

AUTOMATIC TRANSAXLE (3-Speed)

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OUTLINE

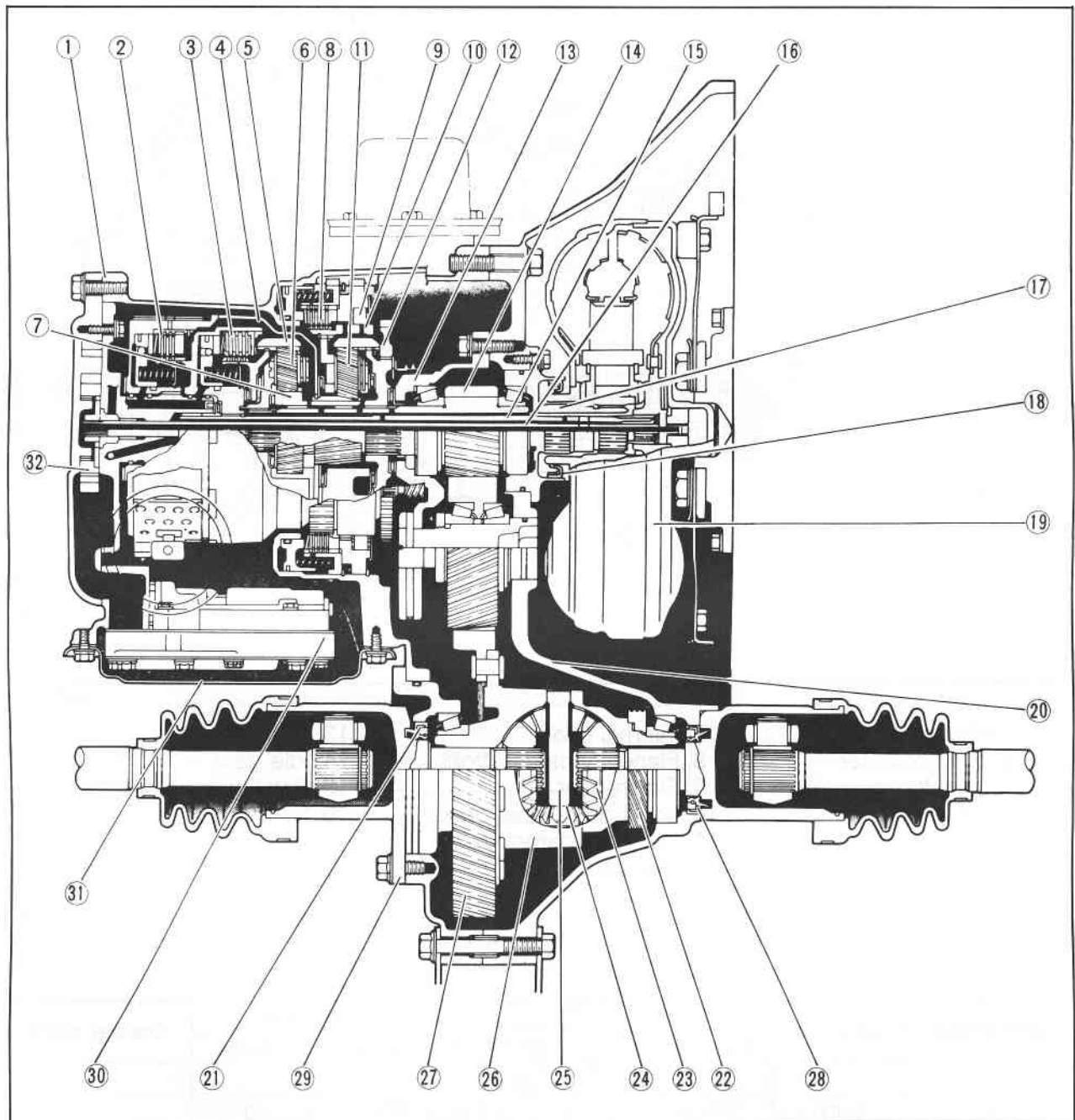
SPECIFICATIONS

Model		F3A	
		FE engine	F6 engine
Torque converter stall torque ratio		1.800—2.100 : 1	
Gear ratio	First	2.841	
	Second	1.541	
	Third	1.000	
	Reverse	2.400	
Final gear ratio		3.450 : 1	3.631 : 1
Number of drive plates/ driven plates	Front clutch	3/3	
	Rear clutch	4/4	
	Low and reverse brake	4/4	
Servo diameter (Piston outer dia./retainer inner dia.) mm (in)		64/36 (2.52/1.42)	64/44 (2.52/1.73)
Speedometer gear ratio (Driven/Drive gear)		0.80 (20/25)	0.84 (21/25)
Automatic transaxle fluid	Type	Dexron-II or M-III	
	Capacity liters (US qt, Imp qt)	6.2 (6.6, 5.5)	

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CROSS-SECTIONAL VIEW

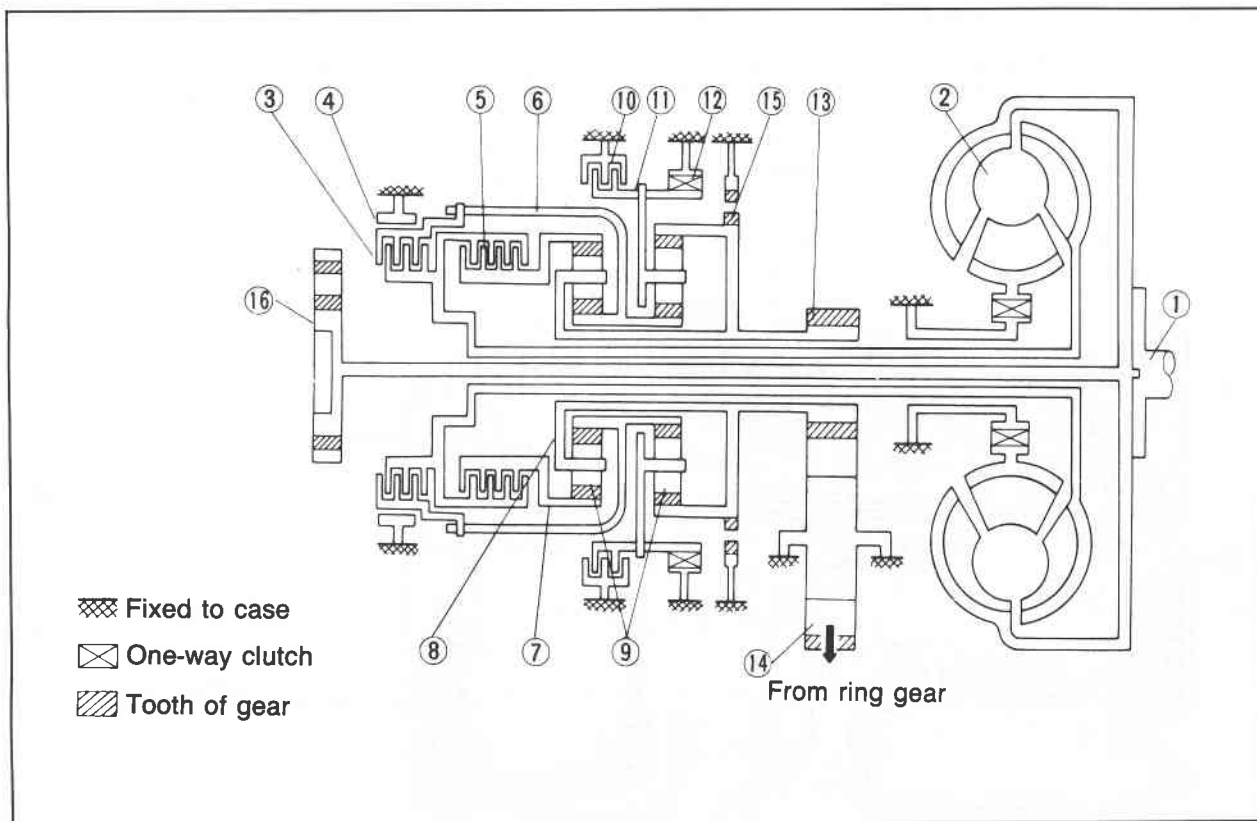
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- | | | |
|-------------------------------|----------------------------|----------------------------|
| 1. Transaxle case | 12. Drum hub assembly | 23. Side gear |
| 2. Front clutch | 13. Bearing housing | 24. Pinion gear |
| 3. Rear clutch | 14. Output gear | 25. Pinion shaft |
| 4. Connecting shell | 15. Turbine shaft | 26. Differential gear case |
| 5. Rear clutch hub | 16. Oil pump shaft | 27. Ring gear |
| 6. Planetary carrier (front) | 17. Bearing cover | 28. Oil seal |
| 7. Sun gear | 18. Oil seal | 29. Side bearing housing |
| 8. Low and reverse brake | 19. Torque converter | 30. Control valve body |
| 9. One-way clutch | 20. Converter housing | 31. Oil pan |
| 10. One-way clutch inner race | 21. Oil seal | 32. Oil pump |
| 11. Planetary carrier (rear) | 22. Speedometer drive gear | |

OPERATION OF COMPONENTS



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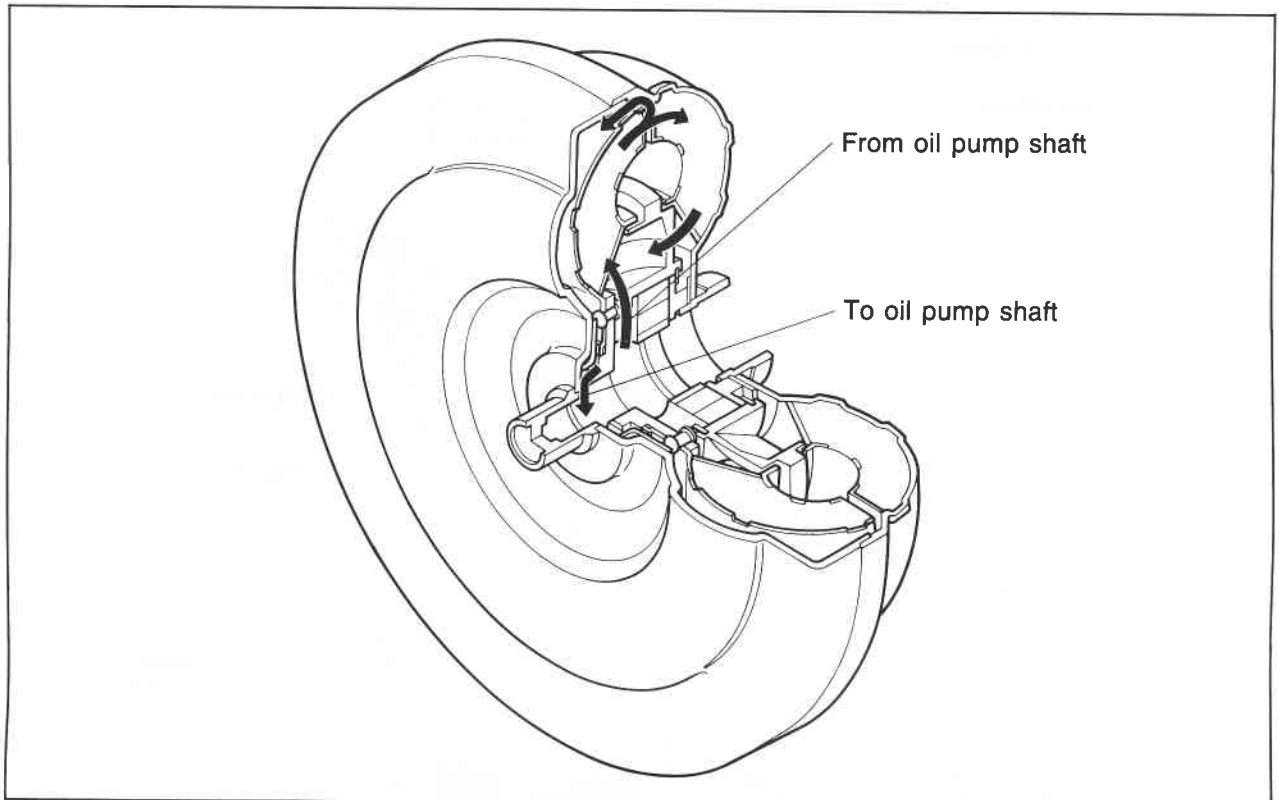
- | | | |
|---------------------|------------------------------|------------------|
| 1. Crankshaft | 7. Internal gear | 13. Output gear |
| 2. Torque converter | 8. Planetary carrier (front) | 14. Idle gear |
| 3. Front clutch | 9. Pinion gear | 15. Parking gear |
| 4. Brake band | 10. Low and reverse brake | 16. Oil pump |
| 5. Rear clutch | 11. Planetary carrier (rear) | |
| 6. Connecting shell | 12. One-way clutch | |

Shift position	Gear ratio	Clutch		Low and reverse brake	Band servo		One-way clutch
		Front	Rear		Operation	Release	
P	—			○			
R	2.400	○		○		○	
N	—						
D	1	2.841		○			○
	2	1.541		○	○		
	3	1.000	○	○	⊗	○	
2	1.541		○		○		
1	2	1.541		○	○		
	1	2.841		○			

⊗ : Indicates fluid pressure to servo but not applied due to pressure difference in servo.

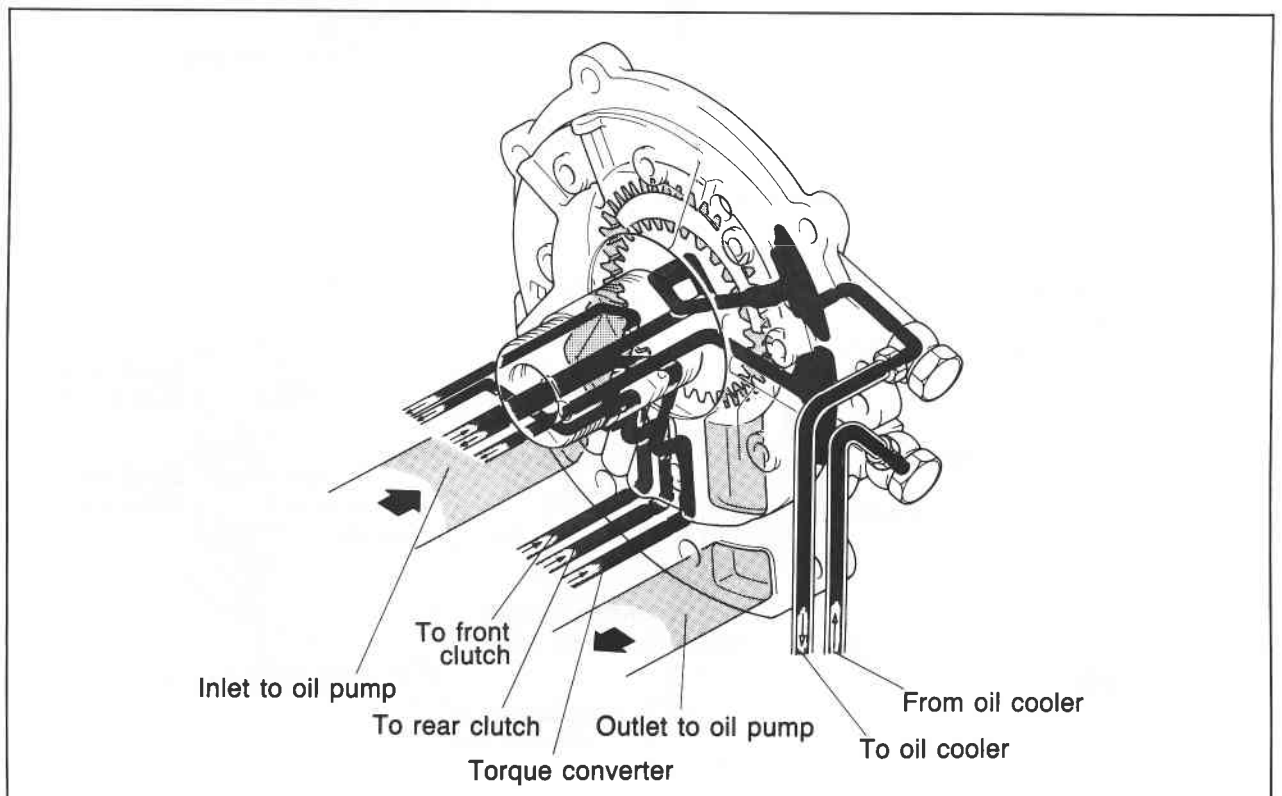
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FLUID PASSAGE LOCATION Torque Converter



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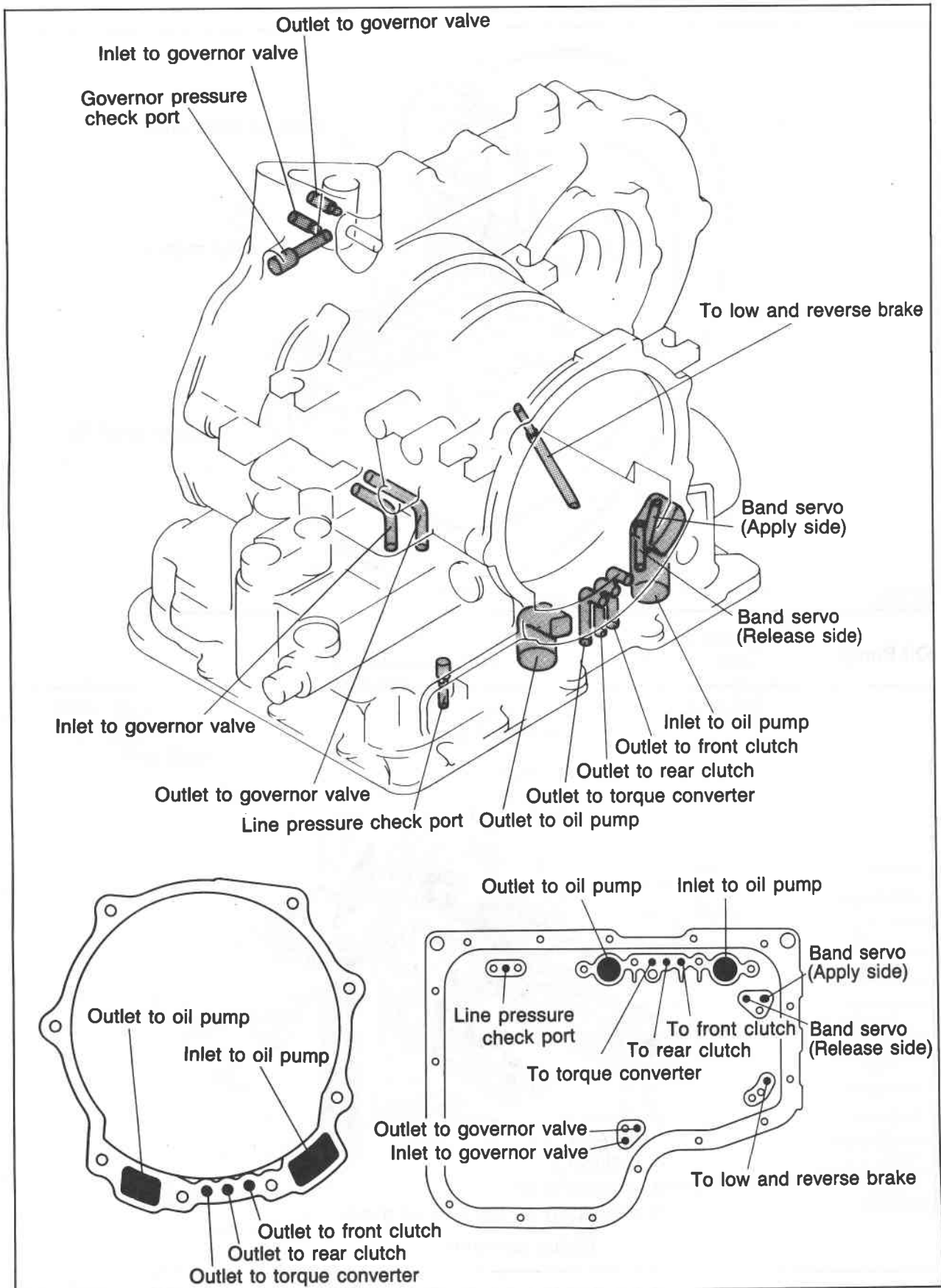
Oil Pump



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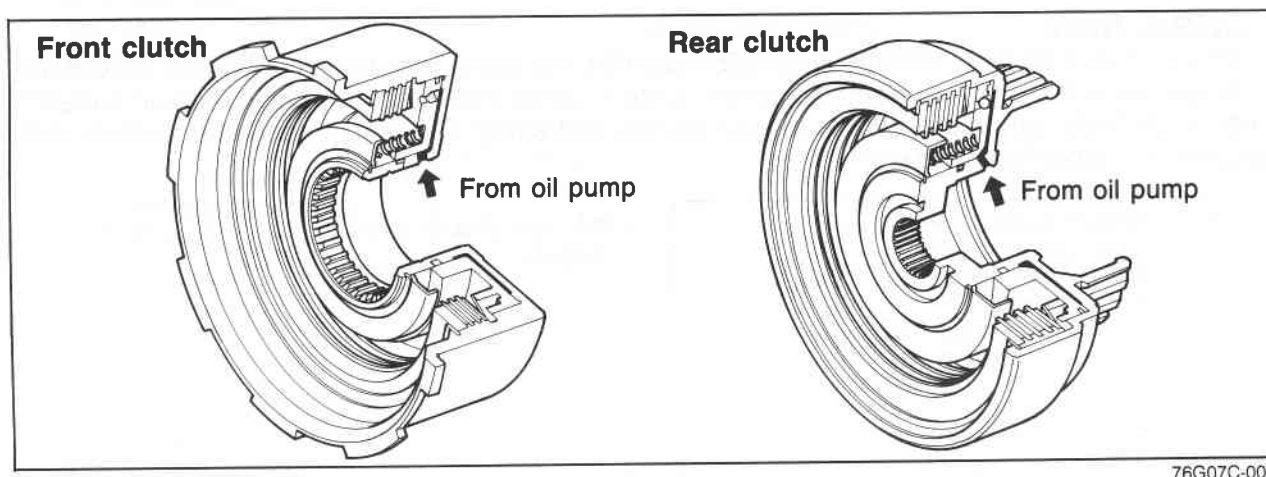
7C OUTLINE

Transaxle Case

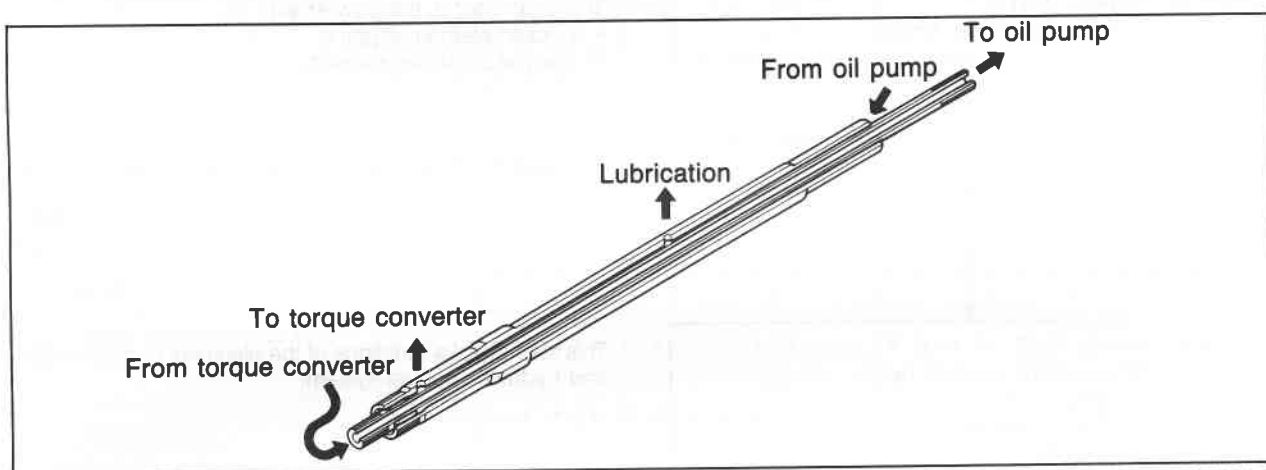


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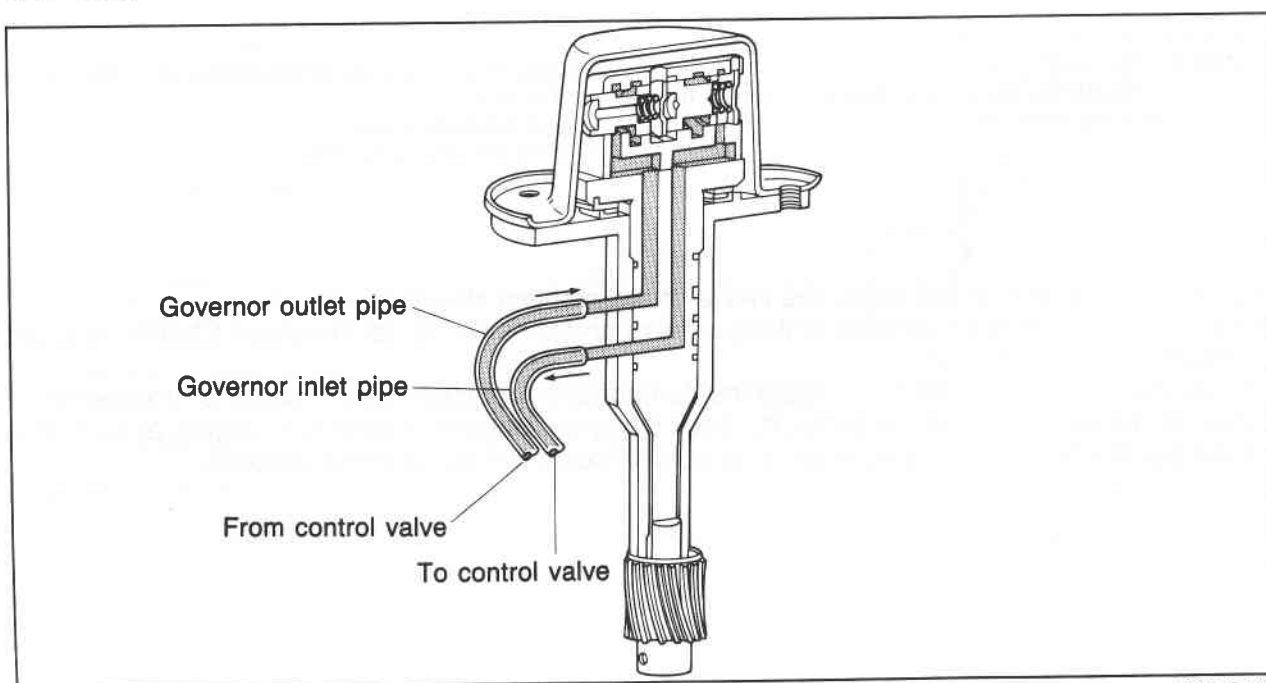
Clutches



Oil Pump, and Turbine Shaft



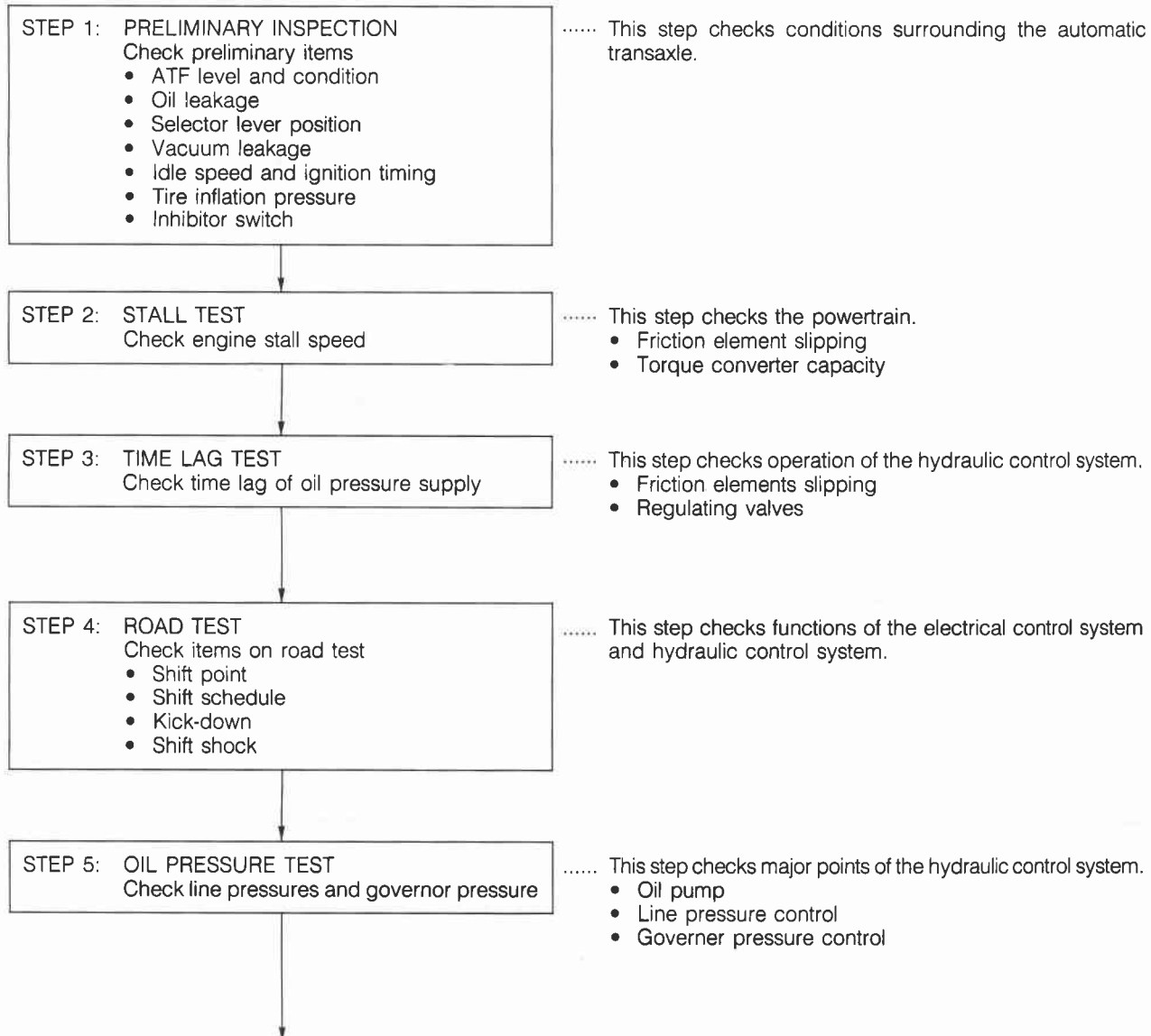
Governor



TROUBLESHOOTING

GENERAL NOTE

In the event of a problem with the automatic transaxle, the cause may be in the engine, powertrain, hydraulic control system, or electrical control system. When troubleshooting, it is recommended to begin from those points that can be judged quickly and easily. The recommended troubleshooting sequence is described below.



By following the above five steps, the cause of the problem should be located.

As another guide to faster location of the causes of problems, the Quick Diagnosis Chart is included at pages 7C—9 to 7C—11.

In this chart, a circle is used to indicate the components that might be the cause of trouble for 54 types of problems. It is only necessary to check those components indicated by circles, at each step of the troubleshooting process, in order to quickly locate the cause of the problem.

76G07C-012

QUICK DIAGNOSIS CHART

How to use Quick Diagnosis Chart

1. The numbers indicate the order of inspection for troubleshooting.
2. Circled numbers indicate that the transaxle must be removed from the vehicle.

76G07C-013

Transaxle

Inspection point and reference page		ON VEHICLE												OFF VEHICLE												
		7C—25	7C—26	7C—23	7C—27	7C—23,24	Section 4A	7C—14	7C—20,22	7C—75	7C—72	7C—69	7C—5	Section 5	7C—58	7C—62	7C—70	7C—71	7C—55	7C—125	7C—54	7C—71	7C—66, 98	7C—68, 71		
Condition		ATF level and condition Selector lever Inhibitor switch and wiring			Vacuum diaphragm and piping Kick-down solenoid, kick-down switch and wiring			Engine idle speed and condition	Engine stall speed Fluid pressure (Line and governor)	Control valves	Governor valve Band servo Transaxle air check			Ignition switch and starter		Front clutch Rear clutch Brake band			Low and reverse brake Oil pump Hydraulic circuit			Torque converter One-way clutch Parking linkage			Planetary gear	
Engine starting	Engine does not start in N or P range	•	2	3	•	•	•	•	•	•	•	•	•	1		•	•	•	•	•	•	•	•	•	•	
	Engine starts in ranges other than N and P ranges	•	1	2	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	
Accelerating	Vehicle does not move in D range (moves in 1, 2 & R ranges)	•	1	•	•	•	•	•	•	2	3	•	•	•	•	•	•	•	•	•	•	•	④	•	•	
	Vehicle does not move in forward ranges (moves in R range) Extremely poor acceleration	1	2	•	•	•	•	•	•	3	4	•	•	•	5	•	•	⑥	•	•	•	⑦	•	•	•	
	Vehicle does not move in R range (moves in forward range) Extremely poor acceleration	1	2	•	•	•	•	•	•	3	4	•	•	•	5	•	⑦	⑧	•	⑥	•	⑨	•	•	•	
	Vehicle does not move in any range	1	2	•	•	•	•	•	•	3	4	•	•	•	5	•	•	•	•	⑥	⑦	•	•	⑧	•	
	Slippage felt when accelerating	1	2	•	6	•	•	•	•	3	4	•	•	•	5	•	•	•	•	⑦	⑧	•	•	•	•	
	Vehicle moves in N range	2	1	•	•	•	•	•	•	•	3	•	•	•	•	•	•	④	•	•	•	•	•	•	•	
	Excessive creep	•	•	•	•	•	1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	No creep at all	1	2	•	•	•	3	•	•	•	4	•	•	•	•	•	⑧	⑦	•	•	⑤	⑥	•	•	•	
	Low maximum speed and poor acceleration	1	2	•	•	•	7	3	4	6	•	5	•	•	•	•	⑩	⑪	⑧	⑨	⑫	•	•	•	•	•
No shifting	Does not shift from 1st to 2nd	•	1	•	2	3	•	•	•	4	5	6	7	•	•	•	⑧	⑨	•	•	•	⑩	•	•	•	•
	Does not shift from 2nd to 3rd	•	1	•	2	3	•	•	•	4	5	6	7	•	•	⑧	•	•	•	•	⑨	•	•	•	•	
	Does not shift from 3rd to 2nd	1	•	•	2	•	•	•	•	•	3	4	5	6	•	•	⑦	•	⑧	•	•	⑨	•	•	•	•

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7C TROUBLESHOOTING

Inspection point and reference page		ON VEHICLE					OFF VEHICLE				
		7C—25 7C—26 7C—23	7C—27 7C—23,24 Section 4A	7C—14 7C—20,22 7C—75	7C—72 7C—69 7C—5	Section 5	7C—58 7C—62 7C—70	7C—71 7C—55 7C—125	7C—54 7C—71 7C—66, 98	7C—68, 71	
		ATF level and condition Selector lever Inhibitor switch and wiring	Vacuum diaphragm and piping Kick-down solenoid, kick-down switch and wiring Engine idle speed and condition	Engine stall speed Fluid pressure (Line and governor) Control valves	Governor valve Band servo Transaxle air check	Ignition switch and starter	Front clutch Rear clutch Brake band	Low and reverse brake Oil pump Hydraulic circuit	Torque converter One-way clutch Parking linkage	Planetary gear	
No shifting	Does not shift from 2nd to 1st or from 3rd to 1st	1 • •	2 • •	• • 3	4 5 6	•	• • ⑦	• • •	• ⑧ •	•	
	Does not kick-down when accelerator is depressed in 3rd within the kick-down range	1 • •	3 2 •	• • 4	5 • •	•	• • ⑥	• • ⑦	• • •	•	
	Excessive engine speed when accelerated in 3rd due to delayed kick-down	1 2 •	• • •	• 3 4	5 • 6	•	⑦ • •	• • ⑧	• • •	•	
	Does not shift from 3rd to 2nd on D to 2 range shift	1 2 •	• • •	• 3 4	5 6 •	•	⑦ • ⑧	• • ⑨	• • •	•	
	Does not shift from 3rd to 2nd on D to 1 range shift	1 2 •	• • •	• 3 4	5 7 6	•	⑧ • ⑨	• • ⑩	• • •	•	
Shift shock	Excessive N to D range shift shock	• • •	2 • 1	• 3 4	• • •	•	• ⑤ •	• • •	• • •	•	
	Excessive 1st to 2nd shift shock	1 • •	2 • •	3 • 4	• 5 6	•	• • ⑦	• • •	• • •	•	
	Excessive 2nd to 3rd shift shock	• • •	1 • •	• 2 3	• 4 5	•	⑦ • ⑥	• • •	• • •	•	
	Vehicle braked when shifted from 1st to 2nd	1 • •	• • •	• • 2	• • •	•	④ • •	③ • •	• ⑤ •	•	
	Vehicle braked when shifted from 2nd to 3rd	1 • •	• • •	• • 3	• 2 •	•	• • ④	• • •	• • •	•	
	Vehicle braked when shifted to R range	1 • •	• • •	• • •	• 3 2	•	• ④ ⑤	• • •	• • ⑥	•	
	Shift shock felt when accelerator is released and deceleration occurs	• 1 •	2 3 •	• 4 5	6 • •	•	• • •	• • ⑦	• • •	•	
	Excessively large 2nd to 1st shift shock in 1 range	1 • •	2 • •	3 4 5	• • •	•	• • •	⑥ • •	• • •	•	
Shift point	Excessively high 1st to 2nd and 2nd to 3rd shift	1 • •	2 3 •	• 4 5	6 • •	•	• • •	• • ⑦	• • •	•	
	Excessively high 3rd to 2nd and 2nd to 1st shift point	• 1 •	2 3 •	• 4 5	6 • •	•	• • •	• • ⑦	• • •	•	
	Kick-down operates or engine overruns when depressing pedal in 3rd beyond kick-down speed limit	1 2 •	3 • •	• 4 5	6 • 7	•	⑧ • •	• • ⑨	• • •	•	
Shift sequence	Shifts directly from 1st to 3rd	1 • •	• • •	• • 2	3 • 4	•	• • ⑤	• • ⑥	• • •	•	
	Shifts from 2nd to 1st or 2nd to 3rd in 2 range	• 1 •	• • •	• 2 3	• • •	•	• • •	• • •	• • •	•	

<div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;"> Inspection point and reference page </div> <div style="flex: 1; text-align: center;"> Condition </div> </div>		ON VEHICLE						OFF VEHICLE					
		7C-25 7C-26 7C-23	7C-27 7C-23,24 Section 4A	7C-14 7C-20,22 7C-75	7C-72 7C-69 7C-5	Section 5		7C-58 7C-62 7C-70	7C-71 7C-55 7C-125	7C-54 7C-71 7C-66, 98	7C-68, 71		
Shift sequence	Shifts from 1st to 2nd or 2nd to 3rd in 1 range	• 1 •	• • •	• • • 2	• • • •	•		• • • •	• • • ③	• • • •	•		
	Practically no shift shock, or slip- page while 1st to 2nd shifting	1 2 •	3 • •	• 4 5	• 7 6	•		• • • ⑧	• • • ⑨	• • • •	•		
Slipping	Practically no shift shock or slip- page while 2nd to 3rd shifting	1 2 •	3 • •	• 4 5	• 7 6	•		⑧ • •	• • • ⑨	• • • •	•		
	No shift shock or engine runaway in 1 to 2 range shift	1 2 •	3 • 4	5 • 6	• • 7	•		• • • ⑧	• ⑨ •	• • • •	•		
	Engine runaway or slip when shifting 3rd to 2nd	1 • •	2 • •	• 3 4	• 5 6	•		⑦ • • ⑧	• • • ⑨	• • • •	•		
	Slippage evident when vehicle starts moving	1 2 •	5 • •	• 3 4	• • 6	•		• • • •	• ⑦ ⑧	• • • •	•		
	Transaxle noisy in P and N range	1 • •	• • •	• 2 •	• • •	•		• • • •	• ③ •	• • • •	•		
Noise	Transaxle noisy in D, 2, 1 and R ranges	1 • •	• • •	• 2 •	• • •	•		• ③ •	• ④ •	• ⑤ •	⑥		
	No engine brake in 1 range	• 1 •	• • •	• 2 3	• • 4	•		• • • •	⑤ • ⑥	• • • •	•		
Others	Vehicle moves in P range or parking gear not disengaged when P range disengaged	• 1 •	• • •	• • •	• • •	•		• • • •	• • • •	• • • ②	•		
	Transaxle overheats	1 • •	• • •	3 4 5	• 2 6	•		⑦ ⑧ ⑨	⑩ ⑪ ⑫	⑬ • •	⑭		
	White smoke from exhaust while running	1 • •	2 • •	3 4 5	• • 6	•		⑦ ⑧ ⑨	⑩ ⑪ ⑫	⑬ • •	⑭		
	Abnormal odor from oil level gauge pipe	1 • •	• • •	• • •	• • •	•		② ③ ④	⑤ ⑥ ⑦	⑧ • •	⑨		

76G07C-016

Differential

Problem	Probable Cause	Remedy	Page
Noise	Insufficient fluid	Add	7C-25
	Low fluid quality	Replace with specified ATF	7C-25
	Worn bearing	Adjust or replace	7C-79
	Contact surface of gears worn	Replace	7C-79
	Tooth surface of gears damaged	Replace	7C-79
	Contaminated ATF	Repair or replace	7C-25
	Differential gear damaged, excessive backlash	Replace	7C-79
	Excessive bearing preload	Adjust	7C-94

76G07C-017

7C TROUBLESHOOTING

STEP 1 (PRELIMINARY INSPECTION)

In this step, the main points related to the automatic transaxle are checked. These items must be kept in the correct condition at all times in order to assure proper operation of the automatic transaxle.

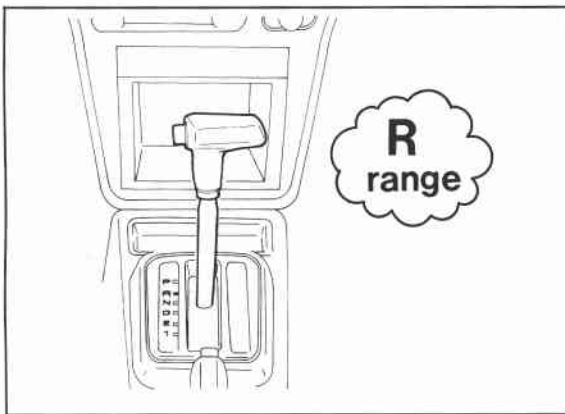
1. Automatic Transaxle Fluid (ATF)

Check ATF level and condition. (Refer to page 7C—25.)

2. Selector Lever

Check selector lever position and adjust it if necessary. (Refer to page 7C—26.)

76G07C-018

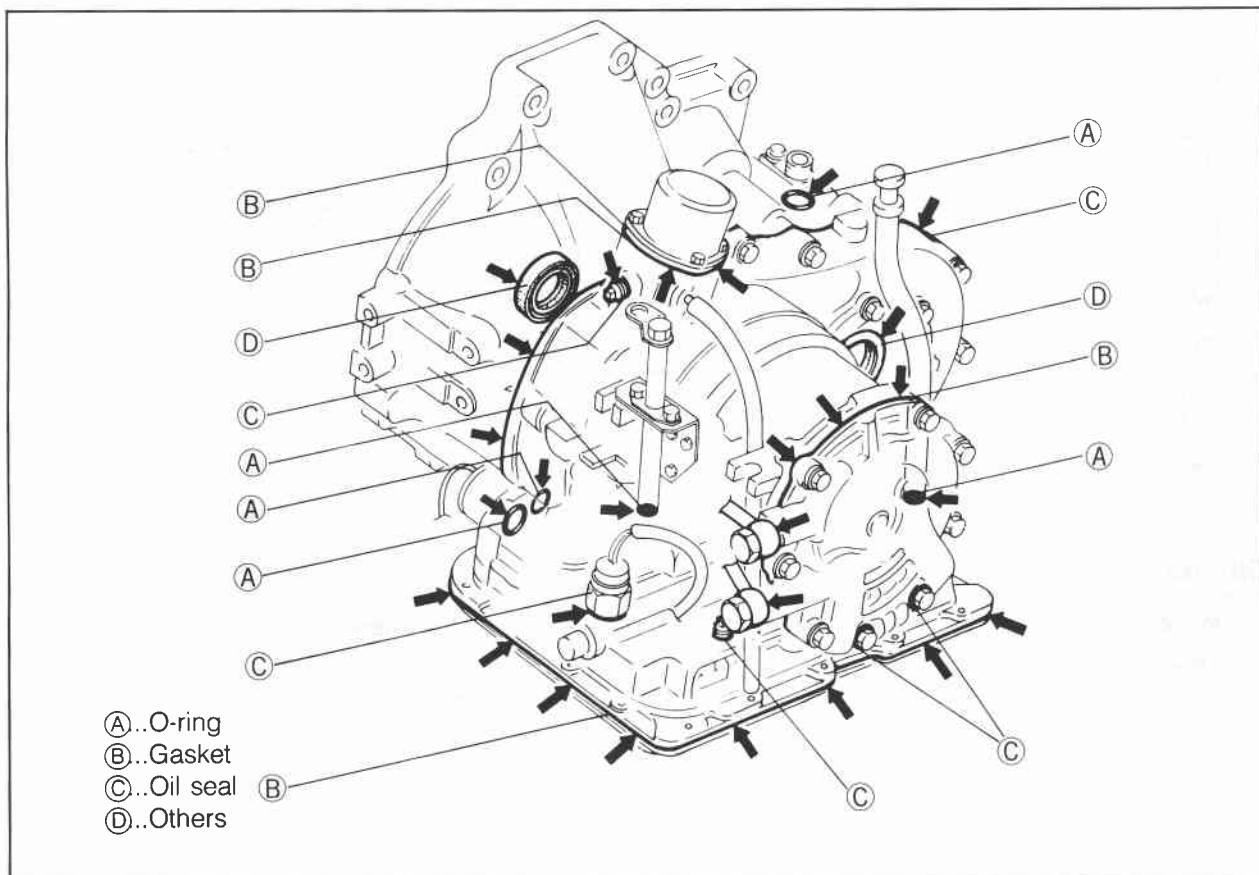


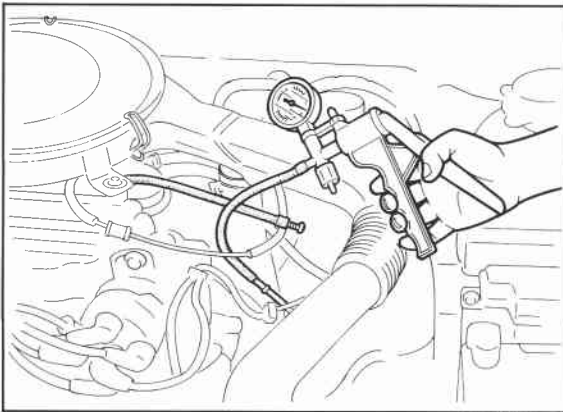
76G07C-019

3. Oil Leakage

Check for oil leakage.

- (1) Warm up the ATF.
- (2) Apply the parking brake and block the wheels to prevent the vehicle from rolling.
- (3) Shift the selector lever to R range.
- (4) Check if oil leaks from the noted oil seals or gaskets.
- (5) If oil leaks, replace the seal or gasket.



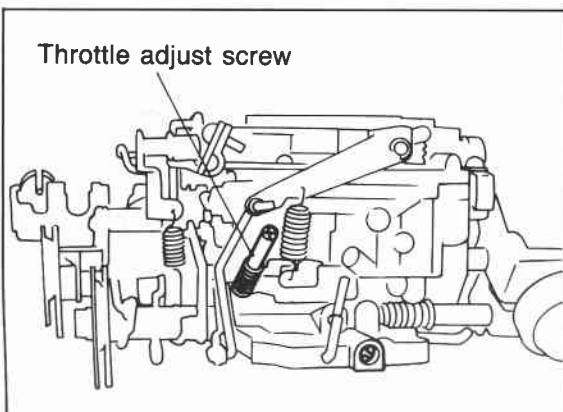


76G07C-020

4. Vacuum Leakage

Check for vacuum leakage.

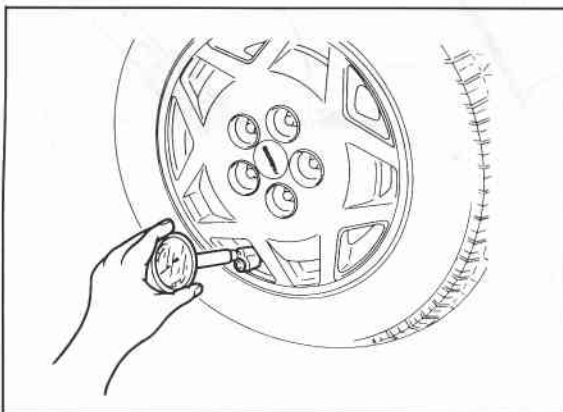
- (1) Disconnect the vacuum hose to the vacuum diaphragm.
- (2) Connect a vacuum pump to the hose.
- (3) Apply vacuum and check if vacuum leaks.
- (4) If vacuum leaks, check the vacuum hose and vacuum diaphragm. Replace if necessary.



76G07C-021

5. Idle Speed and Ignition Timing

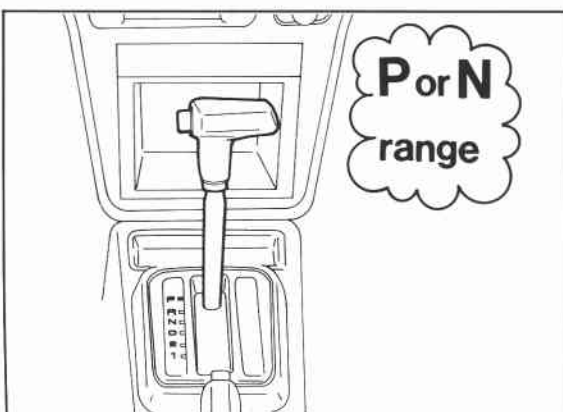
Check idle speed and ignition timing. (Refer to Section 4A.)



76G07C-022

6. Tire Inflation Pressure

Check tire inflation pressure. (Refer to page 12—2.)



76G07C-023

7. Inhibitor Switch

Check the inhibitor switch for operation. (Refer to page 7C—23.)

7C TROUBLESHOOTING

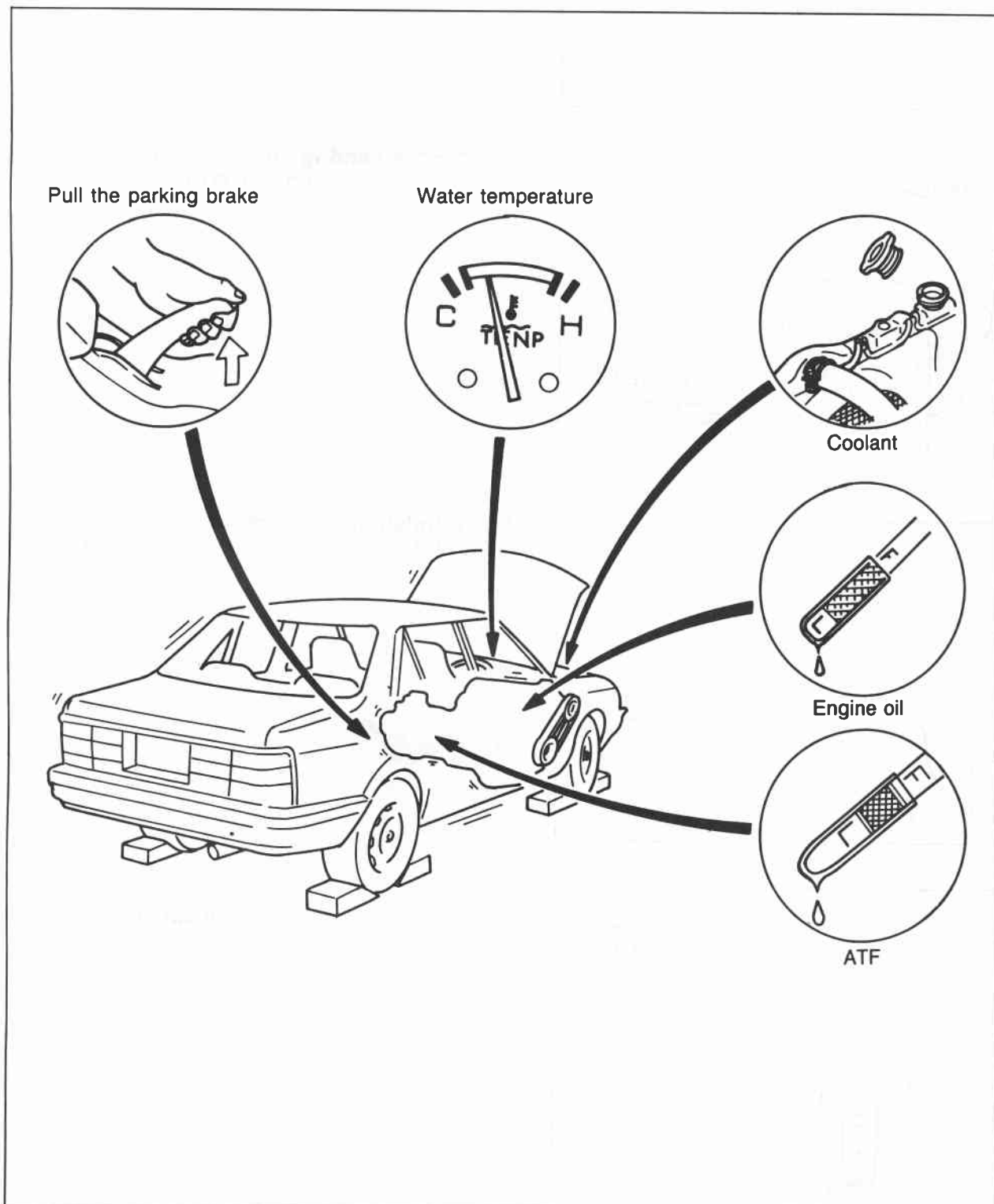
STEP 2 (STALL TEST)

This step is performed to determine if there is slippage of the friction elements or malfunction of the hydraulic components.

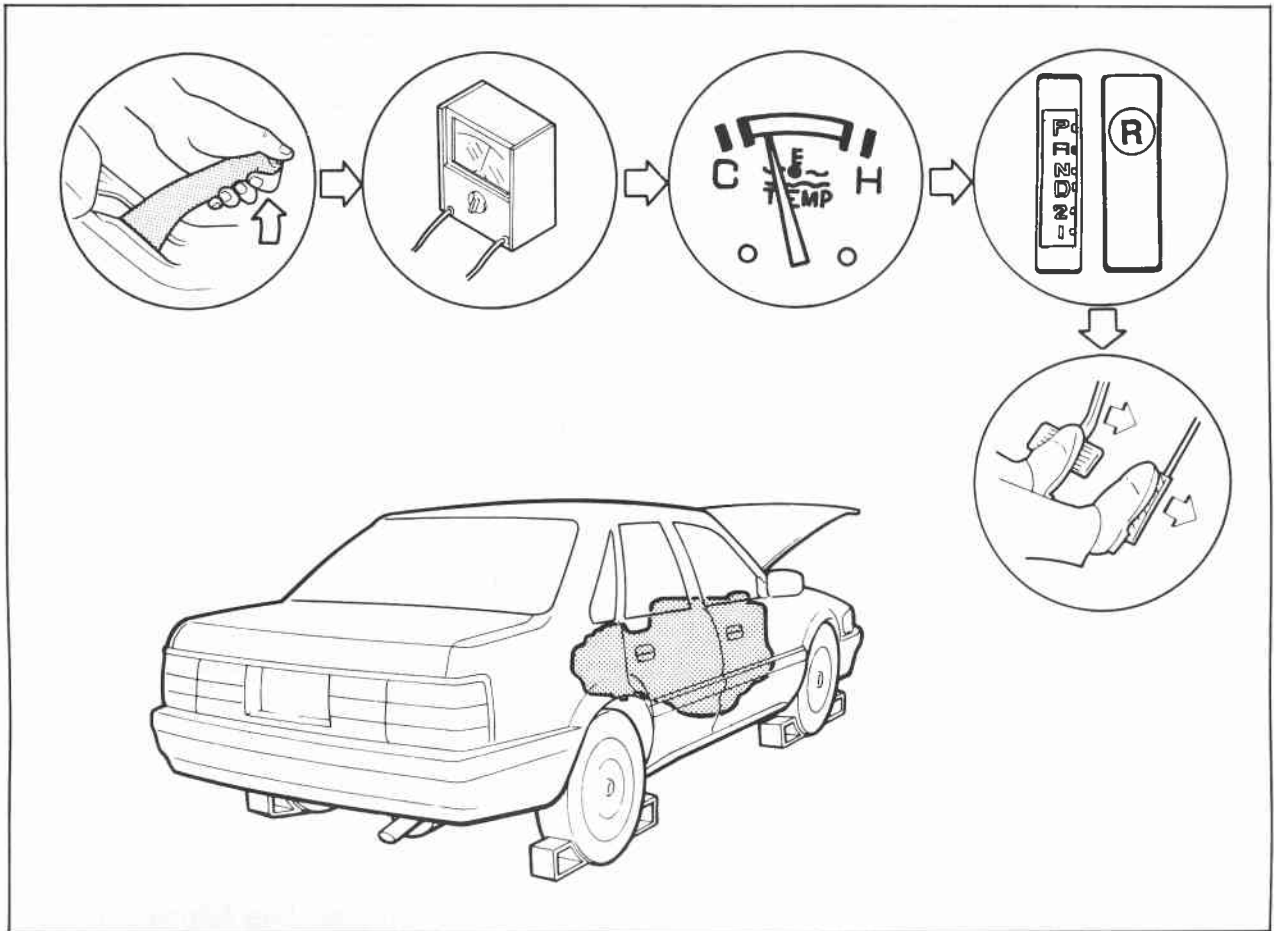
Preparation

Check the following items prior to testing:

1. Engine coolant, engine oil and ATF levels.
2. Warm the engine thoroughly to raise the ATF temperature to operating level (50—80°C, 122—176°F).
3. Set the parking brake and block the front and rear of the wheels.



76G07C-024

Procedure

76G07C-025

1. Connect a tachometer to the engine.
2. Shift the selector lever to D range.
3. Depress the brake pedal firmly with the left foot, and gradually depress the accelerator pedal with the right foot.
4. Read and note the engine speed as soon as it becomes constant; then release the accelerator pedal.

Caution

Steps 3 to 4 must be done within 5 seconds.

5. Shift the selector to N range and let the engine idle for one minute or more.

Note

The idling cools the ATF and prevents oil degeneration.

6. Perform stall tests for the following ranges in the same manner.
 - (1) 2 range
 - (2) 1 range
 - (3) R range

Standard stall speed:

FE engine 2050—2150 rpm

F6 engine 1800—2050 rpm

Caution

Always provide adequate cooling time between individual range stall tests.

7C TROUBLESHOOTING

Evaluation

Condition		Possible cause	
Above specification	In all ranges	Insufficient line pressure	Worn oil pump
			Oil leakage from oil pump, control valve, and/or transaxle case
			Stuck pressure regulator valve
	In D, 2, and 1	Rear clutch slipping	
	In D range only	One-way clutch slipping	
	In 2 range only	Brake band slipping	
	In R range only	Low and reverse brake slipping	
Brake band slipping			
Road test to determine if cause is low and reverse brake or reverse clutch: a) Engine braking in 1 range..... Front clutch b) No engine braking in 1 range Low and reverse brake			
Within specification		All shift control elements within transaxle functioning normally	
Below specification	Engine out of tune		
	One-way clutch slipping within torque converter		

76G07C-026

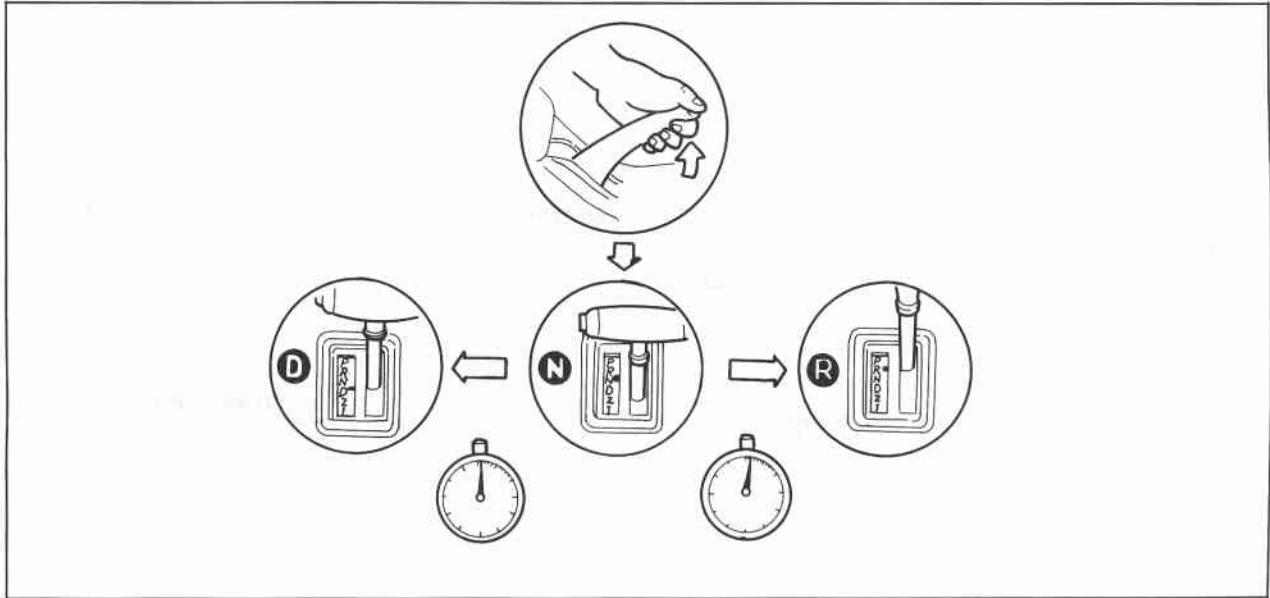
STEP 3 (TIME LAG TEST)

When the selector lever is shifted while the engine is idling, there is a certain time lapse, or time lag, before shock is felt. This time lag test checks the condition of the front, rear, and one-way clutch, low and reverse brake, and orifice check valve.

Preparation

Follow the test preparation procedure shown in STEP 2 (STALL TEST).

Procedure



1. Start the engine and verify that the idle speed is 950 ± 50 rpm.
2. Shift from N range to D range
3. Measure the time it takes from shifting until shock is felt with a stop watch.
4. Shift the selector to N range and run the engine at idle for one minute or more.
5. Perform the test for N range to R range in the same manner.

Note

Make three measurements for each test and take the average value.

Specified time lag: N → D range 0.5—1.0 second
N → R range 0.5—1.0 second

Evaluation

Condition		Possible Cause
N → D shift	More than specification	Insufficient line pressure
		Rear clutch slipping
		One-way clutch slipping
	Less than specification	N-D accumulator not operating properly
N → R shift	More than specification	Insufficient line pressure
		Low and reverse brake slipping
		Front clutch slipping
	Less than specification	Stuck orifice check valve
		Excessive line pressure

76G07C-027

7C TROUBLESHOOTING

STEP 4 (ROAD TEST)

This step is performed to check for problems in the various ranges. If these tests show any problems, adjust or replace by referring to the **QUICK DIAGNOSIS CHART** and mechanical sections.

