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### GI General Information

#### 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

#### HBC Hybrid Control System

#### HBB Hybrid Battery System

#### HBR Hybrid Brake System

#### TM Transaxle & Transmission

#### DLN Driveline

#### FAX Front Axle

#### RAX Rear Axle

#### FSU Front Suspension

#### RSU Rear Suspension

#### SCS Suspension Control System

#### WT Road Wheels & Tires

#### BR Brake System

#### PB Parking Brake System

#### BRC Brake Control System

#### ST Steering System

#### STC Steering Control System

#### SB Seat Belt

#### SBC Seat Belt Control System

#### SR SRS Airbag

#### SRC SRS Airbag Control System

#### VTL Ventilation System

#### HA Heater & Air Conditioning System

#### HAC Heater & Air Conditioning Control System

#### INT Interior

#### IP Instrument Panel

#### SE Seat

#### ADP Automatic Drive Postioner

#### AP Adjustable Pedals

#### DLK Door & Lock

#### 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

#### 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

#### 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

#### MA Maintenance

# NISSAN PATHFINDER MODEL R52 SERIES

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# FOREWORD

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This manual contains maintenance and repair procedure for the 2013 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.



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) 488-3880

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

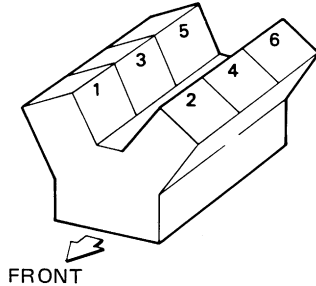
## QUICK REFERENCE CHART: PATHFINDER

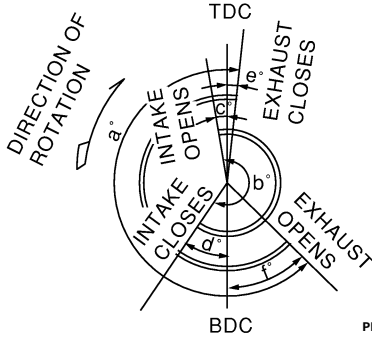
## Engine Tune-up Data

INFOID:000000009047446

## GENERAL SPECIFICATIONS

|                                                                                         |                                      |                             |
|-----------------------------------------------------------------------------------------|--------------------------------------|-----------------------------|
| Cylinder arrangement                                                                    |                                      | V-6                         |
| Displacement $\text{cm}^3$ (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                                                                       |                                      | 10.6:1                      |
| Compression pressure<br>$\text{kPa}$ ( $\text{kg}/\text{cm}^2$ , $\text{psi}$ )/300 rpm | Standard                             | 1,275 (13.0, 185)           |
|                                                                                         | Minimum                              | 981 (10.0, 142)             |
|                                                                                         | Differential limit between cylinders | 98 (1.0, 14)                |

|                 |                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------|
| Cylinder number |  <p>SEM713A</p> |
|-----------------|----------------------------------------------------------------------------------------------------|

|                                                |                                                                                                       |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Valve timing<br>(Valve timing control - "OFF") |  <p>PBIC0187E</p> |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------|

Unit: degree

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

## Drive Belt

INFOID:000000009047447

## DRIVE BELT

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

## Spark Plug

INFOID:000000009047448

## SPARK PLUG

Unit: mm (in)

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

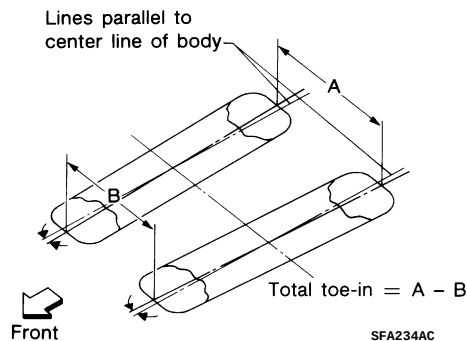
\*: Always check with the Parts Department for the latest parts information.

