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NISSAN FRONTIER

MODEL D40 SERIES

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QUICK REFERENCE INDEX

A 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
	HBB Hybrid Battery System
D TRANSMISSION & DRIVE- LINE	CL Clutch
	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
F BRAKES	BR Brake System
	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
I VENTILATION, HEATER & AIR CONDITIONER	VTL Ventilation System
	HA Heater & Air Conditioning System
	HAC Heater & Air Conditioning Control System
J BODY INTERIOR	INT Interior
	IP Instrument Panel
	SE Seat
K BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY	DLK Door & Lock
	SEC Security Control System
	GW Glass & Window System
	PWC Power Window Control System
	RF Roof
	EXT Exterior
L DRIVER CONTROLS	BRM Body Repair Manual
	MIR Mirrors
	EXL Exterior Lighting System
	INL Interior Lighting System
	WW Wiper & Washer
	DEF Defogger
	HRN Horn
M ELECTRICAL & POWER CONTROL	PWO Power Outlet
	BCS Body Control System
	LAN LAN System
	PCS Power Control System
	CHG Charging System
	PG Power Supply, Ground & Circuit Elements
N DRIVER INFORMATION & MULTIMEDIA	MWI Meter, Warning Lamp & Indicator
	WCS Warning Chime System
	SN Sonar System
	AV Audio, Visual & Navigation System
O CRUISE CONTROL	CCS Cruise Control System
P MAINTENANCE	MA Maintenance
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FOREWORD

This manual contains maintenance and repair procedures for the 2016 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.



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Technical Publications Department



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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.*

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.*

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QUICK REFERENCE CHART - FRONTIER

Engine Tune-up Data:QR25DE

INFOID:0000000013037636

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
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SPARK PLUG

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

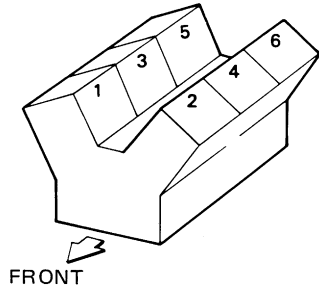
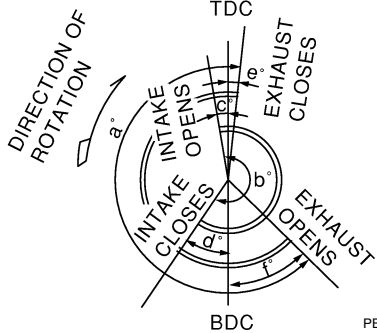
*: Always check with the Parts Department for the latest parts information.

Engine Tune-up Data:VQ40DE

INFOID:0000000013037635

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	 FRONT 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

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

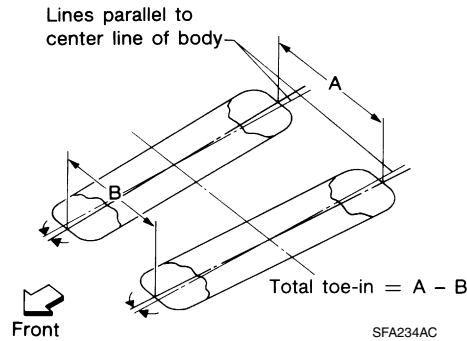
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Drive type		2WD	4WD
Camber Degree minute (decimal degree)	Minimum	-0° 30' (-0.50°)	-0° 15' (-0.25°)
	Nominal	0° 15' (0.25°)	0° 30' (0.50°)
	Maximum	1° 0' (1.00°)	1° 15' (1.25°)
	Cross camber	0° 45' (0.75°) or less	0° 45' (0.75°) or less
Caster Degree minute (decimal degree)	Minimum	2° 00' (2.00°)	1° 45' (1.75°)
	Nominal	2° 45' (2.75°)	2° 30' (2.5°)
	Maximum	3° 30' (3.50°)	3° 15' (3.25°)
	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°)

QUICK REFERENCE CHART - FRONTIER

2016

Drive type	2WD	4WD
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Total toe-in	Distance		Minimum	In 3.0 mm (In 0.12 in)	
			Nominal	In 4.0 mm (In 0.16 in)	
			Maximum	In 5.0 mm (In 0.20 in)	
	Angle Degree minute (Decimal degree)		Minimum	In 0° 7' (In 0.12°)	
			Nominal	In 0° 9' (In 0.15°)	
			Maximum	In 0° 11' (In 0.18°)	
Wheel turning angle (full turn)			Inside Degree minute (Decimal degree)	33° 28' – 35° 28' *2 (33.47° – 35.47°)	33° 38' – 35° 38' *4 (33.63° – 35.63°)
			Outside Degree minute (Decimal degree)	29° 27' – 31° 27' *3 (29.45° – 31.45°)	29° 49' – 31° 49' *5 (29.82° – 31.82°)

