

**QUICK REFERENCE INDEX**

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**NISSAN  
 SENTRA**  
 MODEL B15 SERIES

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	<b>EI Exterior &amp; Interior</b>
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	<b>SE Seat</b>
	<b>MTC Manual Air Conditioner</b>
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# FOREWORD

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This manual contains maintenance and repair procedures for the 2003 NISSAN SENTRA.

In order to assure your safety and the efficient functioning of the vehicle, this manual should be read thoroughly. It is especially important that the PRECAUTIONS in the GI section be completely understood before starting any repair task.

All information in this manual is based on the latest product information at the time of publication. The right is reserved to make changes in specifications and methods at any time without notice.

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## IMPORTANT SAFETY NOTICE

The proper performance of service is essential for both the safety of the technician and the efficient functioning of the vehicle.

The service methods in this Service Manual are described in such a manner that the service may be performed safely and accurately. Service varies with the procedures used, the skills of the technician and the tools and parts available. Accordingly, anyone using service procedures, tools or parts which are not specifically recommended by NISSAN must first be completely satisfied that neither personal safety nor the vehicle's safety will be jeopardized by the service method selected.



NISSAN NORTH AMERICA, INC.  
Technical Publications Department  
• Gardena, California

# QUICK REFERENCE CHART: SENTRA (EQUIPPED WITH 1.8L, QG ENGINE)

2003

## QUICK REFERENCE CHART: SENTRA (EQUIPPED WITH 1.8L, QG ENGINE) Engine Tune-Up Data

Engine	QG18DE	
Classification	Gasoline	
Cylinder arrangement	4, in-line	
Displacement cm <sup>3</sup> (cu in)	1,769 (107.94)	
Bore × stroke mm (in)	80.0 x 88.0 (3.150 x 3.465)	
Valve arrangement	DOHC	
Firing order	1-3-4-2	
Number of piston rings	Compression	2
	Oil	1
Number of main bearings	5	
Compression ratio	9.5	

### Drive Belt Deflection and Tension

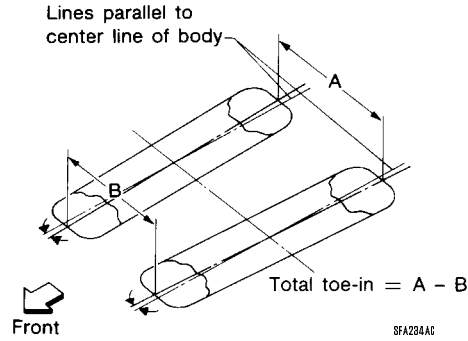
Component		Deflection Adjustment Unit: mm (in)			Tension Adjustment *1 Unit: N (kg, lb)		
		Used Belt		New Belt	Used Belt		New Belt
		Limit	After Adjustment		Limit	After Adjustment	
Generator	With air conditioner compressor	8.1 (0.319)	5.3 - 5.7 (0.209 - 0.244)	4.5 - 5.0 (0.177 - 0.197)	292 (30, 66)	652 - 740 (66.5 - 75.5, 146.6 - 166.4)	789 - 877 (80.5 - 89.5, 177.4 - 197.1)
	Without air conditioner compressor	10.2 (0.402)	6.5 - 7.0 (0.256 - 0.276)	5.5 - 6.1 (0.217 - 0.240)	292 (30, 60)	652 - 740 (66.5 - 75.5, 146.6 - 166.4)	789 - 877 (80.5 - 89.5, 177.4 - 197.1)
Power steering oil pump		7.1 (0.280)	4.4 - 4.9 (0.173 - 0.193)	3.9 - 4.4 (0.154 - 0.173)	196 (20, 44)	495 - 583 (50.5 - 59.5, 111.4 - 131.2)	603 - 691 (61.5 - 70.5, 135.6 - 155.5)
Applied pushing force		98 N (10 kg, 22 lb)			—		

\*1: If the belt tension gauge cannot be installed at check points shown, check belt tension at a different location on the belt.

### Spark Plugs (Double Platinum - Tipped)

Type	Standard	PLFR5A-11
	Hot	PLFR4A-11
	Cold	PLFR6A-11
Plug gap		nominal 1.1 mm (0.043 in)

**Front Wheel Alignment (Unladen\*1)**

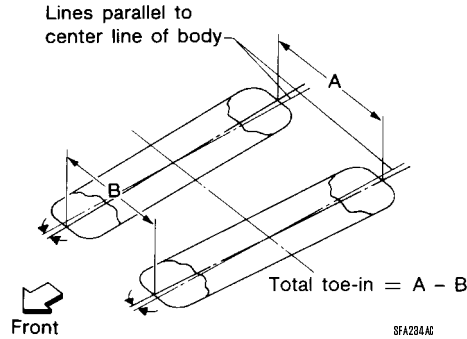


Camber Degree minute (decimal degree)	Minimum	-1°10' (-1.17°)	
	Nominal	-0°25' (-0.42°)	
	Maximum	0°20' (0.33°)	
	Left and right difference	45' (0.75°) or less	
Caster Degree minute (decimal degree)	Minimum	0°51' (0.85°)	
	Nominal	1°36' (1.60°)	
	Maximum	2°21' (2.35°)	
	Left and right difference	45' (0.75°) or less	
Kingpin inclination Degree minute (decimal degree)	Minimum	13°58' (13.97°)	
	Nominal	14°43' (14.72°)	
	Maximum	15°28' (15.47°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	1 (0.039")
		Nominal	2 (0.079")
		Maximum	3 (0.118")
	Angle (left plus right) Degree minute (decimal degree)	Minimum	5.5' (0.08°)
		Nominal	11' (0.18°)
		Maximum	16' (0.27°)
Wheel turning angle Full turn*2	Inside Degree minute (decimal degree)	Minimum	34° (34.0°)
		Nominal	37° (37.0°)
		Maximum	38° (38.0°)
	Outside Degree minute (decimal degree)	Nominal	31° (31.0°)