## Front Wheel Alignment

INFOID:000000009047445

## UNITED STATES and MEXICO

| Item                                                  |                                         | Standard                         |                  |
|-------------------------------------------------------|-----------------------------------------|----------------------------------|------------------|
| Measurement wheel                                     |                                         | (LH) side                        | (RH) side        |
| Camber<br>Degree minute (Decimal degree)              | Minimum                                 | -1° 00' (-1.00°)                 | -1° 15' (-1.25°) |
|                                                       | Nominal                                 | -0° 15' (-0.25°)                 | -0° 30' (-0.50°) |
|                                                       | Maximum                                 | 0° 30' (0.50°)                   | 0° 15' (0.25°)   |
|                                                       | Left and right difference* <sup>1</sup> | -0° 15' ± 0° 33' (0.25° ± 0.55°) |                  |
| Caster<br>Degree minute (Decimal degree)              | Minimum                                 | 3° 55' (3.92°)                   |                  |
|                                                       | Nominal                                 | 4° 40' (4.67°)                   |                  |
|                                                       | Maximum                                 | 5° 25' (5.42°)                   |                  |
|                                                       | Left and right difference* <sup>1</sup> | 0.30' (0.50°) Maximum            |                  |
| Kingpin inclination<br>Degree minute (Decimal degree) | Minimum                                 | 11° 55' (11.92°)                 | 12° 10' (12.17°) |
|                                                       | Nominal                                 | 12° 40' (12.67°)                 | 12° 55' (12.92°) |
|                                                       | Maximum                                 | 13° 25' (13.42°)                 | 13° 40' (13.67°) |



|              |                                                             |         |                           |
|--------------|-------------------------------------------------------------|---------|---------------------------|
| Total toe-in | Distance (A - B)                                            | Minimum | Out 0.6 mm (Out 0.024 in) |
|              |                                                             | Nominal | In 1.4 mm (In 0.055 in)   |
|              |                                                             | Maximum | In 3.4 mm (In 0.134 in)   |
|              | Angle (left and right)<br>Degree minute<br>(Decimal degree) | Minimum | Out 0° 3' 36" (Out 0.06°) |
|              |                                                             | Nominal | In 0° 6' 14" (In 0.10°)   |
|              |                                                             | Maximum | In 0° 15' 36" (In 0.26°)  |

Measure value under unladen conditions (Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions).

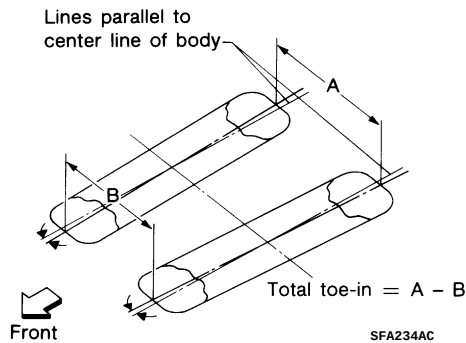
\*1: The (RH) camber angle shall be -0° 15' ± 0° 33' (0.25° ± 0.55°) with respect to the (LH) camber angle.

## CANADA

# QUICK REFERENCE CHART: PATHFINDER

2013

| Item                                                  |                             | Standard                         |                  |
|-------------------------------------------------------|-----------------------------|----------------------------------|------------------|
| Measurement wheel                                     |                             | (LH) side                        | (RH) side        |
| Camber<br>Degree minute (Decimal degree)              | Minimum                     | -1° 00' (-1.00°)                 | -1° 15' (-1.25°) |
|                                                       | Nominal                     | -0° 15' (-0.25°)                 | -0° 30' (-0.50°) |
|                                                       | Maximum                     | 0° 30' (0.50°)                   | 0° 15' (0.25°)   |
|                                                       | Left and right difference*1 | -0° 15' ± 0° 33' (0.25° ± 0.55°) |                  |
| Caster<br>Degree minute (Decimal degree)              | Minimum                     | 4° 00' (4.00°)                   |                  |
|                                                       | Nominal                     | 4° 45' (4.75°)                   |                  |
|                                                       | Maximum                     | 5° 30' (5.50°)                   |                  |
|                                                       | Left and right difference*1 | 0.30' (0.50°) Maximum            |                  |
| Kingpin inclination<br>Degree minute (Decimal degree) | Minimum                     | 11° 55' (11.92°)                 | 12° 10' (12.17°) |
|                                                       | Nominal                     | 12° 40' (12.67°)                 | 12° 55' (12.92°) |
|                                                       | Maximum                     | 13° 25' (13.42°)                 | 13° 40' (13.67°) |



|              |                                                             |         |                           |
|--------------|-------------------------------------------------------------|---------|---------------------------|
| Total toe-in | Distance (A - B)                                            | Minimum | Out 0.6 mm (Out 0.024 in) |
|              |                                                             | Nominal | In 1.4 mm (In 0.055 in)   |
|              |                                                             | Maximum | In 3.4 mm (In 0.134 in)   |
|              | Angle (left and right)<br>Degree minute<br>(Decimal degree) | Minimum | Out 0° 3' 36" (Out 0.06°) |
|              |                                                             | Nominal | In 0° 6' 14" (In 0.10°)   |
|              |                                                             | Maximum | In 0° 15' 36" (In 0.26°)  |

Measure value under unladen conditions. (Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions).

