

# AUTO TRANS DIAGNOSIS - RE4R01A, RE4R03A & RL4R01A

1990 Nissan 240SX

AUTOMATIC TRANSMISSIONS  
Nissan RE4R01A, RE4R03A & RL4R01A

## \* PLEASE READ THIS FIRST \*

NOTE: When battery is disconnected or has low voltage on 1994 Infiniti Q45 built from February 1993 (VIN RM250083), Automatic Drive Positioner (ADP) may not operate. ADP must be reset when battery is reconnected or charged. To reset ADP, enter vehicle and close all doors. Insert key into ignition switch. DO NOT turn key. Open and close driver's door 2 times. Reset is complete.

## APPLICATION & LABOR TIMES

### APPLICATION & LABOR TIMES TABLE

Vehicle Application	Labor Times					Trans. Model
	(1) R & I	(2) Overhaul				
Infiniti						
J30 (1993-94)	.....	4.8	.....	9.5	.....	RE4R01A
M30 (1988-92)	.....	4.5	.....	9.5	.....	RE4R01A
Q45 (1988-94)	.....	7.0	.....	9.5	.....	RE4R03A
Nissan						
Pathfinder (1988-94)						
2WD	.....	3.9	.....	9.5	.....	RE4R01A
4WD	.....	7.5	.....	9.5	.....	RE4R01A
Pickup (1988-94)						
2WD (4-Cyl)	.....	3.9	.....	9.5	.....	RL4R01A
4WD (V6)	.....	7.5	.....	9.5	.....	RE4R01A
240SX (1989-94)	.....	4.0	.....	9.5	.....	RE4R01A
300ZX (1988-94)						
Non-Turbo	.....	4.0	.....	9.5	.....	RE4R01A
Turbo	.....	4.3	.....	9.5	.....	RE4R03A

(1) - Removal and installation of transmission from vehicle chassis.

(2) - Bench overhaul time for transmission and differential. DOES NOT include removal and installation.

## IDENTIFICATION

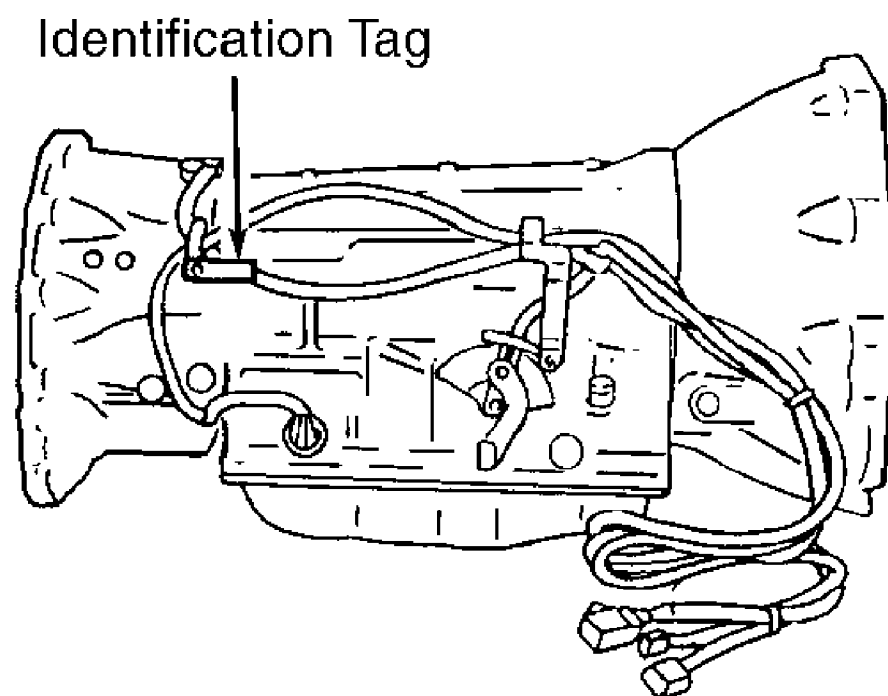
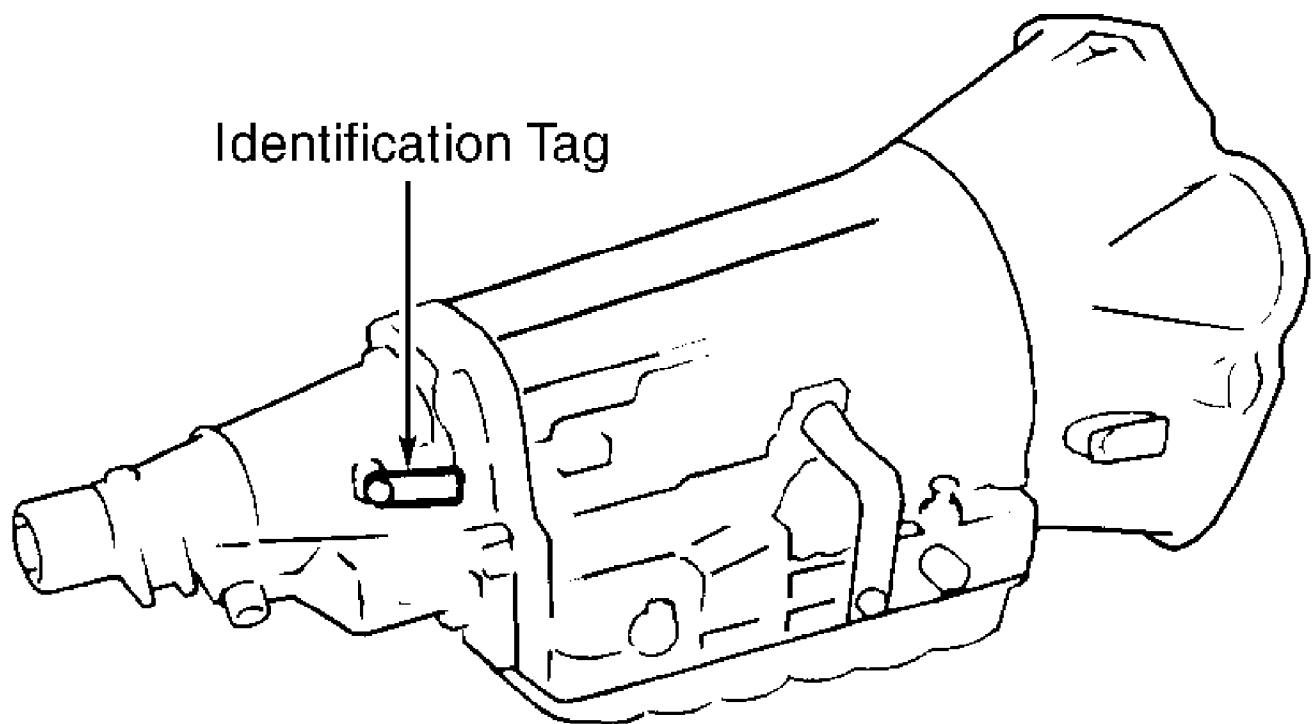
Transmission model is identified by vehicle identification plate located in engine compartment. See Fig. 1. Transmission number is located on right side of transmission rear extension. See Fig. 2.

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  | 5. Trim Color Code     |
| 2. Vehicle Identification<br>Number (Chassis Number) | 6. Engine Model        |
| 3. Model   | 7. Engine Displacement |
| 4. Body Color Code                                   | 8. Transaxle Model     |
|  | 9. Axle Model          |

93C22576

Fig. 1: Identifying Transmission Model  
Courtesy of Nissan Motor Co., U.S.A.



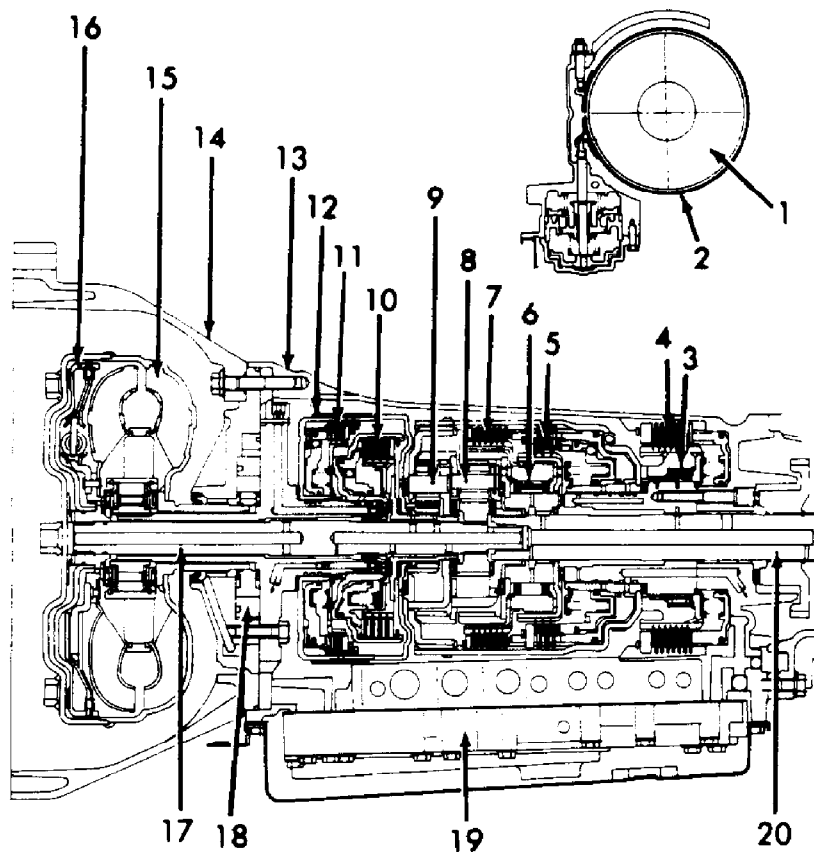
93D22577

Fig. 2: Locating Transmission Number (RL4R01A Shown; Others Similar)  
Courtesy of Nissan Motor Co., U.S.A.

## DESCRIPTION & OPERATION

Transmission consists of 3 main units: Automatic Transmission (A/T), torque converter and Automatic Transmission Control Unit (ATCU). Automatic transmission consists of clutch assemblies, planetary gear assemblies, brake band, oil pump and hydraulic controls. See Fig. 3. RE4R01A and RE4R03A transmissions are electrically controlled.

ATCU controls shifting and lock-up operation and also provides diagnostic capabilities. If a problem is present within the system, the A/T check lamp (warning lamp), will blink when ignition is turned on.



- |                           |                       |
|---------------------------|-----------------------|
| 1. Reverse Clutch Drum    | 11. Reverse Clutch    |
| 2. Brake Band             | 12. Brake Band        |
| 3. Low One-Way Clutch     | 13. Transmission Case |
| 4. Low & Reverse Brake    | 14. Converter Housing |
| 5. Overrun Clutch         | 15. Torque Converter  |
| 6. Forward One-Way Clutch | 16. Lock-Up Piston    |
| 7. Forward Clutch         | 17. Input Shaft       |
| 8. Rear Planetary Gear    | 18. Oil Pump          |
| 9. Front Planetary Gear   | 19. Control Valve     |
| 10. High Clutch           | 20. Output Shaft      |

**93E22578**

Fig. 3: Transmission Component Locations  
Courtesy of Nissan Motor Co., U.S.A.

See the TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

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.

## **TROUBLE SHOOTING**

### **SYMPTOM DIAGNOSIS**

Engine Will Not Start In "P" Or "N"  
Inhibitor switch, ignition switch or starter malfunction.

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, line pressure solenoid, 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, line pressure solenoid, high 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, line pressure solenoid, RPM signal, control valve assembly, N-D accumulator or forward clutch.

Vehicle Will Not Move In "D" Or "2"; Okay In "1" & "R"  
Misadjusted control linkage 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, line pressure solenoid, N-D accumulator, reverse clutch, high clutch, forward clutch, forward one-way clutch, or low one-way clutch. See the CLUTCH & BAND APPLICATION CHART.

Slips When Accelerating  
Incorrect fluid level or line pressure, control linkage or throttle sensor misadjusted, damaged control valve, line pressure

solenoid, N-D or 3-4 accumulator, forward clutch, reverse clutch, low and 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 is misadjusted, a faulty revolution sensor and speed sensor signal or shift solenoid "A" or "B". Refer to the SHIFT SOLENOID VALVE OPERATION table.

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 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 accumulator, high clutch or brake band.

Torque Converter Does Not Lock Up

Incorrect throttle sensor or inhibitor switch adjustment, line pressure or engine RPM signal, faulty revolution sensor or speed sensor, lock-up solenoid, fluid temperature sensor, control valve assembly or torque converter.

SHIFT SOLENOID VALVE OPERATION

Application	Solenoid "A"	Solenoid "B"
1st Gear .....	On .....	On
2nd Gear .....	Off .....	On
3rd Gear .....	Off .....	Off
4th Gear .....	On .....	Off

CLUTCH & BAND APPLICATION CHART

Selector Lever Position	Elements In Use
"D" (Drive) (1)	
First Gear .....	Forward Clutch, (2) Forward One-Way Clutch (3) (4) Overrun Clutch & (2) Low One-Way Clutch
Second Gear .....	Band Servo (2nd Apply), Forward Clutch, (2) Forward One-Way Clutch & (3) (5) Overrun Clutch
Third Gear ...	Band Servo ((6) 2nd Apply & 3rd Release), Forward Clutch, (2) Forward One-Way Clutch, High Clutch & (3) (5) Overrun Clutch
Fourth Gear .....	Band Servo ((7) 2nd & 4th Apply, 3rd Release), Forward Clutch, High Clutch & Lock-Up
"2" (Intermediate)	
First Gear .....	Forward Clutch, (2) Forward One-Way Clutch (2) Low One-Way Clutch & (4) Overrun Clutch
Second Gear .....	Band Servo (2nd Apply), Forward Clutch, (2) Forward One-Way Clutch & (5) Overrun Clutch
Third (Q45) .....	Band Servo (2nd Apply & 3rd Release), Forward Clutch, (2) Forward One-Way Clutch, High Clutch & (5) Overrun Clutch
"1" (Low)	
First Gear .....	Forward Clutch, (2) Forward One-Way Clutch, Low-Reverse Brake & Overrun Clutch
Second Gear .....	Band Servo (2nd Apply), Forward Clutch, (2) Forward One-Way Clutch & Overrun Clutch

"R" (Reverse) ..... Low-Reverse Brake &  
Reverse Clutch

"N" Or "P" (Neutral Or Park) ..... All Clutches & Bands  
Released Or Ineffective

- (1) - Transmission will not shift to 4th gear when overdrive switch is in OFF position.
  - (2) - Operates during progressive acceleration.
  - (3) - Operates when overdrive switch is in OFF position.
  - (4) - Operates when throttle opening is less than 1/16. Does not effect engine braking.
  - (5) - Operates when throttle opening is less than 1/16. Engine braking activated.
  - (6) - Oil pressure is applied to both 2nd apply and 3rd release side of band servo piston. Brake band does not contract because oil pressure area on release side is greater than apply side.
  - (7) - Oil pressure is applied to 4th apply side in 3rd gear, and brake band contracts.
- 

## ELECTRONIC SELF-DIAGNOSTICS PROCEDURE

### \* PLEASE READ THIS FIRST \*

NOTE: Driveability problems that may appear to be transmission related may be caused by a faulty engine component. Engine related fault codes MUST be repaired before diagnosing transmission. Refer to the G - TESTS W/CODES article in the ENGINE PERFORMANCE section. Failure to diagnose and repair engine fault codes prior to transmission diagnosis may result in incorrect diagnosis or component repair.

### PATHFINDER & PICKUP (1988-89)

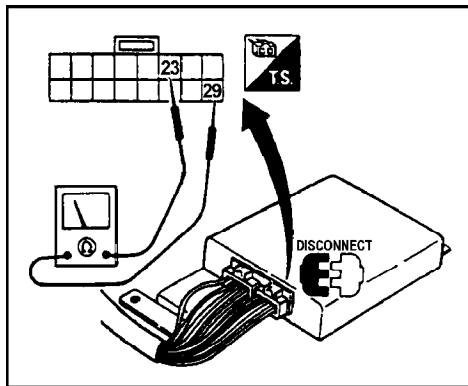
1) Ensure engine is at normal operating temperature. Turn ignition switch to OFF position. Set power shift switch to AUTO position. Move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If power shift indicator lamp comes on for about 2 seconds, go to next step. If power shift indicator lamp does not come on for about 2 seconds, see the appropriate figure below:

- \* For 1988 see Fig. 4.
- \* For 1989 see Fig. 5.

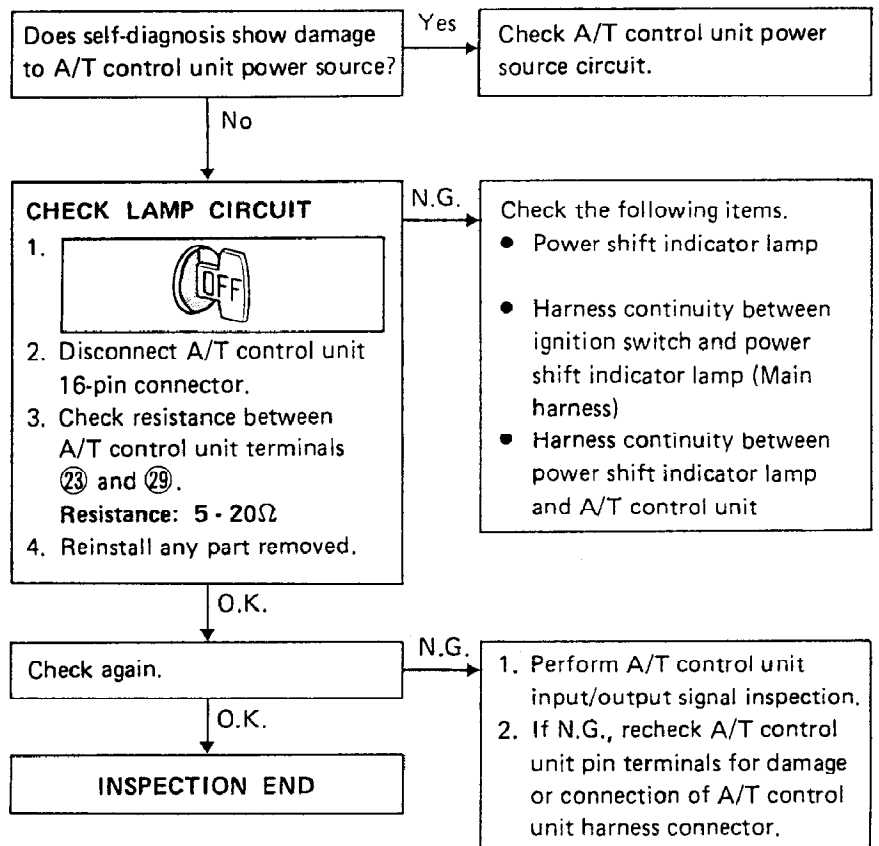
2) Turn ignition switch to OFF position. Move selector lever to "D" position and set power shift switch to POWER position. Turn ignition switch to ON position, but DO NOT start engine. Move selector lever to "2" position.

3) Set power shift switch to AUTO position and move selector lever to "1" position. Set power shift switch to POWER position. Depress accelerator pedal to floor and release. Power shift indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



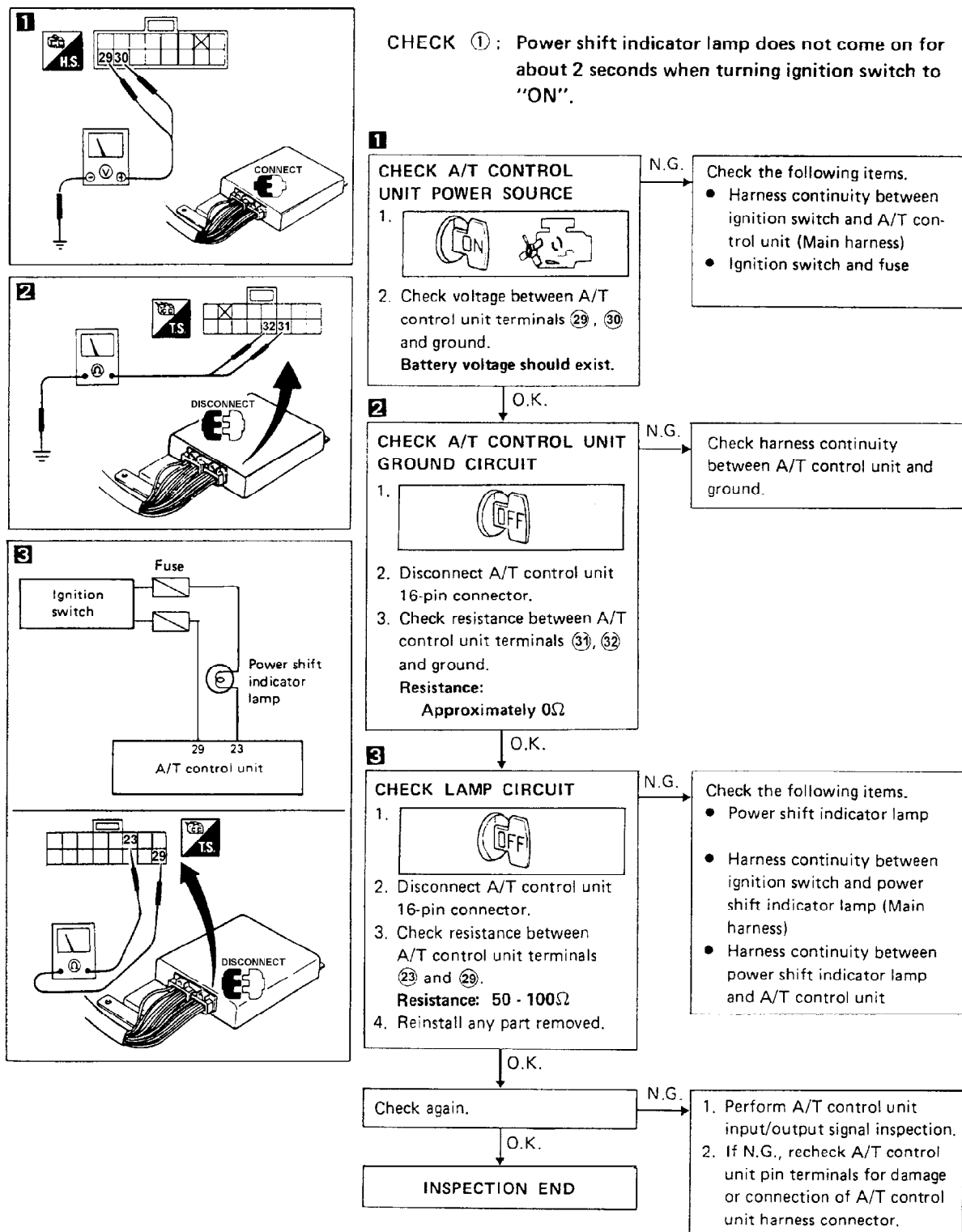


**CHECK ① : Power shift indicator lamp does not come on for about 2 seconds when turning ignition switch to "ON".**



**50F16449**

Fig. 4: Check 1 (Pathfinder & Pickup - 1988)  
Courtesy of Nissan Motor Co., U.S.A.



50J16450

Fig. 5: Check 1 (Pathfinder & Pickup - 1989)  
Courtesy of Nissan Motor Co., U.S.A.

NOTE: Diagnostic code charts for Pathfinder and Pickup are the same as charts shown in Figs. 16-19. See appropriate wiring

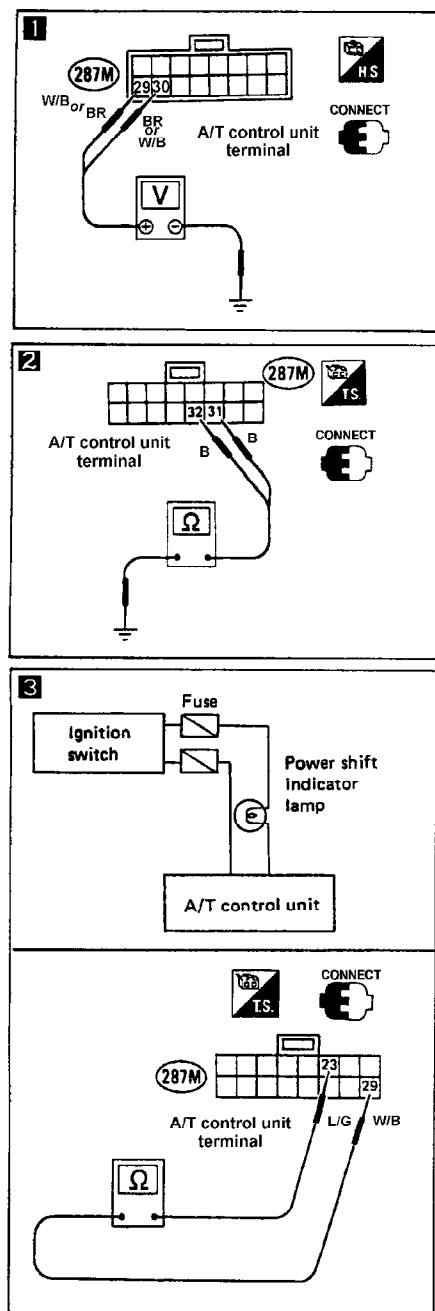
diagram for terminal and wire circuit identification for these models. See WIRING DIAGRAMS.

### **PATHFINDER & PICKUP (1990-92)**

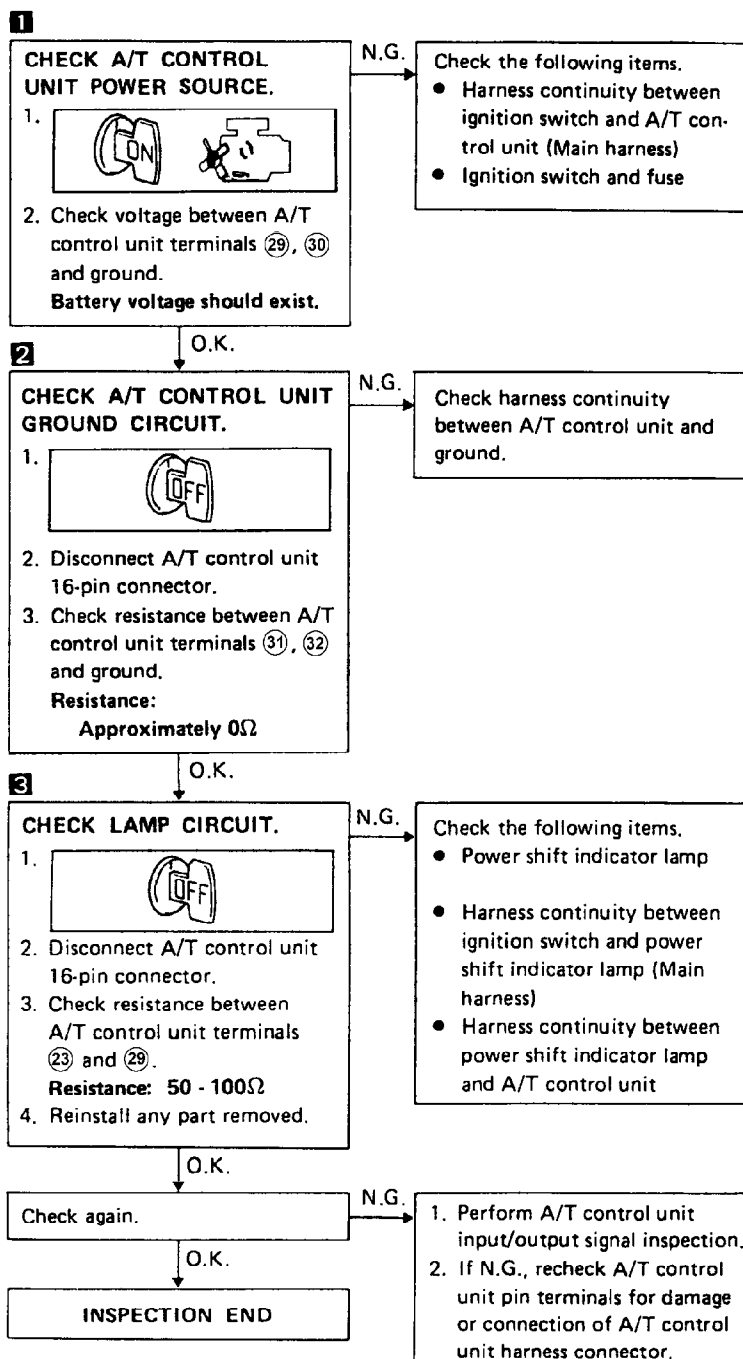
1) Ensure engine is at normal operating temperature. Turn ignition switch to OFF position. Set power shift switch to AUTO position. Set overdrive switch to ON position and move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If power shift indicator lamp comes on for about 2 seconds, go to next step. If power shift indicator lamp does not come on for about 2 seconds, see Fig. 6 below.

2) Turn ignition switch to OFF position. Push shift lock release button. Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition switch ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. Power shift indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



**SYMPTOM: Power shift indicator lamp does not come on for about 2 seconds when turning ignition switch to "ON".**



50A16451

Fig. 6: Diagnostic Procedure 1 (Pathfinder & Pickup - 1990-92)  
Courtesy of Nissan Motor Co., U.S.A.

**NOTE:** Diagnostic code charts for Pathfinder and Pickup are the same as charts shown in Figs. 16-19. See appropriate wiring

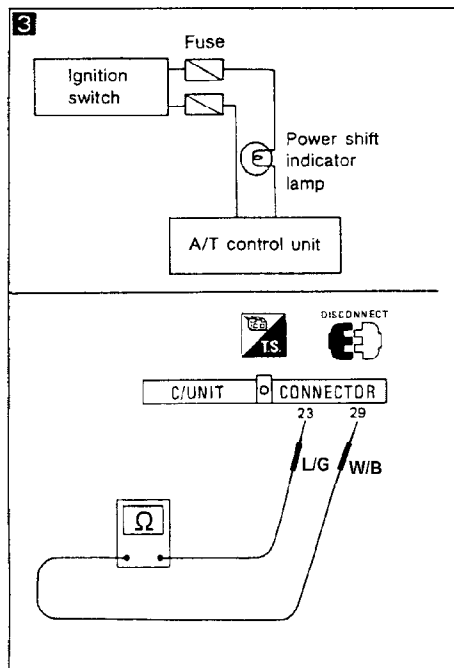
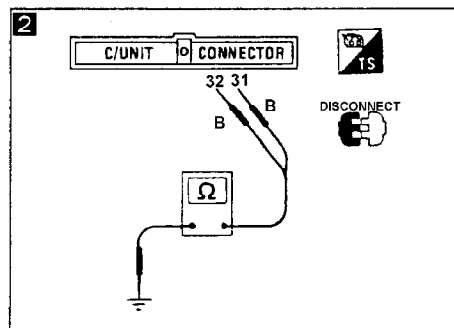
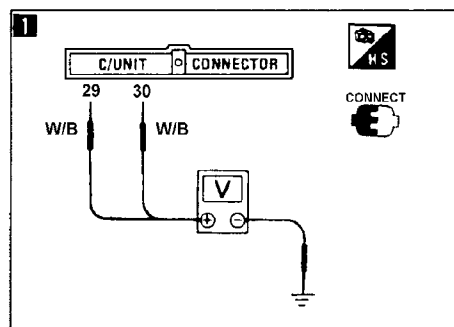
diagram for terminal and wire circuit identification for these models. See WIRING DIAGRAMS.

### **PATHFINDER & PICKUP (1993)**

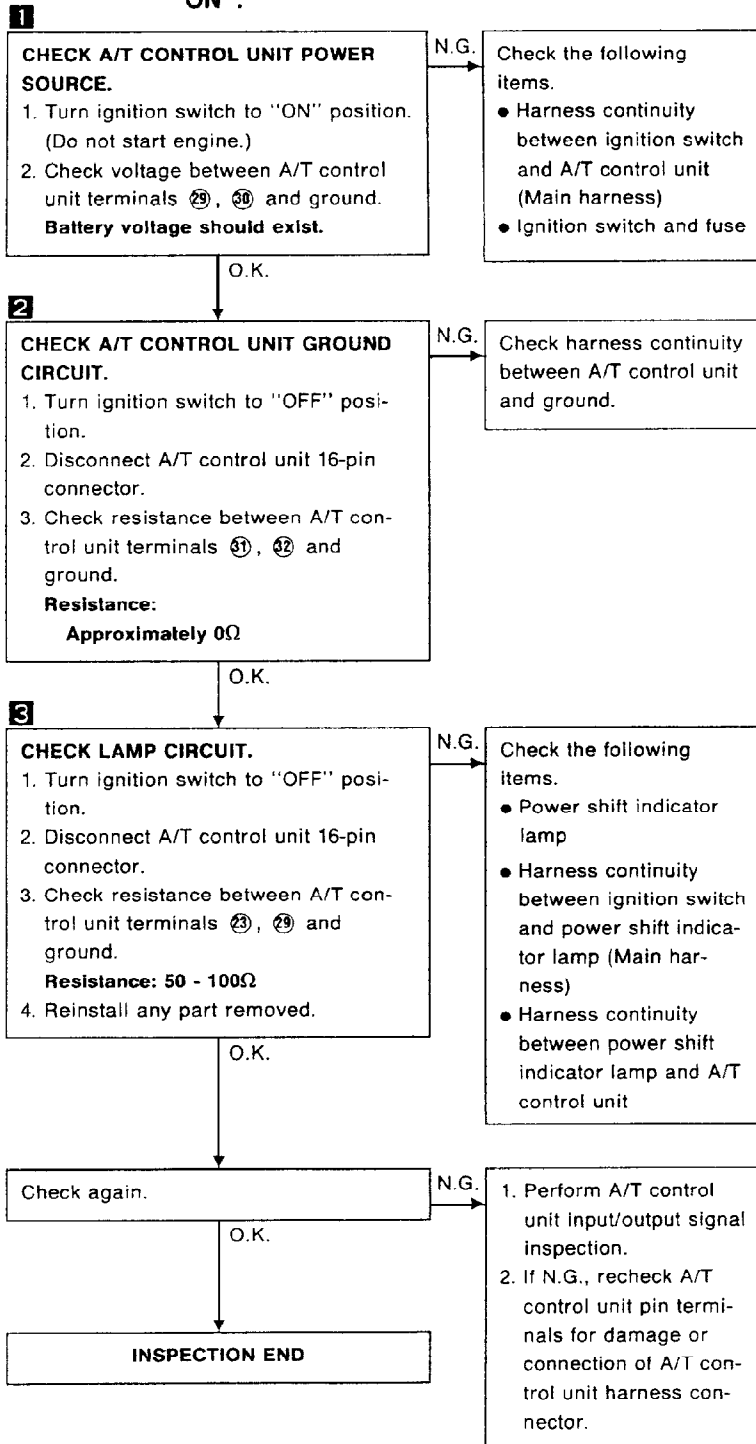
1) Ensure engine is at normal operating temperature. Turn ignition switch to OFF position. Set power shift switch to AUTO position. Set overdrive switch to ON position and move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If power shift indicator lamp comes on for about 2 seconds, go to next step. If power shift indicator lamp does not come on for about 2 seconds, see Fig. 7 below.

2) Turn ignition switch to OFF position. Push shift lock release button. Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. Power shift indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



**SYMPTOM: Power shift indicator lamp does not come on for about 2 seconds when turning ignition switch "ON".**



50B16452

Fig. 7: Diagnostic Procedure 1 (Pathfinder & Pickup - 1993-94)  
Courtesy of Nissan Motor Co., U.S.A.

NOTE: Diagnostic code charts for Pathfinder and Pickup are the same as charts shown in Figs. 16-19. See appropriate wiring

diagram for terminal and wire circuit identification for these models. See WIRING DIAGRAMS.

### **PATHFINDER & PICKUP (1994)**

1) Ensure engine is at normal operating temperature. Turn ignition switch to OFF position. Set power shift switch to AUTO position. Set overdrive switch to ON position and move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If power shift indicator lamp comes on for about 2 seconds, go to next step. If power shift indicator lamp does not come on for about 2 seconds, see Fig. 7 above.

2) Turn ignition switch to ACC position. Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition ON, and move selector lever to "2" position.

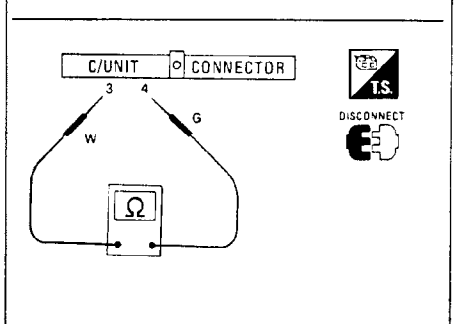
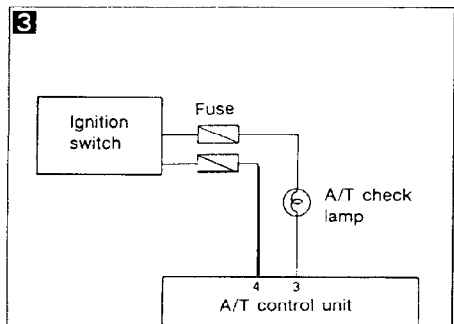
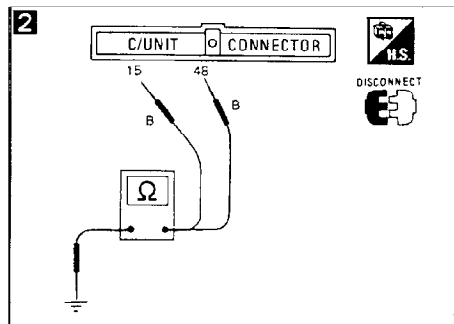
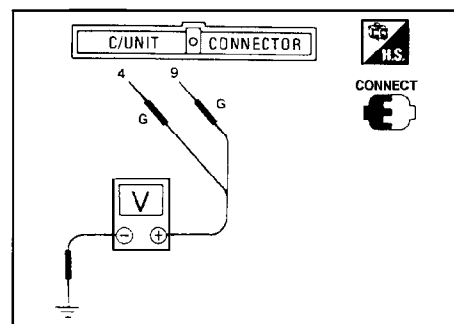
3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. Power shift indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.

NOTE: Diagnostic code charts for Pathfinder and Pickup are the same as charts shown in Figs. 16-19. See appropriate wiring diagram for terminal and wire circuit identification for these models. See WIRING DIAGRAMS.

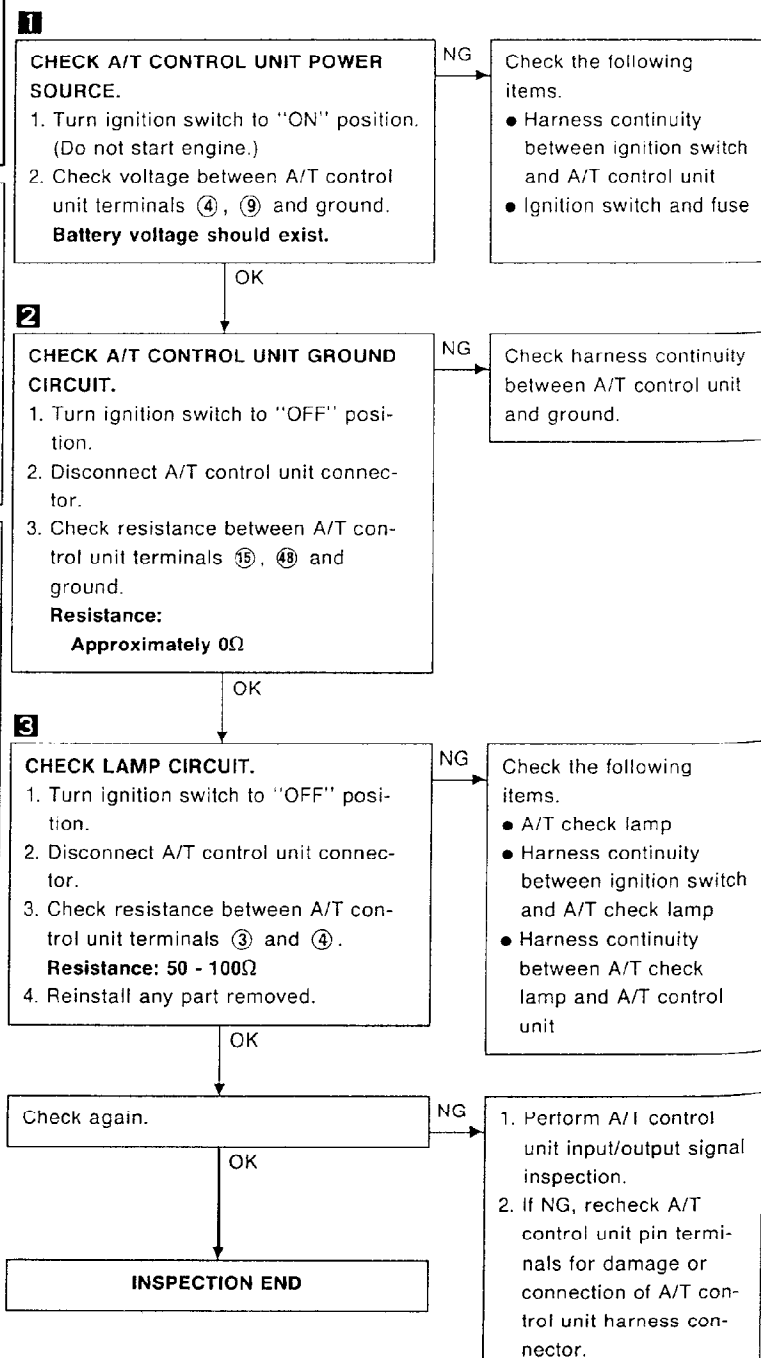
### **INFINITI J30**

1) Ensure engine is at normal operating temperature. Turn ignition switch to ACC position. Move selector lever to "D" position. Turn ignition switch to ON position, but DO NOT start the engine. If A/T check lamp comes on for about 2 seconds, go to next step. If A/T check lamp does not come on for about 2 seconds, see Fig. 8.

2) Move selector lever to "3" position. Depress accelerator pedal to floor and release. Move selector lever to "2" position, then to "1" position. Depress accelerator pedal to floor and release. A/T check lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



**SYMPTOM: A/T CHECK lamp does not come on for about 2 seconds when turning ignition switch to "ON".**



50C16453

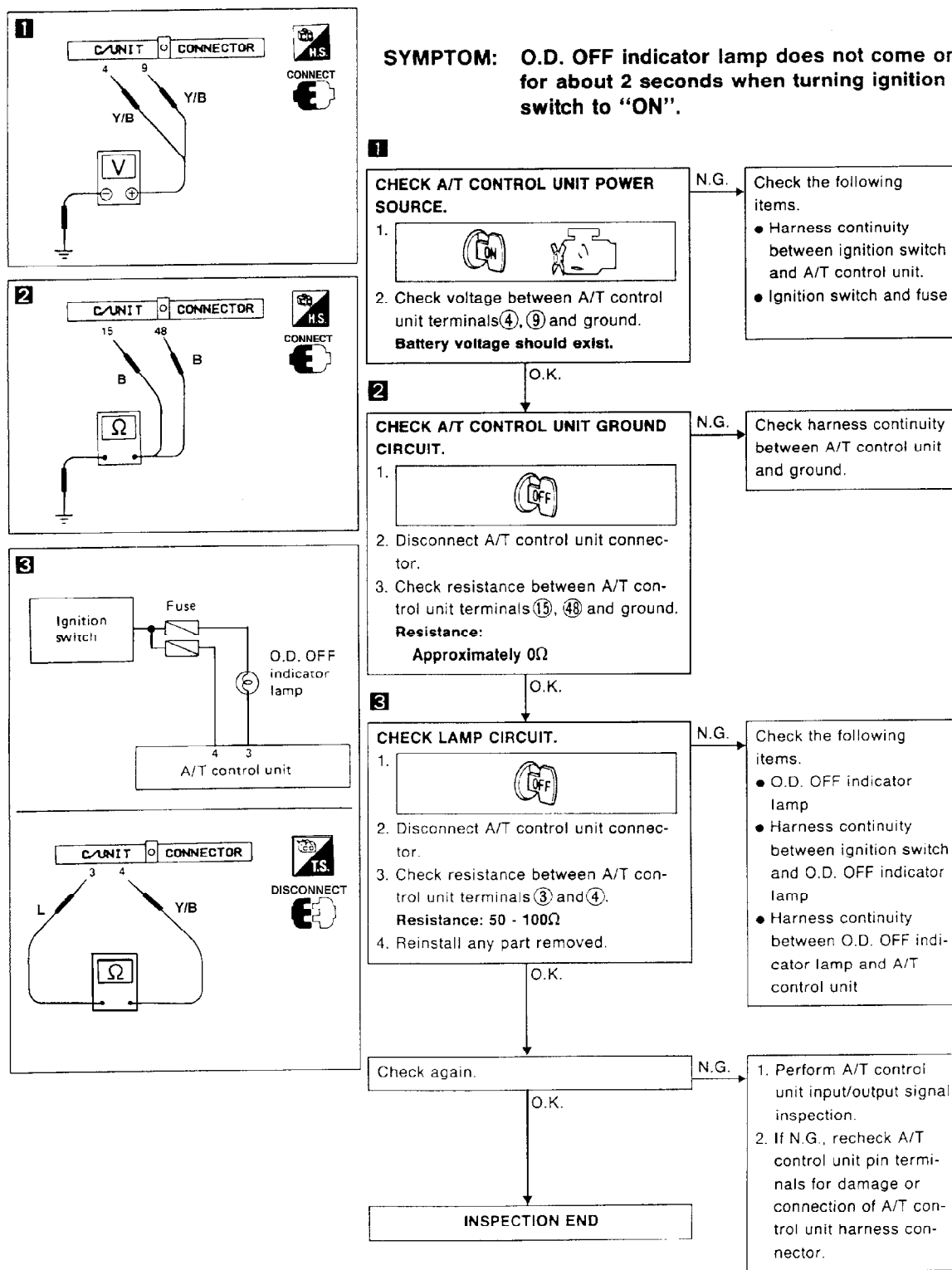
Fig. 8: Diagnostic Procedure 1 (J30 - 1993-94)  
Courtesy of Nissan Motor Co., U.S.A.



1) Ensure engine is at normal operating temperature. With ignition switch in OFF position, set overdrive switch to ON position. Move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If OD OFF indicator lamp comes on for about 2 seconds, go to next step. If OD OFF indicator lamp does not come on for about 2 seconds, see Fig. 9.

2) Turn ignition switch to OFF position. Push shift lock release button. Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition switch ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. OD OFF indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



50D16454

Fig. 9: Diagnostic Procedure 1 (J30 - 1990-92)  
Courtesy of Nissan Motor Co., U.S.A.

1) Ensure engine is at normal operating temperature. With ignition switch in OFF position, move selector lever to "D" position. Turn trip odometer reset button counterclockwise and hold. Turn ignition switch to ON position. Diagnostic information display (located on instrument panel, left of speedometer) should change to A/T diagnosis mode.

2) Move selector lever to "3" position and depress accelerator pedal to floor then release. Move selector lever to "2" position, then to "1" position. Depress accelerator pedal to floor and release. Diagnostic information display will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.

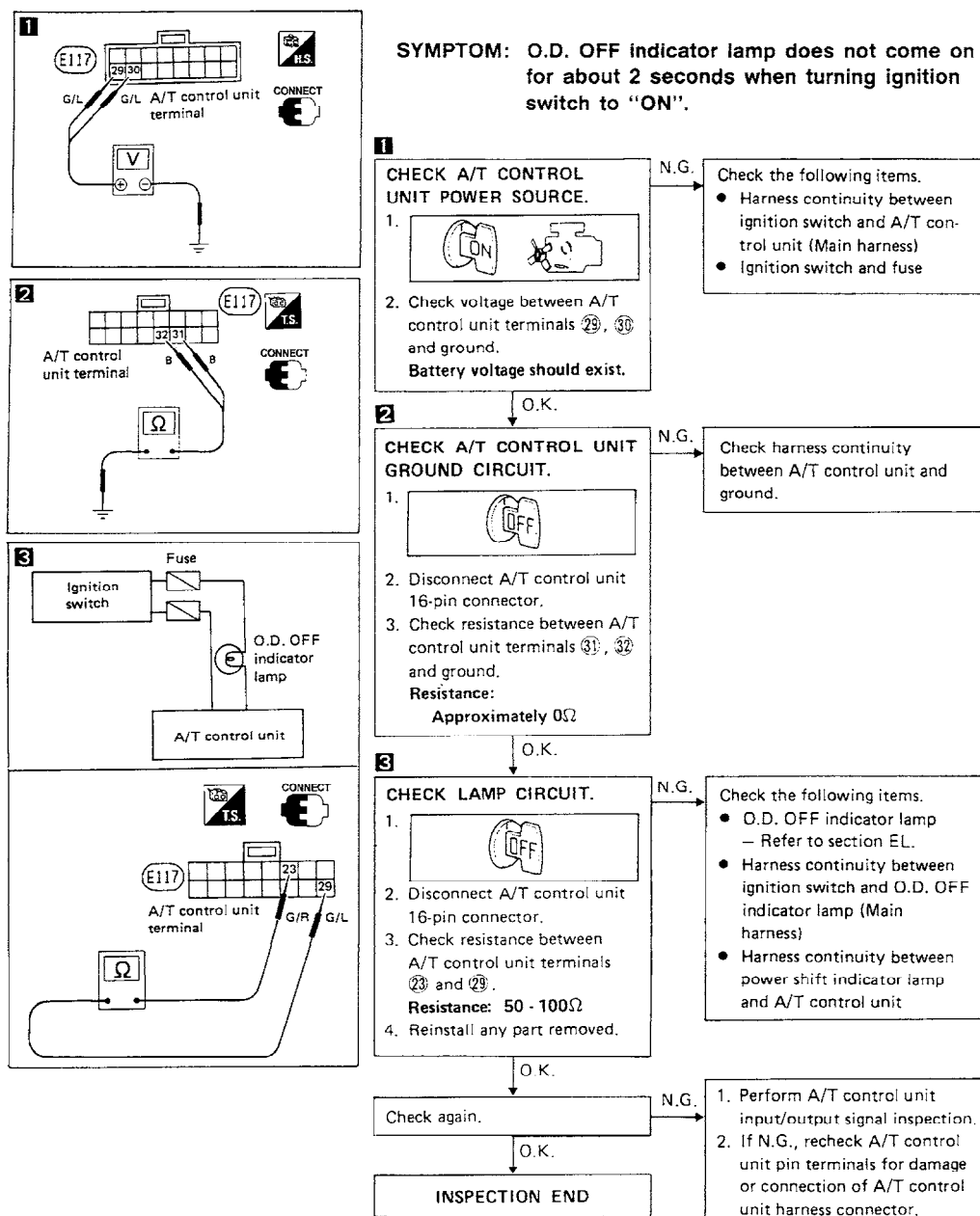
NOTE: Diagnostic information display will flash "OK" if system is normal. Diagnostic code charts 2-9 are same as shown in Figs. 16-20. Diagnostic information display will flash corresponding number of judgement flicker. Diagnostic code charts for Q45 also include codes shown in Fig. 20. See appropriate wiring diagram for terminal and wire circuit identification. See WIRING DIAGRAMS.

## 240SX (1989)

1) Ensure engine is at normal operating temperature. With ignition switch in OFF position, set overdrive switch to ON position. Move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If OD OFF indicator lamp comes on for about 2 seconds, go to next step. If OD OFF indicator lamp does not come on for about 2 seconds, see Fig. 10.

2) Turn ignition switch to OFF position. Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition switch ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. Set overdrive switch to ON position. OD OFF indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



50E16455

## 240SX (1990)

1) Ensure engine is at normal operating temperature. With ignition switch in OFF position, set overdrive switch to ON position. Move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If OD OFF indicator lamp comes on for about 2 seconds, go to next step. If OD OFF indicator lamp does not come on for about 2 seconds, see Fig. 11.

2) Turn ignition switch to OFF position. Push shift lock release button and move selector lever to "D" position. Set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition

switch ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. Set overdrive switch to ON position. OD OFF indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.

