P47E E-Transit Familiarization

12/21/24

Driver Familiarization

Keys

ACCESSING THE PASSIVE KEY BACKUP POSITION

If you are unable to start your vehicle, follow the steps below.

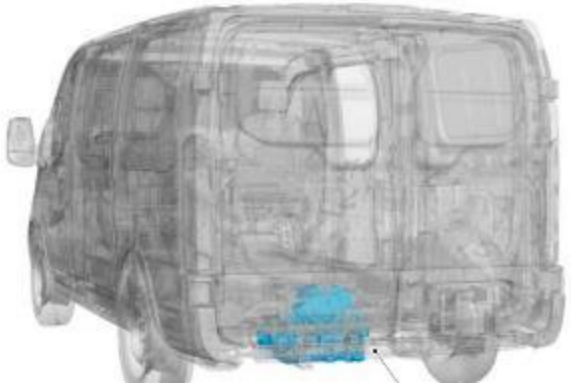
1. Place the remote control in the instrument panel slot as shown with the buttons facing upward.
2. Press and hold the brake pedal.
3. Press the push button start to switch the power on and start your vehicle.

KEY PERFORMANCE AND CAPABILITY FEATURES

- **Electric motor** with 266 horsepower[2] and 317 lb.-ft. of torque[2]
  - **Single-speed transmission**
- **High-voltage battery** (Approx 450V)

RWD
266 horsepower[1] (198 kW)
317 lb. ft. of torque[1]

Published est. range: 143 mi (Ford University)
Actual in-use range: 107mi (75% of published range based on max 90% charge and min 15% charge as recommended by Ford per Ford University)
Level 2 charge time (0-100%): 6 hrs, 11 min



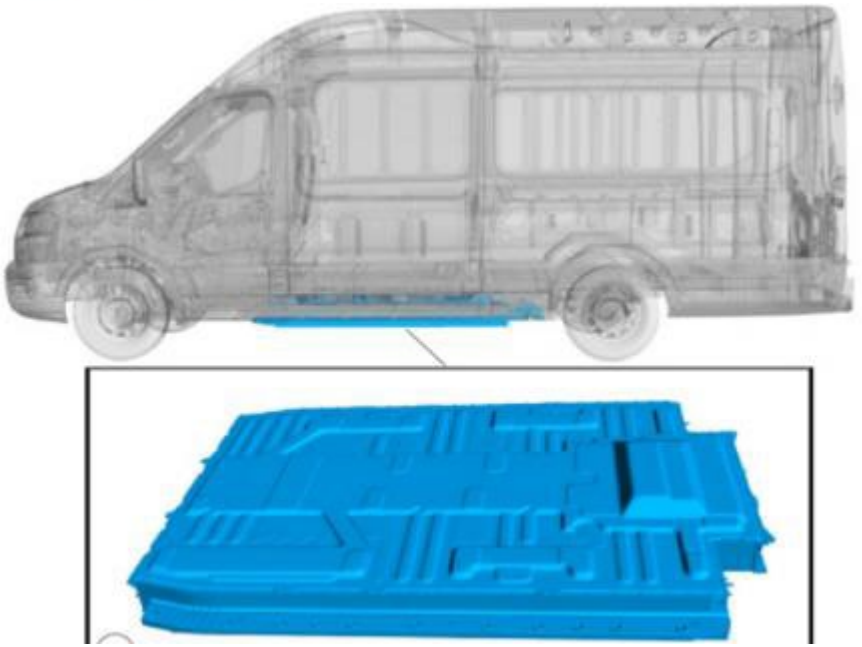
Electric Motor

- Sole source of power for driving the E-Transit
- Provides power to the rear wheels
- Used as a generator to recover energy during deceleration or braking to recharge the high-voltage battery
- The combination of the electric motor and single-speed transmission propels E-Transit
- 100% of the torque is nearly instantaneous

High-Voltage Battery

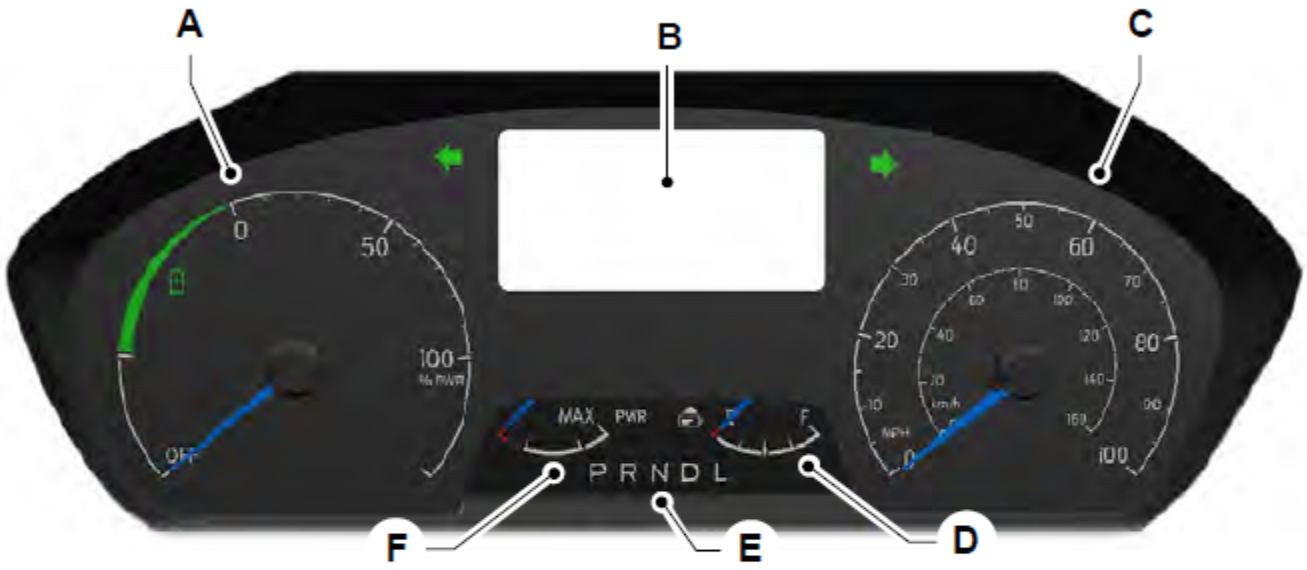
- Sole source of power for the electric motor
- 89 kwh of usable capacity
- Charge status can be monitored several ways:
  - Using the external charge port charge status indicator when the vehicle is plugged in or by pressing the Unlock button on the key fob (when charge port door is open)
  - Via the center-stack touchscreen
- Advanced liquid heating and cooling system preconditions the high-voltage battery for maximum performance
- Located under the vehicle floor to maximize cargo-carrying capacity[3]

Note: 12V battery located under driver's seat
Link to 12V battery access video: https://www.youtube.com/watch?v=xglmBiyTifQ



Steering Wheel

INSTRUMENT CLUSTER OVERVIEW - BATTERY ELECTRIC VEHICLE



A Power gauge.
B Instrument cluster display.
C Speedometer.
D High voltage battery gauge.
E Automatic transmission position indicators.
F Power availability.

POWER GAUGE - BATTERY ELECTRIC VEHICLE

The Power Gauge displays power to the wheels when accelerating or maintaining speed. When slowing down by lifting your foot off the accelerator pedal or pressing the brake, the gauge displays the power captured by the regenerative braking system and returned to the high voltage battery.

What is Power Availability Gauge

Displays total available vehicle power. Available power may be limited due to temperature or low battery state of charge.

HIGH VOLTAGE BATTERY GAUGE - BATTERY ELECTRIC VEHICLE

Displays the high voltage battery state of charge in the form of a gauge or a percentage. A full fill or 100% charge represents the total amount of energy you can get from plugging your vehicle in.

The indicator is normally white. When you reach a low battery condition, the indicator illuminates amber.

Ready to Drive Indicator

Illuminates when you have switched on your vehicle and it is ready to drive. A corresponding message may appear stating ready to drive.

Distance to Empty (owner's manual)

Displays the approximate range your vehicle can travel on the battery's current state of charge. Estimates vary based on the energy used when driving and the energy available in the high voltage battery. The amount of energy being used when driving is affected by:

- Mild or aggressive acceleration or braking.
- Your vehicle's speed.
- Use of accessories, such as climate control.
- Ambient temperature and weather conditions.
- Driving in a city or on a highway.
- Driving on hilly road conditions.
- Driving while carrying a heavy load.
- Towing.

UPS MY24 E-Transit Instrument Cluster Menu Options						
My View	Digital Speedometer	Radio button (on, off)	Default on			
	This Trip	Radio button (on, off)	Default off			
	Trip/Audio	Radio button (on, off)	Default off			
	Calm Screen	Radio button (on, off)	Default off			
Driver Assist	Traction Control	Check box (on, off)	Default on			
	Pre-Collision Assist	Locked				
	Lane Keeping	Locked				
	Driver Alert	Locked				
	Cruise Control	Adaptive (radio button)	Default on			
		Normal (radio button)				
Navigation	Shows compass					
	My Home					
	Previous Destinations					
	Favorites					
	POI Nearby					
Music	Shows radio station					
	Presets					
	AM					
	FM					
Phone	No Device Connected					
Settings	Information	Seatbelts				
	Display	Language	English, Spanish, French			
		Measurement units	Miles & MPG, km&L/100km, km&km/L			
		Temperature Units	F, C			
		Tire Pressure	psi, kpa			
	Driver Assist	Traction Control	Check box (on, off)	Default on		
		Pre-Collision Assist	Locked			
		Lane Keeping	Locked			
		Driver Alert	Locked			
		Cruise Control	Adaptive (radio button)	Default on		
			Normal (radio button)			
	Vehicle Settings	30 min Max Idle	Check box (on, off)	Default on		
		Chimes	Information	Checkbox (on, off)	Default on	
		Lighting	Auto High Beam	Locked		
			Autolamp Delay	Off, 10 sec, 20 sec, 120 sec	Default 20 sec	
		Locks	Autounlock	Checkbox (on, off)	Default on	
			Feedback	Audible	Checkbox (on, off)	Default on
				Exterior Lights	Checkbox (on, off)	Default on
			Mislock Chirp	Checkbox (on, off)	Default on	
			Global Unlock	Checkbox (on, off)	Default off	
			Switches Inhibit	Checkbox (on, off)	Default on	
			Intelligent Access	Checkbox (on, off)	Default on	
		Emergency Tow	Disabled	Hold OK to initialize Emergency Tow		
		Remote Start	System	Checkbox (on, off)	Default on	
			Climate Control	Auto, Last Settings (radio button)	Default auto	
			Duration	5min,10min, 15 min (radio button)	Default 15 min	
		SOC Alert	20mi, 30 mi, 50 mi (radio button)	Default 30 mi		
		Wiper Controls	Courtesy Wipe	Checkbox (on, off)	Default off	
			Rain Sensing	Checkbox (on, off)	Default on	
	Vehicle Maintenance	Tire pressure	Shows tire pressures			
Trip1/2	Trip1	Radio button (on, off)				
	Reset Individual Values	Reset All Values				
		Reset Trip Odometer				
		Reset Trip Timer				
		Reset Average Fuel				
		Reset Average Speed				
	EV Driving History Reset					
	Configure View	Set to Default				
		Trip Odometer	Check box (on, off)	Default on		
		Trip Timer	Check box (on, off)	Default on		
		Average Speed	Check box (on, off)	Default on		
		Energy Efficiency	Check box (on, off)	Default off		

Adaptive Cruise Control

When activated, Adaptive Cruise Control automatically keeps a constant speed and a preset distance from the vehicle ahead, without the driver having to work the accelerator or brake pedals. It can also resume acceleration automatically.

INCLUDED TECHNOLOGY

- Lane Centering
- Speed Sign Recognition
- Stop-and-Go

How It Works

The system helps the owner by:

- Continually measuring the preset gap distance to the vehicle in front when it is within a near range
- Automatically applying the brakes if the system detects the vehicle in front has reduced speed
- Including four Gap Distance Settings that are programmable with the gap button on the steering wheel
- Each time Adaptive Cruise Control is switched On, the gap setting will default to the last distance setting

Gap Settings

Graphic Display	Following Distance	Following Distance at 62 mph
1 bar	1 second	31 yards
2 bars	1.4 seconds	43 yards
3 bars	1.8 seconds	55 yards
4 bars	2.2 seconds	67 yards

NOTE: The gap setting is time dependent and, therefore, the distance adjusts with your vehicle speed.

Lane Centering

Lane Centering reads lane markings to aid in keeping the vehicle within its lane. The system does not control steering and requires the driver's hands to be on the wheel at all times. It's not designed to operate on tight radius curves such as highway ramps or lanes that are abnormally wide or narrow.

Dramatization.

How It Works

To operate the Lane Centering portion of Adaptive Cruise Control:

- Use the cruise control switches/buttons to turn ON
- Accelerate to speed and press SET+
- Adjust the gap to one of four available settings by pressing GAP. Each preset gap distance appears by the number of bars in the Information Display
- Use the Lane Centering switch to turn ON. The system will warn the driver if hands are not detected on the steering wheel
- Turn the system off by pressing OFF or pressing the brake pedal, just like conventional cruise control. Full control then reverts to the driver

When using Lane Centering, keep the following points in mind:

- This is a hands-on system that will remind the driver to keep his or her hands on the wheel
- If the driver fails to put his or her hands on the steering wheel, chimes sound
- If the driver still ignores the warning, the feature cancels, a takeover warning is shown, chimes become more aggressive and the vehicle automatically slows to creep speed
- The driver must put his or her hands back on the wheel and press the RES+ button or tap the accelerator pedal to re-engage the feature and get back to Set speed

Speed Sign Recognition

The Speed Sign Recognition feature helps your customers keep their speed at the posted limit. When driving with cruise control activated, sometimes it's easy to miss a speed limit sign and accidentally be speeding if the speed limit changes, for example on a two-lane road out in the country. Speed Sign Recognition helps the vehicle maintain the pre-set speed.

Dramatization. Previous generation vehicle shown.

How It Works

- Once the vehicle speed is set, if the system identifies a speed limit sign below the set speed, it automatically adjusts the vehicle speed accordingly and will resume to the pre-set speed once a new sign is detected
- The system can be set to maintain a speed above or below the scanned signs or disabled altogether. For example, if the Speed Sign Recognition system detects a 50 mph (80 kph) speed limit, the cruise set speed is updated to 50 mph (80 kph), unless the parameters are set above or below the detected speed limit, unless the parameters are set above or below the detected speed limit

How to Activate Speed Sign Recognition

To take advantage of this feature, the customer can activate the system through the touchscreen menu.

1. Select Settings.
2. Select Driver Assist.
3. Select Cruise Control.

Stop-and-Go

Adaptive Cruise Control with Stop-and-Go can bring the vehicle to a complete stop and accelerate back to the preset speed within three seconds of stopping, if the vehicle in front moves forward in that time.

Dramatization.

How It Works

- Stop-and-Go keeps the vehicle at a complete stop without the driver having to press and hold the brake pedal
- If the vehicle is stopped for longer than three seconds, the driver must intervene and tap the RES+ button or press the accelerator pedal to resume system operation

NOTE: Images shown are representative. Actual screens may vary.

DRIVER-ASSIST NOTE: Driver-assist features are supplemental and do not replace the driver's attention, judgment and need to control the vehicle. It does not replace safe driving. See Owner's Manual for details and limitations.

Intersection Assist

Intersection Assist[1] can help traverse a busy intersection, especially when other vehicles are around. Intersection Assist uses the front camera and radar sensors to detect oncoming traffic while the driver attempts to turn left. If there's the risk of a potential collision with an oncoming vehicle, the vehicle can alert the driver and apply the brakes even when not using a turn signal. This just might give them more confidence when attempting to make a left turn at an intersection.

SYNC 4 Technology

SYNC 4[(1)] Technology's advanced features and user-friendly screens keep the owner connected and the system ever evolving. To keep up with on-the-go owner lifestyles, it offers the key features shown below.

SYNC 4 Technology Key Features

- Larger screen options — from 8 inches to 15.5 inches
- Cord-free phone connection, including Apple CarPlay®[(2)]
- Connected navigation services to provide real-time traffic, weather, construction and more
- Available Enhanced Voice Recognition, allowing access to cloud-based conversational voice commands
- Available SiriusXM® with 360L[(3)] — the widest variety of ad-free music, sports, talk, news and more
- Software Updates[(4)] downloaded from the cloud
- Easy-to-search cloud-based Digital Owner's Manual

SYNC 4


11:36
51°
Settings
Radio
Phone List
Navigation
Sound
Vehicle
Clock
General
Display
Navigation
Claywoods Dr
Hawthorne Dr
Spring Ave
Black Oak Ln
Burlington Northern
E
846 ft
OFF
AUTO
MAX
A/C

UPS MY24 E-Transit SYNC 4 Menu Options						
Settings	Radio	Radio Text	Slide Bar (on, off)	Default on		
		Preset Pages				
	Phone List	Connection Options	Add Phone			
		Phone Settings				
	Navigation	Categories	Map and Vehicle			
			Guidance			
			Search			
			Traffic			
			Notifications			
	Sound	Treble				
		Midrange				
		Bass				
		Balance				
		Speed compensated volume				
	Vehicle	Onboard Modem Serial Number				
		Rear View Camera Delay	Slide Bar (on, off)	Default off		
	Clock	24 Hour Mode	Slide Bar (on, off)	Default off		
		Auto Time Update	Slide Bar (on, off)	Default on		
	General	Language				
		Distance Units				
		Temperature Units				
		Touchscreen Beep	Slide Bar (on, off)	Default on		
		About SYNC				
		Software Licenses				
		Send Feedback				
		Reset				
	Display	Calm Screen				
		Brightness				
		Mode				
	Connectivity	Connected Vehicle Features	Vehicle Connectivity	Slide Bar (on, off)	Default on	
			Privacy Settings	Share Vehicle Data	Slide Bar (on, off)	Default on
				Share Vehicle Location	Slide Bar (on, off)	Default on
				Share Driving Data	Slide Bar (on, off)	Default on
				Share Vehicle Analytics	Slide Bar (on, off)	Default on
			Feature Settings	Ford Assistant	Slide Bar (on, off)	Default on
				Upload Phone Contact Names	Slide Bar (on, off)	Default off
				Connected Navigation	Slide Bar (on, off)	Default on
				FordPass Power My Trip	Slide Bar (on, off)	Default on
				Insurance-Related Data	Slide Bar (on, off)	Default off
		Bluetooth	Bluetooth	Slide Bar (on, off)	Default on	
			Change Vehicle Name	Enter a vehicle name (20 char max)		
		Wireless App Projection	Wireless App Projection	Slide Bar (on, off)	Default on	
			Network Name:			
			Password:			
			Show Password			
			Reset Password			
			Security Type			
		Wi-Fi	Wi-Fi	Slide Bar (on, off)	Default on	
			View Available Networks			
			Wi-Fi Availability Notification	Slide Bar (on, off)	Default on	
	Vehicle Hotspot	Vehicle Hotspot	Slide Bar (on, off)	Default on		
		Data Usage	Trial Available			
		Settings	Network Name			
			Password:			
			Show Password	Slide Bar (on, off)	Default off	
			Security Type			
			MAC Address			
			Visbility			
			Frequency Band			
			Edit	Hotspot Visibility	Slide Bar (on, off)	Default on
				Change Network Name		
				Change Password		
				Change Frequency Band		
		Manage Devices	Manage Connected Devices			
			Managed Blocked Devices			
		Help Getting Started	Connect, Activate, Manage			
	Mobile Apps	Mobile Apps	Slide Bar (on, off)	Default off		
		Android Apps via USB	Slide Bar (on, off)	Default off		
	Software Updates	Automatic Updates	Slide Bar (on, off)	Default on		
		Recurring Update Schedule	None			
		Update Details				
	Ford Assistant	Listen for Wake Word	Slide Bar (on, off)	Default off		
		Preferred Wake Word				
		Advanced Mode	Slide Bar (on, off)	Default off		
		Phone Confirmation	Slide Bar (on, off)	Default off		
		Voice Command Lists	Slide Bar (on, off)	Default on		
		Voice Command Help	Mobile Apps			
			Climate			
			Media			
			Navigation			
			Phone			
			Radio			
	Amazon Alexa					
	911 Assit	911 Assist	Slide Bar (on, off)	Default off		
	Valet Mode	Locks system using 4 digit pin				
Features	Drive Modes	Normal				
		ECO				
		Slippery				
	Access	Unlock Charge Cord				
		Charge Port Light	Slide Bar (on, off)	Default on		
	Departure and Comfort	Days, temp, time				
	Charge Settings	Will charge when plugged in				
		Departure and Comfort				
		Charging Locations				
	Owners Manual					
Apps	Find Mobile Apps					
	Apple CarPlay					
	Android Auto					
	Mobile Apps Help					
Status Information	Display	See above				
(tap left of temp)	Amazon Alexa	See Above				
	Connected Vehicle features	See Above				
	Wi-Fi	See Above				

Automatic Return to Park

Automatic Return to Park will automatically shift the vehicle into Park (P) under specific conditions to help reduce the potential for vehicle rollaways.

SYSTEM DETAILS

- This feature will automatically shift the vehicle into Park (P) when any of the following conditions occur:
  - The vehicle is turned Off
  - The driver's door is opened with the driver's safety belt unlatched
- If the vehicle is turned Off while moving, the transmission will first shift into Neutral (N) until it slows down enough to shift into Park (P) automatically

Electric Parking Brake

The switch is next to the steering wheel on the lower part of the instrument panel. Pull the switch up. The red warning lamp flashes during operation and illuminates when the parking brake is applied.

Note: *You can apply the electric parking brake when the ignition is off.*

Note: *The electric parking brake could apply when you shift into park (P).*

APPLYING THE ELECTRIC PARKING BRAKE IN AN EMERGENCY: You can use the electric parking brake to slow or stop your vehicle in an emergency. Pull the switch up and hold it. The red warning lamp illuminates, a tone sounds and the stop lamps turn on when you use the electric parking brake in an emergency. The electric parking brake continues to slow your vehicle down unless you release the switch. Note: *Do not apply the electric parking brake when your vehicle is moving, except in an emergency. If you repeatedly use the electric parking brake to slow or stop your vehicle, you could cause damage to the brake system.*

MANUALLY RELEASING THE ELECTRIC PARKING BRAKE:

1. Switch the ignition on.
2. Press and hold the brake pedal.
3. Push the switch down. The red warning lamp turns off.

AUTOMATICALLY RELEASING THE ELECTRIC PARKING BRAKE

1. Close the driver door.
2. Fasten the driver seatbelt.
3. Shift into gear.
4. Press the accelerator pedal and pull away in a normal manner.

Technician Familiarization

Connector Types (Ford E-Transit 2024 Spark STARS)

	Level 1	Level 2	DC Fast Charging (Level 3)
Connector Type[2]	J1772 connector 	J1772 connector 	CCS connector  CHAdeMO connector  Tesla connector 
Voltage[3]	120 V AC	208 - 240 V AC	400 V - 1000 V DC
Typical Power Output	1 kW	7 kW - 19 kW	50 - 350 kW
Estimated PHEV Charge Time from Empty[4]	5 - 6 hours	1 - 2 hours	N/A
Estimated BEV Charge Time from Empty[5]	40 - 50 hours	4 - 10 hours	20 minutes - 1 hour[6]
Estimated Electric Range per Hour of Charging	2 - 5 miles	10 - 20 miles	180 - 240 miles

BATTERY

Ford uses Lithium Iron Phosphate (LFP) battery for standard-range vehicles and the **Nickel Cobalt Manganese (NCM) battery for extended-range vehicles**.

NICKEL COBALT MANGANESE (NCM) BATTERY should be charged to 90% of its capacity for routine daily driving and 100% only for long trips

Charging an NCM battery to 90% helps optimize the long-term health of the battery.

Benefits of the NCM battery include higher power ratings, better cold-weather performance and capability to travel longer distances.

NOTE: When using a DC fast charger at a public station, Ford recommends charging to 80% for either battery to minimize charging time and reduce possible battery degradation. The rate of DC fast charging slows significantly between 80%-100%.

External Charging Port and Charge Status indicator (eSource)

External Charge Port and Charge Status Indicator

- The E-Transit charge port is located in the front grille of the vehicle and is where and how the vehicle is "refueled" with electricity
- The charge port door conveniently pushes to open with a simple touch
  - Using your finger or thumb, press on the top right corner of the door — it will swing open on the hinge, similar to a fuel door
  - To close the door, swing it back to the closed position and press the top right corner until it clicks into place
- The high-voltage battery state of charge is shown by an LED charge status indicator light to the right of the charge port — visible when the charge port door is open
  - The LED charge status indicator is divided into five segments that represent 20% intervals and fully charged high-voltage battery status
  - When charging, the charge status ring is white and one segment will be blinking. When the charge is complete, the entire ring will be illuminated and blue in color
  - When the vehicle is initially plugged in, the charge status indicator will flash twice in sequence and then glow, confirming the charging coupler has been detected and that charging is in progress
- When plugging in, the charge coupler button will "click," confirming the charge port and charge coupler are engaged
  - Charging is complete when all five segments are solidly lit and not flashing
  - The charge status indicator will shut off one minute after the high-voltage battery reaches a full charge
- Charge status can be checked by pressing the "unlock" button on the key fob or when opening one of the vehicle doors
  - The charge status indicator will illuminate the corresponding segment(s), indicating the high-voltage battery's current state of charge
  - If charge is below 20%, the charge status indicator will not illuminate

SETTINGS

- Owners can select from three illumination settings for the charge status indicator: On, Off or Limited
- Vehicle default setting is On, which illuminates the charge status indicator when:
  - Plugging in
  - Opening doors
  - Pressing the Unlock button on the key fob
  - Actively charging
- Settings can be accessed from the 12" center-stack screen main menu by going to Settings > Vehicle Settings > Charge Status Indicator

External Charging Port and Charge Status indicator (eSource)

LED Charge Status Indicator	
Setting	**Function**
On	• All features of the charge status indicator are operational
Off	• All features of the charge status indicator are turned off • Charging of the vehicle is not affected
Limited	• 2 features of the charge status indicator are operational; the LED indicator will flash when: – Plugging in (cord acknowledgement) – Opening doors or pressing the Unlock button on the key fob (charge status) • Charging of the vehicle is not affected

Charging Time Information

When charging, the start and estimated end times are displayed.

