



TL

Service Manual 2004

A Few Words About Safety

Service Information

The service and repair information contained in this manual is intended for use by qualified, professional technicians. Attempting service or repairs without the proper training, tools, and equipment could cause injury to you or others. It could also damage the vehicle or create an unsafe condition.

This manual describes the proper methods and procedures for performing service, maintenance, and repairs. Some procedures require the use of specially designed tools and dedicated equipment. Any person who intends to use a replacement part, service procedure, or a tool that is not recommended by Honda, must determine the risks to their personal safety and the safe operation of the vehicle.

If you need to replace a part, use Honda parts with the correct part number or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.

FOR YOUR CUSTOMER'S SAFETY

Proper service and maintenance are essential to the customer's safety and the reliability of the vehicle. Any error or oversight while servicing a vehicle can result in faulty operation, damage to the vehicle, or injury to others.

⚠ WARNING

Improper service or repairs can create an unsafe condition that can cause your customer or others to be seriously hurt or killed.

Follow the procedures and precautions in this manual and other service materials carefully.

FOR YOUR SAFETY

Because this manual is intended for the professional service technician, we do not provide warnings about many basic shop safety practices (e.g., Hot parts—wear gloves). If you have not received shop safety training or do not feel confident about your knowledge of safe servicing practices, we recommend that you do not attempt to perform the procedures described in this manual.

⚠ WARNING

Failure to properly follow instructions and precautions can cause you to be seriously hurt or killed.

Follow the procedures and precautions in this manual carefully.

Some of the most important general service safety precautions are given below. However, we cannot warn you of every conceivable hazard that can arise in performing service and repair procedures. Only you can decide whether or not you should perform a given task.

IMPORTANT SAFETY PRECAUTIONS

- Make sure you have a clear understanding of all basic shop safety practices, and that you are wearing appropriate clothing and using safety equipment. When performing any service task, be especially careful of the following:
 - Read all of the instructions before you begin, and make sure you have the tools, the replacement or repair parts, and the skills required to perform the tasks safely and completely.
 - Protect your eyes by using proper safety glasses, goggles, or face shields anytime you hammer, drill, grind, or work around pressurized air or liquids and springs, or other stored-energy components. If there is any doubt, put on eye protection.
 - Use other protective wear when necessary, for example, gloves or safety shoes. Handling hot or sharp parts can cause severe burns or cuts. Before you grab something that looks like it can hurt you, stop and put on gloves.
 - Protect yourself and others whenever you have the vehicle up in the air. Anytime you lift the vehicle, either with a hoist or a jack, make sure that it is always securely supported. Use jack stands.
 - Protect yourself by wearing an approved welding helmet, gloves, and safety shoes anytime you are welding. You can receive burns from hot parts, allow the parts to cool before working in that area.
 - Protect yourself from paints and harmful chemicals by wearing an approved respirator, eye protection, and gloves whenever you are painting. Spray paint only in an approved paint booth that is well ventilated.
- Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:
 - Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you run the engine.
 - Burns from hot parts or coolant. Let the engine and exhaust system cool before working in those areas.
 - Injury from moving parts. If the instruction tells you to run the engine, be sure your hands, fingers, and clothing are out of the way.
- Gasoline vapors and hydrogen gases from batteries are explosive. To reduce the possibility of a fire or explosion, be careful when working around gasoline or batteries.
 - Use only a nonflammable solvent, not gasoline to clean parts.
 - Never drain or store gasoline in an open container.
 - Keep all cigarettes, sparks and flames away from the battery and all fuel-related parts.

INTRODUCTION

How to Use This Manual

This manual is divided into 23 sections. The first page of each section is marked with a black tab that lines up with its corresponding thumb index tab on this page and the back cover. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference system.


Each section includes:

1. A table of contents, or an exploded view index showing:
 - Parts disassembly sequence.
 - Bolt torques and thread sizes.
 - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.

You will find important safety information in a variety of forms including:

- **Safety Labels** — on the vehicle.
- **Safety Messages** — preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

▲ DANGER You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

▲ WARNING You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

▲ CAUTION You CAN be HURT if you don't follow instructions.

- **Instructions** — how to service this vehicle correctly and safely.

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at anytime without notice. No part of this publication may be reproduced, or stored in a retrieval system, or transmitted, in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. This includes text, figures, and tables.

As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

First Edition 09/2003 2,176 pages

All Rights Reserved

Specifications apply to U.S.A. and Canada

HONDA MOTOR CO.,LTD.

Service Publication Office

As sections with * include SRS components; special precautions are required when servicing.

