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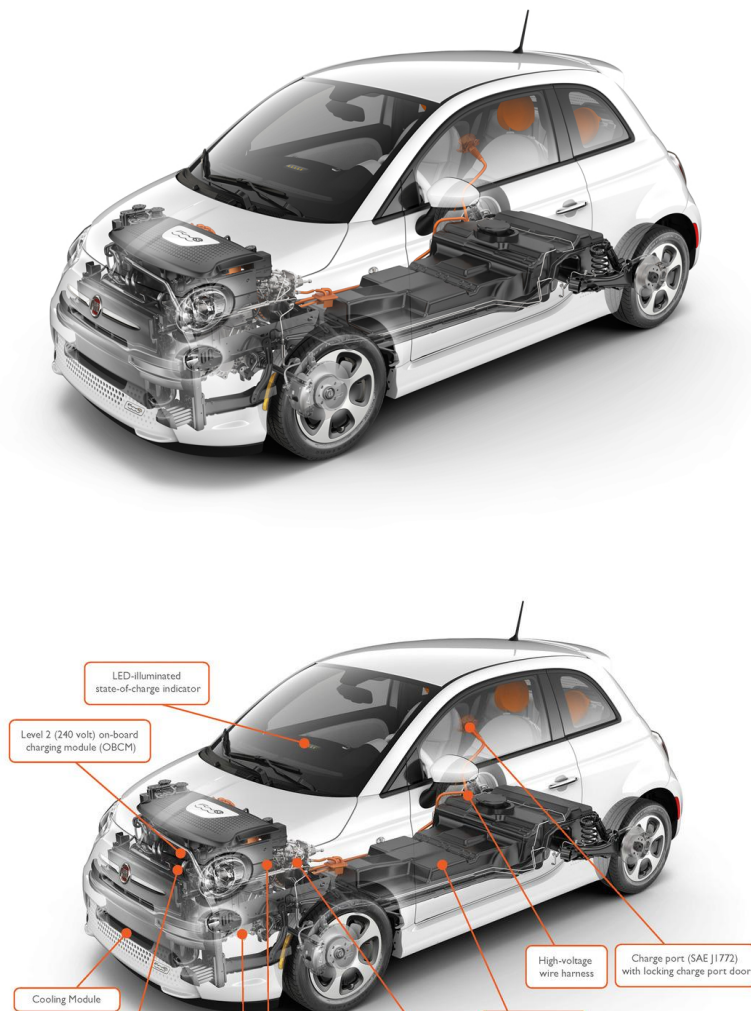
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2013 FIAT 500E BODY STRUCTURE AND BATTERY LOCATION

0 Comments

The tiny Fiat 500 now has an EV model set to hit the streets in the spring of 2013. The 2013 Fiat 500e is rated at 108 Highway MPGe Rating and Class-Leading 87 miles of driving range on a full charge. The ERG is not out yet for the Fiat 500e, so keep your eye out. Make sure you also look at a post that covers the [body structure of the Fiat 500](#).



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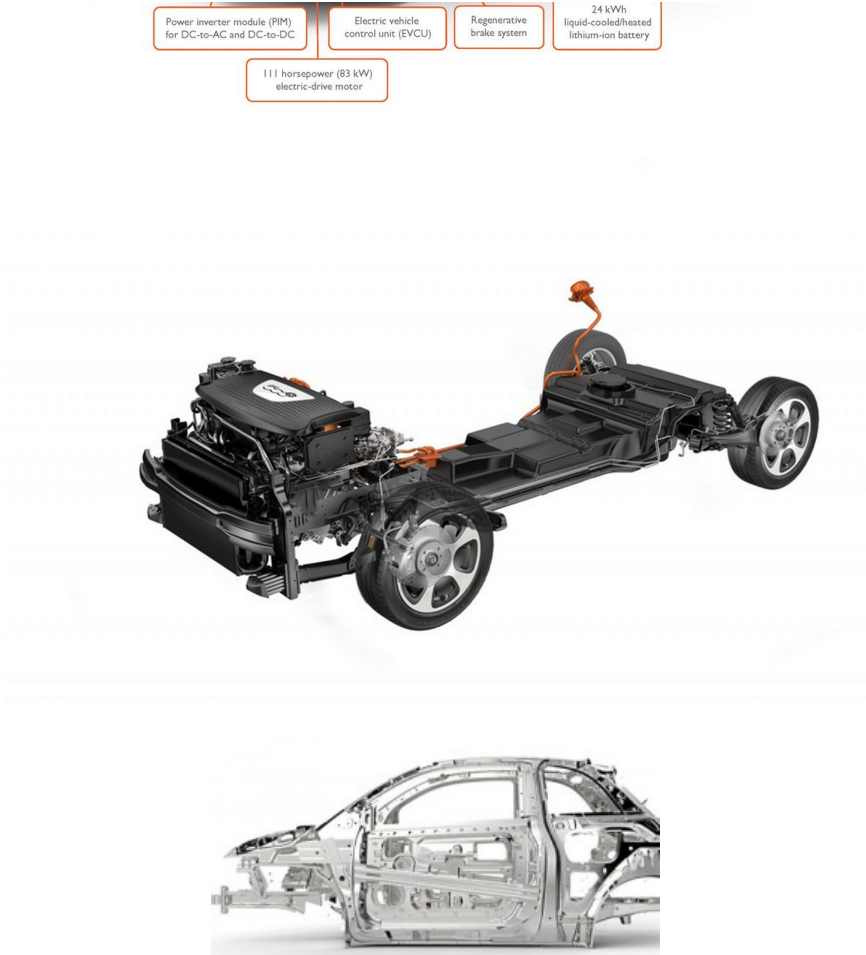
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2013 NISSAN LEAF CUTAWAY

0 Comments

The Nissan Leaf is not a new vehicle that firefighters will encounter on the road. Below are a couple of new images that breakdown Nissan Leaf and gives a little more information.



EXTRICATION GUID...

- Overcoming Extrication Challenges with Boron and UHSS Guide

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2010 Models 2011 Models 2012 Models 2013 Models Airbag Audi Battery BMW BMW Body

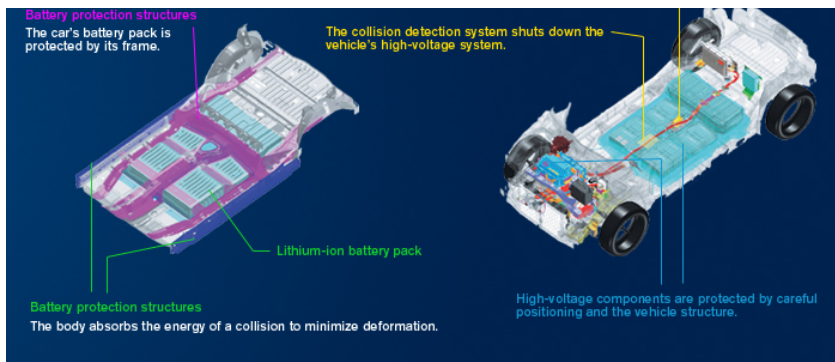
Structure Boron Boron B-Pillar Chevrolet Crash Recovery System CRS Dodge Dual Phase Electric Car Emergency Response Guide ERG

Extrication Extrication Tools Firefighter

Firehouse Ford GM High Voltage Battery High Voltage Cable Honda HSS HV Hybrid Hyundai List of Vehicles with Boron and UHSS Mercedes-Benz Moditech Ron Moore Safety Toyota Training UHSS UHSS B-Pillar UHSS Door Beam Volt Volvo



SMART YOUTUBE W...



Below are some posts on the Nissan Leaf:

- [Cribbing and stabilizing the Nissan Leaf](#)
- [Where is the HV disconnect on the Nissan Leaf](#)

Nissan Motors ERG

- [2012 Nissan LEAF First Responder's Guide](#)
- [2011 Nissan LEAF First Responder's Guide](#)

Posted by [Smitty](#) on December 29, 2012 • Filed under: [extrication](#) • Tagged: [Electric Car](#), [Extrication](#), [Nissan](#), [Nissan Leaf](#), [Plug-in Electric Vehicle](#)

HIDDEN HAZARDS INSIDE OF A VEHICLE

0 Comments

The automotive industry has changed the way first responders approach a motor vehicle accident [Share](#) compared to a decade ago. Air bags are standard equipment, pretensioners are used in second and third row seats, and the seats are starting to resemble a firefighter jet seat with the technology packed into a small package. Situational Awareness is the new catch phrase in the extrication world. First responders must be aware of hazards of a vehicle from bumper to bumper!

For years extrication trainers preached peel away the plastic interior trim to ensure an air bag gas inflator is not in the cut path. However, those days are long gone! What we need to start doing is a quick "trauma assessment" if you will on our vehicles before we make a cut to any pillar or roof structure. Once the interior trim is pulled off palpate any visible nylon air bag curtains close to the metal. Deployed gas inflators statistically do not pose a safety hazard if cut. However, the best stance to take is to never cut through a gas inflator because there is no method available to us to determine if the inflator is still charged.

Occupant sensors in the front seats are devices that measure the distance away from the steering wheel or dash and weigh the occupant to determine if the air bag should be deployed in a crash. Have you ever put your backpack on the passenger seat and notice that the "Air bag Off" light turns on? This is an example of the sensor weighing the load on the seat and determining that the occupant in the seat does not meet the minimum weight for the air bag to deploy in a crash.

Pretensioners

Seatbelt pretensioners tighten the belt a few inches to prevent the occupant from jerking forward in a crash. Pretensioners are mounted in two different methods, to the seat belt retractor located in a body pillar or on the seat structure. Front seat mounted pretensioners are typically mounted to the top of the seat adjustment track. Seat mounted pretensioners will move the seatbelt buckle and not the seatbelt. A center console usually provides enough protection for first responders not to have to worry about any hazards from charged pretensioners.

Buckle mounted pretensioners use gas stored in the tube to retract the buckle during certain crashes. Retractor mounted pretensioners like the TRW one in is set off by any electronically fired pyrotechnic charge which retracts the seatbelt by 80mm, which is more than three inches. During the earlier stages of a crash, the pretensioner removes excess slack in the seatbelt to begin effective occupant restraint.



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Pretensioners are not reserved for front seat passengers. Many late vehicles like the Volvo have pretensioners in the rear seats. Pyrotechnic pretensioners in the rear seats can be buckle or retractor mounted. Many rear seats that are split into 60/40 seats have a metal tower that is thick and big that holds a high mounted seat belt retractor. This tower is located in the 60% seat or the larger of the two. If the seats are split up into 40/20/40 than the tower is located in the center or 20% seat.

Some vehicles have a pre-collision safety system that includes an electric motor-pyrotechnic pretensioner system. During a pre-collision event like extreme sudden hard braking, an electric motor in the pretensioners retracts the front seatbelts. Once the event stabilizes the electric motor will reverse itself. The pyrotechnic pretensioners function normally and separately from a motor-pyrotechnic pretensioner system.

