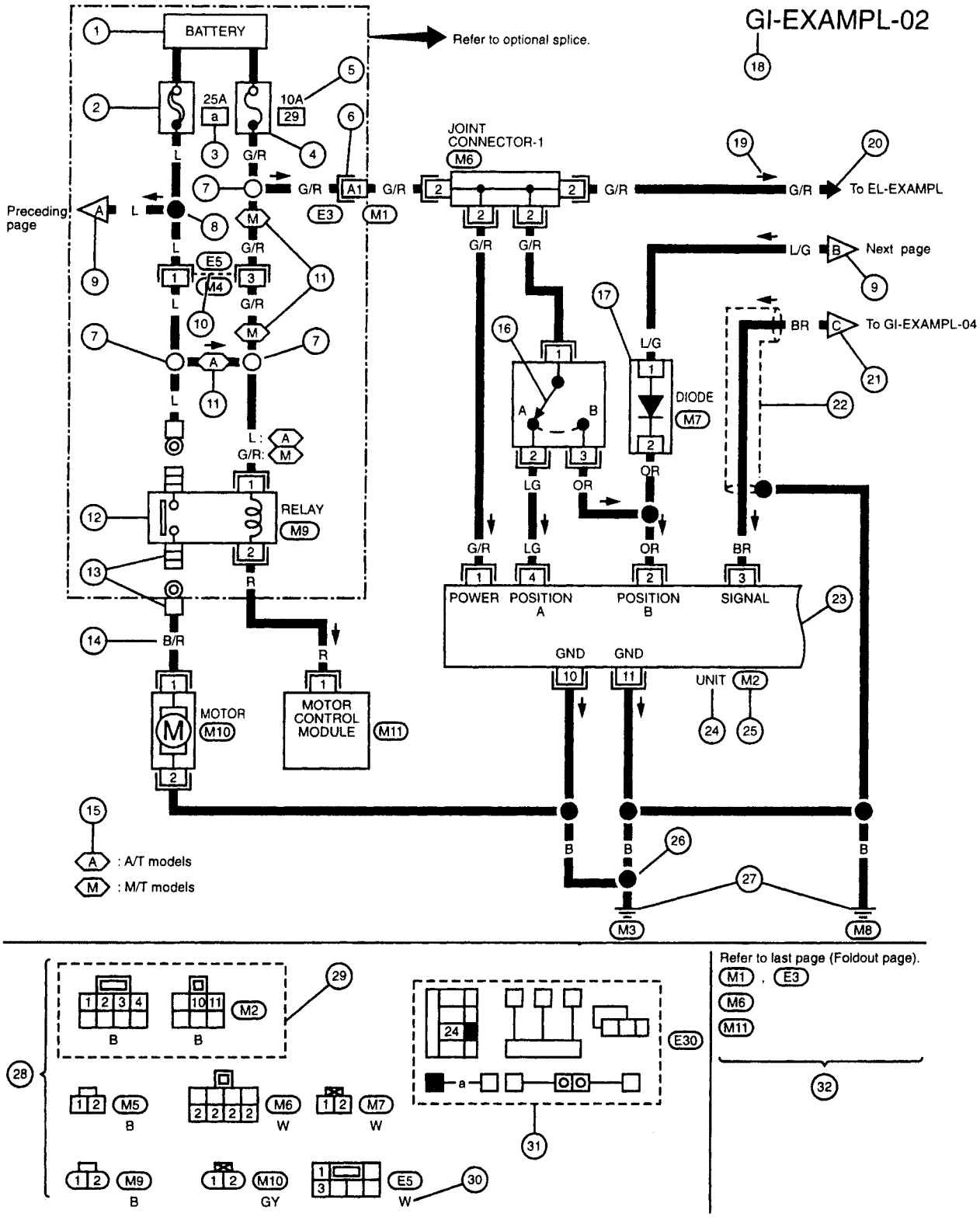
Sample/Wiring Diagram — EXAMPL —

- For Description, refer to GI-11.



SGI904

Description (Cont'd)

MULTIPLE SWITCH

The continuity of multiple switch is described in two ways as shown below.

- The switch chart is used in schematic diagrams.
- The switch diagram is used in wiring diagrams.

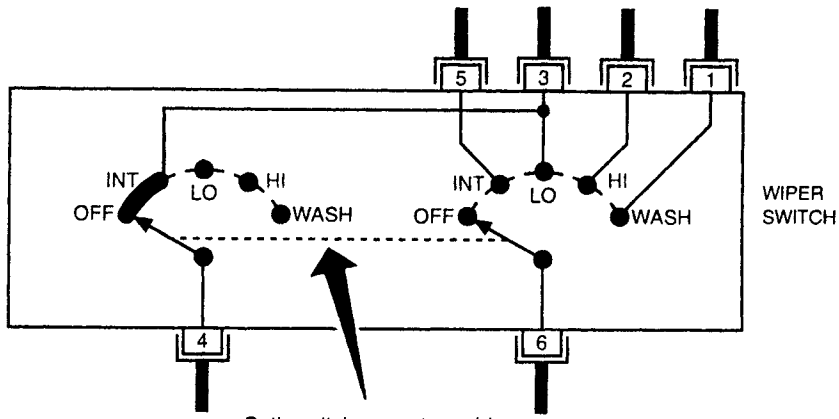
Example

(SWITCH CHART)

WIPER SWITCH

	OFF	INT	LO	HI	WASH
1					○
2				○	
3	○	○	○		
4	○	○			
5		○			
6		○	○	○	○

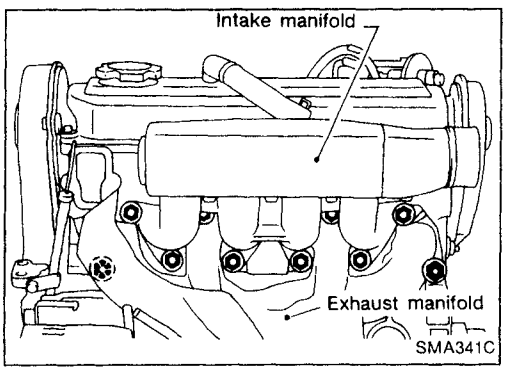
(SWITCH DIAGRAM)



Continuity circuit of wiper switch

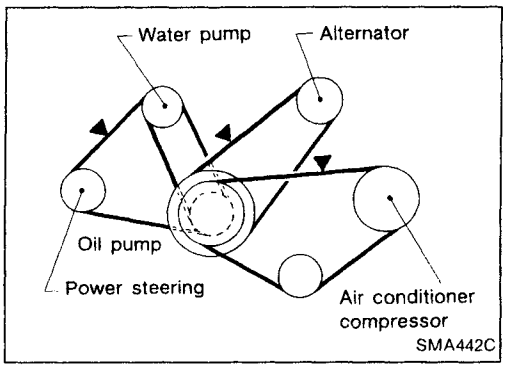
SWITCH POSITION	CONTINUITY CIRCUIT
OFF	3-4
INT	3-4, 5-6
LO	3-6
HI	2-6
WASH	1-6

SGI875



Manifold Nut Check

1. Remove exhaust manifold cover.
2. Tighten manifold bolts and nuts to the specified torque. Refer to "SERVICE DATA AND SPECIFICATIONS (SDS)".
3. Install exhaust manifold cover.



