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NISSAN ALTIMA

MODEL L33 SERIES

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QUICK REFERENCE INDEX

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
D 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
		BR	Brake System
F BRAKES		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
		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
		DAS	Driver Assistance System
N DRIVER INFORMATION & MULTIMEDIA		MA	Maintenance
O CRUISE CONTROL			
P MAINTENANCE			

A

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FOREWORD

This manual contains maintenance and repair procedure for the 2013 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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Technical Publications Department



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SERVICE MANUAL: Model: _____ Year: _____

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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

Please comment: _____

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 SEDAN

Engine Tune-up Data: QR25DE

INFOID:000000008788572

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 (14.4, 204.5)
	Minimum	1220 (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: VQ35DE

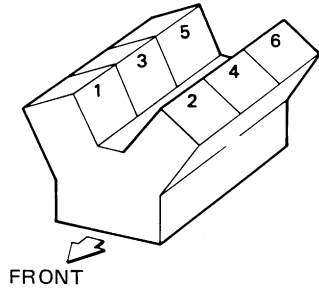
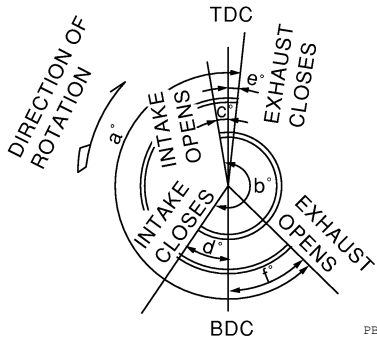
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GENERAL SPECIFICATIONS

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 (13.0, 185)
	Minimum	981 (10.0, 142)
	Differential limit between cylinders	98 (1.0, 14)

QUICK REFERENCE CHART: ALTIMA SEDAN

2013

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

Unit: degree

a	b	c	d	e	f
240	240	-10 (-35) ATDC	70(25) ABDC	10	50

Drive Belt

INFOID:000000008788570

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:000000008788571

SPARK PLUG

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.

QUICK REFERENCE CHART: ALTIMA SEDAN

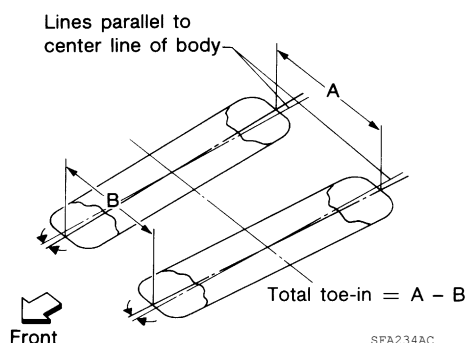
2013

Front Wheel Alignment (Unladen *1)

INFOID:000000008788568

UNITED STATES AND CANADA

Engine type			QR25DE		VQ35DE
Tire size			215/60R16	215/55R17	235/45R18
Camber *2 Degree minute (Decimal degree)	LH	Minimum	-1° 05' (-1.08°)		-1° 05' (-1.08°)
		Nominal	-0° 20' (-0.33°)		-0° 20' (-0.33°)
		Maximum	0° 25' (0.42°)		0° 25' (0.42°)
	RH	Minimum	-1° 15' (-1.25°)		-1° 15' (-1.25°)
		Nominal	-0° 35' (-0.58°)		-0° 35' (-0.58°)
		Maximum	0° 10' (0.17°)		0° 10' (0.17°)
Caster *3 Degree minute (Decimal degree)		Nominal	4° 55' (4.92°)		4° 55' (4.92°)
Kingpin offset Degree minute (Decimal degree)	LH	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°)
	RH	Minimum	13° 50' (13.83°)		13° 55' (13.92°)
		Nominal	14° 35' (14.58°)		14° 40' (14.67°)
		Maximum	15° 20' (15.33°)		15° 25' (15.42°)



Toe-in	Total toe-in Distance (A - B)	Minimum	-1.7 mm (-0.07 in)
		Nominal	0.3 mm (0.01 in)
		Maximum	2.3 mm (0.09 in)
	Angle Degree minute (Decimal degree)	Minimum	-0° 06' (-0.940°)
		Nominal	0° 04' (0.066°)
		Maximum	0° 14' (0.226°)

*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 $-0^{\circ} 15' \pm 0^{\circ} 33'$ ($-0.25^{\circ} \pm 0.55^{\circ}$) with respect to the LH camber angle.

