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## QUICK REFERENCE INDEX

### A GENERAL INFORMATION

### B ENGINE

### C TRANSMISSION/ TRANSAXLE

### D DRIVELINE/AXLE

### E SUSPENSION

### F BRAKES

### G STEERING

### H RESTRAINTS

### I BODY

### J AIR CONDITIONER

### K ELECTRICAL

### L 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

ACC Accelerator Control System

AT Automatic Transmission

TF Transfer

PR Propeller Shaft

FFD Front Final Drive

RFD Rear Final Drive

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

PS Power Steering System

STC Steering Control System

SB Seat Belts

SRS Supplemental Restraint System (SRS)

BL Body, Lock & Security System

GW Glasses, Window System & Mirrors

RF Roof

EI Exterior & Interior

IP Instrument Panel

SE Seat

ATC Automatic 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 System

ACS Auto Cruise Control System

PG Power Supply, Ground & Circuit Elements

MA Maintenance

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A

B

C

D

E

F

G

H

I

J

K

L

# FOREWORD

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This manual contains maintenance and repair procedure for the 2009 INFINITI M35/M45.

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.



INFINITI®

QUICK REFERENCE CHART M35/M45

PFP:00000

ENGINE TUNE-UP DATA (VQ35DE)

ELS0003W

|                                                                      |                       |                         |                                    |                                     |                                       |                                       |
|----------------------------------------------------------------------|-----------------------|-------------------------|------------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|
| Engine model                                                         |                       |                         |                                    | VQ35DE                              |                                       |                                       |
| Firing order                                                         |                       |                         |                                    | 1-2-3-4-5-6                         |                                       |                                       |
| Idle speed<br>A/T (In “P” or “N” position)                           |                       |                         |                                    | rpm                                 | 650 ± 50                              |                                       |
| Ignition timing (BTDC at idle speed)<br>A/T (In “P” or “N” position) |                       |                         |                                    | 15° ± 5°                            |                                       |                                       |
| CO% at idle                                                          |                       |                         |                                    | 0.7 - 9.9% and engine runs smoothly |                                       |                                       |
| Drive Belt                                                           | Deflection adjustment |                         | Unit: mm (in)                      | Tension adjustment                  |                                       | Unit: N (kg, lb)                      |
|                                                                      | Used belt             |                         | New belt                           | Used belt                           |                                       | New belt                              |
|                                                                      | Limit                 | After adjustment        |                                    | Limit                               | After adjustment                      |                                       |
| Alternator and power steering oil pump belt                          | 12 (0.47)             | 7 - 8<br>(0.28 - 0.31)  | 6 - 7<br>(0.24 - 0.28)             | 294 (30, 66)                        | 730 - 818<br>(74.5 - 83.5, 164 - 184) | 838 - 926<br>(85.5 - 94.5, 188 - 208) |
| A/C compresor belt                                                   | 12 (0.47)             | 9 - 10<br>(0.35 - 0.39) | 8 - 9<br>(0.31 - 0.35)             | 196 (20, 44)                        | 348 - 436<br>( 35.5 - 44.5, 78 - 98)  | 470 - 559<br>(47.9 - 57.0, 106 - 126) |
| Applied pushing force                                                | 98N (10kg, 22lb)      |                         |                                    | —                                   |                                       |                                       |
| Radiator cap relief pressure                                         |                       |                         | kPa (kg/cm <sup>2</sup> , psi)     |                                     |                                       |                                       |
| Standard                                                             |                       |                         |                                    | 78 - 98 (0.8 - 1.0, 11 - 14)        |                                       |                                       |
| Limit                                                                |                       |                         |                                    | 59 (0.6, 9)                         |                                       |                                       |
| Cooling system leakage testing pressure                              |                       |                         |                                    |                                     |                                       |                                       |
| kPa (kg/cm <sup>2</sup> , psi)                                       |                       |                         |                                    | 157 (1.6, 23)                       |                                       |                                       |
| 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                                                           | Standard type         |                         | PLFR5A-11                          |                                     |                                       |                                       |
|                                                                      | Hot type              |                         | PLFR4A-11                          |                                     |                                       |                                       |
|                                                                      | Cold type             |                         | PLFR6A-11                          |                                     |                                       |                                       |

