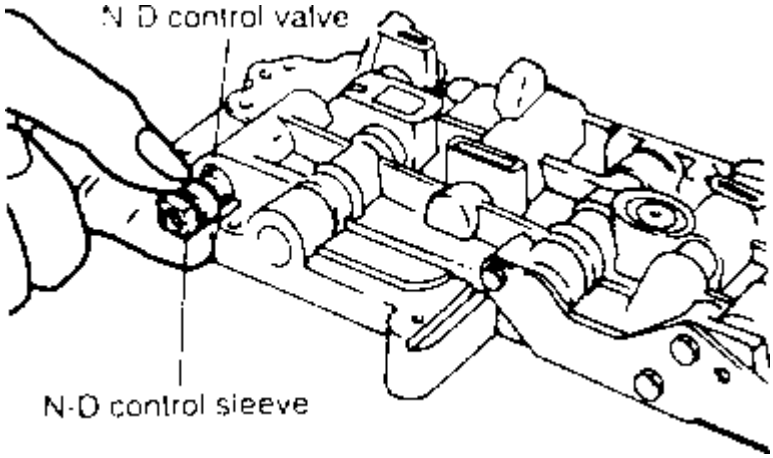
Remove rear clutch exhaust valves A and B as well as the rear clutch exhaust spring.



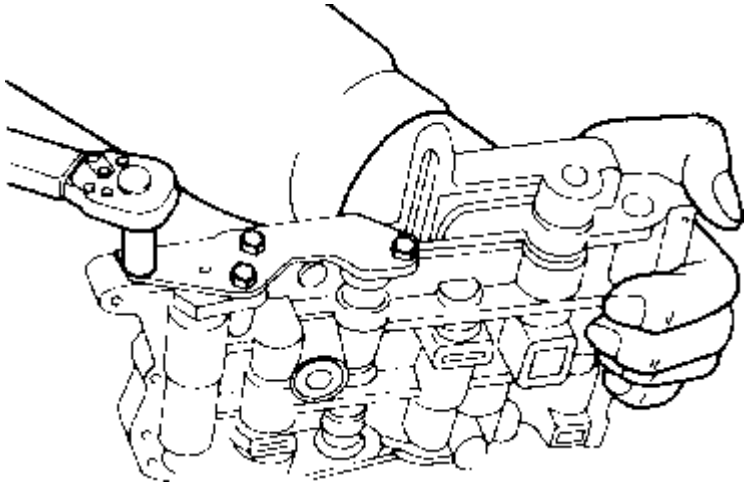
Remove the 2-3/4-3 shift spring and the shift valve.



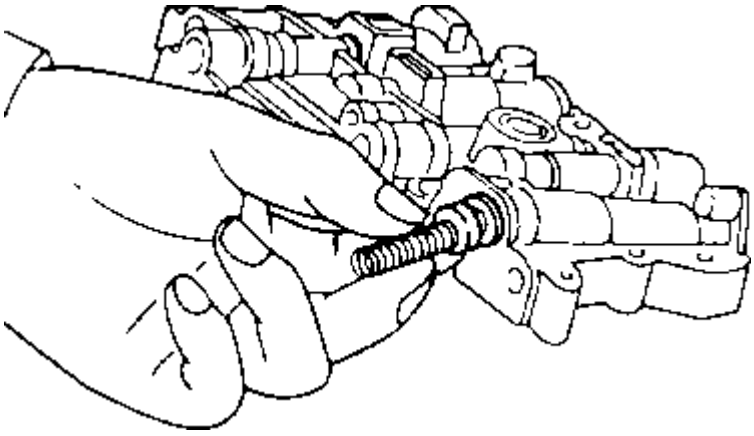
Remove, from the rear side of the upper valve body, the N-D control sleeve and the N-D control valve.



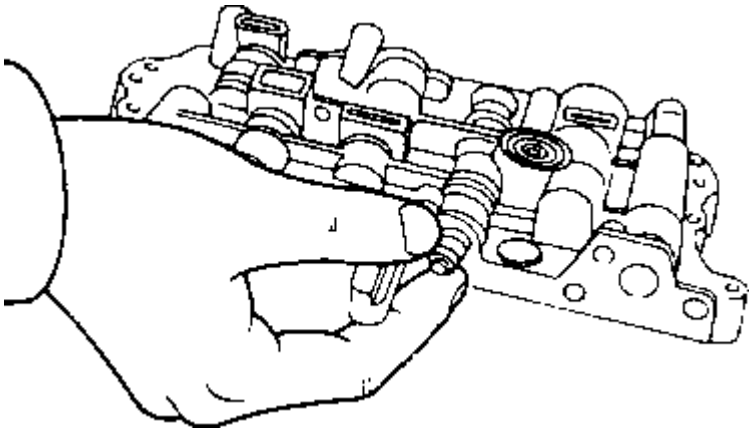
Remove the four bolts, and remove the rear end cover.



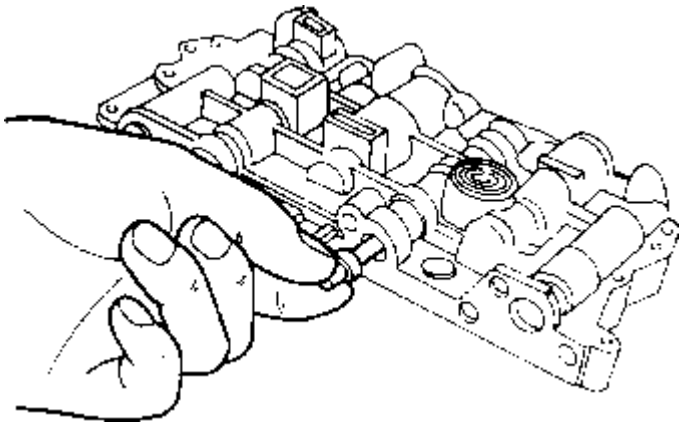
Remove the 1-2 shift spring and the 1-2 shift valve.



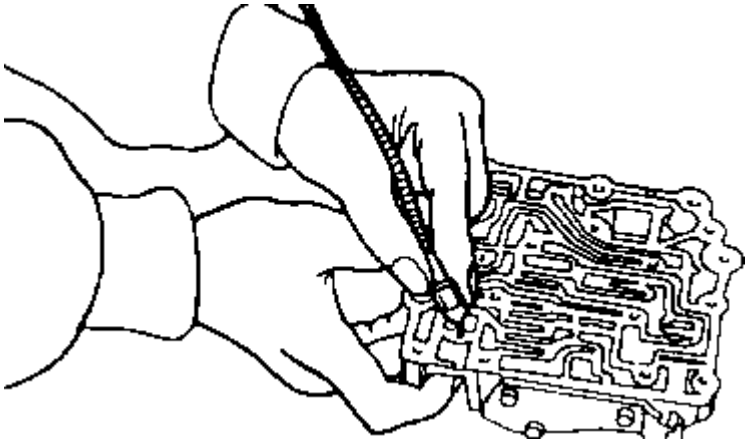
Remove shift-control plug B.



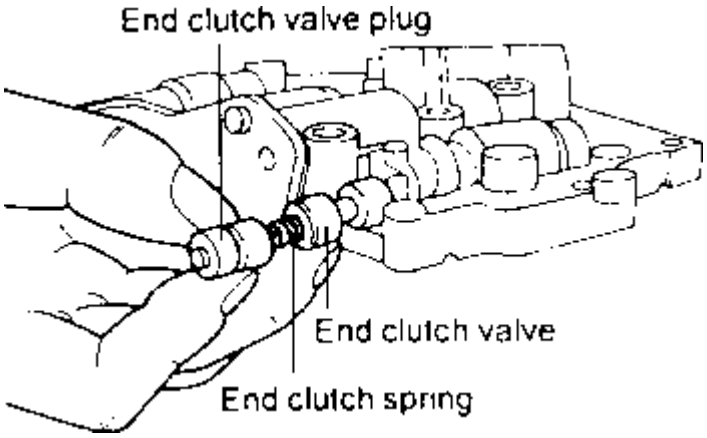
Remove the shift-control valve.



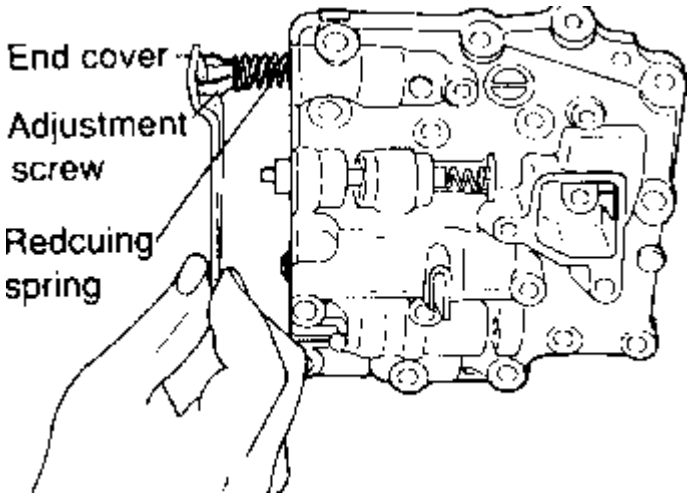
Using a magnet, extract the pin from the lower valve body, and then remove the stopper.



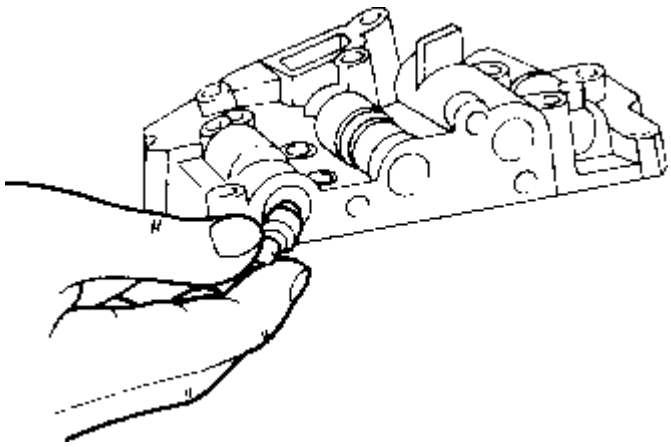
Remove the end clutch valve plug, end clutch spring, and end clutch valve.



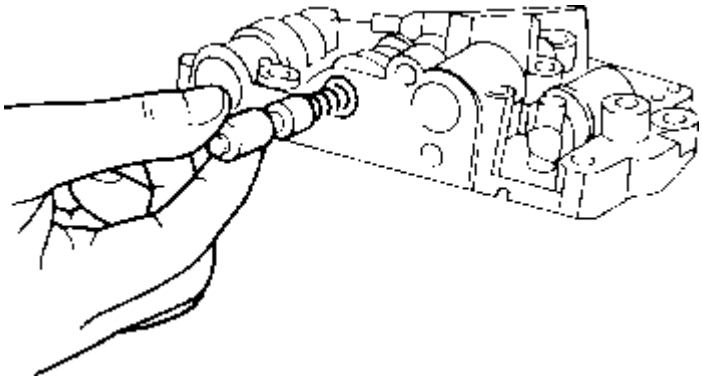
Remove the three bolts from the lower valve body, and then remove the end cover, adjustment screw, and reducing spring.



