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NISSAN ALTIMA

MODEL L32 SERIES

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QUICK REFERENCE INDEX

A GENERAL INFORMATION	GI General Information
B ENGINE	EM Engine Mechanical
	LU Engine Lubrication System
	CO Engine Cooling System
	EC Engine Control System
	FL Fuel System
	EX Exhaust System
	STR Starting System
C HYBRID	ACC Accelerator Control System
	HBC Hybrid Control System
	HBB Hybrid Battery System
	HBR Hybrid Brake System
D TRANSMISSION & DRIVE-LINE	CL Clutch
	TM Transaxle & Transmission
	DLN Driveline
	FAX Front Axle
	RAX Rear Axle
E SUSPENSION	FSU Front Suspension
	RSU Rear Suspension
	SCS Suspension Control System
	WT Road Wheels & Tires
	BR Brake System
F BRAKES	PB Parking Brake System
	BRC Brake Control System
	ST Steering System
G STEERING	STC Steering Control System
	SB Seat Belt
H RESTRAINTS	SBC Seat Belt Control System
	SR SRS Airbag
	SRC SRS Airbag Control System
	VTL Ventilation System
I VENTILATION, HEATER & AIR CONDITIONER	HA Heater & Air Conditioning System
	HAC Heater & Air Conditioning Control System
J BODY INTERIOR	INT Interior
	IP Instrument Panel
	SE Seat
	ADP Automatic Drive Positioner
	DLK Door & Lock
K BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY	SEC Security Control System
	GW Glass & Window System
	PWC Power Window Control System
	RF Roof
	EXT Exterior
	BRM Body Repair Manual
	MIR Mirrors
	EXL Exterior Lighting System
L DRIVER CONTROLS	INL Interior Lighting System
	WW Wiper & Washer
	DEF Defogger
	HRN Horn
	PWO Power Outlet
	BCS Body Control System
	LAN LAN System
	PCS Power Control System
M ELECTRICAL & POWER CONTROL	CHG Charging System
	PG Power Supply, Ground & Circuit Elements
	MWI Meter, Warning Lamp & Indicator
	WCS Warning Chime System
	SN Sonar System
	AV Audio, Visual & Navigation System
	CCS Cruise Control System
	MA Maintenance
O CRUISE CONTROL	
P MAINTENANCE	

A

B

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FOREWORD

This manual contains maintenance and repair procedure for the 2009 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.



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SERVICE MANUAL: Model: _____ Year: _____

PUBLICATION NO. (Refer to Quick Reference Index): _____

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.*

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

If no, what page number(s)? _____ *Note: Please include a copy of each page, marked with your comments.*

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

DATE: _____ YOUR NAME: _____ POSITION: _____

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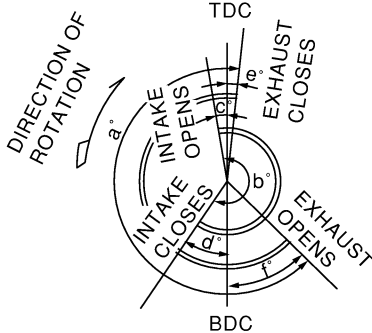
CITY: _____ STATE/PROV./COUNTRY: _____ ZIP/POSTAL CODE: _____

QUICK REFERENCE CHART: ALTIMA

Engine Tune-up Data: QR25DE

INFOID:000000001881075

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4			
Displacement cm^3 (in ³)		2,488 (151.82)			
Bore and stroke mm. (in)		89.0 x 100 (3.50 x 3.94)			
Valve arrangement		DOHC			
Firing order		1-3-4-2			
Number of piston rings	Compression	2			
	Oil	1			
Compression ratio		9.5:1			
Compression pressure kPa (kg/cm ² , psi) / 250 rpm	Standard	1,250 (12.8, 181.3)			
	Minimum	1,060 (10.8, 153.7)			
	Differential limit between cylinders	100 (1.0, 14)			
Valve timing		 PBIC0187E			
Unit: degree					
a	b	c	d	e	f
220°	232°	-12°	64°	10°	30°

SPARK PLUG

Unit: mm. (in)

Make		NGK
Type	Standard	DILKAR6A-11
Gap (nominal)		1.1 (0.043)

