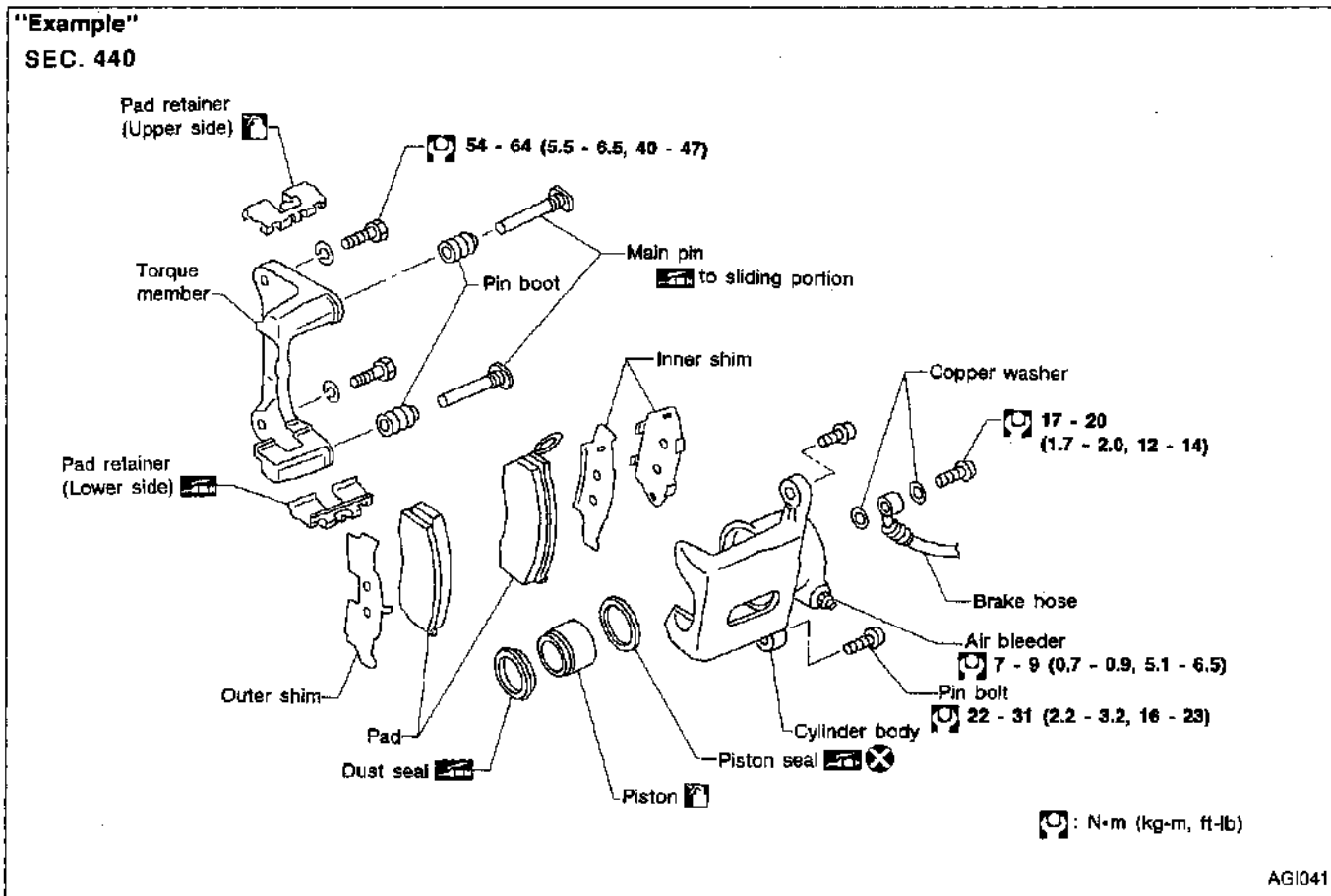


HOW TO USE THIS MANUAL

1. **ALPHABETICAL INDEX** is provided at the end of this manual so that you can rapidly find the item and page you are searching for.
2. **A QUICK REFERENCE INDEX**, a black tab (e.g., **BR**) is provided on the first page. You can quickly find each section by matching it to the section's black tabs.
3. **THE CONTENTS** are listed on the first page of each section.
4. **THE TITLE** is indicated on the upper portion of each page and shows the part or system.
5. **THE PAGE NUMBER** of each section consists of two letters which designate the particular section and a number (e.g., "BR-5").
6. **THE LARGE ILLUSTRATIONS** are exploded views (See example below). These contain tightening torques, lubrication points, section numbers 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**.



7. **THE SMALL ILLUSTRATIONS** show items not shown in the previous large illustrations. These include important steps such as inspection points, use of special tools, hidden fasteners and special or unique procedures.
A step-by-step format for assembly, inspection and adjustment is presented for complicated units such as the automatic transaxle.

Introduction

The ECM (ECCS control module) has an on-board diagnostic system, which detects engine system malfunctions related to sensors or actuators. The malfunction indicator lamp (MIL) on the instrument panel lights up when the same malfunction is detected in two consecutive trips (Two Trip Detection Logic).

Two Trip Detection Logic

When a malfunction is detected for the first time, the malfunction (DTC and freeze frame data) is stored in the ECM memory. (1st trip) The malfunction indicator lamp will not light up at this stage. If the same malfunction is detected during the next drive, this second detection causes the malfunction indicator lamp to light up. (2nd trip) Specific on-board diagnostic items will light up or blink the MIL even in the 1st trip as below.

Items	MIL		
	1st trip		2nd trip lighting up
	Blinking	Lighting up	
Misfire (Possible three way catalyst damage)— DTC: 65-71 (P0304-P0300) is being detected	X		
Misfire (Possible three way catalyst damage)— DTC: 65-71 (P0304-P0300) has been detected		X	
Three way catalyst function — DTC: 72 (P0420)		X	
Closed loop control — DTC: 37 (P0130)		X	
Except above			X

The "trip" in the "Two Trip Detection Logic" means performing of the "DTC Confirmation Procedure".

Diagnostic Trouble Code (DTC)

HOW TO READ DTC




The diagnostic trouble code can be read by the following methods.

(Either code for the 1st trip or the 2nd trip can be read.)

1. The number of blinks of the malfunction indicator lamp in the Diagnostic Test Mode II (Self-Diagnostic Results) Examples: 11, 21, 103, 114, etc.
These DTCs are controlled by NISSAN.
 2. CONSULT or GST (Generic Scan Tool) Examples: P0340, P1320, P0705, P0750, etc.
These DTCs are prescribed by SAE J2012.
- **Output of the trouble code means that the indicated circuit has a malfunction. However, in case of the Mode II and GST they do not indicate whether the malfunction is still occurring or occurred in the past and returned to normal. CONSULT can identify them. Therefore, using CONSULT (if available) is recommended.**

HOW TO ERASE DTC

The diagnostic trouble code can be erased by the following methods.