When fast charging, the estimated time is displayed for 80% charge. Above 80% state of charge the estimated time is displayed for 100% charge.

When your vehicle is at a stored charging location and not plugged in, the start and end times display is based on known charging infrastructure.

AC Charging (owner's manual)

1. Put your vehicle in park (P).

Note: *Your vehicle must be in park (P) to charge.*

2. Plug the connector into the control box.

Note: *To insert the connector, firmly grasp the connector by the cable or plug and push into the control box until an audible click is heard. Make sure the connector is fully inserted and flush with the control box before inserting it into the outlet. Improper insertion will cause a longer charge session or faults.*

3. Plug the connector into the wall outlet.
4. Confirm that the mobile power cord indicator lights illuminate.

5. Press the center right hand edge of the charge port door and then release to open the door.

6. Remove the charge port dust cap and hang it on the pin.

7. Plug the charge coupler into the charge port receptacle on your vehicle.

Note: *Make sure the button clicks confirming that you have completely engaged the coupler. When you plug in your vehicle, it starts charging to 100% by default unless scheduled charging has been set up for this location. See* ***Setting the Charging Schedule and Preferences*** *(page 208).*

Note: *Plug the connector into the wall outlet before connecting the charge coupler handle to your vehicle's charge port.*

Note: *When the handle is properly engaged the light ring illuminates. This indicates the beginning of a normal charge cycle.*

Note: *There could be a delay in light ring illumination due to vehicle internal communications.*

Charge Status Icons

Displays when your vehicle is plugged in.


Not charging due to a fault.


Not currently charging.


Charging.


Waiting to charge based on charge time settings.

AC Charging (owner's manual)

STOPPING CHARGING

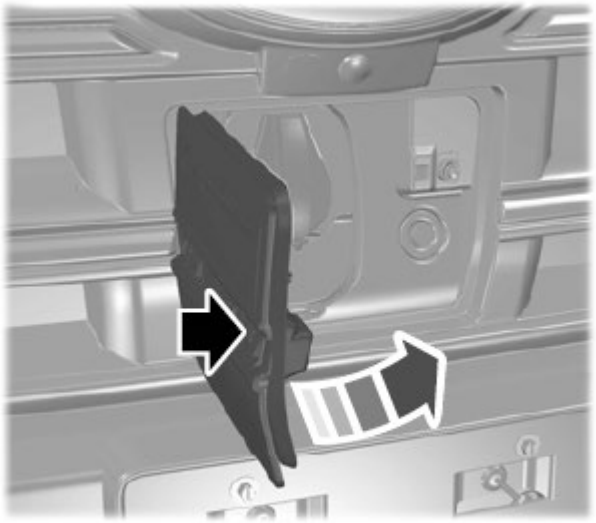
WARNING: To safely discontinue charging at any time, follow the disconnect instructions in stopping charging. Charging will automatically and safely come to a stop. The BLUE STATUS indicator remains ON solid when the coupler is removed.

1. Press the latch on the charge coupler and remove it from the vehicle charge port.
2. Remove the connector plug from the wall outlet.

Note: *Do not pull the wall plug from the wall outlet or the connector from the mobile power cord control box, while your vehicle is charging. Doing so could damage the outlet and the cord.*

Note: *You cannot shift your vehicle out of park (P) until you remove the charge coupler.*

3. Reinstall the charge port dust cap.



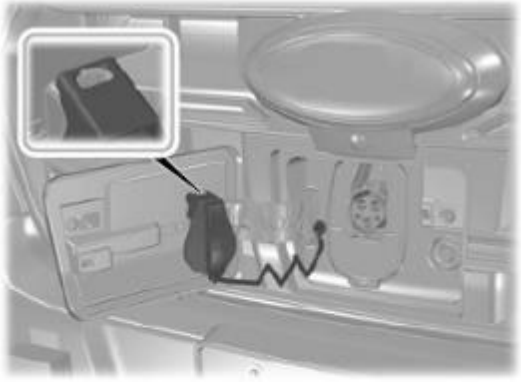
4. Press the center right-hand edge of the charge port door to close.

DC Charging (owner's manual)

1. Put your vehicle in park (P).

Note: *Your vehicle must be in park (P) to charge and for the charge status indicator to illuminate.*

2. Press the center right hand edge of the charge port door and then release to open the door.



3. Remove the charge port dust cap and hang it on the pin.

4. Open the additional dust cap on the charge port to expose lower connectors.

5. Plug the charge coupler into the charge port receptacle on your vehicle.

Note: *Make sure the button clicks confirming that you have completely engaged the coupler. Your vehicle locks to the charge coupler.*

Note: *When the handle is properly engaged, the light ring illuminates. This indicates the beginning of a normal charge cycle.*

Note: *The vehicle monitors battery health and may take actions including, but not limited to, reducing the DC fast charge rate to protect the battery hardware from damage, and to maintain battery health.*

Charge Status Icons

Displays when your vehicle is plugged in.


Not charging due to a fault.


Not currently charging.


Charging.


Waiting to charge based on charge time settings.

DC Charging (owner's manual)

STOPPING CHARGING

1. Push the coupler unlock button on the light ring.
2. Press the latch on the charge coupler and remove it from the vehicle charge port.

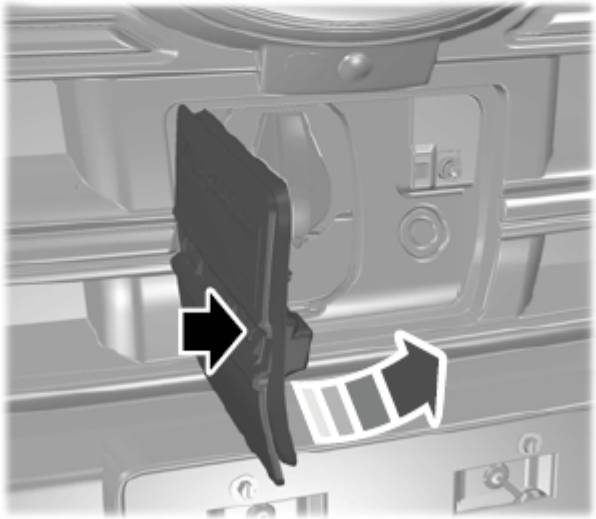
Note: *Do not attempt to remove the charge coupler before you unlock it. Do not use any kind of tool to try and remove a locked charge coupler. Doing so can lead to damage to your vehicle and the charge coupler.*

Note: *You cannot unlock the charge coupler unless the vehicle remote is near the vehicle.*

Note: *You can also unlock the cord through the vehicle access menu. If the cord still does not unlock, please contact roadside assistance.*

Note: *You cannot shift your vehicle out of park (P) until you remove the charge coupler.*

3. Close the dust cap for the lower connectors.
4. Reinstall the dust cap for the upper connectors.



5. Press the center right-hand edge of the charge port door to close.

External Charging Port and Charge Status indicator (owner's manual)

Charge Status Icons

Displays when your vehicle is plugged in.


Not charging due to a fault.


Not currently charging.


Charging.


Waiting to charge based on charge time settings.

Note: *Charging faults are identified by the color amber on the charge status indicator. Faults can occur within the vehicle charging system or outside the vehicle, such as with the mobile power cord, charge station or electrical supply.*

Note: *If the system detects a fault in the vehicle charging system at any point in a charge cycle, the entire charge status indicator illuminates solidly in an amber color for 30 seconds and then turns off. If this happens, unplug the charge coupler and then plug it back into the charge port receptacle. If the problem persists, have your vehicle serviced as soon as possible.*

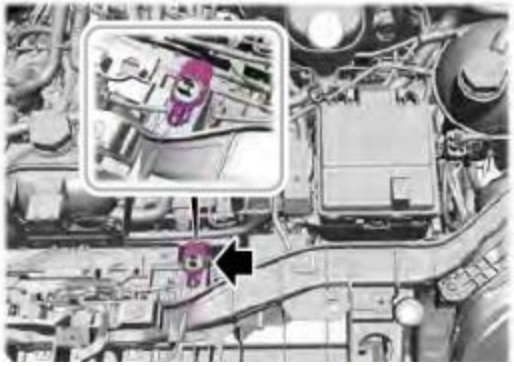
Note: *If the system detects a fault outside the vehicle, such as with the charge station or mobile power cord, the entire charge status indicator flashes amber continuously for 30 seconds and then turns off. If this happens check the mobile power cord, charge station or electrical supply.*

Charge Coupler Manual Release (owner's manual)

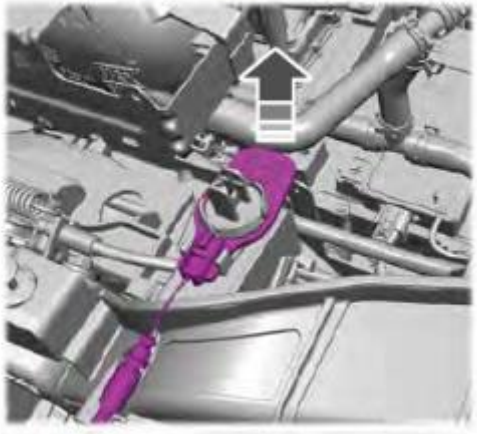
CHARGE COUPLER MANUAL RELEASE

In the event that your vehicle does not unlock the charge coupler after pressing the unlock button or through the vehicle access menu, you can manually release it.

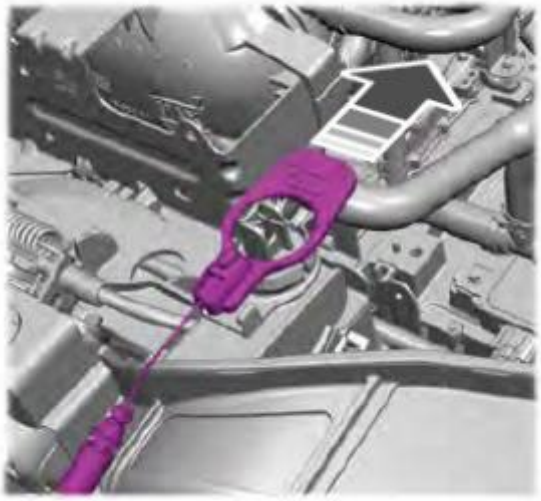
1. Switch your vehicle off.
2. Open the hood.



3. Locate the yellow manual release ring.



4. Pull the manual release ring upward to detach from grommet.



5. Pull the manual release ring in the direction shown.

Note: *Only a light effort is required. The pull distance is approximately 2 in (5 cm).*

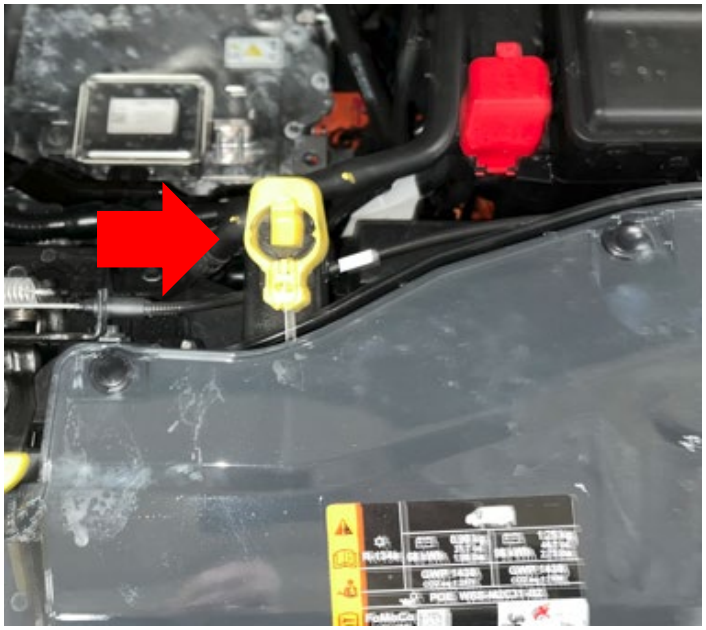
6. Press the latch on the charge coupler and remove it from the vehicle charge port.
7. Reinstall the manual release ring to the grommet.

Note: *Make sure the cable is not twisted.*

8. Close the hood.

Note: *The next time you start your vehicle or plug in to charge, the locking mechanism re-engages and the manual release cable resets.*

Note: *If the issue persists, have your vehicle checked.*



P47E E-Transit High Voltage System Depower & Repower Summary

2 Depower Options:

1. Depower with FDRS tool
2. “Manual” depower

   NOTICE: Manual De-energization should only be performed when a Ford – specific diagnostic tool is not available.

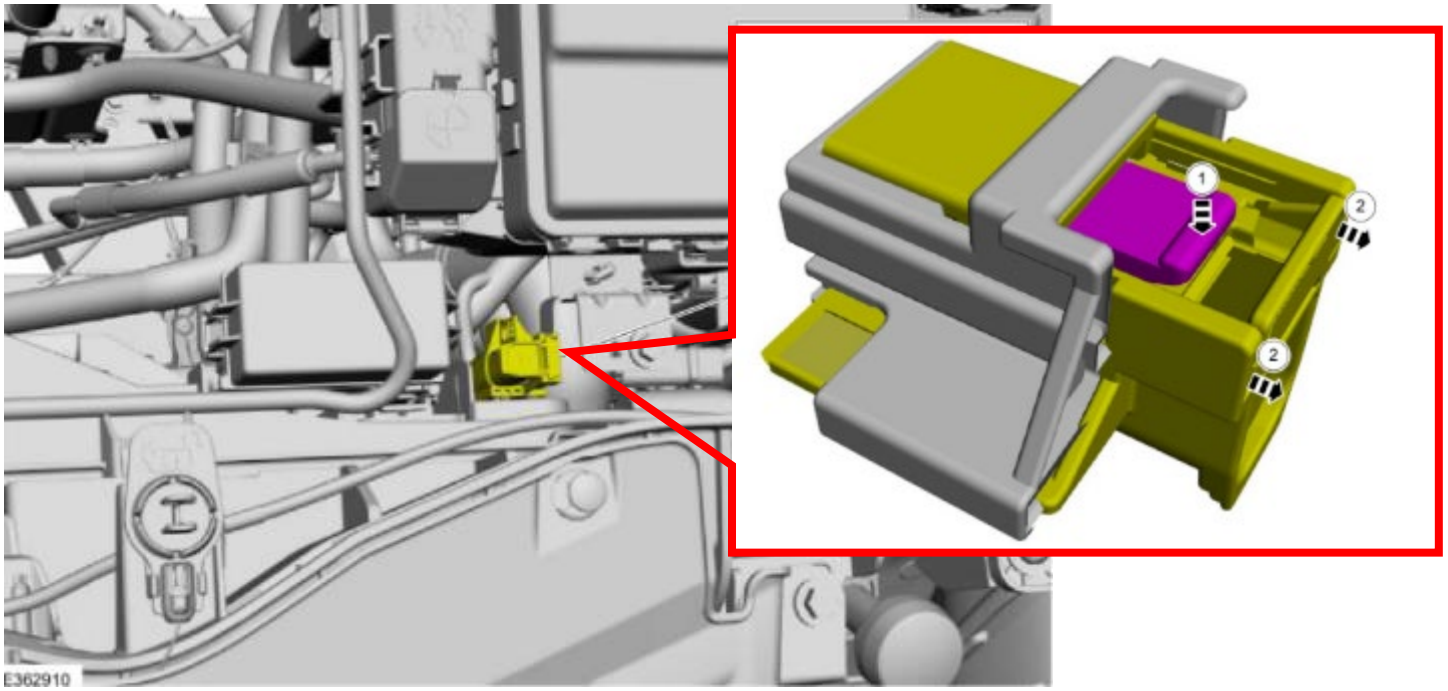
   NOTICE: Excessive use of this method may cause damage to electrical connectors.

   - Still requires scan tool to check for BECM Diagnostic Trouble Codes (DTCs)
     - P0AA6:00 that has been diagnosed to be an internal fault with the high voltage Battery
     - P0563:00/P0AA1:00 AND P0AA4:00
     - P0D0F:00 AND P0563:00/P0AA1:000

For full details refer to Ford Transit Workshop manual 414-03A

Option 1: Depower with Ford FDRS tool (Jpro)

1. Using FDRS “Carry out” the BECM -High Voltage System De-energizing and follow the on-screen instructions.
2. Turn the ignition OFF. **NOTICE: Failure to turn the ignition off may result in component damage.**
3. Release the Connector Position Assurance (CPA) clip by depressing the tab while pulling the connector until the hole is completely visible on the top of the connector.



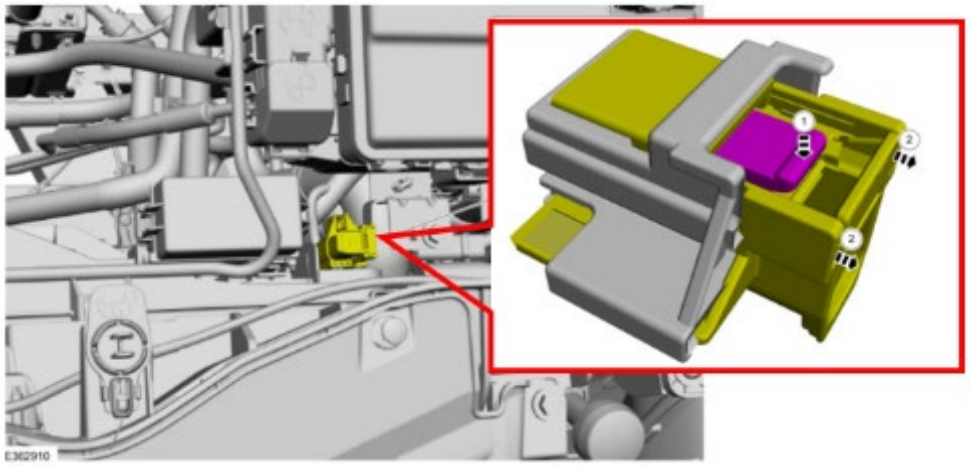
Option 1: Depower with Ford FDRS tool (Jpro)

4. Insert a suitable tool inside the connector hole to prevent the connector from closing.

5. Using FDRS “Complete” the BECM -High Voltage System De-energizing and verify the High Voltage System has been de-energized.

Option 2: “Manual” Depower

1. If connected to a charger, disconnect
2. Turn the ignition ON without depressing the brake pedal (Accessory mode).
3. Use a scan tool to check for BECM Diagnostic Trouble Codes (DTCs)
    - P0AA6:00 that has been diagnosed to be an internal fault with the high voltage Battery
    - P0563:00/P0AA1:00 AND P0AA4:00
    - P0D0F:00 AND P0563:00/P0AA1:000
    - The necessary DTC needs corrected to NOT meet any of the DTC conditions above before proceeding further
4. If none of the DTC conditions above are met, turn the ignition OFF. NOTICE: Failure to turn the ignition off may result in component damage.
5. Release the Connector Position Assurance (CPA) clip by depressing the tab while pulling the connector until the hole is completely visible on the top of the connector.



Option 2: “Manual” Depower

6. Insert a suitable tool inside the connector hole to prevent the connector from closing.

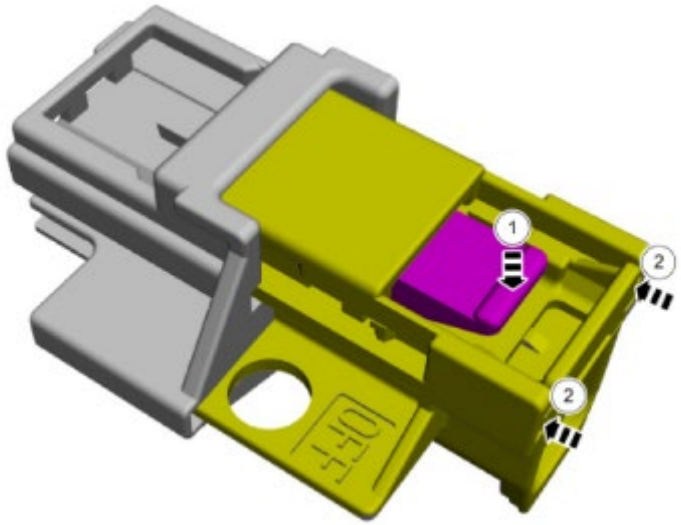
7. Disconnect the low voltage electrical connector at the High Voltage Battery.
8. Disconnect the high voltage electrical connectors at the High Voltage Battery.
9. Wait a minimum of 5 minutes.

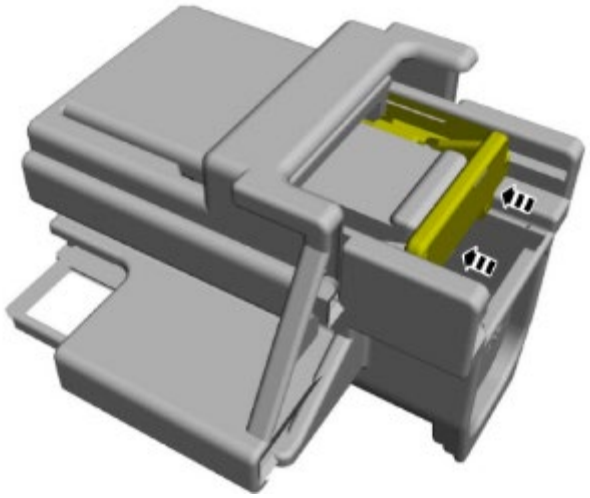
Repower

1. If disconnected, connect the high voltage electrical connectors to the High Voltage Battery.
2. If disconnected, connect the low voltage electrical connector to the High Voltage Battery.
3. Remove the suitable tool from the connector hole.

Repower

4. Depress the tab while pushing the connector until the Connector Position Assurance (CPA) clip touches the connector body. **NOTE:** *The tab must be depressed prior to pushing the connector back in or damage to the connector may result.*





Ford Software Updates

Software updates[1] are designed to deliver new features, system enhancements, and safety and security updates to help make vehicles better over time. Like a mobile phone or computer, software updates are downloaded and installed over-the-air via Wi-Fi or cellular connection.

Vehicles with SYNC 4[2] Technology or Ford Digital Experience[3] can receive updates that improve many aspects of the vehicle. This means that the vehicle can receive enhancements to driver-assist technology, emissions, battery or powertrain, as well as changes to the Navigation System, connected features and features within the center-stack touchscreen. Availability of certain software updates vary by vehicle. Use the Professional Technician System (PTS/OASIS) to assist owners with software updates and review past release notes.

Owners will receive notifications and release notes when an update has been installed on the center-stack touchscreen and in the App. For more information on software updates, go to **Ford.com/softwareupdates**.

Set a Recurring Schedule

In-Vehicle (Center-Stack Touchscreen)

1. Tap Settings.
2. Tap Software Updates.
   NOTE: Depending on the vehicle, this could be on the second or third page of the Settings screen.
3. Confirm that Automatic Updates slider is set to On.
4. Tap Schedule Updates.
5. Choose the time and at least two days of the week when you don't need to be driving to receive updates.
   NOTE: Recommended days and time for updates are Monday – Thursday at 1:00 a.m.
6. Tap Save.

NOTE: Your set schedule will be recurring, so every time an update becomes available, it's installed during these set days and times unless changed. You get a notification in your vehicle when an update is scheduled, with an option to change the schedule.

DELIVERY TIP

By default, Automatic Updates are turned On at the factory. Be sure to keep this slider set to On so that the vehicle can receive driveable updates as soon as they become available. For non-driveable updates, a recurring schedule must have two days and times selected. It is recommended to select a time that owners know the vehicle will not be driven, such as overnight (e.g., Monday – Thursday at 1:00 a.m.). Missing an update interrupts the vehicle's ability to download and install future updates. This may require the owner to go to the dealership to receive any expired updates.

Technical Requirements

- SYNC 4 Technology or Ford Digital Experience
- Software updates are delivered over-the-air using a cellular connection (through the vehicle modem) or Wi-Fi. Wi-Fi can help ensure the fastest updates when the vehicle is connected. If Wi-Fi is not available, the update is delivered using the vehicle's cellular connection

Software Update Process

Depending on the update the vehicle requires, there are two installation processes:

Driveable Updates

- Some updates can complete seamlessly in the background. They replace a part of software without impacting the rest of the system
- The center-stack touchscreen is fully functional while the update is downloading
- If the Automatic Updates are On, a message appears in the center-stack touchscreen informing the driver of the update
- If Automatic Updates are Off, a message appears on the center-stack touchscreen asking the driver to confirm the update
- When the vehicle is restarted, an "Update Successful" alert appears on the center-stack touchscreen. The owner can read about the update or view details on the FordPass App or **ford.com/softwareupdates**
- If the update fails or if Ford decides to revert to a previous software version, the system goes back to its previous version. Owners get an in-vehicle notifcation if the update fails, expires or is canceled

Non-Driveable Updates

- The majority of software updates are considered non-driveable updates (parked with the ignition off). This means that the update erases the system or module and replace it with the latest version of the software
- The vehicle is not driveable during this time and the update may take up to 45 minutes to complete
- When a recurring schedule is set, owners will receive an in-vehicle reminder notification at first key cycle within 24 hours of the update. The vehicle displays another notification two minutes before the update begins
- Scheduling is required to ensure that the updates occur at a convenient time when the owner chooses and when the vehicle is not in use
  - If the vehicle is in use, the system does not update and automatically postpones to the next scheduled time. Owners receive a notification that the update was unsuccessful
  - If the vehicle is not in use, a “Preparing Updates” message appears in the center-stack touchscreen and a two-minute countdown begins. Owners are prompted to exit the vehicle and lock it, as it is disarmed during the updates
  - Conditions may be required for certain updates. If the conditions are not met, the owner is notified and the update does not complete
- When the vehicle is restarted, an "Update Successful" alert appears in the center-stack touchscreen. The owner can read details about the updates
- Owners can also check the status of an update in their FordPass App or on **ford.com/softwareupdates**

Manual Update System Details

Non-Driveable Updates

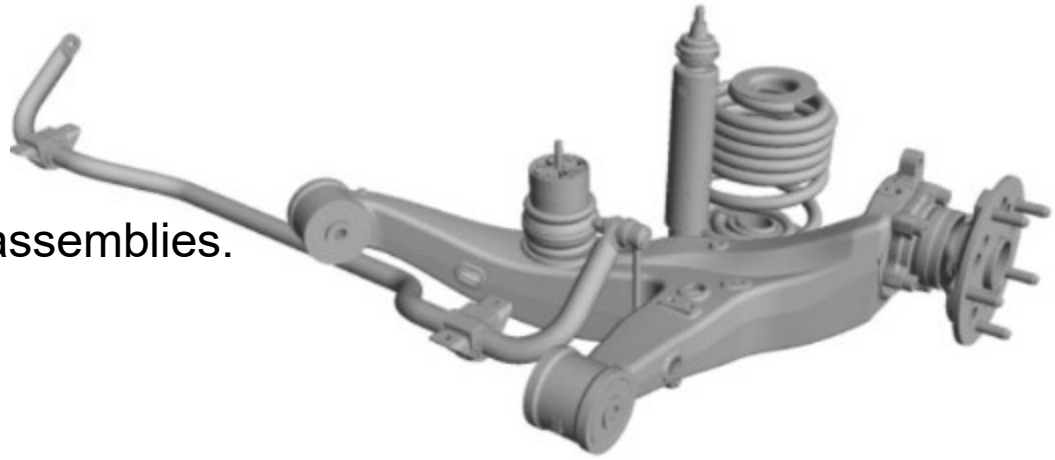
NOTE: If Automatic Updates are Off, updates are not installed automatically and require the owner to review and approve each update. If an owner doesn't approve updates in order of availability, they expire and interrupt future updates. The vehicle may require important software updates, therefore, this method is not recommended.

