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# NISSAN PATHFINDER MODEL R51 SERIES

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## QUICK REFERENCE INDEX

<b>A GENERAL INFORMATION</b>	<b>GI General Information</b>
<b>B ENGINE</b>	<b>EM Engine Mechanical</b>
	<b>LU Engine Lubrication System</b>
	<b>CO Engine Cooling System</b>
	<b>EC Engine Control System</b>
	<b>FL Fuel System</b>
	<b>EX Exhaust System</b>
	<b>STR Starting System</b>
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	<b>HBC Hybrid Control System</b>
	<b>HBB Hybrid Battery System</b>
<b>D TRANSMISSION &amp; DRIVE-LINE</b>	<b>HBR Hybrid Brake System</b>
	<b>TM Transaxle &amp; Transmission</b>
	<b>DLN Driveline</b>
<b>E SUSPENSION</b>	<b>FAX Front Axle</b>
	<b>RAX Rear Axle</b>
	<b>FSU Front Suspension</b>
	<b>RSU Rear Suspension</b>
	<b>SCS Suspension Control System</b>
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<b>F BRAKES</b>	<b>BR Brake System</b>
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<b>G STEERING</b>	<b>STC Steering Control System</b>
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<b>H RESTRAINTS</b>	<b>SBC Seat Belt Control System</b>
	<b>SR SRS Airbag</b>
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	<b>VTL Ventilation System</b>
<b>I VENTILATION, HEATER &amp; AIR CONDITIONER</b>	<b>HA Heater &amp; Air Conditioning System</b>
	<b>HAC Heater &amp; Air Conditioning Control System</b>
	<b>INT Interior</b>
<b>J BODY INTERIOR</b>	<b>IP Instrument Panel</b>
	<b>SE Seat</b>
	<b>ADP Automatic Drive Postioner</b>
	<b>AP Adjustable Pedal</b>
<b>K BODY EXTERIOR, DOORS, ROOF &amp; VEHICLE SECURITY</b>	<b>DLK Door &amp; Lock</b>
	<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>
	<b>MIR Mirrors</b>
<b>L DRIVER CONTROLS</b>	<b>EXL Exterior Lighting System</b>
	<b>INL Interior Lighting System</b>
	<b>WW Wiper &amp; Washer</b>
	<b>DEF Defogger</b>
	<b>HRN Horn</b>
	<b>PWO Power Outlet</b>
	<b>BCS Body Control System</b>
	<b>LAN LAN System</b>
<b>M ELECTRICAL &amp; POWER CONTROL</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>N DRIVER INFORMATION &amp; MULTIMEDIA</b>	<b>SN Sonar System</b>
	<b>AV Audio, Visual &amp; Navigation System</b>
	<b>CCS Cruise Control System</b>
<b>O CRUISE CONTROL</b>	<b>MA Maintenance</b>
<b>P MAINTENANCE</b>	

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# FOREWORD

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This manual contains maintenance and repair procedure for the 2011 NISSAN PATHFINDER.

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.



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Technical Publications Department



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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) 488-3880

**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: PATHFINDER

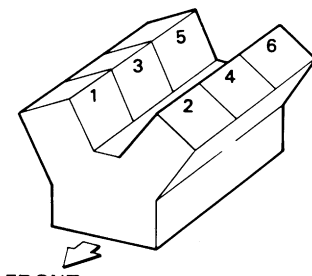
Engine Tune Data: VQ40DE

INFOID:000000006840757

GENERAL SPECIFICATIONS

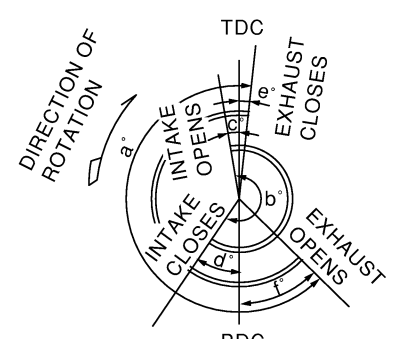
Cylinder arrangement		V-6
Displacement cm <sup>3</sup> (cu in)		3,954 (241.30)
Bore and stroke mm (in)		95.5 × 92.0 (3.76 × 3.622)
Valve arrangement		DOHC
Firing order		1-2-3-4-5-6
Number of piston rings	Compression	2
	Oil	1
Number of main bearings		4
Compression ratio		9.7
Compression pressure kPa (kg/cm <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)

