



E-TRANSIT

VIRTUAL PRESENTATION MEASURING SESSION

10/5/2021

Commercial Vehicles Special Vehicle Engineering

Agenda:

- 10:00 – 10:05 am Time allocated for Log-in
- **10:06 am** **Presentation Start**
- 10:06 – 10:50 am Presentation Duration
- 10:51 – 11:00 am Q&A (Please submit questions via WebEx Chat)

Further Questions - Submit via Body Builder Advisory Service Helpdesk Ticket:
<https://fordbbashelpdesk.kayako.com/Tickets/Submit>

Configurations, Weights, & Payload

Configuration:

- Available on Cargo Van – 130 / 148” Wheelbase (RWD/SRW)
- Available on Cutaway & Chassis Cab - 178” Wheelbase (RWD/SRW)

Series	Body Code	Body Type	Roof Height	Wheelbase	Drive
T-350	W1Y	Cargo Van	Low Roof	Regular 130"	RWD/SRW
T-350	W1Y	Cargo Van	Low Roof	Long 148"	RWD/SRW
T-350	W9C	Cargo Van	Medium Roof	Regular 130"	RWD/SRW
T-350	W9C	Cargo Van	Medium Roof	Long 148"	RWD/SRW
T-350	W1X	Cargo Van	High Roof	Long 148"	RWD/SRW
T-350	W3X	Cargo Van	High Roof	Extended 148"	RWD/SRW
T-350	W5Z	Chassis Cab	Low Roof	Extended 178"	RWD/SRW
T-350	W5P	Cutaway	Low Roof	Extended 178"	RWD/SRW

Weights:

- 9,500 lbs. GVWR, 6,000 lbs. rear GAWR
- EV adds approx. 600 lbs. curb weight over 3.5L PFDI

Payload: *(Pending Final Confirmation)*

- Van = 3300 –3,800 lbs. Rear Axle = 2,700 –3,300 lbs.
- CC / CA = 4,350 lbs. Rear Axle = 3,900 lbs.



Battery, Engine HP / Torque, Top Speed, & Range

Battery:

- 67kW hr. usable

Engine Horsepower & Torque Ratings:

- PDU (Primary Drive Unit) = 266 HP / 317 lb.-ft.

Top Speed: (Cutaway & Chassis Cab)

- 75-mph Governed Top Speed is Standard on E-Transit

Range Information:

	Regular	Long	Long	Long	Extended
Length			Long	Long	Extended
Roof height	Low	Low	Medium	High	High
Cargo Van					
Targeted max payload (lbs.)	3,800	3,700	3,550	3,450	3,240
Range (miles)*	126	126	116	108	108

*Based on full charge. USA targeted range reflecting current capability based on analytical projection consistent with US EPA MCT drive cycle methodology (www.fueleconomy.gov/feg/pdfs/EPA_test_procedure_for_EVs-PHEVs-11-14-2017.pdf). Actual range varies with conditions such as external elements, driving behaviors, vehicle maintenance, and lithium-ion battery age.

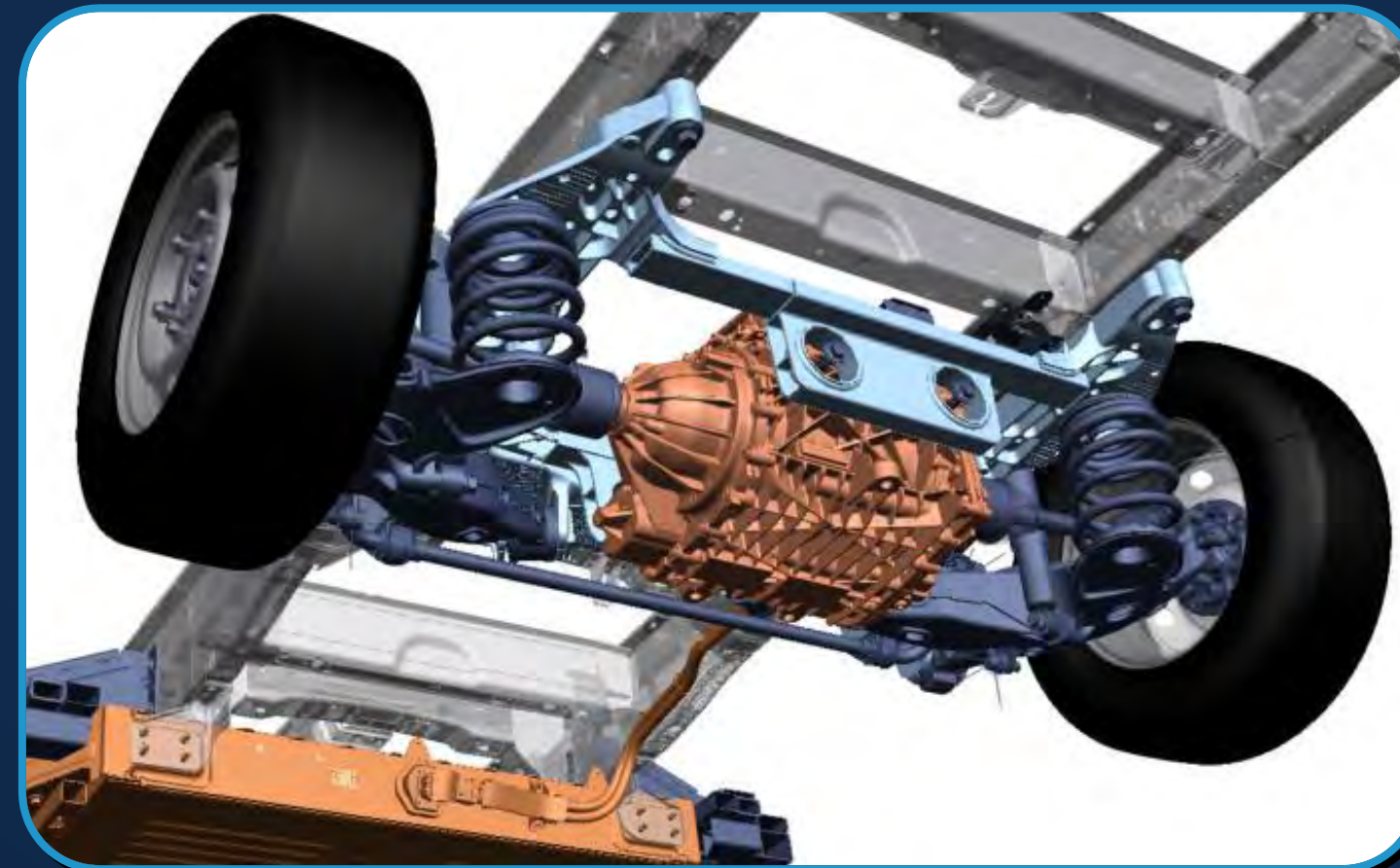
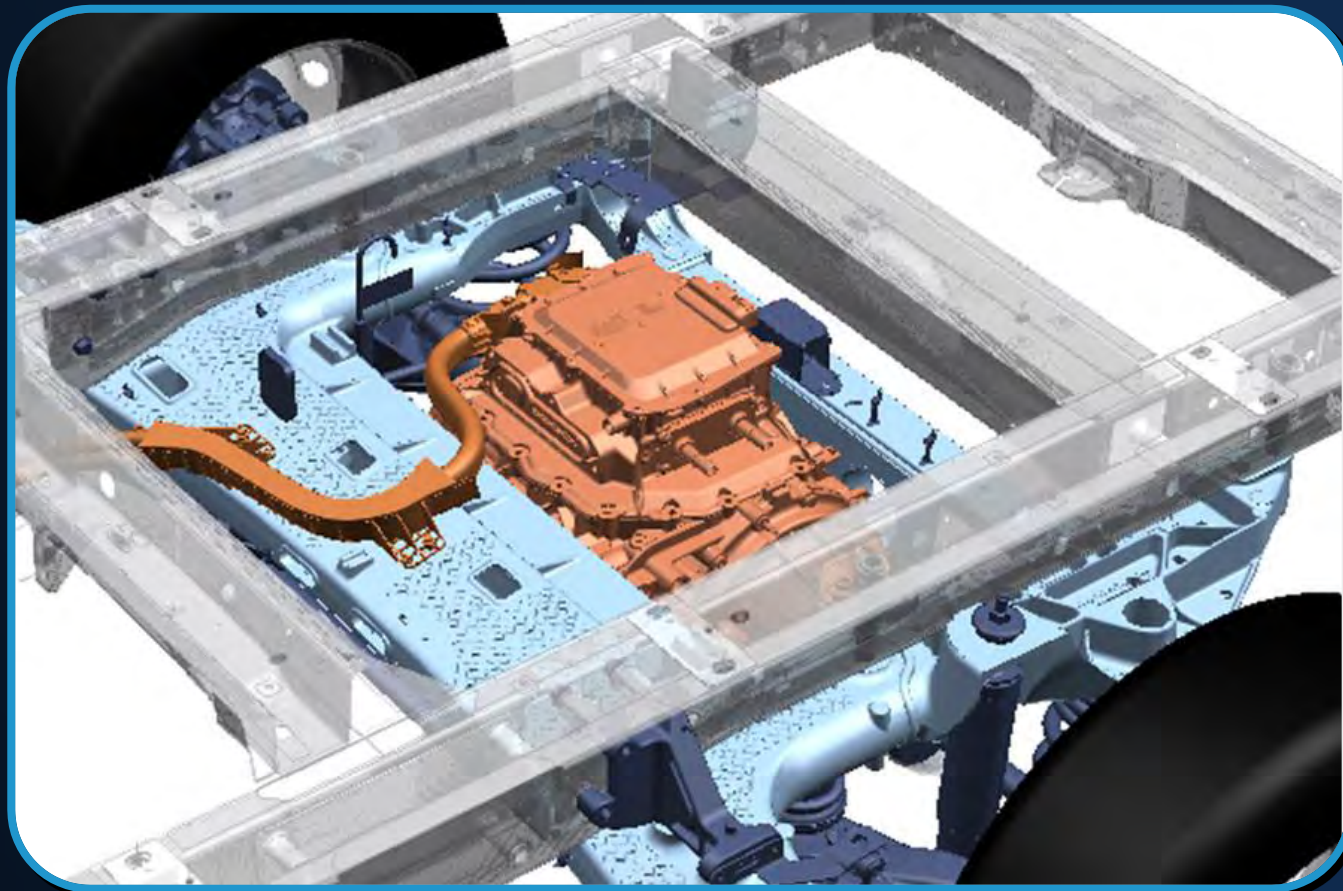
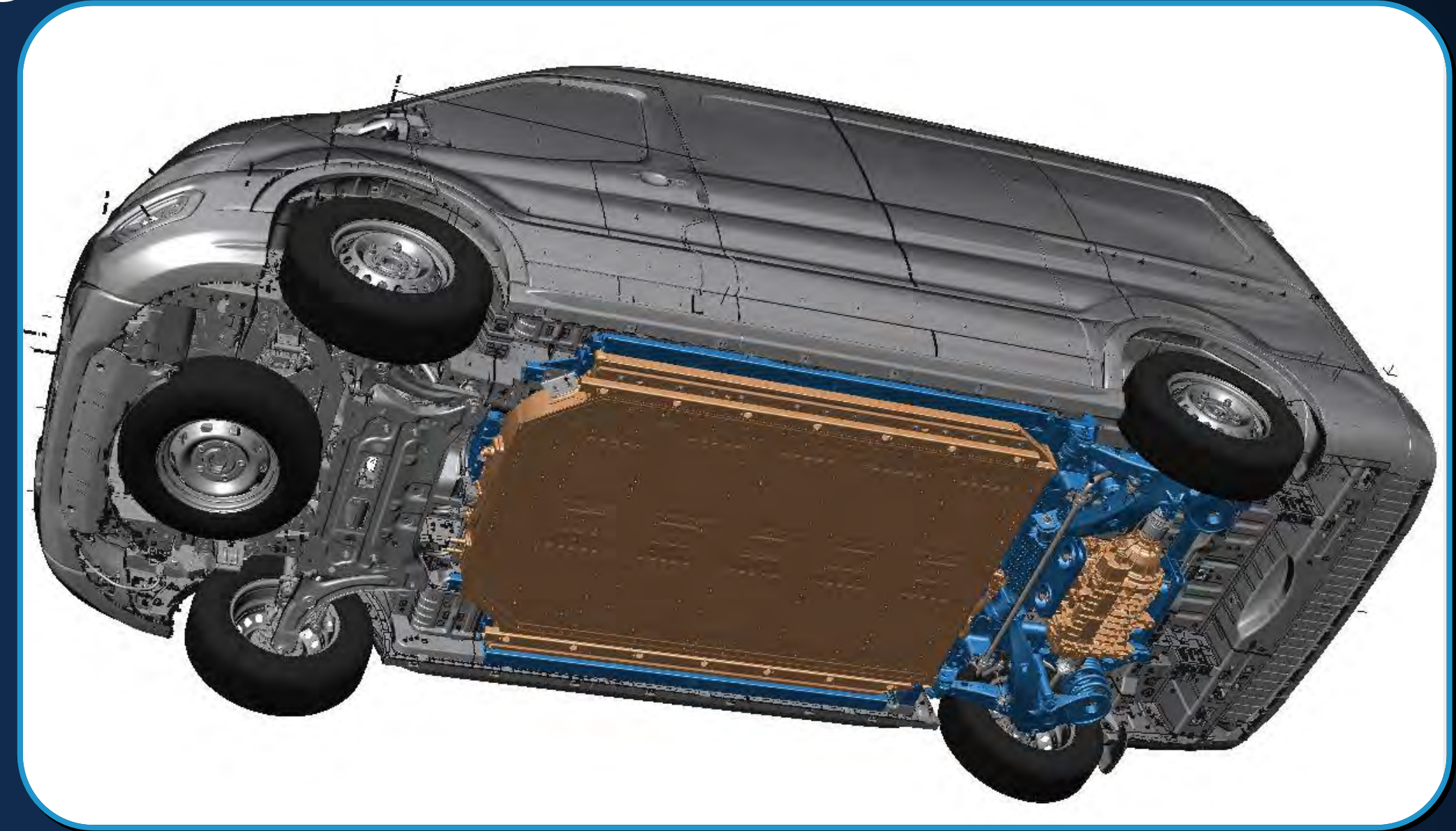


Further Technical details can be found here:

<https://media.ford.com/content/fordmedia/fna/us/en/products/evs/e-transit/2022-ford-e-transit.html>

E-Transit Underbody Battery Layout

- Spare wheel in the front (except EL Van)
- Central battery pack in sealed “structural box” - it is **not a lifting point for the vehicle** (refer to BEMM for Vehicle lift points)
- Battery support cradle and perimeter structure



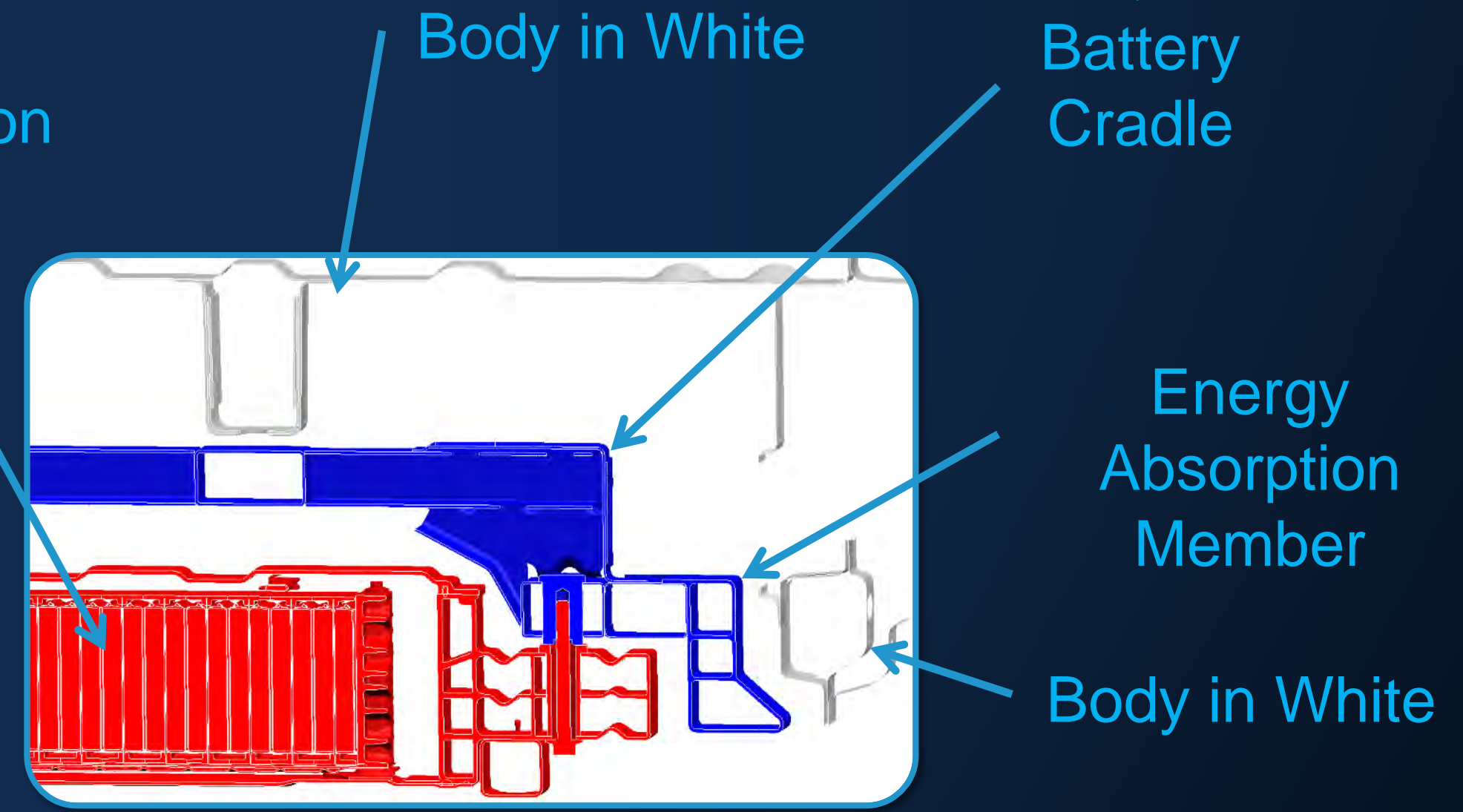
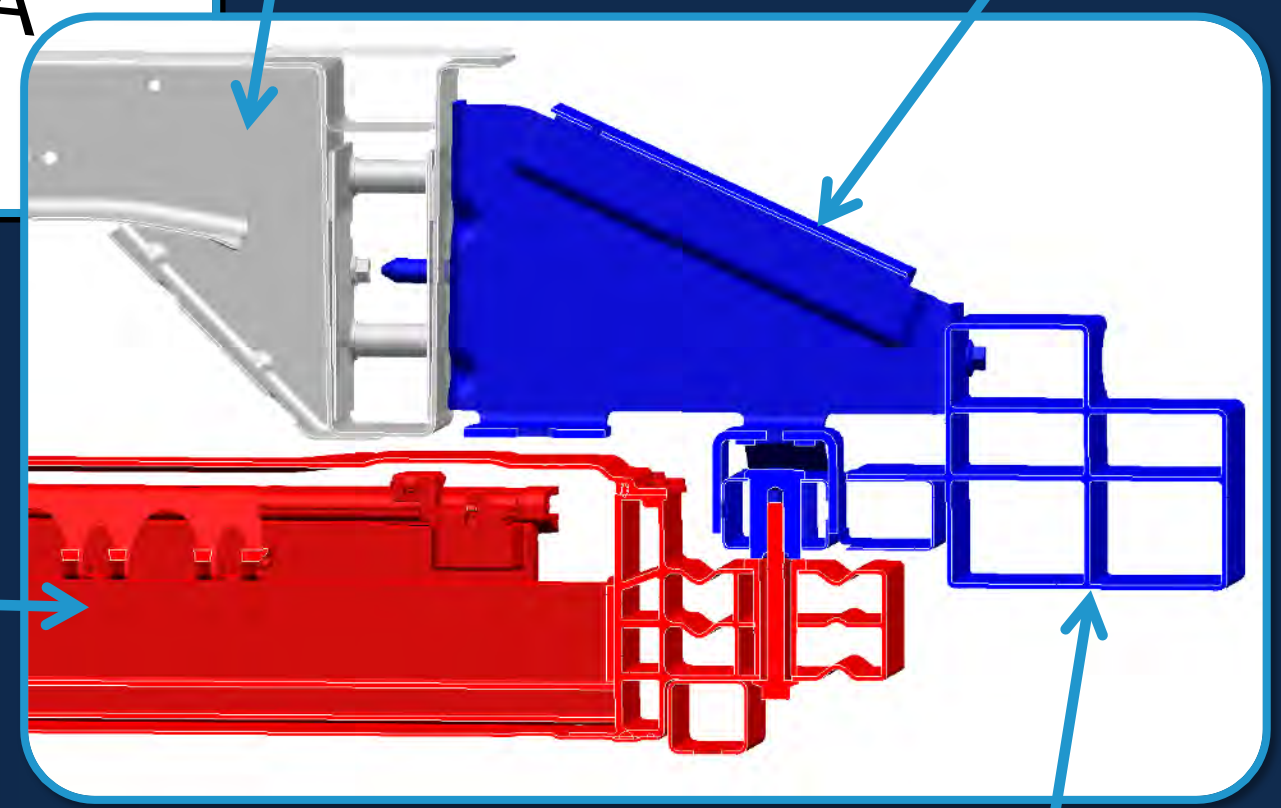
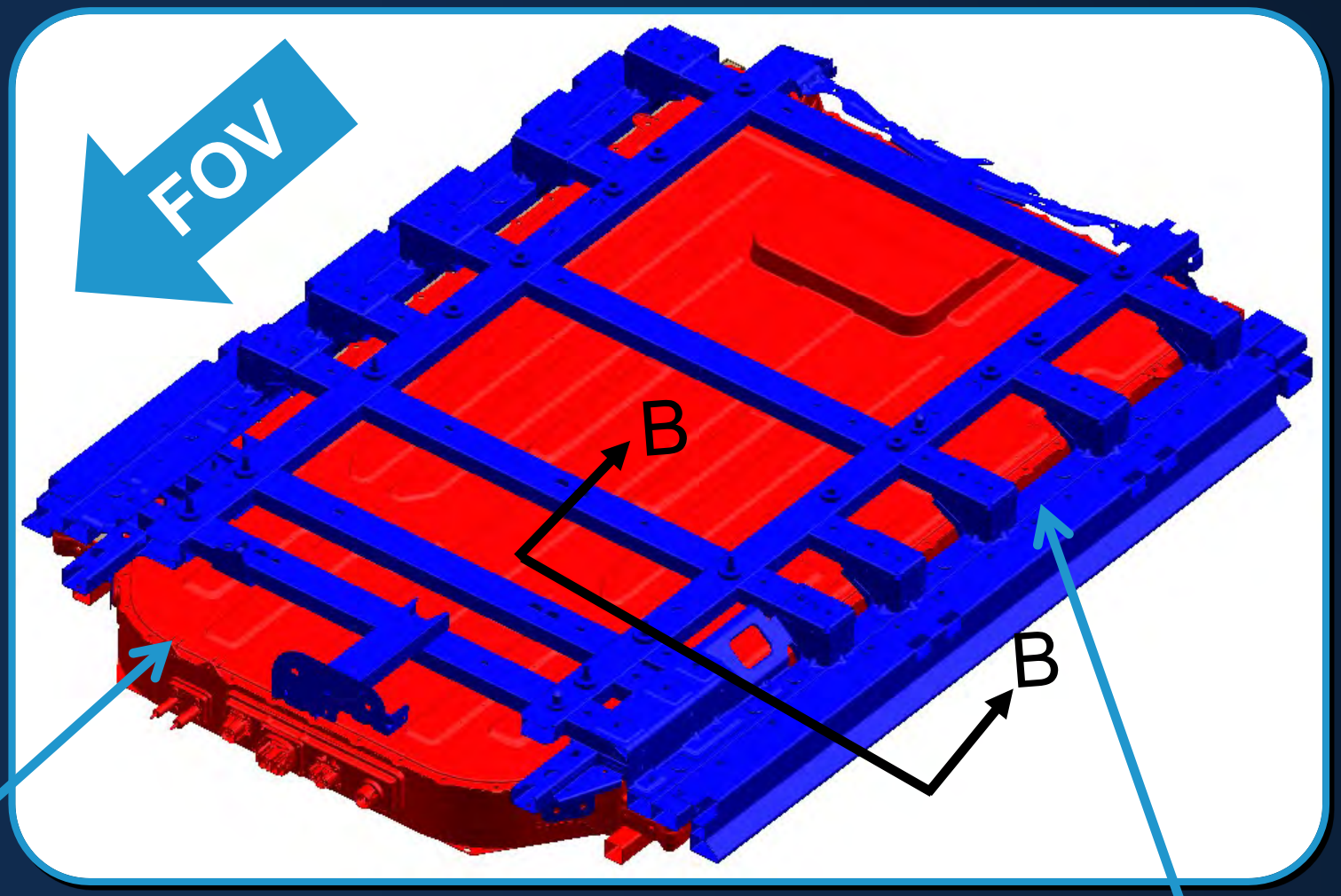
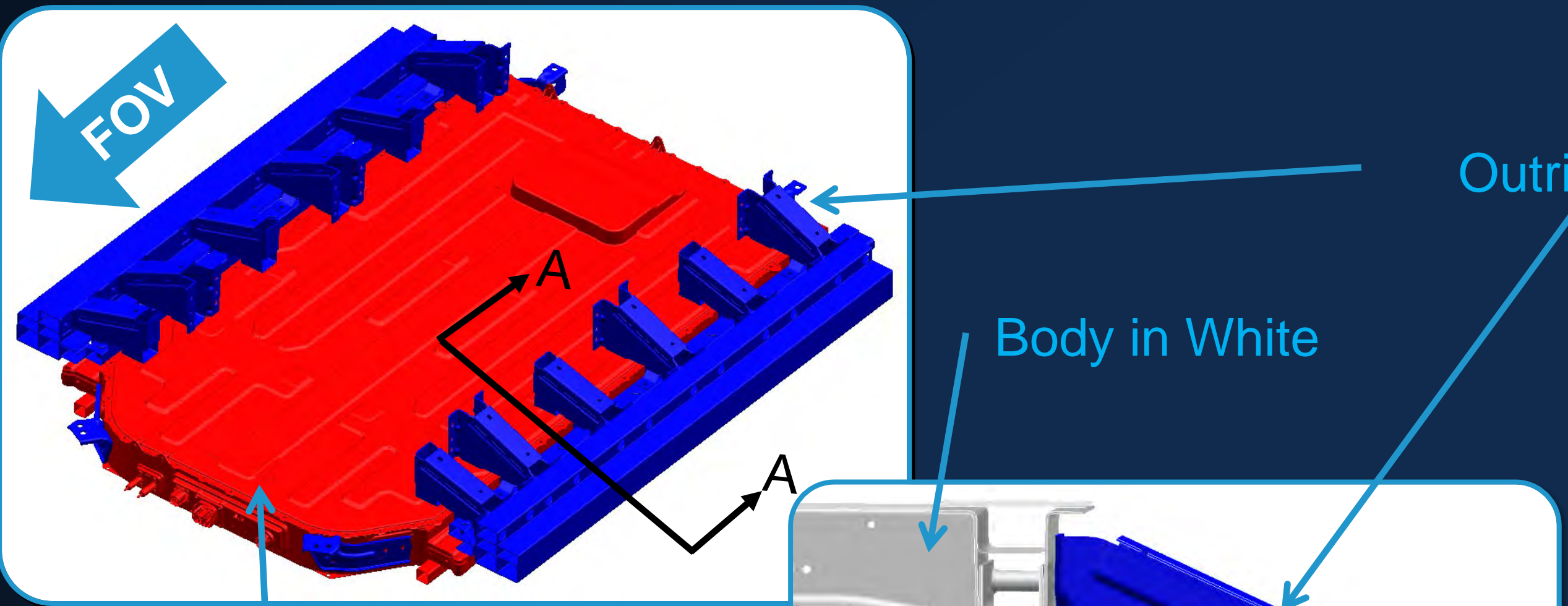
- Integrated Inverter System Controller
- Independent coil spring rear suspension
- Rear Power Drive Unit in subframe, SRW only