General Info



Specifications

specs

Maintenance



Engine Electrical



Engine



Cooling



Fuel and Emissions



*Transaxle



*Steering



Suspension



*Brakes (Including VSA)



*Body



*Heating, Ventilation and Air Conditioning



*Body Electrical



*Restraints



SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Acura TL SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done only by an authorized Acura dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work must be performed by an authorized Acura dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors whenever the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF. Otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



General Information

Chassis and Paint Codes	1-2
Identification Number Locations	1-3
Warning/Caution Label Locations	1-4
Under-hood Emission Control Label	1-6
Lift and Support Points	1-7
Towing	1-8
Parts Marking	1-10

General Information

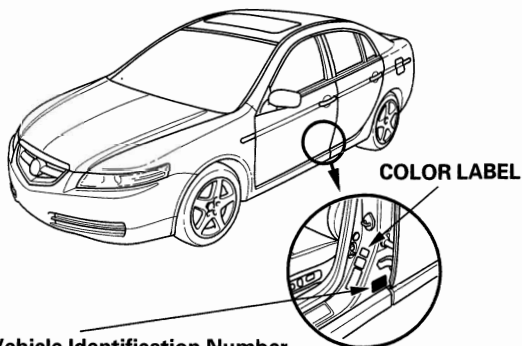
Chassis and Paint Codes

Vehicle Identification Number

19U UA6 5 5 * 4 A 000001

a b c d e f g h

- a. Manufacturer, Make and Type of Vehicle**
19U: HONDA OF AMERICA MFG., INC. U.S.A.
ACURA passenger vehicle
- b. Line, Body and Engine Type**
UA6: ACURA TL/J32A3
- c. Body Type and Transmission Type**
5: 4-door Sedan/6-speed Manual
6: 4-door Sedan/5-speed Automatic
- d. Vehicle Grade (Series)**
2: TL with 5-speed A/T
5: TL with 6-speed M/T
6: TL with 6-speed M/T and Hi-performance summer tire
- e. Check Digit**
- f. Model Year**
4: 2004
- g. Factory Code**
A: Marysville, Ohio Factory in U.S.A.
- h. Serial Number**
000001 —: U.S. model
800001 —: Canada model



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification.
Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification.

Engine Number

J32A3 - 1000001

a b

- a. Engine Type**
J32A3: 3.2-liter SOHC VTEC Sequential Multiport Fuel-injected engine
- b. Serial Number**

Transmission Number

DEC6 - 1500001

a b

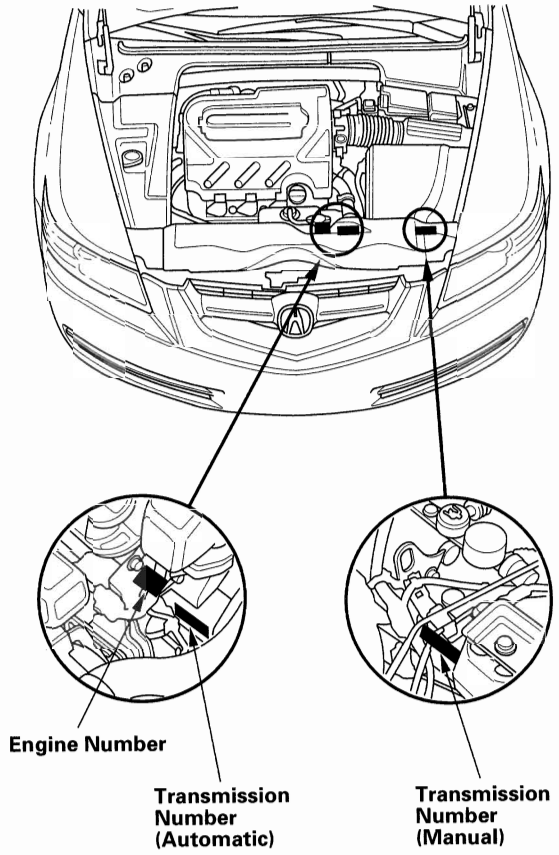
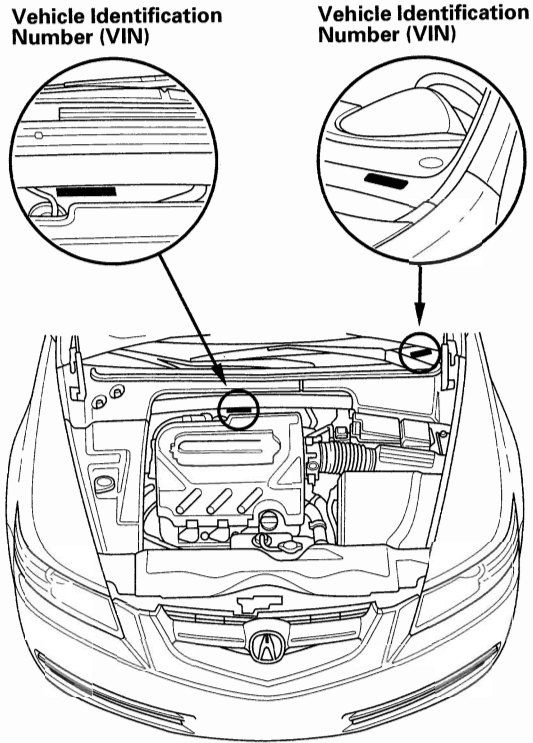
- a. Transmission Type**
DEC6: 6-speed Manual
BDGA: 5-speed Automatic
- b. Serial Number**

