MITSUBISHI
KM 171

INDEX

AUTOMATIC TRANSMISSION SERVICE GROUP
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INTRODUCTION
MITSUBISHI KM-171

The KM-171 is a 3 speed automatic transaxle front wheel drive with a converter clutch. The shift pattern is hydraulic controlled.

We wish to thank Mitsubishi Corporation for the information and illustrations that have made this booklet possible.

The information and part numbers contained in this booklet have been carefully compiled from industry sources known for their reliability, but ATSG does not guarantee its accuracy.

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Symptom	Probable cause	Remedy
Engine vibration	Broken gear shift control	Replace
	Worn or pitting due to improper tooth	Replace
Oil leakage	Housing misaligned	Realign
	Worn seals or gaskets	Replace parts as required
Loose transaxle assembly	Broken transaxle mount	Replace
	Mounting bolts loose	Retighten bolts
Does not shift to 5th (M/T)	Malfunctioning actuator	Repair or replace as required
	Broken 5th position sensor	Replace
	Malfunctioning vacuum control	Replace
	Short circuit in vacuum control	Replace
Delayed 4-5 shift (M/T)	Worn 5th position sensor	Replace
Vehicle does not move (A/T)	Low automatic transaxle fluid level	Repair leak and refill with fluid
	Broken planetary gear carrier	Replace
Difficult to put manual lever into P position (A/T)	Worn dog of parking sprag	Replace
Unlocked wheels at P position (A/T)	Malfunctioning parking sprag	Replace
Transaxle slips due to excessive wear of sprag (A/T)	Broken ribbon spring of sprag clutch	Replace

LOCK-UP TORQUE CONVERTER PROBLEMS

No drive at any position due to lock-up torque converter engaged	Abnormal signal slippage in lock-up torque converter system	Replace
	Malfunction sealing in solenoid valve torque converter	Repair or replace as required
Excessive vibration	Decreased signal slippage from C.P.U. (Computer Processing Unit)	Replace
Inoperative lock-up torque converter system	No signal lock-up from C.P.U.	Replace
	Lock-up line pressure low	Restore to proper pressure
	Opened or shorted circuit of solenoid valve	Replace
Increased fuel consumption	Lock-up torque converter does not engage because of a stuck valve	Clean up
Lock-up torque converter does not release	Decreased driving effort in facing of clutch plate	Replace
	Burn out clutch disc	Replace
	Lock-up torque converter system solenoid valve stuck open	Repair or replace as required

Symptom	Probable cause	Remedy
Increased vibration due to no control of slipping ratio	Sticking shaft in throttle opening sensor	Repair or replace as required
No drive at any position	Seized or stuck thrust bearing in torque converter	Replace
	Deformed crankshaft bushing in torque converter	Replace
	Broken or cracked drive plate	Replace
	Low oil level	Refill with fluid
Increased noise due to inoperative lock-up torque converter	Deformed or worn locking-ring in torque converter	Replace
Excessive slips when starting (A/T)	Low oil level	Refill with fluid
	Worn over-running clutch in torque converter	Replace
Hunting (A/T)	Oil leakage from valve body	Repair or replace as required
Vehicle does not move (M/T)	Broken intermediate gear in differential gear	Replace
	Broken differential bearing	Replace
Differential gear noise	Worn differential bearing	Replace
	Worn or damaged differential gear	Replace
Improper clutch operation (M/T)	Detached clutch cable loose from guide	Adjust cable
	Inoperative balancing with cable tension spring	Replace
	Deformed stopper due to excessive pedal force	Replace

DIAGNOSIS

Automatic transaxle malfunctions may be caused by four general conditions; poor engine performance, improper adjustments, hydraulic malfunctions, and mechanical malfunctions. Diagnosis of these problems should always begin by checking easily accessible variables; fluid level and condition manual control cable adjustment, and throttle control cable adjustment. Then perform road test to determine whether the problem has been corrected or more diagnosis is necessary. If the problem still exists after preliminary tests and corrections are completed, hydraulic pressure tests should be performed.

Fluid Level and Condition

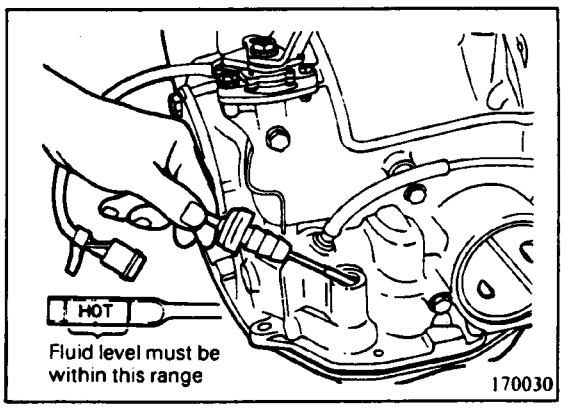
1. Place vehicle on level floor.
2. Before removing dipstick, wipe all dirt from area around dipstick.
3. With selector lever in "P" Park and parking brakes applied, start engine.
4. Engine should be running at idle speed. Fluid should be at normal operating temperature [50–80°C (120–180°F)].
5. Move selector lever sequentially to every position to fill torque converter and hydraulic circuit with fluid, then place lever in "N" Neutral position. This operation is necessary to be sure that fluid level check is accurate.
6. Check to see if fluid level is in "HOT" range on dipstick. If fluid is low, add ATF until level reaches "HOT" range. (170030)

   Low fluid level can cause a variety of conditions because it allows pump to take in air along with fluid. Air trapped in hydraulic circuit forms bubbles which make fluid spongy. Therefore, pressures will be erratic.

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

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

   Along with fluid level, it is important to check the condition of the fluid. When fluid smells burned, and is contaminated with metal bushing or friction material particles, a complete transaxle overhaul is needed. Be sure to examine fluid on dipstick closely. If there is any doubt about its condition, drain out sample for double check. After fluid has been checked, seat dipstick fully to seal out water and dirt.



Manual Control Cable

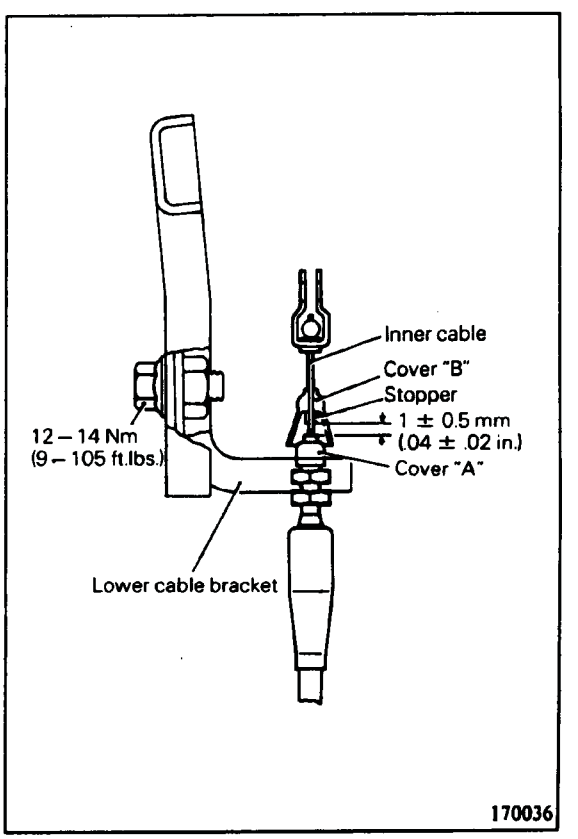
Whether manual linkage is properly adjusted can be confirmed by checking whether inhibitor switch is performing well.

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. On vehicles with automatic choke type carburetor, check to ensure that throttle valve has standard idle opening. When engine is cold, throttle valve does not have standard opening, because fast idle system is operating. Check to ensure that choke lever is away from cam follower.
2. Raise cable cover "B" to expose cable stopper.
3. Check to ensure that spacing between stopper and cover "A" is up to specification.
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.



Road Test

Prior to performing road test, be certain that fluid level and condition and control cable adjustments have been checked and approved. During road test, transaxle should be operated in each position to check for slipping and any variation in shifting. Approximate shift speeds for various modes of operation are shown in "Automatic shift speed pattern".

TEST 1 (SELECTOR IN "D")

1. 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.
2. While driving in third gear, check for noise and vibration.
3. Drive in second or third gear, check to see if 2-1, 3-1 and 3-2 kickdown shift occur properly at specified kickdown limit vehicle speeds.
4. Drive in third gear, and select "2" range then "L" range to check if engine brake is effective.
5. 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. 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.
2. Check to see if 2-1 kickdown occurs at correct limit vehicle speed.

TEST 3 (SELECTOR IN "L")

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

TEST 4 (SELECTOR IN "R")

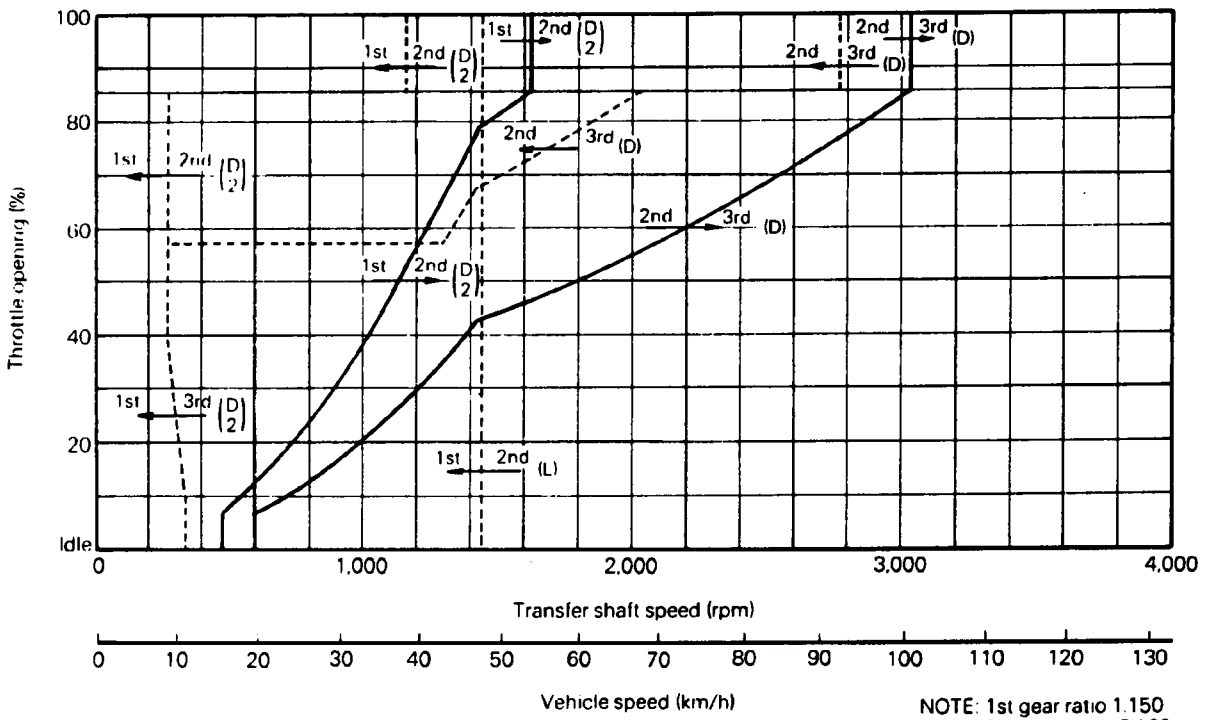
1. Start engine and "stall test" transaxle to see that friction element is not slipping.

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.

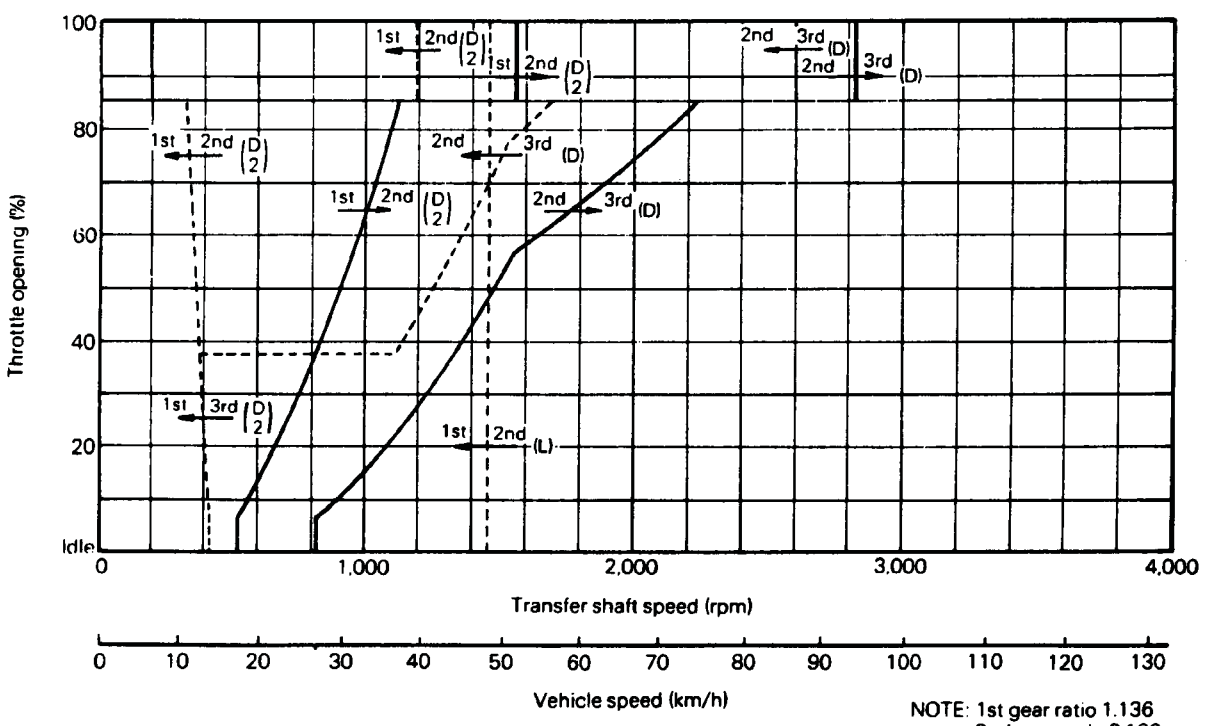
Automatic shift speed pattern

KM171-2-APT



NOTE: 1st gear ratio 1.150
2nd gear ratio 3.160
Tire 155SR13

KM171-1-AP



NOTE: 1st gear ratio 1.136
2nd gear ratio 3.166
Tire 155SR13

Element in use at each position of the selector lever

Lever position	Gear ratio	Engine starting	Parking sprag	Front clutch	Rear clutch	One-way clutch	Kickdown band	Low-reverse brake
P – PARKING		○	○					
R – REVERSE	2.502			○				○
N – NEUTRAL		○						
D – DRIVE								
First	3.273				○	○		
Second	1.818				○		○	
Third	1.150			○	○			
2 – SECOND								
First	3.273				○	○		
Second	1.818				○		○	
L – LOCK-UP (First)	3.273				○			○

HYDRAULIC PRESSURE TESTS

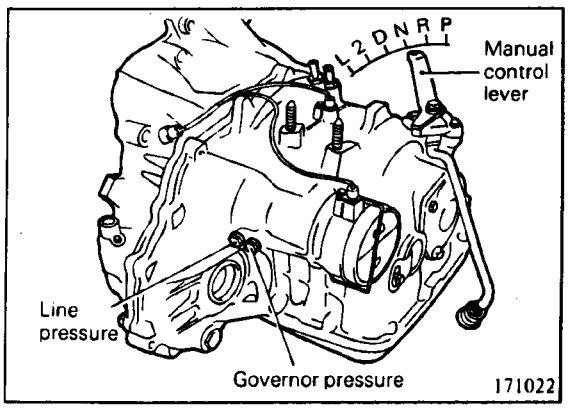
Pressure testing is very important step in diagnostic procedure. These tests usually reveal cause of most automatic transaxle problems.
Before performing pressure tests, be certain that fluid level and condition, and control cable adjustment have been checked and approved.

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 980 kPa (140 psi) oil pressure gauge (MD999563) to ports required for test being conducted.
   A 3,000 kPa (400 psi) oil pressure gauge (MD998330) is required for "reverse" pressure test at low-reverse brake.
   Test port locations are shown below.

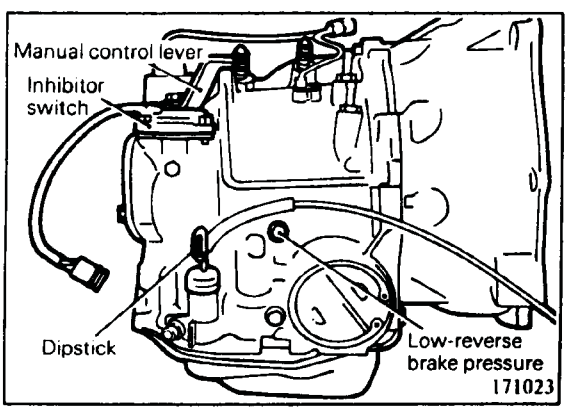
Test 1 (Selector in "L")

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.
5. Line pressure should be 402—460 kPa (58—67 psi) when cable is in "idle" position, and increase to 677—696 kPa (98—100 psi) as cable is pulled to "wide-open" position.
6. Low-reverse brake pressure should be 167—226 kPa (24—33 psi).
7. This tests pump output, pressure regulation, condition of rear clutch and low-reverse hydraulic brake circuit.



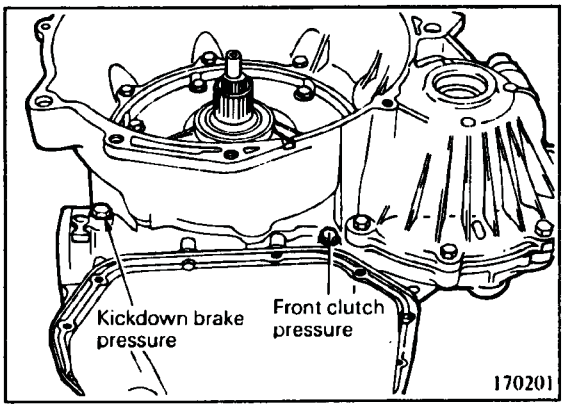
Test 2 (Selector in "2")

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.
5. Line pressure should be 402—460 kPa (58—67 psi) with cable in "idle" position and 677—696 kPa (98—100 psi) in "wide-open" position.
6. Lubrication pressure should be 49—147 kPa (7—21 psi) regardless of throttle opening.
7. 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.
5. Line pressure should be 402—460 kPa (58—67 psi) with cable in "idle" position and gradually increase as throttle cable is pulled toward "wide-open" position.
   If the difference between front clutch pressure and line pressure is less than 78 kPa (11 psi), front clutch pressure is good.
6. 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 1,373—1,961 kPa (199—284 psi) regardless of throttle opening.
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 defective 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 [50–80°C (120–180°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 transmission 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 defective torque converter is suspected. Check for engine misfiring, ignition timing, valve clearance, etc. If these are good, torque converter is defective.

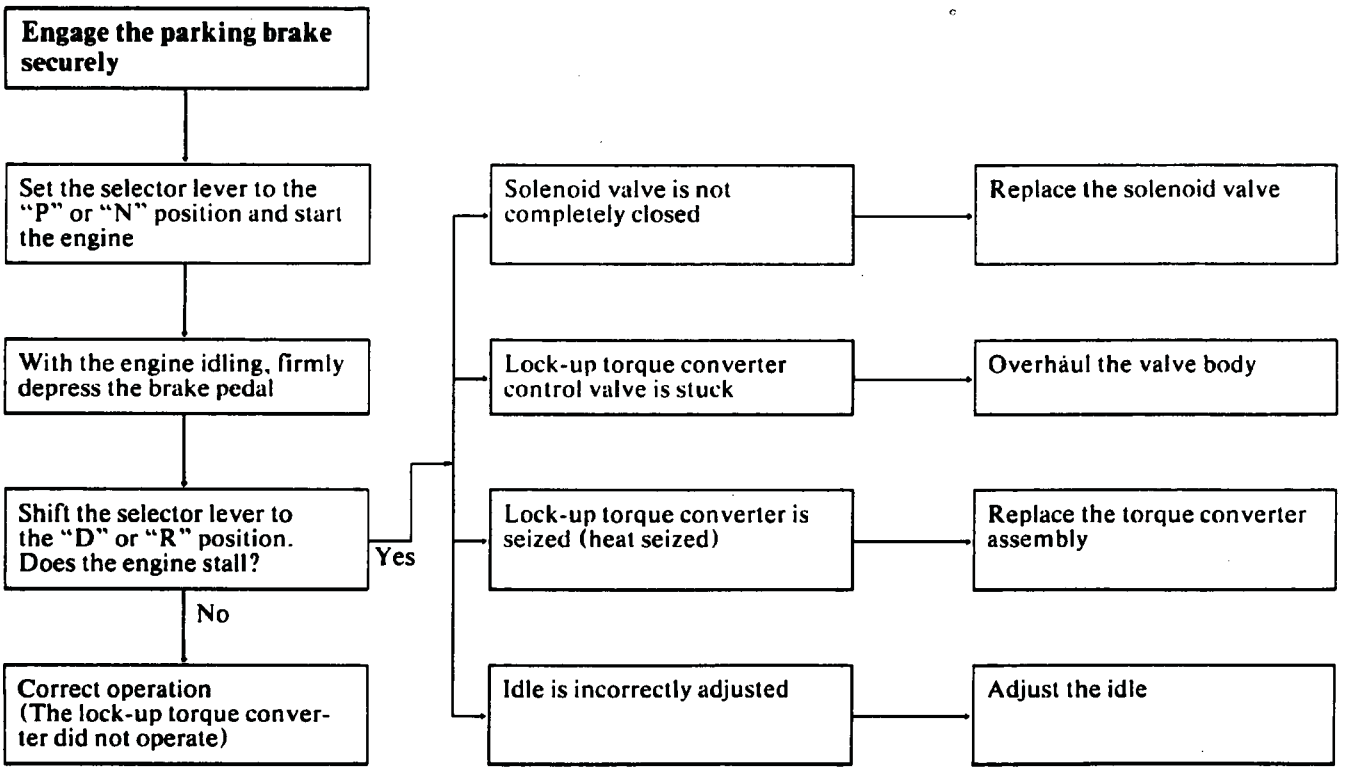
FLUID LEAKAGE – TRANSAXLE CONVERTER HOUSING AREA

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 of 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.

LOCK-UP TORQUE CONVERTER – DIAGNOSIS

Test 1

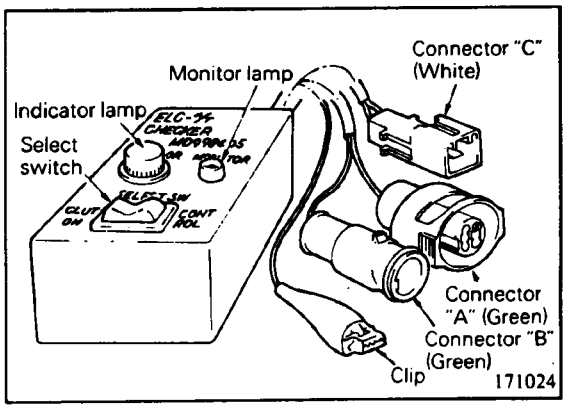
Inspection of lock-up torque converter operation with engine idling.



Test 2

Inspection of the lock-up torque converter operation by using ELC-A/T checker

The ELC-A/T checker (Tool No. MD998405) contains two circuits: the clutch-on circuit which is used to inspect the lock-up torque converter and lock-up torque converter hydraulic control circuit, and the control circuit which is used to check whether the control unit is outputting the operating signal to the solenoid valve that controls the hydraulic pressure.



Connector C: Connect to the inspection connector (white) located inside the engine compartment (near the brake master cylinder reservoir tank). (16K159)

Connector A: Connect to the solenoid valve connector (green) of the automatic transaxle. (171043)

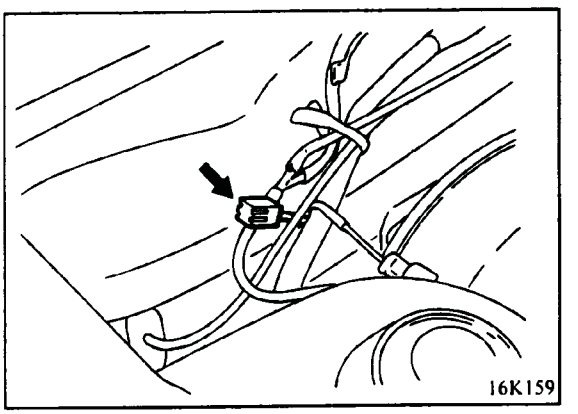
Connector B: Connect to the harness connector (on the vehicle body) which was previously connected to the solenoid valve connector of the automatic transaxle.

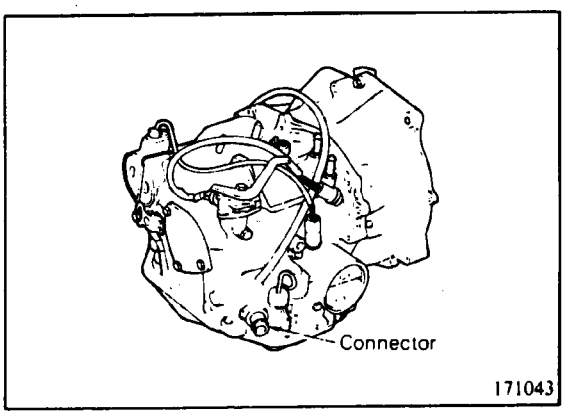
Clip: Connect to the positive terminal of the battery.

Monitor lamp: This red LED illuminates when the select switch is set to the "CONTROL" position and the lock-up torque converter operating signal is output.

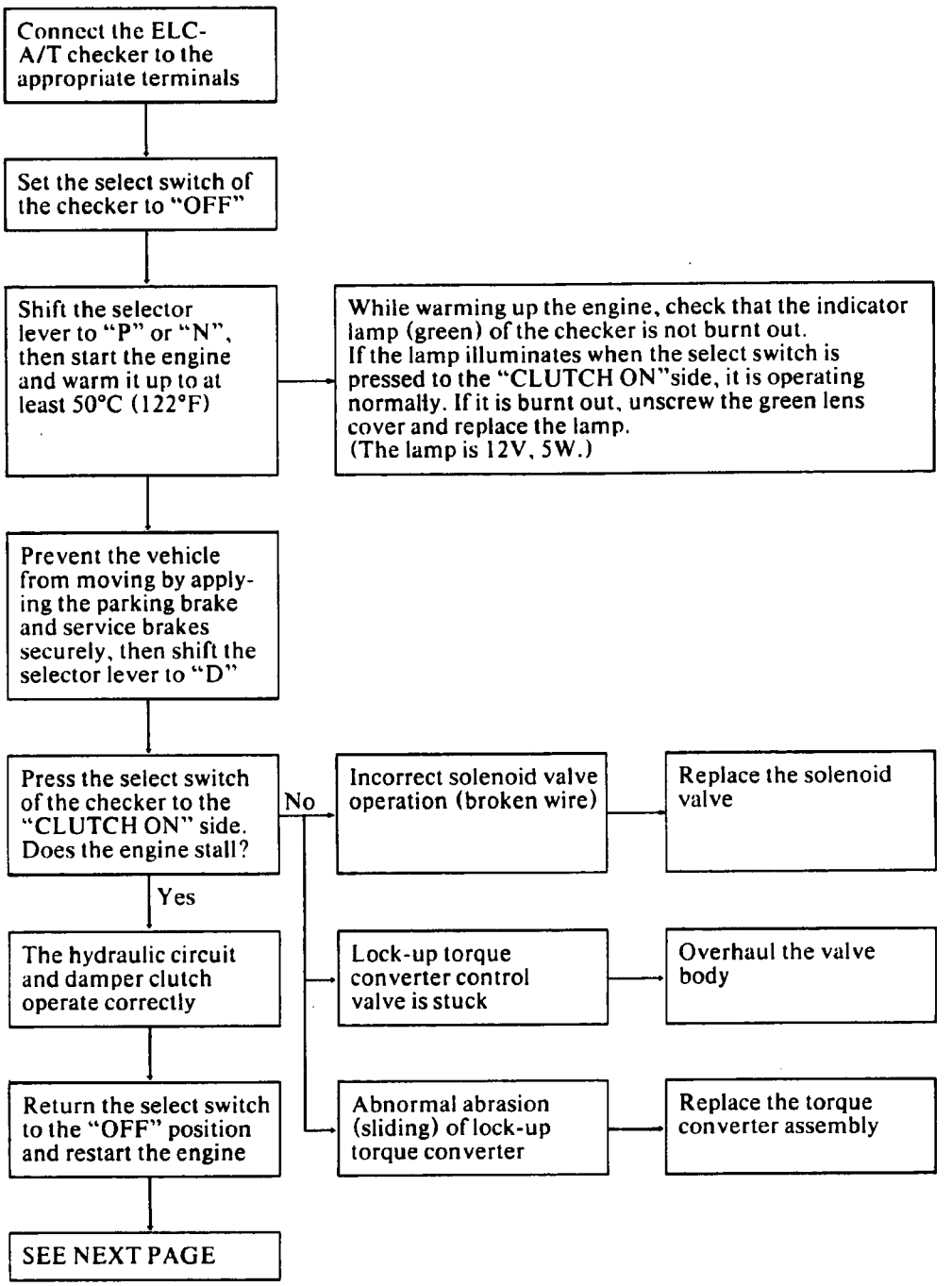
Indicator lamp: This lamp illuminates when the select switch is set to the "CLUTCH ON" position (when current flows to the solenoid valve).

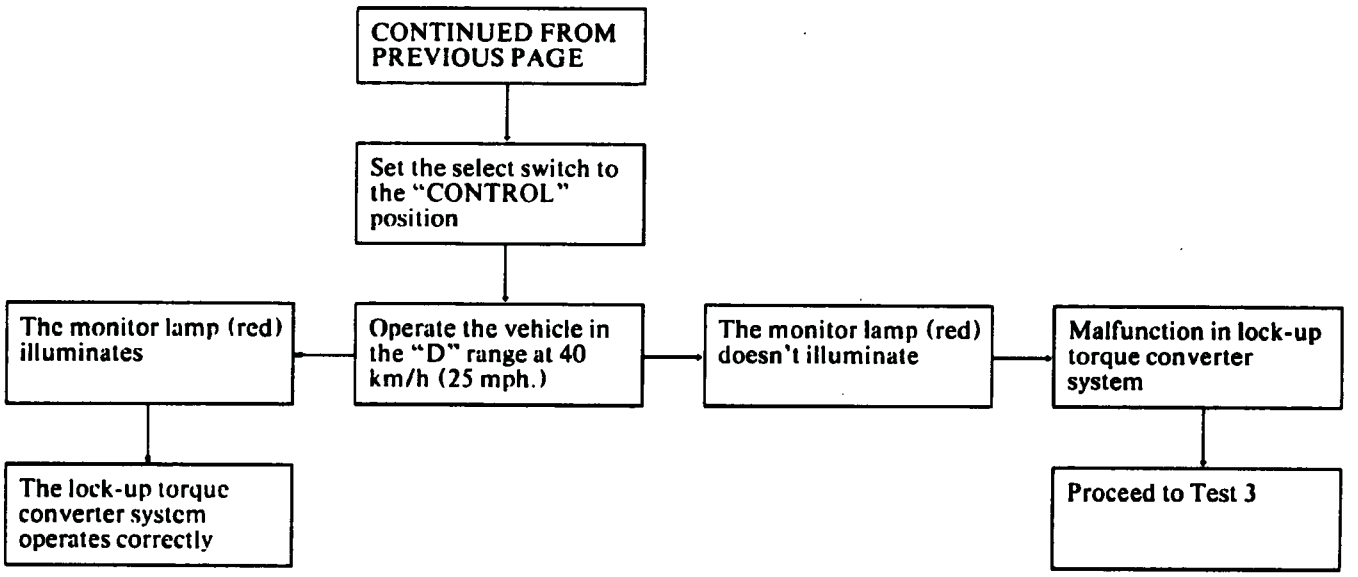
Select switch: This switch has three positions: OFF, CLUTCH ON, and CONTROL. It is used to inspect the lock-up torque converter and lock-up torque converter hydraulic control circuit, and the output signal of the control unit. When the switch is pressed to the "CLUTCH ON" side, current begins to flow. When the switch is released, it returns to its original (OFF) position and automatically resets.





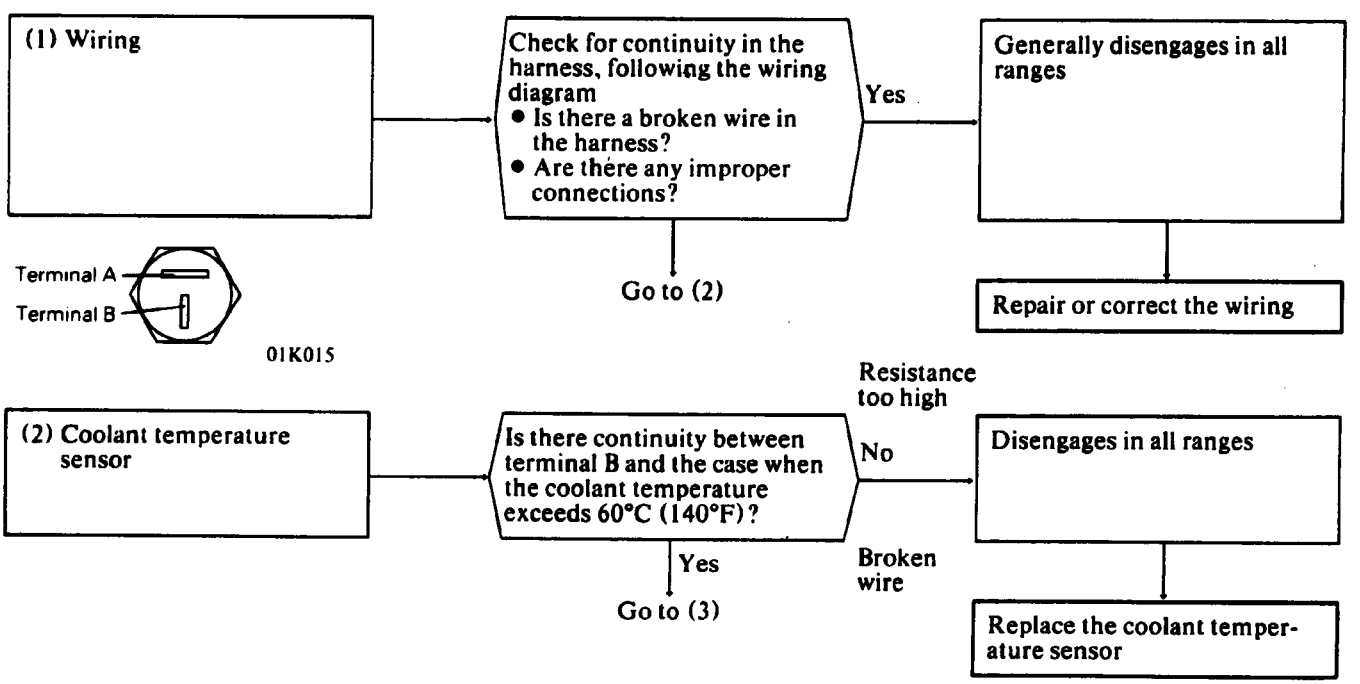
NOTE
The lock-up torque converter is designed no to operate in the following states:
- When the temperature of the coolant is below 50°C (122°F)
- When the vehicle is travelling in first gear
- When the selector lever is set to "R"





Test-3

Inspection procedures and malfunction classification for each element



(3) Throttle position sensor

NOTE
Check while set to the carburetor

01K015

Throttle position sensor terminals

Check the resistance between terminals 1 and 3. Is the resistance 3.5—6.5 kΩ at 20°C (68°F)?

No — Resistance less than 8%

Disengages in all range

Replace the throttle position sensor

Yes

Check the resistance between terminals 2 and 3 while idling. Is the resistance just 8% of resistance between terminals 1 and 3?

