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NISSAN FRONTIER

MODEL D40 SERIES

QUICK REFERENCE INDEX

FOREWORD

This manual contains maintenance and repair procedure for the 2013 NISSAN FRONTIER.

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.

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: FRONTIER

Engine Tune-up Data: QR25DE

INFOID:0000000009314184

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4
Displacement cm^3 (cu in)		2,488 (151.82)
Bore and stroke mm (in)		89.0 x 100.0 (3.504 x 3.937)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.5
Compression pressure kPa (kg/cm^2, psi) / 250 rpm	Standard	1,304 (13.3, 189)
	Minimum	1,108 (11.3, 161)
	Differential limit between cylinders	100 (1.0, 14)

DRIVE BELT

Tension of drive belt	Auto adjustment by auto-tensioner

SPARK PLUG

Make	NGK
Standard type*	PLZKAR6A–11
Gap (nominal)	1.1 mm (0.043 in)

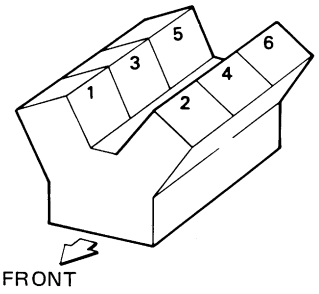
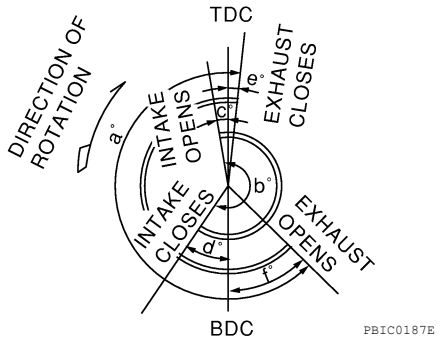
*: Always check with the Parts Department for the latest parts information.

Engine Tune-up Data: VQ40DE

INFOID:0000000009314183

GENERAL SPECIFICATIONS

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

Cylinder number	
Valve timing (Intake valve timing control - “OFF”)	

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

SPARK PLUG

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

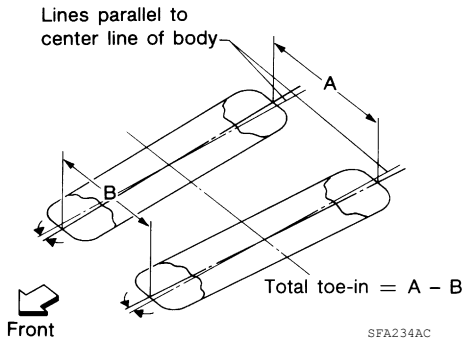
*: Always check with the Parts Department for the latest parts information.

Front Wheel Alignment (Unladen*1)*6

INFOID:0000000009314182

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° 0′ (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° 0′ (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°)

Drive type	2WD	4WD



Total toe-in	Distance	Minimum	In 1.2 mm (In 0.05 in)	
		Nominal	In 3.2 mm (In 0.12 in)	
		Maximum	In 5.2 mm (In 0.20 in)	
	Angle Degree minute (Decimal degree)	Minimum	In 0° 4′ 48″ (In 0.08°)	
		Nominal	In 0° 14′ 24″ (In 0.24°)	
		Maximum	In 0° 24′ (In 0.40°)	
Wheel turning angle (full turn)	Inside Degree minute (Decimal degree)		33° 26′– 35° 26′ *2 (33.43°– 35.43°)	33° 36′– 35° 36′ *4 (33.60°– 35.60°)
	Outside Degree minute (Decimal degree)		29° 22′– 31° 22′ *3 (29.37°– 31.37°)	29° 44′– 31° 44′ *5 (29.73°– 31.73°)

*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° 36′ (35.60°)

*5: Target value 31° 44′ (31.73°)

*6: Some vehicles may be equipped with straight (non-adjustable) lower link bolts and washers. In order to adjust camber and caster on these vehicles, first replace the lower link bolts and washers with adjustable (cam) bolts and washers.

