



Emergency Response Guide

NEW THINKING.
NEW POSSIBILITIES.



Table of Contents

Introduction	2
Sonata Hybrid Identification	3
General Vehicle Description	3
Exterior Visual Identification	3
Interior Visual Identification	7
Vehicle Systems Overview	9
Key Specifications	9
Vehicle Component Locations	9
Vehicle Components	10
Hybrid System Operation	12
Operating Parameters	12
High-Voltage Electrical Isolation	13
Regulation of High-Voltage Electrical Current	13
High-Voltage Safety System	13
Supplemental Restraint System (SRS)	14
Emergency Response Procedures	16
Initial Response	16
Identify	16
Immobilize	17
Disable	18
Extrication	22
Firefighting	23
Submersion	24
High-Voltage Battery Damage/Spills	25
Mitigation Procedures	25
First Aid for Electrolyte Exposure	26
Towing/Jump Starting	27
Towing	27
Jump Starting	28
Appendix A	A-1

Introduction

Foreword:

Hyundai has high standards and is dedicated to the safety of our customers and emergency responders alike. Hyundai is providing this hybrid vehicle information as a result of our commitment to safety.

Document Purpose:

The purpose of this document is to familiarize emergency responders and the towing/roadside assistance industry with the proper methods to treat the Hyundai Sonata Hybrid in an emergency situation. This guide offers a basic overview of key vehicle systems and provides instructions for dealing with the different types of situations encountered by emergency responders. The emergency response procedures for this vehicle are somewhat similar to a conventional Sonata with additional information provided on dealing with the high-voltage electrical system.

Vehicle Description:

As with other hybrids, the Hyundai Sonata Hybrid uses a conventional gasoline powered internal combustion engine paired with a high-voltage electric motor to propel the vehicle. The high-voltage electrical system is completely self-contained and does not need to be recharged by an external power source such as a charging station. The high-voltage battery is recharged while the vehicle is being driven. This is accomplished through the use of a generator that produces electricity during driving and braking.



Sonata Hybrid Identification

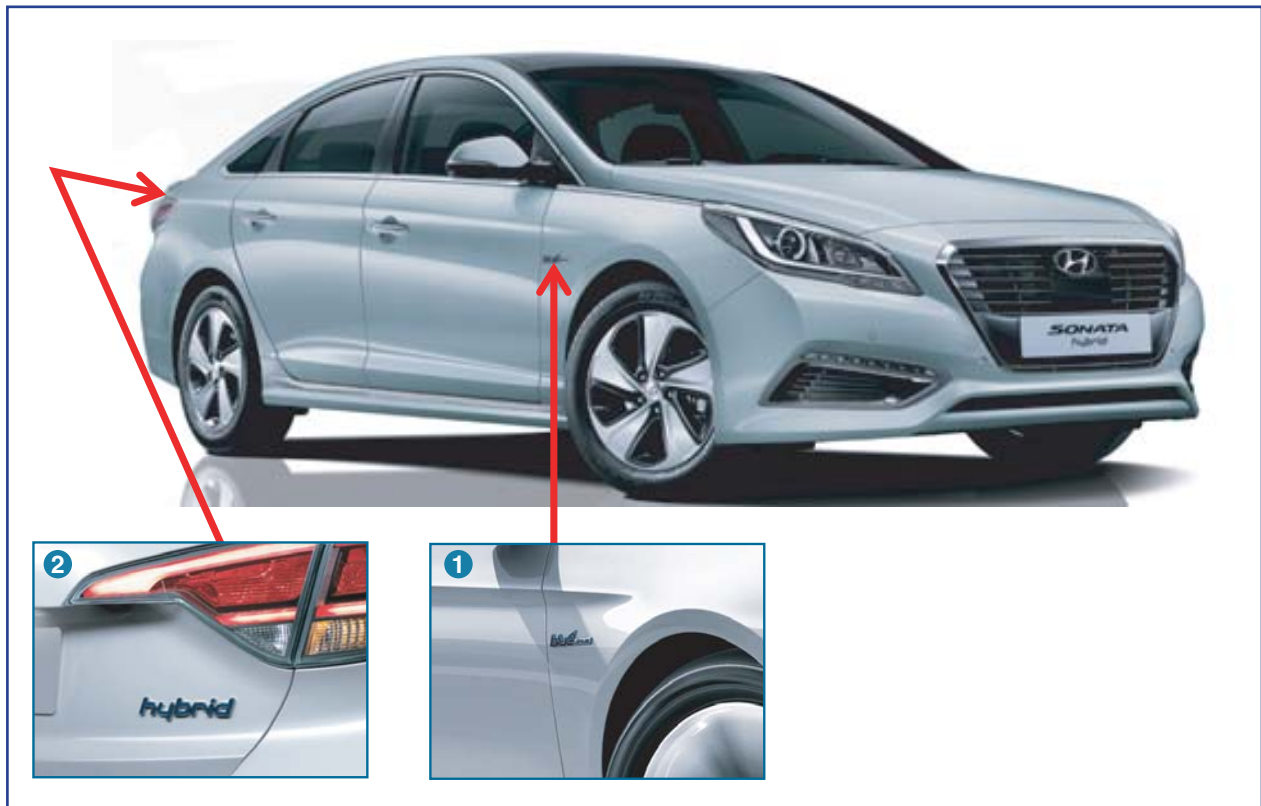
General Vehicle Description:

The Hyundai Sonata Hybrid is built on a conventional Sonata chassis and therefore the four door sedan looks very similar to its conventional counterpart. The best approach is to assume that all Sonatas are Hybrids until proven otherwise. Using the information provided in this section, responders will be able to differentiate between the two.

Exterior Visual Identification:

Badging or Symbols

The Sonata Hybrid can be identified by unique badging found on the exterior of the vehicle. There is a blue drive badge on each of the front fenders, and on the passenger side of the trunk lid there is a hybrid badge. Badging may become hidden after a crash due to damage to the vehicle. Always be sure to inspect all sides of the vehicle before determining whether or not a badge is present.

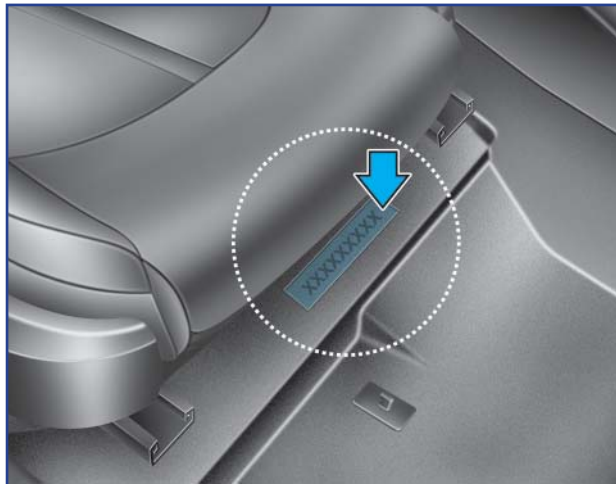
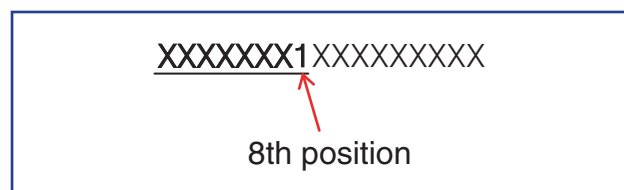


Sonata Hybrid Identification

Vehicle Identification Number (VIN)

The Vehicle Identification Number (VIN) is used to determine whether a vehicle is conventional or hybrid. The VIN is punched on the floor under the passenger seat.

The number 1 in the 8th character of the VIN indicates that it is a hybrid with 2.0 gasoline engine.



Sonata Hybrid Identification

Engine Compartment

Unlike the conventionally powered Sonata, the Hybrid version has a plastic engine cover with "hybrid" clearly shown on it.



Additionally, there are orange colored high-voltage electrical cables in the engine compartment.



Sonata Hybrid Identification

Vehicle Underside

An orange colored cable is also visible on the underside of the vehicle. This cable runs along the passenger side from the rear of the vehicle to the engine compartment.



