

HONDA

Emergency Response Guide

For Hybrid Vehicles



Prepared for fire service, law enforcement,
emergency medical, and professional towing
personnel by American Honda Motor Co., Inc.

Introduction

This booklet has been prepared to help emergency response professionals identify Honda gasoline-electric hybrids and respond safely to incidents involving these vehicles.

Part 1 presents general information and recommendations that apply to all Honda hybrids produced through the 2005 model year. Part 2 contains model-specific information for each of the three current hybrids: the Insight, the Civic Hybrid, and the Accord Hybrid. This guide will be updated or replaced as Honda, and Acura, introduce new hybrid vehicles.

We hope this publication provides the kind of information you need. If you have any questions, or wish to order additional copies, please contact your local Honda dealer, or Honda Automobile Customer Service at 1-800-999-1009.

Thank you for your concern and efforts in protecting Honda customers and the general public.

Contents

Introduction	i
Part 1: Generic Information for All Honda Hybrids	1
Identifying a Honda Hybrid	1
Gasoline Engine	2
Electric Motor	2
12-Volt Battery	2
Underhood Fuse Box	2
High-Voltage Battery Module	3
High-Voltage Battery Box	3
High-Voltage Cables	4
Potential Hazards	5
Flammable Fluids	5
Undeployed Airbags and Tensioners	5
Electric Shock Potential	6
High-Voltage Battery Electrolyte	7
12-Volt Battery Electrolyte	7
Emergency Procedures	8
Vehicle Fire	8
Submerged or Partially Submerged Vehicle	8
Preventing Current Flow Through High-Voltage Cables	8
Best Method for Preventing High-Voltage Flow	9
Second-Best Method for Preventing High-Voltage Flow	9
Extricating Occupants	11
Moving or Towing a Honda Hybrid	11
Part 2: Model-Specific Information	12
Honda Insight	12
Honda Civic Hybrid	14
Honda Accord Hybrid	16

IDENTIFYING A HONDA HYBRID

The Insight, Honda's first gasoline-electric hybrid, can be easily identified by its aerodynamic shape and rear fender skirts. It also has the name Insight and a hybrid label on the rear of the vehicle.

However, except for a few minor differences in equipment, such as a roof antenna, there is very little difference in the exterior or interior appearance of the Civic and Accord hybrids, compared to those of their gasoline-powered counterparts.

The easiest way to identify a Civic or Accord hybrid is by the word HYBRID, which should appear on the right or left rear of these vehicles (see model-specific pages for exact locations).

If a hybrid badge or label is not visible, due to damage for example, the presence of orange cables under the hood, or orange shielding under the car, would also identify the vehicle as a hybrid.



The Insight has a distinct aerodynamic shape and rear fender skirts.



The Civic Hybrid, shown here, and the Accord Hybrid look essentially the same as non-hybrid models.

HYBRID

To confirm whether an Accord or a Civic is a hybrid, look for the word "HYBRID" on the rear of the vehicle.



Orange cables under the hood, or orange shielding bolted to the undercarriage of a Honda, tell you the vehicle is a hybrid.



Gasoline Engine

Electric Motor

12-Volt Battery

Underhood Fuse Box

GASOLINE ENGINE

The main power source of all Honda hybrids is a conventional gasoline engine, located under the hood.

ELECTRIC MOTOR

During start-up and acceleration, an electric motor, located between the engine and the transmission, provides assistance to the engine. During braking and deceleration, the motor acts as a generator, recharging both the high-voltage battery module and the 12-volt battery.

12-VOLT BATTERY

A conventional 12-volt battery, also located under the hood, powers all standard electronics. In Honda hybrids, this battery also provides power to the high-voltage battery control systems. Disconnecting or cutting the negative cables to the battery may be necessary in some emergency situations.

UNDERHOOD FUSE BOX

A fuse box is also located under the hood on the driver's side of the engine compartment. Removing the main fuse from this box may be required in some emergency situations.

HIGH-VOLTAGE BATTERY MODULE

The electric motor is powered by a nickel-metal-hydrate (NiMH) battery module. The module contains 120 individual 1.2-volt cells, each about the size of a conventional D-cell battery. The cells are arranged inside the module in groups or “sticks.”

Since the battery module is recharged by the electric motor whenever the vehicle decelerates, the battery never needs external charging.

Battery module specifications:

Nominal Voltage: 144 volts

Capacity:

Insight 6.5 ampere-hours

Civic and Accord 6.0 ampere-hours

HIGH-VOLTAGE BATTERY BOX

The high-voltage battery module is stored in a sturdy metal box, shown here with the lid removed. The box contains other important components which, together with the battery, make up the Intelligent Power Unit (IPU). All components inside the battery box are completely insulated and isolated from the vehicle body.

