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# NISSAN MURANO MODEL Z51 SERIES

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## QUICK REFERENCE INDEX

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

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# FOREWORD

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This manual contains maintenance and repair procedure for the 2010 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.**

## 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)            |                                    |                                        |
| 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  
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° 48' (-0° 80') - 0° 18' (0.30°) |                      |
| 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                            | In 0.5 mm (0.020 in) |
|                                                       |                                                                         | Nominal                            | In 1.5 mm (0.059 in) |
|                                                       |                                                                         | Maximum                            | In 2.5 mm (0.098 in) |
|                                                       | Toe angle (left wheel or right wheel)<br>Degree minute (Decimal degree) | Minimum                            | In 0° 01' (0.02°)    |
|                                                       |                                                                         | Nominal                            | In 0° 03' (0.05°)    |
|                                                       |                                                                         | Maximum                            | In 0° 05' (0.08°)    |

Measure value under unladen\*2 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.

**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° 48' (-0° 80') - 0° 18' (0.30°) |                      |
| 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                            | In 0.5 mm (0.020 in) |
|                                                       |                                                                         | Nominal                            | In 1.5 mm (0.059 in) |
|                                                       |                                                                         | Maximum                            | In 2.5 mm (0.098 in) |
|                                                       | Toe angle (left wheel or right wheel)<br>Degree minute (Decimal degree) | Minimum                            | In 0° 01' (0.02°)    |
|                                                       |                                                                         | Nominal                            | In 0° 03' (0.05°)    |
|                                                       |                                                                         | Maximum                            | In 0° 05' (0.08°)    |

Measure value under unladen\*2 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 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) |
|                                          | Toe angle (left wheel or right<br>wheel)<br>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<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) |
|                                          | Toe angle (left wheel or right<br>wheel)<br>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<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)            |
| Disc rotor | Wear thickness                                | 26.0 (1.024)           |
|            | 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)            |
| Disc rotor | Wear thickness                                | 14.0 (0.551)           |
|            | 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                                    |                           | 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    |