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

*2: Target value 35° 28' (35.47°)

*3: Target value 31° 27' (31.45°)

*4: Target value 35° 38' (35.63°)

*5: Target value 31° 49' (31.82°)

*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:0000000013037633

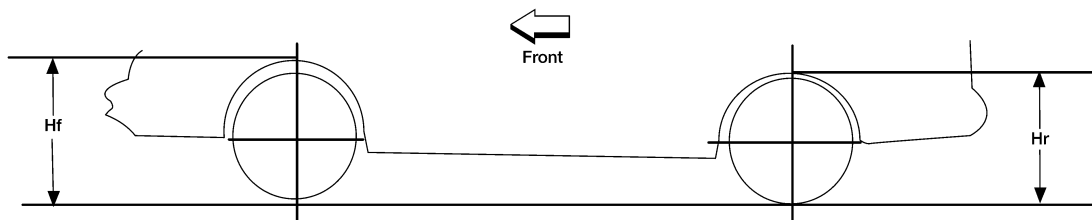
Suspension type	Rigid axle with semi-elliptic leaf springs
Shock absorber type	Double-acting hydraulic

Wheelarch Height (Unladen*¹)

INFOID:0000000013037632

King Cab

Unit: mm (in)



LEIA0085E

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

QUICK REFERENCE CHART - FRONTIER

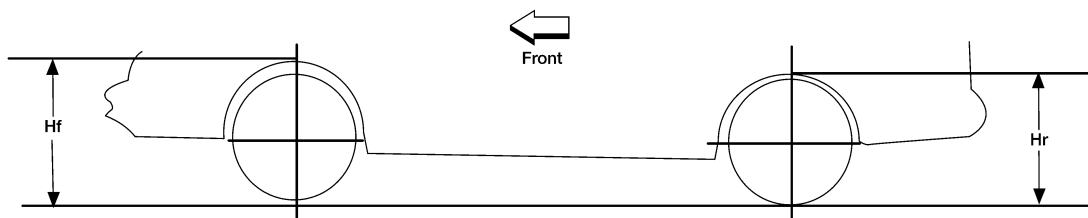
2016

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)



LEIA0085E

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 Specification

INFOID:0000000013037631

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)	

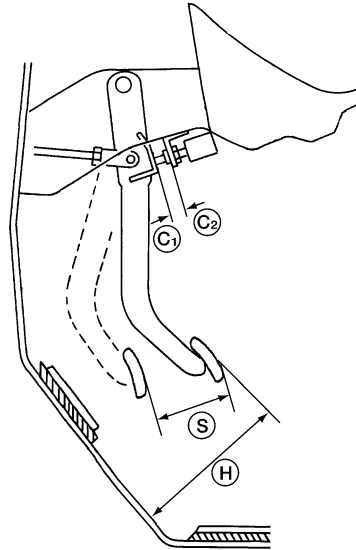
QUICK REFERENCE CHART - FRONTIER

2016

Brake Pedal

INFOID:0000000013037630

Unit: mm (in)



AWFIA0557ZZ

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(C1) and threaded end of stop lamp switch and brake pedal position switch (C2) (if equipped)		0.74 - 1.96 (0.029 - 0.077)

Front Disc Brake

INFOID:0000000013037629

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)

*To check if rotor imbalance, rotor runout or rotor deformation exists.

Rear Disc Brake

INFOID:0000000013037628

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)

QUICK REFERENCE CHART - FRONTIER

2016

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)

*To check if rotor imbalance, rotor runout or rotor deformation exists.

FOR USA AND CANADA : Fluids and Lubricants

INFOID:0000000013037401

QR25DE

The following are approximate capacities. The actual capacities may be slightly different. When refilling, follow the procedures described elsewhere in this manual.

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
Engine coolant	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 ± 10 m ℓ	6.1 ± 0.3 fl oz	6.3 ± 0.4 fl oz

VQ40DE

The following are approximate capacities. The actual capacities may be slightly different. When refilling, follow the procedures described elsewhere in this manual.

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
Engine coolant	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 - FRONTIER

2016

Description		Capacity (Approximate)		
		Metric	US measure	Imp measure
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
Front final drive oil		0.85 ℓ	1-3/4 pt	1-1/2 pt
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
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 ± 10 m ℓ	6.1 ± 0.3 fl oz	6.3 ± 0.4 fl oz

FOR MEXICO : Fluids and Lubricants

INFOID:0000000013037398

VQ40DE

The following are approximate capacities. The actual capacities may be slightly different. When refilling, follow the procedures described elsewhere in this manual.

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
Engine coolant (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
Transfer fluid		2.0 ℓ	2-1/8 qt	1-3/4 qt
Rear final drive oil		2.01 ℓ	4-1/4 pt	3-1/2 pt
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 ± 10 m ℓ	6.1 ± 0.3 fl oz	6.3 ± 0.4 fl oz