



# Technical Service Information

## NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

**COMPLAINT:** After overhaul or valve body replacement, 2004 model Nissan Maximas equipped with the RE5F22A may exhibit a complaint of a harsh tip-in or throttle up 3-1 or 2-1 downshift, that can be at times very violent/harsh.

**CAUSE:** The cause may be, that during overhaul the valve body was replaced with a 2005 and up version that is not compatible with 2004 model Maxima programing. The main difference between the 04 and 05 models is that 04 models do not use a spring for the B5 Control Valve as shown in Figure 7 valve number 53. Refer to Figures 1 and 2 for a partial hydraulic circuit diagram that explains that during the 3-1 downshift transition, the B5 Control Valve regulates the apply rate of the Low and Reverse Clutch (B3), which is switched on by the PCM (*Note: this strategy is not shown in repair manuals*). The B5 Control Valves position is regulated by the "High" duty cycle of the SLU/TCC Lock-up Pressure Control Solenoid. The reason for the harsh downshift is because the 05 and up model valve body utilizes a spring at the end of the B5 Control Valve which causes the valve to be positioned to the left slowing the apply of the Low - Reverse clutch, when it finally applies it slams on causing the harshness.

**CORRECTION:** To correct this condition, simply refer to Figure 7 and remove the two bolt plate and dis-card the spring from the B5 Control Valve (number 53). Figures 3-9 show the exploded views of the 2004 Maxima Valve Body and spring specifications.