No — Resistance more than 8%

Engine stalls during sudden braking with wheels locked

Adjust the resistance value by using the adjusting screw

Yes

Disengages at 20 km/h (13 mph) in 2nd

Adjust the resistance value by using the adjusting screw

Check the resistance between terminals 2 and 3 at full open Is the resistance just 96% of resistance between terminals 1 and 3?

No — Resistance too high

Disengages in all range

Yes

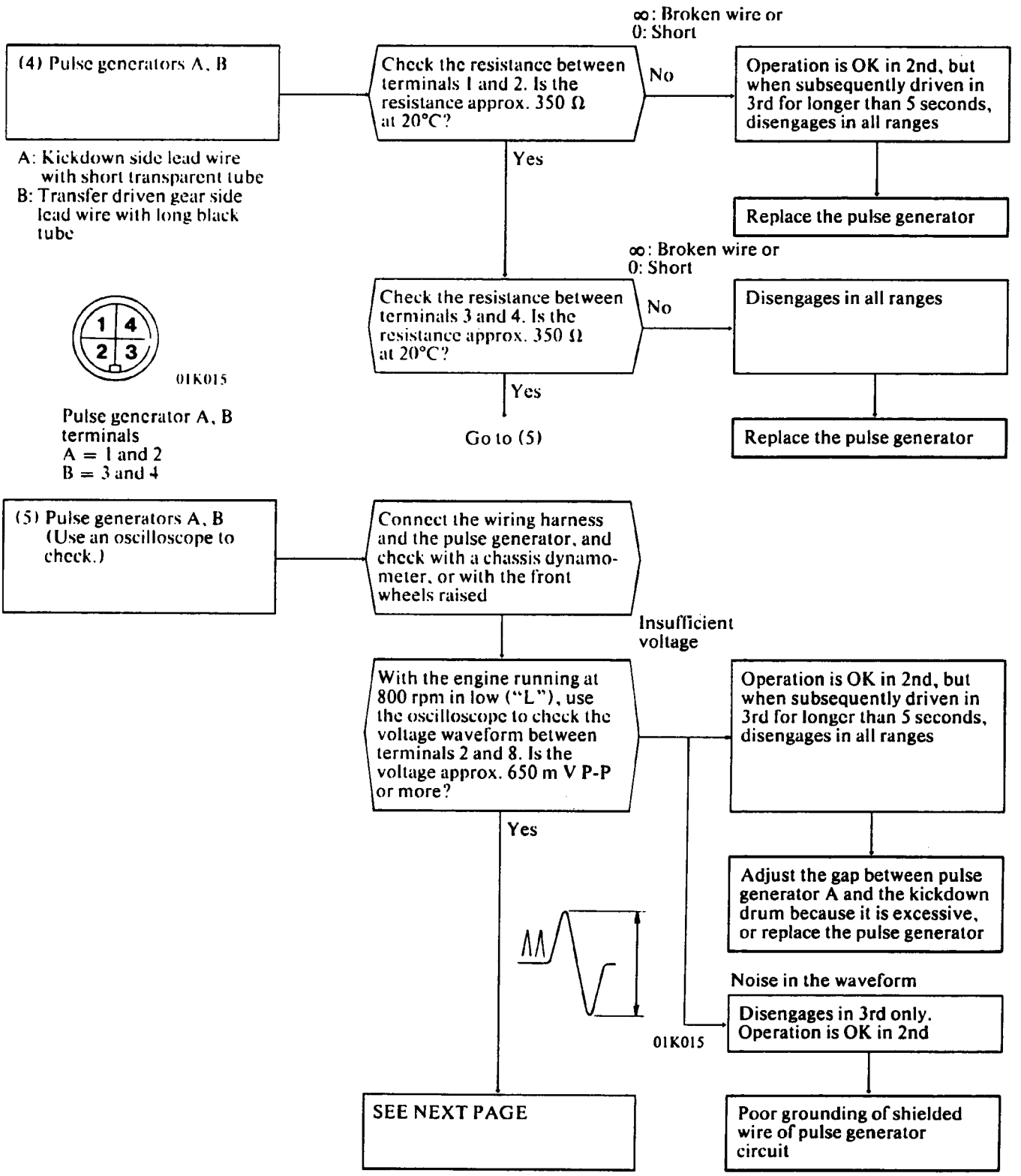
Does the resistance value between terminals 2 and 3 change continuously between idling and full open?

No — Becomes ∞ midway through stroke

Disengages at a throttle opening when engine speed exceeds approx. 2,500 rpm

Changes continuously

Go to (4)


∞: Broken wire or
0: Short
(4) Pulse generators A, B
Check the resistance between terminals 1 and 2. Is the resistance approx. 350 Ω at 20°C?
No
Operation is OK in 2nd, but when subsequently driven in 3rd for longer than 5 seconds, disengages in all ranges
Yes
Replace the pulse generator
A: Kickdown side lead wire with short transparent tube
B: Transfer driven gear side lead wire with long black tube
∞: Broken wire or
0: Short
Check the resistance between terminals 3 and 4. Is the resistance approx. 350 Ω at 20°C?
No
Disengages in all ranges
1 4
2 3
01K015
Yes
Replace the pulse generator
Pulse generator A, B terminals
A = 1 and 2
B = 3 and 4
Go to (5)
(5) Pulse generators A, B (Use an oscilloscope to check.)
Connect the wiring harness and the pulse generator, and check with a chassis dynamometer, or with the front wheels raised
Insufficient voltage
With the engine running at 800 rpm in low ("L"), use the oscilloscope to check the voltage waveform between terminals 2 and 8. Is the voltage approx. 650 m V P-P or more?
Operation is OK in 2nd, but when subsequently driven in 3rd for longer than 5 seconds, disengages in all ranges
Yes
Adjust the gap between pulse generator A and the kickdown drum because it is excessive, or replace the pulse generator
Noise in the waveform
01K015
Disengages in 3rd only. Operation is OK in 2nd
SEE NEXT PAGE
Poor grounding of shielded wire of pulse generator circuit

CONTINUED FROM PREVIOUS PAGE

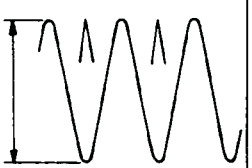
With the engine running at 1,000 rpm in low ("L"), use the oscilloscope to check the voltage waveform between terminals 1 and 7. Is the voltage approx. 180 mV P-P or more?

Insufficient voltage

Disengages in all ranges

Adjust the gap between pulse generator A and the kickdown drum because it is excessive, or replace the pulse generator

Yes



01K015

Noise in the waveform

Disengages in all ranges, or vibration occurs

Poor grounding of shielded wire of pulse generator circuit

Go to (6)

∞: Broken wire or
0: Short

(6) Solenoid

Check the resistance between the solenoid terminals and the transaxle case. Is the resistance approx. 3 Ω at 20°C (68°F)?

No

Disengages in all ranges

Refer to NOTES 1. and 2.

Replace the solenoid

Yes

NOTES
1. If resistance is ∞, minus (–) side lead wire may not be connected.
2. If there is a short in the solenoid, the control unit may be damaged.

Is there any foreign matter on the valve seat?

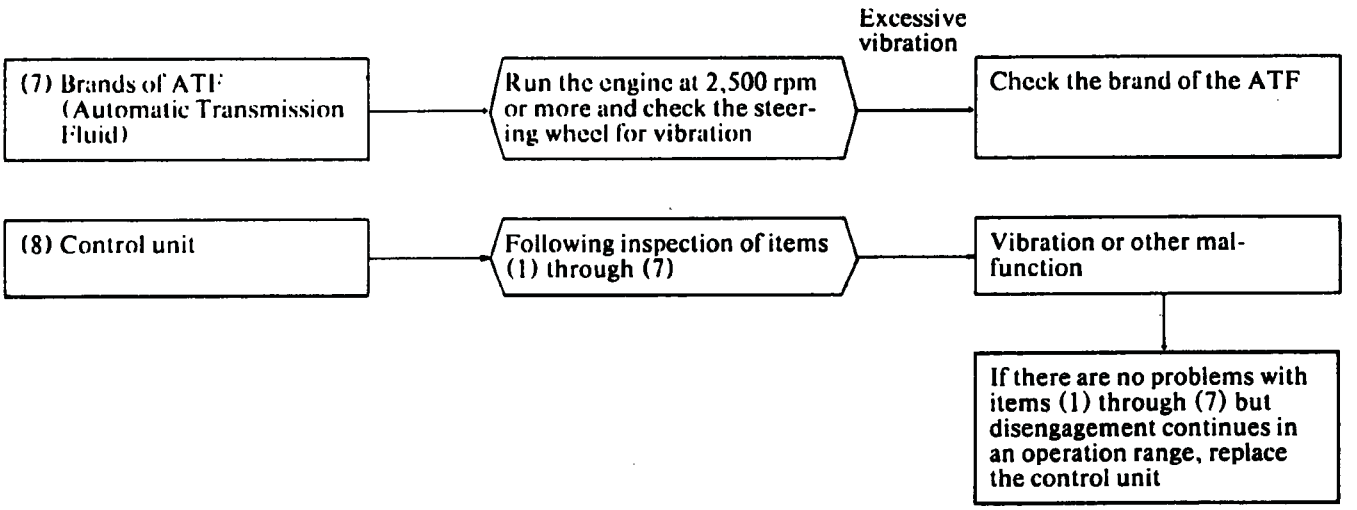
Yes

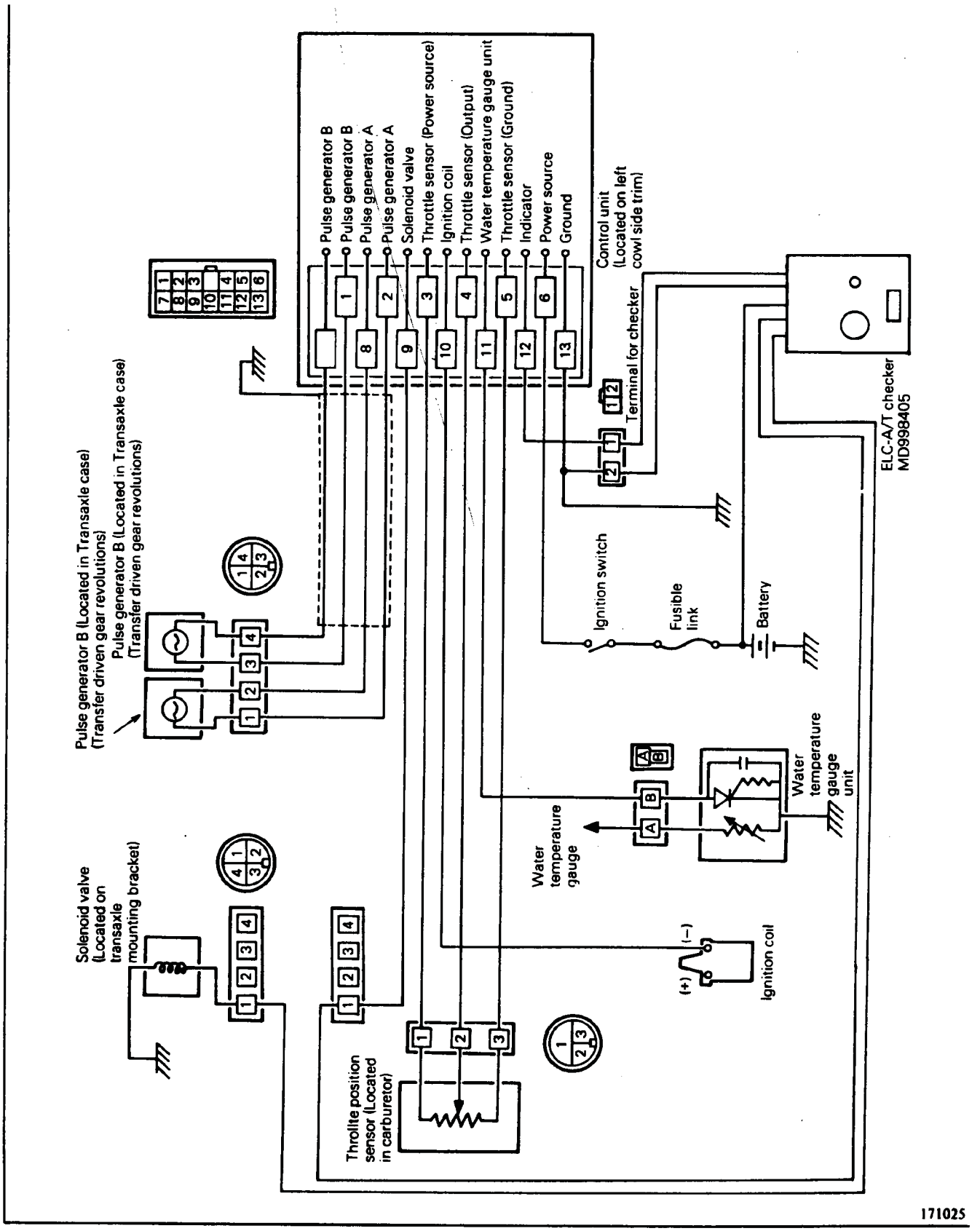
Engine stalls when shifted from "N" or "P" to a driving gear

Replace the solenoid

No

Go to (7)


(7) Brands of ATF (Automatic Transmission Fluid)
Run the engine at 2,500 rpm or more and check the steering wheel for vibration
Excessive vibration
Check the brand of the ATF
(8) Control unit
Following inspection of items (1) through (7)
Vibration or other malfunction
If there are no problems with items (1) through (7) but disengagement continues in an operation range, replace the control unit

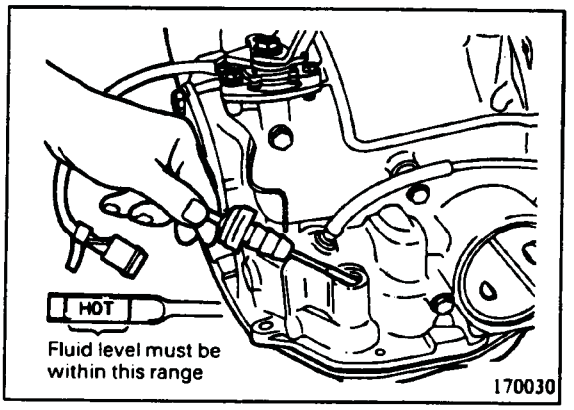

Pulse generator B
Pulse generator B
Pulse generator A
Pulse generator A
Solenoid valve
Throttle sensor (Power source)
Ignition coil
Throttle sensor (Output)
Water temperature gauge unit
Throttle sensor (Ground)
Indicator
Power source
Ground
Control unit (Located on left cowl side trim)
Terminal for checker
ELC-A/T checker MD998405
Pulse generator B (Located in Transaxle case)
Pulse generator B (Located in Transaxle case) (Transfer driven gear revolutions)
Solenoid valve (Located on transaxle mounting bracket)
Throttle position sensor (Located in carburetor)
Ignition switch
Fusible link
Battery
Water temperature gauge
Water temperature gauge unit
Ignition coil
(+)
(−)
171025

LUBRICATION

Checking Fluid Level and Replenishing Fluid

Check and replenish interval:
Every 24,000 km (15,000 miles)

Inspect fluid level on dipstick with engine idling, transaxle in neutral position and vehicle on level ground.
A proper fluid level should be between upper and lower lines of dipstick when fluid temperature is 50–80°C (120–180°F).



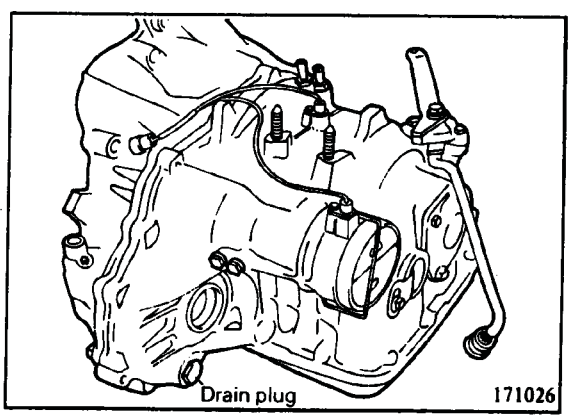
Changing Fluid

Recommended fluid	..... DEXRON or DEXRON II

NOTES
When factory fill fluid is changed as recommended above. If transaxle is disassembled for any reason, fluid and filter should be changed.

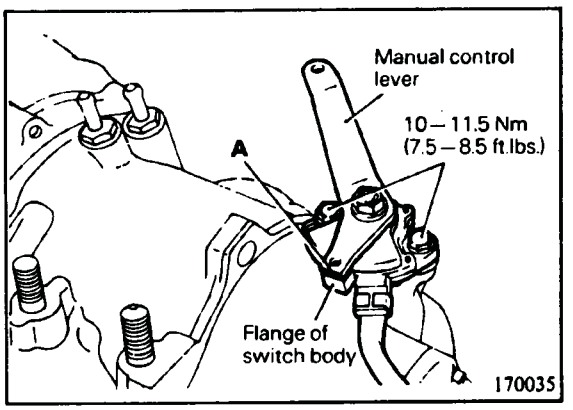
Fluid Changing Procedure

1. Raise vehicle on hoist. Place drain container with large opening, under drain plug.
2. Remove drain plug to let fluid drain. (171026)
3. Place a drain container with large opening under the transaxle oil pan.
4. Loosen oil pan bolts and tap pan at one corner to break it loose allowing fluid to drain, then remove oil pan.
5. Clean drain plug and tighten drain plug with gasket to 30–34 Nm (22–25 ft.lbs.).
6. Clean gasket surfaces of transaxle case and oil pan.
7. Install oil pan with new gasket and tighten oil pan bolts to 10–11 Nm (7.5–8.5 ft.lbs.).
8. Pour 4 liters (4.2 U.S.qts., 3.5 Imp.qts.) of recommended ATF into case through dipstick hole. [Total quantity of ATF required is approx. 5.8 liters (6.1 U.S.qts., 5.1 Imp.qts.). Actually, however, approx. 4.5 liters (4.8 U.S.qts., 4.0 Imp.qts.) of fluid can be replaced because rest of fluid remains in torque converter.]
9. Start engine and allow to idle for at least two minutes. Then, with parking brake on, move selector lever momentarily to each position, ending in "N" Neutral position.
10. Add sufficient ATF to bring fluid level to lower mark. Recheck fluid level after transaxle is at normal operating temperature.
    Fluid level should be between upper and lower marks of "HOT" range. Insert dipstick fully to prevent dirt from entering transaxle.



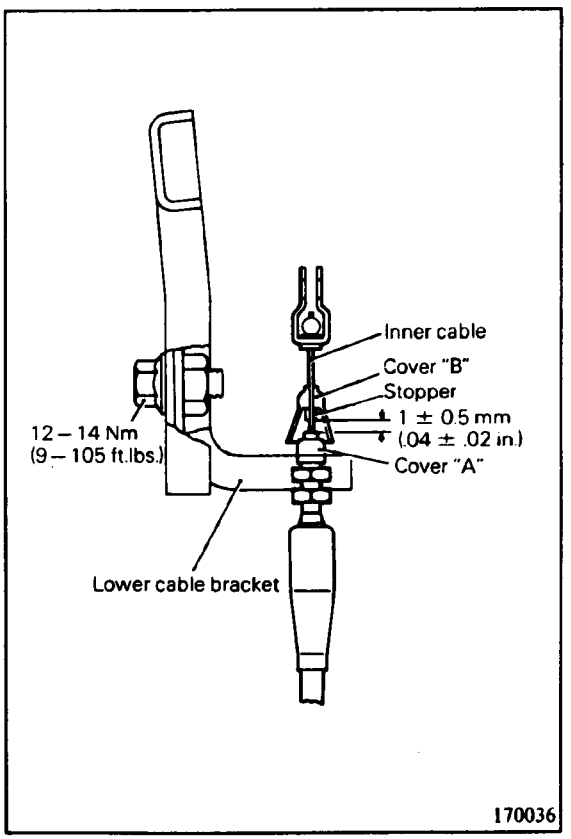
INHIBITOR SWITCH ADJUSTMENT

1. Place manual control lever in "N" Neutral position.
2. Turn inhibitor switch body until 12 mm (.472 in.)-wide end "A" of manual control lever overlaps switch body flange.
3. Tighten two attaching bolts to torque between 10 and 11.5 Nm (7.5 and 8.5 ft.lbs.) while paying attention to prevention of switch body dislocation.



THROTTLE CONTROL CABLE ADJUSTMENT

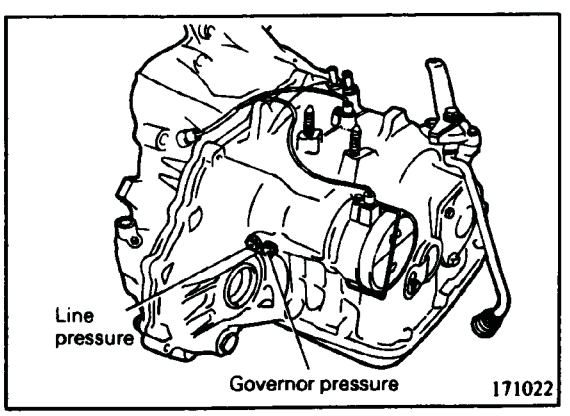
1. Check to ensure that throttle lever of carburetor is in CURB IDLE position, with engine coolant at normal operating temperature [80 – 90°C (180 – 190°F)].
2. Raise cover "B" of throttle cable upward to expose nipple.
3. Loosen lower cable bracket mounting bolt.
4. Move lower cable bracket until distance between nipple and top of cover "A" on throttle cable is adjusted to 1 ± 0.5 mm (.04 ± .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.



CHECK AND ADJUSTMENT OF LINE PRESSURE

Check

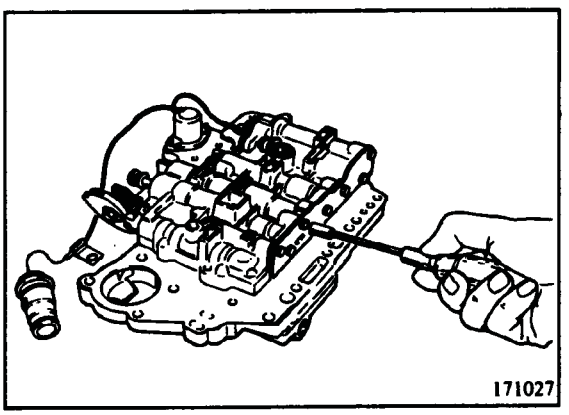
1. With selector lever in "N" neutral, set parking brake on.
2. Attach engine tachometer.
3. Attach Special Tool MD998330 to line pressure take-off port by using Special Tool MD998332.
4. Start engine and warm-up at idle.
5. With selector lever in "D" drive, operate engine at fixed speed of 2,500 rpm.
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.



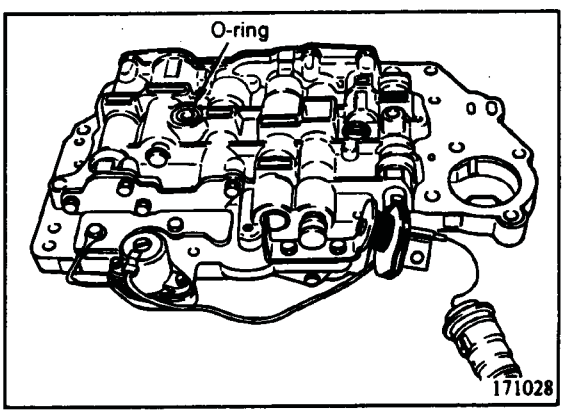
Adjustment

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.

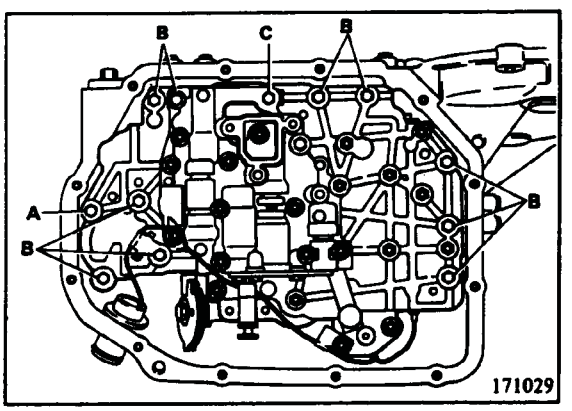


8. Make certain O-ring is installed in position illustrated on top of valve body.
9. Install the accumulator springs.



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 10–11.5 Nm (7.5–8.5 ft.lbs.) (171029)

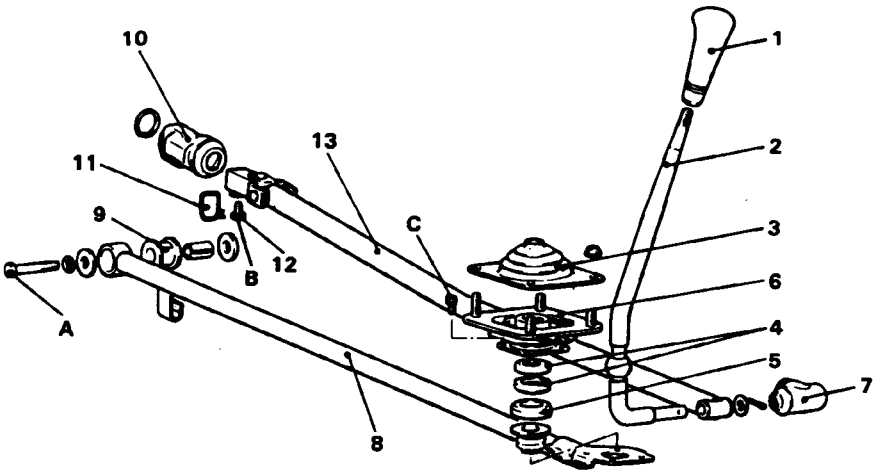
A bolt	20 mm (.787 in.) long
B bolt	28 mm (1.102 in.) long
C bolt	45 mm (1.772 in.) long



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 11.5 Nm (7.5 and 8.5 ft.lbs.)
16. Refill transaxle with ATF to proper level.

COMPONENTS

1. Shift knob
2. Shift lever
3. Shift lever cover
4. Bushing
5. Rubber insulator
6. Insulator
7. Dust cover
8. Extension rod
9. Bushing
10. Dust cover
11. Lock wire
12. Set screw
13. Shift rod



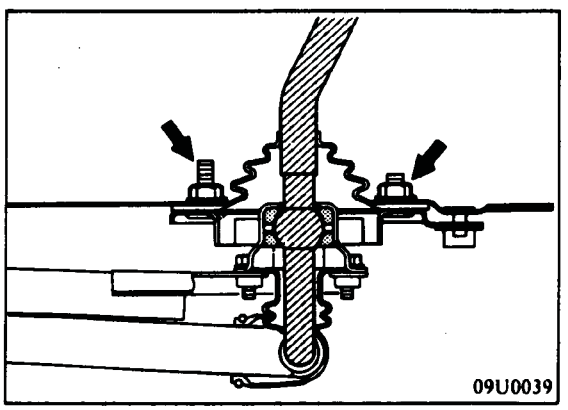
	Nm	ft.lbs.
A	60 – 70	43 – 51
B	33	24
C	12 – 15	9 – 11

09U0015

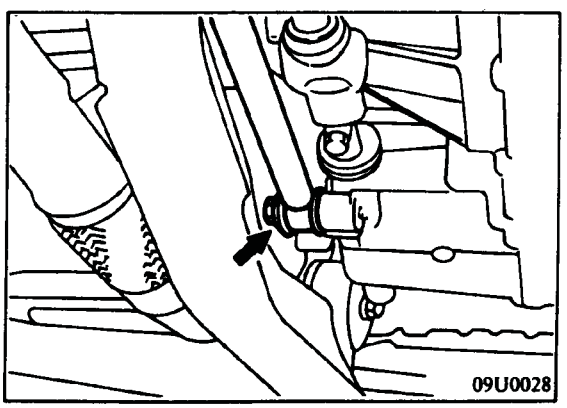
GEARSHIFT LEVER

Removal

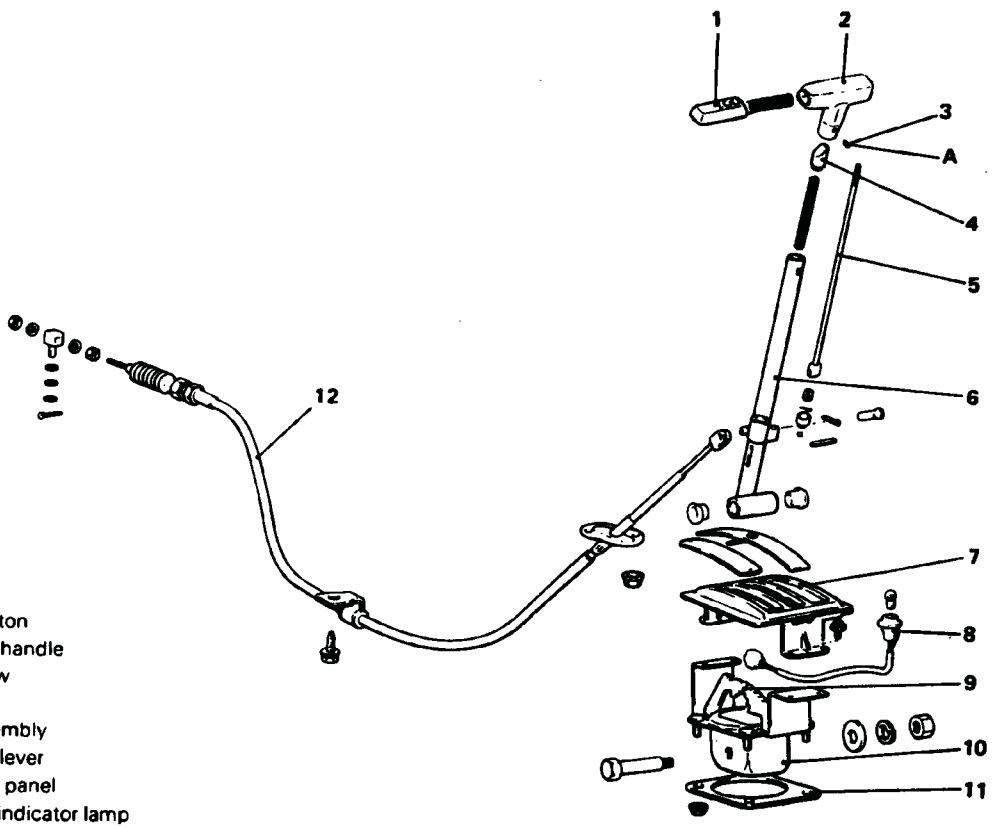
1. Remove the floor console box. (Refer to GROUP 23.)
2. On vehicles with rear heater duct, remove the rear heater duct.
3. Remove the shift lever assembly attaching nuts from the floor. (09U0039)
4. Pull the shift lever assembly downward from the vehicle.



5. Remove the extension rod from the transaxle.



COMPONENTS



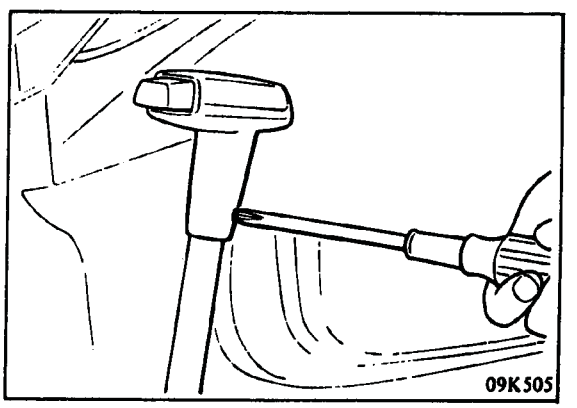
1. Pushbutton
2. Selector handle
3. Set screw
4. Sleeve
5. Rod assembly
6. Selector lever
7. Indicator panel
8. Position indicator lamp
9. Detent plate
10. Plate assembly
11. Packing
12. Control cable

	Nm	ft.lbs.
A	2.0	1.4

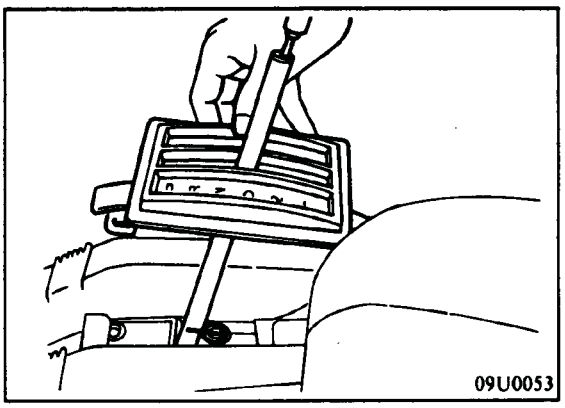
09U0054

REMOVAL

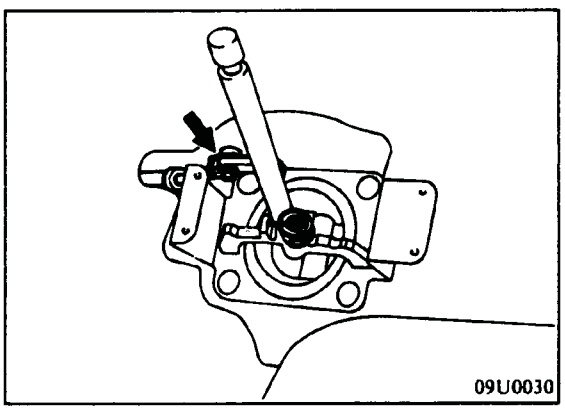
1. Remove the selector handle from the selector lever. (09K505)
2. Remove the floor console box. (Refer to GROUP 23.)



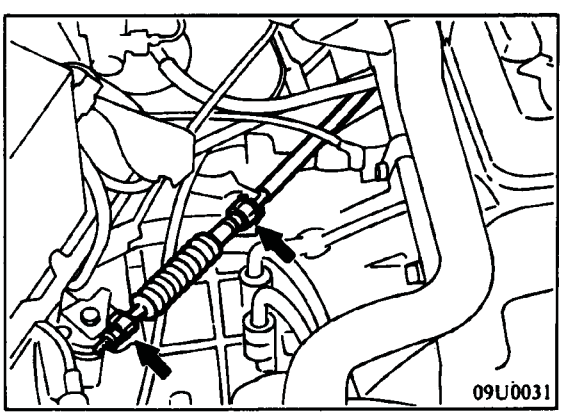
3. Disconnect the connector of the position indicator light.
4. Remove the indicator panel. (09U0053)
5. Remove the rear heater duct.



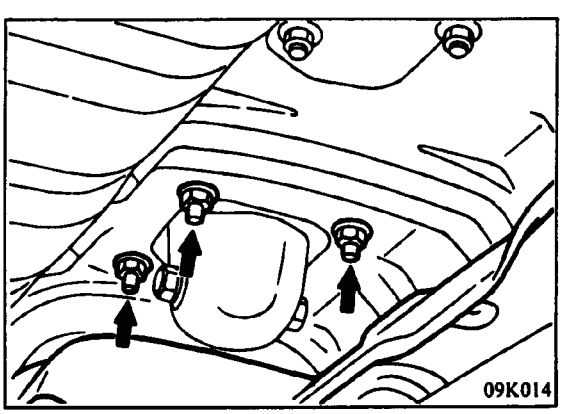
6. Disconnect the control cable from the selector lever.



7. Remove the control cable from the transaxle and the transaxle mount bracket.



8. Raise the vehicle, and then remove the nuts mounting the control cable to the floor and remove the plate assembly mounting nuts. (09K014)
9. Remove the plate assembly from inside the vehicle, and remove the control cable from beneath the vehicle.