Checking Drive Belt

WARNING:

Inspect drive belt deflections when engine is cold. When engine is hot, check deflections at least 30 minutes after engine has been switched off.

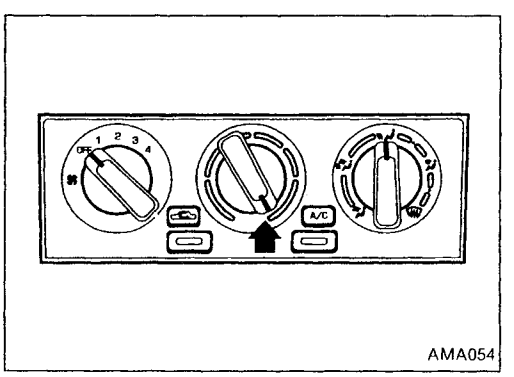
1. Inspect belts for cracks, fraying, wear or oil adhesion. If necessary, replace with new ones.
2. Inspect drive belt deflections by pushing on the belt midway between pulleys.
3. Adjust belt deflection if it exceeds the limit.

Belt deflection:

Unit: mm (in)

	Used belt deflection		Deflection of new belt
	Limit	Deflection after adjustment	
Alternator	14 (0.55)	11 - 13 (0.43 - 0.51)	9 - 11 (0.35 - 0.43)
Air conditioner compressor	14 (0.55)	11 - 13 (0.43 - 0.51)	9 - 11 (0.35 - 0.43)
Power steering oil pump	8 (0.31)	5 - 7 (0.20 - 0.28)	4 - 6 (0.16 - 0.24)
Water pump without power steering	—	8 (0.31)	6 (0.24)
Applied pushing force	98 N (10 kg, 22 lb)		

Inspect drive belt deflections when engine is cold.



Changing Engine Coolant

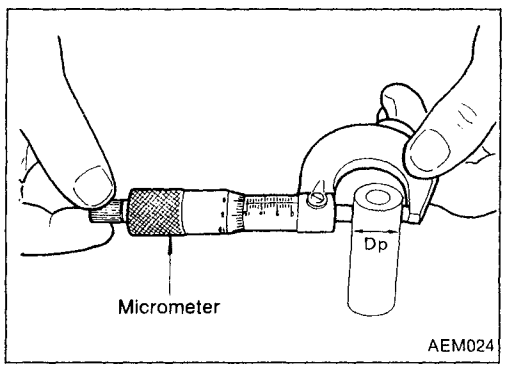
WARNING:

To avoid the danger of being scalded, never attempt to change the coolant when the engine is hot.

1. Set heater "TEMP" control dial to the max. "HOT" position.

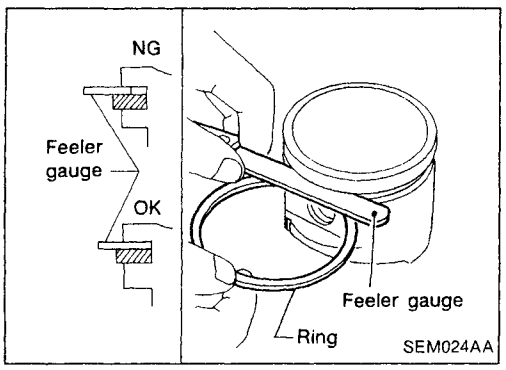
- **Make sure that air conditioner switch is "OFF".**

Inspection (Cont'd)



2. Measure outer diameter of piston pin "Dp".
   Standard diameter "Dp":
   18.989 - 19.001 mm (0.7476 - 0.7481 in)
3. Calculate piston pin clearance.
   dp – Dp = –0.004 to 0 mm (–0.0002 to 0 in)
   If it exceeds the above value, replace piston assembly with pin.

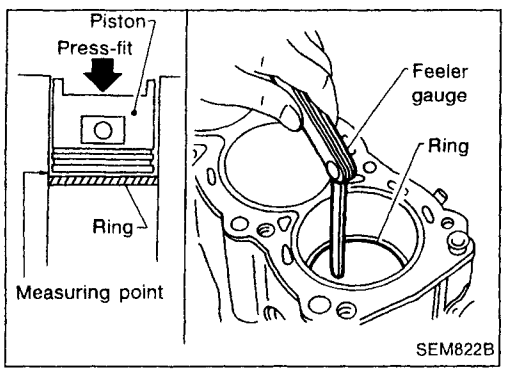
EM



PISTON RING SIDE CLEARANCE

Side clearance:
Top ring
0.040 - 0.080 mm (0.0016 - 0.0031 in)
2nd ring (Only Europe models)
0.030 - 0.070 mm (0.0012 - 0.0028 in)
Max. limit of side clearance:
0.2 mm (0.008 in)

If out of specification, replace piston and/or piston ring assembly.

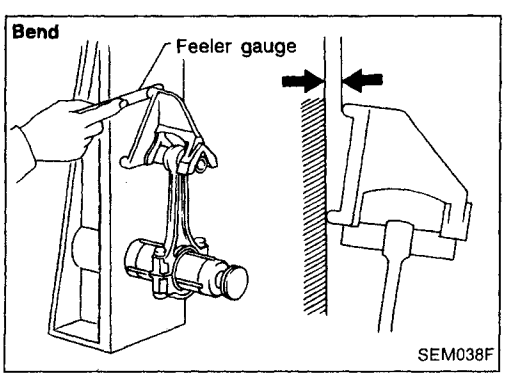


PISTON RING END GAP

End gap:
Top ring
0.20 - 0.35 mm (0.0079 - 0.0138 in)
2nd ring (Only Europe models)
0.37 - 0.52 mm (0.0146 - 0.0205 in)
Oil ring
0.20 - 0.60 mm (0.0079 - 0.0236 in)
Max. limit of ring gap:
1.0 mm (0.039 in)

If out of specification, replace piston ring. If gap exceeds maximum limit with new ring, rebore cylinder and use oversize piston and piston rings.
Refer to SDS (EM-161).

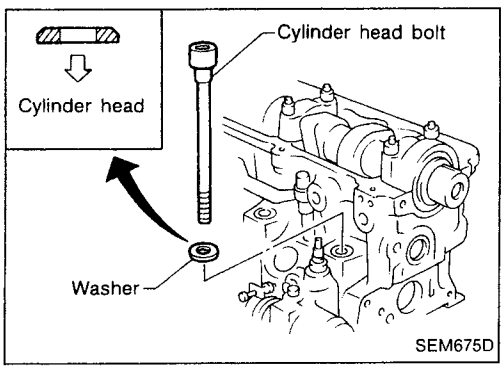
- When replacing the piston, check the cylinder block surface for scratches or seizure. If scratches or seizure is found, hone or replace the cylinder block.



CONNECTING ROD BEND AND TORSION

Bend:
Limit 0.15 mm (0.0059 in)
per 100 mm (3.94 in) length
Torsion:
Limit 0.3 mm (0.012 in)
per 100 mm (3.94 in) length

If it exceeds the limit, replace connecting rod assembly.