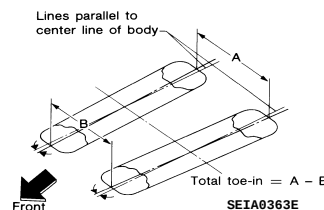
\*1: The (RH) camber angle shall be -0° 15' ± 0° 33' (0.25° ± 0.55°) with respect to the (LH) camber angle.

## Rear Wheel Alignment

INFOID:000000009047443

### UNITED STATES, CANADA, AND MEXICO

| Item                                     |                             | Standard                         |  |
|------------------------------------------|-----------------------------|----------------------------------|--|
| Camber<br>Degree minute (Decimal degree) | Minimum                     | -1° 05' (-1.08°)                 |  |
|                                          | Nominal                     | -0° 35' (-0.58°)                 |  |
|                                          | Maximum                     | -0° 05' (-0.08°)                 |  |
|                                          | Left and right difference*1 | -0° 15' ± 0° 33' (0.25° ± 0.55°) |  |



# QUICK REFERENCE CHART: PATHFINDER

2013

| Item         |                                                             |         | Standard                  |
|--------------|-------------------------------------------------------------|---------|---------------------------|
| Total toe-in | Distance (A - B)                                            | Minimum | Out 0.8 mm (Out 0.031 in) |
|              |                                                             | Nominal | In 2.2 mm (In 0.087 in)   |
|              |                                                             | Maximum | In 5.2 mm (In 0.205 in)   |
|              | Angle (left and right)<br>Degree minute<br>(Decimal degree) | Minimum | Out 0° 2' 24" (Out 0.04°) |
|              |                                                             | Nominal | In 0° 9' 36" (In 0.16°)   |
|              |                                                             | Maximum | In 0° 21' 36" (In 0.36°)  |

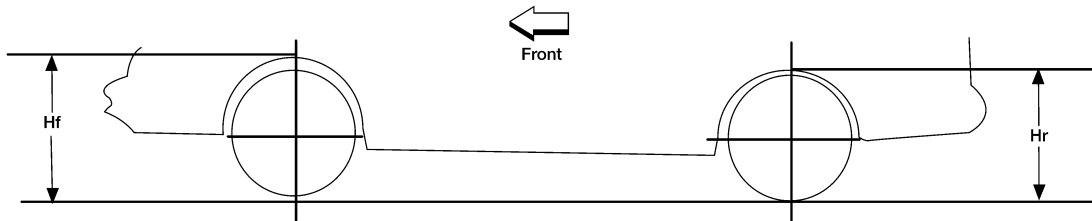
Measure value under unladen conditions (Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions).

## Wheelarch Height

INFOID:000000009047444

### UNITED STATES

Unit: mm (in)



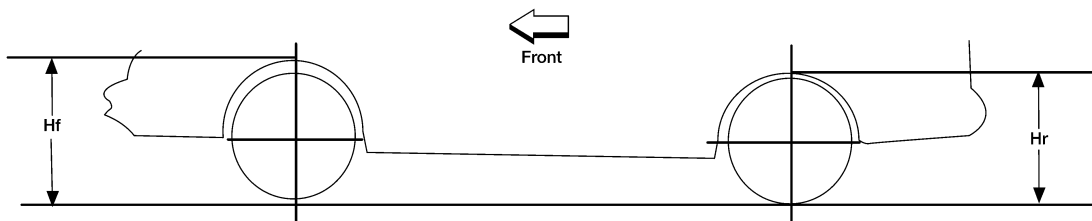
LETA0085E

| Axle type  | 2WD         |             |             | 4WD         |              |
|------------|-------------|-------------|-------------|-------------|--------------|
| Wheel size | 235/65R18   |             | 235/55R20   | 235/65R18   | 235/55R20    |
| Grade      | S, SV       | SL          | Platinum    | S, SV       | SL, Platinum |
| Front (Hf) | 823 (32.40) | 823 (32.40) | 821 (32.32) | 822 (32.36) | 822 (32.36)  |
| Rear (Hr)  | 828 (32.60) | 827 (32.56) | 825 (32.48) | 827 (32.56) | 826 (32.52)  |

Measure value under unladen conditions. (Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions).