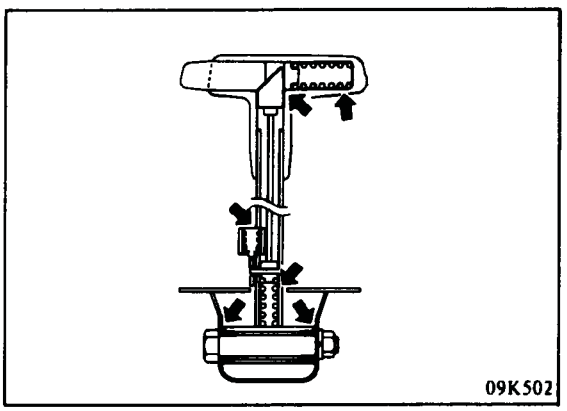
INSPECTION

1. Check the detent plate for wear.
2. Check the pin at the end of selector lever for wear.
3. Check the contact surface of the push button and sleeve for wear.
4. Check the control cable for damage or function.

INSTALLATION

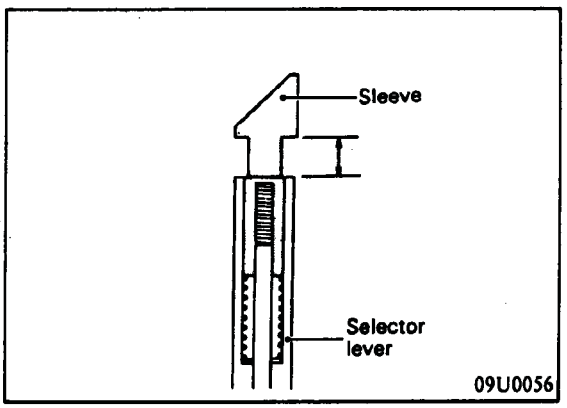
1. Apply wheel bearing grease to each sliding part.

Recommended wheel bearing grease .....
MOPAR Front Wheel Bearing Grease
Part Number 3837794 or equivalent



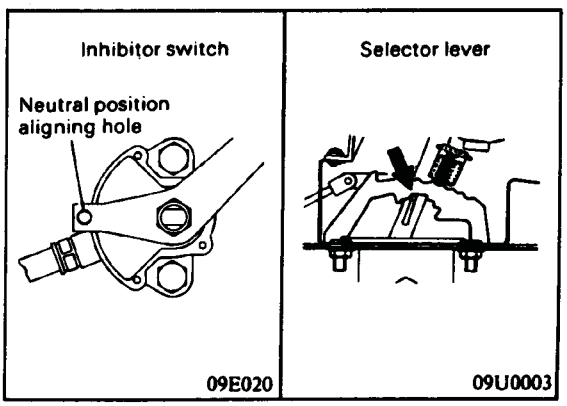
2. With the selector lever set to the "N" position, turn the sleeve so that the clearance between sleeve and selector lever end is within the standard value range.

Clearance between sleeve and selector lever end
[Standard value] ..... 17.2—17.9 mm (.677—.705 in.)

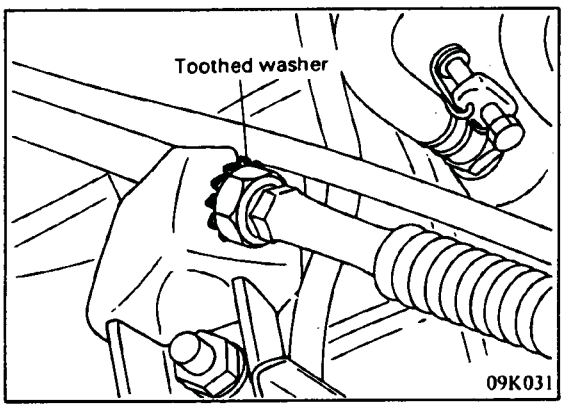


NOTE
Attach the selector handle to the selector lever in the position where the pushbutton is at the driver's side.

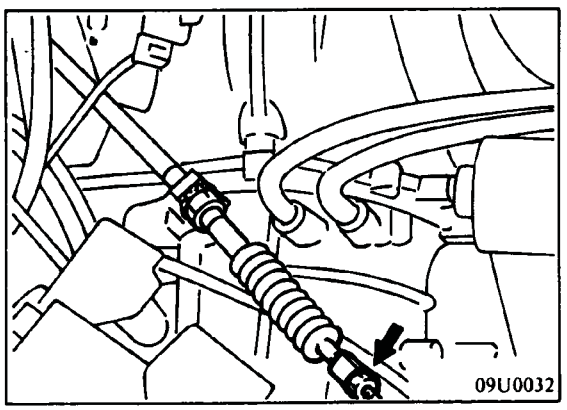
3. Move the selector lever and the inhibitor switch to the "N" position, and install the control cable.



Caution
When connecting the control cable to the transaxle mounting bracket, be sure that the toothed washer is in the correct position.

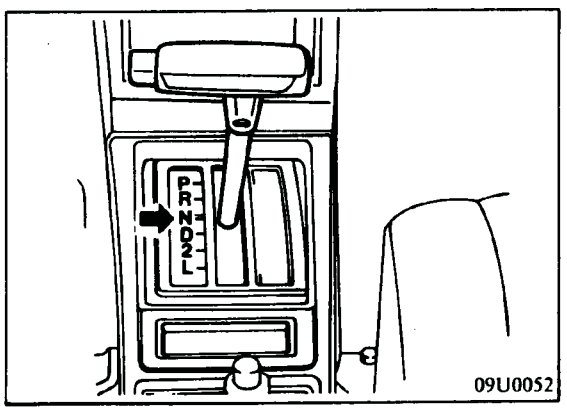


4. After confirming that the inhibitor switch is installed correctly, adjust the adjusting nut on the transaxle side so that there is no looseness in the control cable.

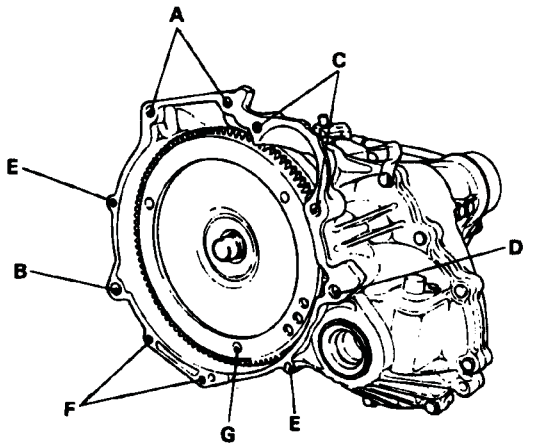


5. Set the selector lever to the "N" position, and then mount the indicator panel so that the "N" indication is properly aligned. (09U0052)
6. Confirm that selector lever operation is smooth, that the correct gear is selected at each position of the lever, and that the corresponding position mark is indicated at each position.
7. Install parts by reference to torque specification.

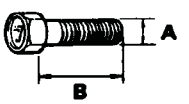
Tightening torque
Selector handle set screw ..... 2.0 Nm (1.4 ft.lbs.)



COMPONENTS



	Nm	ft.lbs.	O.D. × Length mm (in.)	Bolt identification
A	43–55	31–40	[7] 10 × 40 (1.6)	[7] A × B
B	43–55	31–40	[7] 10 × 65 (2.6)	
C	22–32	16–23	[7] 10 × 55 (2.2)	
D	30–35	22–25	[10] 10 × 60 (2.4)	
E	10–12	7–9	[7] 8 × 14 (.6)	
F	15–22	11–16	[7] 8 × 20 (.8)	
G	35–42	25–30	–	

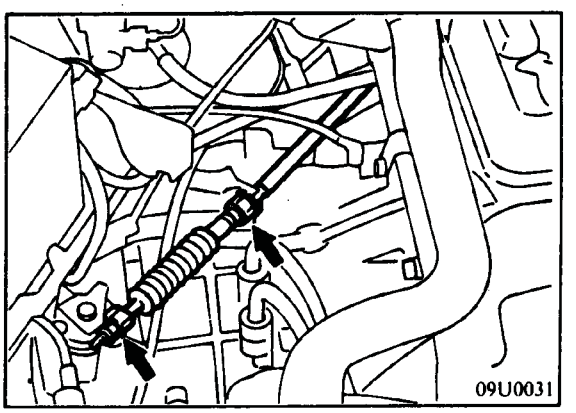


Y09512

09E031

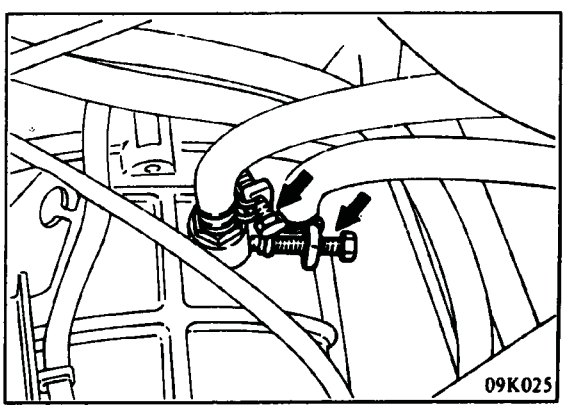
REMOVAL

1. Remove the battery and the battery tray.
2. On vehicles with a turbocharger, remove the air cleaner case.
3. Disconnect the kickdown cable at the engine side.
4. Disconnect the control cable from the transaxle. (09U0031)

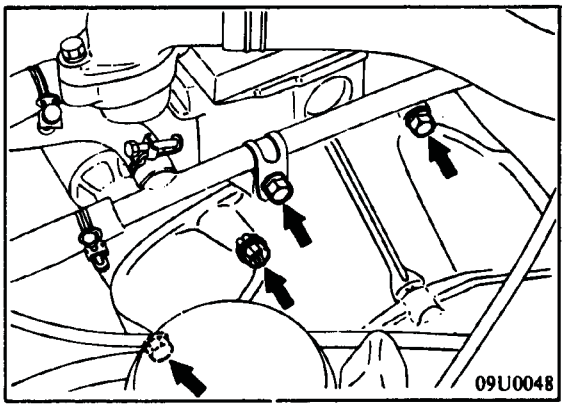


5. Disconnect the inhibitor switch connector, oil cooler hoses, and speedometer cable from the transaxle.

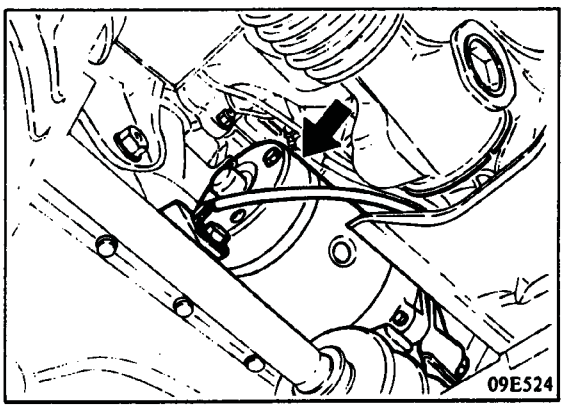
Caution
Plug the ends of the oil cooler hoses to prevent the entrance of foreign material.



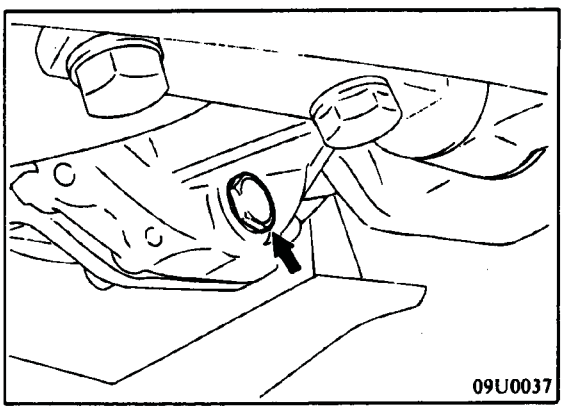
6. Disconnect the starter motor harness.
7. Remove the transaxle-to-engine bolt from the upper portion of the transaxle. (09U0048)



8. Remove the starter motor.



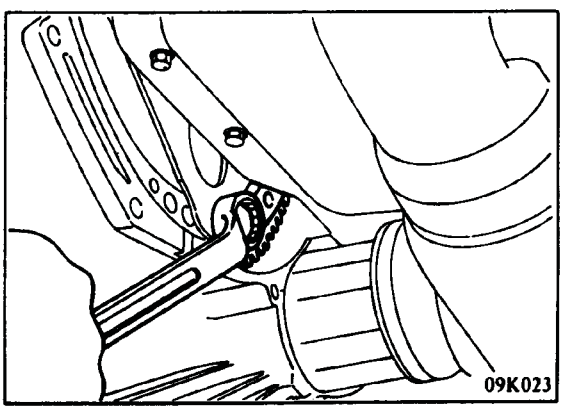
9. Raise the vehicle and remove the under cover.
10. Drain the transmission fluid. (09U0037)
11. Remove the stabilizer bar from the lower arm.
12. Then remove the lower arm at the body side.
13. Pull out the right and left drive shafts and store them in a proper place. (Refer to GROUP 2.)



14. Remove the bell housing cover.
15. Remove the three special bolts connecting the converter to the drive plate. (09K023)

NOTE
To remove the special bolts of torque converter, turn engine crankshaft with a box wrench to bring one of the bolts to the position appropriate for removal. After removing the bolt, turn the crankshaft in the same manner as above and remove all remaining bolts one after another.

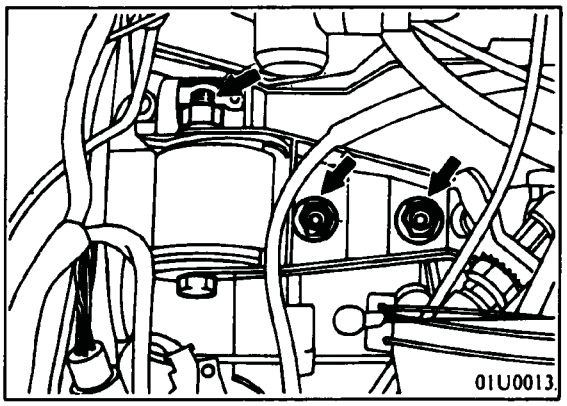
16. After removing the special bolts, push the torque converter toward transaxle so that it does not remain on the engine side.



17. While supporting the lower part of the transaxle by using a transaxle jack, remove the remaining engine connecting bolts.

Caution
Support a wide area of the transaxle so that an excessive amount of pressure is not applied to the oil pan.

18. Remove the bolt from the transaxle mount insulator. (01U0013)
19. Remove the transaxle mount bracket from the transaxle.
20. Slide the transaxle assembly to the right and then lower it to remove it.



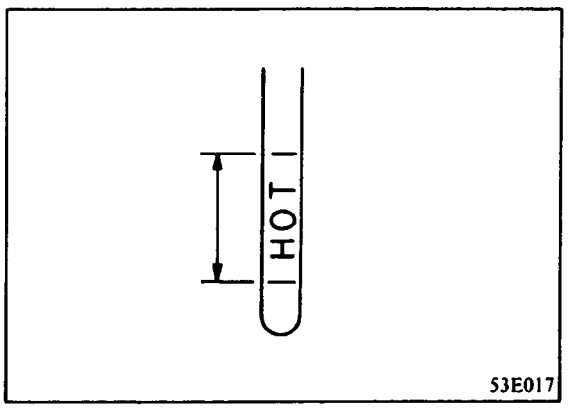
INSTALLATION

1. Be sure to install the torque converter first to the transaxle and then to the engine.

Caution
If the torque converter is installed first to the engine, oil seals on the transaxle side may be damaged.

2. Refill the transaxle with fluid to the specified level. (53E017)

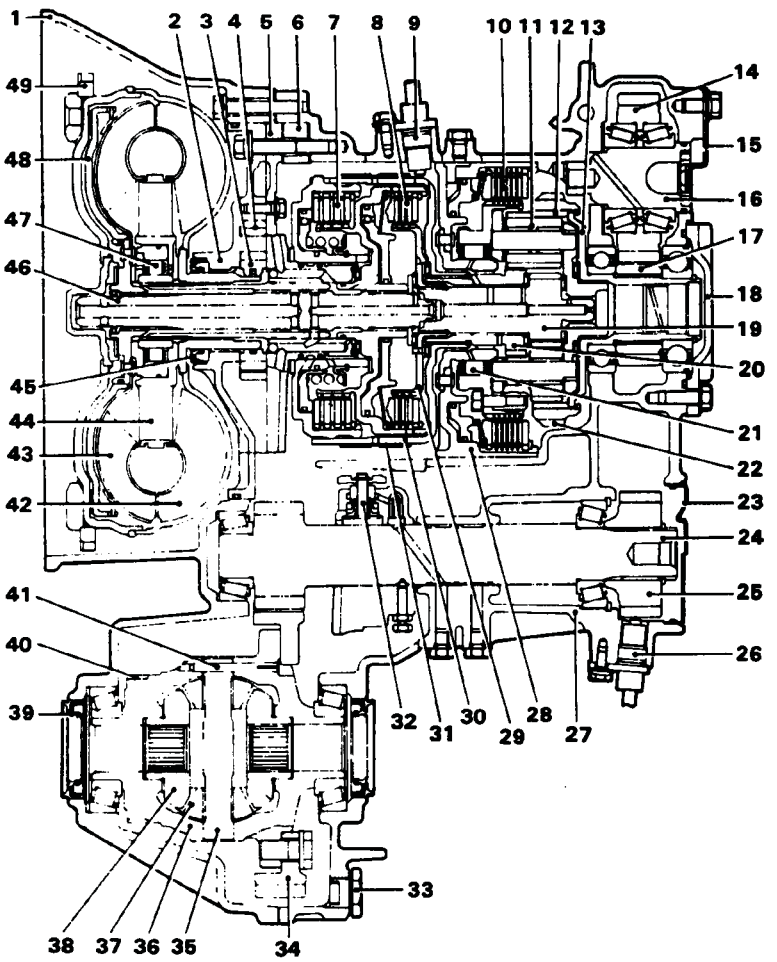
Recommended fluid	ATF DEXRON or DEXRON II type
Quantity	5.8 lit. (6.1 U.S.qts., 5.1 Imp.qts.)



NOTE
With the vehicle on a level surface, check by shifting the selector lever from "P" through "L" positions with the engine idling.

3. Adjust the kickdown cable.
4. Adjust the control cable. (Refer to P. 21-70.)
5. Make sure the inhibiter switch harness does not contact the transaxle insulator bracket.
6. Make sure the engine does not start when the selector lever is placed at other than the "N" and "P" positions.
7. Install the parts by reference to torque specifications.

SECTIONAL VIEW



1 Converter housing
2 Oil pump housing
3 Oil pump drive gear
4 Oil pump driven gear
5 Reaction shaft support
6 Adapter
7 Front clutch
8 Rear clutch
9 Pulse generator A
10 Low-reverse brake
11 Planet gear set
12 Internal gear
13 Output flange
14 Transfer idle gear
15 Lock plate
16 Transfer idle shaft
17 Transfer drive gear
18 Bearing retainer
19 Forward sun gear
20 Reverse sun gear
21 One-way clutch
22 Parking sprag
23 Cover
24 Transfer shaft
25 Transfer driven gear
26 Pulse generator B
27 Transaxle case
28 Center support
29 Clutch hub
30 Kickdown drum
31 Kickdown band
32 Governor
33 Drain plug
34 Differential drive gear (Ring gear)
35 Pinion shaft
36 Differential case
37 Pinion gear (2)
38 Side gear (2)
39 Drive shaft oil seal (2)
40 Speedometer drive gear
41 Pinion shaft lock pin
42 Impeller
43 Turbine
44 Stator
45 Pump oil seal
46 Input shaft
47 One-way clutch
48 Clutch plate
49 Starter ring gear

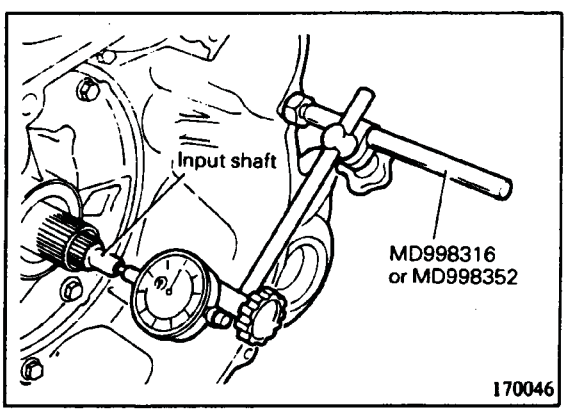
172003

DISASSEMBLY

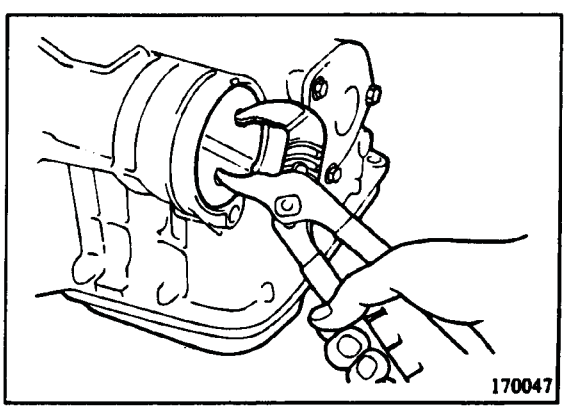
Caution
All mating surfaces in transaxle are accurately machined; handle parts carefully to avoid nicks or burrs.
Cleanliness through entire disassembly and assembly processes cannot be over-emphasized.
When disassembling, each part should be washed in a suitable solvent, then dried by compressed air. Do not wipe parts with shop towels. Clutch disc, brake disc, plastic thrust plate and rubber parts should be washed in ATF, 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.

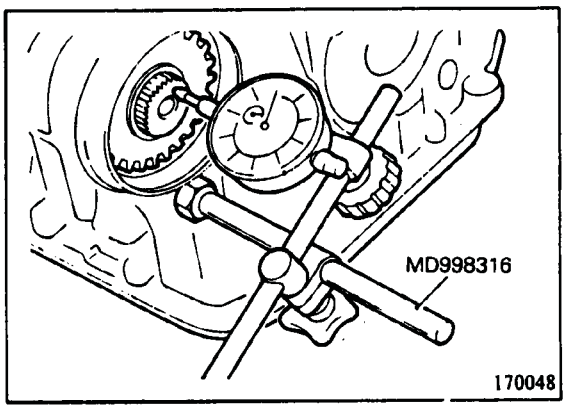
4. Measuring input shaft end play before disassembly will usually indicate when a thrust washer change is required (except when major parts are replaced). Thrust washers are located between reaction shaft support and rear clutch retainer, and between reaction shaft support and front clutch retainer.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



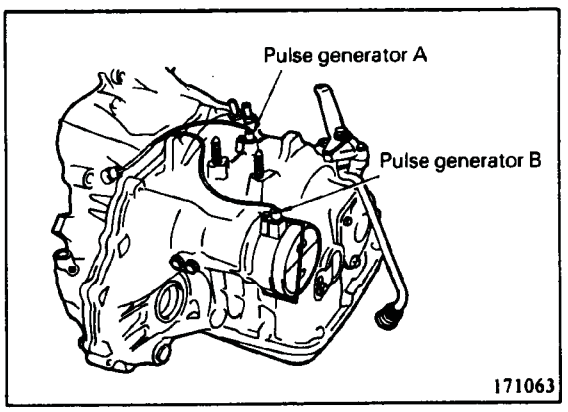
5. Remove the cover retainer and then remove the cover.



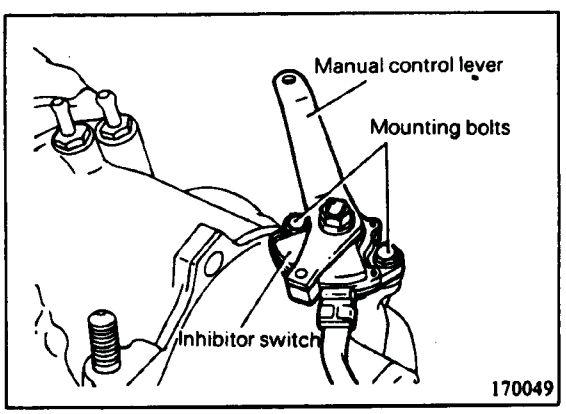
6. Measuring transfer shaft end play before disassembly will usually indicate when a spacer change is required. Spacer is located between transfer shaft bearing outer race and converter housing.
   Attach a dial indicator to transaxle case with its plunger seated against end of transfer shaft.
   After 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.



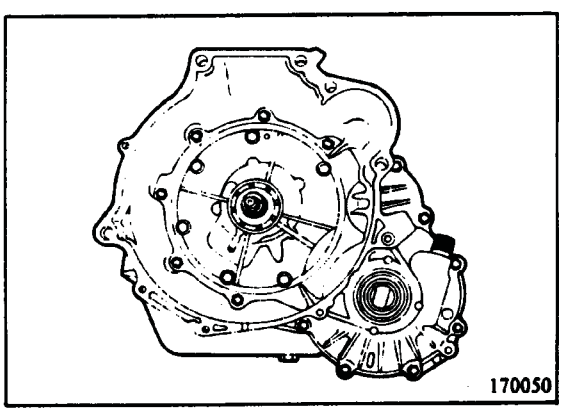
7. Remove the pulse generator "A" and "B".



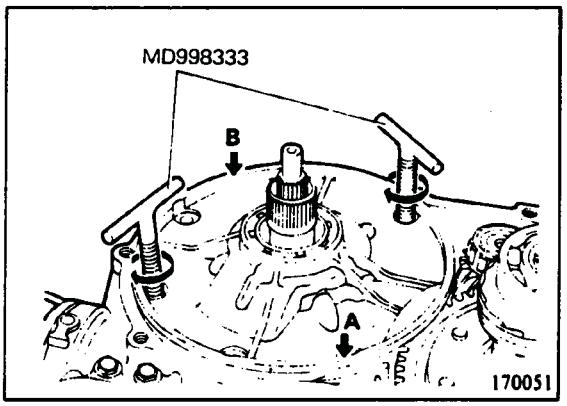
8. Remove manual control lever, then remove inhibitor switch.



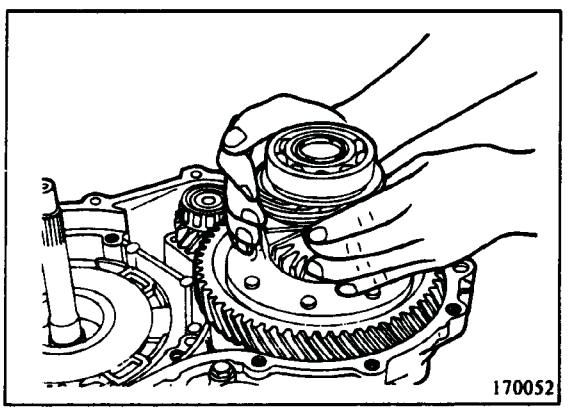
9. Place transaxle with engine mounting surface up.
10. Remove 13 bolts and remove converter housing. (170050)



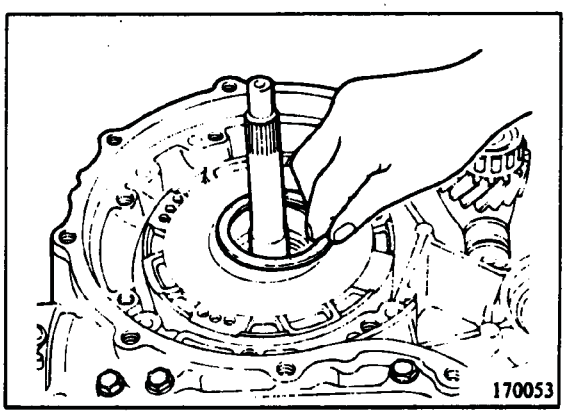
11. Remove six oil pump mounting bolts. Screw Special Tools MD998333, into two oil pump removing holes in oil pump housing. Turn both removers simultaneously and uniformly to remove oil pump assembly.
    Oil pump may sometimes tilt to A side, because straight line connecting oil pump removing holes does not pass center of pump. If this is the case, tap oil pump lightly on B side or tilt removers to B side as pump is removed.
12. Remove the oil pump gasket.
13. Remove the oil pump adapter and gasket.



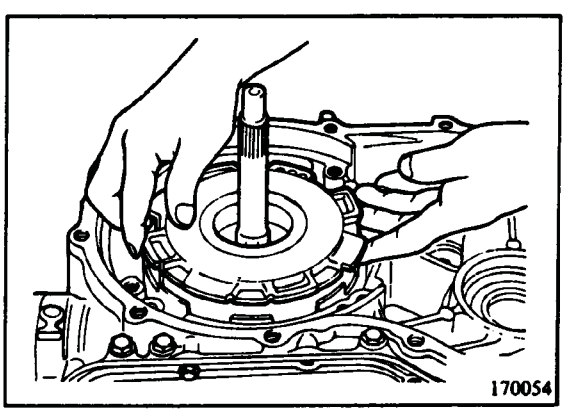
14. Remove the differential assembly.



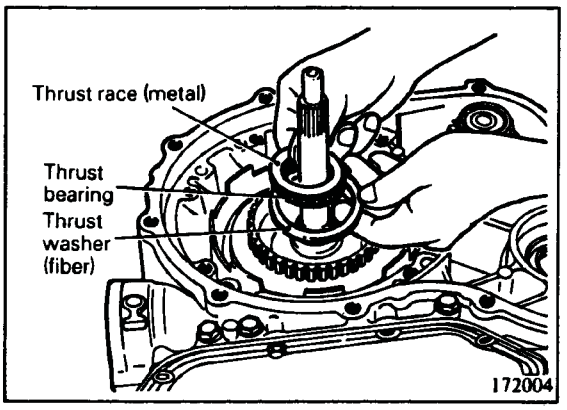
15. Remove the fiber thrust washer.



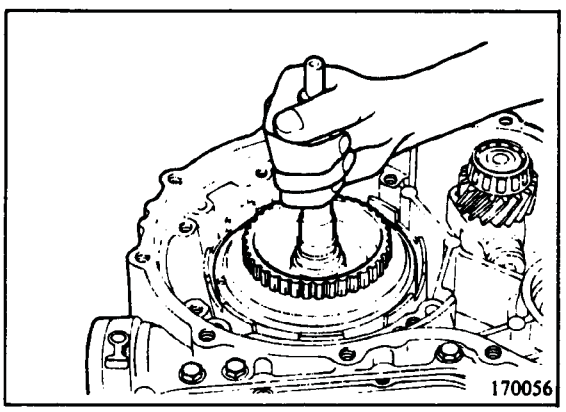
16. Remove the front clutch assembly.



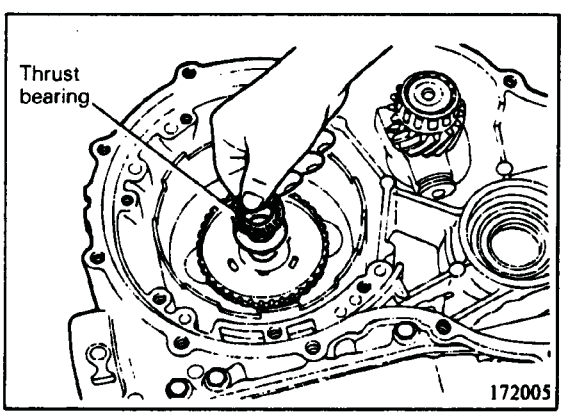
17. Remove the fiber thrust washer, the metal thrust race, and the thrust bearing.



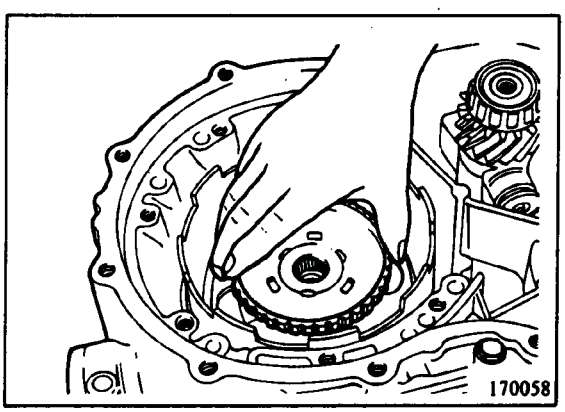
18. Remove the rear clutch assembly.



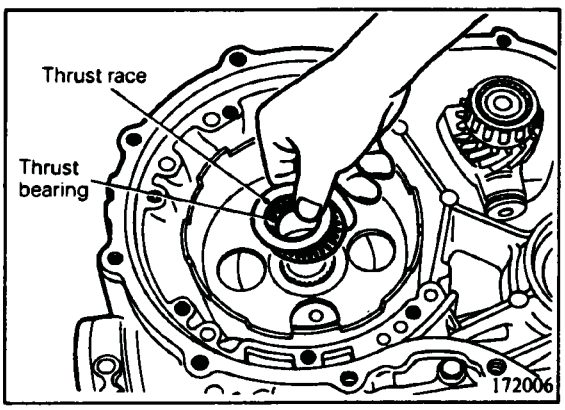
19. Remove the thrust bearing.



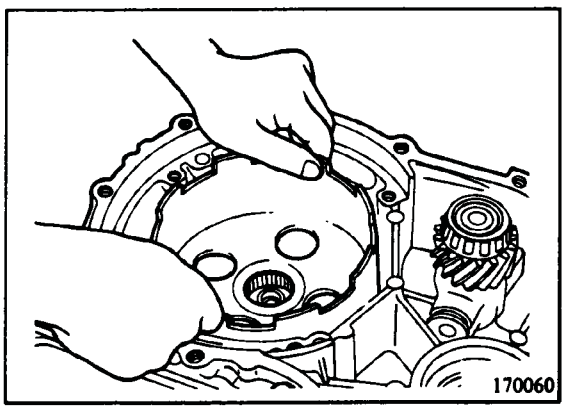
20. Remove the clutch hub.



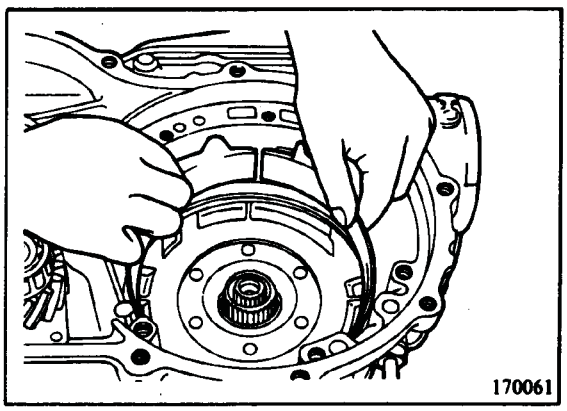
21. Remove the thrust race and bearing.



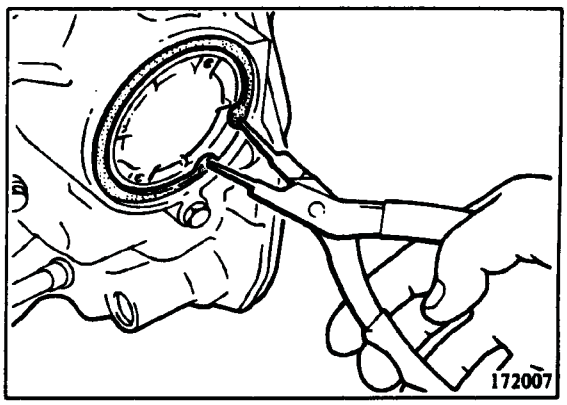
22. Remove the kickdown drum.



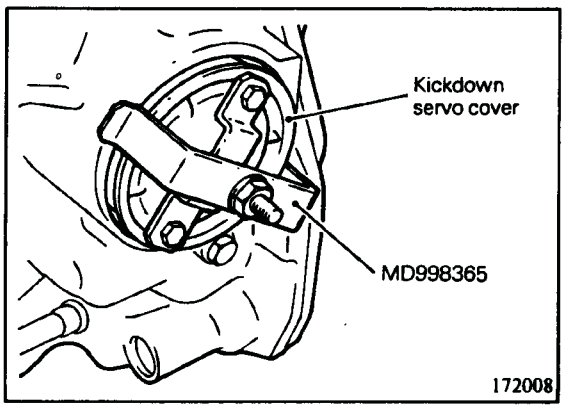
23. Remove the kickdown band.



