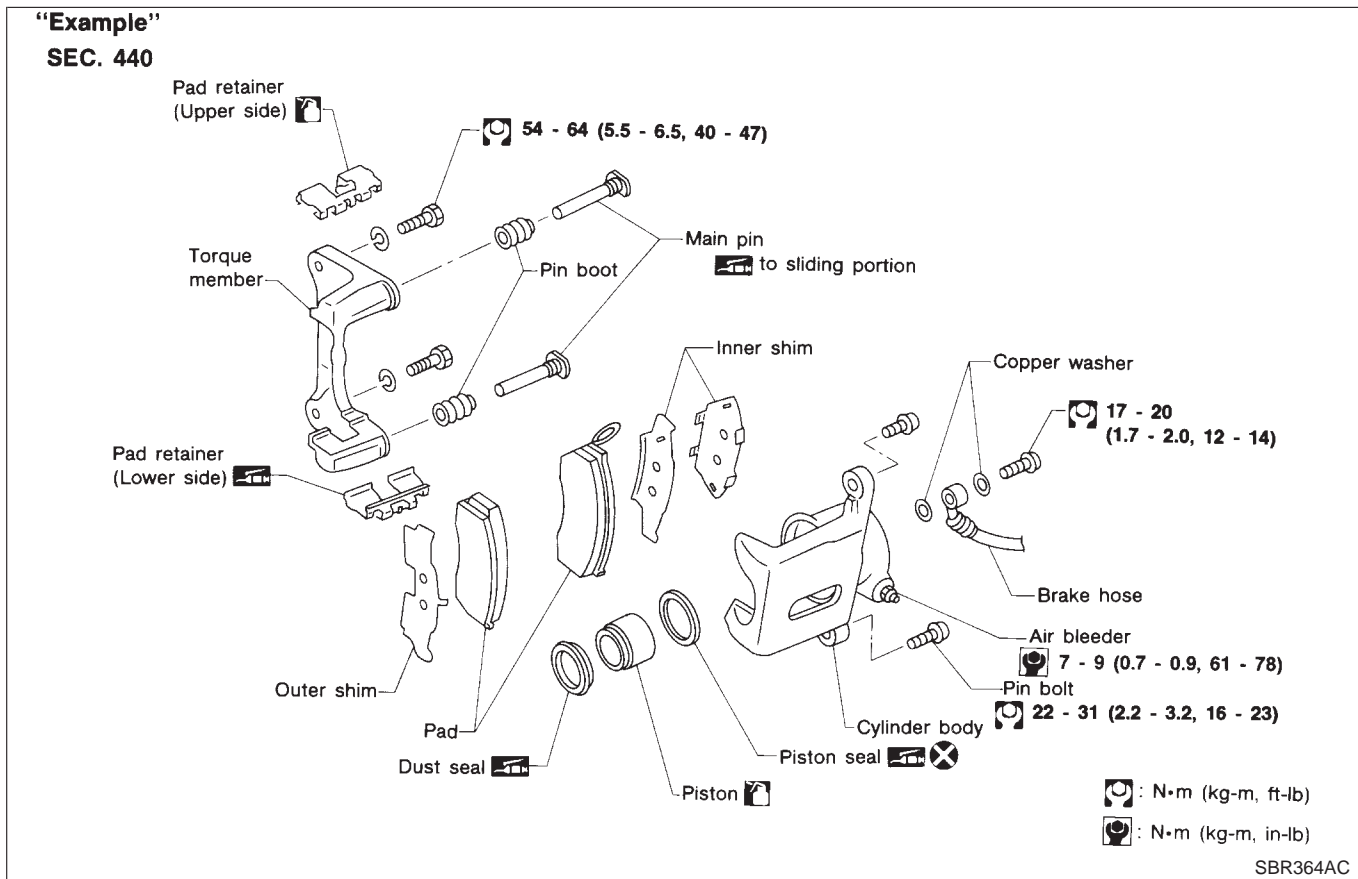


HOW TO USE THIS MANUAL

- **ALPHABETICAL INDEX** is provided at the end of this manual so that you can rapidly find the item and page you are searching for.
- **A QUICK REFERENCE INDEX**, a black tab (e.g. **BR**) is provided on the first page. You can quickly find the first page of each section by matching it to the section's black tab.
- **THE CONTENTS** are listed on the first page of each section.
- **THE TITLE** is indicated on the upper portion of each page and shows the part or system.
- **THE PAGE NUMBER** of each section consists of two letters which designate the particular section and a number (e.g. "BR-5").
- **THE LARGE ILLUSTRATIONS** are exploded views (See below.) and contain tightening torques, lubrication points, section number of the **PARTS CATALOG** (e.g. SEC. 440) and other information necessary to perform repairs.
The illustrations should be used in reference to service matters only. When ordering parts, refer to the appropriate **PARTS CATALOG**.



- **THE SMALL ILLUSTRATIONS** show the important steps such as inspection, use of special tools, knacks of work and hidden or tricky steps which are not shown in the previous large illustrations. Assembly, inspection and adjustment procedures for the complicated units such as the automatic transaxle or transmission, etc. are presented in a step-by-step format where necessary.
- The **UNITS** given in this manual are primarily expressed as the SI UNIT (International System of Unit), and alternatively expressed in the metric system and in the yard/pound system.

"Example"

Tightening torque:

59 - 78 N•m (6.0 - 8.0 kg-m, 43 - 58 ft-lb)

- **TROUBLE DIAGNOSES** are included in sections dealing with complicated components.
- **SERVICE DATA AND SPECIFICATIONS** are contained at the end of each section for quick reference of data.
- The following **SYMBOLS AND ABBREVIATIONS** are used:

HOW TO READ WIRING DIAGRAMS

Sample/Wiring Diagram — EXAMPL —

Sample/Wiring Diagram — EXAMPL —

NHGI0003S01

- For Description, refer to GI-14.