Paint Code

Code	Color	U.S.	Canada
NH-603P	White Diamond Pearl	○	○
NH-623M	Satin Silver Metallic	○	○
NH-643M	Anthracite Metallic	○	○
B-92PV	Nighthawk Black Pearl	○	○
B-527P	Abyss Blue Pearl	○	○
G-516P	Deep Green Pearl	○	
R-522P	Redondo Red Pearl	○	○
YR-538M	Desert Mist Metallic	○	○



Identification Number Locations

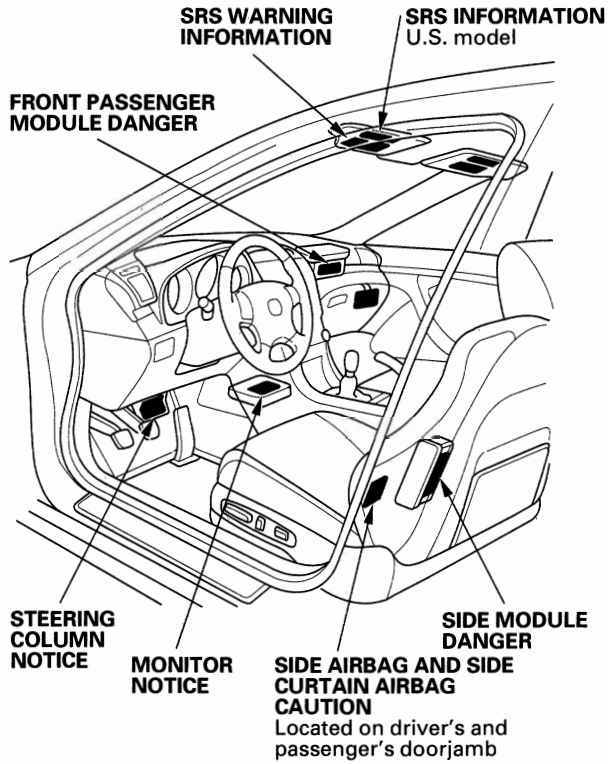


General Information

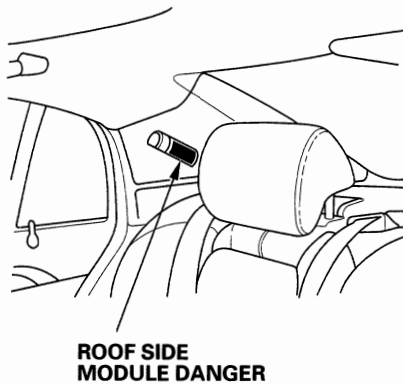
Warning/Caution Label Locations

NOTE: FRONT PASSENGER (CHILD SEAT) AIRBAG WARNING TAG is on the glove box in the U.S. model.

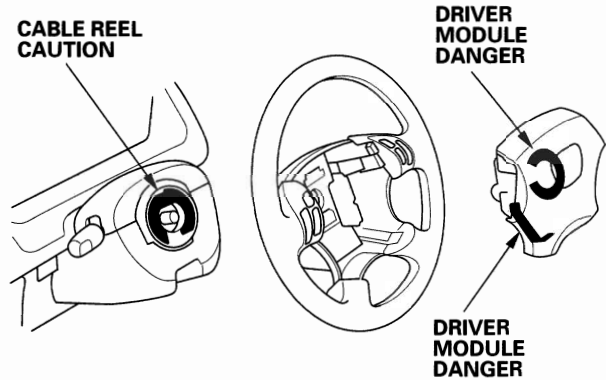
Front Passenger's Compartment:

