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NISSAN SENTRA

MODEL B15 SERIES

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FOREWORD

This manual contains maintenance and repair procedures for the 2004 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.

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.



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• Gardena, California



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SERVICE MANUAL: Model: _____ Year: _____

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Please describe any Service Manual issues or problems in detail:

Page number(s) _____ *Note: Please include a copy of each page, marked with your comments.*

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

2004

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

PFP:00027

Engine Tune-Up Data

ELS000L4

Engine		QG18DE
Classification		Gasoline
Cylinder arrangement		4 in-line
Displacement		1,769 cm ³ (107.94 cu in)
Bore × stroke		80.0 × 88.0 mm (3.150 × 3.465 in)
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: 1

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

Front Wheel Alignment (Unladen*1)

ELS000L6

Unit: degree minute (decimal degree)

Camber	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	Minimum	0°51' (0.85°)
	Nominal	1°36' (1.60°)
	Maximum	2°21' (2.35°)
	Left and right difference	45' (0.75°) or less

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

2004

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	Minimum	1 mm (0.039 in)
		Nominal	2 mm (0.079 in)
		Maximum	3 mm (0.118 in)
	Angle (left plus right)	Minimum	5.5' (0.08°)
		Nominal	11' (0.18°)
		Maximum	16' (0.27°)
Wheel turning angle Full turn*2	Inside	Minimum	34° (34.0°)
		Nominal	37° (37.0°)
		Maximum	38° (38.0°)
	Outside	Nominal	31° (31.0°)

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

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

Rear Wheel Alignment (Unladen*)

ELS000L7

Unit: degree minute (decimal degree)

Camber		Minimum	-1°45' (-1.75°)
		Nominal	-1°00' (-1.00°)
		Maximum	-0°15' (-0.25°)
Total toe-in	Distance	Minimum	-3 mm (-0.12 in)
		Nominal	1 mm (0.04 in)
		Maximum	5 mm (0.20 in)
	Angle (left plus right)	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

ELS000L8

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	1,961 kPa (20 kg/cm ² , 284 psi) × 0.2 reducing ratio

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

2004

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)

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

ELS000LC

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)

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

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

2004

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

PFP:00027

Engine Tune-Up Data

ELS000LF

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

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)

ELS000LI

Unit: degree minute (decimal degree)

Camber		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		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		Minimum	14°03' (14.05°)
		Nominal	14°46' (14.77°)
		Maximum	15°31' (15.52°)
Total toe-in	Distance	Minimum	1 mm (0.039 in)
		Nominal	2 mm (0.079 in)
		Maximum	3 mm (0.118 in)
	Angle (left plus right)	Minimum	5.5' (0.08°)
		Nominal	11' (0.18°)
		Maximum	16' (0.27°)

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

2004

Wheel turning angle Full turn*2	Inside	Minimum	29° (29.0°)
		Nominal	32° (32.0°)
		Maximum	33° (33.0°)
	Outside	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*)

ELS000LJ

Unit: degree minute (decimal degree)

Camber		Minimum	-1°45' (-1.75°)
		Nominal	-1°00' (-1.00°)
		Maximum	-0°15' (-0.25°)
Total toe-in	Distance	Minimum	-3 mm (-0.12 in)
		Nominal	1 mm (0.04 in)
		Maximum	5 mm (0.20 in)
	Angle (left plus right)	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

ELS000LK

Unit: mm (in)

Front brake	Brake model	CL25VB	OPB27VA
	Cylinder bore diameter	57.2 (2.252)	38 (1.50) x 2 + 44 (1.73) x 2
	Pad length x width x thickness	125.6 x 46.0 x 11.0 (4.94 x 1.811 x 0.433)	117.1 x 53.3 x 9.3 (4.61 x 2.098 x 0.366)
	Rotor outer diameter x thickness	280 x 22 (11.02 x 0.87)	324 x 30.0 (12.76 x 1.181)
Rear brake	Brake model	CL9HC	
	Cylinder bore diameter/caliper bore diameter	33.96 (1 11/32)	
	Lining length x width x thickness	89.1 x 39.5 x 10 (3.508 x 1.555 x 0.39)	
	Drum inner diameter/Disc diameter x thickness	258 x 9 (10.16 x 0.35)	
Master cylinder	Cylinder bore diameter	23.81 (15/16)	
Control valve	Valve model	Dual proportioning valve	
	Split point	2,942 kPa (30 kg/cm ² , 427 psi)] x 0.2 reducing ratio	
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)	OPB27VA (Front)	CL9HC (Rear)
Pad wear limit Minimum thickness	2.0 (0.079)	2.0 (0.079)	2.0 (0.079)
Rotor repair limit Minimum thickness	20 (0.79)	28.4 (1.118)	8.0 (0.31)