Other Notable Features

Unlike the conventional Sonata, the Hybrid has an arch air curtain on front bumper and a rear spoiler.

This features distinguishes the Hybrid from its conventional counterpart.



Sonata Hybrid Identification

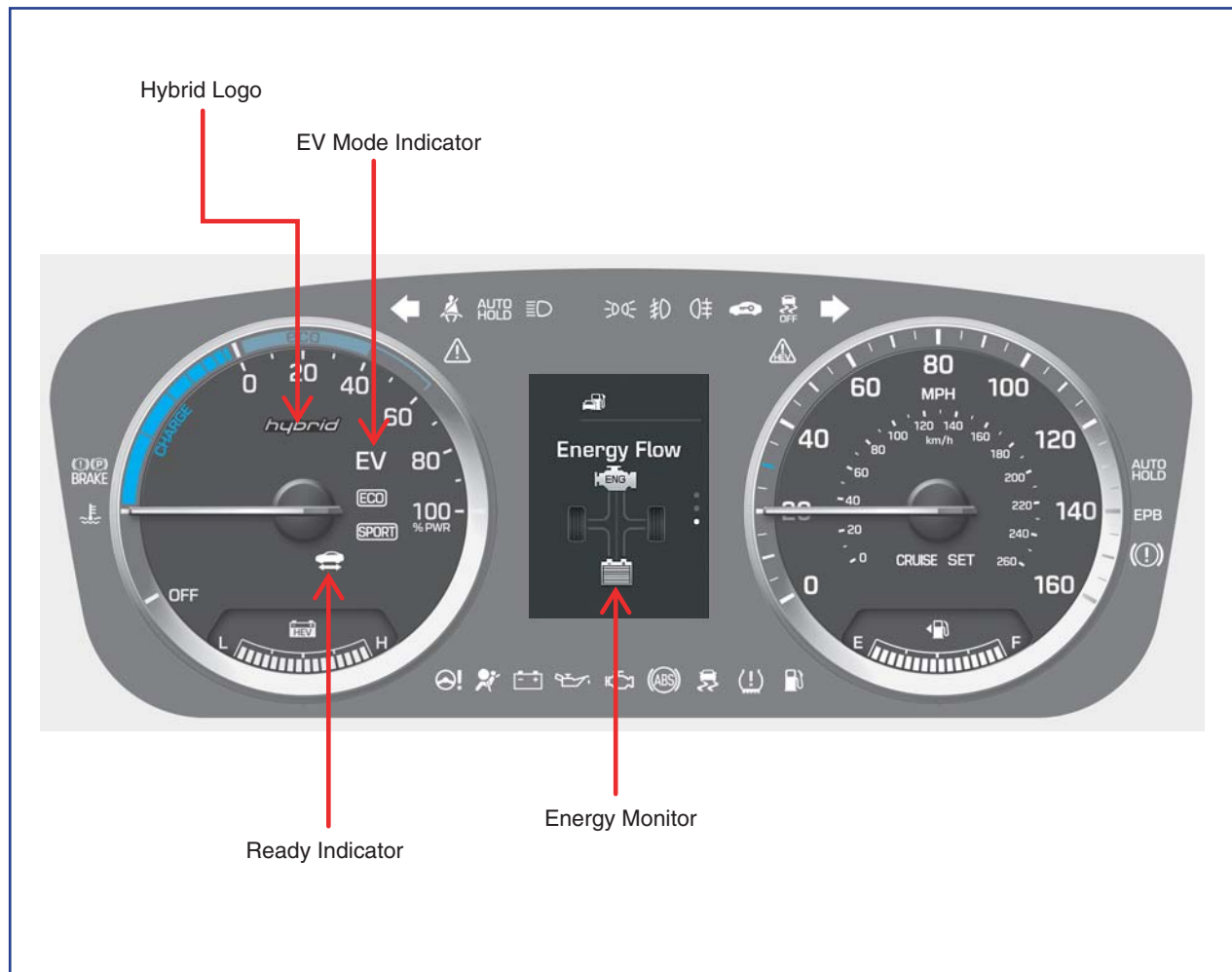
Interior Visual Identification:

Dashboard

The Sonata Hybrid's instrument cluster contains several unique components that are not found on a conventional Sonata.

The "hybrid" logo is the most easily recognizable item in the instrument cluster. It is visible no matter what the powertrain or ignition status may be. The EV Mode Indicator illuminates when the vehicle is driven by the electric motor.

The READY Indicator is visible when the ignition is ON and either the gasoline engine or the Electric Drive Motor is running. Lastly, the Energy Monitor can be seen while driving.

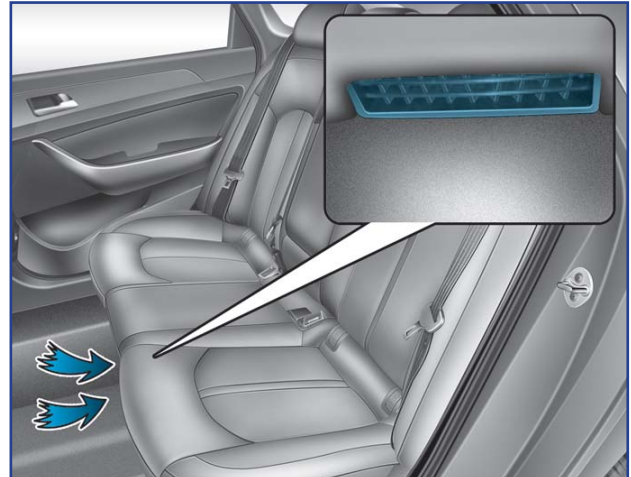


Sonata Hybrid Identification

High-Voltage Battery Vents

The battery venting to cool the battery pack down is located inside the trunk.

Ambient air is drawn into the battery pack through an inlet on the front side of the pack. The duct's inlet is under the back seat. Air is pushed out through a cooling fan under the rear luggage foam in the trunk.