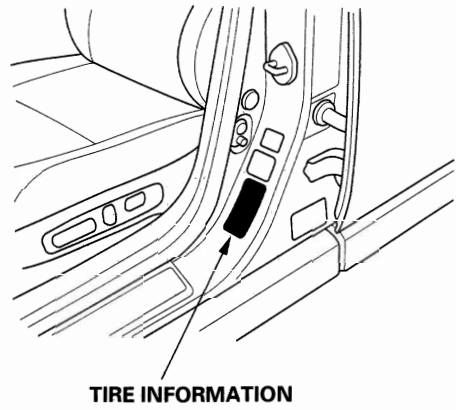
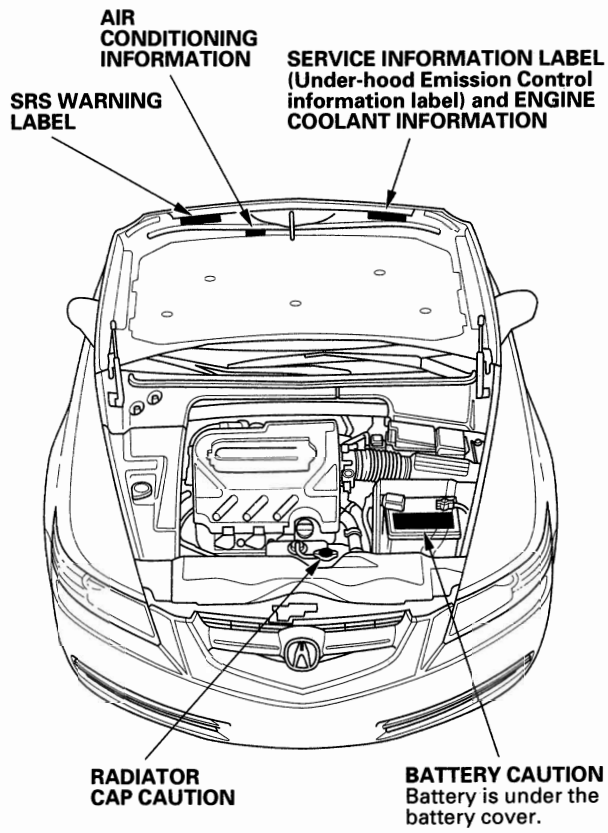


Rear Passenger's Compartment:



Steering Wheel:



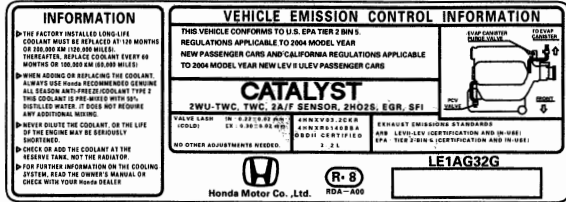


General Information

Under-hood Emission Control Label

Emission Group Identification

Example:



THIS VEHICLE CONFORMS TO U.S. EPA TIER 2 BIN 5. REGULATIONS APPLICABLE TO 2004 MODEL YEAR NEW PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2004 MODEL YEAR NEW LEV II ULEV PASSENGER CARS.

Engine and Evaporative Families:

Engine Family:

4 HNX V 03.2 CKR
 a b c d e

- a. Model Year
4: 2004
- b. Manufacturer Subcode
HNX: HONDA
- c. Family Type
V: LDV
- d. Displacement
- e. Sequence Characters

Evaporative Family:

4 HNX R 0140 BBA
 a b c d e

- a. Model Year
4: 2004
- b. Manufacturer Subcode
HNX: HONDA
- c. Family Type
R: EVAP/ORVR
- d. Canister Work Capacity
- e. Sequence Characters

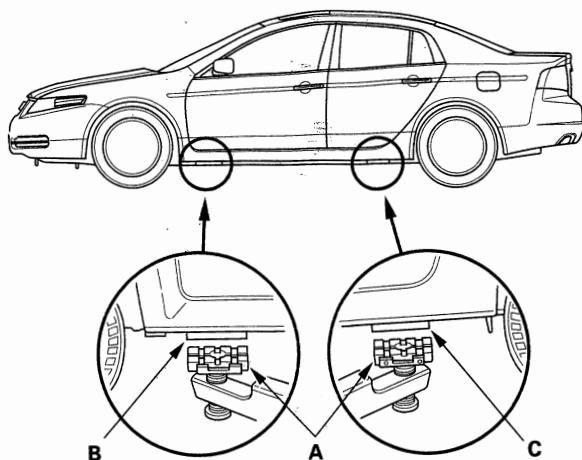


Lift and Support Points

NOTE: If you are going to remove heavy components such as suspension or the fuel tank from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change and cause the vehicle to tip forward on the hoist.

Frame Hoist

1. Position the hoist lift blocks (A), or safety stands, under the vehicle's front support points (B) and rear support points (C).