GI-EXAMPL-02

18

GI

MA

EM

LC

EC

FE

AT

AX

SU

BR

ST

RS

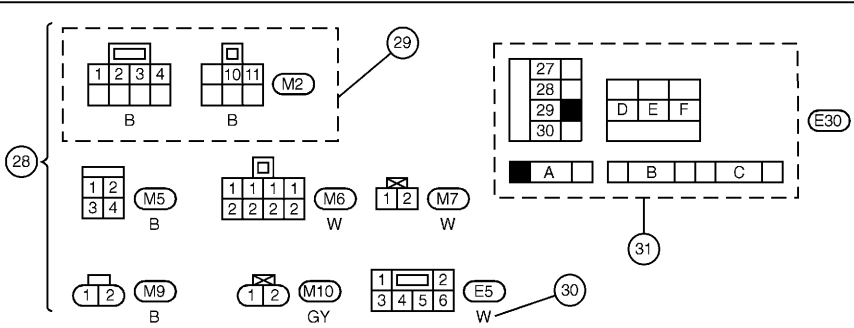
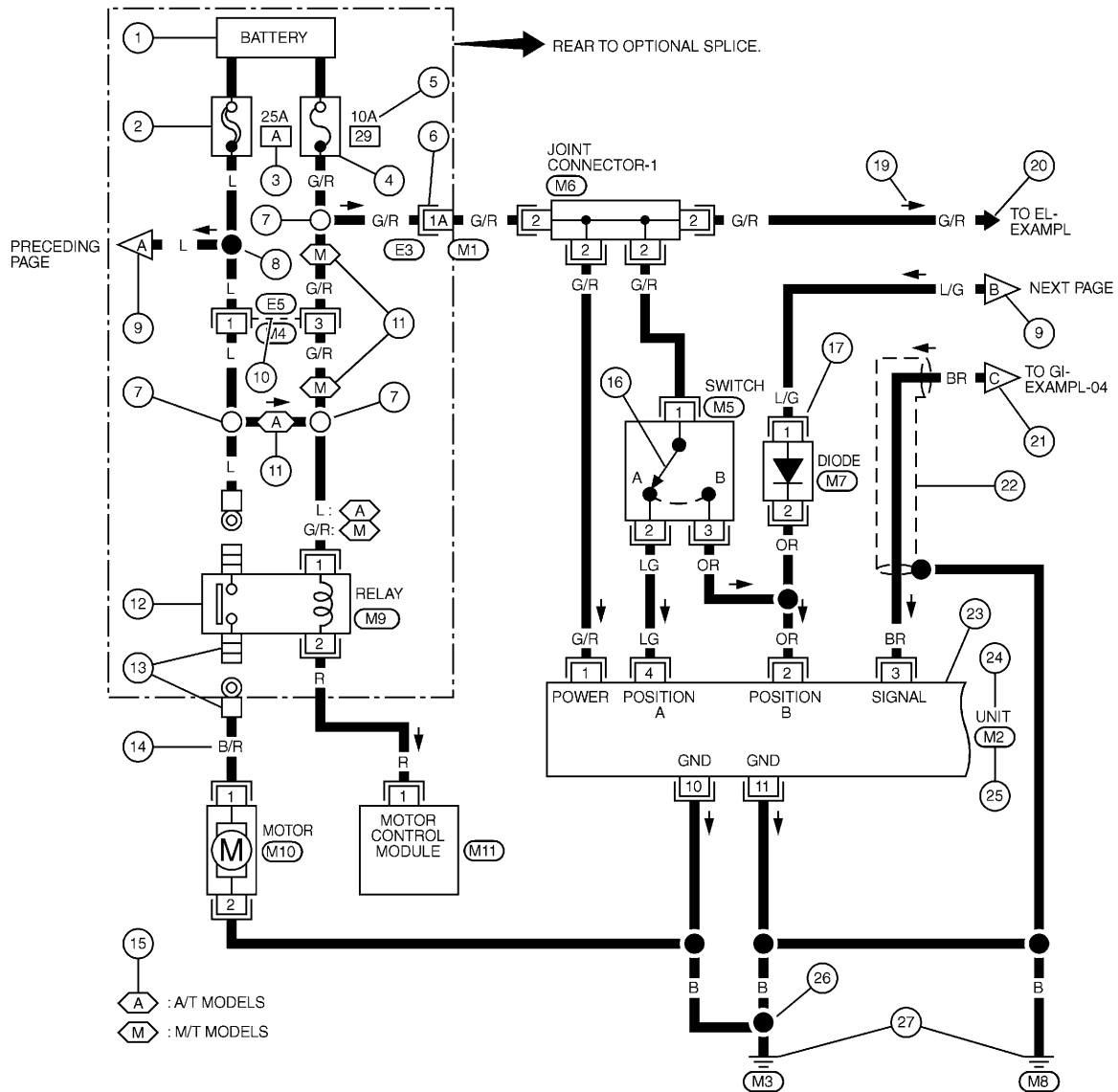
BT

HA

SC

EL

IDX



REFER TO THE FOLLOWING.

