

TRANSAXLE

MANUAL AND AUTOMATIC

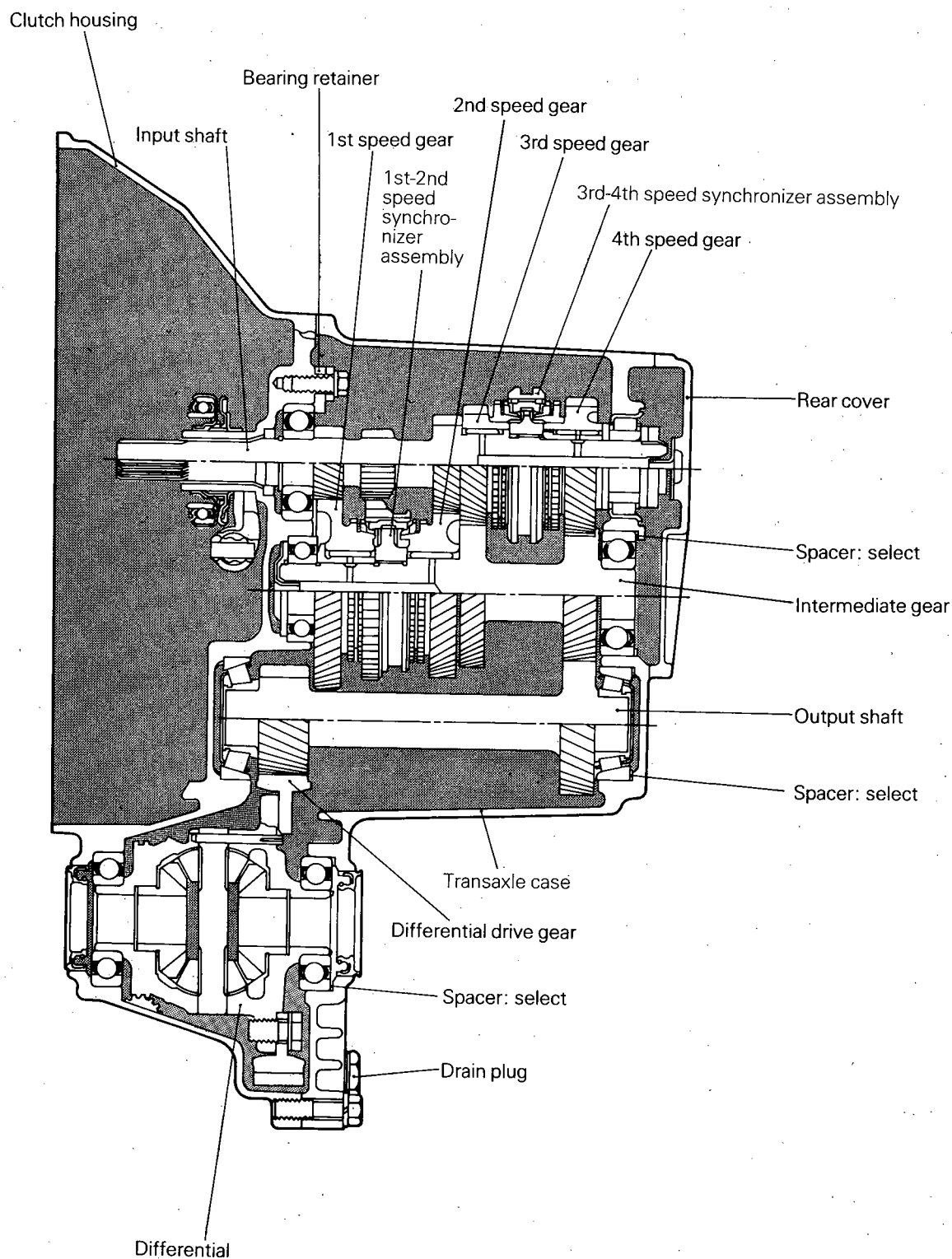
CONTENTS

AUTOMATIC TRANSAXLE	83	TRANSAXLE CONTROL	167
DIFFERENTIAL	248	TRANSAXLE OIL COOLER HOSES	171
END CLUTCH ASSEMBLY <KM176>	236	TRANSFER DRIVEN GEAR BEARING	
FRONT CLUTCH ASSEMBLY	232	<KM176>	247
GENERAL INFORMATION	83	TRANSFER SHAFT AND GOVERNOR	
INTERNAL GEAR AND TRANSFER DRIVE		<KM171>	245
GEAR SET	243	TRANSFER SHAFT BEARING <KM176>	247
KICKDOWN SERVO	271	TROUBLESHOOTING <KM171>	112
LOW-REVERSE BRAKE ASSEMBLY	238	TROUBLESHOOTING <KM176>	131
OIL PUMP	229	VALVE BODY <KM171>	250
PLANETARY GEAR SET	239	VALVE BODY <KM176>	257
REAR CLUTCH ASSEMBLY	234		
SERVICE ADJUSTMENT PROCEDURES		MANUAL TRANSAXLE	2
<KM171>	158	BACKUP LIGHT SWITCH	82
Drive Shaft Oil Seals Replacement	161	CLUTCH HOUSING ASSEMBLY	80
Inhibitor Switch and Control Cable		DIFFERENTIAL ASSEMBLY	76
Adjustment	158	5TH SPEED SYNCHRONIZER ASSEMBLY	
Line Pressure Check and Adjustment	160	<KM201, KM206, KM210>	53
Selector Lever Operation Check	158	GENERAL INFORMATION	2
Speedometer Cable Replacement	162	INPUT SHAFT ASSEMBLY	
Throttle Control Cable Adjustment	160	<KM200, KM201>	55
Transaxle Fluid Quantity Inspection	158	INPUT SHAFT ASSEMBLY	
Transaxle Fluid Replacement	158	<KM206, KM210>	60
SERVICE ADJUSTMENT PROCEDURES		INTERMEDIATE GEAR ASSEMBLY	66
<KM176>	163	OUTPUT SHAFT ASSEMBLY	72
Inhibitor Switch and Control Cable		SERVICE ADJUSTMENT PROCEDURES	14
Adjustment	163	Drive Shaft Oil Seals Replacement	14
Kickdown Servo Adjustment	163	Speedometer Cable Replacement	15
Line Pressure Adjustment	163	Transaxle Oil Level Inspection	14
Reducing Pressure Adjustment	165	Transaxle Oil Replacement	14
Selector Lever Operation Check	163	SHIFT LEVER ASSEMBLY	18
Throttle Position Sensor Adjustment	166	SHIFT RAILS AND FORKS	73
Transaxle Fluid Quantity Inspection	163	SPECIAL TOOLS	12
Transaxle Fluid Replacement	163	SPECIFICATIONS	6
SHIFT LEVER ASSEMBLY	169	SPEEDOMETER DRIVEN GEAR ASSEMBLY	79
SPECIAL TOOLS	108	TRANSAXLE	19
SPECIFICATIONS	102	TRANSAXLE ASSEMBLY <KM200, KM201>	23
SPEEDOMETER SLEEVE	272	TRANSAXLE ASSEMBLY <KM206>	33
TRANSAXLE	172	TRANSAXLE ASSEMBLY <KM210>	43
TRANSAXLE ASSEMBLY <KM171>	175	TRANSAXLE CONTROL	16
TRANSAXLE ASSEMBLY <KM176>	199	TROUBLESHOOTING	13
TRANSAXLE CASE	273		

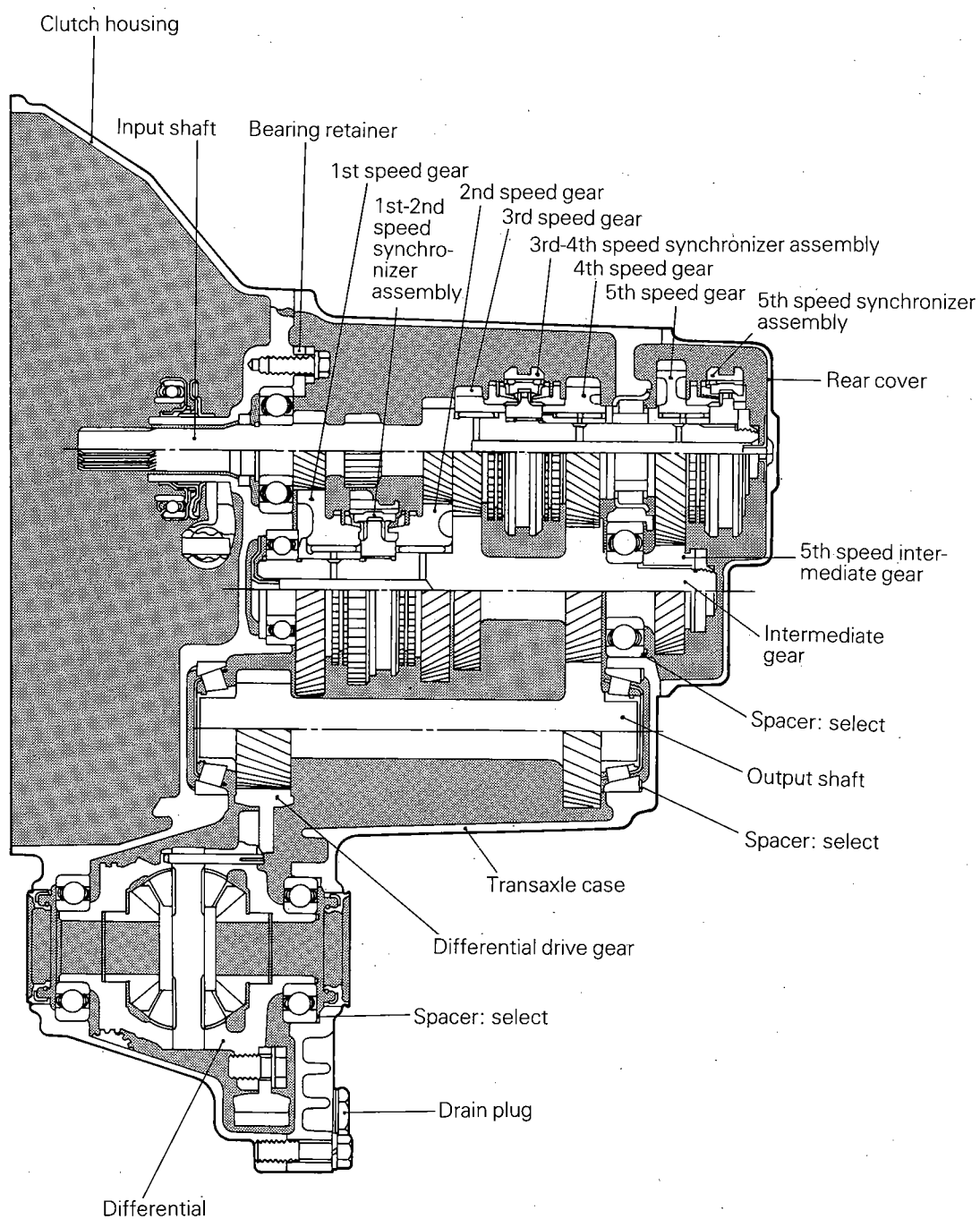
GENERAL INFORMATION

KM200 – FOUR-SPEED TRANSAXLE

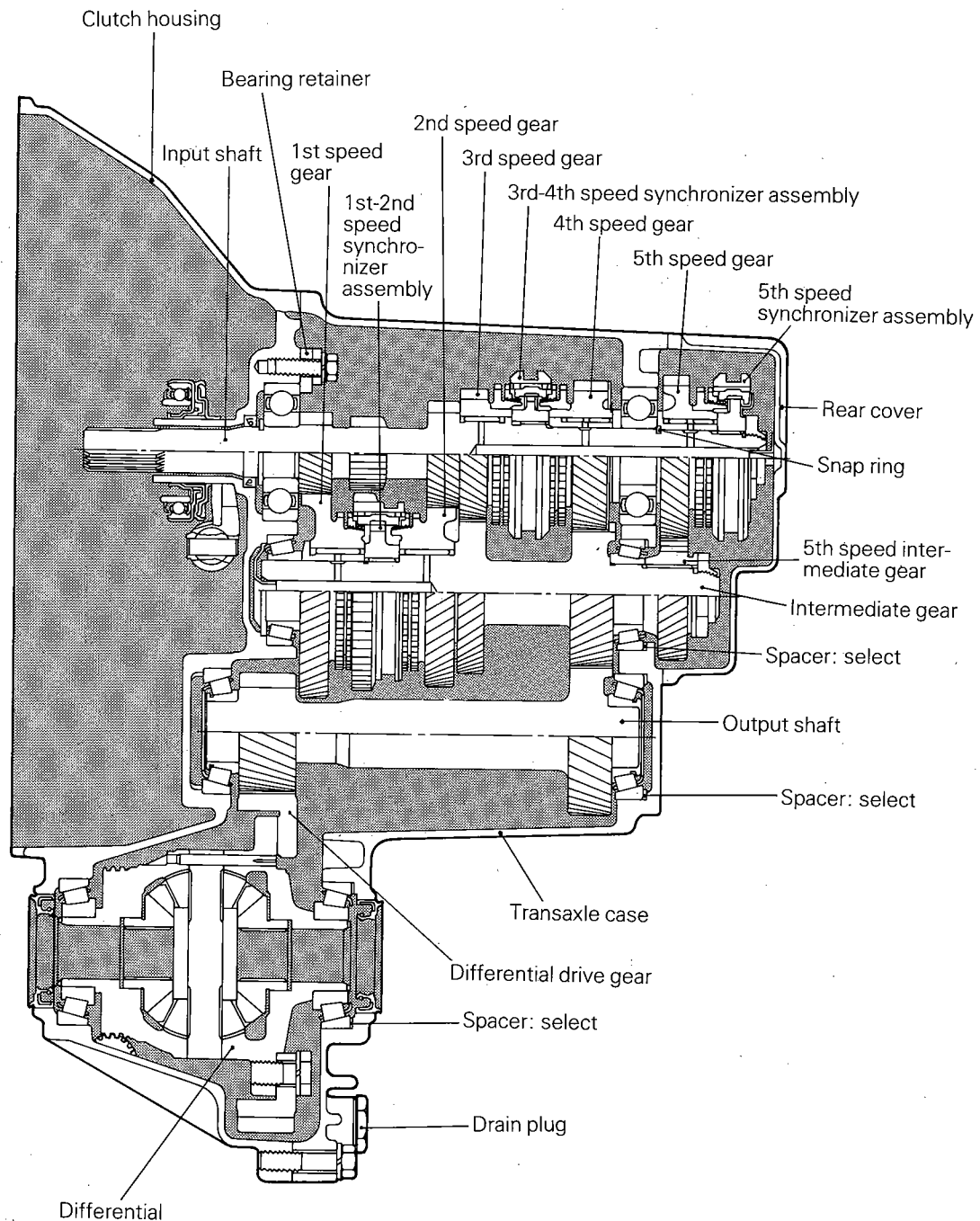
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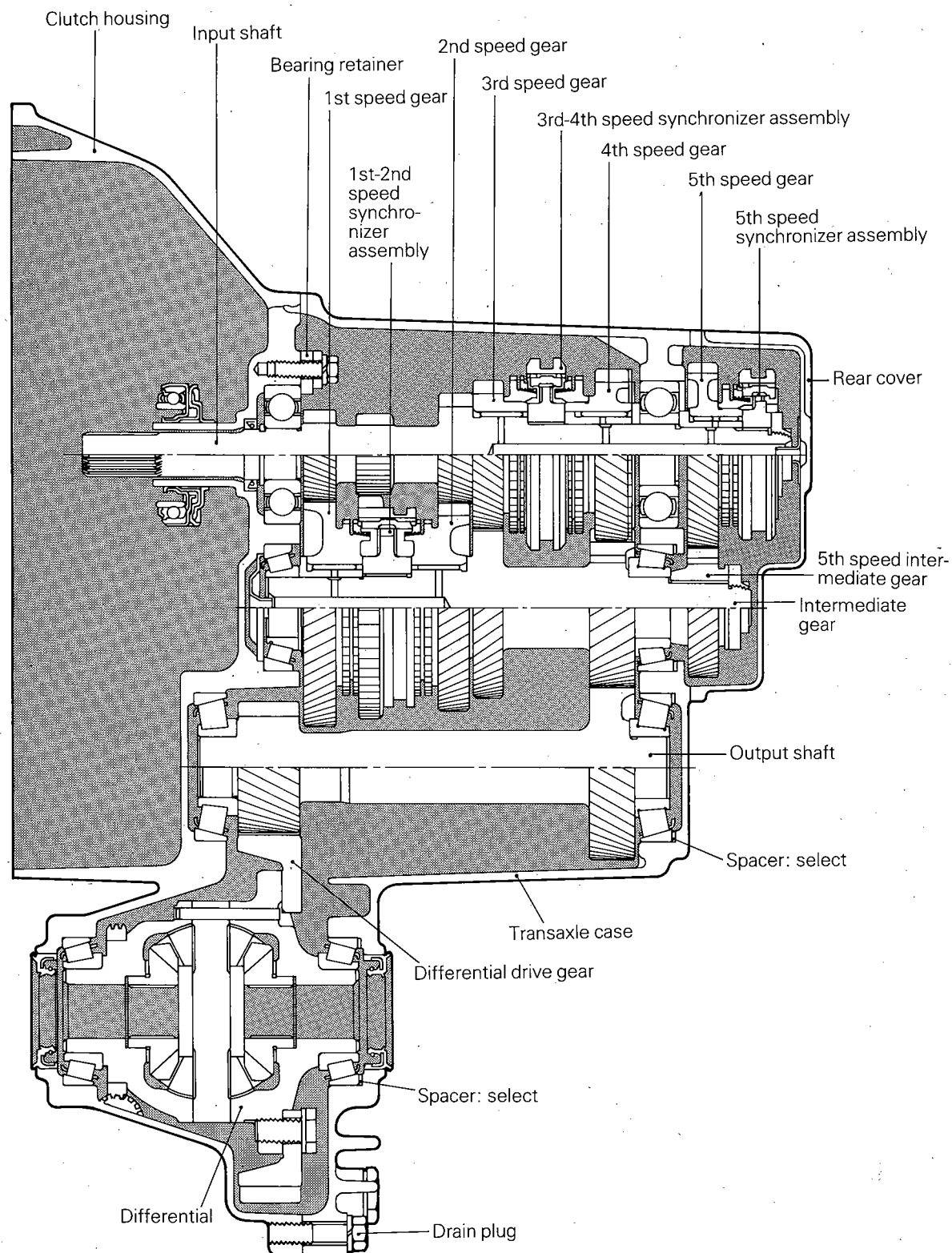
KM201 – FIVE-SPEED TRANSAXLE



KM206 – FIVE-SPEED TRANSAXLE



KM210 – FIVE-SPEED TRANSAXLE



SPECIFICATIONS

N21CA-A

GENERAL SPECIFICATIONS

Items	Specifications			
Model	KM200-0-BKL	KM201-0-CKQL	KM206-0-DKQL	KM210-0-BQL
Applicable engine	4G15	4G15	4G61	4G61
Type	Four-speed transaxle floor shift	Five-speed transaxle floor shift	Five-speed transaxle floor shift	Five-speed transaxle floor shift
Gear ratio				
1st	3.363	3.363	3.083	3.166
2nd	1.947	1.947	1.947	1.833
3rd	1.285	1.285	1.285	1.240
4th	0.939	0.939	0.939	0.896
5th	—	0.777	0.777	0.731
Reverse	3.083	3.083	3.083	3.166
Final reduction ratio	3.755	4.018	4.319	4.321
Speedometer gear ratio (driven/drive)	32/36	31/36	31/36	31/36
Oil quantity liters (pints)	1.7 (3.6)	1.8 (3.8)	1.8 (3.8)	2.1 (4.4)

SERVICE SPECIFICATIONS

N21CB-A

mm (in.)

Items	Specifications
Standard value	
Transaxle	
Input shaft front bearing end play	0.01 – 0.12 (.0004 – .0047)
Input shaft rear bearing end play <KM206>	0.01 – 0.09 (.0004 – .0035)
Intermediate shaft bearing end play	
<KM200, KM201, KM206>	0.01 – 0.14 (.0004 – .0055)
<KM210>	0.01 – 0.11 (.0004 – .0043)
Intermediate shaft end play and preload	
<KM200, KM201>	0.05 – 0.17 (.002 – .007)
<KM206, KM210>	0.05 – 0.10 (.002 – .004)
Output shaft preload	0.05 – 0.10 (.002 – .004)
Differential	
Differential case end play and preload	
<KM200, KM201>	0.05 – 0.17 (.002 – .007)
<KM206, KM210>	0.05 – 0.10 (.002 – .004)
Differential pinion backlash	0.025 – 0.150 (.001 – .006)

SNAP RING (FOR ADJUSTMENT) AND SPACER

Part name	Thickness mm (in.)	Identification symbol	Part No.
Snap ring (For adjustment of input shaft front bearing end play)	2.24 (.0882)	None	MD706537
	2.31 (.0909)	Blue	MD706538
	2.38 (.0937)	Brown	MD706539
Snap ring: KM206 (For adjustment of input shaft rear bearing end play)	1.80 (.0709)	Blue	MD730785
	1.87 (.0736)	Red	MD730786
	1.94 (.0764)	None	MD730787
	2.01 (.0791)	Green	MD730788
	2.08 (.0819)	Yellow	MD730834
	2.15 (.0846)	Brown	MD730835
Snap ring: KM200, KM201, KM206 (For adjustment of intermediate shaft bearing end play)	1.4 (.0551)	None	MD703779
	1.5 (.0591)	Brown	MD703780
	1.6 (.0630)	Blue	MD703781
Snap ring: KM210 (For adjustment of intermediate shaft bearing end play)	1.40 (.0551)	Blue	MD723276
	1.50 (.0591)	Red	MD723277
	1.60 (.0630)	Yellow	MD723278
	1.70 (.0669)	Green	MD723279
Spacer: KM200, KM201 (For adjustment of intermediate shaft end play)	0.56 (.0220)	56	MD720969
	0.65 (.0256)	65	MD720970
	0.74 (.0291)	74	MD720971
	0.83 (.0327)	83	MD720972
	0.92 (.0362)	92	MD720973
	1.01 (.0394)	01	MD720974
	1.10 (.0433)	10	MD718511
Spacer: KM206, KM210 (For adjustment of intermediate shaft preload)	0.80 (.0315)	80	MD723307
	0.83 (.0327)	83	MD723308
	0.86 (.0338)	86	MD723309
	0.89 (.0350)	89	MD723310
	0.92 (.0362)	92	MD723311
	0.95 (.0374)	95	MD723312
	0.98 (.0394)	98	MD723313
	1.01 (.0398)	01	MD723314
	1.04 (.0409)	04	MD723315
	1.07 (.0421)	07	MD723316
	1.10 (.0433)	10	MD723317
	1.13 (.0445)	13	MD723318
	1.16 (.0457)	16	MD723319
	1.19 (.0468)	19	MD723320
	1.22 (.0480)	22	MD723321
	1.25 (.0492)	25	MD723322
	1.28 (.0504)	28	MD723323
	1.31 (.0516)	31	MD723324
	1.34 (.0527)	34	MD723325
	1.37 (.0539)	37	MD723326

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: KM200, KM201 (For adjustment of output shaft preload)	0.65 (.0256)	65	MD720946
	0.74 (.0291)	74	MD720947
	0.80 (.0315)	80	MD720948
	0.83 (.0327)	83	MD720949
	0.86 (.0339)	86	MD720950
	0.89 (.0350)	89	MD720951
	0.92 (.0362)	92	MD720952
	0.95 (.0374)	95	MD720953
	0.98 (.0386)	98	MD720954
	1.01 (.0398)	01	MD720955
	1.04 (.0409)	04	MD720956
	1.07 (.0421)	07	MD720957
	1.10 (.0433)	10	MD720958
	1.13 (.0445)	13	MD720959
	1.16 (.0457)	16	MD720960
	1.19 (.0469)	19	MD720961
	1.22 (.0480)	22	MD720962
Spacer: KM206 (For adjustment of output shaft preload)	0.83 (.0327)	83	MD720949
	0.86 (.0338)	86	MD720950
	0.89 (.0350)	89	MD720951
	0.92 (.0362)	92	MD720952
	0.95 (.0374)	95	MD720953
	0.98 (.0386)	98	MD720954
	1.01 (.0398)	01	MD720955
	1.04 (.0409)	04	MD720956
	1.07 (.0421)	07	MD720957
	1.10 (.0433)	10	MD720958
	1.13 (.0445)	13	MD720959
	1.16 (.0457)	16	MD720960
	1.19 (.0468)	19	MD720961
	1.22 (.0480)	22	MD720362
	1.25 (.0492)	25	MD712346
	1.28 (.0504)	28	MD712347
	1.31 (.0516)	31	MD712348
	1.34 (.0527)	34	MD712349
Spacer: KM210 (For adjustment of output shaft preload)	0.83 (.0327)	83	MD720937
	0.86 (.0338)	86	MD720938
	0.89 (.0350)	89	MD720939
	0.92 (.0362)	92	MD720940
	0.95 (.0374)	95	MD720941
	0.98 (.0386)	98	MD720942
	1.01 (.0398)	01	MD720943
	1.04 (.0409)	04	MD720944
	1.07 (.0421)	07	MD720945
	1.10 (.0433)	J	MD710454
	1.13 (.0445)	D	MD700270

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: KM210 (For adjustment of output shaft preload)	1.16 (.0457)	K	MD710455
	1.19 (.0468)	L	MD710456
	1.22 (.0480)	G	MD700271
	1.25 (.0492)	M	MD710457
	1.28 (.0504)	N	MD710458
	1.31 (.0516)	E	MD706574
Spacer: KM200, KM201 (For adjustment of differential case end play)	0.56 (.0220)	56	MD727658
	0.65 (.0256)	65	MD727659
	0.74 (.0291)	74	MD727660
	0.83 (.0327)	83	MD720937
	0.92 (.0362)	92	MD720940
	1.01 (.0398)	01	MD720943
Spacer: KM206, KM210 (For adjustment of differential case preload)	0.80 (.0315)	80	MD727661
	0.83 (.0327)	83	MD720937
	0.86 (.0338)	86	MD720938
	0.89 (.0350)	89	MD720939
	0.92 (.0362)	92	MD720940
	0.95 (.0374)	95	MD720941
	0.98 (.0394)	98	MD720942
	1.01 (.0398)	01	MD720943
	1.04 (.0409)	04	MD720944
	1.07 (.0421)	07	MD720945
	1.10 (.0433)	J	MD710454
	1.13 (.0445)	D	MD700270
	1.16 (.0457)	K	MD710455
	1.19 (.0468)	L	MD710456
	1.22 (.0480)	G	MD700271
	1.25 (.0492)	M	MD710457
Spacer (For adjustment of differential pinion backlash)	0.75 – 0.82 (.0295 – .0323)	–	MA180862
	0.83 – 0.92 (.0327 – .0362)	–	MA180861
	0.93 – 1.00 (.0366 – .0394)	–	MA180860
	1.01 – 1.08 (.0398 – .0425)	–	MA180875
	1.09 – 1.16 (.0429 – .0457)	–	MA180876

TORQUE SPECIFICATIONS

N21CC-A

Items	Nm	ft.lbs.
Shift cable and select cable to body	9 – 14	7 – 10
Shift lever assembly to body	9 – 14	7 – 10
Lever (A) to bracket assembly	19 – 28	13 – 20
Clutch release cylinder mounting bolts	15 – 22	11 – 16
Clutch tube to transaxle assembly	15 – 22	11 – 16
Shift cable and select cable to transaxle	15 – 22	11 – 16
Starter motor mounting bolts	27 – 34	20 – 25
Transaxle mount bracket to transaxle	60 – 80	43 – 58
Transaxle mount bracket to body	90 – 110	65 – 80
Transaxle mount bracket to tension rod	75 – 95	54 – 69
Tension rod to tension rod bracket	35 – 55	25 – 40
Tie rod end to knuckle	15 – 34	11 – 25
Lower-arm ball joint to knuckle	60 – 72	43 – 52
Bell housing cover mounting bolts	10 – 12	7 – 9
Drive shaft and inner shaft assembly to body	40 – 50	29 – 36
Transaxle mounting bolts [12 mm (.47 in.) diameter bolt]	43 – 55	32 – 39
Transaxle mounting bolts [10 mm (.39 in.) diameter bolt]	30 – 35	22 – 25
Transaxle mounting bolts [8 mm (.31 in.) diameter bolt]	10 – 12	7 – 9
Rear cover bolt	15 – 22	11 – 15
Backup light switch	30 – 35	22 – 25
Poppet plug	30 – 42	22 – 30
Speedometer sleeve bolt	3 – 5	2.5 – 3.5
Input shaft lock nut	140 – 160	102 – 115
Intermediate shaft lock nut	140 – 160	102 – 115
Reverse idler gear shaft bolt	43 – 55	32 – 39
Transaxle case tightening bolt	35 – 42	26 – 30
Stopper bracket bolt	15 – 22	11 – 15
Restrict ball assembly	30 – 35	22 – 25
Reverse shift lever assembly attaching bolt	15 – 22	11 – 15
Bearing retainer bolt	15 – 22	11 – 15
Differential drive gear bolt	130 – 140	94 – 101
Interlock plate bolt	20 – 27	15 – 19

LUBRICANTS

N21CD-A

Items	Specified lubricant	Quantity
Manual transmission oil liters (pints)	MOPAR Hypoid gear oil or equivalent, API classification GL-4 or higher	KM200: 1.7 (3.6) KM201, KM206: 1.8 (3.8) KM210: 2.1 (4.4)
Drive shaft oil seal lip	MOPAR Hypoid gear oil or equivalent, API classification GL-4 or higher	As required
Shift lever bushing	MOPAR Front Wheel Bearing Grease Part Number 3837794 or equivalent	As required

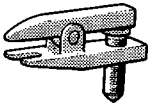

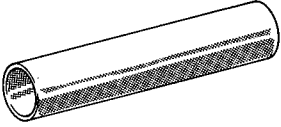
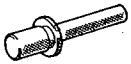

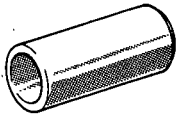
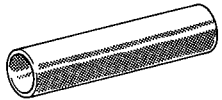
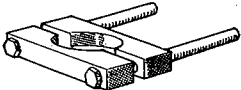
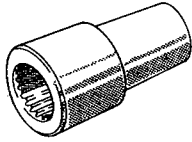
SEALANTS AND ADHESIVES

N21CE-A

Items	Specified sealants and adhesives	Quantity
Transaxle case – clutch housing mating surfaces	MITSUBISHI genuine sealant Part Number MD997740 or equivalent	As required
Transaxle case – rear cover mating surfaces	MITSUBISHI genuine sealant Part Number MD997740 or equivalent	As required
Differential drive gear bolts	3M STUD Locking No. 4170	As required
Bearing retainer bolts (flush bolt only)	3M STUD Locking No. 4170	As required
Air breather	3M SUPER WEATHERSTRIP No. 8001 or equivalent	As required

SPECIAL TOOLS

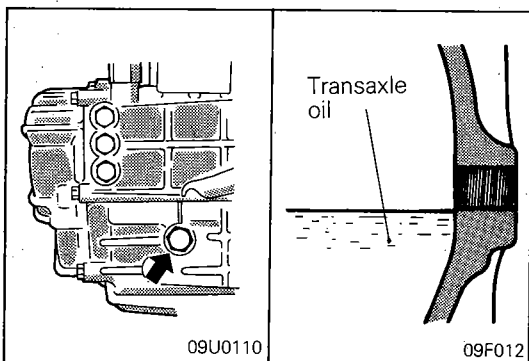
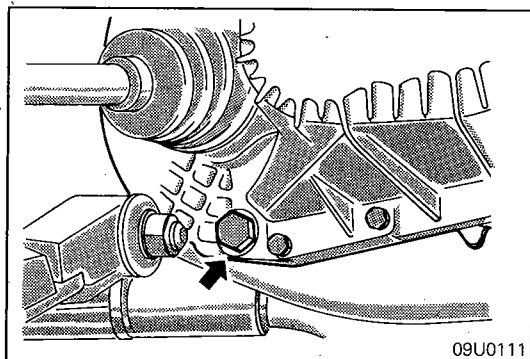
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Tool	Number	Name	Use
	MB990635	Steering linkage puller	Removal of the lower arm joint and tie rod end ball joint
	MD998245	Lock pin installer	Installation of spring pin and lock pin
	MD998320	Bearing installer	Installation of input shaft bearing and input shaft gear
	MD998321	Oil seal installer	Installation of input shaft front oil seal
	MD998325	Differential oil seal installer	Installation of differential oil seal
	MD998350	Bearing installer	Installation of intermediate shaft bearing and intermediate shaft gear
	MD998369	Bearing installer	Installation of input shaft front bearing
	MD998801	Bearing remover	Removal of gears and bearings of input shaft, intermediate shaft and output shaft
	MD998802	Input shaft holder	Installation and removal of input shaft and intermediate shaft lock nut

TROUBLESHOOTING

N21EAA8

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



SERVICE ADJUSTMENT PROCEDURES

N21FBAB

TRANSAXLE OIL LEVEL INSPECTION

Refer to GROUP 0 – Maintenance Service.

TRANSAXLE OIL REPLACEMENT

N21FCAE

- (1) Position vehicle on a flat level and remove filler and drain plugs to drain transaxle oil.

- (2) Supply fresh transaxle oil through filler port until it reaches the bottom of filler port.

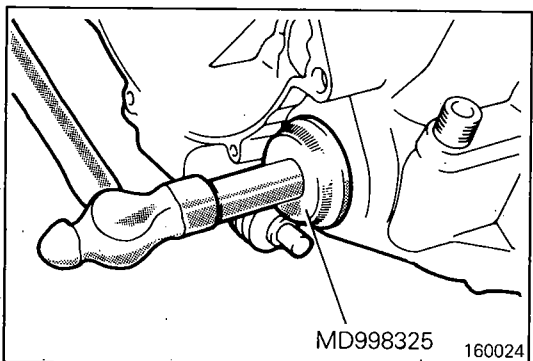
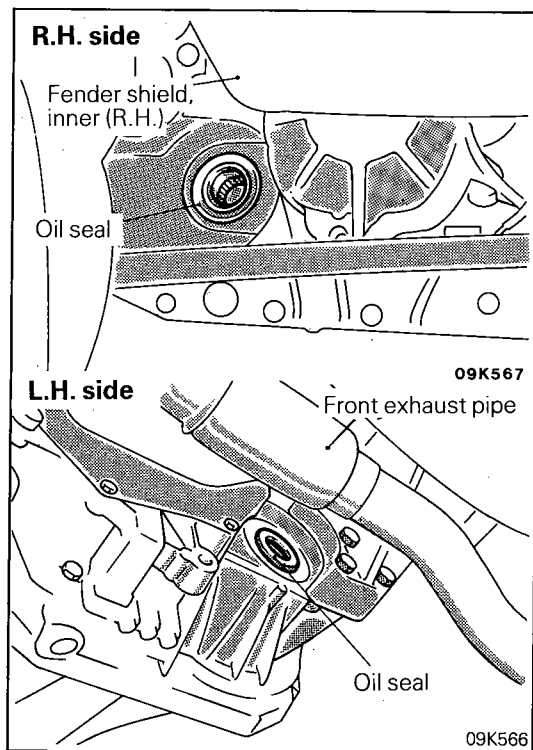
Transaxle oil: MOPAR Hypoid gear oil or equivalent, API classification GL-4 or higher

<KM200>	1.7 liters (3.6 pints)
<KM201, KM206>	1.8 liters (3.8 pints)
<KM210>	2.1 liters (4.4 pints)

DRIVE SHAFT OIL SEALS REPLACEMENT

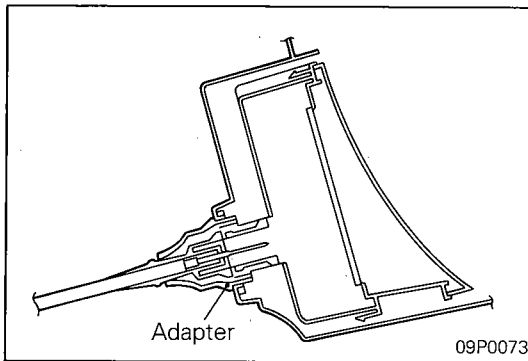
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- (1) Disconnect the drive shaft from the transaxle.
(Refer to GROUP 2 – Drive Shaft.)
- (2) Using a flat-tip (–) screwdriver, remove the oil seal.



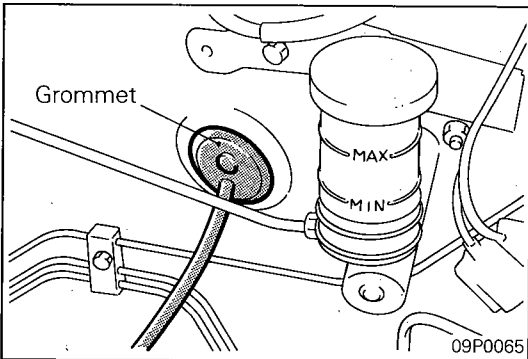
- (3) Using the special tool, tap the drive shaft oil seal into the transaxle.
- (4) Apply a coating of the transaxle oil to the lip of the oil seal.

Transaxle oil: MOPAR Hypoid gear oil or equivalent, API classification GL-4 or higher

**SPEEDOMETER CABLE REPLACEMENT**

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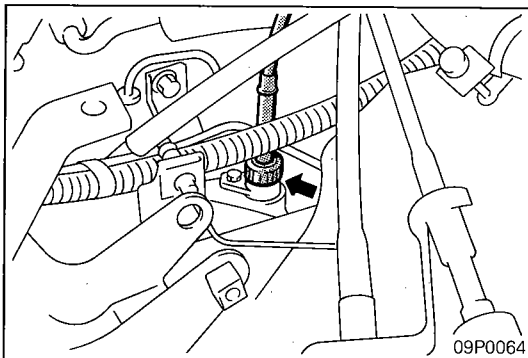
1. Correctly insert the adapter into the instrument panel, and fasten the new speedometer cable.



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

Caution

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



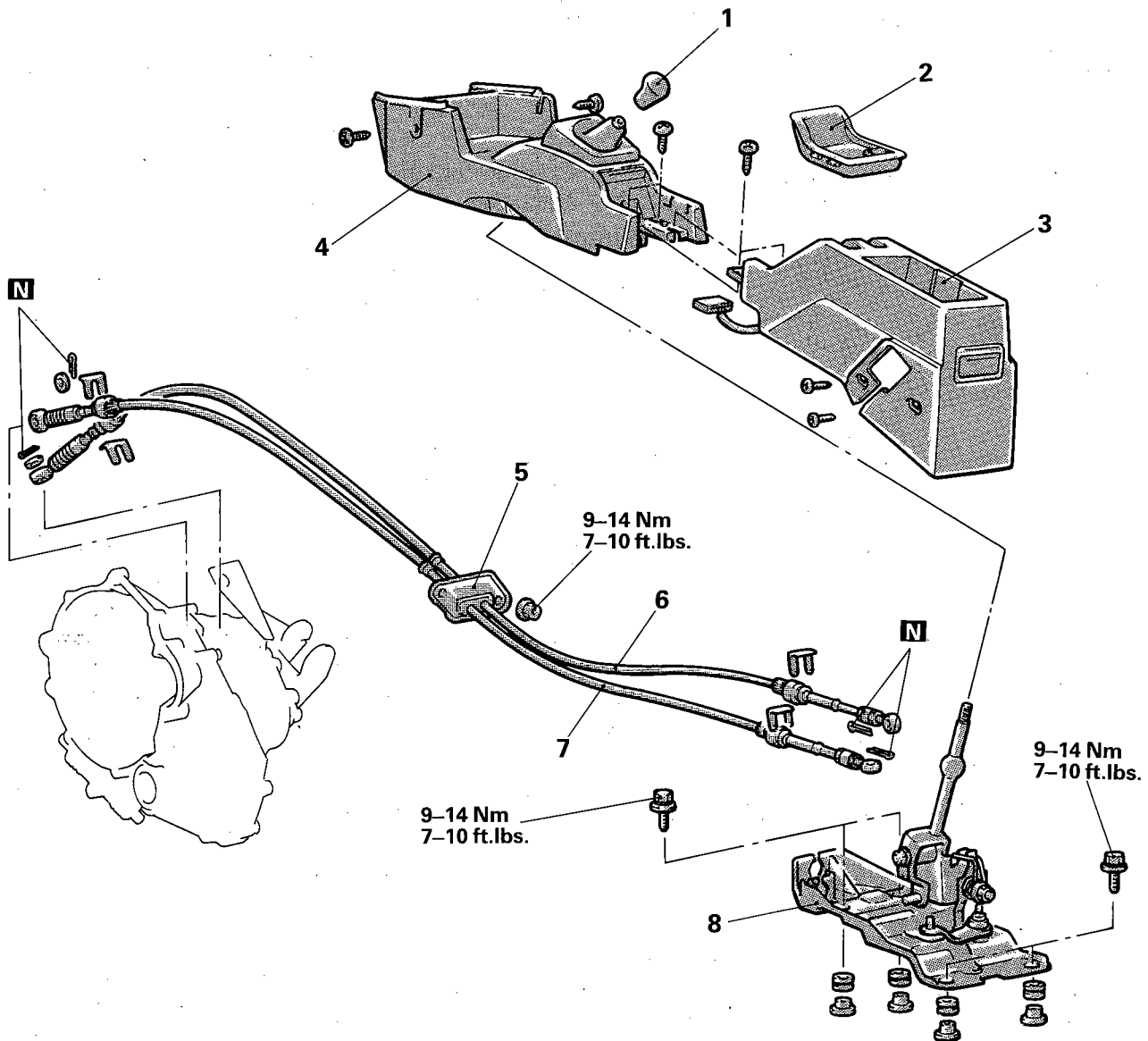
3. At the transaxle end of the speedometer cable, the key joint should be inserted into the transaxle, and the nut should be securely tightened.

Caution

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

TRANSAXLE CONTROL

REMOVAL AND INSTALLATION



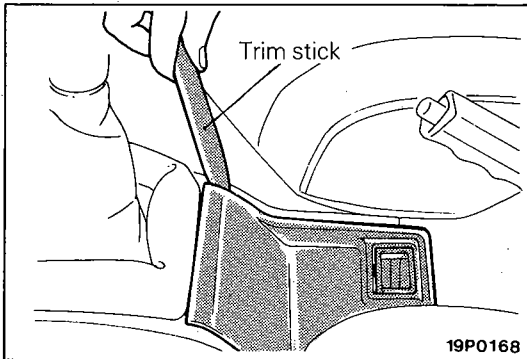
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Removal steps

- ➡➡ 1. Shift lever knob
- ➡➡ 2. Floor console tray
- ➡➡ 3. Rear floor console assembly
- ➡➡ 4. Front floor console assembly
- ➡➡ 5. Retainer
- ➡➡ 6. Shift cable
- ➡➡ 7. Select cable
- ➡➡ 8. Shift lever assembly

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ➡➡: Refer to "Service Points of Removal".
- (3) ➡➡: Refer to "Service Points of Installation".
- (4) **N**: Non-reusable parts

**SERVICE POINT OF REMOVAL**

N21JBAE

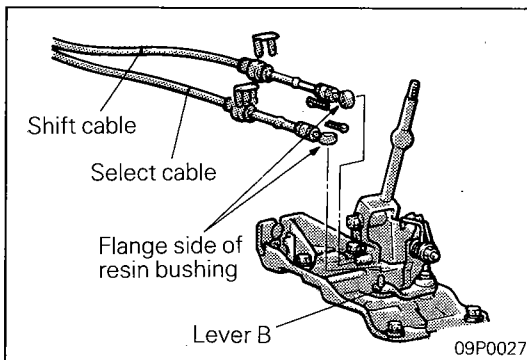
2. REMOVAL OF FLOOR CONSOLE TRAY

Using the trim stick, remove the floor console tray from the floor console.

INSPECTION

N21JCAD

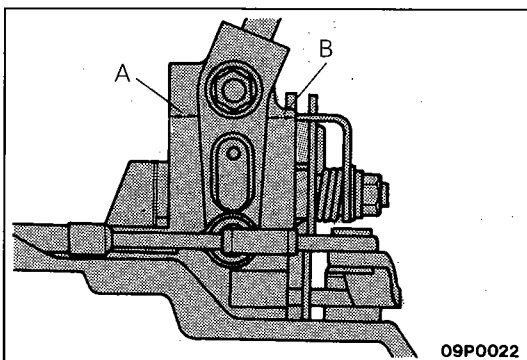
- Check the select cable for function and for damage.
- Check the shift cable for function and for damage.
- Check the boot for damage.
- Check each bushing for wear or abrasion, sticking, impeded action, and damage.
- Check the spring for deteriorated strength.

**SERVICE POINTS OF INSTALLATION**

N21JDAJ

7. INSTALLATION OF SELECT CABLE / 6. SHIFT CABLE

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



SHIFT LEVER ASSEMBLY

DISASSEMBLY AND REASSEMBLY

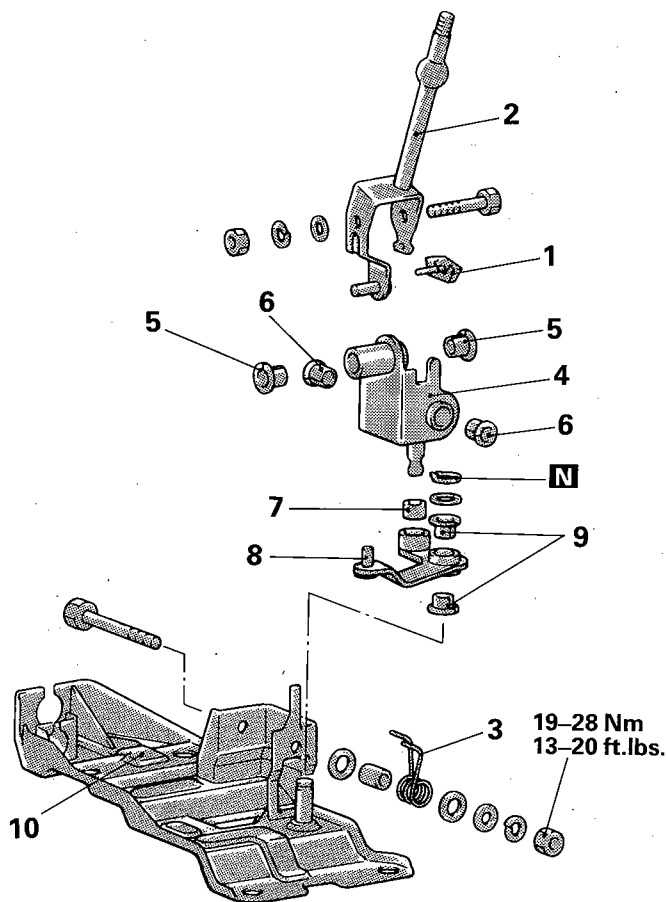
N21GE--

Disassembly steps

1. Stopper
2. Shift lever
3. Return spring
4. Lever (A)
- ◆◆ 5. Bushing
- ◆◆ 6. Bushing
- ◆◆ 7. Bushing
8. Lever (B)
- ◆◆ 9. Bushings
10. Bracket assembly

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Reassembly"
- (3) **N**: Non-reusable parts



09P0024

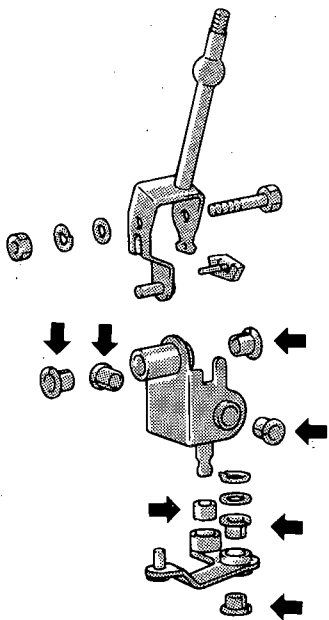
SERVICE POINTS OF REASSEMBLY

N21GHAK

9. 7. 6. 5. APPLICATION OF GREASE TO BUSHINGS

Apply specified grease to the sliding part of the bushings shown in the illustration.

**Specified grease: MOPAR Front Wheel Bearing Grease
Part Number 3837794 or equivalent**

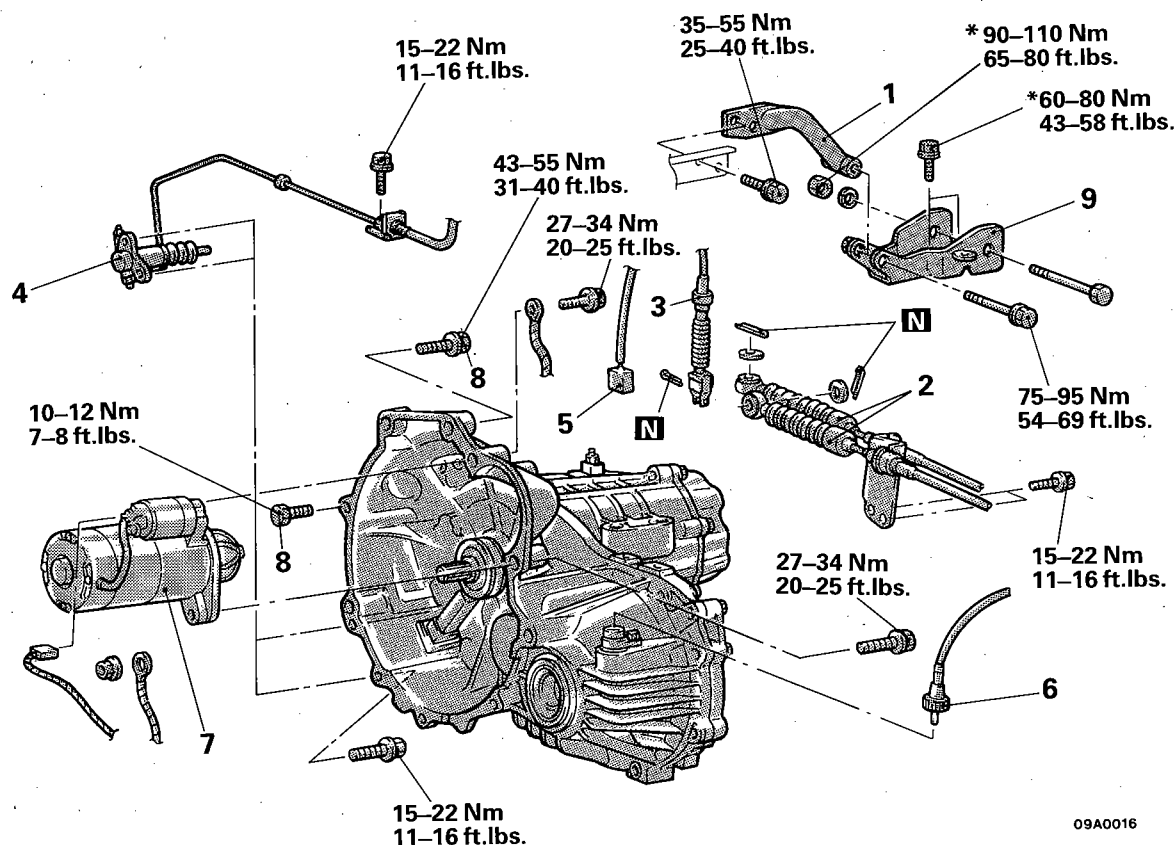


09P0023

TRANSAXLE

REMOVAL AND INSTALLATION

N21MA--



09A0016

Removal steps

1. Tension rod <DOHC>
2. Control cable connection
3. Clutch cable connection <Cable control type>
- ↔ 4. Clutch release cylinder connection <Hydraulic control type>
5. Backup lamp switch connector connection
- ↔ 6. Speedometer cable connection
- ↔ 7. Starter motor
8. Transaxle assembly upper connecting bolt
9. Transaxle mounting bracket

NOTE

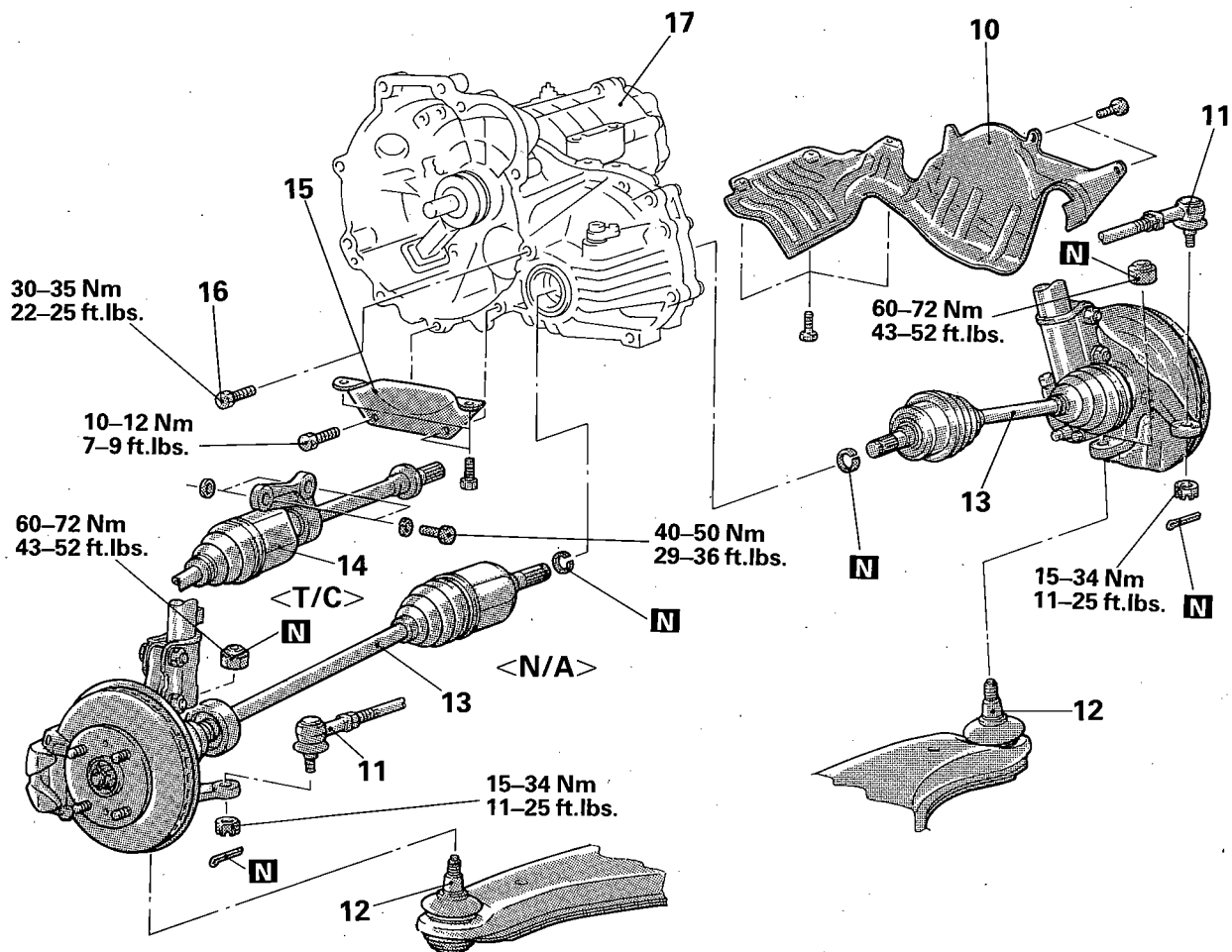
- (1) Reverse the removal procedures to reinstall.
- (2) ↔: Refer to "Service Points of Removal".
- (3) ↔: Refer to "Service Points of Installation".
- (4) N: Non-reusable parts
- (5) *: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle in the unladen condition.

Pre-removal Operation

- Removal of Battery and Battery Tray
- Removal of Air Cleaner Assembly (Refer to GROUP 11 – Air Cleaner.)
- Removal of Air Pipe and Air Hose <T/C> (Refer to GROUP 11 – Intercooler.)
- Draining Transaxle Oil (Refer to P.21-14.)

Post-installation Operation

- Pouring in Transaxle Oil (Refer to P.21-14.)
- Installation of Air Pipe and Air Hose <T/C> (Refer to GROUP 11 – Intercooler.)
- Installation of Air Cleaner Assembly (Refer to GROUP 11 – Air Cleaner.)
- Installation of Battery and Battery Tray
- Shift Lever Operation Check
- Instrument Operation Check



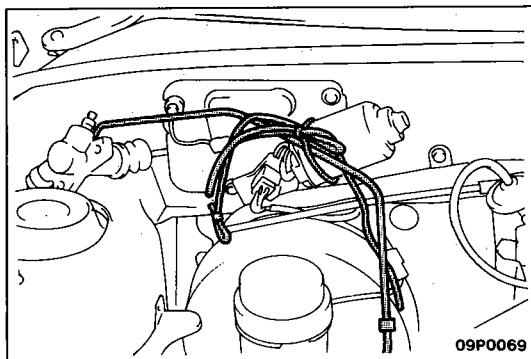
09A0020

Removal steps

- 10. Under cover
- 11. Tie rod end connection
- 12. Lower arm ball joint connection
- 13. Drive shaft connection
- 14. Drive shaft and inner shaft assembly connection
- 15. Bell housing cover
- 16. Transaxle assembly lower connecting bolt
- 17. Transaxle assembly

NOTE

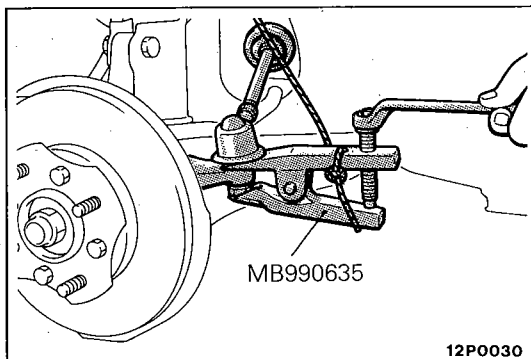
- (1) Reverse the removal procedures to reinstall.
- (2) : Refer to "Service Points of Removal".
- (3) : Refer to "Service Points of Installation".
- (4) **N**: Non-reusable parts

**SERVICE POINTS OF REMOVAL**

N21MBAL

4. DISCONNECTION OF CLUTCH RELEASE CYLINDER FROM TRANSAXLE ASSEMBLY <HYDRAULIC TYPE CLUTCH>

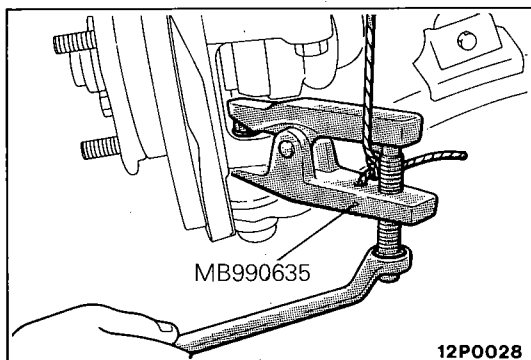
Remove the clutch release cylinder and clutch oil line bracket installation bolt, and then secure at the body side without disconnecting the oil line coupling.

**11. DISCONNECTION OF TIE ROD END FROM KNUCKLE**

Using the special tool, disconnect the tie rod end from the knuckle.

Caution

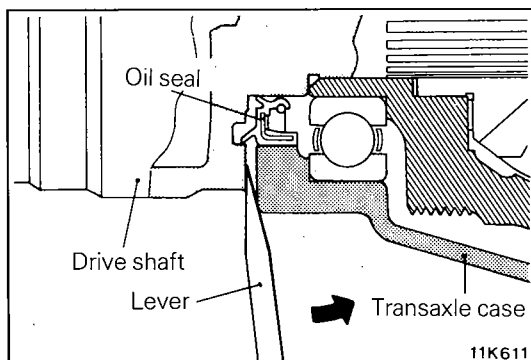
1. Be sure to tie the cord of the special tool to the nearby part.
2. Loose the nut but do not remove it.

**12. DISCONNECTION OF LOWER ARM BALL JOINT**

Using the special tool, disconnect the lower arm ball joint from the knuckle.

Caution

1. Be sure to tie the cord of the special tool to the nearby part.
2. Loose the nut but do not remove it.

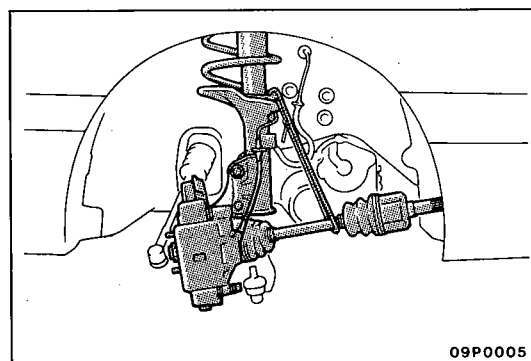
**13. DISCONNECTION OF DRIVE SHAFT**

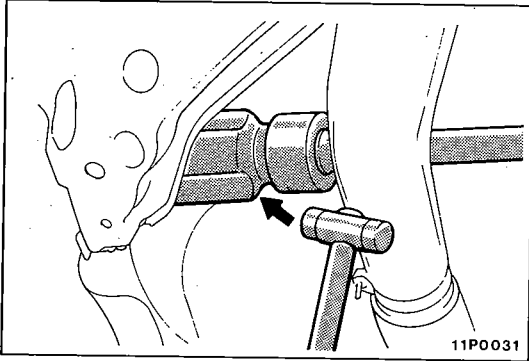
<N/A (L.H.)>

- (1) Insert a pry bar between the transaxle case and the drive shaft, and then pry the drive shaft from the transaxle.

Caution

1. Do not pull on the drive shaft; doing so will damage the inboard joint; be sure to use the pry bar.
 2. Do not insert the pry bar so deep as to damaged the oil seal.
- (2) Keep the removed drive shaft as far away from the transaxle case as possible, and secure (by using rope, etc.) the joints to the body so that it does not fall.





14. DISCONNECTION OF DRIVE SHAFT INNER SHAFT ASSEMBLY

<T/C (L.H.)>

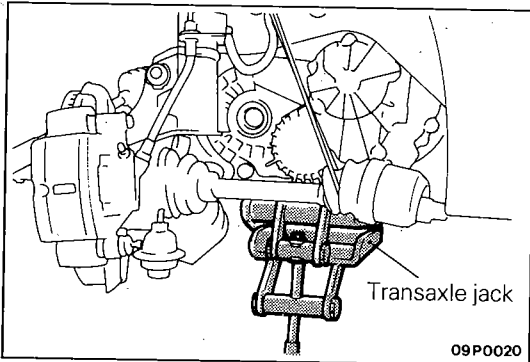
- (1) To disconnect the drive shaft and inner shaft assembly, tap the T.J. case with a plastic hammer and remove the drive shaft.

NOTE

Remove the drive shaft as an assembly together with the hub knuckle and related parts.

Caution

1. Removing the assembly by pulling on the out-board joint side shaft can damage the inboard joint. Always use the plastic hammer.
 2. Do not tap the center bearing, as a damaged bearing could result.
- (2) Secure the drive shaft which has been removed onto the vehicle body. At this time, ensure that each joint in the drive shaft is not bent unduly.

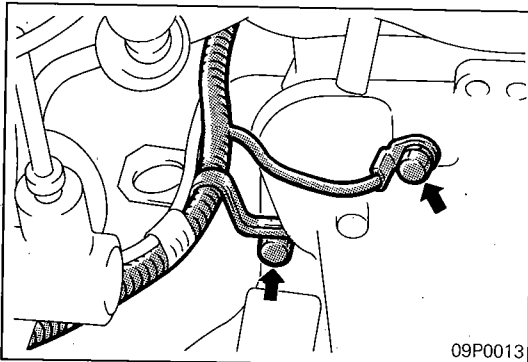


17. REMOVAL OF TRANSAXLE ASSEMBLY

Support the transaxle assembly by using a transaxle jack; then, after moving the transaxle assembly to the right, lower it.

NOTE

When supporting the transaxle assembly by the transaxle jack, take care to be sure that the jack's force is applied to a wide area, not to only a small localized area.



SERVICE POINT OF INSTALLATION

N21MDAL

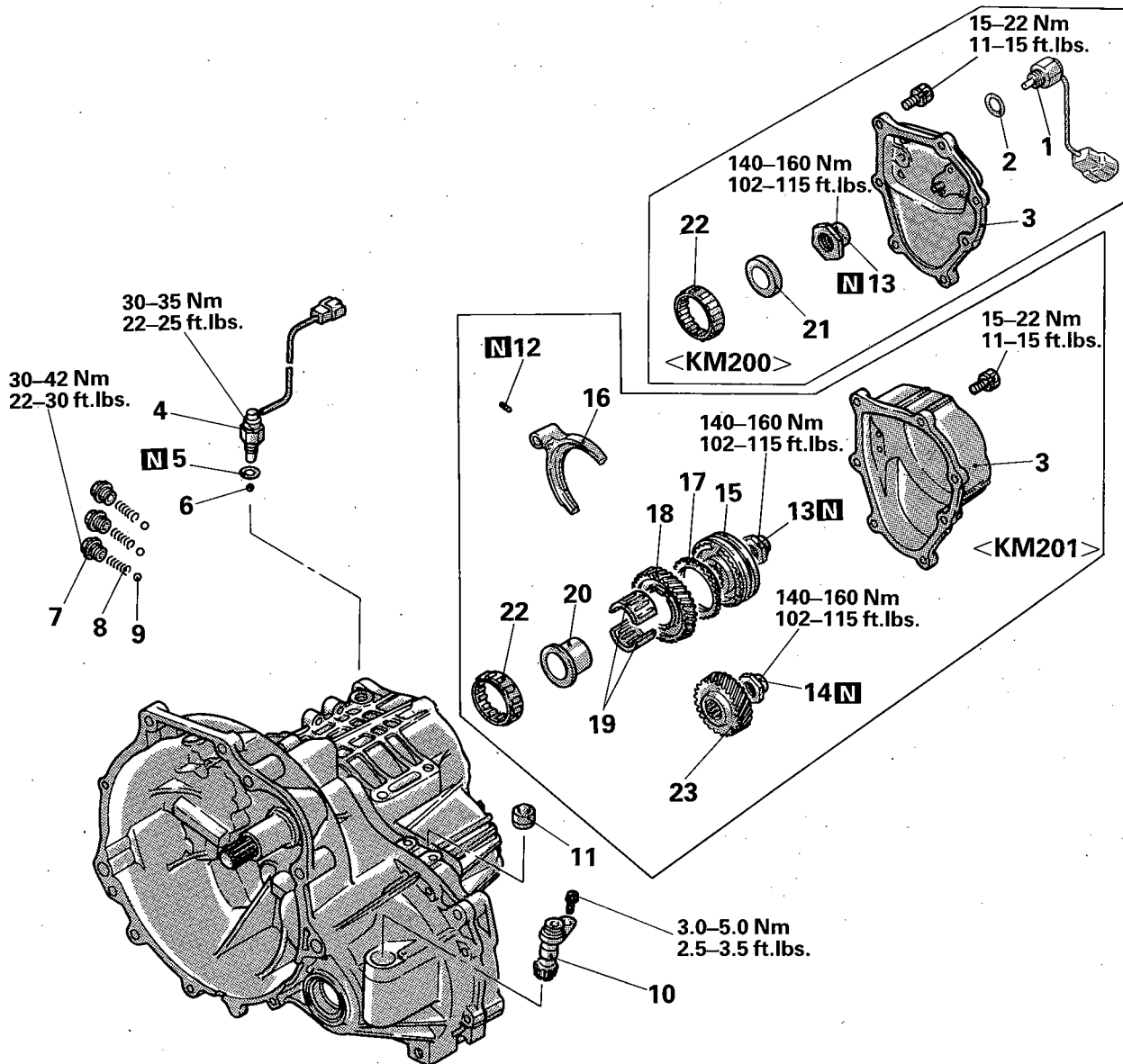
7. INSTALLATION OF STARTER MOTOR

When installing the starter motor with the bolts, fasten also the ground cable with the upper mounting bolt and the harness clamp with the lower mounting bolt.

TRANSAXLE ASSEMBLY <KM200, KM201>

N21ME-A

DISASSEMBLY AND REASSEMBLY



Disassembly steps

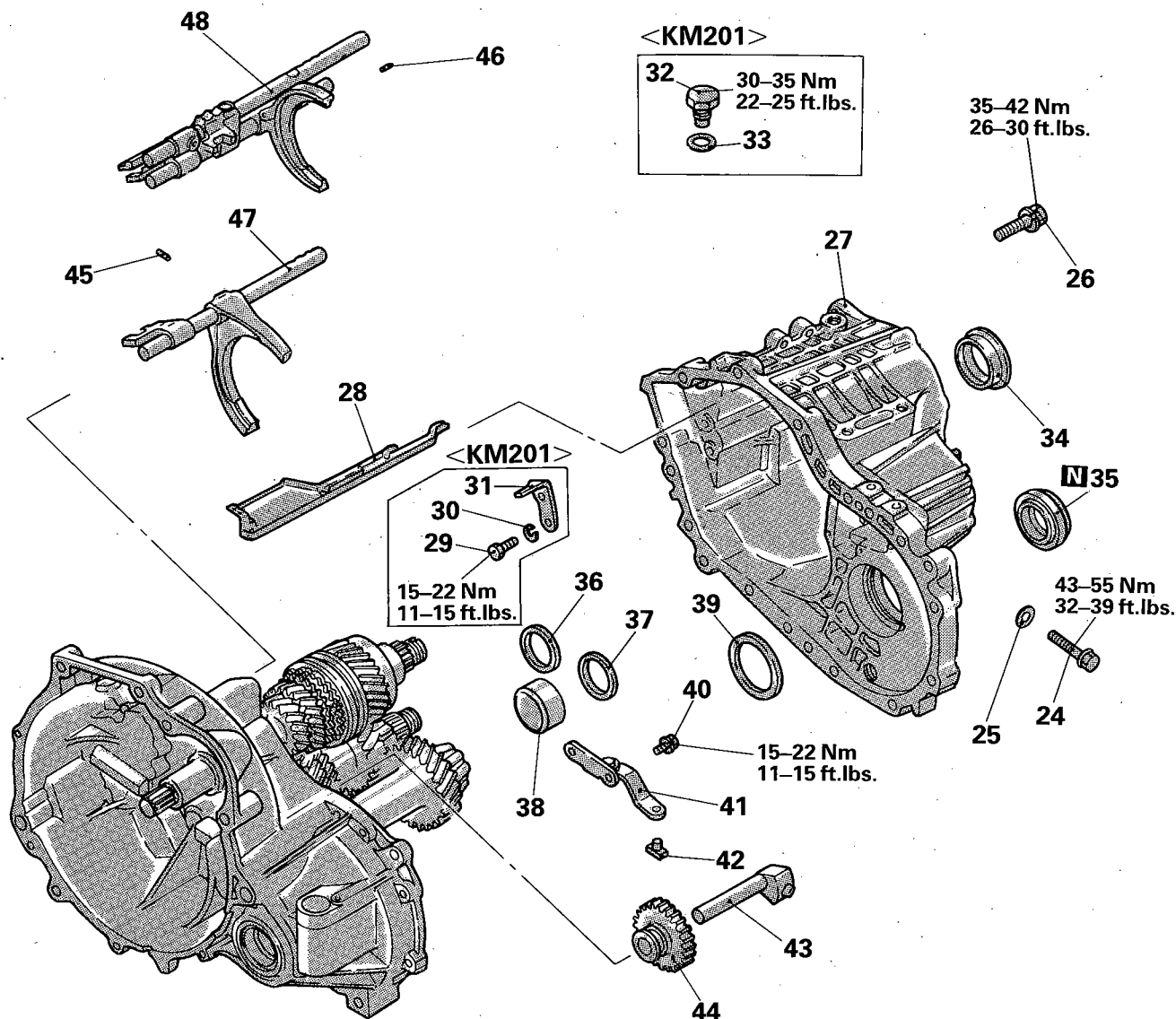
1. Transaxle switch
2. Gasket
- ◆◆ 3. Rear cover
4. Backup light switch
5. Gasket
6. Steel ball
7. Poppet plug
8. Poppet spring
9. Poppet ball
- ◆◆ 10. Speedometer driven gear assembly
- ◆◆◆ 11. Air breather
- ◆◆◆ 12. Spring pin
- ◆◆◆ 13. Lock nut
- ◆◆◆ 14. Lock nut
- ◆◆ 15. 5th speed synchronizer assembly

- ◆◆ 16. 5th speed shift fork
17. Synchronizer ring
18. 5th speed gear
19. Needle bearing
20. Bearing sleeve
- ◆◆ 21. Dished washer
22. Roller bearing
23. 5th speed intermediate gear

2000002

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆: Refer to "Service Points of Reassembly".
- (4) N: Non-reusable parts



2010008

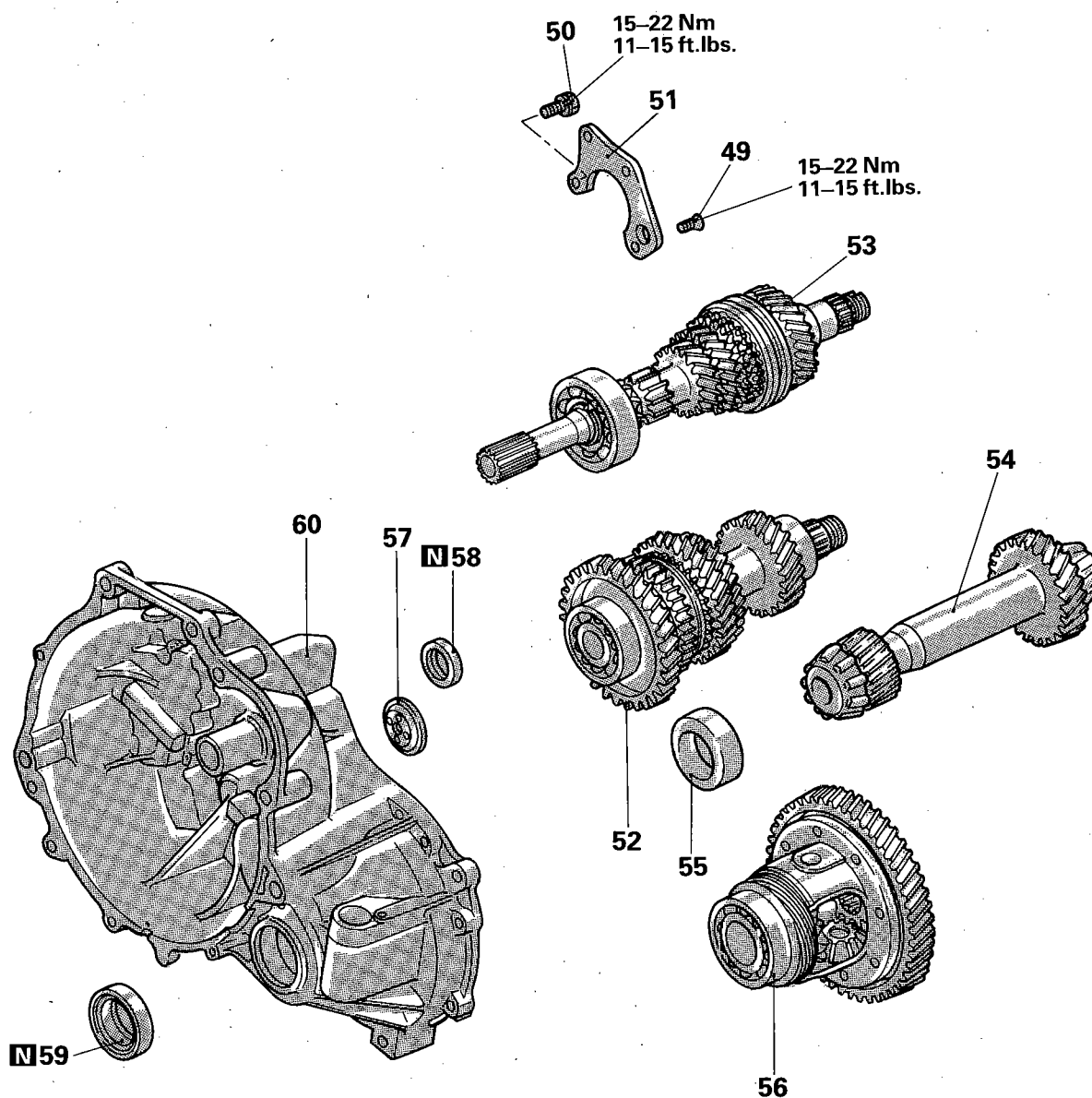
Disassembly steps

- ◆◆ 24. Reverse idler gear shaft bolt
- ◆◆ 25. Gasket
- ◆◆ 26. Bolt
- ◆◆ 27. Transaxle case
- ◆◆ 28. Oil guide
- ◆◆ 29. Bolt
- ◆◆ 30. Spring washer
- ◆◆ 31. Stopper bracket
- ◆◆ 32. Restrict ball assembly
- ◆◆ 33. Gasket
- ◆◆ 34. Outer ring
- ◆◆ 35. Oil seal
- ◆◆ 36. Spacer
- ◆◆ 37. Spacer
- ◆◆ 38. Bearing outer race

- ◆◆ 39. Spacer
- ◆◆ 40. Bolt
- ◆◆ 41. Reverse shift lever assembly
- ◆◆ 42. Reverse shift lever shoe
- ◆◆ 43. Reverse idler gear shaft
- ◆◆ 44. Reverse idler gear
- ◆◆◆◆ 45. Spring pin
- ◆◆◆◆ 46. Spring pin
- ◆◆◆◆ 47. Shift rail assembly
- ◆◆◆◆ 48. Shift rail assembly

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts



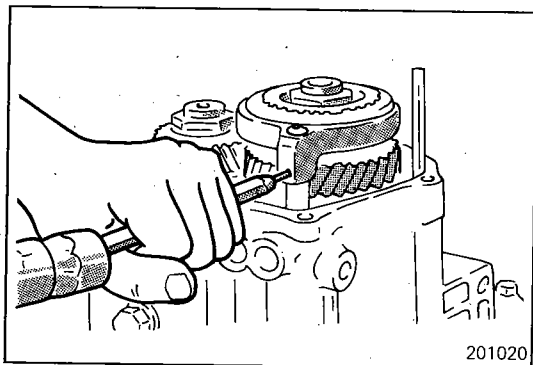
2010009

Disassembly steps

- ◆◆ 49. Bolt
- ◆◆ 50. Bolt
- ◆◆ 51. Bearing retainer
- ◆◆◆ 52. Intermediate shaft assembly
- ◆◆ 53. Input shaft assembly
- 54. Output shaft assembly
- 55. Bearing outer race
- 56. Differential gear assembly
- 57. Oil guide
- ◆◆ 58. Oil seal
- ◆◆ 59. Oil seal
- 60. Clutch housing assembly

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts



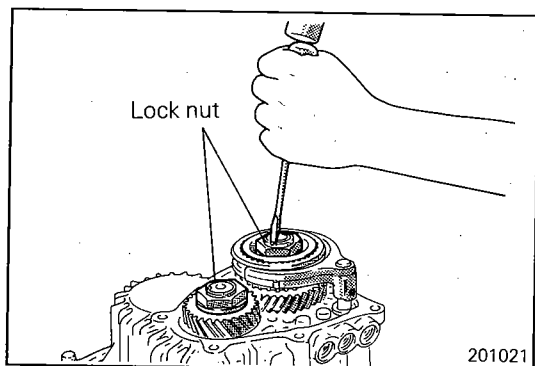
201020

SERVICE POINTS OF DISASSEMBLY

N21MFAH

12. REMOVAL OF SPRING PIN

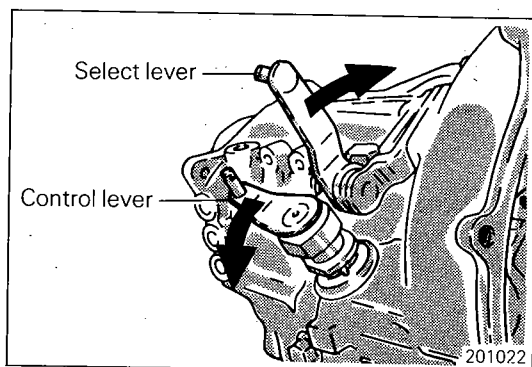
Remove the spring pin using a pin punch.



201021

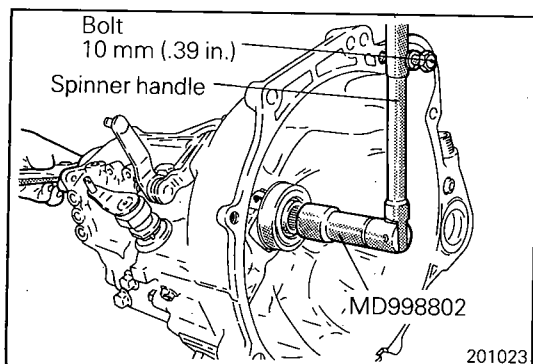
13. 14. REMOVAL OF LOCK NUTS

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



201022

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



201023

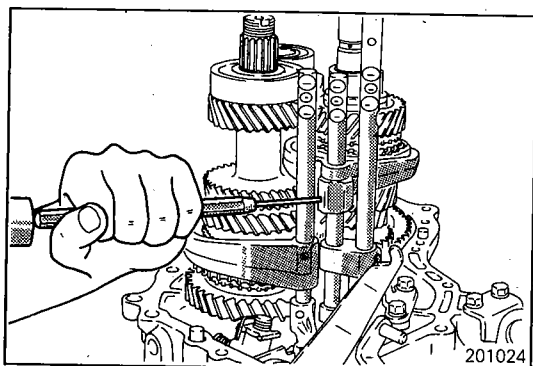
(3) Install the special tool onto the input shaft.

(4) Screw a bolt [10 mm (.39 in.)] into the bolt hole on the periphery of clutch housing and attach a spinner handle to the special tool.

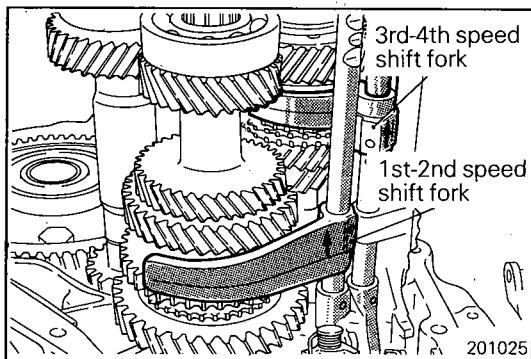
(5) Remove the lock nut, using the bolt as a spinner handle stopper.

45. 46. REMOVAL OF SPRING PINS

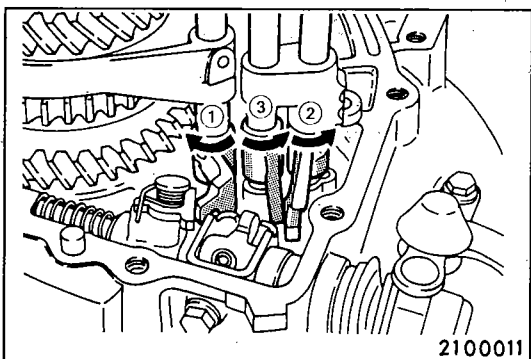
Remove the spring pins for 1st-2nd and 3rd-4th speed shift forks using a pin punch.



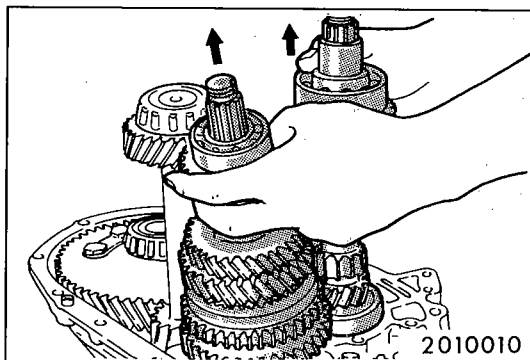
201024

**47. 48. REMOVAL OF SHIFT RAIL ASSEMBLY**

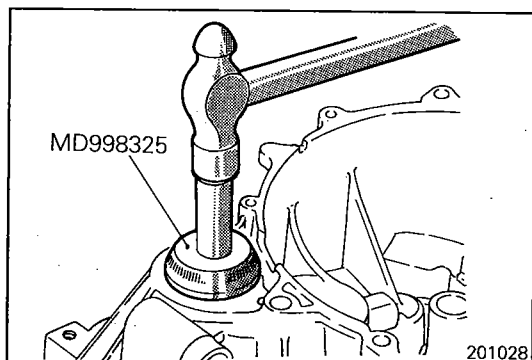
- (1) Shift the 1st-2nd speed shift fork to the 2nd speed.
- (2) Shift the 3rd-4th speed shift fork to the 4th speed.



- (3) Turn the shift rails in the directions indicated by the arrows in the order shown in the illustration to free the shift lugs from the control finger and the interlock plate.
- (4) Pull the shift rails upwards to extract their ends from the clutch housing holes.
- (5) Remove the all shift rails and forks.

**52. REMOVAL OF INTERMEDIATE GEAR ASSEMBLY**

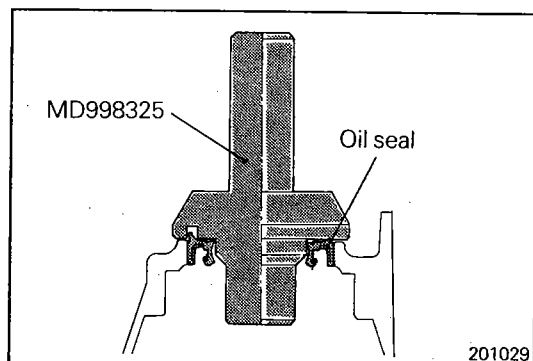
Lift up the input shaft assembly and remove the intermediate gear assembly.

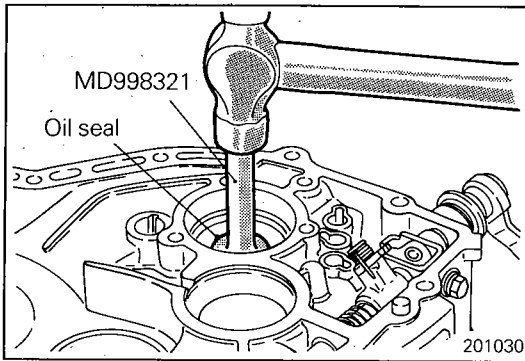
**SERVICE POINTS OF REASSEMBLY**

N21MGAE

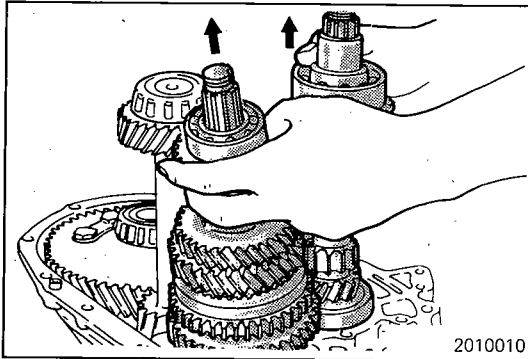
59. INSTALLATION OF OIL SEAL

Install the drive shaft oil seal using the special tool.



**58. INSTALLATION OF OIL SEAL**

Install the input shaft front oil seal using the special tool.

**52. INSTALLATION OF INTERMEDIATE GEAR ASSEMBLY / 53. INPUT SHAFT ASSEMBLY**

Lifting up the input shaft assembly, install it simultaneously with the intermediate gear assembly.

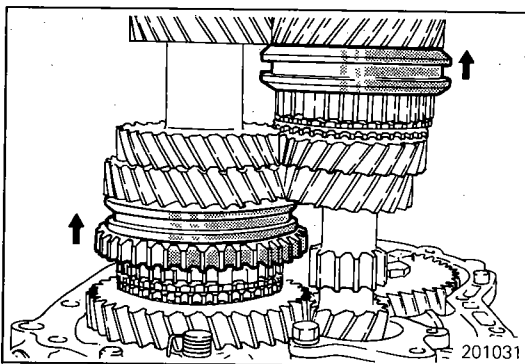
49. APPLICATION OF SEALANT TO BOLT

Apply specified sealant to the bolt threads up to approximately 5 mm (.2 in.) from the end and tighten the bolt.

Caution

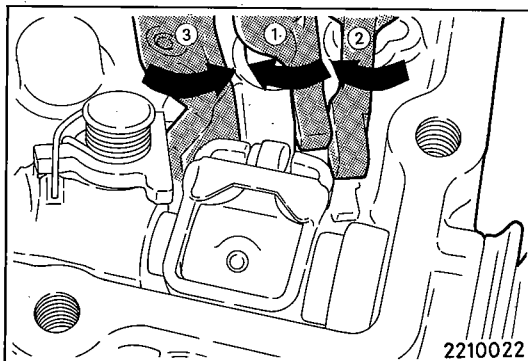
Do not apply to the bolt head.

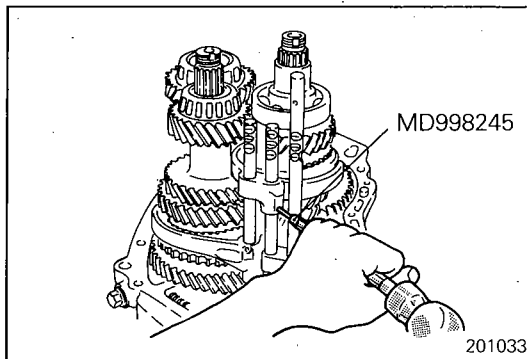
Specified sealant: 3M STUD Locking No. 4170

**47. 48. INSTALLATION OF SHIFT RAIL ASSEMBLY**

- (1) Set the 1st-2nd speed shift sleeve at 2nd speed.
- (2) Set the 3rd-4th speed shift sleeve at 4th speed.
- (3) Install the shift forks to respective sleeves.

- (4) Insert the shift rail into the shift fork hole, while turning so as to prevent the shift lug from interfering with the stopper plate.
- (5) Turn the shift rail to engage shift lug.



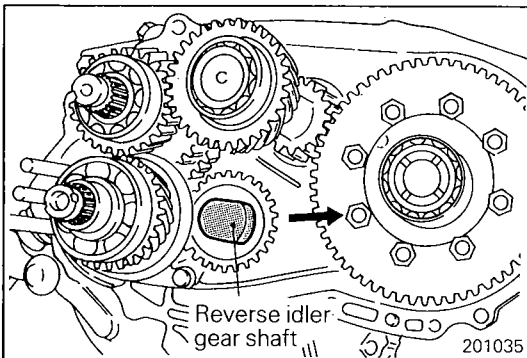
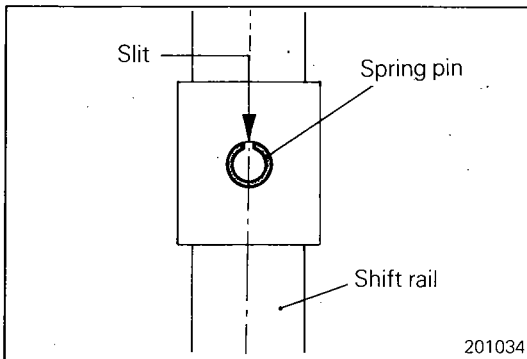


45. 46. INSTALLATION OF SPRING PINS

- (1) Install the spring pins using the special tool or a pin punch.
- (2) When installing, make sure that the slit of the spring pin is on the shift rail center line.

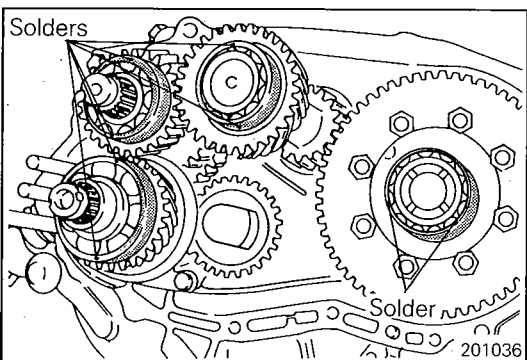
Caution

Do not reuse the spring pins.



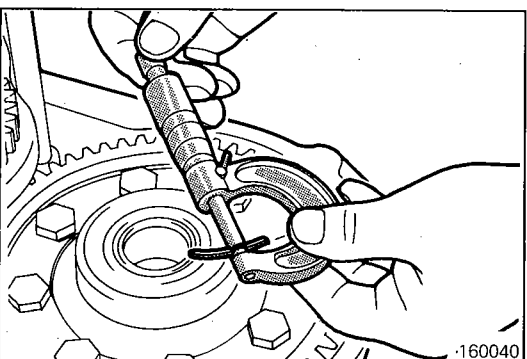
43. INSTALLATION OF REVERSE IDLER GEAR SHAFT

Install in the direction illustrated.



36. 37. 39. INSTALLATION OF SPACERS

- (1) Place two pieces of solder measuring about 10 mm (.4 in.) in length and 3 mm (.12 in.) in diameter on the bearing outer race as shown in illustration. Install the transaxle case and tighten the bolts to specified torque.
- (2) Remove the transaxle case and remove the solder.



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

Standard value:

Intermediate shaft

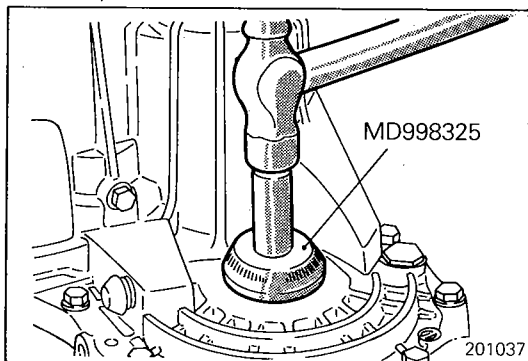
0.05 – 0.17 mm (.002 – .007 in.)

Output shaft

0.05 – 0.10 mm (.002 – .004 in.)

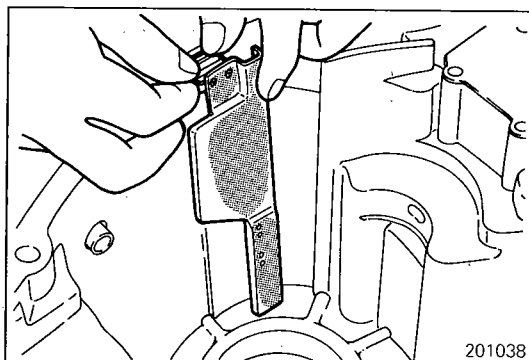
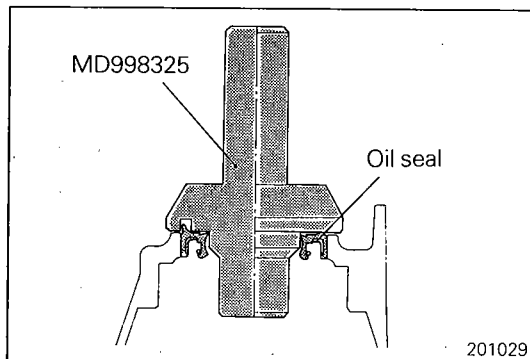
Differential case

0.05 – 0.17 mm (.002 – .007 in.)



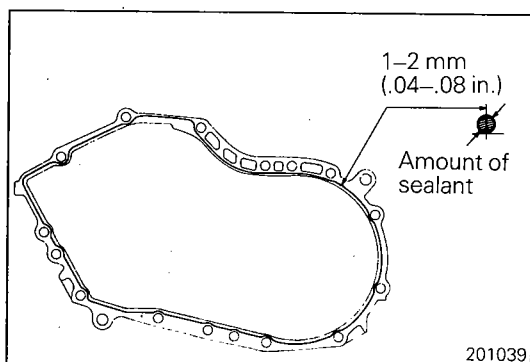
35. INSTALLATION OF OIL SEAL

Install the drive shaft oil seal using the special tool.



28. INSTALLATION OF OIL GUIDE

Install the oil guide to the transaxle case as illustrated.



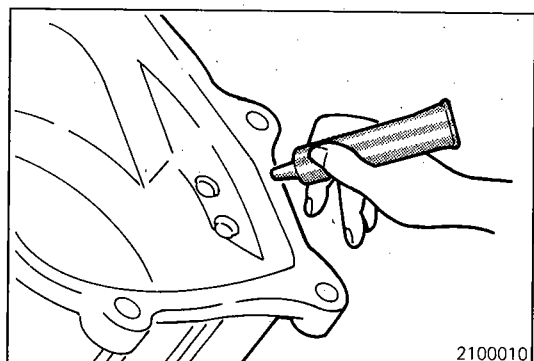
27. APPLICATION OF SEALANT TO TRANSAXLE CASE

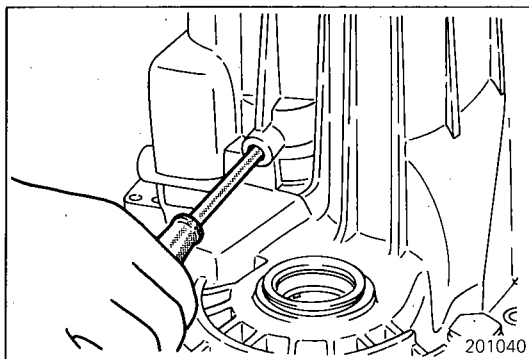
Apply specified sealant to the clutch housing side of the transaxle case.

Specified sealant: MITSUBISHI genuine sealant
Part Number MD997740 or equivalent

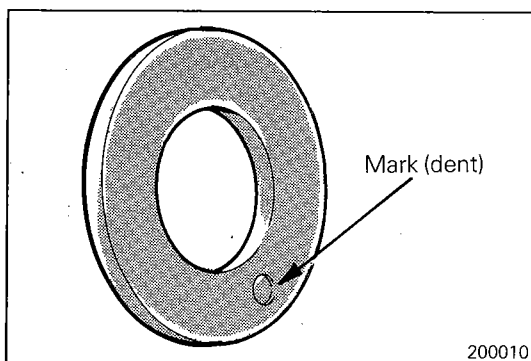
Caution

Squeeze out sealant from the tube uniformly without excess or discontinuity.



**24. INSTALLATION OF REVERSE IDLER GEAR SHAFT BOLT**

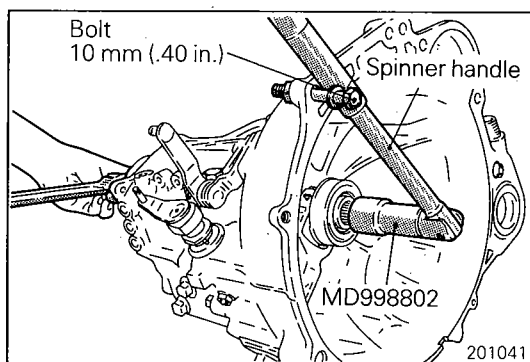
- (1) Center the shaft with a Phillips screwdriver [shaft diameter 8 mm (.32 in.)] or the like.
- (2) Tighten the reverse idler gear shaft bolt to specified torque.

**21. INSTALLATION OF DISHED WASHER <KM200>**

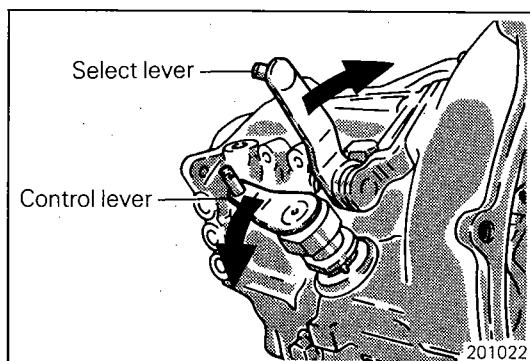
Install the dished washer with the face identified by mark (dent) toward lock nut.

16. INSTALLATION OF 5TH SPEED SHIFT FORK / 15. 5TH SPEED SYNCHRONIZER ASSEMBLY

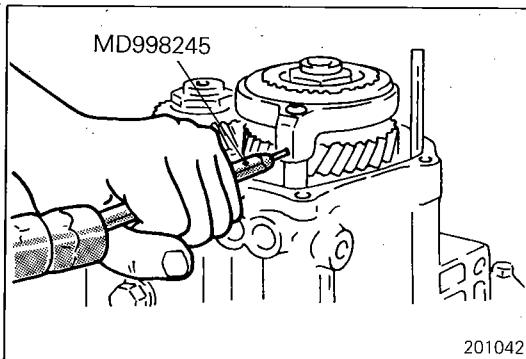
Install the 5th speed shift fork and the 5th speed synchronizer assembly at the same time.

**14. 13. INSTALLATION OF LOCK NUTS**

- (1) Install the special tool onto the input shaft.
- (2) Screw a bolt [10 mm (.40 in.)] into the hole on the periphery of clutch housing and attach a spinner handle to the special tool.



- (3) Shift the transaxle in reverse using control lever and select lever.
- (4) Tighten the lock nut to specified torque, while using the bolt attached in the above step as a spinner handle stopper.
- (5) Stake the lock nut.

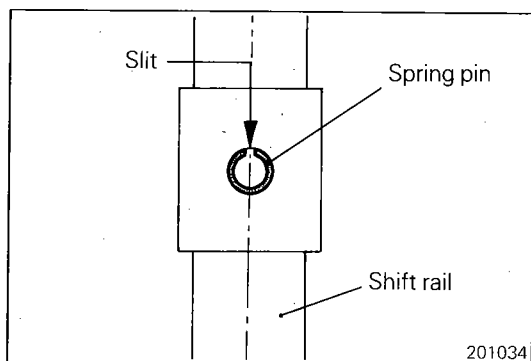


12. INSTALLATION OF SPRING PIN

- (1) Install the spring pin using the special tool or a pin punch.

Caution

Do not reuse the spring pins.



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

11. APPLICATION OF SEALANT TO AIR BREATHER

Apply specified sealant to air breather mounting portion and install to the clutch housing.

Specified sealant: 3M SUPER WEATHERSTRIP No. 8001 or equivalent

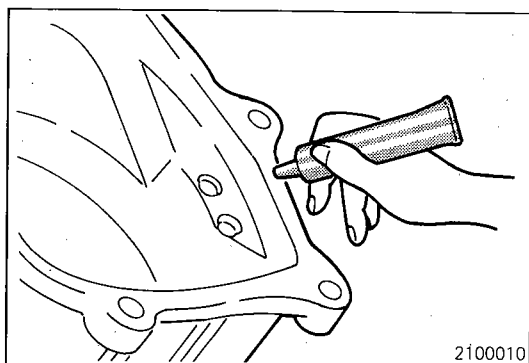
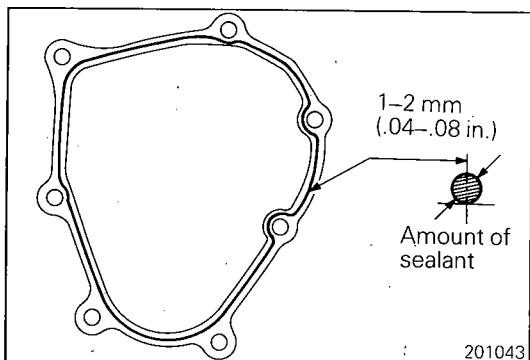
3. APPLICATION OF SEALANT TO REAR COVER

Apply specified sealant to the rear cover.

**Specified sealant: MITSUBISHI genuine sealant
Part Number MD997740 or equivalent**

Caution

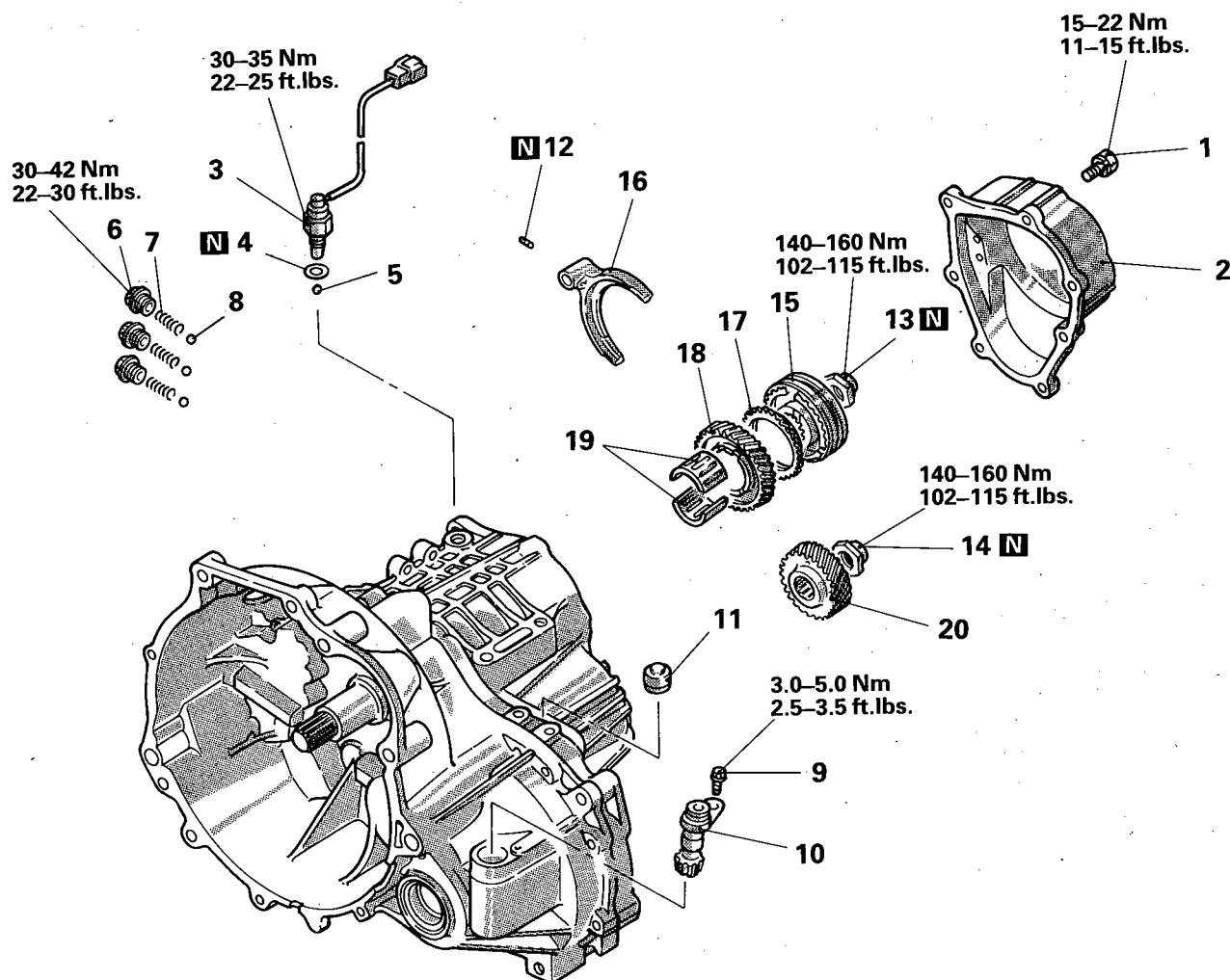
Squeeze out sealant from the tube uniformly without excess or discontinuity.



