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QUICK REFERENCE INDEX

**NISSAN
 FRONTIER**
 MODEL D40 SERIES

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	
	ACC Accelerator Control System	
	CL Clutch	
C TRANSMISSION/ TRANSAXLE	MT Manual Transmission	
	AT Automatic Transmission	
	TF Transfer	
D DRIVELINE/AXLE	PR Propeller Shaft	
	FFD Front Final Drive	
	RFD Rear Final Drive	
	FAX Front Axle	
	RAX Rear Axle	
	FSU Front Suspension	
	RSU Rear Suspension	
E SUSPENSION	WT Road Wheels & Tires	
	BR Brake System	
	PB Parking Brake System	
F BRAKES	BRC Brake Control System	
	PS Power Steering System	
	SB Seat Belts	
G STEERING	SRS Supplemental Restraint System (SRS)	
H RESTRAINTS	BL Body, Lock & Security System	
	GW Glasses, Window System & Mirrors	
I BODY	RF Roof	
	EI Exterior & Interior	
	IP Instrument Panel	
	SE Seat	
	MTC Manual Air Conditioner	
	J AIR CONDITIONER	SC Starting & Charging System
		LT Lighting System
DI Driver Information System		
WW Wiper, Washer & Horn		
BCS Body Control System		
LAN LAN System		
AV Audio Visual & Telephone System		
ACS Auto Cruise Control System		
PG Power Supply, Ground & Circuit Elements		
MA Maintenance		
K ELECTRICAL	IDX Alphabetical Index	
L MAINTENANCE		
M INDEX		

A
B
C
D
E
F
G
H
I
J
K
L
M

FOREWORD

This manual contains maintenance and repair procedures for the 2006 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
• Gardena, California



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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.*

Please describe the issue or problem in detail: _____

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What information should be included in NISSAN Service Manuals to better support you in servicing or repairing customer vehicles?

DATE: _____ YOUR NAME: _____ POSITION: _____

DEALER: _____ DEALER NO.: _____ ADDRESS: _____

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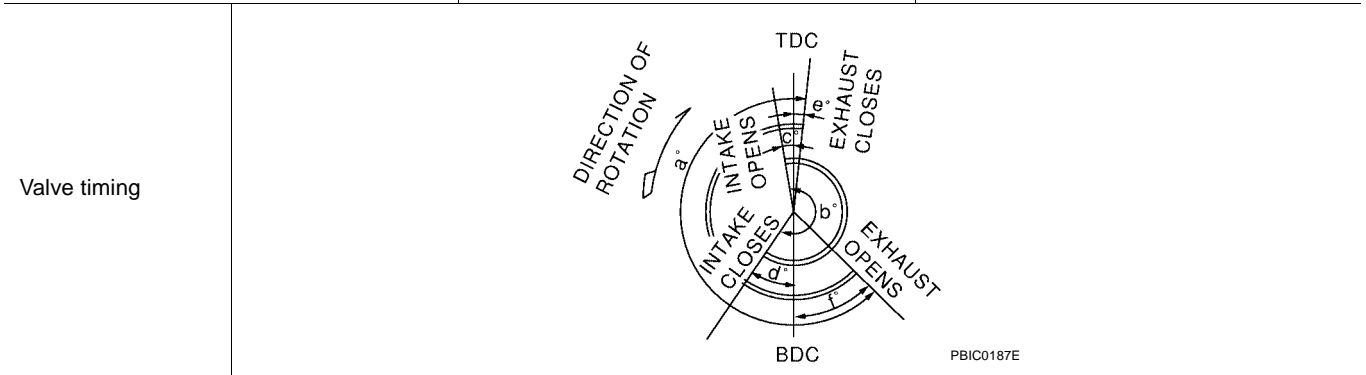
QUICK REFERENCE CHART: FRONTIER

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Engine Tune-Up Data
QR25DE Engine Specifications