For maximum safety, the high-voltage battery box is positioned directly behind the seat-backs where it is well-protected from potential damage in a collision.



HV Battery Module

Single HV Battery "Stick"

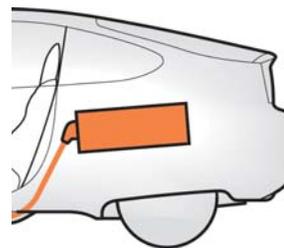
Single HV Cell

D-Cell Battery

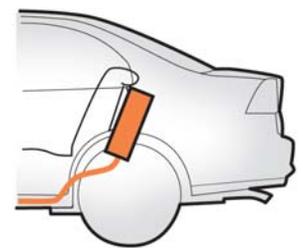


Other High-Voltage Components

High-Voltage Battery Module



Battery Box in Insight



Battery Box in Accord and Civic Hybrids



High-Voltage Cable Connection to Motor



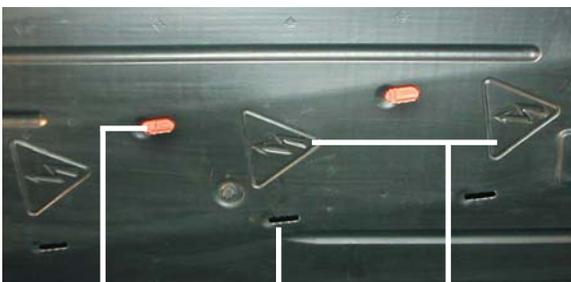
High-Voltage Cable to Accord AC Compressor



Electrical shield bolted to undercarriage



Thermal shield near hot exhaust



High-Voltage Cable Visible

Undercarriage Cover

High-Voltage Alert Symbols

HIGH-VOLTAGE CABLES

Electrical energy flows between the high-voltage battery module and the motor through three heavy-duty orange cables.

In the Accord Hybrid, high-voltage cables also deliver current to the air conditioning (AC) compressor. This allows the AC to continue running when the vehicle is in the Auto Idle Stop mode. (Under certain conditions, Auto Idle Stop automatically turns the engine off when the car comes to a stop, at a stop light for example.)

Between the battery box and the engine compartment, the high-voltage cables are routed under the vehicle, inside sturdy orange plastic protective shields. Where the cables lie close to the exhaust system, a metal thermal shield covers, but does not obscure, the orange high-voltage shield.

To improve aerodynamics and fuel-efficiency in the Insight, most of the high-voltage shielding under the vehicle is behind smooth metal paneling. High-voltage alert symbols (⚡) are stamped into the metal to indicate the cables' path.

Honda hybrids do not present any unusual hazards. The vehicles have performed well in standard crash tests, with no damage to high-voltage components in front, side, or rear impacts.

FLAMMABLE FLUIDS

Gasoline-electric hybrids have the same potential fire and explosion hazards as conventional vehicles. (See model-specific pages for flammable fluid capacities.)



UNDEPLOYED AIRBAGS AND TENSIONERS

All Honda hybrids have front airbags and front seat belt tensioners. The Civic and Accord also have side airbags for front-seat occupants, and the Accord is equipped with side curtain airbags as well. These systems all use pyrotechnic devices with a deactivation time up to 3 minutes.



Follow recommended procedures to avoid possible injury from a deploying airbag or inflator.

Being struck at close range by a deploying front or side airbag, or cutting into an unactivated inflator, can result in moderate to severe injuries. Injuries can also result from contact with a deploying side curtain airbag, or having a seat belt tensioner activate unexpectedly.

To reduce the risk of injury during the deactivation period, we recommend the following:

- Keep out of the path of an undeployed front airbag, and do not cut into the center of the steering wheel or dashboard where the front airbags are stored.
- Do not cut into the rear (C) pillar on the Accord Hybrid where the side curtain inflator is stored.

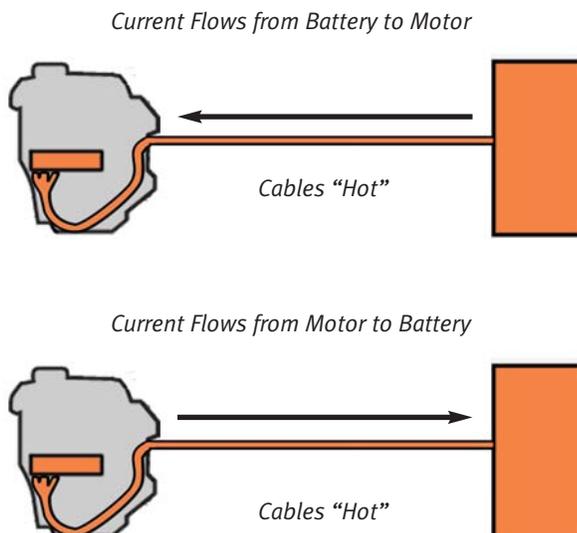
You should also be aware that extreme heat (320-356°F; 160-180°C) can cause unintended airbag inflation.