Load limiting is a safety that is used to minimize belt-inflicted injuries. A basic load limiting feature is sewn into the belt webbing and stitches are designed to break when a certain load is applied to the belt. The belt extends when the stitches come apart and allow the sewn webbing to unfold. A mechanical load limiting device use

Air bags

Air bags entered the automotive market as an air bag in the driver's steering wheel. In 2011 model year vehicles, 10 different air bags in per vehicle are no longer a feature reserved for expense luxury vehicles. Automakers proudly advertise air bags on the vehicle interior on the steering wheel, bash panel, and pillar trim panels.

Seat Air bags

Seat mounted air bags are not a new hazard facing first responders. The difference is in the size and numbers of air bags packaged in a seat are changing. Front seats can have two separate air bags to protect the occupant during a crash. This number is expected to increase when centered mounted seat air bags are used. Seat air bag are located along the outside of seat back frame and the bag is stored in a deflector called a "Taco" that directs the air bag when deployed.



Center Mounted Seat Air bag



General Motors has developed a front center air bag deploys from the right side of the driver's seat and positions itself between the front row seats near the center of the vehicle. The tubular tethered air bag is designed to act as an energy absorbing cushion between driver and front passenger in side crashes. The air bag will also be deployed during a rollover. The center mounted seat air bag will be in the Buick Enclave, GMC Acadia, and Chevrolet Traverse starting in the 2013 model year. Toyota developed a rear center console with an air bag that deploys between the rear passenger

seats. Toyota has not put this air bag into production yet, but it is likely to make into a vehicle platform soon.

Side Air bags

Occupant ejection mitigation is new safety requirement that the automakers must meet by 2017. Side air bags and glazing of side window glass are the methods being tested and engineered into current model vehicles. These air bags will be large volume that can run from A-pillar to D-pillar. The 2011 Grand Caravan has a side impact air bag over nine feet long and is inflated by a stored gas inflator the size of a child's lunchbox thermos and has over 10,000psi!



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2011 Dodge Caravan Side Air bag

Knee Air bags

Knee air bags are typically located underneath the steering wheel on the angled portion of the instrument panel. The knee air bag module is a rectangle box easily package as a complete air bag systems with the gas inflator inside. This helps during installation at the auto plants and allows this system to be used in different vehicles.

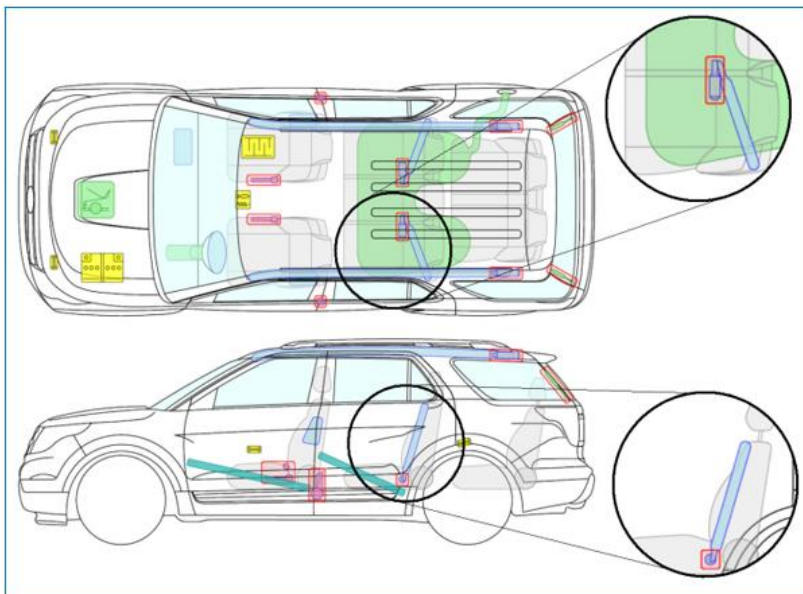
Door Air bags

Many luxury auto makers have started installing door air bags. The air bags are typically installed in the center of the door.

Airbelts



The 2011 Ford Explorer was the first production vehicle to have inflatable rear seat belts. Ford plans to offer inflatable seat belt technology in vehicles globally in the future. What is important to remember is the airbelt requires a stored gas inflator store in the seat. A pioneering company, Moditech, provides current information on hazards inside and outside the vehicle. Moditech developed the Crash Recovery System (CRS) and the image below of the 2011 Ford Explorer.



Key Fobs



Keyless ignition is nothing new but many automakers are offering the features on their vehicles. Hyundai offers keyless ignition with a key fob or smart key that works on proximity. So how do you turn the car off if there is no key in the ignition? Most vehicles have a "Start" or "Power" button that is used to switch the ignition from off, to on, or to ACC. Make sure you the button indicator light is off. If you see a "READY-ON" light on the display the vehicle is started. This is very important with hybrid or electric vehicles because of the quiet operation. An important note, on some vehicles the "Power" button indicator light turns off when the vehicle is started. That is why it is important to make sure you do not see "READY-ON"!

Batteries

First responders are aware of hybrid and plug-in electric batteries inside of the passenger compartment. However, 12-volt batteries can also be found inside of the passenger compartment. For example, the GMC Acadia has the 12-volt battery located in the floor behind the front passenger seat.



Is that vehicle totaled?

Late model vehicles have dozens of safety systems that keep occupants safe during a crash or rollover. Just because the vehicle may look repairable does not necessarily mean it is. Plastic interior trim panels and seat covers are designed to rip or tear when air bags deploy. Seat structures are engineered to distribute the load of an occupant. Seatbelts can have rip stitching to absorb energy from the occupant. Pyrotechnic pretensioners are onetime use. Keep in mind that most of the time in a serious accident the glass is already broken out and the windshield typically has spider marks from the air bags or occupants. Never let the fear of "totaling" a vehicle compromise patient care. Just remember all the hazards mentioned in this article are real and in vehicles.

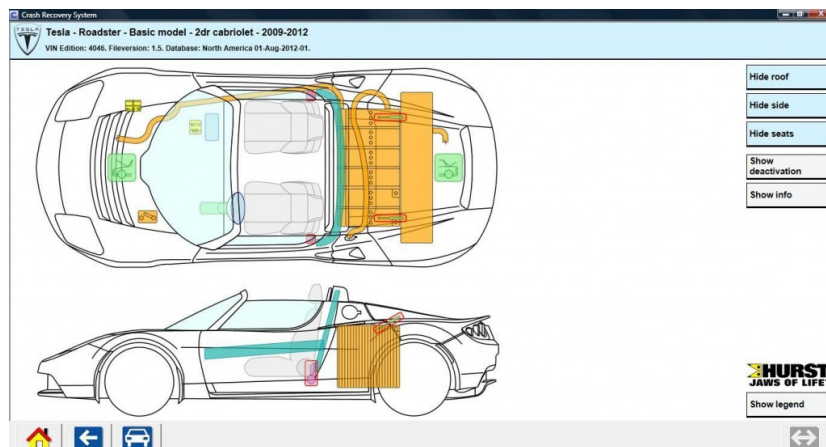
Posted by [Smitty](#) on November 5, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Airbag](#), [Battery](#), [Body Structure](#), [Crash Recovery System](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [Extrication Tools](#), [High Voltage Battery](#), [Hybrid](#), [Moditech](#)

MODITECH MONDAY: TESLA ROADSTER DEACTIVATION

0 Comments

So just in case you thought that [Crash Recovery System](#) by [Moditech](#) only helps you avoid hazards in vehicles like ultra high strength steels and airbag inflators take a look at the deactivation procedure for the 2009-2012 Tesla Roadster and the 2008-2009 Tesla Roadster. One very important point, the Tesla Roadster has an inertia switch, that when activated, cuts off the high voltage circuit. This deactivation procedure is for the ***SRS (Supplemental Restraint System)*** ie, airbags.

[Share](#)



During a collision an inertia switch is activated, which cuts off the high voltage circuit.

Immobilize vehicle:

- Block wheels and set parking break.
- Move the shift lever to P (park) position.

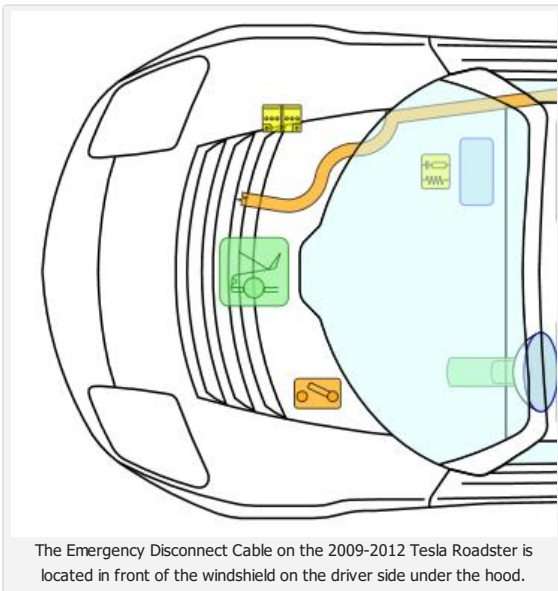
Deactivate propulsion system:

- Turn ignition key to "OFF" position and remove it.
- Disconnect the indicated cable connection (See the image below).
- Caution! After deactivation the high voltage circuit requires 5 minutes to deplete.

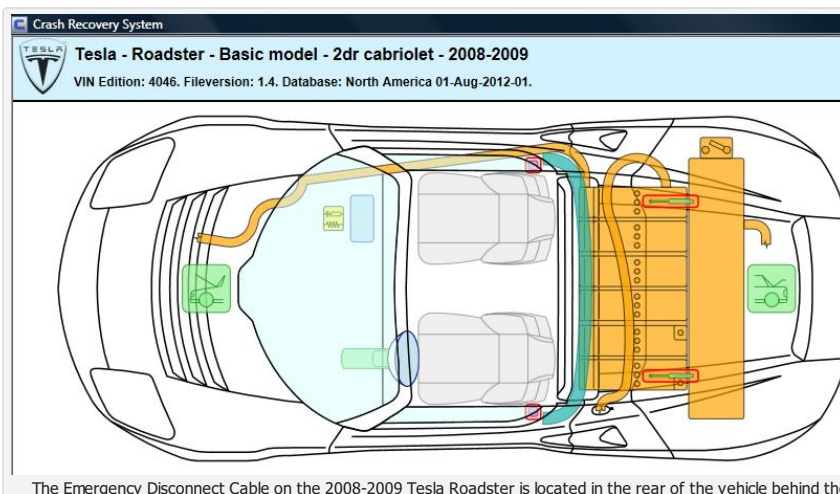
The emergency disconnect cable should be used as part of the propulsion system deactivation. Is located in the vehicle as indicated. – Cut the indicated cable in the image below. There is a difference between the location of the Emergency Disconnect Cable in the 2008-2009 Tesla Roadster and the 2009-2012 Tesla Roadster. Make sure you become familiar with both!

Below is the location of the Emergency Disconnect Cable on the 2009-2012 Tesla Roadster which is located in the front of the vehicle.





Below is the location of the Emergency Disconnect Cable on the 2008-2009 Tesla Roadster which is located in the rear of the vehicle.



passenger in the trunk.