NOTE: Ground Clearance – meets or beats the Ford ride height requirements

E-Transit Underbody Battery Layout

CHASSIS CAB & CUTAWAY

VAN



HV Traction Battery

Section A-A

Energy Absorption Member

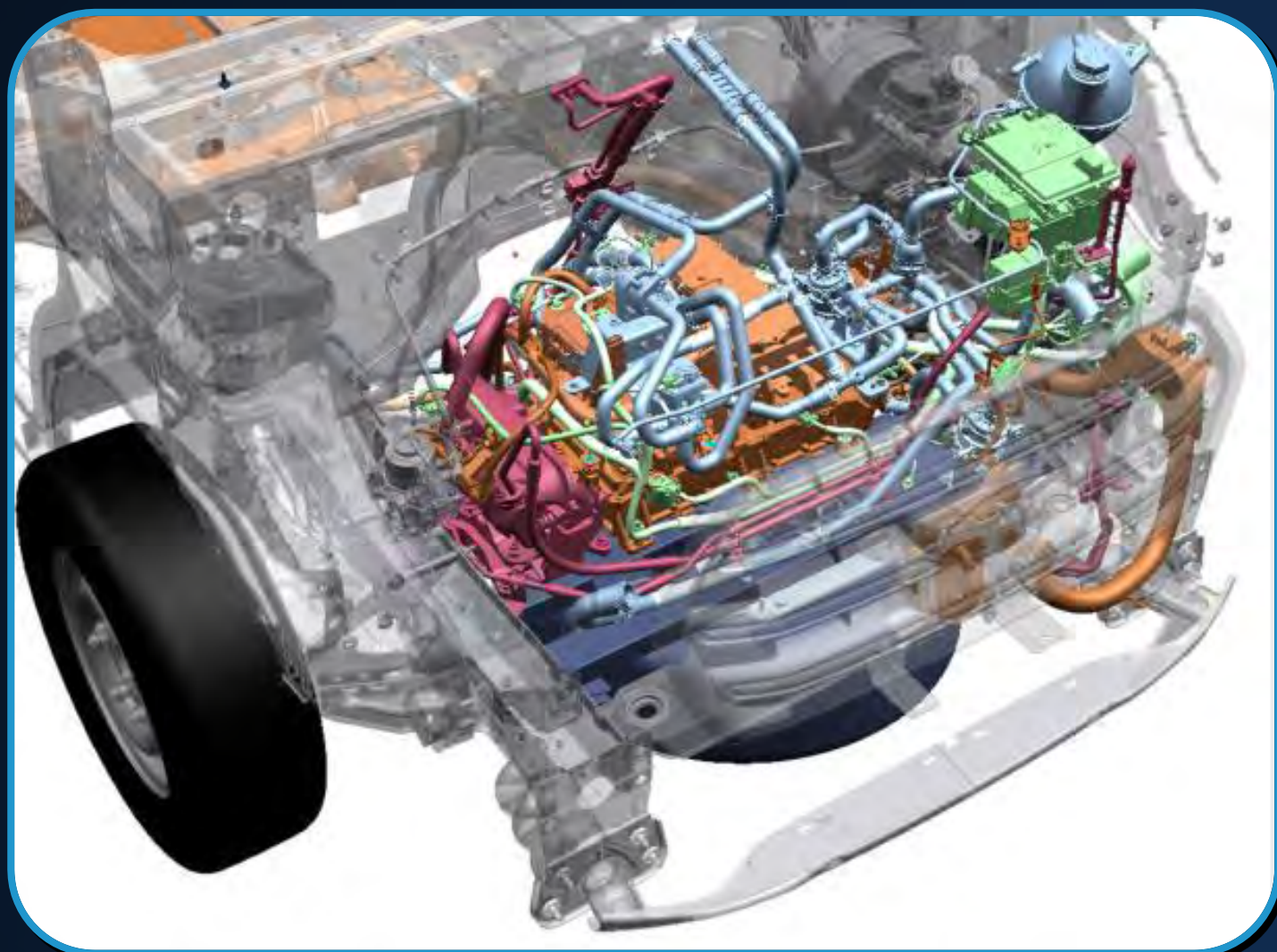
HV Traction Battery

Section B-B

Energy Absorption Member

Body in White

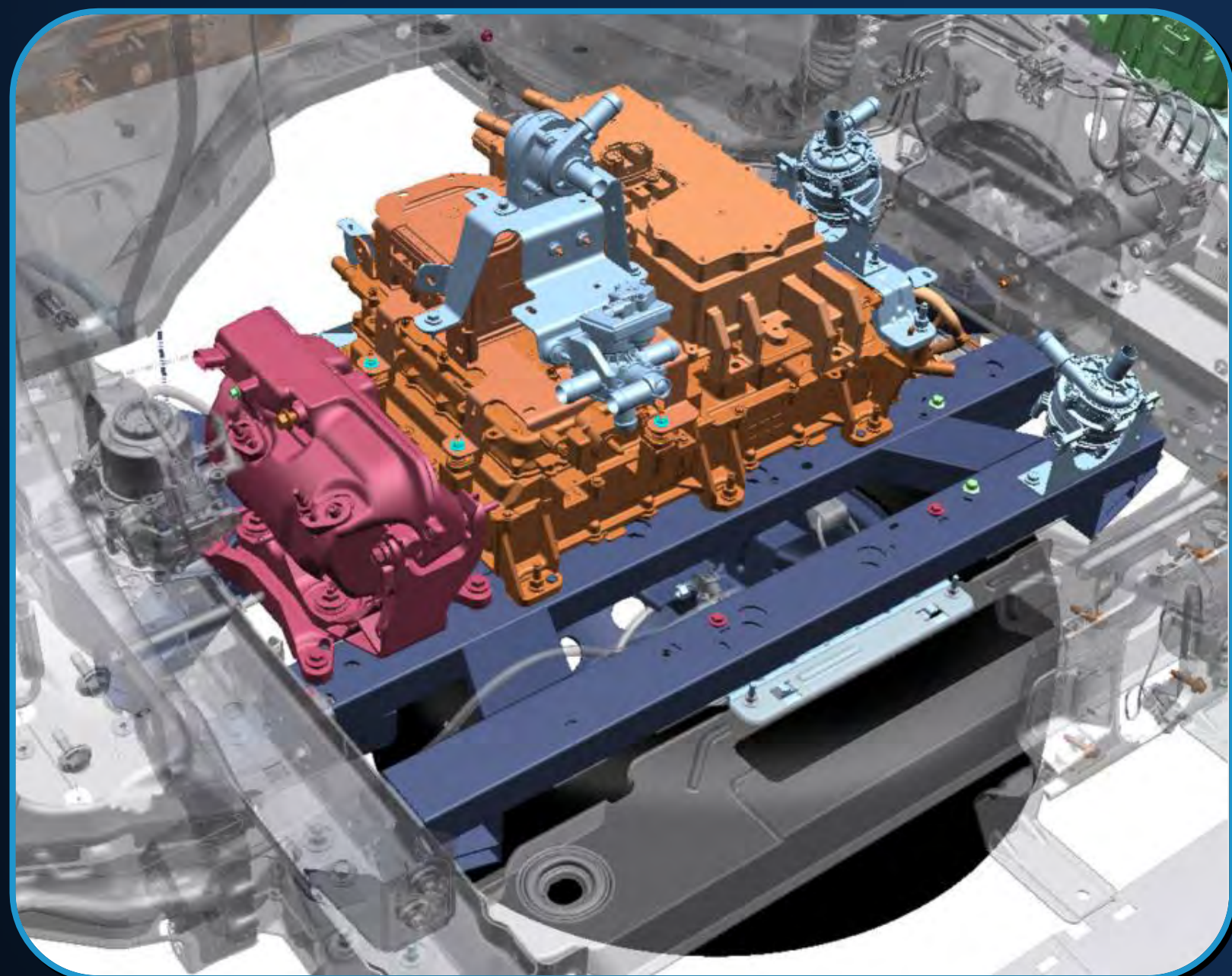
E-Transit Front Layout – High Voltage Systems



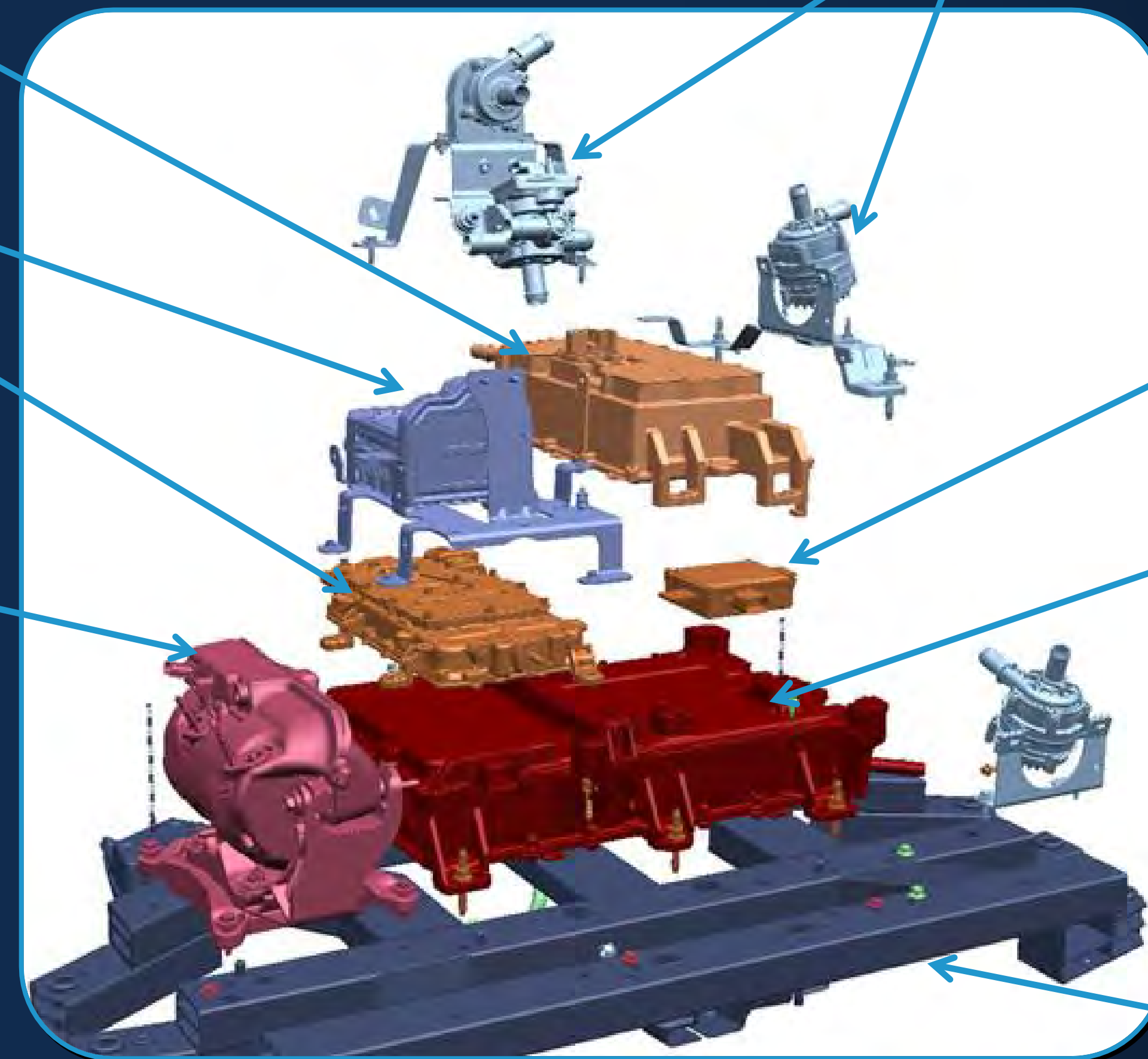
On Board Generator
Inverter Module (Optional)

Electric Heater

DC/DC Converter



Electric A/C
Compressor



Cooling Pumps and Valves

Off-Board
Charger
Control
Module

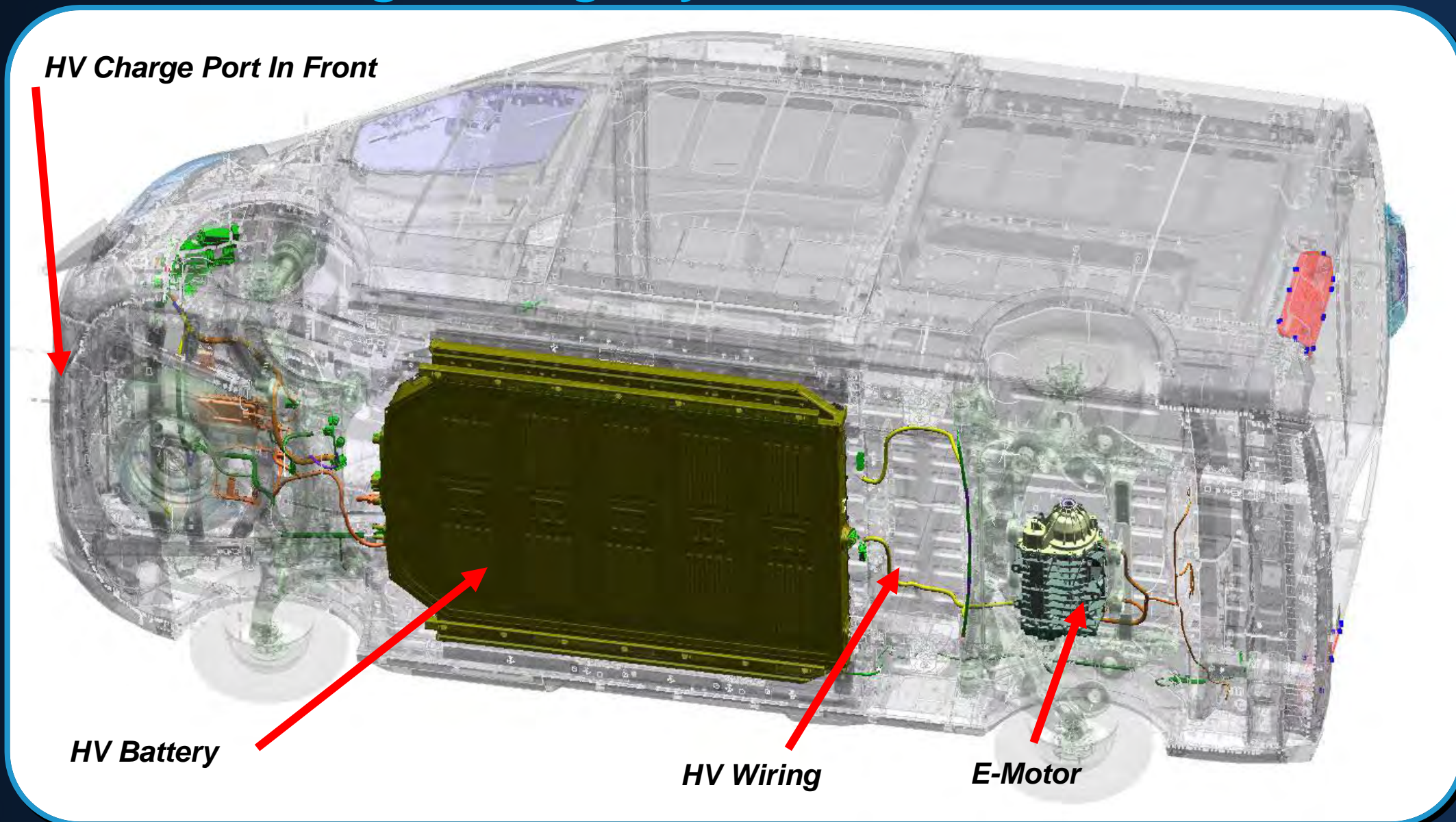
Charge Unit

“Megabrace”

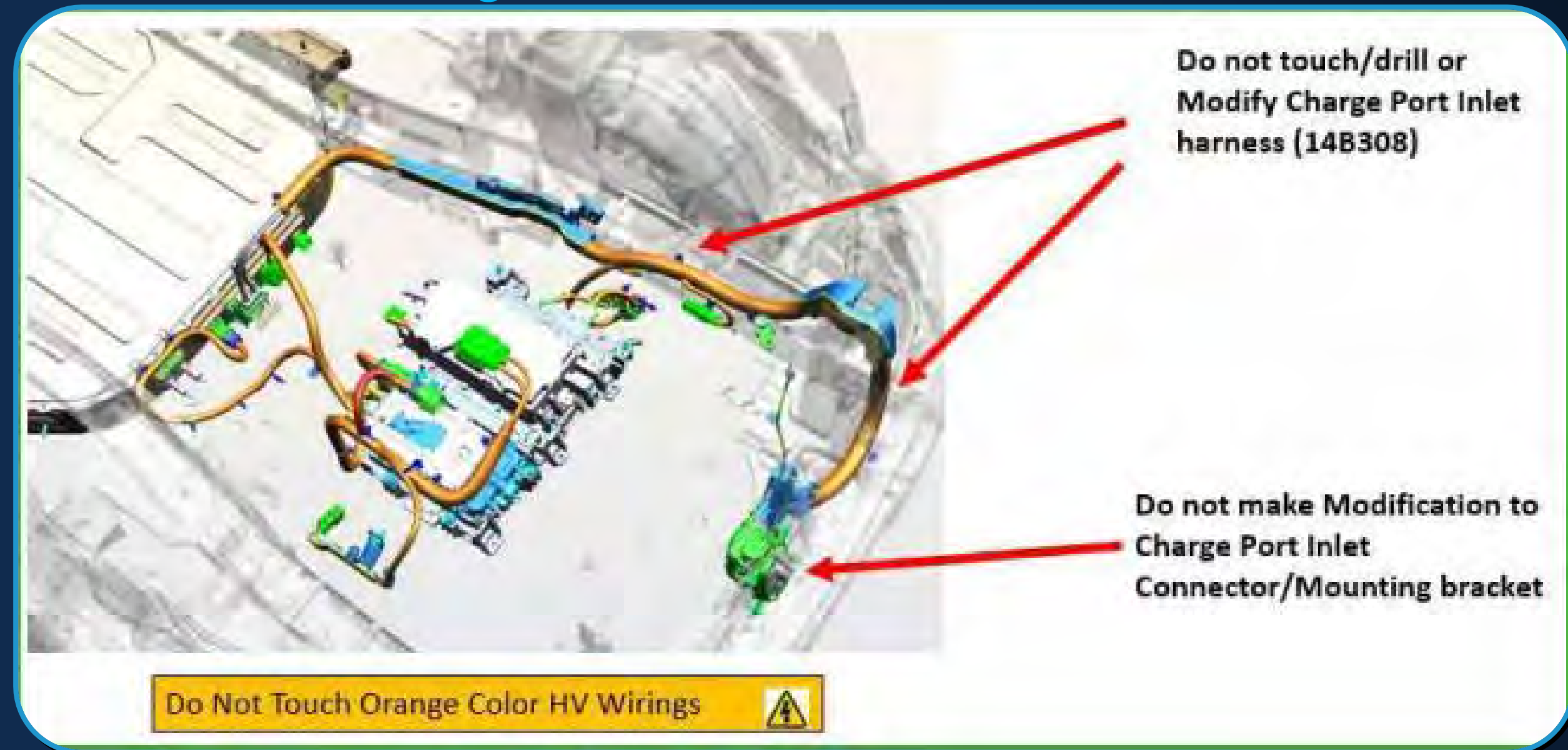
Not Shown – 12V Electric Vacuum Pump for Brakes

High Voltage (HV) Overview – Routing

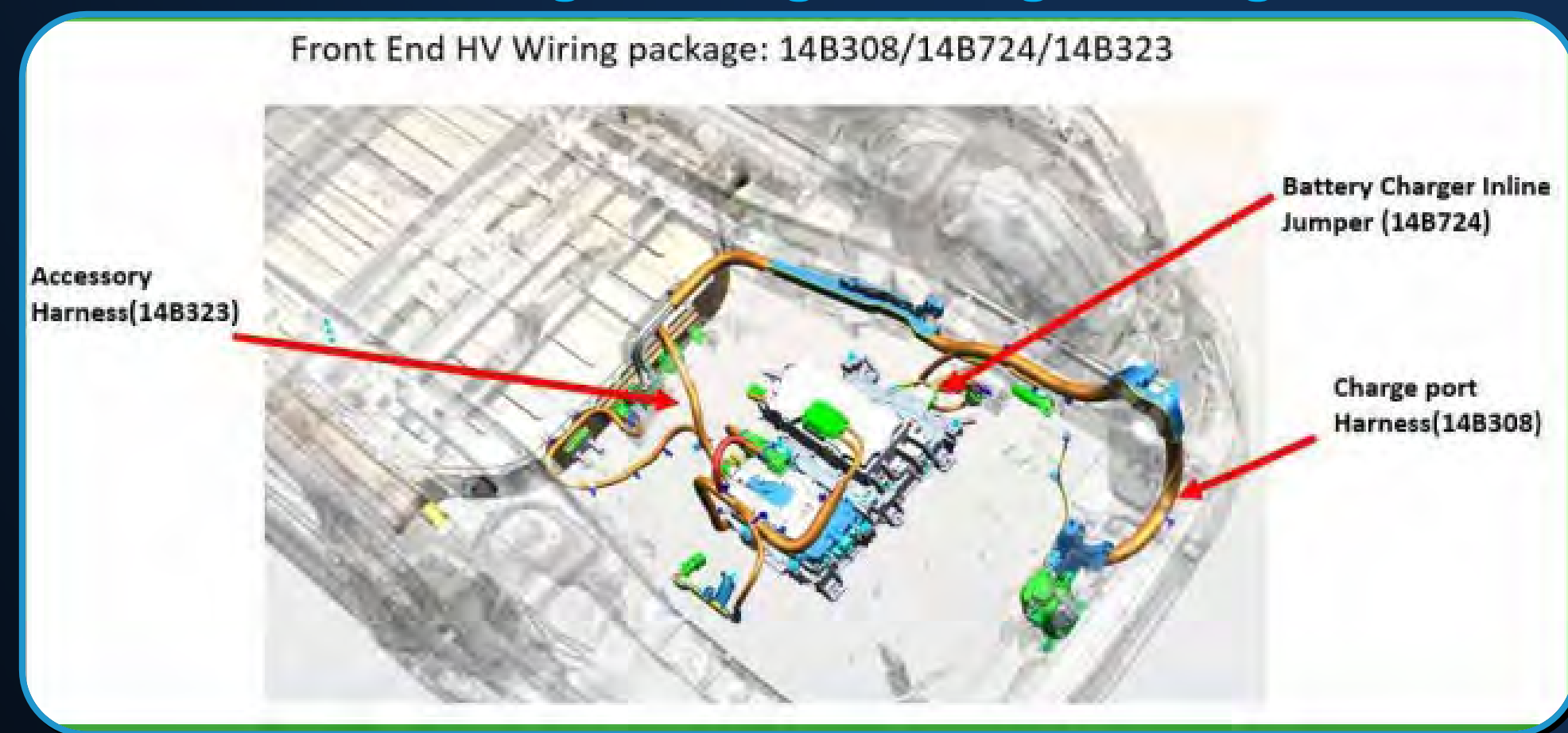
High Voltage System Overview



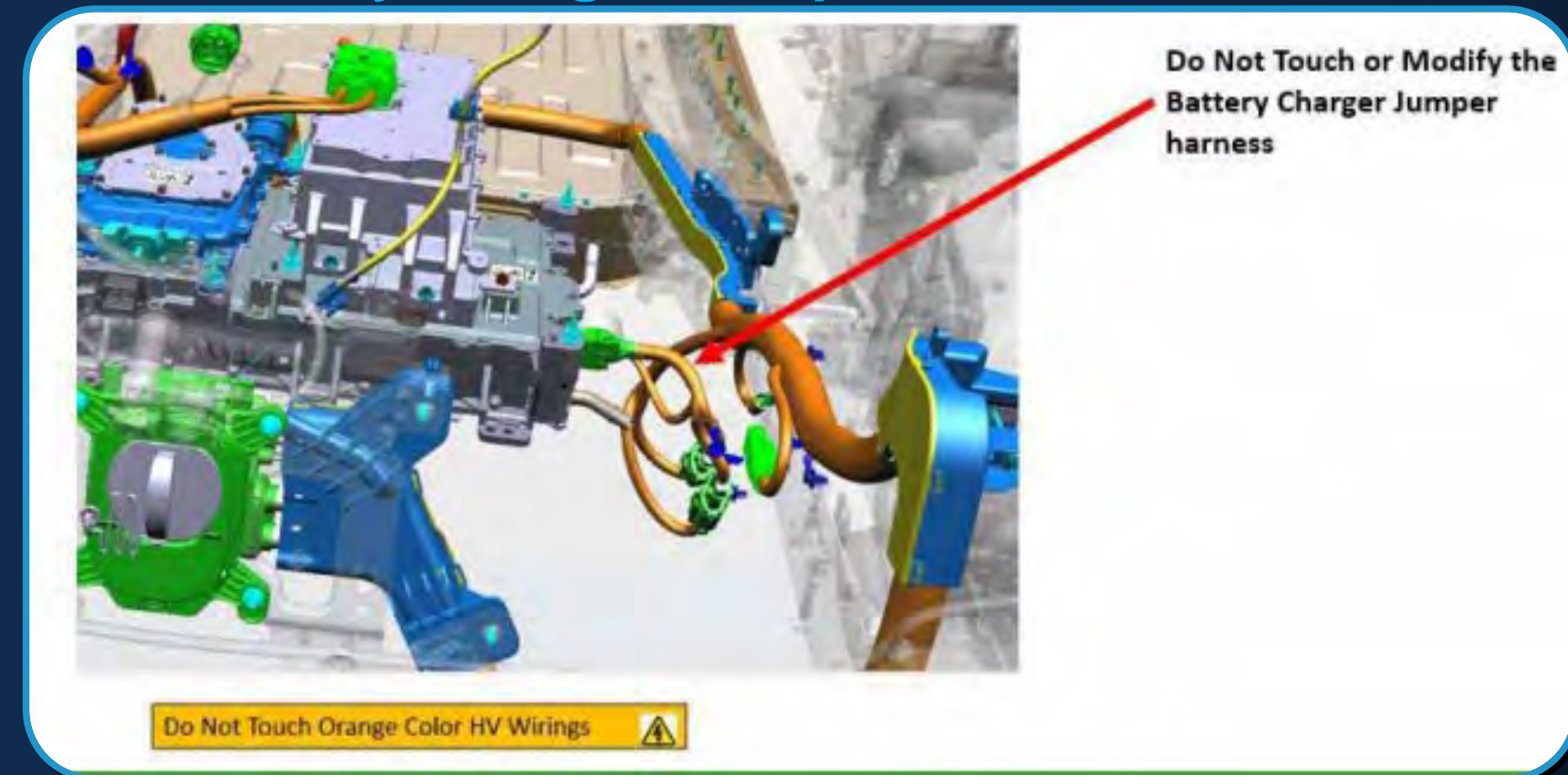
Charge Port Inlet Harness 14B308



Front End High Voltage Wiring Package

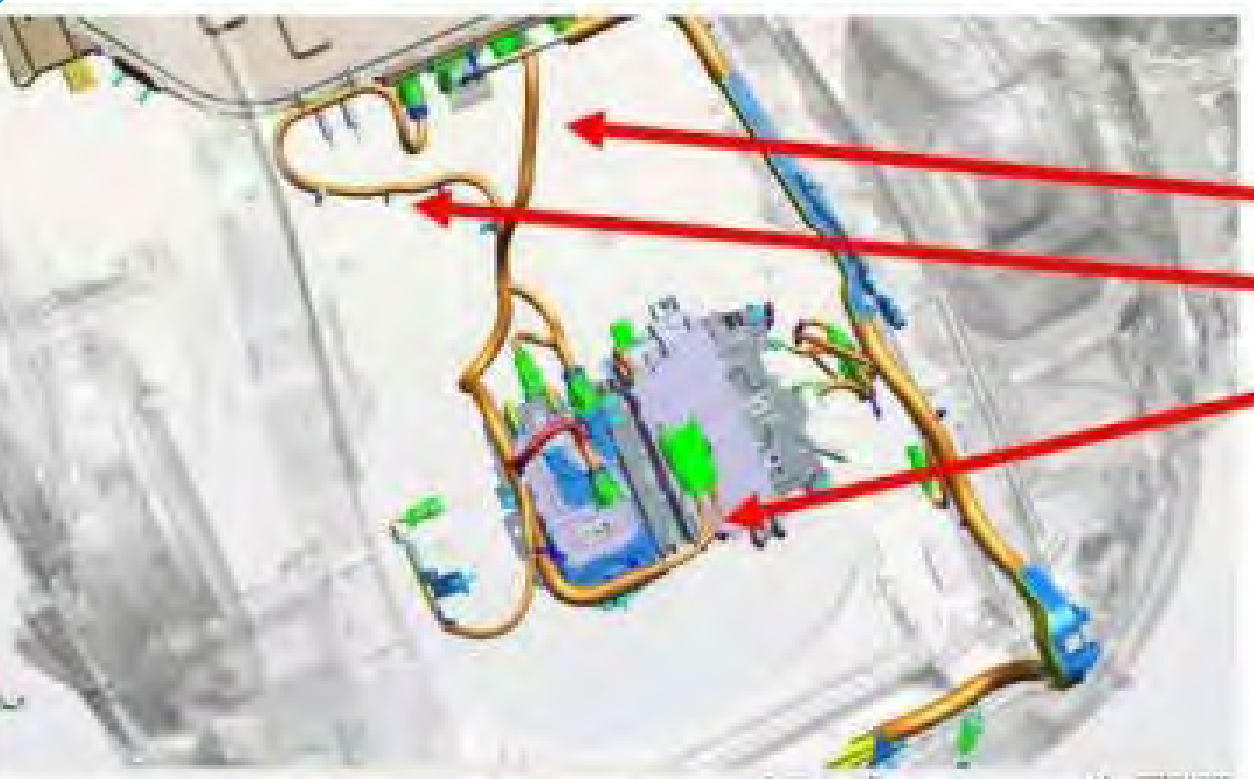


Battery Charger Jumper Harness 14B724



High Voltage (HV) Overview - Routing

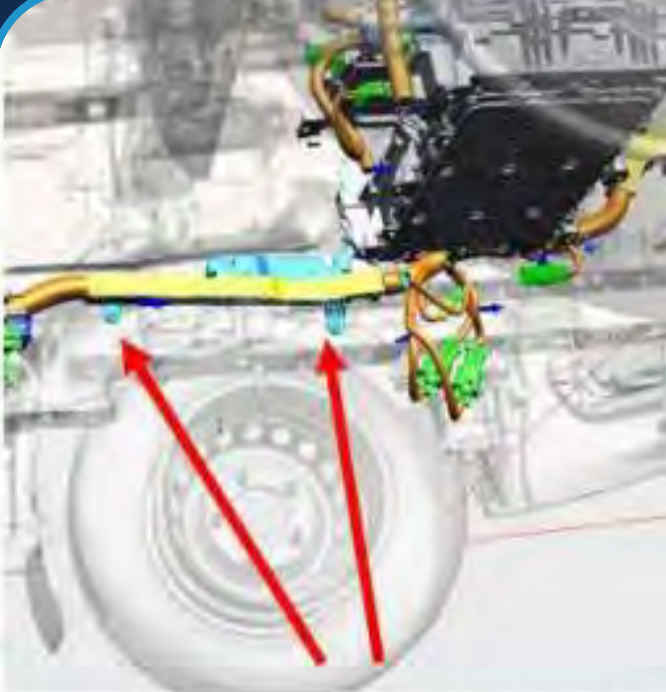
Accessory Harness 14B323 to OBG/DCDC/PTC/eAC



