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NISSAN ALTIMA

MODEL L33 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	
TRANSMISSION & DRIVE-LINE	CL Clutch System
	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
	STC Steering Control System
H RESTRAINTS	SB Seat Belt
	SBC Seat Belt Control System
	SRS 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
K BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY	DLK Door & Lock
	SEC Security Control System
	GW Glass & Window System
	PWC Power Window Control System
	RF Roof
	EXT Exterior
	BRM Body Repair Manual
L DRIVER CONTROLS	MIR Mirrors
	EXL Exterior Lighting System
	INL Interior Lighting System
	WW Wiper & Washer
	DEF Defogger
	HRN Horn
M ELECTRICAL & POWER CONTROL	PWO Power Outlet
	BCS Body Control System
	LAN LAN System
	PCS Power Control System
	CHG Charging System
	PG Power Supply, Ground & Circuit Elements
N DRIVER INFORMATION & MULTIMEDIA	MWI Meter, Warning Lamp & Indicator
	WCS Warning Chime System
	SN Sonar System
	AV Audio, Visual & Navigation System
O CRUISE CONTROL	CCS Cruise Control System
	DAS Driver Assistance System
P MAINTENANCE	MA Maintenance
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FOREWORD

This manual contains maintenance and repair procedures for the 2016 NISSAN ALTIMA Sedan.

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.*

Please describe the issue or problem in detail: _____

Is the organization of the manual clear and easy to follow? (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?

DATE: _____ YOUR NAME: _____ POSITION: _____

DEALER: _____ DEALER NO.: _____ ADDRESS: _____

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

QUICK REFERENCE CHART: ALTIMA

Engine Tune-up Data: QR25DE

INFOID:0000000013379781

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		10.0:1
Compression pressure kPa (kg/cm ² , psi) / 250 rpm	Standard	1410 (1.41, 14.4, 204.5)
	Minimum	1220 (1.22, 12.4, 176.9)
	Differential limit between cylinders	100 (1.0, 14)

DRIVE BELTS

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

Unit: mm (in)

Make		DENSO
Type*	Standard	FXE20HE11C
Gap (nominal)		1.1 (0.043)

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

Engine Tune-up Data: VQ40DE

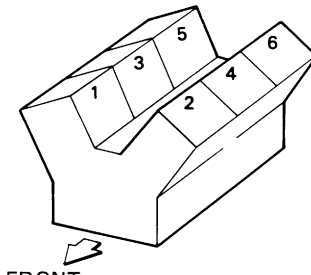
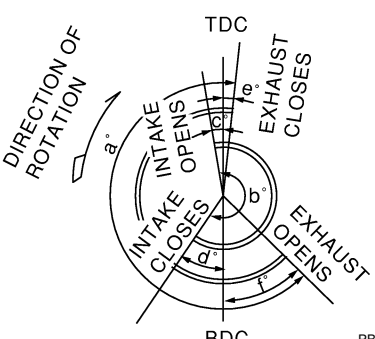
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GENERAL SPECIFICATIONS

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

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

Unit: degree

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

Drive Belt

INFOID:0000000013379783

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:0000000013379784

Unit: mm (in)

Make	DENSO
Standard type*	FXE22HR11
Gap	Standard
	1.1 (0.043)

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

Front Wheel Alignment (Unladen*¹)

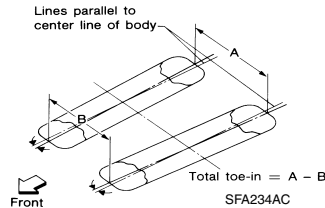
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Engine type		QR25DE	VQ35DE
Tire size		215/60R16	215/55R17
			235/45R18
Camber	Minimum	-1° 05' (-1.08°)	
Degree minute	Nominal	-0° 20' (-0.33°)	
(Decimal degree)	Maximum	0° 25' (0.42°)	
	Difference (LH - RH)	0° ± 0.33' (0° ± 0.55°)	

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Caster *2 Degree minute (Decimal degree)	Minimum	4° 10' (4.17°)	
	Nominal	4° 55' (4.92°)	
	Maximum	5° 40' (5.67°)	
Kingpin inclination Degree minute (Decimal degree)	Minimum	13° 35' (13.58°)	13° 40' (13.67°)
	Nominal	14° 20' (14.33°)	14° 25' (14.42°)
	Maximum	15° 05' (15.08°)	15° 10' (15.17°)