Posted by [Smitty](#) on October 1, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Crash Recovery System](#), [CRS](#), [Electric](#), [Electric Car](#), [Extrication](#), [First Due Tackle](#), [High Voltage Battery](#), [High Voltage Cable](#), [Moditech](#), [Moditech Mondays](#), [Safety](#), [Tesla](#)

2012 ELECTRIC CAR SALES FORECAST

0 Comments

So just how many plug-in electric cars are expected to be sold in the U.S. in 2012? (This doesn't [Share](#) include hybrid vehicle) Last year in the U.S., just under 18,000 electric plug-in cars were sold. Halfway through 2012, here are the projections for the whole year:

Chevrolet:	20,000
Nissan:	15,000
Toyota:	14,600
Ford:	3,000
Tesla:	5,000
BMW:	700
Mitsubishi:	1,000
Coda:	1,000
Honda:	1,100
Fisker:	1,000
TOTAL:	62,400

That would easily more than triple the 2011 sales level, but still constitute just under half of 1% of the total U.S. car market in 2012. It would take 140,000 electric plug-in vehicles to make 1% of the 2012 U.S. car market. Check out the article on TheStreet.com; [2012 Electric Car Sales Forecast](#) that breaks down the different models per automaker. You can also look at [Top 10 Electric Car Makers](#) on CleanFleetReport.com.

If you include hybrid and plug-in hybrid vehicles the number of vehicles sold increase!

Plug-in Electric Cars



Ford Focus EV 2012



Ford C-MAX Energi 2012



Tesla Model X 2014



Toyota RAV4 EV 2012

• "There are now 26 brands planning to have 44 electric vehicles on the road within the next three years." – G.M. Jan 2012 (gas hybrids included in this number)



VW Blue-e-motion 2013



Tesla Model S 2012



Ford Transit Connect 2011



2013 Ford Fusion Plug-in Hybrid

Leave it up to the automakers to have new names for the different types of Hybrid and electric vehicles.

- Electric vehicles (EVs)
- Battery Electric Vehicles (BEVs)
- Plug-in electric vehicles (PEVs)
- Hybrid electric vehicle (HEV)
- Plug-in hybrid electric vehicles (PHEVs)

Keep in mind that the hybrid and electric vehicle market closely follows gas prices. When gas prices fall, so do the sales of hybrid and electric vehicles. This demonstrates that while there is consumer interest in hybrid and electric vehicles, demand is heavily influenced by the economic environment, rather than pure interest in the technology. Hybrid and electric vehicle sales are expected to account for 3.2 percent of total light-vehicle in 2012.

Posted by [Smitty](#) on July 10, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2012 Models](#), [Battery](#), [BMW](#), [Chevrolet](#), [CODA](#), [Electric Car](#), [Fisker](#), [Ford](#), [Mitsubishi](#), [Nissan](#), [PEV](#), [PHEV](#),

Plug-in, Plug-in Electric Vehicle, Tesla, Toyota

NFPA'S ELECTRIC VEHICLE EMERGENCY FIELD GUIDE [0 Comments](#)

The NFPA just released a Emergency Field Guide for sale. The price [Share](#)
is modest at \$45 for a print copy. I like to see extrication field guides hitting the market. There's a pocket electric/ hybrid guide getting ready to be released soon. A lot of rescuers still like to have a printed copy in their hands to flip through. Hopefully, I can get a copy yo review and provide a complete review. In the mean time, here's what the NFPA has to say about it.

Respond to electric and hybrid vehicle incidents involving damaged high voltage batteries, battery fires, submersion and charging stations with NFPA's full-color Electric Vehicle Emergency Field Guide, 2012 Edition. It's packed with color visuals and technical data reviewed by the auto manufacturers!

Learn about everything from vehicle immobilization to disabling high-voltage and SRS systems, conducting safe extrication cuts, and executing vehicle recovery and disposal. The hands-on EV Emergency Field Guide covers:

- Disabling procedures and extrication hazards specific to individual makes and models — checked by manufacturers for technical accuracy
- NFPA-developed procedural guidelines for fire response, extrication, submersion, spill hazards, and first aid
- Original manufacturer diagrams and images
- Leading-edge Lithium Ion vehicle safety information from third-party research such as the National Highway Traffic Safety Administration (NHTSA) and the Fire Protection Research Foundation
- Post-incident recovery procedures
- Warning signs of latent fire risks
- Storage guidance

The Emergency Field Guide is updated as technology changes, so make sure you have the latest!

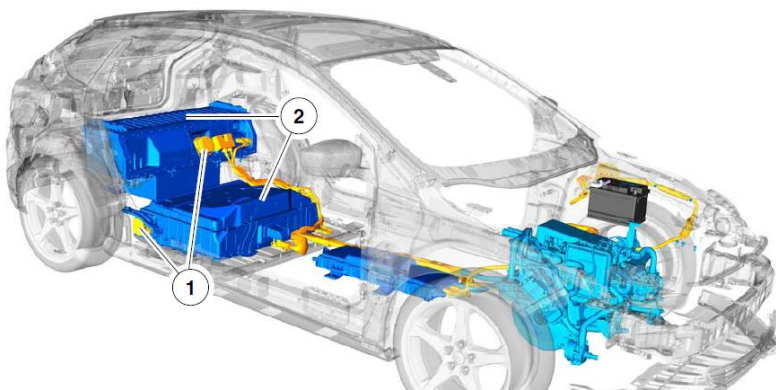
Compact, spiralbound, and organized for easy access to information, the Electric Vehicle Emergency Field Guide is essential for fire and rescue personnel, EMS technicians, law enforcement, and towing/recovery professionals. Stay safe and be prepared to respond — order today. (Spiralbound, Approx. 145 pp., 2012 Volume 1)

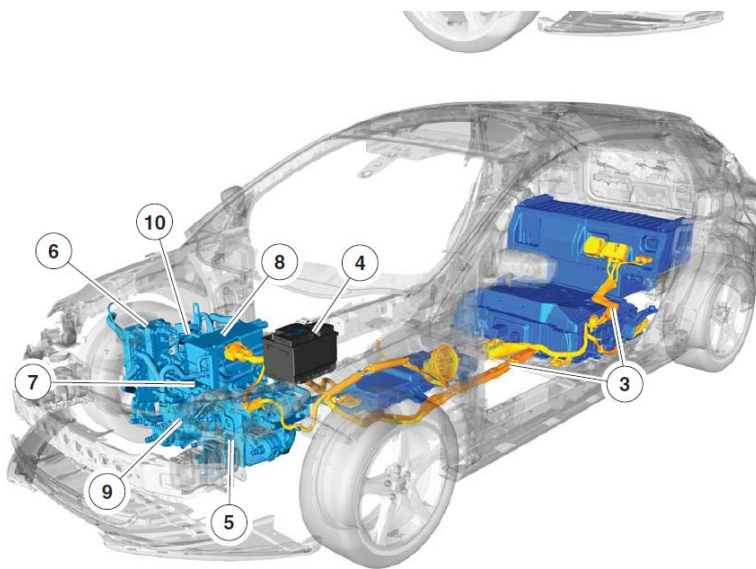
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Posted by [Smitty](#) on June 13, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Battery](#), [Electric Car](#), [Electric Vehicle Emergency Field Guide](#), [ERG](#), [Extrication](#), [Guide](#), [High Voltage Battery](#), [High-Voltage Service Disconnect](#), [HV](#), [NFPA](#), [Training](#)

WHERE'S THE HIGH-VOLTAGE SERVICE DISCONNECTS [0 Comments](#) ON THE 2012 FORD FOCUS???

If you noticed in the title's question – *Where's the High-Voltage Service Disconnects* - that [Share](#)
disconnects is plural than you understand that the 2012 Ford Focus Electric has more than one! The Electric Focus has an upper battery and lower battery service disconnect, so it also has two High Voltage Batteries. Both are removed in the same fashion. However, to gain access to the lower battery high-voltage service disconnect, the [2012 Ford Focus Electric Emergency Response Guide](#) tells you to raise the rear of the vehicle using a suitable jack. Scratching your head yet? I am! Not too sure how we are going to access the lower disconnect. Make sure you review the ERG and the pictures at the bottom of this post that show both disconnects. Stay safe out there!





#	COMPONENT	DESCRIPTION/LOCATION	FUNCTION
1	High-Voltage Service Disconnects	Upper disconnect is located behind the rear seatback. Lower disconnect is below the upper pack near the right hand rear tire. Orange in color with a square body design. Uses a two stage release tab.	Provides means to disconnect high-voltage batteries for safely servicing vehicle.
2	High-Voltage Battery	Located behind the rear seatback and under vehicle. Liquid cooled/heated lithium ion.	Provides high-voltage storage for vehicle's electric motor.
3	High-Voltage Wiring	Runs along the vehicle's floorpan from the high-voltage battery to the underhood compartment. All high-voltage wiring has orange-colored insulation.	Provides physical connection between high-voltage battery and vehicle's high-voltage equipment.
4	12-Volt Battery	Located under the hood on the driver side of the vehicle. Typical automotive 6-cell lead/acid design.	Provides 12-volts for vehicle accessories.
5	Single Speed Automatic Transmission (Gearbox)	Transverse-mounted design, similar to the non-Electric Focus vehicles. Attached to the traction motor	Provides rotational force to the wheels for vehicle propulsion.
6	DC/DC Converter	Located under the hood on the passenger side, next to the washer solvent reservoir. Has orange high-voltage	Provides 12 volts to charge the 12-volt battery and run

6	DC/DC Converter	wires and Motor Electronics Cooling System hoses attached to it.	the 12-volt battery and run vehicle accessories.
7	Electric Motor	Liquid cooled 3-phase AC permanent magnet motor. Attached to gearbox,centrally located in the engine compartment.	Turns energy from the high-voltage traction battery into movement that is applied to the transmission for vehicle propulsion.
8	Transmission Control Module (TCM)	Module located on top of the electric motor. Hall effect sensor type module.	The TCM controls the motor/ inverters to produce the desired torque output to the wheels.
9	Electric Air Conditioning Compressor	Located in front of the motor. Has an orange high-voltage wire attached to it using an interlock connector.	Replaces the belt driven air compressor.
10	PTC Heater (Cabin CoolantHeater)	Located on the RH side of the motor near the DC/DC converter. Has both low and high voltage electrical connections.	Used to raise the temperature of the coolant to normal operating temperature

High Voltage Service Disconnects



Upper HV Battery Disconnect



Lower HV Battery Disconnect

Posted by [Smitty](#) on May 30, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2012 Models](#), [Battery](#), [Battery Electric Vehicles](#), [Electric Car](#), [Extrication](#), [Ford](#), [High Voltage Service Disconnect](#), [HV](#), [HV Cable](#), [HV Service Disconnect](#), [Safety](#)

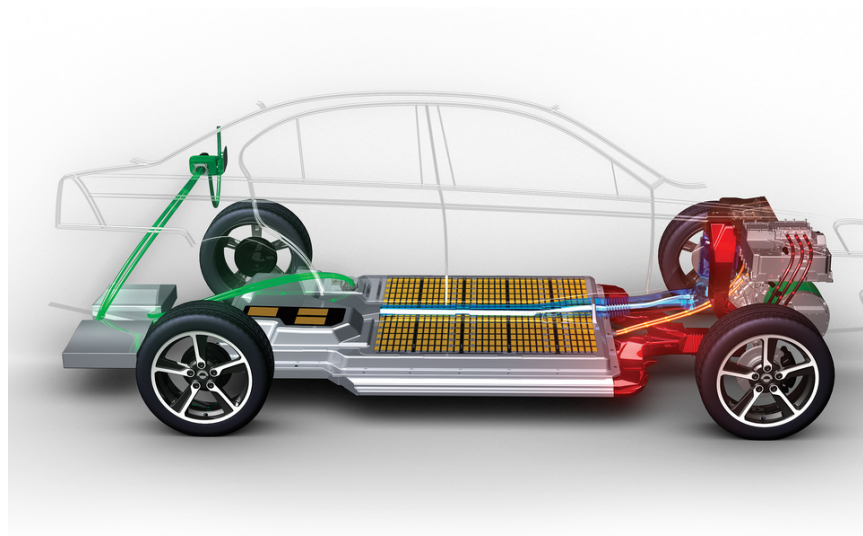
CODA AUTOMOTIVE ELECTRIC VEHICLE

[0 Comments](#)

Yet another electric vehicle on the road! CODA Automotive re-engineered an existing gasoline-powered vehicle, the Chinese Hafei Saibao. The CODA is a rolling-chassis Chinese sedan with some Chinese-made lithium-ion cells that are installed along with the drivetrain in California. CODA Automotive is a privately held company headquartered in Southern California that designs, manufactures and sells electric vehicles and lithium-ion battery systems, purpose-built for transportation and utility applications.