Do Not Touch or Modify length and Connectors of Accessory Harness

Do Not Touch Orange Color HV Wirings ⚠

Front End CHV Charge Port Wiring Protective Shield



Joint	Material & Finish	Comments
W720235-S450B (x2)	Steel Bolt with S450B finish fastened to W520771-S450(x2) Steel threaded welded nuts	Steel threaded bolts fastened to threaded welded nuts

Do not remove fasteners & protective shield from the charge port inlet harness

Do Not Touch Orange Color HV Wirings ⚠

Front End Cable Package Ground Path to Chassis



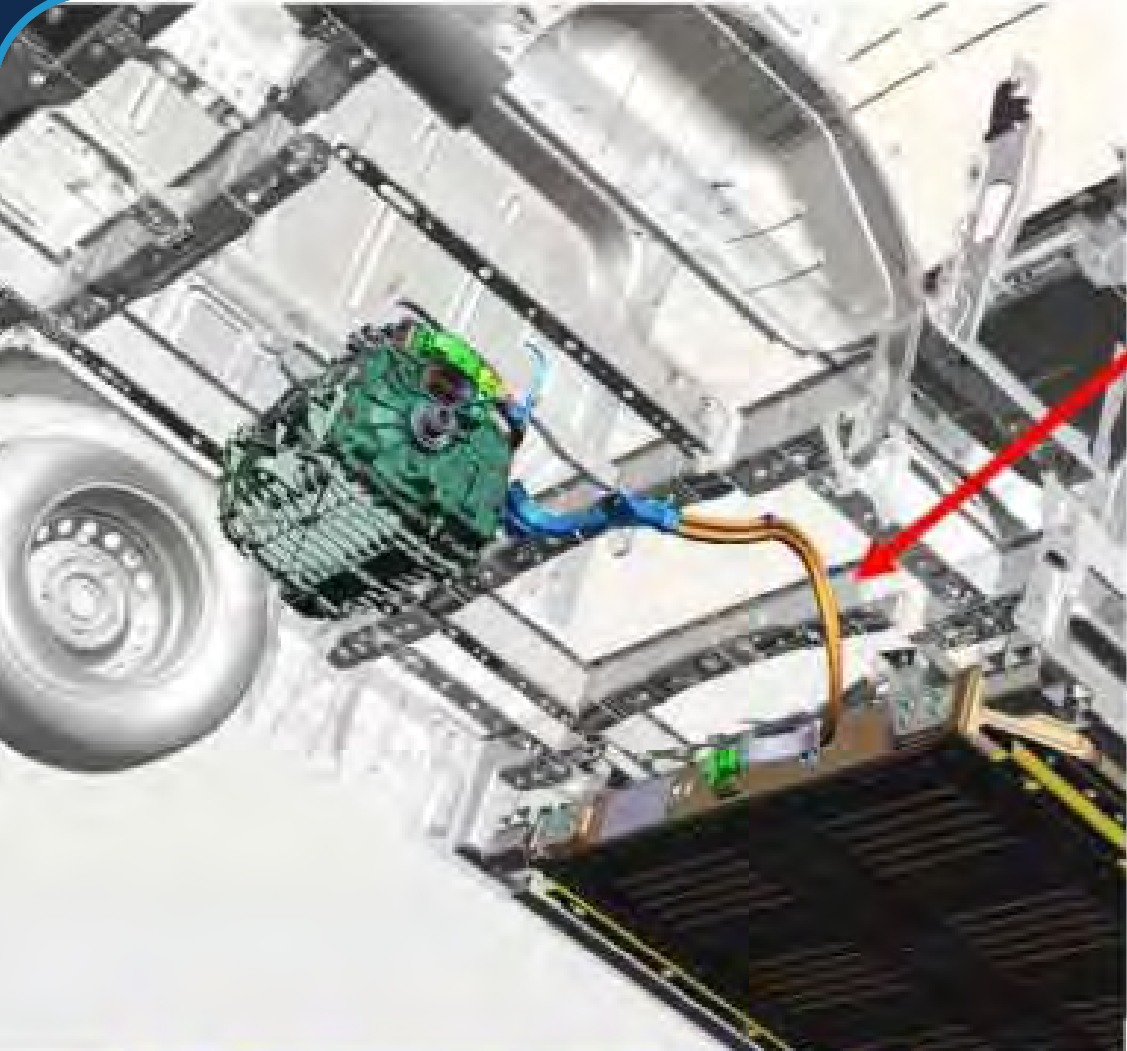
Do not modify these High/LV Voltage grounding locations/joints/fasteners of the Front End Package grounds:

1. Charge Port Harness ground to chassis
2. Battery Charger ground to Mega Brace

WARNING: Do not modify these High Voltage/Low Voltage grounding locations/joints/fasteners of the Front End Cable Package Grounds

Do Not Touch Orange Color HV Wirings ⚠

Rear End HV Cable Package: 14B322

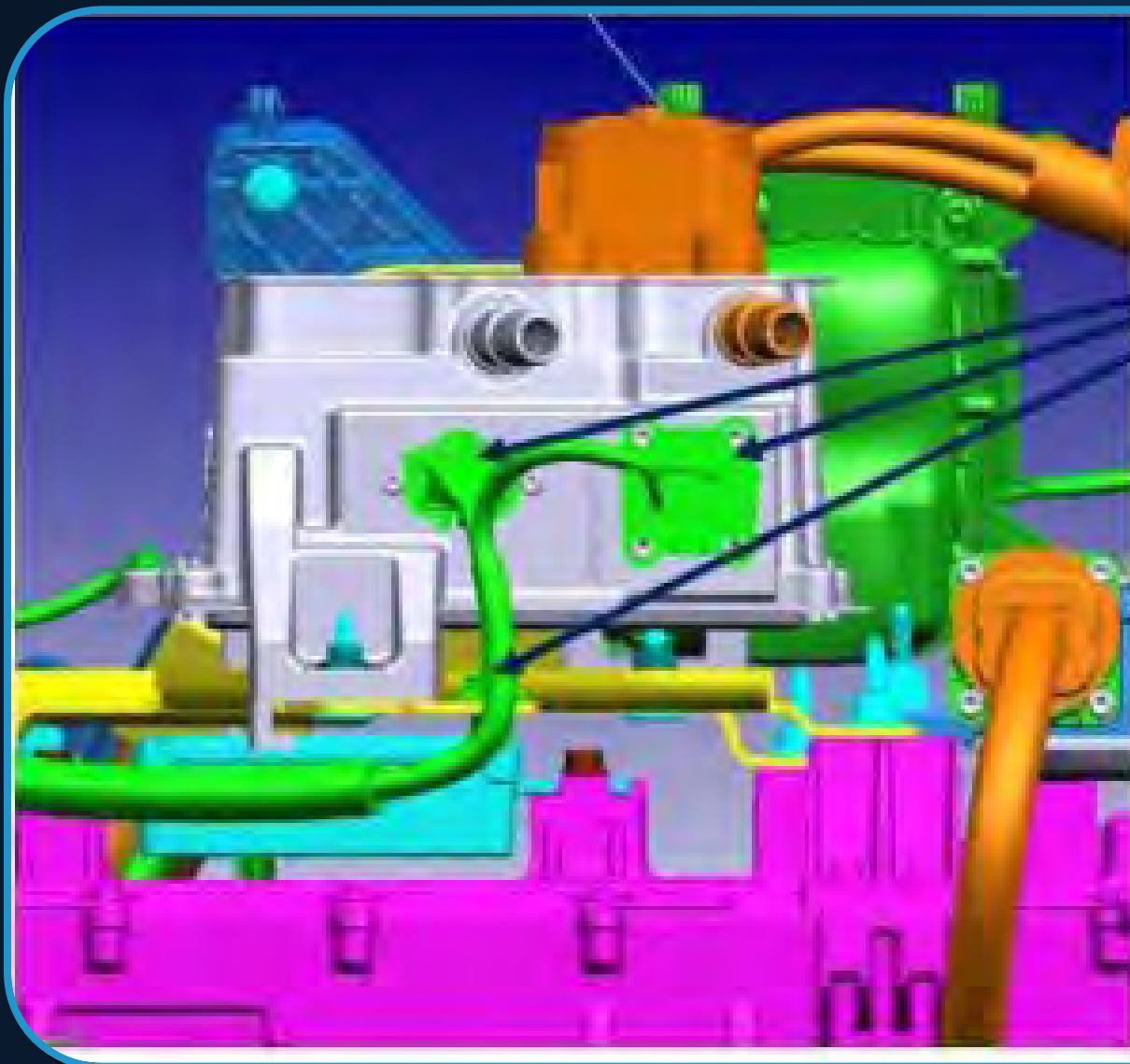


Do not touch or modify the e-Motor to Battery HV Orange Color wiring

Do Not Touch Orange Color HV Wirings ⚠

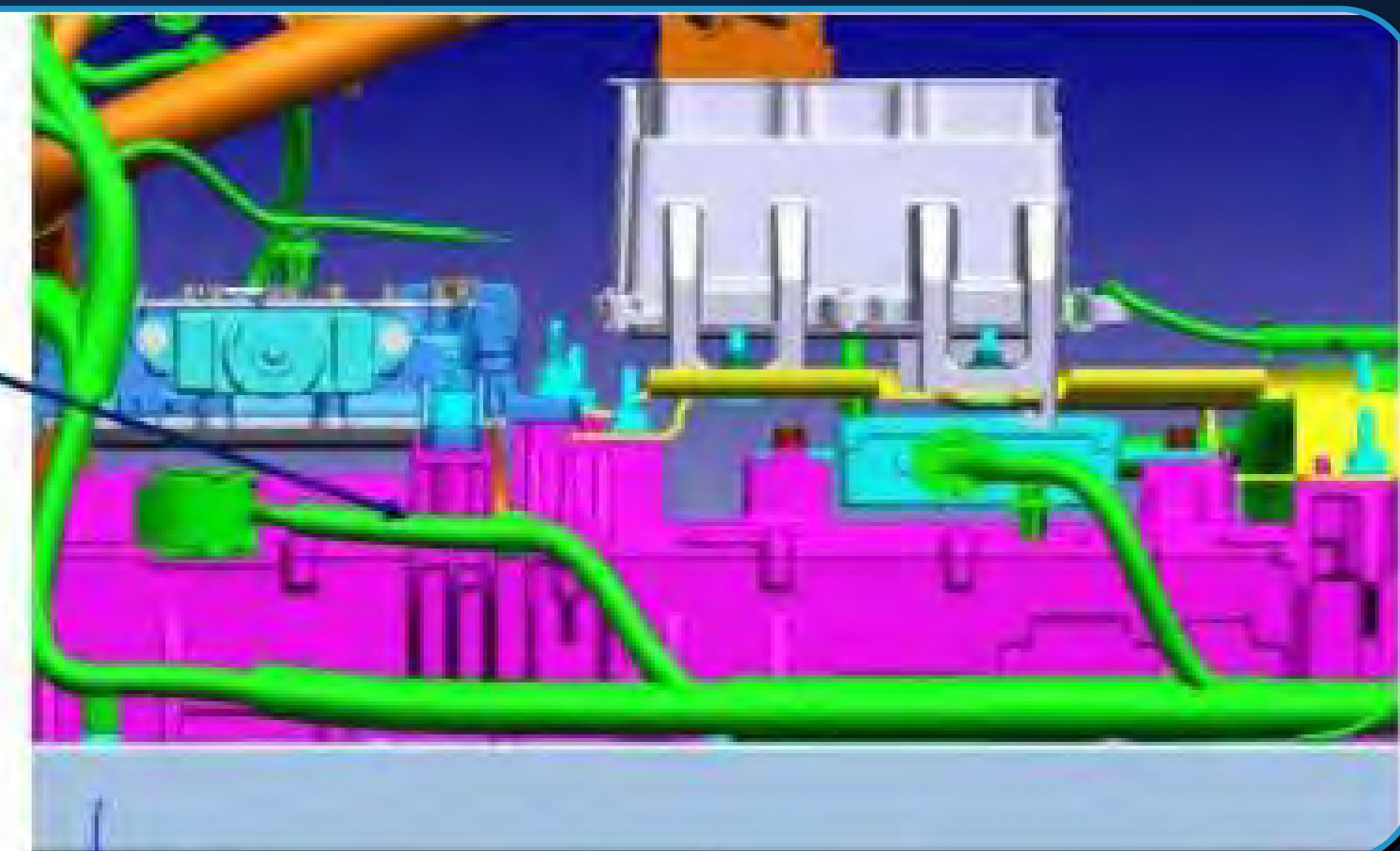
Low Voltage (LV) Overview - Routing

On Board Generator Invertor Low Voltage Cable / Connections
(Pro Power On Board Module if Equipped)



Do not modify existing OBGI Low Voltage Cable cable/connections

Do not modify existing Charger Low Voltage cable/connections



Charger Low Voltage Cable / Connections

E-Transit - New Pro Power Onboard (90E) - Optional

Feature Highlights

- 120V AC / 2.4kW
- Single outlet provided in cab (located LH side of RH seat pedestal)
- Duplex outlet for rear of vehicle:
 - **Van:** Integrated at RH D-Pillar
 - **Chassis Cab and Cutaway:** Provided in dunnage with 18 ft wiring harness for (to be completed by the upfitter)
- Requires HV Power On, includes “Secure Idle”
- Managed via Sync Screen and Ford Pass
- Inhibited at range reserve set by user



E-Transit Charge Port

- Front grille-mounted CCS Type 1 Charge Socket –SAE J1772 for 120/240V, plus 2 pin DC fast charger
- IP67 (Ingress Protection*) sealing performance with socket covers and door sealing
- 11kW on-board AC charger (120/240V), charge rate dependent on charging station and state of charge
- 5 segment indicator light for state of charge



* - Protection against solid objects like dust and sand

E-Transit Guidance Material

- **Body Equipment Mounting Manual (BEMM)**
 - Overall Transit Vehicle Technical Manual (*Avail. November*)
- **General Body Builder Layout Book**
 - New Vehicle and Long-Term Storage Guidelines
 - Heat Management
 - Electrical System
 - Etc...
- **Vehicle Body Builder Layout Book**
 - Specific Vehicle Level Technical Guidance (*Avail. Mid October*)
- **Incomplete Vehicle Manual**
 - FMVSS Related Guidance

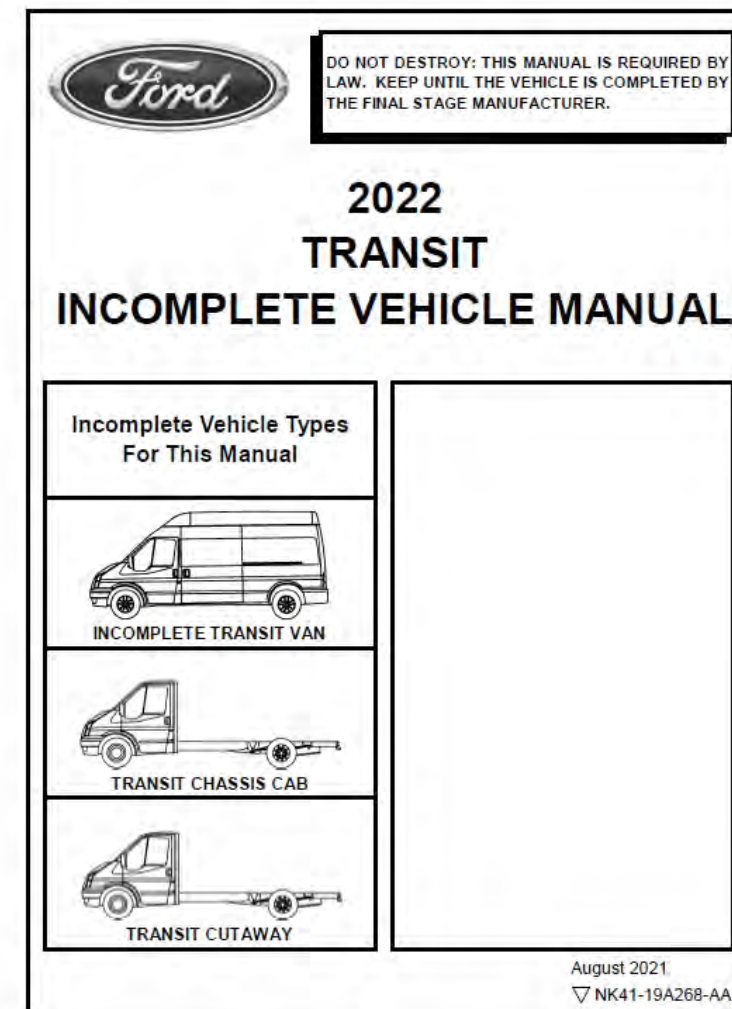
FORD **Transit & E-Transit** 2022MY
Body and Equipment and Mounting Manual
North America

1
GENERAL BBLB

Ford TRUCKS **Body Builders Layout Book**

2022
MODEL YEAR

Ford General Body Builder Layout Book



***ALL MATERIAL WILL BE FOUND ON THE BBAS WEBSITE, UNDER 'PUBLICATIONS':
BODY BUILDER ADVISORY SERVICE (FORDBBAS.COM)***

New Vehicle & Long-Term Storage Guidelines - BEV

New Vehicle & Long-Term Storage Guidelines – BEV

- 12 Volt Battery:

- BEV, PHEV and HEV vehicles: The 12v battery charge will be maintained automatically.
- BEV vehicle storage greater than 30-Days (Long-Term Storage), it is being recommended that the low-voltage battery be disconnected

- High Voltage (HV) Battery (BEV and PHEV Vehicles)

- Leave the vehicle plugged in to an SAE J1772 charger if possible.
- Store vehicle between 32°F (0°C) and 113°F (45°C) if possible.



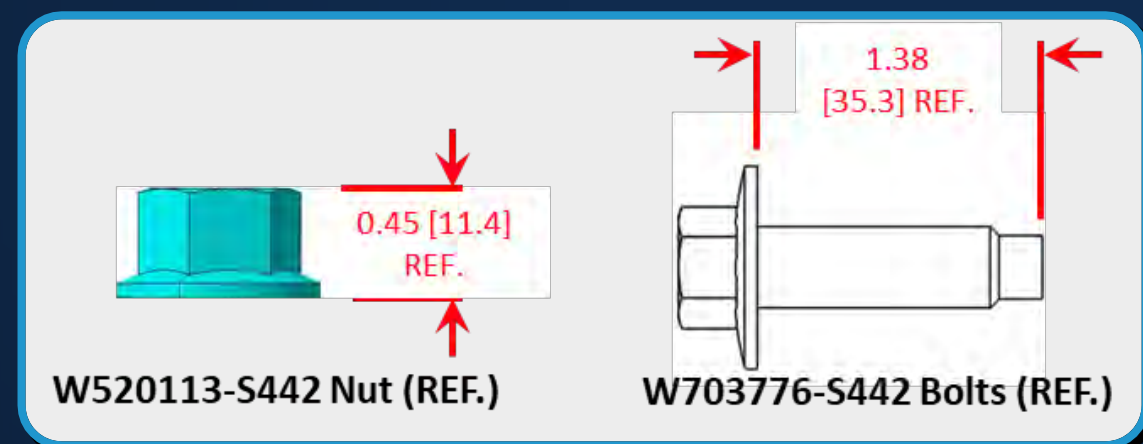
Please refer to the General Body Builders Layout Book for more details on 'New Vehicle and Long-Term Storage'

Design Recommendations

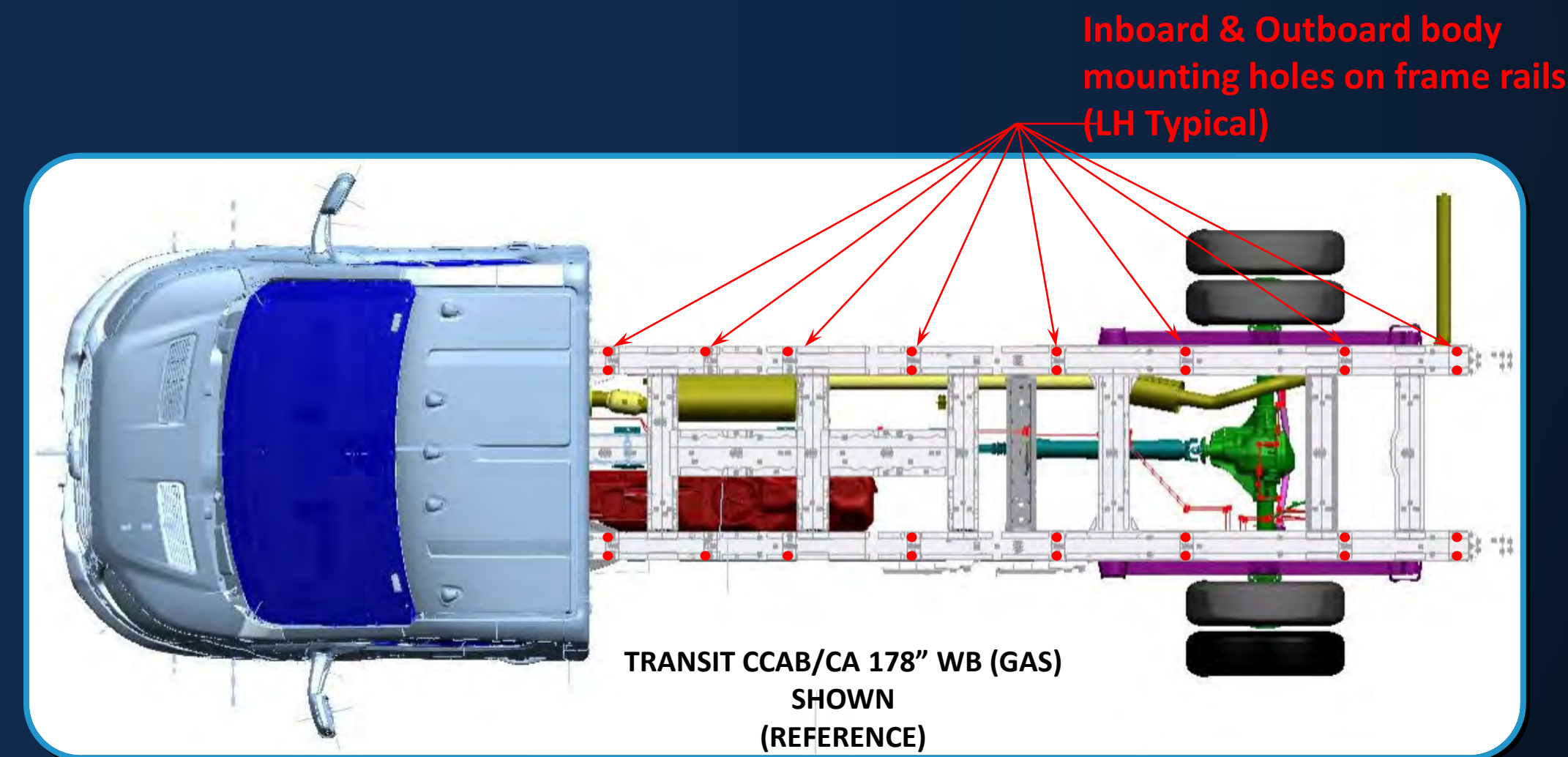
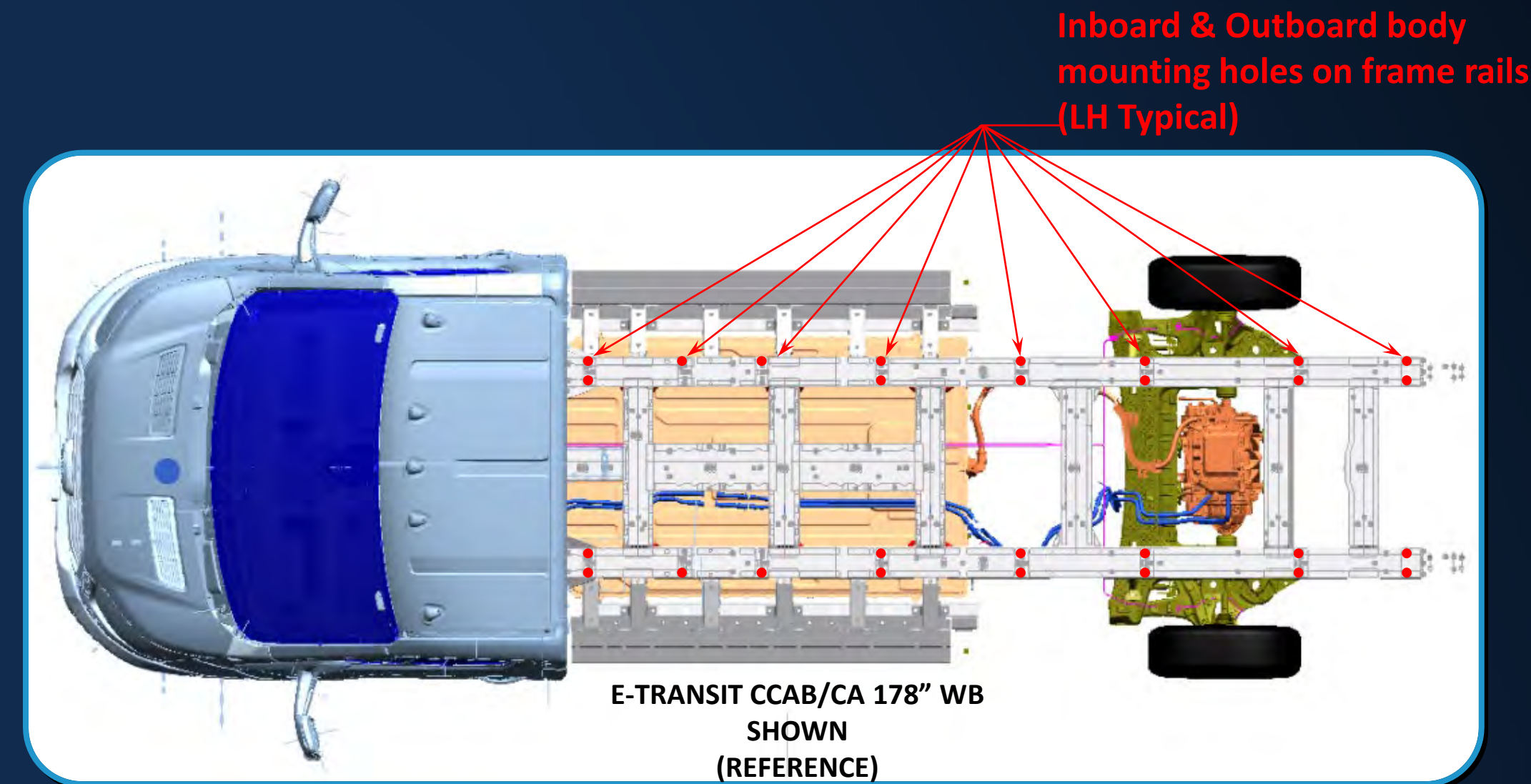
TRANSIT SECOND UNIT BODY (SUB)

Refer to the Transit Incomplete Vehicle Manual (IVM) and the Transit *Body and Equipment Mounting Manual (BEMM)*, Body Section, 5.1.6 Chassis Cab / Cutaway at <https://fordbbas.com/publications> for additional SUB mounting information for both GAS and BEV Model variants.