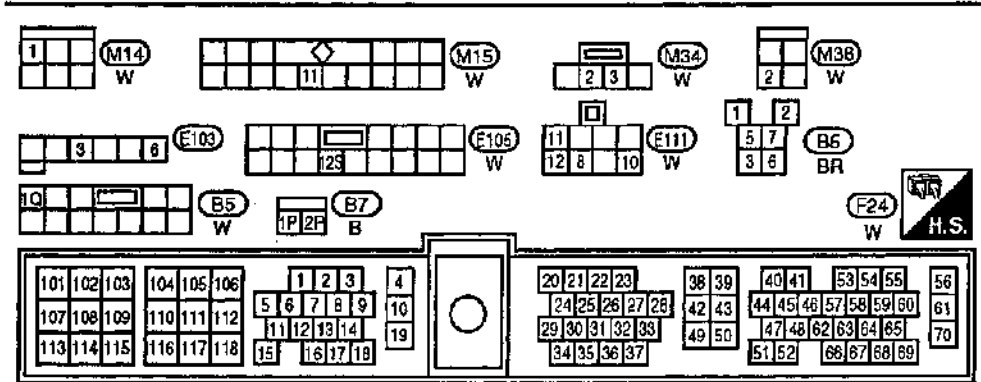
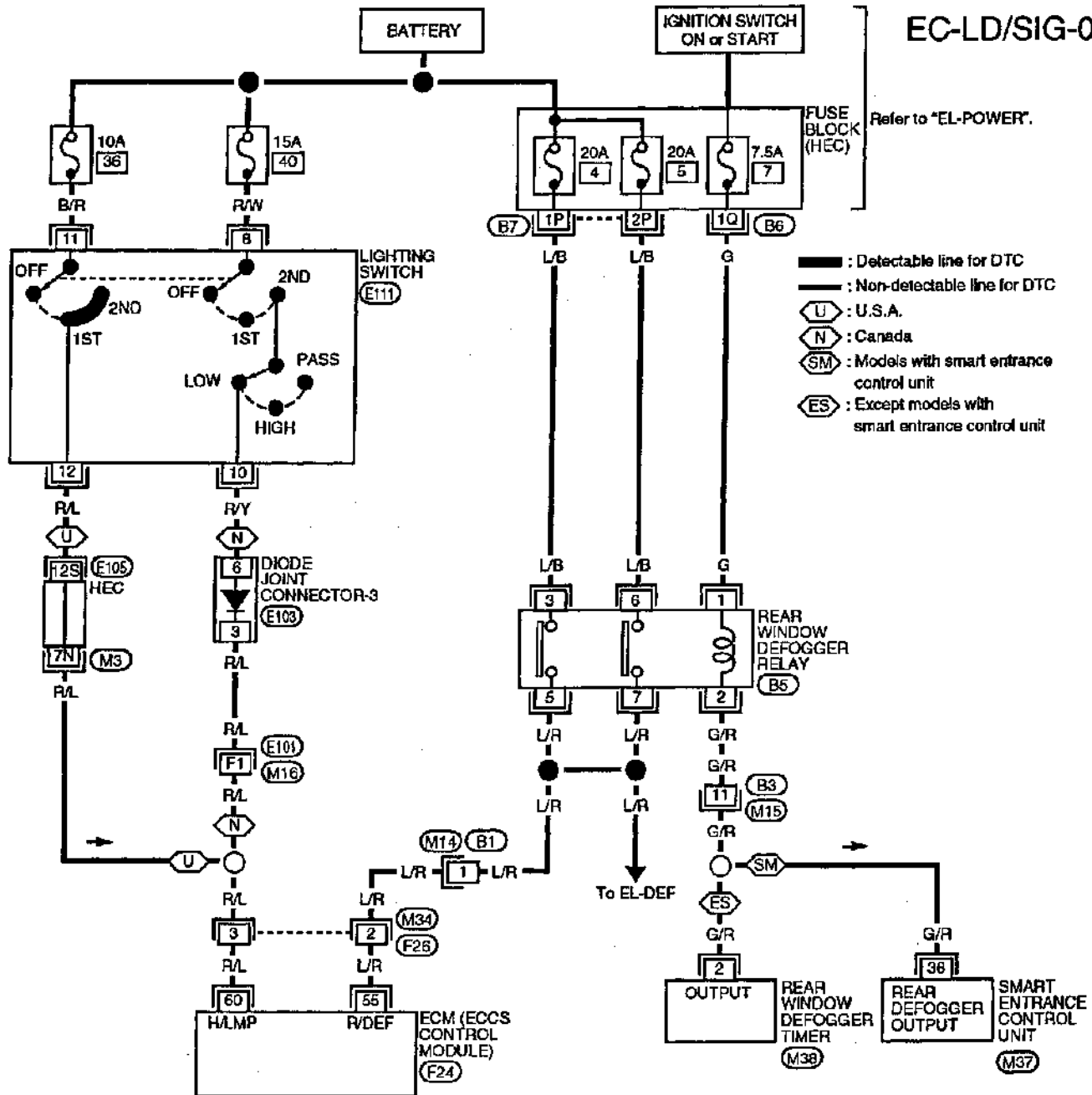
-  Changing the diagnostic test mode from Diagnostic Test Mode II to Mode I by turning the mode selector on the ECM. (Refer to EC-35.)
-  Selecting "ERASE" in the "SELF DIAG RESULTS" mode with CONSULT.
-  Selecting Mode 4 with GST (Generic Scan Tool).
- **If the battery terminal is disconnected, the diagnostic trouble code will be lost within 24 hours.**
- **When you erase the DTC, using CONSULT or GST is easier and quicker than switching the mode selector on the ECM.**

HOW TO ERASE DTC (With CONSULT)

- **If a DTC is displayed for both ECM and A/T control unit, it needs to be erased for both ECM and A/T control unit.**
- **If diagnostic trouble code is not for A/T related items (refer to EC-70), skip steps 2 through 4.**
 1. If the ignition switch stays "ON" after repair work, be sure to turn ignition switch "OFF" once. Wait for at least 3 seconds and then turn it "ON" again.
 2. Turn CONSULT "ON" and touch "A/T".
 3. Touch "SELF-DIAG RESULTS".
 4. Touch "ERASE". (The DTC in the A/T control unit will be erased.) Touch "BACK" twice.
 5. Touch "ENGINE".
 6. Touch "SELF-DIAG RESULTS".
 7. Touch "ERASE". (The DTC in the ECM will be erased.)