[Share](#)

■ [CODA Automotive Electric Vehicle ERG](#)



AEP Ohio, a unit of American Electric Power, added the CODA sedan to their fleet and will use the vehicle on their gridSMART® Demonstration Project, located in the northeastern part of Central Ohio.





Posted by [Smitty](#) on May 20, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2012 Models](#), [Battery](#), [CODA](#), [Crash Recovery System](#), [CRS](#), [Electric Car](#), [Emergency Response Guide](#), [EV](#), [Extrication](#), [Moditech](#), [Training](#)

ADVANCED STEEL EXTRICATION POWERPOINTS

[2 Comments](#)

Below are the advanced steel PowerPoints I presented at the Train the Trainer in Ann Arbor Michigan. Feel free to use, share, and change it fit your departments needs. Also, please let me know of anything you think should change.

- [Advanced Steels in Vehicle Construction](#)
- [Advanced Steels Workarounds](#)
- [Advanced Steel Manufacturing and Stamping](#)
- [Teaching Advanced Steels](#)
- [Use of technology to stay informed](#)

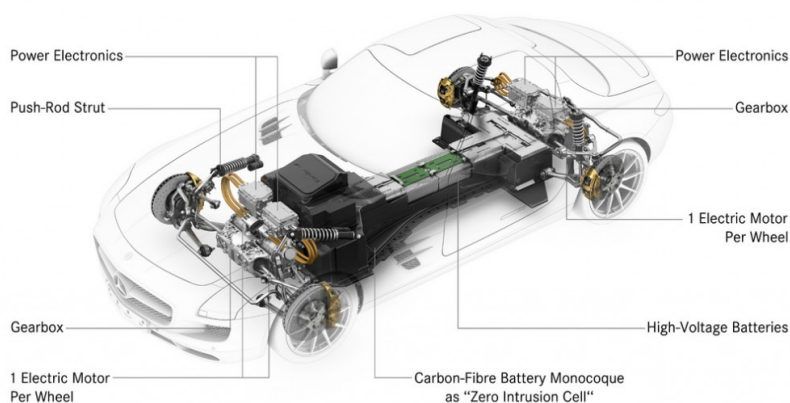
Posted by [Smitty](#) on May 5, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Battery](#), [BIW](#), [Body Structure](#), [Boron](#), [Crash Recovery System](#), [CRS](#), [Dual Phase](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [Firefighter](#), [Moditech](#), [PowerPoint](#), [Safety](#), [Training](#), [UHSS](#)

2013 MERCEDES-BENZ SLS AMG E-CELL SUPERCAR

[0 Comments](#)

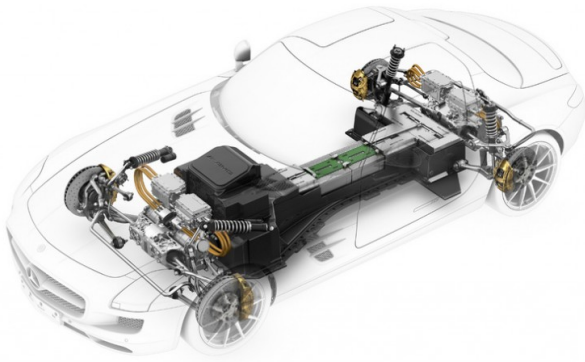
Mercedes-Benz has a 526 horsepower electric drivetrain in the upcoming SLS AMG E-Cell supercar. Power for the E-Cell will be provided by four electric motors. The E-Cell employs a permanent all-wheel drive system which is powered by a 400-volt battery made up of 12 modules of 72 lithium-ion polymer cells. The battery is housed in within the carbon fiber transmission tunnel, which is structurally integrated into the E-Cell's aluminum body shell. This is a 2013 model year vehicle expected to hit the roads in the fall of 2012.

Mercedes-Benz SLS AMG E-CELL



AMG

Mercedes-Benz



Posted by [Smitty](#) on May 2, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2013 Models](#), [Battery](#), [Body Structure](#), [Crash Recovery System](#), [CRS](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [HV](#), [Hybrid](#), [List of Vehicles with Boron and UHSS](#), [Mercede-Benz](#), [Moditech](#), [Safety](#), [Training](#)

NFPA COMMENDS MA FOR NEW ELECTRIC VEHICLE LICENSE PLATES

0 Comments



Share

Emergency responders in Massachusetts will now have another way to easily identify electric and hybrid vehicles. Massachusetts has become the second state to unveil a new license plate for hybrids and electric vehicles, a move that aligns with the goals with the National Fire Protection Association's (NFPA) Electric Vehicle Safety Project.

Read the complete story at [FireEngineering.com](#)

Also check out the [NFPA's](#) website and learn more about [NFPA's electric vehicle training series](#).

Posted by [Smitty](#) on April 29, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Electric Car](#), [Emergency Response Guide](#), [Extrication](#), [Firefighter](#), [Hybrid](#), [Safety](#), [Training](#)

2013 VOLKSWAGEN JETTA HYBRID

0 Comments

First off, if you haven't liked the [Boron Extrication](#) page on [Facebook](#), please do!

Share

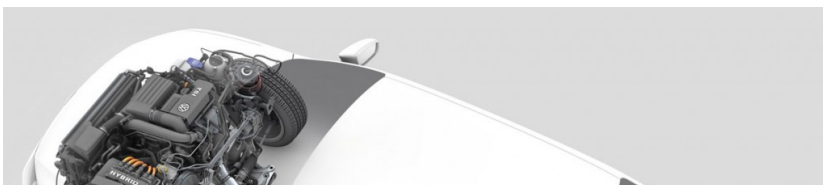


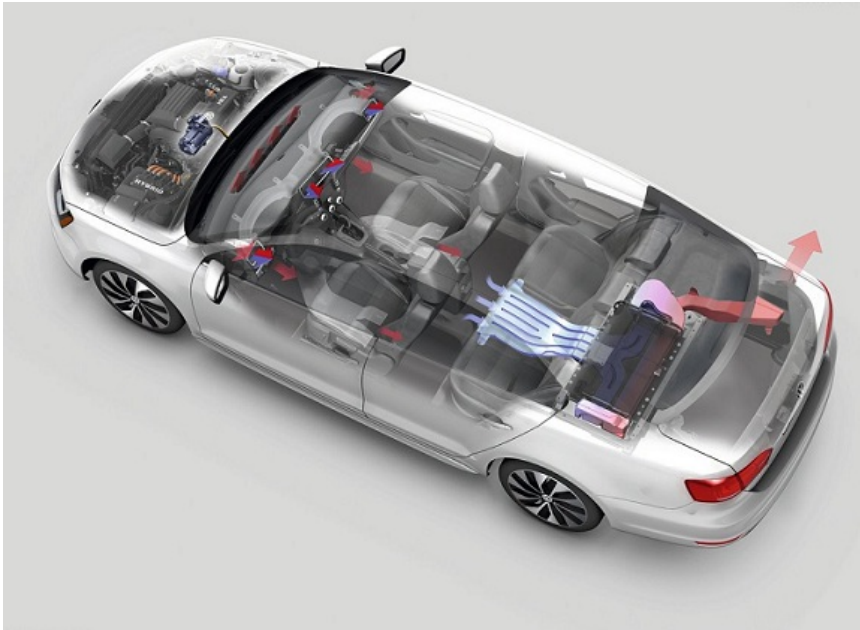
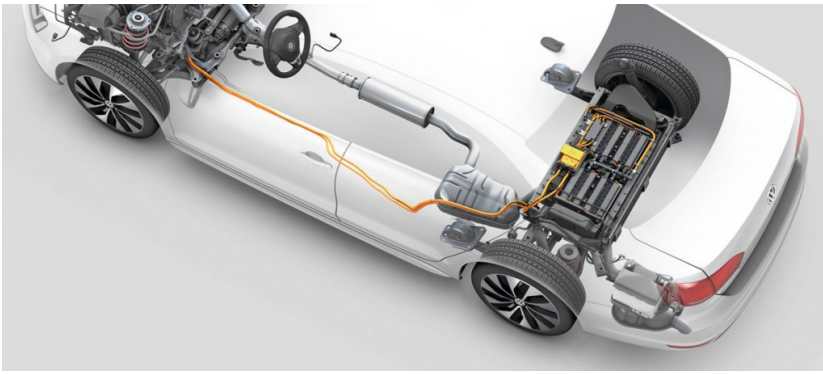
The 2013 Volkswagen Jetta Hybrid is set to hit the US market during the second half of 2012.

The hybrid has a State-of-the-art battery: A lithium-ion battery supplies the energy to the electric motor. The compact 220-volt, 1.1 kWh battery is integrated behind the rear bench seat and weighs less than 80 lb. The battery consists of 60 individual cells with a combined energy capacity of 5 Ah. The frequency of the discharge and charge cycles in hybrid operation requires high-performance battery cooling, which is

handled by a fan mounted directly on the device. The battery also has its own management system that performs safety, diagnostic, and monitoring functions as well as temperature management. The battery is disconnected when it's not in use or if the car is involved in a collision.

Standard safety equipment for all Jetta models includes Electronic Stability Control (ESC), anti-lock brakes (ABS), and six airbags (driver and front passenger airbags, front side thorax airbags and Side Curtain Protection® airbags front and rear).







