

1990 Nissan 240SX SE

1988-90 AUTOMATIC TRANSMISSIONS RE4R01A, RE4R03A & RL4R01A Electronic Controls & Overhaul

1988-90 AUTOMATIC TRANSMISSIONS

RE4R01A, RE4R03A & RL4R01A Electronic Controls & Overhaul

APPLICATION

TRANSMISSION APPLICATIONS

Vehicle Application	Transmission Model
1990 Infiniti M30	RE4R01A
1990 Infiniti Q45	RE4R03A
1988-90 Nissan Pathfinder/Pickup 4WD (V6)	RE4R01A
1990 Nissan Pathfinder/Pickup 2WD (V6)	RE4R01A
1990 Nissan Pathfinder/Pickup (4-Cylinder)	RL4R01A
1989-90 Nissan 240SX	RE4R01A
1990 Nissan 300ZX	RE4R01A

IDENTIFICATION

Transmission model is identified on vehicle identification plate located in engine compartment area. See **Fig. 1**.

Transmission number is located on right side of transmission extension. See **Fig. 2**.

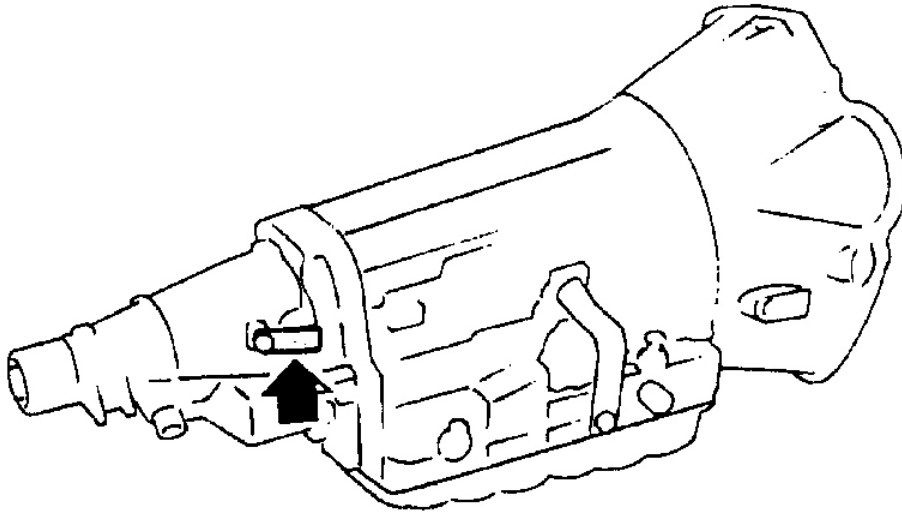
NISSAN MOTOR CO., LTD. JAPAN			
型式	TYPE TIPO	①	
CHASSIS NO. NO. DE CHASIS	②		
MODEL MODELO	③		
○ カラー COLOR TRIM トリム COLOR GUARNICION	④	⑤	○
エンジン ENGINE ジン MOTOR	⑥	⑦	CC
ミッション TRANS. AXLE アクスル TRANS. EJE	⑧	⑨	
工場		PLANT PLANTA	
日産自動車株式会社		MADE IN JAPAN	

1. Type	6. Engine Model
2. Vehicle Identification Number (Chassis Number)	7. Engine Displacement
3. Model	8. Transmission Model
4. Body Color Code	9. Axle Model
5. Trim Color Code	

Courtesy of Nissan Motor Co., U.S.A.

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Fig. 1: Identifying Transmission Model
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Fig. 2: Locating Transmission Number
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DESCRIPTION

Transmission consists of 3 main units: Automatic Transmission (A/T), torque converter and A/T control unit. Automatic transmission has 5 clutch assemblies, 2 planetary gear assemblies, 1 brake band, oil pump and hydraulic controls. A/T control unit operates electrically to control shifting functions.

LUBRICATION & ADJUSTMENTS

NOTE: See appropriate **AUTOMATIC TRANSMISSION SERVICING** article in **TRANSMISSION SERVICING**.

NOTE: Fluid level should be checked using **HOT** range on dipstick at fluid temperatures of 122-176° F (50-80° C) after vehicle has been driven approximately 5 minutes after initial warm-up. Do not overfill. Ensure computer control systems are operating properly before diagnosing shifting problems.

TROUBLESHOOTING

ENGINE WILL NOT START IN "P" OR "N"; OR ENGINE WILL START IN "D", "2", "1" OR "R"

Inhibitor switch or control linkage misadjusted.

TRANSMISSION NOISE IN "P" & "N"

Incorrect fluid level or line pressure, throttle sensor misadjusted, faulty revolution sensor or speed sensor signal, damaged oil pump or torque converter.

PARKING GEAR WILL NOT ENGAGE; OR PARKING GEAR WILL NOT DISENGAGE

Control linkage misadjusted or defective parking components.

VEHICLE MOVES IN "N"

Control linkage misadjusted, damaged forward clutch, reverse clutch or overrun clutch, leaking 3-4 accumulator.

VEHICLE WILL NOT MOVE IN "R"; OKAY IN "D", "2" & "1"

Incorrect control linkage adjustment or line pressure, damaged control valve assembly, reverse clutch, high clutch, forward clutch, overrun clutch or low and reverse brake.

VEHICLE BRAKES WHEN SHIFTED TO "R"

Incorrect fluid level, control linkage adjustment or line pressure, damaged control valve assembly, reverse clutch, forward clutch, overrun clutch or brake band.

EXCESSIVE SHOCK WHEN SHIFTING FROM "N" TO "D"

Incorrect engine idle speed, throttle sensor adjustment or line pressure, faulty or damaged fluid temperature sensor, RPM signal, control valve assembly, N-D accumulator or forward clutch.

VEHICLE WILL NOT MOVE IN "D" OR "2"; OKAY IN "1" & "R"

Control linkage misadjusted or damaged low one-way clutch.

VEHICLE WILL NOT MOVE IN "1", "2" OR "D"; OKAY IN "R"

Incorrect fluid level or line pressure, damaged control valve, N-D accumulator, reverse clutch, high clutch, forward clutch, forward one-way clutch, or low one-way clutch.

SLIPS WHEN ACCELERATING

Incorrect fluid level or line pressure, control linkage or throttle sensor misadjusted, damaged control valve, N-D or 3-4 accumulator, forward clutch, reverse clutch, low-reverse brake, oil pump or torque converter.

EXCESSIVE "CREEP"

Incorrect engine idle speed.

NO "CREEP"

Incorrect fluid level or line pressure, damaged control valve, forward clutch, oil pump or torque converter.

NO 1-2 UPSHIFT

Incorrect inhibitor switch or control linkage adjustment, faulty shift solenoid A, control valve, revolution sensor and speed sensor signal or brake band.

NO 2-3 UPSHIFT

Incorrect inhibitor switch or control linkage adjustment, faulty shift solenoid B, control valve, revolution sensor and speed sensor signal, high clutch or brake band.

NO 3-4 UPSHIFT

Incorrect inhibitor switch or control linkage adjustment, faulty shift solenoid A, revolution sensor and speed sensor signal, fluid temperature sensor signal or damaged brake band.

UPSHIFT POINTS TOO HIGH IN ALL GEARS

Throttle sensor misadjusted, faulty revolution sensor and speed sensor signal or shift solenoid A or B.

NOTE: During cold weather operation A/T may shift slow until warm. To improve this condition replace factory fill fluid with Nissanmatic "C" ATF (or equivalent).

SHIFTS FROM 1ST TO 3RD; SKIPS 2ND

Incorrect fluid level, leaking 1-2 accumulator or damaged brake band.

ENGINE DIES WHEN SHIFTED TO "R", "D", "2" OR "1"

Incorrect engine idle speed, faulty lock-up solenoid, damaged control valve or torque converter.

EXCESSIVE SHOCK DURING 1-2 UPSHIFT

Incorrect throttle sensor adjustment or line pressure, leaking 1-2 accumulator, damaged control valve or brake band or faulty fluid temperature sensor.

EXCESSIVE SHOCK DURING 2-3 UPSHIFT

Incorrect throttle sensor adjustment or line pressure, leaking 2-3 accumulator, damaged control valve, high clutch or brake band.

EXCESSIVE SHOCK DURING 3-4 UPSHIFT

Incorrect throttle sensor adjustment or line pressure, leaking 3-4 (N-R) accumulator, damaged control valve,

overrun clutch or brake band.

SLIPS DURING 1-2 UPSHIFT

Incorrect fluid level, throttle sensor adjustment or line pressure, damaged control valve, 1-2 accumulator or brake band.

SLIPS DURING 2-3 UPSHIFT

Incorrect fluid level, throttle sensor adjustment or line pressure, damaged control valve, 2-3 accumulator, high clutch or brake band.

SLIPS DURING 3-4 UPSHIFT

Incorrect fluid level, throttle sensor adjustment or line pressure, damaged control valve, 3-4 (N-R) accumulator, high clutch or brake band.

TESTING

ROAD TEST

Preliminary Checks

1. Check fluid level using HOT range on dipstick at fluid temperatures of 122-176° F (50-80° C) after vehicle has been driven approximately 5 minutes after initial warm-up. COLD range on dipstick is for reference only.
2. Fluid level should be checked with vehicle on level surface and parking brake set. Check fluid level while engine is idling and gear selector in PARK or "P" position.
3. If fluid level is at low side of either range, add fluid. Check fluid condition. Check for fluid leakage at cases, pan, etc.

Check Before Engine Is Started

1. Park vehicle on flat surface. Move gear selector lever to "P" position. A/T check lamp should come on for about 2 seconds.
2. Verify engine starts in PARK or NEUTRAL only. Move gear selector to "P" position and release parking brake. Ensure Park engagement by pushing vehicle forward or backward.

Check With Engine Idling

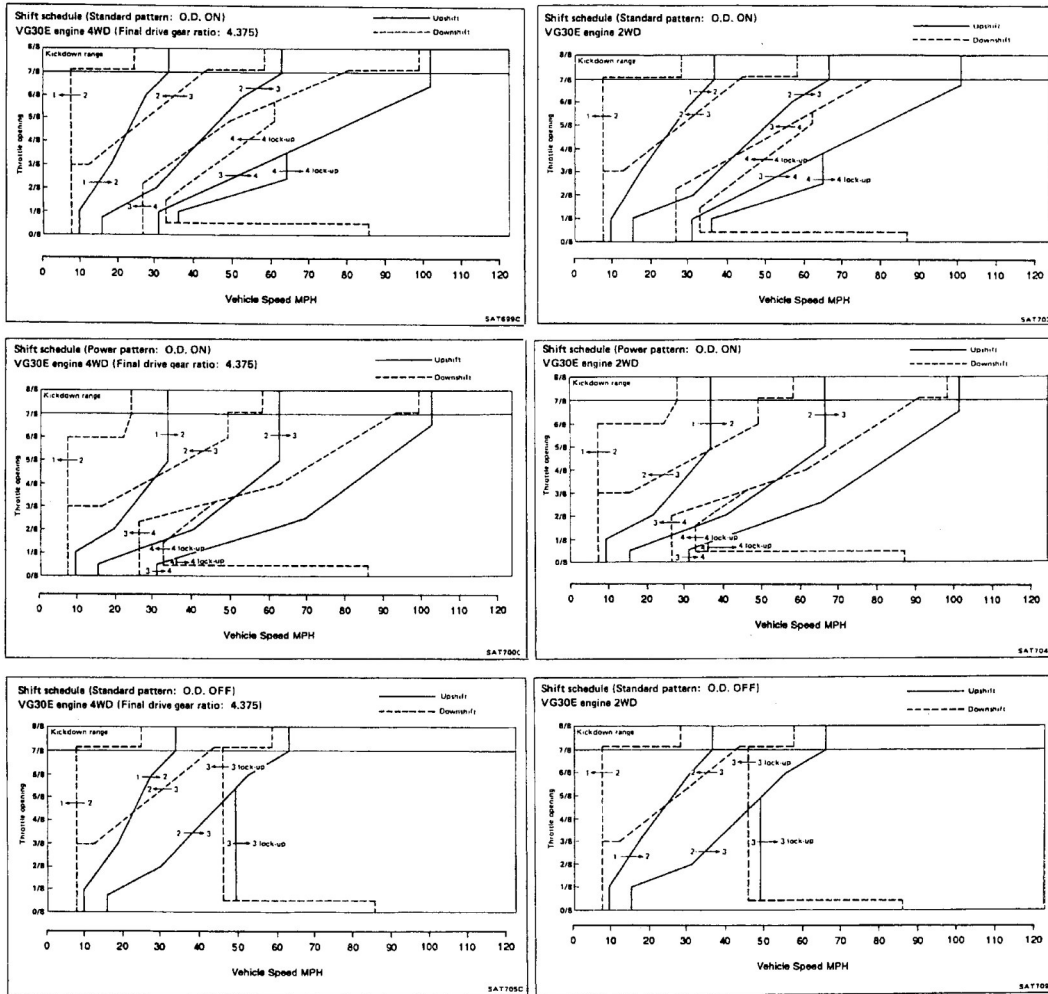
1. Start engine and let idle. Release parking brake. Apply foot brake, move gear selector to "R" position, vehicle should creep backwards after foot brake is released.
2. Move gear selector to "D", "2" and "1" positions. Vehicle should creep forward in all three ranges. Move gear selector to "N" position, vehicle should not roll forward or backward.

Road Test Procedure

1. Park vehicle on flat surface. Set overdrive switch to ON position. Start engine. Move gear selector to "D" position and accelerate vehicle at half-throttle. Vehicle should start from 1st gear.
2. Refer to appropriate SHIFT SCHEDULE chart and SHIFT SPEED SPECIFICATIONS table and verify upshifts occur at specified speeds. Accelerate vehicle to lock-up speeds and verify lock-up. Lock-up condition should be maintained for more than 30 seconds.
3. Lock-up state is released upon deceleration. When accelerator is released, lock-up is released. Confirm overdrive switch is in ON position, gear selector in "D" position.
4. Accelerate vehicle to 60 MPH at half-throttle, release accelerator pedal then quickly depress pedal to floor. A/T should downshift from 4th to 2nd gear.
5. Release accelerator and verify 2-3 and 3-4 upshifts and shift points. Accelerate vehicle to 60 MPH at half-throttle, release accelerator pedal and set overdrive switch to OFF position. Verify 4-3 downshift and vehicle deceleration by engine braking.
6. Move gear selector from "D" to "2" position, verify 3-2 downshift and vehicle deceleration by engine braking. Move gear selector from "2" to "1" position, verify 2-1 downshift and vehicle deceleration by engine braking.

Shift Schedule Chart - Pathfinder/Truck

SHIFT SCHEDULE CHART - PATHFINDER/TRUCK



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Fig. 3: Shift Schedule Chart - Pathfinder/Truck (1 Of 2)
 Courtesy of NISSAN MOTOR CO., U.S.A.

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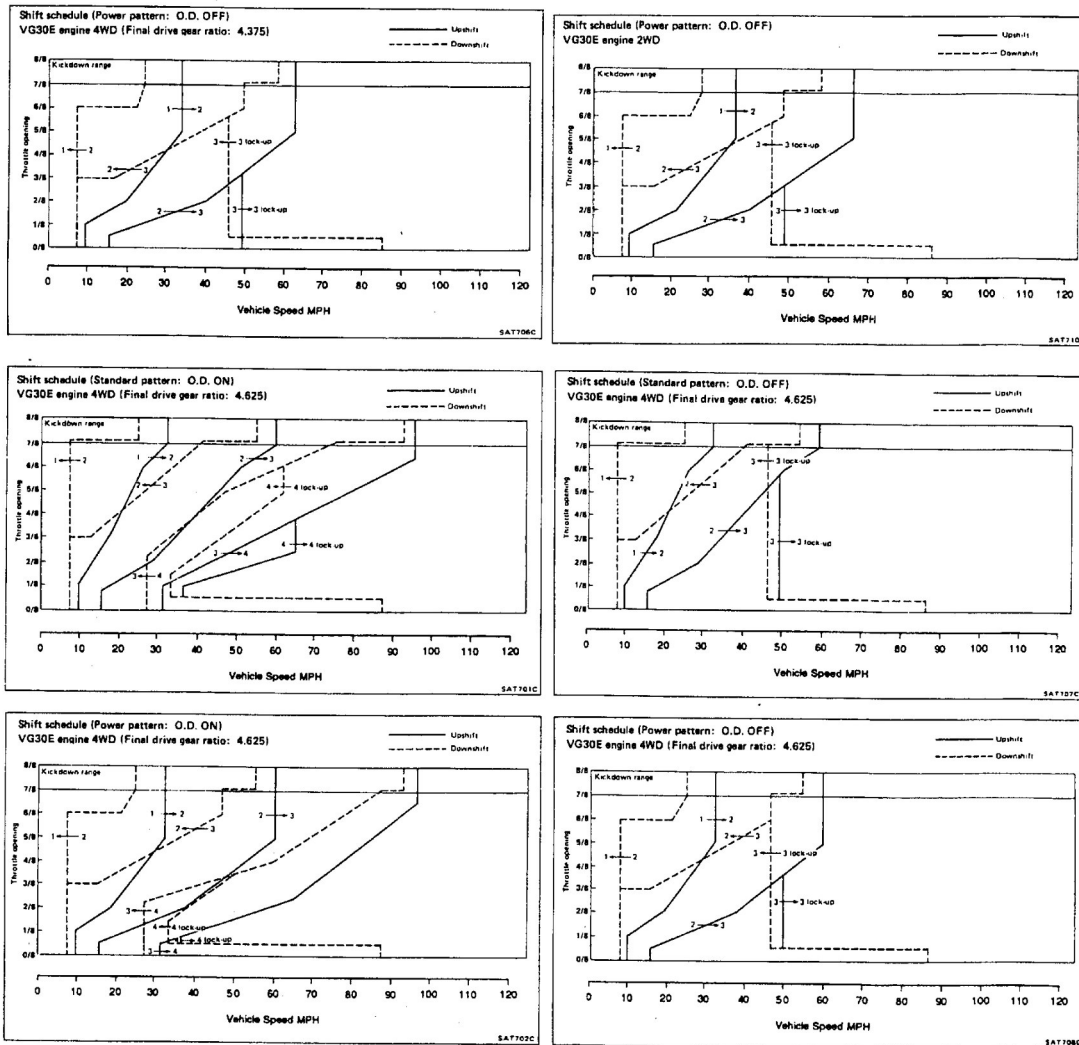


Fig. 4: Shift Schedule Chart - Pathfinder/Truck (2 Of 2)
Courtesy of NISSAN MOTOR CO., U.S.A.

