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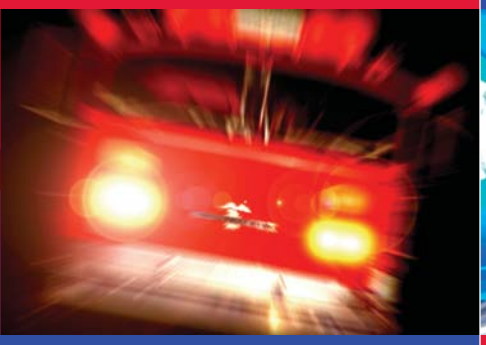
HONDA

Emergency Response Guide

For Hybrid Vehicles





2011 Model Year Edition

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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 2011 model year. Part 2 contains model-specific information for each of the four hybrid models: the Insight, the Civic Hybrid, the Accord Hybrid, and the CR-Z. This guide will be updated or replaced as Honda continues to introduce new hybrid vehicles.

We hope this publication provides the kind of information you need. This booklet is available for reference or downloading at www.honda.ca.

Honda Canada wants to thank you for your concern and efforts in protecting Honda customers and the general public.

Part: 1

Vehicle Description



All Honda Insights have an aerodynamic shape. Early models (top above) have two doors, and newer models (e.g., directly above) have four.



Like the Civic Hybrid, above, all Honda hybrids other than the Insight and the CR-Z look essentially the same as their conventional counterparts.



The two-door CR-Z has a sportier appearance than Honda's other hybrid vehicles.





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

IDENTIFYING A HONDA HYBRID

The Insight can be identified by its aerodynamic shape and by the name Insight and a hybrid badge on the rear of the vehicle. The 2000-2006 models have rear fender skirts, the later models do not.

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.

Honda's newest dedicated hybrid, the 2011 CR-Z, is a two-door, two-passenger sports car.

The easiest way to identify a hybrid is by the word HYBRID on the rear of the vehicle. If the word hybrid is not visible on the rear of the vehicle, 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.

Vehicle Description

Part: 1

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.

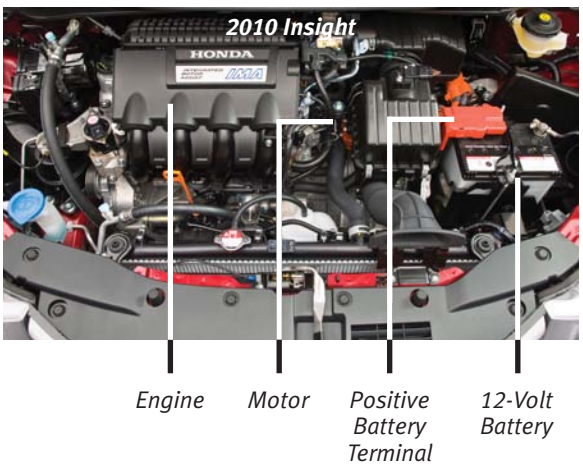
UNDERHOOD FUSE BOX

All Honda hybrids except the 2010 and later Insights and the CR-Z have a fuse box under the hood on the driver's side of the engine compartment. Removing the main fuse from the box may be required in some emergency situations.

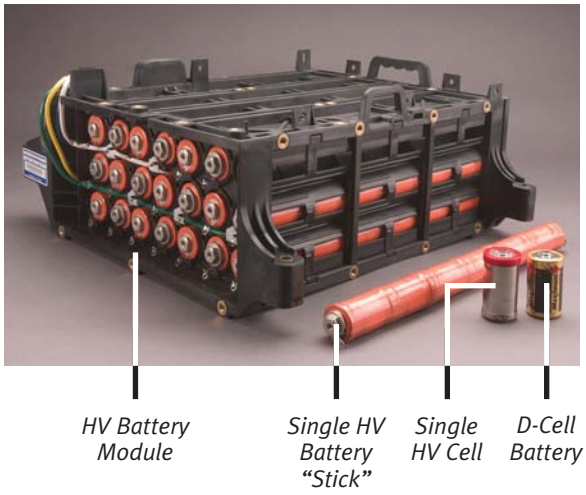
POSITIVE BATTERY TERMINAL

With 2010 and newer Insights and the CR-Z, the main fuse is located in the positive battery terminal. Cutting or removing the DC to DC converter cable, which is connected to this terminal, may be required in some emergency situations.





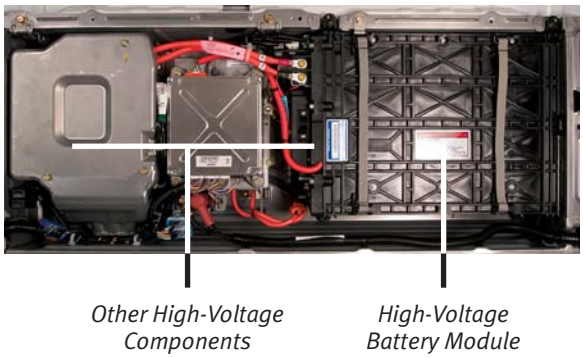
Vehicle Description



HIGH-VOLTAGE BATTERY MODULE

The electric motor is powered by a nickel-metal-hydride (NiMH) battery module. The module contains groups, or "sticks," of 1.2-volt cells, each about the size of a D-cell battery. The number of cells varies by vehicle model, and total voltages range from 100-160 volts.

Since the battery module is recharged by the electric motor whenever the vehicle decelerates, the battery does not need external charging.



HIGH-VOLTAGE BATTERY BOX

The high-voltage battery module is stored in a sturdy box, such as the one 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 behind the seat-backs where it is well-protected from potential damage in a collision.

HIGH-VOLTAGE CABLES

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

In the Accord Hybrids and the 2006-2011 Civic Hybrids, 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, some sections of the high-voltage cables are located behind paneling. High-voltage alert symbols (⚠) may be stamped into the paneling to indicate the cables' path.