(E3) -SUPER MULTIPLE JUNCTION (SMJ)

(M11) -ELECTRICAL UNITS

32

TROUBLE DIAGNOSIS — GENERAL DESCRIPTION

Symptom Matrix Chart (Cont'd)

SYSTEM — ENGINE MECHANICAL & OTHER

NHEC0041S02

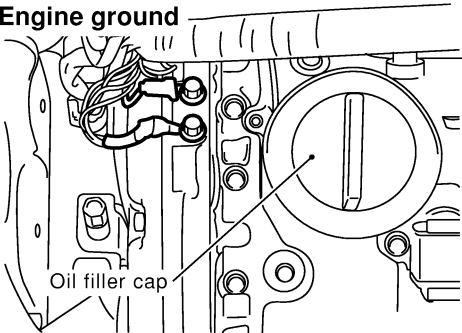
		SYMPTOM													Reference section	
		HARD/NO START/RESTART (EXCP. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEAT/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION	BATTERY DEAD (UNDER CHARGE)		
Warranty symptom code		AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA		
Fuel	Fuel tank	5	5												FE section	—
	Fuel piping			5	5	5		5	5		5					
	Vapor lock															
	Valve deposit															
	Poor fuel (Heavy weight gasoline, Low octane)	5		5	5	5		5	5		5					
Air	Air duct														FE section	—
	Air cleaner															
	Air leakage from air duct (Mass air flow sensor — throttle body)	5	5	5		5		5	5		5					
	Throttle body, Throttle wire	5			5		5			5						
	Air leakage from intake manifold/Collector/Gasket															
Cranking	Battery	1	1	1		1		1	1			1	1	EL section	—	HA
	Alternator circuit															
	Starter circuit	3														
	Drive plate	6														
	PNP switch	4														

1 - 6: The numbers refer to the order of inspection.
(continued on next page)

GI
 MA
 EM
 LC
EC
 FE
 AT
 AX
 SU
 BR
 ST
 RS
 BT
 HA
 SC
 EL
 IDX

Diagnostic Procedure

NHEC0145

1	RETIGHTEN GROUND SCREWS		
<p>1. Turn ignition switch "OFF". 2. Loosen and retighten engine ground screws.</p> <div style="text-align: center;">  </div> <p style="text-align: right;">SEF255X</p>			
▶		GO TO 2.	

GI
MA
EM
LC
EC

FE

2	CLEAR THE SELF-LEARNING DATA										
<p><input type="checkbox"/> With CONSULT-II</p> <p>1. Start engine and warm it up to normal operating temperature. 2. Select "SELF-LEARNING CONT" in "WORK SUPPORT" mode with CONSULT-II. 3. Clear the self-learning control coefficient by touching "START".</p> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">WORK SUPPORT</th> </tr> <tr> <td style="text-align: center;">SELF-LEARNING CONT</td> <td style="text-align: center;">B1 100%</td> </tr> <tr> <td colspan="2" style="text-align: center; height: 100px;"> </td> </tr> <tr> <td colspan="2" style="text-align: center;">CLEAR</td> </tr> </table> </div> <p style="text-align: right;">SEF215Z</p>				WORK SUPPORT		SELF-LEARNING CONT	B1 100%			CLEAR	
WORK SUPPORT											
SELF-LEARNING CONT	B1 100%										
CLEAR											
<p>4. Run engine for at least 10 minutes at idle speed. Is the 1st trip DTC P0171 or P0174 detected? Is it difficult to start engine?</p>											
<p><input checked="" type="checkbox"/> Without CONSULT-II</p> <p>1. Start engine and warm it up to normal operating temperature. 2. Turn ignition switch "OFF". 3. Disconnect mass air flow sensor harness connector, and restart and run engine for at least 5 seconds at idle speed. 4. Stop engine and reconnect mass air flow sensor harness connector. 5. Make sure 1st trip DTC P0100 is displayed. 6. Erase the 1st trip DTC memory. Refer to "HOW TO ERASE EMISSION-RELATED DIAGNOSTIC INFORMATION", EC-80. 7. Make sure DTC P0000 is displayed. 8. Run engine for at least 10 minutes at idle speed. Is the 1st trip DTC P0171 or P0174 detected? Is it difficult to start engine?</p>											
Yes or No											
Yes ▶		Perform trouble diagnosis for DTC P0171, P0174. Refer to EC-292.									
No ▶		GO TO 3.									

AT

AX

SU

BR

ST

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BT

HA



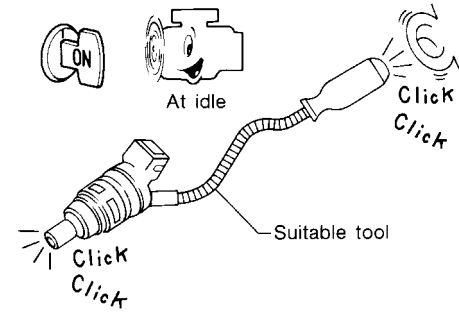
SC

EL

IDX

DTC P0172 (BANK 1), P0175 (BANK 2) FUEL INJECTION SYSTEM FUNCTION (RICH)

Diagnostic Procedure (Cont'd)

7	CHECK FUNCTION OF INJECTORS																				
<p> With CONSULT-II</p> <ol style="list-style-type: none"> 1. Start engine. 2. Perform "POWER BALANCE" in "ACTIVE TEST" mode with CONSULT-II. 																					
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr><th colspan="2">ACTIVE TEST</th></tr> <tr><td>POWER BALANCE</td><td></td></tr> <tr><th colspan="2">MONITOR</th></tr> <tr><td>ENG SPEED</td><td>XXX rpm</td></tr> <tr><td>MAS AIF SE-B1</td><td>XXX V</td></tr> <tr><td>IACV-AAC/V</td><td>XXX step</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>		ACTIVE TEST		POWER BALANCE		MONITOR		ENG SPEED	XXX rpm	MAS AIF SE-B1	XXX V	IACV-AAC/V	XXX step								
ACTIVE TEST																					
POWER BALANCE																					
MONITOR																					
ENG SPEED	XXX rpm																				
MAS AIF SE-B1	XXX V																				
IACV-AAC/V	XXX step																				
<p>3. Make sure that each circuit produces a momentary engine speed drop.</p>																					
<p> Without CONSULT-II</p> <ol style="list-style-type: none"> 1. Start engine. 2. Listen to each injector operating sound. 																					
																					
<p>Clicking noise should be heard.</p> <p>OK or NG</p>																					
OK	▶ GO TO 8.																				
NG	▶ Perform trouble diagnosis for "INJECTORS", EC-609.																				