Shift Schedule Chart - Infiniti Q45

SHIFT SCHEDULE CHART - INFINITI Q45

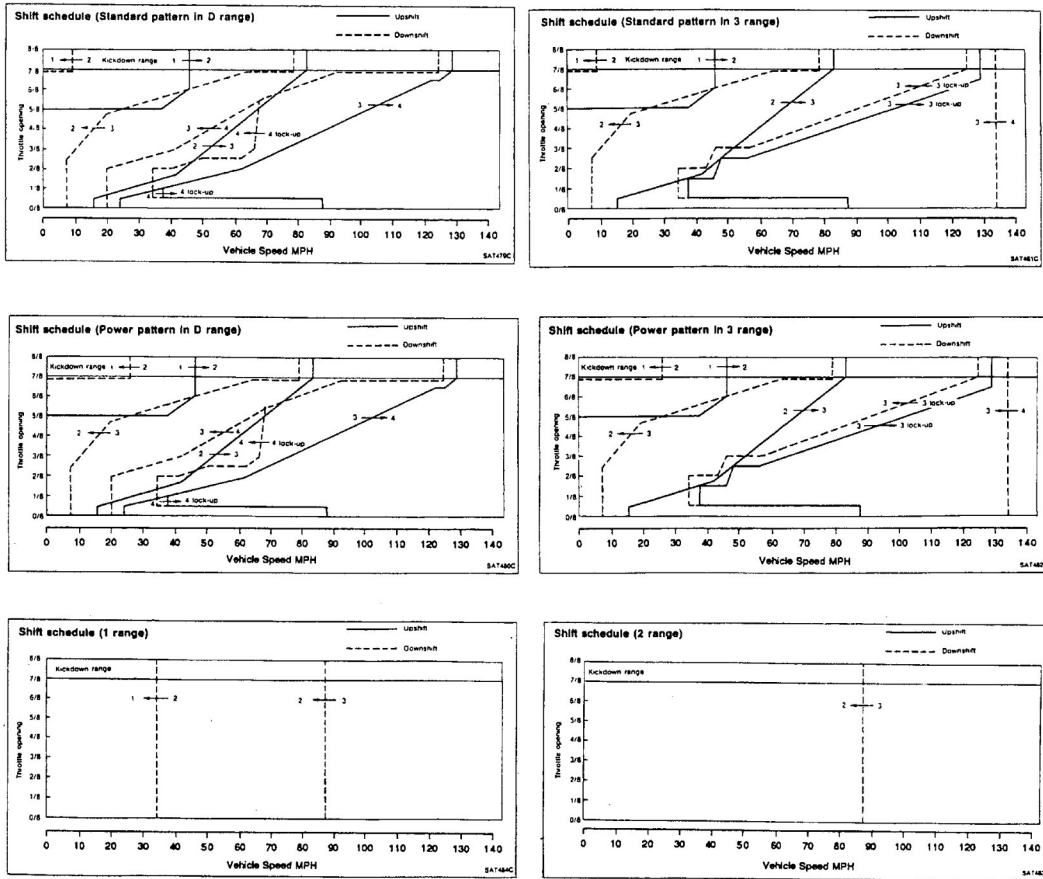


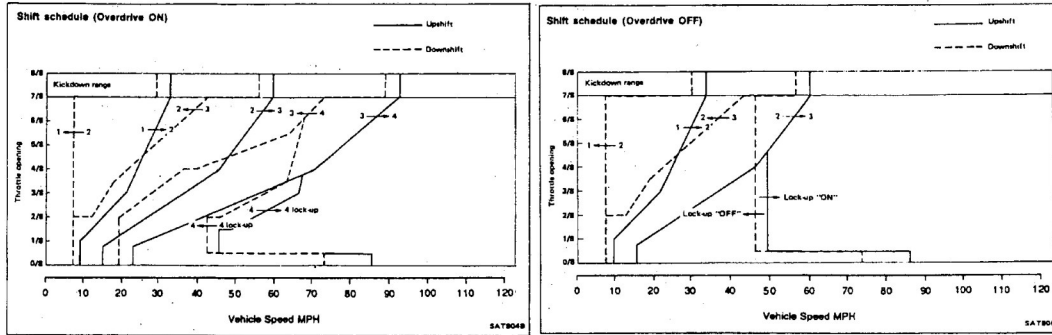
Fig. 5: Shift Schedule Chart - Infiniti Q45
Courtesy of NISSAN MOTOR CO., U.S.A.

Shift Schedule Chart - 240SX, Infiniti M30, & 300ZX

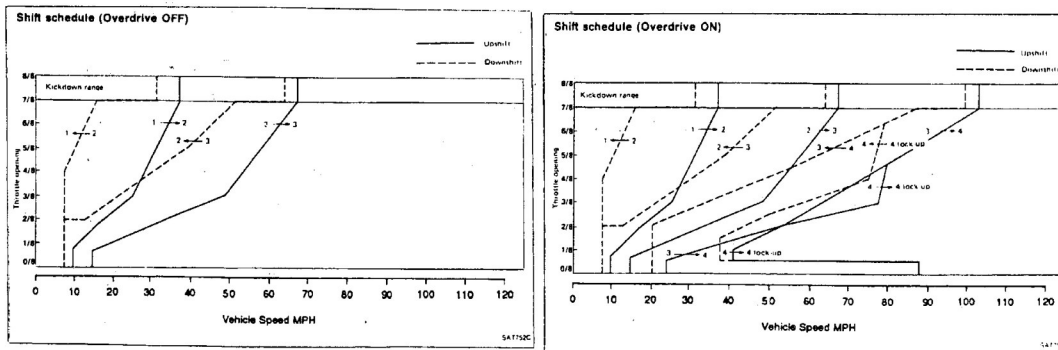
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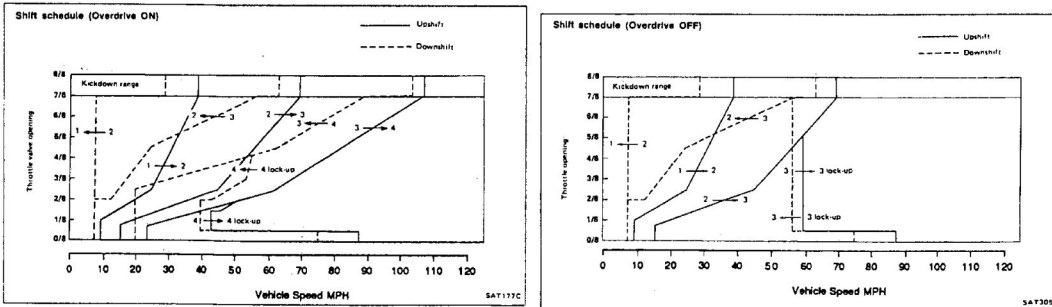
SHIFT SCHEDULE CHART - 240SX



SHIFT SCHEDULE CHART - INFINITI - M30



SHIFT SCHEDULE CHART - 300ZX



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Fig. 6: Shift Schedule Chart - 240SX, Infiniti M30, & 300ZX
Courtesy of NISSAN MOTOR CO., U.S.A.

Shift Speed Specifications

SHIFT SPEED SPECIFICATIONS - PATHFINDER/TRUCK

Application	Full Throttle MPH	Half Throttle MPH
V6 4WD (Final Gear Ratio: 4.375)		
1st-2nd	33-35	20-22
2nd-3rd	62-66	39-44

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3rd-4th	101-107	62-67
4th-3rd	98-104	39-44
3rd-2nd	57-62	17-22
2nd-1st	24-26	6-9
V6 4WD (Final Gear Ratio: 4.625)		
1st-2nd	31-34	19-21
2nd-3rd	58-63	37-42
3rd-4th	93-99	60-66
4th-3rd	90-96	37-43
3rd-2nd	53-58	20-25
2nd-1st	24-26	6-9
V6 2WD		
1st-2nd	30-32	21-23
2nd-3rd	65-70	41-46
3rd-4th	99-105	65-71
4th-3rd	96-102	39-45
3rd-2nd	57-62	17-22
2nd-1st	27-30	6-9

LOCK-UP SPEED SPECIFICATIONS - PATHFINDER/TRUCK

Application	Full Throttle MPH	Half Throttle MPH
V6 4WD (Final Gear Ratio: 4.375)		
OD ON		
Lock-Up ON In 4th	101-107	62-67
Lock-Up Off In 4th	98-104	52-57
OD OFF		
Lock-Up ON In 3rd	62-66	47-52
Lock-Up OFF In 3rd	57-62	44-47
V6 4WD (Final Gear Ratio: 4.625)		
OD ON		
Lock-Up ON In 4th	93-99	60-66
Lock-Up Off In 4th	90-96	52-57
OD OFF		
Lock-Up ON In 3rd	58-63	47-52
Lock-Up OFF In 3rd	53-58	44-49
V6 2WD		
OD ON		
Lock-Up ON In 4th	99-105	65-70
Lock-Up Off In 4th	96-102	51-56
OD OFF		
Lock-Up ON In 3rd	65-70	47-52

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Lock-Up OFF In 3rd

51-56

44-49

SHIFT SPEED SPECIFICATIONS - 1990 300ZX

Application	Full Throttle MPH	Half Throttle MPH
1st-2nd	31-34	28-30
2nd-3rd	66-71	52-55
3rd-4th	103-109	74-79
4th-3rd	100-105	50-55
3rd-2nd	60-65	21-24
2nd-1st	27-30	6-9

LOCK-UP SPEED SPECIFICATIONS - 1990 300ZX

Application	Full Throttle MPH	Half Throttle MPH
OD ON		
Lock-Up ON In 4th	104-109	75-80
Lock-Up OFF In 4th	100-105	52-57
OD OFF		
Lock-Up ON In 3rd	66-71	57-62
Lock-Up OFF In 3rd	60-65	53-58

SHIFT SPEED SPECIFICATIONS - 240SX

Application	Full Throttle MPH	Half Throttle MPH
1st-2nd	32-35	24-26
2nd-3rd	59-63	45-48
3rd-4th	91-97	69-75
4th-3rd	87-93	34-40
3rd-2nd	55-59	21-24
2nd-1st	25-27	6-9

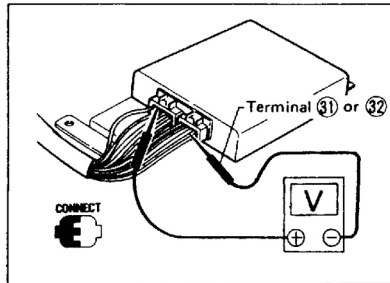
LOCK-UP SPEED SPECIFICATIONS - 240SX

Application	Full Throttle MPH	Half Throttle MPH
OD ON		
Lock-Up ON In 4th	91-97	70-75
Lock-Up OFF In 4th	87-93	63-68
OD OFF		
Lock-Up ON In 3rd	59-63	47-52
Lock-Up OFF In 3rd	55-59	44-49

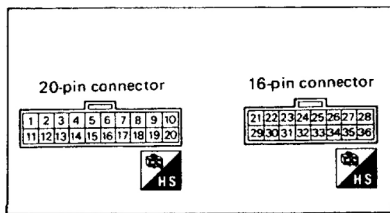
PIN VOLTAGE TESTS

AUTOMATIC TRANSMISSION CONTROL UNIT PIN VOLTAGE TESTS

For pin voltage tests on 240SX models, see **Fig. 7 -Fig. 10**



- Measure voltage between each terminal and terminal ① or ② by following "A/T CONTROL UNIT INSPECTION TABLE".



- Pin connector terminal layout.

A/T CONTROL UNIT INSPECTION TABLE
(Data are reference values.)

Terminal No.	Item	Condition	Judgement standard
1	Inhibitor "2" range switch	When selector lever is set to "D" range.	Battery voltage
		When selector lever is set to other ranges.	1V or less
2	Inhibitor "1" range switch	When selector lever is set to "1" range.	Battery voltage
		When selector lever is set to other ranges.	1V or less
3	—	—	—
4	Idle switch (in throttle valve switch)	When accelerator pedal is released after warming up engine.	8 - 15V
		When accelerator pedal is depressed after warming up engine.	1V or less
5	—	—	—
6	A.S.C.D. O.D. cut signal	When "ACCEL" set switch on A.S.C.D. cruise is released.	5 - 8V
		When "ACCEL" set switch on A.S.C.D. cruise is applied.	1V or less

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Fig. 7: Pin Out Test For 240SX Automatic Transmission Control Unit (1 Of 4)
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Terminal No.	Item	Condition	Judgement standard
7	Kickdown switch	 When accelerator pedal is released after warming up engine.	3 - 8V
		 When accelerator pedal is depressed fully after warming up engine.	1V or less
8	A.S.C.D. cruise signal	 When A.S.C.D. cruise is being performed ("CRUISE" light comes on.)	Battery voltage
		When A.S.C.D. cruise is not being performed ("CRUISE" light does not come on.)	1V or less
9	Overdrive switch	When overdrive switch is set in "ON" position.	Battery voltage
		When overdrive switch is set in "OFF" position.	1V or less
10	Throttle sensor (Power source)	 —	4.5 - 5.5V
11	Throttle sensor	When accelerator pedal is depressed slowly after warming up engine.	Fully-closed throttle: 0.2 - 0.6V
		 Voltage rises gradually in response to throttle opening angle.	Fully-open throttle: 2.9 - 3.9V
12	Fluid temperature sensor	When A.T.F. temperature is 20°C (68°F).	1.56V
		When A.T.F. temperature is 80°C (176°F).	0.45V
13	—	—	—
14	—	—	—
15	Throttle sensor (Ground)	—	—
16	Revolution sensor (Measure in AC range)	 When vehicle is cruising at 30 km/h (19 MPH).	1V or more Voltage rises gradually in response to vehicle speed.
		When vehicle is parked.	0V

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Fig. 8: Pin Out Test For 240SX Automatic Transmission Control Unit (2 Of 4)
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1990 Nissan 240SX SE

1988-90 AUTOMATIC TRANSMISSIONS RE4R01A, RE4R03A & RL4R01A Electronic Controls & Overhaul

Terminal No.	Item	Condition		Judgement standard
17	Full throttle switch		When accelerator pedal is depressed more than half-way after warming up engine.	8 - 15V
18	—		When accelerator pedal is released after warming up engine.	1V or less
19	Inhibitor "N" and "P" range switch		When selector lever is set to "N" or "P" range.	Battery voltage
20	Inhibitor "D" range switch		When selector lever is set to other ranges.	1V or less
21	Overrun clutch solenoid		When selector lever is set to "2" range.	Battery voltage
22	Lock-up solenoid		When selector lever is set to other ranges.	1V or less
23	O.D. OFF indicator lamp		When overrun clutch solenoid is operating.	Battery voltage
24	Speed sensor		When overrun clutch solenoid is not operating	1V or less
25	Engine revolution signal		When A/T is performing lock-up.	8 - 15V
26	Inhibitor "R" range switch		When A/T is not performing lock-up.	1V or less
27	—		When overdrive switch is set to "ON" position.	Battery voltage
			When overdrive switch is set to "OFF" position.	1V or less
28	Speed sensor		When vehicle is moving at 2 to 3 km/h (1 to 2 MPH) for 1 m (3 ft) or more.	Vary from 0 to 5V
29	Engine revolution signal		When engine is running at idle speed.	9.5 - 12V
30	Inhibitor "R" range switch		When engine is running at 2,500 rpm.	Approximately 10V
31	—		When selector lever is set to "R" range.	Battery voltage
32	Inhibitor "R" range switch		When selector lever is set to other ranges.	1V or less
33	—		—	—

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Fig. 9: Pin Out Test For 240SX Automatic Transmission Control Unit (3 Of 4)
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1990 Nissan 240SX SE

1988-90 AUTOMATIC TRANSMISSIONS RE4R01A, RE4R03A & RL4R01A Electronic Controls & Overhaul

Terminal No.	Item	Condition	Judgement standard
28	Power source (Back-up)	 or 	When ignition switch is turned to "OFF". Battery voltage
		 or 	When ignition switch is turned to "ON". Battery voltage
29 30	Power source		When ignition switch is turned to "ON". Battery voltage
			When ignition switch is turned to "OFF". 1V or less
31 32	Ground	—	—
33	Line pressure solenoid (with dropping resistor)		When accelerator pedal is released after warming up engine. 5 - 14V
			When accelerator pedal is depressed fully after warming up engine. 0.5V or less
34	Line pressure solenoid		When accelerator pedal is released after warming up engine. 1.5 - 2.5V
			When accelerator pedal is depressed fully after warming up engine. 0.5V or less
35	Shift solenoid A		When shift solenoid A is operating. (When driving in "D ₁ " or "D ₄ ".) Battery voltage
			When shift solenoid A is not operating. (When driving in "D ₂ " or "D ₃ ".) 1V or less
36	Shift solenoid B		When shift solenoid B is operating. (When driving in "D ₁ " or "D ₂ ".) Battery voltage
			When shift solenoid B is not operating. (When driving in "D ₃ " or "D ₄ ".) 1V or less

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Fig. 10: Pin Out Test For 240SX Automatic Transmission Control Unit (4 Of 4)
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REMOVAL & INSTALLATION

NOTE: For transaxle removal and installation procedure, see appropriate AUTOMATIC TRANSMISSION REMOVAL article in TRANSMISSION SERVICING.

OVERHAUL

TRANSMISSION DISASSEMBLY

1. Remove inhibitor switch from transmission case. Remove oil pan and drain ATF from rear extension. Check oil pan and oil strainer for accumulation of foreign material. If foreign material is present, replace torque converter and check transmission for cause of foreign material accumulation. See [Fig. 25](#) and [Fig. 26](#).

2. Remove lock-up solenoid and fluid temperature sensor connectors. Remove oil strainer and "O" ring from control valve. Remove control valve assembly. Remove solenoid wiring harness from transmission case.
3. Remove converter housing from transmission case. Remove "O" ring from input shaft. Using puller, remove oil pump assembly from transmission case. Remove oil pump "O" ring, needle bearing, thrust washer and oil pump gasket. See **Fig. 25** and **Fig. 26** .
4. Remove front planetary carrier from transmission case. Remove front needle bearing and rear bearing from planetary carrier. Remove rear sun gear from transmission case. Remove rear extension housing and gasket from transmission case.
5. Remove revolution sensor and "O" ring from extension housing. Remove output shaft and parking gear by removing rear snap ring from output shaft and slowly push output shaft all way forward. Remove snap ring from output shaft, then remove output shaft and parking gear as a unit. See **Fig. 25** and **Fig. 26** .
6. Remove needle bearing from transmission case. Remove front internal gear and bearing race. Remove needle bearing from rear internal gear. Remove rear internal gear, forward clutch hub and overrun clutch hub as a set from transmission case.
7. Remove needle bearing from overrun clutch hub. Separate overrun clutch hub from rear internal gear and forward clutch hub. Remove thrust washer from overrun clutch hub. Remove forward clutch assembly from transmission case. See **Fig. 25** and **Fig. 26** .
8. Remove band servo retainer and band servo piston from transmission case. Remove springs and accumulator pistons. See **Fig. 12** . Remove manual shaft if necessary.