- When a new update is available, the owner sees an alert on the center-stack touchscreen
- Once the update is reviewed, a notification appears on the center-stack touchscreen with information about how long the installation takes. After that, an "Update Ready Install" alert is accessible on the touchscreen
- The driver can tap "Update" on the center-stack touchscreen to begin installation
- If the vehicle is not in use, a “Preparing Updates” message appears in the center-stack touchscreen and a two-minute countdown begins. Owners are prompted to exit the vehicle and lock it, as it is disarmed during non-driveable updates
- Conditions may be required for certain updates. If the conditions are not met, the owner is notified and the update does not complete
- If the updates were completed successfully, an "Update Successful" alert appears on the center-stack touchscreen when the vehicle is restarted. The owner can read details about the update
- If an update expires, it must be downloaded/installed at a dealership

Rear Suspension

- The rear suspension consists of the following components:

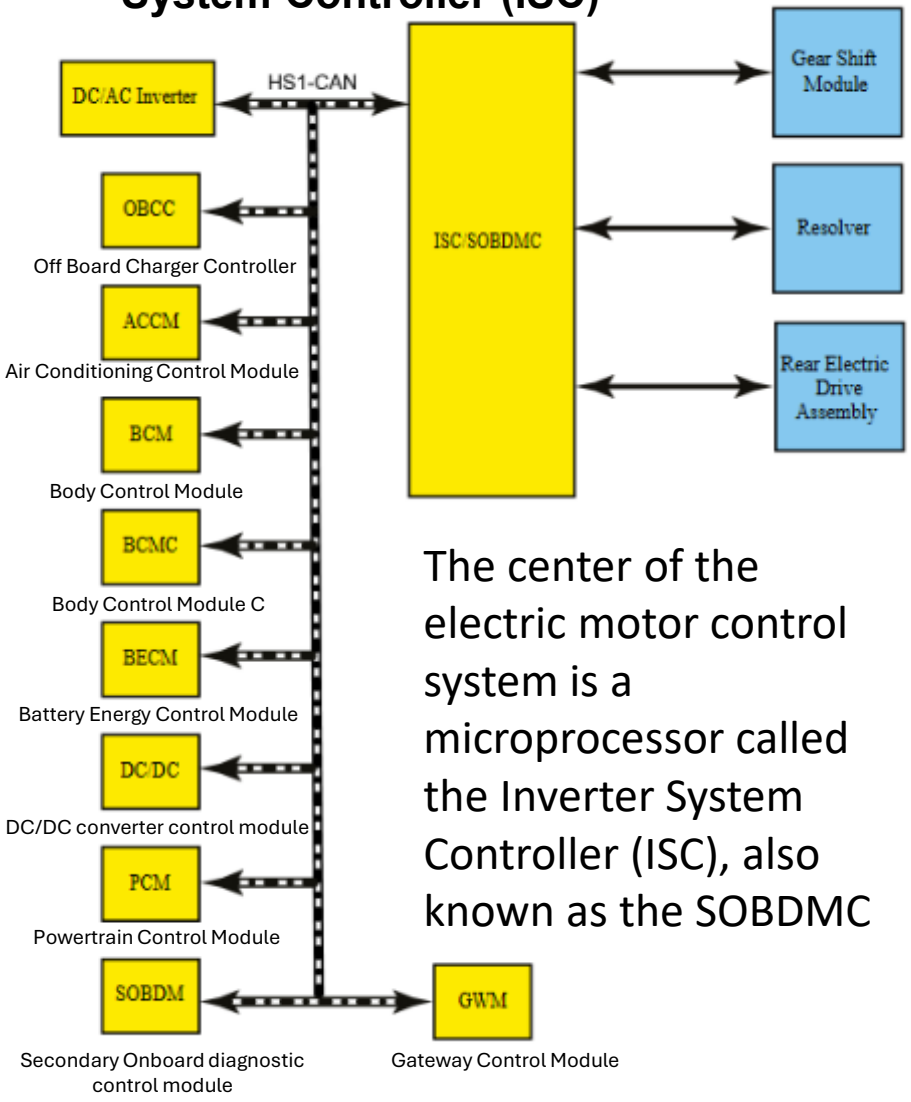
- Independent trailing arms.
- Coil springs.
- Shock absorbers
- Bump stops
- Wheel bearing and wheel hub assemblies.
- Wheel studs.
- Anti roll bar assembly
- Anti roll bar link rods
- Anti roll bar mounts and bushes



Rear Electric Drive Assembly

302-02 Rear Electric Drive Assembly

Network Message Chart - Inverter System Controller (ISC)

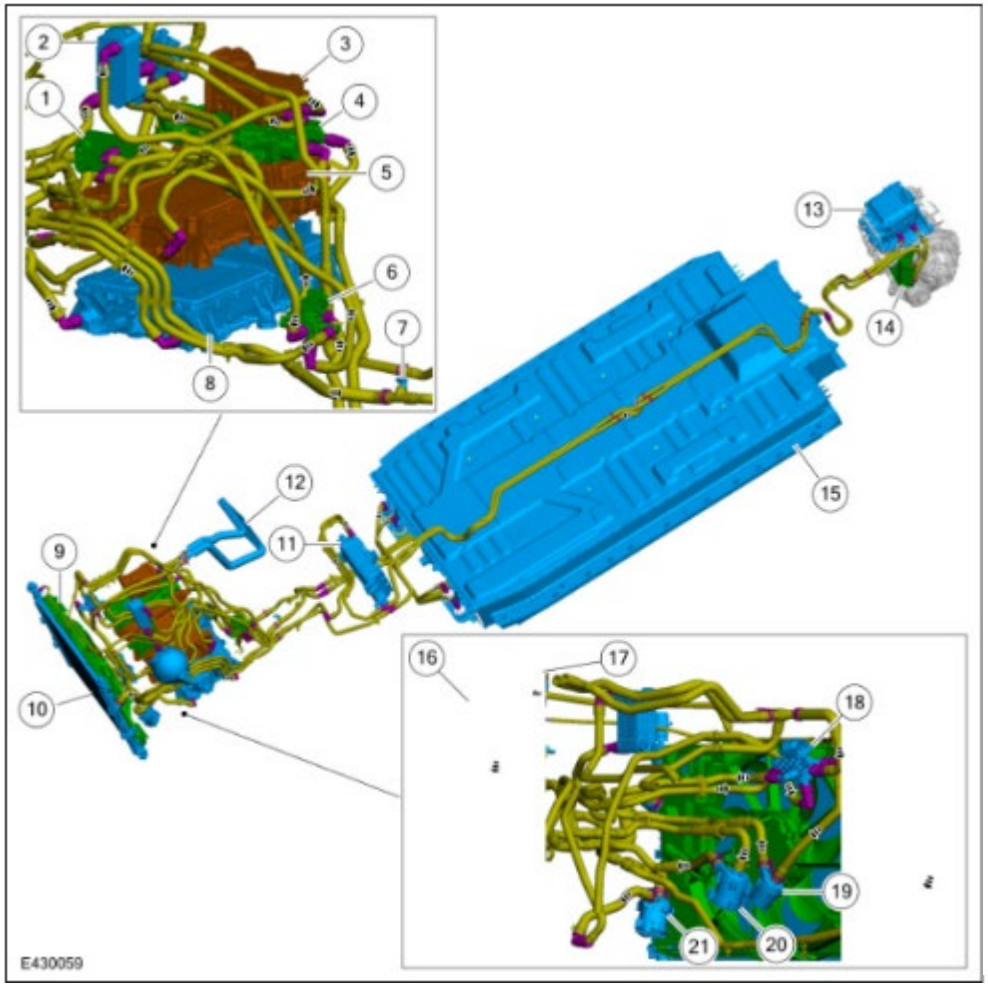


The center of the electric motor control system is a microprocessor called the Inverter System Controller (ISC), also known as the SOBDMC

Broadcast Message	Originating Module	Message Purpose
ABS Active Flag	ABS	Used to determine the status of the ABS system
Accelerator pedal position	PCM	Accelerator pedal position used for OBDII freeze frame data
Air Conditioning Compressor Status	GWM	Indicates status of air conditioning compressor
Air Conditioning Refrigerant Pressure	PCM	Indicates status of air conditioning refrigerant pressure
Ambient air temperature filtered	PCM	Ambient air temperature, used to adjust high voltage battery cooling fan speed
Automate Parking Assist Information	PAM	Indicates status of automated parking assist information
Battery Voltage	BCM	Used to determine the battery voltage
Battery Voltage	DCDC	Used to determine the battery voltage
Battery Voltage	BCM	Used to determine the battery voltage
Battery Charge Data	SOBDM	Used to control battery charging
Battery State of Charge	DCDC	Used to determine the battery state of charge
Battery Traction Status	BECM	Used to determine the engagement of the battery to the transmission
Body Service Required	BCM	Used to disable the high voltage system
Brake Boost Data	GWM	Used to determine brake boost data
Brake Pedal Applied	PCM	Brake pedal position used for OBDII freeze frame data
Brake Sensor Status	GWM	Used to determine braking force
Brake Status	GWM	Used to determine brake pedal position
Customer Preference Settings	APIM	Used to set customer settings
Electric A/C Compressor	ACCM	Electric A/C compressor data
Electric Park	BCMC	Electric park data
GPS Data	GPS	Used to determine location of vehicle
HVAC Evaporator Temperature Request	GWM	HVAC , used to indicate evaporator temperature
HVAC Rear Blower Status	GWM	HVAC , used to indicate passenger demands
Hybrid Powertrain Status	GWM	Used to determine the hybrid system state
High Voltage Battery	BECM	Used to determine the high voltage battery information
Ignition Status	BCM	Current ignition state; off, accessory, run, start, unknown or invalid
Onboard Charging Status	GWM	Used to determine the onboard charging status
Odometer Master Value	ICM	Vehicle odometer value
Parking Aid Data	GWM	Parking Aid Sensors
PATS Control Command	BCM	Used to determine correct ID for vehicle starting
PATS Control Command	GWM	Used to determine correct ID for vehicle starting
Power Distribution Data	BCMC	Provides vehicle mode operation to driver
Powertrain Status	PCM	Provides vehicle mode operation to Inverter System Controller (ISC)
Regenerative Braking Information	ABS	Provides date for the regenerative braking system
Restraint impact event status	GWM	Used to disable the high voltage system during a crash
Steering Position Status	ABS	Used to determine the steering position status
TCU Activation Request	GWM	The TCU is requesting data from the Ford Pass Smartphone App
TCU Activation Status	GWM	Provides battery status to the TCU for the Ford Pass Smartphone App
Wheel Torque Data	ABS	Used to determine torque request by driver
Transmission gear request	GWM	Used to determine transmission gear state
Wheel Data	ABS	Used to determine wheel data

Electrified Drivetrain Cooling - Component Location

302-03A Electrified Drivetrain Cooling



Item	
1	High voltage battery cooler
2	Vapor injected heat pump (VIHP) water cooled condensor (WCC)
3	Cabin coolant heater
4	DCDC
5	SOBDM
6	High voltage battery radiator coolant diverter valve
7	High voltage battery coolant temperature sensor
8	GFM2
9	Cooling fan motor and shroud
10	Radiator
11	DC/AC inverter
12	Heater core
13	ISC (inverter system controller) SOBDMC
14	Rear electric drive assembly oil cooler
15	High voltage battery
16	Degas bottle
17	Degas bottle cap
18	High voltage battery coolant diverter valve
19	Cabin heater coolant pump
20	High voltage battery coolant pump
21	Motor electronics coolant pump

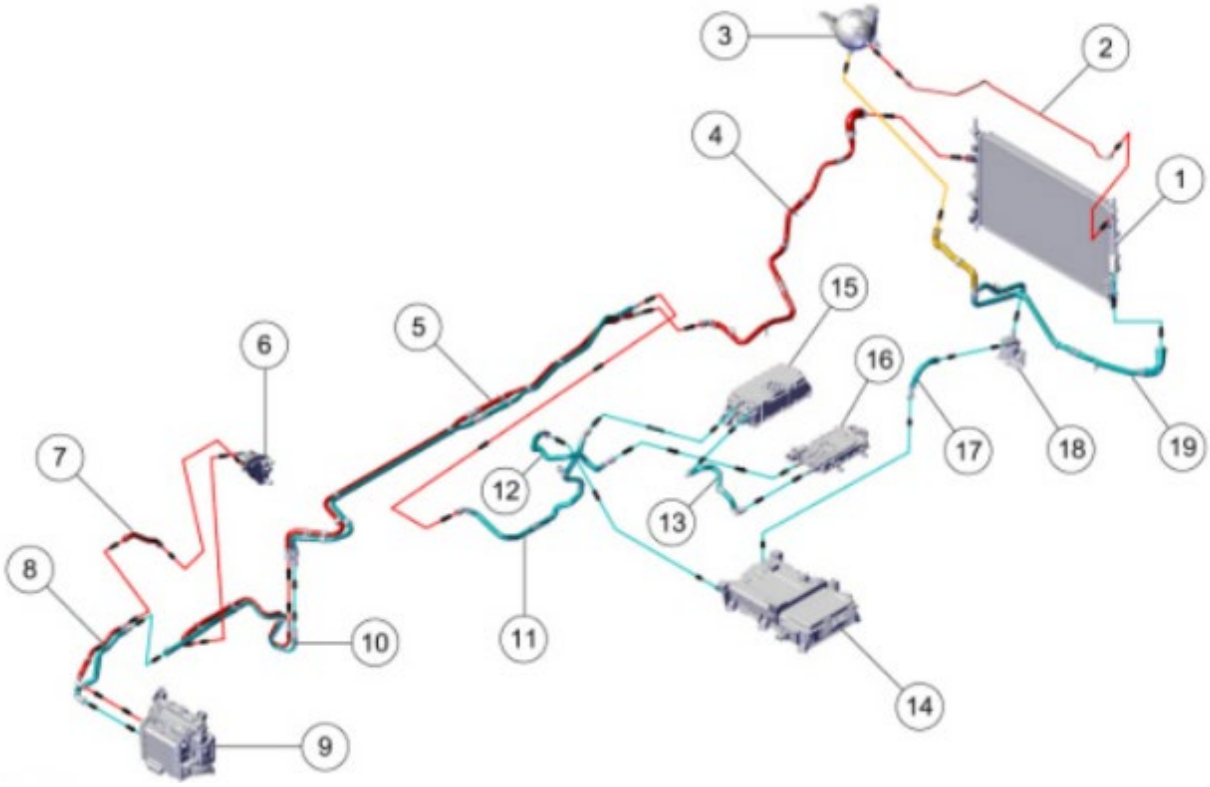
ANTIFREEZE/COOLANT CAPACITIES

Specification	Fill Capacity
Material: Motorcraft® Yellow Concentrated Antifreeze/Coolant / VC-13-G (WSS-M97B57-A1)	12.37 qt (11.71 L)

Electrified Drivetrain Cooling – Motor Electronics

302-03B Electrified Drivetrain Cooling

NOTE: *Coolant temperature will vary with ambient temperature and load. Temperatures shown are for ambient temperature of 50° C (122° F). Red arrows indicate a temperature over 70° C (158° F), Orange arrows indicate a temperature of approximately 70° C (158° F), Blue arrows indicate a temperature below 70° C (158° F).*



Item	Part Number	Description
1	—	Radiator
2	—	Radiator vent hose
3	—	Coolant expansion tank
4	—	Radiator upper hose
5	—	Rear electric drive assembly lower coolant hose
6	—	Rear electric drive assembly oil cooler
7	—	Rear electric drive assembly oil cooler inlet hose
8	—	Inverter system controller (SOBDM-C) hose assembly
9	—	Inverter system controller (SOBDM-C)
10	—	Rear electric drive assembly oil cooler outlet hose
11	—	DC/AC (Direct Current/Alternating Current) inverter outlet hose
12	—	DC/DC (Direct Current/Direct Current) converter inlet hose
13	—	DC/DC converter outlet hose
14	—	SOBDM (Secondary On-Board Diagnostic Control Module A)
15	—	DC/AC inverter
16	—	DC/DC converter
17	—	SOBDM inlet hose
18	—	Motor electronics coolant pump
19	—	Radiator lower hose

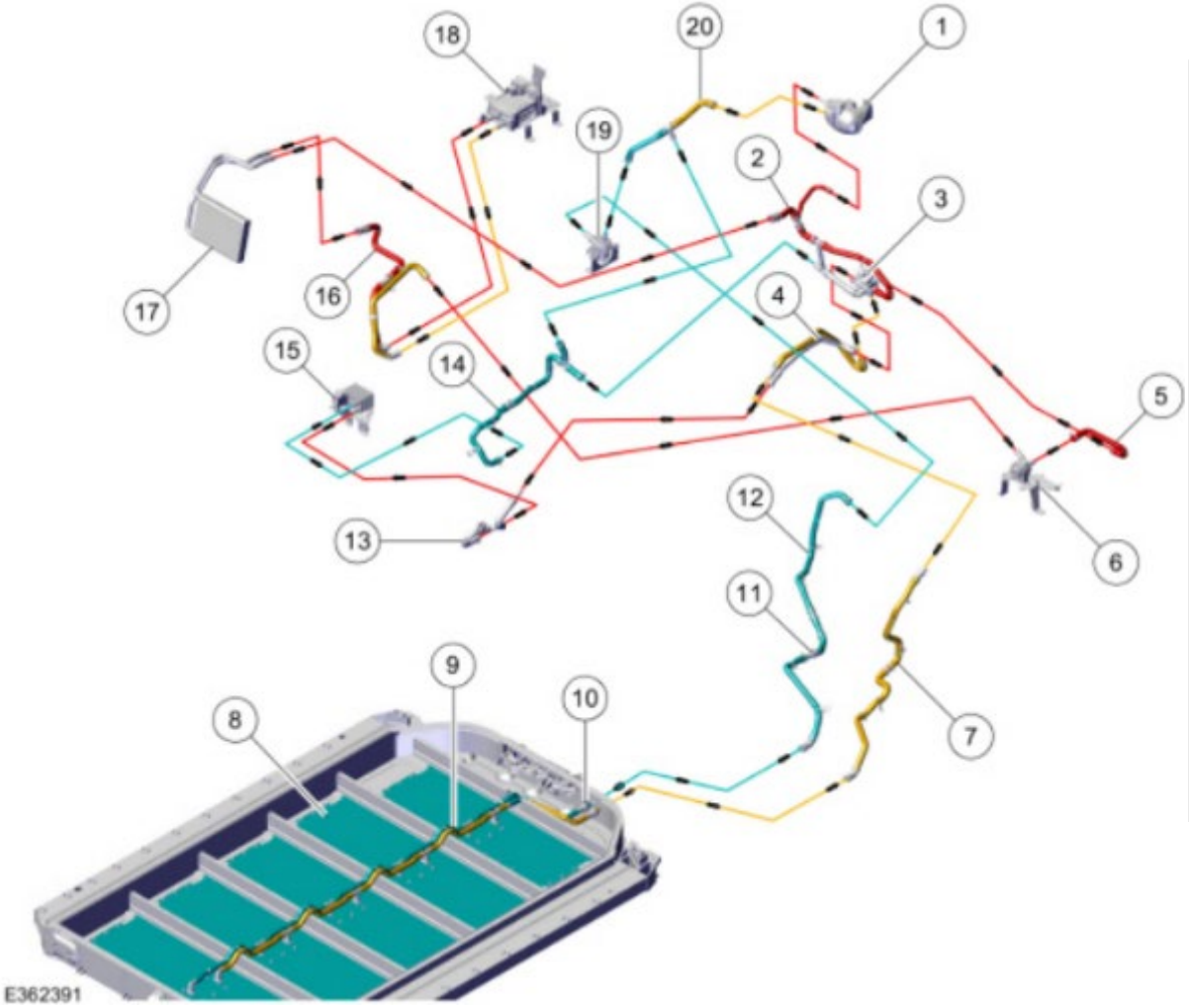
Antifreeze

Region	Specification	Fill Capacity
Global	*Material*: Motorcraft® Yellow Concentrated Antifreeze/Coolant / VC-13-G (WSS-M97B57-A1)	6.02 qt (5.7 L)

Electrified Drivetrain Cooling – High Voltage Battery

302-03C Electrified Drivetrain Cooling

NOTE: *Coolant temperature will vary with ambient temperature and load. Temperatures shown are for ambient temperature of 25° C (77° F). Red arrows indicate a temperature approximately 60° C (140° F), Orange arrows indicate a temperature of approximately 40° C (104° F), Blue arrows indicate a temperature below 40° C (104° F`*

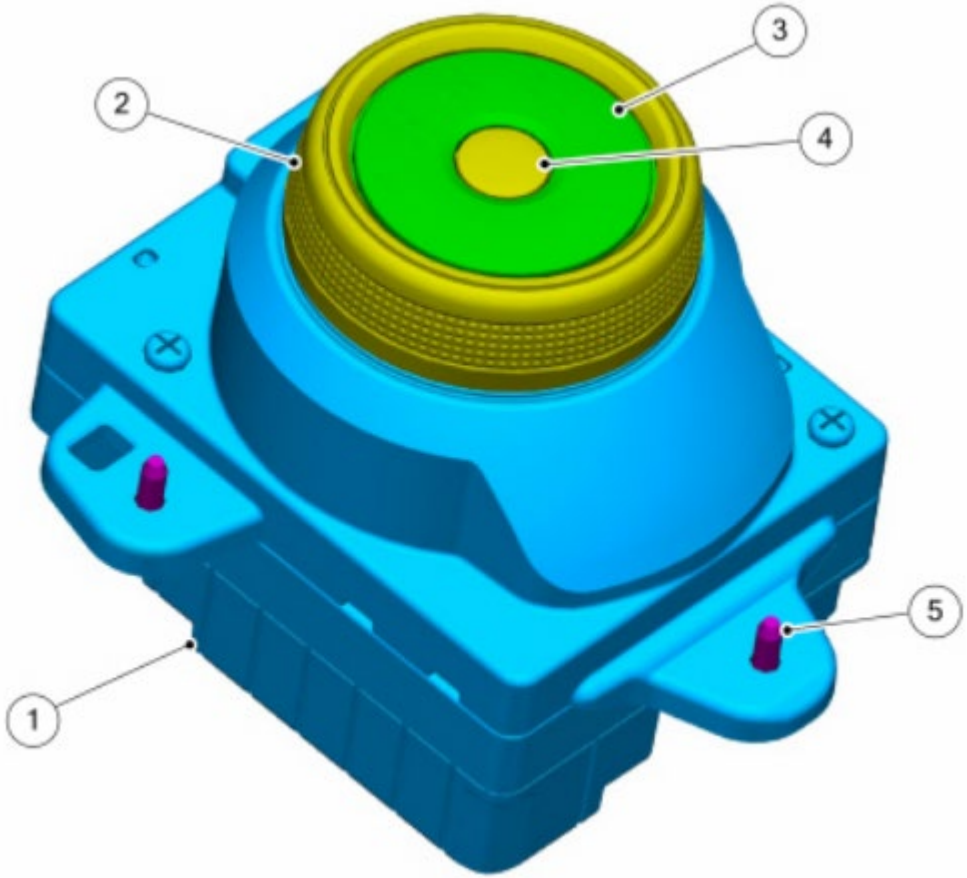


Item	Description
1	Coolant expansion tank
2	High voltage battery coolant diverter valve inlet hose
3	High voltage battery coolant diverter valve
4	High voltage battery coolant diverter valve outlet hose
5	Cabin heater coolant pump inlet hose
6	Cabin heater coolant pump
7	High voltage battery coolant upper hose
8	High voltage battery plates
9	High voltage battery coolant hose assembly
10	High voltage battery header port
11	High voltage battery coolant temperature sensor
12	High voltage battery coolant jumper hose assembly
13	High voltage battery coolant cooler inlet hose
14	High voltage battery coolant cooler outlet hose
15	High voltage battery coolant cooler
16	Cabin coolant heater hose assembly
17	Heater core
18	Cabin coolant heater
19	High voltage battery coolant pump

