

HONDA

Emergency Response Guide

Honda Gasoline-Electric Hybrid Vehicle

Insight

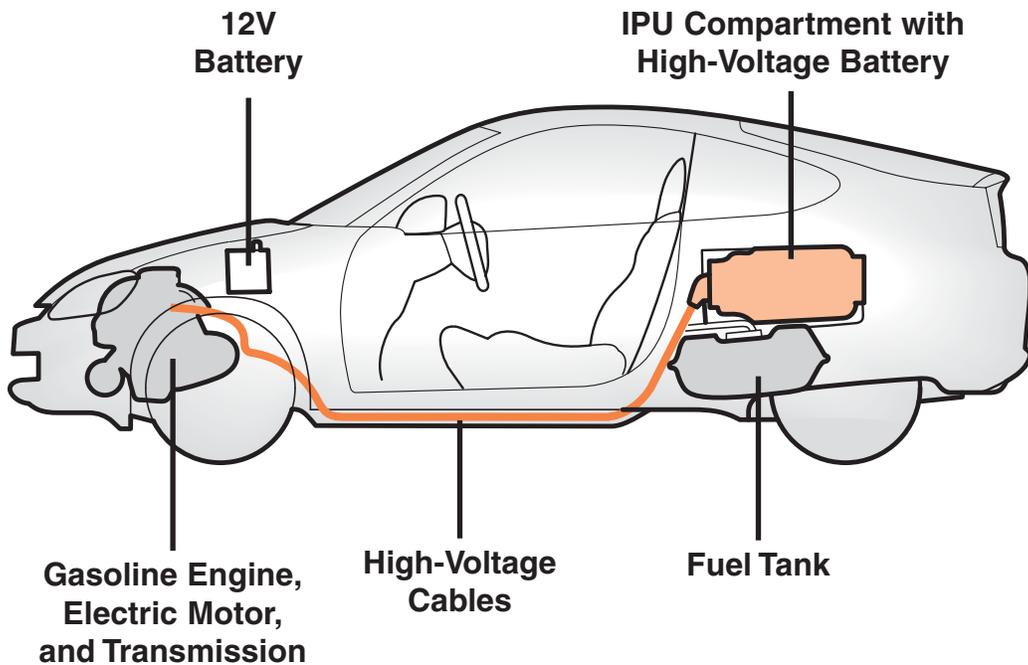
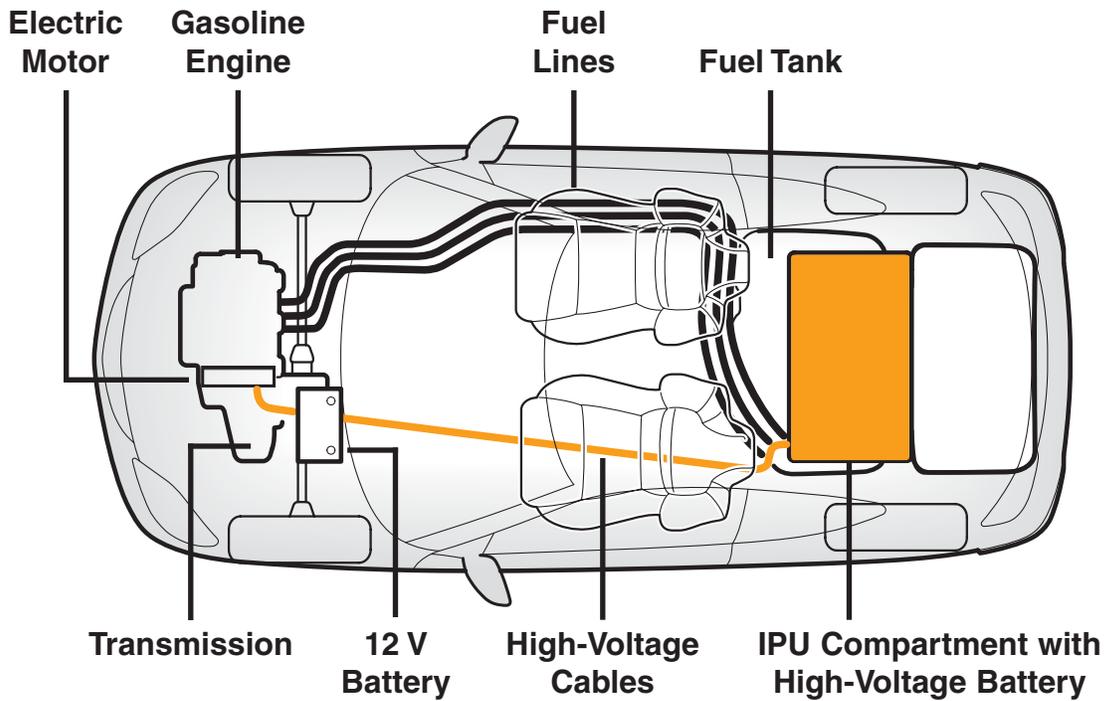