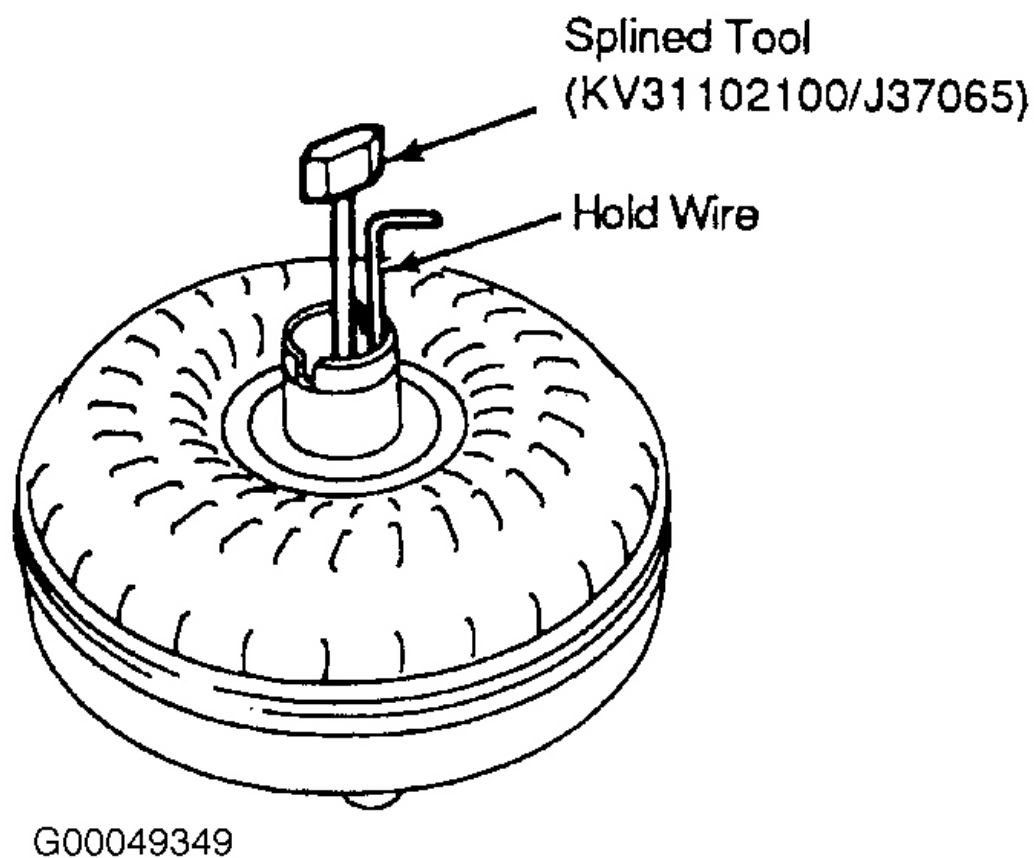
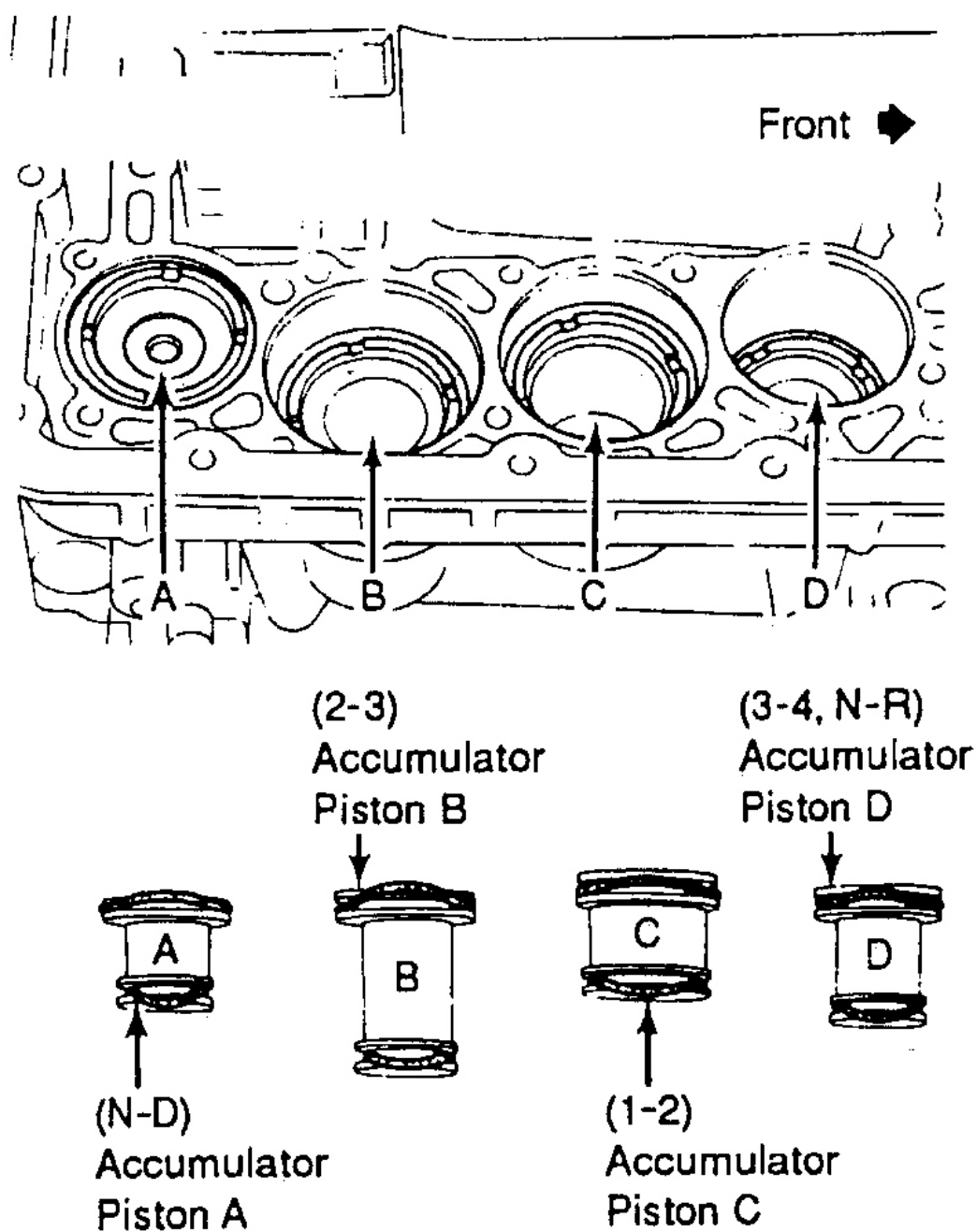


Fig. 11: Checking Torque Converter One-Way Clutch Rotation
Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 12: Locating Accumulator Piston

Courtesy of NISSAN MOTOR CO., U.S.A.

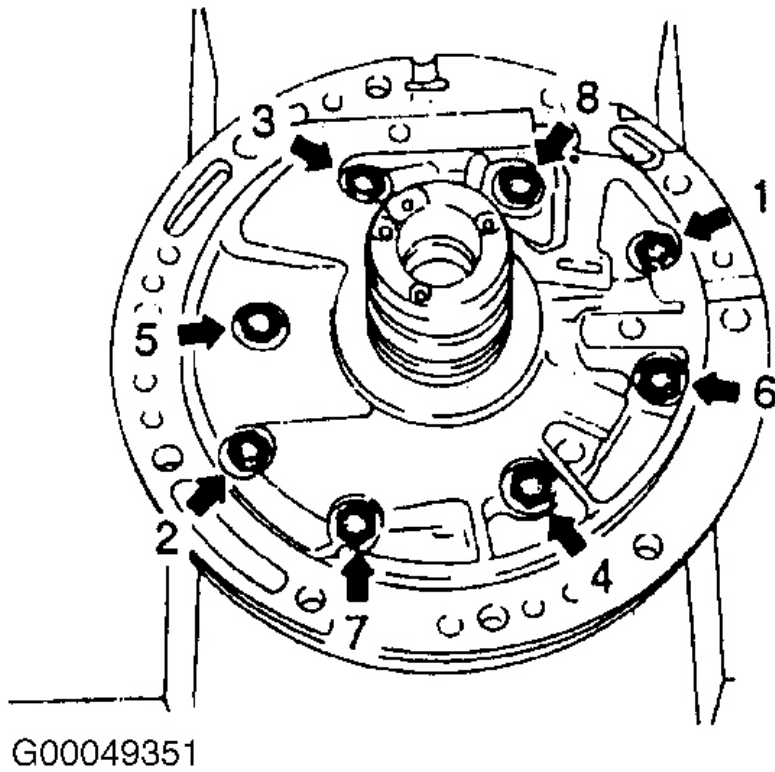


Fig. 13: Tightening Sequence Of Oil Pump Bolts
Courtesy of NISSAN MOTOR CO., U.S.A.

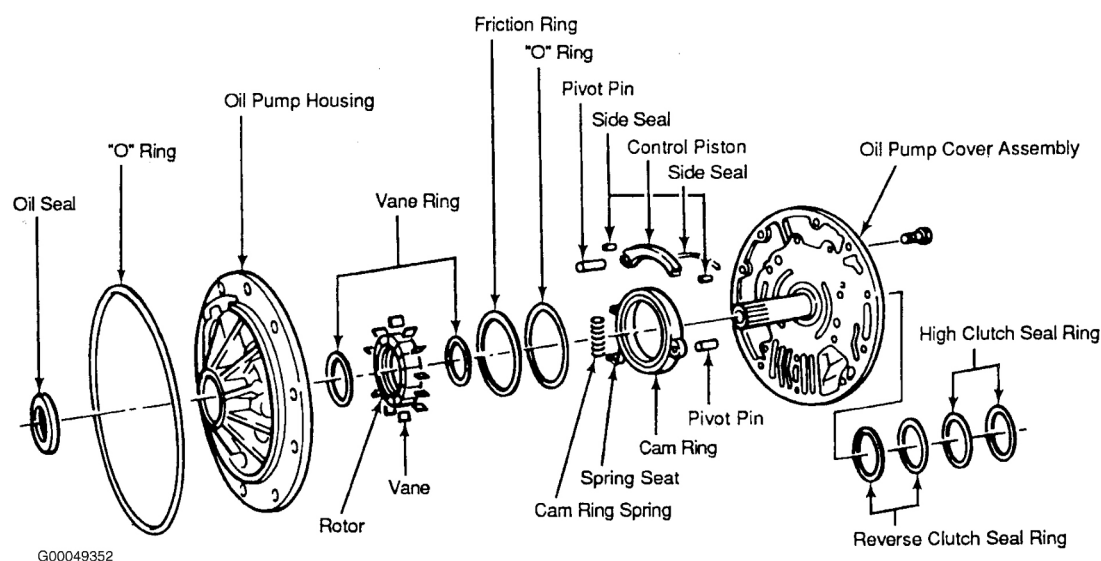


Fig. 14: Exploded View Of Oil Pump Assembly
 Courtesy of NISSAN MOTOR CO., U.S.A.

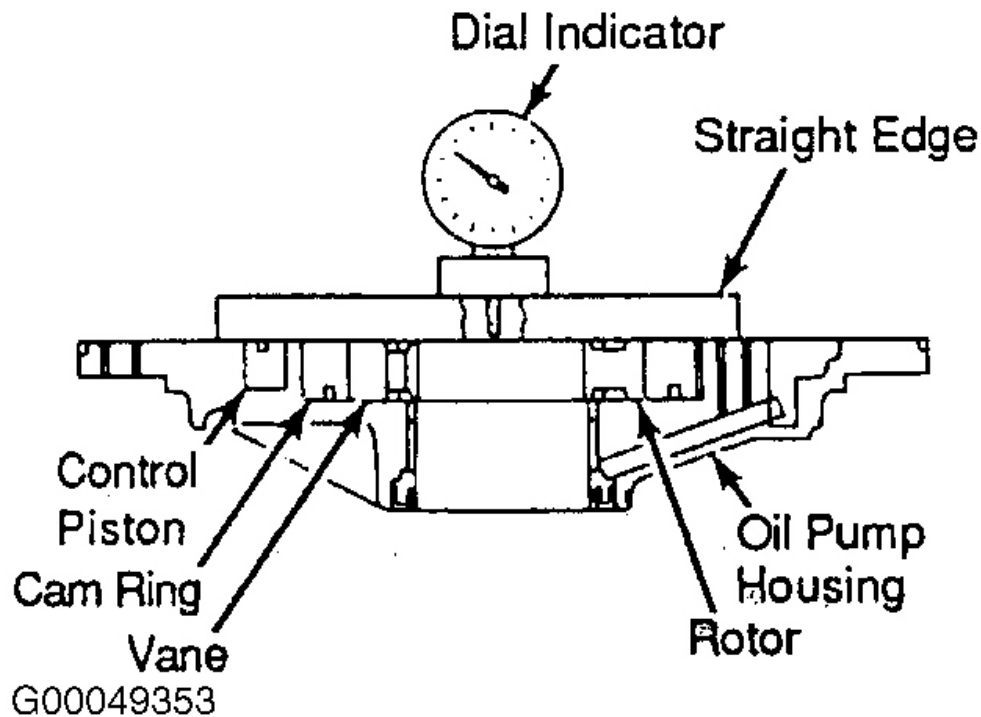


Fig. 15: Checking Oil Pump Side Clearances

Courtesy of NISSAN MOTOR CO., U.S.A.

OIL PUMP

Disassembly

1. Loosen bolts in numerical order and remove oil pump cover. See **Fig. 13** . Mark back of rotor for identification of direction when reassembling. Remove rotor, vane rings and vanes. See **Fig. 14** .
2. Remove pivot pin while pushing on cam ring. DO NOT scratch oil pump housing. Remove cam ring and spring from oil pump housing.
3. Remove pivot pin from control piston and remove control piston assembly. Remove oil seal from oil pump housing.

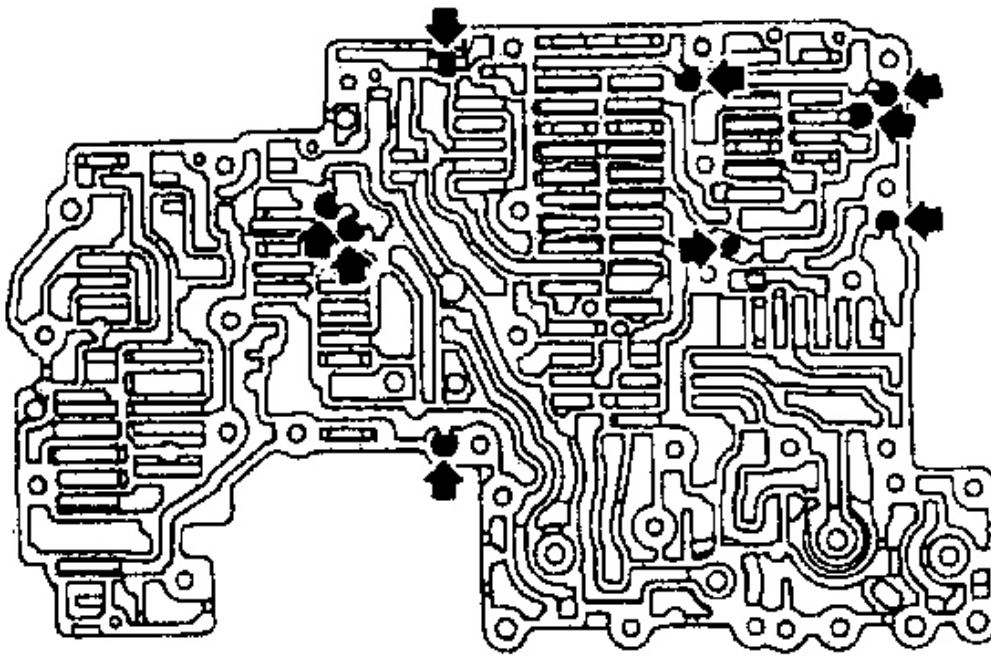
Inspection

1. To measure side clearances, ensure friction rings, "O" ring, control piston side seals and cam ring are removed.
2. Measure side clearances between end of oil pump housing and cam ring, rotor, vanes and control piston in at least 4 places along circumferences. See **Fig. 15** .

3. Standard clearance for cam ring is .0004-.0009" (.010-.240 mm). Standard clearance for rotor, vanes and control piston is .0012-.0017" (.030-.440 mm).
4. Measure clearance between seal rings and ring grooves. Standard clearance is .0039-.0098" (.100-.250 mm), with a wear limit of .0098" (.250 mm). If not within wear limit replace oil pump cover assembly.

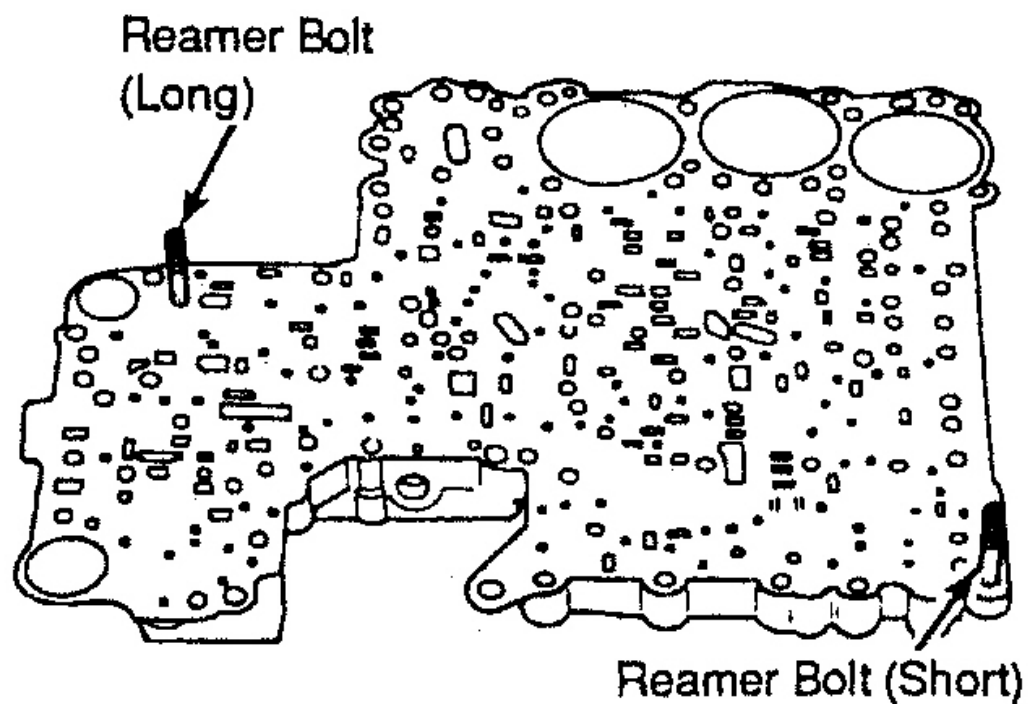
Reassembly

1. Install oil seal in pump housing and lubricate with ATF. Install side seal on control piston with Black surface toward control piston. Use petroleum jelly to position side seal.
2. Install control piston on oil pump housing. Using petroleum jelly, install "O" ring and friction ring on cam ring. Assemble cam ring, spring and spring seat and install in pump housing. Install cam ring pivot pin.
3. Install rotor, vane and vane rings in oil pump housing. Ensure rotor is positioned in proper direction. Assemble oil pump housing and oil pump cover. Torque bolts in crisscross pattern. See **Fig. 13** . Torque bolts to 12-15 ft. lbs. (16-21 N.m). Pack ring grooves with petroleum jelly and install seal rings. Ensure 2 different diameter seal rings are in proper positions.