Cylinder number



SEM713A

Valve timing  
(Intake valve timing control - "OFF")



PBIC0187E

Unit: degree

a	b	c	d	e	f
244	240	-4	64	6	58

DRIVE BELT

Tension of drive belts	Auto adjustment by auto tensioner
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SPARK PLUG

# QUICK REFERENCE CHART: PATHFINDER

2011

Application	United States and Canada	Mexico
Make	NGK	
Standard type*	DILFR5A-11	PLFR5A-11
Gap (nominal)	1.1 mm (0.043 in)	

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

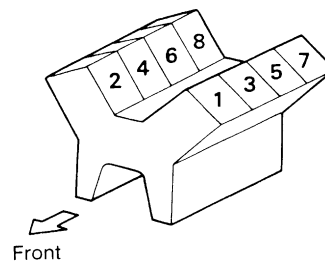
## Engine Tune-up Data: VK56DE

INFOID:000000006840756

### GENERAL SPECIFICATIONS

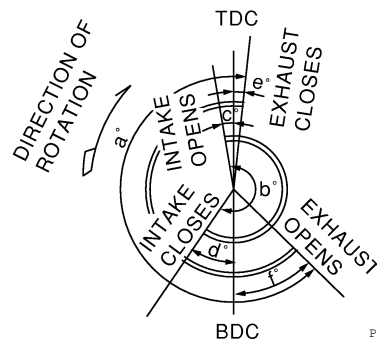
Cylinder arrangement	V-8	
Displacement cm <sup>3</sup> (in <sup>3</sup> )	5,552 (338.80)	
Bore and stroke mm (in)	98 x 92 (3.86 x 3.62)	
Valve arrangement	DOHC	
Firing order	1-8-7-3-6-5-4-2	
Number of piston rings	Compression	2
	Oil	1
Number of main bearings	5	
Compression ratio	9.8:1	
Compression pressure kPa (kg/cm <sup>2</sup> , psi)/rpm	Standard	1,520 (15.5, 220)/200
	Minimum	1,324 (13.5, 192)/200
	Differential limit between cylinders	98 (1.0, 14)/200

Cylinder number



SEM957C

Valve timing



PBIC0187E

Unit: degree

a	b	c	d	e	f
244°	232°	8°	60°	10°	54°

### DRIVE BELTS

# QUICK REFERENCE CHART: PATHFINDER

2011

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

Unit: mm (in)

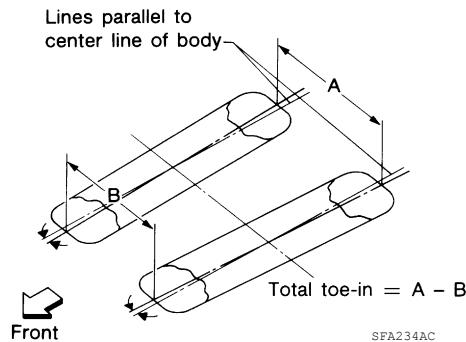
Make	NGK
Standard type*	DILFR5A-11
Gap (nominal)	1.1 (0.043)

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

## Front Wheel Alignment (Unladen\*1)

INFOID:000000006840755

Drive type		2WD	4WD
Camber Degree minute (decimal degree)	Minimum	-0° 30' (-0.50°)	-0° 15' (-0.25°)
	Nominal	0° 15' (0.25°)	0° 30' (0.50°)
	Maximum	1° 00' (1.00°)	1° 15' (1.25°)
	Cross camber	0° 45' (0.75°) or less	0° 45' (0.75°) or less
Caster Degree minute (decimal degree)	Minimum	2° 15' (2.25°)	2° 00' (2.00°)
	Nominal	3° 0' (3.00°)	2° 45' (2.75°)
	Maximum	3° 45' (3.75°)	3° 30' (3.50°)
	Cross caster	0° 45' (0.75°) or less	0° 45' (0.75°) or less
Kingpin inclination Degree minute (decimal degree)	Nominal	13° 0' (13.00°)	12° 45' (12.75°)