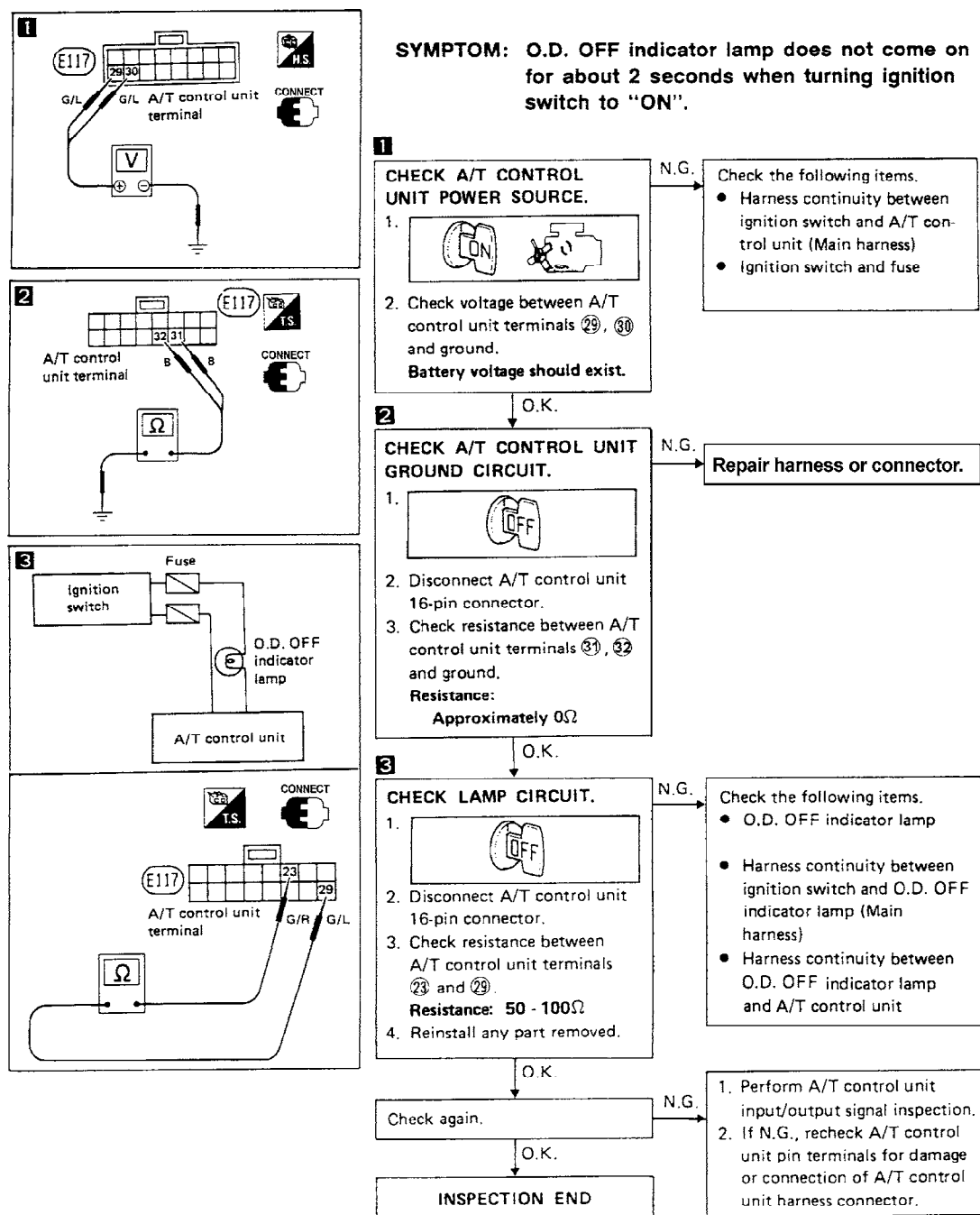


Fig. 11: Diagnostic Procedure 1 (240SX - 1990)  
Courtesy of Nissan Motor Co., U.S.A.

1) Ensure engine is at normal operating temperature. With ignition switch in OFF position, set overdrive switch to ON position. Move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If A/T check lamp comes on for about 2 seconds, go to next step. If A/T check lamp does not come on for about 2 seconds, see Fig. 12.

2) Turn ignition switch to OFF position. Push shift lock release button (if equipped). Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition switch ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. Set overdrive switch to ON position. OD OFF indicator lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.

**SYMPTOM: O.D. OFF indicator lamp does not come on for about 2 seconds when turning ignition switch to "ON".** 1

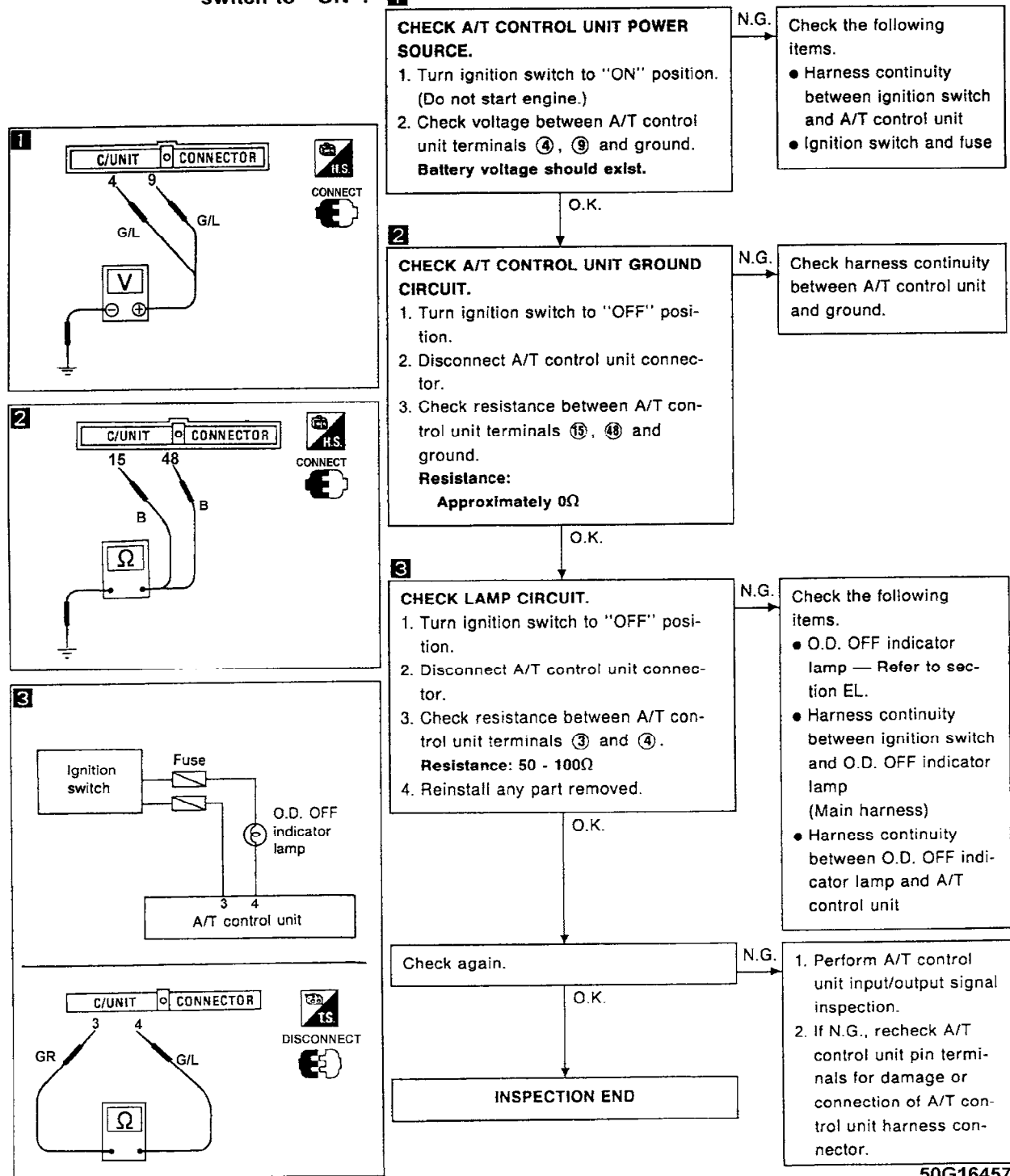


Fig. 12: Diagnostic Procedure 1 (240SX - 1991-94)  
Courtesy of Nissan Motor Co., U.S.A.

50G16457

300ZX (1988-89)

1) Turn OD control switch to ON. Turn ignition switch ON, but DO NOT start engine. Press kickdown switch to ON for at least 1 second. Start engine and run it to about 12 MPH (20 km/h). Check to see whether an abnormal condition exists.

2) Turning ignition switch to OFF position or to ACC position cancels the self-diagnosis function. If cancelled, repeat step 1). If an abnormal condition exists, see Fig. 13.

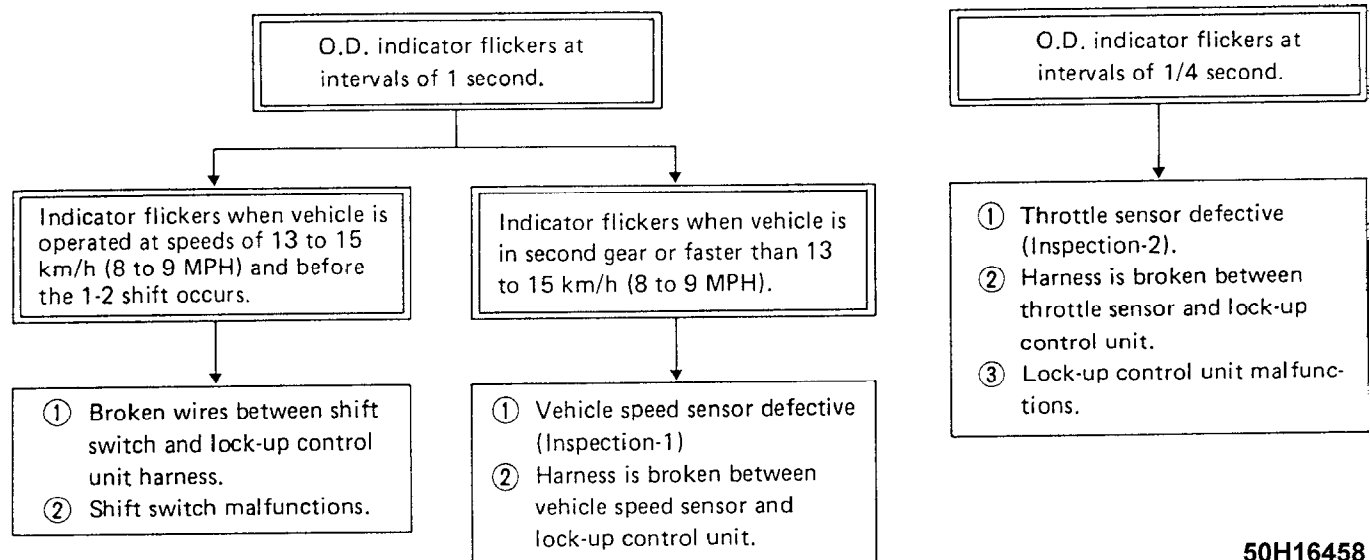


Fig. 13: OD Indicator Chart (300ZX - 1988-89)  
Courtesy of Nissan Motor Co., U.S.A.

50H16458

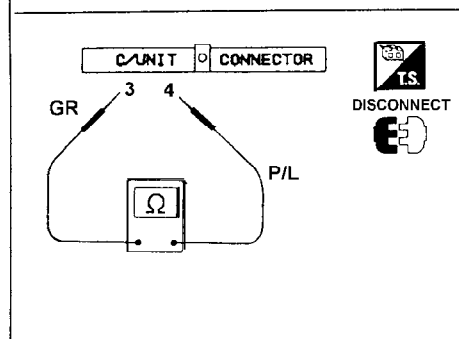
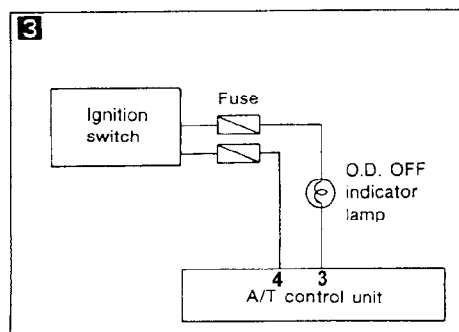
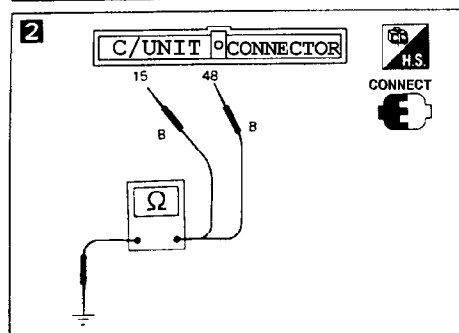
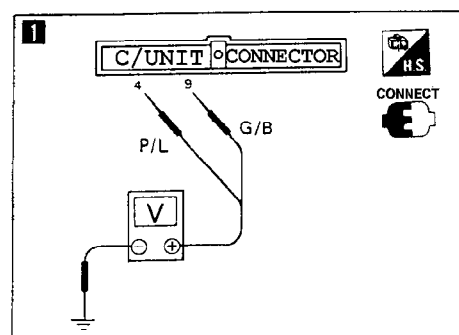
### 300ZX (1990-92)

1) Ensure engine is at normal operating temperature. With ignition switch in OFF position, set overdrive switch to ON position. Move selector lever to "P" position. Turn ignition switch to ON position, but DO NOT start engine. If A/T check lamp comes on for about 2 seconds, go to next step. If A/T check lamp does not come on for about 2 seconds, see Fig. 14.

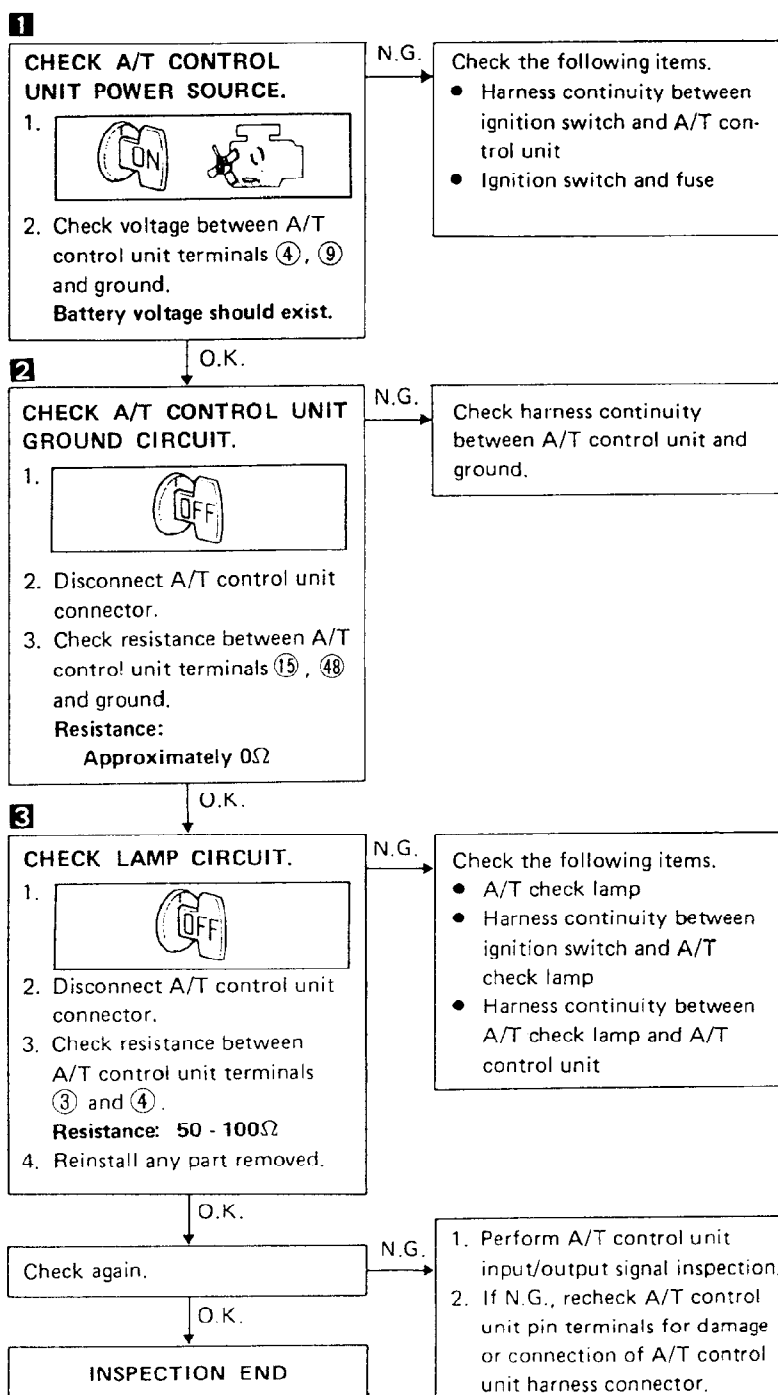
2) Turn ignition switch to OFF position. Push shift lock release button (if equipped). Move selector lever to "D" position and set overdrive switch to OFF position. Turn ignition switch to ON position, but DO NOT start engine. Wait for more than 2 seconds, after turning ignition switch ON, and move selector lever to "2" position.

3) Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. A/T check lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.





**SYMPTOM: A/T CHECK lamp does not come on for about 2 seconds when turning ignition switch to "ON".**



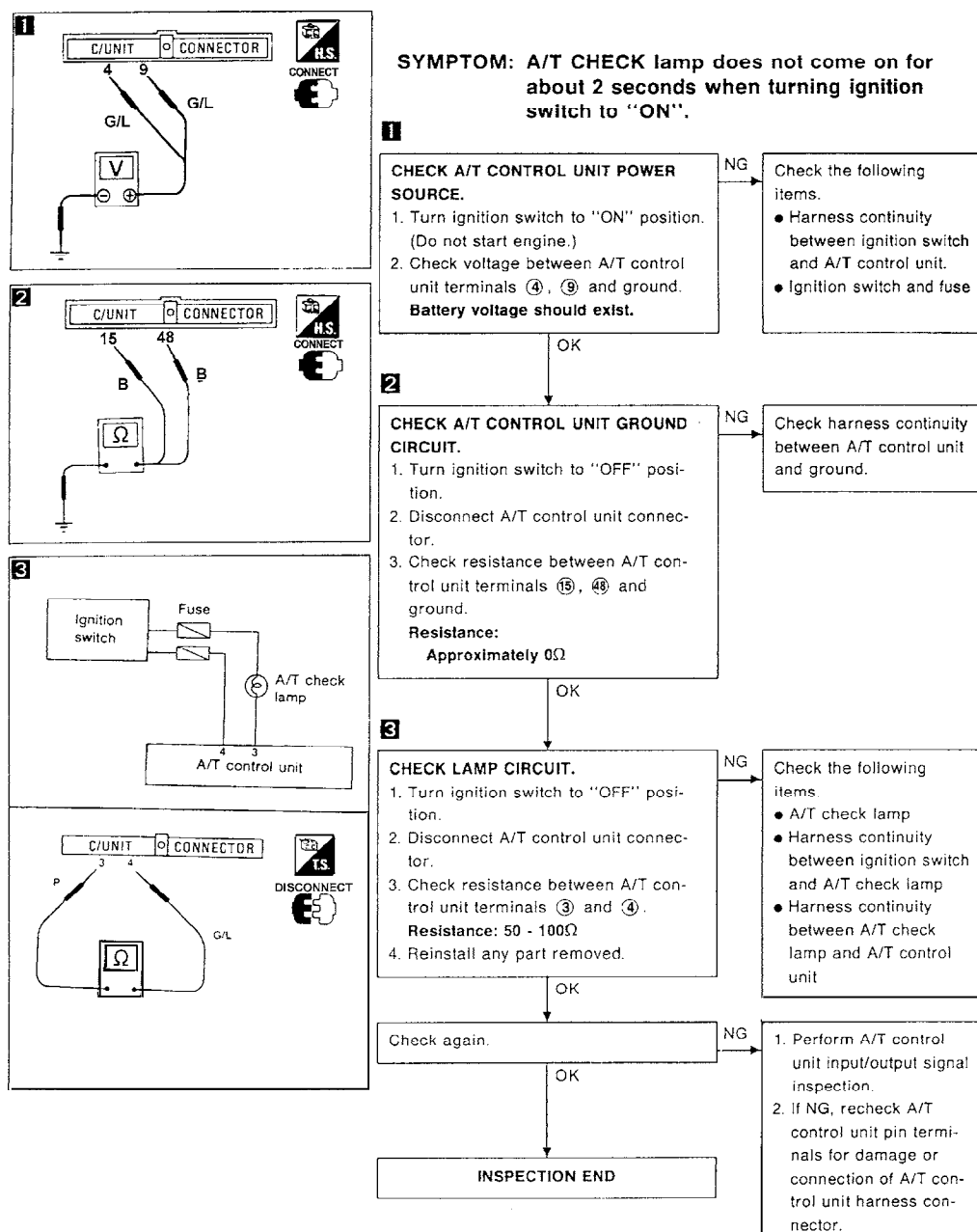
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Fig. 14: Diagnostic Procedure 1 (300ZX - 1990-92)  
Courtesy of Nissan Motor Co., U.S.A.

300ZX (1993-94)

1) Ensure engine is at normal operating temperature. Turn ignition switch to OFF position. From OFF position turn ignition switch to ACC position. Set overdrive switch to OFF position. Move selector lever to "D" position. Turn ignition switch to ON position, but DO NOT start engine. If A/T check lamp comes on for about 2 seconds, go to next step. If A/T check lamp does not come on for about 2 seconds, see Fig. 15.

2) Move selector lever to "2" position. Set overdrive switch to ON position and move selector lever to "1" position. Set overdrive switch to OFF position. Depress accelerator pedal to floor and release. A/T check lamp will flash trouble code. Refer to appropriate SELF-DIAGNOSTIC CODE chart. See Figs. 16-20.



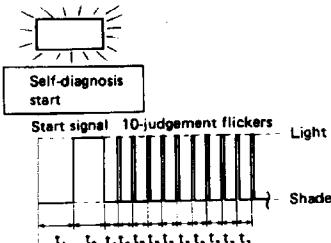
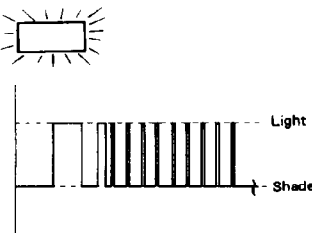
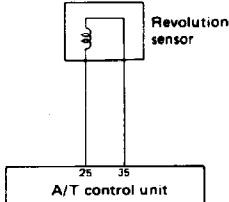
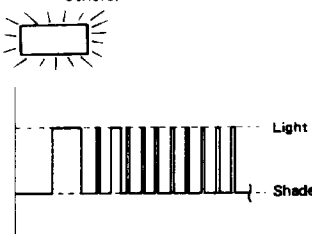
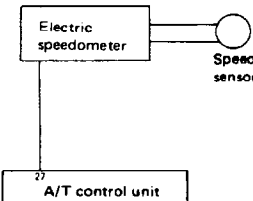
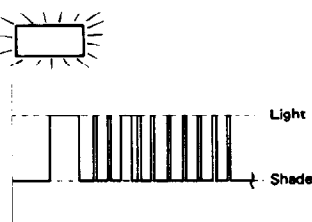
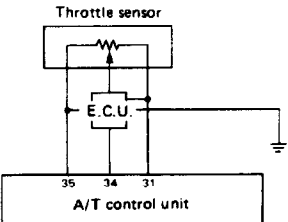
50B16460

Fig. 15: Diagnostic Procedure 1 (300ZX - 1993-94)  
Courtesy of Nissan Motor Co., U.S.A.

## JUDGEMENT FLICKER

NOTE: Warning light trouble code flashes are referred to as "Judgement Flicker" by manufacturer in code charts.

NOTE: 1988-89 300ZX ATCU does not generate trouble codes.

A/T check lamp	Damaged circuit
<p>All judgement flickers are same.</p>  <p>Self-diagnosis start</p> <p>Start signal 10-judgement flickers</p> <p>Light</p> <p>Shade</p> <p><math>t_1</math> <math>t_2</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math> <math>t_3</math></p>	<p>All circuits that can be confirmed by self-diagnosis are O.K.</p>
<p>1st judgement flicker is longer than others.</p>  <p>Light</p> <p>Shade</p>	<p>Revolution sensor circuit is short-circuited or disconnected.</p>  <p>Revolution sensor</p> <p>25 35</p> <p>A/T control unit</p> <p>➡ Go to revolution sensor circuit check.</p>
<p>2nd judgement flicker is longer than others.</p>  <p>Light</p> <p>Shade</p>	<p>Speed sensor circuit is short-circuited or disconnected.</p>  <p>Electric speedometer</p> <p>Speed sensor</p> <p>27</p> <p>A/T control unit</p> <p>➡ Go to speed sensor circuit check.</p>
<p>3rd judgement flicker is longer than others.</p>  <p>Light</p> <p>Shade</p>	<p>Throttle sensor circuit is short-circuited or disconnected.</p>  <p>Throttle sensor</p> <p>E.C.U.</p> <p>35 34 31</p> <p>A/T control unit</p> <p>➡ Go to throttle sensor circuit check.</p>

$t_1 = 2.5$  seconds  $t_2 = 2.0$  seconds  $t_3 = 1.0$  second

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Fig. 16: Self-Diagnostic Codes (J30, M30, 240SX & 90-On 300ZX Shown; Others Similar)  
Courtesy of Nissan Motor Co., U.S.A.

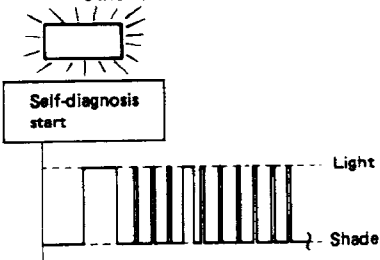
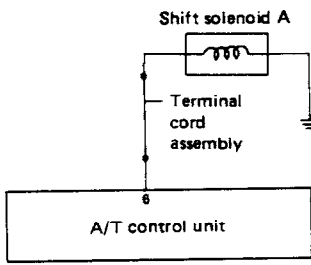
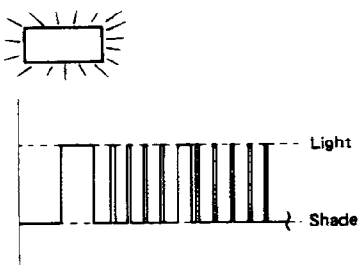
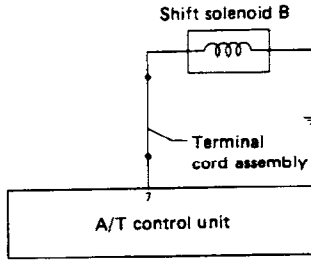
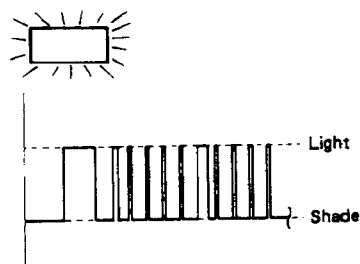
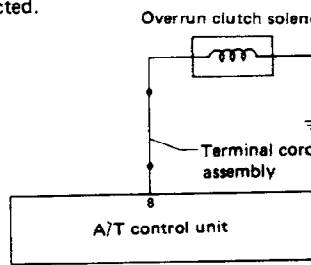
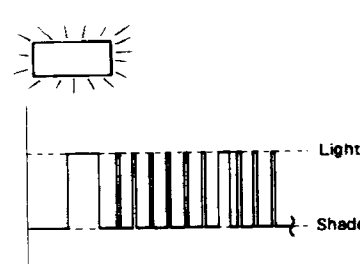
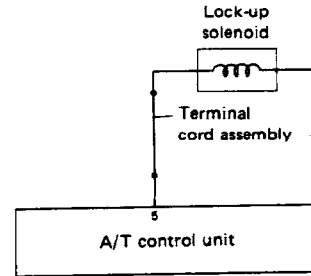
A/T check lamp	Damaged circuit
<p>4th judgement flicker is longer than others.</p>  <p>Self-diagnosis start</p> <p>Light</p> <p>Shade</p>	<p>Shift solenoid A circuit is short-circuited or disconnected.</p>  <p>Shift solenoid A</p> <p>Terminal cord assembly</p> <p>6</p> <p>A/T control unit</p> <p>➡ Go to shift solenoid A circuit check.</p>
<p>5th judgement flicker is longer than others.</p>  <p>Light</p> <p>Shade</p>	<p>Shift solenoid B circuit is short-circuited or disconnected.</p>  <p>Shift solenoid B</p> <p>Terminal cord assembly</p> <p>7</p> <p>A/T control unit</p> <p>➡ Go to shift solenoid B circuit check.</p>
<p>6th judgement flicker is longer than others.</p>  <p>Light</p> <p>Shade</p>	<p>Overrun clutch solenoid circuit is short-circuited or disconnected.</p>  <p>Overrun clutch solenoid</p> <p>Terminal cord assembly</p> <p>8</p> <p>A/T control unit</p> <p>➡ Go to overrun clutch solenoid circuit check.</p>
<p>7th judgement flicker is longer than others.</p>  <p>Light</p> <p>Shade</p>	<p>Lock-up solenoid circuit is short-circuited or disconnected.</p>  <p>Lock-up solenoid</p> <p>Terminal cord assembly</p> <p>5</p> <p>A/T control unit</p> <p>➡ Go to lock-up solenoid circuit check.</p>

Fig. 17: Self-Diagnostic Codes (J30, M30, 240SX & 90-On 300ZX Shown; Others Similar)  
 Courtesy of Nissan Motor Co., U.S.A.

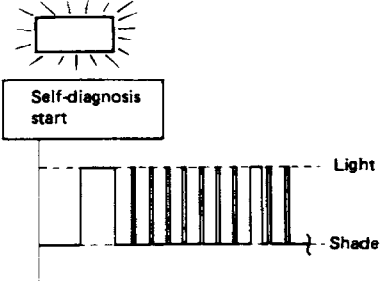
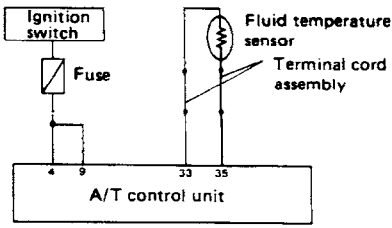
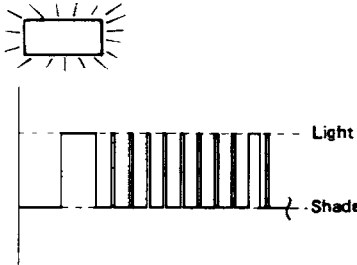
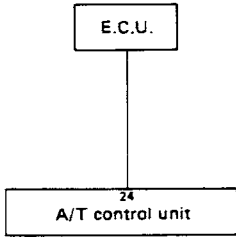
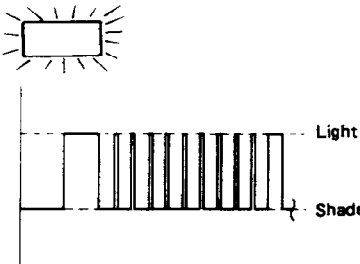
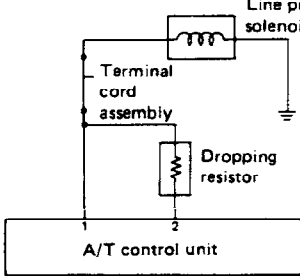
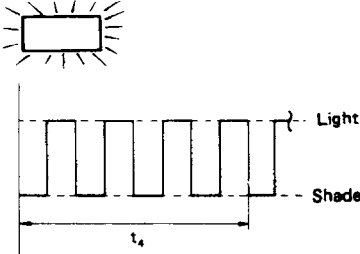
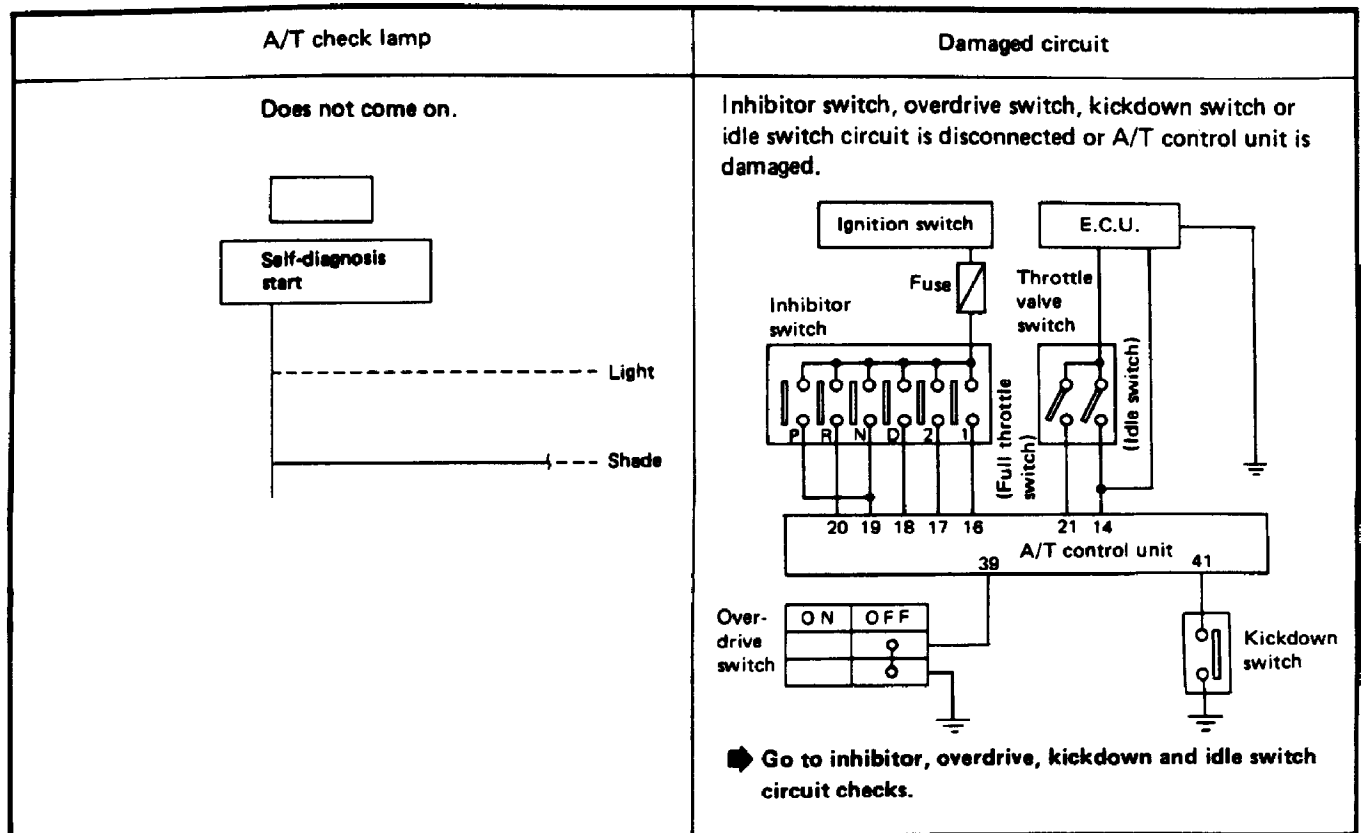
A/T check lamp	Damaged circuit
<p>8th judgement flicker is longer than others.</p> 	<p>Fluid temperature sensor is disconnected or A/T control unit power source circuit is damaged.</p>  <p>➡ Go to fluid temperature sensor and A/T control unit power source circuit check.</p>
<p>9th judgement flicker is longer than others.</p> 	<p>Engine revolution signal circuit is short-circuited or disconnected.</p>  <p>➡ Go to engine revolution signal circuit check.</p>
<p>10th judgement flicker is longer than others.</p> 	<p>Line pressure solenoid circuit is short-circuited or disconnected.</p>  <p>➡ Go to line pressure solenoid circuit check.</p>
<p>Flickers as shown below.</p>  <p><math>t_4 = 1.0 \text{ second}</math></p>	<p>Battery power is low.          Battery has been disconnected for a long time.          Battery is connected conversely.          (When reconnecting A/T control unit connectors. – This is not a problem.)</p>


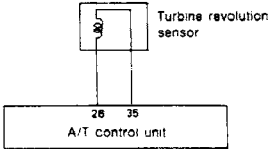

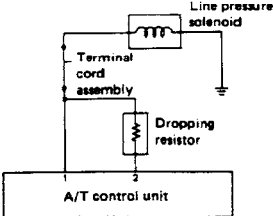

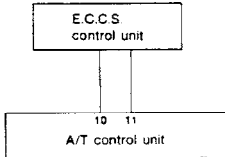


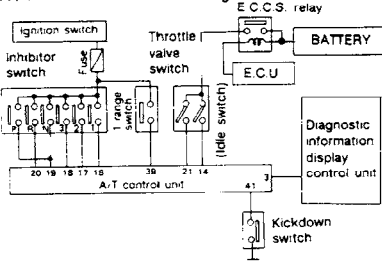
Fig. 18: Self-Diagnostic Codes (J30, M30, 240SX & 90-On 300ZX Shown; Others Similar)  
 Courtesy of Nissan Motor Co., U.S.A.

93J22581



93A22582

Fig. 19: Self-Diagnostic Codes (J30, M30, 240SX & 90-On 300ZX Shown;  
Others Similar)  
Courtesy of Nissan Motor Co., U.S.A.

Diagnostic information display	Damaged circuit
<p>The judgment is "A".</p> 	<p>Turbine revolution sensor circuit is short-circuited or disconnected.</p>  <p>➡ Go to turbine revolution sensor circuit check.</p>
<p>The judgment is "B".</p> 	<p>Line pressure solenoid circuit is short-circuited or disconnected.</p>  <p>➡ Go to line pressure solenoid circuit check.</p>
<p>The judgment is "C".</p> 	<p>Engine control circuit between A/T control unit and E.C.C.S. control unit is short-circuited or disconnected.</p>  <p>➡ Go to engine control circuit check.</p>
<p>The judgment is "D".</p> 	<p>Battery power is low. Battery has been disconnected for a long time. Battery is connected conversely. (When reconnecting A/T control unit connectors, this is not a problem.)</p>
<p>The judgment is "AT CHECK".</p> 	<p>Inhibitor switch, 1 range switch, kickdown switch, idle switch or diagnostic information display system circuit is disconnected, or A/T control unit is damaged.</p>  <p>➡ Go to inhibitor switch, 1 range switch, kickdown switch, idle switch, diagnostic information display system circuit checks.</p>

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Fig. 20: Self-Diagnostic Codes (Q45)  
Courtesy of Nissan Motor Co., U.S.A.

## ELECTRONIC COMPONENT & CIRCUIT TESTS

**\* PLEASE READ THIS FIRST \***

NOTE: If the following circuit test results are not as described, check wiring circuit between specified components to correct circuit malfunction. Repair as necessary. For wiring diagram information, see WIRING DIAGRAMS.

**ATCU PIN VOLTAGE TEST (1988-89 300ZX)**

Check voltage between pin 22 of ATCU connector (Ground) and appropriate terminal in ATCU PIN VOLTAGE TEST table using a voltmeter and Diagnostic Sub-Harness (J34270) to relocate ATCU to front passenger seat.

ATCU PIN VOLTAGE TEST TABLE

Term. No.	Input/ Output	Condition	Test Value
1	Downshift Solenoid	Press & Release Throttle While Driving	0V If ON
			12V If OFF
2	Lock-Up Solenoid	Driving W/Selector In "D"	0V If ON
			12V If OFF
3	Throttle Sensor (Power Source)	Tester On Terminals 3 & 5	5V
4	Throttle Sensor	Throttle Fully Closed	0.4V
		Throttle Fully Open	4V
5	Throttle Sensor (Ground)	...	...
6	O.D. Cancel Solenoid	O.D. Switch OFF	0V
		O.D. Switch ON	12V
7	O.D. Indicator Lamp	O.D. Switch OFF	0V
		O.D. Switch ON	12V
8	Idle Contact Switch	Throttle Fully Closed	>4.8V
		Throttle Partly Open	0V
9	Full Throttle Switch	Throttle Over Half Open	>4.8V
		Throttle Less Than 1/4 Open	0V
10	Inhibitor "2" Range Switch	Selector In "2"	12V
		Selector In Any Other Range	0V



11	Vehicle Speed Sensor	Very Low Speed Driving Over 3 feet (1 m)	0V-5V
12	1-2 Shift Switch	Jack up Rear Wheels, Accelerate With Slightly Open Throttle	0V In D1
			5V In D2, D3 & D4
13	A.S.C.D. Cruise Signal	Repeatedly Release Speed Setting During A.S.C.D. Driving	12 If Set
			0V If Not Set
14	...	...	...
15	A.S.C.D. O.D. Cut Signal	Driving At "D4" Speed Turn Accel. Switch ON	0V
		Turn Accel. Switch OFF	5V
	3-4 Shift Switch	Jack up Rear Wheels, Accelerate With Slightly Open Throttle	5V In D4
			0V In D1, D2 & D3
16	2-3 Shift Switch	Jack up Rear Wheels, Accelerate With Slightly Open Throttle	0V In D1 & D2  5V In D3 & D4
17	Power Source	Make Ground Connection	12V
18	O.D. Control Switch	Operate O.D. Switch	0V If OFF
			5V If ON
19	Low Temperature Sensor	68°F (20°C) Or Higher	Continuity
		50°F (10°C) Or Lower	Continuity
		68°F (20°C) Or Higher	5V
		50°F (10°C) Or Lower	0V
20	...	...	...
21	Kickdown Switch	Throttle Fully Open	0V
		Throttle Less Than Fully Open	5V
22	Ground	...	...

## ATCU POWER SOURCE TEST

With ignition switch in ON position, and engine off, check voltage between ATCU terminals No. 4, 9 and ground on Infiniti, 240SX and 300ZX, or ATCU terminals No. 29, 30 and ground on Pathfinder and Pickup. Battery voltage should be present. If voltage is not as

specified, repair circuit(s) as necessary.

## FLUID TEMPERATURE SENSOR TEST

1) Check resistance between fluid temperature sensor terminals. Resistance should be 2500 ohms at 68°F (20°C), and 300 ohms at 176°F (80°C). If resistance is not as specified, replace sensor.

2) Disconnect sensor harness connector in engine compartment. Check resistance between terminals No. 33 and 35 (Infiniti, 240SX and 300ZX), or terminals No. 12 and 15 (Pathfinder and Pickup) when transmission is cold. Resistance should be approximately 2500 ohms at 68°F (20°C).

3) Check voltage between ATCU terminal No. 33 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 12 and ground (Pathfinder and Pickup), while warming up transmission from 68°F (20°C) to 176°F (80°C). Voltage should be approximately 1.5 volts at 68°F (20°C) and .5 volt at 176°F (80°C). If resistance and voltage is not as specified, repair circuit as necessary.

## ENGINE REVOLUTION SIGNAL CIRCUIT TEST

With ignition switch in ON position, and engine off, measure voltage between ATCU terminal No. 24 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 25 and ground (Pathfinder and Pickup). Voltage should be .9-4.5 volts for Infiniti, 240SX and 300ZX, or 9.5-12 volts for Pathfinder and Pickup. If voltage is not as specified, repair circuit(s) as necessary.

## IDLE SWITCH CIRCUIT TEST

With ignition switch in ON position, measure voltage between ATCU terminal No. 14 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 4 and ground (Pathfinder and Pickup), while depressing accelerator pedal slowly. When releasing accelerator pedal, voltage should be 8-15 volts. When depressing accelerator pedal fully, voltage should be one volt or less. If voltage is not as specified, repair circuit as necessary.

## INHIBITOR SWITCH CIRCUIT TEST

With ignition switch in ON position, measure voltage between appropriate ATCU terminal and ground, while moving selector lever through each position. Battery voltage should be present at specified terminal when selector lever is in specified position. See appropriate INHIBITOR SWITCH VOLTAGE table. If switch does not test as described, repair or replace switch.

## INHIBITOR SWITCH VOLTAGE TABLES

### INHIBITOR SWITCH VOLTAGE (J30, M30, 240SX & 300ZX)

Position	Battery Voltage At Terminal No.
"P" Or "N" .....	19
"R" .....	20
"D" .....	18
"2" .....	17
"1" .....	16

### INHIBITOR SWITCH VOLTAGE (INFINITI Q45)

Position	Battery Voltage At Terminal No.
"P" Or "N" .....	19
"R" .....	20
"D" .....	18
"3" .....	17
"2" & "1" .....	16

#### INHIBITOR SWITCH VOLTAGE (PATHFINDER & PICKUP)

Position	Battery Voltage At Terminal No.
"P" Or "N" .....	19
"R" .....	26
"D" .....	20
"2" .....	1
"1" .....	2

### KICKDOWN SWITCH CIRCUIT TEST

With ignition switch in ON position, measure voltage between ATCU terminal No. 41 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 7 and ground (Pathfinder and Pickup), while depressing accelerator pedal slowly. When releasing accelerator pedal, voltage should be 3-8 volts. When depressing accelerator pedal fully, voltage should be one volt or less. If voltage is not as specified, repair circuit as necessary.

### LINE PRESSURE SOLENOID CIRCUIT TEST

1) Check resistance between solenoid assembly connector terminal No. 1 (Red wire) and ground. Solenoid resistance should be 2.5-5 ohms. If resistance is not as specified, replace solenoid.

2) With ignition switch in OFF position, disconnect solenoid harness connector in engine compartment. Use an ohmmeter to measure resistance between solenoid harness connector terminal No. 1 and ground (Infiniti, 240SX and 300ZX) or terminal No. 34 and ground (Pathfinder and Pickup). Resistance should be 2.5-5.0 ohms. If resistance is not as specified, repair circuit as necessary.

3) Disconnect ATCU connector. Measure resistance between solenoid harness connector terminal No. 1 and ATCU terminal No. 2 (Infiniti, 240SX and 300ZX), or terminal No. 34 and ATCU terminal No. 33 (Pathfinder and Pickup). Resistance should be 11.2-12.8 ohms. If resistance is not as specified, check resistance of dropping resistor, located at right side fender panel. Resistance should be 11.2-12.8 ohms. Replace resistor as necessary.

4) Measure resistance between solenoid harness connector terminal No. 1 and ATCU terminal No. 1 (Infiniti, 240SX and 300ZX), or terminal No. 34 and ATCU terminal No. 34 (Pathfinder and Pickup). Resistance should be approximately zero ohms. If resistance is not as specified, repair circuit as necessary.

### LOCK-UP SOLENOID CIRCUIT TEST

1) Check resistance between solenoid assembly connector terminal No. 1 (Blue wire) and ground. Solenoid resistance should be 10-20 ohms. If resistance is not as specified, replace solenoid.

2) With ignition switch in OFF position, disconnect solenoid

harness connector in engine compartment. Use an ohmmeter to measure resistance between solenoid harness connector terminal No. 5 and ground (Infiniti, 240SX and 300ZX) or terminal No. 22 and ground (Pathfinder and Pickup). Resistance should be 10-20 ohms for Infiniti, 240SX and 300ZX, or 2.5-5.0 ohms for Pathfinder and Pickup. If resistance is not as specified, repair circuit as necessary.

3) Disconnect ATCU connector. Measure resistance between solenoid harness connector terminal No. 5 and ATCU terminal No. 5 (Infiniti, 240SX and 300ZX) or terminal No. 22 and ATCU terminal No. 22 (Pathfinder and Pickup). Resistance should be approximately zero ohms. If resistance is not as specified, repair circuit as necessary.

### OVERDRIVE SWITCH CIRCUIT TEST

1) Disconnect overdrive switch connector. Check continuity between overdrive switch terminals. Continuity should exist with switch in OFF position. Continuity should not exist with switch in ON position. Replace switch as necessary.

2) With ignition switch in ON position, use a voltmeter to measure voltage between ATCU terminal No. 39 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 9 and ground (Pathfinder and Pickup). With ignition switch in ON position, battery voltage should be present. With ignition in OFF position, one volt or less should be present. If voltage is not as specified, repair circuit as necessary.

### OVERRUN CLUTCH SOLENOID CIRCUIT TEST

1) Check resistance between solenoid assembly connector terminal No. 4 (Black wire) and ground. Solenoid resistance should be 20-40 ohms. If resistance is not as specified, replace solenoid.

2) With ignition switch in OFF position, disconnect solenoid harness connector in engine compartment. Use an ohmmeter to measure resistance between solenoid harness connector terminal No. 8 and ground (Infiniti, 240SX and 300ZX), or terminal No. 21 and ground (Pathfinder and Pickup). Resistance should be 20-40 ohms for Infiniti, 240SX and 300ZX, or 20-30 ohms for Pathfinder and Pickup. If resistance is not as specified, repair circuit as necessary.

3) Disconnect ATCU connector. Measure resistance between solenoid harness connector terminal No. 8 and ATCU terminal No. 8 (Infiniti, 240SX and 300ZX) or terminal No. 21 and ATCU terminal No. 21 (Pathfinder and Pickup). Resistance should be approximately zero ohms. If resistance is not as specified, repair circuit as necessary.

### REVOLUTION SENSOR TEST

1) Check resistance between revolution sensor terminals. Resistance should be 500-650 ohms. If resistance is not as specified, replace sensor.

2) Revolution sensor is a voltage generating sensor and should be tested using a voltmeter set on AC scale. Check voltage between ATCU terminal No. 25 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 16 and ground (Pathfinder and Pickup), while driving vehicle. Voltage should rise gradually relative to vehicle speed. At zero MPH, voltage should not be present. If voltage does not rise gradually, repair circuit as necessary.

### SHIFT SOLENOID "A" TEST

1) Check resistance between solenoid assembly connector terminal No. 3 (Blue wire) and ground. Solenoid resistance should be 20-40 ohms. If resistance is not as specified, replace solenoid.

2) With ignition switch in OFF position, disconnect solenoid

harness connector in engine compartment. Use an ohmmeter to measure resistance between solenoid harness connector terminal No. 6 and ground (Infiniti, 240SX and 300ZX), or terminal No. 35 and ground (Pathfinder and Pickup). Resistance should be 20-40 ohms for Infiniti, 240SX and 300ZX, or 20-30 ohms for Pathfinder and Pickup. If resistance is not as specified, repair circuit as necessary.

3) Disconnect ATCU connector. Measure resistance between solenoid harness connector terminal No. 6 and ATCU terminal No. 6 (Infiniti, 240SX and 300ZX) or terminal No. 35 and ATCU terminal No. 35 (Pathfinder and Pickup). Resistance should be approximately zero ohms. If resistance is not as specified, repair circuit as necessary.

### SHIFT SOLENOID "B" TEST

1) Check resistance between solenoid assembly connector terminal No. 2 (White wire) and ground. Solenoid resistance should be 20-40 ohms. If resistance is not as specified, replace solenoid.

2) With ignition switch in OFF position, disconnect solenoid harness connector in engine compartment. Use an ohmmeter to measure resistance between solenoid harness connector terminal No. 7 and ground (Infiniti, 240SX and 300ZX), or terminal No. 36 and ground (Pathfinder and Pickup). Resistance should be 20-40 ohms for Infiniti, 240SX and 300ZX, or 20-30 ohms for Pathfinder and Pickup. If resistance is not as specified, repair circuit as necessary.

3) Disconnect ATCU connector. Measure resistance between solenoid harness connector terminal No. 7 and ATCU terminal No. 7 (Infiniti, 240SX and 300ZX) or terminal No. 36 and ATCU terminal No. 36 (Pathfinder and Pickup). Resistance should be approximately zero ohms. If resistance is not as specified, repair circuit as necessary.

### SPEED SENSOR CIRCUIT TEST

While driving 1-2 MPH for 3 ft. or more, use a voltmeter to measure voltage between ATCU terminal No. 27 and ground (Infiniti, 240SX and 300ZX) or ATCU terminal No. 24 and ground (Pathfinder and Pickup). Voltage should be 0-5 volts. If voltage is not as specified, check for continuity in wiring harness between ATCU and speed sensor. Check for poor ground circuit.

### THROTTLE SENSOR CIRCUIT TEST

1) Turn ignition switch to ON position. Depress accelerator pedal slowly. Use a voltmeter to measure voltage between ATCU terminals No. 34 and 35 (Infiniti, 240SX and 300ZX) or ATCU terminals No. 11 and 15 (Pathfinder and Pickup). At closed throttle, voltage should be .5 volts.

2) At wide open throttle, voltage should be approximately 4 volts. Voltage increases relative to throttle valve opening. If voltage is not as specified, repair circuit as necessary.

### TURBINE SHAFT REVOLUTION SENSOR CIRCUIT TEST

Infiniti Q45

1) With engine running, use a voltmeter to measure AC voltage between ATCU terminal No. 25 and ground. Voltage should be .3-4.5 volts depending on engine speed.

2) With engine off, use an ohmmeter to measure resistance between sensor connector terminals No. 1, 2 and 3. Continuity should exist only between terminals No. 1 and 2. Resistance between terminals No. 1 and 2 should be 2200-2800 ohms. If resistance is not within specifications, replace sensor as necessary.

## SHIFT LOCK SYSTEM TESTING

NOTE: For circuit diagrams and terminal locations, see CIRCUIT & WIRING DIAGRAMS.

### Detention Switch (Key)

1) Disconnect shift lock harness connector, located at base of shift lever. Check for continuity between shift lock harness connector terminals No. 11 and 12.

2) When selector lever is in Park and selector lever button is released, continuity should not exist. Continuity should exist for all other conditions. If continuity is not as specified, replace detention switch, located below shift lever at left front side.

### Detention Switch (Shift)

1) Disconnect shift lock harness connector, located at base of shift lever. Check for continuity between shift lock harness connector, terminals No. 5 and 11 (terminals No. 6 and 10 on J30).

2) When selector lever is in Park and selector lever button is released, continuity should not exist. Continuity should exist for all other conditions. If continuity is not as specified, replace detention switch, located below shift lever at left front side.

### Key Lock Solenoid

Disconnect key lock solenoid connector, located below ignition switch on steering column. Connect fused jumper wire from battery positive terminal to one terminal at key lock solenoid connector. Connect jumper wire from battery negative terminal to other terminal at key lock solenoid connector. Key lock solenoid should operate. Replace solenoid if necessary.

### Key Switch

Disconnect key switch connector, located at base of steering column. Check for continuity between switch terminals. Continuity should exist when key is inserted into key cylinder. Continuity should not exist when key is removed from key cylinder. If continuity is not as specified, replace key switch.

### Shift Lock Solenoid

Disconnect shift lock harness connector, located at base of shift lever. Connect fused jumper wire from positive battery terminal to terminal No. 1 (terminal No. 9 on J30) at shift lock harness connector. Connect jumper wire from negative battery terminal to terminal No. 9 (terminal No. 4 on J30) at shift lock harness connector. Shift lock solenoid should operate. Replace solenoid if necessary.

### Shift Lock Control Unit (M30, Q45 & 240SX)

1) Check voltage between specified terminals of 12-pin shift lock control unit connector, located to left of steering column, under dash. If voltage is not as specified, check appropriate component, connector or wiring harness and repair as necessary.