High-Voltage Cable Connection to Motor



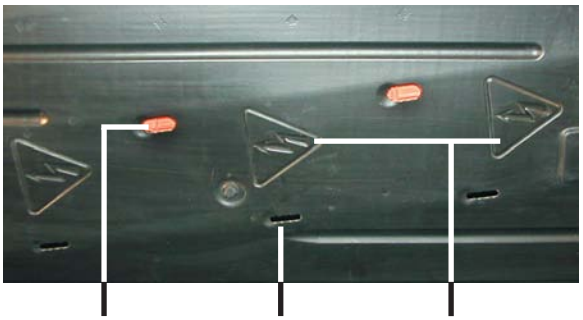
High-Voltage Cable to Accord AC Compressor



Electrical shield bolted to undercarriage



Thermal shield near hot exhaust



High-Voltage Cable Visible | *Undercarriage Cover* | *High-Voltage Alert Symbols*

Part: 1

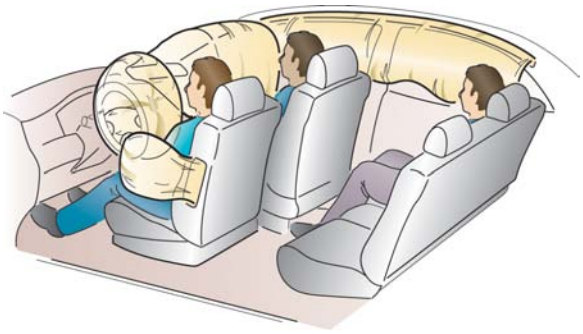
Potential Hazards

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.)



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

UNDEPLOYED AIRBAGS AND TENSIONERS

All Honda hybrids have front airbags and front seat belt tensioners. All except 2000-2006 Insights have side airbags in front, and side curtain airbags are standard in all Accords, 2006 and later Civics, 2010 and newer Insights, and CR-Zs. These systems all use pyrotechnic devices with a deactivation time of 3 minutes.

As with other airbag-equipped vehicles, being struck 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 Accords, CR-Zs, 2006 and later Civics, and 2010 and newer Insights, as that is where side curtain inflators are stored..

- Be aware that extreme heat (160-180ºC; 320-356ºF) can cause unintended airbag inflation.

Potential Hazards

ELECTRIC SHOCK POTENTIAL

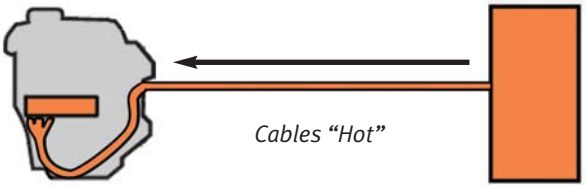
Unprotected contact with any electrically charged ("hot" or "live") high-voltage component can cause serious injury or death. However, ***receiving an electric shock from a Honda hybrid is highly unlikely*** because of these facts:

- 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.

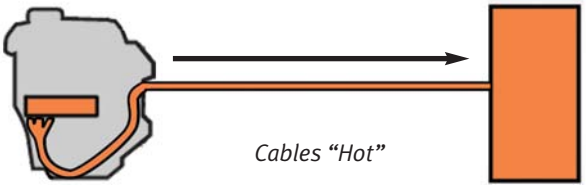
It's also important to understand in what situations the high-voltage cables can potentially be "hot":

All Honda Hybrids: Whenever the ignition switch is in the ON position and the engine is running, the high-voltage battery is either supplying current to the electric motor or receiving current generated by the electric motor.

Current Flows from Battery to Motor

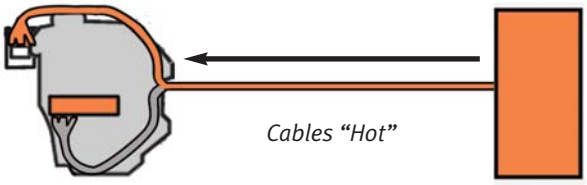


Current Flows from Motor to Battery

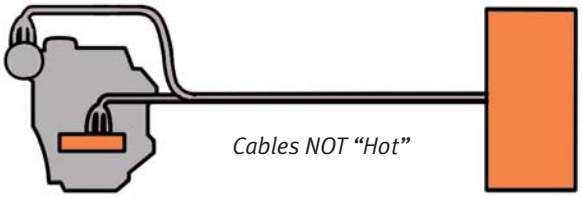


Potential Hazards

Current Flows from Battery to AC Compressor



Ignition Switch is OFF





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

Accord and 2006-2011 Civic Hybrids: With these models, the high-voltage battery powers the air conditioner compressor as well as the electric motor. So, if the ignition switch is in the ON position, the air conditioner is on, and the engine has been turned off by the Auto Idle Stop feature (at a stop light, for example), current will flow through the cables to the air conditioner compressor.

Regardless of the model, if the ignition switch is turned off, the flow of high-voltage current will stop.

The lesson, therefore, is: ***Electric current cannot flow into the high-voltage cables when the ignition is OFF.***

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 sturdy 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

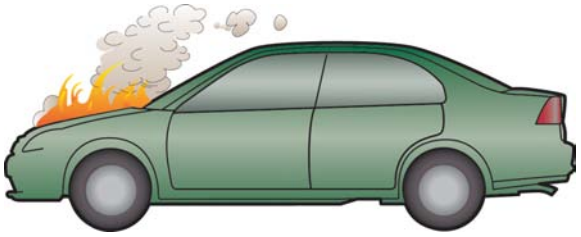
Any hazards from contact with the 12-volt battery electrolyte are the same as those with batteries in conventional passenger vehicles.

Emergency Procedures

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

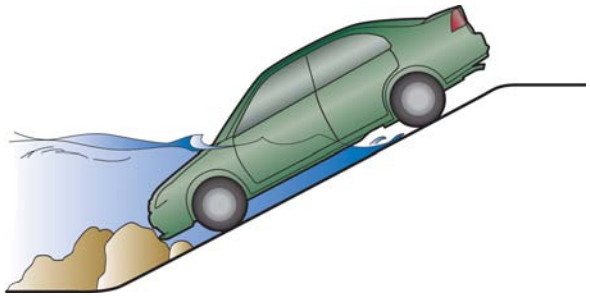
There are no unusual hazards if a Honda hybrid or the high-voltage battery box is involved in a fire. It should be noted, however, that extremely high temperatures (160-180ºC; 320-356ºF) can cause undeployed airbags to deploy.



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

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.***



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

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.

Emergency Procedures



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

BEST METHOD FOR PREVENTING HIGH-VOLTAGE CURRENT FLOW (ALL MODELS)

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 (EXCEPT 2010-2011 INSIGHTS AND CR-Z)

Cut both negative 12-volt battery cables and remove the main fuse.

Together, cutting the negative 12-volt battery cables and removing the main fuse turns off the engine and the electric motor and cuts power to the high-voltage system controllers, thereby preventing current flow into the cables. It also cuts power to the airbags and the seat belt tensioners.

