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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
	ACC Accelerator Control System
C HYBRID	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
F BRAKES	BR Brake System
	PB Parking Brake System
	BRC Brake Control System
G STEERING	ST Steering System
H RESTRAINTS	STC Steering Control System
	SB Seat Belt
	SBC Seat Belt Control System
	SR SRS Airbag
	SRC SRS Airbag Control System
I VENTILATION, HEATER & AIR CONDITIONER	VTL Ventilation System
	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
N DRIVER INFORMATION & MULTIMEDIA	AV Audio, Visual & Navigation System
	CCS Cruise Control System
O CRUISE CONTROL	
P MAINTENANCE	MA Maintenance

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FOREWORD

This manual contains maintenance and repair procedure for the 2012 NISSAN ALTIMA GCC.

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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Technical Publications Department



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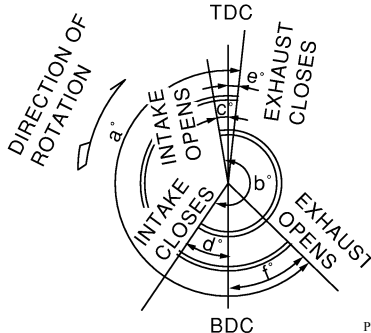
CITY: _____ STATE/PROV./COUNTRY: _____ ZIP/POSTAL CODE: _____

QUICK REFERENCE CHART: ALTIMA GCC

Engine Tune-up Data: QR25DE

INFOID:000000009436177

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 (bar, kg/cm ² , psi) / 250 rpm	Standard	1,250 (12.50, 12.8, 181.3)			
	Minimum	1,060 (10.60, 10.8, 153.7)			
	Differential limit between cylinders	100 (1.00, 1.0, 14)			
Valve timing		 PBIC0187E			
Unit: degree					
a	b	c	d	e	f
220	232	-12	64	10	30

DRIVE BELTS

Tension of drive belts	Auto adjustment by auto-tensioner
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SPARK PLUG

Unit: mm. (in)

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

*: Always check with the Parts Department for the latest parts information.

Engine Tune-up Data: VQ35DE

INFOID:000000009436152

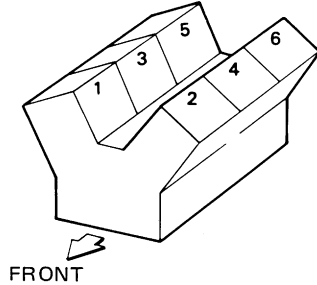
GENERAL SPECIFICATIONS

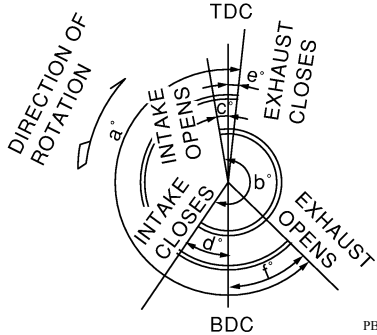
Cylinder arrangement		V-6
Displacement cm^3 (cu in)		3,498 (213.45)

QUICK REFERENCE CHART: ALTIMA GCC

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Bore and stroke mm (in)		95.5 x 81.4 (3.760 x 3.205)
Valve arrangement		DOHC
Firing order		1-2-3-4-5-6
Number of piston rings	Compression	2
	Oil	1
Number of main bearings		4
Compression ratio		10.3:1
Compression pressure kPa (bar, kg/cm ² , psi)/300 rpm	Standard	1,275 (12.75, 13.0, 185)
	Minimum	981 (9.81, 10.0, 142)
	Differential limit between cylinders	98 (0.98, 1.0, 14)

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

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

Drive Belt

INFOID:000000009436153

DRIVE BELT

Tension of drive belt	Belt tension is not necessary, as it is automatically adjusted by drive belt auto-tensioner.
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Spark Plug

INFOID:000000009436154

SPARK PLUG

Unit: mm (in)

Make	DENSO
Standard type*	FXE22HR-11
Gap	Standard 1.1 (0.043)

*: Always check with the Parts Department for the latest parts information.