2) Turn ignition switch to ON position. Check voltage between shift lock control unit connector terminals No. 1 and 9, when selector lever is in Park and brake pedal is applied. Battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check shift lock solenoid operation.

3) Check voltage between shift lock control unit connector terminals No. 3 and 9. With brake pedal applied, battery voltage should exist. With brake pedal released, voltage should not exist. If voltage is not as specified, check stoplight switch.

4) Check voltage at shift lock control unit connector terminals No. 4 and 9. Battery voltage should exist under all

conditions. If battery voltage is not present, check 10-amp fuse in fuse block.

5) Check voltage between shift lock control unit connector terminals No. 5 and 9. When ignition key is inserted into key cylinder, selector lever is in Park and selector lever button is pushed, battery voltage should exist. When selector lever is set to any other position except Park, and selector lever button is not pushed, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check detention switch (shift).

6) Turn ignition switch to ON position. Check voltage between shift lock control unit connector terminals No. 6 and 9. Battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check 10-amp fuse in fuse block.

7) Check voltage between shift lock control unit connector terminals No. 8 and 10. When ignition switch is turned from LOCK, OFF or ACC position to ON position, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check key lock solenoid operation.

8) Check voltage between shift lock control unit connector terminals No. 8 and 10. When selector lever is in Park, and ignition switch is turned from ON to LOCK, OFF or ACC position with selector lever button released, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check key lock solenoid operation.

9) Check voltage between shift lock control unit connector terminals No. 9 and 11. Battery voltage should exist when ignition key is inserted into key cylinder. Voltage should not exist under any other conditions. If voltage is not as specified, check key switch operation.

10) Check voltage between shift lock control unit terminals No. 9 and 12. When ignition key is inserted into key cylinder, selector lever is in Park and selector lever button is pushed, battery voltage should exist. When selector lever is set to any other position except Park, and selector lever button is not pushed, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check detention switch (key).

#### Shift Lock Control Module (J30, Pathfinder & Pickup)

1) Check voltage at specified terminals of 8-pin shift lock control module connector, attached to bracket on steering column. If voltage is not as specified, check appropriate component, connector or wiring harness and repair as necessary.

2) With ignition switch in ON position, check voltage between shift lock control module terminals No. 4 and 8. When selector lever is in Park and brake pedal is applied, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check shift lock solenoid.

3) Check for voltage between shift lock control module terminals No. 2 and 8. Battery voltage should exist under all conditions. If voltage is not as specified, check 10-amp fuse (15-amp fuse on J30) in fuse block.

4) Check for voltage between shift lock control module terminals No. 5 and 8. With brake pedal applied, battery voltage should exist. With brake pedal released, voltage should not exist. If voltage is not as specified, check stoplight switch.

5) Check for voltage between shift lock control module terminals No. 6 and 8. When ignition key is inserted into key cylinder, selector lever is in Park and selector lever button is pushed, battery voltage should exist. When selector lever is set to any other position except Park, and selector lever button is not pushed, battery voltage should exist. Voltage should not exist under any other conditions. If

voltage is not as specified, check detention switch.

6) With ignition switch in ON position, check voltage between shift lock control module terminals No. 1 and 8. Battery voltage should exist at all times. If voltage is not as specified, check 10-amp fuse in fuse block.

#### Shift Lock Control Module (300ZX)

1) Check voltage at specified terminals of 8-pin shift lock control module connector, attached to bracket on steering column. If voltage is not as specified, check appropriate component, connector or wiring harness and repair as necessary.

2) With ignition switch in ON position, check voltage between shift lock control module terminals No. 1 and 9. When selector lever is in Park and brake pedal is applied, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check shift lock solenoid.

3) Check for voltage between shift lock control module terminals No. 2 and 9. Battery voltage should exist under all conditions. If voltage is not as specified, check 20-amp fuse in fuse block.

4) Check for voltage between shift lock control module terminals No. 3 and 9. With brake pedal applied, battery voltage should exist. With brake pedal released, voltage should not exist. If voltage is not as specified, check stoplight switch.

5) Check for voltage between shift lock control module terminals No. 5 and 9. When ignition key is inserted into key cylinder, selector lever is in Park and selector lever button is pushed, battery voltage should exist. When selector lever is set to any other position except Park, and selector lever button is not pushed, battery voltage should exist. Voltage should not exist under any other conditions. If voltage is not as specified, check detention switch.

6) With ignition switch in ON position, check voltage between shift lock control module terminals No. 6 and 9. Battery voltage should exist at all times. If voltage is not as specified, check 10-amp fuse in fuse block.

## 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 applied. Check fluid level while engine is idling and selector lever is in "P" position.

3) If fluid level is at low side of either range, add fluid. Check fluid condition. Check for fluid leakage. Examine fluid color, texture and odor. If fluid is Black and has a burnt odor, clutch friction plates are worn.

4) If fluid is milky Pink in color, fluid is water-contaminated. Water may be entering transmission through filler tube or breather. If fluid is Light/Dark Brown in color and tacky, fluid level is incorrect or transmission is overheating.

#### Check Before Engine Is Started

1) Park vehicle on flat surface. Move selector lever to "P" position. Set power shift switch to AUTO position. Turn ignition switch to ON position. A/T check lamp should come on for about 2 seconds.

2) Verify engine starts in "P" or "N" only. Move selector



lever 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 selector lever to "R" position. Vehicle should creep backwards after foot brake is released.

2) Move selector lever to "D", "2" and "1" positions. Vehicle should creep forward in all three positions. Move selector lever 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. Set power shift switch to AUTO position. Start engine. Move selector lever to "D" position and accelerate vehicle at half-throttle. Vehicle should start from 1st gear.

2) Refer to the appropriate SHIFT SPEED CHART and SHIFT SPEED SPECIFICATIONS table and verify upshifts occur at specified speeds. See Figs. 21-44. Accelerate vehicle to lock-up speeds and verify lock-up. See LOCK-UP SPEED SPECIFICATIONS table. Lock-up condition should be maintained for more than 30 seconds.

3) When accelerator pedal is released, lock-up is released. Confirm overdrive switch is in ON position and selector lever is in "D" position. Set power shift switch to AUTO position. Accelerate vehicle to 12 MPH at half-throttle. Release accelerator pedal then quickly depress pedal to floor. Transmission should downshift from 4th to 2nd gear.

4) Release accelerator pedal 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.

5) Move selector lever from "D" to "2" position. Verify 3-2 downshift and vehicle deceleration by engine braking. Move selector lever from "2" to "1" position. Verify 2-1 downshift and vehicle deceleration by engine braking.

### SHIFT SPEED CHARTS

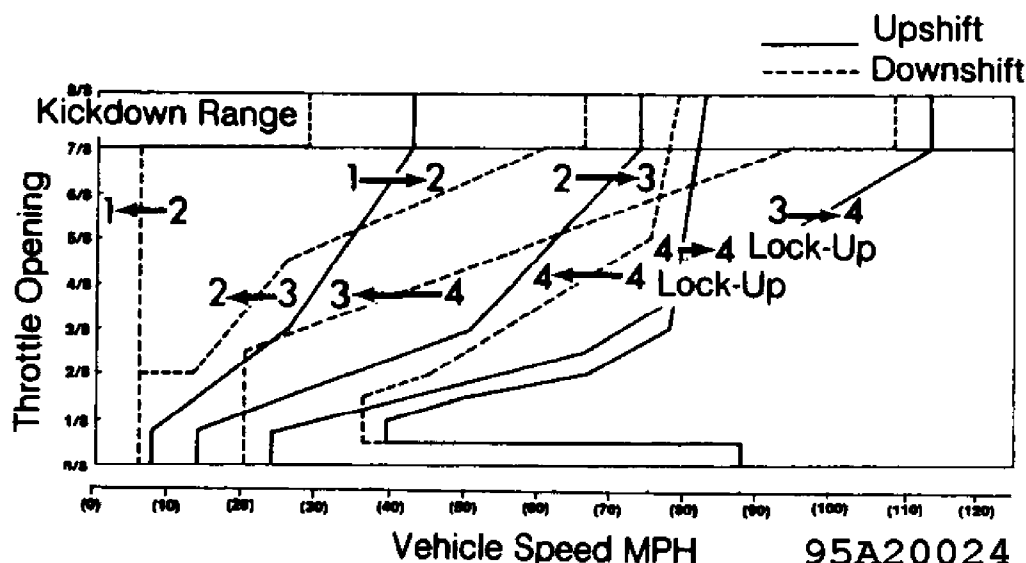


Fig. 21: Shift Speed Charts (Infiniti J30)  
Courtesy of Nissan Motor Co., U.S.A.

95A20024

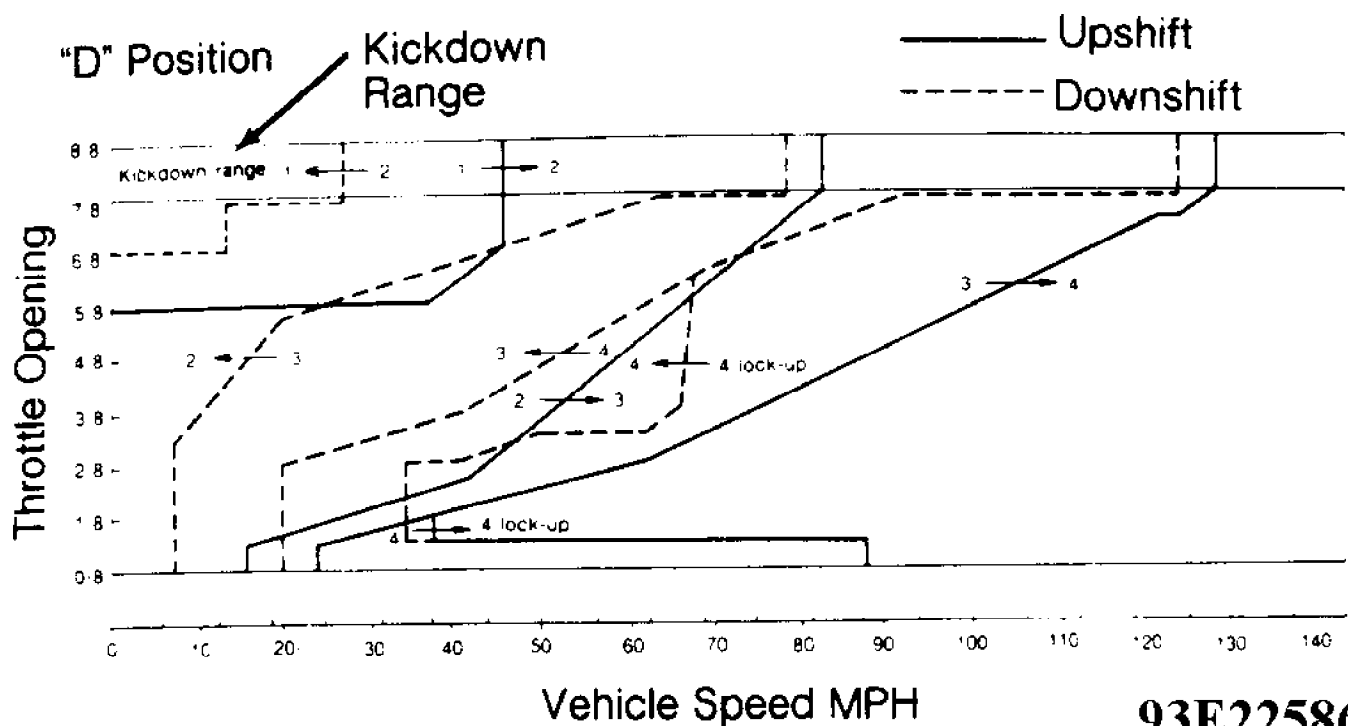


Fig. 22: Shift Speed Charts (Infiniti Q45, 1 of 4)  
 Courtesy of Nissan Motor Co., U.S.A.

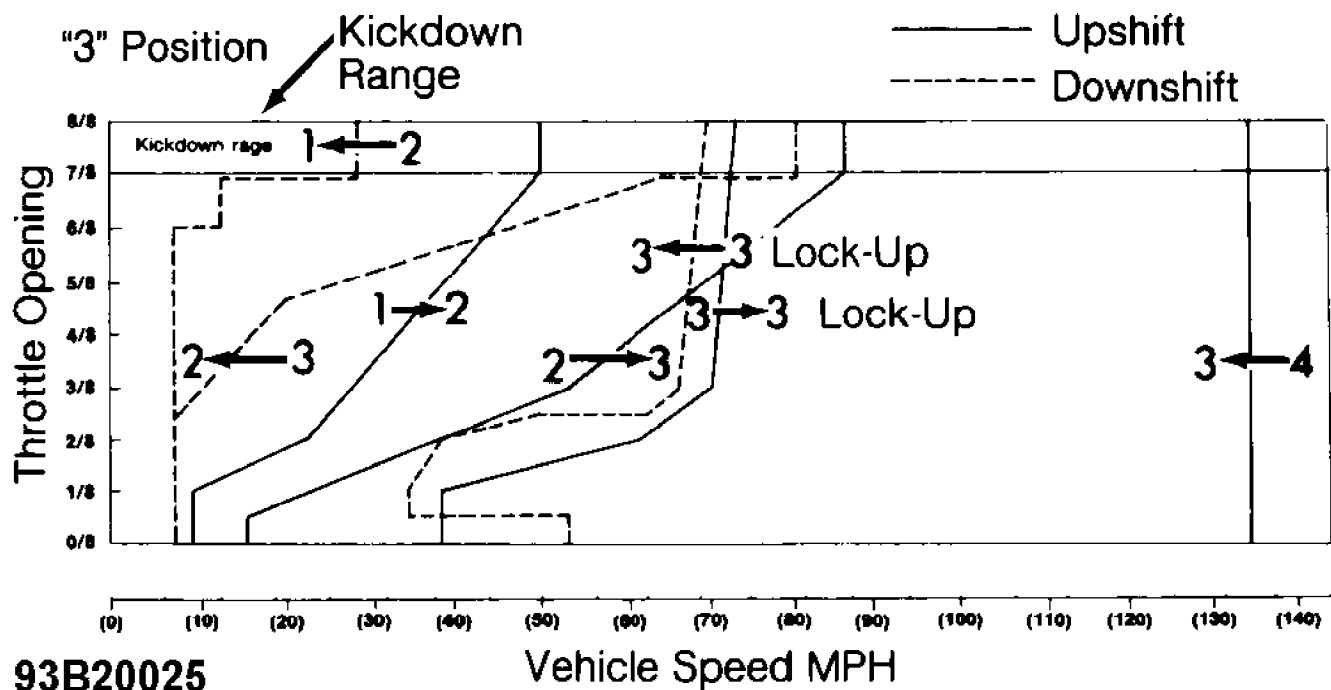
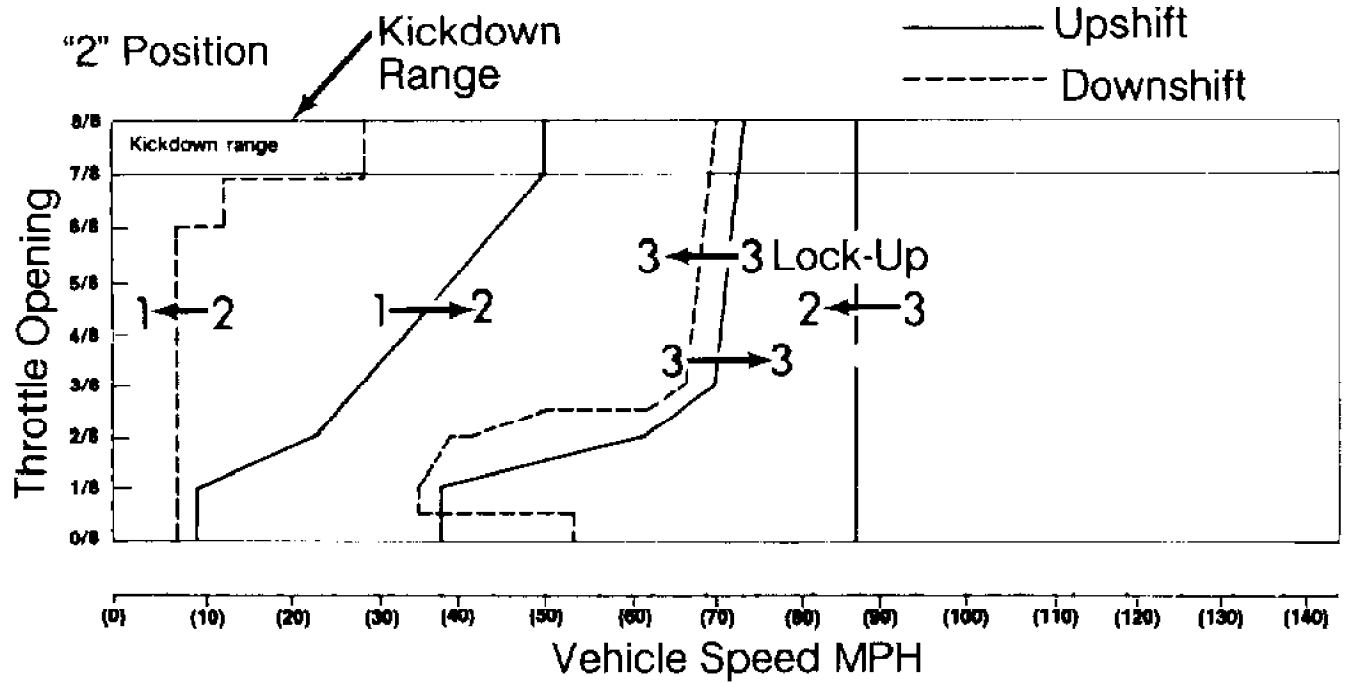
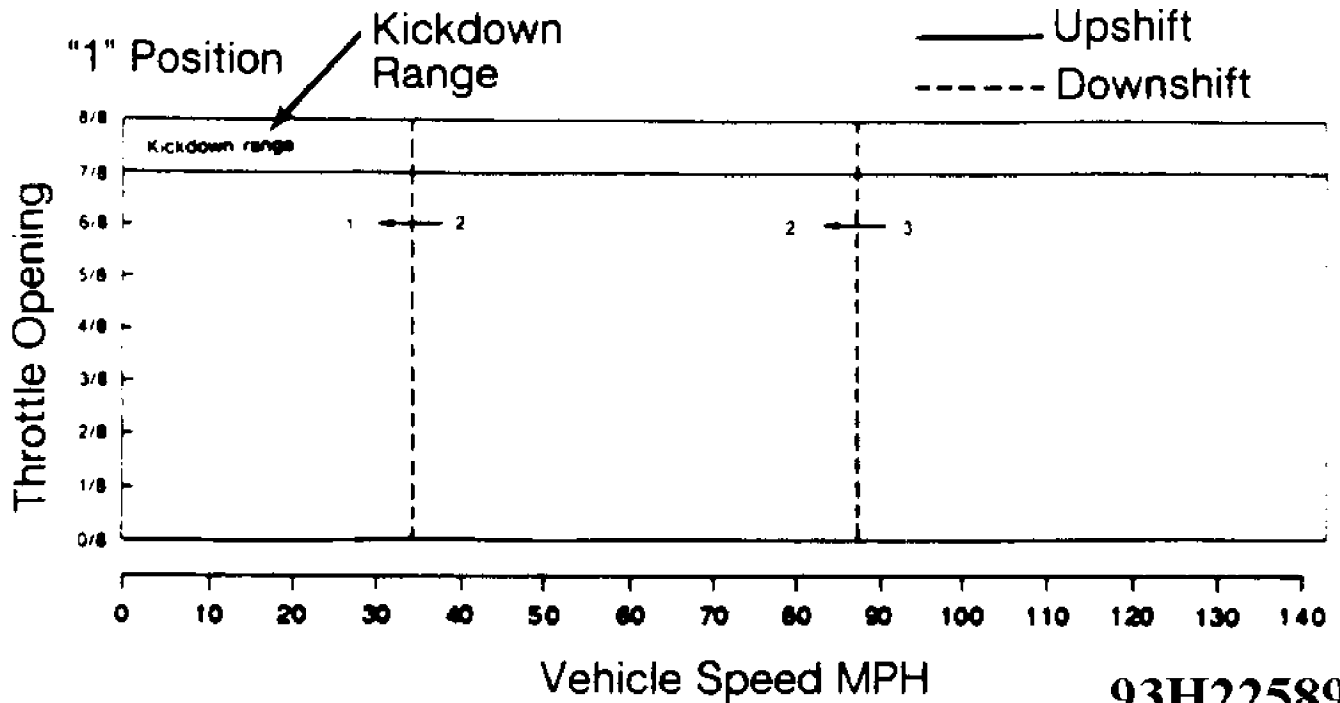


Fig. 23: Shift Speed Charts (Infiniti Q45, 2 of 4)  
 Courtesy of Nissan Motor Co., U.S.A.



95C20026

Fig. 24: Shift Speed Charts (Infiniti Q45, 3 of 4)  
Courtesy of Nissan Motor Co., U.S.A.



93H22589

Fig. 25: Shift Speed Charts (Infiniti Q45, 4 of 4)  
Courtesy of Nissan Motor Co., U.S.A.

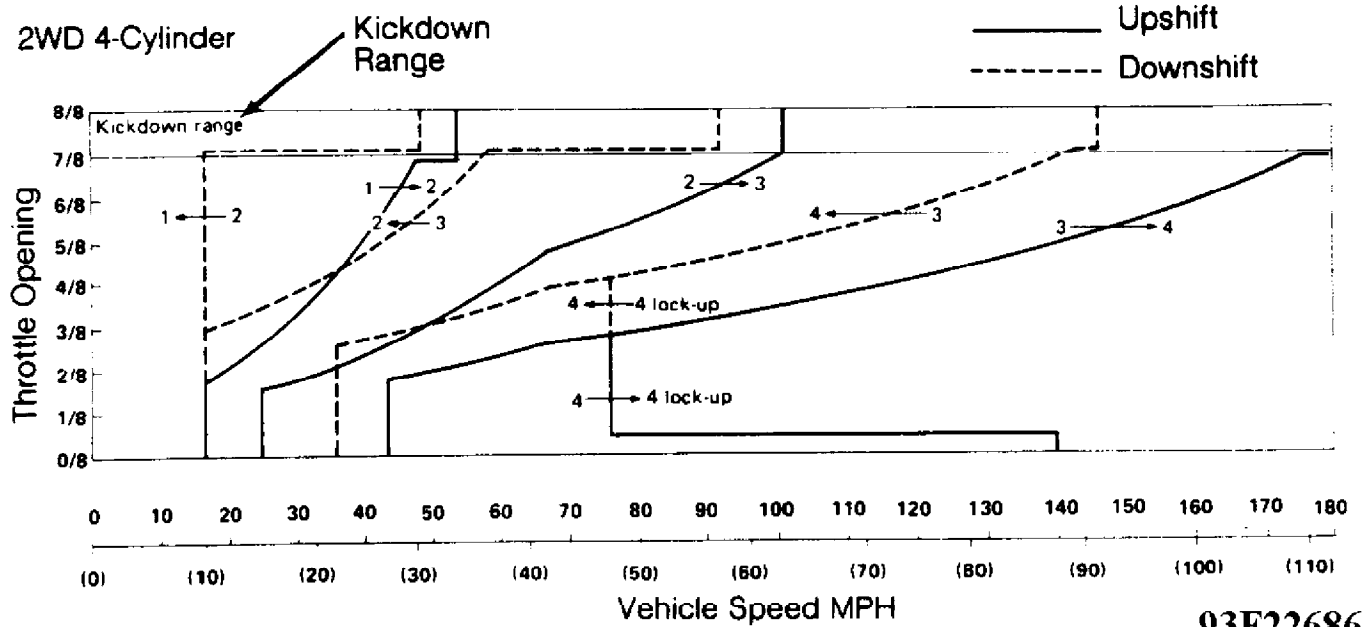


Fig. 26: Shift Speeds, 1 of 5 (Pathfinder/Pickup 2WD)  
Courtesy of Nissan Motor Co., U.S.A.

93F22686

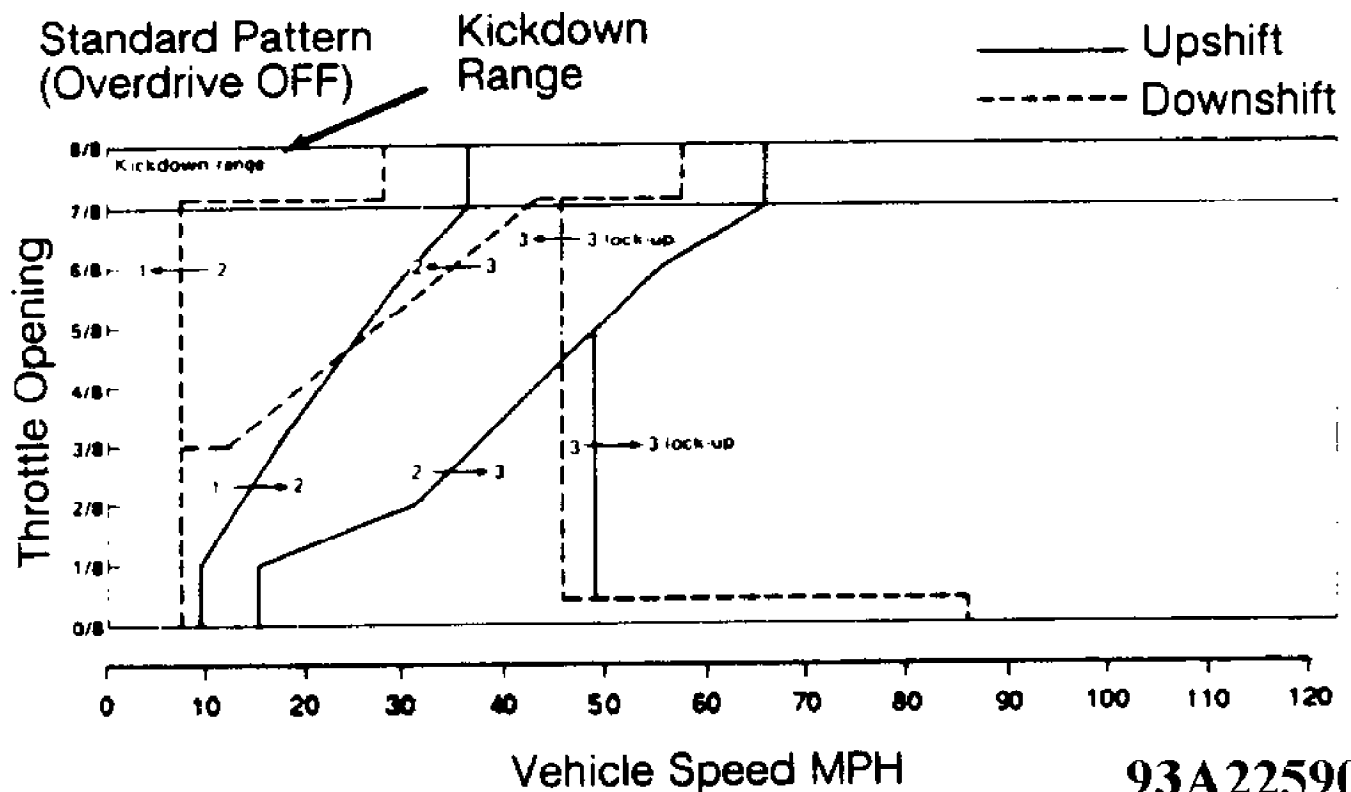
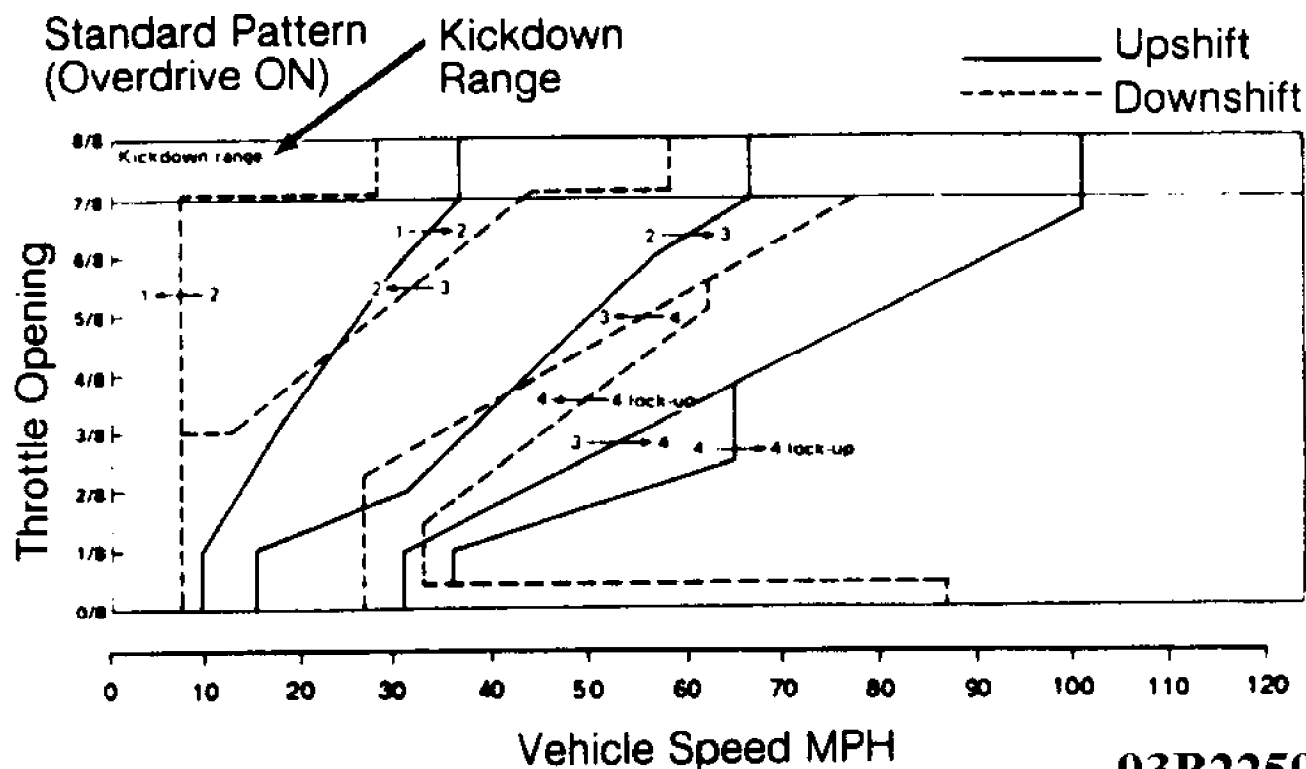


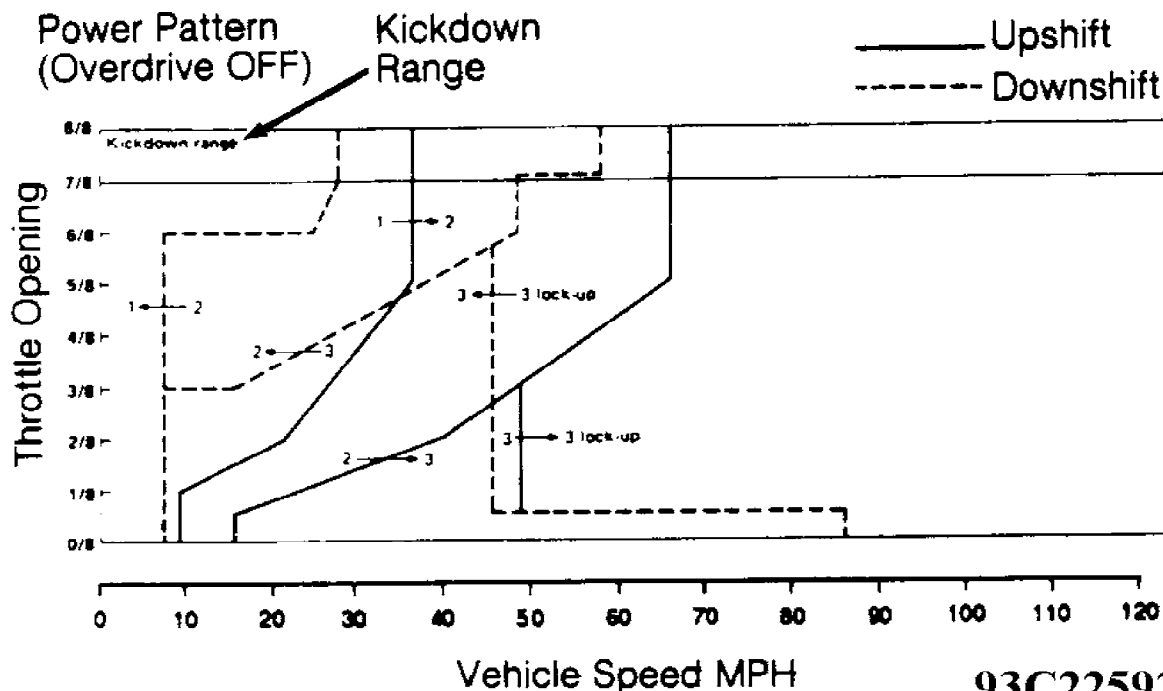
Fig. 27: Shift Speeds, 2 of 5 (Pathfinder/Pickup 2WD)  
Courtesy of Nissan Motor Co., U.S.A.

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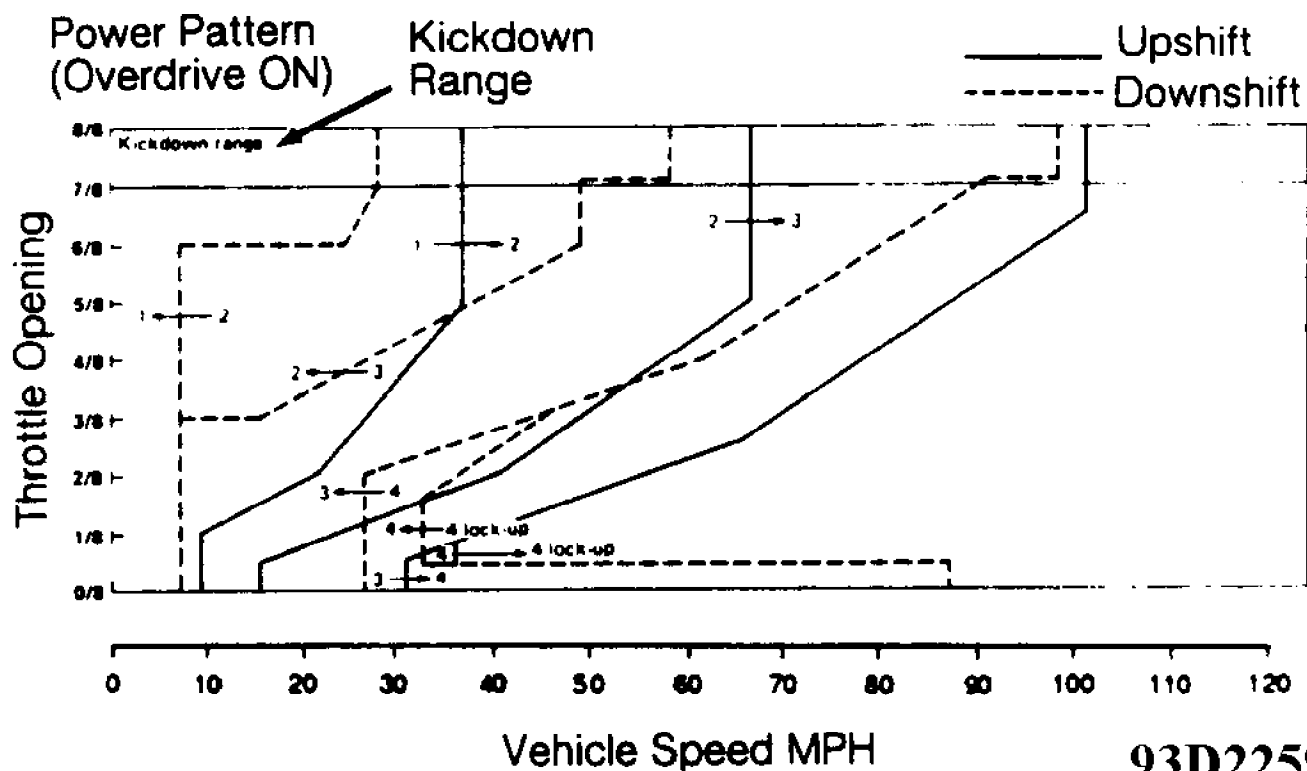
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Fig. 28: Shift Speeds, 3 of 5 (Pathfinder/Pickup 2WD)  
Courtesy of Nissan Motor Co., U.S.A.



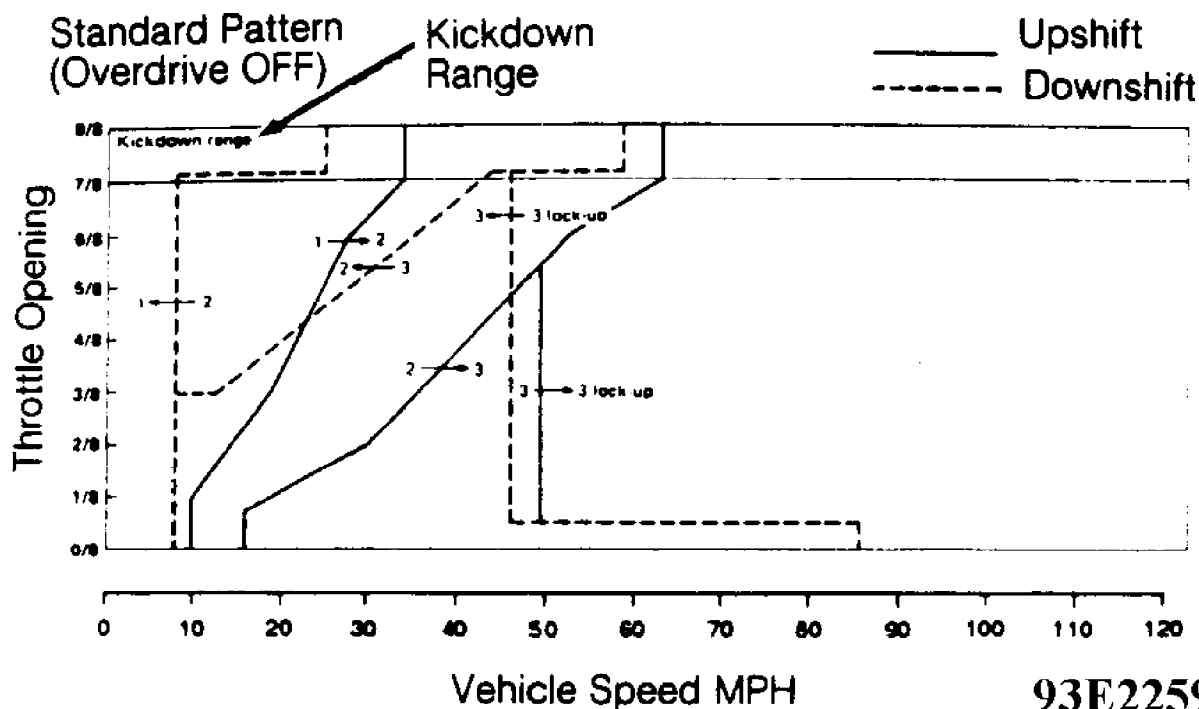
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Fig. 29: Shift Speeds, 4 of 5 (Pathfinder/Pickup 2WD)  
Courtesy of Nissan Motor Co., U.S.A.



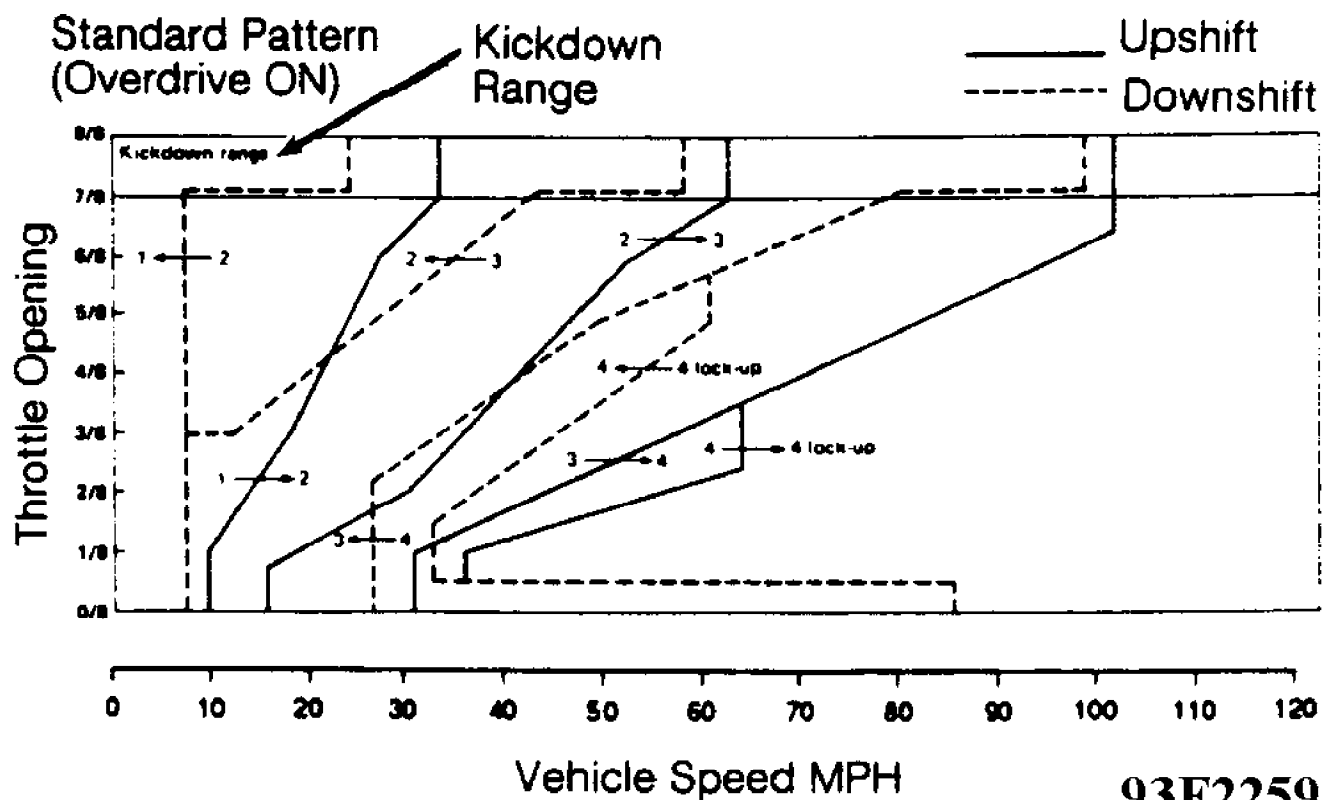
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Fig. 30: Shift Speeds, 5 of 5 (Pathfinder/Pickup 2WD)  
Courtesy of Nissan Motor Co., U.S.A.



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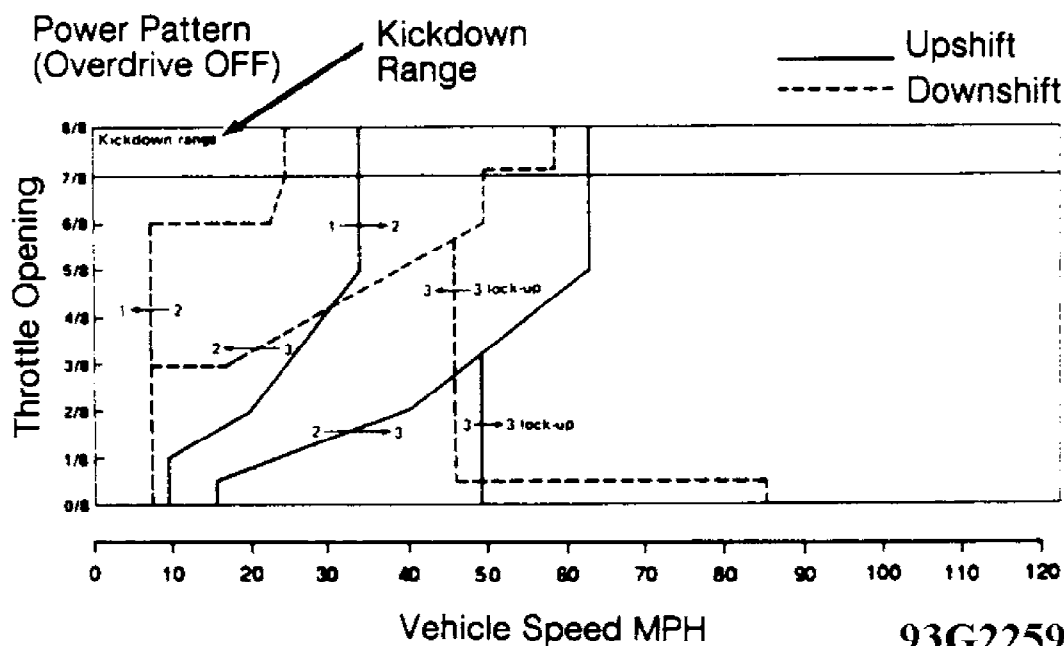
Fig. 31: Shift Speeds, 1 of 4 (Pathfinder/Pickup 4WD, 4.375 Final Gear Ratio)  
Courtesy of Nissan Motor Co., U.S.A.



93F22595

Fig. 32: Shift Speeds, 2 of 4 (Pathfinder/Pickup 4WD, 4.375 Final Gear Ratio)

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



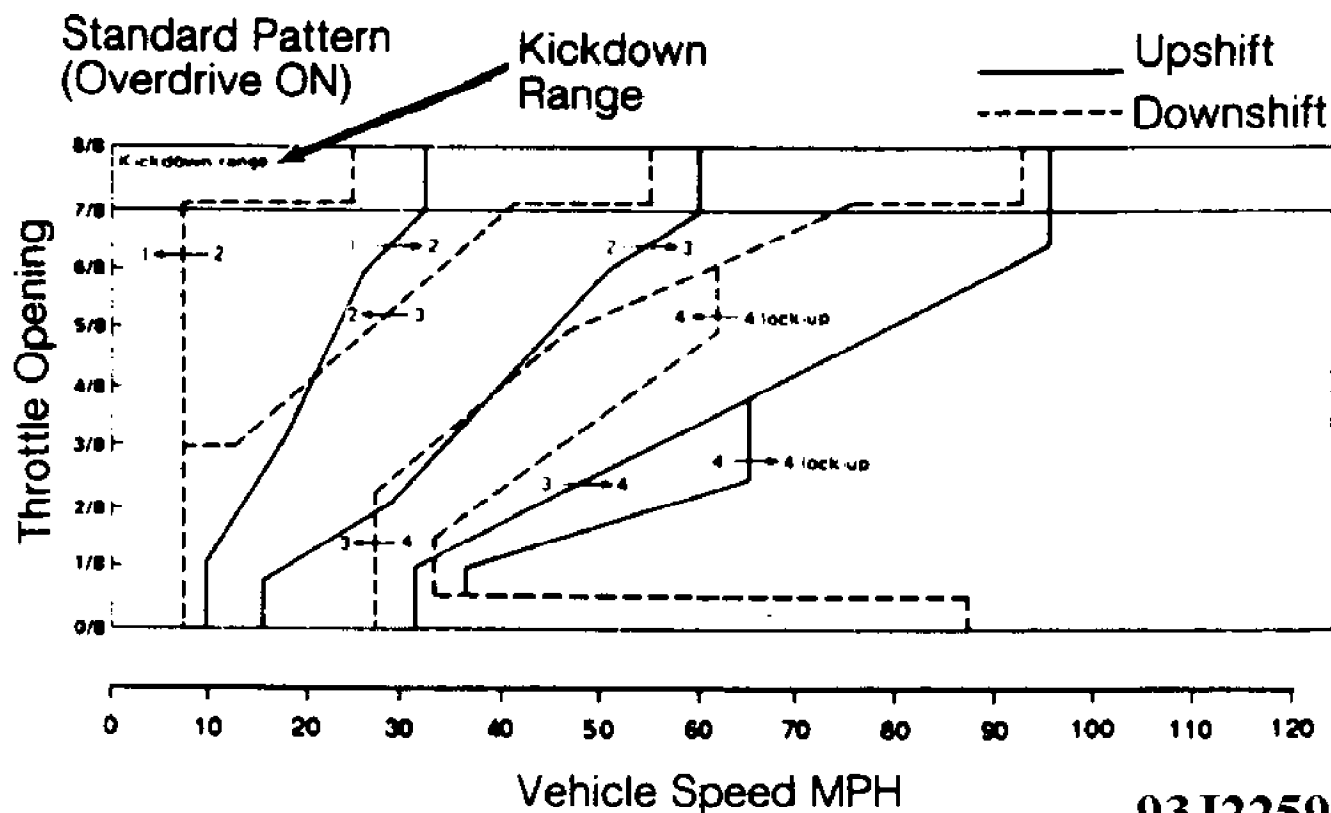
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Fig. 33: Shift Speeds, 3 of 4 (Pathfinder/Pickup 4WD, 4.375 Final Gear Ratio)

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

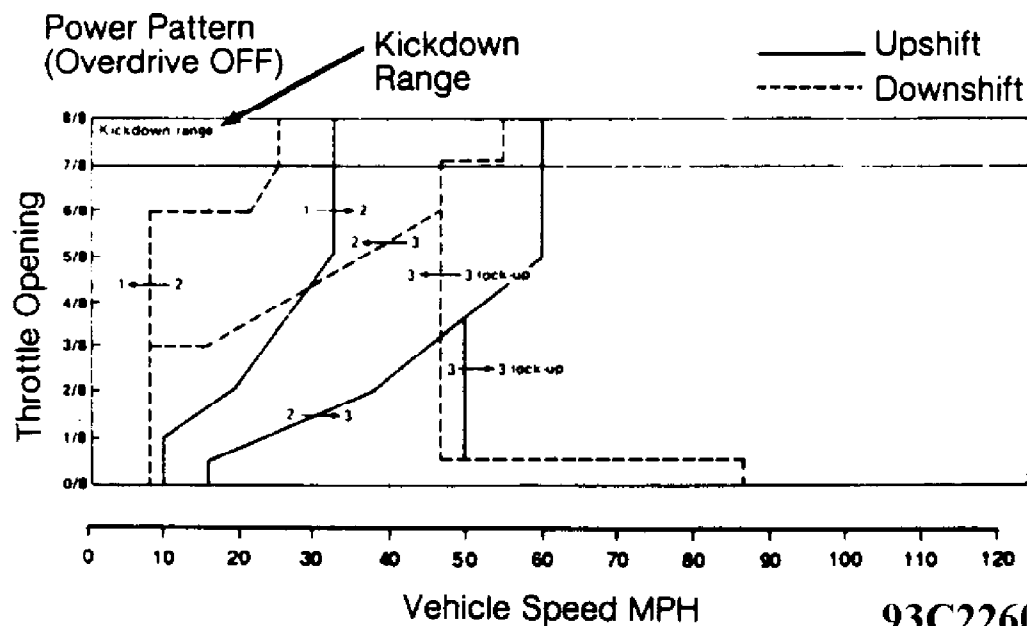






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Fig. 36: Shift Speeds, 2 of 4 (Pathfinder/Pickup 4WD, 4.625 Final Gear Ratio)  
 Courtesy of Nissan Motor Co., U.S.A.



93C22600

Fig. 37: Shift Speeds, 3 of 4 (Pathfinder/Pickup 4WD, 4.625 Final Gear Ratio)  
 Courtesy of Nissan Motor Co., U.S.A.

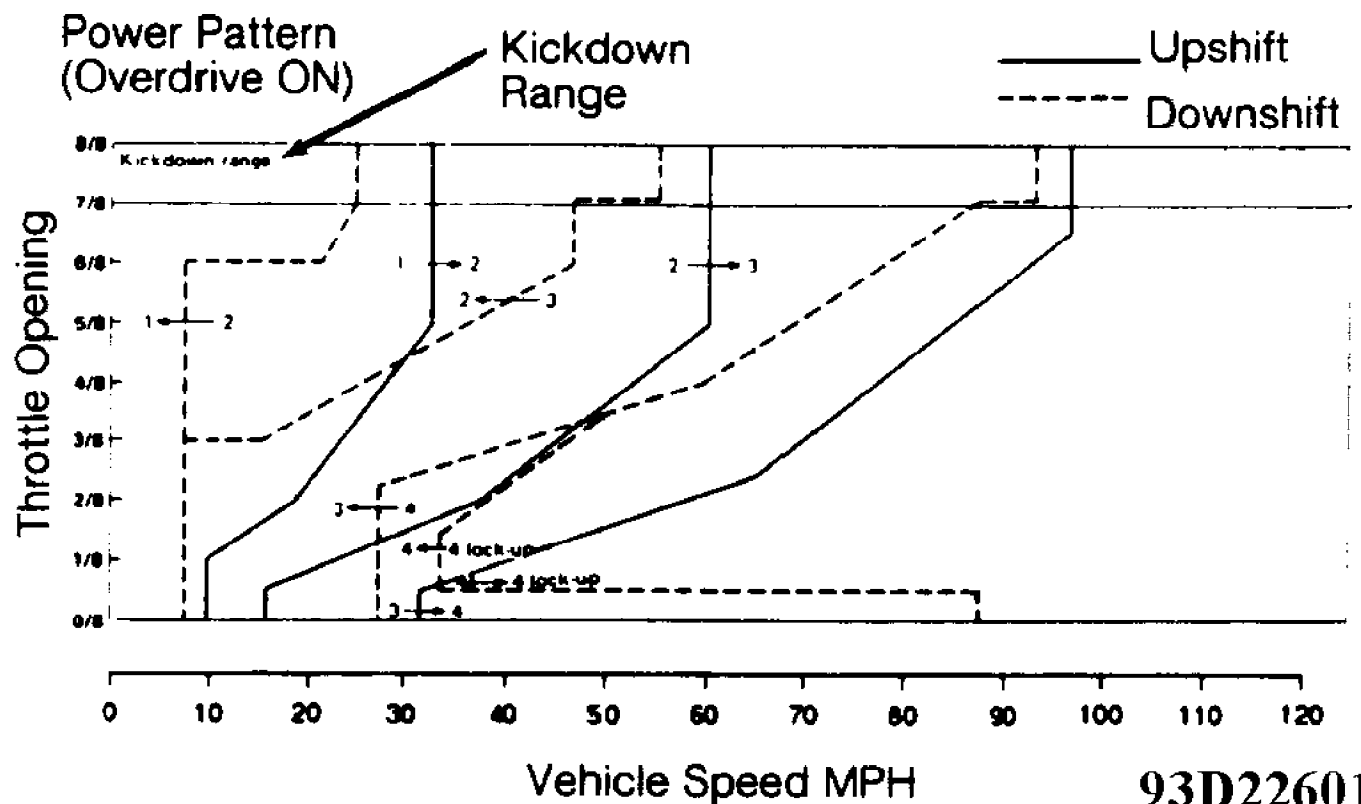


Fig. 38: Shift Speeds, 4 of 4 (Pathfinder/Pickup 4WD, 4.625 Final Gear Ratio)  
 Courtesy of Nissan Motor Co., U.S.A.