ENGINE TUNE-UP DATA (VK45DE)

|                                            |                                     |               |  |
|--------------------------------------------|-------------------------------------|---------------|--|
| Engine model                               | VK45DE                              |               |  |
| Firing order                               | 1-8-7-3-6-5-4-2                     |               |  |
| Idle speed<br>A/T (In "P" or "N" position) | rpm                                 | 650 ± 50      |  |
| Ignition timing<br>(BTDC at idle speed)    | 12° ± 5°                            |               |  |
| CO% at idle                                | 0.7 - 9.9% and engine runs smoothly |               |  |
| Tensions of drive belts                    | Auto adjustment by auto tensioner   |               |  |
| Radiator cap relief pressure               | kPa (kg/cm <sup>2</sup> , psi)      |               |  |
| Standard                                   | 78 - 98 (0.8 - 1.0 , 11 - 14)       |               |  |
| Limit                                      | 59 (0.6, 9)                         |               |  |
| Cooling system leakage testing pressure    | kPa (kg/cm <sup>2</sup> , psi)      | 157 (1.6, 23) |  |
| Compression pressure                       | kPa (kg/cm <sup>2</sup> , psi)/rpm  |               |  |
| Standard                                   | 1,320 (13.5, 191)/300               |               |  |
| Minimum                                    | 1,130 (11.5, 164)/300               |               |  |
| Spark plug                                 | Standard type                       | PLFR5A-11     |  |
|                                            | Hot type                            | PLFR4A-11     |  |
|                                            | Cold type                           | PLFR6A-11     |  |

FRONT WHEEL ALIGNMENT (Unladen\* )

ELS0003X

| Axle                                                  |                                                                               | 2WD                 |                   | AWD              |
|-------------------------------------------------------|-------------------------------------------------------------------------------|---------------------|-------------------|------------------|
| Tire                                                  |                                                                               | 245/45R18           | 245/40R19         | 245/45R18        |
| Camber<br>Degree minute (Decimal degree)              | Minimum                                                                       | -1° 00' (-1.00°)    |                   |                  |
|                                                       | Nominal                                                                       | -0° 15' (-0.25°)    |                   |                  |
|                                                       | Maximum                                                                       | 0° 30' (0.50°)      |                   |                  |
|                                                       | Left and right difference                                                     | 33' (0.55°) or less |                   |                  |
| Caster<br>Degree minute (Decimal degree)              | Minimum                                                                       | 3° 45' ( 3.75° )    | 3° 50' (3.84°)    | 3° 05' ( 3.09° ) |
|                                                       | Nominal                                                                       | 4° 30' ( 4.50° )    | 4° 35' (4.58°)    | 3° 50' ( 3.83° ) |
|                                                       | Maximum                                                                       | 5° 15' ( 5.25° )    | 5° 20' (5.33°)    | 4° 35' ( 4.58° ) |
|                                                       | Left and right difference                                                     | 39' (0.65°) or less |                   |                  |
| Kingpin inclination<br>Degree minute (Decimal degree) | Minimum                                                                       | 6° 30' (6.50°)      |                   |                  |
|                                                       | Nominal                                                                       | 7° 15' (7.25°)      |                   |                  |
|                                                       | Maximum                                                                       | 8° 00' (8.00°)      |                   |                  |
| Toe-in                                                | Total toe-in<br>Distance                                                      | Minimum             | 0 mm (0 in)       |                  |
|                                                       |                                                                               | Nominal             | In 1 mm (0.04 in) |                  |
|                                                       |                                                                               | Maximum             | In 2 mm (0.08 in) |                  |
|                                                       | Toe angle<br>(left wheel or right wheel)<br>Degree minute<br>(Decimal degree) | Minimum             | 0° 00' (0.00°)    |                  |
|                                                       |                                                                               | Nominal             | In 0° 03' (0.05°) |                  |
|                                                       |                                                                               | Maximum             | In 0° 06' (0.10°) |                  |

# QUICK REFERENCE CHART M35/M45

2009

| Axle                            |                                        |         | 2WD             |                 | AWD             |
|---------------------------------|----------------------------------------|---------|-----------------|-----------------|-----------------|
| Tire                            |                                        |         | 245/45R18       | 245/40R19       | 245/45R18       |
| Wheel turning angle (Full turn) | Inside Degree minute (Decimal degree)  | Minimum | 36°20' (36.3°)  |                 | 39°45' (39.8°)  |
|                                 |                                        | Nominal | 39°20' (39.3°)  |                 | 42°45' (42.8°)  |
|                                 |                                        | Maximum | 40°20' (40.3°)  |                 | 43°45' (43.8°)  |
|                                 | Outside Degree minute (Decimal degree) | Nominal | 33° 25' (33.4°) | 33° 20' (33.3°) | 32° 30' (32.5°) |