Installation

1. Install cylinder head gasket.
- **When replacing only cylinder head gasket, install same grade gasket as the one formerly used.**
- **When replacing or repairing cylinder block, piston, connecting rod and crankshaft, select gasket referring to "Selecting cylinder head gasket".**
- **Pay attention to the direction of the cylinder head bolt washer as shown in the figure.**

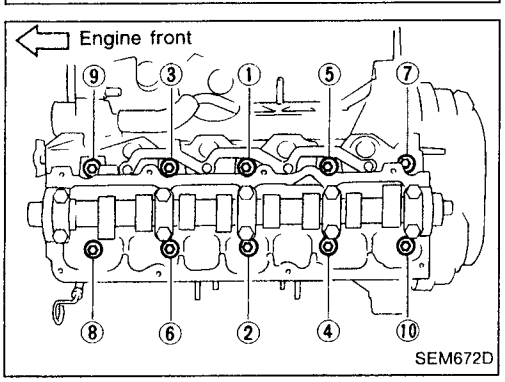
2. Install cylinder head and tighten cylinder head bolts according to the following sequence.

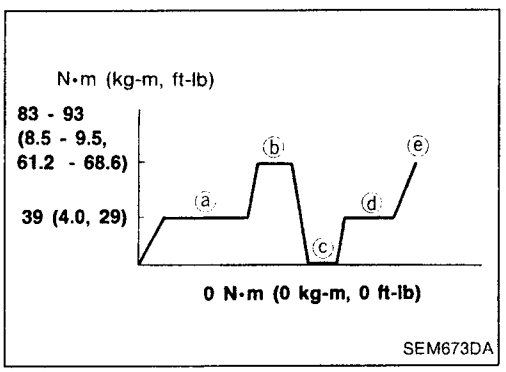
Tightening procedure

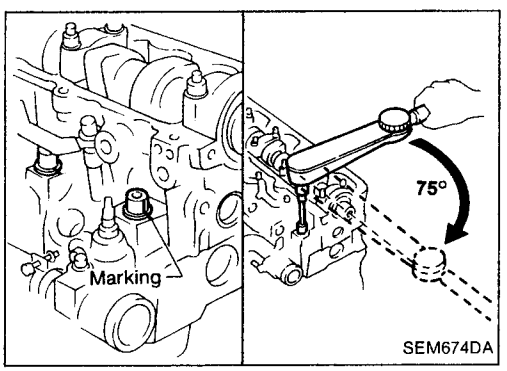
- **Apply engine oil to threads and underhead seating face of each bolt.**

1. Tighten bolts in numerical order shown in the figure following steps below.
   - ⓐ 39 N·m (4.0 kg-m, 29 ft-lb)
   - ⓑ 83 - 93 N·m (8.5 - 9.5 kg-m, 61.2 - 68.6 ft-lb)
   - ⓒ Return to 0 N·m (0 kg-m, 0 ft-lb)
   - ⓓ 39 N·m (4.0 kg-m, 29 ft-lb)
   - ⓔ Tighten to 75 - 80°

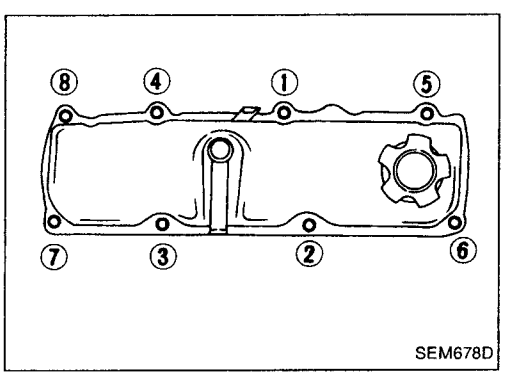
   If it is difficult to check tightening angle of bolt, tighten to 83 to 93 N·m (8.5 to 9.5 kg-m, 61 to 69 ft-lb).







2. Install rocker cover.
- Install rocker cover in the sequence shown at left.



Idle Speed/Ignition Timing/Idle Mixture Ratio Adjustment

PREPARATION

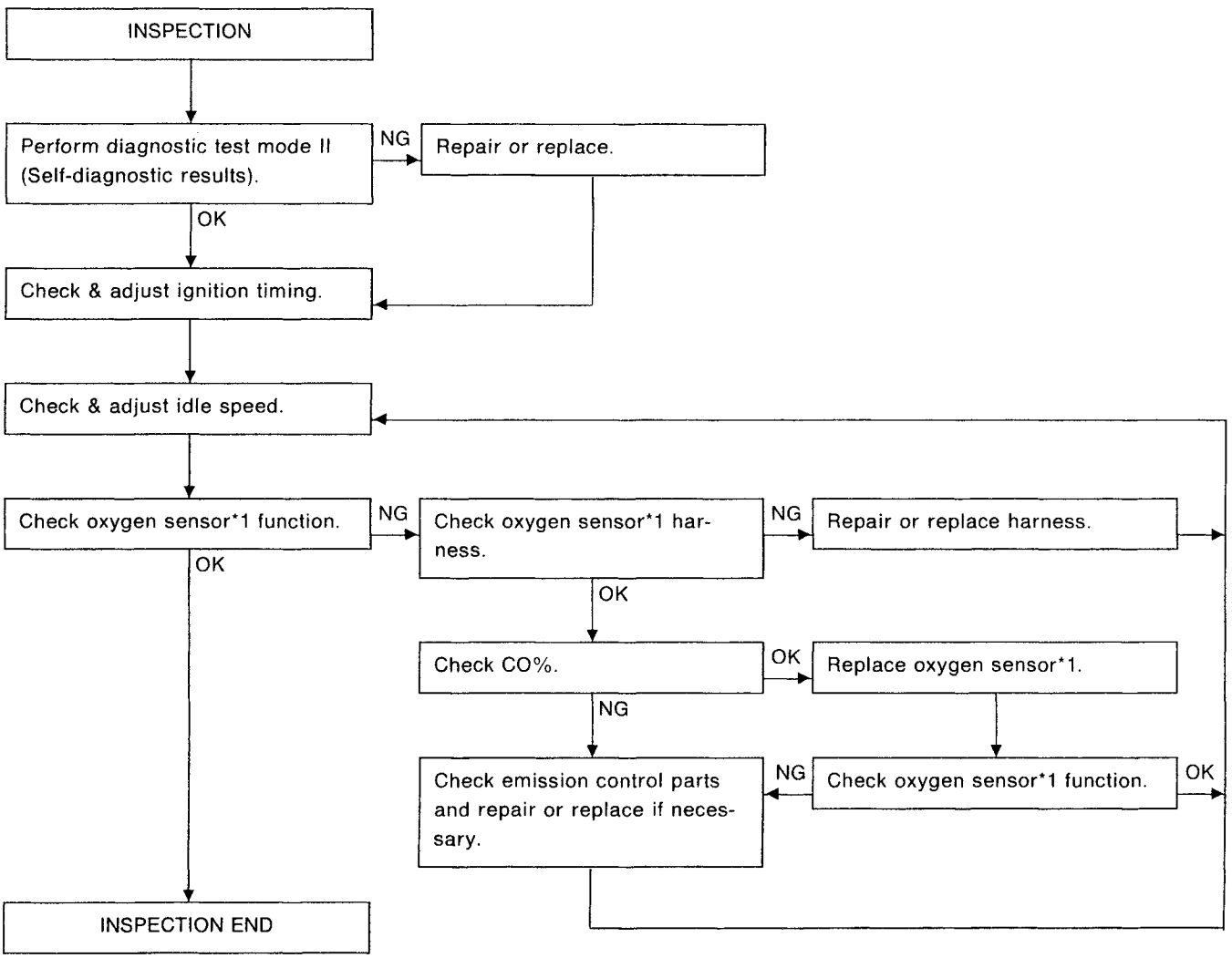
- Make sure that the following parts are in good order.