General Specification (Rear)

INFOID:0000000009314180

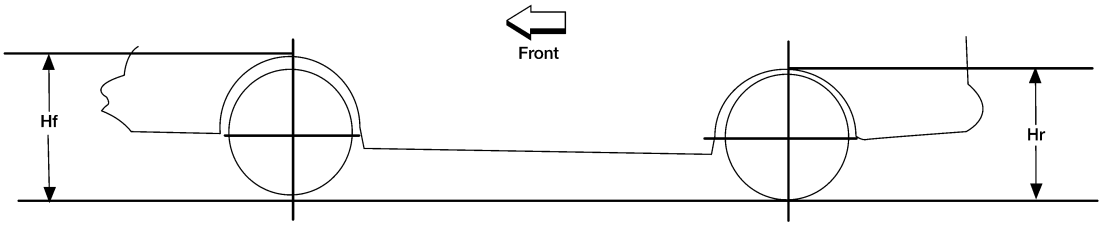
Suspension type	Rigid axle with semi-elliptic leaf springs
Shock absorber type	Double-acting hydraulic

Wheelarch Height (Unladen*1)

INFOID:0000000009314181

King Cab

Unit: mm (in)



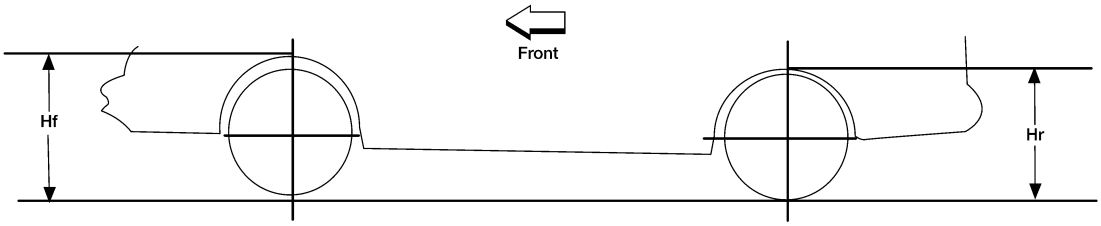
Drive type	2WD				4WD	
Engine type	QR25DE		VQ40DE			
Tire size	P235/75R15	P265/70R16	P265/70R16	P265/75R16	P265/70R16	P265/75R16

Front wheelarch height (Hf)	850 (33.46)	865 (34.06)	868 (34.17)	880 (34.65)	881 (34.68)	893 (35.16)
Rear wheelarch height (Hr)	878 (34.57)	887 (34.92)	895 (35.24)	907 (35.71)	904 (35.59)	917 (36.10)

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

Crew Cab

Unit: mm (in)



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Engine type	VQ40DE									
Drive type	2WD					4WD				
Tire size	P265/70R16		P265/75R16	P265/60R18		P265/70R16		P265/75R16	P265/60R18	
Wheel base	Short	Long	Short	Short	Long	Short	Long	Short	Short	Long
Front wheelarch height (Hf)	867 (34.13)	870 (34.25)	879 (34.61)	866 (34.09)	869 (34.21)	879 (34.61)	882 (34.72)	891 (35.08)	879 (34.61)	882 (34.72)
Rear wheelarch height (Hr)	892 (35.12)	892 (35.12)	904 (35.59)	892 (35.12)	892 (35.12)	905 (35.63)	902 (35.51)	918 (36.14)	905 (35.63)	902 (35.51)

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

Brake Specifications

INFOID:0000000009314178

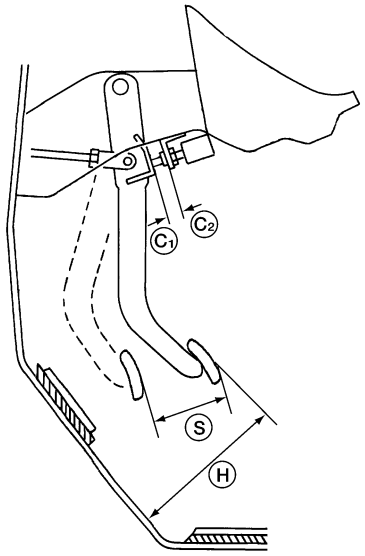
Unit: mm (in)