SEF070Y

MEC703B

8	CHECK INJECTOR
<ol style="list-style-type: none"> 1. Remove injector assembly. Refer to EC-51. Keep fuel hose and all injectors connected to injector gallery. 2. Confirm that the engine is cooled down and there are no fire hazards near the vehicle. 3. Disconnect injector harness connectors bank 2 (for DTC P0172), bank 1 (for P0175). The injector harness connectors on bank 1 (for P0172), bank 2 (for P0175) should remain connected. 4. Disconnect all ignition coil harness connectors. 5. Prepare pans or saucers under each injectors. 6. Crank engine for about 3 seconds. Make sure fuel does not drip from injector. 	
<p>OK or NG</p>	
OK (Does not drip.)	▶ GO TO 9.
NG (Drips.)	▶ Replace the injectors from which fuel is dripping. Always replace O-ring with new one.

9	CHECK INTERMITTENT INCIDENT
Refer to "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT", EC-144.	
▶	INSPECTION END

On Board Diagnosis Logic

NHEC0519

Engine coolant temperature has not risen enough to open the thermostat even though the engine has run long enough. This is due to a leak in the seal or the thermostat open stuck. Malfunction is detected when the engine coolant temperature does not reach to specified temperature even though the engine has run long enough.

GI

MA

EM

Possible Cause

NHEC0520

- Thermostat function
- Leakage from sealing portion of thermostat
- Engine coolant temperature sensor

LC

EC

FE

AT

DTC Confirmation Procedure

NHEC0521

NOTE:

If "DTC Confirmation Procedure" has been previously conducted, always turn ignition switch "OFF" and wait at least 10 seconds before conducting the next test.

AX

SU

TESTING CONDITION:

- For best results, perform at ambient temperature of -10°C (14°F) or higher.
- For best results, perform at engine coolant temperature of -10°C (14°F) to 60°C (140°F).

BR

ST

Ⓜ WITH CONSULT-II

NHEC0521S01

- 1) Replace thermostat with new one. Refer to LC-15, "Thermostat". Use only a genuine NISSAN thermostat as a replacement. If an incorrect thermostat is used, the MIL may come on.
- 2) Turn ignition switch "ON".
- 3) Select "COOLAN TEMP/S" in "DATA MONITOR" mode with CONSULT-II.
- 4) Check that the "COOLAN TEMP/S" is above 60°C (140°F).
If it is below 60°C (140°F), go to following step.
If it is above 60°C (140°F), stop engine and cool down the engine to less than 60°C (140°F), then retry from step 1.
- 5) Drive vehicle for 10 consecutive minutes under the following conditions.

RS

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VHCL SPEED SE	80 - 120 km/h (50 - 75 MPH)
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IDX

If 1st trip DTC is detected, go to "Diagnostic Procedure", EC-452.

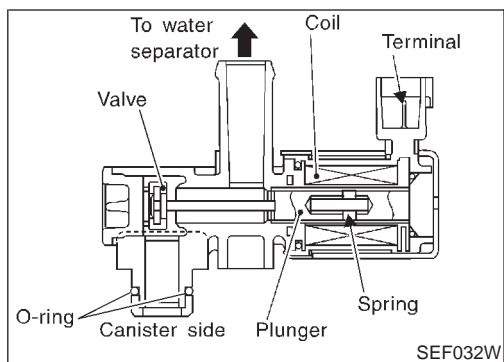
Ⓜ WITH GST

NHEC0521S02

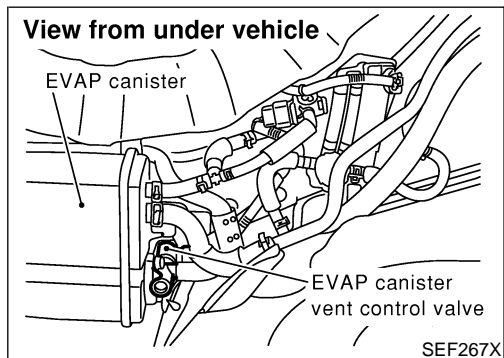
- 1) Follow the procedure "WITH CONSULT-II" above.

DTC P1448 EVAPORATIVE EMISSION (EVAP) CANISTER VENT CONTROL VALVE (OPEN)

Component Description



SEF032W



SEF267X

Component Description

NHEC0338

NOTE:

If DTC P1448 is displayed with P0440, perform trouble diagnosis for DTC P1448 first.

The EVAP canister vent control valve is located on the EVAP canister and is used to seal the canister vent.

This solenoid valve responds to signals from the ECM. When the ECM sends an ON signal, the coil in the solenoid valve is energized. A plunger will then move to seal the canister vent. The ability to seal the vent is necessary for the on board diagnosis of other evaporative emission control system components.

This solenoid valve is used only for diagnosis, and usually remains opened.

When the vent is closed, under normal purge conditions, the evaporative emission control system is depressurized and allows "EVAP Control System (Small Leak)" diagnosis.