\*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

\*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

**Rear Wheel Alignment (Unladen\*)**



Camber Degree minute (decimal degree)	Minimum	-1°45' (-1.75°)	
	Nominal	-1°00' (-1.00°)	
	Maximum	-0°15' (-0.25°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	-3 (-0.12)
		Nominal	1 (0.04)
		Maximum	5 (0.20)
	Angle (left plus right) Degree minute (decimal degree)	Minimum	-16' (-0.27°)
		Nominal	5'30" (0.09°)
		Maximum	26' (0.43°)

\*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

**Brake**

Unit: mm (in)

Front brake	Brake model	CL25VA
	Cylinder bore diameter	57.2 (2.252)
	Pad length × width × thickness	125.6 × 46.0 × 11.0 (4.94 × 1.811 × 0.433)
	Rotor outer diameter × thickness	257 × 22 (10.12 × 0.87)
Rear brake	Brake model	LT20G
	Cylinder bore diameter/caliper bore diameter	15.87 (5/8) type a 17.45 (11/16) type b
	Lining length × width × thickness	219.4 × 35 × 4.5 (8.64 × 1.38 × 0.177)
	Drum inner diameter/Disc diameter × thickness	203.2 (8)
Master cylinder	Cylinder bore diameter	23.81 (15/16)
Control valve	Valve model	Dual proportioning valve
	Split point [kPa (kg/cm <sup>2</sup> , psi)] × reducing ratio	1,961 (20,284) × 0.2
Brake booster	Booster model	M215T
	Diaphragm diameter	Primary: 230 (9.06) Secondary: 205 (8.07)
Brake fluid	Recommended brake fluid	Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent, DOT 3 (US FMVSS No. 116)

**Disc Brake - Repair Limits**

Unit: mm (in)

Brake model	CL25VA
Pad wear limit Minimum thickness	2.0 (0.079)
Rotor repair limit Minimum thickness	20 (0.79)

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## Drum Brake - Repair Limits

Unit: mm (in)

Brake model		LT20G
Lining wear limit	Minimum thickness	1.5 (0.059)
Drum repair limit	Maximum inner diameter	204.5 (8.05)
	Maximum out-of round	0.03 (0.0012)

## Refill Capacities

### Engine Coolant Capacity (Approximate)

Unit: ℓ (US qt, Imp qt)

Drain and refill without reservoir	M/T (RS5F70A)	6.0 (6 3/8, 5 1/4)
	A/T (RE4F03B)	5.9 (6 1/4, 5 1/4)
Reservoir tank (at MAX level)		0.7 (3/4, 5/8)

### Engine Oil Capacity (Approximate)

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	2.7 (2 7/8, 2 3/8)
	Without oil filter change	2.5 (2 5/8, 2 1/4)
Dry engine (engine overhaul)		3.1 (3 1/4, 2 3/4)

### Miscellaneous Capacities (Approximate)

System description		Metric measurement	US measurement	Imp measurement
Fuel tank		50 ℓ	13 1/4 gal	11 gal
Power steering system		1.0 ℓ	2 1/8 pt	1 3/4 pt
Transaxle	M/T (RS5F70A)	3.0 ℓ	3 1/8 qt	2 5/8 qt
	A/T (RE4F03B)	7.0 ℓ	7 3/8 qt	6 1/8 qt
Air conditioning system	Refrigerant	0.45 - 0.55 kg	0.99 - 1.21 lb	0.99 - 1.21 lb
	Compressor oil	180 mℓ	6.1 fl oz	6.3 fl oz

# QUICK REFERENCE CHART: SENTRA (EQUIPPED WITH 2.5L, QR ENGINE)

2003

## QUICK REFERENCE CHART: SENTRA (EQUIPPED WITH 2.5L, QR ENGINE)

### Engine Tune-Up Data

Engine		QR25DE
Cylinder arrangement		4 in-line
Displacement cm <sup>3</sup> (cu in)		2,488 (151.82)
Bore and stroke mm (in)		89.0 x 100 (3.50 - 3.94)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.5
Compression pressure kPa (kg/cm <sup>2</sup> , psi) / 250 rpm	Standard	1,250 (12.8, 182)
	Minimum	1,060 (10.8, 154)
	Differential limit between cylinders	100 (1.0, 14)

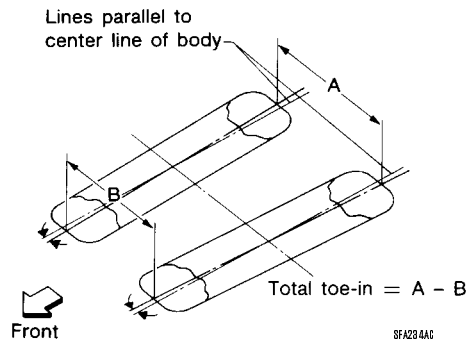
### Drive Belt Deflection and Tension

Tension of drive belts	Auto adjustment by auto-tensioner
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### Spark Plugs (Double Platinum Tipped)