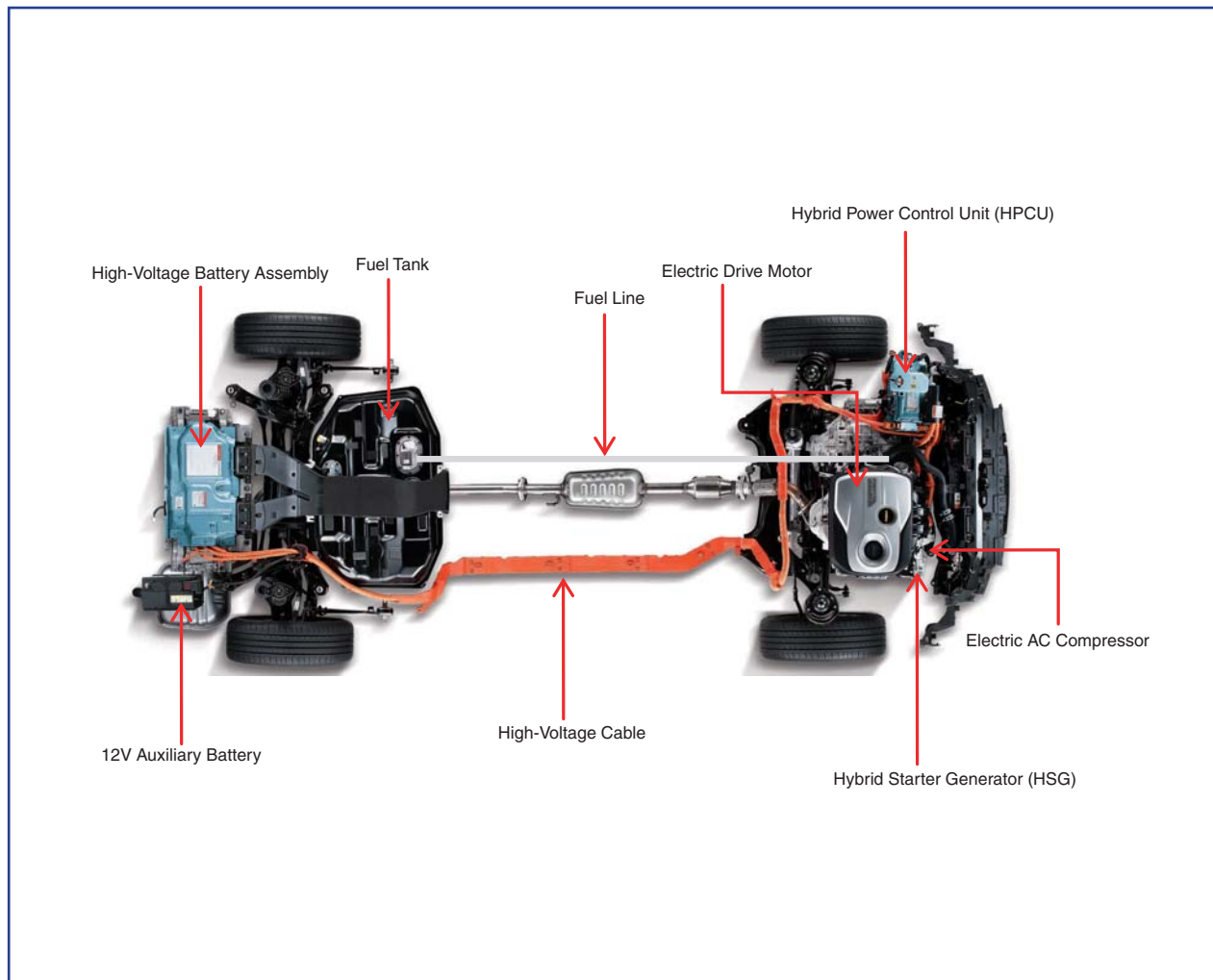


Vehicle Systems Overview

Key Specifications:

Curb Weight:	3494 pounds (16" wheel)
Gasoline Engine:	156 hp - 2.0L GDI Hybrid Engine
Fuel Tank:	15.8 US gallons
Electric Drive Motor:	38 Kw - 51 hp
HV Battery:	Lithium-ion polymer (LiPB) 270 Volt
Transmission:	Automatic
Seating Capacity:	5

Vehicle Component Locations:



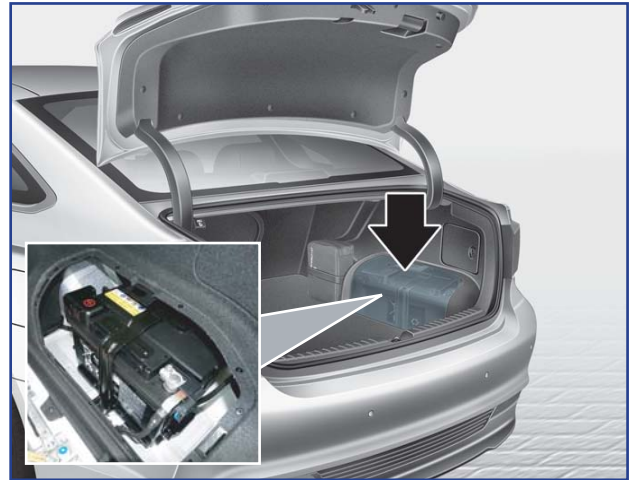
Vehicle Systems Overview

Vehicle Components:

The following components can be found in all Sonata Hybrid vehicles.

12V Auxiliary Battery

The 12V Auxiliary Battery is located in the trunk on the passenger side of the vehicle and is accessed by removing a small cover. This battery powers all of the standard electronics. It also supplies current to the high-voltage system relays, which control the flow of high-voltage current.



High-Voltage (HV) Battery

The Lithium-ion Polymer HV battery contains a gel electrolyte and is made up of 72 - 3.75V cells wired in series for a nominal voltage of 270V with 5.3 Ah of capacity. The battery is located behind the rear seat in the trunk area. The battery pack weighs about 93 pounds. Its dimensions are approximately 10" X 15.1" X 24.8".



High-Voltage Cabling

The high-voltage cabling in the Sonata Hybrid is orange per the SAE standard. These cables run along the passenger side from the rear of the vehicle where they connect to the HV battery up to the front of the vehicle where they connect to the Electric Drive Motor and other HV components.



Vehicle Systems Overview

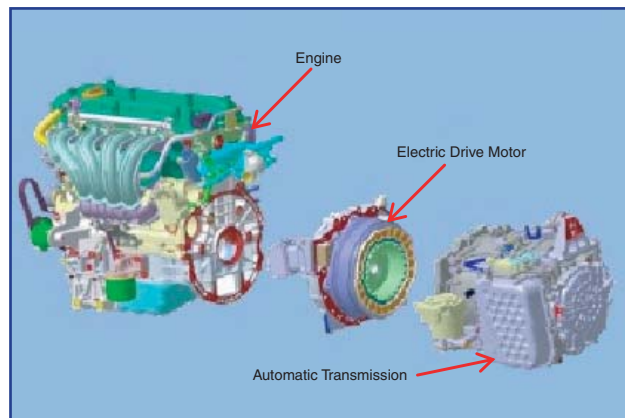
Hybrid Power Control Unit

The Hybrid Power Control Unit (HPCU) assembly consists of three components: a Hybrid Control Unit (HCU), an Inverter (Motor Control Unit (MCU)) as well as a Low-voltage DC-DC Converter (LDC). This assembly takes Direct Current (DC) from the HV battery and changes it to alternating current (AC) to run the Electric Drive Motor. During recharging the HPCU takes AC from the Electric Drive Motor and changes it to DC to charge the battery. The HPCU assembly contains capacitors which take about 5-10 minutes to discharge after the high-voltage system is shut down.



Electric Drive Motor

Mounted between the engine and transmission, the Electric Drive Motor is used for vehicle propulsion. During deceleration or braking, it acts as an alternator and charges the HV battery by converting the vehicle's kinetic energy into electrical energy.



Hybrid Starter Generator (HSG)

The HSG is mounted to the front of the engine near the intake manifold. It cranks the engine for starting and acts as a generator when the HV battery needs charging. As this is one of the major components of the HV system, its electrical connection via an orange HV cable is clearly visible.



Vehicle Systems Overview

Air Conditioning Compressor

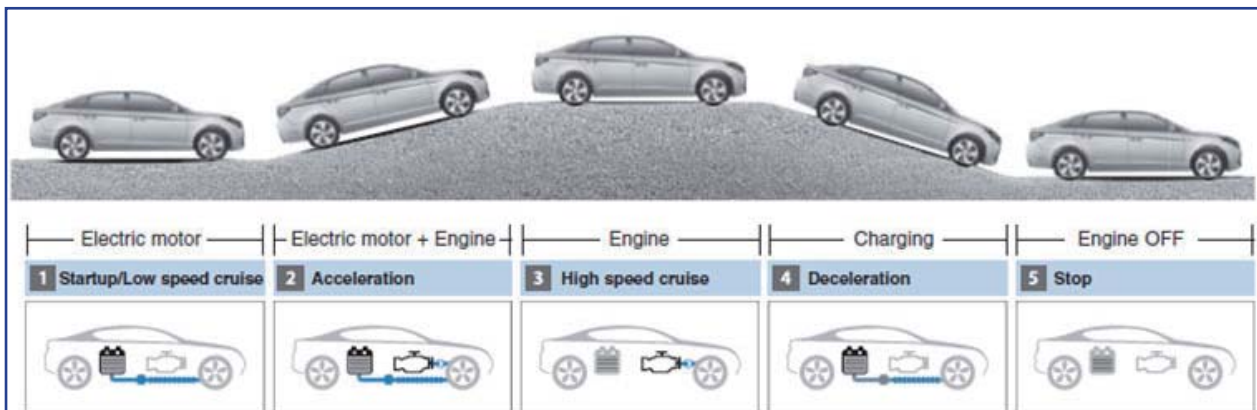
The Air Conditioning Compressor is mounted to the engine directly below the HSG. It is also powered by the high-voltage system, so its electrical connection via an orange HV cable is easily noticeable as well.