ELS001KR

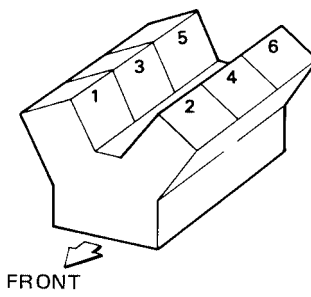
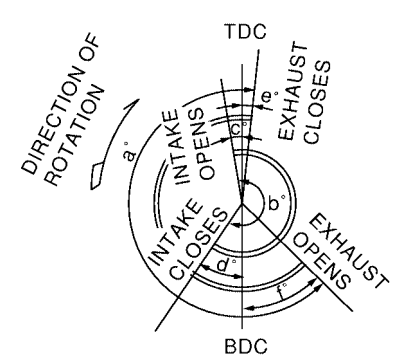
Cylinder arrangement		In-line 4
Displacement		2,488 cm ³ (151.82 in ³)
Bore and stroke		89.0 x 100.0 mm (3.504 x 3.937 in)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.5:1
Compression pressure	Standard	1,304 kPa (13.3 kg/cm ² , 189 psi)/250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



Unit: degree					
a	b	c	d	e	f
236°	224°	-4°	60°	32°	37°

VQ40DE Engine Specifications

Cylinder arrangement		V-6
Displacement		3,954 cm ³ (241.30 in ³)
Bore and stroke		95.5 x 92.0 mm (3.76 x 3.622 in)
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		9.7:1
Compression pressure	Standard	1,275 kPa (13.0 kg/cm ² , 185 psi)/300 rpm
	Minimum	981 kPa (10.0 kg/cm ² , 142 psi)/300 rpm
	Differential limit between cylinders	98 kPa (1.0 kg/cm ² , 14 psi)/300 rpm

Cylinder number	 <p style="text-align: center;">FRONT</p>
Valve timing (Intake valve timing control - "OFF")	

SEM713A

PBIC0187E

Unit: degree

a	b	c	d	e	f
244°	240°	-4°	64°	6°	58°

QR25DE and VQ40DE Engine Drive Belt Deflection and Tension

Tension of drive belt	Auto adjustment by auto-tensioner
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QR25DE Engine Spark Plugs (Double Platinum Tipped)

Make	NGK
Standard type	PLZKAR6A-11
Hot type	PLZKAR5A-11
Cold type	PLZKAR7A-11
Gap (nominal)	1.1 mm (0.043 in)

VQ40DE Engine Spark Plugs (Double Platinum Tipped)

Make	NGK
Standard type	PLFR5A-11
Hot type	PLFR4A-11
Cold type	PLFR6A-11
Gap (nominal)	1.1 mm (0.043 in)

Wheel Alignment (Unladen*1) *6

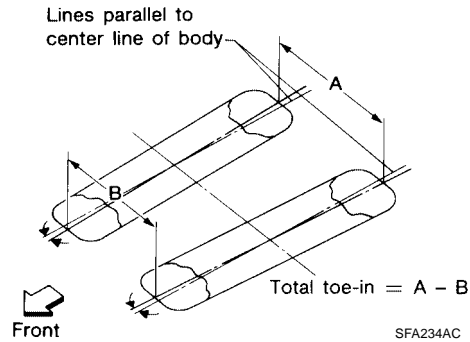
ELS001KS

Drive type	2WD	4WD
Camber Degree minute (decimal degree)	Minimum	-0° 30' (-0.50°)
	Nominal	0° 15' (0.25°)
	Maximum	1° 0' (1.00°)
	Cross camber	0° 45' (0.75°) or less
		0° 45' (0.75°) or less

QUICK REFERENCE CHART: FRONTIER

2006

Drive type		2WD	4WD
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°)



Total toe-in	Distance (A - B)		2.1 mm (0.08 in)	2.1 mm (0.08 in)
			3.1 mm (0.12 in)	3.1 mm (0.12 in)
			4.1 mm (0.16 in)	4.1 mm (0.16 in)
	Angle (left wheel or right wheel) Degree minute (Decimal degree)		0° 5' (0.08°)	0° 5' (0.08°)
			0° 7' (0.12°)	0° 7' (0.12°)
			0° 9' (0.15°)	0° 9' (0.15°)
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.