Type	Standard	PLFR5A-11
	Hot	PLFR4A-11
	Cold	PLFR6A-11
Plug gap		nominal 1.1 mm (0.043 in)

### Front Wheel Alignment (Unladen\*1)



Camber Degree minute (decimal degree)	Minimum	-1°12' (-1.2°)
	Nominal	-0°27' (-0.45°)
	Maximum	0°18' (0.3°)
	Left and right difference	45' (0.75°) or less
Caster Degree minute (decimal degree)	Minimum	0°58' (0.97°)
	Nominal	1°43' (1.72°)
	Maximum	2°28' (2.47°)
	Left and right difference	45' (0.75°) or less
Kingpin inclination Degree minute (decimal degree)	Minimum	14°03' (14.05°)
	Nominal	14°46' (14.77°)
	Maximum	15°31' (15.52°)

# QUICK REFERENCE CHART: SENTRA (EQUIPPED WITH 2.5L, QR ENGINE)

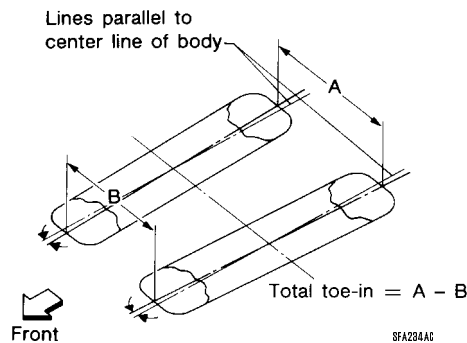
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Total toe-in	Distance (A - B) mm (in)	Minimum	1 (0.039")
		Nominal	2 (0.079")
		Maximum	3 (0.118")
	Angle (left plus right) Degree minute (decimal degree)	Minimum	5.5' (0.08°)
		Nominal	11' (0.18°)
		Maximum	16' (0.27°)
Wheel turning angle Full turn*2	Inside Degree minute (decimal degree)	Minimum	29° (29.0°)
		Nominal	32° (32.0°)
		Maximum	33° (33.0°)
	Outside Degree minute (decimal degree)	Nominal	27° (27.0°)

\*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

\*2: On power steering models, wheel turning force (at circumference of steering wheel) of 98 to 147 N (10 to 15 kg, 22 to 33 lb) with engine idle.

## Rear Wheel Alignment (Unladen\*)



Camber Degree minute (decimal degree)	Minimum	-1°45' (-1.75°)	
	Nominal	-1°00' (-1.00°)	
	Maximum	-0°15' (-0.25°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	-3 (-0.12)
		Nominal	1 (0.04)
		Maximum	5 (0.20)
	Angle (left plus right) Degree minute (decimal degree)	Minimum	-16' (-0.27°)
		Nominal	5'30" (0.09°)
		Maximum	26' (0.43°)

\*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

## Brake

Unit: mm (in)

Front brake	Brake model	CL25VB
	Cylinder bore diameter	57.2 (2.252)
	Pad length × width × thickness	125.6 × 46.0 × 11.0 (4.94 × 1.811 × 0.433)
	Rotor outer diameter × thickness	280 × 22 (11.02 × 0.87)
Rear brake	Brake model	CL9HC
	Cylinder bore diameter/caliper bore diameter	33.96 (1 11/32)
	Lining length × width × thickness	89.1 × 39.5 × 10 (3.508 × 1.555 × 0.39)
	Drum inner diameter/Disc diameter × thickness	258 × 9 (10.16 × 0.35)
Master cylinder	Cylinder bore diameter	23.81 (15/16)



# QUICK REFERENCE CHART: SENTRA (EQUIPPED WITH 2.5L, QR ENGINE)

**2003**

Control valve	Valve model	Dual proportioning valve
	Split point [kPa (kg/cm <sup>2</sup> , psi)] × reducing ratio	2,942 (30,427) × 0.2
Brake booster	Booster model	M215T
	Diaphragm diameter	Primary: 230 (9.06) Secondary: 205 (8.07)
Brake fluid	Recommended brake fluid	Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent, DOT 3 (US FMVSS No. 116)

## Disc Brake - Repair Limits

Unit: mm (in)

Brake model	CL25VB (Front)	CL9HC (Rear)
Pad wear limit Minimum thickness	2.0 (0.079)	2.0 (0.079)
Rotor repair limit Minimum thickness	20 (0.79)	8 (0.31)

## Refill Capacities

### Engine Coolant Capacity (Approximate)

Unit: ℓ (US qt, Imp qt)

Drain and refill (without reservoir)	M/T (RS5F51A, RS6F51H)	6.1 (6 1/2, 5 3/8)
	A/T (RE4F04B)	6.0 (6 3/8, 5 1/4)
Reservoir tank (at MAX level)		0.7 (3/4, 5/8)

### Engine Oil Capacity (Approximate)

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	3.9 (4 1/8, 3 3/8)
	Without oil filter change	3.7 (3 7/8, 3 1/4)
Dry engine (engine overhaul)		4.4 (4 5/8, 3 7/8)

### Miscellaneous Capacity (Approximate)

System description	Metric measurement	US measurement	Imp measurement
Fuel tank	50 ℓ	13 1/4 gal	11 gal
Power steering system	1.0 ℓ	2 1/8 pt	1 3/4 pt
Transaxle	M/T (RS5F51A, RS6F51H)	2.3 ℓ	2 3/8 qt
	A/T (RE4F04B)	8.5 ℓ	9 qt
Air conditioning system	Refrigerant	0.45 - 0.55 kg	0.99 - 1.21 lb
	Compressor oil	180 m ℓ	6.1 fl oz