24. Remove the kickdown servo cover snap ring.

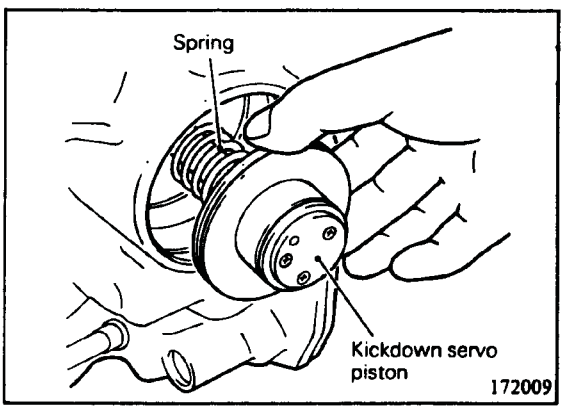


25. Using Special Tool (MD998365), remove the kickdown servo sleeve from the transaxle case.

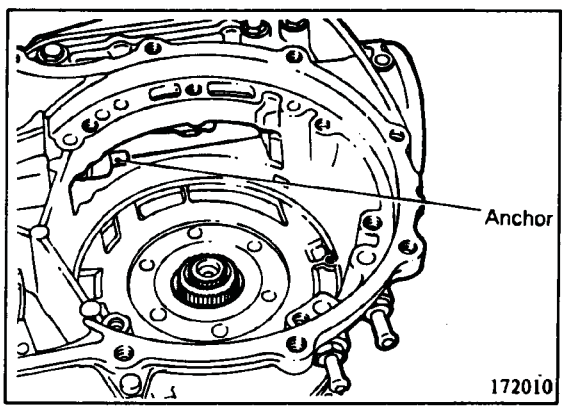


26. Remove the kickdown servo piston and spring.

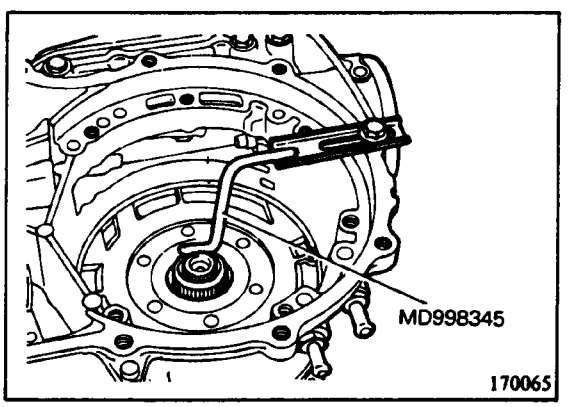
Caution
Do not place (turn) transaxle upside down as planetary gearset thrust washers could fall out of place.



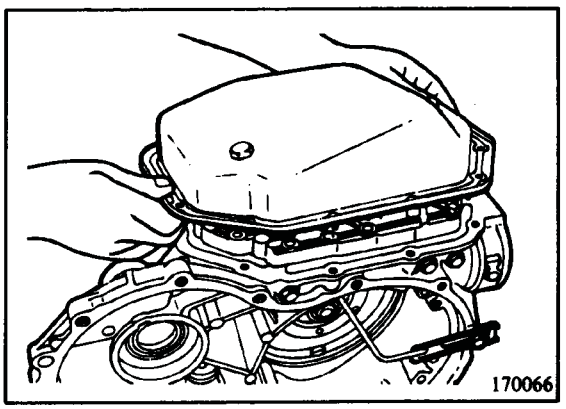
27. Remove the anchor rod.



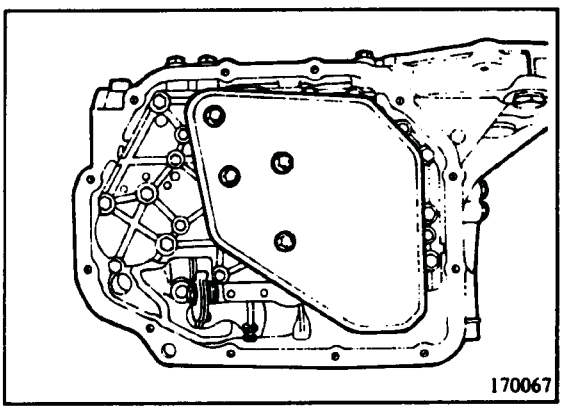
28. Hold reverse sun gear with Special Tool MD998345, so that when transaxle is placed upside down, forward sun gear front and rear thrust bearings will stay in position. When no center support or further disassembly is made, it is especially important to hold reverse sun gear.



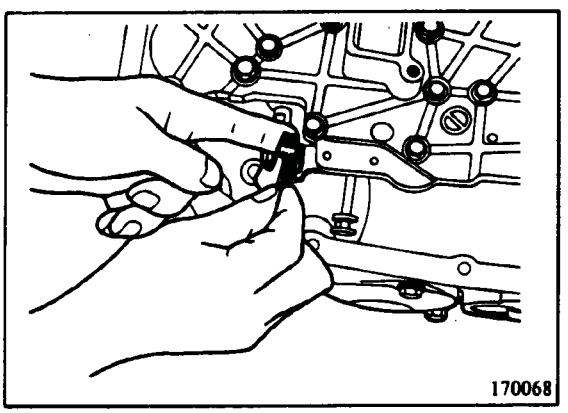
29. Place transaxle with oil pan up.
30. Remove oil pan and gasket. (170066)



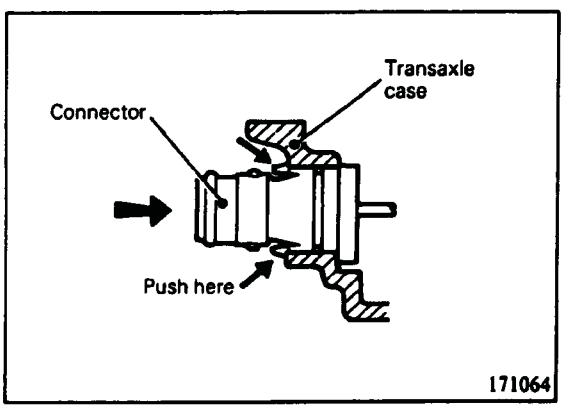
31. Remove the oil filter.



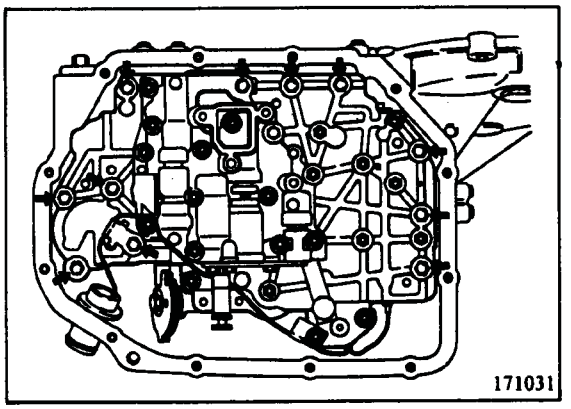
32. Disconnect the throttle control cable from the throttle cam which is attached to valve body.



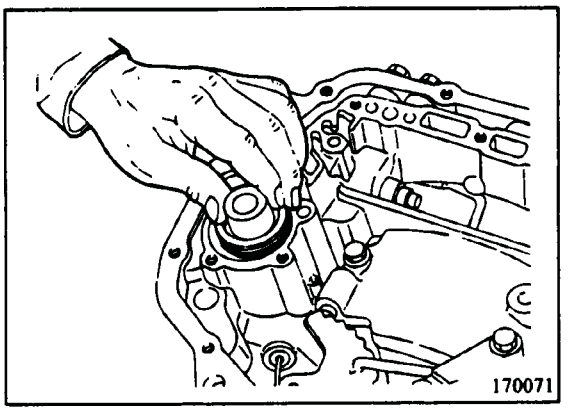
33. Push catches and remove the ELC connector from the transaxle case.



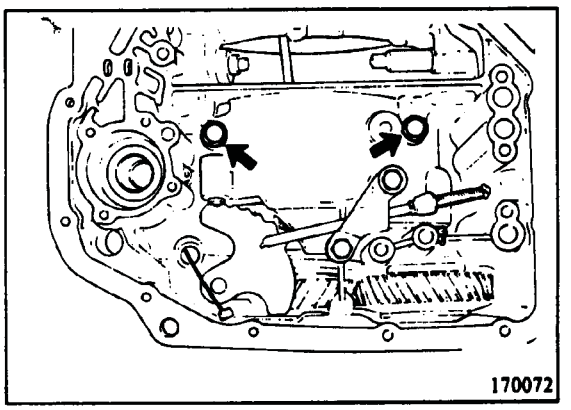
34. Remove 11 valve body assembly bolts. (171031)
35. Remove valve body from transaxle case.



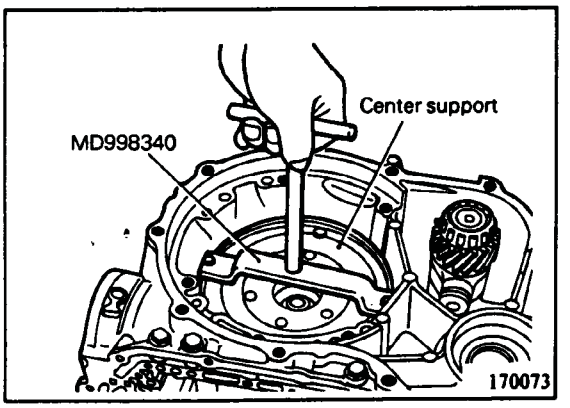
36. Remove accumulator springs and piston from transaxle case.



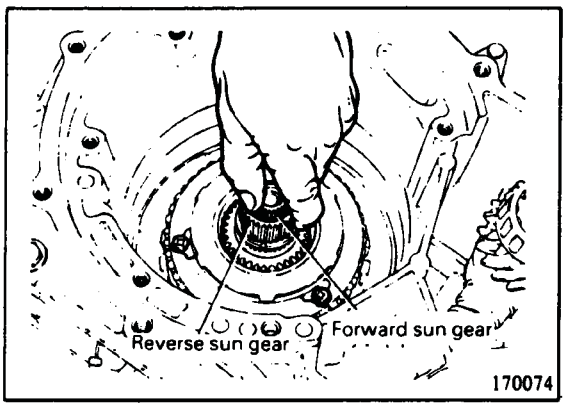
37. Remove two center support bolts.



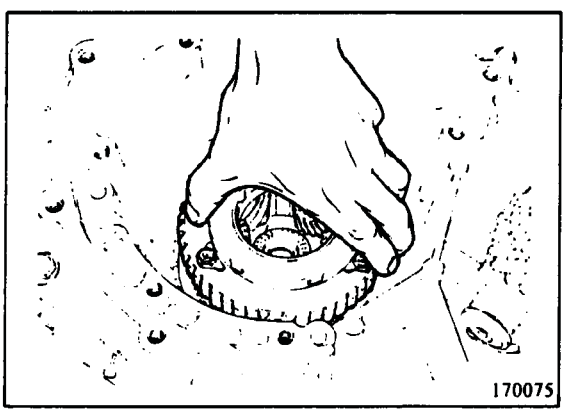
38. Place case with oil pump side up.
39. Attach Special Tool MD998340, to center support. Holding handle of tool, pull center support straight upward. (170073)



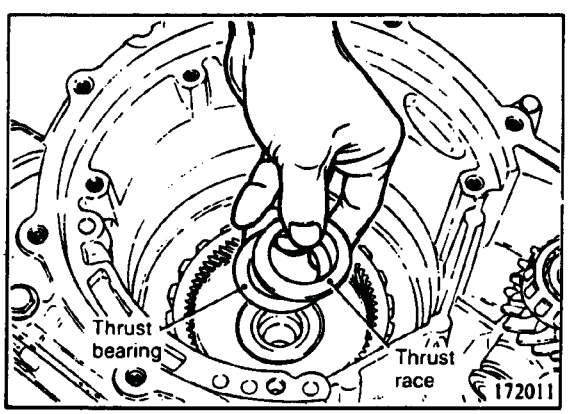
40. Remove reverse sun gear and forward sun gear together.



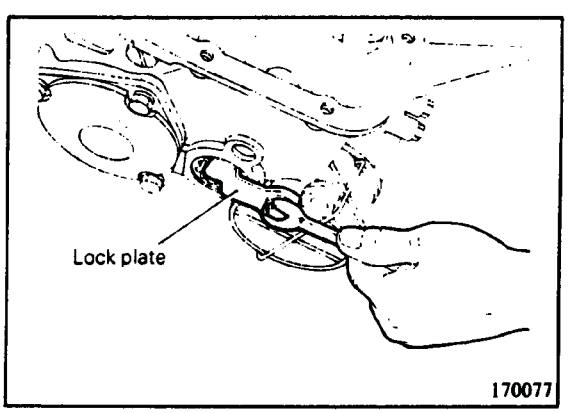
41. Remove planet carrier assembly.



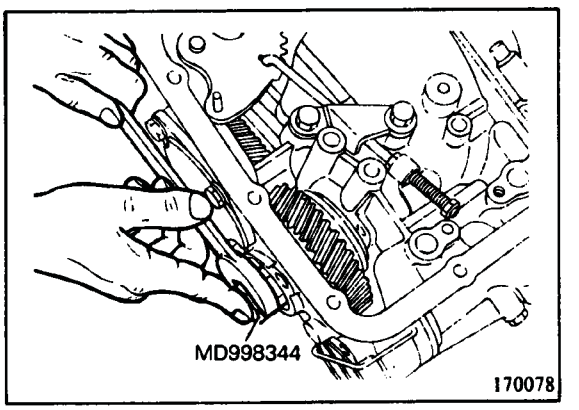
42. Remove the thrust bearing and thrust races.



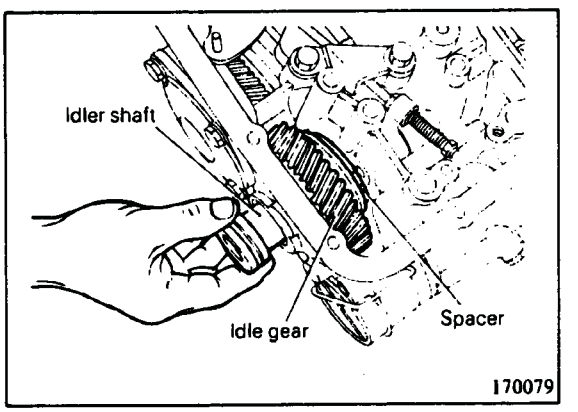
43. Remove idler shaft lock plate.



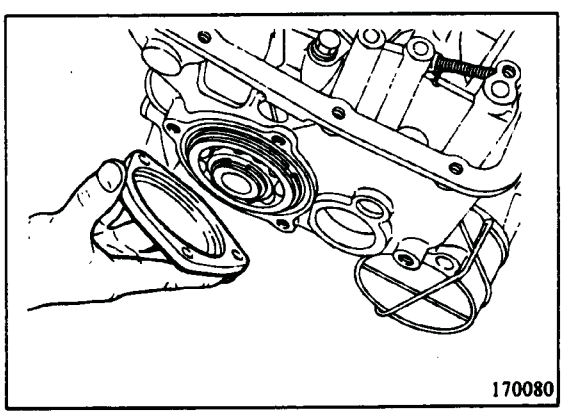
44. Loosen transfer idler shaft with Special Tool MD998344.



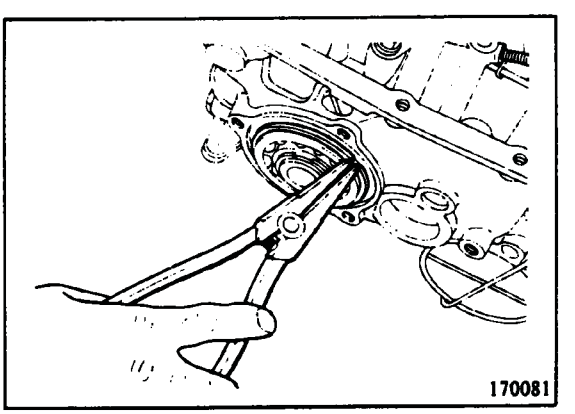
45. Pull out transfer idler shaft. Remove transfer idle gear bearing inner races (2 pieces) and spacer from inside of case.



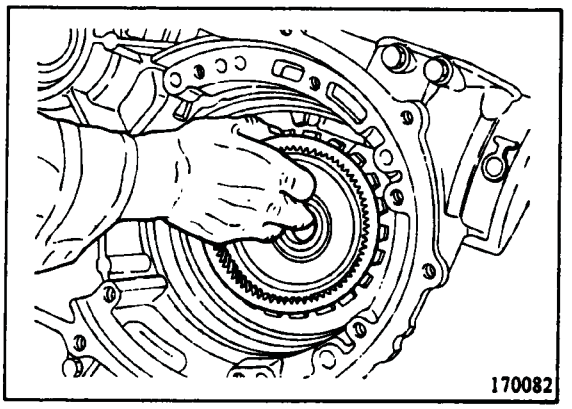
46. Remove output flange bearing retainer and O-ring.



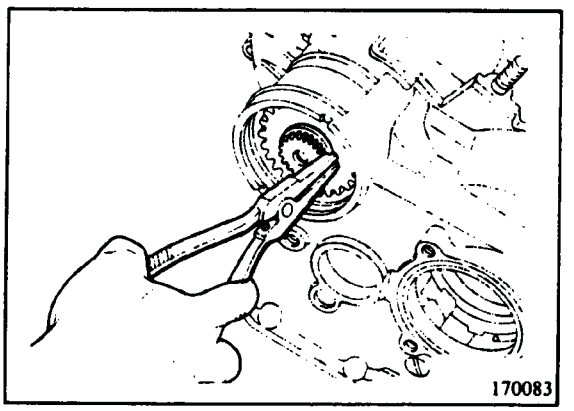
47. Remove snap ring from bearing.



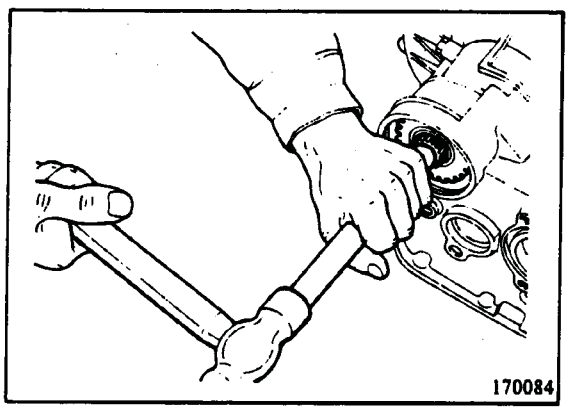
48. Remove internal gear, output flange, transfer drive gear and bearing as assembly from case.



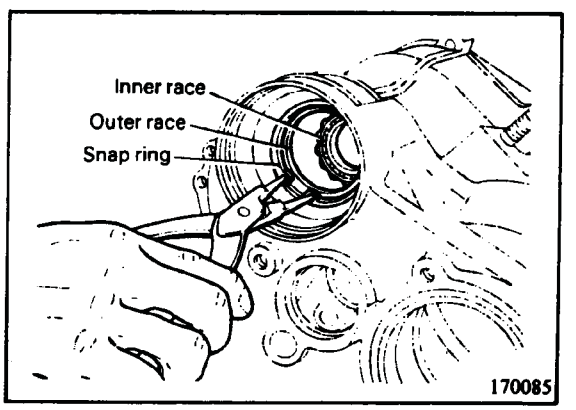
49. Remove transfer shaft rear end snap ring.



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



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



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 ATF to friction element, rotating parts, and sliding parts before installation. Use "DEXRON" or "DEXRON II" type ATF.

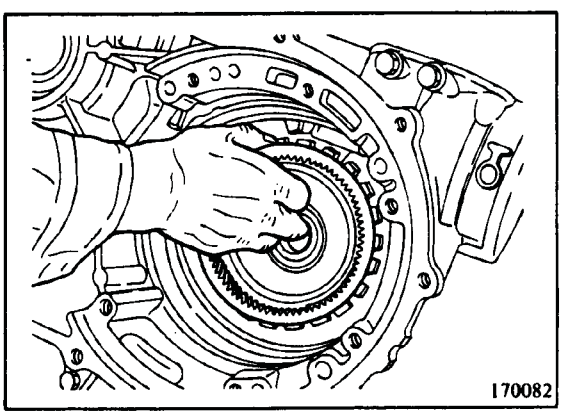
New clutch disc should be immersed in ATF for more than two hours before installation.

Do not apply sealer or adhesive to gaskets.

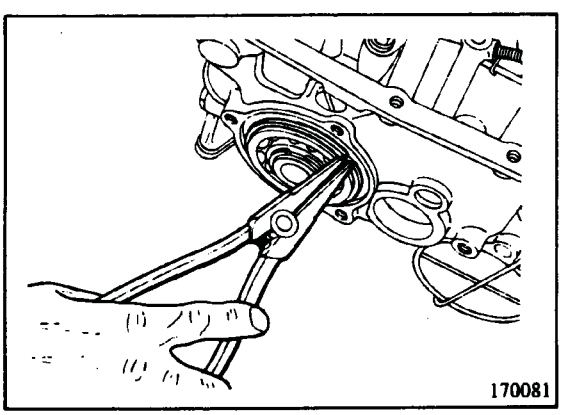
When bushing must be replaced, replace assembly which includes it.

Do not use shop towels during disassembly and reassembly operation.

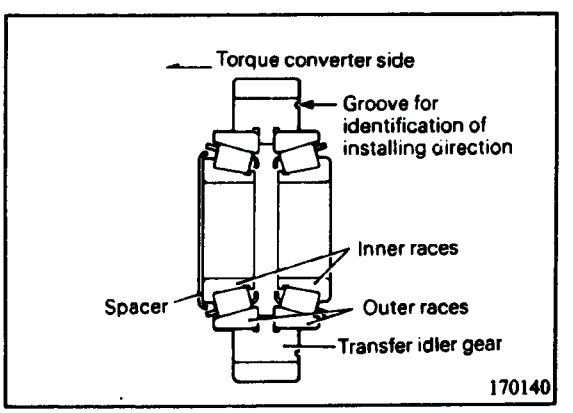
1. Place transaxle case on bench with oil pan mounting surface up.
2. Insert in position internal gear and output flange assembly (with two ball bearings and transfer drive gear attached) from inside of transaxle case. (170082)



3. Install snap ring on output flange rear bearing.

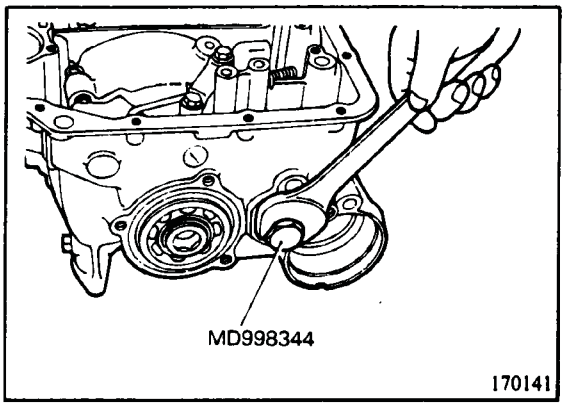


4. Install two taper roller bearings and spacer to transfer idler gear.
   Using petrolatum or vaseline for industrial use, affix spacer to inner race of bearing installed on non-grooved side of transfer idler gear. (170140)
5. Install new O-ring in the groove of transfer idler gear shaft. (170140)



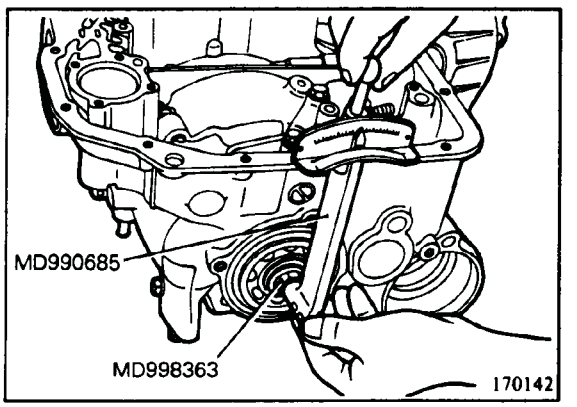
6. Install transfer idler gear in case. Insert idler shaft from outside of case, then screw in and tighten idler shaft using Special Tool MD998344.

Caution
Be sure to install transfer idler gear in proper direction as shown in illustration. (170140)



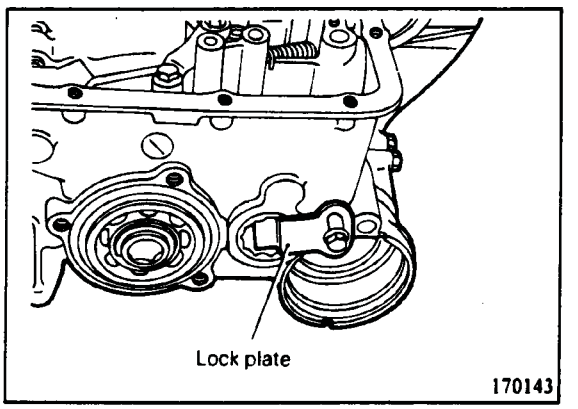
7. Insert Special Tool MD998363 into output flange and measure preload using a low reading torque wrench. Adjust preload by tightening or loosening transfer idler shaft.

Preload	1.5 Nm (1 ft.lbs.)



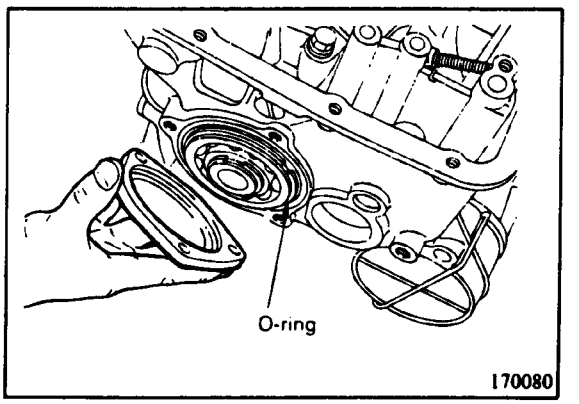
8. After completing preload adjustment, install idler shaft lock plate. Tighten lock plate bolt.

Lock plate bolt	20—26 Nm (15—19 ft.lbs.)

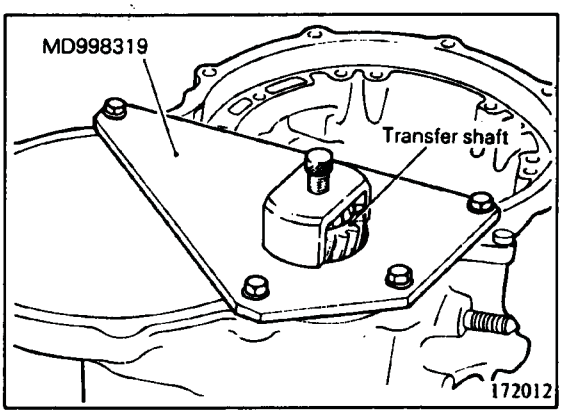


9. Install new O-ring in groove in rear end of transaxle case (output flange area). (170080)
10. Install output flange bearing retainer, and tighten three bolts to specified torque.

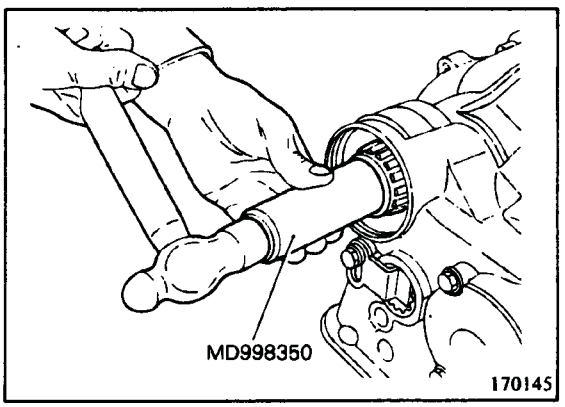
Bearing retainer bolts	15—21 Nm (11—15 ft.lbs.)



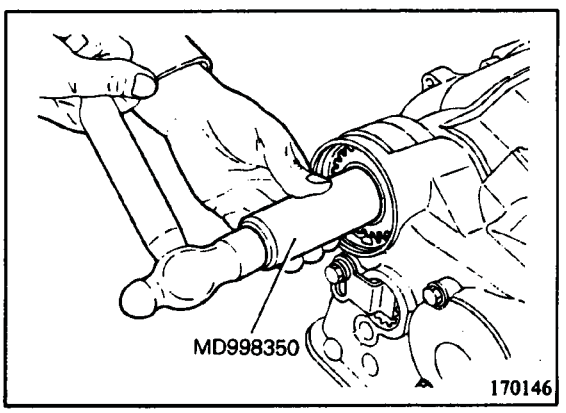
11. Insert transfer shaft (with governor and taper bearing inner race) into case.
12. Install Special Tool MD998319, to converter housing mating surface of transaxle case. (172012)



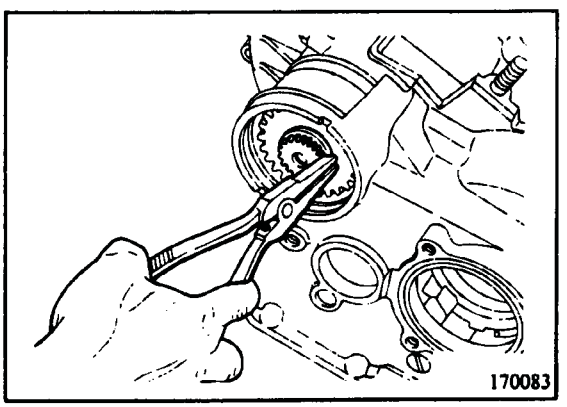
13. Using Special Tool MD998350 bearing inner race onto transfer shaft. (170145)
14. Install taper roller bearing outer race, then install snap ring.



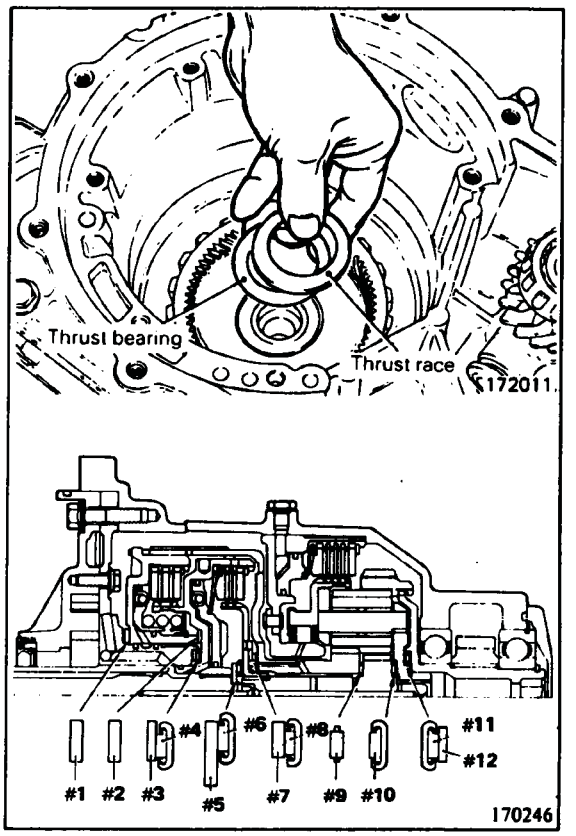
15. Using Special Tool MD998350, install transfer driven gear onto transfer shaft. (170146)
    Be sure to install transfer driven gear in proper direction as shown in illustration. (170140)



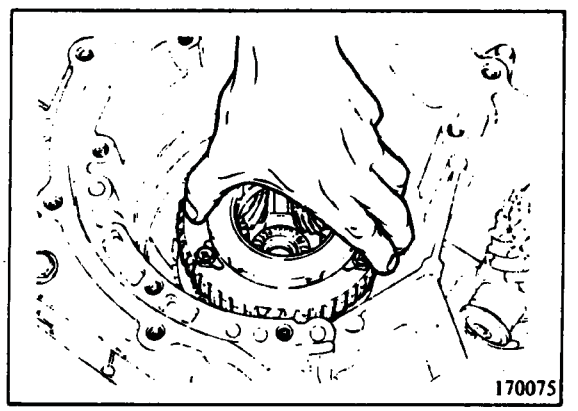
16. Install snap ring to end of transfer shaft. Turn transaxle so that engine side is up.



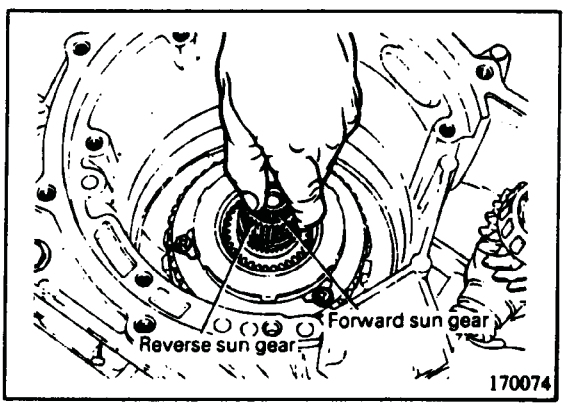
17. Apply petrolatum (or vaseline for industrial use) to thrust races #12 (170246) and thrust bearing #11 (170246) and position it on output flange.



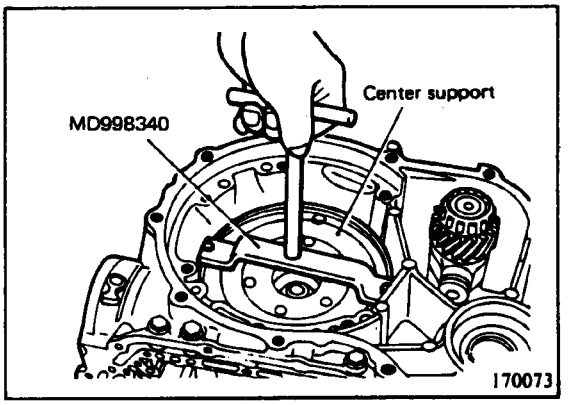
18. Install planet carrier assembly to internal gear.



19. After attaching thrust bearing #9 (170246) to forward sun gear with petrolatum, assemble the forward sun gear with reverse sun gear, and then install both sun gears planet carrier assembly.

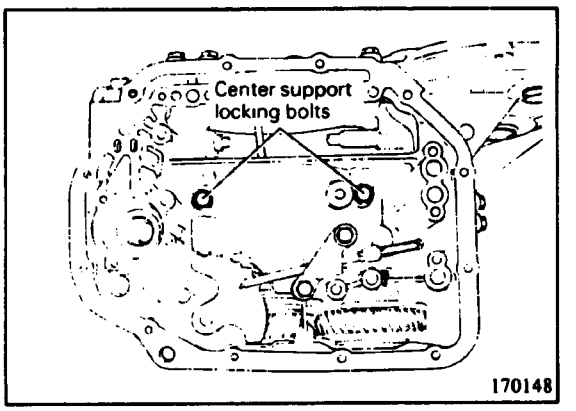


20. Attach Special Tool MD998340 to center support. (170073)
21. Apply ATF to overrunning clutch inner race fitting area of center support. Insert center support (with low-reverse brake) assembly into case by holding handle of tool.

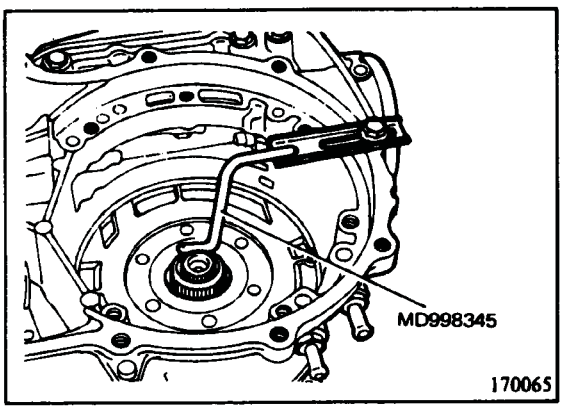


22. Install two center support locking bolts. While pressing center support firmly with about 98 N (22 lbs.) pressure and tighten bolts to specified torque.

Center support locking bolts	20–26 Nm (15–19 ft.lbs.)