You might like:

- [Nissan Leaf firefighter extrication battery hybrid Boron UHSS](#)
- [2013 Mazda CX-5 Body Structure \(NZ\)](#)
- [Extrication from Cars during Road Traffic Accidents](#)
- [Southern Extrication School](#)

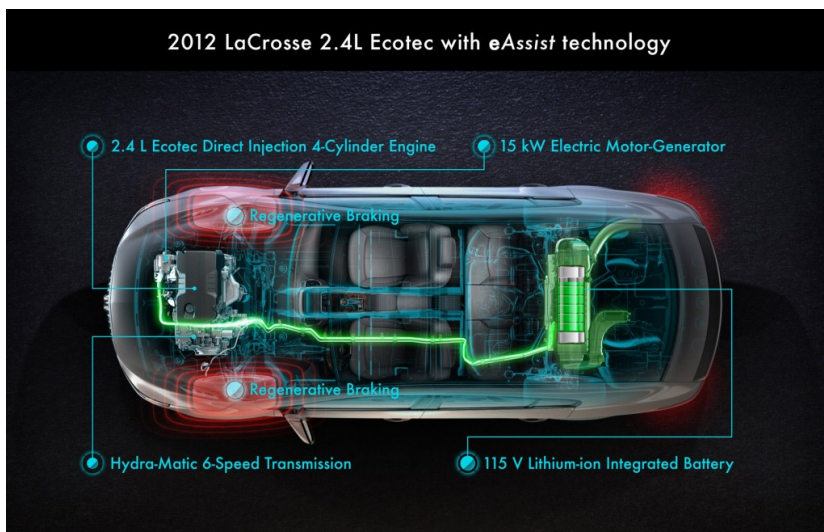
Recommended by 

Posted by [Smitty](#) on March 27, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Body Structure](#), [Electric Car](#), [Emergency Response Guide](#), [Extrication](#), [Hybrid](#), [Moditech](#), [Safety](#), [Training](#), [VW](#)

2012 BUICK LACROSSE EASSIST HYBRID

0 Comments

Just like the 2012 Buick LaCrosse, the 2013 [Chevrolet Malibu Eco](#) shares the same hybrid style system. [Share](#)



Buick Emergency Response Guides:

- [Emergency Response Guide for the 2012 LaCrosse eAssist and Regal eAssist](#)
- [Quick Reference Guide for the 2012 LaCrosse eAssist and Regal eAssist](#)





You might like:

- [2013 Chevrolet Orlando Body Structure](#)
- [US and Canada](#)
- [2012 Opel Astra GTC Safety Structure](#)
- [First Look: The Hybrid Hook](#)

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Posted by [Smitty](#) on March 27, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Battery](#), [Body Structure](#), [Buick](#), [Crash Recovery System](#), [CRS](#), [eAssist](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [Firefighter](#), [Hybrid](#), [Moditech](#), [Safety](#)

2013 CHEVROLET MALIBU ECO; AKA A HYBRID, KIND OF!

3 Comments

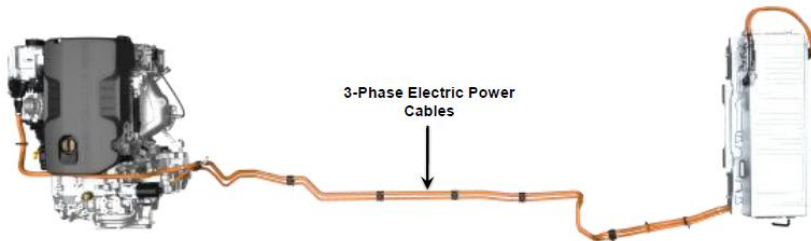
The Chevrolet Malibu Eco vehicles are front-wheel drive, five passenger vehicles with a lightly electrified gasoline engine. The eAssist system utilizes a high voltage battery, located in the trunk, as a supplemental power source. The system assists the engine utilizing a high torque belt-driven starter / generator. [Share](#)



The eAssist system features a 130 volt lithium-ion battery, which provides electrical energy to the starter / generator. The high voltage battery assembly is located in the trunk behind the rear passenger seats. The assembly includes several internal components that operate together to provide and control the high voltage for the eAssist system.

3-Phase Electric Power Cables

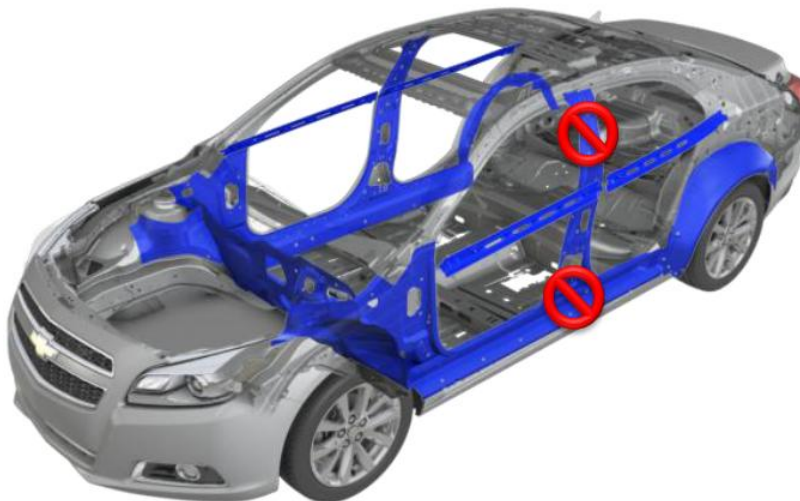
The 3-phase electric power cables connect the high voltage battery assembly to the starter / generator. These cables are housed in a labeled protective metal tubing under the vehicle.



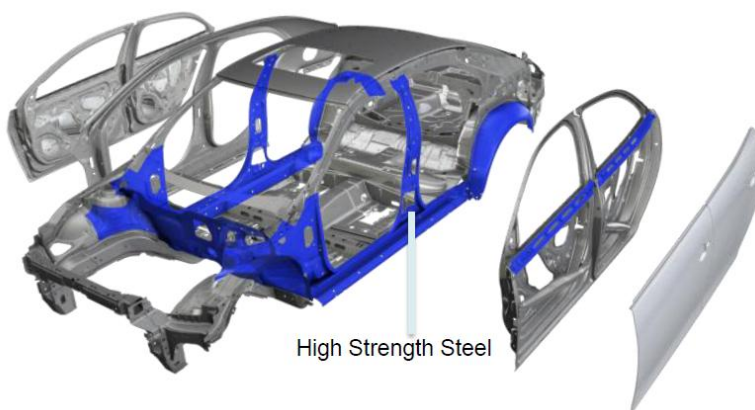
There are two separate electrical systems within the eAssist vehicles: low voltage (12 V) and high voltage (130 V). The low voltage system is similar to a conventional vehicle.

Do NOT cut the:

- Roof rails near the center pillar; contains side curtain airbag inflators
- Front seat back on the outboard edge; contains side airbags
- Center pillar near the rocker; contains the seat belt retractor pretensioner and side impact sensor



The Chevrolet Malibu Eco is designed to protect the occupants during a collision. The body structure contains high strength steel; this is highlighted in blue. The occupants are protected from front, rear, and side impacts by a structural cage created by the underlying vehicle structural design. Additional crumple zones protect the occupant with front, side, and rear rails that are designed to crush in a crash.



Cut through the low voltage cables on each side of the yellow labels to remove a section of the cable to

ensure the cables cannot inadvertently reconnect.



Make sure you read thru the Emergency Response Guides below:

- [2013 Chevrolet Malibu Eco eAssist First Responder Guide](#)
- [2013 Chevrolet Malibu Eco eAssist Quick Reference Guide](#)

Posted by [Smitty](#) on March 18, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Airbag](#), [Battery](#), [Body Structure](#), [Chevrolet](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [Extrication Tools](#), [Hybrid](#), [Safety](#), [Training](#), [UHSS](#), [UHSS B-Pillar](#)

EXTRICATION TRAIN THE TRAINER IN THE DETROIT AREA

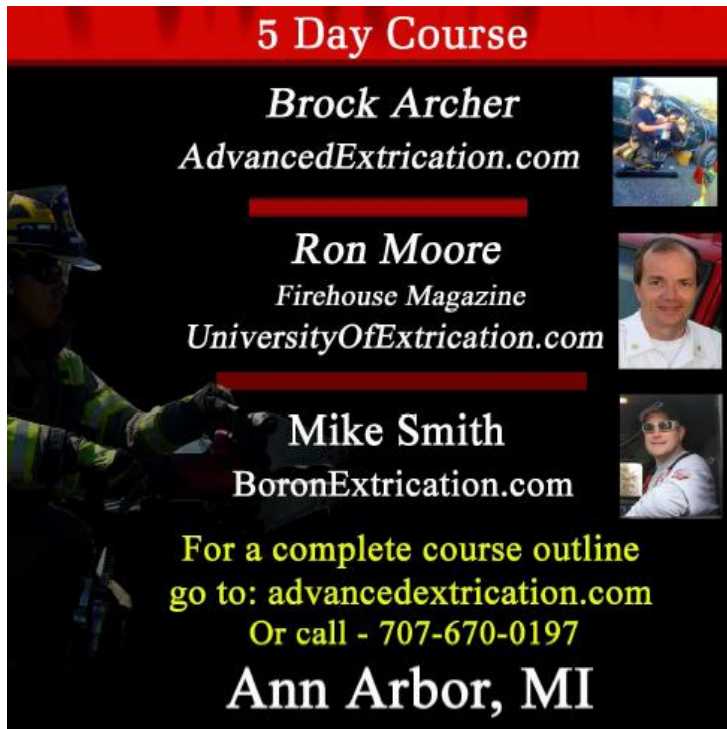
0 Comments

If you are looking for a train the trainer extrication course in the Detroit area, look no further! [Share](#)
Brock Archer, Ron Moore (from Firehouse Magazine and the University of Extrication) and myself are teaching a 5 day extrication course. The classroom portion will be at the Ann Arbor Fire Department and the hands on training will be by Detroit Metro Airport. Brock will be bringing his West Coast extrication knowledge to the Motor City! Ron Moore will also be presenting, I have stated this before, every firefighter needs to see Ron present in person! This will be a course that everyone will be talking about!

Check out the flyer below and the course outline and contact me with any questions.

- [Extrication Train the Trainer Course Flyer](#)
- [Extrication Train the Trainer Course Outline](#)





5 Day Course

Brock Archer
AdvancedExtrication.com

Ron Moore
Firehouse Magazine
UniversityOfExtrication.com

Mike Smith
BoronExtrication.com

For a complete course outline
go to: advancedextrication.com
Or call - 707-670-0197

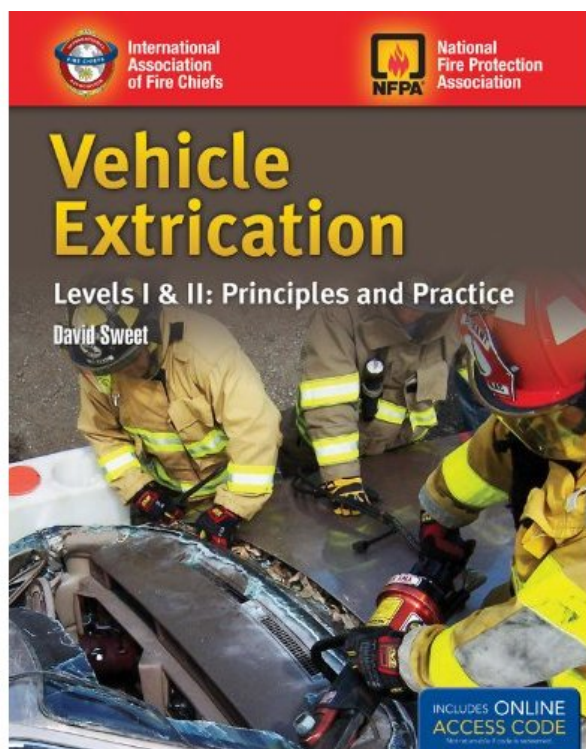
Ann Arbor, MI

Posted by [Smitty](#) on March 12, 2012 • Filed under: [extrication](#), [special-operations](#), [Training](#), [training-fire-rescue-topics](#) • Tagged: [AdvancedExtrication.com](#), [Ann Arbor](#), [Battery Location](#), [Body Structure](#), [Boron B-Pillar](#), [Brock Archer](#), [Detroit](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [Firefighter](#), [Firehouse](#), [Firehouse.com](#), [High-Voltage Service Disconnect](#), [Hybrid](#), [List of Vehicles with Boron and UHSS](#), [Michigan](#), [Ron Moore](#), [Safety](#), [Training](#), [University of Extrication](#)

VEHICLE EXTRICATION: LEVELS I & II: PRINCIPLES AND PRACTICE


1 Comment

I posted about a new Extrication book that hit the market in late 2011. I first noticed the text [Share](#) when Paul Hasenmeier posted a link on Facebook about it. The author contacted me and sent out a review copy that has been a staple reading for the last few months. I have worked on finishing my review of David Sweet's text [Vehicle Extrication: Levels I & II: Principles And Practice](#) for over a month. Once I settle in on an area of the book that I really liked, I would end up reading into the next chapter and wanted to review every chapter. Unfortunately, the information delivered cannot be summed up in a simple book review. David put his heart and soul along with nearly 30 years of fire service experience into the book. Below are some of the highlights you should look for when reading your copy.