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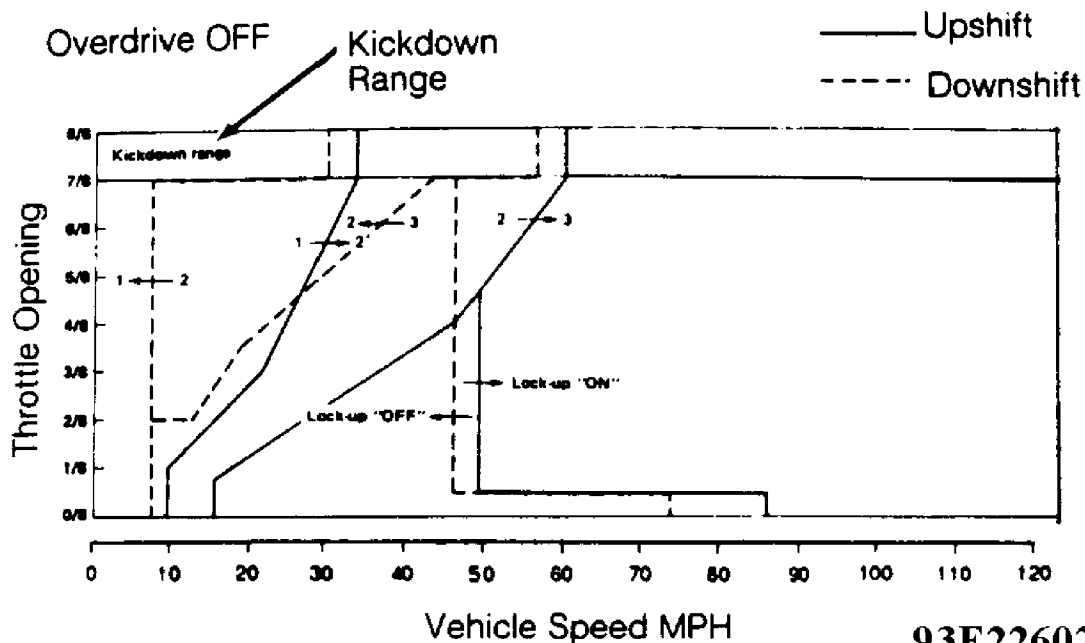
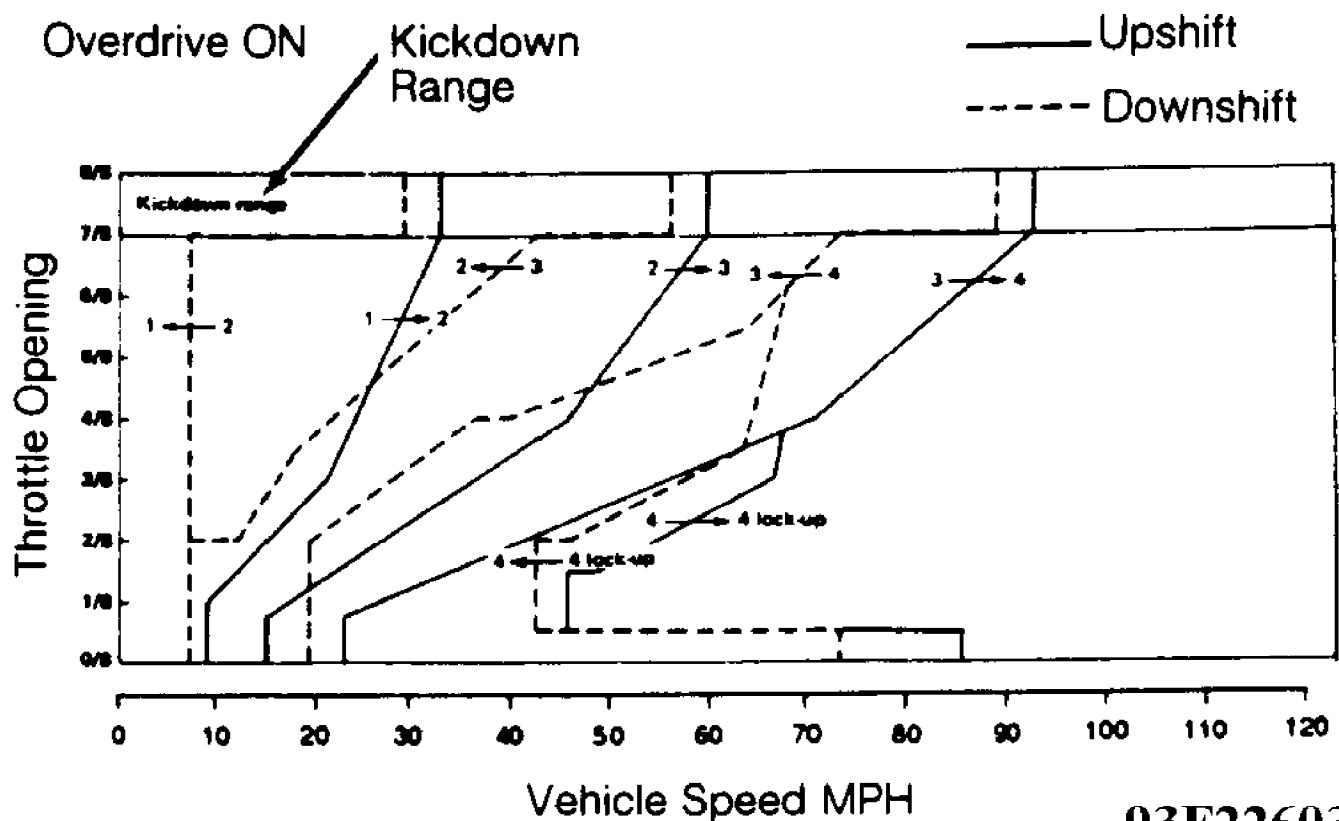


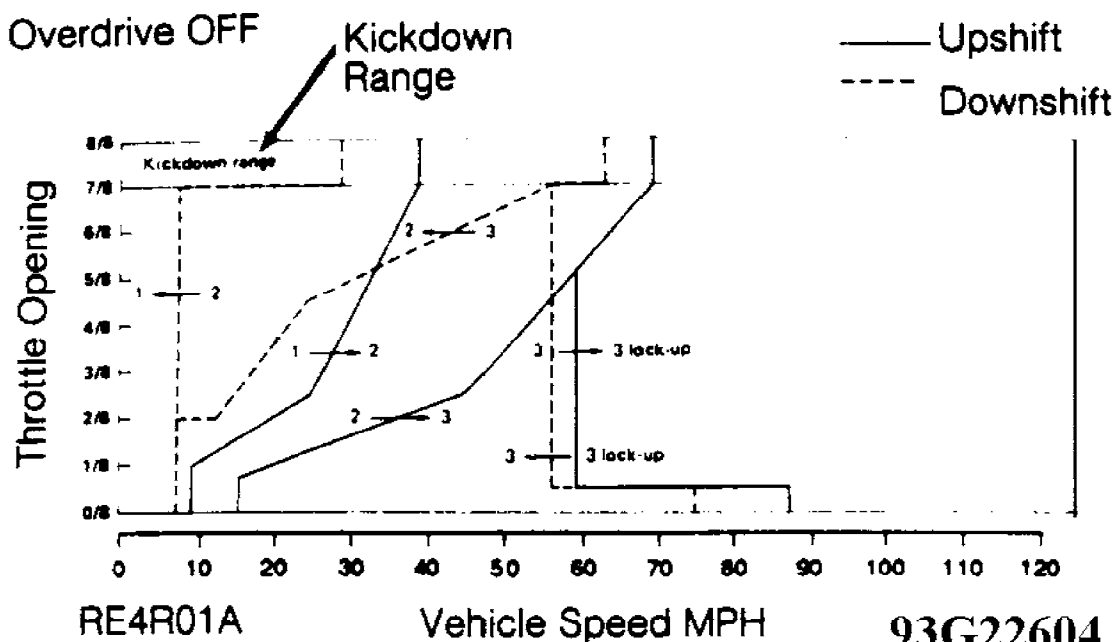
Fig. 39: Shift Speed Charts (M30 & 240SX, 1 of 2)  
 Courtesy of Nissan Motor Co., U.S.A.

93E22602



93F22603

Fig. 40: Shift Speed Charts (M30 & 240SX, 2 of 2)  
Courtesy of Nissan Motor Co., U.S.A.



93G22604

Fig. 41: Shift Speed Charts (300ZX, 1 of 4)  
Courtesy of Nissan Motor Co., U.S.A.

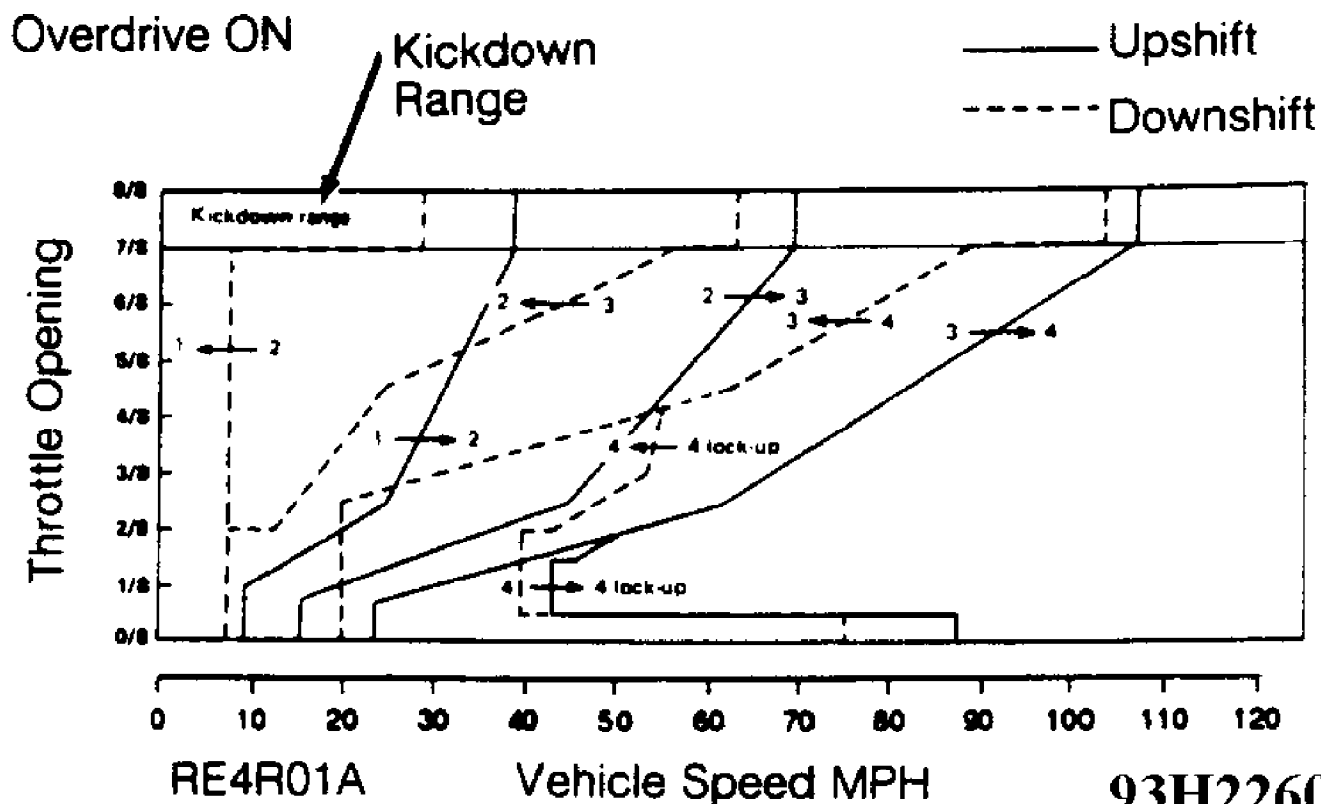


Fig. 42: Shift Speed Charts (300ZX, 2 of 4)  
 Courtesy of Nissan Motor Co., U.S.A.

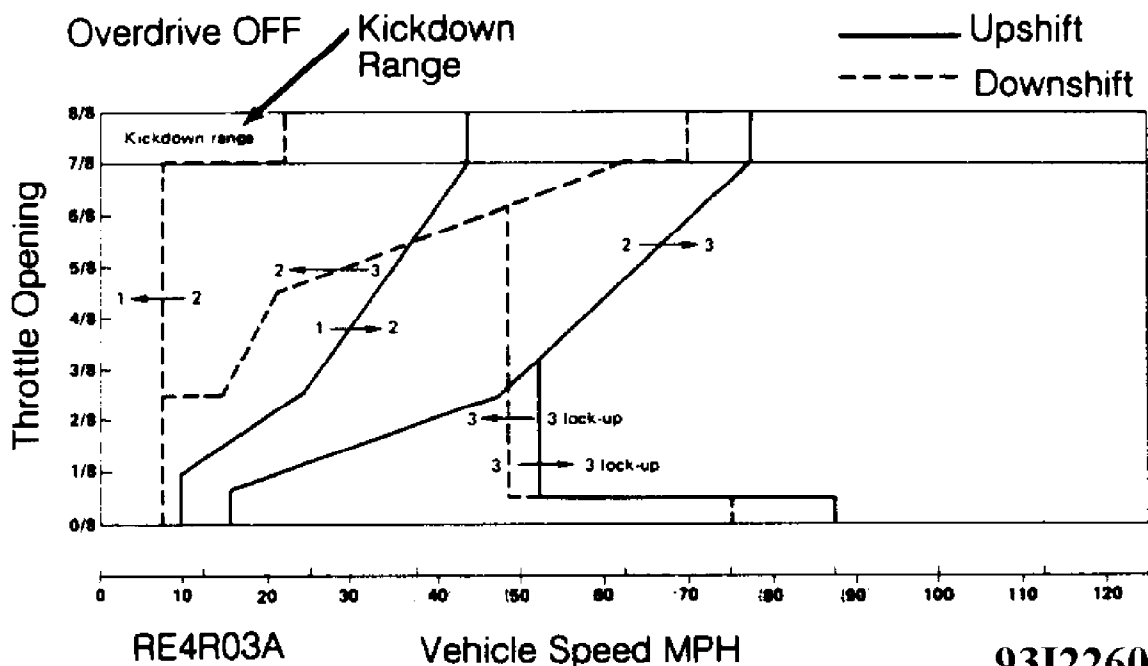


Fig. 43: Shift Speed Charts (300ZX, 3 of 4)  
 Courtesy of Nissan Motor Co., U.S.A.



Application	Full Throttle MPH	Half Throttle MPH
OD ON		
Lock-Up ON in 4th .....	126-130	86-91
Lock-Up OFF in 4th .....	121-126	64-69

OD OFF			
Lock-Up ON in 3rd	.....	71-76	..... 67-72
Lock-Up OFF in 3rd	.....	67-72	..... 63-68

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LOCK-UP SPEED SPECIFICATIONS - PATHFINDER & PICKUP

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Application		Full Throttle MPH		Half Throttle MPH
4-Cyl. 2WD				
OD ON				
Lock-Up ON in 4th	.....	N/A	.....	44-49
Lock-Up OFF in 4th	.....	N/A	.....	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
Lock-Up OFF in 3rd	.....	57-62	.....	44-49
V6-4WD (Final Gear Ratio: 4.375)				
OD ON				
Lock-Up ON in 4th	.....	101-107	.....	68-74
Lock-Up OFF in 4th	.....	98-104	.....	51-56
OD OFF				
Lock-Up ON in 3rd	.....	62-66	.....	47-52
Lock-Up OFF in 3rd	.....	57-62	.....	44-49
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

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LOCK-UP SPEED SPECIFICATIONS - 240SX

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Application		Full Throttle MPH		Half Throttle MPH
OD ON				
Lock-Up ON in 4th	.....	98-104	.....	70-75
Lock-Up OFF in 4th	.....	95-100	.....	63-68
OD OFF				
Lock-Up ON in 3rd	.....	63-68	.....	57-62
Lock-Up OFF in 3rd	.....	57-62	.....	53-58

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LOCK-UP SPEED SPECIFICATIONS - 300ZX NON-TURBO

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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

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#### LOCK-UP SPEED SPECIFICATIONS - 300ZX TURBO

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Application		Full Throttle MPH		Half Throttle MPH
OD ON				
Lock-Up ON in 4th	.....	114-119	.....	114-119
Lock-Up OFF in 4th	.....	111-116	.....	73-68
OD OFF				
Lock-Up ON in 3rd	.....	75-80	.....	55-60
Lock-Up OFF in 3rd	.....	68-73	.....	46-51

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### SHIFT SPEED SPECIFICATIONS TABLES

#### SHIFT SPEED SPECIFICATIONS - INFINITI J30

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Application		Full Throttle MPH		Half Throttle MPH
1st-2nd	.....	41-43	.....	29-32
2nd-3rd	.....	71-76	.....	54-58
3rd-4th	.....	110-116	.....	79-83
4th-3rd	.....	106-111	.....	42-47
3rd-2nd	.....	63-68	.....	21-25
2nd-1st	.....	27-30	.....	4-7

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#### SHIFT SPEED SPECIFICATIONS - INFINITI M30

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Application		Full Throttle MPH		Half Throttle MPH
1st-2nd	.....	36-38	.....	26-29
2nd-3rd	.....	64-69	.....	50-54
3rd-4th	.....	99-106	.....	70-76
4th-3rd	.....	96-102	.....	45-50
3rd-2nd	.....	61-66	.....	28-32
2nd-1st	.....	30-32	.....	6-9

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#### SHIFT SPEED SPECIFICATIONS - INFINITI Q45

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Application		Full Throttle MPH		Half Throttle MPH
1st-2nd	.....	48-51	.....	8-11
2nd-3rd	.....	84-89	.....	32-35
3rd-4th	.....	125-131	.....	85-91
4th-3rd	.....	121-127	.....	49-55
3rd-2nd	.....	78-83	.....	14-17
2nd-1st	.....	27-29	.....	6-9

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#### SHIFT SPEED SPECIFICATIONS - PATHFINDER & PICKUP

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Application	Full Throttle MPH	Half Throttle MPH
4-Cyl. 2WD		
1st-2nd .....	33-35 .....	20-22
2nd-3rd .....	62-67 .....	35-40
3rd-4th .....	N/A .....	71-77
4th-3rd .....	91-98 .....	40-47
3rd-2nd .....	57-62 .....	17-22
2nd-1st .....	29-32 .....	7-10
V6-2WD		
1st-2nd .....	32-35 .....	21-23
2nd-3rd .....	62-66 .....	41-46
3rd-4th .....	99-105 .....	65-71
4th-3rd .....	96-102 .....	42-48
3rd-2nd .....	57-62 .....	17-22
2nd-1st .....	27-30 .....	6-9
V6-4WD (Final Ratio: 4.375)		
1st-2nd .....	31-34 .....	20-22
2nd-3rd .....	60-65 .....	39-44
3rd-4th .....	101-107 .....	68-75
4th-3rd .....	98-104 .....	40-46
3rd-2nd .....	57-62 .....	17-22
2nd-1st .....	24-26 .....	6-9
V6-4WD (Final Ratio: 4.625)		
1st-2nd .....	29-31 .....	19-21
2nd-3rd .....	56-61 .....	37-42
3rd-4th .....	93-99 .....	63-70
4th-3rd .....	90-96 .....	37-43
3rd-2nd .....	53-58 .....	17-22
2nd-1st .....	24-26 .....	6-9

#### SHIFT SPEED SPECIFICATIONS - 240SX

Application	Full Throttle MPH	Half Throttle MPH
1st-2nd .....	35-37 .....	24-27
2nd-3rd .....	63-68 .....	46-50
3rd-4th .....	98-104 .....	70-75
4th-3rd .....	94-101 .....	35-40
3rd-2nd .....	57-62 .....	17-21
2nd-1st .....	25-27 .....	6-9

#### SHIFT SPEED SPECIFICATIONS - 300ZX NON-TURBO

Application	Full Throttle MPH	Half Throttle MPH
1st-2nd .....	37-40 .....	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

#### SHIFT SPEED SPECIFICATIONS - 300ZX TURBO



Application	Full Throttle MPH	Half Throttle MPH
1st-2nd .....	42-45 .....	29-32
2nd-3rd .....	75-80 .....	55-59
3rd-4th .....	114-120 .....	85-89
4th-3rd .....	110-116 .....	48-53
3rd-2nd .....	68-73 .....	17-21
2nd-1st .....	21-23 .....	6-9

## STALL SPEED TEST

### STALL SPEED TEST PROCEDURE

1) Check engine and transmission fluid levels. Ensure engine and transmission are at normal operating temperatures. Set parking brake and block wheels.

2) Install tachometer so it is visible to driver. Start engine, apply foot brake and move selector lever to "D" position. Accelerate to wide-open throttle gradually while applying foot brake. Note engine stall speed and release accelerator pedal. Refer to the STALL SPEED SPECIFICATIONS table for stall speed specification.

NOTE: Never hold wide-open throttle for more than 5 seconds during test.

### STALL SPEED SPECIFICATIONS

Application	RPM
Infiniti	
J30 .....	2320-2720
M30 .....	2200-2400
Q45 .....	2100-2300
Pathfinder/Pickup (V6) .....	2260-2510
Pickup (4-Cyl.) .....	2100-2300
240SX .....	2050-2250
300ZX	
Non-Turbo .....	2450-2650
Turbo .....	2950-3250

3) Shift selector lever to "N" position. Run engine at idle for one minute or more to cool ATF. Repeat steps 3 through 7 with selector lever in "2", "1" and "R" positions respectively.

### STALL SPEED TEST RESULTS

- \* Stall Speed Low In All Positions  
Insufficient engine performance or faulty torque converter one-way clutch.
- \* Stall Speed High In All Positions  
Low and reverse brake slipping, faulty low one-way clutch or hydraulic circuit for line pressure control.
- \* Stall Speed High In "R" Position Only  
Reverse clutch slipping or low and reverse brake slipping.
- \* Stall Speed High In "D", "2" and "R" Positions, Okay In

"1" Position

Reverse clutch, forward clutch, forward one-way clutch or low one-way clutch.

- \* Stall Speed High In "D", "2" & "1" Positions, Okay In "R" Position  
Forward clutch, overrun clutch or forward one-way clutch.

NOTE: Condition of high clutch and brake band cannot be confirmed by stall speed test.

## HYDRAULIC PRESSURE TESTS

### LINE PRESSURE TEST PROCEDURE

1) Warm engine and transmission to normal operating temperature. Check engine and transmission fluid levels and add fluid as necessary. Install pressure gauge to line pressure port for "D", "2" and "1" positions. See Figs. 45 and 46.

2) Set parking brake and block wheels. Apply foot brake fully while line pressure test at stall speed is performed. Start engine and measure line pressure at idle and stall speed, in "D", "2", "1" and "R" positions. When measuring line pressure at stall speed, follow stall speed test procedure. Note pressure readings and refer to the LINE PRESSURE SPECIFICATIONS table.

#### LINE PRESSURE SPECIFICATIONS

Application	Pressure psi (kPa)
Infiniti J30	
At idle	
"D", "2" & "1" positions .....	61-67 (422-461)
"R" position .....	88-94 (608-647)
At stall speed	
"D", "2" & "1" positions .....	148-159 (1020-1098)
"R" position .....	206-218 (1422-1500)
Infiniti M30	
At idle	
"D", "2" & "1" positions .....	63-68 (432-471)
"R" position .....	97-102 (667-706)
At stall speed	
"D", "2" & "1" positions .....	128-139 (883-961)
"R" position .....	202-213 (1393-1471)
Infiniti Q45	
At idle	
"D", "2" & "1" positions .....	65-71 (451-490)
"R" position .....	91-97 (628-667)
At stall speed	
"D", "2" & "1" positions .....	148-159 (1020-1098)
"R" position .....	206-219 (1422-1510)
Pickup 4 Cyl.	
At idle	
"D", "2" & "1" positions .....	61-67 (422-461)
"R" position .....	97-102 (667-706)
At stall speed	
"D", "2" & "1" positions .....	128-139 (883-961)
"R" position .....	202-213 (1393-1471)

Pathfinder, Pickup V6 & 300ZX

At idle

"D", "2" & "1" positions ..... 61-67 (422-461)

"R" position ..... 97-102 (667-706)

At stall speed

"D", "2" & "1" positions ..... 148-159 (1020-1098)

"R" position ..... 206-218 (1422-1500)

240SX

At idle

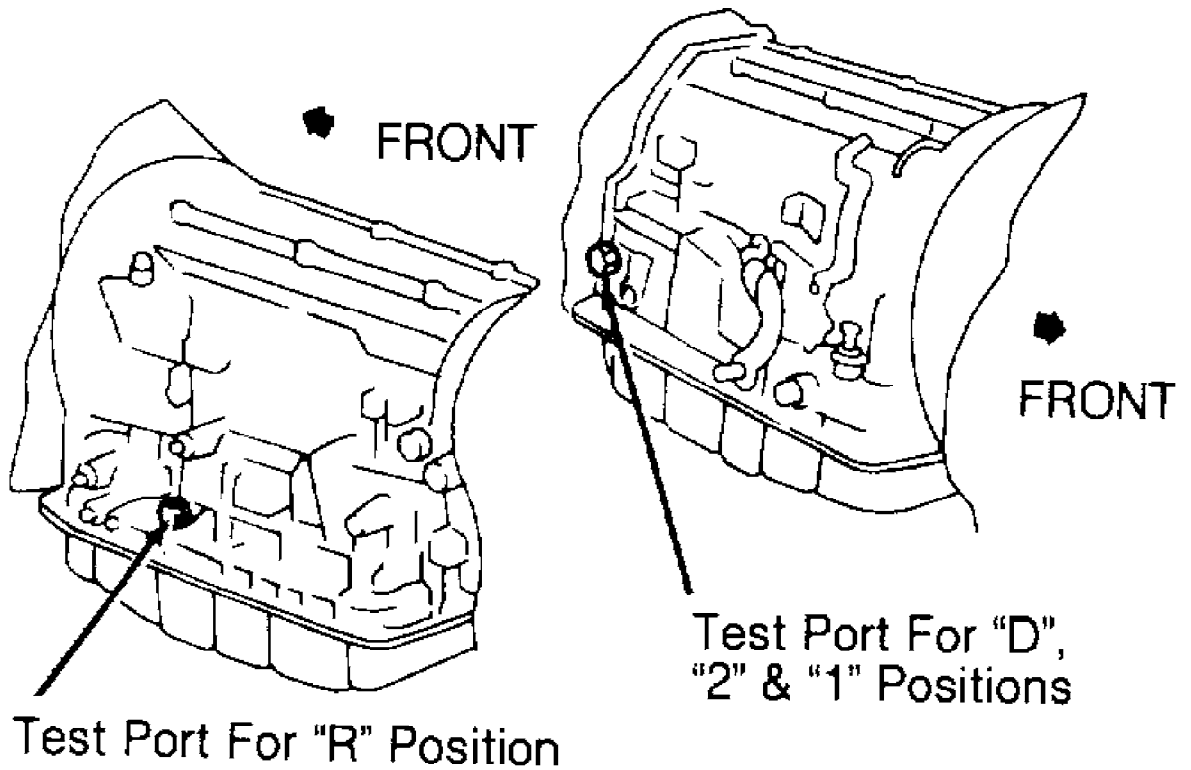
"D", "2" & "1" positions ..... 61-67 (422-461)

"R" position ..... 85-91 (588-628)

At stall speed

"D", "2" & "1" positions ..... 148-159 (1020-1098)

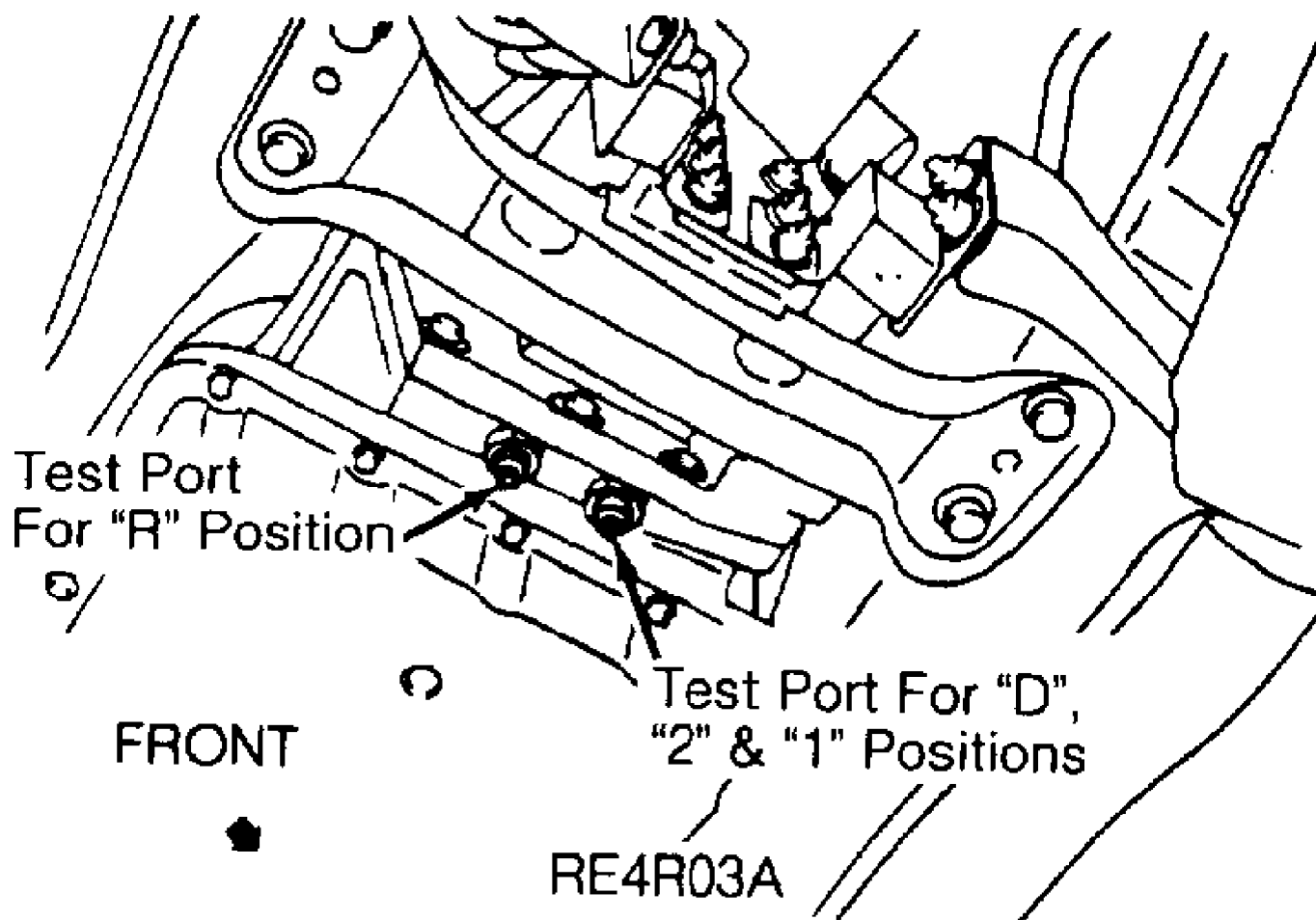
"R" position ..... 206-218 (1422-1500)



**95D20001**

**RE4R01A & RL4R01A**

Fig. 45: Locating Pressure Test Ports (RE4R01A & RL4R01A)  
Courtesy of Nissan Motor Co., U.S.A.



**95E20002**

Fig. 46: Locating Pressure Test Ports (RE4R03A)  
 Courtesy of Nissan Motor Co., U.S.A.

#### LINE PRESSURE TEST RESULTS

- \* Line Pressure Low At Idle In All Positions:  
 Oil pump wear, control piston damage, pressure regulator valve or plug sticking, or fluid pressure leakage between oil strainer and pressure regulator.
- \* Line Pressure Low At Idle In A Particular Position:  
 Check for fluid pressure leakage between manual valve and the particular clutch.
- \* Line Pressure High At Idle:  
 Misadjusted throttle sensor, fluid temperature sensor or line pressure solenoid damaged, pressure modifier valve sticking or pressure regulator valve sticking.
- \* Line Pressure Low At Stall Speed:  
 Misadjusted throttle sensor, control piston damaged, line pressure solenoid sticking, pressure regulator valve or plug sticking, pressure modifier valve or pilot valve sticking.

## **ON-VEHICLE SERVICE**

### **CONTROL VALVE ASSEMBLY**

#### **Removal & Installation**

1) Remove drain plug and drain ATF. Remove oil pan and gasket. Remove oil strainer. Remove control valve assembly by removing bolts and disconnecting wiring harness connector. See Fig. 40  
Accumulators may be removed by applying compressed air (if necessary). See Fig. 33.

2) To install, set manual valve in neutral position and align with manual plate. Install control valve assembly and tighten bolts to 62-80 INCH lbs (7-9 N.m). To complete installation, reverse removal procedure.

### **INHIBITOR SWITCH ADJUSTMENT**

See the TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

### **OIL COOLER FLUSHING PROCEDURE**

Vehicles with tube type transmission fluid cooler may be cleaned using cleaning solvent and compressed air. Cooler lines must also be flushed to remove any foreign material. Vehicles with fin type transmission fluid cooler cannot be cleaned. Replace radiator (radiator incorporates transmission fluid cooler), and flush cooler lines to remove any foreign material.

**NOTE:** On RE4R01A transmissions, if planetary failure has occurred, fin type transmission fluid cooler becomes restricted, causing poor fluid flow and planetary failure is repeated. Cooler cleaning cannot be performed on fin type coolers. Manufacturer has designed a Spiral Cooler Replacement Kit (21606-15V25) to prevent replacing complete radiator.

### **MANUAL CONTROL LINKAGE ADJUSTMENT**

See the TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

### **REAR OIL SEAL REPLACEMENT**

#### **Removal & Installation**

Mark drive shaft for reassembly reference. Remove drive shaft from vehicle. Remove rear oil seal. Apply ATF to NEW seal and install. Reinstall drive shaft. Check fluid level and fill as necessary.

## **REMOVAL & INSTALLATION**

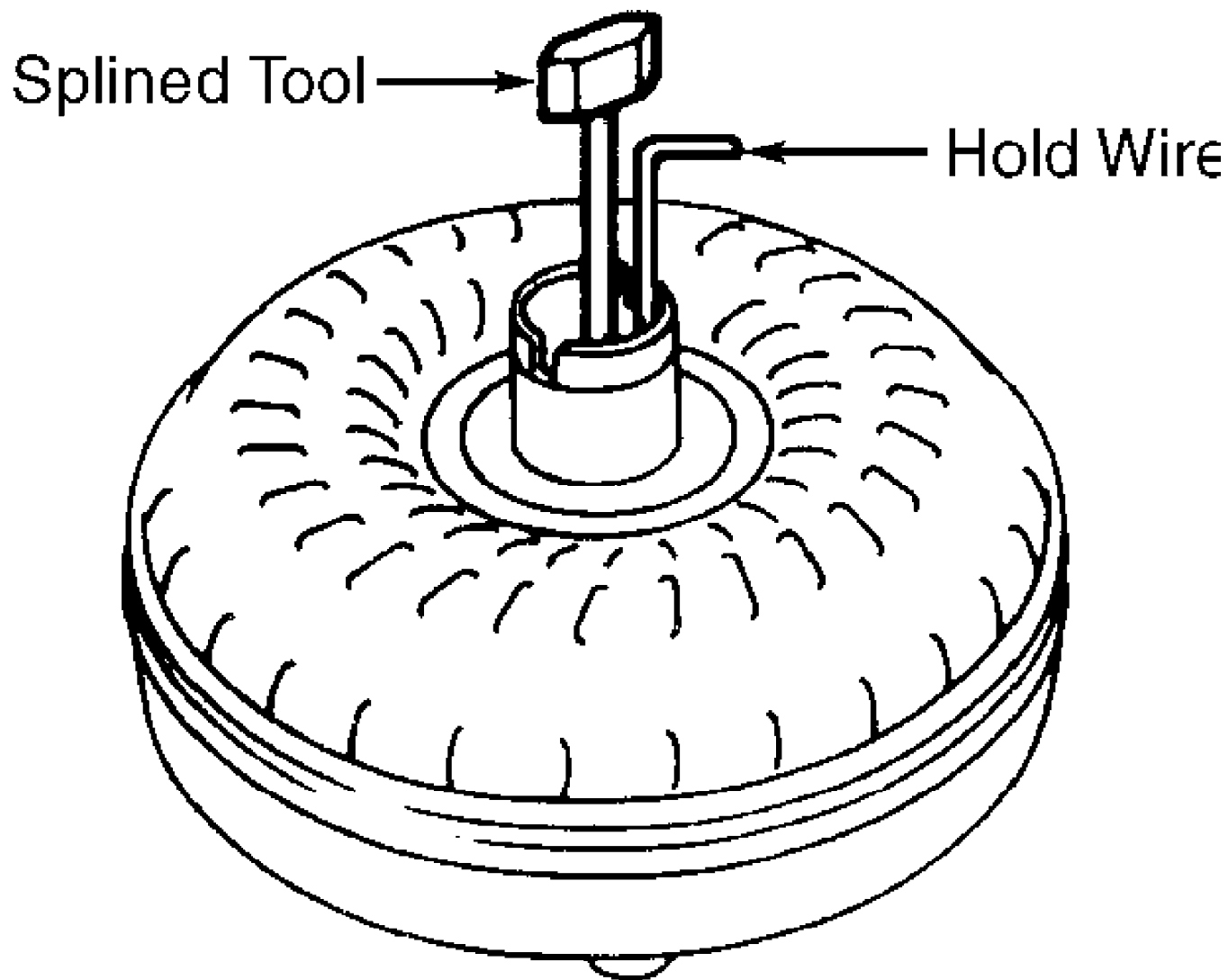
See the TRANSMISSION REMOVAL & INSTALLATION - A/T article in the AUTOMATIC TRANS SERVICING section.

## **TORQUE CONVERTER**

1) Torque converter is a sealed unit and cannot be disassembled for service. Replace converter if damaged. Converter one-way clutch may be checked by inserting Splined Tool (KV31102100) into spline of one-way clutch inner race.

2) Hook bearing support unitized with one-way clutch outer

race with suitable wire. See Fig. 47. Ensure one-way clutch inner race rotates clockwise only while holding bearing support with wire.



93B22609

Fig. 47: Checking Torque Converter One-Way Clutch Rotation  
Courtesy of Nissan Motor Co., U.S.A.

### TRANSMISSION DISASSEMBLY

1) Remove drain plug and drain ATF. Remove inhibitor switch from transmission case. Remove oil pan and gasket. 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.

2) Remove lock-up solenoid and fluid temperature sensor connectors. Remove oil strainer and "O" ring from control valve. Remove control valve assembly. See Figs. 58-61. Remove solenoid wiring harness from transmission case.

3) Remove converter housing from transmission case. Remove "O" ring from input shaft. Using appropriate puller, remove oil pump assembly from transmission case. Remove oil pump "O" ring, needle

bearing, thrust washer and oil pump gasket. See Fig. 48.

4) Remove input shaft. Loosen lock nut and remove band servo anchor end bolt from transmission case. Before removing brake band, secure band with wire clip placed into ends of band. Leave wire clip in position after removing band to prevent brake lining from cracking or peeling. DO NOT stretch brake band excessively. Remove brake band and strut.

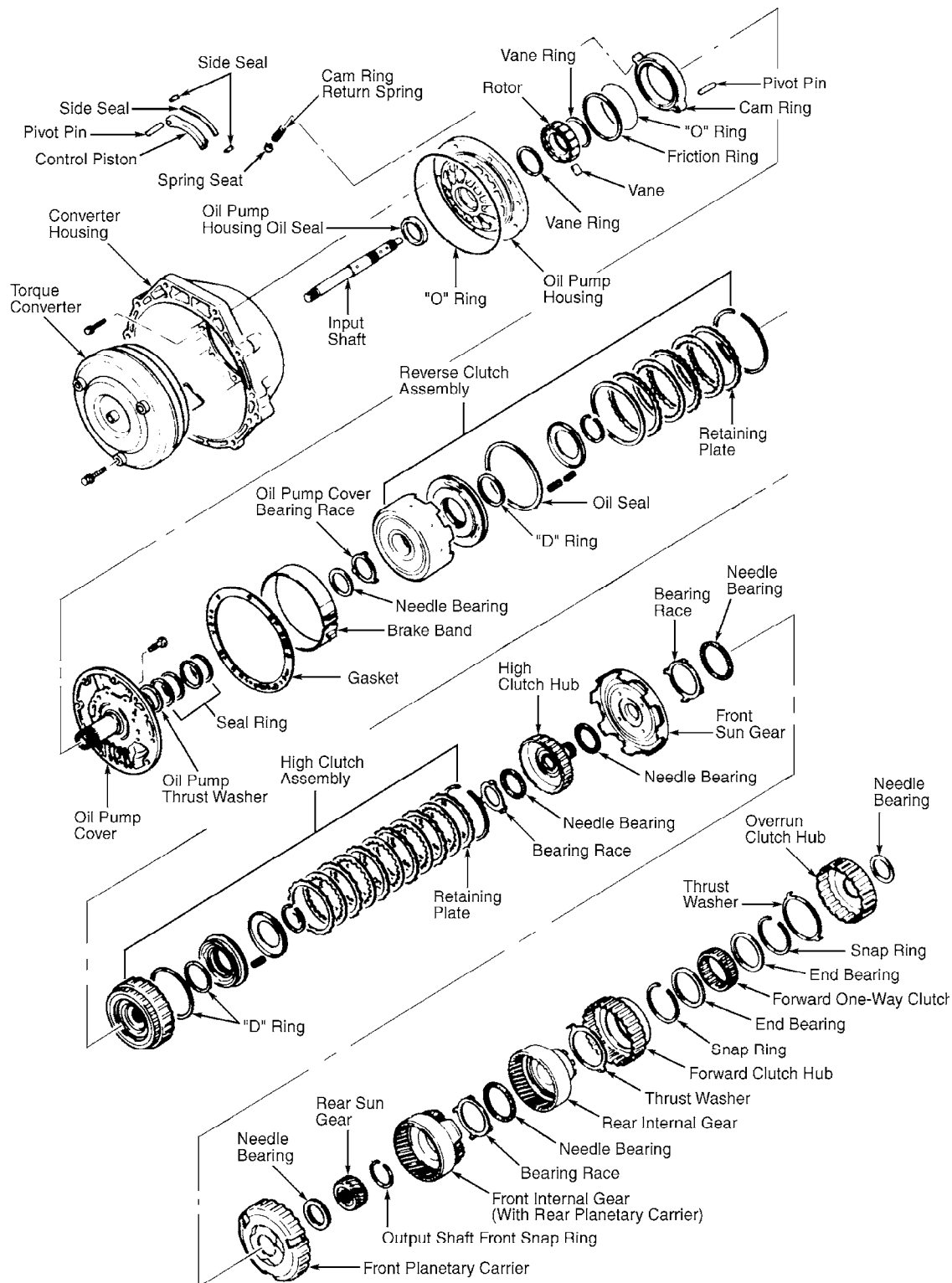
5) Remove reverse clutch, high clutch and front sun gear from transmission case. Remove front and rear bearing race from clutch pack. Remove front planetary carrier from transmission case. Remove front needle bearing and rear bearing from planetary carrier. Remove rear sun gear from transmission case. See Fig. 48. Remove rear extension housing and gasket from transmission case.

6) 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 the way forward. Remove snap ring from output shaft, then remove output shaft and parking gear as a unit. Remove the governor valve assembly. See Fig. 50.

7) 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.

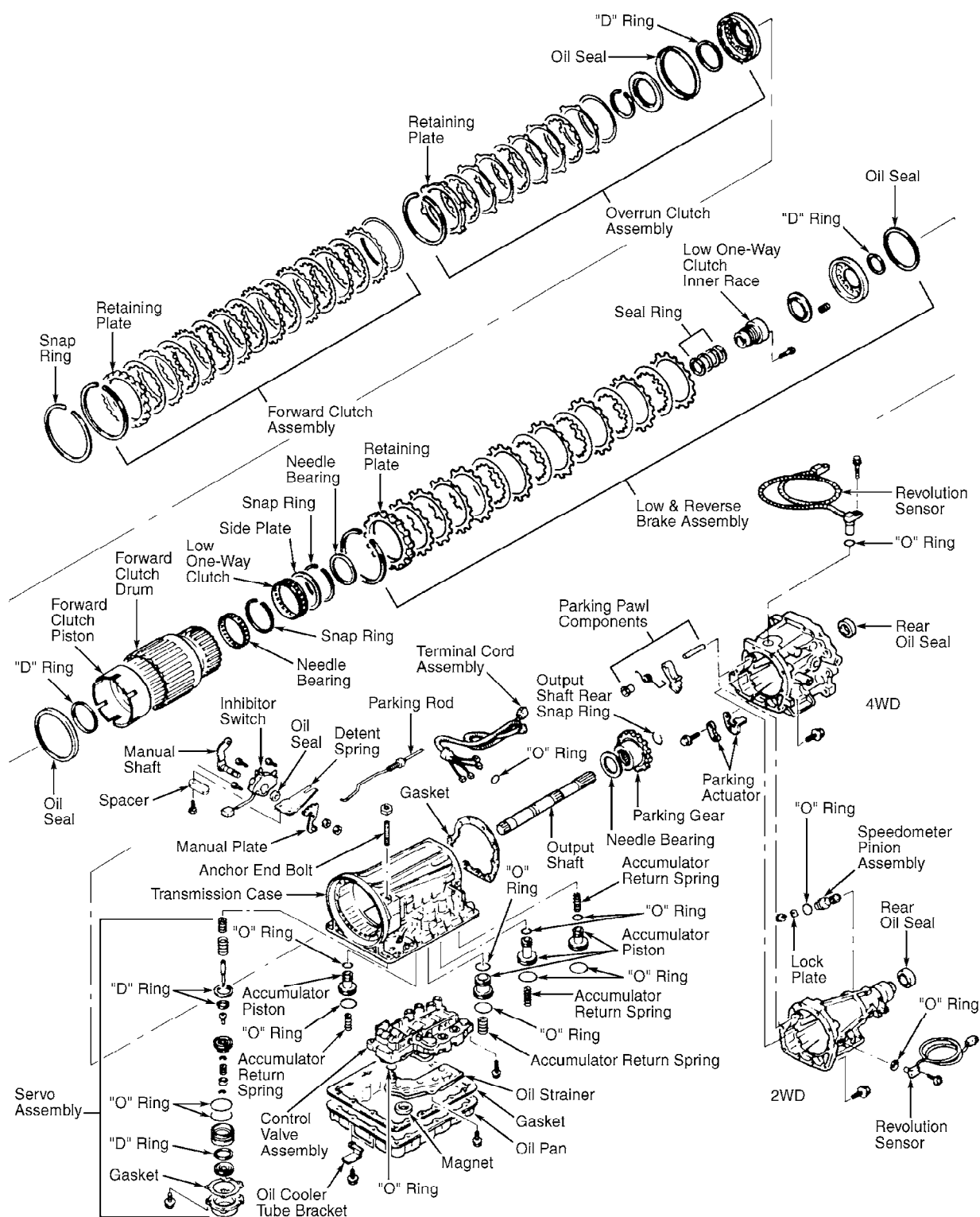
8) Remove needle bearing from overrun clutch hub. Separate overrun clutch hub from rear internal gear and forward clutch hub. Remove thrust washer from overrun clutch hub. Remove forward clutch assembly from transmission case.

9) Remove band servo assembly from transmission case. Remove springs and accumulator pistons. See Figs. 49-51. Remove manual shaft (if necessary).



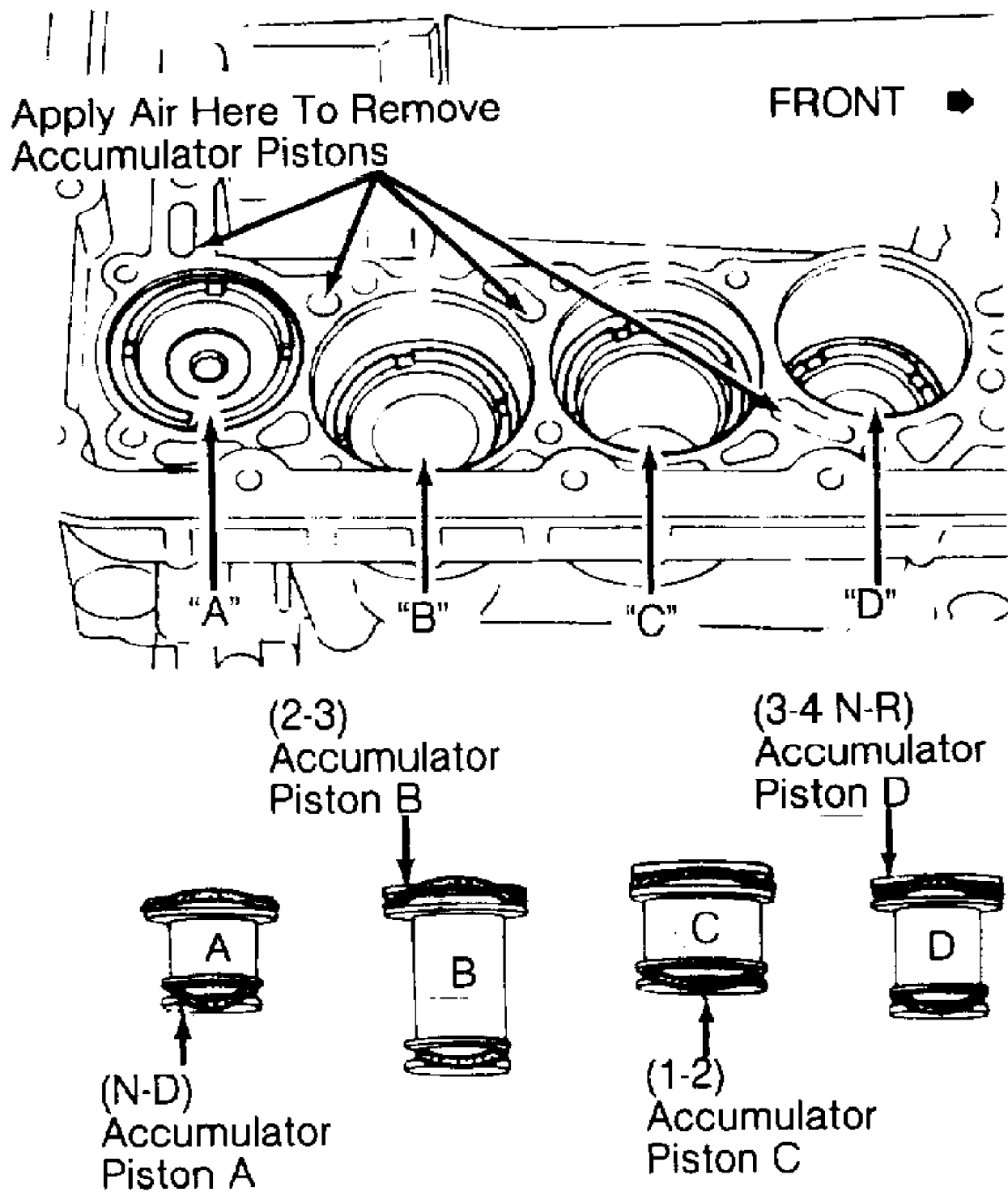
93F22611  
 Fig. 48: Exploded View Of A/T Components (RE4R01A, RE4R03A & RL4R01A)  
 Courtesy of Nissan Motor Co., U.S.A.





93G22612  
 Fig. 49: Exploded View Of A/T Case Components (RE4R01A & RE4R03A)  
 Courtesy of Nissan Motor Co., U.S.A.





**95F20003**

Fig. 51: Locating & Removing Accumulator Pistons  
Courtesy of Nissan Motor Co., U.S.A.