*Special thanks to  
Mike Steen of  
Certified Trans.*

## NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

### 3rd GEAR PARTIAL HYDRAULIC SCHEMATIC OF B5 CONTROL VALVE

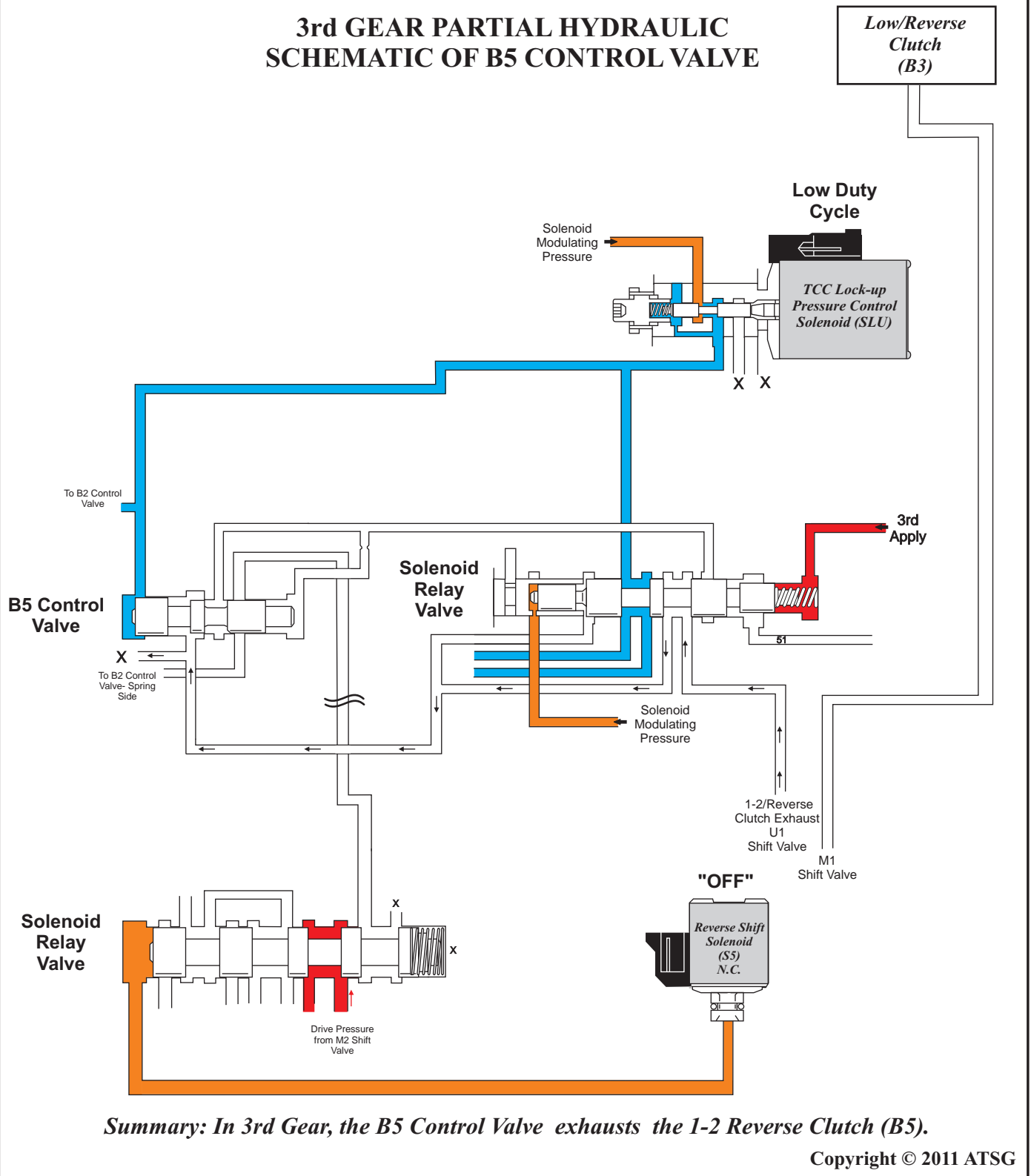
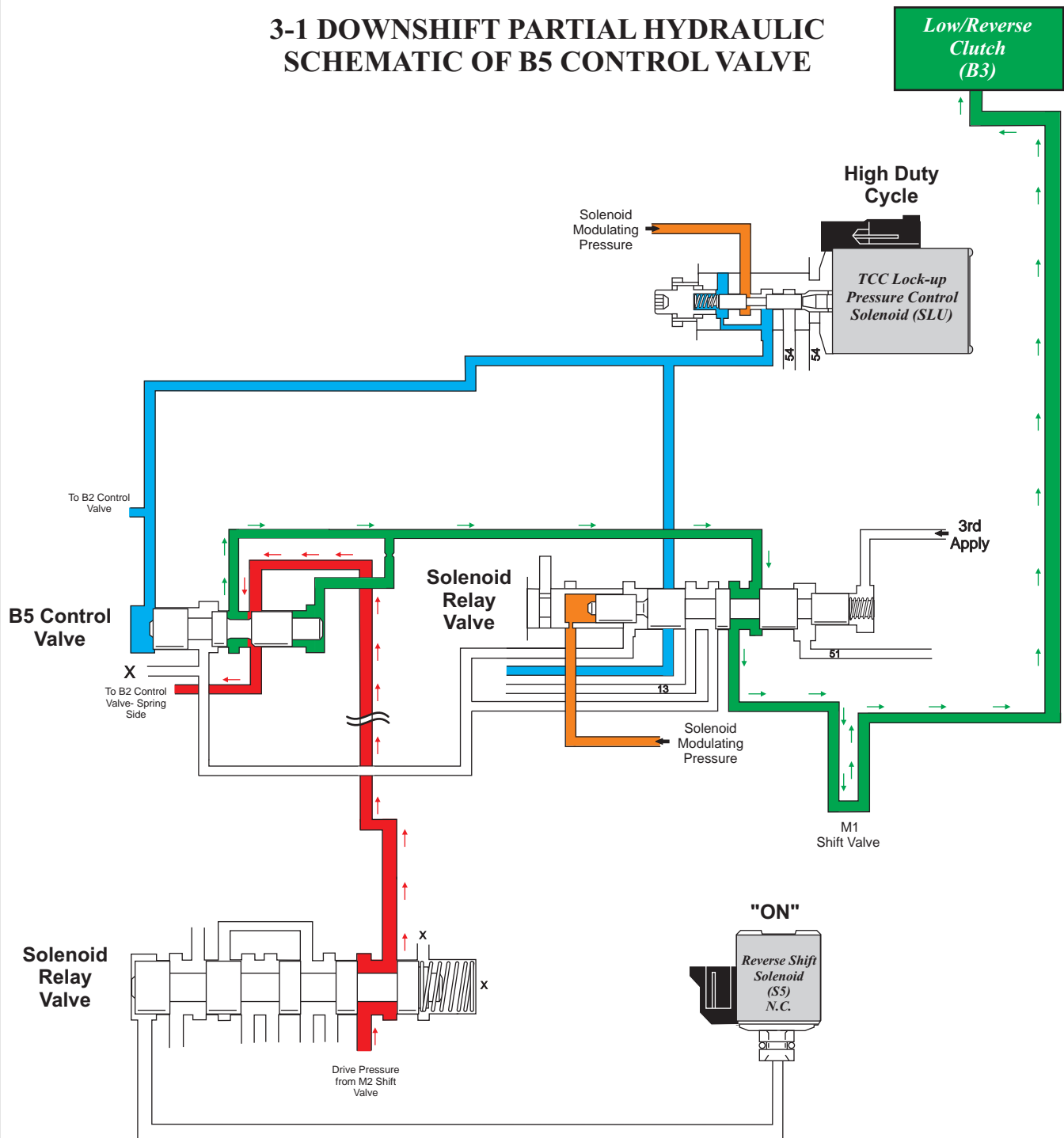