CONSULT-II Reference Value in Data Monitor Mode

NHEC0339

Specification data are reference values.

MONITOR ITEM	CONDITION	SPECIFICATION
VENT CONT/V	● Ignition switch: ON	OFF

On Board Diagnosis Logic

NHEC0341

Malfunction is detected when EVAP canister vent control valve remains opened under specified driving conditions.

Possible Cause

NHEC0591

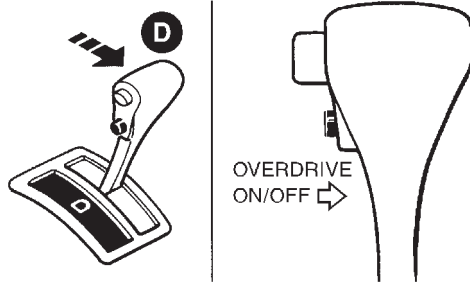
- EVAP canister vent control valve
- EVAP control system pressure sensor and circuit
- Blocked rubber tube to EVAP canister vent control valve
- Water separator
- EVAP canister is saturated with water.
- Vacuum cut valve

ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION

Diagnostic Procedure Without CONSULT-II (Cont'd)

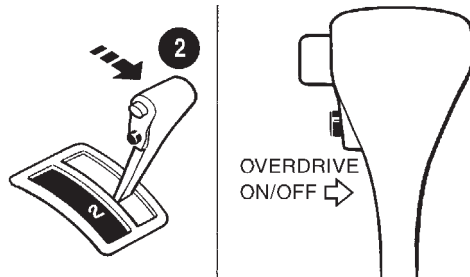
2 JUDGEMENT PROCEDURE STEP 1

1. Turn ignition switch to OFF position.
2. Turn ignition switch to ACC position.
3. Move selector lever from P to D position.
4. Turn ignition switch to ON position.
(Do not start engine.)
5. Depress and hold overdrive control switch in OFF position (the O/D OFF indicator lamp will be ON) until directed to release the switch. (If O/D OFF indicator lamp does not come on, refer to "Step 3 and 4" on AT-261).
6. Turn ignition switch to OFF position.



SAT968I

7. Turn ignition switch to ON position (Do not start engine.)
8. Release the overdrive control switch (the O/D OFF indicator lamp will be OFF).
9. Wait 2 seconds.
10. Move selector lever to 2 position.
11. Depress and release overdrive control switch in ON position until next step is completed (the O/D OFF indicator lamp will be ON).
12. Depress and hold the overdrive control switch (the O/D OFF indicator lamp will be OFF) until directed to release the switch.



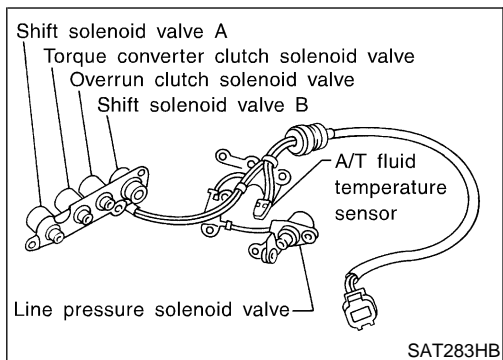
SAT969I

▶ GO TO 3.

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DTC P0755 SHIFT SOLENOID VALVE B

Description



Description

Shift solenoid valves A and B are turned ON or OFF by the TCM in response to signals sent from the park/neutral position (PNP) switch, vehicle speed and throttle position sensors. Gears will then be shifted to the optimum position.


NHAT0070

Gear position	1	2	3	4
Shift solenoid valve A	ON (Closed)	OFF (Open)	OFF (Open)	ON (Closed)
Shift solenoid valve B	ON (Closed)	ON (Closed)	OFF (Open)	OFF (Open)

TCM TERMINALS AND REFERENCE VALUE

NHAT0070S01

Remarks: Specification data are reference values.

Terminal No.	Wire color	Item	Condition	Judgement standard (Approx.)
12	LG/B	Shift solenoid valve B	 When shift solenoid valve B operates. (When driving in D ₁ or D ₂ .)	Battery voltage
			When shift solenoid valve B does not operate. (When driving in D ₃ or D ₄ .)	0V

On Board Diagnosis Logic

Diagnostic trouble code SFT SOL B/CIRC with CONSULT-II or P0755 without CONSULT-II is detected when TCM detects an improper voltage drop when it tries to operate the solenoid valve.

NHAT0237

Possible Cause

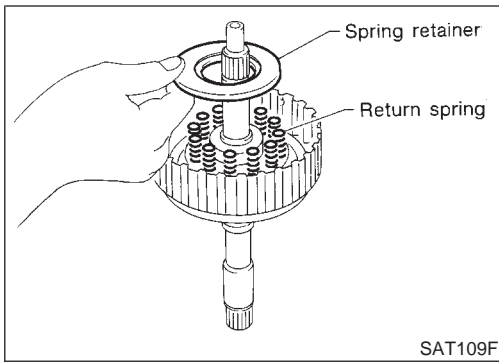
Check the following items.

