

Edition: October 2003  
 Revision: November 2004  
 Publication No. SM4E-1S50U6



**FX35/FX45**

**MODEL S50 SERIES**



**INFINITI**

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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
	ACC Accelerator Control System
	AT Automatic Transmission
<b>C TRANSMISSION/ TRANSAXLE</b>	
<b>D DRIVELINE/AXLE</b>	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
<b>E SUSPENSION</b>	WT Road Wheels & Tires
	BR Brake System
	PB Parking Brake System
<b>F BRAKES</b>	BRC Brake Control System
	PS Power Steering System
	SB Seat Belts
<b>G STEERING</b>	SRS Supplemental Restraint System (SRS)
<b>H RESTRAINTS</b>	
<b>I BODY</b>	BL Body, Lock & Security System
	GW Glasses, Window System & Mirrors
	RF Roof
	EI Exterior & Interior
	IP Instrument Panel
	SE Seat
	ATC Automatic Air Conditioner
<b>J AIR CONDITIONER</b>	
<b>K ELECTRICAL</b>	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, Navigation & Telephone System
	ACS Auto Cruise Control System
	PG Power Supply, Ground & Circuit Elements
	MA Maintenance
	IDX Alphabetical Index
<b>L MAINTENANCE</b>	
<b>M INDEX</b>	

**A**  
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# FOREWORD

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This manual contains maintenance and repair procedure for the 2004 INFINITI FX35/FX45.

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.

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## 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 MOTOR CO., LTD.



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**INFINITI®**

Your comments are important to INFINITI 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) 488-3910

**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 INFINITI 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: \_\_\_\_\_

## INCH TO METRIC CONVERSION TABLE

(Rounded-off for automotive use)

inches	mm	inches	mm
.100	<b>2.54</b>	.610	<b>15.49</b>
.110	<b>2.79</b>	.620	<b>15.75</b>
.120	<b>3.05</b>	.630	<b>16.00</b>
.130	<b>3.30</b>	.640	<b>16.26</b>
.140	<b>3.56</b>	.650	<b>16.51</b>
.150	<b>3.81</b>	.660	<b>16.76</b>
.160	<b>4.06</b>	.670	<b>17.02</b>
.170	<b>4.32</b>	.680	<b>17.27</b>
.180	<b>4.57</b>	.690	<b>17.53</b>
.190	<b>4.83</b>	.700	<b>17.78</b>
.200	<b>5.08</b>	.710	<b>18.03</b>
.210	<b>5.33</b>	.720	<b>18.29</b>
.220	<b>5.59</b>	.730	<b>18.54</b>
.230	<b>5.84</b>	.740	<b>18.80</b>
.240	<b>6.10</b>	.750	<b>19.05</b>
.250	<b>6.35</b>	.760	<b>19.30</b>
.260	<b>6.60</b>	.770	<b>19.56</b>
.270	<b>6.86</b>	.780	<b>19.81</b>
.280	<b>7.11</b>	.790	<b>20.07</b>
.290	<b>7.37</b>	.800	<b>20.32</b>
.300	<b>7.62</b>	.810	<b>20.57</b>
.310	<b>7.87</b>	.820	<b>20.83</b>
.320	<b>8.13</b>	.830	<b>21.08</b>
.330	<b>8.38</b>	.840	<b>21.34</b>
.340	<b>8.64</b>	.850	<b>21.59</b>
.350	<b>8.89</b>	.860	<b>21.84</b>
.360	<b>9.14</b>	.870	<b>22.10</b>
.370	<b>9.40</b>	.880	<b>22.35</b>
.380	<b>9.65</b>	.890	<b>22.61</b>
.390	<b>9.91</b>	.900	<b>22.86</b>
.400	<b>10.16</b>	.910	<b>23.11</b>
.410	<b>10.41</b>	.920	<b>23.37</b>
.420	<b>10.67</b>	.930	<b>23.62</b>
.430	<b>10.92</b>	.940	<b>23.88</b>
.440	<b>11.18</b>	.950	<b>24.13</b>
.450	<b>11.43</b>	.960	<b>24.38</b>
.460	<b>11.68</b>	.970	<b>24.64</b>
.470	<b>11.94</b>	.980	<b>24.89</b>
.480	<b>12.19</b>	.990	<b>25.15</b>
.490	<b>12.45</b>	1.000	<b>25.40</b>
.500	<b>12.70</b>	2.000	<b>50.80</b>
.510	<b>12.95</b>	3.000	<b>76.20</b>
.520	<b>13.21</b>	4.000	<b>101.60</b>
.530	<b>13.46</b>	5.000	<b>127.00</b>
.540	<b>13.72</b>	6.000	<b>152.40</b>
.550	<b>13.97</b>	7.000	<b>177.80</b>
.560	<b>14.22</b>	8.000	<b>203.20</b>
.570	<b>14.48</b>	9.000	<b>228.60</b>
.580	<b>14.73</b>	10.000	<b>254.00</b>
.590	<b>14.99</b>	20.000	<b>508.00</b>
.600	<b>15.24</b>		