Electrical Load Signal

EC-LD/SIG-01



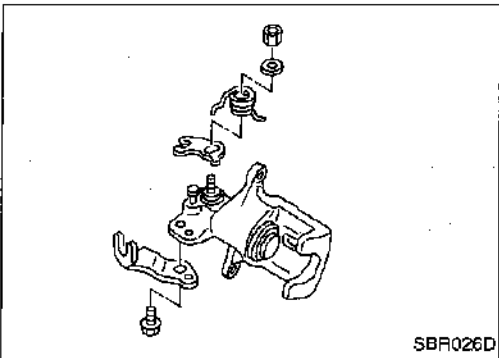
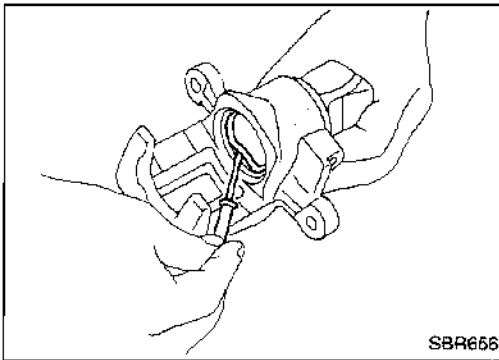
Refer to last page (Foldout page).
 M3
 M37
 M18 E101

REAR DISC BRAKE

Disassembly (Cont'd)

c. Remove piston seal.

Be careful not to damage cylinder body.



4. Remove return spring, toggle lever and cable guide.

Inspection — Caliper

CAUTION:

Use brake fluid to clean cylinder. Never use mineral oil.

CYLINDER BODY

- Check inside surface of cylinder for score, rust, wear, damage or presence of foreign objects. If any of the above conditions are observed, replace cylinder body.
- Minor damage from rust or foreign objects may be eliminated by polishing surface with a fine emery paper. Replace cylinder body if necessary.

TORQUE MEMBER

Check for wear, cracks or other damage. Replace if necessary.

PISTON

CAUTION:

Piston sliding surface is plated. Do not polish with emery paper even if rust or foreign objects are stuck to sliding surface.

Check piston for score, rust, wear, damage or presence of foreign objects. Replace if any of the above conditions are observed.

SLIDE PIN, PIN BOLT, AND PIN BOOT

Check for wear, cracks or other damage.

Replace if any of the above conditions are observed.

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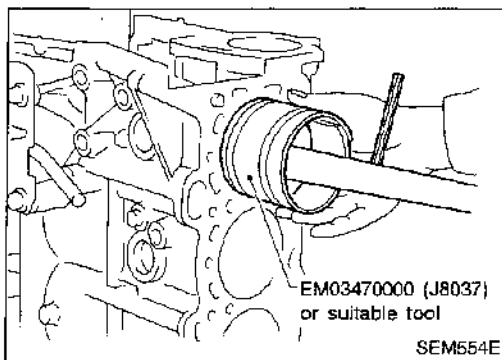
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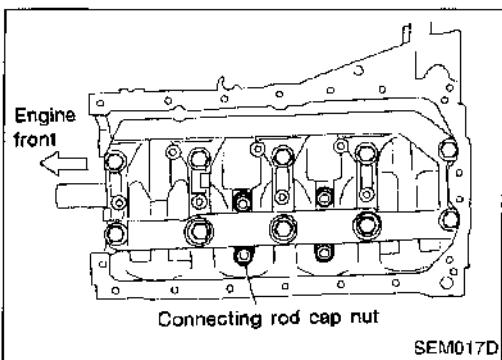
IDX

Assembly (Cont'd)



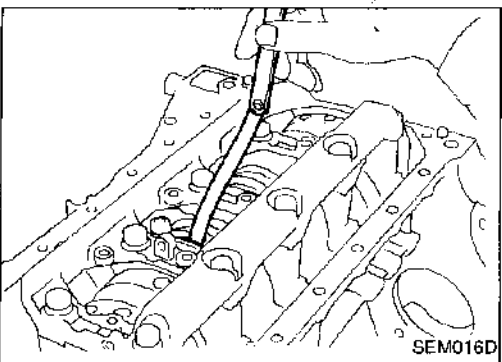
5. Install pistons with connecting rods.
 - a. Install them into corresponding cylinders with Tool.
 - **Make sure connecting rod does not scratch cylinder wall.**
 - **Make sure connecting rod bolts do not scratch crankshaft pin journals.**
 - **Arrange so that front mark on piston head faces engine front.**
 - **Apply new engine oil to piston rings and sliding surface of piston.**

GI
MA
EM



- b. Install connecting rod caps. Tighten connecting rod cap nuts using the following procedure:
 - 1) **Tighten nuts to 14 to 16 N-m (1.4 to 1.6 kg-m, 10 to 12 ft-lb).**
 - 2) **Turn all nuts 60 to 65 degrees clockwise. If an angle wrench is not available, tighten nuts to 38 to 44 N-m (3.9 to 4.5 kg-m, 28 to 33 ft-lb).**

LC
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6. Measure connecting rod side clearance.

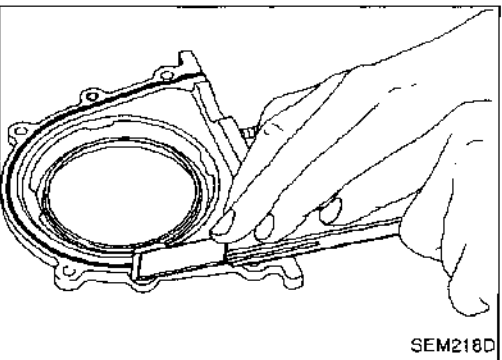
Connecting rod side clearance:

Standard
0.20 - 0.35 mm (0.0079 - 0.0138 in)

Limit
0.50 mm (0.0197 in)

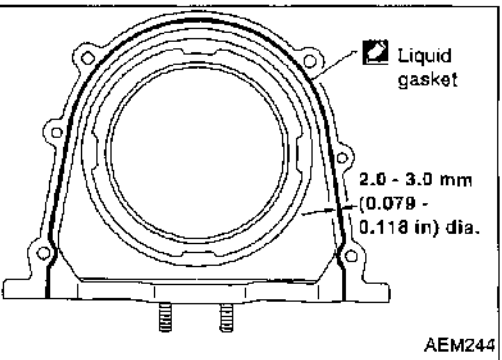
If beyond the limit, replace connecting rod and/or crankshaft.