Hybrid System Operation:

Operating Parameters

The Hybrid Sonata is a full hybrid. Depending upon acceleration needs and driving conditions, it can be propelled by either the gasoline engine or the Electric Drive Motor, or a combination of both. Charging is accomplished through regenerative braking during deceleration or by obtaining power from the HSG.



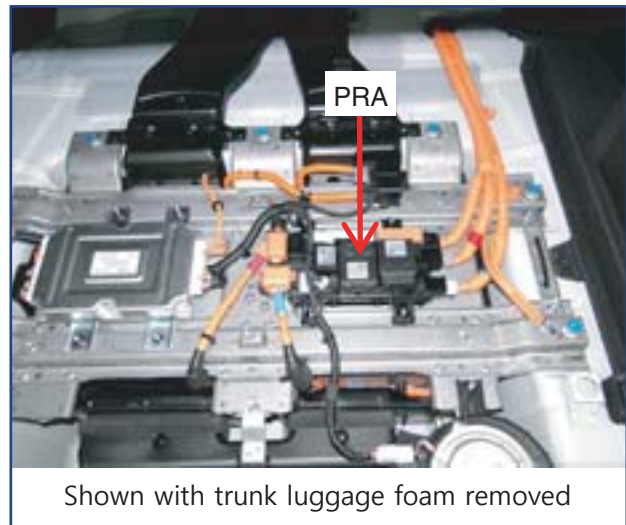
Vehicle Systems Overview

High-Voltage Electrical Isolation:

Unlike the 12V electrical system that is grounded to the vehicle's chassis, the Sonata Hybrid's high-voltage electrical system is designed to be isolated from the vehicle.

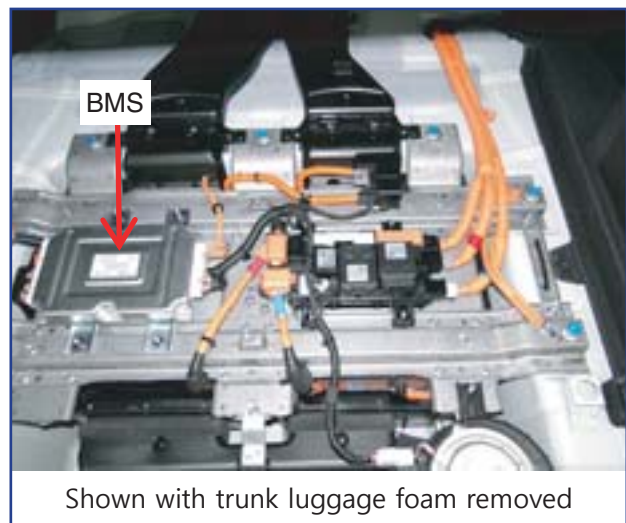
Regulation of High-Voltage Electrical Current:

Current from the High-Voltage Battery is controlled by the Power Relay Assembly (PRA), which consists of Positive and Negative Main Relays, a Pre-charge Relay, Pre-charge Resistor, and the Battery Current Sensor. The PRA is located inside the High-Voltage Battery Pack Assembly and controls the high-voltage power circuit between the High-Voltage Battery and the Hybrid Power Control Unit.



High-Voltage Safety System:

There are multiple safety systems incorporated into the Sonata Hybrid. The system that protects the High-Voltage Electrical System is called the Battery Management System (BMS). The BMS is located inside the High-Voltage Battery Assembly and measures several parameters to maintain the optimal performance of the High-Voltage Battery. It controls the battery cooling fan to ensure proper battery operation. In addition, if a system fault occurs, the BMS turns off the PRA to protect the system.



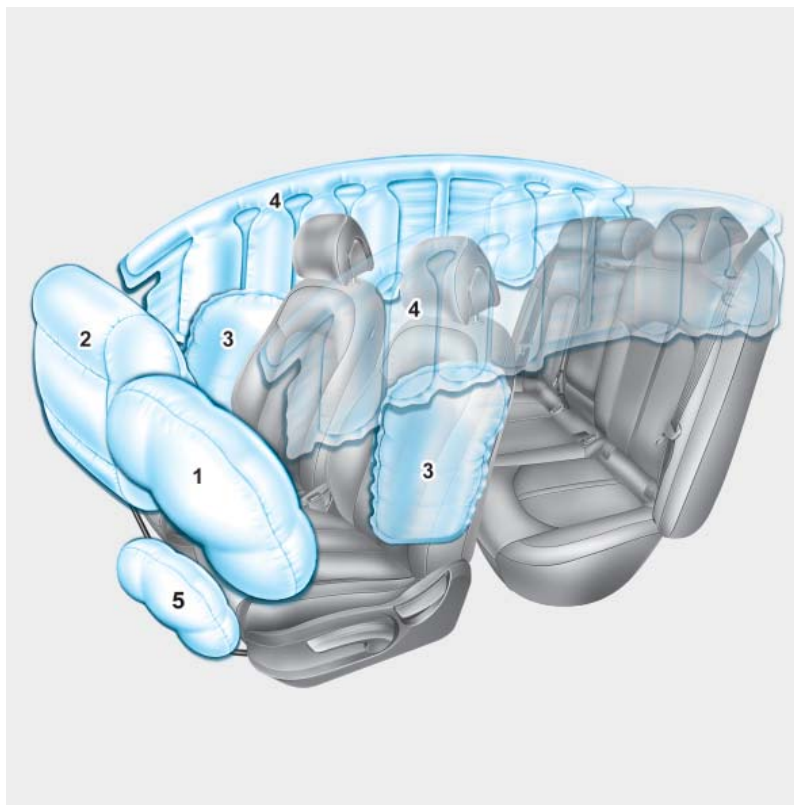
Vehicle Systems Overview

Supplemental Restraint System (SRS):

Airbags

The Sonata Hybrid is equipped with a total of seven airbags for passenger protection. These airbags are located in standard areas of the vehicle where emergency responders are accustomed to finding them. Care should always be taken to secure any 12V power sources in the vehicle before extrication operations are initiated or emergency response personnel enter the vehicle. This is critical in order to prevent any accidental deployment of the supplemental restraints.

Airbag Types and Locations



Type	Location
1. Driver Airbag	Driver Side
2. Passenger Airbag	Passenger Side
3. Side Airbag	Driver Side
3. Side Airbag	Passenger Side
4. Curtain Airbag	Driver Side
4. Curtain Airbag	Passenger Side
5. Knee Airbag	Driver Side

Vehicle Systems Overview

Seatbelt Pretensioners

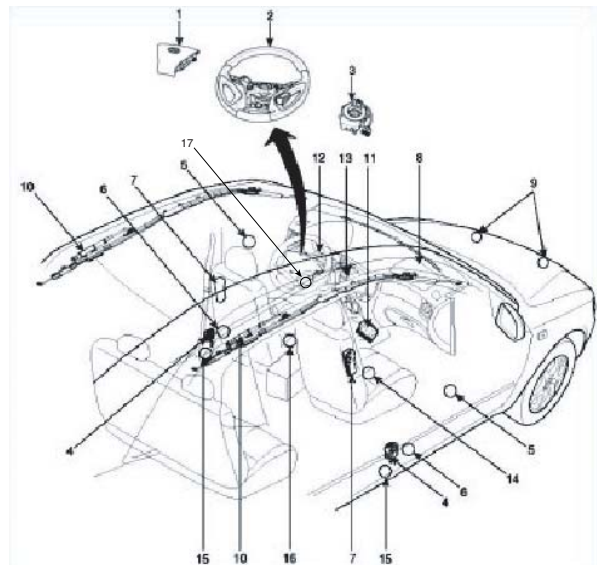
The Sonata Hybrid has a total of four seatbelt pretensioners. Two are located in the Driver's Side B-pillar, one is a Belt Pretensioner (BPT) and the other is an Anchor Pretensioner (APT). The other two are located in the Passenger's Side B-pillar. They also consist of a BPT and an APT.