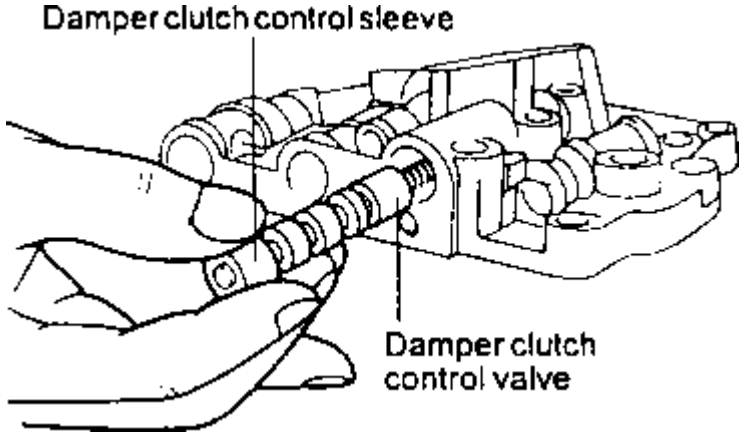
Remove the reducing valve.



Remove the N-R control/accumulator valve and the N-R control/accumulator spring.



Remove the damper clutch control sleeve, damper clutch control valve, and the damper clutch control spring.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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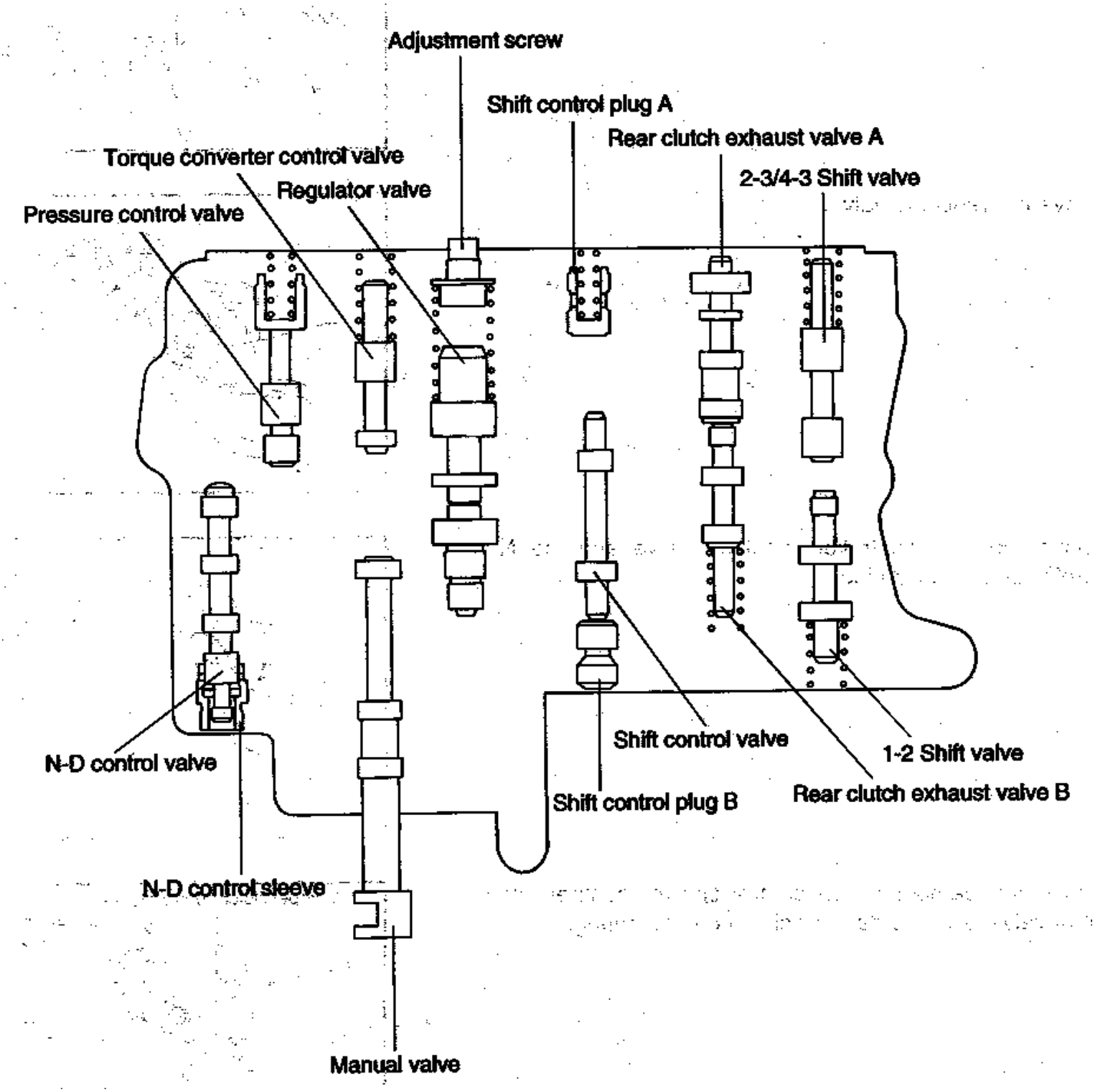
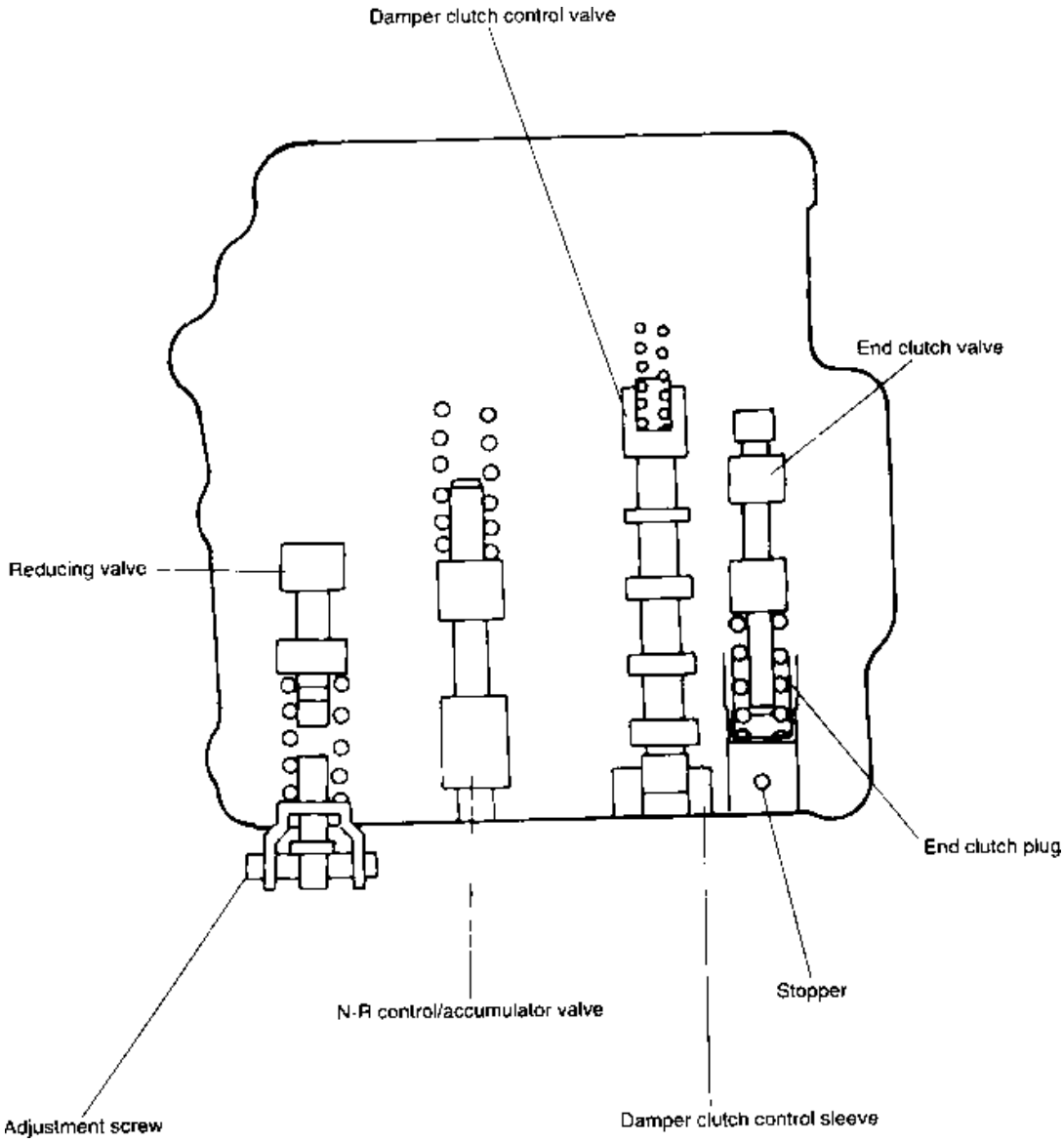
REASSEMBLY

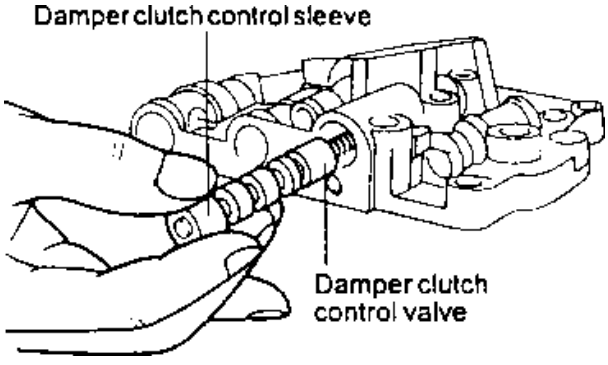
Upper Valve Body



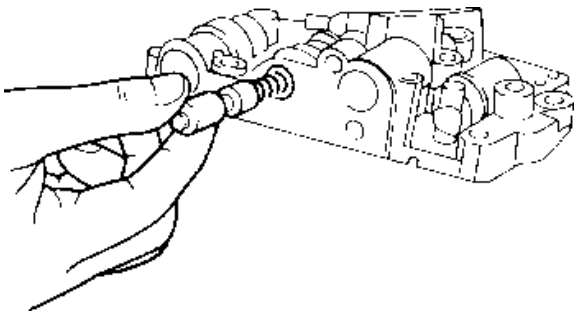
Lower Valve Body



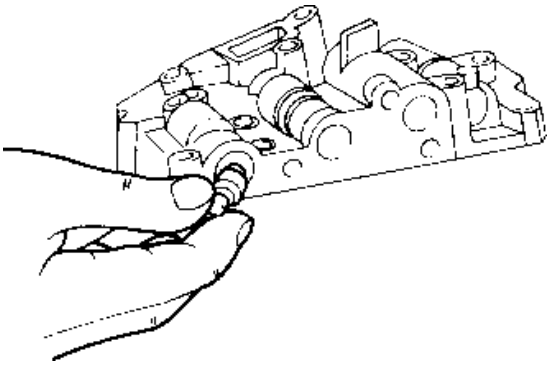
Install in the lower valve body, the damper clutch control spring, damper clutch control valve, and the damper clutch control sleeve.