# SECTION **GI**

## GENERAL INFORMATION

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# PRECAUTIONS

PFP:00001

## PRECAUTIONS

### Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

EAS000X3

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### Description

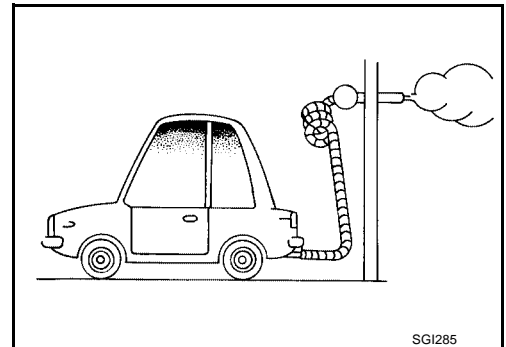
EAS000V5

Observe the following precautions to ensure safe and proper servicing. These precautions are not described in each individual section.

#### General Precautions

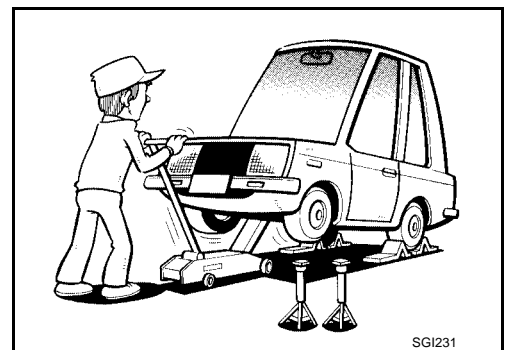
EAS000V6

- Do not operate the engine for an extended period of time without proper exhaust ventilation. Keep the work area well ventilated and free of any inflammable materials. Special care should be taken when handling any inflammable or poisonous materials, such as gasoline, refrigerant gas, etc. When working in a pit or other enclosed area, be sure to properly ventilate the area before working with hazardous materials. Do not smoke while working on the vehicle.



SGI285

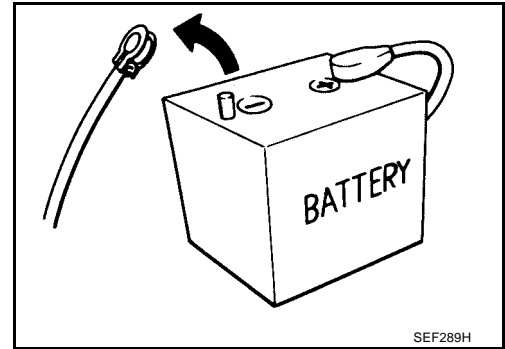
- Before jacking up the vehicle, apply wheel chocks or other tire blocks to the wheels to prevent the vehicle from moving. After jacking up the vehicle, support the vehicle weight with safety stands at the points designated for proper lifting before working on the vehicle. These operations should be done on a level surface.
- When removing a heavy component such as the engine or transaxle/transmission, be careful not to lose your balance and drop them. Also, do not allow them to strike adjacent parts, especially the brake tubes and master cylinder.



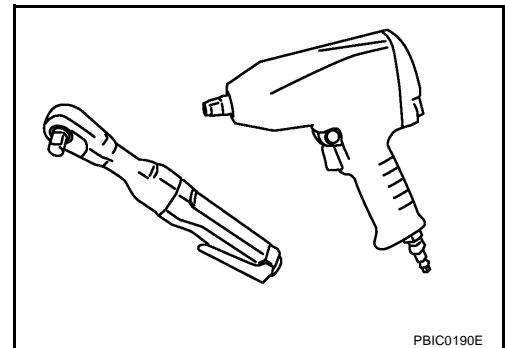
SGI231

## PRECAUTIONS

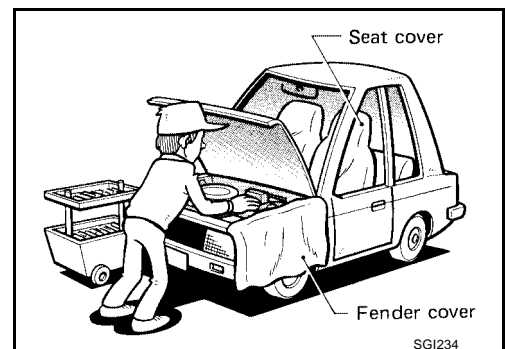
- Before starting repairs which do not require battery power:  
Turn off ignition switch.  
Disconnect the negative battery terminal.
- If the battery terminals are disconnected, recorded memory of radio and each control unit is erased.



- To prevent serious burns:  
Avoid contact with hot metal parts.  
Do not remove the radiator cap when the engine is hot.
- Dispose of drained oil or the solvent used for cleaning parts in an appropriate manner.
- Do not attempt to top off the fuel tank after the fuel pump nozzle shuts off automatically.  
Continued refueling may cause fuel overflow, resulting in fuel spray and possibly a fire.
- Clean all disassembled parts in the designated liquid or solvent prior to inspection or assembly.
- Replace oil seals, gaskets, packings, O-rings, locking washers, cotter pins, self-locking nuts, etc. with new ones.
- Replace inner and outer races of tapered roller bearings and needle bearings as a set.
- Arrange the disassembled parts in accordance with their assembled locations and sequence.
- Do not touch the terminals of electrical components which use microcomputers (such as ECM).  
Static electricity may damage internal electronic components.
- After disconnecting vacuum or air hoses, attach a tag to indicate the proper connection.
- Use only the fluids and lubricants specified in this manual.
- Use approved bonding agent, sealants or their equivalents when required.
- Use hand tools, power tools (disassembly only) and recommended special tools where specified for safe and efficient service repairs.
- When repairing the fuel, oil, water, vacuum or exhaust systems, check all affected lines for leaks.