- A full-length structural body should be hard-mounted to all available inboard and outboard frame hole locations, however, fasteners are not required in 2nd and 3rd rows of LH and RH frame rail inboard holes alongside the battery, fuel tank and exhaust muffler. Use Ford recommended fasteners W703776-S442 (PC 10.9 M10 Screw with 24mm min flange diameter) and W520113-S442 (PC 10 M10 Nut with 21.8mm flange diameter and prevailing torque feature), or equivalent. Reference BEMM Body Section, 5.1.6 Chassis Cab / Cutaway.




- **DO NOT WELD** to the flanges of the side rails.
- The recommended attachment fastener for the Cutaway Back-of-Cab non-threaded nutplates is a *MR8 Taptite 2000®* bolt or equivalent. Reference Transit BEMM Body Section, 5.1.7 Cutaways.
- Note the requirement for a Cutaway floor spacer between the cab and an attached body. Reference: BEMM Body Section, 5.1.7 Cutaway – Floor Spacer.



Battery Electric Chassis Cab vehicles with a Platform or Stake style Second Unit Body may exhibit Ride Vibration Characteristics that do not meet customer expectations. When upfitting a vehicle with either of these SUBs, Ford Motor Company recommends part NK3Z-6M046-A (Dynamic Damper) be ordered and installed prior to delivery to end customer.

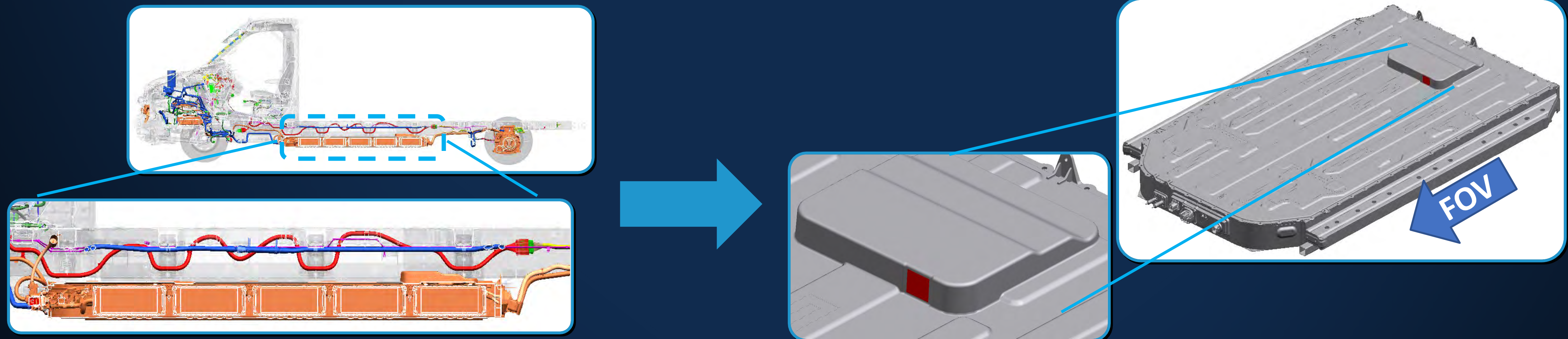
Electrical System

- Approximately 400 Volts DC High Voltage (HV) battery is a highly sophisticated lithium-ion battery system, used to store electrified energy to power the vehicle.
- HV battery box is live up to the contactors inside the pack, until a Low Voltage (LV) supply is connected, to energize the HV Relay (to close the contactors) within the battery box and the LVMSD connector is closed.
- Regardless of vehicle line or electrified vehicle type, high voltage components can be identified in the following ways:
 - All high voltage wiring is **ORANGE** in color (may be wrapped in **ORANGE** tape).
 - All high voltage modules and batteries have warning symbol or other identification 
- The high voltage system has a floating ground, which is designed to completely isolate the HV system from the vehicle chassis and non-HV components and circuits.
- The power terminals of the high voltage battery are only activated when necessary for vehicle operation, including:
 - When the vehicle is in key “on” or “accessory” state (“Ready” indicator lit in instrument cluster).
 - When the 12v battery has a low state of charge - the HV battery will activate to charge the 12v battery through the DC-to-DC Converter, even in the vehicle key “off” state.
 - When the vehicle is plugged into a charging station (BEV and PHEV only) - the charge port, charge unit, HV battery and wiring between these components may be active, with high voltage present even in the vehicle key “off” state.
- The high voltage system can be “depowered” and locked out to prevent the system from energizing. See the appropriate Ford Service Manual (Workshop Manual) for detailed process instructions.



Electrical System

- Maintaining proper electrical grounding of high voltage components is essential for performance and safety of the vehicle. **Wiring to and from any high voltage component must not be modified, including ground wires and straps. Ground paths may also exist through attachment hardware between high voltage components and the vehicle or supporting structure. Do not move, alter, or add circuits to OEM electrical ground points.**
- Structural elements (mounting brackets, sub-frames etc.) supporting high voltage components are important to the vehicle safety and may also provide ground paths for the HV system. Unless otherwise instructed by Ford, these structures and their attaching hardware must not be modified or tampered with.
- Do not add components or attach to HV components or associated structures. Any components added to the vehicle in proximity to a HV component should maintain clearance to avoid contact with HV components under any condition.
- High voltage batteries have vent features that may exhaust hot gasses in certain circumstances. See the appropriate vehicle BBLB/BEMM for more information regarding battery vent locations and recommendations on how to protect for proper and safe battery venting. Reference figures below for vent location.

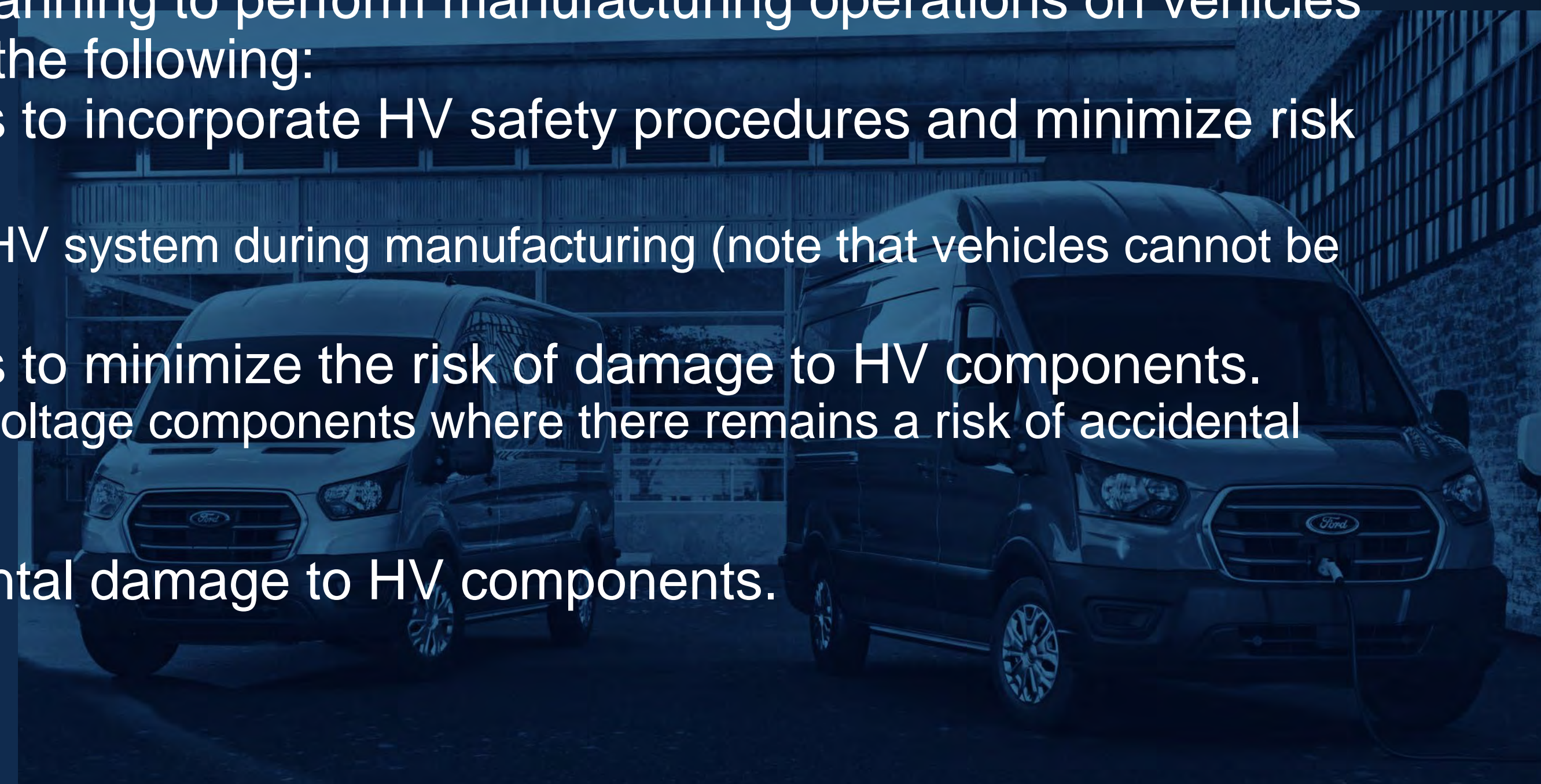


Electrical System

- Direct contact with high voltage components by personnel, tools or equipment should generally be avoided, including stepping on or leaning on them, setting tools on them, etc.
- Only qualified Ford service personnel should attempt to diagnose or repair any high voltage components or systems. Any personnel involved in engineering, subsequent stage manufacturing, modifying, or servicing vehicles with high voltage systems (content other than the HV systems) should be trained in basic understanding and safety principles regarding HV systems.

All subsequent stage manufacturers and alterers planning to perform manufacturing operations on vehicles with high voltage systems are recommended to do the following:

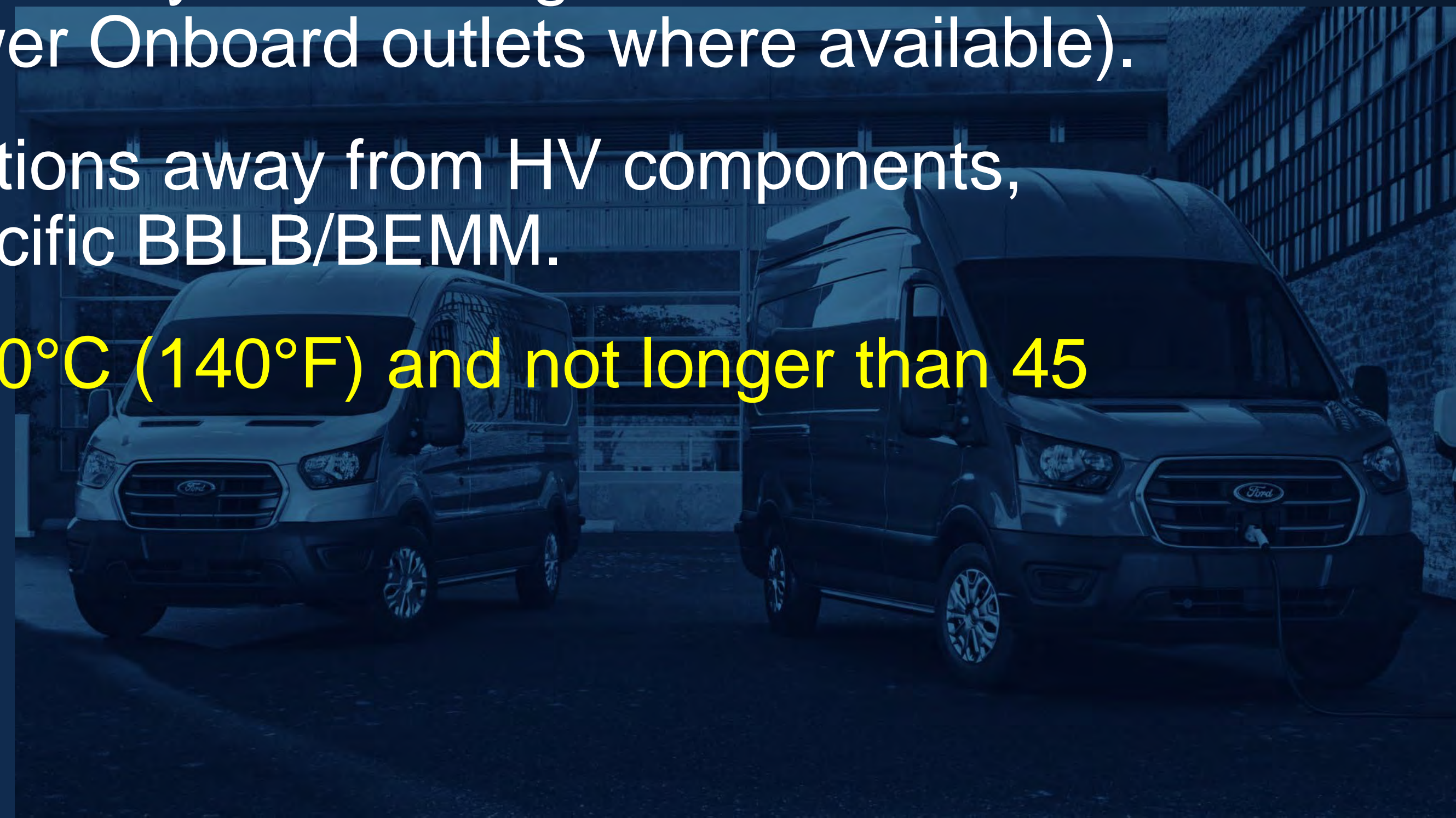
- Review and revise their manufacturing processes to incorporate HV safety procedures and minimize risk to personnel.
 - Consider depowering and locking out the vehicle HV system during manufacturing (note that vehicles cannot be driven in this state).
- Review and revise their manufacturing processes to minimize the risk of damage to HV components.
 - Consider providing temporary protection for high voltage components where there remains a risk of accidental damage.
- Develop an emergency response plan for accidental damage to HV components.
- Develop a vehicle charging plan (BEV only).



Electrical System

The following manufacturing operations can be safely performed on vehicles with high voltage systems:

- Installing a completed Second Unit Body (SUB) on a Chassis Cab or Cutaway Chassis, following guidance in the vehicle specific IVM and BBLB/BEMM.
- Interfacing with the low voltage electrical system through normal customer connection points (including Pro Power Onboard outlets where available).
- Mechanical cutting and drilling operations away from HV components, following guidance in the vehicle specific BBLB/BEMM.
- **Paint curing operations at or below 60°C (140°F) and not longer than 45 minutes.**

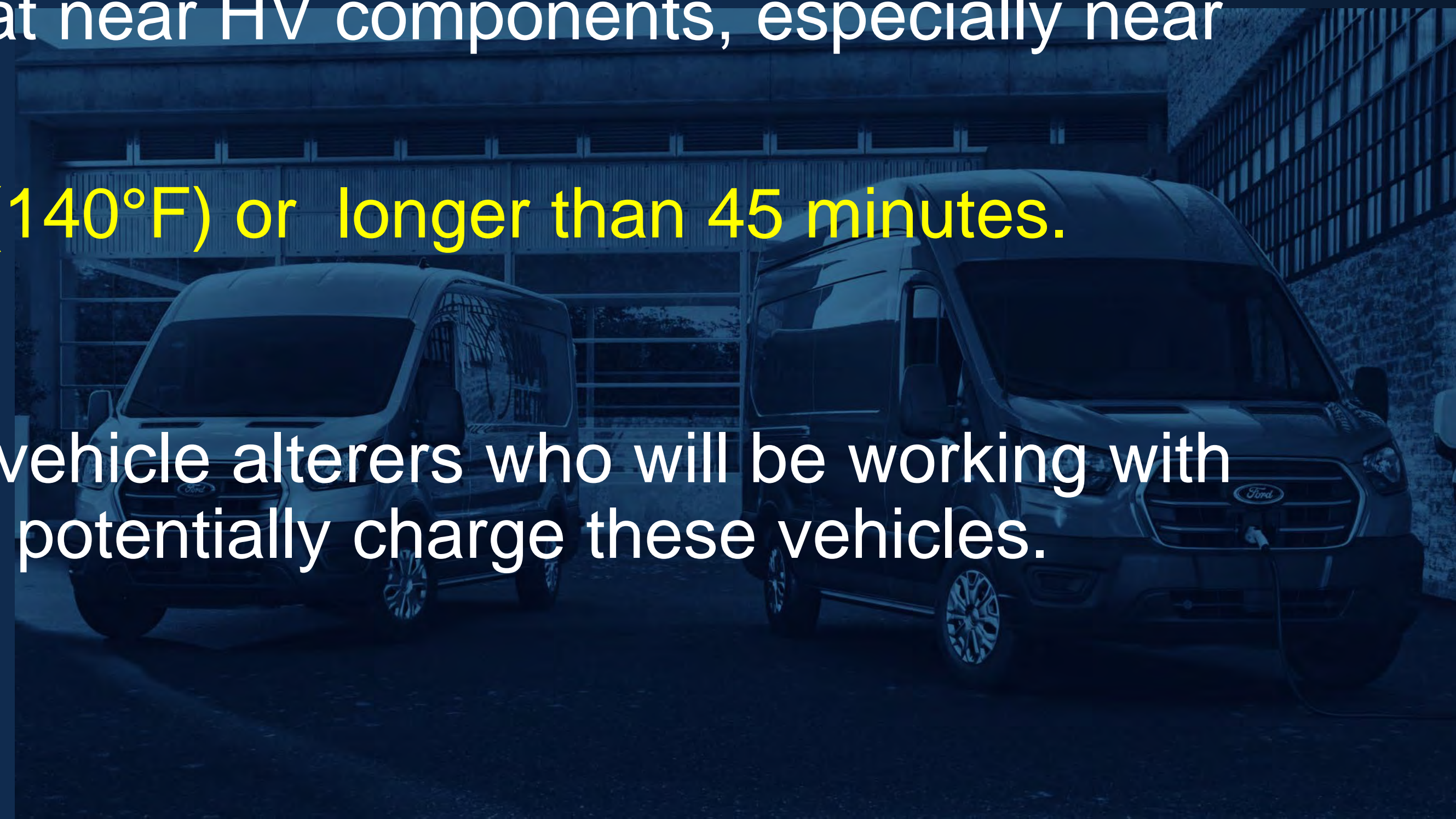


Electrical System

The following manufacturing operations are **not** currently recommended on vehicles with high voltage systems:

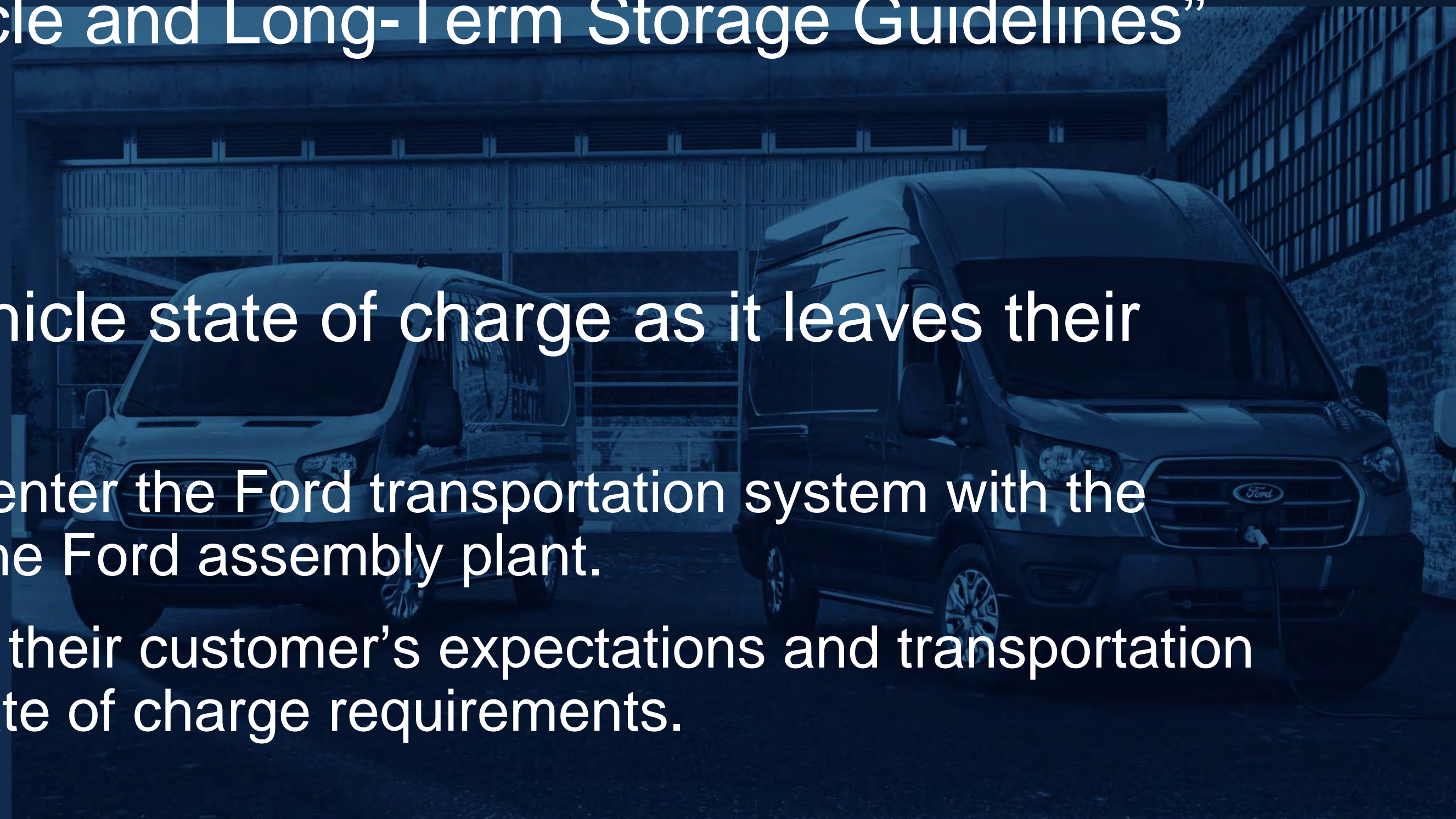
- **Welding anywhere on the chassis or installed body.**
- Cutting or drilling operations near HV components.
- Operations generating significant heat near HV components, especially near the HV battery.
- **Paint curing operations above 60°C (140°F) or longer than 45 minutes.**

Subsequent stage manufacturers and vehicle alterers who will be working with BEV vehicles should develop a plan to potentially charge these vehicles.



Electrical System

- Charging stations may be particularly important at vehicle receiving locations in case vehicles arrive with insufficient charge to maneuver through the manufacturing process.
- Charging stations are recommended at vehicle storage locations (see HV Battery information in the “New Vehicle and Long-Term Storage Guidelines” section in General BBLB).
- Upfitters should also consider the vehicle state of charge as it leaves their facility:
 - BEV vehicles upfit as ship-thrus should enter the Ford transportation system with the same state of charge they had leaving the Ford assembly plant.
 - In other cases, upfitters should consider their customer’s expectations and transportation arrangements when determining any state of charge requirements.



Mobile Charger & Ford Connected Charge Station

All Ford BEV and PHEV vehicles use SAE J1772 charge connectors. BEV vehicles are equipped with DC fast charging capability. For hardwired charging stations, Ford recommends UL listed SAE 1772 Level 2 (L2) chargers with 32A minimum rating, preferably 48A minimum rating for BEVs. As an alternative, 240V NEMA 14-50 outlets may be installed to support the use of mobile L2 chargers.



