Article #33186 - ABS_0x4090

Description

Sensor fault: Front Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33188 - ABS_0x4091

Description

Sensor extrapolation fault: Front Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33189 - ABS_0x4092

Description

Sensor periodic fault: Front Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33190 - ABS_0x4093

Description

Sensor start recognition fault: Front Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33191 - ABS_0x4094

Description

Sensor phase-length-supervision fault: Front Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33192 - ABS_0x4095

Description

Sensor double frequency check fault

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33193 - ABS_0x40A0

Description

Sensor fault: Front Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33194 - ABS_0x40A1

Description

Sensor extrapolation fault: Front Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33195 - ABS_0x40A2

Description

Sensor periodic fault: Front Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33196 - ABS_0x40A3

Description

Sensor recognition fault: Front Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33197 - ABS_0x40A4

Description

Sensor phase-length-supervision fault: Front Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33198 - ABS_0x40A5

Description

Sensor double frequency check: Front Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33199 - ABS_0x40B0

Description

Sensor Fault: Rear Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33200 - ABS_0x40B1

Description

Sensor extrapolation fault: Rear Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33201 - ABS_0x40B2

Description

Sensor periodic fault: Rear left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33202 - ABS_0x40B3

Description

Sensor start recognition fault: Rear Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33203 - ABS_0x40B4

Description

Sensor phase-length-supervision fault: Rear Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33204 - ABS_0x40B5

Description

Sensor double frequency check: Rear Left

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33205 - ABS_0x40C0

Description

Sensor fault: Rear Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33206 - ABS_0x40C1

Description

Sensor extrapolation fault: Rear Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33207 - ABS_0x40C2

Description

Sensor periodic fault: Rear Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33208 - ABS_0x40C3

Description

Sensor start recognition fault: Rear Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33209 - ABS_0x40C4

Description

Sensor phase-length-supervision fault: Rear Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33210 - ABS_0x40C5

Description

Sensor double frequency check: Rear Right

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33211 - ABS_0x40F0

Description

Pump defective

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33212 - ABS_0x40F1

Description

Pump connection

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33213 - ABS_0x40F2

Description

Hardware fault

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33214 - ABS_0x40F4

Description

Voltage low

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33215 - ABS_0x40F5

Description

Internal fault

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33216 - ABS_0x40F7

Description

Voltage high

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33217 - ABS_0x40FC

Description

EDS switch failure

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33219 - ABS_0x40FD

Description

CAN bus off

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33220 - ABS_0x40FE

Description

EOL-Test not executed

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #33221 - ABS_0x40FF

Description

Speed limit exceeded

Steps to Test

Confirm the DTC is present on the vehicle.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

- Article #33185 - ABS DTCs

Possible Causes

Unknown.

Article #21657 - ABS 701 ABS: Service required

Description

Trigger: Signal from ABS Controller. End-User Text String: ABS service required. Traction Control &; Regen unavailable. Vehicle Response: None.

Steps to Test

- Query Anti-lock Braking System (ABS) with scan tool, check the harness and fuses.
- Communicate with the ABS controller via scan tool, check and rectify any ABS faults.

Steps to Fix

- Replace the harness/fuses as needed.
- Check and rectify any ABS faults.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21658 - ABS 702 ABS: Service required

Description

Trigger: Signal from ABS Controller. End-User Text String: ABS service required. Traction Control &; Regen unavailable. Vehicle Response: None.

Steps to Test

- Check communication with scan tool.
- Communicate with Anti-lock Braking System (ABS) controller via scan tool, check and rectify any ABS faults.

Steps to Fix

Check and rectify any ABS faults.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21659 - ABS 703 ABS: Service required

Description

Trigger: Signal from ABS Controller. End-User Text String: ABS service required. Traction Control &; Regen unavailable. Vehicle Response: None.

Steps to Test

- Check communication with scan tool.
- Communicate with Anti-lock Braking System (ABS) controller via scan tool, check and rectify any ABS faults.

Steps to Fix

Check and rectify any ABS faults.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21519 - BMB 16 BMB: Sheet alarm

Description

Trigger: Sheet Alarm End-User Text String: Battery Problem, Service Required Vehicle Response: Vehicle stops immediately.

Steps to Test

Check to see if fault 259 Battery System Monitor (BSM) Sheet Alarm is present.

Get log files. Connect MTS-2 or Linux-based Engineering Tool to determine if a sheet alarm is currently present on the BSM.

Steps to Fix

If fault 259 Sheet Alarm is not present, escalate your session for assistance. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22621 - Brick Failure-Adjacent high and low voltages
- Article #22625 - Sheet alarm caused by a voltage over hardware or firmware limit
- Article #22626 - Battery pack voltage over 250V and no battery undervoltage fault on the BSM

Article #21564 - BSM 257 APS output 1 (main) reset

Description

Trigger: APS voltage < 8V or >16V. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check the frequency of fault 257 in the vehicle logs.

Steps to Fix

If the fault occurs more than 2 times per week:

- Set driving mode to the maximum range.
- Plug the charger in.
- While charging, switch to maximum performance mode.
- Report if "APS output reset" occurs.
- Escalate your session to report findings.

Otherwise, the alert can be disregarded.

Possible Effects

Unknown.

Possible Causes

- Article #30133 Standby power supply wiring damaged

Article #21565 - BSM 258 APS output 2 (PEM) reset

Description

Trigger: APS voltage < 10V or >15V. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Refer to vehicle logs to determine fault frequency.

Steps to Fix

If failure is consistent, failing multiple times per day, replace Auxiliary Power Supply (APS) (Part# 2005576).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21566 - BSM 259 Sheet Alarm

Description

Alert Trigger: Vmin < 2V (1.3 +/- 0.4V (hardware)). End-User Text String: Battery Problem, Service Required. Vehicle Response: Vehicle stops immediately.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- 23512 - Analyzing bleed test results

Article #21567 - BSM 260 BSM: Contactors opened with a load > 60A

Description

Trigger: Contactors opened for another reason with a load > 60A. End-User Text String: Battery Problem, Service Required. Vehicle Response: None.