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

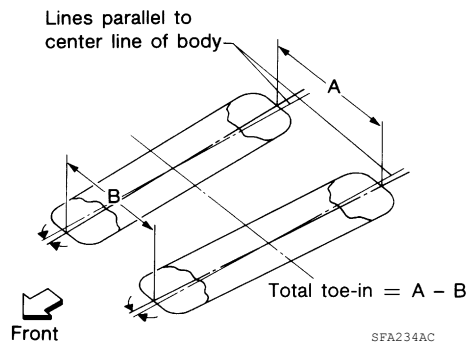
MEXICO

Engine type		QR25DE		VQ35DE
Tire size		215/60R16	215/55R17	235/45R18

QUICK REFERENCE CHART: ALTIMA SEDAN

2013

Camber *2 Degree minute (Decimal degree)	LH	Minimum	-1° 00' (-1.00°)	-1° 00' (-1.00°)
		Nominal	-0° 15' (-0.25°)	-0° 15' (-0.25°)
		Maximum	0° 30' (0.50°)	0° 30' (0.50°)
	RH	Minimum	-1° 15' (-1.25°)	-1° 15' (-1.25°)
		Nominal	-0° 30' (-0.50°)	-0° 30' (-0.50°)
		Maximum	0° 15' (0.25°)	0° 15' (0.25°)
Caster *3 Degree minute (Decimal degree)		Nominal	4° 35' (4.58°)	4° 40' (4.67°)
Kingpin offset Degree minute (Decimal degree)	LH	Minimum	13° 20' (13.33°)	13° 25' (13.42°)
		Nominal	14° 05' (14.08°)	14° 10' (14.17°)
		Maximum	14° 50' (14.83°)	14° 55' (14.92°)
	RH	Minimum	13° 40' (13.67°)	13° 40' (13.67°)
		Nominal	14° 25' (14.42°)	14° 25' (14.42°)
		Maximum	15° 10' (15.17°)	15° 10' (15.17°)



Toe-in	Total toe-in Distance (A - B)	Minimum	-1.4 mm (-0.06 in)
		Nominal	0.6 mm (0.02 in)
		Maximum	2.6 mm (0.10 in)
	Angle Degree minute (Decimal degree)	Minimum	-0° 04' (-0.060°)
		Nominal	0° 06' (0.100°)
		Maximum	0° 16' (0.260°)

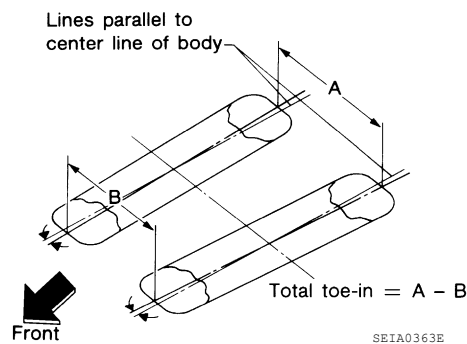
*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

*2: The RH camber angle shall be -0° 15' ± 0° 33' (-0.25° ± 0.55°) with respect to the LH camber angle.

*3: For the caster angle, the difference between right and left against the ground surface shall be ± 0° 30' (± 0.50°) maximum.