TRANSAXLE ASSEMBLY <KM206>

N21ME-B

DISASSEMBLY AND REASSEMBLY



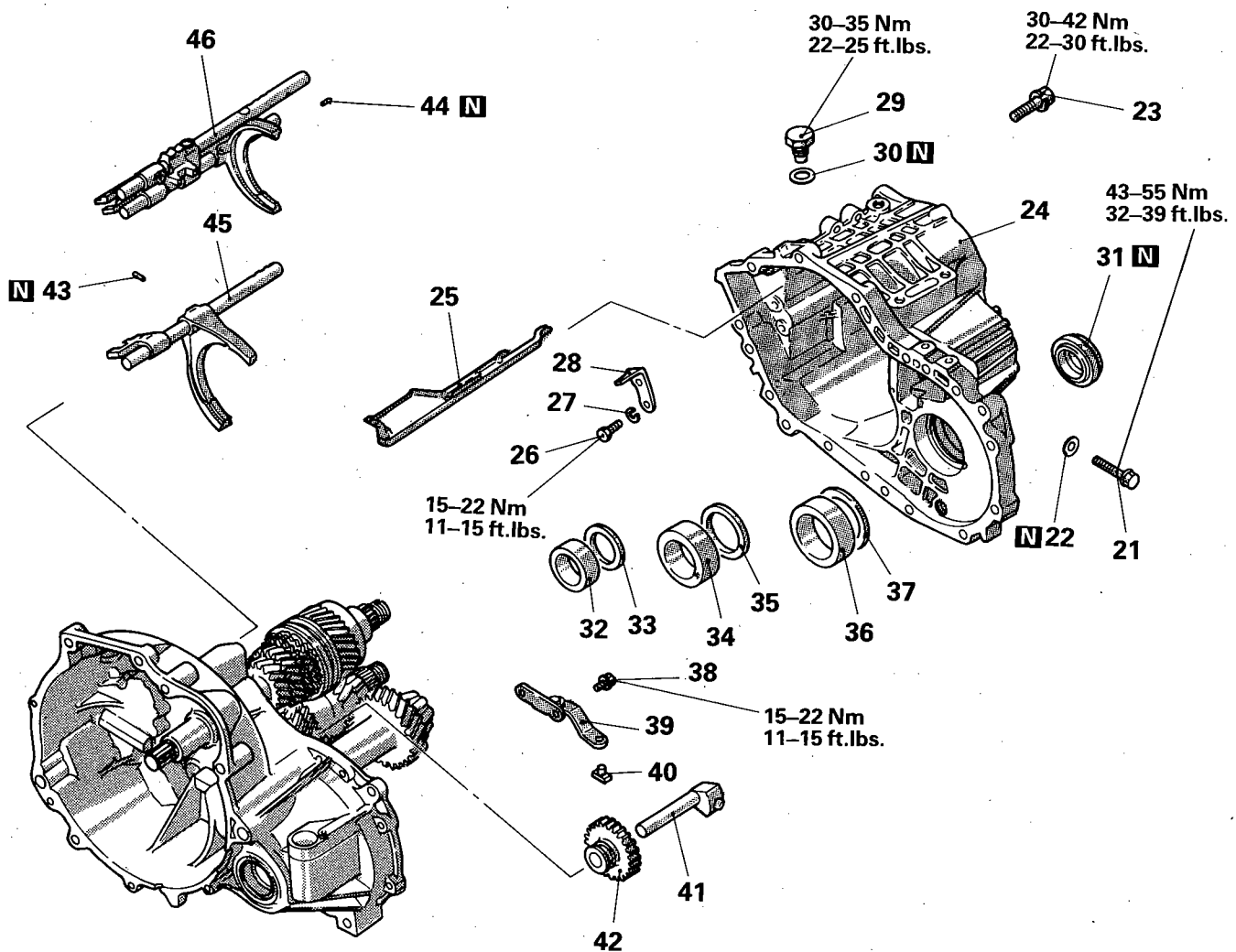
Disassembly steps

- 1. Bolt
- ◆◆ 2. Rear cover
- 3. Backup light switch
- 4. Gasket
- 5. Steel ball
- 6. Poppet plug
- 7. Poppet spring
- 8. Poppet ball
- 9. Bolt
- 10. Speedometer driven gear assembly
- ◆◆ 11. Air breather
- ◆◆◆◆ 12. Spring pin
- ◆◆◆◆ 13. Lock nut

- ◆◆◆◆ 14. Lock nut
- ◆◆◆◆ 15. 5th speed synchronizer assembly
- ◆◆◆◆ 16. 5th speed shift fork
- ◆◆◆◆ 17. Synchronizer ring
- ◆◆◆◆ 18. 5th speed gear
- ◆◆◆◆ 19. Needle bearing
- ◆◆◆◆ 20. 5th speed intermediate gear

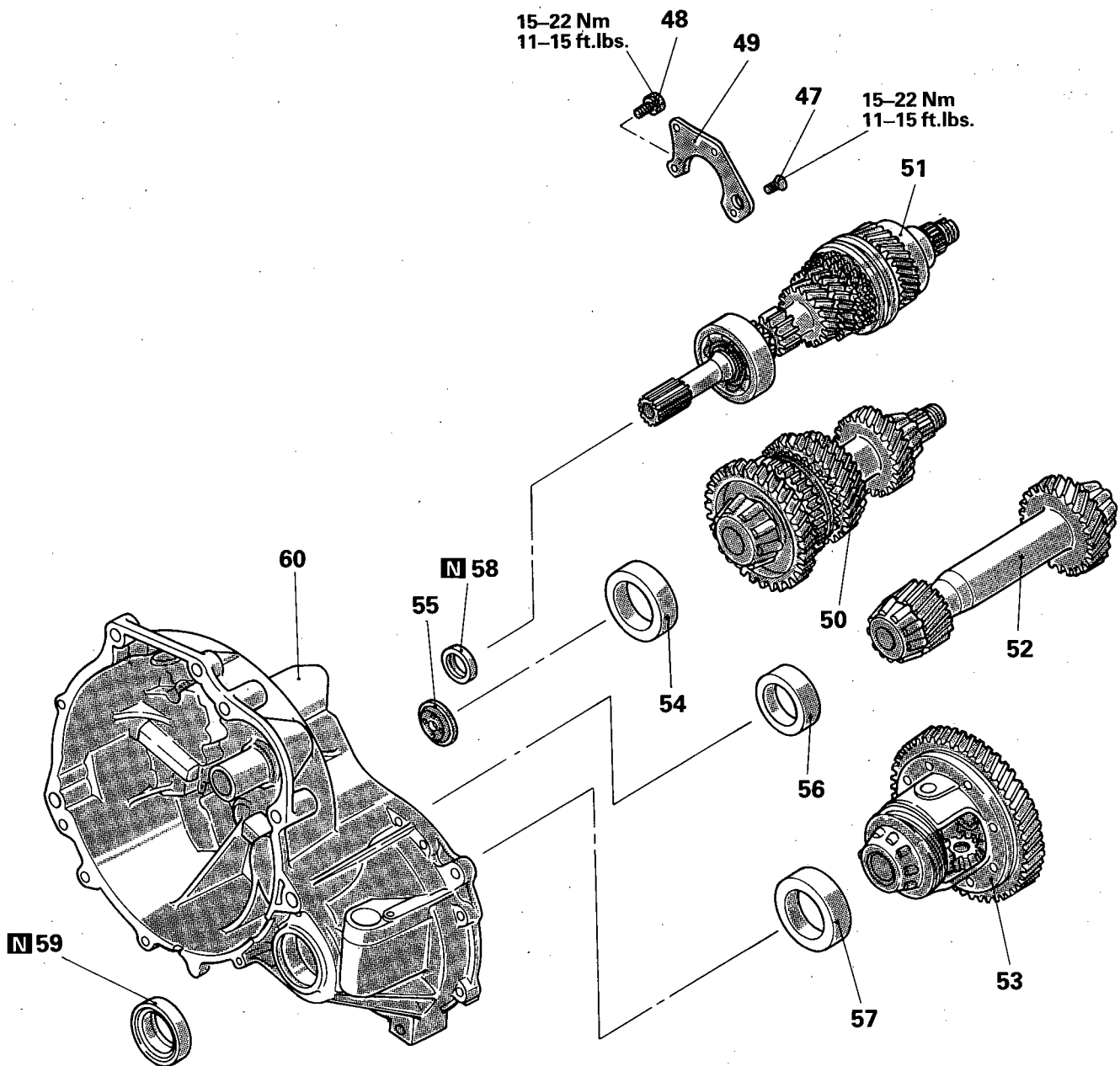
NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆◆: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts



Disassembly steps

- ◆◆ 21. Reverse idler gear shaft bolt
- ◆◆ 22. Gasket
- ◆◆ 23. Bolt
- ◆◆ 24. Transaxle case
- ◆◆ 25. Oil guide
- ◆◆ 26. Bolt
- ◆◆ 27. Spring washer
- ◆◆ 28. Stopper bracket
- ◆◆ 29. Restrict ball assembly
- ◆◆ 30. Gasket
- ◆◆ 31. Oil seal
- ◆◆ 32. Bearing outer race
- ◆◆ 33. Spacer
- ◆◆ 34. Bearing outer race
- ◆◆ 35. Spacer
- ◆◆ 36. Bearing outer race
- ◆◆ 37. Spacer
- ◆◆ 38. Bolt
- ◆◆ 39. Reverse shift lever assembly
- ◆◆ 40. Reverse shift lever shoe
- ◆◆ 41. Reverse idler gear shaft
- ◆◆ 42. Reverse idler gear
- ◆◆ 43. Spring pin
- ◆◆ 44. Spring pin
- ◆◆ 45. Shift rails and forks
- ◆◆ 46. Shift rails and forks

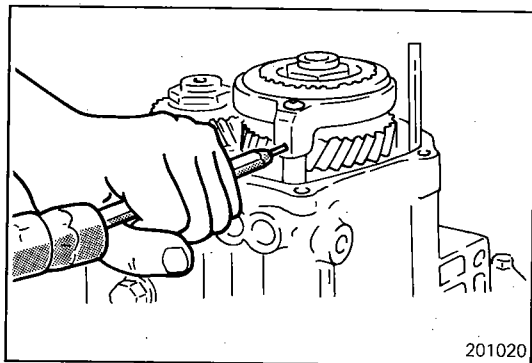
**Disassembly steps**

- ◆◆ 47. Bolt
- ◆◆ 48. Bolt
- ◆◆ 49. Bearing retainer
- ◆◆◆ 50. Intermediate shaft assembly
- ◆◆ 51. Input shaft assembly
- ◆◆ 52. Output shaft assembly
- ◆◆ 53. Differential gear assembly
- ◆◆ 54. Bearing outer race
- ◆◆ 55. Oil guide
- ◆◆ 56. Bearing outer race
- ◆◆ 57. Bearing outer race

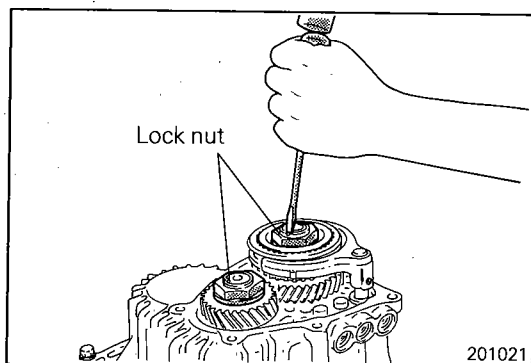
- ◆◆ 58. Oil seal
- ◆◆ 59. Oil seal
- ◆◆ 60. Clutch housing assembly

NOTE

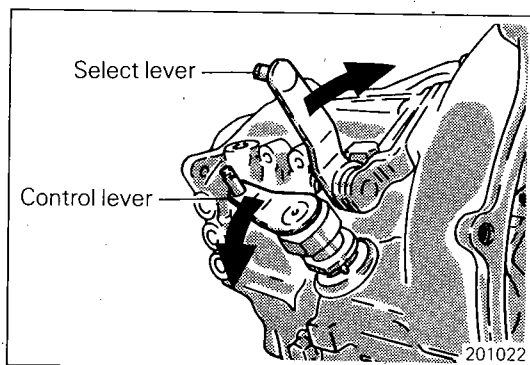
- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts

**SERVICE POINTS OF DISASSEMBLY****12. REMOVAL OF SPRING PIN**

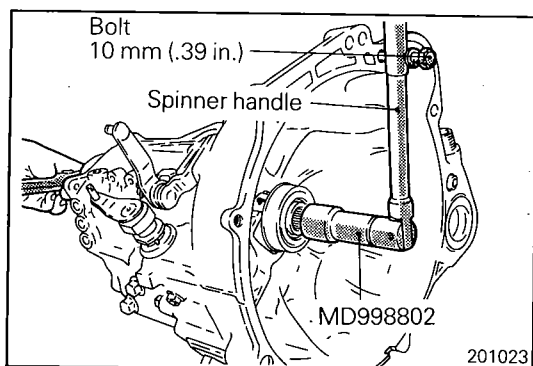
Remove the spring pin using a pin punch.

**13. 14. REMOVAL OF LOCK NUTS**

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



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



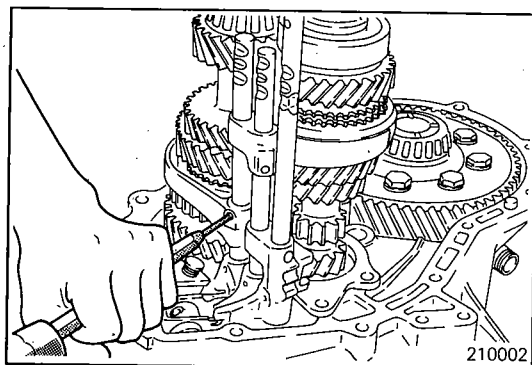
(3) Install the special tool onto the input shaft.

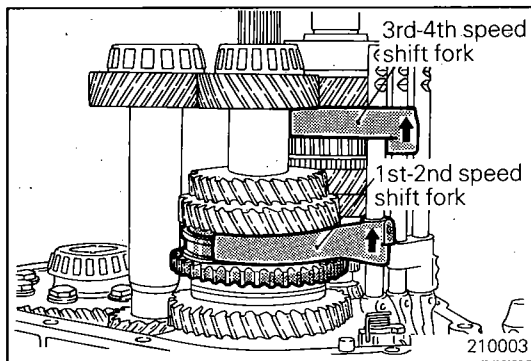
(4) Screw a bolt [10 mm (.39 in.)] into the hole on the periphery of clutch housing and attach a spinner handle to the special tool.

(5) Remove the lock nut, while using the bolt as a spinner handle stopper.

43. 44. REMOVAL OF SPRING PINS

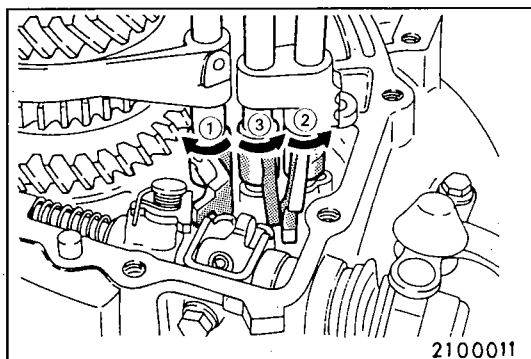
Remove the spring pins for 1st-2nd and 3rd-4th speed shift forks using a pin punch.



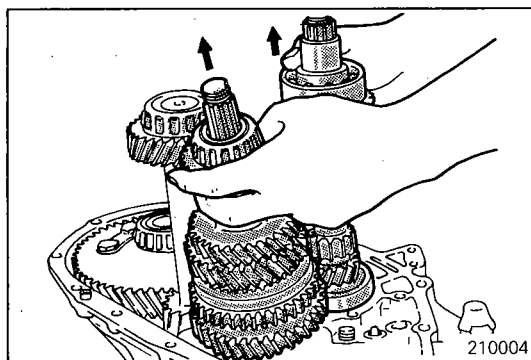


45. 46. REMOVAL OF SHIFT RAIL ASSEMBLY

- (1) Shift the 1st-2nd speed shift fork to the 2nd speed.
- (2) Shift the 3rd-4th speed shift fork to the 4th speed.

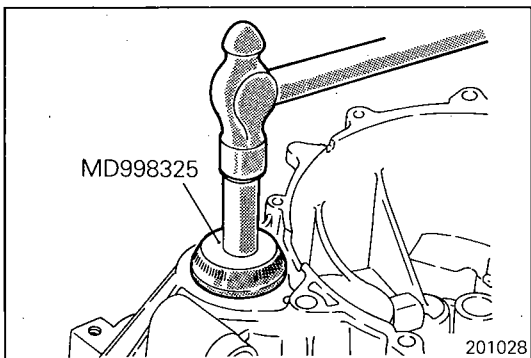


- (3) Turn the shift rails in the directions indicated by the arrows in the order shown in the illustration to free the shift lugs from the control finger and the interlock plate.
- (4) Pull the shift rails upwards to extract their ends from the clutch housing holes.
- (5) Remove the shift rails and forks.



50. REMOVAL OF INTERMEDIATE GEAR ASSEMBLY

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

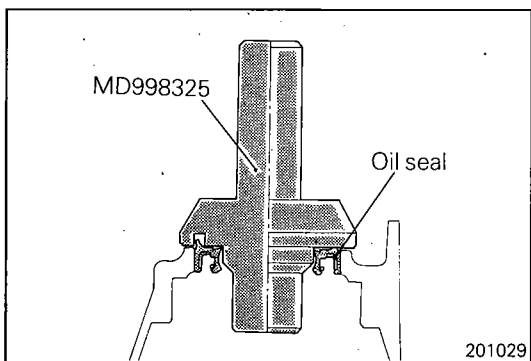


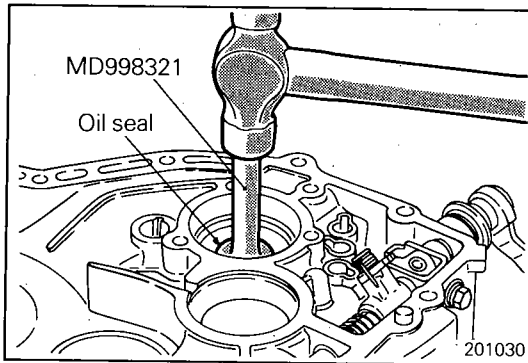
SERVICE POINTS OF REASSEMBLY

N21MGAA2

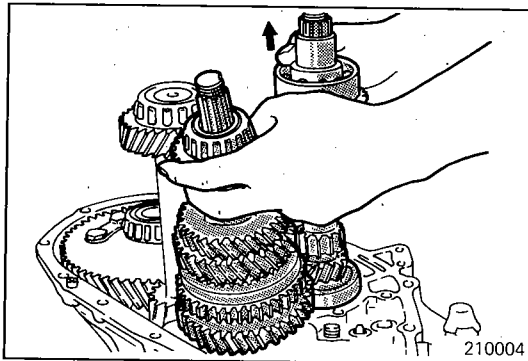
59. INSTALLATION OF OIL SEAL

Install the drive shaft oil seal using the special tool.



**58. INSTALLATION OF OIL SEAL**

Install the input shaft front oil seal using the special tool.

**50. INSTALLATION OF INTERMEDIATE GEAR ASSEMBLY / 51. INPUT SHAFT ASSEMBLY**

Lifting up the input shaft assembly, install it simultaneously with the intermediate gear assembly.

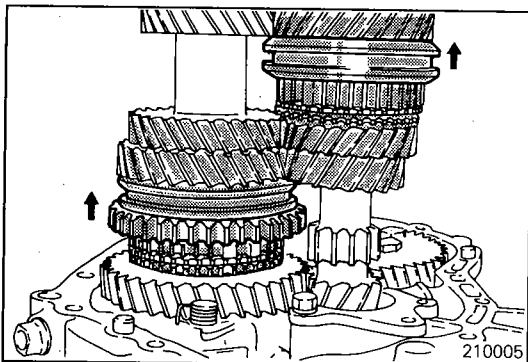
47. APPLICATION OF SEALANT TO BOLT

Apply specified sealant to the bolt threads up to approximately 5 mm (.2 in.) from the end and tighten the bolt.

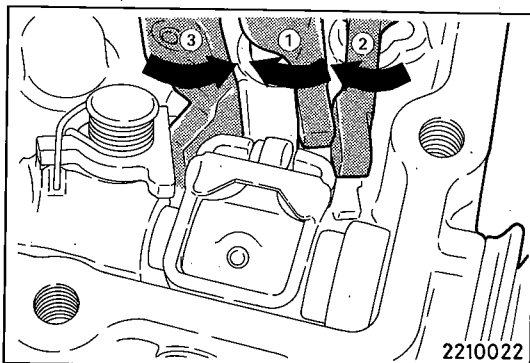
Caution

Do not apply to the bolt head.

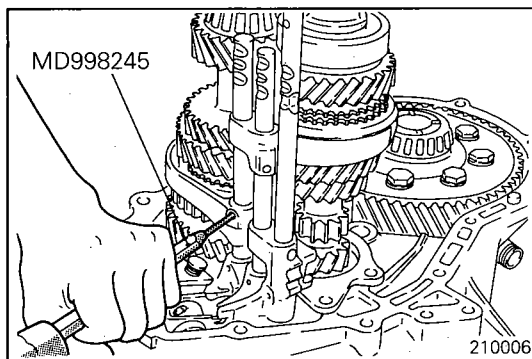
Specified sealant: 3M Stud Locking No. 4170

**45. 46. INSTALLATION OF SHIFT RAIL ASSEMBLY**

- (1) Set the 1st-2nd speed shift sleeve at 2nd speed.
- (2) Set the 3rd-4th speed shift sleeve at 4th speed.
- (3) Install the shift forks to respective sleeves.



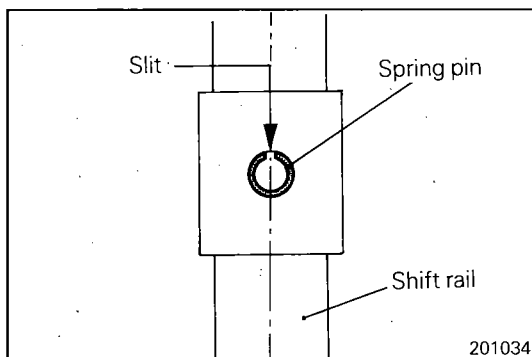
- (4) Turn the shift rails in the directions indicated by the arrows in the order shown in the illustration to engage their shift lugs with the control finger and the interlock plate.

**43. 44. INSTALLATION OF SPRING PINS**

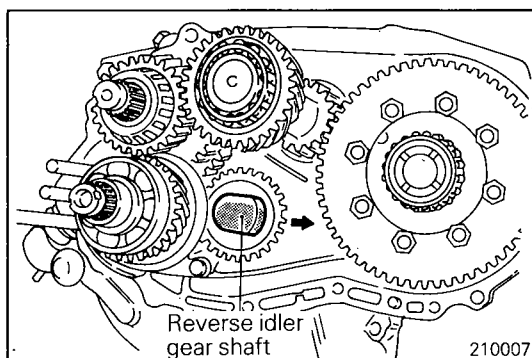
- (1) Install the spring pins using the special tool or a pin punch.

Caution

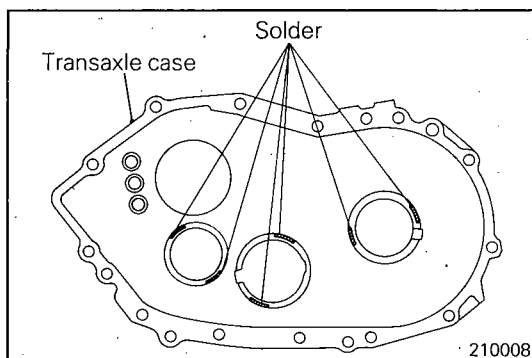
Do not reuse the spring pins.



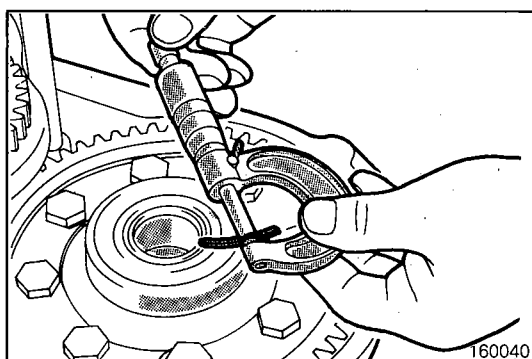
- (2) When installing, make sure that the slit of the spring pin is aligned with the shift rail center line.

**41. INSTALLATION OF REVERSE IDLER GEAR SHAFT**

Install in the direction illustrated.

**33. 35. 37. INSTALLATION OF SPACERS**

- (1) Place two pieces of solder measuring about 10 mm (.4 in.) in length and 3 mm (.12 in.) in diameter as illustrated and install the outer races.
- (2) Install the transaxle case and tighten the bolts to specified torque.
- (3) Remove the transaxle case.
- (4) Remove the outer races and remove the solder.



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

Standard value:**Intermediate shaft**

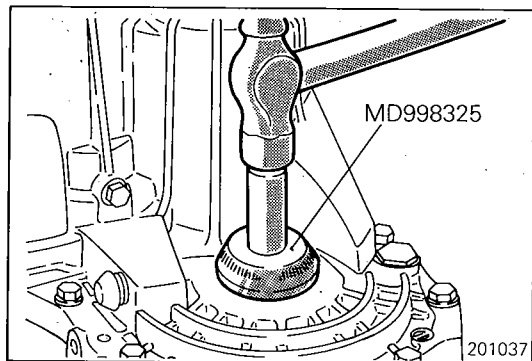
0.05 – 0.10 mm (.002 – .004 in.)

Output shaft

0.05 – 0.10 mm (.002 – .004 in.)

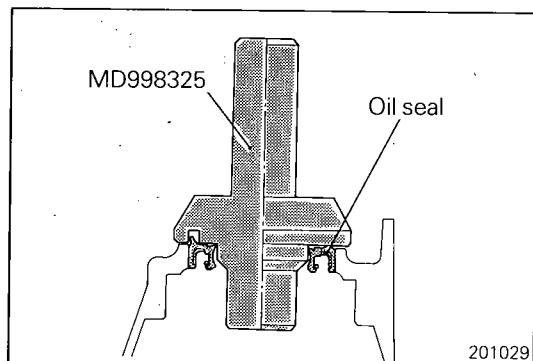
Differential case

0.05 – 0.10 mm (.002 – .004 in.)



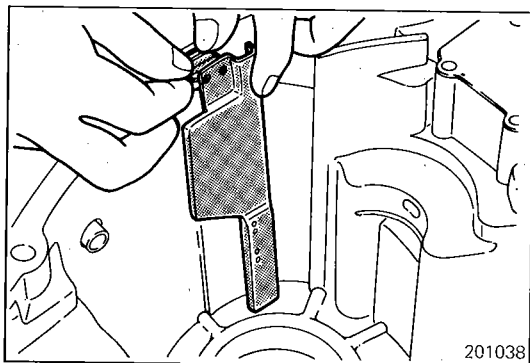
31. INSTALLATION OF OIL SEAL

Install the drive shaft oil seal using the special tool.



25. INSTALLATION OF OIL GUIDE

Install the oil guide to the transaxle case as illustrated.



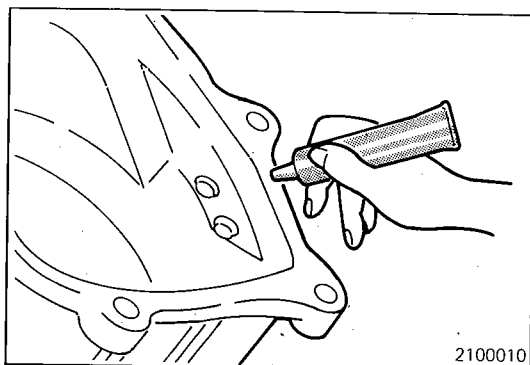
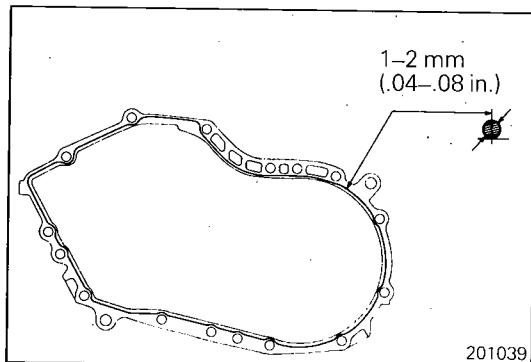
24. APPLICATION OF SEALANT TO TRANSAXLE CASE

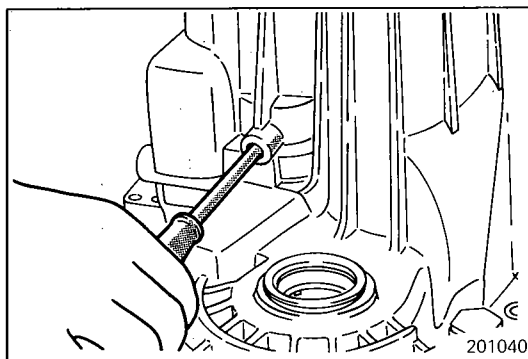
Apply specified sealant to the clutch housing side of the transaxle case.

**Specified sealant: MITSUBISHI genuine sealant
Part Number MD997740 or equivalent**

Caution

Squeeze out sealant from the tube uniformly without excess or discontinuity.

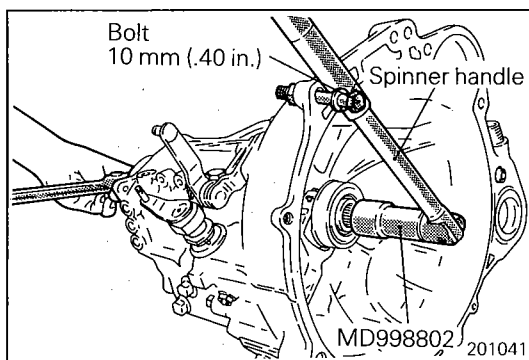


**21. INSTALLATION OF REVERSE IDLER GEAR SHAFT BOLT**

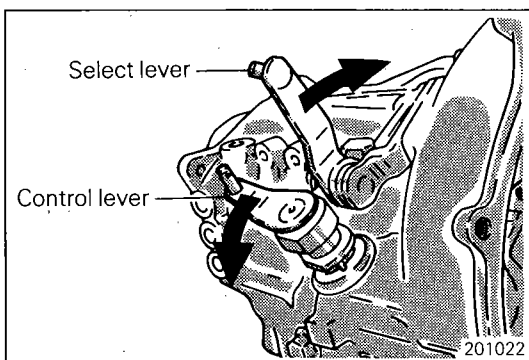
- (1) Center the shaft with a Phillips screwdriver [shaft diameter 8 mm (.32 in.)] or the like.
- (2) Tighten the reverse idler gear shaft bolt to specified torque.

16. INSTALLATION OF 5TH SPEED SHIFT FORK / 15. 5TH SPEED SYNCHRONIZER ASSEMBLY

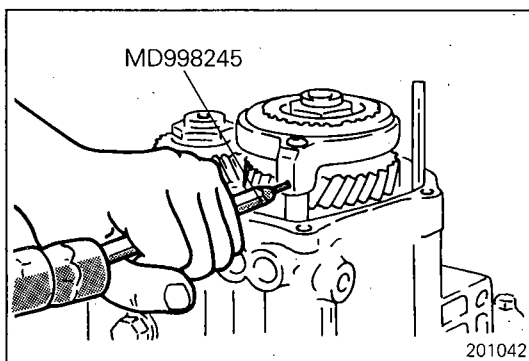
Install the 5th speed shift fork and the 5th speed synchronizer assembly at the same time.

**14. 13. INSTALLATION OF LOCK NUTS**

- (1) Install the special tool to the splined end of input shaft.
- (2) Screw a bolt [10 mm (.40 in.)] in to the hole on the periphery of clutch housing and attach a spinner handle to the special tool.



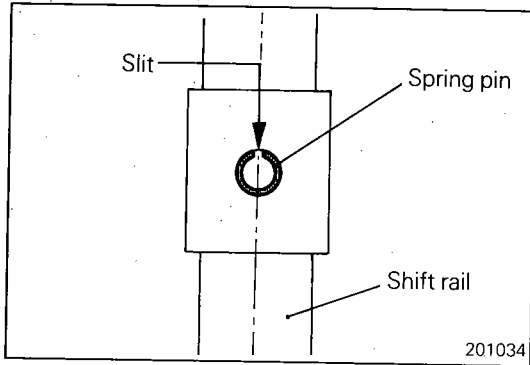
- (3) Shift the transaxle in reverse using control lever and select lever.
- (4) Tighten the lock nut to specified torque, while using the bolt attached in the above step as a spinner handle stopper.
- (5) Stake the lock nut.

**12. INSTALLATION OF SPRING PIN**

- (1) Install the spring pin using the special tool or a pin punch.

Caution

Do not reuse the spring pins.

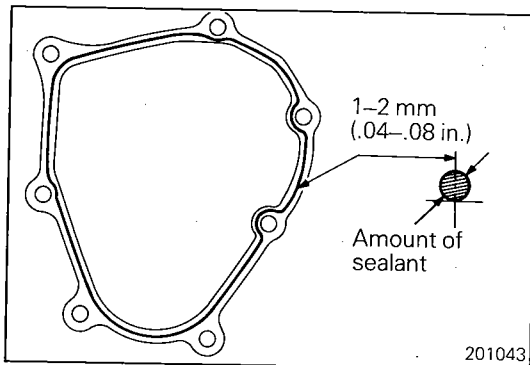


- (2) When installing, make sure that the slit of the spring pin is aligned with the shift rail center line.

11. APPLICATION OF SEALANT TO AIR BREATHER

Apply specified sealant to air breather mounting portion and install to the clutch housing.

Specified sealant: 3M SUPER WEATHERSTRIP No. 8001 or equivalent



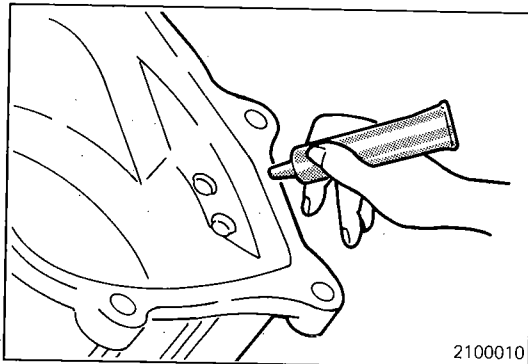
2. APPLICATION OF SEALANT TO REAR COVER

Apply specified sealant to the rear cover.

**Specified sealant: MITSUBISHI genuine sealant
Part Number MD997740 or equivalent**

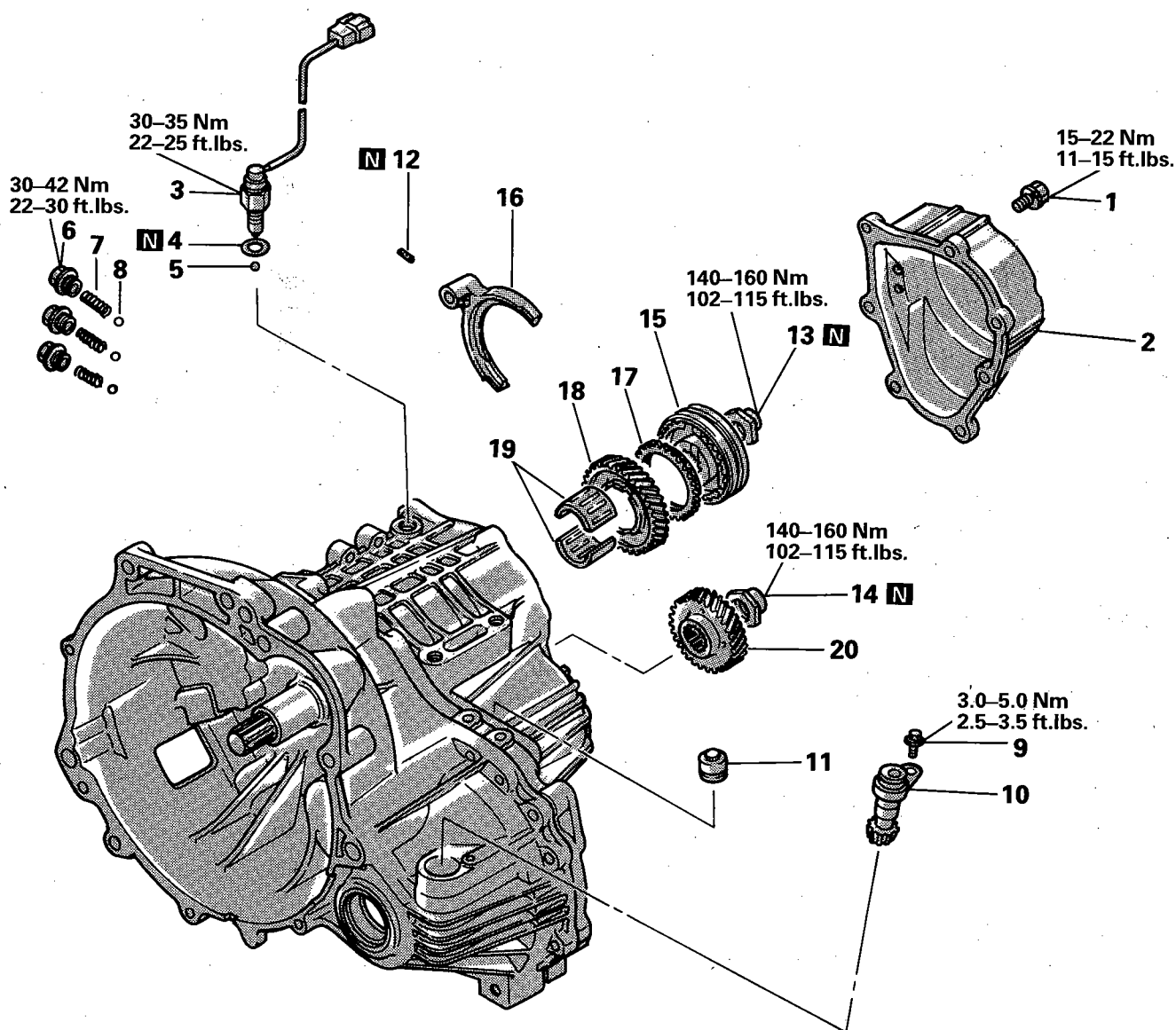
Caution

Squeeze out sealant from the tube uniformly without excess or discontinuity.



TRANSAXLE ASSEMBLY <KM210>

DISASSEMBLY AND REASSEMBLY



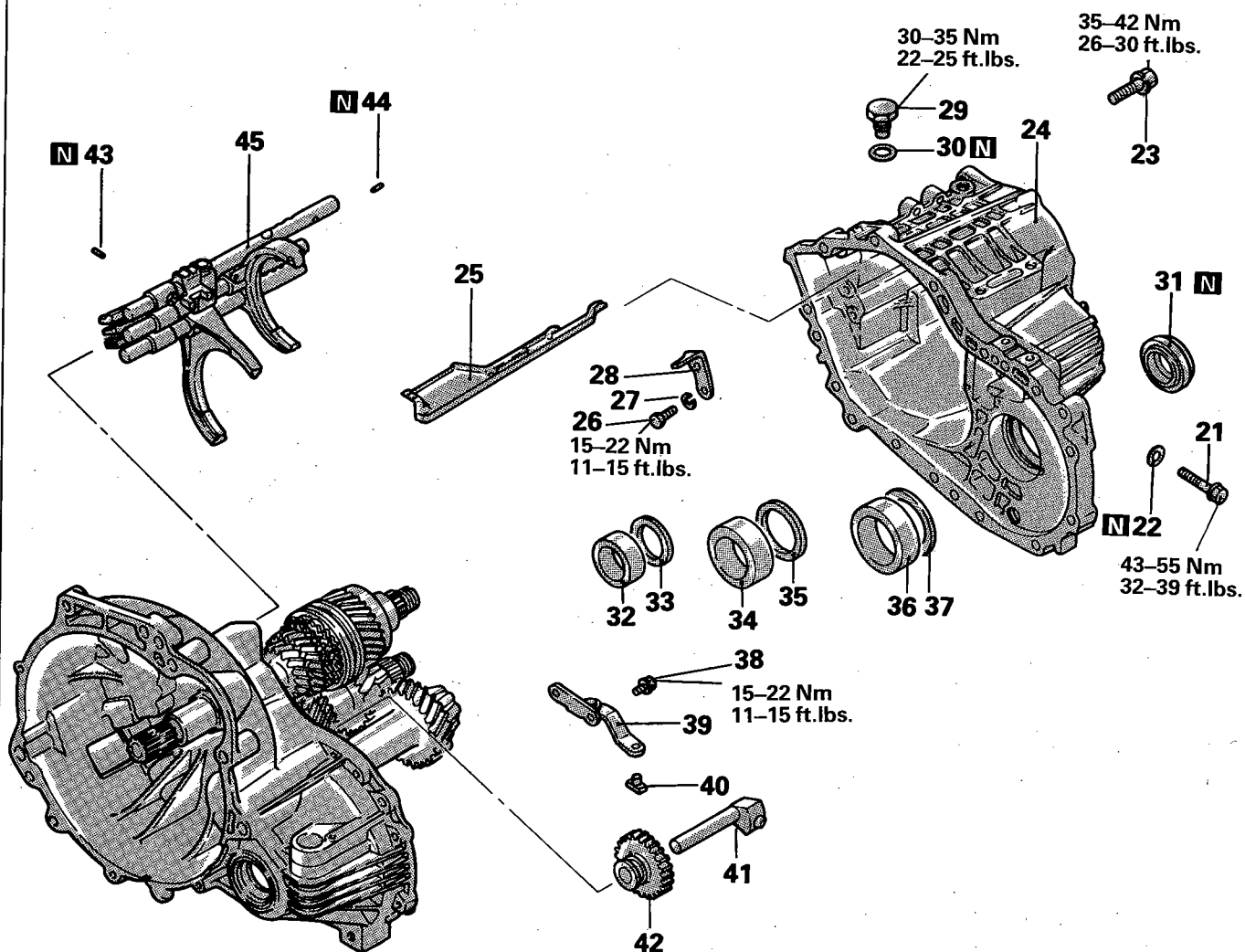
Disassembly steps

- 1. Bolt
- ◆◆ 2. Rear cover
- 3. Backup light switch
- 4. Gasket
- 5. Steel ball
- 6. Poppet plug
- 7. Poppet spring
- 8. Poppet ball
- 9. Bolt
- 10. Speedometer driven gear assembly
- ◆◆ 11. Air breather
- ◆◆◆◆ 12. Spring pin
- ◆◆◆◆ 13. Lock nut

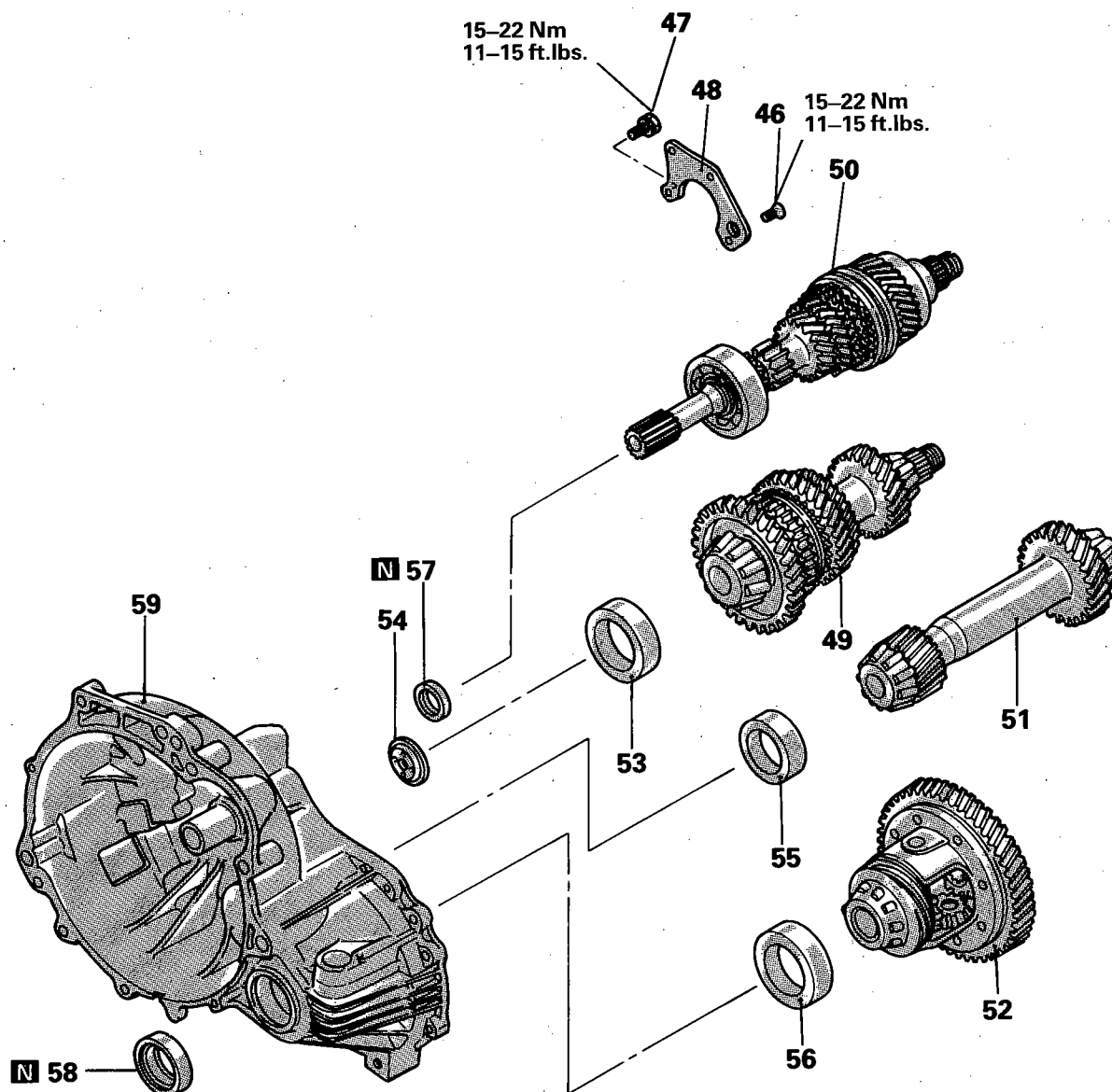
- ◆◆◆◆ 14. Lock nut
- ◆◆◆◆ 15. 5th speed synchronizer assembly
- ◆◆◆◆ 16. 5th speed shift fork
- 17. Synchronizer ring
- 18. 5th speed gear
- 19. Needle bearing
- 20. 5th speed intermediate gear

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆: Refer to "Service Points of Reassembly".
- (4) N: Non-reusable parts

**Disassembly steps**

- ♦♦ 21. Reverse idler gear shaft bolt
- ♦♦ 22. Gasket
- ♦♦ 23. Bolt
- ♦♦ 24. Transaxle case
- ♦♦ 25. Oil guide
- ♦♦ 26. Bolt
- ♦♦ 27. Spring washer
- ♦♦ 28. Stopper bracket
- ♦♦ 29. Restrict ball assembly
- ♦♦ 30. Gasket
- ♦♦ 31. Oil seal
- ♦♦ 32. Bearing outer race
- ♦♦ 33. Spacer
- ♦♦ 34. Bearing outer race
- ♦♦ 35. Spacer
- ♦♦ 36. Bearing outer race
- ♦♦ 37. Spacer
- ♦♦ 38. Bolt
- ♦♦ 39. Reverse shift lever assembly
- ♦♦ 40. Reverse shift lever shoe
- ♦♦ 41. Reverse idler gear shaft
- ♦♦ 42. Reverse idler gear
- ♦♦ 43. Spring pin
- ♦♦ 44. Spring pin
- ♦♦ 45. Shift rail assembly

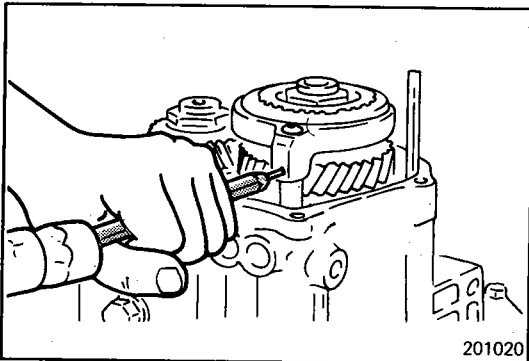
**Disassembly steps**

- ♦♦ 46. Bolt
- ♦♦ 47. Bolt
- ♦♦ 48. Bearing retainer
- ♦♦♦ 49. Intermediate gear assembly
- ♦♦♦ 50. Input shaft assembly
- ♦♦♦ 51. Output shaft assembly
- ♦♦♦ 52. Differential gear assembly
- ♦♦♦ 53. Bearing outer race
- ♦♦♦ 54. Oil guide
- ♦♦♦ 55. Bearing outer race
- ♦♦♦ 56. Bearing outer race

- ♦♦ 57. Oil seal
- ♦♦ 58. Oil seal
- ♦♦ 59. Clutch housing assembly

NOTE

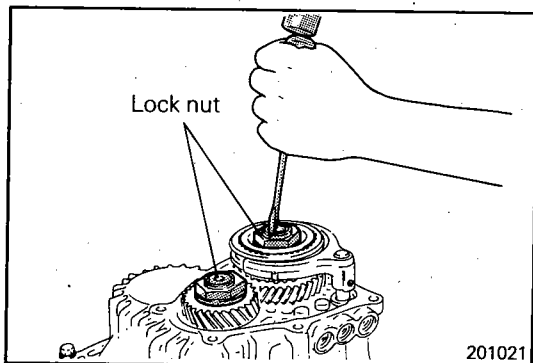
- (1) Reverse the disassembly procedures to reassemble.
- (2) ♦♦♦: Refer to "Service Points of Disassembly".
- (3) ♦♦♦: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts



201020

SERVICE POINTS OF DISASSEMBLY**12. REMOVAL OF SPRING PIN**

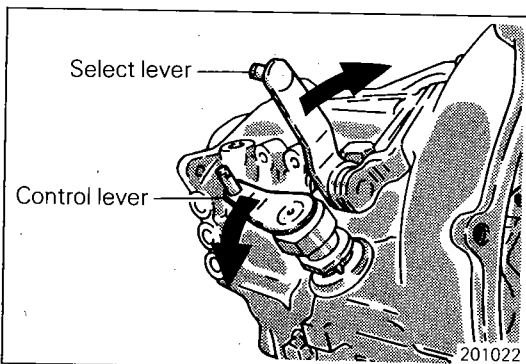
Remove the spring pin using a pin punch.



201021

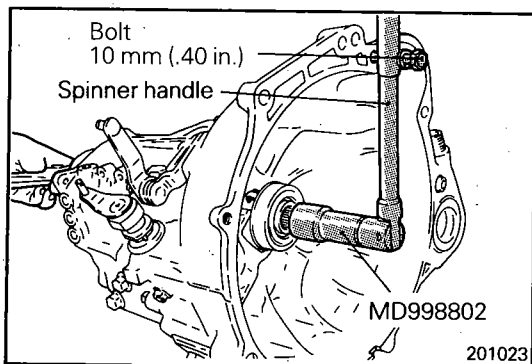
13. 14. REMOVAL OF LOCK NUTS

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



201022

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



201023

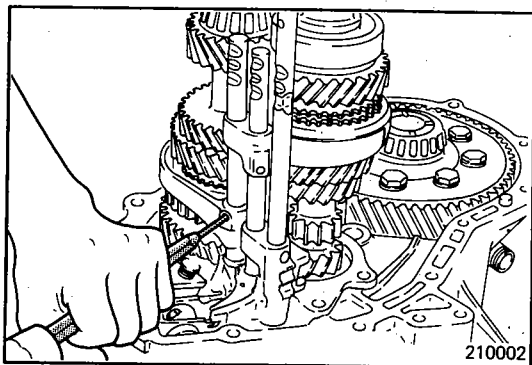
(3) Install the special tool onto the input shaft.

(4) Screw a bolt [10 mm (.40 in.)] into the hole on the periphery of clutch housing and attach a spinner handle to the special tool.

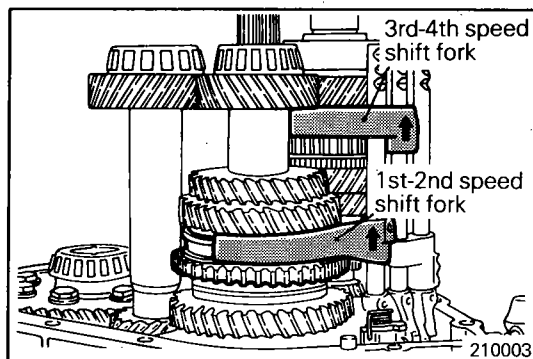
(5) Remove the lock nut, while using the bolt as a spinner handle stopper.

43. 44. REMOVAL OF SPRING PINS

Remove the spring pins for 1st-2nd and 3rd-4th speed shift forks using a pin punch.

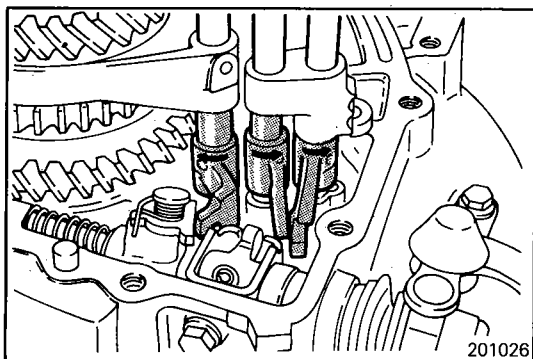


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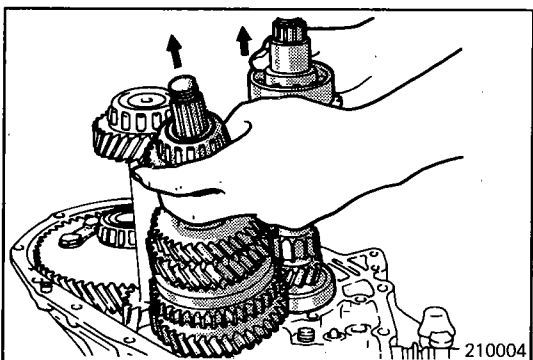


45. REMOVAL OF SHIFT RAIL ASSEMBLY

- (1) Shift the 1st-2nd speed shift fork to the 2nd speed.
- (2) Shift the 3rd-4th speed shift fork to the 4th speed.

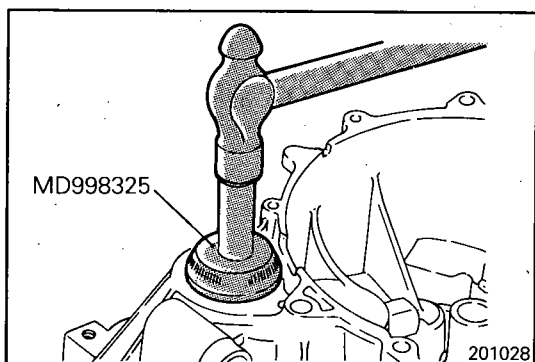


- (3) Remove the shift rail assembly.



49. REMOVAL OF INTERMEDIATE GEAR ASSEMBLY

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

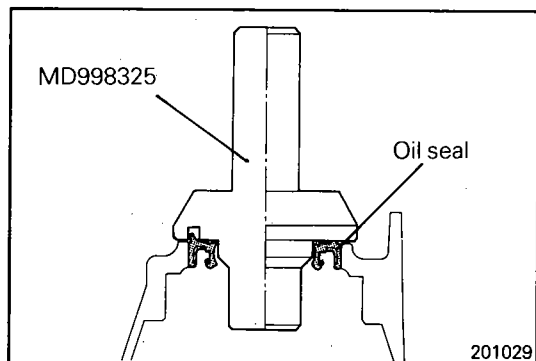


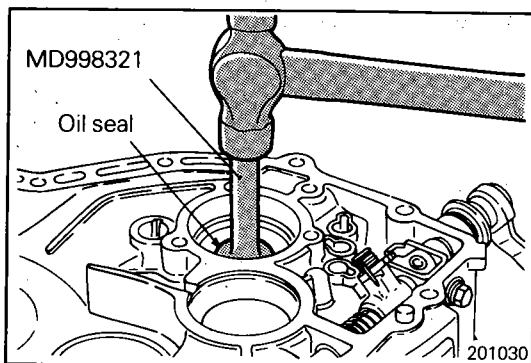
SERVICE POINTS OF REASSEMBLY

N21MGAF

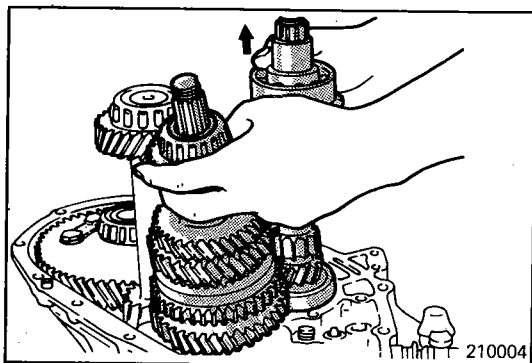
58. INSTALLATION OF OIL SEAL

Install the drive shaft oil seal using the special tool.



**57. INSTALLATION OF OIL SEAL**

Install the input shaft front oil seal using the special tool.

**49. INSTALLATION OF INTERMEDIATE GEAR ASSEMBLY / 50. INPUT SHAFT ASSEMBLY**

Lifting up the input shaft assembly, install it simultaneously with the intermediate gear assembly.

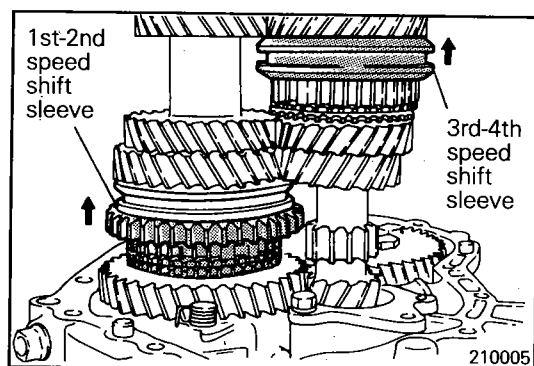
46. APPLICATION OF SEALANT TO BOLT

Apply specified sealant to the bolt threads up to approximately 5 mm (.2 in.) from the end and tighten the bolt.

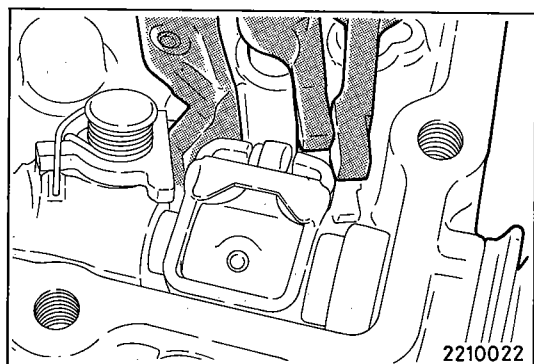
Caution

Do not apply to the bolt head.

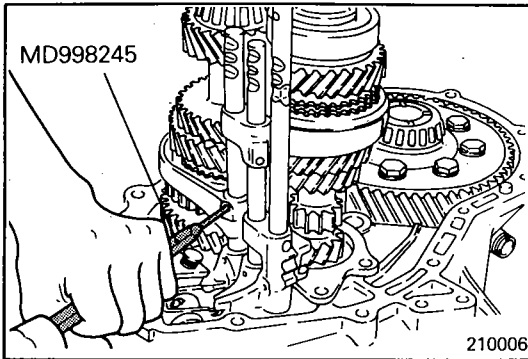
Specified sealant: 3M STUD Locking No. 4170

**45. INSTALLATION OF SHIFT RAIL ASSEMBLY**

- (1) Set the 1st-2nd speed shift sleeve at 2nd speed.
- (2) Set the 3rd-4th speed shift sleeve at 4th speed.
- (3) Install the shift forks to respective sleeves.



- (4) Insert the shift rail into the shift fork hole, while turning so as to prevent the shift lug from interfering with the stopper plate.
- (5) Turn the shift rail to engage shift lug.

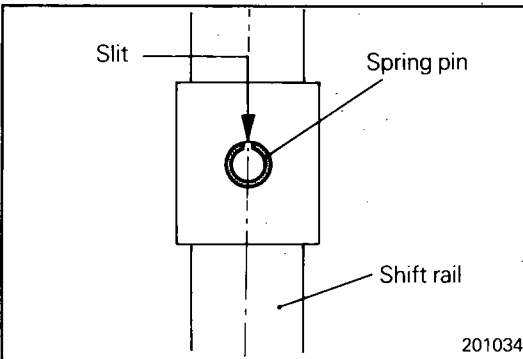


43. 44. INSTALLATION OF SPRING PINS

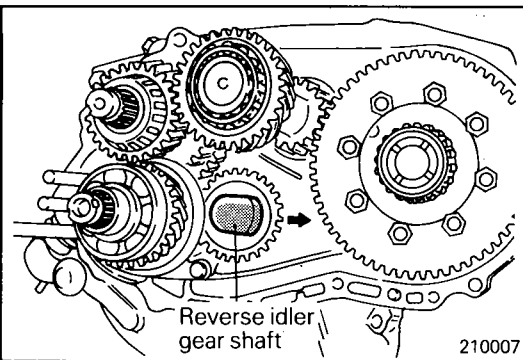
- (1) Install the spring pins using the special tool or a pin punch.

Caution

Do not reuse the spring pins.

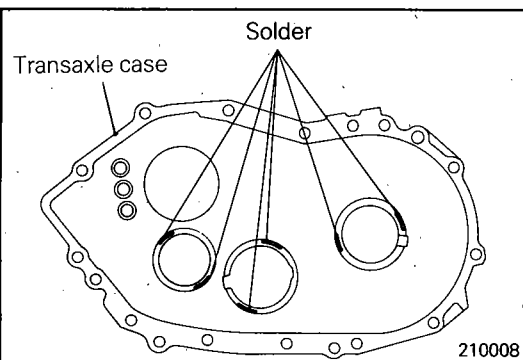


- (2) When installing, make sure that the slit of the spring pin is aligned with the shift rail center line.



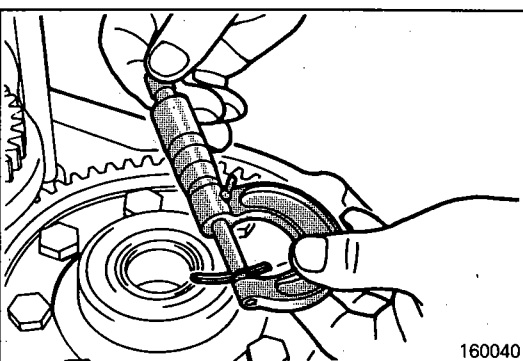
41. INSTALLATION OF REVERSE IDLER GEAR SHAFT

Install in the direction illustrated.



33. 35. 37. INSTALLATION OF SPACERS

- (1) Place two pieces of solder measuring about 10 mm (.4 in.) in length and 3 mm (.12 in.) in diameter as illustrated and install the outer races.
- (2) Install the transaxle case and tighten the bolts to specified torque.
- (3) Remove the transaxle case.
- (4) Remove the outer races and remove the solder.



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

Standard value:

Intermediate gear

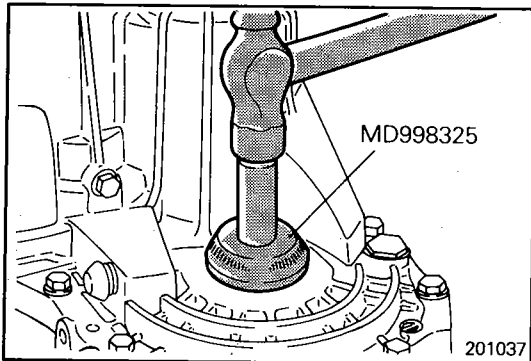
0.05 – 0.10 mm (.002 – .004 in.)

Output shaft

0.05 – 0.10 mm (.002 – .004 in.)

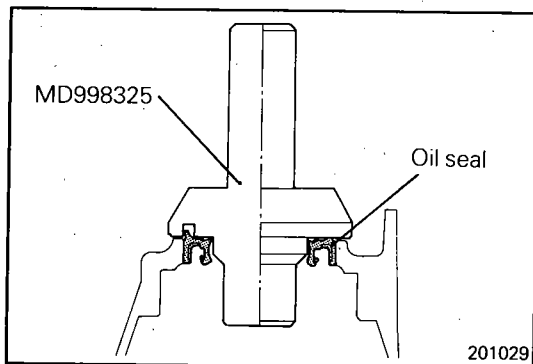
Differential case

0.05 – 0.10 mm (.002 – .004 in.)



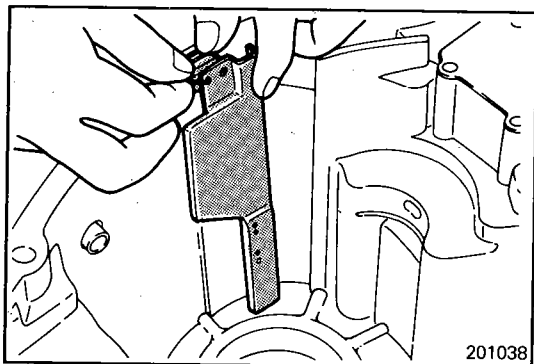
31. INSTALLATION OF OIL SEAL

Install the drive shaft oil seal using the special tool.



25. INSTALLATION OF OIL GUIDE

Install the oil guide to the transaxle case as illustrated.



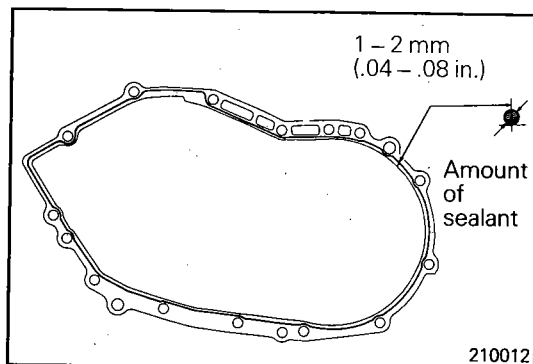
24. APPLICATION OF SEALANT TO TRANSAXLE CASE

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

**Specified sealant: MITSUBISHI genuine sealant
Part Number MD997740 or equivalent**

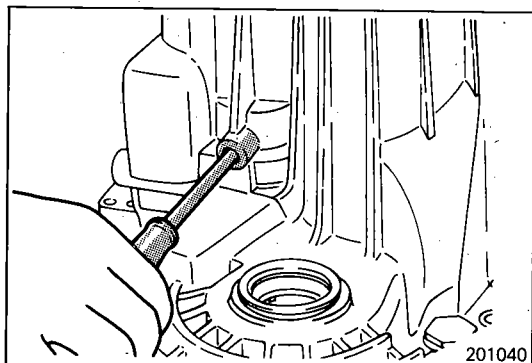
Caution

Squeeze out sealant from the tube uniformly without excess or discontinuity.



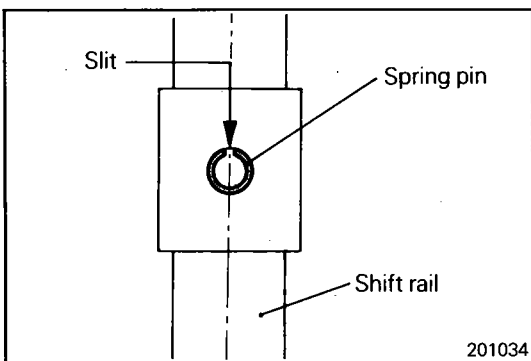
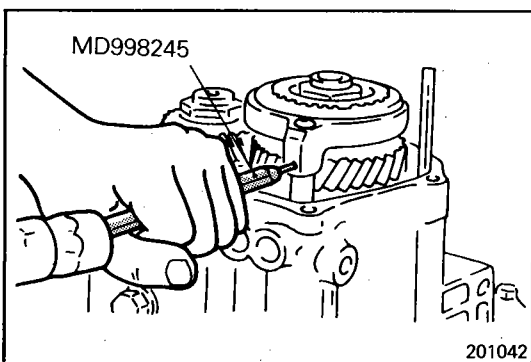
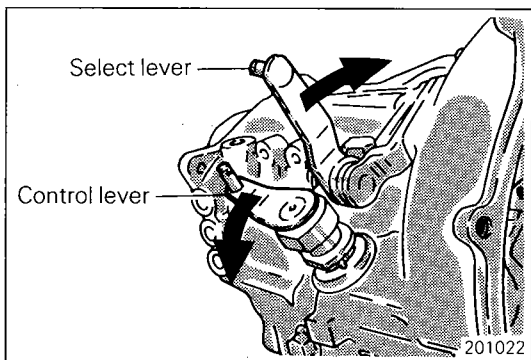
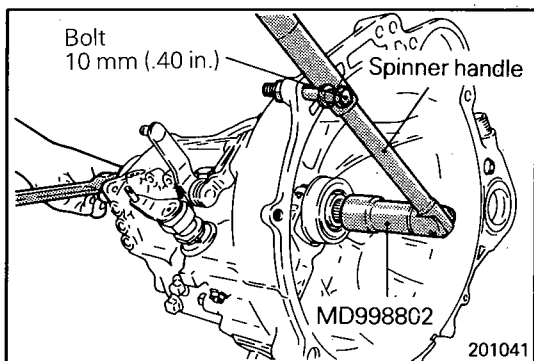
21. INSTALLATION OF REVERSE IDLER GEAR SHAFT BOLT

- (1) Center the shaft with a Phillips screwdriver [shaft diameter 8 mm (.32 in.)] or the like.
- (2) Tighten the reverse idler gear shaft bolt to specified torque.



16. INSTALLATION OF 5TH SPEED SHIFT FORK / 15. 5TH SPEED SYNCHRONIZER ASSEMBLY

Install the 5th speed shift fork and the 5th speed synchronizer assembly at the same time.

**14. 13. INSTALLATION OF LOCK NUTS**

- (1) Install the special tool to the splined end of input shaft.
- (2) Screw a bolt [10 mm (.40 in.)] into the hole on the periphery of clutch housing and attach a spinner handle to the special tool.

- (3) Shift the transaxle in reverse using control lever and select lever.
- (4) Tighten the lock nut to specified torque, while using the bolt attached in the above step as a spinner handle stopper.
- (5) Stake the lock nut.

12. INSTALLATION OF SPRING PIN

- (1) Install the spring pin using the special tool or a pin punch.

Caution

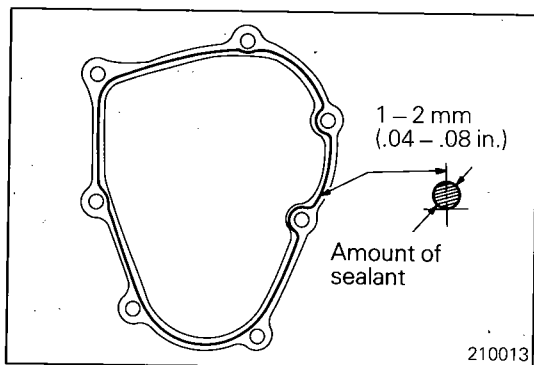
Do not reuse the spring pins.

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

11. APPLICATION OF SEALANT TO AIR BREATHER

Apply specified sealant to air breather mounting portion and install to the clutch housing.

Specified sealant: 3M SUPER WEATHERSTRIP No. 8001 or equivalent

**2. APPLICATION OF SEALANT TO REAR COVER**

Apply specified sealant to the rear cover.

**Specified sealant: MITSUBISHI genuine sealant
Part Number MD997740 or equivalent**

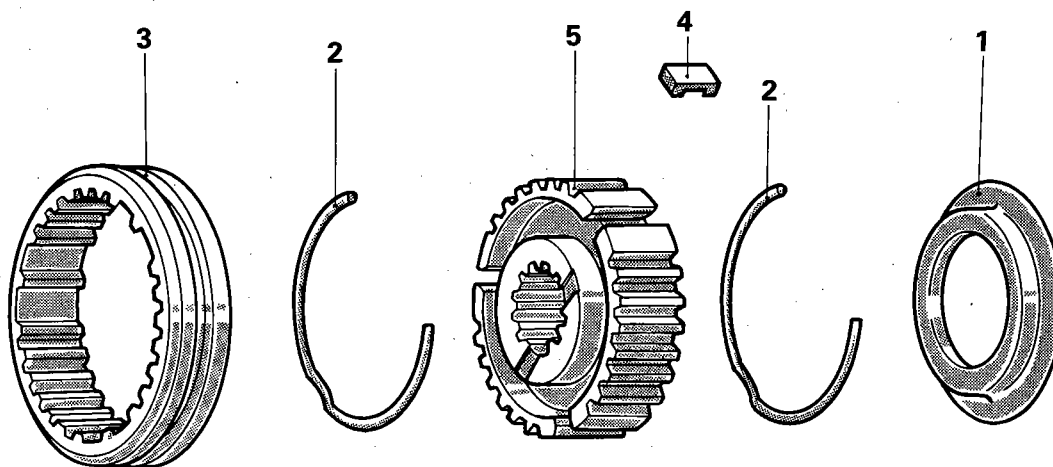
Caution

Squeeze out sealant from the tube uniformly without excess or discontinuity.

5TH SPEED SYNCHRONIZER ASSEMBLY <KM201, KM206, KM210>

N21MHAAa

DISASSEMBLY AND REASSEMBLY



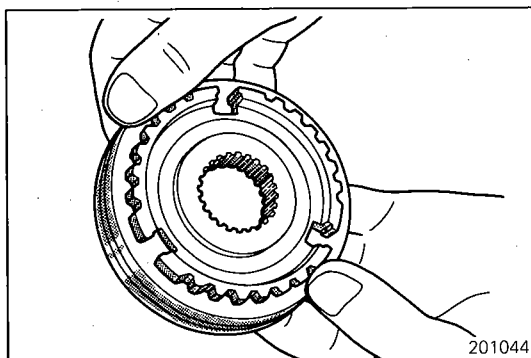
Disassembly steps

- 1. Stop plate
- ◆◆ 2. Synchronizer spring
- ◆◆ 3. Synchronizer sleeve
- ◆◆ 4. Synchronizer key
- ◆◆ 5. Synchronizer hub

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Reassembly".

201090



201044

INSPECTION

SYNCHRONIZER SLEEVE AND HUB

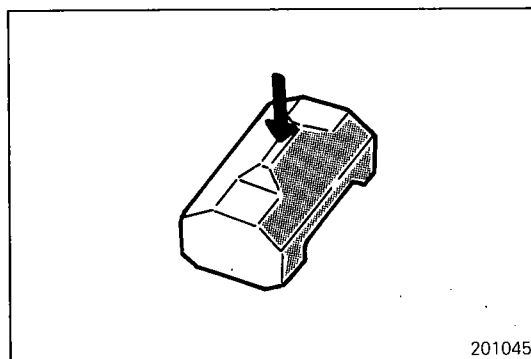
- Combine the synchronizer sleeve and hub and check that they slide smoothly.
- Check that the sleeve is free from damage at its inside front and rear ends.
- Check for wear of the hub front end (surface in contact with the 5th speed gear).

Caution

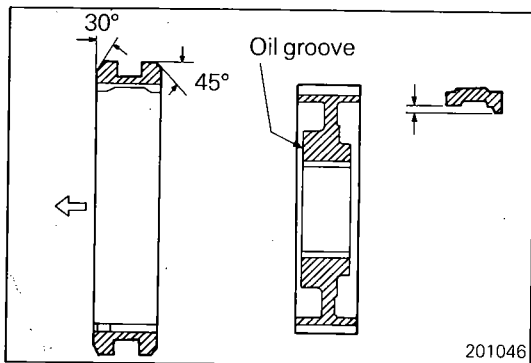
When replacing, replace the synchronizer hub and sleeve as a set.

SYNCHRONIZER KEY AND SPRING

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



201045



SERVICE POINTS OF REASSEMBLY

5. INSTALLATION OF SYNCHRONIZER HUB / 4. SYNCHRONIZER KEY / 3. SYNCHRONIZER SLEEVE

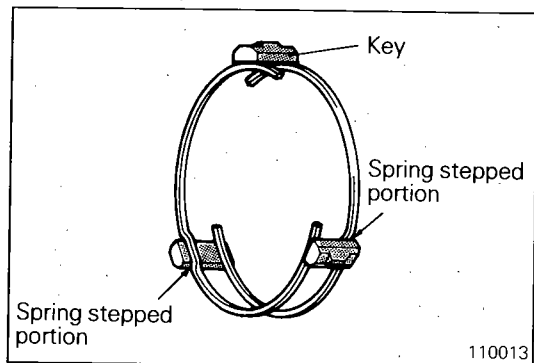
Assemble the synchronizer hub, sleeve and key noting their direction.

2. INSTALLATION OF SYNCHRONIZER SPRING

Install the synchronizer spring in such a way that its stepped portions will rest on the synchronizer keys.

Caution

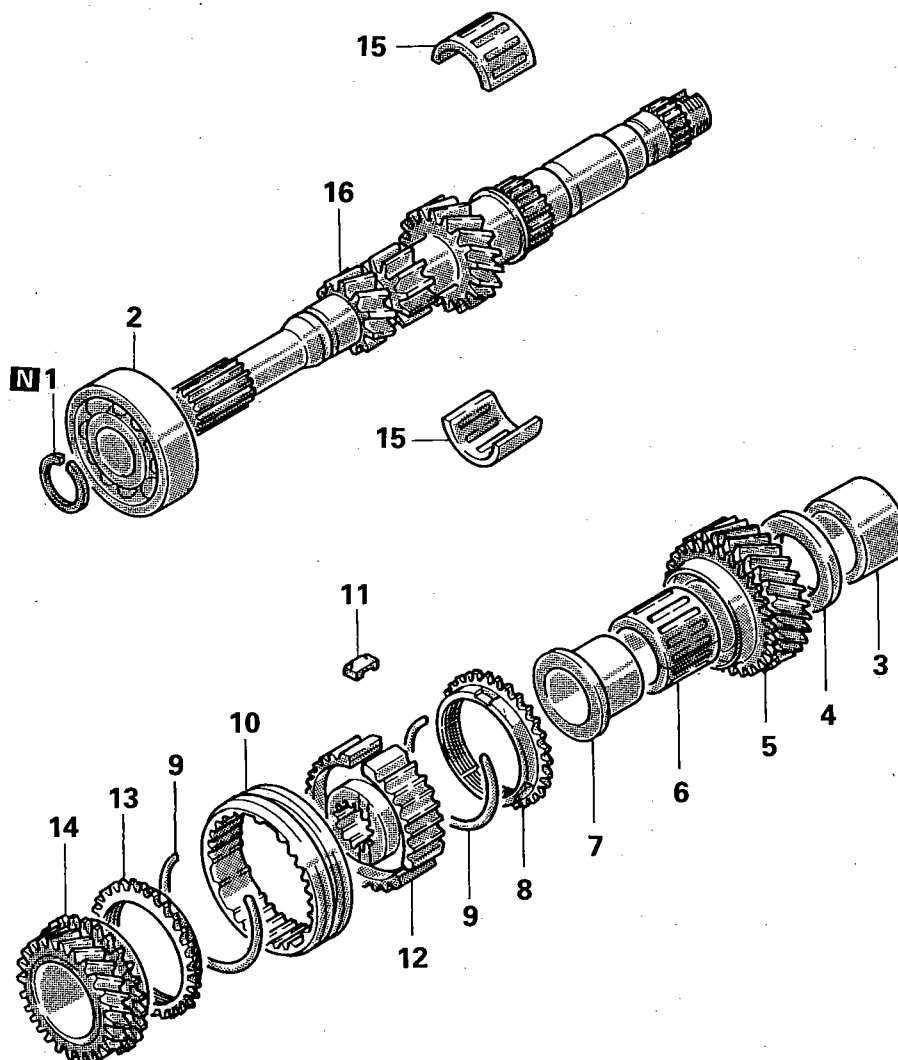
When installing the synchronizer springs, make sure that the front and rear ones are not faced in same direction.



INPUT SHAFT ASSEMBLY <KM200, KM201>

N21MIAAa

DISASSEMBLY AND REASSEMBLY



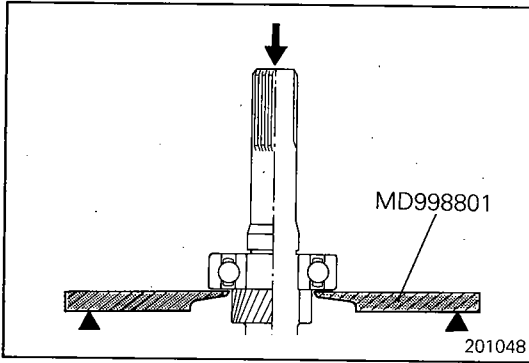
Disassembly steps

- ◆◆ 1. Snap ring
- ◆◆◆ 2. Ball bearing
- ◆◆ 3. Inner ring (rear bearing)
- ◆◆ 4. Spacer
- ◆◆ 5. 4th speed gear
- ◆◆ 6. Needle bearing
- ◆◆ 7. Bearing sleeve
- ◆◆ 8. Synchronizer ring
- ◆◆ 9. Synchronizer spring
- ◆◆ 10. 3rd-4th speed synchronizer sleeve
- ◆◆ 11. Synchronizer key

- ◆◆ 12. 3rd-4th speed synchronizer hub
- 13. Synchronizer ring
- ◆◆ 14. 3rd speed gear
- ◆◆ 15. Needle bearing
- 16. Input shaft

NOTE

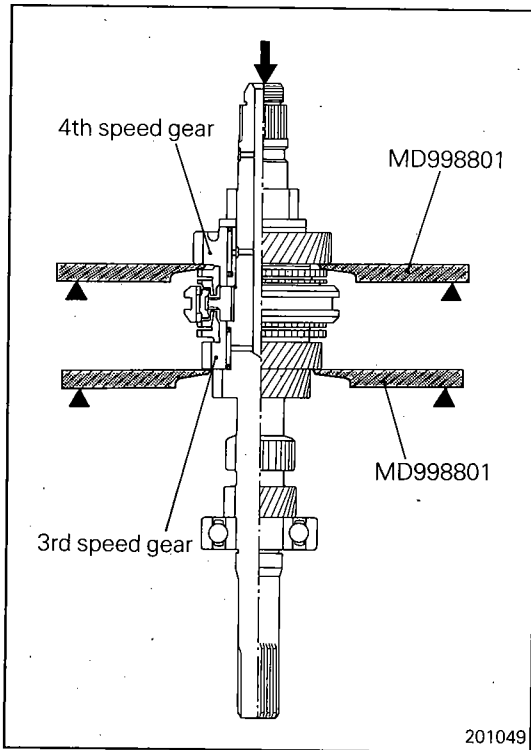
- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆: Refer to "Service Points of Reassembly".
- (4) N: Non-reusable parts.



SERVICE POINTS OF DISASSEMBLY

2. REMOVAL OF BALL BEARING

Remove the front bearing using the special tool.



5. REMOVAL OF 4TH SPEED GEAR

Remove the 4th speed gear together with spacer and inner ring using the special tool as illustrated.

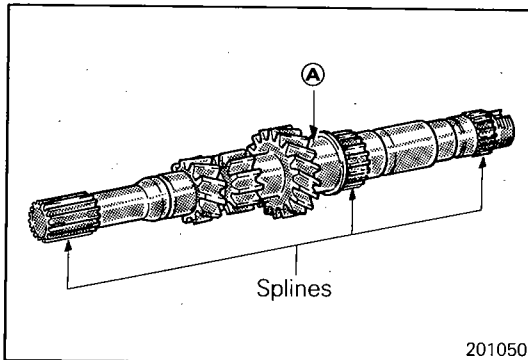
14. REMOVAL OF 3RD SPEED GEAR

Remove the 3rd speed gear together with 3rd-4th speed synchronizer assembly and bearing sleeve using the special tool as illustrated.

INSPECTION

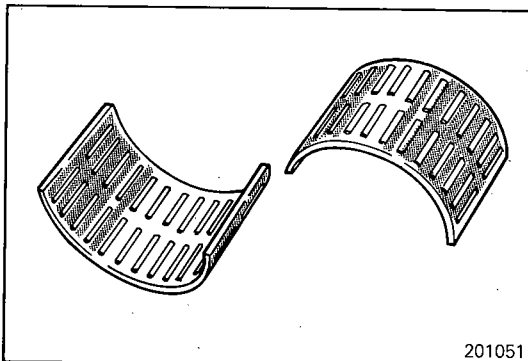
INPUT SHAFT

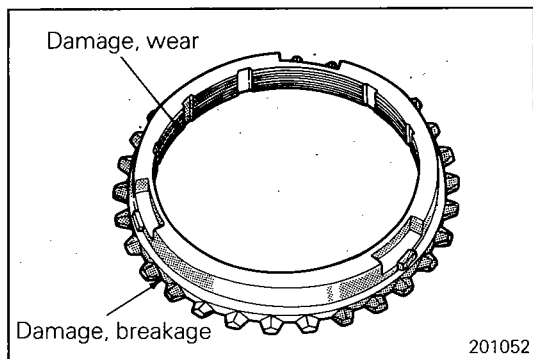
- Check the outer surface of the input shaft where the needle bearing is mounted for damage, abnormal wear and seizure [portion **A**].
- Check the splines for damage and wear.



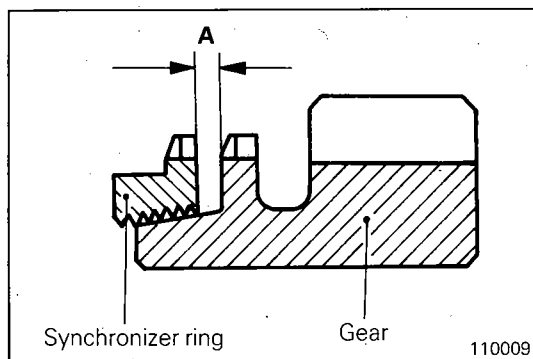
NEEDLE BEARING

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



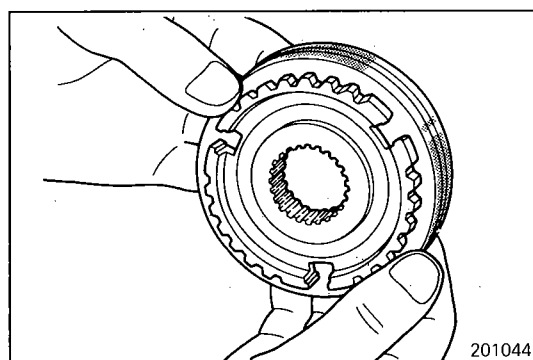
**SYNCHRONIZER RING**

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



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

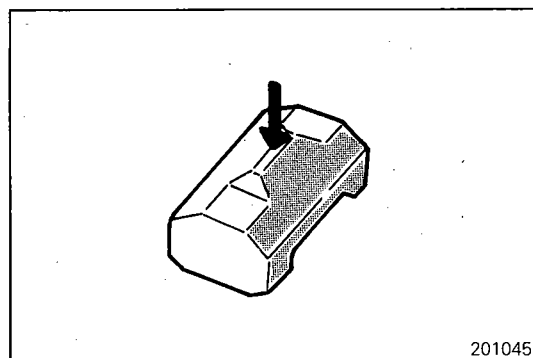
Limit: 0.5 mm (.02 in.)

**SYNCHRONIZER SLEEVE AND HUB**

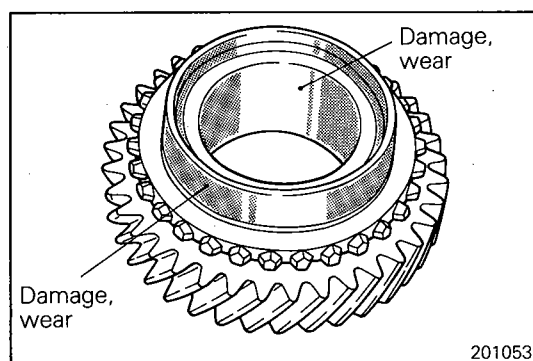
- Combine the synchronizer sleeve and hub and check that they slide smoothly.
- Check that the sleeve is free from damage at its inside front and rear ends.
- Check for wear of the hub end surfaces (in contact with each speed gear).

Caution

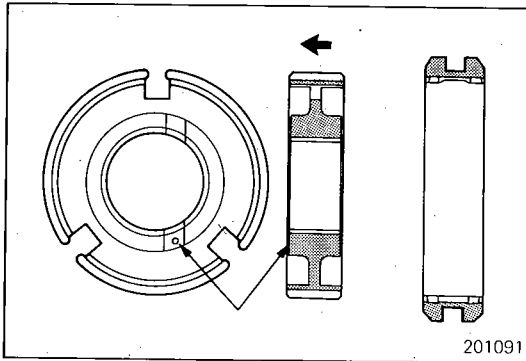
When replacing, replace the synchronizer hub and sleeve as a set.

**SYNCHRONIZER KEY AND SPRING**

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

**SPEED GEARS**

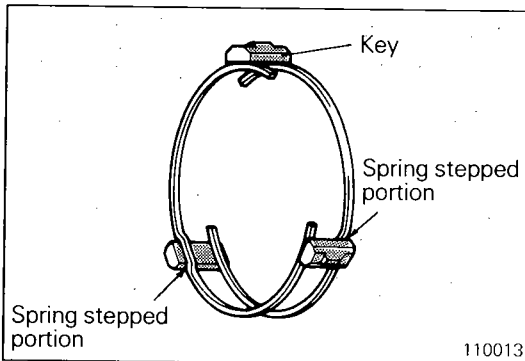
- Check the synchronizer cone for rough surface, damage and wear.
- Check the gear bore and front and rear ends for damage and wear.



SERVICE POINTS OF REASSEMBLY

12. INSTALLATION OF 3RD-4TH SPEED SYNCHRONIZER HUB / 11. SYNCHRONIZER KEY / 10. 3RD-4TH SPEED SYNCHRONIZER SLEEVE

Install the synchronizer hub and sleeve in the direction as illustrated.



9. INSTALLATION OF SYNCHRONIZER SPRING

- (1) Install the synchronizer spring in such a way that its stepped portions will rest on the synchronizer keys.

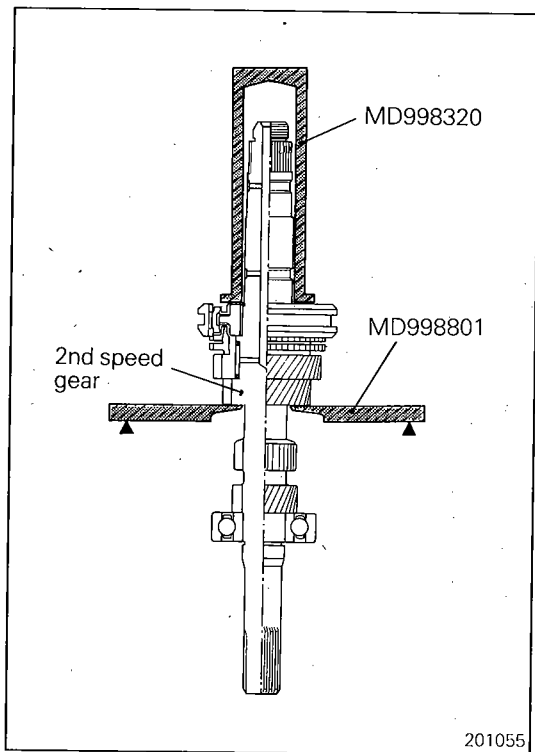
Caution

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

- (2) Install the 3rd-4th speed synchronizer assembly over the input shaft using the special tools.

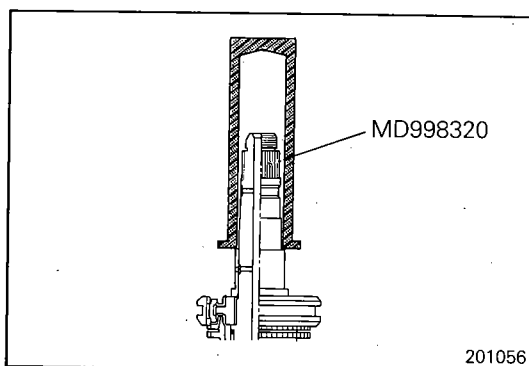
Caution

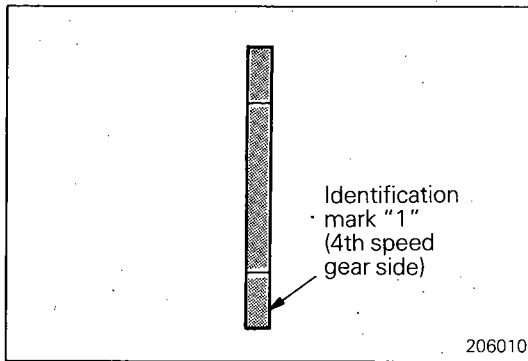
1. When installing the synchronizer assembly, make sure that three synchronizer keys are seated correctly in respective grooves of the synchronizer ring.
2. After installation of the synchronizer assembly, check that the 3rd speed gear rotates smoothly.



7. INSTALLATION OF BEARING SLEEVE

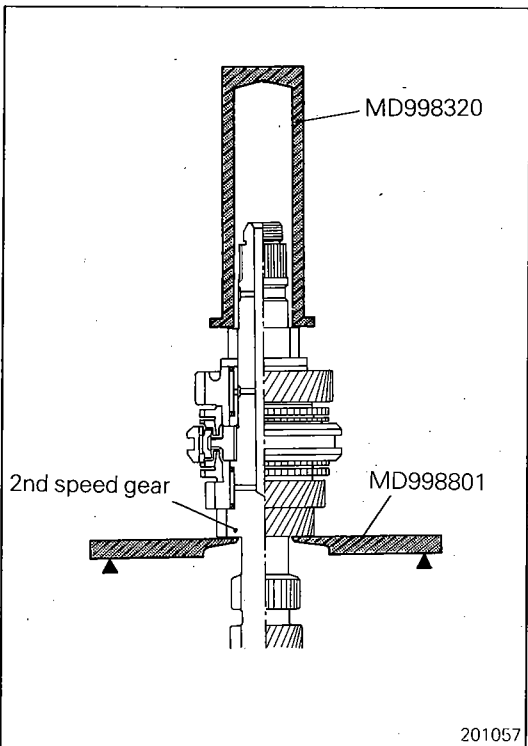
Use the special tool as illustrated.





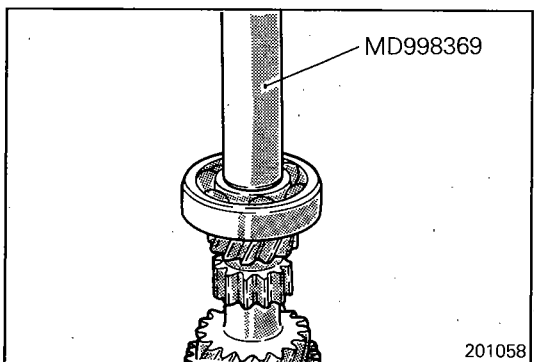
4. INSTALLATION OF SPACER

Install with the side having the identification mark "1" on the 4th speed gear side. Spacers without identification mark may be installed in either direction.



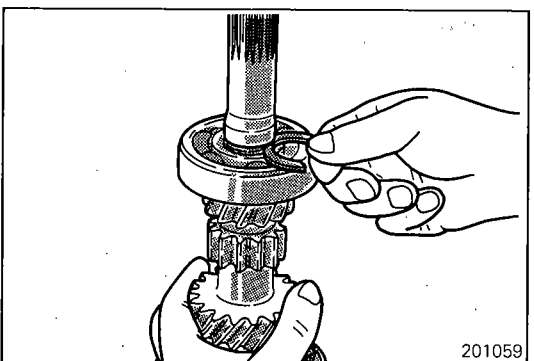
3. INSTALLATION OF INNER RING (REAR BEARING)

Install the inner ring over the input shaft using the special tools.



2. INSTALLATION OF BALL BEARING

Install the ball bearing over the input shaft using the special tool.



1. INSTALLATION OF SNAP RING

Snap rings are available in three different thickness. Select the thickest one that fits in the snap ring groove.

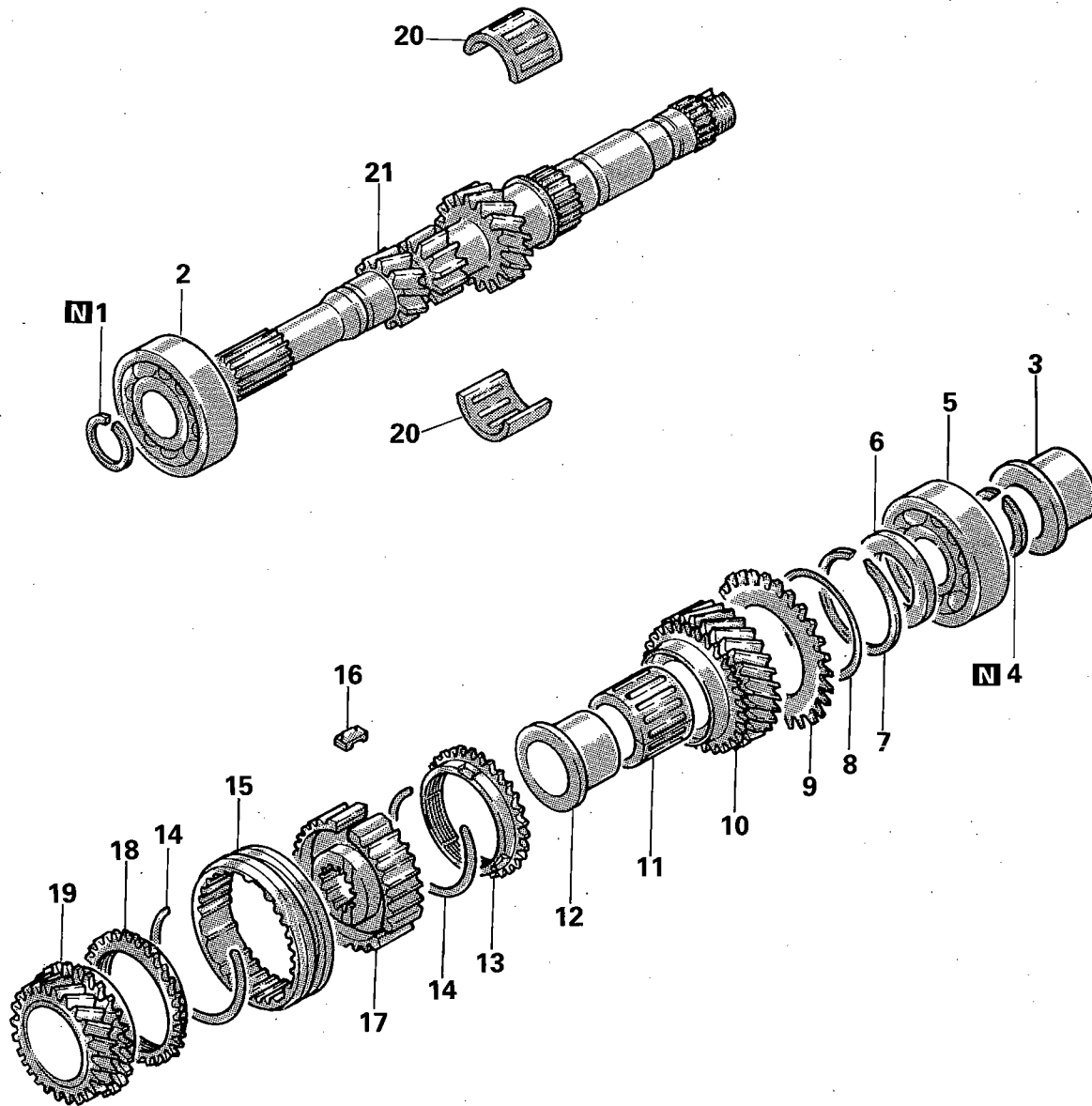
Caution

Do not cause damage to the input shaft oil seal contacting portion.

INPUT SHAFT ASSEMBLY <KM206, KM210>

N21MIAH

DISASSEMBLY AND REASSEMBLY



Disassembly steps

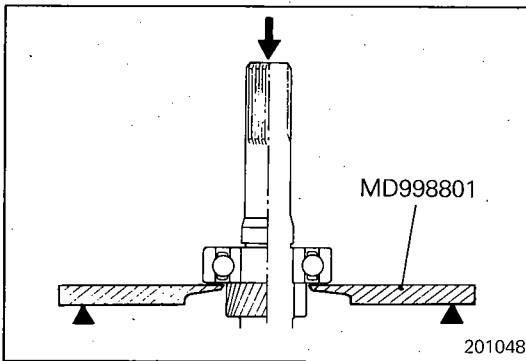
- ◆◆ 1. Snap ring
- ◆◆◆ 2. Ball bearing
- ◆◆ 3. Bearing sleeve
- ◆◆ 4. Snap ring <KM206> (Select)
- ◆◆ 5. Ball bearing
- ◆◆ 6. Spacer
- ◆◆ 7. Snap ring <KM210>
- ◆◆ 8. Cone spring <KM210>
- ◆◆ 9. Subgear <KM210>
- 10. 4th speed gear
- ◆◆ 11. Needle bearing
- ◆◆ 12. Bearing sleeve
- 13. Synchronizer ring

- ◆◆ 14. Synchronizer spring
- ◆◆ 15. 3rd-4th speed synchronizer sleeve
- ◆◆ 16. Synchronizer key
- ◆◆ 17. 3rd-4th speed synchronizer hub
- ◆◆ 18. Synchronizer ring
- ◆◆ 19. 3rd speed gear
- ◆◆ 20. Needle bearing
- ◆◆ 21. Input shaft

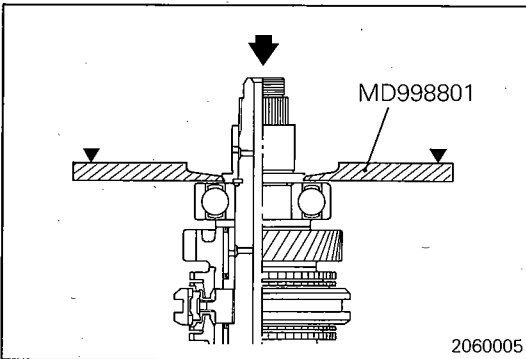
2060004

NOTE

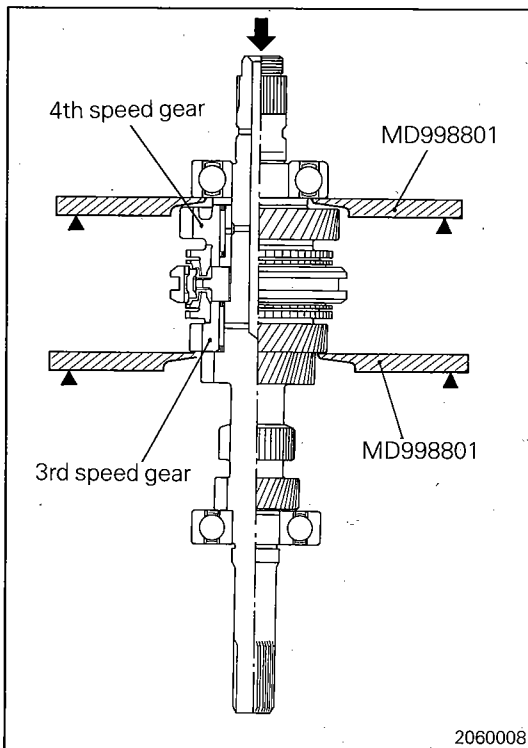
- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆: Refer to "Service Points of Reassembly".
- (4) [N]: Non-reusable parts

**SERVICE POINTS OF DISASSEMBLY****2. REMOVAL OF BALL BEARING**

Remove the front bearing using the special tool as illustrated.

**3. REMOVAL OF BEARING SLEEVE**

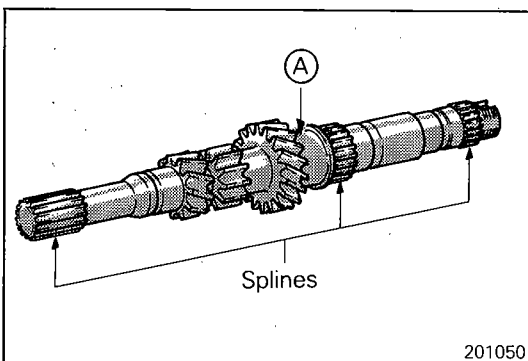
Remove the bearing sleeve using the special tool as illustrated.

**5. REMOVAL OF BALL BEARING**

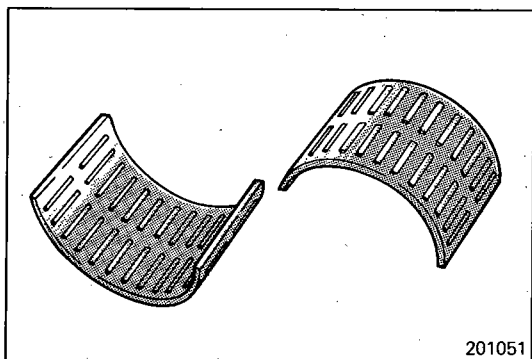
Remove the ball bearing together using the special tool as illustrated.

19. REMOVAL OF 3RD SPEED GEAR

Remove the bearing sleeve, 3rd-4th speed synchronizer assembly and 3rd speed gear together using the special tool as illustrated.

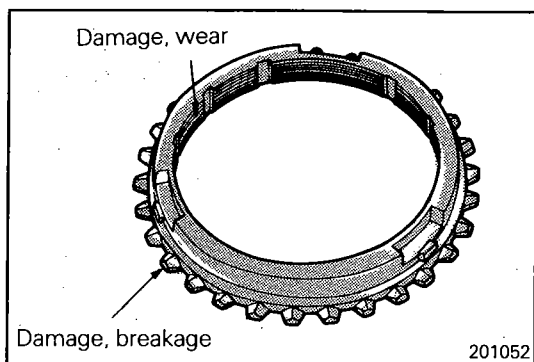
**INSPECTION****INPUT SHAFT.**

- Check the outer surface of the input shaft where the needle bearing is mounted for damage, abnormal wear and seizure [portion A].
- Check the splines for damage and wear.



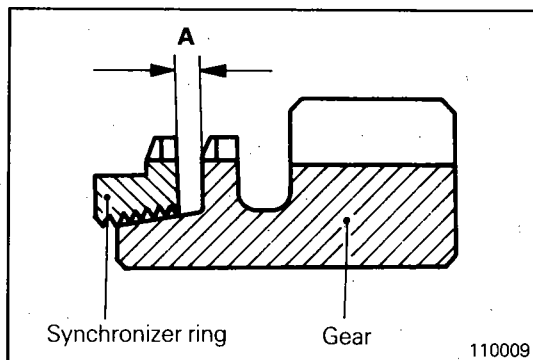
NEEDLE BEARING

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

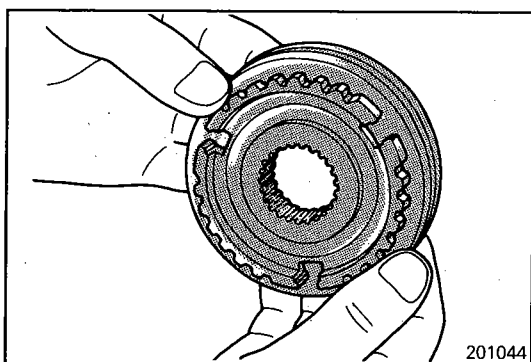


SYNCHRONIZER RING

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



- Force the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is out of specification.
Limit: 0.5 mm (.02 in.)



SYNCHRONIZER SLEEVE AND HUB

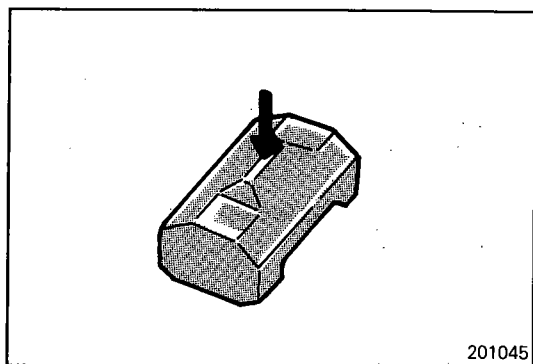
- Combine the synchronizer sleeve and hub and check that they slide smoothly.
- Check that the sleeve is free from damage at its inside front and rear ends.
- Check for wear of the hub end surfaces (in contact with each speed gear).

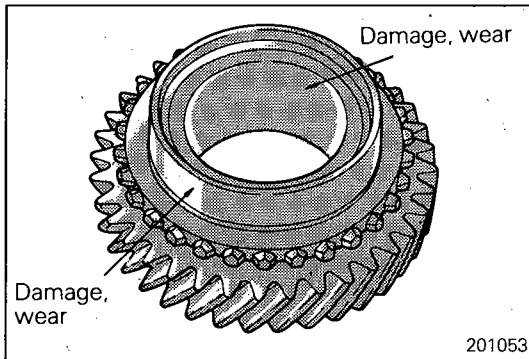
Caution

When replacing, replace the synchronizer hub and sleeve as a set.

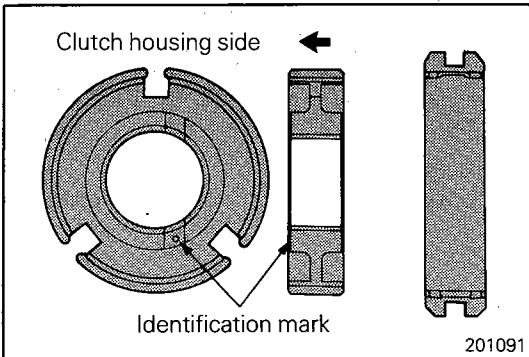
SYNCHRONIZER KEY AND SPRING

- Check for wear of the synchronizer key center protrusion.
- Check the spring for deterioration, deformation and breakage.

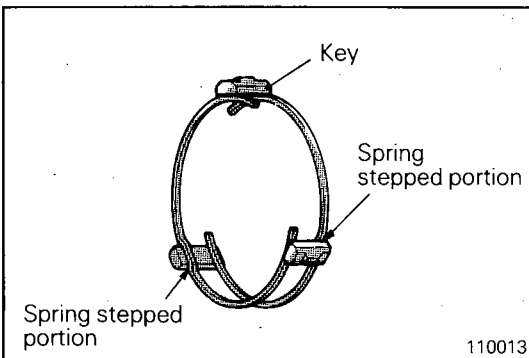


**SPEED GEARS**

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

**SERVICE POINTS OF REASSEMBLY****17. INSTALLATION OF 3RD-4TH SPEED SYNCHRONIZER HUB / 16. SYNCHRONIZER KEY / 15. 3RD-4TH SPEED SYNCHRONIZER SLEEVE**

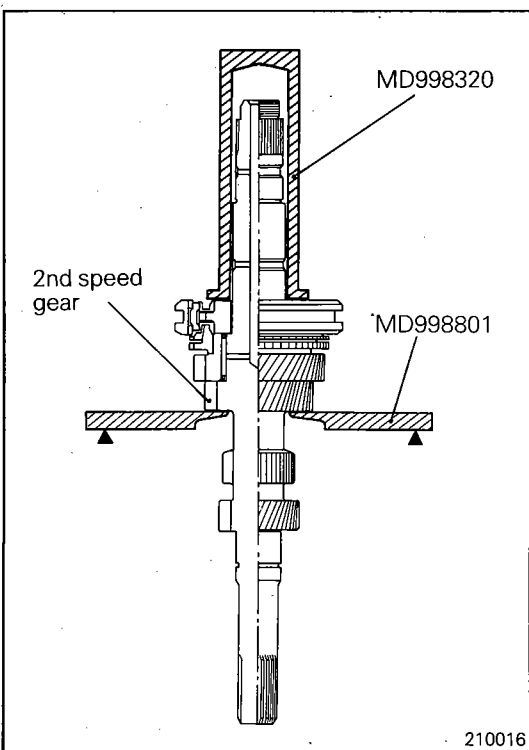
Install the synchronizer hub and sleeve in the direction as illustrated.

**14. INSTALLATION OF SYNCHRONIZER SPRING**

- (1) Install the synchronizer spring in such a way that its stepped portions will rest on the synchronizer keys.

Caution

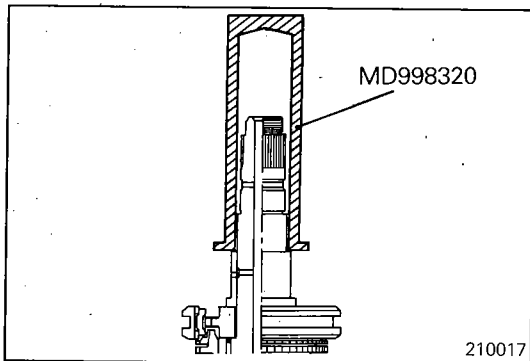
When installing the synchronizer springs, make sure that the front and rear ones are not faced in same direction.



- (2) Install the 3rd-4th speed synchronizer assembly over the input shaft using the special tool as illustrated.

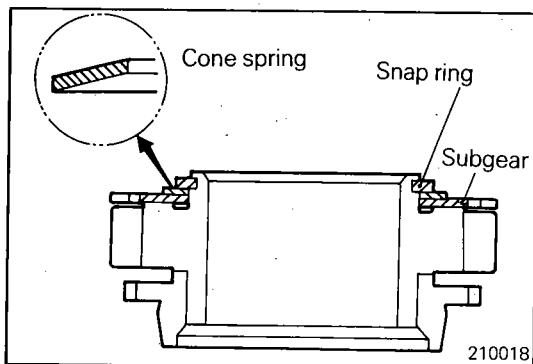
Caution

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



12. INSTALLATION OF BEARING SLEEVE

Use the special tool as illustrated.

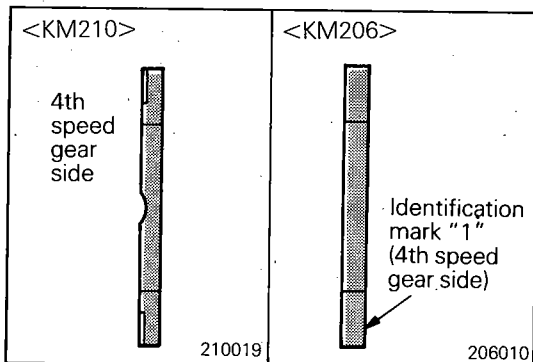


9. INSTALLATION OF SUBGEAR / 8. CONE SPRING / 7. SNAP RING

Install the subgear and cone spring to the 4th speed gear and install the snap ring.

NOTE

Use care to install the cone spring in the correct direction.