Prepared for Fire Service, Law Enforcement, Emergency Medical, and Professional Towing Personnel by American Honda Motor Co., Inc.

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Key Components



Vehicle Description



GASOLINE-ELECTRIC
HYBRID

insight

Type, Size, Shape, and Materials

The Insight is a 2-passenger gasoline-electric hybrid vehicle powered by a gasoline engine and an electric motor. The Insight can be identified by its aerodynamic shape and rear fender skirts (as seen on the front cover), and by the Insight logo and the words, "Gasoline-Electric Hybrid," on the rear hatch. The chassis and most components are made of aluminum, some parts are plastic, and a few are made of magnesium.

Curb Weight

The curb weight of the Insight is:

CVT – 1964 lbs (890 kg)

5-speed manual – 1856 lbs (840 kg)



Gasoline Engine Electric Motor 12 V Battery

Engine

The main power source is a 1.0 liter, 3-cylinder gasoline engine located under the hood.

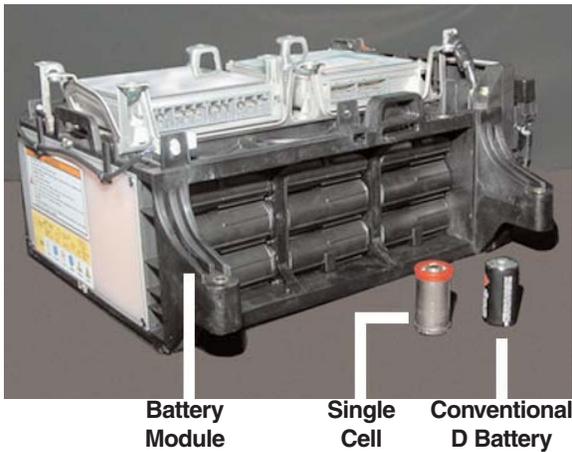
Electric Motor

During start-up and acceleration, the engine is assisted by a battery-powered electric motor, located between the engine and the transmission. During braking and deceleration, the electric motor acts as a generator to recharge the high-voltage battery and the 12-volt battery. Turning the ignition switch to either the Accessory (I) or the Lock (0) position turns off the engine and the electric motor.

12-Volt Battery

The conventional 12-volt battery under the hood powers the lights, the audio system, the temperature control system, and the control systems for the high-voltage battery module.

Vehicle Description, Continued

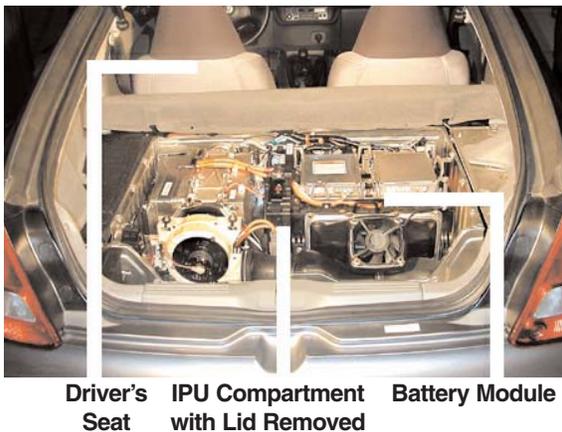


High-Voltage Battery Module

A nickel-metal-hydride (NiMH) battery module powers the electric motor. The battery module has 120 individual 1.2-volt cells, each about the size of a D cell battery. The battery module is recharged by the electric motor; it never needs external charging.