- Harness or connectors (The solenoid circuit is open or shorted.)
- Shift solenoid valve B

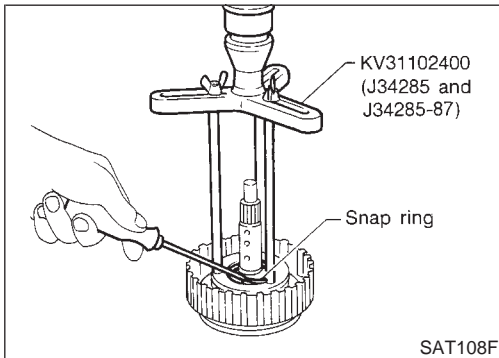
NHAT0239

REPAIR FOR COMPONENT PARTS

High Clutch (Cont'd)

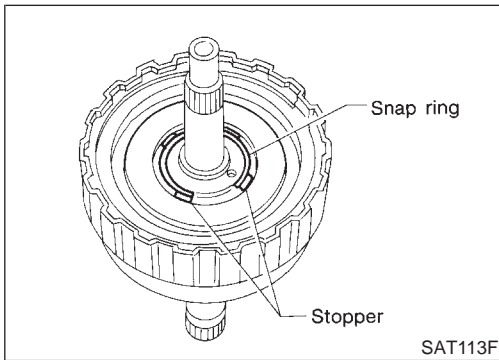


3. Install return springs and spring retainer on piston.

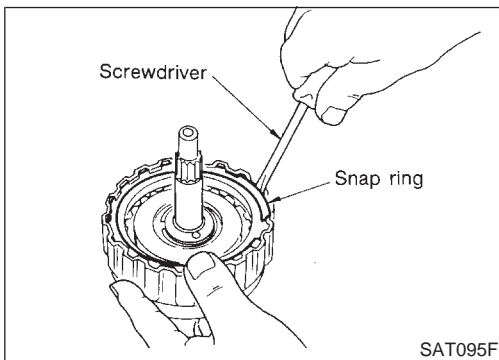


4. Set Tool on spring retainer and install snap ring while compressing return springs.

- **Set Tool directly over return springs.**



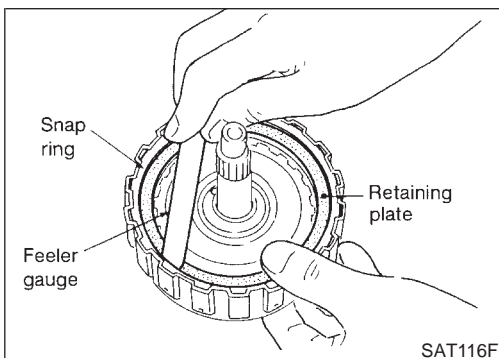
- **Do not align snap ring gap with spring retainer stopper.**



5. Install drive plates, driven plates and retaining plate.

- **Take care with the order and direction of plates.**

6. Install snap ring.



7. Measure clearance between retaining plate and snap ring. If not within allowable limit, select proper retaining plate.

Specified clearance:

Standard 1.8 - 2.2 mm (0.071 - 0.087 in)

Allowable limit 2.8 mm (0.110 in)

Retaining plate:

Refer to SDS, AT-384.

SERVICE DATA AND SPECIFICATIONS (SDS)

Accumulator (Cont'd)

RETURN SPRING

^{=NHAT0187S02}
Unit: mm (in)

Accumulator	Part number*	Free length	Outer diameter
Servo release accumulator	31605-80X00	52.5 (2.067)	20.1 (0.791)
N-D accumulator	31605-31X15	43.5 (1.713)	28.0 (1.102)

*: Always check with the Parts Department for the latest parts information.

Clutch and Brakes

NHAT0188

REVERSE CLUTCH

NHAT0188S01

Model code number		85X05	85X06
Number of drive plates		2	
Number of driven plates		2	
Drive plate thickness mm (in)	Standard	1.6 (0.063)	
	Allowable limit	1.4 (0.055)	
Clearance mm (in)	Standard	0.5 - 0.8 (0.020 - 0.031)	
	Allowable limit	1.2 (0.047)	
Thickness of retaining plates	Thickness mm (in)	Part number*	
		6.6 (0.260)	31537-80X05
		6.8 (0.268)	31537-80X06
		7.0 (0.276)	31537-80X07
		7.2 (0.283)	31537-80X08
		7.4 (0.291)	31537-80X09
		7.6 (0.299)	31537-80X20
	7.8 (0.307)	31537-80X21	

*: Always check with the Parts Department for the latest parts information.