ELECTRIC SHOCK POTENTIAL

Unprotected contact with any electrically charged (“hot” or “live”) high-voltage component can cause serious injury or death. However, ***receiving an electric shock from a Honda hybrid is highly unlikely*** because of these facts:

- Contact with the battery module or other components inside the battery box can occur only if the box is damaged and the contents are exposed, or the box is opened without following proper precautions.
- Contact with the electric motor can occur only after one or more components are removed.
- The high-voltage cables can be easily identified by their distinctive orange color, and contact with them can be avoided.

It’s also important to understand that there are only two situations in which the cables can potentially be “hot” in a Honda Insight or a Civic Hybrid:



1. *The ignition switch is on*, the engine is running, and the vehicle is accelerating. In this case, the high-voltage battery module is sending current to the motor.
2. *The ignition switch is on*, the engine is running, and the vehicle is decelerating. In this case, the motor is generating electric current and sending it to the battery module.

With the Accord Hybrid, there is a third situation in which the cables can be “hot.”

3. *The ignition switch is on*, the engine has been turned off by the Auto Idle Stop feature, and the air conditioner is on. In this case, the high-voltage battery module is sending current to the air conditioner compressor.

The only condition common to all three situations in which the cables can be “hot” is that the ignition is on. Therefore: ***When the ignition switch is off, electric current cannot flow into the high-voltage cables.***

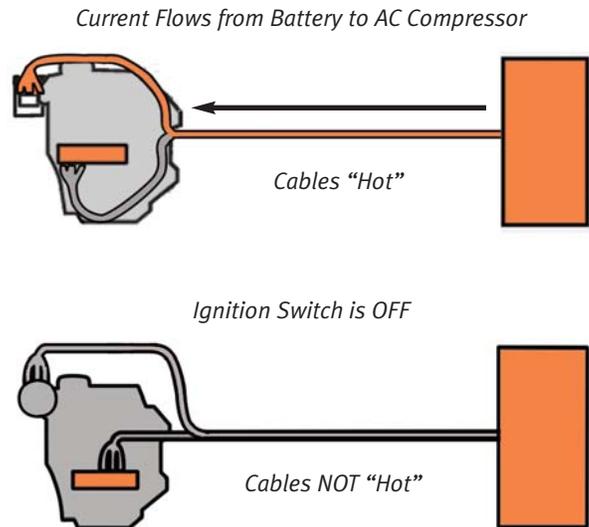
HIGH-VOLTAGE BATTERY ELECTROLYTE

Small quantities of a highly alkaline liquid electrolyte, which is corrosive to human tissue, are used in the manufacture of the high-voltage battery cells. However, in the finished cells, electrolyte is non-liquid and sealed in a metal case, and any leakage would be extremely rare.

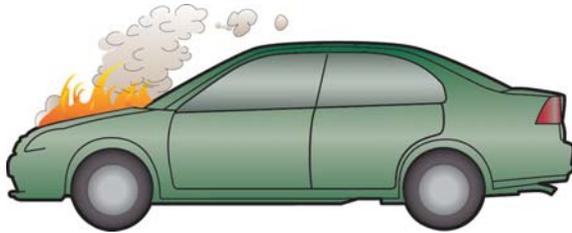
Moreover, the electrolyte is non-flammable, non-explosive, and creates no hazardous fumes or vapors in normal operating conditions.

12-VOLT BATTERY ELECTROLYTE

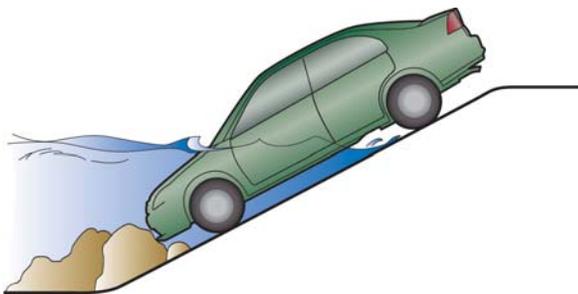
Any hazards from contact with the 12-volt battery electrolyte are the same as those with batteries in conventional passenger vehicles.



Electrolyte in the high-voltage battery cells is non-liquid and should not present a hazard.



Standard procedures are recommended if a Honda hybrid is involved in fire.



Pull vehicle from water, then follow recommended procedures for preventing high-voltage current flow.