- Before servicing the vehicle:  
Protect fenders, upholstery and carpeting with appropriate covers.  
Take caution that keys, buckles or buttons do not scratch paint.



# PRECAUTIONS

## **WARNING:**

To prevent ECM from storing the diagnostic trouble codes, do not carelessly disconnect the harness connectors which are related to the engine control system and TCM (transmission control module) system. The connectors should be disconnected only when working according to the WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

## **Precautions for NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS) (If Equipped)**

EAS000V7

NVIS/IVIS (NATS) will immobilize the engine if someone tries to start it without the registered key of NVIS/IVIS (NATS).

Both of the originally supplied ignition key IDs have been NVIS/IVIS (NATS) registered.

The security indicator is located on the instrument panel. The indicator blinks when the immobilizer system is functioning.

Therefore, NVIS/IVIS (NATS) warns outsiders that the vehicle is equipped with the anti-theft system.

- When NVIS/IVIS (NATS) detects trouble, the security indicator lamp lights up while ignition switch is in "ON" position.  
This lighting up indicates that the anti-theft is not functioning, so prompt service is required.
- When servicing NVIS/IVIS (NATS) (trouble diagnoses, system initialization and additional registration of other NVIS/IVIS (NATS) ignition key IDs), CONSULT-II hardware and CONSULT-II NVIS/IVIS (NATS) software is necessary.  
Regarding the procedures of NVIS/IVIS (NATS) initialization and NVIS/IVIS (NATS) ignition key ID registration, refer to CONSULT-II operation manual, NVIS/IVIS (NATS).

**Therefore, CONSULT-II NVIS/IVIS (NATS) software (program card and operation manual) must be kept strictly confidential to maintain the integrity of the anti-theft function.**

- When servicing NVIS/IVIS (NATS) (trouble diagnoses, system initialization and additional registration of other NVIS/IVIS (NATS) ignition key IDs), it may be necessary to re-register original key identification. Therefore, be sure to receive all keys from vehicle owner. A maximum of four or five key IDs can be registered into NVIS/IVIS (NATS).
- When failing to start the engine first time using the key of NVIS/IVIS (NATS), start as follows.
  1. Leave the ignition key in "ON" position for approximately 5 seconds.
  2. Turn ignition key to "OFF" or "LOCK" position and wait approximately 5 seconds.
  3. Repeat step 1 and 2 again.
  4. Restart the engine while keeping the key separate from any others on key-chain.

## **Precautions for Three Way Catalyst**

EAS000V8

If a large amount of unburned fuel flows into the catalyst, the catalyst temperature will be excessively high. To prevent this, follow the instructions.

- Use unleaded gasoline only. Leaded gasoline will seriously damage the three way catalyst.
- When checking for ignition spark or measuring engine compression, make tests quickly and only when necessary.
- Do not run engine when the fuel tank level is low, otherwise the engine may misfire, causing damage to the catalyst.

Do not place the vehicle on flammable material. Keep flammable material off the exhaust pipe and the three way catalyst.

## **Precautions for Fuel (Unleaded Regular Gasoline Recommended)**

EAS000X4

Use unleaded regular gasoline with an octane rating of at least 87 AKI (Anti-Knock Index) number (Research octane number 91).

## **CAUTION:**

**Do not use leaded gasoline. Using leaded gasoline will damage the three way catalyst. Using a fuel other than that specified could adversely affect the emission control devices and systems, and could also affect the warranty coverage validity.**

## **Precautions for Fuel (Unleaded Premium Gasoline Recommended)**

EAS000X5

Use unleaded regular gasoline with an octane rating of at least 87 AKI (Anti-Knock Index) number (Research octane number 91).

# PRECAUTIONS

For improved vehicle performance, NISSAN/INFINITI recommend the use of unleaded premium gasoline with an octane rating of at least 91 AKI number (Research octane number 96).

## CAUTION:

**Do not use leaded gasoline. Using leaded gasoline will damage the three way catalyst. Using a fuel other than that specified could adversely affect the emission control devices and systems, and could also affect the warranty coverage validity.**

## Precautions for Multiport Fuel Injection System or Engine Control System

EAS000VA

- Before connecting or disconnecting any harness connector for the multiport fuel injection system or ECM:  
Turn ignition switch to "OFF" position.  
Disconnect negative battery terminal.  
Otherwise, there may be damage to ECM.
- Before disconnecting pressurized fuel line from fuel pump to injectors, be sure to release fuel pressure.
- Be careful not to jar components such as ECM and mass air flow sensor.

