

## INTRODUCTION

### How to Use This Manual

This manual is divided into multiple 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.


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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.

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Specifications apply to USA and Canada

Honda Motor Co., Ltd.  
Service Publication Office

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

 marked sections are not included in this manual, see Volume 2.

General Information	
Specifications	
Maintenance	
*Engine Electrical	
*Engine Mechanical	
Engine Cooling	
Fuel and Emissions	
*Transaxle	
*Steering	
Suspension(Including TPMS)	
*Brakes(Including VSA)	
*Body	
*Heating, Ventilation, and Air Conditioning	
*Body Electrical	
*Audio, Navigation, and Telematics	
*Restraints	

# 2009-10 Pilot

## **SUPPLEMENTAL RESTRAINT SYSTEM (SRS)**

The Pilot 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 require special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, and side curtain airbags.
- Do not bump or impact the SRS unit, front impact sensors, side impact sensors, or rear safing sensor, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, 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

### General Information

#### Chassis and Paint Codes

'09 Model . . . . .	1-2
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# General Information

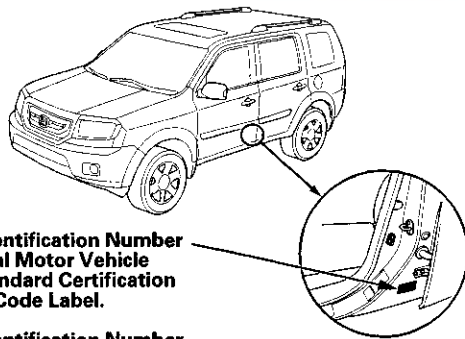
## Chassis and Paint Codes - '09 Model

### Vehicle Identification Number

5FN YF4 8 2 \* 9 B 000001

a b c d e f g h

- a. **Manufacturer, Make and Type of Vehicle**  
5FN: Honda Manufacturing of Alabama, LLC  
Honda multipurpose passenger vehicle
- b. **Line, Body and Engine Type**  
YF3: Pilot(2WD)/J35Z4  
YF4: Pilot(4WD)/J35Z4
- c. **Body Type and Transmission Type**  
8: 5-door/5-speed Automatic
- d. **Vehicle Grade (Series)**  
2: LX  
4: EX  
5: EX-L  
6: EX-L with Rear Entertainment System  
8: TOURING  
9: TOURING with Rear Entertainment System
- e. **Check Digit**
- f. **Model Year**  
9: '09
- g. **Factory Code**  
B: Lincoln Factory in Alabama
- h. **Serial Number**  
000001 —: USA models  
500001 —: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification and Paint Code Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification and Paint Code Label.



PAINT CODE

INTERIOR COLOR CODE

### Engine Number

J35Z4 - 1000001

a b

- a. **Engine Type**  
J35Z4: 3.5 L SOHC i-VTEC Variable Cylinder Management Sequential Multiport Fuel-injected engine
- b. **Serial Number**

### Transmission Number

PN4A - 6000001

a b

- a. **Transmission Type**  
PN3A: 5-speed Automatic(4WD)  
PN4A: 5-speed Automatic(2WD)
- b. **Serial Number**

### Paint Code

Code	Color	USA models	Canada models
B-552P	Bali Blue Pearl	○	○
NH-578	Taffeta White	○	○
NH-689M	Billet Silver Metallic	○	○
NH-705M	Nimbus Gray Metallic	○	○
NH-707	Formal Black II	○	○
NH-741M	Sterling Gray Metallic	○	○
R-529P	Dark Cherry Pearl	○	○
YR-573M	Mocha Metallic	○	○



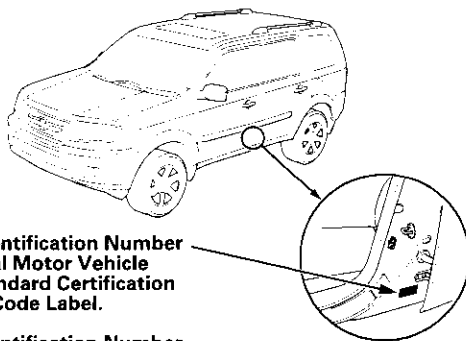
## Chassis and Paint Codes - '10 Model

### Vehicle Identification Number

5FN YF4 H 2 \* A B 000001

a b c d e f g h

- Manufacturer, Make and Type of Vehicle**  
5FN: Honda Manufacturing of Alabama, LLC  
Honda multipurpose passenger vehicle
- Line, Body and Engine Type**  
YF3: Pilot(2WD)/J35Z4  
YF4: Pilot(4WD)/J35Z4
- Body Type and Transmission Type**  
H: 5-door/5-speed Automatic
- Vehicle Grade (Series)**  
2: LX  
4: EX  
5: EX-L  
6: EX-L with Rear Entertainment System  
8: TOURING  
9: TOURING with Rear Entertainment System
- Check Digit**
- Model Year**  
A: '10
- Factory Code**  
B: Lincoln Factory in Alabama
- Serial Number**  
000001—: USA models  
500001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification and Paint Code Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification and Paint Code Label.