Based on discussions with rescue professionals, we recommend that emergency response personnel follow standard procedures developed by their own organization for assessing situations and dealing with potential hazards. Given our knowledge of Honda hybrids, we also recommend that you use the procedures outlined in this section.

VEHICLE FIRE

There are no unusual hazards if a Honda hybrid or the high-voltage battery box is involved in a fire. It should be noted, however, that extremely high temperatures (320-356°F; 160-180°C) can cause undeployed airbags to deploy.

SUBMERGED OR PARTIALLY SUBMERGED VEHICLE

Pull the vehicle out of the water, then use one of the procedures described below for preventing electric current from flowing through the high-voltage cables. ***There is no risk of electric shock from touching the car's body or framework—in or out of the water.***

PREVENTING CURRENT FLOW THROUGH HIGH-VOLTAGE CABLES

Before attempting to rescue occupants or move a damaged Honda hybrid, you should reduce the potential for current to flow from the electric motor or the battery module through the high-voltage cables.

There are ***two recommended methods*** for preventing current flow. These are discussed on the following pages.

BEST METHOD FOR PREVENTING HIGH-VOLTAGE CURRENT FLOW

Turn the ignition switch off.

This simple action turns off the engine and the electric motor, preventing current flow into the cables. It also turns off power to the airbags and the seat belt tensioners.

After you turn the ignition switch off, remove the key so the car cannot be accidentally restarted.

SECOND-BEST METHOD FOR PREVENTING HIGH-VOLTAGE CURRENT FLOW

Remove the main fuse, and cut both negative 12-volt battery cables.

Removing the main fuse turns off the engine and the electric motor, preventing current flow from the motor into the cables. It also cuts power to the airbags and the seat belt tensioners.

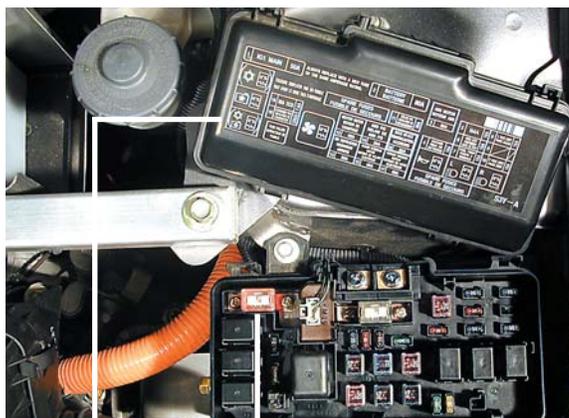
Cutting the negative cables on the 12-volt battery cuts power to the high-voltage battery controllers, preventing current from flowing into the cables from the high-voltage battery.

1. Locate the underhood fuse box, and remove the cover (see model-specific pages for fuse box locations).
2. Locate the main fuse by referring to the diagram on top of, or inside, the fuse box cover. (The Insight fuse box is shown here only as an example. See the model-specific pages for photos of the Civic and Accord Hybrid fuse boxes.)

Continued



Turning the ignition key to the OFF position stops the flow of electricity in the cables.



Fuse Box Cover

Main Fuse



*Main Fuse
Screws*



Negative Cables

3. Using a Phillips screwdriver, unscrew the main fuse assembly and remove it from the box. (The Civic Hybrid main fuse screws are shown here as an example. See model-specific pages for location of the main fuse screws in the Insight and Accord Hybrid.)

4. Locate the 12-volt battery and cut the negative cables with diagonal cutters.

NOTE: If you cannot perform either method to stop the engine and prevent current flow into the high-voltage cables, use extreme care, do not cut into the cables, and do not touch damaged cables as they may be “hot.”

EXTRICATING OCCUPANTS

If cutters or spreaders are needed to allow occupants to be rescued, make sure to stay within the cut zones recommended on the following pages.

MOVING AND TOWING A HONDA HYBRID

If a disabled vehicle needs to be moved a short distance (to the side of the road, for example), and the car can still roll on the ground, the easiest way is to shift the transmission into neutral and manually push the vehicle.

To transport a vehicle away from an emergency location, a flatbed truck should be used if the vehicle might be repaired. If a flatbed is not available, the vehicle should be towed by wheel-lift equipment with the front wheels off the ground. Do not use sling-type towing equipment unless the car has been damaged beyond repair.

