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**NISSAN**  
**ALTIMA**  
MODEL L31 SERIES

# FOREWORD

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This manual contains maintenance and repair procedures for the 2002 NISSAN ALTIMA.

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



**PLEASE HELP MAKE THIS SERVICE MANUAL BETTER!**

Your comments are important to NISSAN and will help us to improve our Service Manuals. Use this form to report any issues or comments you may have regarding our Service Manuals. Please print this form and type or write your comments below. Mail or fax to:

Nissan North America, Inc.  
Technical Service Information  
39001 Sunrise Drive, P.O. Box 9200  
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**SERVICE MANUAL: Model:** \_\_\_\_\_ **Year:** \_\_\_\_\_

**PUBLICATION NO. (Please photocopy back cover):** \_\_\_\_\_

**VEHICLE INFORMATION VIN:** \_\_\_\_\_ **Production Date:** \_\_\_\_\_

Please describe any issues or problems in detail:

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

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**Are the trouble diagnosis procedures logical and easy to use? (circle your answer) YES NO**

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**What information should be included in NISSAN Service Manuals to better support you in servicing or repairing customer vehicles?**

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

2002

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

PFP:00027

### ENGINE TUNE UP DATA

ELS0008A

Firing Order	1-3-4-2	
Idle speed A/T (in "N" position)	rpm	700 ± 50
Ignition timing (BTDC at idle speed)	15° ± 5°	
CO% at idle	0.3 - 9.5% and engine runs smoothly	
Tension of drive belts	Auto adjustment by auto tensioner	
Radiator cap relief pressure	Standard	79 - 98 (0.8 - 1.0, 11 - 14)
	Limit	59 - 98 (0.6 - 1.0, 9 - 14)
kPa (kg/cm <sup>2</sup> , psi)		
Cooling system leakage testing pressure	157 (1.6, 23)	
kPa (kg/cm <sup>2</sup> , psi)		
Compression Pressure	Standard	kPa (kg/cm <sup>2</sup> )/rpm
	Minimum	kPa (kg/cm <sup>2</sup> )/rpm
		1,250 (12.8)/250
		1,060 (10.8)/250
Spark Plug	Standard type	PLFR5A-11
	Hot type	PLFR4A-11
	Cold Type	PLFR6A-11
	Plug gap	Nominal 1.1 mm (0.043 in)

### REFILL CAPACITIES

ELS0008C

Unit	Liter	US measure
Fuel tank	75.8	20 gal
Coolant (with reservoir tank)	8.7	8.2 qt
Engine oil	Drain and refill	4.2
	With oil filter change	4.3 qt
	Without oil filter change	4.0
	Without oil filter change	4.3 qt
Dry engine (overhaul)	4.6	4.9 qt
Automatic transaxle	9.2	9.75 qt
Power steering system	1.0	1-1/8 qt
Air conditioning system	Compressor oil	150 ml
	Refrigerant	0.475 - 0.525 kg
		5.03 fl oz
		1.045 - 1.155 lb

### FRONT WHEEL ALIGNMENT (Unladen\*1)

ELS0008D

Tire size		205/65R16	215/55R17
Camber Degree minute (Decimal degree)	Minimum	-1°00' (-1.00°)	
	Nominal	-0°15' (-0.25°)	
	Maximum	0°30' (0.50°)	
	Left and right difference	45' (0.75°) or less	

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

2002

Tire size			205/65R16	215/55R17
Camber Degree minute (Decimal degree)		Minimum	2°05' (2.08°)	
		Nominal	2°50' (2.38°)	
		Maximum	3°35' (3.58°)	
		Left and right difference	45' (0.75°) or less	
Kingpin inclination Degree minute (Decimal degree)		Minimum	13°50' (13.38°)	
		Nominal	14°35' (14.58°)	
		Maximum	15°20' (15.33°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	-0.5 (-0.02)	
		Nominal	0.5 (0.02)	
		Maximum	1.5 (0.06)	
	Angle (left plus right) Degree minute (Decimal degree)	Minimum	-4' (-0.07°)	
		Nominal	2' (0.03°)	
		Maximum	8' (0.13°)	
Wheel turning angle Full turn*2	Inside Degree minute (decimal degree)	Minimum	34°30' (34.5°)	32°00' (32.0°)
		Nominal	38°00' (38.0°)	34°30' (34.5°)
		Maximum	39°00' (39.0°)	36°30' (36.5°)
	Outside Degree minute (Decimal degree)	Nominal	30°30' (30.5°)	29°00' (29.0°)

\*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\*)

ELS0008E

Camber Degree minute (decimal degree)		Minimum	-0°45' (-0.75°)	
		Nominal	-0°15' (-0.25°)	
		Maximum	0°15' (0.25°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	2.1 (0.08)	
		Nominal	3.6 (0.14)	
		Maximum	5.1 (0.20)	
	Angle (left plus right) Degree minute (decimal degree)	Minimum	5' (0.05°)	
		Nominal	9' (0.15°)	
		Maximum	13' (0.22°)	

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

## BRAKE

ELS0008F

Unit: mm (in)

Front brake	Pad wear limit	2.0 (0.079)
	Maximum runout	0.07 (0.0028)
	Rotor repair limit	22.0 (0.866)
Rear Brake	Pad wear limit	1.5 (0.059)
	Maximum runout	0.07 (0.0028)
	Rotor repair limit	80. (0.31)
Pedal free height	M/T	158 - 165 (6.22 - 6.50)
	A/T	167 - 174 (6.57 - 6.85)

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

2002

Pedal depressed height*	M/T	More than 84 (3.31)
	A/T	More than 90.3 (3.55)

\*: Under 490N (50 kg, 110 lb) with engine running.

