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# NISSAN MURANO MODEL Z51 SERIES

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## QUICK REFERENCE INDEX

<b>A GENERAL INFORMATION</b>	GI General Information
<b>B ENGINE</b>	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
<b>C HYBRID</b>	
<b>D TRANSMISSION &amp; DRIVE-LINE</b>	TM Transaxle & Transmission
	DLN Driveline
	FAX Front Axle
	RAX Rear Axle
<b>E SUSPENSION</b>	FSU Front Suspension
	RSU Rear Suspension
	WT Road Wheels & Tires
<b>F BRAKES</b>	BR Brake System
	PB Parking Brake System
	BRC Brake Control System
<b>G STEERING</b>	ST Steering System
	STC Steering Control System
<b>H RESTRAINTS</b>	SB Seat Belt
	SR SRS Airbag
	SRC SRS Airbag Control System
<b>I VENTILATION, HEATER &amp; AIR CONDITIONER</b>	VTL Ventilation System
	HA Heater & Air Conditioning System
	HAC Heater & Air Conditioning Control System
<b>J BODY INTERIOR</b>	INT Interior
	IP Instrument Panel
	SE Seat
	ADP Automatic Drive Positioner
	DLK Door & Lock
	SEC Security Control System
<b>K BODY EXTERIOR, DOORS, ROOF &amp; VEHICLE SECURITY</b>	GW Glass & Window System
	PWC Power Window Control System
	RF Roof
	EXT Exterior
	BRM Body Repair
	MIR Mirrors
	EXL Exterior Lighting System
	INL Interior Lighting System
	WW Wiper & Washer
	DEF Defogger
HRN Horn	
<b>L DRIVER CONTROLS</b>	PWO Power Outlet
	BCS Body Control System
	LAN LAN System
	PCS Power Control System
	CHG Charging System
	PG Power Supply, Ground & Circuit Elements
<b>M ELECTRICAL &amp; POWER CONTROL</b>	MWI Meter, Warning Lamp & Indicator
	WCS Warning Chime System
	AV Audio, Visual & Navigation System
<b>O CRUISE CONTROL</b>	
<b>P MAINTENANCE</b>	MA Maintenance

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# FOREWORD

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This manual contains maintenance and repair procedure for the 2009 NISSAN Z51.

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 MOTOR CO., LTD.**

QUICK REFERENCE CHART MURANO

PFP:00000

ENGINE TUNE-UP DATA (VQ35DE)

ELS0003W

Engine model		VQ35DE	
Firing order		1-2-3-4-5-6	
Idle speed CVT (In "P" or "N" position)	rpm	600 ± 50	
Ignition timing (BTDC at idle speed) CVT (In "P" or "N" position)		12° ± 5°	
CO% at idle		0.7 - 9.9 % and engine runs smoothly	
Tensions of drive belt		Auto adjustment by auto tensioner	
Radiator cap relief pressure	kPa (kg/cm <sup>2</sup> , psi)		
	Standard	122.3 - 151.7 (1.2 - 1.5, 17.7 - 22.0)	
	Limit	108 (1.1, 15.6)	
Cooling system leakage testing pressure	kPa (kg/cm <sup>2</sup> , psi)	156 (1.6, 22.6)	
Compression pressure	kPa (kg/cm <sup>2</sup> , psi)/rpm		
	Standard	1,275 (13.0, 185)/300	
	Minimum	981 (10.0, 142)/300	
Spark plug	Make	DENSO	
	Standard type	FXE22HR11	
	Gap	Standard	1.1 mm (0.043 in)
		Limit	1.4 mm (0.055 in)

**FRONT WHEEL ALIGNMENT**

ELS0003X

Item		Standard		
		Left side	Right side	
Measurement wheel				
Camber 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° 48' - 0° 18' (-0° 80' - 0.30°)		
Caster Degree minute (Decimal degree)	Minimum	3° 55' (3.92°)	4° 15' (4.25°)	
	Nominal	4° 40' (4.67°)	5° 00' (5.00°)	
	Maximum	5° 25' (5.41°)	5° 45' (5.75°)	
	Left and right difference* <sup>1</sup>	-0° 18' - 0.48° (-0° 30' - 0° 80')		
Kingpin inclination Degree minute (Decimal degree)	Minimum	11° 55' (11.92°)		
	Nominal	12° 40' (12.67°)		
	Maximum	13° 25' (13.41°)		
Total toe-in	Distance	Minimum	In 0.5 mm (0.020 in)	
		Nominal	In 1.5 mm (0.059 in)	
		Maximum	In 2.5 mm (0.098 in)	
	Angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	
		Nominal	In 0° 04' (0.07°)	
		Maximum	In 0° 06' (0.10°)	

Measure value under unladen\*<sup>2</sup> conditions.