Caution

Perform the test at normal ATF operating temperature (50—80°C, 122—176°F).

Gearshift Function Check Items

1. Shift shock must be minimal, and shifting must be smooth.
2. Engine speed must not run away, and the shifting must not be delayed.
3. Transaxle must shift through D₁ → D₂ → D₃ in D range.
4. Transaxle must shift from 3rd in D range to 2nd gear when 2 range is selected.
5. Transaxle must shift from 2nd to 1st when 1 range is selected from 3rd gear in D range.
6. Transaxle must not upshift in 1 range.
7. Transaxle must remain in 2nd gear in 2 range.
8. Transaxle must positively lock in P range.

The transaxle must positively lock when P range is selected while moving at a speed below 4 km/h (2.5 mph) on level ground. The transaxle must positively lock when set in P range with the vehicle on a gentle slope and the brakes disengaged.

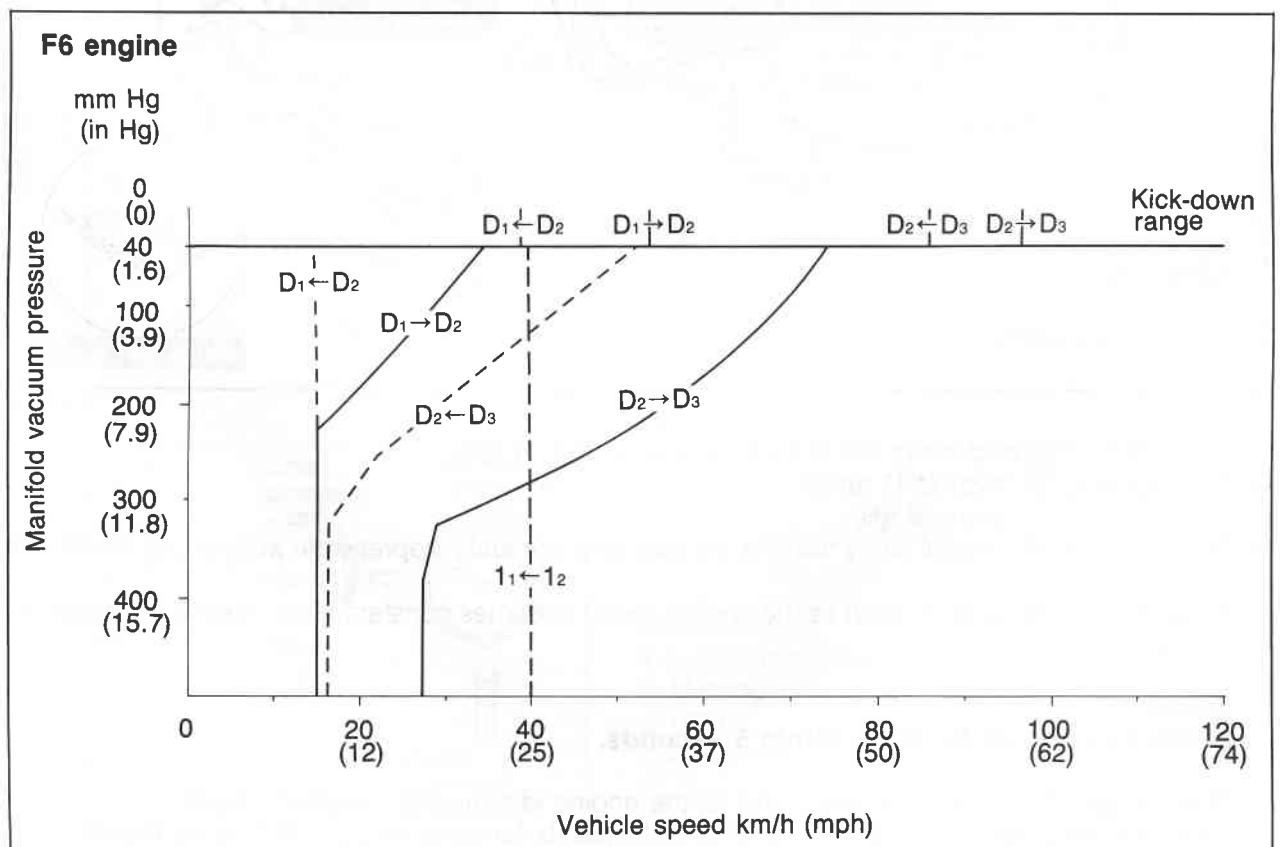
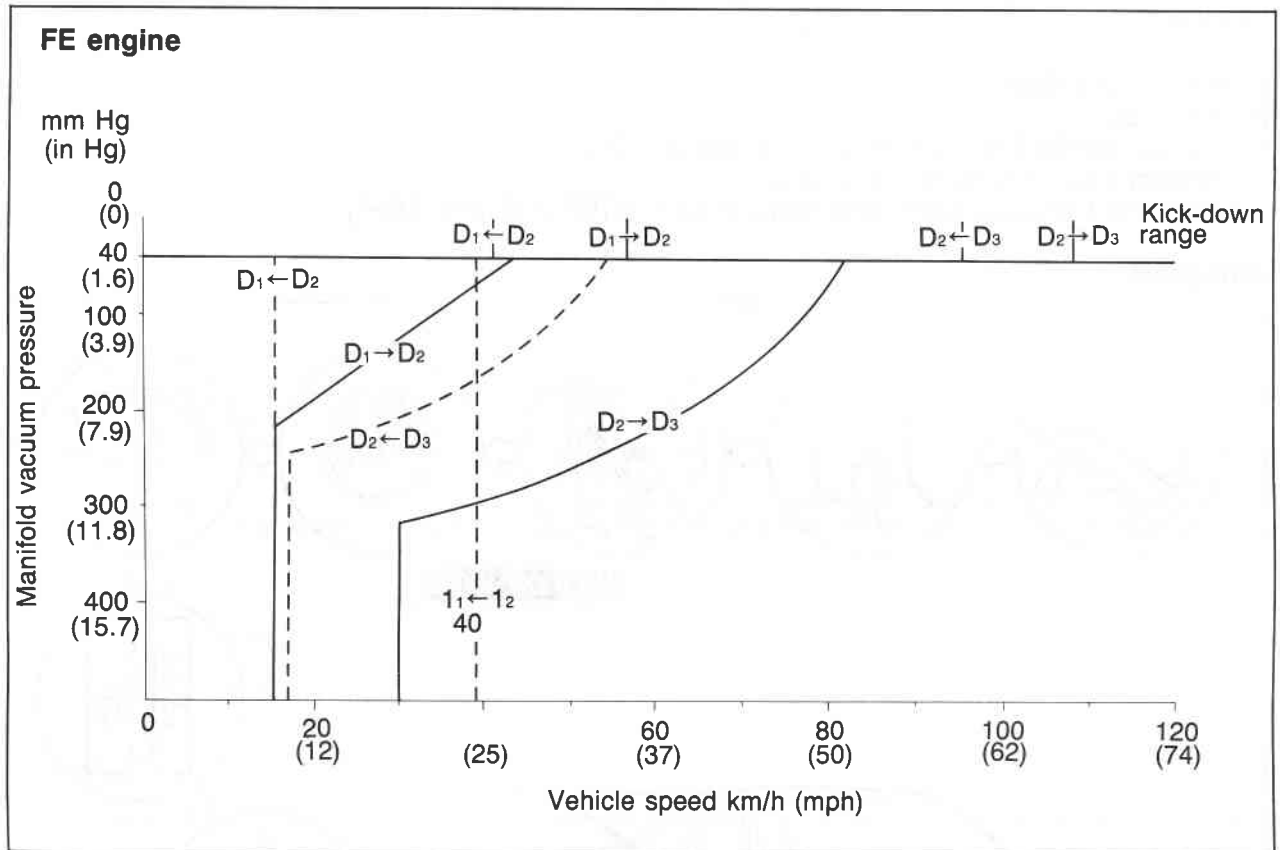
Shift Speed

Throttle condition (manifold vacuum)	Range	Shift	Vehicle speed km/h (mph)	
			FE engine	F6 engine
Fully opened 0—100 mmHg (0—3.94 inHg)	D	1st → 2nd	47—57 (29—35)	44—54 (27—33)
		2nd → 3rd	106—119 (66—74)	95—108 (59—67)
		3rd → 2nd	95—103 (59—64)	86—94 (53—58)
		2nd → 1st	35—39 (22—24)	34—38 (21—24)
Half-throttle 130 mmHg (5.12 inHg)	D	1st → 2nd	18—31 (11—19)	18—31 (11—19)
		2nd → 3rd	39—68 (24—42)	44—73 (27—45)
Fully closed	D	2nd → 1st	10—15 (6—9)	10—15 (6—9)
	1	2nd → 1st	32—39 (20—24)	33—40 (20—25)

1. Full-throttle: The throttle opening during kick-down when the manifold vacuum is between **0—100 mmHg (0—3.94 inHg)**
2. Half-throttle: The throttle opening at manifold vacuum of **130 mmHg (5.12 inHg)**

76G07C-028

Basic Gearshift Pattern



7C TROUBLESHOOTING

STEP 5 (OIL PRESSURE TEST)

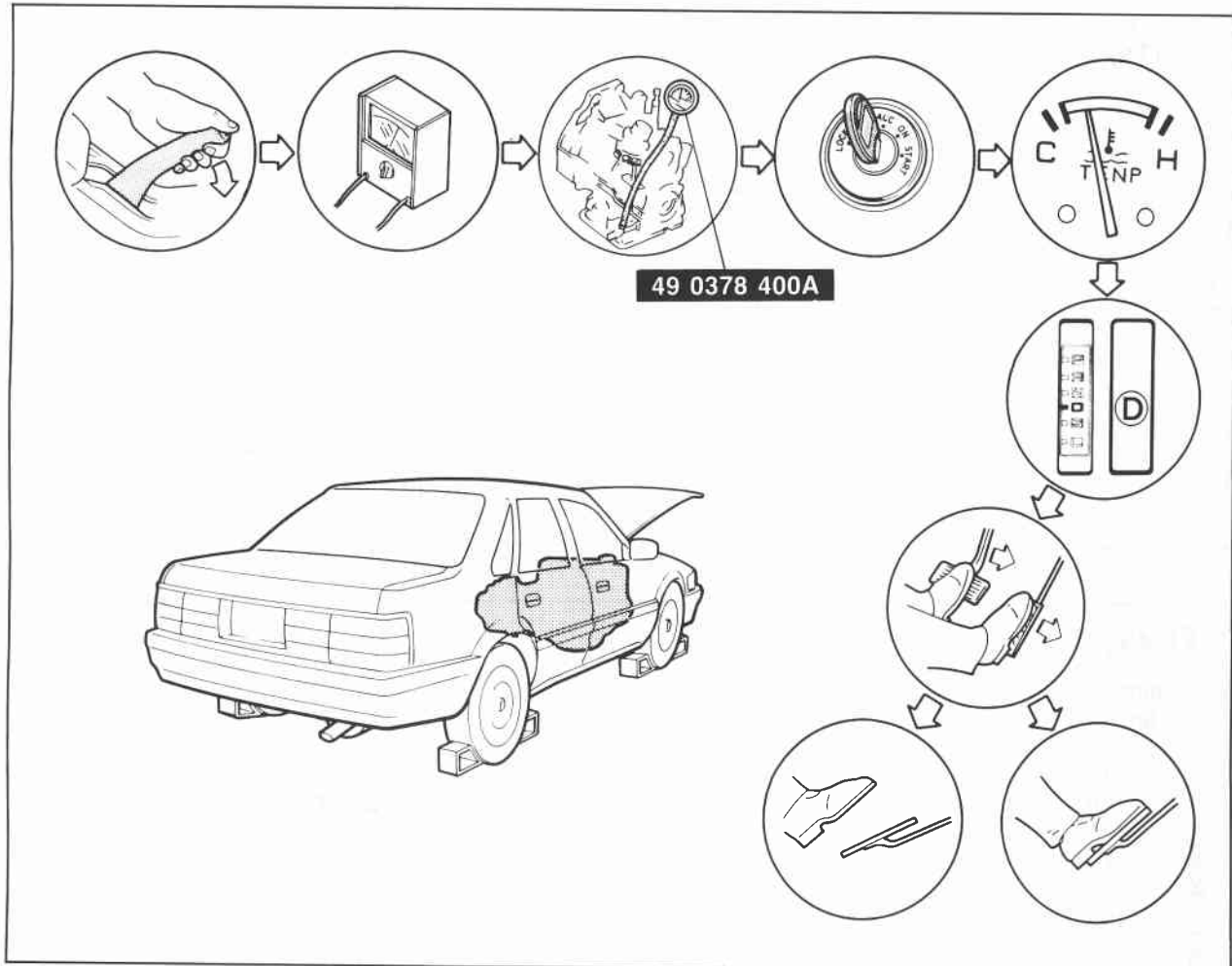
This step determines line pressure, and governor pressure to check the hydraulic components and for oil leakage.

Line Pressure Test

Preparation

1. Connect the **SST** to the line pressure output point.
2. Connect a tachometer to the engine.
3. Follow the test preparation procedure show in STEP 2 (STALL TEST).

Procedure



76G07C-030

1. Start the engine and verify that the idle speed is 950 ± 50 rpm.
2. Shift the selector lever to D range.
3. Read the line pressure at idle.
4. Depress the brake pedal firmly with the left foot, and gradually depress the accelerator pedal with the right foot.
5. Read the line pressure as soon as the engine speed becomes constant; then release the accelerator pedal.

Caution

Steps 4 to 5 must be done within 5 seconds.

5. Shift the selector lever to N range and let the engine idle for one minute or more.
6. Read the line pressure at idle and engine stall speeds for each range in the same manner.

Specified line pressure:

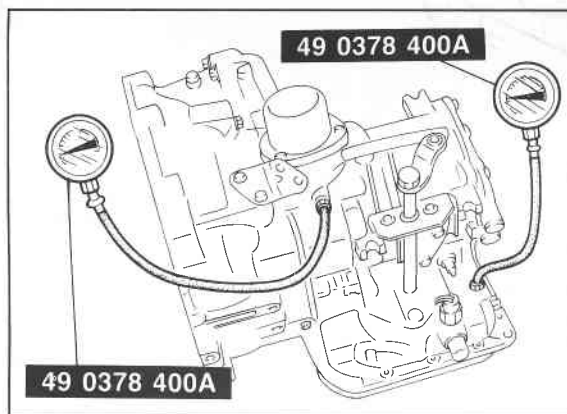
Range	Pressure kPa (kg/cm ² , psi)	
	Idle	Stall
D	294—392 (3—4, 43—57)	883—1079 (9—11, 128—156)
2	785—1177 (8—12, 114—171)	785—1177 (8—12, 114—171)
1	294—392 (3—4, 43—57)	883—1079 (9—11, 128—156)
R	392—687 (4—7, 57—100)	1570—1864 (16—19, 228—270)

76G07C-031

Evaluation

Condition		Possible cause
Below standard	In all ranges	Worn oil pump
		Fluid leakage from the oil pump, control valve, or transaxle case
		Stuck pressure regulator valve
	In D, 1, 2 ranges	Fluid leakage from the rear clutch or governor hydraulic circuit, or both
	In R range only	Fluid leakage from the low and reverse brake hydraulic circuit
Excessive line pressure at idle		Leaking or disconnected vacuum hose
		Leaking vacuum diaphragm

76G07C-032



76G07C-033

Line Pressure Cutback Point

1. Connect the **SST** to the line pressure output point and the governor pressure output point in the transaxle case, and place the gauges inside the vehicle.
2. Disconnect the hose to the vacuum diaphragm, and plug it.
3. Connect a vacuum pump to the vacuum diaphragm, and place the pump inside the vehicle.
4. Gradually accelerate the vehicle in D range.
5. Read the governor pressure at the point where the line pressure suddenly drops.
6. Apply **200 mmHg (7.87 inHg)** vacuum, and repeat steps 4 and 5.

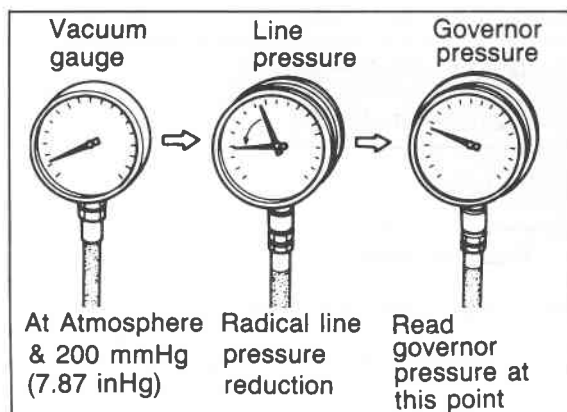
Standard

Vacuum mmHg (inHg)	Governor pressure kPa (kg/cm ² , psi)
Atmospheric pressure	98—157 (1.0—1.6, 14—23)
200 (7.87)	39—98 (0.4—1.0, 6—14)

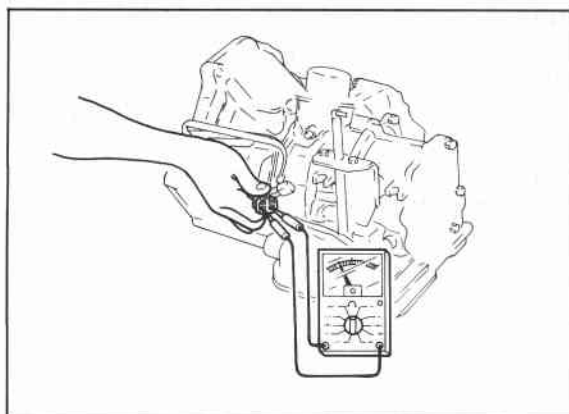
Evaluation

Incorrect pressures

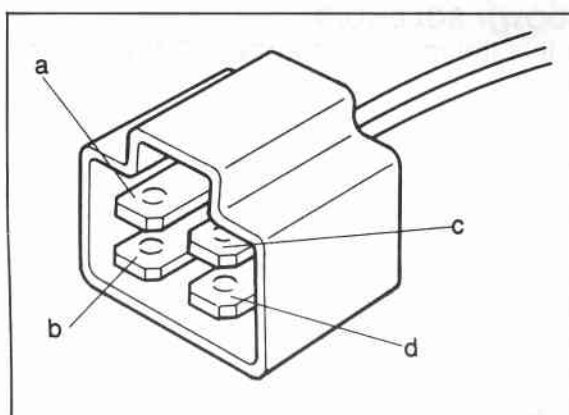
1. Missing diaphragm rod or rod length incorrect, or both.
2. Stuck valve in control valve.



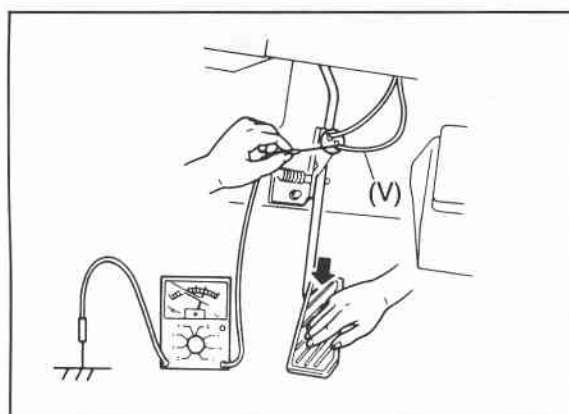
76G07C-034



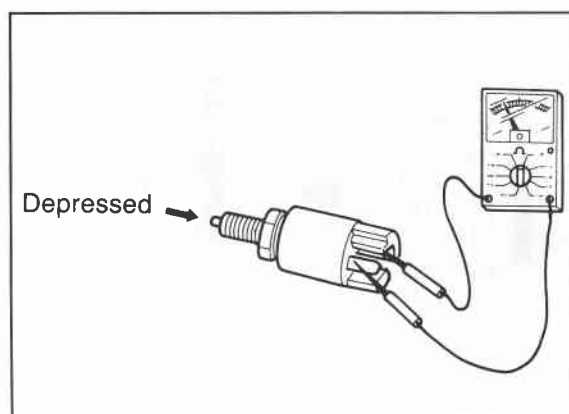
76G07C-036



76G07C-037



76G07C-038



83U07B-060

ELECTRIC COMPONENTS

INHIBITOR SWITCH

Inspection

1. Check that engine starts only at P and N range.
2. Check that the backup lights illuminate in R range with the ignition switch ON.
3. If the inhibitor switch is not operating properly, disconnect it and check the continuity between the terminals.

Connection guide

Position	Connector terminal			
	a	b	c	d
P			○—○	
R	○—○			
N			○—○	
D, 1, 2				

○—○: Indicates continuity

4. If not correct, replace the inhibitor switch.

KICK-DOWN SWITCH

Inspection of Terminal Voltage

1. Turn the ignition switch ON.
2. Check the voltage at terminal (V) with a voltmeter.

Depressing stroke	Terminal voltage
7/8—8/8 (Full)	Approx. 12V
0—7/8	Below 1.5V

3. If not correct, check the wiring harness or switch, or adjust the switch position.

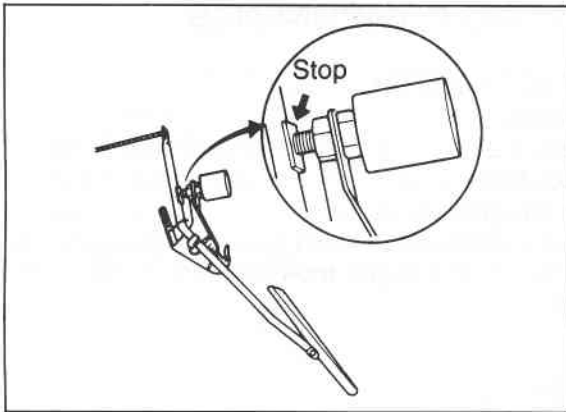
Inspection of Switch

1. Disconnect the kick-down switch connector.
2. Check for continuity of the switch with an ohmmeter.

Switch	Continuity
Pushed	Yes
Released	No

3. If not correct, replace the kick-down switch.

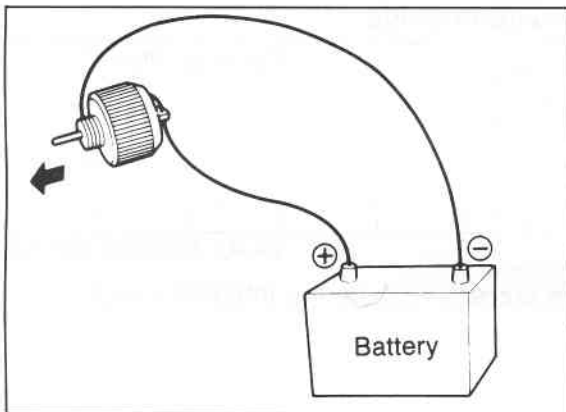
7C ELECTRIC COMPONENTS



76G07C-039

Adjustment

1. Loosen the kick-down switch locknuts.
2. Depress the accelerator pedal fully.
3. Turn the switch until the threaded case touches the stop.
4. Turn the switch counterclockwise one-half turn.
5. Secure the switch with the locknut.



76G07C-040

KICK-DOWN SOLENOID

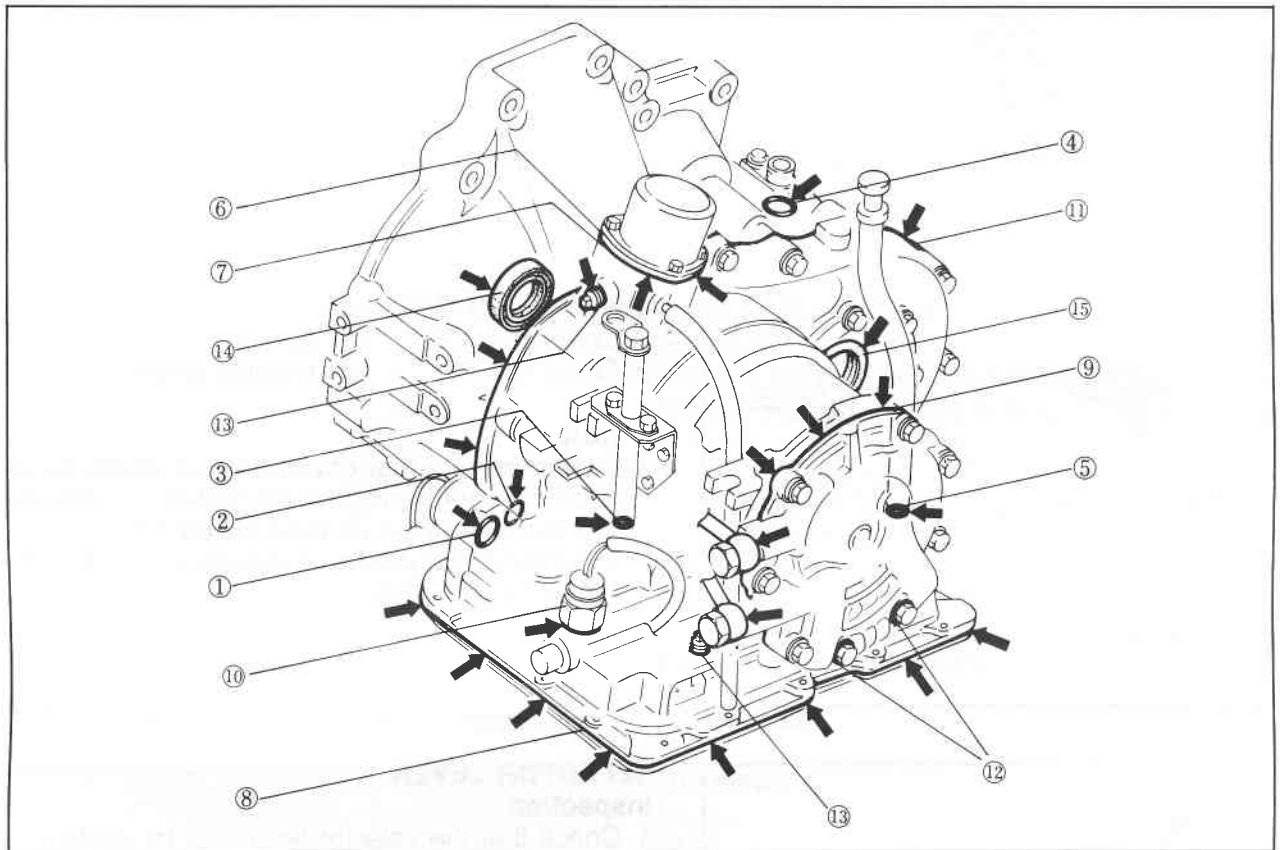
Check that the rod extends when 12 V is applied.

ON-VEHICLE MAINTENANCE

AUTOMATIC TRANSAXLE FLUID (ATF)

Inspection for Fluid Leaks

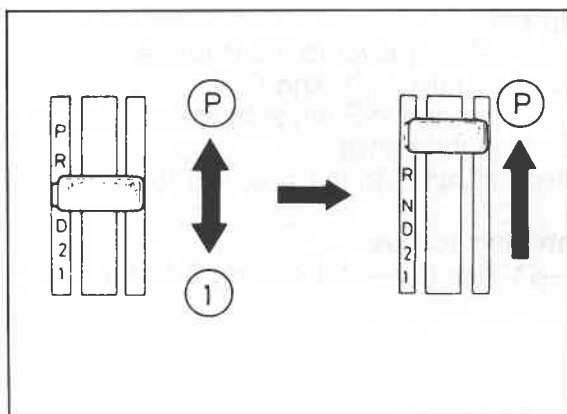
Check for fluid leaks; the following figure shows the locations where fluid leakage may possibly occur.



76G07C-041

1. Kick-down solenoid
2. Vacuum diaphragm
3. Manual shaft
4. Speedometer driven gear
5. Oil level tube
6. Governor cover
7. Governor
8. Oil pan

9. Oil pump
10. Inhibitor switch
11. Transaxle case
12. Oil pump
13. Square head plugs
14. Bearing cover
15. Drive shaft



76G07C-042

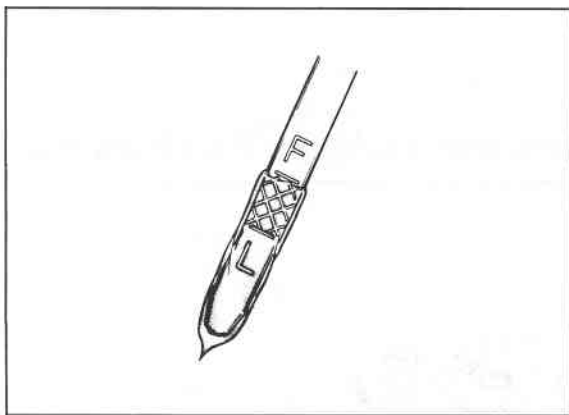
Inspection of Level

1. Apply the parking brake and block the wheels to prevent the vehicle from rolling.

Note

Place the car on a flat, level surface.

2. Run the engine so that the automatic transaxle fluid reaches operating temperature.
3. While the engine is idling, shift the select lever from P to 1 and back again.
4. Let the engine idle.
5. Shift the select lever to P.



76G07C-349

6. Ensure that the ATF level is between the F and L marks. Add ATF to specification, if necessary.

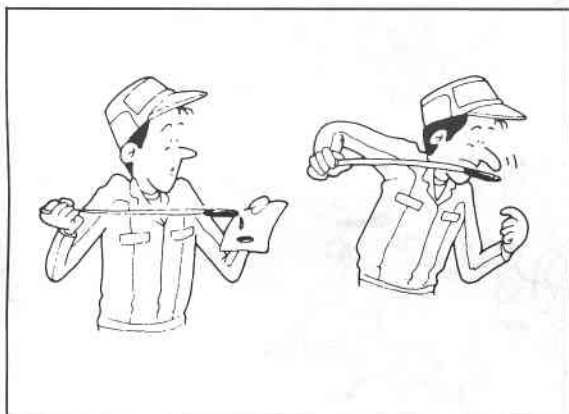
ATF type: Dexron II or M III

Inspection of Condition

1. Check the ATF for discoloration.
2. Check the ATF for any unusual smell.

Note

Determine whether or not the automatic transmission should be disassembled by observing the condition of fluid carefully. If the fluid is muddy and varnished, it indicates burned drive plates.

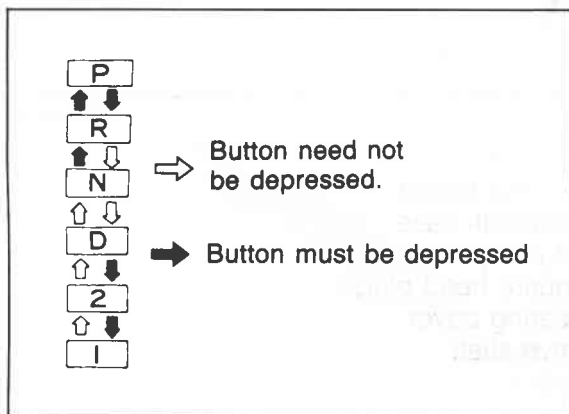


86U07B-065

SELECTOR LEVER

Inspection

1. Check that the selector lever can be shifted as shown in the figure.
2. Make sure there is a click at each range when shifted from P ↔ 1 range.
3. Check that the positions of the selector lever and the indicator are exact.
4. Check that the button returns smoothly when used to shift the selector.



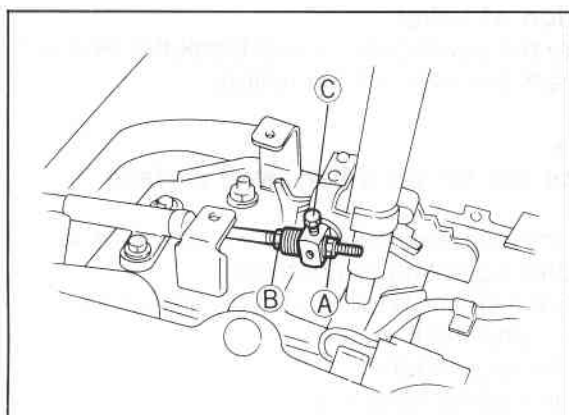
76G07C-043

Adjustment

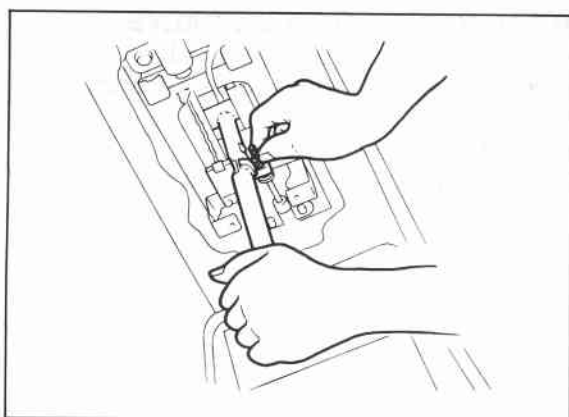
1. Shift the selector lever to the P range.
2. Loosen locknuts A, B, and C.
3. Shift the transaxle to P range by moving the manual shaft of the transaxle.
4. Tighten locknut C to the specified torque.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)



76G07C-044



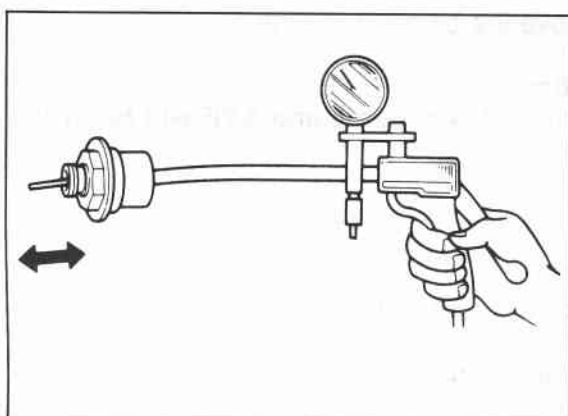
76G07C-045

5. Turn locknut A by hand until it just touches the spacer.
6. Tighten locknut B to the specified torque.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

7. Verify that there is a click at each range when shifted from P ↔ 1 range.
8. Check that the positions of the selector lever and the indicator are exact.
9. Check that the button returns smoothly when used to shift the selector.
10. If necessary, check the spring.



76G07C-046

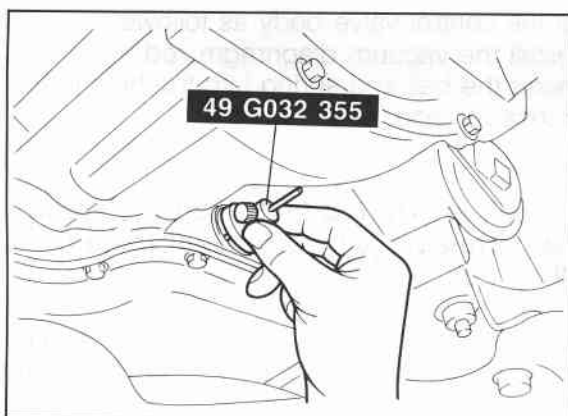
VACUUM DIAPHRAGM

Inspection

1. Remove the vacuum hose from the vacuum diaphragm. Check for ATF leakage. Replace if any is found.
2. Remove the vacuum diaphragm.
3. Verify that the diaphragm rod moves when vacuum is applied.

Caution

When removing the diaphragm, do not drop the rod into the oil pan.



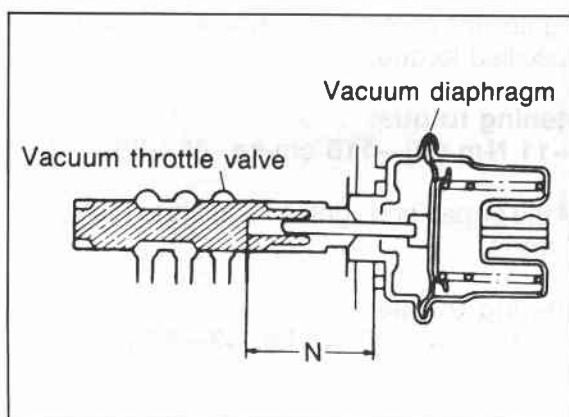
76G07C-047

Adjustment

Note

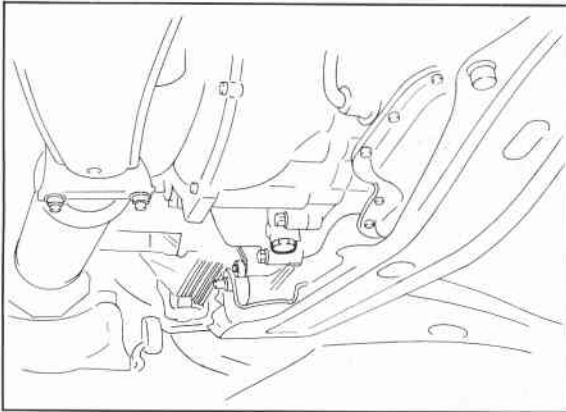
- a) **Excessive shift shocks and improper shifting often indicate a vacuum diaphragm malfunction.**
- b) **Remove approximately 1.0 liter (1.1 US qt, 0.9 Imp qt) of ATF before removing the vacuum diaphragm.**

1. Remove the vacuum diaphragm, rod, and O-ring from the transaxle case.
2. Measure the N dimension indicated in the figure with the **SST** and a scale.
3. Select the diaphragm rod in accordance with the table.



76G07C-048

N dimension	Applicable diaphragm rod length
Below 25.4 mm (1.000 in)	29.5 mm (1.161 in)
25.4—25.9 mm (1.000—1.020 in)	30.0 mm (1.181 in)
25.9—26.4 mm (1.020—1.039 in)	30.5 mm (1.200 in)
26.4—26.9 mm (1.039—1.059 in)	31.0 mm (1.220 in)
26.9 mm (1.059 in) or over	31.5 mm (1.240 in)



76G07C-049

REPLACEMENT OF CONTROL VALVE

1. Disconnect the negative battery cable.
2. Jack up the vehicle and support it with safety stands.
3. Drain the ATF.
4. Remove the under cover and side cover.

5. Remove the oil pan from the transaxle case.

Caution

Be careful because some ATF will be in the oil pan.

6. Remove the control valve body.

Caution

Be careful not to lose the ball and spring for the torque converter relief valve or the vacuum diaphragm rod.

7. Install the control valve body as follows:
 - (1) Install the vacuum diaphragm rod.
 - (2) Insert the ball and spring into the hole in the transaxle case.

Note

- a) The ball is inserted first, then the spring.
- b) Use petroleum jelly to prevent them from falling out.

- (3) Install the control valve, mating the groove of the manual valve with the driving pin of the control rod.

- (4) Tighten the control valve mounting bolts to the specified torque.

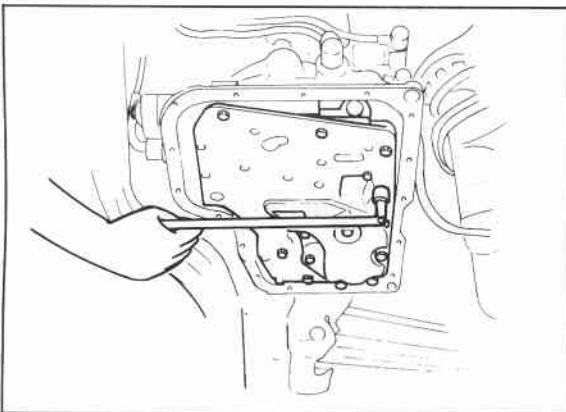
Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

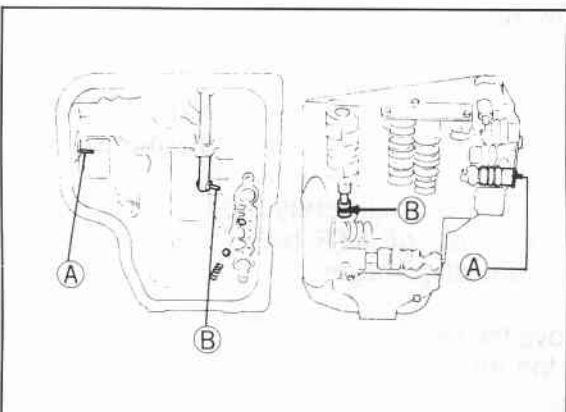
8. Install the oil pan and tighten the bolts to the specified torque.

Tightening torque:

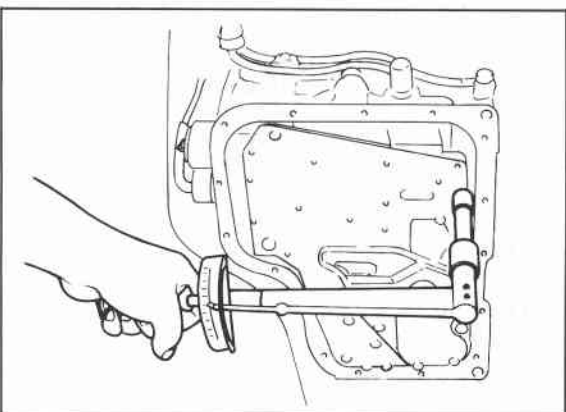
5—8 N·m (50—80 cm·kg, 43—69 in·lb)



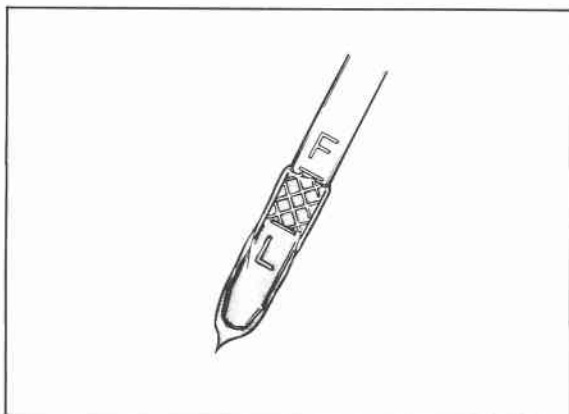
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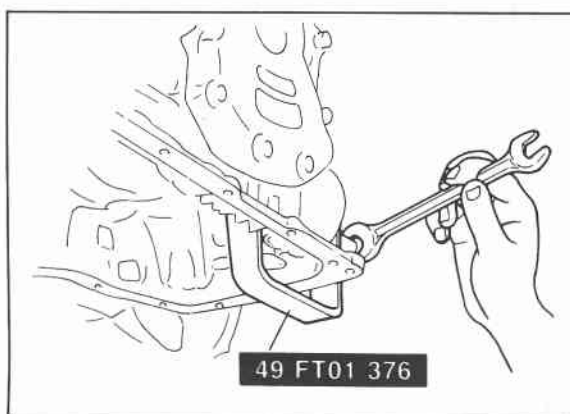
76G07C-050



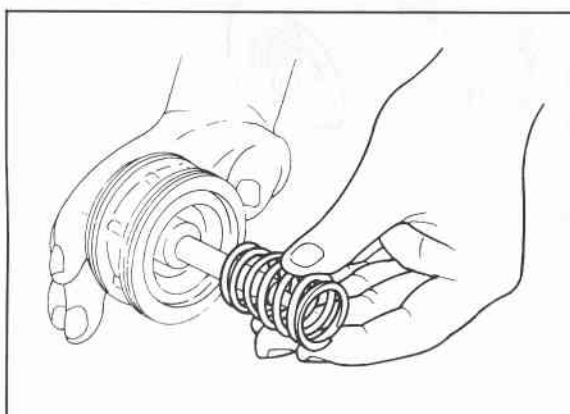
76G07C-051



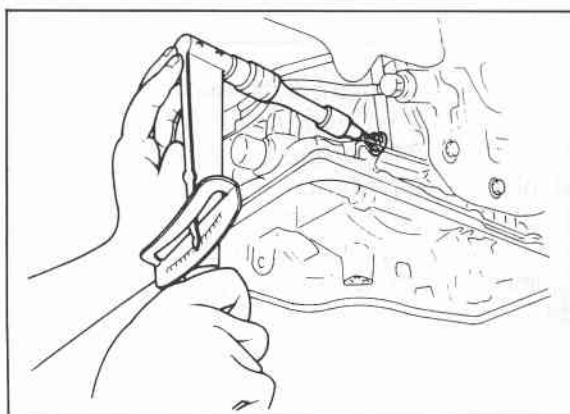
76G07C-052



76G07C-053



76G07C-054



76G07C-055

9. Install the under cover and side cover.
10. Lower the vehicle.
11. Add ATF, and with the engine idling, check the fluid level.
12. Verify that there is no fluid leakage from the trans-axle. (Refer to page 7C—25.)

REPLACEMENT OF SERVO PISTON RETURN SPRING

1. Remove the control valve body. (Refer to replacement of control valve.)
2. Loosen the anchor end-bolt and locknut.
3. Remove the band strut.
4. Compress the servo piston retainer with the **SST**.
5. Remove the snap ring with a screwdriver.
6. Remove the servo retainer, piston and spring by gradually loosening the **SST**.
7. Replace the return spring. If the O-ring or the piston seal is damaged, replace them.
8. Assemble the servo retainer, piston, and spring, insert them into the case with the **SST**. Fit the snap ring into the ring groove.
9. Install the band strut.
10. Tighten the anchor-end bolt to **12—15 N·m (120—150 cm·kg, 104—130 in·lb)**, then back it off two full turns. Tighten the locknut to **55—80 N·m (5.6—8.2 m·kg, 41—59 ft·lb)**.

11. Install the control valve body, oil pan, etc. in the reverse order of removal.
12. Adjust the fluid level, and check for fluid leaks. (Refer to page 7C—25.)

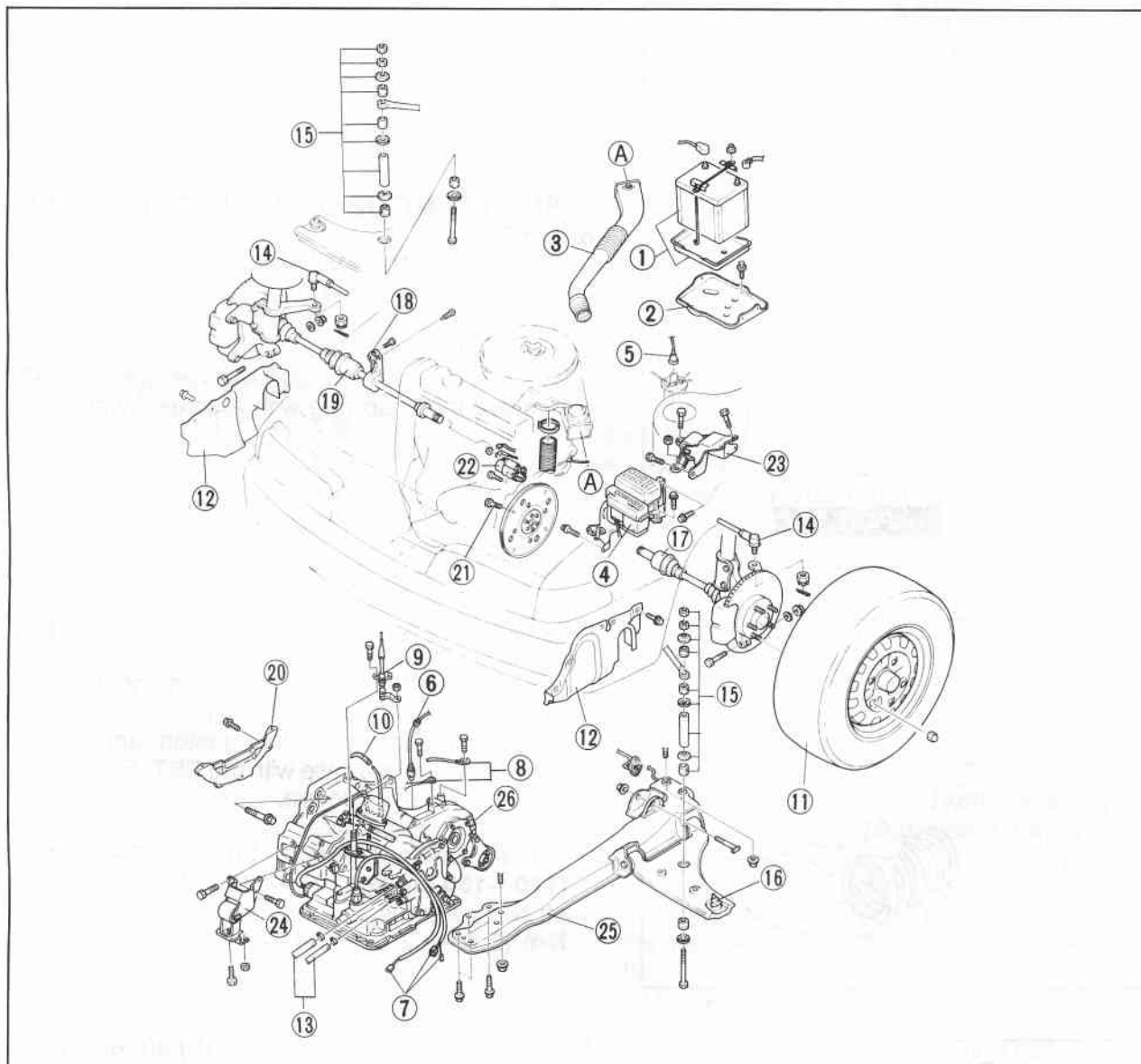
7C REMOVAL

REMOVAL

PREPARATION

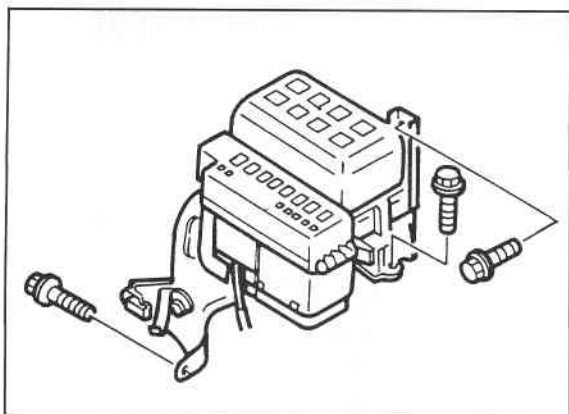
- (1) Drain the ATF before removal.
- (2) Attach the engine support.
- (3) Jack up the vehicle and support it with safety stands.

Components



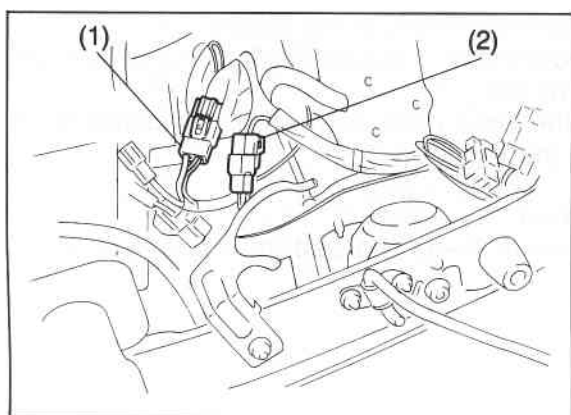
76G07C-056

- | | | |
|----------------------|---------------------------------------|---|
| 1. Battery | 10. Vacuum hose | 19. Joint shaft and driveshaft |
| 2. Battery carrier | 11. Front wheels | 20. Under cover |
| 3. Fresh air duct | 12. Splash shields | 21. Torque converter bolts |
| 4. Main fuse block | 13. Oil cooler outlet and inlet hoses | 22. Starter |
| 5. Distributor leads | 14. Tie-rod ends | 23. Engine mount No.4 |
| 6. Speedometer cable | 15. Stabilizer bar control links | 24. Engine mount No.2 |
| 7. Cnnectors | 16. Lower arm ball joints | 25. Crossmember and left side lower arm |
| 8. Ground wires | 17. Driveshaft | 26. Transaxle |
| 9. Selector cable | 18. Joint shaft bracket | |



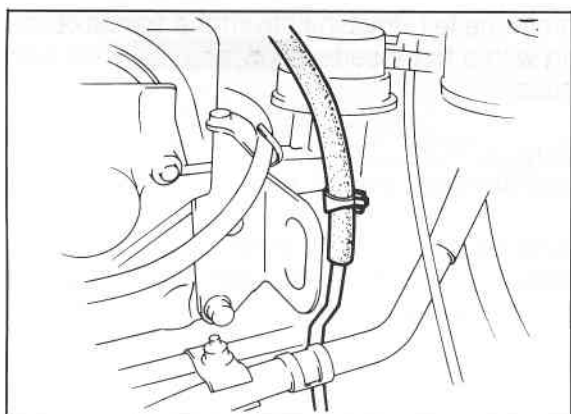
76G07C-057

1. Remove the battery and battery carrier.
2. Remove the fresh air duct.
3. Disconnect the main fuse block.
4. Disconnect the distributor leads.



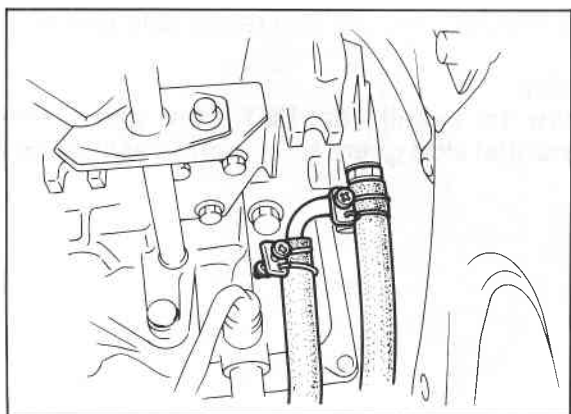
76G07C-058

5. Disconnect the speedometer cable.
6. Disconnect the connectors.
 - (1) Inhibitor switch
 - (2) Kick-down solenoid
7. Disconnect the grounds from the transaxle case and oil pump.



76G07C-059

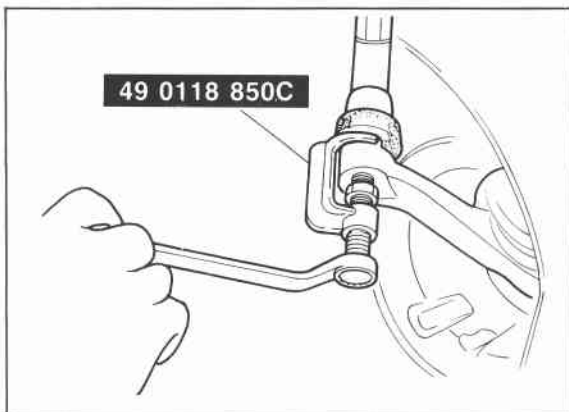
8. Disconnect the selector cable.
9. Disconnect the vacuum hose.



76G07C-060

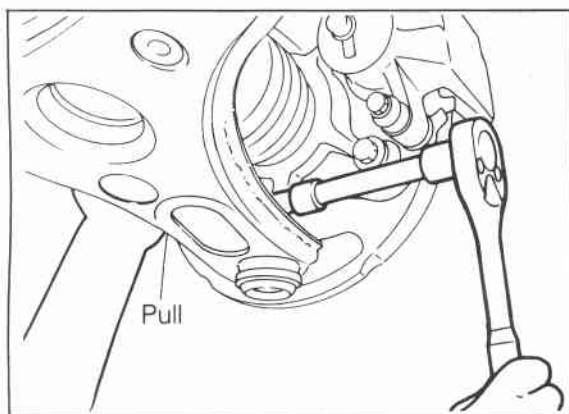
10. Remove the front wheels.
11. Remove the splash shields.
12. Drain the ATF.
13. Disconnect the oil cooler outlet and inlet hoses.

7C REMOVAL



76G07C-061

14. Disconnect the tie-rod ends with the **SST**.

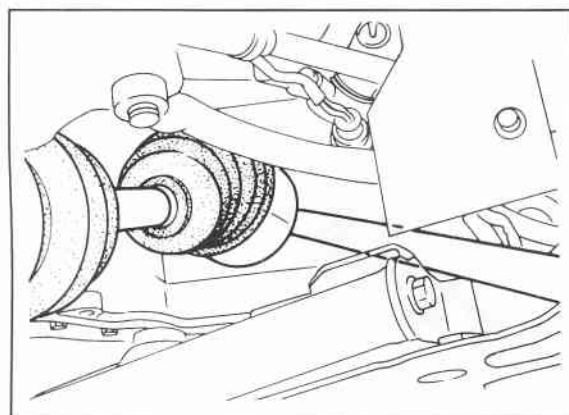


76G07C-062

15. Remove the stabilizer bar control links.
16. Remove the bolts and nuts at the left and right lower arm ball joints.
17. Pull the lower arms downward to separate them from the knuckles.

Caution

Do not damage the ball joint dust boots.



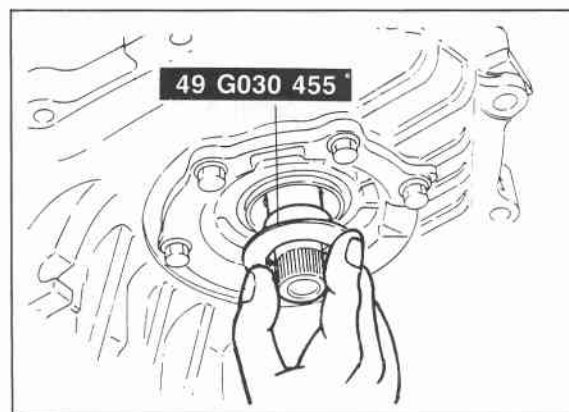
76G07C-063

18. Separate the left driveshaft from the transaxle by prying with a bar inserted between the shaft and the case.

Caution

Do not damage the oil seal.

19. Remove the joint shaft bracket.
20. Separate the right driveshaft together with the joint shaft in the same manner.

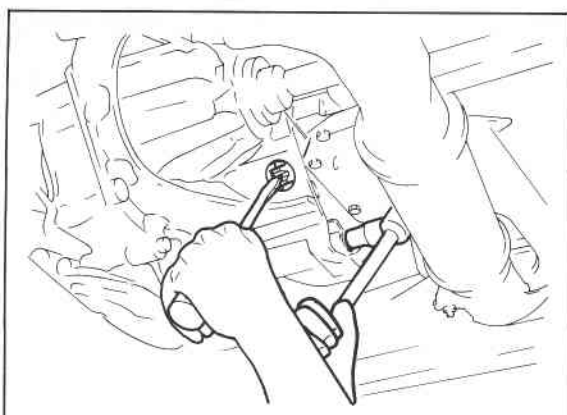


76G07C-064

21. Install the **SST** into the differential side gears.

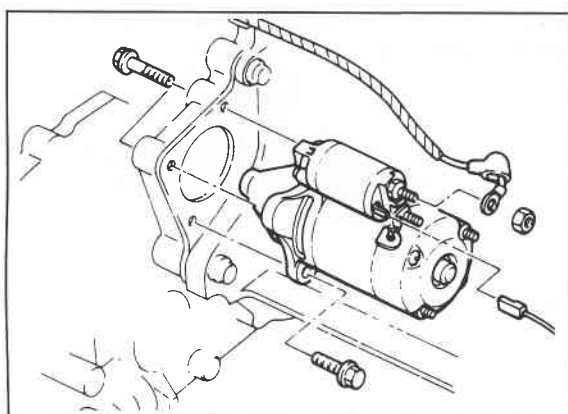
Caution

Failure to install the SST may allow the differential side gears to become misaligned.



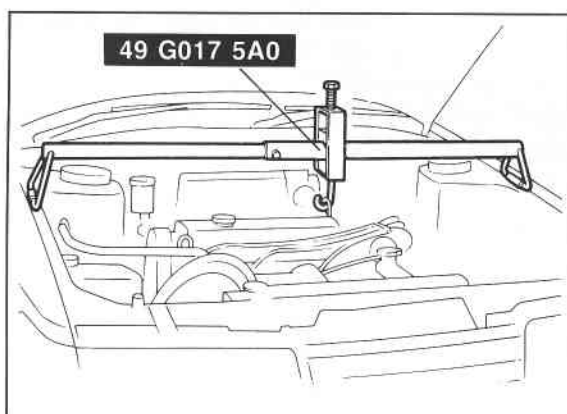
76G07C-065

- 22. Remove the under cover.
- 23. Remove the torque converter bolts.



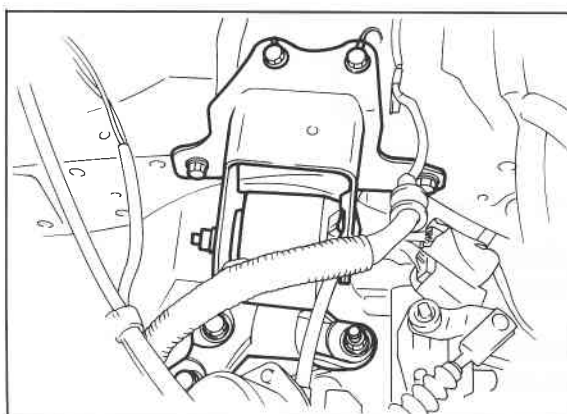
76G07C-066

- 24. Remove the starter.



76G07C-067

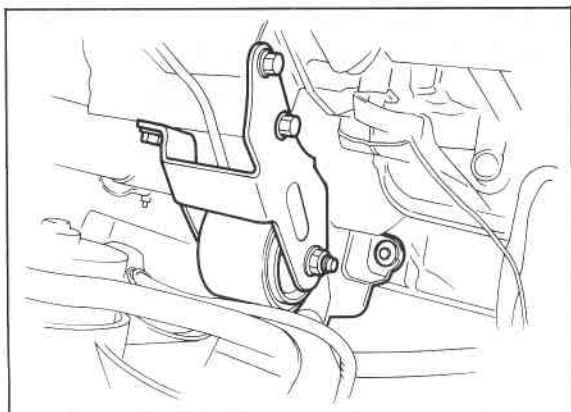
- 25. Suspend the engine with the **SST**.



76G07C-068

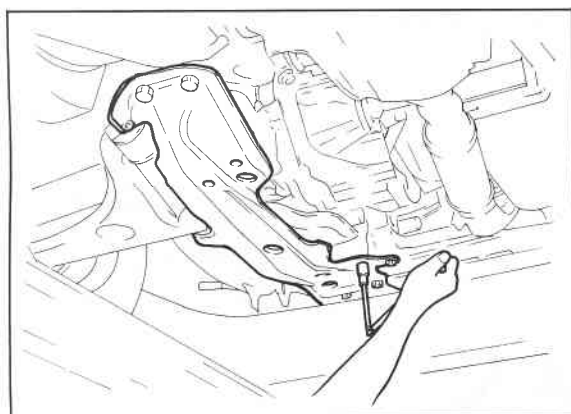
- 26. Remove engine mount No.4 and bracket.