IDENTIFYING THE INSIGHT

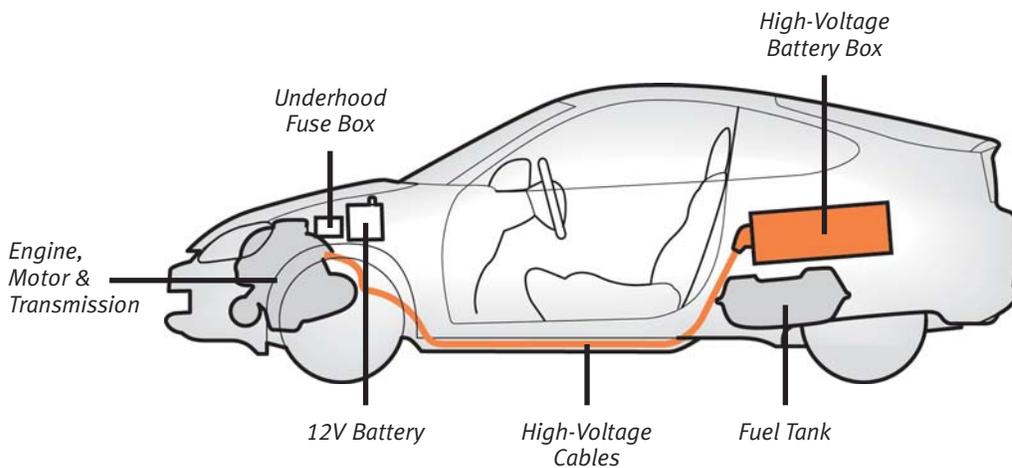
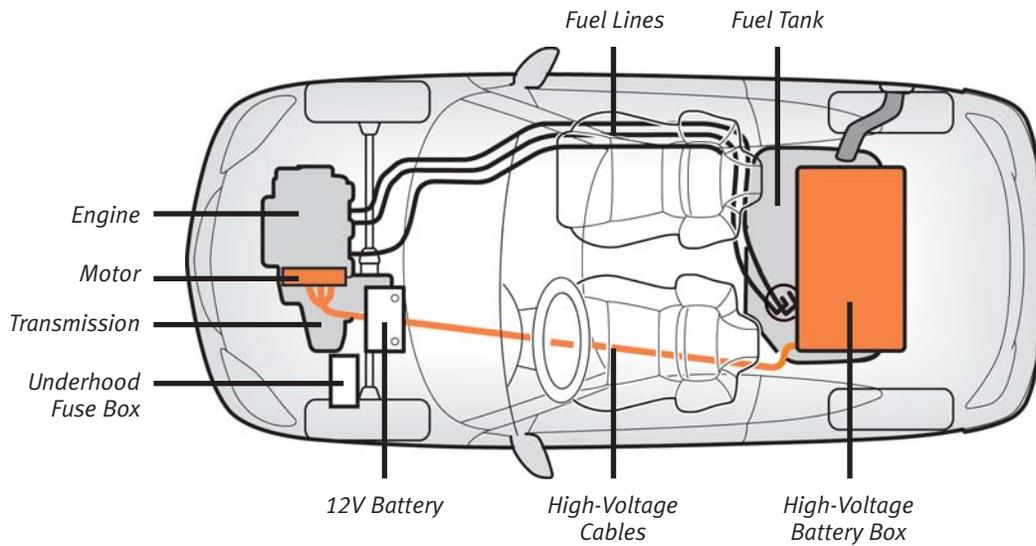


The Insight is a 2-passenger car with a distinctive aerodynamic shape and rear fender skirts.



Depending on the model year, a hybrid label will appear on the right or left rear of the vehicle.

KEY COMPONENTS



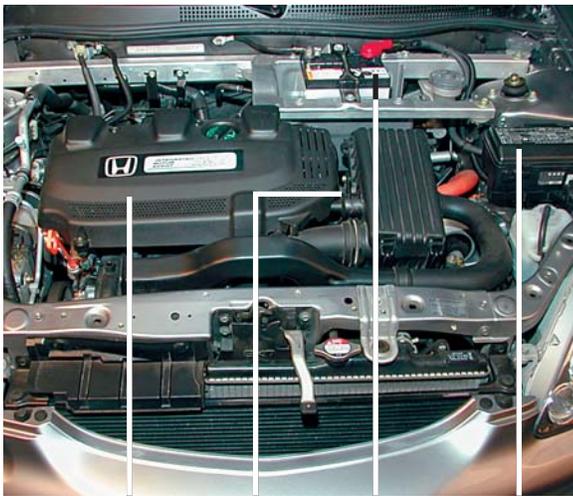
FLAMMABLE FUELS

Gasoline:	10.6 gallons (40 liters)
Engine Oil:	3.2 quarts (3.0 liters)
Transmission Fluid:	
CVT:	3.4 quarts (3.2 liters)
Manual:	1.6 quarts (1.5 liters)