MT
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7. Install rear oil seal retainer.
 - a. Before installing rear oil seal retainer, remove old liquid gasket from mating surface.
 - **Also remove old liquid gasket from mating surface of cylinder block.**

BR
ST
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- b. Apply a continuous bead of liquid gasket to mating surface of rear oil seal retainer.
 - **Use Genuine Liquid Gasket or equivalent.**
 - **Apply around inner side of bolt holes.**

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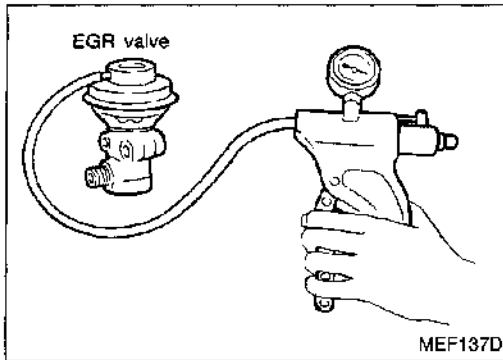
EGR Function (DTC: 0302) (Cont'd)

COMPONENT INSPECTION

EGR valve

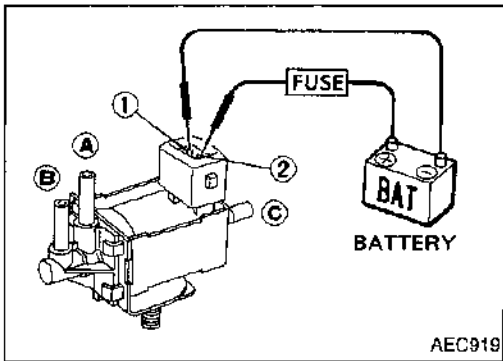
Apply vacuum to EGR vacuum port with a hand vacuum pump.
EGR valve spring should lift.

If NG, replace EGR valve.



EGR valve & EVAP canister purge control solenoid valve

Check solenoid valve, following the table as shown below:

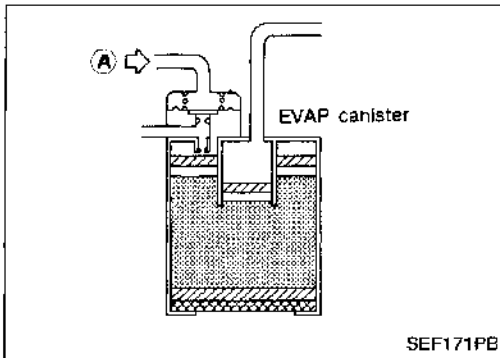


Conditions	Air passage continuity between (A) and (B)	Air passage continuity between (A) and (C)
12V direct current supply between terminals ① and ②	Yes	No
No supply	No	Yes

If NG, replace EGR valve & EVAP canister purge control solenoid valve.

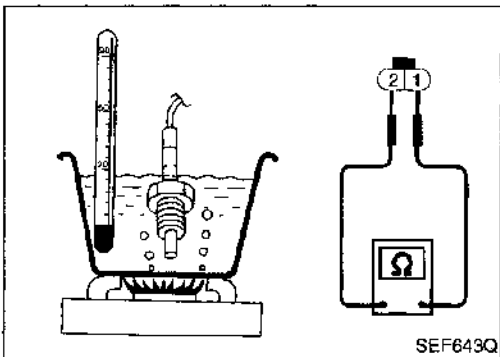
EVAP canister

Gently blow air from (A).
No leakage should exist.



EGR temperature sensor

Check resistance change and resistance value.



EGR temperature °C (°F)	Voltage (V)	Resistance (MΩ)
0 (32)	4.81	7.9 - 9.7
50 (122)	2.82	0.57 - 0.70
100 (212)	0.8	0.08 - 0.10

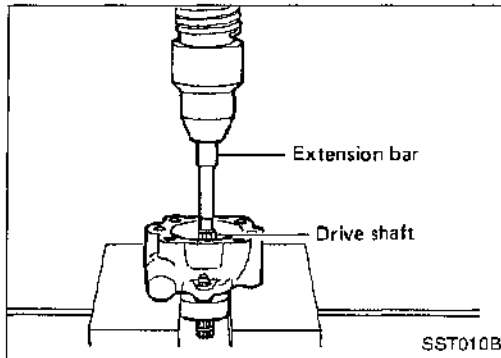
If NG, replace EGR temperature sensor.

POWER STEERING PUMP

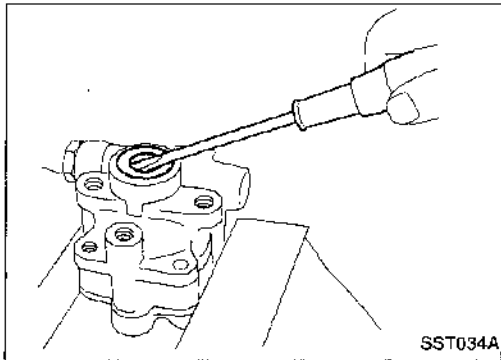
Disassembly

CAUTION:

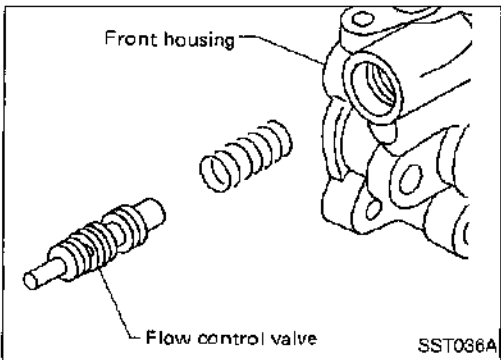
- Parts which can be disassembled are strictly limited. Never disassemble parts other than those specified.
- Disassemble in as clean a place as possible.
- Clean your hands before disassembly.
- Do not use rags; use nylon cloths or paper towels.
- When disassembling and reassembling, do not let foreign matter enter or contact the parts.



- Remove snap ring, then remove drive shaft.
Be careful not to drop drive shaft.



- Remove oil seal.
Be careful not to damage front housing.