## OIL PUMP

### Disassembly

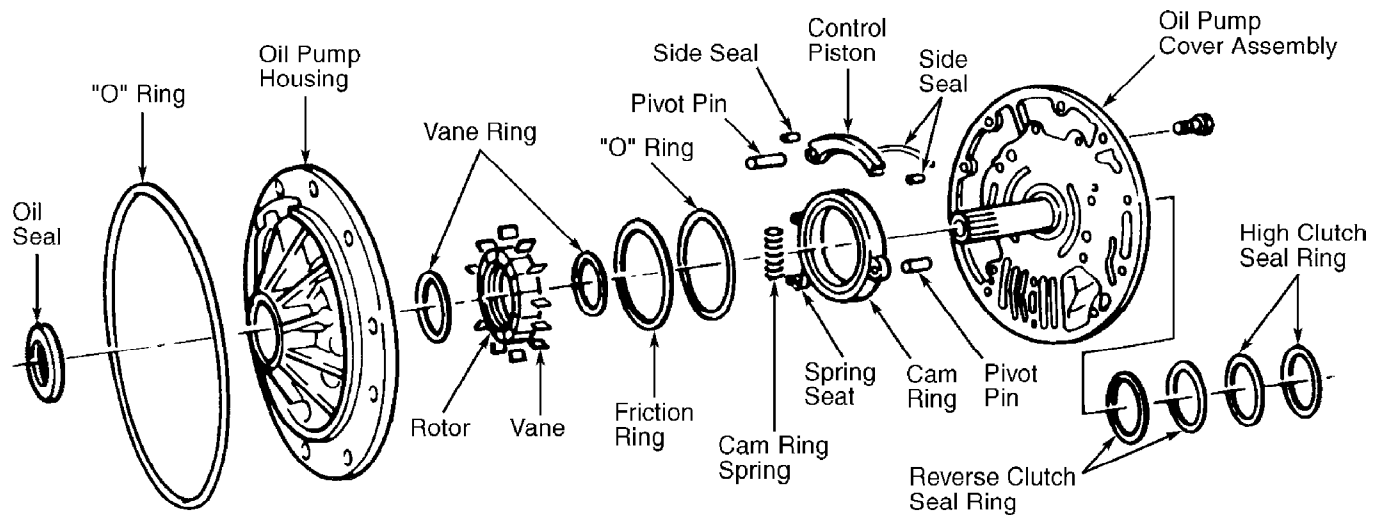
1) Loosen bolts in numerical order and remove oil pump cover. See Fig. 53. Mark direction of rotor for reassembly reference. Remove rotor, vane rings and vanes. See Fig. 52.

2) Remove pivot pin while pushing on cam ring. DO NOT scratch oil pump housing. Remove cam ring and spring from oil pump housing. Remove pivot pin from control piston and remove control piston assembly. Remove oil seal from oil pump housing.

### Inspection

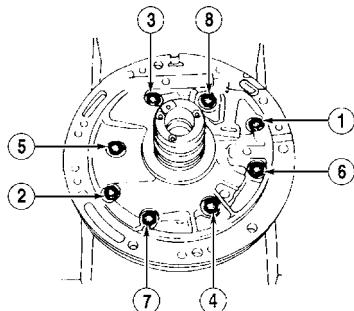
1) To measure side clearances, ensure friction rings, "O" ring, control piston side seals and cam ring are removed. Measure side clearances between end of oil pump housing and cam ring, rotor, vanes and control piston in at least 4 places along circumferences. Refer to the Fig. 54.

2) Standard clearance for cam ring is .0004-.0009" (.010-.023 mm). Standard clearance for rotor, vanes and control piston is .0012-.0017" (.030-.043 mm). Measure clearance between seal rings and ring grooves. Standard clearance is .004-.010" (.10-.25 mm), with a wear limit of .010" (.25 mm). If clearance is not within wear limit, replace oil pump cover assembly.



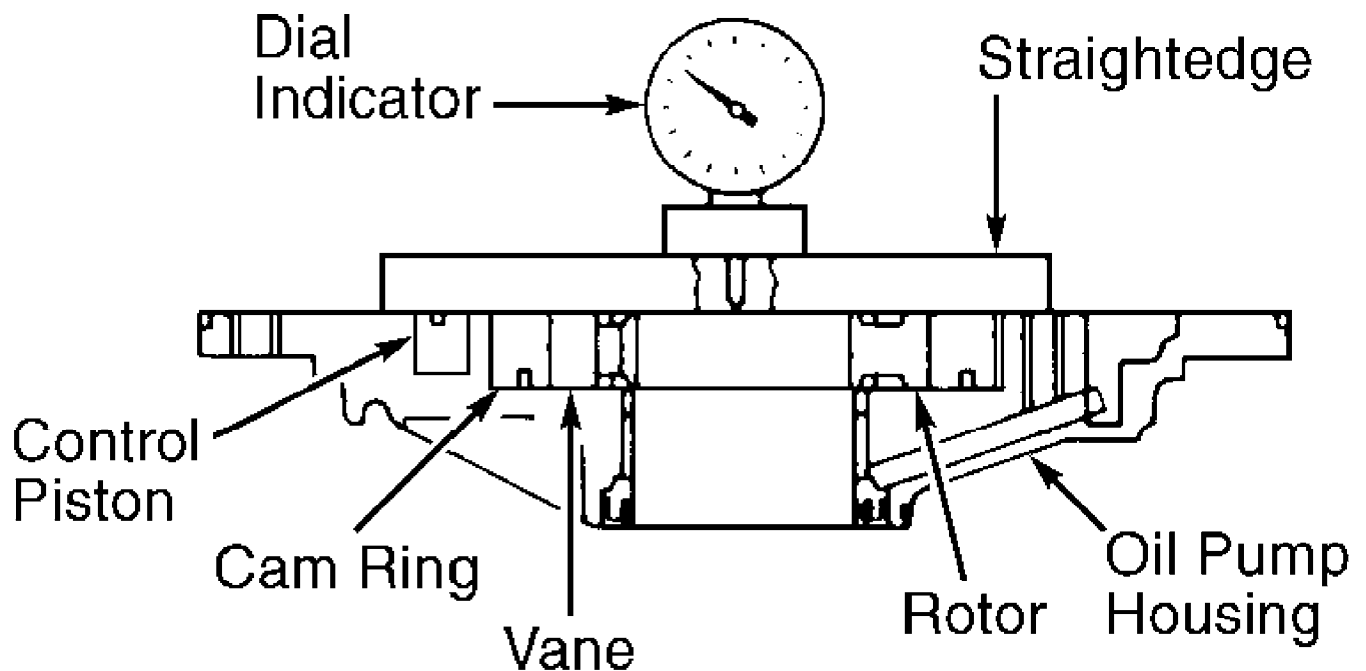
93A22616

Fig. 52: Exploded View Of Oil Pump Assembly  
Courtesy of Nissan Motor Co., U.S.A.



93J22615

Fig. 53: Removing & Installing Oil Pump Bolts  
Courtesy of Nissan Motor Co., U.S.A.



**93B22617**

Fig. 54: Checking Oil Pump Side Clearances  
Courtesy of Nissan Motor Co., U.S.A.

#### 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. Tighten bolts to 12-15 ft. lbs (16-21 N.m) in crisscross pattern. See Fig. 53. Pack ring grooves with petroleum jelly and install seal rings. Ensure 2 different diameter seal rings are in proper positions. Large diameter rings are installed near oil pump housing.

### 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. Place upper body face down and remove bolts, reamer bolts and support plates.

2) Remove lower body, separator plate and gasket as a unit from upper body. Place lower body face down and remove separator plate and gasket. See Fig. 66. Remove pilot filter, orifice check valve and orifice check spring. Ensure steel check balls are in proper positions and remove. See Fig. 55.

#### Inspection

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. Inspect separator plates for

damage, deformation and clean oil holes. Ensure pilot, lock-up solenoid and line pressure solenoid filters are clean.

#### Reassembly

1) Place oil circuit of upper body face up. Install steel check balls in proper locations. See Fig. 55. Install reamer bolts from bottom of upper body and install separator gasket. See Fig. 56.

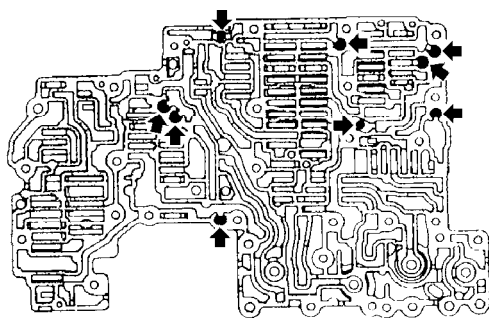
2) Position oil circuit of lower body face up and install orifice check spring, orifice check valve and pilot filter. Refer to the Fig. 57. Install lower separator gasket and separator plate on lower body.

3) Install and temporarily tighten support plates, fluid temperature sensor and tube brackets. Ensure separator plate is installed correctly. 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.

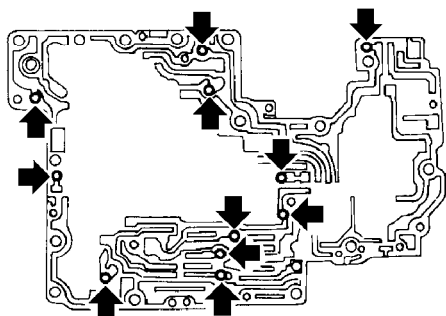
NOTE: To prevent incorrect shift patterns, ensure side plate check ball is installed in correct location. See Fig. 66. Also ensure servo piston retainer is installed with notches facing servo retainer cover. See Figs. 70 and 72.

4) Install and temporarily tighten bolts and tube brackets in the proper locations. See Fig. 58-61. 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. Tighten bolts and nuts to 45-58 INCH lbs. (5.1-6.5 N.m).



RE4R01A & RE4R03A

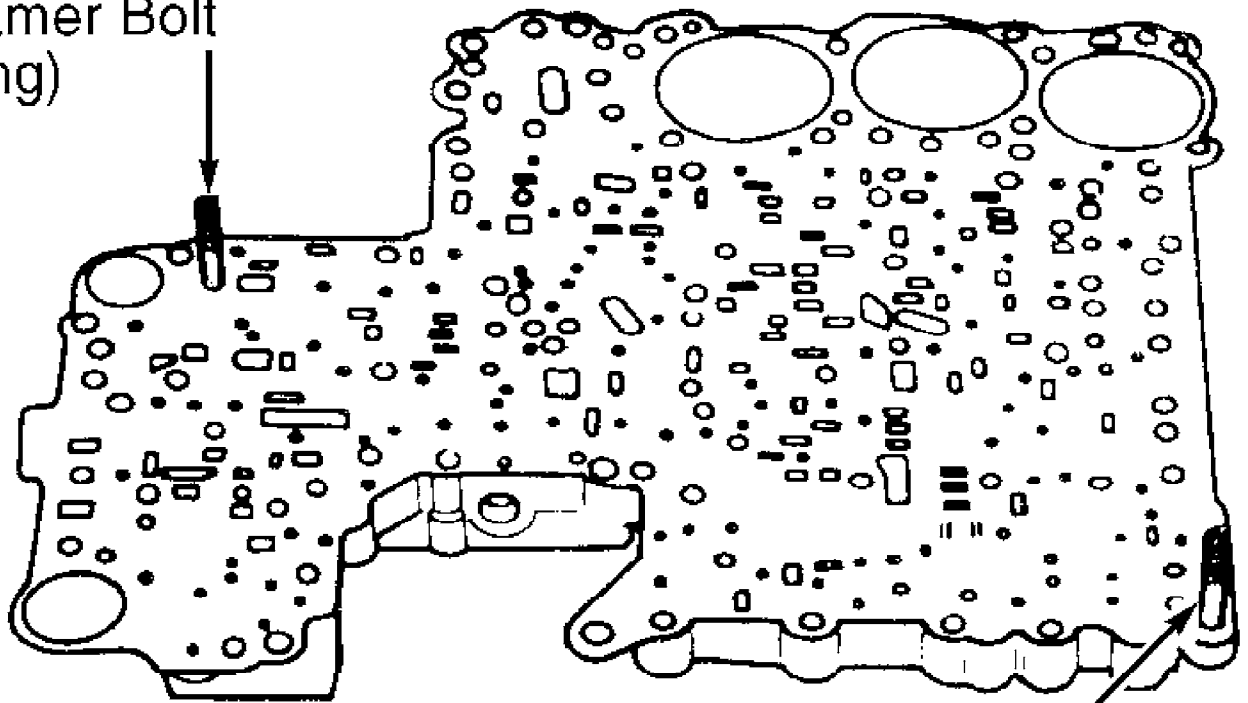


RL4R01A

93C22618

Fig. 55: Steel Check Ball Locations  
Courtesy of Nissan Motor Co., U.S.A.

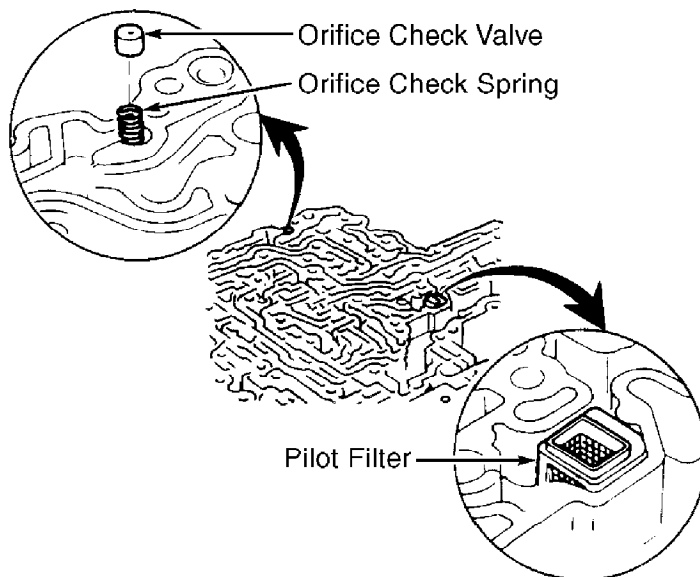
Reamer Bolt  
(Long)



Reamer Bolt (Short)

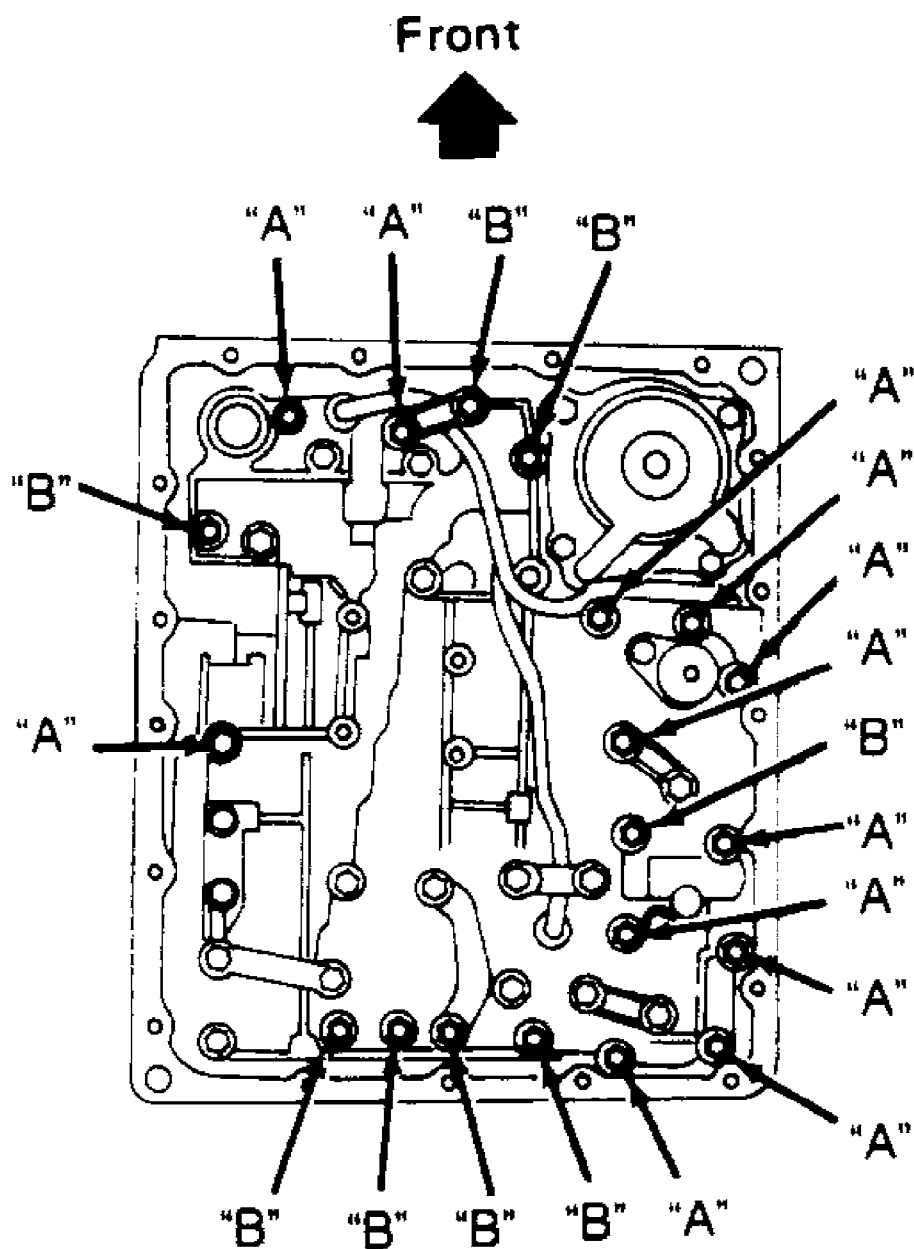
93D22619

Fig. 56: Reamer Bolt Locations (RE4R01A & RE4R03A Shown; RL4R01A is Similar)  
Courtesy of Nissan Motor Co., U.S.A.



93G22620

Fig. 57: Locating Pilot Filter & Orifice Check Spring  
(RE4R01A & RE4R03A)  
Courtesy of Nissan Motor Co., U.S.A.



## VALVE BODY REMOVAL RE4R01A & RE4R03A

Bolt Length INCH (mm)

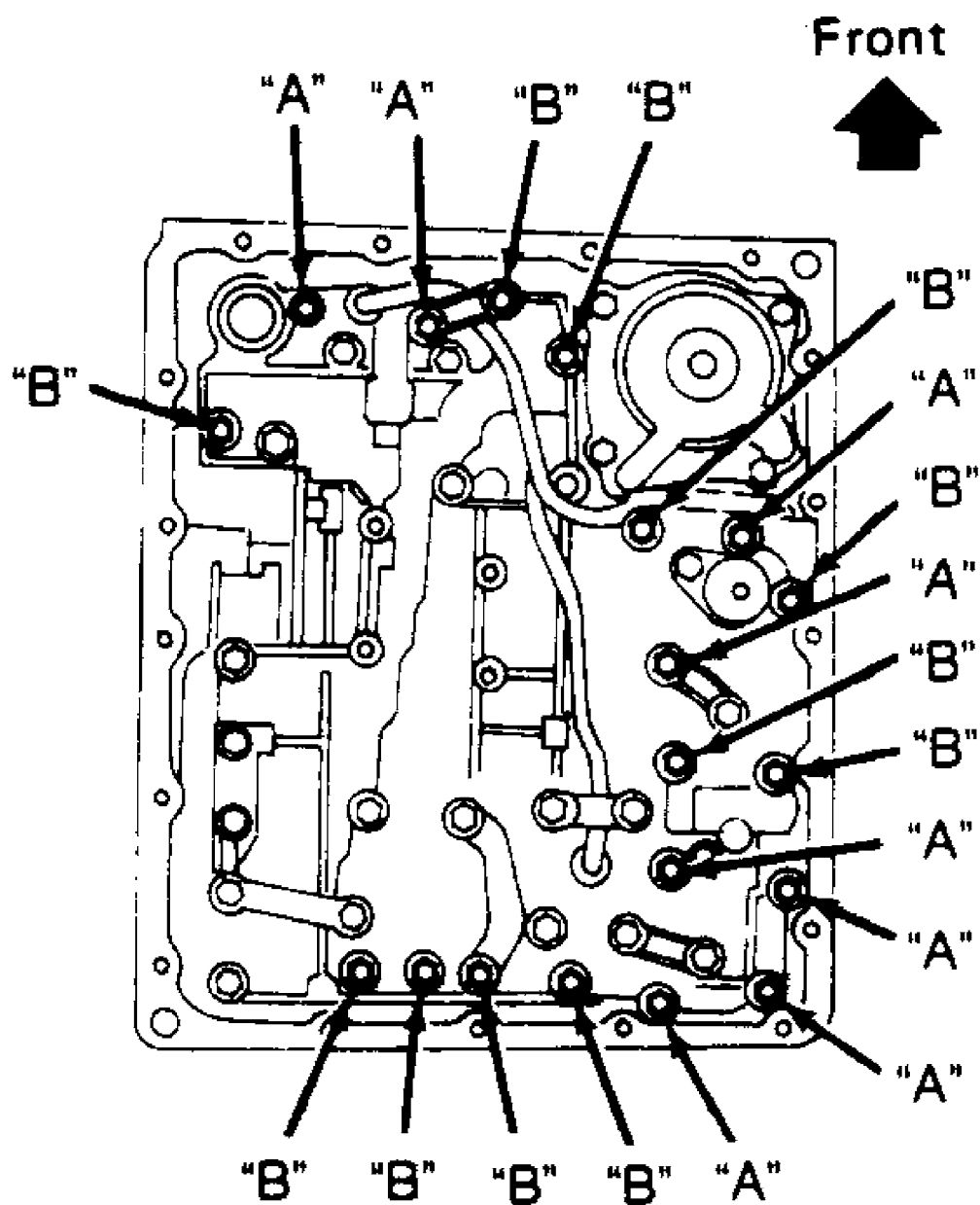
A = 1.30 (33.0)

B = 1.77 (45.0)

**93H22621**

Fig. 58: Valve Body Removal (RE4R01A & RE4R03A)  
Courtesy of Nissan Motor Co., U.S.A.





## VALVE BODY REMOVAL RL4R01A

Bolt Length INCH (mm)

A = 1.30 (33.0)

B = 1.77 (45.0)

93G22687

Fig. 59: Valve Body Removal (RL4R01A)  
Courtesy of Nissan Motor Co., U.S.A.

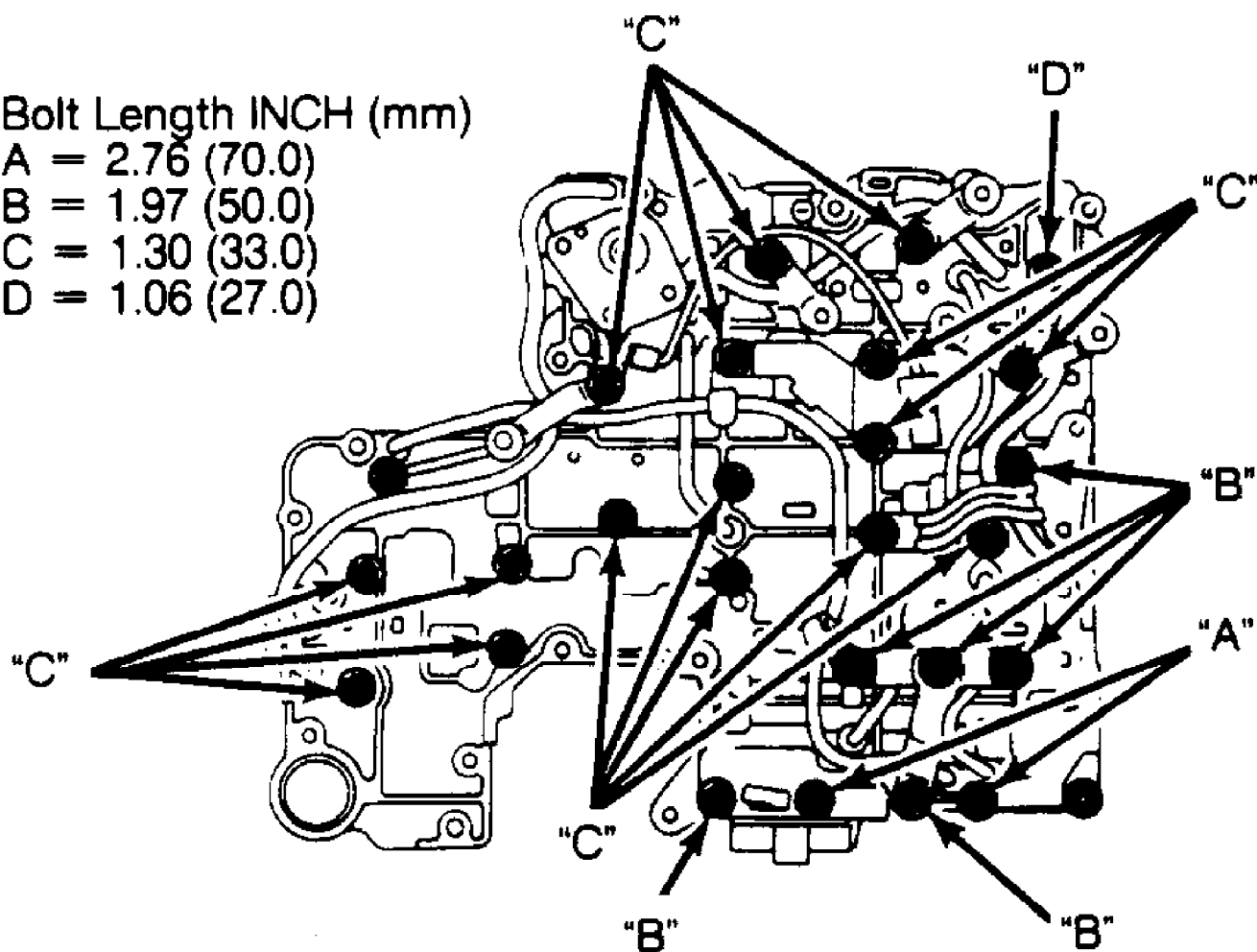
Bolt Length INCH (mm)

A = 2.76 (70.0)

B = 1.97 (50.0)

C = 1.30 (33.0)

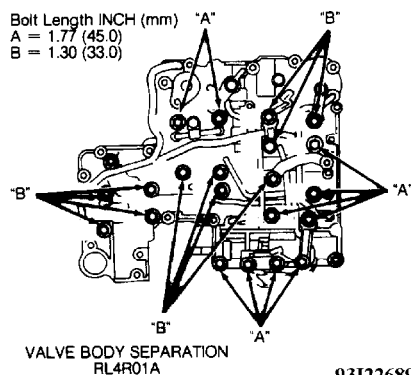
D = 1.06 (27.0)



## VALVE BODY SEPARATION RE4R01A & RE4R03A

93H22688

Fig. 60: Valve Body Separation (RE4R01A & RE4R03A)  
Courtesy of Nissan Motor Co., U.S.A.



93I22689

Fig. 61: Valve Body Separation (RL4R01A)  
Courtesy of Nissan Motor Co., U.S.A.

CONTROL VALVE UPPER BODY

### Disassembly

Remove valves at parallel pins. Remove plugs slowly to prevent internal parts from springing out. Place mating surface of valve body face down and remove internal parts. Remove valves at retainer plates while holding springs. Position mating surface of body face down and remove internal parts.

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

### Inspection

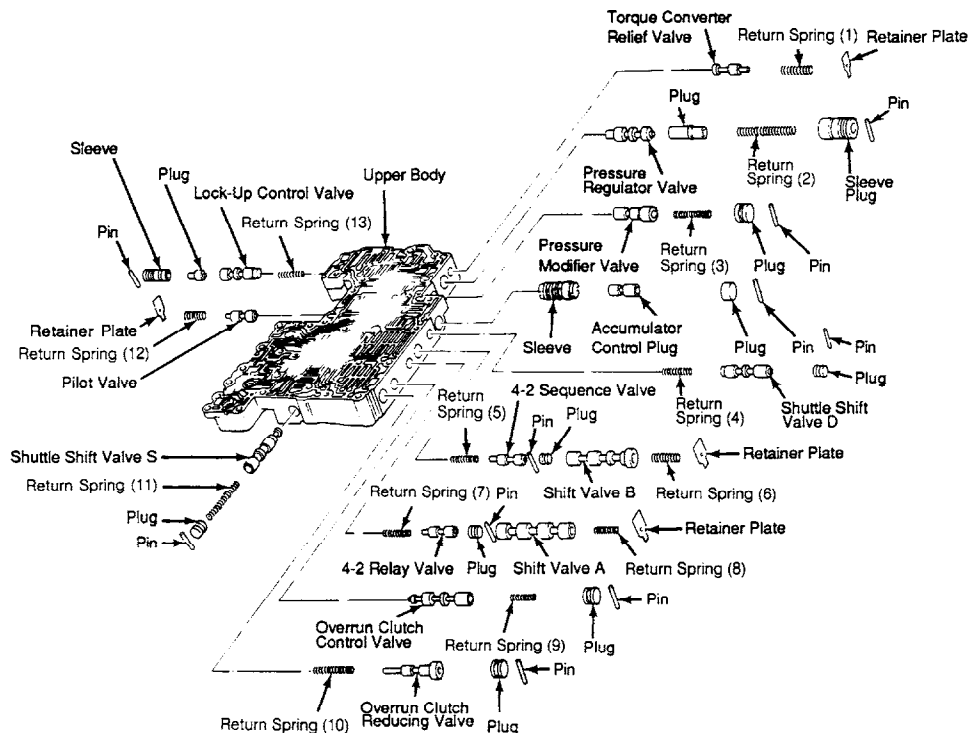
Check valve springs for damage or deformation. Replace spring if specifications in UPPER VALVE BODY SPRING SPECIFICATIONS tables are exceeded. Inspect sliding surfaces of valves, sleeves and plugs for wear or damage.

### Reassembly

Lubricate control valve body and all valves with ATF. Install control valves, plugs, sleeves, retainer plates and parallel pins. See Figs. 62 and 63.

NOTE: Vehicles equipped with RL4R01A transmission may experience disengagement of 4th gear at highway speeds. Disengagement does not occur at lower speeds. If this condition is present, cause may be broken or cracked plug at lock-up control valve in control valve upper body. See Fig. 63. To correct this condition, replace plug. Ensure NEW plug fits snug into valve body.

## UPPER VALVE BODY SPRING SPECIFICATIONS TABLES

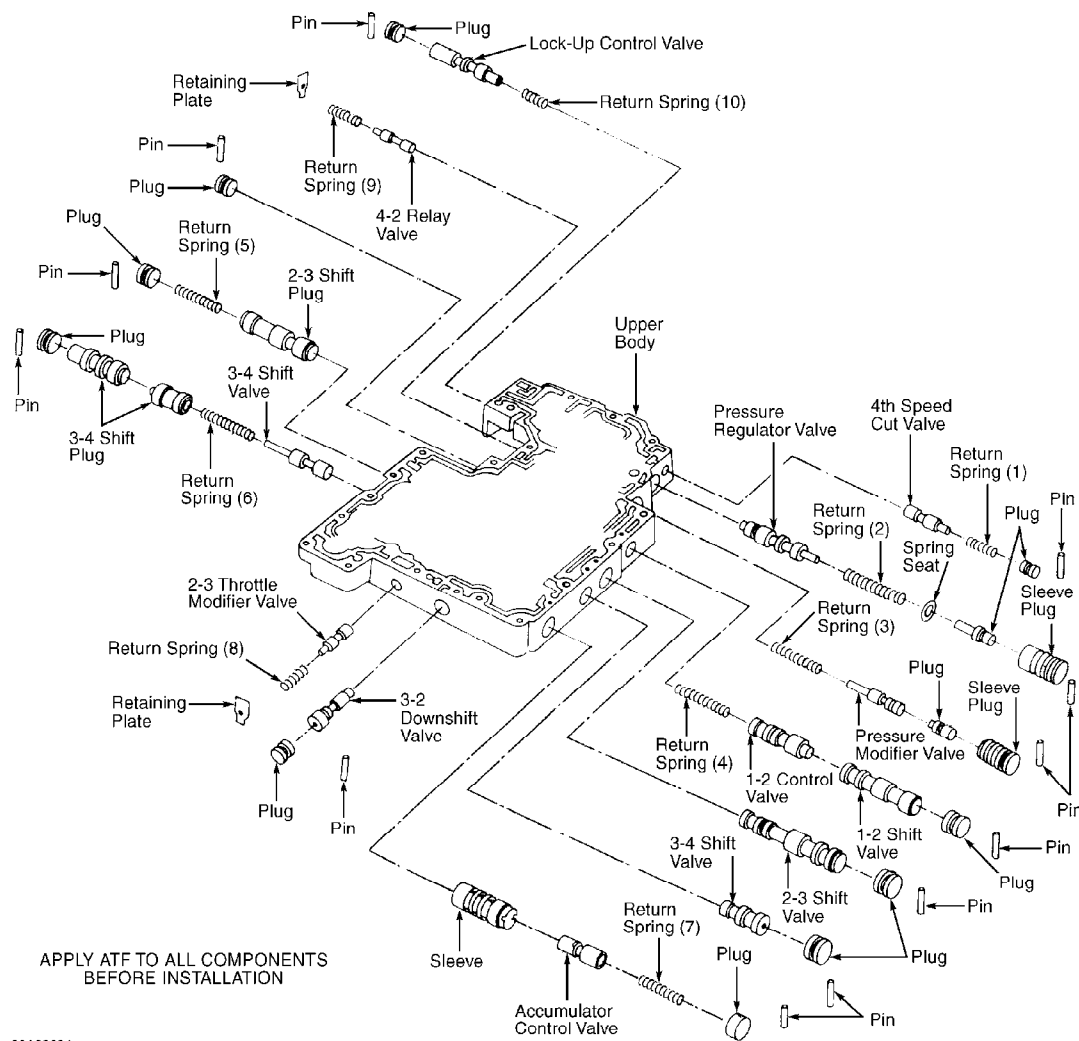


93122622

Fig. 62: Control Valve Upper Body (RE4R01A & RE4R03A)  
Courtesy of Nissan Motor Co., U.S.A.

UPPER VALVE BODY SPRING SPECIFICATIONS (RE4R01A & RE4R03A)

Fig. 62				
Identification No.		Length		Diameter
		In. (mm)		In. (mm)
1	.....	1.50 (38.0)	.....	.354 (9.0)
2	.....	1.73 (44.02)	.....	.551 (14.0)
3	.....	1.258 (31.95)	.....	.268 (6.8)
4	.....	1.04 (26.5)	.....	.236 (6.0)
5	.....	1.146 (29.1)	.....	.274 (6.95)
6	.....	.984 (25.0)	.....	.276 (7.0)
7	.....	1.146 (29.1)	.....	.274 (6.95)
8	.....	.984 (25.0)	.....	.276 (7.0)
9	.....	.929 (23.6)	.....	.276 (7.0)
10	.....	1.28 (32.5)	.....	.276 (7.0)
11	.....	2.00 (51.0)	.....	.222 (5.65)
12	.....	1.01 (25.7)	.....	.358 (9.1)
13	.....	.728 (18.5)	.....	.512 (13.0)



93A22624  
Fig. 63: Control Valve Upper Body (RL4R01A)  
Courtesy of Nissan Motor Co., U.S.A.

#### UPPER VALVE BODY SPRING SPECIFICATIONS (RL4R01A)

Fig. 63		Length		Diameter	
Identification No.		In. (mm)		In. (mm)	
1	.....	.925	(23.5)	.....	.276 (7.0)
2	.....	1.909	(48.5)	.....	.476 (12.1)
3	.....	1.607	(40.83)	.....	.315 (8.0)
4	.....	1.709	(43.4)	.....	.236 (6.0)
5	.....	1.681	(42.7)	.....	.354 (9.0)
6	.....	1.733	(44.03)	.....	.315 (8.0)
7	.....	1.154	(29.3)	.....	.315 (8.0)
8	.....	1.299	(33.0)	.....	.256 (6.5)
9	.....	1.146	(29.1)	.....	.274 (6.95)
10	.....	.787	(20.0)	.....	.215 (5.45)

CONTROL VALVE LOWER BODY

Disassembly & Inspection

Remove valves at retainer plates and parallel pins. Check valve springs for damage or deformation. Replace spring if specifications in LOWER VALVE BODY SPRING SPECIFICATIONS tables are exceeded. 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, sleeves, retainer plates, plugs and pins. See Figs. 64 and 65.

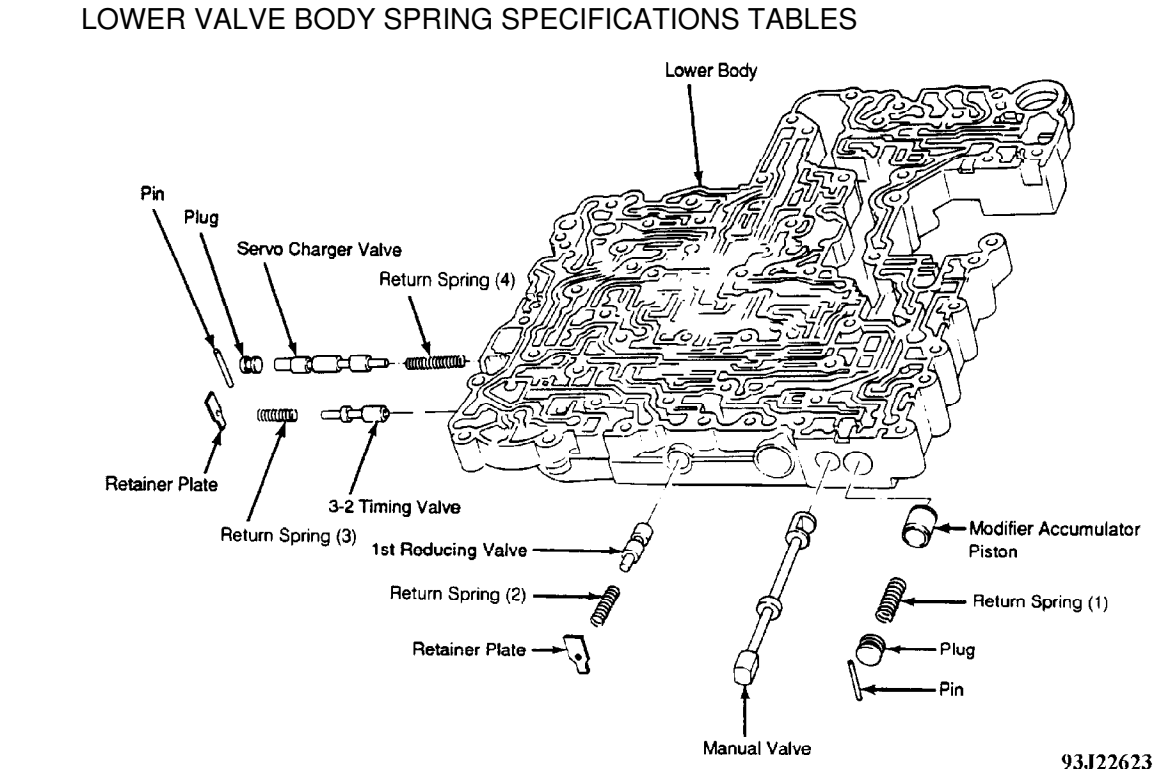
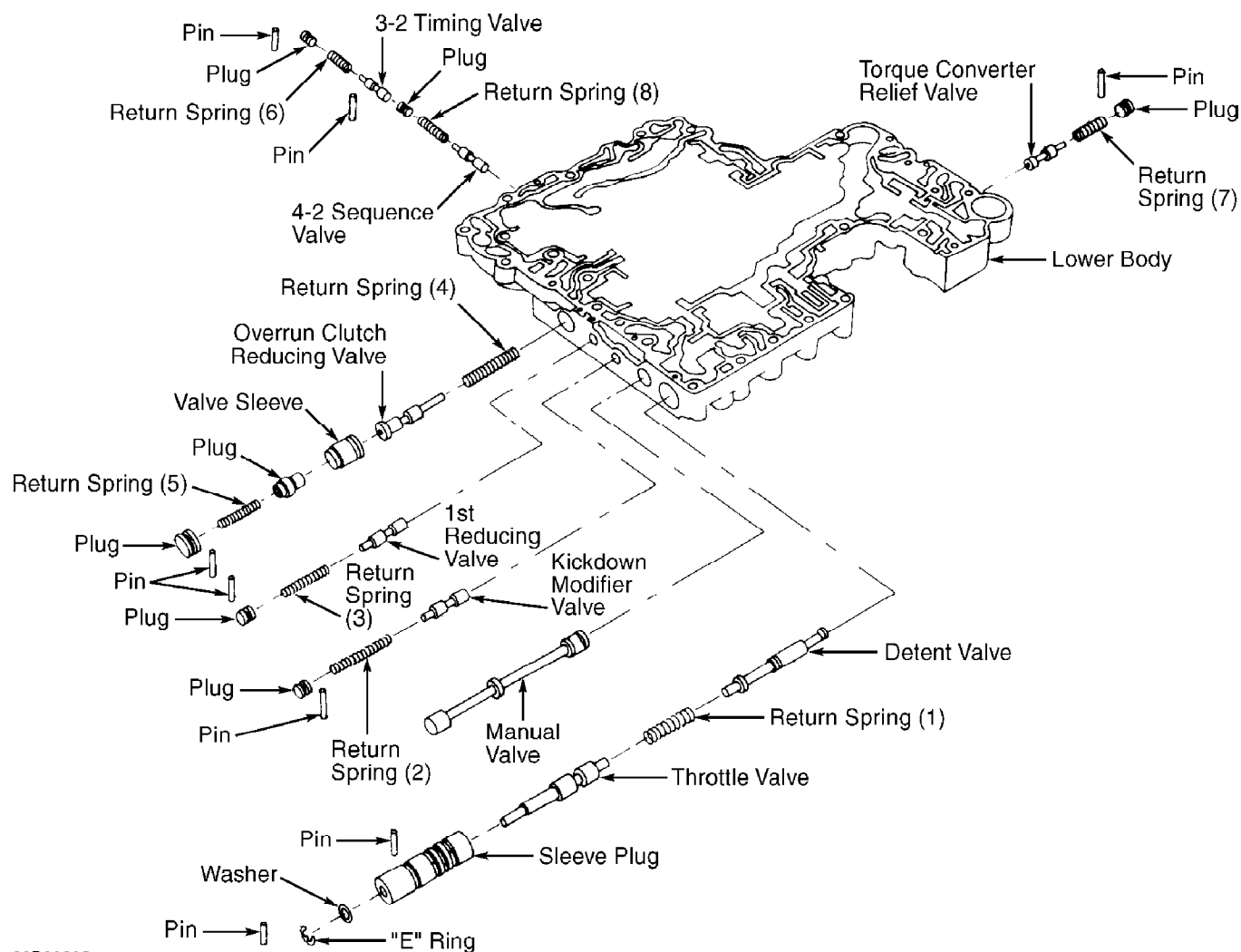


Fig. 64: Control Valve Lower Body (RE4R01A & RE4R03A)  
 Courtesy of Nissan Motor Co., U.S.A.

Fig. 64

Identification No.	Length In. (mm)	Diameter In. (mm)
1 .....	1.236 (31.4)	.386 (9.8)
2 .....	1.00 (25.4)	.266 (6.75)
3 .....	.809 (20.55)	.266 (6.75)
4 .....	.906 (23.0)	.264 (6.7)



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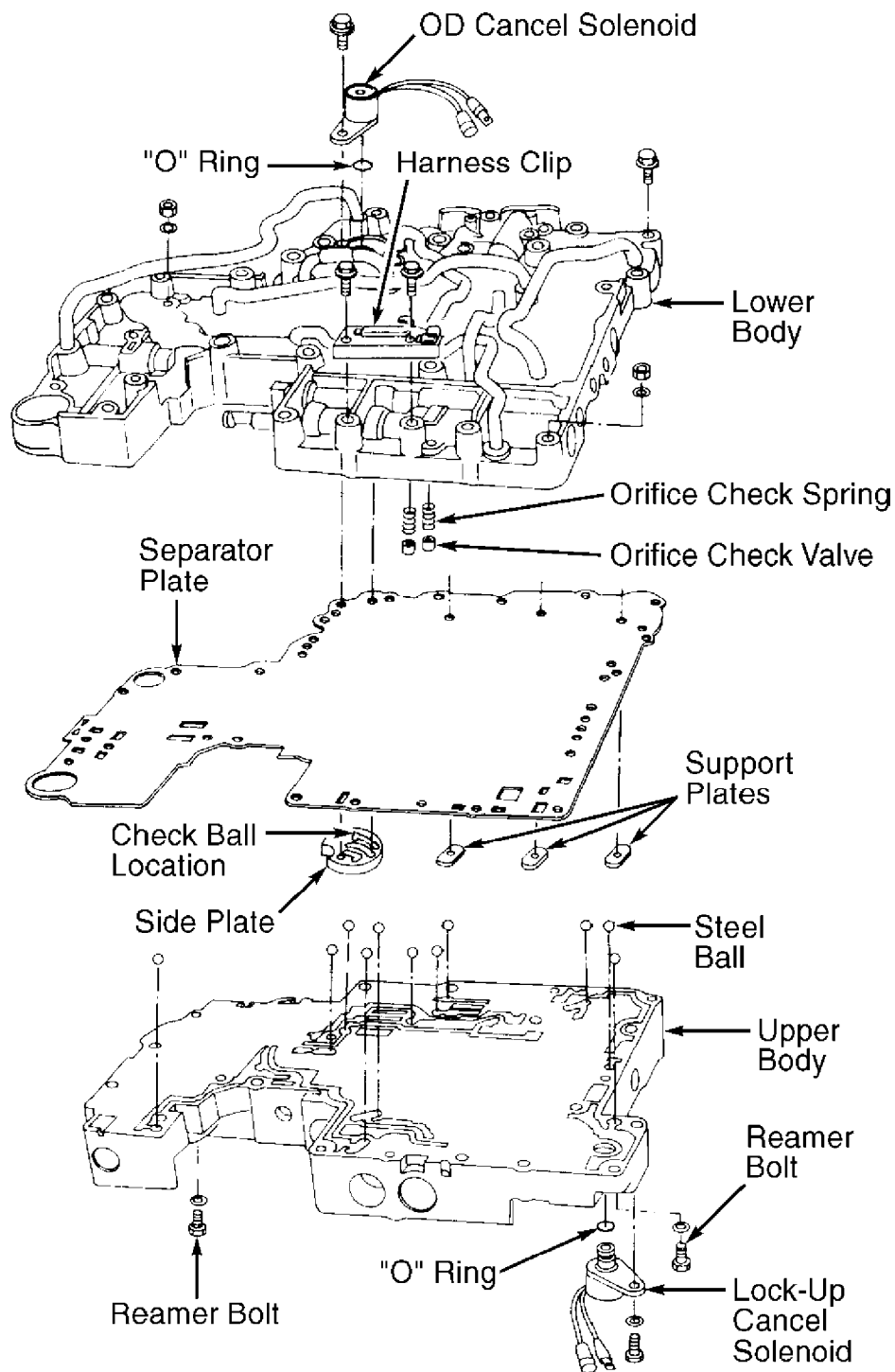
Fig. 65: Control Valve Lower Body (RL4R01A)

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

LOWER VALVE BODY SPRING SPECIFICATIONS (RL4R01A)

Fig. 65

Identification No.	Length In. (mm)	Diameter In. (mm)
1 .....	1.348 (34.23)	.433 (11.0)
2 .....	1.783 (45.3)	.276 (7.0)
3 .....	1.169 (29.7)	.283 (7.2)
4 .....	1.772 (45.0)	.293 (7.45)
5 .....	1.220 (31.0)	.205 (5.2)
6 .....	.906 (23.0)	.276 (7.0)
7 .....	1.496 (38.0)	.354 (9.0)



95D20027  
 Fig. 66: Control Valve Assembly (RL4R01A Shown: Others Similar)  
 Courtesy of Nissan Motor Co., U.S.A.

## REVERSE CLUTCH

#### Disassembly

Remove snap ring from reverse clutch assembly. Remove drive plates, driven plates, retaining plate and dish plate. Record number of plates for reassembly reference. See Fig. 48. Remove snap ring from clutch drum while compressing springs. Remove spring retainer and return springs.

#### Inspection

1) Check return spring length and outside diameter, and for deformation or damage. On RE4R01A and RL4R01A transmission, spring length is .775" (19.69 mm). Outside diameter is .457" (11.61 mm). On RE4R03A transmission, spring length is 1.488" (37.80 mm). Outside diameter is .583" (14.81 mm). Replace springs if not within specification.

2) 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.

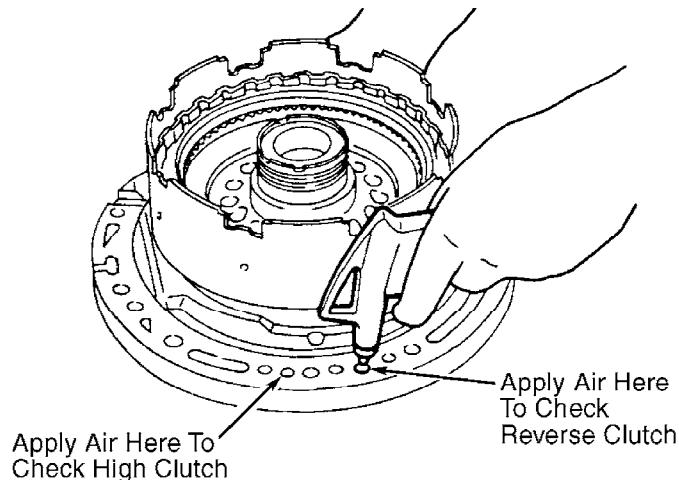
#### Reassembly

1) Prior to installation, apply ATF to "D" ring and oil seal. Install "D" ring and oil seal on piston. Apply ATF to inner surface of drum. Install piston assembly while turning slowly. 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.

2) Measure clearance between retaining plate and snap ring. Specified clearance is .020-.031" (.50-.80 mm). Allowable limit is .055" (1.40 mm) for Q45 and 300ZX Turbo. Allowable limit for all other models is .047" (1.20 mm). Retaining plate is available in selective thicknesses of .18-.23" (4.6-5.8 mm) in .008" (.20 mm) increments.

3) Check reverse clutch operation. Install seal ring onto oil pump cover and install reverse clutch. Apply compressed air to oil hole. See Fig. 67. Ensure retaining plate moves toward snap ring. If retaining plate does not move as described, "D" ring or oil seal may be damaged, or fluid may be leaking at piston check ball.



95G20004

Fig. 67: Checking Reverse & High Clutch Operation  
Courtesy of Nissan Motor Co., U.S.A.

## HIGH CLUTCH



1) Service procedures for high clutch are the same as given for reverse clutch. Drive plate thickness is .063" (1.60 mm) with allowable limit of .055" (1.40 mm). Specified clearance is .071-.087" (1.80-2.20 mm). For allowable limit, see TRANSMISSION SPECIFICATIONS table. Retaining plate is available in selective thicknesses of .13-.19" (3.4-4.8 mm) in .008" (.20 mm) increments.

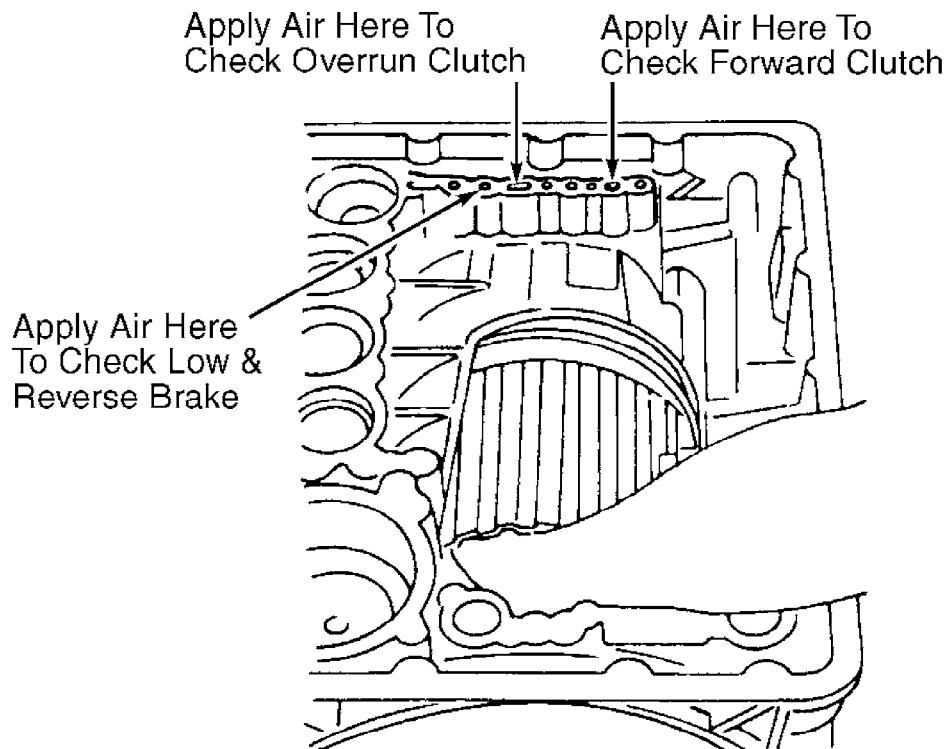
2) Check high clutch operation. Install seal ring onto oil pump cover and install high clutch. Apply compressed air to oil hole. See Fig. 67. Ensure retaining plate moves toward snap ring. If retaining plate does not move as described, "D" ring or oil seal may be damaged, or fluid may be leaking at piston check ball.

### FORWARD & OVERRUN CLUTCHES

1) Service procedures for forward and overrun clutches are the same as given for reverse clutch. For forward and overrun clutch specifications, see the TRANSMISSION SPECIFICATIONS table. Forward clutch and overrun clutch retaining plate is available in selective thicknesses of .16-.20" (4.0-5.2 mm) in .008" (.20 mm) increments.