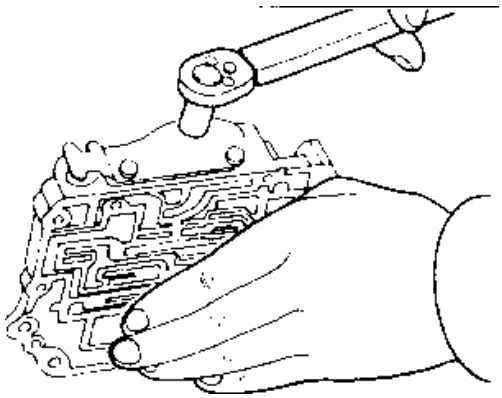
Install the N-R control/accumulator spring and the N-R control/accumulator valve.



Install the reducing valve.

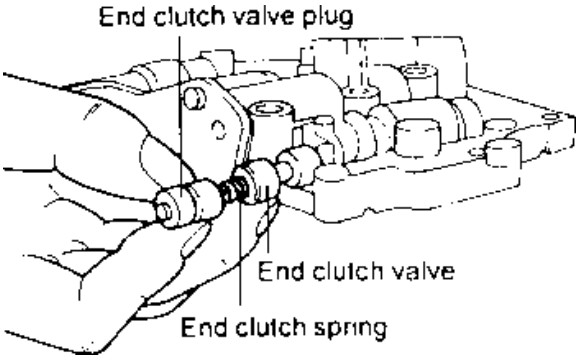


Install the reducing spring, adjustment screw, and end cover. Tighten the bolts to the specified torque.

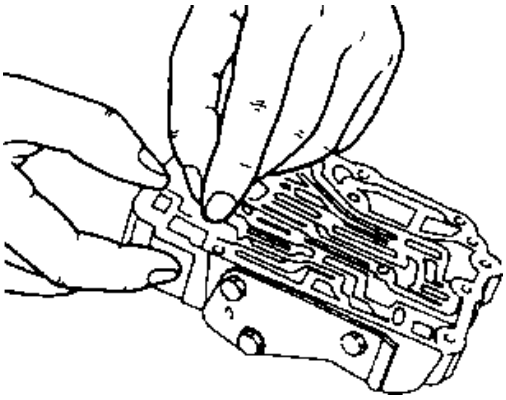


TORQUE SPECIFICATION	
Reducing spring	4-6 Nm (40-60 kg·cm, 3-4 lb·ft)

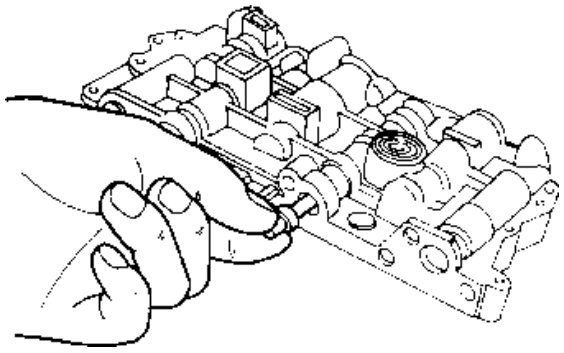
Install the end clutch valve, end clutch spring, and end clutch plug.



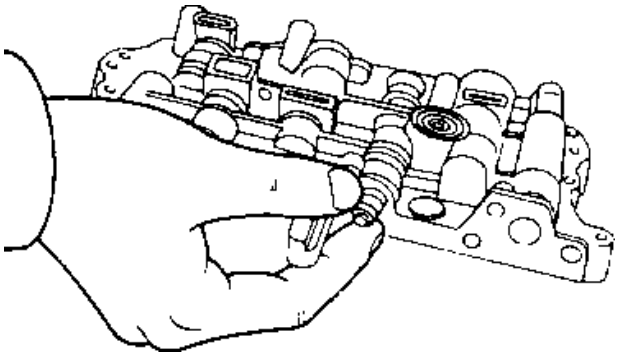
Install the stopper and secure it with the pin.



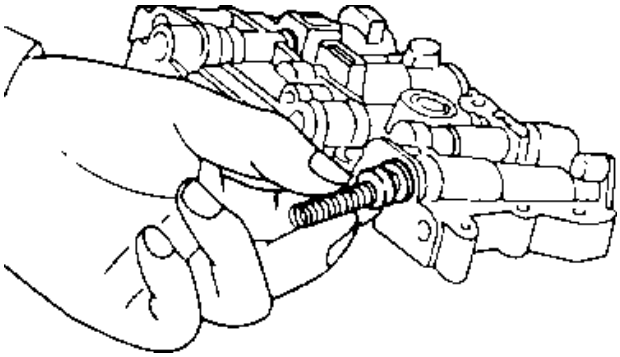
Install the shift-control valve to the upper valve body.



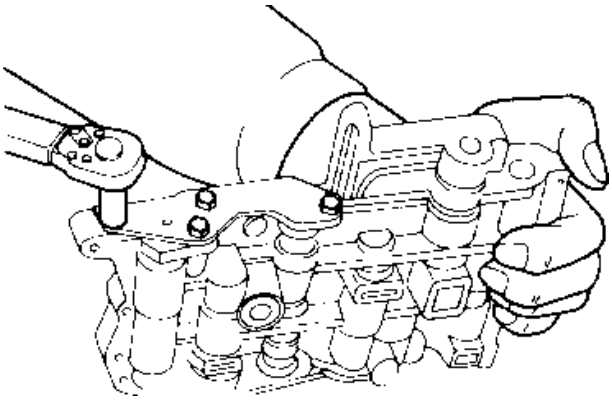
Install the shift-control plug B.



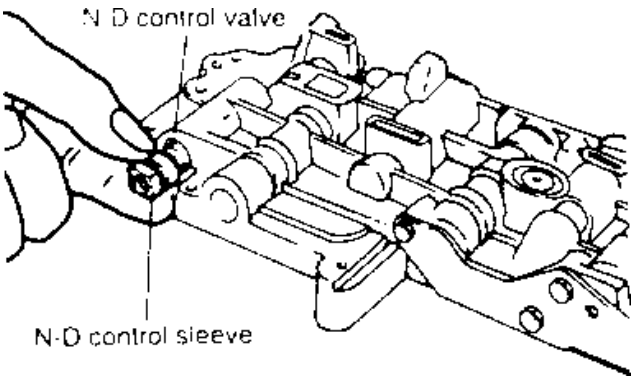
Install the 1-2 shift valve and the 1-2 shift spring.



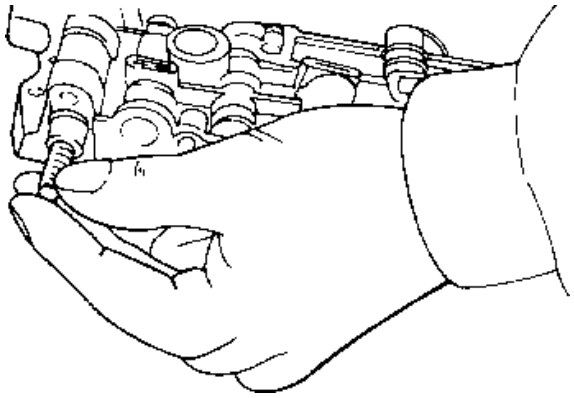
Install the rear end cover.



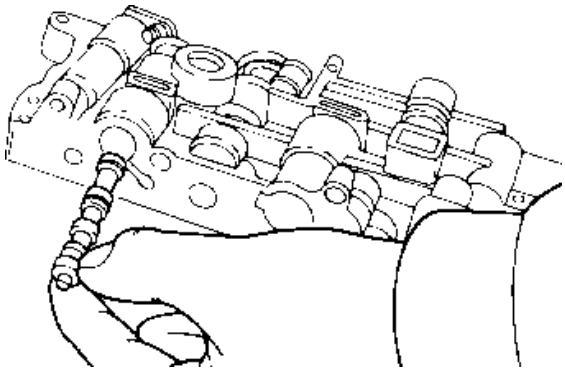
Install the N-D control valve and the N-D control sleeve.



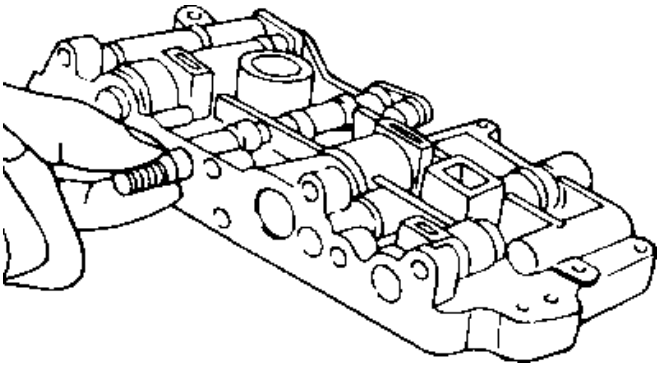
Install the 2-3/4-3 shift valve and the 2-3/4-3 shift spring.



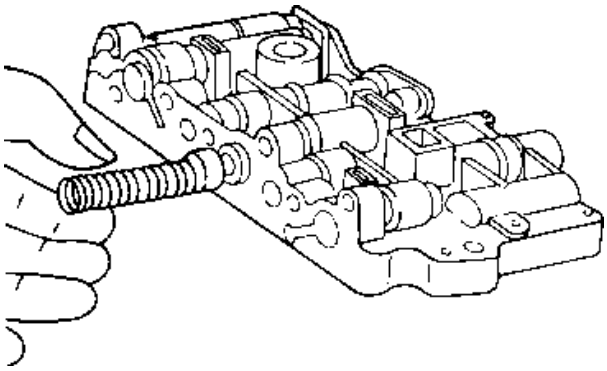
Install the rear clutch exhaust spring and rear clutch exhaust valves A and B.



Install shift-control plug A and shift control spring.



Install the regulator valve and regulator spring.