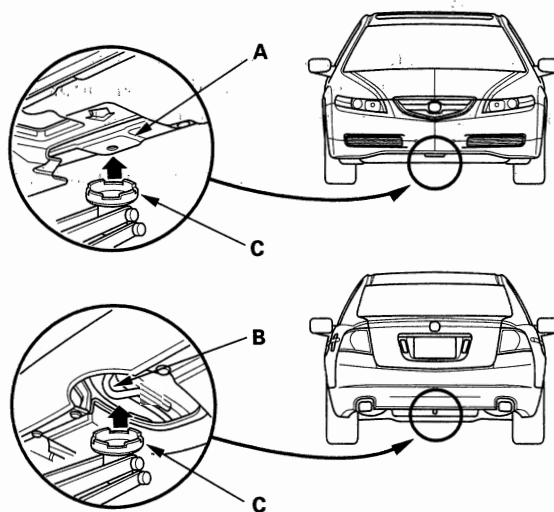
2. Raise the hoist a few inches, and rock the vehicle gently to be sure it is firmly supported.
3. Raise the hoist to full height, and inspect the lift points for solid contact with the lift blocks.

Safety Stands

To support the vehicle on safety stands, use the same support points (B and C) as for a frame hoist. Always use safety stands when working on or under any vehicle that is supported only by a jack.

Floor Jack

1. When lifting the front of the vehicle, set the parking brake. When lifting the rear of the vehicle, put the gearshift lever in reverse for manual transmission, or in the P position for automatic transmission.
2. Block the wheels that are not being lifted.
3. Position the floor jack under the front jacking bracket (A) or rear jacking bracket (B). Center the jacking bracket in the jack lift platform (C) and jack up the vehicle high enough to fit the safety stands under it.



4. Position the safety stands under the support points and adjust them so the vehicle is level.
5. Lower the vehicle onto the stands.

General Information

Towing

If the vehicle needs to be towed, call a professional towing service. Never tow the vehicle behind another vehicle with just a rope or chain. It is very dangerous.

Emergency Towing

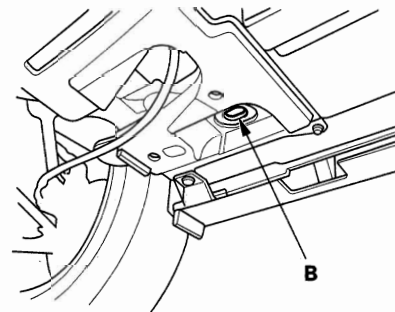
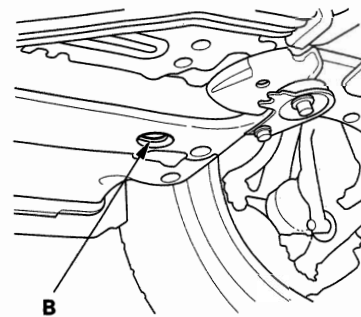
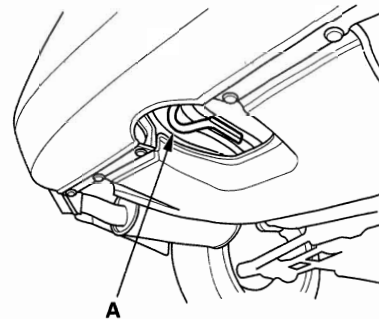
There are three popular methods of towing a vehicle, two of which are recommended and one that is not.

Flat-bed Equipment — The operator loads the vehicle on the back of a truck. This is the best way of transporting the vehicle.

To accommodate flat-bed equipment, the vehicle is equipped with a rear towing hook (A) and rear tie down hook slots (B).

The rear towing hook can be used with a winch to pull the vehicle onto the truck, and the tie down hook slots can be used to secure the vehicle to the truck.

NOTE: The rear tie down hook slots use rubber plugs to cover the openings.





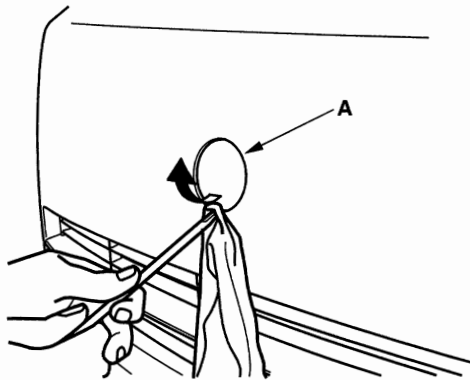
Front Towing Hook Installation

Use the front tow hook for very short distances such as freeing the car, use the detachable towing hook that mounts on the anchor in the front bumper.

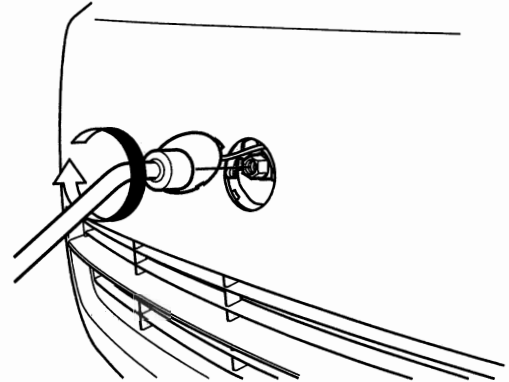
NOTICE

- To avoid damage to the vehicle use the towing hook for straight flat ground towing only. Do not tow as an angle.
- The tow hook should not be used to tow the vehicle onto a flat bed. Do not use it as a tie down.