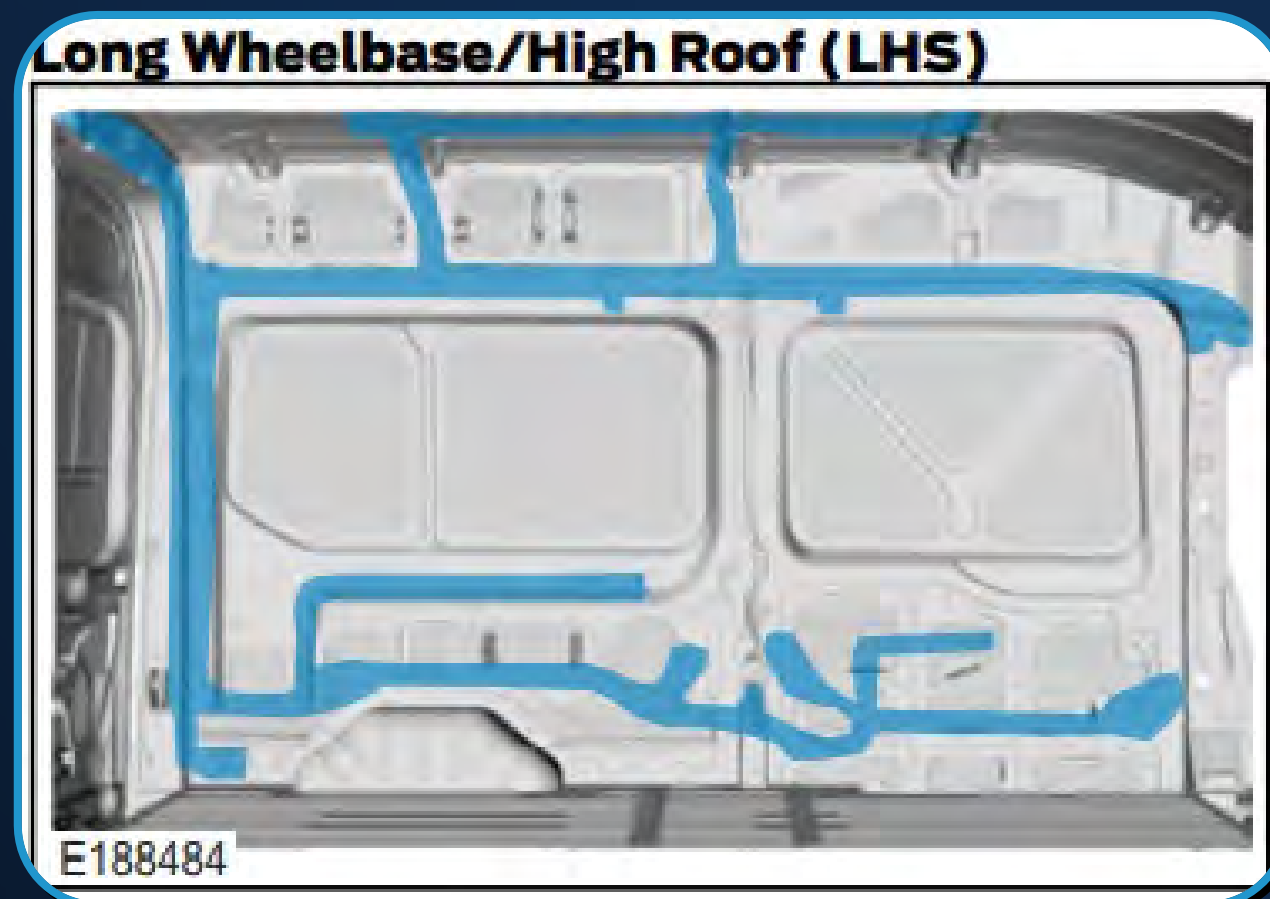
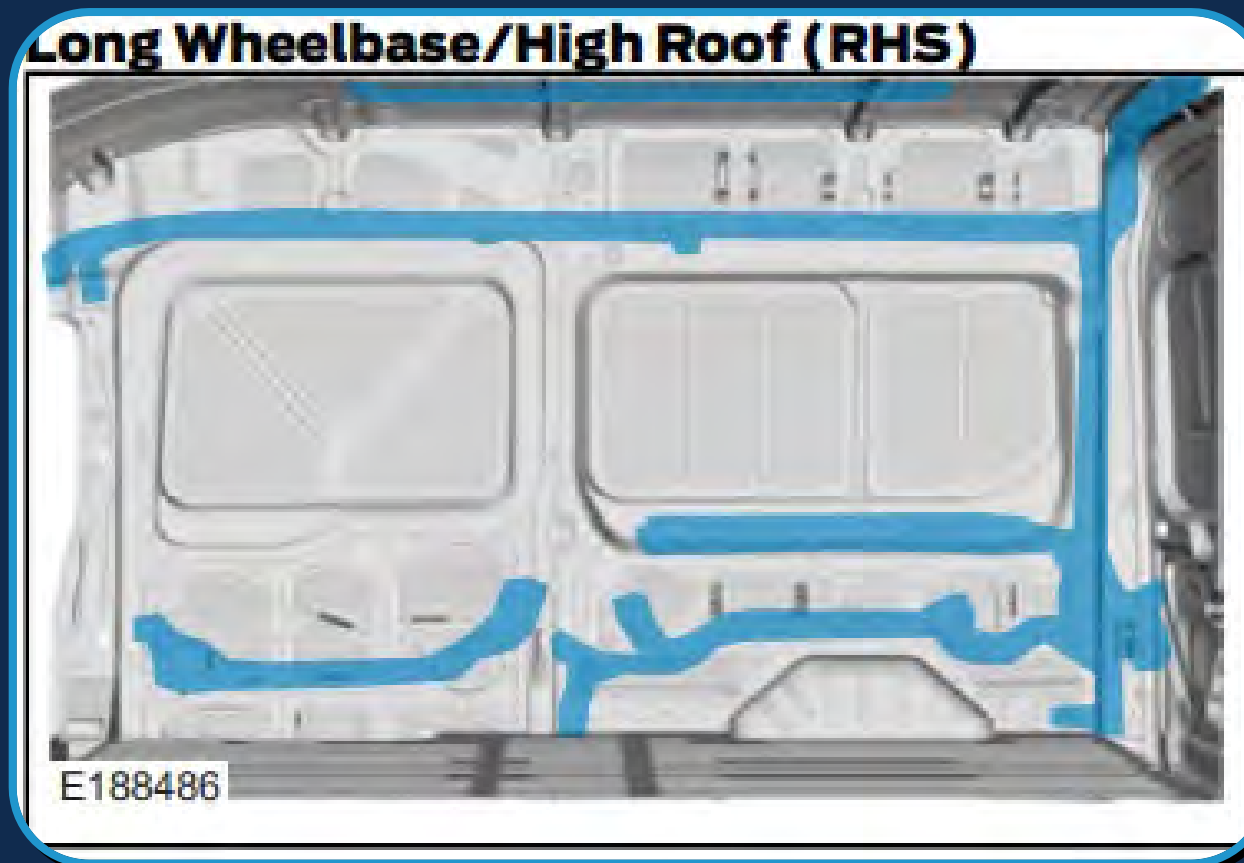
Ford Connected Charge Stations and Ford Mobile Chargers are available for purchase through Ford Dealers and online at www.FordParts.com. Connected Charge Stations and outlets for Mobile Chargers require installation by a licensed electrician.



Mobile Chargers provided with vehicles should be reserved for end customer use only, and not used during manufacturing or delivery processes to prevent damage or loss.

Precautionary Drill Zones – Rear Cargo Area

The areas highlighted in **BLUE** on figures show the ‘Precautionary Drill Zones’ for the rear cargo area where there is wire routing. Caution should be taken when drilling in these areas to not damage wiring harnesses, (for example: when installing cladding and racking). The same care should also be taken when using self-tapping screws.

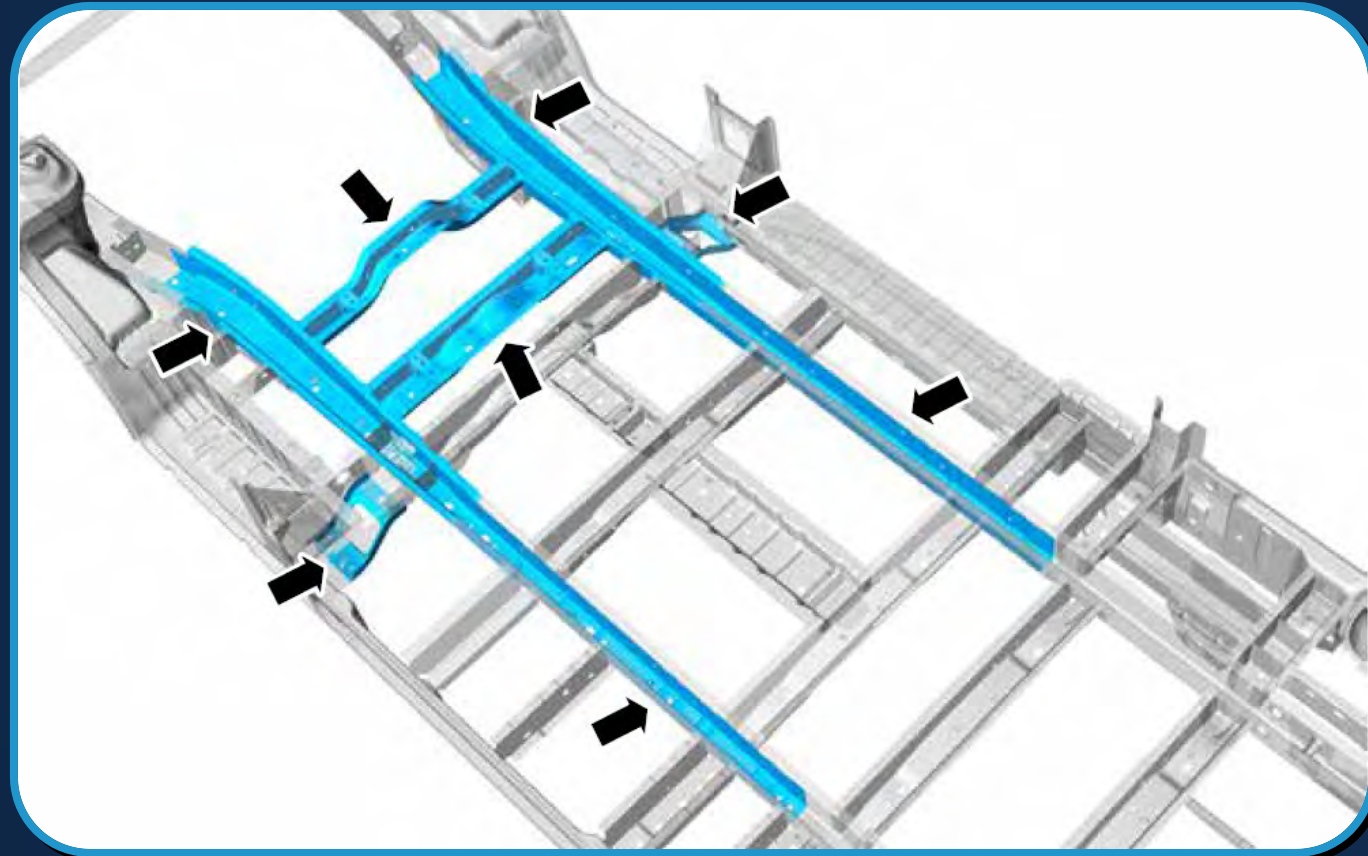
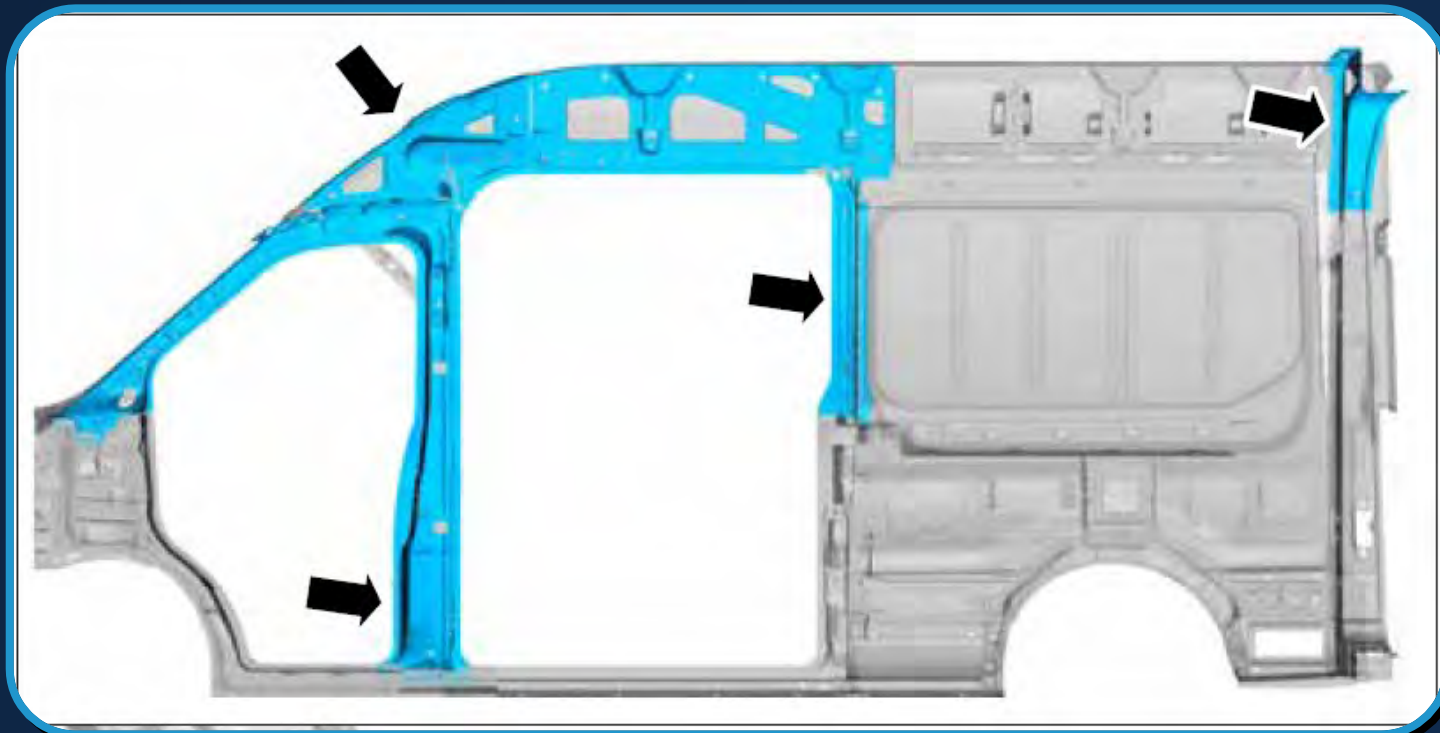


**Common to both
ICE & BEV**

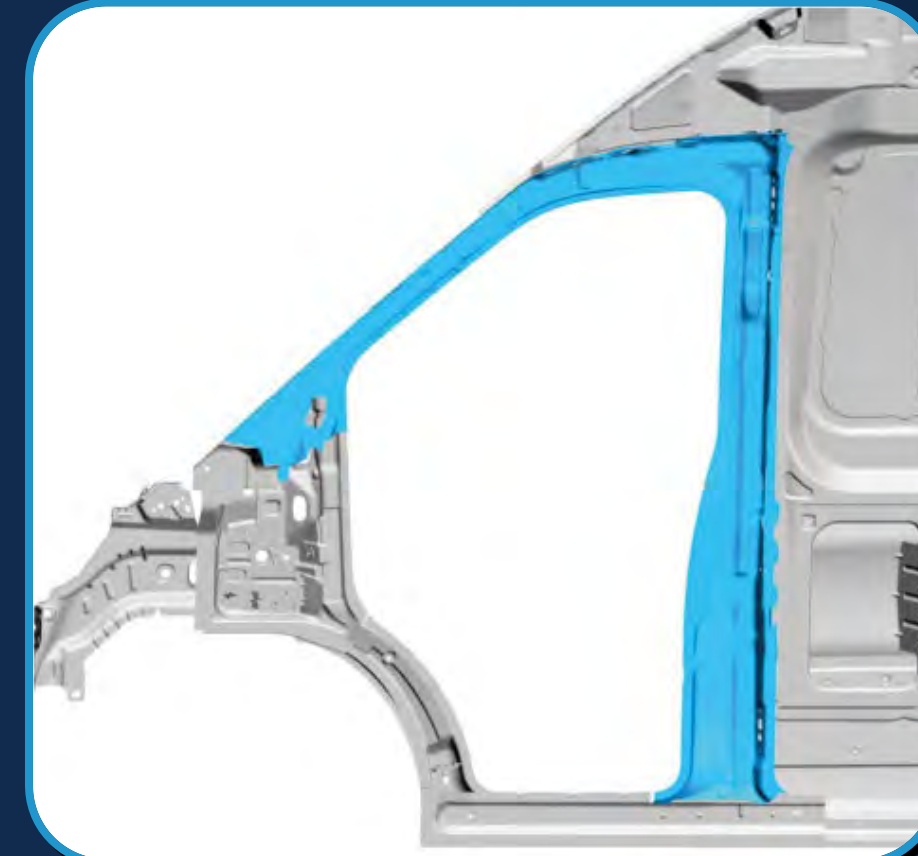
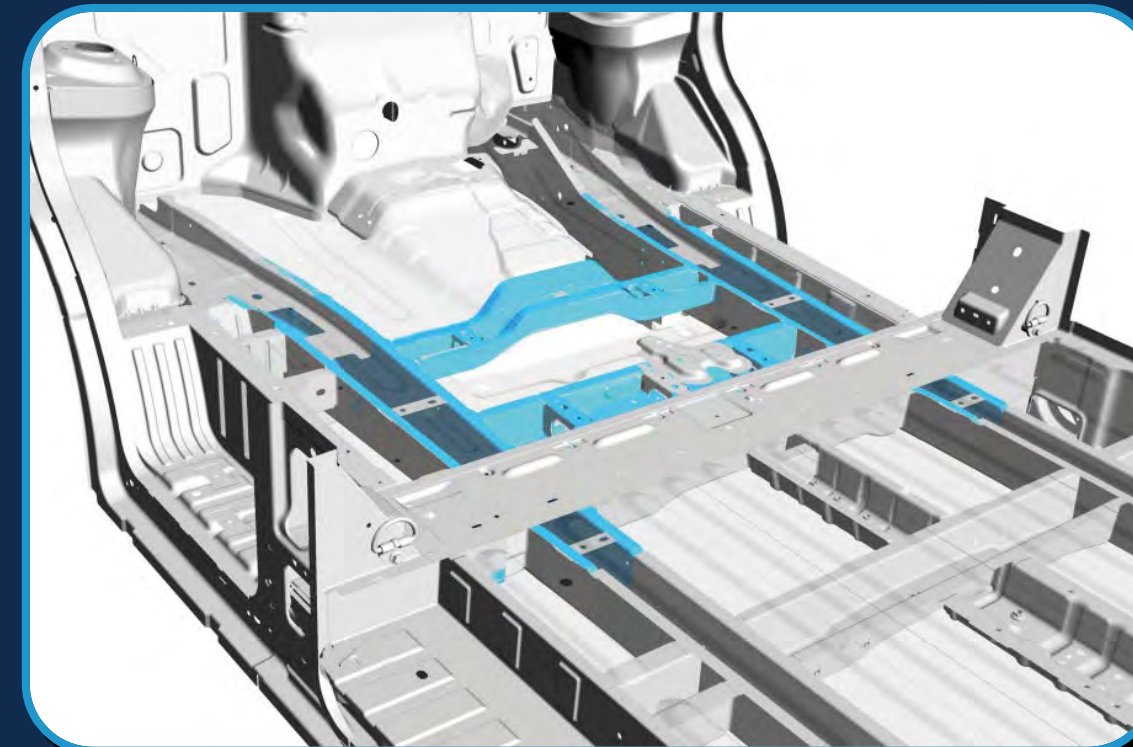
Precautionary Drill or Weld Zones - Boron Steel Parts

Common to both ICE and BEV

Boron Steel Parts - Van / Wagon



Boron Steel Parts – Chassis Cab / Cutaway



Drilling and welding of frames and body structure must be conducted following the guidelines in Welding and Frame Drilling and Tube Reinforcing Sections. Refer to: 5.1 Body, of the BEMM

Precautionary Drill Zones - Van BEV

Refer to the Transit Incomplete Vehicle Manual (IVM) and the Transit *Body and Equipment Mounting Manual (BEMM)*, Powertrain Section, for further precautionary details <https://fordbbas.com/publications> for GAS and Battery Electric Vehicle (BEV) Model variants.

This guidance only applies to the E-Transit BEV.

It is **STRONGLY** recommended that E-Transit VAN CAD is obtained for upfitter use to understand vehicle component placement/location of Hi/Low-Voltage Wire harness routing, coolant line routing, hydraulic brake line routing, rear drive unit placement, etc. CAD can be obtained from Ford Body Builder Advisory Service by submitting a helpdesk ticket, <https://fordbbashelpdesk.kayako.com/Tickets/Submit>

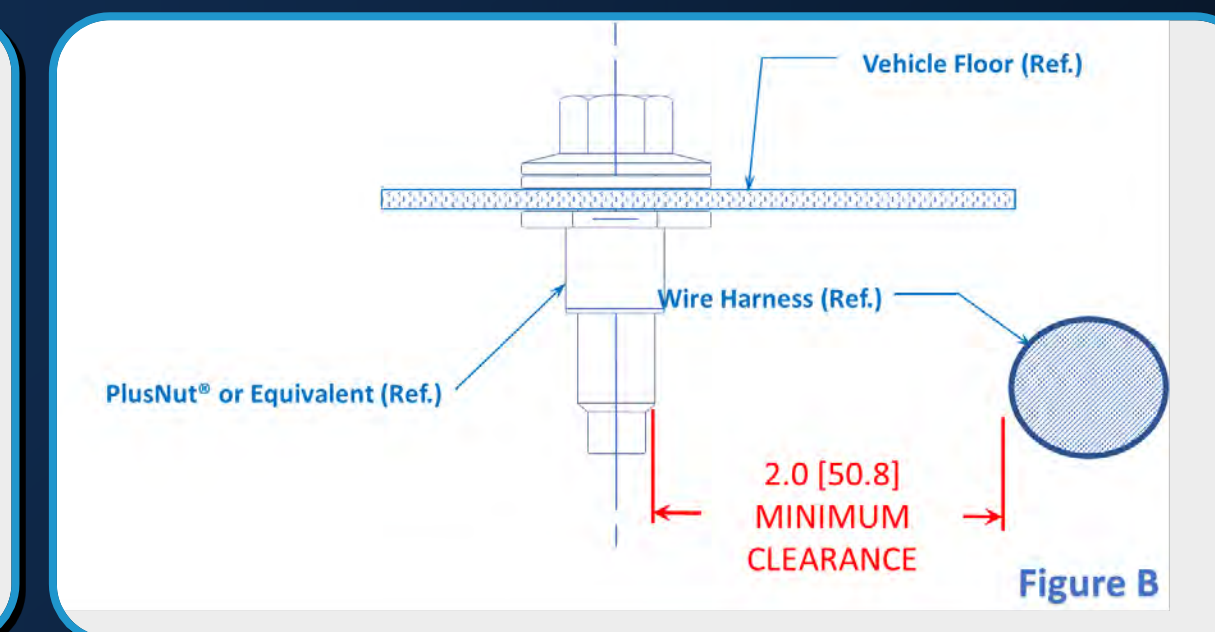
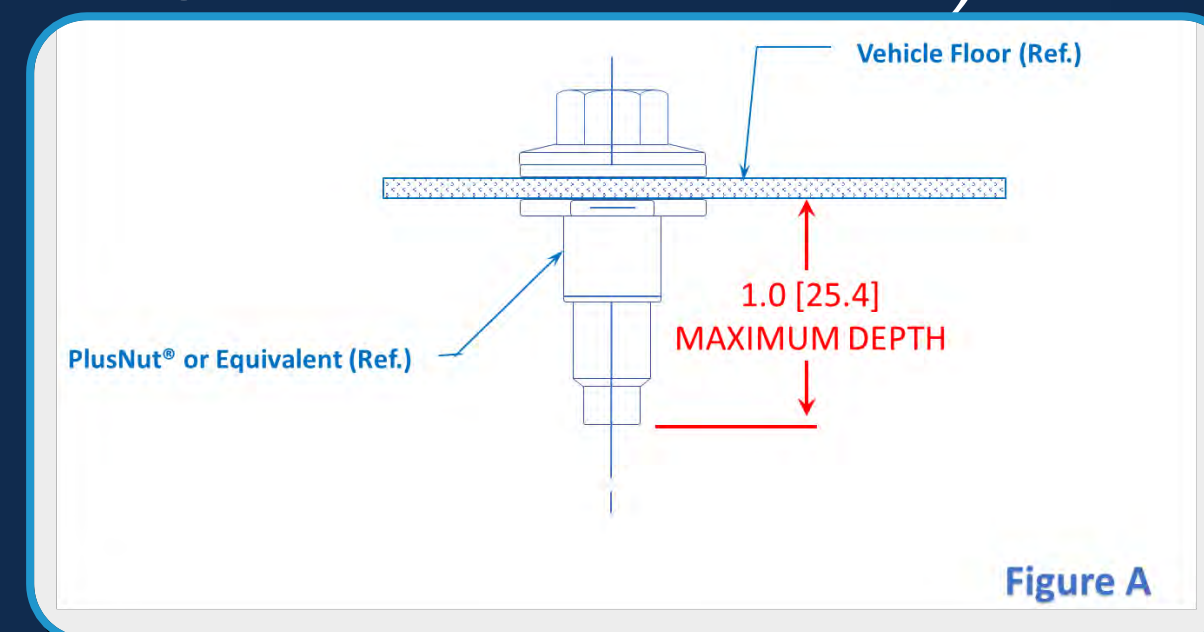
Take precautions when undertaking drilling, or any other operation, **aft of B-Pillar** in order to prevent damage to any components under the Van floor. HV grounding points in the vehicle are not to be touched.

- When adding holes/fasteners to the floor of the vehicle to secure upfits, consideration must be given to all components below the floor.