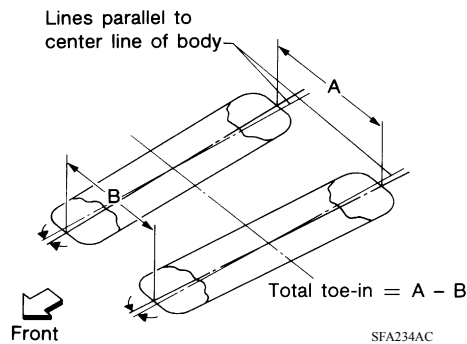
QUICK REFERENCE CHART: ALTIMA GCC

2012

Front Wheel Alignment (Unladen *1)

INFOID:000000009436128

Model			Sedan		Coupe	
Engine type			QR25DE	VQ35DE	QR25DE	VQ35DE
Tire size			205/65R16	215/55R17	215/55R17	235/45R18
Camber *2 Degree minute (Dec- imal degree)	LH	Minimum	-1°15' (-1.25°)			
		Nominal	-0°30' (-0.50°)			
		Maximum	0°15' (0.25°)			
	RH	Minimum	-1°30' (-1.50°)			
		Nominal	-0°45' (-0.75°)			
		Maximum	0°0' (0.00°)			
Caster *3 Degree minute (Decimal degree)			4°54' (4.90°)		4°36' (4.60°)	
Kingpin offset Degree minute (Decimal degree)		Minimum	11°57' (11.95°)		12°00' (12.00°)	
		Nominal	12°42' (12.70°)		12°45' (12.75°)	
		Maximum	13°27' (13.45°)		13°30' (13.50°)	



Total toe-in	Distance (A - B)	Minimum	Out 0.8 mm (0.03 in)	Out 1.0 mm (0.03 in)
		Nominal	In 1.2 mm (0.05 in)	In 1.0 mm (0.03 in)
		Maximum	In 3.2 mm (0.12 in)	In 3.0 mm (0.11 in)
	Angle Degree minute (Decimal degree)	Minimum	Out 0° 3' 36" (0.06°)	Out 0° 4' 12" (0.07°)
		Nominal	In 0° 6' (0.10°)	In 0° 5' 24" (0.09°)
		Maximum	In 0° 15' 36" (0.26°)	In 0° 15' (0.25°)
Wheel turning angle			Refer to <u>XX-XX. *****</u> .	

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

*2: The RH camber angle shall be $-0.25^\circ \pm 0.55^\circ$ with respect to the LH camber angle.

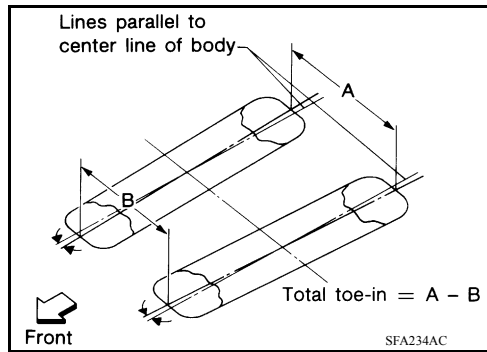
*3: For the caster angle, the difference between right and left against the ground surface shall be $\pm 0.55^\circ$ maximum.