### CANADA

Unit: mm (in)



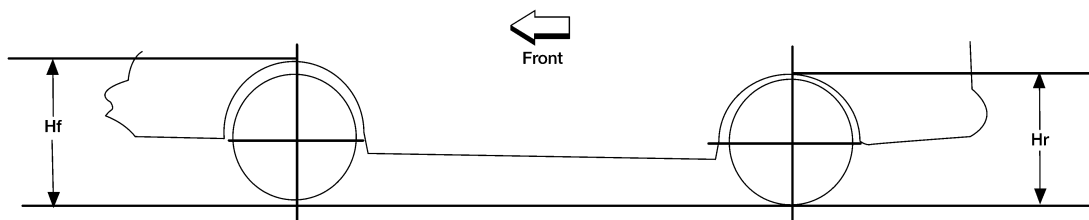
LETA0085E

| Axle type  | 2WD         |             |   | 4WD |             |          |
|------------|-------------|-------------|---|-----|-------------|----------|
| Wheel size | 235/65R18   |             |   |     | 235/55R20   |          |
| Grade      | S           | SL          | S | SV  | SL          | Platinum |
| Front (Hf) | 823 (32.40) |             |   |     | 822 (32.36) |          |
| Rear (Hr)  | 829 (32.64) | 828 (32.60) |   |     | 827 (32.56) |          |

Measure value under unladen\* conditions. (Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions).

## MEXICO

Unit: mm (in)



LETA0085E

| Axle type  | 2WD         |         | 4WD         |               |
|------------|-------------|---------|-------------|---------------|
| Wheel size | 235/65R18   |         | 235/55R20   |               |
| Grade      | Sense       | Advance | Exclusive   | Exclusive 4WD |
| Front (Hf) | 823 (32.40) |         | 821 (32.32) |               |
| Rear (Hr)  | 828 (32.60) |         | 826 (32.52) | 825 (32.48)   |

Measure value under unladen\* conditions. (Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions).

## Brake Specifications

INFOID:000000009047441

Unit: mm (in)

|                 |                                  |                                          |
|-----------------|----------------------------------|------------------------------------------|
| Front brake     | Cylinder bore diameter           | 45.0 (1.772) × 2                         |
|                 | Pad length × width × thickness   | 131.4 (5.17) × 55.5 (2.19) × 10.0 (0.39) |
|                 | Rotor outer diameter × thickness | 320.0 (12.60) × 28.0 (1.10)              |
| Rear brake      | Cylinder bore diameter           | 42.86 (1.6874)                           |
|                 | Pad length × width × thickness   | 83.0 (3.27) × 32.0 (1.26) × 8.5 (0.33)   |
|                 | Rotor outer diameter × thickness | 308 (12.13) × 16.0 (0.63)                |
| Master cylinder | Cylinder bore diameter           | 26.99 (1.063)                            |
| Control valve   | Valve type                       | Electric brake force distribution        |

## Brake Pedal

INFOID:000000009047442

Unit: mm (in)

| Item                                                                                                | Standard                      |
|-----------------------------------------------------------------------------------------------------|-------------------------------|
| Brake pedal height (H1)                                                                             | 204 – 224 (8.03 – 8.82)       |
| Clearance (A) between brake pedal bracket, stop lamp switch and ASCD cancel switch contact ends     | 0.20 – 1.96 (0.0079 – 0.0772) |
| Depressed brake pedal height (H2)<br>[Depressing 490 N (50 kg, 110 lb) while turning the engine ON] | 75.1 (2.96)                   |

## Front Disc Brake

INFOID:000000009047439

Unit: mm (in)

| Item       | Limit                                            |
|------------|--------------------------------------------------|
| Brake pad  | Wear thickness                                   |
|            | 1.0 (0.04)                                       |
| Disc rotor | Wear thickness                                   |
|            | 26.0 (1.02)                                      |
|            | Thickness variation (measured at 8 positions)    |
|            | 0.008 (0.0003)                                   |
|            | Runout (with disc rotor attached to the vehicle) |
|            | 0.040 (0.0016) or less                           |