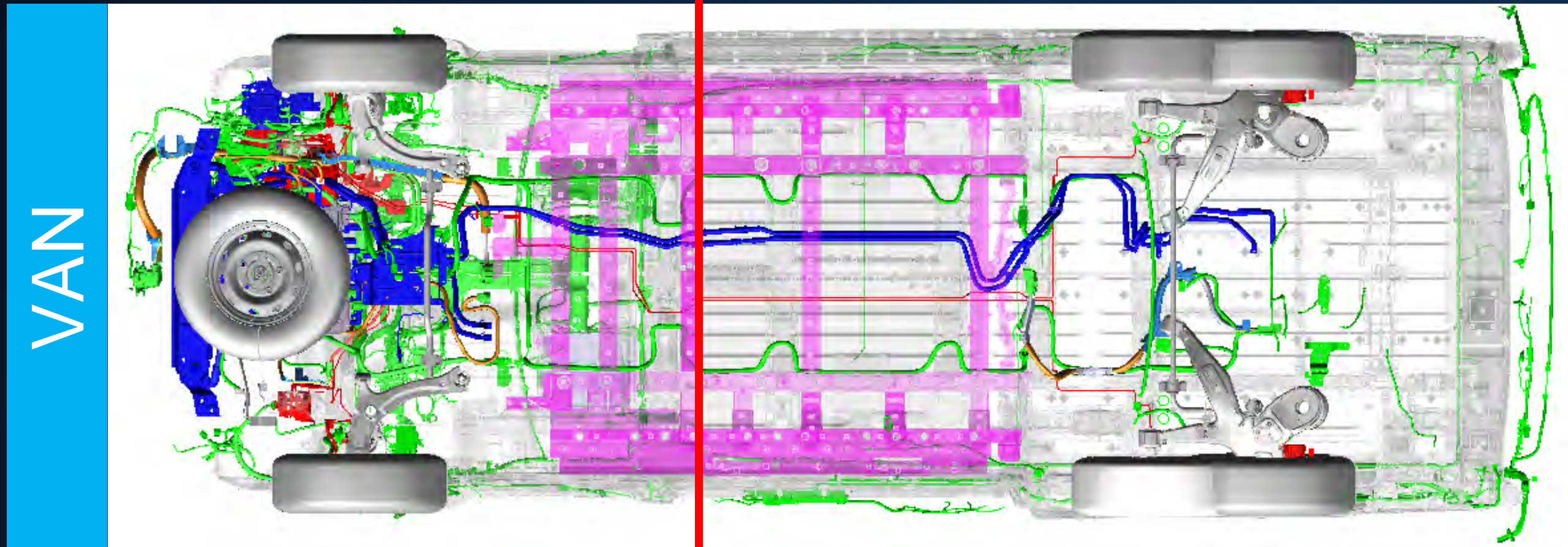
- It is strongly recommended that drill-depth stop be used.** Drill stop depth shall not exceed 1.0 [25.4] MAXIMUM DEPTH
- Fasteners (including PlusNut® or equivalent) extending below the floor of the vehicle shall not exceed 1.0 [25.4] MAXIMUM DEPTH (Figure A)
- Fasteners (and/or alternative fastening method) extending below the floor of the vehicle shall have 2.0 [50.8] MINIMUM CLEARANCE to any surrounding Hi/Low-Voltage wiring and/or coolant line routing and/or hydraulic brake line routing to prevent any damage/chaffing. (Figure B)

NOTE:

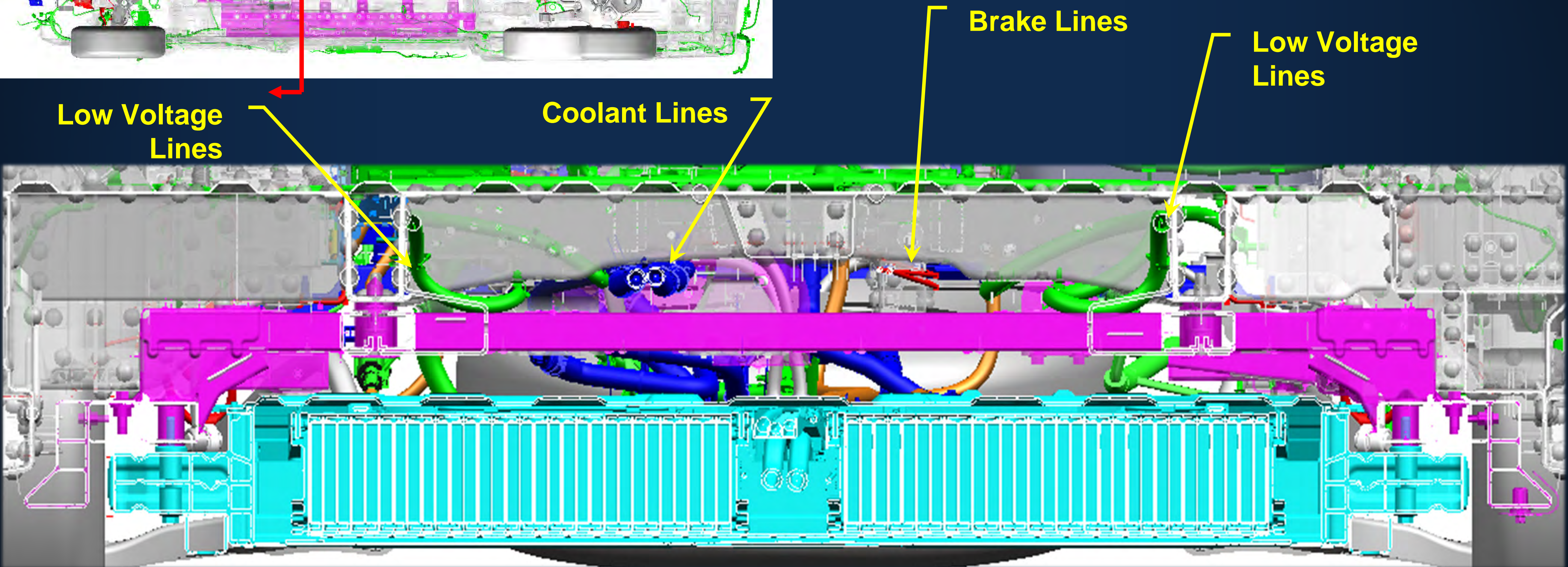
- Re-paint metal edges after cutting or drilling. All metal edges must comply with exterior and interior protection requirements.
- All fixings through the floor, sides or roof must be sealed.** (Refer BEMM sections 5.1.1 Body Structures and 5.1.3 Corrosion Prevention)



E-Transit Van Precautionary Drill Zones

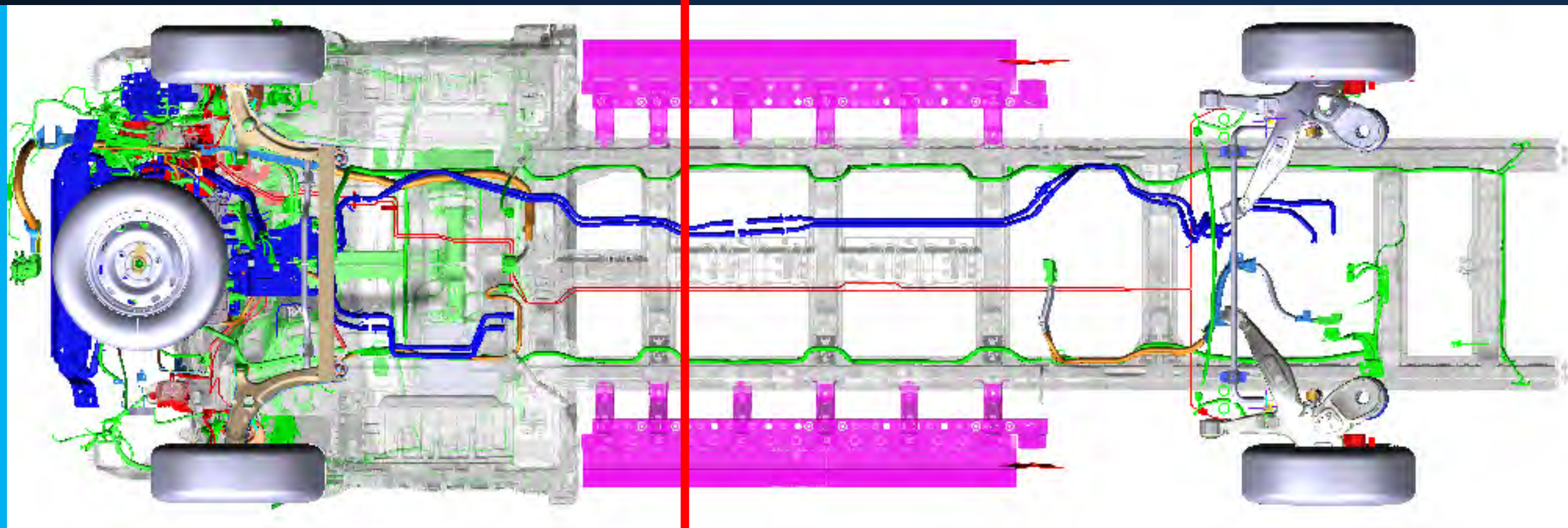


VAN



E-Transit Van Precautionary Drill Zones

CC / CA

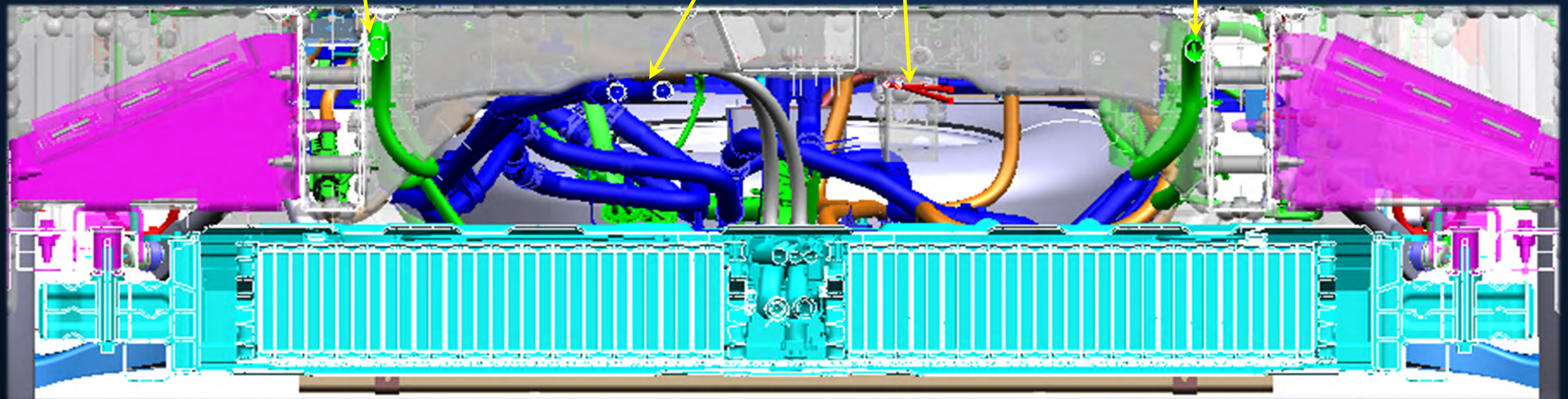


Low Voltage Lines

Coolant Lines

Brake Lines

Low Voltage Lines



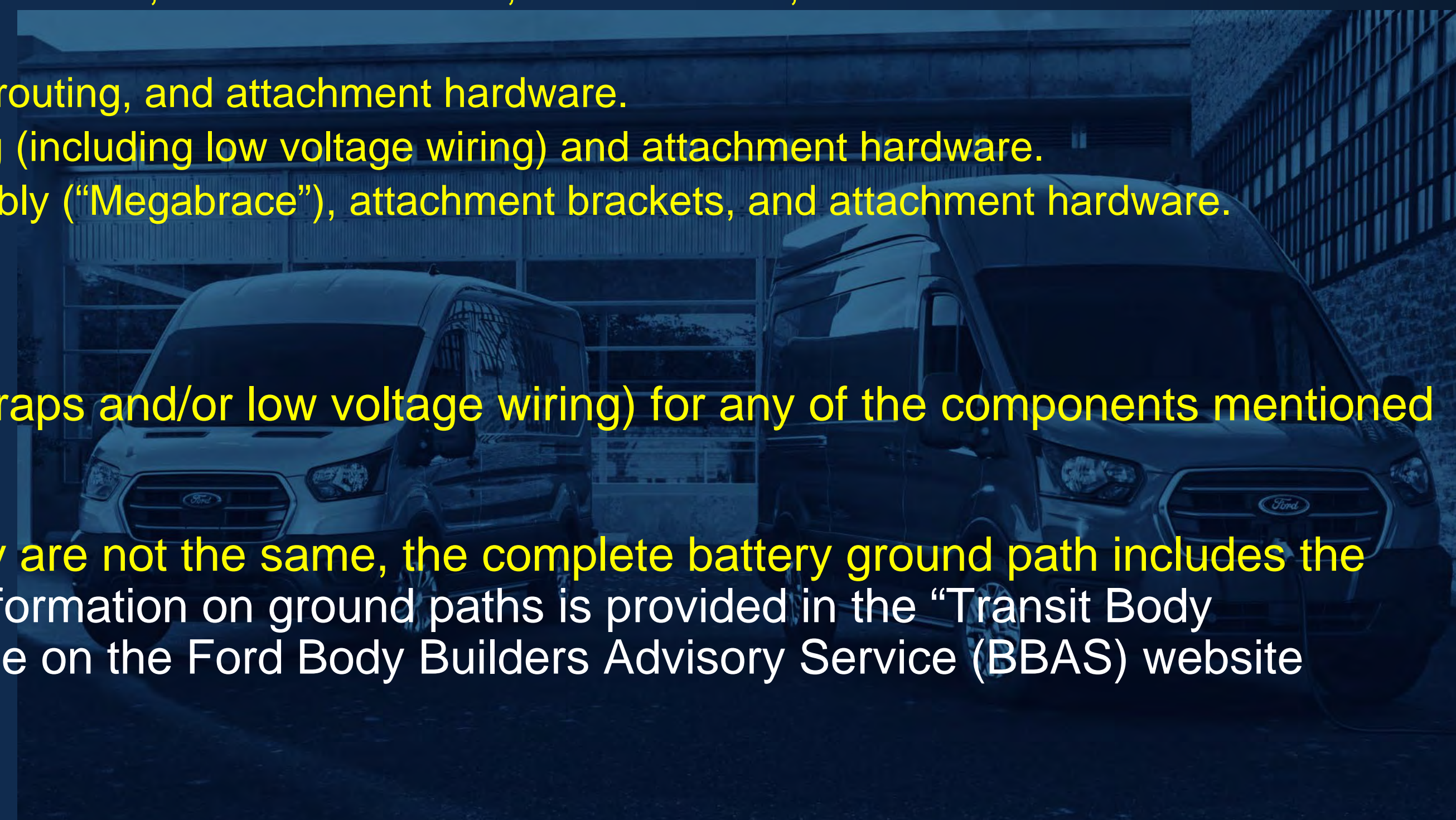
FMVSS 305 - Electric-Powered Vehicles (IVM)

The statements below are applicable to the following incomplete vehicle types when the GVWR is 4536 kg [10,000 lb.] or less:


- Battery Electric Powered Cargo Van
- Battery Electric Powered Chassis Cab and Cutaway

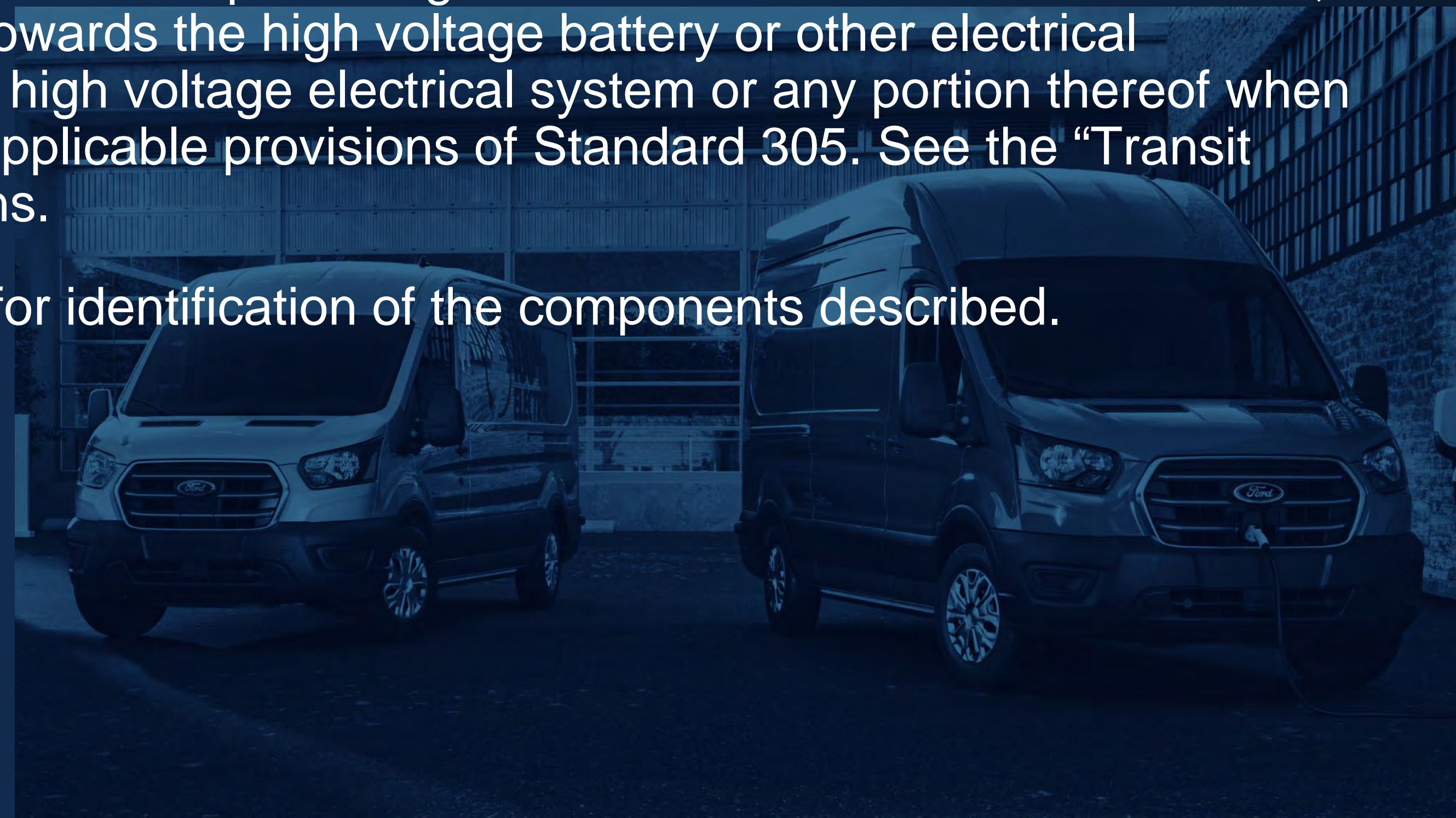
This vehicle, when completed, will conform to Standard 305, Electric-Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection, if:

- The following components, as installed by Ford Motor Company, are not removed, relocated, altered, or modified in any way:
 - High voltage battery, battery connectors, battery cradle (carrying structure), outriggers, energy absorption members, brackets, and attachment hardware.
 - Electric Drive Assembly, Inverter System Controller (ISC) module, inverter connector, rear subframe, and attachment hardware.
 - Charge port and attachment hardware.
 - High voltage wiring, protective devices, connectors, wire routing, and attachment hardware.
 - High voltage modules, module connectors, module wiring (including low voltage wiring) and attachment hardware.
 - Front-end structure, including aluminum extrusion assembly (“Megabrace”), attachment brackets, and attachment hardware.
 - Low Voltage Service Disconnect and wiring.
 - Instrument cluster and door ajar sensors.
- Electrical ground paths (case grounds and/or ground straps and/or low voltage wiring) for any of the components mentioned above must not be altered or modified in any way.
- Battery ground path for Van and Chassis Cab/ Cutaway are not the same, the complete battery ground path includes the cradle as well as attachment to the body rail. Further information on ground paths is provided in the “Transit Body Equipment Mounting Manual” (BEMM) which is available on the Ford Body Builders Advisory Service (BBAS) website <https://fordbbas.com>, under "Publications".



FMVSS 305 - Electric-Powered Vehicles (IVM)

- High Voltage warning symbols () are not obscured or altered in any way.
- **ORANGE** colored covering on high voltage wiring is not obscured or altered in any way.
- **Powertrain software calibrations** must not be modified (this includes electric vehicle control module, primary drive control module, battery charge control module, battery energy control module and anti-lock braking system control module).
- No other alteration or modification made to the incomplete vehicle, as manufactured by Ford Motor Company, and no other components or structure installed by a subsequent stage manufacturer shall result in contact, penetration (especially added fasteners pointed towards the high voltage battery or other electrical components), separation, or other damage to the high voltage electrical system or any portion thereof when the vehicle is tested in any manner specified by applicable provisions of Standard 305. See the “Transit BEMM” for drilling and fastening recommendations.
- Figures 9, 10 and 11 are shown in the next slide for identification of the components described.



FMVSS 305 - Electric-Powered Vehicles (IVM)

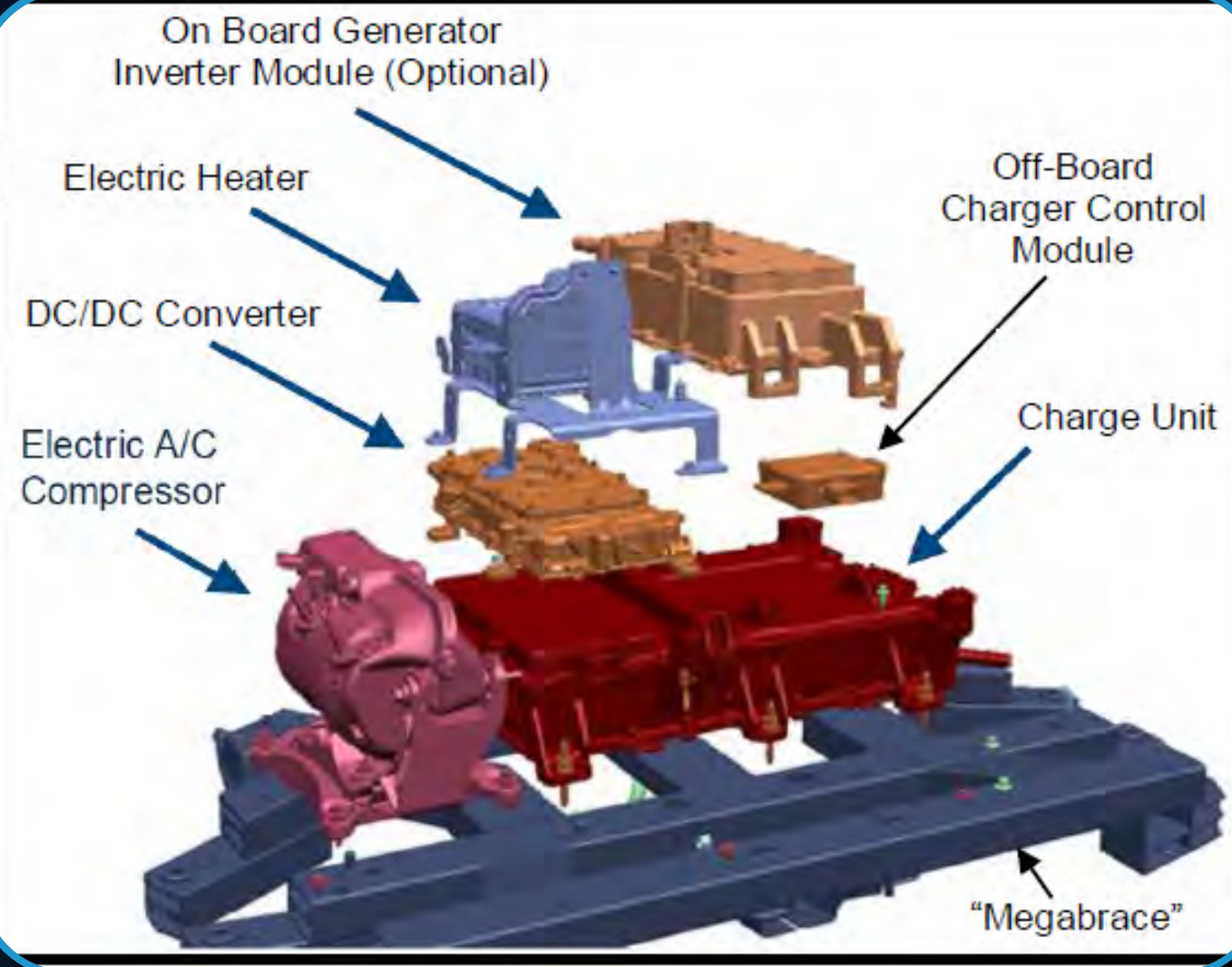


Figure 9

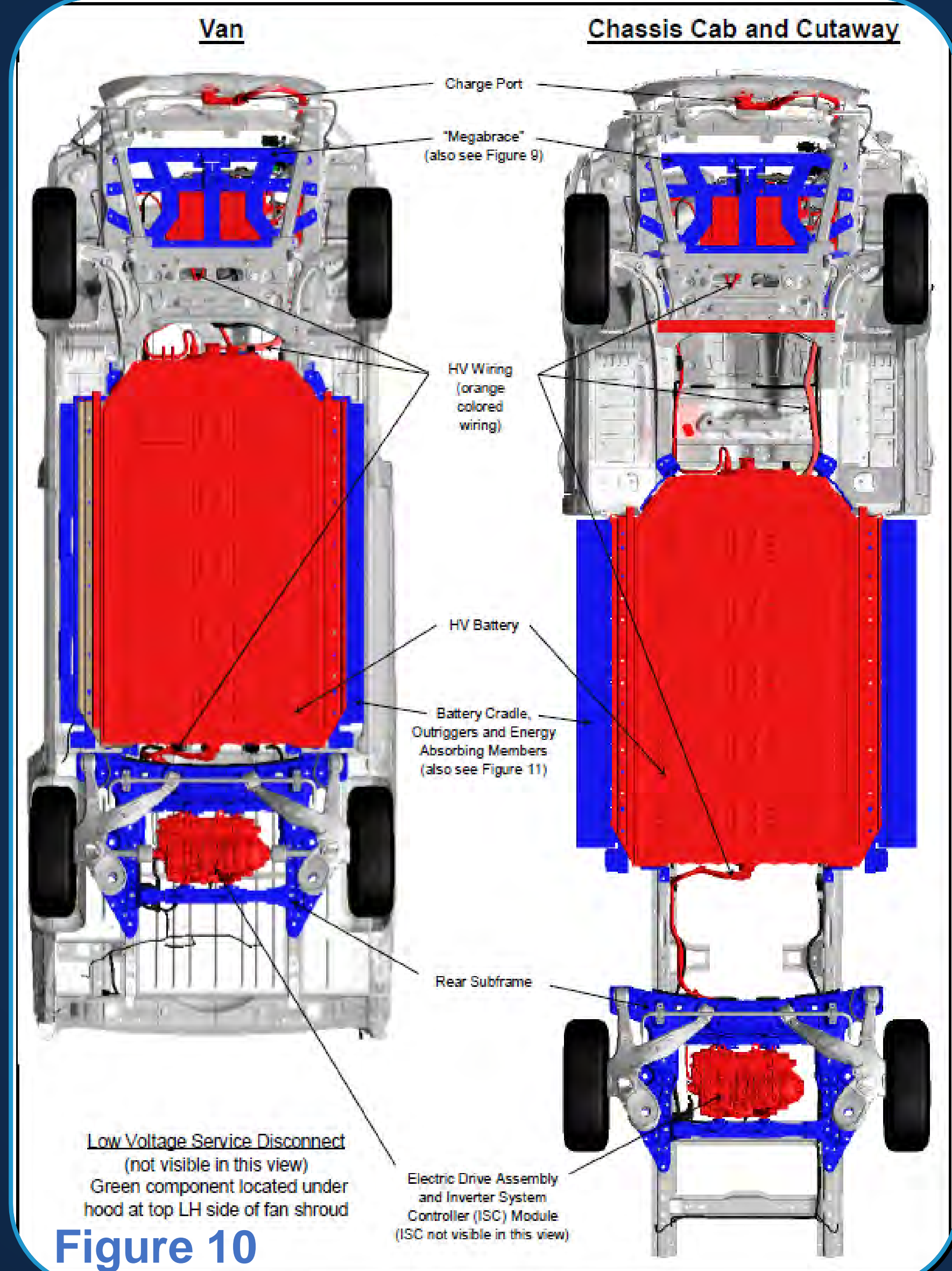


Figure 10

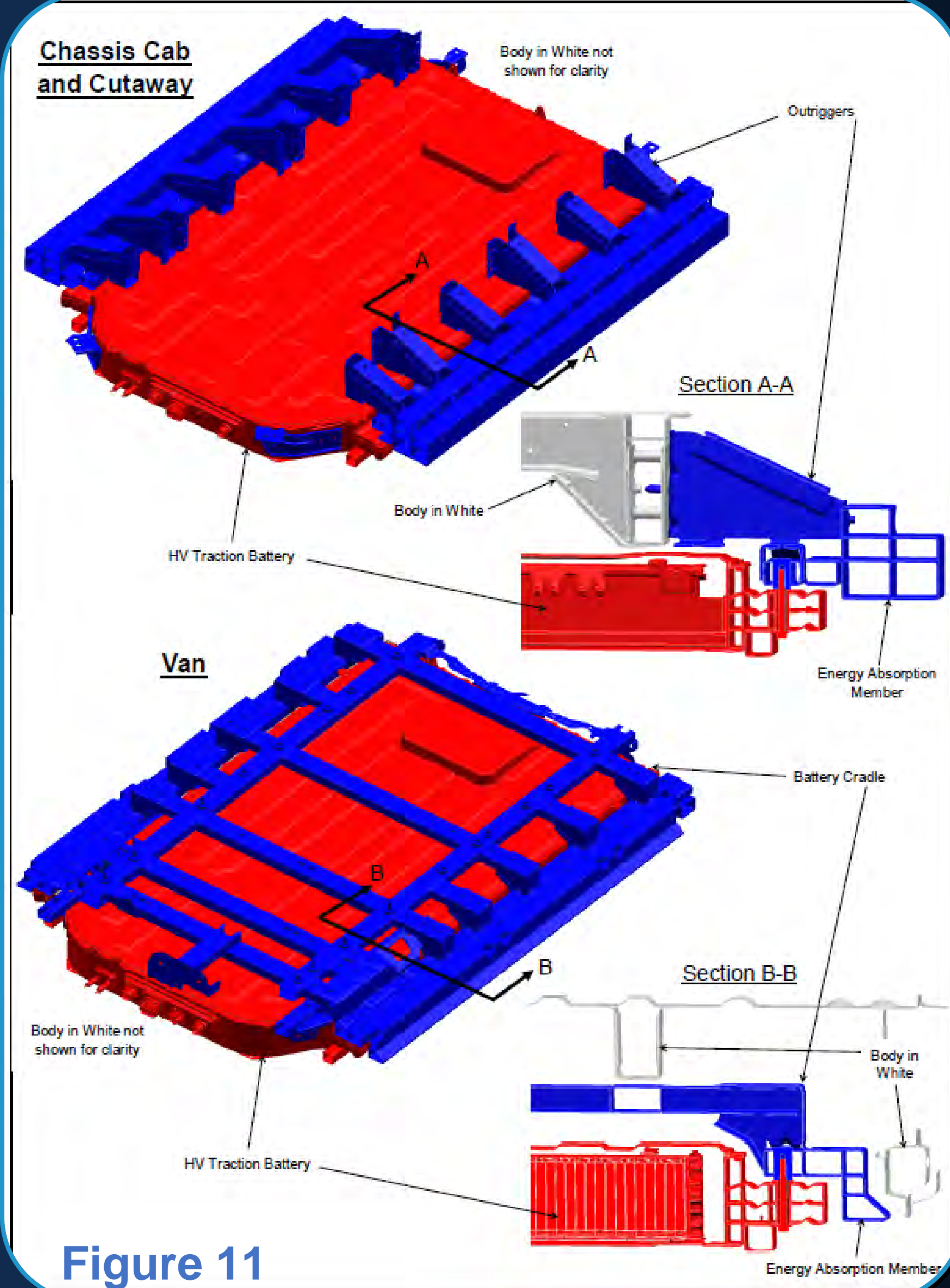


Figure 11

FMVSS 305 - Electric-Powered Vehicles (IVM)