Rear Wheel Alignment (Unladen*)

INFOID:000000009436126

SEDAN

Camber Degree minute (Decimal degree)	Minimum	-1° 02' (-1.031°)
	Nominal	-0° 32' (-0.531°)
	Maximum	-0° 02' (-0.031°)

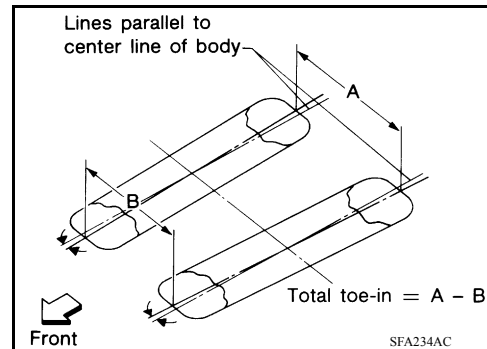


Total toe-in	Distance (A- B)	Minimum	In 0 mm (0 in)
		Nominal	In 3.0 mm (0.12 in)
		Maximum	In 6.0 mm (0.24 in)
	Angle Degree minute (decimal degree)	Minimum	In 0° 3' (0.05°)
		Nominal	In 0° 15' (0.25°)
		Maximum	In 0° 27' (0.45°)

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

COUPE

Camber Degree minute (Decimal degree)	Minimum	-0° 35' (-0.584°)
	Nominal	-0° 05' (-0.084°)
	Maximum	0° 25' (0.416°)



Total toe-in	Distance (A- B)	Minimum	In 0.3 mm (0.01 in)
		Nominal	In 3.3 mm (0.13 in)
		Maximum	In 6.3 mm (0.25)
	Angle Degree minute (decimal degree)	Minimum	In 0° 4' 48" (0.08°)
		Nominal	In 0° 16' 48" (0.28°)
		Maximum	In 0° 28' 48" (0.48°)

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

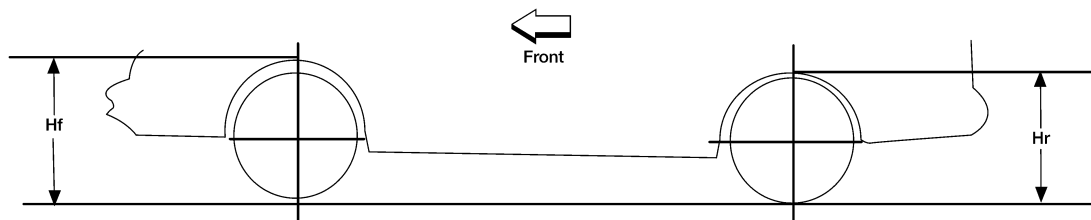
QUICK REFERENCE CHART: ALTIMA GCC

2012

Wheelarch Height (Unladen*1)

INFOID:000000009436127

Unit: mm (in)



LEIA0085E

Model	Sedan		Coupe	
Engine	QR25DE	VQ35DE	QR25DE	VQ35DE
Tire size	205/65R16	215/55R17	215/55R17	235/45R18
Front (Hf)	715 (28.15)	717 (28.23)	715 (28.15)	—
Rear (Hr)	716 (28.19)	713 (28.07)	723 (28.46)	—

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

Brake Specifications

INFOID:000000009436097

Unit: mm (in)

Front brake	Brake model	CLZ25VD
	Cylinder bore diameter	57.2 (2.252)
	Pad length × width × thickness	126 × 50 × 11 (4.961 × 1.969 × 0.433)
	Rotor outer diameter × thickness	296 × 26 (11.654 × 1.024)
Rear brake	Brake model	AD9VA
	Cylinder bore diameter	34.93 (1.375)
	Pad length × width × thickness	83 × 33 × 8.5 (3.268 × 1.299 × 0.335)
	Rotor outer diameter × thickness	292 × 9 (11.50 × 0.354)
Master cylinder	Cylinder bore diameter	19.05 (0.750)
Control valve	Valve model	Electric brake force distribution
Brake booster	Booster model	Bosch
	Diaphragm diameter	280 (11)
Recommended brake fluid		DOT 3