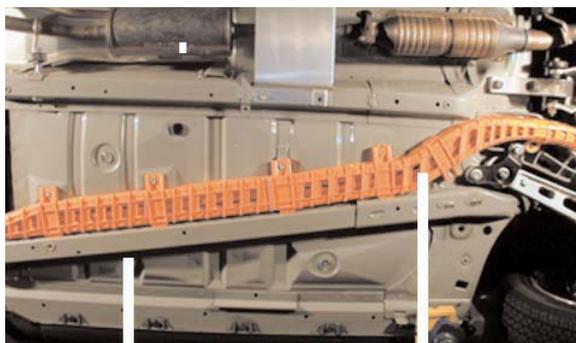
The battery module has these specifications:

Weight: 48 lbs (22kg)
Nominal Voltage: 144 volts
Capacity: 6.5 ampere-hours (amp/hr)



The battery module is inside the Intelligent Power Unit (IPU) compartment. The IPU compartment, shown at the left with the lid removed, is behind the rear passenger seats. The IPU compartment also contains various controls, electrical components, and cooling fans, all of which are completely isolated and insulated from the vehicle body.

Vehicle Description, Continued

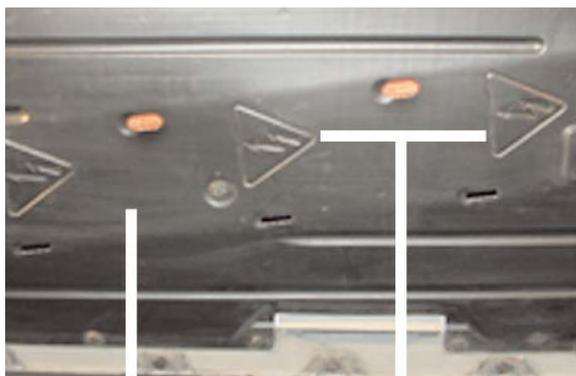


Undercarriage

High Voltage Cables

High-Voltage Cables

Electrical energy is conducted between the battery module and the electric motor through three heavy-duty orange cables. The cables are routed on the left side of the vehicle under the driver's seat. The cables are protected by a sturdy, orange plastic shield, as shown on the left. The shield is securely bolted to the undercarriage.



Undercarriage Cover

High Voltage Alert Symbols

The cables and shield are covered by smooth paneling to improve vehicle aerodynamics and fuel efficiency. High-voltage alert symbols   are stamped into the paneling to show where the cables are.

Airbags and Seat Belts

The insight is equipped with dual front airbags, three-point seat belts, and pyrotechnic seat belt tensioners. To disable (remove power from) the airbags and tensioners, the 12-volt battery must be disconnected for at least 3 minutes.

Hazards

Honda gasoline-electric hybrid vehicles do not present any unusual hazards. They performed well in standard crash tests, with no damage to the high-voltage components in front, side, or rear impacts.

Flammable Fluids

Honda gasoline-electric hybrid vehicles have the same potential fire and explosion hazards as conventional gasoline-powered vehicles. Fluid capacities for the Insight are:

Gasoline: 10.6 gallons (40 liters)

Engine Oil: 3.2 quarts (3 liters)

Engine Coolant:

(CVT): 1.06 gallons (4.0 liters)

(5-speed manual): 1.03 gallons (3.9 liters)

Transmission Fluid:

(CVT): 5.8 quarts (5.5 liters)

(5-speed manual): 1.7 quarts (1.6 liters)

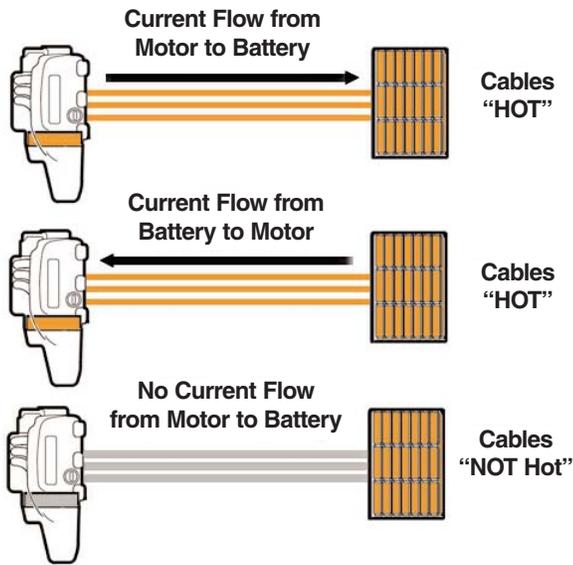


High Voltage Alert Symbol

Electric Shock Potential

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

- Contact with the high-voltage battery or other components inside the IPU compartment 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 are clearly identified and protected by a strong, plastic shield.