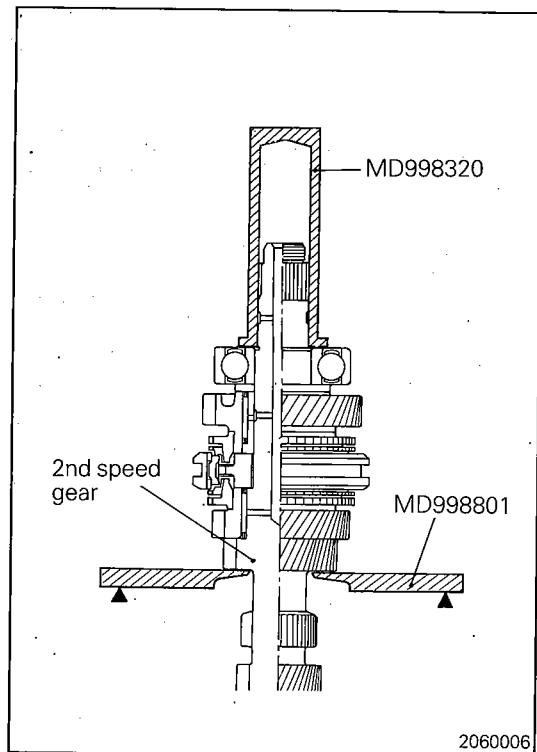


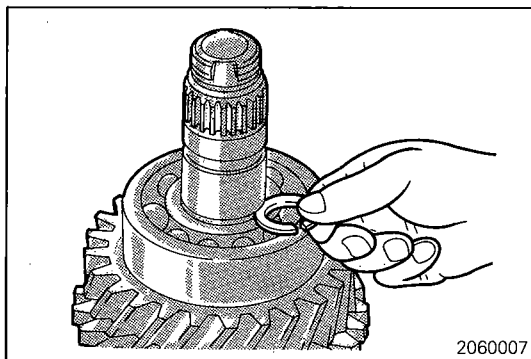
6. INSTALLATION OF SPACER

Install with the side having the identification mark "1" on the 4th speed gear side. Spacers without identification mark may be installed in either direction.

5. INSTALLATION OF BALL BEARING

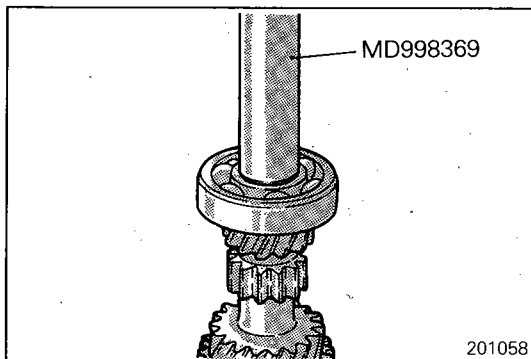
Install the ball bearing over the input shaft using the special tools.





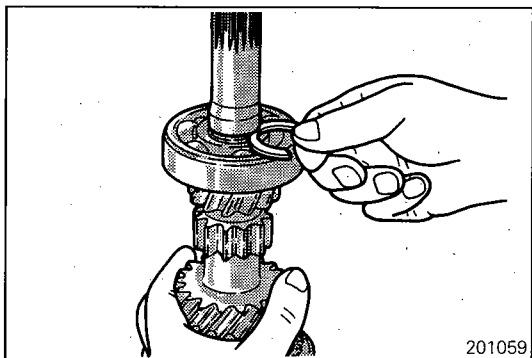
4. INSTALLATION OF SNAP RING

Select and install a snap ring so that the input shaft rear bearing end play is up to specification.



2. INSTALLATION OF BALL BEARING

Install the ball bearing over the input shaft using the special tool.



1. INSTALLATION OF SNAP RING

Snap rings are available in three different thickness. Select the thickest one that fits in the snap ring groove.

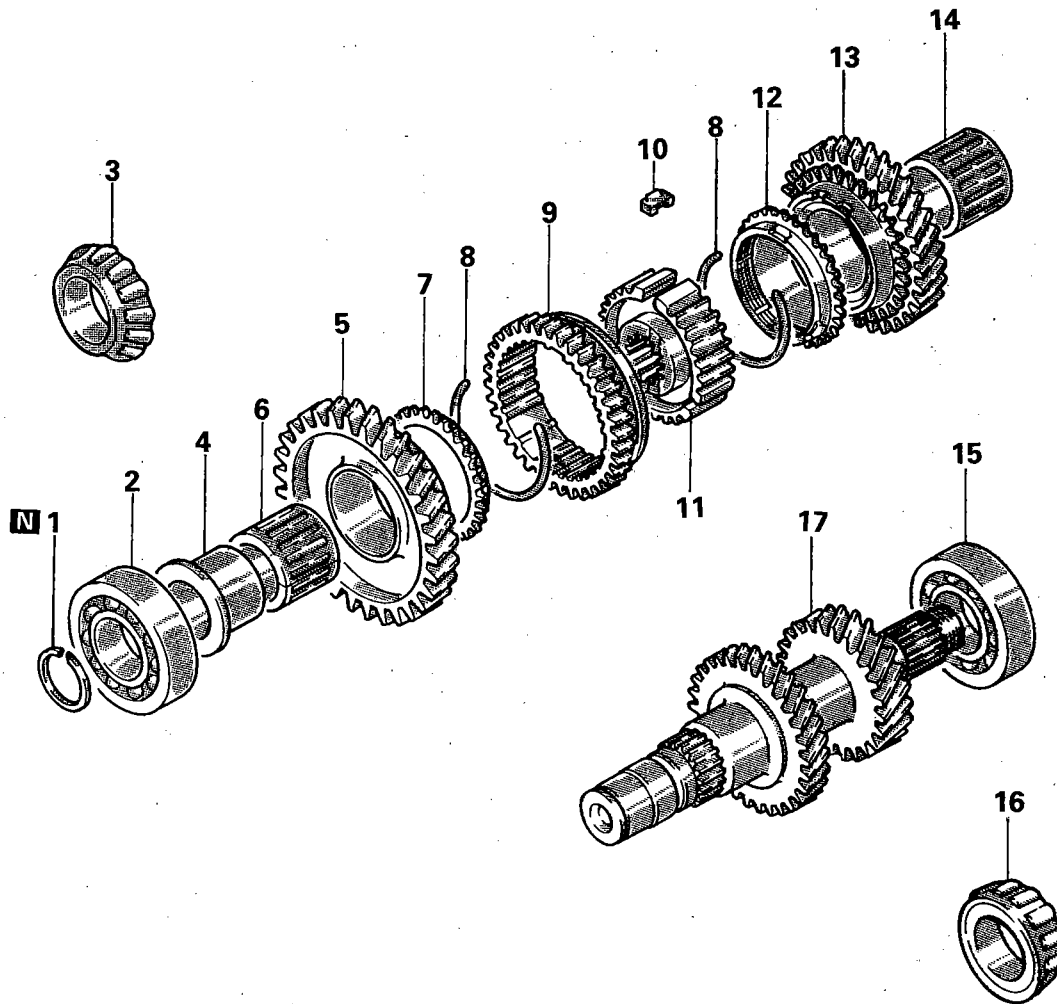
Caution

Do not cause damage to the input shaft oil seal contacting portion.

INTERMEDIATE GEAR ASSEMBLY

N21MJAAa

DISASSEMBLY AND REASSEMBLY

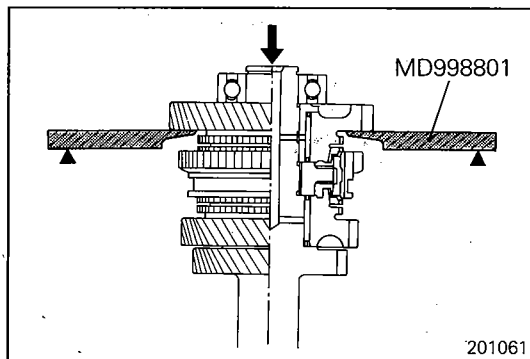


Disassembly steps

1. Snap ring
- ↔ ↔ 2. Ball bearing <KM200, KM201>
- ↔ ↔ 3. Taper roller bearing <KM206, KM210>
- ↔ 4. Bearing sleeve
- ↔ 5. 1st speed gear
- ↔ 6. Needle bearing
- ↔ 7. Synchronizer ring
- ↔ 8. Synchronizer spring
- ↔ 9. 1st-2nd speed synchronizer sleeve
- ↔ 10. Synchronizer key
- ↔ ↔ 11. 1st-2nd speed synchronizer hub
- ↔ 12. Synchronizer ring
- ↔ 13. 2nd speed gear
- ↔ 14. Needle bearing
- ↔ ↔ 15. Ball bearing <KM200, KM201>
- ↔ ↔ 16. Taper roller bearing <KM206, KM210>
17. Intermediate gear

NOTE

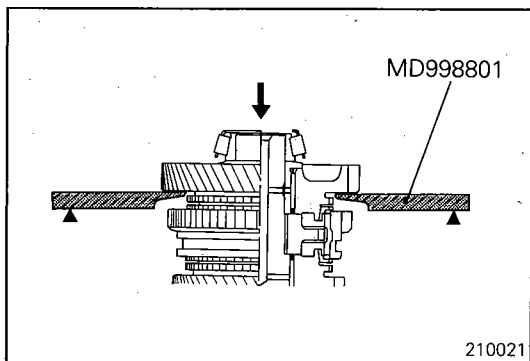
- (1) Reverse the disassembly procedures to reassemble.
- (2) ↔: Refer to "Service Points of Disassembly".
- (3) ↔: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts

**SERVICE POINTS OF DISASSEMBLY****2. REMOVAL OF BALL BEARING – KM200, KM201 / 5. 1ST SPEED GEAR**

Use the special tool as illustrated.

Caution

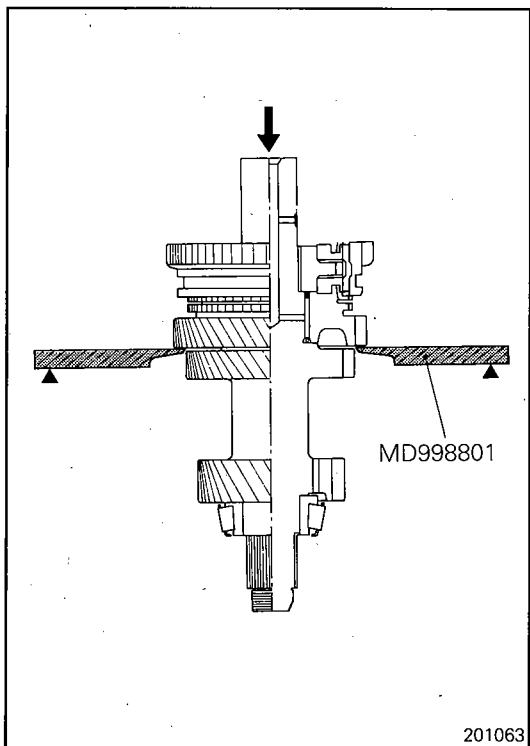
Do not reuse the bearing removed from the shaft.

**3. REMOVAL OF TAPER ROLLER BEARING – KM206, KM210 / 5. 1ST SPEED GEAR**

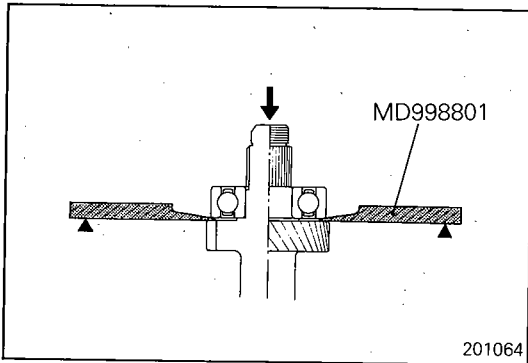
Use the special tool as illustrated.

Caution

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

**11. REMOVAL OF 1ST-2ND SPEED SYNCHRONIZER HUB / 13. 2ND SPEED GEAR**

Remove the 1st-2nd speed synchronizer assembly and 2nd speed gear together using the special tool as illustrated.

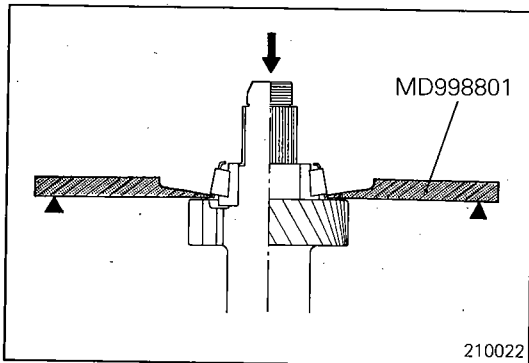


15. REMOVAL OF BALL BEARING – KM200, KM201

Use the special tool as illustrated.

Caution

Do not reuse the bearing removed from the shaft.

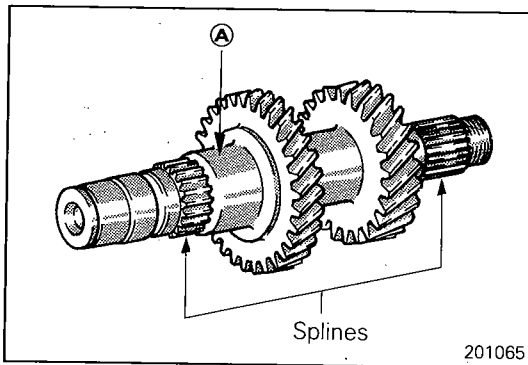


16. REMOVAL OF TAPER ROLLER BEARING – KM206, KM210

Use the special tool as illustrated.

Caution

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



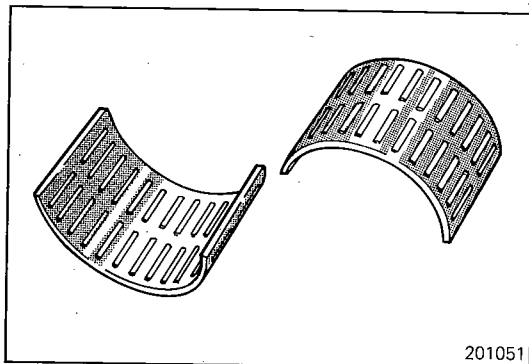
INSPECTION

INTERMEDIATE SHAFT

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

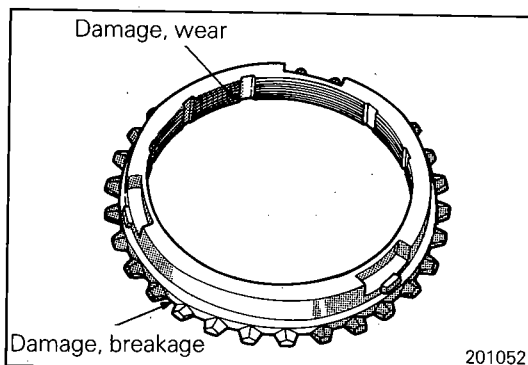
NEEDLE BEARING

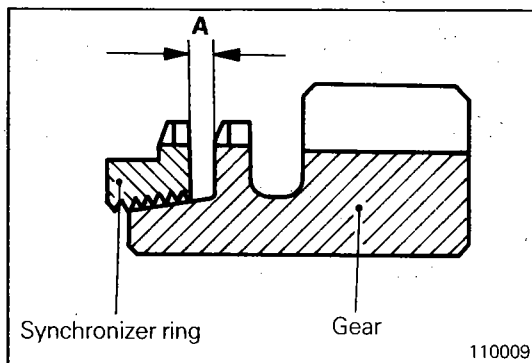
- Combine the needle bearing with the shaft or bearing sleeve and gear and check that it rotates smoothly without abnormal noise or play.
- Check the needle bearing cage for deformation.



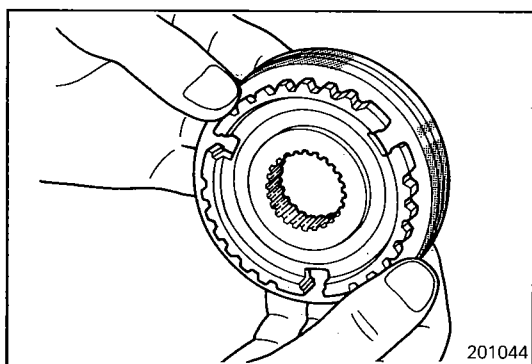
SYNCHRONIZER RING

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





- Force the synchronizer ring toward the clutch gear and check clearance "A". Replace if it is out of specification.
Limit: 0.5 mm (.02 in.)

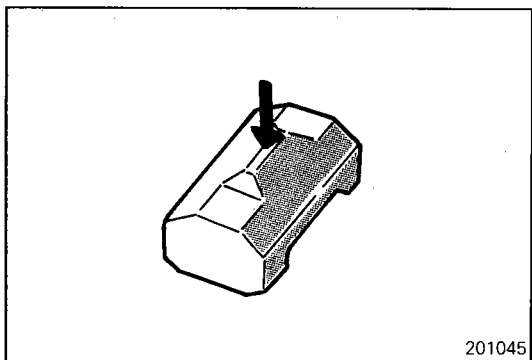


SYNCHRONIZER SLEEVE AND HUB

- Combine the synchronizer sleeve and 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 end surfaces (in contact with each speed gear).

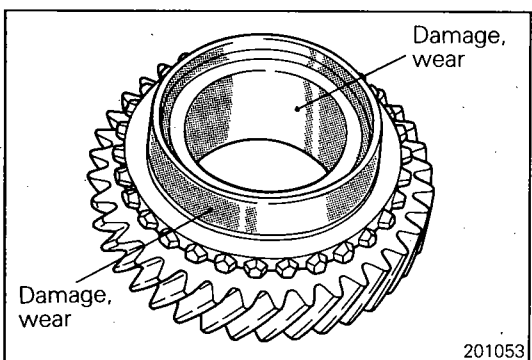
Caution

When replacing, replace the synchronizer hub and sleeve as a set.



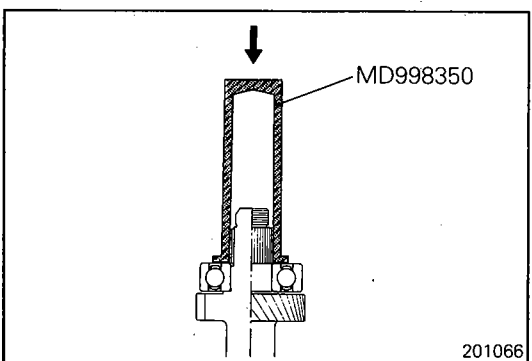
SYNCHRONIZER KEY AND SPRING

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



SPEED GEARS

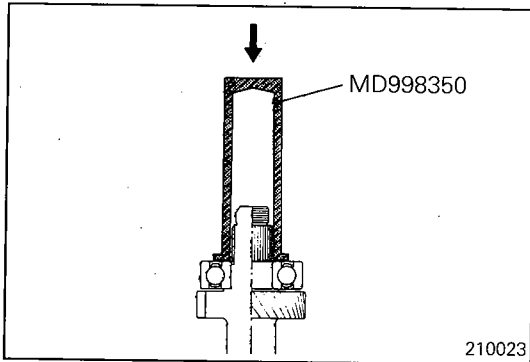
- Check the bevel gear and clutch gear teeth for damage and wear.
- Check the synchronizer cone for rough surface, damage and wear.
- Check the gear bore and front and rear ends for damage and wear.



SERVICE POINTS OF REASSEMBLY

15. INSTALLATION OF BALL BEARING – KM200, KM201

Install the ball bearing over the intermediate shaft using the special tool as illustrated.

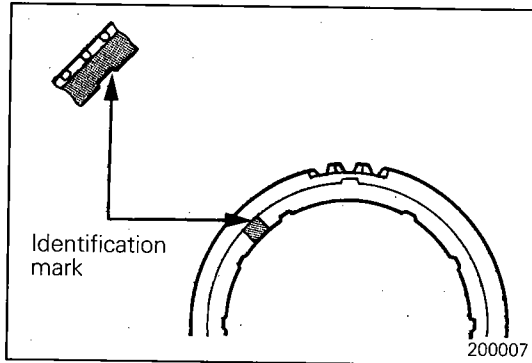


16. INSTALLATION OF TAPER ROLLER BEARING – KM206, KM210

Install the taper roller bearing over the intermediate shaft using the special tool as illustrated.

Caution

When installing the bearing, push the inner race only.

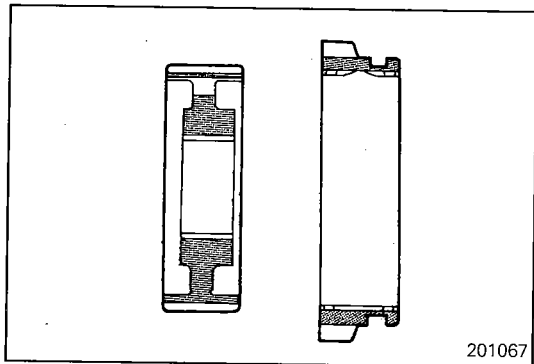


12. 7. INSTALLATION OF SYNCHRONIZER RINGS

The 1st-2nd speed synchronizer rings have an identification mark.

11. INSTALLATION OF 1ST-2ND SPEED SYNCHRONIZER HUB / 10. SYNCHRONIZER KEY / 9. 1ST-2ND SPEED SYNCHRONIZER SLEEVE

Combine the 1st-2nd speed synchronizer hub and sleeve as illustrated.

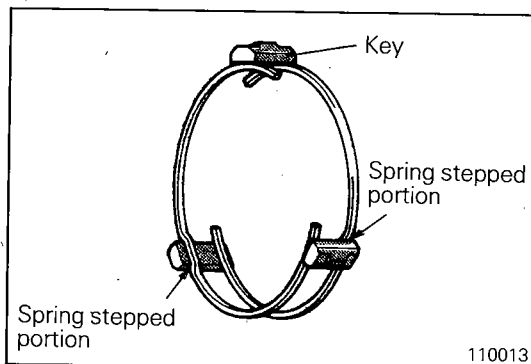


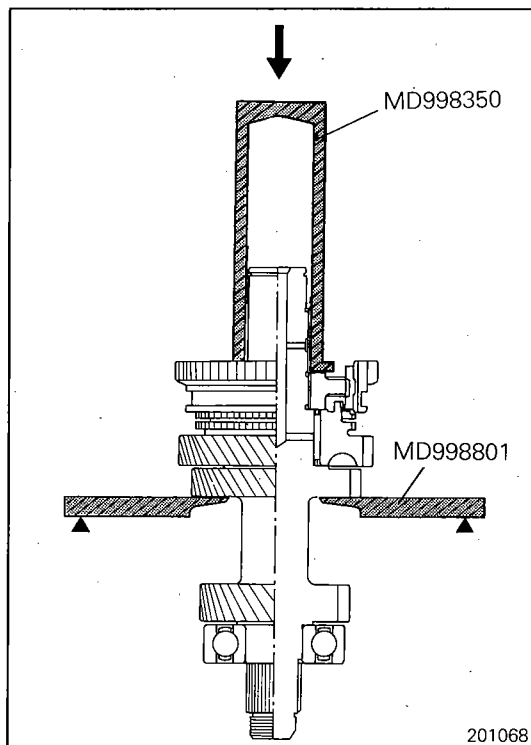
8. INSTALLATION OF SYNCHRONIZER SPRING

- (1) Install the synchronizer spring in such a way that its stepped portions will rest on the synchronizer keys.

Caution

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

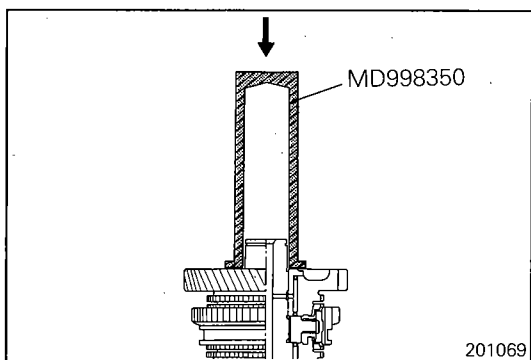




- (2) Install the 1st-2nd speed synchronizer assembly over the intermediate shaft using the special tools.

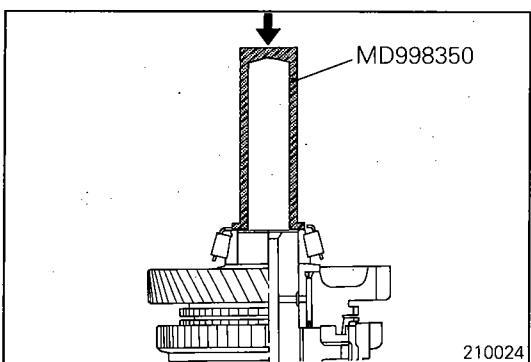
Caution

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



4. INSTALLATION OF BEARING SLEEVE

Install the 1st speed gear and bearing sleeve together using the special tool as illustrated.

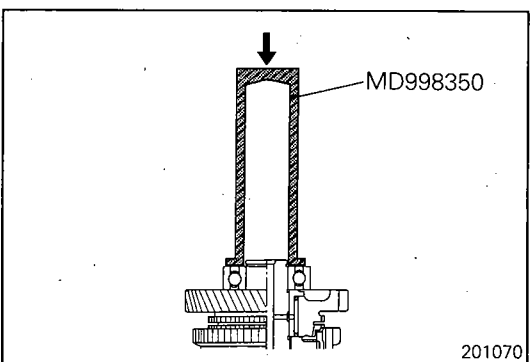


3. INSTALLATION OF TAPER ROLLER BEARING – KM206, KM210

Use the special tool as illustrated.

Caution

When installing the bearing, push the inner race only.



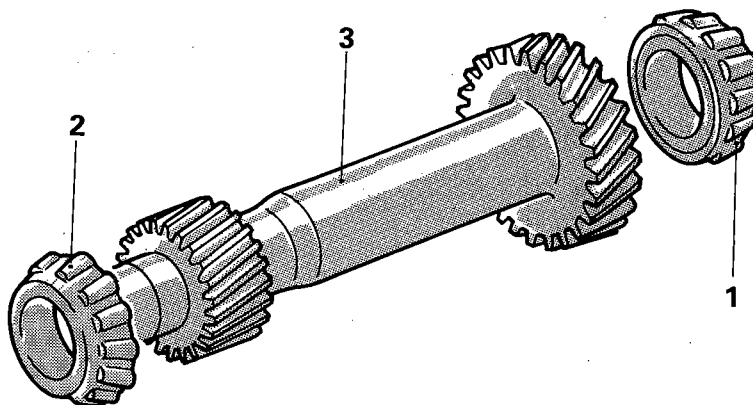
2. INSTALLATION OF BALL BEARING – KM200, KM201

Use the special tool as illustrated.

OUTPUT SHAFT ASSEMBLY

DISASSEMBLY AND REASSEMBLY

N21MKAD



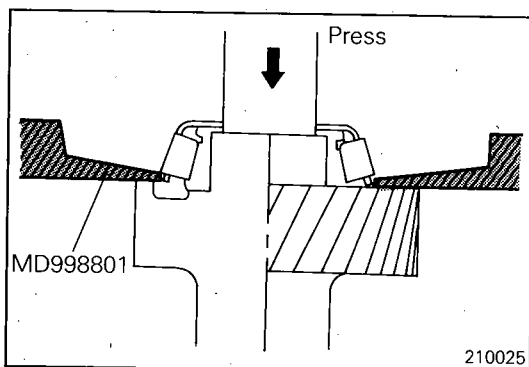
Disassembly steps

- ↔ ↔ 1. Taper roller bearing
- ↔ ↔ 2. Taper roller bearing
- 3. Output shaft

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ↔: Refer to "Service Points of Disassembly".
- (3) ↔: Refer to "Service Points of Reassembly".

210028



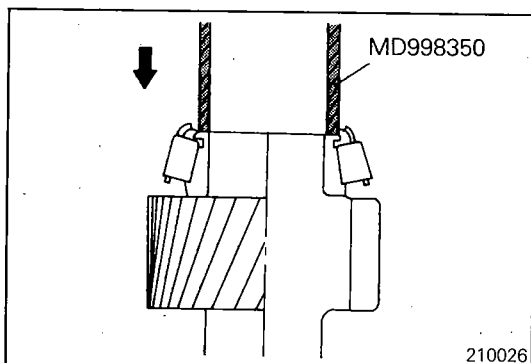
SERVICE POINTS OF DISASSEMBLY

1. 2. REMOVAL OF TAPER ROLLER BEARINGS

Use the special tool as illustrated.

Caution

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



SERVICE POINTS OF REASSEMBLY

1. 2. INSTALLATION OF TAPER ROLLER BEARINGS

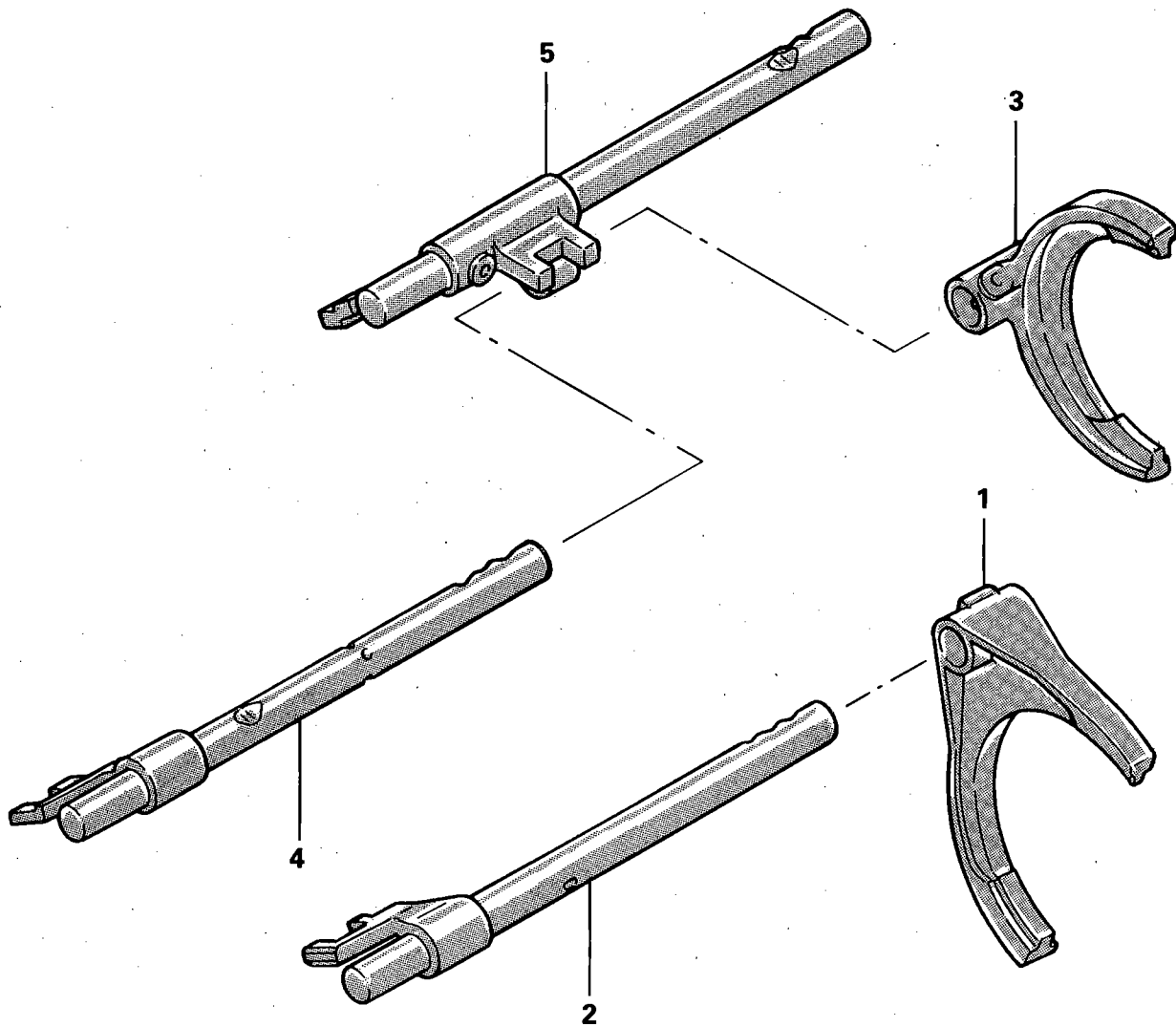
Use the special tool as illustrated.

Caution

When installing the bearing, push the inner race only.

SHIFT RAILS AND FORKS

N21MLAC

DISASSEMBLY AND REASSEMBLY <KM200>**Disassembly steps**

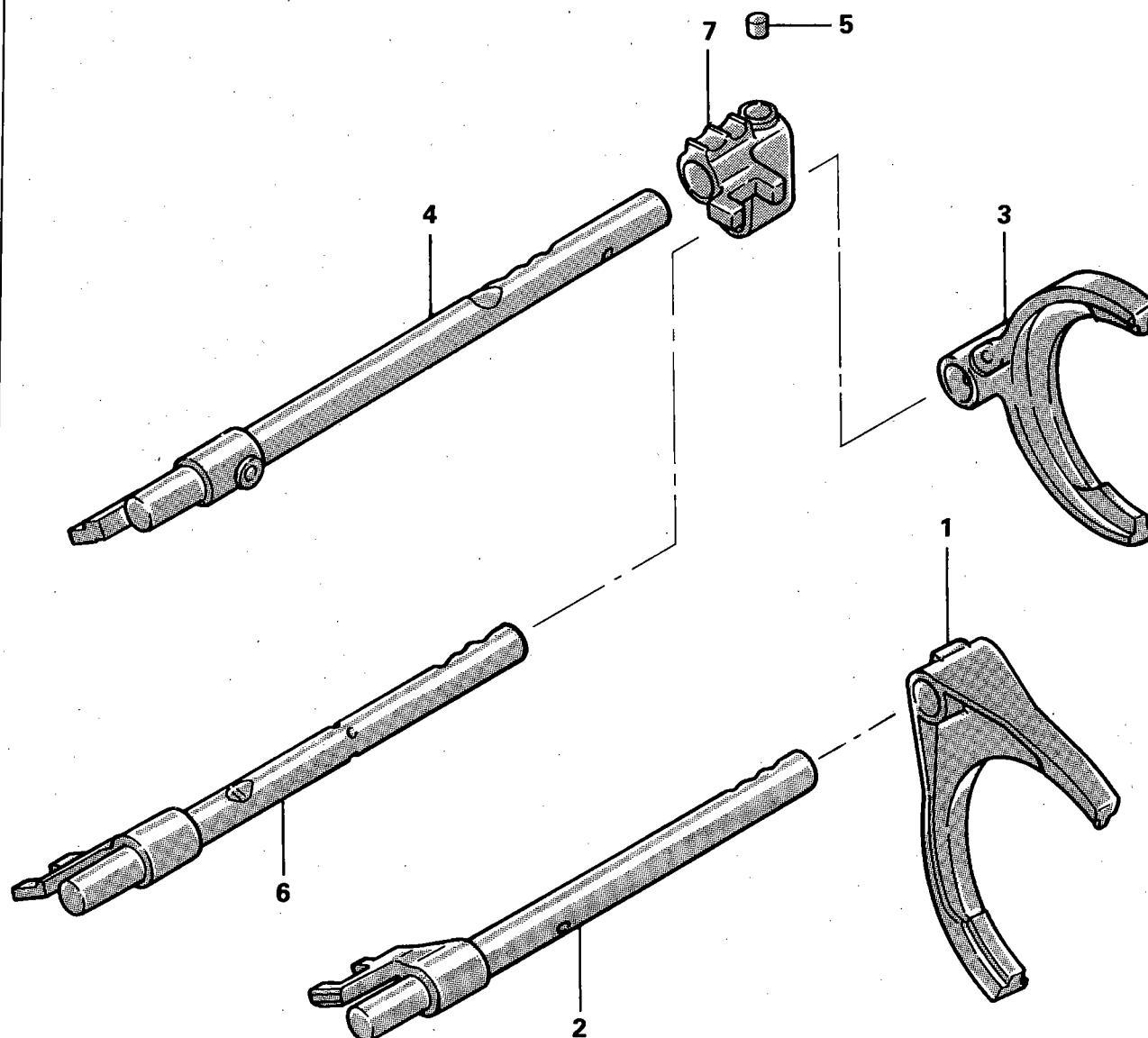
1. 1st-2nd speed shift fork
2. 1st-2nd speed shift rail
3. 3rd-4th speed shift fork
4. 3rd-4th speed shift rail
5. Reverse shift rail

NOTE

Reverse the disassembly procedures to reassemble.

DISASSEMBLY AND REASSEMBLY <KM201, KM206>

N21MLABa

**Disassembly steps**

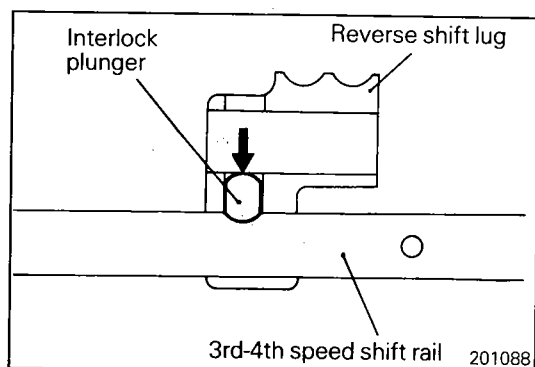
1. 1st-2nd speed shift fork
2. 1st-2nd speed shift rail
3. 3rd-4th speed shift fork
4. 5th-reverse speed shift rail
- ◆◆ 5. Interlock plunger

6. 3rd – 4th speed shift rail
7. Reverse shift lug

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Reassembly".

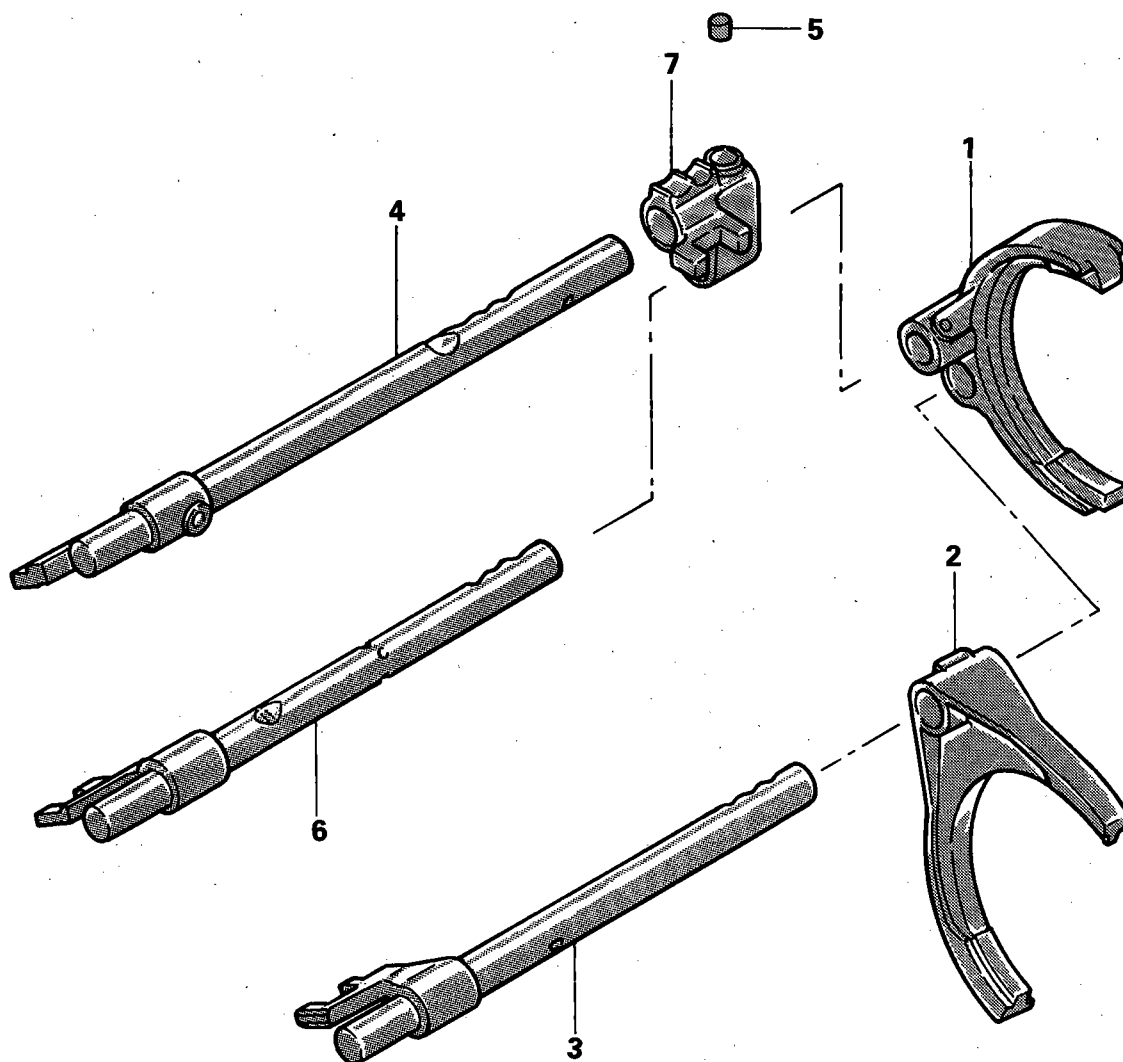
201073

**SERVICE POINT OF REASSEMBLY****5. INSTALLATION OF INTERLOCK PLUNGER**

Insert the interlock plunger at illustrated position of the 3rd-4th speed shift rail.

DISASSEMBLY AND REASSEMBLY <KM210>

N21MLAD

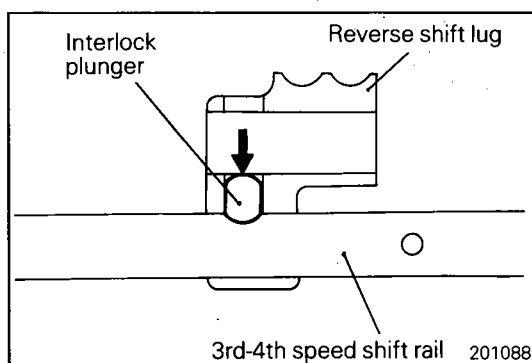
**Disassembly steps**

1. 3rd-4th speed shift fork
2. 1st-2nd speed shift rail
3. 3rd-4th speed shift fork
4. 5th-reverse speed shift rail
- ◆◆ 5. Interlock plunger
6. 3rd-4th speed shift rail
7. Reverse shift lug

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆: Refer to "Service Points of Reassembly".

210027

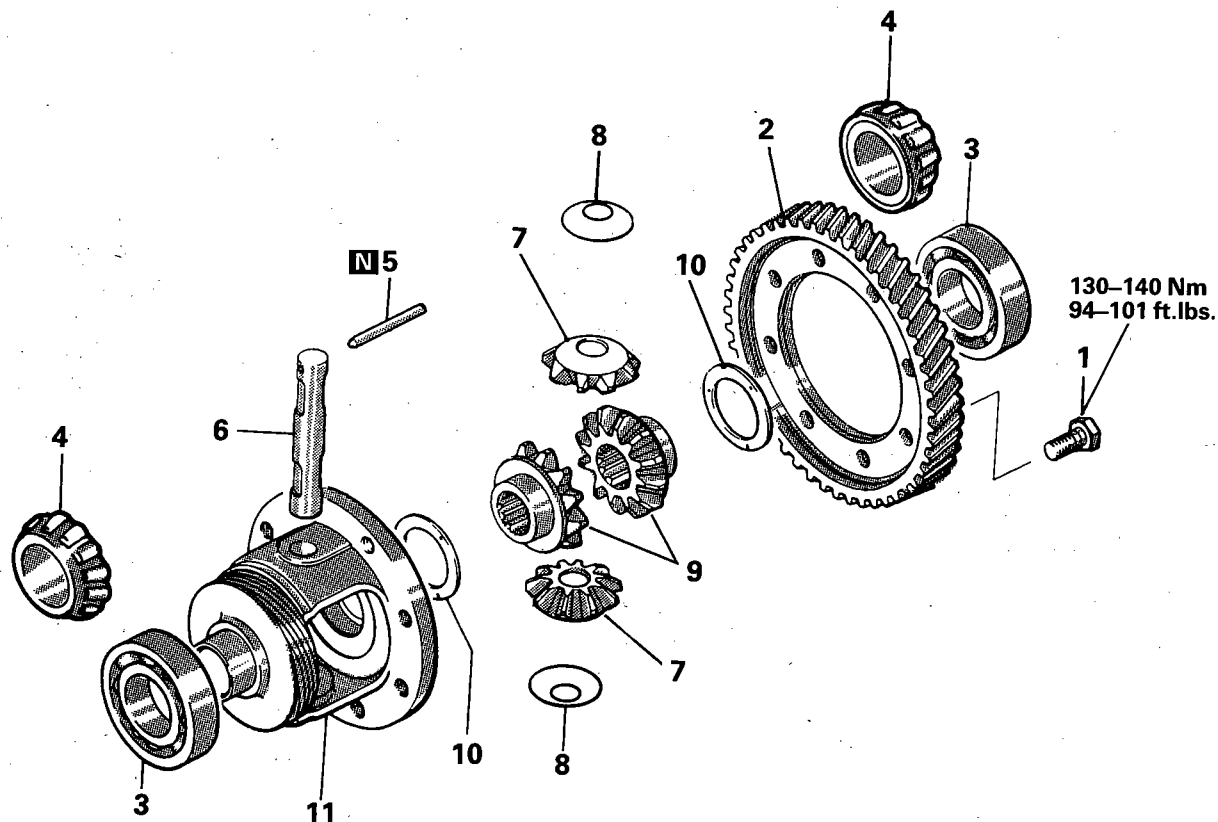
**SERVICE POINT OF REASSEMBLY****5. INSTALLATION OF INTERLOCK PLUNGER**

Insert the interlock plunger at illustrated position of the 3rd-4th speed shift rail.

DIFFERENTIAL ASSEMBLY

DISASSEMBLY AND REASSEMBLY

N21MMAA



Disassembly steps

- ◆◆ 1. Bolt
- ◆◆ 2. Differential drive gear
- ◆◆◆◆ 3. Ball bearing <KM200, KM201>
- ◆◆◆◆ 4. Taper roller bearing <KM206, KM210>
- ◆◆◆◆ 5. Lock pin
- ◆◆◆◆ 6. Pinion shaft
- ◆◆◆◆ 7. Pinion
- ◆◆◆◆ 8. Washer
- ◆◆◆◆ 9. Side gear
- ◆◆◆◆ 10. Spacer
- ◆◆◆◆ 11. Differential case

NOTE

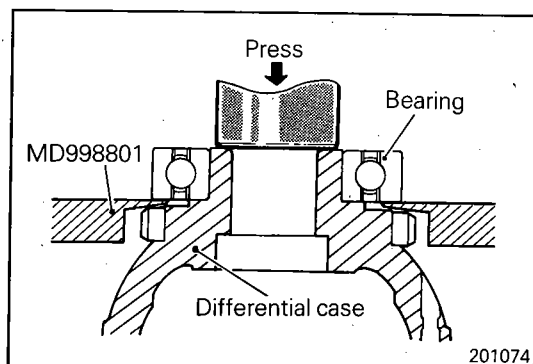
- (1) Reverse the disassembly procedures to reassemble.
- (2) ◆◆◆◆: Refer to "Service Points of Disassembly".
- (3) ◆◆◆◆: Refer to "Service Points of Reassembly".
- (4) [N]: Non-reusable parts

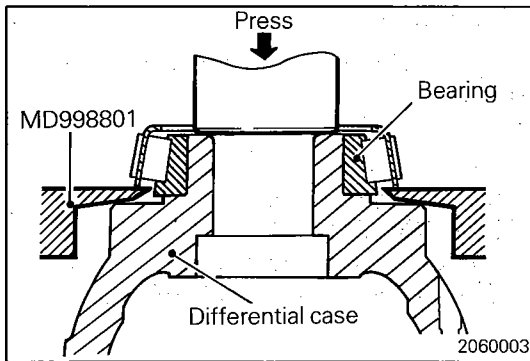
160119

SERVICE POINTS OF DISASSEMBLY

3. REMOVAL OF BALL BEARING – KM200, KM201

Use the special tool as illustrated.

Caution**Do not reuse the bearing removed from the shaft.**

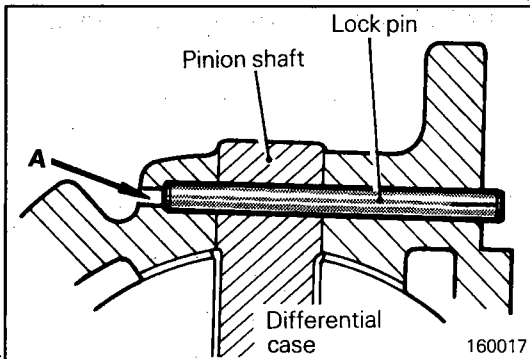


4. REMOVAL OF TAPER ROLLER BEARING – KM206, KM210

Use the special tool as illustrated.

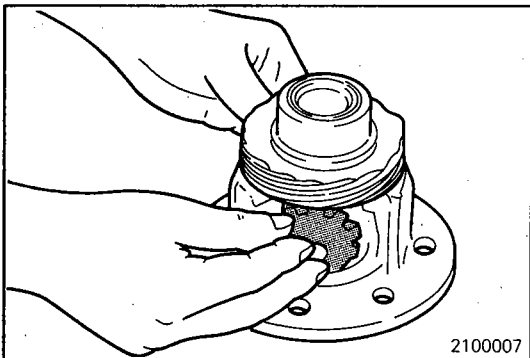
Caution

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



5. REMOVAL OF LOCK PIN

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



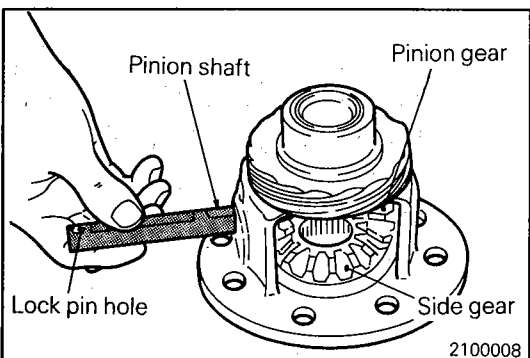
SERVICE POINTS OF REASSEMBLY

10. INSTALLATION OF SPACER / 9. SIDE GEAR / 8. WASHER / 7. PINION / 6. PINION SHAFT

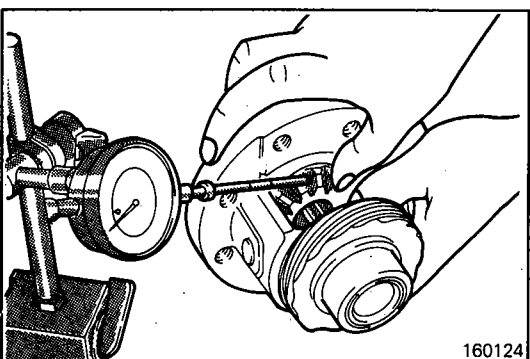
- (1) Install the spacer on the back of the side gear and then install the gear in the differential case.

Caution

When installing a new side gear, use a spacer of medium thickness [1.0 – 0.07 mm (.40 – .03 in.)].



- (2) Set the washer on the back of each pinion and insert the two pinions to specified position while engaging them with the side gears and turning them.
- (3) Insert the pinion shaft.



- (4) Measure the backlash between the side gears and pinions.

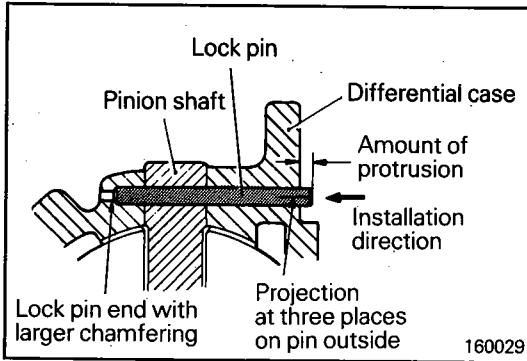
Standard value:

0.025 – 0.150 mm (.001 – .006 in.)

- (5) If the backlash is out of specification, disassemble again and using correct spacer, reassemble and adjust.

Caution

Adjust for same backlash of both side gears.

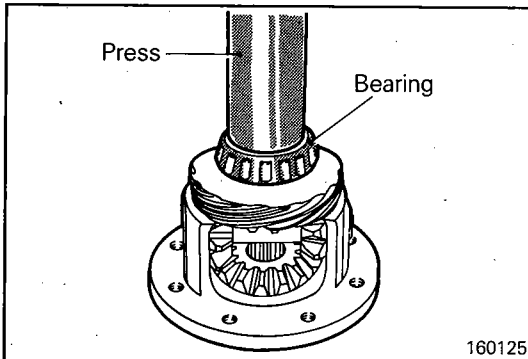


5. INSTALLATION OF LOCK PIN

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 must not protrude more than 3 mm (.118 in.). <KM200, KM201>
3. The lock pin head must be sunk from the flange surface of the differential case. <KM206, KM210>

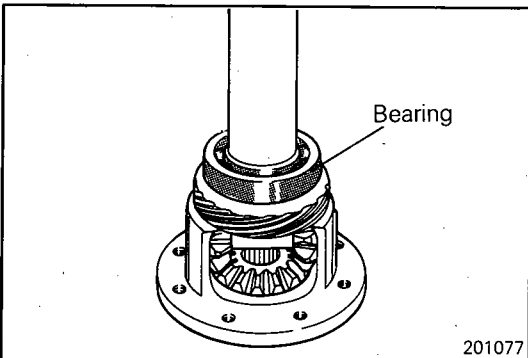


4. INSTALLATION OF TAPER ROLLER BEARING – KM206, KM210

Install the taper roller bearings on both sides of the differential case.

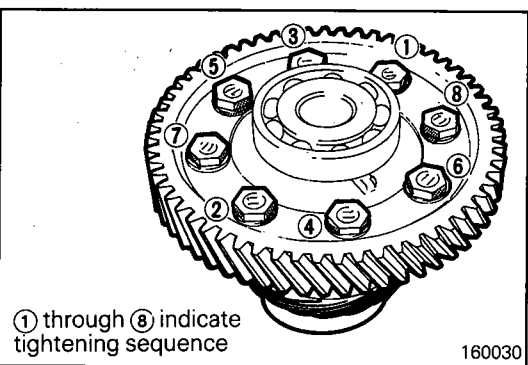
Caution

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



3. INSTALLATION OF BALL BEARING – KM200, KM201

Install the ball bearings on both sides of the differential case.



1. INSTALLATION OF BOLTS

Apply specified sealant to the entire threads of the bolts and quickly tighten in the order shown to specified torque.

Specified sealant: 3M Stud Locking No. 4170

Caution

If a bolt is reused, remove traces of oil sealant completely from the threads.

SPEEDOMETER DRIVEN GEAR ASSEMBLY

N21MNAA

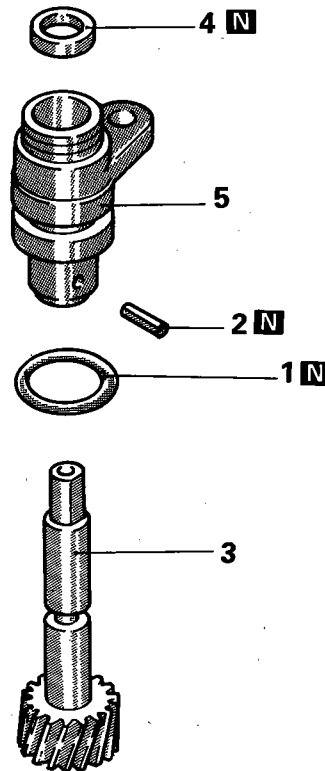
DISASSEMBLY AND REASSEMBLY

Disassembly steps

- 1. O-ring
- 2. Spring pin
- 3. Speedometer driven gear
- 4. Oil seal
- 5. Sleeve

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ♦♦: Refer to "Service Points of Reassembly".
- (3) **N**: Non-reusable parts



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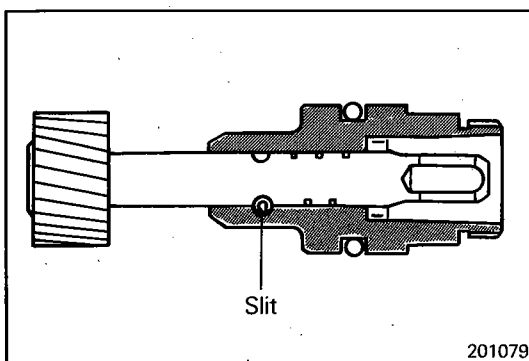
SERVICE POINTS OF REASSEMBLY

3. INSTALLATION OF SPEEDOMETER DRIVEN GEAR

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

2. INSTALLATION OF SPRING PIN

Install the spring pin in such a way that its slit does not face the gear shaft.

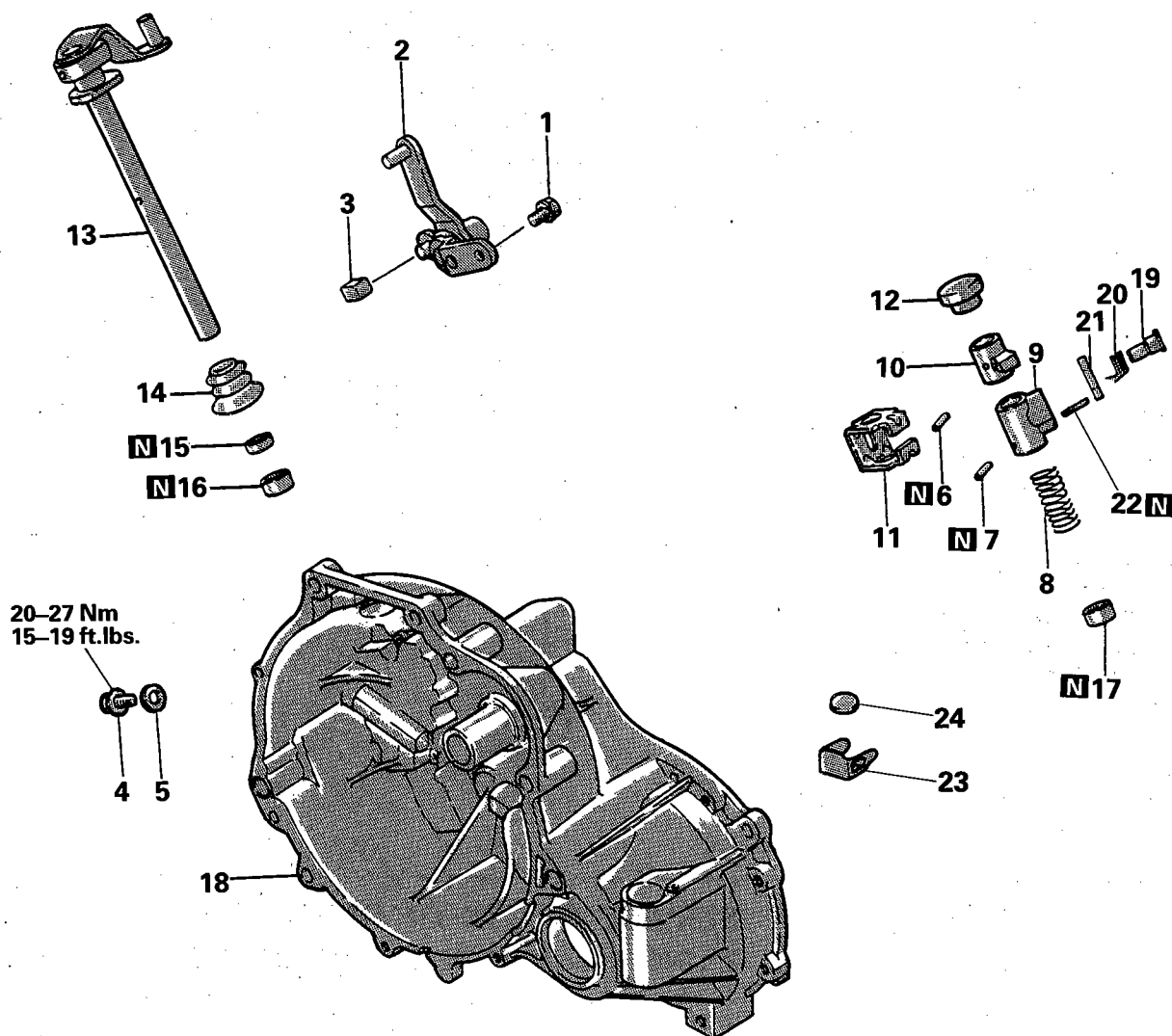


201079

CLUTCH HOUSING ASSEMBLY

DISASSEMBLY AND REASSEMBLY

N21MPAF



2010013

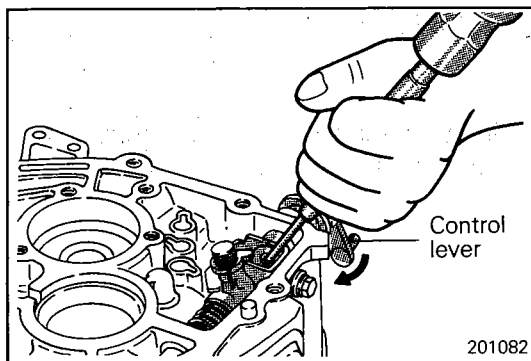
Disassembly steps

1. Bolt
2. Select lever assembly
3. Select lever shoe
4. Interlock plate bolt
5. Gasket
6. Lock pin
7. Spring pin
8. Neutral return spring
9. Stopper body
10. Control finger
11. Interlock plate
12. Neutral return spring assembly
13. Control shaft
14. Control shaft boot
15. Oil seal

16. Needle bearing
17. Needle bearing
18. Clutch housing
19. Pin
20. Return spring
21. Stopper plate
22. Spring pin
23. Magnet holder
24. Magnet

NOTE

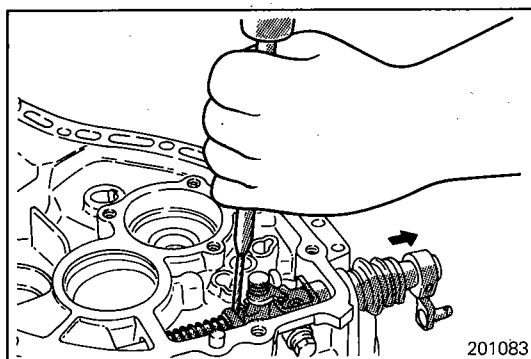
- (1) Reverse the disassembly procedures to reassemble.
- (2) ♦♦: Refer to "Service Points of Disassembly".
- (3) ♦♦: Refer to "Service Points of Reassembly".
- (4) **N**: Non-reusable parts

**SERVICE POINTS OF DISASSEMBLY****6. REMOVAL OF SPRING PIN**

Drive out the spring pin from the control finger using a pin punch.

Caution

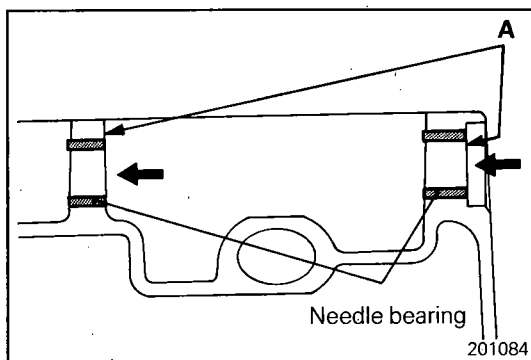
When removing the spring pin, turn the control lever to such position that the spring pin will not contact the clutch housing.

**7. REMOVAL OF SPRING PIN**

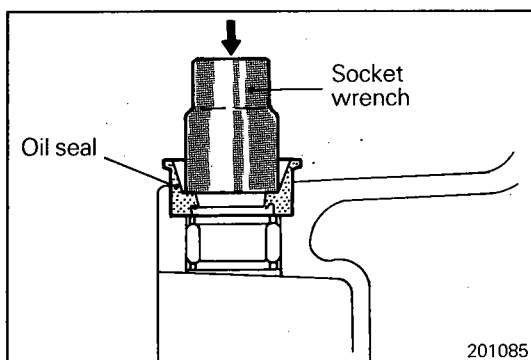
Drive out the spring pin from the stopper body using a pin punch.

Caution

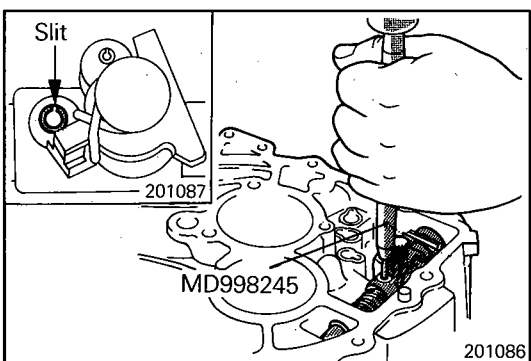
When removing the spring pin, pull the control shaft in the direction illustrated so that the spring pin will not contact the clutch housing.

**SERVICE POINTS OF REASSEMBLY****17. 16. INSTALLATION OF NEEDLE BEARINGS**

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

**15. INSTALLATION OF OIL SEAL**

Install the control shaft oil seal using a socket wrench.

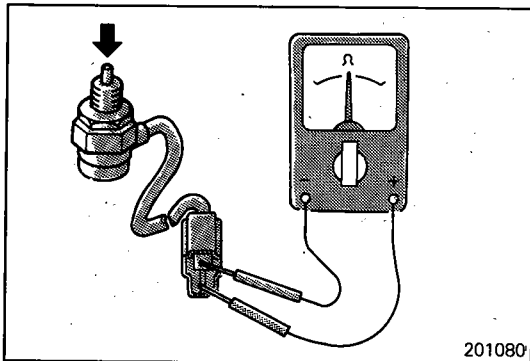
**7. 6. INSTALLATION OF SPRING PIN AND LOCK PIN**

(1) Install new spring pin and lock pin using the special tool.

Caution

Do not reuse the spring pin.

(2) Install the spring pins with their slit at right angle to the control shaft center.



BACKUP LIGHT SWITCH

N21MOAA

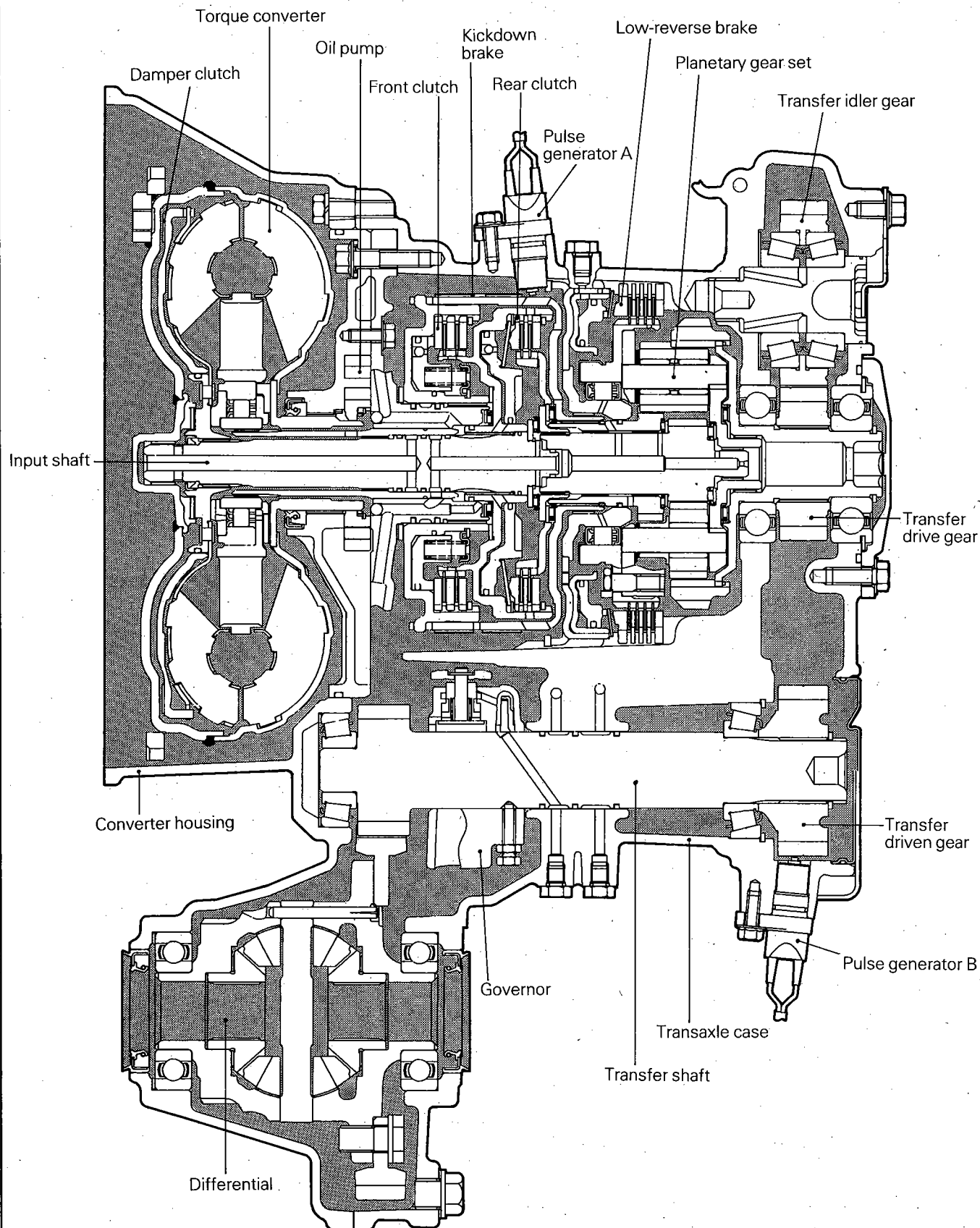
INSPECTION

- Operate the backup light switch to check continuity with a circuit tester. If without continuity, replace the switch.

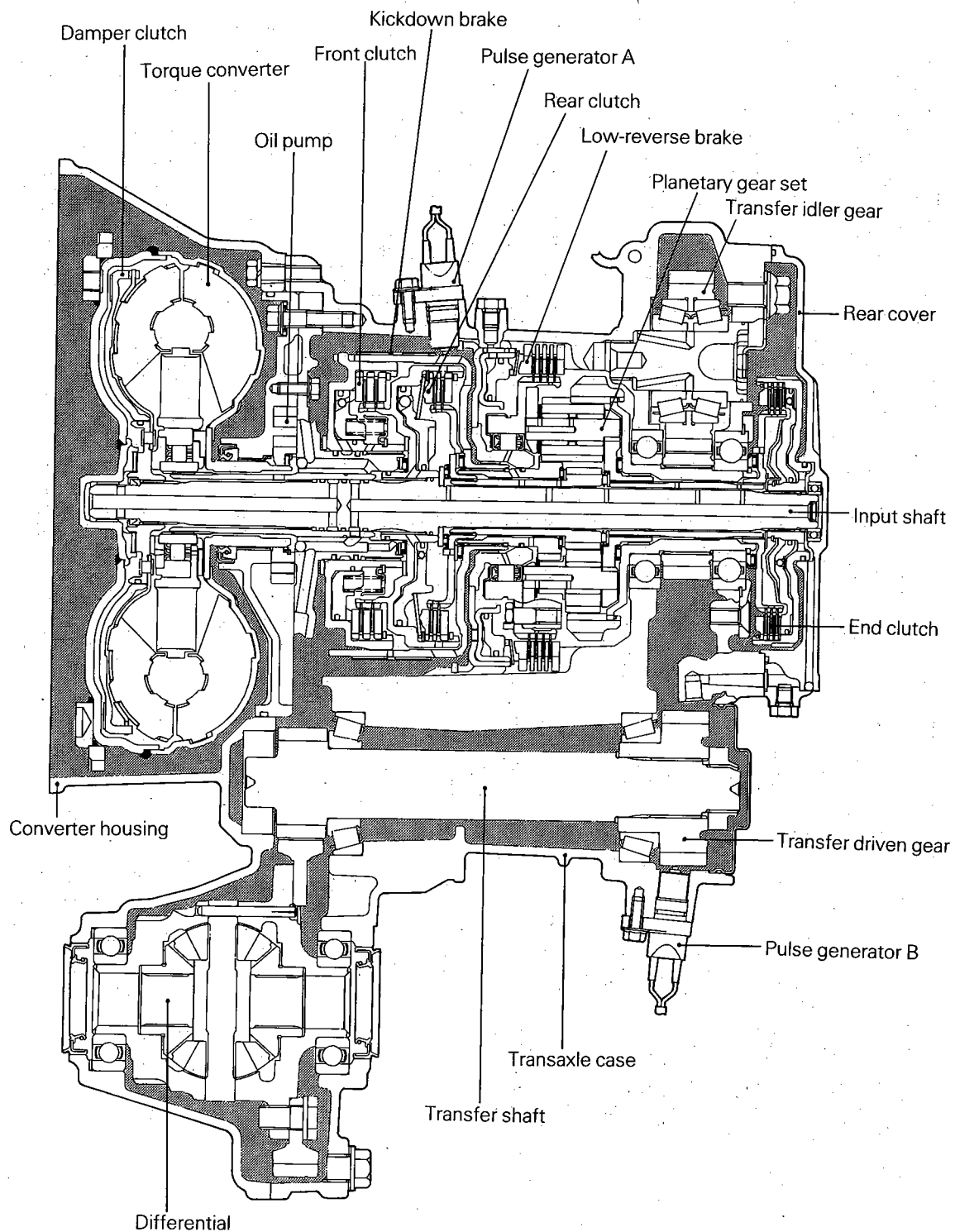
GENERAL INFORMATION

SECTIONAL VIEW

<KM171>

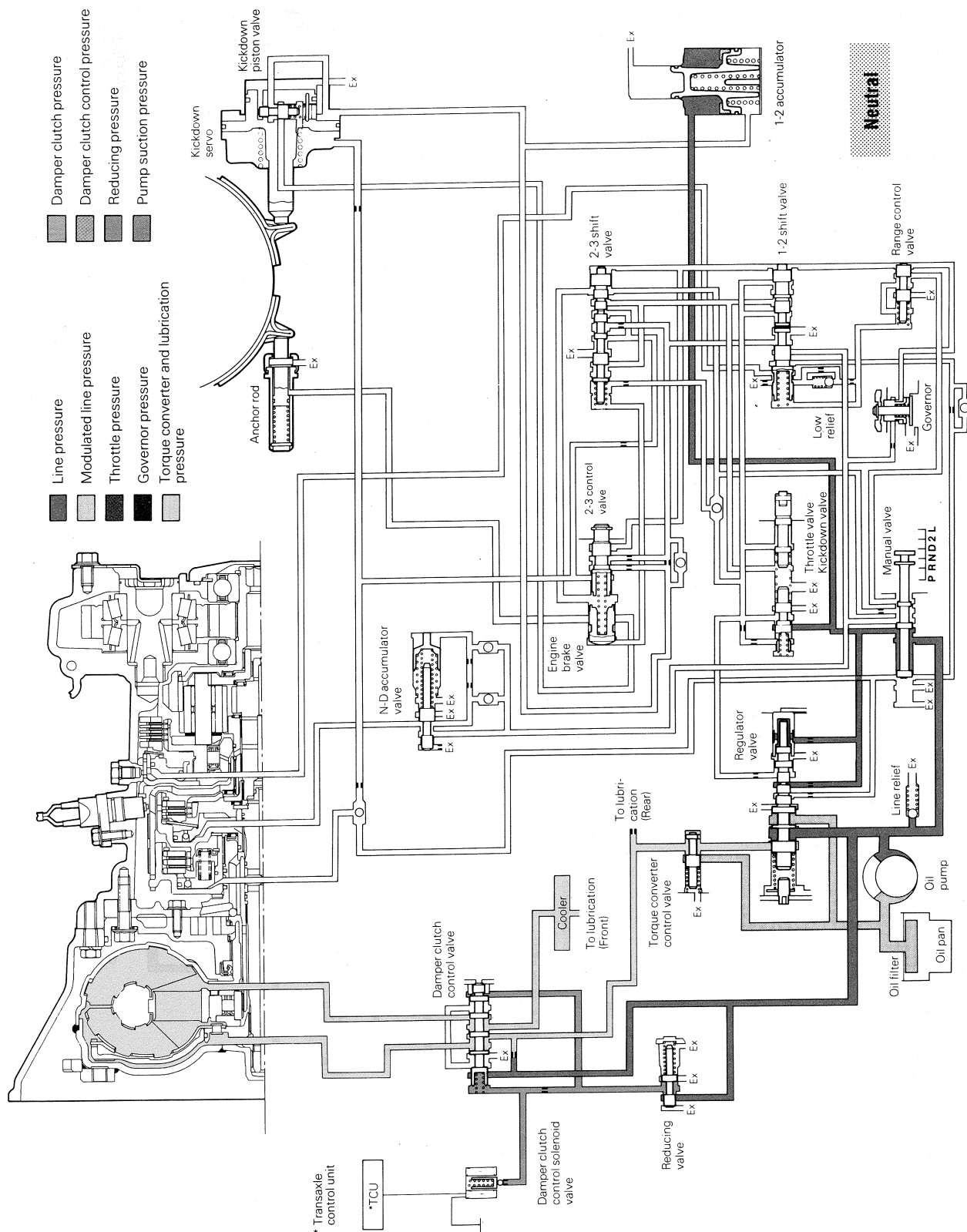


<KM176>



HYDRAULIC CONTROL SYSTEM

<KM171 – Neutral>



* Transaxle control unit

*TCU

Legend:

- Line pressure
- Modulated line pressure
- Throttle pressure
- Governor pressure
- Torque converter and lubrication pressure
- Damper clutch pressure
- Damper clutch control pressure
- Reducing pressure
- Pump suction pressure

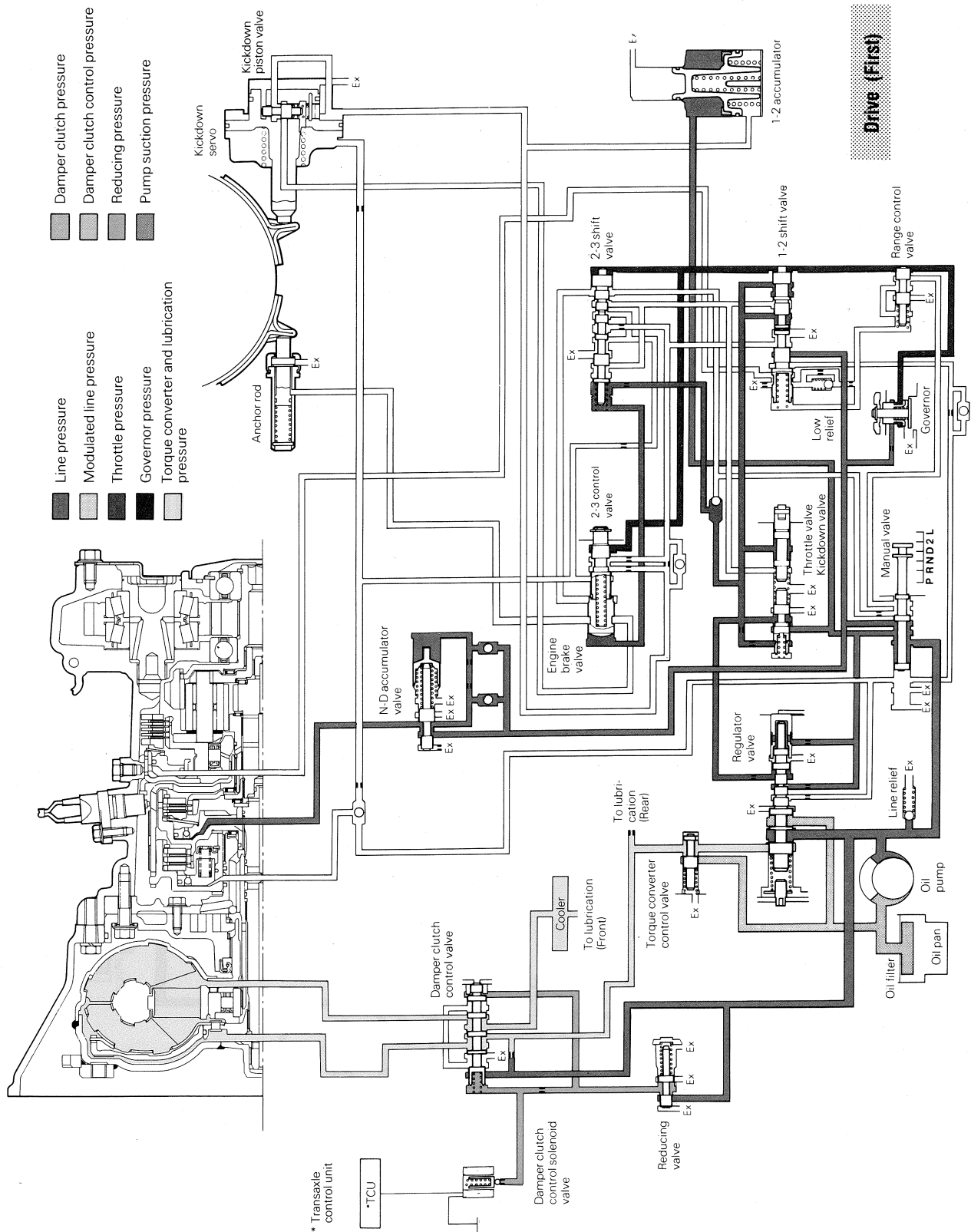
Key Components and Labels:

- Transaxle control unit
- TCU
- Damper clutch control solenoid valve
- Damper clutch control valve
- Cooler
- To lubrication (Front)
- To lubrication (Rear)
- Torque converter control valve
- Reducing valve
- Engine brake valve
- 2-3 control valve
- 2-3 shift valve
- 1-2 shift valve
- 1-2 accumulator
- Low relief
- Regulator valve
- Throttle valve
- Kickdown valve
- Manual valve
- Line relief
- Oil pump
- Oil filter
- Oil pan
- Governor
- Range control valve
- Anchor rod
- Kickdown servo
- Kickdown piston valve
- Ex

Additional Labels:

- Parking
- P R N D 2 L

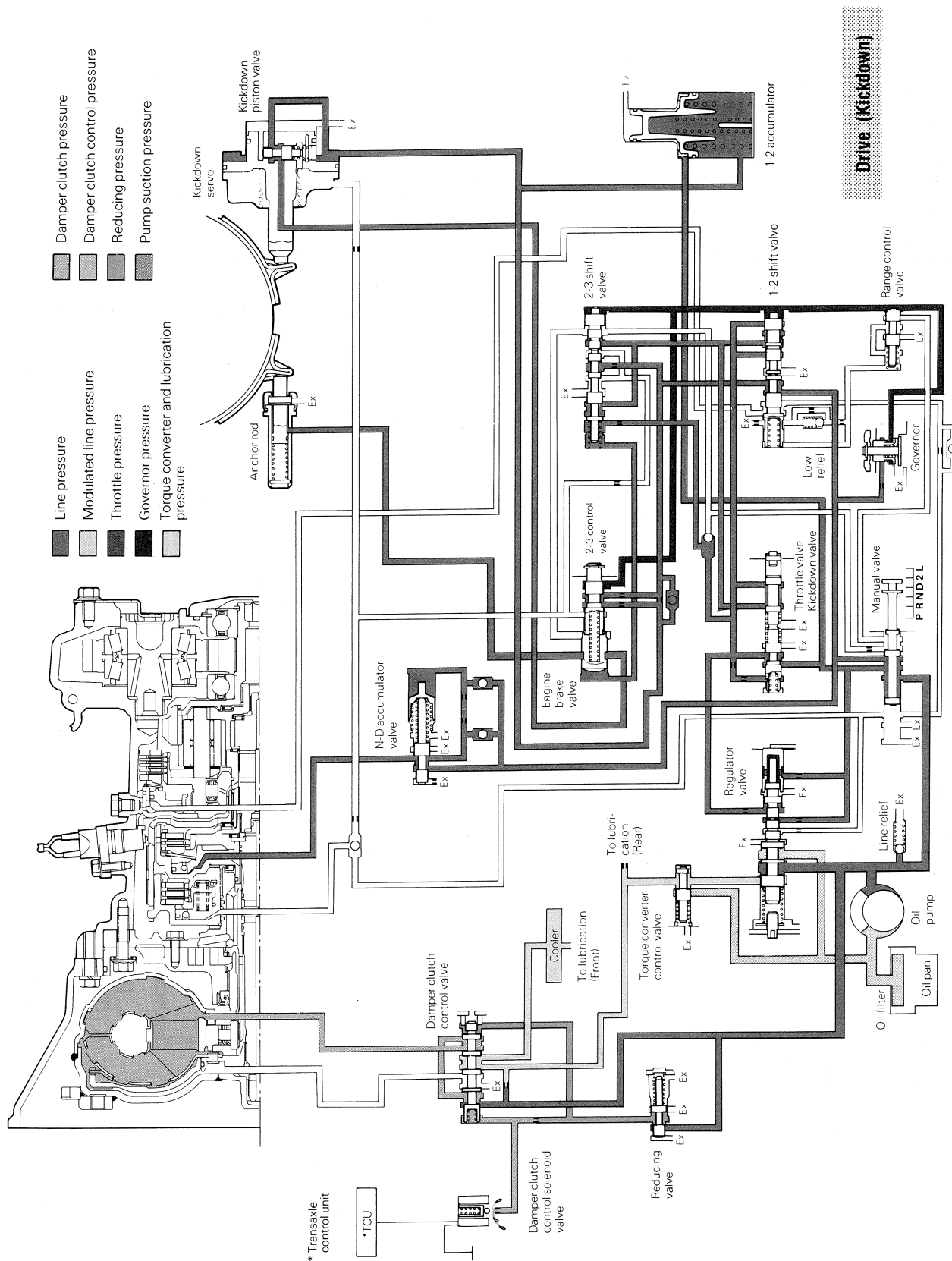
<KM171 – Drive-First>



Drive (Second)

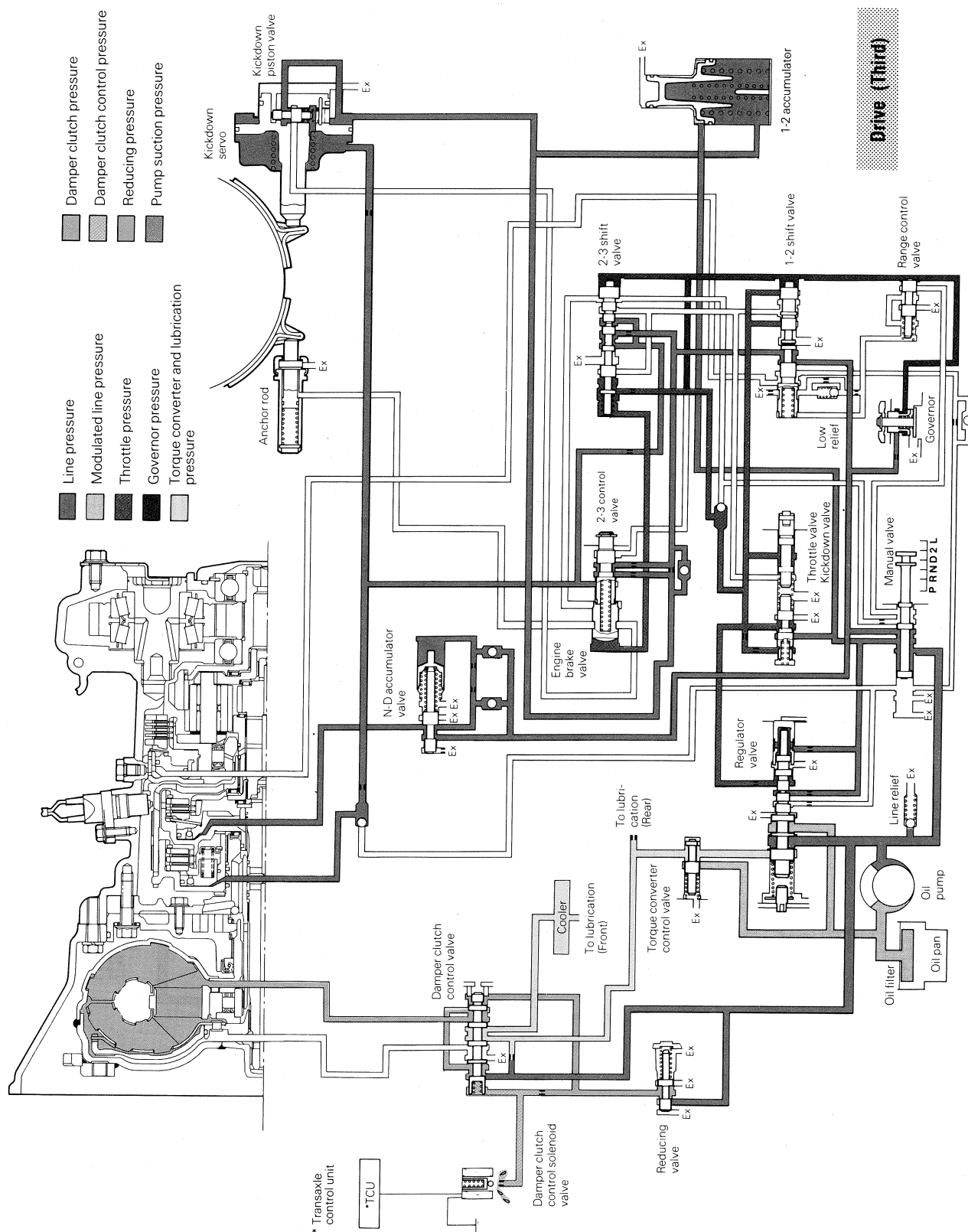


<KM171 – Drive-Kickdown>



* Transaxle control unit

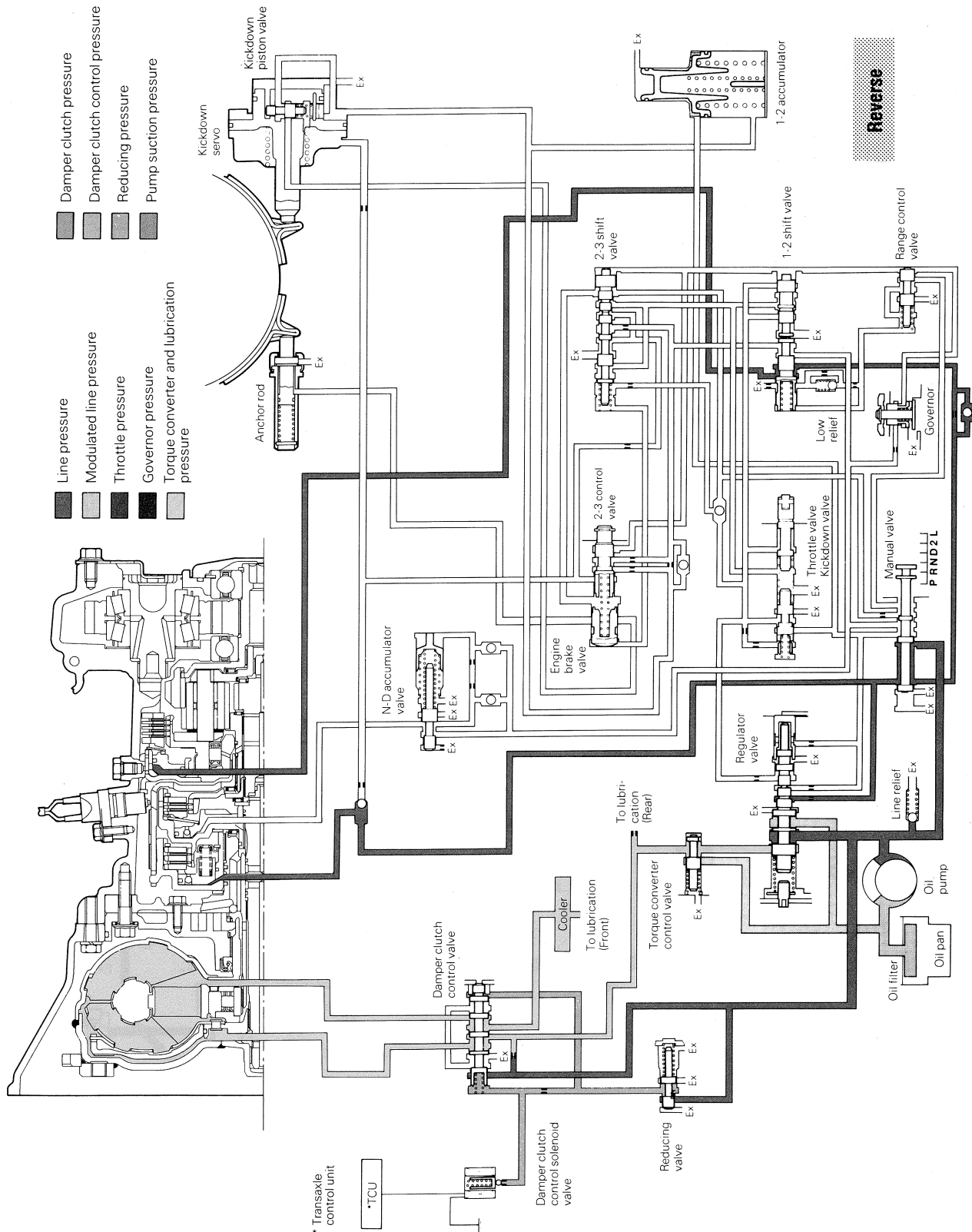
<KM171 – Drive-Third>



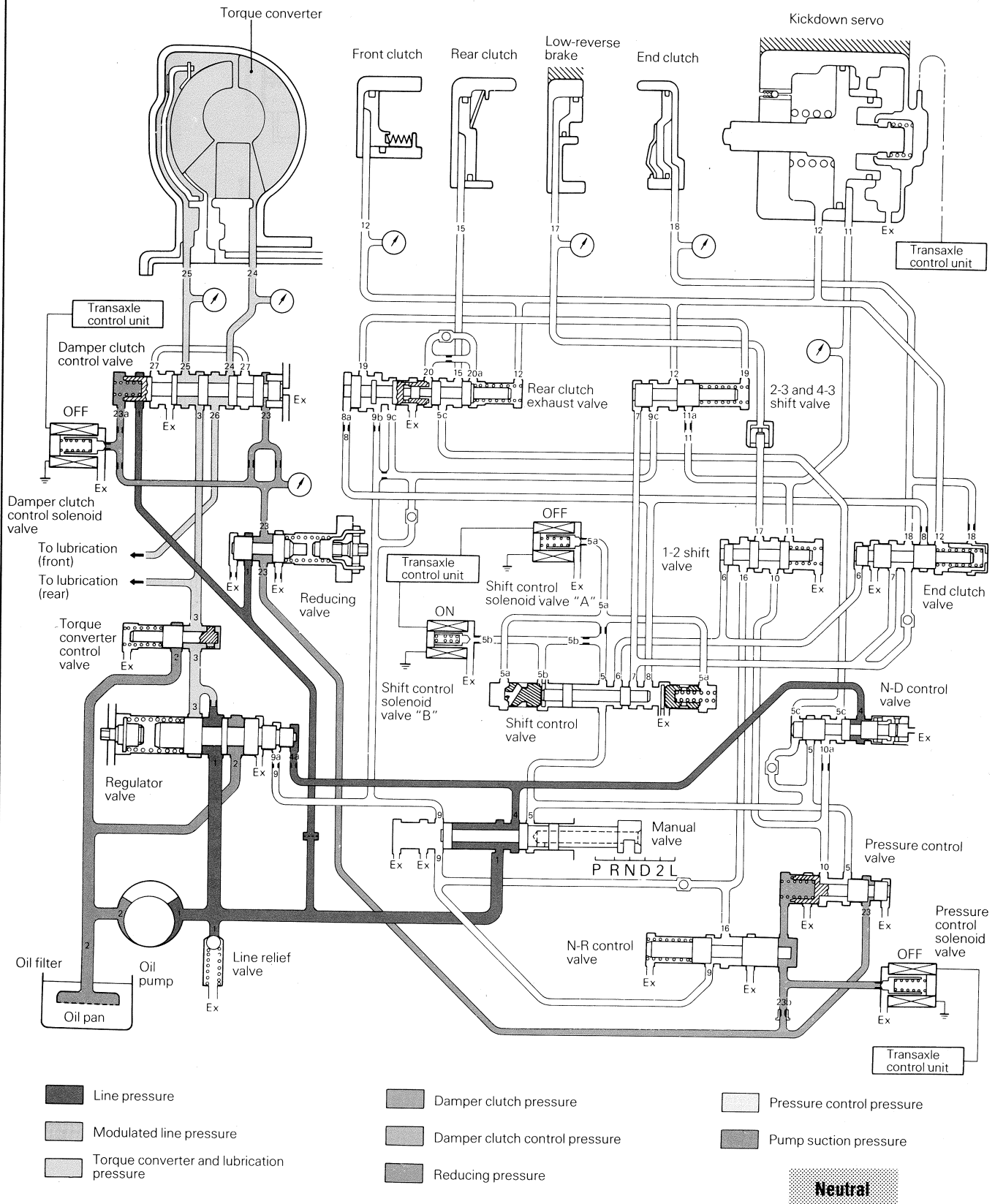
- ☐ Damper clutch pressure
- ☐ Damper clutch control pressure
- ☐ Reducing pressure
- ☐ Pump suction pressure



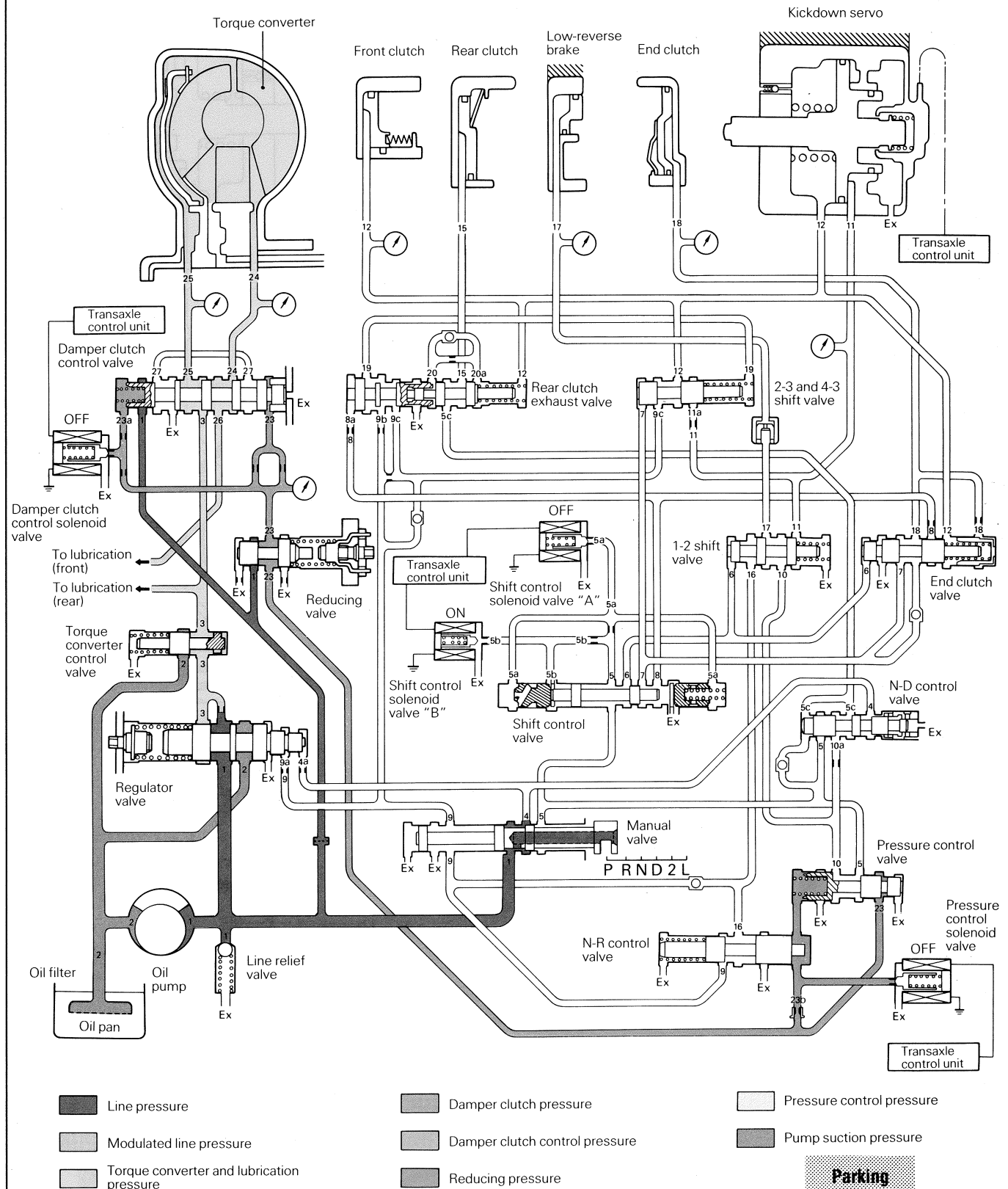
<KM171 – Reverse>



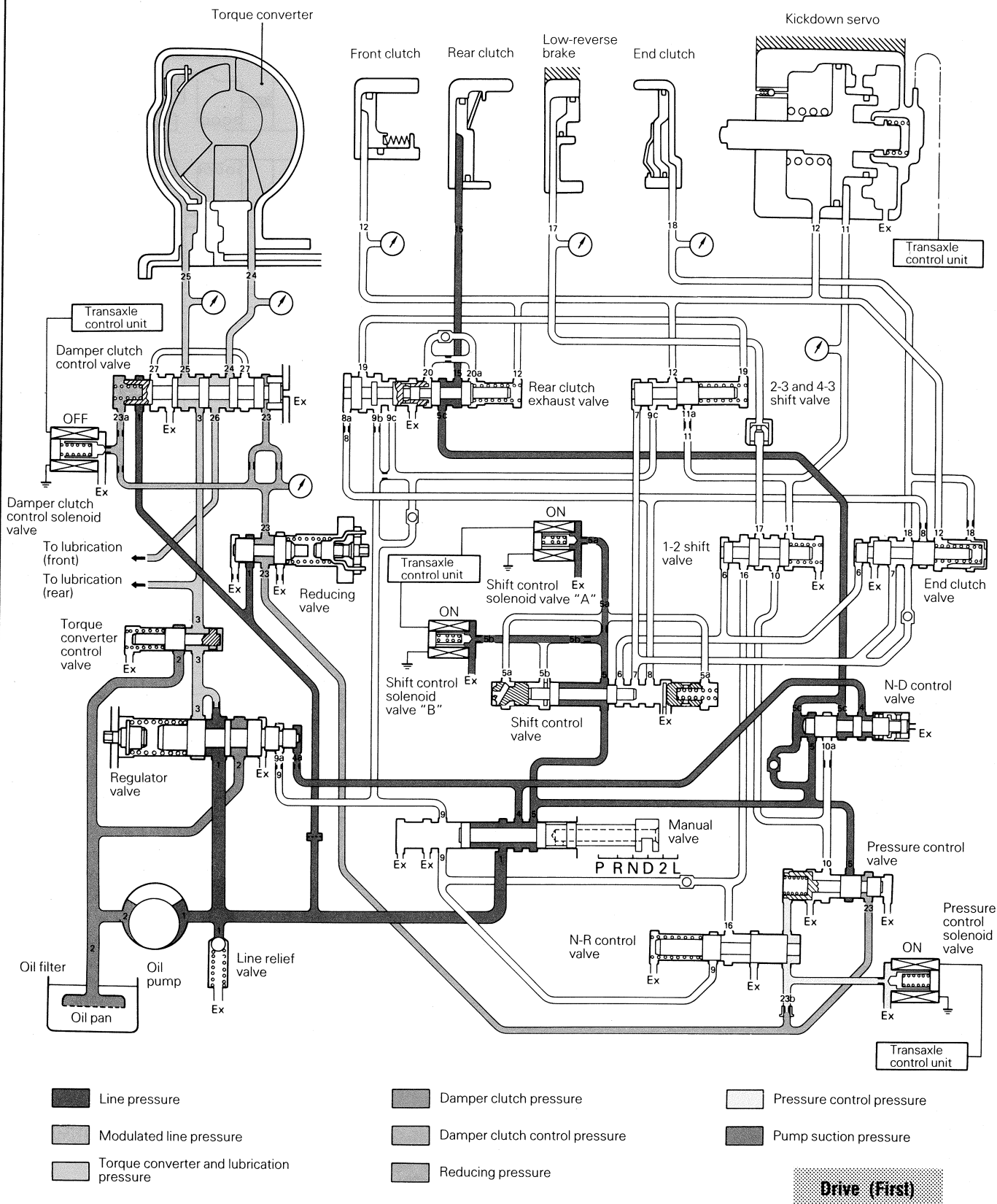
<KM176 – Neutral>



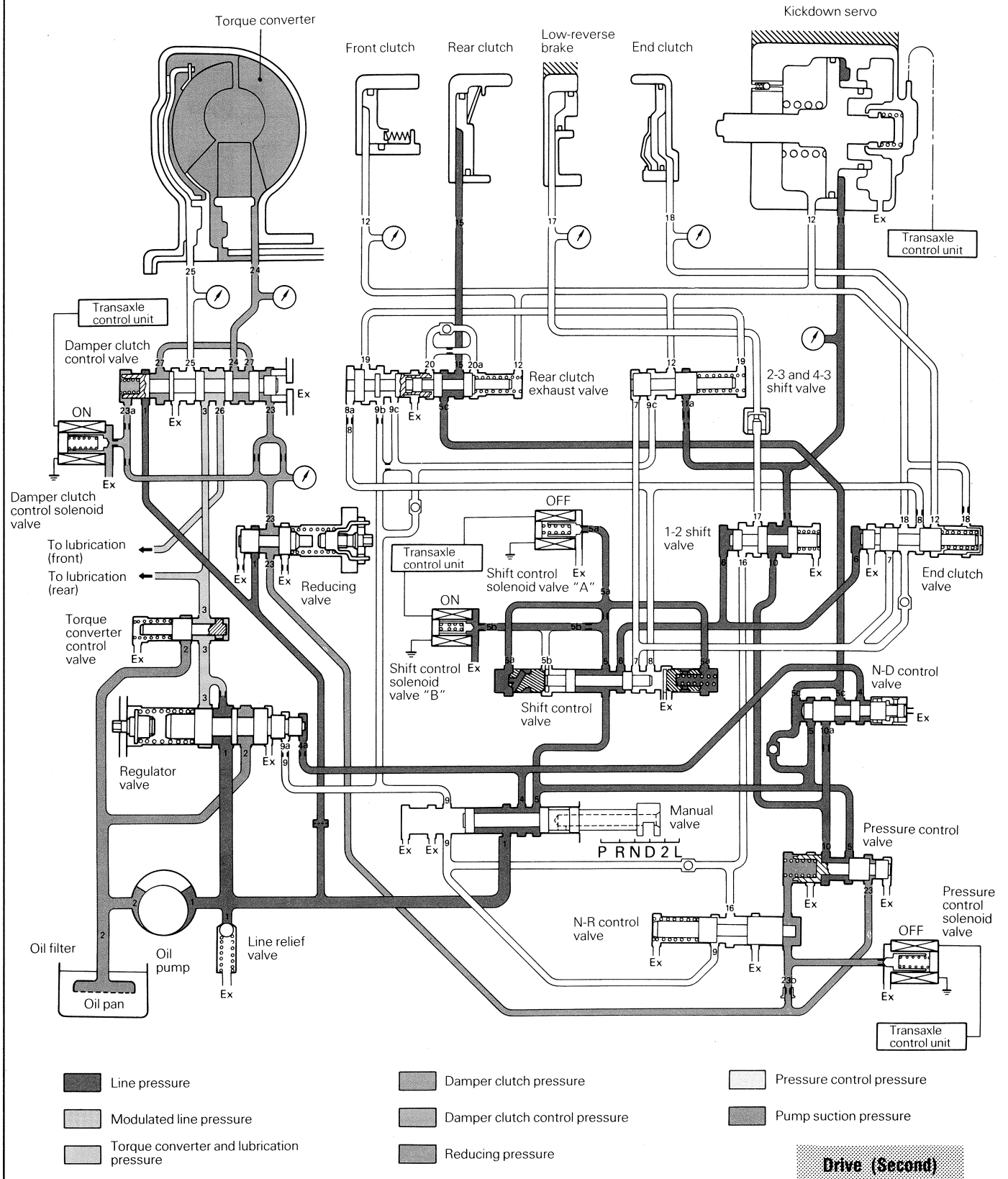
<KM176 – Parking>



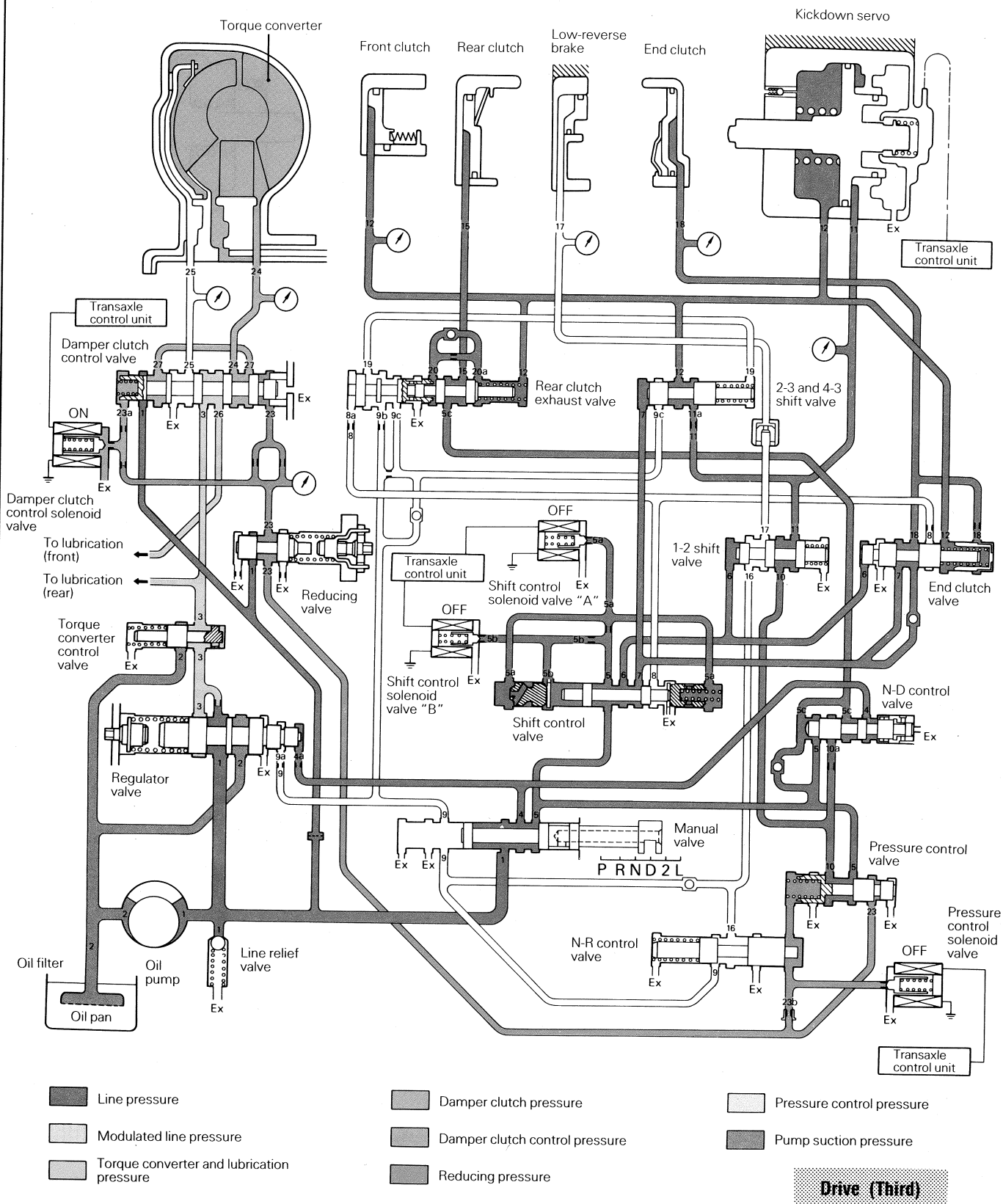
<KM176 – Drive-First>



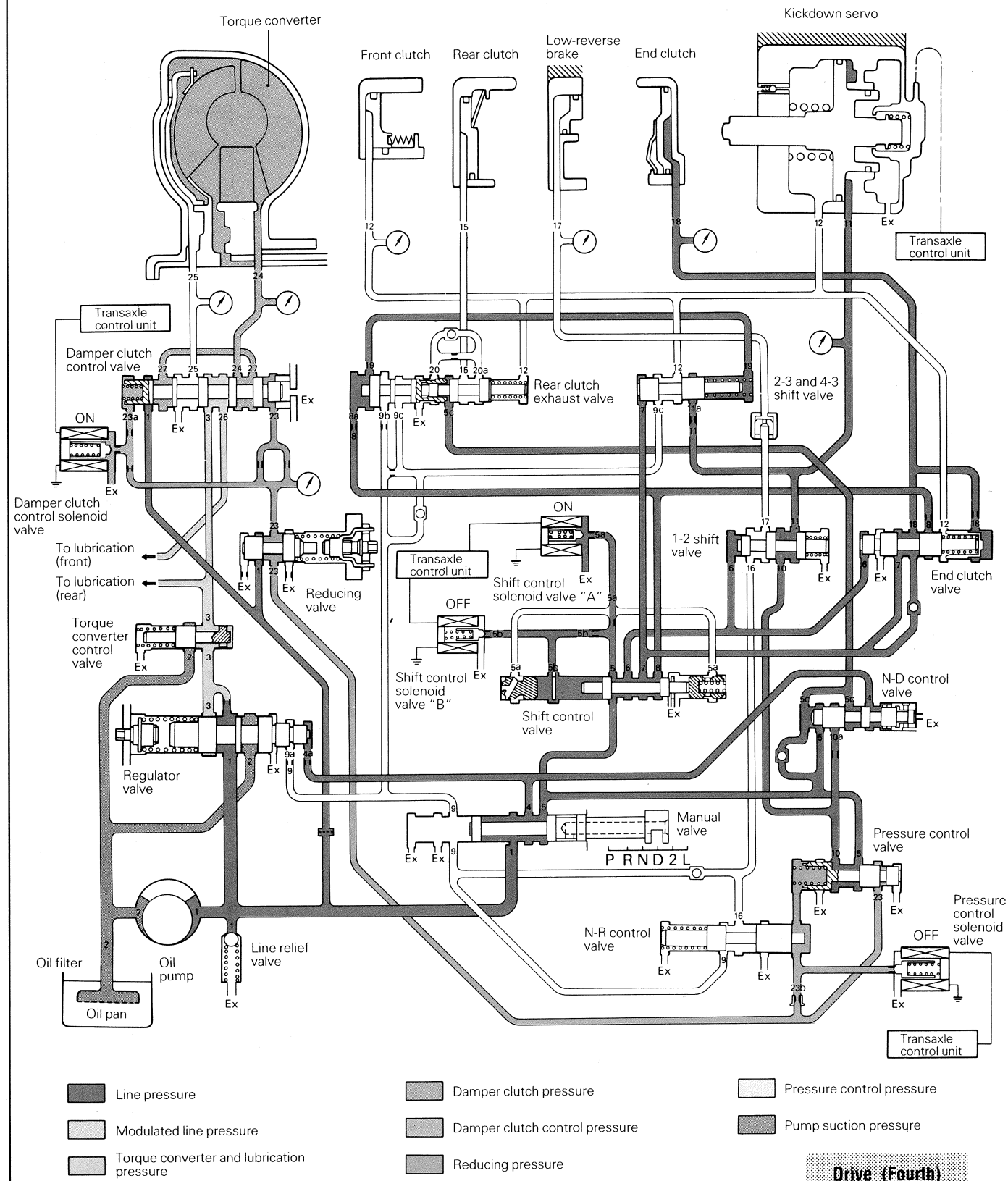
<KM176 – Drive-Second>



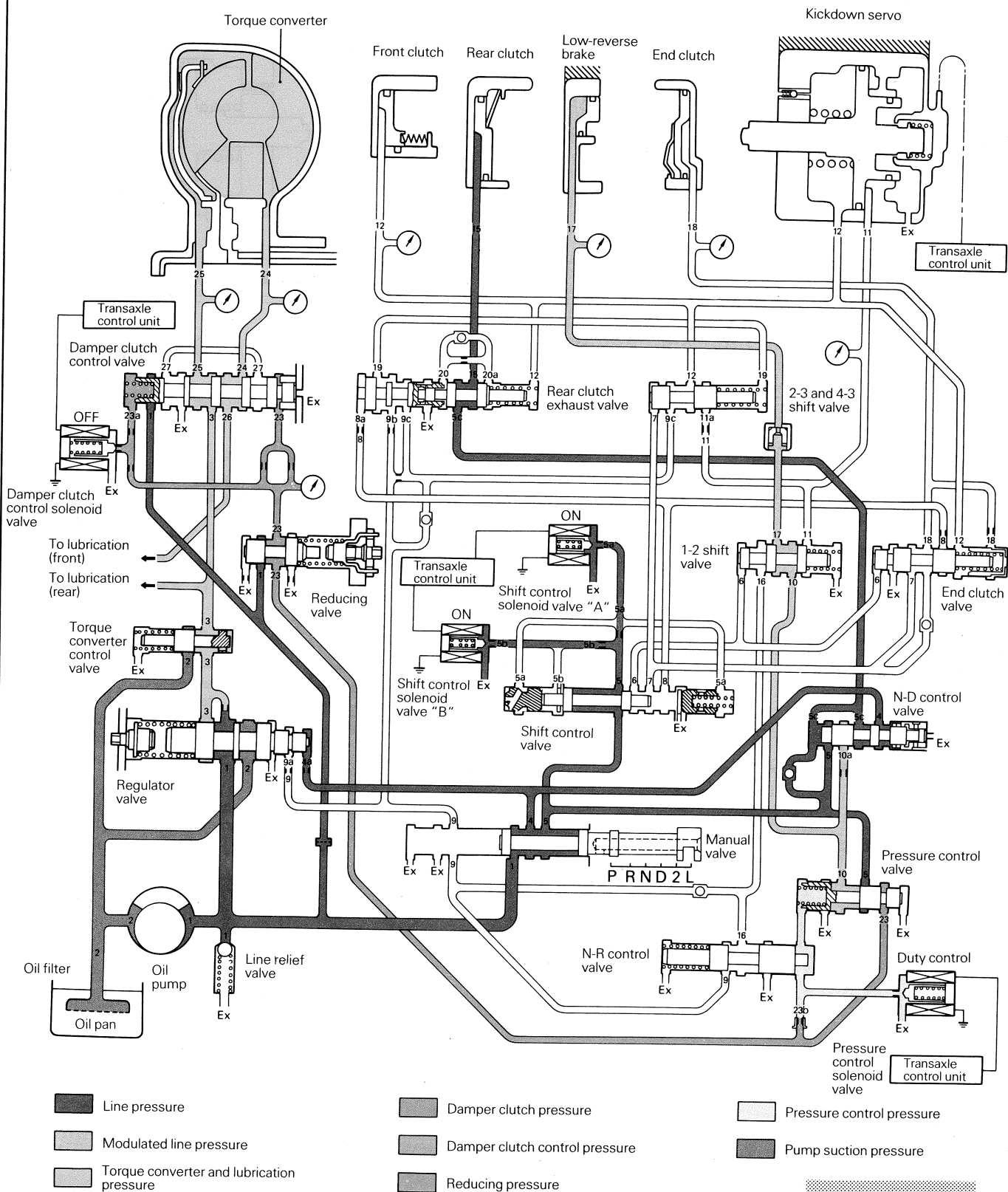
<KM176 – Drive-Third>



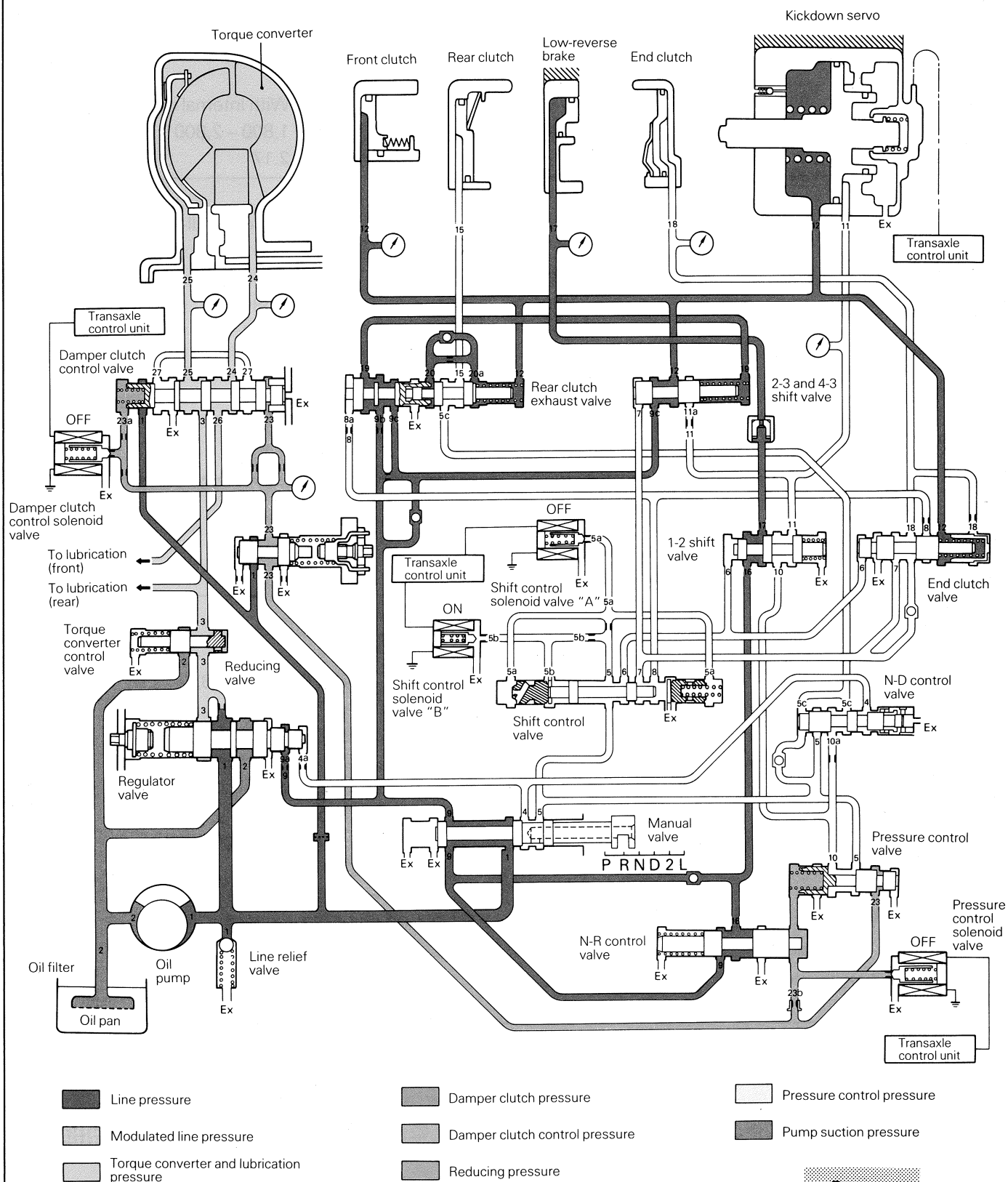
<KM176 – Drive-Fourth>



<KM176 – Lock-up>



<KM176 – Reverse>



SPECIFICATIONS

N21CA-B

GENERAL SPECIFICATIONS

Vehicle model	1500	1600
Transaxle model	KM171-5-APM	KM176-5-PD
Torque converter		
Type	With internal damper clutch	With internal damper clutch
Engine stall speed rpm	1,800 – 2,800	1,800 – 2,800
Stall torque ratio	2.17	2.17
Transaxle		
Type	3-speed Full-automatic	4-speed Full-automatic
Gear ratio		
First	2.846	2.846
Second	1.581	1.581
Third	1.000	1.000
Fourth	–	0.685
Reverse	2.176	2.176
Final gear ratio	3.600	4.062
Speedometer gear ratio (drive/driven)	36/31	36/31

SERVICE SPECIFICATIONS

N21CB-B

mm (in.)