7C REMOVAL



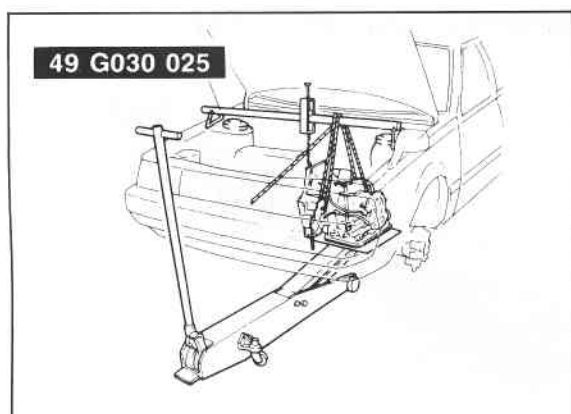
76G07C-069

27. Remove engine mount No. 2.



76G07C-070

28. Remove the crossmember and the left side lower arm as an assembly.

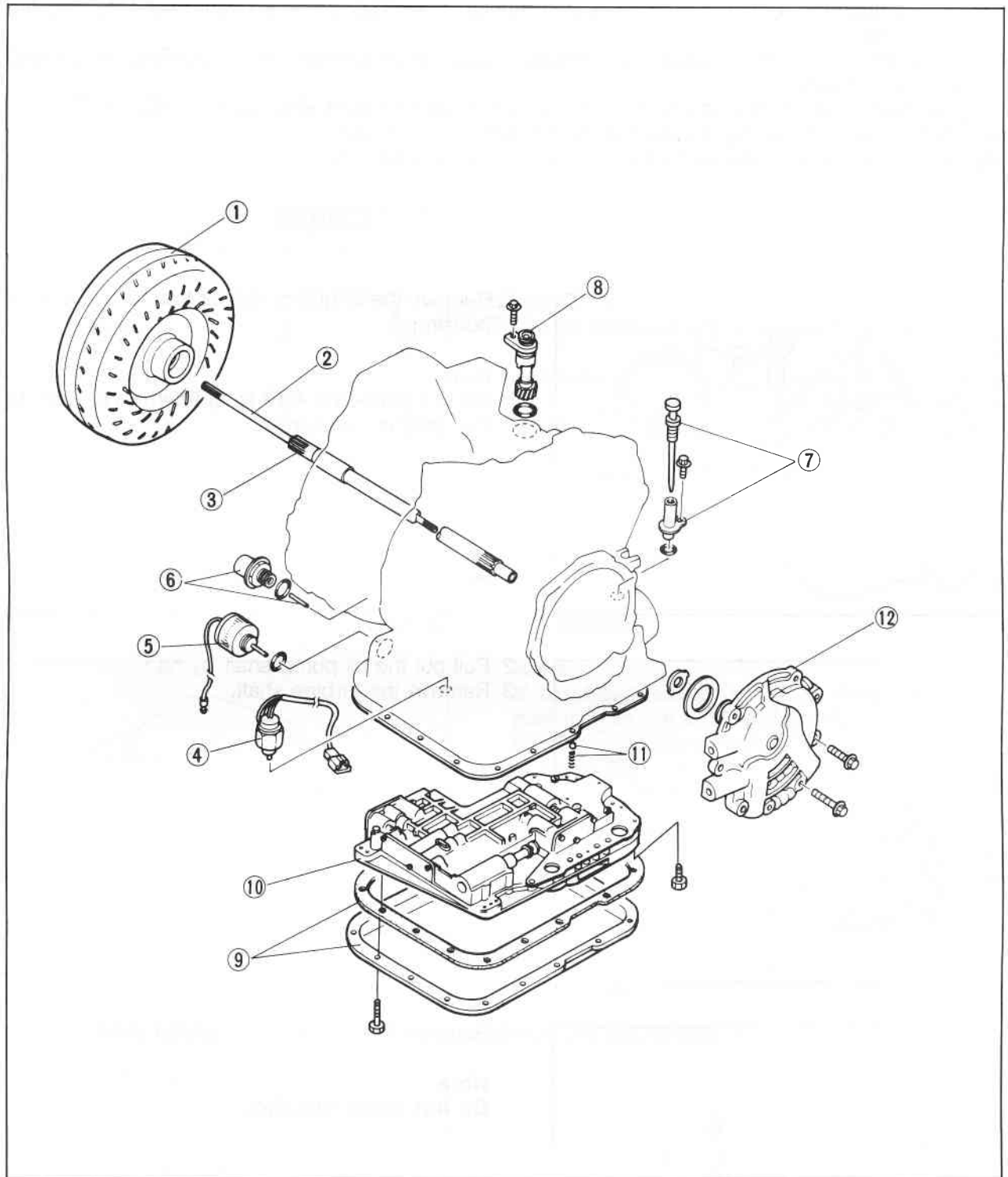


76G07C-071

29. Lean the engine toward the transaxle by loosening the engine support hook bolt.
30. Support the transaxle with a jack.
31. Remove the transaxle mounting bolts.
32. Remove the transaxle.

DISASSEMBLY

DISASSEMBLY - STEP 1



76G07C-072

- | | | |
|---------------------|-----------------------------|---------------------------|
| 1. Torque converter | 5. Kick-down solenoid | 9. Oil pan and gasket |
| 2. Oil pump shaft | 6. Vacuum diaphragm and rod | 10. Control valve body |
| 3. Turbine shaft | 7. Oil level gauge and tube | 11. Steel ball and spring |
| 4. Inhibitor switch | 8. Speedometer driven gear | 12. Oil pump |

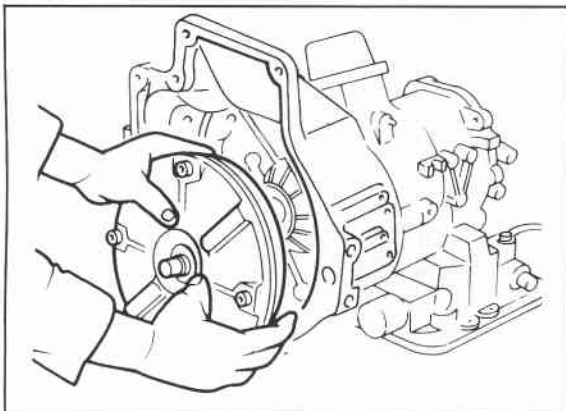
7C DISASSEMBLY

Procedure

Precaution

- (1) Clean the transaxle exterior thoroughly with steam and/or cleaning solvents prior to disassembly.
- (2) Disassemble the transaxle in a clean area (dustproof workspace) to prevent dust entry into the mechanisms.
- (3) Inspect the individual transaxle components in accordance with the QUICK DIAGNOSIS CHART during disassembly.
- (4) Use plastic hammers when applying force to separate the light alloy case joints.
- (5) Do not use rags during disassembly to prevent contamination.
- (6) Neatly arrange the removed parts in order during disassembly.

76G07C-073

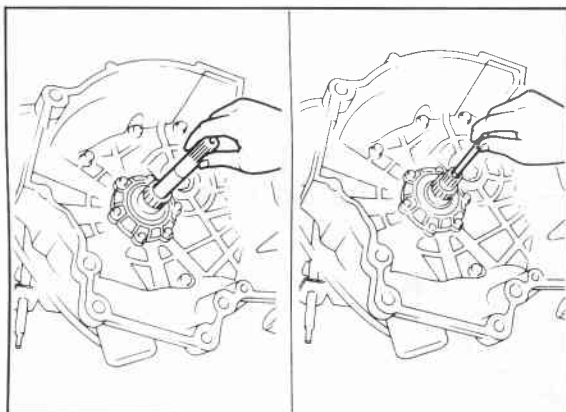


83U07B-119

1. Remove the torque converter from the converter housing.

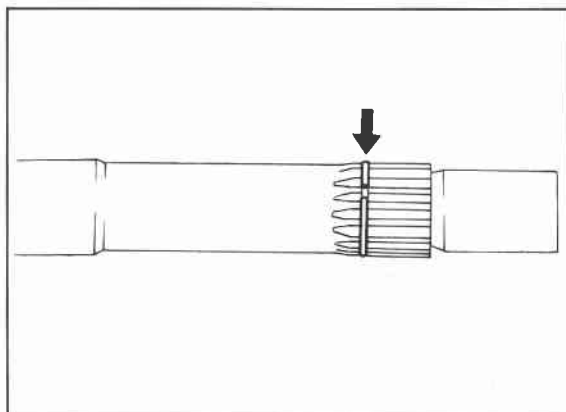
Note

Do not allow the ATF to spill when removing the torque converter.



76G07C-074

2. Pull out the oil pump shaft by hand.
3. Remove the turbine shaft.

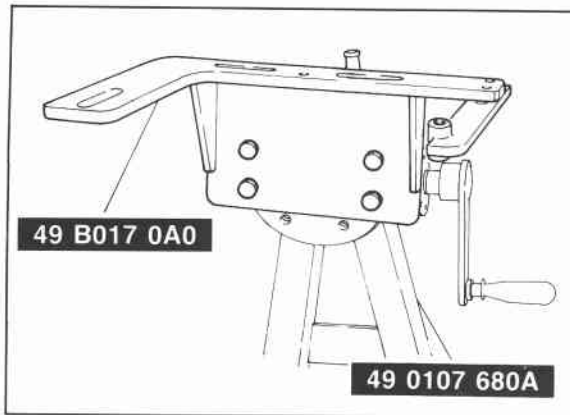


76G07C-075

4. Remove the clip from the turbine shaft.

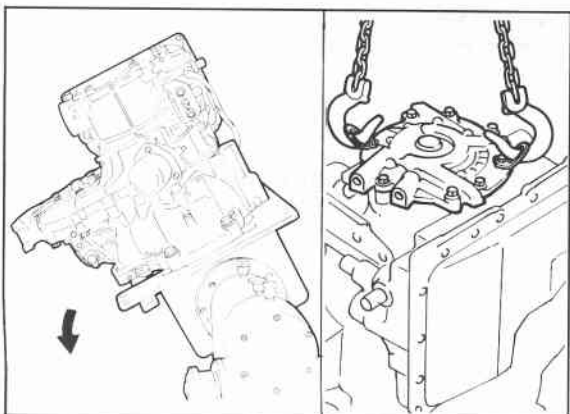
Note

Do not reuse the clip.



76G07C-076

5. Assemble the **SST**.



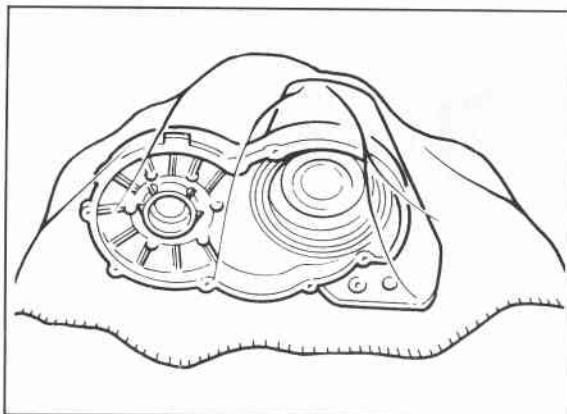
76G07C-350

6. Attach the hanger to the oil pump as shown.

7. Lift the transaxle and mount it on the **SST**.

Warning

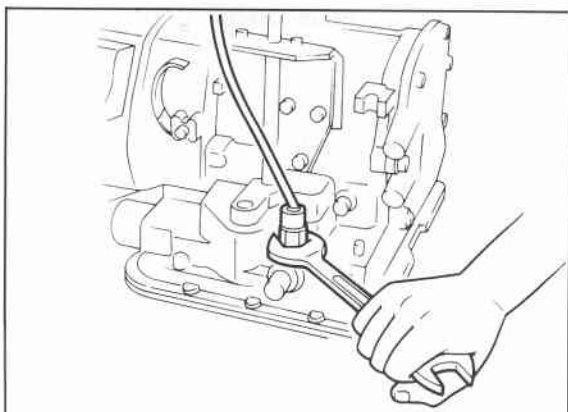
Avoid leaning the transaxle to one side during disassembly, it may turn quickly and cause injury.



63U07B-064

Note

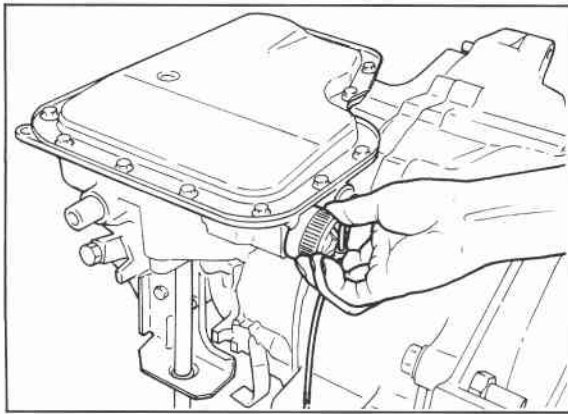
If troubleshooting indicates that there is a problem on the differential side, separate the transaxle case assembly from the converter housing and cover it.



76G07C-077

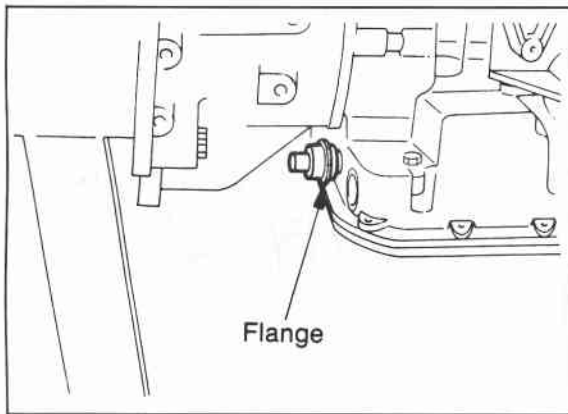
8. Remove the inhibitor switch.

7C DISASSEMBLY



76G07C-078

9. Remove the kick-down solenoid and O-ring.

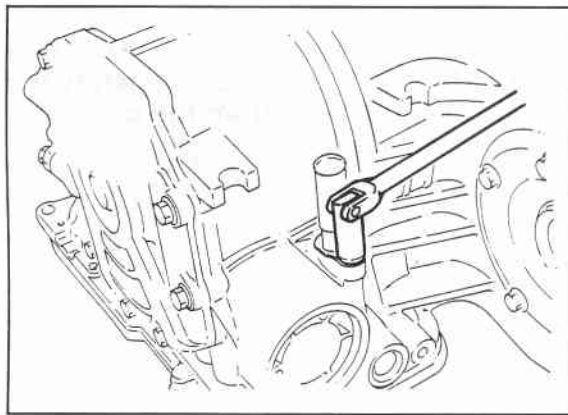


76G07C-079

10. Remove the vacuum diaphragm. If the vacuum diaphragm is difficult to remove, use pliers to grasp the flange.

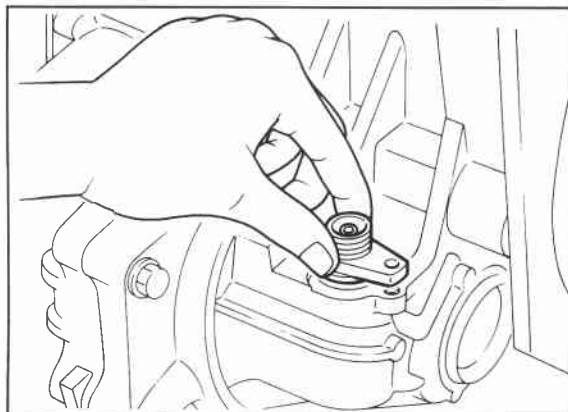
Note

When the vacuum diaphragm is removed, take care not to lose the diaphragm rod.



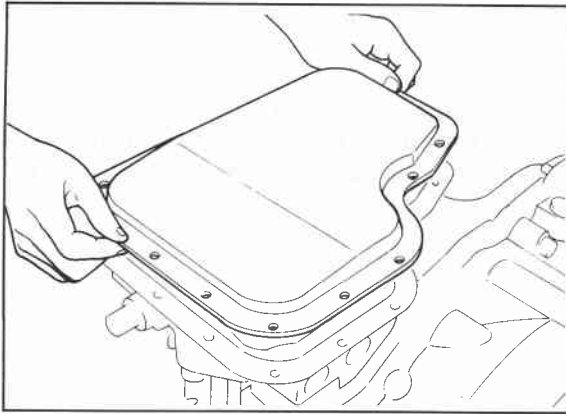
76G07C-080

11. Remove the oil level gauge and filter tube.



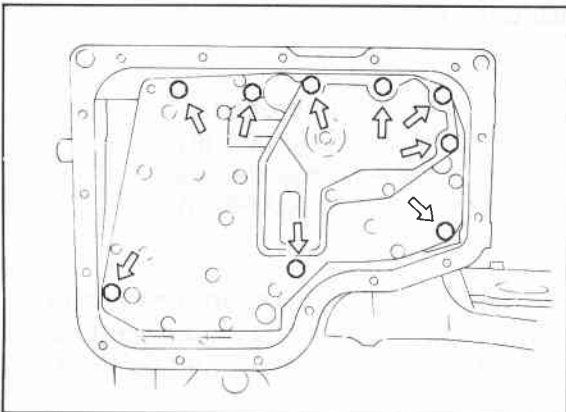
76G07C-081

12. Remove the speedometer driven gear.



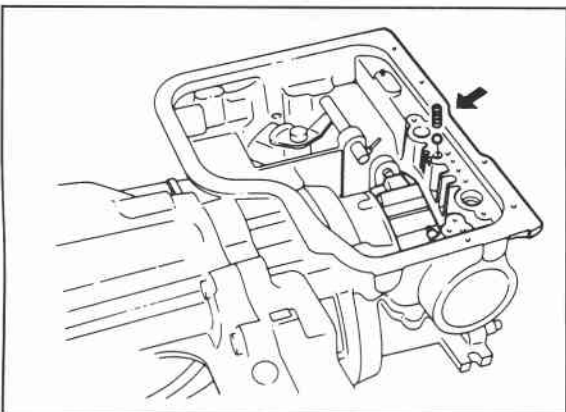
76G07C-351

13. Remove the oil pan and gasket.



76G07C-352

14. Remove the control valve body as an assembly.

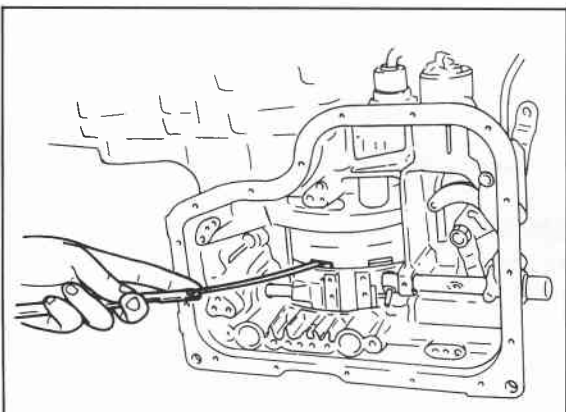


76G07C-082

15. Remove the steel ball and spring.

Note

Be careful not to lose the steel ball and spring.



76G07C-083

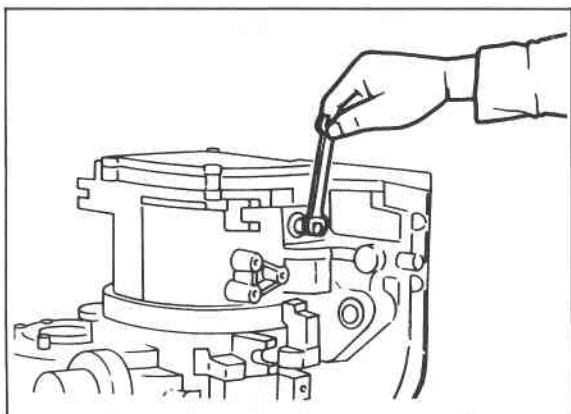
16. Measure the front clutch drum end play.

End play: 0.5—0.8 mm (0.020—0.031 in)

Note

If it is not within specification, make the necessary adjustment by using an adjustment shim during assembly. (Refer to page 7C—113.)

7C DISASSEMBLY

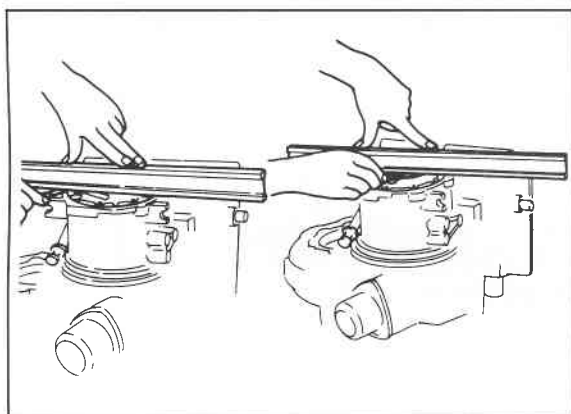


76G07C-084

17. Remove the oil pump.

Note

If the oil pump is difficult to remove, remove it after tightening the anchor-end bolt to secure the front clutch with the brake band.



76G07C-085

18. Measure the total end play.

Standard clearance:

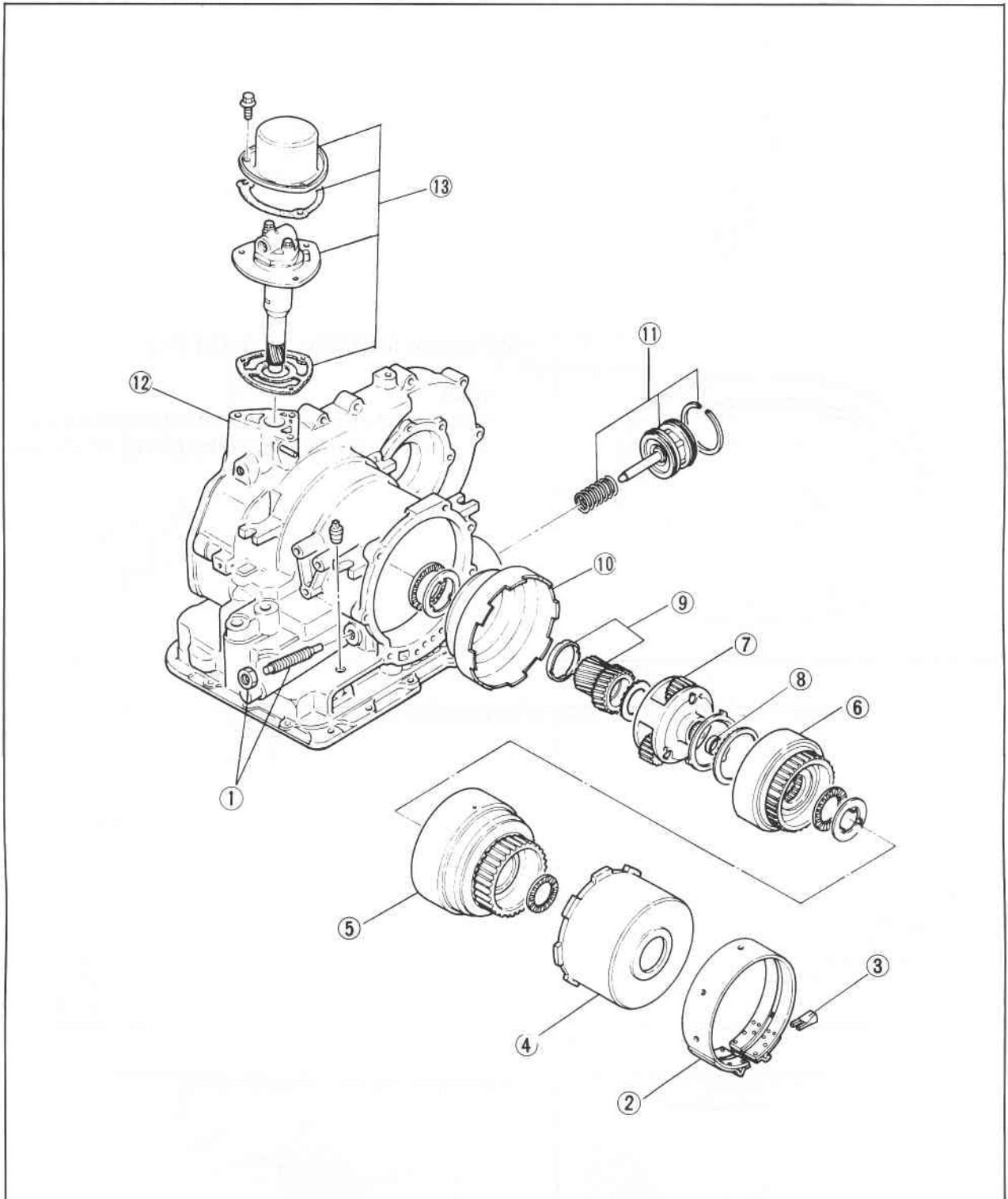
- a) Straight edge—Pump cover
Maximum 0.10 mm (0.004 in)
- b) Straight edge—Transaxle case
Maximum 0.15 mm (0.006 in)

Note

If it is not within specification, use the bearing outer race to make the adjustment at the time of installation. (Refer to page 7C—112.)

DISASSEMBLY - STEP 2

76G07C-086



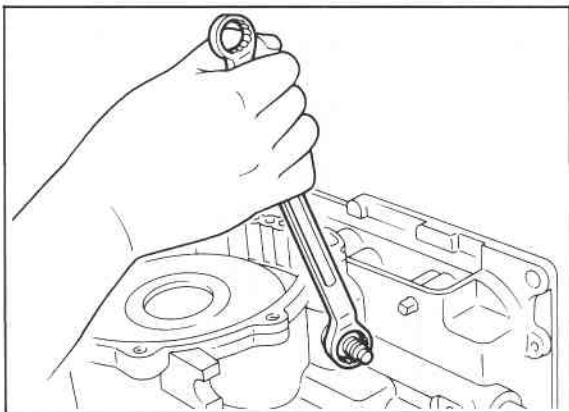
76G07C-087

1. Anchor-end bolt and locknut
2. Brake band
3. Strut
4. Front clutch

5. Rear clutch
6. Rear clutch hub assembly
7. Planetary carrier (front)
8. Seal sleeve
9. Sun gear and spacer

10. Connecting shell
11. Servo
12. Transaxle case
13. Governor

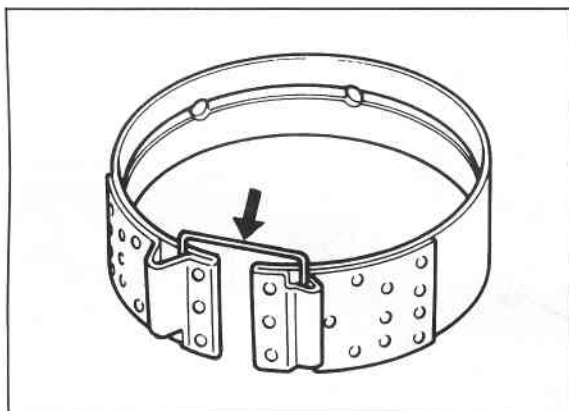
7C DISASSEMBLY



76G07C-088

Procedure

1. Remove the anchor-end bolt and locknut.

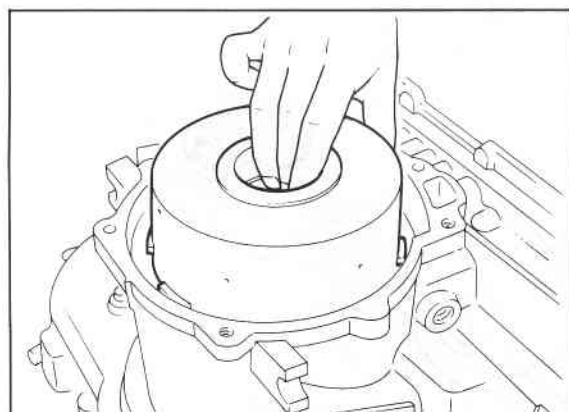


76G07C-089

2. Remove the brake band and strut.

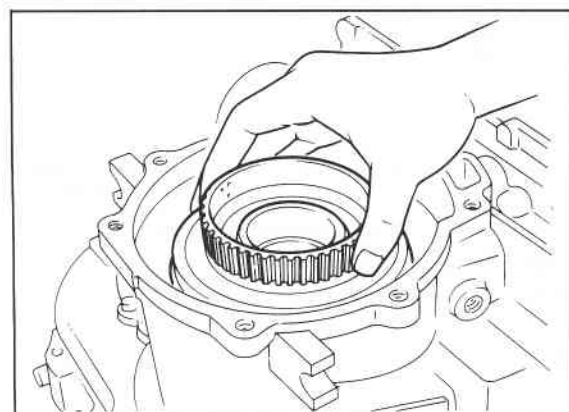
Note

Use a piece of wire to secure the brake band so that it is not damaged by being stretched.



76G07C-090

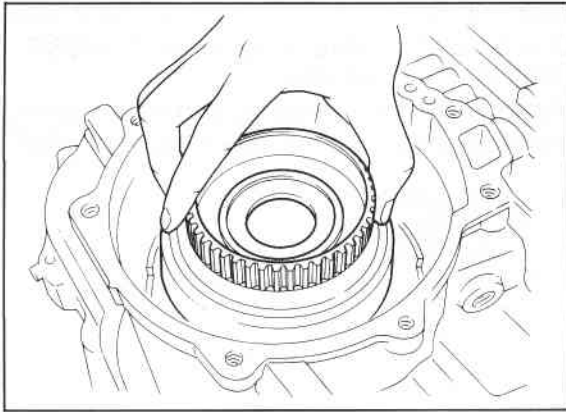
3. Remove the front clutch.



76G07C-091

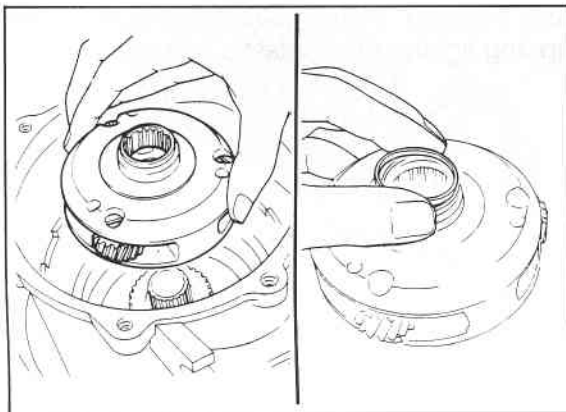
4. Remove the rear clutch.

5. Remove the rear clutch hub assembly.



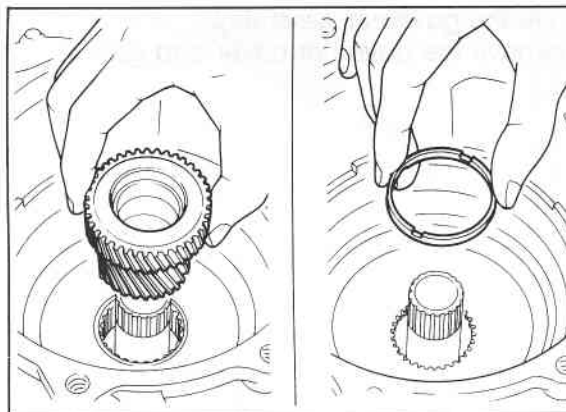
76G07C-092

6. Remove the front planetary carrier.
7. Remove the seal sleeve.



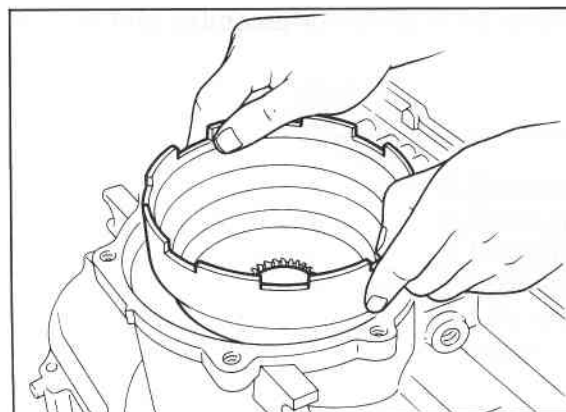
76G07C-093

8. Remove the sun gear and spacer.



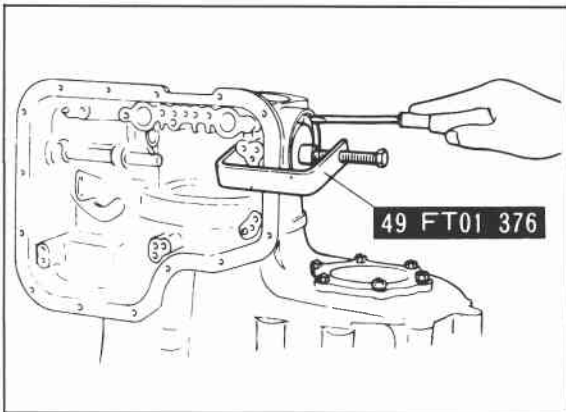
76G07C-094

9. Remove the connecting shell.



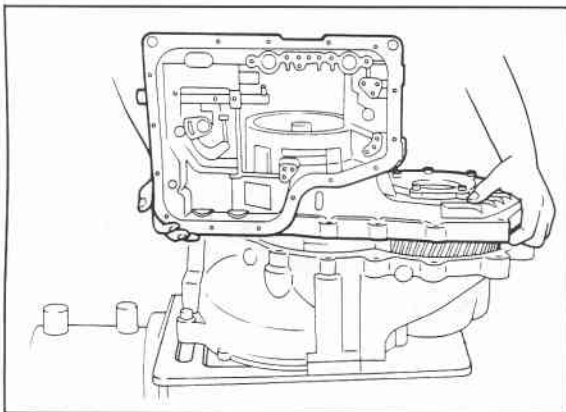
76G07C-095

7C DISASSEMBLY



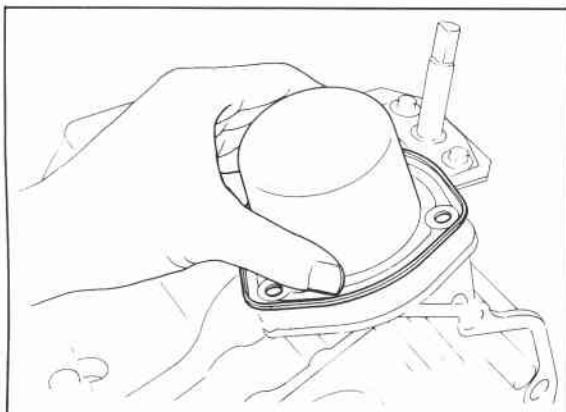
76G07C-096

10. Remove the servo.
 - (1) Compress the servo retainer with the **SST**.
 - (2) Remove the snap ring.
 - (3) Remove the servo retainer and return spring from the transaxle case while loosening the **SST**.



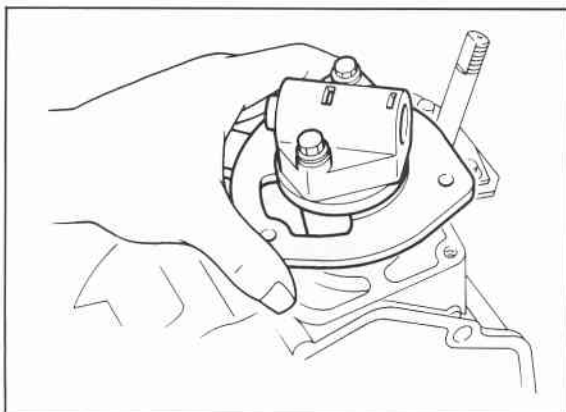
76G07C-097

11. Remove the bolts, and remove the transaxle case by tapping lightly with a plastic hammer.



76G07C-098

12. Remove the governor assembly.
 - (1) Remove the governor cover and gasket.

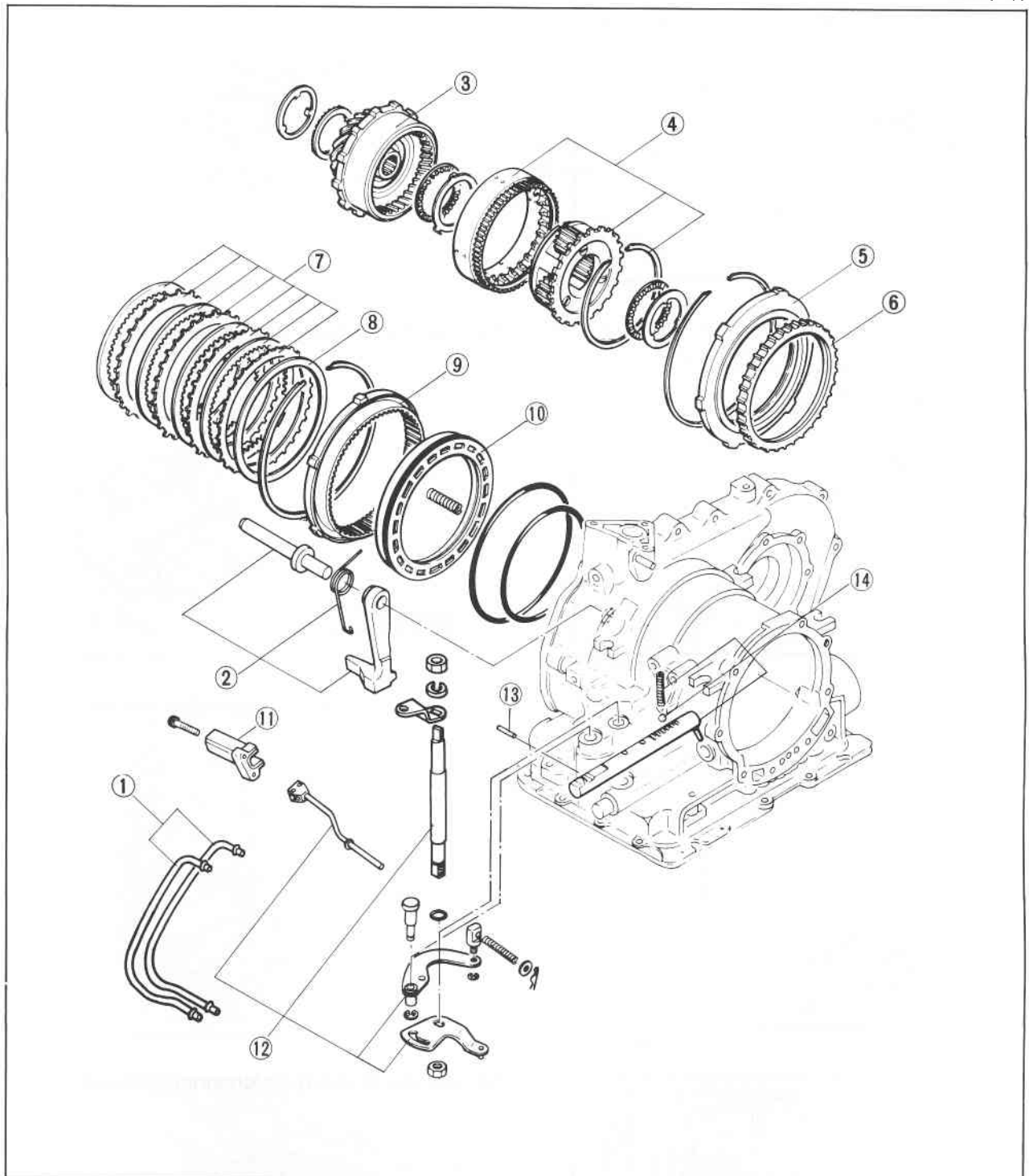


76G07C-099

- (2) Remove the governor assembly and gasket.

DISASSEMBLY - STEP 3

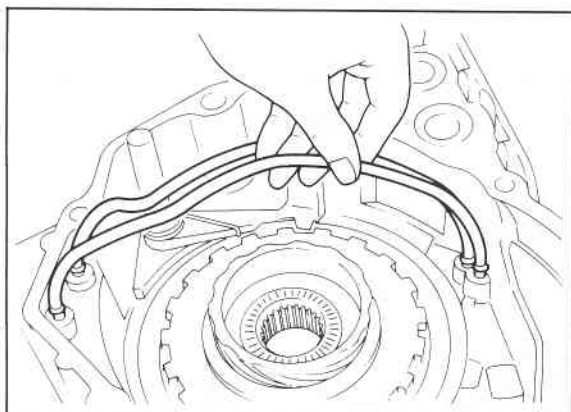
76G07C-100



76G07C-101

- | | | |
|---------------------------------------|----------------------------------|--|
| 1. Oil pipe | 6. Retaining plate | 11. Actuator support |
| 2. Parking pawl assembly | 7. Drive and driven plate | 12. Manual shaft assembly |
| 3. Drum hub assembly | 8. Dished plate | 13. Knock pin |
| 4. One-way clutch inner race assembly | 9. Low and reverse brake hub | 14. Control rod, detent ball, and spring |
| 5. One-way clutch | 10. Low and reverse brake piston | |

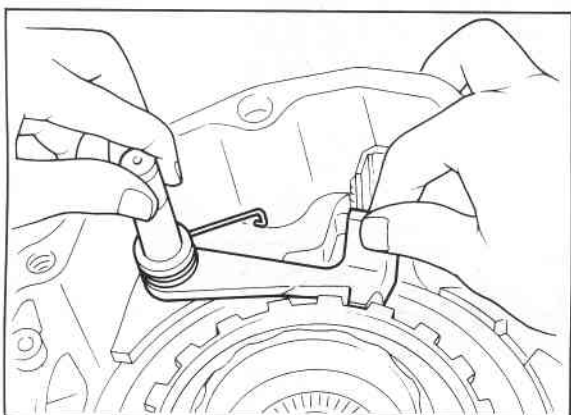
7C DISASSEMBLY



76G07C-102

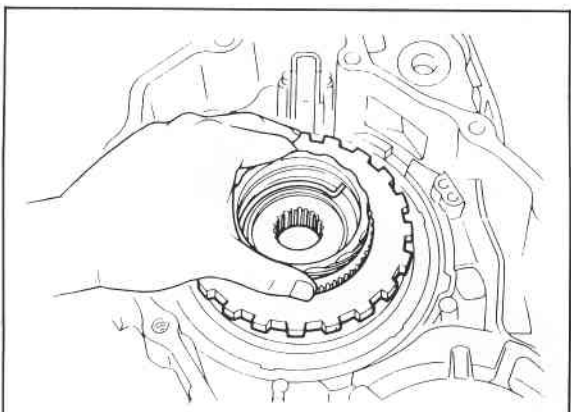
Procedure

1. Remove the governor outlet and inlet pipes.



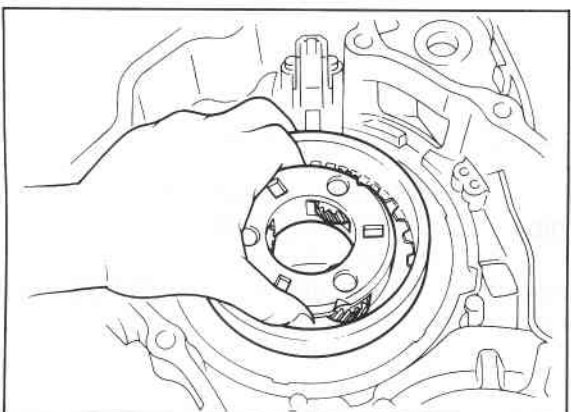
76G07C-103

2. Remove the parking pawl assembly.



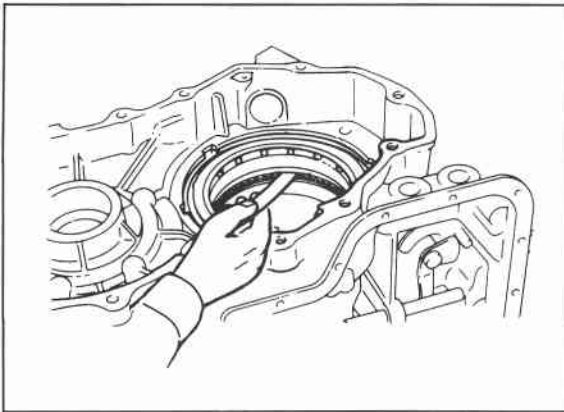
76G07C-104

3. Remove the drum hub assembly.



76G07C-105

4. Remove the one-way clutch inner race assembly.



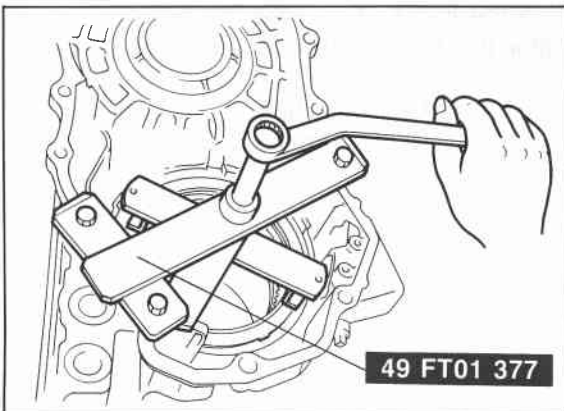
76G07C-106

5. Check the low and reverse brake clearance.

Standard clearance:
0.8—1.05 mm (0.032—0.041 in)

Note

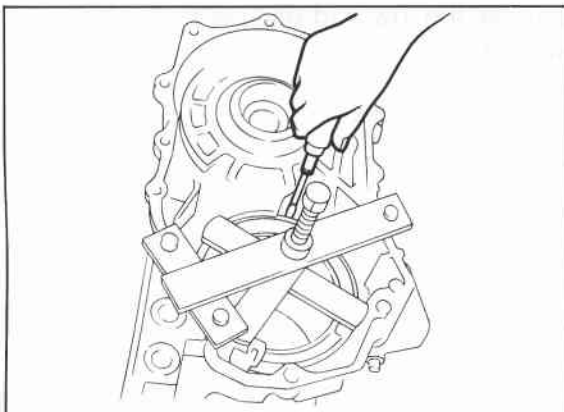
If it is not within specification, use the retaining plate to make the adjustment at the time of installation. (Refer to page 7C—104.)



76G07C-107

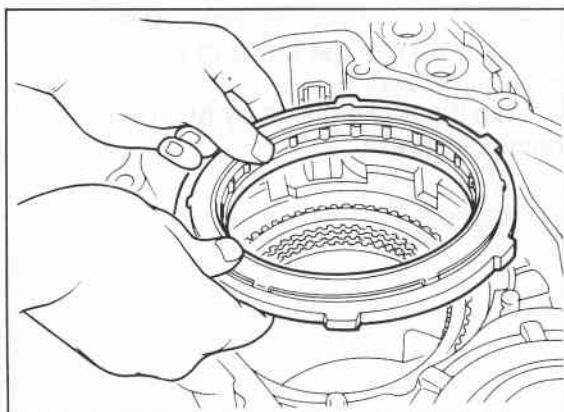
6. Remove the one-way clutch.

- (1) Install the **SST** to the one-way clutch as shown.
- (2) Compress the one-way clutch.



76G07C-108

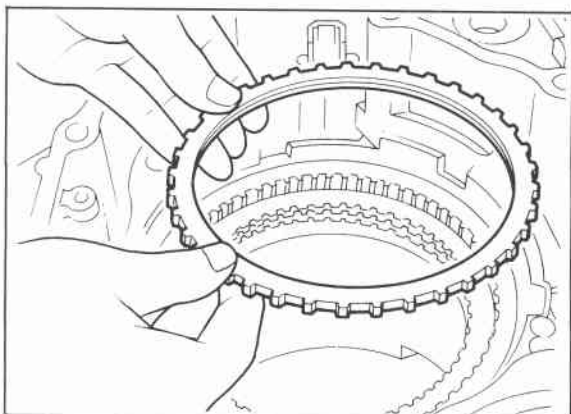
- (3) Remove the snap ring.
- (4) Remove the **SST**.



76G07C-109

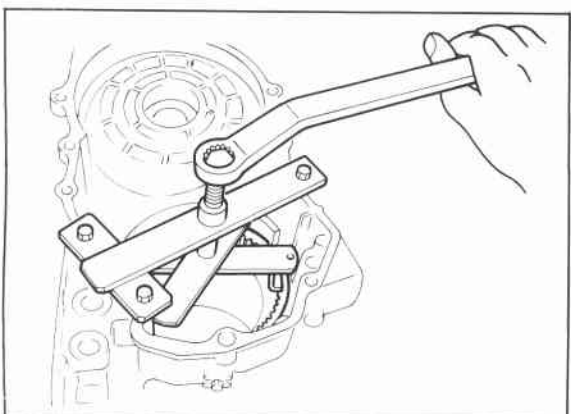
- (5) Remove the one-way clutch.

7C DISASSEMBLY



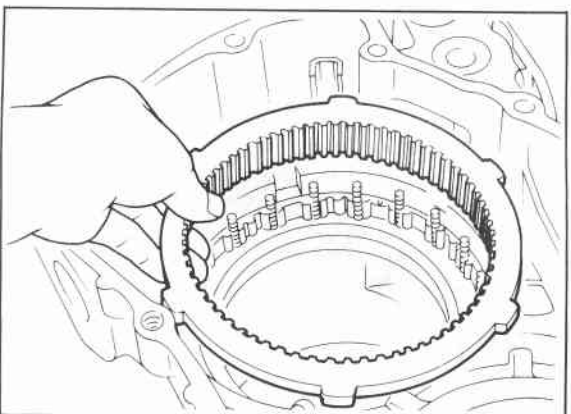
76G07C-110

7. Remove the retaining plate, drive plate, driven plate, and dished plate.



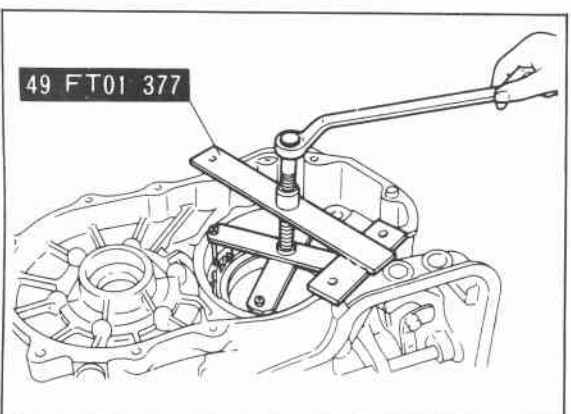
76G07C-111

8. Remove the low and reverse brake hub.
- (1) Install the **SST** to the low and reverse brake hub as shown.
 - (2) Compress the brake hub.
 - (3) Remove the snap ring.
 - (4) Remove the **SST**.



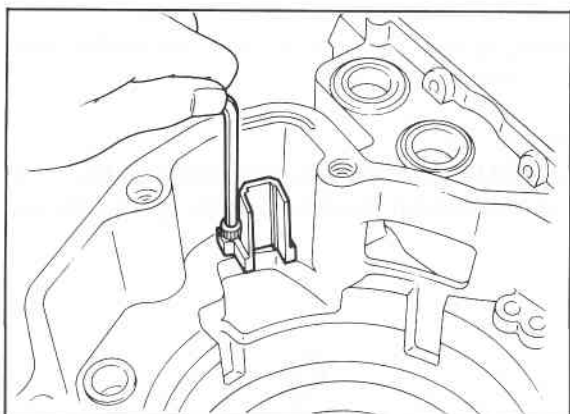
76G07C-112

- (5) Remove the low and reverse brake hub and springs.



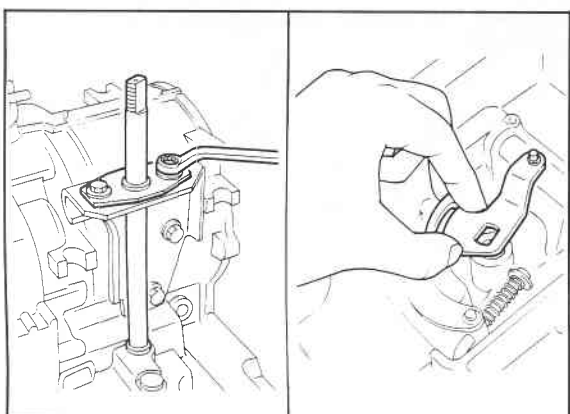
76G07C-113

9. Remove the low and reverse brake piston.
- (1) Install the **SST** to the low and reverse brake piston as shown.
 - (2) Remove the brake piston by turning the **SST** counterclockwise.



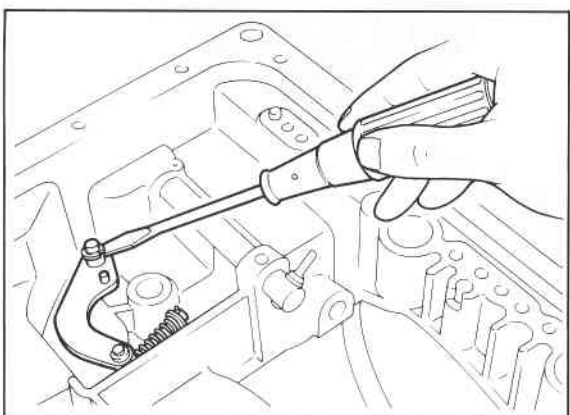
76G07C-114

10. Remove the actuator support.



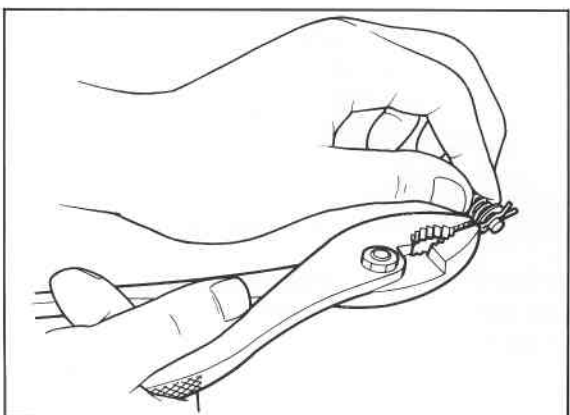
76G07C-115

11. Remove the manual shaft assembly.
(1) Remove the plate and bushing.
(2) Remove the nut, and remove the manual shaft and O-ring.
(3) Remove the manual plate.



76G07C-116

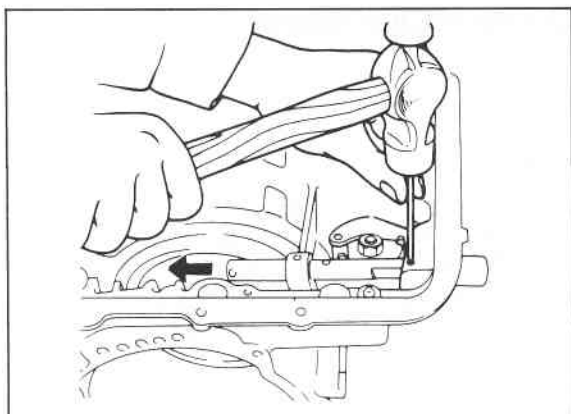
(4) Remove the snap ring and parking lever.



76G07C-117

(5) Remove the snap pin, washer, spring, and parking joint.

7C DISASSEMBLY



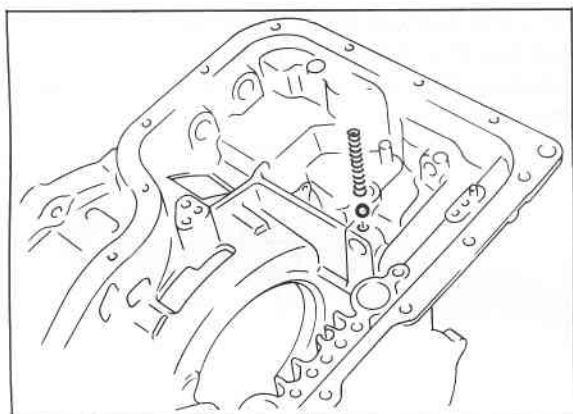
76G07C-118

12. Remove the control rod.

- (1) Remove the pin, and remove the control rod from the transaxle.

Warning

Be careful when removing the control rod, the detent ball will be pushed out by spring force.

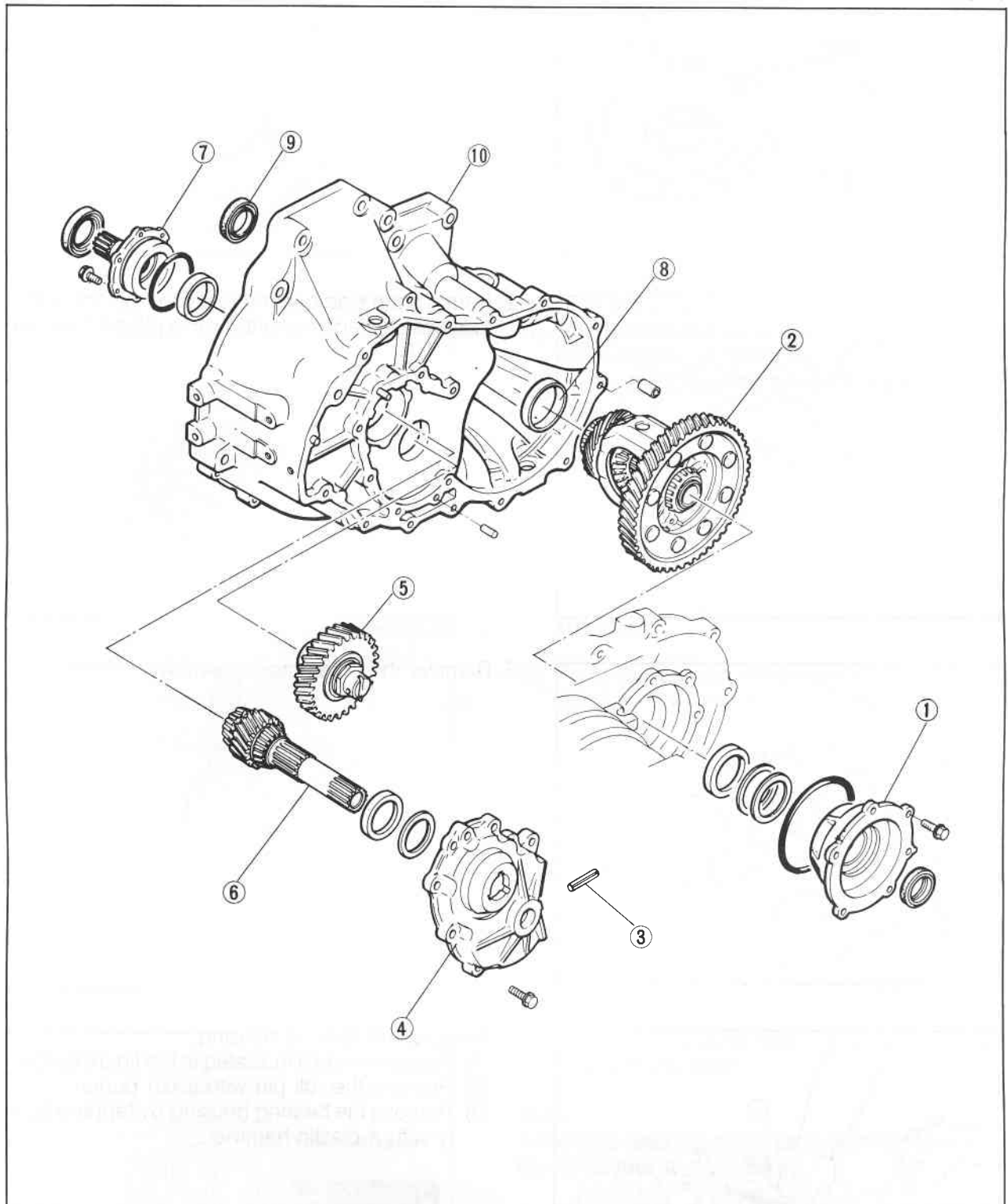


76G07C-119

- (2) Remove the detent ball and spring.

DISASSEMBLY-STEP 4 Component

76G07C-120



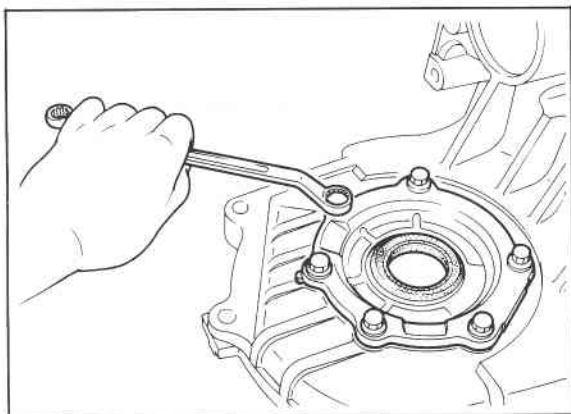
76G07C-121

1. Side bearing housing
2. Differential assembly
3. Roll pin

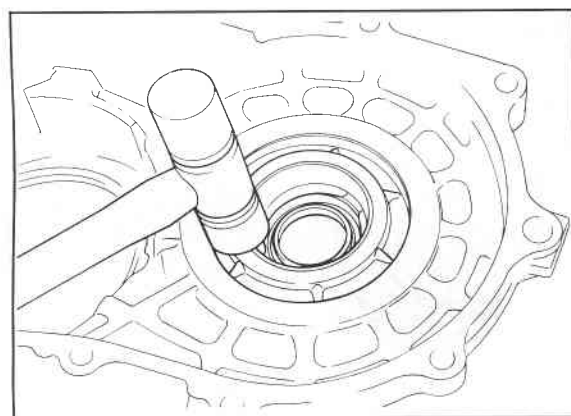
4. Bearing housing
5. Idle gear assembly
6. Output gear assembly

7. Bearing cover
8. Bearing outer race
9. Oil seal
10. Converter housing

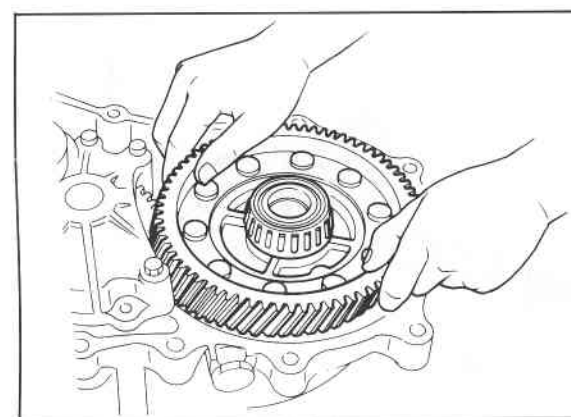
7C DISASSEMBLY



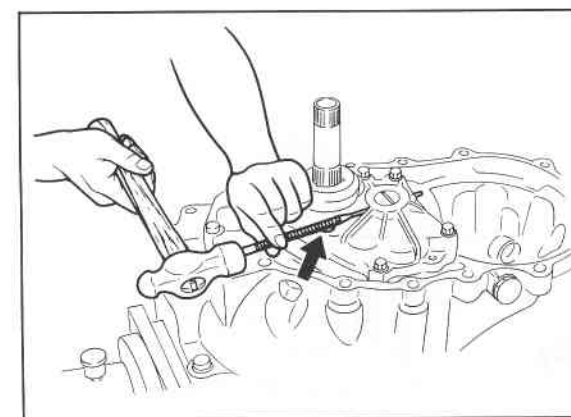
76G07C-122



76G07C-123



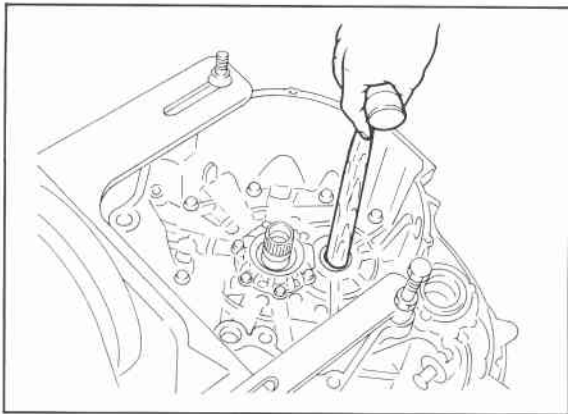
76G07C-124



76G07C-125

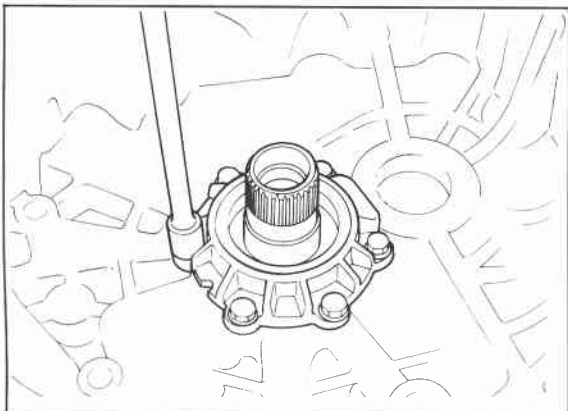
Procedure

1. Remove the side bearing housing installation bolts from the transaxle case.
2. Remove the side bearing housing from the transaxle case by tapping lightly with a plastic hammer.
3. Remove the differential assembly.
4. Remove the bearing housing.
 - (1) Remove the bolt indicated in the figure (arrow).
 - (2) Remove the roll pin with a pin punch.
 - (3) Remove the bearing housing by tapping lightly with a plastic hammer.