Transmission Controls

307-05A Automatic Transmission External Controls

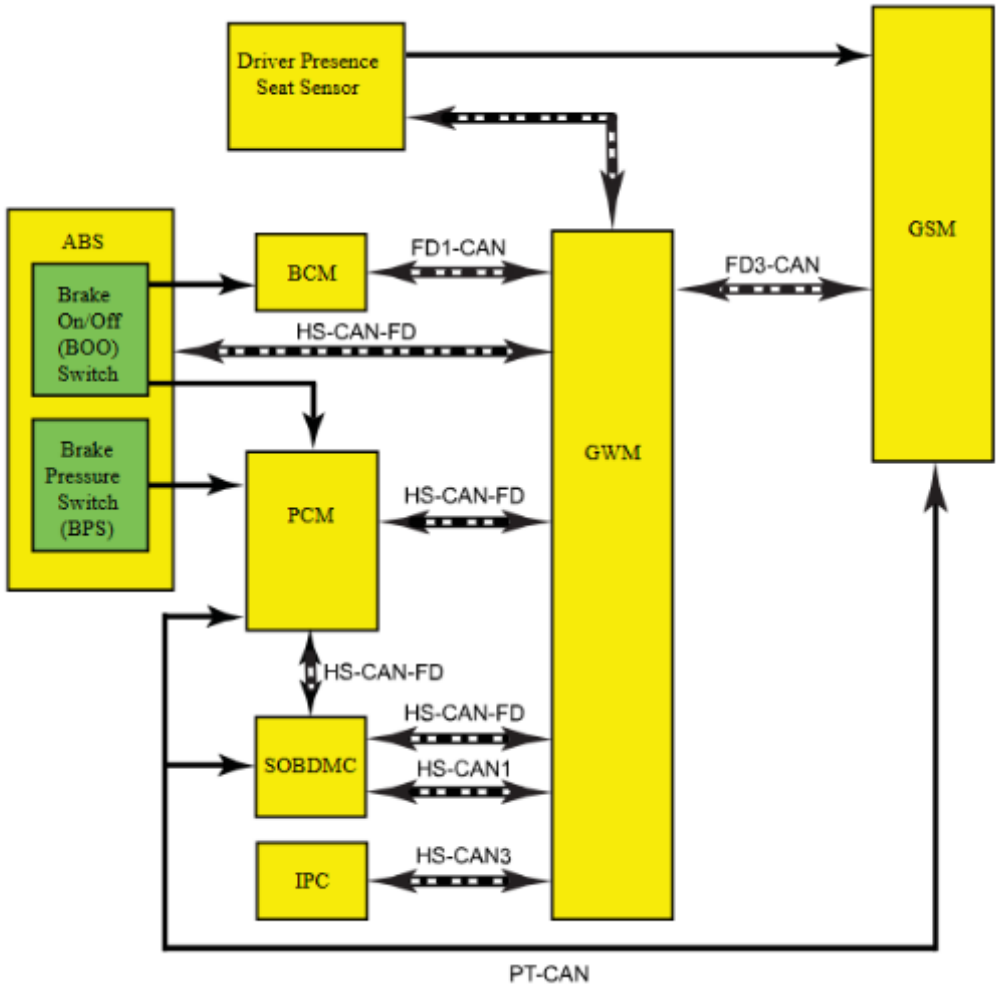
Transmission Gear Shift Module (GSM)



Item	Description
1	GSM
2	Rotary dial
3	Rotary dial gear display
4	Low range selection button
5	GSM retaining screws (3)

Transmission Controls

307-05A Automatic Transmission External Controls



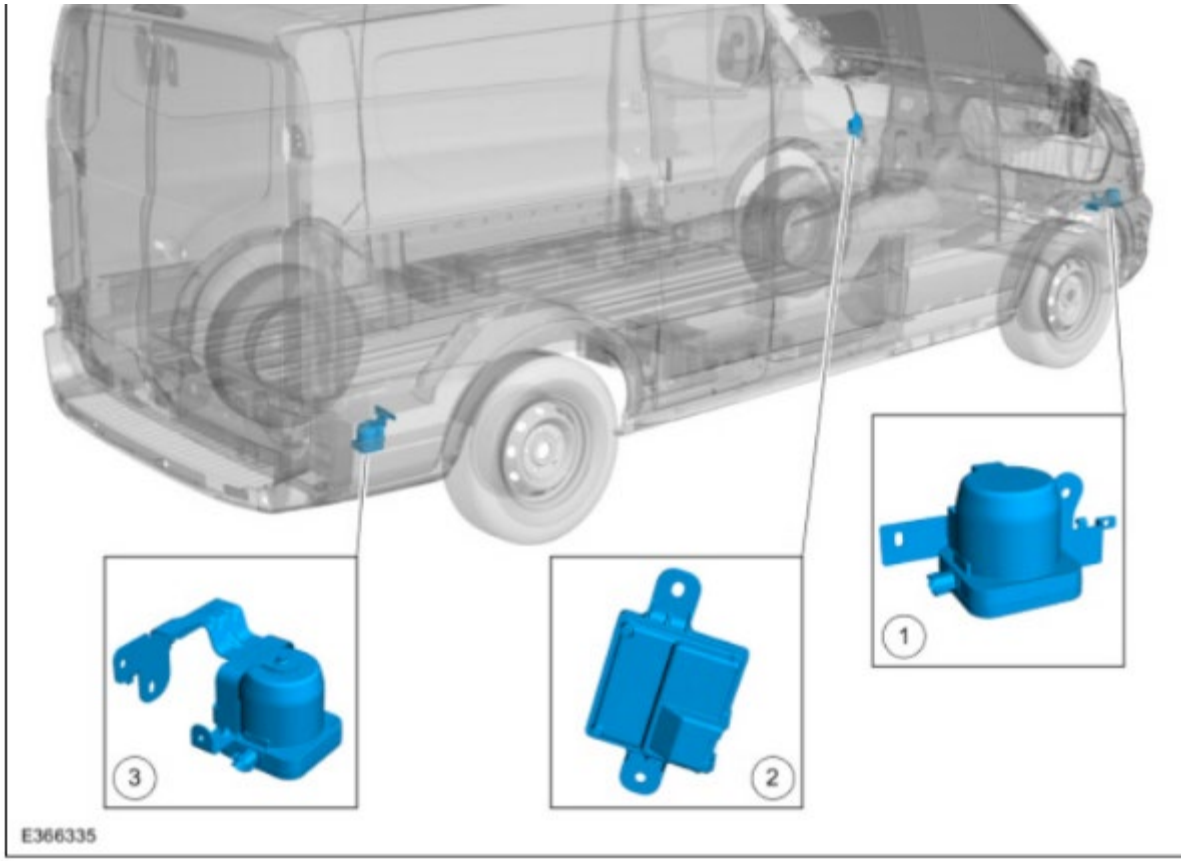
Network Message Chart

Broadcast Message	Originating Module	Message Purpose
Driver seat presence status	Driver seat sensor	Automatic return to park with driver seat presence and seatbelt unlatched.
Gear data	GSM	Message sent to SOBDMC which gear is commanded.
Gear confirmation	SOBDMC	Input to GSM confirming gear selection.
PRNDL mode	IPC	Used for PRNDL display.
Gear command	SOBDMC	Input to change gears.
Key in ignition status	BCM	Input used to change gears.
Seat belt buckle data	RCM	Input from seat belt buckle to determine driver presence.

Pedestrian Alert System

413-22

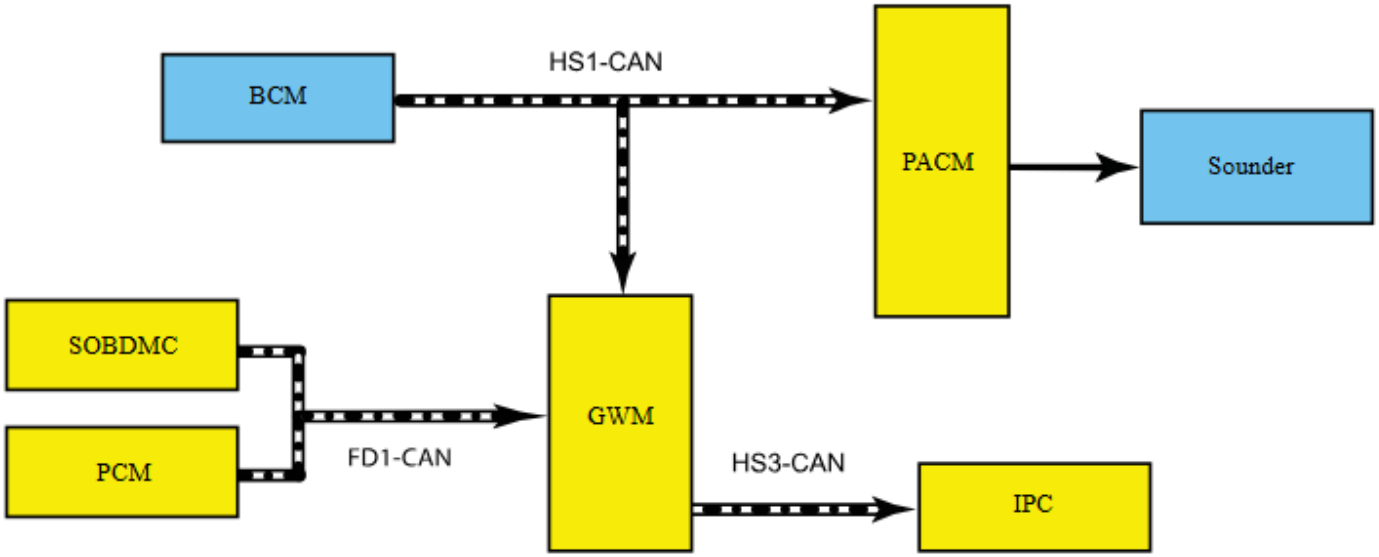
Due to the quiet nature of vehicles operating in electric mode, pedestrians may not be aware of the presence and operation of the vehicle, thus risking potential injury to pedestrians. The pedestrian alert system provides an audible sound from a front mounted speaker to indicate to pedestrians that the vehicle is approaching in forward or reverse ranges at vehicle speeds between 0-30 km/h (0-18 mph).



Item	Description
1	Front sounder
2	PACM
3	Rear sounder

Pedestrian Alert System

413-22



Broadcast Message	Originating Module	Message Purpose
Factory mode	BCM	Controls the pedestrian alert system based on the vehicle build status set in factory mode.
Gear level position	SOBDMC	Determines transmission gear state.
Ignition status	BCM	Ignition RUN, START and accessory states required for the PACM operating modes and fault reporting.
Power pack status	SOBDMC	Determines the BEV operational state.
Reverse gear state	PCM	Determines reverse gear state.
Transport mode	BCM	Controls the pedestrian alert system based on the vehicle build status set in transport mode.
Vehicle speed	PCM	Engages the sounder between 0-30 km/h (0-18 mph).

12V Battery Charging System

414-00

- The 12V battery is charged by the DC / DC converter control module. The BMS continuously monitors the battery state of charge condition and provides the BCM with this information. The BCM communicates this information to the PCM over the HS-CAN1 . The PCM communicates the battery desired setpoint to the DC / DC converter control module which supplies the necessary charge voltage to the 12V battery.

12V Battery Management System

- **NOTICE: When any vehicle module is being programmed, connect an external battery charger to make sure the module programming is completed without interruption due to the load shedding feature becoming active. The external battery charger must maintain a system voltage above 13 volts. This may require a charger setting higher than the lowest charge setting. The external battery charger negative connection must be made to an engine or vehicle chassis ground and not the negative battery terminal. If the connection is to the negative battery terminal, load shedding may begin and module programming may be corrupted. After charging has begun, start the engine to clear any load shed states and then turn the engine off and proceed with programming.**

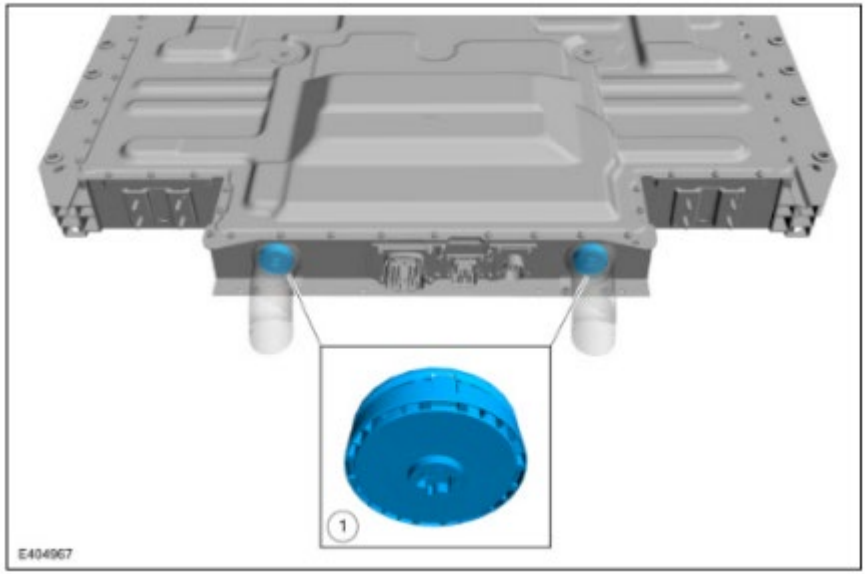
Charging and Jump Starting

- Do not charge or jump start the vehicle by connecting to the battery negative terminal. Refer to the Owners Guide for more information.
- If the 12V vehicle battery has been charged by connecting to the battery negative terminal, do not reset the Battery Monitoring System.

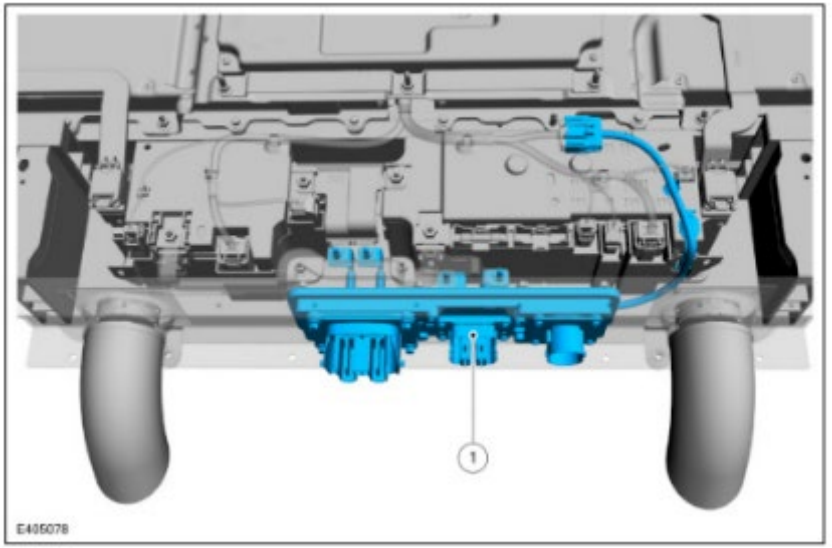
High Voltage Battery Component Locations

414-03A

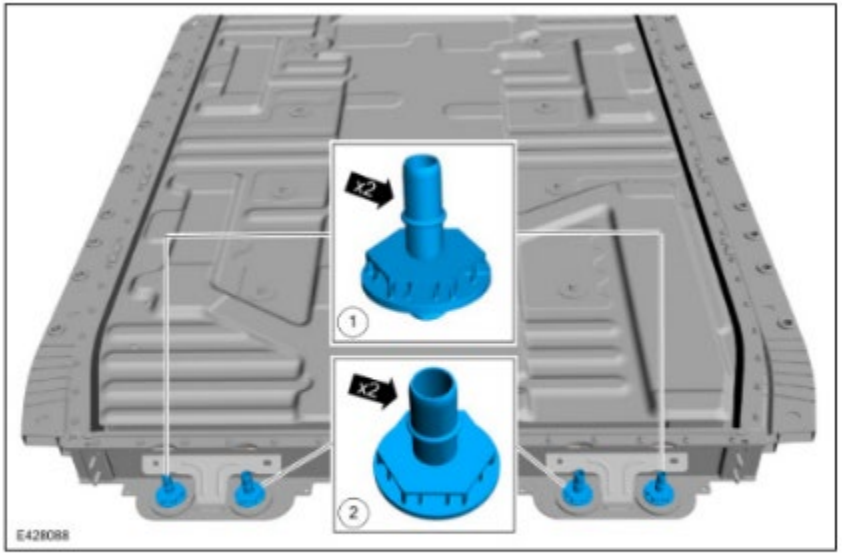
High Voltage Battery Vent Valves



High Voltage Battery Electrical Connector Assembly

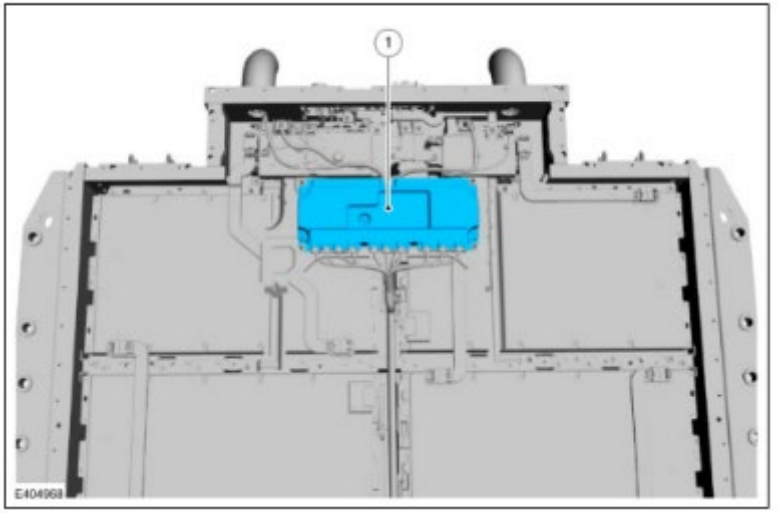


High Voltage Battery Coolant Tube Assemblies



Item	
1	HVB coolant tube assembly - Outlet
2	HVB coolant tube assembly - Inlet

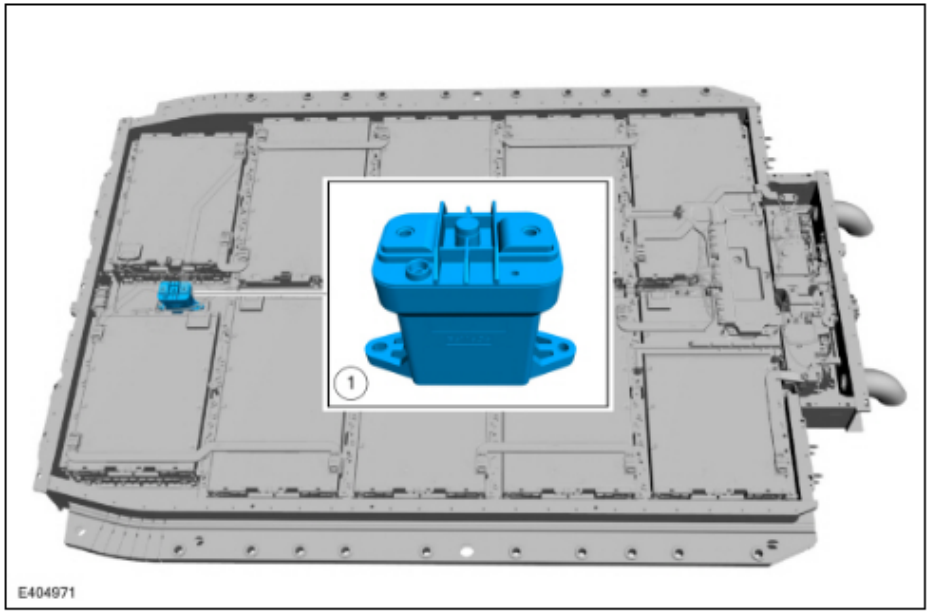
BECM (Battery Energy Control Module)



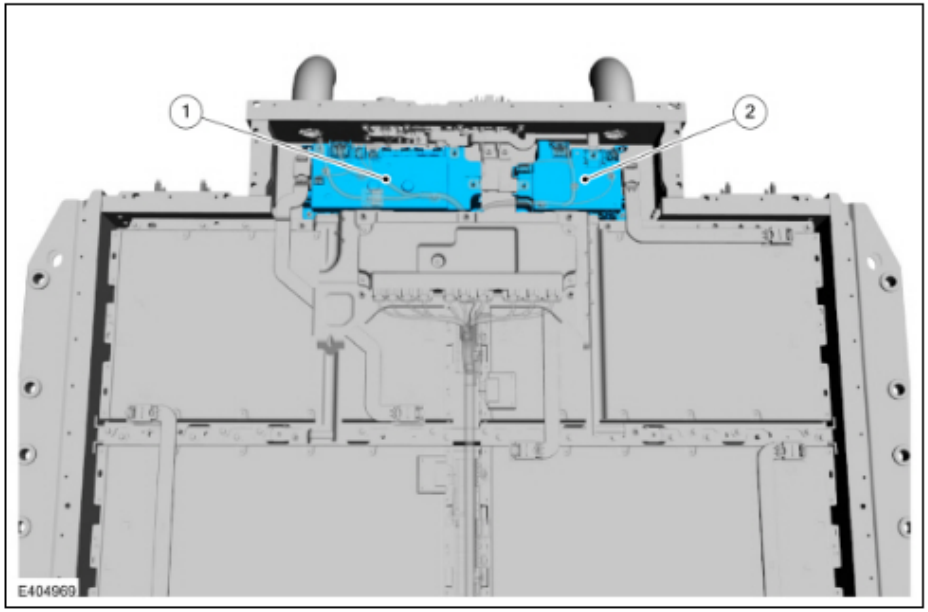
High Voltage Battery Component Locations

414-03A

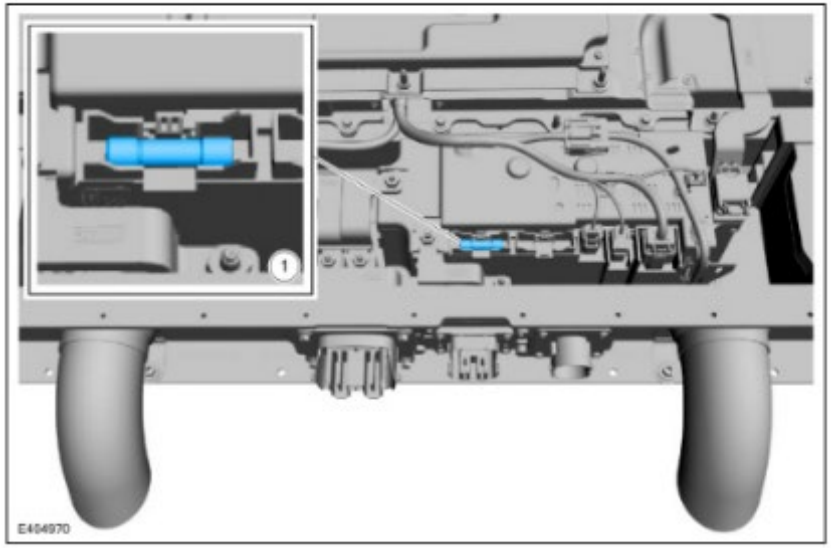
High Voltage Battery Circuit Breaker



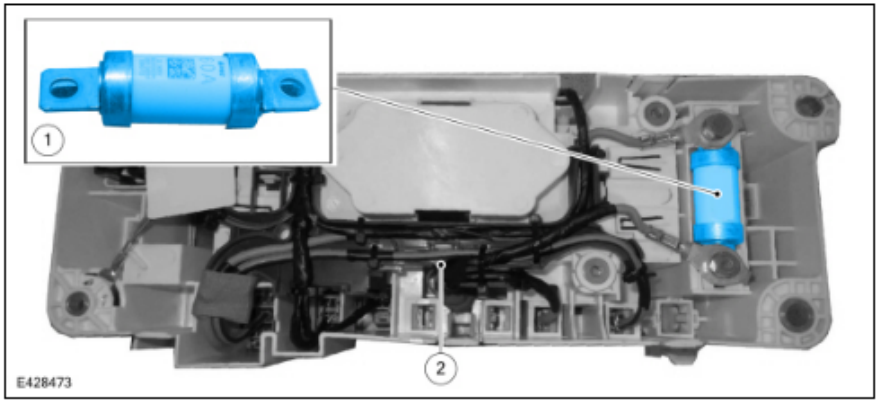
High Voltage Battery Junction Boxes



High Voltage Low Current Fuses - 1 of 2



High Voltage Low Current Fuses - 2 of 2

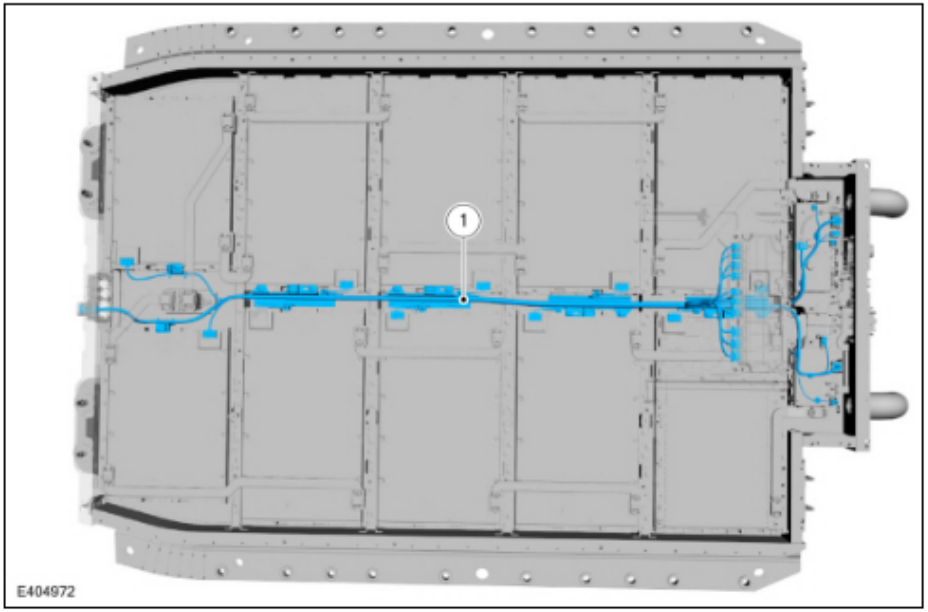


Item	
1	Cabin coolant heater and ACCM fuse
2	HVB junction box - Negative (bottom view-cover removed)