\*1: A difference when I assumed the right side a standard (right side – left side = difference).

\*2: Fuel, engine coolant and lubricant are oil full. Spare tire, jack, hand tools and mats are in designated positions.

**REAR WHEEL ALIGNMENT  
FOR USA MODELS**

ELS0003Y

Item		Standard		
		Left side	Right side	
Camber Degree minute (Decimal degree)	Minimum	-1° 13' (-1.21°)		
	Nominal	-0° 43' (-0.72°)		
	Maximum	-0° 13' (-0.21°)		
Total toe-in	Distance	Minimum	In 0.9 mm (0.035 in)	
		Nominal	In 2.7 mm (0.106 in)	
		Maximum	In 4.5 mm (0.177 in)	
	Angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)	
		Nominal	In 0° 06' (0.10°)	
		Maximum	In 0° 10' (0.16°)	

Measure value under unladen\* conditions.

\* : Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

FOR CANADA MODELS

Item		Standard	
Camber Degree minute (Decimal degree)	Minimum	-1° 11' (-1.18°)	
	Nominal	-0° 41' (-0.68°)	
	Maximum	-0° 11' (-0.18°)	
Total toe-in	Distance	Minimum	In 0.9 mm (0.035 in)
		Nominal	In 2.7 mm (0.106 in)
		Maximum	In 4.5 mm (0.177 in)
	Angle (left wheel or right wheel) Degree minute (Decimal degree)	Minimum	In 0° 02' (0.04°)
		Nominal	In 0° 06' (0.10°)
		Maximum	In 0° 10' (0.16°)

Measure value under unladen\* conditions.

\* : Fuel, engine coolant and lubricant are full. Spare tire, jack, hand tools and mats are in designated positions.

**BRAKE PEDAL**

ELS0003Z

Unit: mm (in)

Item	Standard
Brake pedal height	197.1 - 207.1 (7.76 - 8.15)
Clearance between the stop lamp switch and ASCD brake switch threaded end and the stopper rubber	0.20 - 1.96 (0.0079 - 0.0772)
Brake pedal play	3.0 - 11.0 (0.118 - 0.433)
Depressed brake pedal height [Depressing 490 N (50 kg, 110 lb) while turning the engine ON]	128 (5.04) or more

**BRAKE BOOSTER**

**Vacuum type**

Unit: mm (in)

Item	Standard
Input rod length	127 (5.00)

**FRONT DISC BRAKE**

Unit: mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	26.0 (1.024)
Disc rotor	Thickness variation (measured at 8 positions)	0.008 (0.0003)
	Runout (with it attached to the vehicle)	0.040 (0.0016) or less

**REAR DISC BRAKE**

Unit: mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	14.0 (0.551)
Disc rotor	Thickness variation (measured at 8 positions)	0.020 (0.0008)
	Runout (with it attached to the vehicle)	0.050 (0.0020) or less

REFILL CAPACITIES

ELS00040

UNIT		Liter	US measure
Fuel tank		82	21-5/8 gal
Coolant ( With reservoir tank at "MAX" level )		9.4	9-7/8 qt
Engine	Drain and refill		
	With oil filter change	4.6	4-7/8 qt
	Without oil filter change	4.3	4-1/2 qt
	Dry engine (Overhaul)	5.3	5-5/8 qt
Transmission	CVT	10.2	10-6/8 qt
Transfer		0.31	5/8 pt
Final drive	Rear	0.55	1-1/8 pt
Power steering system		1.0	1-1/8 qt
Air conditioning system	Compressor oil	0.15	5.03 fl oz
	Refrigerant	0.60 kg	1.32 lb