Steps to Test

This fault is triggered when the contactors have opened with a load greater than 60A.

Steps to Fix

The contactors will need to be replaced. Continue to investigate the root cause prior to replacing the contactors. Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- 44367 - ESS Contactor-Failure

Article #21568 - BSM 261 BSM: Smoke detector not reporting

Description

Trigger: No signal received by BSM from smoke detector. End-User Text String: Service required, Charging restricted. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21569 - BSM 262 BSM: Immersion fault

Description

Trigger: Immersion sensed > 24 hours. End-User Text String: Battery Problem, Service Required. Vehicle Response: Charge aborted (Only on 220V MCK).

This fault usually occurs due to water ingress of the battery enclosure. It may also occur due to loose conductive material inside the battery enclosure making contact with the immersion sensor strip.

Steps to Test

Steps to Fix

If this fault is displayed, the battery will need to be removed for shipment to Reman. Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22842 - Coolant Level Low
- 44283 - APS-Output-Cable (J3) Upgrade
- 44344 - ESS Internal Isolation-Failure
- 44370 - ESS Water-Ingress
- 44388 - Loose immersion-sensor touching APS

Article #21570 - BSM 263 BSM: HVAC cable fault

Description

Trigger: HVAC Cable open circuit. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

- Connect Heating, Ventilation, Air-Conditioning (HVAC) Simulator and check for cleared fault.
- Replace the 400V controller with a known functioning controller and check for cleared fault.
- Check J3 connection at battery (ESS).
- Install HVAC adapter harness and connect HVAC Simulator and check for cleared fault.

Steps to Fix

- If the functioning 400V controller resolves the fault, replace the 400V controller (1.5-Part# 6001479, 2.0&;2.5-Part# 1014547-02-A), as per SB-12-18-001 in Service Documents.

- If the HVAC adapter harness resolves the fault, replace the HVAC cable (1.5-Part# 2002462, 2.0&;2.5-Part# 6003090).
- If the fault is unresolved with the preceding tests, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- 44368 - HVAC failure

Article #21571 - BSM 264 BSM: PEM cable fault

Description

Trigger: PEM Cable open circuit. End-User Text String: Powertrain Problem. Restart when safe. Vehicle Response: Contactors open immediately.

Steps to Test

Inspect Power Electronics Module (PEM) and High Voltage Interlock Loop (HVIL) for secure connections, damage, or wear. Pursue possible causes to investigate further.

Steps to Fix

Repair connections, or replace damaged PEM/HVIL (PEM 1.5-Part# 6003440, 2.0&;2.5-Part# 6005203/HVIL Part# 1017066-00-A). If fault is not resolved after pursuing possible causes, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22316 - Power Electronics Module (PEM) access door micro switch not functioning properly
- Article #22317 - High Voltage Interlock Loop (HVIL) is damaged

Article #21572 - BSM 265 BSM: V_batt too low

Description

Trigger: Vbatt < 250V. End-User Text String: Powertrain Problem. Restart when safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #22299 - Battery Over-Discharge

Article #21573 - BSM 266 BSM: V_batt too high

Description

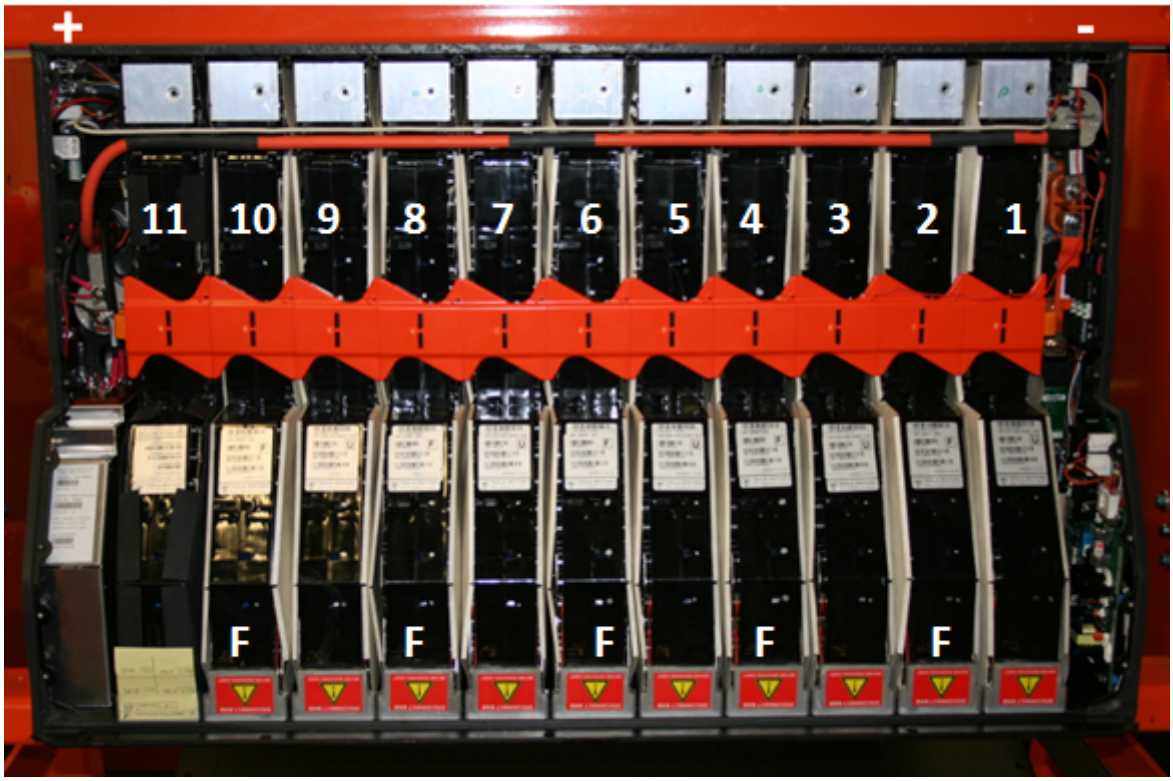
Trigger: Vbatt > 417.8V. End-User Text String: Powertrain Problem. Restart when safe. Vehicle Response: Contactors open immediately. BSM 266 BSM: V_batt too high

Steps to Test

Use the MTS-2/Linux-based Engineering Tool to perform a bleed test, as per SB-12-16-002, in Service Documents. Determine which sheet(s) have voltages that are higher than the acceptable level.