2) Check return spring length and outside diameter, and for deformation or damage. On RE4R01A and RL4R01A transmission, spring length is 1.408" (35.76 mm). Outside diameter is .382" (9.70 mm). On RE4R03A transmission, spring length is 1.449" (36.80 mm). Outside diameter is .386" (9.80 mm). Replace springs if not within specification.

3) Check forward clutch and overrun clutch operation during reassembly procedure. Apply compressed air to appropriate hole in transmission case. See Fig. 68.



95H20005

Fig. 68: Checking Forward Clutch, Overrun Clutch & Low & Reverse Brake Operation

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

### LOW & REVERSE BRAKE

#### Disassembly

1) Remove snap ring, drive plates, driven plates and dish plate. Record number of plates for reassembly reference. 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. Check spring length and outside diameter. On RE4R01A and RL4R01A transmission, spring length is .933" (23.70 mm). Outside diameter is .457" (11.60 mm). On RE4R03A transmission, inner spring length is .804" (20.43 mm). Outer spring length is .801" (20.35 mm). Outside diameter for inner spring is .406" (10.30 mm). Outside diameter for outer spring is .512" (13.00 mm). Replace springs if not within specification.

2) Check low and reverse drive plates for burns, cracks or damage. Check frictional surface of inner race for wear or damage. Install NEW seal rings on low one-way clutch inner race and measure ring groove clearance. Groove clearance should be .004-.010" (.10-.25 mm). Allowable limit is .010" (.25 mm). Retaining plate is available in selective thicknesses of .35-.39" (9.0-10.0 mm) in .008" (.20 mm) increments. For low and reverse brake specifications, refer to the TRANSMISSION SPECIFICATIONS table.

#### 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. Install low one-way inner race seal ring with petroleum jelly.

3) Check low and reverse brake operation. Install seal ring onto oil pump cover and install high clutch. Apply compressed air to oil hole. See Fig. 68. Ensure retaining plate moves toward snap ring. If retaining plate does not move as described, "D" ring or oil seal may be damaged, or fluid may be leaking at piston check ball.

### FORWARD CLUTCH DRUM

#### Disassembly

Remove snap ring from forward clutch drum (if equipped). 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. See Fig. 49.

### REAR INTERNAL GEAR & FORWARD CLUTCH HUB

#### Disassembly

Remove rear internal gear by pushing forward clutch hub

forward. Remove thrust washer from rear internal gear. Remove snap ring from forward clutch hub. Remove forward one-way clutch and end bearing.

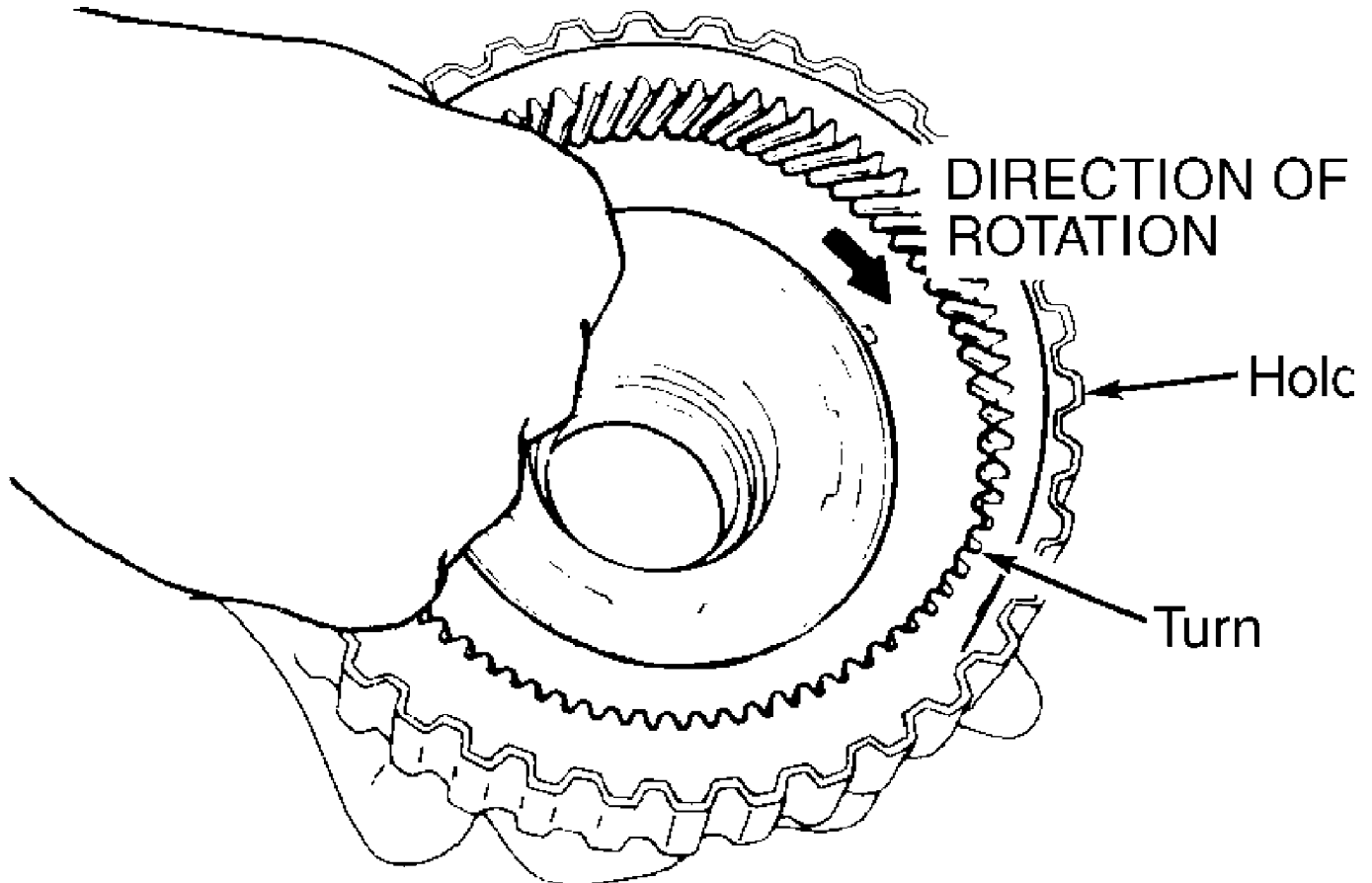
#### Inspection

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. See Fig. 50.

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. 69.



**93D22627**

Fig. 69: Checking Forward Clutch Hub Rotation  
Courtesy of Nissan Motor Co., U.S.A.

### 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 Figs. 70 and 71.

2) Remove band servo piston assembly from servo piston assembly by pushing forward. See Fig. 72. 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. Replace spring if the specifications in the BAND SERVO PISTON SPRING SPECIFICATIONS table are exceeded.

### Reassembly

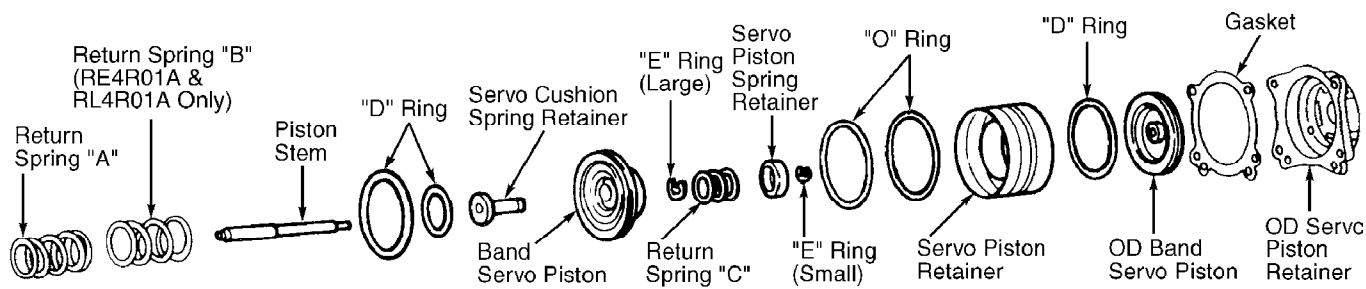
1) Apply ATF to "O" rings and install on servo piston retainer. Install servo cushion spring retainer on band servo piston. Install "E" ring on servo cushion spring retainer.

2) Apply ATF to "D" rings and 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. Refer to the Fig. 70.

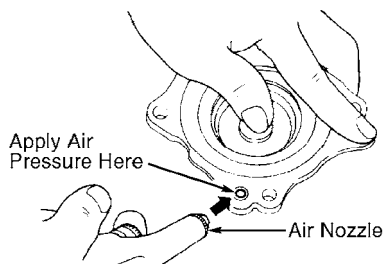
3) Install band servo piston assembly on servo piston retainer by pushing inward. Install "D" ring on OD band servo piston. Install OD band servo piston in servo piston retainer.

### BAND SERVO PISTON SPRING SPECIFICATIONS

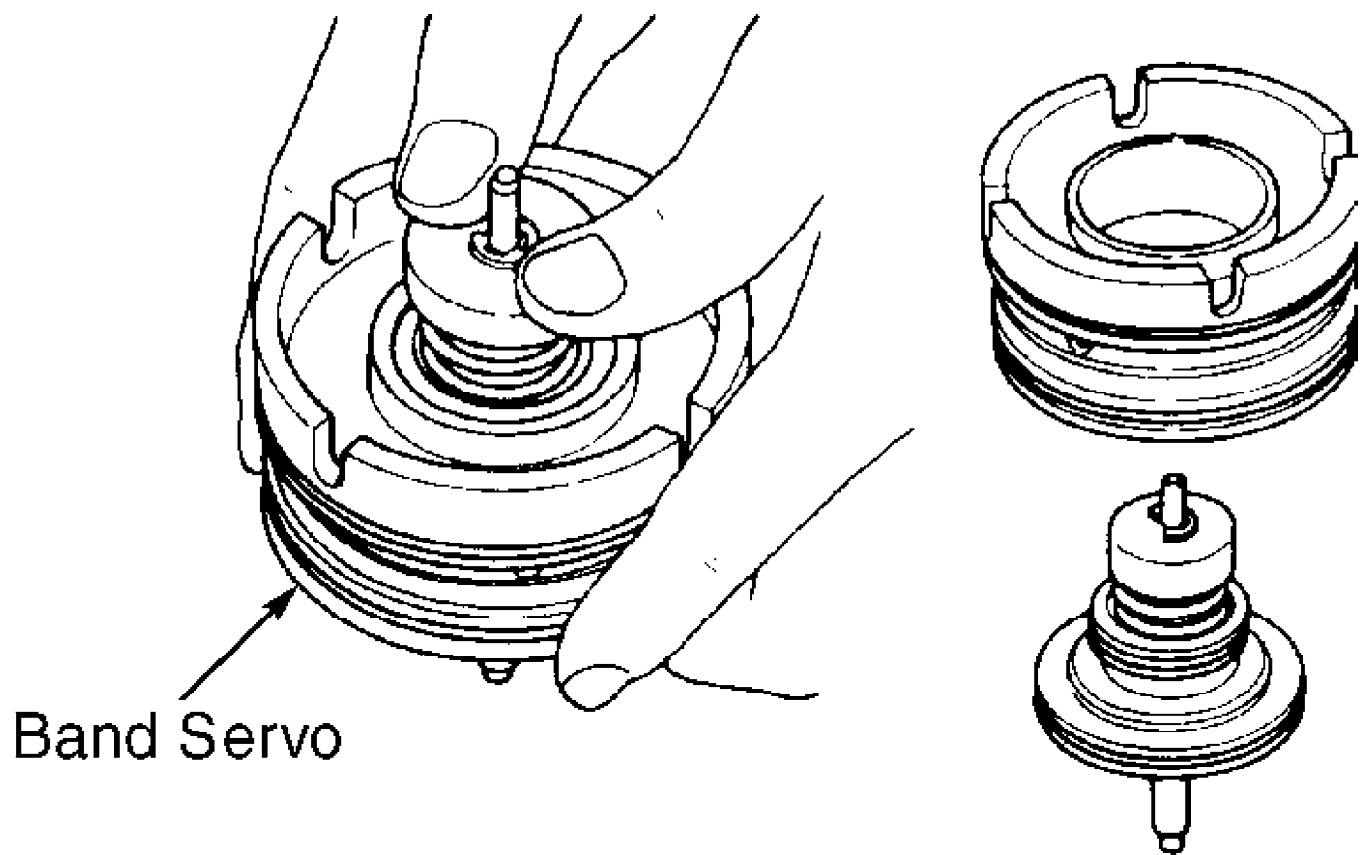
Fig. 49 Identification	Length In. (mm)	Diameter In. (mm)
Spring A .....	1.795 (45.6)	1.350 (34.3)
Spring B .....	2.118 (53.8)	1.587 (40.3)
Spring C .....	1.169 (29.7)	1.087 (27.6)



93E22628  
Fig. 70: Exploded View Of Band Servo Piston  
Courtesy of Nissan Motor Co., U.S.A.



93F22629  
Fig. 71: Removing OD Band Servo Piston  
Courtesy of Nissan Motor Co., U.S.A.



93I22630

Fig. 72: Disassembling Band Servo Piston  
Courtesy of Nissan Motor Co., U.S.A.

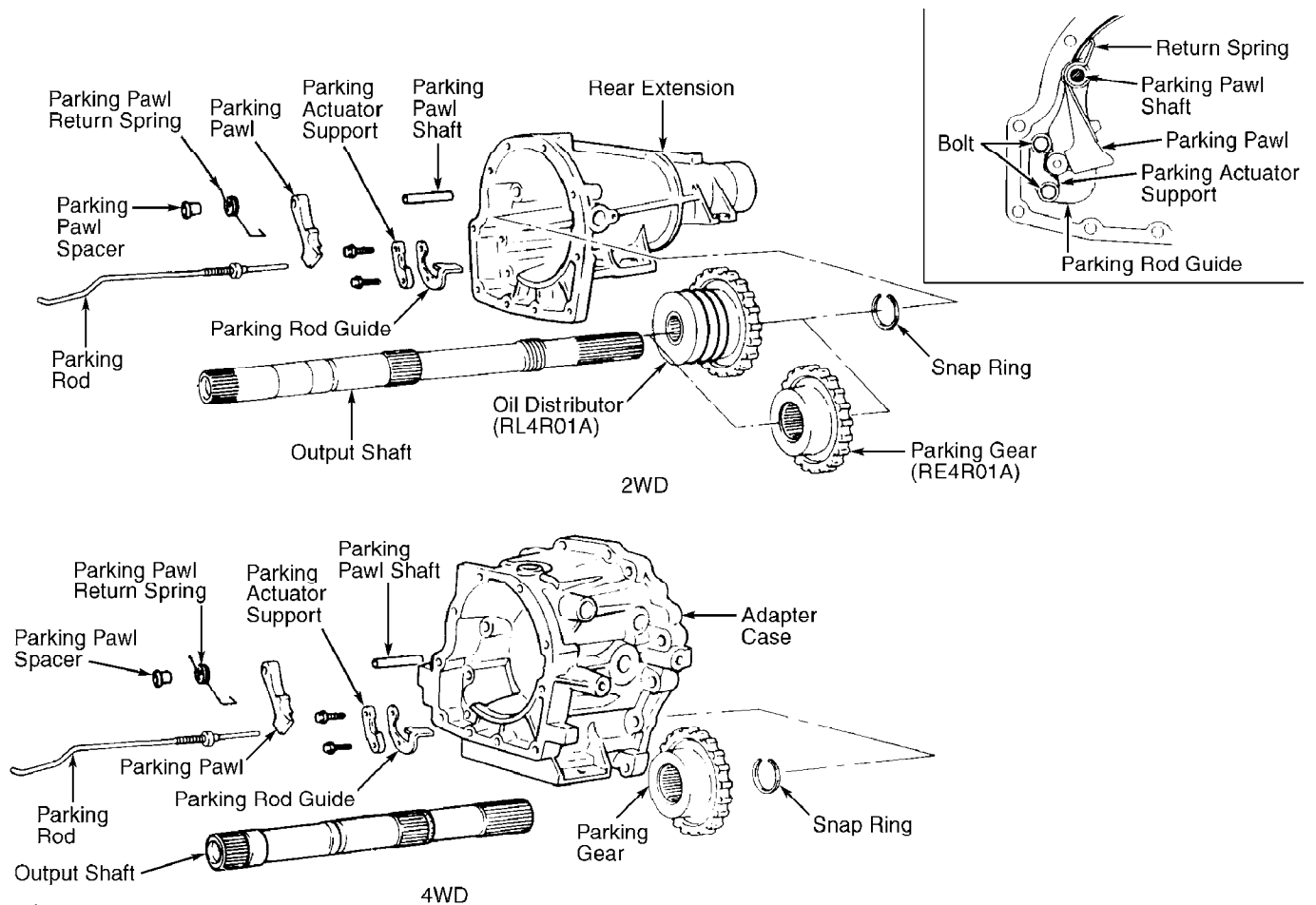
#### PARKING PAWL COMPONENTS

##### Disassembly

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

##### Inspection & Reassembly

Check contact surface of parking rod for wear. Install rod guide and parking actuator support on rear extension. See Fig. 73. Install return spring, pawl spacer and parking pawl on parking pawl shaft. Bend return spring upward and install on rear extension.



93J22631  
Fig. 73: Parking Components (RE4R01A, RE4R03A & RL4R01A)  
Courtesy of Nissan Motor Co., U.S.A.

## GOVERNOR VALVE ASSEMBLY (RL4R01A)

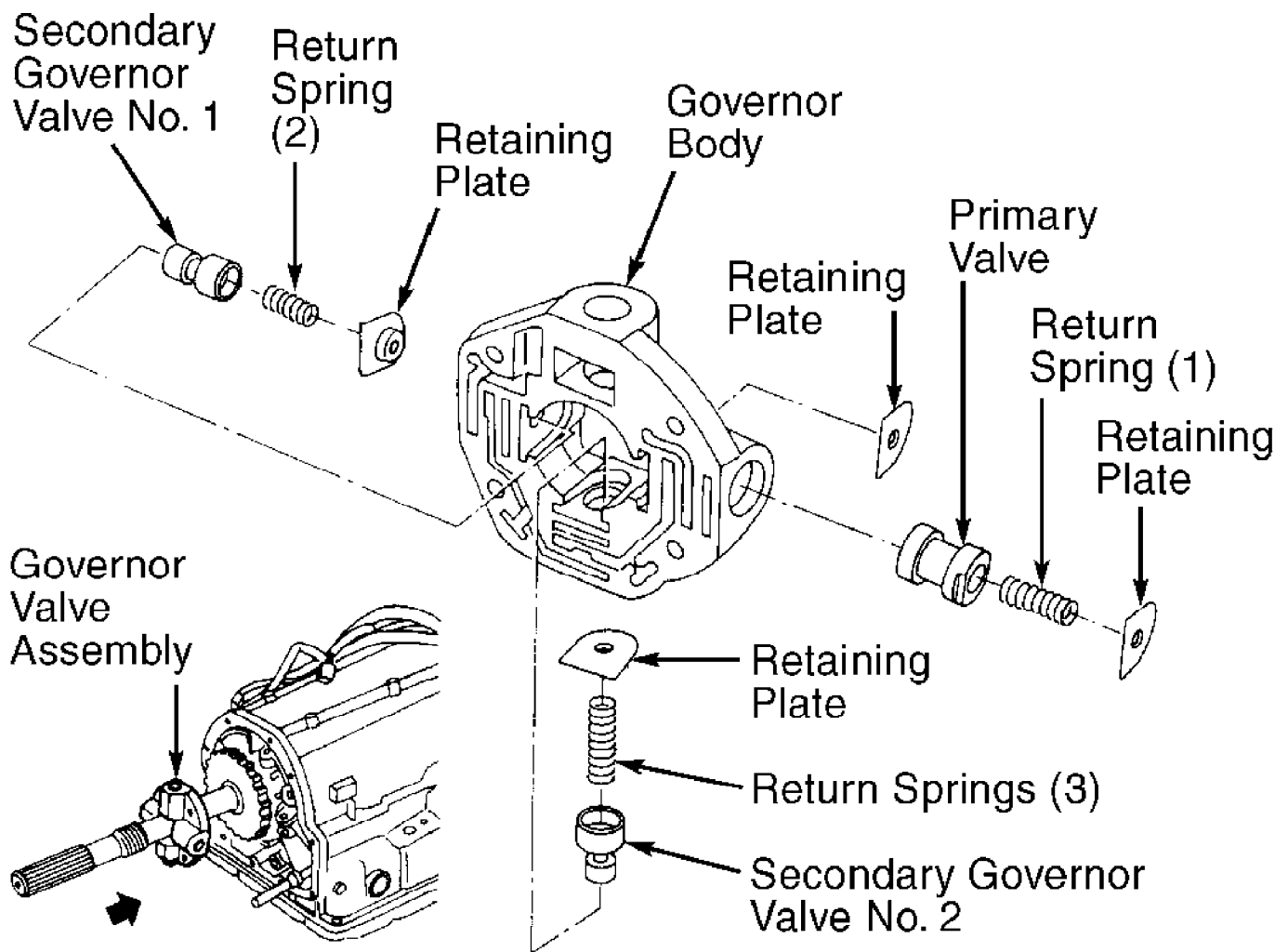
### Inspection & Reassembly

1) Check governor valves and valve body for indications of burning or scratches. Check return springs for damage or deformation. Check free length and diameter of springs. Replace return spring if specifications in the GOVERNOR VALVE SPRING SPECIFICATIONS table are exceeded. See Fig. 74.

2) Measure clearance between seal ring and ring groove. Standard clearance is .006-.016" (.15-.40 mm). Wear limit is .016" (.40 mm). Lubricate governor valve body and governor valves with ATF and reassemble.

### GOVERNOR VALVE SPRING SPECIFICATIONS

Fig. 53 Identification	Length		Diameter	
	In.	(mm)	In.	(mm)
Spring No. 1 .....	.75	(19.1)	.....	.356 (9.05)
Spring No. 2 .....	1.204	(30.58)	.....	.362 (9.20)
Spring No. 3 .....	.661	(16.80)	.....	.354 (9.00)



93A22632

Fig. 74: Exploded View Of Governor Valve Assembly (RL4R01)  
Courtesy of Nissan Motor Co., U.S.A.

## TRANSMISSION REASSEMBLY

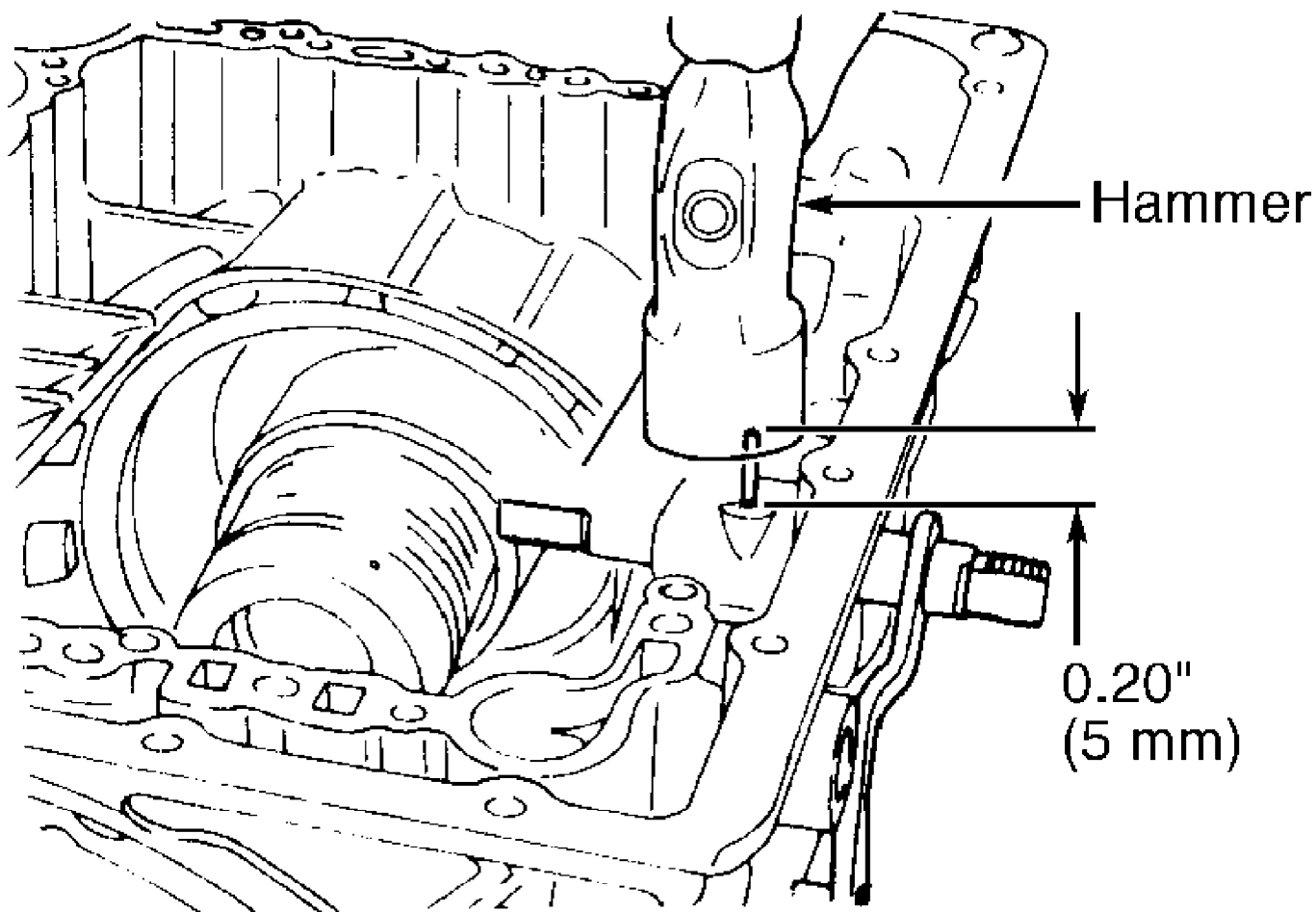
1) Install manual shaft and oil seal as a unit in transmission case. Align groove in shaft with drive pin hole. Drive pin into case as shown in Fig. 75. Install detent spring and spacer. While pushing detent spring down, install manual plate on manual shaft.

2) Install lock nuts on manual shaft. Install "O" rings on accumulator pistons. Apply ATF to transmission case and install accumulator pistons as shown in Fig. 72. 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. 76. Ensure forward clutch assembly rotates in clockwise direction only. Apply petroleum jelly to thrust washer and install on front of overrun clutch hub.

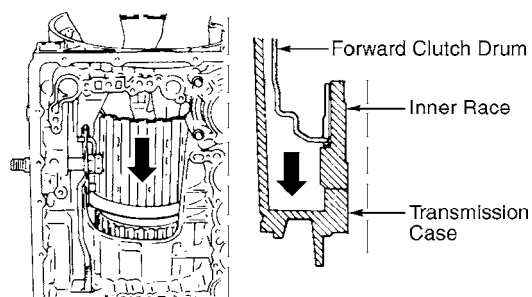
4) Install overrun clutch hub on rear internal gear assembly.

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. Refer to the Fig. 77.



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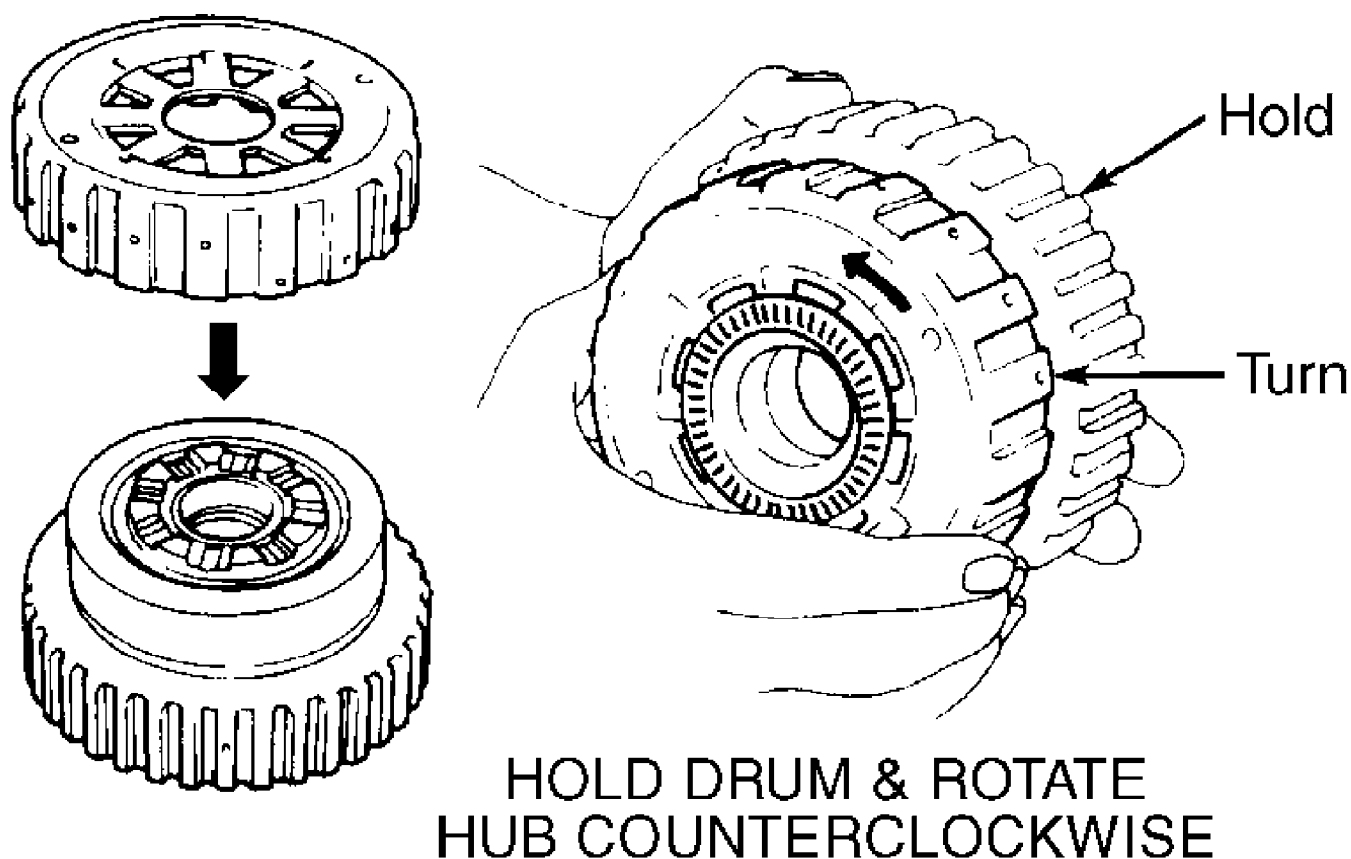
Fig. 75: Installing Manual Shaft Pin  
Courtesy of Nissan Motor Co., U.S.A.



93C22634

Fig. 76: Installing Forward Clutch Drum  
Courtesy of Nissan Motor Co., U.S.A.





**93D22635**

Fig. 77: Checking Overrun Clutch Hub Rotation  
Courtesy of Nissan Motor Co., U.S.A.

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 facing torque converter. Install needle bearing on front of planetary carrier. Install needle bearing on rear of front planetary carrier with Black side facing forward. While rotating clockwise, install carrier in case.

7) Ensure front planetary carrier protrudes approximately .080" (2.00 mm) beyond forward clutch assembly. Install bearing race or needle bearing on rear of clutch pack assembly. With transmission in vertical position, install clutch pack assembly in transmission case.

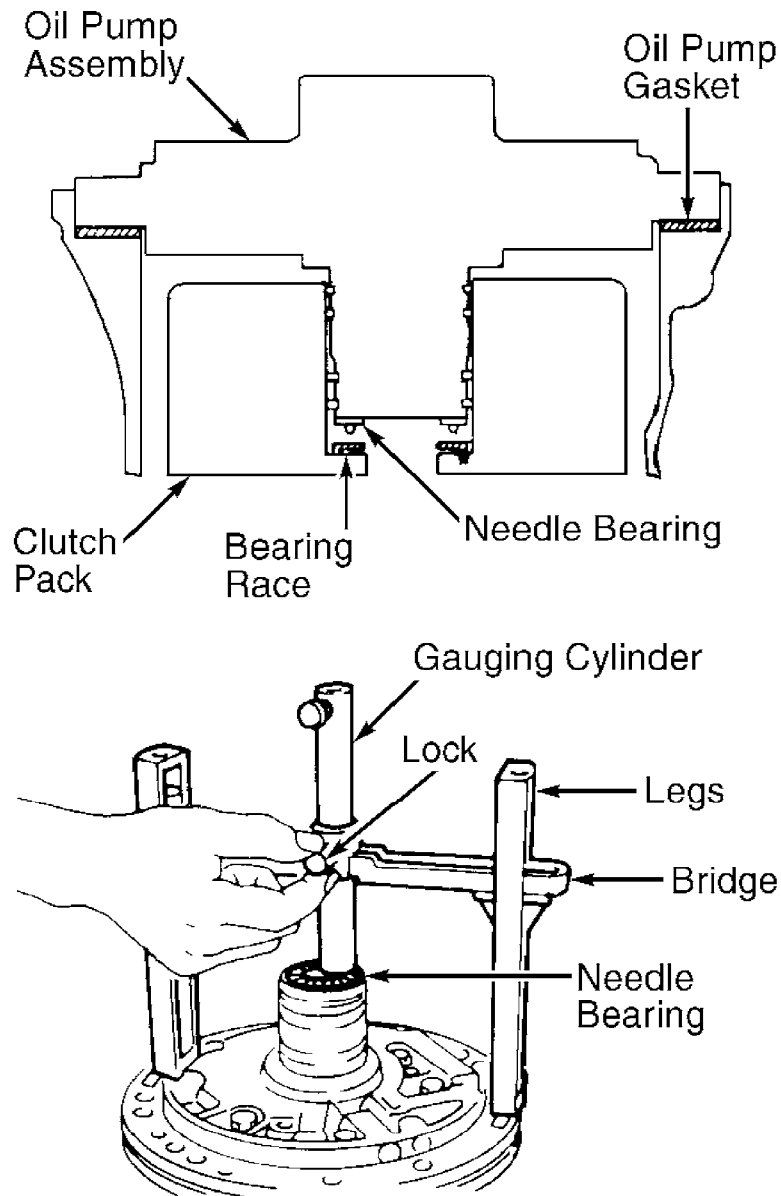
8) Check and adjust total end play. Total end play should be .010-.022" (.25-.55 mm) and is adjusted as follows: With needle bearing installed, place Bridge (J34291-1), Legs (J34291-2) and Gauging Cylinder (J34291-5) on oil pump (Step 1). See Fig. 78. Allow gauging cylinder to rest on top of needle bearing and lock gauging cylinder in place.

9) Install Gauging Plunger (J3429-23) 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 (Step 2). See Fig. 79. Lock gauging plunger in place.

10) Measure gap as shown in Fig. 79. This measurement should give exact total end play. Total end play is adjusted by replacing oil pump cover bearing race.

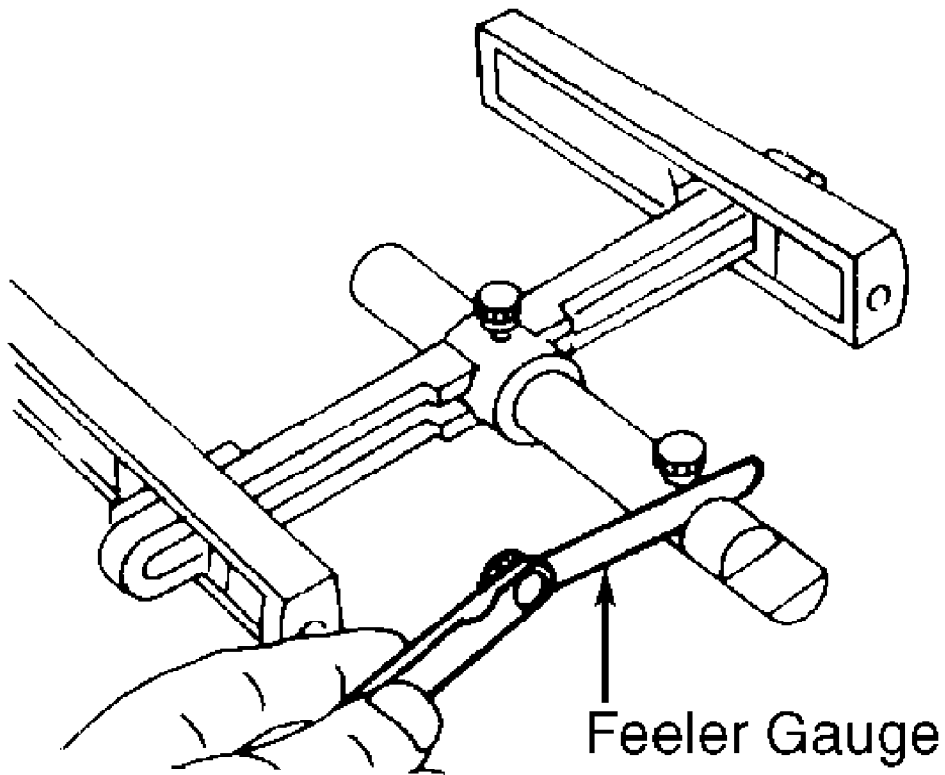
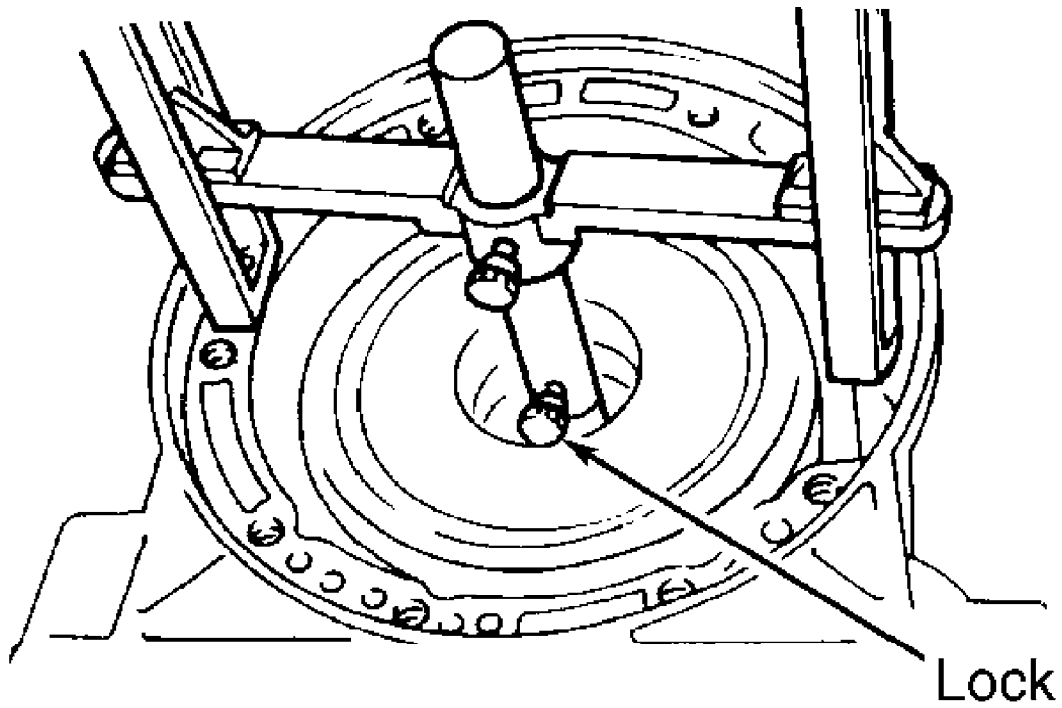
11) Reverse clutch drum end play should be .022-.035" (.55-.90 mm) and is adjusted as follows: Place bridge, legs and gauging cylinder on transmission case and allow gauging cylinder to rest on front thrust surface of reverse clutch drum. Lock gauging cylinder in place.

12) Install Gauging Plunger (J3429-23) in gauging cylinder. With original thrust washer on oil pump, place shim selecting tool on oil pump and allow gauging plunger to rest on thrust washer. Lock gauging cylinder in place. Measure gap and adjust reverse clutch end play as necessary. See Fig. 80. Reverse clutch drum end play is adjusted by replacing oil pump thrust washer.



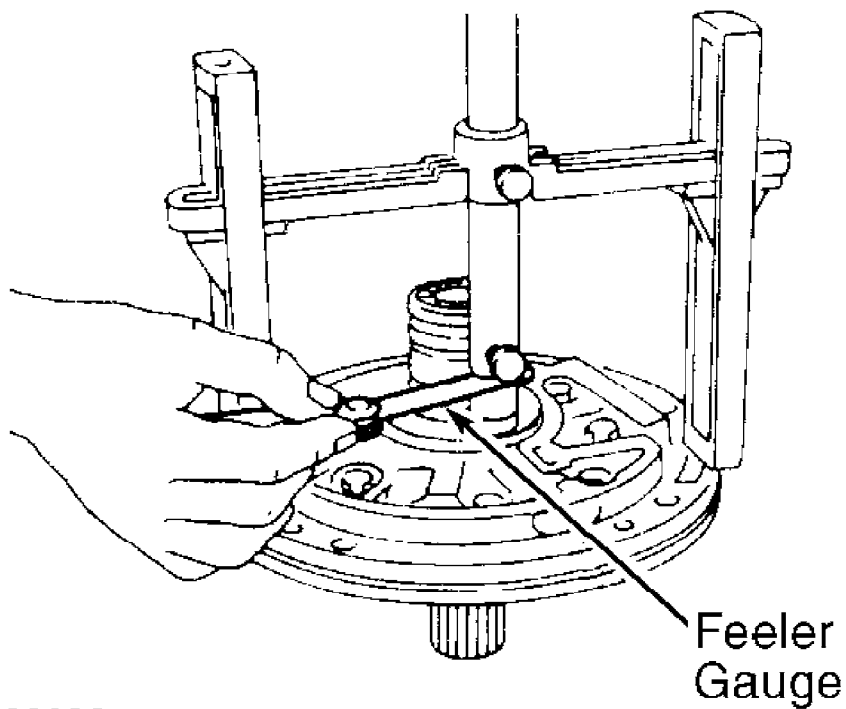
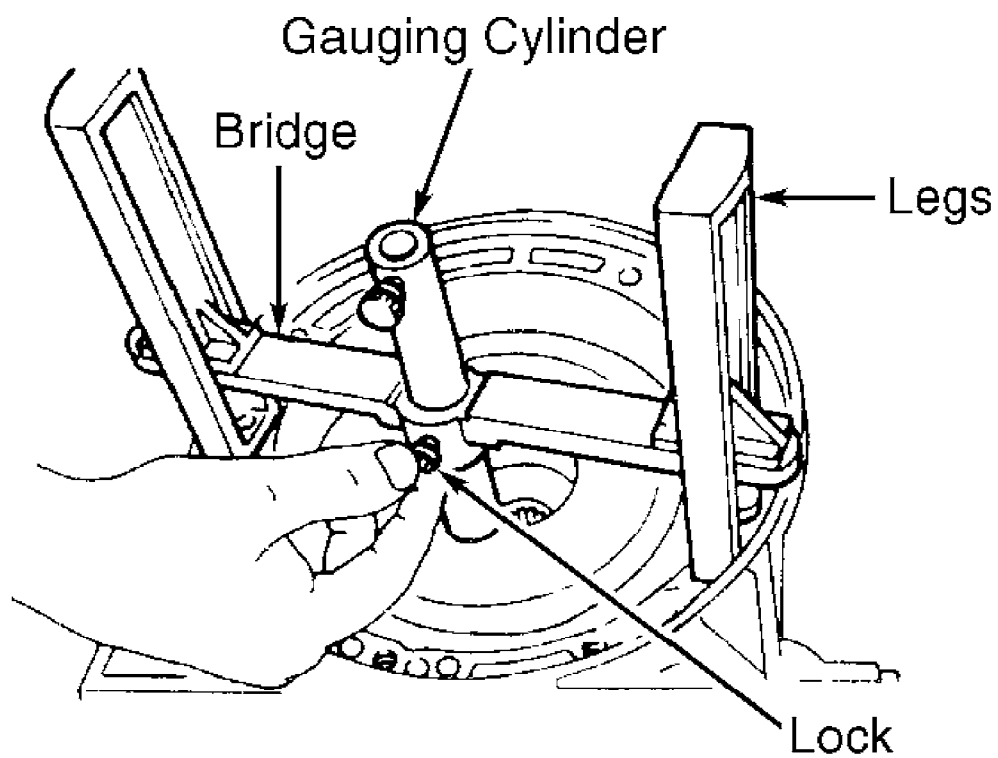
93E22636

Fig. 78: Measuring Total End Play (Step 1)  
Courtesy of Nissan Motor Co., U.S.A.



93F22637

Fig. 79: Measuring Total End Play (Step 2)  
Courtesy of Nissan Motor Co., U.S.A.



93G22638

Fig. 80: Measuring Reverse Clutch Drum End Play  
 Courtesy of Nissan Motor Co., U.S.A.

13) Insert output shaft from rear of transmission case while slightly lifting front internal gear. Install snap ring on front of

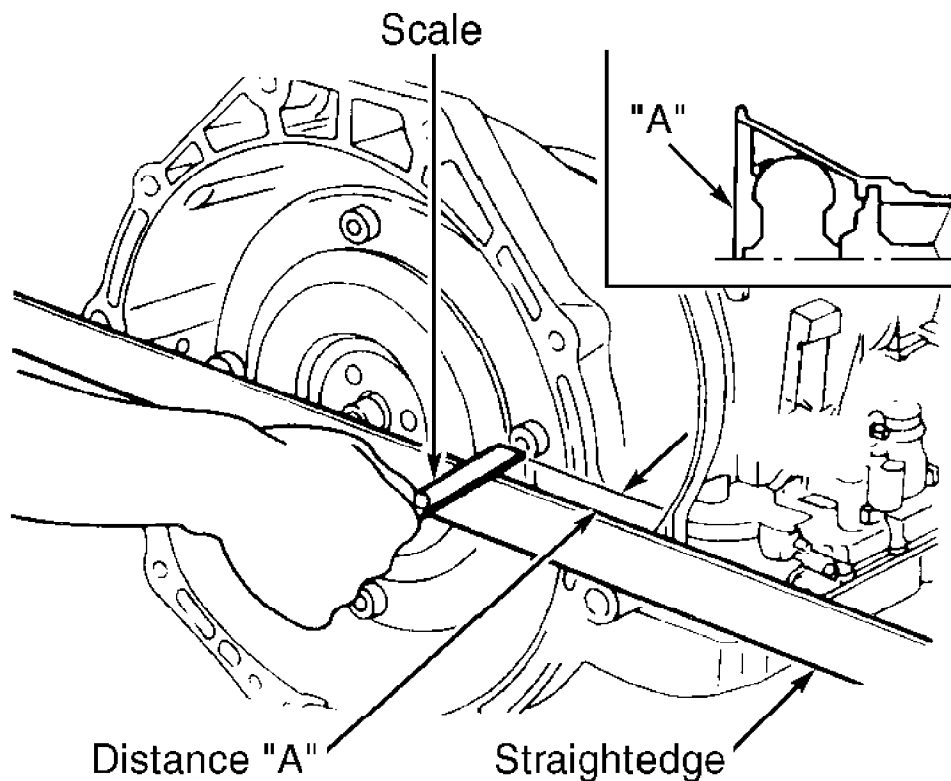
output shaft. Use petroleum jelly and install needle bearing in transmission case with Black side of bearing toward rear of transmission. Install parking gear or governor assembly and rear snap ring on output shaft.

14) 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.

15) Install input shaft in transmission case with "O" ring groove on shaft facing forward. Install oil pump gasket and oil pump. Install "O" ring on input shaft. Apply sealer to outer edge of bolt holes in converter housing. Apply sealant to seating surfaces of bolts securing converter housing. Install converter housing.

16) Adjust brake band by tightening anchor end bolt to 35-53 INCH lbs. (4-6 N.m), then back off anchor end bolt 2 1/2 turns. Hold anchor end bolt and tighten lock nut. Install solenoid harness assembly with "O" ring. Install accumulator piston return springs and control valve assembly. Connect solenoid wiring harness. Install oil strainer.

17) Install oil pan and inhibitor switch. Fill torque converter with 2.1 qts (2.0L) of ATF and install. To ensure torque converter is in proper position, measure distance from torque converter mounting holes to transmission converter surface using a straightedge. See Fig. 81. Distance should be 1.02" (26 mm) on RE4R01A and RL4R01A transmission, or .98" (25 mm) on RE4R03A transmission.



93H22639

Fig. 81: Measuring Torque Converter Installed Depth  
Courtesy of Nissan Motor Co., U.S.A.