Vehicle Extrication, Levels I & II: Principles and Practice can take a beginner firefighter and step by step introduce the core principles behind extrication while exposing advanced operations and techniques. Likewise, even an experienced firefighter can expand their skill set and metal toolbox with all the knowledge contained in this extrication book.

Two unique features of this book are the "Near Miss Reports" and "Voices of Experiences" worked into each chapter. The fire service is very good about making information learned from incidents that run smoothly and even those that try the skills of the responders on scene. The "Voices of Experiences" provide a short insight into an incident that directly relates to the content of the chapter. David used several industry leading contributors to develop the content. The "Near Miss Reports" help paint a picture of mistakes made on scene and how we can learn from others sharing their mistakes instead of keeping them private.



Voices of Experience

“At this incident, multiple crews were assigned varying tasks, including EMS, rescue, stabilization, fire suppression, establishing a landing zone, and spill containment.”

We responded to a motor vehicle collision with little dispatch information given other than the location. Upon arrival, a semi tanker truck was rolled over into a field and a small heavily damaged passenger car was sitting in the front yard of a residence 50 yards (46 meters) away. The truck driver was ambulatory and stated his diesel tanks were leaking. The tanks had leaked about 75 gallons (300 quarts) of fuel into the field, which would require a private clean-up company. We called in a heavy wrecker company to upright the semi tractor and trailer. It was confirmed that the tank on the trailer was loaded with can coating but was not leaking. The can coating was pumped to another tanker, while fire suppression crews stood by.

While our ambulance and rescue truck went to the passenger car, an incoming engine handled the hazardous materials incident at the semi-truck. We found a single passenger in the car. The car had sustained heavy front end and driver's side damage. The driver was semiconscious and was pinned by 12 inches (305 millimeters) of door intrusion and a crumpled dash. We knew that this extrication would require stabilization, popping the door, rolling the dash, and removing the roof. In addition, due to the prolonged extrication and patient injuries, an additional crew would be needed to set up a landing zone for a medical helicopter to transport the patient to definitive care.

At this incident, multiple crews were assigned varying tasks, including EMS, rescue, stabilization, fire suppression, establishing a landing zone, and spill containment. Your trainings for crashes involving multiple vehicles, vehicles into buildings or waterways, and large vehicles such as school buses, cement mixers, and semis should incorporate probable assignments, realism, and challenge, but ultimately prepare your department for advanced- and technician-level extrication scenes.

Paul Hasenmeier
Huron Fire Department
Huron, Ohio

The text covers every type of vehicle extrication from late models with high strength steels, heavy commercial, and school buses. In my opinion the text should be named the Encyclopedia of Extrication. Each chapter of the book has "Skill Drills" that has clear pictures the step with very detailed step by step instructions. I doubt that Vehicle Extrication: Levels I & II: Principles And Practice ever makes it to your bookshelf!

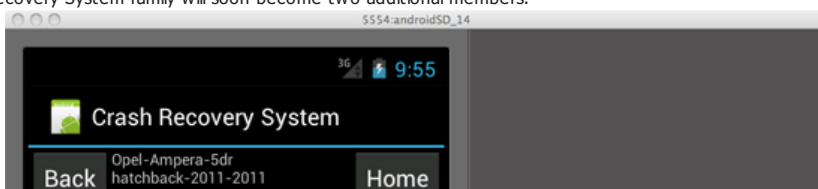
You can test drive a whole chapter of the book; [Chapter 8: Vehicle Stabilization](#) for free. You can even download the the sample chapter as a pdf.

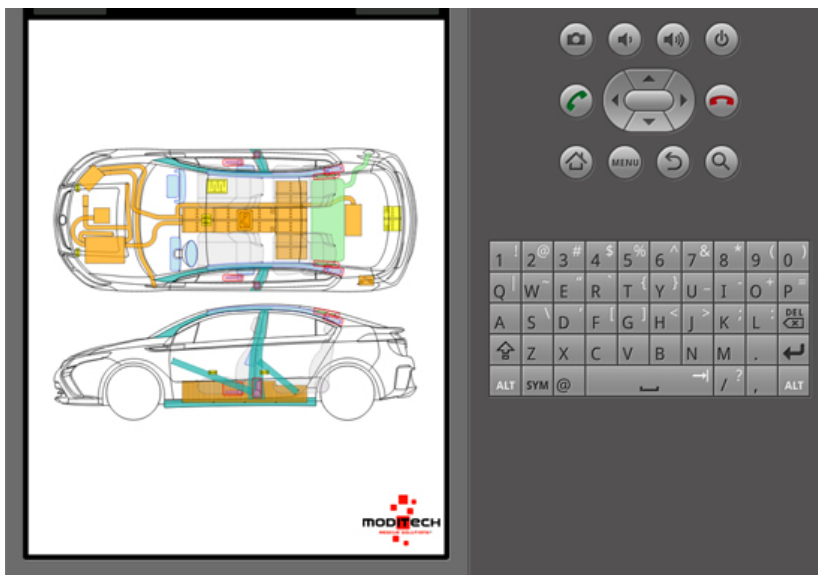
Posted by [Smitty](#) on March 7, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Body Structure](#), [Crash Recovery System](#), [David Sweet](#), [Electric Car](#), [Emergency Response Guide](#), [Extrication](#), [Firefighter](#), [Product Review](#), [Safety](#), [Training](#), [Vehicle Extrication: Levels I & II: Principles And Practice](#)

CRASH RECOVERY SYSTEM FOR ANDROID IN APRIL!

0 Comments

The very fine folks at Moditech announced in their latest newsletter that the [Crash Recovery System](#) for Android will be available in April! The availability of the Crash Recovery System for different hardware platforms is a declared objective of Moditech Rescue Solutions B.V. This allows our users maximum flexibility in selection of the necessary hardware. Among the CRS editions for different versions of the Microsoft Windows operating system and the Apps for the Apple iPhone and Apple iPad the Crash Recovery System family will soon become two additional members.





Currently, two apps for devices with the operating system Android are in the works. CRS Lite for Android will be specifically designed for users of Android smartphones and will have similar functions as the CRS Lite Edition and iCRS Lite for iPhone. For users of Android Tablet PCs the App CRS Standard for Android is under development, covering similar functions as the CRS and iCRS Standard Editions, joining the vehicle graphics with extensive illustrated background and deactivation information.

Posted by [Smitty](#) on March 6, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Body Structure](#), [Boron](#), [Boron B-Pillar](#), [Crash Recovery System](#), [CRS](#), [Dual Phase](#), [Electric Car](#), [Emergency Response Guide](#), [Extrication](#), [Moditech](#), [Safety](#), [Training](#), [UHSS B-Pillar](#), [UHSS Door Beam](#), [UHSS Roof](#)

WEST COAST EXTRICATION: PART 1, RON MOORE

0 Comments

My trip started off at the Fremont Fire Department Administrative offices for some classroom training. The picture of the hydrant below was a gift from the Recruit Class of 01-1 in appreciation for the time, knowledge and training given. Something I thought was really cool!



I have said this many times on this site. Ron Moore is one fire service instructor you need to see in person whenever you get the chance. Ron has a passion for extrication and informing firefighters with useful knowledge to stay up to date with the continuous changes in vehicle technology. Wednesday was a full day in the classroom where Ron covered airbags, hybrids and electric vehicles, and the advanced steels in vehicle body structures.



Here is a question Ron asked during the airbag portion of class. What is the maximum number of airbags possible in a vehicle? What's your answer? 9, 12, 15, 25 or infinity. There is no easy answer! Seatbelt airbags, center mounted seat airbags, door airbags, and the list goes on and on! Also remember that the "airbag" advertisement on plastic trim and seats is just that, an advertisement. The location of the airbag and or gas inflator has no direct relation to the advertisement.



The lead instructor, Brock Archer, arranged for a BMW ActiveE electric vehicle to be displayed after lunch for everyone to review and look at. I have a bunch of the pictures of the BMW ActiveE on the [Boron Extraction Facebook Page](#). Make sure you check the images out and if you don't already like our Facebook page, please do!



Stay tuned for parts 2 and 3 of the West Coast Extrication trip! Part 2 will be on school bus extrication and Part 3 on advanced extrication techniques.

Posted by [Smitty](#) on February 29, 2012 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2012 Models](#), [Battery](#), [BMW](#), [Body Structure](#), [Brock Archer](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [Extrication](#), [Firefighter](#), [Fremont](#), [Ron Moore](#), [Safety](#), [Training](#)

CHEVY VOLT BATTERY FIRE, STILL IN THE NEWS!

0 Comments

Many automakers have invested time and money in training rescuers how to handle a MVA with an electric or hybrid vehicle. The problem I see is this highly publicized Chevy Volt battery fire resulted from a damaged and leaking battery. There is a GM safety protocol to discharge the HV battery which requires a special tool to drain the Volt's batteries. That tool is not available to dealers until sometime next year. In the mean time, if the battery is leaking or damaged on a Volt a GM team is sent out to drain the battery. The team has only been sent out to crashes a few times with over 5000 Volts on the road.

Let's focus on the recent Volt fire after a government crash test. Here's a quote from an article in the [Detroit Free Press](#):

That Volt caught fire because NHTSA did not know to drain the Volt's battery. The battery case had been punctured, spilling coolant, which caused a short that in turn triggered a fire, GM spokesman Rob Peterson said Monday.

Ok so if the battery is leaking it could catch on fire. Got it! Please tell me that it doesn't take a masters in engineering to figure out a HV battery leaking coolant (or anything for that matter) is not good. Should it really be a surprise that after three weeks of coolant leaking out of a "charged" battery caught fire? I hope that automakers address leaking batteries in detail in all future [Emergency Response Guides](#)!! Or as Jason Emery was quoted in the Detroit Free Press "*automakers lack one consistent fire-prevention procedure for electric vehicle batteries*". Jason is a lead electric-vehicle safety instructor for the National Fire Protection Association (NFPA).