Steps to Fix

After determining which sheets are out of compliance, replace the Battery Monitor Boards (BMB).



Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21574 - BSM 267 BSM: Positive contactor / economizer stuck low

Description

Alert Trigger: Economizer not driving contactor for 5mS. End-User Text String: Debug only. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- 44367 - ESS Contactor-Failure

Article #21575 - BSM 268 BSM: Positive contactor/economizer stuck high

Description

Trigger: Economizer driving contactor at 100% duty for 1.5s. End-User Text String: Debug only. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- 44344 - ESS Internal Isolation-Failure
- 44367 - ESS Contactor-Failure

Article #21576 - BSM 269 BSM: Negative contactor/economizer stuck low

Description

Trigger: Economizer not driving contactor for 5mS. End-User Text String: Debug only. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

A single occurrence of this fault upon contactor closing is considered a known bug with firmware versions 4.4.7.

Steps to Test

1. Check vehicle logs for fault frequency.
2. Determine if the fault occurred in conjunction with other faults.

Steps to Fix

- If the fault occurred more than once, escalate your session for assistance.
- If the vehicle is running firmware 4.4.7 or older, proceed to update to the latest firmware release.
- If the vehicle was running the most recent firmware at the time of the fault, escalate your session for assistance.
- If the fault occurred in conjunction with other faults, investigate other related faults as this fault is often a symptom rather than the root cause. Escalate your session for assistance as needed.

Possible Effects

Unknown.

Possible Causes

- 44367 - ESS Contactor-Failure

Article #21577 - BSM 270 BSM: Negative contactor/economizer stuck high

Description

Trigger: Economizer driving contactor at 100% duty for 1.5s. End-User Text String: Debug only. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- 44344 - ESS Internal Isolation-Failure
- 44367 - ESS Contactor-Failure

Article #21578 - BSM 271 BSM: Contactor power failure

Description

Trigger: Inertia switch might be tripped or contactor power failure. End-User Text String: Battery Problem. Vehicle shutting down. Vehicle Response: Contactors open immediately.

Steps to Test

- Verify that the Power Share Adapter has been installed, as per TSB-10-17-001, found in Service Documents. If the Power Share Adapter has been installed, check the attached fuse.
- Verify that the service disconnect plug is fully seated and locked into place.
-

Verify that the inertia switch has not been triggered. Inspect inertia switch connections and verify that the inertia switch is receiving 12V.

- Check the vehicle for aftermarket accessories drawing power from the APS.

Steps to Fix

- Seat and lock the service disconnect in place.
- If aftermarket accessories are found, disconnect accessories and check the vehicle for proper operation. If the fault is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- 44367 - ESS Contactor-Failure

Article #21579 - BSM 272 BSM: PEM HVAC cable/pin discharge failure

Description

Trigger: Contactors open and HV doesn't bleed down fast enough. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance

Possible Effects

Unknown.

Possible Causes

- 44368 - HVAC failure

Article #21580 - BSM 273 BSM: V_ess too high

Description

Trigger: Entering pre-charge, Vbatt-Vess > 0. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs to your Toolbox session and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21581 - BSM 274 BSM: CSB commanded contactors to open

Description

Trigger: CSB commanded contactors to open. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21582 - BSM 275 BSM: Precharge too fast at t1

Description

Alert Trigger: During precharge, the voltage is too high. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- 44367 - ESS Contactor-Failure
- 45444 - PEM MegaPole Isolation-Failure

Article #21583 - BSM 276 BSM: V_ess too low at end of precharge

Description

Trigger: During pre-charge, voltage doesn't come up to proper levels. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Vehicle does not start.

This fault occurs when the precharge circuit within the battery does not ramp up to a voltage level specified by the Battery Safety Monitor (BSM), (roughly pack voltage) within 500ms of closing the contactors.

Steps to Test

- Pull vehicle logs and review the fault occurrence, often the Data Text information that accompanies the fault will include valuable information regarding battery precharge voltage. If the data text indicates that the battery (ESS) voltage was 0V, this may indicate a failure internal to the pack. This fault is often intermittent, if this is the case attempt to duplicate the fault. When the fault is present connect the

Heating, Ventilation, Air-Conditioning (HVAC)

simulator in place of the 400V HVAC controller. Attempt to close contactors.

- The fault likely lies in the 400V HVAC controller, Positive Temperature Coefficient (PTC) heater, or A/C compressor. Inspect each component for physical damage or damaged wiring. Check for contactor closure.
-

Connect the HVAC simulator directly to the battery in order to eliminate the possibility of damaged wiring between the 400V HVAC controller and the battery. Check for contactor closure.

-

Inspect HVAC wiring between the battery and the 400V controller.

-

Reconnect all HVAC systems and remove the HVAC simulator. "Eliminate" possible PEM malfunction by using the recovery charger in place of the PEM and attempt to charge the pack.

Steps to Fix

- If no obvious damage is found, proceed to replace the 400V HVAC controller (1.5_Part# 6001479, 2.0&;2.5-Part# 1014547-01-A). If the contactors will not close, escalate your session for assistance.
- If there is no damage found between the battery and the 400V HVAC controller after the battery simulation, escalate your session for assistance.
- If the battery charges with the recovery charger, it is most likely a problem with the PEM, escalate the session for assistance.
- If the battery does not charge with the recovery charger, it is most likely a problem with the battery,

escalate the session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22786 - Faulty 400V HVAC Controller-400V HVAC controller simulator (TPN 6005456)
- Article #29933 - BSM Vbatt drift
- 44367 - ESS Contactor-Failure

Article #21584 - BSM 277 BSM: V_batt too low at start of precharge

Description

Trigger: Vbatt < 250v at start of precharge. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Using the vehicle logs, check Vbat+/- and see if these add up to expected Vbat(15V).