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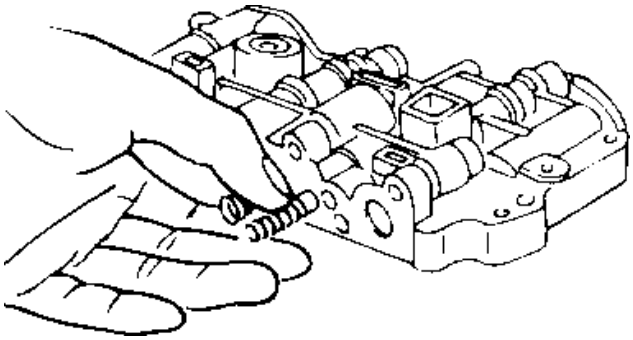
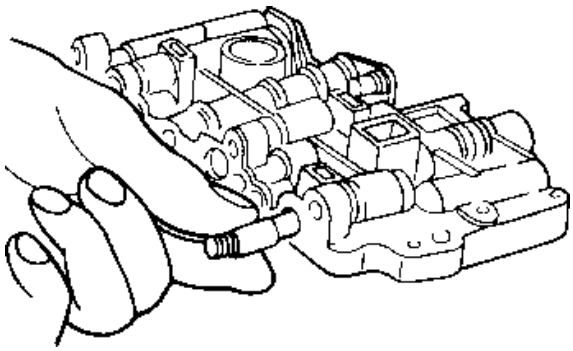
REASSEMBLY (CONTINUED)

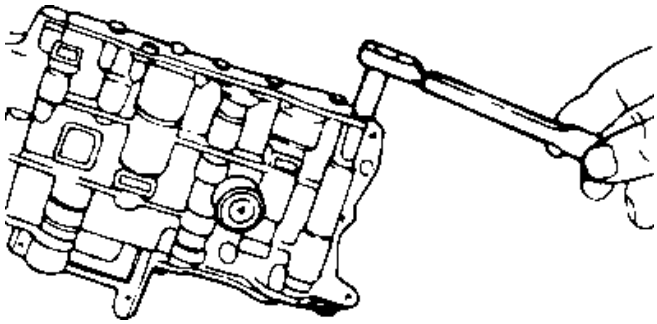
Install the torque converter control valve and torque converter control spring.



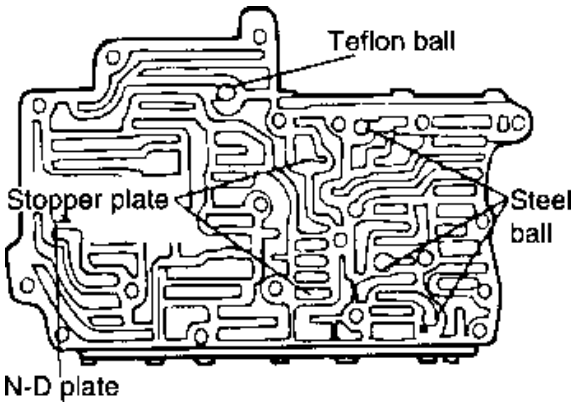
Install the pressure control valve and pressure control spring.



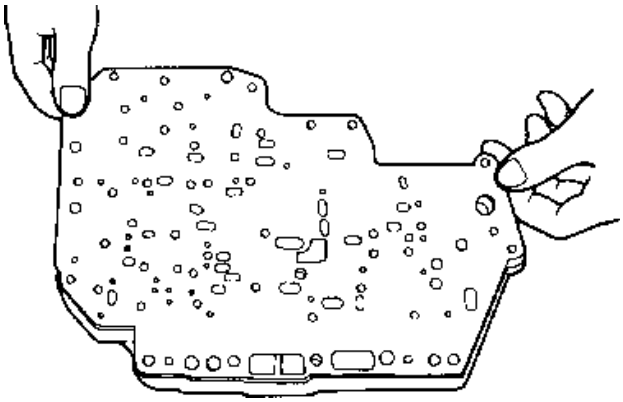
Install the adjustment screw and front end cover. Tighten the bolts to the specified torque.



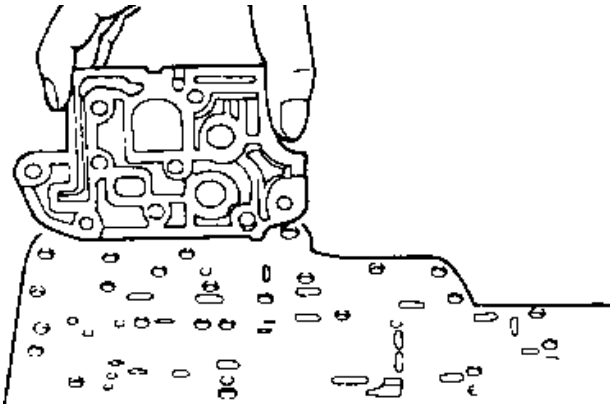
Install in the upper valve body, the three steel balls, the teflon ball, two stopper plate and N-D plate.



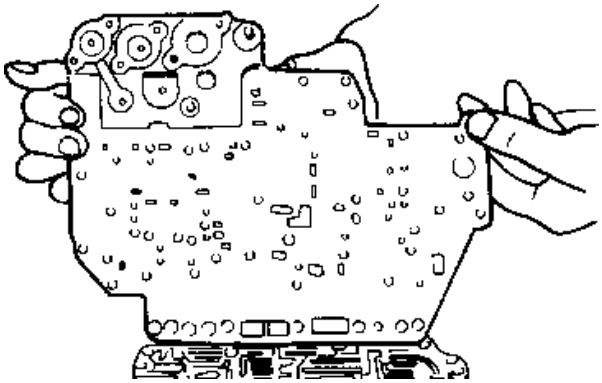
Install the upper separating plate.



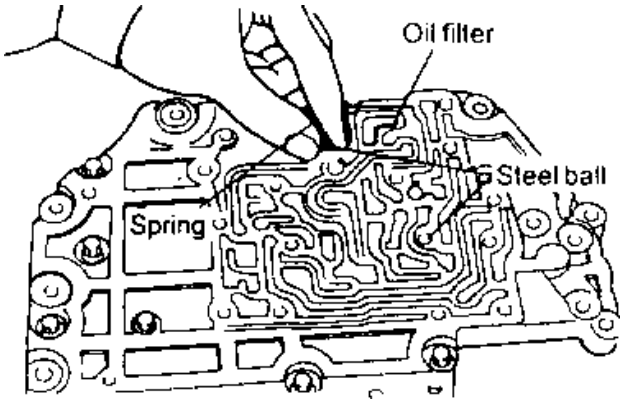
Install the block.



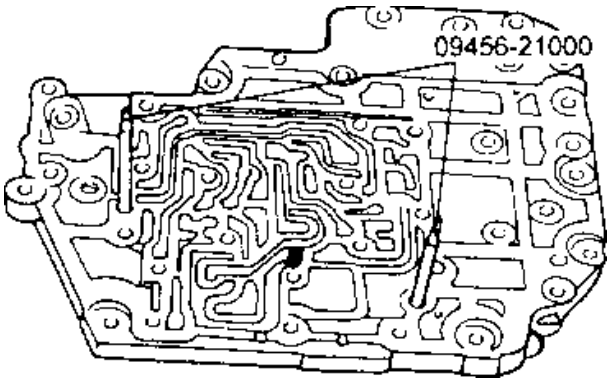
Install the special tool (09456-21000). Then, securing the upper separating plate and the intermediate plate with the eight installation bolts, remove the special tool.



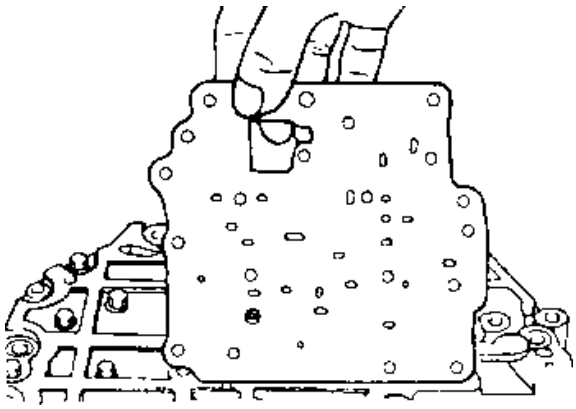
Install to the intermediate plate, the oil filter, the two steel balls, and the spring.



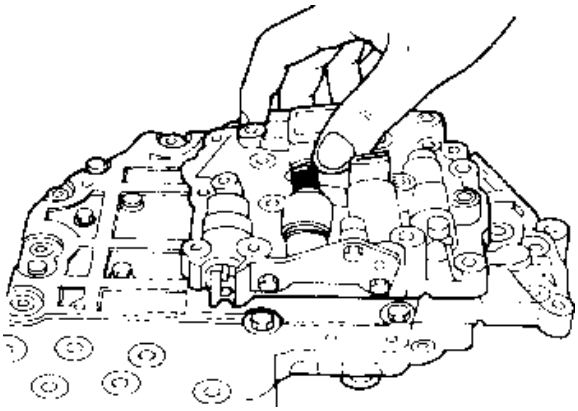
Install the special tool (09456-21000) to the intermediate plate.



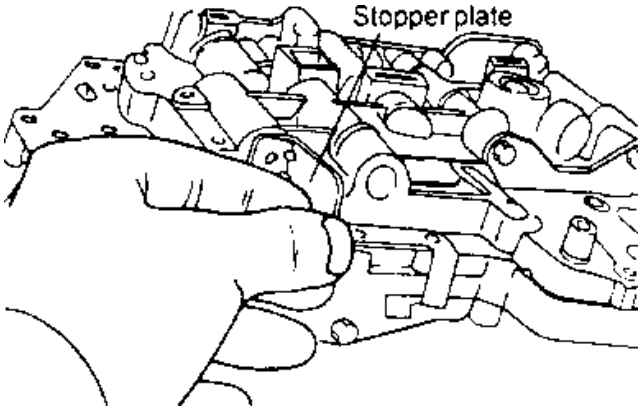
Install the separating plate.



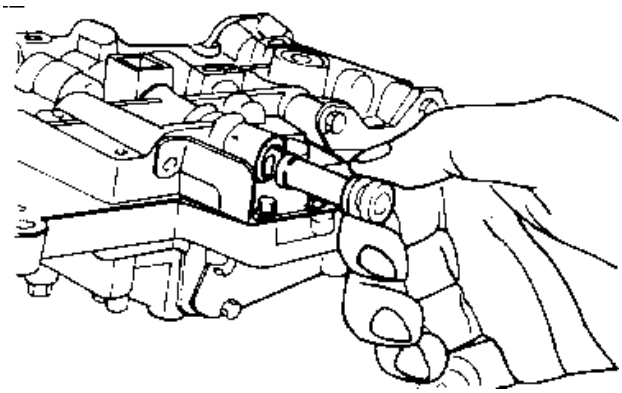
After securing the lower valve body using the 15 installation bolts, remove the special tool.