Total toe-in	Distance (A - B)	Minimum	In 1.2 mm (0.05 in)	In 1.2 mm (0.05 in)
		Nominal	In 3.2 mm (0.12 in)	In 3.2 mm (0.12 in)
		Maximum	In 5.2 mm (0.20 in)	In 5.2 mm (0.20 in)
	Angle (left wheel or right wheel) Degree minute (decimal degree)	Minimum	In 0° 4' 48" ( 0.08°)	In 0° 4' 48" ( 0.08°)
		Nominal	In 0° 14' 24" (0.24°)	In 0° 14' 24" (0.24°)
		Maximum	In 0° 24' (0.40°)	In 0° 24' (0.40°)
Wheel turning angle (full turn)	Inside Degree minute (Decimal degree)	33° 26' - 35° 26' *2 (33.43° - 35.43°)	33° 33' - 35° 33' *4 (33.55° - 35.55°)	
	Outside Degree minute (Decimal degree)	29° 22' - 31° 22' *3 (29.37° - 31.37°)	29° 38' - 31° 38' *5 (29.63° - 31.63°)	

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

\*2: Target value 35° 26' (35.43°)

\*3: Target value 31° 22' (31.37°)

\*4: Target value 35° 33' (35.55°)

\*5: Target value 31° 38' (31.63°)

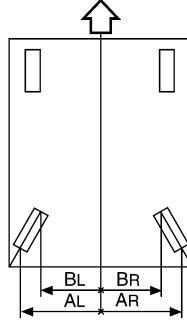
# QUICK REFERENCE CHART: PATHFINDER

2011

## Rear Wheel Alignment (Unladen\*)

INFOID:000000006840753

Camber Degree minute (decimal degree)	Minimum	- 0° 32' (- 0.53°)
	Nominal	- 0° 2' (- 0.03°)
	Maximum	0° 28' (0.47°)



ALEIA00592Z

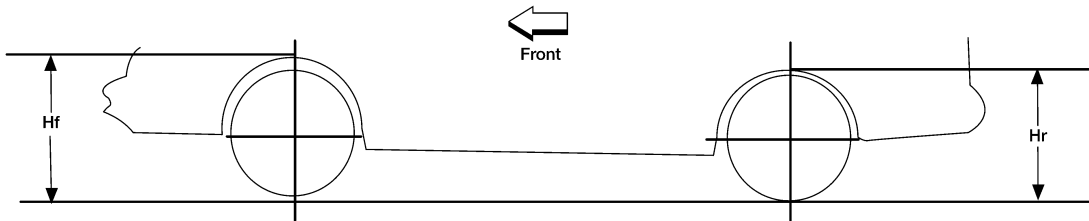
Total toe-in	Distance (A – B)	Minimum	Out 1.4 mm (0.05 in)
		Nominal	In 1.9 mm (0.07 in)
		Maximum	In 5.2 mm (0.20 in)
	Angle Degree minute (decimal degree)	Minimum	Out 0° 3' 36" (0.06°)
		Nominal	In 0° 8' 24" (0.14°)
		Maximum	In 0° 20' 24" (0.34°)

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

## Wheelarch Height (Unladen\*<sup>1</sup>)

INFOID:000000006840754

Unit: mm (in)



LEIA0085E

Engine	VQ40DE						VK56DE
	2WD			4WD			4WD
Tire size	P245/75R16	P265/65R17	P265/60R18	P245/75R16	P265/65R17	P265/60R18	P265/60R18
Front wheelarch height (Hf)	867 (34.13)	865 (34.06)	867 (34.13)	875 (34.45)	874 (34.41)	891 (35.08)	876 (34.49)
Rear wheelarch height (Hr)	875 (34.45)	873 (34.37)	875 (34.45)	884 (34.80)	883 (34.76)	901 (35.47)	886 (34.88)

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

# QUICK REFERENCE CHART: PATHFINDER

2011

## Brake Specifications

INFOID:000000008526413

Unit: mm (in)

