

NISSAN ALTIMA

MODEL L30 SERIES

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FOREWORD

This manual contains maintenance and repair procedures for the 1999 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.

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 Service Information Department
Torrance, California**



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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.*

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 1999

ENGINE TUNE-UP DATA

Engine model	KA24DE		
Firing order	1-3-4-2		
Idle speed	rpm	700 ± 50	
M/T		700 ± 50	
A/T (in "N" position)		700 ± 50	
Ignition timing (degree B.T.D.C. at idle speed)	20° - 2°		
CO% at idle	Idle mixture screw is preset and sealed at factory		
Valve clearance (Hot)	mm (in)	0.31 - 0.39 (0.012 - 0.015)	
Intake		0.33 - 0.41 (0.013 - 0.016)	
Exhaust		0.33 - 0.41 (0.013 - 0.016)	
Spark plug			
Type	Standard	FR5AP-10	
	Alternative	FR6AP-10	
		FR7AP-10	
Gap	mm (in)	1.0 - 1.1 (0.039 - 0.043)	
Drive belt deflection (Cold)	mm (in)	Used belt	
		Limit	Deflection after adjustment
Generator & power steering oil pump		10 (0.39)	7 - 8 (0.28 - 0.31)
Air conditioner compressor		10 (0.39)	7 - 8 (0.28 - 0.31)
Applied pressed force	N (kg, lb)	97 (9.9, 21.8)	
Radiator cap relief pressure	kPa (kg/cm ² , psi)	78 - 98 (0.8 - 1.0, 11 - 14)	
Cooling system leakage testing pressure	kPa (kg/cm ² , psi)	157 (1.6, 23)	
Compression pressure	Standard	1,226 (12.5, 178)/300	
kPa (kg/cm ² , psi)/rpm	Minimum	1,030 (10.5, 149)/300	
Tightening torque		N-m	kg-m
Spark plug		20 - 29	2.0 - 3.0
Oil pan drain plug		29 - 39	3.0 - 4.0
			ft-lb
			14 - 22
			22 - 29

FRONT WHEEL ALIGNMENT (Unladen*1)

Camber	Minimum	-0°50' (-0.83°)
	Nominal	-0°05' (-0.08°)
	Maximum	0°40' (0.67°)
Degree minute (Decimal degree)	Left and right difference	45° (0.75°)
Caster	Minimum	1°56' (1.92°)
	Nominal	2°40' (2.67°)
	Maximum	3°25' (3.42°)
Degree minute (Decimal degree)	Left and right difference	45° (0.75°)
Kingpin inclination	Minimum	13°20' (13.33°)
	Nominal	14°05' (14.08°)
	Maximum	14°50' (14.83°)
Degree minute (Decimal degree)		
Total toe-in	Minimum	0 (0)
Distance (A - B)	Nominal	1 (0.04)
	Maximum	2 (0.08)
mm (in)	Minimum	0° (0.00°)
Angle (left plus right)	Nominal	6° (0.10°)
Inside	Maximum	12° (0.20°)
Wheel turning angle	Minimum	31°30' (31.50°)
Full turn*2	Nominal	34°30' (34.50°)
Outside	Maximum	35°30' (35.50°)
Degree minute (Decimal degree)		
	Nominal	28°36' (28.60°)

- *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	Minimum	-2°00' (-2.00°)
	Nominal	-1°15' (-1.25°)
	Maximum	-0°30' (-0.50°)
Degree minute (Decimal degree)		
Total toe-in	Minimum	1 (0.04)
Distance (A - B)	Nominal	2 (0.08)
	Maximum	3 (0.12)
mm (in)	Minimum	6° (0.10°)
Angle (left plus right)	Nominal	12° (0.20°)
Degree minute (Decimal degree)	Maximum	18° (0.30°)

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

BRAKE

Disc brake	Unit: mm (in)
Pad minimum thickness	2.0 (0.079)*1, 1.5 (0.059)*2
Rotor repair limit	
Minimum thickness	20.0 (0.787)*1, 8.0 (0.315)*2
Drum brake	
Lining minimum thickness	1.5 (0.059)
Drum repair limit	
Maximum inner diameter	230.0 (9.06)
Pedal free height	M/T: 169 - 179 (6.65 - 7.05) A/T: 177 - 187 (6.97 - 7.36)
Pedal depressed height*3	90 (3.54)
Parking brake	
Number of notches*4	7 - 8

- *1 Front disc brake
*2 Rear disc brake
*3 Under force of 490N (50kg, 110lb) with engine running
*4 At pulling force: 196N (20kg, 44lb)

REFILL CAPACITIES

Unit	Liter	US measure
Fuel tank	60	15-7/8 gal
Coolant	With reservoir tank	7.3
		7-3/4 qt
Engine *2		
Drain and refill		
With oil filter change	3.4	3-5/8 qt
Without oil filter change	3.2	3-3/8 qt
Dry engine (engine overhaul)	3.8	4 qt
Transaxle	M/T	4.5 - 4.8
	A/T	9-1/2 - 10-1/8 pt
Power steering system		0.9
		1 qt
Air conditioning system	Lubricant	0.2
	Refrigerant *1	0.7 - 0.8 kg
		1.54 - 1.76 lb

- *1 R-134a
*2 For further details, see "Changing Engine Oil" in MA section.

CLUTCH PEDAL

Pedal height	168 - 178 (6.61 - 7.01)
Pedal free play	1 - 3 (0.04 - 0.12)

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.

Items for which these data (test value and test limit) are displayed are the same as SRT code items.

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.

: Applicable *: Not applicable

SRT item	Self-diagnostic test item	DTC	Test value (GST display)		Test limit	Application	Unit
			TID	CID			
CATALYST	Three way catalyst function	P0420	01H	01H	Max.	X	—
		P0440	05H	03H	Max.	X	—
EVAP SYSTEM	EVAP control system (Small leak)	P1440	05H	03H	Max.	X	—
	EVAP control system purge flow monitoring	P1447	06H	83H	Min.	X	mV
H02S	Heated oxygen sensor 1	P0133	09H	04H	Max.	X	ms
		P0131	0AH	84H	Min.	X	mV
		P0130	0BH	04H	Max.	X	mV
		P0132	0CH	04H	Max.	X	mV
		P0134	0DH	04H	Max.	X	s
	Heated oxygen sensor 2	P0139	19H	86H	Min.	X	mV/500ms
		P0137	1AH	86H	Min.	X	mV
		P0140	1BH	06H	Max.	X	mV
		P0138	1CH	06H	Max.	X	mV
		P0135	29H	08H	Max.	X	mV
H02S HTR	Heated oxygen sensor 1 heater	P0135	2AH	88H	Min.	X	mV
	Heated oxygen sensor 2 heater	P0141	2DH	0AH	Max.	X	mV
		P0141	2EH	8AH	Min.	X	mV
EGR SYSTEM	EGR function	P0400	31H	8CH	Min.	X	°C
		P0400	32H	8CH	Min.	X	°C
		P0400	33H	8CH	Min.	X	°C
		P0400	34H	8CH	Min.	X	°C
		P1402	35H	0CH	Max.	X	°C
	EGRC-BPT valve function	P0402	36H	0CH	Max.	X	—
		P0402	37H	8CH	Min.	X	—