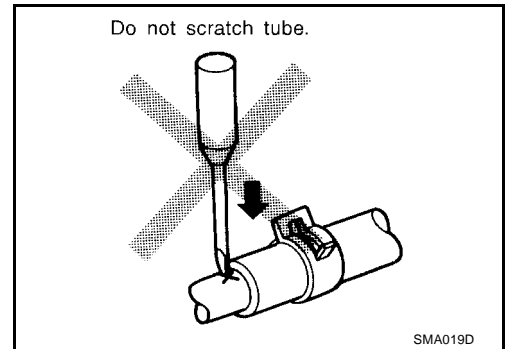


## Precautions for Hoses

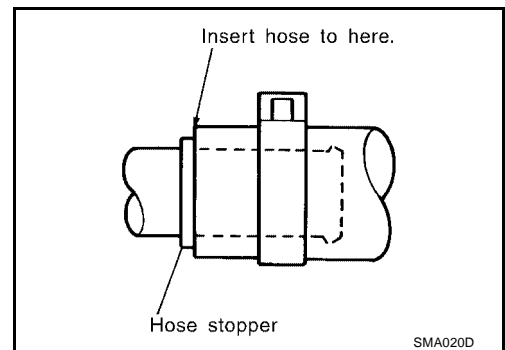
### HOSE REMOVAL AND INSTALLATION

EAS000VB

- To prevent damage to rubber hose, do not pry off rubber hose with tapered tool or screwdriver.



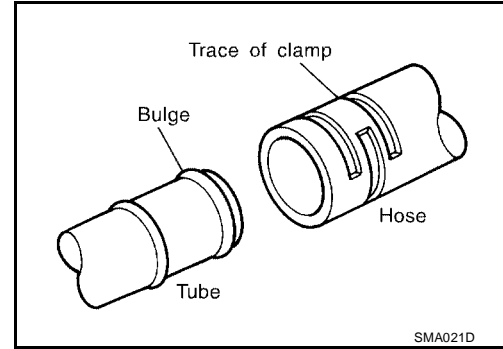
- To reinstall the rubber hose securely, make sure that hose insertion length and orientation is correct. (If tube is equipped with hose stopper, insert rubber hose into tube until it butts up against hose stopper.)



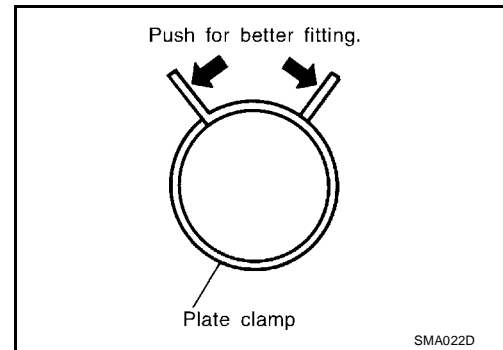
# PRECAUTIONS

## HOSE CLAMPING

- If old rubber hose is re-used, install hose clamp in its original position (at the indentation where the old clamp was). If there is a trace of tube bulging left on the old rubber hose, align rubber hose at that position.
- Discard old clamps; replace with new ones.



- After installing plate clamps, apply force to them in the direction of the arrow, tightening rubber hose equally all around.



## Precautions for Engine Oils

EAS000VC

Prolonged and repeated contact with used engine oil may cause skin cancer. Try to avoid direct skin contact with used oil.

If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

## HEALTH PROTECTION PRECAUTIONS

- Avoid prolonged and repeated contact with oils, particularly used engine oils.
- Wear protective clothing, including impervious gloves where practicable.
- Do not put oily rags in pockets.
- Avoid contaminating clothes, particularly underpants, with oil.
- Heavily soiled clothing and oil-impregnated footwear should not be worn. Overalls must be cleaned regularly.
- First aid treatment should be obtained immediately for open cuts and wounds.
- Use barrier creams, applying them before each work period, to help the removal of oil from the skin.
- Wash with soap and water to ensure all oil is removed (skin cleansers and nail brushes will help). Preparations containing lanolin replace the natural skin oils which have been removed.
- Do not use gasoline, kerosene, diesel fuel, gas oil, thinners or solvents for cleaning skin.
- If skin disorders develop, obtain medical advice without delay.
- Where practical, degrease components prior to handling.
- Where there is a risk of eye contact, eye protection should be worn, for example, chemical goggles or face shields; in addition an eye wash facility should be provided.

## ENVIRONMENTAL PROTECTION PRECAUTIONS

Dispose of used oil and used oil filters through authorized waste disposal contractors to licensed waste disposal sites, or to the waste oil reclamation trade. If in doubt, contact the local authority for advice on disposal facilities.

It is illegal to pour used oil on to the ground, down sewers or drains, or into water sources.

The regulations concerning pollution vary between regions.

## Precautions for Air Conditioning

EAS000VD

Use an approved refrigerant recovery unit any time the air conditioning system must be discharged. Refer to ATC/MTC section "HFC-134a (R-134a) Service Procedure", "REFRIGERANT LINES" for specific instructions.



# HOW TO USE THIS MANUAL

## HOW TO USE THIS MANUAL

PFP:00008

### Description

EAS000VE

This volume explains "Removal, Disassembly, Installation, Inspection and Adjustment" and "Trouble Diagnoses".

### Terms

EAS000VF

- The captions **WARNING** and **CAUTION** warn you of steps that must be followed to prevent personal injury and/or damage to some part of the vehicle.  
**WARNING** indicates the possibility of personal injury if instructions are not followed.  
**CAUTION** indicates the possibility of component damage if instructions are not followed.  
**BOLD TYPED STATEMENTS** except **WARNING** and **CAUTION** give you helpful information.  
Standard value:Tolerance at inspection and adjustment.  
Limit value:The maximum or minimum limit value that should not be exceeded at inspection and adjustment.

### Units

EAS000VG

- 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"

**Outer Socket Lock Nut : 59 - 78 N-m (6.0 - 8.0 kg-m, 43 - 58 ft-lb)**

### Contents

EAS000VH

- **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 or three letters which designate the particular section and a number (e.g. "BR-5").
- **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.