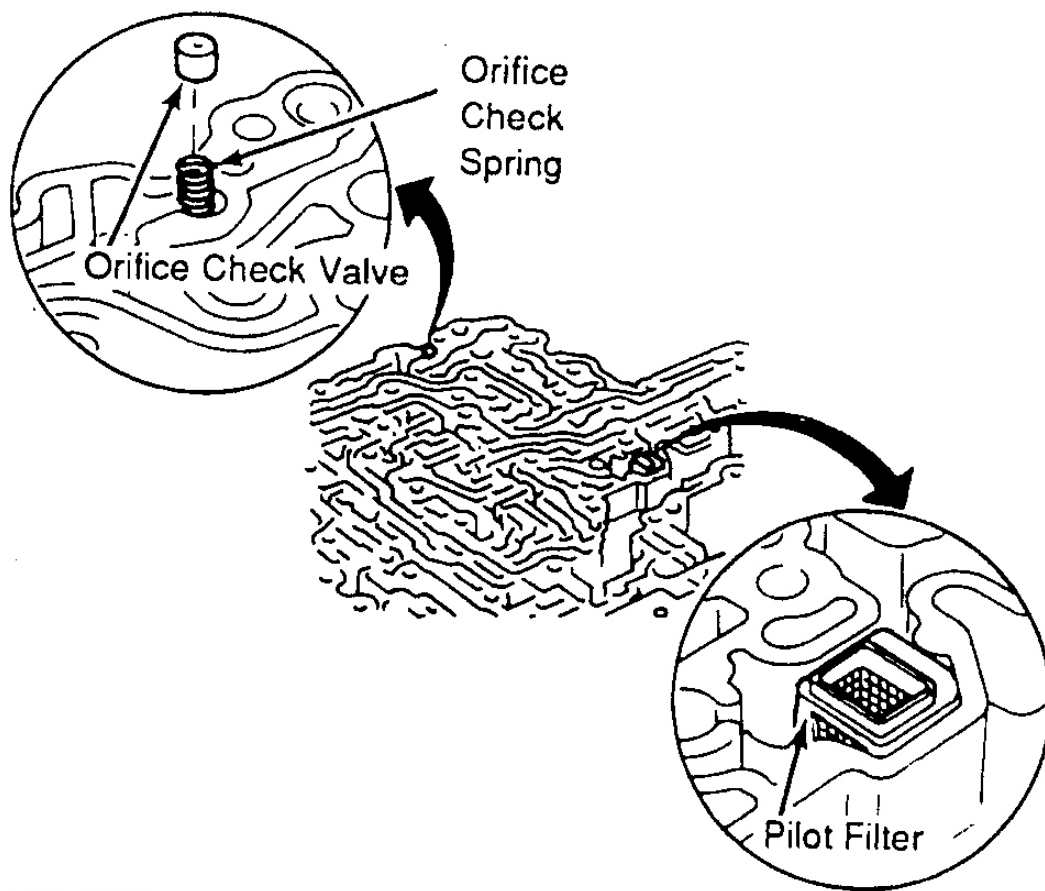
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Fig. 16: Identifying Steel Check Ball Locations - RE4R01A & RE4R03A
Courtesy of NISSAN MOTOR CO., U.S.A.



G00049355

Fig. 17: Identifying Reamer Bolt Locations - RE4R01A & RE4R03A
Courtesy of NISSAN MOTOR CO., U.S.A.



G00049356

Fig. 18: Locating Pilot Filter & Orifice Check
Courtesy of NISSAN MOTOR CO., U.S.A.

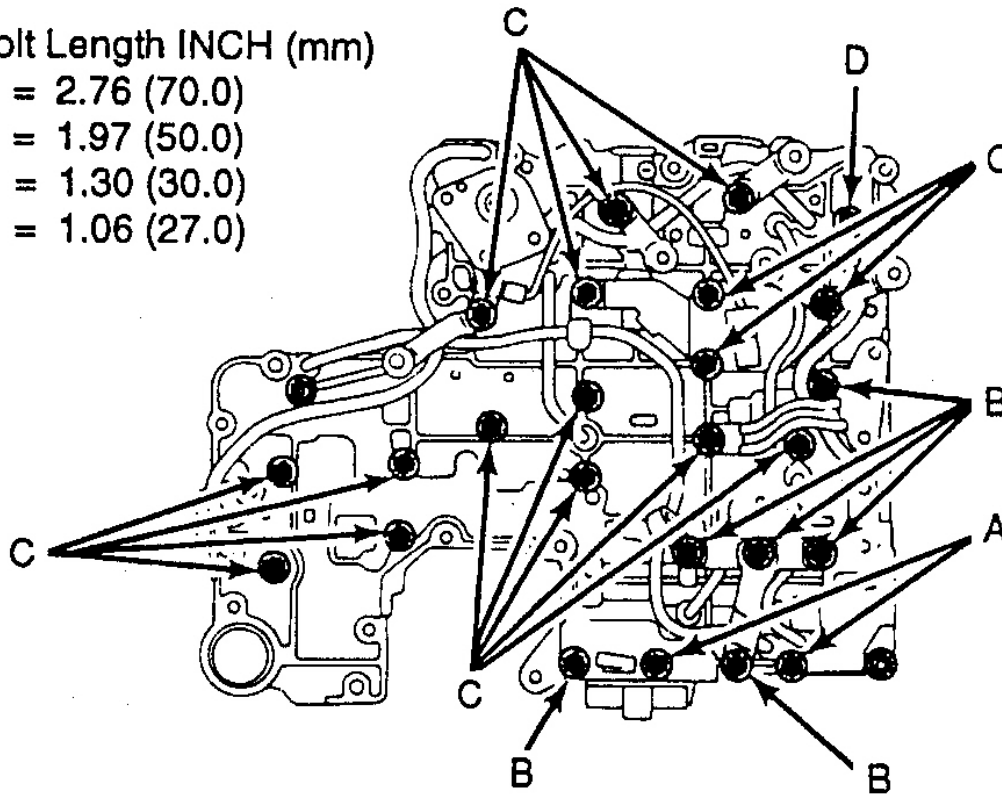
Bolt Length INCH (mm)

A = 2.76 (70.0)

B = 1.97 (50.0)

C = 1.30 (30.0)

D = 1.06 (27.0)



G00049357

Fig. 19: Determining Control Valve Bolt Location & Length

Courtesy of NISSAN MOTOR CO., U.S.A.

CONTROL VALVE ASSEMBLY**Disassembly**

1. Remove lock-up solenoid, "O" ring and side plate from lower body. Remove line pressure solenoid and "O" ring from upper body. Remove 3-unit solenoid assembly from upper body.
2. Place upper body facedown and remove bolts, reamer bolts and support plates. Remove lower body, separator plate and gasket as a unit from upper body. Place lower body facedown and remove separator plate and gasket. Remove pilot filter, orifice check valve and orifice check spring.
3. Ensure steel check balls are in proper positions and remove. See **Fig. 16**.

Inspection

1. Ensure pins and retainer plates are in upper and lower bodies. Ensure oil circuits are clean and not damaged. Inspect tube brackets and tube connectors for damage.
2. Inspect separator plates for damage, deformation and clean oil holes. Ensure pilot filter is clean.

Reassembly

1. Place oil circuit of upper body face up. Install steel check balls in proper positions. See **Fig. 16** . Install reamer bolts from bottom of upper body and install separator gasket. See **Fig. 17** .
2. Position oil circuit of lower body face up and install orifice check spring, orifice check valve and pilot filter. See **Fig. 18** . Install lower separator gasket and separator plate on lower body.
3. Install and temporarily tighten support plates, fluid temperature sensor and tube brackets. Ensure separator plate is installed correctly. See **Fig. 24** . Temporarily assemble upper and lower bodies using reamer bolts as a guide. Ensure steel check balls, orifice check valve and pilot filter are in proper positions.
4. Install and temporarily tighten bolts and tube brackets in proper locations. See **Fig. 19** for bolt location and length. Attach "O" ring and install lock-up solenoid and side plate on lower body.
5. Attach "O" rings and install 3-unit solenoid assembly on upper body. Attach "O" ring and install line pressure solenoid on upper body. Torque all bolts to 45-58 INCH lbs. (5.1-6.5 N.m).

CONTROL VALVE UPPER BODY**Disassembly**

1. Remove valves at parallel pins. Remove plugs slowly to prevent internal parts from springing out. Place mating surface of valve body facedown and remove internal parts.

NOTE: **Use suitable wire or paper clip to push parallel pins out. Do not use magnet for valve body repairs.**

2. Remove valves at retainer plates while holding springs. Position mating surface of body facedown and remove internal parts.

Inspection

Check valve springs for damage or deformation. Inspect sliding surfaces of valves, sleeves and plugs for wear or damage.

Reassembly

Lubricate control valve body and all valves with ATF. Install control valves, plugs, sleeves, retainer plates and parallel pins. See **Fig. 20** - **Fig. 24** .

CONTROL VALVE LOWER BODY**Disassembly & Inspection**

Remove valves at retainer plates and parallel pins. Check valve springs for damage or deformation. Inspect sliding surfaces of valves, sleeves and plugs for wear or damage.

Reassembly

Lubricate body and all valves with ATF. Install control valves, sleeves and plugs. See **Fig. 20 - Fig. 24** .

REVERSE CLUTCH

Disassembly

1. Remove reverse clutch assembly from clutch pack. Remove drive plates, driven plates, retaining plate, dish plate and snap ring. See **Fig. 25** and **Fig. 26** .
2. Remove snap ring from clutch drum while compressing springs. Remove spring retainer and return springs.

Inspection

Check return springs for deformation or damage. Inspect drive plate facing for burns, cracks or damage. Drive plate thickness should be .079" (2.00 mm) with a wear limit of .071" (1.80 mm). Ensure check balls in reverse clutch piston are not seized.

Reassembly

1. Install "D" ring and oil seal on piston. Apply ATF before installing.
2. Apply ATF to inner surface of drum. Install piston assembly while turning slowly.
3. Install return springs and retainer. Compress springs and install snap ring. Install drive plates, driven plates, retaining plate, dish plate and snap ring.

NOTE: DO NOT align snap ring gap with spring retainer stopper.

4. Measure clearance between retaining plate and snap ring. Specified clearance is .020-.031" (.50-.80 mm) with an allowable limit of .047" (1.2 mm). Retaining plate is available in selective thicknesses of .18-.23" (4.6-5.8 mm) in .008" (.20 mm) increments.

HIGH CLUTCH

Service procedures for high clutch are same as given for reverse clutch. Specified clearance is .071-.087" (1.80-2.20 mm). Allowable limit is .118" (3.00 mm).

FORWARD & OVERRUN CLUTCHES

Repeat reverse clutch service procedures for forward and overrun clutches. Forward clutch drive plate thickness is .063" (1.60 mm) with wear limit of .055" (1.40 mm). Overrun clutch drive plate thickness is .079" (2.00 mm) with wear limit of .071" (1.80 mm). Specified clearance is .039-.055" (1.00-1.40 mm) for overrun clutch with wear limit of .094" (2.40 mm). Forward clutch specified clearance is .0177-.0335" (.450-.850 mm) with wear limit of .0886" (2.250 mm).

LOW & REVERSE BRAKE

Disassembly

1. Remove snap ring, drive plates, driven plates and dish plate. Remove low one-way clutch inner race, spring retainer and return spring from transmission case.
2. Remove seal rings from low one-way clutch inner race. Remove needle bearing from low one-way clutch inner race. Remove low and reverse brake piston, oil seal and "D" ring.

Inspection

1. Check low and reverse brake snap ring, springs and retainer for deformation or damage.
2. Check low and reverse drive plates for burns, cracks or damage. Drive plate thickness is .079" (2.00 mm) with wear limit of .071" (1.80 mm). Check frictional surface of inner race for wear or damage.
3. Install new seal rings on low one-way clutch inner race and measure ring groove clearance. Specified clearance is .0039-.0098" (.100-.250 mm) with allowable limit of .0098" (.250 mm).

Reassembly

1. Install bearing on one-way clutch inner race with Black surface to rear side. Install oil seal and "D" ring on piston. Install piston while rotating slowly.
2. Install return springs, spring retainer and low one-way clutch inner race in transmission case. Install dish plate, drive plates, driven plates, retaining plate and snap ring in transmission case.
3. Specified clearance is .043-.059" (1.10 -1.50 mm) with an allowable limit of .098" (2.50 mm). Install low one-way inner race seal ring with petroleum jelly.

FORWARD CLUTCH DRUM**Disassembly**

Remove snap ring from forward clutch drum. Remove side plate and low one-way clutch from forward clutch drum. Remove snap ring and needle bearing from forward clutch drum.

Inspection

Check spline for wear or damage. Check frictional surfaces of low one-way clutch and needle bearing for wear or damage.

Reassembly

Install needle bearing in forward clutch drum and install snap ring. Install low one-way clutch in forward clutch drum. Install low one-way clutch with flange facing rearward. Install side plate and snap ring in forward clutch drum.

REAR INTERNAL GEAR & FORWARD CLUTCH HUB**Disassembly**

1. Remove rear internal gear by pushing forward clutch hub forward. Remove thrust washer from rear internal gear.

2. Remove snap ring from forward clutch hub. Remove forward one-way clutch and end bearings.

Inspection

Check gear for chips, cracks or excessive wear. Check frictional surfaces of forward one-way clutch and thrust washer for wear or damage. Check spline, end bearing and snap ring for wear or damage.

Reassembly

1. Install snap ring and end bearing in forward clutch hub. Install forward one-way clutch in hub with flange facing rearward. Install end bearing and snap ring in forward clutch hub.
2. Install thrust washer on rear internal gear. Apply petroleum jelly to hold thrust washer in place. Position forward clutch hub in rear internal gear. Ensure forward clutch hub rotates clockwise only. See **Fig. 30**.

BAND SERVO PISTON ASSEMBLY**Disassembly**

1. Block one oil hole in OD servo piston retainer and center hole in OD band servo piston. Apply compressed air to other hole in piston retainer to remove OD band servo piston. See **Fig. 29** and **Fig. 31**.
2. Remove band servo piston assembly from servo piston assembly by pushing forward. See **Fig. 32**.
3. Remove "E" rings and disassemble band servo piston assembly. Remove "O" rings and "D" rings.

Inspection

Check frictional surfaces for abnormal wear or damage. Check return springs for deformation or damage.

Reassembly

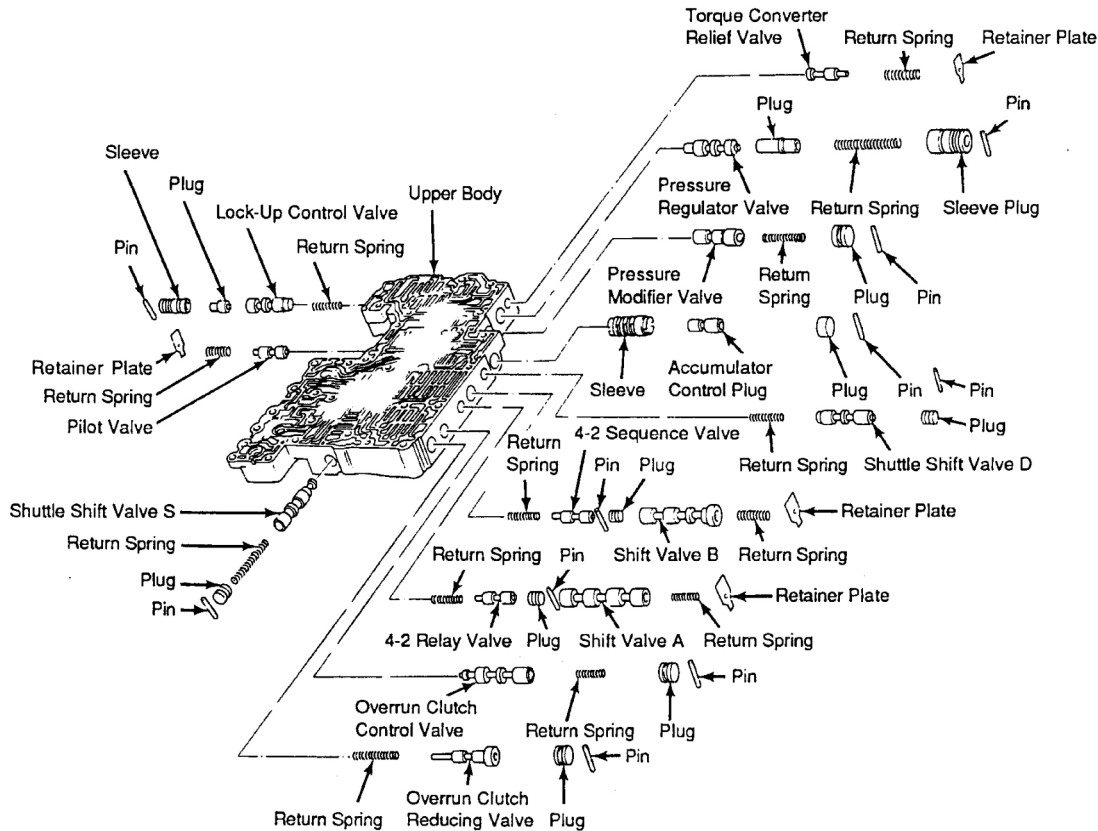
1. Apply ATF to "O" rings and install on servo piston retainer. Install servo cushion spring retainer on band servo piston. Install "E" ring on servo cushion spring retainer.
2. Install "D" rings on band servo piston. Install servo piston spring retainer, return spring and piston stem on band servo piston. Install "E" ring on piston stem.
3. Install band servo piston assembly on servo piston retainer by pushing inward. Install "D" ring on OD band servo piston. Install OD band servo piston in servo piston retainer.