(1) Battery
(2) Ignition system
(3) Engine oil and coolant levels
(4) Fuses
(5) ECM harness connector
(6) Vacuum hoses
(7) Air intake system
(Oil filler cap, oil level gauge, etc.)
(8) Fuel pressure
(9) Engine compression
(10) Throttle valve
(11) EGR valve operation — For Europe and Israel and Australia, and GA15DE M/T models
(12) Evaporative emission system

- On models equipped with air conditioner, checks should be carried out while the air conditioner is "OFF".
- On models equipped with automatic transaxle, when checking idle speed, ignition timing and mixture ratio, checks should be carried out while shift lever is in "N" position.
- When measuring "CO" percentage, insert probe more than 40 cm (15.7 in) into tail pipe.
- Turn off headlamps, heater blower, rear defogger.
- Keep front wheels pointed straight ahead.
- Make the check after the cooling fan has stopped.

EC

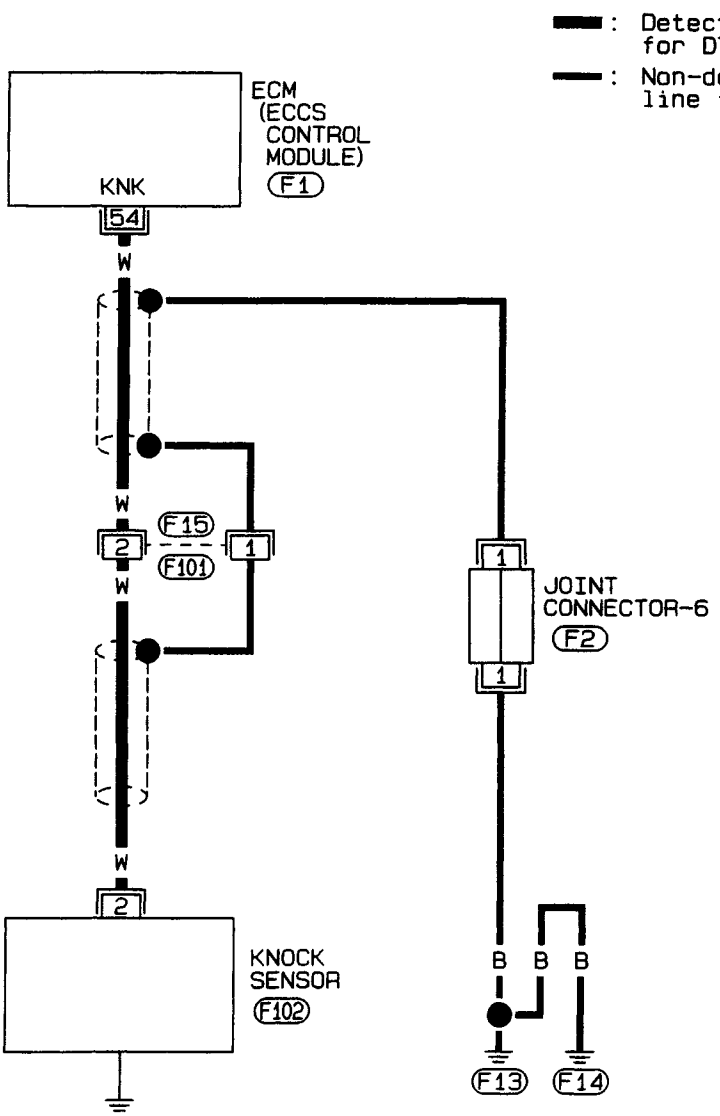
Overall inspection sequence

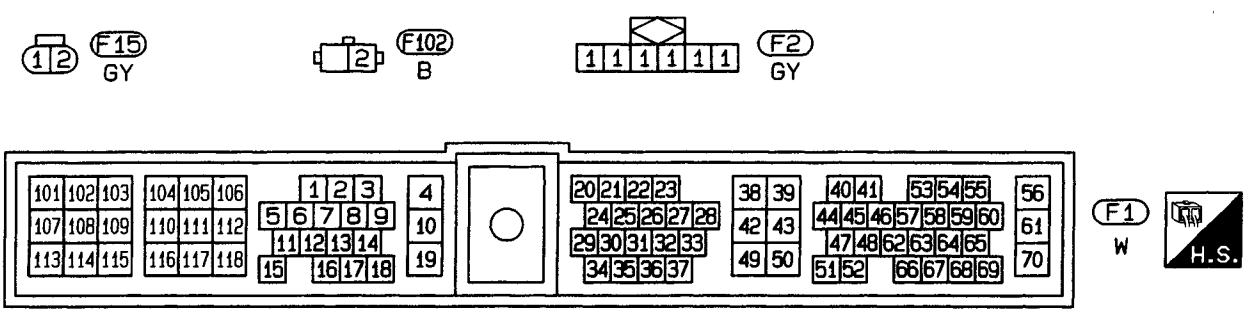


*1: Heated oxygen sensor (For Europe and Israel, and Australia A/T models)
Oxygen sensor (Except for Europe and Israel, and Australia A/T models)

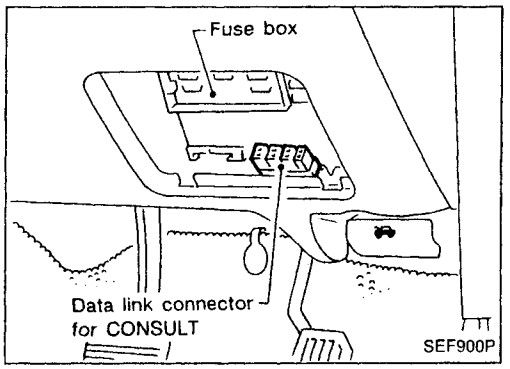
GA16DE for Australia

EC-KS-01





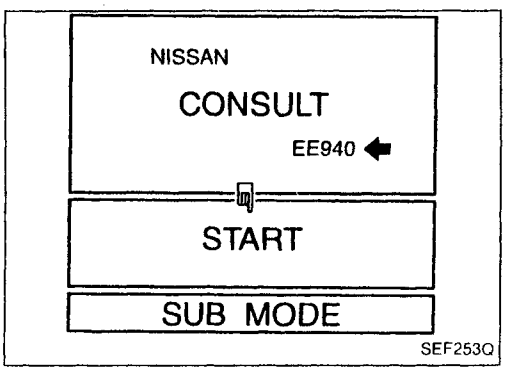
HEC067



CONSULT

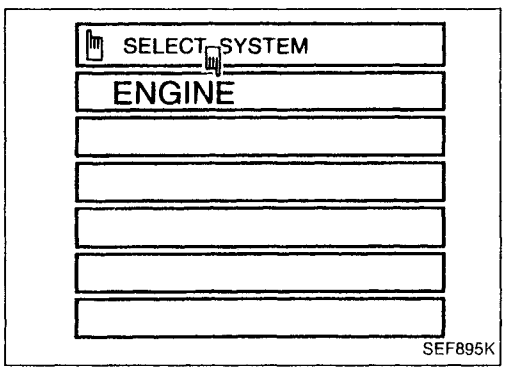
CONSULT INSPECTION PROCEDURE

1. Turn off ignition switch.
2. Connect "CONSULT" to Data link connector for CONSULT. (Data link connector for CONSULT is located behind the fuse box cover.)