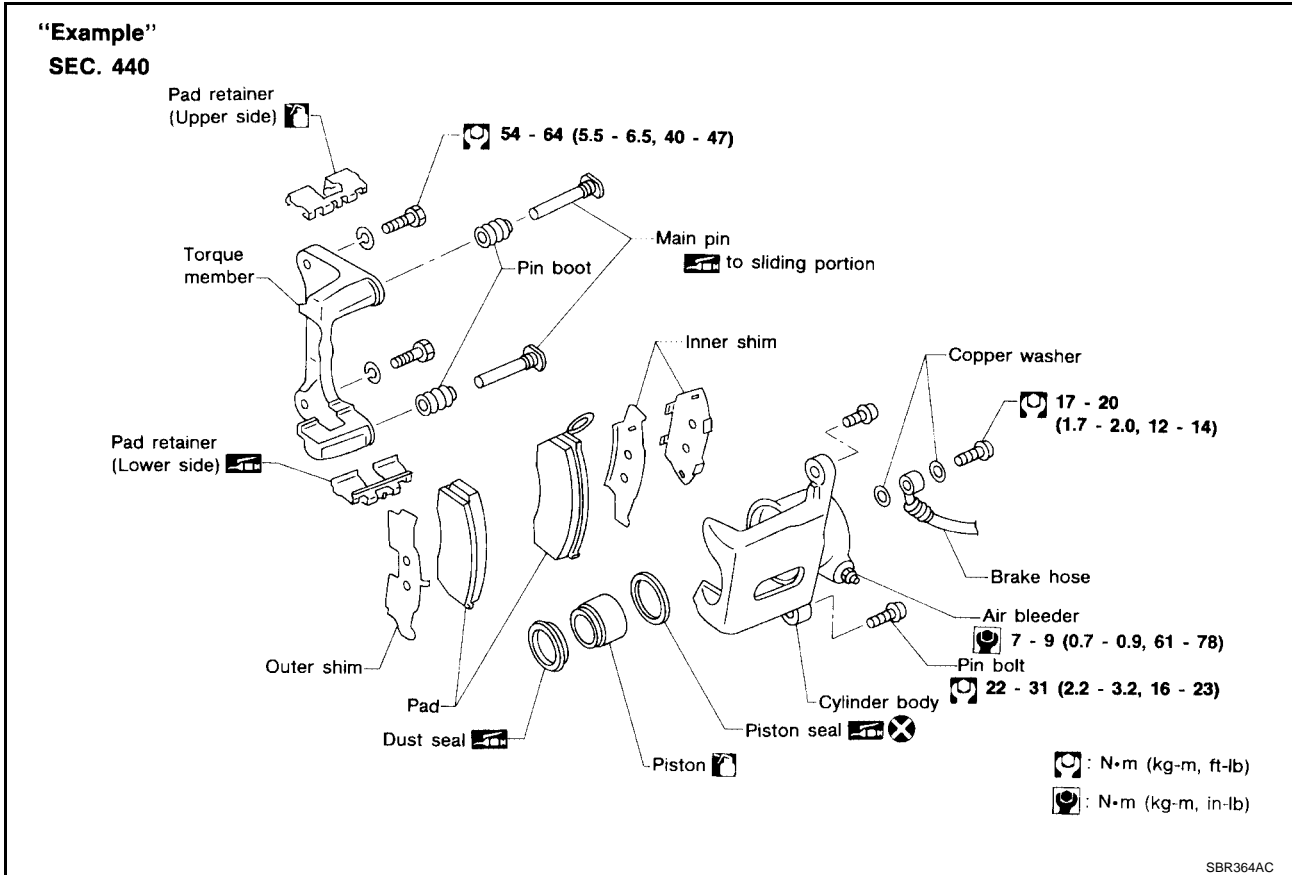
### Components

EAS000VI

- **THE LARGE ILLUSTRATIONS** are exploded views (See the following) and contain tightening torques, lubrication points, section number of the **PARTS CATALOG** (e.g. SEC. 440) and other information necessary to perform repairs.

# HOW TO USE THIS MANUAL

The illustrations should be used in reference to service matters only. When ordering parts, refer to the appropriate **PARTS CATALOG**.



## SYMBOLS

SYMBOL	DESCRIPTION
	Tightening torque
	Should be lubricated with grease. Unless otherwise indicated, use recommended multi-purpose grease.
	Should be lubricated with oil.
	Sealing point
	Checking point
	Always replace after every disassembly.
 P	Apply petroleum jelly.
	Apply ATF.
★	Select with proper thickness.
☆	Adjustment is required.

## How to Follow Trouble Diagnoses

### DESCRIPTION

EAS000VJ

### NOTICE:

Trouble diagnoses indicate work procedures required to diagnose problems effectively. Observe the following instructions before diagnosing.