PARKING PAWL COMPONENTS**Disassembly**

1. Slide return spring to front of rear extension flange. Remove return spring, pawl spacer and parking pawl from rear extension.
2. Remove parking actuator support and rod guide from rear extension.

Inspection & Reassembly

1. Check contact surface of parking rod for wear. Install rod guide and parking actuator support on rear extension. See **Fig. 33**.
2. Install return spring, pawl spacer and parking pawl on parking pawl shaft. Bend return spring upward and install on rear extension.



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Fig. 20: Exploded View Of Control Valve Upper Body
Courtesy of NISSAN MOTOR CO., U.S.A.

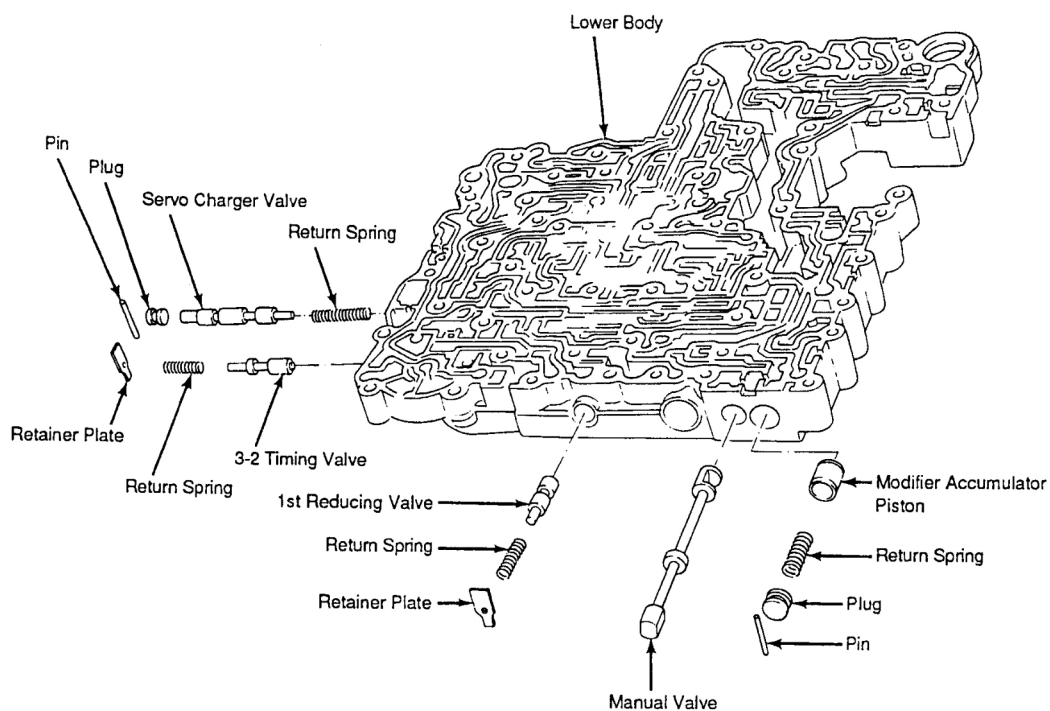
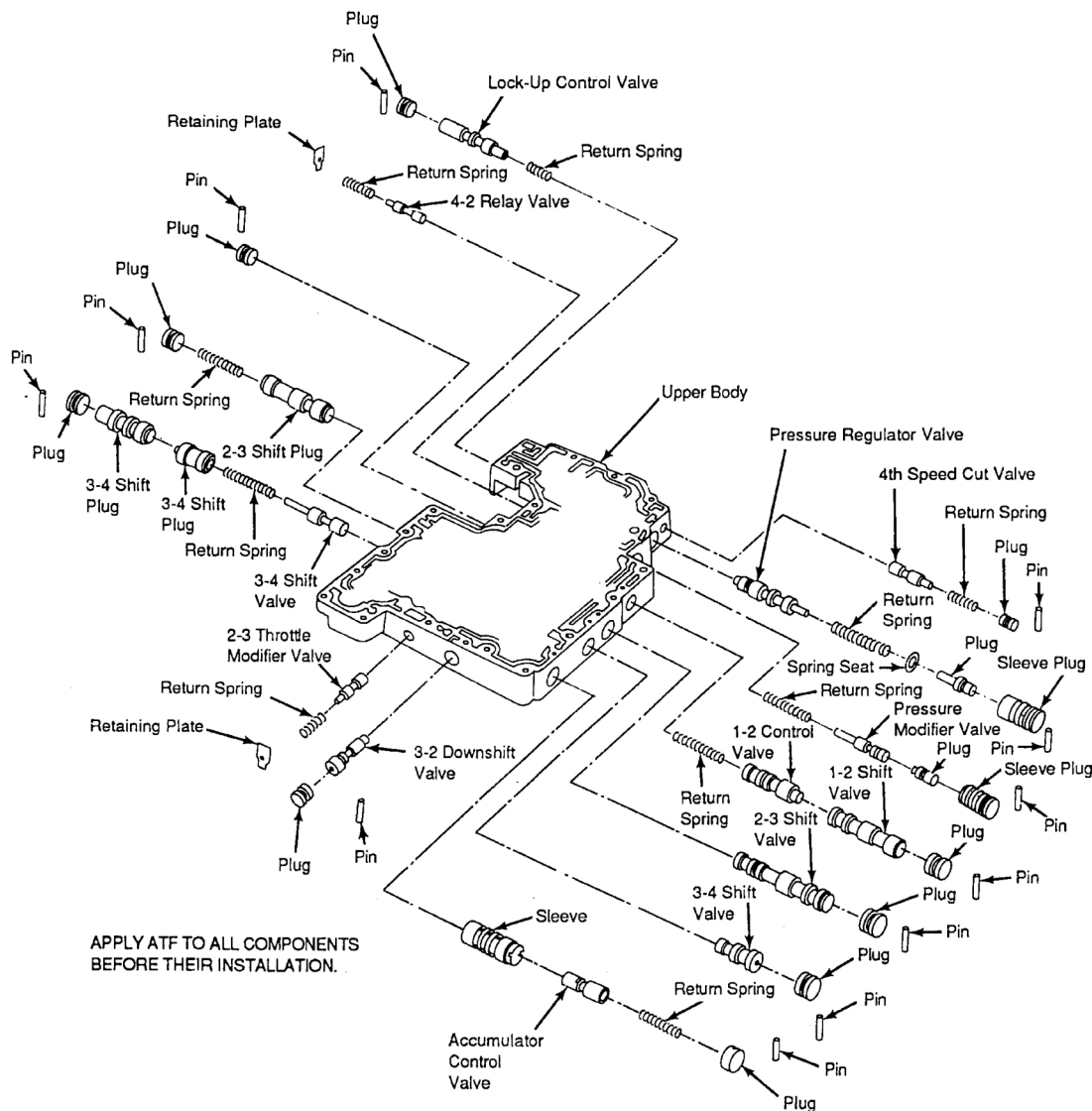


Fig. 21: Exploded View Of Control Valve Lower Body
 Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 22: Exploded View Of Control Valve Upper Body (RL4R01A)
 Courtesy of NISSAN MOTOR CO., U.S.A.

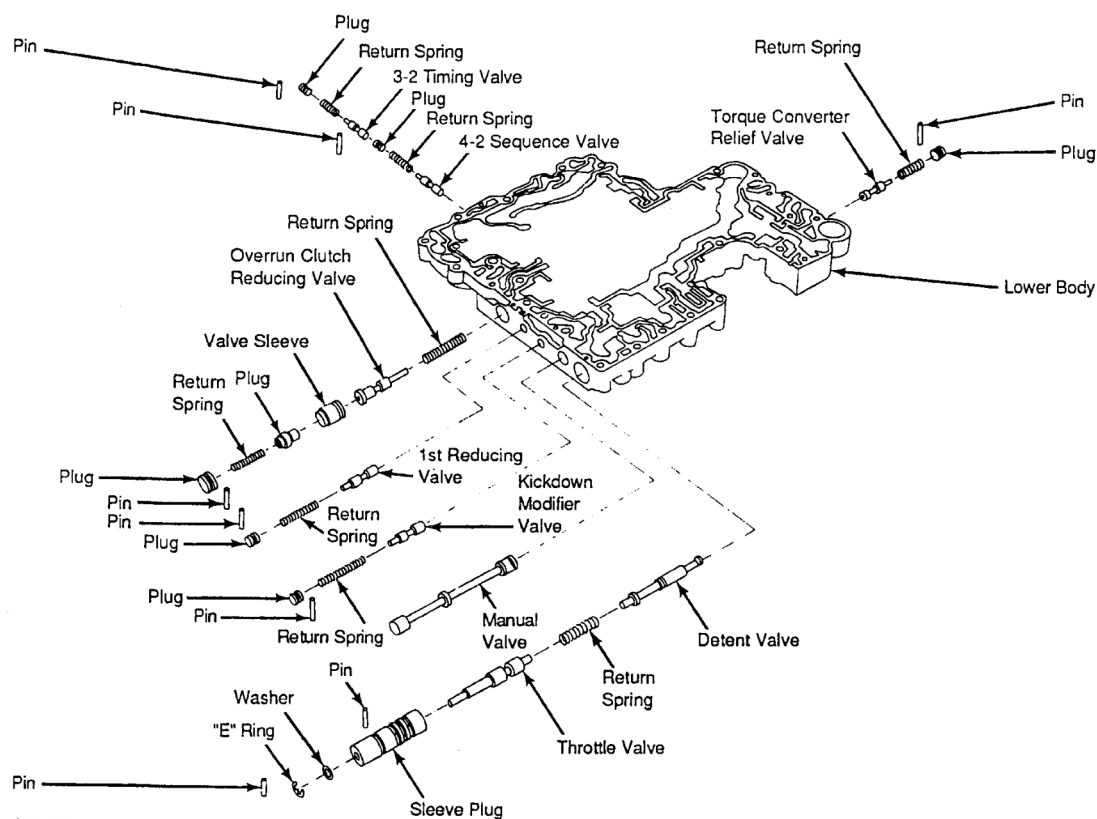


Fig. 23: Exploded View Of Control Valve Lower Body (RL4R01A)
 Courtesy of NISSAN MOTOR CO., U.S.A.

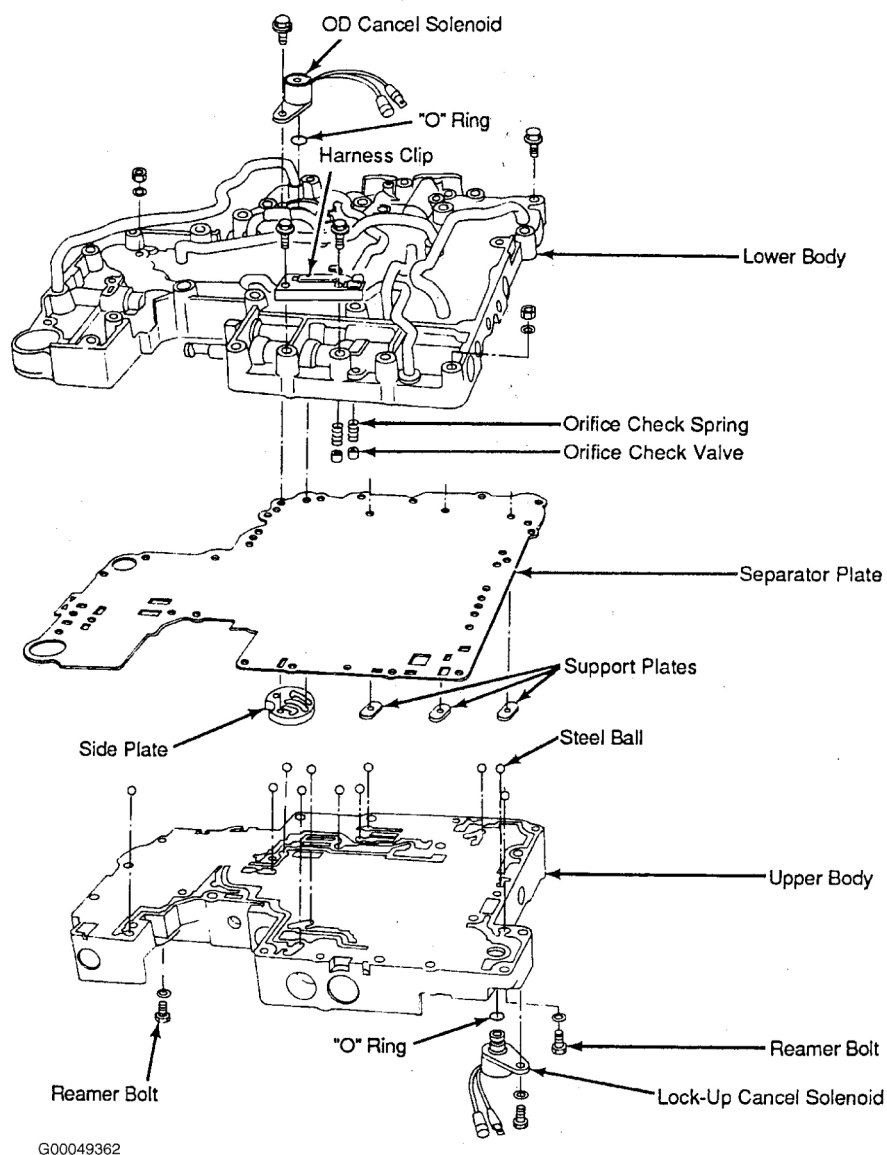


Fig. 24: Exploded View Of Control Valve Assembly (RL4R01A)
 Courtesy of NISSAN MOTOR CO., U.S.A.

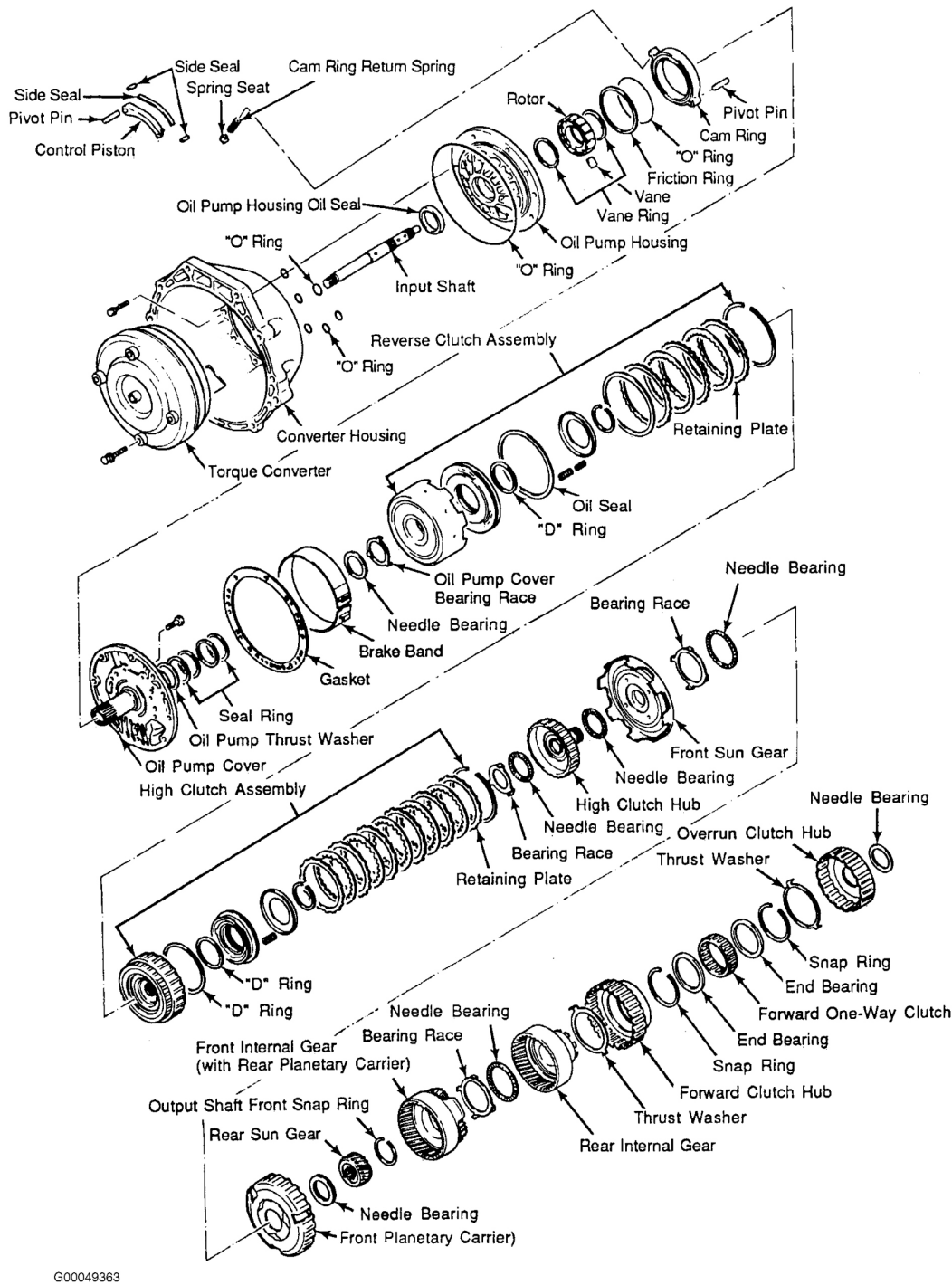
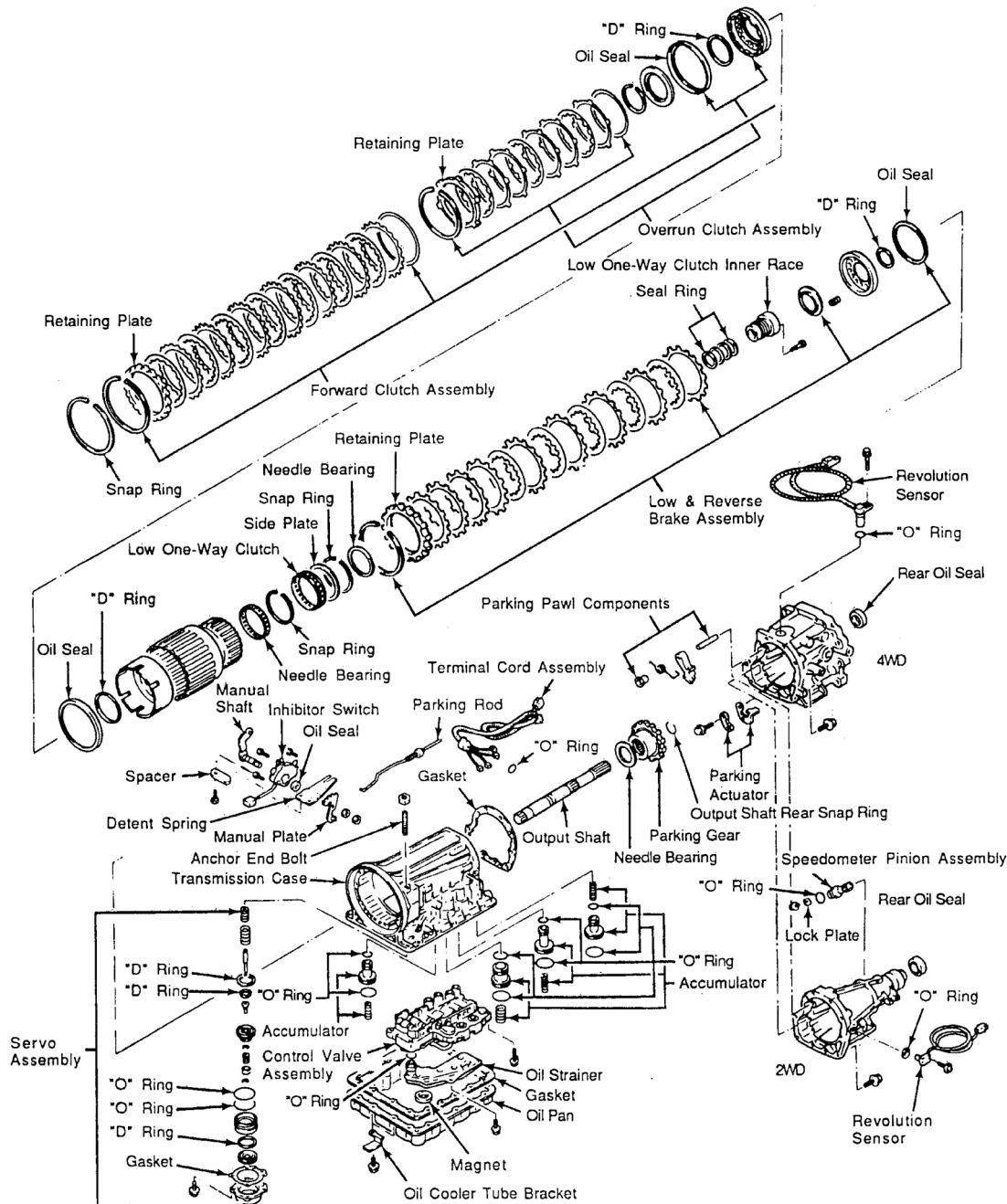


Fig. 25: Exploded View Transmission Assembly (RE4R01A & RE4R03A) (1 Of 2)
 Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 26: Exploded View Transmission Assembly (RE4R01A & RE4R03A) (2 Of 2)
Courtesy of NISSAN MOTOR CO., U.S.A.