Figure 1

## NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

### 3-1 DOWNSHIFT PARTIAL HYDRAULIC SCHEMATIC OF B5 CONTROL VALVE

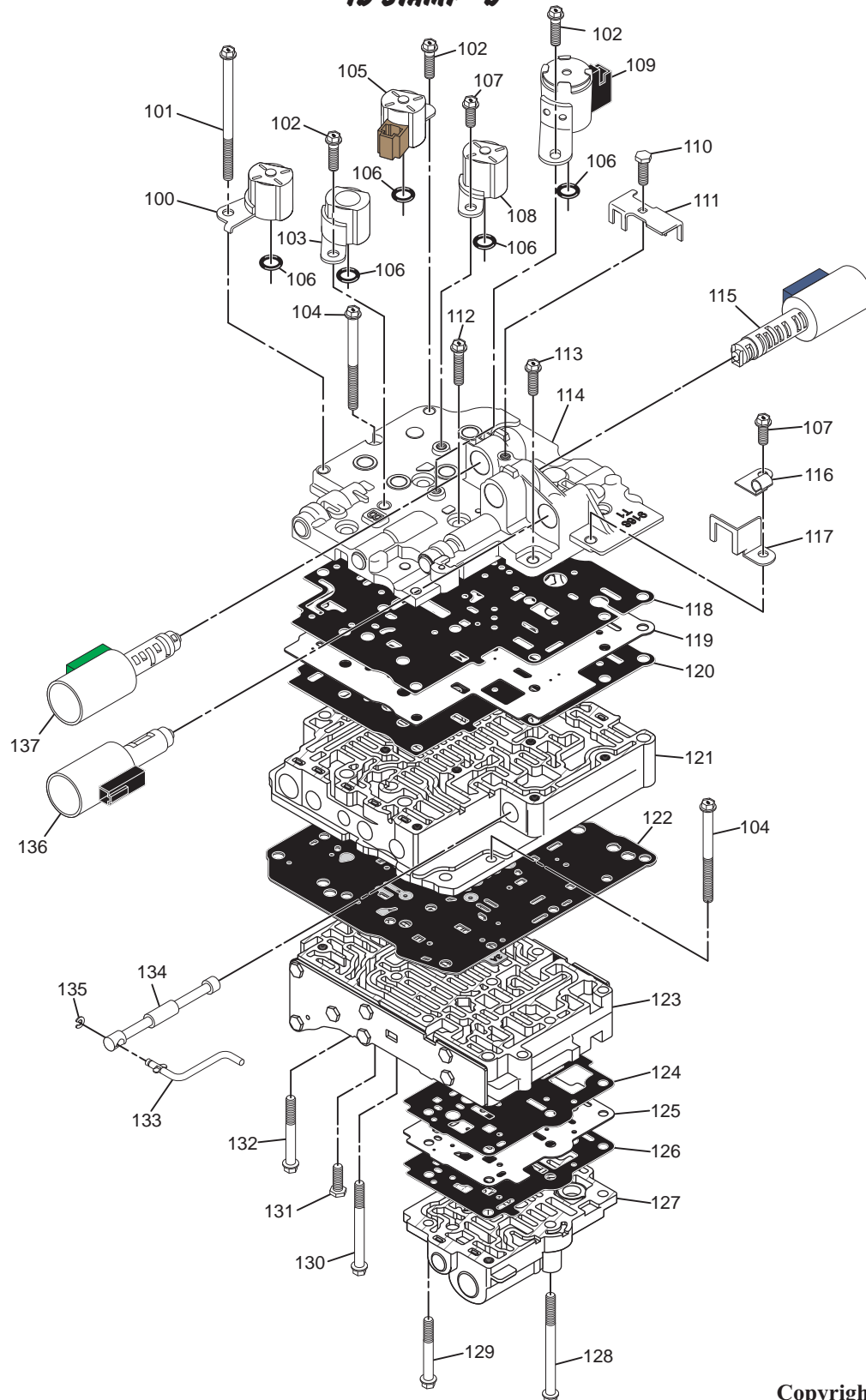


**Summary:** During a 3-1 tip-in downshift the S5 Solenoid is energized and the SLU duty cycle is High, which controls the application of the Low Reverse Clutch. Note: the S5 solenoid is only on briefly during the transition to 1st then goes Off.