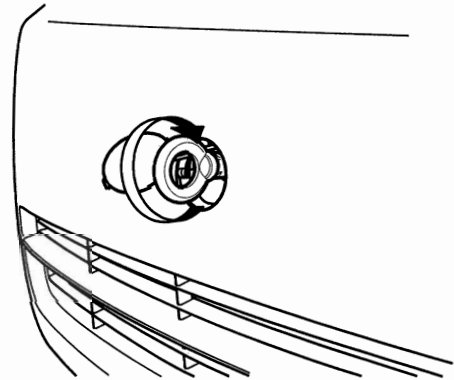
1. Remove the cover (A) from the front bumper.



2. Remove the towing hook, hook extension, and wheel wrench from the tool case in the spare tire.
3. Using the wheel wrench, fasten the extension into the bolt hole in the anchor.



4. Screw the towing hook into the extension, and tighten it securely by hand.



(cont'd)

General Information

Towing (cont'd)

Wheel Lift Equipment — The tow truck uses two pivoting arms that go under the tires (front or rear) and lifts them off ground. The other two wheels remain on the ground. This is an acceptable way of towing the vehicle.

Sling-type Equipment — The tow truck uses metal cables with hooks on the ends. These hooks go around parts of the frame or suspension and the cables lift that end of the vehicle off the ground. The vehicle's suspension and body can be seriously damaged if this method of towing is attempted.

Do not use this method of towing.

If the vehicle cannot be transported by flat-bed, it should be towed with the front wheels off the ground. If due to damage, the vehicle must be towed with the front wheels on the ground, do the following:

Manual Transmission

- Release the parking brake.
- Shift the transmission to neutral.

Automatic Transmission

- Release the parking brake.
- Start the engine.
- Shift to the D position, then to the N position.
- Turn off the engine.

It is best to tow the vehicle no farther than 80 km (50 miles), and keep the speed below 55 km/h (35 mph).

NOTICE

- Improper towing preparations will damage the transmission. Follow the above procedure exactly. If you cannot shift the transmission or start the engine (automatic transmission), the vehicle must be transported on a flat-bed.
- Trying to lift or tow the vehicle by the bumpers will cause serious damage. The bumpers are not designed to support the vehicle's weight.

Parts Marking

To deter vehicle theft, certain major components are marked with the vehicle identification number (VIN). Original parts have self-adhesive labels. Replacement body parts have generic self-adhesive labels. The original engine or transmission VIN plate is transferred to a replacement engine or transmission and attached with break-off bolts.

NOTE: Be careful not to damage the parts marking labels during body repair. Mask the labels before repairing the part.

Specifications

Standards and Service Limits

Engine Electrical	2-2
Engine Assembly	2-2
Cylinder Head	2-3
Engine Block	2-4
Engine Lubrication	2-5
Cooling	2-5
Fuel and Emissions	2-6
Clutch	2-6
Manual Transmission and M/T Differential	2-7
Automatic Transmission and A/T Differential	2-10
Steering	2-17
Suspension	2-17
Brakes	2-18
Air Conditioning	2-18

Design Specifications

Dimensions	2-19
Weight	2-19
Engine	2-19
Starter	2-19
Clutch	2-19
Manual Transmission	2-19
Automatic Transmission	2-20
Steering	2-20
Suspension	2-20
Brakes	2-20
Tires	2-20
Air Conditioning	2-20
Electrical Ratings	2-21

Body Specifications

Illustrations	2-22
---------------------	------

Standards and Service Limits

Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1-4-2-5-3-6	
Spark plug	Type		NGK: IZFR6K-11 DENSO: SKJ20DR-M11	
	Gap		1.0-1.1 mm (0.039-0.043 in.)	
Ignition timing		At idle (check the <i>red</i> mark)	A/T (in N or P position): $10 \pm 2^\circ$ BTDC M/T (in neutral): $10 \pm 2^\circ$ BTDC	
Alternator-compressor belt	Tension adjustment		Auto tensioner	
Alternator	Output at 13.5 V and normal engine temperature		130A	
	Coil (rotor) resistance	At 68°F (20°C)	2.5 k Ω	
	Slip ring O.D.		14.4 mm (0.57 in.)	14.0 mm (0.55 in.)
	Brush length		10.5 mm (0.41 in.)	1.5 mm (0.06 in.)
	Brush spring tension		3.2 N (0.33 kgf, 0.73 lbf)	
Starter	Output		1.6 kW	
	Commutator mica depth		0.4-0.5 mm (0.016-0.020 in.)	0.15 mm (0.006 in.)
	Commutator runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
	Commutator O.D.		28.0-28.1 mm (1.102-1.106 in.)	27.5 mm (1.083 in.)
	Brush length		15.8-16.2 mm (0.62-0.64 in.)	11.0 mm (0.43 in.)
	Brush spring tension (new)		15.7-17.7 N (1.60-1.80 kgf, 3.53-3.97 lbf)	