In addition, the cables are potentially "hot" only when:

- The engine is running, and the electric motor is charging the high-voltage battery module.
- The high-voltage battery module is powering the electric motor.

High voltage cannot flow into the cables if the electric motor is not turning and the high-voltage battery module is not sending current to the motor.

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. In the finished cells, electrolyte is non-liquid and sealed in a metal case; it cannot spill or leak. The electrolyte is non-flammable, non-explosive, and creates no hazardous fumes or vapors in normal operating conditions or in a fire.

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 the Honda Insight, we also recommend you use the procedures outlined in this section.

Incidents Involving Fire

If the vehicle or its IPU compartment becomes involved in a fire, there are no unusual hazards; follow standard fire-fighting procedures.

Submerged or Partially Submerged Vehicle

Pull the vehicle out of the water, then use one of the procedures under Preventing Current Flow Through the High-Voltage Cables to reduce the possibility of current flow. There is no danger of electric shock from touching the car body or framework.

Preventing Current Flow Through the High-Voltage Cables

Before attempting to rescue occupants or moving a damaged vehicle, you should reduce the potential for current to flow from the electric motor or battery module through the high-voltage cables. Here are three ways to do this, from the best method to the least desirable.

Emergency Procedures, Continued



Ignition Switch

Ignition Key

Best Method for Preventing Current Flow

Turn the ignition switch off.

This simple action turns off the engine and the electric motor, preventing current flow into the cables. Turning the ignition switch off 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 Current Flow

Remove the main fuse, and disconnect the negative cable from the 12-volt battery.

NOTE: For instructions on this method, see page 10.

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

Disconnecting the negative cable from the 12-volt battery disables the high-voltage battery controller, preventing current flow from the controller into the cables.

Emergency Procedures, Continued

Least Desirable Method for Preventing Current Flow:

Turn off the battery module switch on top of the IPU compartment.

NOTE: For instructions on this method, see page 11.

Turning off the battery module switch prevents current flow from the battery module into the cables.

This method of preventing current flow is least desirable because of these facts:

- If the engine is running, you could be dealing with "hot" high-voltage cables.
- This method does not cut power to the airbags or seat belt tensioners, so extra caution must be used.

If you cannot do any of the three methods to prevent current flow into the high-voltage cables, use extreme care, do not cut into the cables, and do not touch them as they may potentially be "hot."

Emergency Procedures, Continued



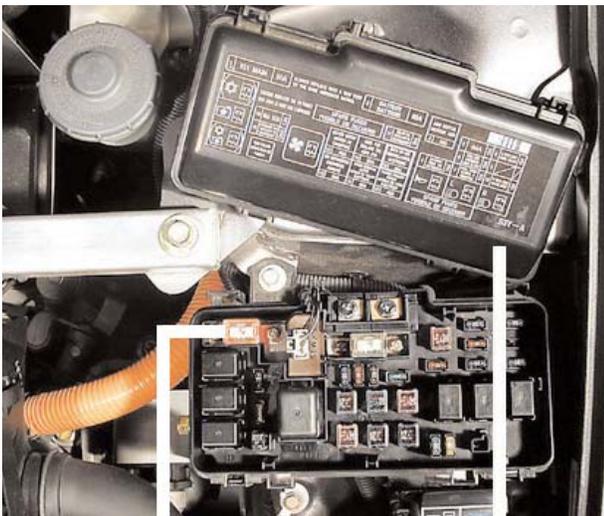
12 V Battery

Under-hood
Fuse Box

How to Remove the Main Fuse and Disconnect the 12-volt Battery

NOTE: Do this only if you cannot turn the ignition switch off.

1. Remove the under-hood fuse box cover. The under-hood fuse box is in the engine compartment, near the front fender, on the driver's side.
2. Unscrew the main fuse (#1) with a Phillips screwdriver, and remove it from the fuse box.