The statements below are an addendum to Standard 305 requirements applicable to the following incomplete vehicle types when the GVWR is 4536 kg [10,000 lb.] or less:

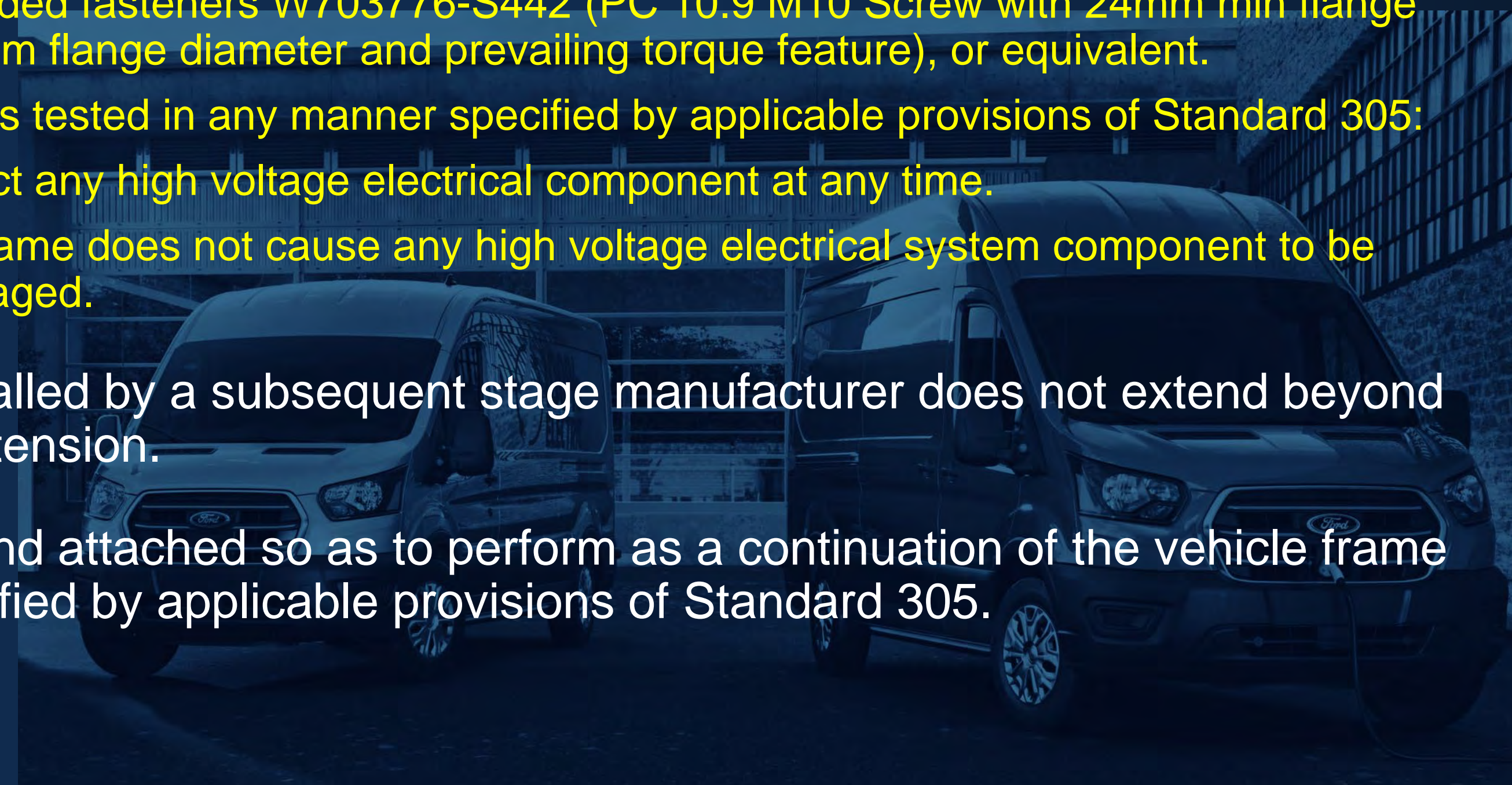
- Battery Electric Powered Chassis Cab and Cutaway

This vehicle, when completed, will conform to Standard 305, Electric-Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection, if:

- The second unit body installed by a subsequent stage manufacturer meets the following:
 - The body is hard-mounted securely at all available inboard and outboard frame hole locations, with the exception of the 2nd and 3rd row inboard locations which are optional. Use Ford recommended fasteners W703776-S442 (PC 10.9 M10 Screw with 24mm min flange diameter) and W520113-S442 (PC 10 M10 Nut with 21.8mm flange diameter and prevailing torque feature), or equivalent.
 - The body is so designed that when the completed vehicle is tested in any manner specified by applicable provisions of Standard 305:
 - body components and attaching hardware do not contact any high voltage electrical component at any time.
 - body system deformation or movement relative to the frame does not cause any high voltage electrical system component to be contacted, penetrated, disconnected, or otherwise damaged.

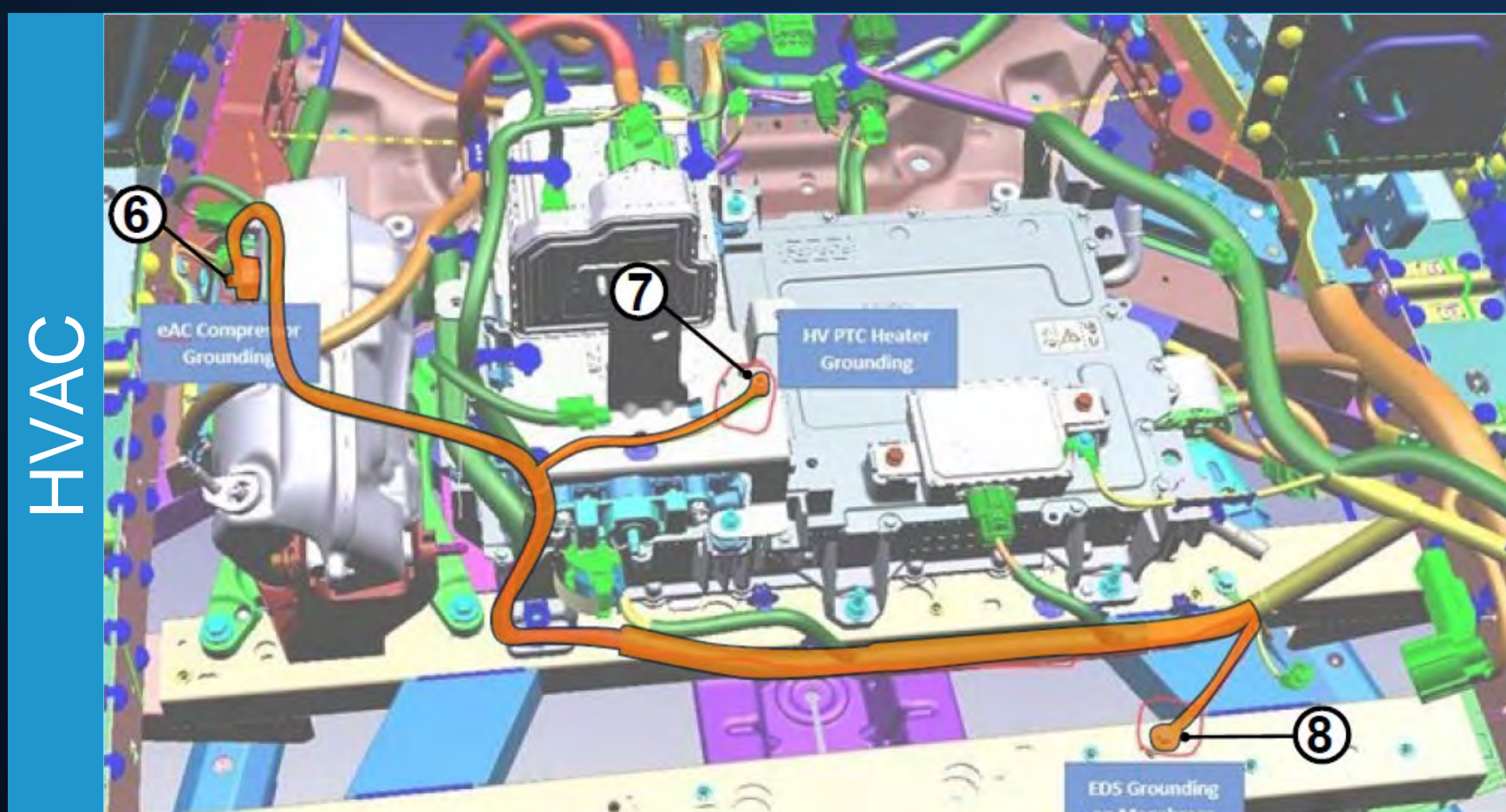
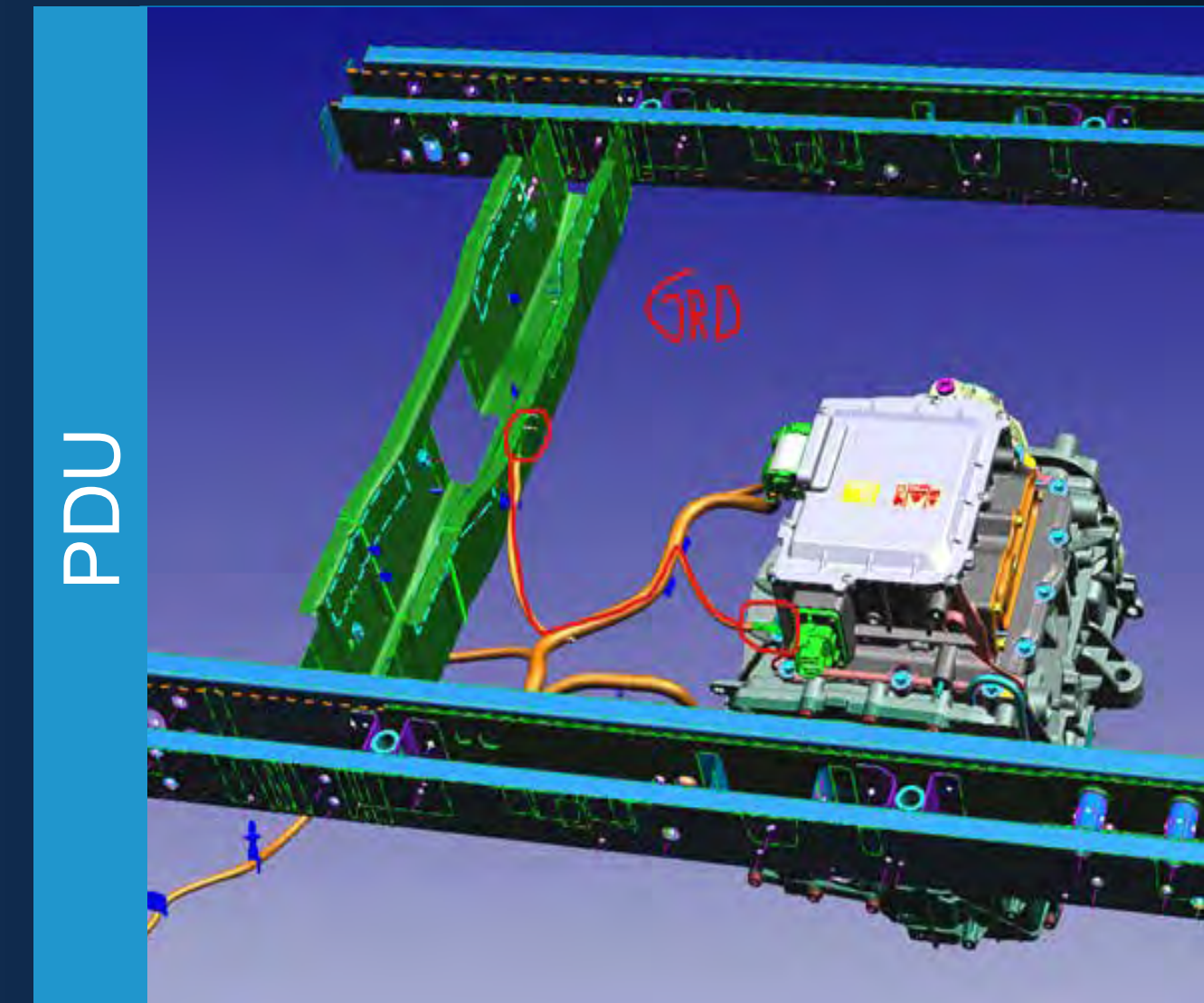
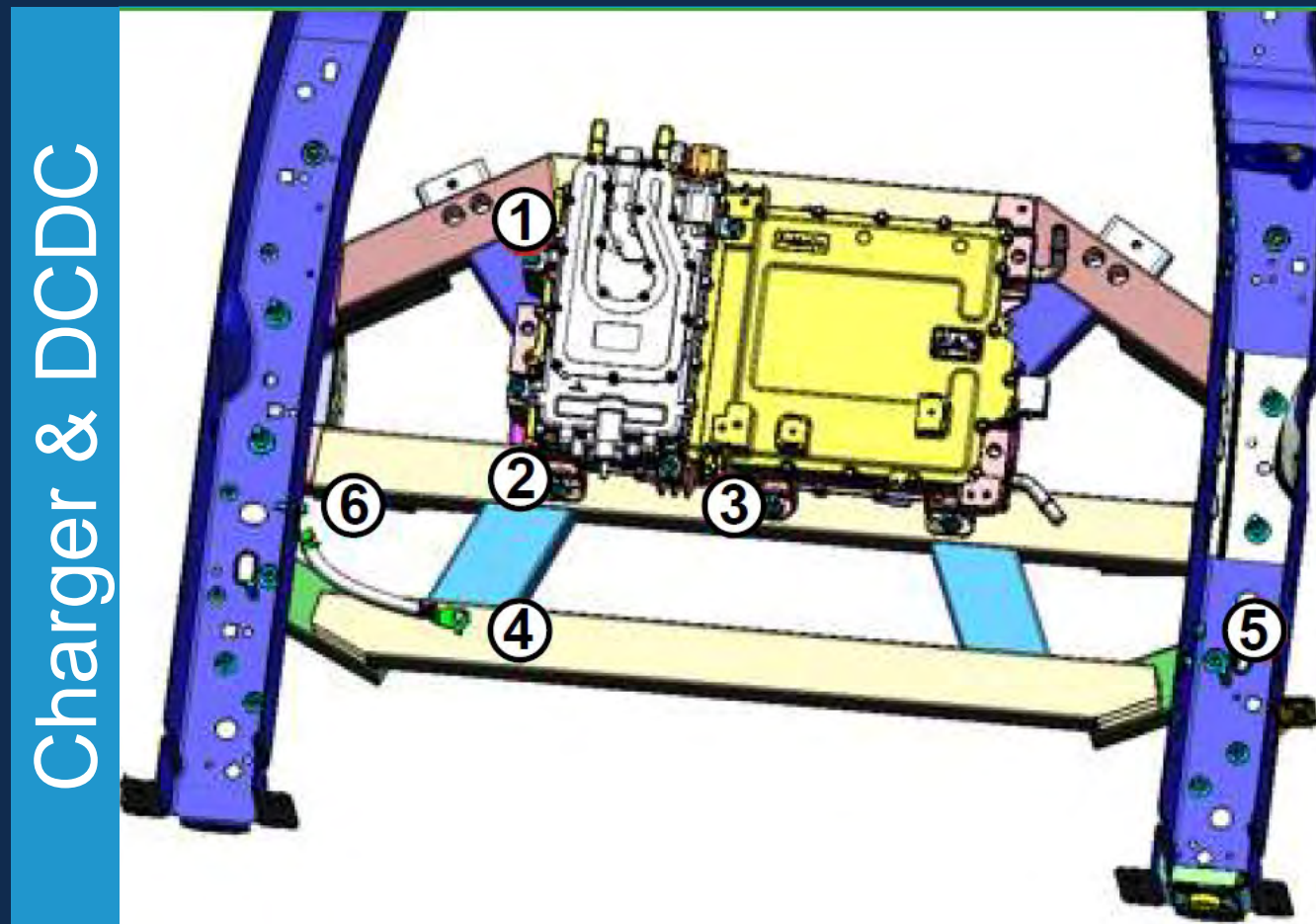
The rear end of the body (excluding the rear bumper) installed by a subsequent stage manufacturer does not extend beyond (overhang) the rear edge of the vehicle frame or frame extension.

Any extension of the vehicle frame must be constructed and attached so as to perform as a continuation of the vehicle frame when the completed vehicle is tested in any manner specified by applicable provisions of Standard 305.



HV Battery System

- Do not modify these High Voltage System Grounding Locations / Joints / Service: Front End Package, HVAC, Charger & DCDC Converter, On Board Gen. Invertor Ground Path To Chassis & PDU



FMVSS 305 - Electric-Powered Vehicles (IVM)

UNLOADED VEHICLE WEIGHT

The completed vehicle's Unloaded Vehicle Weight does not exceed the value designated in Table 6 for the corresponding vehicle's model and wheelbase.



TABLE 6
MAXIMUM UNLOADED VEHICLE WEIGHT (UVW)
FOR INCOMPLETE VEHICLES WHEN COMPLETED ⁽¹⁾
 (Does Not Apply To Vehicles Over 4536 kg [10,000 lb.] GVWR)

Model	Wheelbase mm [inches]	Maximum Unloaded Vehicle Weights kg [pounds]
Cargo, Crew & Passenger Van	3300 [130]	Low Roof: 3629 [8000]
	3750 [148]	Medium/High Roof: 3674 [8100]
Chassis Cab & Cutaway	3504 [138]	3909 [8600]
	3954 [156]	
	4522 [178]	

(1) Maximum unloaded vehicle weight values shown in this table are limits for purposes of F/CMVSS conformity only. See Emission Certification information of this manual for possible additional weight restrictions to meet emission requirements.

Frontal Area & Weight Restrictions (IVM)

- It is important that the final stage manufacturer observe vehicle restrictions from vehicle safety requirements, etc., which are located elsewhere in this manual. For additional information, review SVE Bulletins and the Body Builders Layout Book, and if necessary, contact the Body Builder Advisory Service at <https://fordbbas.com>.
- The Maximum Unloaded Vehicle Weight (UVW) restrictions shown in Table 7 and Frontal Area restrictions shown in Table 8 apply to completed Chassis Cab and Cutaway vehicles. Second Unit Body geometry requirements to enable enhanced frontal areas, reference the IVM for further details.
- Although not required to meet Emissions Standards, completed Battery Electric Transit Chassis Cabs and Cutaways have Frontal Area Restrictions to ensure optimal vehicle performance and battery range. Frontal Area Re-strictions for BEVs are shown in Table 8.
- Refer to the Incomplete Vehicle Manual for further details

**TABLE 7
MAX UVW RESTRICTIONS FOR COMPLETED CHASSIS CABS AND CUTAWAYS**

Transit Series [GVWR]	Engine	Drive	Max UVW (lb.)
250 SRW [9070 lb.]	3.5L V6 PFDi	RWD / AWD	7550
	3.5L V6 GTDi	RWD / AWD	7550
350 SRW [9500 lb.]	3.5L V6 PFDi	RWD / AWD	7550
	3.5L V6 GTDi	RWD / AWD	8600
350 HD DRW [9900 - 9950 lb.]	3.5L V6 PFDi	RWD / AWD	7550
	3.5L V6 GTDi	RWD / AWD	8124
350 HD DRW [10360 lb.]	3.5L V6 GTDi	RWD / AWD	9140
350 HD DRW [11000 lb.]	3.5L V6 GTDi	RWD / AWD	9500

**TABLE 8
FRONTAL AREA RESTRICTIONS FOR COMPLETED CHASSIS CABS AND CUTAWAYS**

Transit Series [GVWR]	Engine	Drive	Standard Max Frontal Area (No Radii Restrictions) (ft ²)	Optional (Order Code 15D) Enhanced FA Limitation 1 Max Frontal Area (Radii Restrictions) (1) (ft ²)	Optional (Order Code 15E) Enhanced FA Limitation 2 Max Frontal Area (Radii Restrictions) (2) (ft ²)
250 - 350 SRW [9070 - 9500 lb.]	3.5L V6 PFDi	RWD	60	68 (3)	-
		AWD	52	60 (3)	-
	3.5L V6 GTDi	RWD	62	70	-
		AWD	59	67	-
	BEV (4)	RWD	60 (4)	67 (3)(4)	75 (4)
		AWD	58	68 (3)	-
350 HD DRW [9900 - 9950 lb.]	3.5L V6 PFDi	RWD	58	60 (3)	-
		AWD	51	70	-
	3.5L V6 GTDi	RWD	61	67	-
		AWD	58	70	73
350 HD DRW [10360 lb.]	3.5L V6 GTDi	RWD	61	70	72
		AWD	56	66	73
350 HD DRW [11000 lb.]	3.5L V6 GTDi	RWD	61	70	72
		AWD	56	66	-

Notes:
 (1) Vehicles with Optional Enhanced FA Limitation 1 (Order Code 15D) completed with a frontal area greater than the Standard maximum up to the Enhanced FA Limitation 1 maximum - SUB must meet radii design requirements as shown in Figure 12.
 (2) Vehicles with Optional Enhanced FA Limitation 2 (Order Code 15E) completed with a frontal area greater than the Standard maximum up to the Enhanced FA Limitation 2 maximum - SUB must meet radii design requirements as shown in Figure 12.
 (3) Vehicles may be completed with a SIMPLE BOX style SUB only.
 (4) Frontal Area Restrictions on Battery Electric Vehicles (BEV) are required for optimal vehicle performance and battery range, not to meet emissions requirements.



E-Transit Battery Electric Vehicle (BEV)

TOWING:

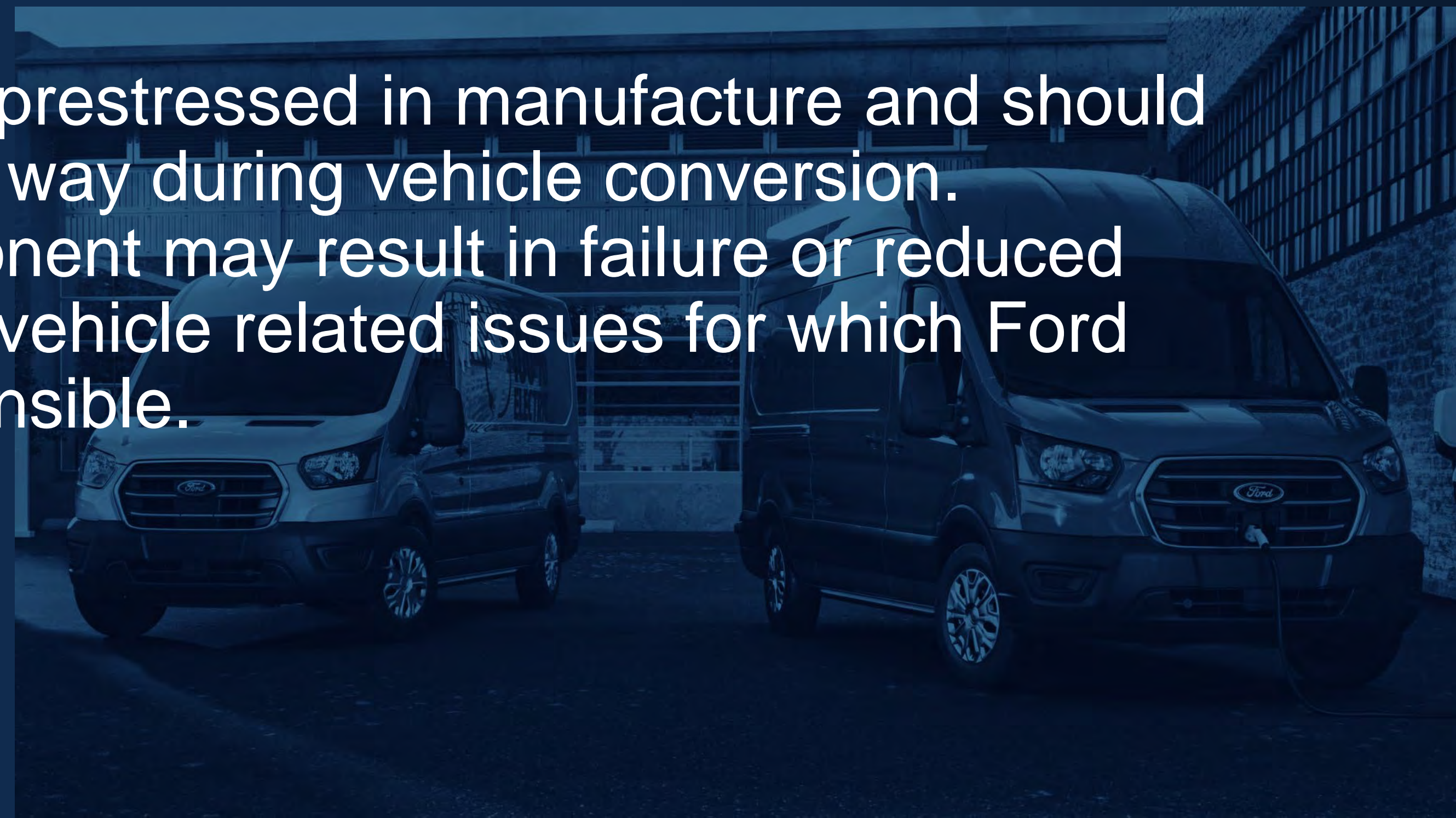
No tow bars are to be fitted to the E-Transit BEV

The vehicle has no towing capability due to the risk of damaging the High Voltage motor during braking.

REAR SUSPENSION:

The rear coil springs on E-Transit are prestressed in manufacture and should **not** be altered for rate or height in any way during vehicle conversion.

Modification of any suspension component may result in failure or reduced function of the spring as well as other vehicle related issues for which Ford Motor Company cannot be held responsible.



Customer Connection Points (CCP)

- There is a maximum of two CCPs.
- These points are always located on the driver's seat pedestal and are protected by a cover.
 - CCP1 which can supply a max current of 60A
 - CCP2 which can supply a max current of 175A.

• E-Transit will only have CCP1 with **SINGLE** 12v battery.

• E-Transit will have CCP1 and CCP2 when equipped with **DUAL** 12v batteries Option Code (63E).

Option Code (63E): Dual AGM Batteries. (70 amp-hr each). Included with Power Outlet – 110V/400W (90D), Auxiliary Fuse Panel with High Spec Interface Connector (87E), and the combination of X9C, X9X or X9Y and 15-Passenger Seating

• Upfitter Switches, Aux Fuse Panel (late availability) and Programmable Battery Guard are **not** available on E-Transit.