## TRANSMISSION SPECIFICATIONS

## TRANSMISSION SPECIFICATIONS

Application	In. (mm)
Forward Clutch	
Drive Plate Thickness	
Except J30, M30 & 300ZX Non-Turbo .....	.079 (2.00)
J30, M30 & 300ZX Non-Turbo .....	.063 (1.60)
Wear Limit	
Except J30, M30 & 300ZX Non-Turbo .....	.071 (1.80)
J30, M30 & 300ZX Non-Turbo .....	.055 (1.40)
Plate-To-Snap Ring Clearance	
All Models .....	.018-.033 (.45-.85)
Allowable Limit	
J30 & M30 .....	.081 (2.05)
Pathfinder/Pickup & 300ZX Non-Turbo .....	.089 (2.25)
Q45 .....	.087 (2.20)
240SX .....	.073 (1.85)
300ZX Turbo .....	.097 (2.45)
Governor Assembly (RL4R01A)	
Seal Ring-To-Ring Groove Clearance	
Standard .....	.006-.016 (.15-.40)
Wear Limit .....	.016 (.40)
High Clutch	
Drive Plate Thickness .....	.063 (1.60)
Wear Limit .....	.055 (1.40)
Plate-To-Snap Ring Clearance .....	.071-.087 (1.80-2.20)
Allowable Limit	
J30, M30, 240SX & 300ZX Turbo .....	.118 (3.00)
Pathfinder/Pickup .....	.110 (2.80)
Q45 .....	.134 (3.40)
300ZX Non-Turbo .....	.126 (3.20)
Low & Reverse	
Drive Plate Thickness	
Except Q45 & 300ZX Turbo .....	.079 (2.00)
Q45 & 300ZX Turbo .....	.063 (1.60)
Wear Limit	
Except Q45 & 300ZX Turbo .....	.071 (1.80)
Q45 & 300ZX Turbo .....	.055 (1.40)
Plate-To-Snap Ring Clearance	
Except Q45 & 300ZX .....	.028-.043 (.70-1.10)
Q45 .....	.020-.031 (.50-.80)
300ZX	
Non-Turbo .....	.028-.043 (.71-1.10)
Turbo .....	.035-.047 (.90-1.20)
Allowable Limit	
J30 & M30 .....	.098 (2.50)
Pathfinder/Pickup & 240SX .....	.091 (2.30)
Q45 .....	.094 (2.40)
300ZX Non-Turbo .....	.114 (2.90)
300ZX Turbo .....	.122 (3.10)
Oil Pump Assembly	
Cam Ring-To-Housing Clearance ..	.0004-.0009 (.010-.023)
Rotor, Vane & Control Piston	
Clearance .....	.0012-.0017 (.030-.043)
Seal Ring-To-Ring Groove	
Clearance	
Standard .....	.004-.010 (.10-.25)

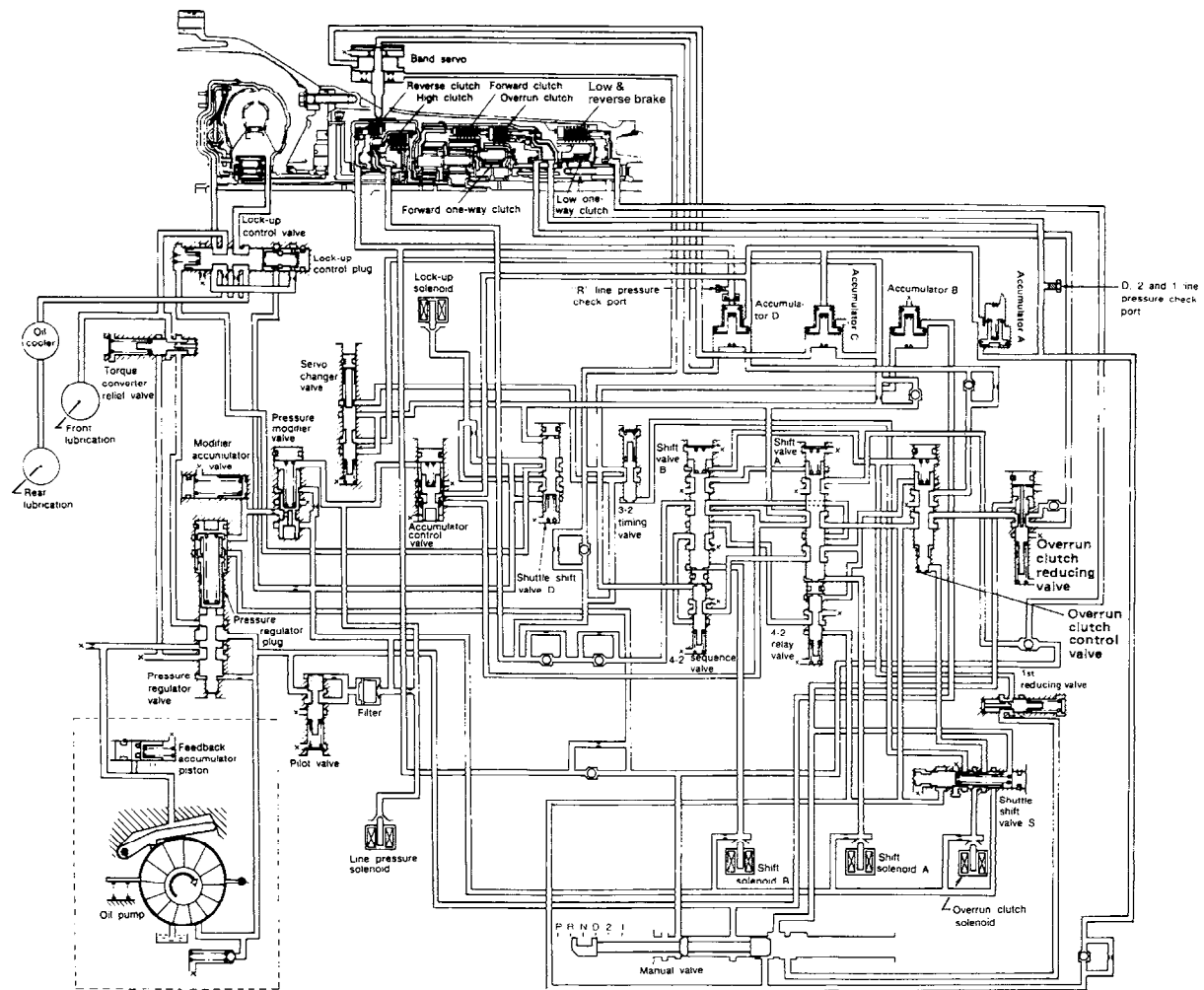
Allowable Limit	.010	(.25)
Overrun Clutch		
Drive Plate Thickness		
Except Q45 & 300ZX Turbo	.079	(2.00)
Q45 & 300ZX Turbo	.063	(1.60)
Wear Limit		
Except Q45 & 300ZX Turbo	.071	(1.80)
Q45 & 300ZX Turbo	.055	(1.40)
Plate-To-Snap Ring Clearance	.039-.055	(1.00-1.40)
Allowable Limit		
Except Q45 & 300ZX Turbo	.079	(2.00)
Q45	.094	(2.40)
300ZX Turbo	.087	(2.20)
Reverse Clutch		
Drive Plate Thickness	.079	(2.00)
Wear Limit	.071	(1.80)
Plate-To-Snap Ring Clearance		
Standard	.020-.031	(.50-.80)
Allowable Limit		
Except Q45 & 300ZX Turbo	.047	(1.20)
Q45 & 300ZX Turbo	.055	(1.40)
Reverse Clutch Drum		
End Play	.022-.035	(.55-.90)
Total End Play	.010-.022	(.25-.55)

## TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)	
Band Brake Anchor Lock Nut	23-31	(31-42)
Converter Housing-To-Case Bolt	45-47	(61-64)
Low One-Way Clutch Inner Race Bolt	15-19	(21-26)
Manual Shaft Lock Nut	21-29	(29-39)
Oil Pump Cover Bolt	12-15	(16-21)
Parking Actuator Bolt	18-21	(24-29)
Rear Extension Bolt	15-18	(21-25)
Torque Converter-To-Flexplate Bolt		
With Flange	32-44	(44-59)
Without Flange	29-36	(39-49)
	INCH Lbs. (N.m)	
Control Valve Bolt	62-80	(7-9)
Detent Spring Bolt	35-53	(4-6)
Oil Pan Bolt	62-80	(7-9)
Revolution Sensor Bolt	44-62	(5-7)
Servo Piston Retainer Bolt	62-80	(7-9)

## OIL CIRCUIT DIAGRAM



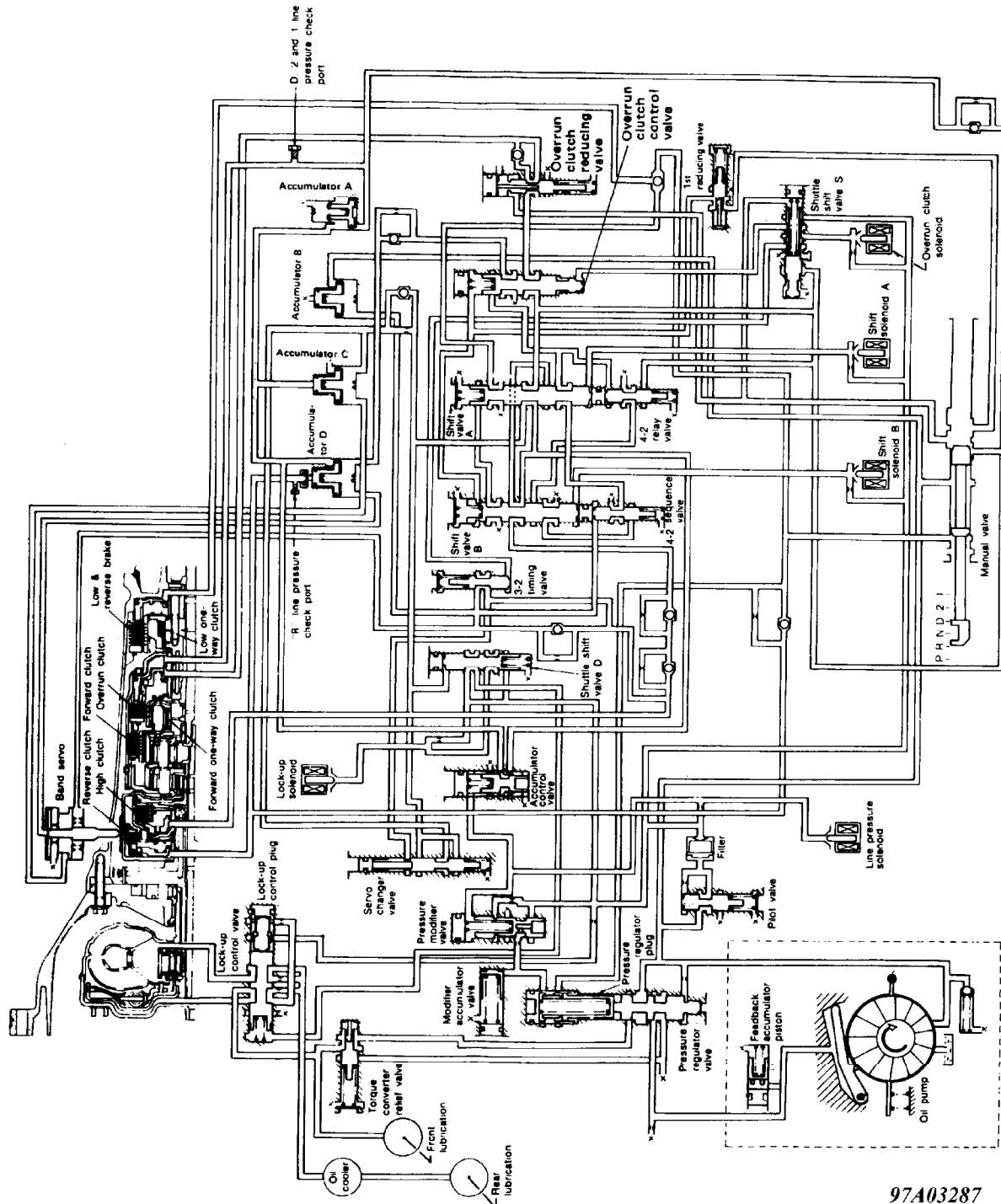
97D03279

Fig. 82: Oil Circuit Diagram (RE4R01A)



# OIL CIRCUIT DIAGRAMS

## Nissan RE4R01A & RE4R03A

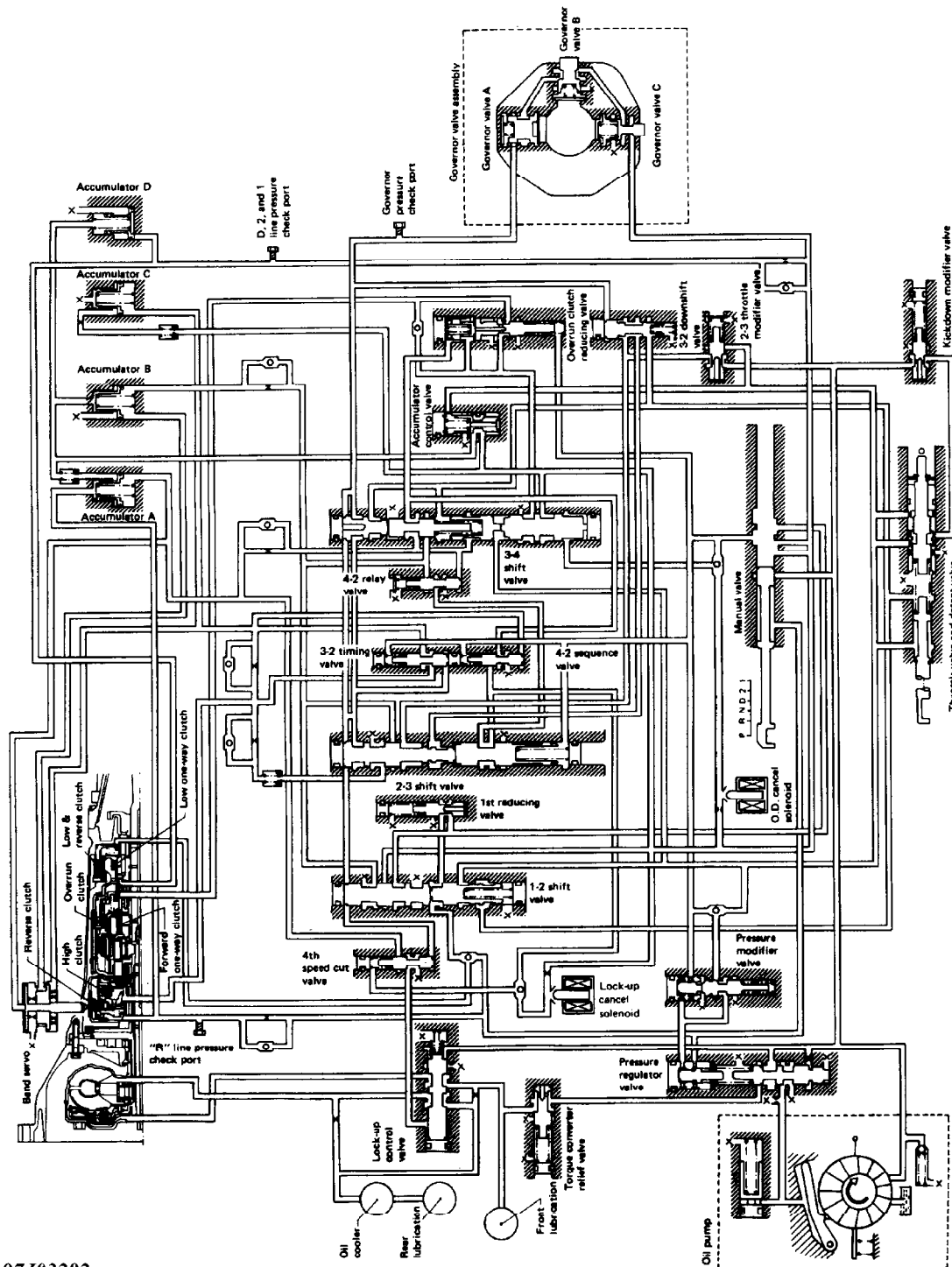


97A03287

Fig. 83: Oil Circuit Diagram (RE4R03A)

# OIL CIRCUIT DIAGRAMS

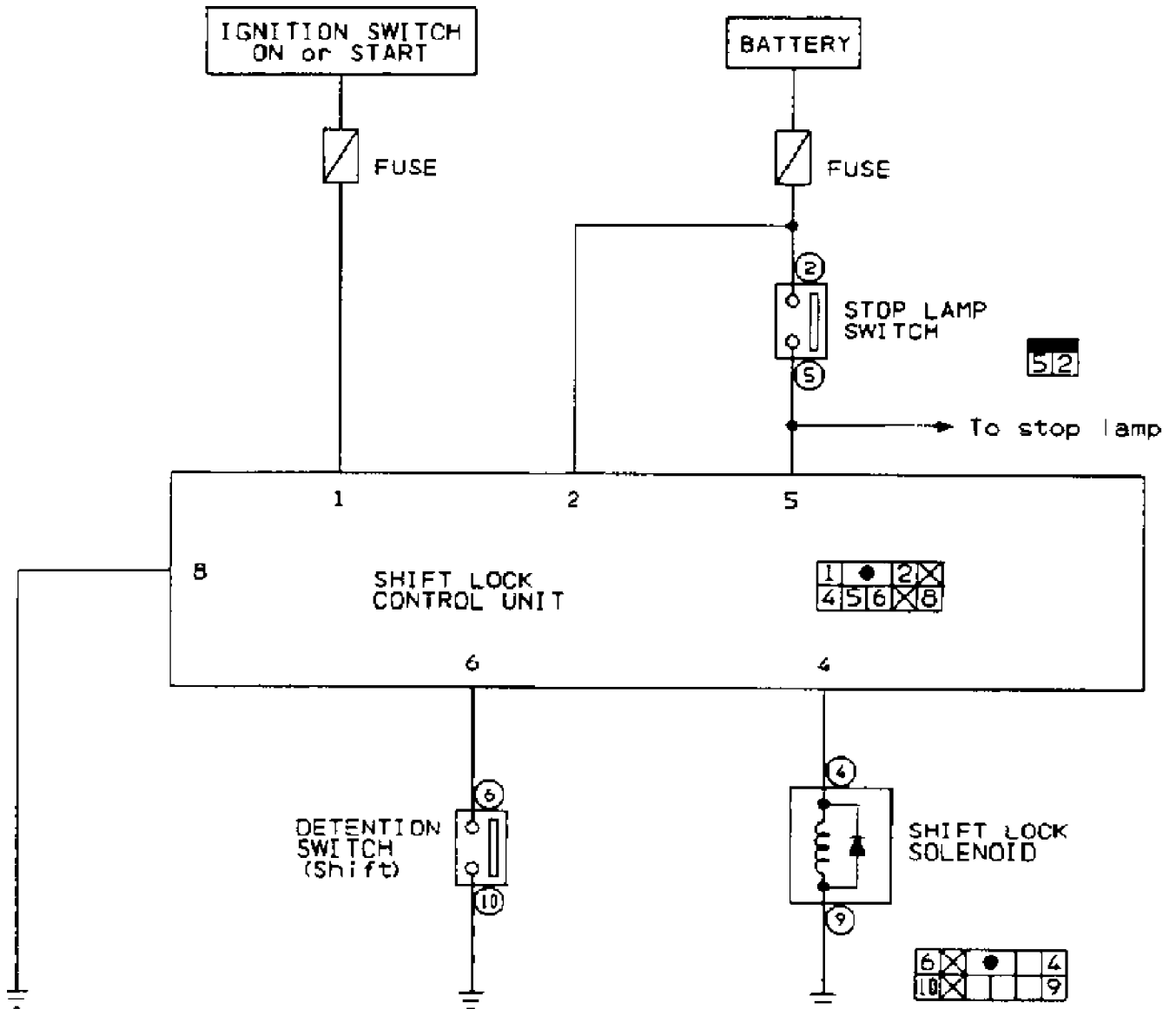
## Nissan RL4R01A



97J03282  
Fig. 84: Oil Circuit Diagram (RL4R01A)

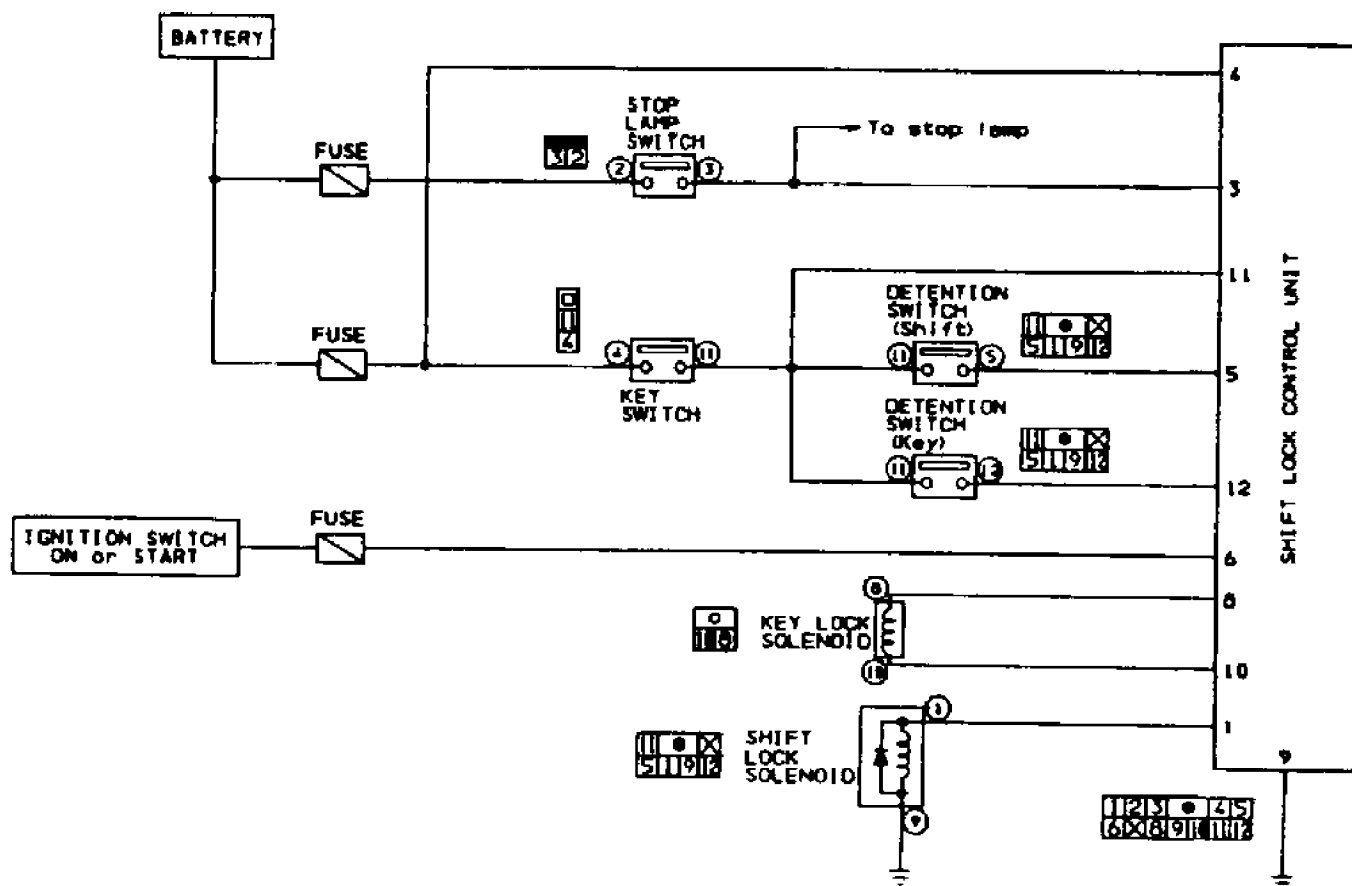
WIRING DIAGRAMS

# SHIFT LOCK SYSTEM



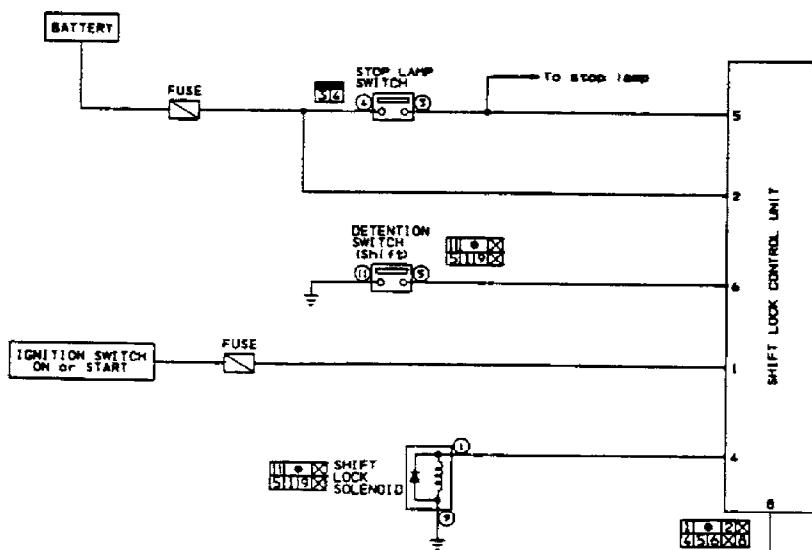
**95E20028**

Fig. 85: Shift Lock System Schematic (Infiniti J30)  
 Courtesy of Nissan Motor Co., U.S.A.



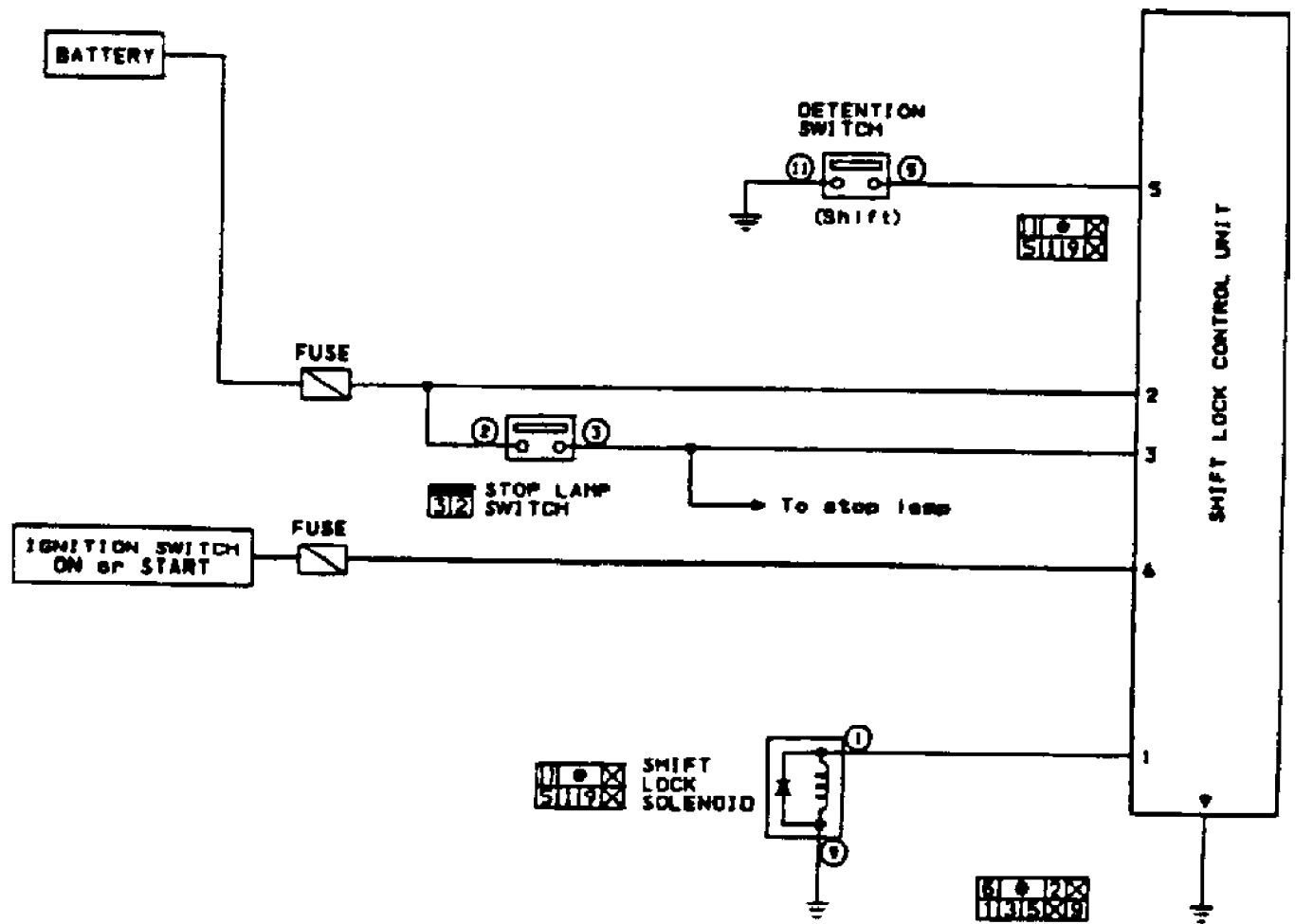
95F20029

Fig. 86: Shift Lock System Schematic (Infiniti Q45 & 240SX)  
Courtesy of Nissan Motor Co., U.S.A.



95I20030

Fig. 87: Shift Lock System Schematic (Pathfinder & Pickup)  
Courtesy of Nissan Motor Co., U.S.A.



95B20033

Fig. 88: Shift Lock System Schematic (300ZX)  
 Courtesy of Nissan Motor Co., U.S.A.

TRANSMISSION CIRCUIT - J30

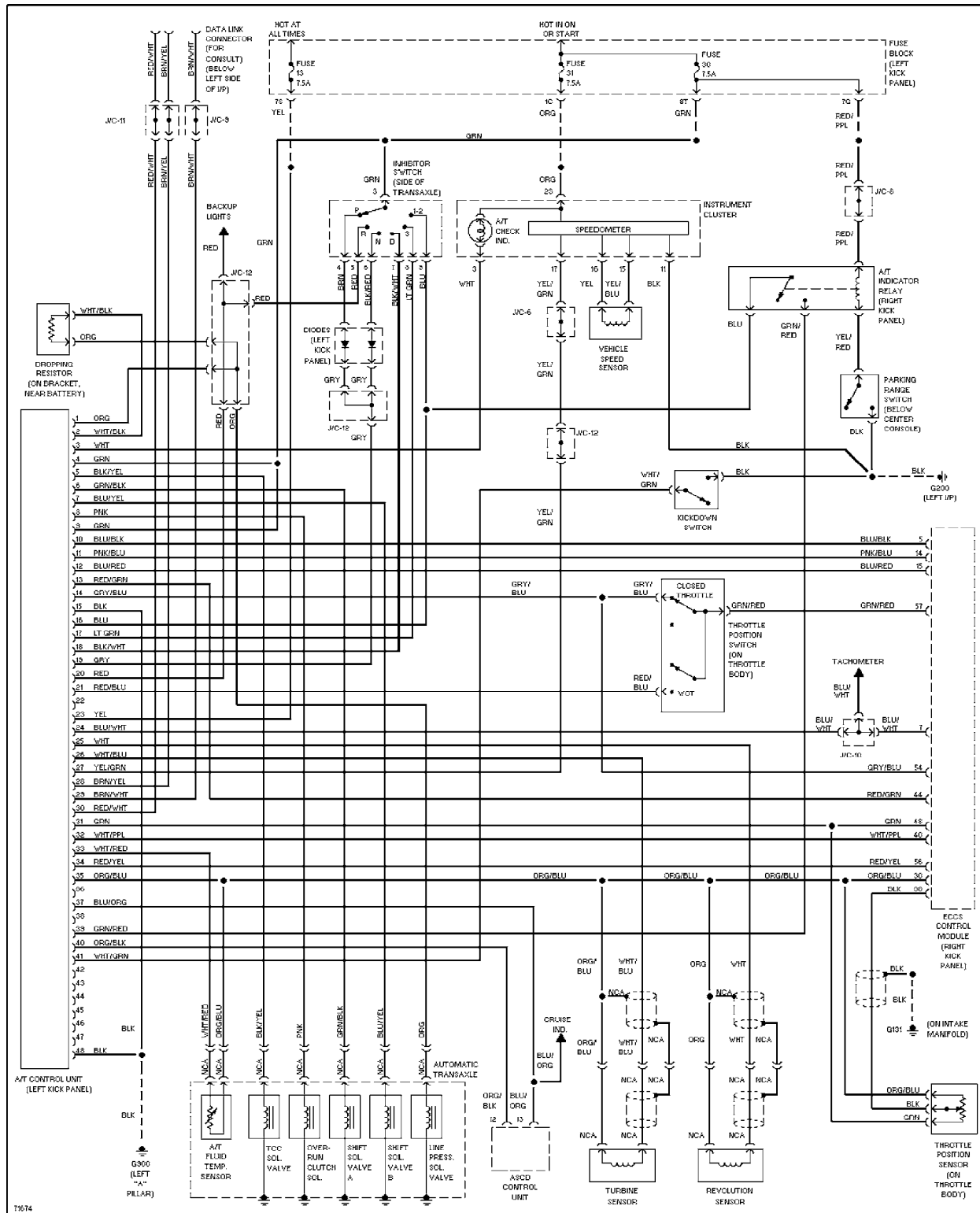
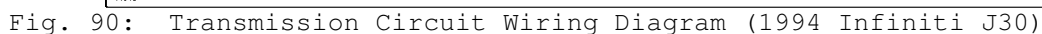
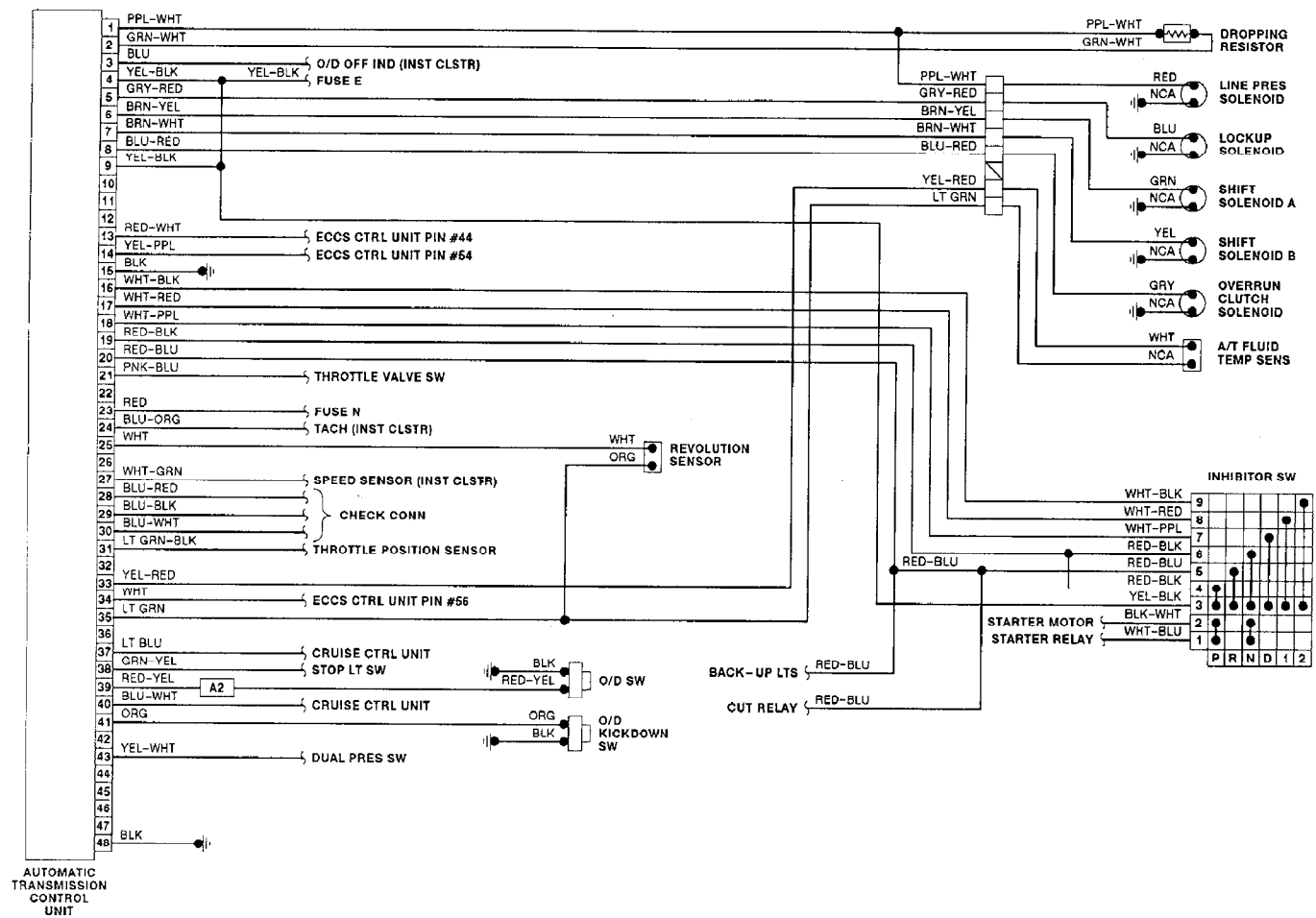


Fig. 89: Transmission Circuit Wiring Diagram (1993 Infiniti J30)

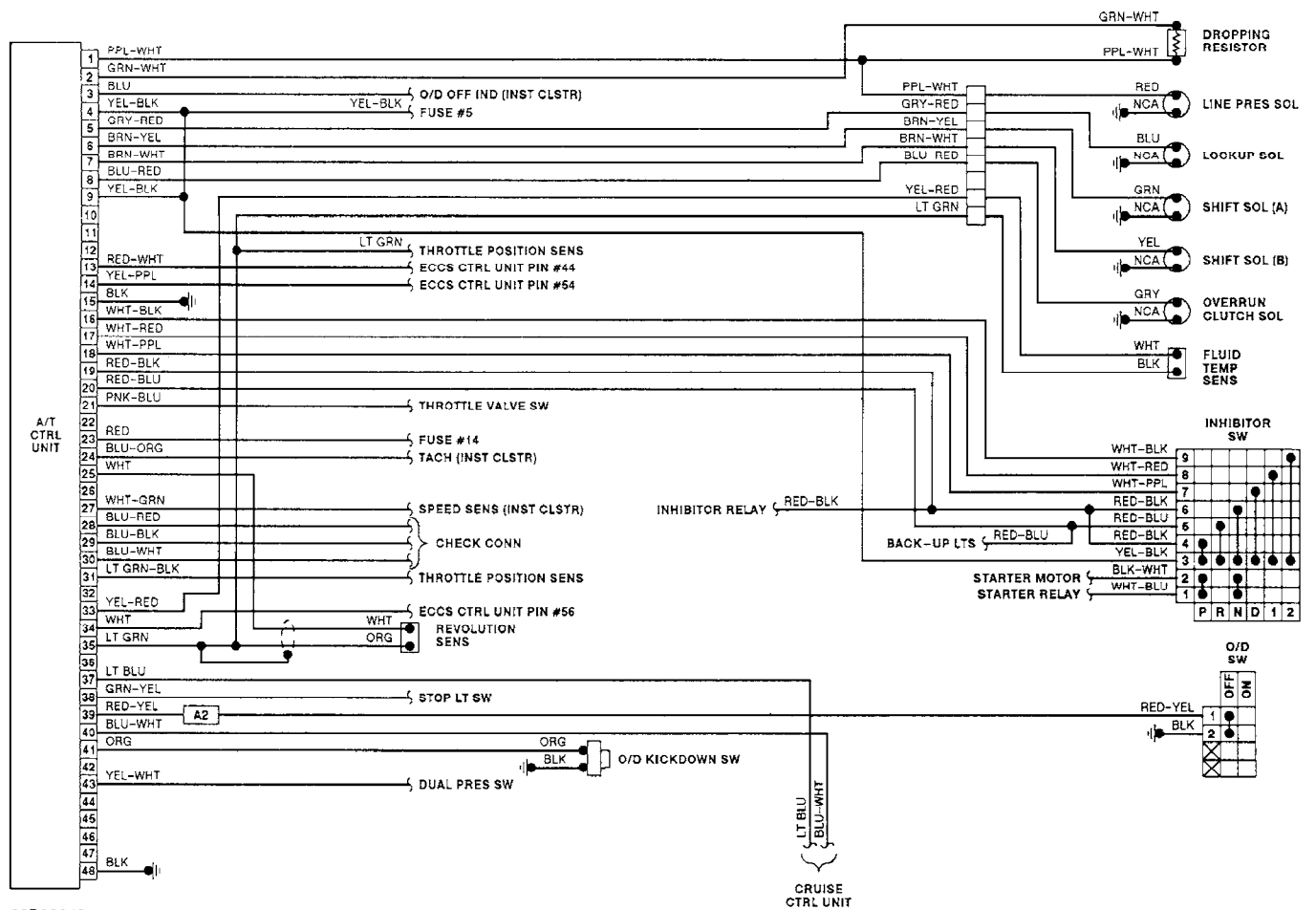


## TRANSMISSION CIRCUIT - M30



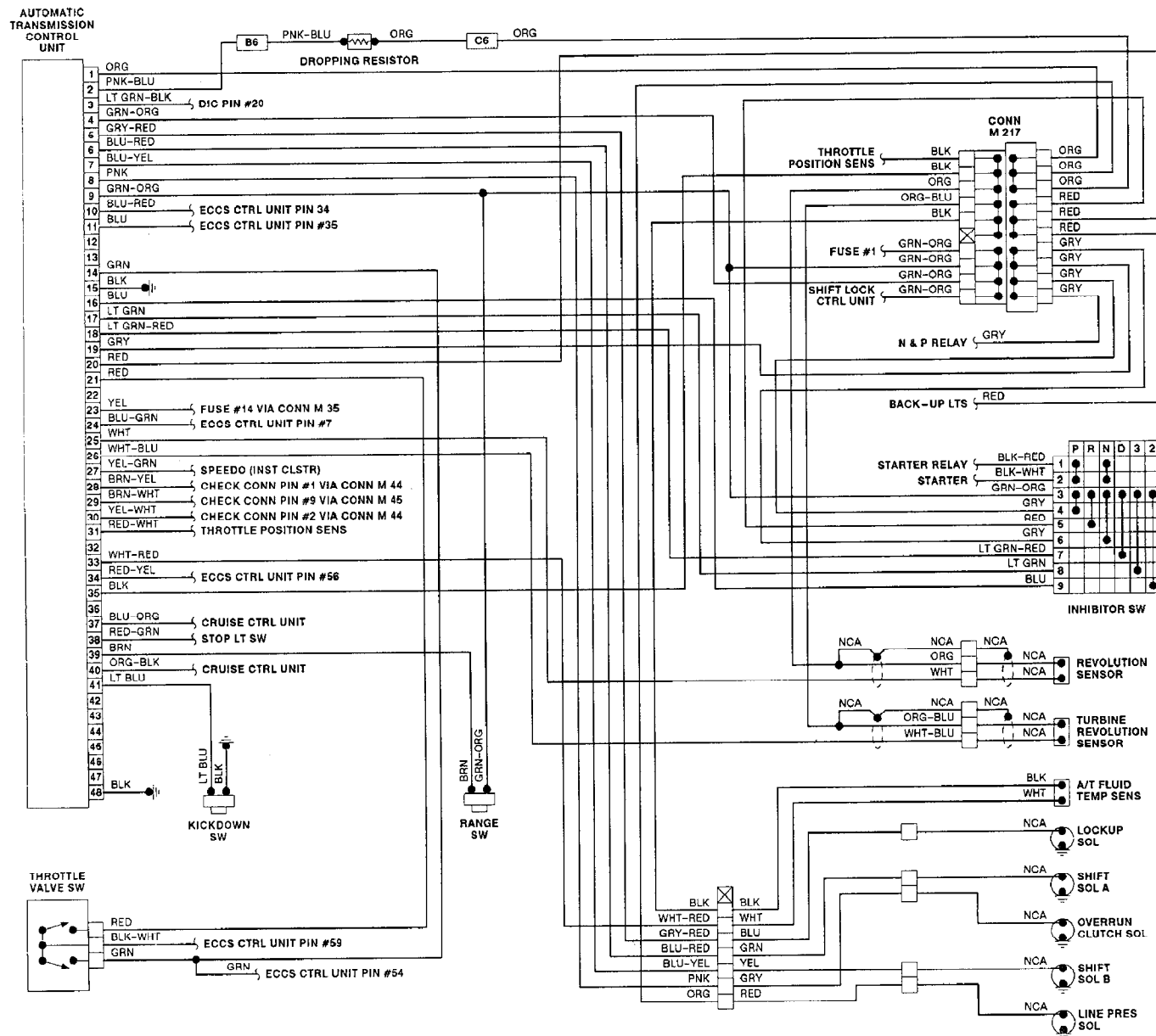
99B52010  
Fig. 91: Transmission Circuit Wiring Diagram (1990 Infiniti M30)





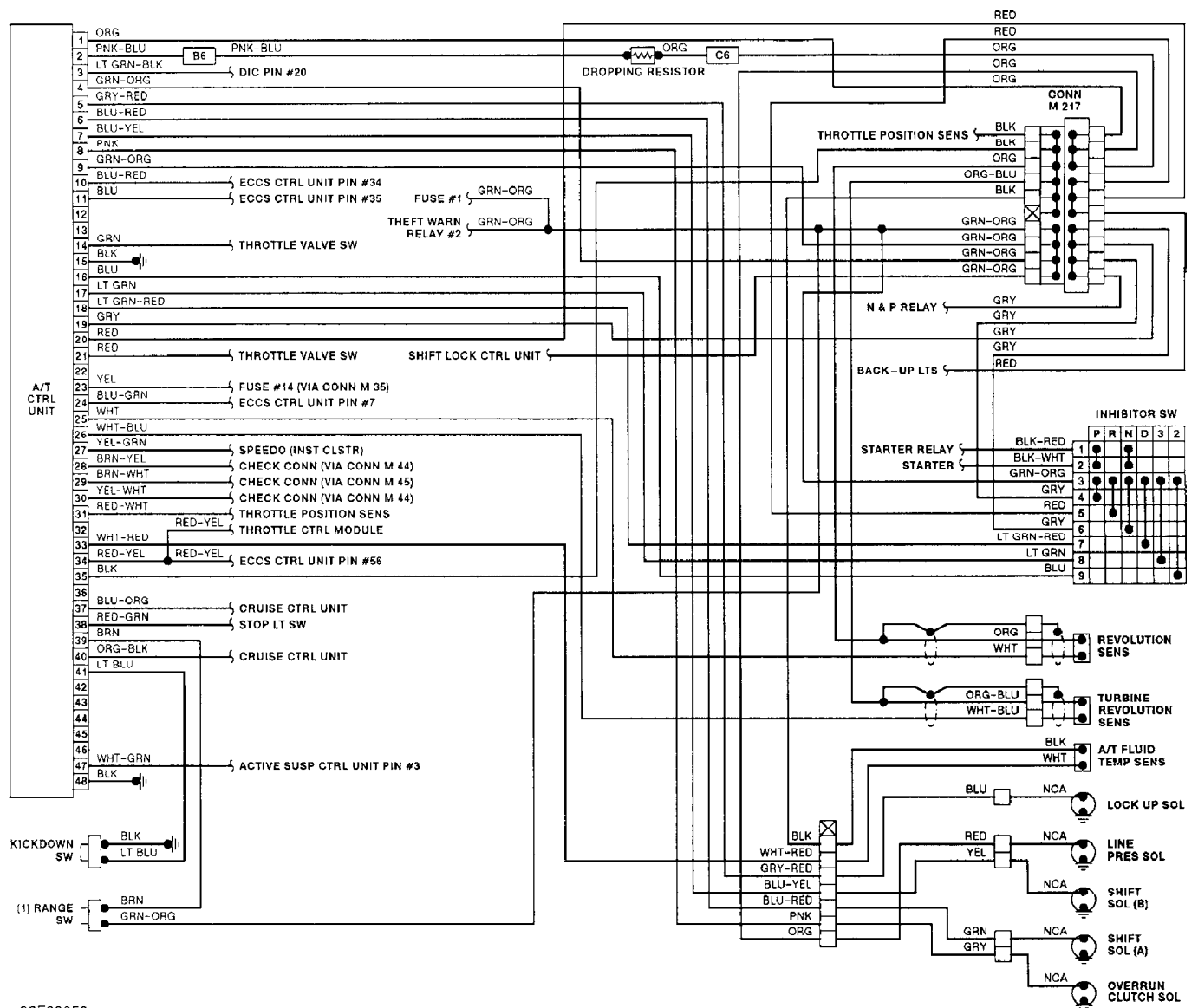
93B23649  
Fig. 92: Transmission Circuit Wiring Diagram (1991-92 Infiniti M30)

## TRANSMISSION CIRCUIT - Q45



99D52012

Fig. 93: Transmission Circuit Wiring Diagram (1990 Infiniti Q45)



93F23650  
Fig. 94: Transmission Circuit Wiring Diagram (1991-92 Infiniti Q45)

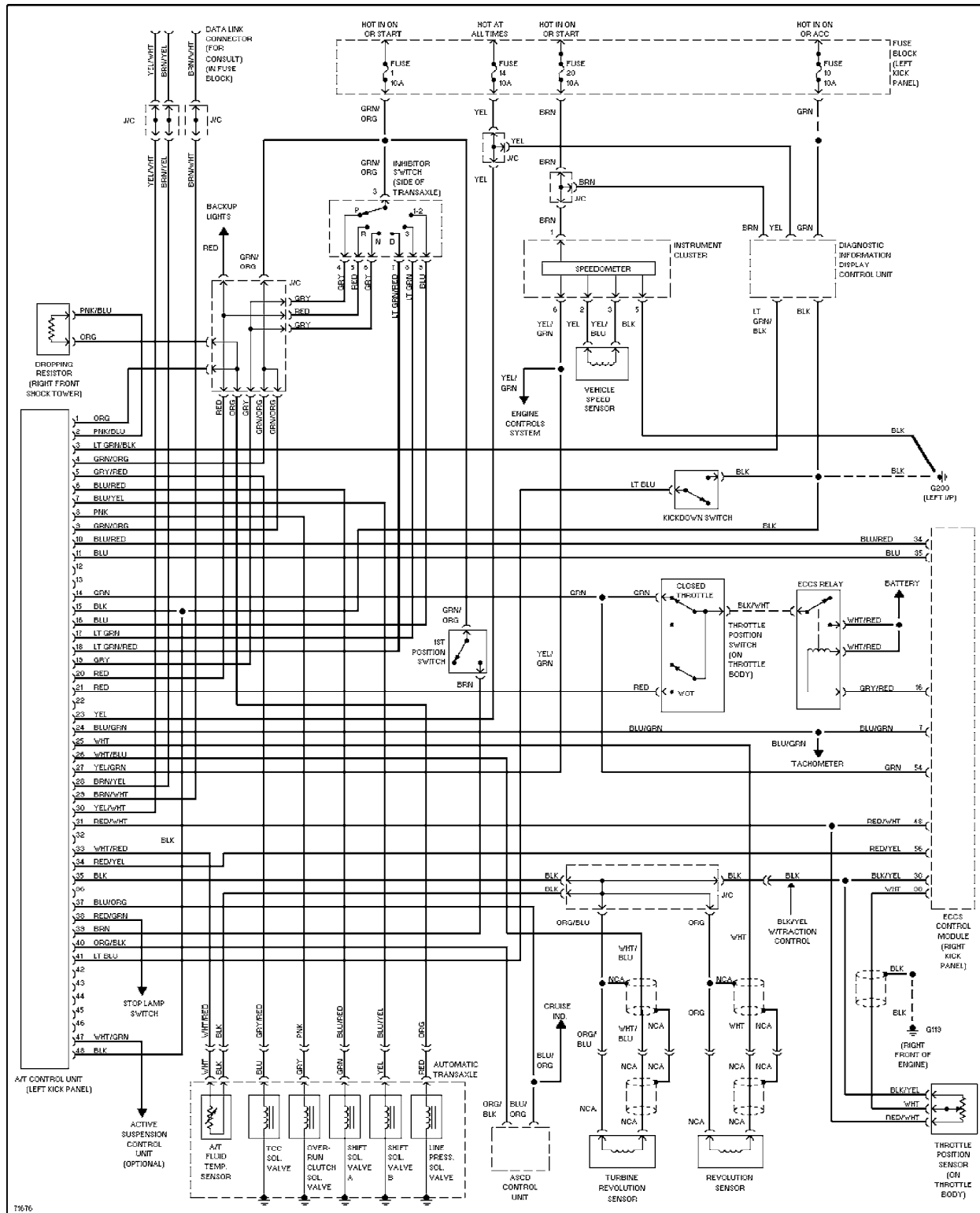


Fig. 95: Transmission Circuit Wiring Diagram (1993 Infiniti Q45)