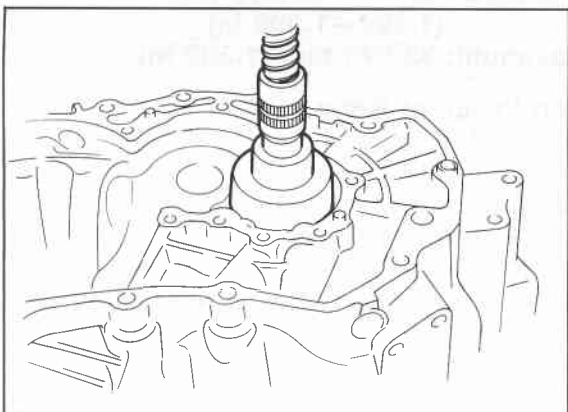
76G07C-126

5. Remove the idle gear assembly and output gear assembly by tapping out from the torque converter side.



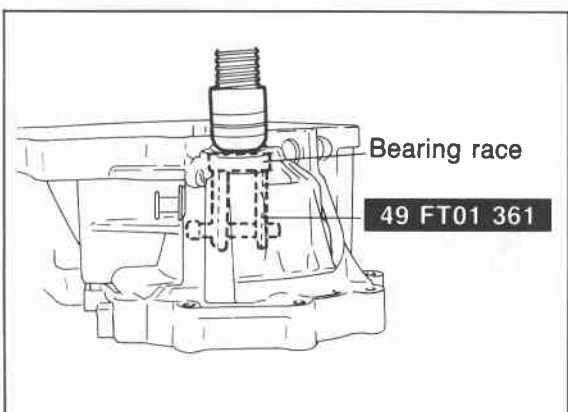
76G07C-127

6. Remove the bearing cover.
 - (1) Remove the converter housing from the trans-axle hanger.
 - (2) Remove the bearing cover bolts.



86U07B-169

- (3) Press the bearing cover assembly out of the converter housing.



76G07C-128

7. Press the bearing outer race out of the converter housing with the **SST**.

Note

Install the bearing outer race during reassembly to adjust the preload.

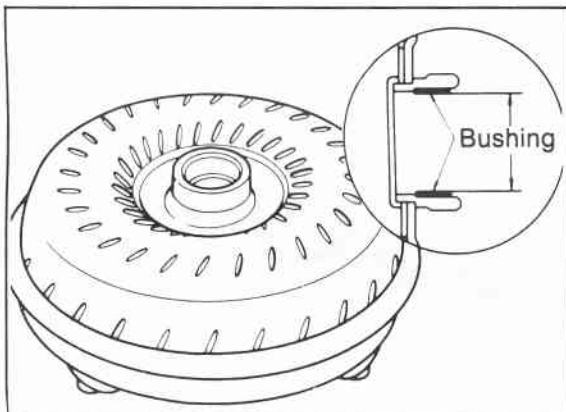
8. Check the oil seals for damage. Replace if necessary.

INSPECTION AND REPAIR

PRECAUTION

- (1) Several of the parts resemble each other; organize them so that they do not get mixed up.
- (2) Clean each part with cleaning oil, clean out the oil holes and oil passages with compressed air, and check that there are no obstructions.
- (3) When using cleaning oil and compressed air, wear protective eyewear.
- (4) If a clutch plate or brake band is replaced with a new one, soak it in ATF for 2 hours or more before installing.
- (5) Before assembly, apply ATF to all seal rings, rotating parts, and sliding parts.
- (6) All seals, gaskets and roll pins must be replaced with new ones during assembly.
- (7) Use petroleum jelly, not grease where required.
- (8) When it is necessary to replace a bushing, replace the assembly which includes that bushing.

76G07C-353



76G07C-129

TORQUE CONVERTER

The torque converter is welded together and cannot be disassembled.

Inspection

1. Check the outer part of the converter for damage or cracks, and replace it if necessary.
2. Check for rust on the pilot hub of the converter or on the boss. If there is any, remove it completely.
3. Measure the bushing of the converter boss. Replace the converter assembly if the bushing is worn.

Bushing inner diameter

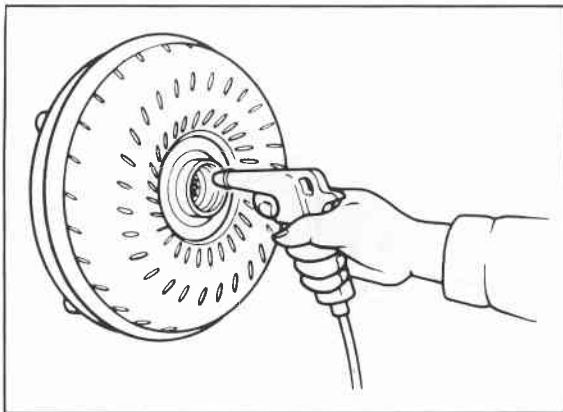
Standard: 33.000—33.025 mm

(1.299—1.300 in)

Maximum: 33.075 mm (1.302 in)

Washing Inside of Converter

1. Drain any ATF remaining in the converter.
2. Pour in solvent [approximately **0.5 liter (0.53 US qt, 0.44 Imp qt)**].
3. Shake the converter to clean the inside. Pour out the solvent.
4. Clean the inside of the converter with compressed air so that the inside is perfectly empty.
5. Pour in ATF.
6. Shake the converter to clean the inside. Pour out the ATF.

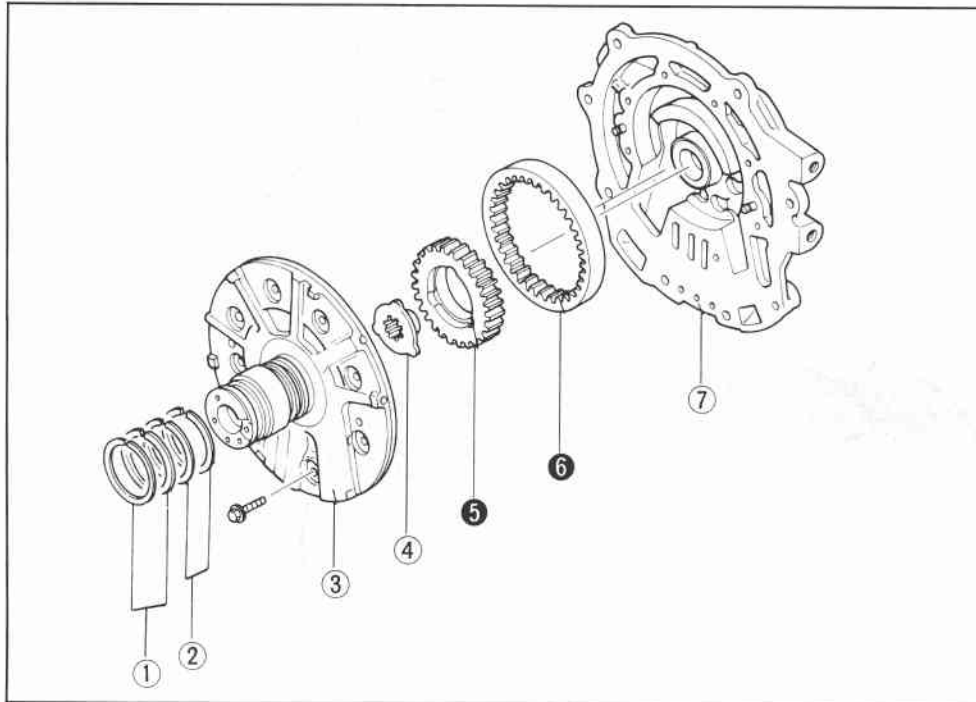


86U07B-173

OIL PUMP Disassembly

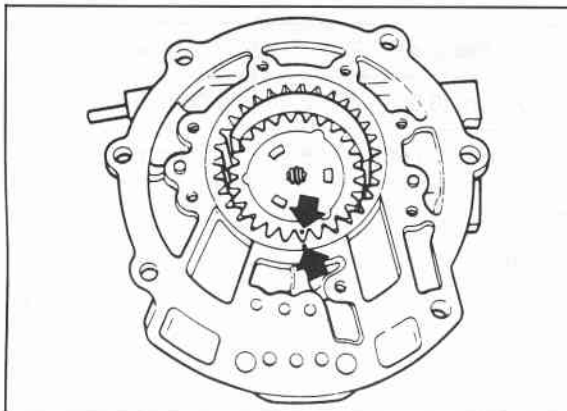
Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked parts.

76G07C-130



1. Seal ring
2. Seal ring
3. Pump cover
4. Pump flange
5. Inner gear
6. Outer gear
7. Pump housing

63U07B-089

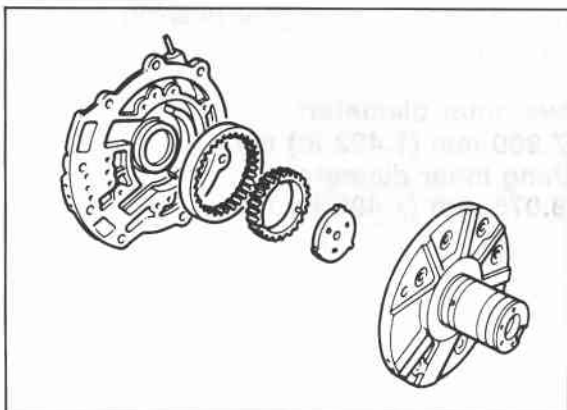


76G07C-131

Disassembly note

Inner gear and outer gear

Mark the inner and outer gears with paint before removing them.



76G07C-132

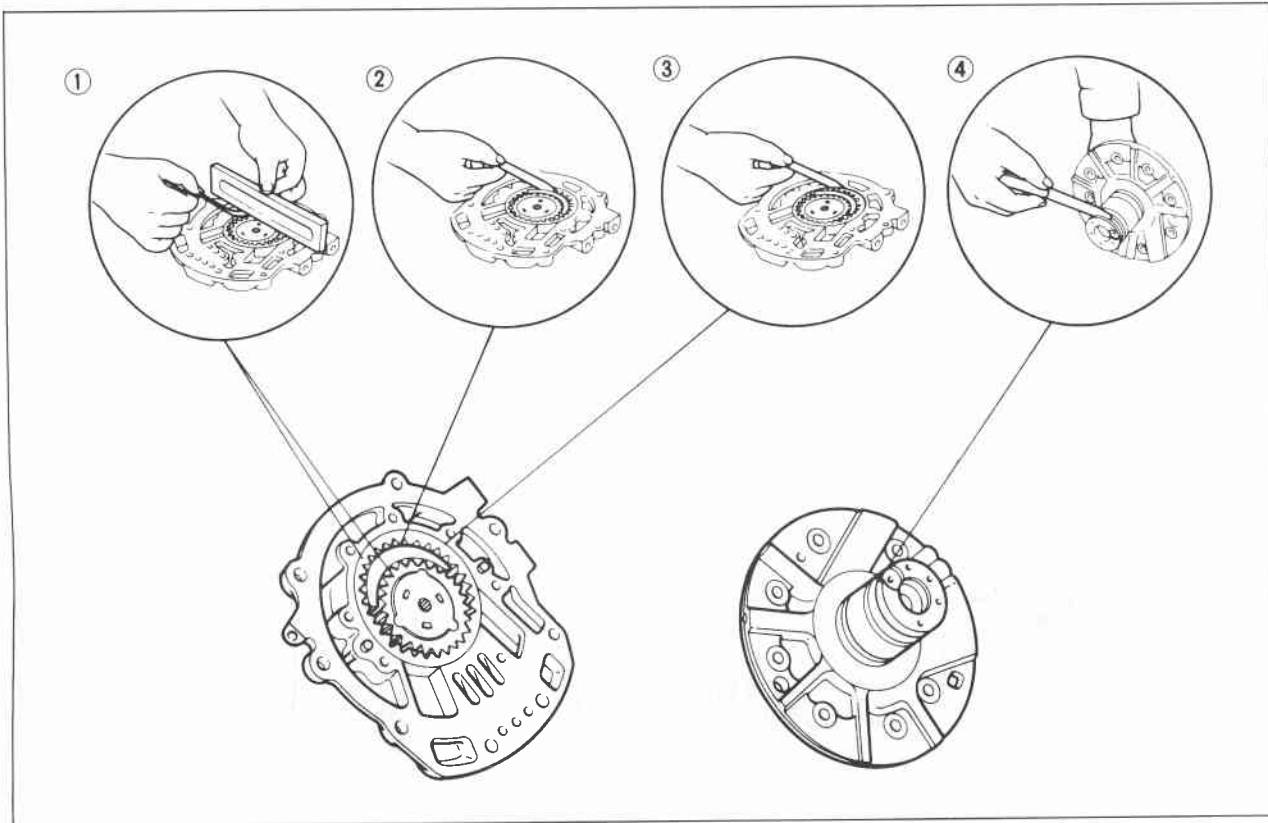
Inspection

Check for the following and replace any faulty parts:

1. Damaged or worn inner or outer gear tooth surfaces.
2. Broken or worn seal ring.

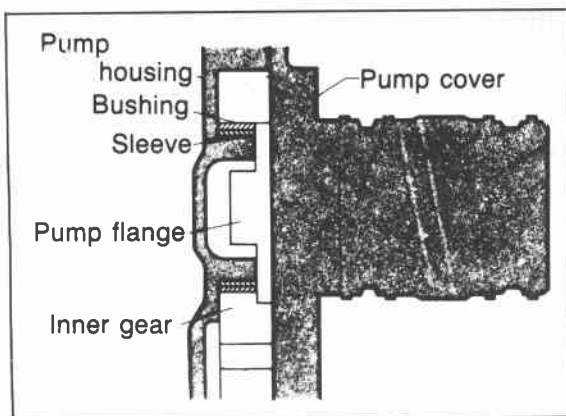
7C INSPECTION AND REPAIR

3. Clearance



Measured location		Standard	Maximum
1	Gear to pump cover	0.02—0.04 mm (0.001—0.002 in)	0.08 mm (0.003 in)
2	Outer gear to crescent	0.14—0.21 mm (0.006—0.008 in)	0.25 mm (0.010 in)
3	Outer gear to housing	0.05—0.20 mm (0.002—0.008 in)	0.25 mm (0.010 in)
4	Oil seal ring to ring groove	0.04—0.16 mm (0.002—0.006 in)	0.40 mm (0.016 in)

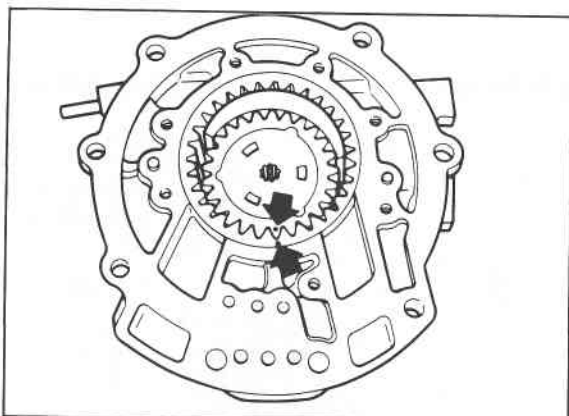
76G07C-133



76G07C-134

4. Damaged or worn inner gear bushing of pump housing sleeve.

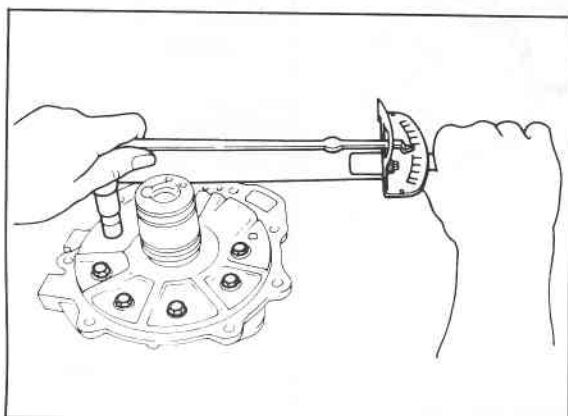
Sleeve outer diameter:
37.900 mm (1.492 in) max.
Bushing inner diameter:
38.075 mm (1.499 in) max.



76G07C-135

Assembly

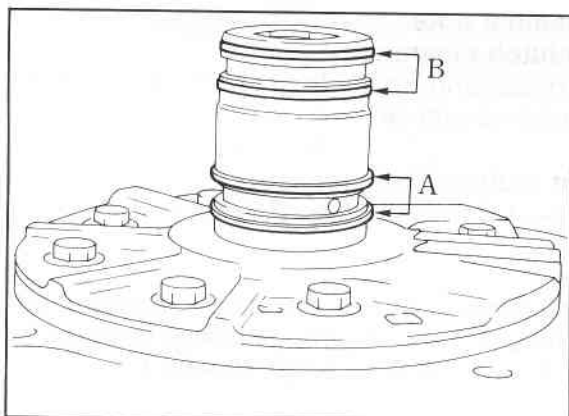
1. Assemble so that the marks on the inner and outer gears are at the pump cover side.
2. Install the pump flange.



76G07C-136

3. Install the oil pump cover.

**Tightening torque: 11—14 N·m
(110—140 cm·kg, 95—122 in·lb)**



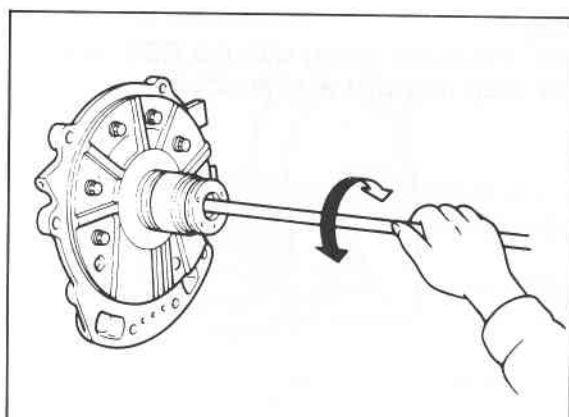
76G07C-137

4. Install the seal rings.

Seal ring outer diameter

A: 44 mm (1.732 in)

B: 43 mm (1.693 in)



76G07C-138

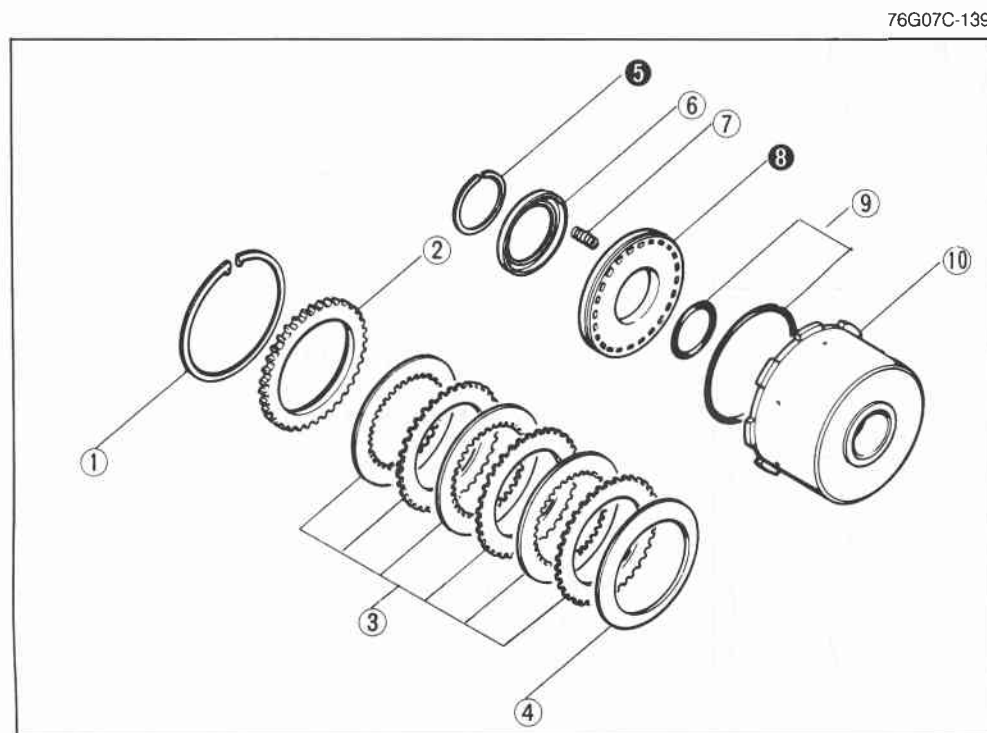
5. When the assembly is completed, install the oil pump shaft and make sure the gears turn easily.

7C INSPECTION AND REPAIR

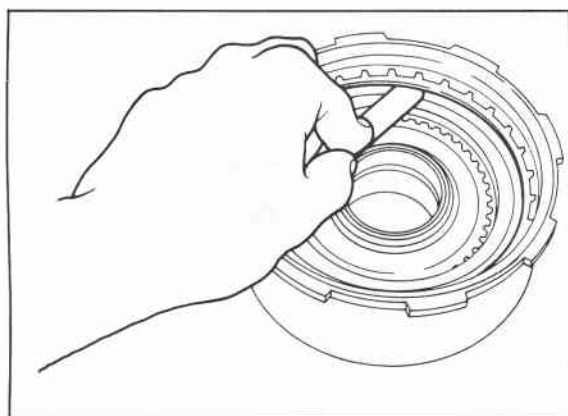
FRONT CLUTCH

Disassembly

Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked parts.



1. Snap ring
2. Retaining plate
3. Drive and driven plates
4. Dished plate
5. Snap ring
6. Spring retainer
7. Return spring
8. Piston
9. Seal rings
10. Rear clutch drum



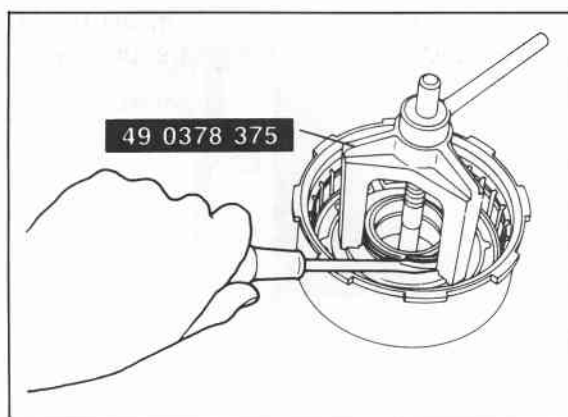
Disassembly note Front clutch clearance

Before disassembling the front clutch, measure the front clutch clearance.

Front clutch clearance:
1.6—1.8 mm (0.063—0.071 in)

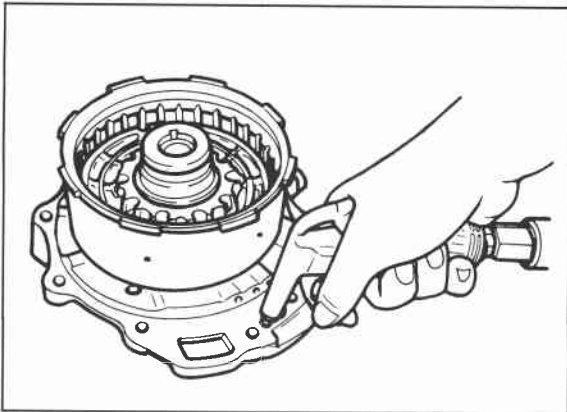
Note

If the clearance is not within specification, adjust by using the retaining plate at the time of assembly. (Refer to page 7C—60.)



Snap ring

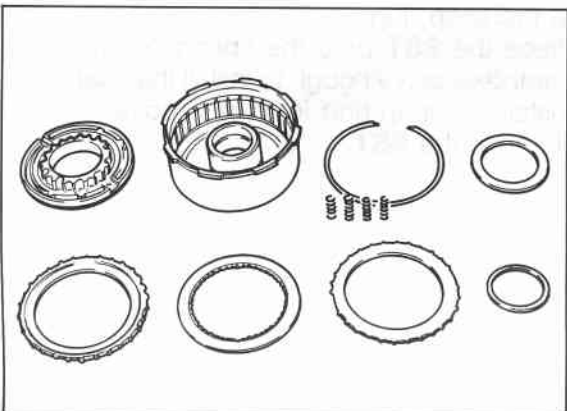
Compress the clutch spring with the **SST**, and remove the snap ring with a screwdriver.



76G07C-142

Piston

Remove the piston by blowing compressed air into the hole indicated.



76G07C-143

Inspection

Check the following and repair or replace any faulty parts.

1. Drive and driven plates for damage or wear

Drive plate thickness

Standard: 1.6 mm (0.063 in)

Minimum: 1.4 mm (0.055 in)

2. Clutch piston for damage or cracks
3. Clutch drum for damage or deformation
4. Seal contact areas for damage
5. Check ball for leaking or sticking
6. Spring retainer for deformation
7. Broken or worn snap ring
8. Broken or weakened spring

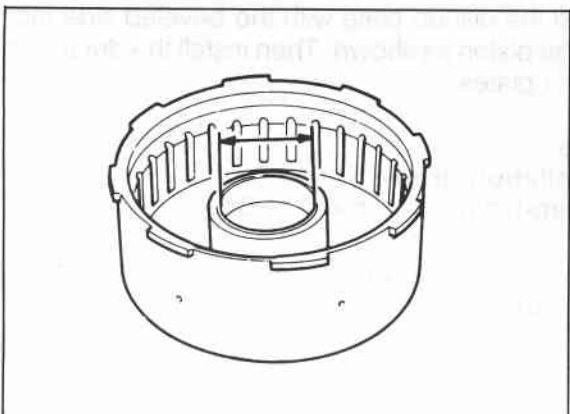
Free length of spring:

26.2 mm (1.031 in)

9. Worn drum bushing

Drum bushing inner diameter:

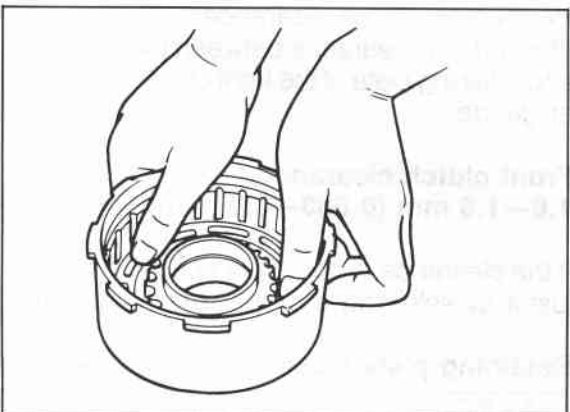
44.075 mm (1.735 in) max.



76G07C-144

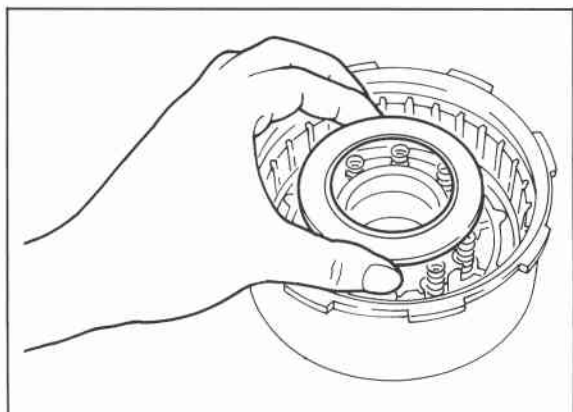
Assembly

1. Apply ATF to the inner seal ring, and install it into the rear clutch drum.
2. Apply ATF to the outer seal ring, and install it onto the piston.
3. Install the piston by pushing evenly around the circumference, being careful not to damage the seal rings.



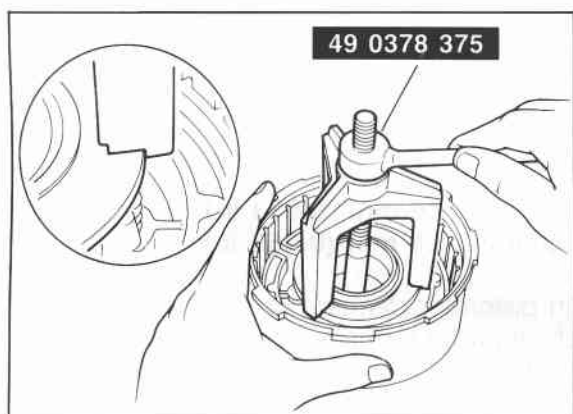
76G07C-145

7C INSPECTION AND REPAIR



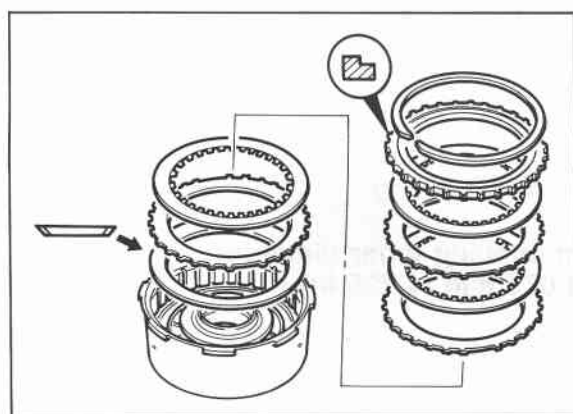
76G07C-146

4. Install the return springs and the spring retainer.



76G07C-147

5. Install the snap ring.
- (1) Place the **SST** onto the spring retainer and compress only enough to install the snap ring.
 - (2) Install the snap ring into the groove.
 - (3) Remove the **SST**.



76G07C-148

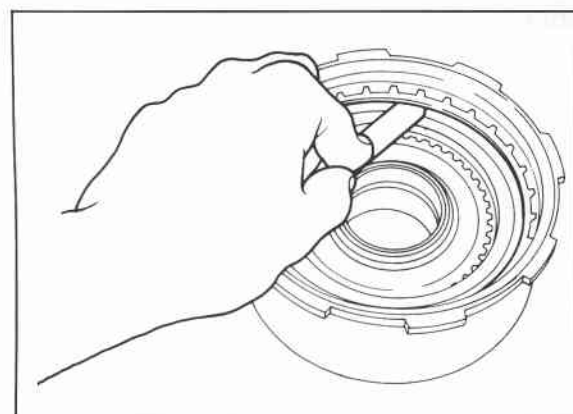
6. Install the dished plate with the beveled side facing the piston as shown. Then install the drive and driven plates.

Note

Installation order:

Driven-Drive-Driven-Drive-Driven-Drive

7. Install the retaining plate with the step facing upward; then install the snap ring.



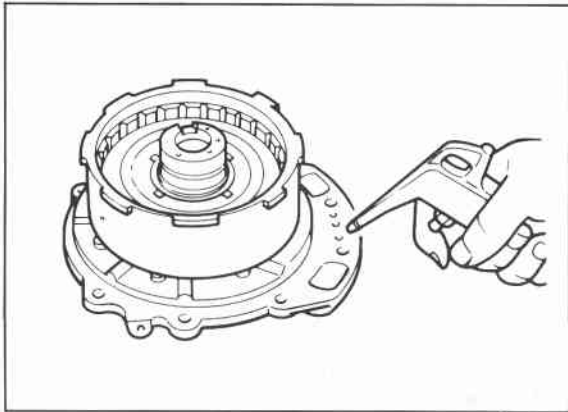
76G07C-149

8. Check the front clutch clearance.
- (1) Measure the clearance between the snap ring and retaining plate of the front clutch with a feeler gauge.
- Front clutch clearance:**
1.6—1.8 mm (0.063—0.071 in)
- (2) If the clearance is not within specification, adjust it by selecting a proper retaining plate.

Retaining plate sizes

mm (in)

5.2 (0.205)	5.4 (0.213)	5.6 (0.220)
5.8 (0.228)	6.0 (0.236)	6.2 (0.244)

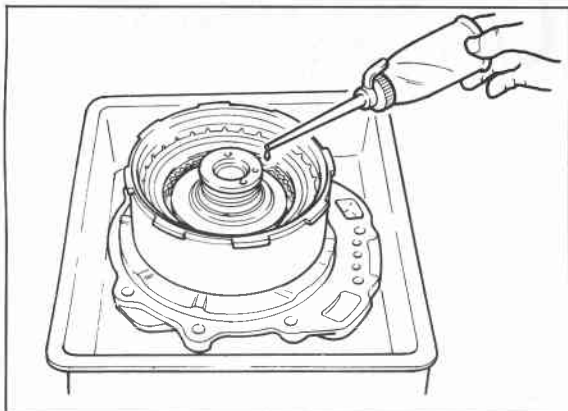


76G07C-150

9. Check the front clutch operation.
 - (1) Set the clutch assembly onto the oil pump.
 - (2) Check the front clutch operation by applying compressed air through the fluid passage shown.

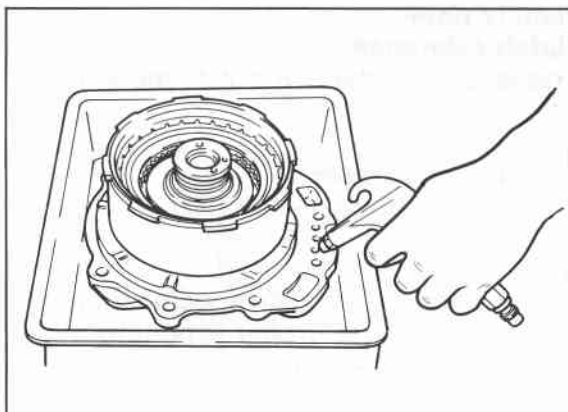
Air pressure:
392 kPa (4.0 kg/cm², 57 psi) max.

Caution
Apply air for no more than 3 seconds.



76G07C-151

- (3) Pour ATF into the front clutch until the clutch piston is fully submerged.



76G07C-152

- (4) Check that no bubbles come from between the piston and drum seal while applying compressed air through the fluid passage shown.

Air pressure:
392 kPa (4.0 kg/cm², 57 psi) max.

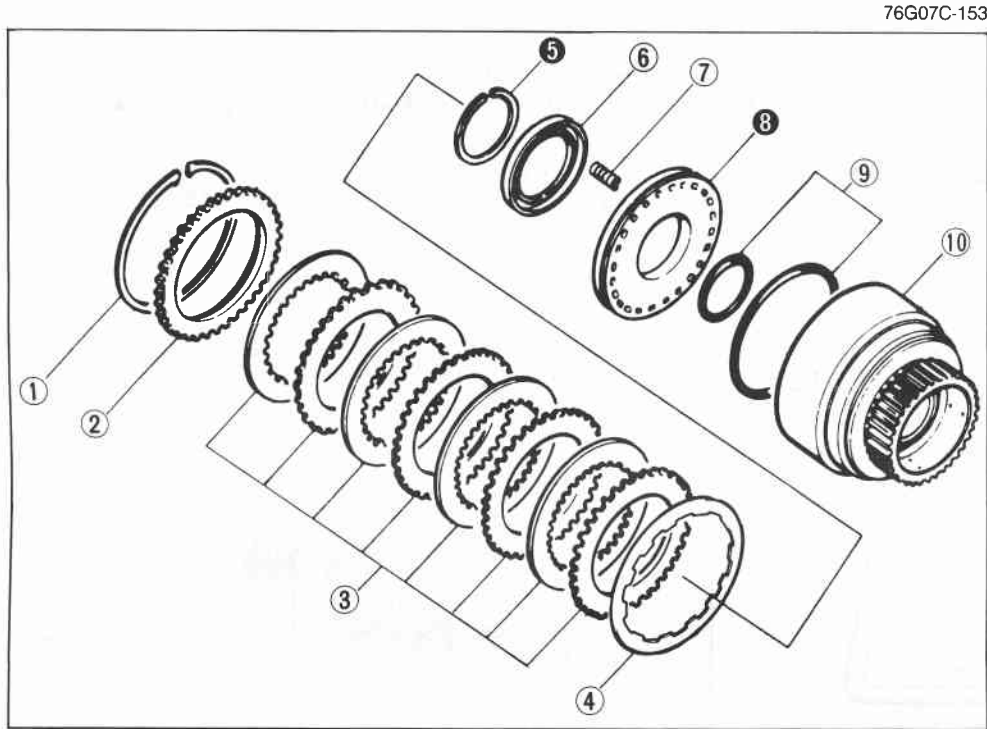
Caution
Apply air for no more than 3 seconds.

7C INSPECTION AND REPAIR

REAR CLUTCH

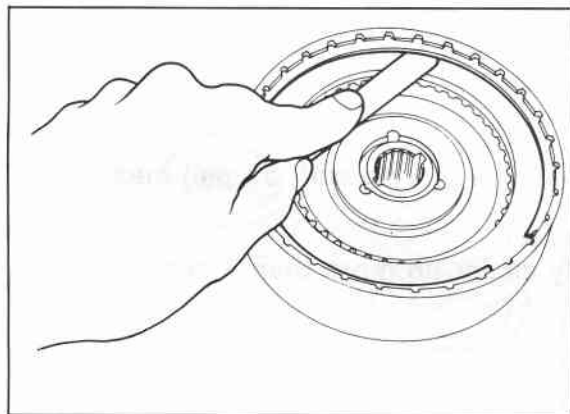
Disassembly

Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked parts.



1. Snap ring
2. Retaining plate
3. Drive and driven plates
4. Dished plate
5. Snap ring
6. Spring retainer
7. Return spring
8. Piston
9. Seal rings
10. Rear clutch drum

63U07B-109



Disassembly note

Rear clutch clearance

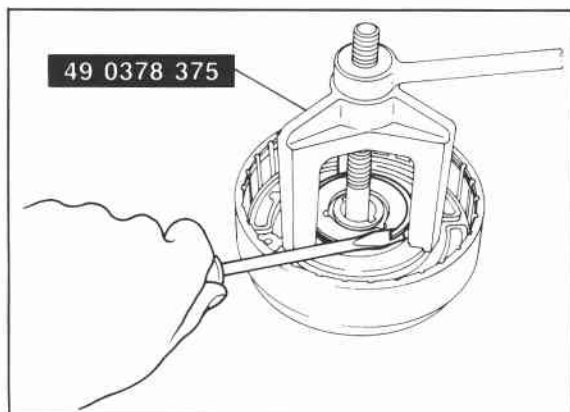
Before disassembling the rear clutch, measure the rear clutch clearance.

Rear clutch clearance:

0.8—1.0 mm (0.031—0.039 in)

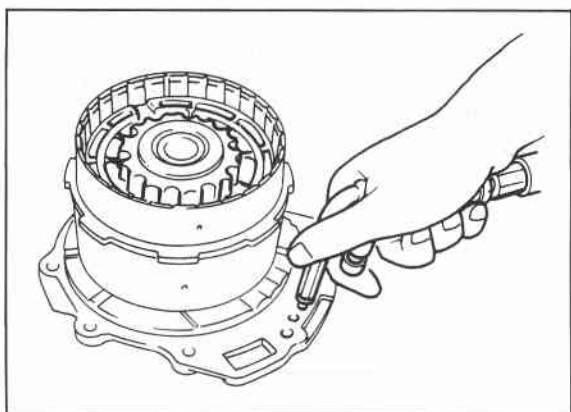
Note

If the clearance is not within specification, adjust it by selecting a proper retaining plate. (Refer to page 7C—64.)



Snap ring

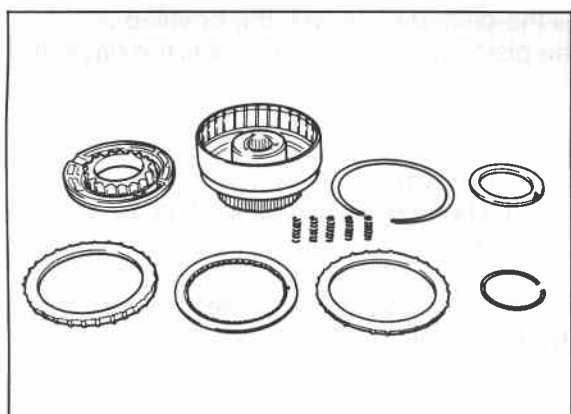
Compress the clutch spring, with the **SST** ; then remove the snap ring with a screwdriver.



76G07C-156

Piston

Remove the piston by blowing compressed air into the fluid hole as shown.



76G07C-157

Inspection

Check the following and repair or replace any faulty parts.

1. Drive and driven plates for damage or wear

Drive plate thickness

Standard: 1.6 mm (0.063 in)

Minimum: 1.4 mm (0.055 in)

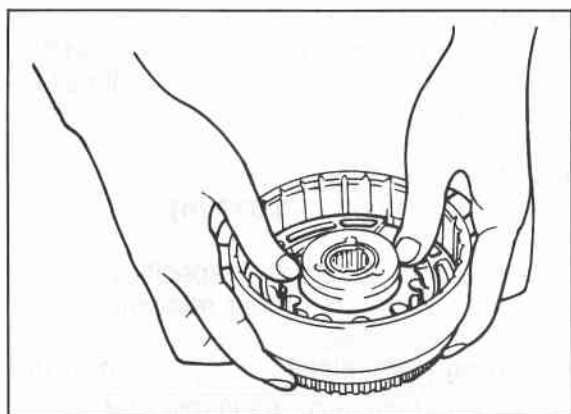
2. Clutch piston for damage or cracks
3. Clutch drum for damage or deformation
4. Seal contact areas for damage
5. Check ball for leaking or sticking
6. Spring retainer for deformation
7. Broken or worn snap ring
8. Broken or weakened spring

Free length of spring:

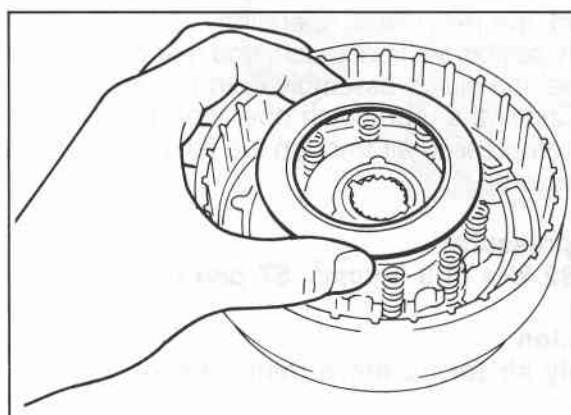
26.2 mm (1.031 in)

Assembly

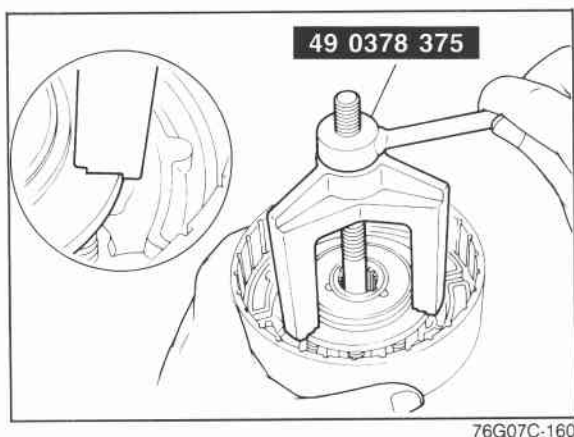
1. Apply ATF to the inner seal ring and install it into the rear clutch drum.
2. Apply ATF to the outer seal ring, and install it onto the piston.
3. Install the piston by pushing evenly around the circumference, being careful not to damage the seal rings.
4. Install the return springs and spring retainer into the piston.



76G07C-158

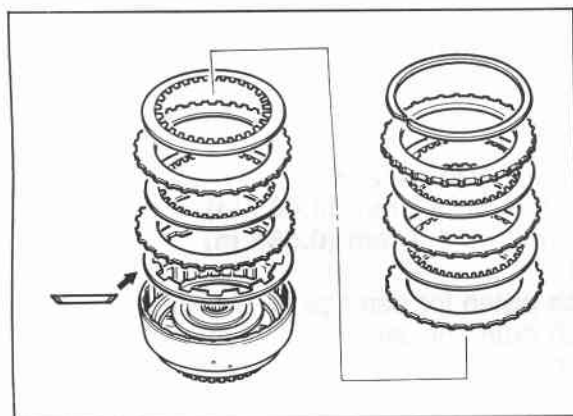


76G07C-159



76G07C-160

5. Install the snap ring.
 - (1) Place the **SST** on the spring retainer and compress only enough to install the snap ring.
 - (2) Install the snap ring in the groove.
 - (3) Remove the **SST**.



76G07C-161

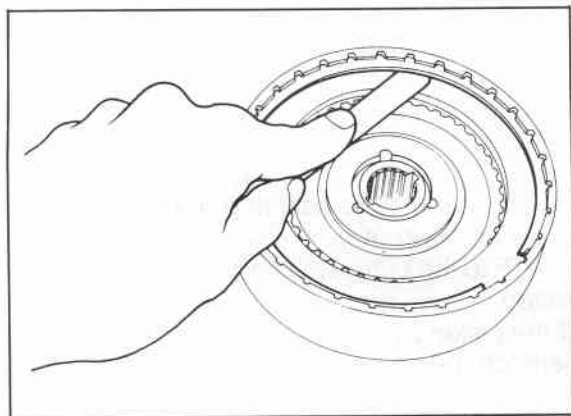
6. Install the dished plate with the beveled side facing the piston as shown; then install the drive and driven plates.

Note

Installation order:

Driven-Drive-Driven-Drive-Driven-Drive-Driven-Drive

7. Install the retaining plate with the step facing upward; then install the snap ring.



76G07C-162

8. Check the rear clutch clearance.
 - (1) Measure the clearance between the snap ring and retaining plate of the rear clutch with a feeler gauge.

Rear clutch clearance:

0.8—1.0 mm (0.031—0.039 in)

- (2) If the clearance is not within specification, adjust it by selecting a proper retaining plate.

Retaining plate sizes

mm (in)

4.8 (0.189)	5.0 (0.197)	5.2 (0.205)	5.4 (0.213)
5.6 (0.220)	5.8 (0.228)	6.0 (0.236)	6.2 (0.244)

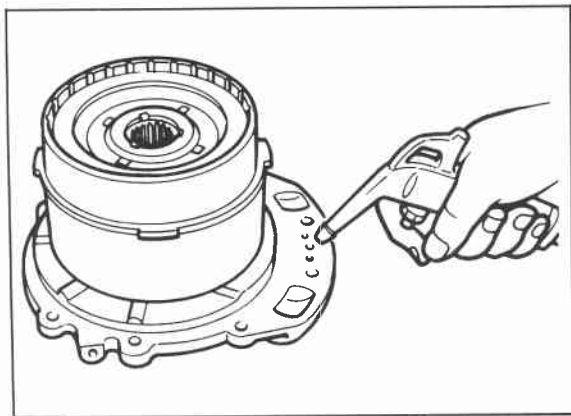
9. Check the rear clutch operation.
 - (1) Assemble the front clutch, and rear clutch; then set the clutch assembly onto the oil pump.
 - (2) Check the rear clutch operation by applying compressed air through the fluid passage as shown.

Air pressure:

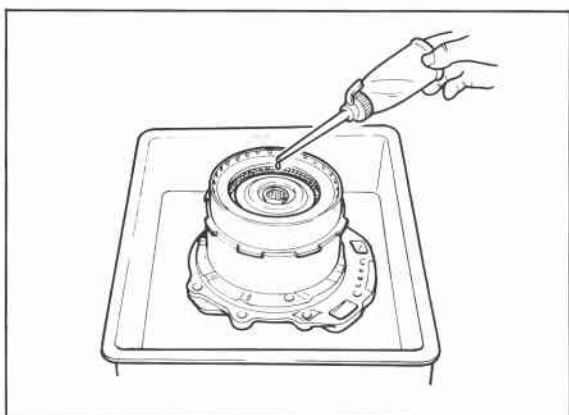
392 kPa (4.0 kg/cm², 57 psi) max.

Caution

Apply air for no more than 3 seconds.

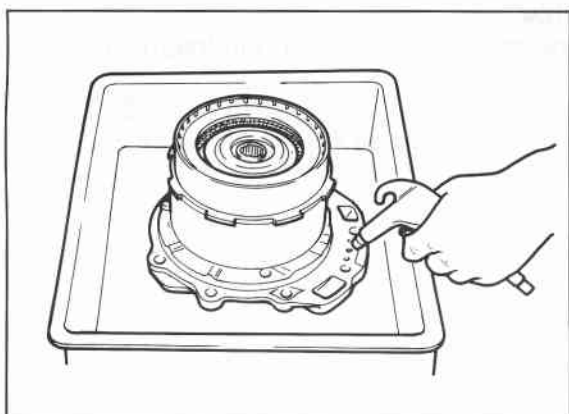


76G07C-163



76G07C-164

- (3) Pour ATF into the rear clutch until the clutch piston is fully submerged.



76G07C-165

- (4) Check that no bubbles come from between the piston and drum seal while applying compressed air through the fluid passage shown.

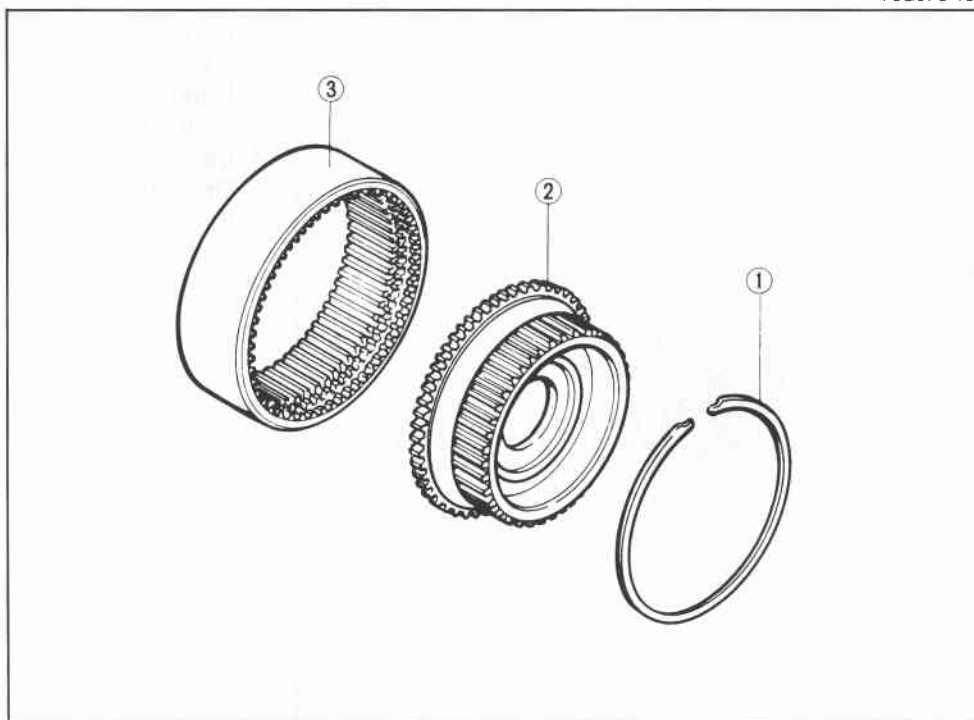
Air pressure:
392 kPa (4.0 kg/cm², 57 psi) max.

Caution
Apply air for no more than 3 Seconds

REAR CLUTCH HUB Disassembly

Disassemble in the sequence shown in the figure.

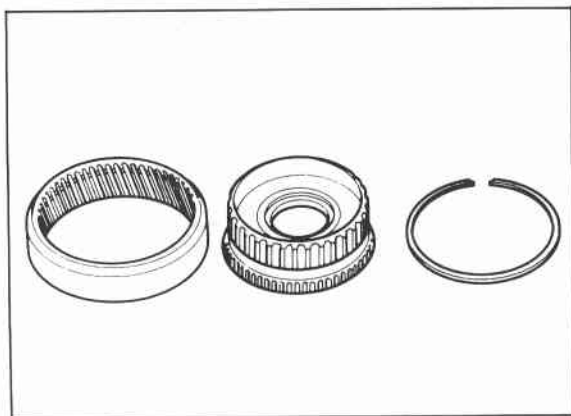
76G07C-166



63U07B-124

1. Snap ring
2. Rear clutch hub
3. Internal gear

7C INSPECTION AND REPAIR



76G07C-167

Inspection

Check the following and replace any faulty parts.

1. Broken or worn snap ring
2. Damaged or worn internal gear

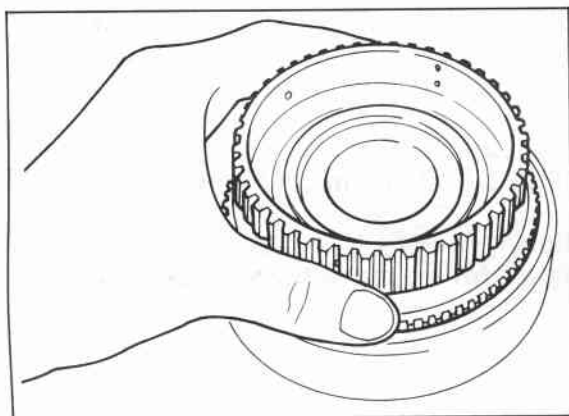
Assembly

1. Set the rear clutch hub into the internal gear.

Note

Align the splines of the rear clutch hub and internal gear

2. Install the snap ring.



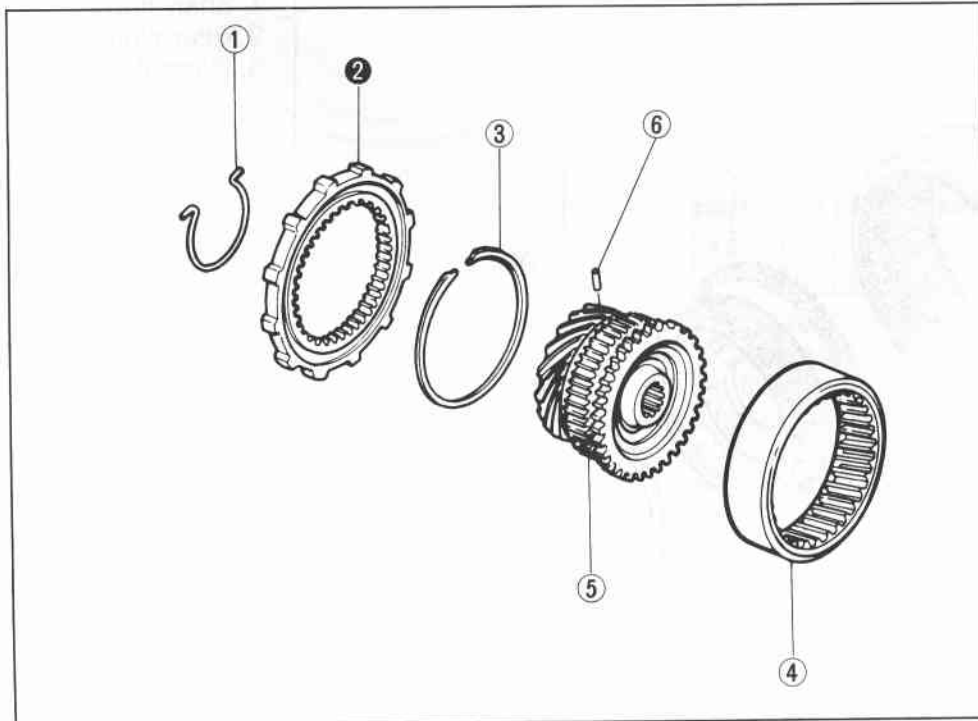
76G07C-168

DRUM HUB

Disassembly

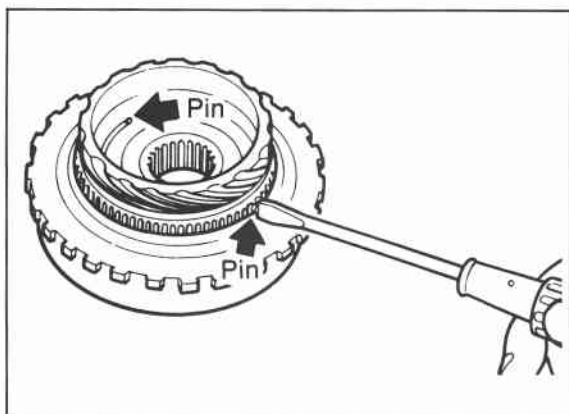
Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked part.

76G07C-169



1. Parking gear spring
2. Parking gear
3. Snap ring
4. Internal gear
5. Drive hub
6. Pin

76G07C-170

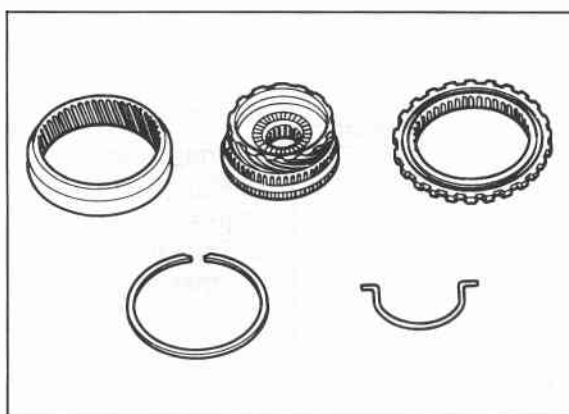


76G07C-171

Disassembly note

Parking gear

Remove the parking gear from the drive hub by first removing the parking gear spring by pushing in the two pins which project from the internal gear.

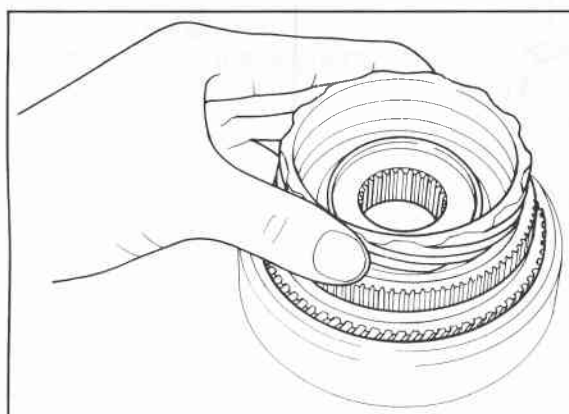


76G07C-172

Inspection

Check the following and replace any faulty parts.

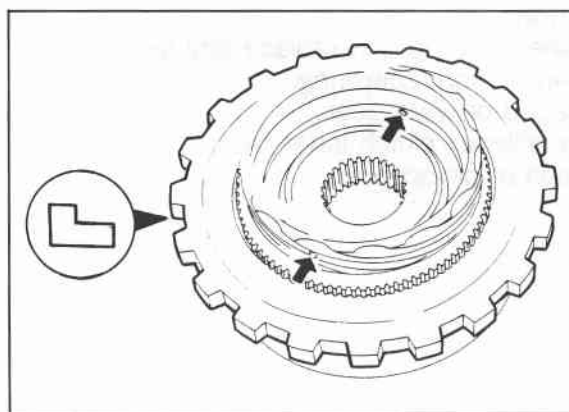
1. Broken or worn snap ring
2. Damaged or worn gear



76G07C-173

Assembly

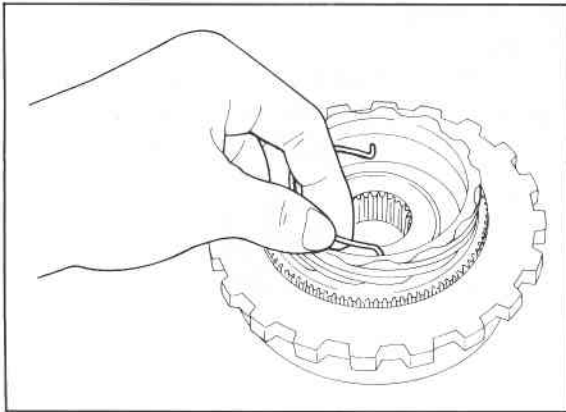
1. Install the drive hub to the internal gear; then install the snap ring.



76G07C-174

2. Install the parking gear onto the drive hub with the step facing upward.
3. Apply petroleum jelly to the pins to secure them; then install them into the drive hub.

7C INSPECTION AND REPAIR



76G07C-175

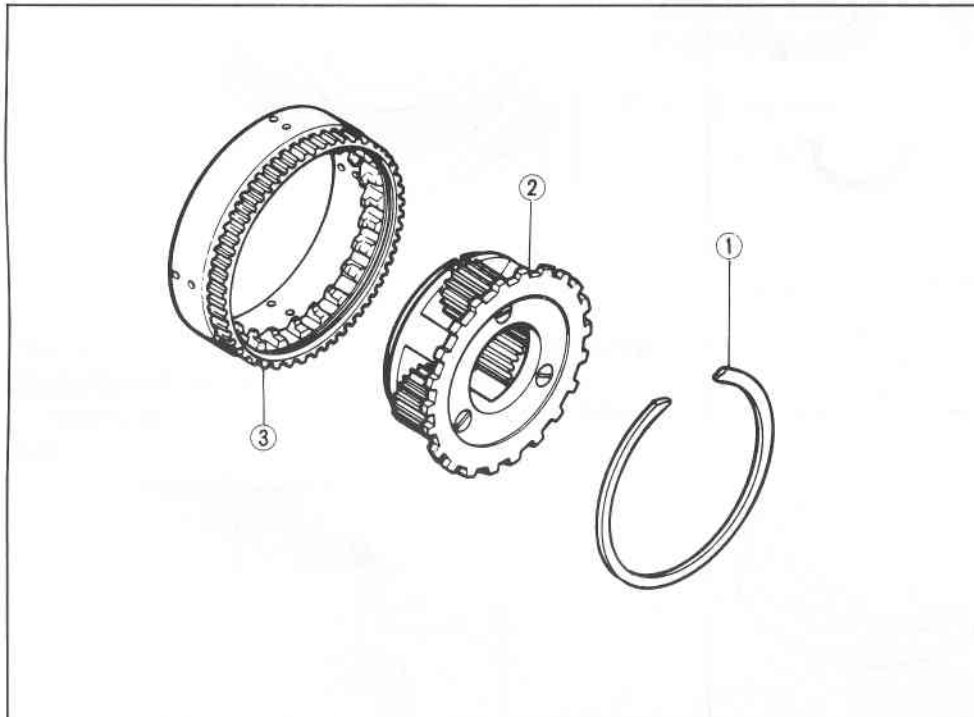
4. Install the parking gear spring.

ONE-WAY CLUTCH INNER RACE

Disassembly

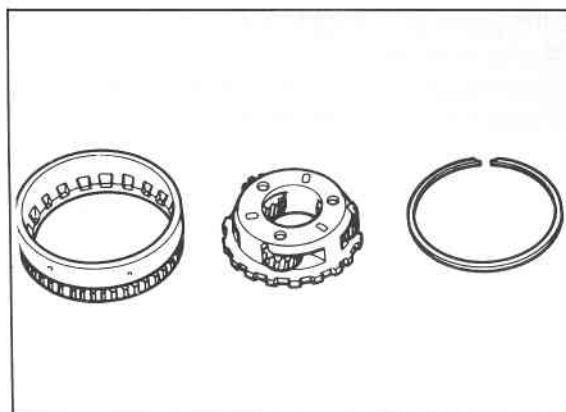
Disassemble in the sequence shown in the figure.

76G07C-176



1. Snap ring
2. Planetary carrier (Rear)
3. One-way clutch inner race

63U07B-127

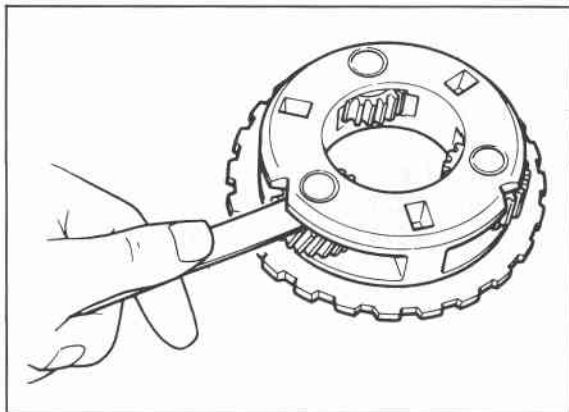


76G07C-177

Inspection

Check the following and replace any faulty parts.