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Figure 2

## CONTROL VALVE BODY ASSEMBLY EXPLODED VIEW ID STAMP "B"



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Figure 3



## Technical Service Information

### NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

#### ***CONTROL VALVE BODY ASSEMBLY LEGEND***

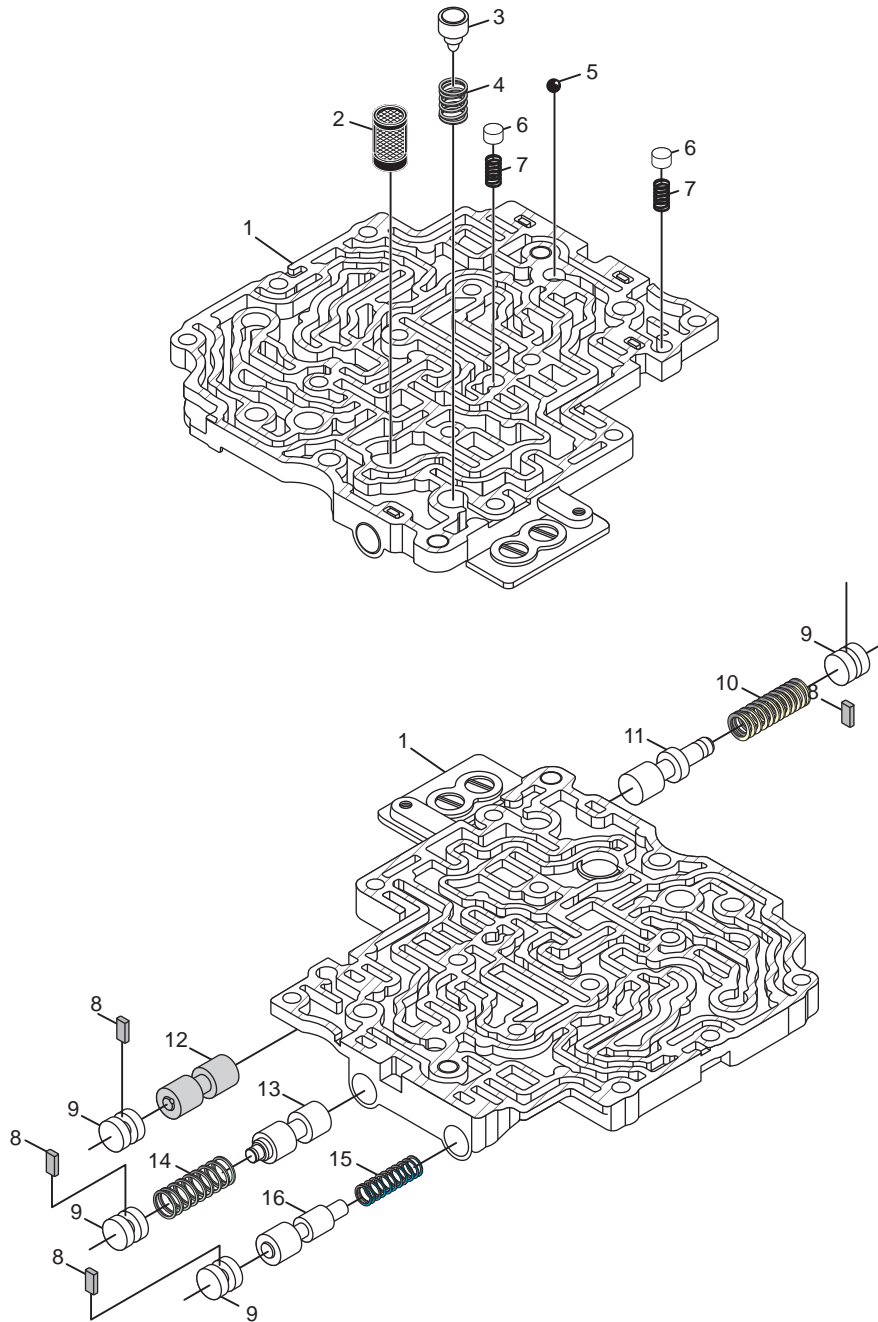
- |  |  |
|--|--|
| 100. 1-2, 2-3, REVERSE SHIFT SOLENOID (S3)<br>CONNECTOR (DARK GRAY)              | 120. FRONT CONTROL VALVE BODY TO<br>MIDDLE CONTROL VALVE BODY GASKET   |
| 101. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 62 mm) (1 REQUIRED)                  | 121. MIDDLE CONTROL VALVE BODY ASSEMBLY  |
| 102. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 28 mm) (3 REQUIRED)                  | 122. MIDDLE CONTROL VALVE BODY ASSEMBLY TO<br>LOWER CONTROL VALVE BODY SEPARATOR PLATE<br>AND BONDED GASKETS |
| 103. 3-4, 4-5 SHIFT SOLENOID (S4)<br>CONNECTOR (BLUE)                            | 123. REAR CONTROL VALVE BODY ASSEMBLY  |
| 104. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 50mm) (2 REQUIRED)                   | 124. REAR CONTROL VALVE BODY ASSEMBLY TO<br>NO. 2 REAR CONTROL VALVE BODY ASSEMBLY<br>GASKET                 |
| 105. REVERSE SHIFT SOLENOID (S5)<br>CONNECTOR (BROWN)                            | 125. REAR CONTROL VALVE BODY SPACER PLATE  |
| 106. SHIFT SOLENOID VALVE O-RING SEAL<br>(5 REQUIRED)                            | 126. REAR CONTROL VALVE BODY SPACER PLATE TO<br>NO. 2 REAR CONTROL VALVE BODY GASKET                         |
| 107. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 10 mm) (2 REQUIRED)                  | 127. NO. 2 REAR CONTROL VALVE BODY ASSEMBLY  |
| 108. 2-3, 3-4 SHIFT SOLENOID (S2)<br>CONNECTOR (BLACK)                           | 128. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 76 mm) (1 REQUIRED)  |
| 109. REVERSE, 1ST SHIFT SOLENOID (S1)<br>CONNECTOR (BLACK)                       | 129. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 49.5 mm) (4 REQUIRED)  |
| 110. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 13 mm) (1 REQUIRED)                  | 130. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 40 mm) (1 REQUIRED)  |
| 111. SOLENOID HOLD DOWN BRACKET<br>(SOLENOID SLS/SLT)                            | 131. CONTROL VALVE BODY ASSEMBLY PRESSURE<br>TEST PORT BOLT (M6 X 1.0 X 12 mm) (1 REQUIRED)                  |
| 112. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 20 mm) (4 REQUIRED)                  | 132. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 35 mm) (2 REQUIRED)  |
| 113. CONTROL VALVE BODY BOLT<br>(M5 X 0.8 X 16 mm) (2 REQUIRED)                  | 133. MANUAL VALVE LINK   |
| 114. FRONT CONTROL VALVE BODY ASSEMBLY   | 134. MANUAL VALVE  |
| 115. LINE PRESSURE CONTROL SOLENOID (SLT)<br>CONNECTOR (BLUE)                    | 135. MANUAL VALVE LINK RETAINING CLIP  |
| 116. A/T INTERNAL WIRE HARNESS CLIP  | 136. TCC PRESSURE CONTROL SOLENOID (SLU)<br>CONNECTOR (BLACK)  |
| 117. TCC PRESSURE CONTROL SOLENOID (SLU)<br>RETAINING BRACKET                    | 137. SHIFT PRESSURE CONTROL SOLENOID (SLS)<br>CONNECTOR (GREEN)  |
| 118. FRONT CONTROL VALVE BODY SPACER PLATE TO<br>FRONT CONTROL VALVE BODY GASKET |  |
| 119. FRONT CONTROL VALVE BODY SEPARATOR PLATE                                    |  |