PAINT CODE

INTERIOR COLOR CODE

### Engine Number

J35Z4 - 2000001

a b

- Engine Type**  
J35Z4: 3.5 L SOHC i-VTEC Variable Cylinder Management Sequential Multiport Fuel-injected engine
- Serial Number**

### Transmission Number

PN4A - 7000001

a b

- Transmission Type**  
PN3A: 5-speed Automatic(4WD)  
PN4A: 5-speed Automatic(2WD)
- Serial Number**

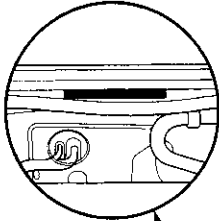
### Paint Code

Code	Color	USA models	Canada models
B-552P	Bali Blue Pearl	○	○
NH-578	Taffeta White	○	○
NH-700M	Alabaster Silver Metallic	○	○
NH-731P	Crystal Black Pearl	○	○
NH-737M	Polished Metal Metallic	○	○
R-529P	Dark Cherry Pearl	○	○
YR-573M	Mocha Metallic	○	○

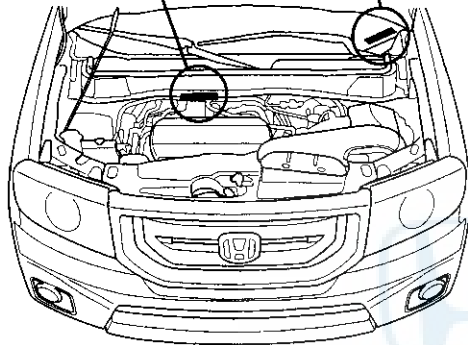
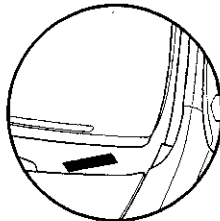
# General Information

## Identification Number Locations

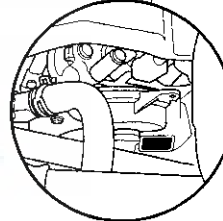
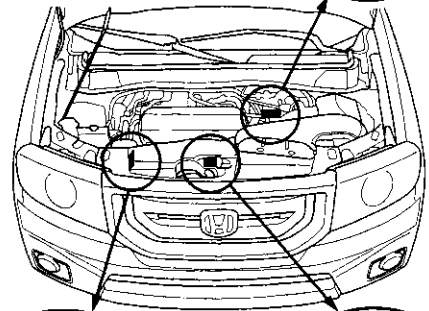
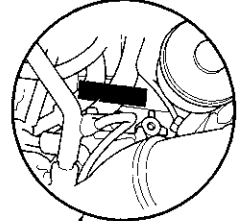
Vehicle Identification Number (VIN)



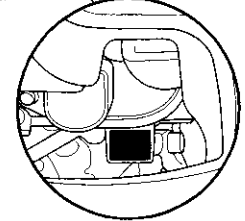
Vehicle Identification Number (VIN)