Emergency Procedures

Part: 1

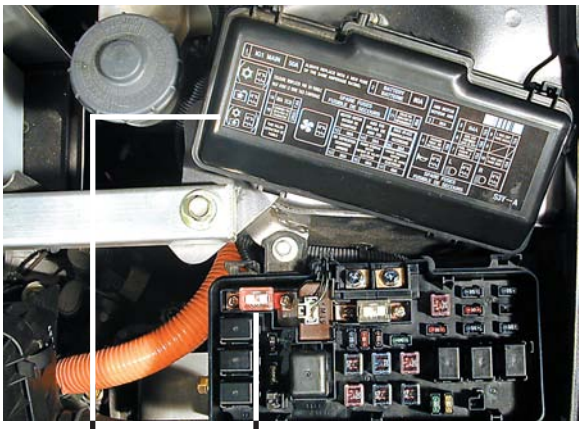
1. Locate the 12-volt battery and cut the negative cables with diagonal cutters.



Negative Cables

2. Locate the underhood fuse box, and remove the cover (see model-specific pages for fuse box locations).

3. Locate the main fuse by referring to the diagram on top of, or inside, the fuse box cover. (The 2000-2006 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.)



Fuse Box Cover *Main Fuse*

4. 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 2000-2006 Insight and Accord Hybrid.)



Main Fuse Screws

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."

SECOND-BEST METHOD FOR PREVENTING HIGH-VOLTAGE CURRENT FLOW (2010-2011 INSIGHTS AND CR-Z)

Cut the negative 12-volt battery cable, then cut or disconnect the DC to DC converter cable at the positive battery terminal.

Together, cutting the 12-volt negative cable and cutting or disconnecting the DC to DC converter cable turns off the engine and the electric motor and cuts power to the high-voltage system controllers. This stops the flow of current into the high-voltage cables and cuts power to the airbags and the seat belt tensioners.



1. Locate the 12-volt battery and cut the negative battery cable.



2. Locate the positive battery terminal and remove the cover.

3. Cut or disconnect the DC to DC converter cable.



DC to DC Converter Cable Connection

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

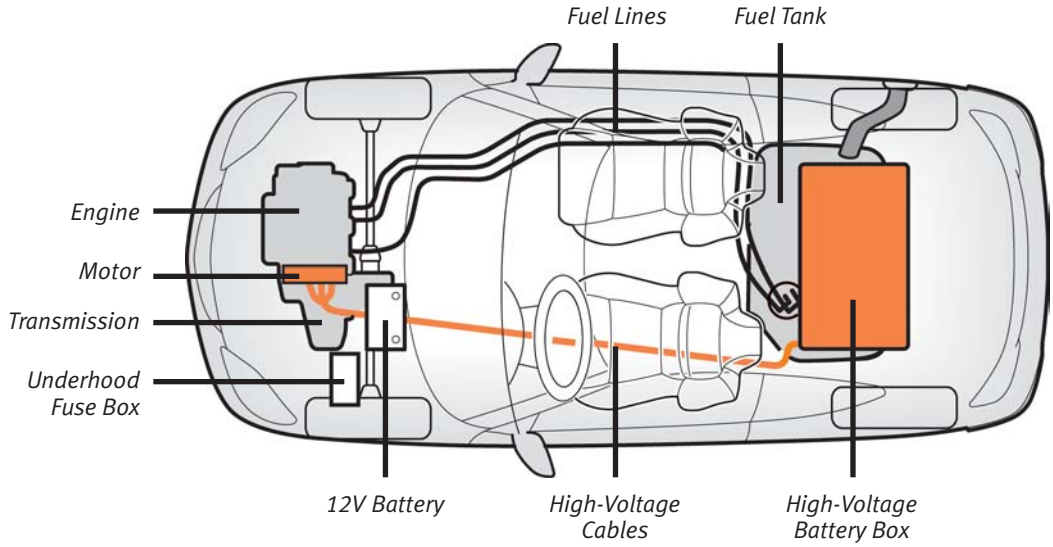


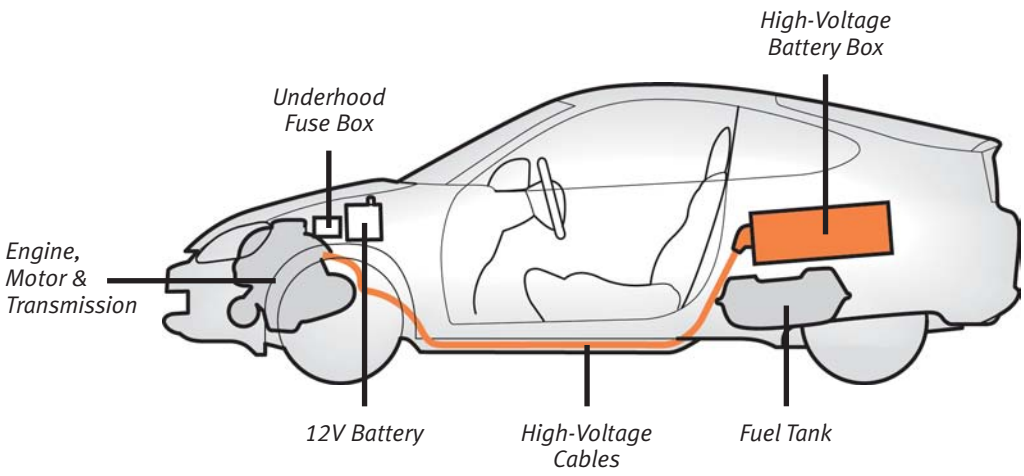
2000-2006 Insight models are 2-passenger cars with a distinctive aerodynamic shape and rear fender skirts.