GOVERNOR VALVE ASSEMBLY (RL4R01A)

Inspection & Reassembly

Check governor valves and valve body for indications of burning or scratches. Check return springs for damage

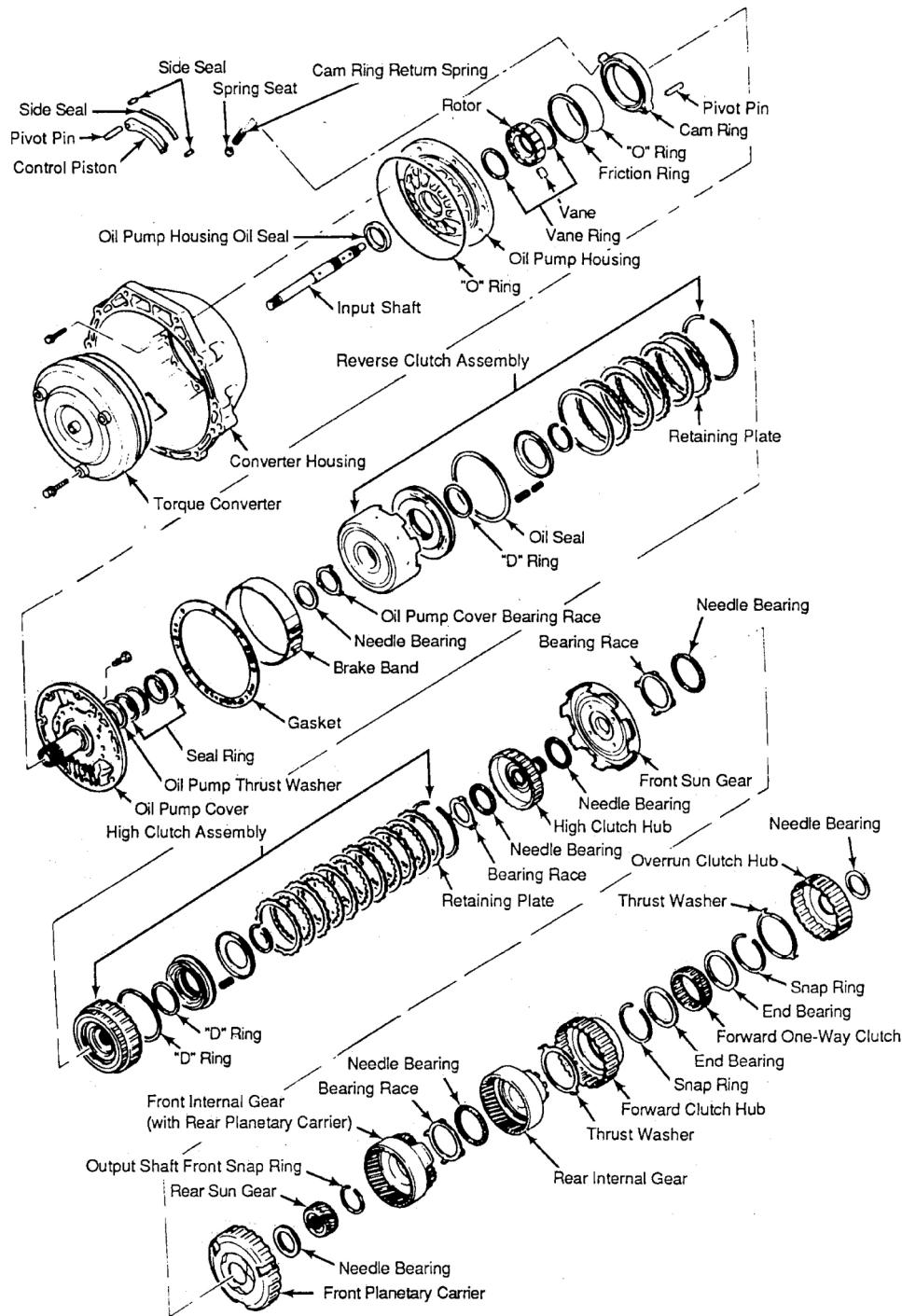
or deformation. Lubricate governor valve body and governor valves with ATF and reassemble. See **Fig. 34**.

TRANSMISSION REASSEMBLY

1. Install manual shaft and oil seal as a unit in transmission case. Align groove in shaft with drive pin hole. Drive pin into case as shown in **Fig. 35**. Install detent spring and spacer. While pushing detent spring down, install manual plate on manual shaft.
2. Install locknuts on manual shaft. Install "O" rings on accumulator pistons. Apply ATF to transmission case and install accumulator pistons as shown in **Fig. 36**. Install band servo piston and return springs. Install band servo gasket and retainer on transmission case.
3. Place transmission case in vertical position. Slightly lift forward clutch drum assembly and slowly rotate clockwise until hub passes over one-way clutch inner race inside transmission case. See **Fig. 37**. Ensure forward clutch assembly rotates in clockwise direction only. Apply petroleum jelly to thrust washer and install on front of overrun clutch hub.
4. Install overrun clutch hub on rear internal gear assembly. Install needle bearing on rear of overrun clutch hub. Use petroleum jelly to hold needle bearing in place. Ensure overrun clutch hub rotates counterclockwise while holding forward clutch hub. See **Fig. 38**.
5. Install rear internal gear, forward clutch hub and overrun clutch hub as a unit in transmission case. Apply petroleum jelly to needle bearing and install on rear internal gear. Install bearing race on rear of front internal gear and install in transmission case.
6. Install rear sun gear in transmission case with oil grooves in proper direction. Install needle bearings on front and rear of front planetary carrier. While rotating clockwise install in case.
7. Ensure front planetary carrier protrudes approximately .080" (2.00 mm) beyond forward clutch assembly. Install bearing race on rear of clutch pack assembly. With transmission in vertical position, install clutch pack assembly in transmission case.
8. Total end play should be .0098-.0217" (.250-.550 mm) and is adjusted as follows: With needle bearing installed, place Bridge (J-34291-1), Legs (J-34291-2) and Gauging Cylinder (J-34291-5) on oil pump. See **Fig. 39**. Allow gauging cylinder to rest on top of needle bearing and lock gauging cylinder in place. Install Gauging Plunger (J-3429-23) in gauging cylinder. With original bearing race installed inside reverse clutch drum, place shim selecting gauge on machined surface of transmission case (without gasket) and allow gauging plunger to rest on bearing race. See **Fig. 40**. Lock plunger in place.
9. Measure gap as shown in **Fig. 40**. This measurement should give exact total end play. Adjusting total end play is accomplished by replacing oil pump cover bearing race.
10. Reverse clutch drum end play should be .0217-.0354" (.550-.900 mm) and is adjusted as follows: Place bridge and gauging cylinder on transmission case and allow cylinder to rest on front thrust surface of reverse clutch drum. Lock cylinder in place. With original thrust washer on oil pump, place shim selecting tool on oil pump and allow gauging plunger to rest on thrust washer. Lock in place. Measure gap and adjust reverse clutch end play (as necessary). See **Fig. 41**. Reverse clutch drum end play is adjusted by replacing oil pump thrust washer.
11. Insert output shaft from rear of transmission case while slightly lifting front internal gear. Install snap ring on front of output shaft. Use petroleum jelly and install needle bearing in transmission case with backside of bearing towards front of transmission. Install parking gear or governor assembly and rear snap ring on output shaft.
12. Install rear extension seal and revolution sensor. Install parking rod in transmission case. Install rear extension and gasket. Install brake band and band strut. Install anchor end bolt in transmission case.

Tighten anchor end bolt just enough so reverse clutch drum will not tilt forward.

13. Install input shaft in transmission case. Install oil pump gasket and oil pump. Install "O" ring on input shaft. Apply sealer to outer edge of bolt holes and install converter housing. Apply sealant to seating surfaces of bolts securing converter housing.
14. Adjust brake band by tightening anchor end bolt to 35-53 INCH lbs. (4-6 N.m), then back off anchor end bolt 2.5 turns. Hold anchor end bolt and tighten lock nut. Install solenoids harness assembly with "O" ring. Install accumulator piston return springs and control valve assembly. Connect solenoids wiring harness.
15. Install oil pan and inhibitor switch. Fill torque converter with ATF and install. To ensure torque converter is in proper position, measure distance from torque converter bolt holes to transmission mounting flange using a straightedge. See **Fig. 42** .



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Fig. 27: Exploded View Transmission Assembly (RL4R01A) (1 Of 2)
 Courtesy of NISSAN MOTOR CO., U.S.A.

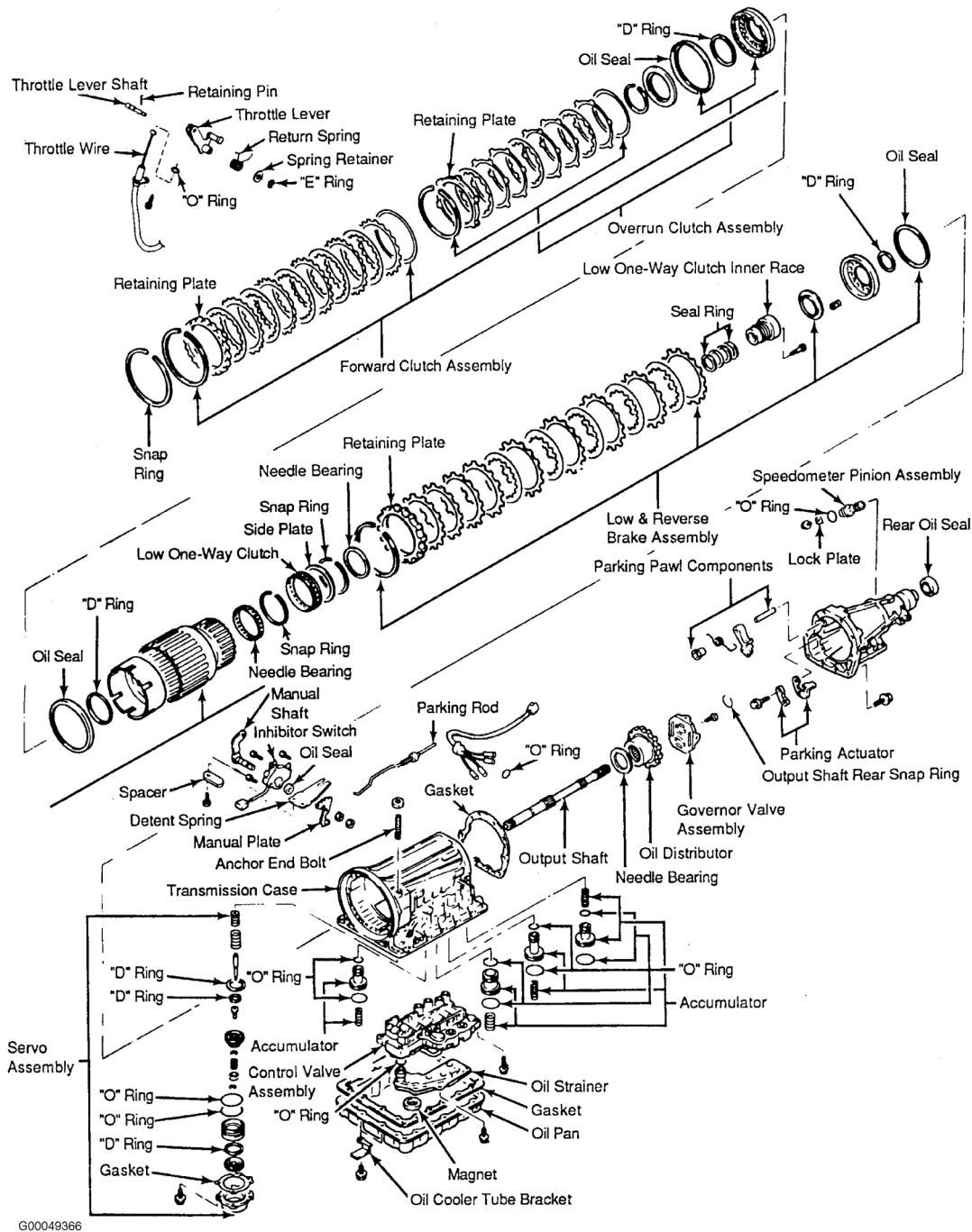


Fig. 28: Exploded View Transmission Assembly (RL4R01A) (2 Of 2)
 Courtesy of NISSAN MOTOR CO., U.S.A.

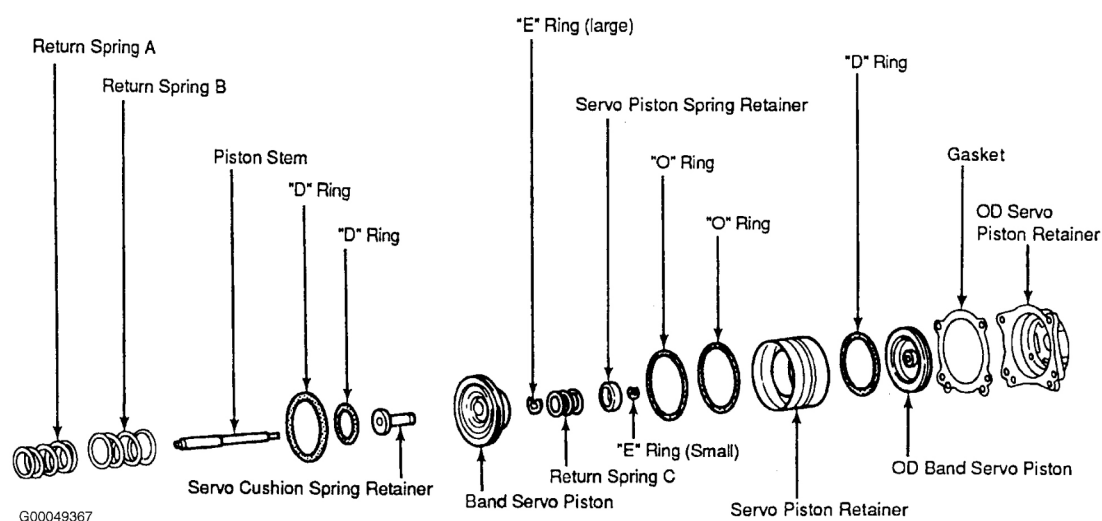


Fig. 29: Exploded View Band Servo Piston
 Courtesy of NISSAN MOTOR CO., U.S.A.

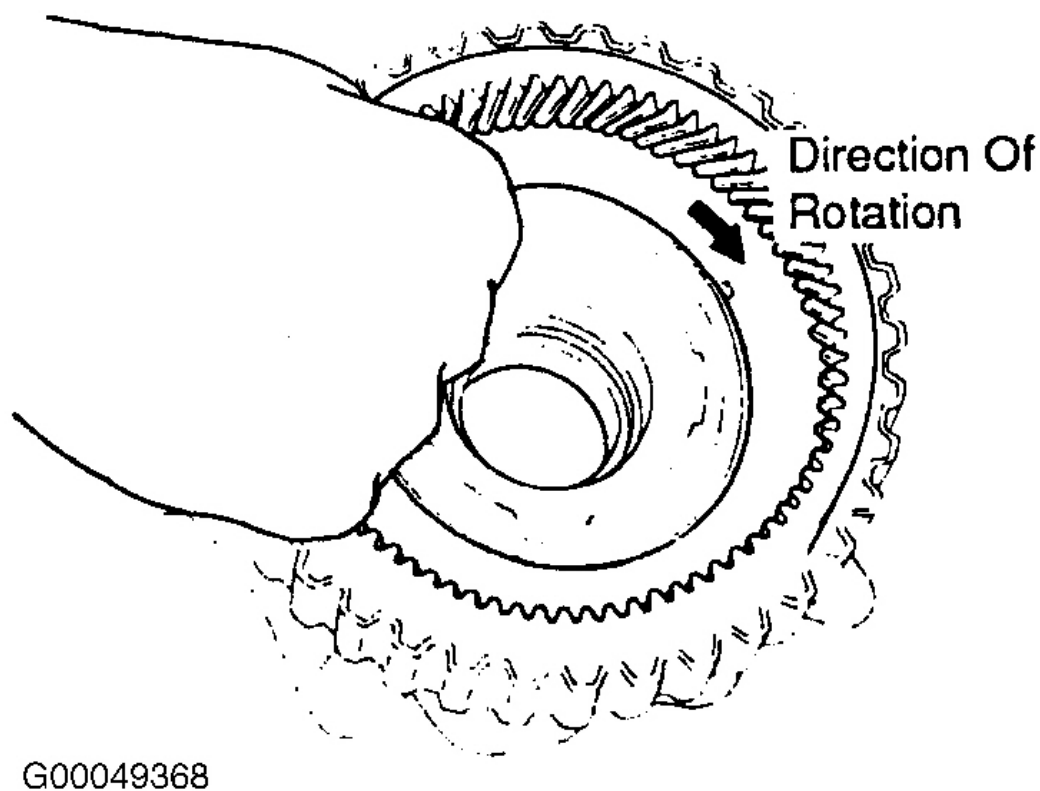


Fig. 30: Checking Forward One-Way Clutch Rotation

Courtesy of NISSAN MOTOR CO., U.S.A.