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Figure 4

## NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

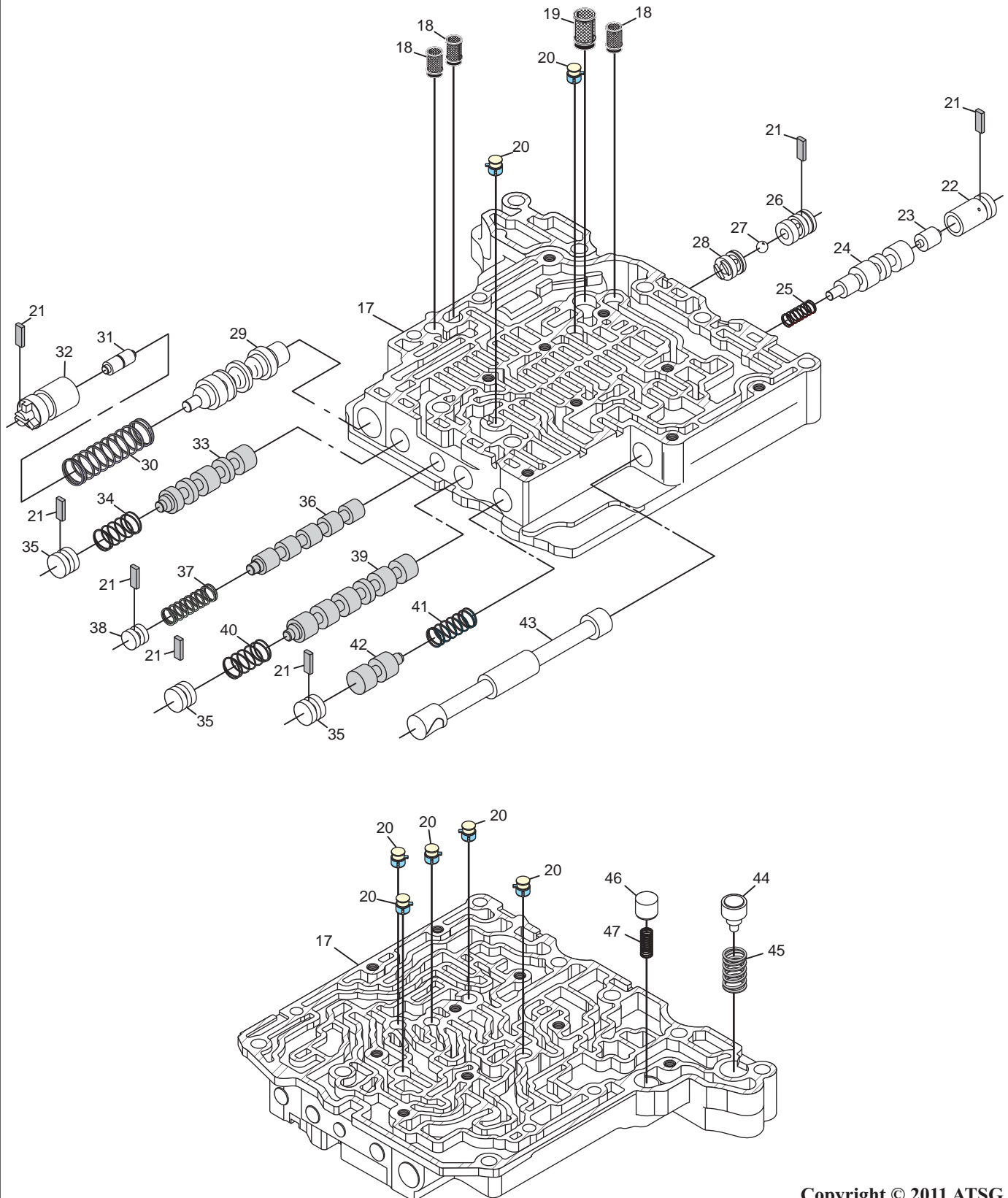
### FRONT CONTROL VALVE BODY



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Figure 5

## MIDDLE CONTROL VALVE BODY

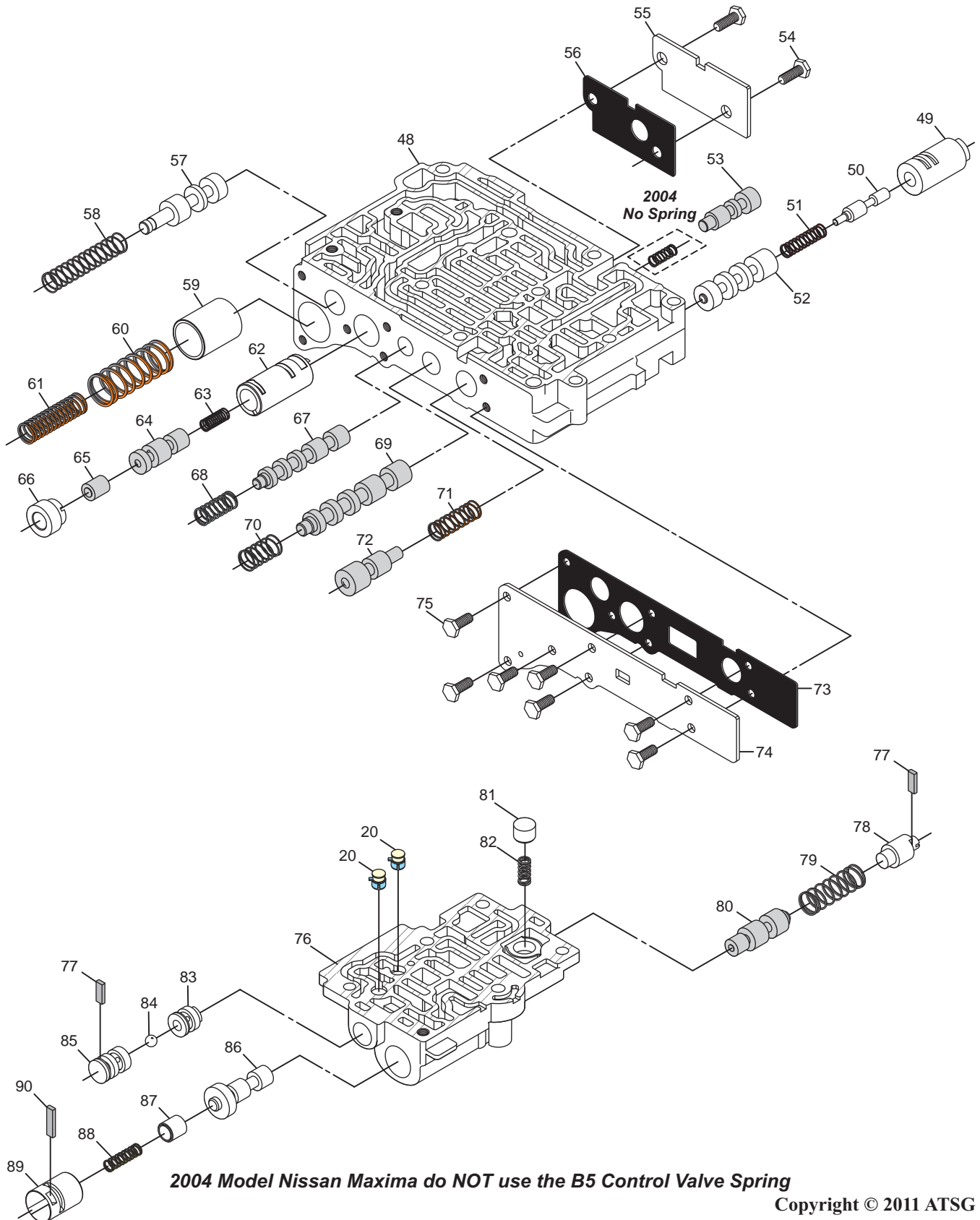


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Figure 6



## REAR CONTROL VALVE BODY NO. 2 REAR CONTROL VALVE BODY



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Figure 7





## Technical Service Information

### NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

#### ***CONTROL VALVE BODY ASSEMBLY LEGEND***

- |   |   |
|---|---|
| 1. FRONT CONTROL VALVE BODY                           | 46. TCC CHECK VALVE                                   |
| 2. SOLENOID MODULATOR VALVE OIL FILTER                | 47. TCC CHECK VALVE SPRING (ID. YELLOW)               |
| 3. PRESSURE RELIEF VALVE                              | 48. REAR CONTROL VALVE BODY                           |
| 4. PRESSURE RELIEF VALVE SPRING (ID. NONE)            | 49. LOCK UP RELAY CONTROL VALVE SLEEVE                |
| 5. FORWARD CLUTCH (C1) ACCUMULATOR BALL #12           | 50. LOCK UP RELAY CONTROL VALVE PLUNGER               |
| 6. EXHAUST CHECK VALVE (2 REQUIRED)                   | 51. LOCK UP RELAY CONTROL VALVE SPRING (ID. RED)      |
| 7. EXHAUST CHECK VALVE SPRING (ID. NONE) (2 REQUIRED) | 52. LOCK UP RELAY CONTROL VALVE                       |
| 8. BORE PLUG RETAINER (4 @ 3.2 X 5 X 10 mm)           | 53. 1-2/REVERSE CLUTCH (B5) CONTROL VALVE             |
| 9. BORE PLUG (4)                                      | 54. COVER PLATE ATTACHING BOLT (2 REQUIRED)           |
| 10. SOLENOID MODULATOR VALVE SPRING (ID. YELLOW)      | 55. REAR CONTROL VALVE BODY COVER PLATE               |
| 11. SOLENOID MODULATOR VALVE                          | 56. REAR CONTROL VALVE BODY COVER PLATE GASKET        |