Steps to Fix

If the Vbat is correct, recovery charge the pack, as per SB-13-92-002 in Service Documents. If the Vbat is not correct, replace the Battery Safety Monitor (BSM), as per SB-12-16-004 in Service Documents.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21585 - BSM 278 BSM: V_ess too high at start of precharge

Description

Trigger: Vess > 10V at start of precharge. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- 44367 - ESS Contactor-Failure

Article #21586 - BSM 279 BSM: Precharge resister too hot at start of precharge

Description

Trigger: Thermal switch on precharge resistor. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Allow the pack to cool before restarting. If it still fails, open the cover, check for damage to the switch by checking continuity at the connector, as per the circuit diagram in the Service Manual. Also check the thermistor for continuity.

Steps to Fix

If the thermal switch is working, replace the Battery Safety Monitor (BSM) .---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21587 - BSM 280 BSM: Discharge enabled at start of precharge

Description

Trigger: BSM prevented from precharge because of discharge ciruit interlock. End-User Text String: Debug Only. Vehicle Response: Vehicle does not start.

Steps to Test

Allow 5s minimum from key off to key on. See if the fault repeats. Check the high voltage connections to Power Electronics Module (PEM)/Heating, Ventilation, Air-Conditioning (HVAC).

Steps to Fix

If the high voltage connections are okay, and the fault continues, check the connectors. If the connectors are not loose or damaged, replace the Battery Safety Module (BSM).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21588 - BSM 281 BSM: Orientation fault

Description

Trigger: Orientation Sensor. End-User Text String: Battery Problem. Service Required. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs to your Toolbox session and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21589 - BSM 282 BSM: ESS OverTemp fault

Description

Trigger: ESS ambient temp > 80C. End-User Text String: Battery Problem. Service Required. Vehicle Response: None.

Steps to Test

- Check the vehicle logs for high temperatures.
- Correlate with the Battery Monitor Board (BMB) temperatures. If the fault is correlated with a sheet alarm, proceed using SB-12-16-002, in Service Documents.
- Connect the MTS-2/Linux-based Engineering Tool and check the temperature against the sheet and BMB temperatures. There could be component failure on the Battery Safety Monitor (BSM) which heats the BSM board.
- Allow the car to cool to ambient temperature and recheck if necessary.
- Check for coolant in reservoir, and look for leaks.
- Check for clogged coolant lines by disconnecting both ends and blowing air through the line.

Steps to Fix

Refill the coolant reservoir if necessary.
Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21590 - BSM 283 BSM: Isolation fault

Description

Trigger: Isolation Resistance < 200Kohm. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

It has been found that 2.0 and newer roadster models may be prone to isolation faults in humid environments due to a plug placed inside the Heating, Ventilation, Air-Conditioning (HVAC) vent tube below the vehicle. The plug may cause fluid build-up in the Positive Temperature Coefficient (PTC) heater box causing isolation faults. Inspect the vent tube for blockage or rubber insert plug before proceeding with diagnosis. If blockage is not found or fault persists, proceed to review the vehicle logs noting motor temperature when the fault occurred. If the motor temperature was greater than 90C, this is expected behavior.

In 1.5 Roadsters, this is expected behavior if the vehicle has been exposed to water (rain, car wash, etc.).

Steps to Test

If the vehicle is a 2.0 or 2.5, and the alert was not triggered by a temperature that was greater than 90C, or if the vehicle is a 1.5 and was not exposed to water, perform a high potential testing (HIPOT) of the powertrain. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

This is expected behavior if the HVAC vent tube was blocked or the vehicle was exposed to water. If the HIPOT test fails, escalate your session for assistance in diagnosing Motor, Motor Cable, or Motor / Trans insulator ring isolation failures.
Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22345 - Faulty 400V HVAC Controller (Isolation resistance test)
- 44339 - BSM Failure
- 44344 - ESS Internal Isolation-Failure

Article #21591 - BSM 284 BSM: Voltage sensor error

Description

Trigger: Voltage in isolation measurement circuit inconsistent with Vbatt measurement. End-User Text String: Battery Problem. Service Required. Vehicle Response: Power reduced; charging not allowed.

Steps to Test

This is most likely an error in measuring the battery positive to ground, battery negative to ground, or Vbatt measurement.

Steps to Fix

Replace the Battery Safety Monitor (BSM). Refer to SB-12-16-004 in Service Documents to determine the proper replacement BSM.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21592 - BSM 285 BSM: Isolation fault before closing contactors

Description

Trigger: Isolation fault within the ESS is before contactors closed. End-User Text String: Battery Problem. Service Required. Vehicle Response: Contactors do not close.

Steps to Test

- Determine if the fault is still present.
- Test and record; isolation resistance, Vbat + , Vbat - , and Vbat. Determine if the isolation resistance value is less than 28 kilo ohms with contractors open.
- Verify that the voltage is not present outside of the battery pack. Attach the HVAC simulator (TPN 6005456) directly to the battery pack. Using the MTS-2/Linux-based Engineering Tool, command the contactors closed. Determine if the voltage is still present with the contactors commanded open.

Steps to Fix

- If the fault is not currently present, this fault likely indicates an intermittent short internal to the battery pack. If the resistance value is greater than 28 kilo ohms.
- If the voltage is still present with the contactors commanded open, the contactors may have become welded or other wise stuck closed.
- If the voltage is not present with the contactors commanded open, the battery pack requires further analysis.

In each case listed, it is recommended to

escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- 44344 - ESS Internal Isolation-Failure

Article #21593 - BSM 286 BSM: Isolation fault while contactors closed

Description

Trigger: Isolation fault detected outside of ESS, after precharge. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

It has been found that 2.0 and newer roadster models may be prone to isolation faults in humid environments due to a plug placed inside the Heating, Ventilation, and Air-Conditioning (HVAC) vent tube below the vehicle. The plug may cause fluid build-up in the Positive Temperature Coefficient (PTC) heater box causing isolation faults. Inspect the vent tube for blockage or rubber insert plug before proceeding with diagnosis. If blockage is not found or fault persists, proceed to review the vehicle logs noting motor temperature when the fault occurred. If the motor temperature was greater than 90C, this is expected behavior.