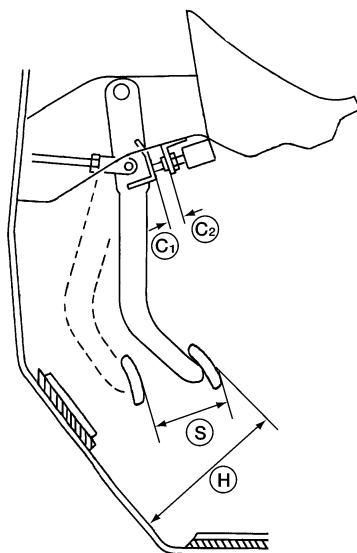
QUICK REFERENCE CHART: ALTIMA GCC

2012

Brake Pedal

INFOID:000000009436098

Unit: mm (in)



AWFIA0557ZZ

Brake pedal height (H) (from dash lower panel top surface)	CVT	190.7 - 202.7 (7.51 - 7.98)
	M/T	181.3 - 193.3 (7.14 - 7.61)
Brake pedal full stroke (S)	CVT	130 (5.12)
	M/T	130 (5.12)
Clearance between stopper bracket and threaded end of the stop lamp switch (C1) and ASCD cancel switch (C2)		0.74 - 1.96 (0.0291 - 0.0772)

Front Disc Brake

INFOID:000000009436095

Unit: mm (in)

Brake model		CLZ25VD
Brake pad	Standard thickness (new)	11.0 (0.433)
	Wear limit thickness	2.0 (0.079)
Disc rotor	Standard thickness (new)	26.0 (1.024)
	Wear limit thickness	24.0 (0.945)
	Thickness variation (measured at 8 positions)	0.015 (0.0006)
	Maximum runout (with it attached to the vehicle)	0.040 (0.0016)

Rear Disc Brake

INFOID:000000009436096

Unit: mm (in)

Brake model		AD9VA
Brake pad	Standard thickness (new)	8.5 (0.335)
	Wear limit thickness	1.0 (0.039)
Disc rotor	Standard thickness (new)	9.0 (0.354)
	Wear limit thickness	8.0 (0.315)
	Thickness variation (measured at 8 positions)	0.015 (0.0006)
	Maximum runout (with it attached to the vehicle)	0.05 (0.0020)

QUICK REFERENCE CHART: ALTIMA GCC

2012

Fluids and Lubricants

INFOID:000000009436071

Description			Capacity (Approximate)		
			Liter	US measure	Imp measure
Fuel		QR25DE	75.6	20 gal	16 5/8 gal
		VQ35DE	75.6	20 gal	16 5/8 gal
Engine oil (drain and refill)	With oil filter change	QR25DE	4.6	4 7/8 qt	4 qt
		VQ35DE	4.8	5 1/8 qt	4 1/4 qt
	Without oil filter change	QR25DE	4.3	4 1/2 qt	3 3/4 qt
		VQ35DE	4.5	4 3/4 qt	4 qt
Dry engine (Overhaul)		QR25DE	5.4	5 3/4 qt	4 3/4 qt
		VQ35DE	5.3	5 5/8 qt	4 5/8 qt
Engine coolant (with reservoir tank at MAX level)		QR25DE	7.7	8 1/8 qt	6 3/4 qt
		VQ35DE	9.0	9 1/2 qt	7 7/8 qt
CVT fluid	RE0F10A	QR25DE	7.3	7 3/4 qt	6 3/4 qt
	RE0F09B	VQ35DE	10.2	10 3/4 qt	9 qt
Manual transaxle fluid (MTF)			1.7	3 5/8 pt	3 pt
Power steering fluid (PSF)			1.0	1 1/8 qt	7/8 qt
Brake and clutch fluid			—	—	—
Multi-purpose grease			—	—	—
Windshield washer fluid			4.5 ℓ	4 3/4 qt	4 qt
Air conditioning system refrigerant			0.55 ± 0.025 kg	1.21 ± 0.055 lb	1.21 ± 0.055 lb
Air conditioning system oil			150 m ℓ	5.03 fl oz	5.3 fl oz