Sensor and Control Module Locations

The airbags and pretensioners are managed by the SRS Control Module, or SRSCM, which is located below the front of the center console. In addition, there are four side impact sensors: two conventional accelerometer sensors in the B-pillars, and two pressure sensing sensors inside of the front door modules. Their locations are illustrated in the image below.

SRS Component Locations

1. Driver Airbag (DAB)
2. Steering Wheel
3. Clock Spring
4. Seat Belt Pretensioner (BPT)
5. Pressure Side Impact Sensor (P-SIS)
6. Side Impact Sensor (SIS)
7. Side Airbag (SAB)
8. Passenger Airbag (PAB)
9. Front Impact Sensor (FIS)
10. Curtain Airbag (CAB)
11. Supplemental Restraint System Control Module (SRSCM)
12. Airbag Warning Lamp
13. Telltale Lamp
14. Occupant Classification Sensor (OCS)
15. Anchor Pretensioner (APT)
16. Seat Track Position Sensor (STPS)
17. Knee Airbag



WARNING

- Unintentional deployment of SRS components can result in serious injury or death. Do not cut through any SRS component.
- SRS components can remain powered and active for up to 3 minutes after the 12V electrical system is shut off or disabled.

Emergency Response Procedures

Initial Response:

The following procedures should be utilized when working with a Sonata Hybrid at an emergency scene. All other operations should be consistent with your department's SOPs or SOGs.

Identify

When working with a Sonata at an accident scene, emergency responders should always assume that it is a hybrid model until it can be proven otherwise using the identification features outlined at the beginning of this Emergency Response Guide (ERG). External badging will usually be the first indicator, but it often can be hidden by damage caused in a crash. Responders must always be sure to inspect all sides of the vehicle, as well as using the identifiers found under the hood and in the interior of the vehicle.



Emergency Response Procedures

Immobilize

The next step is to immobilize the vehicle to prevent any accidental movement that can endanger the emergency response personnel and any crash victims. Since the Sonata Hybrid has the ability to shut down the gasoline engine when it is not needed, there will be instances where the vehicle appears to be off because of the absence of engine noise. When in its "ready" mode, the vehicle can move almost silently using the electric motor alone. Responders should approach the vehicle from the sides and stay away from the front or rear as they are both potential paths of travel.

Instructions for immobilizing the vehicle are shown below.



Chock the Wheels



Engage Parking Brake



Place Vehicle in Park

Emergency Response Procedures

Disable

After the vehicle has been secured to prevent movement, the final step in the initial response process is to disable the vehicle, its SRS components, and its high-voltage electrical system. This can be accomplished in one of two ways:

Primary Method: Turn the vehicle off, disconnect the 12V Auxiliary Battery, and remove the Service Disconnect Plug.

1. Determine if the vehicle is on or off by looking at the indicators on the instrument cluster (see page 6).
 - a) If the vehicle is off move to step #2.
 - b) If the instrument cluster lights indicate the vehicle is on push the "Engine START/STOP" power button located at the right of the steering column according to the conditions in the tables below.



Brake Pedal Not Applied

Press Engine START/STOP Button	LED Color on Engine START/STOP Button	State of Vehicle
-	OFF	OFF
1st time	ORANGE	ACCESSORY
2nd time	BLUE	ON
3rd time	OFF	OFF

Brake Pedal Applied and Transmission in Park

Press Engine START/STOP Button	LED Color on Engine START/STOP Button	State of Vehicle
-	OFF	OFF
1st time	BLUE	START

Emergency Response Procedures

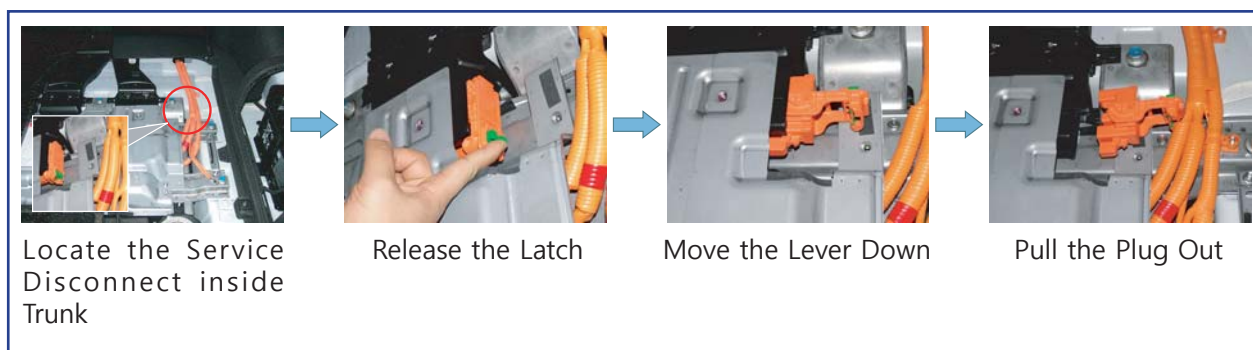
2. If possible remove the proximity key from the vehicle. Keep the key a minimum of 6 feet away to prevent accidental restarting of the vehicle until the 12V Auxiliary Battery is disconnected.



3. Disconnect the 12V Auxiliary Battery which is located in the trunk.

NOTE: Before disconnecting the 12V Auxiliary Battery, if necessary, lower the windows and unlock the doors. Once the 12V Auxiliary Battery is disconnected, the window and door lock controls will not operate.

4. Remove the Service Disconnect Plug from the HV Battery by following the procedure shown below.



Secondary Method: Remove fuse or relay, disconnect the 12V Auxiliary Battery, and remove the Service Disconnect Plug.

1. Open the hood.

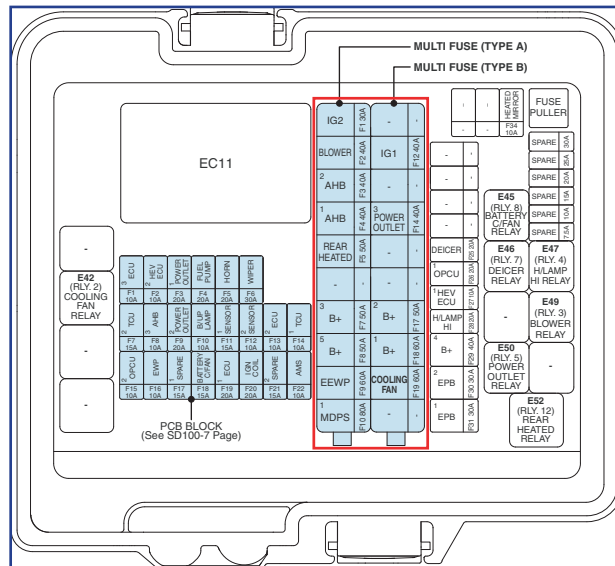
2. Remove the engine compartment fuse box cover.



Engine Compartment Fuse Box Location

Emergency Response Procedures

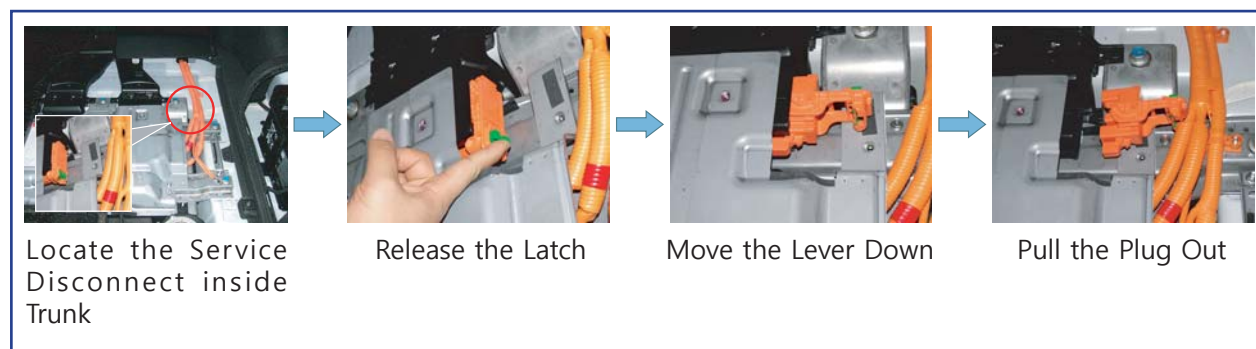
3. Remove the MULTI FUSE to remove the IG1 relay. Refer to the illustration for relay location. If the correct relay cannot be recognized, pull all of the fuses and relays from the fuse box.