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure Check the engine with the starter cranking.	Minimum	930 kPa (9.5 kgf/cm ² , 135 psi)	_____
		Maximum variation	200 kPa (2.0 kgf/cm ² , 28 psi)	_____

Cylinder Head

Item	Measurement	Qualification	Standard or New	Service Limit	
Head	Warpage		————	0.05 mm (0.002 in.)	
	Height		120.95 – 121.05 mm (4.762 – 4.766 in.)	————	
Camshaft	End play		0.05 – 0.20 mm (0.002 – 0.008 in.)	0.20 mm (0.008 in.)	
	Camshaft-to-holder oil clearance		0.050 – 0.089 mm (0.0020 – 0.0035 in.)	0.15 mm (0.006 in.)	
	Total runout		0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)	
	Cam lobe height	Intake, primary		35.041 mm (1.3796 in.)	————
		Intake, mid		36.445 mm (1.4348 in.)	————
Intake, secondary			35.284 mm (1.3891 in.)	————	
Exhaust			36.326 mm (1.4302 in.)	————	
Valve	Clearance (cold)	Intake	0.20 – 0.24 mm (0.008 – 0.009 in.)	————	
		Exhaust	0.28 – 0.32 mm (0.011 – 0.013 in.)	————	
	Stem O.D.	Intake	5.485 – 5.495 mm (0.2159 – 0.2163 in.)	5.455 mm (0.2148 in.)	
		Exhaust	5.450 – 5.460 mm (0.2146 – 0.2150 in.)	5.420 mm (0.2134 in.)	
	Stem-to-guide clearance	Intake	0.020 – 0.045 mm (0.0008 – 0.0018 in.)	0.08 mm (0.003 in.)	
		Exhaust	0.055 – 0.080 mm (0.0022 – 0.0031 in.)	0.11 mm (0.004 in.)	
Valve seat	Width	Intake	1.25 – 1.55 mm (0.049 – 0.061 in.)	2.00 mm (0.079 in.)	
		Exhaust	1.25 – 1.55 mm (0.049 – 0.061 in.)	2.00 mm (0.079 in.)	
	Stem installed height	Intake	46.75 – 47.55 mm (1.841 – 1.872 in.)	47.80 mm (1.882 in.)	
		Exhaust	46.68 – 47.48 mm (1.838 – 1.869 in.)	47.73 mm (1.879 in.)	
Valve spring	Free length	Intake	51.54 mm (2.029 in.)	————	
		Exhaust	51.06 mm (2.010 in.)	————	
Valve guide	I.D.	Intake	5.515 – 5.530 mm (0.2171 – 0.2177 in.)	5.55 mm (0.219 in.)	
		Exhaust	5.515 – 5.530 mm (0.2171 – 0.2177 in.)	5.55 mm (0.219 in.)	
	Installed height	Intake	21.20 – 22.20 mm (0.835 – 0.874 in.)	————	
		Exhaust	20.60 – 21.60 mm (0.811 – 0.850 in.)	————	
Rocker arm	Arm-to-shaft clearance	Intake	0.026 – 0.067 mm (0.0010 – 0.0026 in.)	0.067 mm (0.0026 in.)	
		Exhaust	0.026 – 0.077 mm (0.0010 – 0.0030 in.)	0.077 mm (0.0030 in.)	