Engine Tune-up Data: VQ35DE

INFOID:000000001881076

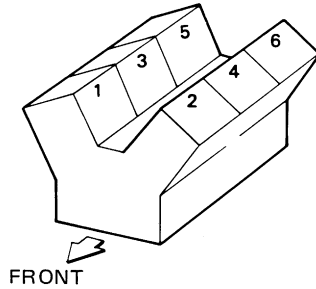
GENERAL SPECIFICATIONS

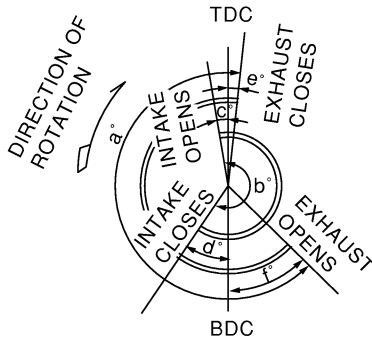
Cylinder arrangement		V-6
Displacement cm^3 (in ³)		3,498 (213.45)
Bore and stroke mm (in)		95.5 x 81.4 (3.76 x 3.205)
Valve arrangement		DOHC
Firing order		1-2-3-4-5-6

QUICK REFERENCE CHART: ALTIMA

2009

Number of piston rings	Compression	2
	Oil	1
Number of main bearings		4
Compression ratio		10.3:1
Compression pressure (kg/cm ² , psi)/300 rpm	Standard	1,275 (13.0, 185)
	Minimum	981 (10.0, 142)
	Differential limit between cylinders	98 (1.0, 14)

Cylinder number	 SEM713A
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Valve timing (IVTC - OFF)	 PBIC0187E
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Unit: degree

a	b	c	d	e	f
240°	240°	- 10°	70°	10°	50°

SPARK PLUG

Make	DENSO
Type	FXE20HR11
Gap (nominal)	1.1 mm (0.043 in)

Front Wheel Alignment (Unladen*)

INFOID:000000003301441

SEDAN

Market	USA/Canada		Mexico	
Engine type	QR25DE and VQ35DE		QR25DE and VQ35DE	
Tire size	215/60R16	215/55R17	215/60R16	215/55R17

QUICK REFERENCE CHART: ALTIMA

2009

Camber Degree minute (Decimal degree)	LH	Minimum	-1°15' (-1.25°)	-1°09' (-1.15°)	
		Nominal	-0°30' (-0.50°)	-0°24' (-0.40°)	
		Maximum	0°15' (0.25°)	0°21' (0.35°)	
	RH	Minimum	-1°30' (-1.50°)	-1°24' (-1.40°)	
		Nominal	-0°45' (-0.75°)	-0°39' (-0.65°)	
		Maximum	0°00' (0.00°)	-0°06' (-0.10°)	
	Left and right difference		-0°15' ± 0° 33' (-0.25° ± 0.55°)		
Caster Degree minute (Decimal degree)			Minimum	4°15' (4.25°)	3°57' (3.95°)
			Nominal	5°00' (5.00°)	4°42' (4.70°)
			Maximum	5°45' (5.75°)	5°27' (5.45°)
			Left and right difference	0° 33' (0.55°)	
Kingpin offset Degree minute (Decimal degree)			Minimum	12°00' (12.00°)	11°50' (11.83°)
			Nominal	12°45' (12.75°)	12°35' (12.58°)
			Maximum	13°30' (13.50°)	13°20' (13.33°)
Total toe-in	Distance (A - B)	Minimum	0 mm (0 in)		
		Nominal	1 mm (0.05 in)		
		Maximum	2 mm (0.10 in)		

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

COUPE

Market			USA/Canada		Mexico
Engine type			QR25DE and VQ35DE		VQ35DE
Tire size			215/60R16	215/55R17	215/55R17
Camber Degree minute (Decimal degree)	LH	Minimum	-1°15' (-1.25°)		-1°09' (-1.15°)
		Nominal	-0°30' (-0.50°)		-0°24' (-0.40°)
		Maximum	0°15' (0.25°)		0°21' (0.35°)
	RH	Minimum	-1°30' (-1.50°)		-1°24' (-1.40°)
		Nominal	-0°45' (-0.75°)		-0°39' (-0.65°)
		Maximum	0°00' (0.00°)		-0°06' (-0.10°)
	Left and right difference		(-0.25° ± 0.55°)		
Caster Degree minute (Decimal degree)			Minimum	4°15' (4.25°)	3°57' (3.95°)
			Nominal	5°00' (5.00°)	4°42' (4.70°)
			Maximum	5°45' (5.75°)	5°27' (5.45°)
			Left and right difference	33' (0.55°)	
Kingpin offset Degree minute (Decimal degree)			Minimum	12°00' (12.00°)	11°50' (11.83°)
			Nominal	12°45' (12.75°)	12°35' (12.58°)
			Maximum	13°30' (13.50°)	13°20' (13.33°)
Total toe-in	Distance (A - B)	Minimum	0 mm (0 in)		
		Nominal	1 mm (0.05 in)		
		Maximum	2 mm (0.10 in)		