In 1.5 Roadsters, this is expected behavior if the vehicle has been exposed to water (rain, car wash, etc.).

Steps to Test

Install the 400V simulator tool in place of the 400V controller and attempt to close contactors, check for expected isolation values.

If the vehicle is a 2.0 or 2.5, and the alert was not triggered by a temperature that was greater than 90C, or if the vehicle is a 1.5 and was not exposed to water, perform a high potential testing (HIPOT) of the powertrain. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

If contactors close and isolation value returns to normal with the 400V simulator installed, the issue lies either in the 400V controller, PTC HVAC box, or the compressor. Pursue possible causes.

This is expected behavior if the HVAC vent tube was blocked or the vehicle was exposed to water. If the HIPOT test fails, escalate your session for assistance in diagnosing Motor, Motor Cable, or Motor / Trans insulator ring isolation failures.
Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22343 - 400V HVAC Controller Isolation
- Article #22344 - PTC Heater Isolation
- Article #22345 - Faulty 400V HVAC Controller (Isolation resistance test)
- Article #22346 - Faulty A/C Compressor
- Article #38963 - PEM internal isolation
- 44344 - ESS Internal Isolation-Failure
- 45444 - PEM MegaPole Isolation-Failure

Article #21594 - BSM 287 BSM: Isolation resistance test error

Description

Trigger: Isolation test forced before charging fails. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Charge aborted.

Steps to Test

SEE isolation fault procedure (PeteK)

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- 44344 - ESS Internal Isolation-Failure

Article #21595 - BSM 288 BSM: V_ess too low during precharge, t2

Description

Trigger: Voltage hasn't ramped at 500ms. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Vehicle does not start.

This fault occurs when the precharge circuit within the battery does not ramp up to a voltage level specified by the Battery Safety Monitor (BSM), (roughly pack voltage) within 500ms of closing the contactors.

Steps to Test

Pull the vehicle logs and review the fault occurrence, often the data text information that accompanies the fault will include valuable information regarding the battery precharge voltage. If the data text indicates that the battery (ESS) voltage was 0V, this may indicate a failure internal to the pack. This fault is often intermittent, if this is the case attempt to duplicate the fault. When the fault is present connect the Heating, Ventilation, Air-Conditioning (HVAC) simulator in place of the 400V HVAC controller. Attempt to close the contactors.

- If the contactors close, the fault likely lies in the 400V controller, PTC heater, or A/C compressor. Inspect each component for physical damage or damaged wiring.
- If the contactors do not close, connect the HVAC simulator directly to the battery in order to eliminate the possibility of damaged wiring between the 400V HVAC controller and the battery. Attempt to close the contactors.
    - If the contactors close, inspect the HVAC wiring between the battery and the 400V HVAC controller.

    - If the contactors do not close, reconnect all HVAC systems and remove HVAC simulator. "Eliminate" a possible PEM malfunction by using the recovery charger in place of the PEM and attempt to charge the pack.

Steps to Fix

- After the initial test, if the contactors close, replace the 400V HVAC controller

, as per SB-12-18-001 in Service Documents.

. If the contactors remain open, escalate your session for assistance.

- If the contactors close after the second test, and the wiring between the battery and the 400V HVAC controller is not damaged, escalate the session for further assistance.
- If the battery pack charges using the recovery charger, the problem is likely related to the PEM. Otherwise, the problem relates to the battery. In either case, escalate your session for further assistance.

Possible Causes

- 44367 - ESS Contactor-Failure

Possible Causes

Unknown.

Article #21642 - BSM 600 APS: Cooling issue; power limiting in effect

Description

Trigger: APS Cooling request > 1min. End-User Text String: Battery Problem. Power Reduced. Vehicle Response: Power reduced.

This fault occurs when the APS requests cooling and cooling is not received.

Steps to Test

- Begin by inspecting the coolant level of the coolant overflow bottle.
- Check to see if the pump is functioning, and that it can be actuated by the MTS-2.
- Inspect the coolant lines for kinks or damage.
- Inspect the coolant pump connections from the coolant pump to the 12V controller. Examine wiring connections: FHC49-H1, RHC3-1, RHC32-1, RHC3-2, RHC32-2 and the front ground post for poor connections, corrosion, or harness damage.
- Inspect the vehicle for coolant leaks.

Steps to Fix

If the coolant lines or wiring connections are determined to be kinked, corroded, damaged, or have poor connections, repair as needed. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22613 - Improper cooling of the APS
- 44366 - APS Internal Coolant-Leak

Article #21645 - BSM 603 BSM: Isolation resistance fault; power limiting in effect

Description

End-User Text String: Battery Service Required. Vehicle Response: Power reduced.

It has been found that 2.0 and newer roadster models may be prone to isolation faults in humid environments due to a plug placed inside the HVAC vent tube below the vehicle. The plug may cause fluid build-up in the Positive Temperature Coefficient (PTC) heater box causing isolation faults. Inspect the vent tube for blockage or rubber insert plug before proceeding with diagnosis. If blockage is not found or fault persists, proceed to review the vehicle logs noting motor temperature when the fault occurred. If the motor temperature was greater than 90C, this is expected behavior.

In 1.5 Roadsters, this is expected behavior if the vehicle has been exposed to water (rain, car wash, etc.).

Steps to Test

If the vehicle is a 2.0 or 2.5, and the alert was not triggered by a temperature that was greater than 90C, or if the vehicle is a 1.5 and was not exposed to water, perform a high potential testing (HIPOT) of the powertrain. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

This is expected behavior if the HVAC vent tube was blocked or the vehicle was exposed to water. If the HIPOT test fails, escalate your session for assistance in diagnosing Motor, Motor Cable, or Motor / Trans insulator ring isolation failures.
Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22343 - 400V HVAC Controller Isolation
- Article #22345 - Faulty 400V HVAC Controller (Isolation resistance test)
- Article #22346 - Faulty A/C Compressor
- 44344 - ESS Internal Isolation-Failure

Article #21660 - CSB 720 700A discharge limit exceeded

Description

Trigger: Current > 900A > 100ms. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred, please escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21661 - CSB 721 650A discharge limit exceeded

Description

Trigger: Current > 863A > 5 seconds. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred, please escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21662 - CSB 722 805A discharge limit exceeded

Description

Trigger: Current > 805A > 12 s. /End-User Text String: Powertrain Problem Restart When Safe. /Vehicle Response: Contactors open immediately.