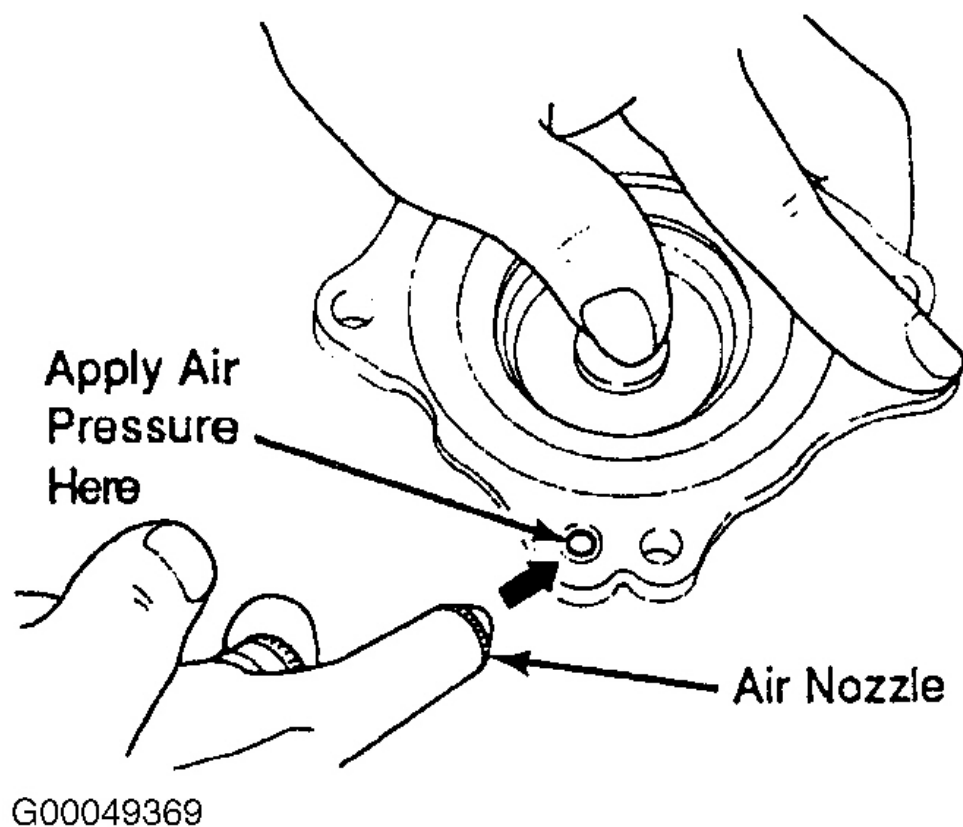
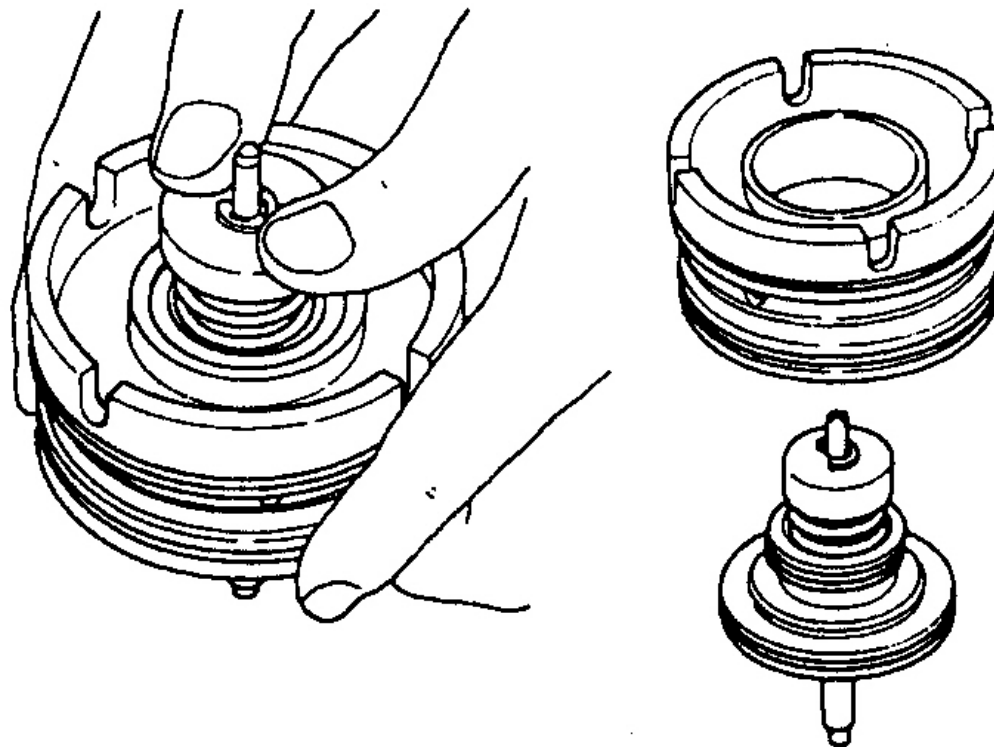


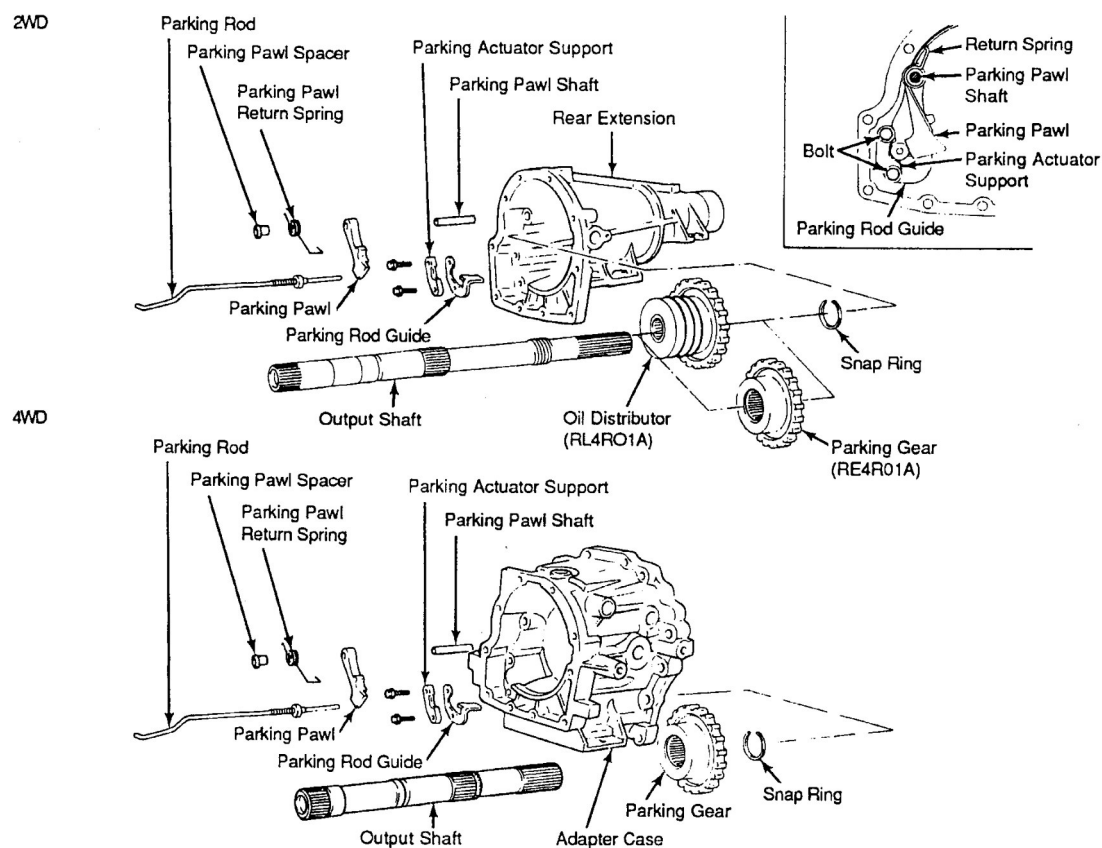
Fig. 31: Removing OD Band Servo Piston

Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 32: Disassembling Band Servo Piston
Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 33: Exploded View Parking Components
Courtesy of NISSAN MOTOR CO., U.S.A.

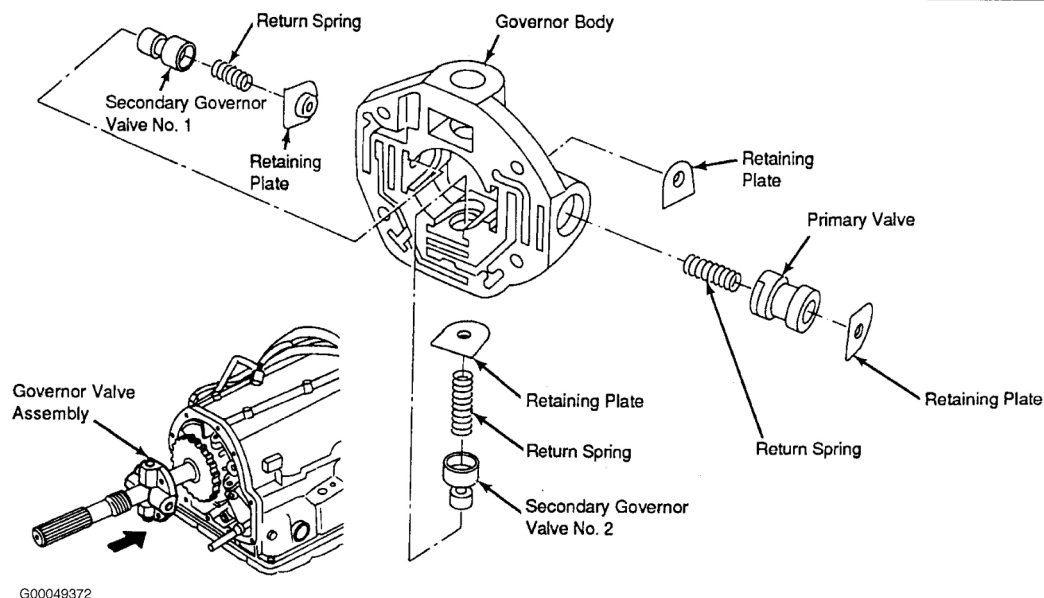


Fig. 34: Exploded View Governor Valve (RL4R01A)
 Courtesy of NISSAN MOTOR CO., U.S.A.

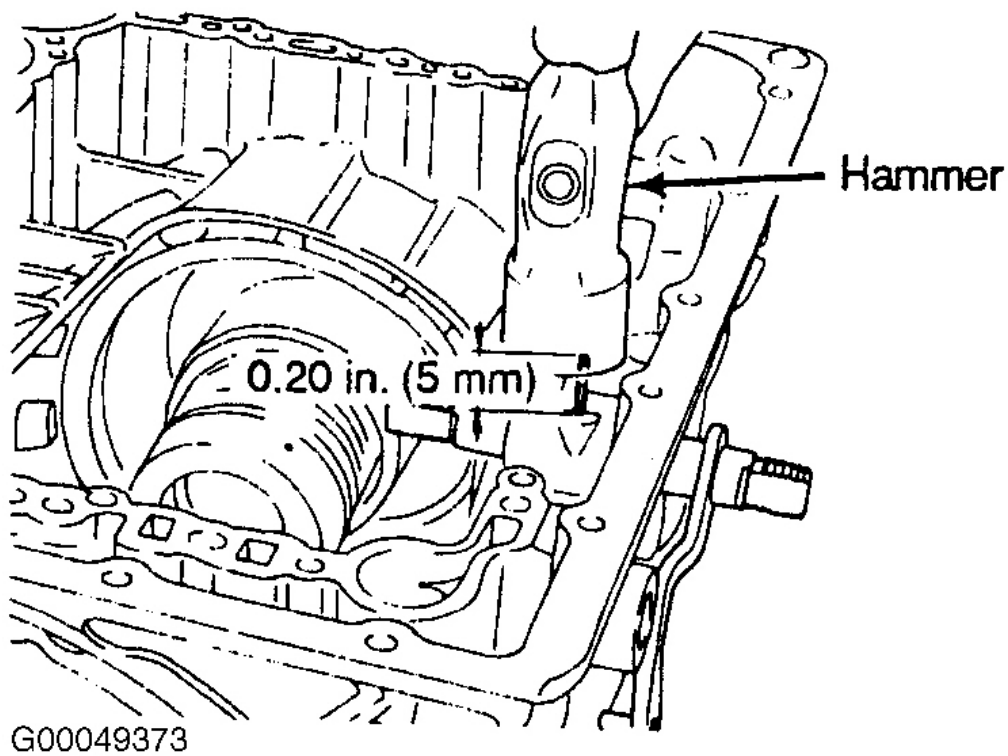


Fig. 35: Installing Manual Shaft Pin
Courtesy of NISSAN MOTOR CO., U.S.A.

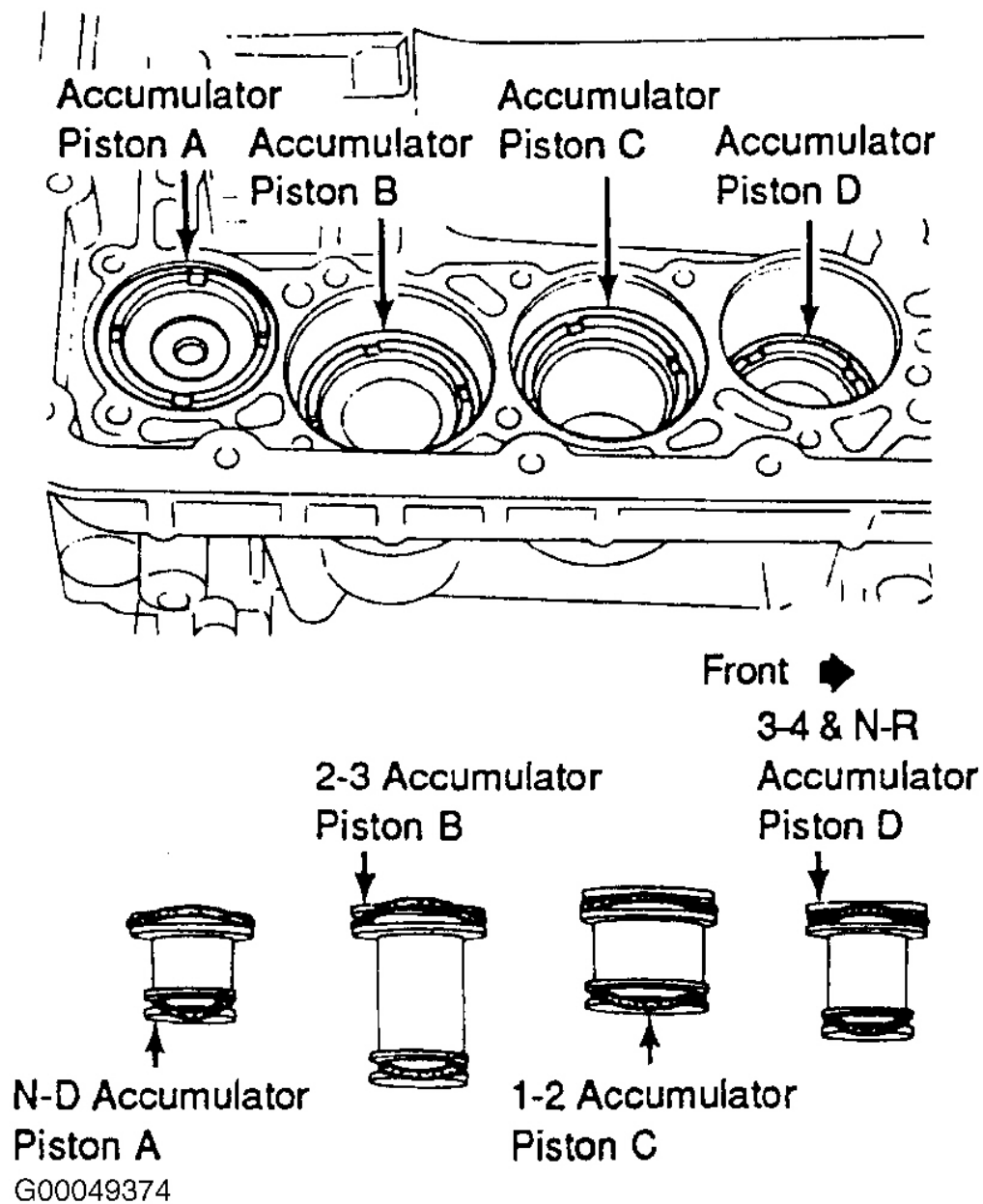


Fig. 36: Locating Accumulator Pistons
 Courtesy of NISSAN MOTOR CO., U.S.A.