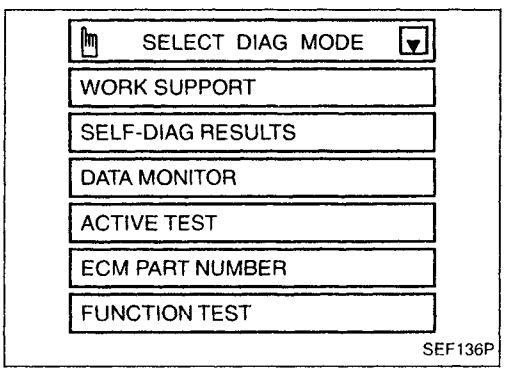


3. Turn on ignition switch.
4. Touch "START".

⬅: Program card
AE930: For Australia



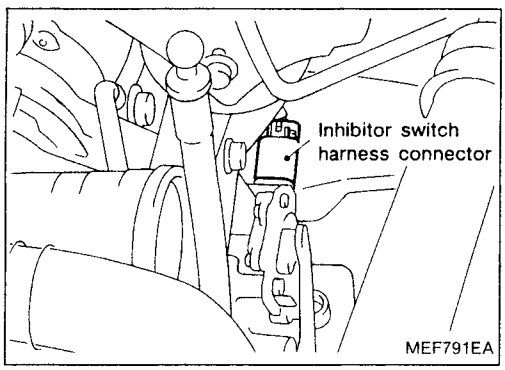
5. Touch "ENGINE".

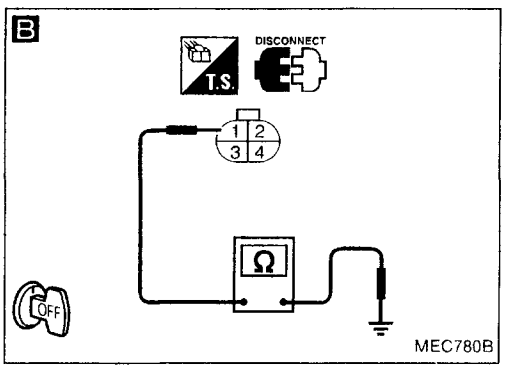


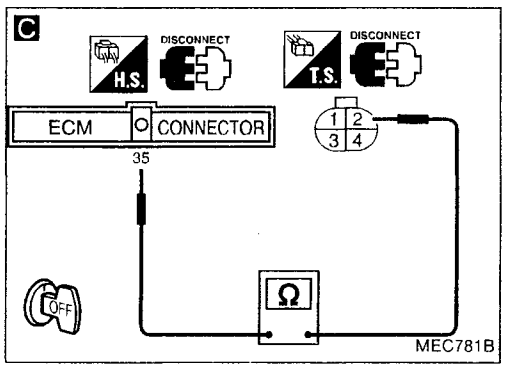
6. Perform each diagnostic test mode according to each service procedure.

For further information, see the CONSULT Operation Manual.

Park/Neutral Position Switch (Cont'd)







Ⓐ

B

CHECK GROUND CIRCUIT.
1. Disconnect inhibitor switch harness connector.
2. Check harness continuity between terminals ① and body ground.
   Continuity should exist.
   If OK, check harness for short.

NG → Check the following.
- Harness connectors (E203), (E26)
- Harness for open or short between inhibitor switch and body ground

If NG, repair harness or connectors.

OK ↓

C

CHECK INPUT SIGNAL CIRCUIT.
1. Disconnect ECM harness connector.
2. Check harness continuity between ECM terminal ㉟ and terminal ②.
   Continuity should exist.
   If OK, check harness for short.

NG → Check the following.
- Harness connectors (F6), (M49)
- Harness connectors (M8), (E101)
- Harness connectors (E26), (E203)
- Harness for open or short between ECM and inhibitor switch

If NG, repair harness or connectors.

OK ↓

CHECK COMPONENT (Inhibitor switch).
Refer to AT section.

NG → Replace inhibitor switch.

OK ↓

Disconnect and reconnect harness connectors in the circuit. Then retest.

Trouble is not fixed. ↓

Check ECM pin terminals for damage and check the connection of ECM harness connector. Reconnect ECM harness connector and retest.

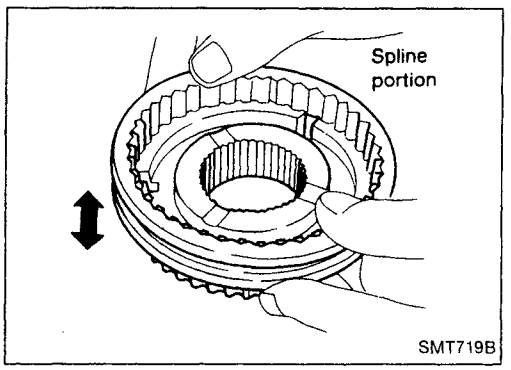
↓

INSPECTION END

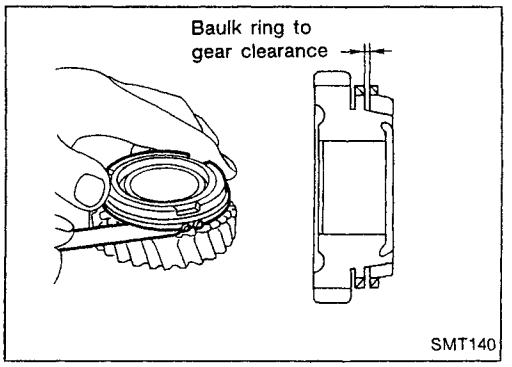
EC

Mainshaft and Gears (Cont'd)

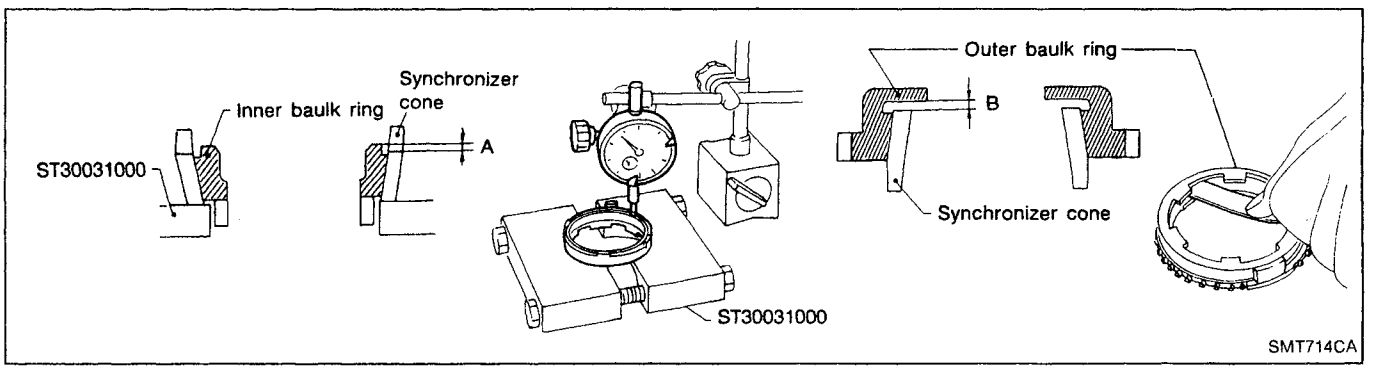
Synchronizer



- Check spline portion of coupling sleeves, hubs and gears for wear or cracks.
- Check baulk rings for cracks or deformation.
- Check insert springs for deformation.