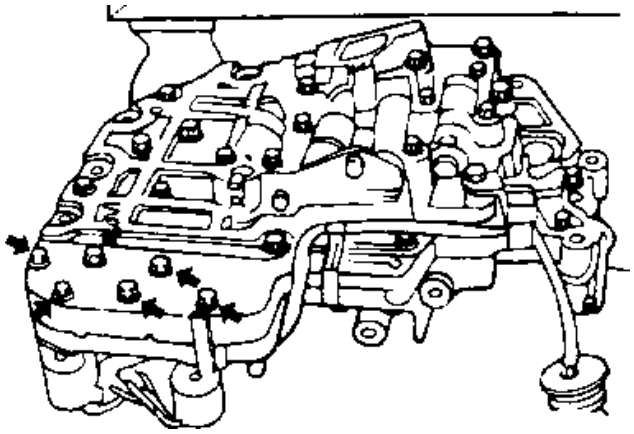
Install the valve stopper plate and clamp.



Install the manual valve.



Secure the six solenoid installation bolts.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
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Transaxle/Transmission	Automatic Transaxle System

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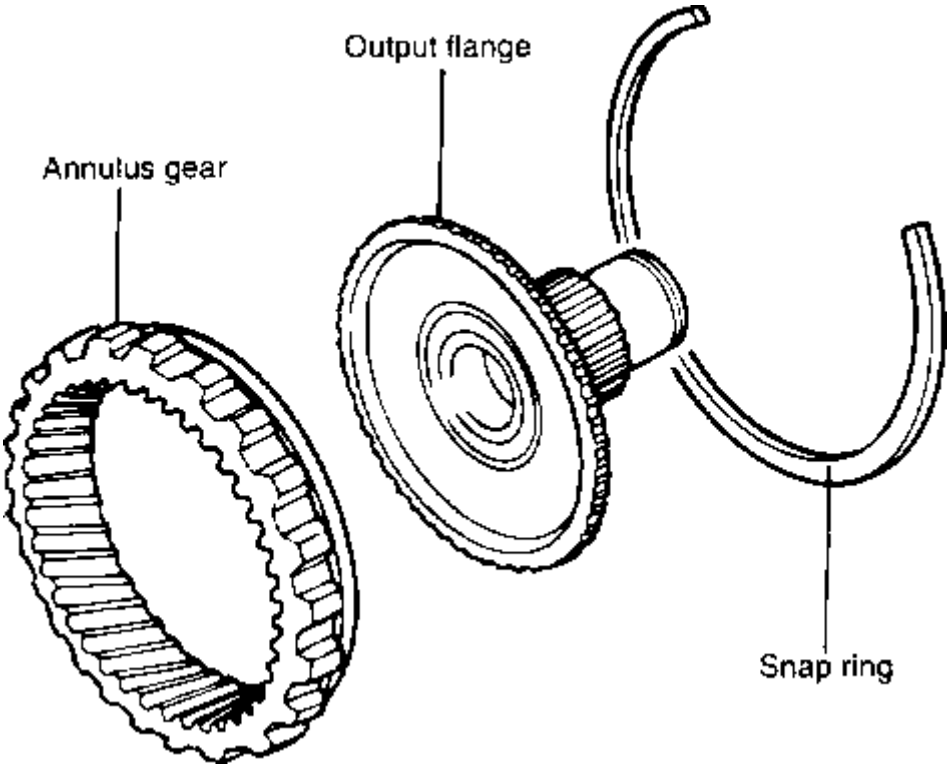
COMPONENTS



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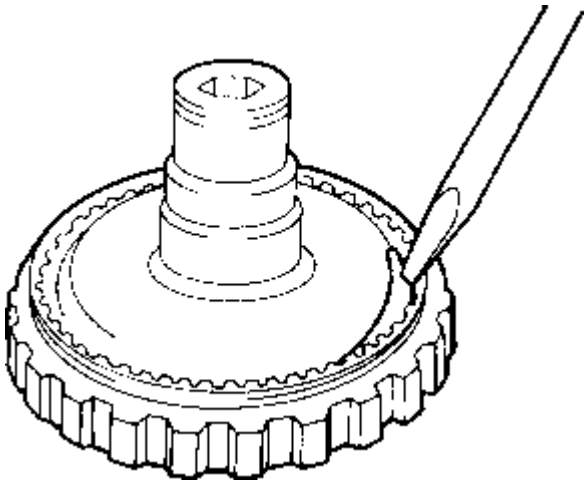
DISASSEMBLY

Remove the snap ring from the rear of the output flange.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Transaxle/Transmission	Automatic Transaxle System

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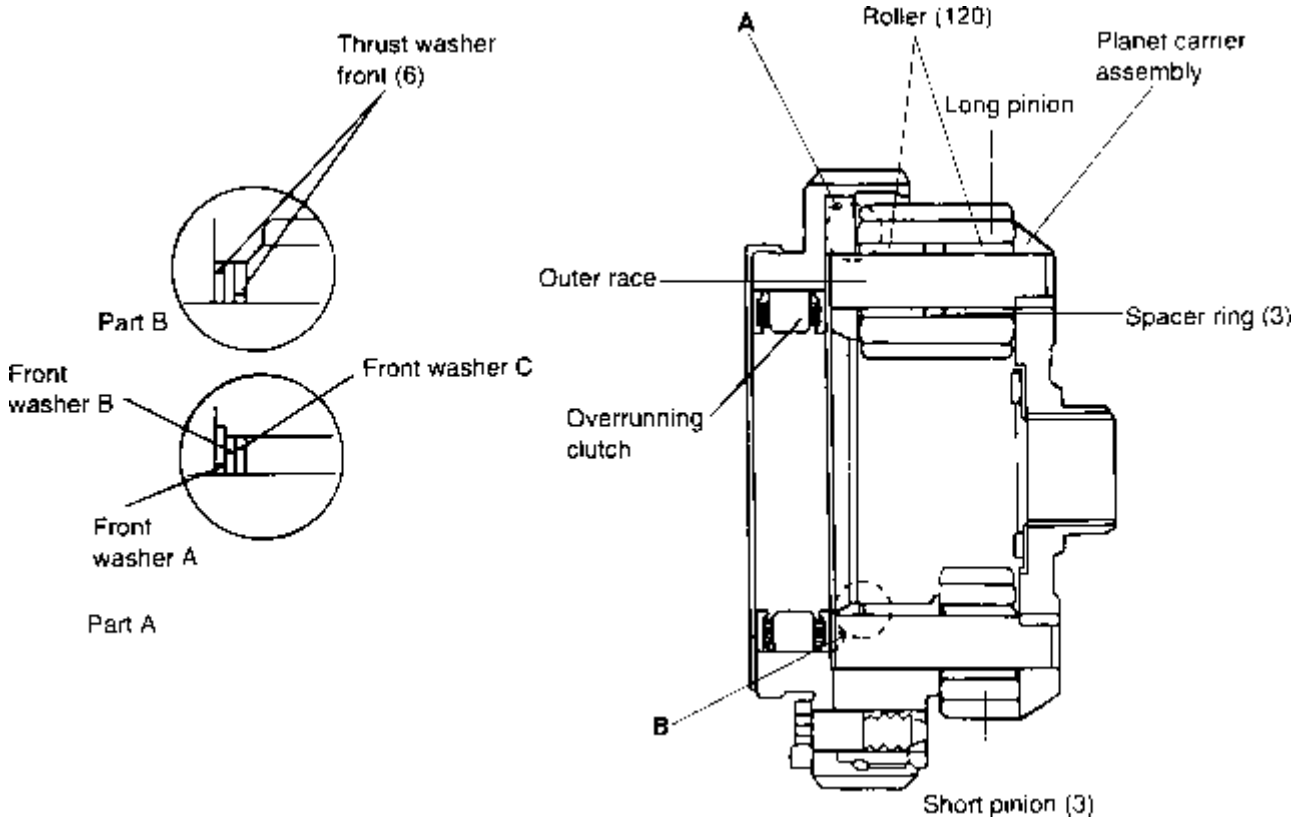
COMPONENTS



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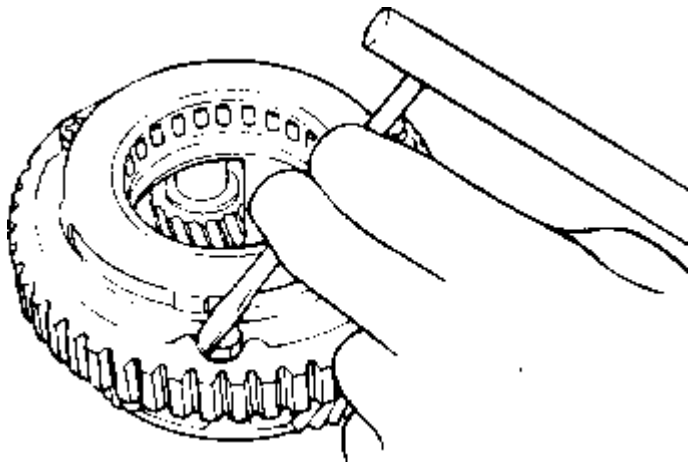
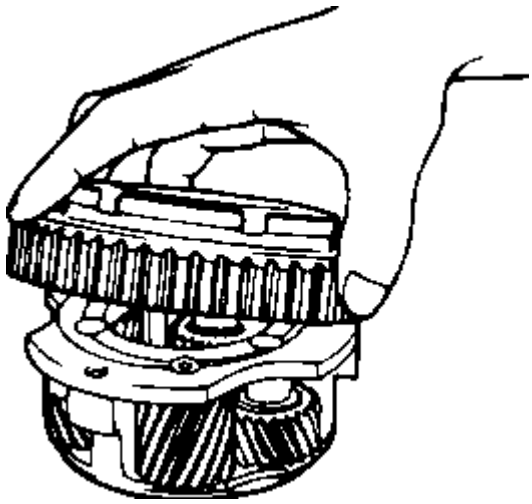
DISASSEMBLY

Remove three bolts.



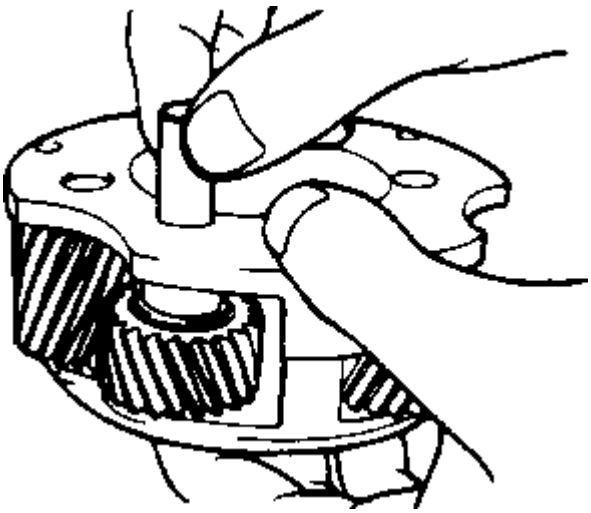
Remove the overrunning clutch outer race assembly. Remove the overrunning clutch end plate.