Total toe-in	Distance (A - B)	Minimum	Out 1.1 mm (Out 0.04 in)	
		Nominal	In 0.8 mm (In 0.03 in)	
		Maximum	In 2.7 mm (In 0.11 in)	
	Angle (LH and RH) Degree minute (Decimal degree)	Minimum	Out 0° 05' 24" (Out 0.09°)	
		Nominal	In 0° 4' 12" (In 0.07°)	
		Maximum	In 0° 13' 48" (In 0.23°)	

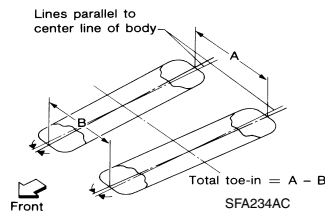
*1: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

*2: For the caster angle, the difference between right and left against the ground surface shall be $\pm 0^\circ 30'$ ($\pm 0.50^\circ$) maximum.

Rear Wheel Alignment (Unladen*)

INFOID:0000000013379778

Camber Degree minute (Decimal degree)	Minimum	-1° 09' 36" (-1.16°)
	Nominal	-0° 39' 36" (-0.66°)
	Maximum	-0° 09' 36" (-0.16°)



Tire size			215/60R16 or 215/55R17	235/45/R18
Total toe-in	Distance (A - B)	Minimum	Out 1.6 mm (Out 0.063 in)	Out 1.5 mm (Out 0.059 in)
		Nominal	In 1.4 mm (In 0.055 in)	In 1.5 mm (In 0.059 in)
		Maximum	In 4.4 mm (In 0.173 in)	In 4.5 mm (In 0.177 in)
	Angle (LH and RH) Degree minute (Decimal degree)	Minimum	Out 0° 4' 48" (Out 0.08°)	
		Nominal	In 0° 07' 12" (In 0.12°)	
		Maximum	In 0° 19' 12" (In 0.32°)	

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

Wheelarch Height (Unladen*¹)

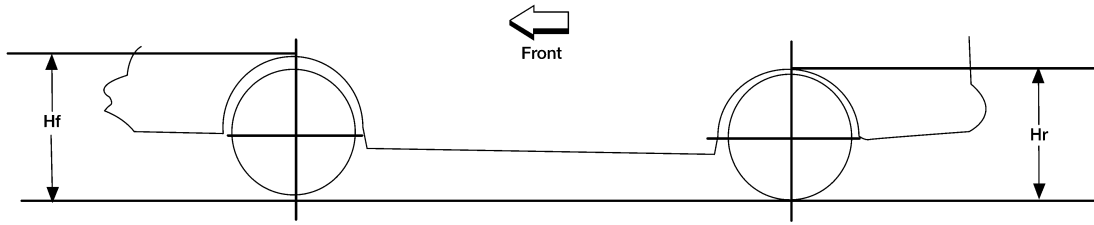
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UNITED STATES

QUICK REFERENCE CHART: ALTIMA

2016

Unit: mm (in)



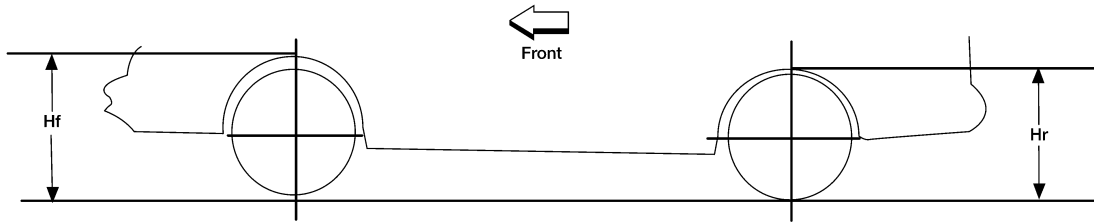
LEIA0085E

Engine	QR25DE			VQ35DE	
Tire size	215/60R16	215/55R17	235/45R18	235/45R18	
Grade	Except for SR		SR	Except for SR	SR
Front (Hf)	706 (27.80)	708 (27.87)	713 (28.07)	712 (28.03)	711 (27.99)
Rear (Hr)	699 (27.52)	702 (27.64)	704 (27.72)	704 (27.72)	704 (27.72)

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

CANADA

Unit: mm (in)



LEIA0085E

Engine	QR25DE			VQ35DE	
Tire size	215/60R16	215/55R17	235/45R18	235/45R18	
Front (Hf)	706 (27.80)	708 (27.87)	713 (28.07)	712 (28.03)	
Rear (Hr)	700 (27.56)	702 (27.64)	705 (27.76)	705 (27.76)	