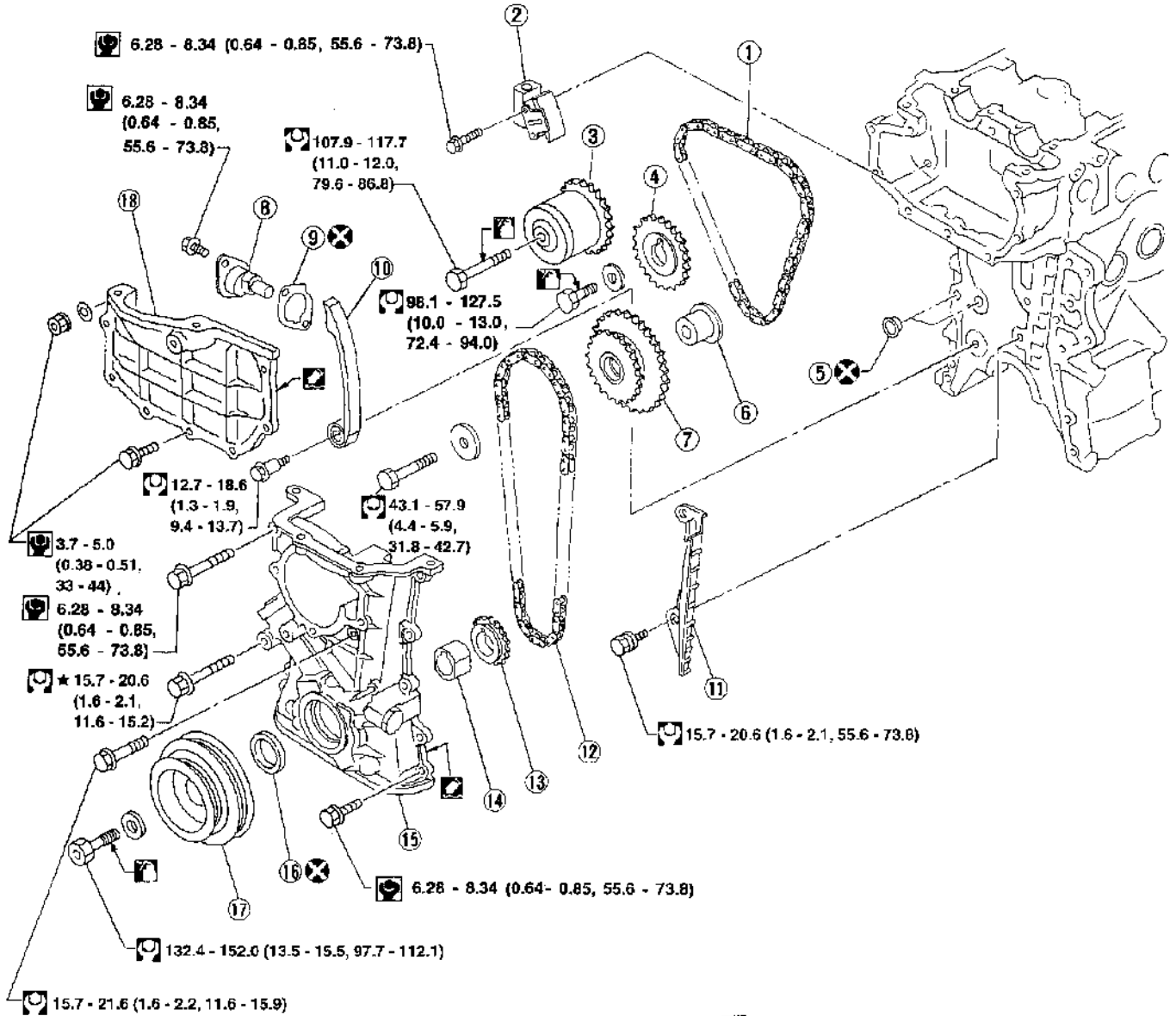


- Remove connector and flow control valve with spring.
Be careful not to drop flow control valve.

Inspection

- If pulley is cracked or deformed, replace it.
- If an oil leak is found around pulley shaft oil seal, replace the seal.
- If serration on pulley or pulley shaft is deformed or worn, replace it.

SEC. 111-120-130-135



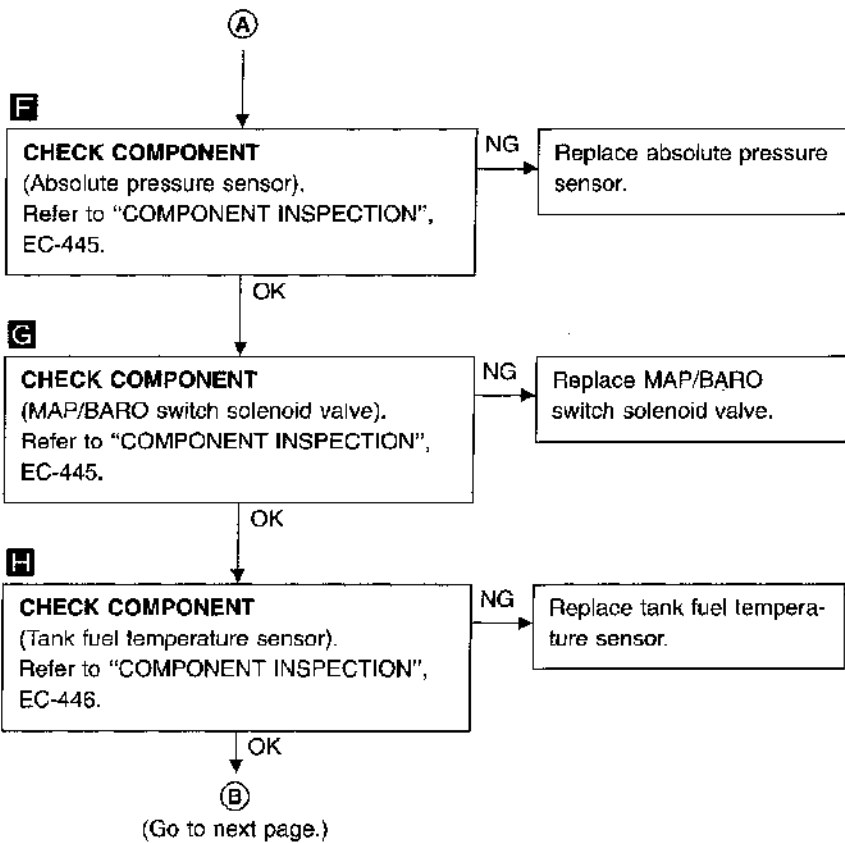
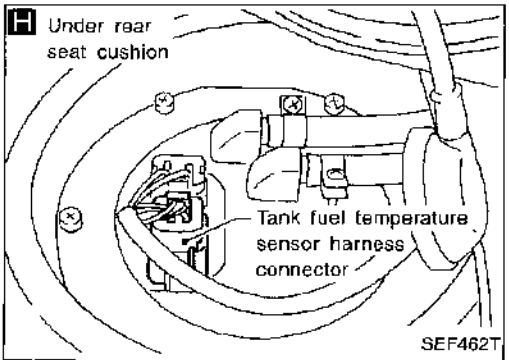
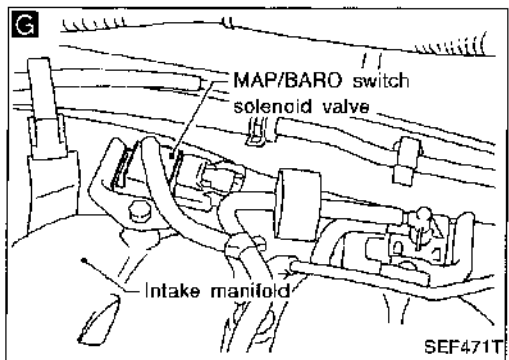
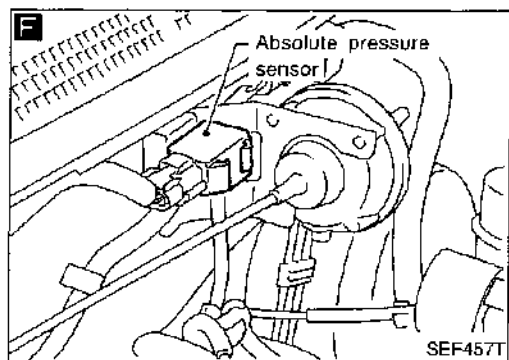
- : N·m (kg-m, in-lb)
- : N·m (kg-m, ft-lb)
- : Apply liquid gasket.
- : Lubricate with new engine oil.
- : Located on power steering pump adjusting bar