**Thank you very much  
for your reading.**

**Please click here and go  
back to the website.**

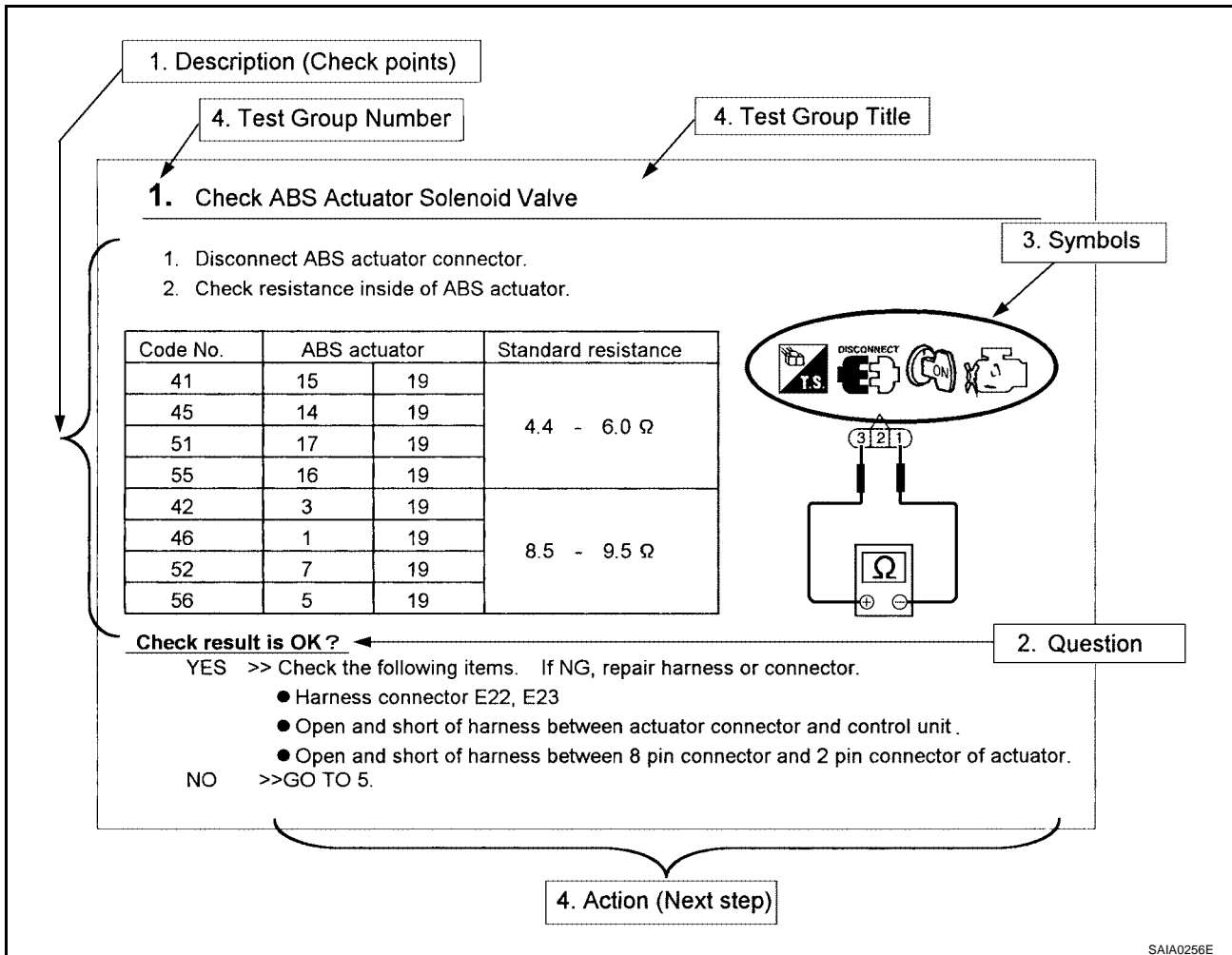
**Then, you can  
download the complete  
manual instantly.**

**No waiting.**

# HOW TO USE THIS MANUAL

1. Before performing trouble diagnoses, read the "Preliminary Check", the "Symptom Chart" or the "Work Flow".
2. After repairs, re-check that the problem has been completely eliminated.
3. Refer to Component Parts and Harness Connector Location for the Systems described in each section for identification/location of components and harness connectors.
4. Refer to the Circuit Diagram for quick pinpoint check.  
If you need to check circuit continuity between harness connectors in more detail, such as when a sub-harness is used, refer to Wiring Diagram in each individual section and Harness Layout in PG section for identification of harness connectors.
5. When checking circuit continuity, ignition switch should be OFF.
6. Before checking voltage at connectors, check battery voltage.
7. After accomplishing the Diagnostic Procedures and Electrical Components Inspection, make sure that all harness connectors are reconnected as they were.

## HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES



1. **Work and diagnostic procedure**  
Start to diagnose a problem using procedures indicated in enclosed test groups.
2. **Questions and required results**  
Questions and required results are indicated in bold type in test group.  
The meaning of are as follows:
  - a. **Battery voltage** → 11 - 14V or approximately 12V
  - b. **Voltage** : **Approximately 0V** → **Less than 1V**
3. **Symbol used in illustration**

# HOW TO USE THIS MANUAL

Symbols included in illustrations refer to measurements or procedures. Before diagnosing a problem, familiarize yourself with each symbol. Refer to "Connector Symbols" in GI Section and "KEY TO SYMBOLS SIGNIFYING MEASUREMENTS OR PROCEDURES" below.

## 4. Action items

Next action for each test group is indicated based on result of each question. Test group number is shown in the left upper portion of each test group.

## HARNESS WIRE COLOR AND CONNECTOR NUMBER INDICATION

There are two types of harness wire color and connector number indication.

### TYPE 1: Harness Wire Color and Connector Number are Shown in Illustration

- Letter designations next to test meter probe indicate harness wire color.
- Connector numbers in a single circle (e.g. M33) indicate harness connectors.
- Connector numbers in a double circle (e.g. F211) indicate component connectors.