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

KEY COMPONENTS





2000-2006 Honda Insight

Part: 2

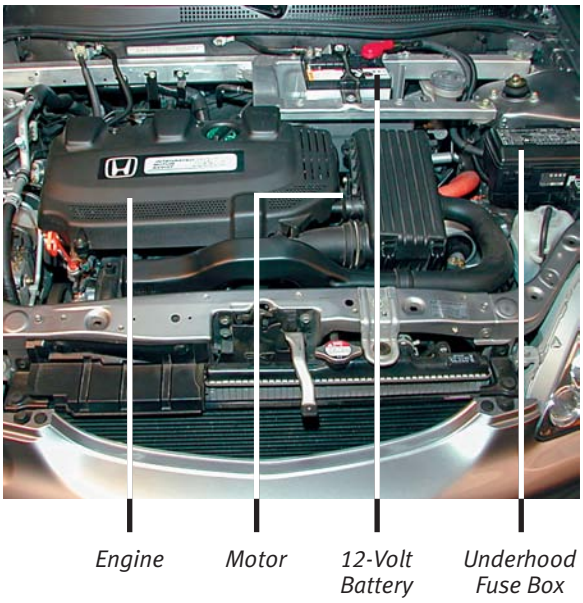
FLAMMABLE FLUIDS

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

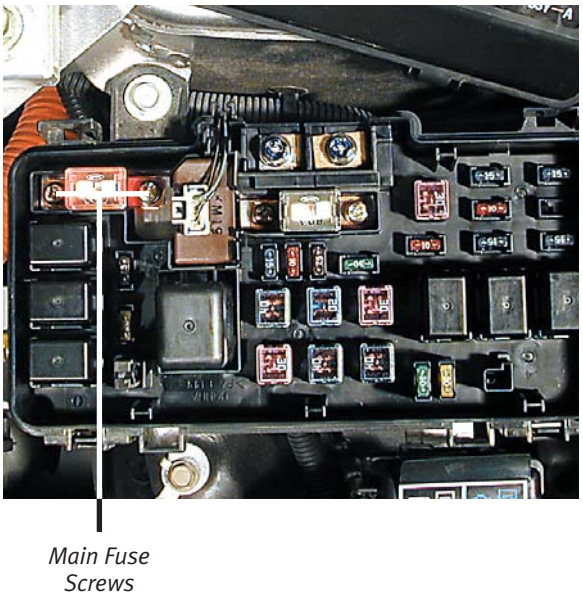
AIRBAGS AND TENSIONERS

Front Airbags:	Driver & passenger
Tensioners:	Driver & passenger

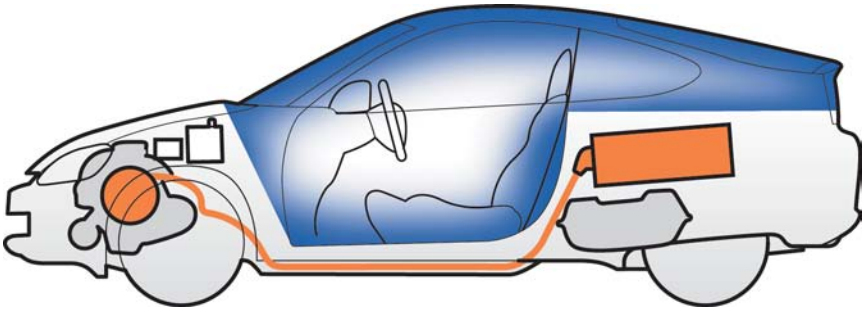
UNDERHOOD COMPONENTS



MAIN FUSE LOCATION



CUT ZONE



IDENTIFYING THE INSIGHT

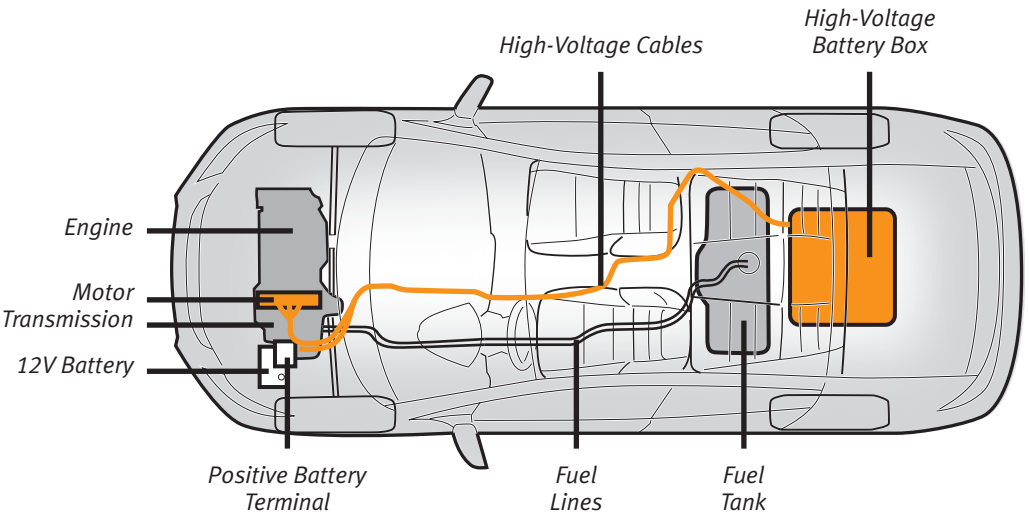


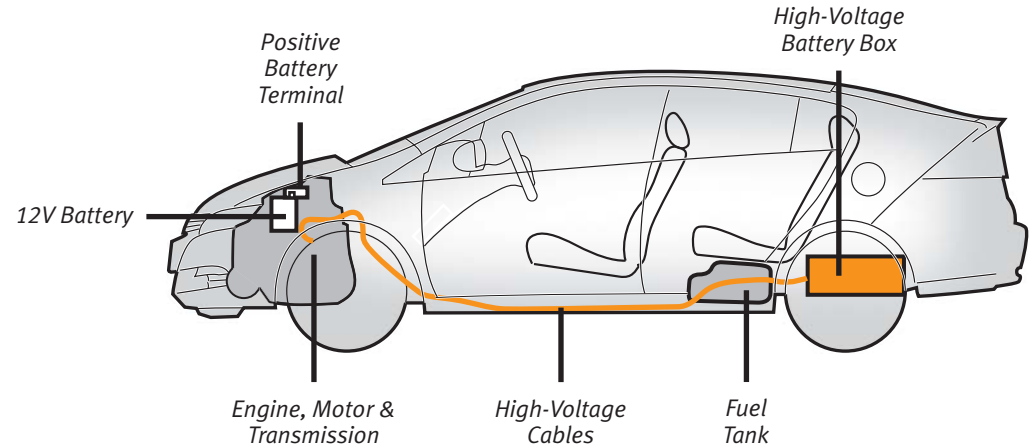
The 2010 Insight is a 4-door, 5-passenger vehicle.



A hybrid badge appears on the right rear of the vehicle.