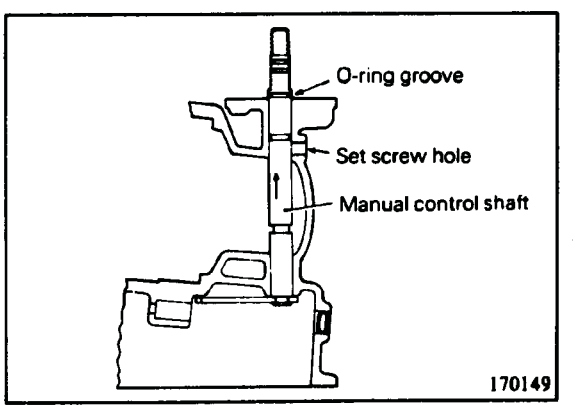


23. Attach Special Tool MD998345 to retain reverse sun gear firmly.

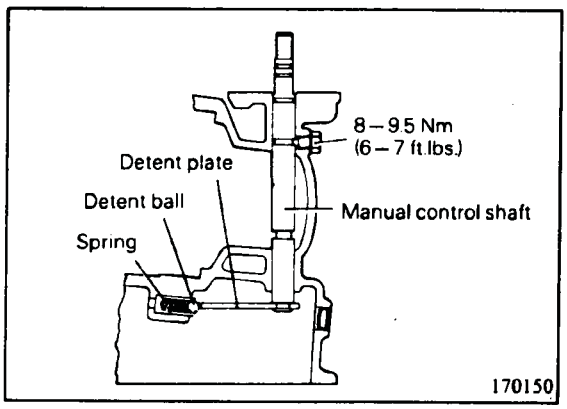


24. Insert manual control shaft into transaxle case and push it fully toward manual control lever.
    At this time, do not install O-ring (larger one of two O-rings) on manual control shaft.

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

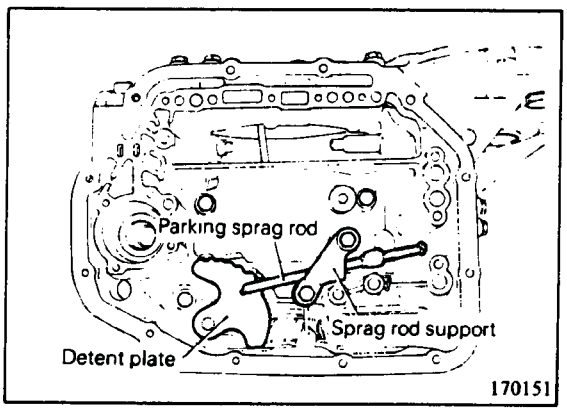


25. After installing new O-ring on manual control shaft, draw shaft back into case, then install set screw and gasket. Also install detent steel ball and spring at the same time. (170150)
26. Place case with oil pan mounting surface up.

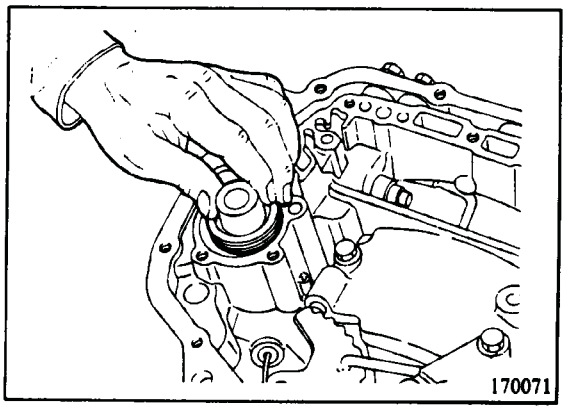


27. Install parking sprag rod to detent plate (manual control shaft).
28. Install sprag rod support and tighten two bolts.

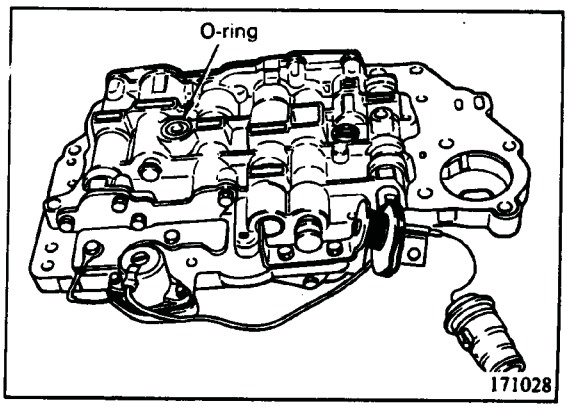
Sprag rod support bolts ... 20 – 26 Nm (15 – 19 ft.lbs.)



29. Install accumulator piston and springs.

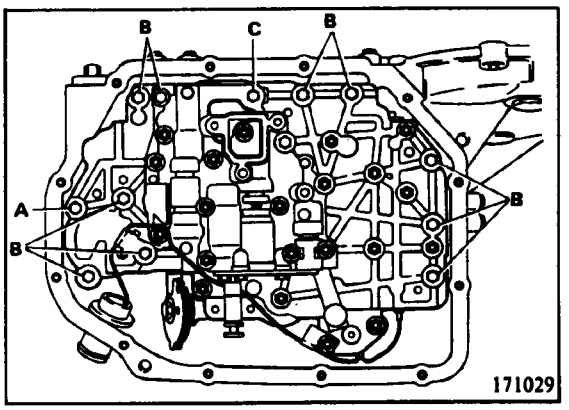


30. Install O-ring at center of top of valve body assembly (brake oil pressure passage). (171028)
31. Install valve body assembly to case, fitting detent plate (manual control shaft) pin in slot of manual valve.

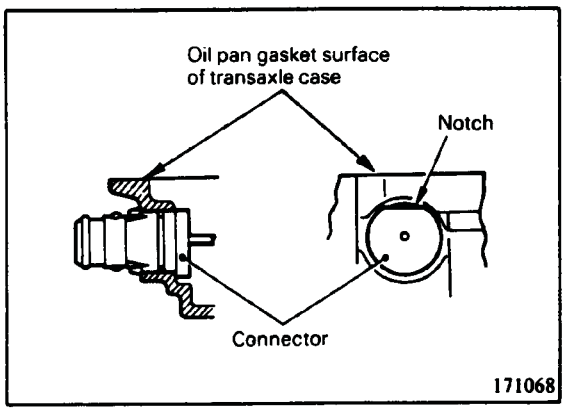


32. Tighten valve body assembly mounting bolts (11 pieces) to 10—11.5 Nm (7.5—8.5 ft.lbs.).

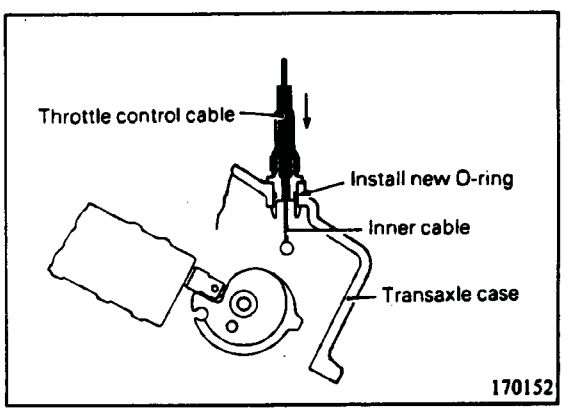
A bolt	20 mm (.787 in.) long
B bolt	28 mm (1.102 in.) long
C bolt	45 mm (1.772 in.) long



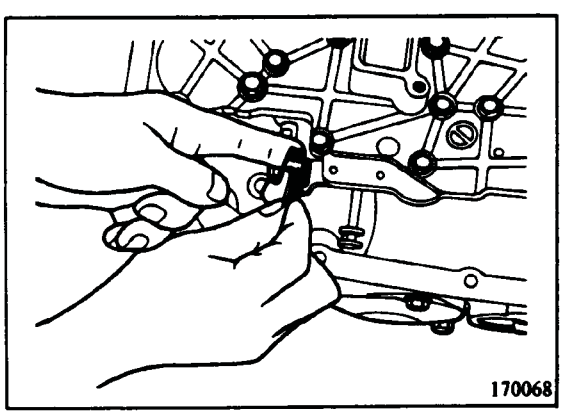
33. Insert the solenoid valve connector into the case with its cut-out facing to the oil pan side.



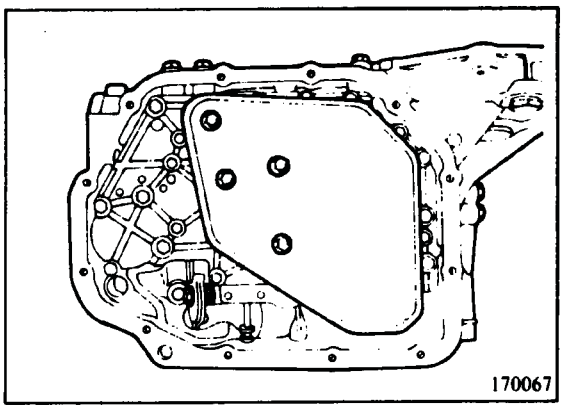
34. Push throttle control cable assembly firmly into transaxle case.



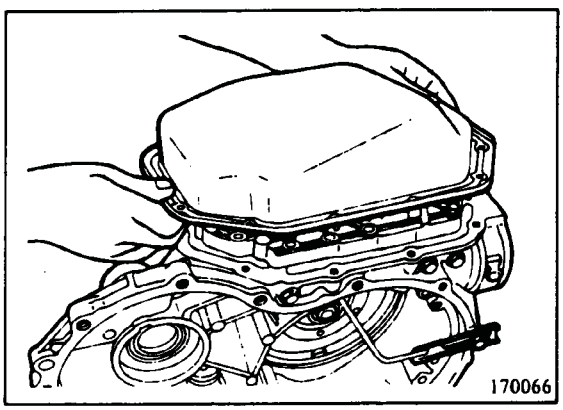
35. Connect throttle control cable inner cable to throttle cam.



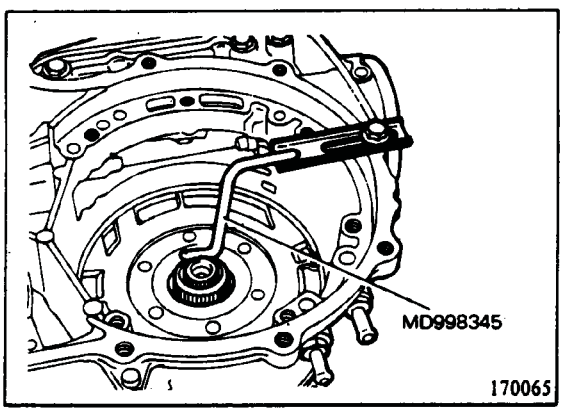
36. Install oil filter. Tighten four oil filter mounting bolts to 5—6.5 Nm (4—5 ft.lbs.).



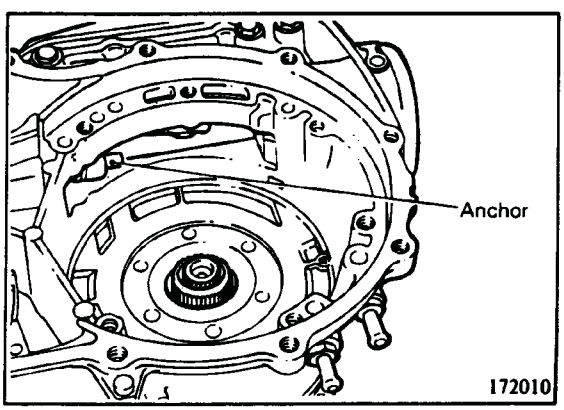
37. Install new oil pan gasket and oil pan by tightening 12 bolts to 10—11.5 Nm (7.5—8.5 ft.lbs.). (170066)



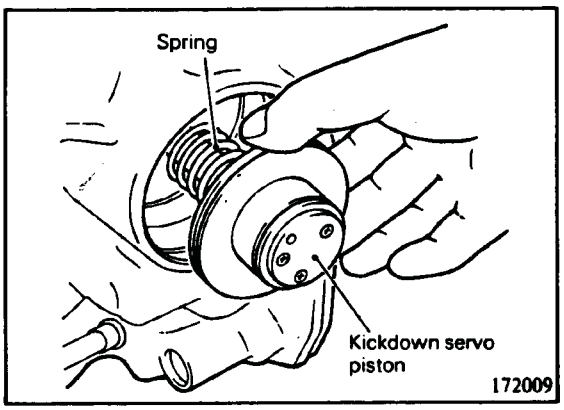
38. Place transaxle case with oil pump mounting surface facing upward.
39. Remove special tool (MD998345).



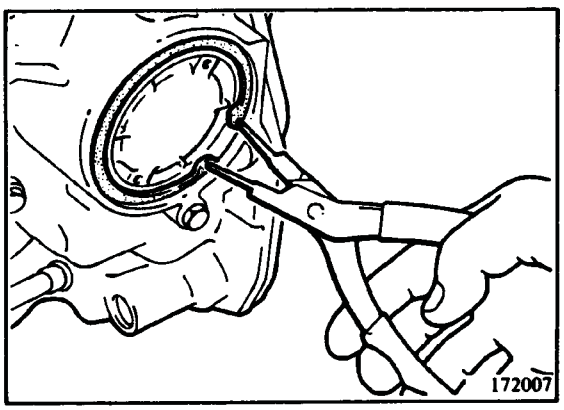
40. Install the anchor rod for the kickdown band.



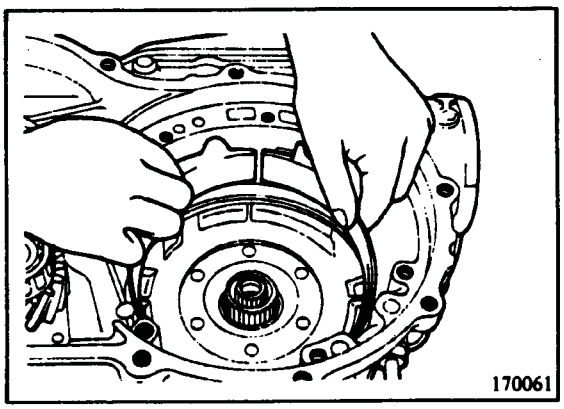
41. Install the kickdown servo spring and the piston.



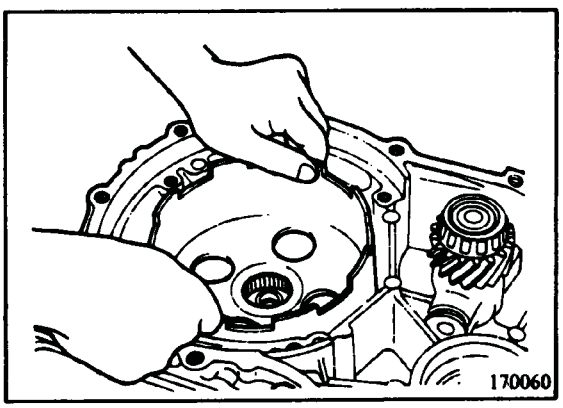
42. Install the kickdown servo cover, and then push the cover into case and install the snap ring.



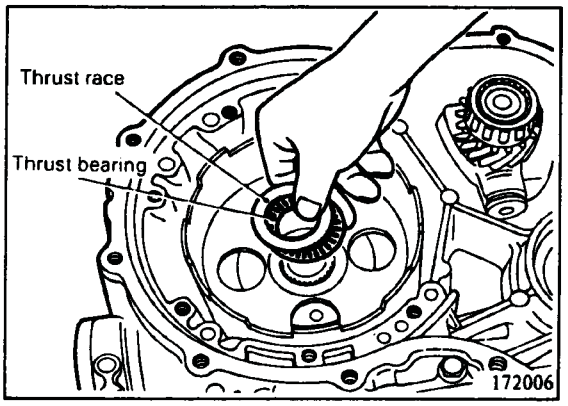
43. Install kickdown band; attach the ends of band to the ends of anchor rod and servo piston rod.



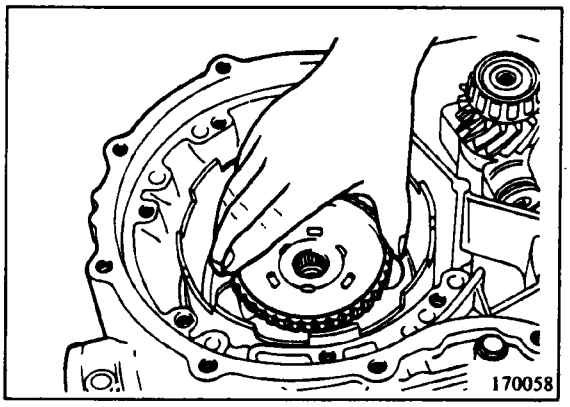
44. Install kickdown drum with its splines in mesh with reverse sun gear. Place kickdown band on kickdown drum and tighten kickdown servo adjusting screw to keep band in position.



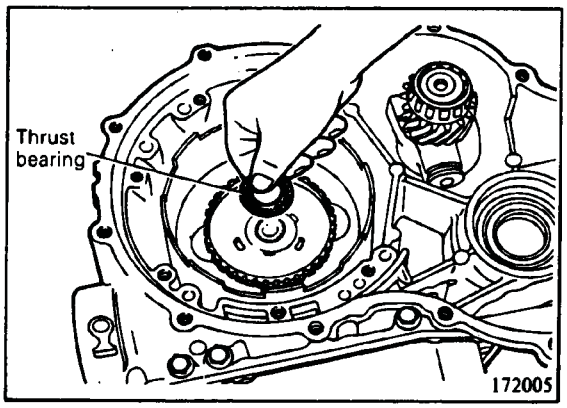
45. Apply petrolatum to thrust bearing #8 (refer to P.21-89) and thrust race (#7) and position these parts on kickdown drum.



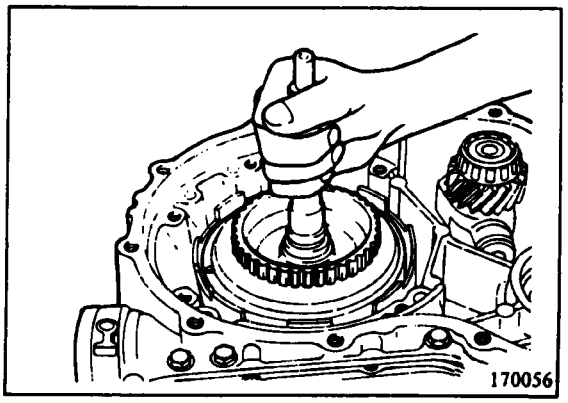
46. Install clutch hub to forward sun gear splines.



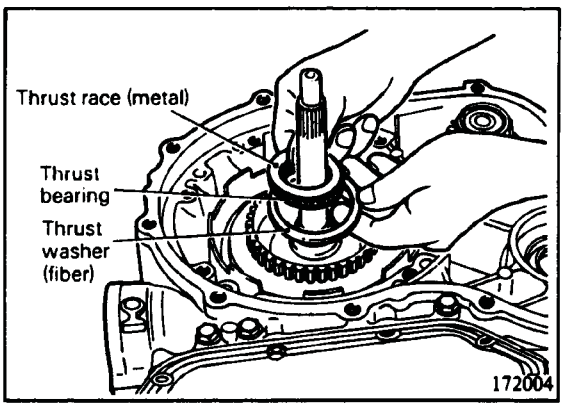
47. Attach thrust bearing #6 onto the hub with petrolatum.



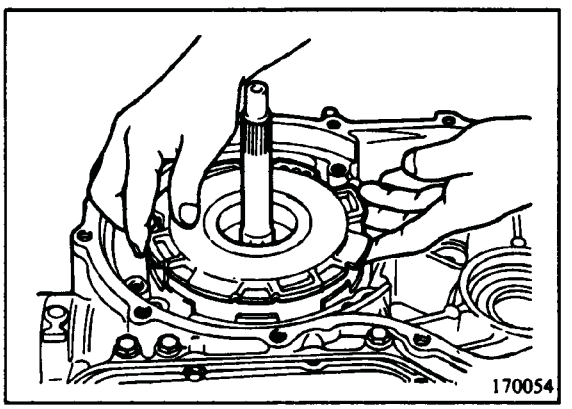
48. Install the rear clutch assembly.



49. Attach fiber thrust washer #2 (refer to P.21-89) to rear clutch retainer with petrolatum. Next, attach thrust bearing #4 (refer to P.21-89) to rear clutch retainer with petrolatum.



50. Install the front clutch assembly.

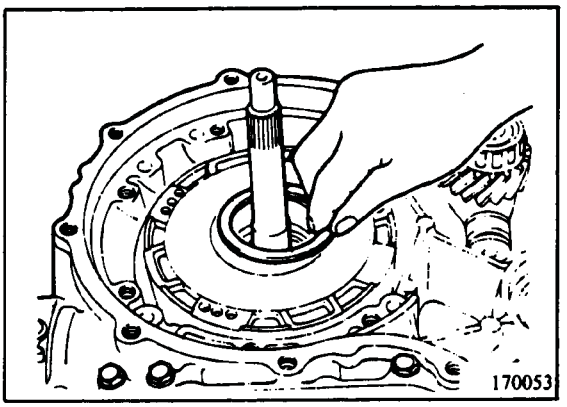


51. Use petrolatum to attach race #3 (refer to P.21-89) to rear end of oil pump assembly. If end play which was measured and recorded at disassembly is not 0.7—1.4 mm (.0276—.0551 in.), adjust end play to specification by selecting thrust race.
When thrust race is replaced with another of different thickness, also replace the thrust washer located between oil pump and front clutch with washer of proper thickness corresponding to thrust race.
Select correct pair of thrust races (metal) and thrust washers (fiber) from following table.

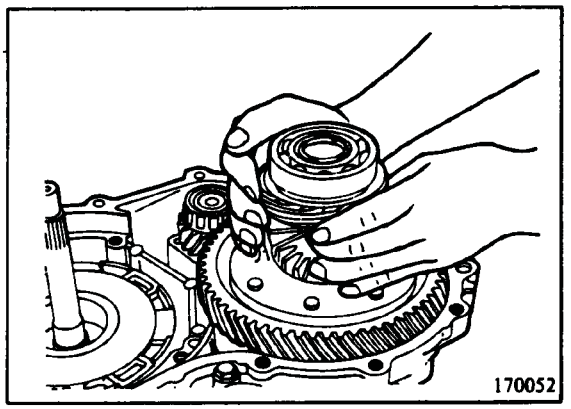
Thrust race #3 (metal) Thickness mm (in.)	Thrust washer #1 (fiber) Thickness mm (in.)	Part No. of thrust washer set
0.8 (.031)	1.8 (.071)	MD707901
1.2 (.047)	2.2 (.087)	MD707902
1.6 (.063)	2.6 (.102)	MD707903
2.0 (.079)	3.0 (.118)	MD707904

Example
When 1.6 mm (.063 in.)-thick thrust race #3 is selected, 2.6 mm (.102 in.) thrust washer #1 is one to be paired with it.

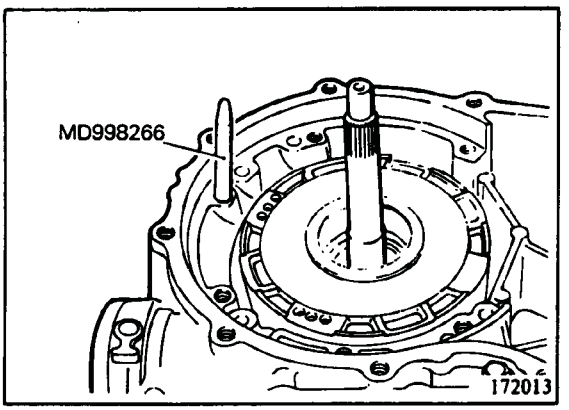
52. Attach thrust washer #1 (reused one or new one selected from among washers to front clutch with petrolatum.



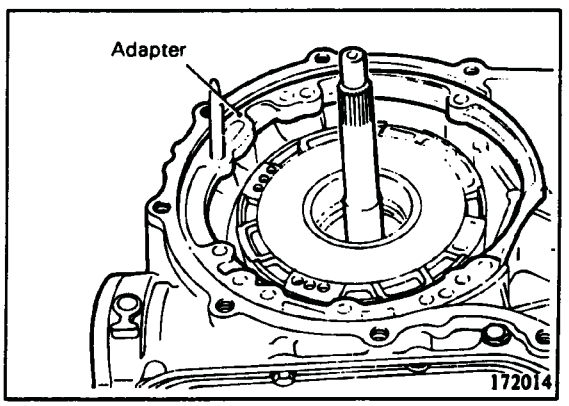
53. Install the differential assembly.



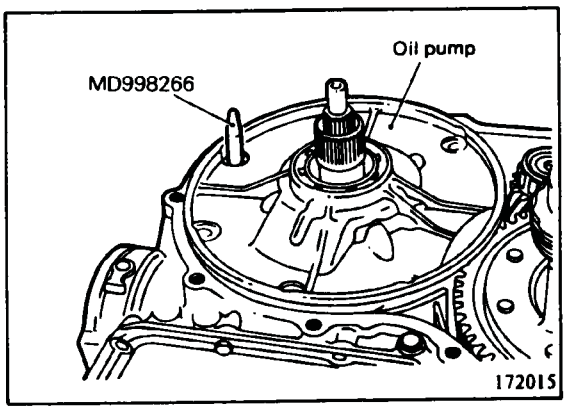
54. Install Special Tool MD998266.



55. Install new oil pump gasket and the adapter.

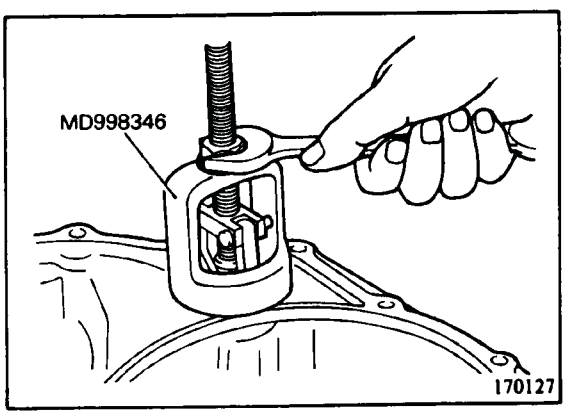


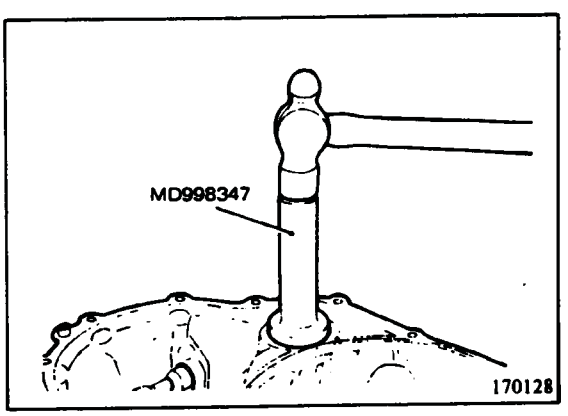
56. Install new oil pump gasket and the oil pump assembly.
57. Remove Special Tool MD998266.



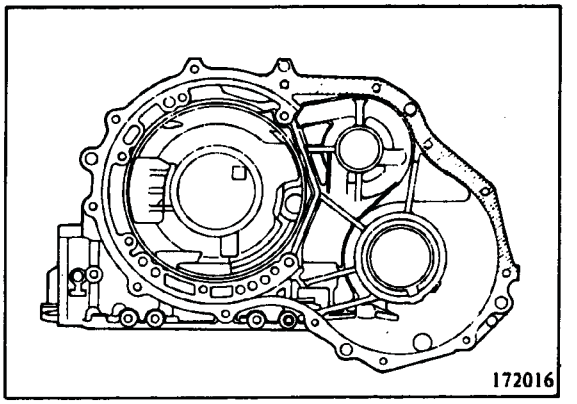
58. Install new O-ring in groove of oil pump housing and apply ATF lightly to outside surface of O-ring.
59. Install oil pump assembly by tightening six bolts evenly to 15—21 Nm (11—15 ft.lbs.). When installing this oil pump assembly, be careful that thrust washer will not drop.

60. Prior to installation of converter housing, make certain that transfer shaft end play measured and recorded at disassembly is same. If measurement is out of specification, pull off taper roller bearing outer race from converter housing and replace spacer with spacer of suitable thickness.
    Standard end play is between 0.025 mm (.0010 in.) (tight) and 0.025 mm (.0010 in.) (loose).
    Use Special Tools MD998346 and MD998347 to remove taper roller bearing outer race from and install it to converter housing. (170127, 170128)

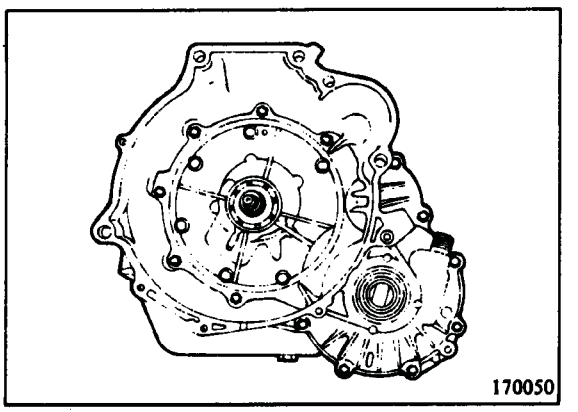




61. Apply silicon grease to shaded area of transaxle case flange.



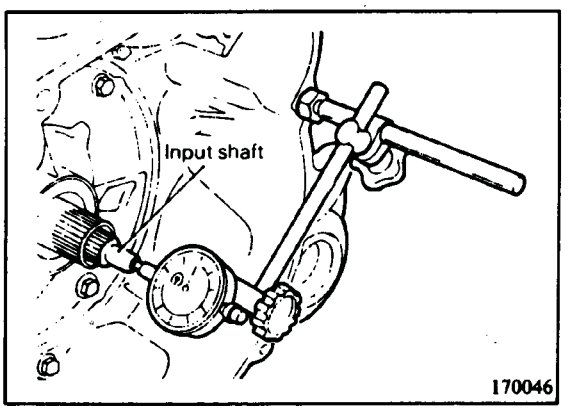
62. Place spacer on differential bearing outer race.
63. Install new case gasket to transaxle case.
64. Install converter housing by tightening 13 bolts to torque between 19—22 Nm (14—16 ft.lbs.). (170050)



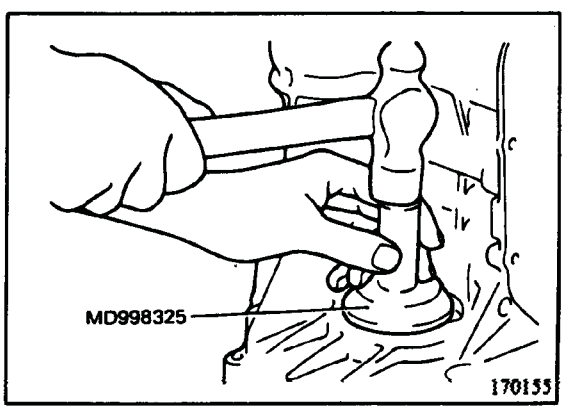
65. Check input shaft end play, transfer shaft end play and differential case end play. Readjust if necessary. (170046)

Input shaft end play	0.5—1.4 mm (.020—.055 in.)
Transfer shaft end play	0.025 (tight)—0.025 mm (loose) [.0010 (tight)—.0010 in. (loose)
Differential end play	0—0.15 mm (0—.006 in.)

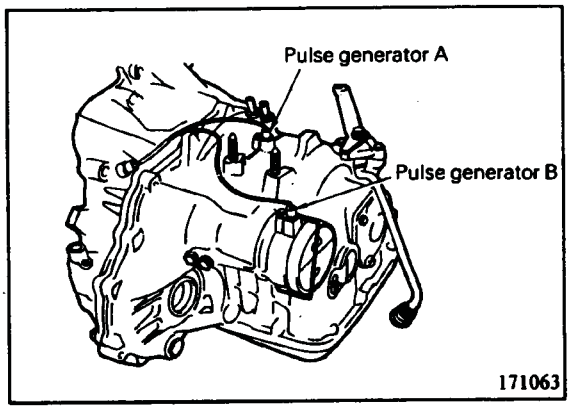
66. Install transfer shaft cover, then cover holder.



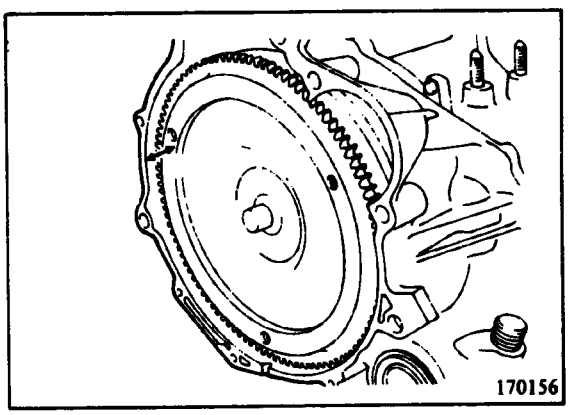
67. Using Special Tool MD998325, drive two drive shaft oil seals into transaxle case and converter housing.



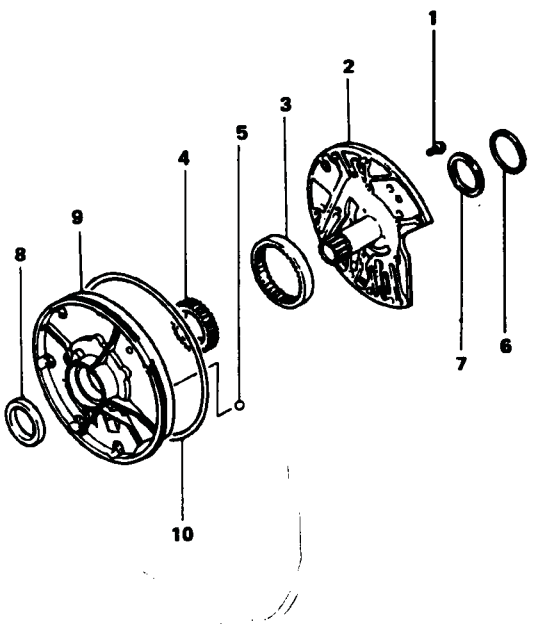
68. Install inhibitor switch and manual lever.
    Adjust inhibitor switch. (See ADJUSTMENT.)
69. Install the pulse generator A and B.



70. After applying ATF to outside surface of oil pump-side cylindrical portion of torque converter, install torque converter carefully so as not to give damage to 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.).



COMPONENTS

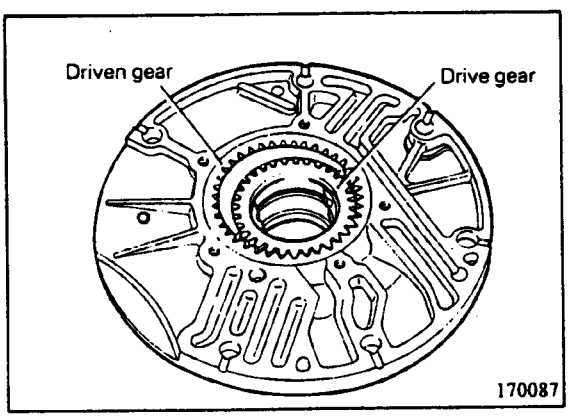


1. Bolt (5)
2. Reaction shaft support
3. Driven gear
4. Drive gear
5. Steel ball
6. Seal ring
7. Seal ring
8. Oil seal
9. Housing
10. O-ring

170173

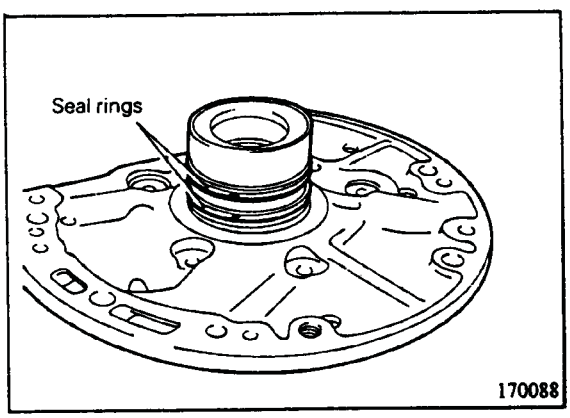
DISASSEMBLY

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



170087

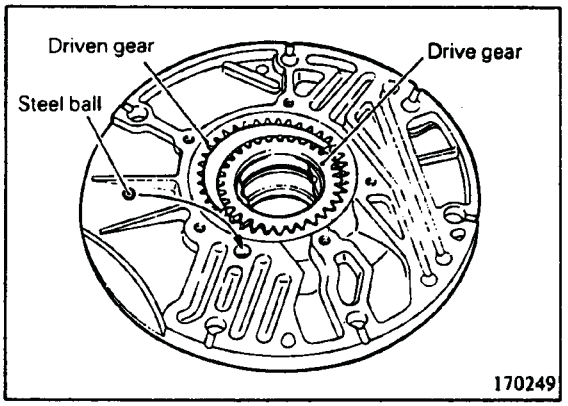
6. Remove two seal rings from reaction shaft support.