Items	Specifications
Standard value	
Low reverse brake end play	0.775 – 1.087 (.0305 – .0428)
Transfer drive gear bearing end play	0 – 0.06 (0 – .0236)
Transfer shaft preload <KM171>	0.10 – 0.15 (.0040 – .0059)
Transfer shaft end play <KM176>	0 – 0.025 (0 – .0010)
Rear clutch retainer end play	0.3 – 1.0 (.0012 – .0394)
Differential case end play	0 – 0.15 (0 – .0059)
Differential side gear and pinion backlash	0.025 – 0.150 (.0010 – .0059)
Front clutch end play	0.4 – 0.6 (.0157 – .0236)
Rear clutch end play	0.3 – 0.5 (.0118 – .0197)
End clutch end play <KM176>	0.4 – 0.65 (.0157 – .0256)
Transfer idler gear preload	0.8 Nm (0.6 ft.lbs.)
Input shaft end play	0.3 – 1.0 (.0118 – .0394)
Oil pump gear side clearance	0.010 – 0.048 (.0004 – .0019)

VALVE BODY SPRING IDENTIFICATION CHART

<KM171>

mm (in.)

Items	Diameter of wire	Outside diameter of coil	Free height	Total No. of coils
Throttle valve spring	1.0 (.0394)	9.5 (.3740)	32.05 (1.2618)	11.8
Kickdown valve spring	0.5 (.0197)	6.4 (.2520)	26.14 (1.0291)	19
Torque converter control valve spring	1.1 (.0433)	8.8 (.3465)	26.4 (1.0394)	12
Regulator valve spring	1.4 (.0551)	15.4 (.6063)	51.4 (2.0236)	12
1-2 shift valve spring	0.6 (.0236)	7.6 (.2992)	31.3 (1.2323)	9.9
2-3 control valve spring	0.9 (.0354)	6.6 (.2598)	50.8 (2.0000)	29.34
2-3 shift valve spring	0.9 (.0354)	7.2 (.2835)	23.7 (.9331)	14
Line relief spring	1.0 (.0394)	7.0 (.2756)	17.3 (.6811)	10
Low relief spring	0.6 (.0236)	6.6 (.2598)	12.46 (.4906)	8.5
Reducing valve spring	0.8 (.0315)	6.8 (.2677)	40.35 (1.5886)	22
Clutch control valve spring	0.7 (.0256)	6.2 (.2441)	15.7 (.6181)	10.5
N-D accumulator valve spring	0.8 (.0315)	7.8 (.3071)	51.92 (4.0441)	25.27
N-D accumulator plug valve spring	1.4 (.0551)	13.6 (.5354)	37.39 (1.4720)	11.7
Range control valve spring	1.0 (.0394)	8.4 (.3307)	23.44 (.9228)	11

<KM176>

mm (in.)

Items	Diameter of wire	Outside diameter of coil	Free height	Total No. of coils
Regulator valve spring	1.4 (.0551)	15 (.5906)	52 (2.0472)	11.5
Torque converter control valve spring	1.2 (.0472)	9 (.3543)	24.1 (.9488)	10
Pressure control valve spring	0.45 (.0177)	7.6 (.2992)	21.3 (.8386)	6.5
Rear clutch exhaust valve spring	0.7 (.0256)	6.8 (.2677)	27.4 (1.0787)	10.5
End clutch valve spring	0.8 (.0315)	7 (.2756)	27.5 (1.0827)	13.5
2-3 shift valve spring	0.8 (.0315)	7 (.2756)	27.5 (1.0827)	13.5
1-2 shift valve spring	0.6 (.0236)	7.6 (.2992)	26.6 (1.0472)	13.5
Reducing valve spring	1.0 (.0394)	11 (.4331)	33.4 (1.3150)	9.5
N-R control valve spring	0.7 (.0256)	9.2 (.3622)	32.1 (1.2638)	8.5
Shift control valve spring	0.5 (.0197)	5.7 (.2244)	26.8 (1.0551)	22
Relief spring	1.0 (.0394)	7 (.2756)	17.3 (.6811)	10
Damper clutch control valve spring	0.7 (.0256)	6.2 (.2441)	15.7 (.6181)	10.5

SPACER AND SNAP RING

Part name	Thickness mm (in.)	Identification symbol	Part No.
Snap ring: KM171 (For adjustment of transfer drive gear bearing end play)	1.88 (.0740)	None	MD727501
	1.94 (.0764)	Brown	MD727502
	2.00 (.0787)	Blue	MD727503
	2.06 (.0811)	None	MD727504
Snap ring: KM176 (For adjustment of transfer drive gear bearing end play)	1.82 (.0717)	None	MD722538
	1.88 (.0740)	Blue	MD721014
	1.94 (.0764)	Brown	MD721015
	2.00 (.0787)	None	MD721016
	2.06 (.0811)	Blue	MD721017
	2.12 (.0835)	Brown	MD722539
Spacer: KM171 (For adjustment of transfer shaft preload)	0.82 (.0322)	82	MD712638
	0.85 (.0335)	85	MD712639
	0.88 (.0346)	88	MD712640
	0.91 (.0358)	91	MD712641
	0.94 (.0370)	94	MD712642
	0.97 (.0382)	97	MD712643
	1.00 (.0394)	00	MD712644
	1.03 (.0406)	03	MD712645
	1.06 (.0417)	06	MD712646
	1.09 (.0429)	09	MD712647
	1.12 (.0441)	12	MD712648
	1.15 (.0453)	15	MD712649
	1.18 (.0465)	18	MD712650
	1.21 (.0476)	21	MD712651
	1.24 (.0488)	24	MD712652
	1.27 (.0500)	27	MD712653
	1.30 (.0512)	30	MD712654
	1.33 (.0524)	33	MD712655
	1.36 (.0535)	36	MD712656
	1.39 (.0547)	39	MD712657
	1.42 (.0559)	42	MD712658
	1.45 (.0571)	45	MD712659
	1.48 (.0583)	48	MD712660
	1.51 (.0594)	51	MD712661
	1.54 (.0606)	54	MD712662
	1.57 (.0618)	57	MD712663
	1.60 (.0630)	60	MD712664
	1.63 (.0642)	63	MD712665
	1.66 (.0654)	66	MD712666
	1.69 (.0665)	69	MD712667

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer: KM176 (For adjustment of transfer shaft end play)	1.20 (.0472)	20	MD723160
	1.23 (.0484)	23	MD723161
	1.26 (.0496)	26	MD723162
	1.29 (.0508)	29	MD723163
	1.32 (.0520)	32	MD723164
	1.35 (.0531)	35	MD723165
	1.38 (.0543)	38	MD723166
	1.41 (.0555)	41	MD723167
	1.44 (.0567)	44	MD723168
	1.47 (.0579)	47	MD723169
	1.50 (.0591)	50	MD723170
	1.53 (.0602)	53	MD723171
	1.56 (.0614)	56	MD723172
	1.59 (.0626)	59	MD723173
	1.62 (.0638)	62	MD723174
	1.65 (.0650)	65	MD723175
	1.68 (.0661)	68	MD723176
	1.71 (.0673)	71	MD723177
	1.74 (.0685)	74	MD723178
	1.77 (.0697)	77	MD723179
	1.80 (.0709)	80	MD723180
Snap ring (For adjustment of front and rear clutch end play)	1.6 (.0630)	None	MD955630
	1.7 (.0669)	Brown	MD730930
	1.8 (.0709)	Blue	MD955631
	1.9 (.0748)	None	MD730931
	2.0 (.0787)	Brown	MD955632
	2.1 (.0827)	Blue	MD730932
	2.2 (.0866)	None	MD955633
	2.3 (.0906)	Brown	MD730933
	2.4 (.0945)	Blue	MD955634
	2.5 (.0984)	None	MD730934
	2.6 (.1024)	Brown	MD955635
	2.7 (.1063)	Blue	MD730935
	2.8 (.1102)	None	MD955636
	2.9 (.1142)	Brown	MD730936
	3.0 (.1181)	Blue	MD955637
Snap ring (For adjustment of end clutch end play)	1.05 (.0413)	White	MD715800
	1.30 (.0512)	Yellow	MD715801
	1.55 (.0610)	None	MD715802
	1.80 (.0709)	Green	MD715803
	2.05 (.0807)	Pink	MD720849

Part name	Thickness mm (in.)	Identification symbol	Part No.
Spacer (For adjustment of differential case end play)	1.31 (.0516)	E	MD706574
	1.40 (.0551)	None	MD706573
	1.49 (.0587)	C	MD706572
	1.58 (.0622)	B	MD706571
	1.67 (.0657)	A	MD706570
	1.76 (.0693)	F	MD706575
Spacer (For adjustment of differential side gear and pinion backlash)	0.75 – 0.82 (.0295 – .0323)	–	MA180862
	0.83 – 0.92 (.0327 – .0362)	–	MA180861
	0.93 – 1.00 (.0366 – .0394)	–	MA180860
	1.01 – 1.08 (.0398 – .0425)	–	MA180875
	1.09 – 1.16 (.0429 – .0457)	–	MA180876

TORQUE SPECIFICATIONS

N21CC-B

Items	Nm	ft.lbs.
Control cable to body	9 – 14	7 – 10
Lever assembly to body	9 – 14	7 – 10
Lever to bracket assembly	14 – 20	10 – 14
Starter motor mounting bolts	27 – 34	20 – 25
Transaxle mounting bracket to transaxle	60 – 80	43 – 58
Transaxle mounting bracket to body	60 – 80	43 – 58
Transaxle mounting bracket to tension rod	75 – 95	54 – 69
Tension rod to tension rod bracket	35 – 55	25 – 40
Tie rod end to knuckle	15 – 34	11 – 25
Lower arm ball joint to knuckle	60 – 72	43 – 52
Bell housing cover mounting bolts	10 – 12	7 – 9
Transaxle mounting bolts [12 mm (.47 in.) diameter bolt]	43 – 55	31 – 40
Transaxle mounting bolts [10 mm (.39 in.) diameter bolt]	30 – 35	22 – 25
Transaxle mounting bolts [8 mm (.31 in.) diameter bolt]	10 – 12	7 – 8
Drive plate to torque converter	46 – 53	34 – 38
Manual control lever set screw	8 – 10	6 – 7
Sprag rod support bolt	20 – 27	15 – 19
Idler shaft lock plate bolt	20 – 27	15 – 19
Bearing retainer attaching bolt	15 – 22	11 – 15
Oil pump mounting bolt	15 – 22	11 – 15
Converter housing mounting bolt	19 – 23	14 – 16
Valve body mounting bolt	10 – 12	7.5 – 8.5
Oil filter mounting bolt	5 – 7	4 – 5
Oil pan mounting bolt	10 – 12	7.5 – 8.5
Inhibitor switch attaching bolt	10 – 12	7.5 – 8.5
Manual control lever attaching bolt	17 – 21	13 – 16
Pulse generator attaching bolt	10 – 12	7.5 – 8.5
Oil pump housing bolt	10 – 12	7.5 – 8.5
Differential drive gear bolt	130 – 140	95 – 101
Planetary carrier bolt	15 – 22	11 – 15
Valve body fastening bolt	4 – 6	3 – 4
Throttle cam attaching bolt	8 – 10	6 – 7
Governor set screw	8 – 10	6 – 7



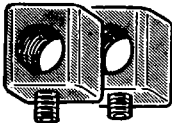
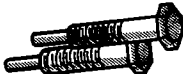

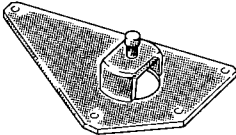
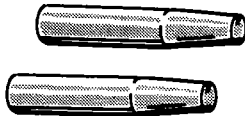
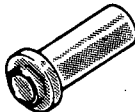
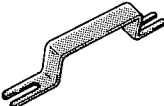
LUBRICANTS

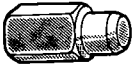

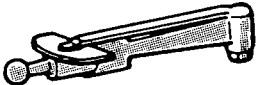
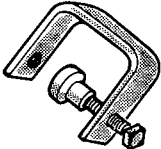
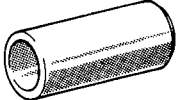

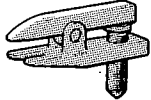
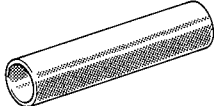
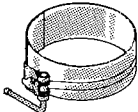
N21CD-B

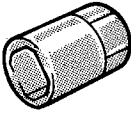
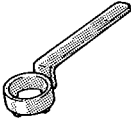







Items	Specified lubricant	Quantity
Automatic transaxle fluid liters (pints)	MOPAR ATF PLUS (AUTOMATIC TRANSAXLE FLUID TYPE 7176) or DEXRON II	6.1 (13.0)
Drive shaft oil seal lip	MOPAR ATF PLUS (AUTOMATIC TRANSAXLE FLUID TYPE 7176) or DEXRON II	As required
Selector lever sliding portion	MOPAR Front Wheel Bearing Grease Part No. 3837794 or equivalent	As required

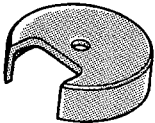
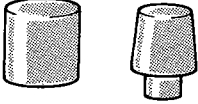
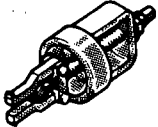
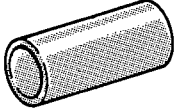
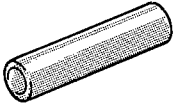

SPECIAL TOOLS

N21DA-B

Tool	Number	Name	Use
	C-3292	100 lb. pressure checking gauge	Measurement of the hydraulic pressure
	C-3293	300 lb. pressure checking gauge	Measurement of the hydraulic pressure
	MD998332	Adapters	Measurement of the hydraulic pressure
	MD998333	Removers	Removal of oil pump
	MD998336	Guide pin	Alignment of oil pump housing and reaction shaft support
	MD998351	Transfer shaft retainer	Installation of transfer shaft rear bearing and gear
	MD998266	Guide pins	Alignment of intermediate plate and valve bodies
	MD998334	Oil pump oil seal installer	Installation of oil pump oil seal
	MD998905	Handle	Removal and installation of center support

Tool	Number	Name	Use
	MD998343	Wrench adapter	Preload measurement of transfer idler shaft Measurement on transfer idler gear
	MD998344	Wrench adapter "B"	Removal and installation of transfer idler shaft
	C-3380-A	Torque wrench	Measurement of idle gear preload
	MD998303	Compressor	Removal and installation of kickdown servo
	MD998350	Bearing installer	Installation of bearing
	MD998325	Drive shaft oil seal installer	Installation of drive shaft oil seal, common to manual and automatic transaxle
	MB990635	Steering linkage puller	Removal of the lower arm joint and tie rod end ball joint
	MD998322	Bearing installer	Installation of bearing
	MD998335	Oil pump hand	Installation of oil pump

Tool	Number	Name	Use
	MD998901	Socket wrench	Adjustment of kickdown servo
	MD998902	Kickdown servo wrench	Adjustment of kickdown servo
	MD998913	Dial indicator extension	Measurement of low-reverse brake end play
	MD998801	Bearing remover	Removal of bearing
	MD998908	Bearing installer	Installation of transfer shaft front bearing
	MD998910	Bearing installer	Installation of transfer shaft rear bearing
	MD998912	Handle	Handle for MD998908 and MD998910
	MD998337	Spring compressor	For MD998907 and MD998338
	MD998907	Spring compressor	Disassembly of front clutch

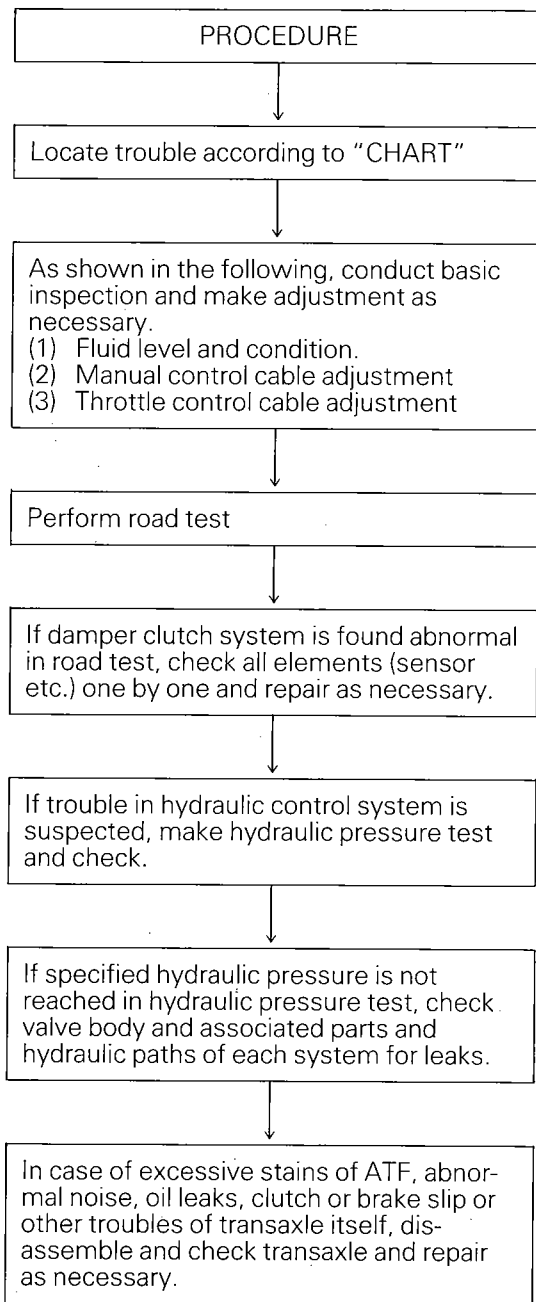
Tool	Number	Name	Use
	MD998338	Spring compressor	Disassembly of rear clutch
	MD998367	Snap ring installer	Assembly of end clutch
	MD998346	Bearing/gear puller	Removal of output flange bearing/gear
	MD998349	Bearing installer	Installation of output flange bearing gear
	MD998909	Bearing installer	Installation of transfer shaft bearing
	MD998911	Bearing installer	Installation of transfer driven gear bearing

TROUBLESHOOTING <KM171>**GENERAL INFORMATION**

Functional troubles of the automatic transaxle are caused by the following.

- (1) Poor engine performance
- (2) Improper adjustments
- (3) Hydraulic malfunctions
- (4) Mechanical malfunctions
- (5) Electrical malfunctions

For troubleshooting, you have to begin with hearing from the client the conditions leading to the trouble and the state of the trouble in as many details as possible and checking if such trouble is reproducible. Then, conduct the tests following the inspection procedures shown to the left in order.



TROUBLESHOOTING CHART

Symptom			Driving impossible or abnormal (before start)										
			Starter inoperative	Forward drive im-possible	Reverse drive im-possible	Engine stalls when shifting from "N" to "D", "R"	Clutch slips in "D" position (stall rpm too high)	Clutch slips in "R" position (stall rpm too high)	Stall rpm too low	Vehicle starts to move in "P" or "N" position	Vehicle starts to move in position midway of "N" and "R" or "N" and "D"	Parking mechanism does not work	Abnormal shock felt when selecting "D", "2", "L" or "R"
Probable cause													
Engine	1	Idling rpm abnormal				⊗							X
	2	Performance failure				X			X				
	3	Throttle control cable inadequately adjusted		X	X		X	X	X				X
Transaxle proper (power train)	4	Manual linkage inadequately adjusted	X	⊗	⊗		⊗	⊗		⊗	⊗	⊗	⊗
	5	Torque converter failure		X	X				X				
	6	Oil pump failure		X	X		X	X					
	7	One way clutch failure		X			X						
	8	Damaged or worn gear or other rotating parts, shim preload inadequately adjusted											
	9	Parking mechanism failure								X		X	
	10	Cracked drive plate or loose bolt											
Hydraulic system (including friction elements)	11	Low fluid level		⊗	⊗		X	X					
	12	Low line pressure (broken seal, leaks, looseness, etc.)		⊗	⊗		⊗	⊗					
	13	Faulty valve body (valve sticking, poor machining, blowhole, poor adjustment, etc.)		⊗	⊗	X	X	X		X	X		X
	14	Faulty front clutch, piston			X			X					X
	15	Faulty rear clutch, piston		⊗			X						X
	16	Faulty kickdown band or piston											
	17	Kickdown servo poorly adjusted											
	18	Faulty low reverse brake, piston			X								X
	19	O-ring missing in low reverse brake circuit between valve body and case			X								
	20	Governor failure											
Electrical control system	21	Faulty inhibitor switch, open wire, poor adjustment	X								X		
	22	Faulty throttle position sensor, poor adjustment											
	23	Pulse generator (A) open wire or shorting											
	24	Pulse generator (B) open wire or shorting											
	25	Faulty ignition signal system											
	26	Damper clutch control solenoid valve open wire (valve closed)											
	27	Damper clutch solenoid valve shorting, sticking (valve open)				⊗							
	28	Coolant temperature sensor faulty											
	29	Faulty control unit											

Remarks: ⊗ indicates items to be given high priority in inspection.

	Shifting failure or shock (after start)									Abnormal noise and others		
	Shifting does not take place according to shift pattern	Unsmooth start	High creep and idle vibration	Large shock felt when shifting from 1st to 2nd	Large shock felt when shifting from 2nd to 3rd	Large shock felt when shifting down in "D" or "2"	Engine running up when shifting up	Large shock when shifting from 3rd to 2nd	Damper clutch inoperative	Converter housing whining with increasing engine rpm	Mechanical noise (rattling) from converter housing	Abnormal noise from transaxle case
1			X									
2		X		X	X	X						
3	X	X	X	X	X	X		X				
4		X										
5		X							X			
6								X		X		
7												
8												X
9												
10											X	
11	X	X					X	X				
12	X	X					⊗	⊗				
13	X	X		X	X	X	X	X	X			
14	X				X		X					
15												
16	X			X			X	X				
17	X			X			X	X				
18						X						
19												
20	X											
21												
22									X			
23									X			
24									X			
25									X			
26									X			
27												
28									X			
29									X			

FLUID LEVEL AND CONDITION

Refer to GROUP 0 – Maintenance Service.

CONTROL CABLE

Whether control cable is properly adjusted can be confirmed by checking whether inhibitor switch is performing well.

1. Apply parking brakes and service brakes securely.
2. Place selector lever to "R" range.
3. Set ignition key to "ST" position.
4. Slowly move the selector lever upward until selector lever makes a click as it fits in notch of "P" range. If starter motor operates when lever makes a click, "P" position is correct.
5. Then slowly move selector lever to "N" range by the same procedure as in foregoing paragraph. If starter motor operates when selector lever fits in "N", "N" position is correct.
6. Next, slowly move selector lever to "R" and "D" ranges. The starter motor must not operate in either of these ranges.
7. If starter motor operates in both "P" and "N" range and does not operate in "R" and "D" positions as described above, it follows that manual control cable is properly adjusted.

THROTTLE CONTROL CABLE

Throttle control cable adjustment is very important adjustment to assure normal operation of transaxle.

Shift speed control and shift feeling depend largely on this adjustment. If inner cable is tight, late and harsh shifts will result. If inner cable is long (slack), early and slipping shifts will result.

1. Keep the ignition switch in the ON position for 15 to 20 seconds (but not start the engine).

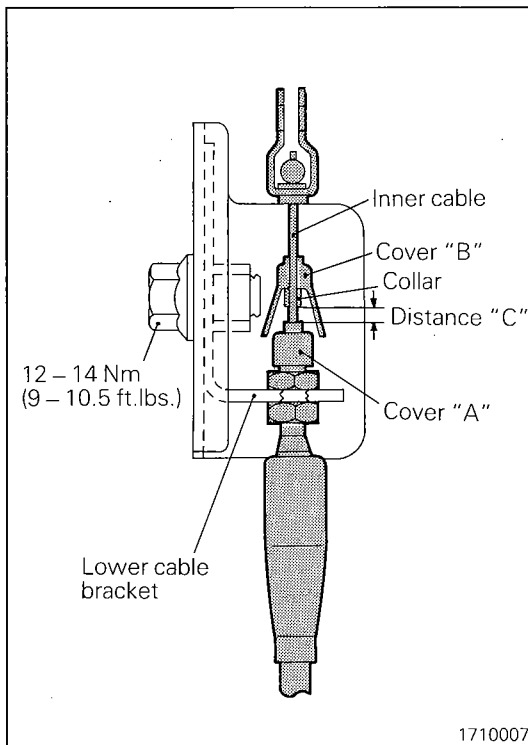
NOTE

Keeping the ignition switch in the ON position for 15 to 20 seconds causes the ISC servo to re-establish its initial set condition.

2. Raise cable cover "B" to expose cable collar.
3. Adjust distance "C" between the collar and cover "A" to obtain the following dimension:

Distance "C": 1 ± 0.5 mm ($.04 \pm .02$ in.)

4. Check to ensure that when throttle valve is fully opened and inner cable pulled further upward, there is still some margin in cable stroke.



1710007

ROAD TEST

Prior to performing road test, be certain that fluid level is OK and control cable adjustments have been checked. During road test, the transaxle must be checked for slipping of each friction element, a shock felt at engagement or proper upshift or down shift.

The "Element in Use at Each Position of the Selector Lever" charts on next page show which element is operating at each selector lever position. Further, the "Automatic Shift Speed Pattern" charts on page 21-117 show vehicle speeds. Refer to these charts and follow the following procedure to perform road test.

TEST 1 (SELECTOR IN "D")

1. Start and run cold engine at fast idle until coolant temperature rises to 80 to 90°C (170 to 190°F).
2. Place selector lever in "D" (Drive) position.
3. When selector lever is placed in "D" position, make sure that engine does not stop. If engine stops, either improper idle adjustment or faulty damper clutch system is suspected. Check and repair as necessary.
4. With accelerator pedal kept depressed either halfway or fully and without changing pedal position, start vehicle and increase vehicle speed.
Check to see if transaxle makes 1-2 and 2-3 upshifts and if shifts take place properly at correct vehicle speeds.
Also check for abnormal shock or any slips of friction elements at the time of shifting.
5. During drive in third gear, check for noise and vibration.
6. Drive in second or third gear to check to see if 2-1, 3-1 and 3-2 kickdown shifts occur properly at specified kickdown limit vehicle speeds.
7. Drive in third gear, and select "2" range then "L" range to check if engine brake is effective.
8. Drive in third gear [at 50 km/h (31 mph) or higher speeds], and select "L" range to check if 2-1 downshift occurs at proper vehicle speed.

TEST 2 (SELECTOR IN "2")

1. Place selector lever in "2" (Second) position.
2. Start vehicle and increase vehicle speed. Check to see if transaxle makes 1-2 upshift and if shift takes place properly at correct vehicle speed. Also check for abnormal shock and noise at the time of shifting as well as acceleration and deceleration.
3. Check to see if 2-1 kickdown occurs at correct limit vehicle speed.

TEST 3 (SELECTOR IN "L")

1. Place selector lever in "L" (Lock-up) position.
2. While driving with selector lever in "L" position, make certain no upshift to second gear (or third gear) occurs.
3. Check for noise in either acceleration or deceleration.

TEST 4 (SELECTOR IN "R")

1. Place selector lever in "R" (Reverse) position.
2. Start engine and "stall test" transaxle to see that friction element is not slipping.

TEST 5 (SELECTOR IN "P")

1. With vehicle parked on about 5% grade, place selector lever in "P" position and release parking brake. Parking system must work properly and vehicle must not move.
2. If necessary, make this test in both forward and backward directions.

ELEMENT IN USE AT EACH POSITION OF THE SELECTOR LEVER

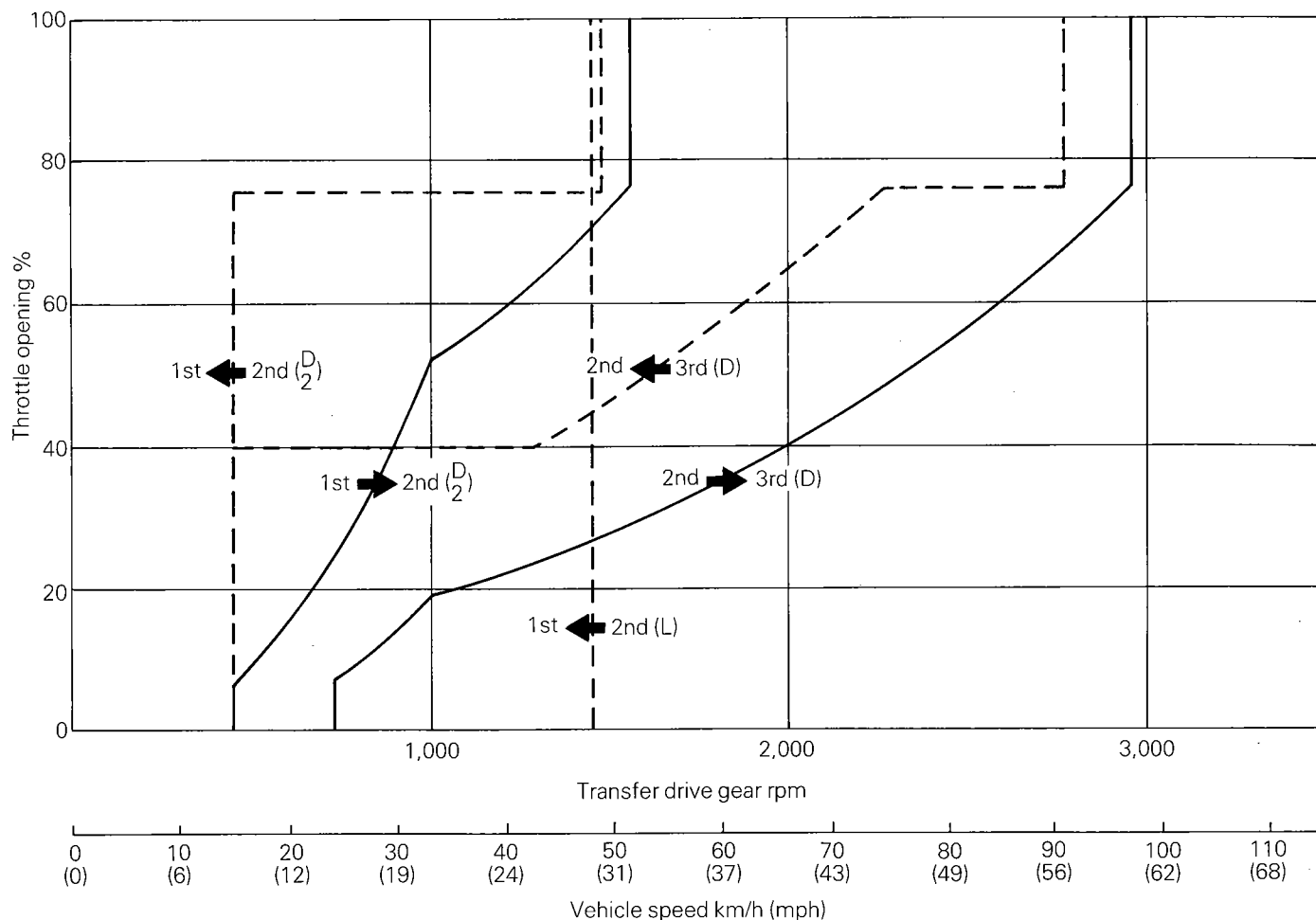
○: Operating

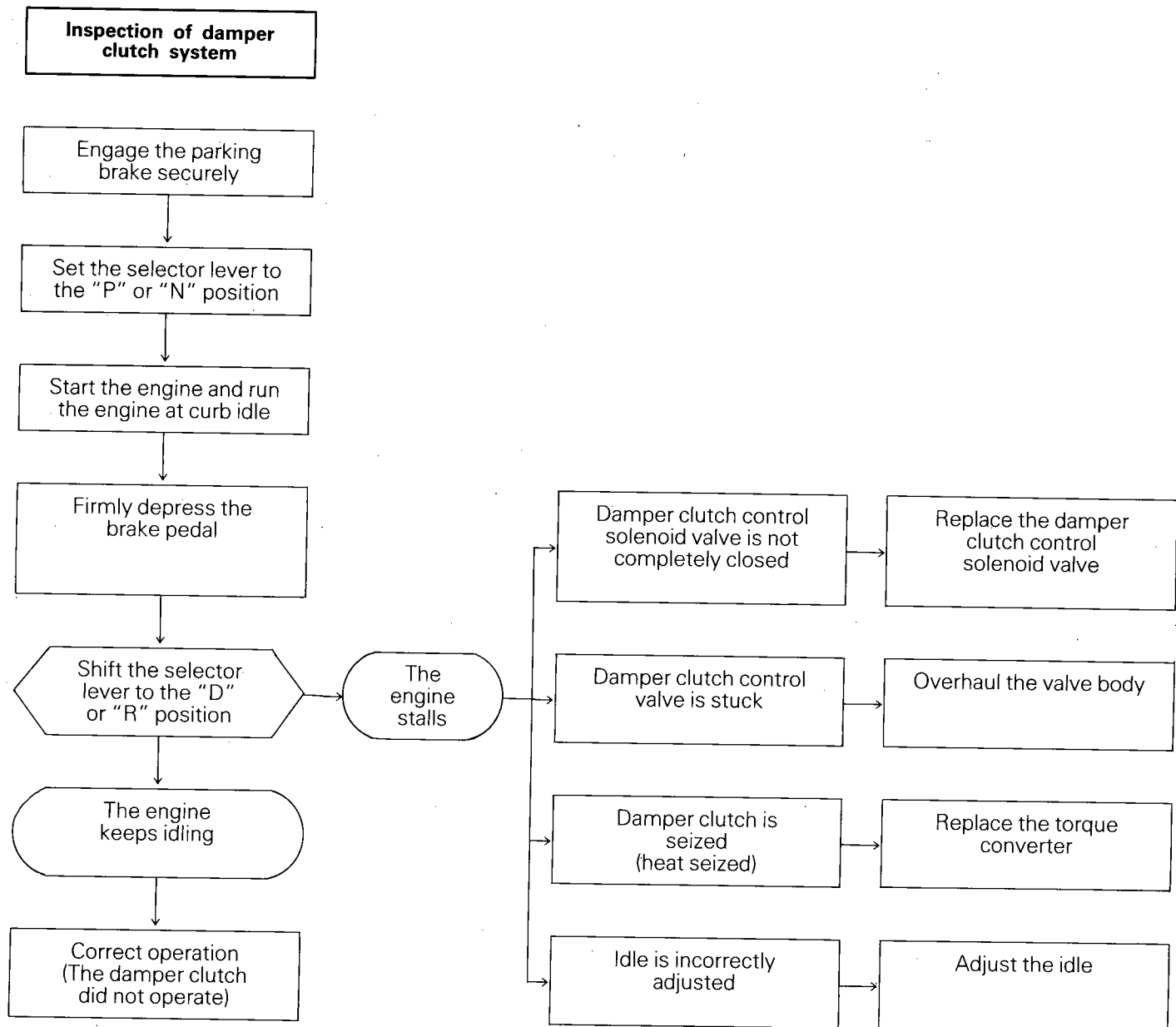
Selector lever position	Gear position	Front clutch	Rear clutch	One-way clutch	Kickdown band	Low-reverse brake
P	Parking					
R	Reverse	○				○
N	Neutral					
D	1st		○	○		
	2nd		○		○	
	3rd	○	○			
2	1st		○	○		
	2nd		○		○	
L	1st		○			○
	* 2nd		○		○	

*: Downshift in L range only.

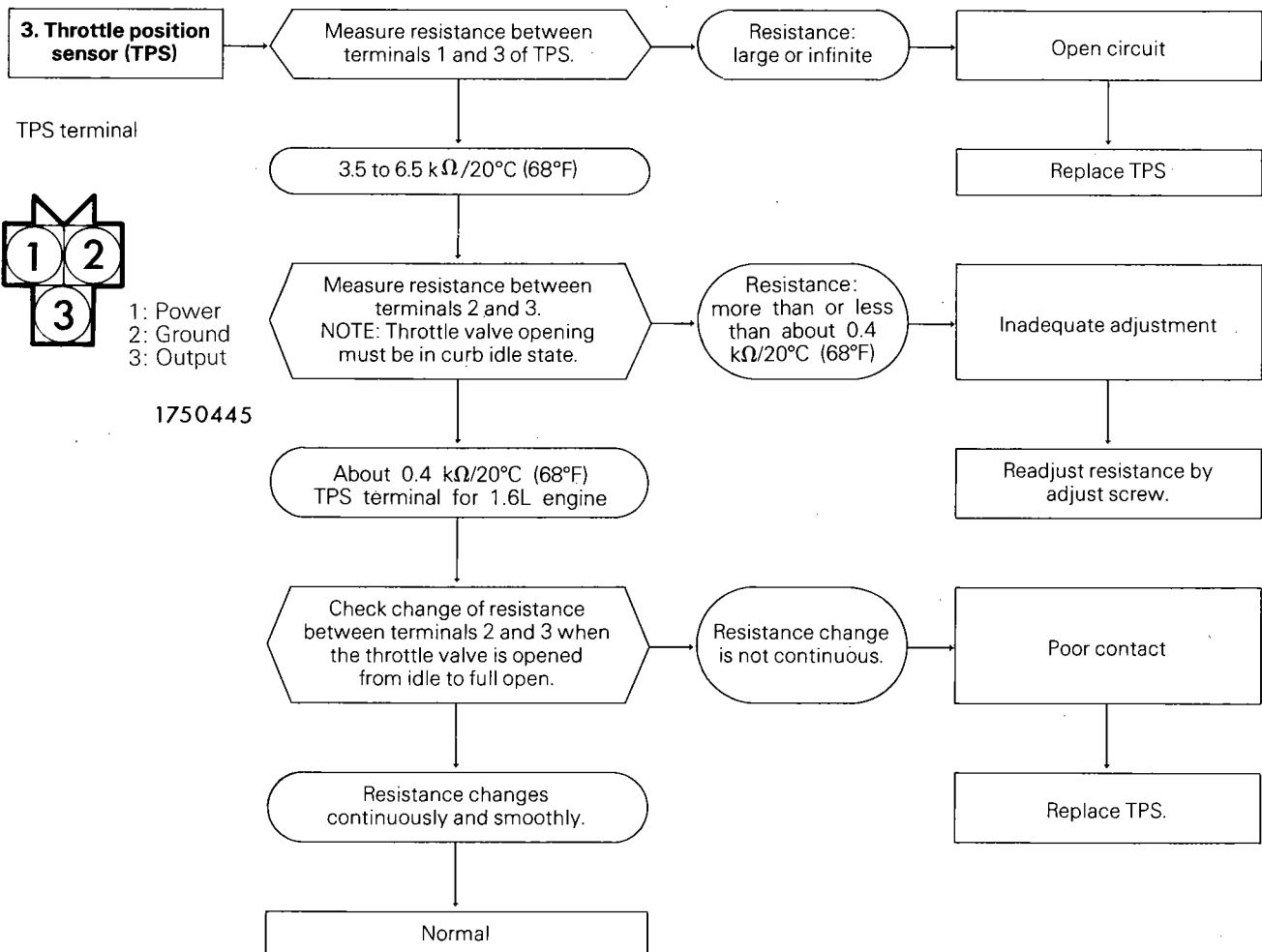
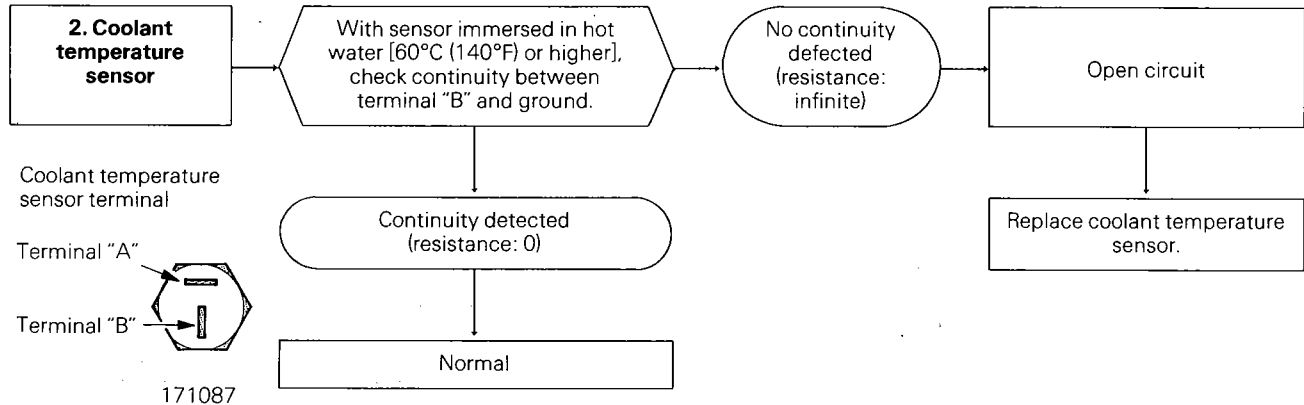
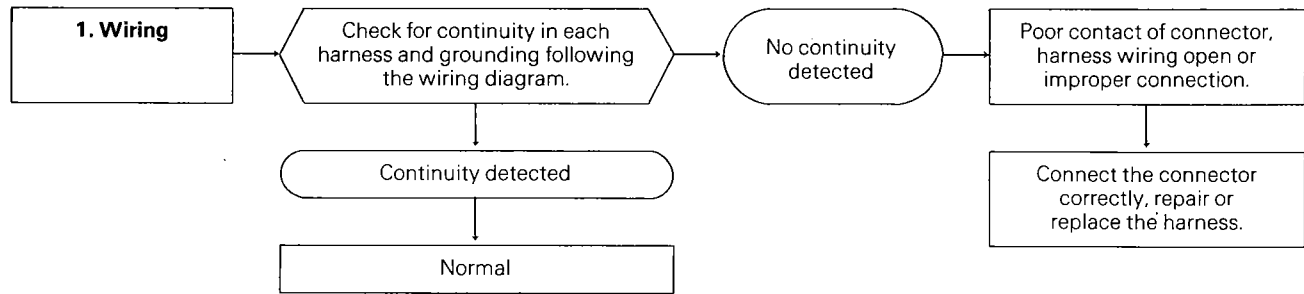
AUTOMATIC SHIFT SPEED PATTERN

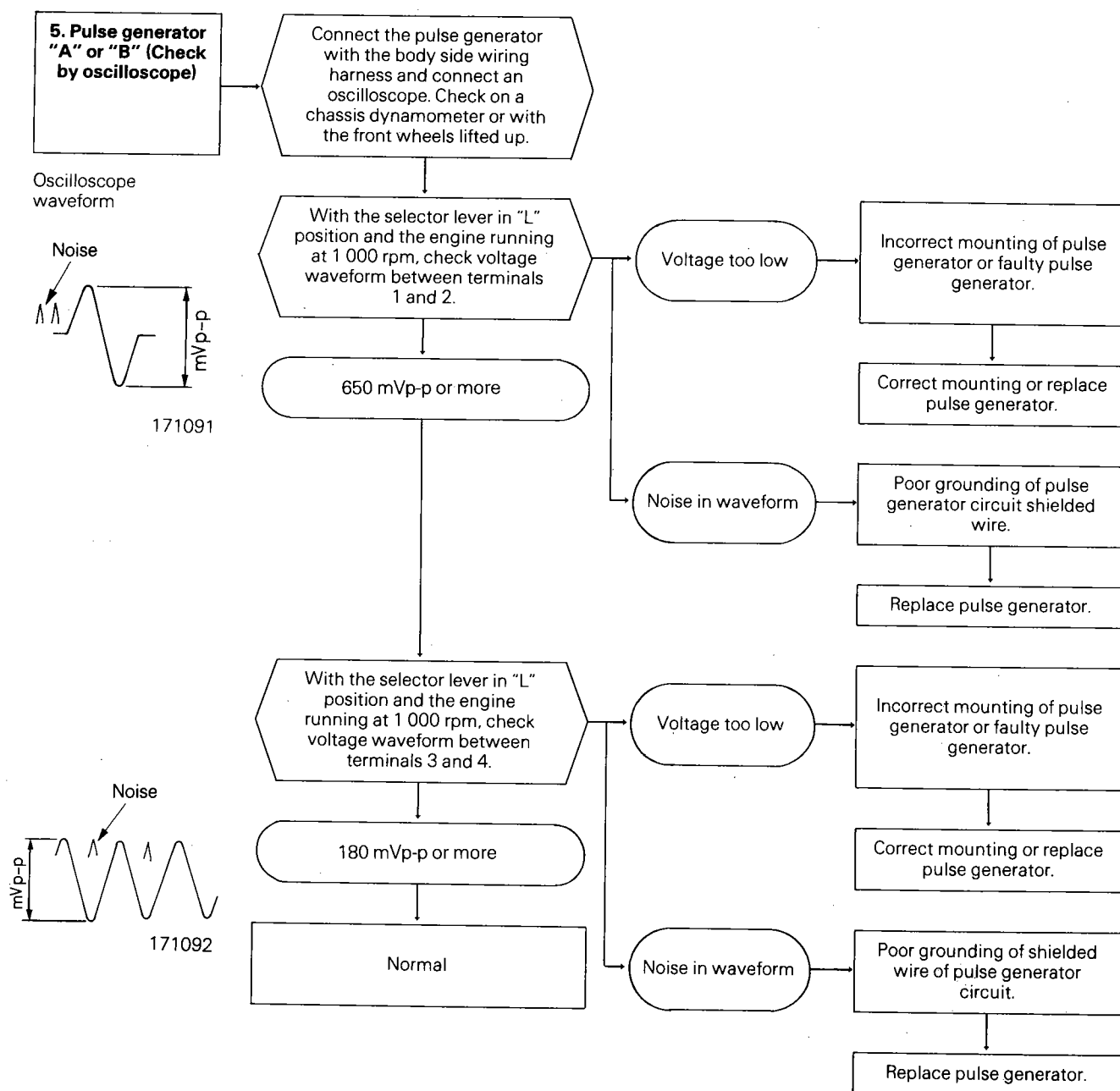
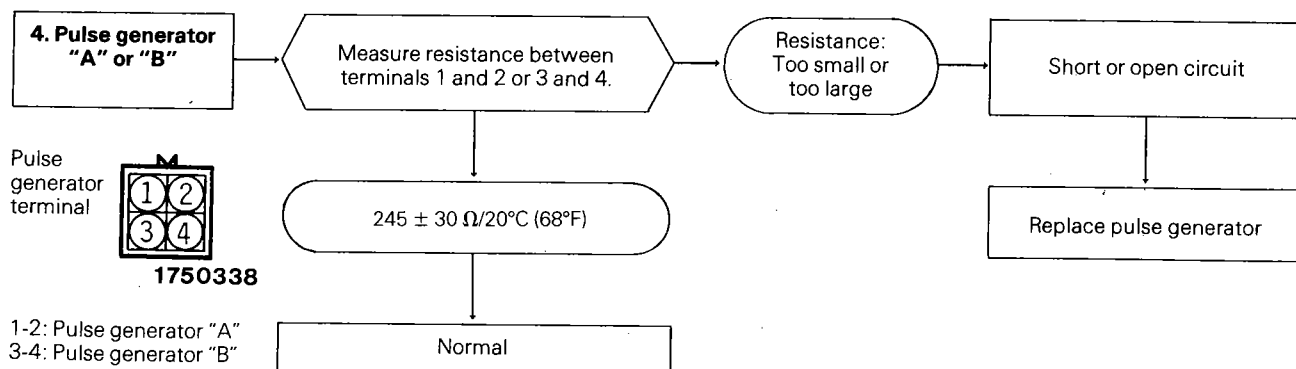
KM171-5-APM



DAMPER CLUTCH CONTROL SYSTEM TROUBLESHOOTING**TEST 1 INSPECTION OF DAMPER CLUTCH SYSTEM OPERATION WITH ENGINE IDLING**

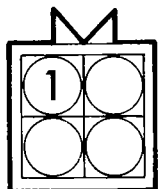
TEST 2 INSPECTION OF DAMPER CLUTCH CONTROL SYSTEM COMPONENTS



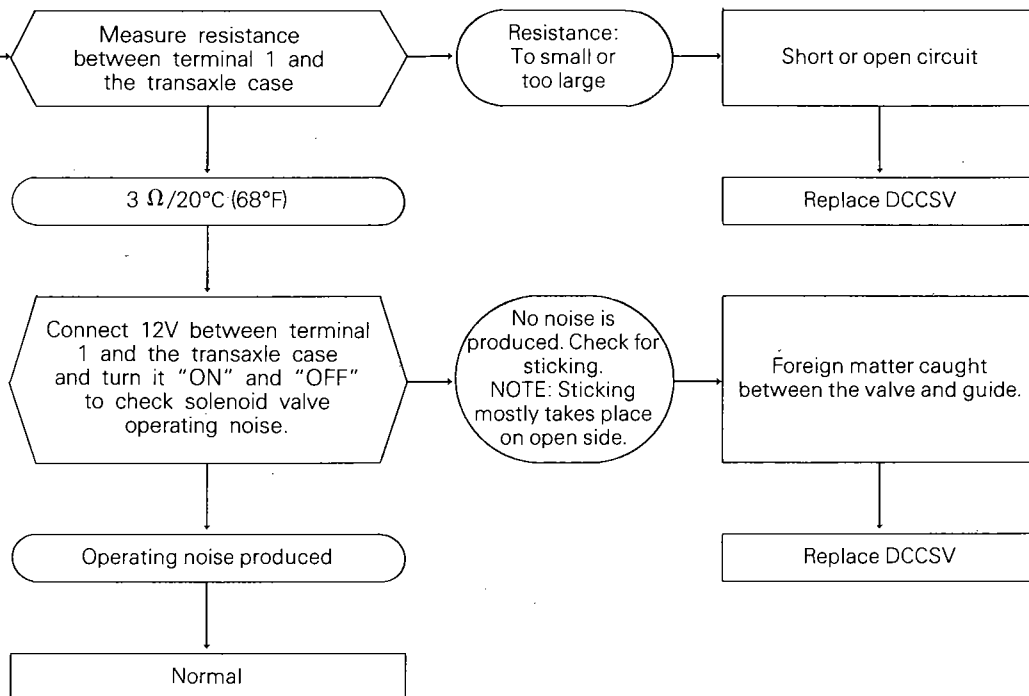
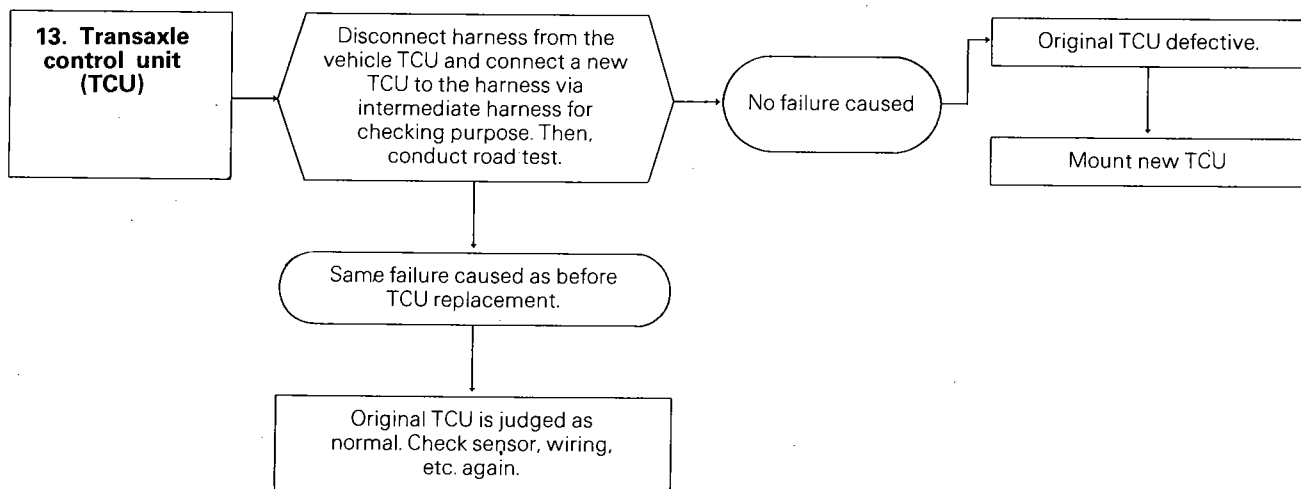


6. Damper clutch control solenoid valve (DCCSV)

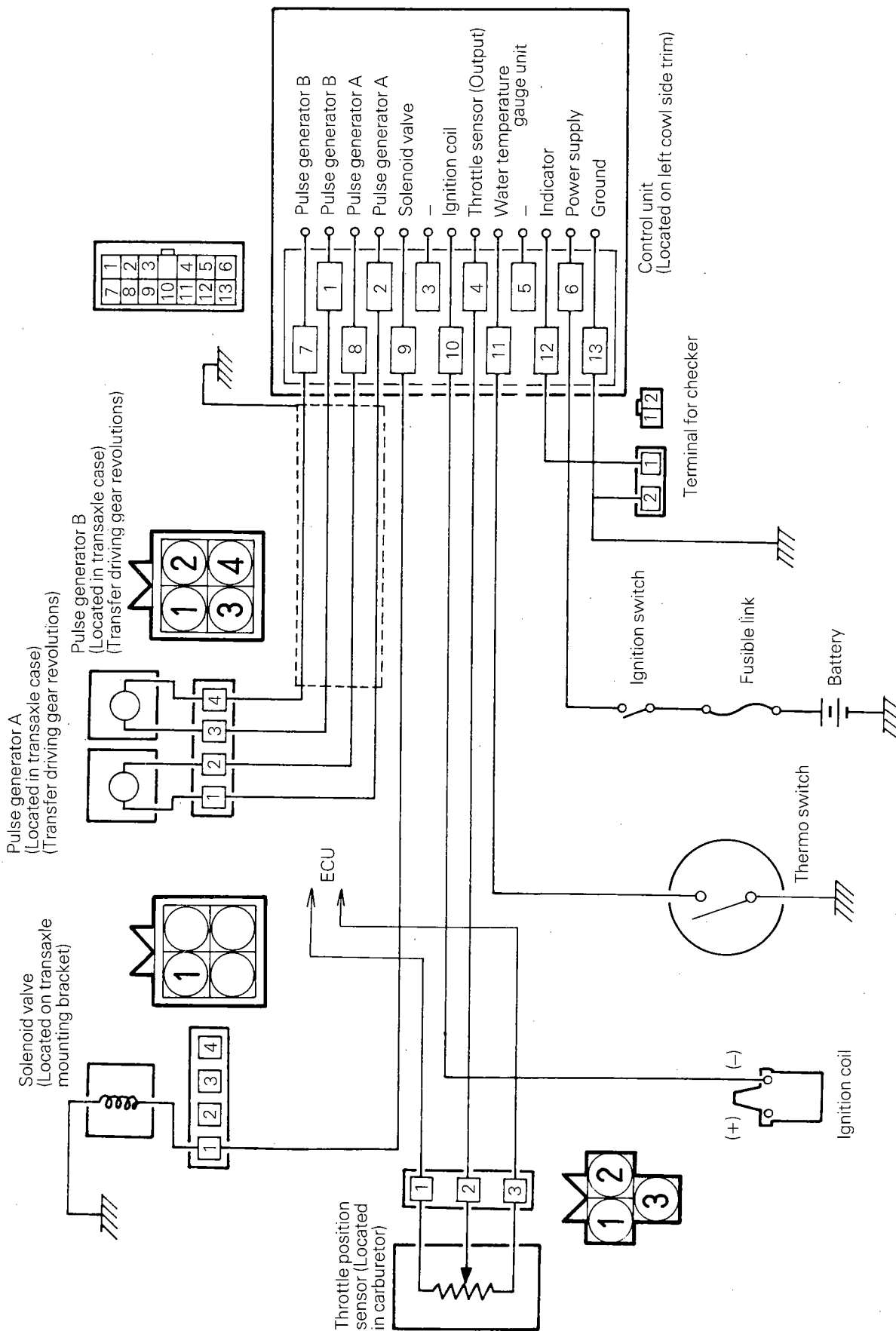
Solenoid valve connector terminals



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**13. Transaxle control unit (TCU)**

DAMPER CLUTCH SYSTEM WIRING DIAGRAM



HYDRAULIC PRESSURE TESTS

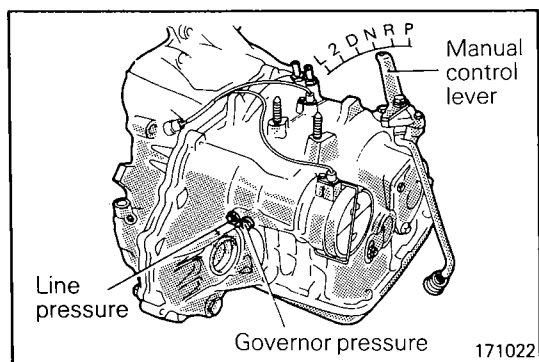
Pressure testing is very important step in diagnostic procedure. These tests usually reveal cause of most automatic transaxle problems.

Before performing pressure tests, be certain that fluid level and condition, and control cable adjustment have been checked and approved.

PREPARATIONS FOR TESTING

1. Fluid must be at operating temperature [50 to 80°C (120 to 180°F)].
2. Raise vehicle on hoist which allows front wheels to turn.
3. Install engine tachometer and position tachometer so it can easily be read.
4. Disconnect linkage from manual control lever on transaxle. Disconnect throttle control cable from carburetor throttle lever so they can be controlled from outside of vehicle.
5. Attach Oil Pressure Gauge to ports required for test being conducted.

Test port locations are shown below.

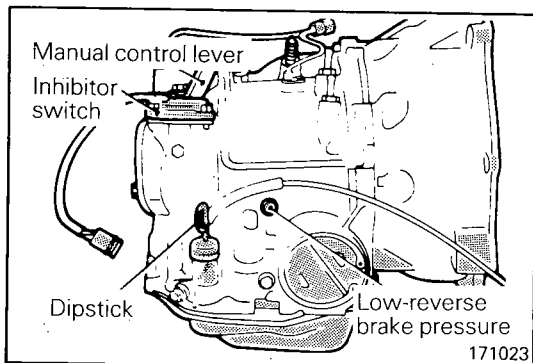


TEST 1 (SELECTOR IN "L")

1. Attach oil pressure gauges to "line pressure" and "low-reverse brake pressure" take-off ports.
2. Operate engine at 2,500 rpm for test.
3. Move manual control lever on transaxle to "L" position.
4. Read pressures on gauge as throttle control cable is pulled from "idle" to "wide-open" position.

Line pressure kPa (psi)		L-R brake pressure kPa (psi)
Idle	Wide-open	Idle
360 – 420 (52 – 61)	690 – 710 (100 – 103)	140 – 200 (20 – 29)

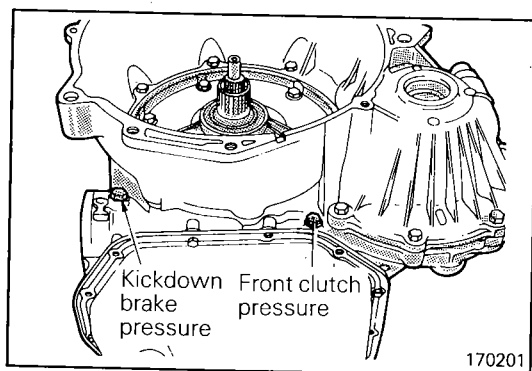
5. This tests pump output, pressure regulation, condition of rear clutch and low-reverse hydraulic brake circuit.

**TEST 2 (SELECTOR IN "2")**

1. Attach oil pressure gauge to "line pressure" take-off port and "tee" (3-way joint) into cooler line fitting to read "lubrication" pressure.
2. Operate engine at 2,500 rpm for test.
3. Move manual control lever on transaxle to "2" position.
4. Read pressure on gauge as throttle control cable is pulled from "idle" to "wide-open" position.

Line pressure kPa (psi)		Lubrication pressure kPa (psi)
Idle	Wide-open	Idle to wide-open
360 – 420 (52 – 61)	690 – 710 (100 – 103)	49 – 147 (7 – 21)

5. This tests pump output, pressure regulation, condition of rear clutch and lubrication hydraulic circuit.

**TEST 3 (SELECTOR IN "D")**

1. Attach oil pressure gauge to "line pressure" and "front clutch pressure" ports.
2. Operate engine at 2,500 rpm for test.
3. Move manual control lever to "D" position.
4. Read pressure on gauge as throttle control cable is pulled from "idle" position to "wide-open" position.

Line pressure kPa (psi)		Front clutch pressure kPa (psi)
Idle	Wide-open	
360 – 420 (52 – 61)	690 – 710 (100 – 103)	Difference between front clutch pressure and line pressure must be less than 78 (11)

5. This tests pump output, pressure regulation, condition of front and rear clutches, and hydraulic circuit.

TEST 4 (SELECTOR IN "R")

1. Attach 3,000 kPa (400 psi) oil pressure gauge to "low-reverse brake pressure" take-off port.
2. Operate engine at 2,500 rpm for test.
3. Move manual control lever to "R" position.
4. Low-reverse brake pressure should be specified value regardless of throttle opening.

L-R brake pressure kPa (psi)
1,373 – 1,961 (199 – 284)

5. This tests pump output, pressure regulation, condition of front clutch, and low-reverse brake hydraulic circuit.

TEST RESULT INDICATIONS

1. If proper line pressure, minimum to maximum, is found in any one test, pump and pressure regulator are working properly.
2. Low pressure in "D, L and 2" but correct pressure in "R" indicates rear clutch circuit leakage.
3. Low pressure in "D and R" but correct pressure in "L" indicates front clutch circuit leakage.
4. Low pressure in "R and L" but correct pressure in "2" indicates low-reverse brake circuit leakage.
5. Low line pressure in all positions indicates faulty pump, clogged filter, or stuck pressure regulator valve.

GOVERNOR PRESSURE TEST

Test only if transaxle shifts at wrong vehicle speeds when throttle control cable is correctly adjusted.

1. Connect oil pressure gauge to governor pressure take-off port.
2. Operate transaxle in "D" to read pressures and compare vehicle speeds shown in chart. If governor pressures are incorrect at given vehicle speeds, governor valve is probably sticking; or filter in governor body is clogged. Governor pressure should respond smoothly to changes in vehicle speeds and should return to 0 – 20 kPa (0 – 2.8 psi) when vehicle is stopped.

Governor pressure chart

Governor pressure	Vehicle speed
94 kPa (14 psi)	27 km/h (18 mph)
294 kPa (43 psi)	65 km/h (40 mph)
490 kPa (71 psi)	100 km/h (62 mph)

CONVERTER STALL TEST

Stall test consists 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, let no one stand in front of or behind vehicle.

1. Check transaxle fluid level. Fluid should be at normal operating temperature [70 – 80°C (158 – 180°F)]. Engine coolant should also be at normal operating temperature [80 – 90°C (180 – 190°F)].
2. Apply chocks to both rear wheels.
3. Attach engine tachometer.
4. Apply parking and service brakes fully.

5. Start engine.
6. With selector lever in "D" position, depress accelerator pedal fully to read engine maximum rpm. Do not hold 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 check is required, operate engine at approximately 1,000 rpm in neutral to cool transaxle fluid between runs.

Stall speed: 2,200 ± 200 rpm

7. Place selector lever to "R" position and perform stall test by the same procedure as in foregoing item.

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 stall speed is higher than specification, front clutch of transaxle or low-reverse brake is slipping. In this case, perform hydraulic test to locate cause of slippage.

STALL SPEED BELOW SPECIFICATION IN "D" AND "R"

If stall speed is lower than specification, insufficient engine output or faulty torque converter is suspected. Check for engine misfiring, ignition timing, valve clearance, etc. If these are good, torque converter is faulty.

FLUID LEAKAGE – TRANSAXLE CONVERTER HOUSING AREA

1. Check for source of leakage. Since fluid leakage at or around converter area may originate from engine oil leak, area should be examined closely. Transaxle factory fill fluid is dyed red and, therefore, can be distinguished from engine oil.
2. Prior to removing transaxle, perform following checks:
When leakage is determined to originate from transaxle, check fluid level prior to removal transaxle and torque converter. High oil level can result in oil leakage out of vent located in top of oil pump. If fluid level is high, adjust to proper level. After performing this operation, recheck for leakage.

Wiring diagram for the ignition system, showing connections between the Ignition Switch (ST) and Ignition Switch (IG1), Inhibitor Switch, Combination Meter, Rheostat, Starter Motor, and Back-Up Light. The diagram includes various components like relays (C-18, C-05, C-45, C-47, C-49, C-54, C-57, C-59), switches (E-02, E-16, E-17, F-02), and a combination meter. It also shows the wiring for the starter motor and back-up light, including the automatic transaxle selector lever position illumination light. The diagram is labeled with various wire colors and numbers, and includes a legend for the combination meter.

IGNITION SWITCH (ST) IGNITION SWITCH (IG1)

3-BY 3-BW

5 6

10A

C-57

1 2 3 4 5 6 7 8 9

10 11 12 13 14 15 16 17

C-59

1 2 3 4 5 6

A-06

1 2 3 4 5 6

2-BY 2-BY

8 4

(BR) (BR)

10

(BR) (BR)

11

B-22

1 2 3 4 5 6 7 8 9 10 11 12

GW

2

INHIBITOR SWITCH

L P L P L P

2 D N R 2 D N R 2 D N R

C-05

C-18

14 (YB) 7 YB

13 (GL) 8 GL

12 (BW) 9 BW

11 (RL) 10 RL

10 (BY) 11 BY

6 (YR) 9 (YR) 12 YR

C-51

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

E-02

16

E-17

E-16

BW

1

BW

6

J/B

8

BW

5

BW

C-45

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

C-49

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

C-18

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

A-05

1

2-BR

1

2-BR

STARTER MOTOR

GW

2

F-02

1 2

6

(RL)

6

(RL)

9

RL

BACK-UP LIGHT

0.85-B

5

J/B

C-47

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

C-51

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

C-49

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

C-54

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

C-57

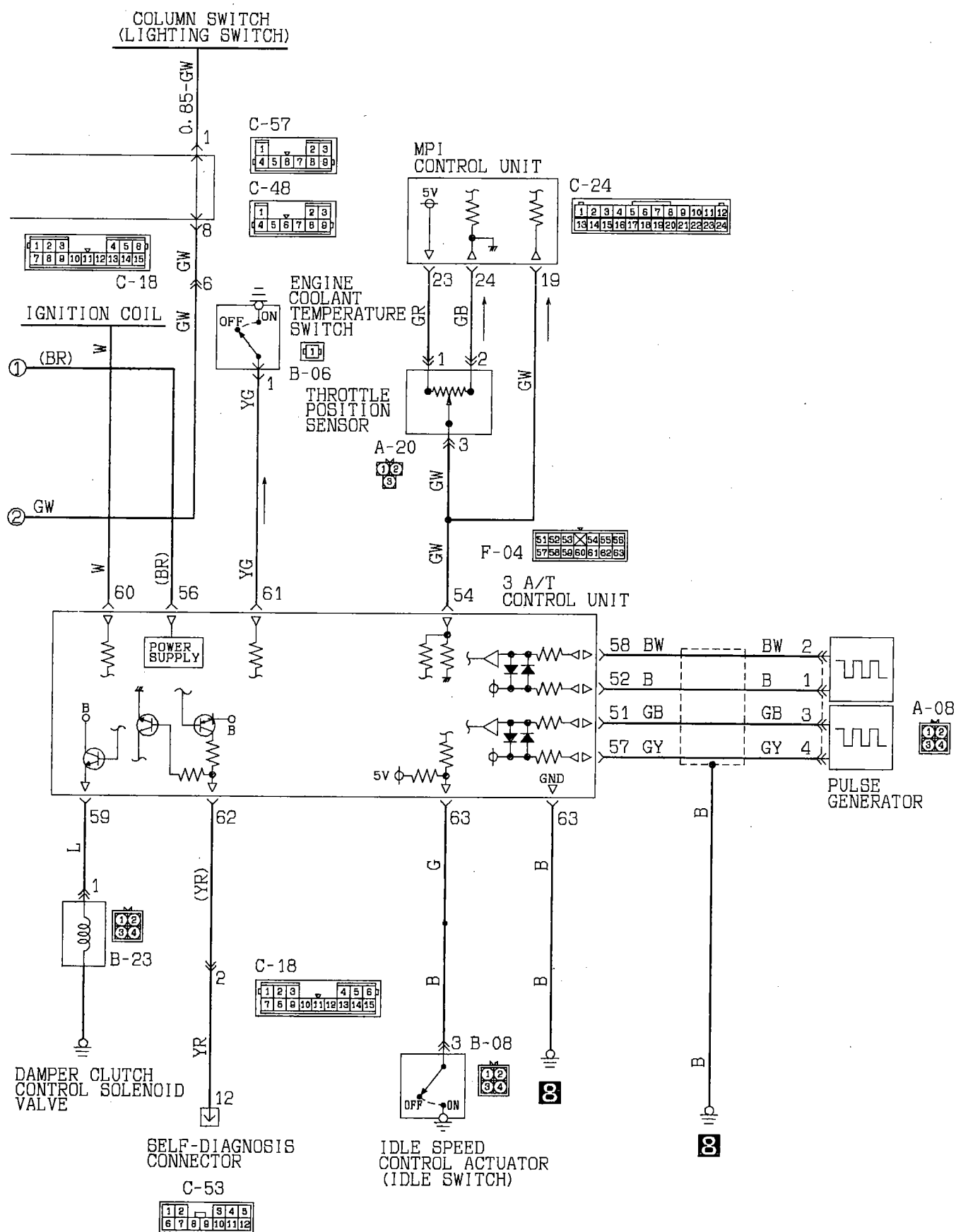
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

6

2-B

6

KX3B-AC-C0701-N

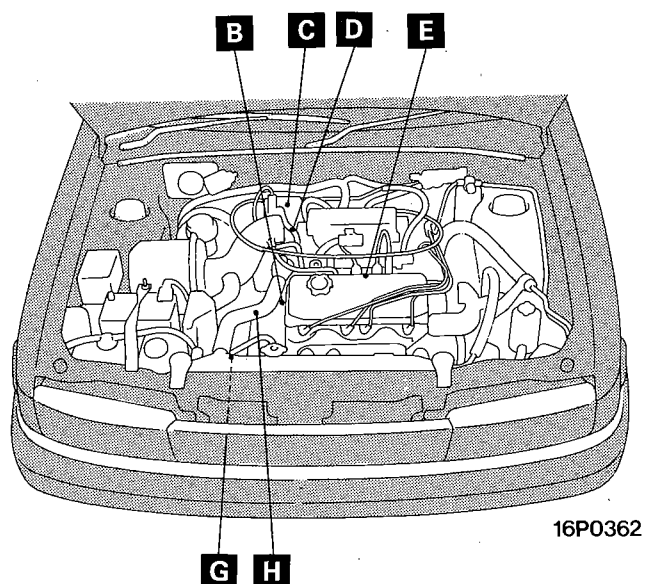


COMPONENTS LOCATION

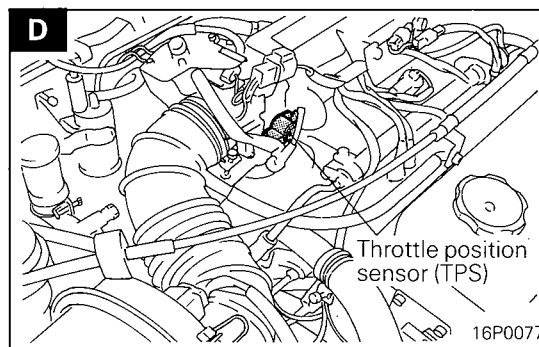
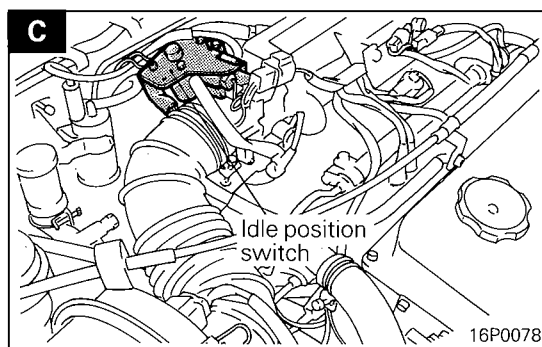
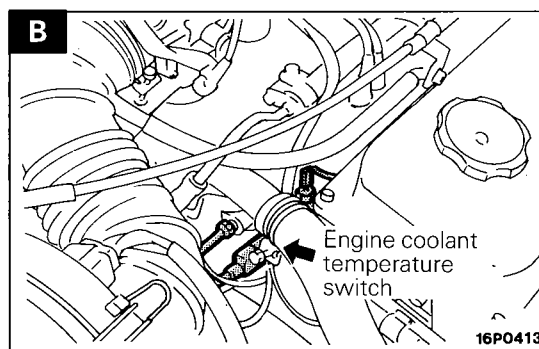
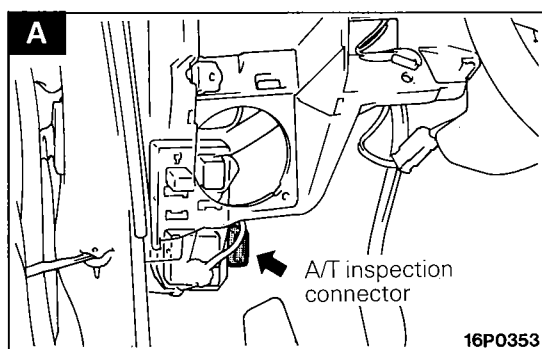
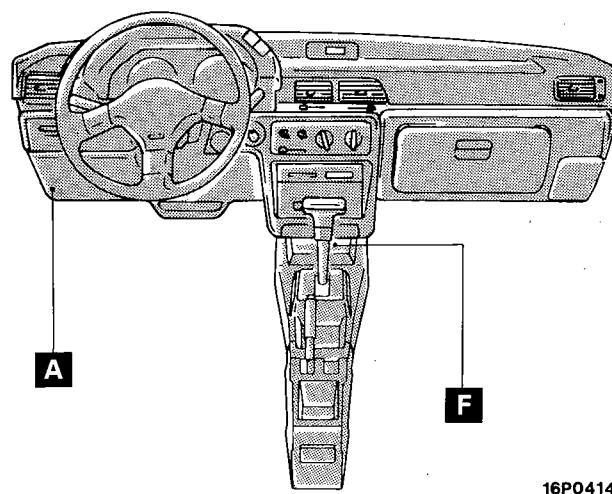
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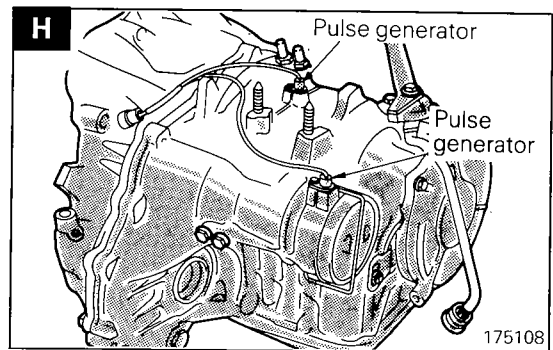
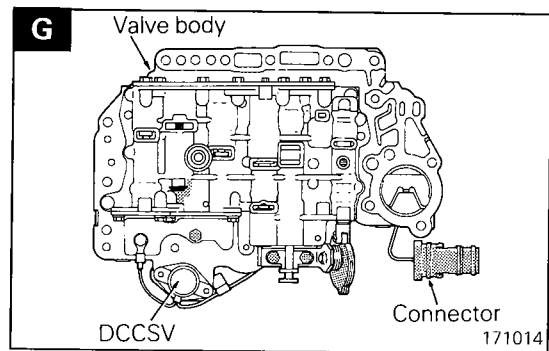
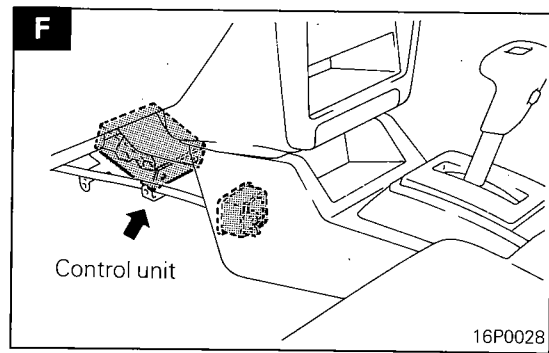
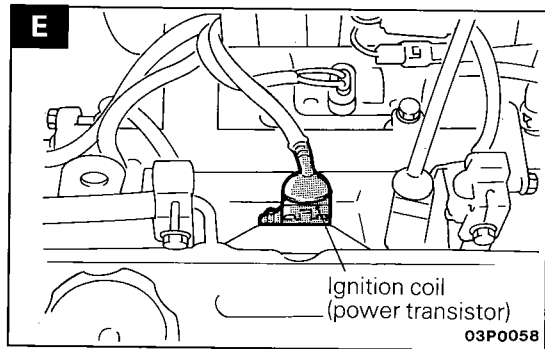
Name	Symbol	Name	Symbol
A/T inspection connector	A	Idle position switch	C
Control unit	F	Ignition coil (power transistor)	E
Damper clutch control solenoid valve (DCCSV)	G	Pulse generators	H
Engine coolant temperature switch	B	Throttle position sensor	D

ENGINE COMPARTMENT



INSTRUMENT PANEL





TROUBLESHOOTING <KM176>**GENERAL INFORMATION**

Functional troubles of the 4A/T can lead to other problems, such as those described below:

- (1) Poor engine performance
- (2) Improper adjustments
- (3) Hydraulic malfunctions
- (4) Mechanical malfunctions
- (5) Electrical malfunctions

In order to properly determine ("Troubleshoot") the source of these malfunctions, it is first essential to methodically question the user concerning the details of the problem, such as the condition of the problem, the situation at the time the problem occurred, and any other relevant information, all in as much detail as possible. The user should also be asked whether or not the problem has occurred more than once, and under what conditions.

Subsequently, certain tests should be conducted in a certain order, as described at the left.

Based upon use of the troubleshooting guide, the probable location of the problem should be estimated.



Checks should be made of fluid levels and the condition of the ATF, as well as the condition of the manual control cables; adjustments should then be made if found to be necessary.



If a presumption has been made that there is an abnormal condition somewhere in the electronic control system, the voltmeter should be used to estimate the probable location by checking the malfunction indication pattern. If the ignition key was already turned to OFF, however, check by making a road test.



When the abnormal system is discovered during the road test, check each element (sensors, etc.) one by one, and make repairs as necessary.



When the abnormal condition is presumed to be in the oil pressure control system, check by making an oil pressure test.



When the result of the oil pressure test does not satisfy the specified pressure, check each system at places related to the valve body, check the oil pressure passages for leakage, etc.



If the problem is unusually dirty ATF, abnormal noises, oil leakage, or slippage of the clutch or brakes, or an abnormal condition of the transaxle itself, disassemble and repair the transaxle.

TROUBLESHOOTING CHART

Symptom			Driving impossible or abnormal (before start)											
			Starter inoperative	Forward/reverse drive impossible	Forward drive impossible	Reverse drive impossible	Engine stalls when shifting from "N" to "D" or "R"	Clutch slips in "D" position (stall rpm too high)	Clutch slips in "R" position (stall rpm too high)	Stall rpm too low	Vehicle starts to move in "P" or "N" position	Vehicle starts to move in position midway of "N" and "R" or "N" and "D"	Parking mechanism does not work	Abnormal shock felt when selecting "D", "2", "L" or "R"
Engine	1	Idling rpm abnormal					⊗							X
	2	Performance failure					X			X				
Transaxle proper (power train)	3	Manual linkage inadequately adjusted	X	⊗	⊗	⊗		⊗	⊗		⊗	⊗	⊗	⊗
	4	Torque converter failure (including damper clutch)		X	X	X				X				
	5	Oil pump failure		X	X	X		X	X					
	6	One way clutch failure			X			X						
	7	Damaged or worn gear or other rotating parts, shim preload inadequately adjusted												
	8	Parking mechanism failure									X		X	
	9	Cracked drive plate or loose bolt		X										
	10	Worn front clutch retainer inside				X			X					
	11	Low fluid level		⊗	⊗	⊗		X	X					
	12	Low line pressure (broken seal, leaks, looseness, etc.)		⊗	⊗	⊗		⊗	⊗					
Hydraulic system (including friction elements)	13	Faulty valve body (valve sticking, poor machining, blowhole, poor adjustment, etc.)		⊗	⊗	⊗	X	X	X		X	X		X
	14	Faulty front clutch, piston				X			X					X
	15	Faulty rear clutch, piston			⊗			X						X
	16	Faulty kickdown band or piston												
	17	Kickdown servo poorly adjusted												
	18	Faulty low reverse brake, piston		X		X			X					X
	19	O-ring missing in low reverse brake circuit between valve body and case				X			X					
	20	Faulty end clutch, piston (check ball hole, etc.)												
	21	Faulty inhibitor switch, open wire, poor adjustment	X								X	X		X
	22	Faulty throttle position sensor, poor adjustment												X
Electrical control system	23	Pulse generator (A) open wire or shorting												
	24	Pulse generator (B) open wire or shorting				X								
	25	Faulty kickdown servo switch												
	26	Shift control solenoid (A), (B) open wire, shorting, sticking (valve open)												
	27	Faulty ignition signal system												
	28	Poor grounding of ground strap section												
	29	Pressure control solenoid valve open wire or shorting												
	30	Pressure control sticking (valve open)		⊗	⊗	⊗		X	X					
	31	Damper clutch control solenoid valve open wire (valve closed)												
	32	Damper clutch shorting, sticking (valve open)					⊗							
	33	OD switch failure												
	34	Faulty accelerator switch, poor adjustment												X
	35	Oil temperature sensor failure												
	36	Vehicle speed sensor (reed switch) failure												
	37	Ignition switch poor contact												
	38	Faulty control unit												X

Remarks: ⊗ indicates items to be given high priority in inspection.

	Shifting failure or shock (after start)															Abnormal noise and others				
	No shifting from 2nd to 3rd	No shifting to 4th	OD switch inoperative	Shifting does not take place according to shift pattern (Shifting itself is possible)	Unsmooth start (starting at 2nd gear, etc.)	High creep and idle vibration	Large shock felt when shifting from 1st to 2nd or from 3rd to 4th	Large shock felt when shifting from 2nd to 3rd or from 4th to 3rd	Large shock felt when shifting up	Large shock felt when shifting down in "D" or "2"	Engine running up when shifting up	Engine running up and large shock when shifting from 3rd to 2nd	Large shock only when cold	Large shock (other than cases listed to left)	Damper clutch inoperative	Abnormal vibration (approx. 1 Hz) in low speed, high load range	Converter housing whining with increasing engine rpm	Mechanical noise (rattling) from converter housing	Abnormal noise from transmission case	Transmission locked at 3rd
1						X														
2					X		X	X	X	X			X	X		X				
3		X			X															X
4					X										X	X				
5												X					X			
6																				
7																		X		
8																				
9																		X		
10	X	X									X	X								X
11												X								X
12											⊗	⊗		X						X
13	X			X	X		X	X	X	X	X	X	X	X	X	X				X
14	X							X	X		X									X
15																				X
16							X				X	X								X
17							X				X	X		X						
18										X										X
19																				X
20		⊗					X				X									X
21		X			X															X
22				⊗			X	X	⊗	X	⊗	X		X	X	X				
23							X	X	X	X	X	X		X	X	X				X
24				X											X	X				X
25							X					X								X
26																				X
27							X	X	X	X	X	X		X	X					
28																				X
29																				X
30	X	X									X	X								X
31															X					
32																X				X
33		X	X																	
34					X	X									X					
35														X	X	X				
36																				X
37				X																X
38	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X

FLUID LEVEL AND CONDITION

Refer to GROUP 0 – Maintenance Service.

CONTROL CABLE

Whether control cable is properly adjusted can be confirmed by checking whether inhibitor switch is performing well.

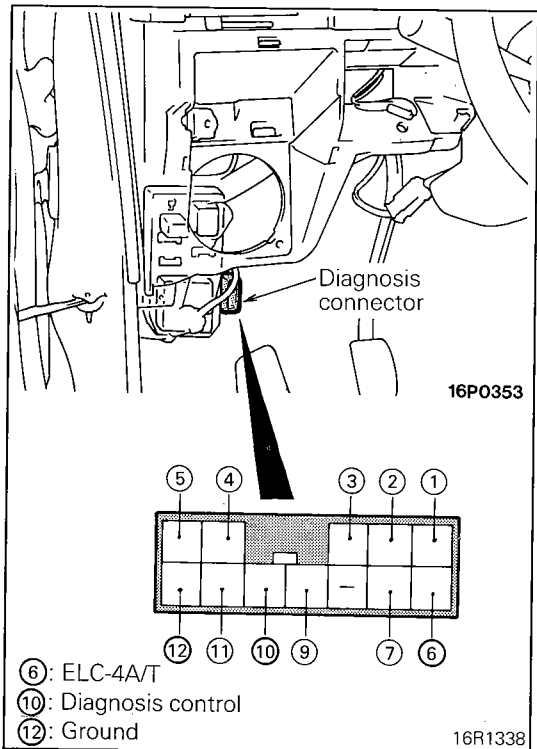
1. Apply parking brakes and service brakes securely.
2. Place selector lever to "R" range.
3. Set ignition key to "ST" position.
4. Slowly move the selector lever upward until selector lever makes a click as it fits in notch of "P" range. If starter motor operates when lever makes a click, "P" position is correct.
5. Then slowly move selector lever to "N" range by the same procedure as in foregoing paragraph. If starter motor operates when selector lever fits in "N", "N" position is correct.
6. Also check to be sure the vehicle doesn't begin to move and the lever doesn't stop between P-R-N-D.
7. The control cable is properly adjusted if, as described above, the starter motor starts at both the "P" range and the "N" range.

OBTAINING FAULT CODES

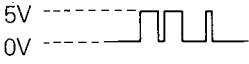










1. Connect the voltmeter to the connector for diagnosis.
2. Read the fault codes being output.
Take necessary action according to "Fault Code Description" on the following pages.



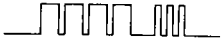

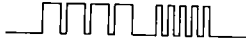






NOTE



- (1) Up to ten different fault codes are stored in the Random Access Memory (RAM) of the control unit. They are stored in the order of occurrence.
 - (2) The same fault code can be stored up to three times.
 - (3) If ten fault codes have already been stored, the addition of one or more new fault codes will cause the oldest code or codes to be cleared.
 - (4) All stored fault codes are cleared when the battery is disconnected. Do not disconnect the battery until all fault codes have been read.
3. When the fail-safe mode is activated, causing the transmission to be locked in 3rd gear, the fault codes shown in "Fail-safe Code Description" are stored in RAM. Up to three of these fault codes can be stored.
 4. The condition where the transmission is locked in 3rd gear can be canceled by turning OFF the ignition key; however, the RAM retains the stored fault codes.










FAULT CODE DESCRIPTION

Code No.	Display pattern	Description	Remedy
21		Excessively high throttle position sensor output	<ul style="list-style-type: none"> • Check throttle position sensor output circuit harness. • Check throttle position sensor connector. • Check throttle position sensor. • Adjust throttle position sensor. • Check accelerator switch (by checking presence of No. 28 output).
22		Excessively low throttle position sensor output	
23		Improperly adjusted throttle position sensor system	
24		Open oil temperature sensor circuit	<ul style="list-style-type: none"> • Check oil temperature sensor circuit harness. • Check oil temperature sensor connector. • Check oil temperature sensor.
25		Open-circuited or poorly contacting kickdown servo switch	<ul style="list-style-type: none"> • Check kickdown servo switch output circuit harness. • Check kickdown servo switch connector. • Check kickdown servo switch.
26		Shorted kickdown servo switch circuit	
27		Open ignition pulse pickup cable circuit	<ul style="list-style-type: none"> • Check ignition pulse signal wire.
28		Shorted or improperly adjusted accelerator switch circuit	<ul style="list-style-type: none"> • Check accelerator switch output circuit harness. • Check accelerator switch connector. • Check accelerator switch. • Adjust accelerator switch.
31		Faulty microprocessor	<ul style="list-style-type: none"> • Replace control unit.
32		Command to shift to 1st gear is generated while driving at high speeds.	<ul style="list-style-type: none"> • Replace control unit.
33		Open pulse generator B circuit	<ul style="list-style-type: none"> • Check pulse generator B output circuit harness. • Check pulse generator B. • Check vehicle speed reed switch (for chattering).

Code No.	Display pattern	Description	Remedy
41		Open shift control solenoid valve A circuit	<ul style="list-style-type: none"> • Check solenoid valve connector. • Check shift control solenoid valve A. • Check shift control solenoid valve A drive circuit harness.
42		Shorted shift control solenoid valve A circuit	
43		Open shift control solenoid valve B circuit	<ul style="list-style-type: none"> • Check solenoid valve connector. • Check shift control solenoid valve B. • Check shift control solenoid valve B drive circuit harness.
44		Shorted shift control solenoid valve B circuit	
45		Open pressure control solenoid valve circuit	<ul style="list-style-type: none"> • Check solenoid valve connector. • Check pressure control solenoid valve. • Check pressure control solenoid valve drive circuit harness.
46		Shorted pressure control solenoid valve circuit	
47		Open damper clutch control solenoid valve circuit	<ul style="list-style-type: none"> • Check solenoid valve connector. • Check damper clutch control solenoid valve. • Check damper clutch control solenoid valve drive circuit harness.
48		Shorted damper clutch control solenoid valve circuit	
49		Defective damper clutch system	<ul style="list-style-type: none"> • Check damper clutch control solenoid valve drive circuit harness. • Check damper clutch hydraulic circuit. • Check damper clutch control solenoid valve. • Replace control unit.
51		Shifting to 1st gear does not match the engine speed.	<ul style="list-style-type: none"> • Check pulse generator output circuit harness. • Check pulse generator connector. • Check pulse generator A and pulse generator B. • Check rear clutch for slippage.
52		Shifting to 2nd gear does not match the engine speed.	<ul style="list-style-type: none"> • Check pulse generator A output circuit harness. • Check pulse generator A connector. • Check pulse generator A. • Check kickdown brake for slippage.

Code No.	Display pattern	Description	Remedy
53		Shifting to 3rd gear does not match the engine speed.	<ul style="list-style-type: none"> • Check pulse generator output circuit harness. • Check pulse generator connector. • Check pulse generator A and pulse generator B. • Check front clutch for slippage. • Check rear clutch for slippage.
54		Shifting to 4th gear does not match the engine speed.	<ul style="list-style-type: none"> • Check pulse generator A output circuit harness. • Check pulse generator A connector. • Check pulse generator A. • Check kickdown brake for slippage.

FAIL-SAFE CODE DESCRIPTION

Output code		Description	Fail-safe	Remarks (associated with self-diagnosis)
Code No.	Display pattern			
11		Faulty microprocessor	Locked in 3rd	When code No. 31 occurs a fourth time
12		Command to shift to 1st gear is generated while driving at high speeds	Locked in 3rd (D) or 2nd (2, L)	When code No. 32 occurs a fourth time
13		Open-circuited pulse generator B	Locked in 3rd (D) or 2nd (2, L)	When code No. 33 occurs a fourth time
14		Open-circuited or shorted shift control solenoid valve A	Locked in 3rd	When code No. 41 or 42 occurs a fourth time
15		Open-circuited or shorted shift control solenoid valve B	Locked in 3rd	When code No. 43 or 44 occurs a fourth time
16		Open-circuited or shorted pressure control solenoid valve	Locked in 3rd (D) or 2nd (2, L)	When code No. 45 or 46 occurs a fourth time
17		Gear shifting does not match the engine speed.	Locked in 3rd (D) or 2nd (2, L)	When code No. 51, 52, 53, or 54 occurs a fourth time

ELEMENT IN USE AT EACH POSITION OF SELECTOR LEVER

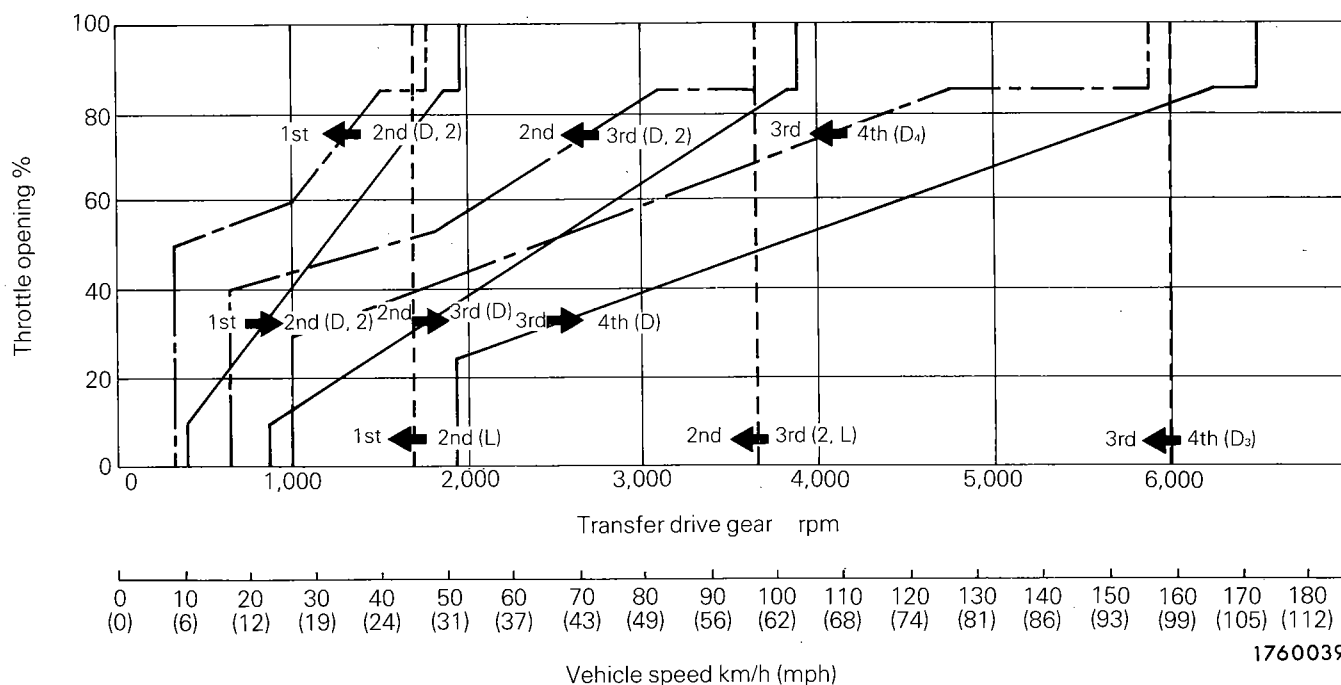
Selector lever position	OD-OFF switch	Shifting gear	Gear ratio	Engine start	Parking mechanism	Clutch				Brake	
						C1	C2	C3	OWC	B1	B2
P	—	Neutral	—	Possible	●						
R	—	Reverse	2.176			●					●
N	—	Neutral	—	Possible							
D	ON	1st	2.846				●		●		
		2nd	1.581				●			●	
		3rd	1.000			●	●	●			
		OD	0.685					●		●	
D	OFF	1st	2.846				●		●		
		2nd	1.581				●			●	
		3rd	1.000			●	●	●			
2	—	1st	2.846				●		●		
		2nd	1.581				●			●	
L	—	1st	2.846				●				●

SHIFT PATTERNS

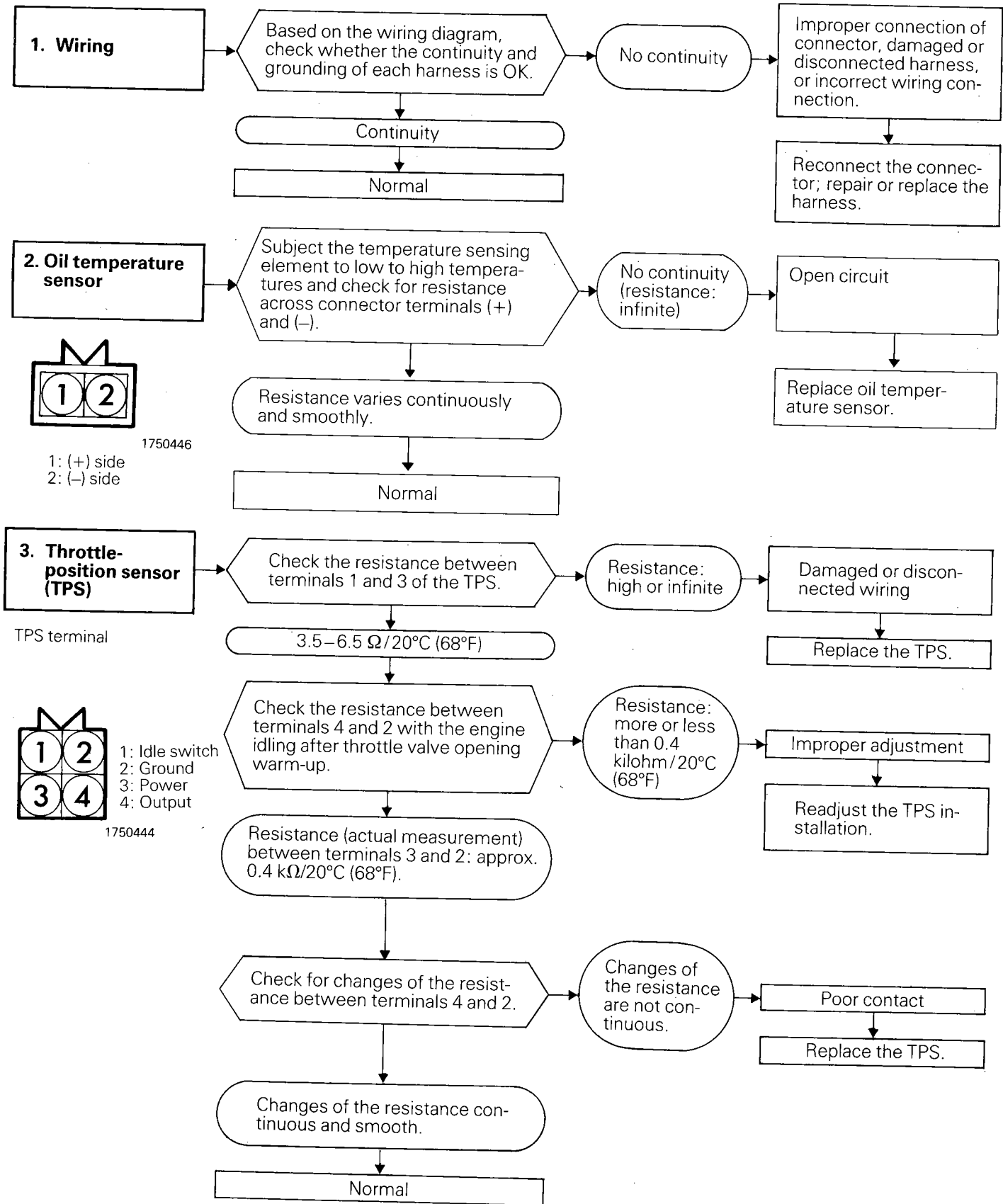
Certain shift patterns have been preset in order to provide the optimum shifting performance in accordance with engine performance.