KEY COMPONENTS





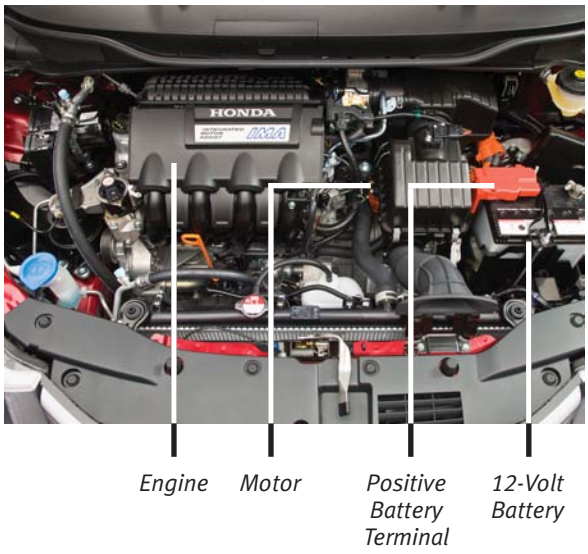
FLAMMABLE FLUIDS

Gasoline:	40 litres (10.6 gallons)
Engine Oil:	3.6 litres (3.8 quarts)
Transmission Fluid:	5.2 litres (5.5 quarts)

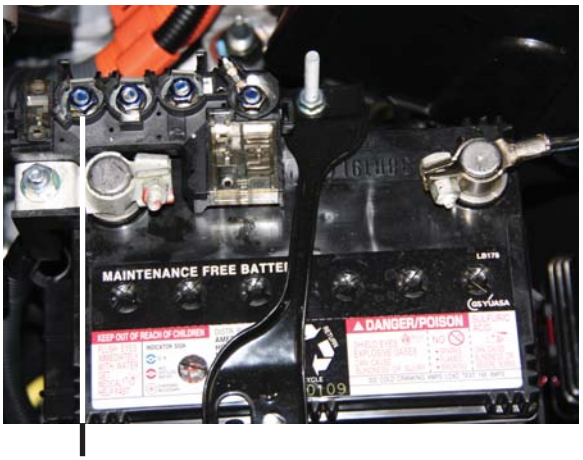
AIRBAGS AND TENSIONERS

Front Airbags:	Driver & passenger
Tensioners:	Driver & passenger
Side airbags:	Driver & front passenger
Side curtain airbags:	Front and rear seats

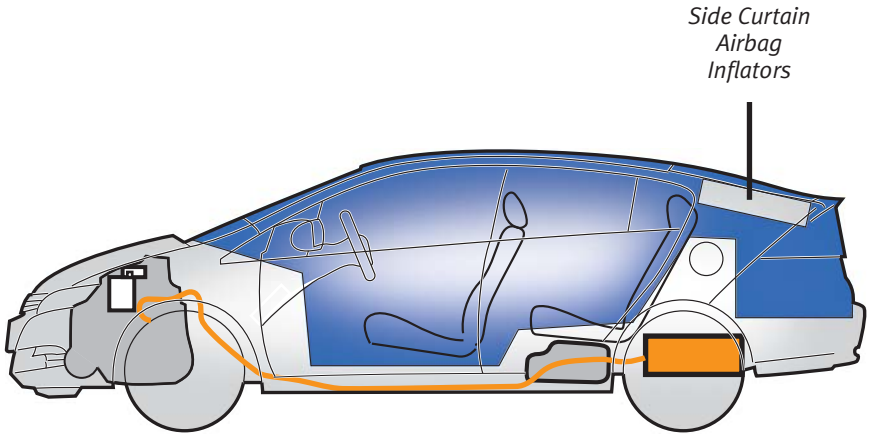
UNDERHOOD COMPONENTS



POSITIVE BATTERY TERMINAL



CUT ZONE



IDENTIFYING THE CIVIC HYBRID

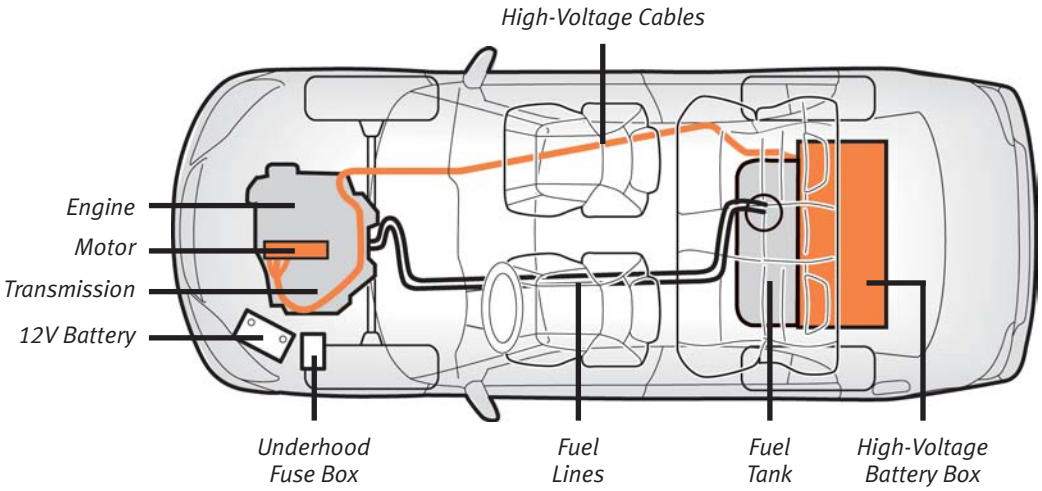


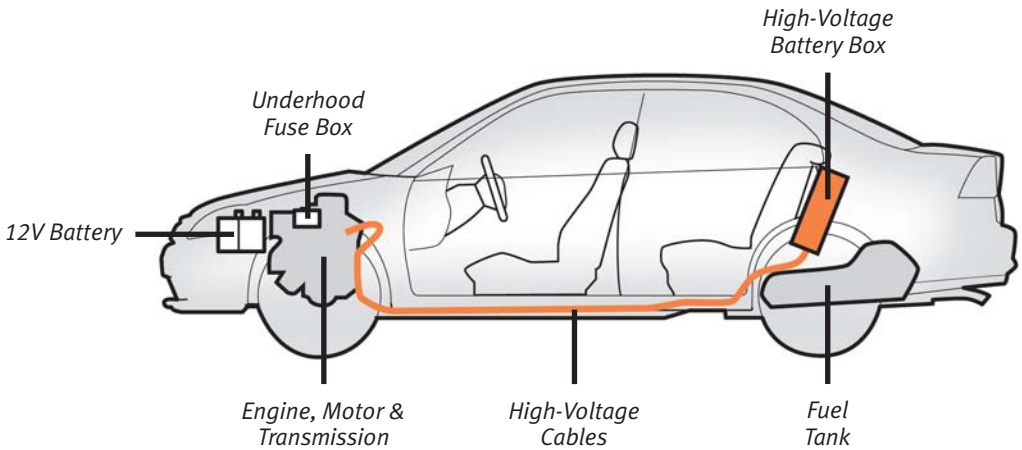
The Civic Hybrid appears virtually the same as a conventional Civic.