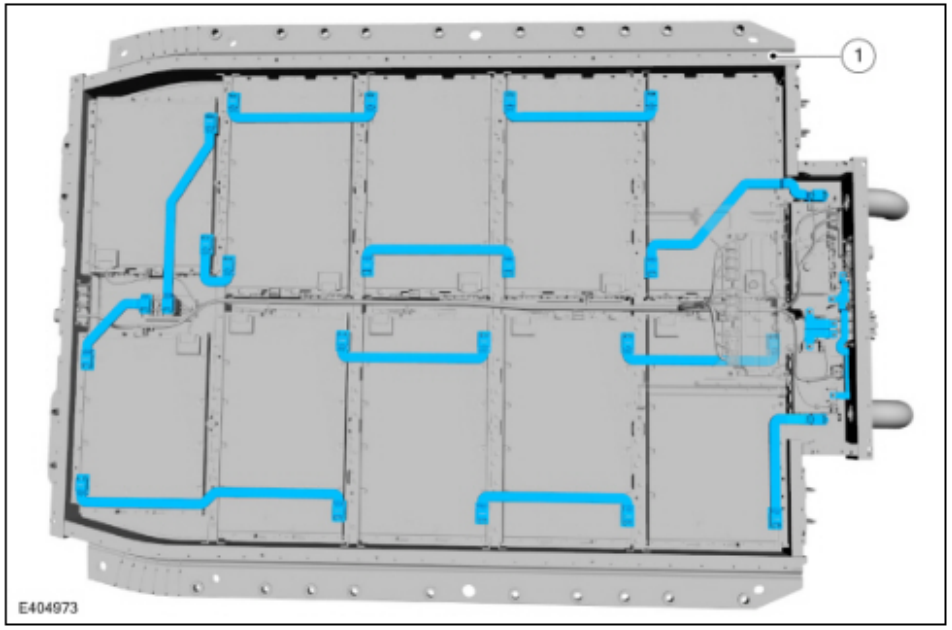
High Voltage Battery Component Locations

414-03A

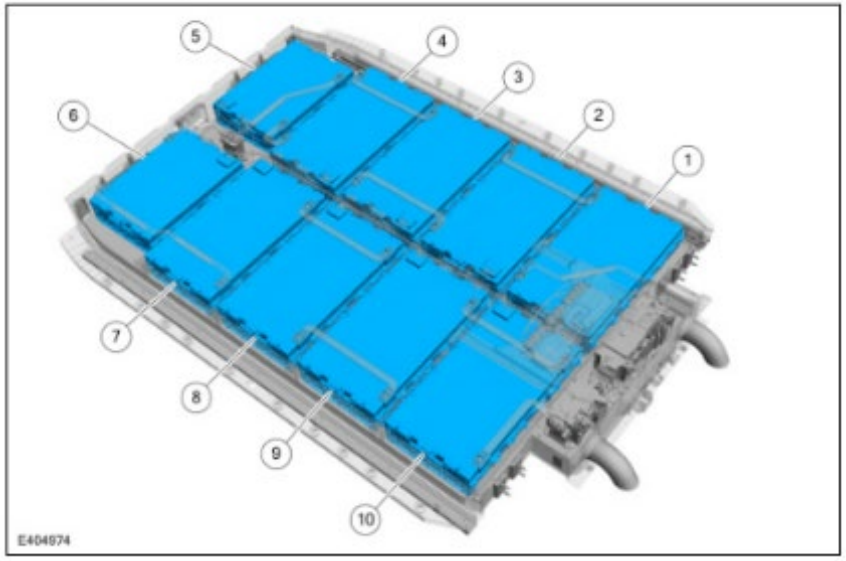
High Voltage Battery Wiring Harness



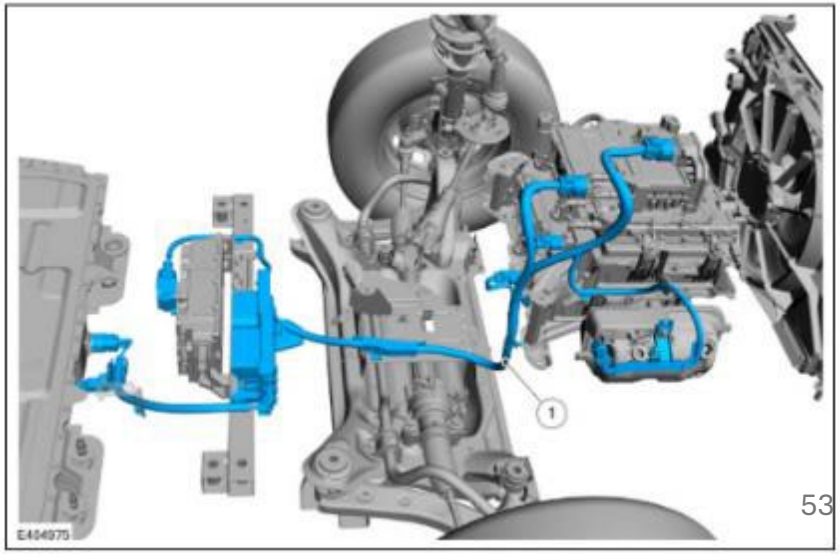
High Voltage Battery Bus Bar Configuration



High Voltage Battery Module Identification



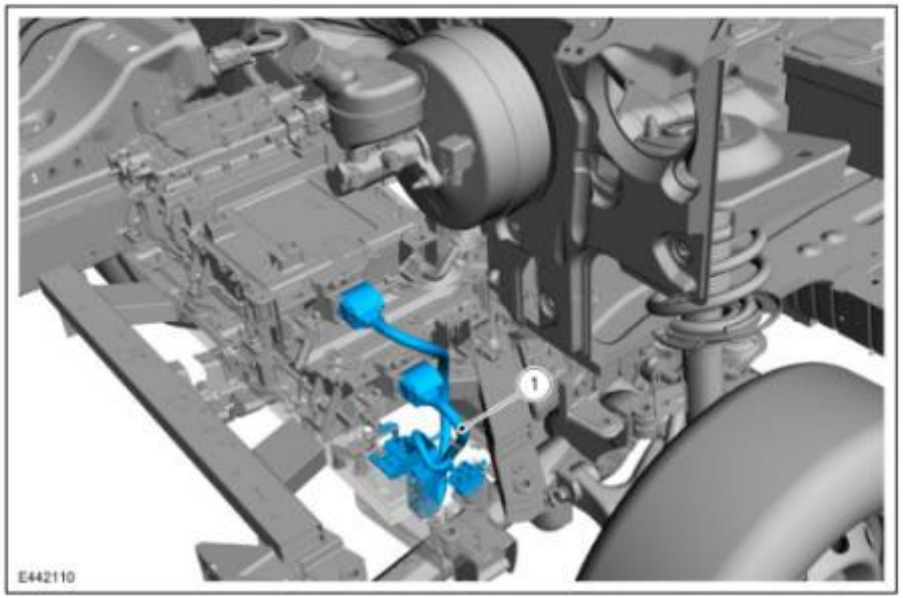
High Voltage Battery Cable



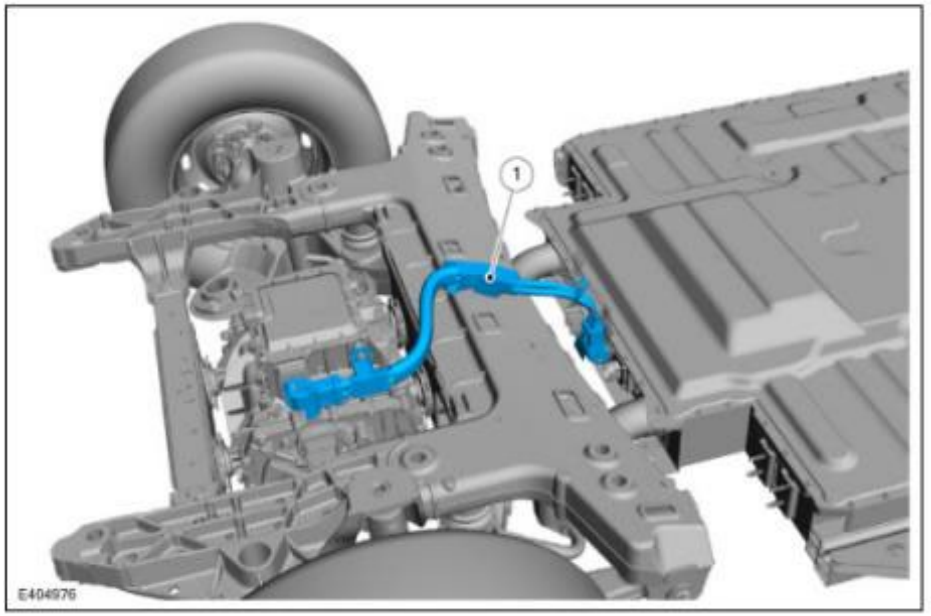
High Voltage Battery Component Locations

414-03A

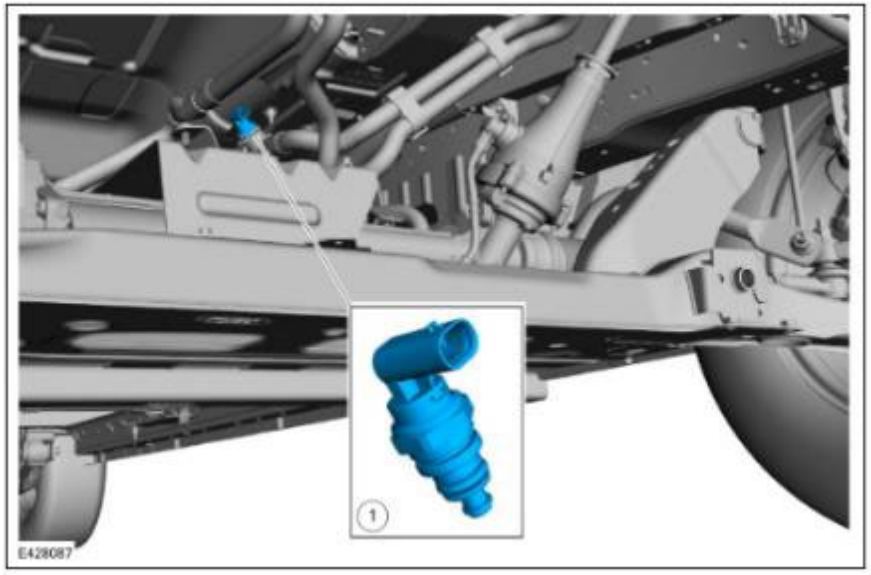
SOBDM to GFM2 High Voltage Cable



ISC High Voltage Cable



High voltage Battery Coolant Temperature Sensor



High Voltage Battery Description & Operation

414-03A

- **WARNING: To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions, including instructions to depower the system. The high-voltage system utilizes approximately 450 volts DC, provided through high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.**
- **NOTICE: The high voltage battery in a BEV can be affected and damaged by excessively high temperatures. The temperature in some body shop paint booths can exceed 60°C (140°F). Therefore, during refinishing operations, the paint booth temperature must be set at or below 60°C (140°F) with a bake time of 45 minutes or less. Temperatures exceeding 60°C (140°F) or bake durations longer than 45 minutes require the high voltage battery be removed from the vehicle prior to placing in the paint booth**

High Voltage Battery Description & Operation

414-03A

- The high voltage battery is comprised of a single battery pack mounted under the vehicle. Dedicated high voltage cable(s) (orange in color) connects from the high voltage battery pack inverter system controller(s) that coverts DC power from the high voltage battery and supply AC power to the electric motor for propulsion. The high voltage battery pack contains the BECM that monitors the controls high voltage battery operations and communicates battery data via HS-CAN . The high voltage battery also contains the high voltage battery junction box that transfers fused high voltage and current to the vehicle using high voltage relays known as contactors. The high voltage battery supplies energy to the high voltage components that control the climate control, high voltage battery cooling, and DCDC . The DCDC maintains the low voltage 12-volt battery.
- The high voltage system incorporates a low voltage service disconnect plug in the LH side of the engine compartment. The service disconnect when pulled to the OFF position opens the (12-volt) contactor control supply circuit and prevents the contactors from closing. Any time the vehicle high voltage system is serviced, the high voltage system must be disabled.
- The vehicle requires to be plugged into an external source of electricity. The vehicle is equipped with an on board charger known as the Battery Charger Control Module (BCCM) that supports AC level 1 (110V) and level 2 (220V) charging. During AC level 1 or level 2 charging the Battery Charger Control Module (BCCM) converts AC to DC to charge the high voltage battery. The vehicle can also be connected to a DC charging station for level 3 DC / DC fast charging. During DC level 3 charging DC is supplied directly to the high voltage battery from the charging station.

High Voltage Battery Description & Operation

414-03A

- The high-voltage system has a floating ground. The floating ground is designed to completely isolate the high-voltage system from the vehicle chassis. The high-voltage cables are fully insulated (isolated) from all vehicle components and circuits. There are no common connections (such as body grounds) used to conduct the high-voltage power. The BECM monitors this system for any leakage of current to the normal electrical system (similar to a household ground fault interrupter). There are high voltage circuits from the battery cell arrays to the BECM used to monitor high voltage battery pack voltage and voltage leakage to the 12-volt chassis ground.
- The SOBDMC manages the cooling of the high voltage battery by sending a coolant flow rate message via HS-CAN to the BECM that directly controls the high voltage battery coolant pump. The SOBDMC also sends messages to turn on or off the high voltage battery coolant cooler and high voltage battery coolant diverter valve via HS-CAN . The BCMC controls the high voltage battery coolant cooler diverter valve when requested by the SOBDMC to allow refrigerant to flow through the coolant cooler. The SOBDMC directly controls the high voltage battery coolant diverter valve when high voltage battery cooling is needed (high ambient temperatures and/or during high current flow demand) that opens and diverts coolant through the high voltage battery coolant cooler via a hybrid powertrain LIN circuit. The high voltage battery coolant cooler is part of the HVAC system to cool the coolant prior to being returned to the high voltage battery.

High Voltage Battery Description & Operation

414-03A

- High voltage battery designs consists of 3.7V lithium-ion cells packaged into modules which deliver approximately 400 volts DC to the high voltage system. The high voltage battery packs contains 10 serviceable battery modules within the battery pack.
- The Direct Current/Direct Current (DC/DC) converter control module is a liquid-cooled component that converts high voltage DC power to low voltage (12-volt) DC power.
- The Electric Rear Axle Drive (eRAD) is a single 3-phase electric motor and primary drive assembly that is used to drive the rear wheels. The electric motor receives power from the rear Inverter System Controller (ISC) also known as the SOBDMC that is fastened directly to the assembly. The Inverter System Controller (ISC) receives DC from the high voltage battery and converts it to AC to drive the motor. The electric motor is an internal part of the Electric Rear Axle Drive (eRAD) and it cannot be repaired, only installed new as an assembly.

High Voltage Battery Description & Operation

414-03A

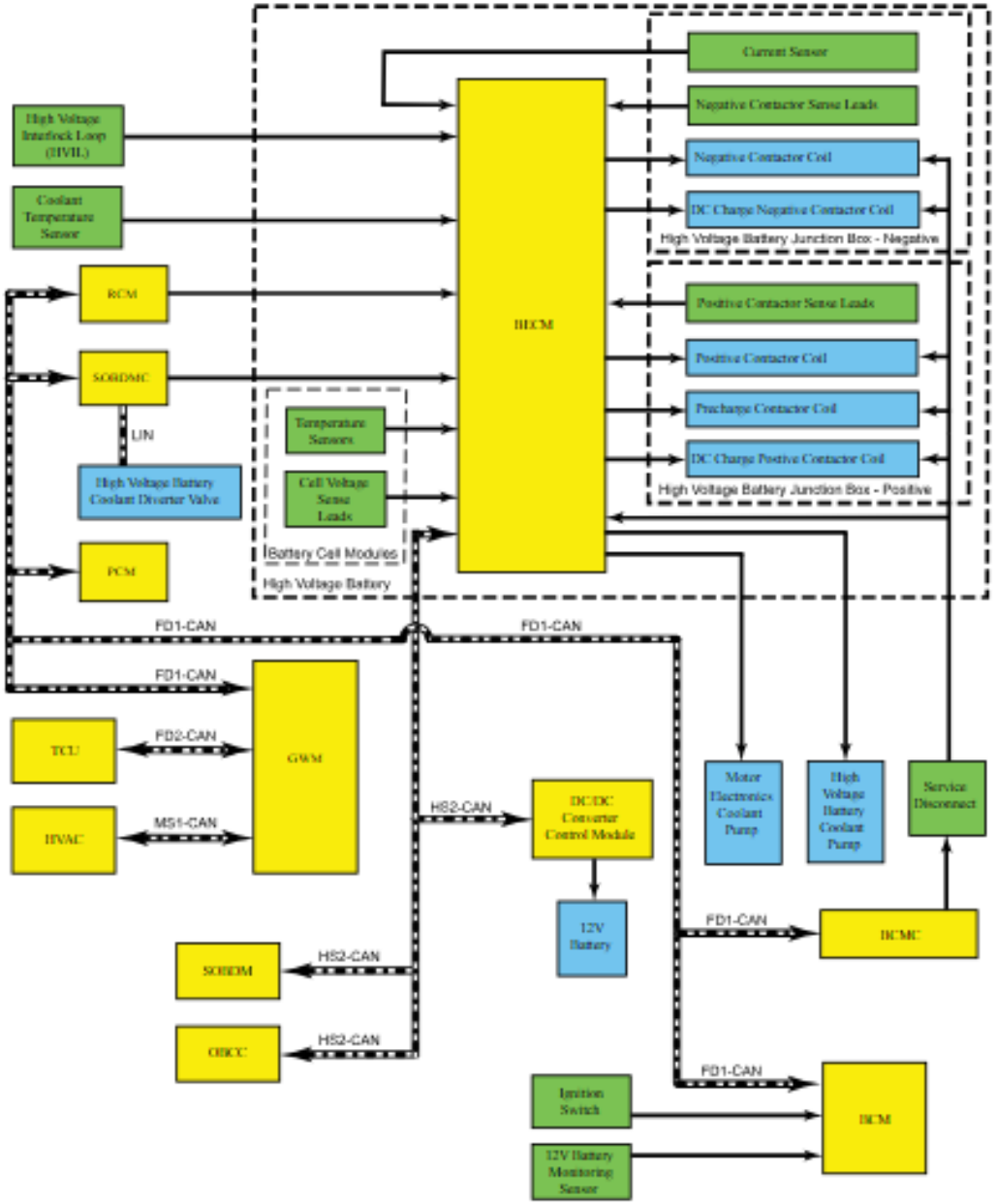
- The high voltage battery junction box is divided into two separate boxes known as the high voltage battery junction box - positive and the high voltage battery junction box - negative. The Inverter System controller (ISC) outputs are protected by a high voltage high current 2,200A circuit breaker internal to the high voltage battery junction box - negative. If the circuit breaker opens due to a high voltage overcurrent condition or short circuit it cannot be reset and the high voltage battery junction box - negative requires replacement.

- Four high voltage low current circuits supplies the negative and positive polarity to the DCDC , DCACA , Battery Charger Control Module (BCCM) also known as the SOBDM , secondary Battery Charger Control Module (BCCM) also known as the GFM2 , cabin coolant heater and ACCM . A 50A high voltage low current fuse protects the DCDC , DCACA and SOBDM . An additional 60A high voltage low current fuse protects the secondary Battery Charger Control Module (BCCM) also known as the GFM2 , cabin coolant heater and ACCM . Any fault resulting in excessive current on a low current circuit will open the affected 50A or 60A fuse first and stop power distribution to the components on that circuit. Any fault resulting in excessive current or short on a high current circuit to one or both Inverter System Controllers (ISC) opens the main circuit breaker and stop power distribution to all high voltage components. The high voltage battery junction box - negative contains the current sensor, high-voltage high current circuit breaker, 50A and 60A high-voltage low current fuses. Note the high voltage fuse current ratings reference the operating current of the circuit and not the faulted current to open the fuses. Only the high voltage low current fuses can be serviced separately. If a failure occurs with any of the other components a new high voltage battery junction box - negative must be installed.

High Voltage Battery Description & Operation

414-03A Battery Energy Control Module (BECM)

System Diagram

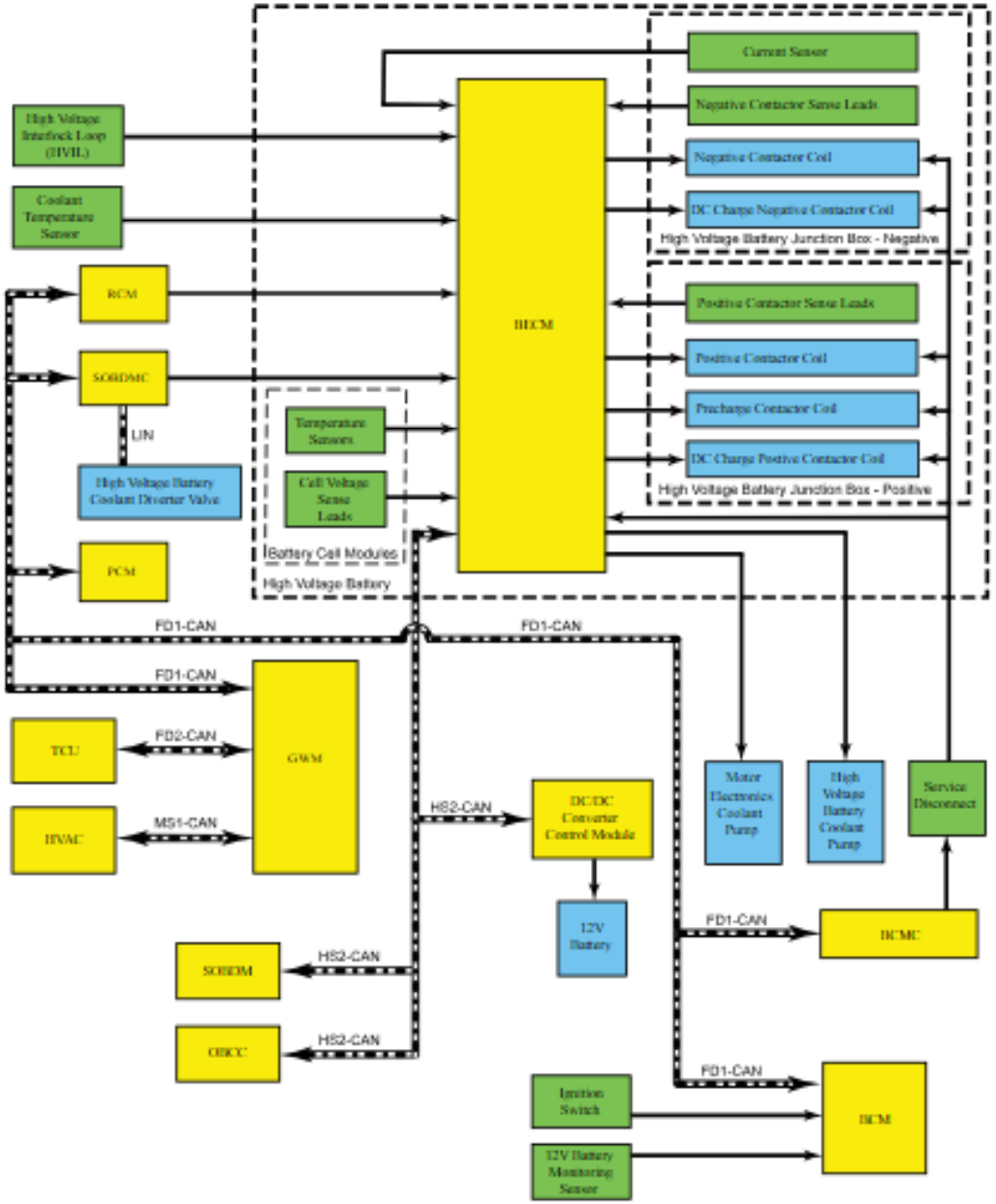


Broadcast Message	Originating Module	Message Purpose
12V battery voltage (gateway)	BCM	12V battery voltage measured by the battery monitoring sensor.
Accelerator pedal position (gateway)	PCM	Accelerator pedal position used for OBDII freeze frame data.
Global clock time (gateway)	BCM	Global time data.
Battery charger system fault status messages	SOBDM	Fault status messages of the charger.
Battery charger system status change event	SOBDM	Used to communicate when the charger state change is active between not ready, ready, charging, or fault.
Battery charger power available change event	SOBDM	Used to communicate when the available charger power changed.
EVSE plug status	SOBDM	Used to communicate if the EVSE plug status is connected (On plug) or disconnected (Off plug) from the vehicle charge port.
EVSE plug status event	SOBDM	Used to communicate if the EVSE plug status changes from being connected or disconnected from the vehicle charge port.
Battery charger ready status	SOBDM	Used to determine when the charger is ready to charge the high voltage battery.
Battery charger max power input	SOBDM	Maximum power available to the charger from the Electric Vehicle Supply Equipment (EVSE).
Battery charger current output	SOBDM	Measured current output of the charger.
Battery charger high voltage output	SOBDM	Measured voltage output of the charger.
Battery charger contactor power status	SOBDM	Used to communicate if the contactor power is asserted or not asserted.
Battery charger cooling fan request	SOBDM	Used to request the engine cooling fan to Off, Low, Medium, or High
Battery charger coolant flow request	SOBDM	Coolant flow request to support cooling of the SOBDM .
EVSE power mode	SOBDM	Operational status of the EVSE while it is plugged into the vehicle charge port.
DC charge EVSE output voltage	OBCC	This value represents the present DC charge EVSE output voltage.
DC charge EVSE output current	OBCC	This value represents the present DC charge EVSE output current.
DC charge isolation monitoring disable request	OBCC	This signal notifies the BECM to disable isolation monitoring so the EVSE can monitor isolation.
DC charge EVSE isolation status	OBCC	The value represents the DC charge circuit isolation condition measured and reported by the EVSE.