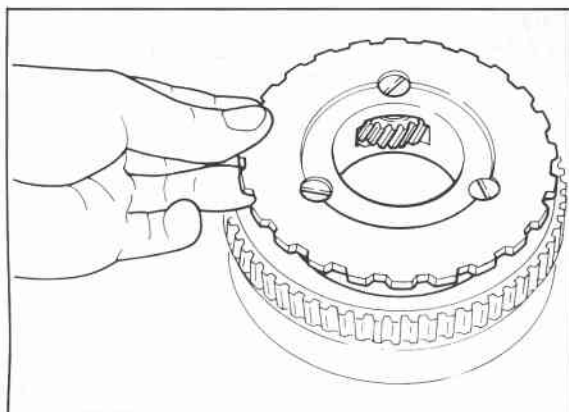
1. Broken or worn snap ring
2. Damaged or worn gear
3. Worn one-way clutch inner race
4. Rotation of pinion gear



76G07C-178

5. Clearance between the pinion washer and planetary carrier

Clearance: 0.8 mm (0.031 in) max.



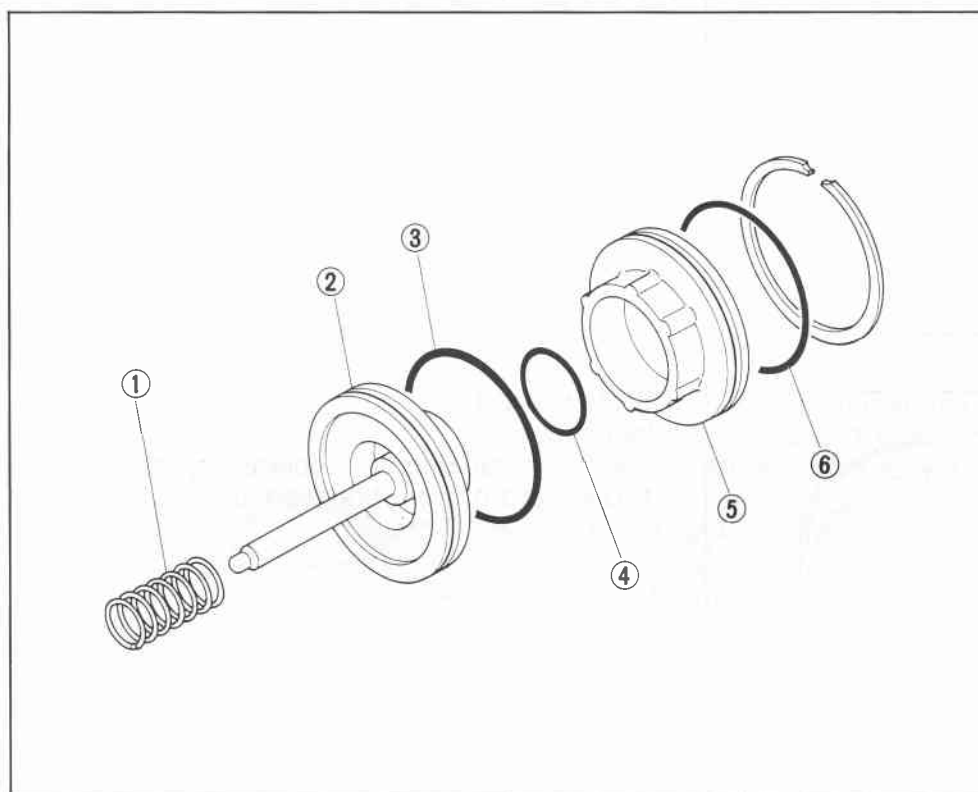
76G07C-179

Assembly

Install the rear planetary carrier into the one-way clutch inner race; then install the snap ring.

BAND SERVO

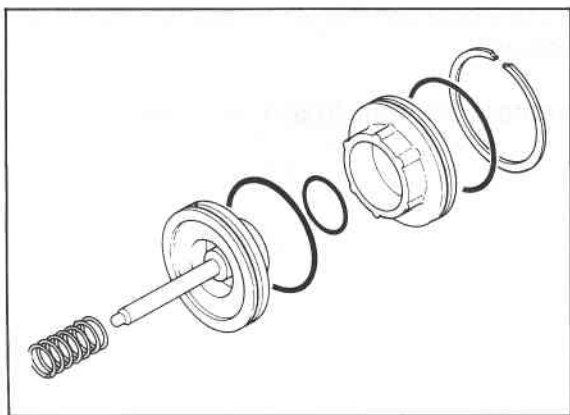
Disassemble in the sequence shown in the figure.



76G07C-180

1. Return spring
2. Servo piston
3. Outer seal ring
4. Inner seal ring
5. Servo retainer
6. Seal ring

7C INSPECTION AND REPAIR



76G07C-181

Inspection

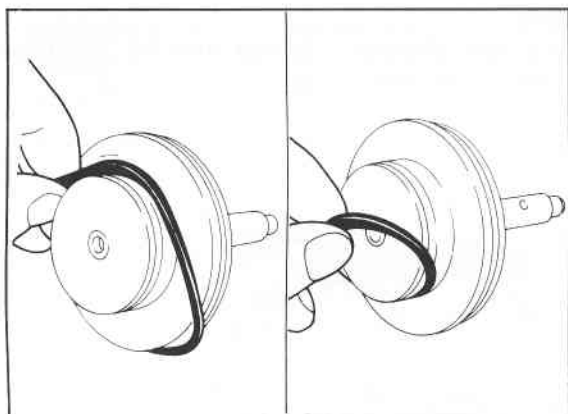
Check the following and replace any faulty parts.

1. Damaged or worn piston
2. Weakened return spring

Free length of spring:

FE engine: 48.0 mm (1.89 in)

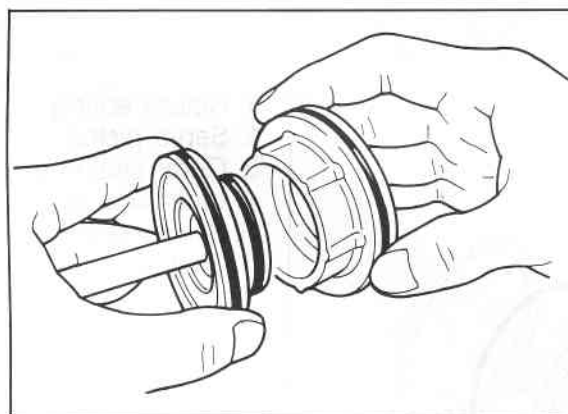
F6 engine: 45.5 mm (1.79 in)



76G07C-182

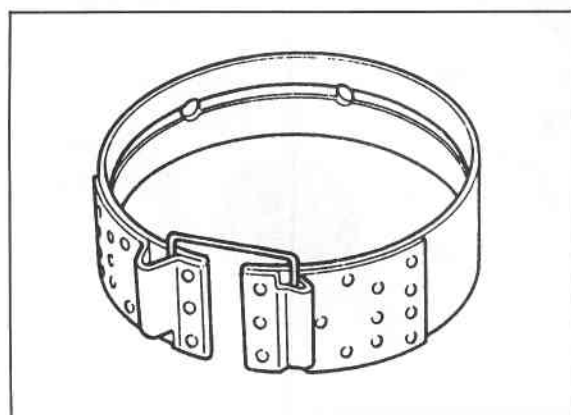
Assembly

1. Apply ATF to the inner and outer seal rings, and install them onto the servo piston.



76G07C-183

2. Apply ATF to the seal ring, and install it onto the servo retainer.
3. Assemble the servo retainer and servo piston.



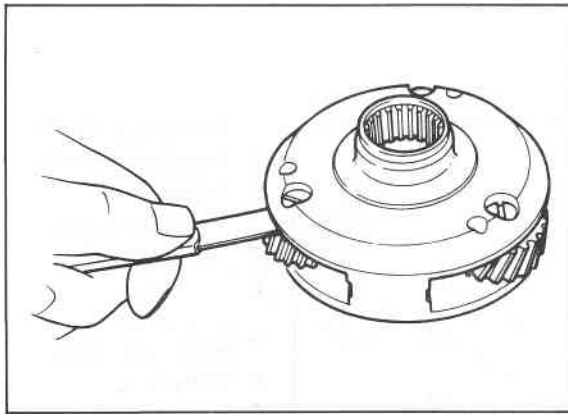
76G07C-184

BRAKE BAND

Inspection

Check the following and replace any faulty part.

1. Damaged or worn brake band



76G07C-185

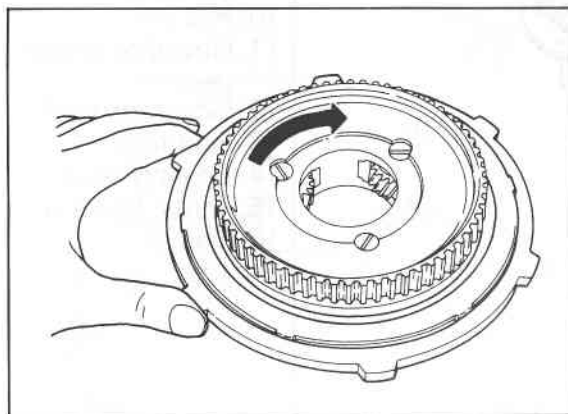
PLANETARY CARRIER (FRONT)

Inspection

Check the following and replace any faulty parts.

1. Rotation of pinion gear
2. Clearance between pinion washer and planetary carrier

Clearance: 0.8 mm (0.031 in) max.



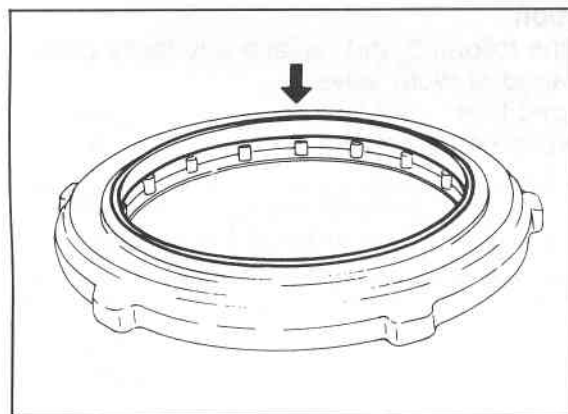
76G07C-186

ONE-WAY CLUTCH

Inspection

Check the following and replace any faulty parts.

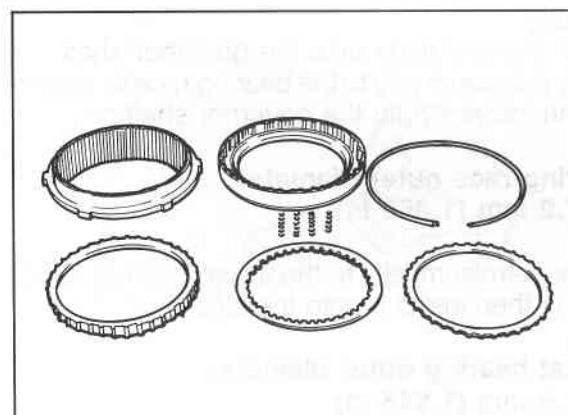
1. One-way clutch operation
 - (1) Install the one-way clutch into the one-way clutch inner race.
 - (2) Make sure that when the one-way clutch is held and the inner race is turned, the clutch turns smoothly in one direction only.



76G07C-187

2. Worn bushing

**Bushing inner diameter:
130.063 mm (5.121 in) max.**



76G07C-188

LOW AND REVERSE BRAKE

Inspection

Check the following and replace any faulty parts.

1. Damaged or worn drive and driven plates

Drive plate thickness
Standard: 1.6 mm (0.063 in)
Minimum: 1.4 mm (0.055 in)

2. Broken or worn snap ring
3. Deformed low and reverse brake hub
4. Broken or weakened spring

Free length of spring:
27.7 mm (1.091 in)

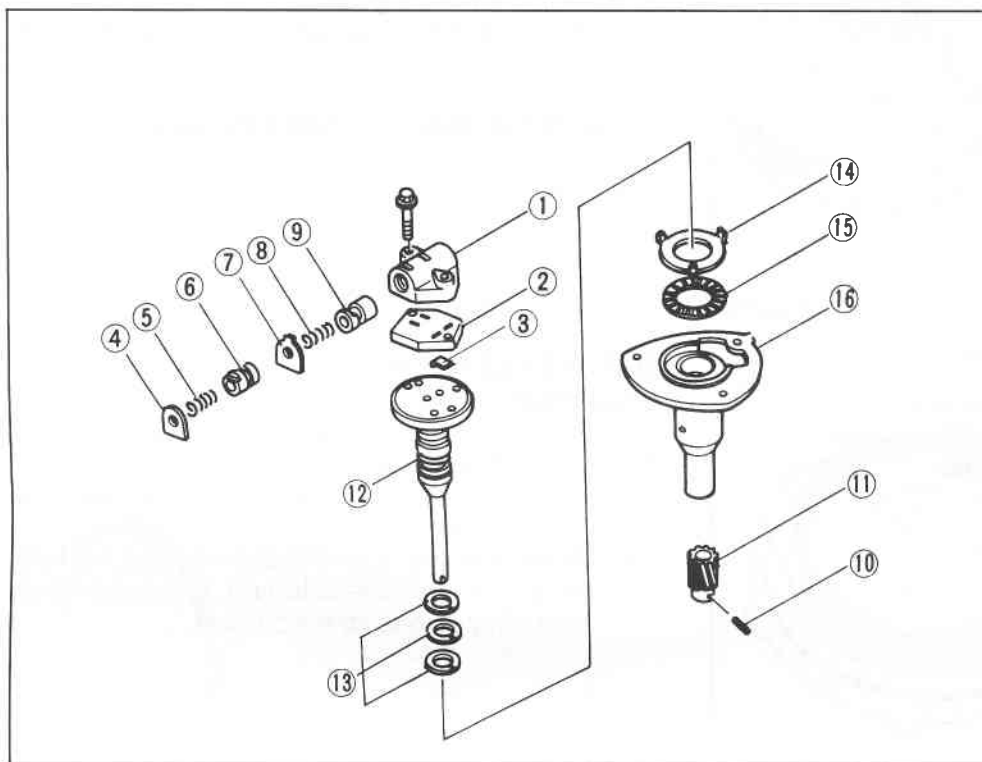
5. Damaged or worn piston
6. Damaged seal contact area of transaxle case

7C INSPECTION AND REPAIR

GOVERNOR Disassembly

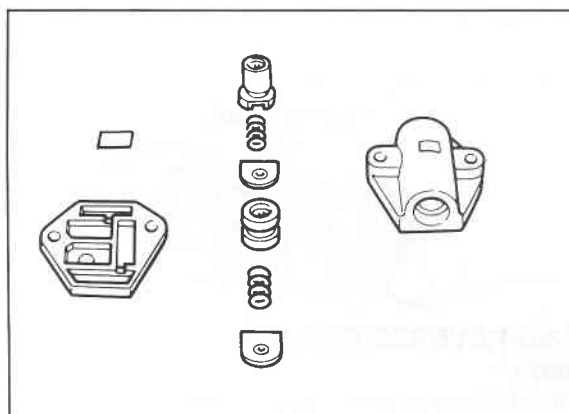
Disassemble in the sequence shown in the figure.

76G07C-189



1. Governor body
2. Separate plate
3. Filter
4. Retainer plate
5. Return spring
6. Primary governor
7. Retainer plate
8. Return spring
9. Secondary governor
10. Roll pin
11. Governor driven gear
12. Governor shaft
13. Seal ring
14. Bearing race
15. Thrust bearing
16. Sleeve

76G07C-190



76G07C-191

Inspection

Check the following and replace any faulty parts.

1. Damaged or worn valve
2. Clogged filter
3. Weakened return spring

	Outer diameter	Free length
Primary spring	9.0 mm (0.354 in)	17.2 mm (0.667 in)
Secondary spring	9.25 mm (0.364 in)	13.2 mm (0.520 in)

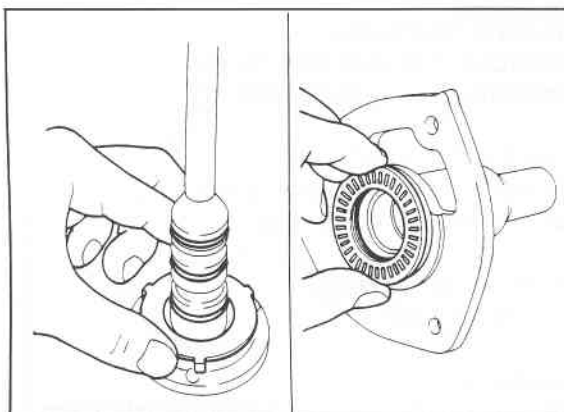
Assembly

1. Install the seal rings onto the governor shaft.
2. Apply petroleum jelly to the bearing race to secure it; then install it onto the governor shaft.

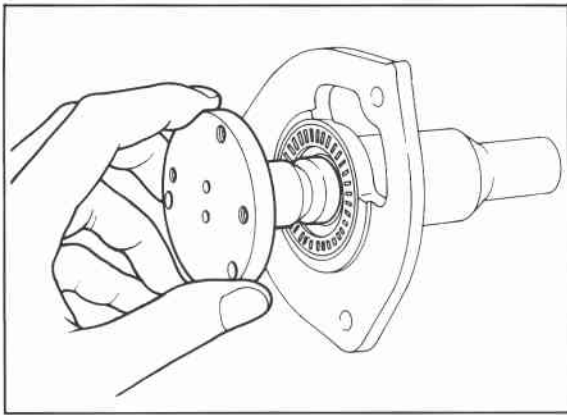
Bearing race outer diameter:
47.0 mm (1.850 in)

3. Apply petroleum jelly to the thrust bearing to secure it; then install it onto the sleeve.

Thrust bearing outer diameter:
46.9 mm (1.846 in)

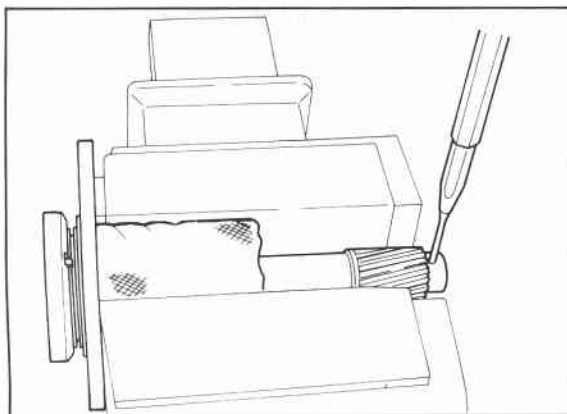


76G07C-192



76G07C-193

4. Install the governor shaft into the sleeve.

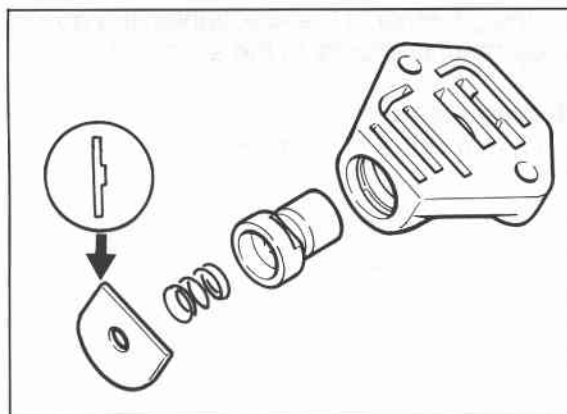


76G07C-194

5. Secure the governor in a vise; then install the governor driven gear with the roll pin.

Note

Use protective plates in the vice to prevent damage to the governor.

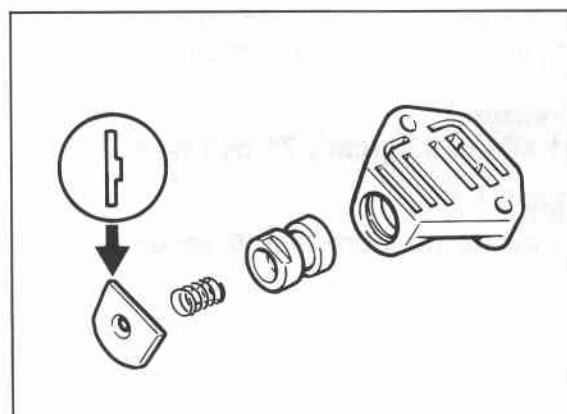


76G07C-195

6. Install the secondary governor valve and return spring; then install the retainer plate.

Note

Install the retainer plate with the spring fit over the pin.



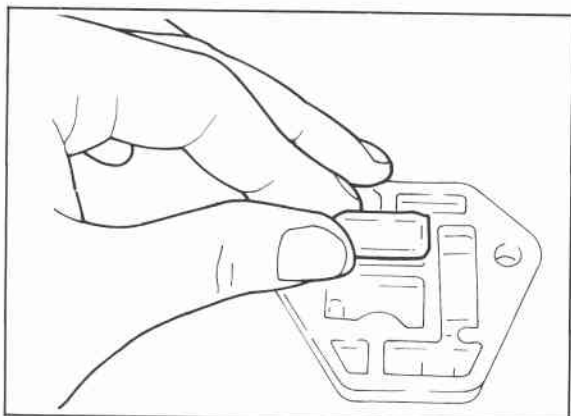
76G07C-196

7. Install the primary governor and return spring; then install the retainer plate.

Note

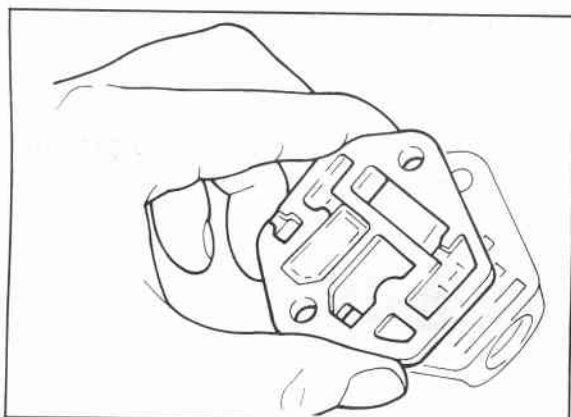
Install the retainer plate with the spring fit over the pin.

7C INSPECTION AND REPAIR



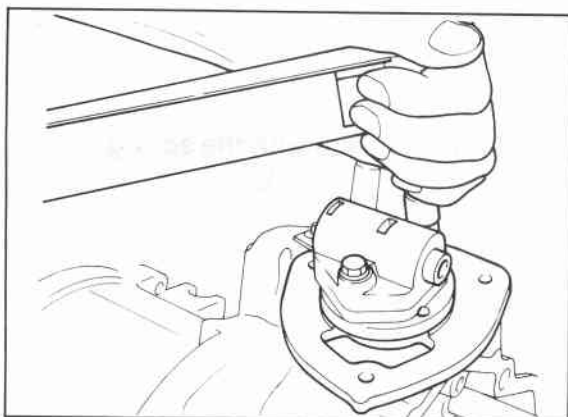
76G07C-197

8. Install the filter into the separate plate.



76G07C-198

9. Set the separate plate onto the governor body.



76G07C-199

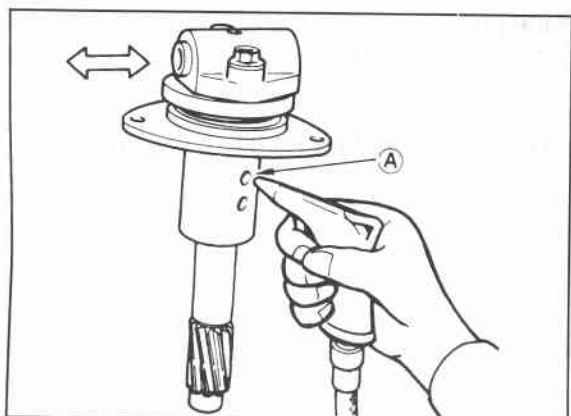
10. Secure the governor in the vise; tighten the governor body mounting bolts to the specified torque.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

Note

Use protective plates in the vice to prevent damage to the governor.



76G07C-200

11. Check that when compressed air is blown through port A, the valve functions (rattles).

Air Pressure:

491 kPa (5.0 kg/cm², 71 psi) max.

Caution

Apply air for no more than 5 seconds.

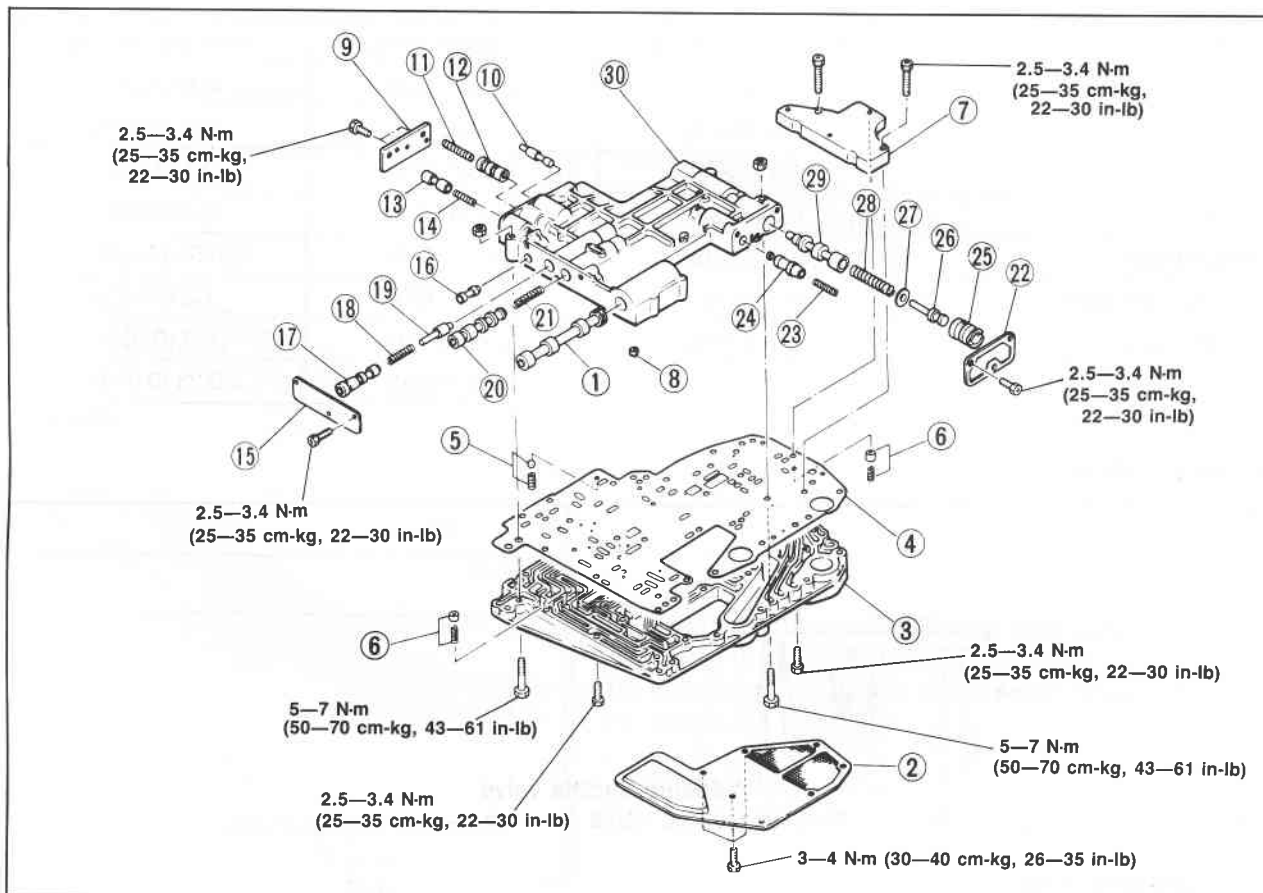
CONTROL VALVE BODY

Precaution

- (1) Pay close attention when handling the control valve because it consists of the most precise and delicate parts of the transaxle.
- (2) Neatly arrange the removed parts in order to avoid mixing up similar parts.
- (3) Disassemble the control valve assembly and thoroughly clean it when the clutch and/or brake bands are burned, and/or when the automatic transaxle fluid is degenerated.

Disassembly

Disassemble in the sequence shown in the figure.



76G07C-201

- | | | |
|------------------------------------|---------------------------|-------------------------------|
| 1. Manual valve | 10. Vacuum throttle valve | 21. Spring |
| 2. Oil strainer | 11. Spring | 22. Side plate |
| 3. Lower body | 12. Throttle backup valve | 23. Spring |
| 4. Separator plate | 13. Downshift valve | 24. Second lock valve |
| 5. Throttle relief ball and spring | 14. Spring | 25. Pressure regulator sleeve |
| 6. Orifice check valve and spring | 15. Side plate | 26. Pressure regulator plug |
| 7. Sub-body | 16. Modifier valve | 27. Spring seat |
| 8. Orifice check valve | 17. 2-3 shift valve | 28. Spring |
| 9. Side plate | 18. Spring | 29. Pressure regulator valve |
| | 19. 2-3 shift plug | 30. Upper body |
| | 20. 1-2 shift valve | |

7C INSPECTION AND REPAIR

Inspection

Check the following and replace any faulty parts.

1. Damaged or worn valves
2. Damaged oil passage
3. Cracked or damaged valve body
4. Operation of each valve
5. Weakened spring

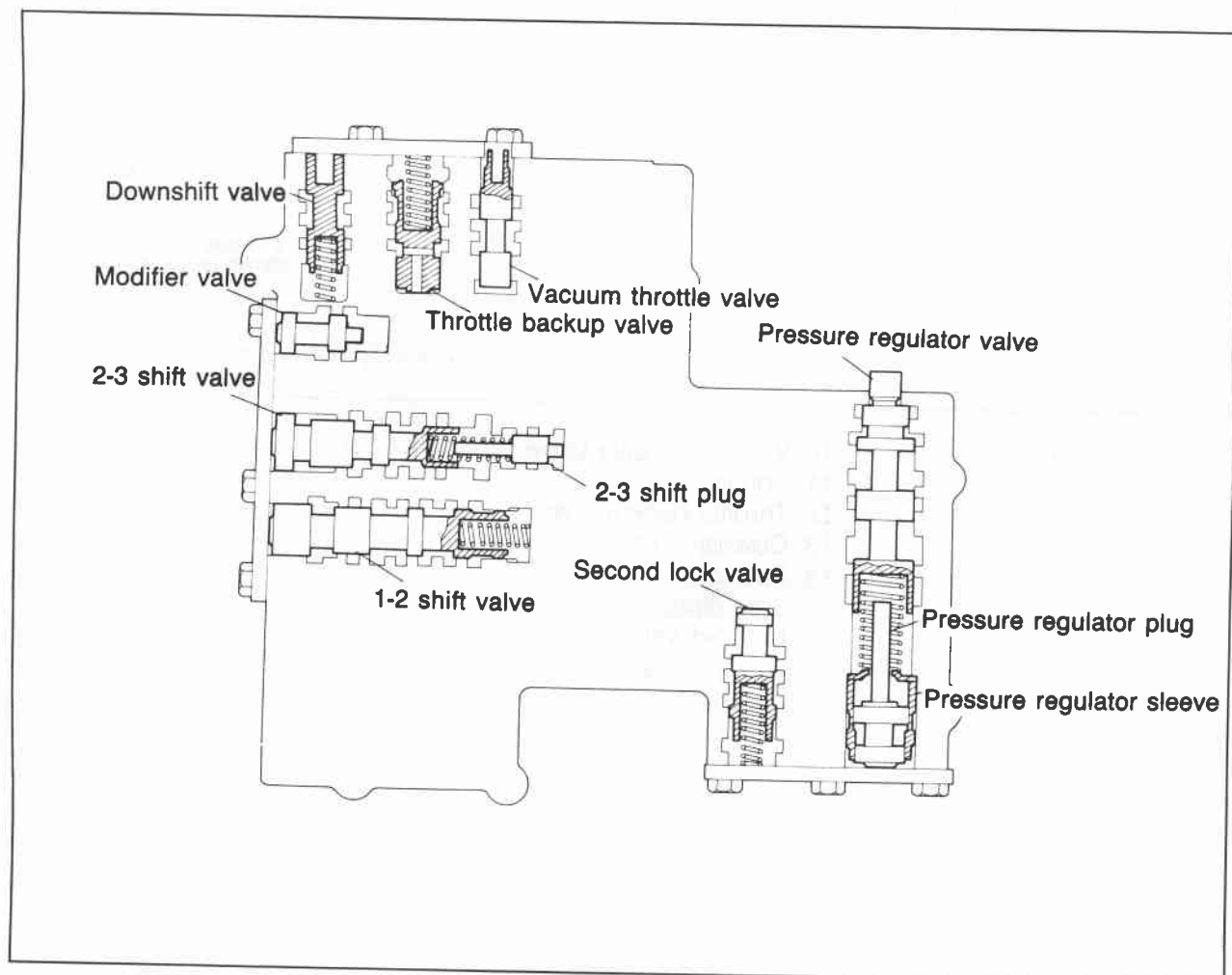
76G07C-202

Spring

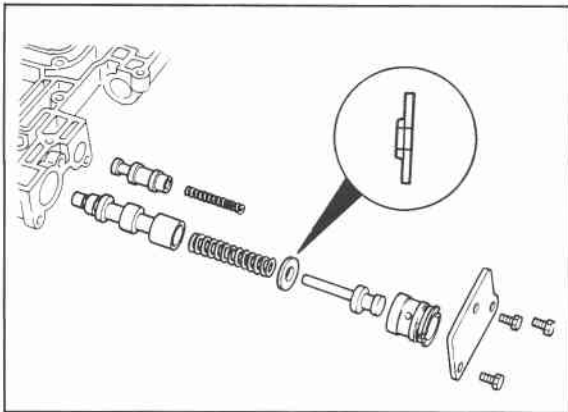
Name	Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)
Throttle backup	7.3 (0.287)	36.0 (1.417)	0.8 (0.031)
Downshift	5.55 (0.219)	21.9 (0.862)	0.55 (0.022)
2-3 shift	6.9 (0.272)	41.0 (1.614)	0.7 (0.028)
1-2 shift	6.4 (0.252)	31.63 (1.245)	0.4 (0.016)
Second lock	5.55 (0.219)	33.5 (1.319)	0.55 (0.022)
Pressure regulator	11.7 (0.461)	43.0 (1.693)	1.2 (0.047)
Throttle relief	7.0 (0.276)	11.2 (0.441)	0.9 (0.035)
Orifice check	5.0 (0.197)	15.5 (0.610)	0.23 (0.009)

76G07C-203

Valve Location



63U07B-500



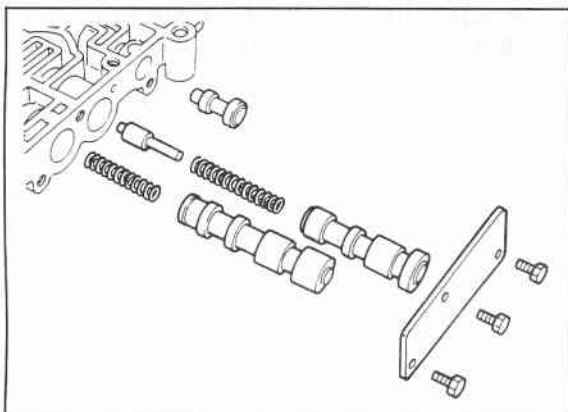
76G07C-204

Assembly

1. Install the pressure regulator valve, spring, spring seat, pressure regulator plug, and pressure regulator sleeve.
2. Install the second lock valve and spring.
3. Install the side plate.

Tightening torque:

2.5—3.4 N·m (25—35 cm·kg, 22—30 in·lb)

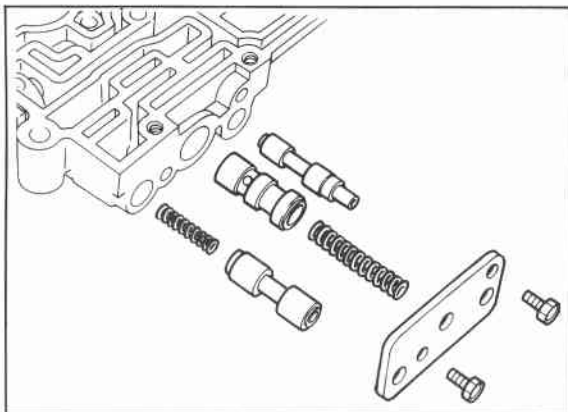


76G07C-205

4. Install the 1-2 shift spring, and valve.
5. Install the 2-3 shift plug, spring, and 2-3 shift valve.
6. Install the modifier valve.
7. Install the side plate.

Tightening torque:

2.5—3.4 N·m (25—35 cm·kg, 22—30 in·lb)

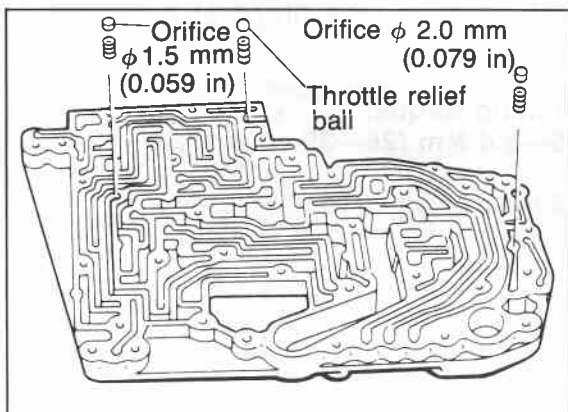


76G07C-206

8. Install the downshift spring, and valve.
9. Install the throttle backup valve and spring.
10. Install the vacuum throttle valve.
11. Install the side plate.

Tightening torque:

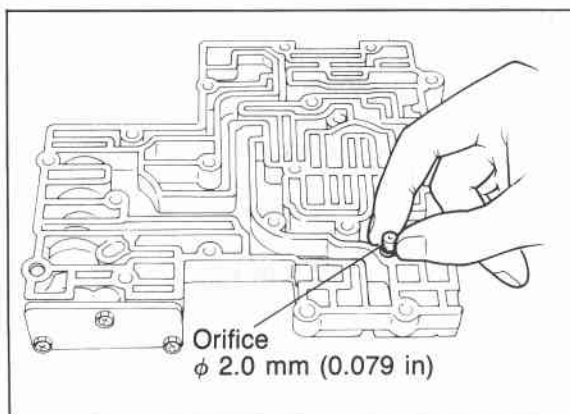
2.5—3.4 N·m (25—35 cm·kg, 22—30 in·lb)



76G07C-207

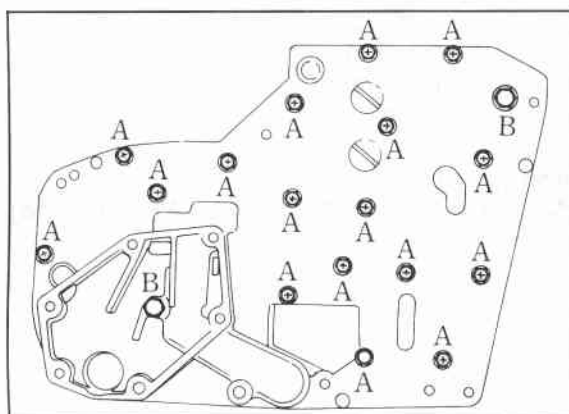
12. Install the orifice check valves ($\phi 2.0$ mm, (0.079 in), 1.5 mm (0.059 in)) and springs, and throttle relief ball and spring in the lower body as shown.

7C INSPECTION AND REPAIR



76G07C-208

13. Install the orifice check valve ($\phi 2.0$ mm (0.079 in)) in the upper body as shown.

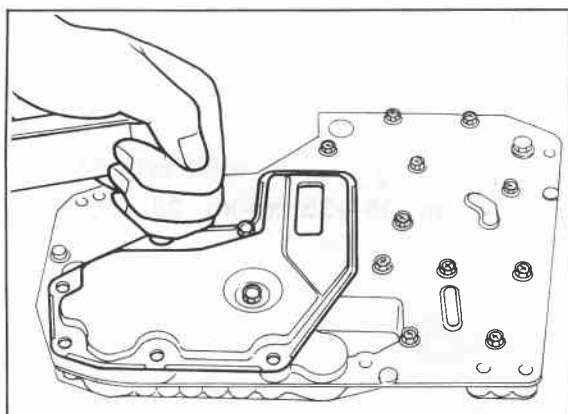


76G07C-209

14. Install the separator plate on the lower body, and hold it with clips; then install them onto the upper body.
15. Tighten the mounting bolts to the specified torque.

Tightening torque:

A: 2.5—3.4 N·m (25—35 cm·kg, 22—30 in·lb)
B: 5—7 N·m (50—70 cm·kg, 43—61 in·lb)

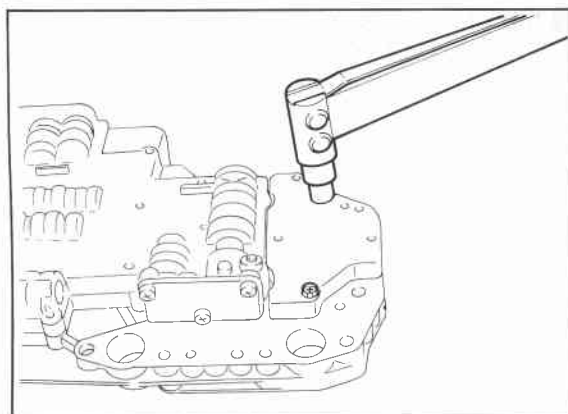


76G07C-210

16. Install the oil strainer.

Tightening torque:

3—4 N·m (30—40 cm·kg, 26—35 in·lb)



76G07C-211

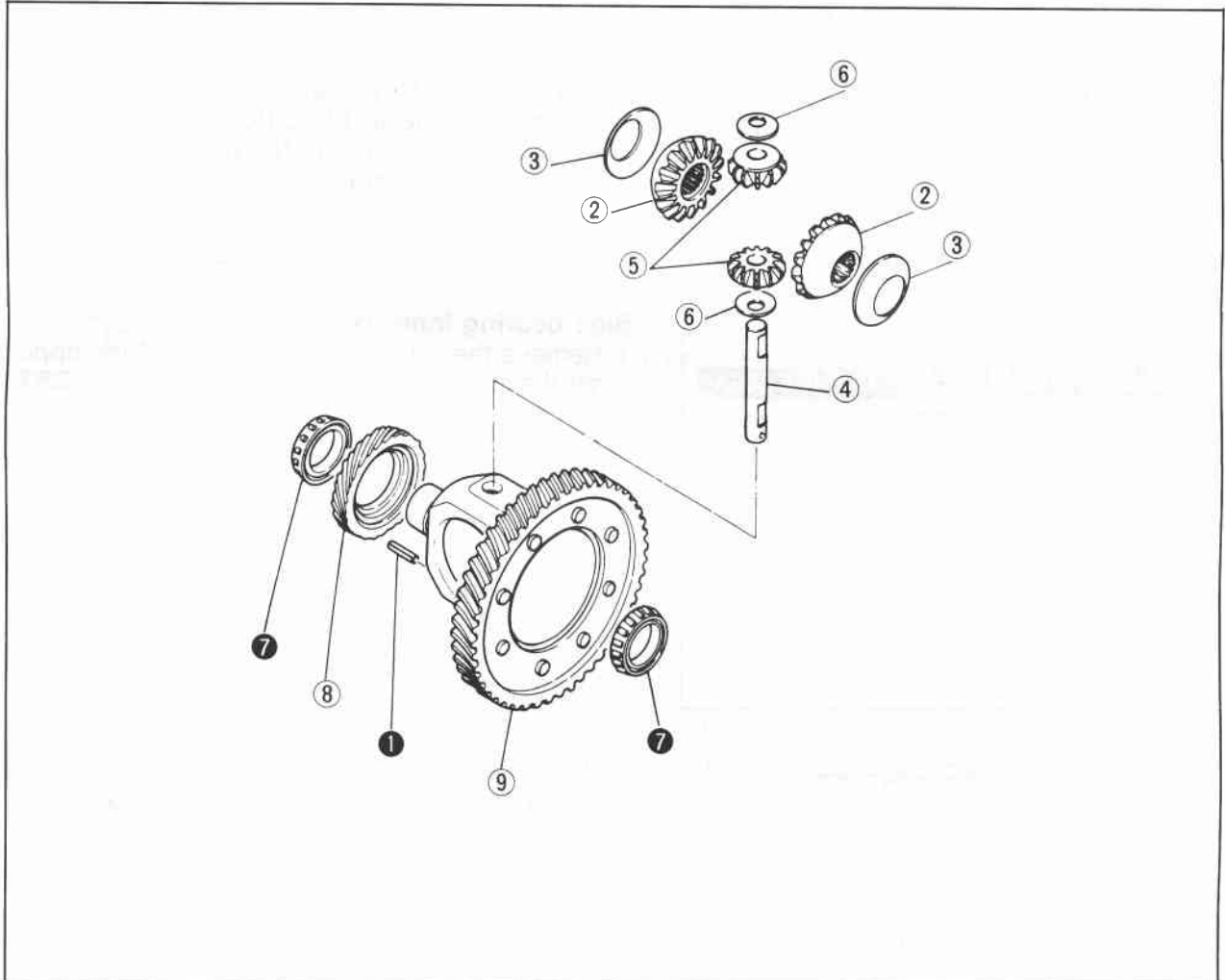
17. Turn the valve body assembly over, and install the sub-body.
18. Install the manual valve.

Tightening torque:

2.5—3.4 N·m (25—35 cm·kg, 22—30 in·lb)

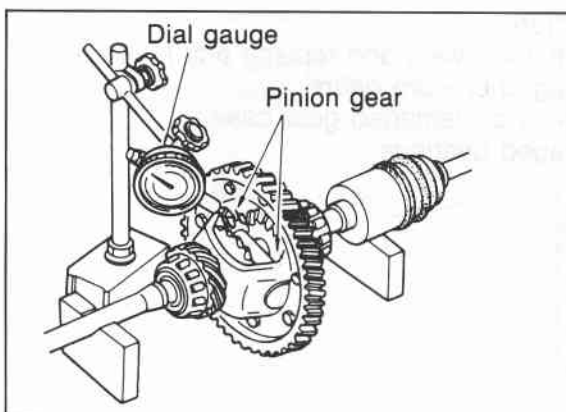
DIFFERENTIAL Disassembly

Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked parts.



76G07C-212

- | | |
|----------------------------|-------------------------------------|
| 1. Roll pin | 6. Pinion gear thrust washer |
| 2. Side gear | 7. Side bearing inner race |
| 3. Side gear thrust washer | 8. Speedometer drive gear |
| 4. Pinion shaft | 9. Ring gear and gear case assembly |
| 5. Pinion gear | |



86U07B-323

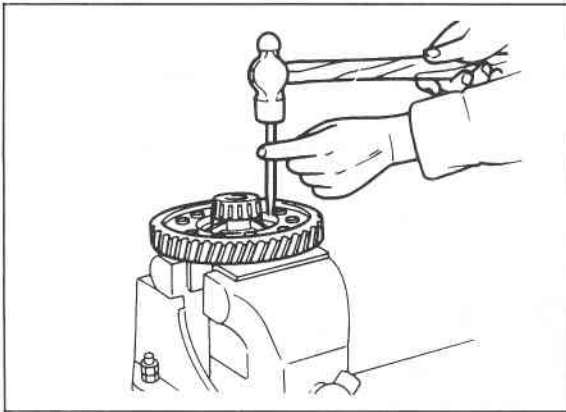
Disassembly note Checking backlash

Before disassembly, measure the backlash of the side gears and pinion gears. If not within specification, replace the differential assembly.

Backlash:

Standard 0.025—0.1 mm (0.001—0.004 in)
Maximum 0.5 mm (0.020 in)

7C INSPECTION AND REPAIR



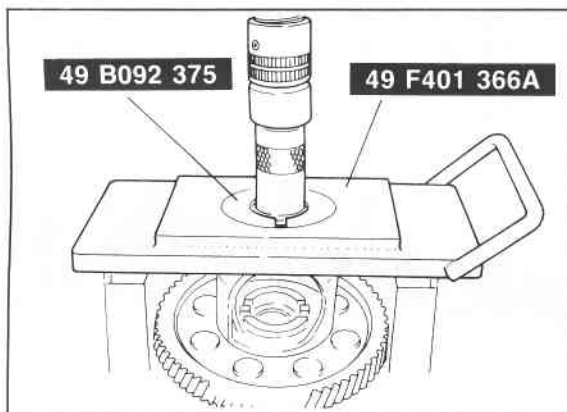
76G07C-213

Roll pin

To remove the roll pin from the pinion shaft, place the gear case on a vise and knock the pin out with a suitable pin punch ($\phi 4.0$ mm (0.157 in)) and hammer.

Note

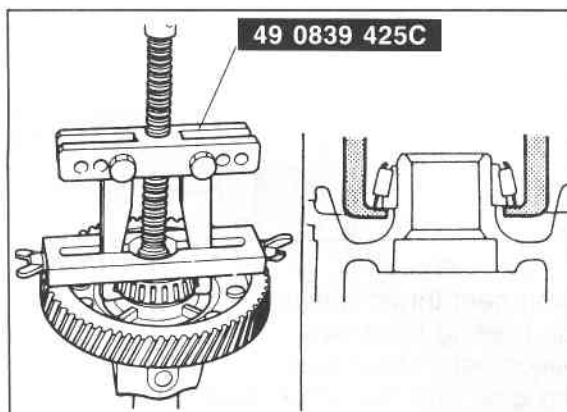
- a) Use the protective plates in the vise to prevent damage to the differential.
- b) Insert the punch into the roll pin hole from the ring gear side.



86U07B-325

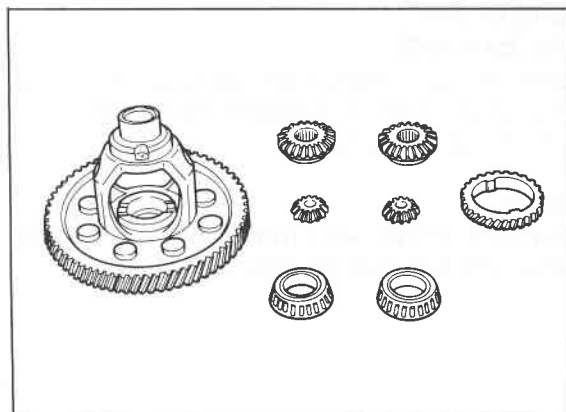
Side bearing inner race

1. Remove the side bearing inner race (side opposite the ring gear) from the gear case with the **SST**.



86U07B-326

2. Remove the side bearing inner race (ring gear side) with a combination of parts from the **SST**.

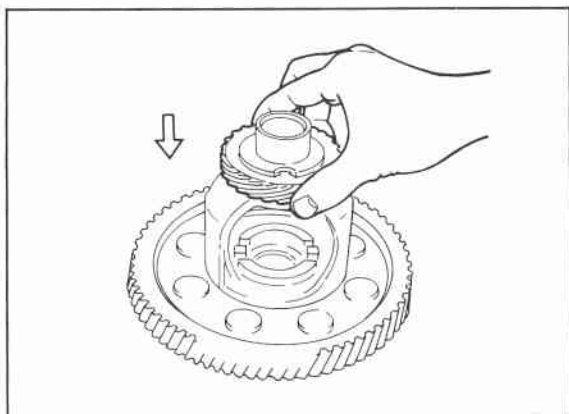


86U07B-327

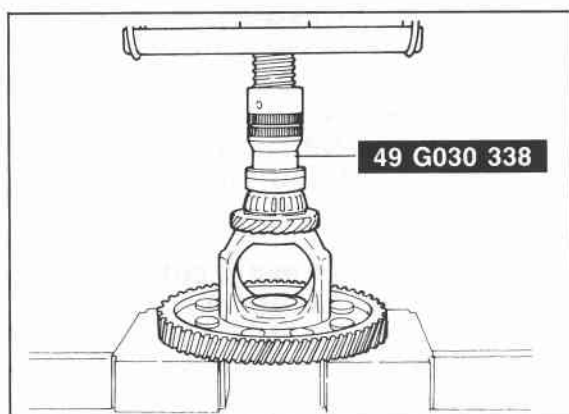
Inspection

Check the following and replace any faulty parts.

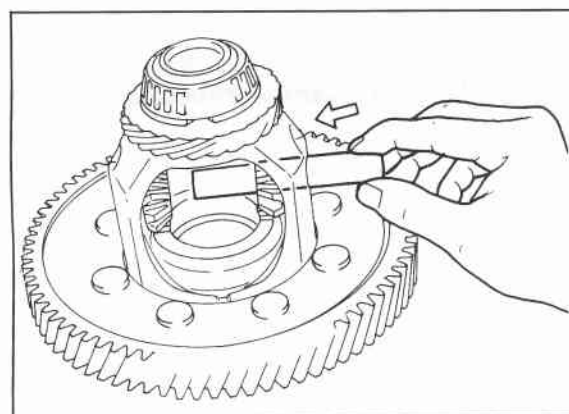
1. Damaged or worn gears
2. Cracked or damaged gear case
3. Damaged bearings



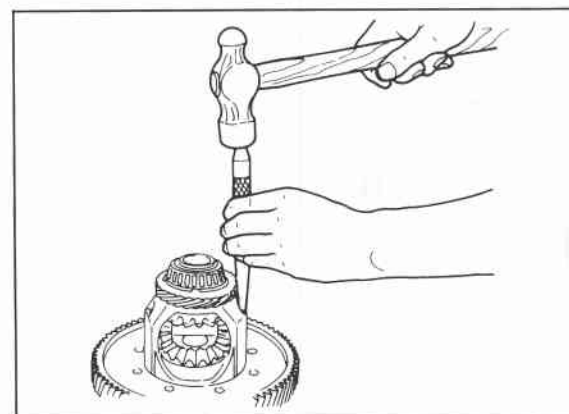
86U07B-328



86U07B-329



86U07B-330



86U07B-331

Assembly

1. Set the speedometer drive gear onto the ring gear and case assembly.

2. Install the side bearing inner races.

- (1) Press the side bearing inner race (side opposite the ring gear) onto the ring gear and case assembly with the **SST**.
- (2) Press on the other side bearing inner race (ring gear side) in the same manner.

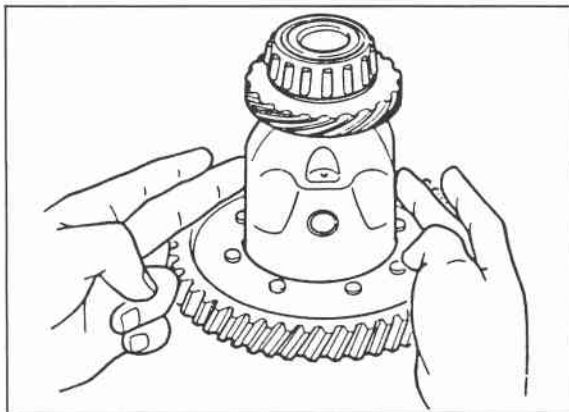
Caution

Do not reuse the bearings if they were removed.

3. Install the pinion gears and thrust washers into the case.
4. Install the pinion shaft.

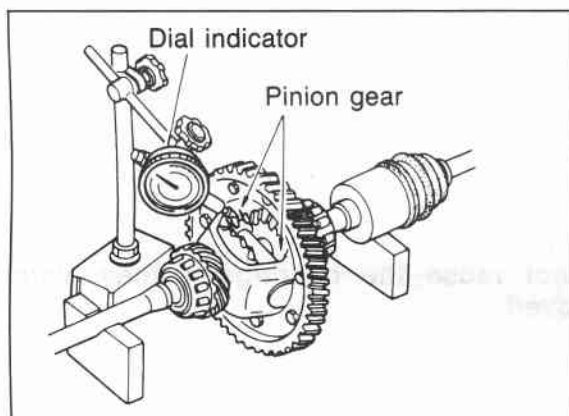
5. Install the roll pin, and make a crimp so that it will not come out of the gear case.

7C INSPECTION AND REPAIR



86U07B-332

6. Install the thrust washers and side gears into the gear case at the same time, then turn them back on the pinion gear and align them with the pinion shaft hole.



86U07B-333

7. Check and adjust the backlash of the side gears and pinion gears as follows:
 - (1) Install the left and right driveshafts in the differential assembly.
 - (2) Support the driveshafts on V-blocks.
 - (3) Measure the backlash of both pinion gears.

Backlash:

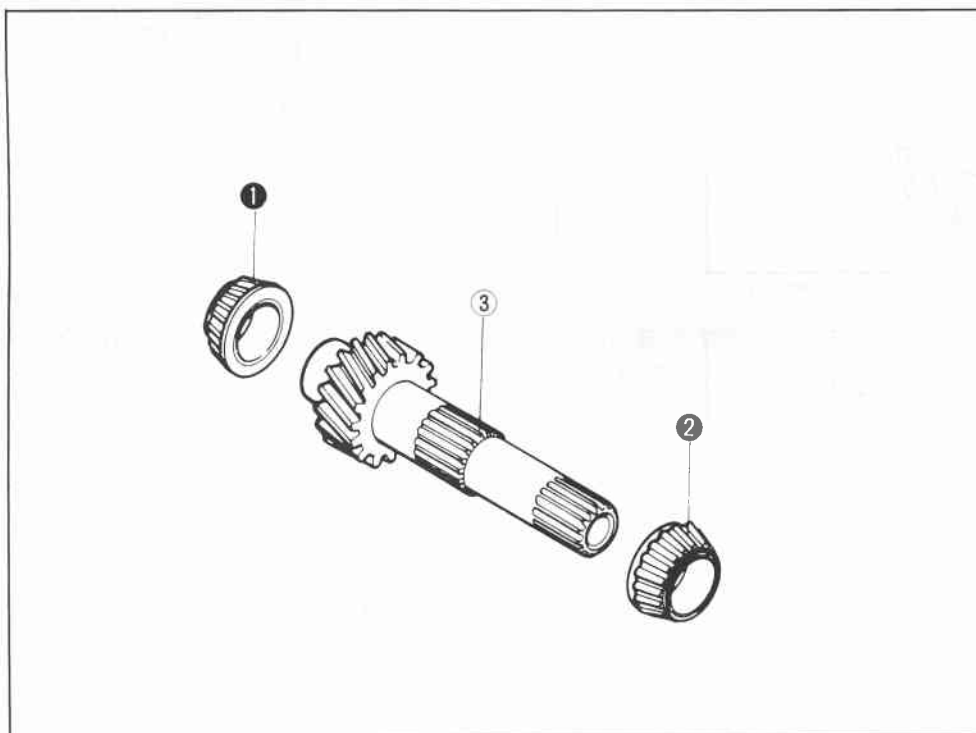
Standard 0.025—0.1 mm (0.001—0.004 in)
Maximum 0.5 mm (0.020 in)

8. If the backlash is not within specification, place the differential assembly.

OUTPUT GEAR

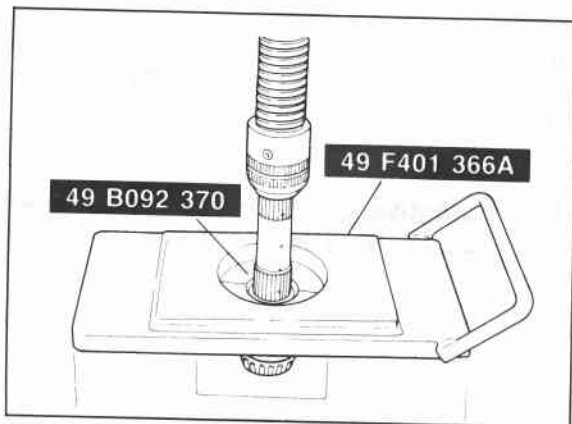
Disassembly

Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked parts.



76G07C-214

1. Output gear bearing
2. Output gear bearing
3. Output gear



76G07C-215

Disassembly note Output gear bearings

Remove the output gear bearings from the output gear with the **SST**.

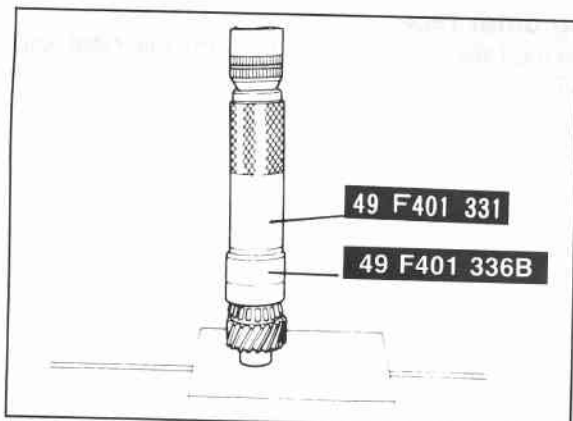
Caution

Hold the output gear with one hand so that it does not fall.

Inspection

Check the following and replace any faulty parts.

1. Damaged or worn output gear
2. Damaged bearing



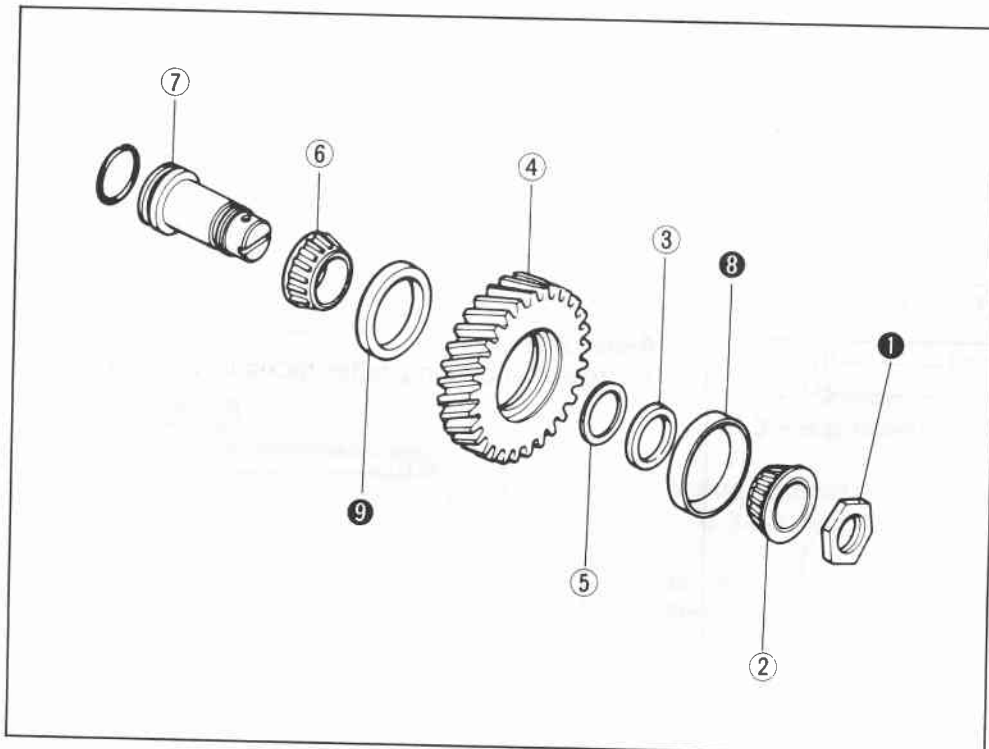
86U07B-336

Assembly

1. Press the output gear bearings onto the output gear with the **SST**.

IDLE GEAR Disassembly

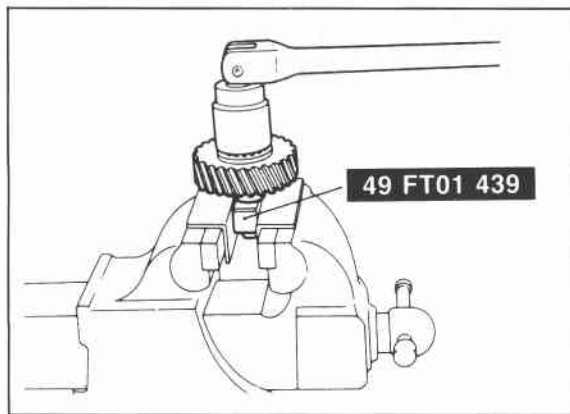
Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked parts.