Standards and Service Limits

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		89.000–89.015 mm (3.5039–3.5045 in.)	89.065 mm (3.5065 in.)
	Bore taper		—	0.05 mm (0.002 in.)
	Reboring limit		—	0.25 mm (0.01 in.)
Piston	Skirt O.D. at 16.0 mm (0.63 in.) from bottom of skirt		88.975–88.985 mm (3.5029–3.5033 in.)	88.965 mm (3.5026 in.)
	Clearance in cylinder		0.015–0.040 mm (0.0006–0.0016 in.)	0.08 mm (0.003 in.)
	Ring groove width	Top	1.240–1.250 mm (0.0488–0.0492 in.)	1.27 mm (0.050 in.)
		Second	1.220–1.230 mm (0.0480–0.0484 in.)	1.25 mm (0.049 in.)
	Oil	2.805–2.825 mm (0.1104–0.1112 in.)	2.85 mm (0.112 in.)	
Piston ring	Ring-to-groove clearance	Top	0.055–0.080 mm (0.0022–0.0031 in.)	0.15 mm (0.006 in.)
		Second	0.030–0.055 mm (0.0012–0.0022 in.)	0.13 mm (0.005 in.)
	Ring end gap	Top	0.20–0.35 mm (0.008–0.014 in.)	0.60 mm (0.024 in.)
		Second	0.40–0.55 mm (0.016–0.022 in.)	0.70 mm (0.028 in.)
	Oil	0.20–0.70 mm (0.008–0.028 in.)	0.80 mm (0.031 in.)	
Piston pin	O.D.		21.962–21.965 mm (0.8646–0.8648 in.)	21.954 mm (0.8643 in.)
	Pin-to-piston clearance		–0.0050 to +0.0010 mm (–0.00020 to +0.00004 in.)	0.004 mm (0.0002 in.)
Connecting rod	Pin-to-rod clearance		0.005–0.014 mm (0.0002–0.0006 in.)	0.019 mm (0.0007 in.)
	Small-end bore diameter		21.970–21.976 mm (0.8650–0.8652 in.)	—
	Large-end bore diameter	Nominal	58.0 mm (2.28 in.)	—
	End play installed on crankshaft		0.15–0.35 mm (0.006–0.014 in.)	0.45 mm (0.018 in.)
Crankshaft	Main journal diameter		71.976–72.000 mm (2.8337–2.8346 in.)	—
	Rod journal diameter		54.976–55.000 mm (2.1644–2.1654 in.)	—
	Rod/main journal taper		0.005 mm (0.0002 in.) max.	0.010 mm (0.0004 in.)
	Rod/main journal out-of-round		0.005 mm (0.0002 in.) max.	0.010 mm (0.0004 in.)
	End play		0.10–0.35 mm (0.004–0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.025 mm (0.0010 in.) max.	0.03 mm (0.0012 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.020–0.044 mm (0.0008–0.0017 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance		0.020–0.044 mm (0.0008–0.0017 in.)	0.050 mm (0.002 in.)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	5.0 l (5.3 US qt)	
		Oil change, including filter	4.3 l (4.5 US qt)	
		Oil change, without filter	4.0 l (4.2 US qt)	
Oil pump	Inner-to-outer rotor clearance		0.04–0.16 mm (0.002–0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.10–0.19 mm (0.004–0.007 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor axial clearance		0.02–0.07 mm (0.001–0.003 in.)	0.12 mm (0.005 in.)
	Oil pressure with oil temperature at 176°F (80°C)	At idle		70 kPa (0.7 kgf/cm ² , 10 psi)
At 3,000 rpm			490 kPa (5.0 kgf/cm ² , 71 psi)	

Cooling

Item	Measurement	Qualification	Standard or New
Radiator	Coolant capacity (includes engine, heater, hoses, and reservoir)	Engine overhaul	A/T model: 8.1 l (8.6 US qt)
			M/T model: 7.9 l (8.3 US qt)
		Coolant change	A/T model: 6.4 l (6.8 US qt)
			M/T model: 6.3 l (6.7 US qt)
Reservoir	Coolant capacity		0.6 l (0.6 US qt)
Radiator cap	Opening pressure		93–123 kPa (0.95–1.25 kgf/cm ² , 14–18 psi)
Thermostat	Opening temperature	Begins to open	169–176°F (76–80°C)
		Fully open	194°F (90°C)
	Valve lift at fully open		10.0 mm (0.39 in.) min.

Standards and Service Limits

Fuel and Emissions

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure		400–450 kPa (4.0–4.5 kg/cm ² , 56–64 psi)
Fuel tank	Capacity		64.7 ℓ (17.1 US gal)
Engine idle	Idle speed without load	M/T in neutral A/T in N or P position	750 ± 50 rpm
	Idle speed with high electric load (with HVAC on)	M/T in neutral A/T in N or P position	750 ± 50 rpm

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from floor		191 mm (7.52 in.)	———
	Stroke		130–140 mm (5.12–5.51 in.)	———
	Play		10–18 mm (0.39–0.71 in.)	———
	Disengagement height from floor		90.5 mm (3.56 in.) min.	———
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)
Clutch disc	Rivet head depth		1.0 mm (0.039 in.)	0.2 mm (0.008 in.)
	Thickness		8.68–9.53 mm (0.342–0.375 in.)	7.2 mm (0.28 in.)
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height of diaphragm spring fingers measured with special tool and feeler gauge		0.6 mm (0.02 in.) max.	0.8 mm (0.03 in.)