High Voltage Battery Description & Operation

414-03A Battery Energy Control Module (BECM)

System Diagram

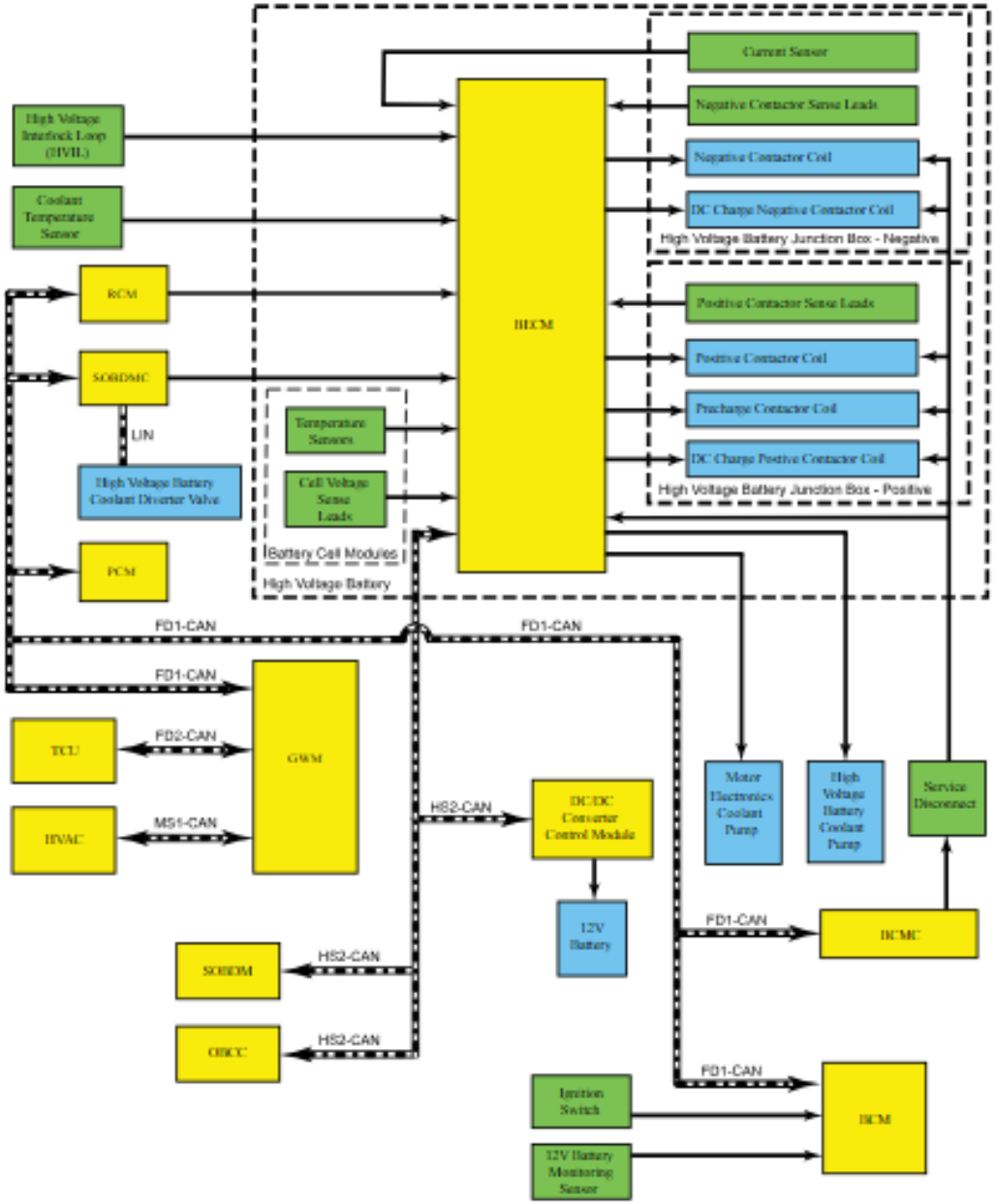


Broadcast Message	Originating Module	Message Purpose
DC charging ready status (not ready, initialization, charge ready, weld check, precharge, charging, charge complete)	OBCC	This signal represents the DC to DC fast charge status.
DC charge EVSE voltage maximum	OBCC	The maximum voltage the EVSE can deliver.
DC charge EVSE voltage minimum	OBCC	The minimum voltage the EVSE can deliver.
DC charge EVSE power maximum	OBCC	The maximum power the EVSE can deliver.
DC charge EVSE current maximum	OBCC	The maximum current the EVSE can deliver.
DC charge EVSE current minimum	OBCC	The maximum current the EVSE can deliver.
Engine load (gateway)	PCM	Engine calculated load value used for OBDII freeze frame data.
Engine RPM (gateway)	PCM	Engine RPM used for OBDII freeze frame data.
OBDII warm-up completions (gateway)	PCM	Used to increment counters for DTC aging.
High voltage battery estimated current flow (gateway)	SOBDMC	Estimated current flow into or out of the high voltage battery.
High voltage battery contactor request (gateway)	SOBDMC	Command to high voltage battery controller to open, close, or retain the high voltage contactor position.
High voltage battery DC charge RMS current limit (gateway)	SOBDMC	Used to limit the High voltage battery charge RMS current.
High voltage battery charge inhibit request (gateway)	SOBDMC	A request to inhibit charging of the high voltage battery.
High voltage battery contactor supply voltage status (gateway)	SOBDMC	Used to determine if the 12V contactor supply voltage is asserted or not asserted.
High voltage battery coolant flow request (gateway)	SOBDMC	High voltage battery coolant pump flow percentage request to support cooling of the high voltage battery.
High voltage battery charge inhibit request (gateway)	SOBDMC	Request to inhibit charging of the high voltage battery.
High voltage battery drive sustain request (gateway)	SOBDMC	This signal indicates the request of required modules to remain awake to support high voltage battery drive conditioning while on-plug.
Cabin drive sustain request (gateway)	SOBDMC	This signal indicates the request of required modules to remain awake to support cabin drive pre-conditioning.
High battery charge now event status (gateway)	SOBDMC	This signal indicates the required modules are awake due to the charge now event.

High Voltage Battery Description & Operation

414-03A Battery Energy Control Module (BECM)

System Diagram

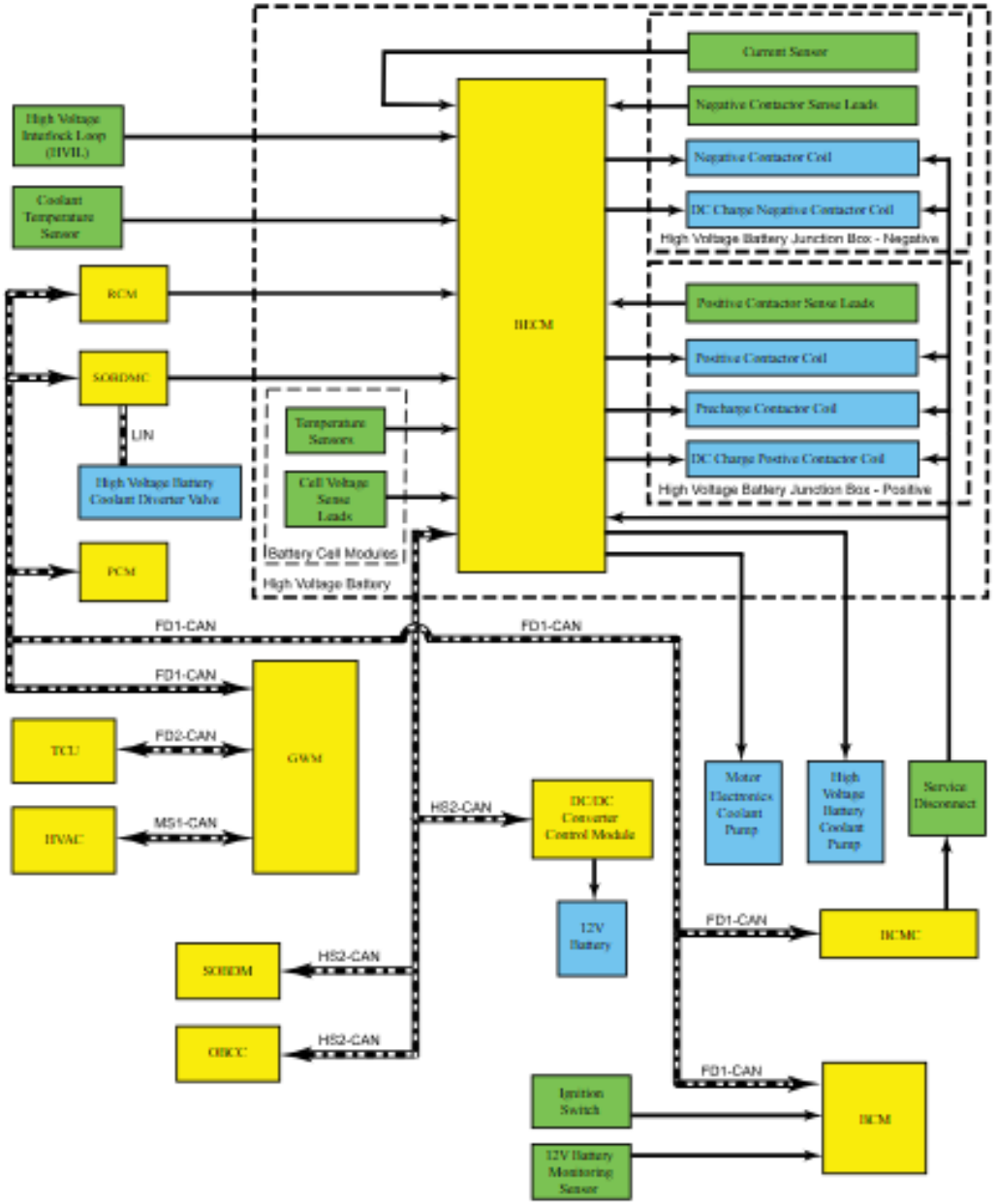


Broadcast Message	Originating Module	Message Purpose
12V battery transfer sustain request (gateway)	SOBDMC	This signal indicates the request of required modules to remain awake to support 12-volt battery charging.
SOBDMC coolant flow request (gateway)	SOBDMC	Coolant flow request to support cooling of the SOBDMC .
High voltage battery reserved State Of Charge (SOC) (gateway)	SOBDMC	Used by the BECM to preserve the specified high voltage battery SOC.
High voltage interlock circuit status (gateway)	SOBDMC	Notifies the BECM if the high voltage interlock circuit is open which disables the high voltage system.
Target SOC (State Of Charge) request (gateway)	SOBDMC	Target SOC (State Of Charge) request while charging.
A/C compressor estimated current flow (gateway)	SOBDMC	Estimated current flow into the A/C compressor.
Hybrid DC/DC current usage	Direct Current/Direct Current (DC/DC) converter control module	Direct Current/Direct Current (DC/DC) converter control module high voltage current usage for Energy Management (includes all 12V loads).
Hybrid DC/DC high voltage measurement	Direct Current/Direct Current (DC/DC) converter control module	Voltage of the high voltage bus as seen by the Direct Current/Direct Current (DC/DC) converter control module.
Hybrid DC/DC low voltage measurement	Direct Current/Direct Current (DC/DC) converter control module	Voltage of the 12 volt system as seen by the Direct Current/Direct Current (DC/DC) converter control module.
Hybrid DC/DC coolant flow request	Direct Current/Direct Current (DC/DC) converter control module	Coolant flow request to support cooling of the Direct Current/Direct Current (DC/DC) converter control module.
Hybrid DC/DC cooling fan request	Direct Current/Direct Current (DC/DC) converter control module	Used to request the engine cooling fan to Off, Low, Medium, or High

High Voltage Battery Description & Operation

414-03A Battery Energy Control Module (BECM)

System Diagram

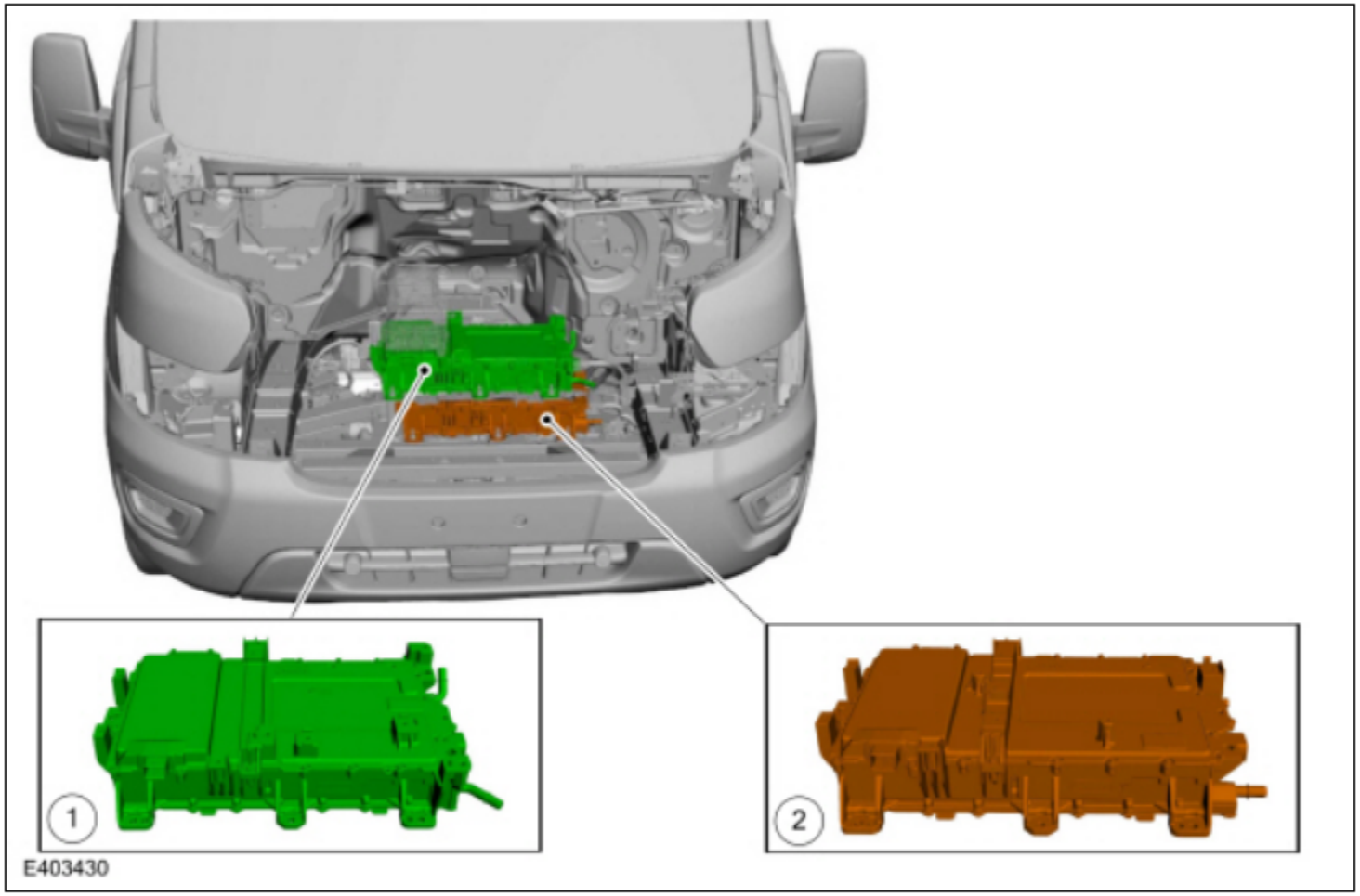


Broadcast Message	Originating Module	Message Purpose
Hybrid power limiting ON status (gateway)	SOBDMC	Used to determine if the hybrid motor power is being limited.
Inverter System Controller (ISC) voltage (gateway)	SOBDMC	Voltage on the high voltage cable at the input to the rear Inverter System Controller (ISC).
HVAC cabin ambient temperature (gateway)	HVAC	Estimated air flow from the HVAC system
Ignition status (gateway)	BCM	Current ignition state: off, accessory, run, start, unknown or invalid.
12V battery charging support (gateway)	PCM	Notification that 12V battery charging support is requested.
Vehicle operating mode status (gateway)	SOBDMC	Vehicle status: Off, start in progress, On (torque available), or On (torque not available).
Restraint impact event status (gateway)	RCM	Used to disable the high voltage system during a crash.
Transmission selector (PRNDL) status (gateway)	SOBDMC	Used to determine transaxle gear state.
Vehicle speed (gateway)	PCM	Vehicle speed actual.
Odometer master value (gateway)	IPC	Vehicle odometer value.
Vehicle configuration data (gateway)	BCM	Vehicle configuration strategy.

High Voltage Battery Charging System Component Locations

414-03B

Charger Modules

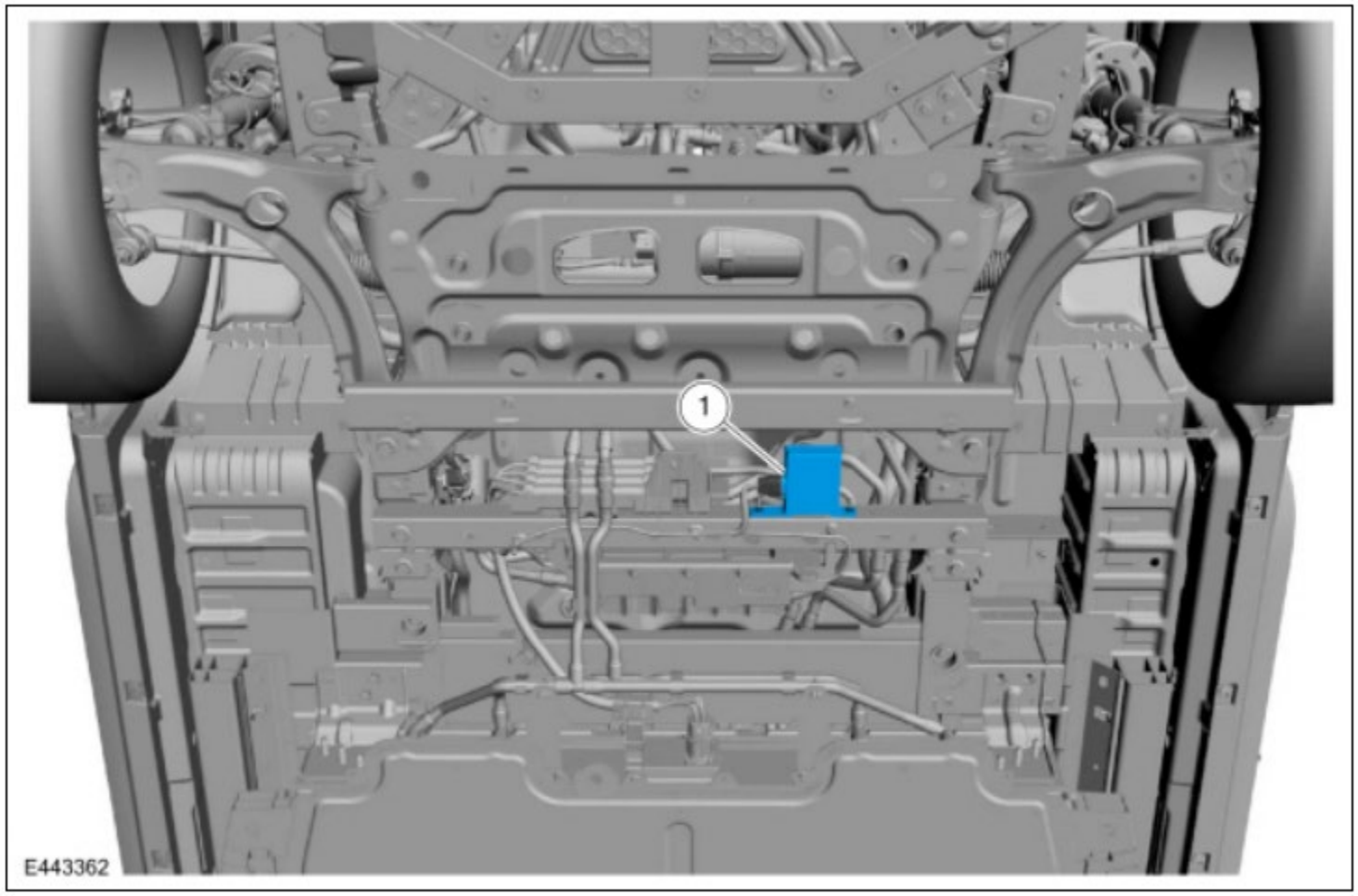


Item	Description
1	SOBDM [Battery Charger Control Module (BCCM)]
2	GFM2 [Battery Charger Control Module (BCCM)]

High Voltage Battery Charging System Component Locations

414-03B

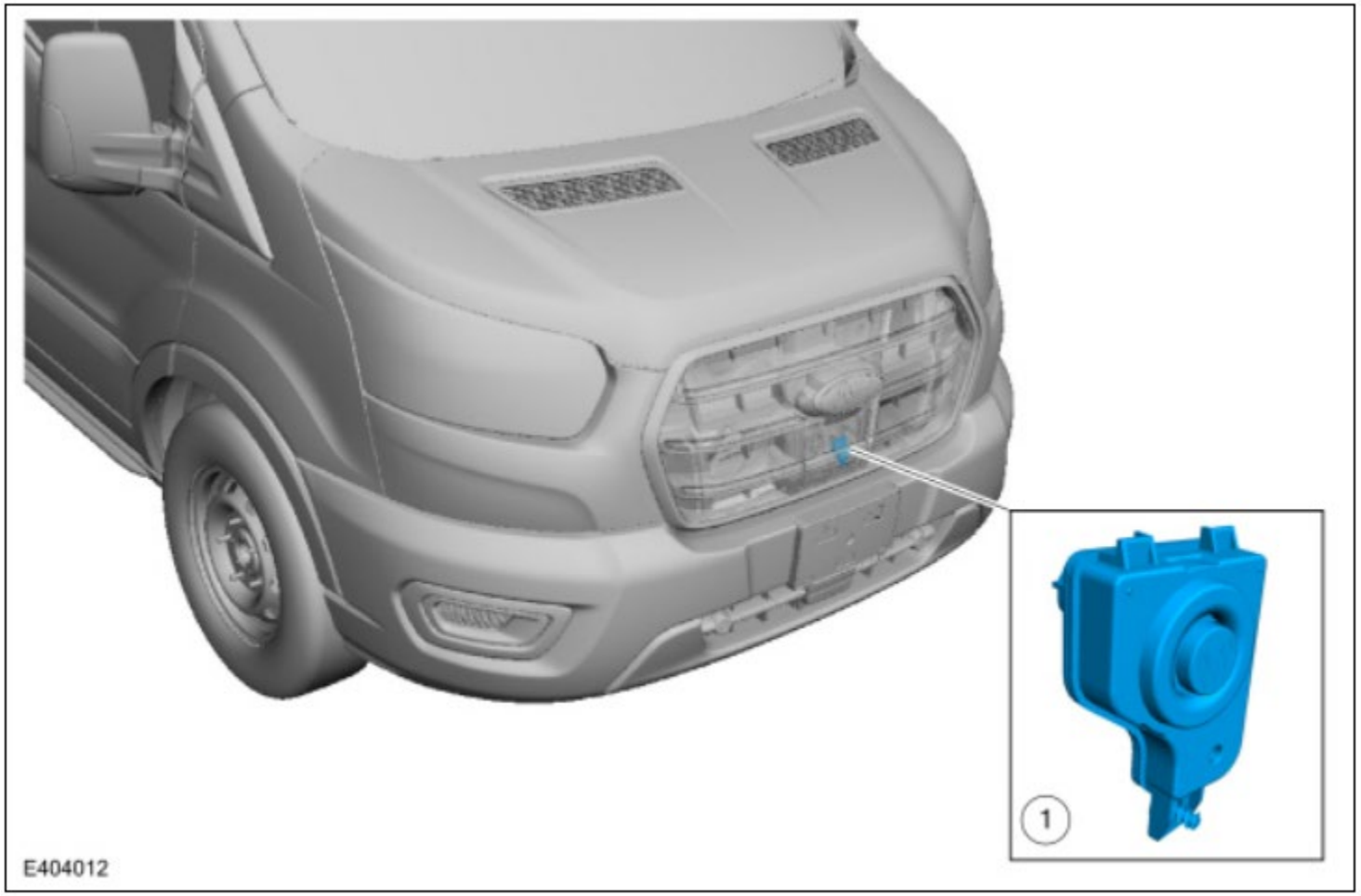
Off-Board Charger Controller (OBCC)