1. Locknut
2. Idle gear bearing
3. Spacer
4. Idle gear
5. Adjust shim
6. Idle gear bearing
7. Idle shaft
8. Bearing outer race
9. Bearing outer race

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7C INSPECTION AND REPAIR



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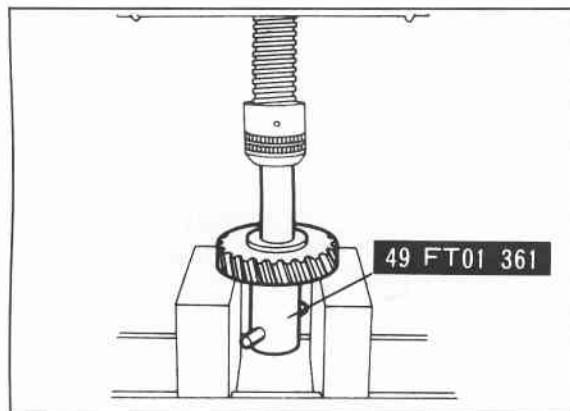
Disassembly note

Locknut

Secure the idle shaft in a vise with the **SST**; then remove the locknut.

Note

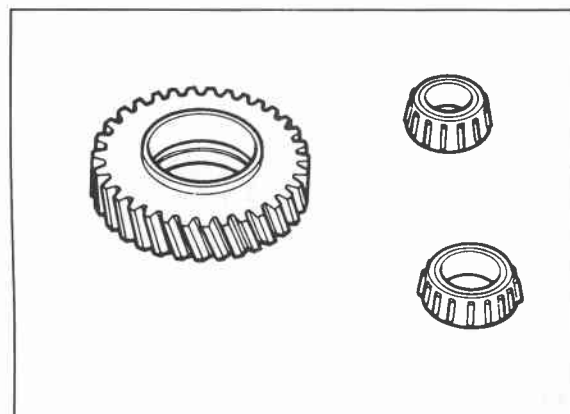
Use the protective plates in the vise to prevent damage to the **SST**.



86U07B-339

Bearing outer race

Remove the bearing outer race from the idle gear with the **SST**.

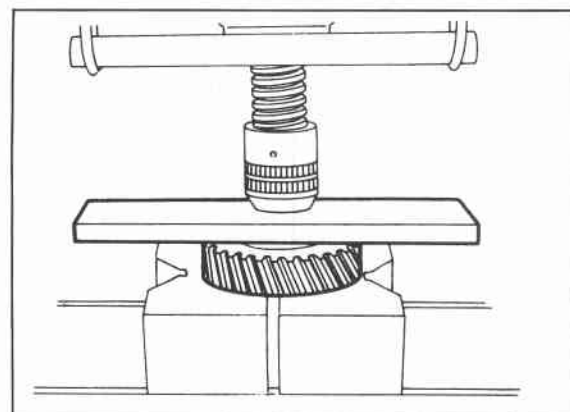


86U07B-340

Inspection

Check the following and replace any faulty parts.

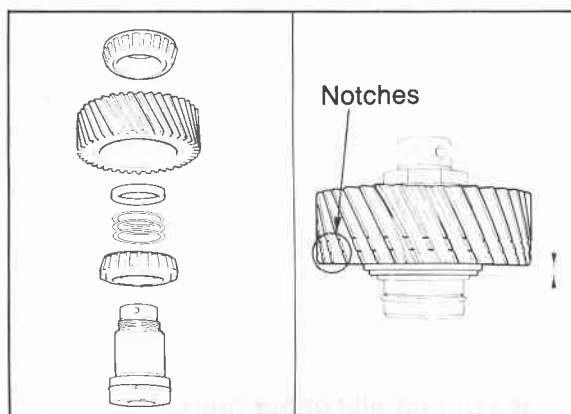
1. Damaged or worn idle gear
2. Damaged or worn bearing



86U07B-341

Assembly

1. Press the bearing outer races in with the **SST**.



76G07C-218

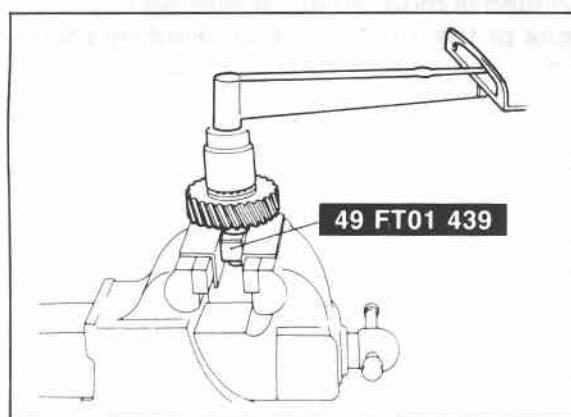
2. Install the idle gear bearing onto the idle shaft, then install the idle gear, adjust shim, spacer, and bearing.

Note

Install the idle gear with the notches in the teeth facing as shown.

FE engine: 2 notches

F6 engine: 3 notches



76G07C-219

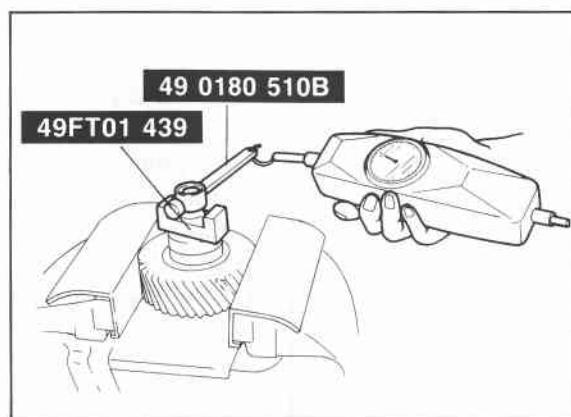
3. Secure the idle shaft in a vise with the **SST**; then tighten the locknut to the lower limit of the tightening torque.

Tightening torque:

128 N·m (13 m·kg, 94 ft·lb)

Note

Use the protective plates in the vise to prevent damage to the **SST**.



76G07C-220

4. Check and adjust the idle gear bearing preload.
 - (1) Turn the idle gear assembly and **SST** over, and secure the gear in the vise.

Note

Use protective plates in the vise to prevent damage to the idle gear.

- (2) Attach the **SST** and spring scale or a torque wrench, and measure the preload while tightening the locknut.

Tightening torque:

128—177 N·m (13—18 m·kg, 94—130 ft·lb)

Preload:

0.03—0.9 N·m

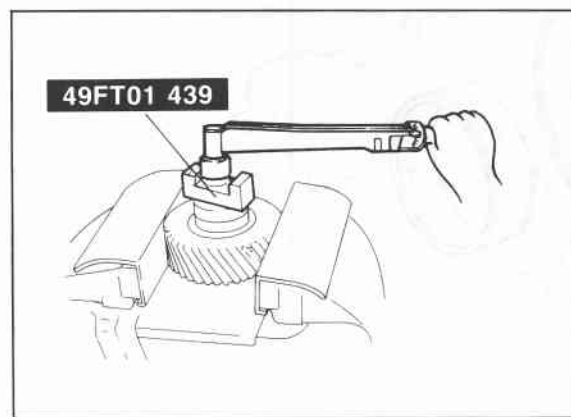
(0.3—9.0 cm·kg, 0.26—7.8 in·lb)

Value indicated on pull scale:

0.3—9 N (0.03—0.9 kg, 0.066—1.98 lb)

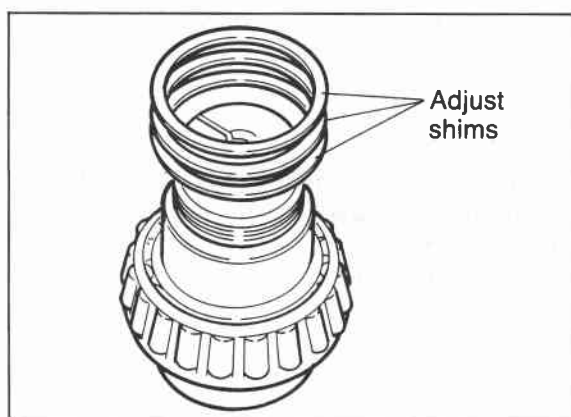
Note

Read the preload when the idle shaft starts to turn.



86U07B-345

7C INSPECTION AND REPAIR



76G07C-221

5. If the specified preload can not be obtained within the specified tightening torque, adjust it by selecting the proper adjust shims.

Thickness of shim
0.10 mm (0.004 in)
0.12 mm (0.005 in)
0.14 mm (0.006 in)
0.16 mm (0.0063 in)
0.20 mm (0.008 in)
0.50 mm (0.020 in)

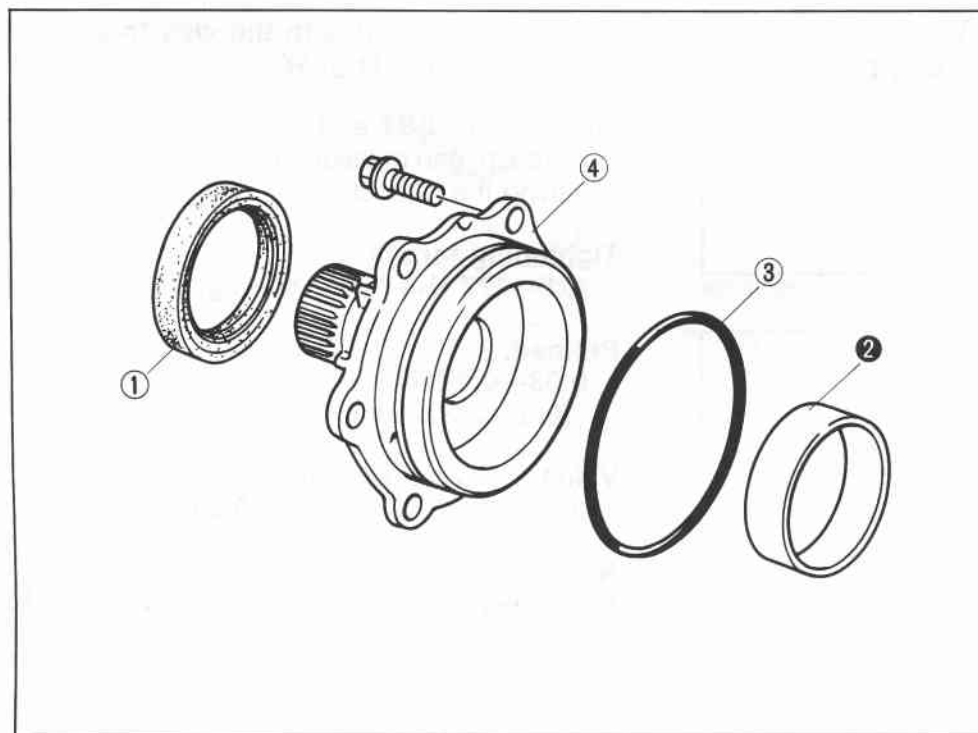
Note

- a) The maximum allowable number of shims is 7.
b) Preload is reduced by increasing the thickness of the shims, or increased by reducing the thickness of the shims.

BEARING COVER ASSEMBLY

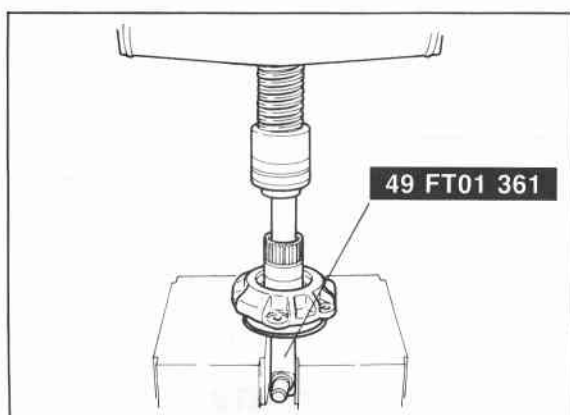
Disassembly

Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked part.

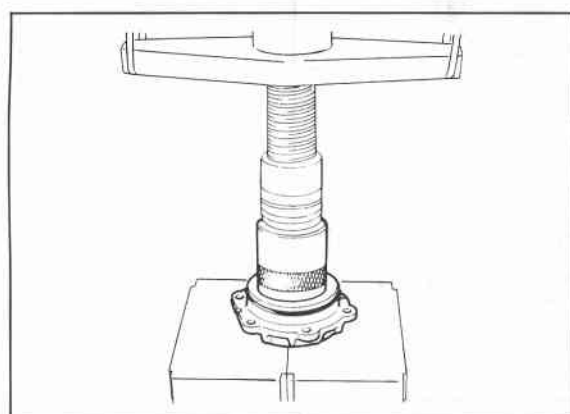


1. Oil seal
2. Bearing outer race
3. O-ring
4. Bearing cover

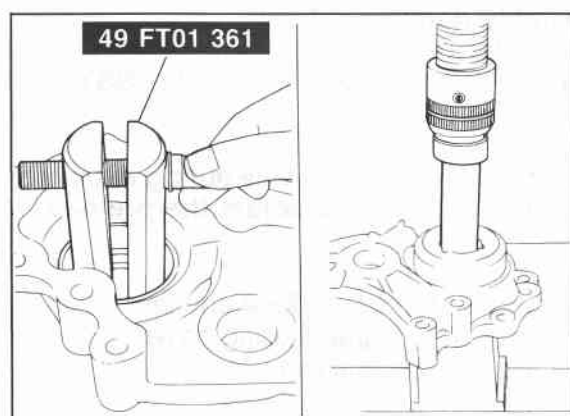
76G07C-222



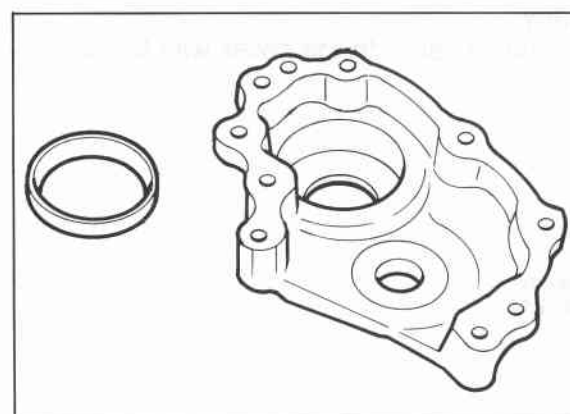
76G07C-223



76G07C-224



76G07C-225



86U07B-351

Disassembly note

Bearing outer race

Remove the bearing outer race with the **SST**.

Inspection

Check the following and replace any faulty parts.

1. Damaged bearing cover
2. Damaged or worn bushing

Assembly

1. Press the bearing outer race into the cover.
2. Press the oil seal into the cover.

BEARING HOUSING

Disassembly

Remove the bearing outer race with the **SST**.

Note

Install the bearing outer race during reassembly of the transaxle to adjust the preload.

Inspection

Check the following and replace any faulty parts.

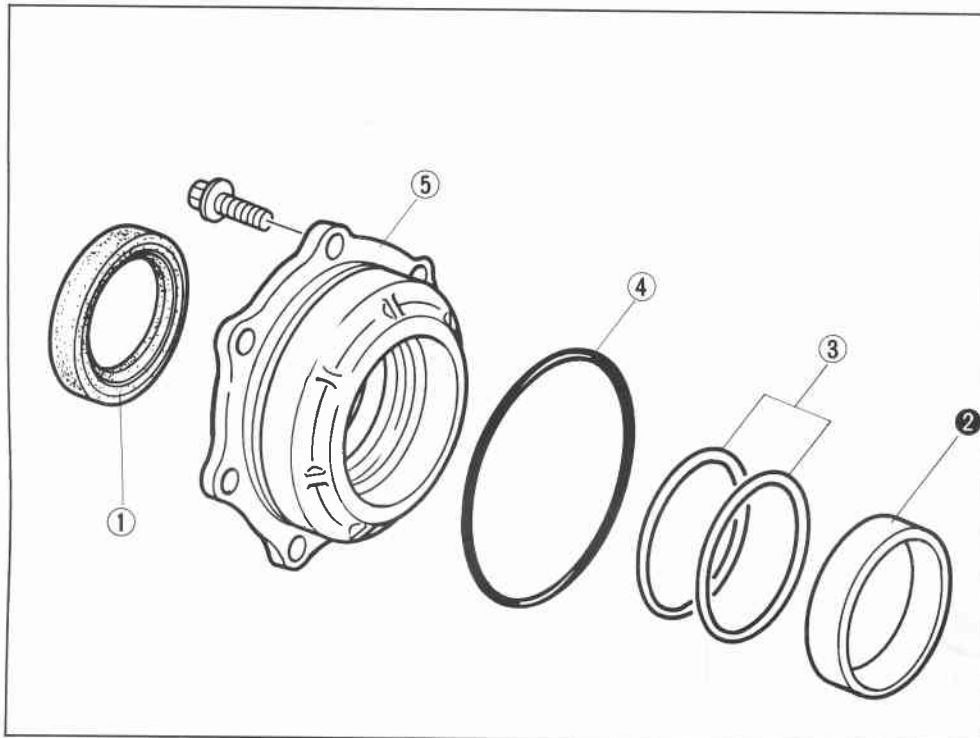
1. Damaged bearing housing
2. Damaged bearing outer race

7C INSPECTION AND REPAIR

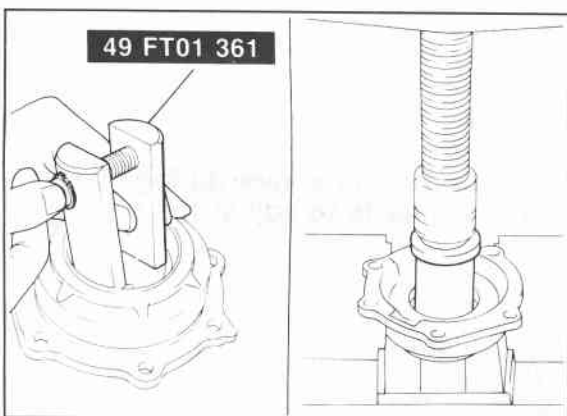
SIDE BEARING HOUSING

Disassembly

Disassemble in the sequence shown in the figure, referring to the disassembly note for specially marked part.



76G07C-226



76G07C-227

Disassembly note Bearing outer race

Remove the bearing outer race with the **SST**.

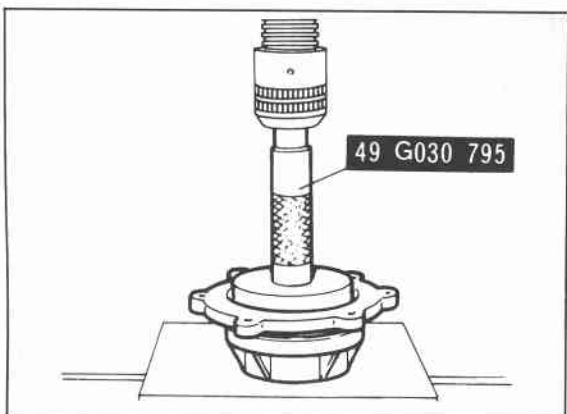
Note

Install the bearing outer race during reassembly of the transaxle to adjust the preload.

Inspection

Check the following and replace any faulty parts.

1. Damaged side bearing housing cover
2. Damaged or worn bushing



76G07C-228

Assembly

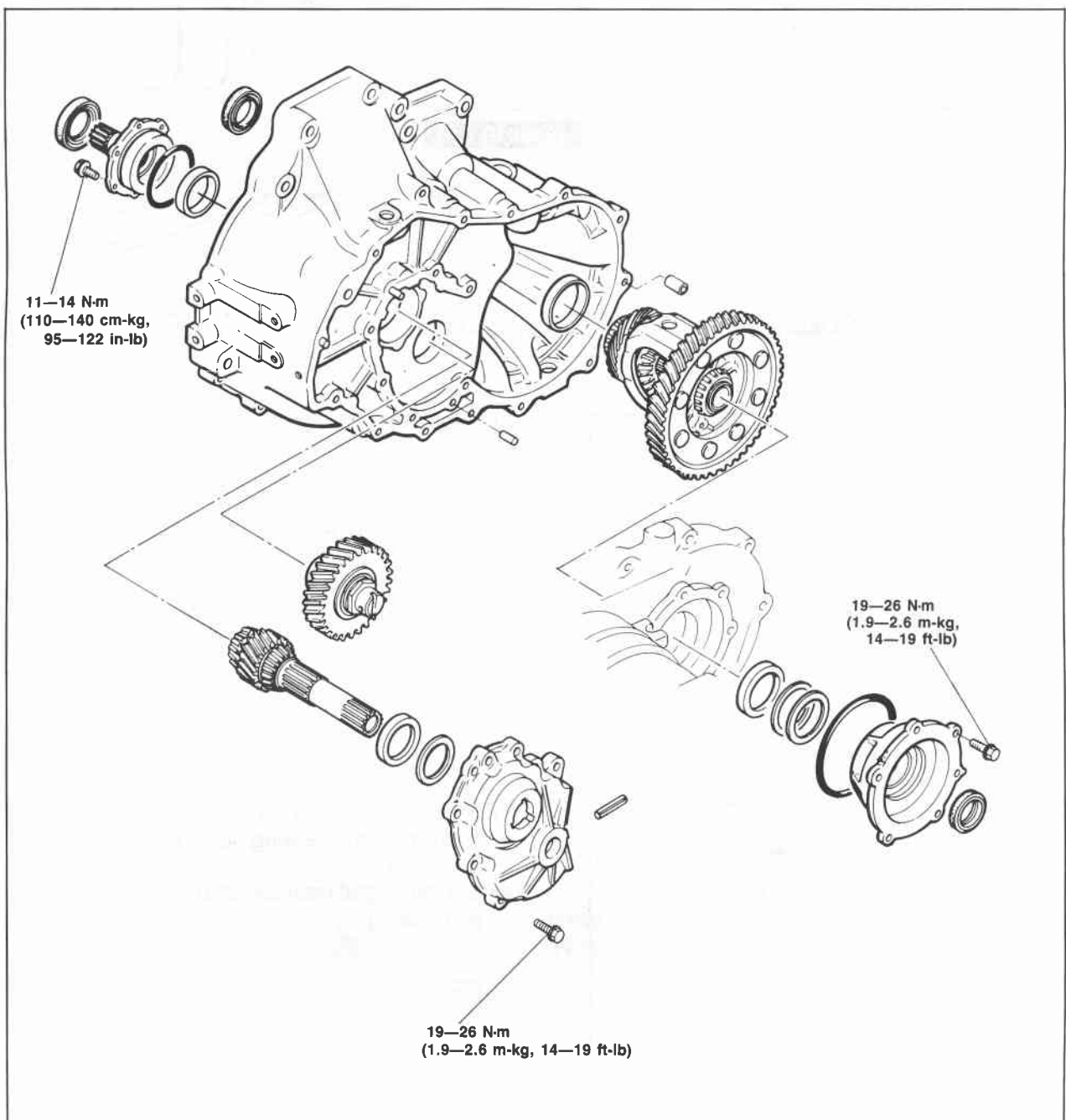
1. Press the oil seal into the cover with the **SST**.

ASSEMBLY

PRECAUTION

- (1) The automatic transaxle consists of high-precision-finished parts, necessitating careful inspection before assembly because even a small nick could cause fluid leakage or affect performance.
- (2) Clean out oil holes and oil passages with compressed air, and check that there are no obstructions.
- (3) Before assembly, apply ATF to each O-ring, seal ring, rotating part, and friction part.
- (4) If the brake band or drive plates are replaced with new ones, soak them in ATF for at least 2 hours before installing.
- (5) Each seal gasket and O-ring must be replaced with a new one.
- (6) Be sure to install all thrust bearings and races in the correct direction and position.

ASSEMBLY—STEP 1 Torque Specifications



76G07C-229

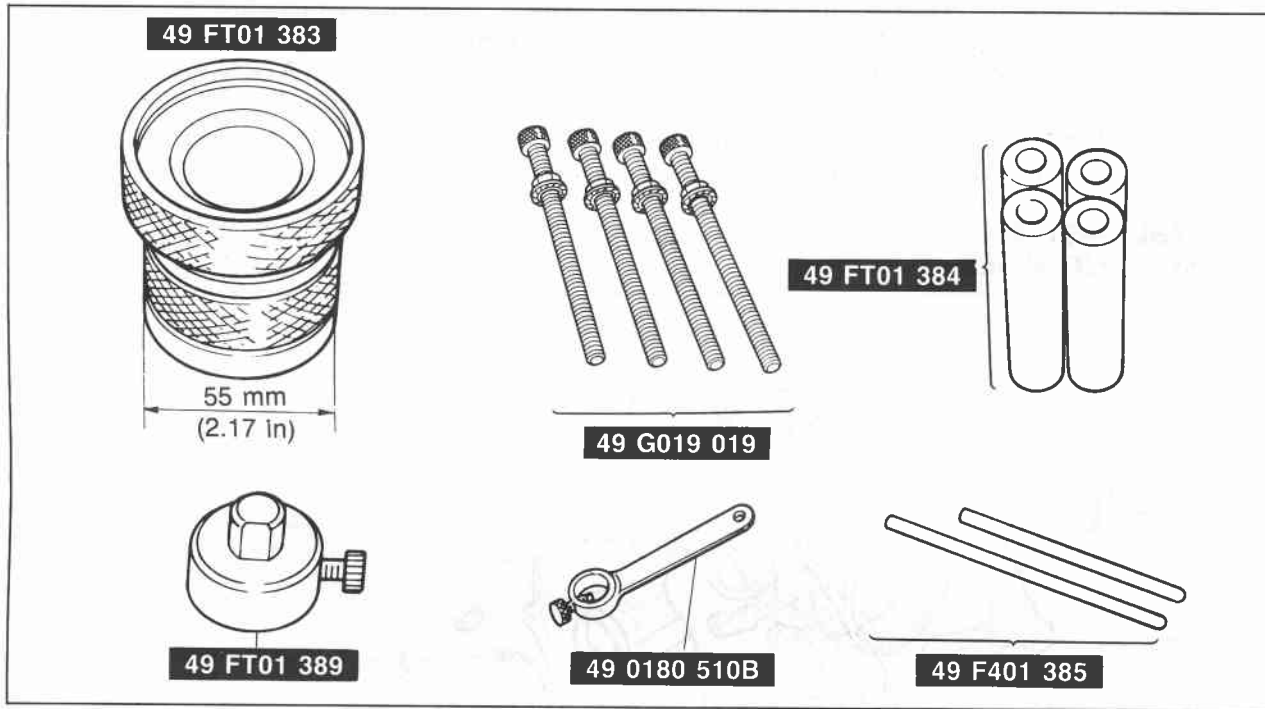
7C ASSEMBLY

Procedure

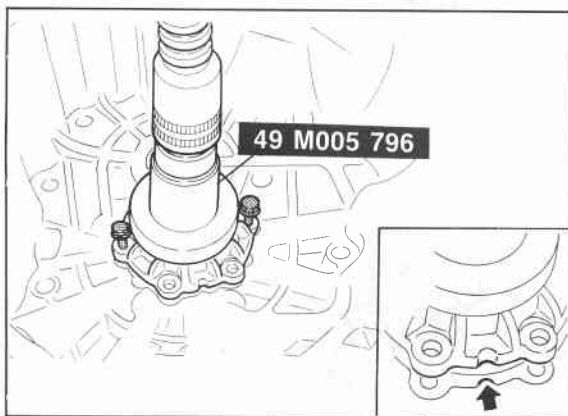
1. Adjust the preload of the output gear bearing and select the adjust shim(s) as described below.

Note

To adjust the preload, use the SST shown below.



83U07B-367

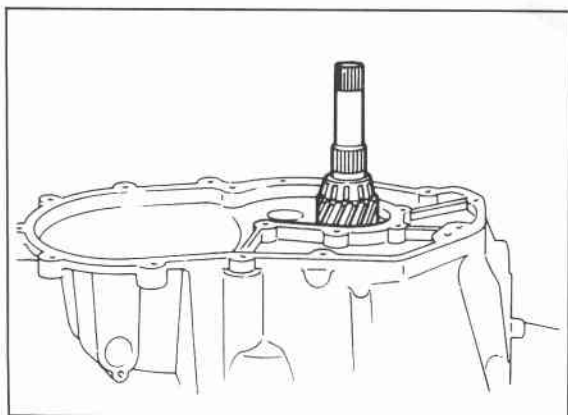


76G07C-230

- (1) Align the matching mark as shown; then press the bearing cover in with the **SST** after aligning it with guide bolts as shown.

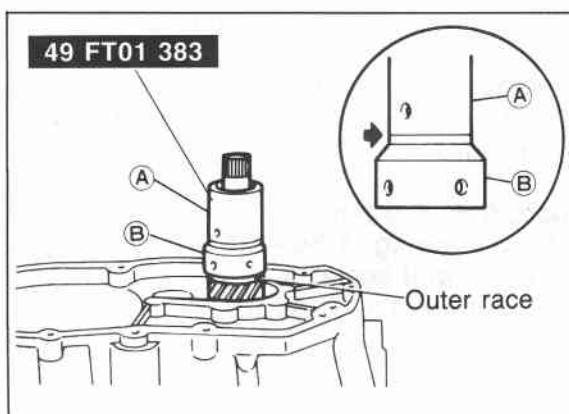
**Tightening torque: 11—14 N·m
(110—140 cm·kg, 95—122 in·lb)**

- (2) Mount the converter housing onto the trans-axle hanger.



76G07C-231

- (3) Remove the bearing outer race and adjust shims from the bearing housing. (Refer to page 7C—87.)
- (4) Set the output gear assembly into the converter housing.

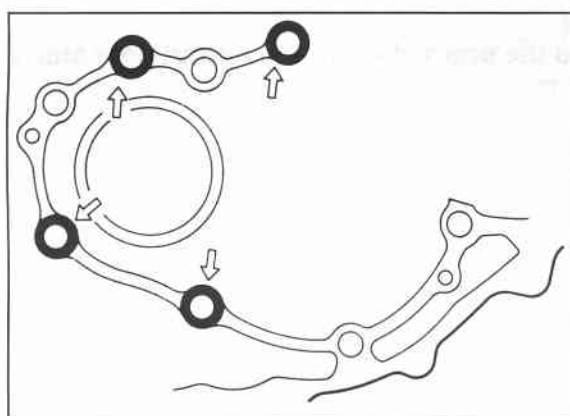


76G07C-232

- (5) Install the outer race removed in step (3) to the **SST**; then mount them on the output gear assembly.

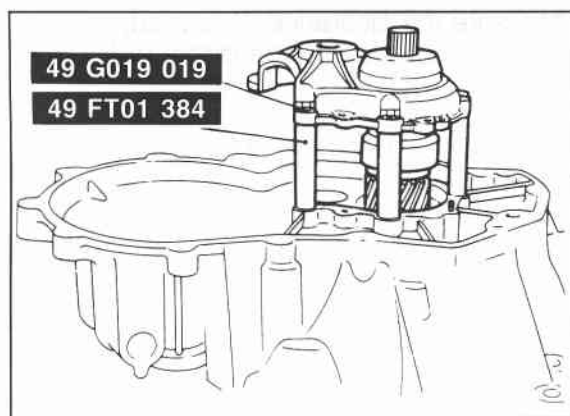
Caution

Eliminate the gap (arrow) by turning A or B of the selector.



76G07C-233

- (6) Set the four **SST** on the converter housing in the positions shown.

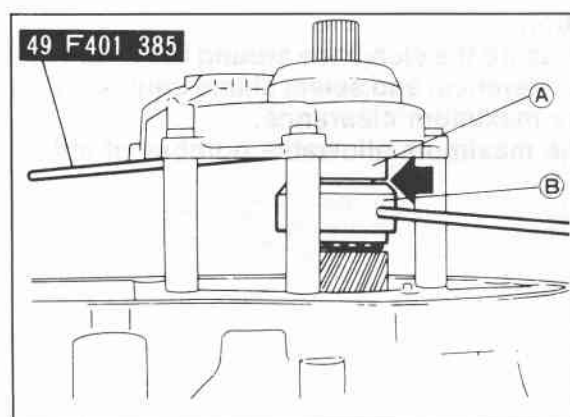


76G07C-234

- (7) Set the bearing housing on the **SST** (selector) and install the four **SST** (bolts); then tighten them to the specified torque.

Tightening torque:

19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



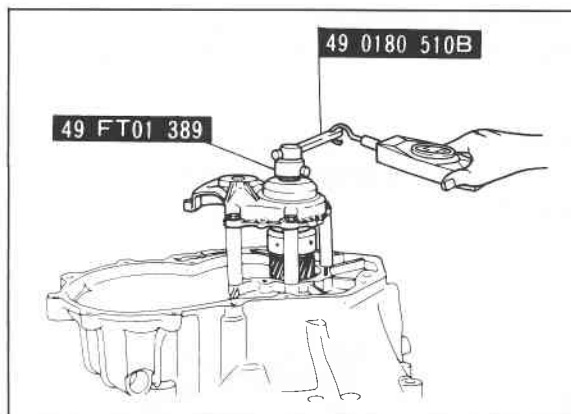
76G07C-235

- (8) Turn the **SST** (selector) to increase the clearance (indicated by the arrow) with the **SST** (bars) until it no longer turns.

Note

This is to seat the bearing.

- (9) Turn the selector in the opposite direction until the preload is eliminated (gap is reduced).



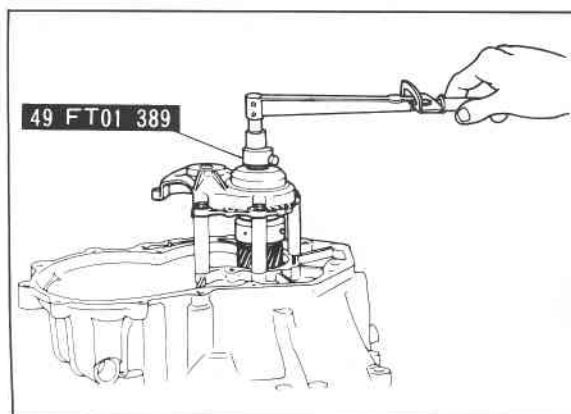
76G07C-236

- (10) Mount the **SST** and pull scale or torque wrench on the output gear.
- (11) Increase the clearance between A and B to obtain the specified preload/pull scale reading.

Preload: 0.5—0.9 N·m
(5.0—9.0 cm·kg, 4.34—7.81 in·lb)
Reading on pull scale: 5—9 N
(0.5—0.9 kg, 1.1—1.98 lb)

Note

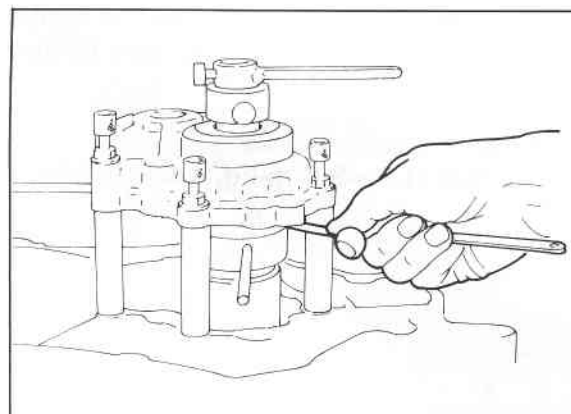
Read the preload when the output gear starts to turn.



83U07B-375

- (12) Measure the clearance. Select adjust shim(s) equivalent to the measured clearance.

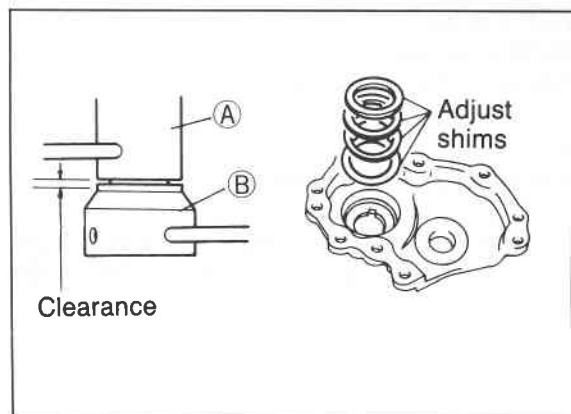
Thickness of shim	
0.10 mm (0.004 in)	0.16 mm (0.0063 in)
0.12 mm (0.005 in)	0.20 mm (0.008 in)
0.14 mm (0.006 in)	0.50 mm (0.020 in)



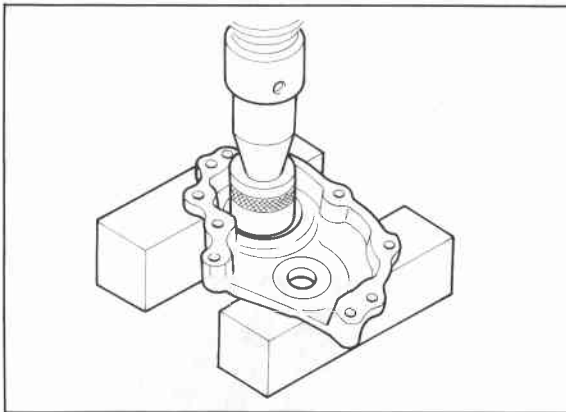
76G07C-237

Caution

- a) Measure the clearance around the entire circumference, and select shims equivalent to the maximum clearance.
- b) The maximum allowable number of shims is 7.

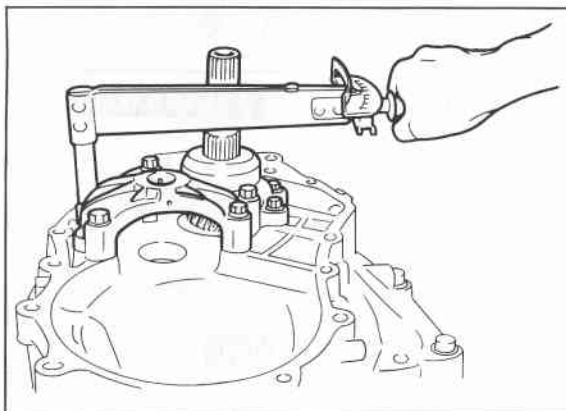


83U07B-377



76G07C-238

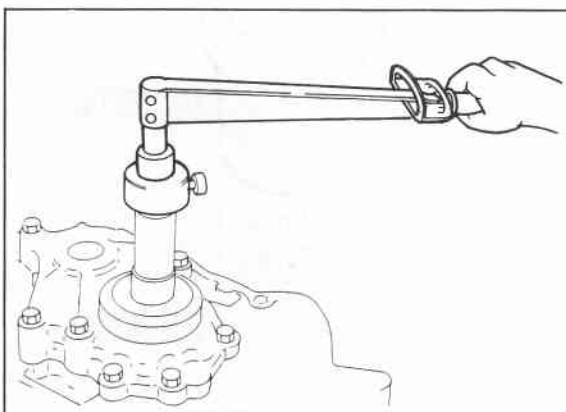
- (13) Remove the bearing housing and **SST**.
- (14) Install the required shim(s) and press the bearing race into the bearing housing with a suitable pipe.



76G07C-239

- (15) Install the bearing housing.

Tightening torque:
19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

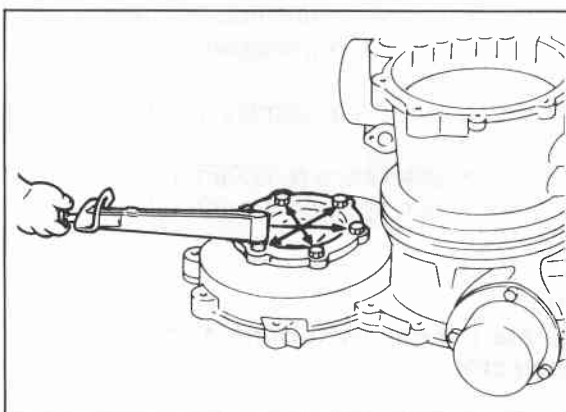


76G07C-240

- (16) Check that the preload/pull scale reading is within specification. If not within specification return to step (3).

Preload: 0.03—0.9 N·m
(0.3—9.0 cm·kg, 0.26—7.81 in·lb)
Reading on pull scale:
0.3—9 N (0.03—0.9 kg, 0.066—1.98 lb)

- (17) Remove the bearing housing and output gear assembly.



76G07C-241

- 2. Mount the side bearing housing to transaxle case by gradually tightening the mounting bolts in a diagonal pattern.

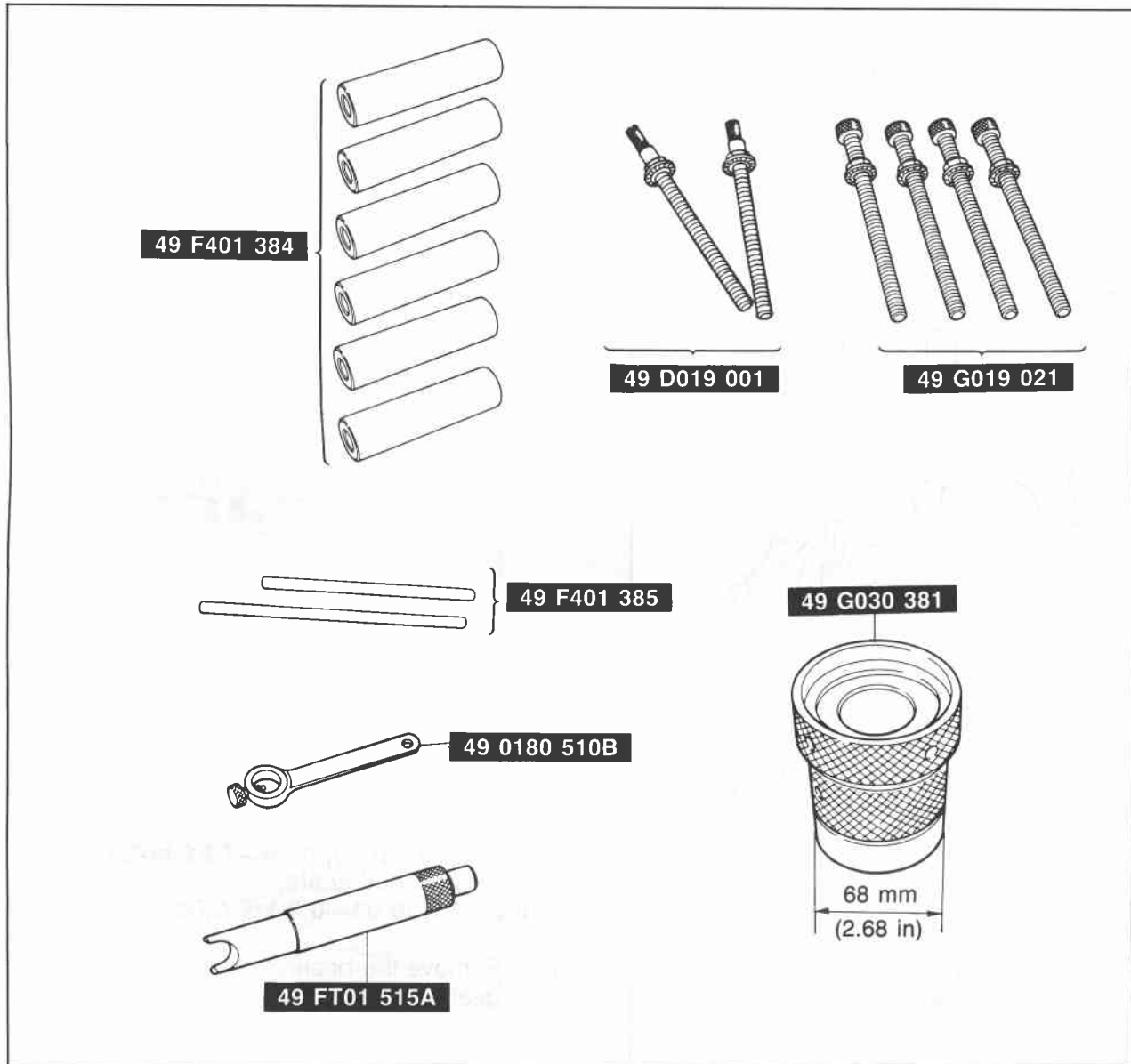
Tightening torque:
19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

7C ASSEMBLY

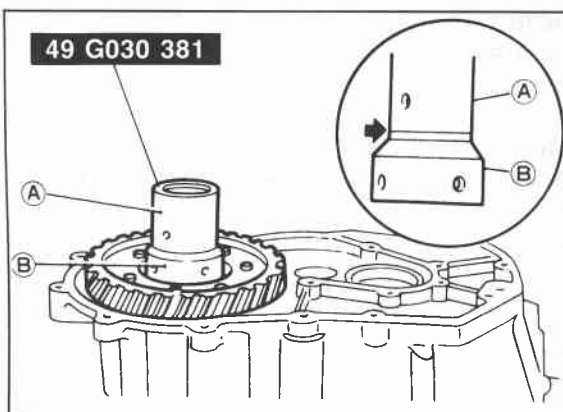
3. Adjust the differential side bearing preload and select the adjust shim(s) as described below.

Note

To inspect and adjust the preload, use the SST shown below.



76G07C-242

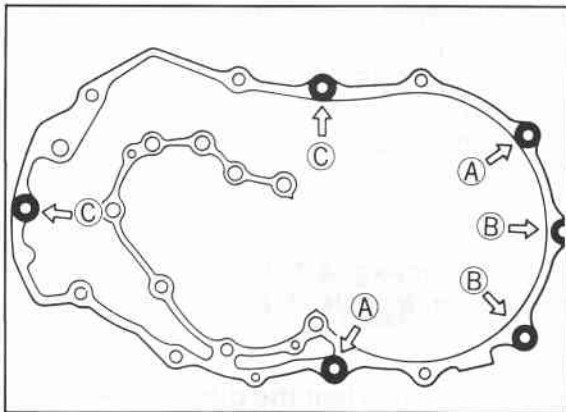


76G07C-243

- (1) Remove the side bearing housing race and adjust shims from the transaxle case. (Refer to page 7C—88.)
- (2) Set the differential assembly into the converter housing.
- (3) Install the outer race removed in step (1) into the **SST**; then set them on the differential assembly.

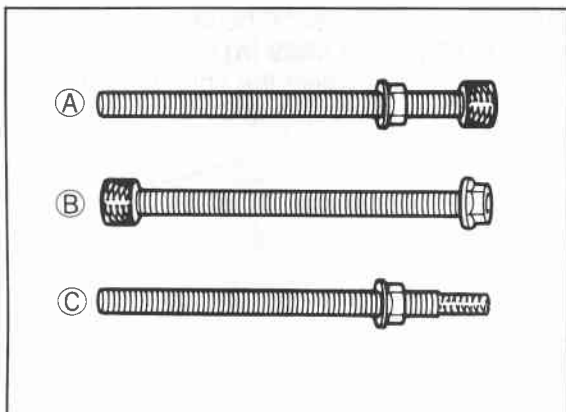
Caution

Eliminate the gap by turning either A or B of the selector.



83U07B-382

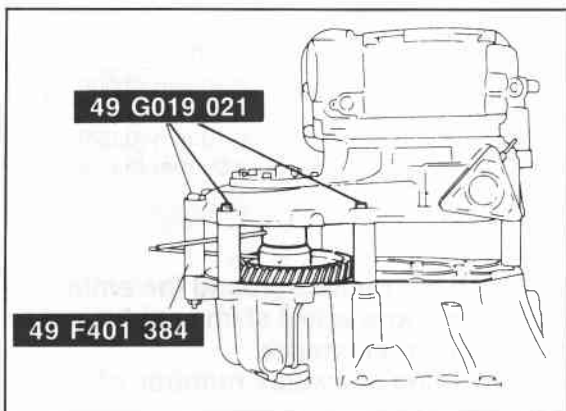
- (4) Set the six **SST** in the positions shown.



76G07C-244

Note

Install the bolts in the positions shown in the illustration above.



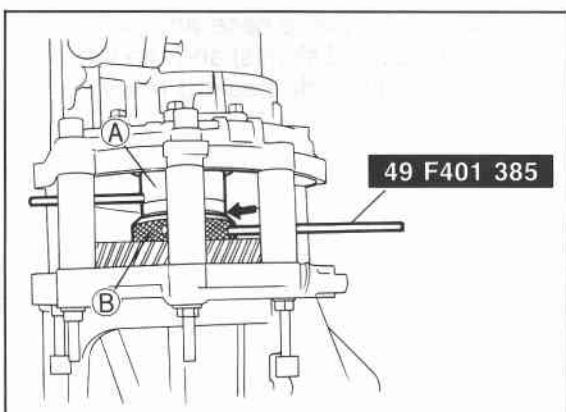
76G07C-245

- (5) Set the transaxle case on the selectors.

- (6) Tighten the **SST** (bolts) to the specified torque.

Tightening torque:

29—46 N·m (3.0—4.7 m·kg, 22—34 ft·lb)



83U07B-385

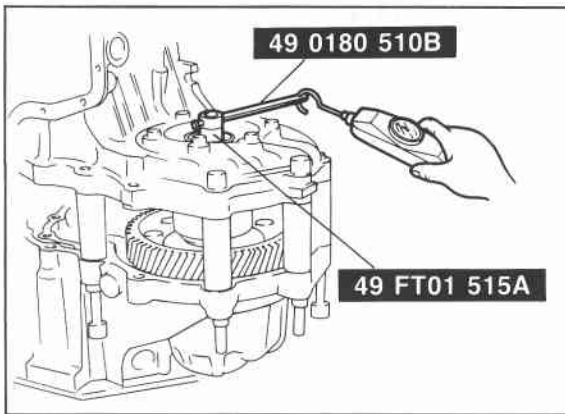
- (7) Turn the **SST** (selector) to increase the clearance (indicated by the arrow) with the **SST** (bars), until it no longer turns.

Note

a) This is to seat the bearings.

b) To turn the SST (B), bend the bar as shown.

- (8) Turn the selector in the opposite direction until the preload is eliminated (gap is reduced).



83U07B-386

- (9) Insert the **SST** through the oil seal hole of the transaxle case and attach it to the pinion shaft.
- (10) Mount the **SST** and pull scale or torque wrench.
- (11) Widen the clearance between A and B to obtain the specified preload/pull scale reading.

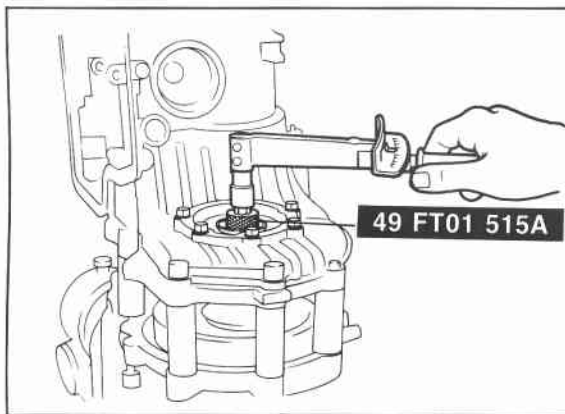
Preload:

0.5 N·m (5 cm·kg, 4.3 in·lb)

Reading on pull scale: 5 N (0.5 kg, 1.1 lb)

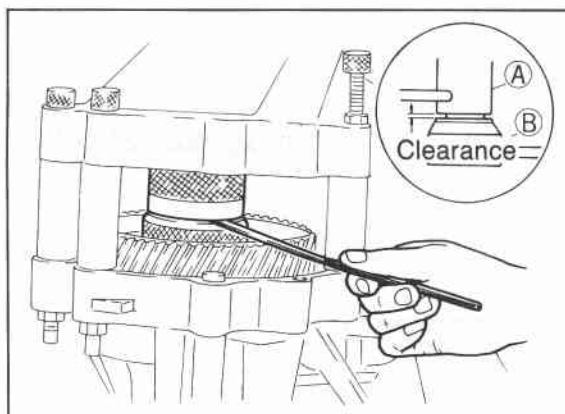
Note

Read the preload when the differential starts to turn.



76G07C-246

- (12) Measure the clearance between A and B.
- (13) Add **0.15 mm (0.0059 in)** to the measured clearance, and select the shim(s) closest in valve to that measurement.



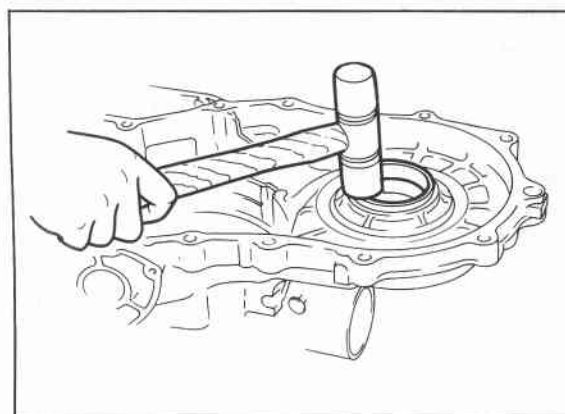
76G07C-247

Thickness of shim	
0.10 mm (0.004 in)	0.20 mm (0.008 in)
0.12 mm (0.005 in)	0.50 mm (0.020 in)
0.14 mm (0.006 in)	0.70 mm (0.028 in)
0.16 mm (0.0063 in)	1.00 mm (0.039 in)
0.18 mm (0.007 in)	

Caution

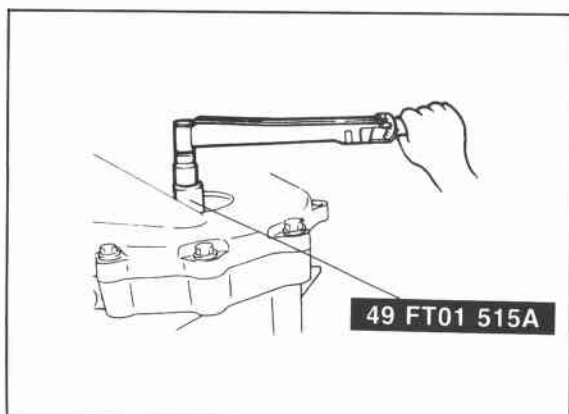
a) Measure the clearance around the entire circumference, and select shims equivalent to the maximum clearance.

b) The maximum allowable number of shims is 3.



76G07C-248

- (14) Remove the transaxle case and selector.
- (15) Install the required shim(s) and tap the bearing race into the side bearing housing.



76G07C-249

(16) Install the transaxle case.

Tightening torque:

29—46 N·m (3.0—4.7 m·kg, 22—34 ft·lb)

(17) Check that the preload is within specification.
If not within specification, return to step (2).

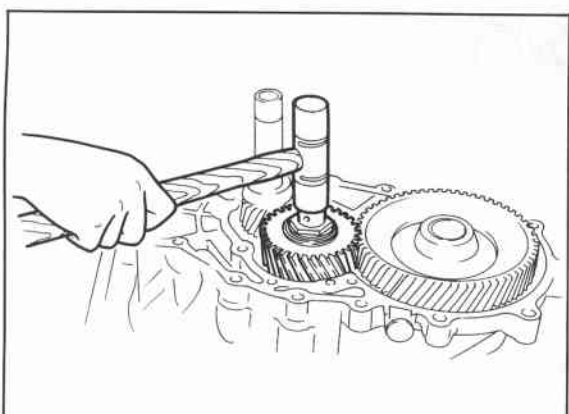
Preload: 2.1—3.0 N·m

(21—31 cm·kg, 18—27 in·lb)

Reading on pull scale: 20—30 N

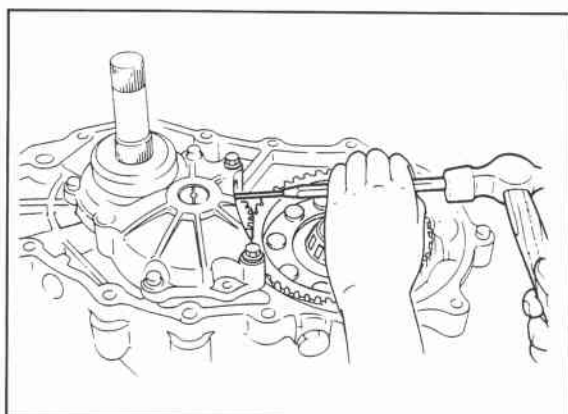
(2.1—3.1 kg, 4.6—6.8 lb)

(18) Remove the transaxle case.



83U07B-391

3. Install the idle gear and output gear as an assembly by tapping in with a plastic hammer.



76G07C-250

4. Install the bearing housing.

(1) Mount the bearing housing onto the converter housing.

Tightening torque:

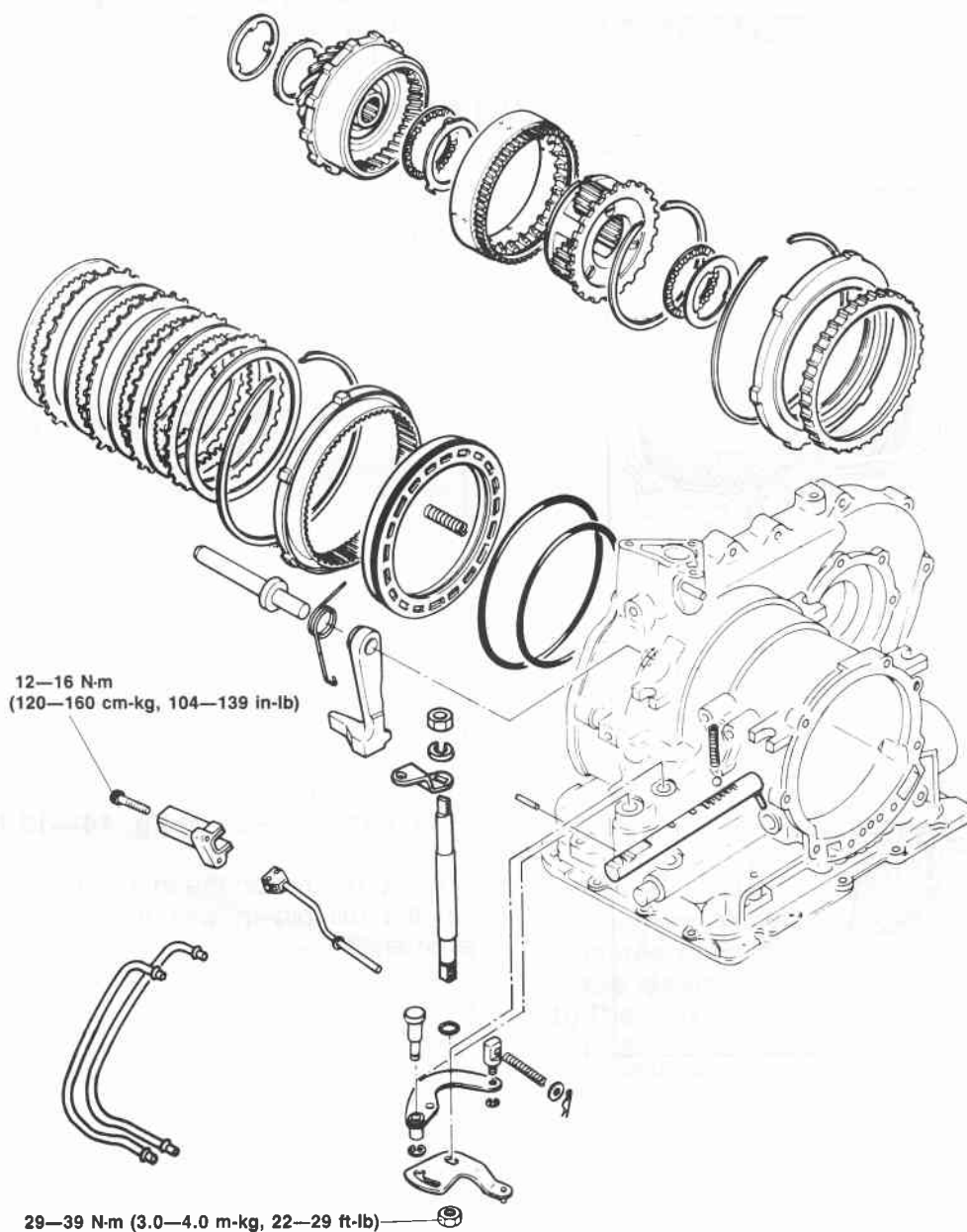
19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

(2) Align the groove on the idle shaft as shown.

(3) Tap the roll pin in with a pin punch and hammer.

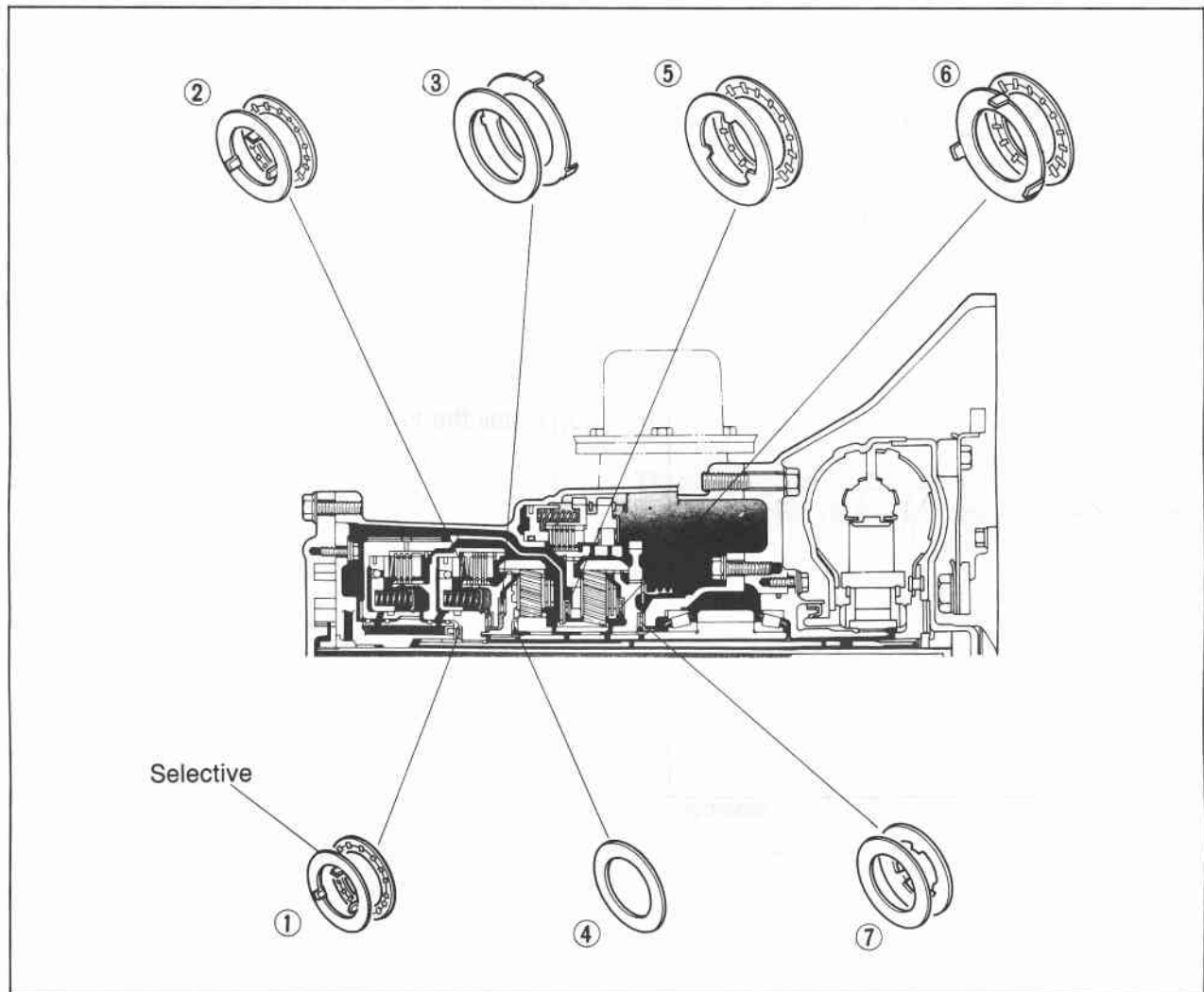
7C ASSEMBLY

ASSEMBLY-STEP 2 Torque Specifications



76G07C-251

Thrust Washer, Bearing, and Race Locations



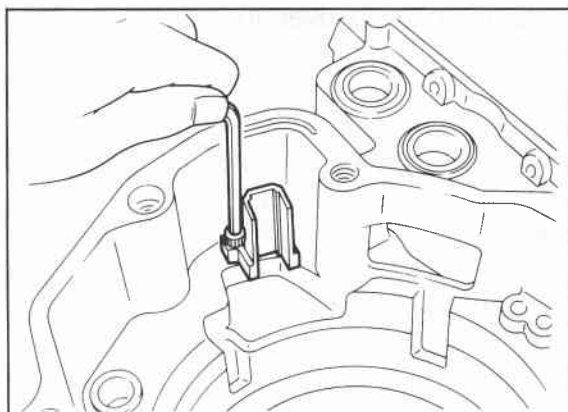
76G07C-252

Outer diameter of bearing and race

mm (in)

	1	2	3	4	5	6	7
Bearing	41.9 (1.65)	52.9 (2.08)	69.9 (2.75)	46.9 (1.85)	69.9 (2.75)	69.9 (2.75)	52.9 (2.08)
Race	41.0 (1.61)	51.5 (2.03)	70.0 (2.76)	—	70.0 (2.76)	70.0 (2.76)	51.5 (2.03)

Note: Install with petroleum jelly to prevent the thrust bearing or bearing race from falling out.