Transmission Number



Engine Number

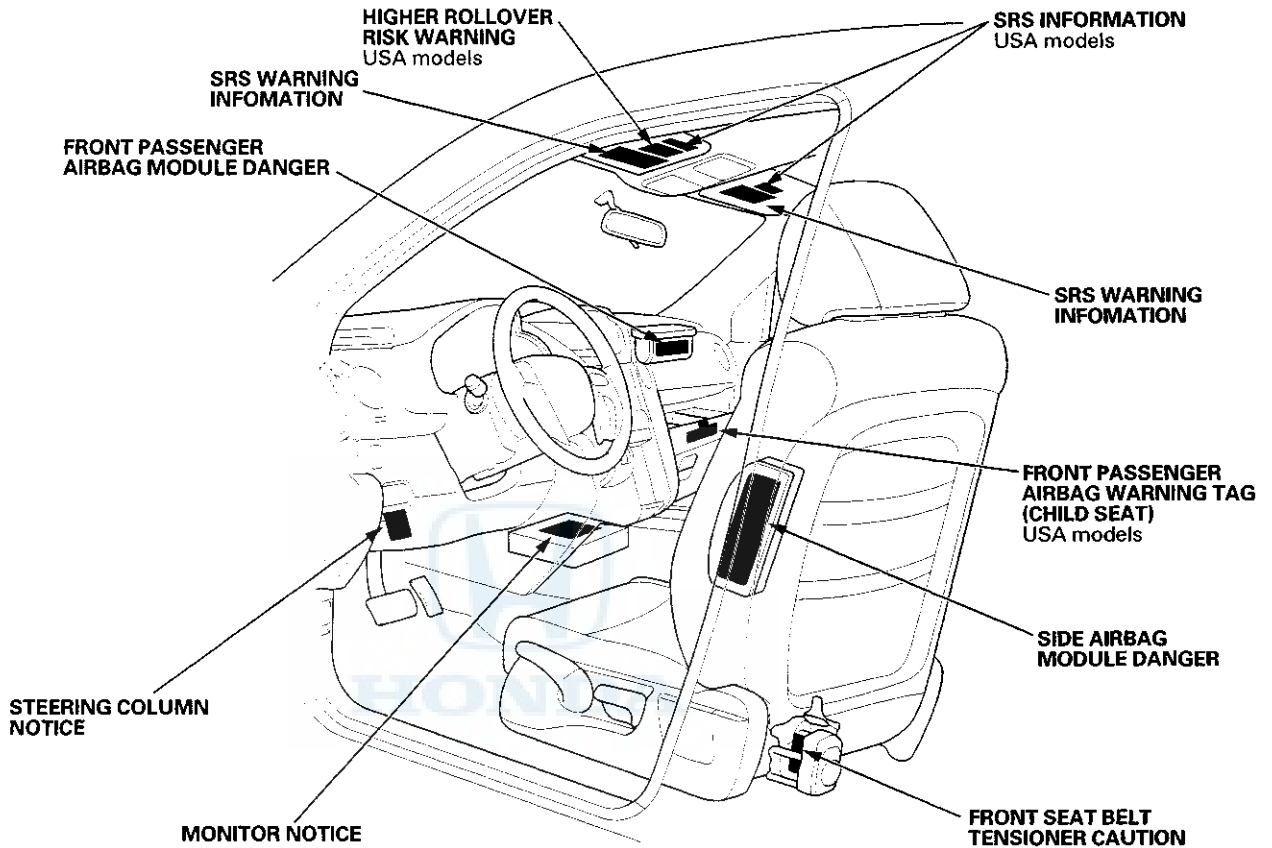


Engine Number

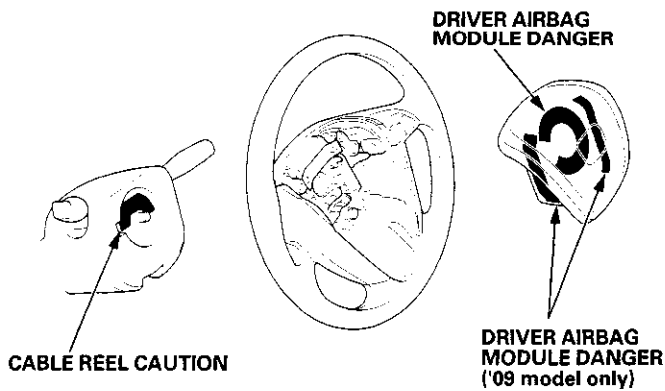


## Danger/Warning/Caution Label Locations

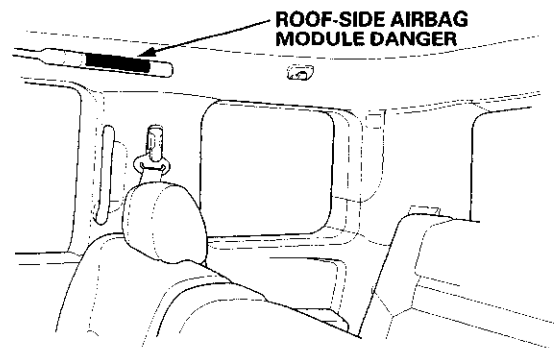
### Front Passenger's Compartment:



### Steering Wheel:



### Rear Passenger's Compartment:

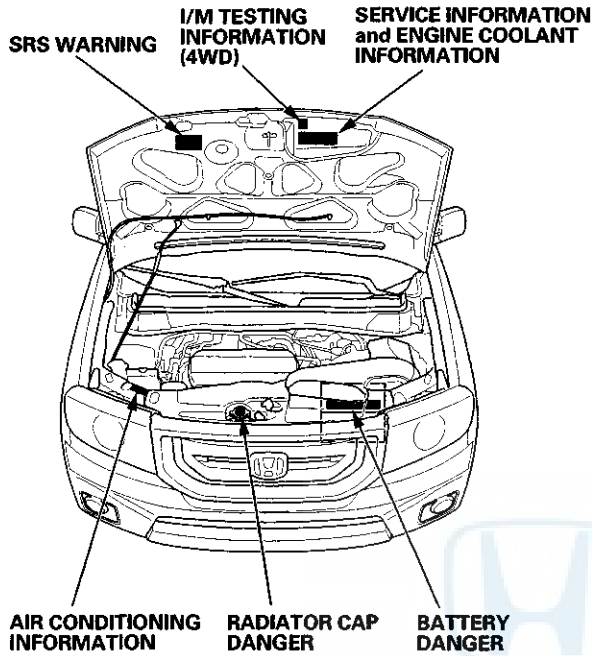


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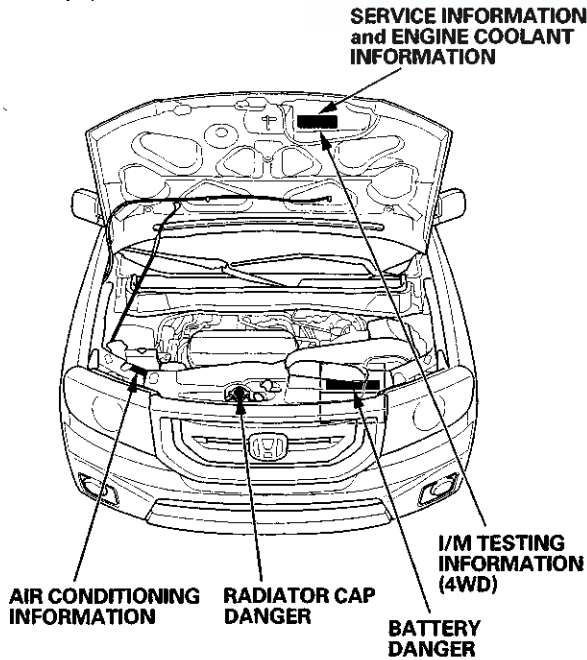
# General Information