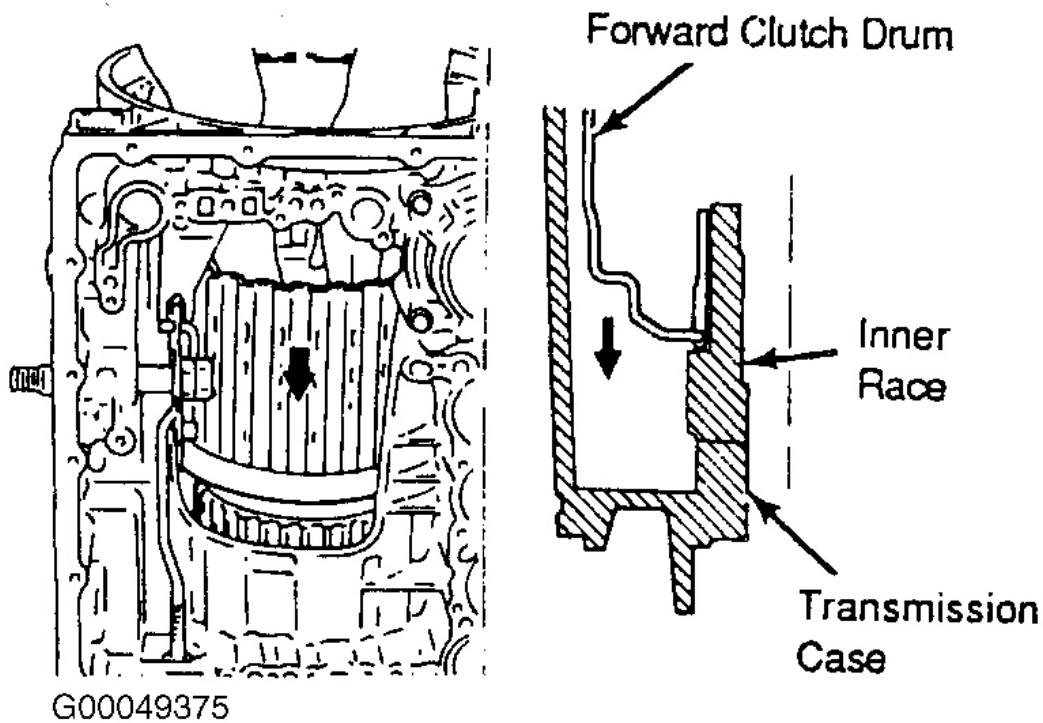


Fig. 37: Installing Forward Clutch Drum
Courtesy of NISSAN MOTOR CO., U.S.A.

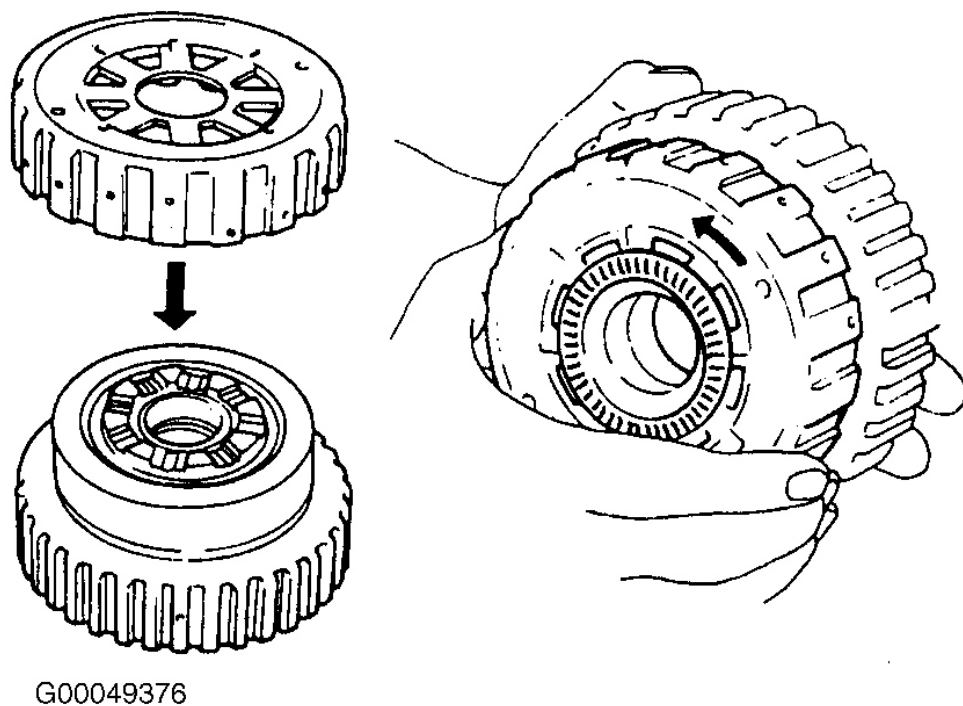
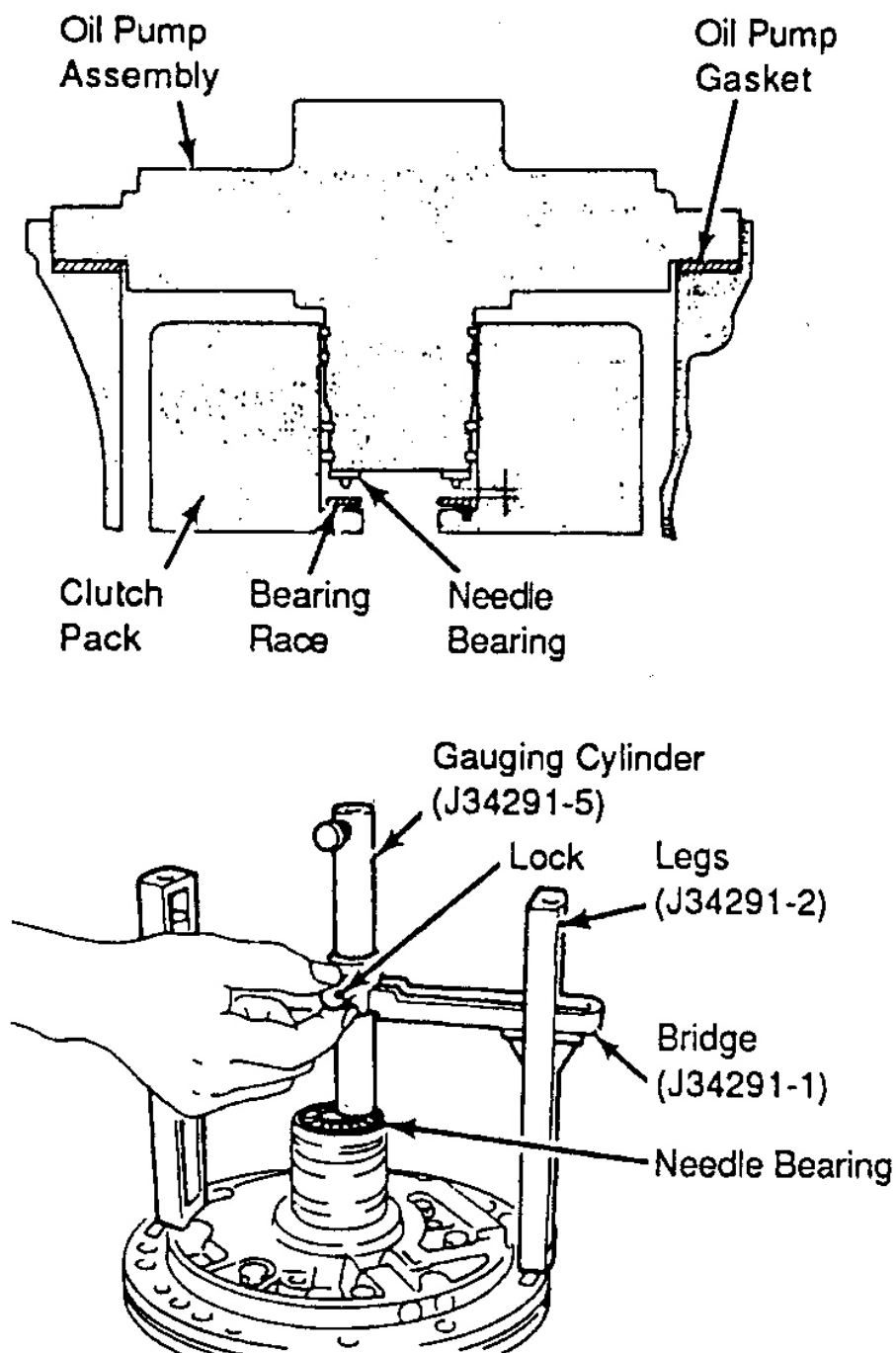


Fig. 38: Checking Overrun Clutch Hub Rotation
Courtesy of NISSAN MOTOR CO., U.S.A.



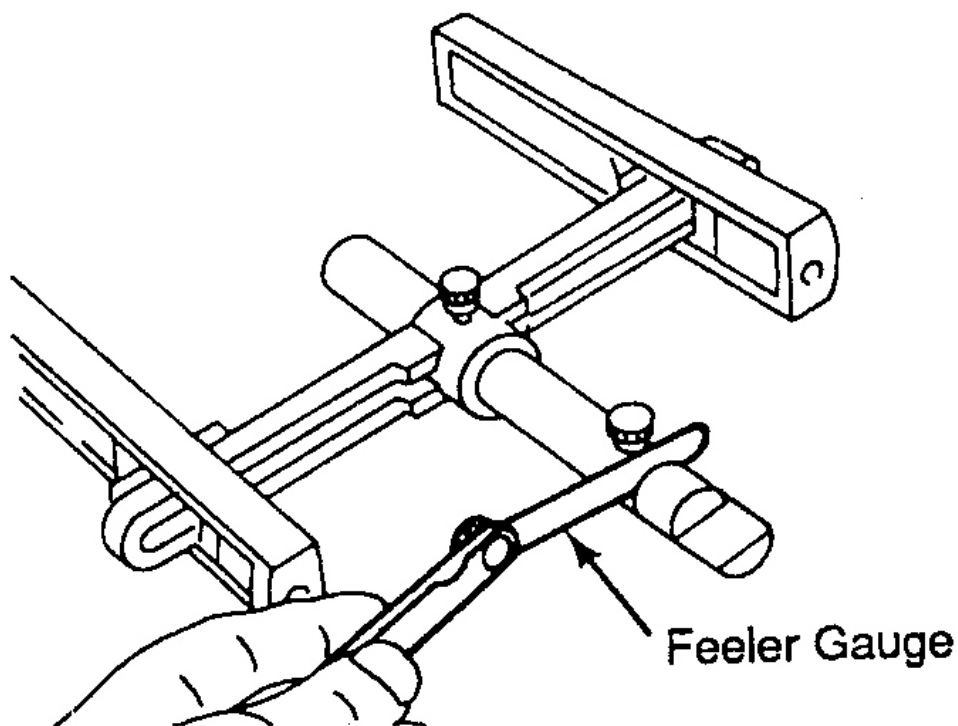
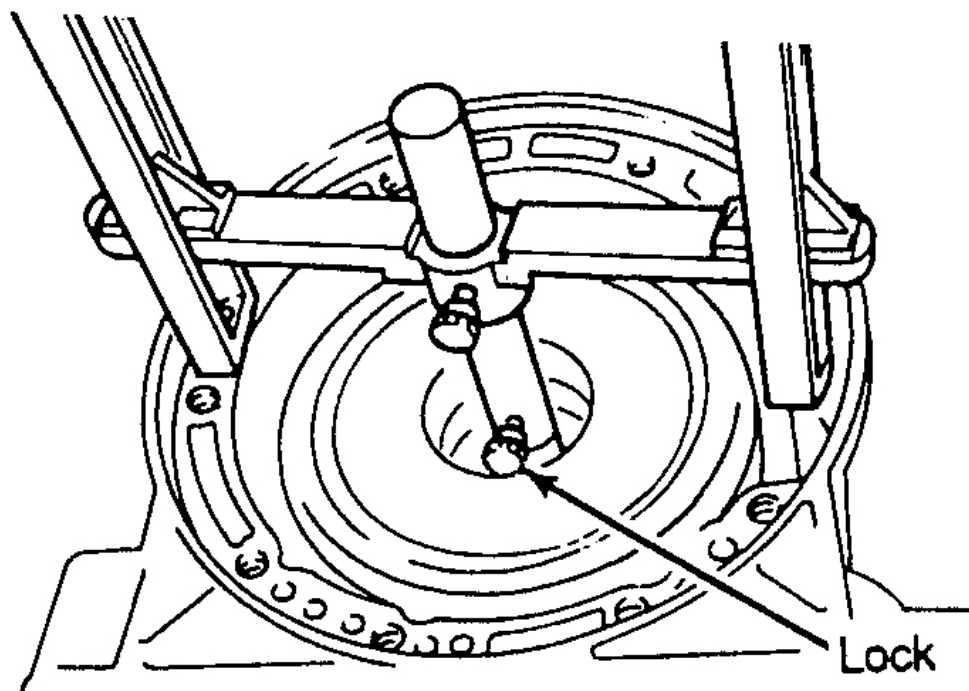
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Fig. 39: Measuring Total End Play (1 Of 2)

1990 Nissan 240SX SE

1988-90 AUTOMATIC TRANSMISSIONS RE4R01A, RE4R03A & RL4R01A Electronic Controls & Overhaul

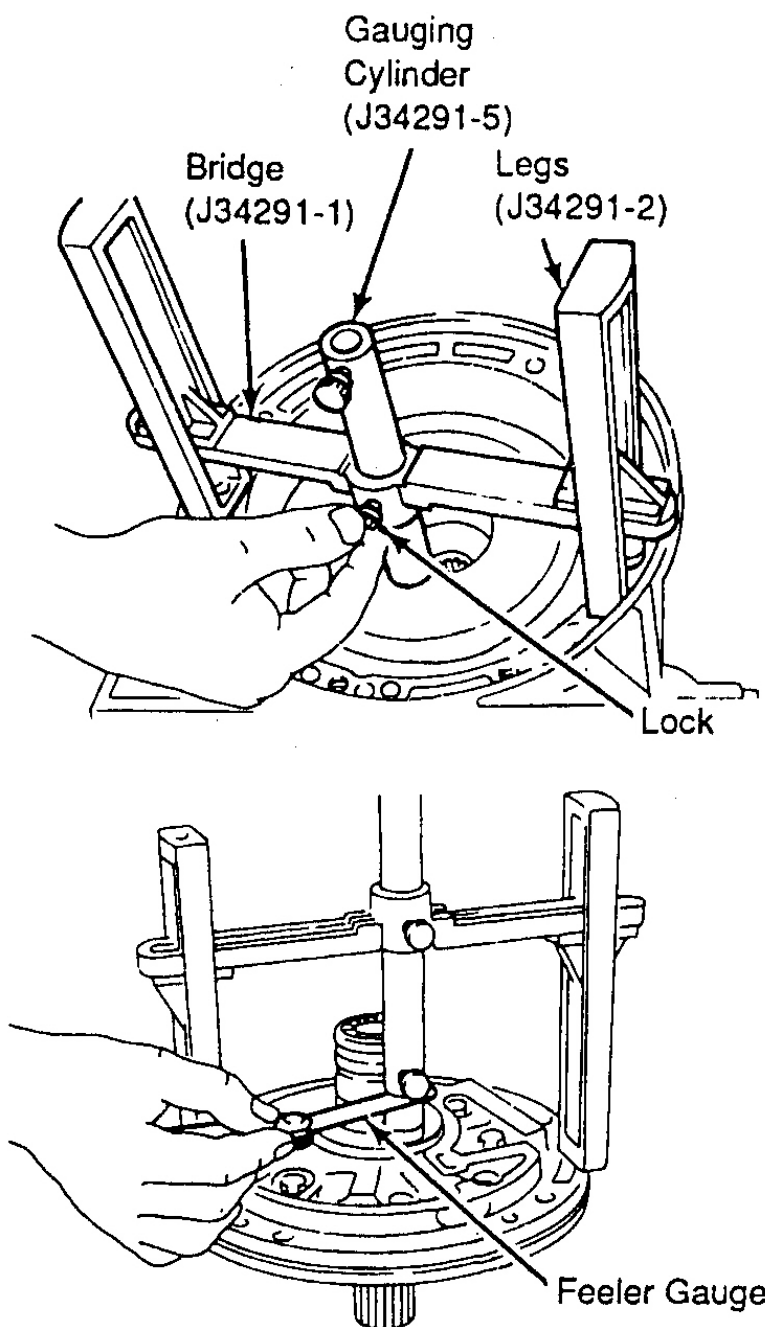
Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 40: Measuring Total End Play (2 Of 2)

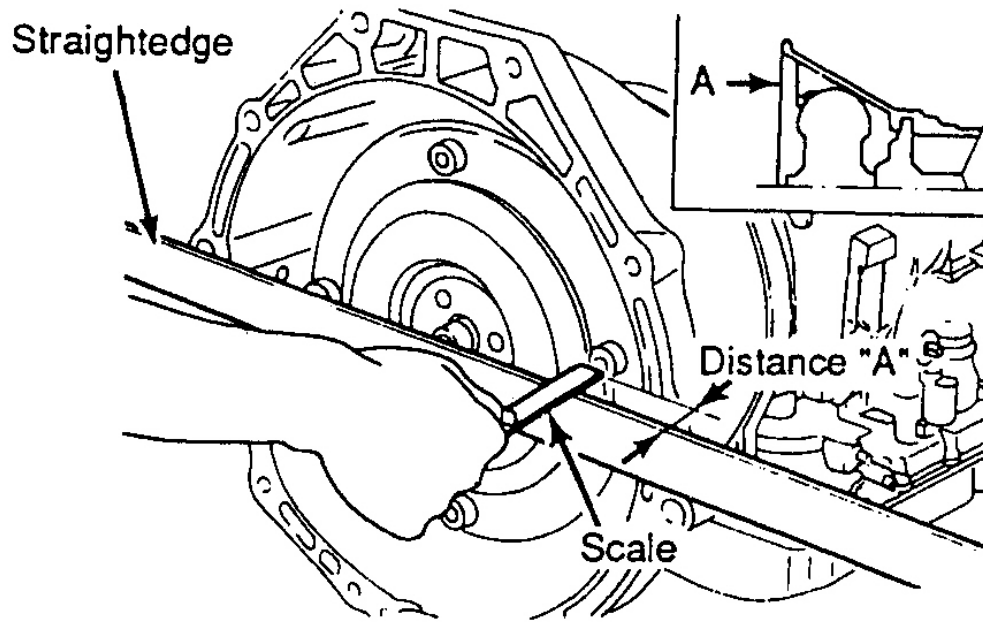
Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 41: Measuring Reverse Clutch Drum End Play

Courtesy of NISSAN MOTOR CO., U.S.A.



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Fig. 42: Measuring Converter Installed Depth
 Courtesy of NISSAN MOTOR CO., U.S.A.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Nm. (Ft. lbs.)
Torque Converter-To-Flexplate Bolts	39-49 (29-36)
Converter Housing-To-Case Bolts	61-64 (45-47)
Oil Pump Cover Bolts	16-21 (12-15)
Low One-Way Clutch Inner Race Bolts	21-26 (16-19)
Manual Shaft Lock Nuts	29-39 (21-29)
Band Brake Anchor Lock Nut	31-42 (23-31)
Rear Extension Bolts	21-25 (15-18)
Parking Actuator Bolts	24-29 (18-21)
	Nm. (INCH Lbs.)
Control Valve Bolts	7-9 (62-80)
Servo Piston Retainer Bolts	7-9 (62-80)
Oil Pan Bolts	5-8 (44-71)
Detent Spring Bolts	4-6 (35-53)
Revolution Sensor Bolt	5-7 (44-62)