Steps to Test

Discharge_Limit_Exceeded. If this fault has occurred, please escalate the problem to the Field Support Team for further assistance.

Steps to Fix

Escalate the problem to the Field Support Team for further assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21663 - CSB 723 300A discharge limit exceeded

Description

Trigger: Current > 300A when current limited. /End-User Text String: Powertrain Problem Service Required. /Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

Discharge_Limit_Exceeded. If this fault has occurred, please escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21664 - CSB 724 200A discharge limit exceeded

Description

Trigger: Current > 200A when current limited. /End-User Text String: Powertrain Problem Service Required. /Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

Discharge_Limit_Exceeded. If this fault has occurred, please escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21665 - CSB 725 200A charge limit exceeded

Description

Trigger: Current > 190A > 1 seconds during charge. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21666 - CSB 726 75A charge limit exceeded

Description

Trigger: Current > 75A when current limited. End-User Text String: Powertrain Problem Service Required. Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

If this fault has occurred, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21667 - CSB 727 60A charge limit exceeded

Description

Trigger: Current > 60A when current limited. /End-User Text String: Powertrain Problem Service Required. /Vehicle Response: Contactors open immediately.

Steps to Test

Steps to Fix

Discharge_Limit_Exceeded. If this fault has occurred, please escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21668 - CSB 728 Overtemp event during charge or regen

Description

Trigger: Highest BMB Temp > 51C. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Contactors open immediately.

Steps to Test

- Check the logs, if the driver has been driving aggressively and all of the temperatures appear high at time of the fault, check coolant system, as per SB-12-18-013 in Service Documents.
- Connect the scan tool, and compare the temperature of the thermistor with other thermistors in the sheet.

Steps to Fix

If the thermistor is not within 30C of the rest of the sheet, swap Battery Monitor Board (BMB). If the fault is still present after replacing the BMB, escalate your session for assistance. Battery will likely need to be sent for remanufacturing.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21669 - CSB 729 Undertemp event during charge or regen

Description

Trigger: Lowest BMB Temp < 0C. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Contactors open immediately.

This fault occurs when one or more battery bricks report(s) temperatures of 0C or less during charge or regen. Brick temperatures are reported by thermistors mounted to each sheet. False under-temp faults can be triggered by poor Battery Monitor Board (BMB) to Temperature Voltage Sense Harness (TVSH) connections.