## Danger/Warning/Caution Label Locations (cont'd)

'09 Model

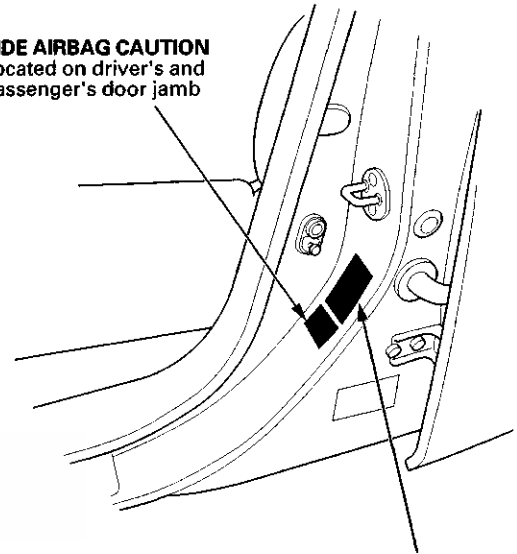


'10 Model



Doorjamb Area:

**SIDE AIRBAG CAUTION**  
Located on driver's and passenger's door jamb



**TIRE INFORMATION**





## Under-hood Emission Control Label

### Emission Group Identification

Example:

'09 Model

INFORMATION	VEHICLE EMISSION CONTROL INFORMATION		
<small>IF THE FACTORY INSTALLED COOLANT COOLANT MUST BE REPLACED ACCORDING TO MAINTENANCE SCHEDULE. SEE CODE A ON THE FRONT ENGINE COVER OR REAR TRAY AFTER EVERY 3 YEARS. NEVER DRINK OR REFUELING THE COOLANT. ALWAYS USE THE RECOMMENDED COOLANT LEVEL AND TYPE. SEE COOLANT TYPE 2. THE COOLANT IS THE SAME TYPE AS DISTILLED WATER. IT DOES NOT REQUIRE ANY ADDITIVES. NEVER BLOW THE COOLANT OR THE CAP OF THE COOLANT RAY. IT RECOILS AND IS HOT. NEVER DRINK THE COOLANT. AT THE SERVICE TANK, NOT THE RADIATOR. FOR FURTHER INFORMATION ON THE COOLANT SYSTEM, READ THE OWNER'S MANUAL. OR CHECK WITH YOUR HONDA DEALER.</small>	<small>CONFORMS TO REGULATIONS: 2009MY</small>		
	<small>U.S. EPA: E2B1 LDT2</small>	<small>QBD: CA 09D II</small>	<small>FUEL: GASOLINE</small>
	<small>ANS: LEV II ULEV LDT2</small>	<small>QBD: CA 09D II</small>	<small>FUEL: GASOLINE</small>
	<small>2WU-TWC, TWC, 2A/F SENSOR, 2HC2S, EGR, SFI</small>		
		<small>9HNXT03.7H2S 9HNXR01071EA 3.5L</small>	
<small>HONDA MOTOR CO., LTD.</small>	<small>RNO-A 00</small>		

'10 Model

	VEHICLE EMISSION CONTROL INFORMATION		
	<small>CONFORMS TO REGULATIONS: 2010MY</small>		
<small>HONDA MOTOR CO., LTD.</small>	<small>U.S. EPA: E2B1 LDT2</small>	<small>QBD: CA 09D II</small>	<small>FUEL: GASOLINE</small>
<small>RNO-A 10</small>	<small>ANS: LEV II ULEV LDT2</small>	<small>QBD: CA 09D II</small>	<small>FUEL: GASOLINE</small>
	<small>2WU-TWC, TWC, 2A/F SENSOR, 2HC2S, EGR, SFI</small>		
<b>INFORMATION</b>	<small>ASHNET03.7H1S</small>	<small>ASHNR01071EA</small>	<small>3.5L</small>
<small>IF THE FACTORY INSTALLED COOLANT COOLANT MUST BE REPLACED ACCORDING TO MAINTENANCE SCHEDULE. SEE CODE A ON THE FRONT ENGINE COVER OR REAR TRAY AFTER EVERY 3 YEARS. NEVER DRINK OR REFUELING THE COOLANT. ALWAYS USE THE RECOMMENDED COOLANT LEVEL AND TYPE. SEE COOLANT TYPE 2. THE COOLANT IS THE SAME TYPE AS DISTILLED WATER. IT DOES NOT REQUIRE ANY ADDITIVES. NEVER BLOW THE COOLANT OR THE CAP OF THE COOLANT RAY. IT RECOILS AND IS HOT. NEVER DRINK THE COOLANT. AT THE SERVICE TANK, NOT THE RADIATOR. FOR FURTHER INFORMATION ON THE COOLANT SYSTEM, READ THE OWNER'S MANUAL. OR CHECK WITH YOUR HONDA DEALER.</small>	<small>LOADED OR TESTING OF THIS VEHICLE MUST BE CONDUCTED ON A FOUR-WHEEL DRIVE SPEED SYNCHRONIZED DYNAMOMETER. OTHERWISE, A NON-LOADED TEST PROCEDURE MUST BE PERFORMED.</small>		

'09 Model

CONFORMS TO REGULATIONS: 2009MY

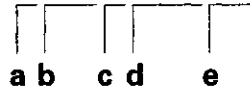
'10 Model

CONFORMS TO REGULATIONS: 2010MY

### Test Group and Evaporative Family

Test Group:

A HNX T 03.7 W19



- a. Model Year  
9: '09  
A: '10
- b. Manufacturer Subcode  
HNX: Honda
- c. Family Type  
T: LDT
- d. Displacement Group
- e. Sequence Characters  
H29: '09  
W19: '10

Evaporative Family:

A HNX R 0167 1EA



- a. Model Year  
9: '09  
A: '10
- b. Manufacturer Subcode  
HNX: Honda
- c. Family Type  
R: Refueling
- d. Canister Work Capacity
- e. Sequence Characters