AEM286

- | | | |
|--------------------------------|-------------------------|-----------------------------|
| ① Upper timing chain | ⑦ Idler sprocket | ⑬ Crankshaft sprocket |
| ② Upper timing chain tensioner | ⑧ Lower chain tensioner | ⑭ Oil pump drive spacer |
| ③ Camshaft sprocket (Intake) | ⑨ Gasket | ⑮ Front cover |
| ④ Camshaft sprocket (Exhaust) | ⑩ Timing chain guide | ⑯ Oil seal |
| ⑤ O-ring | ⑪ Timing chain guide | ⑰ Crankshaft pulley |
| ⑥ Idler shaft | ⑫ Lower timing chain | ⑱ Cylinder head front cover |

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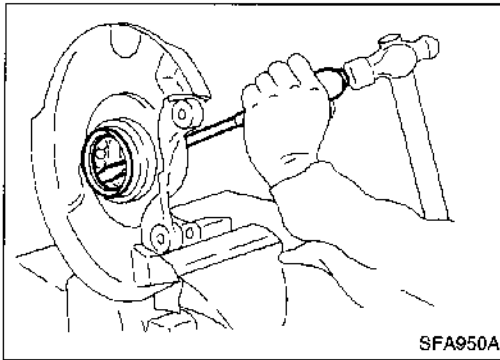
Evaporative Emission (EVAP) Control System (Small Leak) (Cont'd)



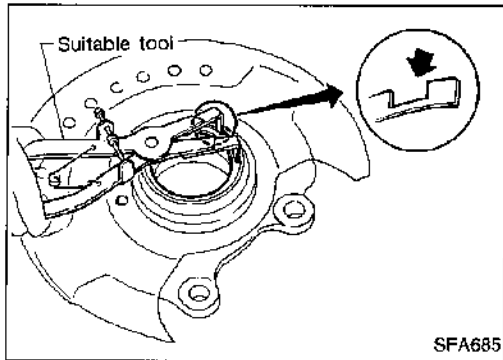
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Wheel Hub and Knuckle (Cont'd)

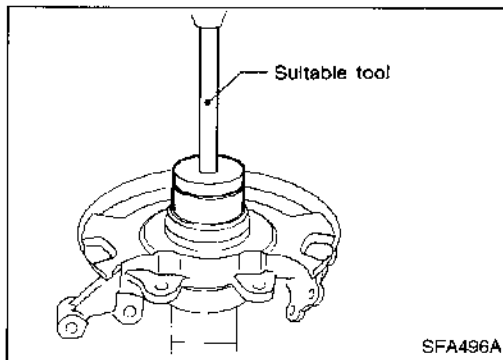
2. Remove inner grease seal from knuckle.



3. Remove snap ring.



4. Press out bearing outer race.



INSPECTION

Wheel hub and knuckle

Check wheel hub and knuckle for cracks by using a magnetic exploration or dyeing test.

Snap ring

Check snap ring for wear or cracks. Replace if necessary.

ASSEMBLY

1. Press new wheel bearing assembly into knuckle.

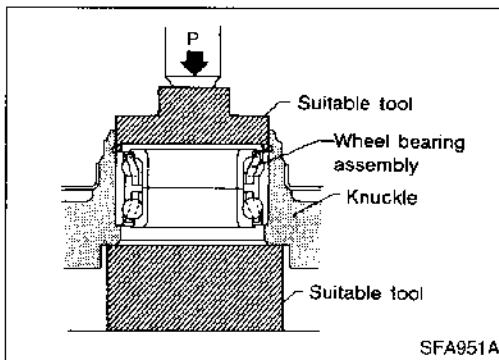
Maximum load P:

29 kN (3 ton, 3.3 US ton, 3.0 Imp ton)

CAUTION:

- Do not press on inner race of wheel bearing assembly.
- Do not apply oil or grease to mating surfaces of wheel bearing outer race and knuckle.

2. Install snap ring into groove of knuckle.



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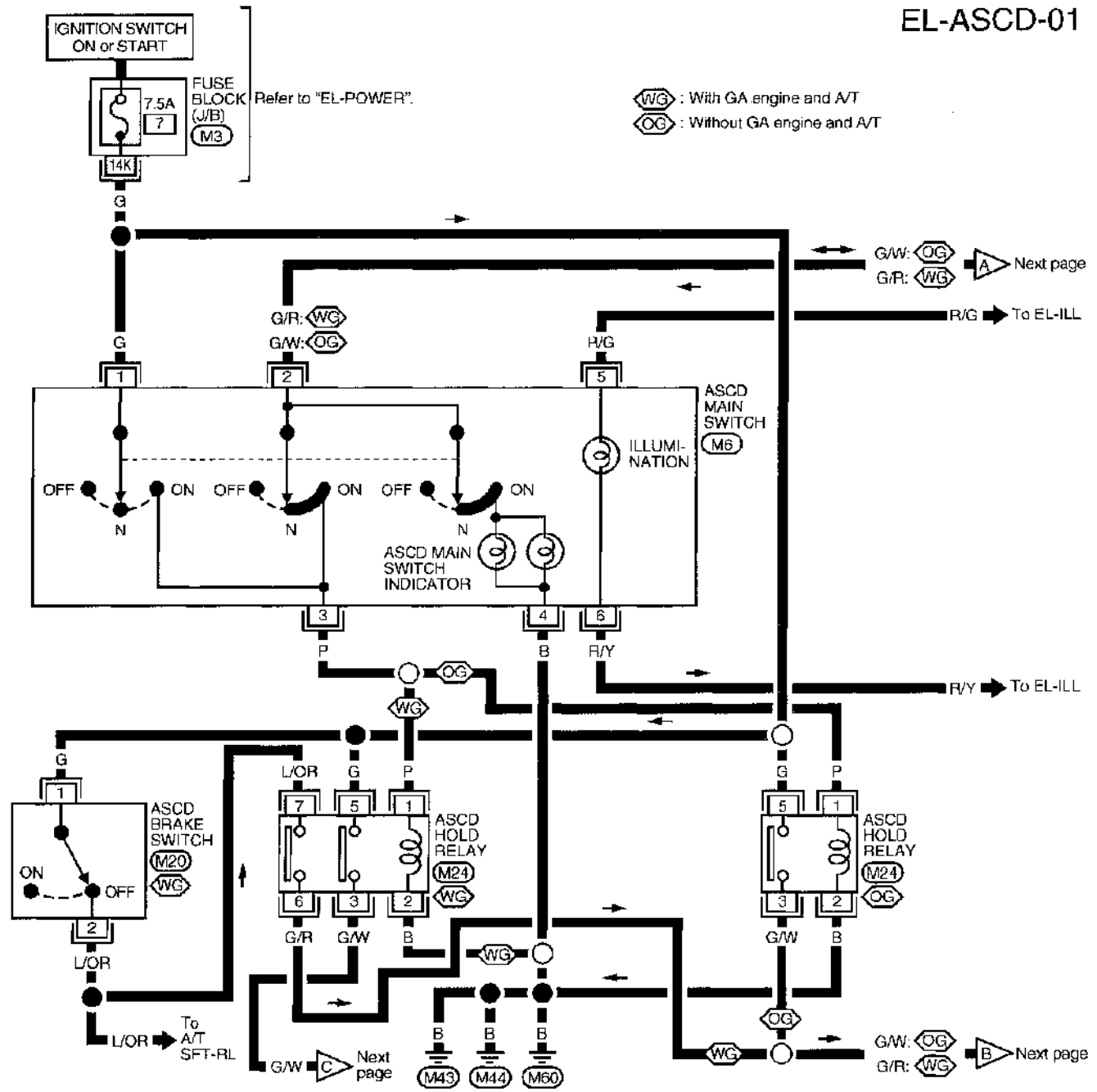
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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