170088

REASSEMBLY

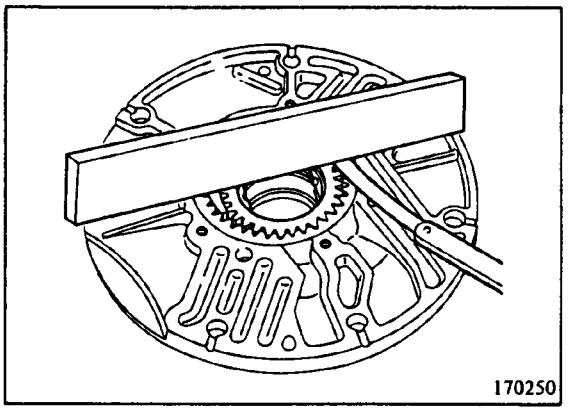
1. After immersing drive and driven gears in ATF, install them to pump housing. When reusing gears, install with mating marks properly aligned.



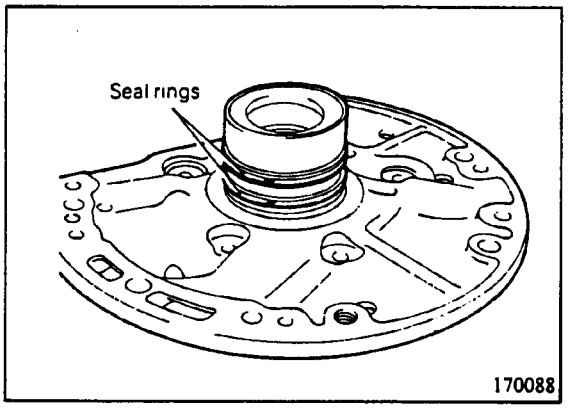
2. Measure gear side clearances.

Drive and driven gear side clearance	0.025 – 0.05 mm (.001 – .002 in.)

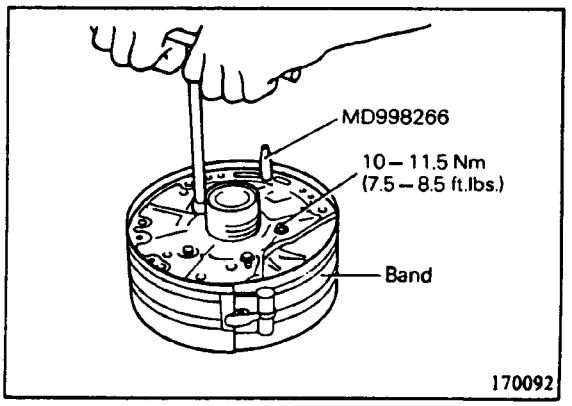
3. Install steel ball in hole as shown in the illustration. (170249)



4. Install two seal rings coated with ATF to reaction shaft support.

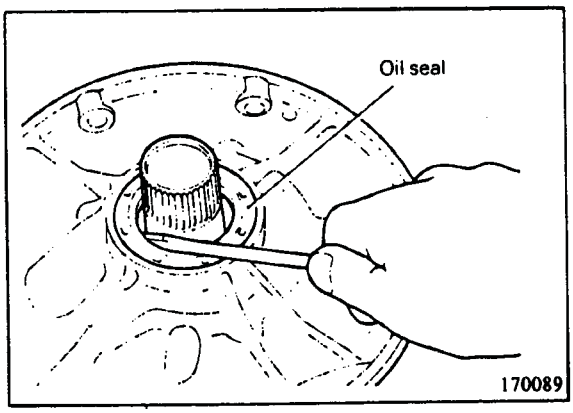


5. Loosely install reaction shaft support on pump housing. Tighten five bolts fingertight.
6. With reaction shaft support properly positioned on pump housing using Special Tools MD998266 and band, tighten five bolts to 10 – 11.5 Nm (7.5 – 8.5 ft.lbs.). (170092)
7. Make sure that oil pump gear turns freely.
8. Install new O-ring in groove provided in circumference of pump housing and apply petrolatum or industrial vaseline to circumference of O-ring.

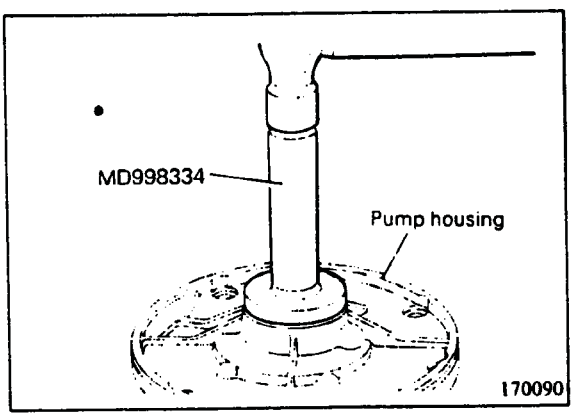


OIL SEAL REPLACEMENT

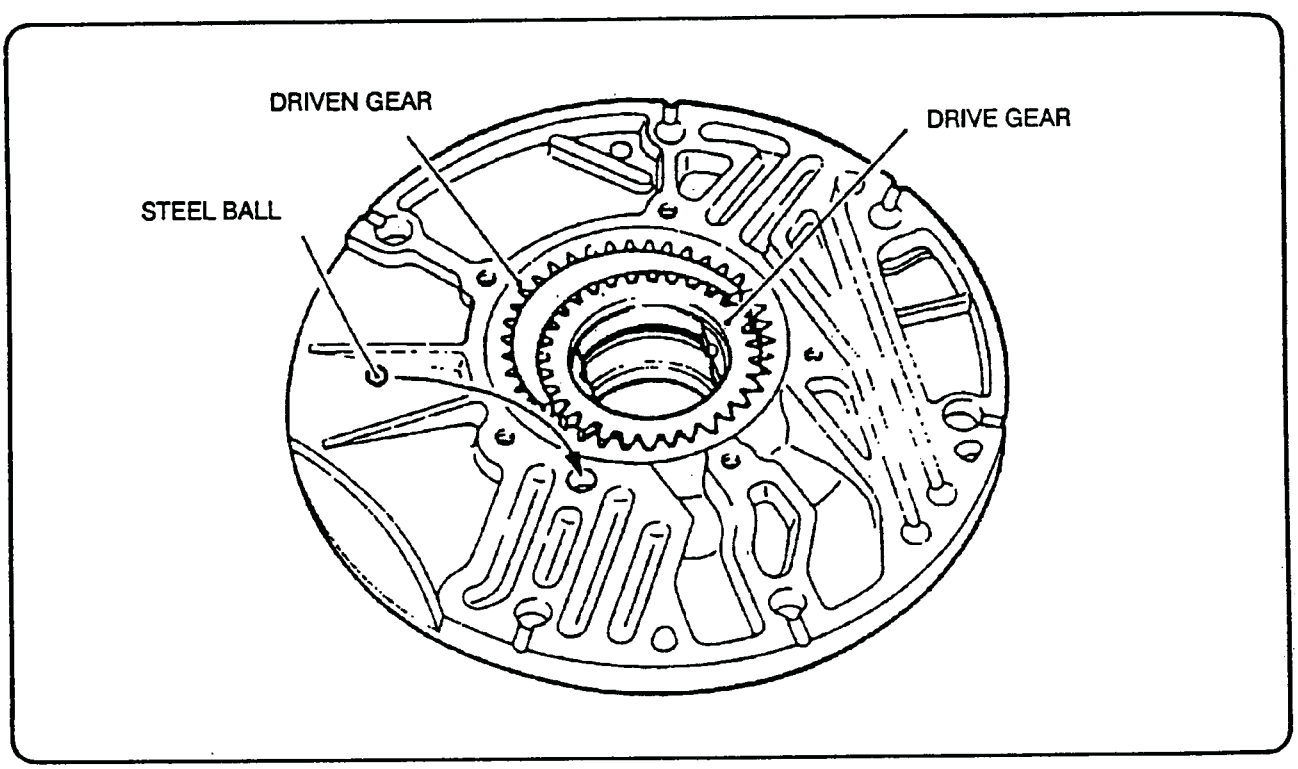
1. Pry off pump housing oil seal using a screwdriver.



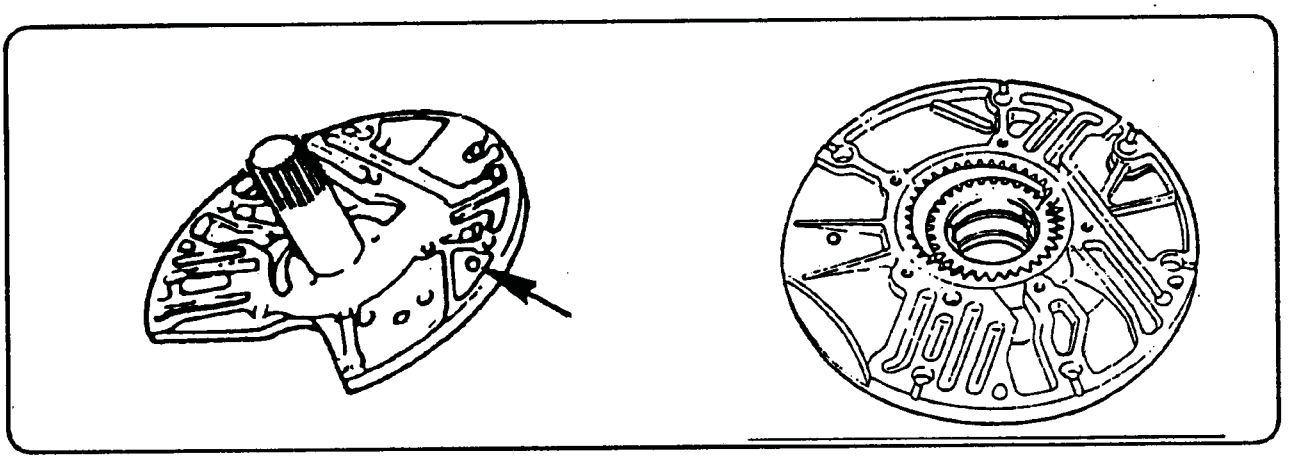
2. Use Special Tool MD998334 install oil seal to pump housing. Apply thin coat of ATF to oil seal lip before installation.



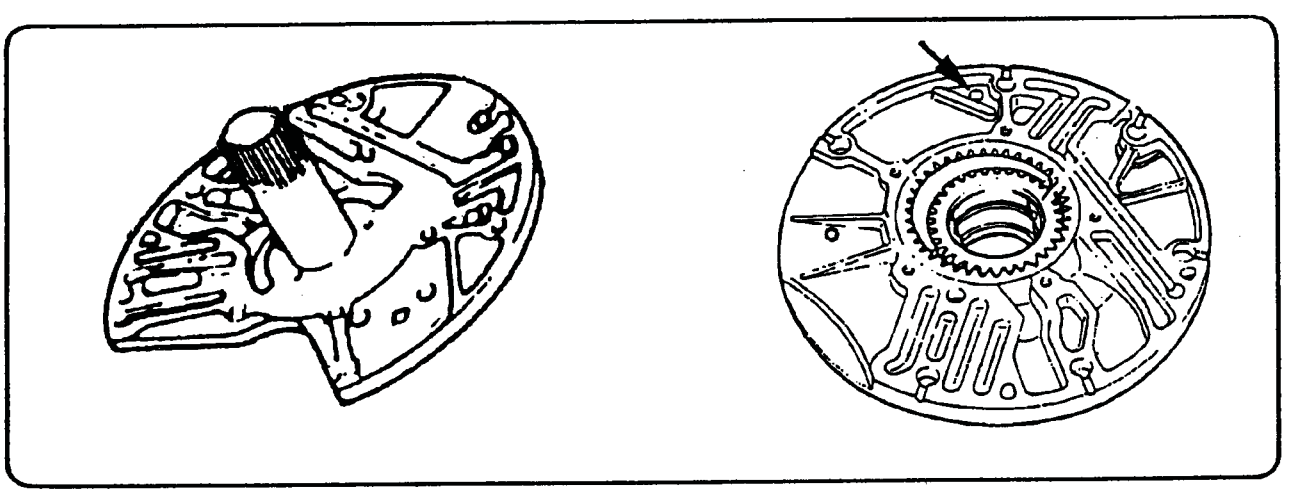
IF STEEL BALL IS LEFT OUT VEHICLE WLL HAVE NO FORWARD MOVEMENT



MITSUBISHI KM 1 71



PUMP STATOR WITH HOLE MUST GO WITH PUMP BODY WITHOUT CORRESPONDING BREATHER HOLE.

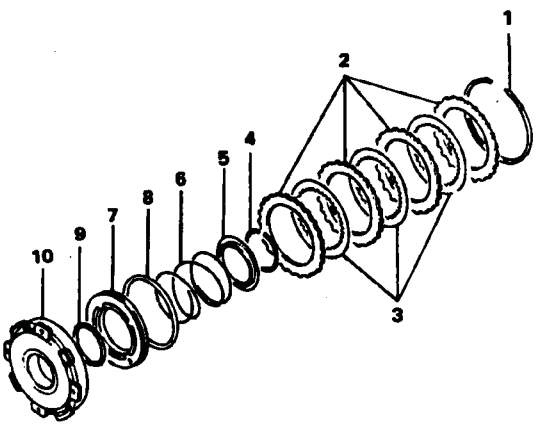


PUMP STATOR WITHOUT HOLE MUST GO WITH PUMP BODY WITH HOLE.

MIS-MATCH OF THESE PARTS CAN CAUSE EITHER HOLE LEAKING DIRECTLY OUT FRONT PUMP AREA OR BLOWING OIL OUT FILLER CAP.

COMPONENTS

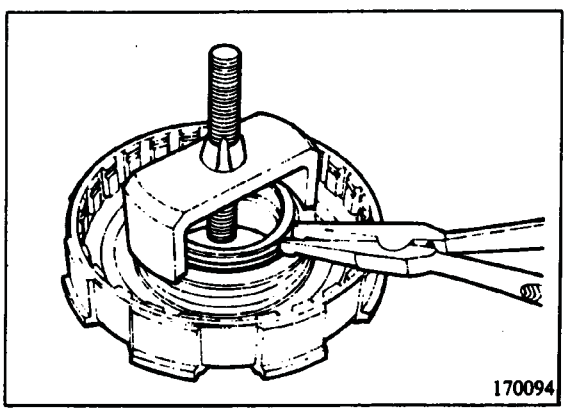
1 Snap ring – Select
2 Clutch reaction plate (4) – thickness 3.8 mm (.150 in.)
3 Clutch disc (3)
4 Snap ring
5 Spring retainer
6 Return spring
7 Front clutch piston
8 D-ring
9 D-ring
10 Front clutch retainer



172017

DISASSEMBLY

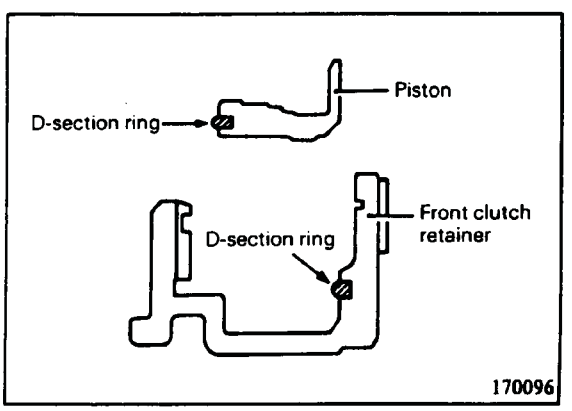
1. Remove snap ring from clutch retainer.
2. Take out four clutch reaction plates and three clutch discs.
3. With return spring compressed with Spring Compressor, remove snap ring, then spring retainer and return spring. (170094)
4. Remove piston from retainer.



170094

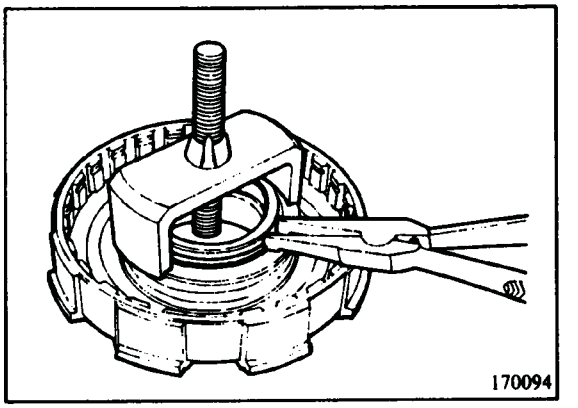
REASSEMBLY

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. (170096)
2. Apply ATF to outside surface of D-section rings, then push piston into front clutch retainer by hand.



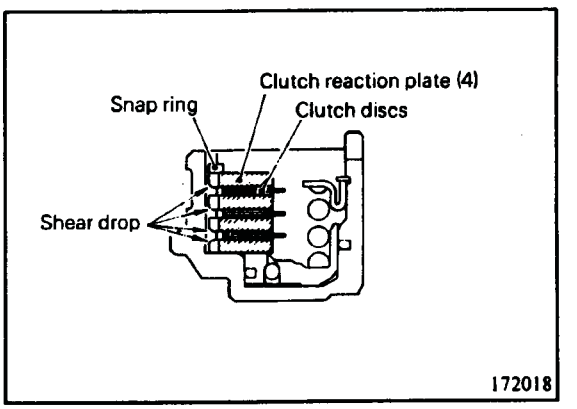
170096

3. Install return spring and spring retainer.
4. Compress return spring and install snap ring. (170094)

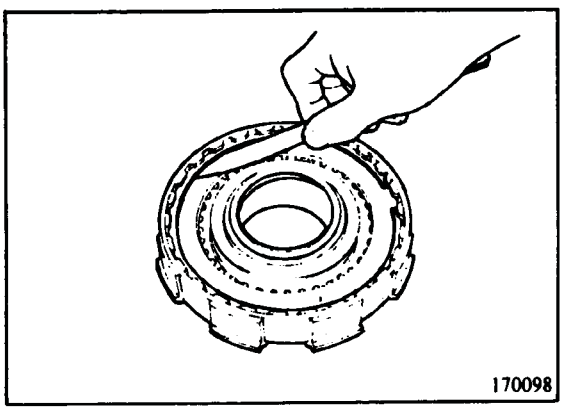


5. Install four clutch reaction plates and three clutch discs. Prior to installation, apply ATF to them.

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



6. After installing snap ring, check to see if there is a 0.6—0.8 mm (.024—.031 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, select snap ring for correct clearance.

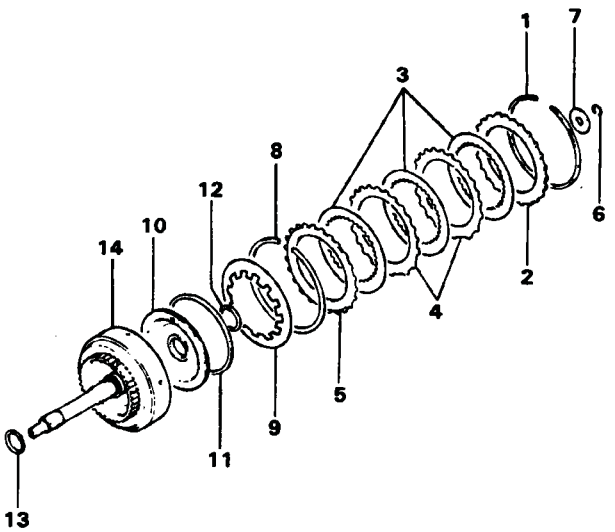


Kinds of snap ring

Thickness mm (in.)	Ident. color	Part No.
1.6 (.063)	None	MD955630
1.8 (.071)	Blue	MD955631
2.0 (.079)	Brown	MD955632
2.2 (.087)	None	MD955633
2.4 (.094)	Blue	MD955634
2.6 (.102)	Brown	MD955635
2.8 (.110)	None	MD955636
3.0 (.118)	Blue	MD955637

COMPONENTS

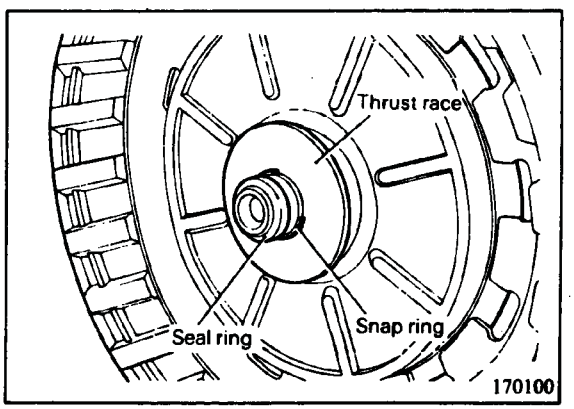
1. Snap ring – Select
2. Clutch reaction plate – thickness 3.8 mm (.150 in.)
3. Clutch disc (3)
4. Clutch plate (2) – thickness 1.8 mm (.071 in.)
5. Clutch pressure plate
6. Snap ring
7. Thrust race
8. Wave spring
9. Return spring
10. Rear clutch piston
11. D-ring
12. D-ring
13. Seal ring (3)
14. Rear clutch retainer



172019-A

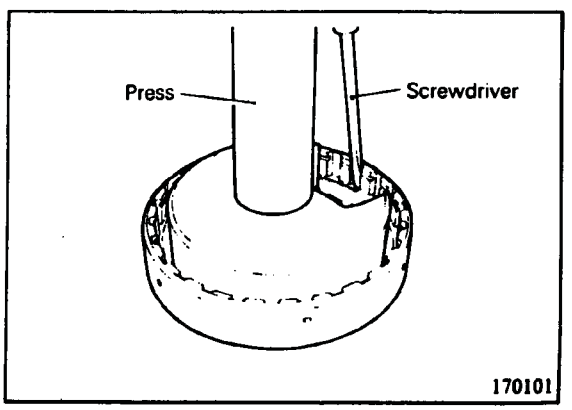
DISASSEMBLY

1. Remove snap ring from clutch retainer.
2. Remove the clutch reaction plate, two clutch plates, three clutch discs and clutch pressure plate from retainer.
3. Remove seal ring. (170100)
4. Remove snap ring and then remove thrust race. (170100)



170100

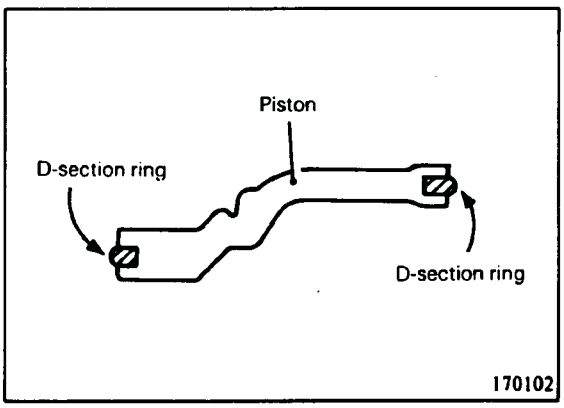
5. Using spring compressor and a screwdriver, remove wave spring. (170101)
6. Remove return spring and piston.



170101

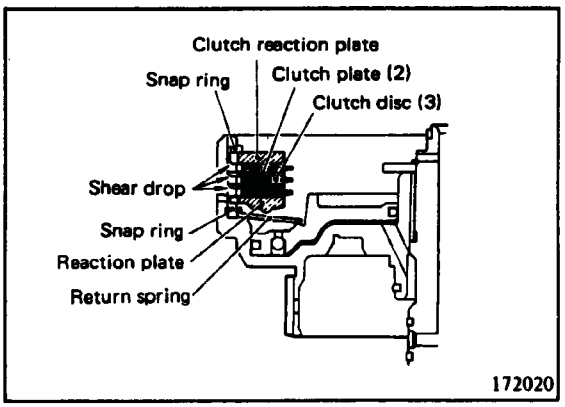
REASSEMBLY

1. Install D-section rings in grooves in outside and inside surfaces of piston. (170102)
2. After applying ATF 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 spring compressor, and install wave spring. (170101)

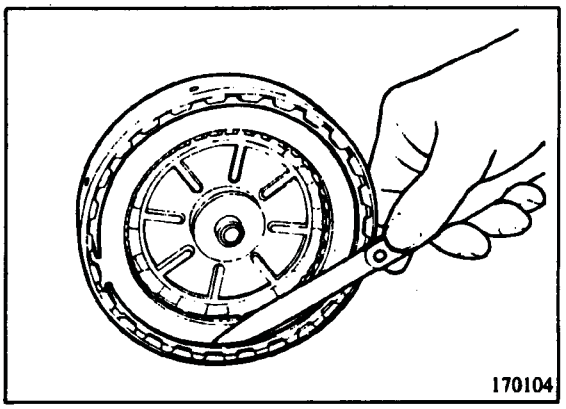


5. Install clutch pressure plate, three clutch discs, two clutch plates and clutch reaction plate to rear clutch retainer.
   When reaction plate, clutch plate and clutch discs are removed, reinstall them by reversing order of disassembly. Prior to installing, apply ATF to plates and discs.

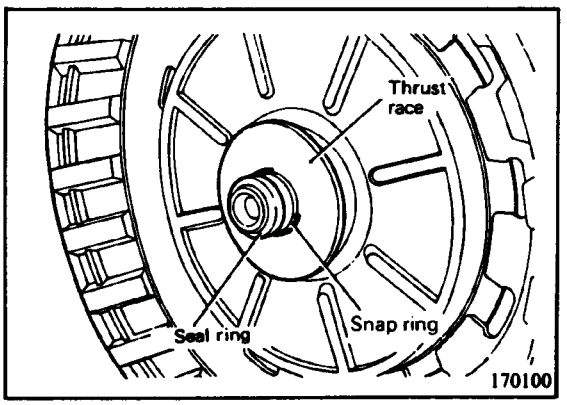
Caution
When new clutch discs are used, immerse them in ATF for more than two hours before installation.



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 50N (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.

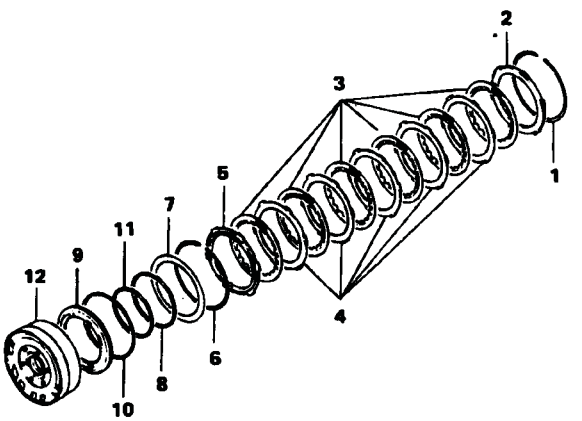


7. Install thrust race, then snap ring. Install a new seal ring.



COMPONENTS

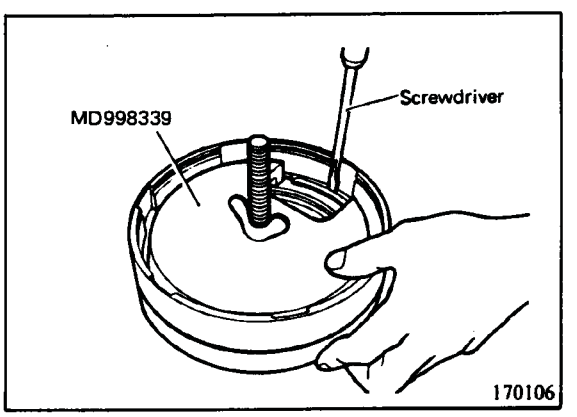
1 Snap ring – Select
2 Brake reaction plate
3 Brake disc (6)
4 Brake plate (5)
5 Brake pressure plate
6 Snap ring
7 Return spring
8 Wave spring
9 Piston
10 D-ring
11 D-ring
12 Center support



172021

DISASSEMBLY

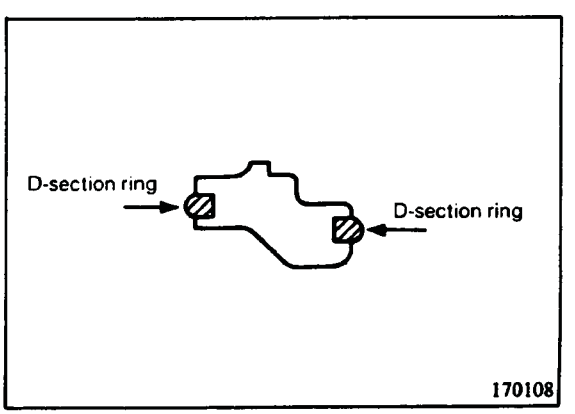
1. Remove snap ring from center support.
2. Take out reaction plate, brake discs, brake plates and brake pressure plate. (170106)
3. Using a screwdriver, remove snap ring.
4. Remove return spring and wave spring.



170106

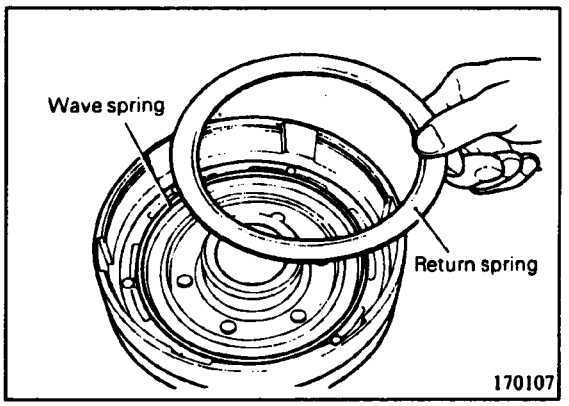
REASSEMBLY

1. Install new D-section rings to piston. (170108)
2. Apply ATF to circumference of D-section rings, and push piston into center support by hand.

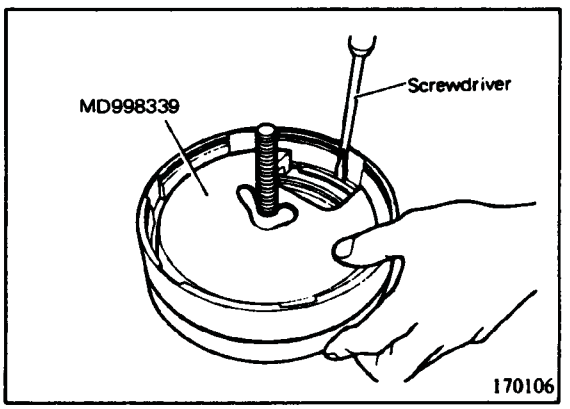


170108

3. Install wave spring and return spring.

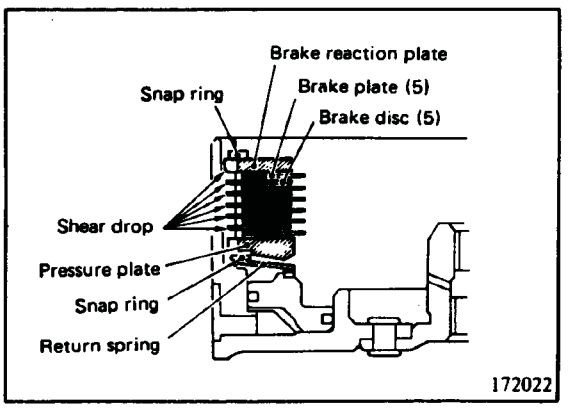


4. Using Special Tool MD998339, compress return spring with snap ring by pushing down with a screwdriver and setting snap ring in its groove.



5. Install pressure plate, three plates, four discs and reaction plate to center support.

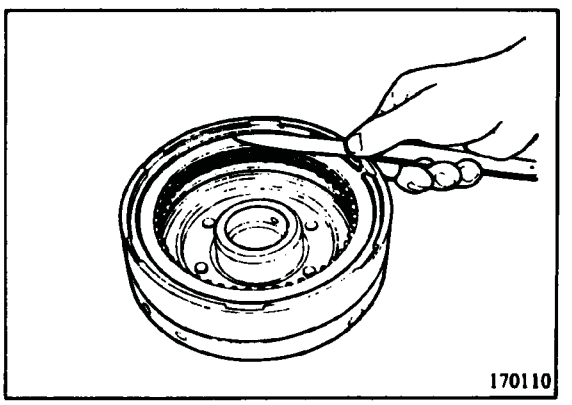
Caution
When a new disc is used, immerse it in ATF for more than two hours before installation.



6. Install snap ring, then check to see if clearance between snap ring and brake reaction plate is 1.2–1.4 mm (.047–.055 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 by selecting proper snap ring.