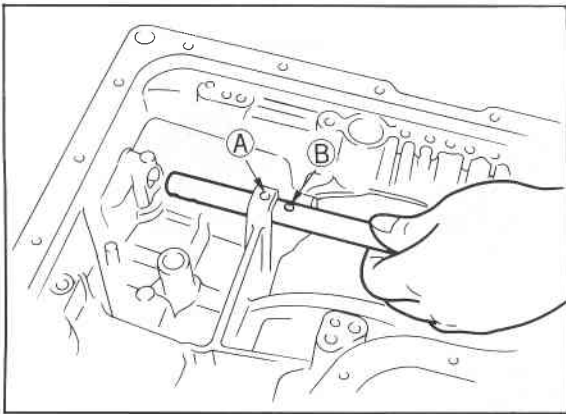
76G07C-253

Procedure

1. Install the actuator support.

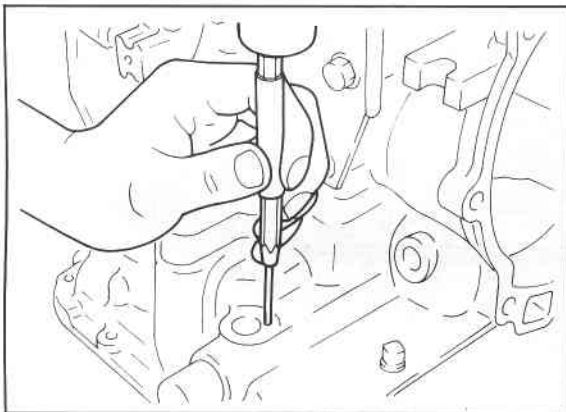
**Tightening torque: 12—16 N·m
(120—160 cm·kg, 104—139 in·lb)**

7C ASSEMBLY



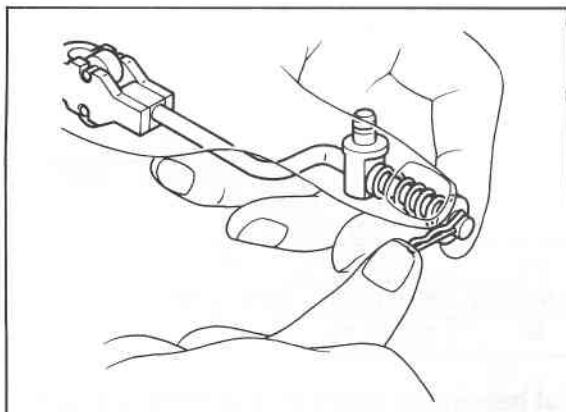
76G07C-254

2. Install the control rod.
 - (1) Insert the control rod and align holes A and B.
 - (2) Install the spring and ball.



76G07C-255

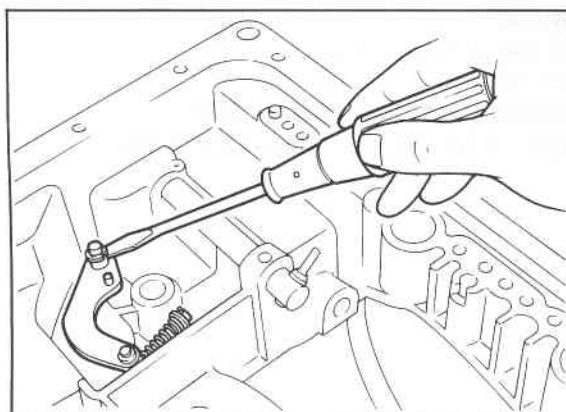
- (3) Install the knock pin.



76G07C-256

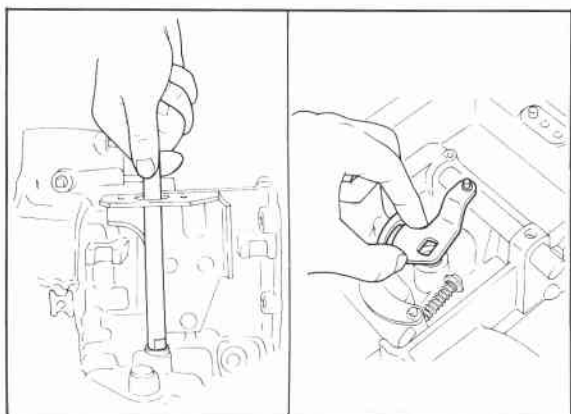
3. Install the manual shaft assembly.
 - (1) Install the parking joint, spring, and washer to the parking rod.
 - (2) Install the snap pin.

Note
Face the snap pin in the direction shown.



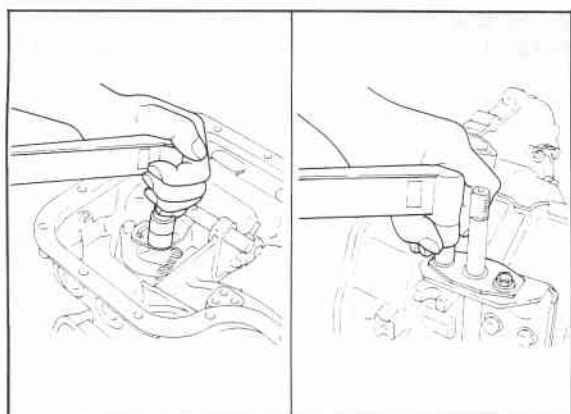
76G07C-257

- (3) Install the parking lever; then install the snap ring.



76G07C-258

- (4) Apply ATF to the O-ring, and install it onto the manual shaft.
- (5) Insert the manual shaft and manual plate.



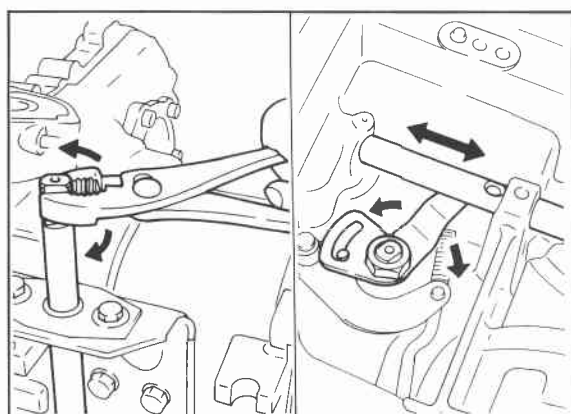
76G07C-259

- (6) Install the locknut.

Tightening torque:
29—39 N·m (3.0—4.0 m·kg, 22—29 ft·lb)

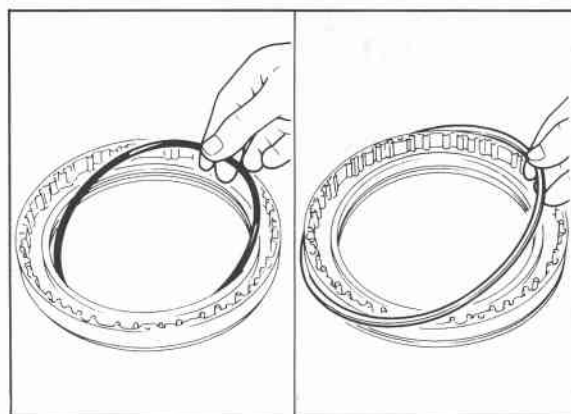
- (7) Install the bushing into the plate; then install the plate.

Tightening torque:
5—8 N·m (50—80 cm·kg, 43—69 in·lb)



76G07C-260

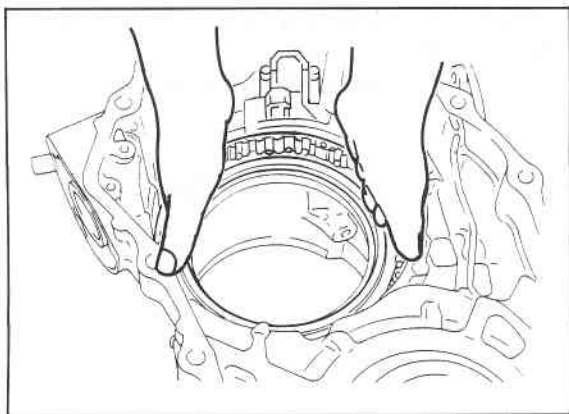
- (8) Move the manual shaft and check the manual shaft mechanism operation.



76G07C-261

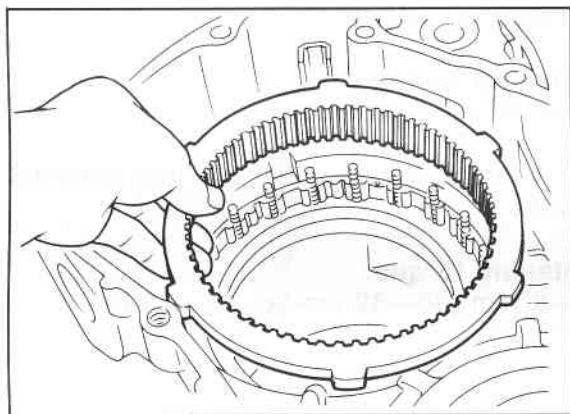
4. Install the low and reverse brake piston.
 - (1) Apply ATF to the inner and outer seals and install them onto the low and reverse brake piston.

7C ASSEMBLY



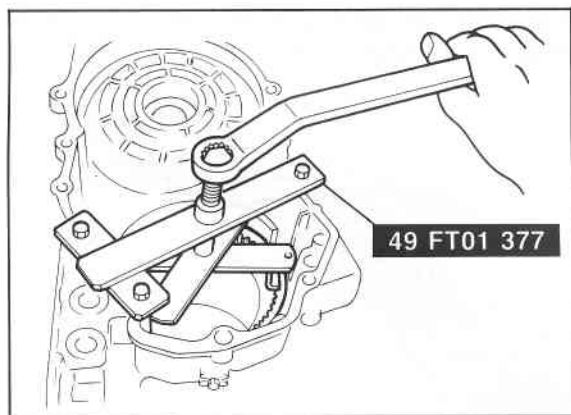
76G07C-262

- (2) Install the low and reverse brake piston by pushing evenly around the circumference.



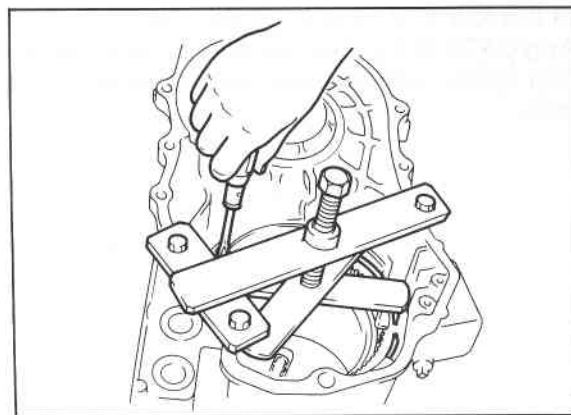
76G07C-263

5. Install the low and reverse brake hub.
 - (1) Install the springs and low and reverse brake hub.
 - (2) Set the snap ring onto the low and reverse brake hub.



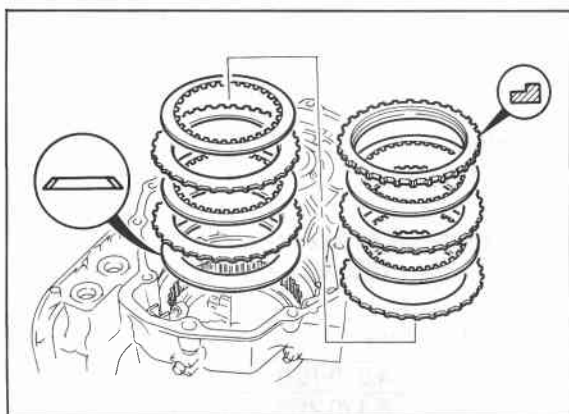
76G07C-264

- (3) Install the **SST**.
- (4) Compress the low and reverse brake hub.



76G07C-265

- (5) Install the snap ring.
- (6) Remove the **SST**.



76G07C-266

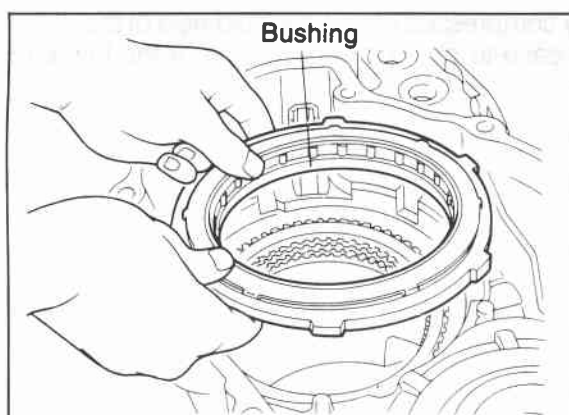
6. Install the dished plate with the dished side downward as shown.
7. Install the drive and driven plates.

Note

Installation order:

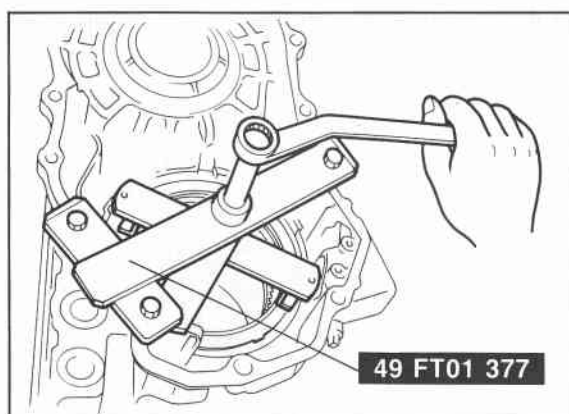
Driven-Drive-Driven-Drive-Driven-Drive-Driven-Drive

8. Install the retaining plate with the step facing upward.



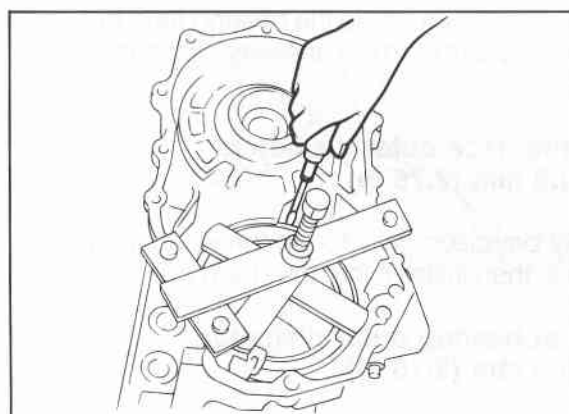
76G07C-267

9. Install the one-way clutch.
 - (1) Install the one-way clutch so that the side with the bushing faces the retaining plate.



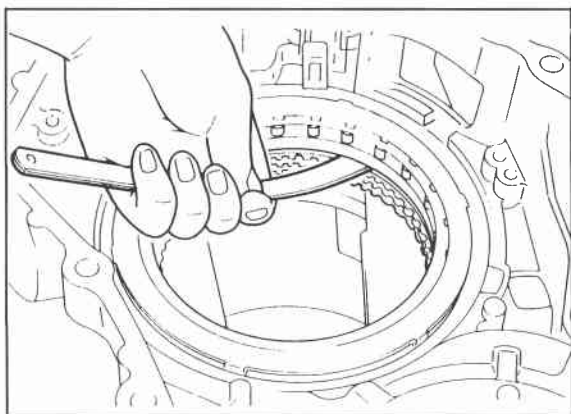
76G07C-268

- (2) Set the snap ring on the one-way clutch.
- (3) Install the **SST**.
- (4) Compress the one-way clutch.



76G07C-269

- (5) Install the snap ring.
- (6) Remove the **SST**.



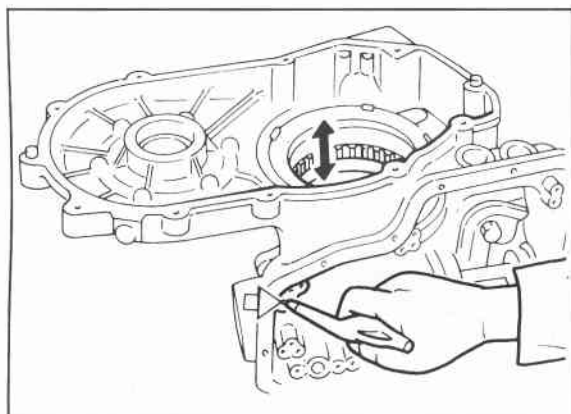
76G07C-270

10. Check the low and reverse brake clearance.
 - (1) Measure the clearance between the one-way clutch and the low and reverse brake retaining plate.
 - (2) If the clearance is not within specification, adjust it by selecting a proper retaining plate.

Low and reverse brake clearance:
0.8—1.05 mm (0.032—0.041 in)

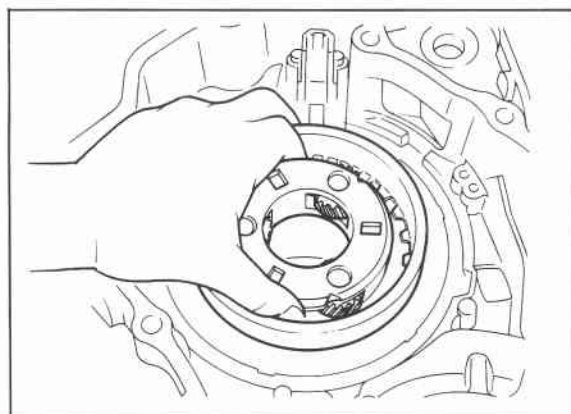
Retaining plate sizes **mm (in)**

4.6 (0.181)	4.8 (0.189)	5.0 (0.197)
5.2 (0.205)	5.4 (0.213)	5.6 (0.220)



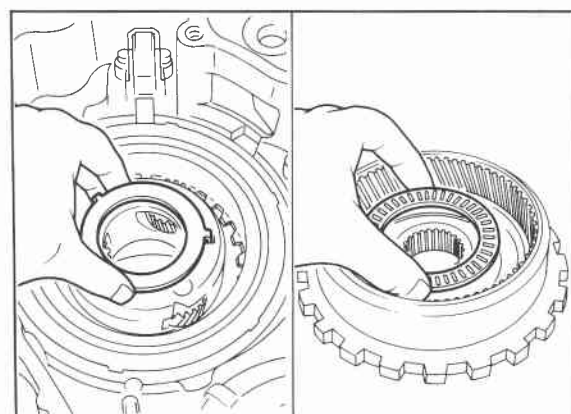
76G07C-271

11. Blow compressed air into the fluid hole of the trans-axle case to check the operation of the low and reverse brake.



76G07C-272

12. Install the one-way clutch inner race assembly.



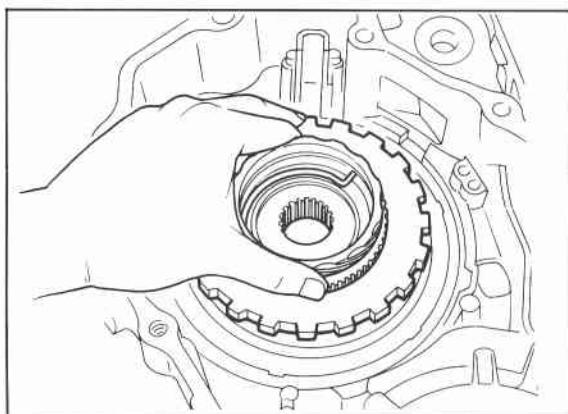
76G07C-273

13. Apply petroleum jelly to the bearing race to secure it; then install it onto the one-way clutch inner race assembly.

Bearing race outer diameter:
70.0 mm (2.76 in)

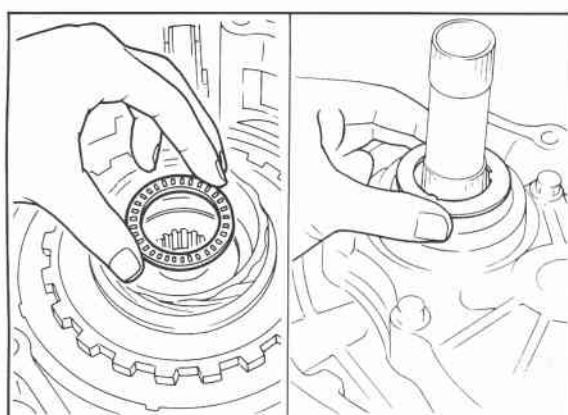
14. Apply petroleum jelly to the thrust bearing to secure it; then install it into the drum hub assembly.

Thrust bearing outer diameter:
69.9 mm (2.75 in)



76G07C-274

15. Install the drum hub assembly.



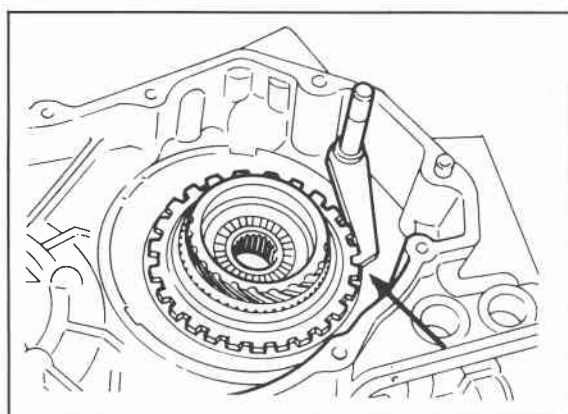
76G07C-275

16. Apply petroleum jelly to the thrust bearing to secure it; then install it into the drum hub assembly.

**Thrust bearing outer diameter:
52.9 mm (2.08 in)**

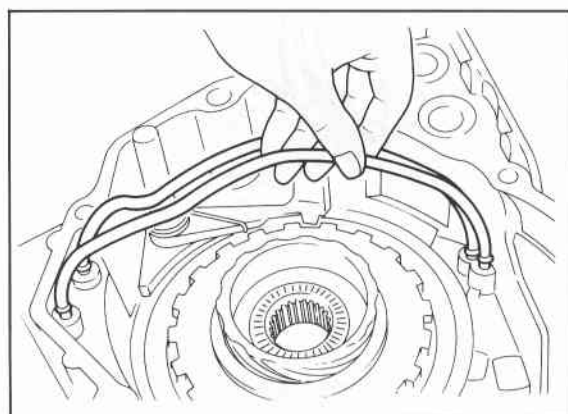
17. Apply petroleum jelly to the bearing race to secure it; then install it into the transaxle case.

**Bearing race outer diameter:
51.5 mm (2.03 in)**



76G07C-276

18. Install the parking pawl assembly.
19. Move the manual shaft and check that the parking pawl meshes properly with the parking gear when the manual shaft is at P.

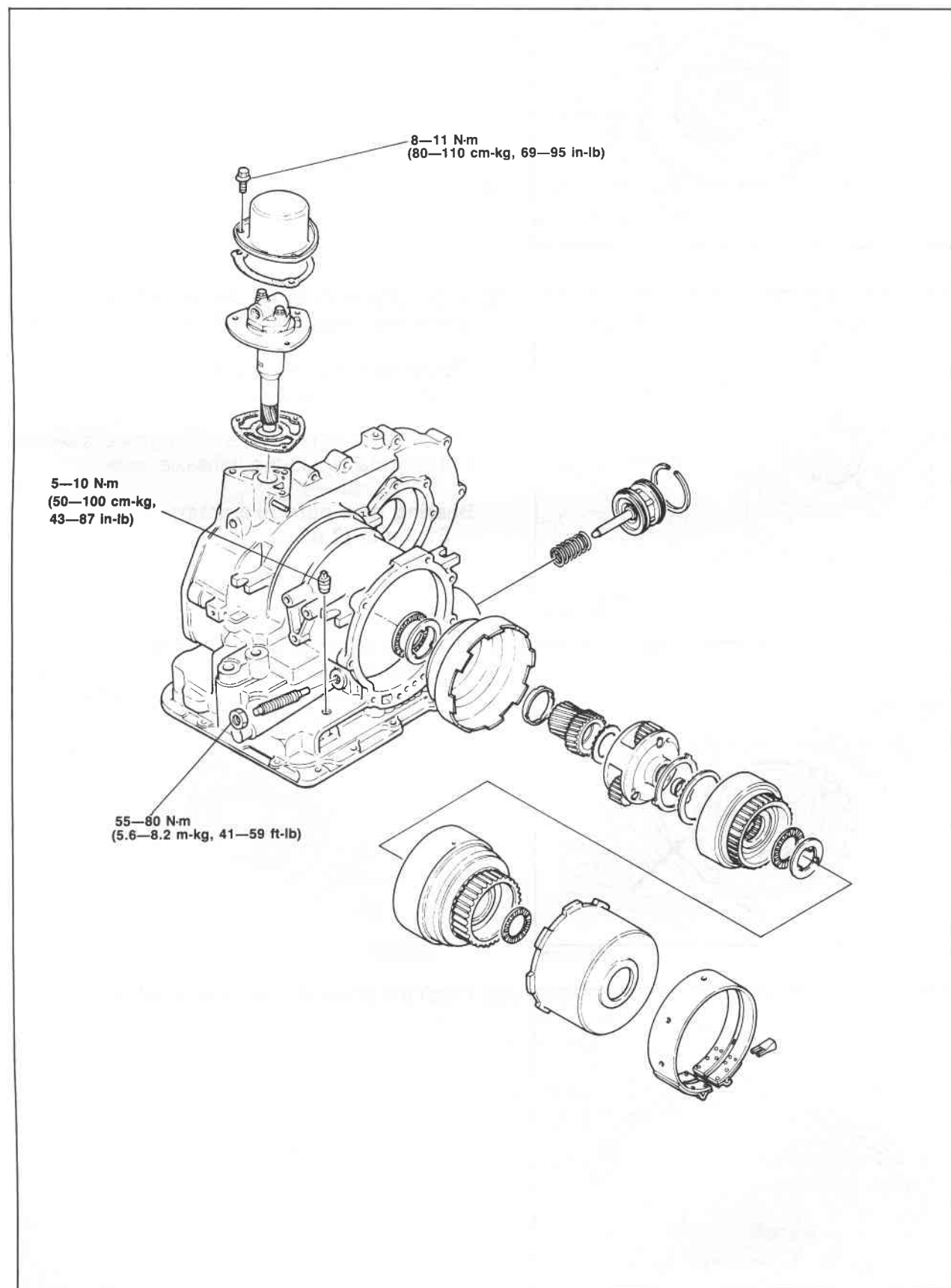


76G07C-277

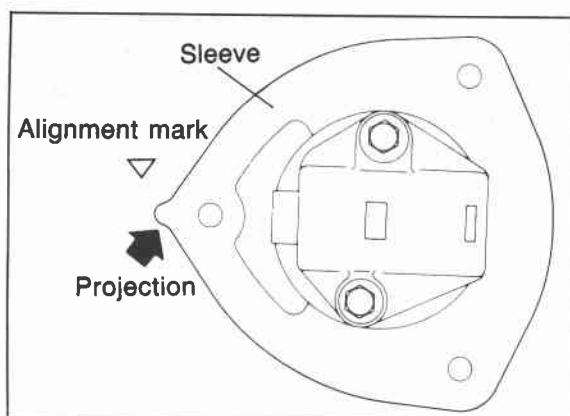
20. Install the governor inlet and outlet pipe.

7C ASSEMBLY

ASSEMBLY-STEP 3 Torque Specifications



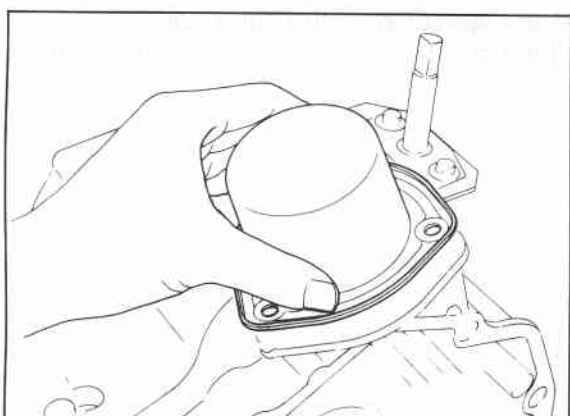
76G07C-278



76G07C-279

Procedure

1. Install the governor assembly.
 - (1) Mount the governor along with a new gasket onto the transaxle case so that the sleeve projection is aligned with the alignment mark on the transaxle case.

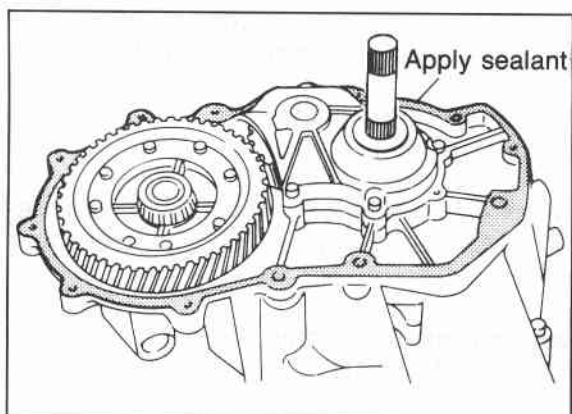


76G07C-280

- (2) Install the governor cover along with a new gasket.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

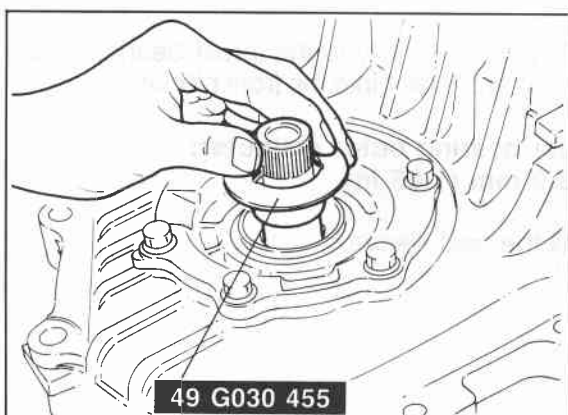


76G07C-281

2. Apply a thin coat of silicone sealant to the contact surfaces of the converter housing and transaxle case.
3. Install the transaxle case onto the converter housing.

Tightening torque:

29—46 N·m (3.0—4.7 m·kg, 22—34 ft·lb)



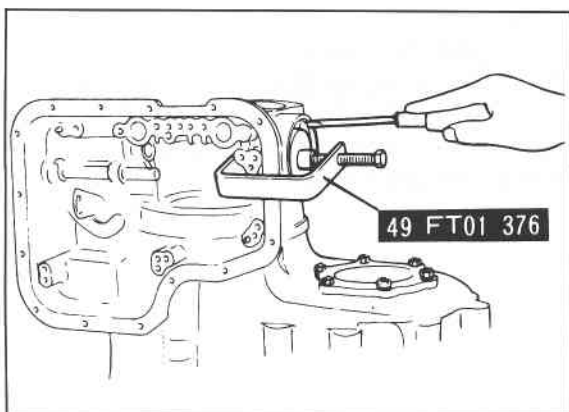
76G07C-282

4. Install the **SST** into the differential side gear.

Caution

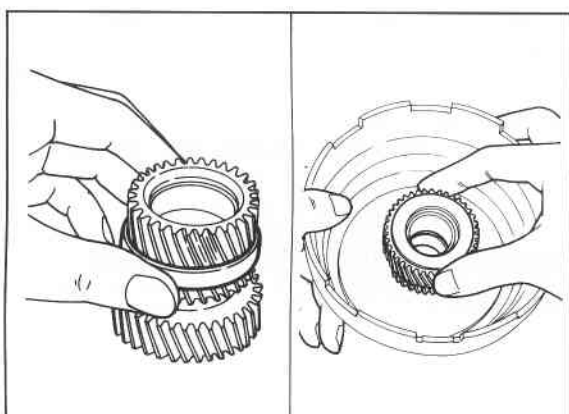
Failure to install the SST may allow the differential side gears to become misaligned.

7C ASSEMBLY



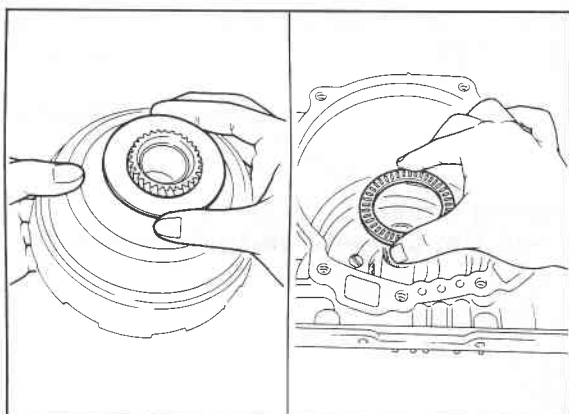
76G07C-283

5. Install the servo into the transaxle case.
 - (1) Install the return spring and servo retainer.
 - (2) Compress the servo retainer with the **SST**.
 - (3) Install the snap ring.
 - (4) Remove the **SST**.



76G07C-284

6. Install the spacer onto the sun gear.
7. Install the sun gear into the connecting shell.



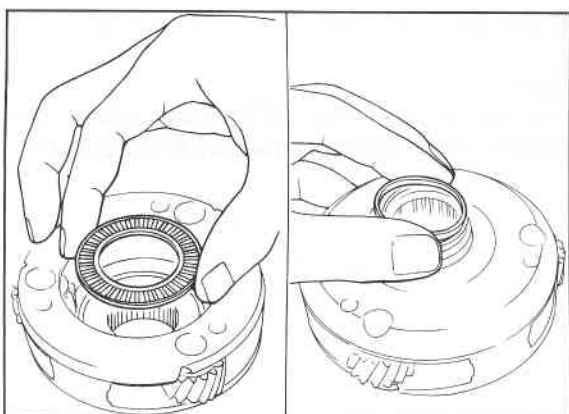
76G07C-285

8. Apply petroleum jelly to the bearing race to secure it; then install it onto the connecting shell.

Bearing race outer diameter:
70.0 mm (2.76 in)

9. Apply petroleum jelly to the thrust bearing to secure it; then install it onto the one-way clutch inner race.

Thrust bearing outer diameter:
69.9 mm (2.75 in)



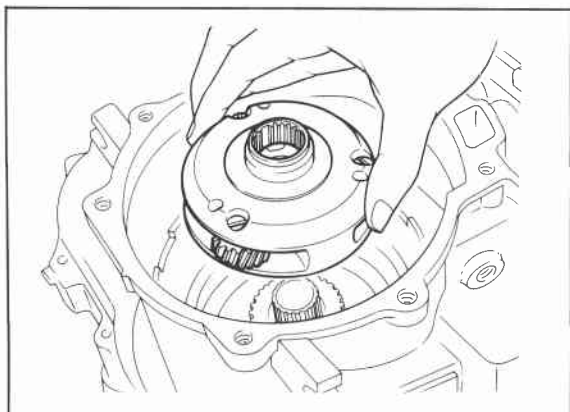
76G07C-286

10. Install the sun gear and connecting shell into the drum hub assembly.

11. Apply petroleum jelly to the thrust bearing to secure it; then install it into the front planetary carrier.

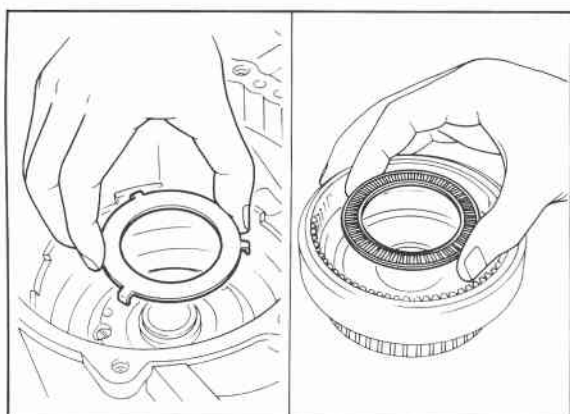
Thrust bearing outer diameter:
46.9 mm (1.85 in)

12. Install the seal sleeve.



76G07C-287

13. Install the front planetary carrier.



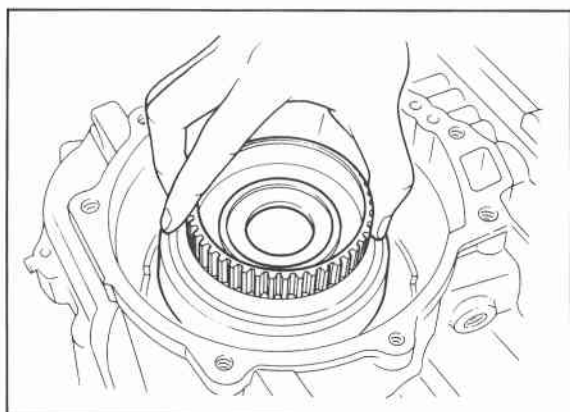
76G07C-288

14. Apply petroleum jelly to the bearing race to secure it; then install it into the front planetary carrier.

Bearing race outer diameter:
70.0 mm (2.76 in)

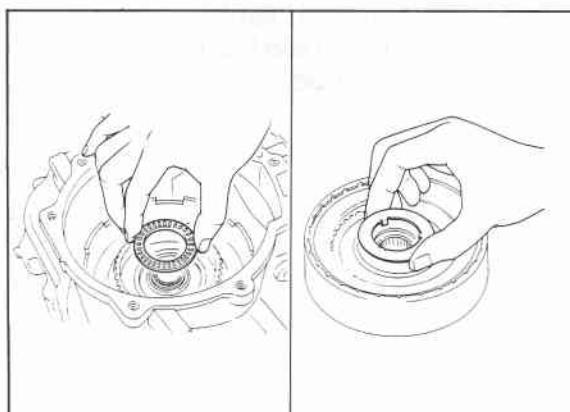
15. Apply petroleum jelly to the thrust bearing to secure it; then install it into the rear clutch hub assembly.

Thrust bearing outer diameter:
69.9 mm (2.75 in)



76G07C-289

16. Install the rear clutch hub assembly.



76G07C-290

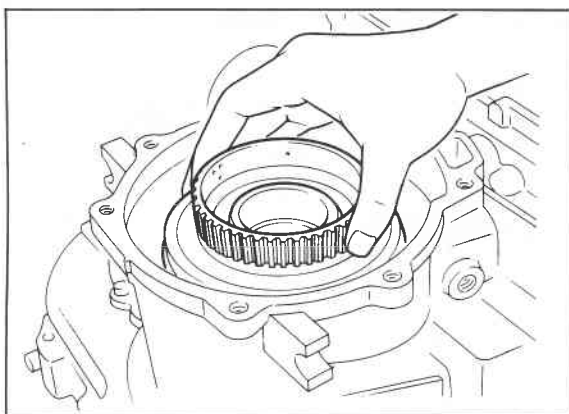
17. Apply petroleum jelly to the thrust bearing to secure it; then install it into the rear clutch hub assembly.

Thrust bearing outer diameter:
52.9 mm (2.08 in)

18. Apply petroleum jelly to the bearing race to secure it; then install it into the rear clutch.

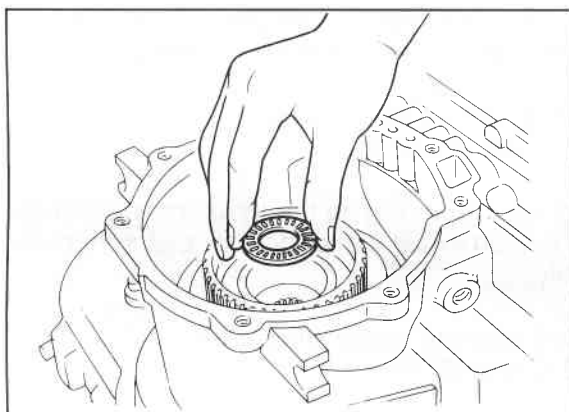
Bearing race outer diameter:
51.5 mm (2.03 in)

7C ASSEMBLY



76G07C-291

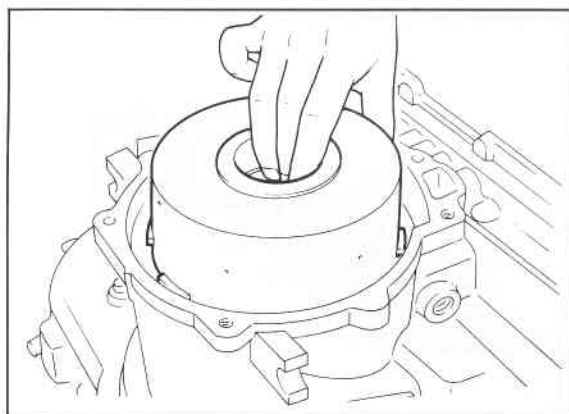
19. Install the rear clutch.



76G07C-292

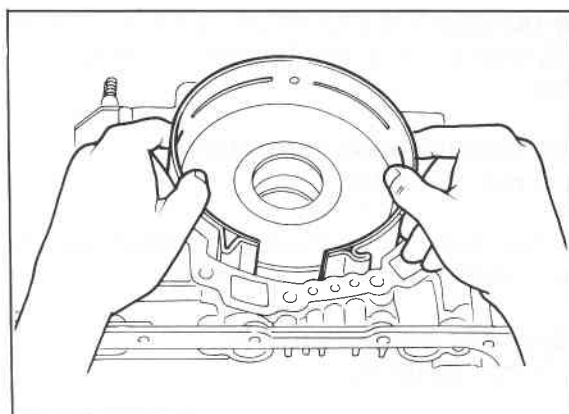
20. Apply petroleum jelly to the thrust bearing to secure it; then install it into the rear clutch.

**Thrust bearing outer diameter:
41.9 mm (1.65 in)**



76G07C-293

21. Install the front clutch.

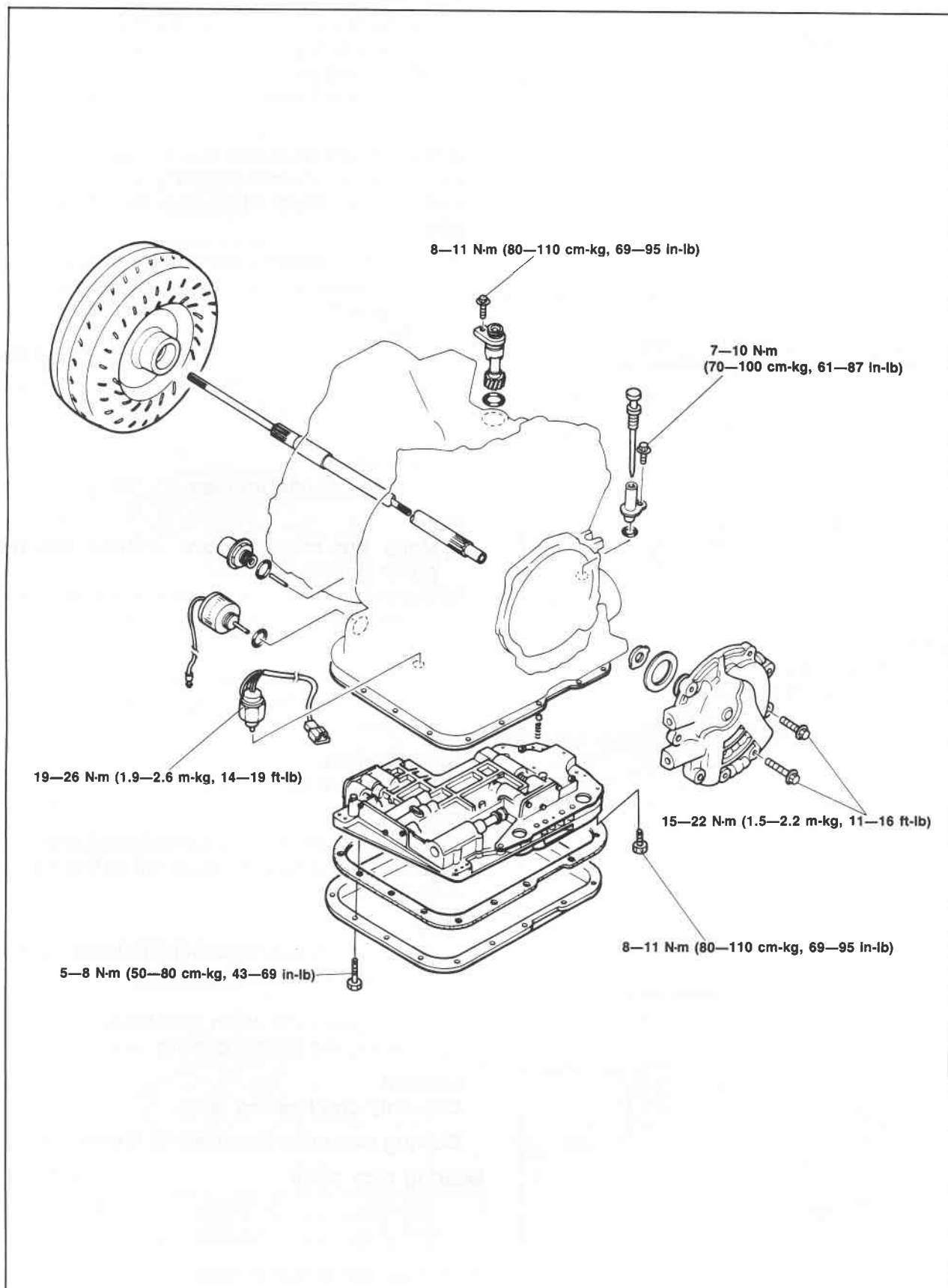


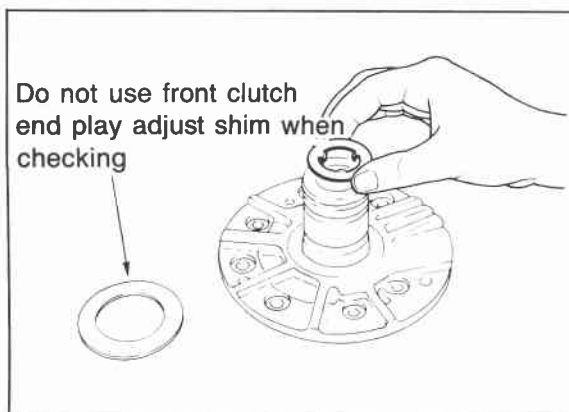
76G07C-294

22. Install the brake band and strut.

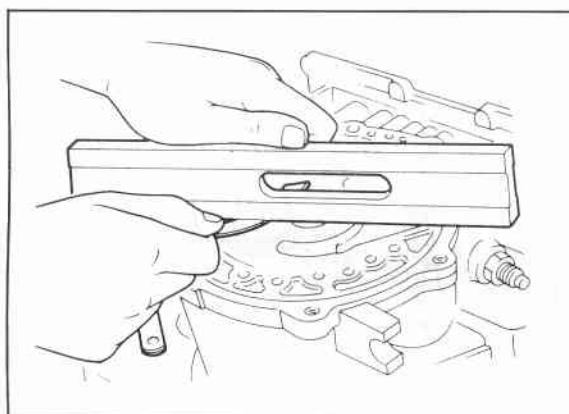
23. Install the anchor-end bolt and locknut; then loosely tighten the anchor-end bolt.

ASSEMBLY-STEP 4 Torque Specifications

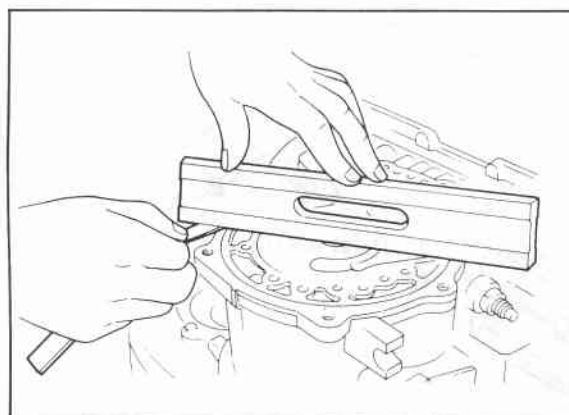




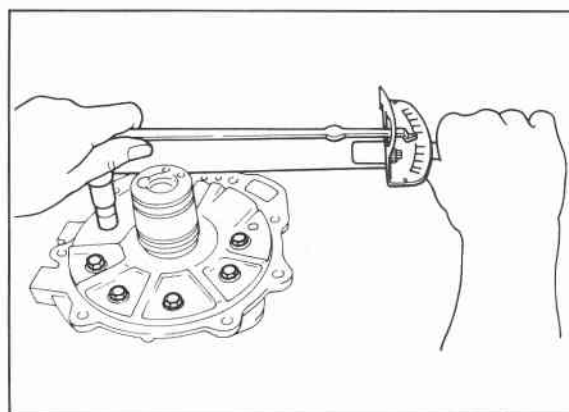
76G07C-296



76G07C-297



76G07C-298



76G07C-299

Procedure

1. Use the following procedure to adjust the total end play and select a suitable bearing race.
 - (1) Remove the pump cover from the oil pump.
 - (2) Install the bearing into the rear clutch drum.
 - (3) Mount the bearing race to the pump cover; and then install it into the front clutch drum.

Note

A front clutch drum end play adjust shim must not be used between the pump cover and the front clutch drum when checking total end play.

- (4) Position a straight edge on the transaxle case, and measure the clearance between the straight edge and either the pump cover or the transaxle case.
 - a) If the pump cover surface is lower than the transaxle case, measure the clearance between the straight edge and the pump cover.

Specification:

0.10 mm (0.004 in) max.

Note

- a) **Make the measurement without the oil pump gasket installed.**
- b) **Measured clearance plus thickness of oil pump gasket equals total end play.**

- b) If the pump cover surface is higher than the transaxle case, measure the clearance between the straight edge and the transaxle case.

Specification:

0.15 mm (0.006 in) max.

Caution

Do not position the straight edge on the bolt holes for mounting the oil pump to the transaxle case.

Note

Thickness of oil pump gasket minus measured clearance equals total end play.

2. If the end play is not within specification, adjust it by selecting the proper bearing race.

Caution

Use only one bearing race.

Bearing race outer diameter: 41.0 mm (1.61 in)

Bearing race sizes

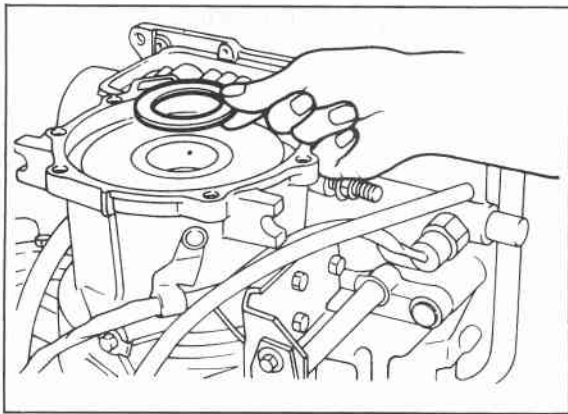
mm (in)

1.2 (0.047)	1.4 (0.055)	1.6 (0.063)
1.8 (0.071)	2.0 (0.079)	2.2 (0.087)

3. Reinstall the oil pump cover.

Tightening torque: 11—14 N·m

(110—140 cm·kg, 95—122 in·lb)

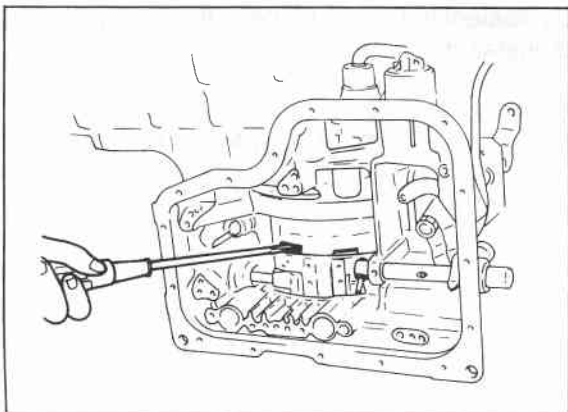


76G07C-300

4. Use the following procedure to adjust the front clutch drum end play and select the adjust shim.
 - (1) Set the oil pump gasket onto the transaxle case.
 - (2) Place the adjust shim onto the front clutch drum.
 - (3) Install the oil pump and bearing race into the transaxle; then tighten the oil pump mounting bolts to the specified torque.

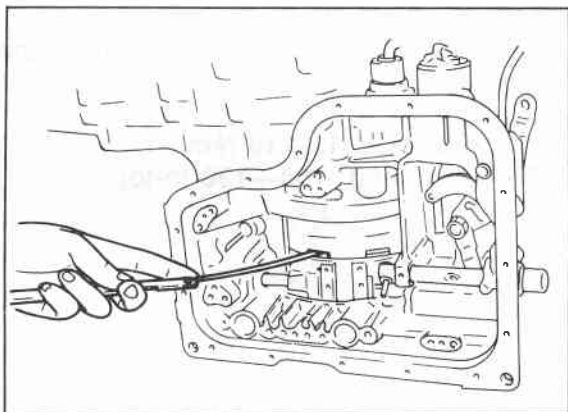
Tightening torque:

15—22 N·m (1.5—2.2 m·kg, 11—16 ft·lb)



76G07C-301

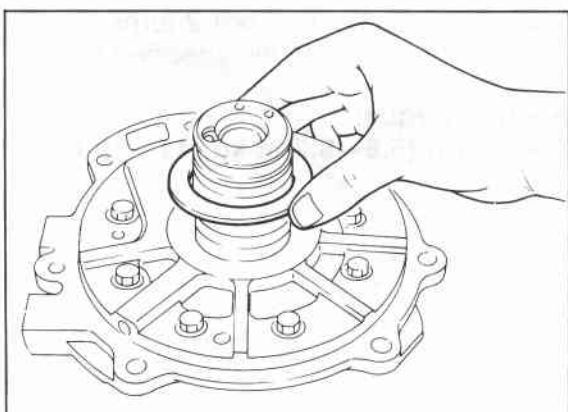
- (4) Position the transaxle with the oil pump facing down ward position.
- (5) While turning the connecting shell 2 complete turns, push the front clutch drum toward the oil pump with a screwdriver to seat the front clutch drum.



63U07B-220

- (6) Measure the clearance between the front clutch drum and the connecting shell. This clearance is the front clutch drum end play.

End play: 0.5—0.8 mm (0.020—0.031 in)



76G07C-302

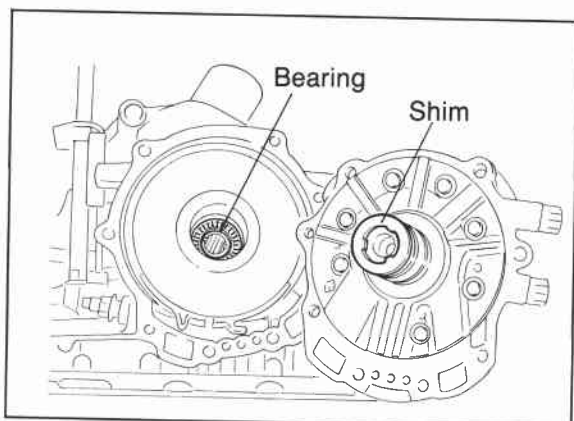
- (7) If the end play is not within specification, adjust it by selecting the proper adjust shim.

Shim sizes

mm (in)

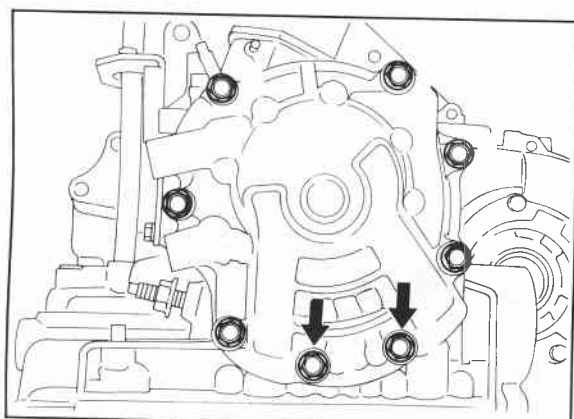
1.3 (0.051)	1.5 (0.059)	1.7 (0.067)
1.9 (0.075)	2.1 (0.083)	2.3 (0.091)
2.5 (0.098)	2.7 (0.106)	

7C ASSEMBLY



76G07C-303

5. Check that bearing race and shim are installed correctly.

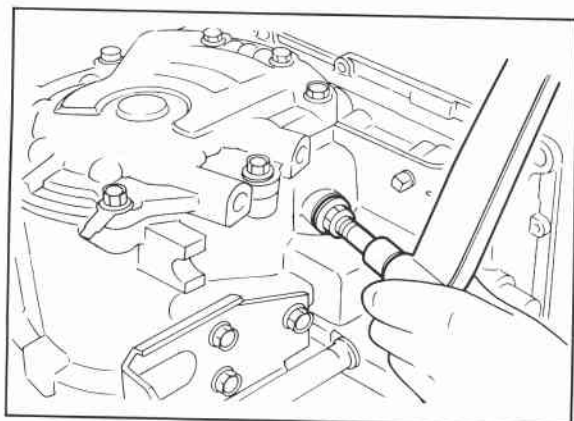


76G07C-304

6. Apply sealant to the seat face of the arrow marked bolts install the oil pump.

Tightening torque:

15—22 N·m (1.5—2.2 m·kg, 11—16 ft·lb)



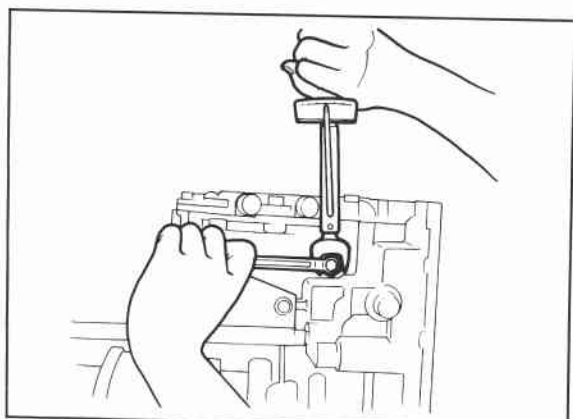
76G07C-305

7. Adjust the band brake.

(1) Apply sealant to threads; and tighten the anchor-end bolt.

Tightening torque: 12—15 N·m

(120—150 cm·kg, 104—130 in·lb)



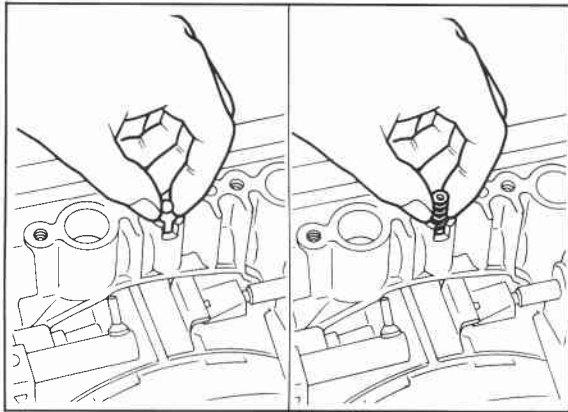
76G07C-306

(2) Loosen the anchor-end bolt 2 turns.

(3) Tighten the locknut to the specified torque.

Tightening torque:

55—80 N·m (5.6—8.2 m·kg, 41—59 ft·lb)

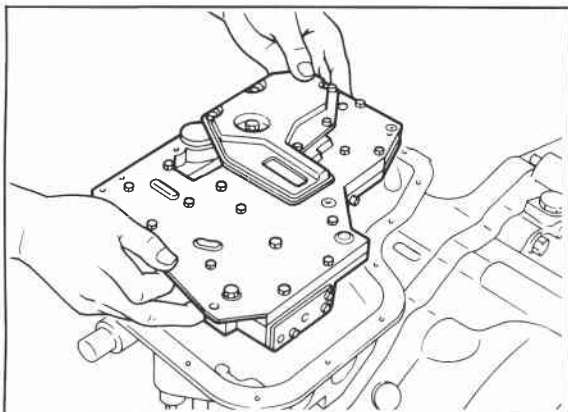


76G07C-307

8. Install the steel ball and spring.

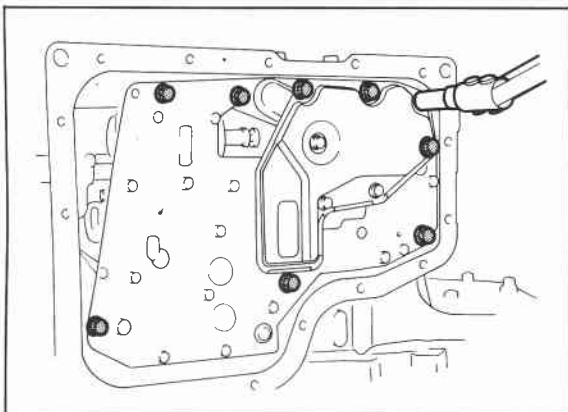
Note

Install the ball first, then the spring.