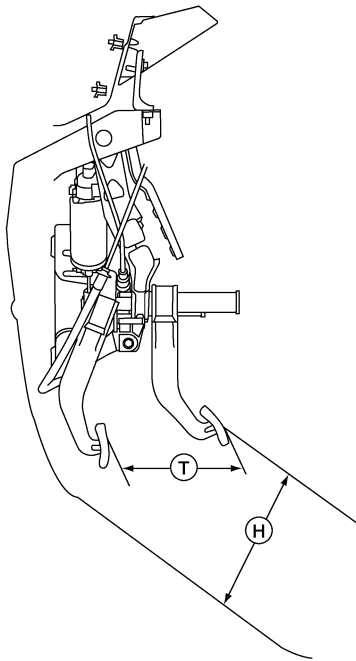
Application		VQ40	VK56
Front brake	Brake model	CLZ33VB	
	Rotor outer diameter × thickness	296 × 28 (11.654 × 1.102)	320 × 28 (12.598 × 1.102)
	Pad Length × width × thickness	140 × 50.5 × 10.0 (5.512 × 1.988 × 0.394)	130 × 52.3 × 11.0 (5.118 × 2.059 × 0.433)
	Cylinder bore diameter (each)	46.4 (1.827)	45.0 (1.772)
Rear brake	Brake model	CLZ14VB	
	Rotor outer diameter × thickness	308 × 18 (12.126 × 0.709)	
	Pad Length × width × thickness	87.6 × 37.0 × 11.0 (3.449 × 1.457 × 0.433)	
	Cylinder bore diameter	38.1 (1.500)	
Control valve	Valve model	Electric brake force distribution	
Brake booster	Booster model	C215T	
	Diaphragm diameter	215 (8.465)	

## Brake Pedal

INFOID:000000008526414

### ADJUSTABLE PEDAL

Unit: mm (in)



ALFIA014922

Pedal free height (H) with pedal in forward most position	182.1 (7.17)
Pedal full stroke (T)	153 (6.02)
Clearance between brake pedal bracket and threaded end of stop lamp switch and ASCD cancel switch	0.74 - 1.96 (0.029 - 0.077)

#### CAUTION:

When equipped with adjustable pedal, the pedal must be in the forward most position (closest to the floor) for pedal height adjustment.

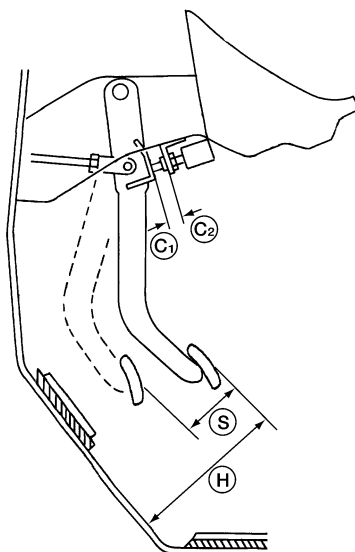
### STANDARD PEDAL



# QUICK REFERENCE CHART: PATHFINDER

2011

Unit: mm (in)



AWF1A0433Z2

Pedal free height (H)	182.1 (7.17)
Pedal full stroke (S)	153 (6.02)
Clearance between brake pedal bracket (C1) and threaded end of stop lamp switch and ASCD cancel switch (C2)	0.74 - 1.96 (0.029 - 0.077)

## Front Disc Brake

INFOID:000000008526415

Unit: mm (in)

Brake model	CLZ33VB	
Applied model	VQ40DE	VK56DE
Brake pad	Standard thickness (new)	10.0 (0.394)      11.0 (0.043)
	Minimum thickness	2.0 (0.079)
Disc rotor	Standard thickness (new)	28.0 (1.102)
	Minimum thickness	26.0 (1.024)
	Maximum uneven wear (measured at 8 positions)	0.015 (0.0006)
	Runout limit (with it attached to the vehicle)	0.05 (0.0020)

## Rear Disc Brake

INFOID:000000008526416

Unit: mm (in)

Brake model	CLZ14VB	
Brake pad	Standard thickness (new)	11.0 (0.433)
	Minimum thickness	2.0 (0.079)
Disc rotor	Standard thickness (new)	18.0 (0.709)
	Minimum thickness	16.0 (0.630)
	Maximum uneven wear (measured at 8 positions)	0.015 (0.0006)
	Runout limit (with it attached to the vehicle)	0.05 (0.0020)