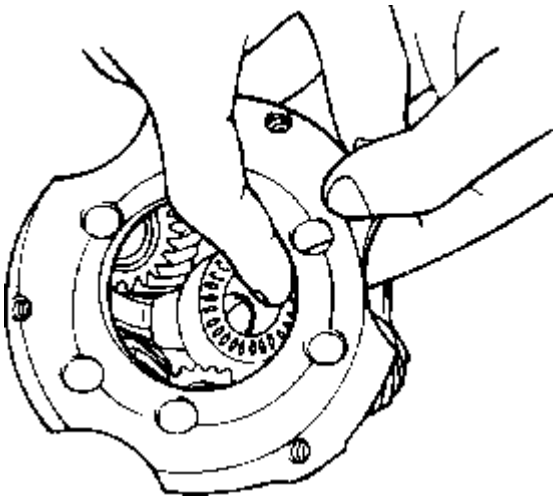
Remove the shaft of only one short pinion.

Remove the spacer bushing and two front thrust washers.

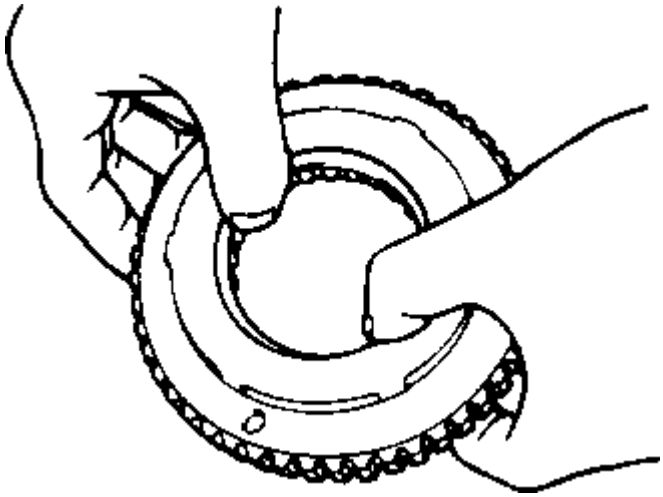
Remove the pinion. Do not drop the 17 roller bearing in the pinion.



Remove the thrust bearing.



Push the overrunning clutch out of the outer race by hand.



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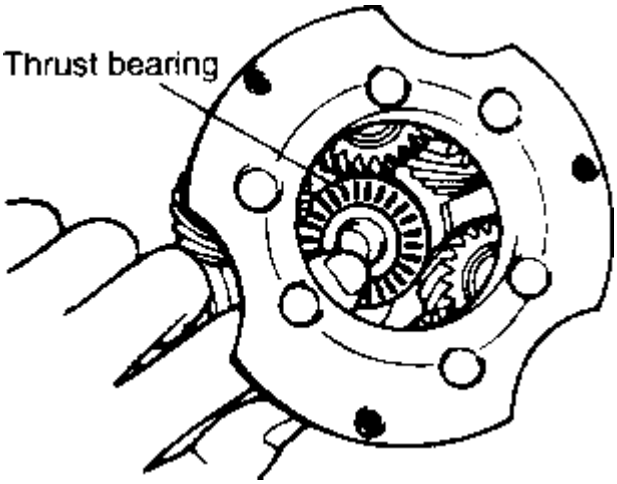
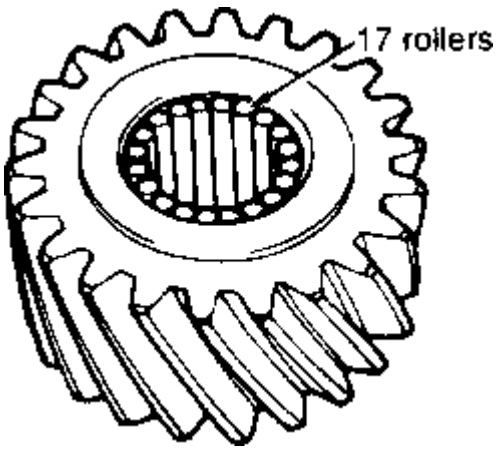
REASSEMBLY

Install the thrust bearing in the carrier. Be sure that it fits correctly in the carrier.

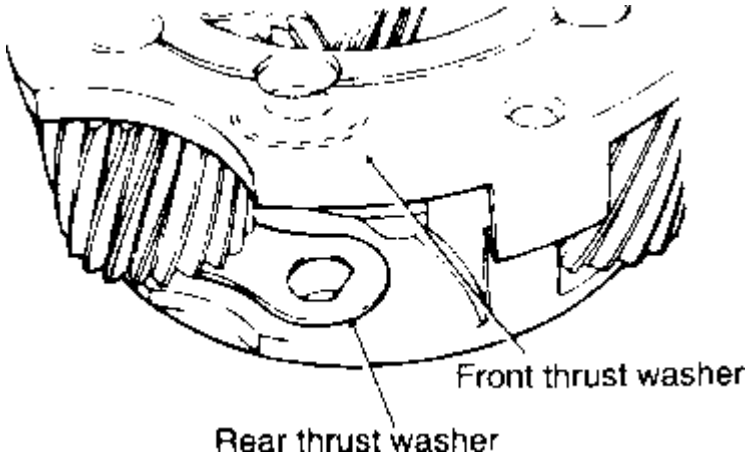


Apply a generous amount of petroleum jelly to the inside of the short pinion to hold the 17 roller bearings in place.

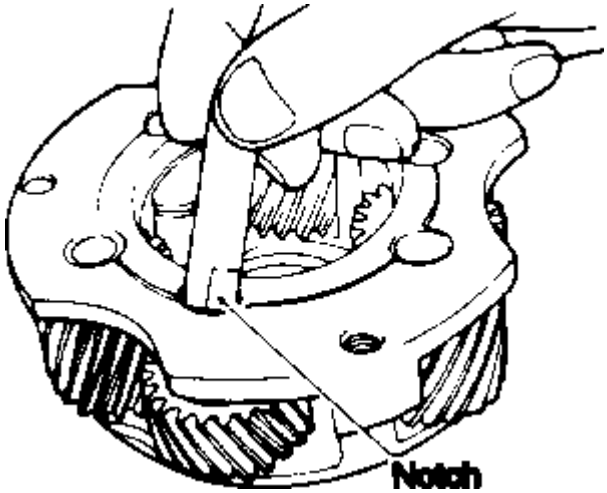


Line up holes in the rear thrust washer and front thrust washer with shaft of carrier.

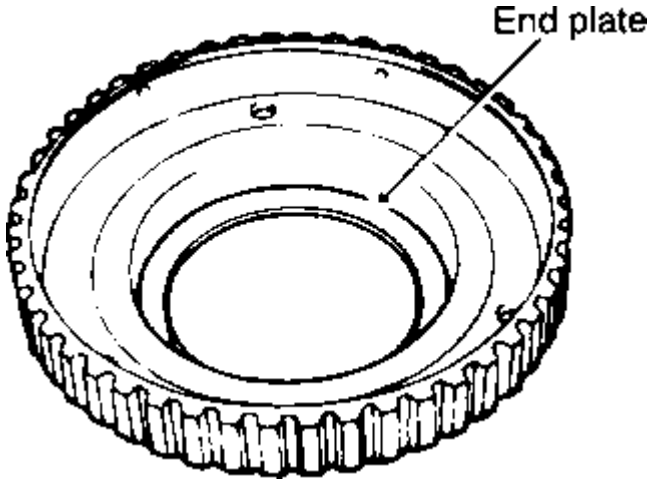
Install short pinion, spacer bushing and two front thrust washers and align the holes. Use care not to allow rollers to move out of position.



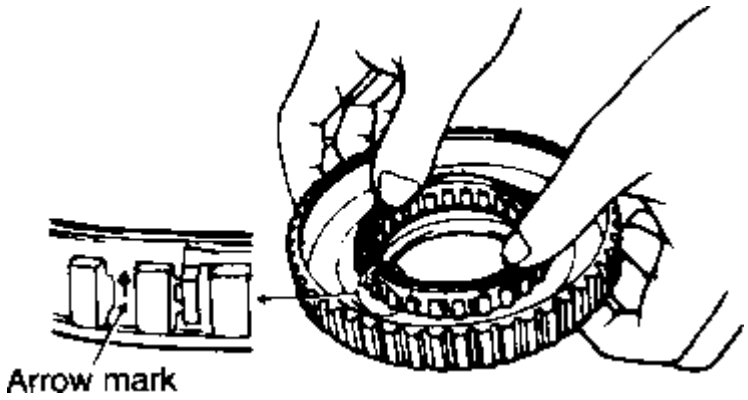
Insert the pinion shaft. Be sure that flattened end of the pinion shaft fits properly into the hole in the rear thrust plate when pinion shaft is inserted.



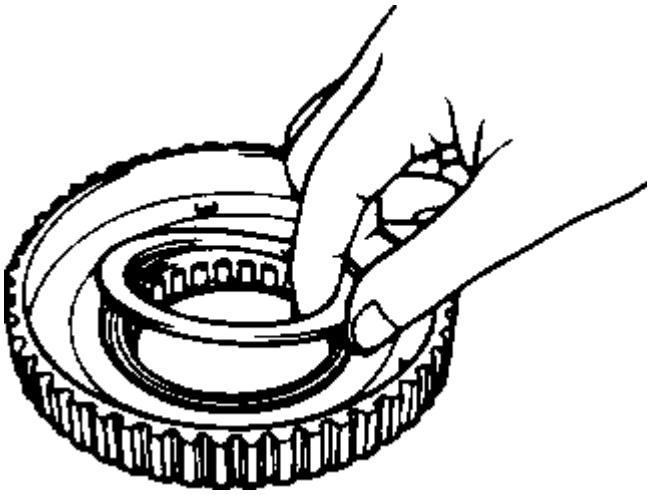
Install end plate in the outer race.



Press the overrunning clutch into outer race. Be sure that the arrow on the outside circumference of the cage is pointing upward as shown in the illustration when the overrunning clutch is installed.



Apply petroleum jelly to the overrunning clutch end plate to retain it inside the overrunning clutch. Install the end plate in the clutch.