HIGH CLUTCH

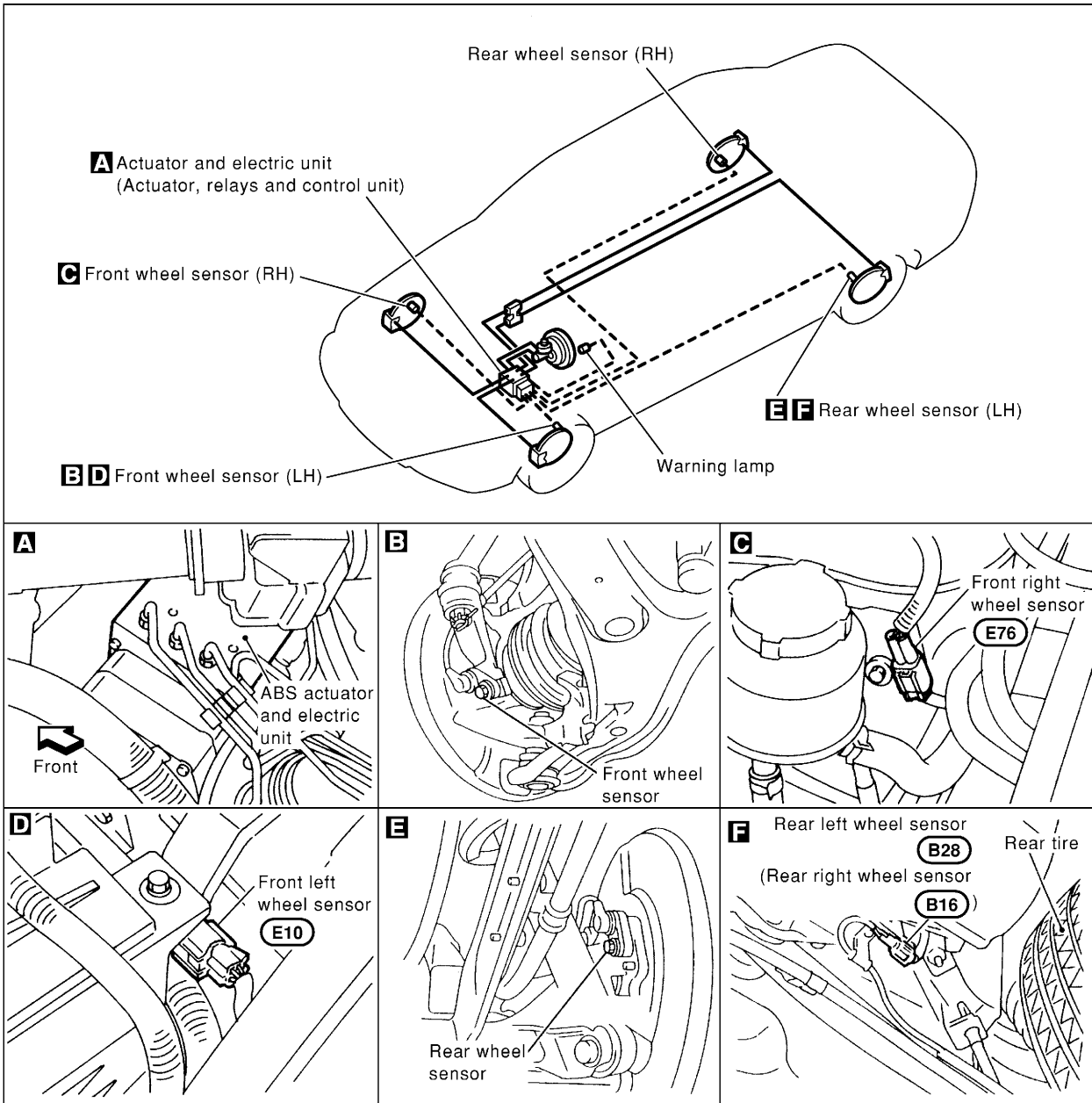
NHAT0188S02

Model code number		85X05	85X06
Number of drive plates		3	
Number of driven plates		7 + 1	
Drive plate thickness mm (in)	Standard	1.6 (0.063)	
	Allowable limit	1.4 (0.055)	
Clearance mm (in)	Standard	1.8 - 2.2 (0.071 - 0.087)	
	Allowable limit	2.8 (0.110)	
Thickness of retaining plates	Thickness mm (in)	Part number*	
		3.2 (0.126)	31537-81X11
		3.4 (0.134)	31537-81X12
		3.6 (0.142)	31537-81X13
		3.8 (0.150)	31537-81X14
	4.0 (0.157)	31537-81X15	

*: Always check with the Parts Department for the latest parts information.