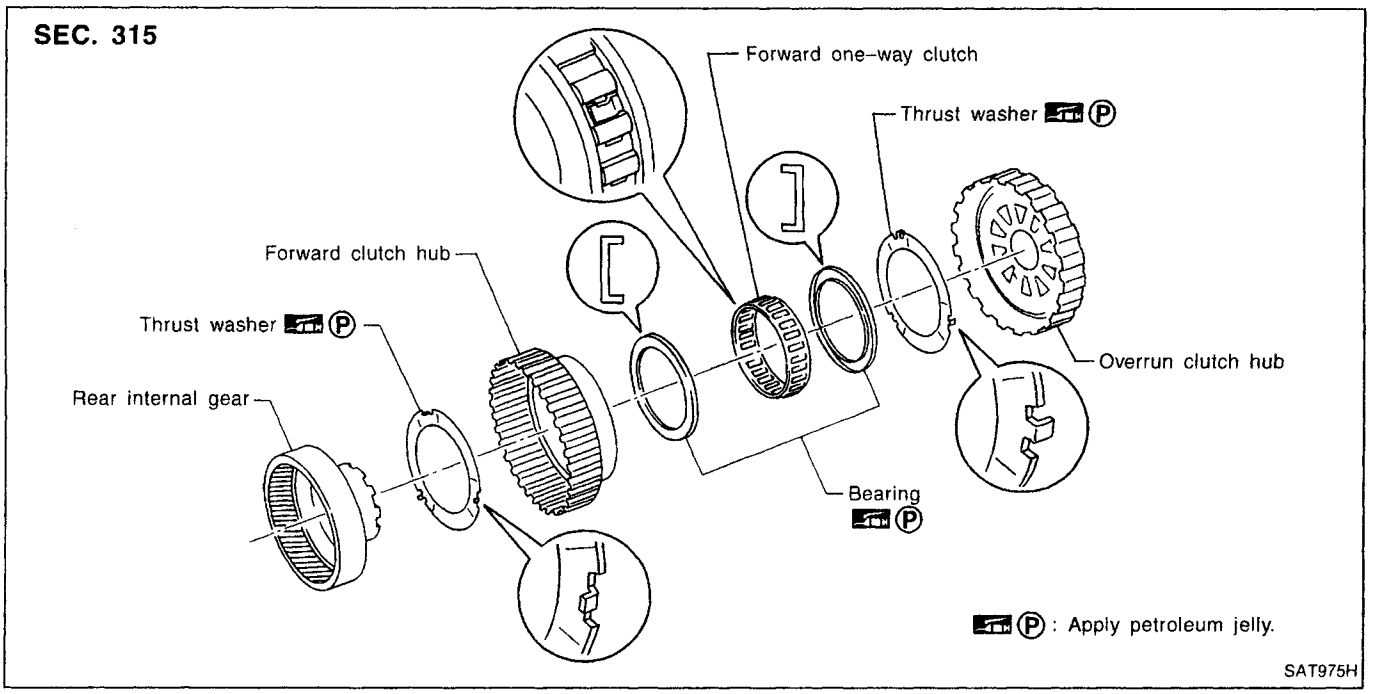
- Measure clearance between baulk ring and gear.
  Clearance between baulk rings and gears, for 1st and 4th gear only:
  Standard
  1st 0.95 - 1.45 mm (0.0374 - 0.0571 in)
  4th 0.90 - 1.45 mm (0.0354 - 0.0571 in)
  Wear limit
  0.7 mm (0.028 in)
- **2nd and 3rd gears have inner and outer baulk rings and so have different measurements.**

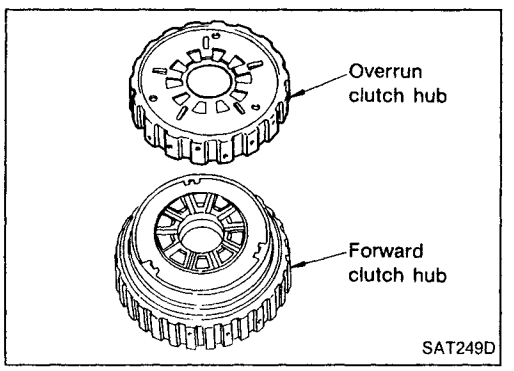


- Measure wear of 2nd and 3rd baulk rings.

a. Place inner baulk ring in position on synchronizer cone.
b. Hold baulk ring evenly against synchronizer cone and measure distance "A".
c. Place outer baulk ring in position on synchronizer cone.
d. Hold baulk ring evenly against synchronizer cone and measure distance "B".
   Standard:
   Inner-A 0.7 - 0.9 mm (0.028 - 0.035 in)
   Outer-B 0.6 - 1.1 mm (0.024 - 0.043 in)
   Wear limit:
   0.2 mm (0.008 in)
e. If distance "A" or "B" is smaller than the wear limit, replace baulk ring.

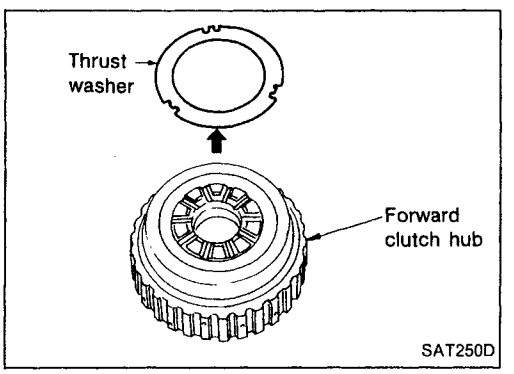
Rear Internal Gear, Forward Clutch Hub and Overrun Clutch Hub





DISASSEMBLY

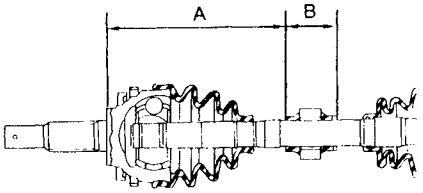
1. Remove snap ring from overrun clutch hub.
2. Remove overrun clutch hub from forward clutch hub.



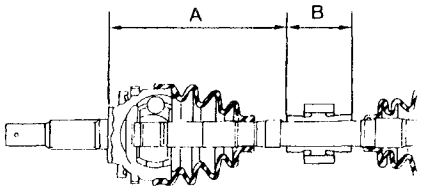
3. Remove thrust washer from forward clutch hub.