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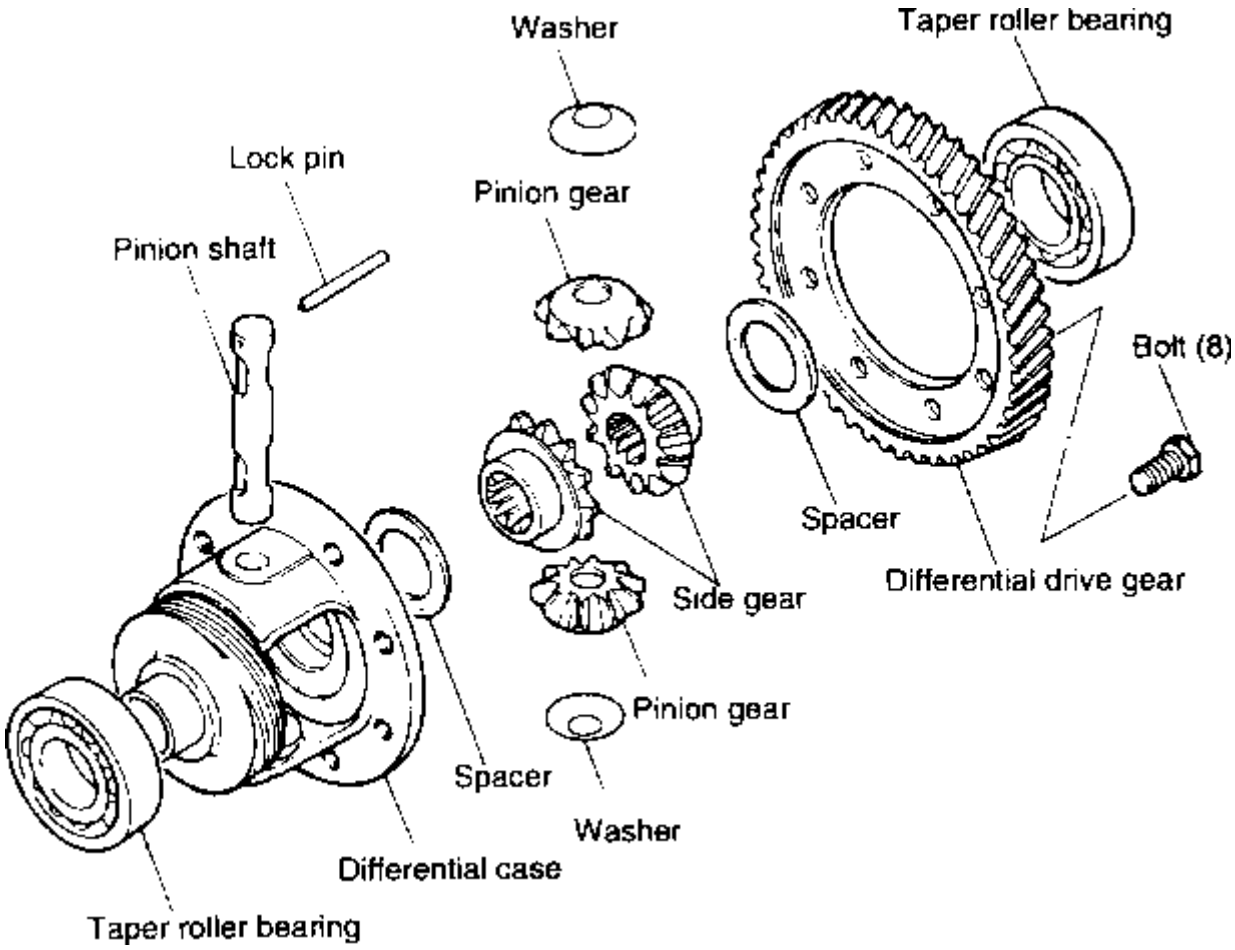

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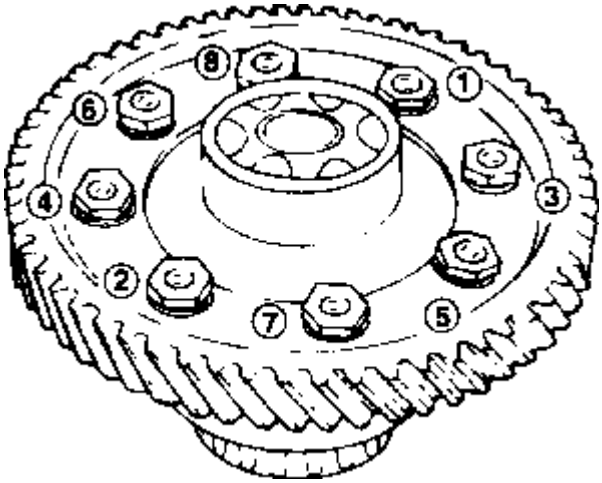
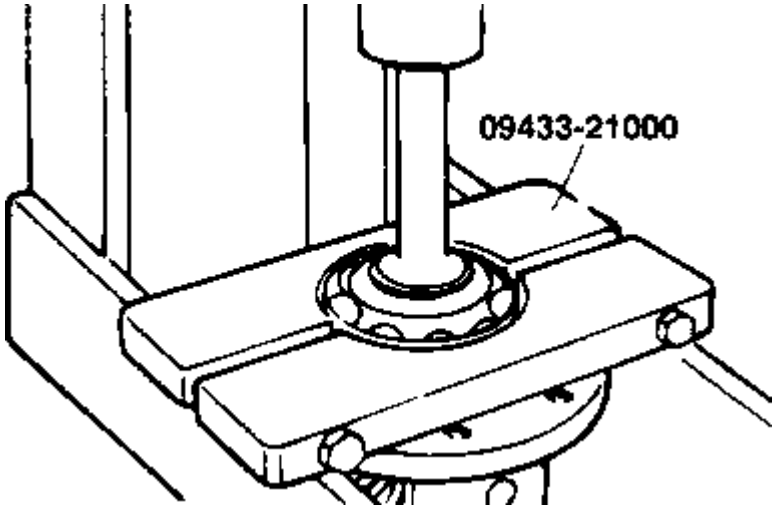
DISASSEMBLY

Remove the drive gear retaining bolts and drive gear from the differentiai case.

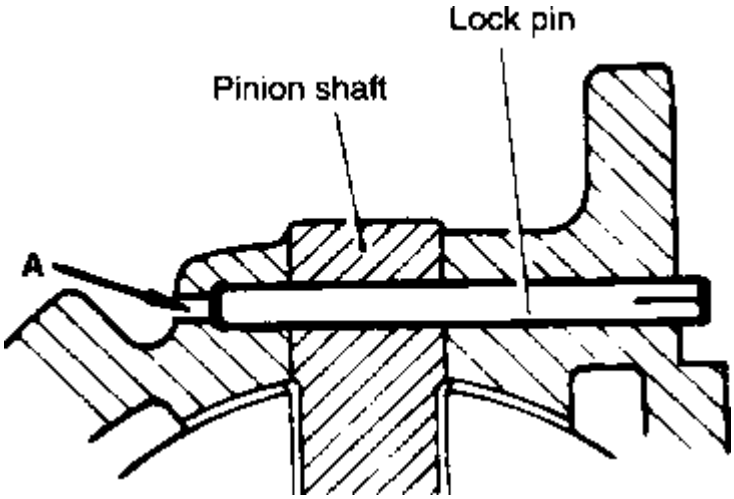


Remove the ball bearing with the special tool (09433-21000).



Drive out the lock pin with a punch inserted in hole "A."

Remove the pinion shaft, pinion gears and washers.



Remove the side gears and spacers. Do not mix the gears and spacers between the left and right sides.

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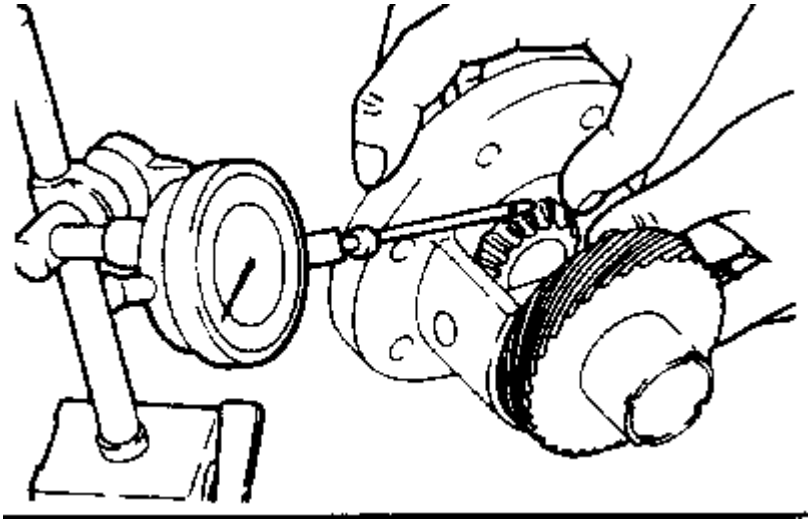
REASSEMBLY

With the spacers installed on the back of the differential side gears, install the gears into the differential case. If reusing parts, install them in the original positions noted during disassembly. If using new differential side gears,

install medium thickness spacers 1.0 mm (0.039in.).



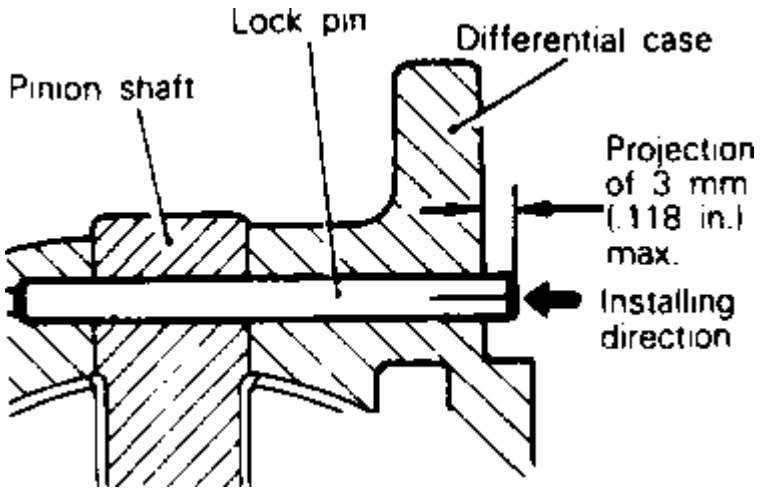
Install washers on the back of the pinion gears. Install gears into the differential case, then insert the pinion shaft.

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

Backlash should be 0.025 - 0.150 mm (0.010-0.059 in.) and the right and left hand gear pairs should have equal backlash. If the backlash is out of specification, disassemble and reassemble using different spacers that give the correct backlash.

MEASUREMENT SPECIFICATION	
Backlash	0.025L - 0.150L mm (0.010-0.059 in)

Install a new pinion shaft lock pin in the direction specified in the illustration. After installation, check that the projection is less than 3 mm (.118 in.).