AIRBAGS AND TENSIONERS

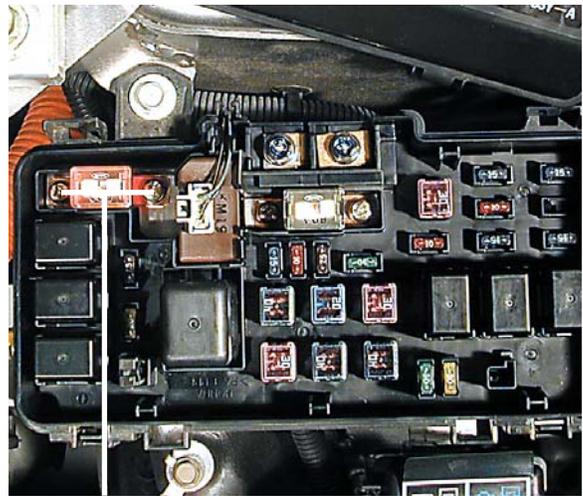
Front Airbags:	Driver & passenger
Tensioners:	Driver & passenger

UNDERHOOD COMPONENTS



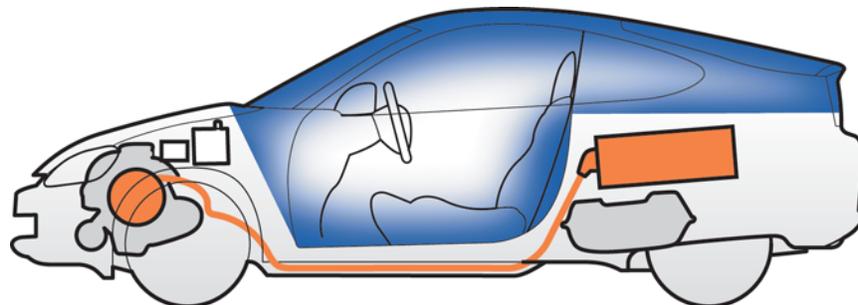
Engine Motor 12-Volt Battery Underhood Fuse Box

MAIN FUSE LOCATION



Main Fuse Screws

CUT ZONE



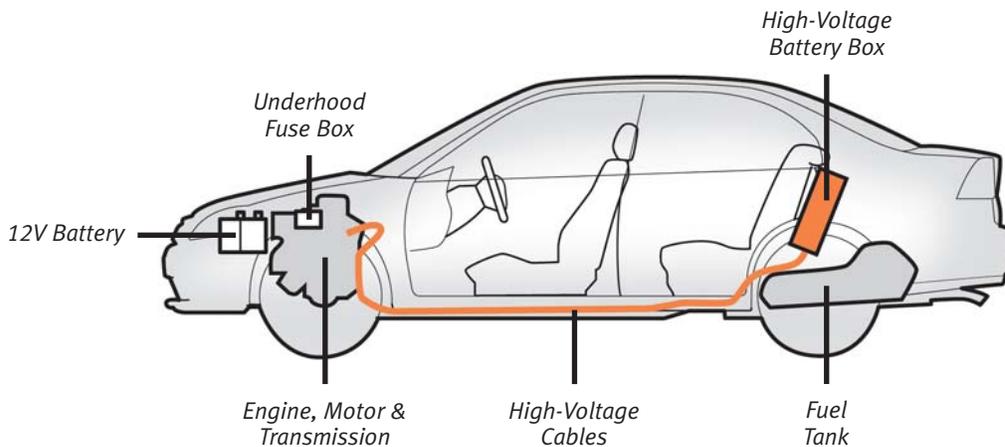
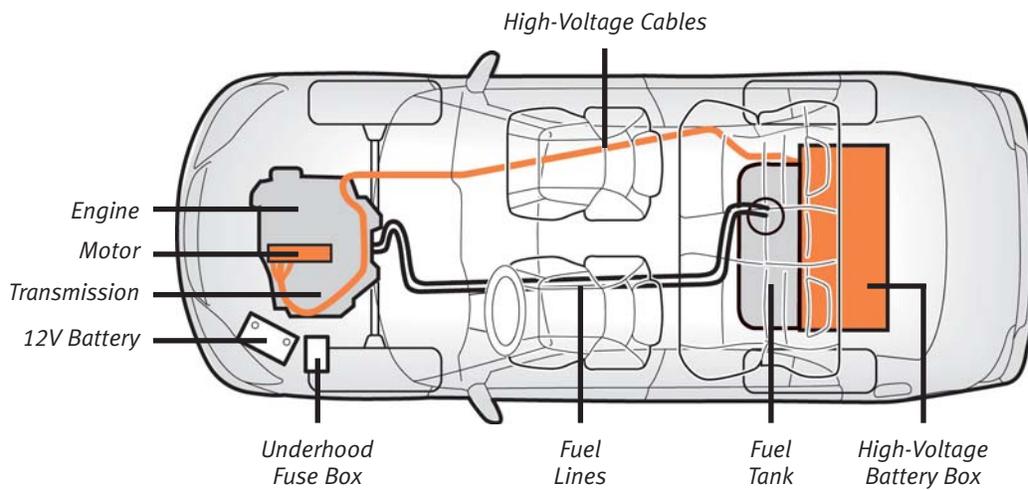
IDENTIFYING THE CIVIC HYBRID



The Civic Hybrid appears virtually the same as a conventional Civic.