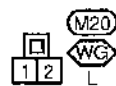
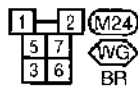
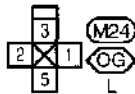
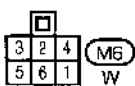
Wiring Diagram -ASCD-

EL-ASCD-01



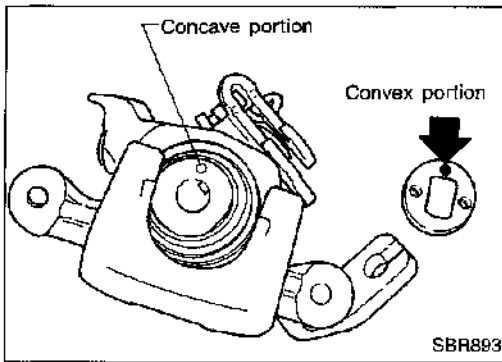
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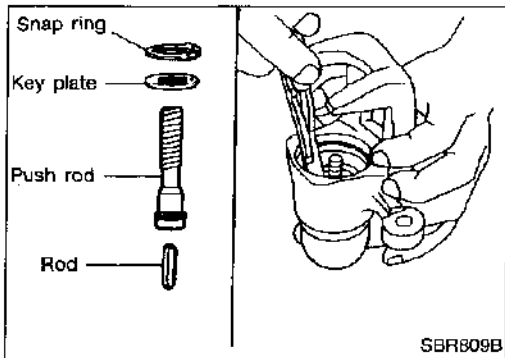


REAR DISC BRAKE

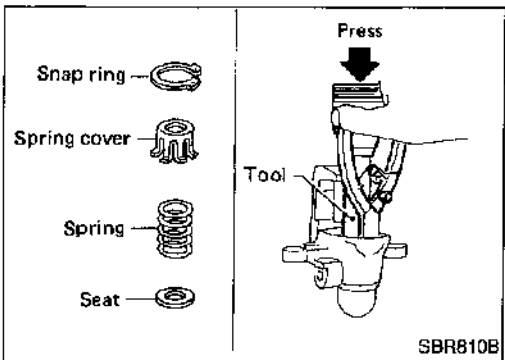
Assembly (Cont'd)



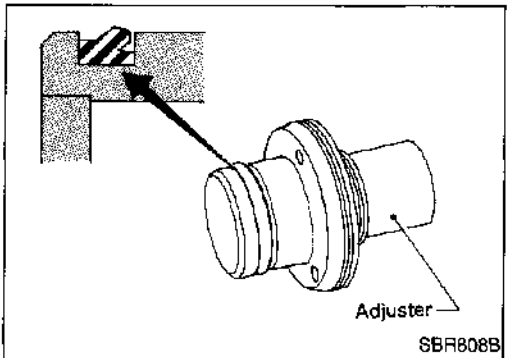
3. Match protrusion on key plate with depression in cylinder.



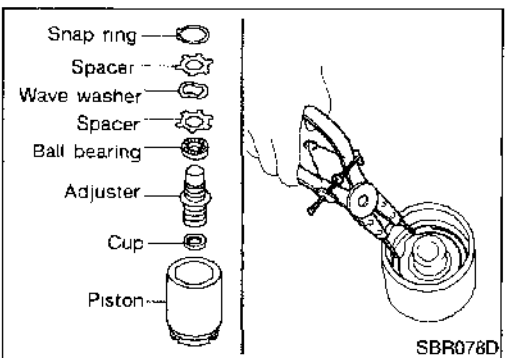
4. Install snap ring with a suitable tool.



5. Install seat, spring, spring cover and snap ring while depressing with a suitable tool.



6. Install adjuster in the specified direction.



7. Install cup, adjuster, bearing, spacers, washer and snap ring with a suitable tool.

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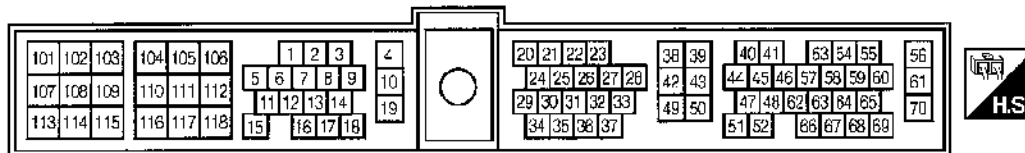
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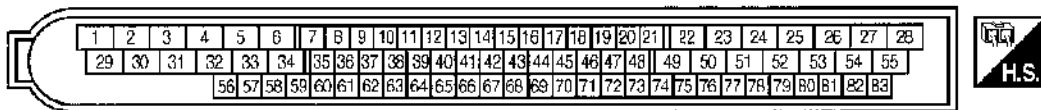
ELECTRICAL UNITS

Terminal Arrangement

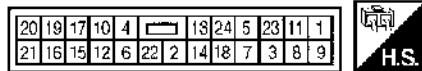
ECM (ECGS CONTROL MODULE) (F24)