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

QUICK REFERENCE CHART: ALTIMA

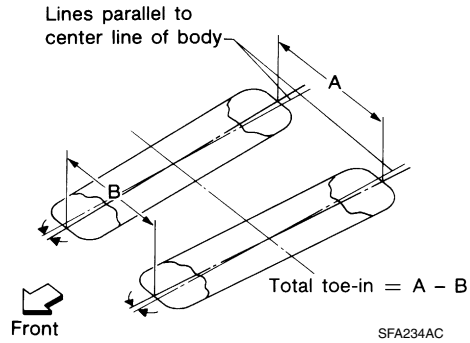
2009

Rear Wheel Alignment (Unladen*)

INFOID:000000003301443

SEDAN

Market		USA and Canada	Mexico
Camber Degree minute (Decimal degree)	Minimum	-1° 07' (-1.12°)	-0° 17' (-0.28°)
	Nominal	-0° 37' (-0.62°)	0° 13' (0.22°)
	Maximum	-0° 07' (-0.12°)	0° 43' (0.72°)

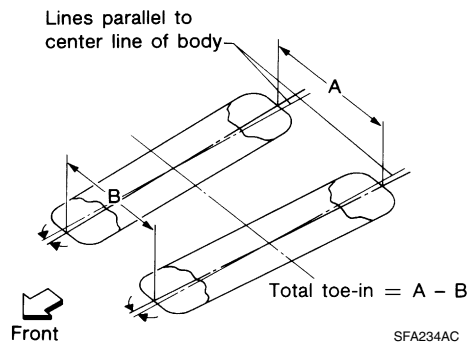


Total toe-in	Distance (A - B) mm (in)		2.4 (0.09)	
	Distance difference between RH and LH side mm (in)	Minimum	-2 (-0.08)	
		Nominal	0 (0)	
		Maximum	2 (0.08)	
Angle (left plus right) Degree minute (decimal degree)			0° 6' (110°)	0° 6' (108°)

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

COUPE

Market		USA and Canada	Mexico
Camber Degree minute (Decimal degree)	Minimum	-1° 24' (-1.394°)	-0° 35' (-0.584°)
	Nominal	-0° 54' (-0.894°)	-0° 5' (-0.084°)
	Maximum	-0° 24' (-0.394°)	0° 25' (0.416°)



Total toe-in	Distance (A - B) mm (in)		2.5 (0.10)	
	Distance difference between RH and LH side mm (in)	Minimum	-2 (-0.08)	
		Nominal	0 (0)	
		Maximum	2 (0.08)	
Angle (left plus right) Degree minute (decimal degree)			0° 6' (0.112°)	

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

QUICK REFERENCE CHART: ALTIMA

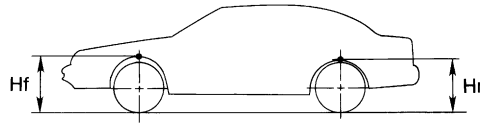
2009

Wheelarch Height (Unladen*1)

INFOID:000000003301442

SEDAN

Unit: mm (in)



SFA818A

Market	USA		Canada		Mexico
Engine	QR25DE *2	QR25DE *3	QR25DE *2	QR25DE *3	QR25DE *3
Tire size	215/60R16	215/60R16	215/60R16	215/60R16	215/60R16
Front (Hf)	716 (28.19)	717 (28.23)	714 (28.11)	715 (28.15)	727 (28.62)
Rear (Hr)	710 (27.95)	710 (27.95)	715 (28.15)	715 (28.15)	730 (28.74)
Market	USA		Canada		Mexico
Engine	VQ35DE *3	VQ35DE *3	VQ35DE *3	VQ35DE *3	VQ35DE *3
Tire size	215/60R16	215/55R17	215/60R16	215/55R17	215/55R17
Front (Hf)	716 (28.19)	715 (28.15)	714 (28.11)	713 (28.07)	725 (28.54)
Rear (Hr)	710 (27.95)	710 (27.95)	715 (28.15)	714 (28.11)	730 (28.74)

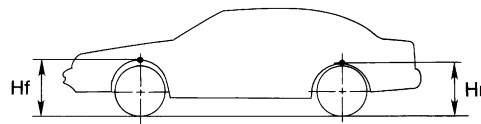
*1: Fuel, engine coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

*2: Without ABS

*3: With ABS

COUPE

Unit: mm (in)



SFA818A

Market	USA			Canada			Mexico
Engine	QR25DE *2	QR25DE *3	VQ35DE	QR25DE *2	QR25DE *3	VQ35DE	VQ35DE
Tire size	215/60R16	215/60R16	215/55R17	215/60R16	215/60R16	215/55R17	215/55R17
Front (Hf)	714 (28.11)	715 (28.15)	713 (28.07)	712 (28.03)	713 (28.07)	711 (27.99)	723 (28.46)
Rear (Hr)	702 (27.54)	702 (27.64)	702 (27.64)	706 (27.80)	706 (27.80)	706 (27.80)	742 (29.21)