Look for a Hybrid label or badge on the right or left rear at the level shown above.

KEY COMPONENTS



FLAMMABLE FUELS

Gasoline:	13.2 gallons (50 liters)
Engine Oil:	3.2 quarts (3.0 liters)
Transmission Fluid:	
CVT:	3.4 quarts (3.2 liters)
Manual:	1.6 quarts (1.5 liters)

AIRBAGS AND TENSIONERS

Front Airbags:	Driver & front passenger
Side Airbags:	Driver & front passenger
Tensioners:	Driver & front passenger

UNDERHOOD COMPONENTS



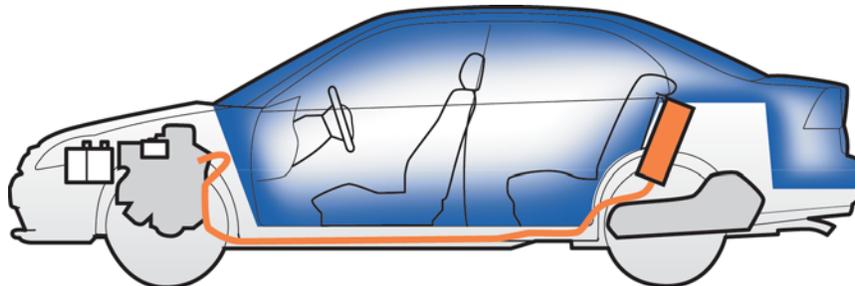
Engine Motor 12-Volt Battery Underhood Fuse Box

MAIN FUSE LOCATION



Main Fuse Screws

CUT ZONE



IDENTIFYING THE ACCORD HYBRID

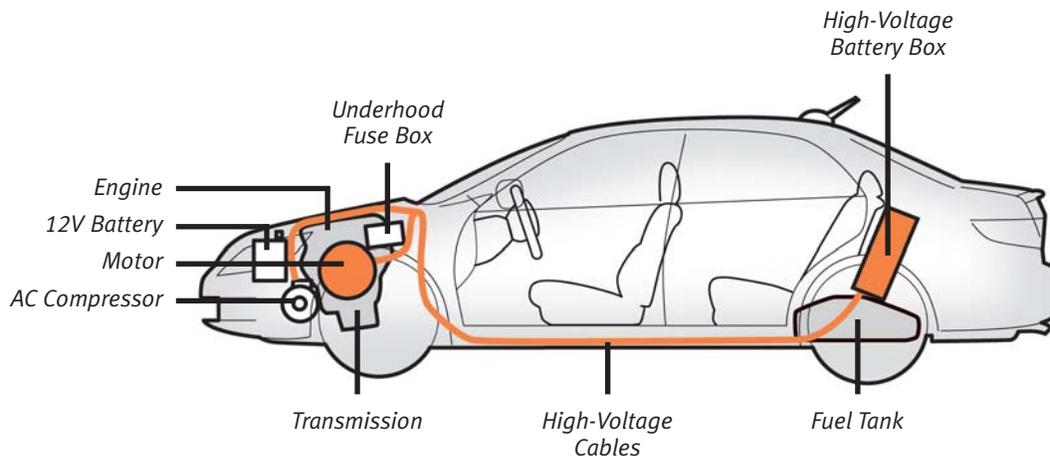
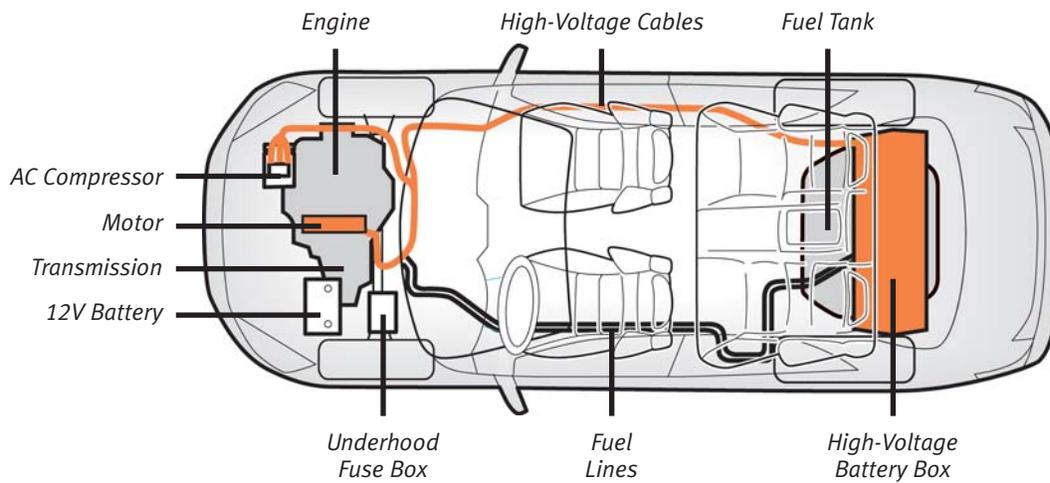