Rear Wheel Alignment (Unladen*)

INFOID:000000008788566



Market	United States	Canada	Mexico
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QUICK REFERENCE CHART: ALTIMA SEDAN

2013

Camber Degree minute (Decimal degree)		Minimum	-1° 10' (-1.17°)	-1° 05' (-1.08°)	-0° 10' (-0.17°)
		Nominal	-0° 40' (-0.67°)	-0° 35' (-0.58°)	0° 20' (0.33°)
		Maximum	-0° 10' (-0.17°)	-0° 05' (-0.08°)	0° 50' (0.83°)
Total toe-in	Toe-in difference	Minimum	-2.2 mm (-0.087 in)	-2.2 mm (-0.087 in)	-4.2 mm (-0.165 in)
		Nominal	0.8 mm (0.031 in)	0.8 mm (0.031 in)	-1.2 mm (-0.047 in)
		Maximum	3.8 mm (0.150 in)	3.8 mm (0.150 in)	1.8 mm (0.071 in)
	Toe angle Degree minute (decimal de- gree)	Minimum	-0° 08' (-0.134°)	-0° 08' (-0.134°)	-0° 18' (-0.30°)
		Nominal	0° 04' (0.066°)	0° 04' (0.066°)	-0° 06' (-0.10°)
		Maximum	0° 16' (0.266°)	0° 16' (0.266°)	0° 06' (0.10°)

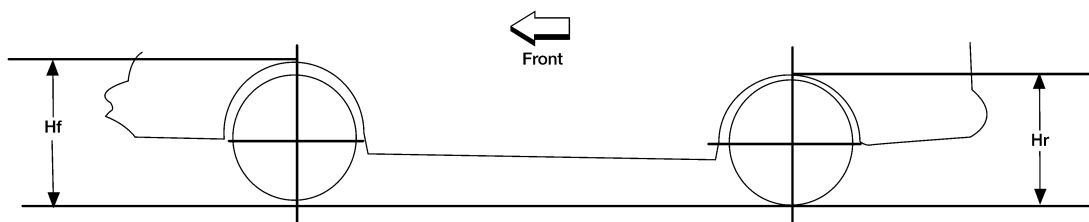
*: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

Wheelarch Height (Unladen*1)

INFOID:000000008788567

UNITED STATES

Unit: mm (in)



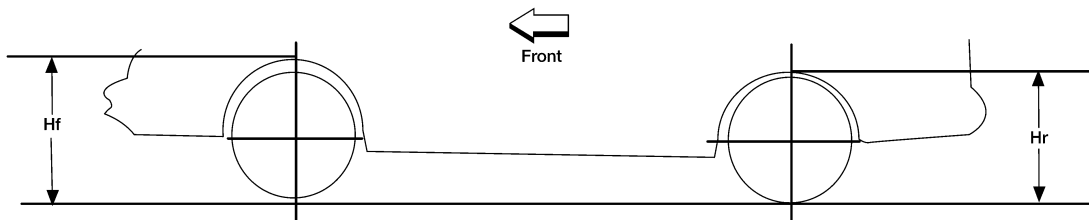
LEIA0085E

Engine	QR25DE		VQ35DE
Tire size	215/60R16	215/55R17	235/45R18
Front (Hf)	708 (27.87)	711 (27.99)	714 (28.11)
Rear (Hr)	706 (27.80)	709 (27.91)	711 (27.99)

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

CANADA

Unit: mm (in)



LEIA0085E

Engine	QR25DE		VQ35DE
Tire size	215/60R16	215/55R17	235/45R18
Front (Hf)	707 (27.83)	710 (27.95)	715 (28.15)
Rear (Hr)	706 (27.80)	710 (27.95)	712 (28.03)

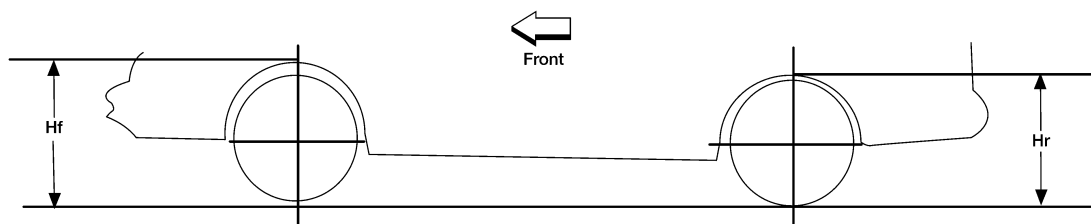
*1: Fuel, engine coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