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

KEY COMPONENTS





2003-2005 Honda Civic Hybrid

Part: 2

FLAMMABLE FLUIDS

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

AIRBAGS AND TENSIONERS

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

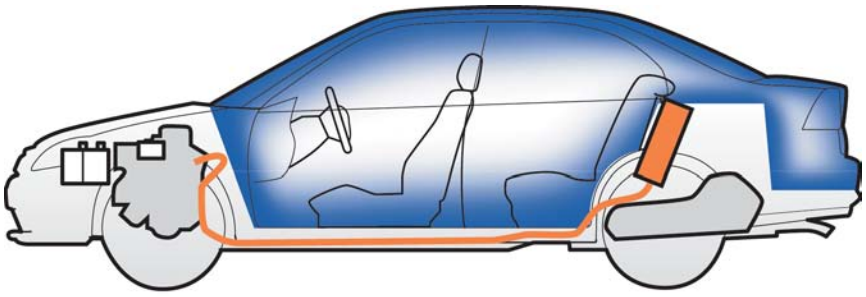
UNDERHOOD COMPONENTS



MAIN FUSE LOCATION



CUT ZONE



IDENTIFYING THE CIVIC HYBRID

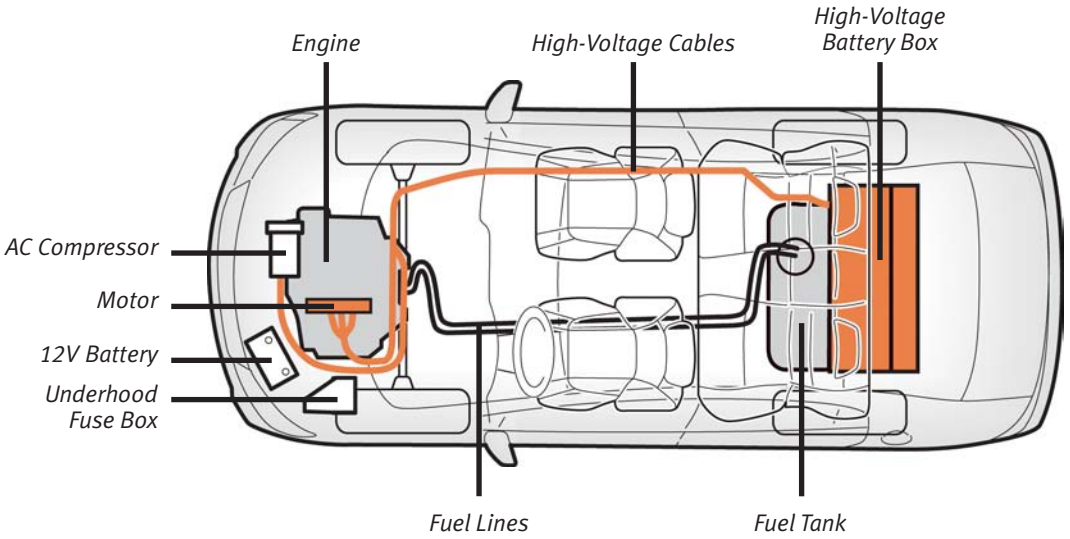


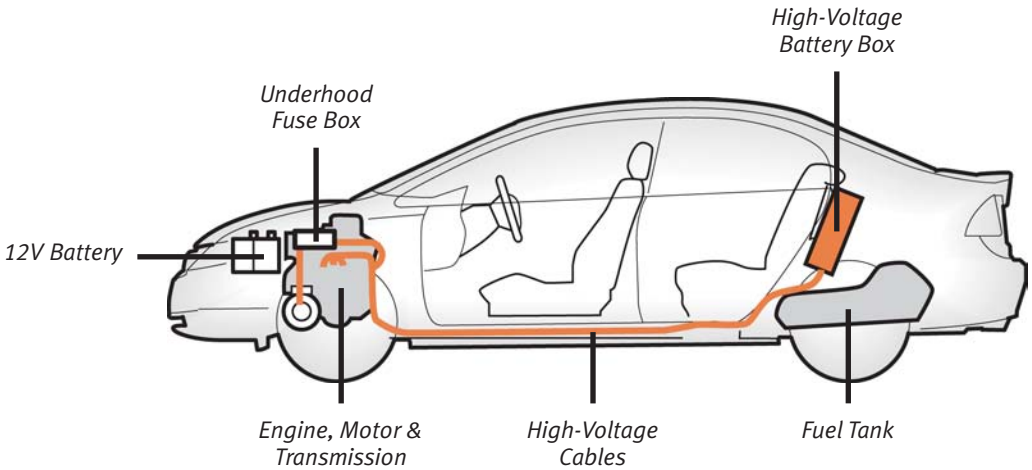
The appearance of 2006-2011 Civic Hybrids is essentially the same as conventional Civic Sedans.



The word "Hybrid" appears on the right rear of these vehicles.

KEY COMPONENTS





2006-2011 Honda Civic Hybrid

Part: 2

FLAMMABLE FLUIDS

Gasoline:	47 litres (12.4 gallons)
Engine Oil:	3.8 litres (4.0 quarts)
Transmission Fluid:	5.1 litres (5.4 quarts)