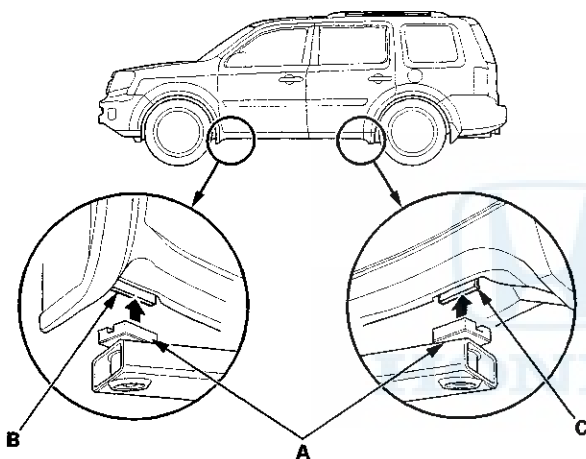
# General Information

## Lift and Support Points

**NOTE:** If you are going to remove heavy components such as the 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, causing the vehicle to tip forward on the lift.

### Vehicle Lift

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



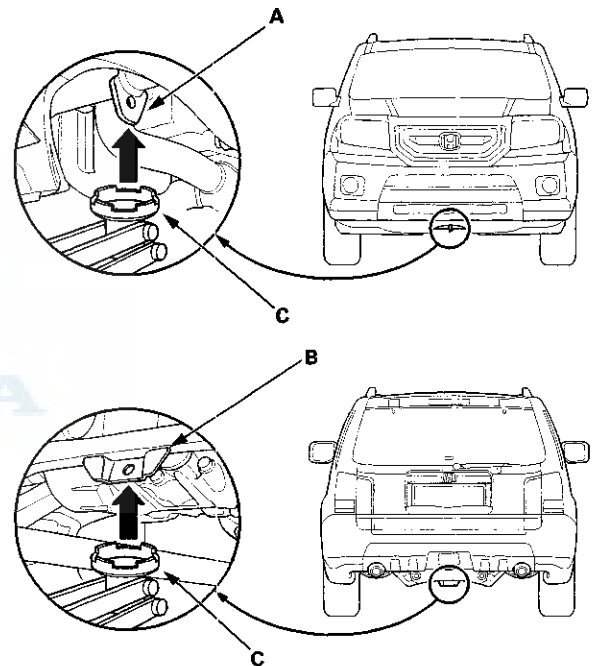
2. Raise the lift a few inches, and rock the vehicle gently to be sure it is firmly supported.
3. Raise the lift to its full height, and inspect the vehicle support points for solid contact with the lift blocks.

### Safety Stands

To support the vehicle on safety stands, use the same support points as for a vehicle lift. 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 shift lever in P.
2. Block the wheels that are not being lifted.
3. Position the floor jack under the front jacking bracket (A) or the rear jacking bracket (B). Center the jacking bracket on 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.



## 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

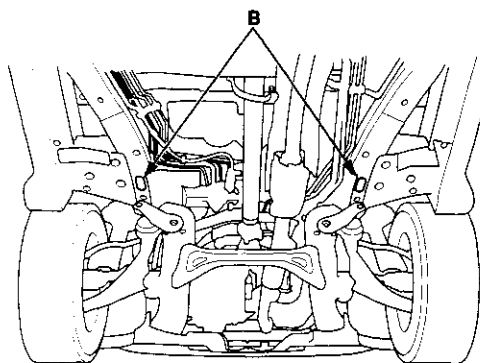
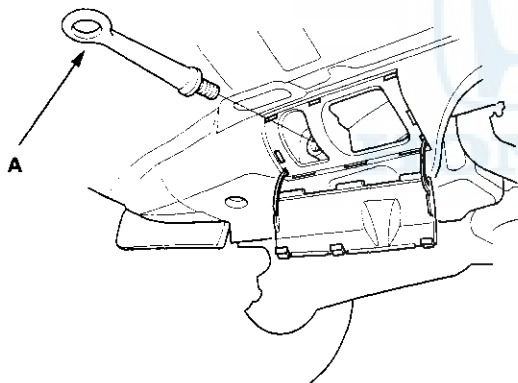
There are three popular methods of towing a vehicle.

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

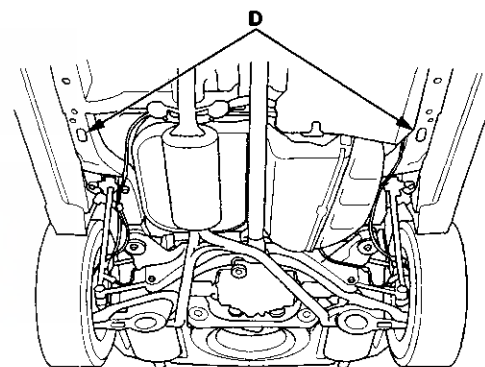
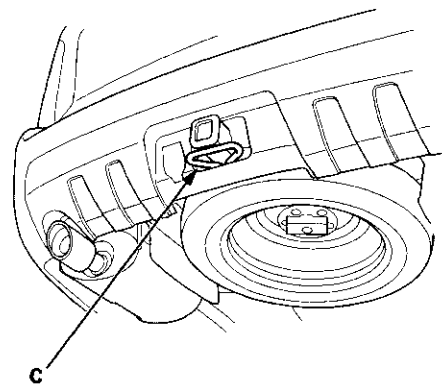
To accommodate the flat-bed tow truck equipment, the vehicle is equipped with a detachable front towing hook (A), front tie down hook slots (B), a rear towing hook (C), and rear tie down hook slots (D).