4. Disconnect the 12V Auxiliary Battery, which is located in the trunk.

NOTE: Before disconnecting the 12V Auxiliary Battery, if necessary, lower the windows and unlock the doors. Once the 12V Auxiliary Battery is disconnected, the window and door lock controls will not operate.

5. Complete the steps shown below to remove the Service Disconnect Plug from the HV Battery.



Emergency Response Procedures

If neither of the preceding methods can be completed, emergency responders must be aware of the potential for accidental SRS activation as well as understand that there is no guarantee that the high-voltage system has been shut down.

WARNING



HIGH VOLTAGE!

- Before any type of emergency service is performed on this vehicle the high-voltage system must be shut down. Wait 5-10 minutes after shut down to allow high-voltage capacitors to discharge sufficiently.
- Even after the high-voltage system has been shut down and discharged, all high-voltage components should be treated as if they are still energized.
- Failure to shut down and disable the high-voltage system prior to emergency operations can result in serious injury or death.

WARNING



EXPLOSIVE!

- SRS Components can be unintentionally deployed.
- To avoid unintentional deployment, the 12V electrical system must be shut down. Wait 3 minutes after the system is shut down or disabled to allow the voltage to discharge sufficiently. Do not cut through any SRS Component.
- Failure to shut down and disable the SRS system prior to emergency operations or cutting through SRS Components can result in serious injury or death.

Emergency Response Procedures

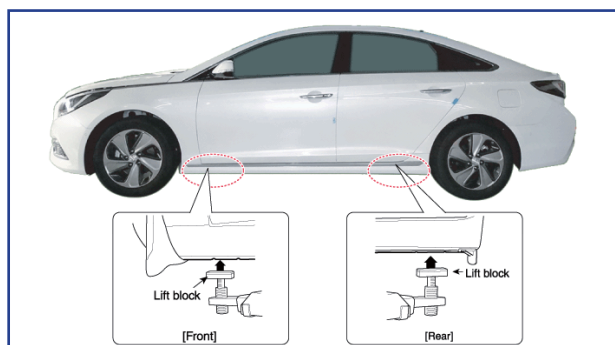
Having addressed the general initial response procedures for handling the Sonata Hybrid in an emergency, the following sections will address specific types of emergencies.

Extrication:

Extrication operations for the Sonata Hybrid are almost the same as for a conventional vehicle, but with some notable exceptions. Utilize the Identify, Immobilize, and Disable model described in the previous pages prior to engaging in extrication operations.

Vehicle Stabilization

Use standard stabilization (cribbing) points. Always be sure to connect to a structural member of the vehicle, and avoid placing cribbing under high-voltage cables, fuel lines, and other areas not normally considered acceptable.



Tire Deflation

In some instances responders may determine the need to deflate the tires to stabilize the vehicle. In this case, note that this vehicle uses a Tire Pressure Monitoring System. The sensors in the tires are mounted by means of a metal valve stem. To rapidly deflate the tires it might be necessary to snap off the valve stem with pliers or remove the valve cap and Schrader valve.



Extrication Equipment and Techniques

Standard extrication equipment can be employed on this vehicle, and normal techniques and the dispatching unit's Standard Operating Procedures (SOPs) and Standard Operating Guidelines (SOGs) should be followed. There are no high-voltage cables or components in areas that are considered standard cut points. Extrication personnel should always visually inspect the area being cut to ensure no SRS or high-voltage components are compromised.

Emergency Response Procedures

Firefighting:

After Initial Emergency Response Procedures have been applied, Firefighting Procedures may begin. Hyundai recommends that each response team follow their own department's standard operating procedures for fighting vehicle fires in combination with the Sonata Hybrid specific details that are covered in this section.

Firefighting Operations

If the high-voltage battery pack is either involved in or at risk of being involved in a fire in a Sonata Hybrid, strict cautions must be taken while conducting firefighting operations because of the following reasons:

- Lithium-ion Polymer batteries contain gel electrolyte that can vent, ignite, and produce sparks when subjected to temperatures above 300°F.
- May burn rapidly with a flare-burning effect.
- A burning battery could release hydrogen fluoride, carbon monoxide, and carbon dioxide gasses. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

Even if the high-voltage battery pack is not directly involved in a vehicle fire, approach the vehicle very carefully.

Extinguishers

To extinguish a small high-voltage battery fire, the following techniques can be used:

- Dry chemical
- CO₂
- Large amounts of water
- Regular foam

For a large high-voltage battery fire, use these types of extinguishing methods:

- Large amounts of water
- Fog
- Regular foam

Placing Water on High-voltage Electricity

When approaching a vehicle fire on a Sonata Hybrid, firefighters should not hesitate to extinguish the fire with water. The vehicle's high-voltage electrical system is well insulated and unlike the 12V electrical system, it is not part of the vehicle's chassis.

Emergency Response Procedures

Overhaul Operations

During overhaul operations it is important for responders to remember the dangers that are still present, even after a fire has been extinguished.

Just as during a fire, the same dangers exist. They include, but are not limited to:

- Harmful gasses
- Reignition of fire
- Electrical Burns, Shock, or Electrocution

To protect oneself and others, and to minimize potential risk, responders should use appropriate Personal Protective Equipment (PPE) defined by the department's SOP's and ensure the vehicle's high-voltage electrical system has been disabled. The methods described at the beginning of the Emergency Response Procedures section (page 17) should be followed.

Submersion:

Some emergency responses can involve a submerged vehicle. A Sonata Hybrid that is submerged does not have high-voltage potential on the vehicle's body or framework and is safe to touch, whether it is in water or on land.

Procedure

1. Remove the vehicle from water.
2. Drain the water from the vehicle.
3. Disable the vehicle by using the methods described at the beginning of the Emergency Response Procedures section (page 17).

NOTE:

Once the vehicle has been removed from the water and drained, the drained water that is surrounding the area will not be energized. This is a benefit of the design of the Sonata Hybrid's high-voltage electrical system. It is designed to maintain its isolation from the vehicle's chassis and the surrounding area.

Emergency Response Procedures

High-Voltage Battery Damage/Spills:

The HV Battery assembly is enclosed in a sturdy metal case that is rigidly mounted to structural components of the vehicle. This construction helps prevent damage to the HV Battery assembly even in severe crashes. This section provides emergency responders with information regarding how to mitigate the severity of a damaged HV Battery assembly or gel electrolyte spill, however unlikely that might be.

Mitigation Procedures

For a gel electrolyte spill or leak:

- Eliminate all ignition sources (no smoking, flares, sparks, or flames) in the immediate area.
- Do not touch or walk through spilled material.
- Absorb electrolyte with earth, sand, or other non-combustible material.
- Place leaking battery (if removed from a vehicle) and contaminated absorbant material in metal containers.

WARNING

IRRITANT

- **Internal components of HV Batteries are irritants and sensitizers.**
- **To avoid contact with these irritants and sensitizers wear positive pressure self- contained breathing apparatus (SCBA) and other personal protective equipment (PPE) designed for use with these types of hazards.**
- **Failure to wear proper SCBA and PPE can result in serious injury or death**

HV Battery Manufacturer Contact Information: HL Green Power, Ltd. 69, Gieopdosi 1-ro, Chungju-si, Chungcheongbuk-do, 380-871, Korea	Emergency Phone Number: 011-82-43-841-6789
Disposal of Damaged HV Battery Pack: Contact a local authorized Hyundai dealer.	

Emergency Response Procedures

First Aid for Electrolyte Exposure

The Sonata Hybrid HV battery pack is a self-contained, sealed unit and poses no electrolyte contamination hazards under normal conditions. It is only under the rare instance of HV battery damage that the gel electrolyte would be exposed and a person could come in contact with it. Follow these guidelines for electrolyte exposure.