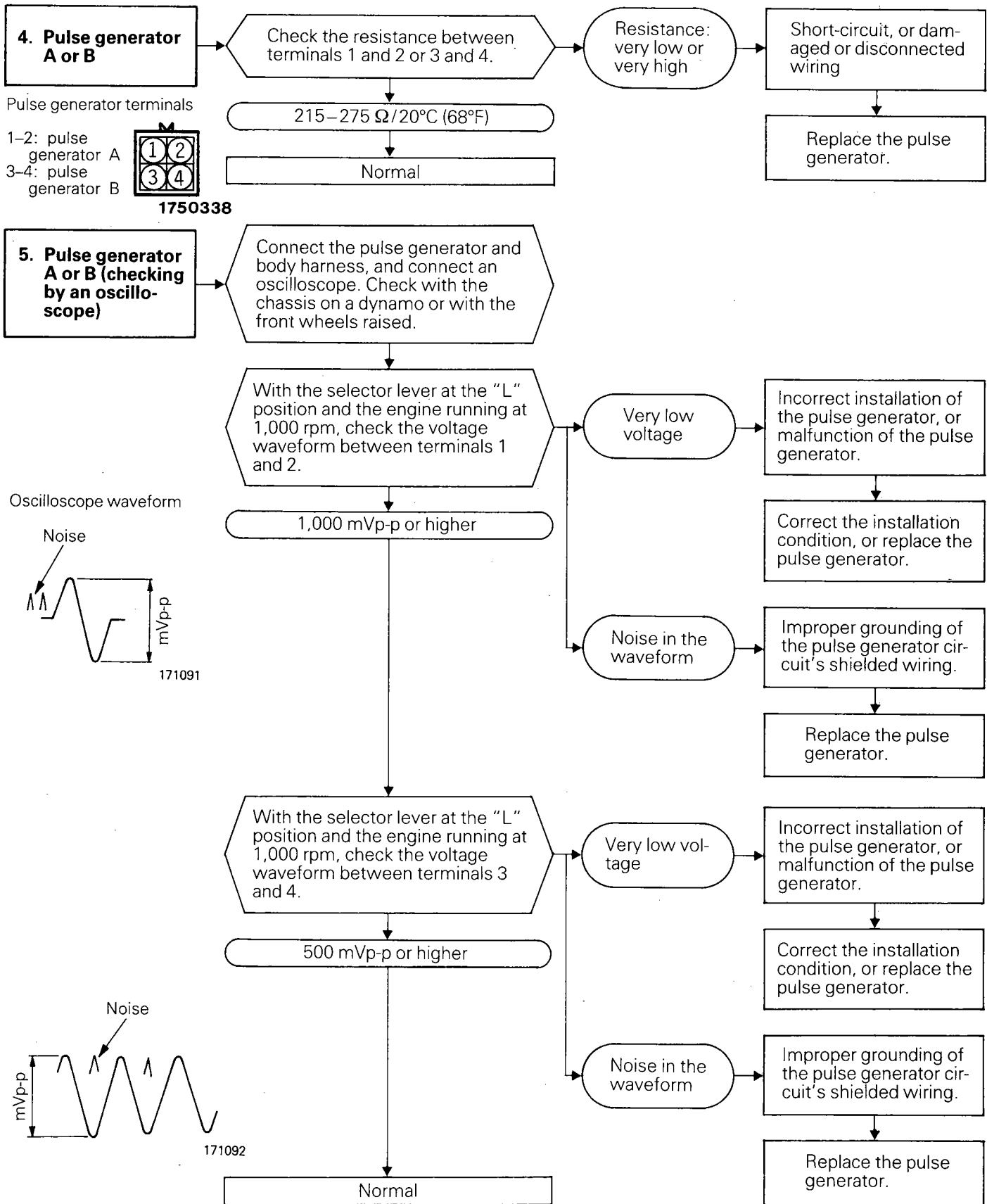
The solid lines shown in these shift patterns indicate upshifts, and the broken lines indicate downshifts. The reason why there is a difference between the shift points for upshifts and for downshifts is so that upshifts and downshifts will not occur frequently when driving at a speed in the vicinity of the shift point.

When the vehicle is stopped, there is a shift to 2nd gear in order to obtain a suitable "creeping", but when the accelerator pedal is then depressed the vehicle starts off in 1st gear.



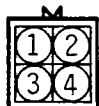
INSPECTION OF ELECTRONIC CONTROL SYSTEM COMPONENTS





6. Pressure-control solenoid valve (PCSV)

Solenoid valve connector terminals



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

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

Resistance: too low or too high

Short-circuit, or damaged or disconnected wiring

$2.9 \pm 0.3 \Omega / 20^{\circ}\text{C} (68^{\circ}\text{F})$

Replace the PCSV.

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 (.012 in.) or less)

Foreign material caught between the valve and guide

Noise exists.

Replace the PCSV.

Normal

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

Check the resistance between terminal 3 or 4 of the solenoid valve connector and the transaxle case.

Resistance: too low or too high

Short-circuit, or damaged or disconnected wiring

$22.3 \pm 1.5 \Omega / 20^{\circ}\text{C} (68^{\circ}\text{F})$

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.

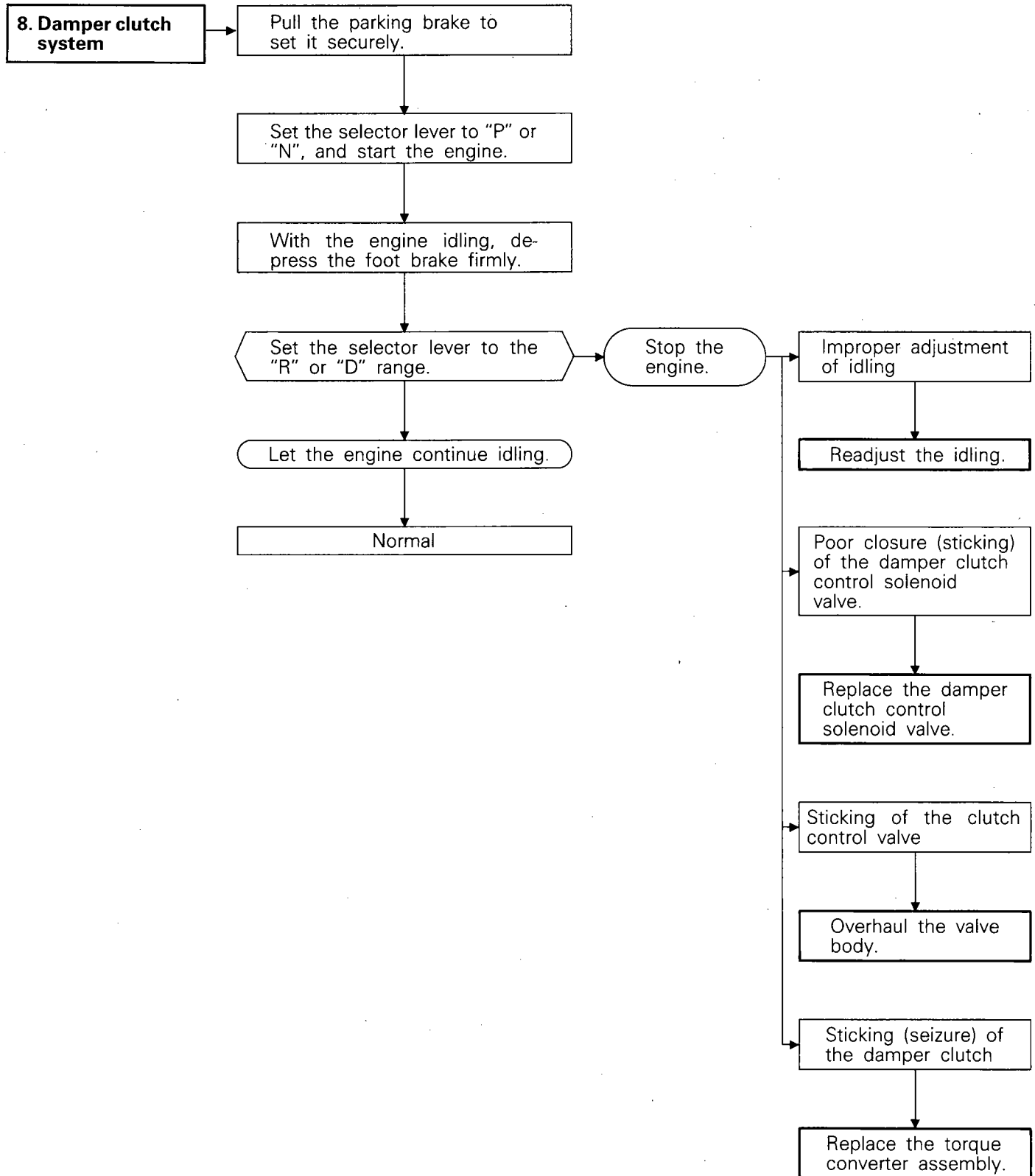
No operation noise. (stroke: 0.25 mm (.010 in.) or less)

Residue accumulated in valve and core.

Noise exists.

Replace the SCSV.

Normal



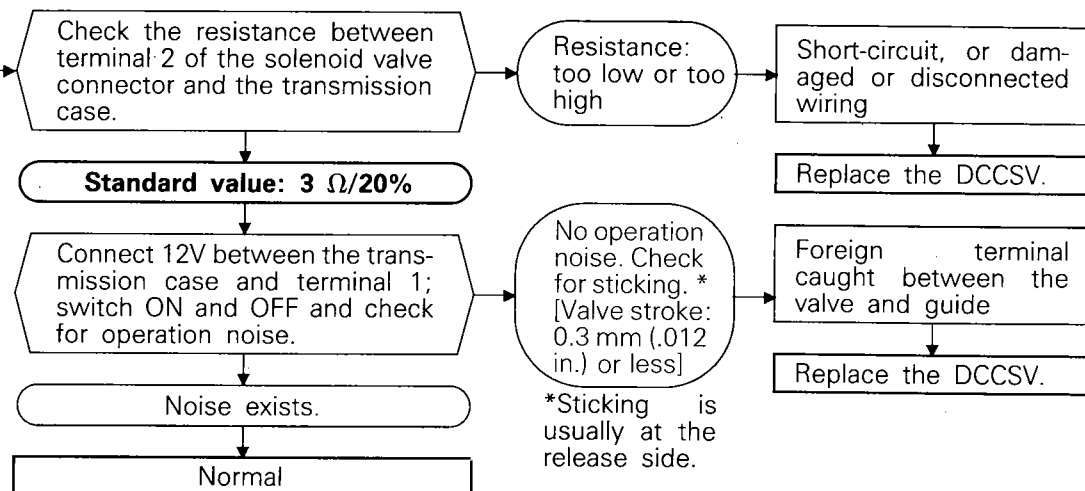
9. Damper clutch control solenoid valve (DCCSV)

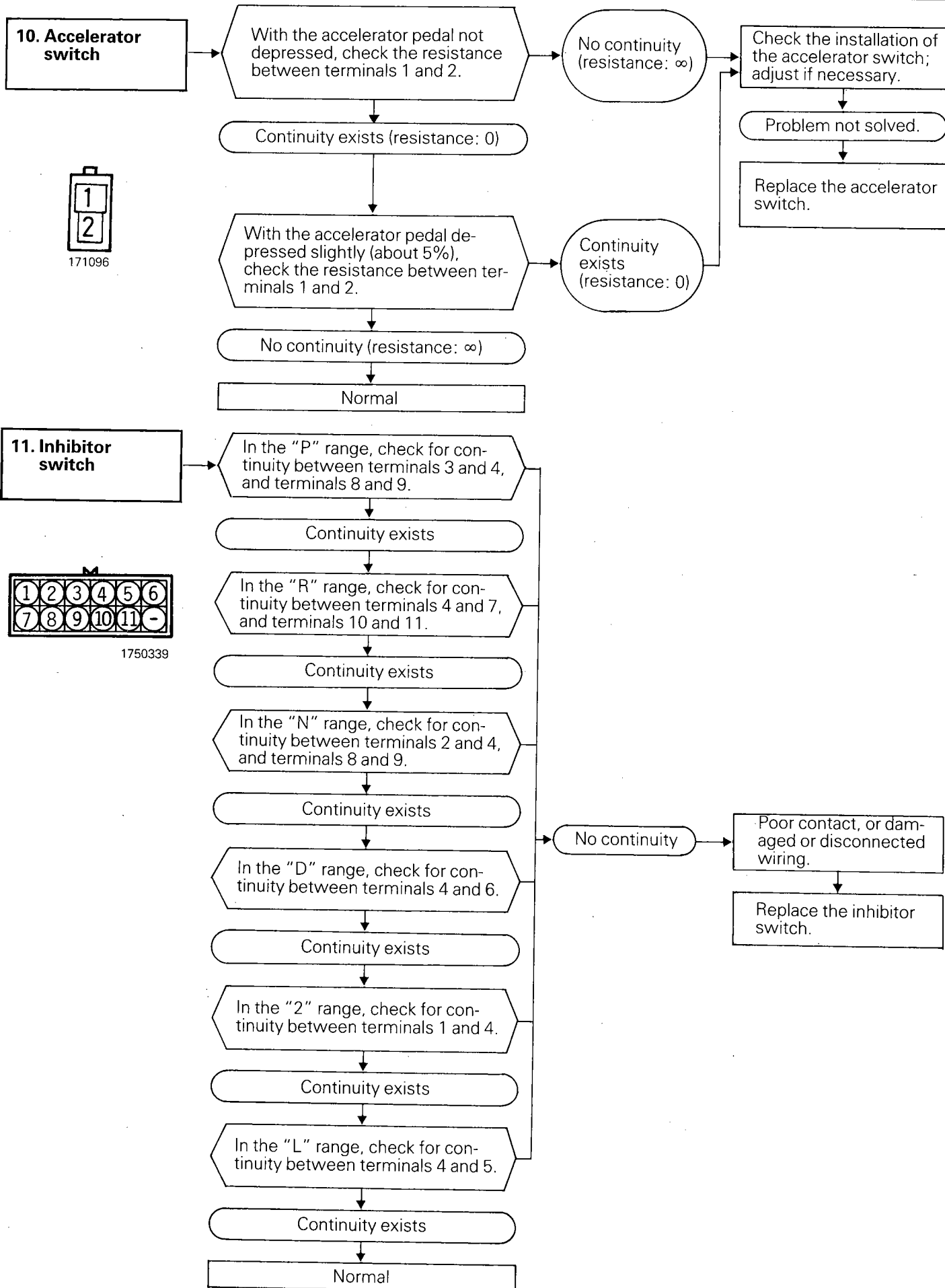
Solenoid valve connector terminals

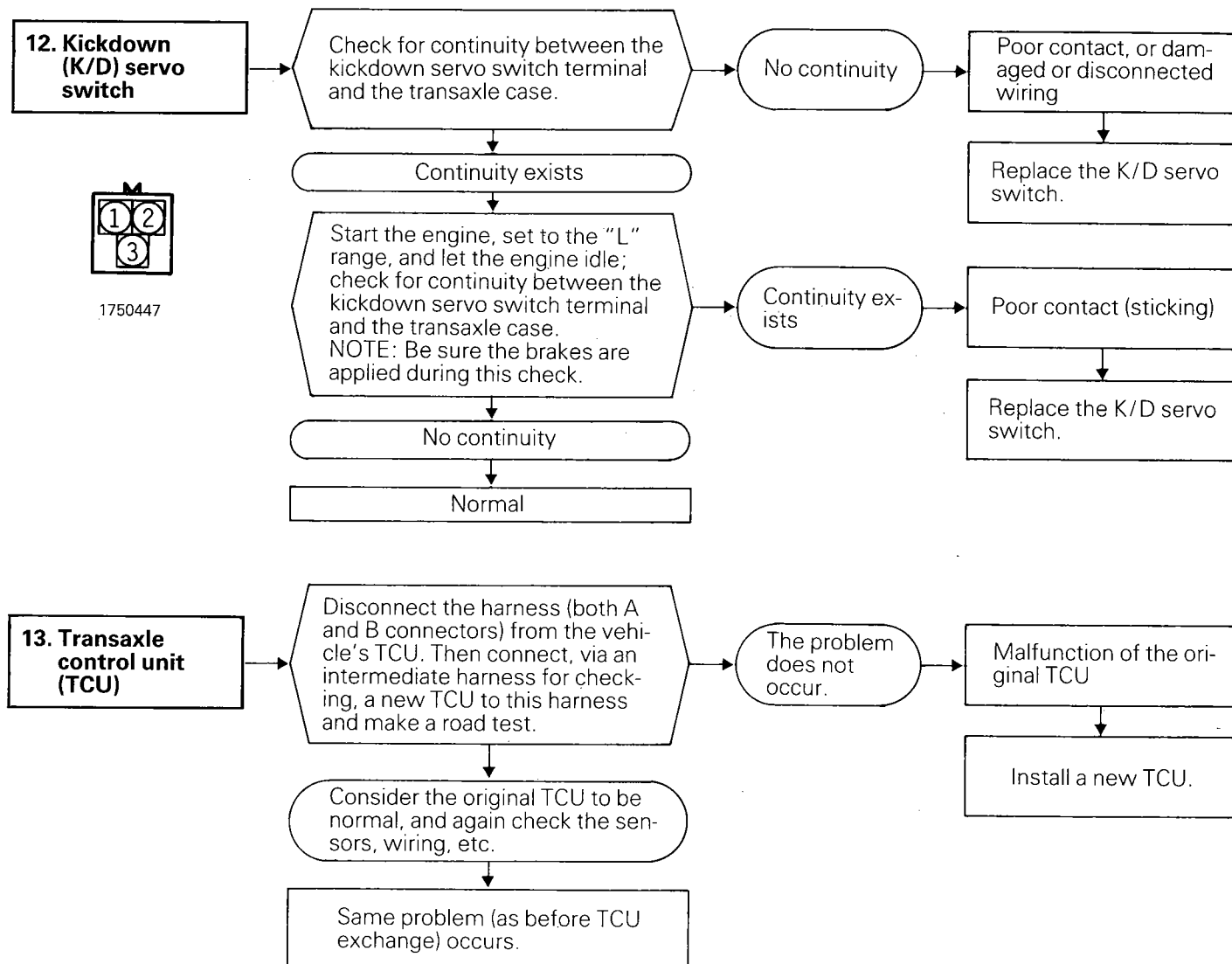


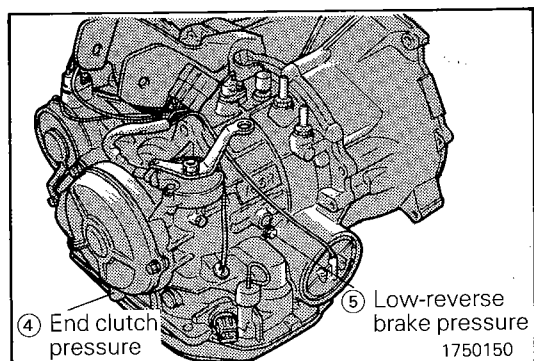
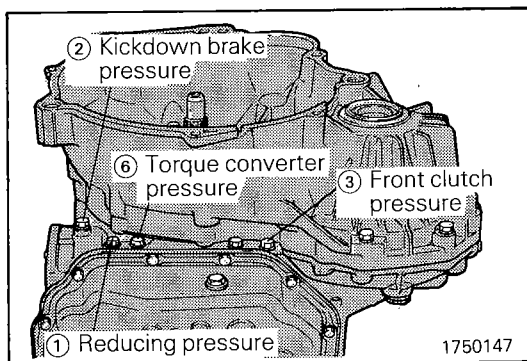
- 1: PCSV
- 2: DCCSV
- 3: SCSV-A
- 4: SCSV-B

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OIL PRESSURE TESTS

1. Completely warm up the transaxle.
2. Raise the vehicle by using a jack so that the front wheels can be rotated.
3. Connect an engine tachometer and place it in a position where it's easy to see.
4. Attach the special oil pressure gauge (MD998330) and the adaptor (MD998332) 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.
5. Measure the oil pressure under various conditions, and 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 "Remedial Steps if Oil Pressure is Not Normal" on the next page.

STANDARD OIL PRESSURE TABLE

No.	Conditions				Standard oil pressure kPa (psi)					
	Select lever position	(Reference) vehicle speed km/h (mph)	Engine speed rpm	Shift position	① Reducing pressure	② Kickdown brake pressure	③ Front clutch pressure	④ End clutch pressure	⑤ Low-reverse brake pressure	⑥ Torque converter pressure
1	N	0 (0)	Idling	Neutral	370 – 490 (52 – 69)	–	–	–	–	☆
2	D	0 (0)	Idling	2nd gear	370 – 490 (52 – 69)	100 – 210 (14 – 30)	–	–	–	☆
3	D (SW-ON)	110 (68)	Approx. 2,500	4th gear	370 – 490 (52 – 69)	830 – 900 (118 – 128)	–	830 – 900 (118 – 128)	–	400 – 600 (56 – 84)
4	D (SW-OFF)	75 (47)	Approx. 2,500	3rd gear	370 – 490 (52 – 69)	830 – 900 (118 – 128)	830 – 900 (118 – 128)	830 – 900 (118 – 128)	–	400 – 600 (56 – 84)
5	2	50 (31)	Approx. 2,500	2nd gear	370 – 490 (52 – 69)	830 – 900 (118 – 128)	–	–	–	400 – 600 (56 – 84)
6	L	0 (0)	Approx. 1,000	1st gear	370 – 490 (52 – 69)	–	–	–	300 – 450 (43 – 63)	☆
7	R	35 (22)	Approx. 2,500	Reverse	370 – 490 (52 – 69)	–	1,640 – 2,240 (233 – 318)	–	1,640 – 2,240 (233 – 318)	400 – 600 (56 – 84)
		0 (0)	Approx. 1,000				1,500 (213) or more		1,500 (213) or more	

NOTE

– must be 10 kPa (1.4 psi) or less.

SW-ON: Switch ON the overdrive control switch.

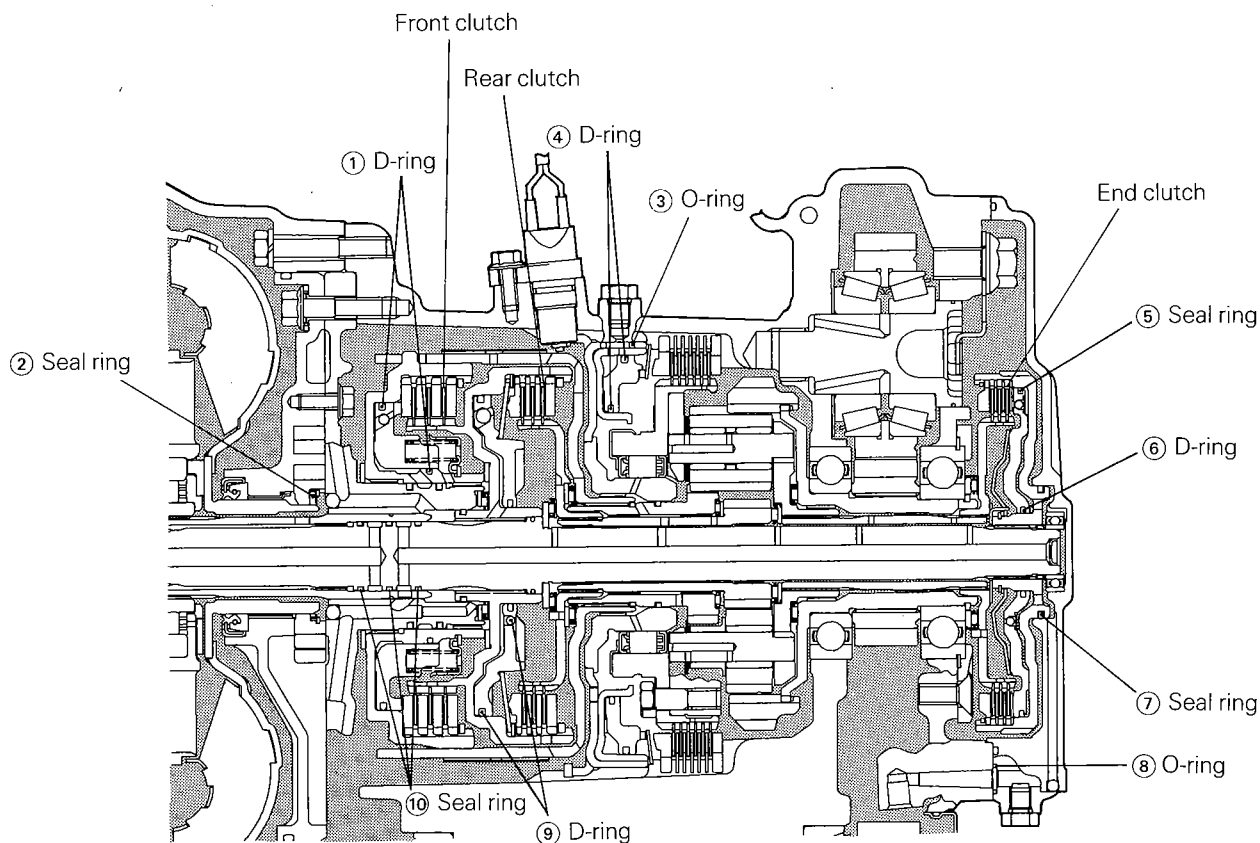
SW-OFF: Switch OFF the overdrive control switch.

☆: Hydraulic pressure develops, but is not up to specification.

REMEDIAL STEPS IF OIL PRESSURE IS NOT NORMAL

Trouble symptom	Probable cause	Remedy
1. *Line pressures are all low (or high). NOTE *"Line pressures" refers to oil pressures ②, ③, ④ and ⑤ in the "Standard oil pressure table" on the previous page.	a. Clogging of oil filter b. Improper adjustment of oil pressure (line pressure) of regulator valve c. Sticking of regulator valve d. Looseness of valve body tightening part e. Improper oil pump discharge pressure	a. Visually inspect the oil filter; replace the oil filter if it is clogged. b. 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. c. Check the operation of the regulator valve; repair if necessary, or replace the valve body assembly. d. Tighten the valve body tightening bolt and installation bolt. e. Check the side clearance of the oil pump gear; replace the oil pump assembly if necessary.
2. Improper reducing pressure	a. Improper line pressure b. Clogging of the filter (L-shaped type) of the reducing pressure circuit c. Improper adjustment of the reducing pressure d. Sticking of the reducing valve e. Looseness of valve body tightening part	a. Check the ② kickdown brake pressure (line pressure); if the line pressure is not the standard value, check as described in item 1 above. b. Disassemble the valve body assembly and check the filter; replace the filter if it is clogged. c. Measure the ① reducing pressure; if it is not the standard value, readjust, or replace the valve body assembly. d. Check the operation of the reducing valve; if necessary, repair it, or replace the valve body assembly. e. Tighten the valve body tightening bolt and installation bolt.
3. Improper kickdown brake pressure	a. Malfunction of the D-ring or seal ring of the sleeve or kickdown servo piston b. Looseness of valve body tightening part c. Functional malfunction of the valve body assembly	a. 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. b. Tighten the valve body tightening bolt and installation bolt. c. Replace the valve body assembly.
4. Improper front clutch pressure	a. Malfunction of the D-ring or seal ring of the sleeve or kickdown servo piston b. Looseness of valve body tightening part c. Functional malfunction of the valve body assembly d. Wear of the front clutch piston or retainer, or malfunction of the ① D-ring. (Refer to the following illustration.)	a. 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. b. Tighten the valve body tightening bolt and installation bolt. c. Replace the valve body assembly. d. 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.
5. Improper end clutch pressure	a. Malfunction of the D-ring ④ or ⑥ seal ring ⑤ of the end clutch or O-ring ⑦ of the pipe (Refer to the following illustration.) b. Looseness of valve body tightening part c. Functional malfunction of the valve body assembly	a. 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, scars, scratches or damage. b. Tighten the valve body tightening bolt and installation bolt. c. Replace the valve body assembly.

Trouble symptom	Probable cause	Remedy
6. Improper low-reverse brake pressure	a. O-ring between valve body and transaxle damaged or missing b. Looseness of valve body tightening part c. Functional malfunction of the valve body assembly d. Malfunction of the O-ring ③ of the low-reverse brake piston or the O-ring ② of the retainer (Refer to the illustration below.)	a. 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. b. Tighten the valve body tightening bolt and installation bolt. c. Replace the valve body assembly. d. Disassemble the transaxle itself and check the O-ring for damage; replace if there are cuts, scars, scratches or damage.
7. Improper torque converter pressure	a. Clogging or leaking of the oil cooler and/or piping b. Malfunction of the torque converter	a. Repair or replace, as necessary, the cooler and/or piping. b. Replace the torque converter.



1750151

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.

1. Check transaxle fluid level. Fluid should be at normal operating temperature [70 – 80°C (160 – 180°F)]. Engine coolant should also be at normal operating temperature [80 – 90°C (180 – 190°F)].
2. Apply chocks to both rear wheels.
3. Attach engine tachometer.
4. Apply parking and service brakes fully.
5. Start engine.
6. With selector lever in "D" position, depress accelerator pedal fully to read engine maximum rpm. Do not hold 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 engine at approximately 1,000 rpm in neutral for 2 minutes to cool transaxle fluid between tests.

Stall speed: 1,800 – 2,800 rpm

7. Place selector lever to "R" position and perform stall test by the same procedure as in foregoing item.

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 stall speed is higher than specification, front clutch of transaxle or low-reverse brake is slipping. In this case, perform hydraulic test to locate cause of slippage.

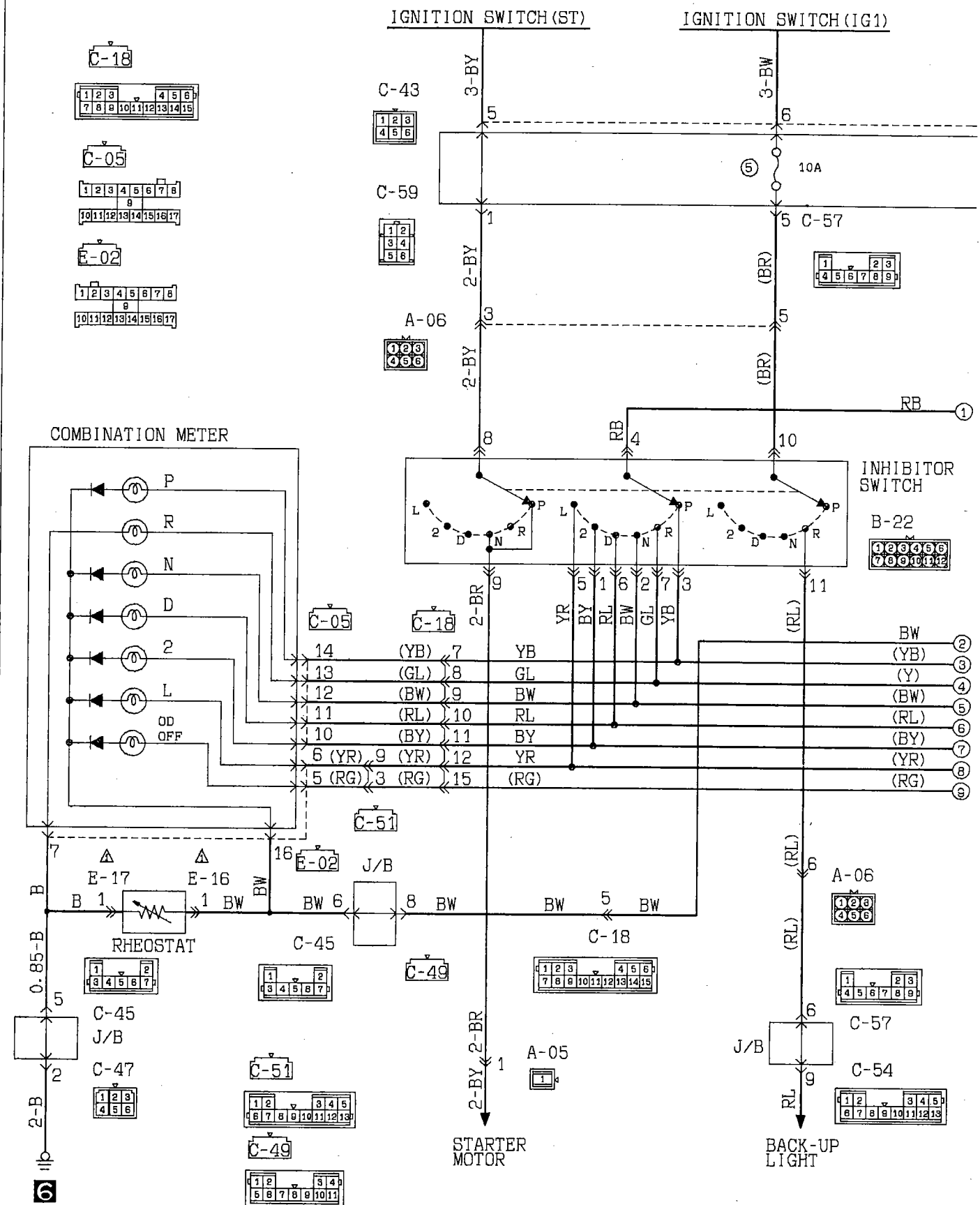
Stall Speed Below Specification in "D" and "R"

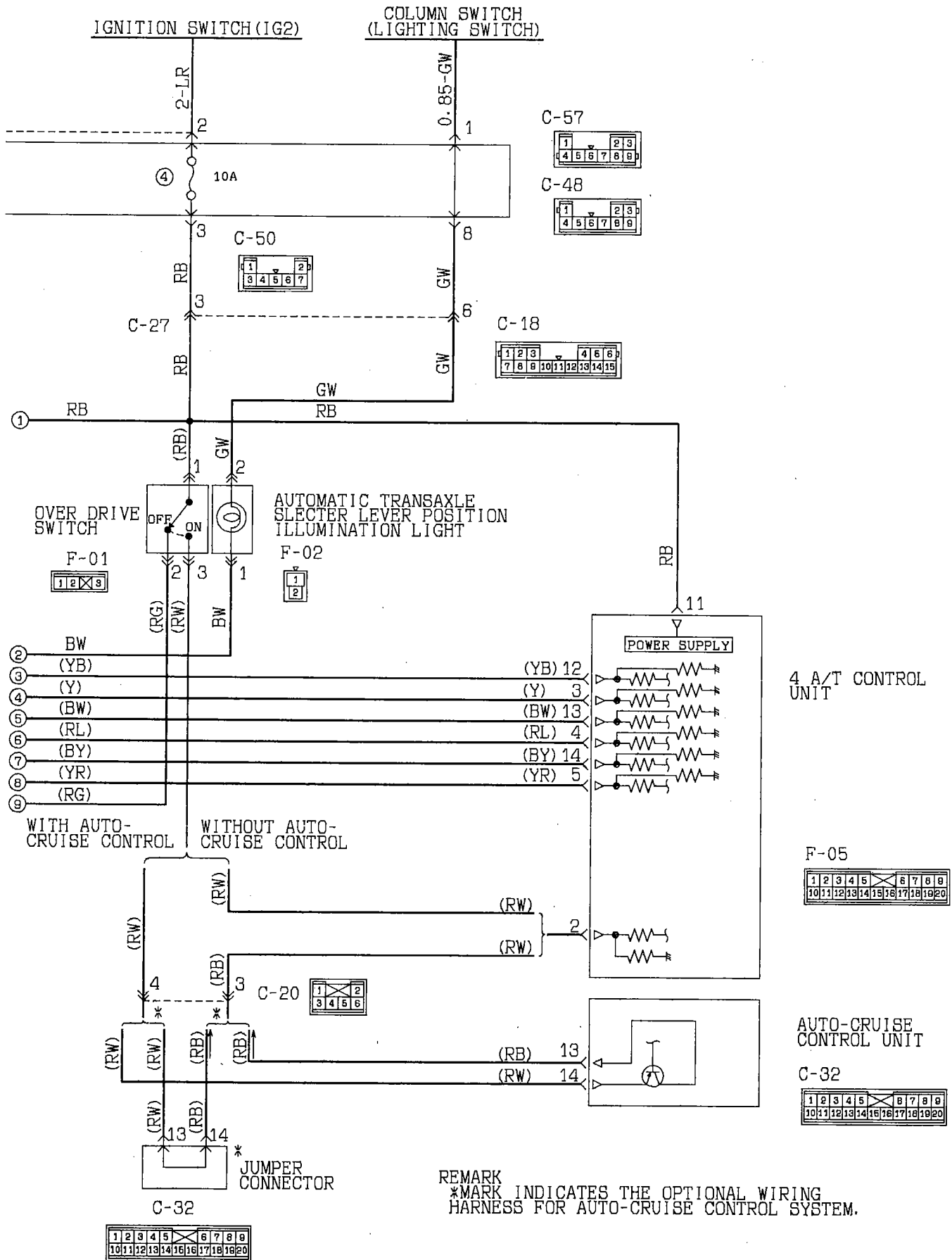
If stall speed is lower than specification, insufficient engine output or faulty torque converter is suspected. Check for engine misfiring, ignition timing, valve clearance, etc. If these are good, torque converter is faulty.

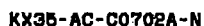
TRANSAXLE CONTROL

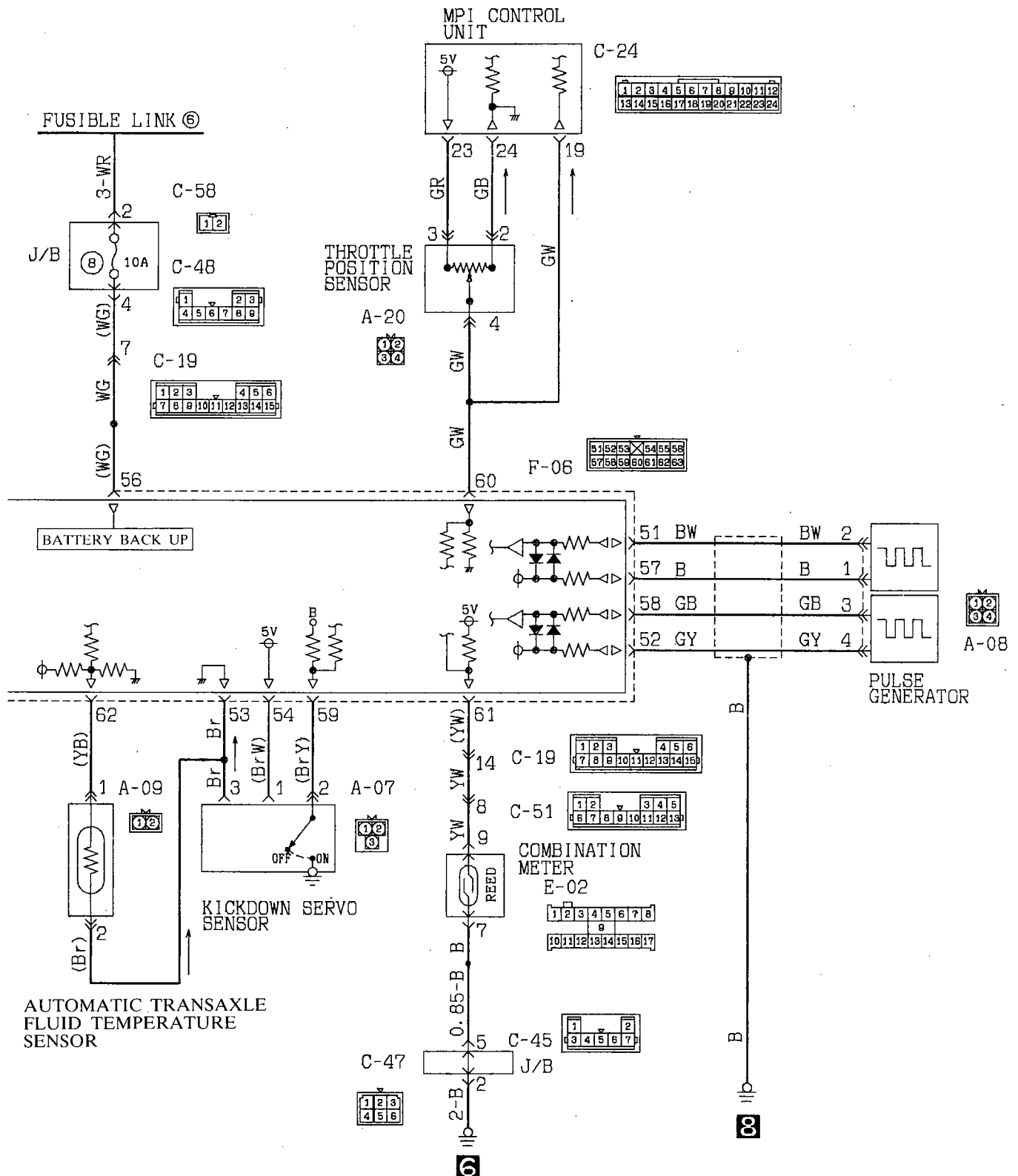
Symptom	Probable cause	Remedy
Selector lever operation is stiff	Incorrect adjustment of sleeve	Adjust
	Incorrect adjustment of control cable	Adjust
	Excessive wear of detent plate	Replace
	Excessive wear of pin at end of selector lever	Replace
	Worn contact surfaces of pushbutton and sleeve	Replace
Starter motor does not operate with the selector lever in the "N" or "P" position	Malfunction in inhibitor switch	Replace
	Incorrect adjustment of control cable	Adjust
	Malfunction of starter relay	Replace
Will not shift to 4-speed	Malfunction of OD switch	Replace

4-SPEED AUTOMATIC TRANSAXLE – ELECTRICAL WIRING DIAGRAM





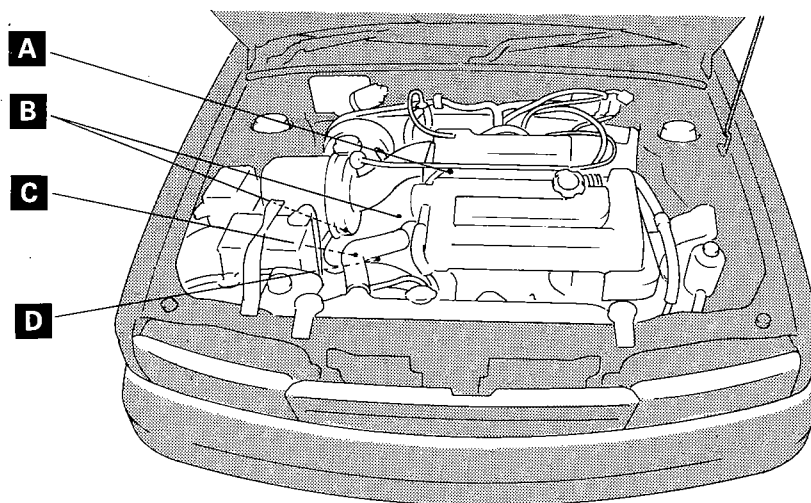




4-SPEED AUTOMATIC TRANSAXLE CONTROL COMPONENTS LAYOUT

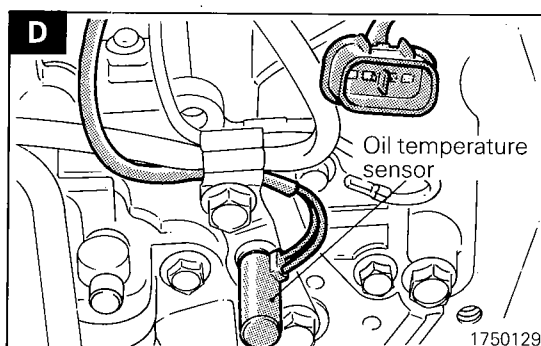
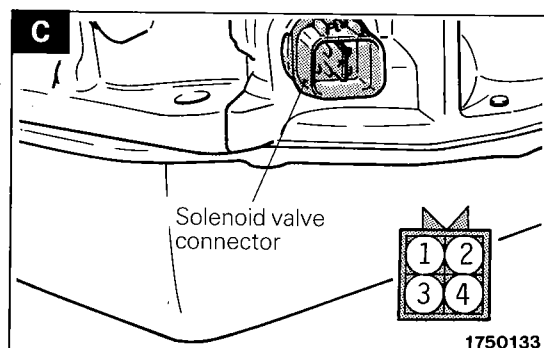
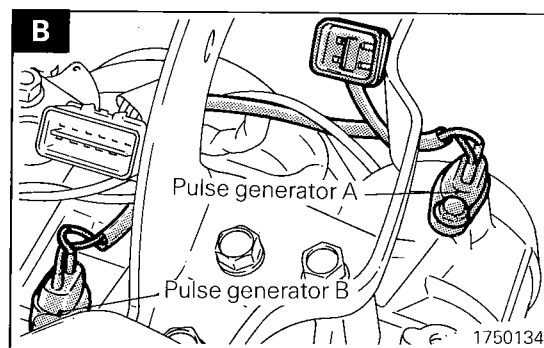
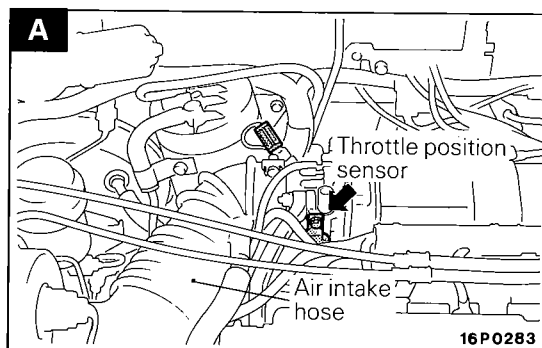
ENGINE COMPARTMENT

N21EC--1

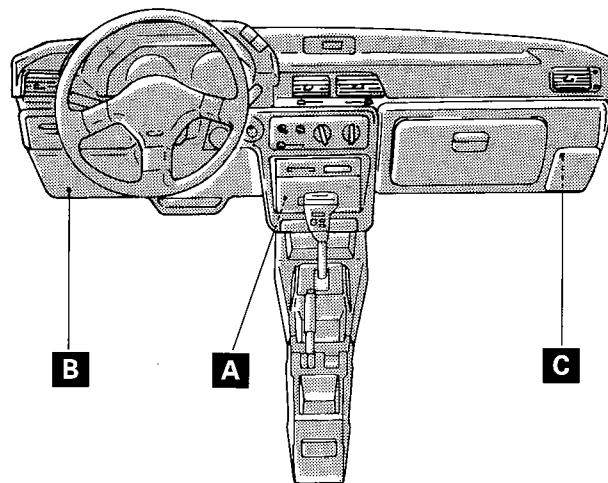


16P0290

Name	Symbol	Name	Symbol
Oil temperature sensor	D	Solenoid valve connector	C
Pulse generator A	B	Throttle position sensor	A
Pulse generator B	B		

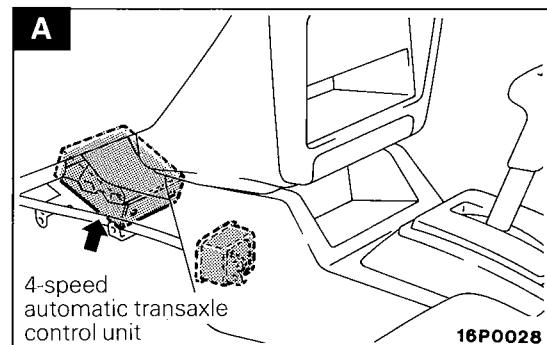


INTERIOR

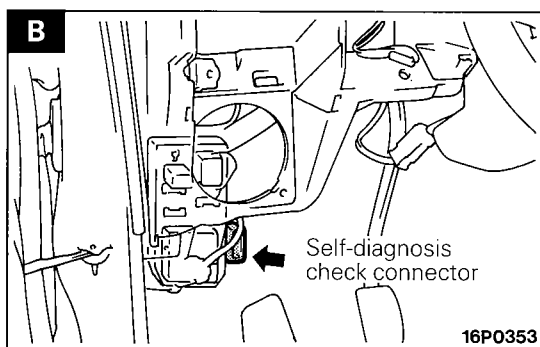


16P0292

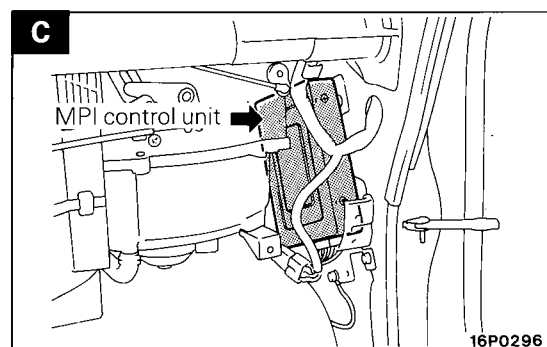
Name	Symbol
4-speed automatic transaxle control unit	A
MPI control unit	C
Self-diagnosis check connector	B



16P0028



16P0353



16P0296

SERVICE ADJUSTMENT PROCEDURES <KM171>

N21FBBF

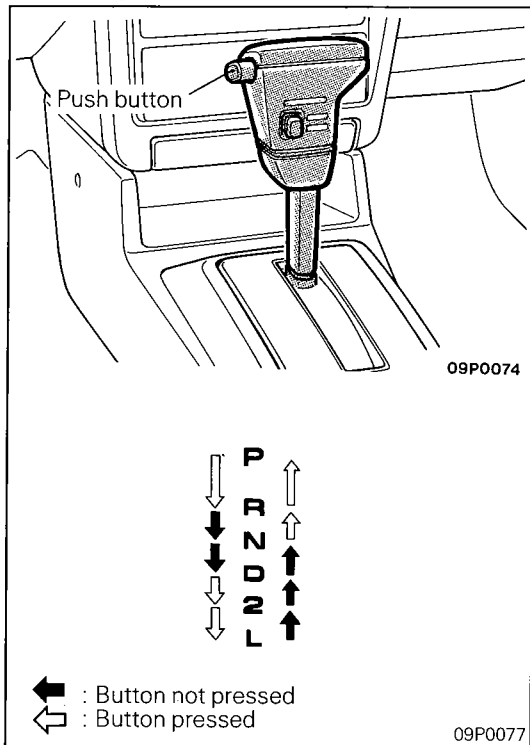
TRANSAXLE FLUID QUANTITY INSPECTION

Refer to GROUP 0 — Maintenance Service.

TRANSAXLE FLUID REPLACEMENT

N21FCBAa

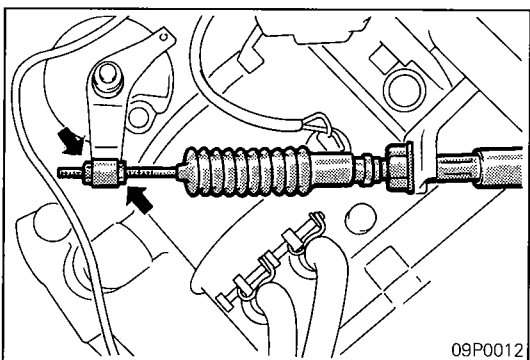
Refer to GROUP 0 — Maintenance Service.



SELECTOR LEVER OPERATION CHECK

N21FIAB

1. Shift selector lever to each range and check that lever moves smoothly and is controlled. Check that position indicator is correct.
2. Check to be sure the selector lever can be shifted to each position (by button operation as shown in the illustration).
3. Start the engine and check if the vehicle moves forward when the selector lever is shifted from N to D, and moves backward when shifted to R.
4. When the shift lever malfunctions, adjust control cable and selector lever sleeve. Check for worn shift lever assembly sliding parts.

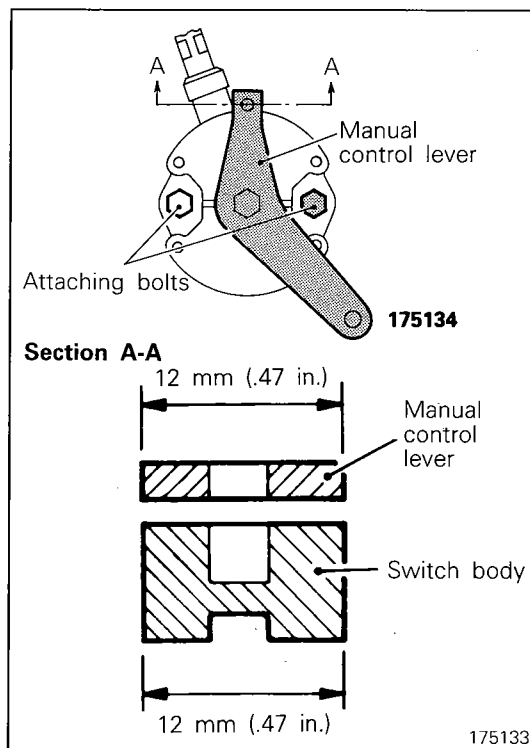


INHIBITOR SWITCH AND CONTROL CABLE ADJUSTMENT

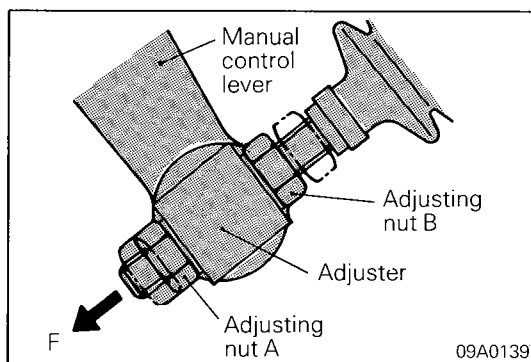
N21FKAD

INHIBITOR SWITCH

1. Place selector lever in "N" (Neutral) position.
2. Loosen control cable to manual control lever coupling adjusting nuts (2 pcs.) to set cable and lever free.



3. Place manual control lever in "N" (neutral) position.
4. Turn inhibitor switch body until 12 mm (.47 in.) wide end of manual control lever aligns with switch body flange [12 mm (.47 in.) wide portion].
5. Tighten attaching bolts (2 pcs.) taking care so that switch body is not displaced.

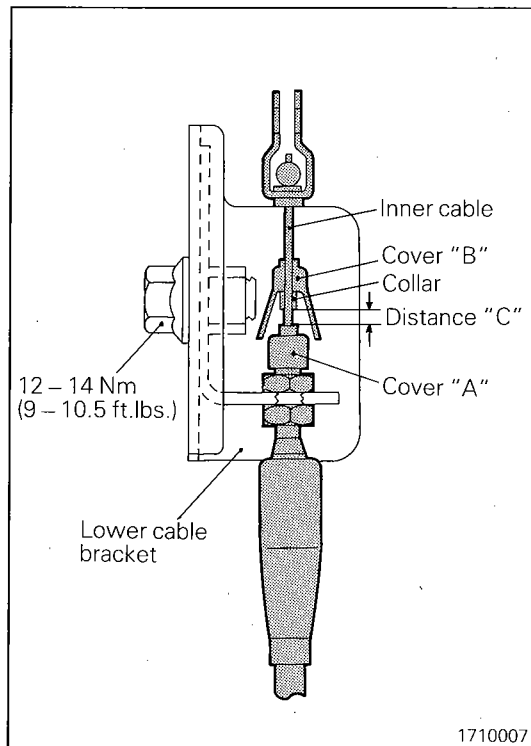


6. Loosen adjusting nuts A and B and keep them apart from the adjuster, and then gently pull the end of the cable in the direction of F.
7. Gently tighten adjusting nut A until there is contact with the adjuster.
8. Secure adjusting nut A and then turn nut B to lock.
9. Check that the select lever is at the "N" position.
10. Check that the manual control lever moves to the positions corresponding to each position of the select lever when the select lever is operated.

CONTROL CABLE

Whether control cable is properly adjusted can be confirmed by checking whether inhibitor switch is performing well.

1. Apply parking brakes and service brakes securely.
2. Place selector lever to "R" range.
3. Set ignition key to "ST" position.
4. Slowly move the selector lever upward until it clicks as it fits in notch of "P" range. If starter motor operates when lever makes a click, "P" position is correct.
5. Then slowly move selector lever to "N" range by the same procedure as in foregoing paragraph. If starter motor operates when selector lever fits in "N", "N" position is correct.
6. Also check to be sure the vehicle doesn't begin to move and the lever doesn't stop between P-R-N-D.
7. The control cable is properly adjusted if, as described above, the starter motor starts at both the "P" range and the "N" range.

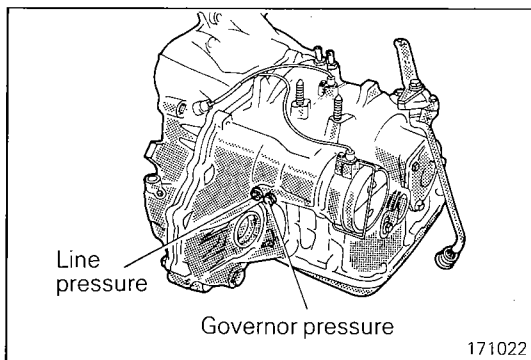


THROTTLE CONTROL CABLE ADJUSTMENT

1. Check to ensure that throttle lever of carburetor is in CURB IDLE position, with engine coolant at normal operating temperature [80 – 90°C (180 – 190°F)].
2. Raise cover "B" of throttle cable upward to expose nipple.
3. Loosen lower cable bracket mounting bolt.
4. Adjust distance "C" between collar and cover "A" to obtain the following dimension:

Distance "C": 1 ± 0.5 mm ($.04 \pm .02$ in.)

5. Tighten lower cable bracket mounting bolt to 12 – 14 Nm (9 – 10.5 ft.lbs.).
6. With throttle lever in "wide-open" position, pull cable further upward to confirm cable has freedom of movement.

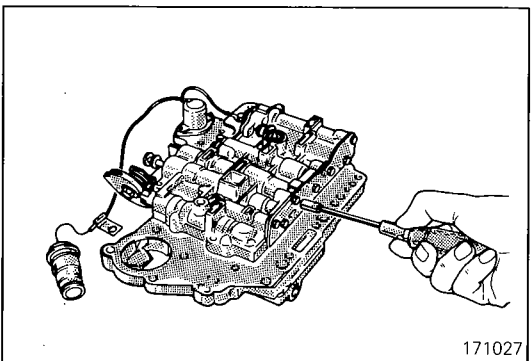


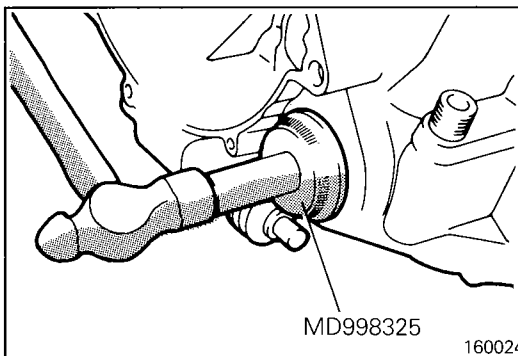
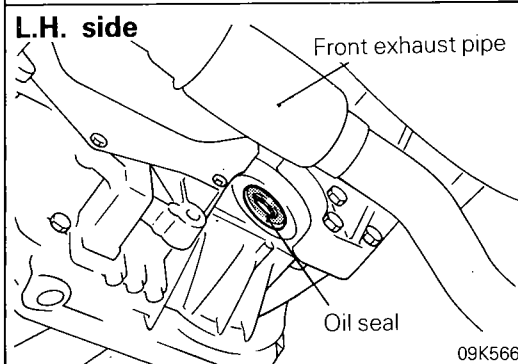
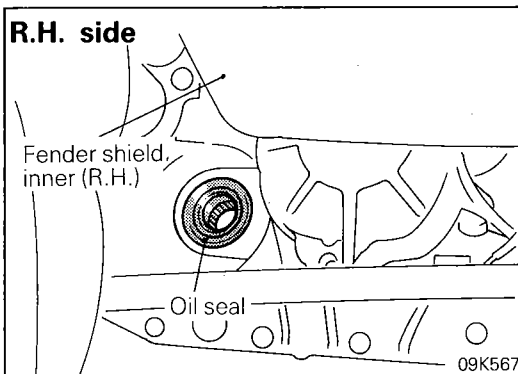
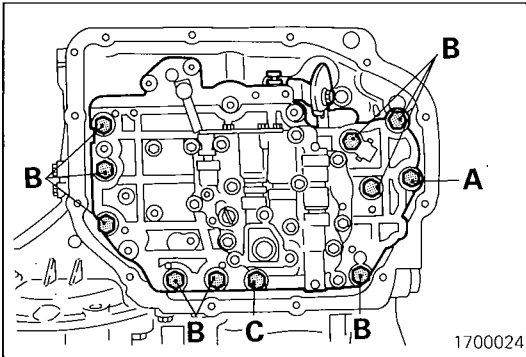
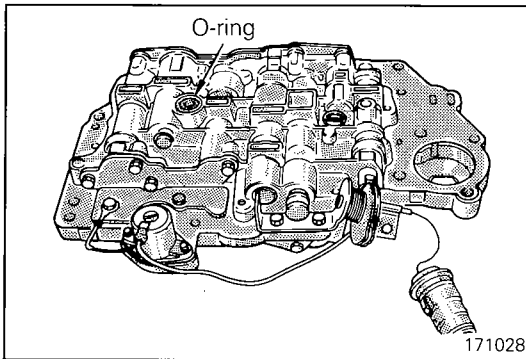
LINE PRESSURE CHECK AND ADJUSTMENT CHECK

1. With selector lever in "N" neutral, set parking brake on.
2. Attach engine tachometer.
3. Attach pressure gauge to line pressure take-off port by using adapter.
4. Start engine and warm-up at idle.
5. With selector lever in "D" drive, operate engine at fixed speed of 2,500 rpm.
6. Line pressure should read 677 – 696 kPa (98 – 100 psi) with throttle control cable on transaxle side in "wide-open" position. Pull throttle control cable by hand from inside of engine compartment. If line pressure is out of specification, adjust by following procedure.

ADJUSTMENT

1. Drain ATF.
2. Remove oil pan.
3. Disconnect throttle control cable from throttle cam.
4. Detach the solenoid connector from case.
5. Remove oil filter and filter plate.
6. Remove valve body assembly. Be careful not to drop manual valve.
7. Adjust line pressure by turning adjusting screw at regulator valve. Counterclockwise turn of screw will increase line pressure, and clockwise turn will lower it. Turning adjusting screw one turn changes line pressure by about 25 kPa (3.7 psi). This value is true for wide-open condition of throttle control cable.





8. Make certain O-ring is installed in position illustrated on top of valve body.
9. Install the accumulator springs.
10. Install valve body assembly. At this time, fit groove of manual valve on manual control shaft detent plate pin.

11. Tighten valve body assembly mounting flange bolts (11 pieces) to 10 – 11 Nm (7.5 – 8.5 ft.lbs.).

A: 18 mm (.7087 in.)

B: 25 mm (.9843 in.)

C: 40 mm (1.5748 in.)

12. Install oil filter and tighten flange bolts (4 pieces; head mark; "7") to 5 – 6.5 Nm (4 – 5 ft.lbs.).
13. Reconnect throttle control cable to throttle cam.
14. Insert the solenoid connector into case.
15. Install new oil pan gasket and oil pan, then tighten washer-assembled bolts (12 pieces; head mark; "7") to torque between 10 and 11 Nm (7.5 and 8.5 ft.lbs.).
16. Refill transaxle with ATF to proper level.

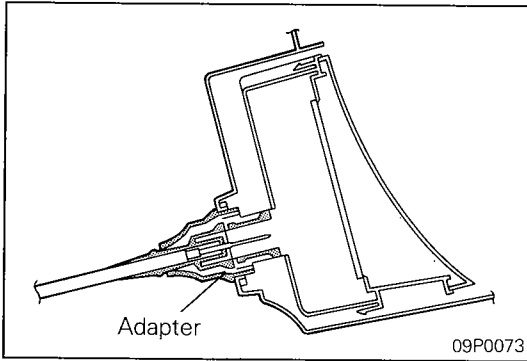
DRIVE SHAFT OIL SEALS REPLACEMENT

N21FDBAa

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

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

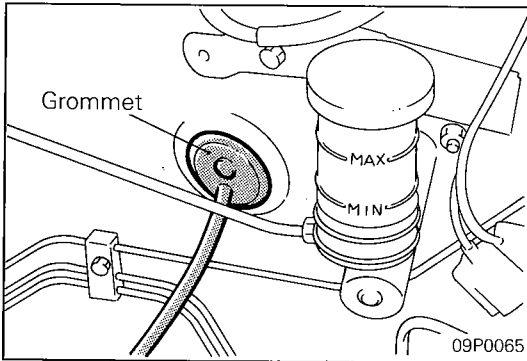
Recommended fluid: MOPAR ATF PLUS (AUTOMATIC TRANSAXLE FLUID TYPE 7176) or DEXRON II



SPEEDOMETER CABLE REPLACEMENT

N21FEAEa

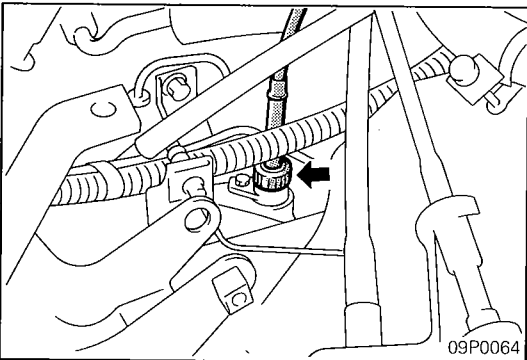
1. Correctly insert the adapter into the instrument panel, and fasten the new speedometer cable.



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

Caution

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



3. 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 incorrect indication by the speedometer, or abnormal noise. Be sure to connect it correctly.

SERVICE ADJUSTMENT PROCEDURES <KM176>

N21FBBE

TRANSAXLE FLUID QUANTITY INSPECTION

Refer to GROUP 0 — Maintenance Service.

TRANSAXLE FLUID REPLACEMENT

N21FCBAa1

Refer to GROUP 0 — Maintenance Service.

SELECTOR LEVER OPERATION CHECK

N21FIAC

Refer to P.21-158.

INHIBITOR SWITCH AND CONTROL CABLE ADJUSTMENT

N21FKAE

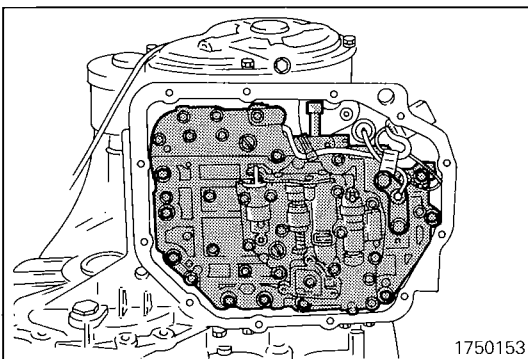
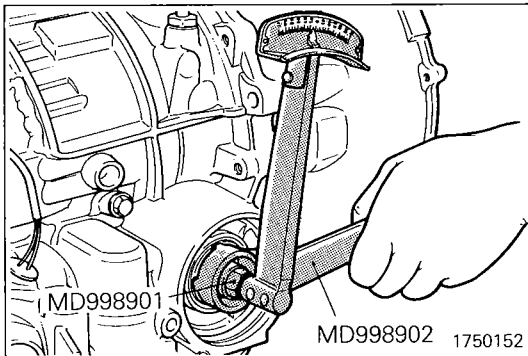
Refer to P.21-158.

KICKDOWN SERVO ADJUSTMENT

1. Completely remove all dirt and other materials adhered around the kickdown servo switch.
2. Remove the snap ring.
3. Remove the kickdown servo switch.
4. Loosen the lock nut.
5. While holding with special tool so that the kickdown servo piston won't turn, use special tool MD998901 to "tighten", at 10 Nm (7.2 ft.lbs.), and "return" the adjustment screw two times each, and then tighten at a torque of 5 Nm (3.6 ft.lbs.). Then return the adjustment screw 2 to 2-1/4 turns.
6. While holding with special tool MD998902 so that the kickdown servo piston won't turn, tighten the lock nut to the specified torque.

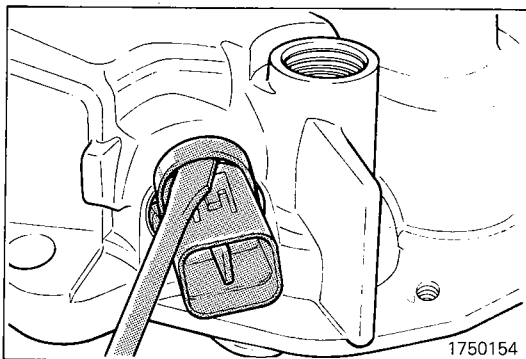
Lock nut: 25 – 32 Nm (18 – 23 ft.lbs.)

7. Fit a new O-ring into the groove in the outside of the kickdown servo switch. Then, install the kickdown servo switch in the case, ensuring that the O-ring is not twisted, and then fit the snap ring into position.

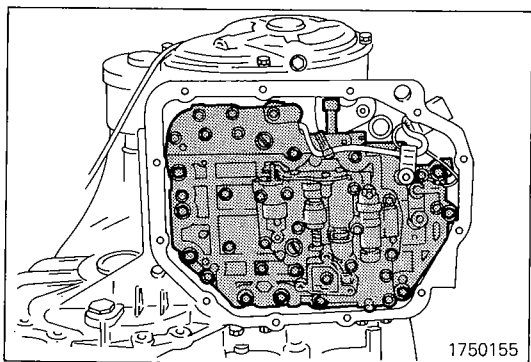


LINE PRESSURE ADJUSTMENT

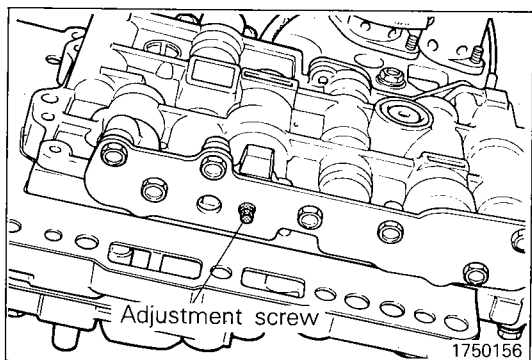
1. Drain out the automatic transaxle fluid.
2. Remove the oil pan.
3. Remove the oil filter.
4. Remove the oil temperature sensor.



5. Remove the clip that secures the solenoid valve connector in position and push the connector.



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

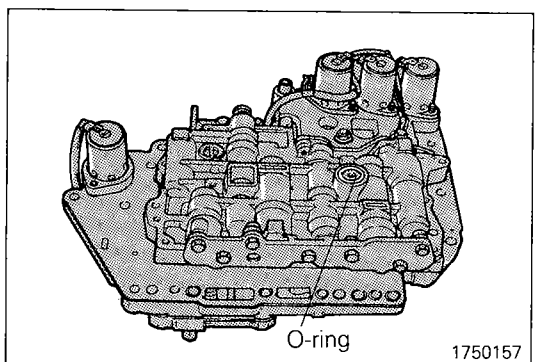


7. Turn the adjustment screw of the regulator valve and adjust so that the line pressure (kickdown brake pressure) becomes the standard value.

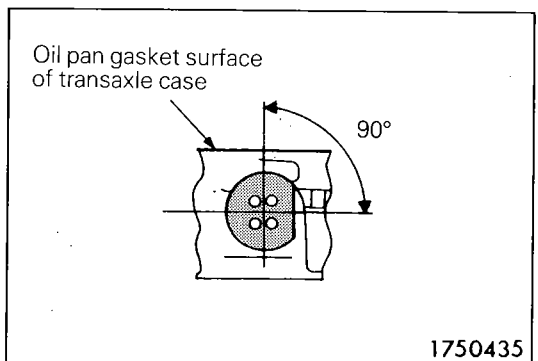
When the adjustment screw is turned to the clockwise, the line pressure becomes lower; when it is turned to counterclockwise, it becomes higher.

Standard value: 870 – 890 kPa (124 – 127 psi)

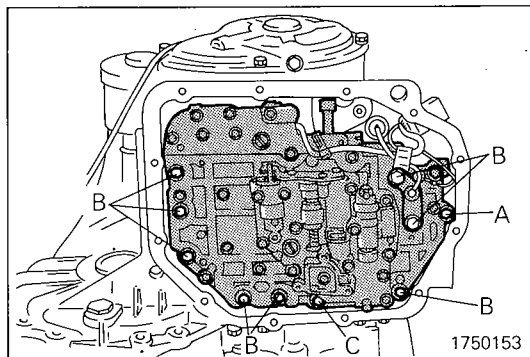
Oil pressure change for each turn of adjustment screw: 38 kPa (54 psi)



8. Check to be sure that the O-ring is installed on the upper surface of the valve body at the place shown in the illustration.
9. Replace the O-ring of the solenoid valve connector with a new one.



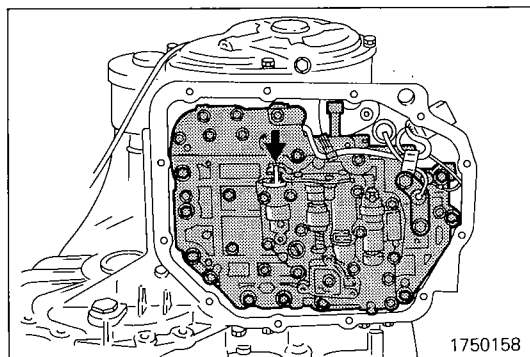
10. Install the valve body assembly to the case and then insert the solenoid valve connector into the case. Be sure, at this time, that the notched part of the connector faces as shown in the illustration. Also be careful that the lead wiring isn't caught.



11. Tighten valve body assembly mounting bolts (10 pieces) to 10 – 12 Nm (7.5 – 8.5 ft.lbs.).

A: 18 mm (.709 in.)
B: 25 mm (.984 in.)
C: 40 mm (1.575 in.)

12. Install the oil filter.
13. Install a new oil pan gasket and oil pan.
14. Pour in the specified amount of automatic transaxle fluid.
15. Make the oil pressure test. Readjust if necessary.



REDUCING PRESSURE ADJUSTMENT

When a Multi-Use Tester is not Available

1. Remove parts up to the oil filter in the same way as for adjustment of the line pressure. The valve body need not be removed.
2. 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 right, the reducing pressure becomes lower; when it is turned to the left, it becomes higher.

NOTE

When adjusting the reducing pressure, aim for the center value (425 kPa, 60 psi) of the standard value allowance.

Standard value: 425 ± 10 kPa (60 ± 1 psi)

Oil pressure change for each turn of adjustment screw: 30 kPa (4.3 psi)

3. Install the oil filter and oil pan in the same way as for adjustment of the line pressure.
4. Make the oil pressure test. Readjust if necessary.

When a Multi-Use Tester is Used

1. Adjust to obtain the specified kickdown brake pressure when the pressure control solenoid is activated at 50% duty ratio with the multi-use tester.

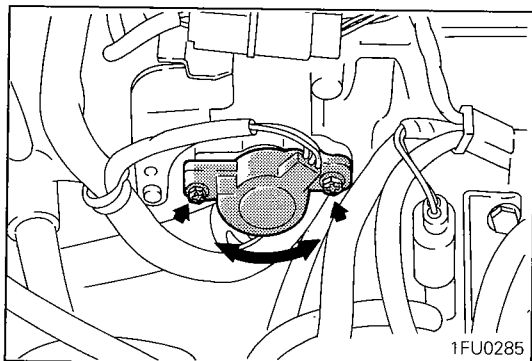
Standard value: 275 ± 10 kPa (39 ± 1 psi)

Oil pressure change for each turn of adjustment screw: 20 kPa (3 psi)

2. After the adjustment has been made, make sure that the reducing pressure is in the range of 370 – 490 kPa (53 – 70 psi).

Caution

This adjustment must be made with the oil temperature in the range of 70 – 80°C (158 – 176°F). Higher oil temperatures result in a lower line pressure at idle, making accurate adjustment difficult.

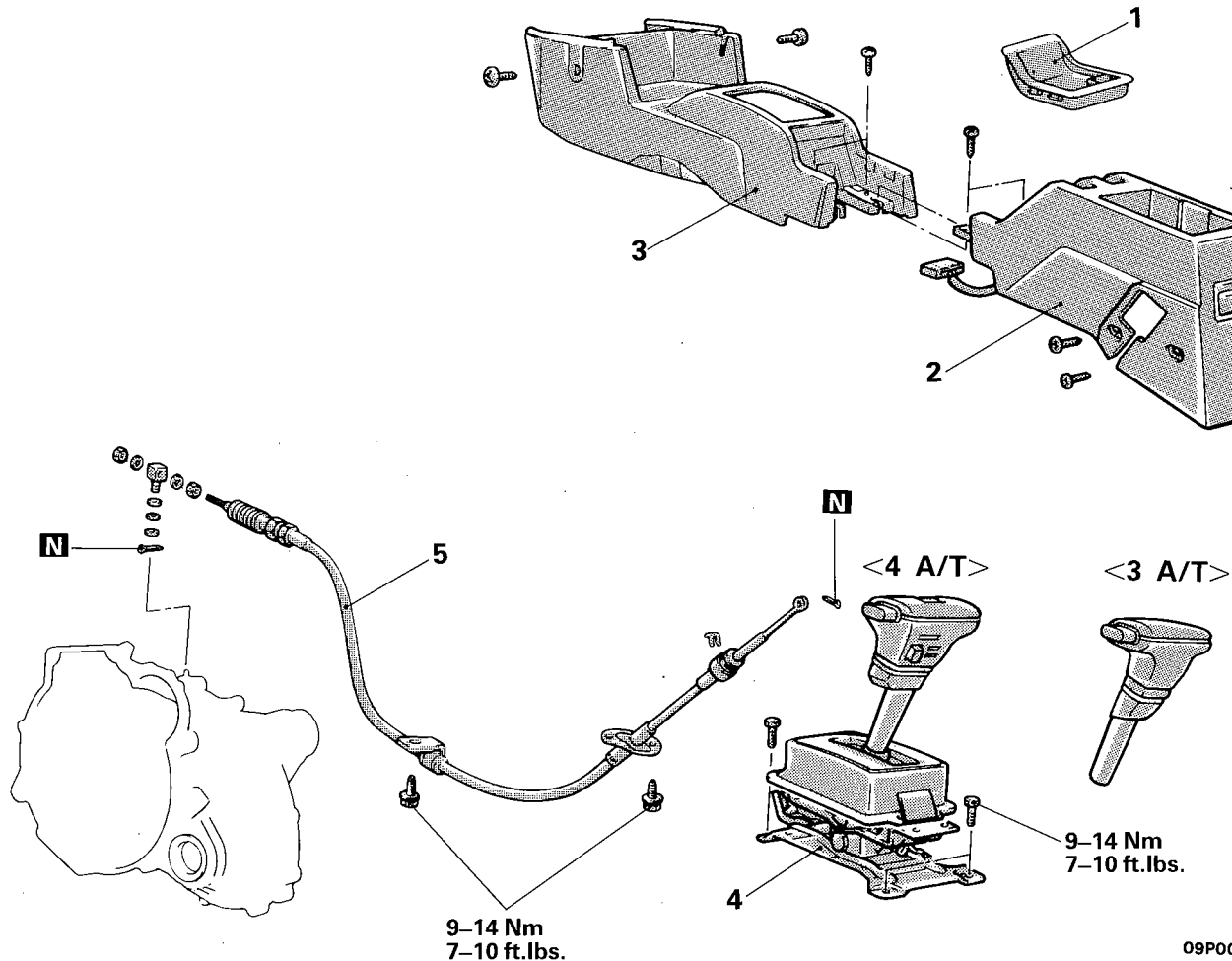
**THROTTLE POSITION SENSOR ADJUSTMENT**

Refer to GROUP 14 – Service Adjustment.

TRANSAXLE CONTROL

REMOVAL AND INSTALLATION

N211A -



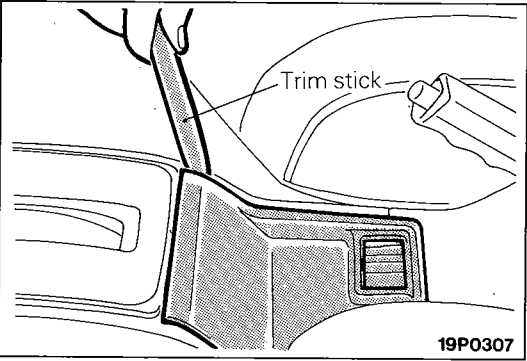
09P0049

Removal steps

- ◆◆ 1. Floor console box tray
- ◆◆ 2. Rear floor console assembly
- ◆◆ 3. Front floor console assembly
- ◆◆ 4. Lever assembly
- ◆◆ Adjustment of control cable
- ◆◆ 5. Control cable

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Removal".
- (3) ◆◆: Refer to "Service Points of Installation".
- (4) **N**: Non-reusable parts



SERVICE POINT OF REMOVAL

N211BAK

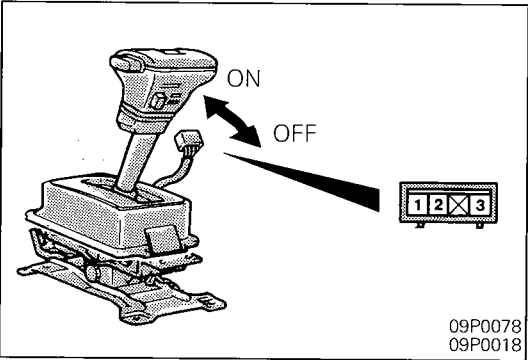
1. REMOVAL OF CONSOLE BOX TRAY

Using the trim stick, remove the console box tray from the floor console assembly.

INSPECTION

N211CAI

- Check the control cable for function and for damage.
- Check the bushing for wear or damage.

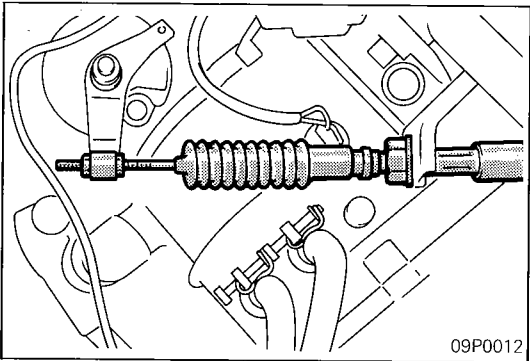


OVERDRIVE CONTROL SWITCH

Check for continuity between terminals when the switch is OFF and when ON.

Terminal	1	2	3
Switch position			
ON (Overdrive activation)	○	○	
OFF (Overdrive non-activation)	○		○
Cross-sectional area, color	Red/White	Black/White	Yellow/White

NOTE
○—○ indicates that there is continuity between the terminals.



SERVICE POINT OF INSTALLATION

N211DAN

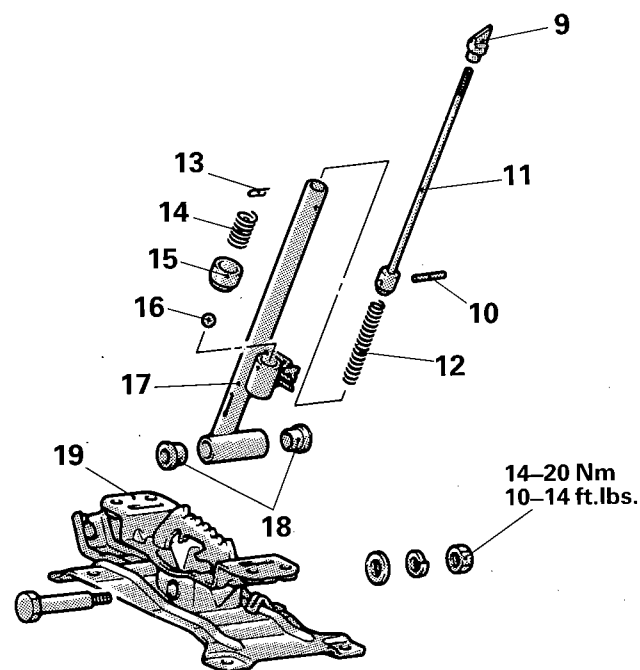
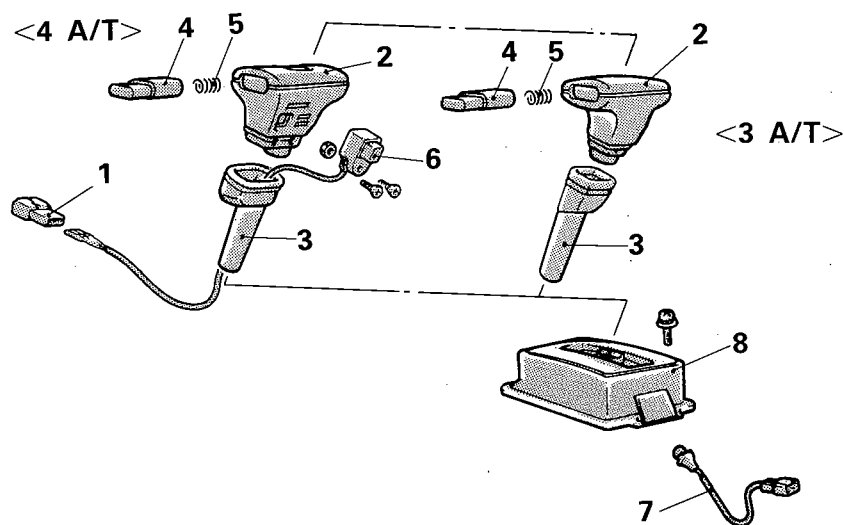
• ADJUSTMENT OF CONTROL CABLE

Refer to P.21-149.

SHIFT LEVER ASSEMBLY

DISASSEMBLY AND REASSEMBLY

N210E-



Disassembly steps

- ↔ 1. Overdrive control switch connector <4 A/T>
- ↔ ↔ 2. Selector knob
- ↔ 3. Cover
- ↔ 4. Pushbutton
- ↔ 5. Spring
- ↔ 6. Overdrive control switch <4 A/T>
- ↔ 7. Position indicator light
- ↔ 8. Indicator panel assembly
- ↔ 9. Sleeve
- ↔ 10. Spring pin
- ↔ 11. Rod
- ↔ 12. Lower spring
- ↔ 13. Pin
- ↔ 14. Spring
- ↔ 15. Support
- ↔ 16. Steel ball
- ↔ 17. Lever
- ↔ 18. Bushings
- ↔ 19. Bracket assembly

NOTE

- (1) Reverse the disassembly procedures to reassemble.
- (2) ↔: Refer to "Service Points of Disassembly".
- (3) ↔↔: Refer to "Service Points of Reassembly".

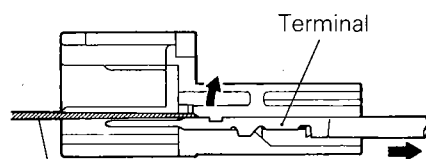
09P0046

SERVICE POINTS OF DISASSEMBLY

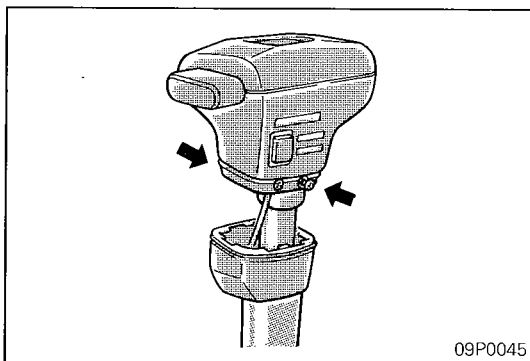
N210FAB

1. REMOVAL OF OVERDRIVE CONTROL SWITCH CONNECTOR

Disconnect the overdrive control switch connector and then remove the terminal from the overdrive control switch connector.

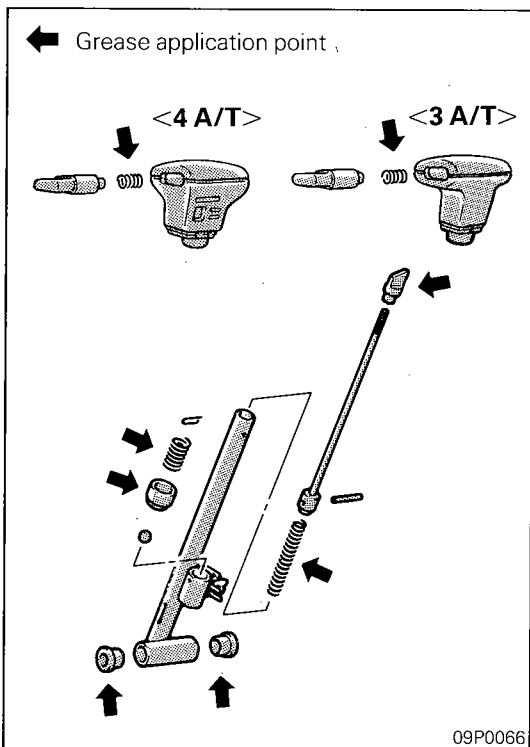


09R0054



2. REMOVAL OF SELECTOR KNOB

Bring down the cover and remove the selector knob from the selector lever.



INSPECTION

N210GAD

- Check the detent plate for wear.
- Check the bushing for wear or damage.
- Check the spring for damage or deterioration.

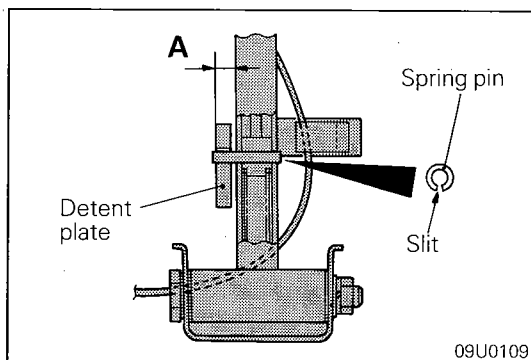
SERVICE POINTS OF REASSEMBLY

N210HAJ

18. APPLICATION OF GREASE TO BUSHINGS / 15. SUPPORT / 14. SPRING / 12. LOWER SPRING / 9. SLEEVE / 5. SPRING

Apply the multipurpose grease at the places shown in the illustration.

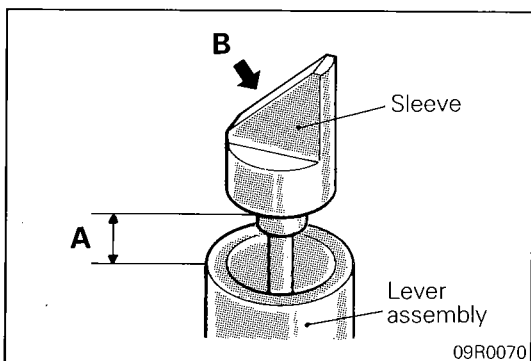
**Specified grease: MOPAR Front Wheel Bearing Grease
Part Number 3837794 or equivalent**



10. INSTALLATION OF SPRING PIN

Install the spring pin so that its slit faces down and dimension A is according to specification.

Standard value: 8 – 10 mm (.31 – .40 in.)



2. INSTALLATION OF SELECTOR KNOB

Place the shift lever in the "N" position, and then turn the sleeve so that the clearance between the sleeve and the lever assembly end is within the standard value.

Standard value (A): 15.2 – 15.9 mm (.598 – .625 in.)

NOTE

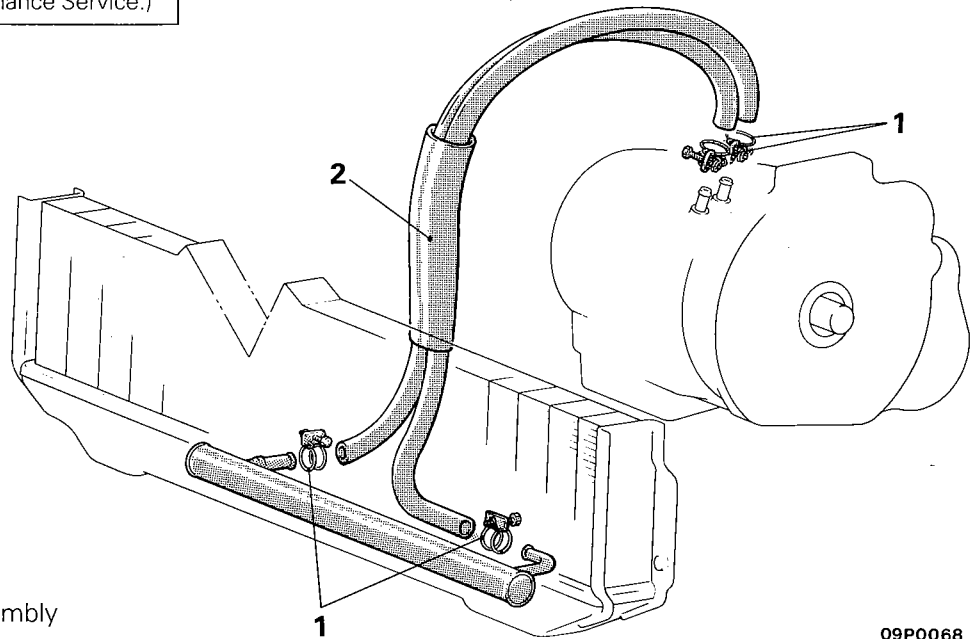
Be sure to face B of the adjusting cam to the pushbutton (driver's side).

TRANSAXLE OIL COOLER HOSES**REMOVAL AND INSTALLATION****Pre-removal Operation**

- Drainage of Automatic Transaxle Fluid
(Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

- Filling of Automatic Transaxle Fluid
(Refer to GROUP 0 – Maintenance Service.)

**Removal steps**

- ↔
1. Hose clamp
 2. Oil cooler hose assembly

NOTE

- (1) Reverse the removal procedures to reinstall.
(2) ↔: Refer to "Service Points of Removal".

09P0068

SERVICE POINT OF REMOVAL

N21SBAD

2. REMOVAL OF OIL COOLER HOSE ASSEMBLY**NOTE**

1. Take care not to spill the transaxle fluid when removing components.
2. After removing the oil cooler hose assembly, plug so that foreign materials cannot enter the transaxle.

INSPECTION

N21SCAF

- Check the hose for crack, damage and clog.
- Check for rusted or clogged radiator oil cooler.

TRANSAXLE

N21LA--

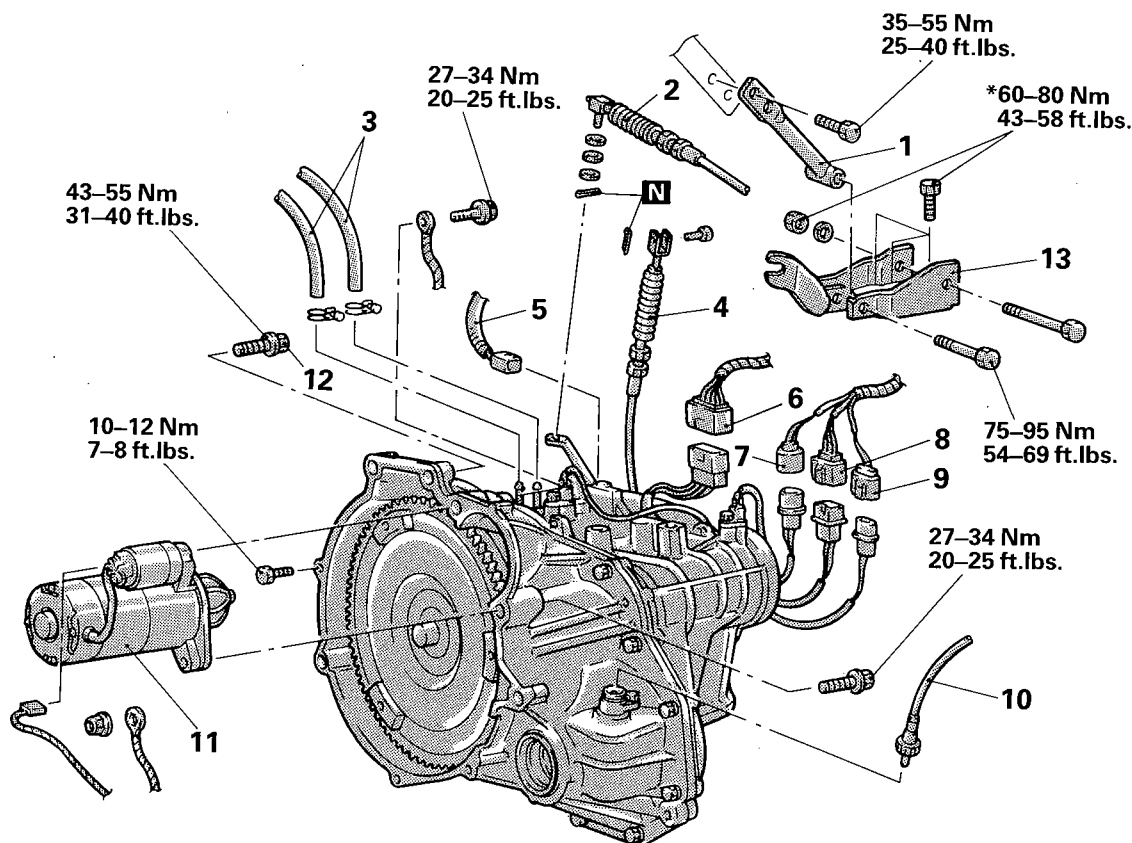
REMOVAL AND INSTALLATION

Pre-removal Operation

- Removal of Battery and Battery Tray
- Removal of Air Cleaner Assembly (Refer to GROUP 11 – Air Cleaner.)
- Draining Transaxle Fluid (Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

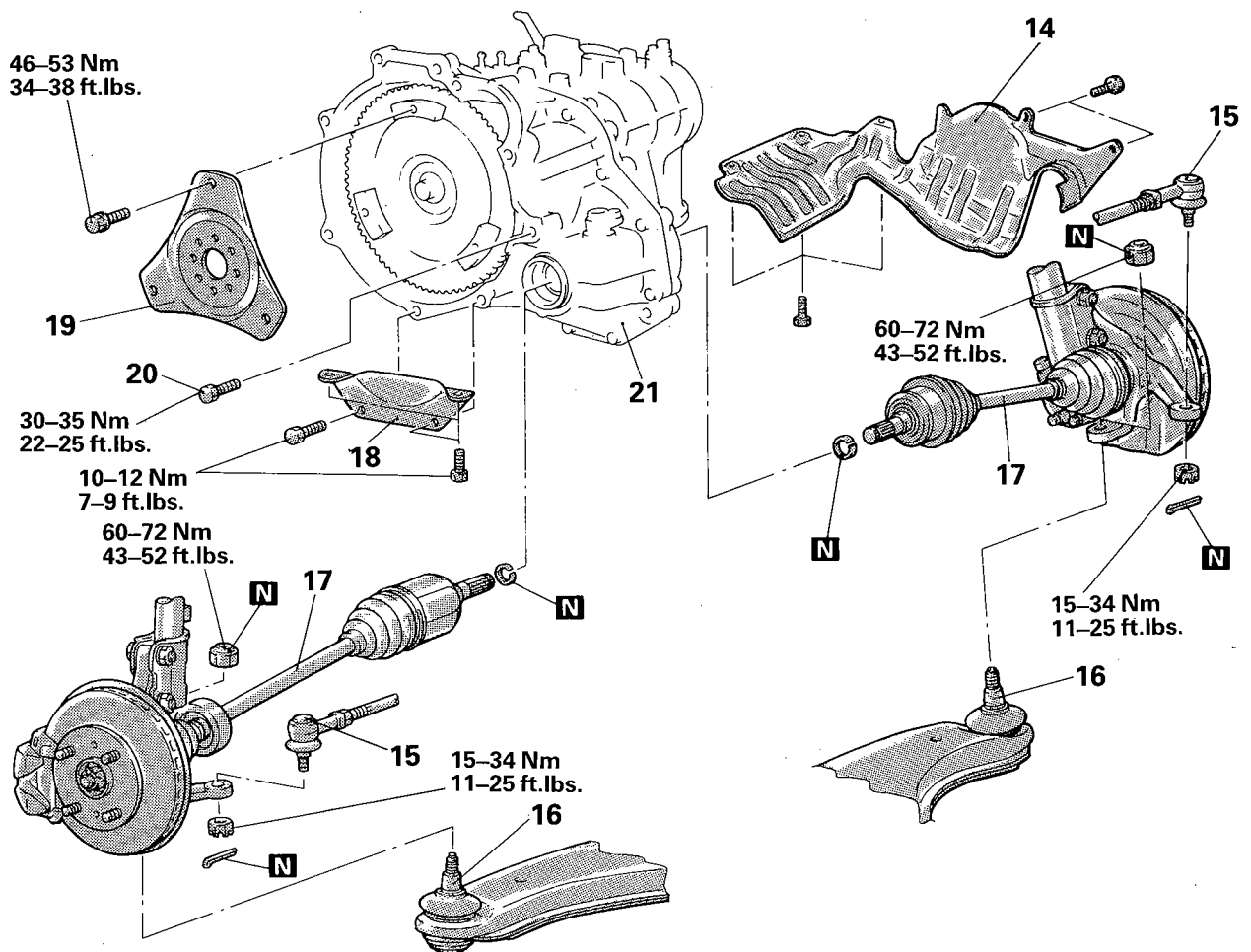
- Replenishing Transaxle Fluid (Refer to GROUP 0 – Maintenance Service.)
- Installation of Air Cleaner Assembly (Refer to GROUP 11 – Air Cleaner.)
- Installation of Battery and Battery Tray
- Checking Selector Lever Operation
- Checking Instrument Operation



09P0017

Removal steps

1. Tension rod <DOHC>
- ♦♦ 2. Transaxle control cable connection
3. Transaxle fluid cooler hose connection
- ♦♦ 4. Throttle control cable connection <3 A/T>
5. Shift control solenoid valve connector connection <4 A/T>
6. Inhibitor switch connector connection
7. Kickdown servo switch connector connection <4 A/T>
8. Pulse generator connector connection <4 A/T>
9. Oil temperature sensor connector connection <4 A/T>
10. Speedometer cable connection
- ♦♦ 11. Starter
12. Transaxle assembly upper connecting bolt
13. Transaxle mounting bracket

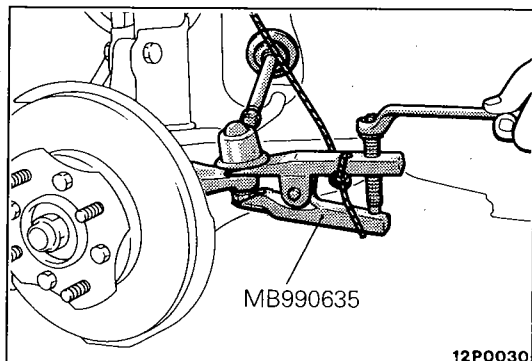


09P0021

- 14. Under guard
- 15. Tie rod end connection
- 16. Lower arm ball joint connection
- 17. Drive shaft connection
- 18. Bell housing cover
- 19. Drive plate connection
- 20. Transaxle assembly lower connecting bolt
- 21. Transaxle assembly

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) Refer to "Service Points of Removal".
- (3) Refer to "Service Points of Installation".
- (4) Non-reusable parts
- (5) *: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle in the unladen condition.



SERVICE POINTS OF REMOVAL

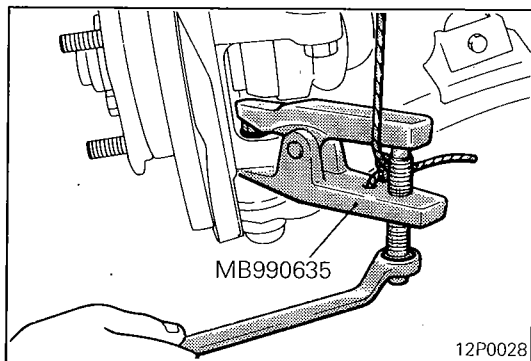
N21LBAL

15. DISCONNECTION OF TIE ROD END FROM KNUCKLE

Using the special tool, disconnect the tie rod end from the knuckle.

Caution

1. Be sure to tie the cord of the special tool to the nearby part.
2. Loose the nut but do not remove it.

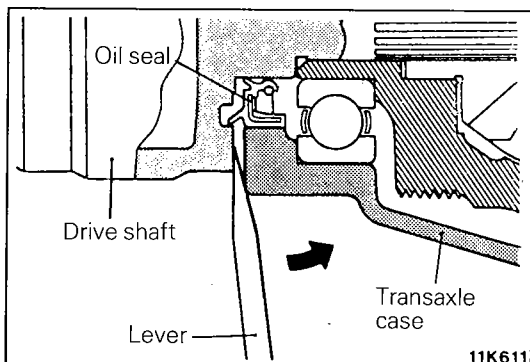


16. DISCONNECTION OF LOWER ARM BALL JOINT

Using the special tool, disconnect lower arm ball joint from the knuckle.

Caution

1. Be sure to tie the cord of the special tool to the nearby part.
2. Loose the nut but do not remove it.

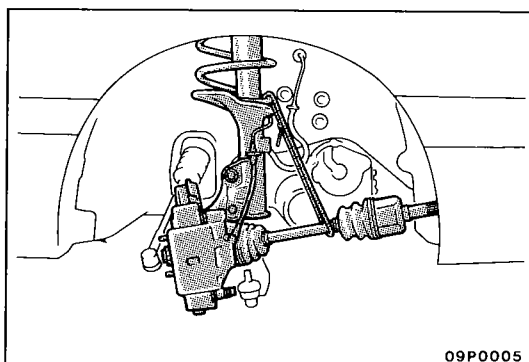


17. DISCONNECTION OF DRIVE SHAFT

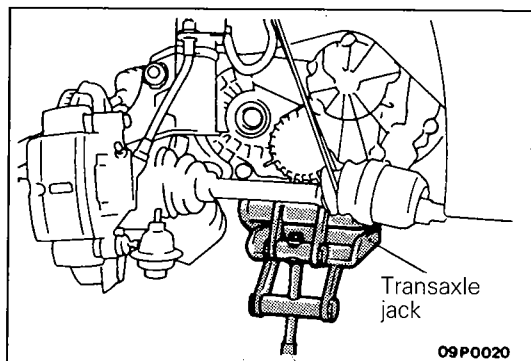
- (1) Insert a pry bar between the transaxle case and the drive shaft, and then pry the drive shaft from the transaxle.

Caution

1. Do not pull on the drive shaft; doing so will damage the T.J.; be sure to use the pry bar.
2. Do not insert the pry bar so deep as to damaged the oil seal.



- (2) Keep the removed drive shaft as far away from the transaxle case as possible, and secure (by using rope, etc.) the T.J. to the body so that it does not fall.

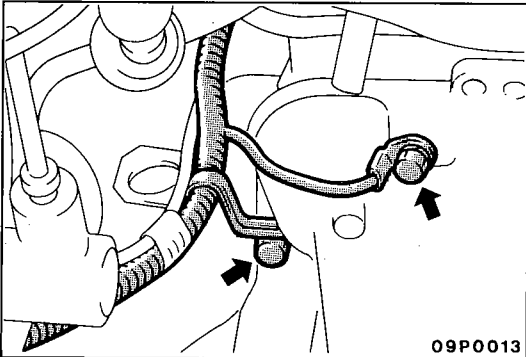
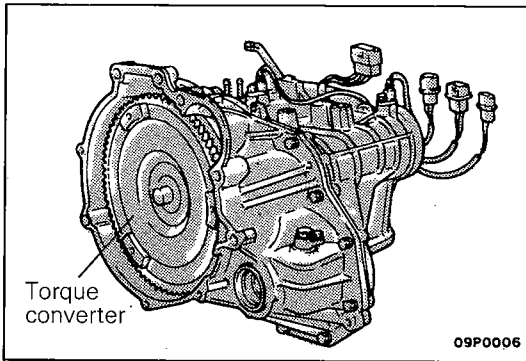


21. REMOVAL OF TRANSAXLE ASSEMBLY

Support the transaxle assembly by using a transaxle jack; then, after moving the transaxle assembly to the right, lower it.

NOTE

When supporting the transaxle assembly by the transaxle jack, take care to be sure that the jack's force is applied to a wide area, not to only a small localized area.



SERVICE POINTS OF INSTALLATION

N21LDAO

21. INSTALLATION OF TRANSAXLE ASSEMBLY

After the torque converter has been mounted on the transaxle, install the transaxle assembly on the engine.

Caution

If the torque converter is first mounted on the engine, a damaged oil seal in the transaxle could result.

11. INSTALLATION OF STARTER

Secure the ground cable with the upper starter mounting bolt and the harness clamp with the lower starter mounting bolt.

4. INSTALLATION OF THROTTLE CONTROL CABLE

For adjustment of throttle control cable, refer to P.21-150.

2. INSTALLATION OF TRANSAXLE CONTROL CABLE

For adjustment of transaxle control cable, refer to P.21-149.

TRANSAXLE ASSEMBLY <KM171>

N21LEAD

DISASSEMBLY

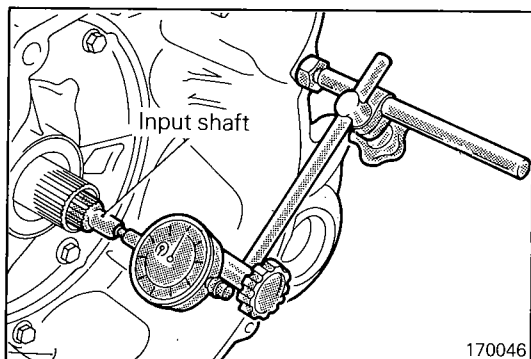
Caution

All mating surfaces in transaxle are accurately machined; handle parts carefully to avoid nicks or burrs.

Cleanliness through entire disassembly and assembly processes cannot be over-emphasized.

When disassembling, each part should be washed in a suitable solvent, then dried by compressed air. Do not wipe parts with shop towels. Clutch disc, brake disc, plastic thrust plate and rubber parts should be washed in automatic transaxle fluid, and should be kept clean.

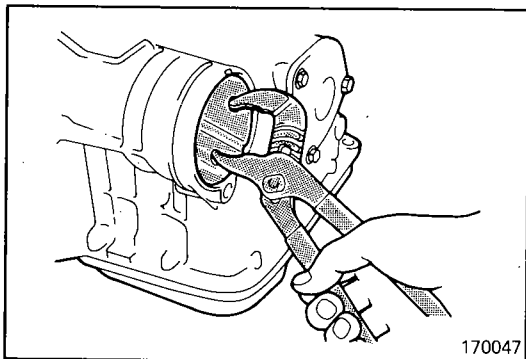
1. Remove the torque converter.
2. Prior to disassembling any transaxle assembly plug all openings and thoroughly clean exterior of unit, preferably by steam.
3. Place transaxle with oil pan down.



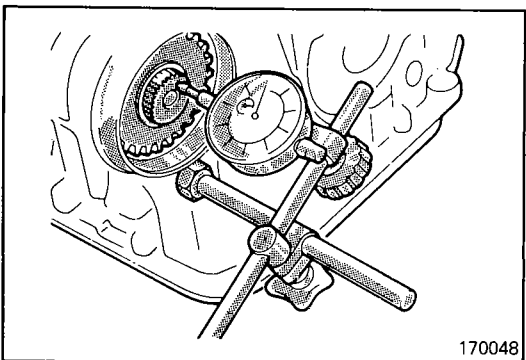
4. Measuring input shaft end play before disassembly will usually indicate when a thrust washer change is required (except when major parts are replaced). Thrust washers are located between reaction shaft support and rear clutch retainer, and between reaction shaft support and front clutch retainer.