The towing hooks can be used with a winch to pull the vehicle onto the flat-bed tow truck, and the tie down hook slots can be used to secure the vehicle to the flat-bed tow truck.

**Front:**



**Rear:**



(cont'd)

# General Information

## Towing (cont'd)

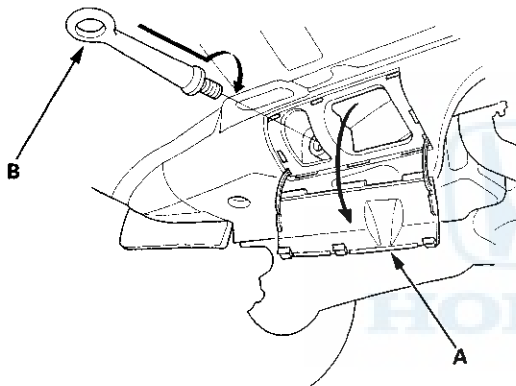
### Front Towing Hook Installation

The detachable front towing hook is for towing very short distances, such as freeing the car. The hook attaches to the anchor under the front bumper.

#### **NOTICE**

- To avoid damage to the vehicle, use the towing hook for straight flat ground towing only. Do not tow on an angle.
- Do not use the detachable tow hook as a tie down for the vehicle on the flat-bed tow truck. Use the tie down hook slots provided.

1. Remove the cover (A) from the splash shield.



2. Remove the detachable towing hook from the tool kit in the cargo floor box.
3. Screw the detachable towing hook (B), and tighten it securely by hand.

**Wheel Lift Equipment** — The tow truck uses two pivoting arms that go under the tires (front or rear) and lifts them off the ground. The other two wheels remain on the ground. **Never tow the vehicle with wheel lift equipment.**

**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. **This method of towing the vehicle is unacceptable.**

The only recommended way of towing the vehicle is on a flat-bed tow truck.

Towing the 4WD Pilot with only two wheels on the ground will damage part of the VTM-4 system.

The 2WD Pilot may also be towed with the front wheels off the ground, or with all four wheels on the ground.

If the 2WD Pilot cannot be transported by a flat-bed tow truck, 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, or if the vehicle is towed with all four wheels on the ground, do this:

- Release the parking brake.
- Start the engine.
- Shift to D, then to N.
- Turn off the engine.
- Leave the ignition switch in ACCESSORY (I) so the steering wheel does not lock.
- Make sure all accessories are turned off to minimize battery current draw.

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

#### **NOTICE**

- Improper towing preparation will damage the transmission. Follow the above procedure exactly. If you cannot shift the transmission or start the engine, the vehicle must be transported on a flat-bed tow truck.
- 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. These labels should not be removed. The original engine or transmission VIN plates are not transferable to the replacement engine or transmission.

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

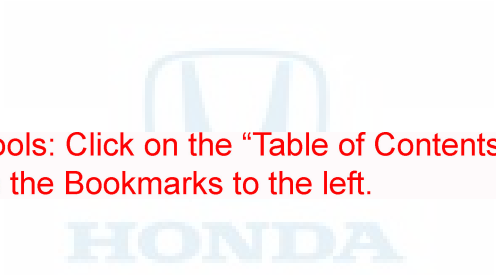
## Precautions for Variable Torque Management 4WD (VTM-4) System

This vehicle is equipped with the Variable Torque Management® 4WD (VTM-4®) system. The VTM-4 system distributes driving torque between the front and rear wheels when accelerating and when wheel spin occurs.

The VTM-4 system does not have a manual switch to disable the 4WD system. Whenever service work requires spinning the front or rear wheels with the engine, always lift and support the vehicle so all four wheels are off the ground.







Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

## **Specifications**

<b>Standards and Service Limits .....</b>	<b>2-2</b>
<b>Design Specifications .....</b>	<b>2-18</b>
Body Specifications . . . . .	2-21

# 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		ILZKR7B-11	
	Gap		1.0-1.1 mm (0.039-0.043 in)	-
Ignition timing	At idle Check the red mark	In N or P	10 ± 2 ° BTDC	
Drive belt	Tension		Auto tensioner	
Alternator	Coil (rotor) resistance	At 68 °F (20 °C)	2.5 kΩ	
	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		1.8 kW	
	Commutator mica depth		0.50-0.90 mm (0.020-0.035 in)	0.20 mm (0.008 in)
	Commutator runout		0.02 mm (0.001 in) max.	0.05 mm (0.002 in)
	Commutator O.D.		28.9-29.0 mm (1.138-1.142 in)	28.0 mm (1.10 in)
	Brush length		15.0-16.0 mm (0.59-0.63 in)	9.0 mm (0.35 in)
	Brush spring tension		22.3-27.3 N (2.27-2.78 kgf, 5.00-6.13 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 <sup>2</sup> , 135 psi)	-
		Maximum variation	200 kPa (2.0 kgf/cm <sup>2</sup> , 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 (No.1, No.2, No.3, and No.4 CYLINDERS)	35.162 mm (1.3843 in)	-
			Intake (Front, No.5, 6 CYLINDERS)	35.155 mm (1.3841 in)	-
			Exhaust (No.1, No.2, No.3, and No.4 CYLINDERS)	36.537 mm (1.4385 in)	-
Exhaust (Front, No.5, 6 CYLINDERS)			36.512 mm (1.4375 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 subtract the O.D. of the valve stem	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	51.48 mm (2.027 in)	-	
		Exhaust	51.05 mm (2.010 in)	-	