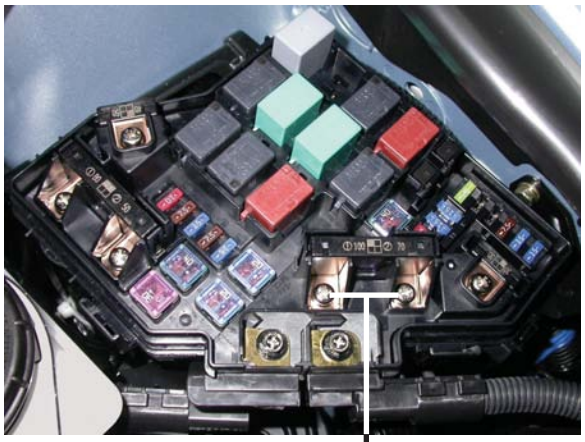
AIRBAGS AND TENSIONERS

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

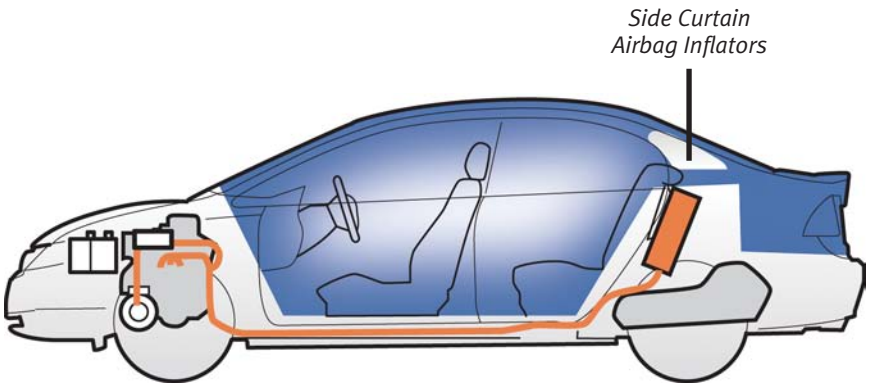
UNDERHOOD COMPONENTS



MAIN FUSE LOCATION



CUT ZONE



IDENTIFYING THE ACCORD HYBRID

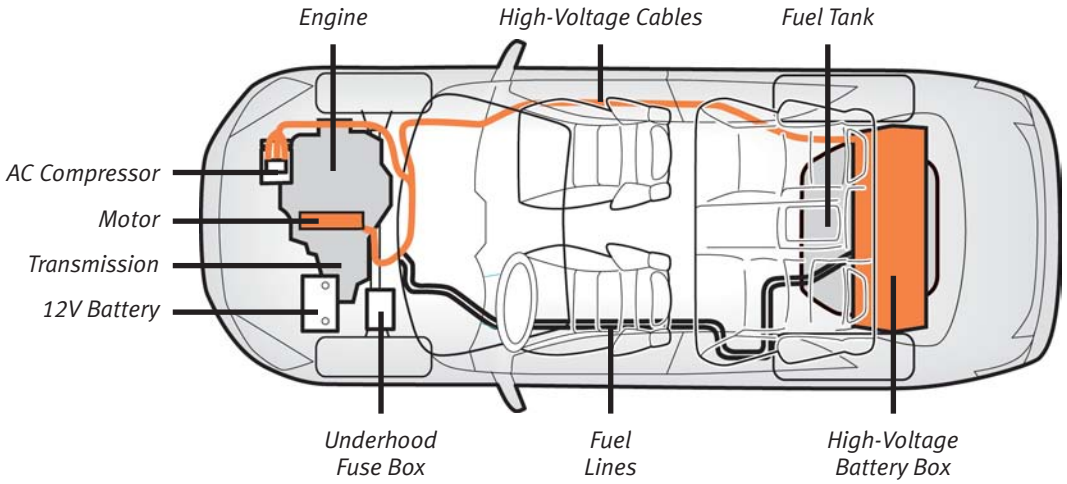


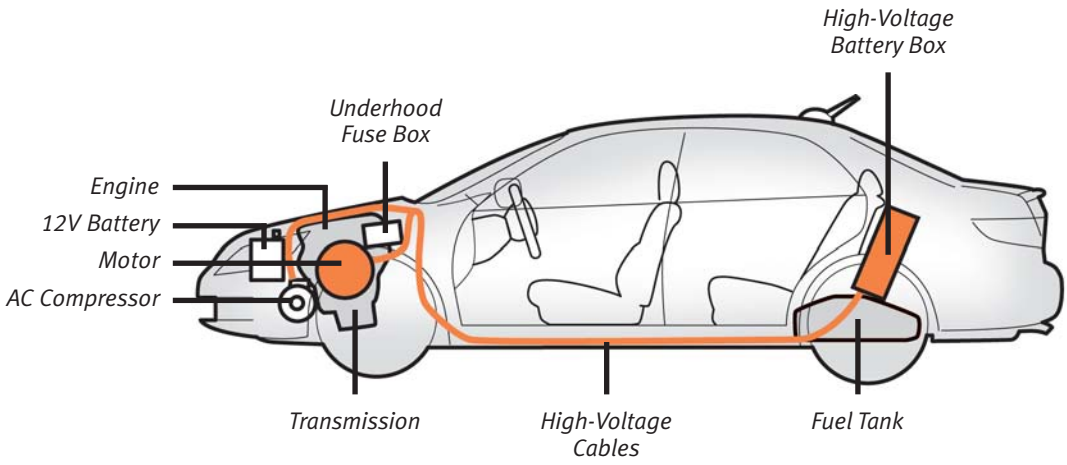
The appearance of an Accord Hybrid is essentially identical to that of a conventional Accord.



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

KEY COMPONENTS





2005-2007 Honda Accord Hybrid

Part: 2

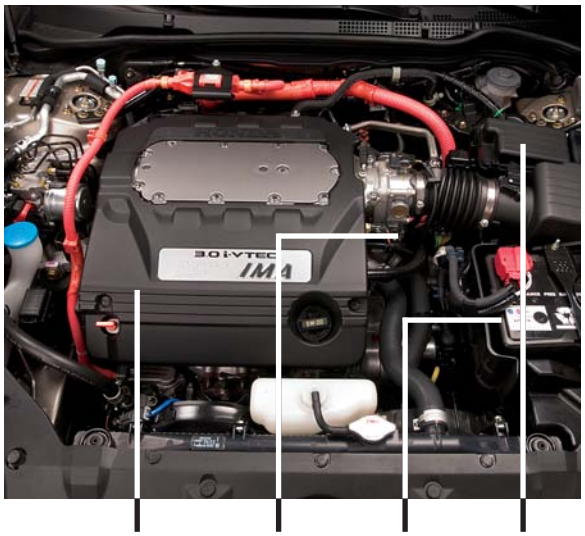
FLAMMABLE FLUIDS

Gasoline:	64.7 litres (17.1 gallons)
Engine Oil:	5.0 litres (5.3 quarts)
Transmission Fluid:	7.8 litres (8.2 quarts)