| 12. FORWARD CLUTCH (C1) CONTROL VALVE                 | 57. SECONDARY REGULATOR VALVE                         |
| 13. NEUTRAL RELAY VALVE                               | 58. SECONDARY REGULATOR VALVE SPRING (ID. NONE)       |
| 14. NEUTRAL RELAY VALVE SPRING (ID. LT. GREEN)        | 59. SOLENOID SLT ACCUMULATOR PISTON                   |
| 15. 2ND COAST (B1) CONTROL VALVE SPRING (ID. BLUE)    | 60. SLT ACCUMULATOR OUTER SPRING (ID. ORANGE)         |
| 16. 2ND COAST (B1) CONTROL VALVE                      | 61. SLT ACCUMULATOR INNER SPRING (ID. ORANGE)         |
| 17. MIDDLE CONTROL VALVE BODY                         | 62. SHIFT PRESSURE CONTROL VALVE SLEEVE               |
| 18. SOLENOID OIL FILTER (S2, S3, S4)                  | 63. SHIFT PRESSURE CONTROL VALVE SPRING (ID. WHITE)   |
| 19. SOLENOID OIL FILTER (S1, S5)                      | 64. SHIFT PRESSURE CONTROL VALVE                      |
| 20. ACCUMULATOR CHECK VALVE                           | 65. SHIFT PRESSURE CONTROL VALVE PLUNGER              |
| 21. BORE PLUG RETAINER (7 @ 3.2 X 5 X 12.5 mm)        | 66. SHIFT PRESSURE CONTROL VALVE PLUNGER SLEEVE       |
| 22. SOLENOID RELAY VALVE SLEEVE                       | 67. M2 SHIFT VALVE                                    |
| 23. SOLENOID RELAY VALVE PLUNGER                      | 68. M2 SHIFT VALVE SPRING (ID. LT. BLUE)              |
| 24. SOLENOID RELAY VALVE                              | 69. SHIFT PRESSURE RELAY VALVE                        |
| 25. SOLENOID RELAY VALVE SPRING (ID. ORANGE)          | 70. SHIFT PRESSURE RELAY VALVE SPRING (ID. LT. GREEN) |
| 26. REVERSE SHIFT CHECK BALL OUTER BUSHING            | 71. B4 BAND CONTROL VALVE SPRING (ID. ORANGE)         |
| 27. REVERSE SHIFT CHECK BALL                          | 72. B4 BAND CONTROL VALVE                             |
| 28. REVERSE SHIFT CHECK BALL INNER BUSHING            | 73. REAR CONTROL VALVE BODY COVER PLATE GASKET        |