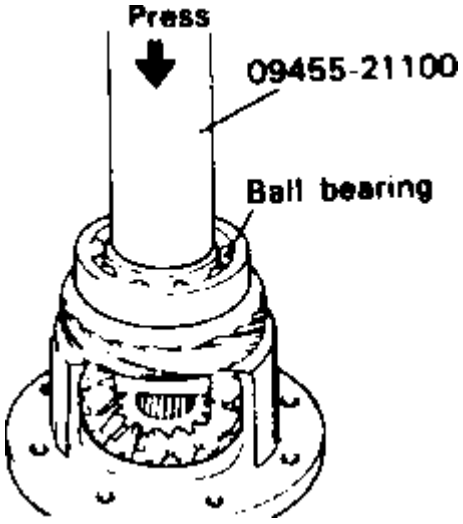


CAUTION

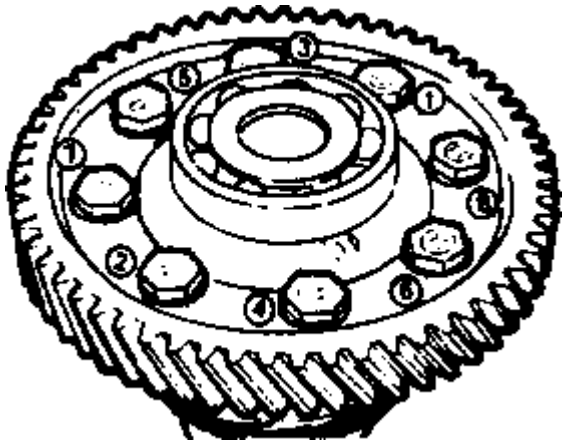
The lock pin must not be reused.

Press the bearings onto both ends of the differential case. Press on the inner race when installing the bearings. Do not apply load to outer race.

Install the differential drive gear onto the case.



Apply ATF to the bolts and tighten the bolts to the specified torque in the sequence shown in the illustration.



TORQUE SPECIFICATION	
Differential drive gear case	130-140 Nm (1300-1400 kg·cm, 94-101 lb·ft)

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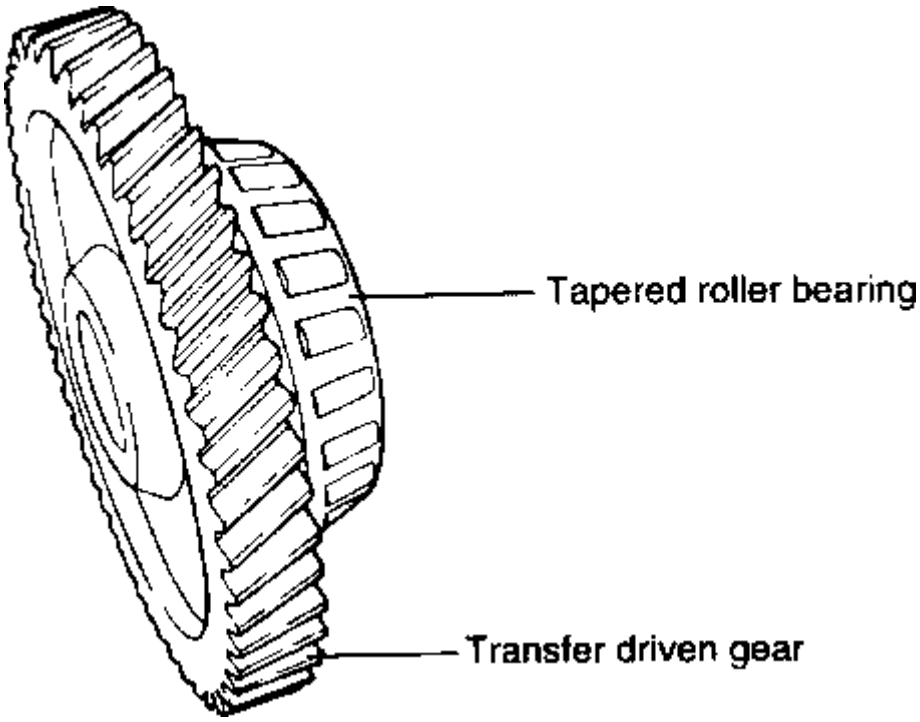

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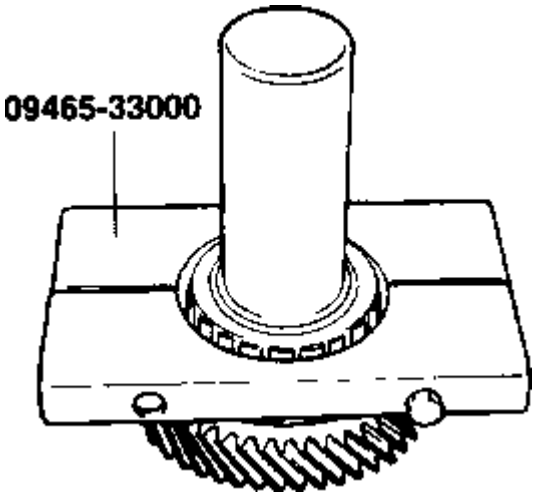
DISASSEMBLY

Using special tool (09455-33000), pull off tapered roller bearing from the transfer driven gear.



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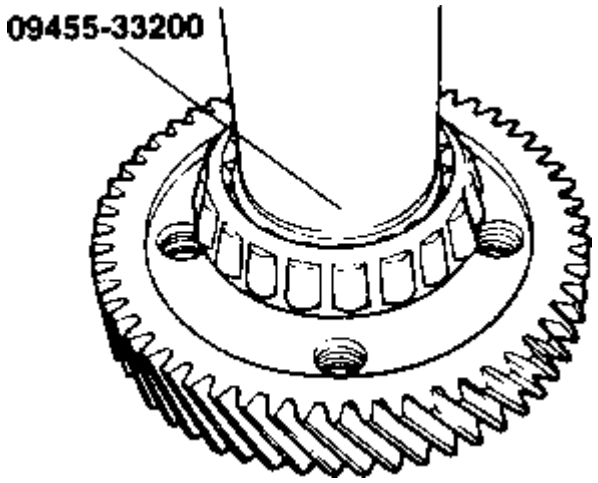
REASSEMBLY

Using special tool (09455-33200), press tapered roller bearing onto the transfer gear.



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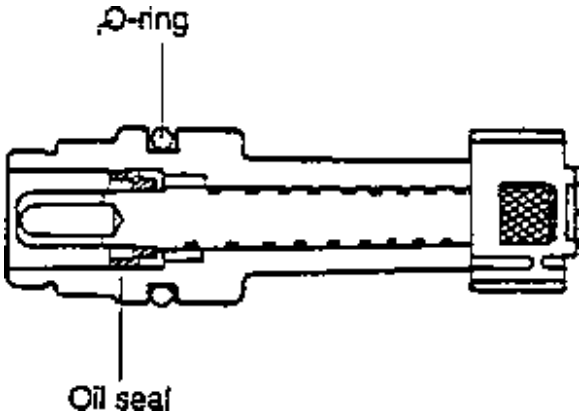
REASSEMBLY

Install a new O-ring into the outer groove of the sleeve, and apply a coating of ATF to the outer circumference of the O-ring.



CAUTION

Insert carefully the speedometer driven gear into the transaxle housing not to disassemble the speedometer driven gear shaft.

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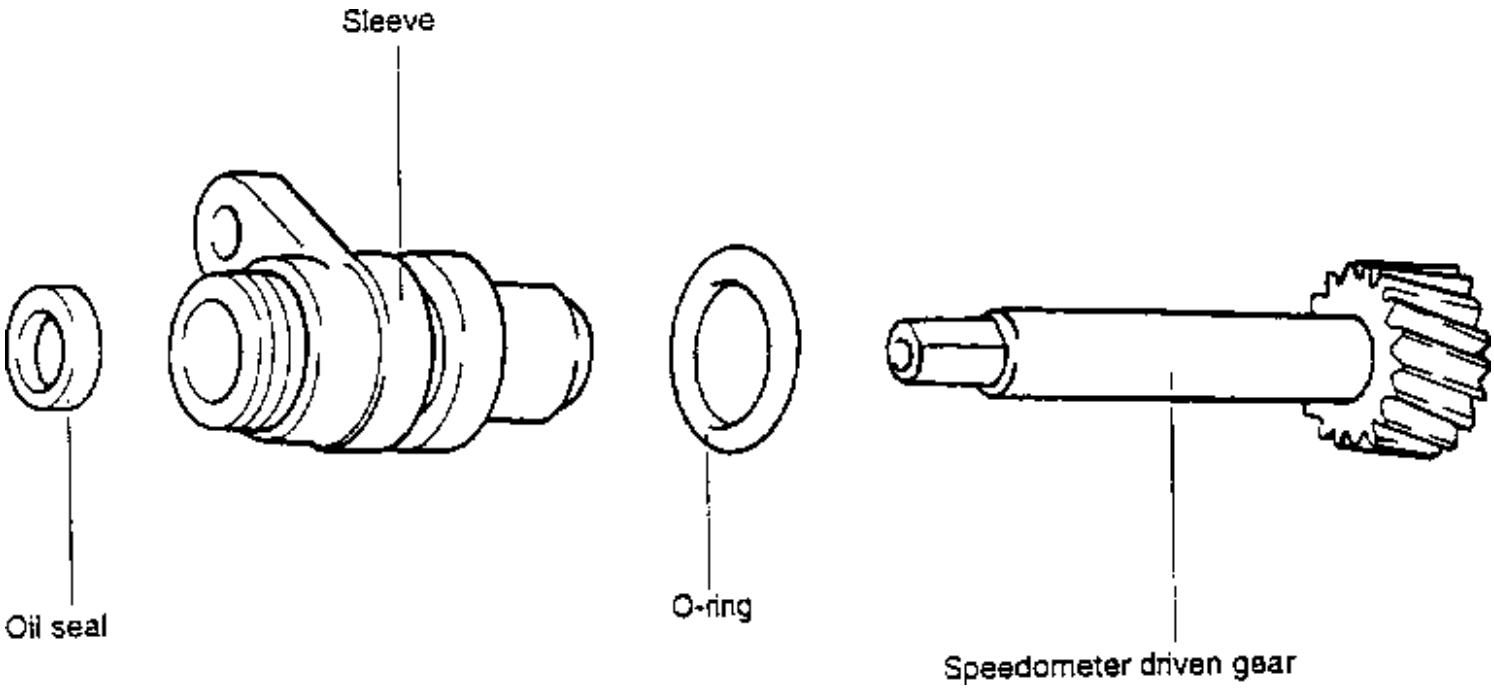

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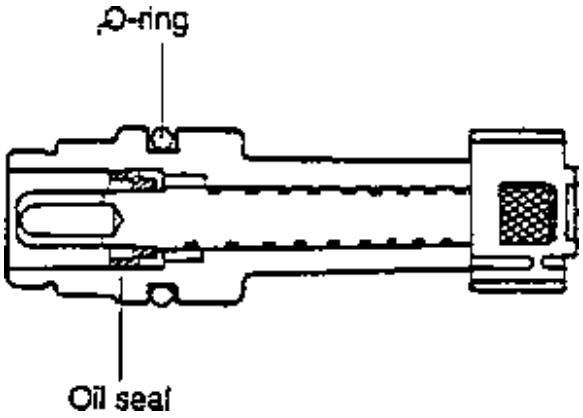

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