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

## REAR WHEEL ALIGNMENT (Unladen\*)

ELS0003Y

| Axle                                  |                                                                       |         | 2WD                  |                  | AWD              |
|---------------------------------------|-----------------------------------------------------------------------|---------|----------------------|------------------|------------------|
| Tire                                  |                                                                       |         | 245/45R18            | 245/40R19        | 245/45R18        |
| Camber Degree minute (Decimal degree) |                                                                       | Minimum | -1° 10' (-1.17°)     | -1° 20' (-1.34°) | -0° 40' (-0.67°) |
|                                       |                                                                       | Nominal | -0° 40' (-0.67°)     | -0° 50' (-0.83°) | -0° 10' (-0.17°) |
|                                       |                                                                       | Maximum | -0° 10' (-0.16°)     | -0° 20' (-0.33°) | 0° 20' (0.33°)   |
| Toe-in                                | Total toe-in Distance                                                 | Minimum | In 0.1 mm (0.004 in) |                  |                  |
|                                       |                                                                       | Nominal | In 2.8 mm (0.110 in) |                  |                  |
|                                       |                                                                       | Maximum | In 5.5 mm (0.217 in) |                  |                  |
|                                       | Toe angle (left wheel or right wheel ) Degree minute (Decimal degree) | Minimum | 0° 00' (0.00°)       |                  |                  |
|                                       |                                                                       | Nominal | In 0° 07' (0.12°)    |                  |                  |
|                                       |                                                                       | Maximum | In 0° 14' (0.23°)    |                  |                  |

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

## BRAKE

ELS0003Z

|                         |                        |                               |
|-------------------------|------------------------|-------------------------------|
| Front brake             | Repair limit thickness | 2.0 mm (0.079 in)             |
|                         | Wear limit             | 26.0 mm (1.024 in)            |
| Rear brake              | Repair limit thickness | 2.0 mm (0.079 in)             |
|                         | Wear limit             | 14.0 mm (0.551 in)            |
| Brake pedal height      |                        | 157 - 167 mm (6.18 - 6.57 in) |
| Depressed pedal height* |                        | 90 mm (3.54 in) or more       |

\* : Under force of 490 N ( 50 kg, 110 lb ) with engine running.

## REFILL CAPACITIES

ELS00040

| UNIT                            |                           | Liter | US measure   |
|---------------------------------|---------------------------|-------|--------------|
| Fuel tank                       |                           | 76    | 20 - 1/8 gal |
| Coolant ( With reservoir tank ) | VQ35DE                    | 8.9   | 9 - 3/8 qt   |
|                                 | VK45DE                    | 10.4  | 11 qt        |
| Engine (VQ35DE)                 | Drain and refill          |       |              |
|                                 | With oil filter change    | 4.7   | 5 qt         |
|                                 | Without oil filter change | 4.4   | 4 - 5/8 qt   |
|                                 | Dry engine (Overhaul)     | 5.4   | 5 - 3/4 qt   |
| Engine (VK45DE)                 | Drain and refill          |       |              |
|                                 | With oil filter change    | 5.5   | 5 - 3/4 qt   |
|                                 | Without oil filter change | 4.9   | 5 - 1/8 qt   |
|                                 | Dry engine (Overhaul)     | 6.7   | 7 - 1/8 qt   |

**QUICK REFERENCE CHART M35/M45****2009**

| UNIT                    |                |      | Liter   | US measure  |
|-------------------------|----------------|------|---------|-------------|
| Transmission            | A/T            | 5A/T | 10.3    | 10 - 7/8 qt |
|                         |                | 7A/T | 9.2     | 9 - 3/4 qt  |
| Transfer                |                |      | 1.25    | 2 - 5/8 pt  |
| Differential carrier    | Front          |      | 0.65    | 1 - 3/8 pt  |
|                         | Rear           |      | 1.4     | 3 pt        |
| Power steering system   |                |      | 1.0     | 1 - 1/8 qt  |
| Air conditioning system | Compressor oil |      | 0.15    | 5.03 fl oz  |
|                         | Refrigerant    |      | 0.55 kg | 1.21 lb     |