

Edition: September 2009  
 Revision: September 2009  
 Publication No. SM0E-1H32U0

**QUICK REFERENCE INDEX**

**NISSAN  
 ALTIMA  
 HYBRID  
 MODEL HL32 SERIES**

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<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>HBC Hybrid Control System</b>
	<b>HBB Hybrid Battery System</b>
<b>HBR Hybrid Brake System</b>	
<b>C HYBRID</b>	<b>CL Clutch System</b>
	<b>TM Transaxle &amp; Transmission</b>
	<b>DLN Driveline</b>
	<b>FAX Front Axle</b>
<b>D TRANSMISSION &amp; DRIVE-LINE</b>	<b>RAX Rear Axle</b>
	<b>FSU Front Suspension</b>
	<b>RSU Rear Suspension</b>
<b>E SUSPENSION</b>	<b>SCS Suspension Control System</b>
	<b>WT Road Wheels &amp; Tires</b>
	<b>BR Brake System</b>
	<b>PB Parking Brake System</b>
<b>F BRAKES</b>	<b>BRC Brake Control System</b>
	<b>ST Steering System</b>
	<b>STC Steering Control System</b>
<b>G STEERING</b>	<b>SB Seat Belt</b>
<b>H RESTRAINTS</b>	<b>SBC Seat Belt Control System</b>
	<b>SR SRS Airbag</b>
	<b>SRC SRS Airbag Control System</b>
	<b>VTL Ventilation System</b>
<b>I VENTILATION, HEATER &amp; AIR CONDITIONER</b>	<b>HA Heater &amp; Air Conditioning System</b>
	<b>HAC Heater &amp; Air Conditioning Control System</b>
	<b>INT Interior</b>
<b>J BODY INTERIOR</b>	<b>IP Instrument Panel</b>
	<b>SE Seat</b>
	<b>ADP Automatic Drive Positioner</b>
	<b>DLK Door &amp; Lock</b>
<b>K BODY EXTERIOR, DOORS, ROOF &amp; VEHICLE SECURITY</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 Manual</b>
	<b>MIR Mirrors</b>
	<b>EXL Exterior Lighting System</b>
<b>INL Interior Lighting System</b>	
<b>L DRIVER CONTROLS</b>	<b>WW Wiper &amp; Washer</b>
	<b>DEF Defogger</b>
	<b>HRN Horn</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>M ELECTRICAL &amp; POWER CONTROL</b>	<b>PG Power Supply, Ground &amp; Circuit Elements</b>
	<b>MWI Meter, Warning Lamp &amp; Indicator</b>
	<b>WCS Warning Chime System</b>
	<b>SN Sonar System</b>
<b>N DRIVER INFORMATION &amp; MULTIMEDIA</b>	<b>AV Audio, Visual &amp; Navigation System</b>
	<b>CCS Cruise Control System</b>
<b>O CRUISE CONTROL</b>	<b>MA Maintenance</b>
<b>P MAINTENANCE</b>	

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# FOREWORD

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

**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 NORTH AMERICA, INC.**  
Technical Publications Department



## 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:

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Technical Service Information  
39001 Sunrise Drive, P.O. Box 9200  
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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 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: \_\_\_\_\_