| 29. PRESSURE REGULATOR VALVE                          | 74. REAR CONTROL VALVE BODY COVER PLATE               |
| 30. PRESSURE REGULATOR VALVE SPRING (ID. PURPLE)      | 75. COVER PLATE ATTACHING BOLT (7 REQUIRED)           |
| 31. PRESSURE REGULATOR VALVE PLUNGER                  | 76. NO. 2 REAR CONTROL VALVE BODY                     |
| 32. PRESSURE REGULATOR VALVE SLEEVE                   | 77. BORE PLUG RETAINER (2 @ 3.2 X 5 X 15 mm)          |
| 33. U2 SHIFT VALVE                                    | 78. 2ND CLUTCH (B2) CONTROL VALVE PLUG                |
| 34. U2 SHIFT VALVE SPRING (ID. LT. GREEN)             | 79. 2ND CLUTCH (B2) CONTROL VALVE SPRING (ID. NONE)   |
| 35. BORE PLUG (3)                                     | 80. 2ND CLUTCH (B2) CONTROL VALVE                     |
| 36. M1 SHIFT VALVE                                    | 81. TCC CHECK VALVE                                   |
| 37. M1 SHIFT VALVE SPRING (ID. LT. GREEN)             | 82. TCC CHECK VALVE SPRING (ID. WHITE)                |
| 38. M1 SHIFT VALVE BORE PLUG (1)                      | 83. REVERSE INHIBIT CHECK BALL INNER BUSHING          |
| 39. U1 SHIFT VALVE                                    | 84. REVERSE INHIBIT CHECK BALL                        |
| 40. U1 SHIFT VALVE SPRING (ID. LT. GREEN)             | 85. REVERSE INHIBIT CHECK BALL OUTER BUSHING          |
| 41. B4 RELEASE VALVE SPRING (ID. BLUE)                | 86. LOCK UP CONTROL VALVE                             |
| 42. B4 RELEASE VALVE                                  | 87. LOCK UP CONTROL VALVE PLUNGER                     |
| 43. MANUAL VALVE                                      | 88. LOCK UP CONTROL VALVE SPRING (ID. YELLOW)         |
| 44. COOLER BYPASS VALVE                               | 89. LOCK UP CONTROL VALVE SLEEVE                      |
| 45. COOLER BYPASS VALVE SPRING (ID. NONE)             | 90. BORE PLUG RETAINER (1 @ 3.2 X 5 X 21.2 mm)        |