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

*2: Without ABS

*3: With ABS

QUICK REFERENCE CHART: ALTIMA

2009

Brake Specifications

INFOID:000000003301444

Unit: mm (in)

Front brake	Brake model	Kiriu
	Cylinder bore diameter	57.2 (2.25)
	Pad length × width × thickness	132 × 50 × 11 (5.20 × 1.969 × 0.433)
	Rotor outer diameter × thickness	296 × 26 (11.70 × 1.02)
Rear brake	Brake model	Kiriu
	Cylinder bore diameter	34.93 (1.375)
	Pad length × width × thickness	83.0 × 31.9 × 8.5 (3.268 × 1.256 × 0.335)
	Rotor outer diameter × thickness	292 × 9 (11.50 × 0.35)
Master cylinder	Cylinder bore diameter	25.4 (1)
Control valve	Valve model	Electric brake force distribution
Brake booster	Booster model	Bosch
	Diaphragm diameter	280 (11)
Recommended brake fluid		DOT 3

Brake Pedal

INFOID:000000003301445

Brake pedal height (from dash lower panel top surface)	CVT	190.7 - 202.7 mm (7.51 - 7.98 in)
	M/T	181.3 - 193.3 mm (7.14 - 7.61 in)
Depressed pedal height [under a force of 490 N (50 kg-f, 110 lb-f) with engine running]	CVT	60.7 - 72.7 mm (2.39 - 2.86 in)
	M/T	51.3 - 63.3 mm (2.02 - 2.49 in)
Clearance between stopper rubber and threaded end of the stop lamp switch and brake switch		0.74 - 1.96 mm (0.0291 - 0.0772 in)
Pedal play		3 - 11 mm (0.12 - 0.43 in)

Front Disc Brake

INFOID:000000003301446

Brake model		Kiriu
Brake pad	Standard thickness (new)	11.0 mm (0.433 in)
	Repair limit thickness	2.0 mm (0.079 in)
Disc rotor	Standard thickness (new)	26.0 mm (1.024 in)
	Repair limit thickness	24.0 mm (0.945 in)
	Thickness variation (measured at 8 positions)	0.015 mm (0.0006 in)
	Maximum runout (with it attached to the vehicle)	0.035 mm (0.0014 in)

Rear Disc Brake

INFOID:000000003301447

Brake model		Kiriu
Brake pad	Standard thickness (new)	8.5 mm (0.335 in)
	Repair limit thickness	1.0 mm (0.039 in)
Disc rotor	Standard thickness (new)	9.0 mm (0.354 in)
	Repair limit thickness	8.0 mm (0.315 in)
	Thickness variation (measured at 8 positions)	0.015 mm (0.0006 in)
	Maximum runout (with it attached to the vehicle)	0.05 mm (0.002 in)

QUICK REFERENCE CHART: ALTIMA

2009

Fluids and Lubricants

INFOID:000000003301448

Description			Capacity (Approximate)		
			US measure	Imp measure	Liter
Fuel	QR25DE		20 gal	16-5/8 gal	75.6
	VQ35DE		20 gal	16-5/8 gal	75.6
Engine oil Drain and refill	With oil filter change	QR25DE	4-7/8 qt	4 qt	4.6
		VQ35DE	4-1/2 qt	3-3/4 qt	4.2
	Without oil filter change	QR25DE	4-1/2 qt	3-3/4 qt	4.3
		VQ35DE	4-1/4 qt	3-1/2 qt	4.0
Dry engine (Overhaul)	QR25DE		5-3/4 qt	4-3/4 qt	5.4
	VQ35DE		4-7/8 qt	4 qt	4.6
Cooling system with reservoir tank	QR25DE		2 gal	1-5/8 gal	7.6
	VQ35DE		2-1/8 gal	1-3/4 gal	8.2
CVT fluid	RE0F09B		10-6/8 qt	9 qt	10.2
	RE0F10A		8-3/4 qt	7-1/4	8.3
Manual transaxle fluid (MTF)			3-5/8 pt	3 pt	1.7
Power steering fluid (PSF)			1-1/8 qt	7/8 qt	1.0
Brake and clutch fluids			—	—	—
Brake grease			—	—	—
Brake pad plate grease			—	—	—
Multi-purpose grease			—	—	—
Air conditioning system refrigerant			1.10 ± 0.055 lb	0.50 ± 0.025 kg	0.50 ± 0.025 kg
Air conditioning system oil			5.03 fl oz	5.3 fl oz	150 mℓ
Windshield washer fluid			—	—	—