If you respond to an MVA with an electric or hybrid vehicle and the battery is leaking stretch a handline and get the patients out. Make sure you follow the proper procedures outlined in the [Emergency Response Guides](#). I would have greater concerns if the Volt caught on fire within an hour of the crash. What are your thoughts?

Posted by [Smitty](#) on November 16, 2011 • Filed under: [extrication](#), [fire-rescue-topics](#), [special-operations](#) • Tagged: [Battery](#), [Battery Fire](#), [Chevrolet](#), [Electric Car](#), [Extrication](#), [HV](#), [Safety](#), [Volt](#), [Volt Fire](#)

CHEVROLET VOLT CATCHES FIRE WEEKS AFTER CRASH, FEDS PROBE.

0 Comments

The headline that started making the rounds thru the news networks was "Chevrolet Volt catches fire after crash". Just look at the web search below! What you have to read into the story is the Chevrolet Volt caught fire in storage more than three weeks after a government crash test. That's right three weeks after the test. The first news report I heard completely left out that it happened three weeks after the test. So what is your first thought, the Volt was crashed and burst into flames. However that was clearly not the case. The fire prompted federal safety regulators to look at safety procedures for electric vehicles after a crash. Not to look at an electric car that burst into flames after a crash test. General Motors has responded to this incident by stating the NHTSA did not follow GM's recommended safety protocol for a post-crash Volt.

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Past 24 hours
Past 2 days
Past week
Past month
Past year
Custom range...
More search tools


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chevy volt firefighter training
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chevy volt fire garage


Batteries in Electric Cars Examined After **Chevy Volt Fire**  
New York Times - 11 hours ago
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www.nytimes.com/.../regulators-examine-electric-car-batteries-after-f...
18 hours ago - Batteries in Electric Cars Examined After **Chevy Volt Fire** ... batteries used in electric cars because a Chevrolet Volt ignited three weeks after it ...

After reading the [Chevrolet Volt Collision Awareness Guide](#) and the [Hybrid Collision Awareness Guide](#) the only post-crash safety protocol I could was this:

A complete inspection of the high voltage(HV) system and components must be performed if the vehicle has been involved in a collision. The HVCID sensor and/or SIR Deployed vehicle-disable condition will remain active until cleared by the HPCM output control function of the scan tool.

Is there a missing safety procedure out there? General Motors has done a great job getting information about the Volt out to firefighters and other rescue workers. But did I miss a training for the towing and collision industries?



2011 Chevrolet Volt

Collision Awareness Guide



GM Service Technical College provides Collision Repair Guides *free of charge*. Collision Repair Guides can be displayed in a classroom as long as they are represented as GM information and are not modified in any way.

If you have not taken the [Electric Vehicle Safety Training for the 2011 Chevrolet Volt](#) training launched by the NFPA, Chevrolet, and OnStar I would do so now. The training features an inside look at the vehicle's technology and safety systems. Here are some [More training resources for the Chevrolet Volt](#). I have two reasons you need to learn more about this vehicle, a motor vehicle crash in your response area could involve a Chevrolet Volt and that same Volt could be towed to a tow yard, collision center, or dealer lot in your response area! Think about it!

Stay Safe!

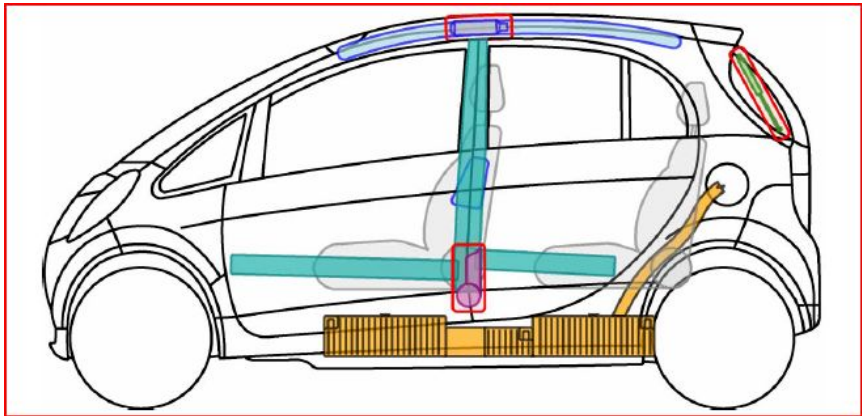
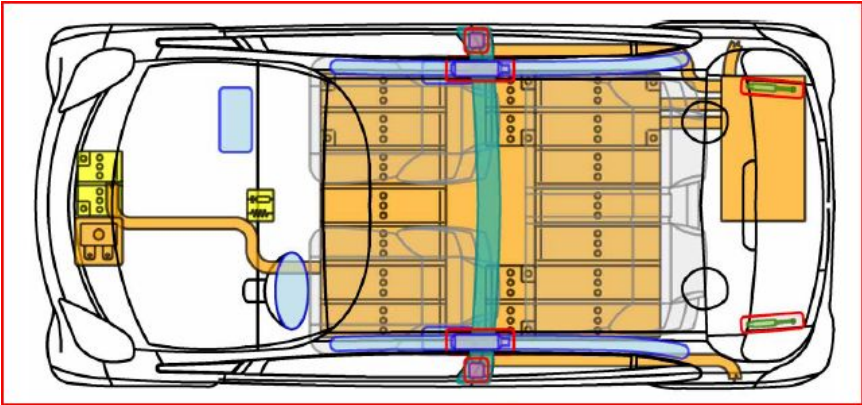
Posted by [Smitty](#) on November 12, 2011 • Filed under: [extrication](#), [fires](#), [special-operations](#), [technology-communications](#) • Tagged: [Chevrolet](#), [Crash](#), [Electric Car](#), [Electric Vehicle Safety Training](#), [High Voltage Battery](#), [High-Voltage Service Disconnect](#), [HV](#), [NHTSA](#), [Safety](#), [Test](#), [Volt](#)

MITSUBISHI I-MIEV (MITSUBISHI INNOVATIVE ELECTRIC VEHICLE)

0 Comments

MiEV is an acronym for Mitsubishi innovative Electric Vehicle and it is a five-door hatchback electric car and is the electric version of the Mitsubishi i. There is not an Emergency Response Guide (ERG) for the North America version yet because the 2012 model is the first year sold in the United States. The information below is taken from the European market, well the Germany ERG for the 2011 Mitsubishi MiEV. The US version will have some changes, but expect most of the vehicle to remain unchanged. Check back, I'll post info on the 2012 US model as soon as it is available.

More Mitsubishi rescue data sheet/rescue maps are located [here](#).



Rescue Sheet standard translation (English)			
Airbag	Structural reinforcements	Control unit	Gas generator
Gas filled spring device	Battery	Active rollover protection	Seat belt tensioner
Seat belt tensioner	Fuel tank	Gas tank (NGT/LPG)	Safety valve (NGT/LPG system)
High-voltage components	High-voltage wire / components	High-voltage disconnection point	High-voltage battery
Mechanical sensor			

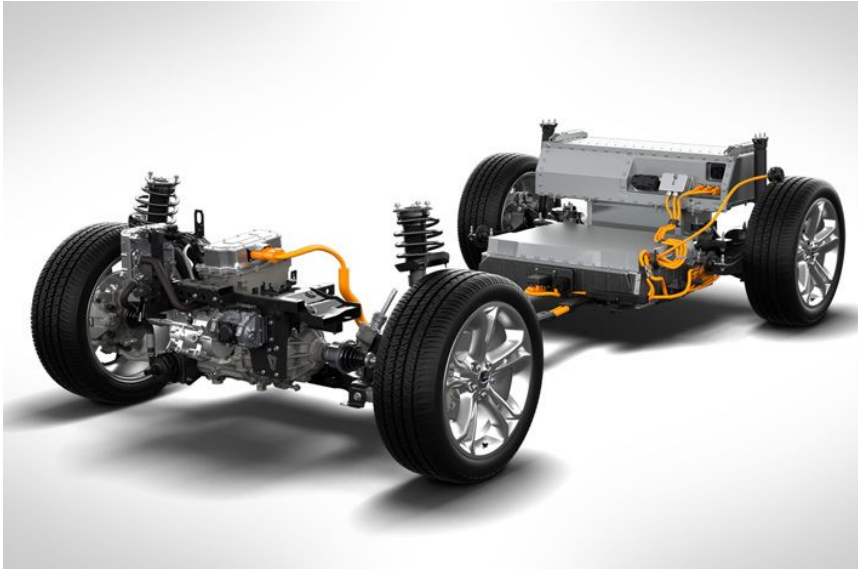
Posted by [Smitty](#) on November 6, 2011 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2012](#)

Models, Battery, Crash Recovery System, CRS, Electric Car, Electric Vehicle Safety Training, Emergency Response Guide, ERG, EV, Extrication, Germany, Hybrid, Mitsubishi, Moditech

FORD FOCUS ELECTRIC

0 Comments

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The Focus Electric is powered by a 23 kwh high-voltage, lightweight lithium-ion battery system. It uses an advanced active liquid cooling and heating process to regulate battery temperature and help maximize battery life, so you can get the most miles out of each charge.



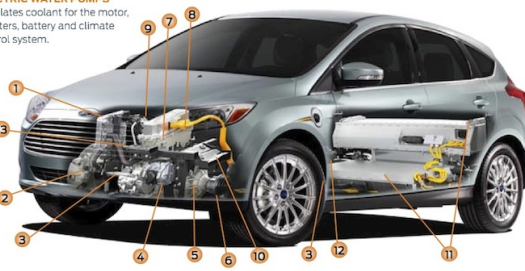
All-New Ford Focus Electric

The all-new Focus Electric, which debuts in the U.S. in late 2011 and in Europe in 2012, is one of five new electric vehicles Ford will deliver over the next two years. Below are the components that will make up the zero-emissions, gas-free Focus Electric.