Engine Type		QR25DE	VQ40DE
Front brake	Brake model	CLZ33VA	
	Rotor outer diameter × thickness	283 × 28 (11.142 × 1.102)	296 × 28 (11.654 × 1.102)
	Pad Length × width × thickness	140 × 50.5 × 10 (5.51 × 1.99 × 0.39)	
	Cylinder bore diameter (each)	46.4 (1.83)	
Rear brake	Brake model	CLZ14VA	
	Rotor outer diameter × thickness	286 × 18 (11.260 × 0.709)	
	Pad length × width × thickness	87.6 × 35.5 × 11.0 (3.449 × 1.398 × 0.433)	
	Cylinder bore diameter	38.1 (1.50)	
Control valve	Valve model	Electric brake force distribution	
Brake booster	Booster model	C215T	
	Diaphragm diameter	215 (8.465)	

Brake Pedal

INFOID:0000000009314179

Unit: mm (in)



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Pedal free height (H)	M/T	174.7 +10/-0 (6.88 +0.39/-0)
	A/T	182.1 +10/-0 (7.17 +0.39/-0)
Pedal full stroke (S)		153 (6.02)
Clearance between pedal stopper(C_1) and threaded end of stop lamp switch and ASCD cancel switch (C_2) (if equipped)		0.74 - 1.96 (0.029 - 0.077)

Front Disc Brake

INFOID:0000000009314176

Unit: mm (in)

Engine type		QR25DE / VQ40DE
Brake model		CLZ33VA
Brake pad	Standard thickness (new)	10.0 (0.394)
	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:0000000009314177

Unit: mm (in)

Engine type		QR25DE / VQ40DE
Brake model		CLZ14VA
Brake pad	Standard thickness (new)	11.0 (0.433)
	Minimum thickness	2.0 (0.079)

Engine type		QR25DE / VQ40DE
Brake model		CLZ14VA
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)

FOR USA AND CANADA : Fluids and Lubricants

INFOID:0000000009314170

QR25DE

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	4.6 ℓ	4-7/8 qt	4 qt
	Without oil filter change	4.3 ℓ	4-1/2 qt	3-3/4 qt
Dry engine (engine overhaul)		5.0 ℓ	5-1/4 qt	4-3/8 qt
Cooling system	With reservoir at MAX level	9.4 ℓ	10 qt	8-1/4 qt
Automatic transmission fluid (ATF)		10.3 ℓ	10-7/8 qt	9-1/8 qt
Manual transmission fluid (MTF) (5 M/T)		2.9 ℓ	6-1/8 pt	5-1/8 pt
Rear final drive oil	C200	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 and clutch fluids		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.5 ℓ	1-1/4 gal	1 gal
Air conditioning system refrigerant		0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
Air conditioning system oil		180 mℓ	6.1 fl oz	6.3 fl oz

VQ40DE

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
Manual transmission fluid (MTF) (6 M/T)	2WD	4.0 ℓ	8-3/8 pt	7 pt
	4WD	4.2 ℓ	8-7/8 pt	7-3/8 pt

Description		Capacity (Approximate)		
		Metric	US measure	Imp measure
Rear final drive oil	C200	1.6 ℓ	3-3/8 pt	2-7/8 pt
	M226	2.01 ℓ	4-1/4 pt	3-1/2 pt
Transfer fluid	TX15B	2.0 ℓ	2-1/8 qt	1-3/4 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 and clutch fluid		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.5 ℓ	1-1/4 gal	1 gal
A/C system refrigerant		0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
A/C system oil		180 m ℓ	6.1 fl oz	6.3 fl oz

FOR MEXICO : Fluids and Lubricants

INFOID:0000000009314173

VQ40DE

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
Rear final drive oil		2.01 ℓ	4-1/4 pt	3-1/2 pt
Transfer fluid		2.0 ℓ	2-1/8 qt	1-3/4 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		0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
A/C system oil		180 m ℓ	6.1 fl oz	6.3 fl oz