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

2004

ELS000LN

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	4.0 (4 1/4, 3 1/2)
	Without oil filter change	3.8 (4, 3 3/8)
Dry engine (engine overhaul)		4.5 (4 3/4, 4)

Miscellaneous Capacity (Approximate)

Fuel tank		50 ℓ	13 1/4 US gal	11 Imp gal
Power steering system		1.0 ℓ	1 1/8 US qt	1 3/4 Imp qt
Transaxle	M/T (RS5F51A, RS6F51H)	2.3 ℓ	2 3/8 US qt	2 Imp qt
	A/T (RE4F04B)	8.5 ℓ	9 US qt	7 1/2 Imp qt
Air conditioning system	Refrigerant	0.45 - 0.55 kg	0.99 - 1.21 lb	0.99 - 1.21 lb
	Compressor oil	180 m ℓ	6.1 US fl oz	6.3 Imp fl oz

TEST VALUE AND TEST LIMIT (GST ONLY — NOT APPLICABLE TO CONSULT-II)

The following is the information specified in Mode 6 of SAE J1979.

The test value is a parameter used to determine whether a system/circuit diagnostic test is “OK” or “NG” while being monitored by the ECM during self-diagnosis. The test limit is a reference value which is specified as the maximum or minimum value and is compared with the test value being monitored.

These data (test value and test limit) are specified by Test ID (TID) and Component ID (CID) and can be displayed on the GST screen.

SRT item	Self-diagnostic test item	DTC	Test value (GST display)		Test limit	Conversion
			TID	CID		
CATALYST	Three way catalyst function	P0420	01H	01H	Max.	1/128
		P0420	02H	81H	Max.	1
EVAP SYSTEM	EVAP control system (Small leak)	P0442	05H	03H	Max.	1/128mm ²
	EVAP control system purge flow monitoring	P0441	06H	83H	Min.	20mV
	EVAP control system (Very small leak)	P0456	07H	03H	Max.	1/128mm ²
HO2S	A/F sensor 1	P1281	4CH	8FH	Min.	5mV
		P1282	4DH	0FH	Max.	5mV
		P1283	4EH	0FH	Max.	0.002
		P1284	4FH	8FH	Min.	0.002
		P1288	50H	8FH	Min.	0.004
		P1286	51H	0FH	Max.	5mV
		P1286	52H	8FH	Min.	5mV
		P1289	53H	8FH	Min.	0.004
	Heated oxygen sensor 2	P0139	19H	86H	Min.	10mV/500ms
		P1147	1AH	86H	Min.	10mV
		P1146	1BH	06H	Max.	10mV
		P0138	1CH	06H	Max.	10mV
HO2S HTR	A/F sensor 1 heater	P1032	57H	04H	Max.	5mV
		P1031	58H	04H	Min.	5mV
	Heated oxygen sensor 2 heater	P0038	2DH	0AH	Max.	10mV
		P0037	2EH	8AH	Min.	10mV

TEST VALUE AND TEST LIMIT (GST ONLY — NOT APPLICABLE TO CONSULT-II)

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These data (test value and test limit) are specified by Test ID (TID) and Component ID (CID) and can be displayed on the GST screen.

SRT item	Self-diagnostic test item	DTC	Test value (GST display)		Test limit	Conversion
			TID	CID		
CATALYST	Three way catalyst function	P0420	01H	01H	Max.	1/128
		P0420	02H	81H	Min.	1
EVAP SYSTEM	EVAP control system (Small leak)	P0442	05H	03H	Max.	1/128mm ²
	EVAP control system purge flow monitoring	P0441	06H	83H	Min.	20mV
	EVAP control system (Very small leak)	P0456	07H	03H	Max.	1/128mm ²
HO2S	Heated oxygen sensor 1	P0133	09H	04H	Max.	16ms
		P1143	0AH	84H	Min.	10mV
		P1144	0BH	04H	Max.	10mV
		P0132	0CH	04H	Max.	10mV
	Heated oxygen sensor 2	P0134	0DH	04H	Max.	1s
		P0139	19H	86H	Min.	10mV/500ms
		P1147	1AH	86H	Min.	10mV
		P1146	1BH	06H	Max.	10mV
HO2S HTR	Heated oxygen sensor 1 heater	P0032	29H	08H	Max.	20mV
		P0031	2AH	88H	Min.	20mV
	Heated oxygen sensor 2 heater	P0038	2DH	0AH	Max.	20mV
		P0037	2EH	8AH	Min.	20mV