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# NISSAN ALTIMA

MODEL L32 SERIES

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## QUICK REFERENCE INDEX

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	<b>STR Starting System</b>	
	<b>ACC Accelerator Control System</b>	
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<b>HBR Hybrid Brake System</b>		
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<b>J BODY INTERIOR</b>	<b>INT Interior</b>	
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	<b>SE Seat</b>	
	<b>ADP Automatic Drive Positioner</b>	
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<b>SEC Security Control System</b>		
<b>GW Glass &amp; Window System</b>		
<b>PWC Power Window Control System</b>		
<b>RF Roof</b>		
<b>EXT Exterior</b>		
<b>BRM Body Repair Manual</b>		
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	<b>INL Interior Lighting System</b>	
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	<b>DEF Defogger</b>	
	<b>HRN Horn</b>	
	<b>PWO Power Outlet</b>	
	<b>BCS Body Control System</b>	
<b>M ELECTRICAL &amp; POWER CONTROL</b>	<b>LAN LAN System</b>	
	<b>PCS Power Control System</b>	
	<b>CHG Charging System</b>	
	<b>PG Power Supply, Ground &amp; Circuit Elements</b>	
	<b>MWI Meter, Warning Lamp &amp; Indicator</b>	
	<b>WCS Warning Chime System</b>	
	<b>SN Sonar System</b>	
	<b>AV Audio, Visual &amp; Navigation System</b>	
<b>O CRUISE CONTROL</b>	<b>CCS Cruise Control System</b>	
<b>P MAINTENANCE</b>	<b>MA Maintenance</b>	

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# FOREWORD

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**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

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**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 Publications Department



## PLEASE HELP MAKE THIS SERVICE MANUAL BETTER!

Your comments are important to NISSAN and will help us to improve our Service Manuals. Use this form to report any issues or comments you may have regarding our Service Manuals. Please print this form and type or write your comments below. Mail or fax to:

Nissan North America, Inc.  
Technical Service Information  
39001 Sunrise Drive, P.O. Box 9200  
Farmington Hills, MI USA 48331  
FAX: (248) 488-3910

**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.*

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**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: \_\_\_\_\_

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**Is the organization of the manual clear and easy to follow? (circle your answer) YES NO**

Please comment: \_\_\_\_\_

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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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DATE: \_\_\_\_\_ YOUR NAME: \_\_\_\_\_ POSITION: \_\_\_\_\_

DEALER: \_\_\_\_\_ DEALER NO.: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE/PROV./COUNTRY: \_\_\_\_\_ ZIP/POSTAL CODE: \_\_\_\_\_

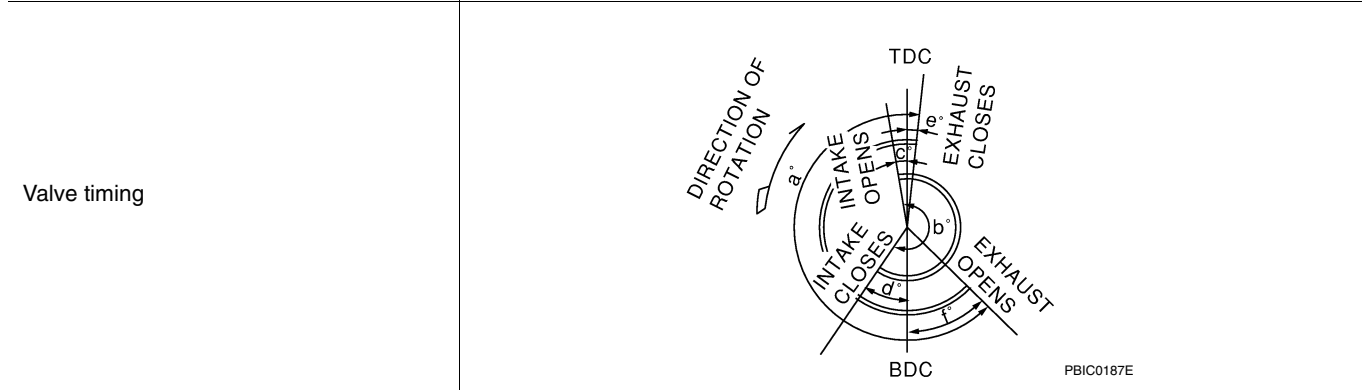
QUICK REFERENCE CHART: ALTIMA

Engine Tune-up Data: QR25DE

INFOID:000000001881075

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4
Displacement cm <sup>3</sup> (in <sup>3</sup> )		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 <sup>2</sup> , 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)