Mount a dial indicator to converter housing by using the dial indicator support, with its plunger seated against end of input shaft.

When checking end play, pull out or push in the input shaft by using pliers. Be careful not to scratch the input shaft. Record indicator reading for reference when reassembling transaxle.



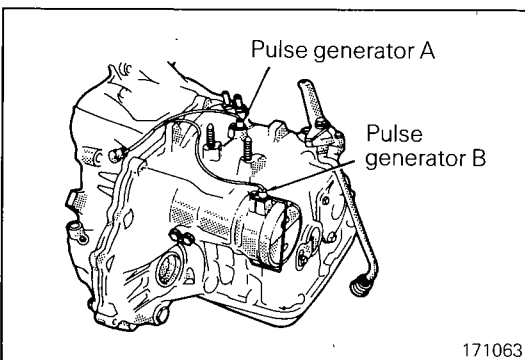
5. Remove the cover retainer and then remove the cover.



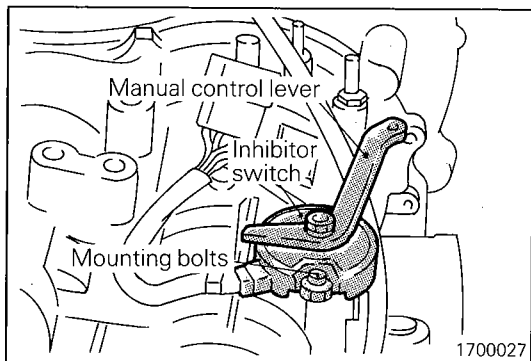
6. Measuring transfer shaft end play before disassembly will usually indicate when a spacer change is required. Spacer is located between transfer shaft bearing outer race and converter housing.

Attach a dial indicator to transaxle case using dial indicator support, with its plunger seated against end of transfer shaft.

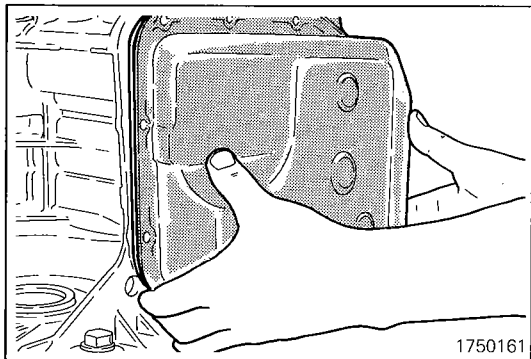
After removing the idler shaft lock plate, install the special tool into the lock plate bolt hole. When checking end play, pull out or push in on transfer shaft with pliers. Be careful not to scratch the shaft. Record indicator reading for reference when reassembling transaxle.



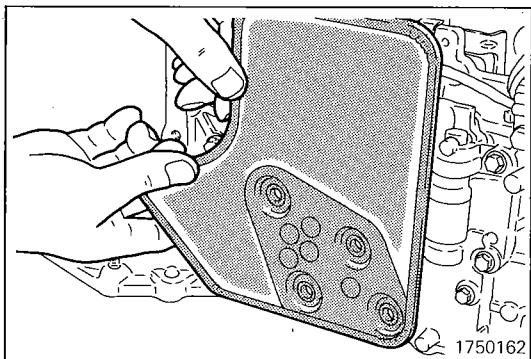
7. Remove the pulse generator "A" and "B".



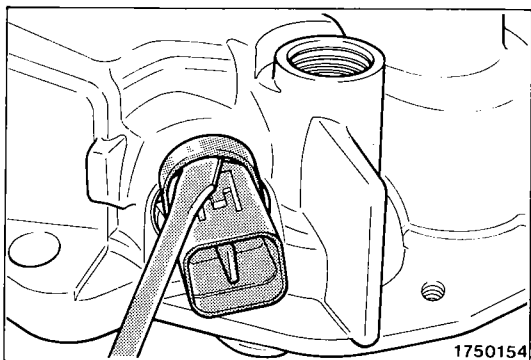
8. Remove manual control lever, then remove inhibitor switch.



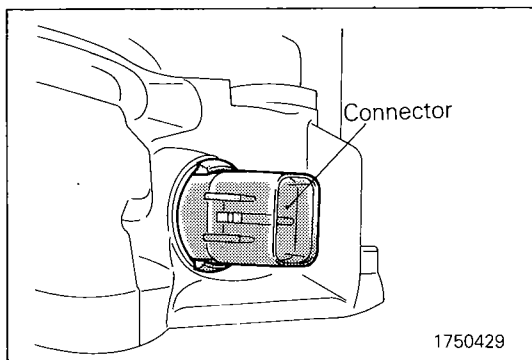
9. Remove the oil pan and oil pan gasket.



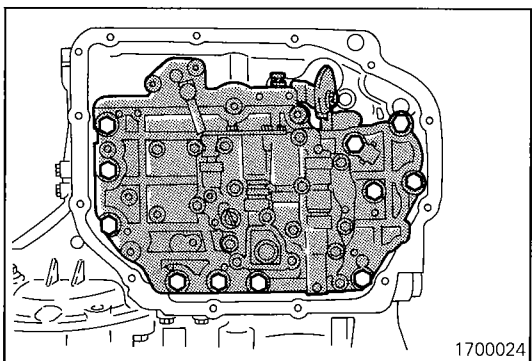
10. Remove the oil filter.



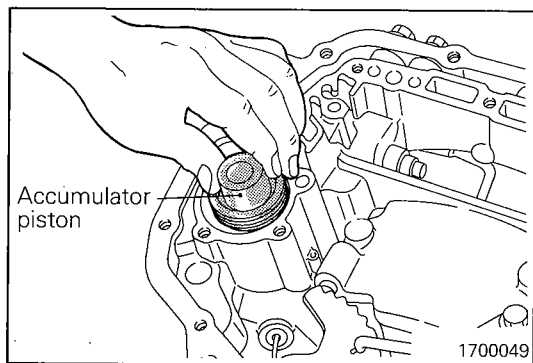
11. Remove the clip of the solenoid valve connector.



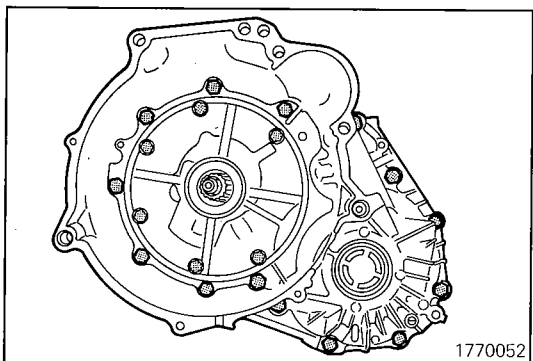
12. Push catches and remove the solenoid valve connector.



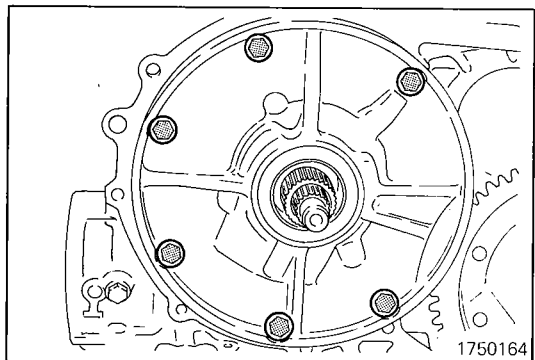
13. After the throttle cable has been removed, loosen the valve body assembly mounting bolts to remove the valve body assembly.



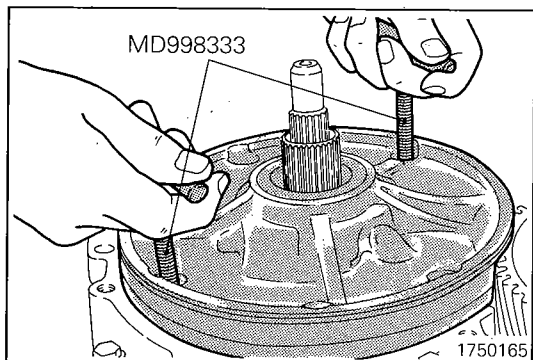
14. Remove the two accumulator springs and remove the piston.



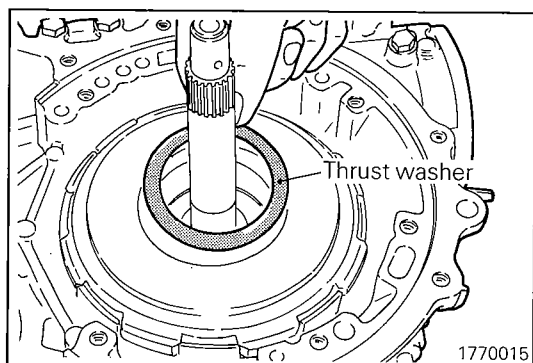
15. Remove 14 bolts and remove converter housing.



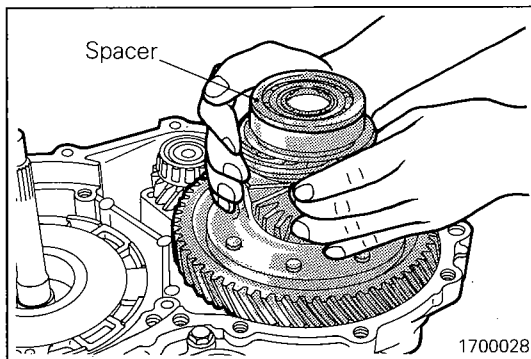
16. Remove the oil pump mounting bolt.



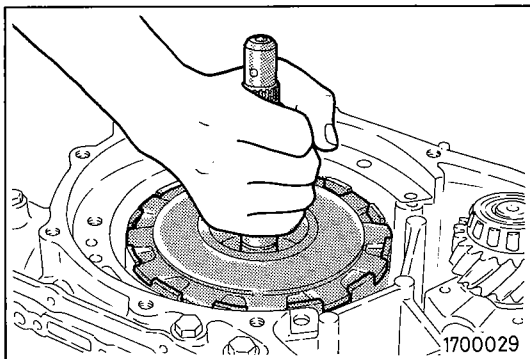
17. Attach the special tools and remove the oil pump.



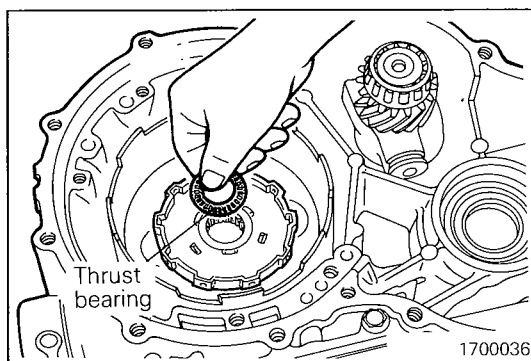
18. Remove the thrust washer.



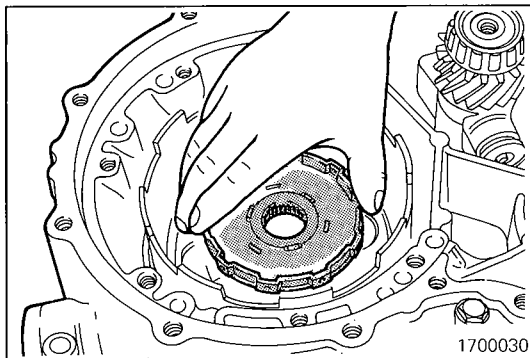
19. Remove the spacer and differential assembly.



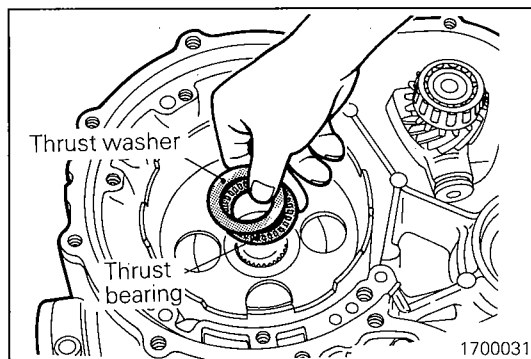
20. Withdraw the input shaft and remove the front clutch assembly and rear clutch assembly.



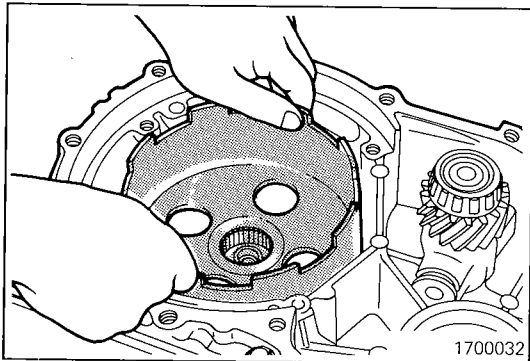
21. Remove the thrust bearing.



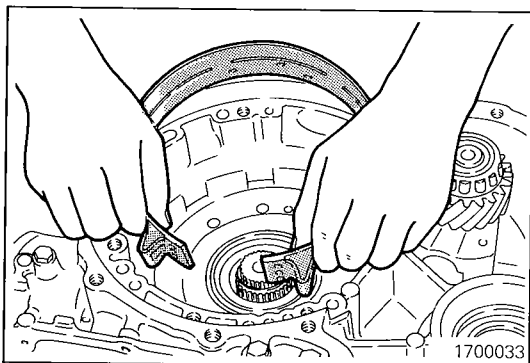
22. Remove the clutch hub.



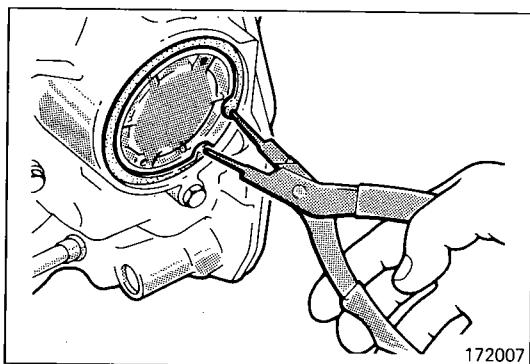
23. Remove the thrust washer and bearing.



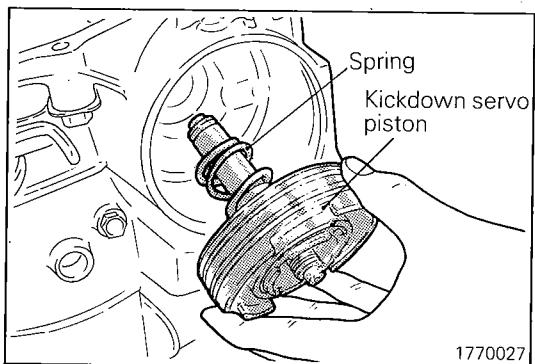
24. Remove the kickdown drum.



25. Remove the kickdown band.



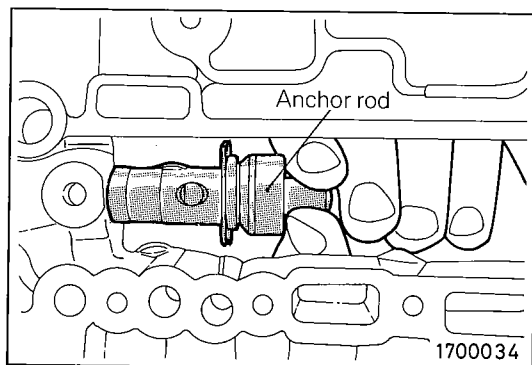
26. Remove the kickdown servo cover snap ring.



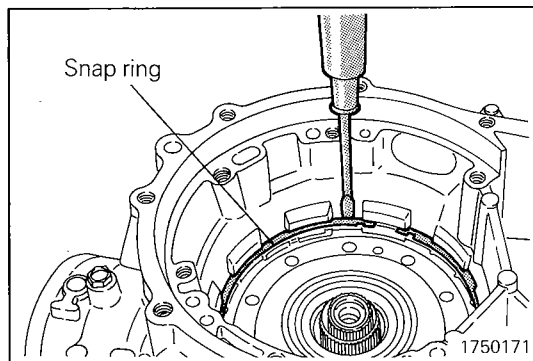
27. Remove the kickdown servo piston and spring.

Caution

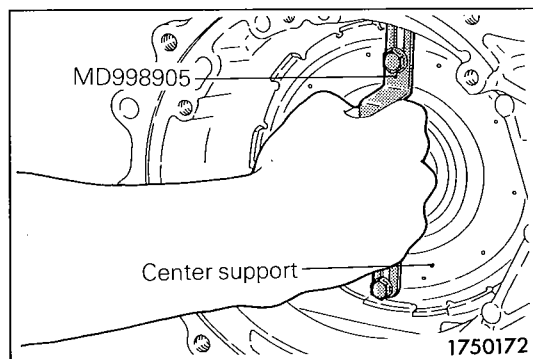
Do not place (turn) transaxle upside down as planetary gearset thrust washers could fall out of place.



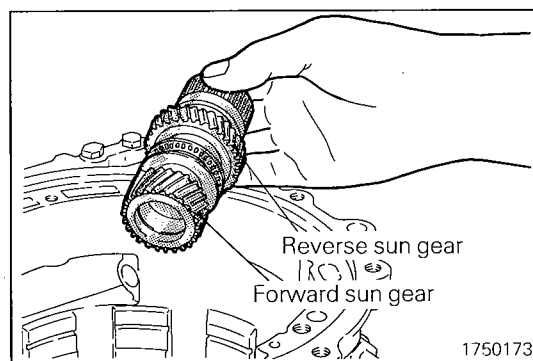
28. Remove the anchor rod.



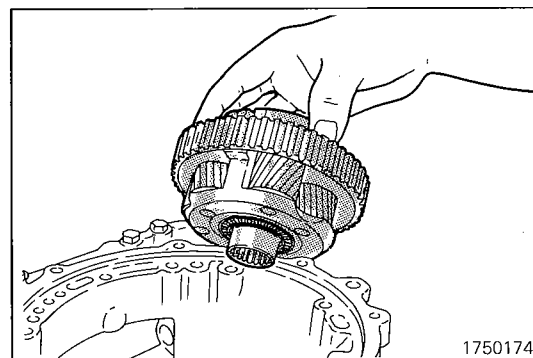
29. Remove the snap ring.



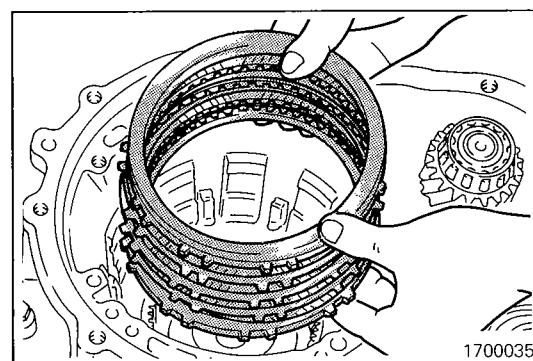
30. Mount the special tool on the center support and remove the center support.



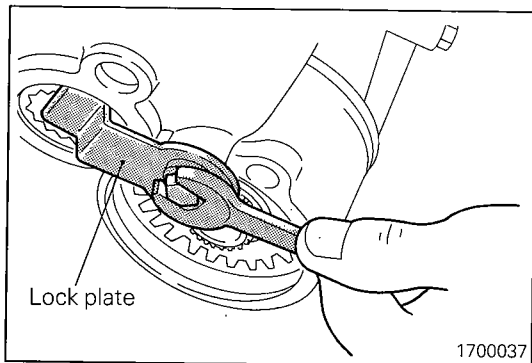
31. Remove reverse sun gear and forward sun gear together.



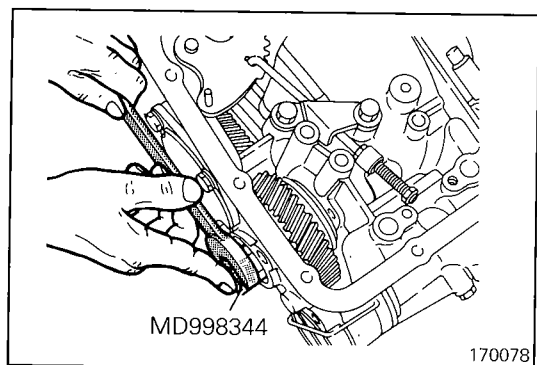
32. Remove planetary gear set.



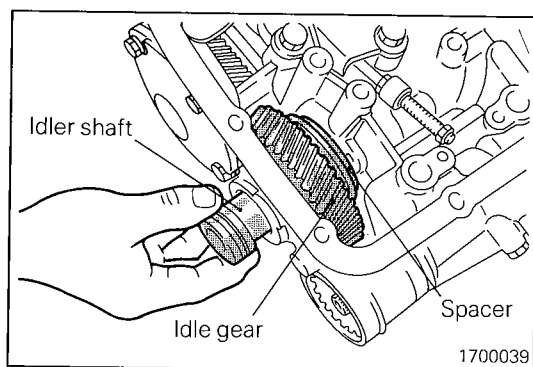
33. Remove the wave spring, return spring, reaction plate, brake disc, and brake plate.



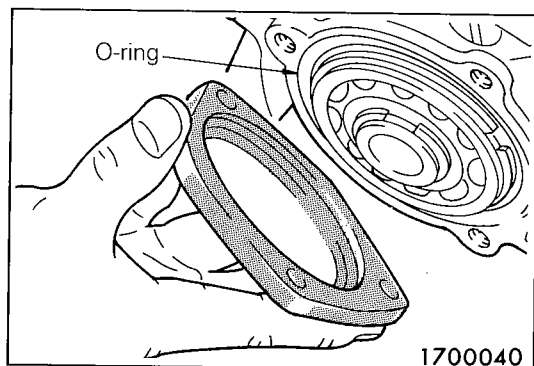
34. Remove idler shaft lock plate.



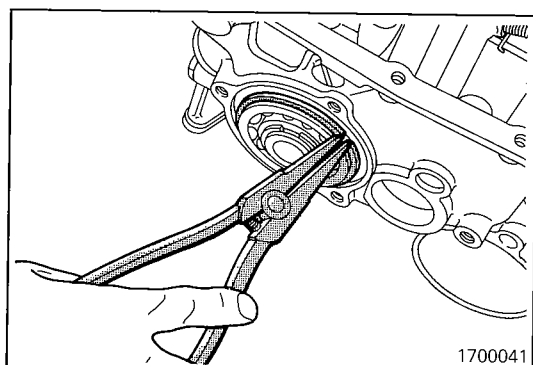
35. Loosen transfer idler shaft with the special tool.



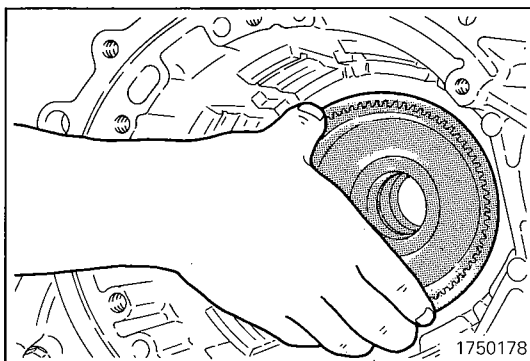
36. Pull out transfer idler shaft. Remove transfer idle gear bearing inner races (2 pieces) and spacer from inside of case.



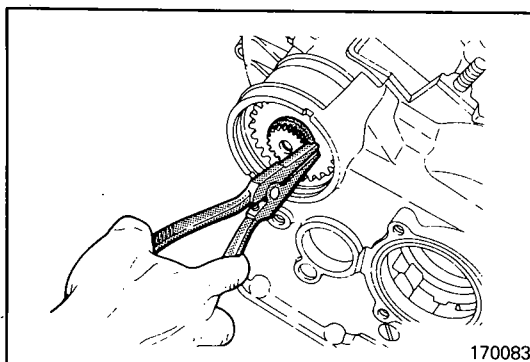
37. Remove output flange bearing retainer and O-ring.



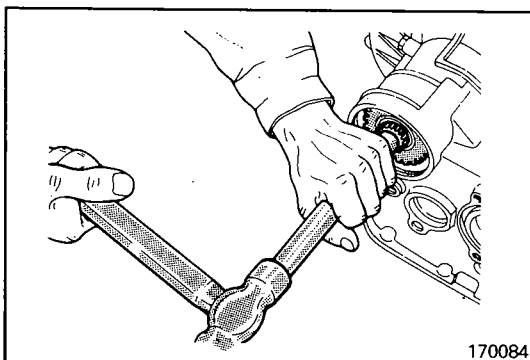
38. Remove the snap ring from the outer rim of the bearing.



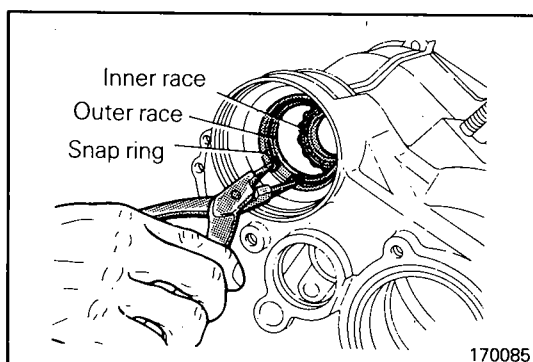
39. Remove internal gear, output flange, transfer drive gear and bearing as assembly from case.



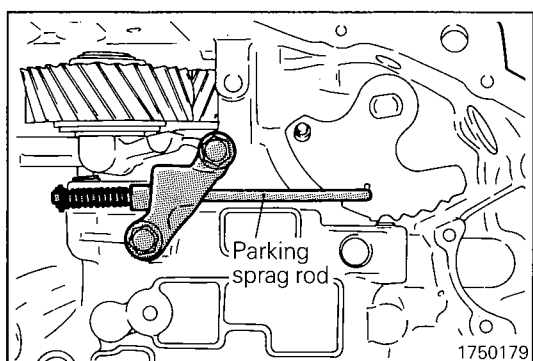
40. Remove transfer shaft rear end snap ring.



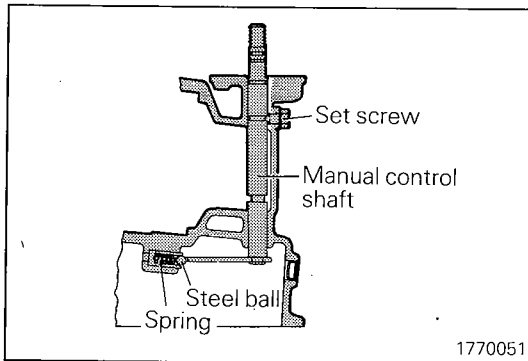
41. Using brass drift on rear end of transfer shaft, drive transfer shaft toward engine mounting surface. Transfer driven gear comes off.



42. Remove snap ring from transaxle case, then remove taper roller bearing inner and outer races.



43. Remove the parking sprag rod.



44. Remove the set screw and remove the manual control shaft assembly.
At this time, remove the steel ball and spring also.

REASSEMBLY

N21LFAC

Caution

Do not reuse gaskets, oil seals and rubber parts. Replace them with new ones at every reassembly. O-ring of oil level dipstick need not be replaced.

Do not use grease other than petrolatum or industrial vaseline.

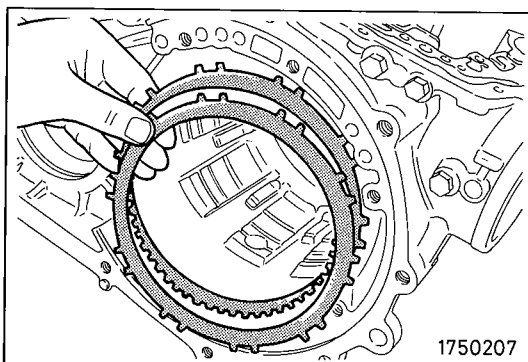
Apply automatic transaxle fluid to friction element, rotating parts, and sliding parts before installation. Use DEX-RON type automatic transaxle fluid.

New clutch disc should be immersed in automatic transaxle fluid for more than two hours before installation.

Do not apply sealer or adhesive to gaskets.

When bushing must be replaced, replace assembly which includes it.

Do not use shop towels during disassembly and reassembly operation.



1. Before reassembling the transaxle, follow the following procedure to measure the low-reverse brake end play and select the pressure plate to obtain the specified end play.

- (1) Install the brake reaction plate, brake plate, and brake disc in the transaxle case.

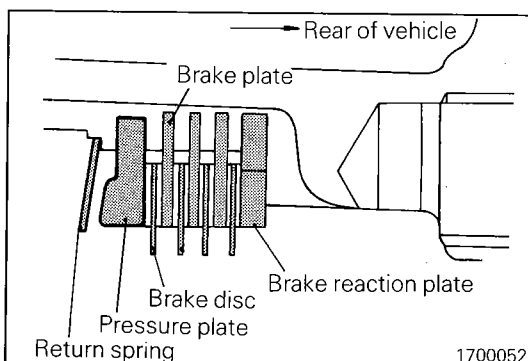
Caution

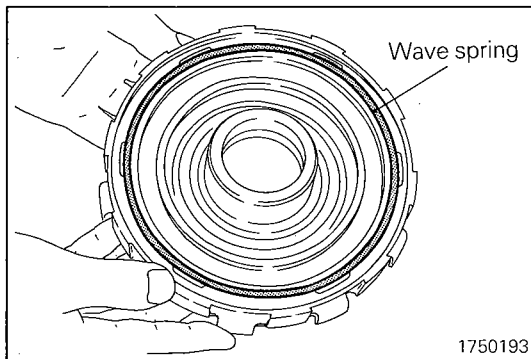
If a new brake disc is to be used, ensure that it has been soaked in automatic transaxle fluid for 2 hours or longer.

- (2) Install a pressure plate that has an adequate size and fits the return spring.

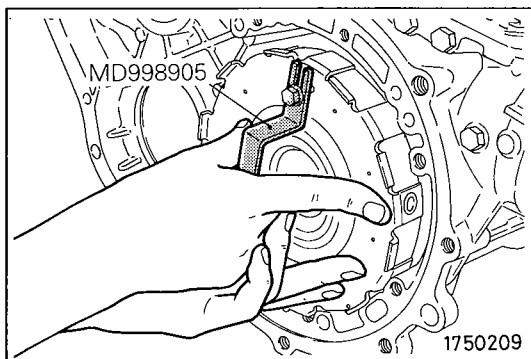
Caution

Ensure that the return spring is installed in the correct direction.

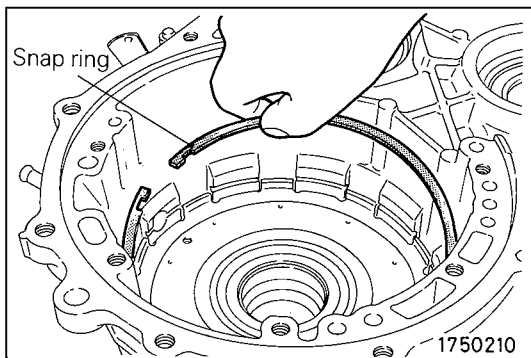




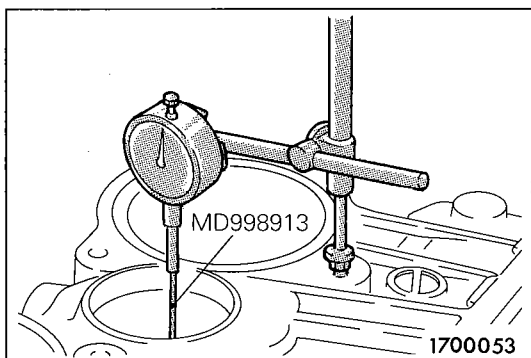
- (3) Apply petrolatum to the wave spring and affix the spring on the center support.



- (4) Mount the special tool on the center support and install the center support in position.



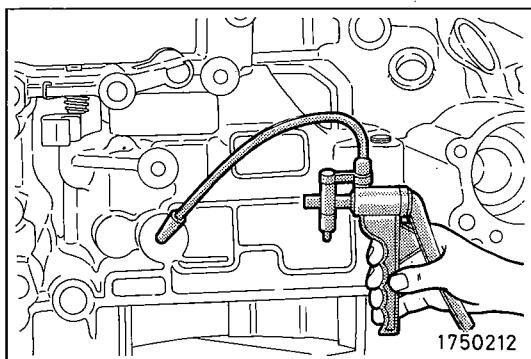
- (5) Fit the snap ring into position.



- (6) Mount the special tool and a dial indicator on the rear end of the transaxle case.

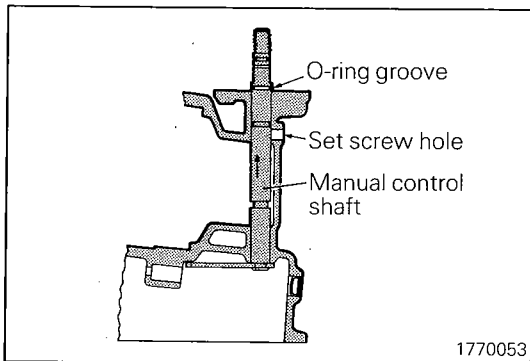
Caution

Install the dial indicator through the transfer idler shaft hole so that its feeler is held perpendicular to the brake reaction plate.

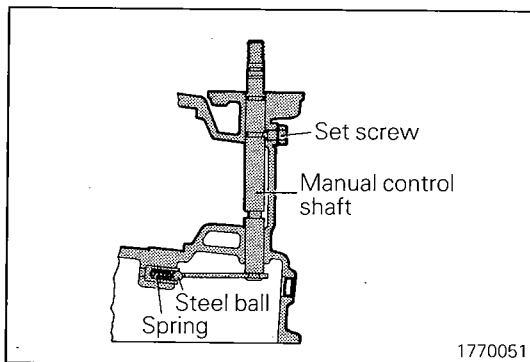


- (7) Using a hand pump, feed air as shown and read the dial indicator. Select the pressure plate that provides the specified end play.

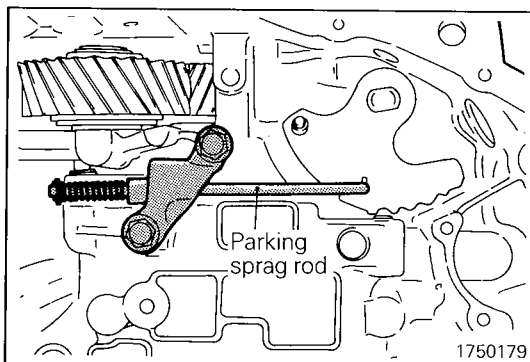
Standard value: 0.78 – 1.09 mm (.0307 – .0429 in.)



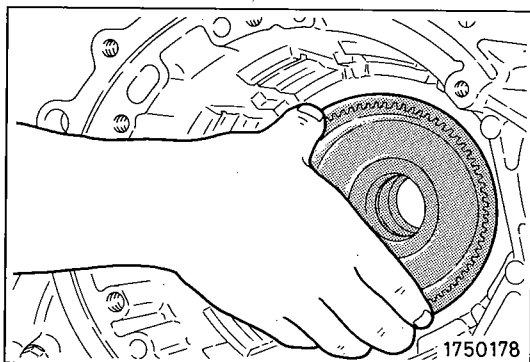
2. Insert the manual control shaft into the transaxle case and press it in all the way up to the manual control lever installation side.



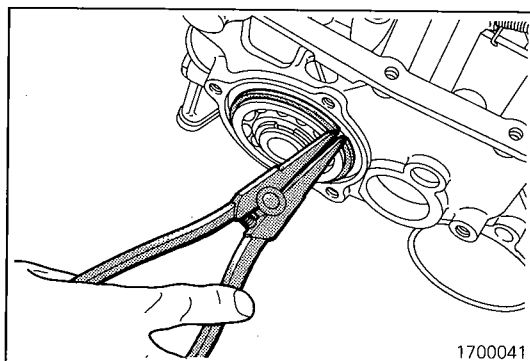
3. After a new O-ring has been fitted onto the manual control shaft, pull the shaft back into the case and mount the set screw and gasket. At the same time, install the detent steel ball and spring.



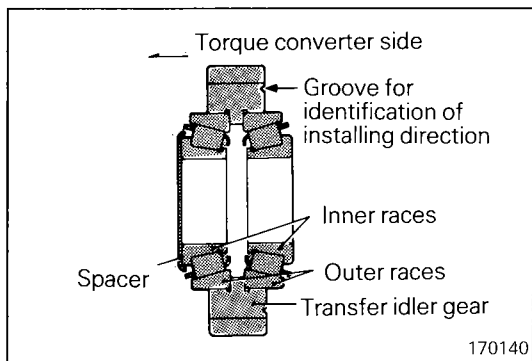
4. Install the parking sprag rod.



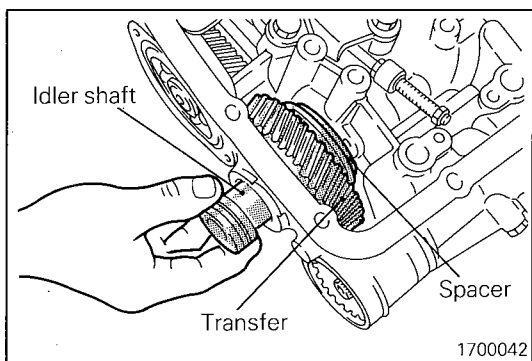
5. Insert the annulus gear and output flange assembly, working from the inside of the transaxle case.



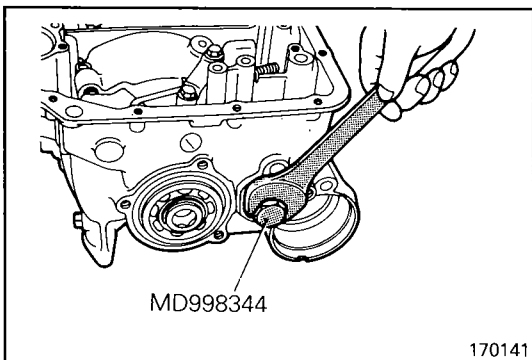
6. Fit the snap ring onto the outer rim of bearing.



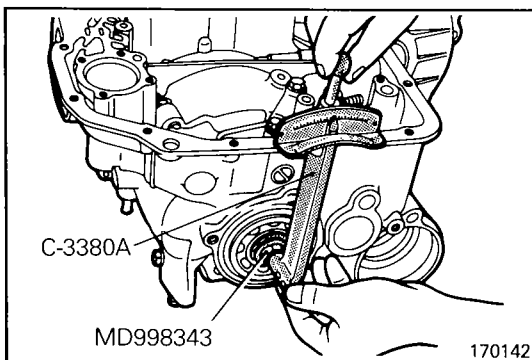
7. Install the two bearing outer races, two inner race assemblies, and spacer into the transfer idler gear. Ascertain the correct installation orientation for each part.



8. Insert the transfer idler gear, which has been assembled in the preceding step, into the case and insert and screw the idler shaft into position.

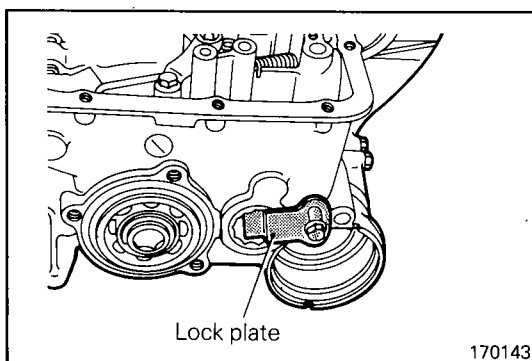


9. Using the special tool, tighten the idler shaft. The idler shaft O-ring must be replaced with a new one.



10. Insert the special tool into output flange and measure preload using a low reading torque wrench. Adjust preload by tightening or loosening transfer idler shaft.

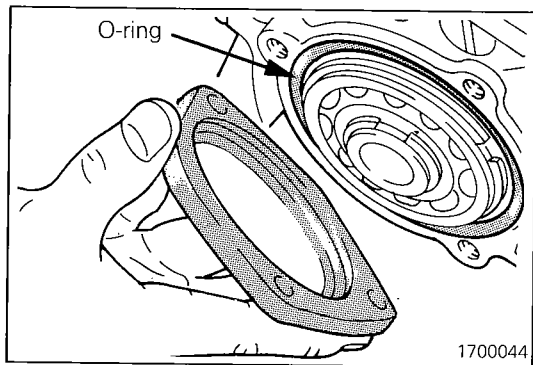
Preload: 0.8 Nm (7.3 in.lbs.)



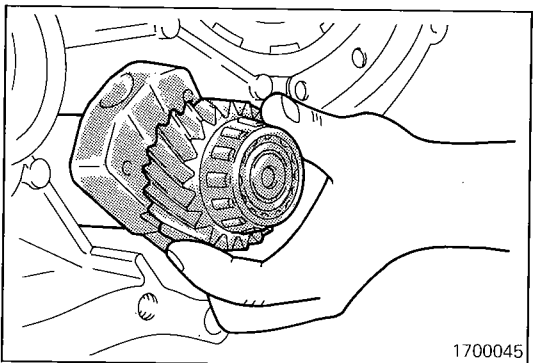
11. After completing preload adjustment, install idler shaft lock plate. Tighten lock plate bolt.

Caution

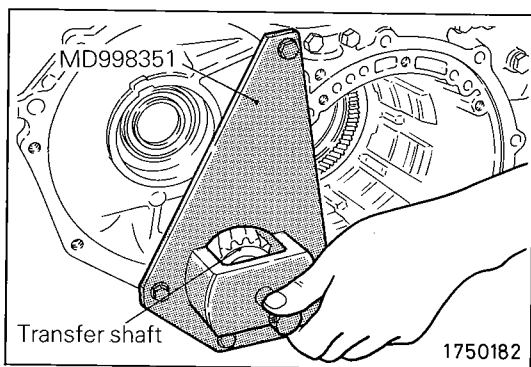
Tighten the lock plate to eliminate play between the idler shaft and lock plate so that the idler shaft is not loose.



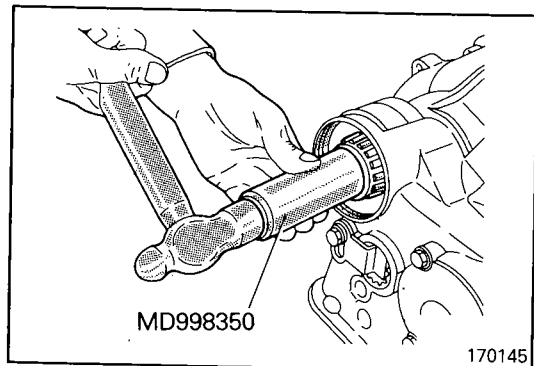
12. Fit a new O-ring as shown and mount the bearing retainer.



13. Insert the transfer shaft into the transaxle case.

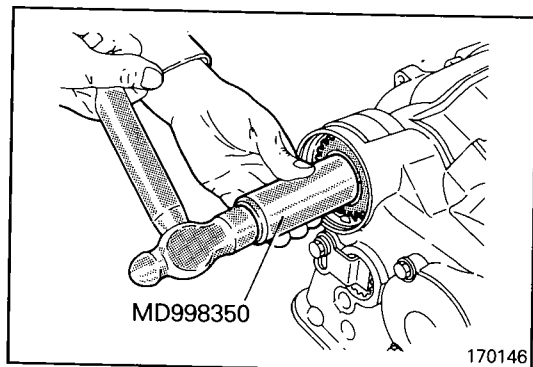


14. Mount the special tool on the transaxle case to support the transfer shaft.

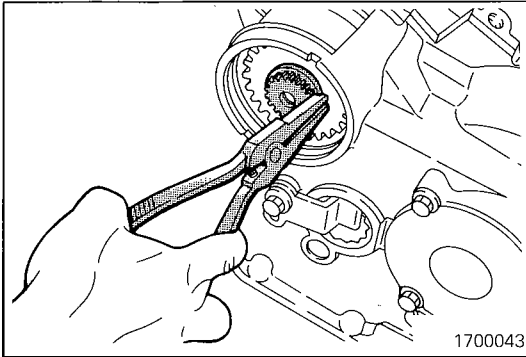


15. Using bearing installer, install bearing inner race onto transfer shaft.

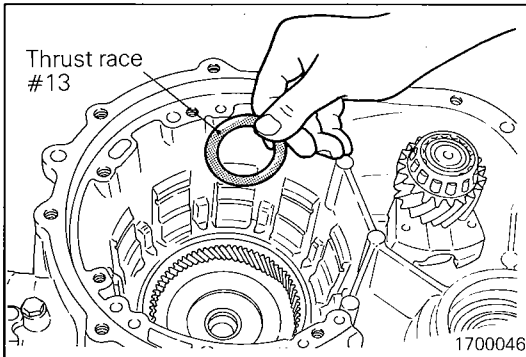
16. Install tapered roller bearing outer race, then install snap ring.



17. Using bearing installer, install transfer driven gear onto transfer shaft.

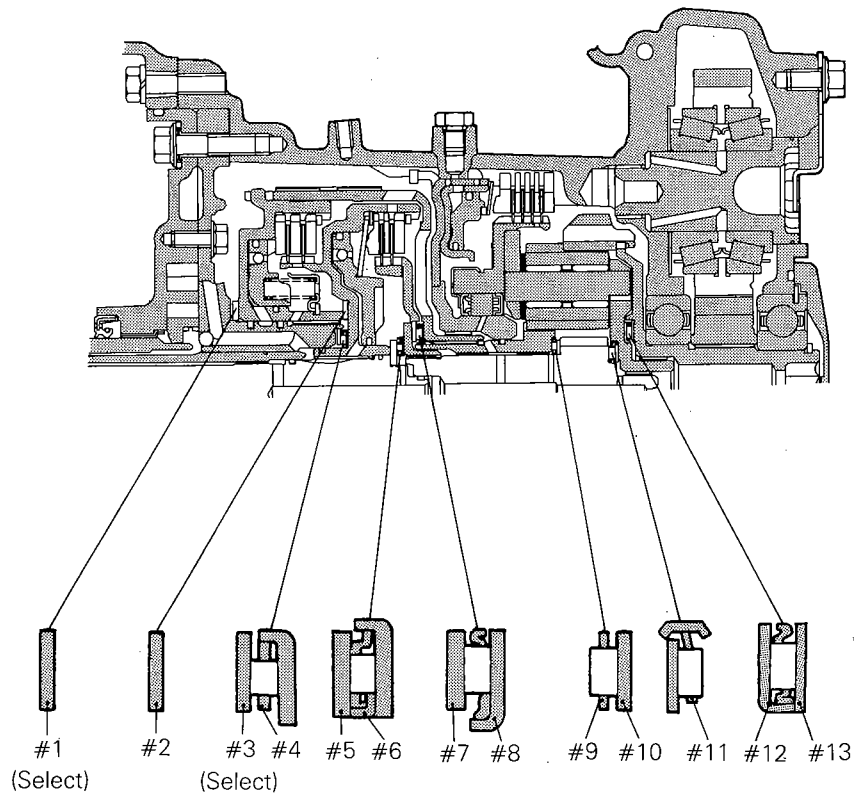


18. Fit a snap ring onto the transfer shaft end.



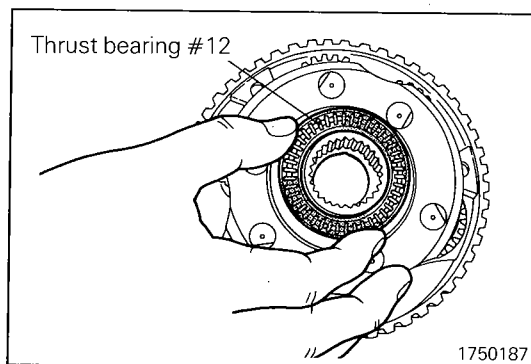
19. Apply petrolatum to thrust race #13 and stick the thrust race on the output flange.

Thrust Bearings, Thrust Races and Thrust Washers Location

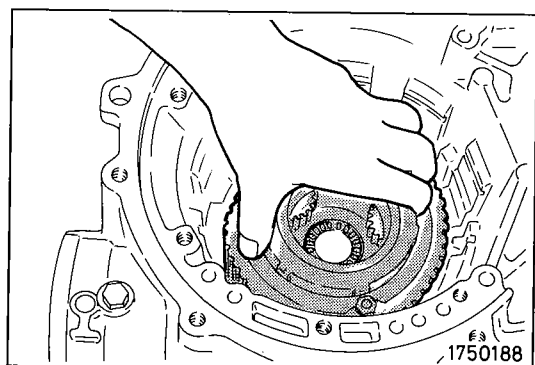


mm (in.)

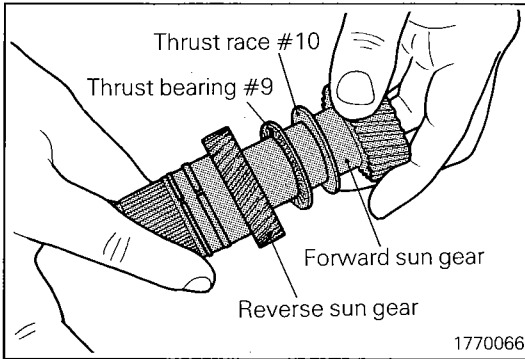
No.	O.D.	I.D.	Thickness	Part No.	No.	O.D.	I.D.	Thickness	Part No.
#1	70 (2.756)	55.7 (2.193)	1.4 (.055)	*1	#3	48.9 (1.925)	37 (1.457)	2.4 (.094)	MD997853 (incl. *4)
	70 (2.756)	55.7 (2.193)	1.8 (.071)	*2	#4	48.1 (1.906)	34.4 (1.354)	–	MD707271
	70 (2.756)	55.7 (2.193)	2.2 (.087)	*3	#5	40 (1.575)	21 (.827)	2.4 (.094)	MD722552
	70 (2.756)	55.7 (2.193)	2.6 (.102)	*4	#6	42.6 (1.677)	28 (1.102)	–	MD720753
#2	70 (2.756)	55.7 (2.193)	1.8 (.071)	MD707290	#7	54 (2.126)	38.7 (1.524)	1.6 (.063)	MD704936
#3	48.9 (1.925)	37 (1.457)	1.0 (.039)	MD997854 (incl. *1)	#8	52 (2.047)	36.4 (1.433)	–	MD720010
	48.9 (1.925)	37 (1.457)	1.2 (.047)	MD997847 (incl. *1)	#9	41 (1.614)	28 (1.102)	–	MD728763
	48.9 (1.925)	37 (1.457)	1.4 (.055)	MD997848 (incl. *2)	#10	39 (1.535)	28 (1.102)	1.2 (.047)	MD728764
	48.9 (1.925)	37 (1.457)	1.6 (.063)	MD997849 (incl. *2)	#11	38 (1.496)	22.2 (.874)	–	MD727787
	48.9 (1.925)	37 (1.457)	1.8 (.071)	MD997850 (incl. *3)	#12	52 (2.047)	36.4 (1.433)	–	MD720010
	48.9 (1.925)	37 (1.457)	2.0 (.079)	MD997851 (incl. *3)	#13	54 (2.126)	38.7 (1.524)	0.8 (.031)	MD704935
	48.9 (1.925)	37 (1.457)	2.2 (.087)	MD997852 (incl. *4)					



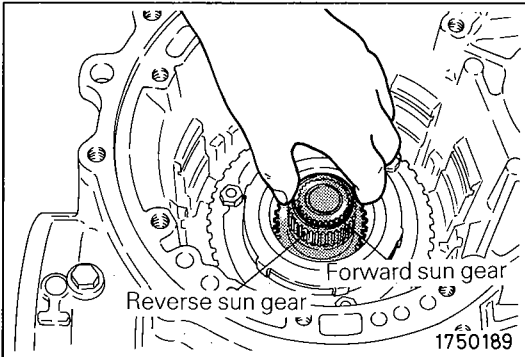
20. Apply petrolatum to thrust bearing #12 and attach the thrust bearing to the planetary carrier.



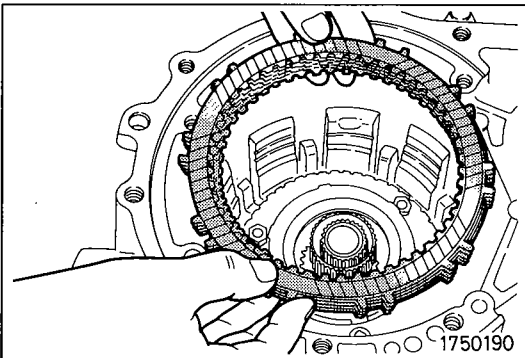
21. Install planetary carrier assembly to internal gear.



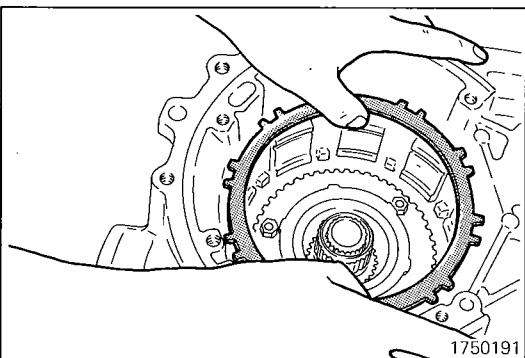
22. After the thrust race #10 and thrust bearing #9 have been stuck on the forward sun gear with petrolatum, assemble the reverse sun gear to the forward sun gear.



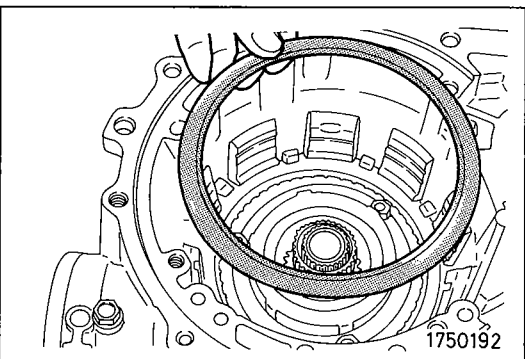
23. Install both sun gears, which have been assembled in the preceding step, into the planetary carrier.



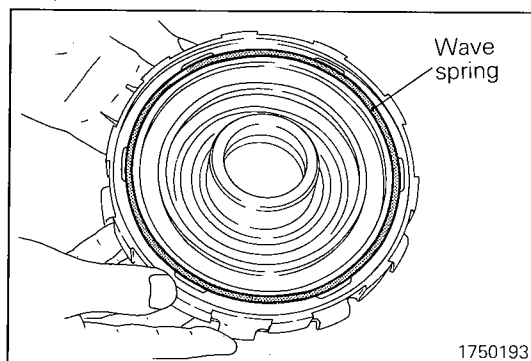
24. Install the brake disc and brake plate.



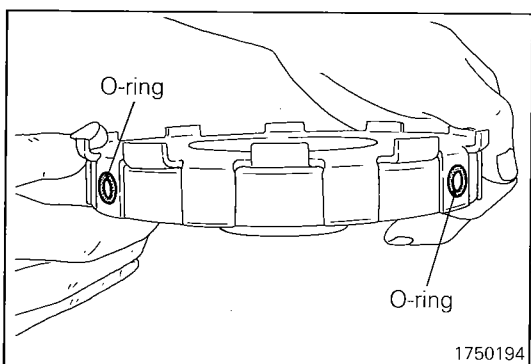
25. Install the selected brake pressure plate.



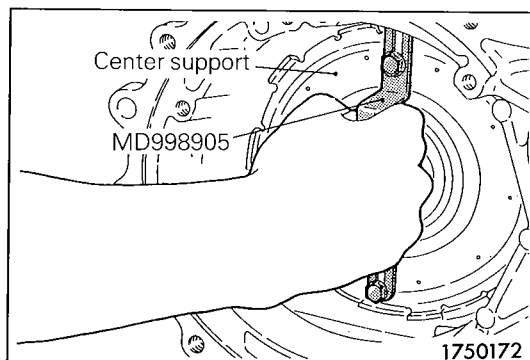
26. Install the return spring.



27. Apply petrolatum to the wave spring and stick it on the center support.



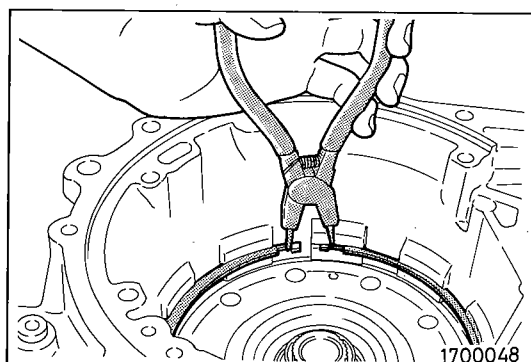
28. Fit two new O-rings to the center support.



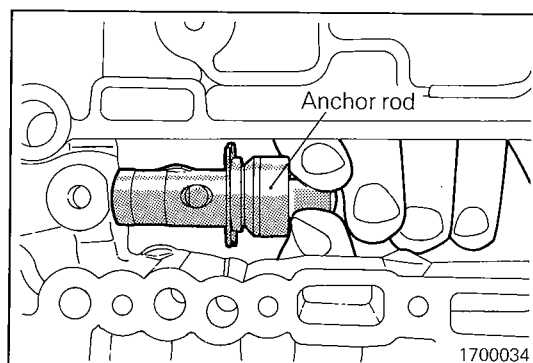
29. Coat the O-ring with automatic transaxle fluid. Then, mount the special tool on the center support and install the center support in the case.

Caution

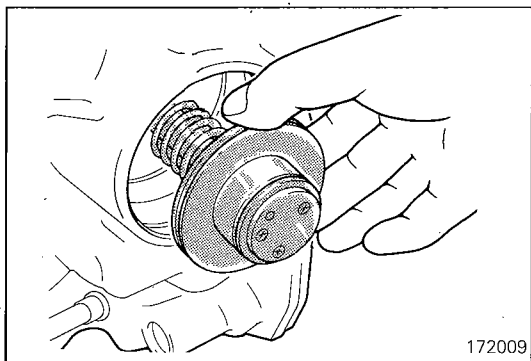
Ensure that the wave spring does not shift out of position.



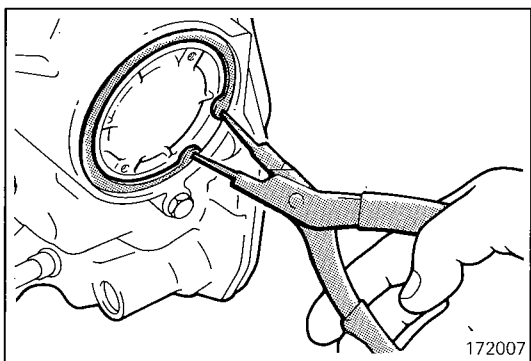
30. Fit the snap ring.



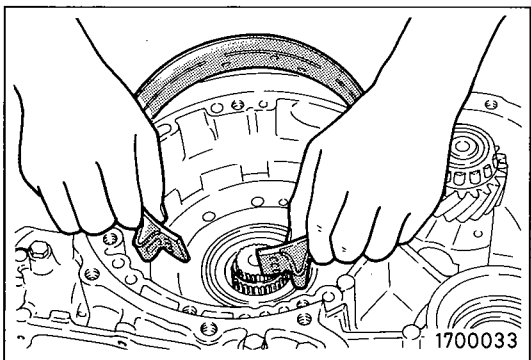
31. Install the anchor rod.



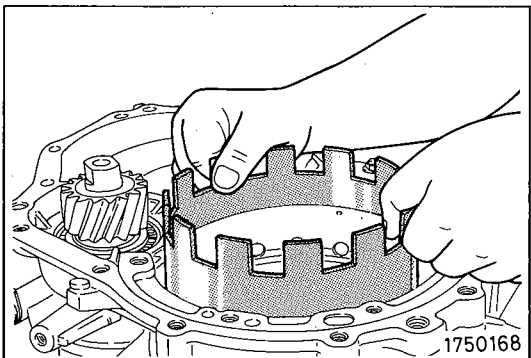
32. Fit a new seal ring to the kickdown servo piston and fit a new O-ring on the sleeve. Then, mount the kickdown servo spring and piston in the case.



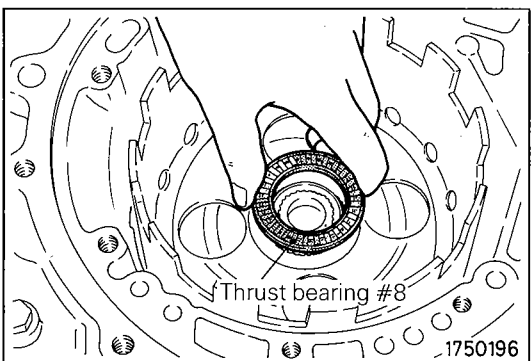
33. Install a new D-ring to the kickdown servo cover. Then, install the cover on the case, ensuring that the D-ring is not twisted, and secure it with a snap ring.



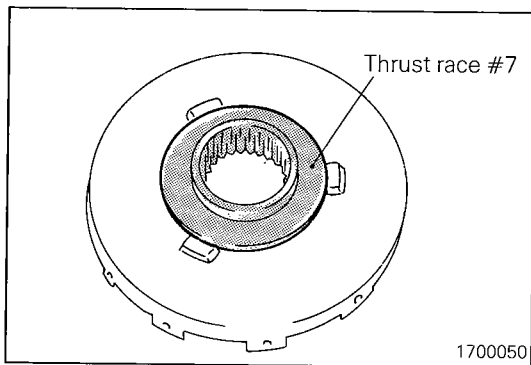
34. Install the kickdown band.



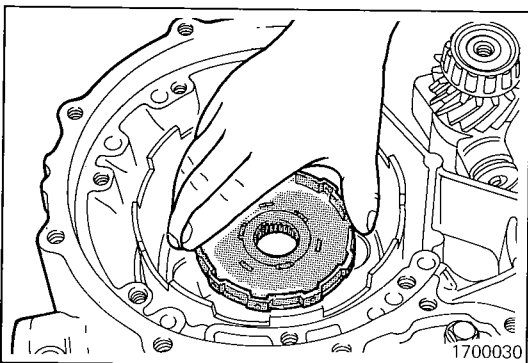
35. Install the kickdown drum, aligning it with the splines in the reverse sun gear.



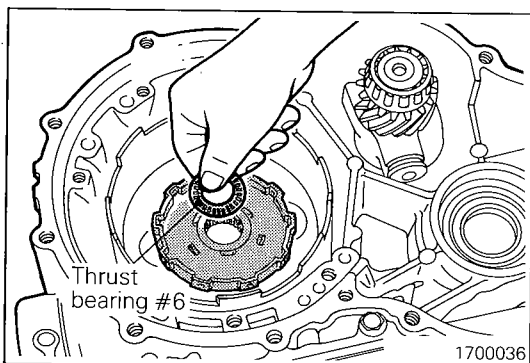
36. Apply petrolatum to thrust bearing #8 and stick it on the kickdown drum.



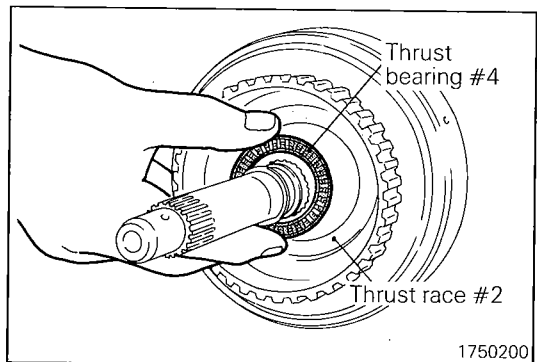
37. Apply petrolatum to thrust race #7 and stick it on the rear clutch hub.



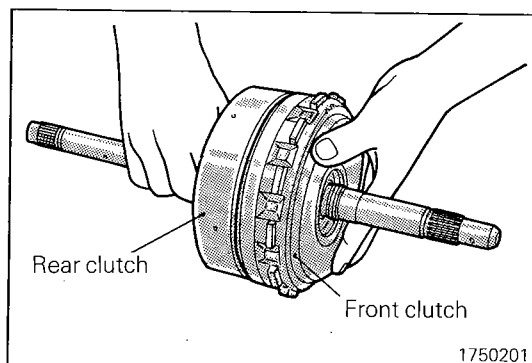
38. Mount the rear clutch hub, aligning it with the splines in the forward sun gear.



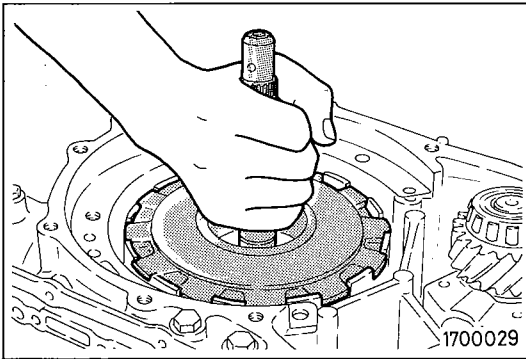
39. Apply petrolatum to thrust bearing #6 and stick it on the rear clutch hub.



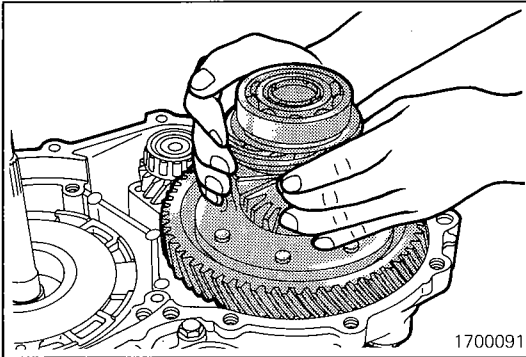
40. Apply petrolatum to thrust washer #2 and thrust bearing #4 and stick them on the rear clutch assembly.



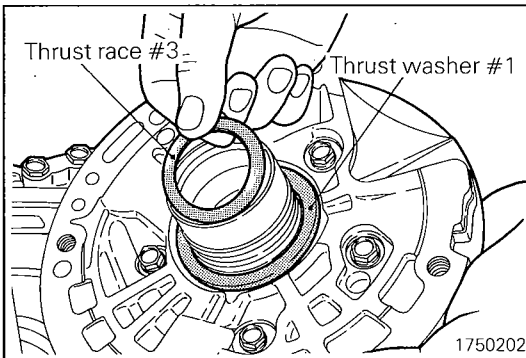
41. Put the rear clutch assembly and the front clutch assembly together.



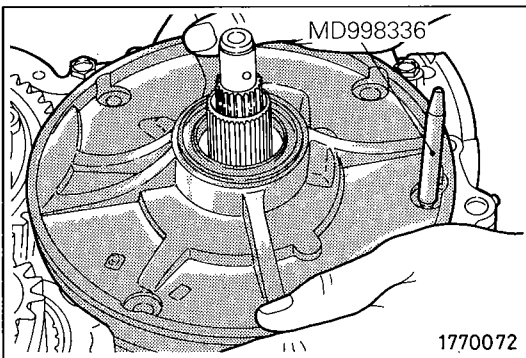
42. Install the clutch assembly.



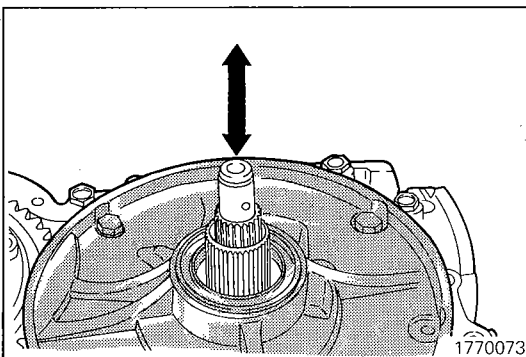
43. Install the differential assembly.



44. Stick thrust race #3 and thrust washer #1 on the rear end face of the oil pump using petrolatum.

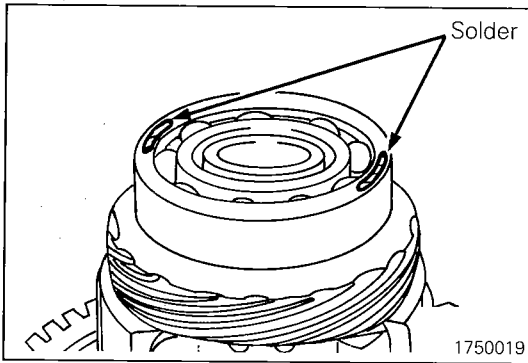


45. Mount the special tool on the case and install a new oil pump gasket and oil pump assembly.

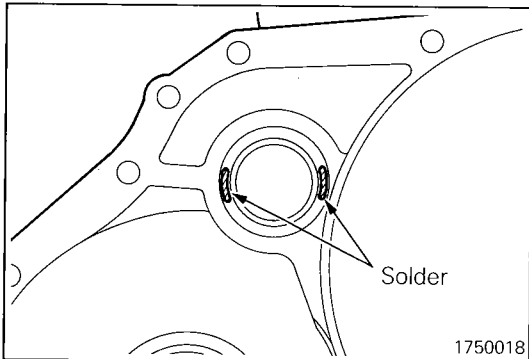


46. Measure the end play in the input shaft. If the measurement does not conform to specification, replace thrust race #3 and thrust washer #1 to obtain the specified end play.

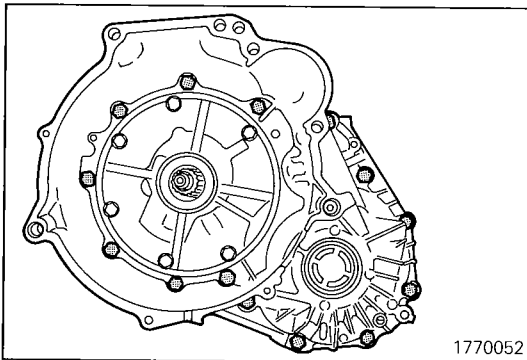
Standard value: 0.3 – 1.0 mm (.012 – .040 in.)



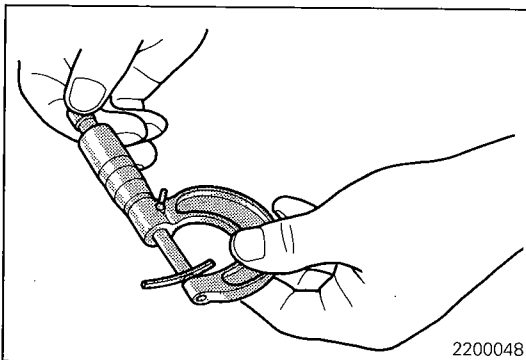
47. Place 10 mm (.40 in.)-long, 3 mm (.12 in.)-dia. pieces of solder at the two locations in the differential assembly indicated in the illustration.



48. Place 10 mm (.40 in.)-long, 3 mm (.12 in.)-dia. pieces of solder at the locations in converter housing shown in the illustration. Then, install the outer race (transfer shaft front bearing).



49. Install the converter housing without installing the case gasket, and tighten the bolts to specification. Loosen the bolts, remove the converter housing, and remove the pieces of solder.



50. Measure the thickness of the flattened solder pieces with a micrometer.

Determine the thickness of the spacers to be installed according to the following formula, and install the selected spacers on the housing.

Thickness of spacer at differential section = Thickness of solder (at differential section) + Gasket thickness 0.38 mm (.0149 in.) – End play at differential section

Thickness of spacer at transfer shaft section = Thickness of solder (at transfer shaft section) + Gasket thickness 0.38 mm (.0149 in.) – Preload at transfer shaft section

Standard values:

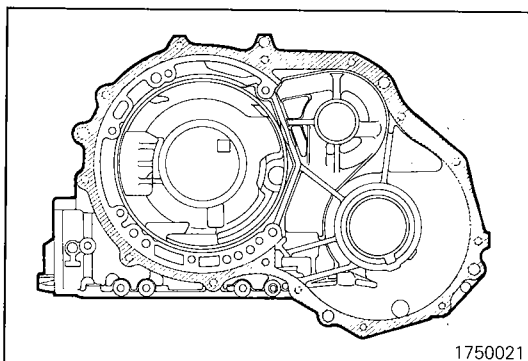
Transfer shaft preload

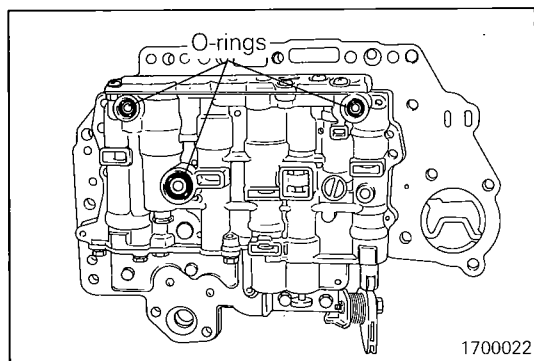
0.10 – 0.15 mm (.0040 – .0059 in.)

Differential end play

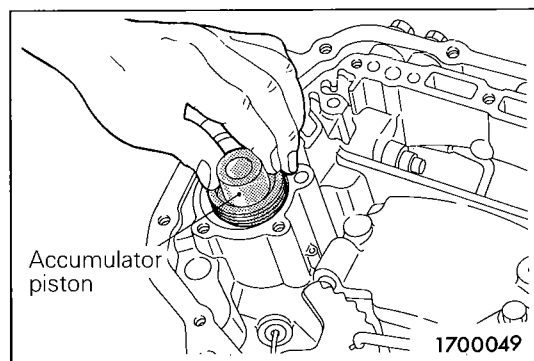
0 – 0.15 mm (0 – .0059 in.)

51. After cleaning the gasket mounting surface, apply silicone grease to the areas in transaxle case as indicated. Install the case gasket and converter housing and tighten the mounting bolts (14) to specification.

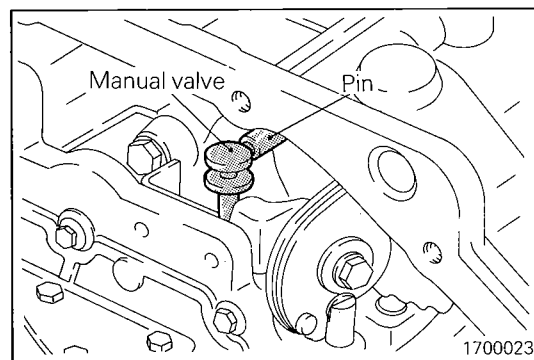




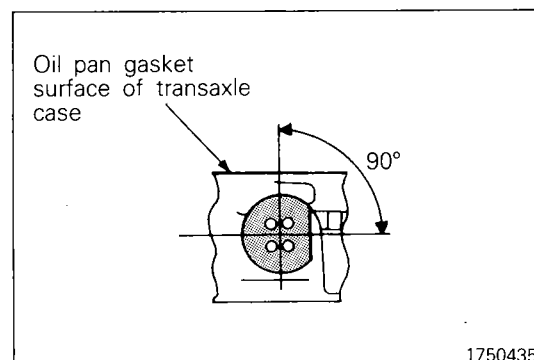
52. Fit three O-rings into the O-ring grooves on the top surface of the valve body assembly.



53. Install the accumulator piston and two springs.

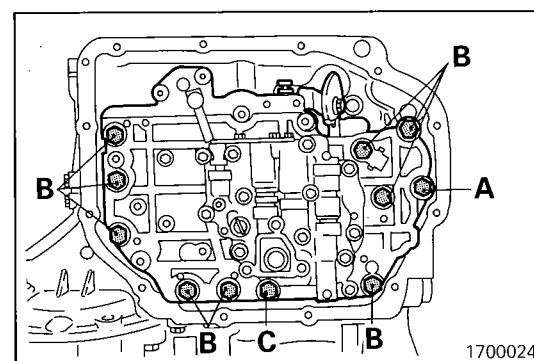


54. Install the valve body assembly while inserting the detent plate pin into the slot in the manual valve.



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

56. Insert the solenoid valve connector into the case. Be sure that the notched part of the connector faces as shown in the illustration.

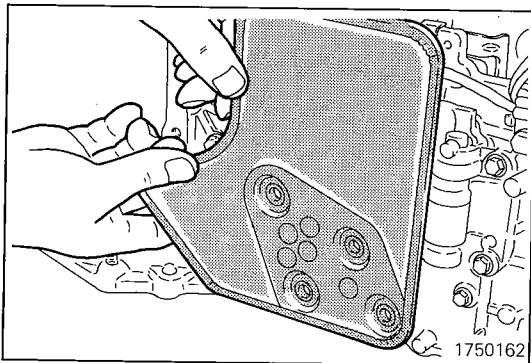


57. Tighten the eleven valve body mounting bolts to specification.

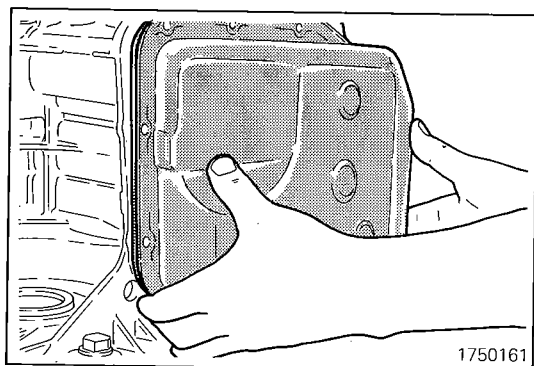
A: 18 mm (.7087 in.)

B: 25 mm (.9843 in.)

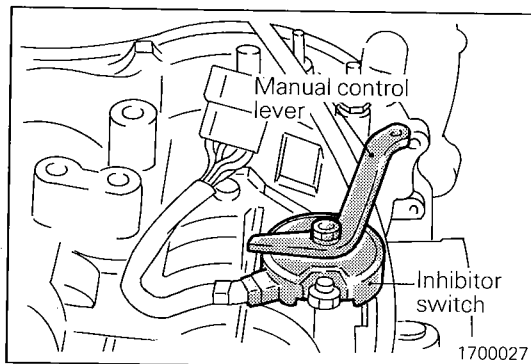
C: 40 mm (1.5748 in.)



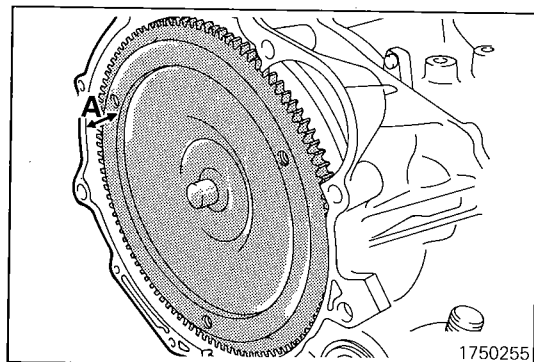
58. Install the oil filter.



59. Install a new oil pan gasket and oil pan and tighten twelve bolts.



60. Install the inhibitor switch and manual control lever.



61. Mount the torque converter and press it into position until dimension A is as specified.

Standard value: Approx. 12 mm (.4724 in.)

Caution

Apply automatic transaxle fluid to the outside of the torque converter cylindrical section on the oil pump side and install the converter, taking care not to damage the oil seal lip.

TRANSAXLE ASSEMBLY <KM176> N21LEACa**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.

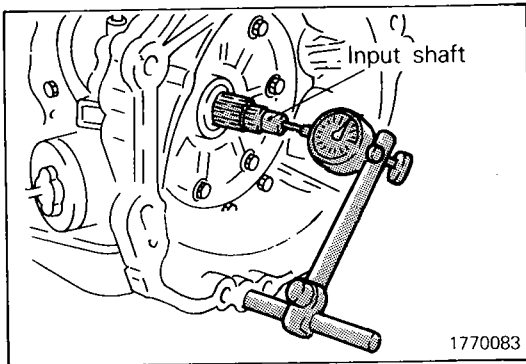
A rubber mat should be placed on the workbench, and it should always be kept clean.

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 automatic transaxle fluid, being very careful that dust, dirt, etc. do not adhere.

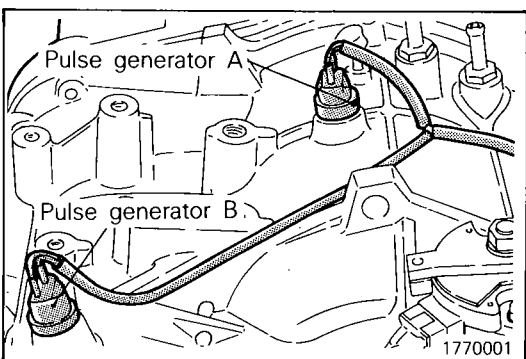
If the transaxle main unit is damaged, also disassemble and clean the cooler system.



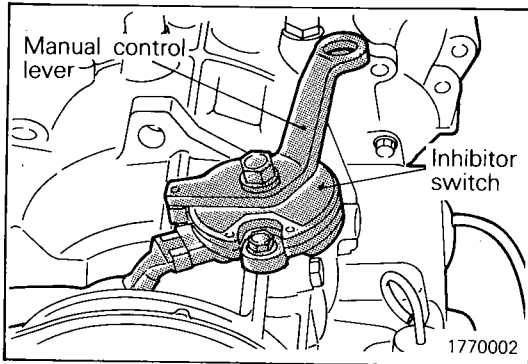
1. Clean away any sand, mud, etc. adhered around the transaxle.
2. Place the transaxle assembly on the workbench with the oil pan down.
3. Remove the torque converter.
4. Measuring input shaft end play before disassembly will usually indicate when a thrust washer change is required (except when major parts are replaced). Thrust washers are located between reaction shaft support and rear clutch retainer, and between reaction shaft support and front clutch retainer.

Mount a dial indicator to converter housing with the Dial Indicator Support. Make sure that the indicator plunger is seated against end of input shaft.

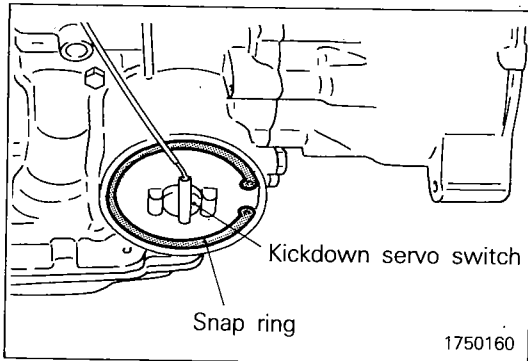
When checking end play, pull out or push in the input shaft with pliers. Be careful not to scratch the input shaft. Record indicator reading for reference when reassembling transaxle.



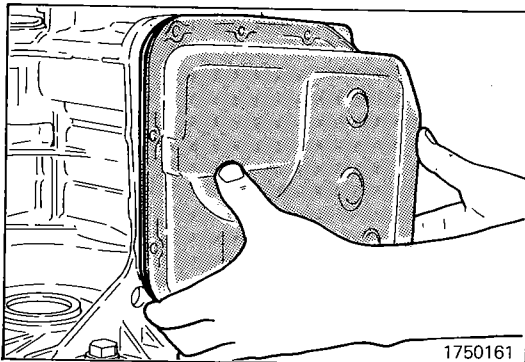
5. Remove the pulse generators "A" and "B".



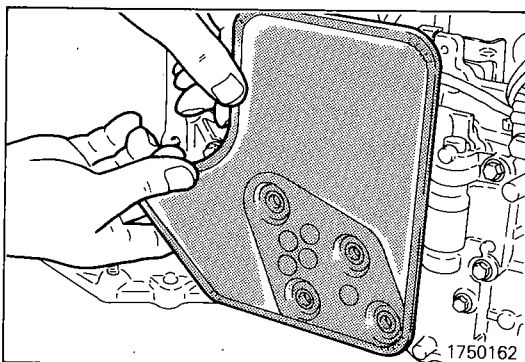
6. Remove manual control lever, then remove inhibitor switch.



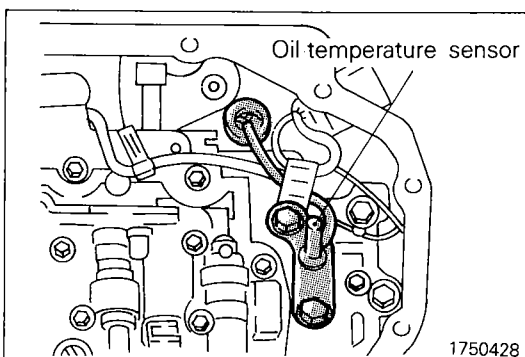
7. Remove snap ring, then remove kickdown servo switch.



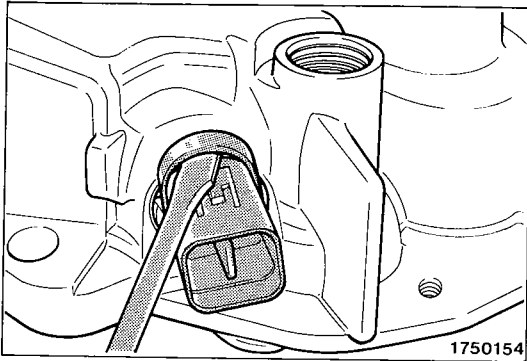
8. Remove the oil pan and gasket.



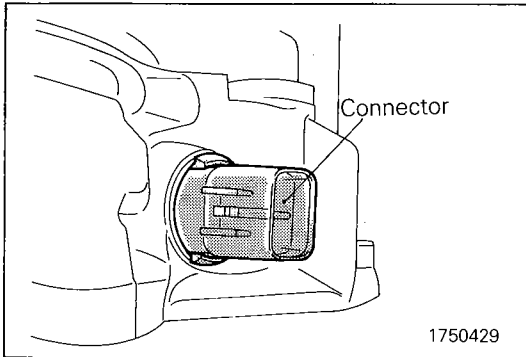
9. Remove the oil filter from the valve body.



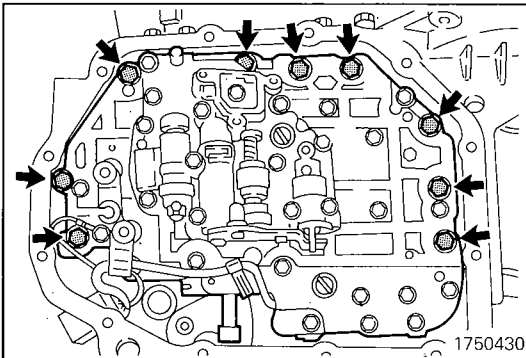
10. Remove the oil temperature sensor mounting bolts and remove the sensor from the bracket. Then unplug the sensor connector.



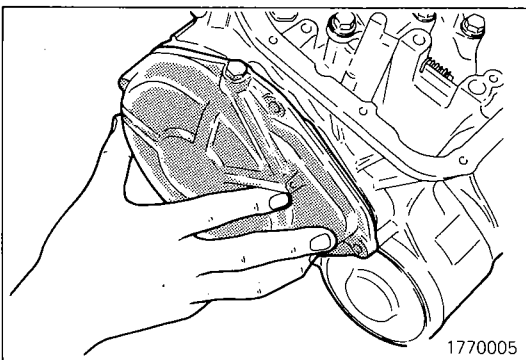
11. Remove the clip from the solenoid valve connector.



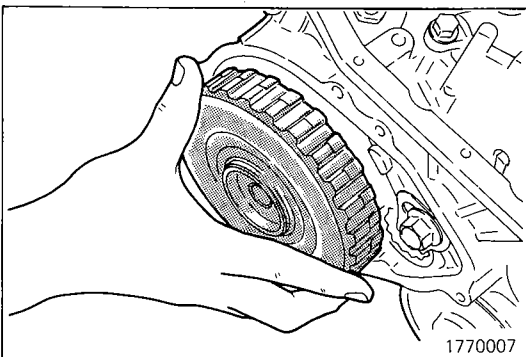
12. Push catches and remove the solenoid valve connector.



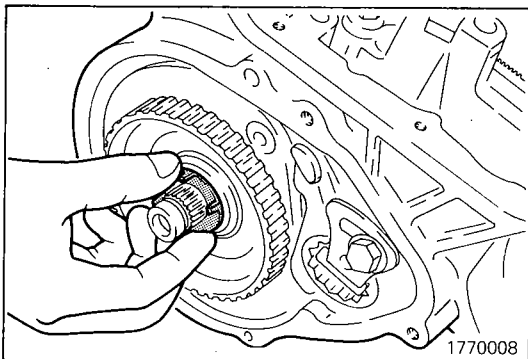
13. Remove 10 bolts and remove valve body.



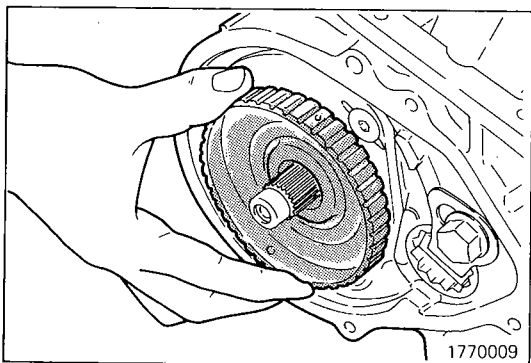
14. Remove the end clutch cover mounting bolt, the cover holder, and the end clutch cover.



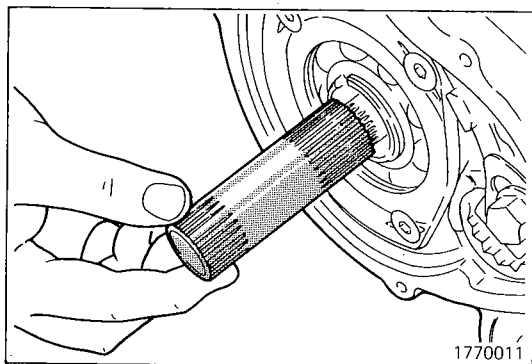
15. Remove the end clutch assembly.



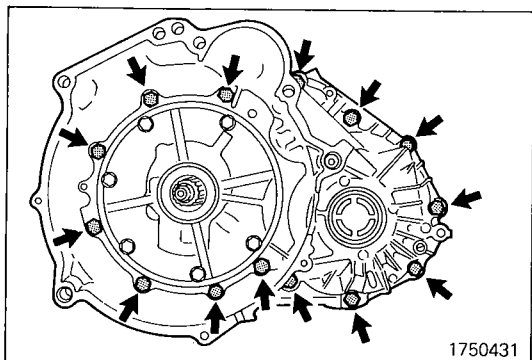
16. Remove the thrust plate.



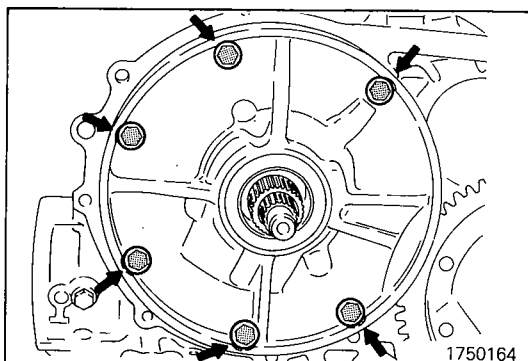
17. Remove the end clutch hub and thrust bearing:



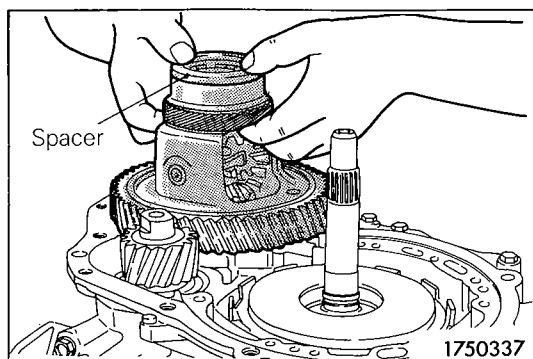
18. Pull out the end clutch shaft.



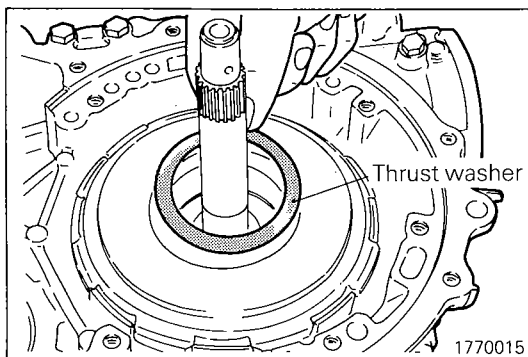
19. Remove 13 bolts and remove converter housing.



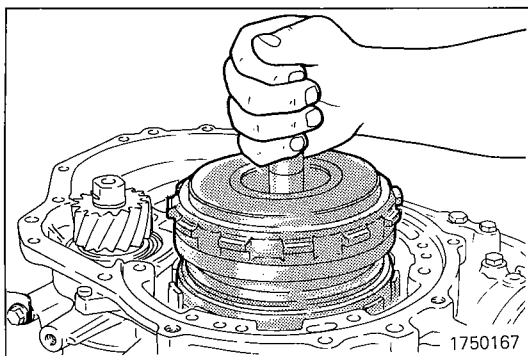
20. Remove 6 bolts and remove oil pump assembly.



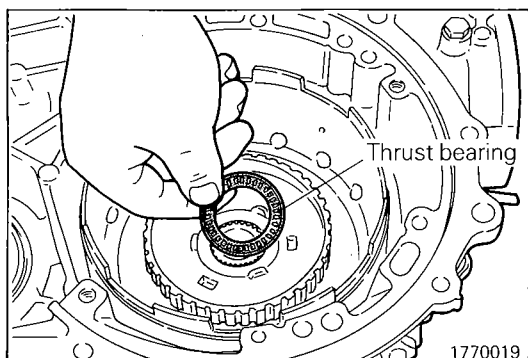
21. Remove the spacer and the differential assembly.



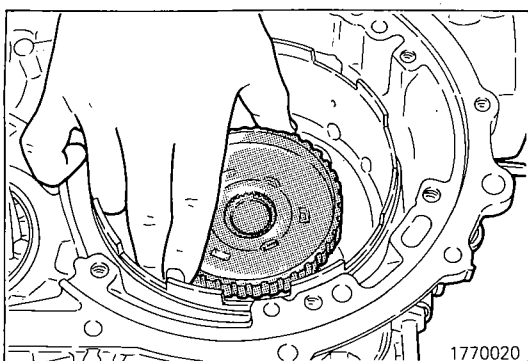
22. Remove the fiber thrust washer.



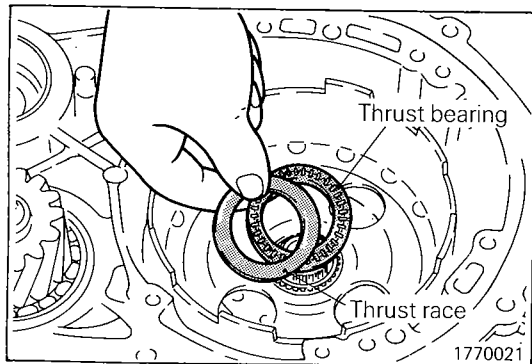
23. Withdraw the input shaft and remove the front clutch assembly and rear clutch assembly.



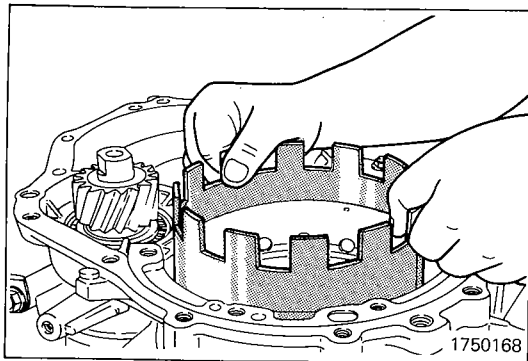
24. Remove the thrust bearing.



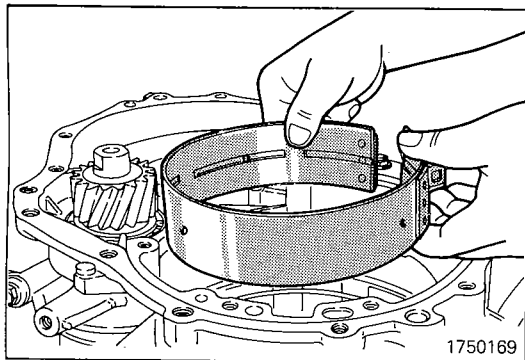
25. Remove the clutch hub.



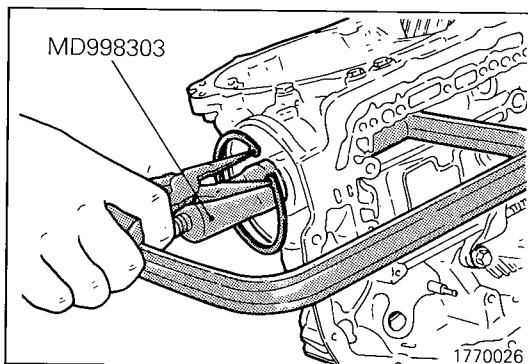
26. Remove the thrust race and bearing.



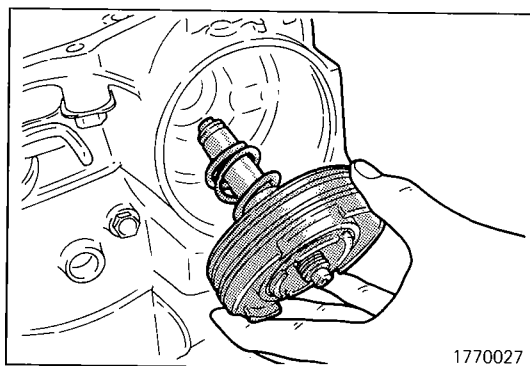
27. Remove the kickdown drum.



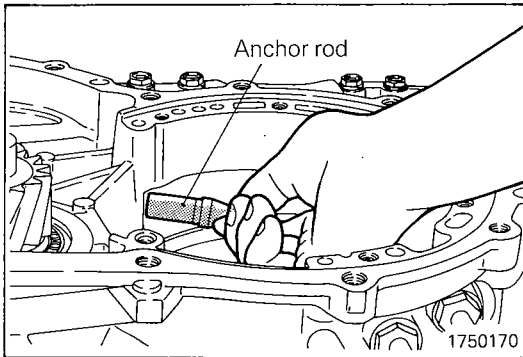
28. Remove the kickdown band.



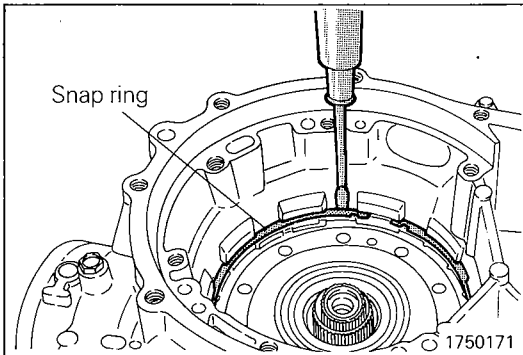
29. Using the valve spring compressor and special tool, push in the kickdown servo and remove the snap ring.



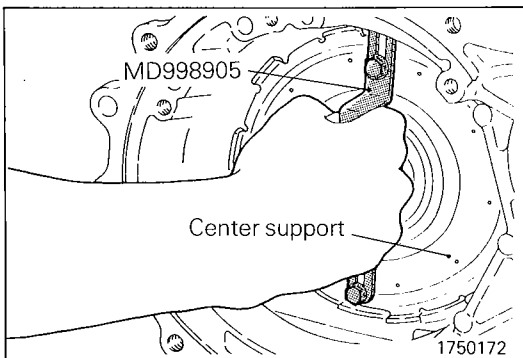
30. Remove the kickdown servo piston and spring.



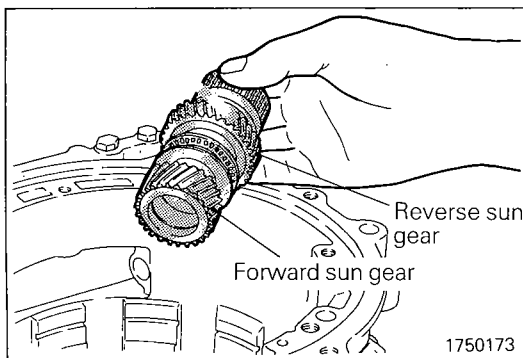
31. Remove the anchor rod.



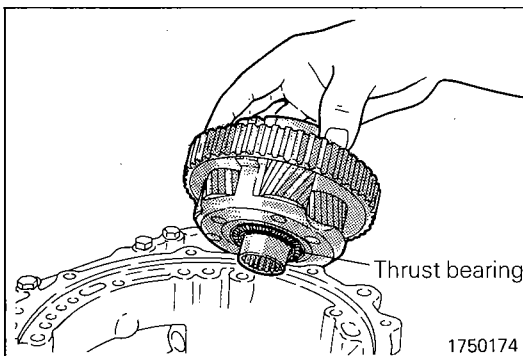
32. Remove the snap ring.



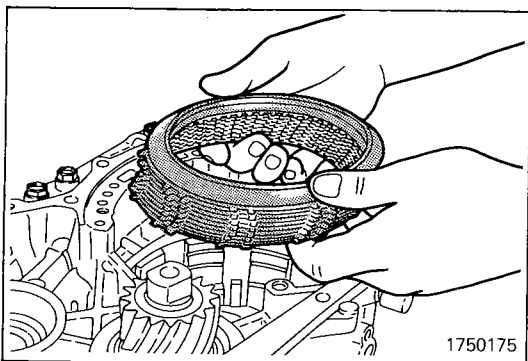
33. Attach special tool on center support.
Holding handle of tool, pull center support straight upward.



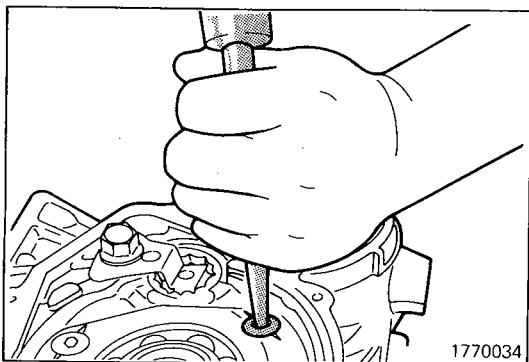
34. Remove reverse sun gear and forward sun gear together.



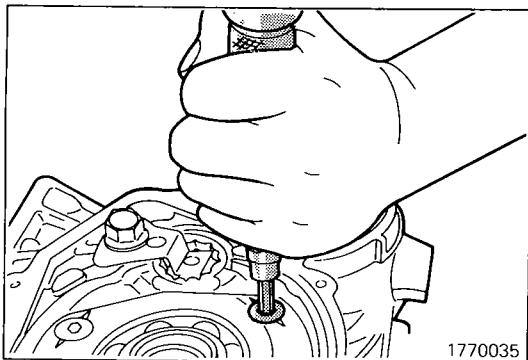
35. Remove planetary carrier assembly and thrust bearing.



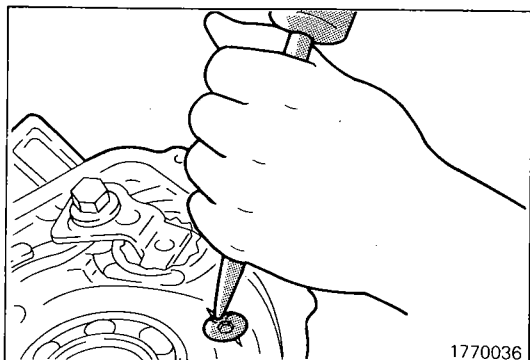
36. Remove the wave spring, return spring, reaction plate, brake disc, and brake plate.



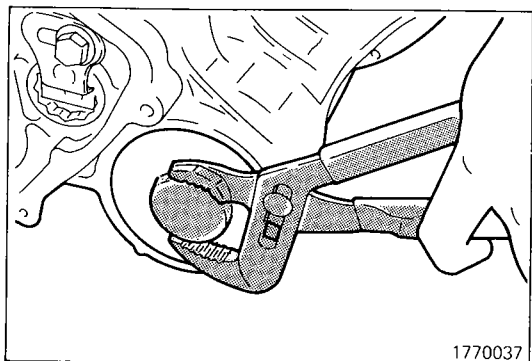
37. Since screw lock paste is coated on the bolt threads, tap the bolt head for easier removal.



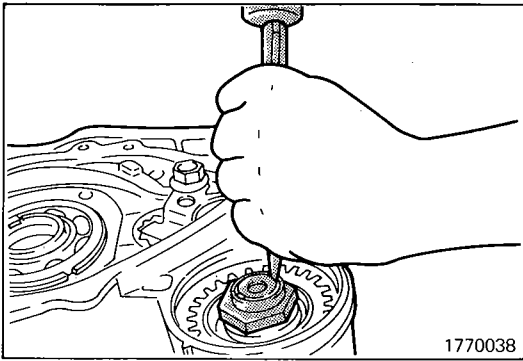
38. Using an impact driver, loosen the bolt.



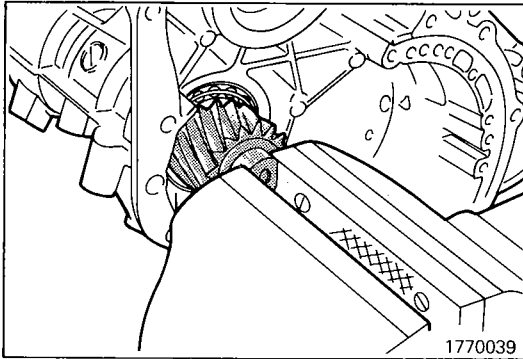
If an impact driver is not available, use a punch or something similar.



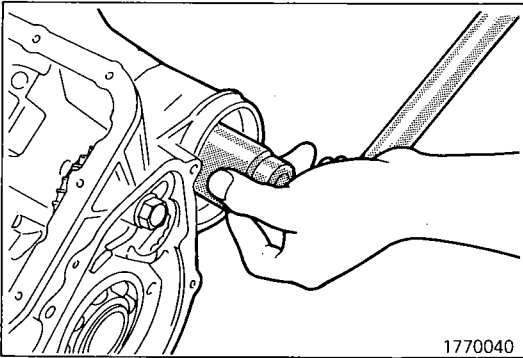
39. Remove the transfer shaft cover.



40. Stand the transfer shaft lock nut rotation stopper up.



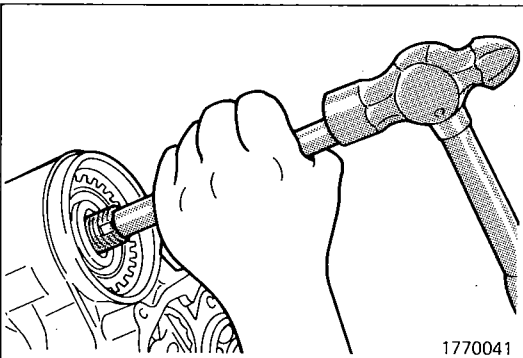
41. Fix the transfer shaft converter housing side.



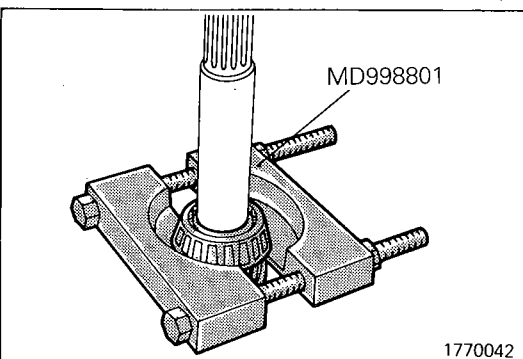
42. Remove the locking nut.

NOTE

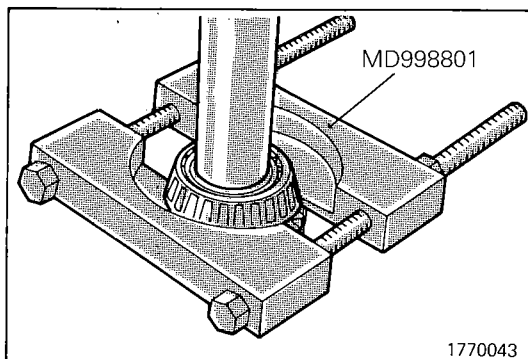
The lock nut is left-hand threaded.



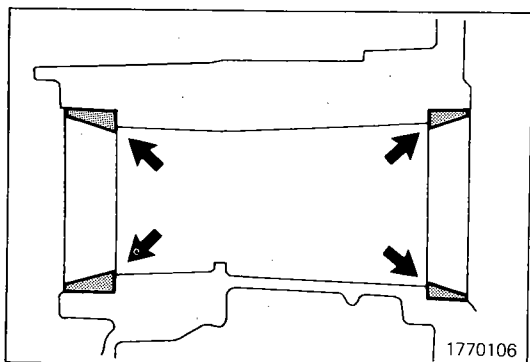
43. Knock off the transfer shaft to the converter housing side.



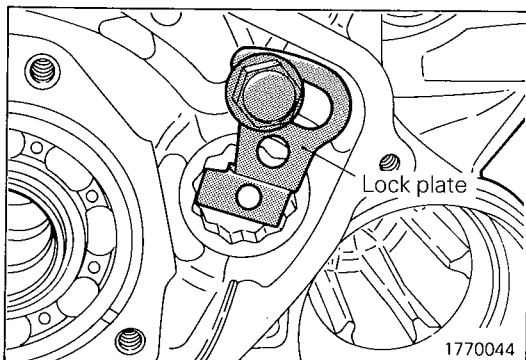
44. Using the special tool, pull the bearing from the transfer shaft.



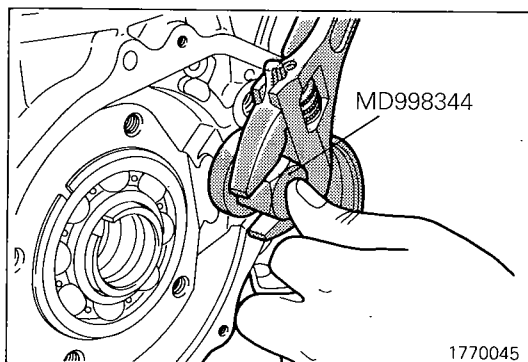
45. Using the special tool, pull the bearing from the transfer driven gear.



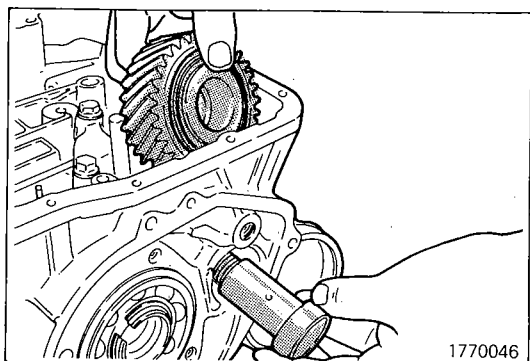
46. Using a screwdriver, remove the outer race.



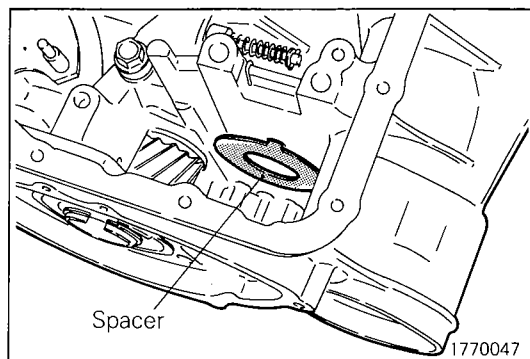
47. Remove idler shaft lock plate.



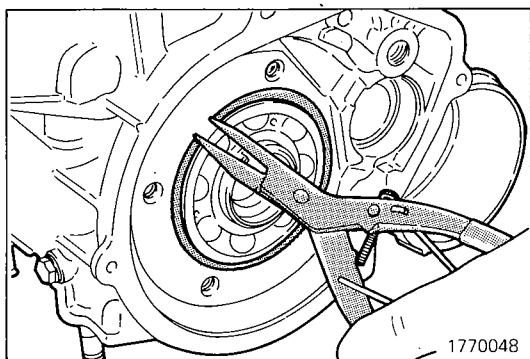
48. Loosen transfer idler shaft with special tool.