Main Fuse

Under-hood
Fuse Box Cover

3. Using a 10 mm wrench or pliers, loosen and remove the negative terminal from the 12-volt battery. You can also disconnect the negative cable by cutting it near the top of the battery with diagonal cutters.



Positive Cable

12V Battery

Negative Cable

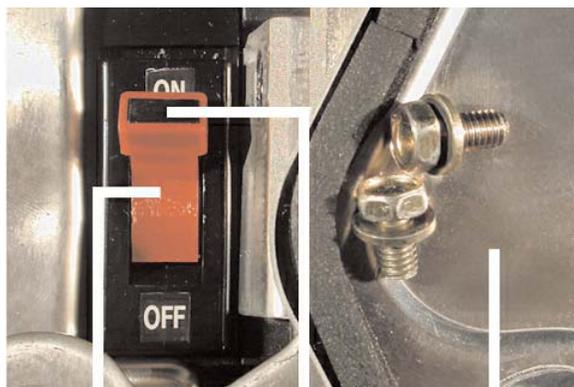
Emergency Procedures, Continued



IPU Box Lid **Cargo Area Carpet**



Battery Module Switch Cover **Bolts**



Locking Cover **Battery Module Switch** **Battery Module Switch Cover**

How to Turn Off the Battery Module Switch

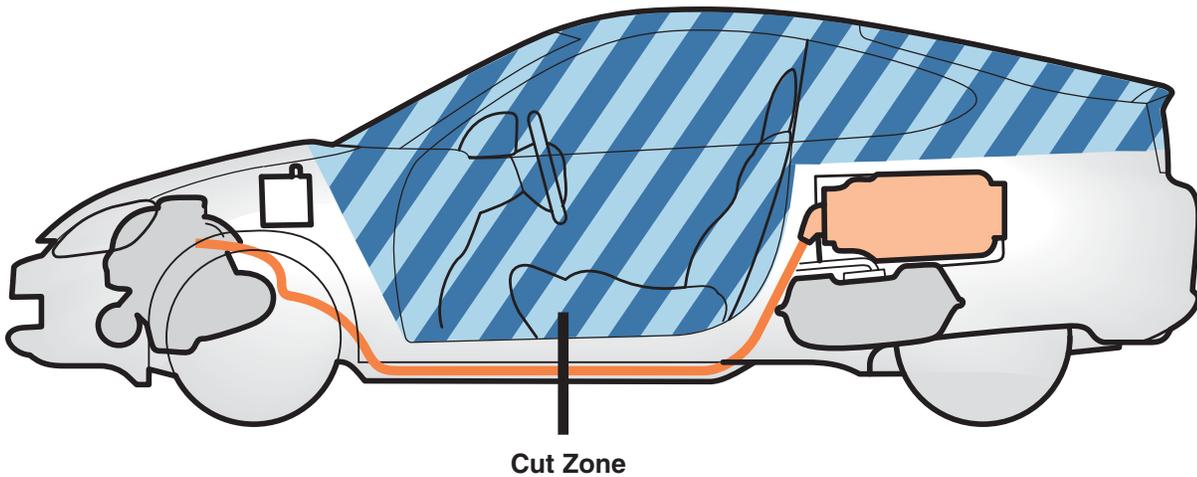
NOTE: Do this only if you cannot turn the ignition switch off or reach the under-hood fuse box.

1. Remove the cargo area carpet. This gives you access to the lid of the IPU compartment.
2. Using a 10 mm wrench, a crescent wrench, or pliers, unscrew the two bolts from the battery module switch cover, then remove the cover.
3. Remove the red locking cover, and flip the switch from ON to OFF.
4. Reattach the red locking cover to the switch. This prevents you from accidentally flipping the switch to ON.

Emergency Procedures, Continued

Extricating Occupants

If "Jaws of Life"-type equipment is required to remove the occupants from a damaged vehicle, make sure you stay within the cut zone shown below.



Towing

If you need to move an Insight only a short distance, such as to the side of the road, and the car can still roll on the ground, the easiest way is to shift to neutral and push it manually.

The preferred method for towing an Insight away from an emergency location is on a flat-bed truck. If a flat-bed is not available, wheel-lift equipment may be used, preferably with the front wheels lifted. If the rear wheels must be raised, be sure to first set the parking brake and shift the transmission to neutral.

Do not use sling-type towing equipment unless the car has been damaged beyond repair.

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