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

Brake Specifications

INFOID:000000013379771

Unit: mm (in)

Front brake	Cylinder bore diameter	57.2 (2.252)
	Pad length × width × thickness	114 × 47 × 10 (4.488 × 1.850 × 0.394)
	Rotor outer diameter × thickness	296 × 26 (11.654 × 1.024)
Rear brake	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 (11.496 × 0.354)
Master cylinder	Cylinder bore diameter	25 (0.984)
Control valve	Valve model	Electric brake force distribution
Brake booster	Diaphragm diameter	280 (11)
Recommended brake fluid		DOT 3

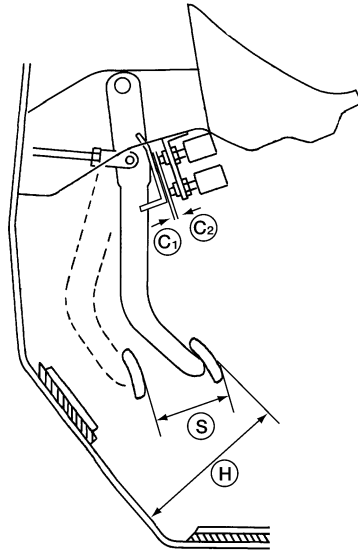
QUICK REFERENCE CHART: ALTIMA

2016

Brake Pedal

INFOID:0000000013379772

Unit: mm (in)



AWFIA0913ZZ

Item	Standard
Brake pedal height (H) (from dash lower panel top surface)	181.4 - 191.4 (7.1 - 7.5)
Brake pedal full stroke (S)	135.3 (5.3)
Clearance between stopper bracket (C1) and threaded end of the stop lamp switch and brake pedal position switch (C2) (if equipped)	0.74 - 1.96 (0.0291 - 0.0772)

Front Disc Brake

INFOID:0000000013379776

Unit: mm (in)

Brake pad	Standard thickness (new)	11.0 (0.433)
	Wear limit thickness	2.0 (0.079)
Disc brake 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)

*To check if rotor imbalance, rotor runout or rotor deformation exists.

Rear Disc Brake

INFOID:0000000013379777

Unit: mm (in)

Brake pad	Standard thickness (new)	8.5 (0.335)
	Wear limit thickness	1.0 (0.039)
Disc brake 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)

*To check if rotor imbalance, rotor runout or rotor deformation exists.

Fluids and Lubricants

The following are approximate capacities. The actual capacities may be slightly different. When refilling, follow the procedures described elsewhere in this manual.

Description			Capacity (Approximate)		
			Metric	US measure	Imp measure
Fuel			68.0 ℓ	18 gal	15 gal
Engine oil Drain and refill	With oil filter change	QR25DE	4.6 ℓ	4-7/8 qt	4 qt
		VQ35DE	4.8 ℓ	5-1/8 qt	4-1/4 qt
	Without oil fil- ter change	QR25DE	4.3 ℓ	4-1/2 qt	3-3/4 qt
		VQ35DE	4.5 ℓ	4-3/4 qt	4 qt
Dry engine (engine overhaul)		QR25DE	5.3 ℓ	5-5/8 qt	4-5/8 qt
		VQ35DE	5.1 ℓ	5-3/8 qt	4-1/2 qt
Cooling system (with reservoir tank at MAX level)		QR25DE	8.1 ℓ (GCC) 7.9 ℓ (Except GCC)	8-5/8 qt (GCC) 8-3/8 qt (Except GCC)	7-1/8 qt (GCC) 7 qt (Except GCC)
		VQ35DE	9.8 ℓ (GCC) 9.2 ℓ (Except GCC)	10-3/8 qt (GCC) 9-3/4 qt (Except GCC)	8-5/8 qt (GCC) 8-1/8 qt (Except GCC)
CVT fluid		RE0F10D	7.4 ℓ	7-7/8 qt	6-1/2 qt
		RE0F10E	8.2 ℓ	8-5/8 qt	7-1/4 qt
Power steering fluid (E-PSF)			1.1 ℓ	1-1/8 qt	1 qt
Brake fluid			—	—	—
Multi-purpose grease			—	—	—
Windshield washer fluid			4.2 ℓ	4-1/2 qt	3-3/4 qt
Air conditioner system refrigerant			0.525 ± 0.025 kg	1.158 ± 0.055 lb	1.158 ± 0.055 lb
Air conditioner system oil			128 m ℓ	4.3 fl oz	4.5 fl oz