High Voltage Battery Charging System Component Locations

414-03B

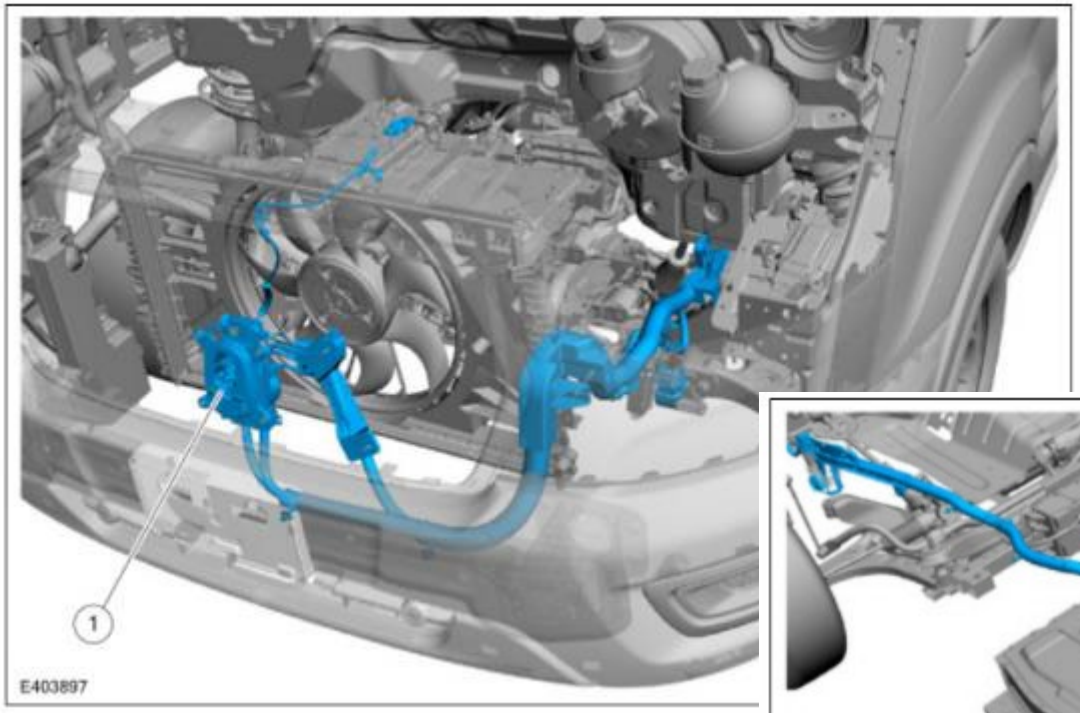
Charger Status Indicator

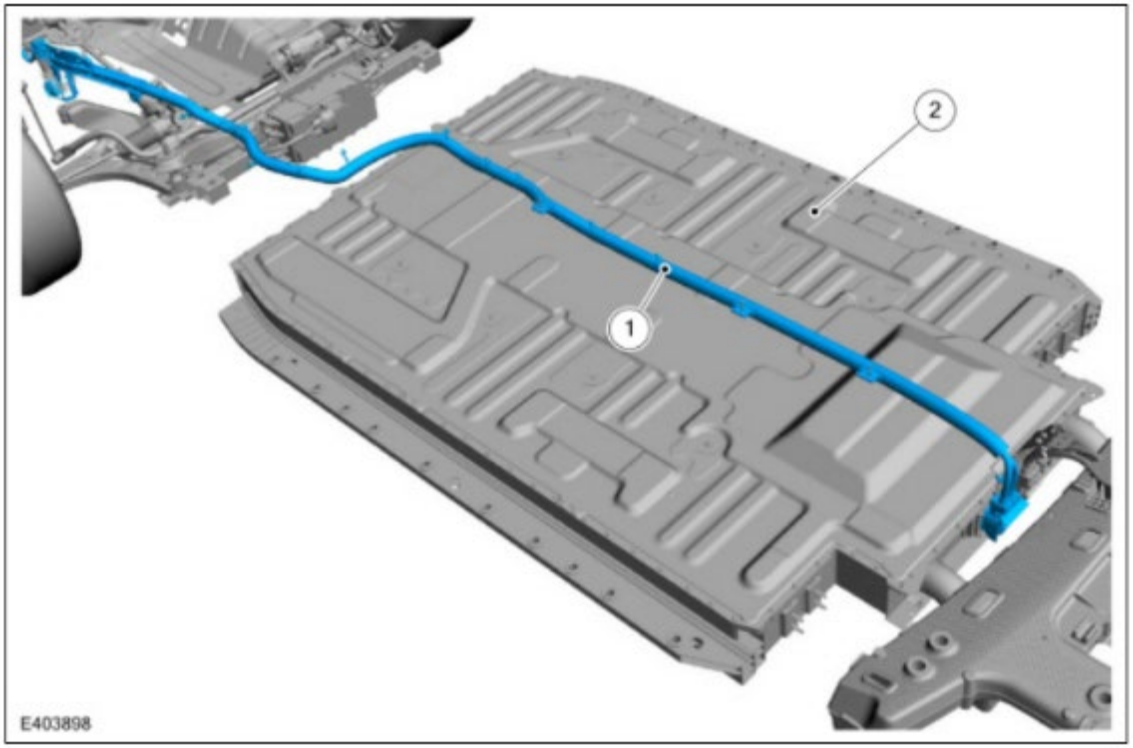


High Voltage Battery Charging System Component Locations

414-03B

Charge Port

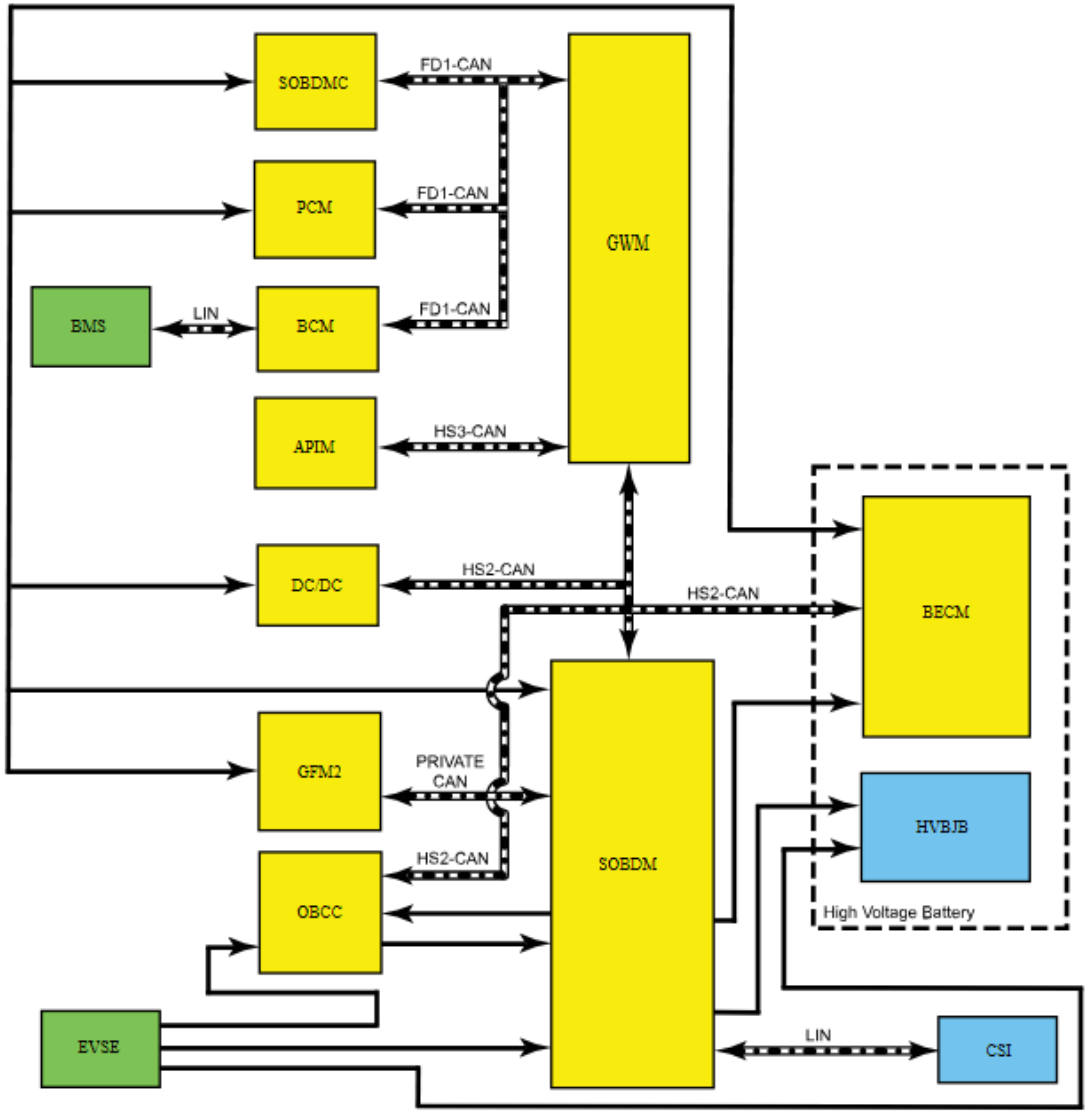




High Voltage Charging System - SOBDM

414-03B

System Diagram

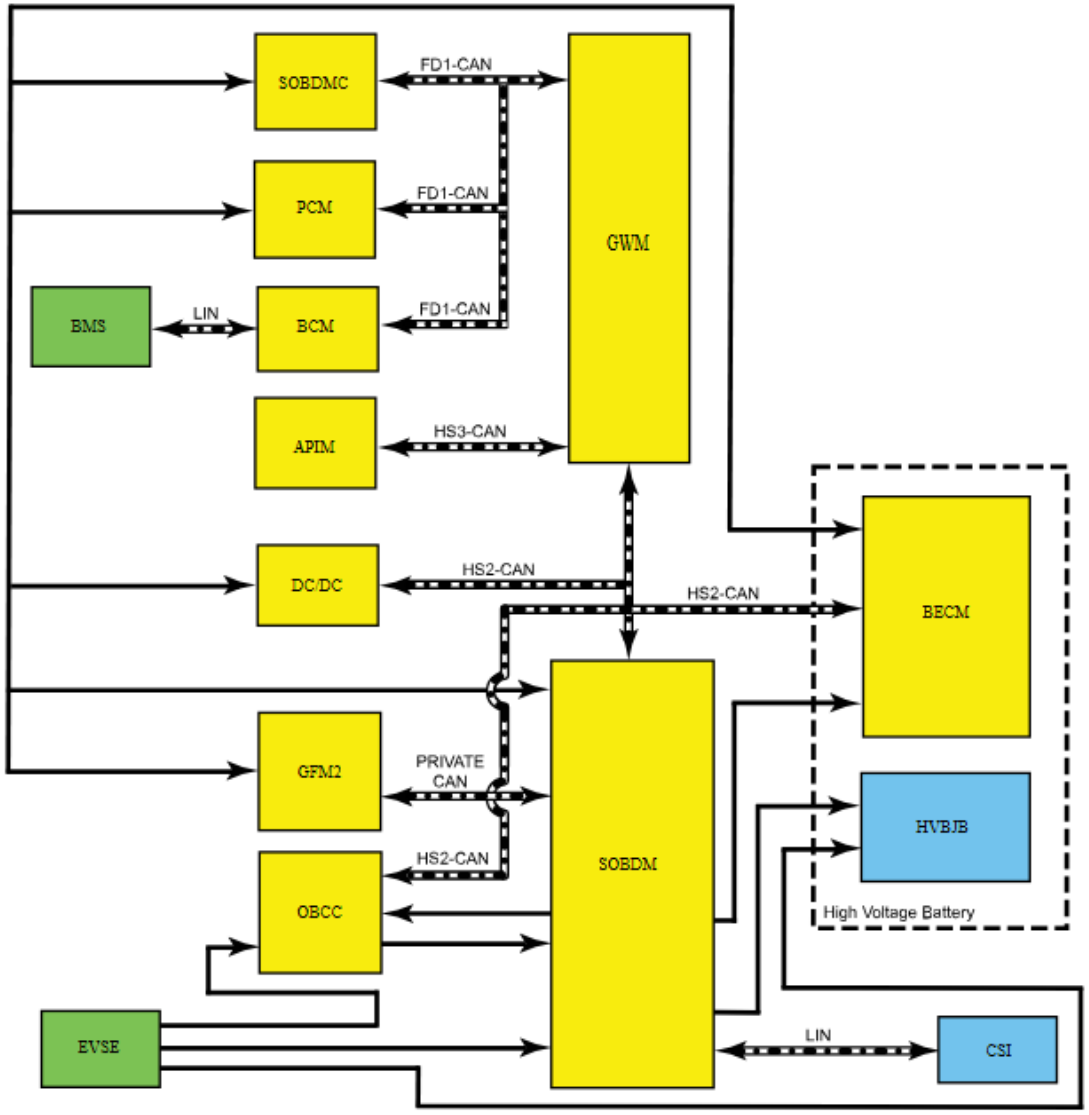


Broadcast Message	Originating Module	Message Purpose
12V battery charging support (gateway)	PCM	Notification that 12V battery charging support is requested.
12V battery voltage (gateway)	BCM	Battery voltage measured with battery sensor.
Ambient air temperature (gateway)	PCM	Ambient air temperature measured.
Cabin ambient air temperature (gateway)	PCM	Cabin ambient air temperature measured.
Auxiliary contactor open/close	BECM	High voltage battery auxiliary contactor command.
EVSE charge output DC current	OBCC	Charge output current of the EVSE .
EVSE charge output DC voltage	OBCC	Charge output voltage of the EVSE .
EVSE charge minimum DC current	OBCC	Minimum charge current the EVSE can provide.
EVSE charge maximum DC current	OBCC	Maximum charge current the EVSE can provide.
EVSE charge minimum DC voltage	OBCC	Minimum charge voltage the EVSE can provide.
EVSE charge maximum DC voltage	OBCC	Maximum charge voltage theEVSE can provide.
Charge port lock status	SOBDM	This signal represents the charge cord lock status.
Charge Status Indicator (CSI) display request (gateway)	APIM	The center stack sends a signal to turn the light ring On or Off. This is a customer selectable preference.
Charge cord unlock request (gateway)	APIM	This signal represents the charge cord unlock request initiated by a button on the APIM display. This signal is used as one of the triggers to unlock the charge cord and terminate charge.
Charge now current display (gateway)	SOBDMC	Current On/Off display of charge now indicator.
High voltage battery charge inhibit request (gateway)	SOBDMC	A request to inhibit charging of the high voltage battery.
High voltage battery drive sustain request (gateway)	SOBDMC	This signal indicates the request of required modules to remain awake to support high voltage battery drive conditioning while on-plug.
Cabin drive sustain request (gateway)	SOBDMC	This signal indicates the request of required modules to remain awake to support cabin drive pre-conditioning.
High battery charge now event status (gateway)	SOBDMC	This signal indicates the required modules are awake due to the charge now event.
12V battery transfer sustain request (gateway)	SOBDMC	This signal indicates the request of required modules to remain awake to support the 12V voltage battery charging.
High voltage battery contactor supply voltage status (gateway)	SOBDMC	Used to determine if the 12V contactor supply voltage is asserted or not asserted.
DC charging ready status (not ready, initialization, charge ready, weld check, precharge, charging, charge complete)	OBCC	This signal represents the DC charging status.
DC charger EVSE maximum power	OBCC	Maximum EVSE power

High Voltage Charging System - SOBDM

414-03B

System Diagram

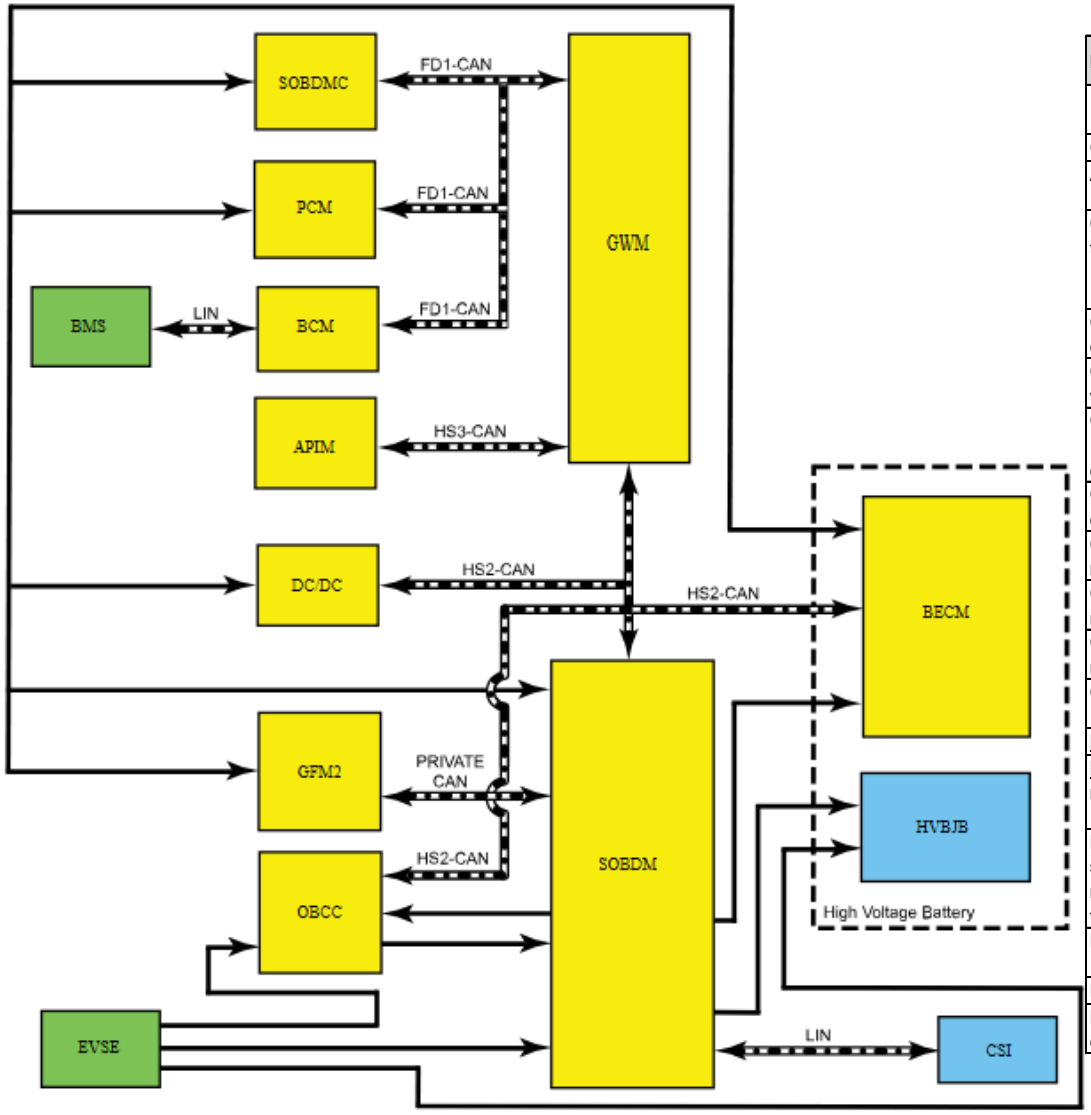


Broadcast Message	Originating Module	Message Purpose
Digital communication gateway mode status	OBCC	Status of digital communication from EVSE .
High voltage battery isolation monitoring disable request	OBCC	Request to disable high voltage battery isolation monitoring.
High voltage battery coolant pump status	BECM	Status of the high voltage battery coolant pump (On, Off, Fault)
Customer State-of-Charge (CSoC)	BECM	High voltage battery state of charge (SOC) for display.
High voltage battery charge sustain request	BECM	This signal indicates the request of required modules to remain awake to support high voltage battery charging.
Direct Current/Direct Current (DC/DC) status	DCDC	Used to enable or disable charging of the 12V battery.
Gear lever position (gateway)	PCM	Used to determine transaxle gear state
High voltage battery charge status (not ready, charge wait, ready, charging, charge complete, fault)	BECM	Used to transition the charger between charging and ready states.
High voltage battery DC charging voltage	BECM	DC charging voltage.
High voltage battery current flow	BECM	Electric current flow into or out of the high voltage battery.
High voltage battery shutdown	BECM	Indication that the high voltage battery system has shutdown.
High voltage battery voltage	BECM	Voltage level of high voltage battery.
High voltage battery DC fast charge contactor command	BECM	Command to open or close the high voltage DC fast charge contactors position.
High voltage battery contactor command (gateway)	PCM	Command to high voltage battery controller to open, close, or retain the high voltage contactors position.
Ignition status (gateway)	BCM	Used to determine ignition key state.
Day/Night Status (gateway)	BCM	Used to determine illumination level of the Charge Status Indicator (CSI) LED s from daytime and nighttime.
High voltage battery charge current request	BECM	Used to limit and set target setpoint of charger.
High voltage battery charge voltage request	BECM	Used to limit and set target setpoint of charger.
Odometer master value (gateway)	BCM	Vehicle odometer value.
OBDII warm up completions (gateway)	PCM	Used to increment counters for DTC aging.
Transmission selector (PRNDL) requested (gateway)	PCM	Requested transaxle gear selection.
Vehicle configuration data (gateway)	BCM	Vehicle configuration strategy.
Vehicle operating mode (gateway)	PCM	Vehicle must be in non-torque producing mode prior to charging.

High Voltage Charging System - OBCC

414-03B

System Diagram

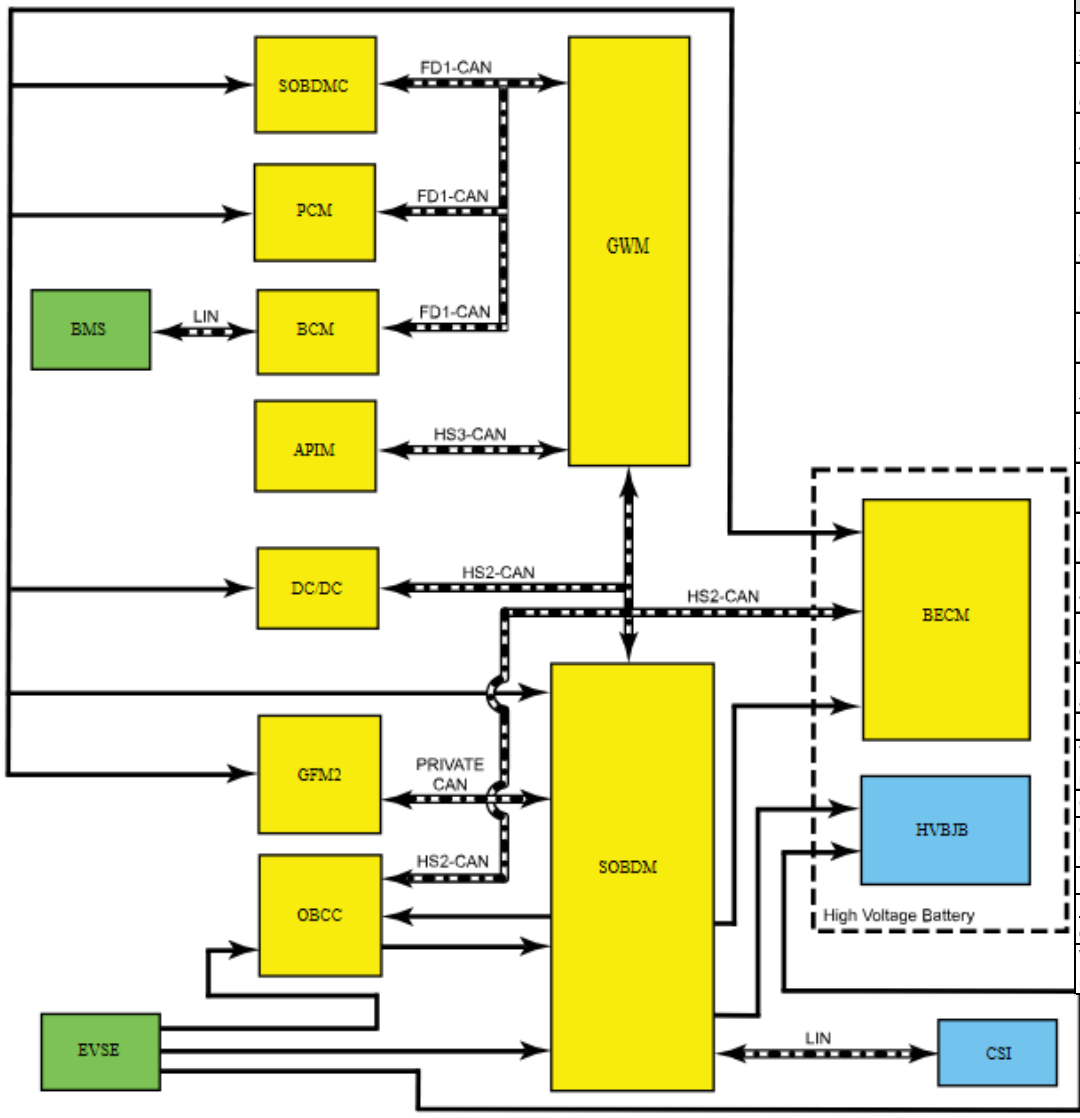


Broadcast Message	Originating Module	Message Purpose
12V battery voltage (gateway)	BCM	Battery voltage measured with battery sensor.
Global clock time (gateway)	BCM	Global time data.
Ambient air temperature (gateway)	PCM	Ambient air temperature measured.
Charge port DC charging temperature fault	SOBDM	Over temperature fault during DC charging. If temperature exceeds a calibrated threshold charging will be derated or aborted.
Charge port DC fast charge over current fault	SOBDM	Over current fault during DC charging.
Charge port DC fast charge over voltage fault	SOBDM	Over voltage fault during DC charging.
Charge input power type (level 1 120V, level 2 240V, DC fast charging)	SOBDM	Used to determine the type of EVSE is connected to the vehicle and if digital communication is supported.
Charger ready status (not ready, charger ready, charger fault)	SOBDM	Used to determine when the charger is ready to charge the high voltage battery.
Charger AC current input minimum	SOBDM	AC minimum current input to the charger (level 1 or 2 EVSE).
Charger AC current input maximum	SOBDM	AC maximum current input to the charger (level 1 or 2 EVSE).
Charger AC voltage input maximum	SOBDM	AC maximum voltage input to the charger (level 1 or 2 EVSE).
Customer State-of-Charge (CSoC)	BECM	High voltage battery state of charge (SOC) for display.
EVSE S2 switch status	SOBDM	EVSE S2 switch open/close status.
EVSE digital communication mode request	SOBDM	Request to support or not support digital communication based on type of EVSE connected to vehicle.
High voltage battery charger ready status (not ready, charge wait, ready, charging, charge complete, fault)	BECM	Used to transition the charger between charging and ready states.
High voltage battery current flow	BECM	Electric current flow into or out of the high voltage battery.
High voltage battery voltage	BECM	Voltage level of high voltage battery.
High voltage battery DC fast charge contactor command	BECM	Command to open or close the high voltage battery DC fast charge contactors.