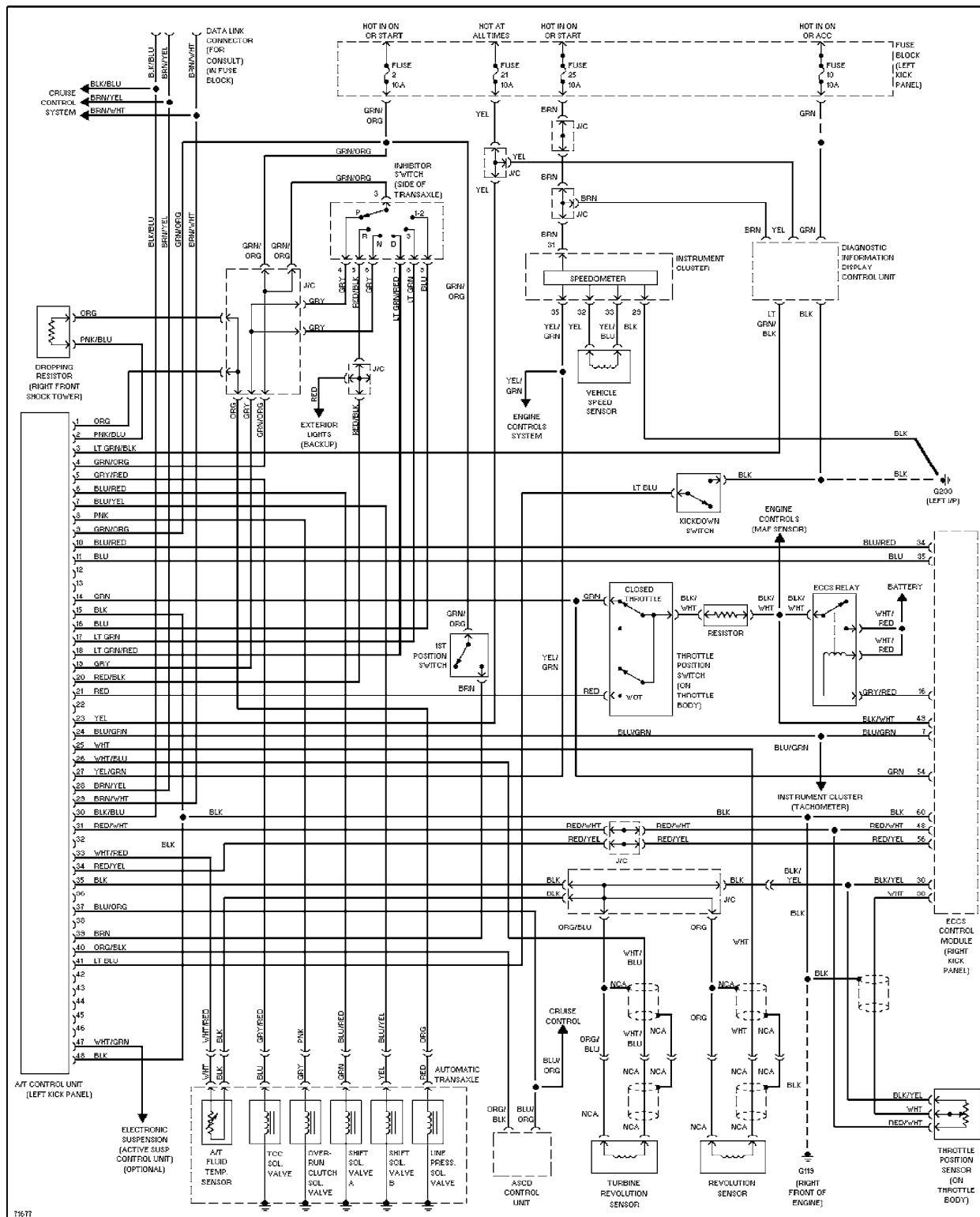
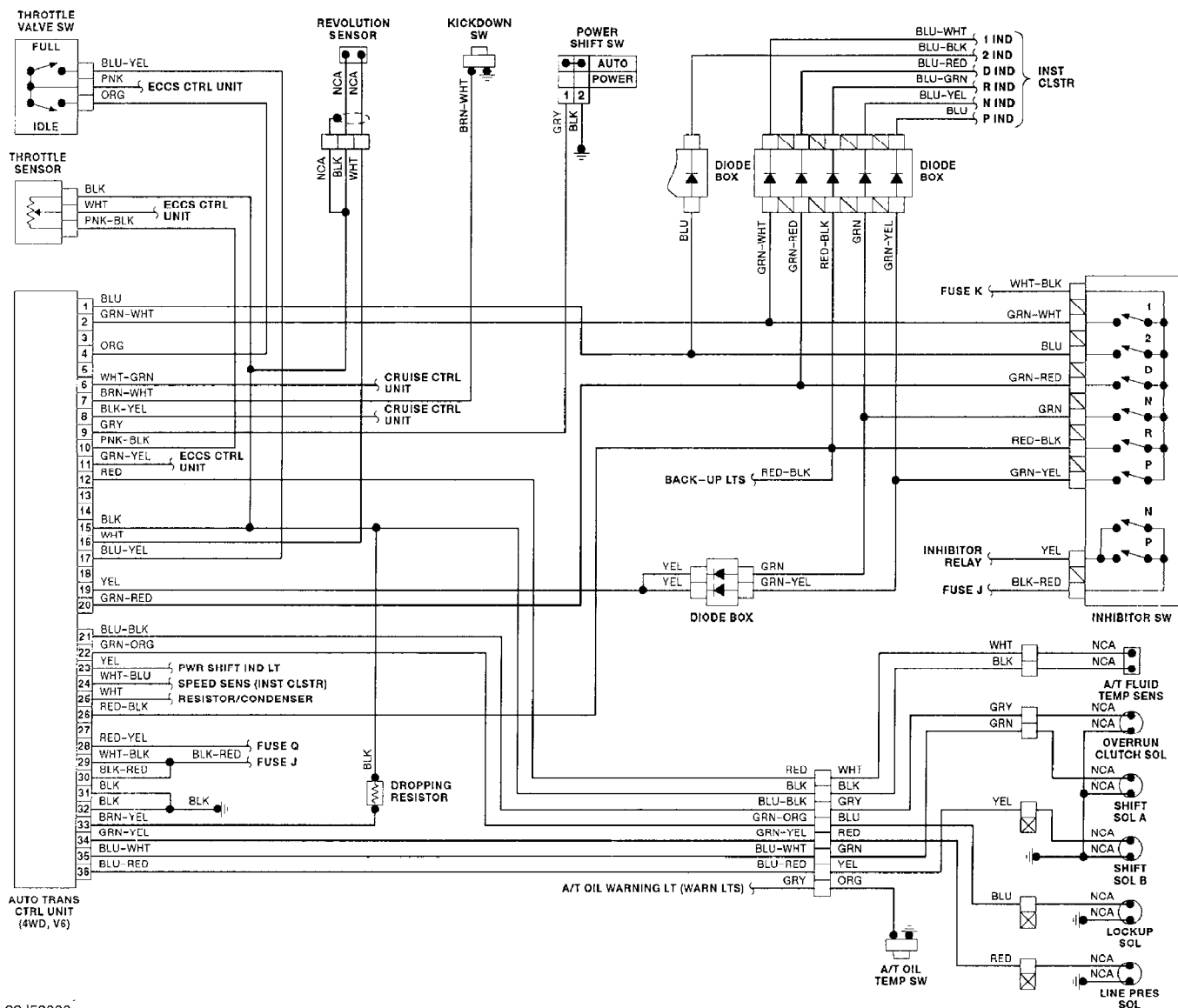
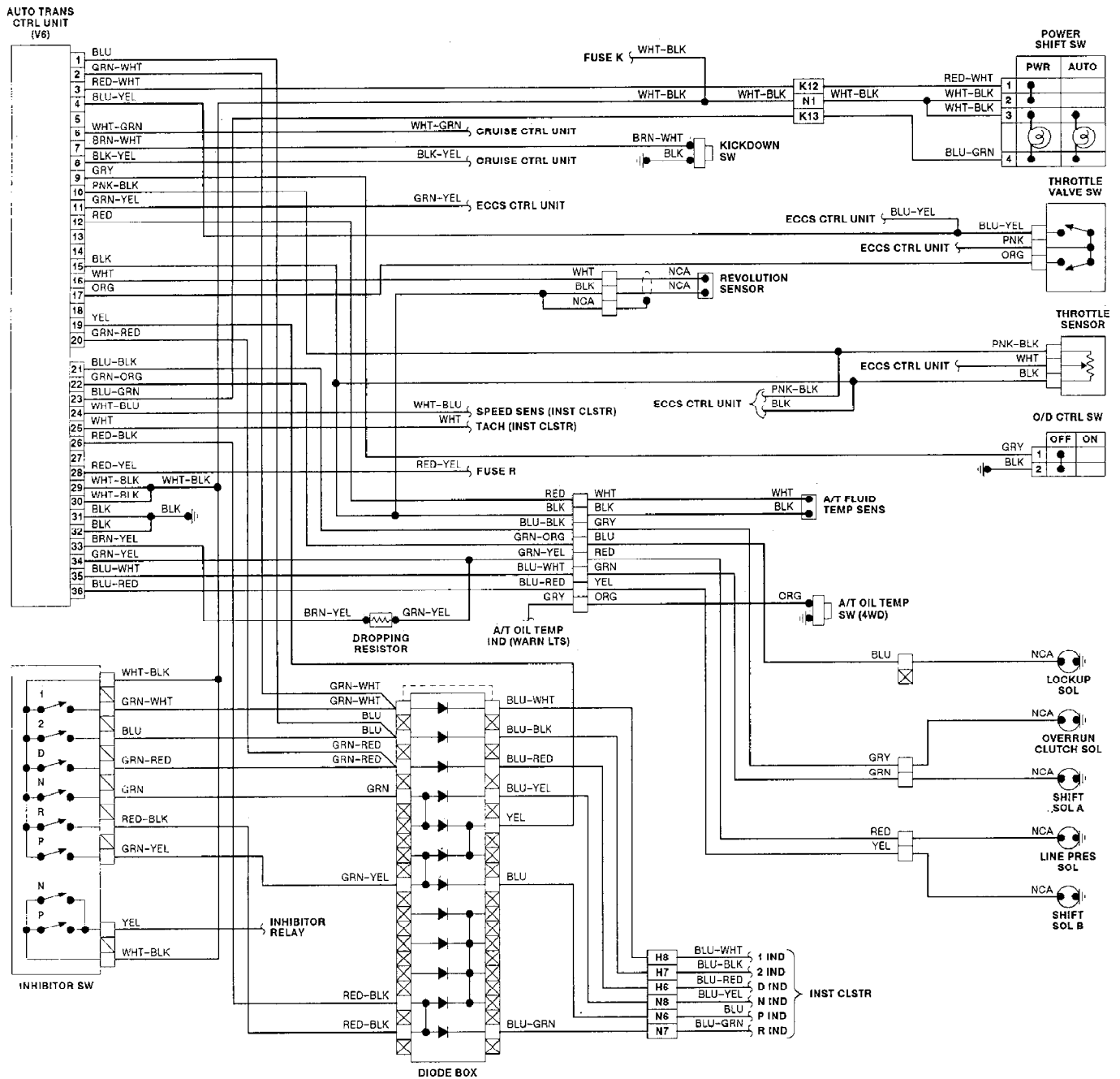


Fig. 96: Transmission Circuit Wiring Diagram (1994 Infiniti Q45)

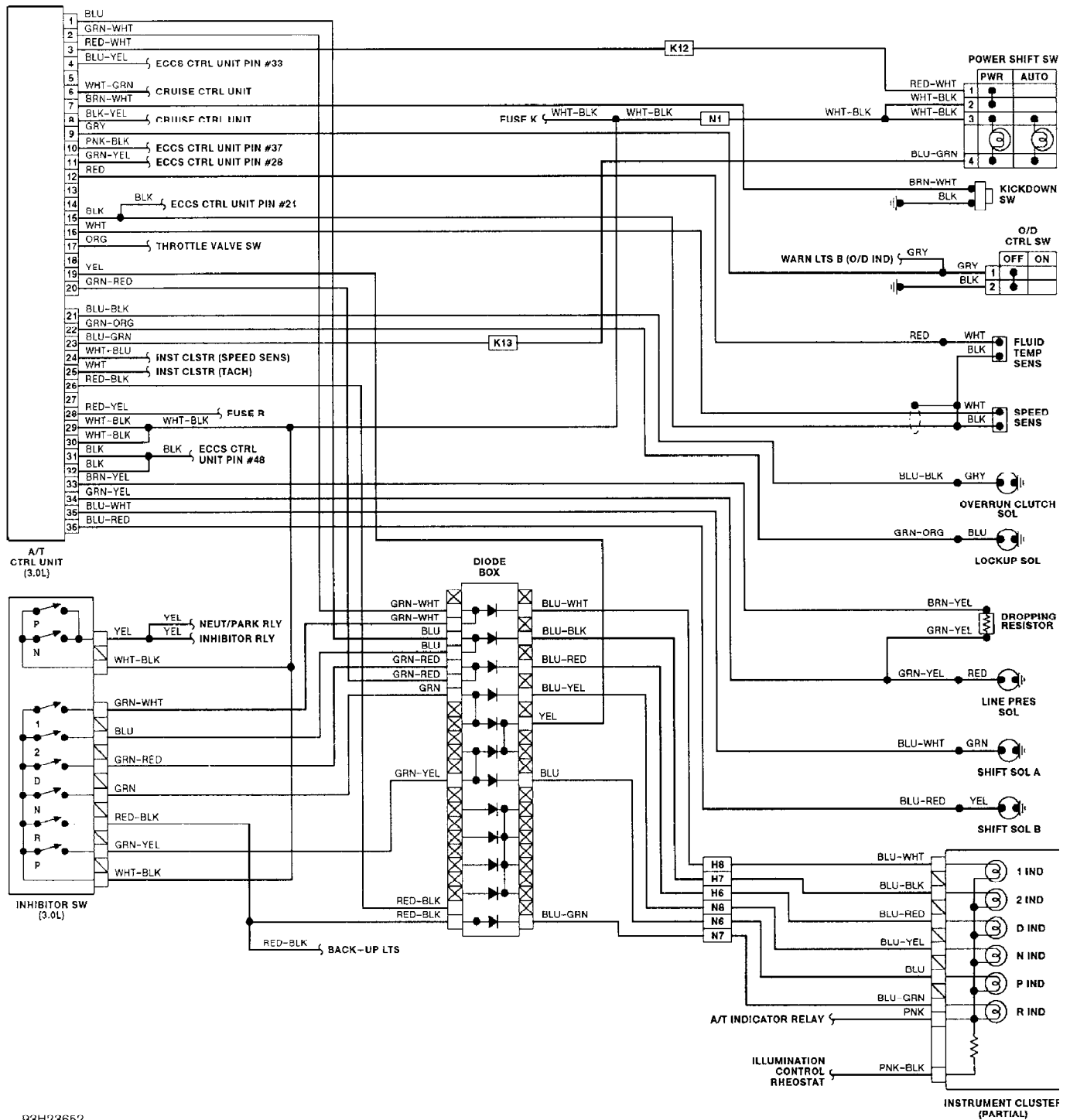
## TRANSMISSION CIRCUIT - PATHFINDER



99J52000  
Fig. 97: Transmission Circuit Wiring Diagram (1988-89 Pathfinder 3.0L)

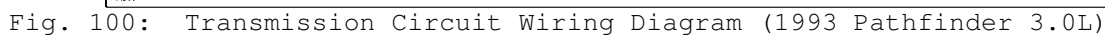


99F52006  
Fig. 98: Transmission Circuit Wiring Diagram (1990 Pathfinder V6)



93H23652  
Fig. 99: Transmission Circuit Wiring Diagram (1991-92 Pathfinder 3.0L)





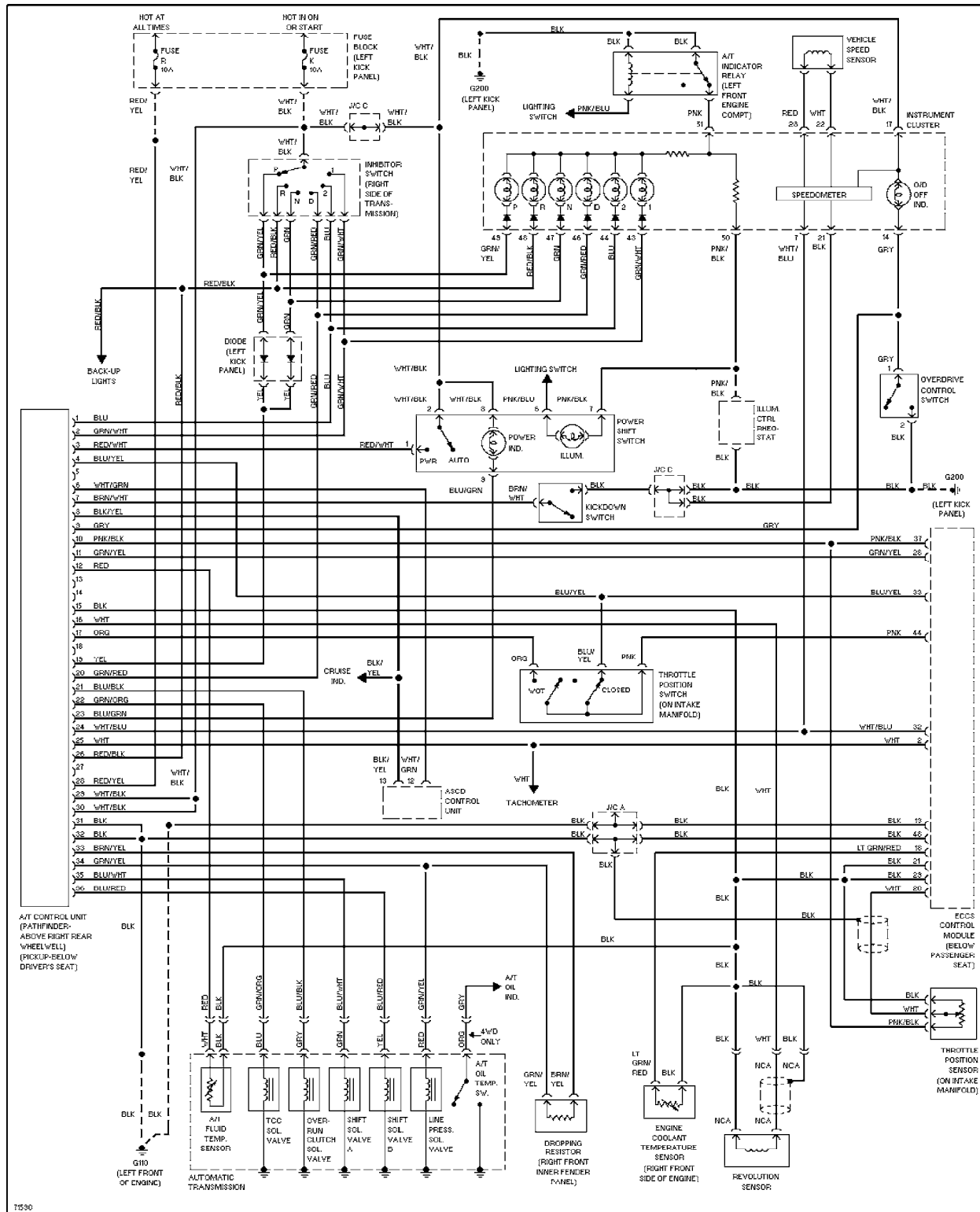
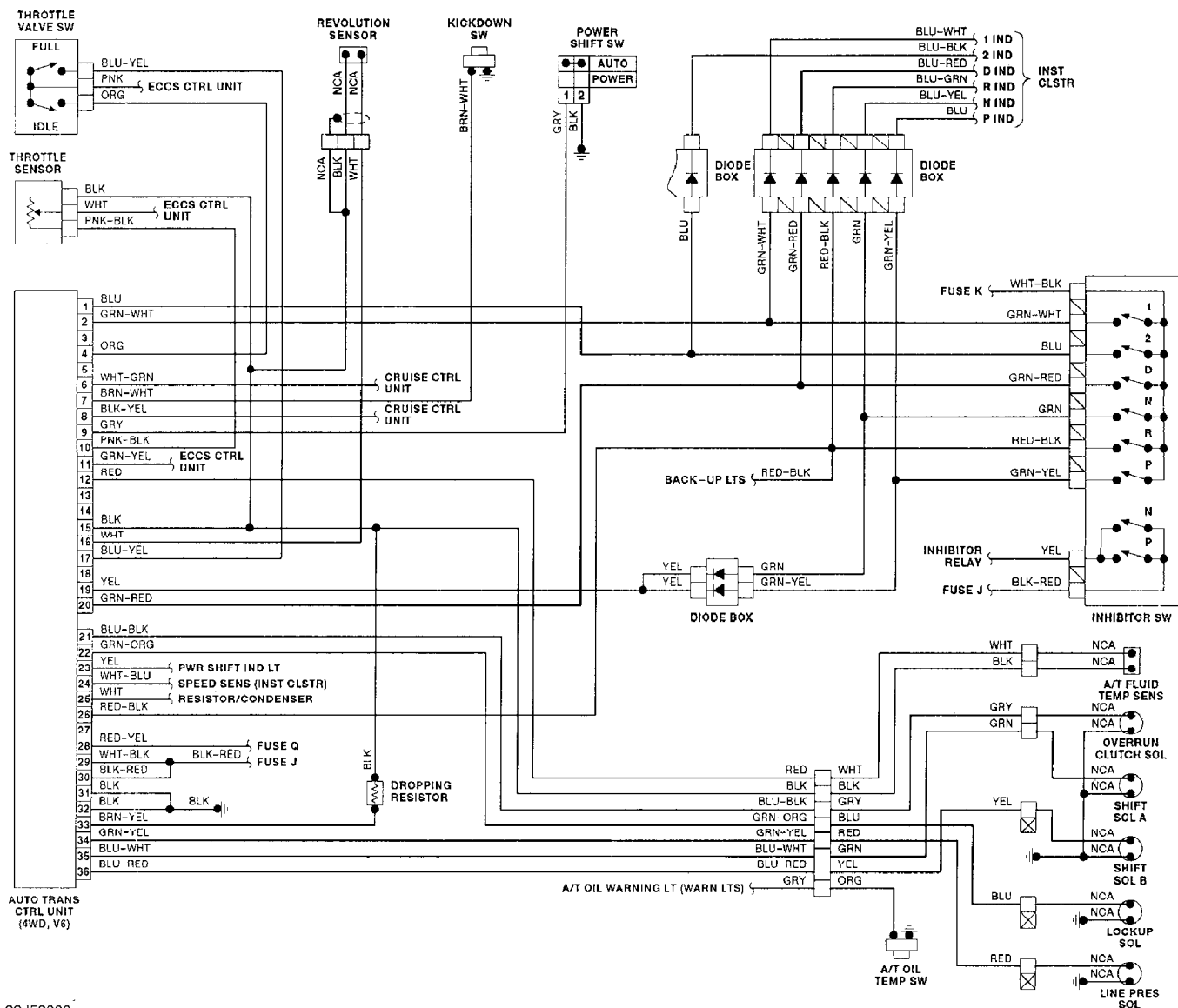
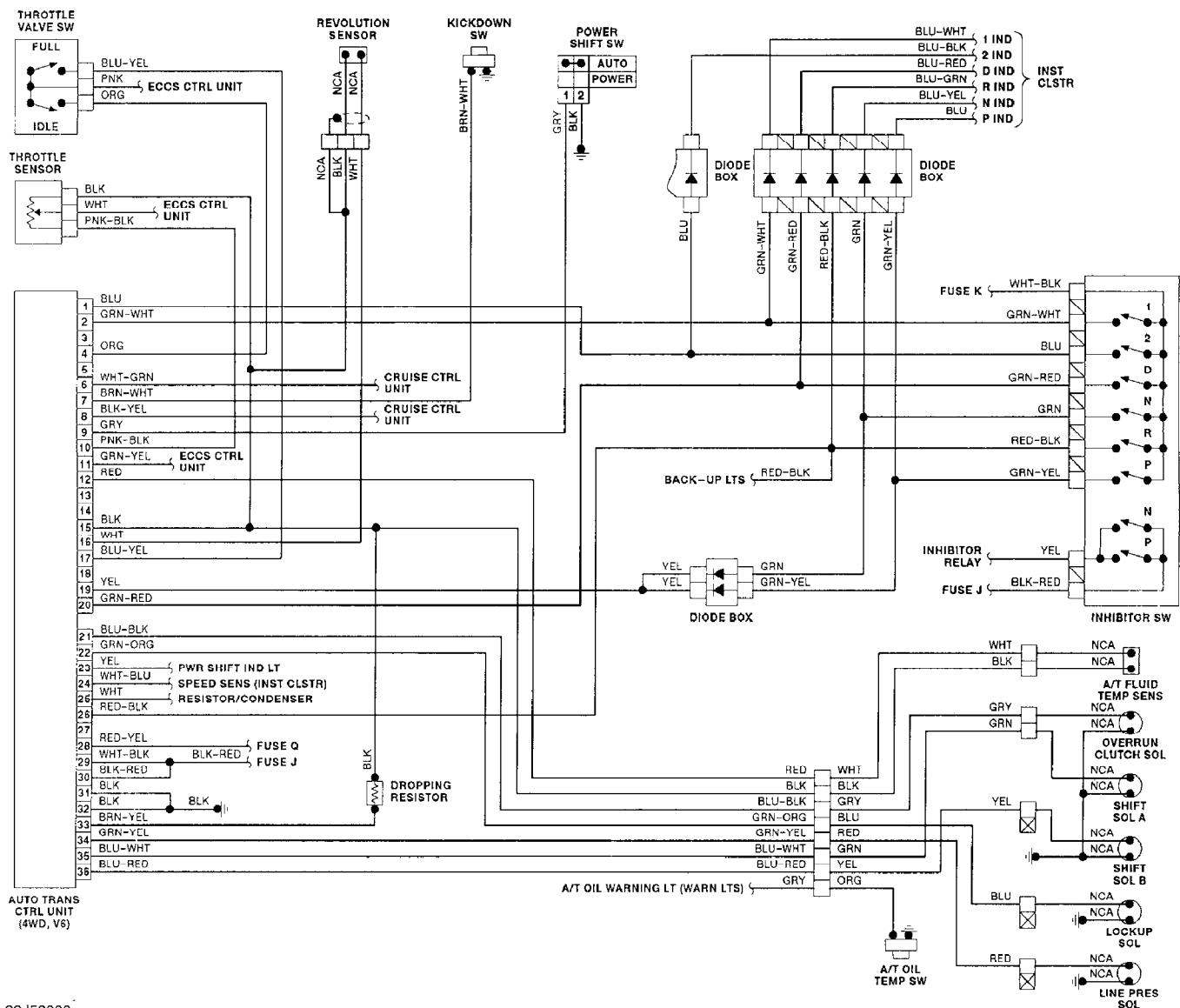


Fig. 101: Transmission Circuit Wiring Diagram (1994 Pathfinder 3.0L)

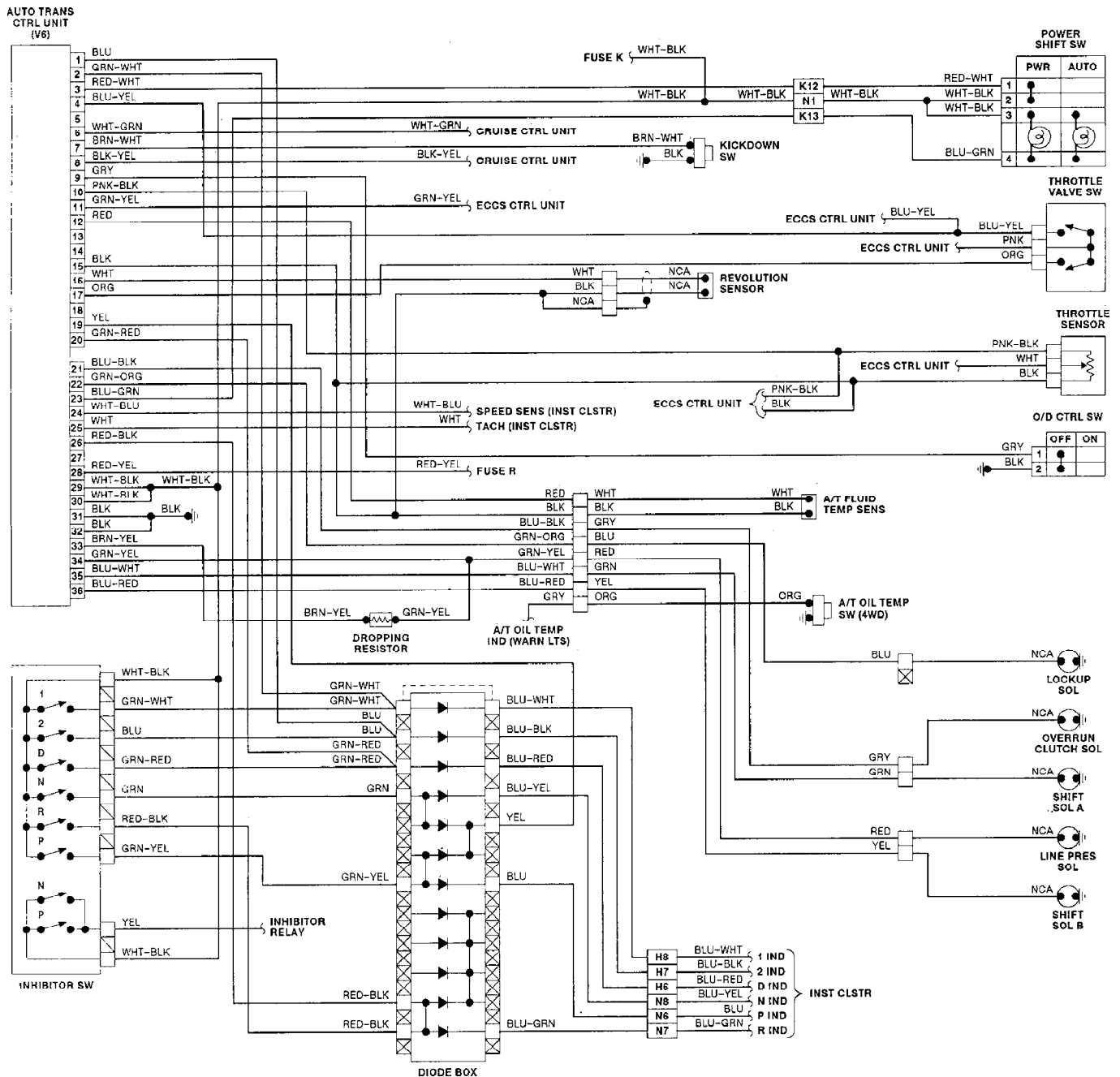
## TRANSMISSION CIRCUIT - PICKUP



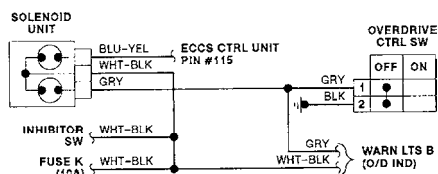
99J52000  
Fig. 102: Transmission Circuit Wiring Diagram (1988-89 Pickup 4WD 3.0L)



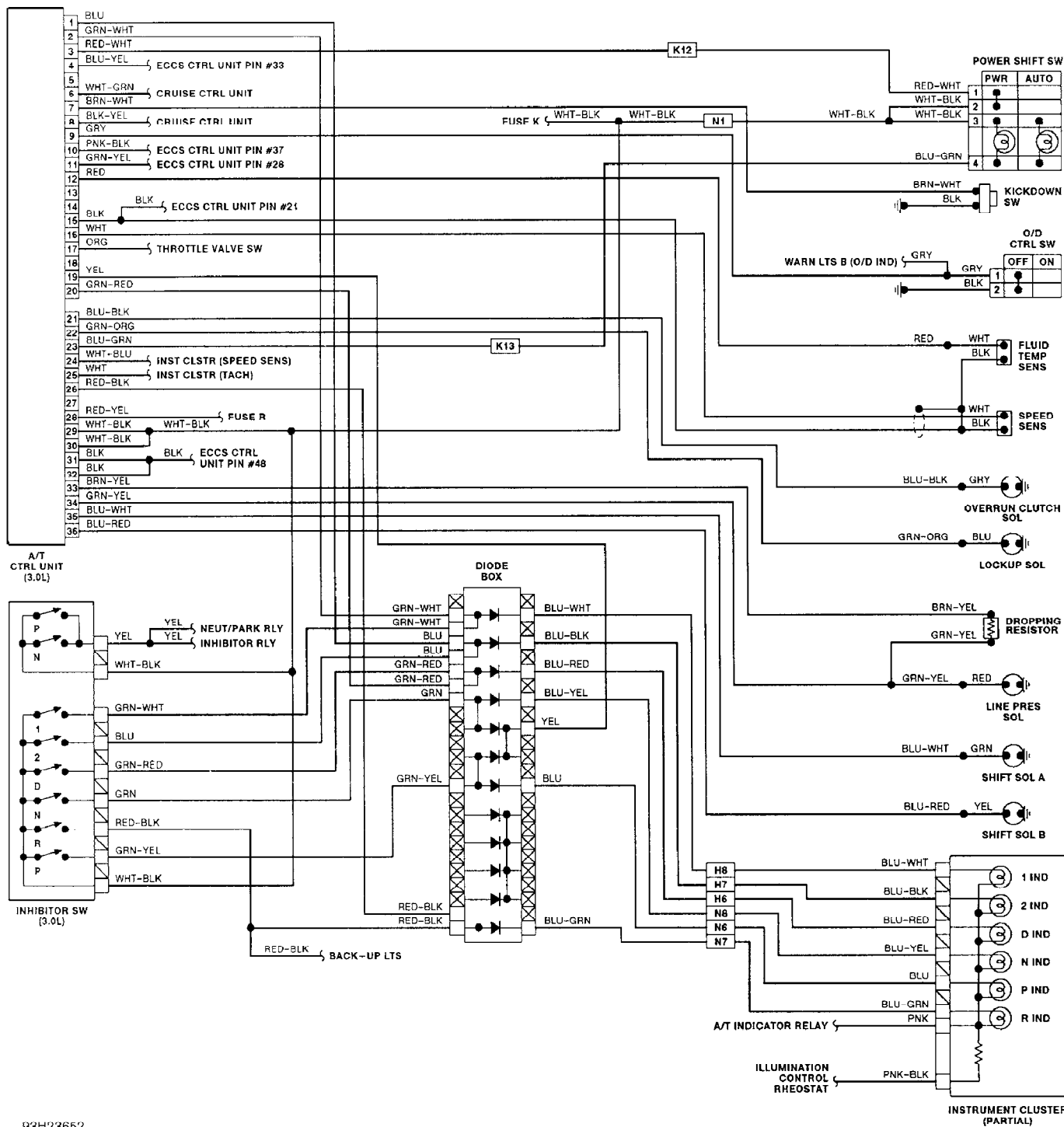
99J52000  
Fig. 103: Transmission Circuit Wiring Diagram (1990 Pickup 2WD 4-Cyl.)



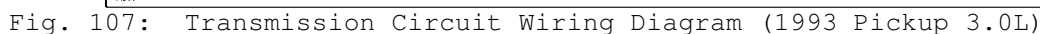
99F52006  
Fig. 104: Transmission Circuit Wiring Diagram (1990 Pickup V6)



93G23651  
Fig. 105: Transmission Circuit Wiring Diagram (1991-92 Pickup 2.4L)



93H23652  
Fig. 106: Transmission Circuit Wiring Diagram (1991-92 Pickup 3.0L)



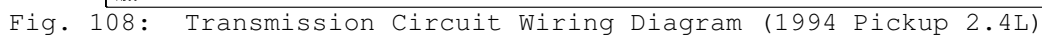
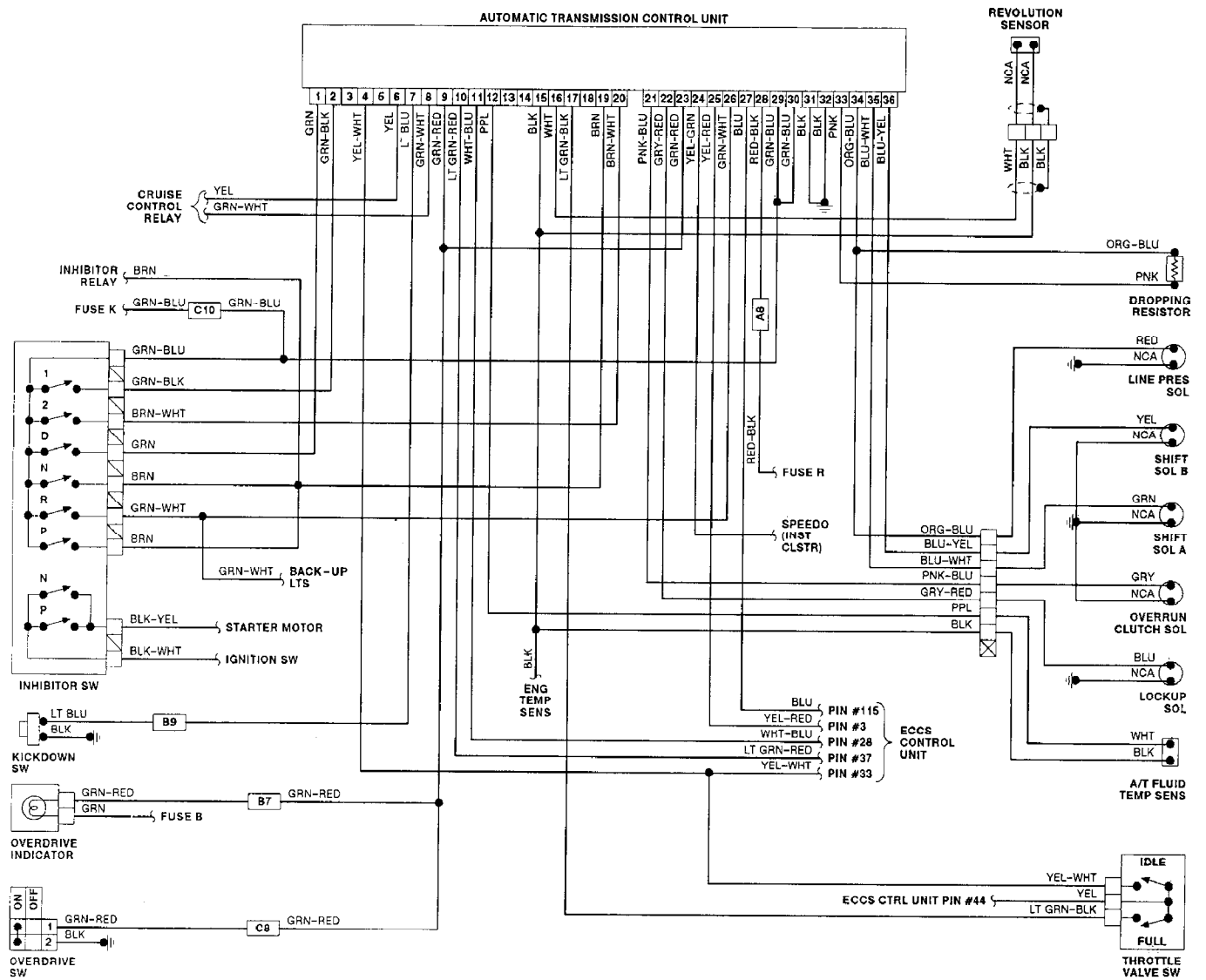




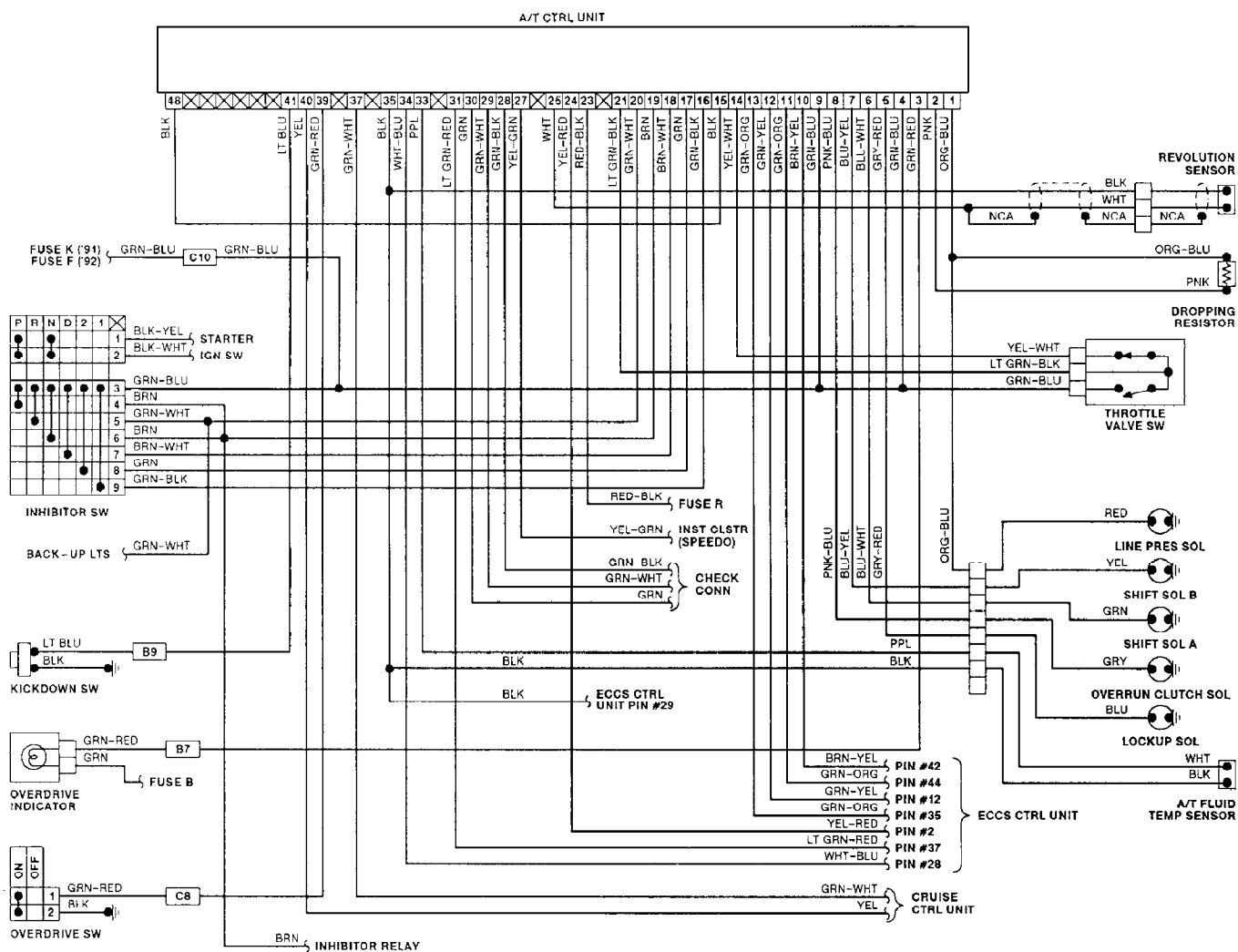
Fig. 109: Transmission Circuit Wiring Diagram (1994 Pickup 3.0L)

## TRANSMISSION CIRCUIT - 240SX



99B52002

Fig. 110: Transmission Circuit Wiring Diagram (1989-90 240SX)



93123653  
Fig. 111: Transmission Circuit Wiring Diagram (1991-92 240SX)

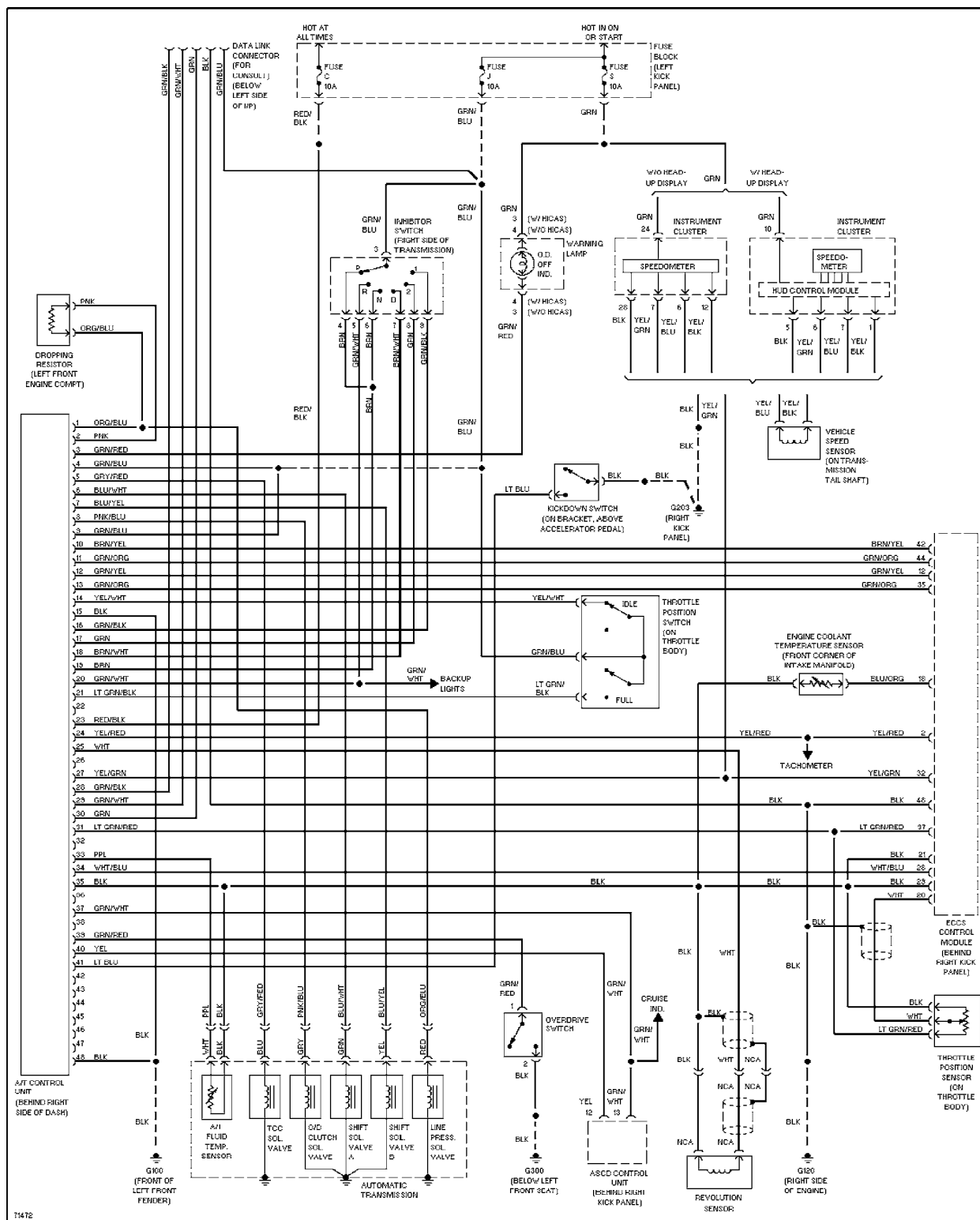
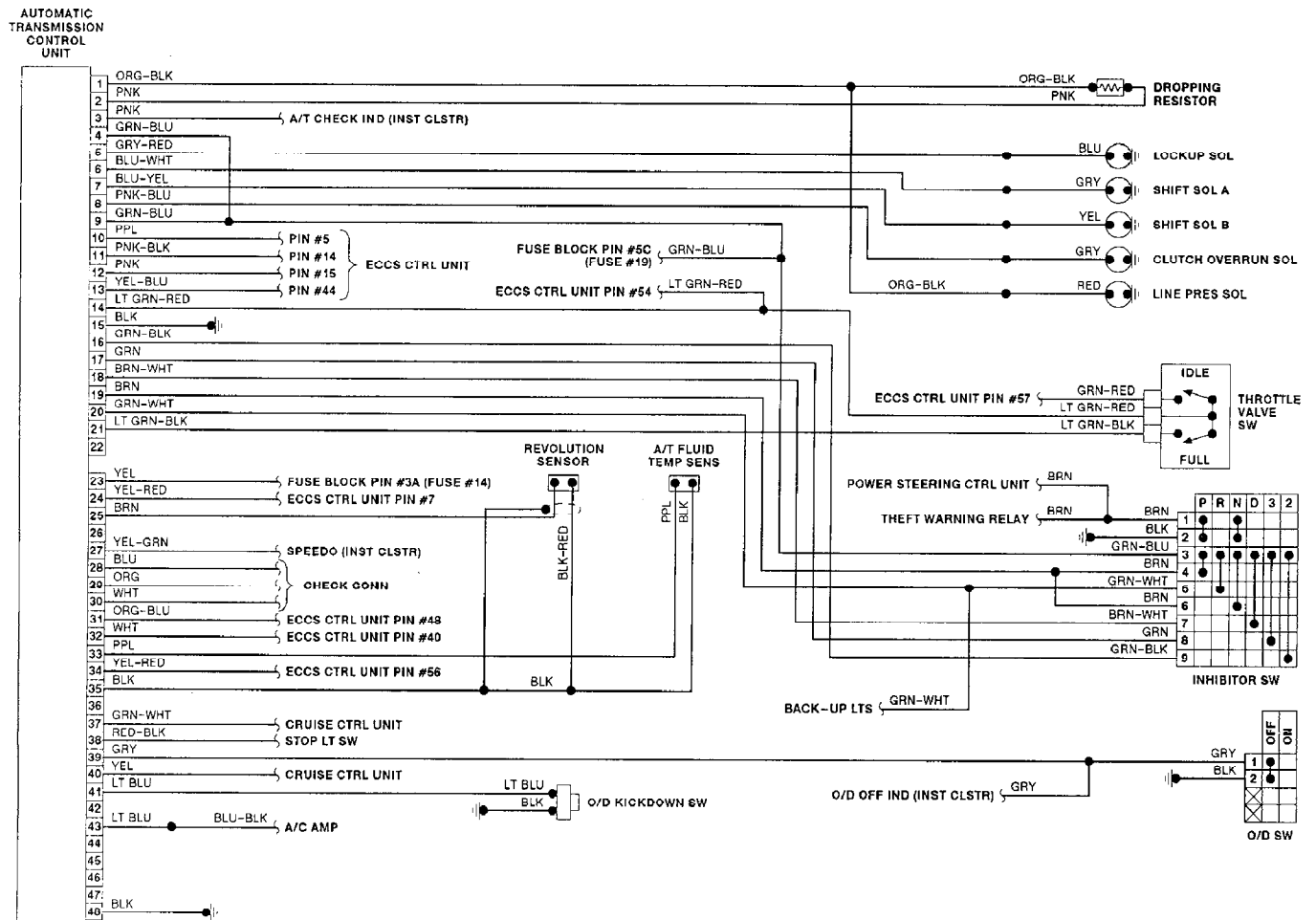
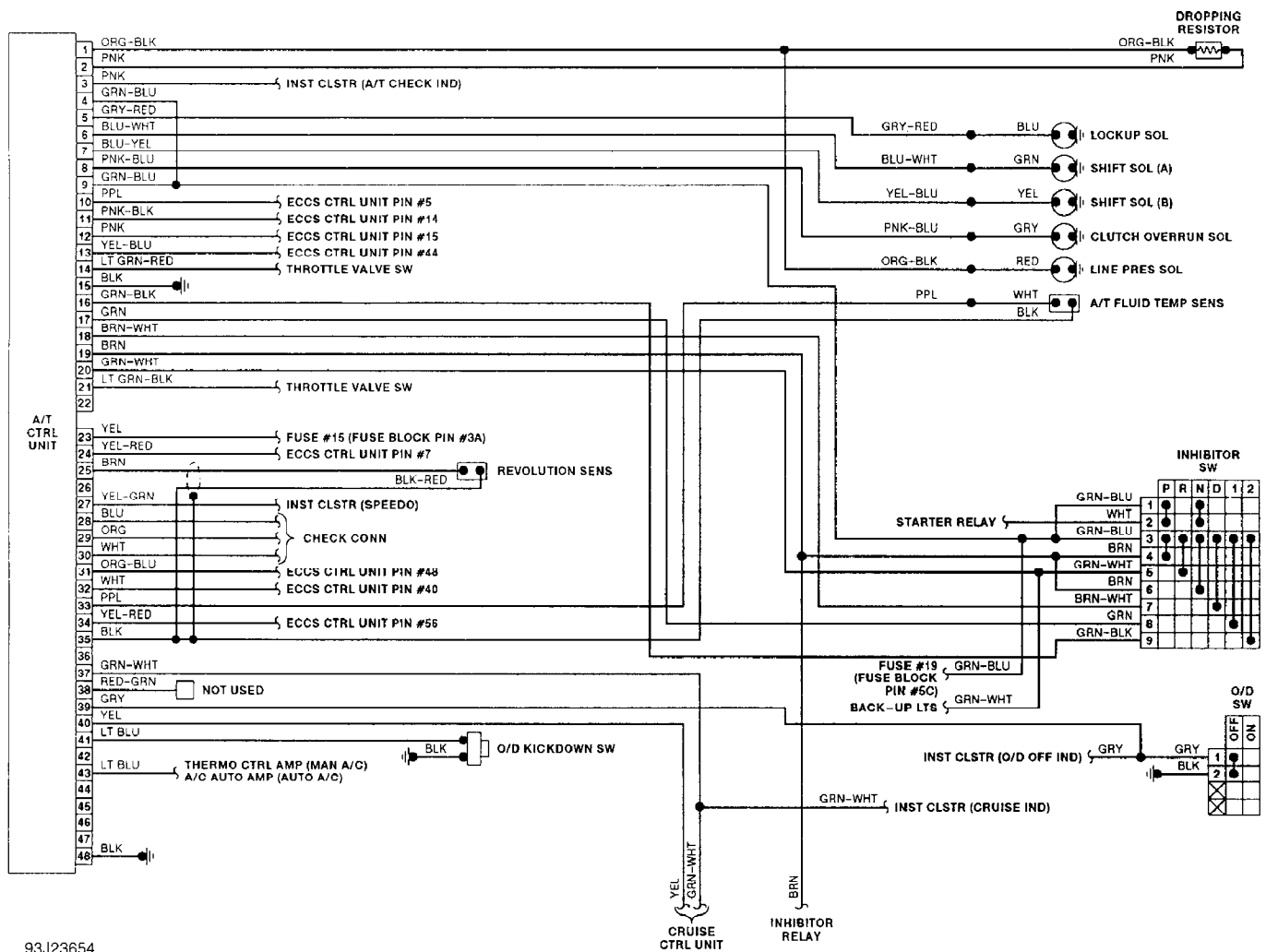


Fig. 112: Transmission Circuit Wiring Diagram (1993-94 240SX)

## TRANSMISSION CIRCUIT - 300ZX



99H152008  
Fig. 113: Transmission Circuit Wiring Diagram (1990 300ZX)



93J23654  
Fig. 114: Transmission Circuit Wiring Diagram (1991-92 300ZX)

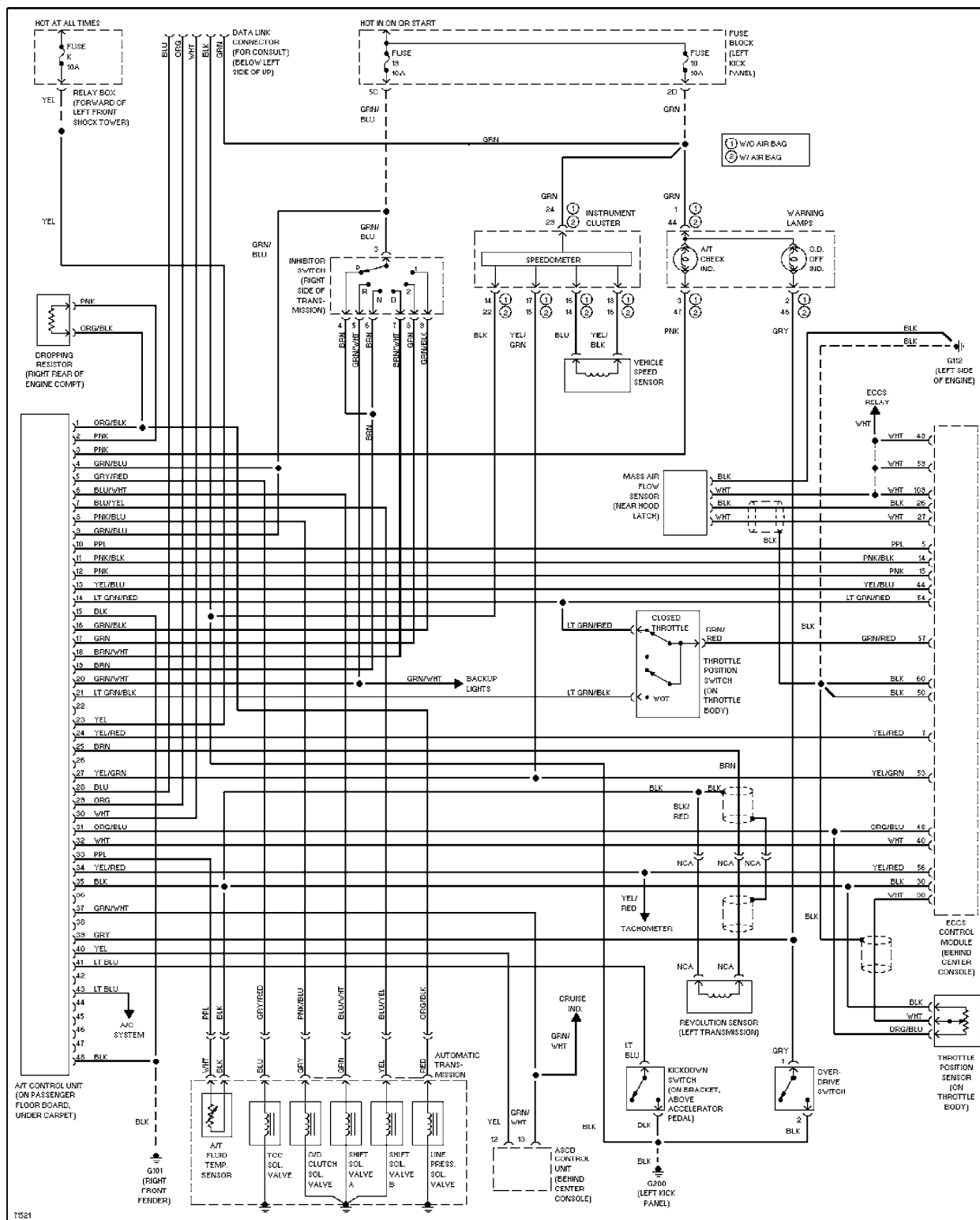


Fig. 115: Transmission Circuit Wiring Diagram (1993-94 300ZX)