Brake

ELS001KU

Unit: mm (in)

Engine		QR25DE	VQ40DE
Front brake	Brake model	CLZ33VB	
	Rotor outer diameter × thickness	283 × 18 (11.14 × 0.71)	296 × 28 (11.65 × 1.10)
	Pad Length × width × thickness	140 × 49 × 10 (5.51 × 1.93 × 0.39)	
	Cylinder bore diameter (Dual piston)	46.4 (1.83)	
Rear brake	Brake model	CLZ11VA	
	Rotor outer diameter × thickness	286 × 18 (11.26 × 0.71)	
	Pad Length × width × thickness	87.6 × 35 × 11 (3.45 × 1.38 × 0.433)	
	Cylinder bore diameter (Single piston)	38.1 (1.50)	
Control valve	Valve model	EBD	

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2006

Brake booster	Booster model	C215T
	Diaphragm diameter	215 (8.46)
Recommended brake fluid		Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent DOT 3 (US FMVSS No. 116)

Disc Brake - Repair Limits FRONT DISC BRAKE

ELS001KV

QR25DE

Unit: mm (in)

Brake model	CLZ33VB	
Brake pad	Standard thickness (new)	10 (0.394)
	Repair limit thickness	2 (0.079)
Disc rotor	Standard thickness (new)	18 (0.71)
	Repair limit thickness	16 (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)

VQ40DE

Unit: mm (in)

Brake model	CLZ33VB	
Brake pad	Standard thickness (new)	10 (0.394)
	Repair limit thickness	2 (0.079)
Disc rotor	Standard thickness (new)	28 (1.10)
	Repair limit thickness	26 (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

Unit: mm (in)

Brake model	CLZ11VA	
Brake pad	Standard thickness (new)	11 (0.433)
	Repair limit thickness	2 (0.079)
Disc rotor	Standard thickness (new)	18 (0.71)
	Repair limit thickness	16 (0.630)
	Maximum uneven wear (measured at 8 positions)	0.015 (0.0006)
	Runout limit (with it attached to the vehicle)	0.07 (0.0028)

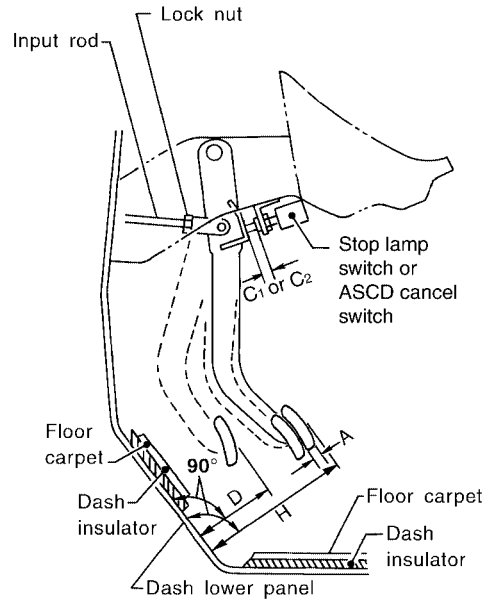
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Brake Pedal

ELS001KW

Unit: mm (in)



WFIA0160E

Free height "H"	A/T	182.1 - 192.1 (7.17 - 7.56)
	M/T	174.7 - 184.7 (6.88 - 7.27)
Depressed pedal height ("D" [under a force of 490 N (50 kg, 110 lb) with engine running])		103 - 123 (4.06 - 4.84)
Clearance between pedal stopper and threaded end of stop lamp switch and ASCD switch "C1 " or "C2 "		0.74 - 1.96 (0.029 - 0.077)
Pedal play "A"		3 - 11 (0.12 - 0.43)

QUICK REFERENCE CHART: FRONTIER

2006

ELS001KX

Refill Capacities QR25DE Engine

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	4.9 ℓ	5 1/8 qt	4 3/8 qt
	Without oil filter change	4.6 ℓ	4 7/8 qt	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	2 1/2 gal	2 1/8 gal
Automatic transmission fluid (ATF)		10.3 ℓ	10 7/8 qt	9 1/8 qt
Manual transmission fluid (MTF) (5 M/T)		2.89 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
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 m ℓ	6.1 fl oz	6.3 fl oz

VQ40DE Engine

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	2 3/4 gal	2 1/4 gal
Automatic transmission fluid (ATF)		10.3 ℓ	10 7/8 qt	9 1/8 qt
Manual transmission fluid (MTF) (6M/T)	2WD	3.98 ℓ	8 3/8 pt	7 pt
	4WD	4.18 ℓ	8 7/8 pt	7 3/8 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
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
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