## METRIC TO INCH CONVERSION TABLE

(Rounded-off for automotive use)

mm	inches	mm	inches
<b>1</b>	.0394	<b>51</b>	2.008
<b>2</b>	.079	<b>52</b>	2.047
<b>3</b>	.118	<b>53</b>	2.087
<b>4</b>	.157	<b>54</b>	2.126
<b>5</b>	.197	<b>55</b>	2.165
<b>6</b>	.236	<b>56</b>	2.205
<b>7</b>	.276	<b>57</b>	2.244
<b>8</b>	.315	<b>58</b>	2.283
<b>9</b>	.354	<b>59</b>	2.323
<b>10</b>	.394	<b>60</b>	2.362
<b>11</b>	.433	<b>61</b>	2.402
<b>12</b>	.472	<b>62</b>	2.441
<b>13</b>	.512	<b>63</b>	2.480
<b>14</b>	.551	<b>64</b>	2.520
<b>15</b>	.591	<b>65</b>	2.559
<b>16</b>	.630	<b>66</b>	2.598
<b>17</b>	.669	<b>67</b>	2.638
<b>18</b>	.709	<b>68</b>	2.677
<b>19</b>	.748	<b>69</b>	2.717
<b>20</b>	.787	<b>70</b>	2.756
<b>21</b>	.827	<b>71</b>	2.795
<b>22</b>	.866	<b>72</b>	2.835
<b>23</b>	.906	<b>73</b>	2.874
<b>24</b>	.945	<b>74</b>	2.913
<b>25</b>	.984	<b>75</b>	2.953
<b>26</b>	1.024	<b>76</b>	2.992
<b>27</b>	1.063	<b>77</b>	3.031
<b>28</b>	1.102	<b>78</b>	3.071
<b>29</b>	1.142	<b>79</b>	3.110
<b>30</b>	1.181	<b>80</b>	3.150
<b>31</b>	1.220	<b>81</b>	3.189
<b>32</b>	1.260	<b>82</b>	3.228
<b>33</b>	1.299	<b>83</b>	3.268
<b>34</b>	1.339	<b>84</b>	3.307
<b>35</b>	1.378	<b>85</b>	3.346
<b>36</b>	1.417	<b>86</b>	3.386
<b>37</b>	1.457	<b>87</b>	3.425
<b>38</b>	1.496	<b>88</b>	3.465
<b>39</b>	1.535	<b>89</b>	3.504
<b>40</b>	1.575	<b>90</b>	3.543
<b>41</b>	1.614	<b>91</b>	3.583
<b>42</b>	1.654	<b>92</b>	3.622
<b>43</b>	1.693	<b>93</b>	3.661
<b>44</b>	1.732	<b>94</b>	3.701
<b>45</b>	1.772	<b>95</b>	3.740
<b>46</b>	1.811	<b>96</b>	3.780
<b>47</b>	1.850	<b>97</b>	3.819
<b>48</b>	1.890	<b>98</b>	3.858
<b>49</b>	1.929	<b>99</b>	3.898
<b>50</b>	1.969	<b>100</b>	3.937