1 MOTOR CONTROL I EP

6 TRANSMISSION
Has the identical role as in a gasoline vehicle; however, it has different electric considerations as well as the battery

10 VEHICLE CONTROL UNIT
Monitors and controls each vehicle's custom and manages energy and



- 1 MOTOR CONTROLLER**
Monitors the motor's state and uses this information along with driver pedal demand to manage the electric signals that drive the motor.
- 2 HIGH-VOLTAGE ELECTRIC HVAC COMPRESSOR**
Is specifically designed for electric vehicle applications, drawing energy directly from the main battery pack.
- 3 ELECTRIC WATER PUMPS**
Circulates coolant for the motor, inverters, battery and climate control system.
- 4 TRACTION MOTOR**
Performs the conversion between electrical and mechanical power. Electric motors have efficiencies three times higher than that of a standard gasoline engine. Minimizing energy loss and heat generation.
- 5 ELECTRIC POWER STEERING**
Is tuned to deliver the same driving dynamics as the gasoline-powered Focus.
- 6 TRANSMISSION**
Has the identical role as in a gasoline vehicle, however, it has different design considerations due to the higher rpm range available from the electric motor and increased emphasis on efficient and silent operation. The transmission is a single-speed unit.
- 7 MODULAR POWERTRAIN CRADLE**
Enables quiet operation by holding the entire propulsion system within the engine compartment, isolated from the vehicle body.
- 8 ELECTRIC VACUUM PUMP**
Provides energy-efficient power-assisted braking.
- 9 HIGH-VOLTAGE ELECTRIC COOLANT HEATER AND CONTROLLER**
Specifically designed for electric vehicle applications, using energy-efficient technology to heat and circulate coolant. Heat also may be circulated to the battery to optimize performance.
- 10 VEHICLE CONTROL UNIT**
Monitors and controls each vehicle system, and manages energy and mechanical power being delivered to the wheels to maximize range.
- 11 BATTERY PACK**
Total energy capacity of 23 kWh. Liquid coolant for thermal management includes control module that manages temperature and state of charge.
- 12 AC CHARGER**
Converts the AC electricity from the power grid to DC voltage required by the battery. A full battery charge is completed in a matter of hours as a vehicle will accommodate both 120V and 240V power sources.
- 13 DC-DC CONVERTER**
Allows the vehicle's main battery pack to charge the on-board 12V battery to power various vehicle accessories (headlights, etc.).

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1/2011

FOR MORE INFORMATION, GO TO WWW.MEDIA.FORD.COM

FOCUS ELECTRIC FACTS

Final assembly location: Michigan Assembly Plant, Wyand, Mich.


Battery cell manufacturer: Compact Power Inc., Holland, Mich.

Battery system: Lithium-ion, liquid-cooled/heated, recyclable

Total battery capacity: 23 kWh

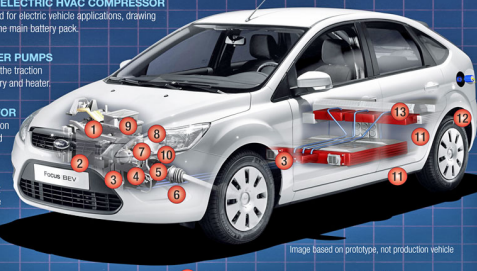
Estimated cost to fully charge vehicle: (based on nationwide average cost of \$0.10 per kWh)

Wheel size: 17-inch



All-New Ford Focus Electric

The all-new Ford Focus Electric, which debuts in the U.S. in 2011 and in Europe in 2012, is one of five new hybrid and electric vehicles Ford will deliver over the next three years. Below are the components that will make up the zero-emissions, gas-free Focus Electric.



- 1 MOTOR CONTROLLER**
Monitors the motor's position, speed, power consumption and temperature. It uses these inputs along with driver throttle input to enable an inverter to convert DC voltage from the battery into three precisely timed signals that drive the motor.
- 2 HIGH-VOLTAGE ELECTRIC HVAC COMPRESSOR**
Is specifically designed for electric vehicle applications, drawing energy directly from the main battery pack.
- 3 ELECTRIC WATER PUMPS**
Circulates coolant for the traction motor, inverters, battery and heater.
- 4 TRACTION MOTOR**
Performs the conversion between electrical and mechanical power. Electric motors have efficiencies three times higher than that of a standard gasoline engine, minimizing energy loss and heat generation.
- 5 ELECTRIC POWER STEERING**
Is tuned to deliver the same driving dynamics as the gasoline-powered Focus.
- 6 TRANSMISSION**
Has the identical role as in a gasoline vehicle, however, it has different design considerations due to the higher rpm range available from the electric motor and increased emphasis on efficient and silent operation. The transmission is a single-speed unit.
- 7 MODULAR POWERTRAIN CRADLE**
Enables the entire propulsion system to be inserted as one piece within the engine compartment and isolated from the vehicle body.
- 8 ELECTRIC VACUUM PUMP**
Supplies vacuum to the brake system for power assist.
- 9 HIGH-VOLTAGE ELECTRIC COOLANT HEATER AND CONTROLLER**
Specifically designed for electric vehicle applications, using energy-efficient technology to heat and circulate coolant. Heat also may be circulated to the battery to optimize performance.
- 10 VEHICLE CONTROL UNIT**
Monitors and controls each vehicle system, and manages energy and mechanical power being delivered to the wheels to maximize range.
- 11 BATTERY PACK**
Uses total of 23 kWh of power and liquid coolant for thermal management, and includes an electronic monitoring system that manages temperature and state of charge.
- 12 AC CHARGER**
Converts the AC electricity from the power grid to DC voltage required by the battery, enabling full state of charge in a matter of hours when plugged in. The vehicle will accommodate both 120V and 240V power sources.
- 13 DC-DC CONVERTER**
Allows the vehicle's main battery pack to charge the on-board 12V battery to power various vehicle accessories (headlights, etc.).

Image based on prototype, not production vehicle

FOCUS ELECTRIC FACTS

Final assembly location: Michigan Assembly Plant

Battery cell manufacturer: Compact Power Inc., Holland, Mich.

Battery system: Lithium-ion, liquid-cooled/heated, recyclable

Total battery capacity: 23kwh

Estimated cost to fully charge vehicle: \$2 to \$3 (based on nationwide average cost of \$0.10 per kWh)

Cost of 240v charging station: TBD

Tire size: 17-inch

0-60 acceleration: TBD, similar to gas-powered base model

Braking distance: TBD, similar to gas-powered base model

Passenger room and cargo room: TBD

Price range: TBD

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Posted by [Smitty](#) on September 15, 2011 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Electric Car](#), [Extrication](#), [Ford](#), [Hybrid](#)

ONLINE SAFETY TRAINING FOR CHEVY VOLT (FREE)

1 Comment

NFPA, Chevrolet, and OnStar have launched [Electric Vehicle Safety Training for the 2011 Chevrolet Volt](#), an extended-range electric vehicle that hit the roads last fall. The training features an inside look at the vehicle's technology and safety systems. [More training resources for the Chevrolet Volt.](#)

[Share](#)



GM

CHAPTER 1 Identification of the Volt

SECTION MODULE 1
SECTION MODULE 2
SECTION MODULE 3
SECTION MODULE 4
SECTION MODULE 5
SECTION MODULE 6
SCENARIO ROOM

01 Identification of the Volt
02 Data Review

RESOURCES USER PROGRESS USER PROFILE LOGOUT

HOME

SECTION MODULE 2

SECTION MODULE 3

SECTION MODULE 4

SECTION MODULE 5

SECTION MODULE 6

SCENARIO ROOM

01 Identification of the Volt

02 Data Review

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Posted by [Smitty](#) on May 26, 2011 • Filed under: [extrication](#), [special-operations](#) • Tagged: [2011 Models](#), [Chevrolet](#), [Electric Car](#), [EV](#), [GM](#), [NFPA](#), [Volt](#)

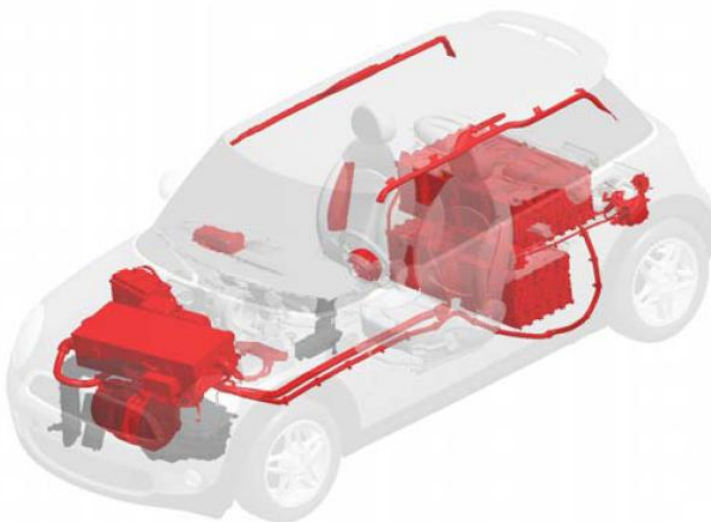
MINI COOPER E PLUG IN (EMERGENCY RESPONDER GUIDE)

1 Comment

The Mini E is not a production vehicle for sale to the public per say. However, 450 Mini E vehicles [Share](#) are currently in a field trial in the United States. There are two areas selected for the trial, Los Angeles and the New York and New Jersey Metro area. The Mini E has about a 156 mile range on a full charge so must of the vehicles will likely stay around those two areas. The Mini E trial is a lease purchase where the vehicles will be brought back BMW/Mini to gather valuable data from real world drivers. Just because there are only a few of the Mini Es out on the road doesn't mean First Responders should take a few minutes to look at the [Mini E Emergency Responder Quick Reference Guide](#). My hat goes off to BMW/Mini for taking the time to put together an ERG on a vehicle that is basically in the testing phase on the road!



4. Do Not Cut Zones



Never cut the vehicle before disabling all Electrical Systems as shown above.



The High Voltage Service Disconnect Switch which is for Emergency Power Down is located in the trunk on the driver's side.

5. Disable High Voltage Systems

Turn the HV Service Disconnect Switch to OFF



Make sure you also visit the sources of the images in this post. The National Fire Protection Association (NFPA) is working very hard on providing free training for First Responders on the the Electric Vehicle Safety Training website.

- [Mini Cooper USA](#)
- [Electric Vehicle Safety Training](#)

Posted by [Smitty](#) on May 18, 2011 • Filed under: [extrication](#), [special-operations](#) • Tagged: [BMW](#), [Cooper](#), [Electric Car](#), [Electric Vehicle Safety Training](#), [ERG](#), [Extrication](#), [MINI](#), [NFPA](#)

TESLA MOTORS ELECTRIC CAR

[2 Comments](#)



Tesla Motors is a Silicon Valley-based company that designs, manufactures and [Share](#) sells electric vehicles (EVs) and electric vehicle powertrain components. If you used PayPal before the company was bought by eBay than you helped this car company get off the ground running. Elon Musk, a cofounder of Tesla Motors was also a cofounder of PayPal and Space Exploration Technologies Corp. (SpaceX).

UPDATE!!! September 2012

Tesla Motors has really stepped up to the plate to help get extrication based vehicle information out to firefighters and first responders. Tesla Motors enlisted the help of Ron Moore and Brock Archer. Currently, Moore and Brock are working closely with Tesla Motors on an Emergency Response Guide and other training information and medias. Check back soon for more information!

Posted by [Smitty](#) on January 25, 2011 • Filed under: [extrication](#), [special-operations](#) • Tagged: [Body Structure](#), [Brock Archer](#), [Electric Car](#), [Emergency Response Guide](#), [ERG](#), [EV](#), [Extrication](#), [Ron Moore](#),

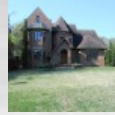
[Tesla Motors](#)[Next »](#)

FEATURED FROM ACROSS FIRE/EMS



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Setting Up a Hoseline For Success...

We must start at understanding why we are using the hose load we are using and the pros/cons... [\(more\)](#)



Taking it to the Streets: "All Companies...

The fact that at times, our surroundings do become a blur and fade into the background..... [\(more\)](#)



Video: Buffalo Firefighters Battle Vacant...

East side crews respond to a Structure fire called in by Buffalo PD. E-22 on scene with 2.5 story... [\(more\)](#)



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