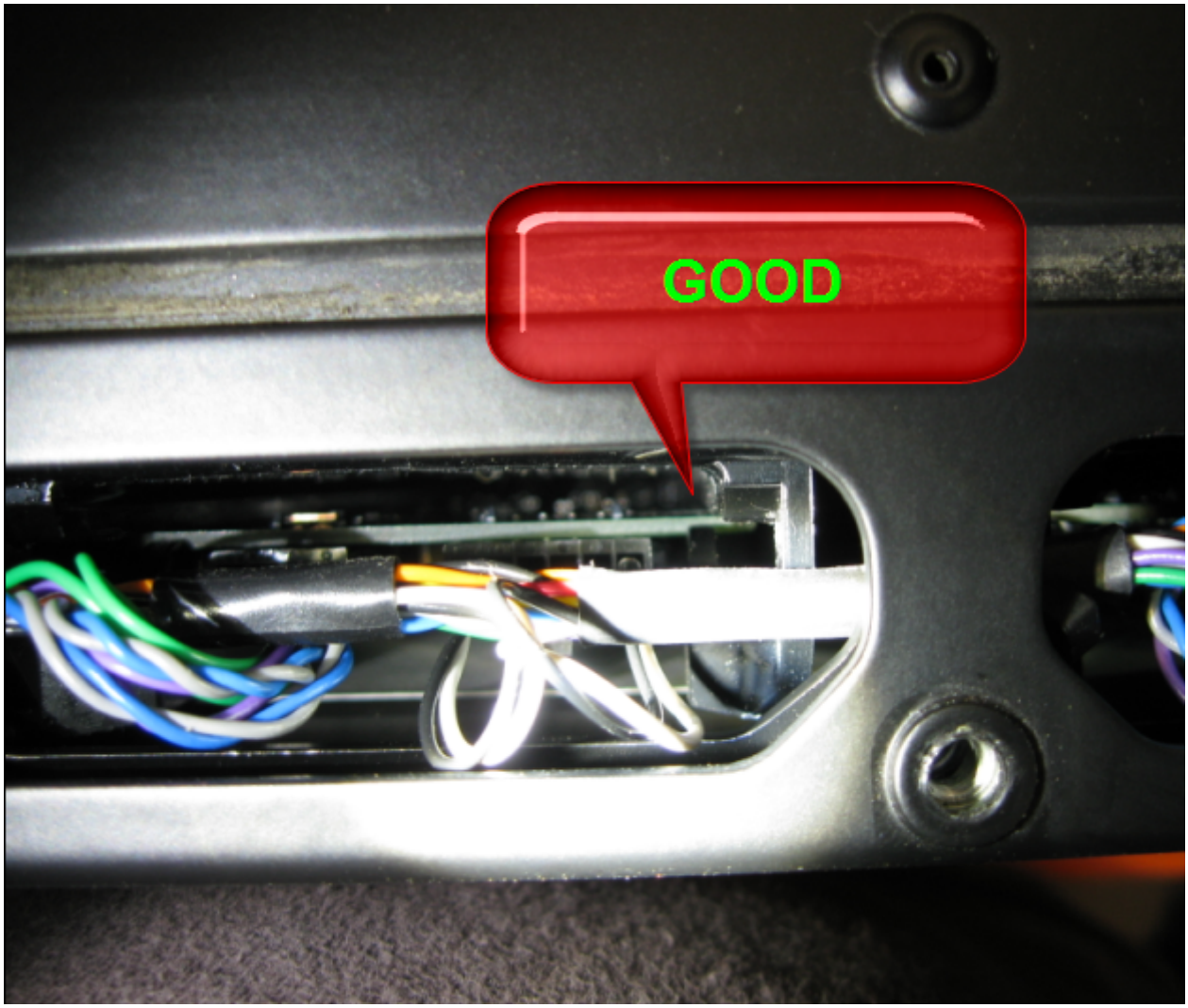
Steps to Test

1. Begin by reviewing the vehicle logs. Determine if this fault occurred in conjunction with Fault Code 2 - critical sheet undertemp.
2. Review the "data_text(fault)" column accompanying Fault code 2 in the logs. This column will indicate which thermistor(s) reported the cold temperature. The history tab may also be used in the Battery Monitor Board User Interface (BMBUI) to view the reported voltage and temperature data from each BMB. Determine if the temperature reported is realistic in relation to the reported minimum and maximum brick temperatures from the logs.
3. Determine if the minimum brick temperatures were reported to be below 0C in the vehicle logs when this fault occurred.
4. Inspect the vehicle cooling system and HVAC pump. If the coolant level and pump pass a visual inspection, use a refractometer to analyze the coolant mixture.

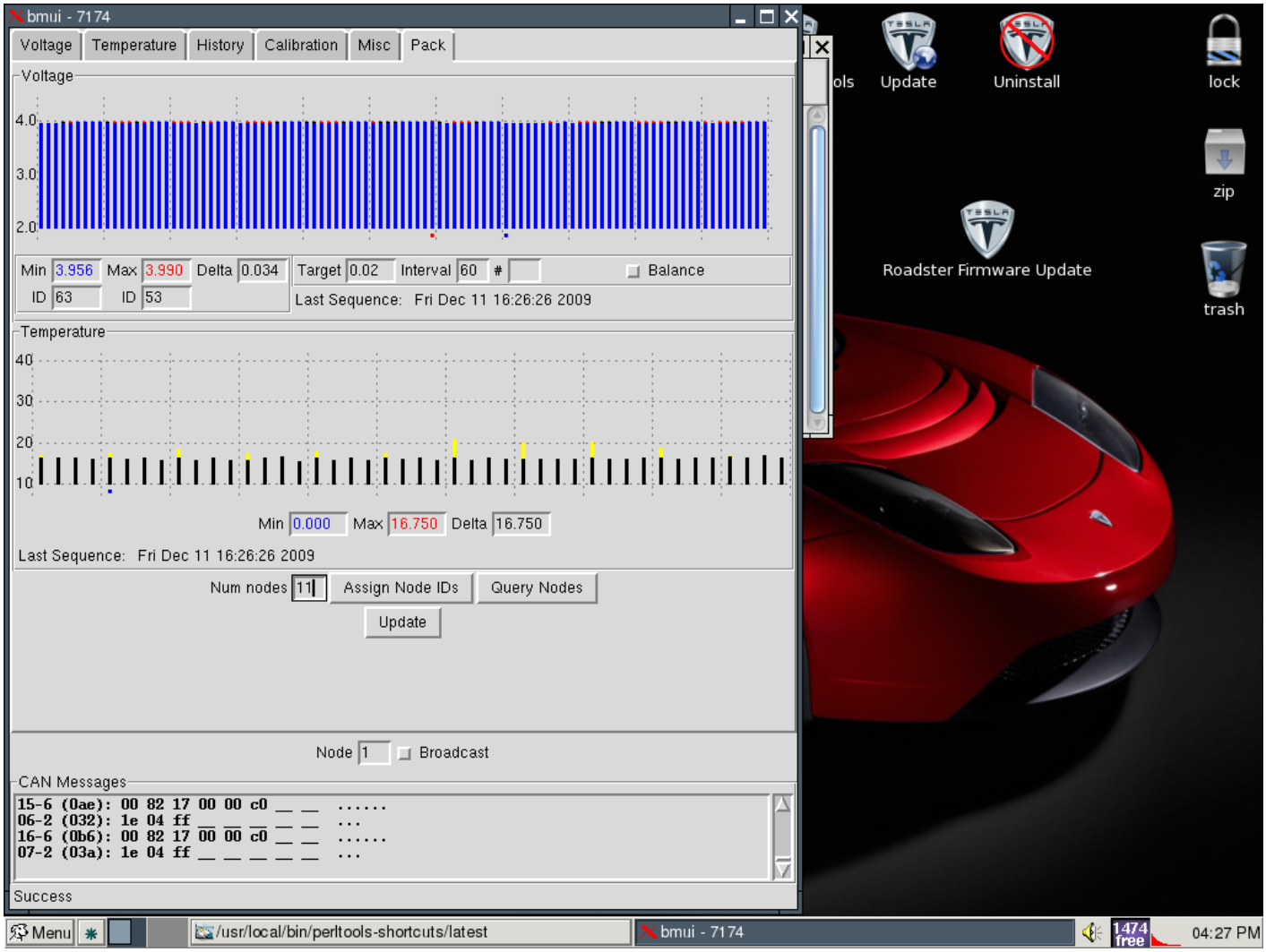
Steps to Fix

Follow the guidlines for BMB seating/TVSH connector inspection: BMB seating / TVSH connector inspection Procedure:

- Remove BMB cover.
- Inspect securing tabs for all BMBs.
- If any securing tabs are not properly engaged, take picture (noting BMB position) and proceed to fully insert BMB until securing tabs are all in proper position.
- When all securing tabs are properly engaged, open BMBUI in diagnostic tools using the 4 way CAN breakout connection point.