The appearance of an Accord Hybrid is essentially identical to that of a conventional Accord.



The word "Hybrid" appears directly under the name "Accord" above the right rear tail light.

KEY COMPONENTS



FLAMMABLE FUELS

Gasoline: 17.1 gallons (64.7 liters)

Engine Oil 5.3 quarts (5.0 liters)

Transmission Fluid: 8.2 quarts (7.8 liters)

AIRBAGS AND TENSIONERS

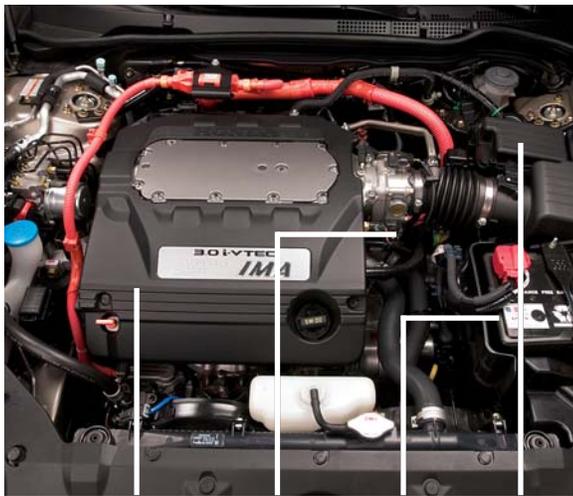
Front Airbags: Driver & front passenger

Side Airbags: Driver & front passenger

Tensioners: Driver & front passenger

Side Curtain Airbags: Driver, front passenger & outer rear passengers

UNDERHOOD COMPONENTS



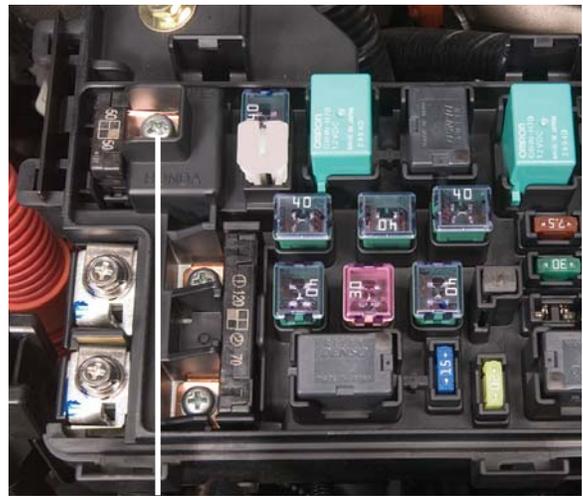
Engine

Motor

12-Volt
Battery

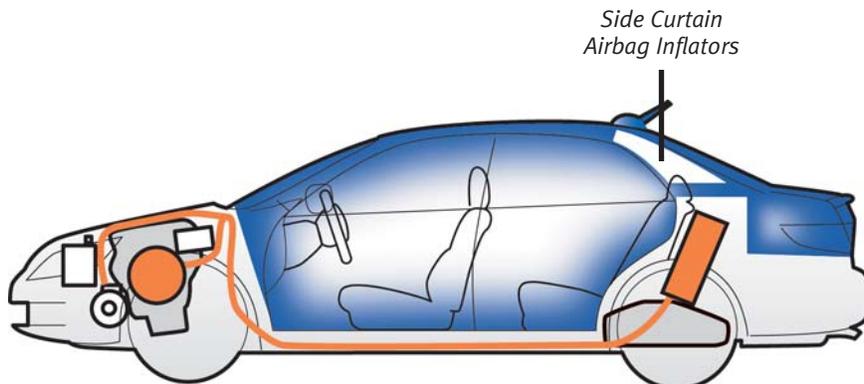
Underhood
Fuse Box

MAIN FUSE LOCATION



Main Fuse
Screw

CUT ZONE



Side Curtain
Airbag Inflators

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