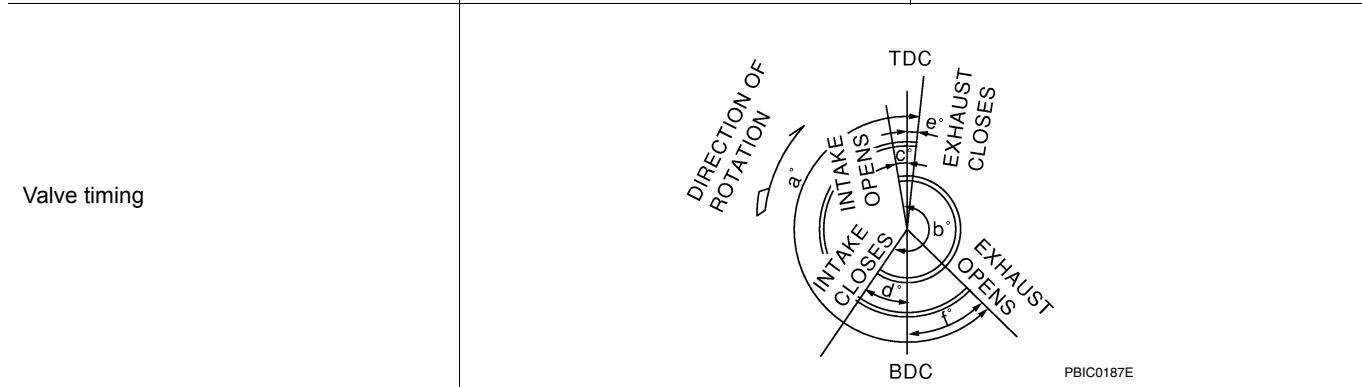
QUICK REFERENCE CHART: ALTIME HEV

Engine Tune-up Data

INFOID:000000005838951

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4
Displacement cm <sup>3</sup> (in <sup>3</sup> )		2,488 (151.82)
Bore and stroke mm (in)		89.0 x 100 (3.50 x 3.94)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.5:1
Compression pressure kPa (kg/cm <sup>2</sup> , psi) / 250 rpm	Standard	900 (9.2, 130.5)
	Minimum	710 (7.3, 103)
	Differential limit between cylinders	100 (1.0, 14)



Unit: degree					
a	b	c	d	e	f
220°	232°	-41°	93°	10°	30°

DRIVE BELTS

Tension of drive belts	Auto adjustment by auto tensioner
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SPARK PLUG

		Unit: mm (in)
Make	NGK	
Type*	Standard	DILKAR6A-11
Gap (nominal)	1.1 (0.043)	

\*: Always check with the Parts Department for the latest parts information

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2010

## Front Wheel Alignment (Unladen\*)

INFOID:000000005838950

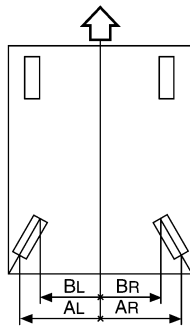
Camber* Degree minute (decimal degree)	LH	Minimum	-1° 09' (-1.15°)	
		Nominal	-0° 24' (-0.40°)	
		Maximum	0° 21' (0.35°)	
	RH	Minimum	-1° 24' (-1.40°)	
		Nominal	-0° 39' (-0.65°)	
		Maximum	0° 06' (0.10°)	
Right and left difference			-0° 15' ± 0° 33' (-0.25° ± 0.55°)	
Caster* Degree minute (decimal degree)	Nominal		5° 00' (5.00°)	
	Right and left difference		0° 33' (0.55°)	
Kingpin offset* Degree minute (decimal degree)	Minimum		11° 48' (11.80°)	
	Nominal		12° 33' (12.55°)	
	Maximum		13° 18' (13.30°)	
Total toe-in* Degree minute (decimal degree)	Distance	Minimum	0 mm (0 in)	
		Nominal	1 mm (0.04 in)	
		Maximum	2 mm (0.08 in)	
	Angle (right side or left side)	Minimum		0° 01' (0.017°)
		Nominal		0° 03' (0.050°)
		Maximum		0° 05' (0.083°)

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

## Rear Wheel Alignment (Unladen\*)

INFOID:000000005838948

Camber Degree minute (Decimal degree)	Minimum	-0° 45' (-0.749°)
	Nominal	-0° 15' (-0.249°)
	Maximum	0° 15' (0.251°)



ALEIA0059ZZ

Total toe-in	Distance difference between RH and LH side (AR - BR) - (AL - BL) ↔: Front mm (in)	Minimum	-2 (-0.08)	
		Nominal	0 (0)	
		Maximum	2 (0.08)	
	Angle difference between RH and LH side Degree minute (decimal degree)	Minimum		-0° 5' (-0.08°)
		Nominal		0° 0' (0°)
		Maximum		0° 5' (0.08°)
Angle (left or right) Degree minute (decimal degree)			0° 6' (0.109°)	

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

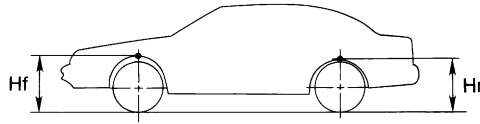
# QUICK REFERENCE CHART: ALTIME HEV

2010

## Wheelarch Height (Unladen\*)

INFOID:000000005838949

Unit: mm (in)



SFA818A

Destination	USA	Canada
Tire size	215/60R16	215/60R16
Front (Hf)*	727 (28.62)	728 (28.66)
Rear (Hr)*	719 (28.31)	719 (28.31)