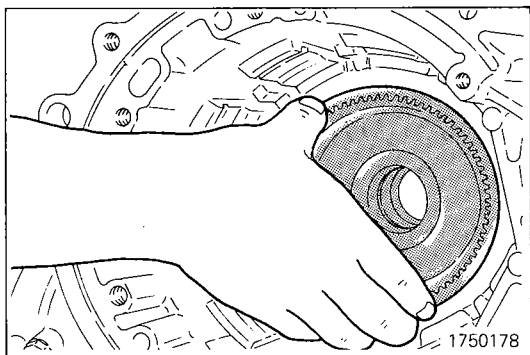
49. Pull out transfer idler shaft. Remove transfer idle gear bearing inner races (2 pieces) from inside of case.



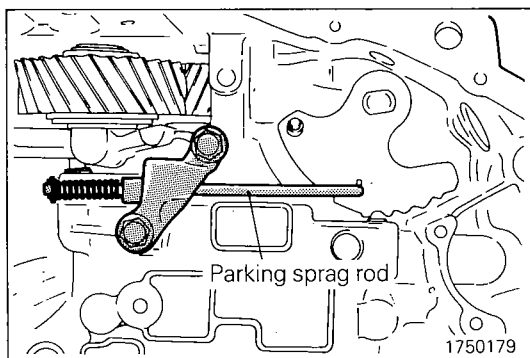
50. Remove the spacer.



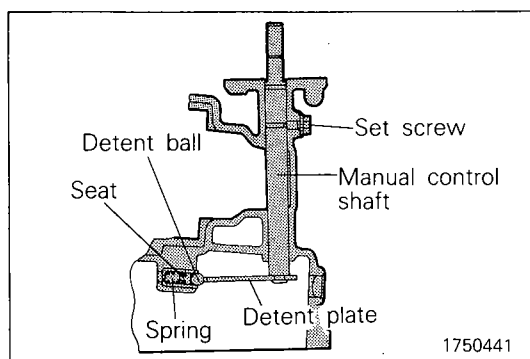
51. Remove snap ring from bearing.



52. Remove internal gear, output flange, transfer drive gear and bearing as assembly from case.



53. Remove two bolts and parking sprag rod.



54. Remove the set screw and the manual control shaft assembly. Remove the steel ball, the seat and the spring together at this time.

REASSEMBLY**Caution**

Do not reuse gaskets, oil seals and rubber parts. Replace them with new ones at every reassembly. O-ring of oil level dipstick need not be replaced.

Do not use grease other than petrolatum or industrial vaseline.

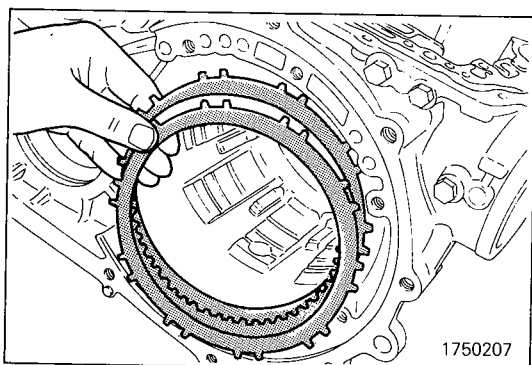
Apply automatic transaxle fluid to friction element, rotating parts, and sliding parts before installation. Use DEX-RON type automatic transaxle fluid. New clutch disc should be immersed in automatic transaxle fluid for more than two hours before installation.

Do not apply sealer or adhesive to gaskets.

When bushing must be replaced, replace assembly which includes it.

Do not use shop towels during disassembly and reassembly operation.

The oil in the cooler should also be replaced.



1. Before reassembling the transaxle, use the following procedures to measure the low-reverse brake end play, and select a pressure plate that obtains the specified end play.

- (1) Install the brake reaction plate, brake plate, and brake disc in the transaxle case.

Caution

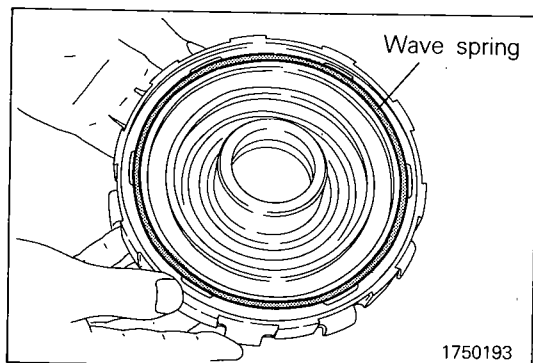
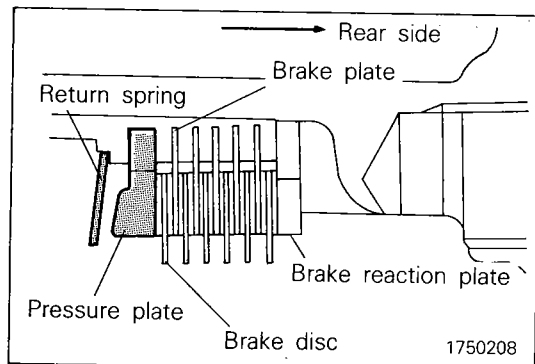
If a new brake disc is to be used, make sure that it has been soaked in automatic transaxle fluid for 2 hours or longer.

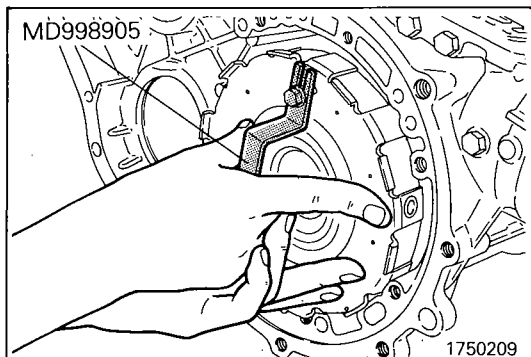
- (2) Install a pressure plate having an adequate size, and install the return spring.

Caution

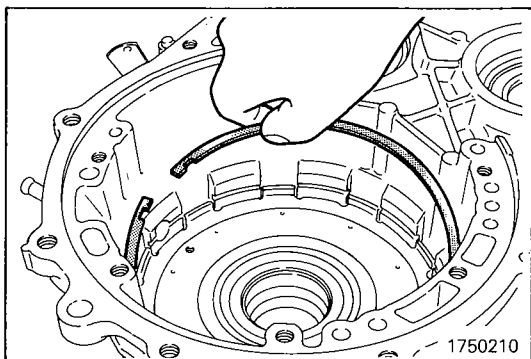
Ensure that the return spring is installed in the correct direction.

- (3) Apply petrolatum to the wave spring and stick it on the center support.

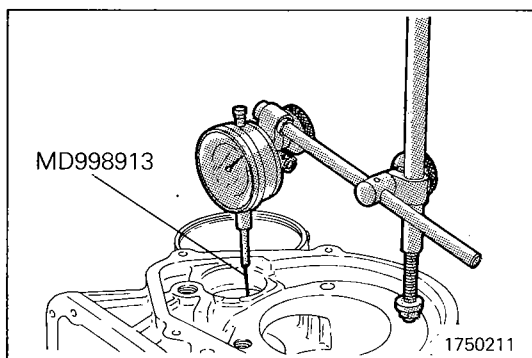




(4) Mount the special tool and install the center support.



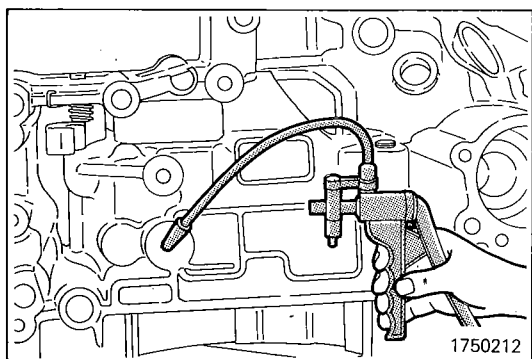
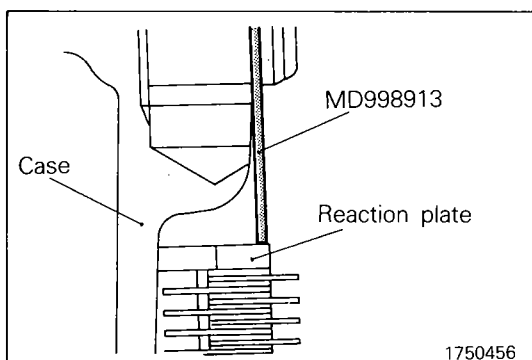
(5) Fit the snap ring.



(6) Mount the special tool and dial indicator on the rear end of the transaxle case.

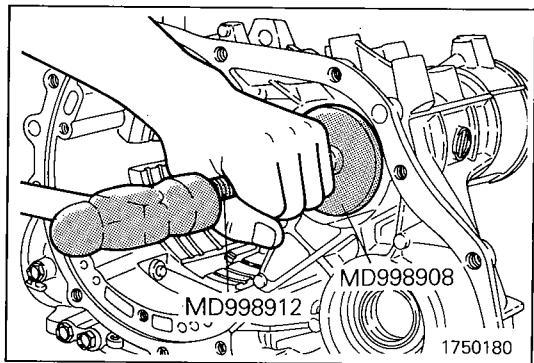
Caution

Install the dial indicator through the transfer idler shaft hole so that its feeler is held perpendicular to the brake reaction plate.

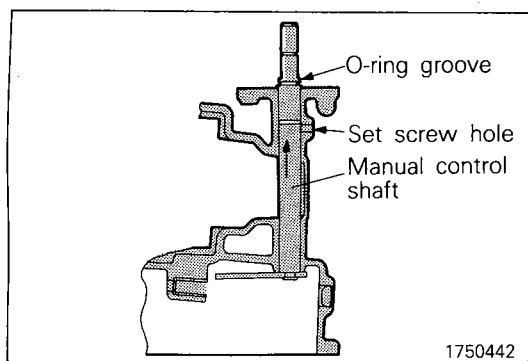
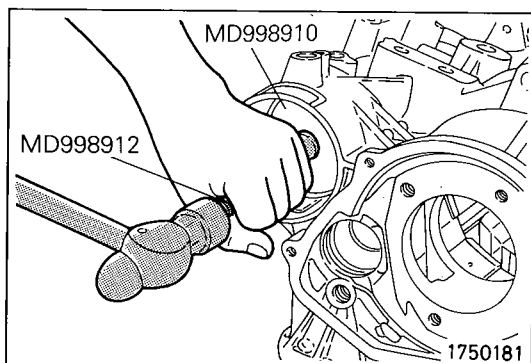


(7) Using a hand pump, feed air as shown and read the dial indicator. Select a pressure plate that obtains the specified end play.

Standard value: 0.78 – 1.09 mm (.0307 – .0429 in.)



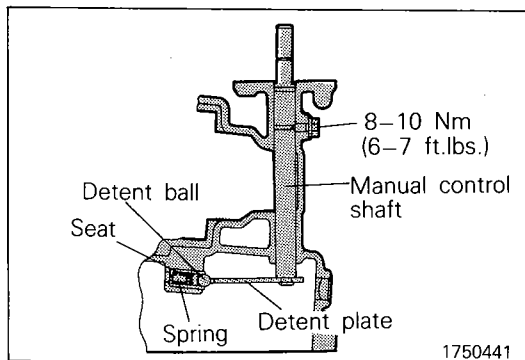
2. Using the special tool, drive the bearing outer race into position.



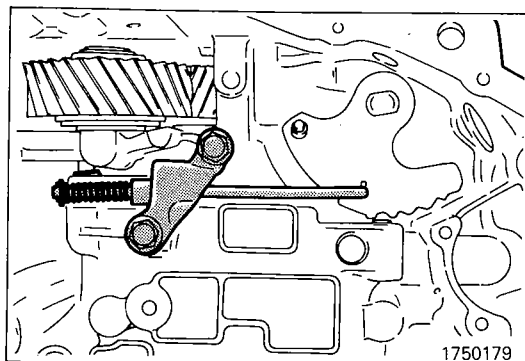
3. Insert manual control shaft into transaxle case and push it fully toward manual control lever. At this time, do not install O-ring (larger one of two O-rings) on manual control shaft.

NOTE

If installed before inserting shaft, the O-ring will interface with shaft set screw hole.

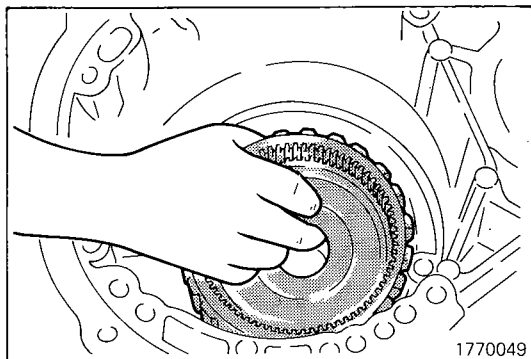


4. After installing new O-ring on manual control shaft, draw shaft back into case, then install set screw and gasket. Also install detent steel ball, seat and spring at the same time.

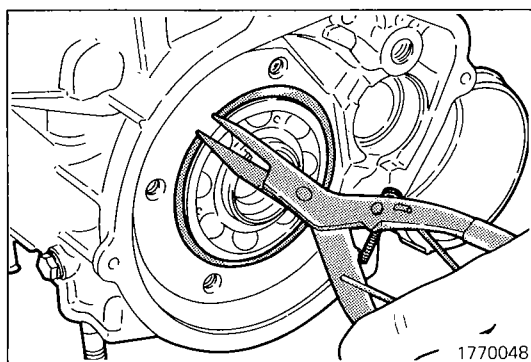


5. Install parking sprag rod to detent plate (manual control shaft). Install sprag rod support and tighten two bolts.

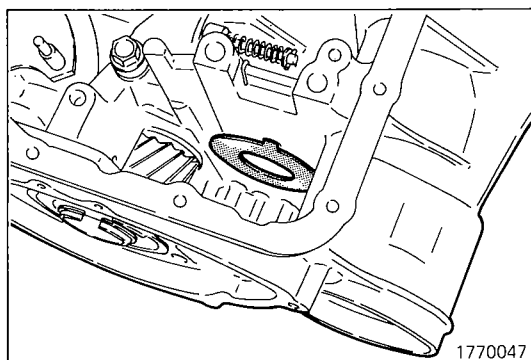
Sprag rod support bolts: 20 – 27 Nm (15 – 19 ft.lbs.)



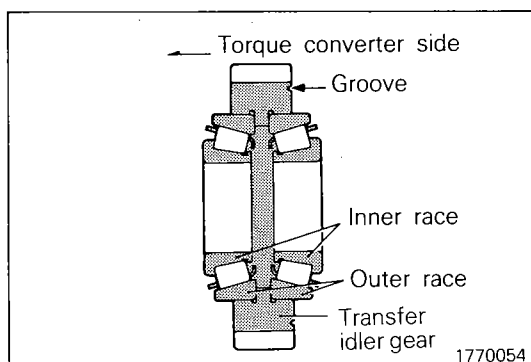
6. Insert an assembly of the annular gear, output flange, transfer drive gear and bearing into the case.



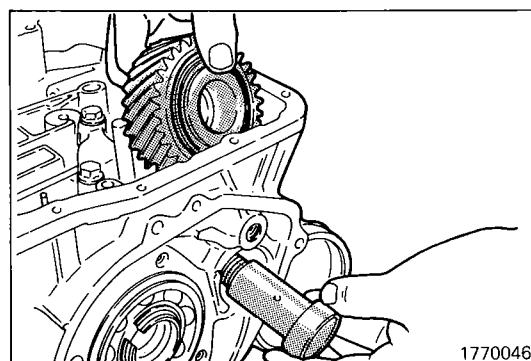
7. Install snap ring on output flange rear bearing.



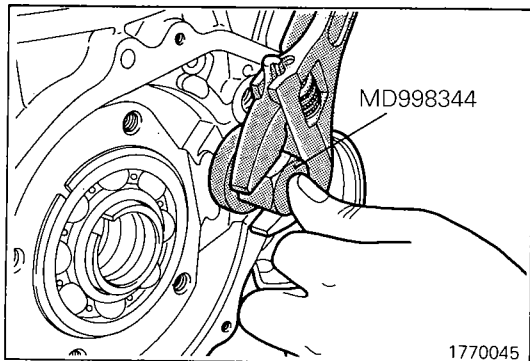
8. Coat petroleum jelly on the spacer and attach it to the transaxle case.



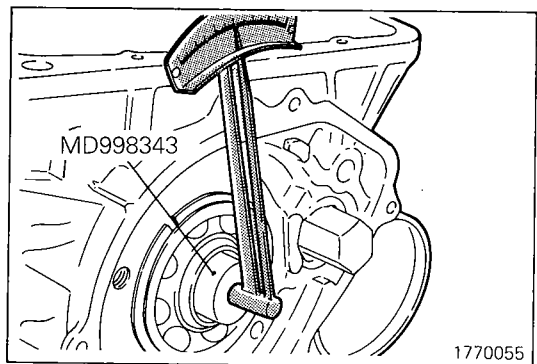
9. Install two taper roller bearings and spacer to transfer idler gear.



10. Place the transfer idler gear (assembled in the preceding section) into the case, and then insert the idler shaft from the outer side of the case and screw it in.

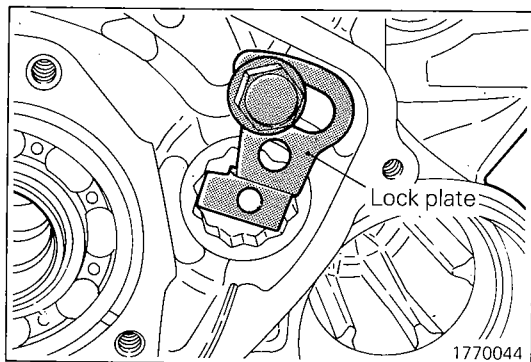


11. Tighten the idler shaft by using special tool.



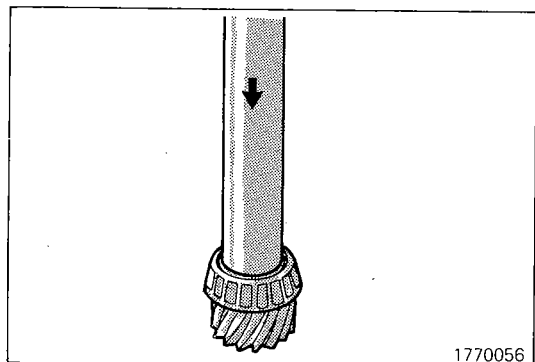
12. Insert special tool into output flange and measure preload using a low reading torque wrench. Adjust preload by tightening or loosening transfer idler shaft.

Preload: 1.5 Nm (1 ft.lbs.)

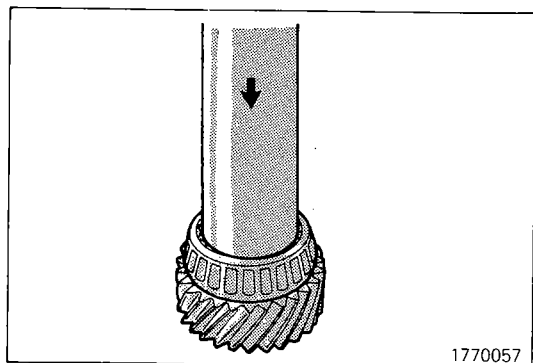


13. After the preload adjustment is completed, eliminate the backlash between the idler shaft and the lock plate by moving the idler shaft in the loosening direction. Attach the lock plate and tighten the lock plate bolt.

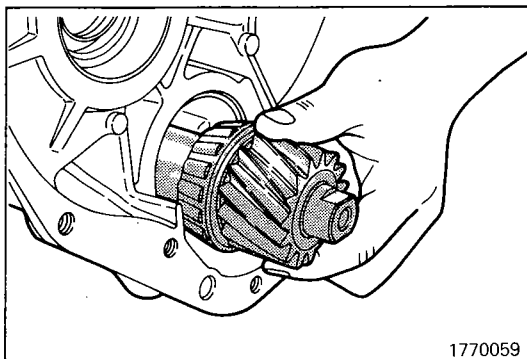
Lock plate bolt: 48 – 60 Nm (35 – 43 ft.lbs.)



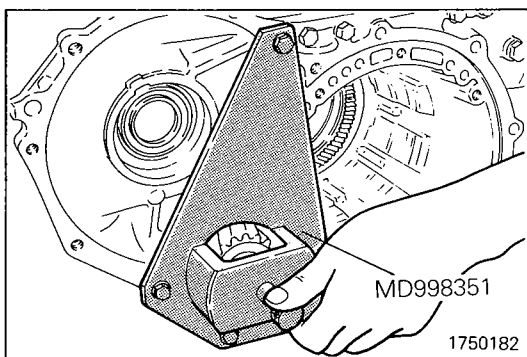
14. Press-fit the bearing inner race to the transfer driven gear and press-fit the bearing outer race to the transaxle end clutch side.



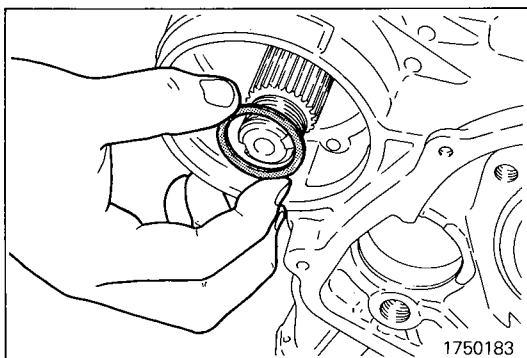
15. Press-fit the bearing inner race to the transfer shaft, and press-fit the bearing outer race to the transaxle case converter housing side.



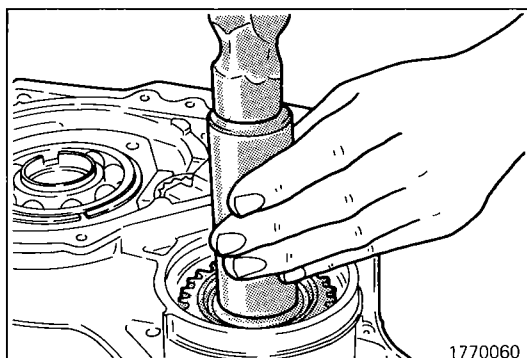
16. Attach the transfer shaft to the transaxle case.



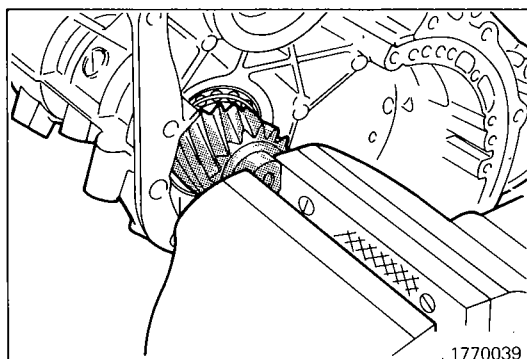
17. Install the special tool on the transaxle case to support the transfer shaft.



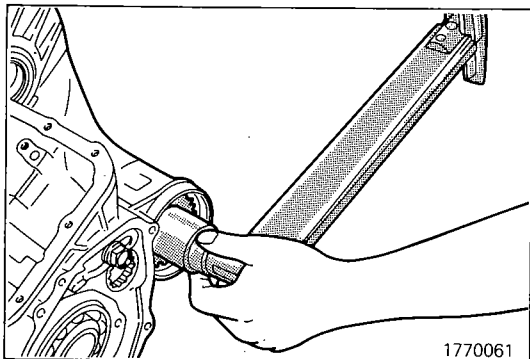
18. Insert the thickest 1.80 mm (.0709 in.) spacer.



19. Attach the transfer driven gear.

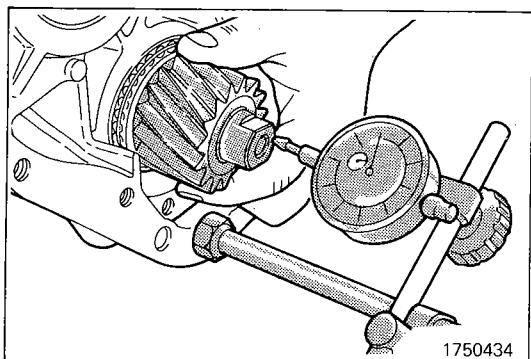


20. Fix the converter housing side of the transfer shaft.



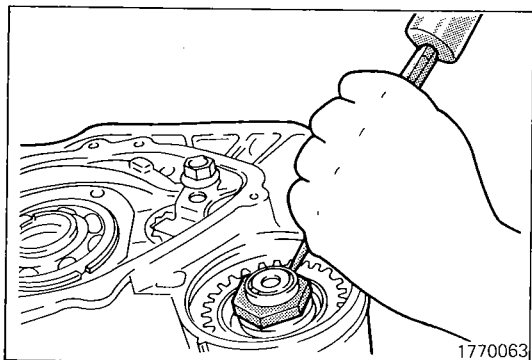
21. Tighten the lock nut to the specified torque.

Transfer lock nut: 200 – 230 Nm (145 – 166 ft.lbs.)



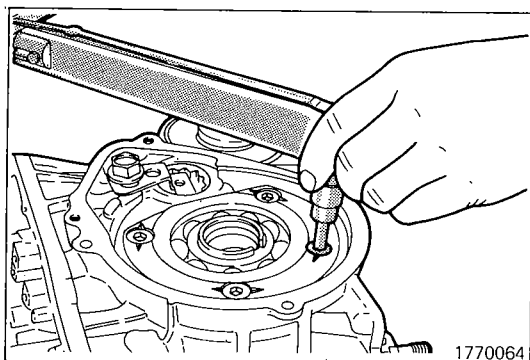
22. Measure the transfer shaft end play and select and reinstall the spacer which provides the specified end play.

Transfer shaft end play: 0 – 0.025 mm (0 – .0010 in.)



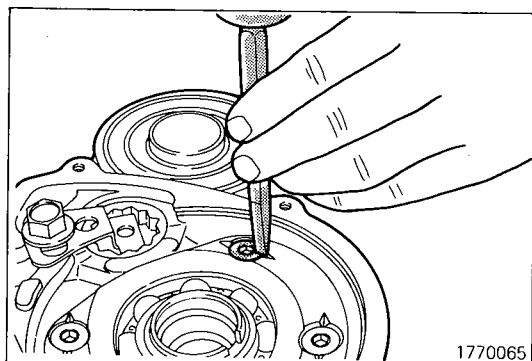
23. Using a punch, lock the lock nut to prevent rotation.

24. Attach the transfer cover.



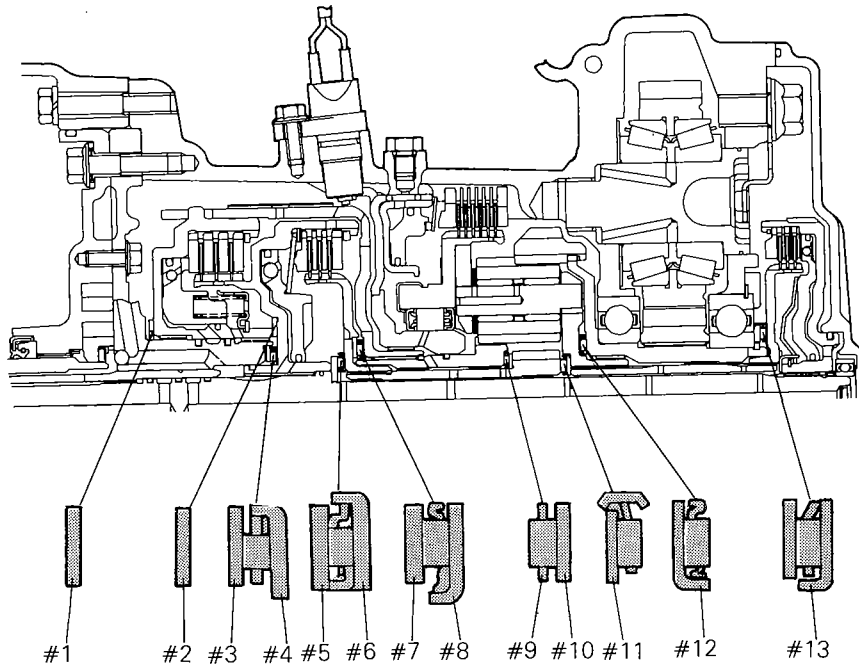
25. Install the bearing retainer, and tighten the screws to specified torque, and then apply a 5 mm (.2 in.) width of sealant (3M Stud Locking No. 4176) to the top. Sealant should not stick out of screw head.

Screw: 17 – 22 Nm (13 – 15 ft.lbs.)



26. Using a punch, lock the flush head screw to prevent rotation.

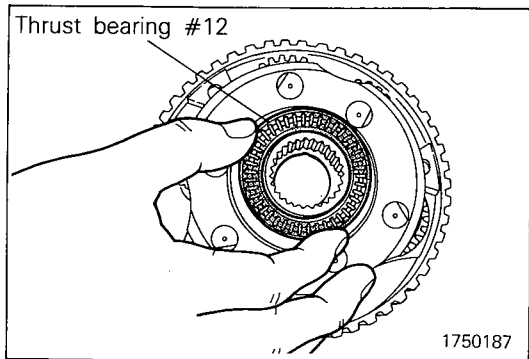
Identification of Thrust Bearings, Thrust Races and Thrust Washers



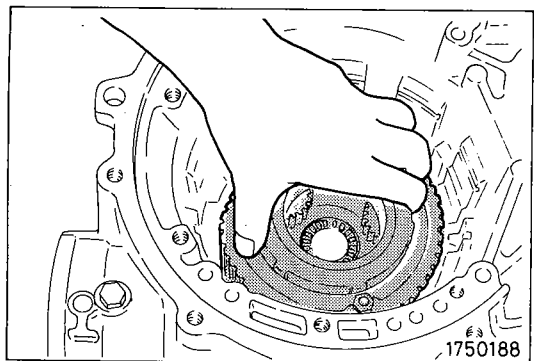
1750186

mm (in.)

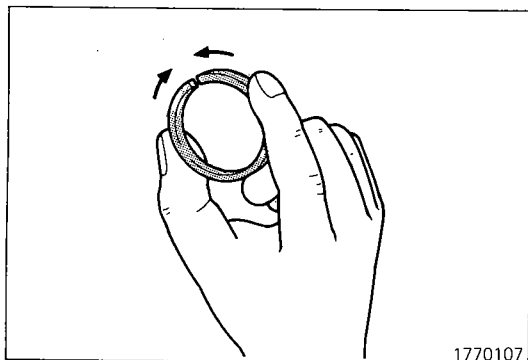
O.D.	I.D.	Thickness	Part No.	No.	O.D.	I.D.	Thickness	Part No.	No.
70 (2.756)	55.7 (2.193)	1.4 (.055)	*1	#1	48.9 (1.925)	37 (1.457)	2.4 (.094)	MD997853 (incl. *4)	#3
70 (2.756)	55.7 (2.193)	1.8 (.071)	*2		48.1 (1.906)	34.4 (1.354)	—	MD707271	#4
70 (2.756)	55.7 (2.193)	2.2 (.087)	*3		40 (1.575)	21 (.827)	2.4 (.094)	MD722552	#5
70 (2.756)	55.7 (2.193)	2.6 (.102)	*4		42.6 (1.677)	28 (1.102)	—	MD720753	#6
70 (2.756)	55.7 (2.193)	1.8 (.071)	MD707290	#2	54 (2.126)	38.7 (1.524)	1.6 (.063)	MD704936	#7
48.9 (1.925)	37 (1.457)	1.0 (.039)	MD997854 (incl. *1)	#3	52 (2.047)	36.4 (1.433)	—	MD720010	#8
48.9 (1.925)	37 (1.457)	1.2 (.047)	MD997847 (incl. *1)		41 (1.614)	28 (1.102)	—	MD728763	#9
48.9 (1.925)	37 (1.457)	1.4 (.055)	MD997848 (incl. *2)		39 (1.535)	28 (1.102)	1.2 (.047)	MD728764	#10
48.9 (1.925)	37 (1.457)	1.6 (.063)	MD997849 (incl. *2)		38 (1.496)	22.2 (.874)	—	MD727787	#11
48.9 (1.925)	37 (1.457)	1.8 (.071)	MD997850 (incl. *3)		52 (2.047)	36.4 (1.433)	—	MD720010	#12
48.9 (1.925)	37 (1.457)	2.0 (.079)	MD997851 (incl. *3)		58 (2.283)	44 (1.732)	—	MD724206	#13
48.9 (1.925)	37 (1.457)	2.2 (.087)	MD997852 (incl. *4)						



27. Coat thrust bearing #12 with petrolatum and stick it on the planetary carrier.



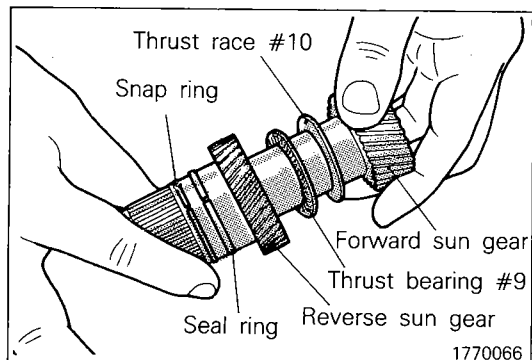
28. Install the planetary carrier in the case.



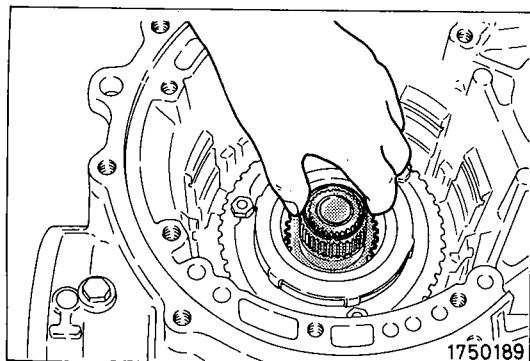
29. Assemble the reverse sun gear and the forward sun gear in the following order:

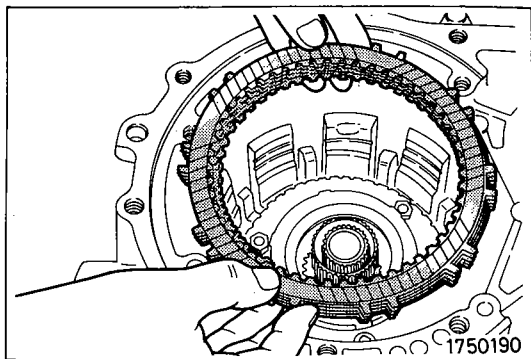
- (1) Attach the seal ring and the snap ring to the reverse sun gear. When attaching, squeeze the seal ring as shown in the illustration.
- (2) Attach the thrust race #9 to the forward sun gear.
- (3) Attach the thrust race #10 to the forward sun gear.

(4) Assemble the reverse sun gear and the forward sun gear.

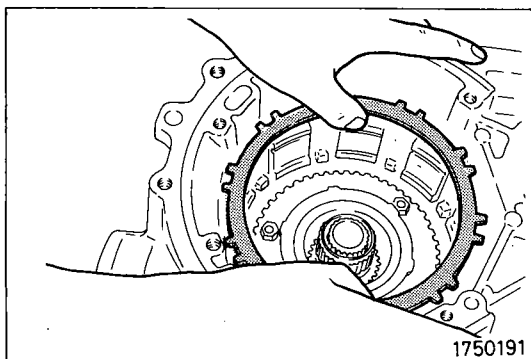


30. Install both sun gears, which have been assembled in the preceding step, in the planetary carrier.

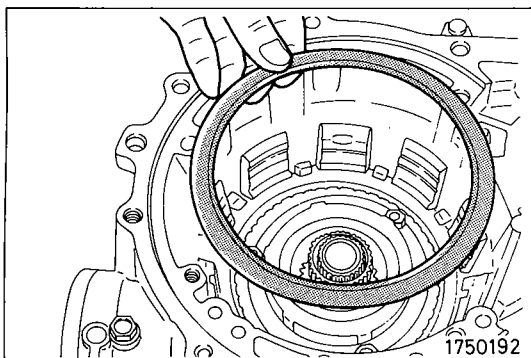




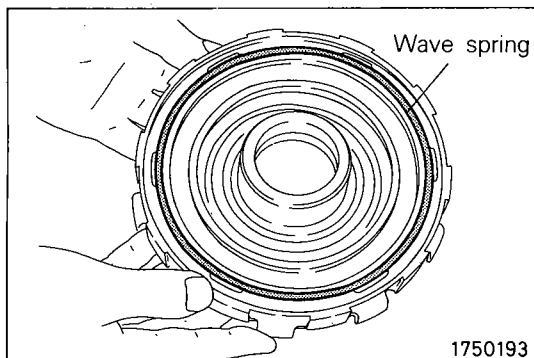
31. Install the brake disc and brake plate.



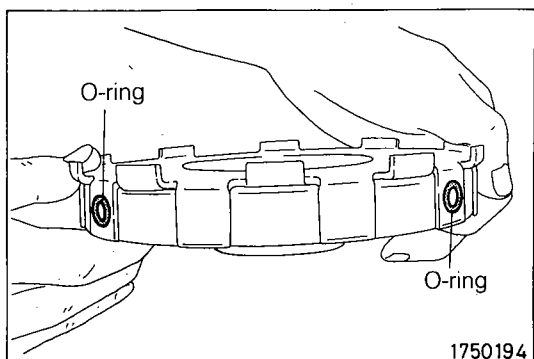
32. Install the selected brake pressure plate.



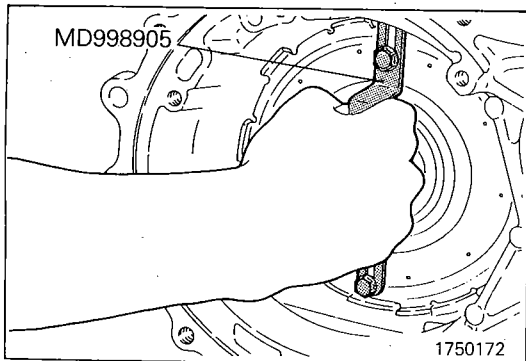
33. Fit the return spring.



34. Coat the wave spring with petrolatum and stick it on the center support.



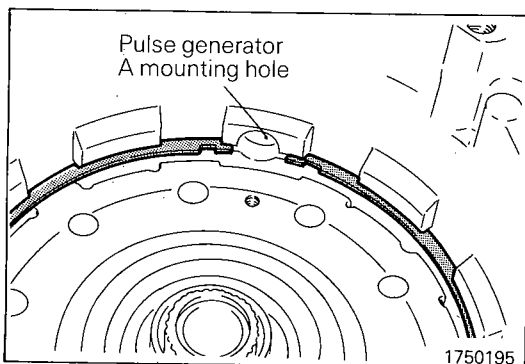
35. Fit two new O-rings into the center support.



36. After automatic transaxle fluid has been applied to the O-rings, mount the special tool on the center support and install the center support in the case.

Caution

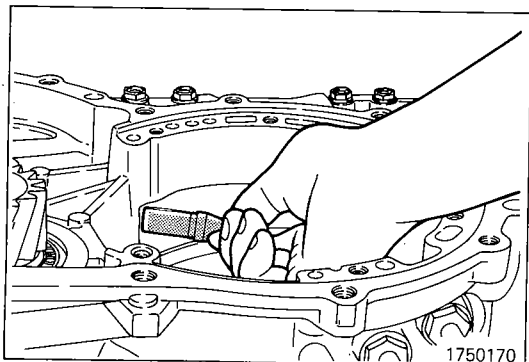
Make sure that the wave spring has not shifted out of position.



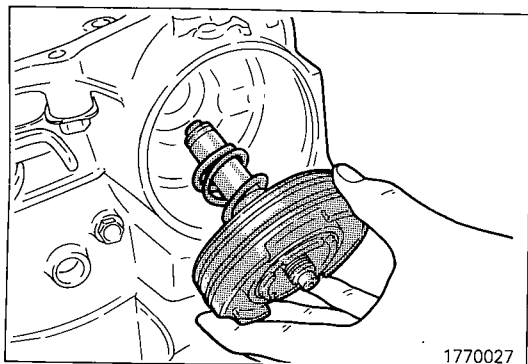
37. Fit the snap ring into position.

Caution

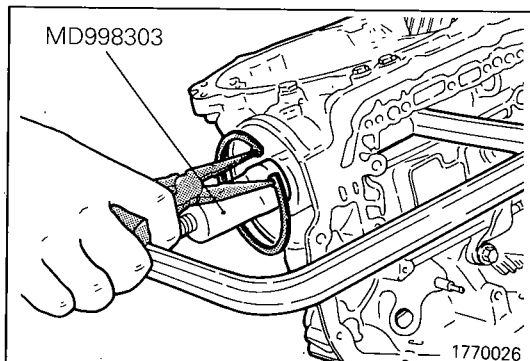
Align the snap ring ends with the hole for mounting the pulse generator A.



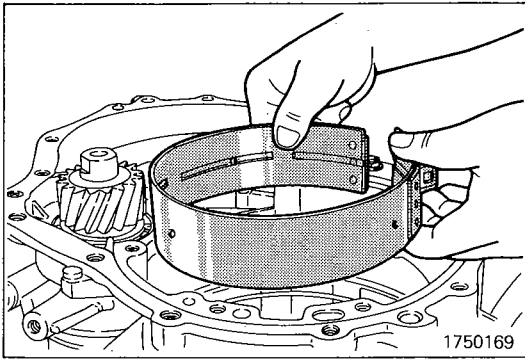
38. Install the anchor rod.



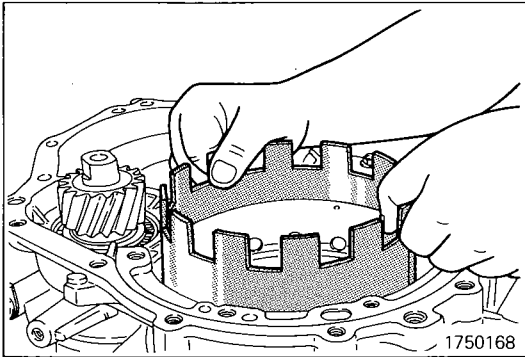
39. Assemble a new seal ring (large diameter) and D-ring (small diameter) to the kickdown servo piston, and install a new O-ring in the groove around the sleeve; then assemble the kickdown servo spring, piston and sleeve in the transaxle case.



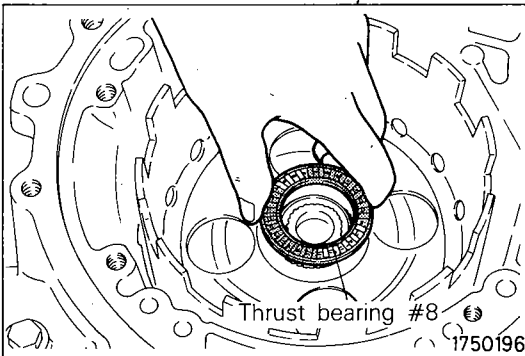
40. Press the kickdown servo and sleeve in by using the valve spring compressor and special tool, and then install the snap ring.



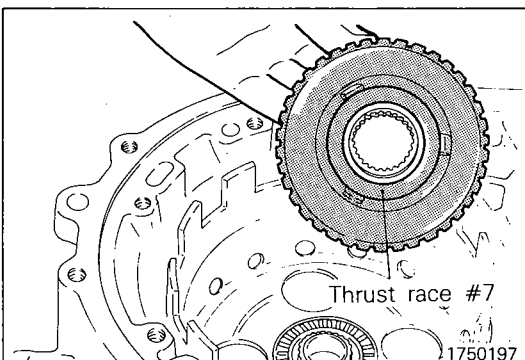
41. Install kickdown band; attach the ends of band to the ends of anchor rod and servo piston rod.



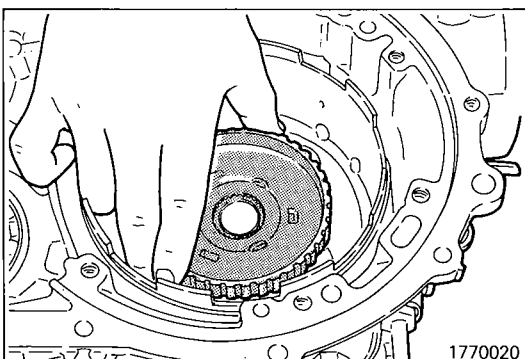
42. Install kickdown drum with its splines in mesh with sun gear. Place kickdown band on kickdown drum and tighten kickdown servo adjusting screw to keep band in position.



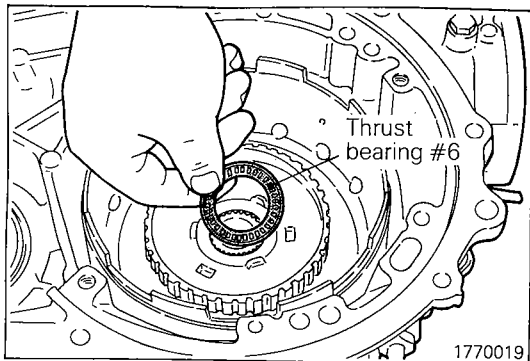
43. Apply petrolatum to thrust bearing #8 and stick it on the kickdown drum.



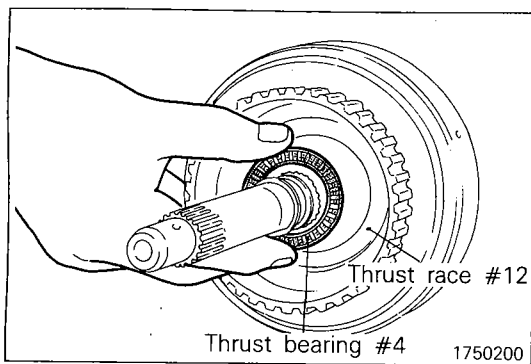
44. Apply petrolatum to thrust race #7 and stick it on the rear clutch hub.



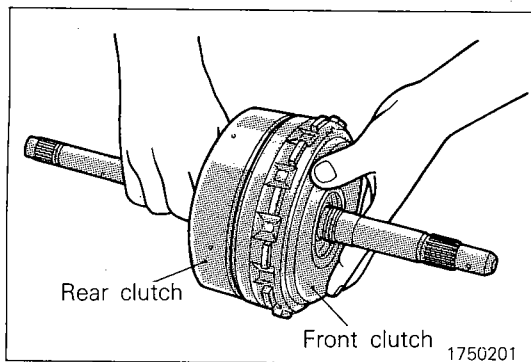
45. Install clutch hub to sun gear splines.



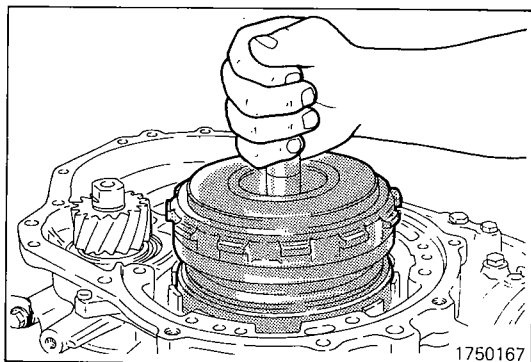
46. Attach thrust bearing #6 onto the hub with petrolatum.



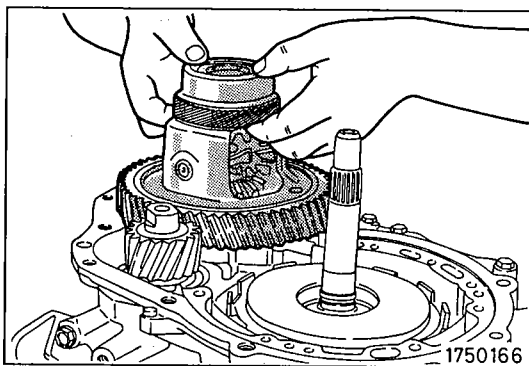
47. Apply petrolatum to thrust washer #2 and thrust bearing #4 and stick them on the rear clutch assembly.



48. Put the rear clutch assembly and the front clutch assembly together.



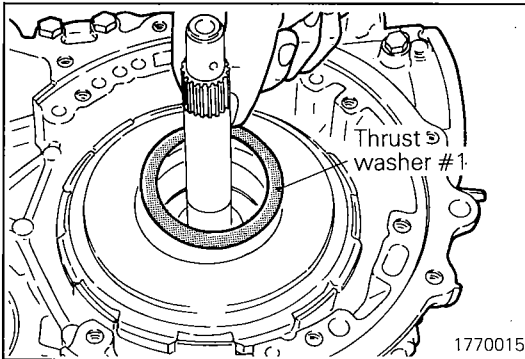
49. Install the clutch assembly.



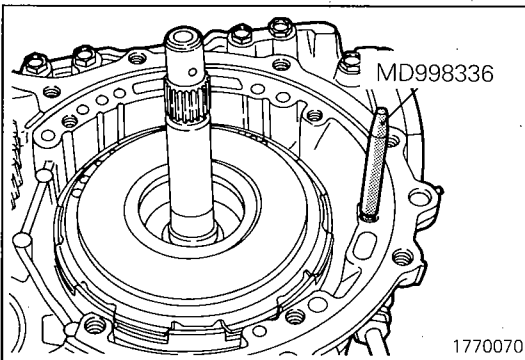
50. Install the differential assembly.

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

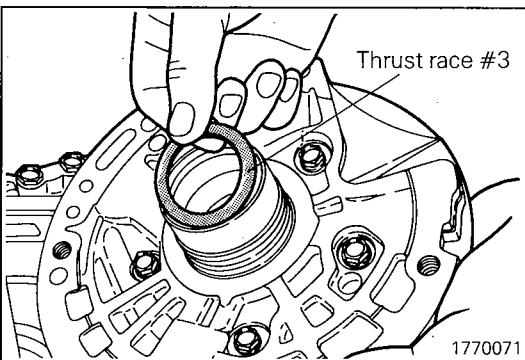
Standard value: 0.3 – 1.0 mm (.012 – .040 in.)



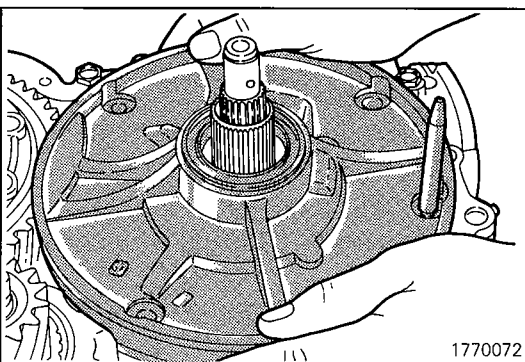
52. Attach the reused thrust washer #1, or the one selected in step 51 to the front clutch by using petrolatum.



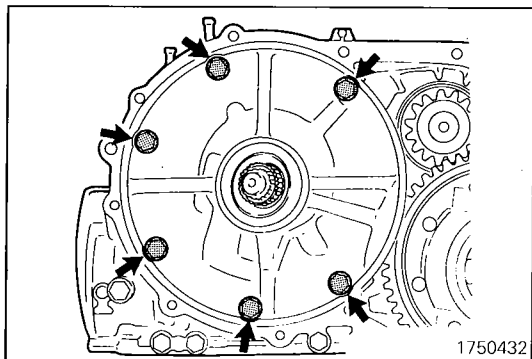
53. Install special tool to the case.



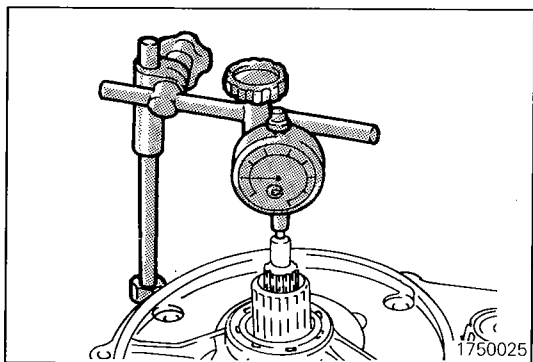
54. Attach the reused thrust race #3 or the one selected in step 51 to the oil pump by using petrolatum.



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

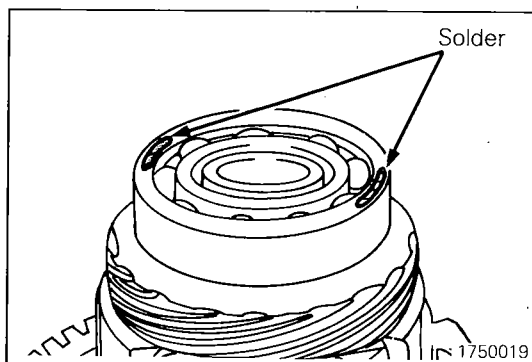


56. Install new O-ring in groove of oil pump housing and apply automatic transaxle fluid lightly to outside surface of O-ring.
57. Install oil pump assembly by tightening six bolts evenly. When installing this oil pump assembly, be careful that thrust washer will not drop.

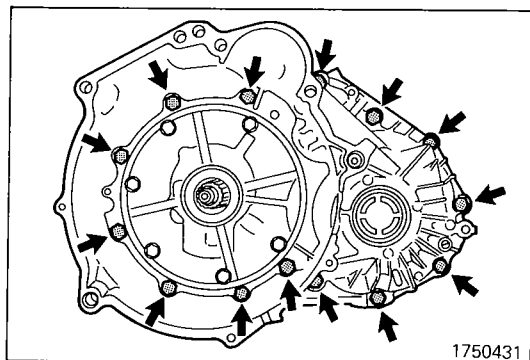


58. Check input shaft end play. Readjust if necessary (see step 51).

Standard value: 0.3 – 1.0 mm (.012 – .040 in.)



59. Place a 10 mm (.4 in.)-long, 3 mm (.12 in.)-dia. piece of solder at the two locations in the differential assembly as shown.



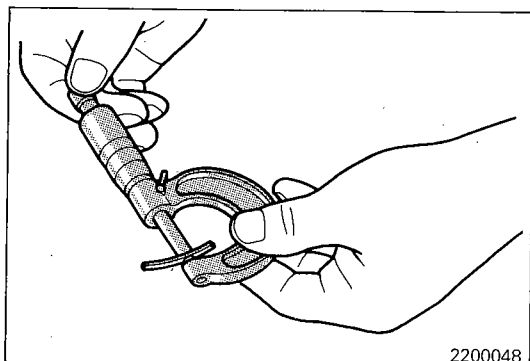
60. Install the converter housing without installing the case gasket and tighten the 14 bolts to a 19 – 23 Nm (14 – 16 ft.lbs.) torque.

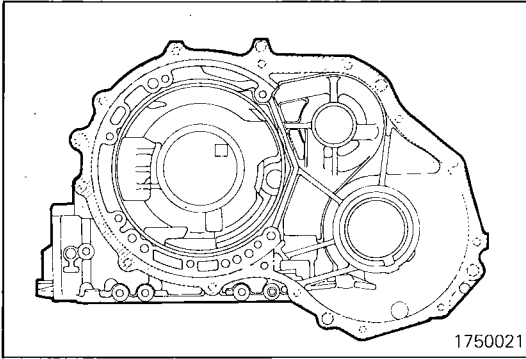
61. Remove the converter housing.
62. Remove the crushed solder from outer race of differential bearing.
63. Measure the thickness of the flattened solder pieces with a micrometer. Determine the thickness of the spacer to be installed according to the following formula, and install the selected spacer on the housing.

Thickness of spacer at differential section = Thickness of solder + Gasket thickness 0.38 mm (.0149 in.) – End play at differential section

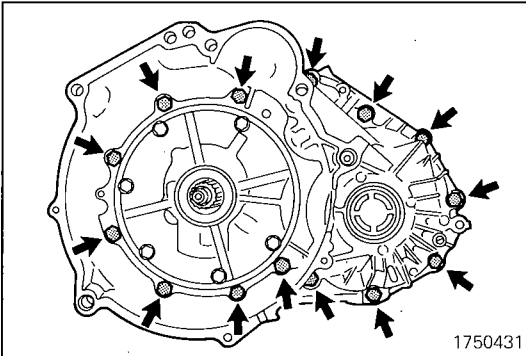
Standard end play at differential section:

0 – 0.15 mm (0 – .0059 in.)

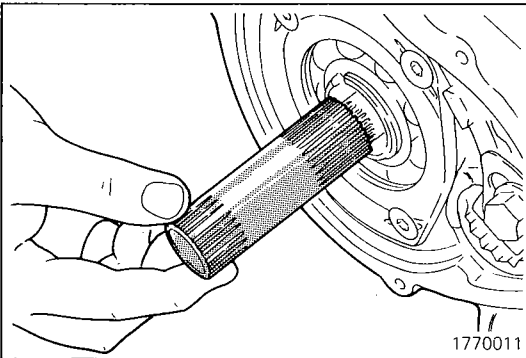




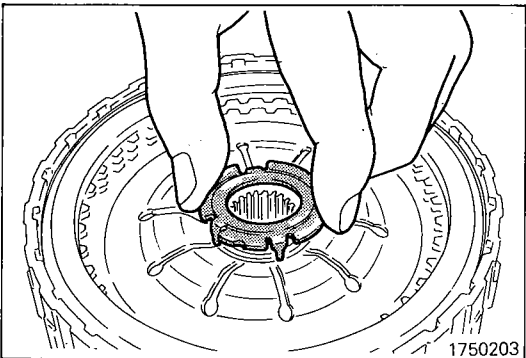
64. Apply silicone grease to hatched area of transaxle case.
65. Install new case gasket on transaxle case.



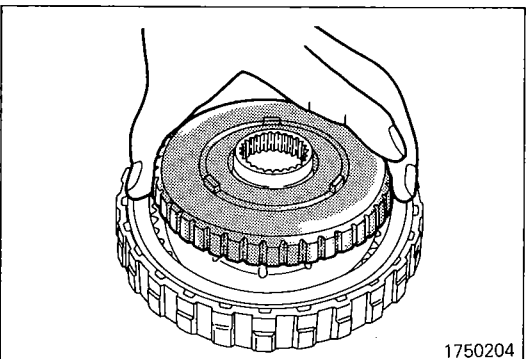
66. Install converter housing and tighten 14 bolts to 19 – 23 Nm (14 – 16 ft.lbs.).



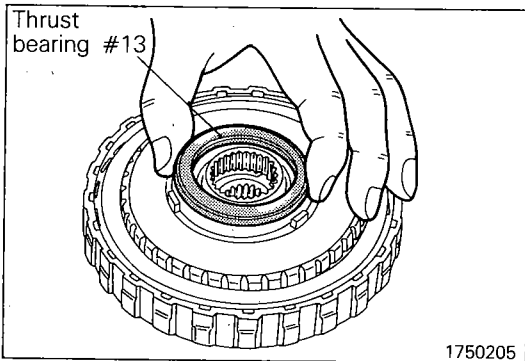
67. Install end clutch shaft. Be sure to install the longest spline toward the front as shown.



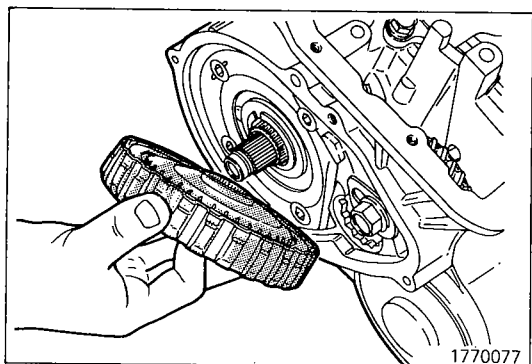
68. Fit the thrust washer to the return spring at the end clutch side.



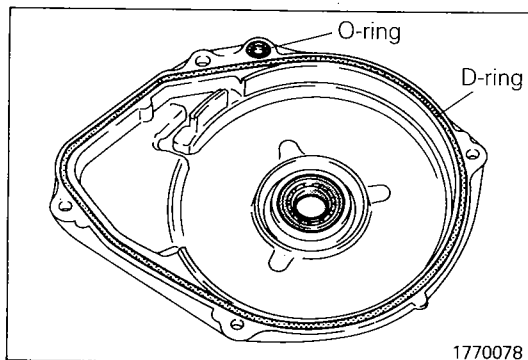
69. Install the end clutch hub to end clutch.



70. Using petrolatum, stick thrust bearing #13 on the end clutch.



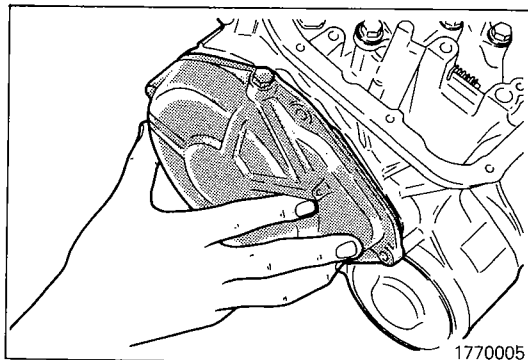
71. Install end clutch assembly.



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

Caution

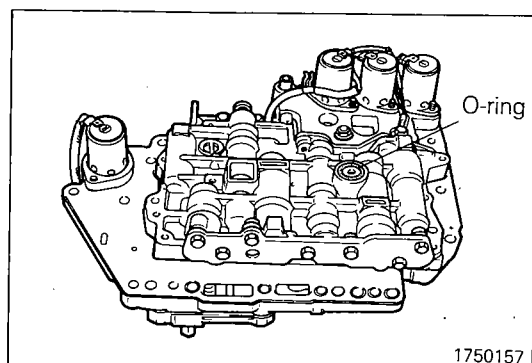
1. Install so that the D-ring is not twisted.
2. Apply a sufficient amount of automatic transaxle fluid to the bearing.



73. Attach the end cover and fasten it with four bolts.

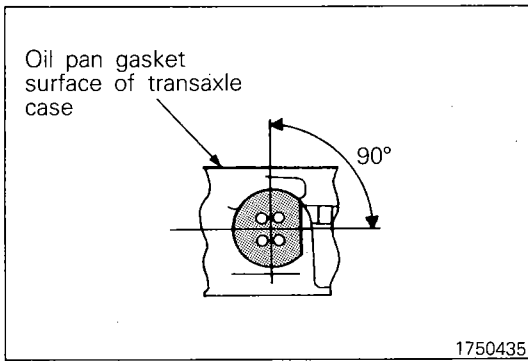
Caution

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 a result.

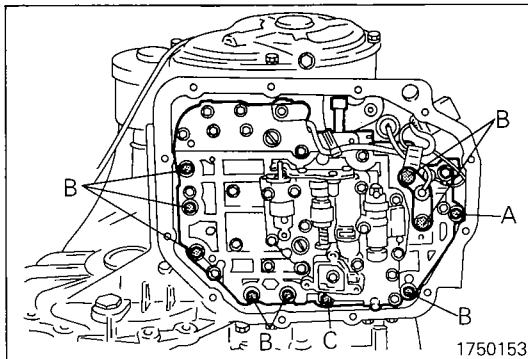


74. Install O-ring at center of top of valve body assembly (brake oil pressure passage).

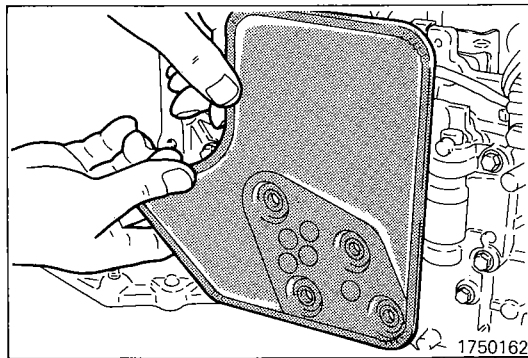
75. Install valve body assembly to case, fitting detent plate (manual control shaft) pin in slot of manual valve.



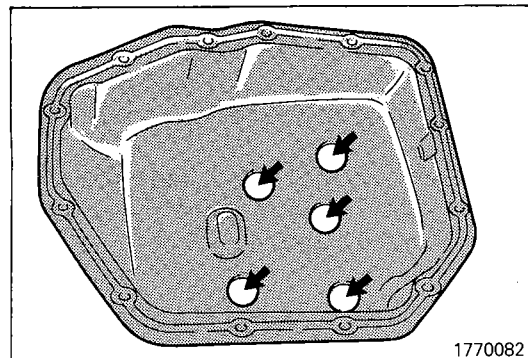
76. Replace the O-ring of the solenoid valve connector with a new one.
77. Insert the solenoid valve connector into the case. Be sure that the notched part of the connector faces as shown in the illustration.



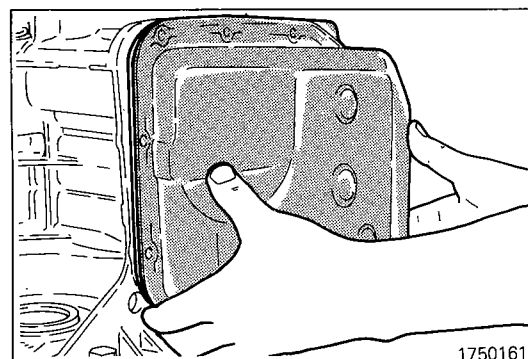
78. Tighten valve body assembly mounting bolts (10 pieces) to 10 – 12 Nm (7.5 – 8.5 ft.lbs.).



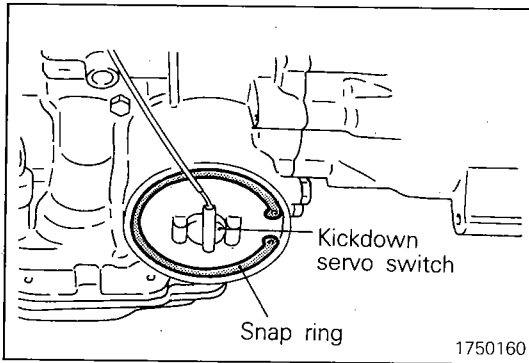
79. Install oil filter. Tighten four oil filter mounting bolts to 5 – 7 Nm (4 – 5 ft.lbs.).



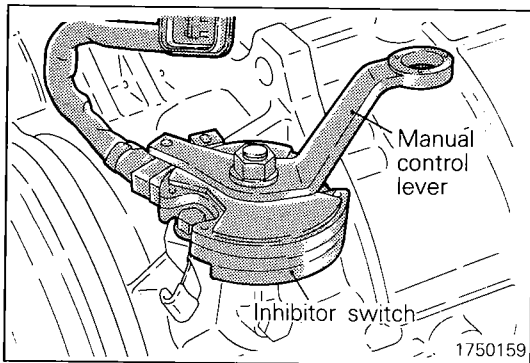
80. Install five magnets in the five depressions provided on the oil pan.



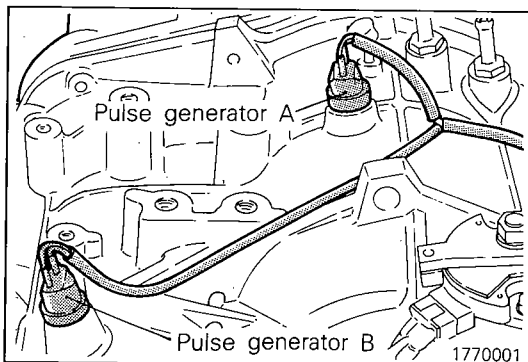
81. Install new oil pan gasket and oil pan by tightening 12 bolts to 10 – 11.5 Nm (7.5 – 8.5 ft.lbs.).



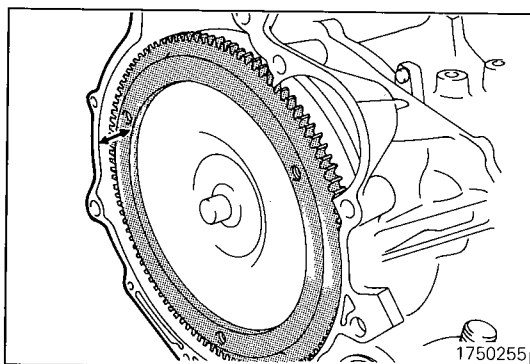
82. Install a new D-ring on the kickdown servo switch. Push the switch into the case and secure it with a snap ring.



83. Install inhibitor switch and manual lever.
Adjust inhibitor switch. (Refer to P.21-158.)

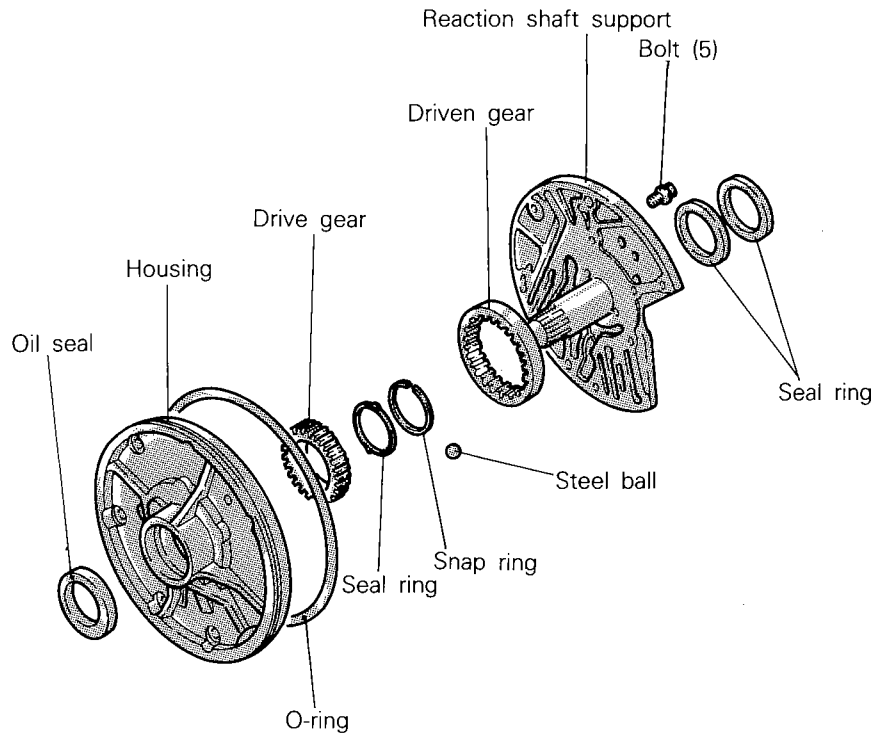


84. Install the pulse generator A and B.

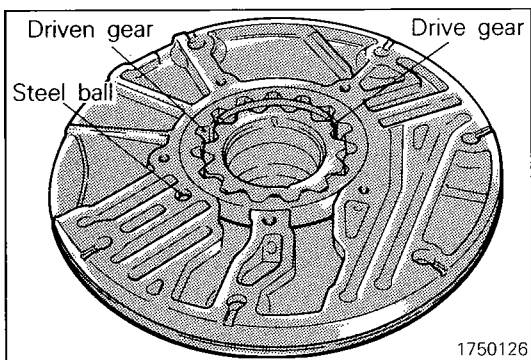


85. After applying automatic transaxle fluid to outside surface of oil pump side cylindrical portion of torque converter, install torque converter carefully so as not to damage oil seal lip. Make certain that torque converter is in mesh with oil pump drive gear.
Measure distance between ring gear end and converter housing end. Torque converter has been properly installed when measurement is about 12 mm (.47 in.).

OIL PUMP COMPONENTS

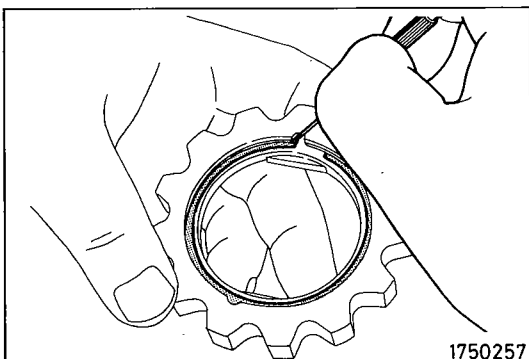


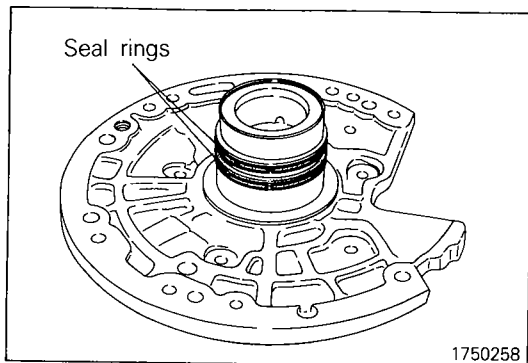
1750261



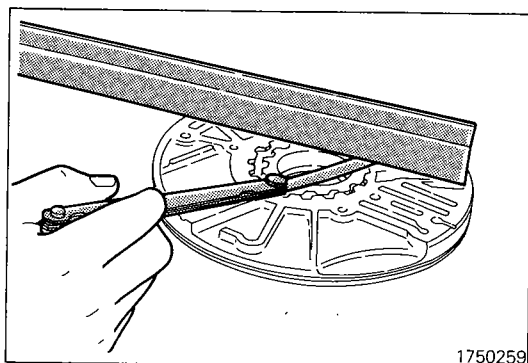
DISASSEMBLY

1. Remove O-ring from oil pump housing.
2. Remove five bolts and remove reaction shaft support from housing.
3. Remove oil pump drive and driven gears from pump housing.
4. Make reassembly alignment marks on drive and driven gears.
5. Remove steel ball from housing.
6. Remove the snap ring and oil seal from the oil pump drive gear.





7. Remove two seal rings from reaction shaft support.

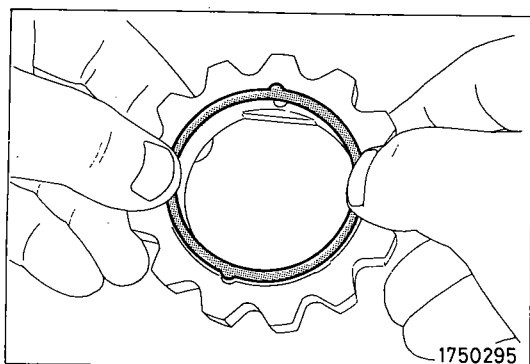


INSPECTION

1. Measure the side clearance of oil pump gear. If the clearance exceeds the specification or if there is evidence that the oil pump housing has interfered with the oil pump gear, replace the whole oil pump assembly.

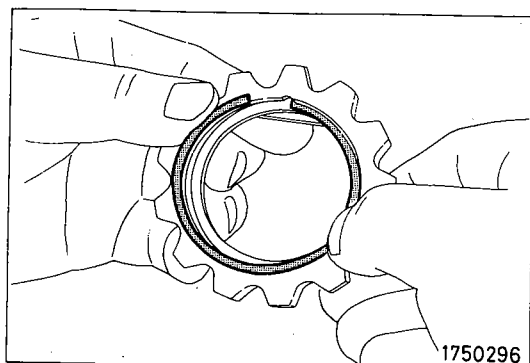
Standard value: 0.03 – 0.05 mm (.0012 – .0020 in.)

2. Check the reaction shaft support surface in contact with the oil pump gear for evidence of interference and replace the whole oil pump assembly if necessary.

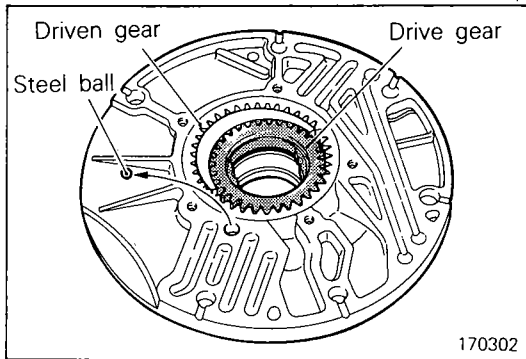


REASSEMBLY

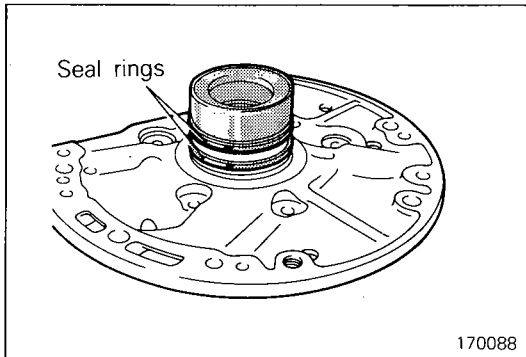
1. Fit the oil seal on the oil pump drive gear.



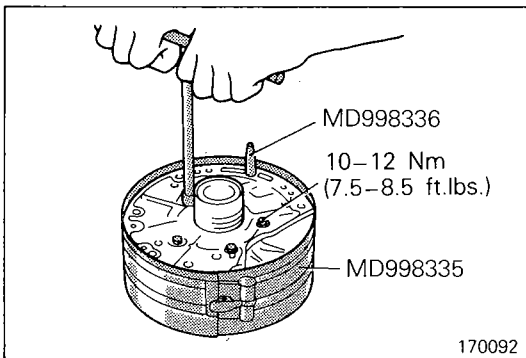
2. Fit the snap ring in position.



3. After immersing drive and driven gears in automatic transaxle fluid, install them to pump housing. When reusing gears, install with mating marks properly aligned.
4. Fit a new O-ring into the groove at the inner circumference of the drive gear.
5. Install steel ball in hole as shown in the illustration.

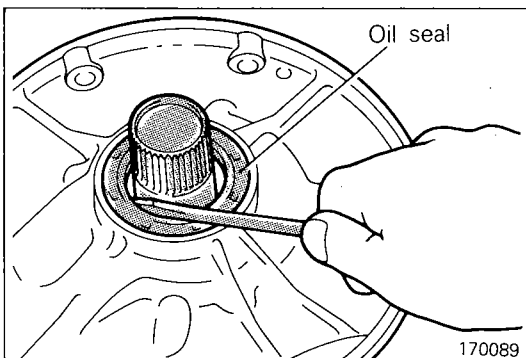


6. Install two seal rings coated with automatic transaxle fluid to reaction shaft support.

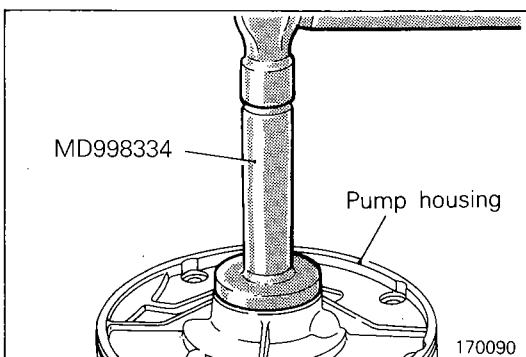


7. Make sure that oil pump gear turns freely.
8. Install new O-ring in groove provided in circumference of pump housing and apply petrolatum or industrial vaseline to circumference of O-ring.
9. Loosely install reaction shaft support on pump housing. Tighten five bolts finger-tight.
10. With reaction shaft support properly positioned on pump housing using special tools tighten five bolts to 10 – 12 Nm (7.5 – 8.5 ft.lbs.).

OIL SEAL REPLACEMENT



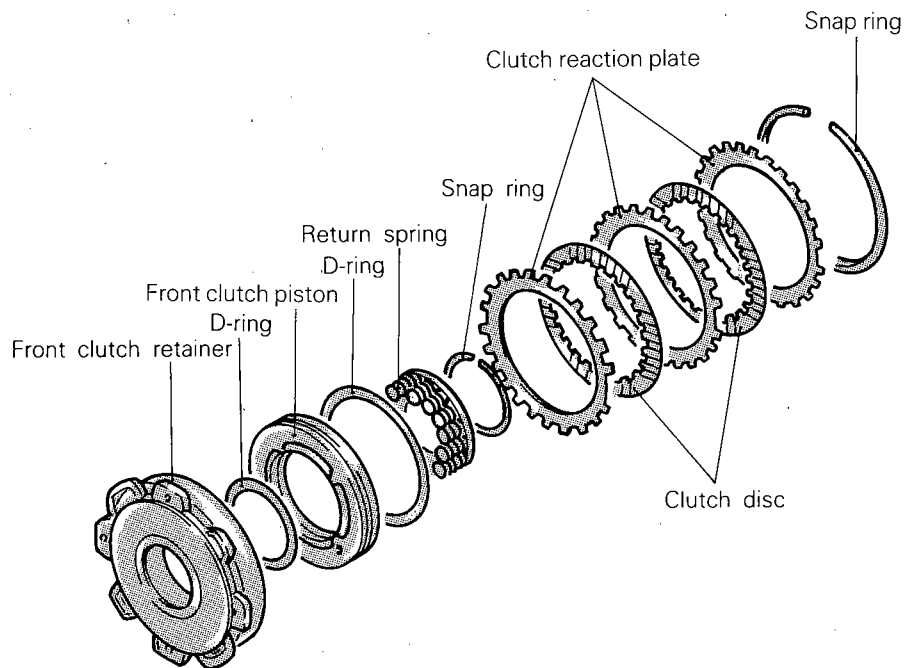
1. Pry off pump housing oil seal using a screwdriver.



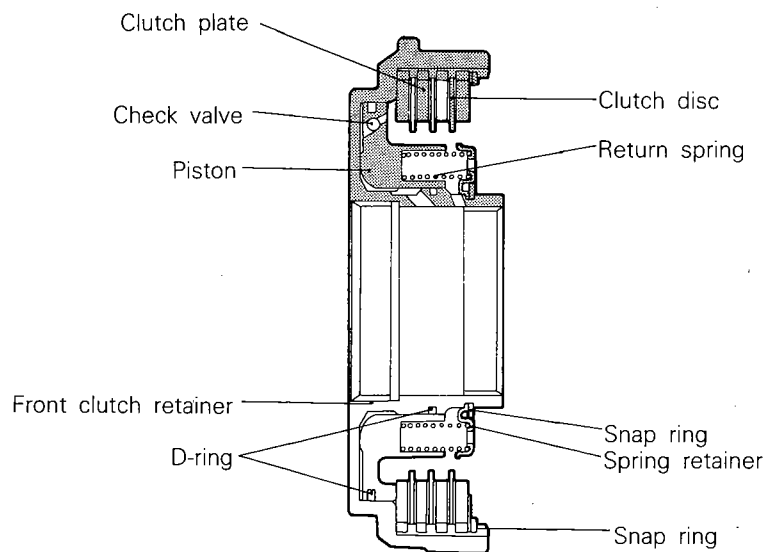
2. Using the special tool, install oil seal to pump housing. Apply thin coat of automatic transaxle fluid to oil seal lip before installation.

FRONT CLUTCH ASSEMBLY COMPONENTS

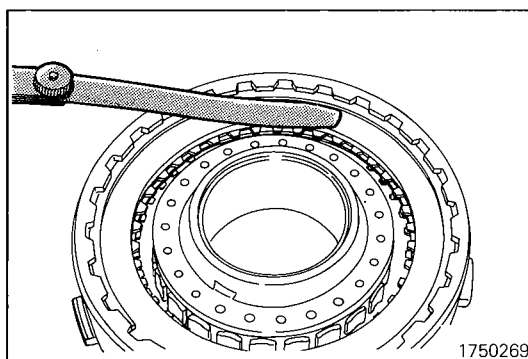
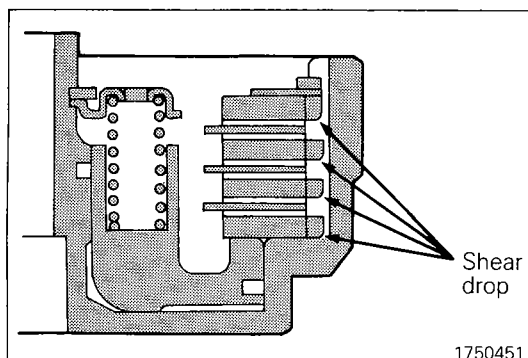
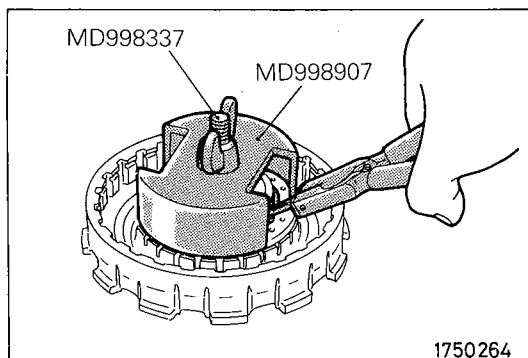
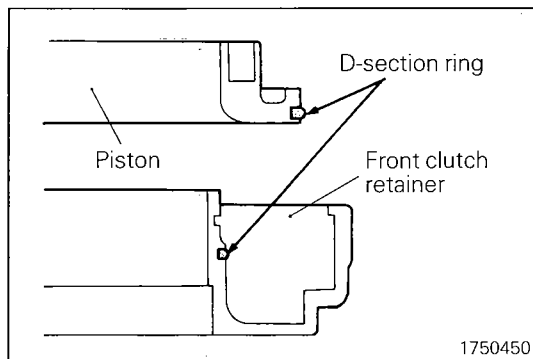
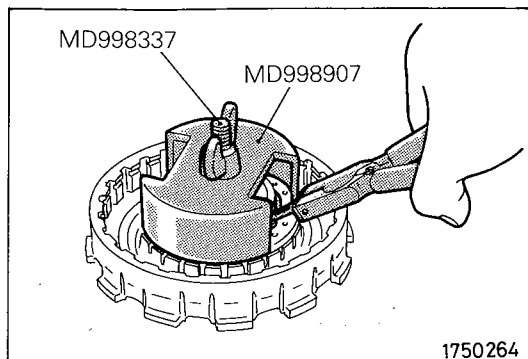
N21LHAD



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DISASSEMBLY

1. Remove snap ring from clutch retainer.
2. Take out four clutch reaction plates and three clutch discs. If the clutch reaction plates and the clutch discs are to be reused, be sure not to change the installation order or direction.
3. With return spring compressed with the special tool, Spring Compressor, remove snap ring, then spring retainer and return spring.
4. Remove piston from retainer.
5. Remove the D-section rings from the inner and outer circumferences of the piston.

REASSEMBLY

1. Install D-section ring in groove in outside surface of piston with its round side out. Install another D-section ring to front clutch retainer.
2. Apply automatic transaxle fluid to outside surface of D-section rings, then push piston into front clutch retainer by hand.

3. Install return spring and spring retainer.
4. Compress return spring with special tool and install snap ring.

5. Install four clutch reaction plates and three clutch discs. Prior to installation, apply automatic transaxle fluid to them.

Caution

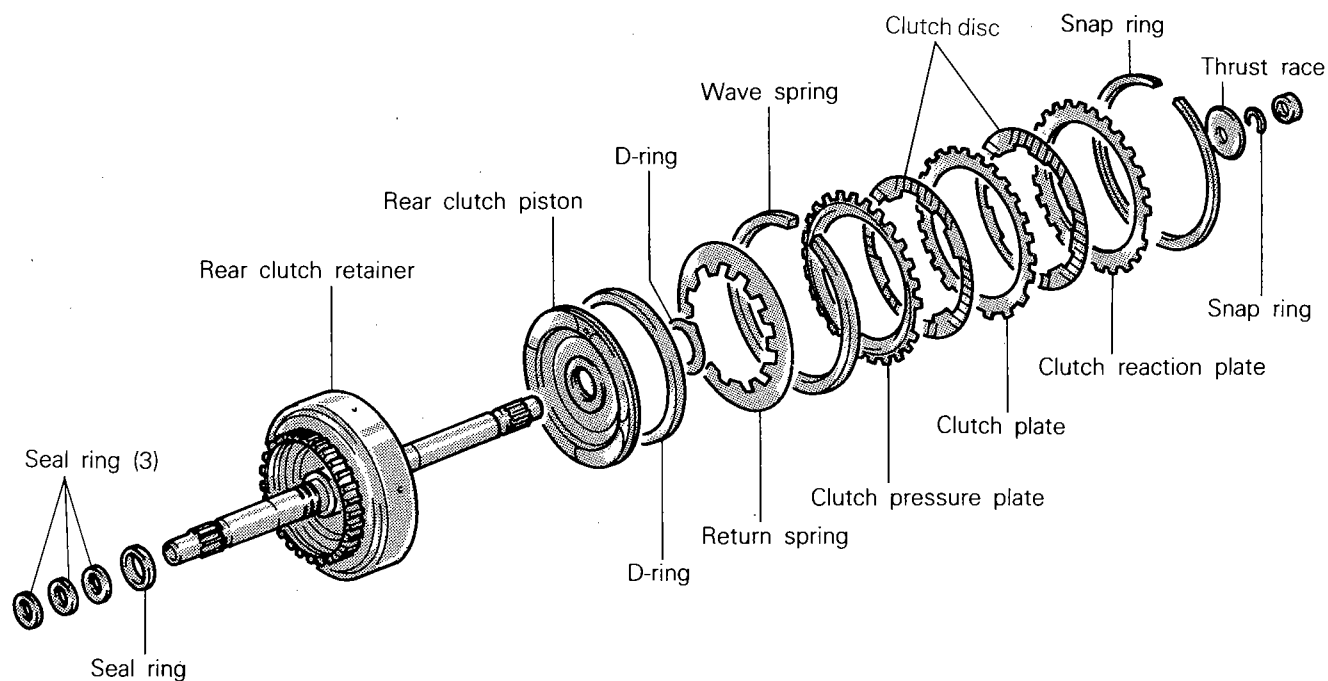
When new clutch discs are used, they should be immersed in automatic transaxle fluid for more than two hours before installation.

6. After installing snap ring, check to see if there is a 0.7 – 0.9 mm (.028 – .035 in.) clearance between snap ring and clutch reaction plate. To check clearance, hold entire circumference of clutch reaction plate down with 50 N (11 lbs.) force. If clearance is out of specification, adjust clearance by selecting proper snap ring.

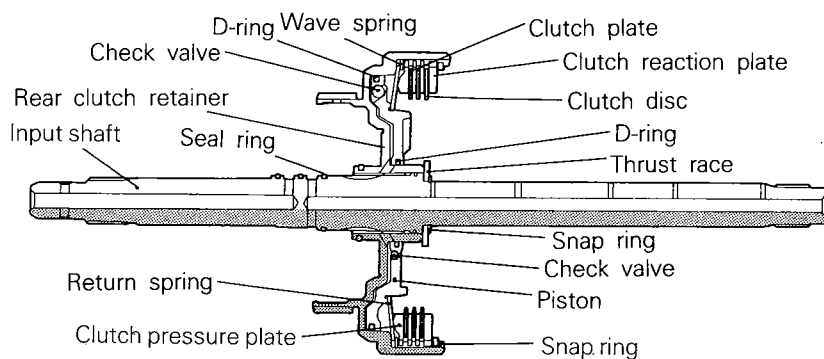
REAR CLUTCH ASSEMBLY

N21LHBD

COMPONENTS



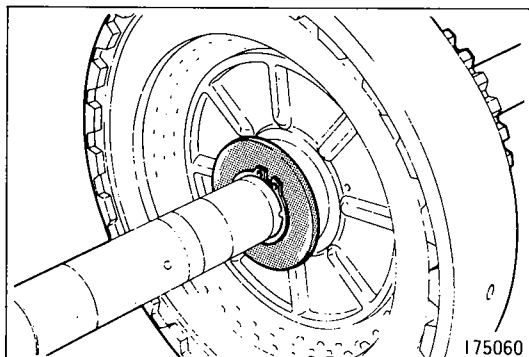
1750270

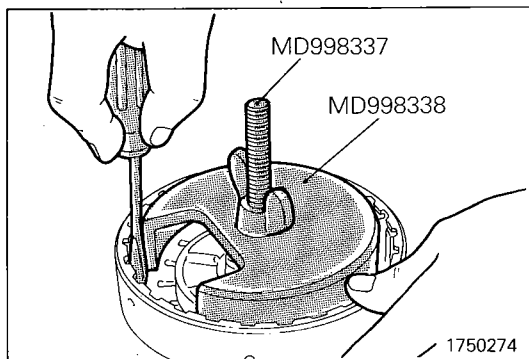


1750215

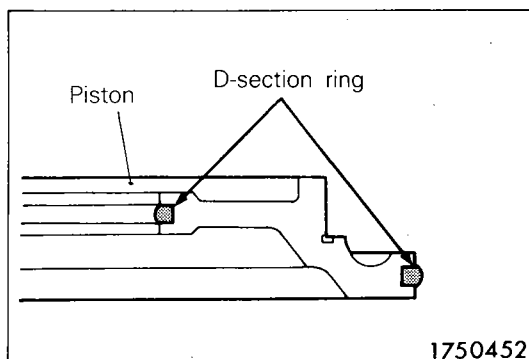
DISASSEMBLY

1. Remove snap ring and then remove thrust race.
2. Remove the input shaft from the rear clutch retainer.
3. Remove snap ring from clutch retainer.
4. Remove the clutch reaction plate, two clutch plates, three clutch discs and clutch pressure plate from retainer.



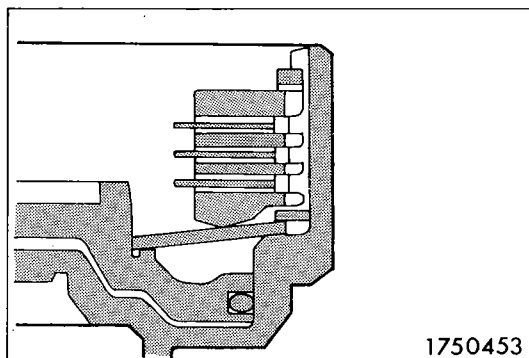


5. Compress the return spring by using the spring compressor.
6. Using a screwdriver, remove wave spring.
7. Remove return spring and piston.
8. Remove the two D-section rings from the piston.



REASSEMBLY

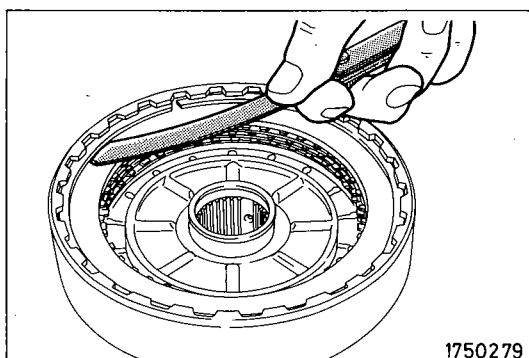
1. Install D-section rings in grooves in outside and inside surfaces of piston.
2. After applying automatic transaxle fluid to outside surface of D-section rings, push piston into rear clutch retainer by hand.
3. Install return spring on piston.
4. Compress return spring with snap ring, by pushing down with a screwdriver and setting snap ring in its groove.



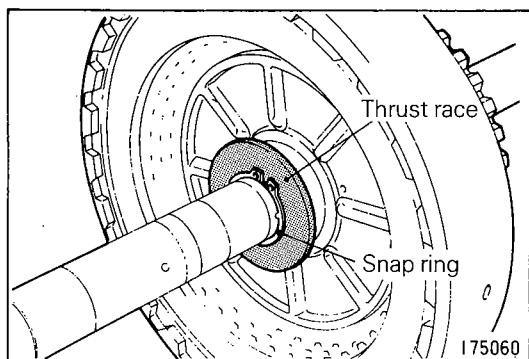
5. Install clutch pressure plate, three clutch discs, two clutch plates and clutch reaction plate to rear clutch retainer. When reaction plate, clutch plate and clutch disc are removed, reinstall them by reversing order of disassembly. Prior to installing, apply automatic transaxle fluid to plates and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

Caution

When new clutch discs are used, immerse them in automatic transaxle fluid for more than two hours before installation.



6. Install snap ring. Check to see that clearance between snap ring and clutch reaction plate is 0.4 – 0.6 mm (.016 – .024 in.). To check clearance, hold entire circumference of clutch reaction plate down with 50 N (11 lbs.) force. If clearance is out of specification, adjust clearance by selecting a proper snap ring. Snap rings are common to those for front clutch.
7. Insert the input shaft into the clutch retainer.

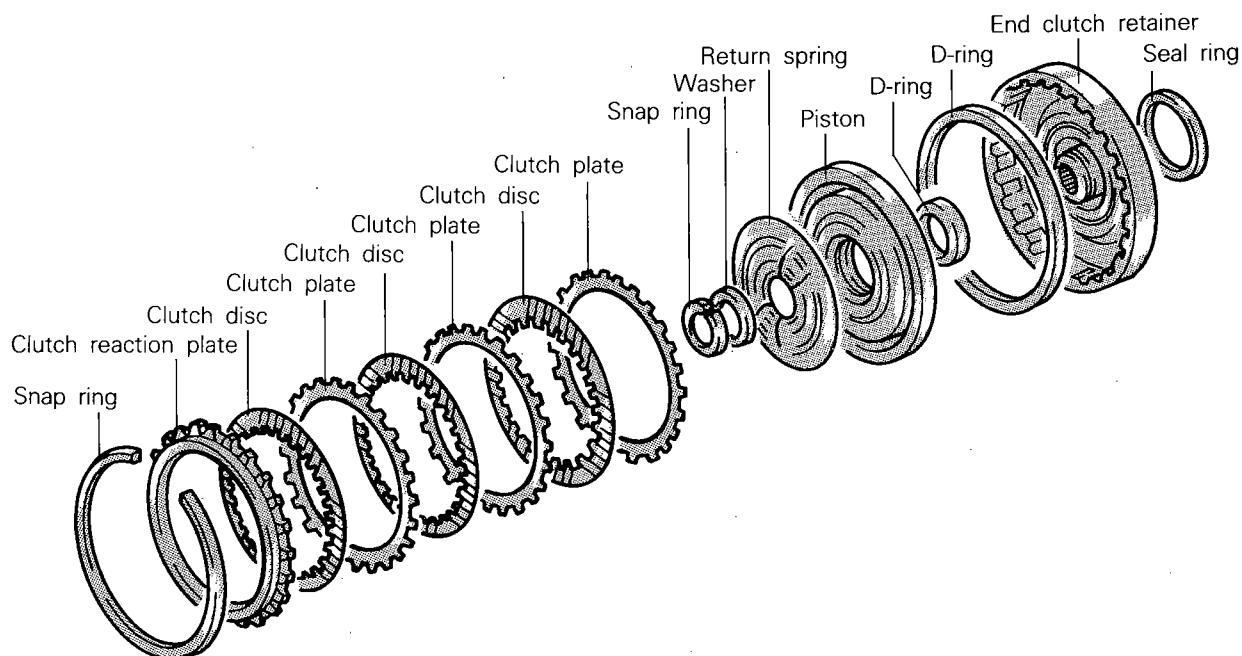


8. Install thrust race, then snap ring.
9. Install the three seal rings to the grooves in the input shaft.

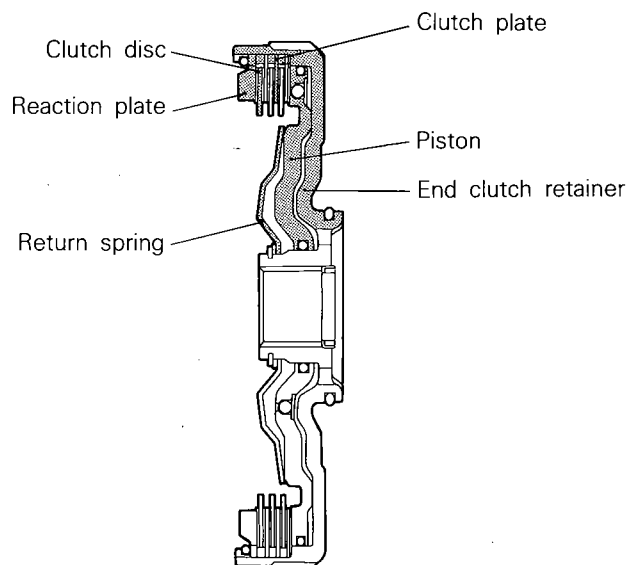
END CLUTCH ASSEMBLY <KM176>

N21LHFAa

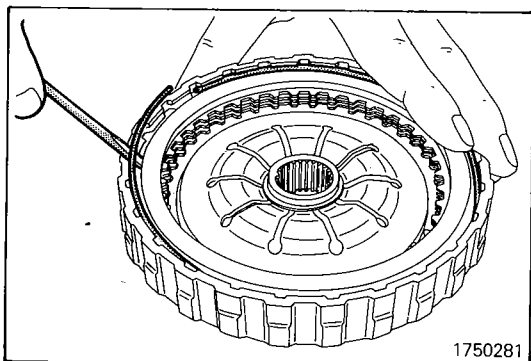
COMPONENTS



1750280



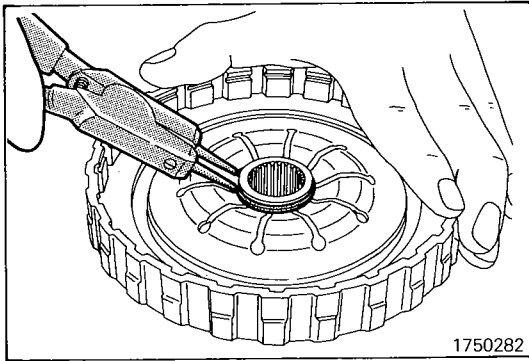
1750454



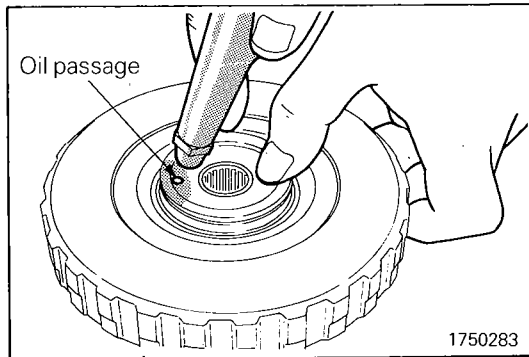
1750281

DISASSEMBLY

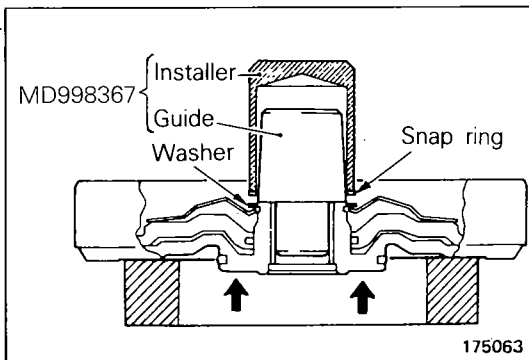
1. Remove the snap ring by using snap ring pliers, and then remove the washer and return spring.



2. Remove the snap ring, and then remove the clutch reaction plate, the clutch disc, and the clutch plate. If the disc and plate are reused, be sure not to change the installation order and direction when they are disassembled.

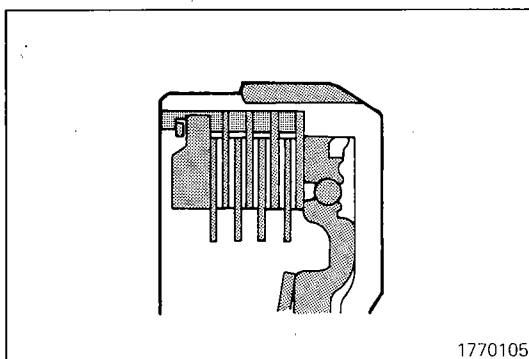


3. Remove the piston. If it is difficult to remove, face the piston side downward, and, with the retainer on a base, blow air in through the oil passage on the rear surface.
4. Remove the seal ring from the retainer.
5. Remove the two D-section rings and oil seal from the piston.



REASSEMBLY

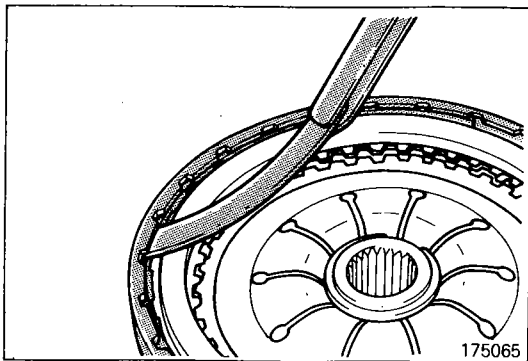
1. Install the D-section rings and oil seal in the piston inner and outer grooves.
2. After applying a coating of automatic transaxle fluid to the D-section rings outer circumference, manually press the piston into the end clutch retainer.
3. Install the return spring and washer.
4. After fitting a new snap ring into the guide of the special tool, Snap Ring Installer, install the retainer. Fit 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.



5. 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 they were disassembled. Apply a coating of automatic transaxle fluid.

Caution

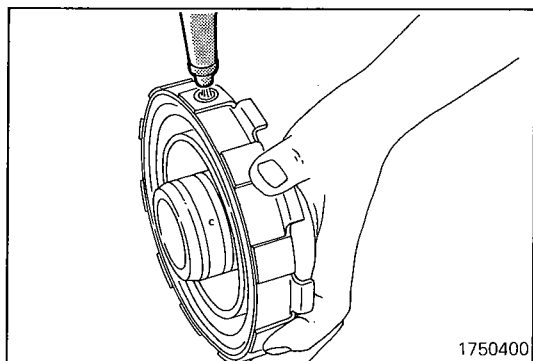
When a new clutch disc is used, soak it in automatic transaxle fluid for 2 hours before using it.



6. Install snap ring. Check to see that clearance between snap ring and clutch reaction plate is 0.6 – 0.85 mm (.024 – .033 in.).

To check clearance, hold entire circumference of clutch reaction plate down with 50 N (11 lbs.) force.

If clearance is out of specification, adjust clearance by selecting a proper snap ring.



LOW-REVERSE BRAKE ASSEMBLY

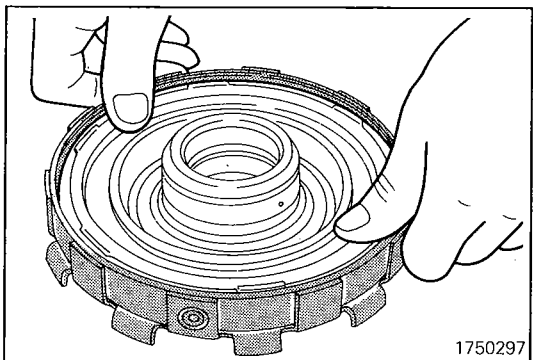
N21LJAC

DISASSEMBLY

1. Remove the piston by blowing air through the oil hole.
2. Remove the D-ring from the piston.

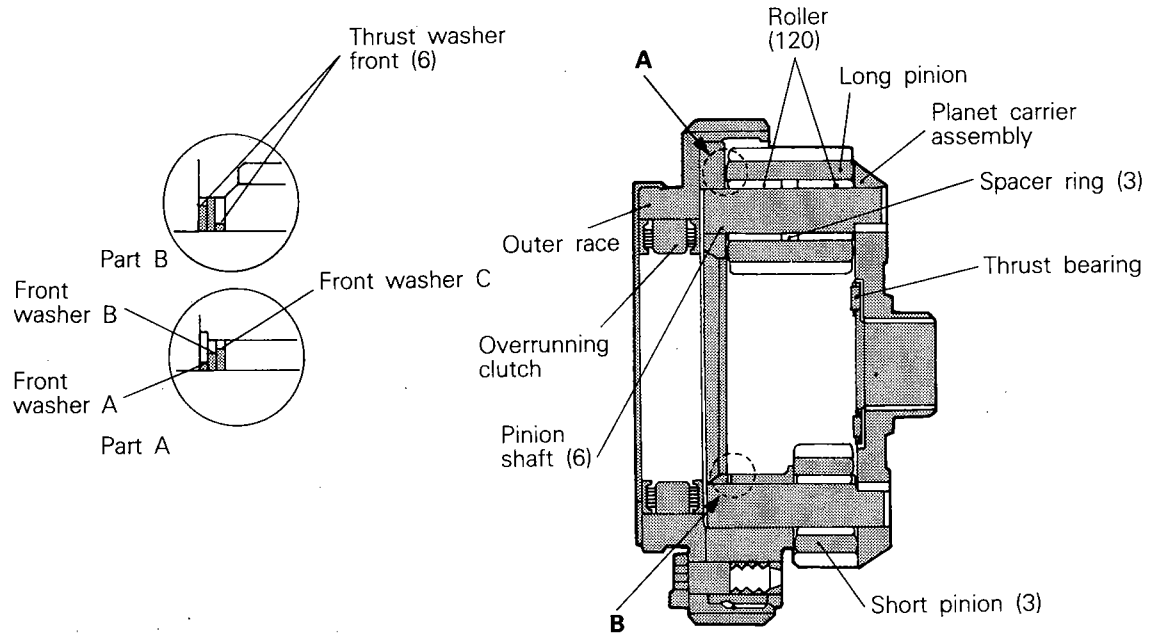
REASSEMBLY

Fit D-ring into the piston and apply automatic transaxle fluid. Then, press the piston into the center support by hand.

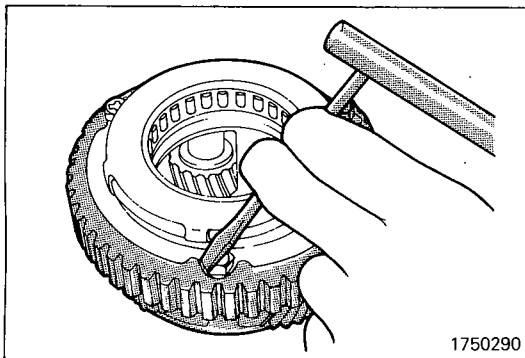


PLANETARY GEAR SET COMPONENTS

N21LKAD



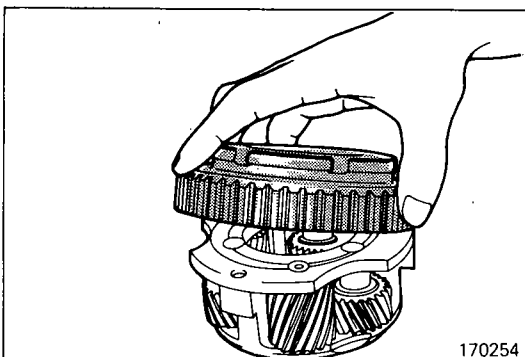
1750289



1750290

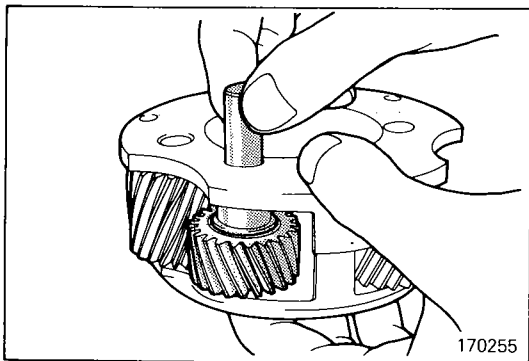
DISASSEMBLY

1. Remove three bolts.

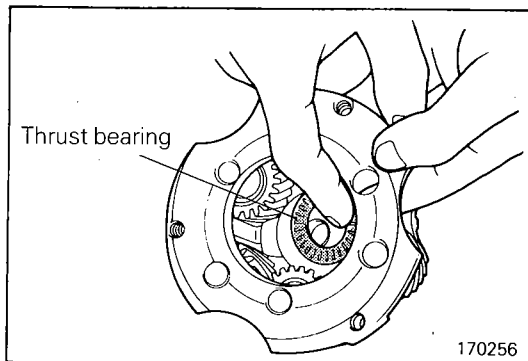


170254

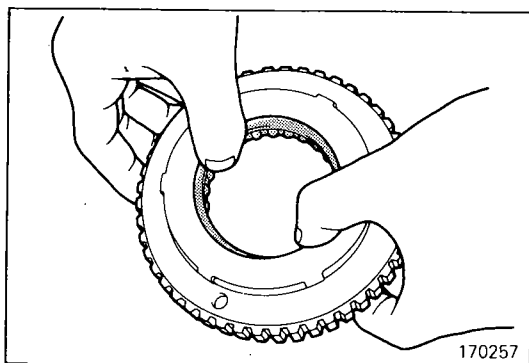
2. Remove overrunning clutch outer race assembly. Remove overrunning clutch end plate.