Drive Shaft (Cont'd)

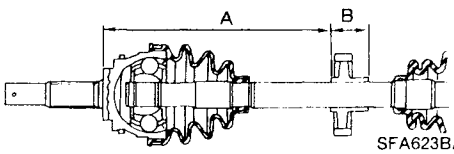
Gasoline engine
DF83/TS83 left side
BF83/DS83 right side
ZF80/TS70C & ZF90/TS79C right side



ZF90/TS79C left side



Diesel engine



SFA623BA

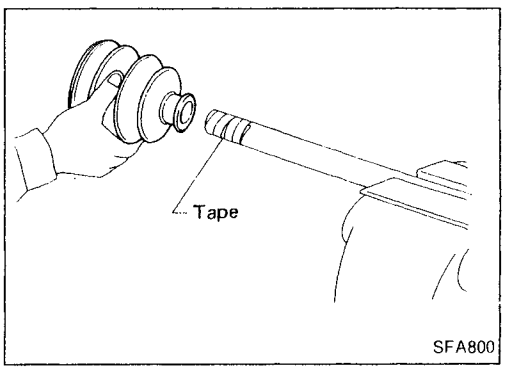
Dynamic damper

1. Use new damper band when reinstalling.
2. Install dynamic damper from stationary-joint side while holding it securely.

Length:

Unit: mm (in)

	ZF80/TS70C	ZF90/TS79C			BF83/TS83, DS83
		Gasoline engine		Diesel engine	
	RH	RH	LH	RH	
"A"	432 - 442 (17.01 - 17.40)		175.3 - 185.3 (6.90 - 7.30)	372.5 - 377.5 (14.67 - 14.86)	169 - 175 (6.65 - 6.89)
"B"	66 (2.60)		58 (2.28)	37 (1.46)	70 (2.76)

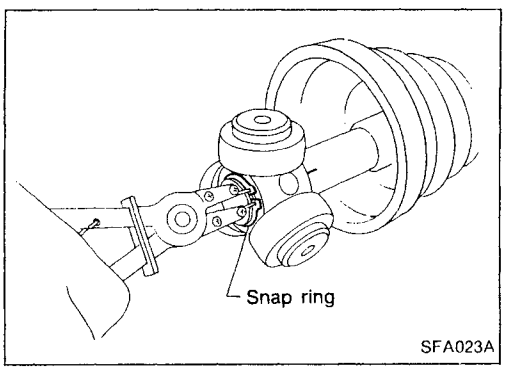


SFA800

Transaxle side (TS70C, TS79C, TS83 type)

1. Install boot and new small boot band on drive shaft.

Cover drive shaft serration with tape so as not to damage boot during installation.

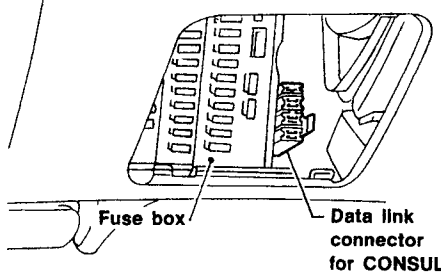


SFA023A

2. Install spider assembly securely, making sure the marks which were made during disassembly are properly aligned.
3. Install new snap ring.

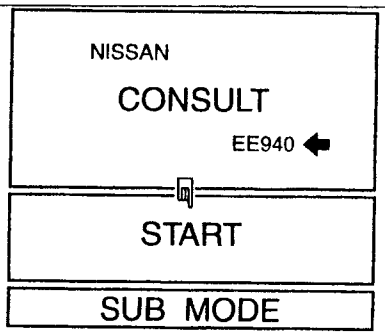
FA

A



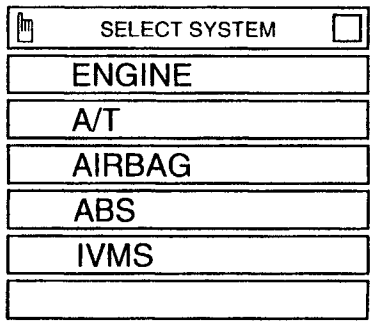
SBF326H

B



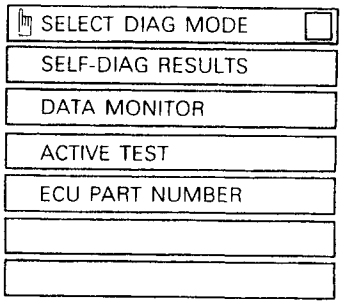
SEF253Q

C



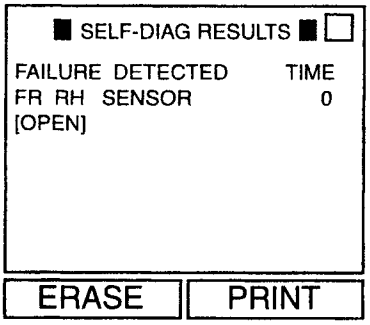
SBR104D

D



SST412B

E



SBR950C

CONSULT Inspection Procedure

SELF-DIAGNOSIS PROCEDURE

A

1) Turn ignition switch OFF.
2) Connect CONSULT to Data Link Connector for CONSULT.

↓

1) Start engine.
2) Drive vehicle over 30 km/h (20 MPH) for at least one minute.

↓

B 1) Stop vehicle with engine running and touch "START" on CONSULT screen.

⬅ **Program card**
AE950: For Australia
EE940: Except Australia

C 2) Touch "ABS".

D 3) Touch "SELF-DIAG RESULTS".

- The screen shows the detected malfunction and the times of ignition switch ON and OFF after it occurred.

↓

Make the necessary repairs following the diagnostic procedures.

↓

E

After the malfunctions are repaired, erase the self-diagnostic results stored in the control unit by touching "ERASE".

↓

Check warning lamp for deactivation after driving vehicle over 30 km/h (20 MPH) for at least one minute.