Kinds of snap ring

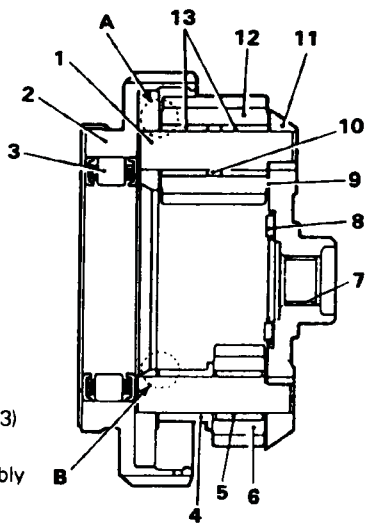
Thickness mm (in.)	Ident. color	Part No.
1.8 (.071)	Blue	MD707413
2.0 (.079)	Brown	MD707406
2.2 (.087)	None	MD707407
2.4 (.094)	Blue	MD707408
2.6 (.102)	Brown	MD707409
2.8 (.110)	None	MD707410
3.0 (.118)	Blue	MD707411
3.2 (.126)	Brown	MD707412



COMPONENTS

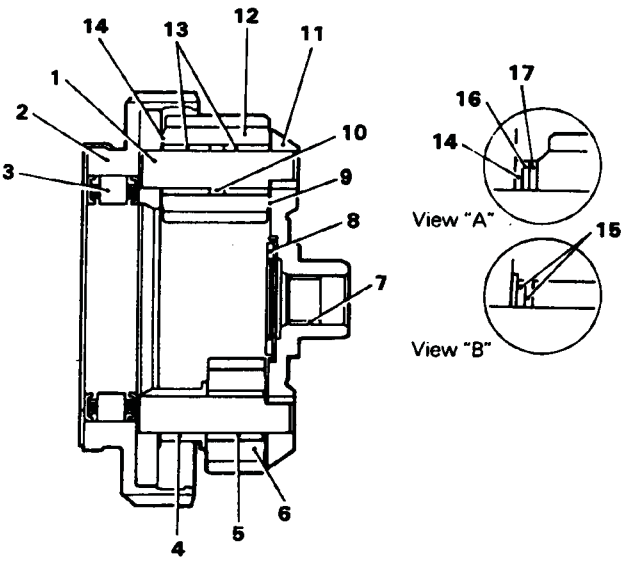
1. Pinion shaft (6)
2. Outer race
3. Overrunning clutch
4. Spacer bushing (3)
5. Roller (60)
6. Short pinion (3)
7. Bushing
8. Thrust bearing
9. Thrust washer, rear (3)
10. Spacer ring (3)
11. Planet carrier assembly
12. Long pinion
13. Roller (120)
14. Front washer A (3)
15. Thrust washer, front (6)
16. Front washer B (3)
17. Front washer C (3)

KM172



172037

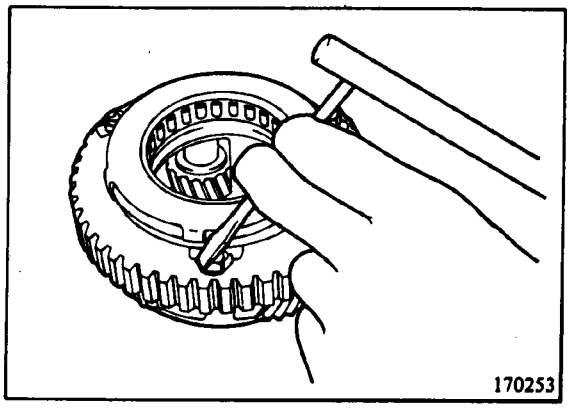
KM170-2, KM171



170251

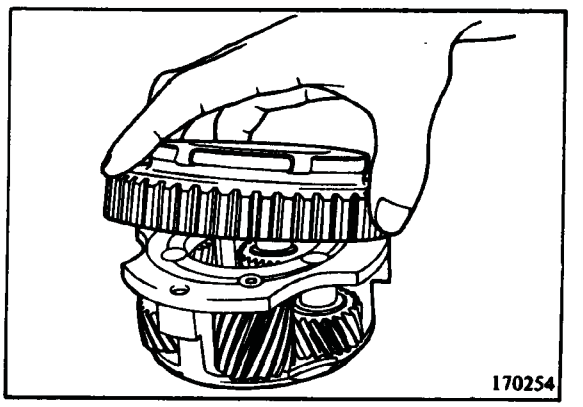
DISASSEMBLY

1. Unbend three lock plates and then remove three bolts.



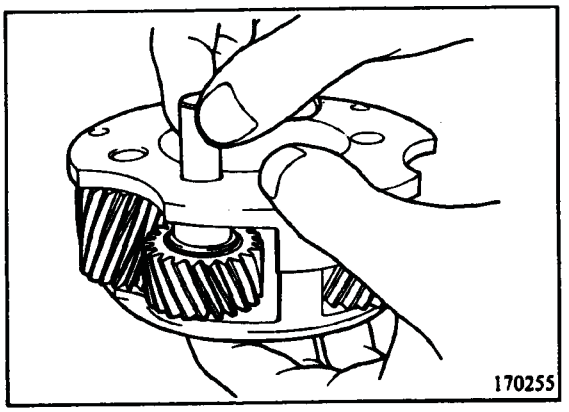
170253

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

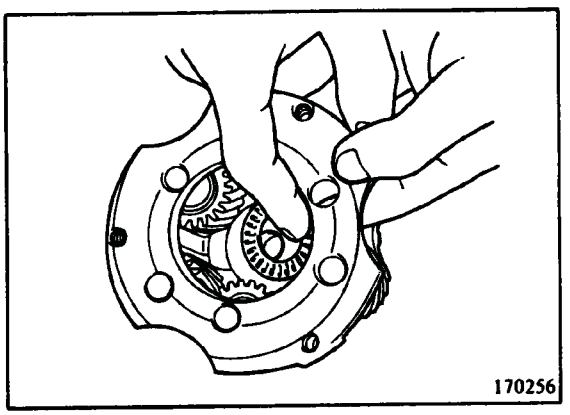


170254

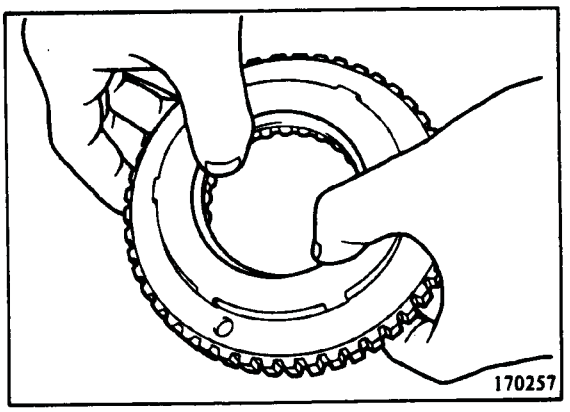
3. Remove pinion shaft.
4. Remove spacer bushing
5. Remove only one short pinion. Use care not to drop and lose 20 rollers in short pinion.



6. Remove thrust bearing.

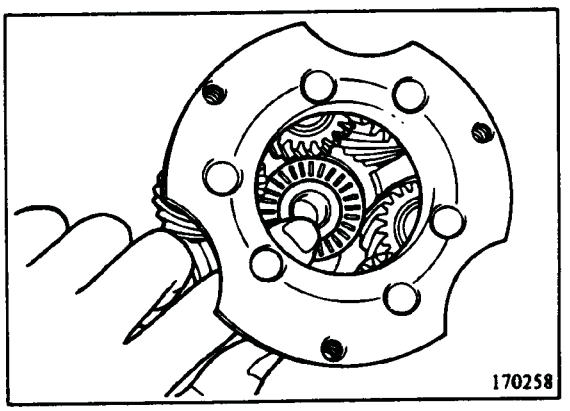


7. Push overrunning clutch out of outer race with fingers.

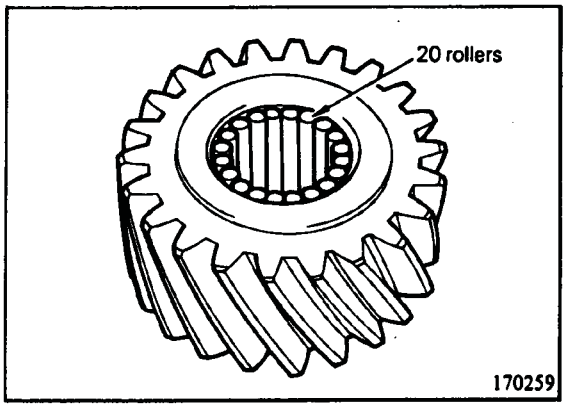


REASSEMBLY

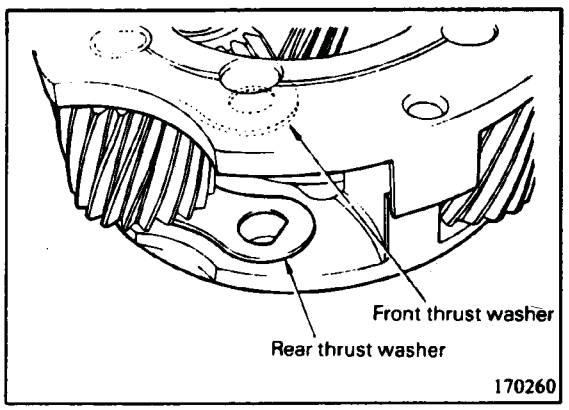
1. Install thrust bearing to carrier. Make sure that it fits correctly in carrier.



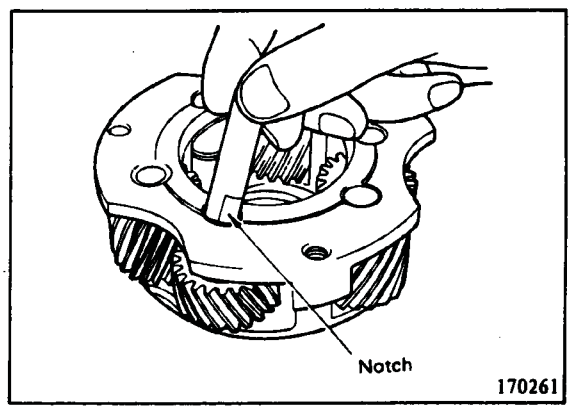
2. Apply vaseline unsparingly to inside diameter of short pinion to hold the 20 rollers.



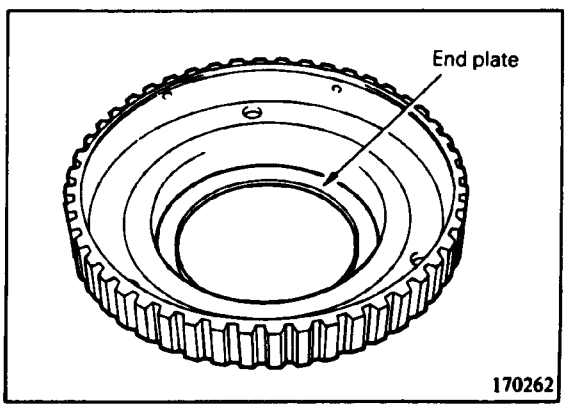
3. Line up holes in rear thrust washer and front thrust washer with shaft hole of carrier.
4. Install short pinion and spacer bushing and align holes. Use care not to allow rollers to get out of position.



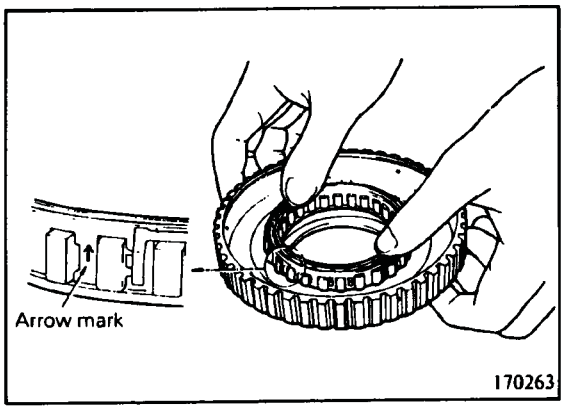
5. Insert pinion shaft. Make sure that flattened end of pinion shaft fits properly into the hole in rear thrust plate when pinion shaft is inserted.



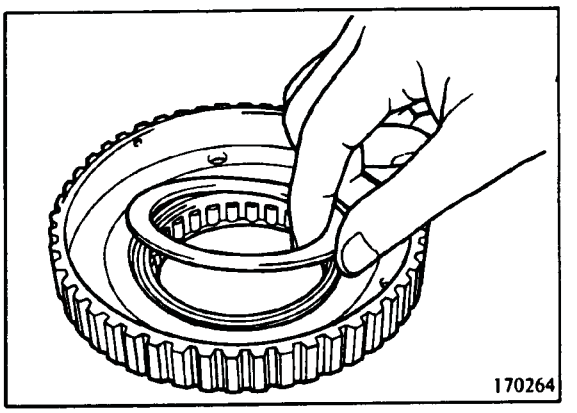
6. Install end plate to outer race.



7. Push overrunning clutch into outer race. Make sure that arrow on outside circumference of cage is directed upward as shown in the illustration (170263) when overrunning clutch is installed.

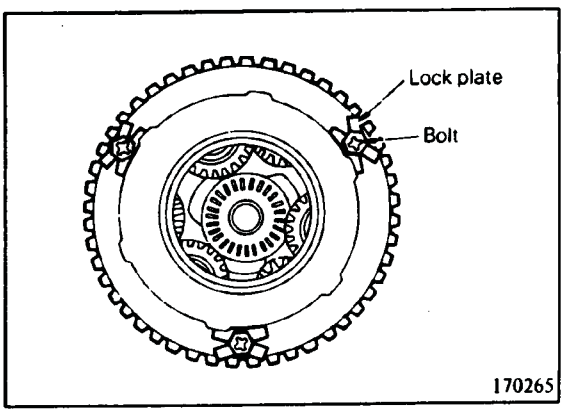


8. Apply vaseline to overrunning clutch end plate to retain it to overrunning clutch.

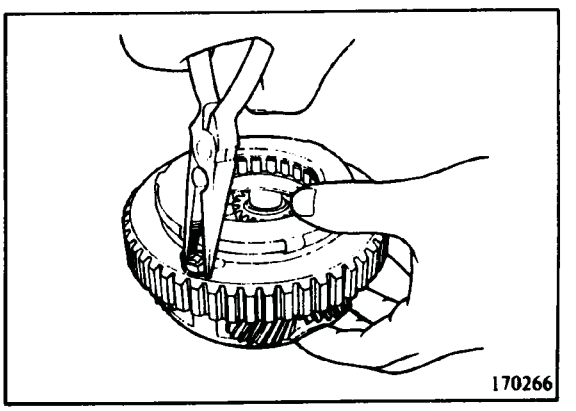


9. Install overrunning clutch assembly to carrier and align bolt holes.
10. Install three lock plates and three bolts and tighten three bolts to 8—9.5 Nm (6—7 ft.lbs.).

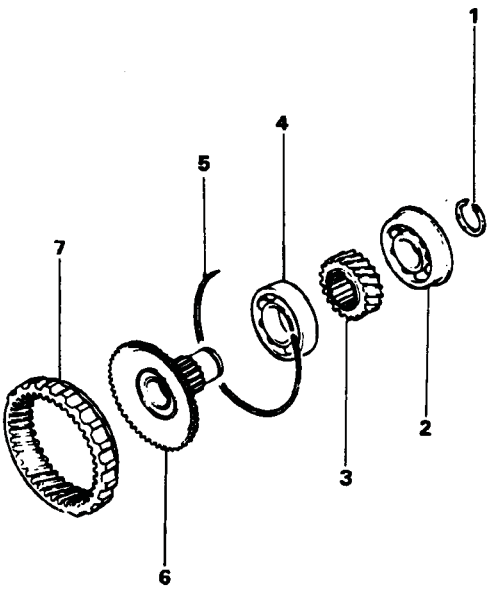
Caution
Lock plates must not be reused.



11. Bend lock plates exactly along bolt heads.



COMPONENTS

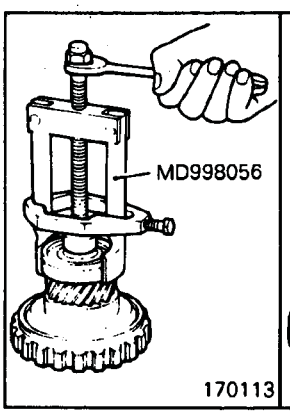


1. Snap ring
2. Bearing
3. Transfer drive gear
4. Bearing
5. Snap ring
6. Output flange
7. Internal gear

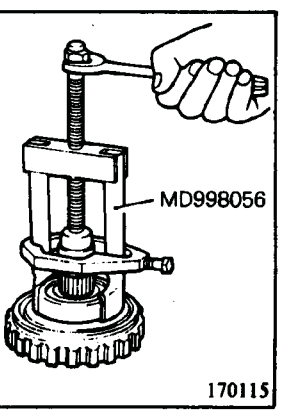
170178

DISASSEMBLY

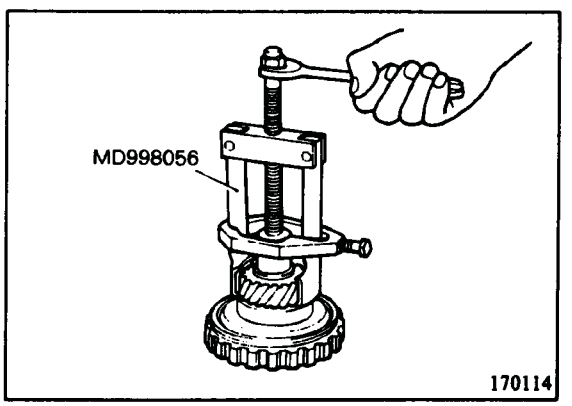
1. Remove snap ring from rear end of output flange.
2. Using Special Tool MD998056, pull off ball bearings (2 pieces) and transfer drive gear from output flange. (170113, 170115 and 170114)



170113

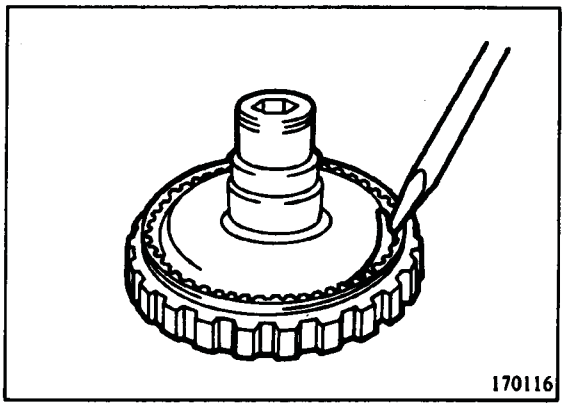


170115



170114

3. Remove snap ring, and separate internal gear from output flange.

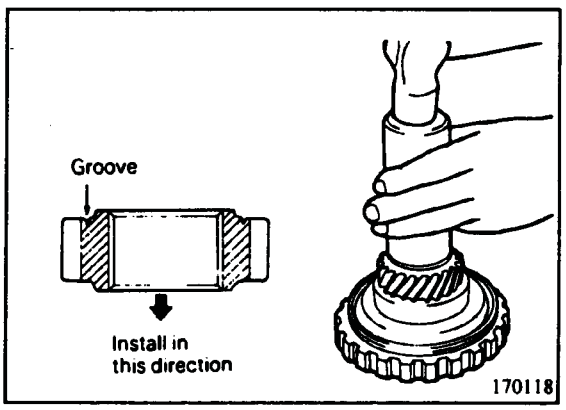


REASSEMBLY

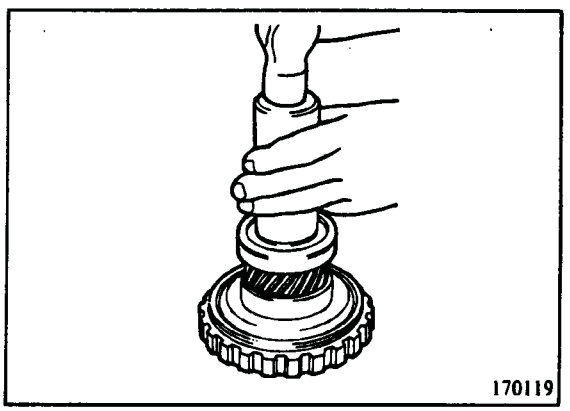
1. Using bearing installer, press ball bearing and transfer drive gear onto output flange.

Caution
Replace output flange and transfer drive gear as a set.

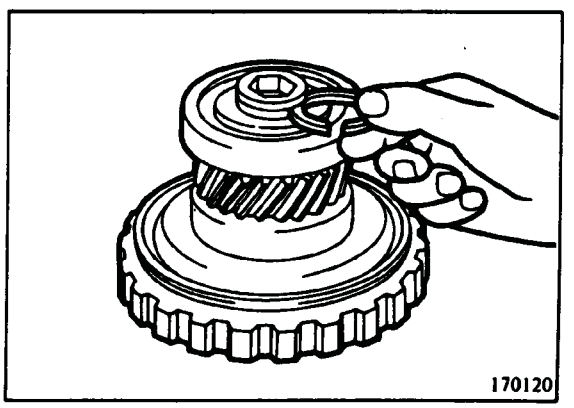
2. Install transfer drive gear in proper direction with attention paid to groove provided in side surface.



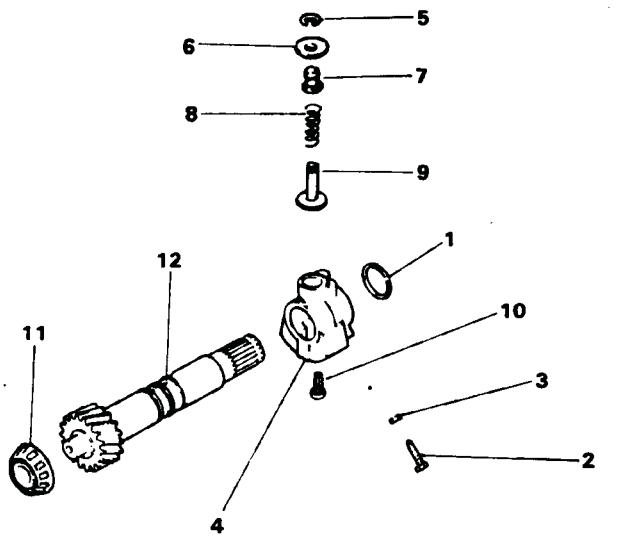
3. Install the ball bearing.



4. Select snap ring, which should be the thickest one that can be installed in groove.



COMPONENTS

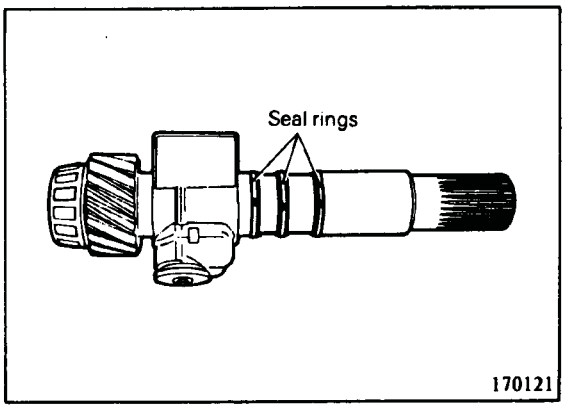


1 Seal ring (3)
2 Set screw
3 Jam nut
4 Governor
5 Snap ring
6 Governor weight
7 Governor valve
8 Spring
9 Spring retainer
10 Filter
11 Bearing inner race
12 Transfer shaft

170179-A

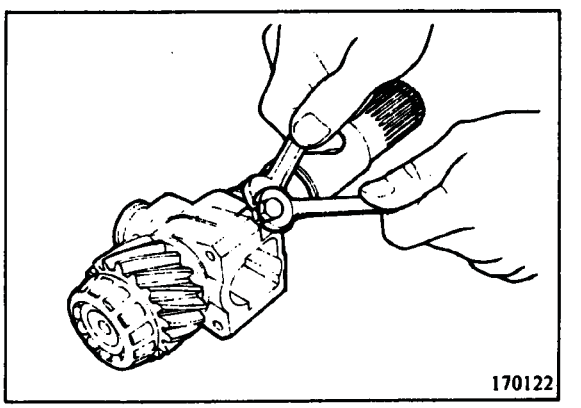
DISASSEMBLY

1. Remove three seal rings.



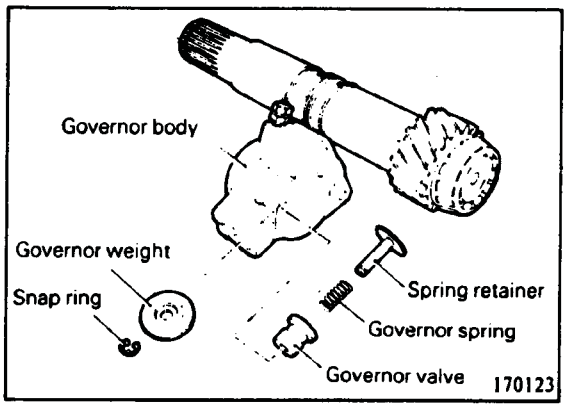
170121

2. Loosen governor set screws to remove governor assembly.

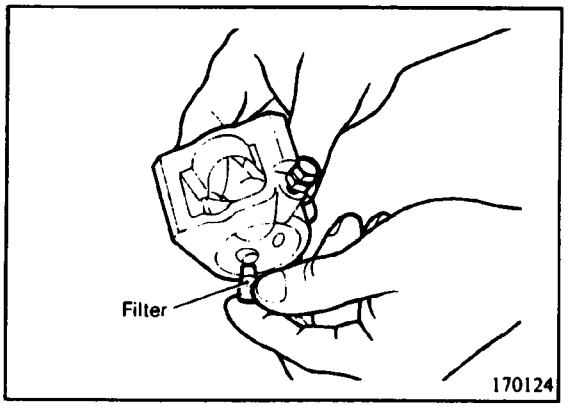


170122

3. Remove snap ring, and disassemble governor.

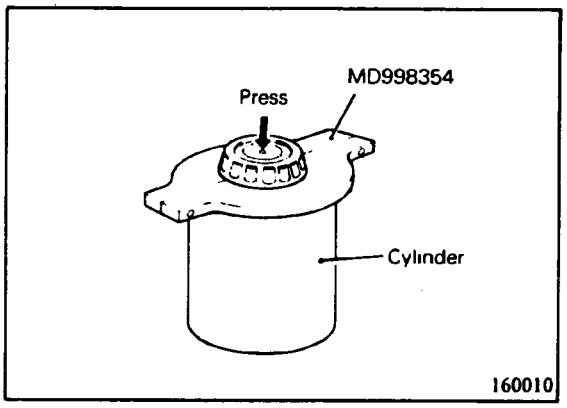


4. Remove governor filter. Replace filter if clogged with dirt.



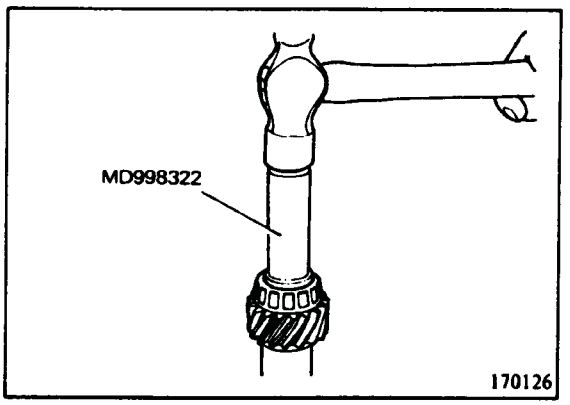
5. If tapered roller bearing is damaged, remove it using bearing puller.

Caution
Replace taper roller bearing inner and outer races as a set.

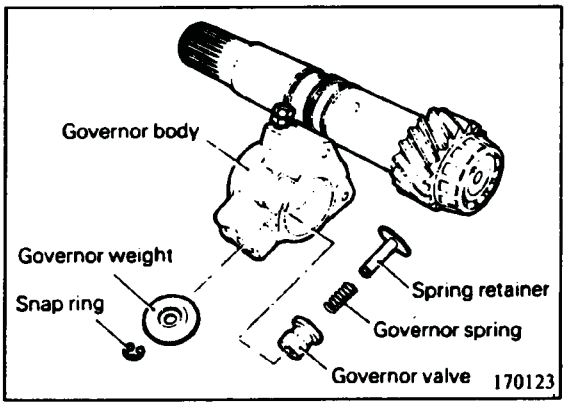


REASSEMBLY

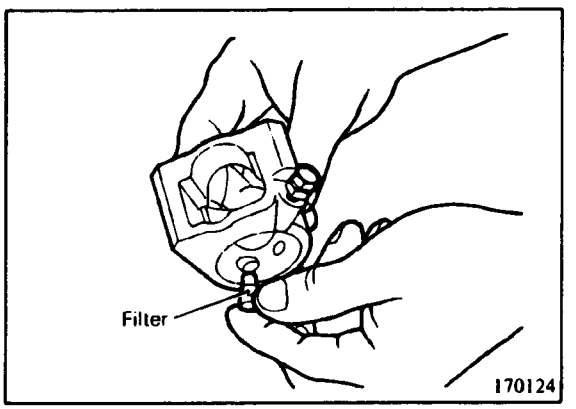
1. Install taper roller bearing inner race assembly using bearing installer.



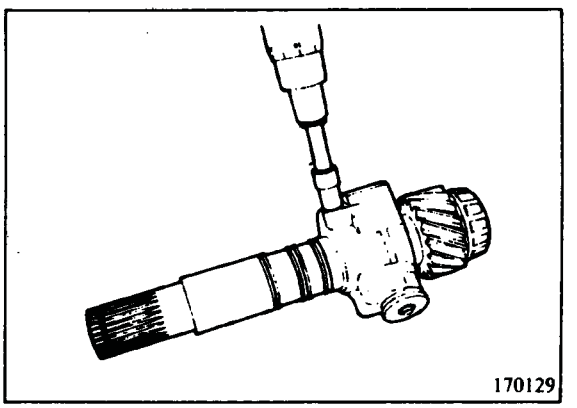
2. Install governor valve, spring, spring retainer and governor weight to governor body, then install snap ring.



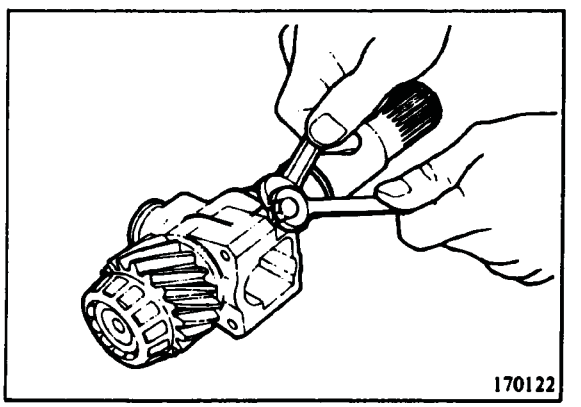
3. Install governor filter. When removed governor filter is reused, carefully inspect filter interior. Replace filter with new one if contamination by dirt is evident.



4. Install governor assembly to transfer shaft. Tighten set screws to 8–9.5 Nm (6–7 ft.lbs.).



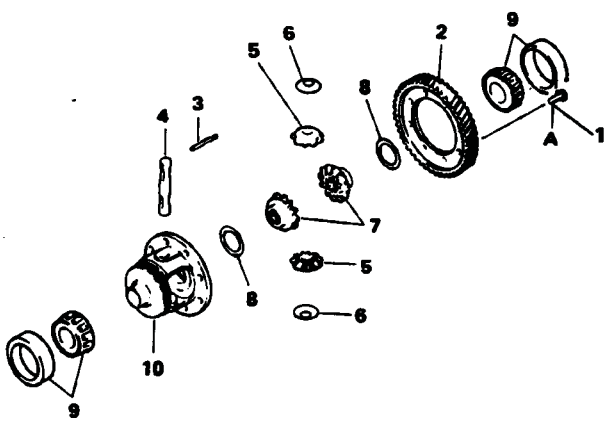
5. After tightening set screws, tighten jam nut to 4–5.5 Nm (3–4 ft.lbs.) while holding set screw.



COMPONENTS

1. Bolt (8)
2. Differential drive gear
3. Lock pin
4. Pinion shaft
5. Pinion gear (2)
6. Washer (2)
7. Side gear (2)
8. Spacer
9. Taper roller bearing
10. Differential case

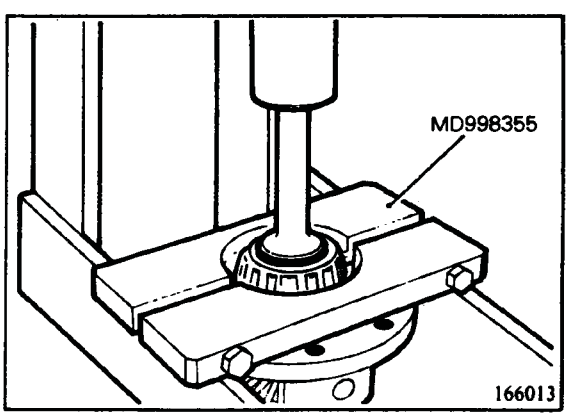
	Nm	ft.lbs.
A	128 – 137	94 – 101



166012

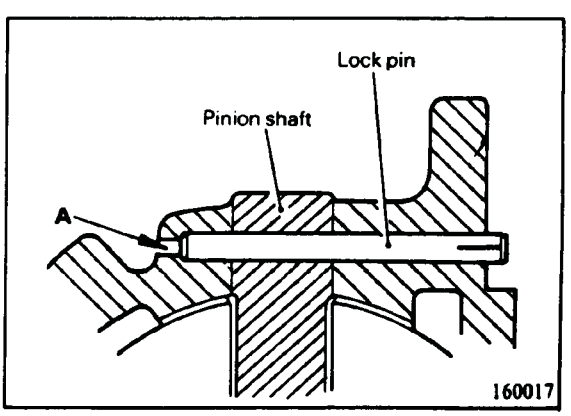
DISASSEMBLY

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 Specail Tool MD998355.(166013)



166013

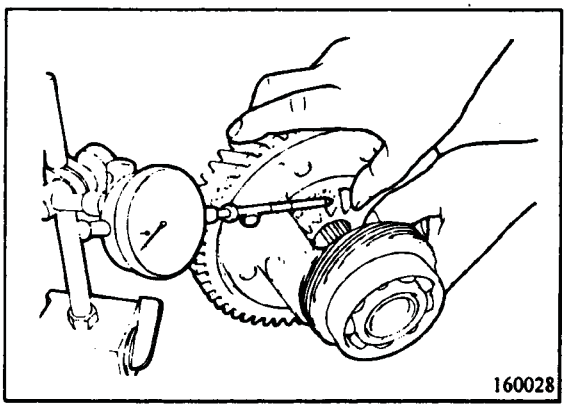
3. Drive out lock pin with a punch inserted in hole "A". (160017)
4. Remove the pinion shaft, the pinion gears and washers.
5. Remove the side gears and spacers.



160017

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 $1.0^{0}_{-0.07}$ mm ($.039^{0}_{-.003}$ 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—0.076 mm (0—.0030 in.) and right and left hand gear pairs should have equal backlash. If backlash is out of specification, disassemble and reassemble them by using spacer selected for correct backlash. (166014)


160028

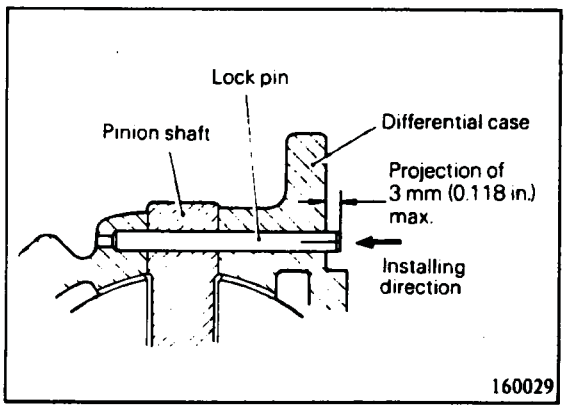
Backlash	0—0.076 mm (0—.0030 in.)

Kinds of spacer

Thickness mm (in.)	Parts No.
$1.0^{+0.16}_{+0.08}$ ($.0394^{+.0063}_{+.0035}$)	MA180876
$1.0^{+0.08}_{+0.01}$ ($.0394^{+.0031}_{+.0004}$)	MA180875
$1.0^{0}_{-0.07}$ ($.0394^{0}_{-.0028}$)	MA180860
$1.0^{-0.08}_{-0.17}$ ($.0394^{-.0031}_{-.0067}$)	MA180861
$1.0^{-0.18}_{-0.25}$ ($.0394^{-.0071}_{-.0098}$)	MA180862

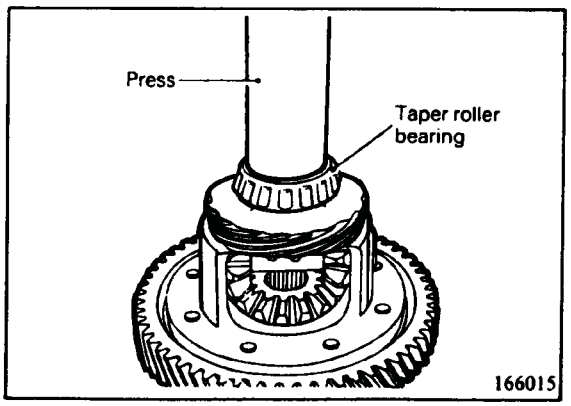
4. Install pinion shaft lock pin in direction specified in illustration. After installation, check to ensure that projection is less than 3 mm (.118 in.). (160029)

Caution
Lock pin must not be reused. Lock pin not requiring more than 1,960 N (440 lbs.) installation load must not be used.



160029

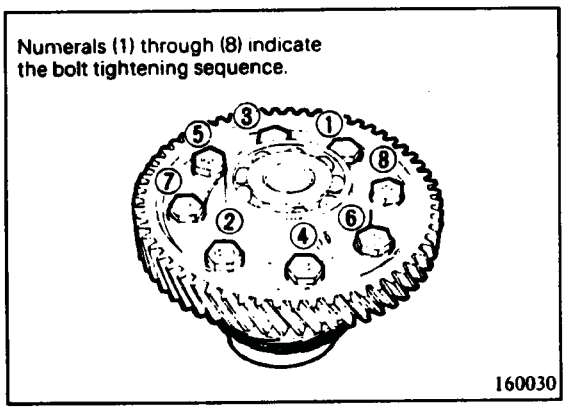
5. Press taper roller bearing inner races onto both ends of differential case. Apply load to inner race when pressing in bearings. Do not apply load to outer race.
6. Install the differential drive gear onto the case.



166015

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

Tightening torque ..... 128—137 Nm (94—101 ft.lbs.)