# QUICK REFERENCE CHART: PATHFINDER

2013

## Rear Disc Brake

INFOID:000000009047440

Unit: mm (in)

| Item       |                                                  | Limit                  |
|------------|--------------------------------------------------|------------------------|
| Brake pad  | Wear thickness                                   | 1.0 (0.04)             |
| Disc rotor | Wear thickness                                   | 14.0 (0.55)            |
|            | Thickness variation (measured at 8 positions)    | 0.020 (0.0008)         |
|            | Runout (with disc rotor attached to the vehicle) | 0.050 (0.0020) or less |

## FOR USA AND CANADA : Fluids and Lubricants

INFOID:000000009047433

| Description                                     |                           | Capacity (Approximate) |               |               |
|-------------------------------------------------|---------------------------|------------------------|---------------|---------------|
|                                                 |                           | Metric                 | US measure    | Imp measure   |
| Fuel                                            |                           | 74.0 ℓ                 | 19-1/2 gal    | 16-1/4 gal    |
| Engine oil<br>Drain and refill                  | With oil filter change    | 4.8 ℓ                  | 5-1/8 qt      | 4-1/4 qt      |
|                                                 | Without oil filter change | 4.5 ℓ                  | 4-3/4 qt      | 4 qt          |
|                                                 | Dry engine (Overhaul)     | 5.1 ℓ                  | 5-3/8 qt      | 4-1/2 qt      |
| Cooling system<br>(with reservoir at MAX level) |                           | 9.8 ℓ                  | 10-3/8 qt     | 8-5/8 qt      |
| CVT fluid                                       |                           | 8.8 ℓ                  | 9-1/4 qt      | 7-3/4 qt      |
| Differential gear oil                           | Rear                      | 0.5 ℓ                  | 1 pt          | 7/8 pt        |
| Transfer fluid                                  |                           | 0.31 ℓ                 | 5/8 pt        | 1/2 pt        |
| Power steering fluid (PSF)                      |                           | —                      | —             | —             |
| Brake fluid                                     |                           | —                      | —             | —             |
| Multi-purpose grease                            |                           | —                      | —             | —             |
| Windshield washer fluid                         |                           | 4.6 ℓ                  | 1-1/4 gal     | 1 gal         |
| Air conditioning system refrigerant             |                           | 0.85 ± 0.05 kg         | 1.87 ± 0.1 lb | 1.87 ± 0.1 lb |
| Air conditioning system oil                     |                           | 180 m ℓ                | 6.1 fl oz     | 6.3 fl oz     |

## FOR MEXICO : Fluids and Lubricants

INFOID:000000009047436

|                                                 |                              | Capacity (Approximate) |             |
|-------------------------------------------------|------------------------------|------------------------|-------------|
|                                                 |                              | Liter                  | Imp measure |
| Fuel                                            |                              | 74.0 ℓ                 | 16-1/4 gal  |
| Engine oil<br>Drain and refill                  | With oil filter change       | 4.8                    | 4-1/4 qt    |
|                                                 | Without oil filter change    | 4.5                    | 4 qt        |
|                                                 | Dry engine (engine overhaul) | 5.1                    | 4-1/2 qt    |
| Cooling system<br>(with reservoir at MAX level) |                              | 9.8                    | 8-3/8 qt    |
| Reservoir tank                                  |                              | 0.8                    | 3/4 qt      |
| CVT fluid                                       |                              | 8.2                    | 7-1/4 qt    |
| Differential gear oil                           | Rear                         | 0.55                   | 1 pt        |

# QUICK REFERENCE CHART: PATHFINDER

2013

|                                     | Capacity (Approximate) |               |
|-------------------------------------|------------------------|---------------|
|                                     | Liter                  | Imp measure   |
| Transfer oil                        | 0.31                   | 1/2 pt        |
| Power steering fluid (PSF)          | —                      | —             |
| Brake fluid                         | —                      | —             |
| Multi-purpose grease                | —                      | —             |
| Windshield washer fluid             | 4.6 ℓ                  | 1 gal         |
| Air conditioning system refrigerant | 0.85 ± 0.05 kg         | 1.87 ± 0.1 lb |
| Air conditioning system oil         | 180 m ℓ                | 6.3 fl oz     |