# QUICK REFERENCE CHART: PATHFINDER

2011

## FOR USA AND CANADA : Fluids and Lubricants

INFOID:000000008526412

Description			Capacity (Approximate)		
			Metric	US measure	Imp measure
Fuel			80 ℓ	21 1/8 gal	17 5/8 gal
Engine oil Drain and refill	With oil filter change	VQ40DE	5.1 ℓ	5 3/8 qt	4 1/2 qt
		VK56DE	6.5 ℓ	6 7/8 qt	5 3/4 qt
	Without oil filter change	VQ40DE	4.8 ℓ	5 1/8 qt	4 1/4 qt
		VK56DE	6.2 ℓ	6 1/2 qt	5 1/2 qt
Dry engine (engine overhaul)		VQ40DE	6.3 ℓ	6 5/8 qt	5 1/2 qt
		VK56DE	7.6 ℓ	8 qt	6 3/4 qt
Cooling system (with reservoir at "MAX" level)	Without rear A/C	VQ40DE	10.2 ℓ	10 3/4 qt	9 qt
	With rear A/C	VQ40DE VK56DE	13.4 ℓ	14 1/8 qt	11 3/4 qt
Automatic transmission fluid (ATF)		VQ40DE	10.3 ℓ	10 7/8 qt	9 1/8 qt
		VK56DE	10.6 ℓ	11 1/4 qt	9 3/8 qt
Rear final drive oil		VQ40DE	1.4 ℓ	3 pt	2 1/2 pt
		VK56DE	1.75 ℓ	3 3/4 pt	3 1/8 pt
Transfer fluid	ATX14B		3.0 ℓ	3 1/8 qt	2 5/8 qt
	TX15B		2.0 ℓ	2 1/8 qt	1 3/4 qt
Front final drive oil		VQ40DE	0.85 ℓ	1 3/4 pt	1 1/2 pt
		VK56DE	1.6 ℓ	3 3/8 pt	2 7/8 pt
Power steering fluid (PSF)			1.0 ℓ	2 1/8 pt	1 3/4 pt
Brake fluid			—	—	—
Multi-purpose grease			—	—	—
Windshield washer fluid			4.5 ℓ	1 1/4 gal	1 gal
A/C system refrigerant	Without rear A/C		0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
	With rear A/C		0.85 ± 0.05 kg	1.87 ± 0.11 lb	1.87 ± 0.11 lb
A/C system oil	Without rear A/C		180 m ℓ	6.1 fl oz	6.3 fl oz
	With Rear A/C		210 m ℓ	7.1 fl oz	7.4 fl oz

## FOR MEXICO : Fluids and Lubricants

INFOID:000000006840746

Description			Capacity (Approximate)		
			Metric	US measure	Imp measure
Fuel			80 ℓ	21 1/8 gal	17 5/8 gal
Engine oil Drain and refill	With oil filter change		5.1 ℓ	5 3/8 qt	4 1/2 qt
	Without oil filter change		4.8 ℓ	5 1/8 qt	4 1/4 qt
Dry engine (engine overhaul)			6.3 ℓ	6 5/8 qt	5 1/2 qt
Cooling system (with reservoir at "MAX" level)			10.2 ℓ	10 3/4 qt	9 qt
Automatic transmission fluid (ATF)			10.3 ℓ	10 7/8 qt	9 1/8 qt

# QUICK REFERENCE CHART: PATHFINDER

2011

Description		Capacity (Approximate)		
		Metric	US measure	Imp measure
Rear final drive oil		1.4 ℓ	3 pt	2 1/2 pt
Transfer fluid	ATX14B	3.0 ℓ	3 1/8 qt	2 5/8 qt
Front final drive oil		0.85 ℓ	1 3/4 pt	1 1/2 pt
Power steering fluid (PSF)		1.0 ℓ	2 1/8 pt	1 3/4 pt
Brake fluid		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.5 ℓ	1 1/4 gal	1 gal
A/C system refrigerant		0.85 ± 0.05 kg	1.87 ± 0.11 lb	1.87 ± 0.11 lb
A/C system oil		210 m ℓ	7.1 fl oz	7.4 fl oz