CCP Location and Pre Fuse Panel

E291635

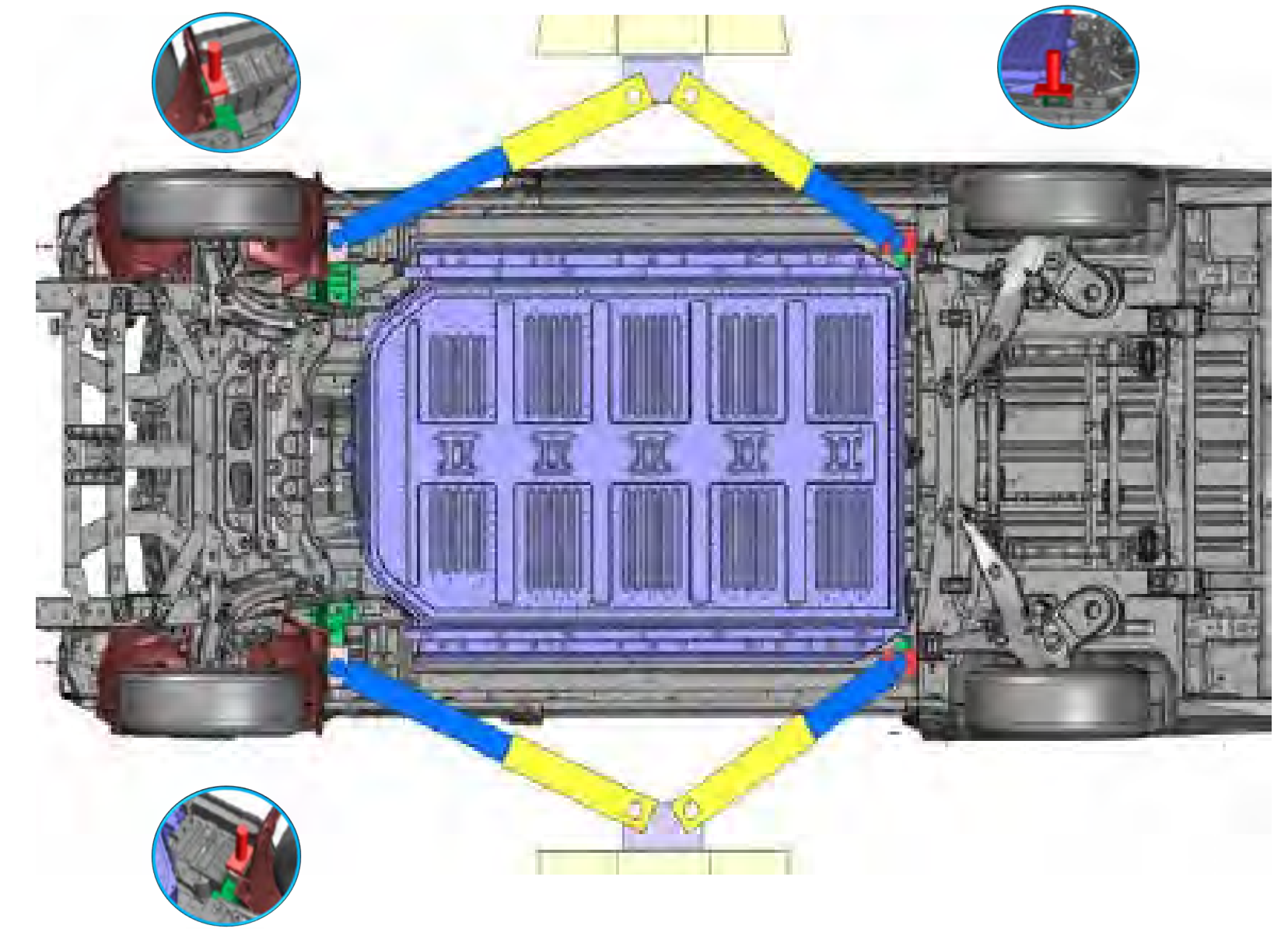
Item	Description
A	Suggested wiring location
B	CCP Cover
D	Pre Fuse Panel
C1	CCP1 (60A)
C2	CCP2 (175A)
1	60A fuse - supplies CCP1, High Specification Interface Connector (A608), Camper
2	175A fuse - supplies CCP2
3	CCP2 Load-shedding, and Standard Battery Guard (SBG) Relay
4	CCP cassette fixing studs (NOT to be used as grounding points)
5	150A SVO Auxilliary Fuse Panel feed
6	If any of the fuses in this area have failed, this section of the Pre-Fuse Panel will need replacing. Please contact VCAS@ford.com for service kit number.
7	Park position for relay connector control when single battery donor

Battery Electric Vehicle Hoist / Lift Points

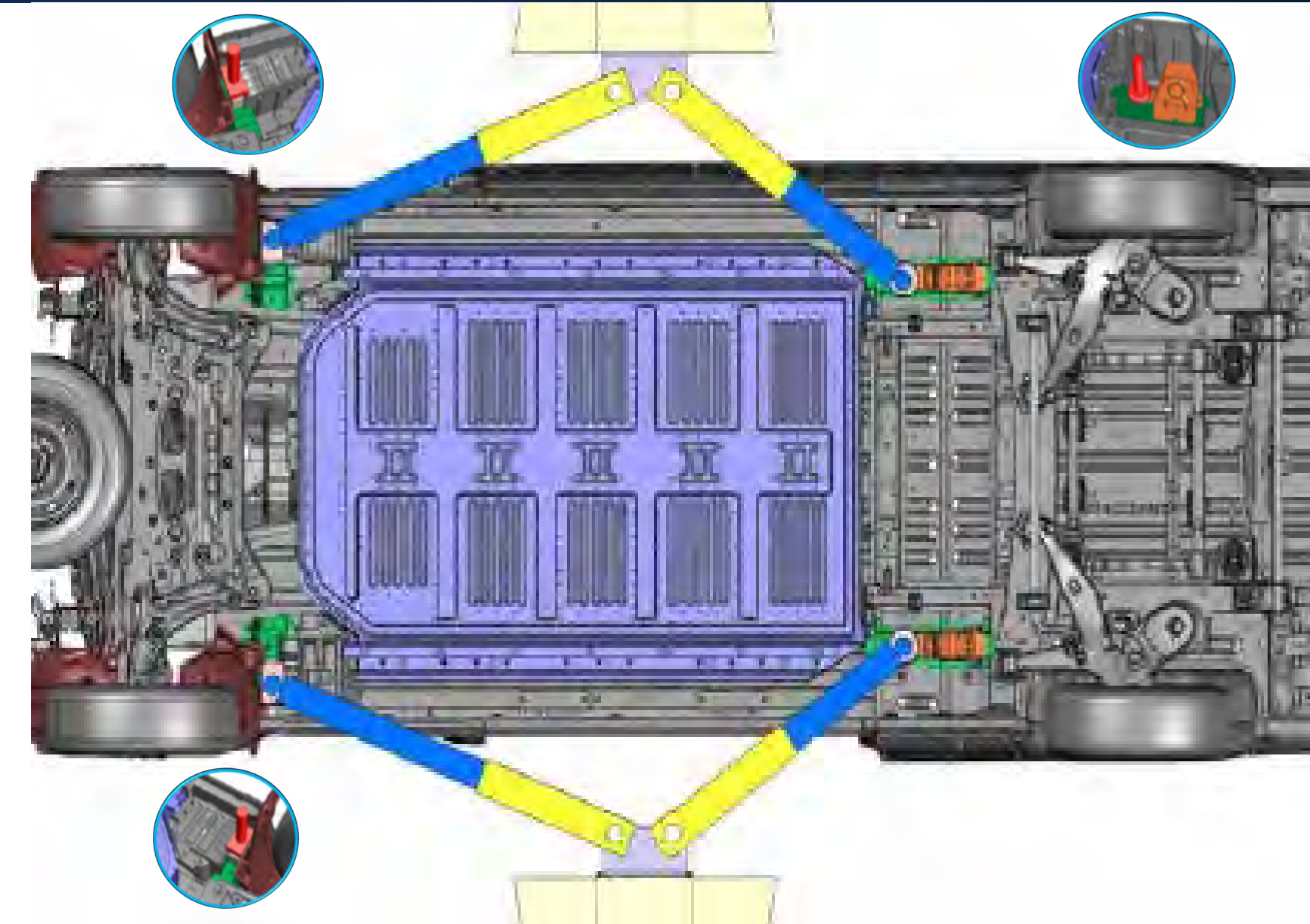
Battery Electric Vehicle

- Front Hoist / Lift Points
 - Common for all variants
 - Use of the “front step” body location either side
 - Dependent on pad used, a block may need to be employed to avoid wheel arch liner damage
- Rear Hoist / Lift Points
 - Specific to variant
 - **L2 Van – Dedicated Cradle Lift Pad**
 - **L3/L4 Van Rail Location**
 - L3/L4 Single Chassis Cab dedicated cradle lift pad
 - All other Single Chassis Cab variants use rail location

MWB: VAN



LWB: Van

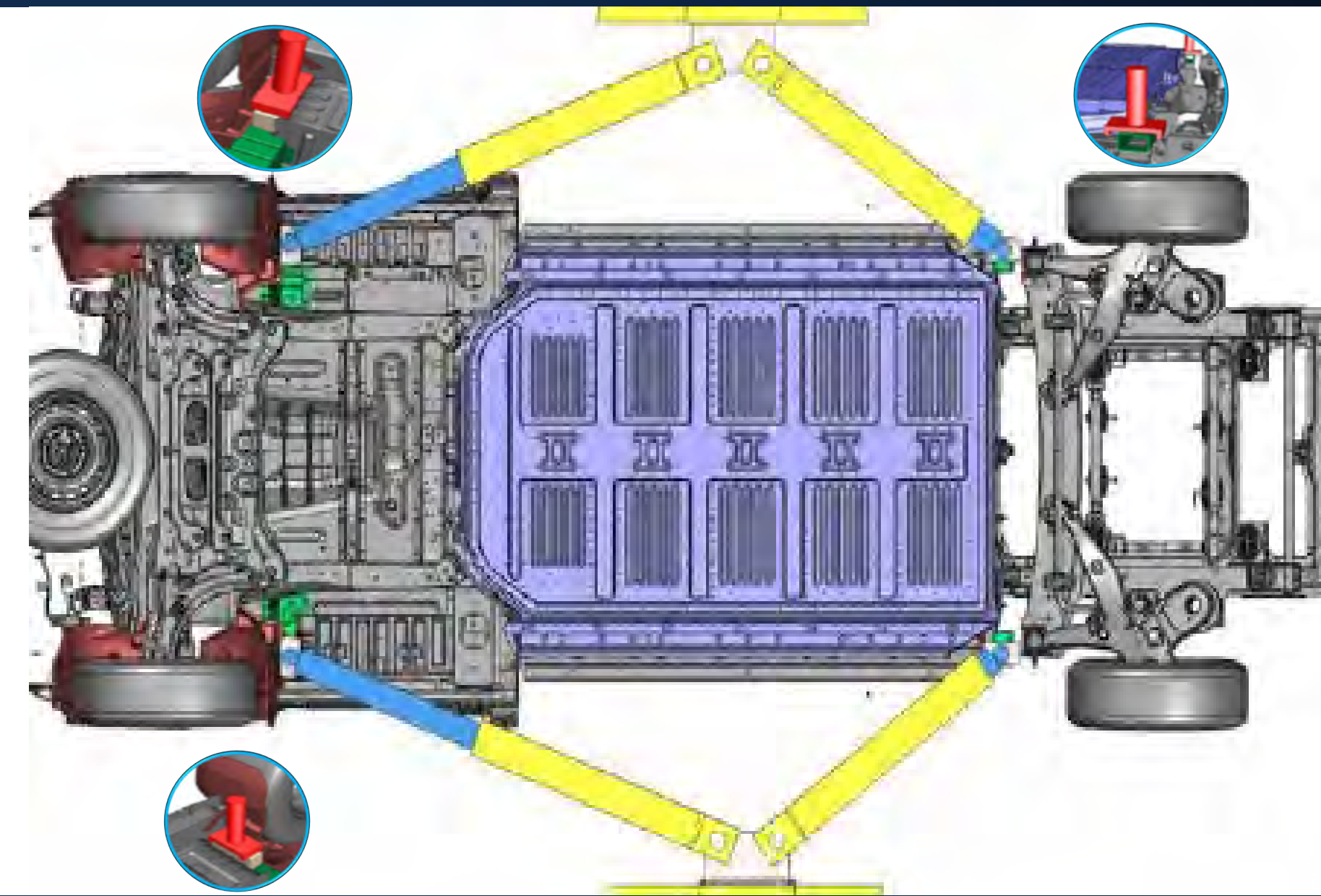


Battery Electric Vehicle Hoist / Lift Points

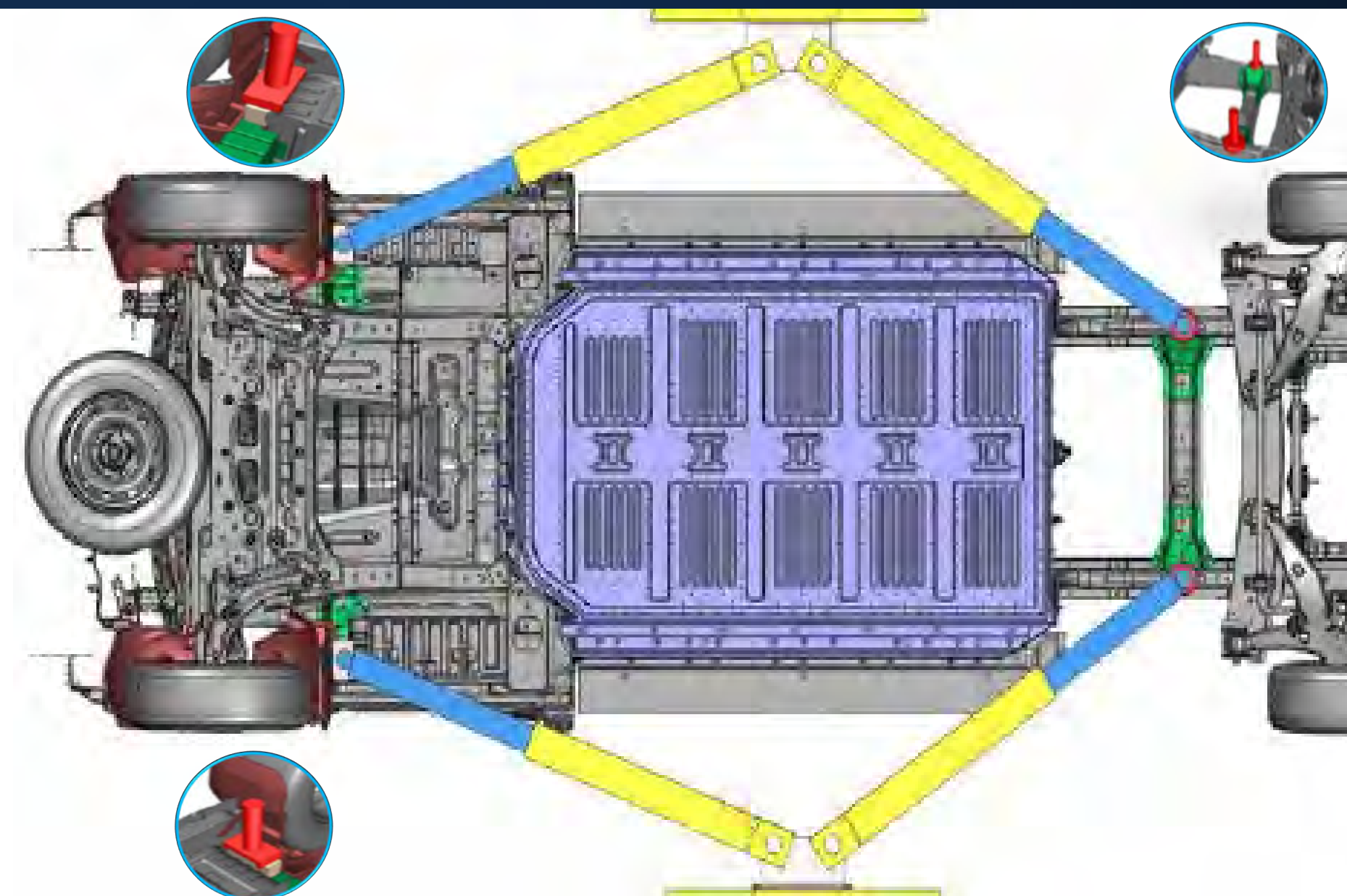
Battery Electric Vehicle

- Front Hoist / Lift Points
 - Common for all variants
 - Use of the “front step” body location either side
 - Dependent on pad used, a block may need to be employed to avoid wheel arch liner damage
- Rear Hoist / Lift Points
 - Specific to variant
 - L2 Van/Bus – dedicated cradle lift pad
 - L3/L4 Van/Bus rail location
 - **L3/L4 Single Chassis Cab Dedicated Cradle Lift Pad**
 - **All Other Single Chassis Cab Variants Use Rail Location**

LWB: Chassis Cab



LWB: EL Single Chassis Cab



Body Application Guide

Body Application Guide which will provide recommended body applications and max. GVWR for E-Transit.



Transit Cutaway



	Length	Wheelbase (in.)	Cab-Axle (CA) (in.)	9 ft. Body	10 ft. Body	11 ft. Body	12 ft. Body	14 ft. Body	16 ft. Body	18 ft. Body	Max. GVWR (lbs.)	Engines (see weight info - Pg. 7) Max Payload (lbs.)		
												3.5L PFDI*	3.5L EcoBoost**	E-Transit (Electric Motor)**
T-250 SRW	Regular	138	82.6	■	■	■	■				9,070	4,846	4,756	-
T-250 SRW	Long	156	100.3		■	■	■	■			9,070	4,787	4,696	-
T-350 SRW	Regular	138	82.6	■	■	■					9,500	5,276	5,186	-
T-350 SRW	Long	156	100.3		■	■	■	■			9,500	5,217	5,127	-
T-350 SRW	Extended	178	122.6					■	■	■	9,500	5,148	5,057	4,428
T-350HD DRW	Regular	138	82.6	■	■	■	■				9,950	5,560	5,470	-
T-350HD DRW	Regular	138	82.6	■	■	■	■				10,360	-	5,899	-
T-350HD DRW	Regular	138	82.6	■	■	■	■				11,000	-	6,466	-
T-350HD DRW	Long	156	100.3		■	■	■	■			9,950	5,499	5,408	-
T-350HD DRW	Long	156	100.3		■	■	■	■			10,360	-	5,790	-
T-350HD DRW	Long	156	100.3		■	■	■	■			11,000	-	6,357	-
T-350HD DRW	Extended	178	122.6					■	■	■	9,950	5,429	5,338	-
T-350HD DRW	Extended	178	122.6					■	■	■	10,360	-	5,781	-
T-350HD DRW	Extended	178	122.6					■	■	■	11,000	-	6,349	-

Transit Chassis Cab



	Length	Wheelbase (in.)	Cab-Axle (CA) (in.)	9 ft. Body	10 ft. Body	11 ft. Body	12 ft. Body	14 ft. Body	16 ft. Body	18 ft. Body	Max. GVWR (lbs.)	Engines (see weight info - Pg. 7) Max Payload (lbs.)		
												3.5L PFDI*	3.5L EcoBoost**	E-Transit (Electric Motor)**
T-250 SRW	Regular	138	82.6	■	■	■	■				9,070	4,826	4,736	-
T-250 SRW	Long	156	100.3		■	■	■	■			9,070	4,787	4,696	-
T-350 SRW	Regular	138	82.6	■	■	■					9,500	5,256	5,166	-
T-350 SRW	Long	156	100.3		■	■	■	■			9,500	5,216	5,125	-
T-350 SRW	Extended	178	122.6					■	■	■	9,500	5,110	5,019	4,390
T-350HD DRW	Regular	138	82.6	■	■	■	■				9,950	5,527	5,437	-
T-350HD DRW	Regular	138	82.6	■	■	■	■				10,360	-	5,884	-
T-350HD DRW	Regular	138	82.6	■	■	■	■				11,000	-	6,452	-
T-350HD DRW	Long	156	100.3		■	■	■	■			9,950	5,501	5,410	-
T-350HD DRW	Long	156	100.3		■	■	■	■			10,360	-	5,789	-
T-350HD DRW	Long	156	100.3		■	■	■	■			11,000	-	6,356	-
T-350HD DRW	Extended	178	122.6					■	■	■	9,950	5,391	5,301	-
T-350HD DRW	Extended	178	122.6					■	■	■	10,360	-	5,717	-
T-350HD DRW	Extended	178	122.6					■	■	■	11,000	-	6,285	-

*3.5L EcoBoost Engine and 3.5L PFDI are RW O.

**Battery Electric Chassis Cab vehicles with a Platform or Stake style Second Unit Body may exhibit Low Frequency Ride Comfort Characteristics that does not meet customer expectations. When upfitting a vehicle with either of these Second Unit Bodies, Ford Motor Company recommends part NK31-110867-AA* be ordered and installed prior to delivery to end customer.

HV / BEV Training & Information

- Ford Customer Service Division (FCSD) develops the training and deploys it to the Ford Dealer Network, we will forward and/or provide our upfitter partners the information to obtain training through links in Body Builder Layout Books and through www.motorcraftservice.com
- Recommended training regarding vehicle High Voltage systems: <https://www.motorcraftservice.com/Product/Training>
Select “High Voltage Systems”, then select “High Voltage Systems Safety” course F414101103 (fee applies). Other courses that are applicable to your interest and needs may also be offered at this site.
- Emergency Response Guide will be found at this link: <https://www.fleet.ford.com/showroom/resources/>
- Ford Tool Resources via <https://rotunda.service-solutions.com>

The screenshot shows the Ford Service Info website. At the top, there is a navigation bar with links for Home, Service Info, Training, Key Code, Diagnostic Tool Support, and Free Resources. The main heading is "Motorcraft Training Curriculum Information" with a sub-heading "Course List". A table lists training courses, with the first entry being "2012 Focus Electric Components and Operation (30N41W0)".

The screenshot shows the Ford Fleet website. The main heading is "Fleet Vehicle Resources". Below this, there are sections for "Battery Removal Guides" and "Emergency Response Guides". The Battery Removal Guides section lists several guides for different vehicle models, including the 2021 Corsair Plug-in Hybrid, 2021 Explorer and Aviator Hybrid, 2021 F-150 Hybrid, 2021 Mustang Mach-E, and 2020 Escape Hybrid. The Emergency Response Guides section lists guides for the 2021 Corsair Plug-in Hybrid, 2021 Explorer and Aviator Hybrid, and 2021 F-150 Hybrid.

The screenshot shows the Ford Fleet website. The main heading is "All-New 2022 E-Transit". Below this, there is a "Learn More" button. The main image shows three E-Transit vans (white, silver, and red) parked in front of a building. Below the image, there are two sections: "Fleet Incentives" and "Fleet Vehicles". The Fleet Incentives section has a "View Incentives" button, and the Fleet Vehicles section has an "All Fleet Vehicles" button.

2022MY Order Guide Packaged Options

Package Options **NOT** Offered On E-Transit:

- EXTERIOR UPGRADE PACKAGE – SRW (18D)
- RV PREP PACKAGE (47D)
- RIGHT HAND DOOR DELETE (60X)
- HEAVY-DUTY TRAILER TOW PACKAGE (53B)
- TOW/HAUL MODE WITH TRAILER WIRING PROVISIONS (53D)
- MOTORHOME PREP PACKAGE (47M)
- SHUTTLE BUS PREP PACKAGE – (47S)
- SCHOOL BUS PREP PACKAGE – (47C)
- MULTI-FUNCTION SCHOOL ACTIVITY BUS (MFSAB) PREP PACKAGE – (47Q)
- AMBULANCE PREP PACKAGE – CARGO VAN (47B)
- AMBULANCE PREP PACKAGE – CUTAWAY (47F)
- UPFITTER PACKAGE (67C)
- ADVENTURE PREP PACKAGE (47N)

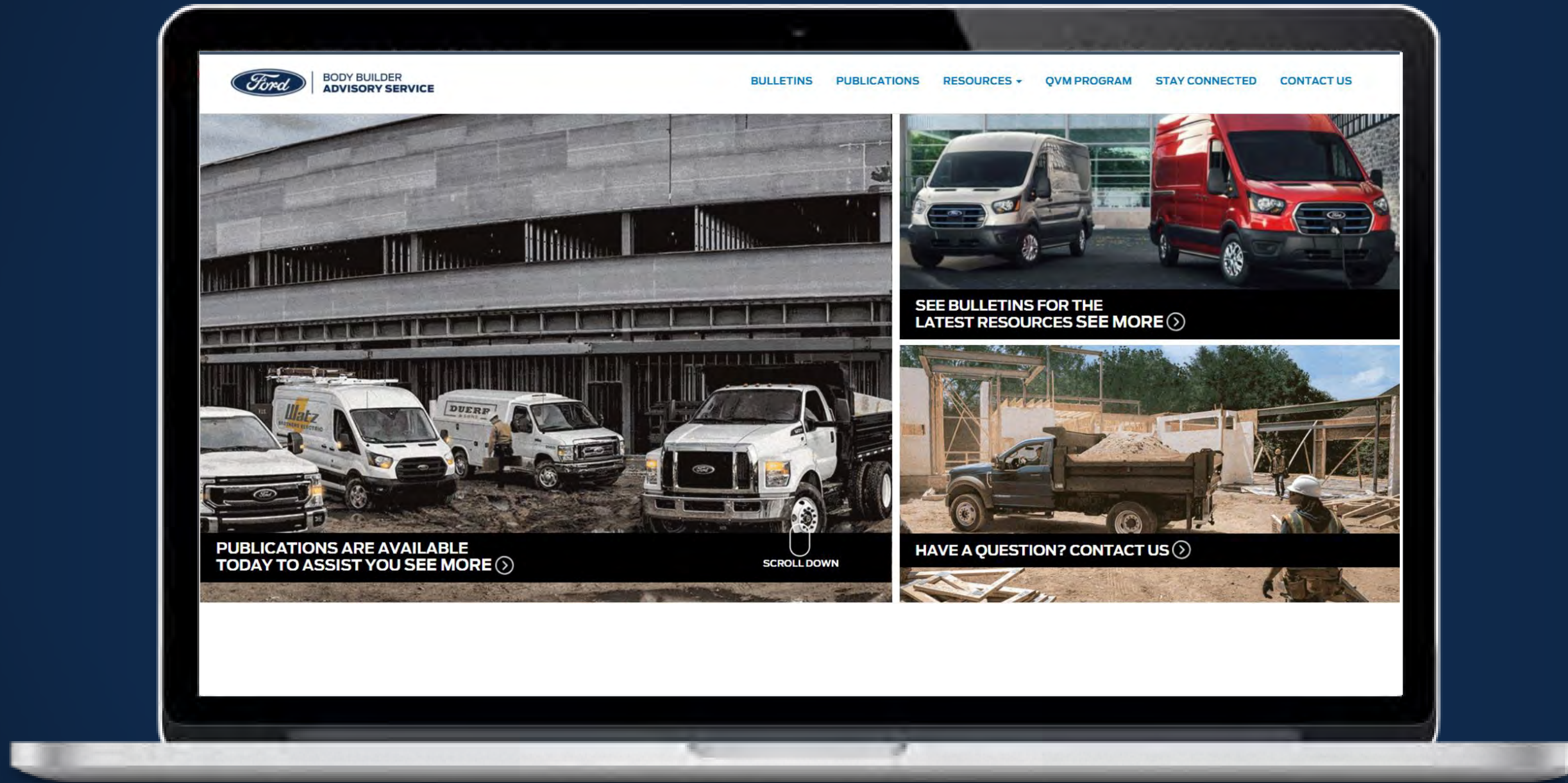


NOTE: Package offerings are subject to change based on market and volume demands

E-TRANSIT

FORD BODY BUILDER ADVISORY SERVICE (BBAS)

WWW.FORDBBAS.COM



WEBSITE

WWW.FORDBBAS.COM

PHONE

1-877-840-4338



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