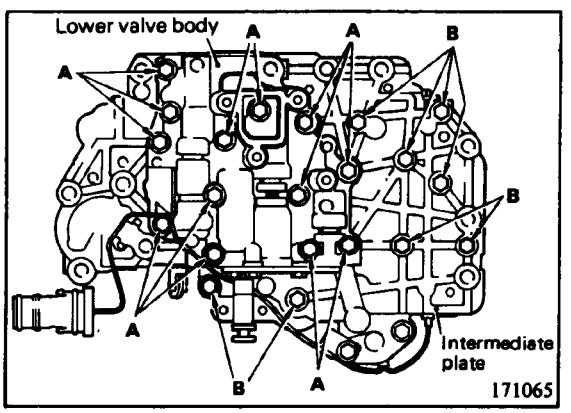
DISASSEMBLY

Caution

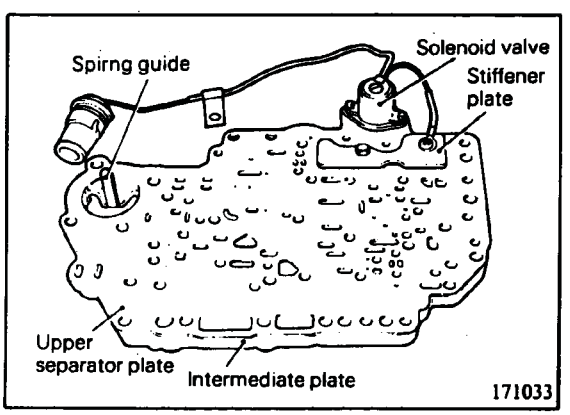
Never clamp any portion of valve body or transfer plate in a vise. Any slight distortion of valve body or transfer plate will result in sticking valves, excessive leakage, or both.
When removing or installing valves or plugs, slide them in and out carefully. Do not use force. Tag all springs and valves 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.

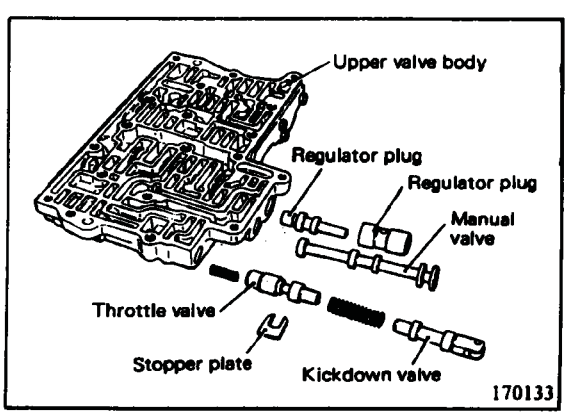
2. Remove the 13 bolts (A), and then remove the lower valve body and lower separator plate. (171065) Remove the two steel balls.
3. Remove the seven bolts (B), and then remove the intermediate plate and upper separator plate. (171065)
4. Remove the four steel balls from the upper valve body.



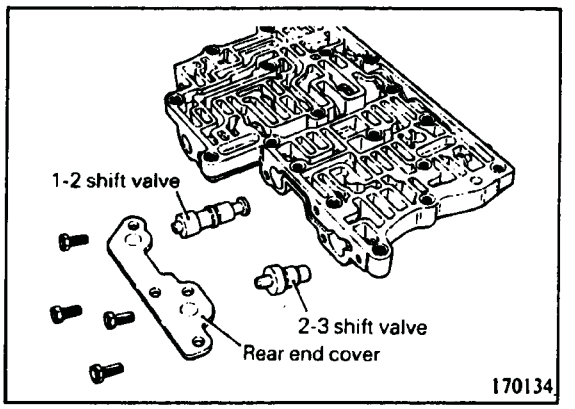
5. Remove the stiffener plate, solenoid valve and upper separator plate from intermediate plate. Then remove the filter, two steel balls and two springs from the intermediate plate.



6. Remove the manual valve from upper valve body.
7. Remove the kickdown valve and spring.
8. Remove the stopper plate, and then the throttle valve and spring.
9. Remove the regulator plugs.



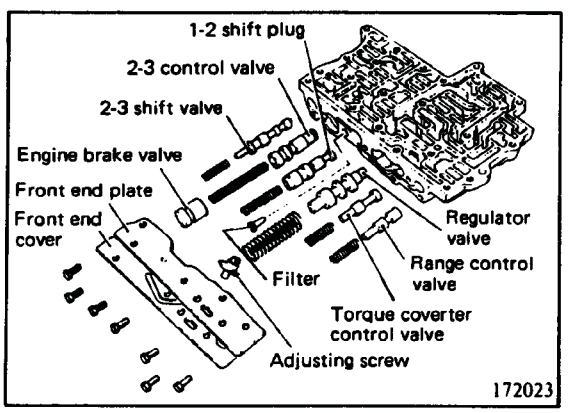
10. Remove the rear end cover, and then remove the 1-2 shift valve and the 2-3 shift plug. (170134)



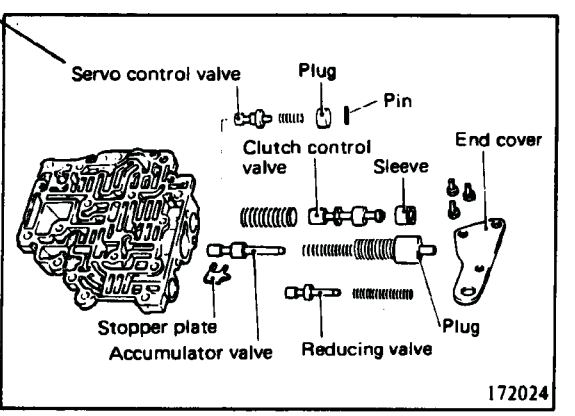
11. Remove the front end cover and plate, and then remove the springs, valves and filter from the upper valve body. (172023)

LATE KM 171 & 172 DO NOT HAVE

THIS SERVO CONTROL VALVE



12. Remove the pin, servo control plug, spring and the servo control valve from lower valve body. (172024)
13. Remove the end cover, and then the clutch control valve, accumulator valve, plug and springs. (172024)



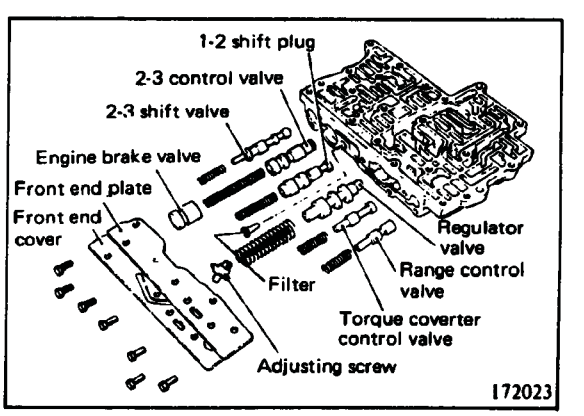
REASSEMBLY

Caution

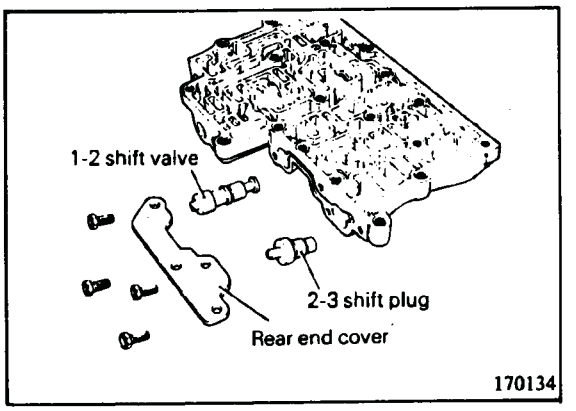
Clean all parts with ATF. Tighten all valve body screws to 4—5.5 Nm (3—4 ft.lbs.).

Do not use shop towels during reassembly operation.

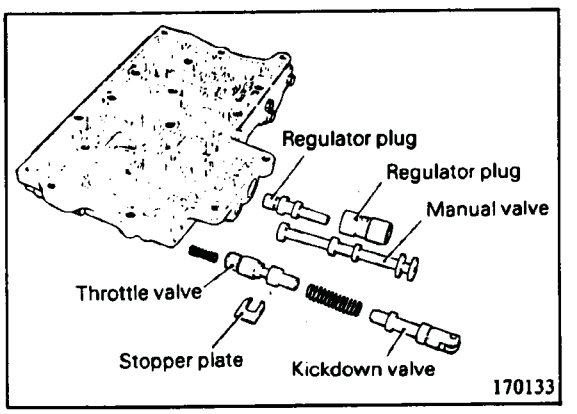
1. Install valves, springs and filter shown in illustration (172023) to valve body.
2. Then install front end plate and front end cover and tighten seven screws to specified torque.



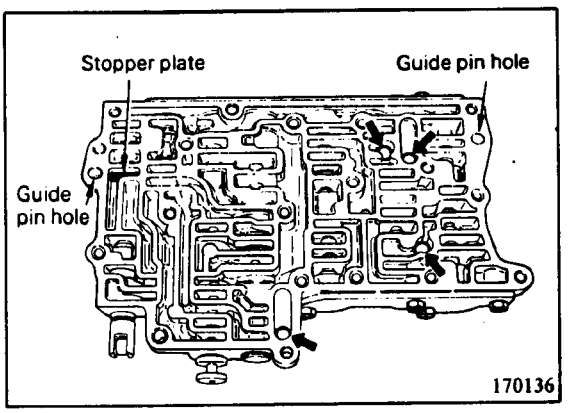
3. Insert 2-3 shift plug and 1-2 shift valve into upper valve body, then install rear end cover by tightening four screws to specified torque.



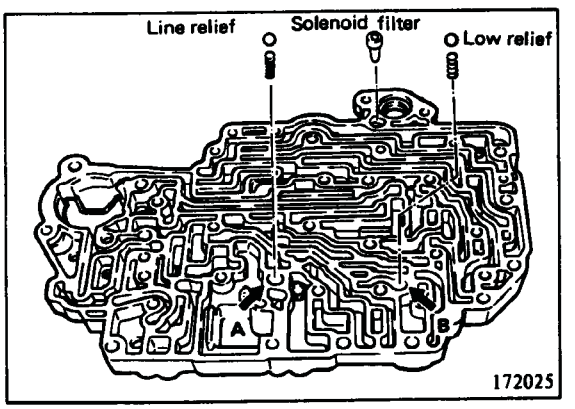
4. Insert two regulator plugs into upper valve body.
5. Insert manual valve into upper valve body.
6. Insert kickdown spring, throttle valve, throttle spring and kickdown valve into upper valve body.



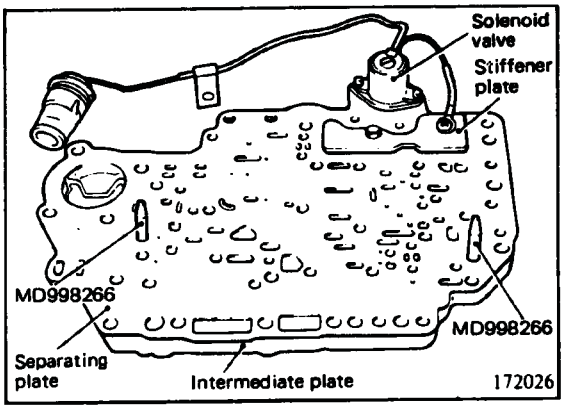
7. Install the throttle valve stopper plate to position shown in illustration. (170136)
8. Install four steel balls to upper valve body.



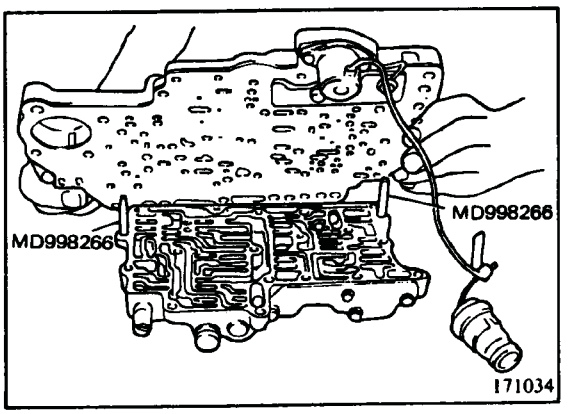
9. Install the new solenoid filter into intermediate plate. (172025)
10. Install the two steel balls into intermediate plate. (172025)
11. Install line relief and low relief steel balls and springs to intermediate plate. (172025)
    A: Line relief
    B: Low relief



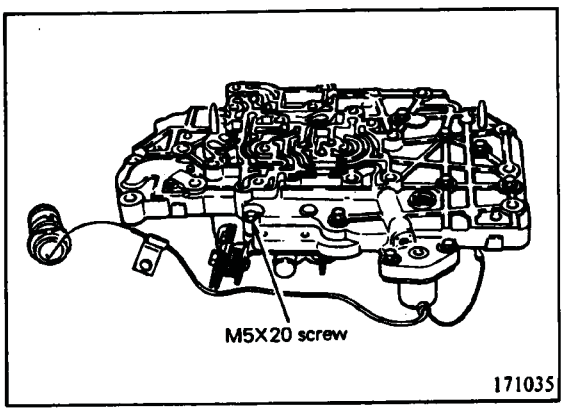
12. Insert two Special Tools (MD998266) into intermediate plate guide pin holes.
13. Using Special Tools as a guide, install separator plate.
14. Install stiffener plate and solenoid valve and then temporarily tighten two bolts. Remove guide pins.



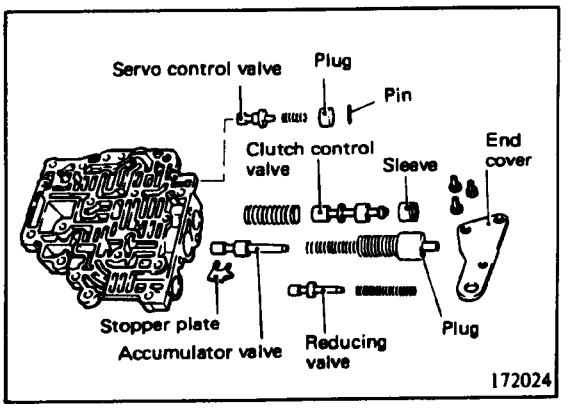
15. Insert two Special Tools (MD998266) into guide pin holes in upper valve body. Using Special Tools as a guide, install intermediate plate and separator plate assembly.



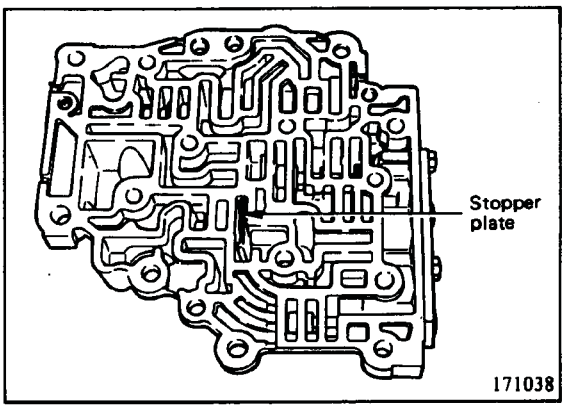
16. Tighten M5 × 25 screws (7 pieces) and one M5 × 20 screw (either of which has "7" marked head) by fingers. Then remove guide pins.



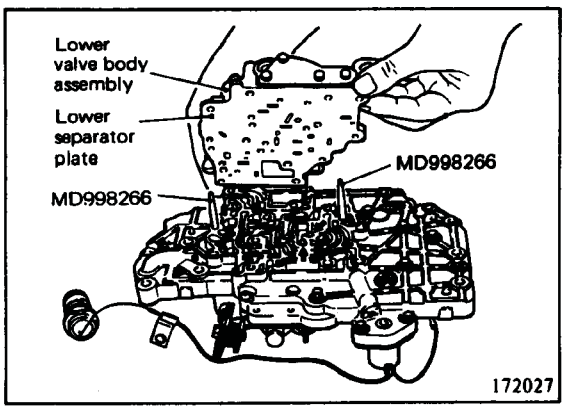
17. Install clutch control valve, accumulator valve, accumulator plug, reducing valve and springs, then install cover and tighten screws.
18. Install the servo control valve, spring and plug and insert the pin.



19. Install the accumulator valve stopper plate shown in illustration.

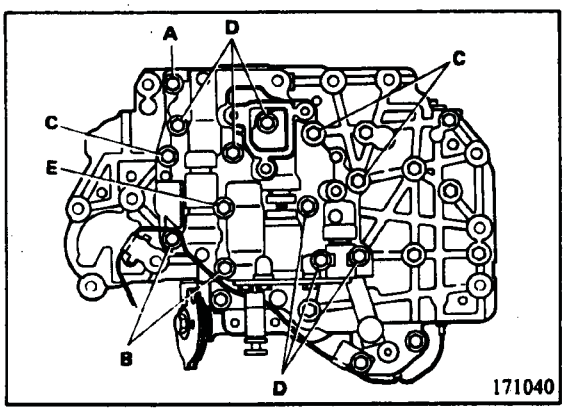


20. Install two steel balls to intermediate plate.
21. Insert two Special Tools (MD998266) into guide pin holes in intermediate plate. Using Special Tools as a guide, install lower separator plate and lower valve body assembly. (172027)



22. Tighten screws with fingers, then remove guide pins.

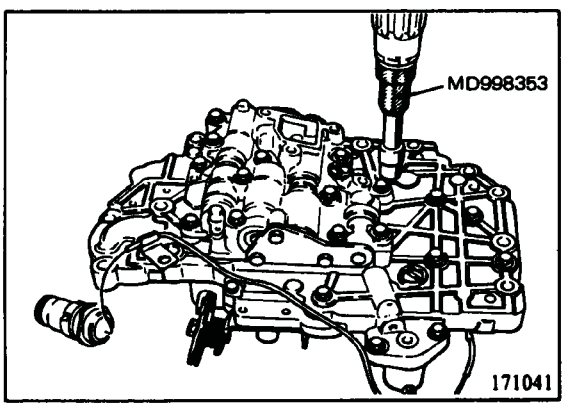
A Bolt	20 mm (.787 in.) long
B Bolt	35 mm (1.378 in.) long
C Bolt	40 mm (1.575 in.) long
D Bolt	45 mm (1.772 in.) long
E Bolt	58 mm (2.238 in.) long



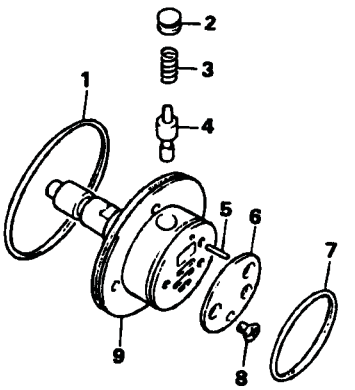
23. Tighten all bolts to specified torque.

Tightening torque	4—5.5 Nm (36—48 ft.lbs.)

24. Install throttle cam and cable clamp and tighten two bolts.
25. Clamp the solenoid cable.



COMPONENTS

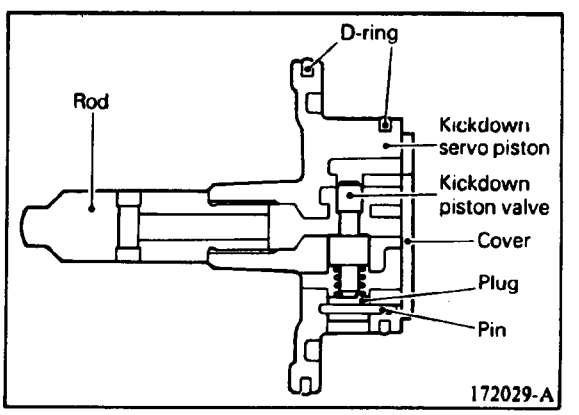


1. D-ring
2. Plug
3. Spring
4. Kickdown piston valve
5. Pin
6. Cover
7. D-ring
8. Screw (3)
9. Kickdown servo piston

172007

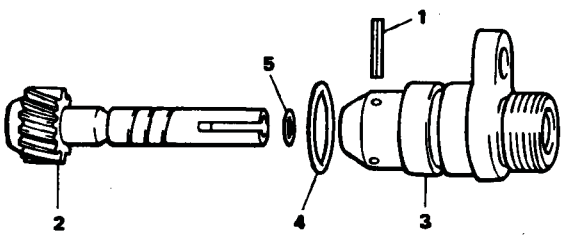
REASSEMBLY

1. Insert the kickdown piston valve, spring and plug into piston, and then insert pin.
2. Install the rod to piston.
3. Install new D-rings to piston.
4. Apply ATF to D-rings and O-ring.



COMPONENTS

1 Pin
2 Gear
3 Sleeve
4 O-ring
5 O-ring



172002

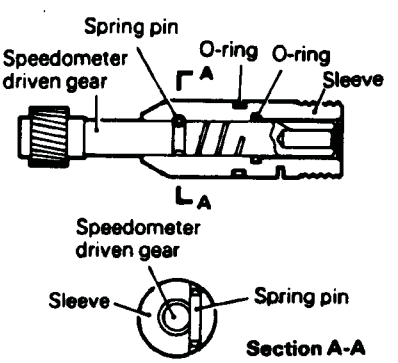
DISASSEMBLY

Drive spring pin out and gear and sleeve can be disassembled.

Caution
Do not reuse O-ring and spring pin.

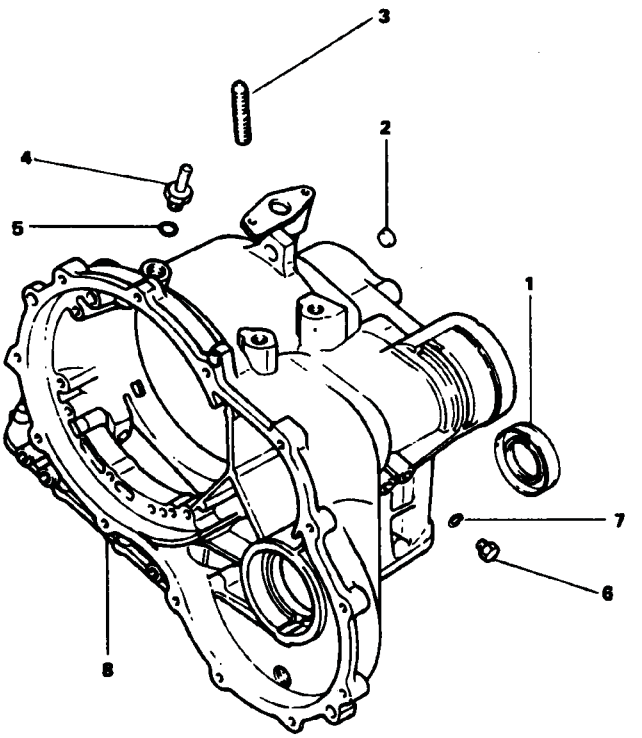
REASSEMBLY

1. Install new O-ring in O-ring groove in speedometer driven gear sleeve I.D.
2. After applying small amount of gear oil to speedometer driven gear shaft, insert sleeve.
3. Align pin hole in sleeve with pin slot in gear shaft, and drive in spring pin in such a direction that spring pin slit will not contact gear shaft.
4. Install new O-ring in O-ring groove in sleeve O.D.



160038

COMPONENTS



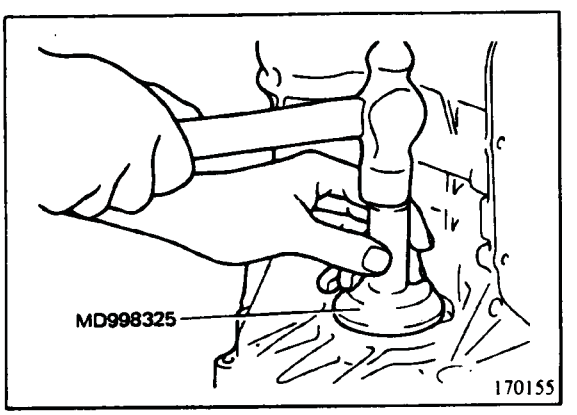
1. Oil seal
2. Sealing cap
3. Stud
4. Connector
5. O-ring
6. Plug pressure
7. O-ring
8. Case

NOTE
Numbers show order of disassembly.
For reassembly, reverse order of disassembly.

170182

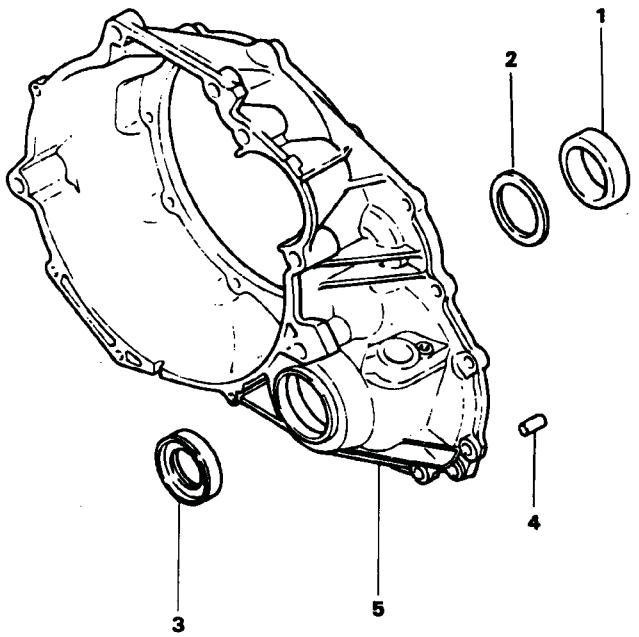
REASSEMBLY

Using Special Tool MD998325, drive two drive shaft oil seals into transaxle case.



170155

COMPONENTS



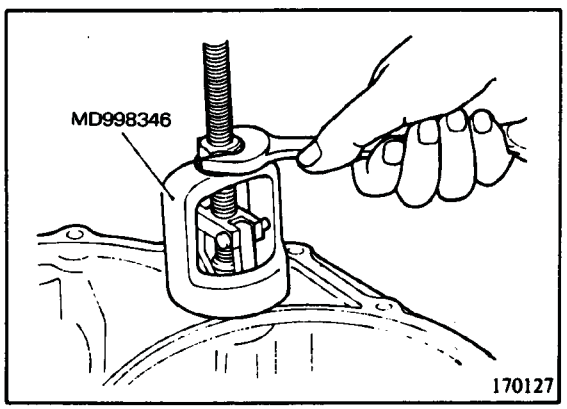
1. Bearing outer race
2. Spacer
3. Oil seal
4. Dowel pin
5. Housing

NOTE
Numbers show order of disassembly.
For reassembly, reverse order of disassembly.

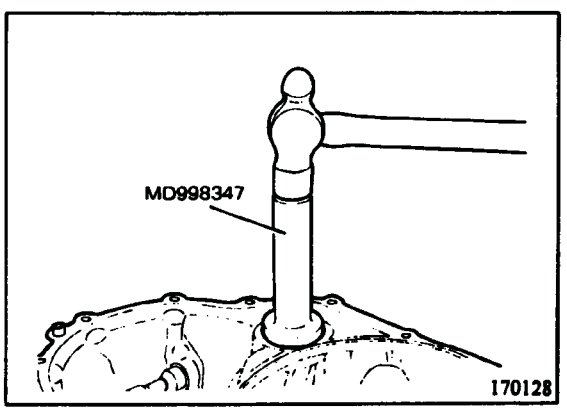
170183

REPLACEMENT OF OUTER TAPER ROLLER BEARING

When replacing taper roller bearing outer race (press fitted in converter housing), use Special Tool MD998346 and MD998347.



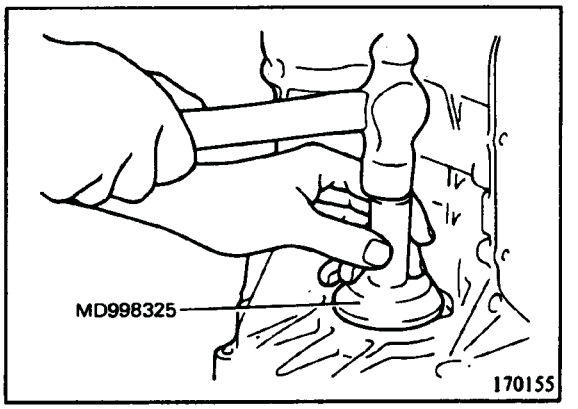
170127



170128

REASSEMBLY

Using Special Tool MD998325, drive two drive shaft oil seals into converter housing.

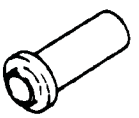


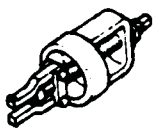
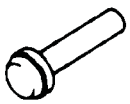
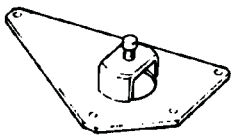
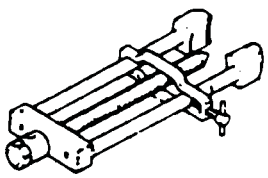
Pressure check plug	8.0–9.5 (6–7)
Bearing retainer bolt	15–21 (11–15)
Oil cooler connector	15–21 (11–15)
Converter housing bolt	19–22 (14–16)
Oil pan bolt	10–11 (7.5–8.5)
Kickdown servo nut	15–21 (11–15)
Center support bolt	20–26 (15–19)
Lock plate bolt	20–26 (15–19)
Differential drive gear bolt	128–138 (94–101)
Governor bolt	8.0–9.5 (6–7)
Governor bolt lock nut	4.0–5.5 (3–4)
Manual control lever nut	17–20 (13–15)
Manual control shaft set screw	8.0–9.5 (6–7)
Inhibitor switch	10–11 (7.5–8.5)
Sprag rod support bolt	20–26 (15–19)
Pump housing-to-reaction shaft support bolt	10–11 (7.5–8.5)
Oil pump assembly mounting bolt	15–21 (11–15)
Valve body bolt	4.0–5.5 (3–4)
Throttle cam bolt	8.0–9.5 (6–7)
Valve body assembly mounting bolt	10–11 (7.5–8.5)
Oil filter bolt	5.0–6.5 (4–5)
Speedometer sleeve locking plate bolt	3.0–4.5 (2.5–3.5)

LUBRICANTS

	Recommended lubricant	Quantity
Manual transaxle		
Manual transmission oil lit. (U.S.qts., Imp.qts.)		
1.5L vehicles without a turbocharger	MOPAR Hypoid gear oil or equivalent, API classification GL-4	2.1 (2.2, 1.8)
1.6L vehicles with a turbocharger	MOPAR Hypoid gear oil or equivalent, API classification GL-4	2.3 (2.4, 2.0)
Shift lever and bushing contacting surface	MOPAR Front Wheel Bearing Grease Part Number 3837794 or equivalent	As required
Dust cover inside surface	MOPAR Front Wheel Bearing Grease Part Number 3837794 or equivalent	As required
Shift lever sliding portion	MOPAR Front Wheel Bearing Grease Part Number 3837794 or equivalent	As required
Automatic transaxle		
Automatic transmission fluid lit. (U.S.qts., Imp.qts.)	ATF DEXRON or DEXRON II Type	5.8 (6.1, 5.1)
Selector lever sliding portion	MOPAR Front Wheel Bearing Grease Part Number 3837794 or equivalent	As required

AUTOMATIC TRANSAXLE

Tool (Number and name)	Use	Tool (Number and name)	Use
MD998330 for 3,000 kPa MD999563 for 980 kPa Oil pressure gauge 	Measurement of the hydraulic pressure Use with joint (MD998331)	MD998266 Guide pin 	Alignment of intermediate plate and valve bodies
MD998331 Joint 	Measurement of the hydraulic pressure	MD998334 Oil pump oil seal installer 	Installation of oil pump oil seal
MD998332 Oil pressure gauge adapter 	Measurement of the hydraulic pressure	MD998340 Center support remover/installer 	Removal and installation of center support
MD998333 Oil pump remover 	Removal of oil pump	MD998363 Wrench adapter 	Preload measurement of transfer idler shaft
MD998336 Guide pin 	Alignment of oil pump housing and reaction shaft support	MD998344 Wrench adapter "B" 	Removal and installation of transfer idler shaft
MD998339 Spring compressor 	Disassembly of low-reverse brake	MD998345 Reverse sun gear retainer 	Hold of sun gears

Tool (Number and name)	Use	Tool (Number and name)	Use
MD998346 Bearing outer race remover 	Removal of bearing outer race	MD998350 Bearing installer 	Installation of transfer rear bearing and gear
MD998347 Bearing outer race installer 	Installation of bearing outer race	MD998319 Transfer shaft retainer 	Installation of transfer shaft rear bearing and gear
MD998056 Bearing and gear puller 	Removal of output flange bearings and gear	MD998325 Differential oil seal installer 	Installation of differential oil seal Common to manual and automatic transaxle

KM 171 AND 172 TRANSAXLE
ENGINE SURGE AT STEADY CRUISE

Complaint: Engine may surge at full operating temperature with the vehicle at steady cruise/light load condition.

Diagnosis: If a surge from 100 to 200 rpm can be felt when the engine speed is between 1800 and 2600 rpm, disconnect the torque converter wire from the transaxle case connector. If the surge is gone, proceed with the following repair procedure.

Correction: Install Transaxle modification package part number MD728159. This procedure involves replacing the lower valve body damper clutch control valve, sleeve, spring, and the lock-up solenoid. This service package will consists of.

DESCRIPTION	PART #
Damper Clutch Control Valve	MD727246
Damper Clutch Control Sleeve	MD723456
Lower Valve Body	MD727244
Lower Valve Spring	MD725203
Solenoid Valve	MD727245
Oil Pan Gasket	MD707183
O-Ring	MD707603
O-Ring	MD707752

HOW TO DISTINGUISH A KM171 FROM A KM172

KM171 is a 3 speed transaxel with a converter clutch:

1. 3 bolt metal cover
2. Ball bearings on the differential
3. Band is adjustable
4. One O-ring on the valve body

KM 171-1

DESCRIPTION	ITEM	TOOTH	THICKNESS	I.D.	O.D.
FRONT/DIRECT CLUTCH DRUM	FRICTION	38	.078	3.96	5.00
	STEEL	24	.150	3.97	5.27
REAR/FORWARD CLUTCH DRUM	FRICTION	10	.078	3.96	5.00
	STEEL	24	.068	3.97	5.27
LOW/REVERSE CLUTCH PACK	FRICTION	48	.076	4.96	6.00
	STEEL	24	.070	4.975	6.33

KM 171-2

DESCRIPTION	ITEM	TOOTH	THICKNESS	I.D.	O.D.
FRONT/DIRECT CLUTCH DRUM	FRICTION	38	.078	3.96	5.00
	STEEL	24	.150	3.97	5.27
REAR/FORWARD CLUTCH DRUM	FRICTION	38	.078	3.96	5.00
	STEEL	24	.068	3.97	5.27
LOW/REVERSE CLUTCH PACK	FRICTION	48	.076	4.96	6.00
	STEEL	24	.070	4.975	6.33

KM172 is a 3 speed transaxel with a converter clutch:

1. 3 bolt aluminum cover
2. Tapered bearings on the differential
3. Band is not adjustable
4. Three O-rings on the valve body

KM 172

DESCRIPTION	ITEM	TOOTH	THICKNESS	I.D.	O.D.
FRONT/DIRECT CLUTCH DRUM	FRICTION	38	.078	3.96	5.00
	STEEL	24	.150	3.97	5.27
REAR/FORWARD CLUTCH DRUM	FRICTION	38	.078	3.96	5.00
	STEEL	24	.068	3.97	5.27
LOW/REVERSE CLUTCH PACK	FRICTION	48	.076	4.96	6.00
	STEEL	24	.040	4.975	6.33

KM 172-5

DESCRIPTION	ITEM	TOOTH	THICKNESS	I.D.	O.D.
FRONT/DIRECT CLUTCH DRUM	FRICTION	38	.078	4.10	5.00
	STEEL	24	.150	4.115	5.27
REAR/FORWARD CLUTCH DRUM	FRICTION	38	.078	4.10	5.00
	STEEL	24	.070	4.115	5.27
LOW/REVERSE CLUTCH PACK	FRICTION	51	.076	5.24	6.00
	STEEL	20	.070	5.30	6.33