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

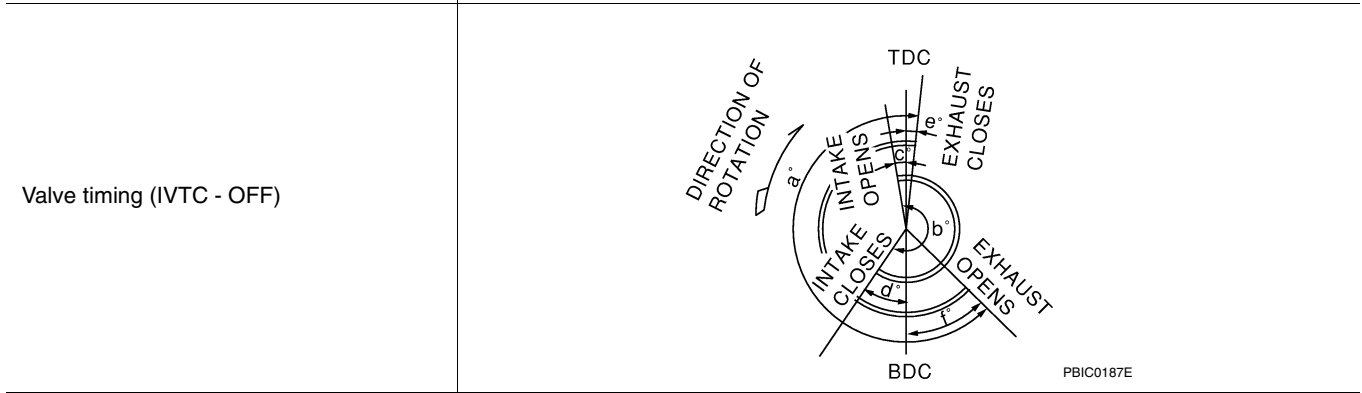
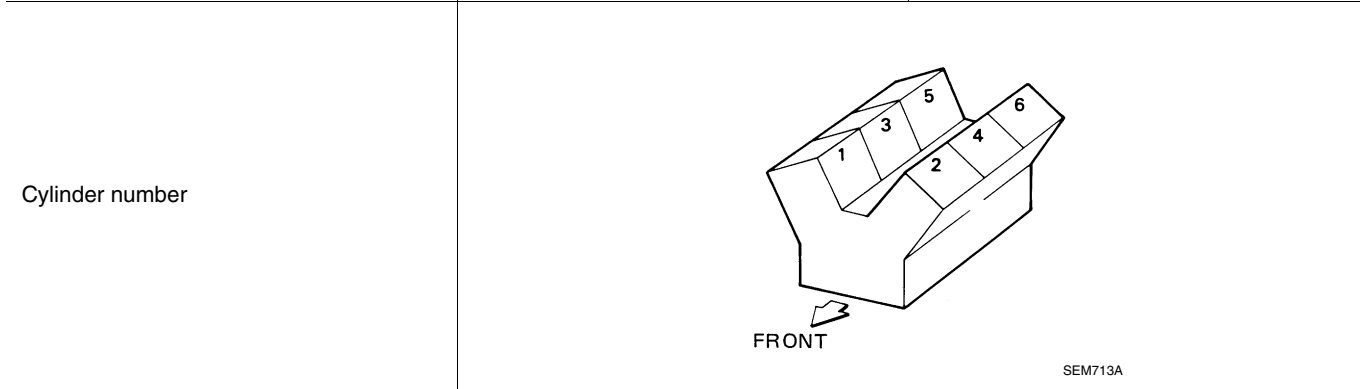
GENERAL SPECIFICATIONS

Cylinder arrangement		V-6
Displacement cm <sup>3</sup> (in <sup>3</sup> )		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 <sup>2</sup> , psi)/300 rpm	Standard	1,275 (13.0, 185)
	Minimum	981 (10.0, 142)
	Differential limit between cylinders	98 (1.0, 14)



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

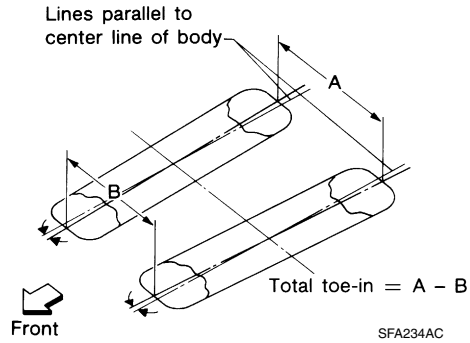
2009

## 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°)

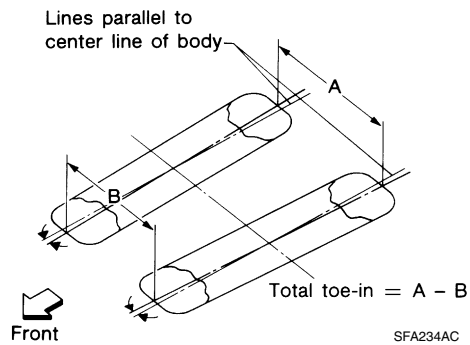


Total toe-in	Distance (A - B) mm (in)		2.4 (0.09)	
	Distance difference between RH and LH side mm (in)	Minimum	-2 (-0.08)	
		Nominal	0 (0)	
		Maximum	2 (0.08)	
Angle (left plus right) Degree minute (decimal degree)			0° 6' (110°)	0° 6' (108°)

\*: 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

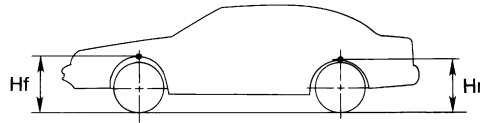
2009

## 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)

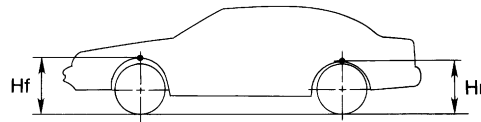
\*1: Fuel, engine coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

\*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 m ℓ	
Windshield washer fluid		—	—	—	