## Cylinder Head (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
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 (No.1, No.2, No.3, and No.4 CYLINDERS)	0.015–0.046 mm (0.0006–0.0018 in)	0.046 mm (0.0018 in)
		Intake (No.5, 6 CYLINDERS)	0.018–0.056 mm (0.0007–0.0022 in)	0.056 mm (0.0022 in)
		Exhaust (No.1, No.2, No.3, and No.4 CYLINDERS)	0.015–0.046 mm (0.0006–0.0018 in)	0.046 mm (0.0018 in)
		Exhaust (No.5, 6 CYLINDERS)	0.018–0.047 mm (0.0007–0.0019 in)	0.047 mm (0.0019 in)

## 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 (0.010 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)
Piston ring	Ring-to-groove clearance	Oil	2.805–2.825 mm (0.1104–0.1112 in)	2.85 mm (0.112 in)
		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		-0.0050–0.0010 mm (-0.00020–0.00004 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		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 (0.001 in)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.019–0.045 mm (0.0007–0.0018 in)	0.050 mm (0.0020 in)
	Rod bearing clearance		0.020–0.044 mm (0.0008–0.0017 in)	0.050 mm (0.0020 in)

# Standards and Service Limits

## 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		0.04–0.14 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)
	Relief valve, oil pressure with oil temperature at 176 °F (80 °C)	At idle		69 kPa (0.7 kgf/cm <sup>2</sup> , 10.0 psi)
At 3,000 rpm			490 kPa (5.0 kgf/cm <sup>2</sup> , 71 psi)	—

## Cooling System

Item	Measurement	Qualification	Standard or New	Service Limit
Radiator	Coolant capacities (including engine, heater, hoses, and reservoir)	Engine overhaul	9.4 L (2.48 US gal)	—
		Coolant change	7.5 L (1.98 US gal)	—
		Coolant type	Honda Long Life Antifreeze/Coolant Type 2	
Coolant reservoir	Coolant capacity		0.75 L (0.198 US gal)	—
Radiator cap	Opening pressure		93–123 kPa (0.95–1.25 kgf/cm <sup>2</sup> , 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		Above 10.0 mm (0.39 in)	—

## Fuel and Emissions

Item	Measurement	Qualification	Standard or New	Service Limit
Fuel pressure regulator	Pressure with fuel pressure gauge connected		390–440 kPa (4.0–4.5 kgf/cm <sup>2</sup> , 57–64 psi)	—
Fuel tank	Capacity		79.5 L (21.00 US gal)	—
Engine idle	Idle speed without load	A/T in N or P	700 ± 50 rpm	
	Idle speed with high electric load (A/C on, temperature set to max cool, blower fan motor on high, rear window defogger on, and headlights on high beam)	A/T in N or P	700 ± 50 rpm	

## Automatic Transmission and A/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity : Use genuine Honda ATF-Z1	Fluid change	3.4 L (3.6 US qt)	—
		Overhaul	8.1 L (8.6 US qt)	—
ATF pressure	Line pressure	At 2,000 rpm in N or P	950–1,010 kPa (9.7–10.3 kgf/cm <sup>2</sup> , 140–146 psi)	900 kPa (9.2 kgf/cm <sup>2</sup> , 131 psi)
	1st clutch pressure	At 2,000 rpm in 1	940–1,020 kPa (9.6–10.4 kgf/cm <sup>2</sup> , 140–148 psi)	890 kPa (9.1 kgf/cm <sup>2</sup> , 130 psi)
	1st-hold clutch pressure	At 2,000 rpm in 1	680–760 kPa (6.9–7.7 kgf/cm <sup>2</sup> , 100–110 psi)	630 kPa (6.4 kgf/cm <sup>2</sup> , 91 psi)
	2nd clutch pressure	At 2,000 rpm in 2	940–1,020 kPa (9.6–10.4 kgf/cm <sup>2</sup> , 140–148 psi)	890 kPa (9.1 kgf/cm <sup>2</sup> , 130 psi)
	3rd clutch pressure	At 2,000 rpm in 3rd gear in D	940–1,020 kPa (9.6–10.4 kgf/cm <sup>2</sup> , 140–148 psi)	890 kPa (9.1 kgf/cm <sup>2</sup> , 130 psi)
	4th clutch pressure	At 2,000 rpm in 4th gear in D	940–1,020 kPa (9.6–10.4 kgf/cm <sup>2</sup> , 140–148 psi)	890 kPa (9.1 kgf/cm <sup>2</sup> , 130 psi)
	5th clutch pressure	At 2,000 rpm in 5th gear in D	940–1,020 kPa (9.6–10.4 kgf/cm <sup>2</sup> , 140–148 psi)	890 kPa (9.1 kgf/cm <sup>2</sup> , 130 psi)
Torque converter	Stall speed		1,850 rpm	—
	Check with vehicle on level ground	Service limit	1,700–2,000 rpm	—

### Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit	
Clutch	Clearance between clutch end-plate and top disc	1st	—	1.15–1.35 mm (0.045–0.053 in)	
		1st-hold	—	0.6–1.0 mm (0.024–0.039 in)	
		2nd	—	1.05–1.25 mm (0.041–0.049 in)	
		3rd	—	0.8–1.0 mm (0.031–0.039 in)	
		4th	—	0.75–0.95 mm (0.030–0.037 in)	
		5th	—	0.75–0.95 mm (0.030–0.037 in)	
	Clutch return spring free length	1st		68.3 mm (2.69 in)	66.3 mm (2.61 in)
		2nd		48.3 mm (1.90 in)	46.3 mm (1.82 in)
		3rd		52.0 mm (2.05 in)	50.0 mm (1.97 in)
		4th		37.4 mm (1.47 in)	35.4 mm (1.39 in)
		5th		47.9 mm (1.89 in)	45.9 mm (1.81 in)
	Clutch disc thickness			1.94 mm (0.076 in)	—
	Clutch plate thickness	1st		1.6 mm (0.063 in)	When discolored
		1st-hold		1.8 mm (0.071 in)	When discolored
		2nd		1.8 mm (0.071 in)	When discolored
		3rd		2.0 mm (0.079 in)	When discolored
		4th		1.6 mm (0.063 in)	When discolored
		5th		1.6 mm (0.063 in)	When discolored
	1st clutch end plate thickness	Mark 1		3.1 mm (0.122 in)	When discolored
		Mark 2		3.2 mm (0.126 in)	When discolored
		Mark 3		3.3 mm (0.130 in)	When discolored
		Mark 4		3.4 mm (0.134 in)	When discolored
		Mark 5		3.5 mm (0.138 in)	When discolored
		Mark 6		3.6 mm (0.142 in)	When discolored
		Mark 7		3.7 mm (0.146 in)	When discolored
		Mark 8		3.8 mm (0.150 in)	When discolored
		Mark 9		3.9 mm (0.154 in)	When discolored
	1st-hold clutch plate B thickness			5.0 mm (0.197 in)	When discolored
	2nd, 3rd, 4th, and 5th clutch end plate thickness	Mark 1		2.1 mm (0.083 in)	When discolored
		Mark 2		2.2 mm (0.087 in)	When discolored
		Mark 3		2.3 mm (0.091 in)	When discolored
		Mark 4		2.4 mm (0.094 in)	When discolored
		Mark 5		2.5 mm (0.098 in)	When discolored
Mark 6			2.6 mm (0.102 in)	When discolored	
Mark 7			2.7 mm (0.106 in)	When discolored	
Mark 8			2.8 mm (0.110 in)	When discolored	
Mark 9			2.9 mm (0.114 in)	When discolored	
Mainshaft	Diameter at startor shaft needle bearing contact area		22.984–23.000 mm (0.9049–0.9055 in)	When worn or damaged	
	5th gear collar diameter at needle bearing contact area		39.981–39.991 mm (1.5741–1.5744 in)	When worn or damaged	
	5th gear I.D.		46.000–46.016 mm (1.8110–1.8116 in)	When worn or damaged	
	End play of gears	5th gear	0.10–0.22 mm (0.004–0.009 in)	—	
	5th gear collar length		48.7–48.8 mm (1.917–1.921 in)	—	
	5th gear collar flange thickness		4.5–4.7 mm (0.18–0.19 in)	When worn or damaged	
	Sealing ring thickness		1.90–1.96 mm (0.075–0.077 in)	1.85 mm (0.073 in)	
Width of sealing ring groove		2.025–2.060 mm (0.080–0.081 in)	2.08 mm (0.082 in)		

## Standards and Service Limits

### Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft	Diameter at bearing contact area	Torque converter housing	40.505–40.515 mm (1.5947–1.5951 in)	When worn or damaged
		5th gear	34.975–34.991 mm (1.3770–1.3776 in)	When worn or damaged
	Diameter of 2nd gear at needle bearing contact area		61.975–61.991 mm (2.4400–2.4406 in)	When worn or damaged
	I.D. of gear	5th gear	41.000–41.016 mm (1.6142–1.6148 in)	When worn or damaged
		idler gear	70.000–70.019 mm (2.7559–2.7566 in)	When worn or damaged
		Reverse gear	46.000–46.016 mm (1.8110–1.8116 in)	When worn or damaged
	End play of gears	2nd gear	0.005–0.040 mm (0.0002–0.0016 in)	–
		5th gear	0.12–0.27 mm (0.0047–0.0106 in)	–
		Idler gear	0.005–0.040 mm (0.0002–0.0016 in)	–
		Reverse gear	0.10–0.25 mm (0.0039–0.0098 in)	–
	50.8 mm washer thickness	A	1.91 mm (0.0752 in)	When worn or damaged
		B	1.93 mm (0.0760 in)	When worn or damaged
		C	1.95 mm (0.0768 in)	When worn or damaged
		D	1.97 mm (0.0776 in)	When worn or damaged
		E	1.99 mm (0.0783 in)	When worn or damaged
		F	2.01 mm (0.0791 in)	When worn or damaged
		G	2.03 mm (0.0799 in)	When worn or damaged
		H	2.05 mm (0.0807 in)	When worn or damaged
		I	2.07 mm (0.0815 in)	When worn or damaged
		J	2.09 mm (0.0823 in)	When worn or damaged
K		2.11 mm (0.0831 in)	When worn or damaged	
L		2.13 mm (0.0839 in)	When worn or damaged	
M		2.15 mm (0.0846 in)	When worn or damaged	
N		2.17 mm (0.0854 in)	When worn or damaged	
O	2.19 mm (0.0862 in)	When worn or damaged		