If a victim has been exposed to electrolyte, complete these steps first:

- Move victim to fresh air.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- Ensure that other emergency responders are aware of the materials involved and take precautions to protect themselves.

Then treat the victim according to his/her path of exposure:

Absorption

Eye Contact: Rinse eyes with water for 15 minutes.

Skin Contact: Wash area thoroughly with soap and water.

Inhalation

Remove the victim and leave the area immediately to avoid further exposure.

Ingestion

Compel the victim to drink milk or water and induce vomiting.

Emergency Response Procedures

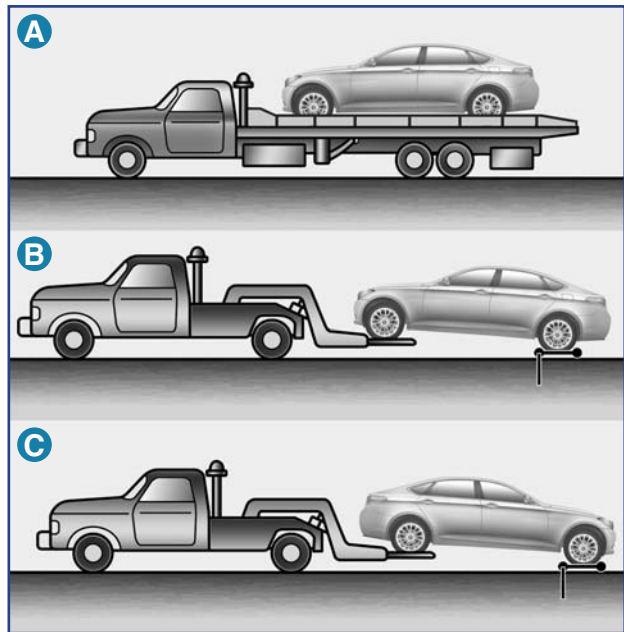
Towing:

The Sonata Hybrid is no different from a conventionally powered gasoline engine vehicle with regard to towing. If emergency towing is necessary, Hyundai recommends having it done by an authorized Hyundai dealer or a professional tow-truck service. Proper lifting and towing procedures are necessary to prevent damage to the vehicle. Because the vehicle has a front wheel drive powertrain, using a flatbed or wheel dollies is recommended, specific towing guidelines are described below.

A. Towing via flatbed is the recommended method for transporting a Sonata Hybrid.

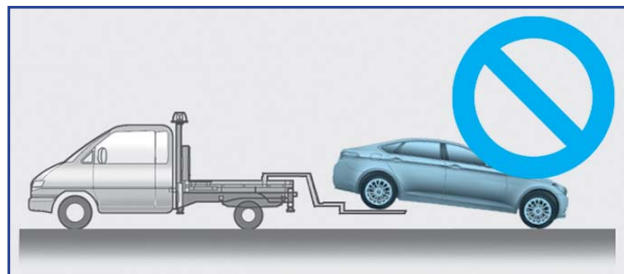
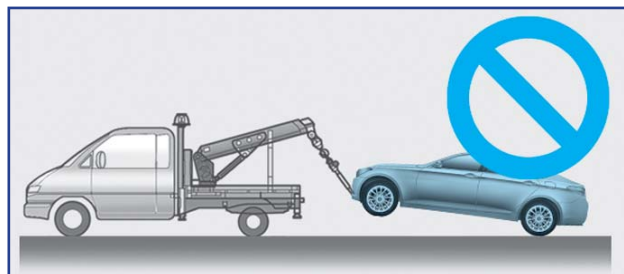
B. If any of the loaded wheels or suspension components are damaged or the vehicle is being towed with the rear wheels off the ground, use a towing dolly under the front wheels.

C. The vehicle can be towed with the front wheels supported by the lifting equipment in most cases that do not involve damage to wheel, tire, or suspension components.



CAUTION!

- Towing with sling-type equipment or with the front wheels on the ground are not correct methods for towing this vehicle.
- To prevent damage to the vehicle always use wheel lift or flatbed equipment.
- Failure to use the proper towing methods will cause damage to the vehicle.

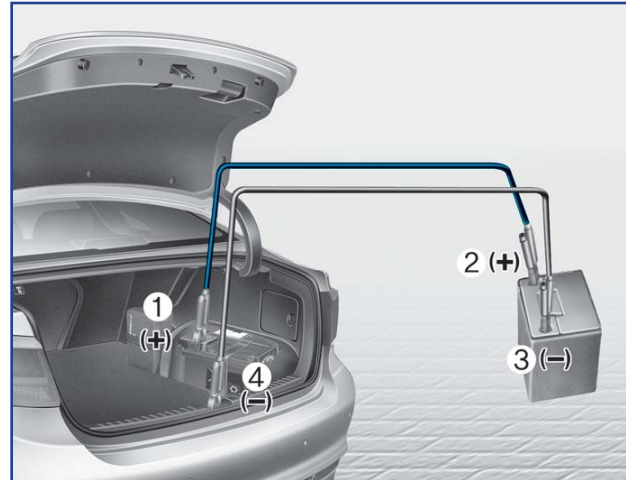


Towing and Jump Starting

Jump Starting:

Jump Starting the Sonata Hybrid is similar to conventional models. Specific methods and warnings are noted below.

1. Open the cover of 12V Auxiliary Battery in the trunk.
2. Make sure the booster battery is 12-volt and that its negative terminal is grounded.
3. If the booster battery is in another vehicle, do not allow the vehicles to touch.
4. Turn off all unnecessary electrical loads.
5. Connect the jumper cables in the exact sequence shown in the illustration. First connect one end of a jumper cable to the positive terminal of the discharged 12V Auxiliary Battery (1), Then connect the other end to the positive terminal on the booster battery (2). Connect one end of the other jumper cable to the negative terminal of the booster battery (3), Next, connect the other end to a solid, stationary, metallic point (such as, the trunk latch striker) away from the 12V Auxiliary Battery (4). Do not allow the jumper cables to contact anything except the correct battery terminals or the correct ground. Do not lean over the battery when making connections.
6. Start the engine of the vehicle with the booster battery and let it run at 2,000 rpm. Then start the engine of the vehicle with the discharged 12V Auxiliary Battery. Turn the ignition to "hybrid ready" and the LDC will recharge the 12V Auxiliary Battery. Note that the gasoline engine may start at any time when the ignition is in the ready position.



WARNING!

- Keep all flames or sparks away from the battery. The battery produces hydrogen gas that can explode if exposed to flame or sparks. If these instructions are not followed exactly, serious personal injury and damage to the vehicle may occur! If you are not sure how to follow this procedure, seek qualified assistance. Automobile batteries contain sulfuric acid, which is poisonous and highly corrosive. When jump starting, wear protective glasses and be careful not to get acid on yourself, your clothing or on the car.
- Do not attempt to jump start the vehicle if the discharged battery is frozen or if the electrolyte level is low; the battery may rupture or explode.
- Never attempt to check the electrolyte level of the battery as this may cause the battery to rupture or explode causing serious injury.

Quick Reference Guide

Exterior Visual Identification:

Badging or Symbols

The Sonata Hybrid can be identified by unique badging found on the exterior of the vehicle. There is a blue drive badge on each of the front fenders, and on the passenger side of the trunk lid there is a hybrid badge. Badging may become hidden after a crash due to damage to the vehicle. Always be sure to inspect all sides of the vehicle before determining whether or not a badge is present.



Vehicle Identification Number (VIN)

The Vehicle Identification Number (VIN) is used to determine whether a vehicle is conventional or hybrid. The VIN is punched on the floor under the passenger seat. The number 1 in the 8th character of the VIN indicates that it is a hybrid with 2.0 gasoline engine.

XXXXXXXX1XXXXXXXXX

Engine Compartment

Unlike the conventionally powered Sonata, the Hybrid version has a plastic engine cover with "hybrid" clearly shown on it.



Additionally, there are orange colored high-voltage electrical cables in the engine compartment.