QUICK REFERENCE CHART FX35/FX45

PFP:00000

ENGINE TUNE-UP DATA (VQ35DE)

ELS0003W

Engine model		VQ35DE				
Firing order		1-2-3-4-5-6				
Idle speed A/T (In "P" or "N" position)	rpm	650±50				
Ignition timing (BTDC at idle speed) 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	7 (0.28)	4 - 5 (0.16 - 0.20)	3.5 - 4.5 (0.138 - 0.177)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.5 - 94.5, 188 - 208)
Air conditioner compressor belt	12 (0.47)	9 - 10 (0.35 - 0.39)	8 - 9 (0.31 - 0.35)	196 (20, 44)	348 - 436 (35.5 - 44.5, 78 - 98)	470 - 559 (48 - 57, 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 A/T (In "P" or "N" position)	rpm	650±50
Ignition timing (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		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

Camber	Degree minute (Decimal degree)	Minimum	- 1° 29' ( - 1.48° )
		Nominal	- 0° 44' ( - 0.73° )
		Maximum	0° 01' ( 0.02° )
		Left and right difference	45' ( 0.75° ) or less
Caster	Degree minute (Decimal degree)	Minimum	3° 02' ( 3.03° )
		Nominal	3° 47' ( 3.78° )
		Maximum	4° 32' ( 4.53° )
		Left and right difference	45' ( 0.75° ) or less
Kingpin inclination	Degree minute (Decimal degree)	Minimum	12° 20' ( 12.33° )
		Nominal	13° 05' ( 13.08° )
		Maximum	13 50' ( 13.83° )
Total toe-in	Distance (A - B)	Minimum	0.6 mm ( 0.024 in )
		Nominal	1.6 mm ( 0.063 in )
		Maximum	2.6 mm ( 0.102 in )
	Angle (left plus right)	Minimum	-
		Nominal	6' ( 0.1° )
		Maximum	-
Wheel turning angle (Full turn)	Inside	Minimum	32° 00' ( 32.0° )
		Nominal	35° 00' ( 35.0° )
		Maximum	36° 00' ( 36.0° )
	Outside	Nominal	30° 00' ( 30.0° )

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

**REAR WHEEL ALIGNMENT (Unladen\*)**

ELS0003Y

Camber Degree minute (Decimal degree)		Minimum	- 1° 18' ( - 1.30° )
		Nominal	- 0° 48' ( - 0.80° )
		Maximum	- 0° 18' ( - 0.30° )
Total toe-in	Distance ( A - B )	Minimum	2.4 mm ( 0.094 in )
		Nominal	4.7 mm ( 0.185 in )
		Maximum	7.0 mm ( 0.276 in )
	Angle (left plus right ) Degree minute (Degree)	Minimum	0° 05' ( 0.08° )
		Nominal	0° 10' ( 0.17° )
		Maximum	0° 15' ( 0.25° )

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

**BRAKE**

ELS0003Z

Front brake	Pad wear limit	2.0 mm ( 0.079 in )
	Rotor repair limit	26.0 mm ( 1.024 in )
Rear brake	Pad wear limit	2.0 mm ( 0.079 in )
	Rotor repair limit	14.0 mm ( 0.551 in )
Pedal free height		161.5 - 171.5 mm ( 6.358 - 6.752 in )
Pedal depressed height*		More than 80 mm ( 3.15 in )

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

**REFILL CAPACITIES**

ELS00040

UNIT		Liter	US measure
Fuel tank		90	23 - 3/4 gal
Coolant ( With reservoir tank )	VQ35DE	8.6	9 - 1/8 qt
	VK45DE	10.0	10 - 5/8 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	6.6	7qt
	Without oil filter change	6.0	6 - 3/8 qt
Dry engine (Overhaul)		7.7	8 - 1/8 qt
Transmission	A/T	10.3	10 - 7/8 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	0.18	6.0 fl oz
	Refrigerant	0.55 kg	1.21 lb