MEXICO

QUICK REFERENCE CHART: ALTIMA SEDAN

2013

Unit: mm (in)



LEIA0085E

Grade	2.5SL	2.5SV	2.5SL	3.5SL
Engine	QR25DE			VQ35DE
Tire size	215/60R16	215/55R17	215/55R17	235/45R18
Front (Hf)	717 (28.23)	721 (28.39)	719 (28.31)	724 (28.50)
Rear (Hr)	726 (28.58)	729 (28.70)	729 (28.70)	730 (28.74)

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

Brake Specifications

INFOID:000000008788564

Unit: mm (in)

Front brake	Brake model	CLZ25VD
	Cylinder bore diameter	57.2 (2.25)
	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

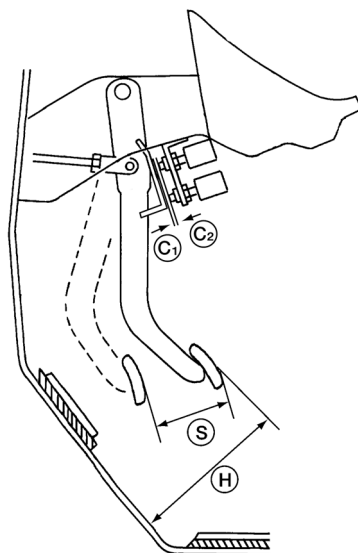
QUICK REFERENCE CHART: ALTIMA SEDAN

2013

Brake Pedal

INFOID:000000008788565

Unit: mm (in)



AWFIA0913ZZ

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

Front Disc Brake

INFOID:000000008788562

Unit: mm (in)

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:000000008788563

Unit: mm (in)

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 SEDAN

2013

FOR USA AND CANADA : Fluids and Lubricants

INFOID:000000008788556

Description			Capacity (Approximate)		
			Metric	US measure	Imp measure
Fuel		QR25DE	68 ℓ	18 gal	15 gal
		VQ35DE			
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	5.4 ℓ	5 3/4 qt	4 3/4 qt
		VQ35DE	5.3 ℓ	5 5/8 qt	4 5/8 qt
Cooling system (with reservoir tank at MAX level)		QR25DE	7.9 ℓ	8 3/8 qt	7 qt
		VQ35DE	9.2 ℓ	9 3/4 qt	8 1/8 qt
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)			—	—	—
Brake fluid			—	—	—
Multi-purpose grease			—	—	—
Windshield washer fluid			4.5 ℓ	4 3/4 qt	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			150 m ℓ	5.1 fl oz	5.3 fl oz

FOR MEXICO : Fluids and Lubricants

INFOID:000000008788559

Description			Capacity (Approximate)		
			Metric	US measure	Imp measure
Fuel		QR25DE	68 ℓ	18 gal	15 gal
		VQ35DE			
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	5.4 ℓ	5 3/4 qt	4 3/4 qt
		VQ35DE	5.3 ℓ	5 5/8 qt	4 5/8 qt
Cooling system (with reservoir tank at MAX level)		QR25DE	8.1 ℓ	8 5/8 qt	7 1/8 qt
		VQ35DE	9.2 ℓ	9 3/4 qt	8 1/8 qt
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)			—	—	—
Brake fluid			—	—	—

QUICK REFERENCE CHART: ALTIMA SEDAN

2013

Description	Capacity (Approximate)		
	Metric	US measure	Imp measure
Multi-purpose grease	—	—	—
Windshield washer fluid	4.5 ℓ	4 3/4 qt	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	150 m ℓ	5.1 fl oz	5.3 fl oz