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

## Brake Specifications

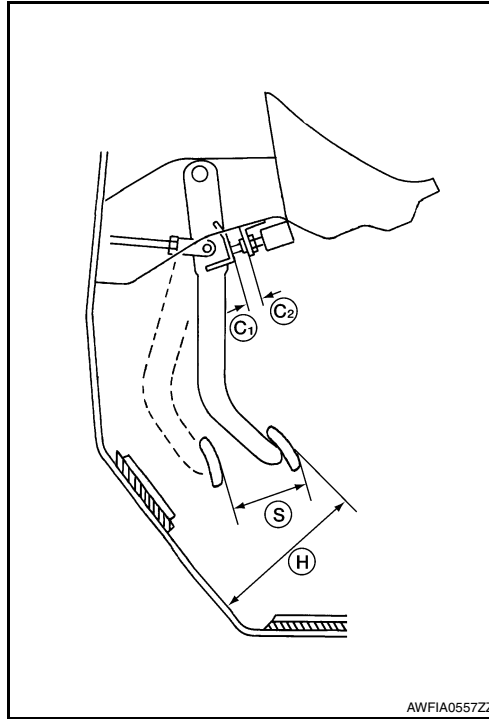
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Unit: mm (in)

Front brake	Cylinder bore diameter (each)	57.2 (2.25)
	Pad length × width × thickness	126.5 × 52 × 11 (4.98 × 2.047 × 0.433)
	Rotor outer diameter × thickness	296 × 26 (11.65 × 1.024)
Rear brake	Cylinder bore diameter	34.93 (1.375)
	Pad length × width × thickness	83 × 33 × 8.5 (3.268 × 1.299 × 0.335)
	Rotor outer diameter × thickness	292 × 9 (11.50 × 0.354)
Recommended brake fluid		DOT 3

Brake Pedal

INFOID:000000005838945



H	Brake pedal height (from dash lower panel top surface)	191.7 - 205.7 mm (7.55 - 8.10 in)
S	Brake pedal full stroke	130 mm (5.12 in)
C1, C2	Clearance between bracket and threaded end of the stop lamp switch and ASCD cancel switch	0.74 - 1.96 mm (0.0291 - 0.0772 in)

Front Disc Brake

INFOID:000000005838946

Brake pad	Standard thickness (new)	11.0 mm (0.433 in)
	Wear limit thickness	2.0 mm (0.079 in)
Disc rotor	Standard thickness (new)	26.0 mm (1.024 in)
	Wear limit thickness	24.0 mm (0.945 in)
	Thickness variation (measured at 8 positions)	0.015 mm (0.0006 in)
	Maximum runout (with it attached to the vehicle)	0.040 mm (0.0016 in)

Rear Disc Brake

INFOID:000000005838947

Brake pad	Standard thickness (new)	8.5 mm (0.335 in)
	Wear limit thickness	1.0 mm (0.039 in)
Disc rotor	Standard thickness (new)	9.0 mm (0.354 in)
	Wear limit thickness	8.0 mm (0.315 in)
	Thickness variation (measured at 8 positions)	0.015 mm (0.0006 in)
	Maximum runout (with it attached to the vehicle)	0.05 mm (0.0020 in)

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## Fluids and Lubricants

INFOID:000000005838943

Description		Capacity (Approximate)		
		US measure	Imp measure	Liter
Fuel		20 gal	16-5/8 gal	75.6
Engine oil Drain and refill	With oil filter change	4-7/8 qt	4 qt	4.6
	Without oil filter change	4-1/2 qt	3-3/4 qt	4.3
Dry engine (Overhaul)		5-3/4 qt	4-3/4 qt	5.4
Engine cooling system with reservoir tank		8-1/8 qt	6-3/4 qt	7.7
Inverter coolant with reservoir tank		3-3/8 qt	2-7/8 qt	3.2
HEV transaxle fluid		4-3/8 qt	3-5/8 qt	4.1
Brake fluid		—	—	—
Brake grease		—	—	—
Brake pad plate grease		—	—	—
Multi-purpose grease		—	—	—
Air conditioning system refrigerant		1.10 ± 0.055 lb	0.50 ± 0.025 kg	0.50 ± 0.025 kg
Air conditioning system oil		4.1 fl oz	4.2 fl oz	120 mℓ