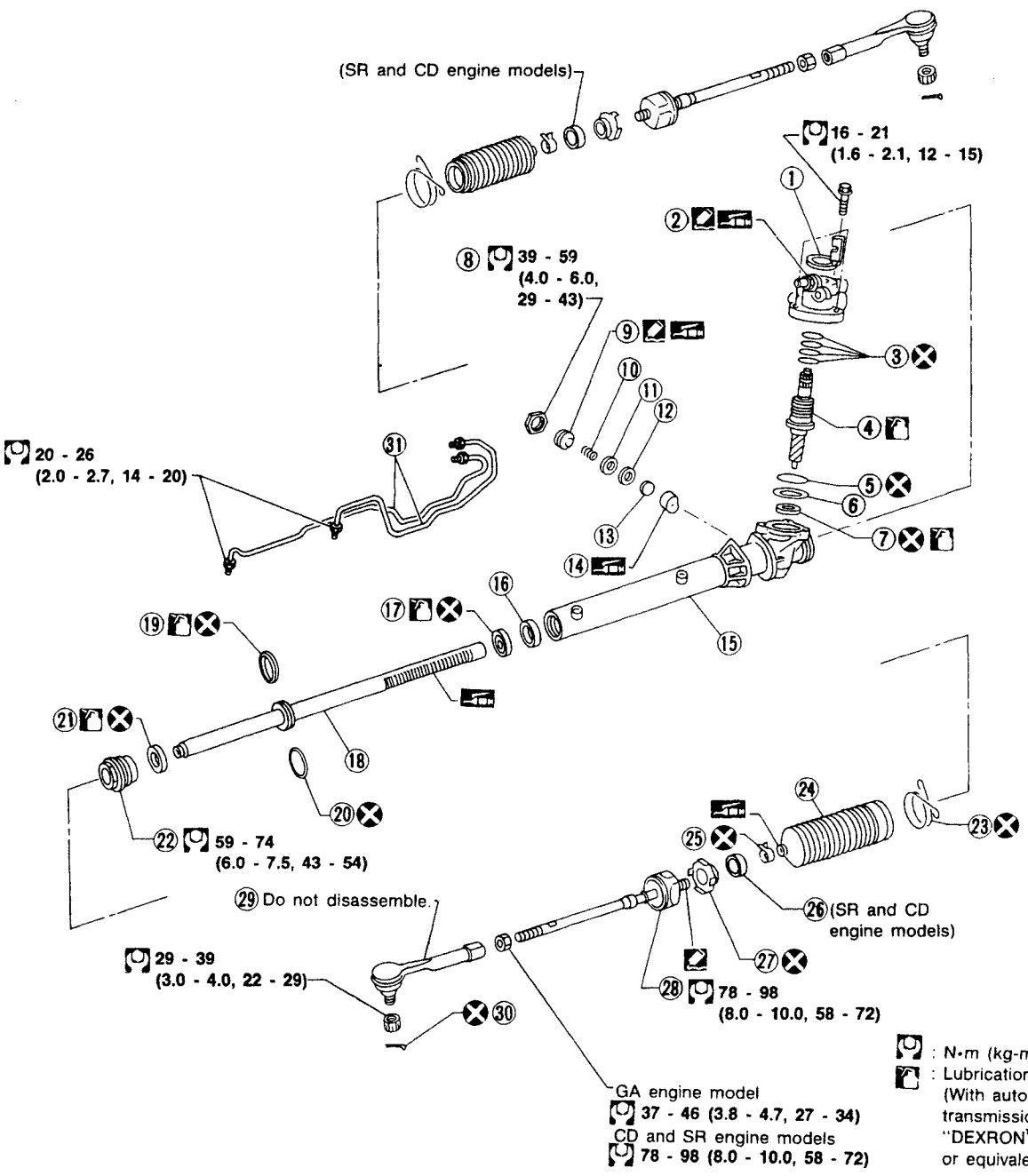
↓

Test the ABS in a safe area to verify that it functions properly.

Note: "SELF-DIAG RESULTS" screen shows the detected malfunction and the times of ignition switch ON and OFF after it occurred.

BR

SEC. 492



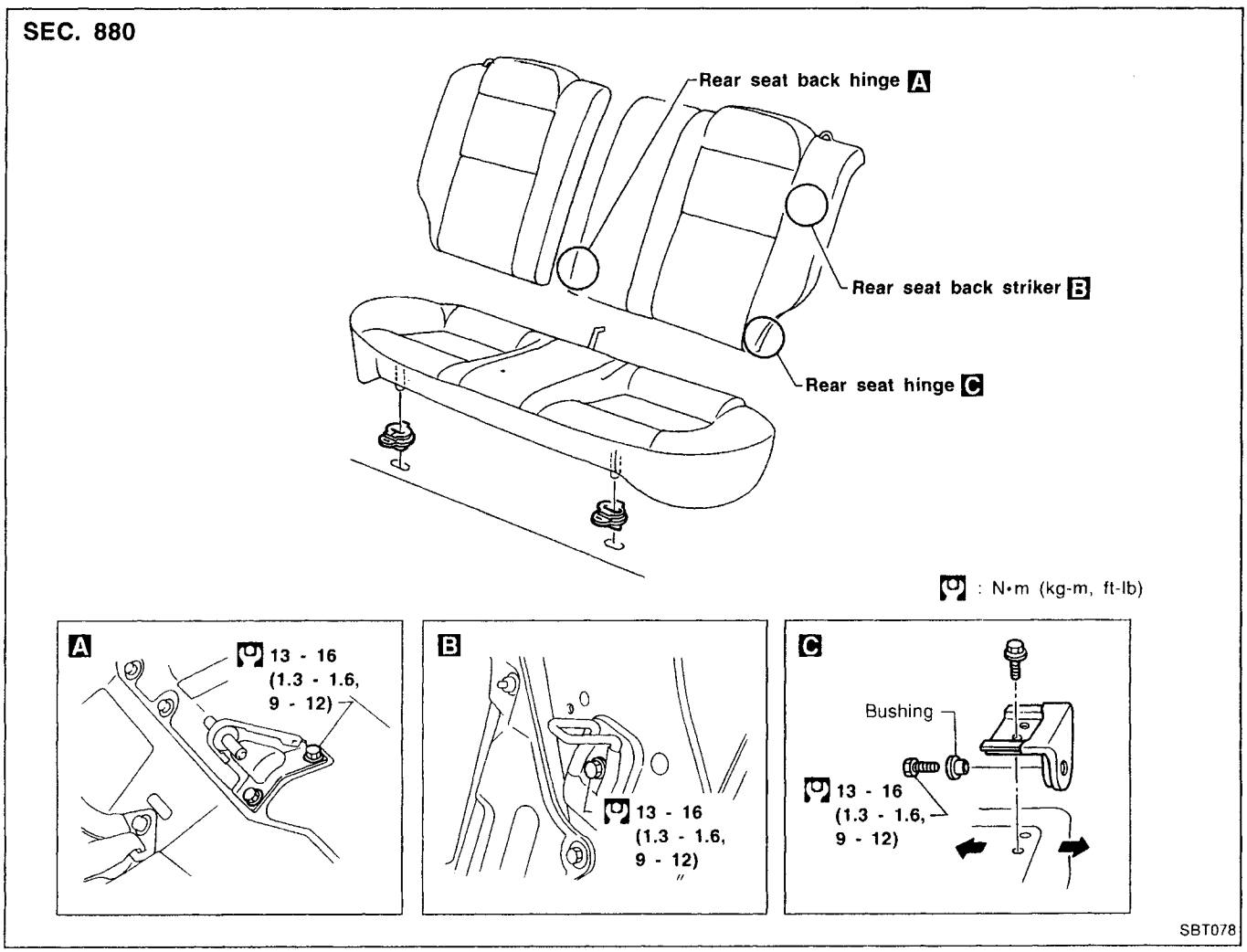
① Rear cover cap
② Rear housing assembly
③ Pinion seal ring
④ Pinion assembly
⑤ O-ring
⑥ Shim
⑦ Pinion oil seal
⑧ Lock nut
⑨ Adjusting screw
⑩ Spring
⑪ Spring disc
⑫ Washer
⑬ Spring seat
⑭ Retainer
⑮ Gear housing
⑯ Center bushing
⑰ Rack oil seal
⑱ Rack assembly
⑲ Rack seal ring
⑳ O-ring
㉑ Rack oil seal
㉒ End cover assembly
㉓ Boot clamp
㉔ Dust boot
㉕ Boot band
㉖ Steering gear spacer
㉗ Lock plate
㉘ Tie-rod inner socket
㉙ Tie-rod outer socket
㉚ Cotter pin
㉛ Gear housing tube

ST

Rear Seat

4-door sedan

SEC. 880



BT