ABS CONTROL UNIT (B107)

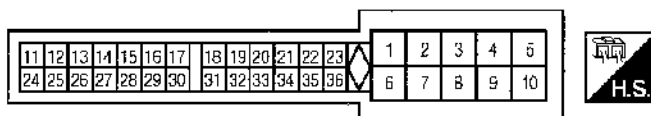


AIRBAG DIAGNOSIS SENSOR UNIT (Z4)

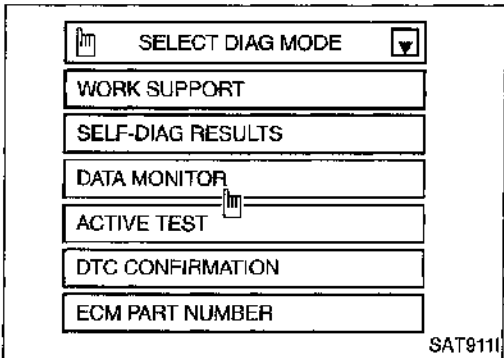
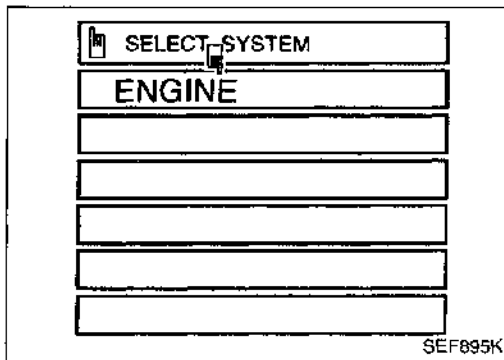


View from harness side

SMART ENTRANCE CONTROL UNIT (M37)



TROUBLE DIAGNOSIS FOR P0705



Inhibitor Switch (Cont'd)

DIAGNOSTIC TROUBLE CODE (DTC) CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "DIAGNOSTIC TROUBLE CODE CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch "OFF" and wait at least 5 seconds before conducting the next test.

After the repair, perform the following procedure to confirm the malfunction is eliminated.

- 1) Turn ignition switch "ON".
- 2) Select "DATA MONITOR" mode for "ENGINE" with CONSULT.
- 3) Start engine and maintain the following conditions for at least 5 consecutive seconds.

VHCL SPEED SE: 10 km/h (6 MPH) or more

THRTL POS SEN: More than 1.3V

Selector lever: D position (OD "ON" or "OFF")

OR

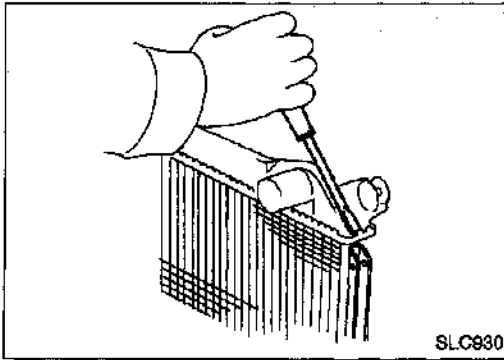
- 1) Start engine.
- 2) Drive vehicle under the following conditions:
Selector lever in "D", overdrive control switch in "ON" or "OFF" position, vehicle speed higher than 10 km/h (6 MPH), throttle position sensor more than 1.3V and driving for more than 5 seconds.
- 3) Select "MODE 7" with GST.

OR

- 1) Start engine.
- 2) Drive vehicle under the following conditions:
Selector lever in "D", overdrive control switch in "ON" or "OFF" position, vehicle speed higher than 10 km/h (6 MPH), throttle opening greater than 1/2 of the full throttle position and driving for more than 5 seconds.
- 3) Perform self-diagnosis for ECM.
Refer to EC section ["Malfunction Indicator Lamp (MIL)", "ON BOARD DIAGNOSTIC SYSTEM DESCRIPTION"].

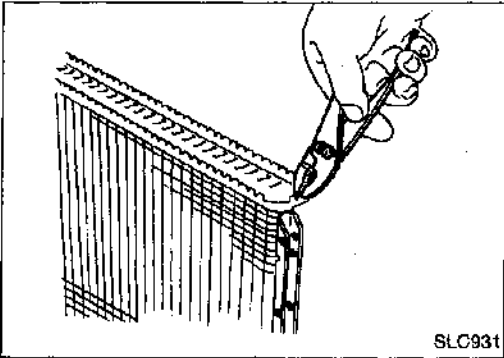
ENGINE COOLING SYSTEM

Radiator (Aluminum type) (Cont'd)

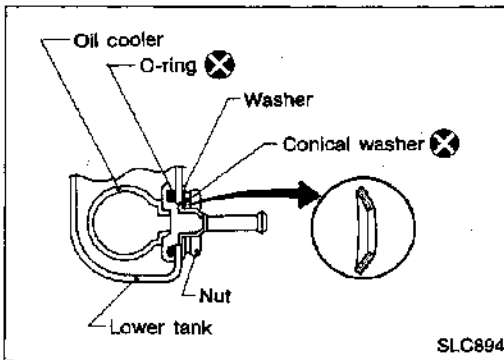


- In areas where Tool cannot be used, use a screwdriver to bend the edge up.

Be careful not to damage tank.



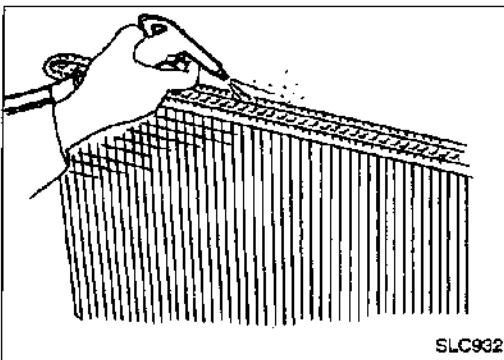
2. Make sure the edge stands straight up.
3. Remove oil cooler from tank. (A/T models only)



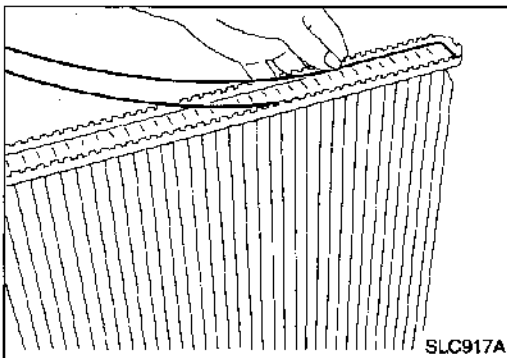
ASSEMBLY

1. Install oil cooler. (A/T models only)

Pay attention to direction of conical washer.



2. Clean contact portion of tank.



3. Install sealing rubber.
Push it in with fingers.
Be careful not to twist sealing rubber.