Vehicle Underside

An orange colored cable is also visible on the underside of the vehicle. This cable runs along the passenger side from the rear of the vehicle to the engine compartment.



Other Notable Features

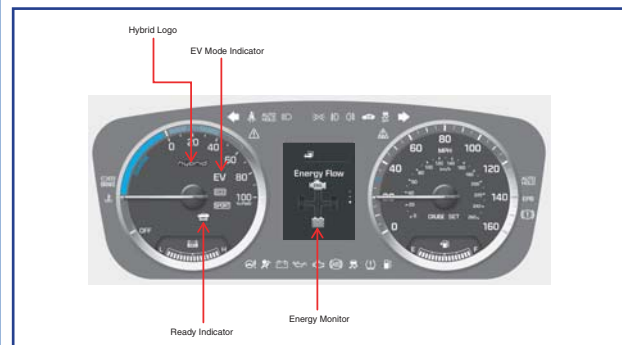
Unlike the conventional Sonata, the Hybrid has an arch air curtain on front bumper and a rear spoiler. This features distinguishes the Hybrid from its conventional counterpart.



Interior Visual Identification:

Dashboard

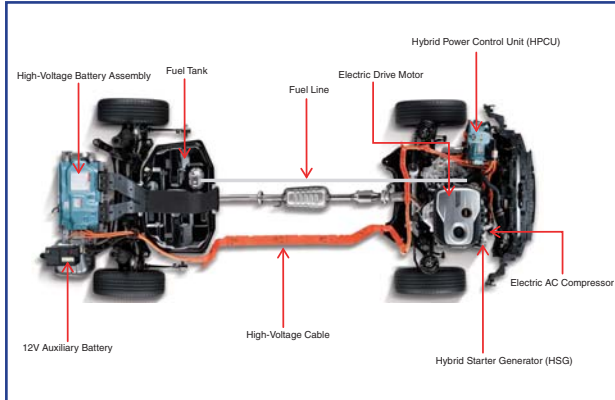
The Sonata Hybrid's instrument cluster contains several unique components that are not found on a conventional Sonata.



Appendix A

Quick Reference Guide

Vehicle Component Locations:



Initial Response:

Disable

After the vehicle has been secured to prevent movement, disable the vehicle, its SRS components, and its high-voltage electrical system. This can be accomplished in one of two ways:

Primary Method: Turn the vehicle off, disconnect the 12V Auxiliary Battery, and remove the Service Disconnect Plug.

1. Determine if the vehicle is on or off by looking at the indicators on the instrument cluster (see page 6).

a) If the vehicle is off move to step #2.

b) If the instrument cluster lights indicate the vehicle is on push the "Engine START/STOP" power button located at the right of the steering column according to the conditions in the tables below.



Brake Pedal Not Applied

Press Engine START/STOP Button	LED Color on Engine START/STOP Button	State of Vehicle
-	OFF	OFF
1st time	ORANGE	ACCESSORY
2nd time	BLUE	ON
3rd time	OFF	OFF

Brake Pedal Applied and Transmission in Park

Press Engine START/STOP Button	LED Color on Engine START/STOP Button	State of Vehicle
-	OFF	OFF
1st time	BLUE	START

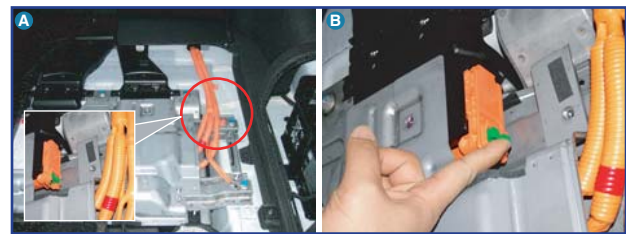
2. If possible remove the proximity key from the vehicle. Keep the key a minimum of 6 feet away to prevent accidental restarting of the vehicle until the 12V Auxiliary Battery is disconnected.



3. Disconnect the 12V Auxiliary Battery which is located in the trunk.

NOTE: Before disconnecting the 12V Auxiliary Battery, if necessary, lower the windows and unlock the doors. Once the 12V Auxiliary Battery is disconnected, the window and door lock controls will not operate.

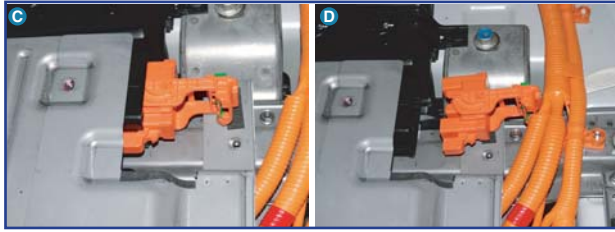
4. Remove the Service Disconnect Plug from the HV Battery by following the procedure shown below.



A. Locate the Service Disconnect inside Trunk
B. Release the Latch

Appendix A

Quick Reference Guide



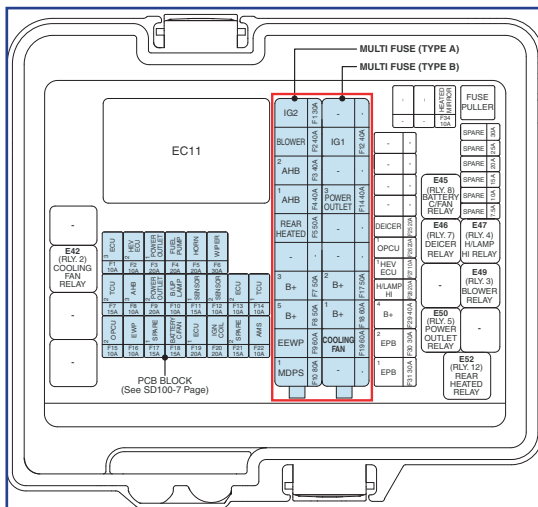
- C. Move the Lever Down**
Release the Latch
D. Pull the Plug Out

Secondary Method: Remove fuse or relay, disconnect the 12V Auxiliary Battery, and remove the Service Disconnect Plug.

1. Open the hood.
2. Remove the engine compartment fuse box cover.



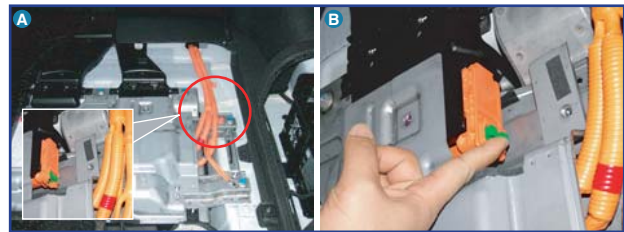
3. Remove the MULTI FUSE to remove the IG1 relay. Refer to the illustration for relay location. If the correct relay cannot be recognized, pull all of the fuses and relays from the fuse box.



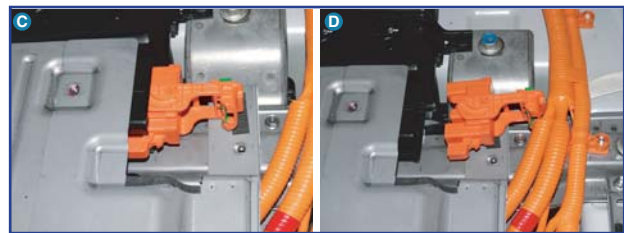
4. Disconnect the 12V Auxiliary Battery, which is located in the trunk.

NOTE: Before disconnecting the 12V Auxiliary Battery, if necessary, lower the windows and unlock the doors. Once the 12V Auxiliary Battery is disconnected, the window and door lock controls will not operate.

5. Complete the steps shown below to remove the Service Disconnect Plug from the HV Battery.



- A. Locate the Service Disconnect inside Trunk**
B. Release the Latch



- C. Move the Lever Down**
Release the Latch
D. Pull the Plug Out

⚠ WARNING

High Voltage Labels

High-voltage labels are placed throughout the Sonata Hybrid on high-voltage components. These labels enable emergency responders to quickly identify potential electrical hazards.





©2015 Hyundai Motor Company
All rights reserved.

This document may not be altered without the written
permission of Hyundai Motor Company.