76G07C-308

9. Install the control valve, mating the groove of the manual valve with the driving pin of the control rod.

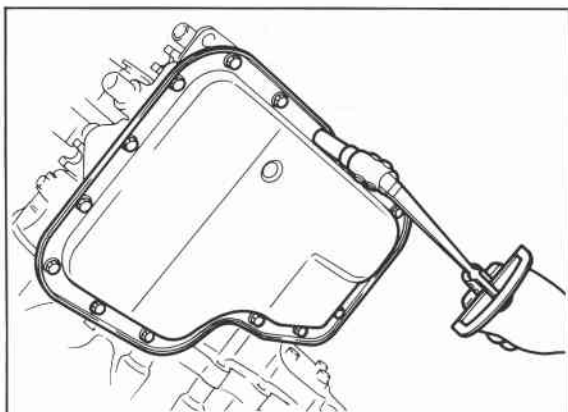


76G07C-309

10. Tighten the control valve mounting bolts to the specified torque.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

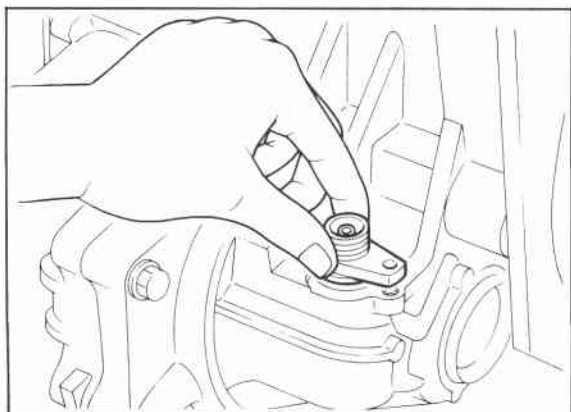


76G07C-310

11. Install the gasket and oil pan.

Tightening torque:

5—8 N·m (50—80 cm·kg, 43—69 in·lb)

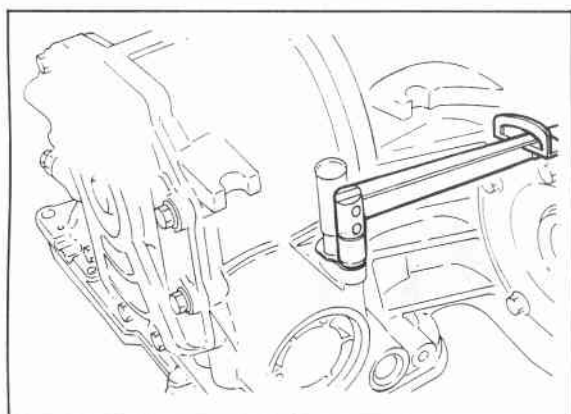


76G07C-311

12. Install the speedometer driven gear.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

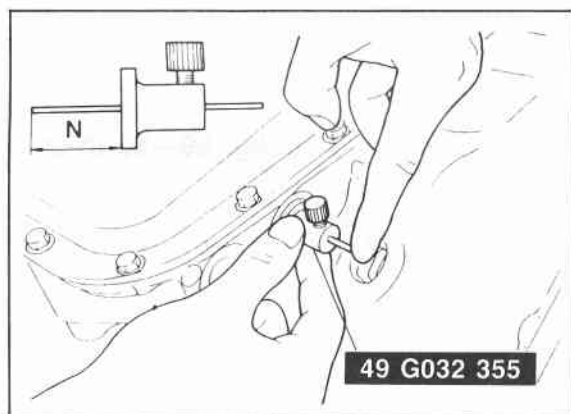


76G07C-312

13. Install the oil level gauge and tube along with a new O-ring to the transaxle case.

Tightening torque:

7—10 N·m (70—100 cm·kg, 61-87 in·lb)

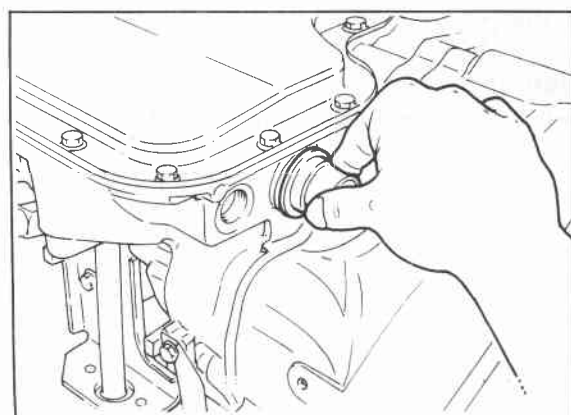


76G07C-313

14. Install a new O-ring on the vacuum diaphragm.
15. Select the proper diaphragm rod.

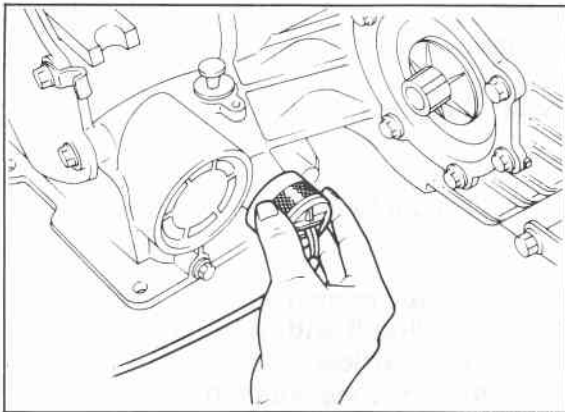
- (1) Measure the N dimension with the **SST** and a scale.
- (2) Select the diaphragm rod in accordance with the table below.

N dimension	Applicable diaphragm rod length
Below 25.4 mm (1.000 in)	29.5 mm (1.161 in)
25.4—25.9 mm (1.000—1.020 in)	30.0 mm (1.181 in)
25.9—26.4 mm (1.020—1.039 in)	30.5 mm (1.200 in)
26.4—26.9 mm (1.039—1.059 in)	31.0 mm (1.220 in)
26.9 mm (1.059 in) or over	31.5 mm (1.240 in)



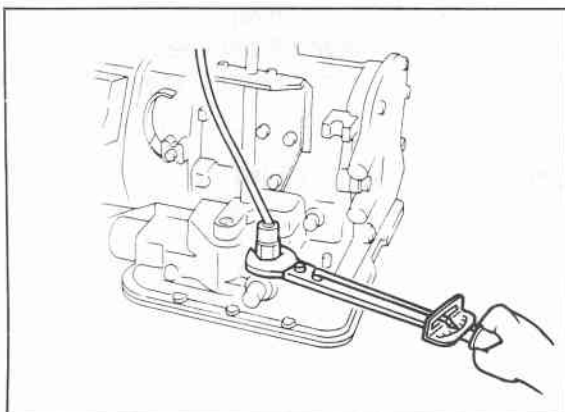
76G07C-314

16. Install the vacuum diaphragm.



76G07C-315

17. Install a new O-ring on the kick-down solenoid.
18. Install the kick-down solenoid.

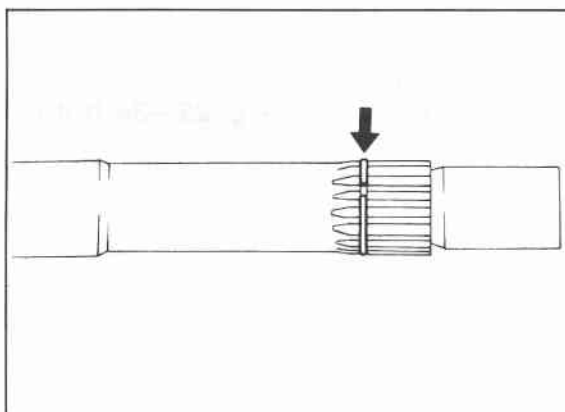


76G07C-316

19. Apply sealant to the threads and seat face of the switch; and install the inhibitor switch.

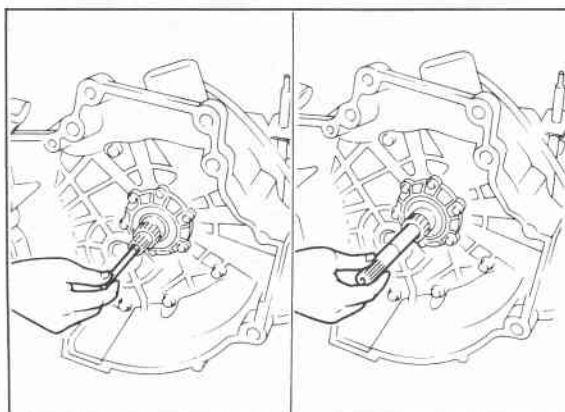
Tightening torque:

19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



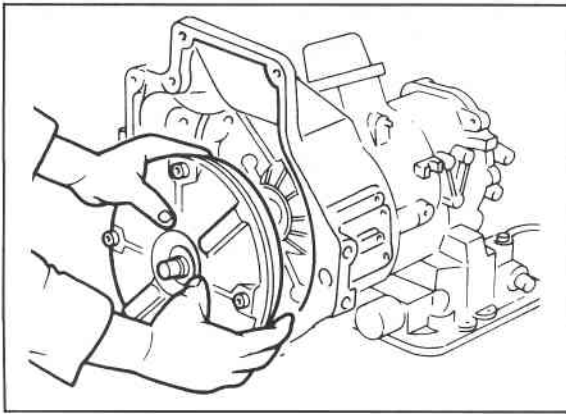
76G07C-317

20. Remove the transaxle from the transaxle hanger.
21. Install a new clip on the turbine shaft.

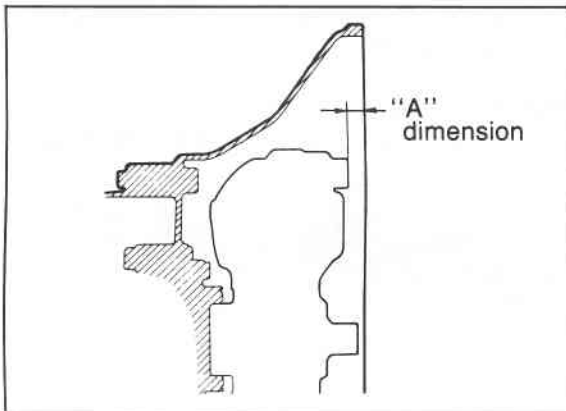


76G07C-318

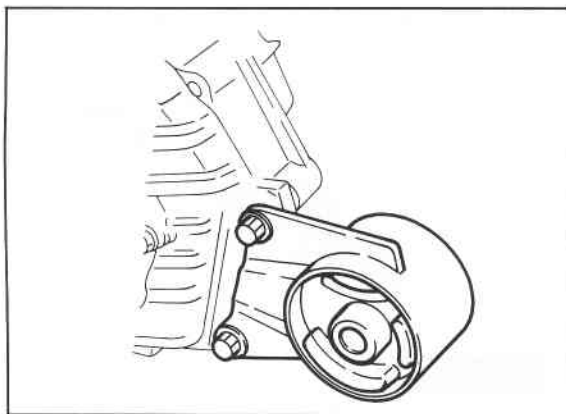
22. Install the turbine shaft.
23. Install the oil pump shaft.



76G07C-319



76G07C-320



76G07C-321

24. Fill the torque converter with ATF if it has been drained and washed.

ATF type: Dexron II or M III

25. Install the torque converter in the converter housing while rotating it to align the splines.

Caution

a) Hold the torque converter in an erect position when filling it with ATF, do not allow the fluid to overflow.

b) If the converter does not fit in easily, do not try to force it; install carefully.

26. To ensure that the torque converter is installed accurately, measure distance A between the end of the torque converter and the end of the converter housing.

(A): approx. 20 mm (0.79 in)

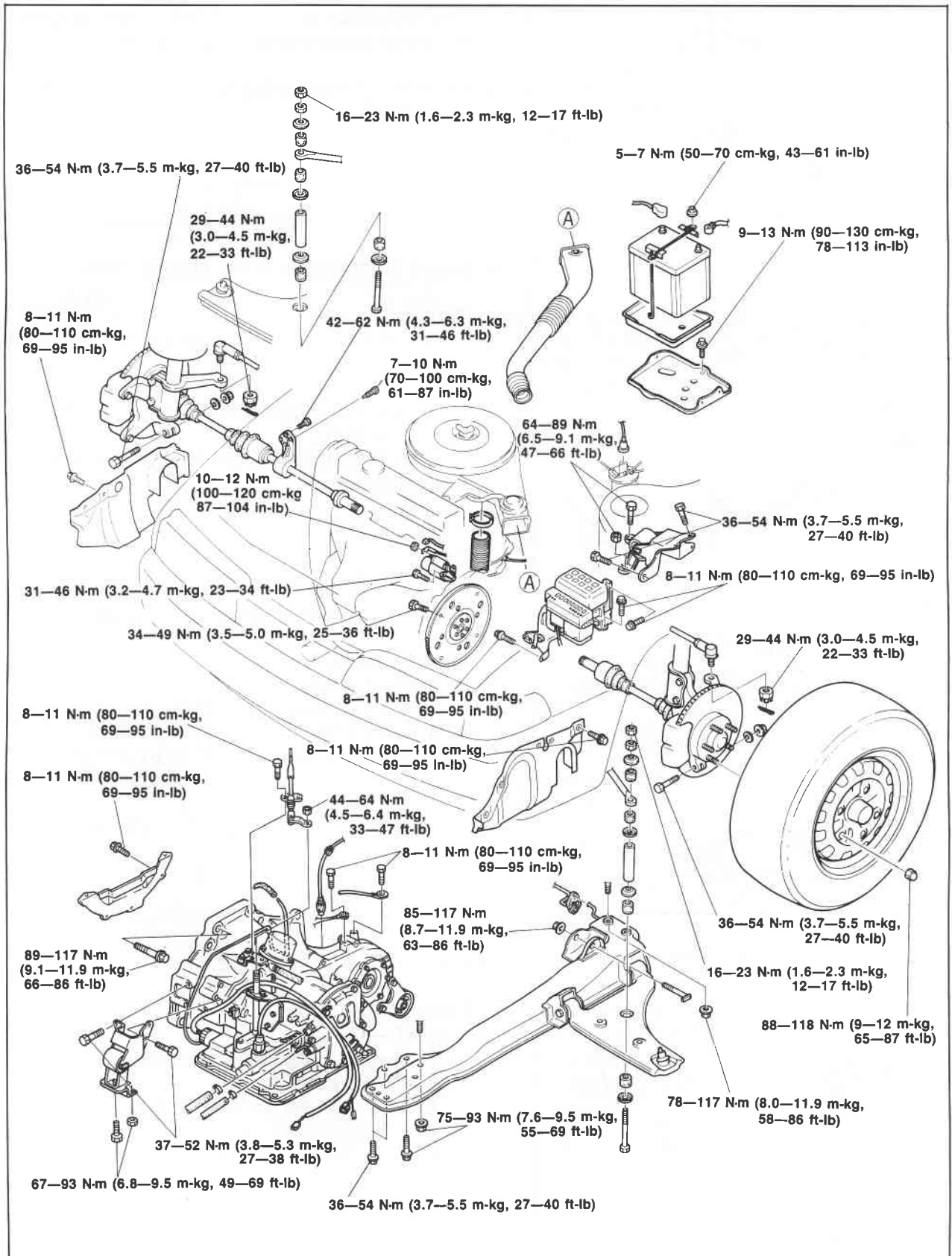
27. Install engine mount No.1.

Tightening torque:

29—46 N·m (3.0—4.7 m·kg, 22—34 ft·lb)

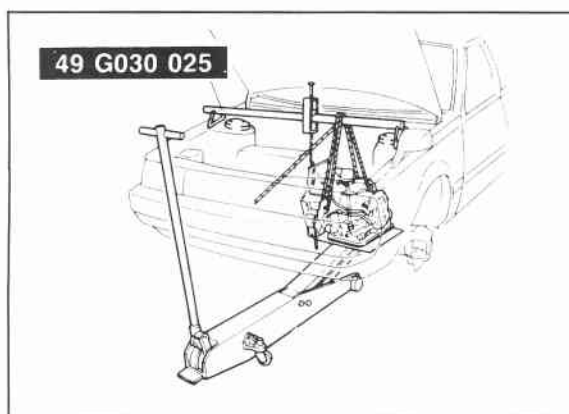
INSTALLATION

TORQUE SPECIFICATIONS



86U07B-440

7C INSTALLATION



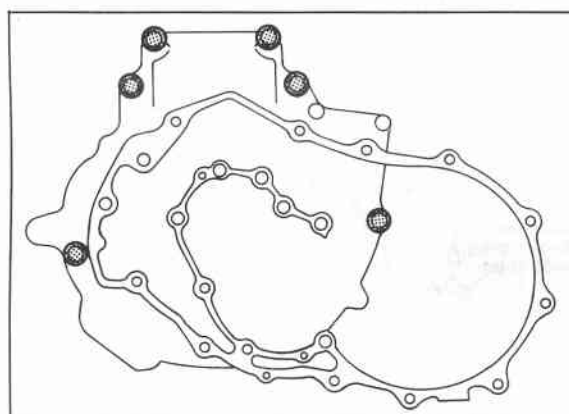
86U07B-441

1. Attach rope at 2 places on the transaxle. Place a flat board on a jack and set the transaxle on it.

Caution

The transaxle is not well balanced; be careful when positioning it on the jack.

2. Move the transaxle into place and attach the rope to the **SST**.



86U07B-442

3. Mount the transaxle to the engine.

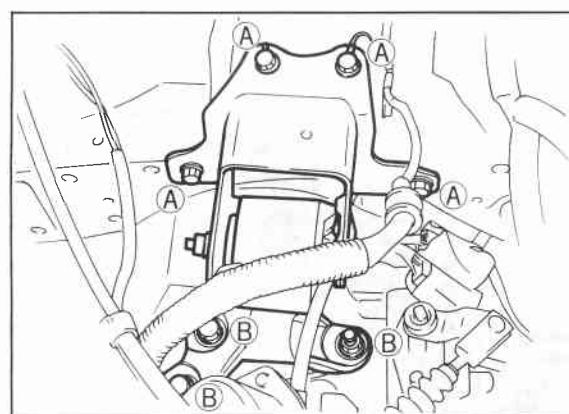
Tightening torque:

89—117 N·m (9.1—11.9 m·kg, 66—86 ft·lb)

Note

a) Lift the transaxle with the jack while pulling the rope.

b) Align the torque converter bolts and drive plate holes.



76G07C-322

4. Install engine mount No. 4 and bracket.

Tightening torque:

**(A) 36—54 N·m
(3.7—5.5 m·kg, 27—40 ft·lb)**

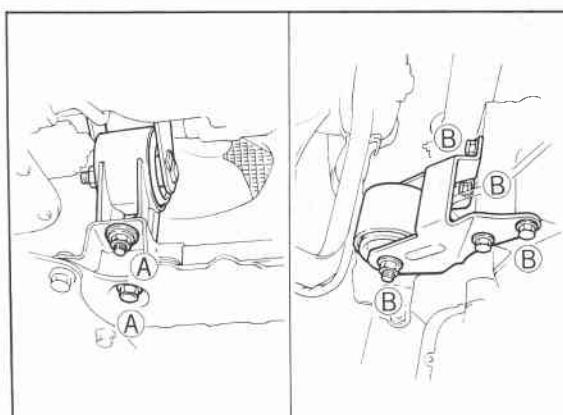
**(B) 64—89 N·m
(6.5—9.1 m·kg, 47—66 ft·lb)**

5. Install engine mount No. 2.

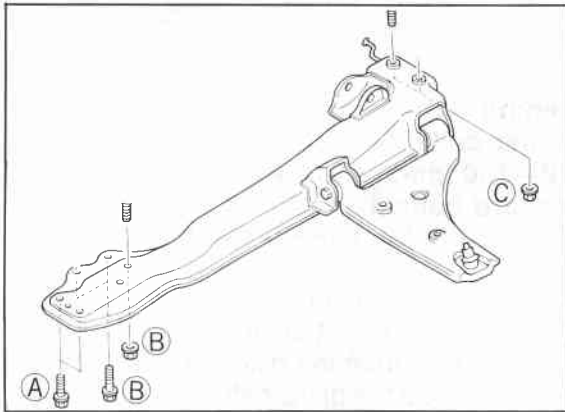
Tightening torque:

**(A) 67—93 N·m
(6.8—9.5 m·kg, 49—69 ft·lb)**

**(B) 37—52 N·m
(3.8—5.3 m·kg, 27—38 ft·lb)**



76G07C-323



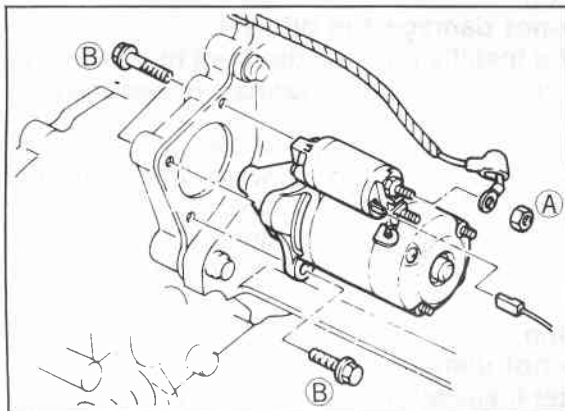
76G07C-324

6. Install the crossmember and the left side lower arm as an assembly.

Tightening torque:

- A** 36—54 N·m
(3.7—5.5 m·kg, 27—40 ft·lb)
- B** 75—93 N·m
(7.6—9.5 m·kg, 55—69 ft·lb)
- C** 78—117 N·m
(18.0—11.9 m·kg, 58—86 ft·lb)

7. Remove the jack and the rope.
8. Remove the **SST**.



76G07C-325

9. Install the starter and harnesses.

Tightening torque:

- A** 10—12 N·m
(100—120 cm·kg, 87—104 in·lb)
- B** 31—46 N·m
(3.2—4.7 m·kg, 23—34 ft·lb)



76G07C-326

10. Install the torque converter bolts.

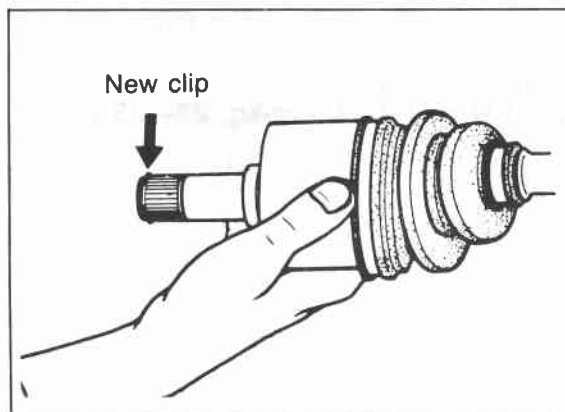
Tightening torque:

- 34—49 N·m (3.5—5.0 m·kg, 25—36 ft·lb)**

11. Install the end plate.

Tightening torque:

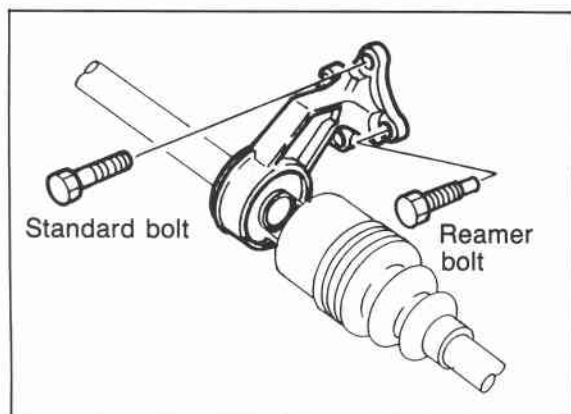
- 8—11 N·m (80—110 cm·kg, 69—95 in·lb)**



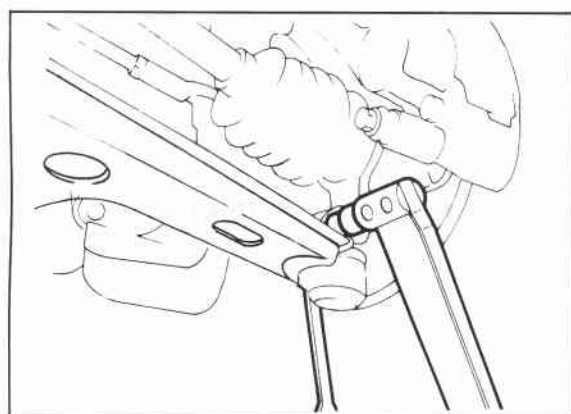
76G07C-327

12. Replace the clip at the ends of the driveshafts and joint shaft with new ones.
13. Install the joint shaft and right driveshaft as follows:
 - (1) Remove the **SST** and insert the joint shaft into the transaxle.
 - (2) Mount the joint shaft bracket onto the engine.

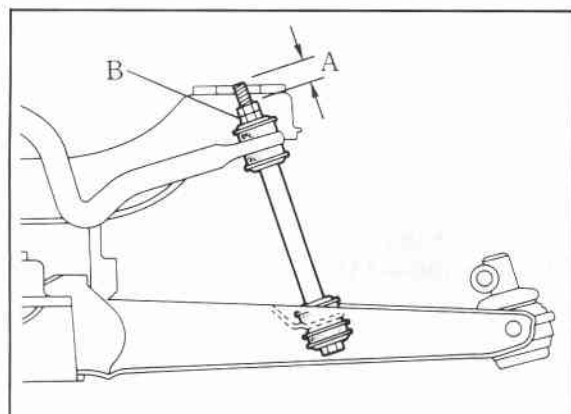
7C INSTALLATION



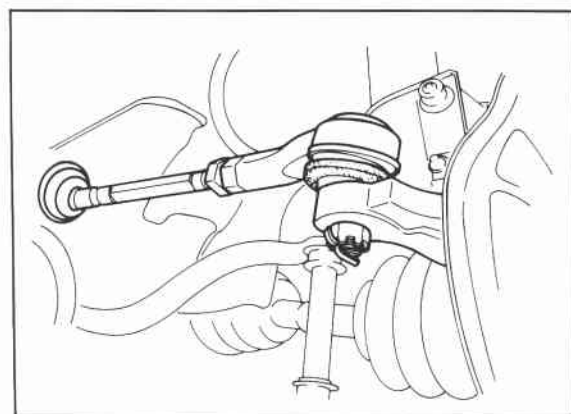
76G07C-328



76G07C-329



76G07C-330



76G07C-331

- (3) Install and tighten the reamer bolts, then install and tighten the standard bolts.

Tightening torque:

Reamer bolts 7—10 N·m
(70—100 cm·kg, 61—87 in·lb)
Standard bolts 42—62 N·m
(4.3—6.3 m·kg, 31—46 ft·lb)

- (4) Pull the front hub outward to connect the driveshaft to the joint shaft.
- (5) Push the joint from the differential side to securely connect the driveshaft to the joint shaft.

Caution

- a) Do not damage the oil seal.
- b) After installation, pull the front hub outward to verify that the driveshaft is secured.

14. Install the left driveshaft as follows:

- (1) Pull the front hub outward to insert the driveshaft into the transaxle.
- (2) Push the joint from the differential side to connect the driveshaft to the differential side gear.

Caution

- a) Do not damage the oil seal.
- b) After installation, pull the front hub outward to verify that the driveshaft is secured.

15. Install the lower arm ball joints to the knuckles and tighten the bolts and nuts.

Tightening torque:

36—54 N·m (3.7—5.5 m·kg, 27—40 ft·lb)

16. Install the under cover.

17. Install the stabilizer bar control link as follows:

- (1) Install the stabilizer bar control link.
- (2) Adjust length A to **20.1 mm (0.79 in)**.
- (3) Tighten bolt B to the specified torque.

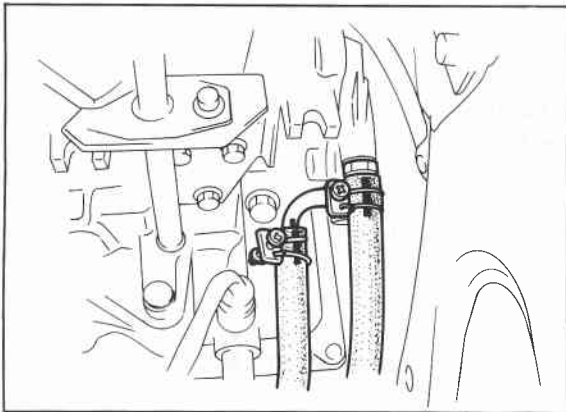
Tightening torque:

16—23 N·m (1.6—2.3 m·kg, 12—17 ft·lb)

18. Install the tie-rod ends and cotter pins.

Tightening torque:

29—44 N·m (3.0—4.5 m·kg, 22—33 ft·lb)



76G07C-332

19. Install the oil cooler outlet and inlet hoses.

Note

Align the mating mark as shown.

20. Install the splash shields.

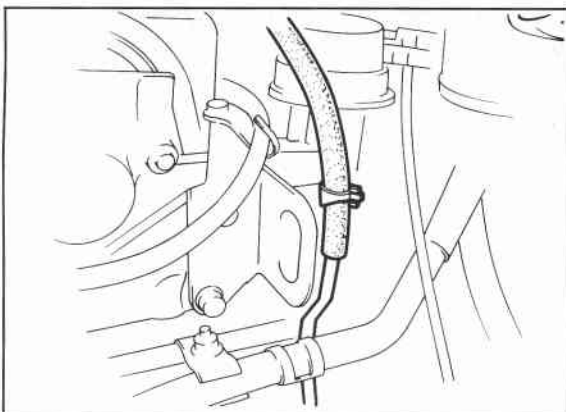
Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

21. Install the front wheels.

Tightening torque:

88—118 N·m (9—12 m·kg, 65—87 ft·lb)



76G07C-333

22. Connect the vacuum hose.

23. Connect the selector cable.

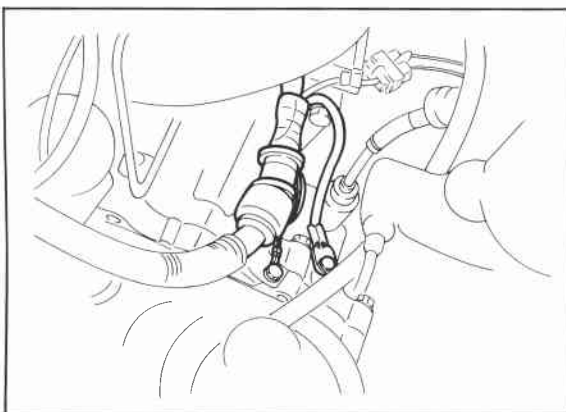
Tightening torque:

Nut

44—64 N·m (4.5—6.5 m·kg, 33—47 ft·lb)

Bolts

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

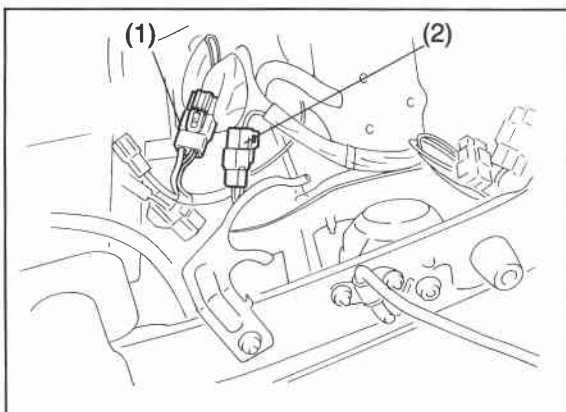


76G07C-334

24. Connect the ground wires to the transaxle case and oil pump.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)



76G07C-335

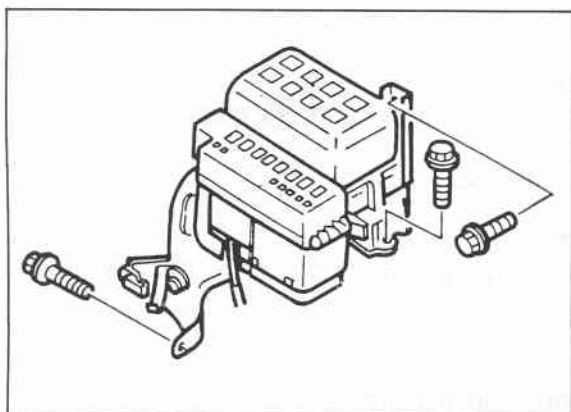
25. Connect the connectors.

(1) Inhibitor switch

(2) Kick-down switch

26. Connect the speedometer cable.

7C INSTALLATION



76G07C-336

27. Connect the distributor lead.
28. Connect the main fuse block.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

29. Install the fresh air duct.
30. Install the battery carrier and battery.

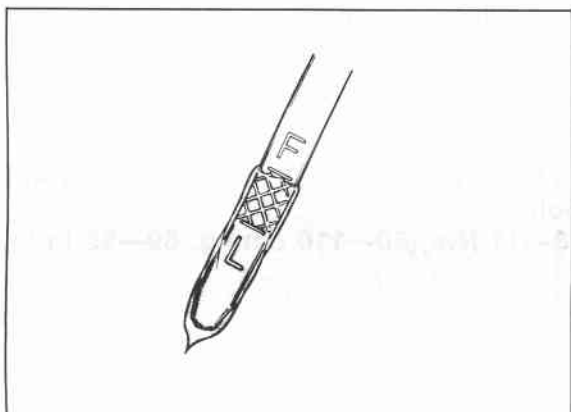
Tightening torque:

Bolts

9—13 N·m (90—130 cm·kg, 78—113 in·lb)

Nut

5—7 N·m (50—70 cm·kg, 43—61 in·lb)



76G07C-337

31. Pour in ATF and check the following:
 - (1) With the engine idling, check that the fluid level is between the F and L marks on the dipstick. (Refer to page 7C—25.)
 - (2) Check the manual linkage, and adjust if necessary. (Refer to page 7C—26.)
 - (3) Check the inhibitor switch operation. (Refer to page 7C—23.)
 - (4) Conduct a road test. (Refer to page 7C—18.)
 - (5) Check that there is no fluid leakage from the transaxle. (Refer to page 7C—25.)

HYDRAULIC CIRCUIT

OUTLINE

The flow of the individual hydraulic circuits are identified as listed below.

(Numbers indicate individual circuits)

Line pressure source	7
Control element operation system line pressure....	1,2,3,4,5,6,7,8,9,10,11,12
Auxiliary line pressure	13
Throttle system pressure	16,17,18,19
Governor system pressure.....	15
Torque converter system pressure	14

1. Line pressure

The line pressure is the hydraulic pressure of the oil emitted from the oil pump after adjustment by the pressure regulator valve.

2. Throttle pressure

Derived from the line pressure, the throttle pressure is the hydraulic pressure generated by the throttle valve which operates in conjunction with the intake manifold vacuum.

3. Governor pressure

Also derived from the line pressure, the governor pressure is the hydraulic pressure which varies in conjunction with the vehicle's speed. It is controlled by the governor rotating together with the output shaft.

Note

Schematic symbols

X : Drain

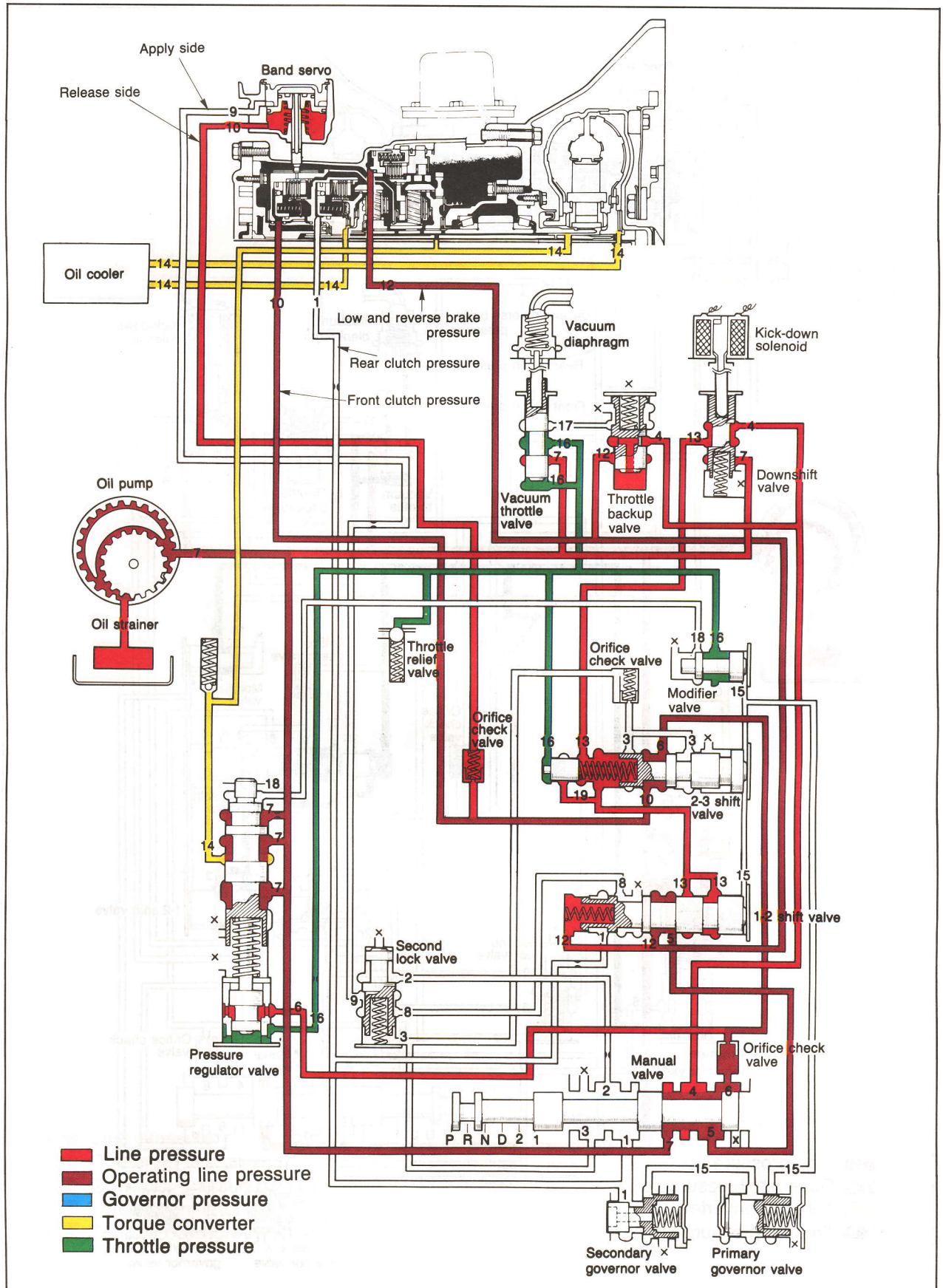
⌵ : Orifice

76G07C-338

P RANGE

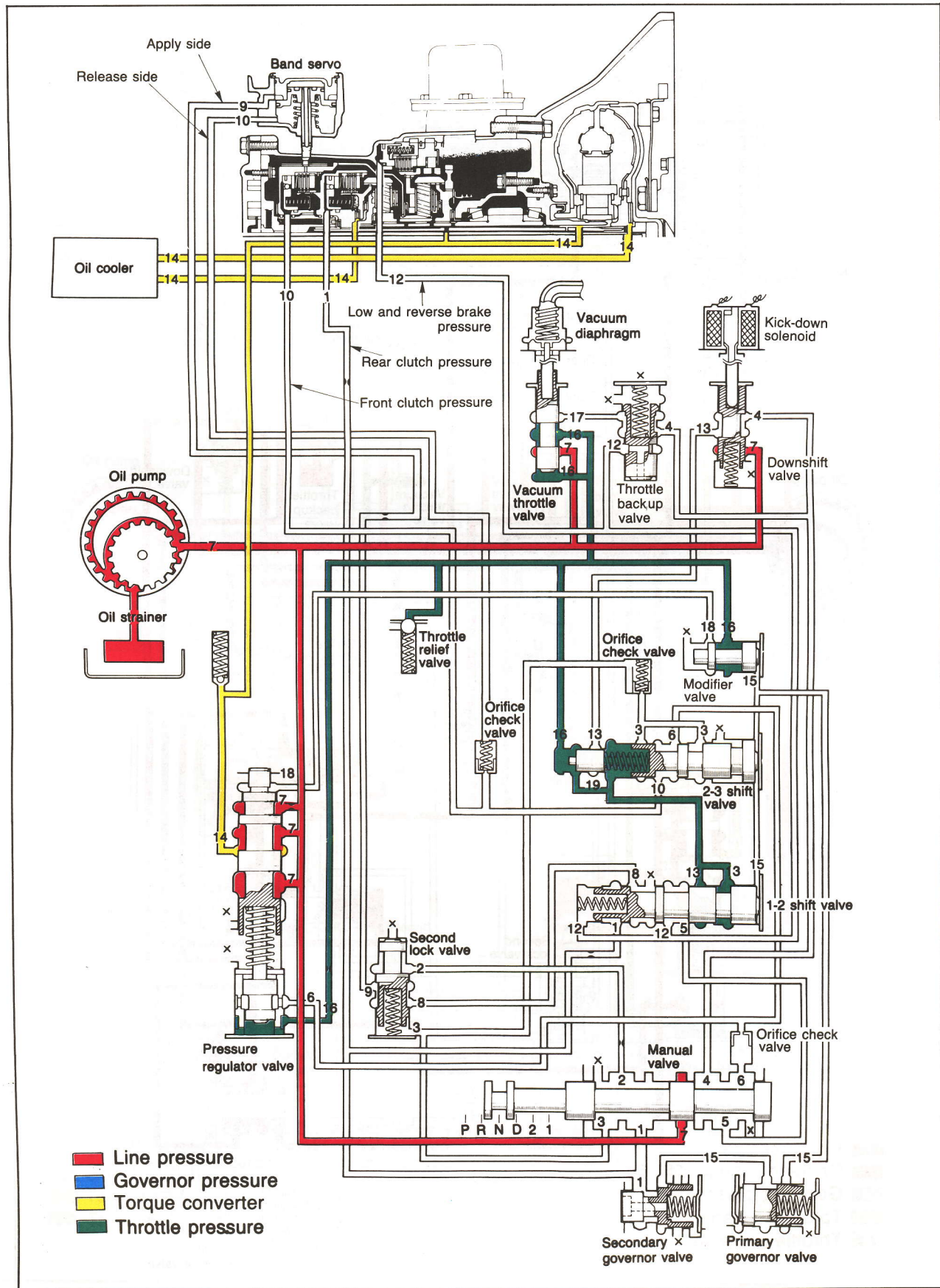


R RANGE



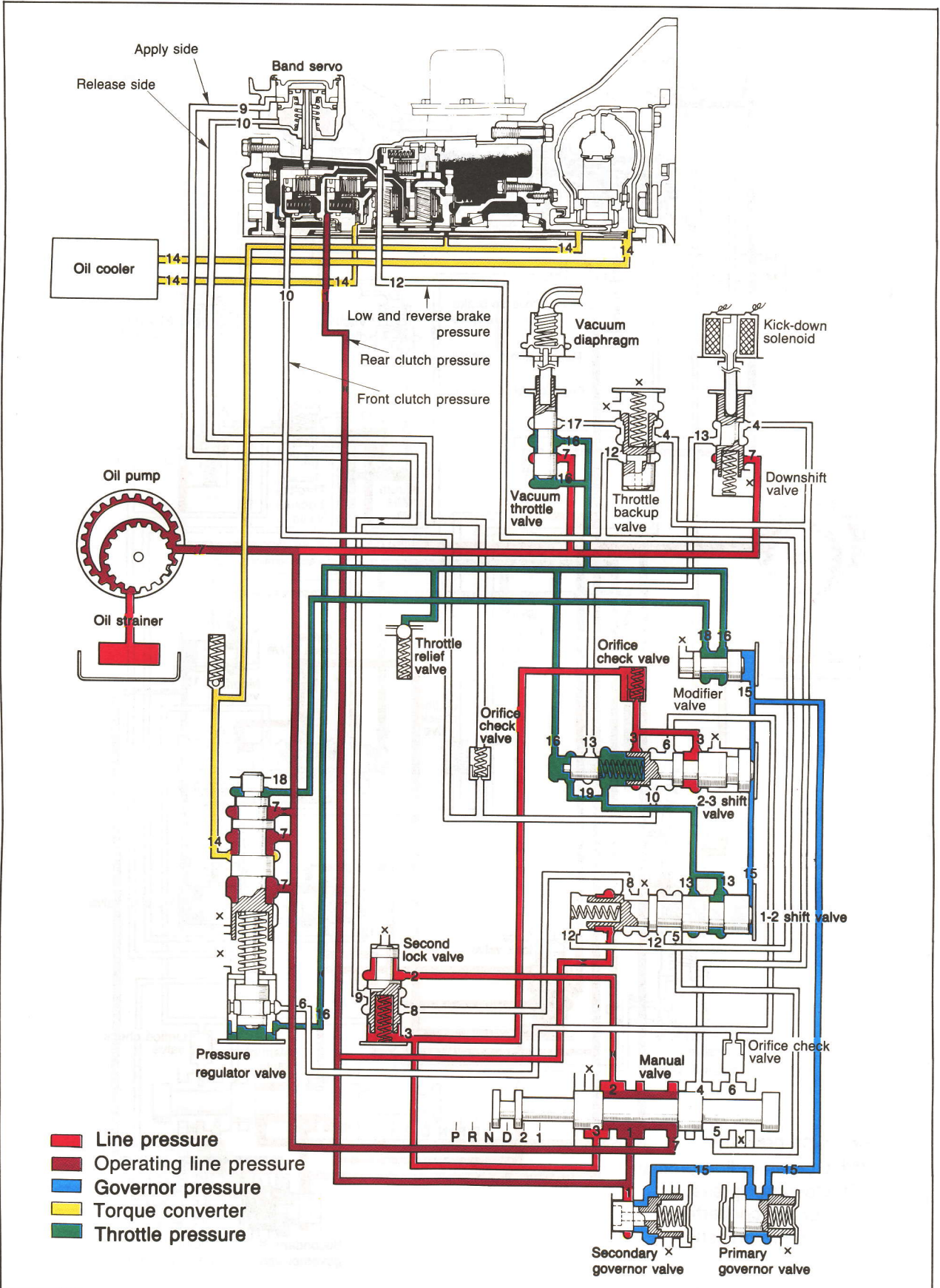
7C HYDRAULIC CIRCUIT

N RANGE

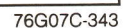


76G07C-341

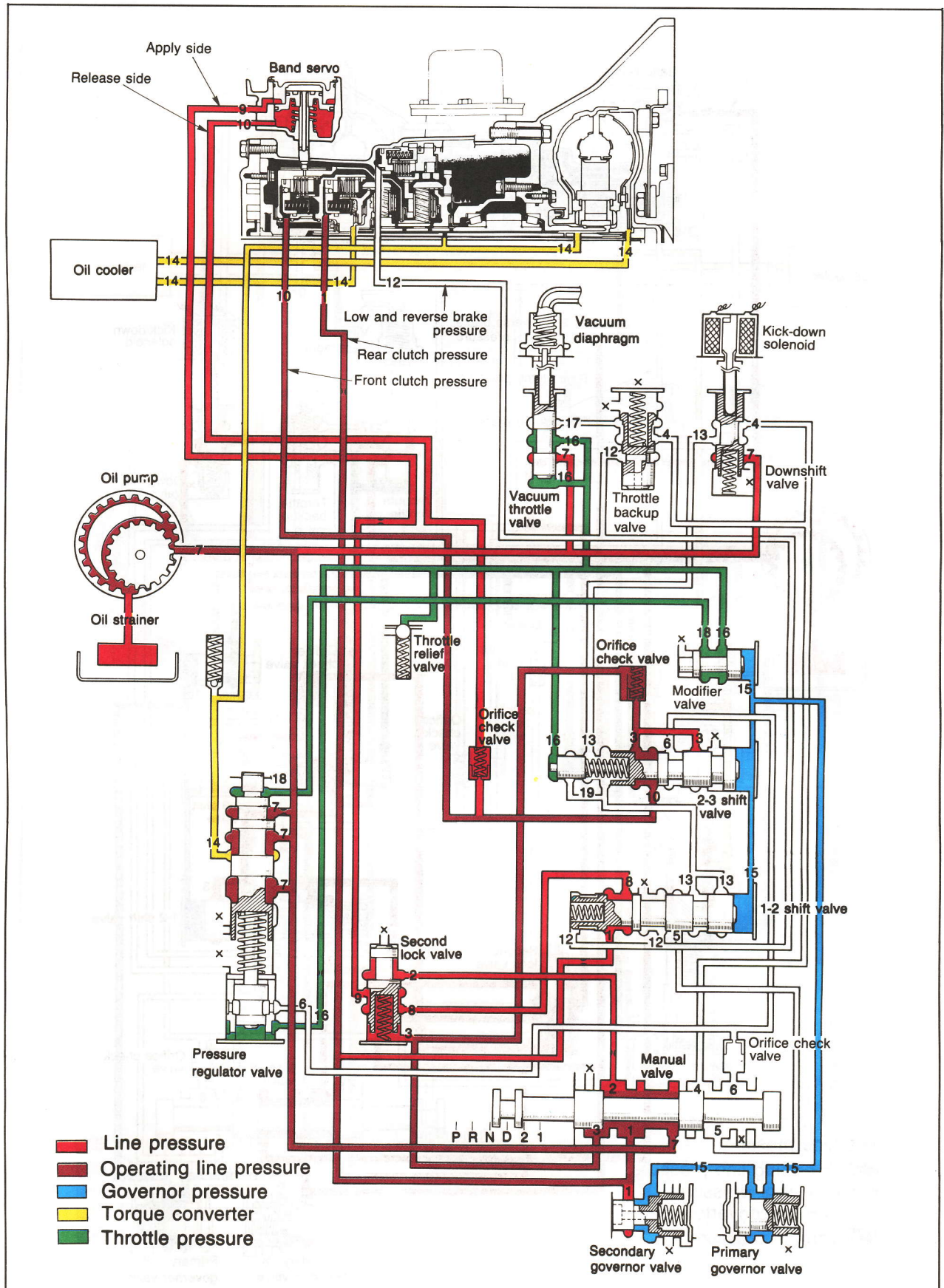
D RANGE (1ST GEAR)



D RANGE (2ND GEAR)

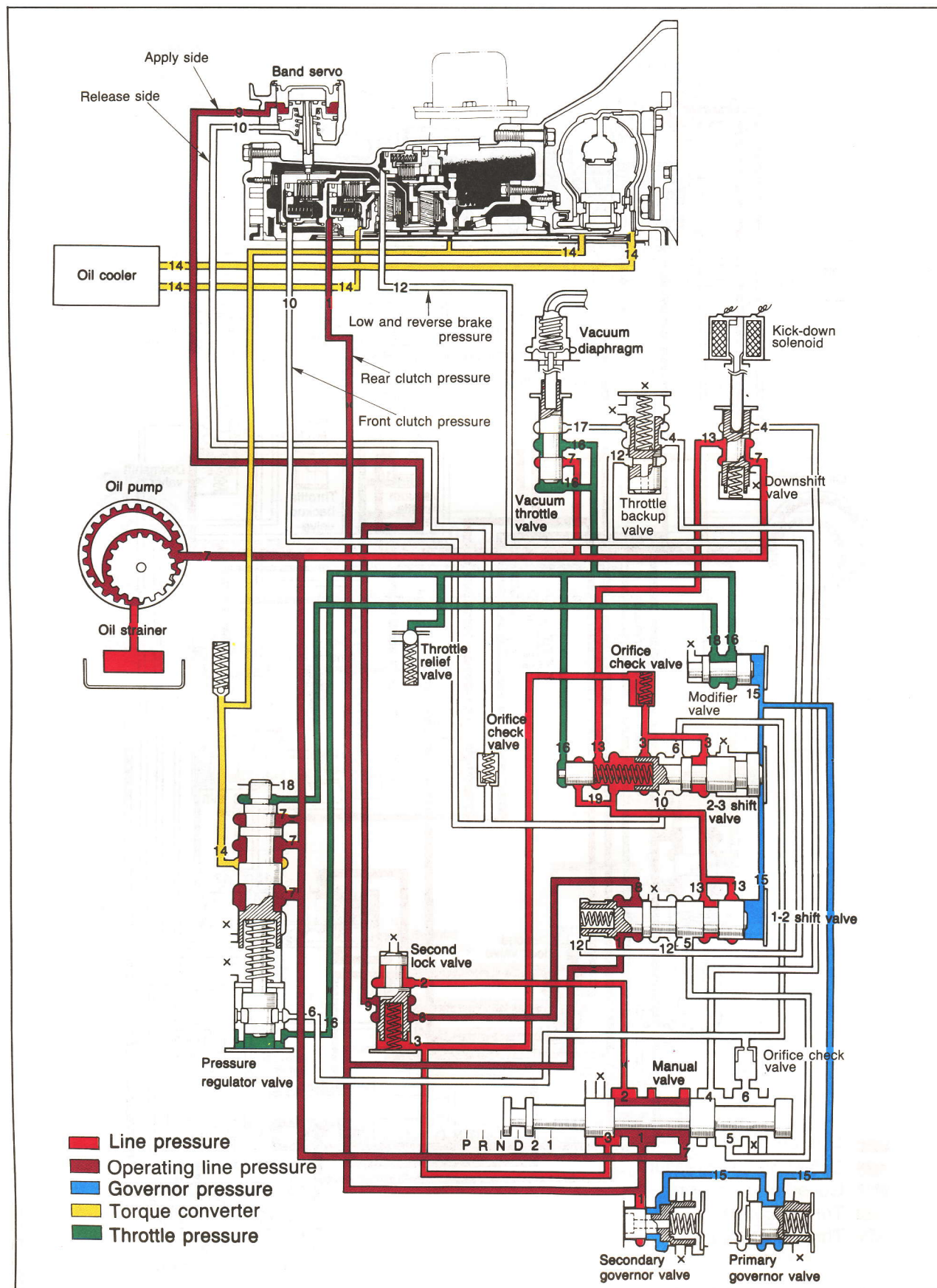


D RANGE (3RD GEAR)



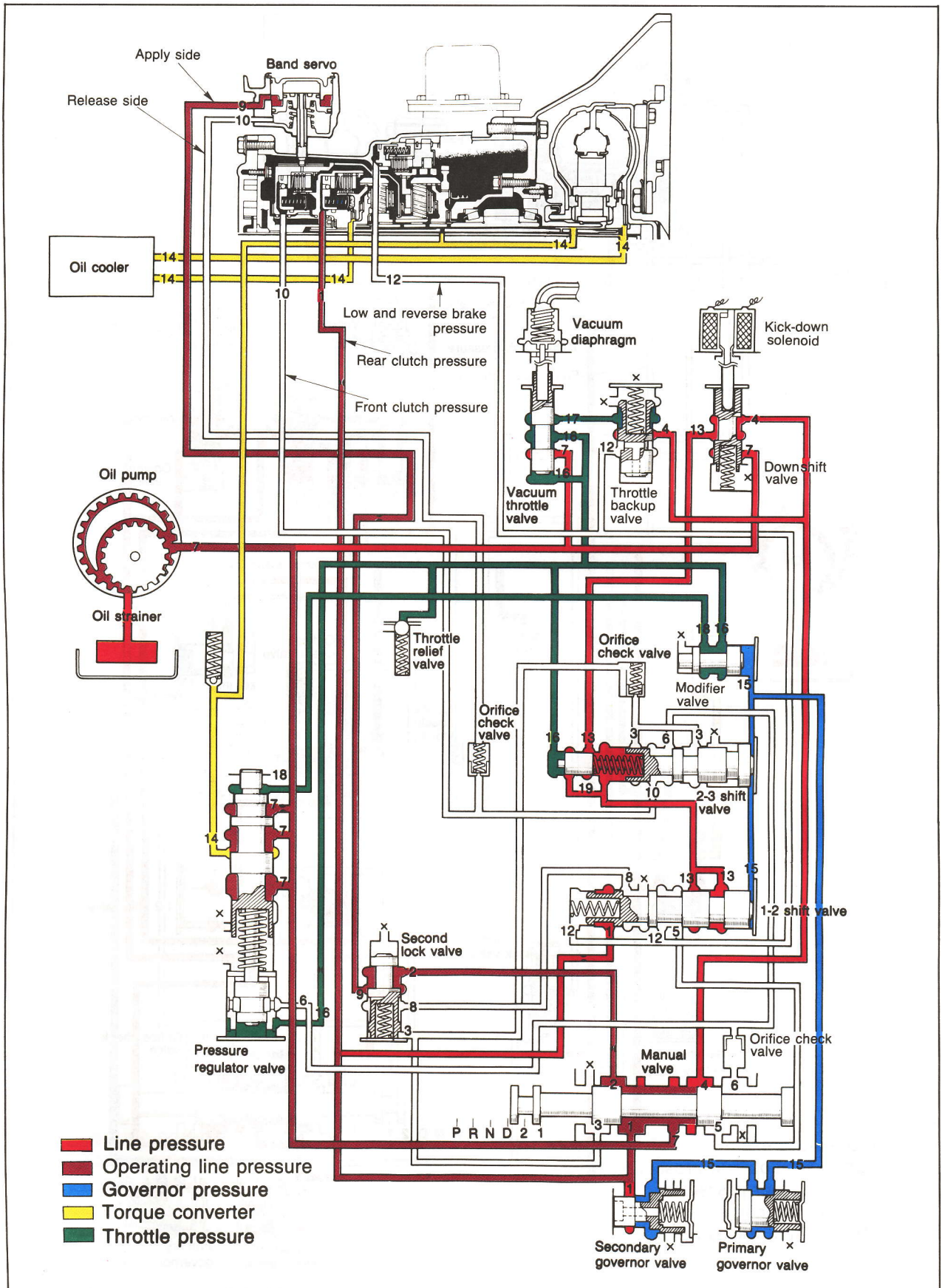
7C HYDRAULIC CIRCUIT

D RANGE (KICK-DOWN; SHIFT VALVES IN 2ND POSITION)



76G07C-345

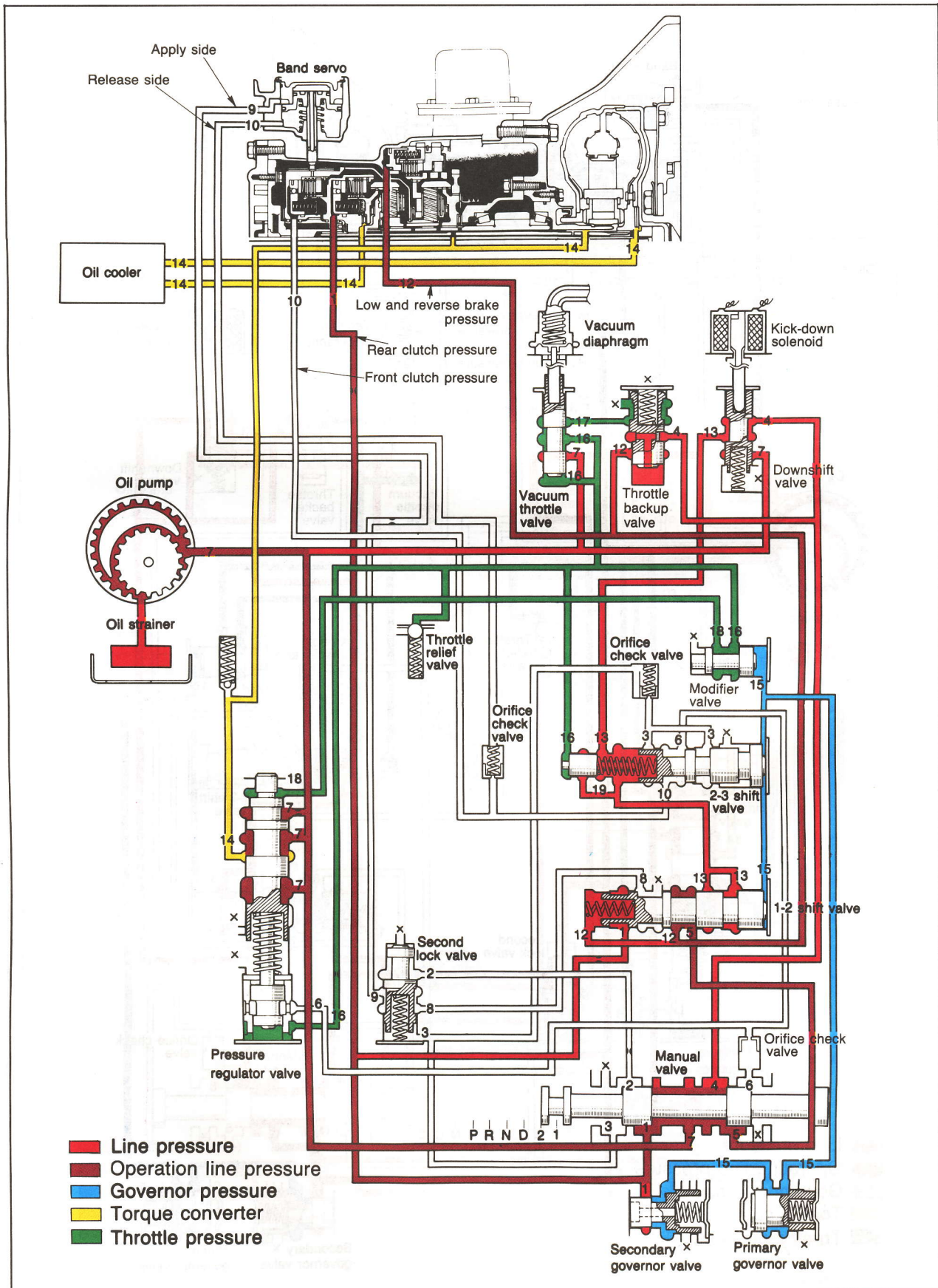
2 RANGE (2ND GEAR)



76G07C-346

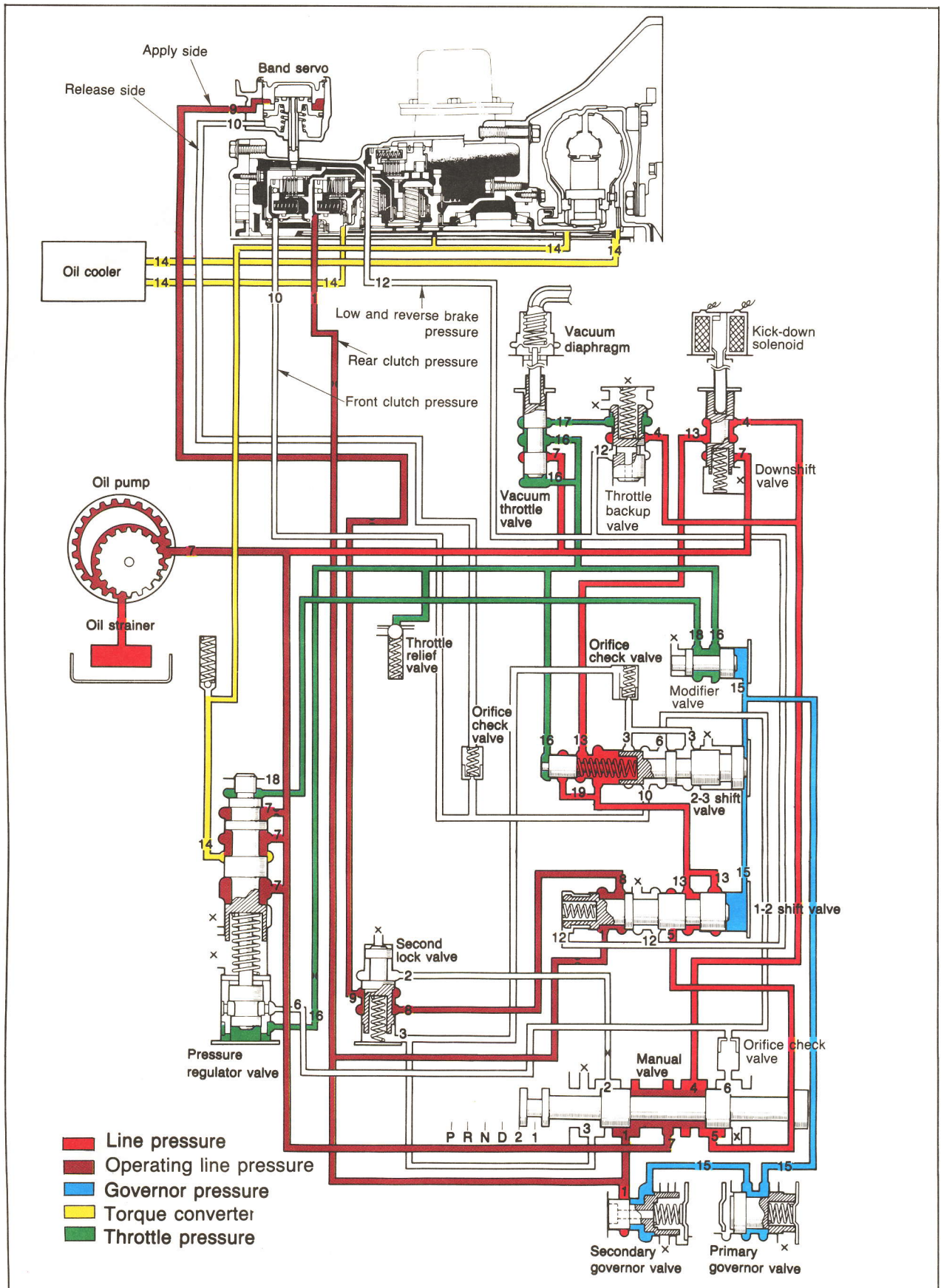
7C HYDRAULIC CIRCUIT

1 RANGE (1ST GEAR)



76G07C-347

1 RANGE (2ND GEAR)



76G07C-348