High Voltage Charging System - OBCC

414-03B

System Diagram

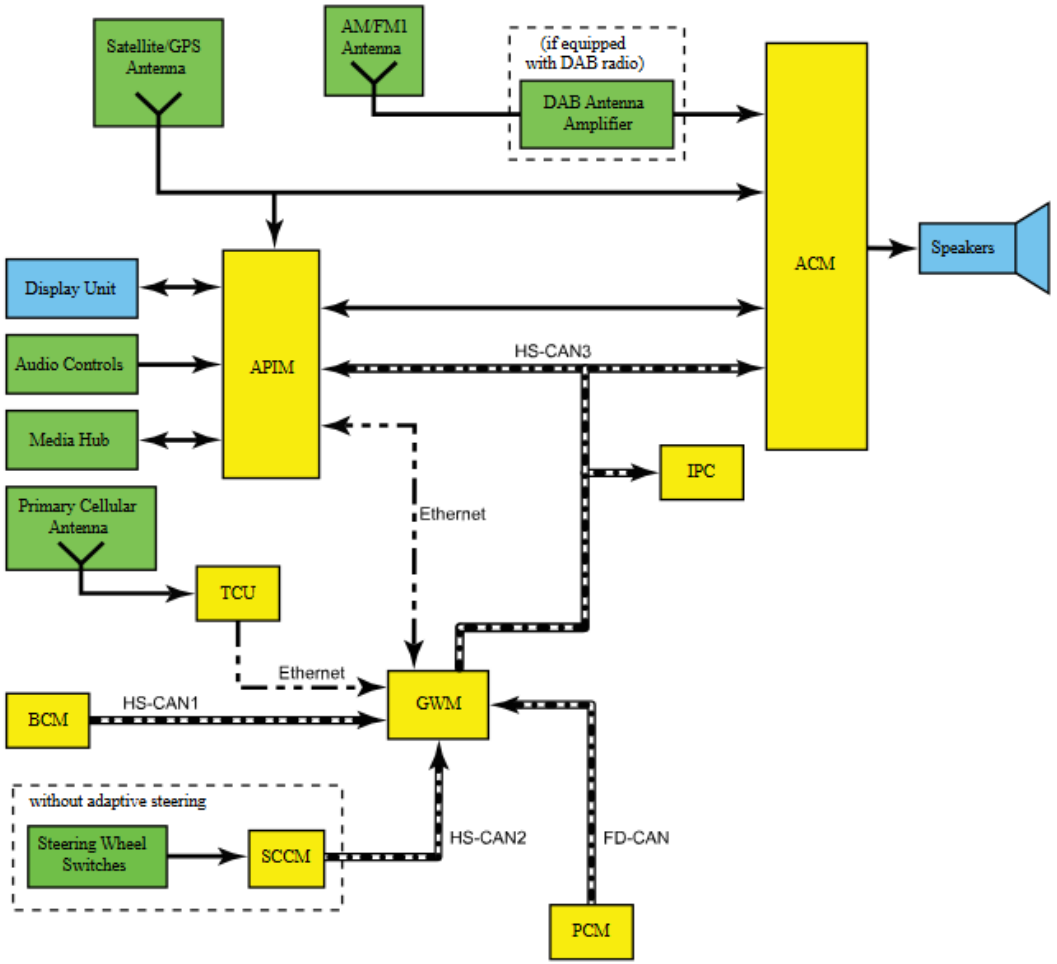


Broadcast Message	Originating Module	Message Purpose
High voltage isolation disable status	BECM	Status of the vehicle-side high voltage isolation disable status.
High voltage battery charge current request	BECM	Used to limit and set target setpoint of the DC fast charge EVSE .
High voltage battery charge voltage request	BECM	Used to limit and set target setpoint of the DC fast charge EVSE .
High voltage battery charge voltage request	BECM	Used to limit and set target setpoint of the DC fast charge EVSE .
High voltage battery charge mode actual	BECM	Used to determine if the high voltage battery is charging or not charging.
High voltage battery charge maximum voltage	BECM	Maximum charge voltage used to limit charger.
High voltage battery charge maximum temperature	BECM	Maximum battery temperature to allow charging.
High voltage battery cell maximum temperature	BECM	Maximum battery cell temperature.
High voltage battery cell minimum temperature	BECM	Minimum battery cell temperature.
High voltage battery charge maximum cell voltage	BECM	Maximum cell voltage charge limit.
High voltage battery charge rate nominal	BECM	Nominal high voltage battery charge rate.
High voltage battery charge voltage nominal	BECM	Nominal high voltage battery charge voltage.
High voltage battery charge current nominal	BECM	Nominal high voltage battery charge current.
High voltage battery charge rate actual	BECM	Actual high voltage battery charge rate.
High voltage battery cell type	BECM	Type of battery cell chemistry.
Transmission selector (PRNDL) requested (gateway)	PCM	Requested transaxle gear selection.
Odometer master value (gateway)	BCM	Vehicle odometer value.
OBDII warm up completions (gateway)	PCM	Used to increment counters for DTC aging.
Plug status	SOBDM	Used to determine if a EVSE is connected.
DC fast charge complete estimated (gateway)	SOBDMC	Estimated time to DC fast charge complete.
Vehicle configuration data (gateway)	BCM	Vehicle configuration strategy.

Audio System

415-00C

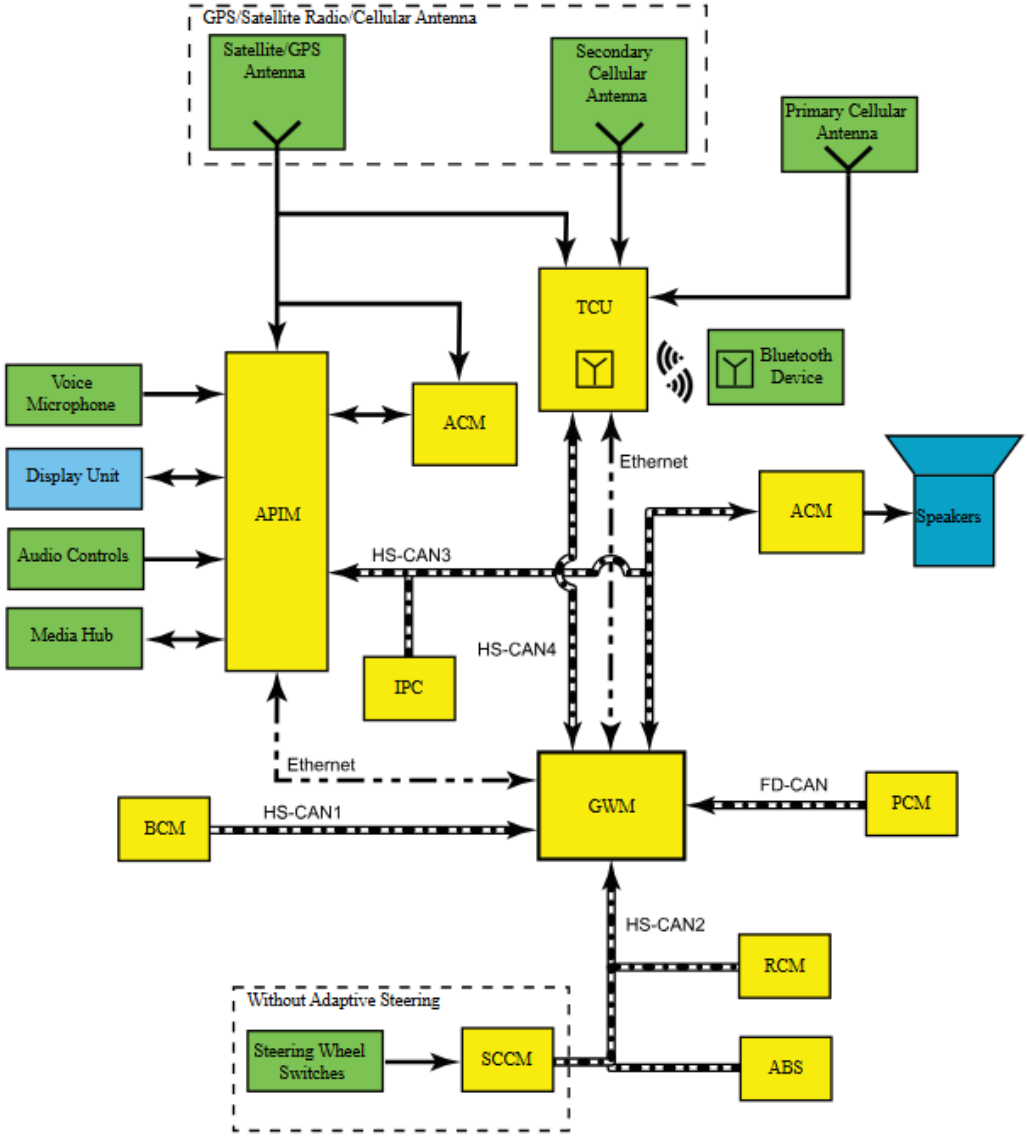
System Diagram



SYNC System

415-00C

System Diagram



Audio & SYNC System

415-00C

ACM Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Battery saver status	BCM	Disables the functionality of the ACM due to the load shedding feature.
Chime controls	IPC	Controls the priority, characteristics, volume, and speaker output of the warning chime tones played through the audio system speakers.
Chime source	IPC	Sets the audio system or IPC as the source for the chime tones.
Ignition status	BCM	Indicates the ignition mode.
MyKey data	IPC	Mutes speaker output so the Belt-Minder tone can be more easily heard.
Steering wheel switch status	SCCM	Indicates the button press status of a steering wheel button.
SYNC alerts	APIM	Controls the characteristics, volume, and speaker output of the SYNC notifications [text message, news, sports, weather and traffic alerts].
Vehicle configuration data	BCM	Verifies vehicle configuration data such as the VIN and system module configuration.
Vehicle speed	PCM	Used for the speed compensated volume function.

APIM Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Emergency Assist override status	IPC	Enables or disables the “Always on” emergency assistance MyKey feature as selected through the IPC while using an administrator MyKey.
Airbag deployment status	RCM	Monitors airbag deployment status for 911 Assist or emergency assistance.
Date and time	BCM	Displays the current time on the display.
Display language selection	IPC	Displays information on the display unit in the selected language.
Call notification	RCM	Notifies of an emergency assist call being initiated due to airbag deployment.
Ignition status	BCM	Indicates the ignition mode.
Illumination dimming level	BCM	Controls the backlight intensity.
Navigation rolling wheel count and direction	ABS module	Provides more accurate vehicle position tracking when the GPS signal is temporarily unavailable.
Steering wheel switch status	SCCM	Indicates the button press status of a steering wheel button.
Vehicle configuration data	BCM	Verifies vehicle configuration data such as the VIN and system module configuration.
Vehicle speed	PCM	Used for navigation functionality.

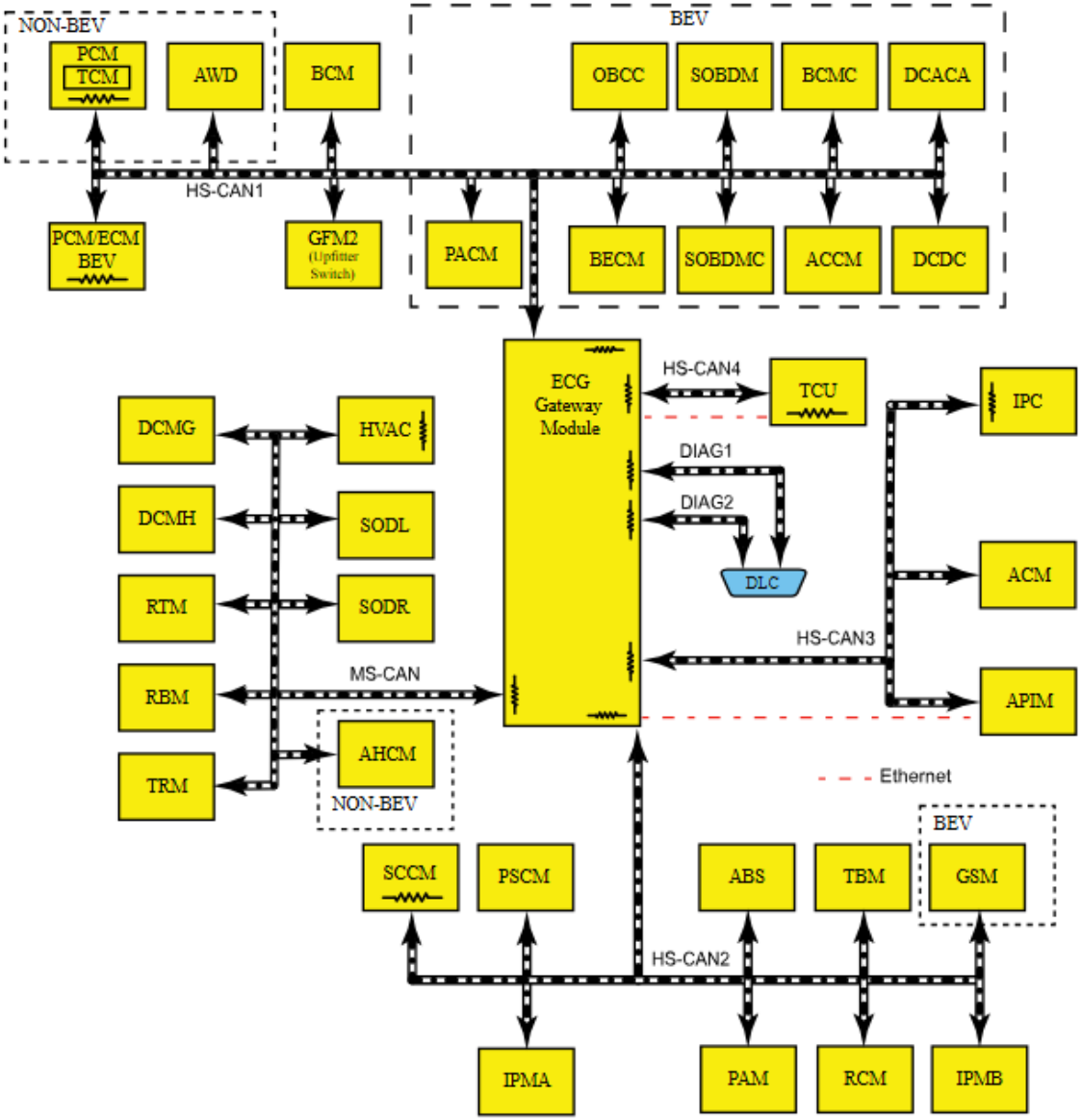
TCU Network Input Messages

Broadcast Message	Originating Module	Message Purpose
GPS data	APIM	Indicates the vehicle location via the FordPass mobile application.
Ignition status	BCM	Indicates the ignition mode.
Odometer master value	IPC	Indicates the odometer value via the FordPass mobile application.
Transport mode	BCM	Disables the functionality of the TCU until the vehicle is taken out of transport mode.
Vehicle lock status	BCM	Indicates the vehicle lock/unlock mode.
Wi-Fi request	APIM	Controls various Wi-Fi features, such as password and add/remove device.

CAN Module Communications Network

418-00B

System Diagram



CAN Module Communications Network

418-00B

Communication Message Chart **(SAMPLE ONLY BELOW. REFER TO WSM FOR FULL LIST)**

Network Message	Originating Module	Network Type	Receiving Module(s)
A/C clutch status (non-BEV only)	PCM	HS-CAN1	• GFM2 (Upfitter Switch) • GWM
A/C clutch status (non-BEV only)	GWM	HS-CAN3	• IPC
A/C clutch status (non-BEV only)	GWM	HS-CAN4	• TCU
A/C clutch status (non-BEV only)	GWM	MS-CAN	• HVAC module
ABS active	ABS module	HS-CAN2	• RCM • IPMA • PSCM (EPAS) • TBM • PAM • GWM
ABS active	GWM	HS-CAN1	• AWD module • PCM • TCM • BCM • SOBDMC

Technician Familiarization Road Call Reference

SHIFTING YOUR IMMOBILE VEHICLE

OUT OF PARK (owners manual)

Use this procedure to shift your vehicle out of park (P) in the event of an electrical malfunction or emergency.

Note: *Your vehicle could shift to park (P) after 30 minutes, or when the vehicle battery charge level is low. Prolonged use of this mode can cause the 12 V battery to run out of charge.*

Note: *If the battery is out of charge, use an external power source.*

Note: *This mode could be unavailable if your vehicle is below operating temperature. Warm up your vehicle and attempt the procedure again.*

Note: *Do not tow your vehicle in this mode. Failure to follow these instructions could result in vehicle damage not covered by the vehicle warranty.*

Shifting Your Vehicle Out of Park (P)

1. Apply the parking brake.

Note: *If the battery is out of charge, use an external power source to apply the parking brake.*

2. Power your vehicle on without your foot on the brake pedal.
3. Fully press and hold the brake pedal.
4. Fully press and hold the accelerator pedal.
5. Shift into neutral (N).
6. Press the low (L) or manual (M) button.
7. Attempt to start your vehicle.

Note: *A confirmation message appears when your vehicle enters the mode.*

Note: *You must complete this procedure within 15 seconds. If your vehicle shifts into park (P) attempt the procedure again.*

8. Release accelerator and brake pedals.
9. Release the parking brake.

Note: *Your vehicle is free to roll.*

10. Switch your vehicle off.

Note: *Do not tow your vehicle in this mode.*

Emergency Tow (owner's manual)

If your vehicle becomes inoperable without access to wheel dollies or a vehicle transport trailer, it can be flat-towed with all wheels on the ground, regardless of the drivetrain, under the following conditions:

- Your vehicle is facing forward for towing in a forward direction.
- You switch ***Emergency Tow*** on.
- Maximum speed is 30 mph (50 km/h).
- Maximum distance is 50 mi (80 km).

Switching Emergency Tow On

1. Properly secure your vehicle to the tow vehicle.
2. Switch your vehicle on to accessory mode. See **Starting and Powering Off** (page 180).
3. Apply the parking brake.
4. Using the instrument cluster display controls on the steering wheel, select ***Settings***.
5. Select ***Vehicle Settings***.
6. Select ***Emergency Tow***.
7. Press and hold the ***OK*** button until a confirmation message appears in the instrument cluster display.
8. Press and hold the brake pedal.
9. Shift into neutral (N).

Note: *A confirmation message appears in the instrument cluster display.*

10. Release the parking brake.
11. Switch your vehicle off.

Switching Emergency Tow Off

1. Switch your vehicle on.
2. Press and hold the brake pedal.
3. Shift into park (P). A confirmation message appears in the instrument cluster display and the park (P) position illuminates on the transmission selector.

Jump Starting E-Transit (owners manual)

Note: *This procedure is only for the 12 volt battery.*

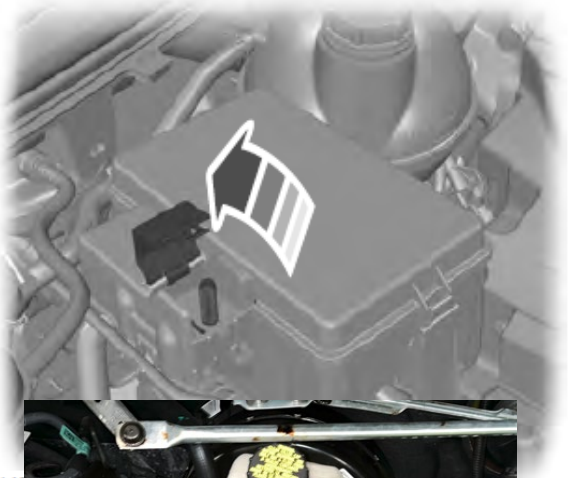
Note: *Your vehicle has a 12 volt battery that is under the driver seat. The 12 volt battery controls the switches and contacts that engage the high voltage battery. Do not jump start the high voltage battery using a standard 12 volt battery. Tow your vehicle to an authorized dealer if the high voltage battery does not accept a regular charge.*

Link to 12V battery access video: https://www.youtube.com/watch?v=xglmBiyTifQ

Jump Starting E-Transit (owners manual)

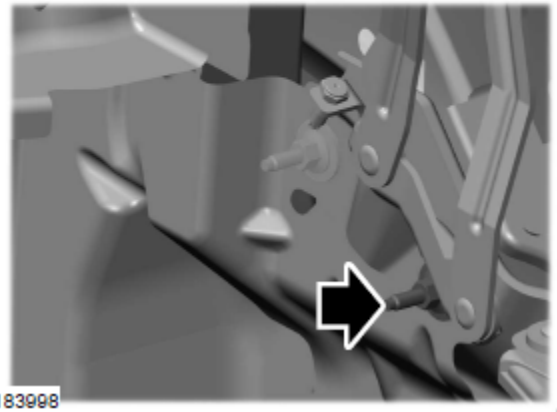
Your vehicle has a positive (+) access terminal and a negative (-) ground connection point that you can access under the hood, even though the actual battery is under the driver seat. You can jump your vehicle using these points.

The positive (+) access terminal is next to the fuse box, under a red cap. To access the positive (+) terminal, lift the red cap up.



E145

The negative (-) terminal is a post on the driver side, near the hood hinge. It is a ground connection point. You need to remove the rubber covering first.



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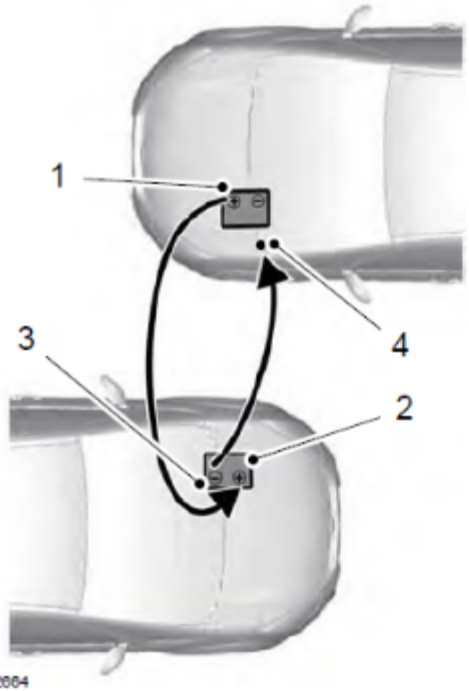
Jump Starting E-Transit (owners manual)



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1. Connect the positive (+) jumper cable to the positive (+) access terminal of the vehicle with the discharged battery.
2. Connect the other end of the positive (+) cable to the positive (+) terminal of the assisting battery.
3. Connect the negative (-) cable to the negative (-) terminal of the assisting battery.
4. Make the final connection of the negative (-) cable to the ground connection point of the vehicle with the discharged battery.

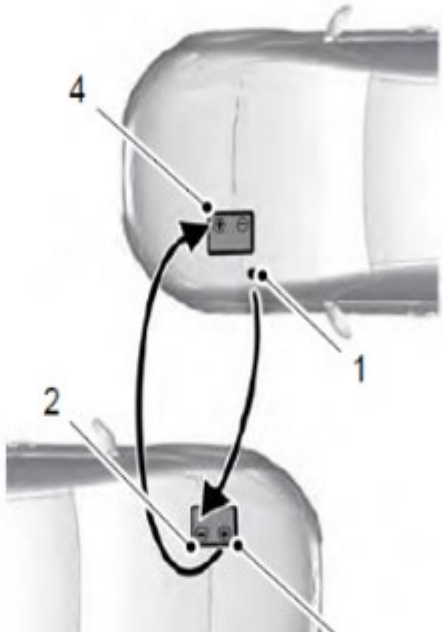
WARNING: Do not connect the negative jumper cable to any other part of your vehicle. Use the ground point.

5. Start the engine of the booster vehicle and rev the engine moderately, or press the accelerator gently to keep your engine speed between 2000 and 3000 rpms, as shown in your tachometer.

6. Switch on the ready to drive mode in the vehicle being jumped (make sure trans is in park)

7. Once you start the disabled vehicle, run both vehicle engines for an additional three minutes before disconnecting the jumper cables.

Remove the jumper cables in the reverse order that they were connected.



Maintenance – E-Transit

Published Ford interval

Interval	Service (change or replace)	Capacity	Ford P/N	UPS P/N	FLUID SPEC	Comments
20,000	Cabin air filter		FP-74			
150,000 mi (10 yrs)	Electric Drive Assembly Fluid	4qt			Motorcraft® MERCON® ULV Automatic Transmission Fluid / XT-12-QULV (WSS-M2C949-A,)	
200,000 mi	Initial Coolant (10 years)	10qt			Motorcraft Yellow Prediluted Antifreeze/Coolant VC13DLG	Initial replacement at 10 years or 200,000 mi (322,000 km), then every 5 years or 100,000 mi (160,000 km).
3 years	Brake Fluid				DOT4	

Other Maint Parts

	Service (change or replace)	Capacity	Ford P/N	UPS P/N	FLUID SPEC	Comments
	Battery		BAGM-48H6-760			
	Wiper blades		WW-2901-A - driver side WW-2049-A - passenger side			
	Refrigerant	32 oz			R134a	
	Refrigerant oil	5.7 oz			POE	

PEACH STATE TRUCK CENTERS

Ford F250, Transit & E-Transit Warranty Summary

Model	Model Years	From In Service Date	Miles	Parts/Labor	Comments
All					
Base Warranty	All	36 months	36,000		
12V Battery	All	36 months	36,000		
F250 & Transit Only					
Emissions	All	60 months	50,000		
Differential	2021 and older	60 months	60,000	100%/100%	
	2022 and newer	60 months	100,000	100%/100%	EFC 09139
Transmission	2021 and older	60 months	60,000	100%/100%	
	2022 and newer	60 months	100,000	100%/100%	EFC 09139
Engine	2021 and older	60 months	60,000	100%/100%	
	2022 and newer	60 months	100,000	100%/100%	EFC 09139
E-Transit Only					
Electric Vehicle Component Coverage (from Ford esourcebook warranty coverage for EVs) High voltage battery assembly High voltage battery Bussed Electrical Center (BEC) Battery energy control module (BECM) On-board charger Inverter system controller (ISC) DC/DC converter eDrive	All	96 months	100,000	100%/100%	with retention of 70% or more of the original high-voltage battery capacity over that period