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Figure 8



## Technical Service Information

### NISSAN RE5F22A HARSH DOWNSHIFT ON THROTTLE UP

#### **CONTROL VALVE BODY ASSEMBLY SPRING SPECIFICATIONS LATE VALVE BODY ID. STAMP "B"**

PRESSURE RELIEF VALVE SPRING (4) WIRE DIAMETER .050" OUTSIDE DIAMETER .370" OVERALL LENGTH 1.128" COILS 5 COLOR ID. NONE	SOLENOID MODULATOR VALVE SPRING (10) WIRE DIAMETER .043" OUTSIDE DIAMETER .315" OVERALL LENGTH 1.113" COILS 12 COLOR ID. YELLOW	NEUTRAL RELAY VALVE SPRING (14) WIRE DIAMETER .026" OUTSIDE DIAMETER .324" OVERALL LENGTH 1.021" COILS 9 COLOR ID. LT. GREEN	B1 CONTROL VALVE SPRING (15) WIRE DIAMETER .022" OUTSIDE DIAMETER .233" OVERALL LENGTH .716" COILS 11 COLOR ID. BLUE
SOLENOID RELAY VALVE SPRING (25) WIRE DIAMETER .019" OUTSIDE DIAMETER .235" OVERALL LENGTH .800" COILS 9 COLOR ID. ORANGE	PRESSURE REGULATOR VALVE SPRING (30) WIRE DIAMETER .047" OUTSIDE DIAMETER .525" OVERALL LENGTH 1.890" COILS 12 COLOR ID. PURPLE	U2 SHIFT VALVE SPRING (34) WIRE DIAMETER .032" OUTSIDE DIAMETER .394" OVERALL LENGTH 1.035" COILS 7 COLOR ID. LT. GREEN	M1 SHIFT VALVE SPRING (37) WIRE DIAMETER .026" OUTSIDE DIAMETER .323" OVERALL LENGTH 1.040" COILS 9 COLOR ID. LT. GREEN
U1 SHIFT VALVE SPRING (40) WIRE DIAMETER .032" OUTSIDE DIAMETER .396" OVERALL LENGTH 1.044" COILS 7 COLOR ID. LT. GREEN	B4 BAND RELEASE VALVE SPRING (41) WIRE DIAMETER .027" OUTSIDE DIAMETER .354" OVERALL LENGTH 0.92" COILS 8 COLOR ID. BLUE	COOLER BYPASS VALVE SPRING (45) WIRE DIAMETER .042" OUTSIDE DIAMETER .471" OVERALL LENGTH .680" COILS 6 COLOR ID. NONE	TCC CHECK VALVE SPRING (47) WIRE DIAMETER .019" OUTSIDE DIAMETER .270" OVERALL LENGTH .654" COILS 11 COLOR ID. YELLOW
LOCK UP RELAY VALVE SPRING (51) WIRE DIAMETER .022" OUTSIDE DIAMETER .231" OVERALL LENGTH 0.927" COILS 12 COLOR ID. RED	SECONDARY REGULATOR VALVE SPRING (58) WIRE DIAMETER .038" OUTSIDE DIAMETER .375" OVERALL LENGTH 1.860" COILS 16 COLOR ID. NONE	SLT ACCUMULATOR SPRING OUTER (60) WIRE DIAMETER .088" OUTSIDE DIAMETER .642" OVERALL LENGTH 1.560" COILS 9 COLOR ID. ORANGE	SLT ACCUMULATOR SPRING INNER (61) WIRE DIAMETER .063" OUTSIDE DIAMETER .409" OVERALL LENGTH 1.550" COILS 15 COLOR ID. ORANGE
SHIFT PRESSURE CONTROL VALVE SPRING (63) WIRE DIAMETER .025" OUTSIDE DIAMETER .229" OVERALL LENGTH 0.620" COILS 12 COLOR ID. WHITE	M2 SHIFT VALVE SPRING (68) WIRE DIAMETER .027" OUTSIDE DIAMETER .320" OVERALL LENGTH 1.044" COILS 9 COLOR ID. LT. BLUE	SHIFT PRESSURE RELAY VALVE SPRING (70) WIRE DIAMETER .033" OUTSIDE DIAMETER .397" OVERALL LENGTH 1.045" COILS 7 COLOR ID. LT. GREEN	B4 CONTROL VALVE SPRING (71) WIRE DIAMETER .032" OUTSIDE DIAMETER .293" OVERALL LENGTH 0.977" COILS 10 COLOR ID. ORANGE
B2 CONTROL VALVE SPRING (79) WIRE DIAMETER .032" OUTSIDE DIAMETER .382" OVERALL LENGTH 1.339" COILS 9 COLOR ID. NONE	TCC CHECK VALVE SPRING (82) WIRE DIAMETER .016" OUTSIDE DIAMETER .205" OVERALL LENGTH 0.468" COILS 7 COLOR ID. WHITE	TCC CONTROL VALVE SPRING (88) WIRE DIAMETER .025" OUTSIDE DIAMETER .219" OVERALL LENGTH 0.830" COILS 11 COLOR ID. YELLOW	EXHAUST CHECK VALVE SPRING (7) WIRE DIAMETER .010" OUTSIDE DIAMETER .173" OVERALL LENGTH 0.465" COILS 8 COLOR ID. NONE

Figure 9

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