Component Parts and Harness Connector Location

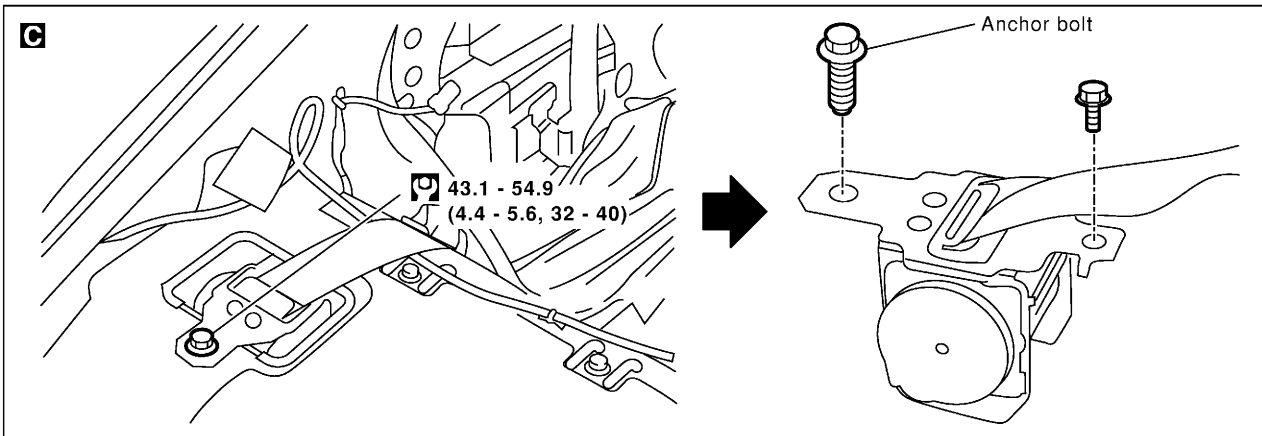
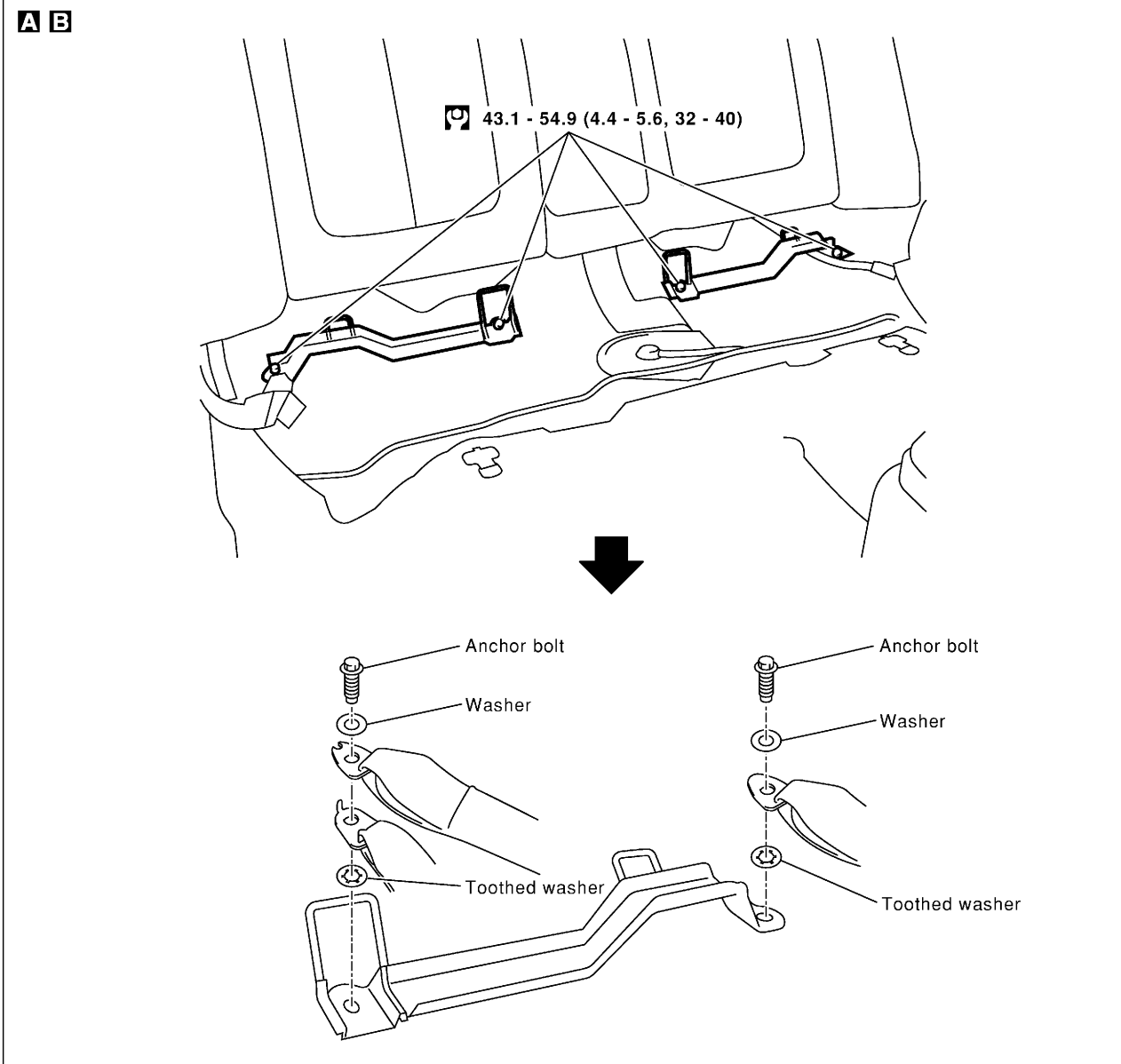
NHBR0105




SBR646EA

SEAT BELTS

Rear Seat Belt (Cont'd)



 : N·m (kg-m, ft-lb)

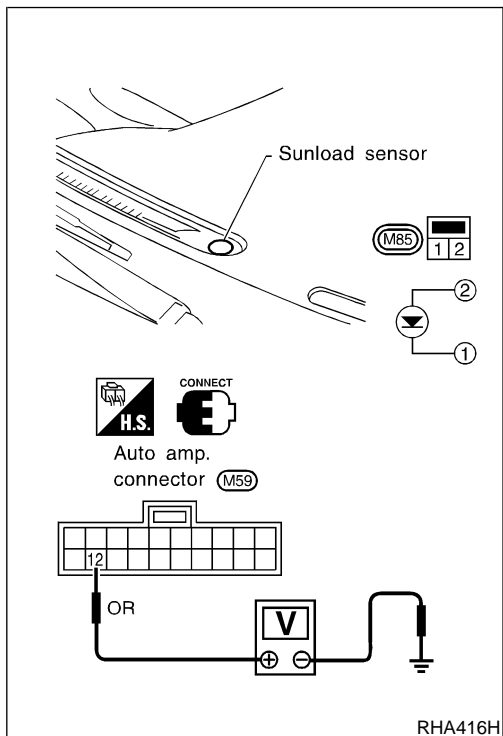
SRS879

TROUBLE DIAGNOSES

Sunload Sensor Circuit (Cont'd)

4	CHECK SUNLOAD SENSOR CIRCUIT BETWEEN SUNLOAD SENSOR AND AUTO AMP. (LCU)
<p>1. Disconnect auto amp. (LCU) harness connector. 2. Check circuit continuity between sunload sensor harness terminal No. 1 and auto amp. (LCU) harness terminal No. 12.</p>	
RHA484GC	
<p>Continuity should exist. If OK, check harness for short.</p>	
OK or NG	
OK	<p>▶ 1. Replace auto amp. 2. Go to "FUNCTION CONFIRMATION PROCEDURE", "Self-diagnosis", HA-37 and perform self-diagnosis STEP 2. Confirm that code No. 20 is displayed.</p>
NG	<p>▶ Repair harness or connector.</p>

GI
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RHA416H

COMPONENT INSPECTION

Sunload Sensor

NHHA0224

NHHA0224S01

Measure voltage between auto amp. terminal 12 and body ground.
 If NG, replace sunload sensor.

- When checking sunload sensor, select a place where sun shines directly on it.

BR
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