

## QUICK REFERENCE INDEX

# NISSAN MURANO MODEL Z51 SERIES

### A GENERAL INFORMATION

### B ENGINE

### C ELECTRIC POWER TRAIN

### D TRANSMISSION & DRIVELINE

### E SUSPENSION

### F BRAKES

### G STEERING

### H RESTRAINTS

### I VENTILATION, HEATER & AIR CONDITIONER

### J BODY INTERIOR

### K BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY

### L DRIVER CONTROLS

### M ELECTRICAL & POWER CON- TROL

### N DRIVER INFORMATION & MULTIMEDIA

### O CRUISE CONTROL & DRIVER ASSISTANCE

### P MAINTENANCE

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

TM Transaxle & Transmission

DLN Driveline

FAX Front Axle

RAX Rear Axle

FSU Front Suspension

RSU Rear Suspension

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

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 Positioner

DLK Door & Lock

SEC Security Control System

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

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

AV Audio, Visual & Navigation System

CCS Cruise Control System

DAS Driver Assistance System

MA Maintenance

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A

B

D

E

F

G

H

I

J

K

L

M

N

O

P

# FOREWORD

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

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.**



## 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 MURANO

PFP:00000

ENGINE TUNE-UP DATA (VQ35DE)

ELS0003W

|                                              |                                |                                                                                              |                   |
|----------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------|-------------------|
| Engine model                                 |                                | VQ35DE                                                                                       |                   |
| Firing order                                 |                                | 1-2-3-4-5-6                                                                                  |                   |
| Idle speed                                   | rpm                            | 600 ± 50                                                                                     |                   |
| CVT (In “P” or “N” position)                 |                                |                                                                                              |                   |
| Ignition timing (BTDC at idle speed)         |                                | 12° ± 5°                                                                                     |                   |
| CVT (In “P” or “N” position)                 |                                |                                                                                              |                   |
| Tensions of drive belt                       |                                | Belt tension is not necessary, as it is automatically adjusted by drive belt 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 pres-<br>sure | kPa (kg/cm <sup>2</sup> , psi) | 156 (1.59, 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  
FOR USA AND MEXICO MODELS**

ELS0003X

| Item                                                  |                                                   | Standard                           |                           |
|-------------------------------------------------------|---------------------------------------------------|------------------------------------|---------------------------|
| Measurement wheel                                     |                                                   | Left side                          | Right 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° 18' (-0° 30') - 0° 48' (0.80°) |                           |
| Caster<br>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*1                       | -0° 18' (-0° 30') - 0° 48' (0.80°) |                           |
| Kingpin inclination<br>Degree minute (Decimal degree) | Minimum                                           | 12° 00' (12.00°)                   |                           |
|                                                       | Nominal                                           | 12° 45' (12.75°)                   |                           |
|                                                       | Maximum                                           | 13° 30' (13.50°)                   |                           |
| Toe-in                                                | Total toe-in<br>Distance                          | Minimum                            | Out 0.5 mm (Out 0.019 in) |
|                                                       |                                                   | Nominal                            | In 1.5 mm (In 0.059 in)   |
|                                                       |                                                   | Maximum                            | In 3.5 mm (In 0.137 in)   |
|                                                       | Total toe-angle<br>Degree minute (Decimal degree) | Minimum                            | Out 0° 02' (Out 0.03°)    |
|                                                       |                                                   | Nominal                            | In 0° 06' (In 0.1°)       |
|                                                       |                                                   | Maximum                            | In 0° 14' (In 0.23°)      |

Measure value under unladen\*2 conditions.

\*1: A difference when assuming the left side a standard.

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

**FOR CANADA MODELS**

| Item                                                  |                                                   | Standard                           |                           |
|-------------------------------------------------------|---------------------------------------------------|------------------------------------|---------------------------|
| Measurement wheel                                     |                                                   | Left side                          | Right 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° 18' (-0° 30') - 0° 48' (0.80°) |                           |
| Caster<br>Degree minute (Decimal degree)              | Minimum                                           | 3° 55' (3.92°)                     | 4° 10' (4.17°)            |
|                                                       | Nominal                                           | 4° 40' (4.67°)                     | 4° 55' (4.92°)            |
|                                                       | Maximum                                           | 5° 25' (5.41°)                     | 5° 40' (5.66°)            |
|                                                       | Left and right difference*1                       | -0° 18' (-0.30°) - 0° 48' (0.80°)  |                           |
| Kingpin inclination<br>Degree minute (Decimal degree) | Minimum                                           | 11° 55' (11.92°)                   |                           |
|                                                       | Nominal                                           | 12° 40' (12.67°)                   |                           |
|                                                       | Maximum                                           | 13° 25' (13.41°)                   |                           |
| Toe-in                                                | Total toe-in<br>Distance                          | Minimum                            | Out 0.5 mm (Out 0.019 in) |
|                                                       |                                                   | Nominal                            | In 1.5 mm (In 0.059 in)   |
|                                                       |                                                   | Maximum                            | In 3.5 mm (In 0.137 in)   |
|                                                       | Total toe-angle<br>Degree minute (Decimal degree) | Minimum                            | Out 0° 02' (Out 0.03°)    |
|                                                       |                                                   | Nominal                            | In 0° 06' (In 0.1°)       |
|                                                       |                                                   | Maximum                            | In 0° 14' (In 0.23°)      |

Measure value under unladen\*2 conditions.

\*1: A difference when assuming the left side a standard.

\*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 AND MEXICO MODELS

ELS0003Y

| Item                                     |                                                   |         | Standard             |
|------------------------------------------|---------------------------------------------------|---------|----------------------|
| Camber<br>Degree minute (Decimal degree) |                                                   | Minimum | −1° 13′ (−1.21°)     |
|                                          |                                                   | Nominal | −0° 43′ (−0.72°)     |
|                                          |                                                   | Maximum | −0° 13′ (−0.21°)     |
| Toe-in                                   | Total toe-in<br>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) |
|                                          | Total toe-angle<br>Degree minute (Decimal degree) | Minimum | In 0° 04′ (In 0.07°) |
|                                          |                                                   | Nominal | In 0° 12′ (In 0.20°) |
|                                          |                                                   | Maximum | In 0° 20′ (In 0.33°) |

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<br>Degree minute (Decimal degree) |                                                   | Minimum | −1° 11′ (−1.18°)     |
|                                          |                                                   | Nominal | −0° 41′ (−0.68°)     |
|                                          |                                                   | Maximum | −0° 11′ (−0.18°)     |
| Toe-in                                   | Total toe-in<br>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) |
|                                          | Total toe-angle<br>Degree minute (Decimal degree) | Minimum | In 0° 04′ (In 0.07°) |
|                                          |                                                   | Nominal | In 0° 12′ (In 0.20°) |
|                                          |                                                   | Maximum | In 0° 20′ (In 0.33°) |

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                      | 0.20 - 1.96 (0.0079 - 0.0772) |
| Brake pedal play                                                                               | 3.0 - 11.0 (0.118 - 0.433)    |
| Depressed brake pedal height<br>[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 ) |                           | 9.0     | 9-1/2 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    | 10-3/4 qt  |
| Transfer                                       |                           | 0.31    | 5/8 pt     |
| Final drive                                    |                           | 0.55    | 1-1/8 pt   |
| Power steering system                          |                           | 1.0     | 1-1/8 qt   |
| Air conditioning system                        | Compressor oil            | 0.15    | 5.07 fl oz |
|                                                | Refrigerant               | 0.60 kg | 1.32 lb    |