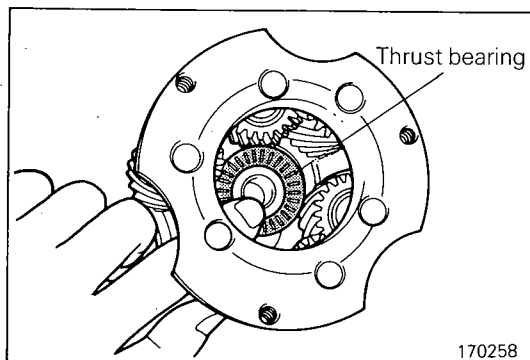
3. Remove pinion shaft (any one place of the short pinion).
4. Remove spacer bushing and two front thrust washers.
5. Remove only one short pinion. Use care not to drop and lose 17 rollers in short pinion.



6. Remove thrust bearing.

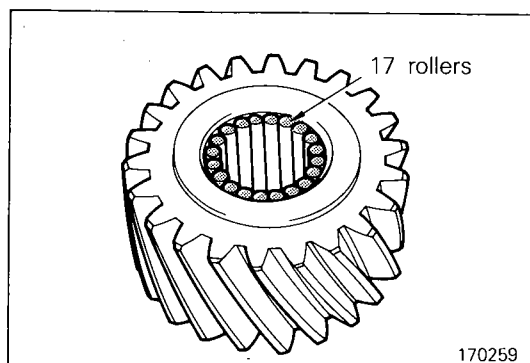


7. Push overrunning clutch out of outer race with fingers.

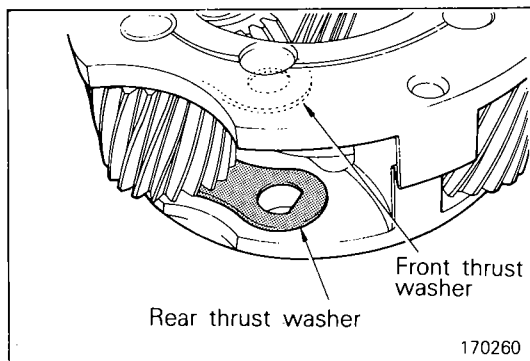


REASSEMBLY

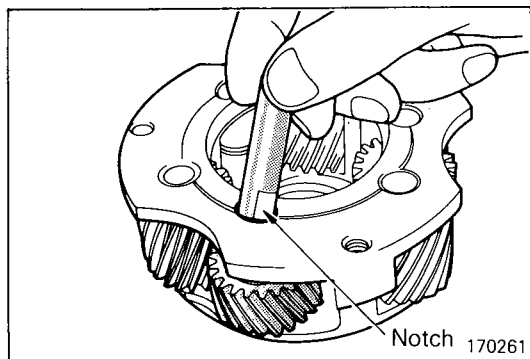
1. Install thrust bearing to carrier. Be sure that it fits correctly in carrier.



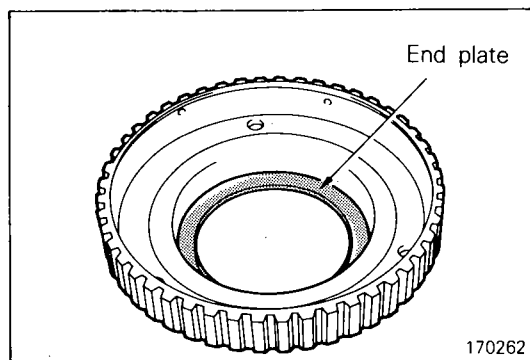
2. Apply a generous amount of vaseline to inside diameter of short pinion to hold the 17 rollers.



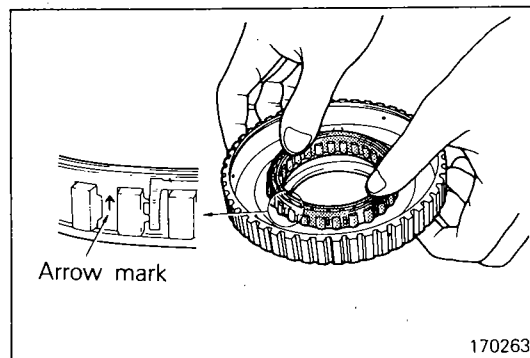
3. Line up holes in rear thrust washer and front thrust washer with shaft hole of carrier.
4. Install short pinion, spacer bushing and two front thrust washers and align holes. Use care not to allow rollers to get out of position.



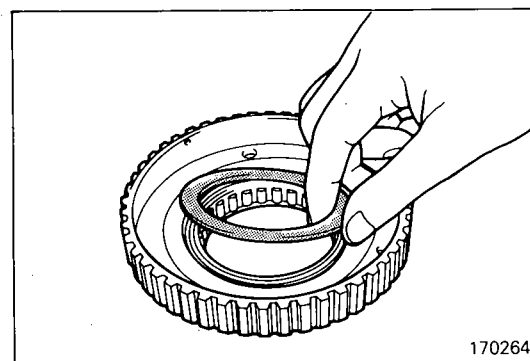
5. Insert pinion shaft. Be sure that flattened end of pinion shaft fits properly into the hole in rear thrust plate when pinion shaft is inserted.



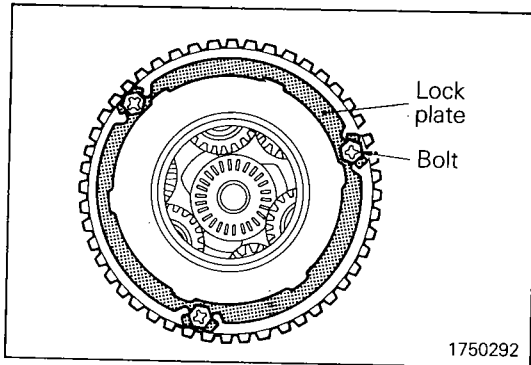
6. Install end plate to outer race.



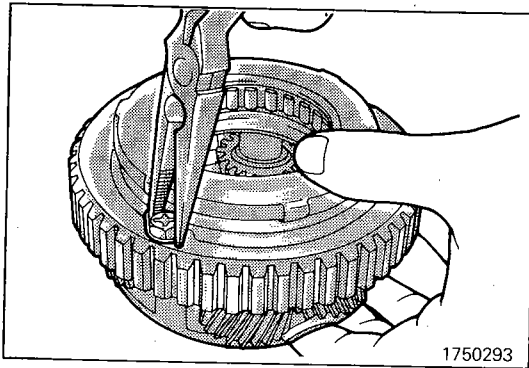
7. Push overrunning clutch into outer race. Be sure that arrow on outside circumference of cage is directed upward as shown in the illustration when overrunning clutch is installed.



8. Apply vaseline to overrunning clutch end plate to retain it to overrunning clutch. Install the end plate to the clutch.

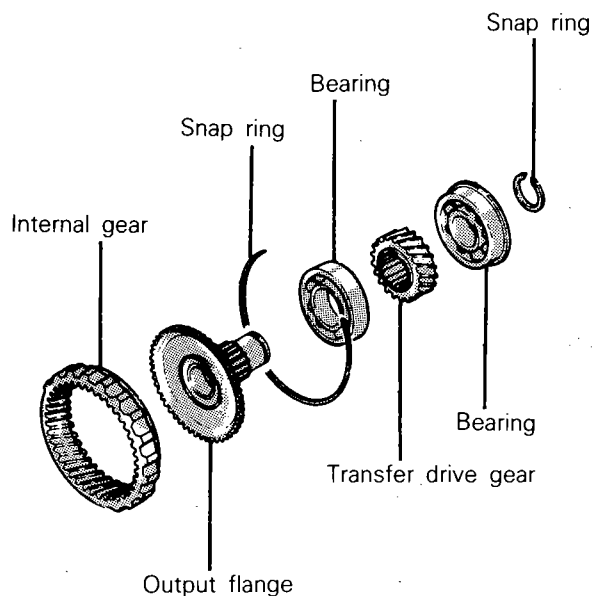


9. Install overrunning clutch assembly to carrier and align bolt holes.
10. Install three bolts and tighten three bolts to 15 – 22 Nm (18 – 25 ft.lbs.).



11. Bend the lock plate over the bolt head.

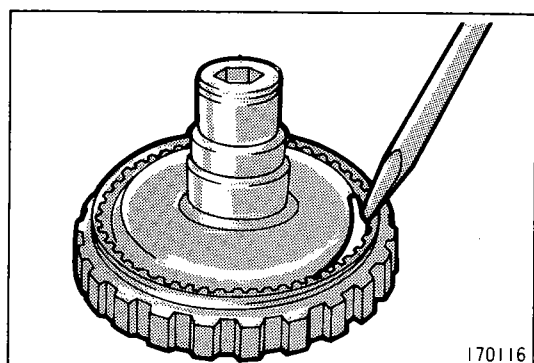
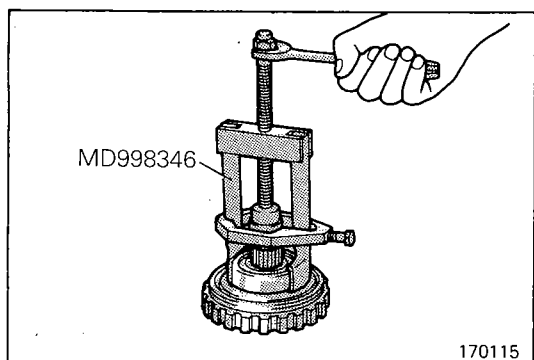
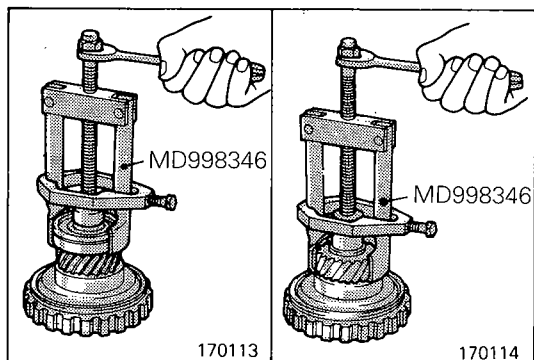
INTERNAL GEAR AND TRANSFER DRIVE GEAR SET COMPONENTS



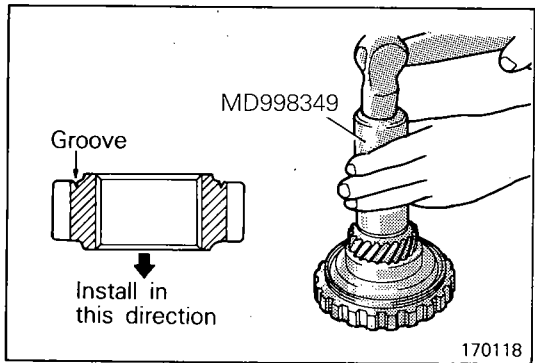
170178

DISASSEMBLY

1. Remove snap ring from rear end of output flange.
2. Using special tool, pull off ball bearings (2 pieces) and transfer drive gear from output flange.



3. Remove snap ring, and separate internal gear from output flange.

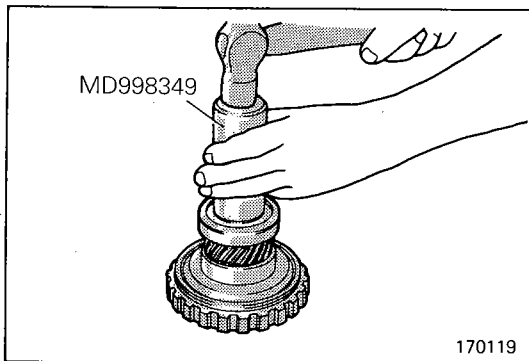
**REASSEMBLY**

1. Using special tool, press ball bearing and transfer drive gear onto output flange.

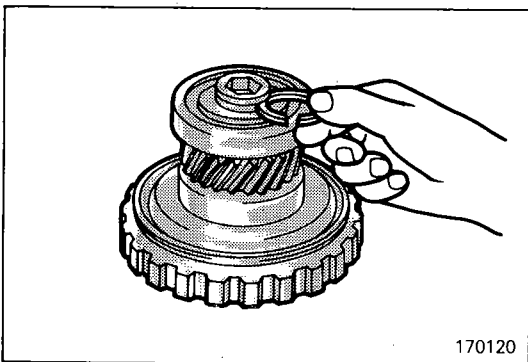
Caution

Replace output flange and transfer drive gear as a set.

2. Install transfer drive gear in proper direction with attention paid to groove provided in side surface.



3. Install the ball bearing.



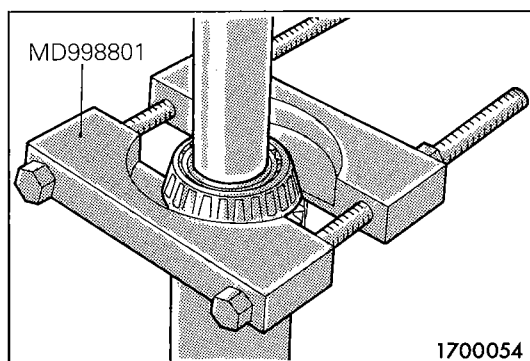
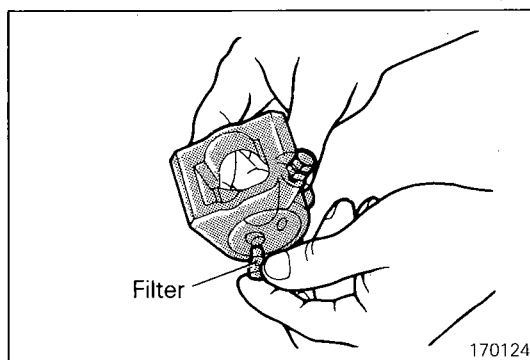
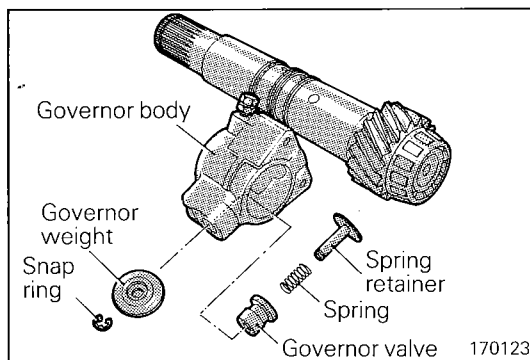
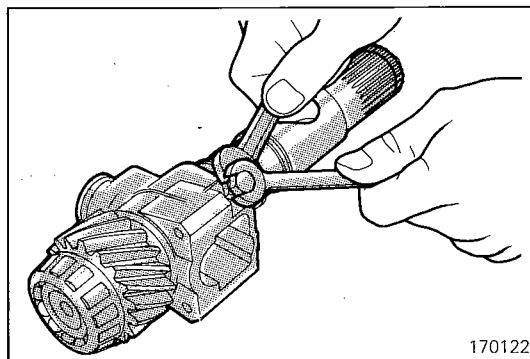
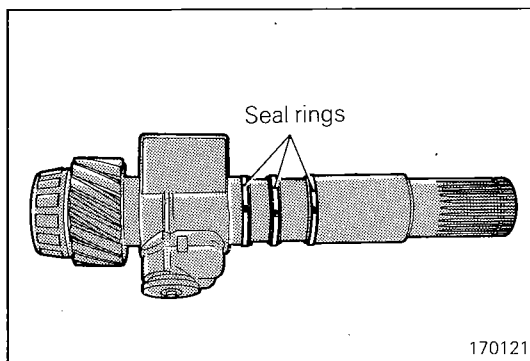
4. Select snap ring, which should be the thickest one that can be installed in groove.

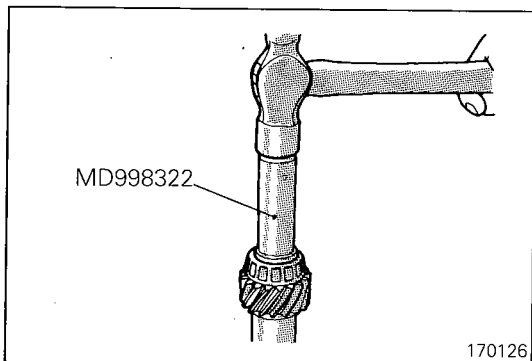
TRANSFER SHAFT AND GOVERNOR <KM171>

N21LMAB

DISASSEMBLY

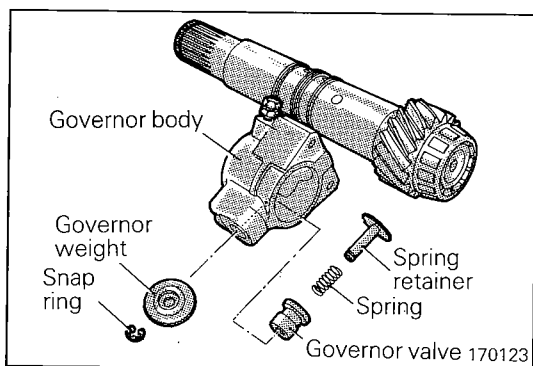
1. Remove the three seal rings.
2. Loosen the governor set screw and remove the governor assembly.
3. Snap off the snap ring and disassemble the governor by separating the governor weight, spring retainer, governor valve, and governor spring.
4. Remove the governor filter.
5. Using the special tool, remove the bearing.



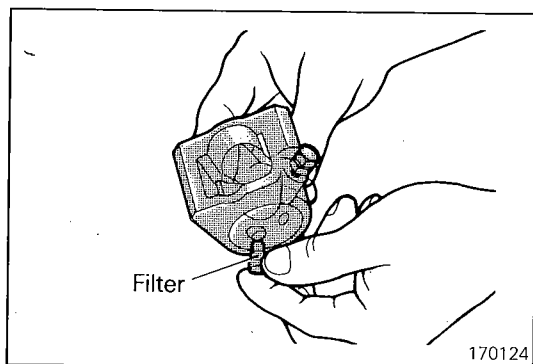


REASSEMBLY

1. Using the special tool, drive the bearing into position.



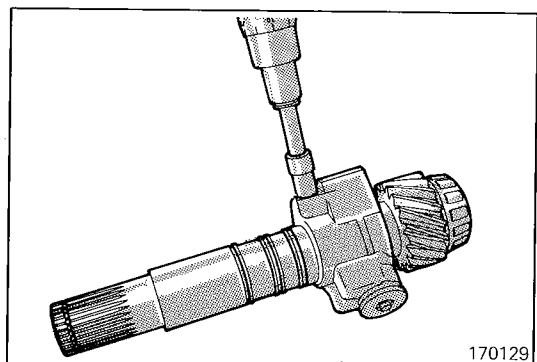
2. Install the governor valve, spring, spring retainer and governor weight into the governor body and secure them with the snap ring.



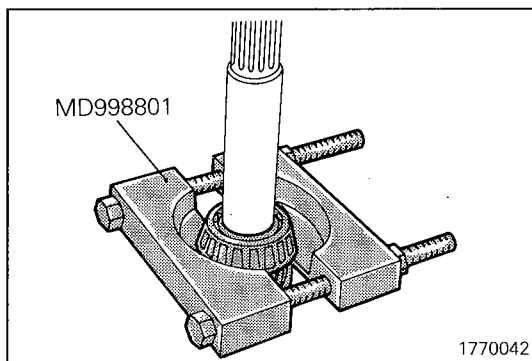
3. Install the governor filter.

Caution

If the filter is plugged with dust or dirt, replace it with a new one.

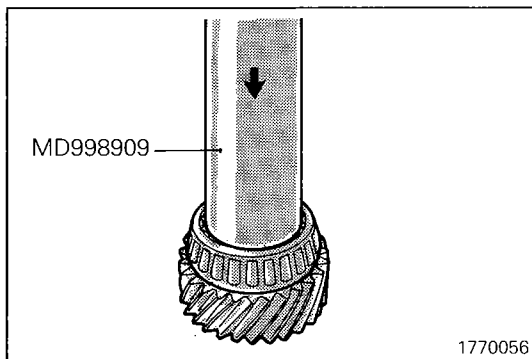


4. Mount the governor assembly onto the transfer shaft and tighten the set screw to specification.



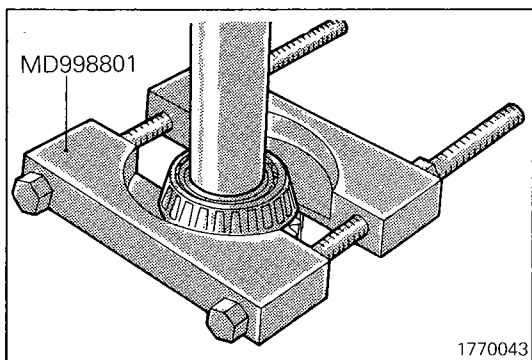
TRANSFER SHAFT BEARING <KM176> DISASSEMBLY

Using the special tool, remove the bearing.



REASSEMBLY

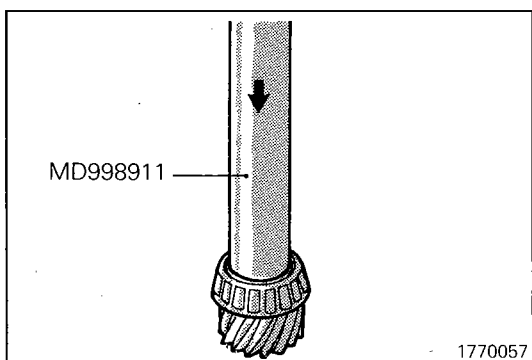
Using the special tool, press-fit the bearing into position.



TRANSFER DRIVEN GEAR BEARING <KM176> DISASSEMBLY

DISASSEMBLY

Using the special tool, remove the bearing.

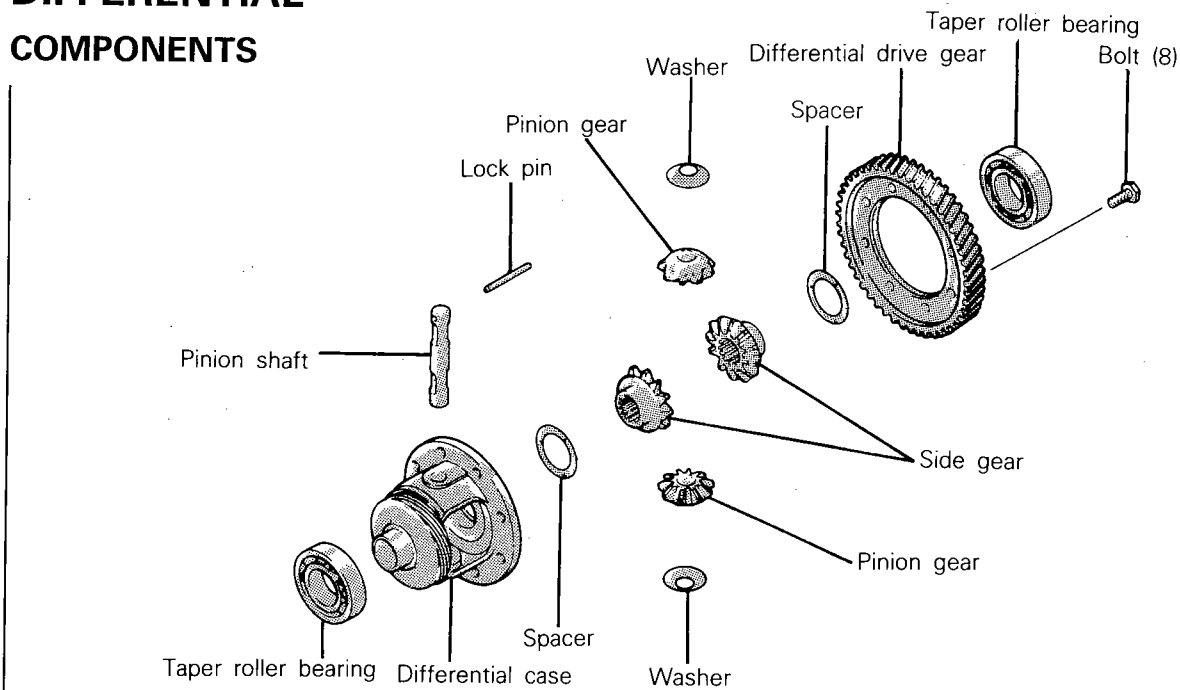


REASSEMBLY

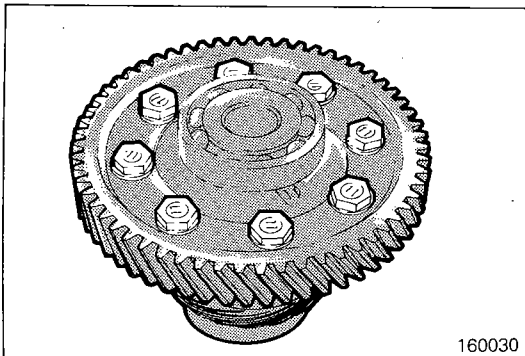
Using the special tool, press-fit the bearing into position.

DIFFERENTIAL COMPONENTS

N21LNABa

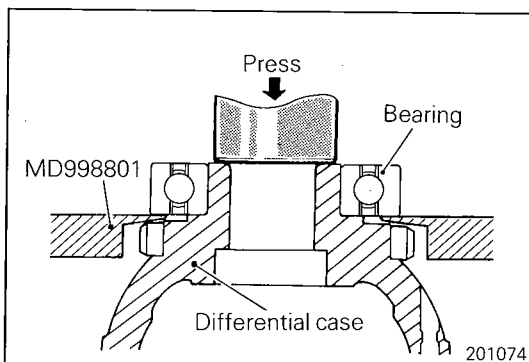


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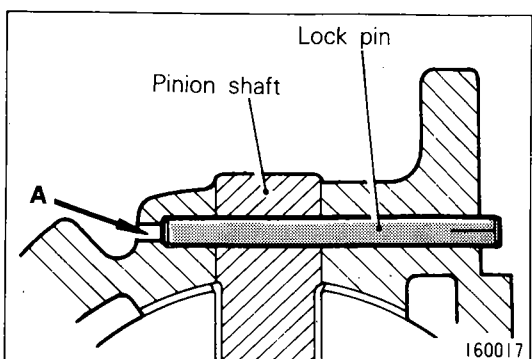


DISASSEMBLY

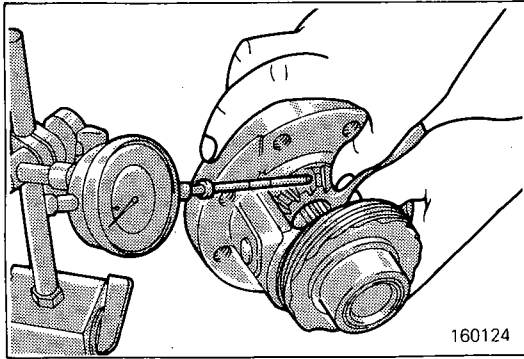
1. Remove the drive gear retaining bolts and remove the drive gear from differential case.



2. Remove the taper roller bearing inner race by using gear puller.



3. Drive out lock pin with a punch inserted in hole "A".
4. Remove the pinion shaft, the pinion gears and washers.
5. Remove the side gears and spacers. Distinguish between the removed gears and spacers for the left and right sides.

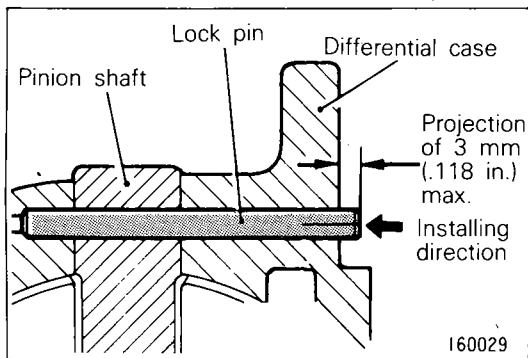


REASSEMBLY

1. With spacers installed to back of differential side gears, install gears in differential case. If reusing removed parts, install them in original positions noted during disassembly. If using new differential side gears, install spacers of medium thickness $1.0 \begin{smallmatrix} 0 \\ -0.07 \end{smallmatrix}$ mm ($.039 \begin{smallmatrix} 0 \\ -.03 \end{smallmatrix}$ in.).
2. Install washers to back of pinion gears, install gears in differential case, and then insert pinion shaft.

3. Measure backlash between side gear and pinion gear. Backlash should be 0.025 – 0.150 mm (.0010 – .0059 in.) and right and left hand gear pairs should have equal backlash. If backlash is out of standard value, disassemble and reassemble them by using spacers selected for correct backlash.

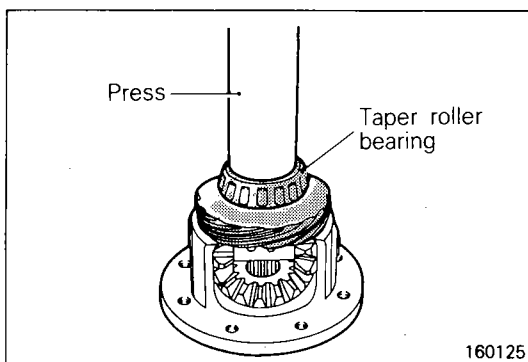
Standard value: 0.025 – 0.150 mm (.0010 – .0059 in.)



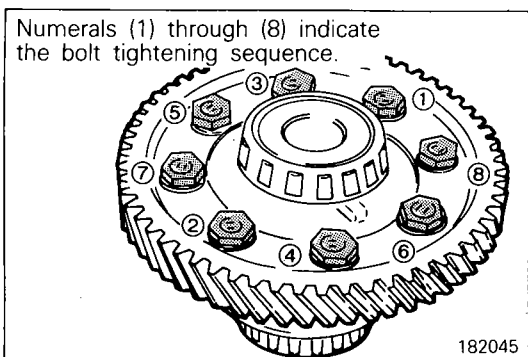
4. Install pinion shaft lock pin in direction specified in illustration. After installation, check to ensure that projection is less than 3 mm (.118 in.).

Caution

Lock pin must not be reused. Lock pin not requiring more than 2,000 N (440 lbs.) installation load must not be used.



5. Press taper roller bearing inner races onto both ends of differential case. Apply load to inner race when pressing in bearings. Do not apply load to outer race.
6. Install the differential drive gear onto the case.



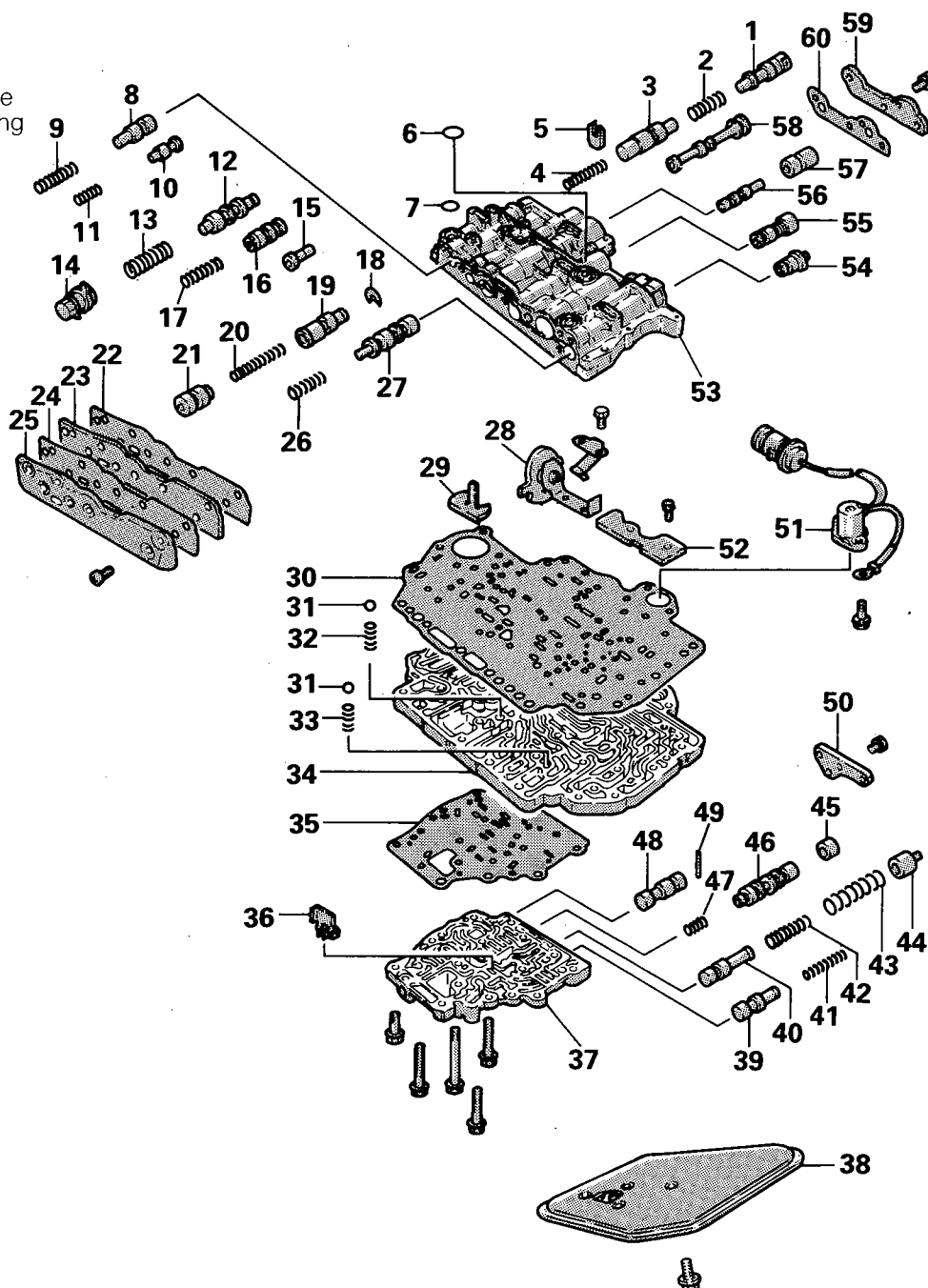
7. Apply automatic transaxle fluid to bolts and tighten bolts to specified torque in sequence shown in illustration.

Tightening torque: 130 – 140 Nm (94 – 101 ft.lbs.)

VALVE BODY <KM171>

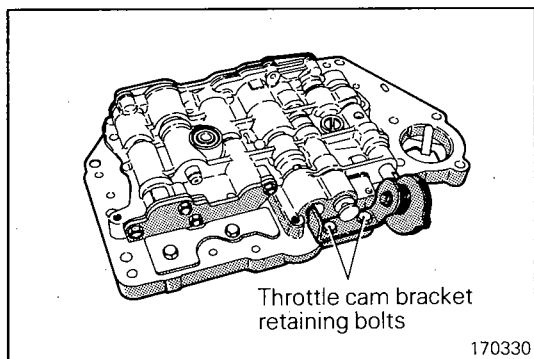
COMPONENTS

1. Kickdown valve
2. Throttle valve spring
3. Throttle valve
4. Kickdown valve spring
5. Stopper plate
6. O-ring
7. O-ring
8. Range control valve
9. Range control spring
10. Torque converter control valve
11. Torque converter control spring
12. Regulator valve
13. Regulator spring
14. Adjusting screw
15. Filter
16. 1-2 shift valve
17. 1-2 shift spring
18. Snap ring
19. 2-3 control valve
20. 2-3 control spring
21. Engine brake valve
22. Gasket
23. Front end plate
24. Gasket
25. Front end cover
26. 2-3 shift spring
27. 2-3 shift valve
28. Throttle cam assembly
29. Spring guide
30. Upper separating plate
31. Steel ball
32. Line relief spring
33. Low relief spring
34. Intermediate plate
35. Lower separating plate
36. Stopper plate
37. Lower valve body
38. Filter
39. Reducing valve
40. Accumulator valve
41. Reducing spring
42. Accumulator spring
43. Accumulator spring
44. Accumulator plug
45. Sleeve
46. Clutch control valve
47. Clutch control spring
48. Plug
49. Pin
50. End cover
51. Solenoid valve
52. Stiffener plate
53. Upper valve body
54. 2-3 shift plug
55. 1-2 shift plug
56. Regulator plug
57. Regulator plug
58. Manual valve
59. Rear end cover
60. Gasket

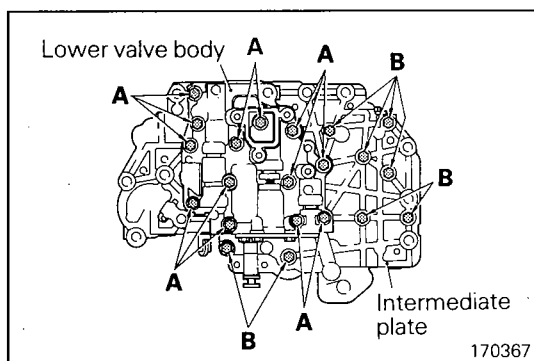


DISASSEMBLY**Caution**

Never clamp any portion of valve body or transfer plate in a vise. Any slight distortion of valve body or transfer plate will result in sticking valves, excessive leakage or both. When removing or installing valves or plugs, slide them in or out carefully. Do not use force. Tag all springs and valves as they are removed for reassembly identification.

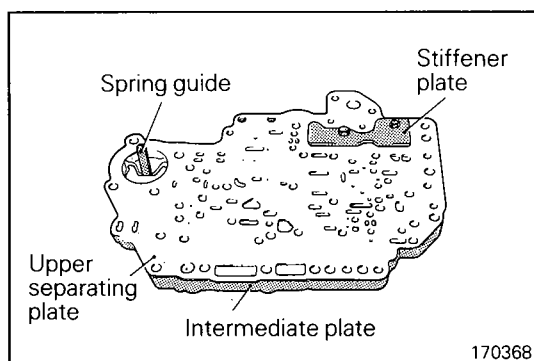


1. Remove the throttle cam bracket retaining bolts and remove the cable clamp and throttle cam assembly from the valve body.

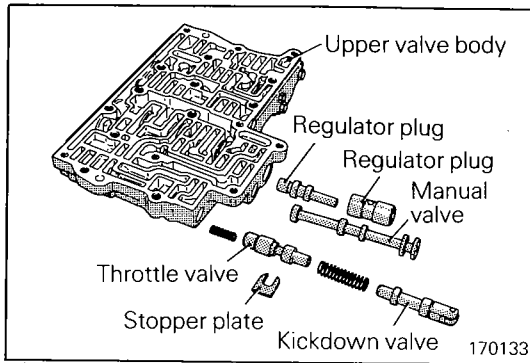


2. Remove 13 bolts (A), and then remove the lower valve body and lower separator plate.
3. Remove line relief spring and three steel balls.
4. Remove the seven bolts (B), and then remove the intermediate plate.

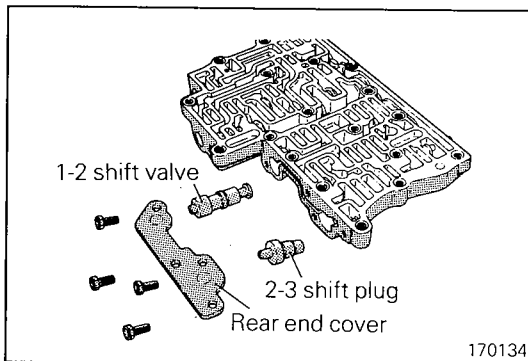
5. Remove four steel balls from upper valve body.



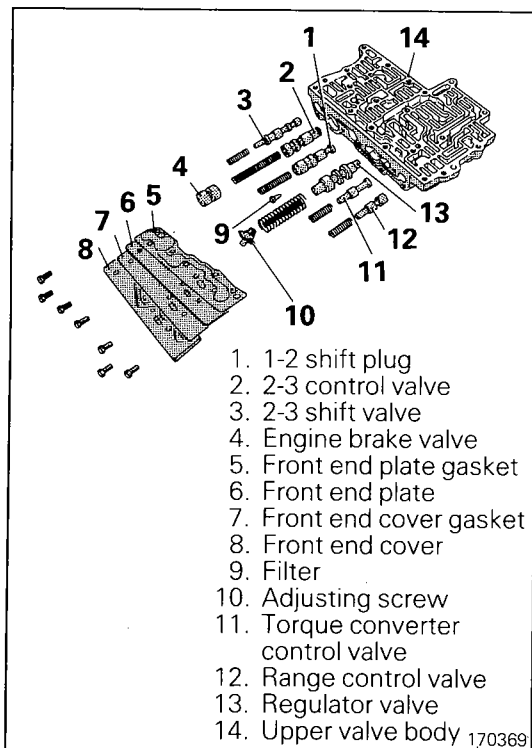
6. Remove solenoid valve, stiffener plate and upper separating plate, and then remove a steel ball and a spring from intermediate plate.



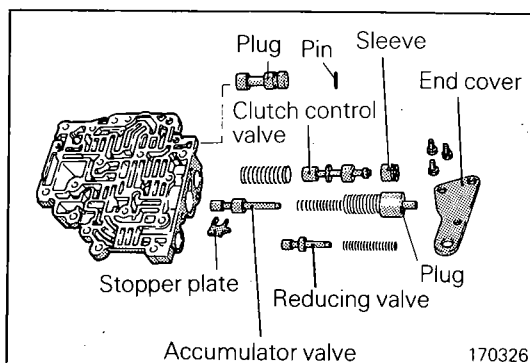
7. Remove the manual valve from upper valve body.
8. Remove the kickdown valve and spring.
9. Remove the stopper plate, and then the throttle valve and spring.
10. Remove the regulator plugs.



11. Remove the rear end cover, and then remove 1-2 shift valve and 2-3 shift plug.



12. Remove front end cover and plate, and then remove springs, valves and filter from the upper valve body.



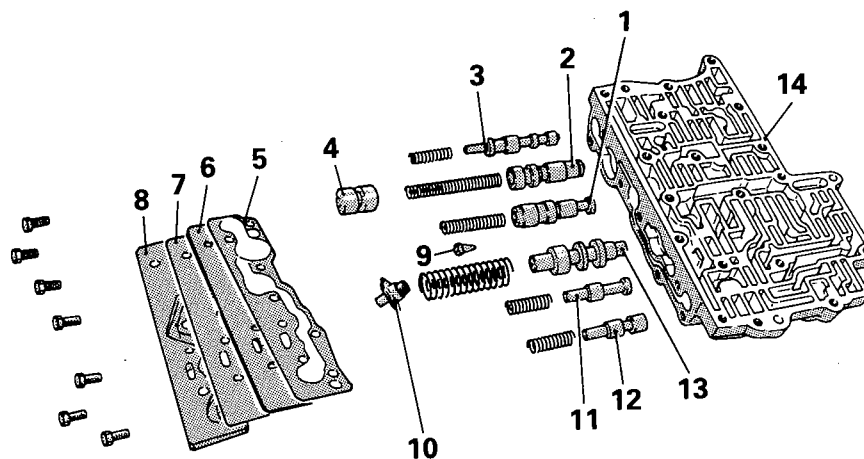
13. Remove the end cover, and then the clutch control valve, accumulator valve, plug, reducing valve and springs.

REASSEMBLY**Caution**

Clean all parts with automatic transaxle fluid. Do not use shop towels during reassembly operation.

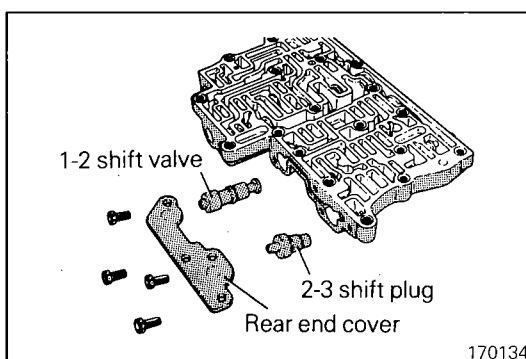
Tighten all valve body screws to 4 – 5.5 Nm (3 – 4 ft.lbs.). Using torque set driver, etc., torque all screws evenly.

1. Install valves, springs and plugs shown in the illustration to valve body.
2. Then install front end plate or front end cover and tighten seven screws to specified torque.



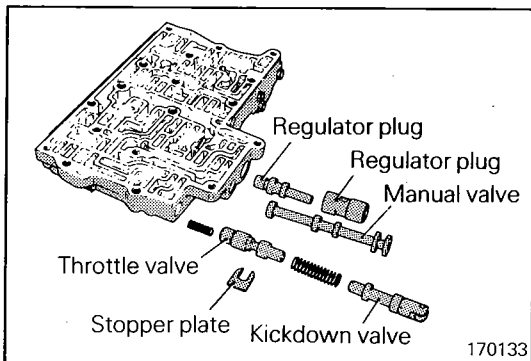
- | | |
|---------------------------|------------------------------------|
| 1. 1-2 shift plug | 8. Front end cover |
| 2. 2-3 control valve | 9. Filter |
| 3. 2-3 shift valve | 10. Adjusting screw |
| 4. Engine brake valve | 11. Torque converter control valve |
| 5. Front end plate gasket | 12. Range control valve |
| 6. Front end plate | 13. Regulator valve |
| 7. Front end cover gasket | 14. Upper valve body |

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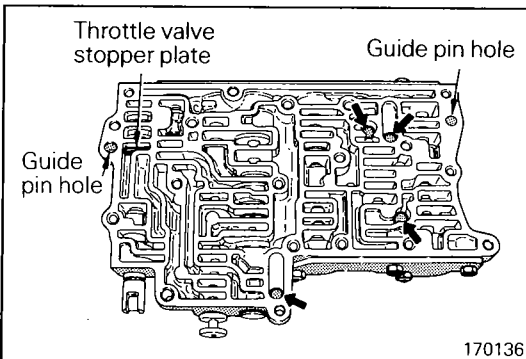


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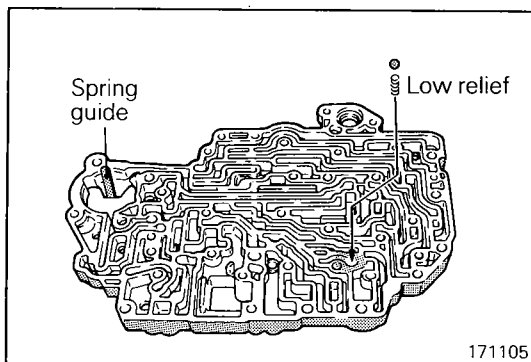
3. Insert 2-3 shift plug and 1-2 shift valve into valve body, then install rear end cover by tightening four screws to specified torque.



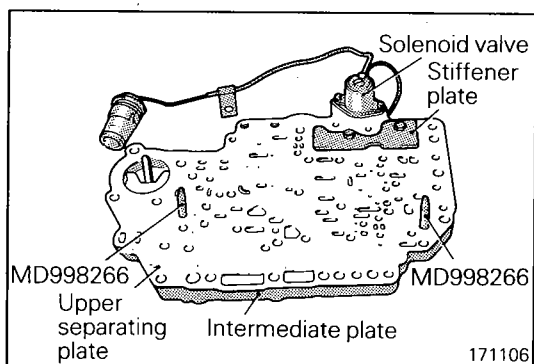
4. Insert two regulator plugs into valve body.
5. Insert manual valve into valve body.
6. Insert kickdown spring, throttle valve, throttle spring and kickdown valve into valve body.



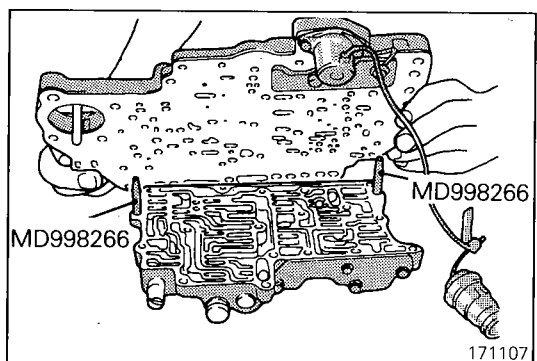
7. Install the throttle valve stopper plate.
8. Install four steel balls to valve body.



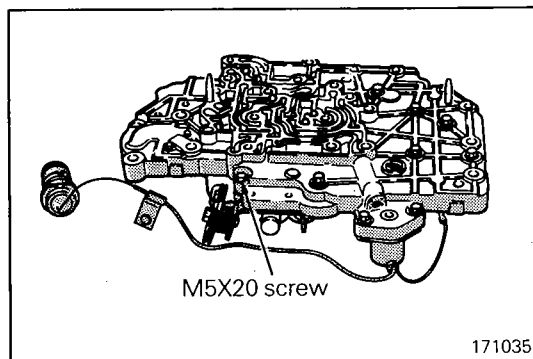
9. Install low relief steel ball and spring to intermediate plate.
10. Install accumulator spring guide.



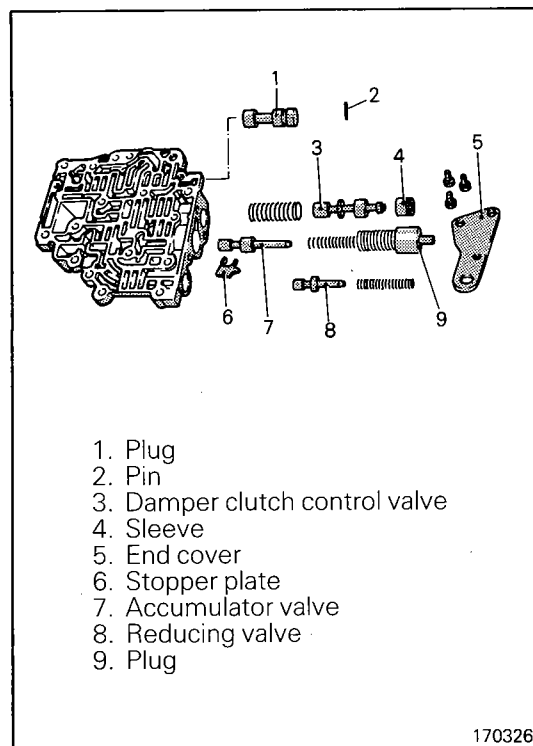
11. Clean solenoid valve filter and install solenoid valve to plate.
12. Pull off guide pins from plate.



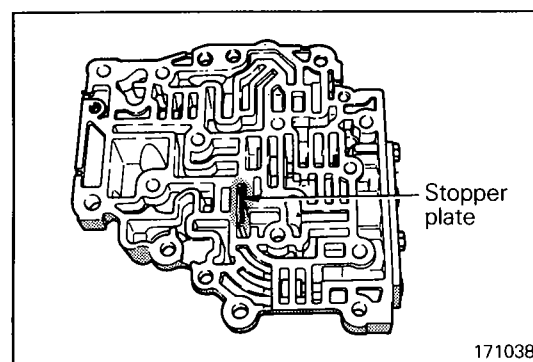
13. Insert two special tools, Guide Pins, into guide pin holes in upper valve body. Using guide pins as a guide, install transfer plate or intermediate plate.



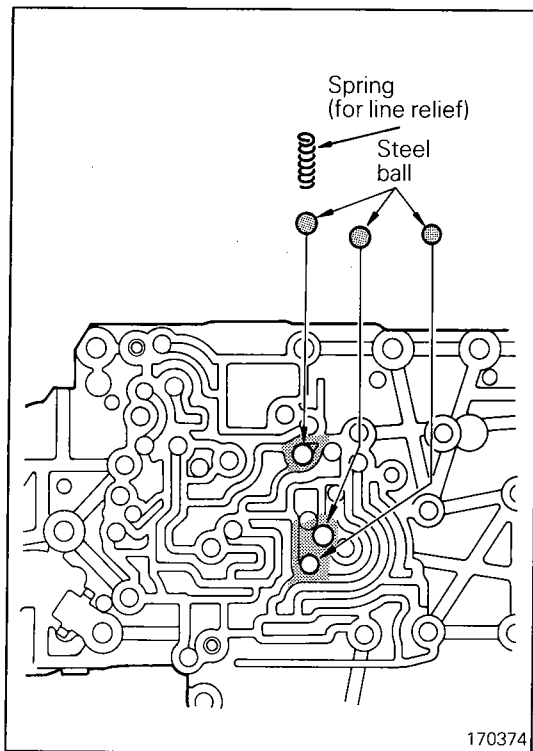
14. Install 25 mm long bolts (6 pieces) and one 20 mm long bolt and tighten all bolts to specified torque (3-layer type valve body only).
15. Pull off guide pins.



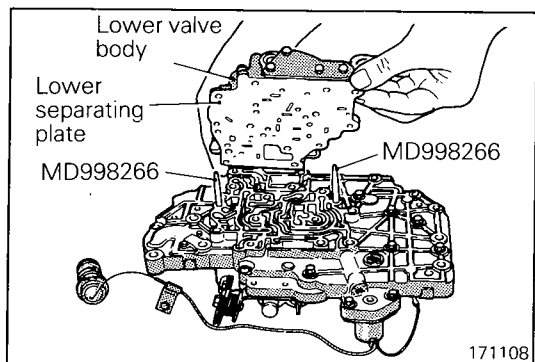
16. Installing valves and springs as shown in illustration to lower valve body and then install end cover.



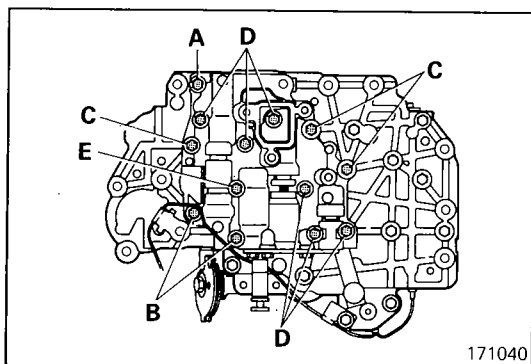
17. Install accumulator valve stopper plate to lower valve body shown in illustration.



18. Install three or five steel balls and spring into holes of intermediate plate.

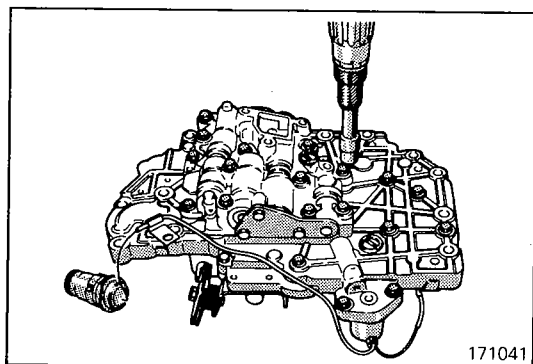


19. Insert two special tools, Guide Pins, into guide pin holes in intermediate plate. Using guide pins as a guide, install lower separating plate and lower valve body on intermediate plate.



20. Install lower valve body tightening bolts.

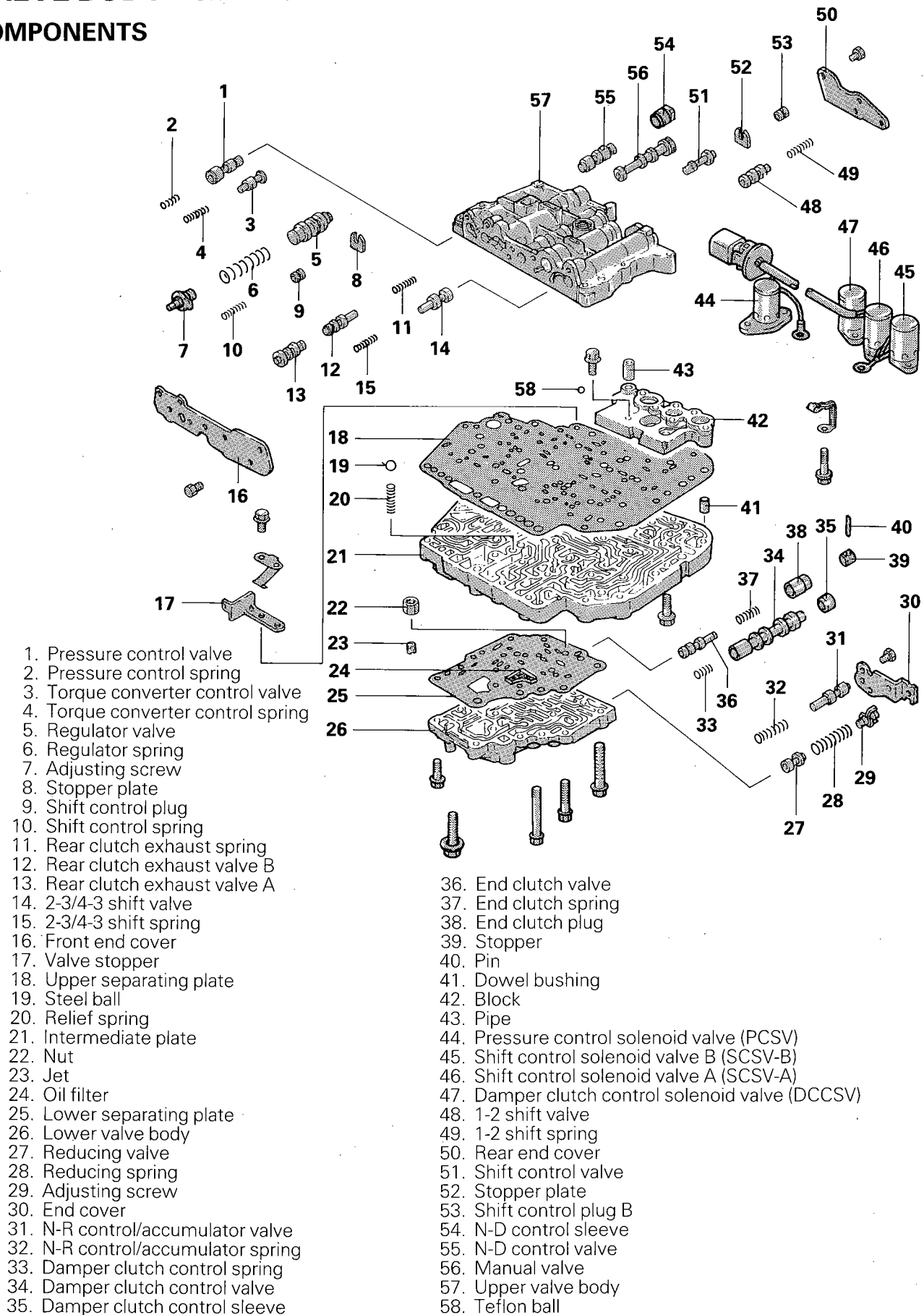
- A: 20 mm (.787 in.) long
- B: 35 mm (1.378 in.) long
- C: 40 mm (1.575 in.) long
- D: 45 mm (1.772 in.) long
- E: 58 mm (2.238 in.) long

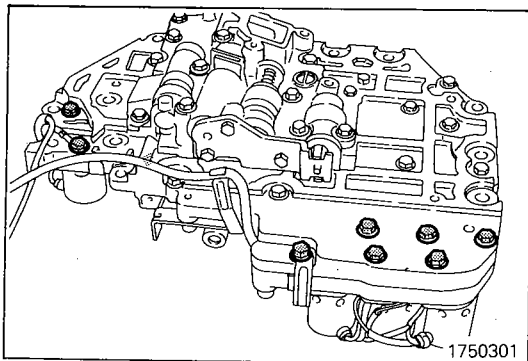


21. Tighten all bolts to specified torque.

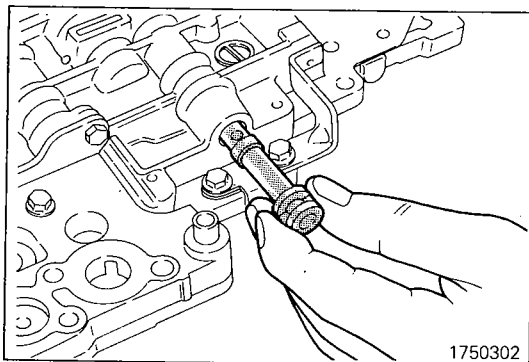
VALVE BODY <KM176>

COMPONENTS

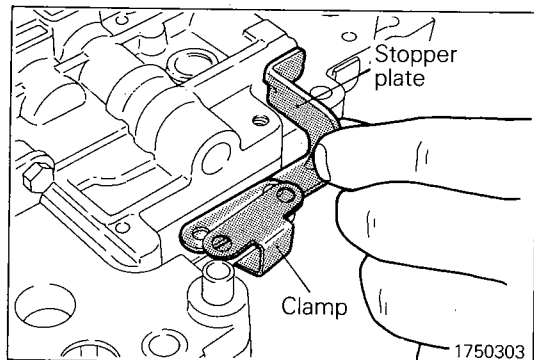


**DISASSEMBLY**

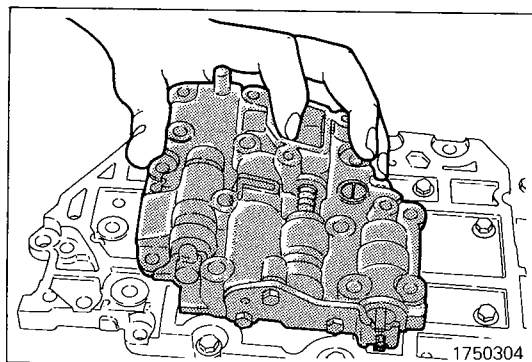
1. Remove the four solenoid valves.



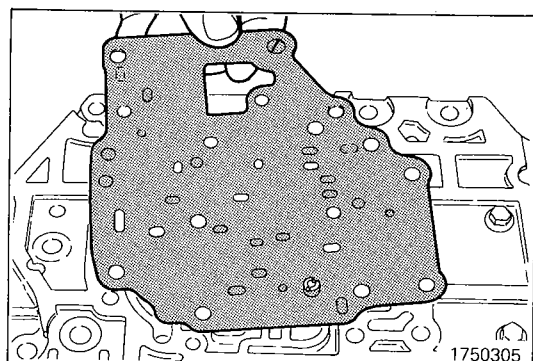
2. Remove the manual valve.



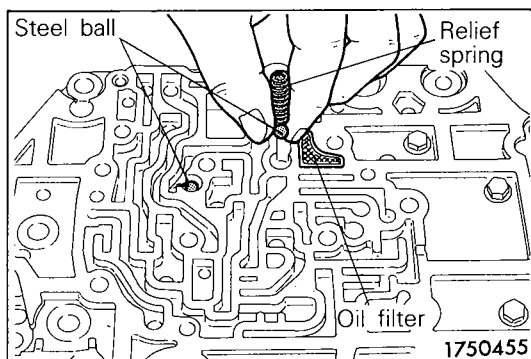
3. Remove the valve stopper and clamp.



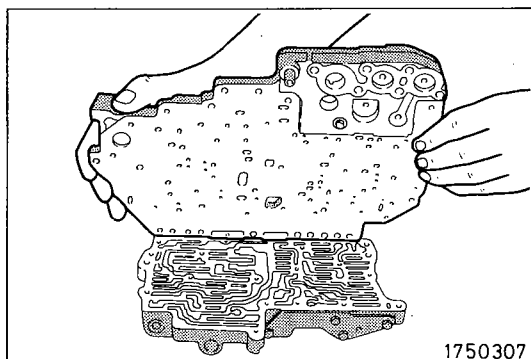
4. Remove the thirteen bolts and remove the lower valve body.



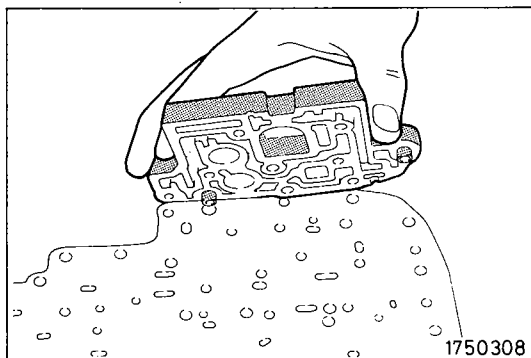
5. Remove the separating plate.



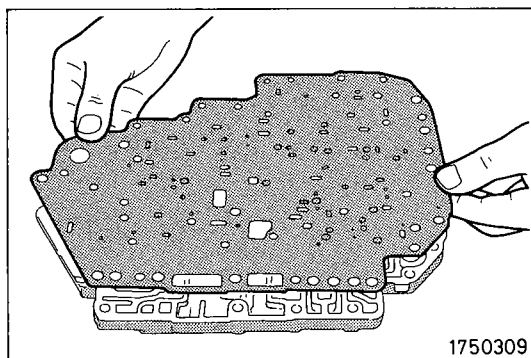
6. Remove the relief spring, two steel balls, and oil filter from the intermediate plate.



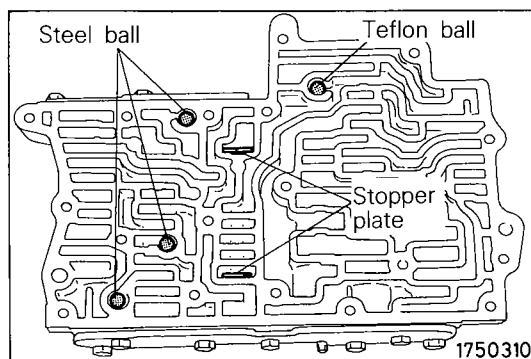
7. Remove the eight bolts and remove the intermediate plate and upper separating plate.



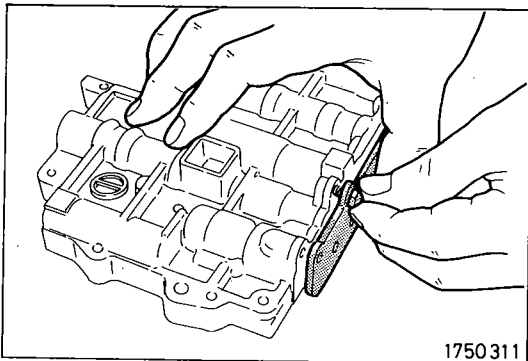
8. Remove the block.



9. Remove the upper separating plate.



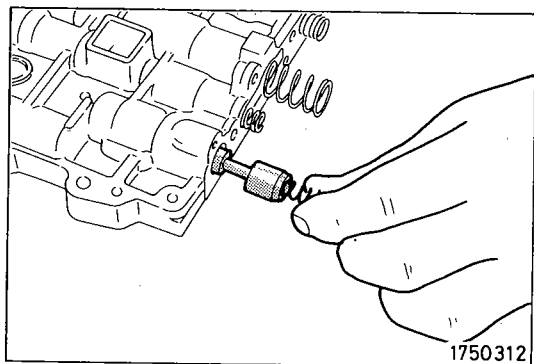
10. Remove the three steel balls, Teflon ball, and two stopper plates from the upper valve body.



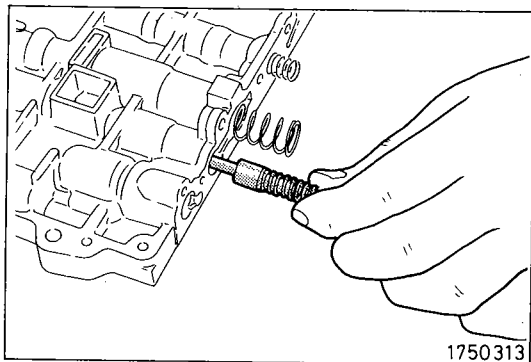
11. Remove seven bolts from the upper valve body and remove the front end cover and adjusting screw.

Caution

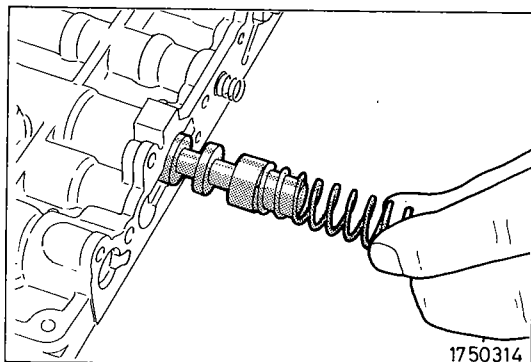
Be sure to hold the front end cover as shown during the procedure, as removal of bolts causes the adjusting screw to spring out by spring tension.



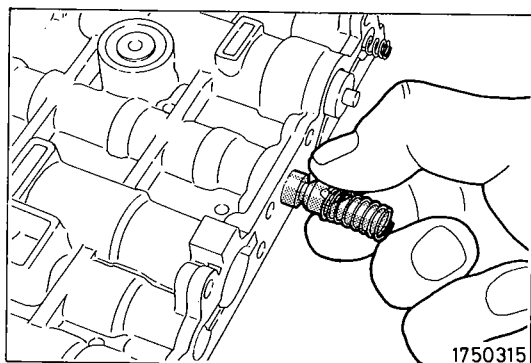
12. Remove the pressure control spring and pressure control valve.



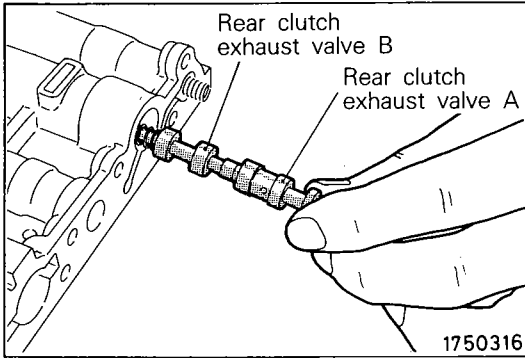
13. Remove the torque converter control spring and torque converter control valve.



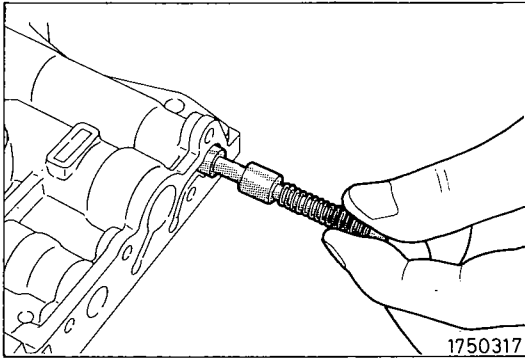
14. Remove the regulator spring and regulator valve.



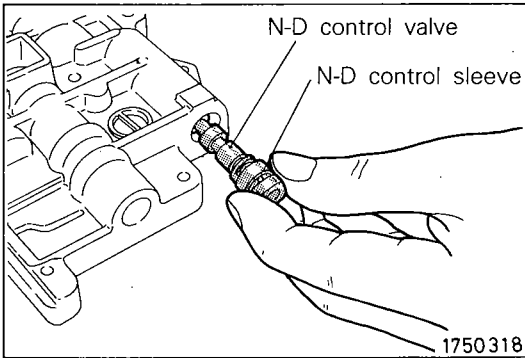
15. Remove the shift control spring and shift control plug A.



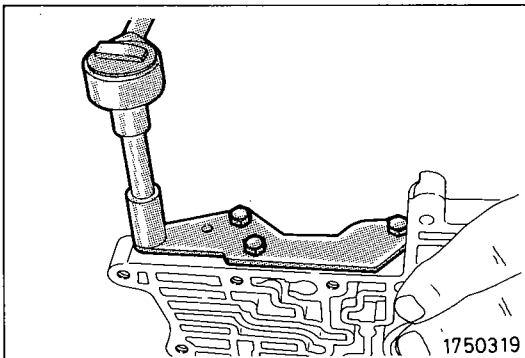
16. Remove rear clutch exhaust valves A and B and the rear clutch exhaust spring.



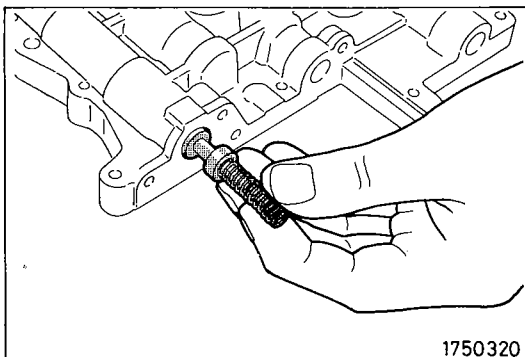
17. Remove the 2-3/4-3 shift spring and shift valve.



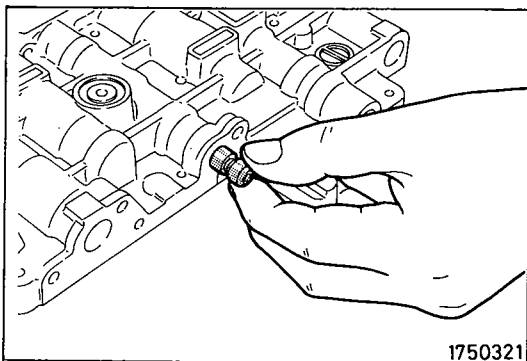
18. Remove the N-D control sleeve and N-D control valve from the rear of the upper valve body.



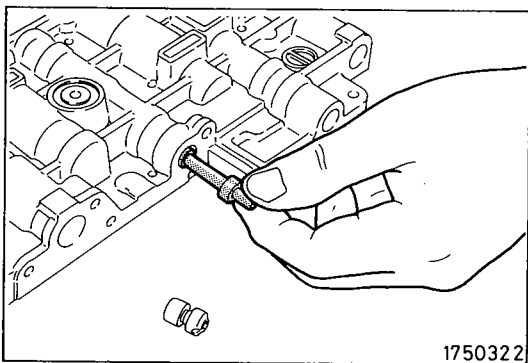
19. Remove the four bolts and remove the rear end cover.



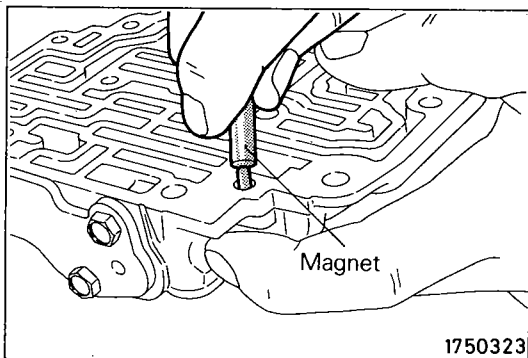
20. Remove the 1-2 shift spring and 1-2 shift valve.



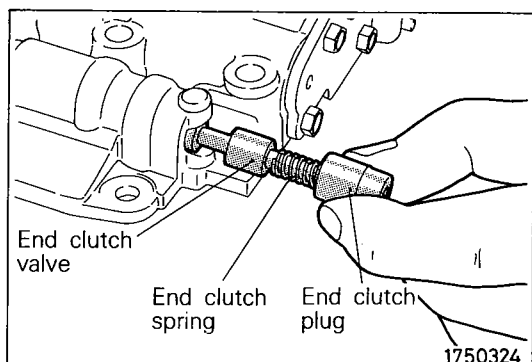
21. Remove shift control plug B.



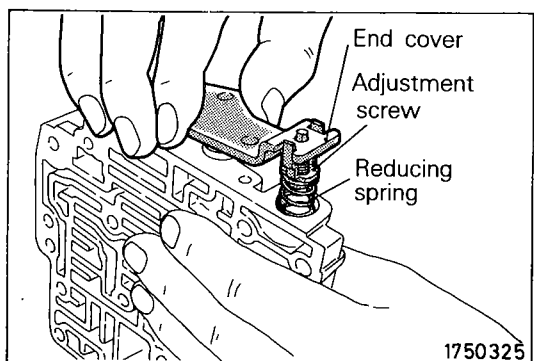
22. Remove the shift control valve.



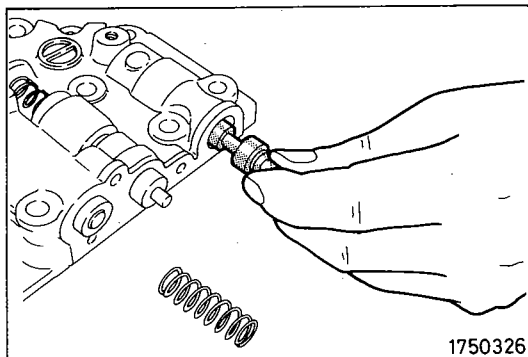
23. Using a magnet, remove the pin from the lower valve body to remove the stopper.



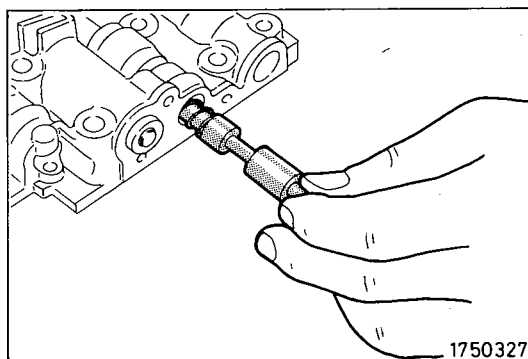
24. Remove the end clutch plug, end clutch spring, and end clutch valve.



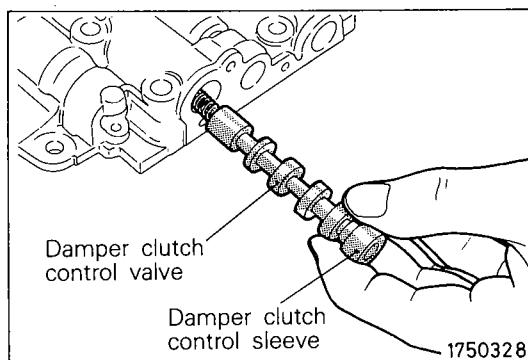
25. Remove three bolts from the lower valve body and remove the end cover, adjusting screw, and reducing spring.



26. Remove the reducing valve.



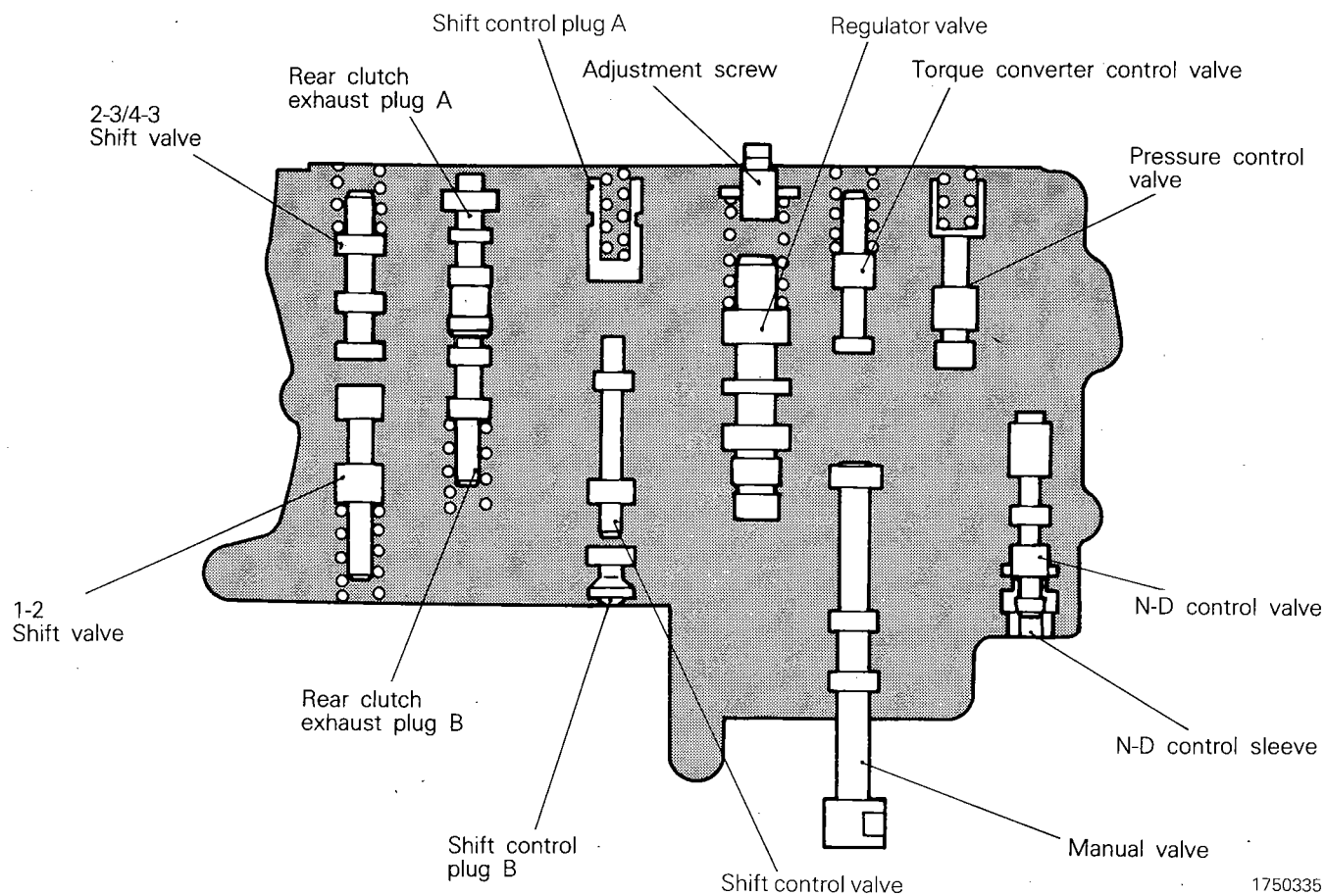
27. Remove the N-R control/accumulator valve and N-R control/accumulator spring.



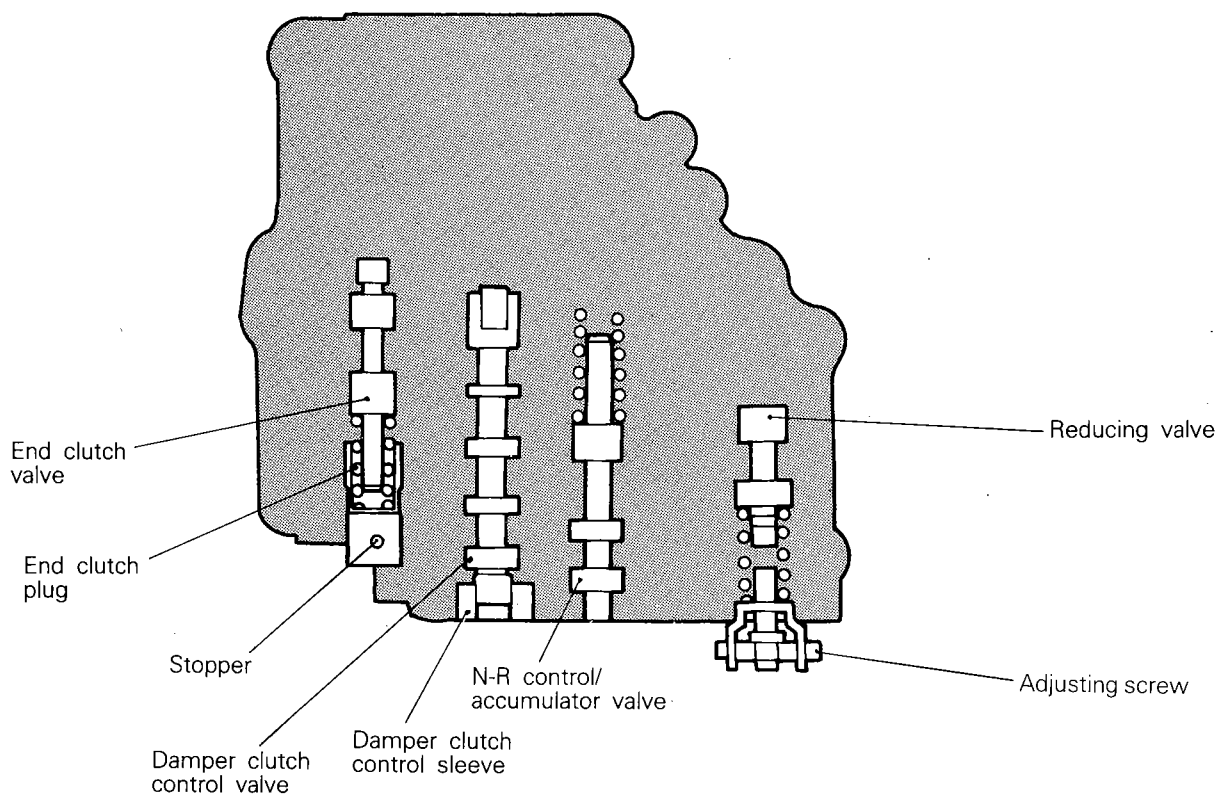
28. Remove the damper clutch control sleeve, damper clutch control valve, and damper clutch control spring.

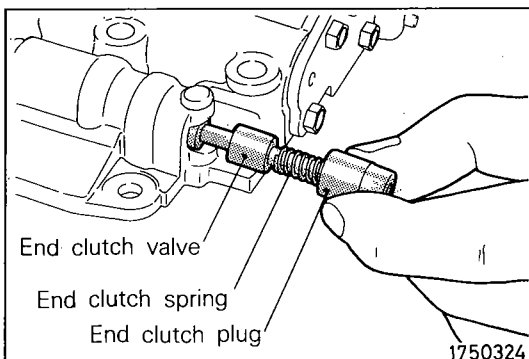
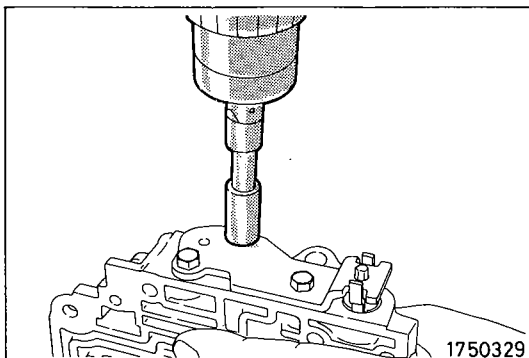
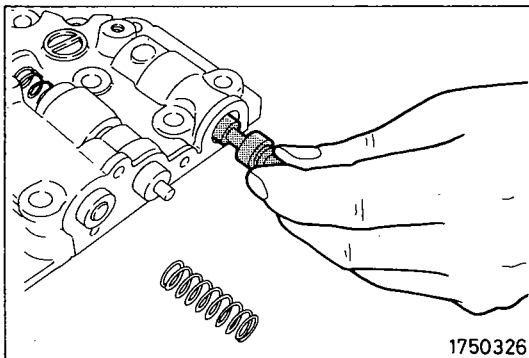
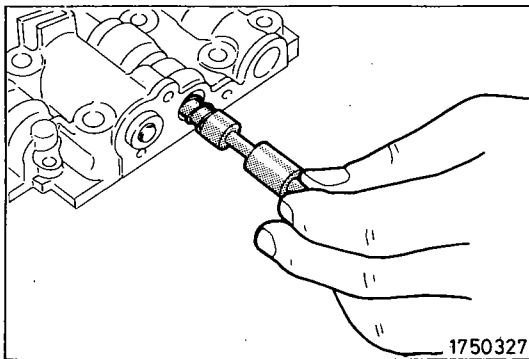
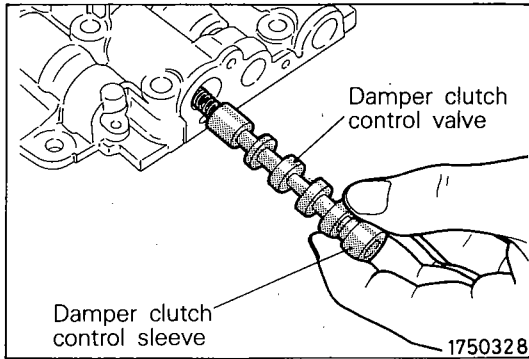
VALVE IDENTIFICATION

UPPER VALVE BODY



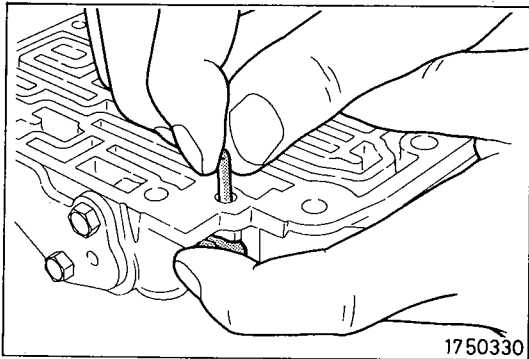
LOWER VALVE BODY



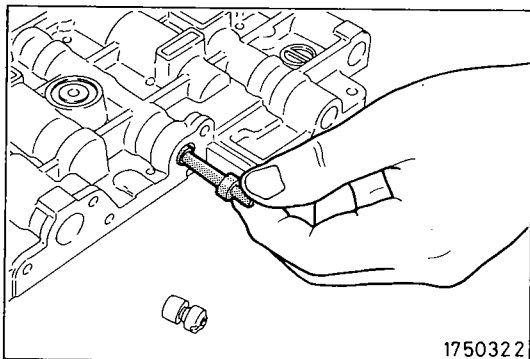


REASSEMBLY

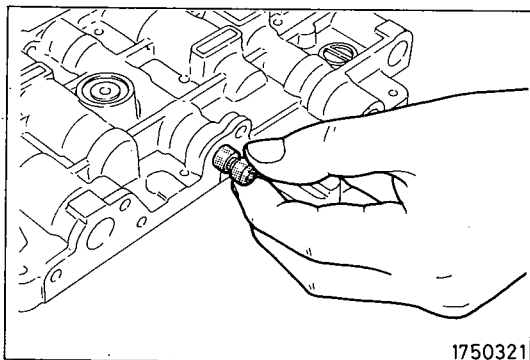
1. Install the damper clutch control spring, damper clutch control valve, and damper clutch control sleeve on the lower valve body.
2. Install the N-R control/accumulator spring and N-R control/accumulator valve.
3. Install the reducing valve.
4. Install the reducing spring, adjusting screw, and end cover and tighten bolts to specified torque using the special tool.
5. Install the end clutch valve, end clutch spring, and end clutch plug.



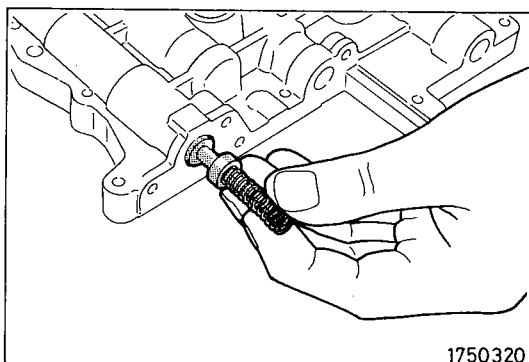
6. Fit the stopper into position and secure it with the pin.



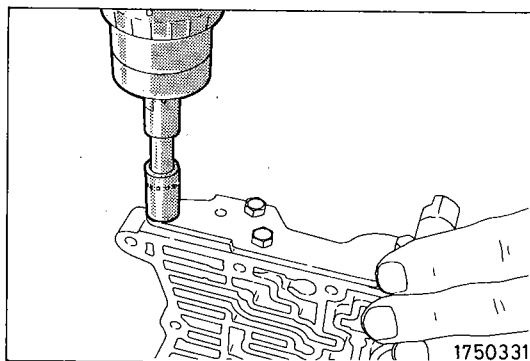
7. Install the 1-2 shift control valve on the upper valve body.



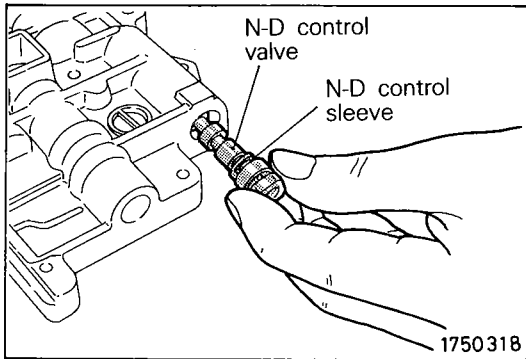
8. Install 1-2 shift control plug.



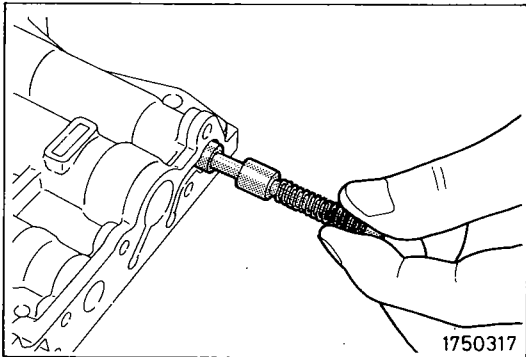
9. Install the 1-2 shift valve and 1-2 shift spring.



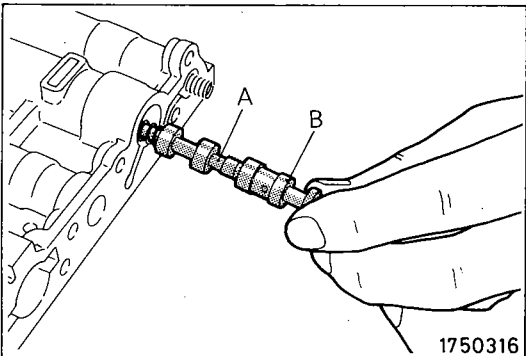
10. Mount the rear end cover and tighten bolts to specified torque using the special tool.



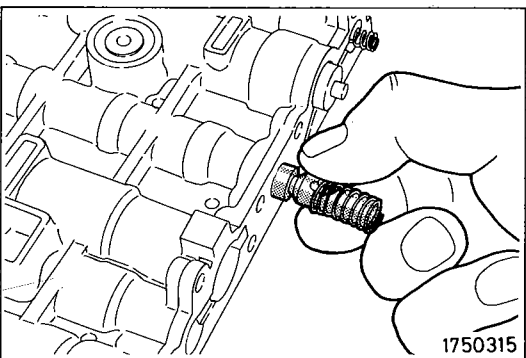
11. Install the N-D control valve and N-D control sleeve.



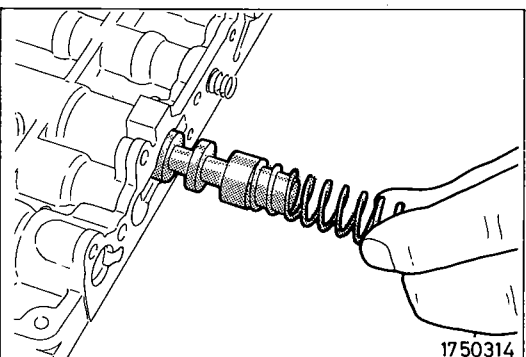
12. Install 2-3/4-3 shift valve and 2-3/4-3 shift spring.



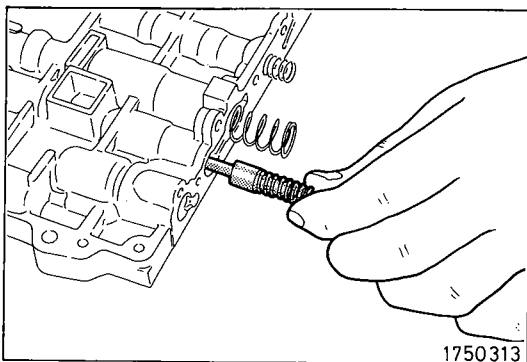
13. Install the rear clutch exhaust spring and rear clutch exhaust valves A and B.



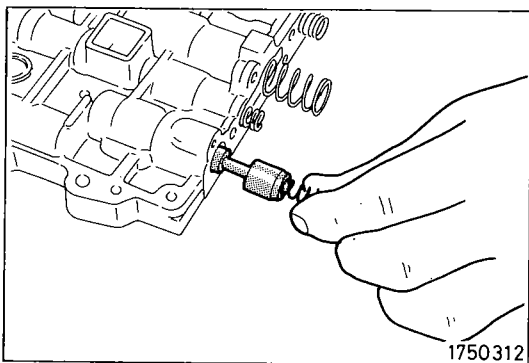
14. Install the shift control valve and shift control spring.



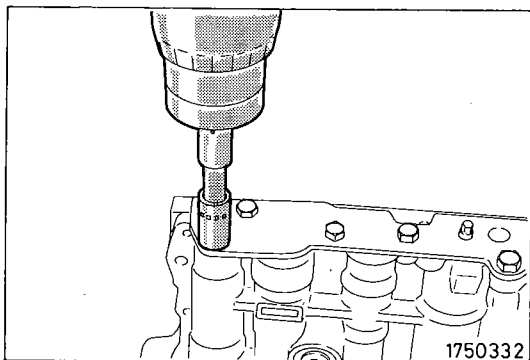
15. Install the regulator valve and regulator spring.



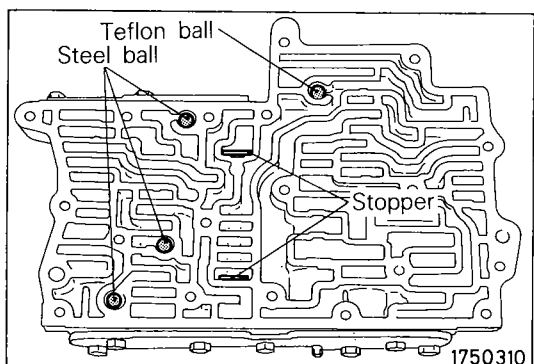
16. Install the torque converter control valve and torque converter control spring.



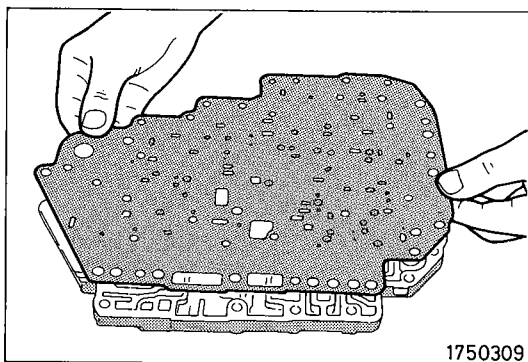
17. Install the pressure control valve and pressure control spring.



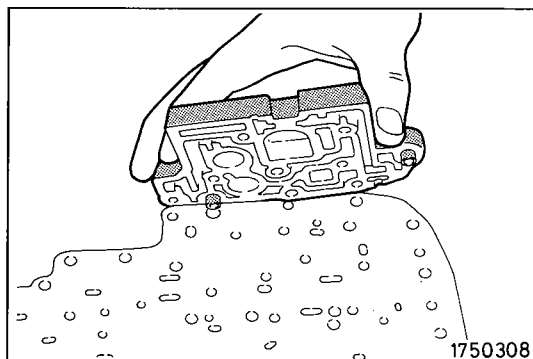
18. Install the adjusting screw and front end cover and, using the special tool, tighten bolts to specification.



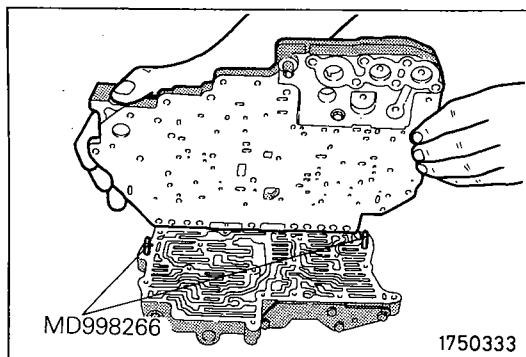
19. Install three steel balls, Teflon ball, and two stopper plates on the upper valve body.



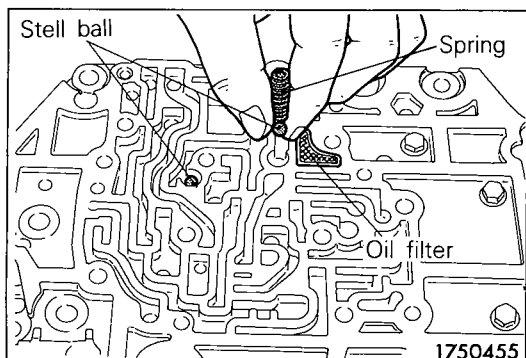
20. Install the upper separating plate.



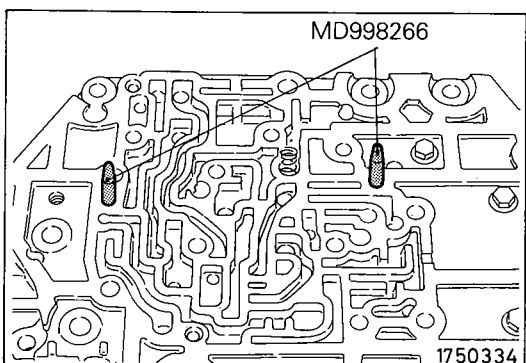
21. Mount the block.



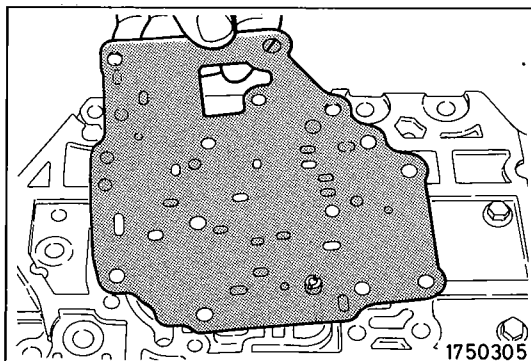
22. Mount the special tool and secure into position the upper separating plate and intermediate plate with eight mounting bolts. Then, remove the special tool.



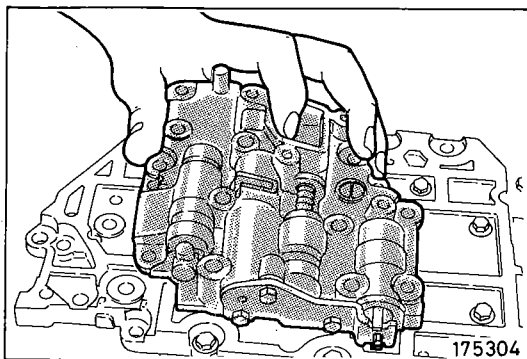
23. Install the oil filter, two steel balls, and spring to the intermediate plate.



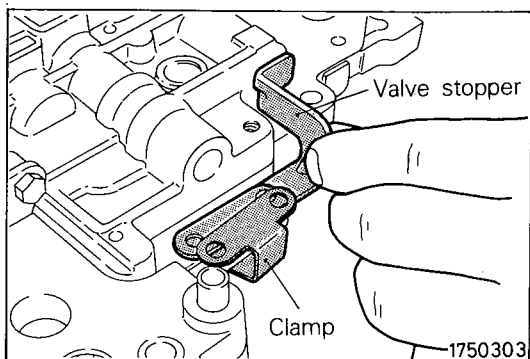
24. Mount the special tool on the intermediate plate.



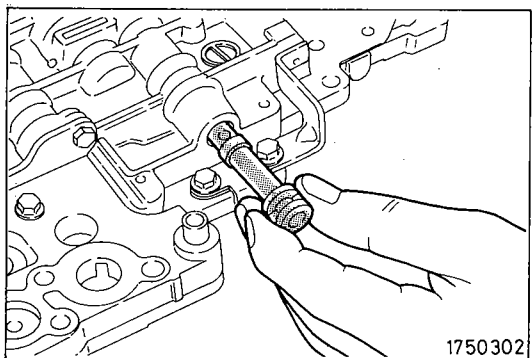
25. Install the separating plate.



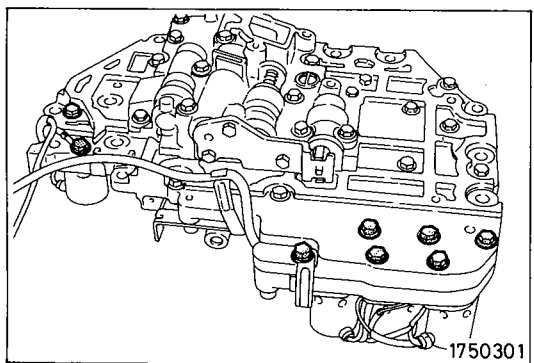
26. Secure the lower valve body in position with thirteen mounting bolts. Then, remove the special tool.



27. Install the valve stopper and clamp.



28. Install the manual valve.

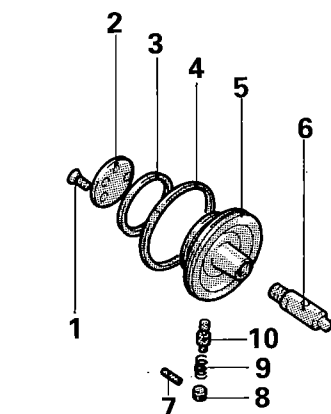


29. Secure the four solenoid valves with mounting bolts.

N21LPAD

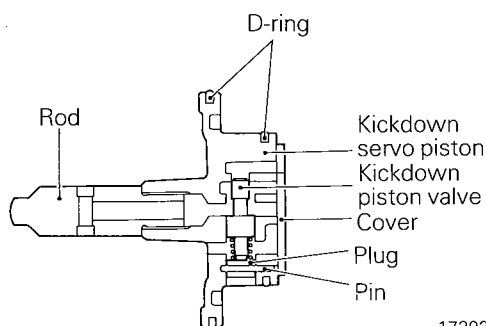
KICKDOWN SERVO**REASSEMBLY <KM171>**

1. Insert the kickdown piston valve, spring, and plug into the kickdown servo piston and insert the pin to secure them into position.
2. Mount the cover and tighten the screw.
3. Install new D-rings and apply automatic transaxle fluid to the outer rim.



1. Screw
2. Cover
3. D-ring
4. D-ring
5. Kickdown servo piston
6. Kickdown servo rod
7. Pin
8. Plug
9. Spring
10. Kickdown piston valve

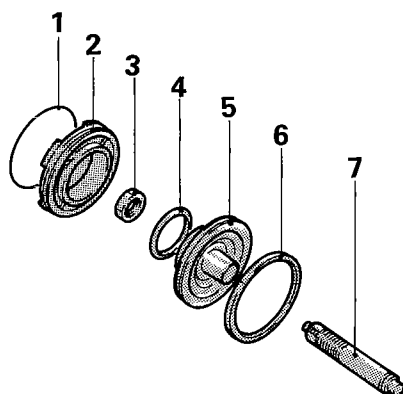
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REASSEMBLY <KM176>

1. Install the rod and nut on the kickdown servo piston.
2. Fit new D-rings (large 1, small 1) onto the outer surfaces of the piston and apply a small amount of automatic transaxle fluid to the D-rings.
3. Mate the kickdown servo piston with the sleeve.
4. Fit a new O-ring onto the outer surface of the sleeve and apply a small amount of automatic transaxle fluid to the O-ring.



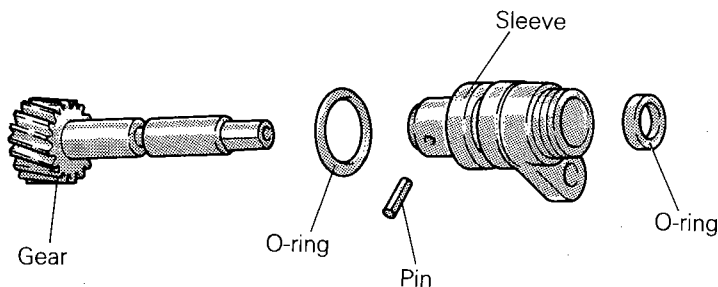
1. O-ring
2. Kickdown servo sleeve
3. Lock nut
4. D-ring
5. Kickdown servo piston
6. D-ring
7. Kickdown servo rod

1750299

SPEEDOMETER SLEEVE

N21LQAB

COMPONENTS



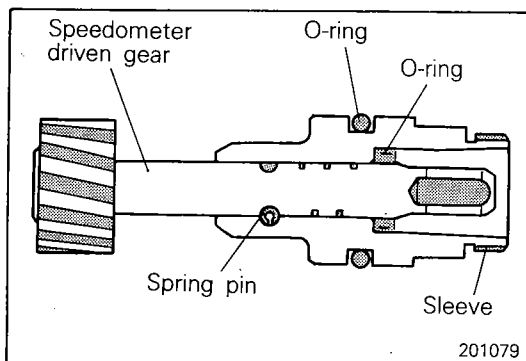
201078

DISASSEMBLY

Drive spring pin out, and gear and sleeve can be disassembled.

Caution

Do not reuse O-ring and spring pin.



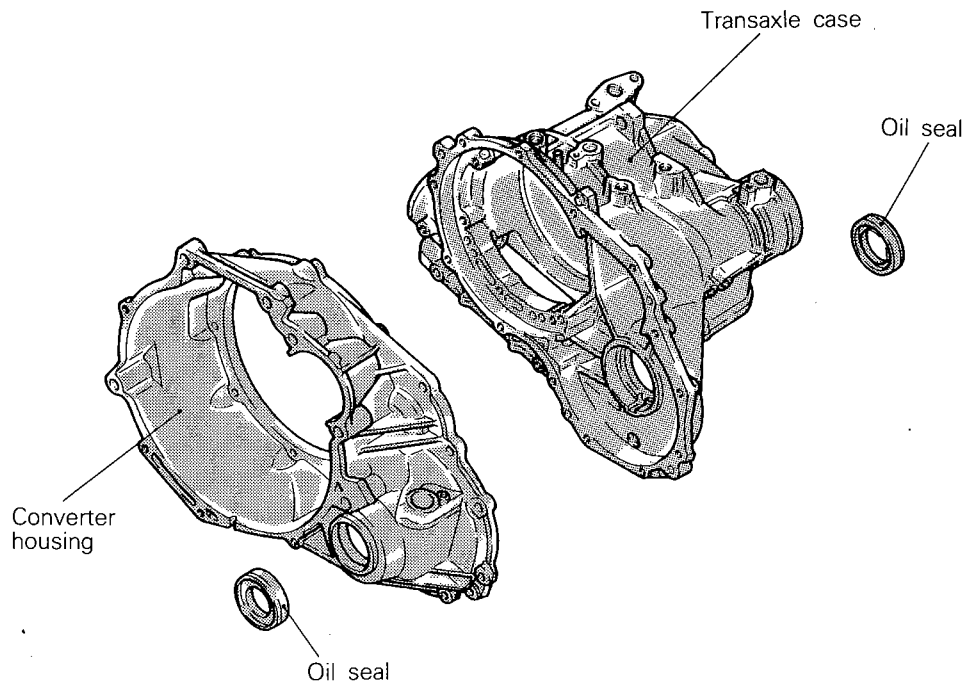
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REASSEMBLY

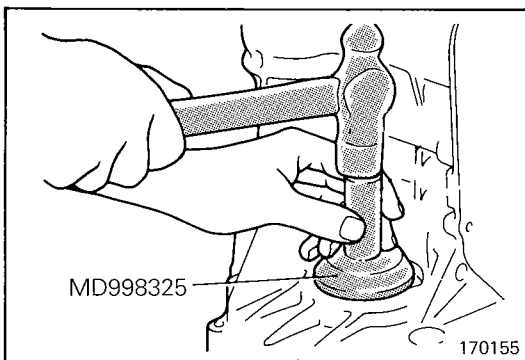
1. Install a new O-ring to the shaft part of the gear, and coat a small amount of automatic transaxle fluid onto the O-ring.
2. Insert the gear into the sleeve, and align the pin hole and the groove of the gear's shaft.
3. Tap a new spring pin into the sleeve. When tapping it in, be sure that the slit is not at the gear side.
4. Install a new O-ring into the outer groove of the sleeve, and then apply a coating of a small amount of automatic transaxle fluid to the outer circumference of the O-ring.

TRANSAXLE CASE COMPONENTS

N21LRAB



1750298



REASSEMBLY

Using the special tool, drive two drive shaft oil seals into transaxle case.