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

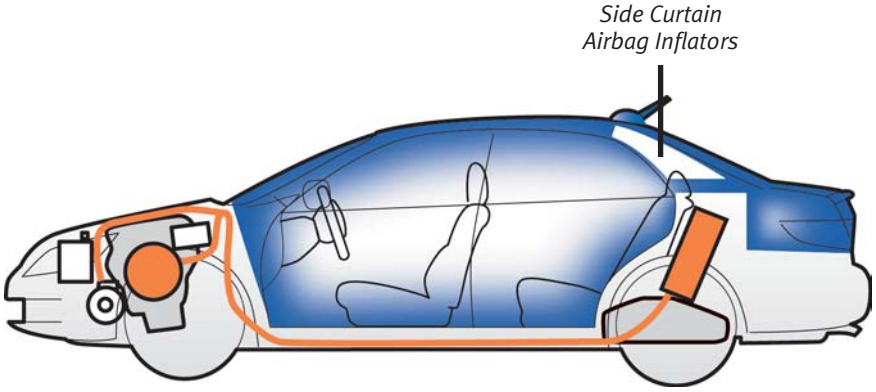
UNDERHOOD COMPONENTS



MAIN FUSE LOCATION



CUT ZONE



IDENTIFYING THE CR-Z

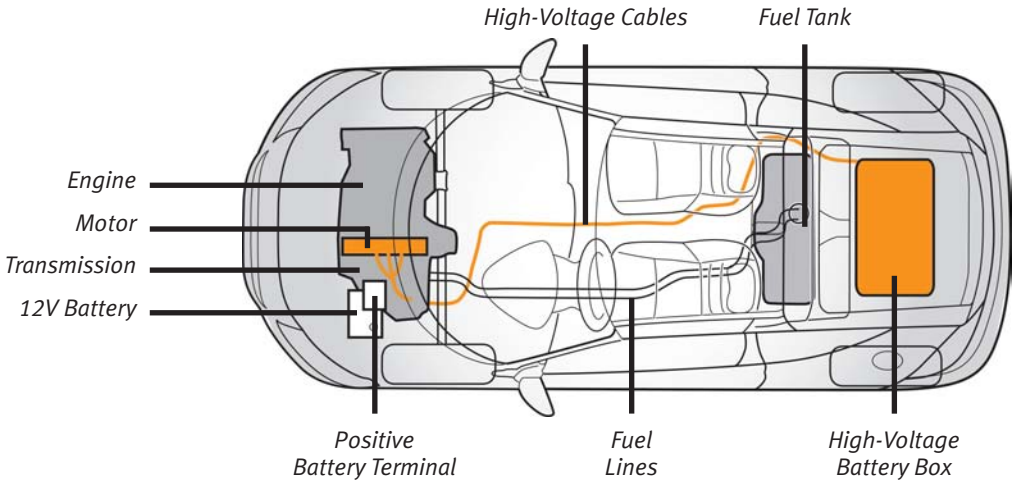


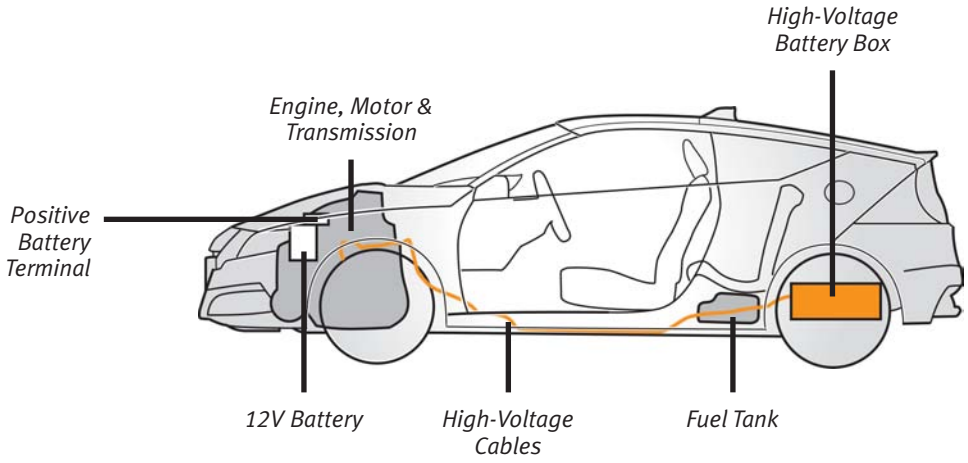
The 2011 CR-Z is a 2-door, 2-passenger sport car.



A hybrid badge appears on the right rear of the vehicle.

KEY COMPONENTS





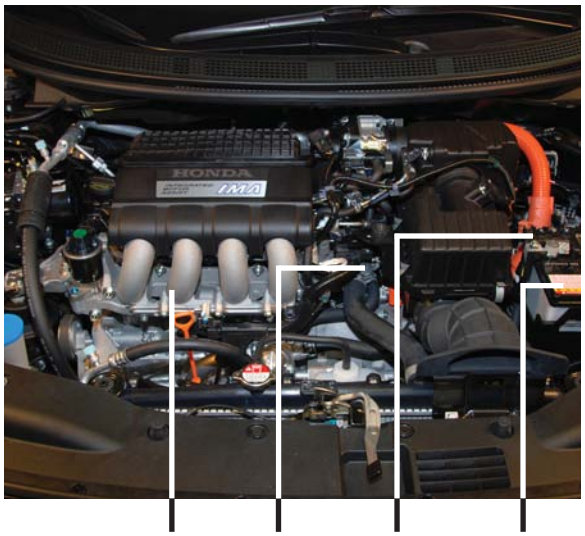
FLAMMABLE FLUIDS

Gasoline:	40 litres (10.6 gallons)
Engine Oil:	3.6 litres (3.8 quarts)
Transmission Fluid:	
CVT	2.8 litres (3.0 quarts)
Manual	1.4 litres (1.5 quarts)

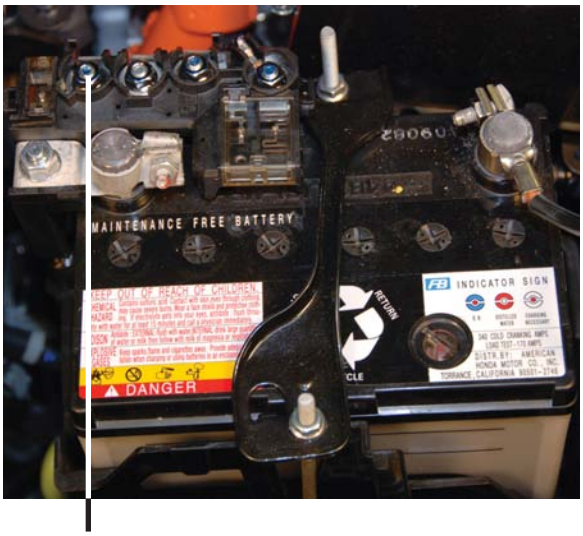
AIRBAGS AND TENSIONERS

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

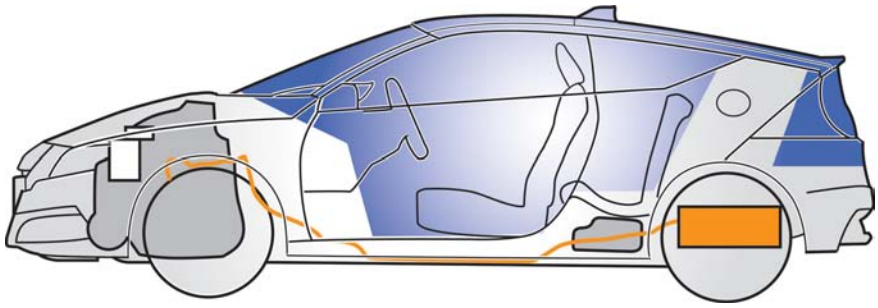
UNDERHOOD COMPONENTS



POSITIVE BATTERY TERMINAL



CUT ZONE



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