# QUICK REFERENCE CHART: ALTIMA (EQUIPPED WITH 3.5L, VQ ENGINE)

2002

## QUICK REFERENCE CHART: ALTIMA (EQUIPPED WITH 3.5L, VQ ENGINE)

PFP:00027

### ENGINE TUNE UP DATA

ELS0008H

Firing order	1-2-3-4-5-6		
Idle speed A/T (In "N" position)	700 ± 50		
Ignition timing	15° ± 5°		
CO% at idle	0.7 - 9.9% and engine runs smoothly		
Tension of drive belts	Unit: N (kg, lb)	Used belt	
		Limit	After adjustment
	Alternator, air conditioner compressor oil pump	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)
	Power steering oil pump	196 (20, 44)	495 - 583 (50.5 - 59.5, 111.3 - 131.1)
Applied pushing force	98 (10, 22)		
Radiator cap relief pressure	Standard	78 - 98 (0.8 - 1.0, 11 - 14)	
	Limit	59 - 98 (0.6 - 1.0, 9 - 14)	
Cooling system leakage testing pressure	157 (1.6, 23)		
Compression pressure	Standard	1,275 (13.0, 185)	
	Minimum	981 (10.0, 142)	
Spark plug	Standard type	PLFR5A-11	
	Hot type	PLFR4A-11	
	Cold type	PLFR6A-11	
	Plug gap	Nominal 1.1 mm (0.043 in)	

### REFILL CAPACITIES

ELS0008I

Unit	Liter	US measure
Fuel tank	75.8	20 gal
Coolant (with reservoir tank)	8.8	9.3 qt
Engine oil	Drain and refill	4.0
	With oil filter change	4.3 qt
	Without oil filter change	3.7
	Dry engine (overhaul)	3.9 qt
Automatic transaxle	5.0	5.3 qt
Power steering system	9.2	9.75 qt
Air conditioning system	1.0	1-1/8 qt
Compressor oil	150 ml	5.03 fl oz
	Refrigerant	0.475 - 0.525 kg

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## FRONT WHEEL ALIGNMENT (Unladen\*1)

ELS0008J

Tire size			205/65R16	215/55R17
Camber degree minute (Decimal degree)		Minimum	-1°00' (-1.00°)	
		Nominal	-0°15' (-0.25°)	
		Maximum	0°30' (0.50°)	
		Left and right difference	45' (0.75°) or less	
Camber degree minute (Decimal degree)		Minimum	2°05' (2.08°)	
		Nominal	2°50' (2.38°)	
		Maximum	3°35' (3.58°)	
		Left and right difference	45' (0.75°) or less	
Kingpin inclination Degree minute (Decimal degree)		Minimum	13°50' (13.38°)	
		Nominal	14°35' (14.58°)	
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Total toe-in	Distance (A - B) mm (in)	Minimum	-0.5 (-0.02)	
		Nominal	0.5 (0.02)	
		Maximum	1.5 (0.06)	
	Angle (left plus right) Degree minute (Decimal degree)	Minimum	-4' (-0.07°)	
		Nominal	2' (0.03°)	
		Maximum	8' (0.13°)	
Wheel turning angle Full turn*2	Inside Degree minute (decimal degree)	Minimum	34°30' (34.5°)	32°00' (32.0°)
		Nominal	38°00' (38.0°)	34°30' (34.5°)
		Maximum	39°00' (39.0°)	36°30' (36.5°)
	Outside Degree minute (Decimal degree)	Nominal	30°30' (30.5°)	29°00' (29.0°)

\*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\*)

ELS0008K

Camber Degree minute (decimal degree)		Minimum	-0°45' (-0.75°)	
		Nominal	-0°15' (-0.25°)	
		Maximum	0°15' (0.25°)	
Total toe-in	Distance (A - B) mm (in)	Minimum	2.1 (0.08)	
		Nominal	3.6 (0.14)	
		Maximum	5.1 (0.20)	
	Angle (left plus right) Degree minute (decimal degree)	Minimum	5' (0.05°)	
		Nominal	9' (0.15°)	
		Maximum	13' (0.22°)	

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

## BRAKE

ELS0008L

Unit: mm (in)

Front brake	Pad wear limit	2.0 (0.079)
	Maximum runout	0.07 (0.0028)
	Rotor repair limit	22.0 (0.866)



# QUICK REFERENCE CHART: ALTIMA (EQUIPPED WITH 3.5L, VQ ENGINE)

2002

Rear Brake	Pad wear limit	1.5 (0.059)
	Maximum runout	0.07 (0.0028)
	Rotor repair limit	80. (0.31)
Pedal free height	M/T	158 - 165 (6.22 - 6.50)
	A/T	167 - 174 (6.57 - 6.85)
Pedal depressed height*	M/T	More than 84 (3.31)
	A/T	More than 90.3 (3.55)

\*: Under 490N (50 kg, 110 lb) with engine running.