GOOD

- Go to the 'Pack' tab, enter '11' into the 'Num Nodes' field, then hit the 'Query Nodes' (at this point the 'Update' tab should light up), then hit 'Update'
- At this point you should see a bar graph in both the upper fields, the top for voltages, the lower for temperatures:



- Now very gently wiggle the affected BMB(s) individually, giving a minute between moving each BMB.
    - It is very important not to apply too much pressure when moving the BMB(s), or the connector terminals in the sheet may be damaged, which requires sheet replacement.
- While moving the BMBs around, pay attention to the VDS to see if any faults come up.
- If a fault arises, go to the BMBUI and hit the 'Update' tab again, look for any bars on the graphs to drop out - either temp or voltage.
- If a fault arises, note which BMB it is that sets the fault.
- Next, remove the affected BMB(s), use the boroscope to carefully inspect the pins in the TVSH connector on the sheet.
- Look for any terminals that look damaged, splayed or improperly inserted.
- Take a picture of any terminals that look suspect. Pay attention to how angle of camera to boroscope lens affects picture quality, and capture best image possible.
- At this point contact service support team for consultation

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22604 - Improper coolant mixture

Article #21670 - CSB 730 750A discharge warning

Description

Trigger: Current > 750A > 5 seconds. End-User Text String: Debug Only. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21671 - CSB 731 450A discharge warning; power limited

Description

Trigger: Current > 450A when current limited. End-User Text String: Excessive power draw Power temporarily reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21672 - CSB 732 300A discharge warning; power limited

Description

Trigger: Current > 3000A when current limited. End-User Text String: Excessive power draw Power temporarily reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21673 - CSB 733 200A discharge warning; power limited

Description

Trigger: Current > 200A when current limited. End-User Text String: Excessive power draw Power temporarily reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21674 - CSB 734 75A charge warning

Description

Trigger: Current > 75A when current limited. End-User Text String: Excessive power draw Power temporarily reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21675 - CSB 735 60A charge warning

Description

Trigger: Current > 60A when current limited. End-User Text String: Excessive power draw Power temporarily reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21676 - CSB 737 CSB: Discharge Undertemp

Description

Trigger: Current > 5A and lowest BMB temp <=-17C > 100ms. End-User Text String: Battery too cold to drive. Vehicle Response: Vehicle stops immediately.

Steps to Test

1. Check the logs, if the event occurred at low ambient temps (<negative 16 to -20C), nothing has failed.
2. Connect the scan tool, compare temperature with other thermistors in sheet.
3. Turn the vehicle off to open the contactors
4. Wait for the car to cool (no PEM or motor fans running)
5. Check current draw reported on IP by placing the key in the ACC position
6. Determine if the current draw is a value not normally seen when the car is idle (less than 10A).

Note: Make sure to turn off all accessories before performing this test (headlights, seat heaters, radio, etc).

Steps to Fix

Advise the user to drive in warmer weather.

- If not within 30C, swap the Battery Monitor Board (BMB). If the fault is still present, escalate the session for Reman.
- If the current draw is less than 10A, escalate the session for further assistance to request Reman.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21677 - CSB 739 CSB: BMB No Data fault

Description

Trigger: Any BMB does not report temp > Xms. End-User Text String: Communication Problem Service Required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21959 - DFC 1200 DFC: Heatsink OverTemp

Description

Trigger: Heat sink temperature > 90C. End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22849 - Faulty Condenser Fan

Article #21960 - DFC 1201 DFC: LCMC Temp Sensor Failed

Description

Trigger: LCMC Temp > 220C or Open or Short. End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Contact Chief Technician to replace PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21961 - DFC 1202 DFC: TCM Bad IRequest

Description

Trigger: TCM Requests > 5amps > 2sec. End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload the vehicle logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21962 - DFC 1203 DFC: TCM Comms Lost

Description

Trigger: No TCM Request > 8sec. End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

- Check to see that other modules are communicating on the Power Electronics Module (PEM) BUS using a Diagnostic Tool.
- Measure the voltage at Transmission Control Module (TCM) connector RHC19, pin 5, 9, 14 (+) / pin 4, 8, 13 (-), check for open/short circuit to ground/harness between TCM connector and the PEM connector.
- Check for open/shorts on the CAN BUS.
- Check CAN communication status of CAN BUS 3 and verify if other modules on CAN 3 are able to communicate - PEM, ABS, VMS.

Steps to Fix

Contact the Chief Technician to replace the PEM due to internal PEM failure

(1.5-Part# 6003440, 2.0&2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21963 - DFC 1204 DFC: Aux Fan Driver Failed

Description

Trigger: Fan Driver Voltage < 2.5V. End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred, please upload logs to your Toolbox session and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21964 - DFC 1205 DFC: Aux Fan Failed

Description

Trigger: Stirring Fan not rotating. End-User Text String: Fan Controller Error Service Required. Vehicle Response: Charge current restricted to 61 amps (until DVT testing proves unnecessary).

Steps to Test

Steps to Fix

Contact the Chief Technician to replace the Power Electronics Module (PEM) due to Auxiliary fan PEM failure or internal short in PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21965 - DFC 1206 DFC: Motor Fan Failed

Description

Trigger: Motor Fan Failure - more details available in Faults 1207-1215 (pole fan is same as PEM fan). End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue Possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan

Article #21966 - DFC 1207 DFC: Pole Fan Failed

Description

Trigger: Fan not rotating (pole fan is same as PEM fan). End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC
- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan
- Article #32596 - 1.5 PEM fan harness damage

Article #21967 - DFC 1208 DFC: Pole Fan OverCurrent

Description

Trigger: Fan Current > 25amps (pole fan is same as PEM fan). End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan
- Article #32596 - 1.5 PEM fan harness damage

Article #21968 - DFC 1209 DFC: Pole Fan 12V OverVoltage

Description

Trigger: Fan Voltage > 18V (pole fan is same as PEM fan). End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan
- Article #32596 - 1.5 PEM fan harness damage

Article #21969 - DFC 1210 DFC: Pole Fan 12V UnderVoltage

Description

Trigger: Fan Voltage < 2V (pole fan is same as PEM fan). End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC
- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan
- Article #32596 - 1.5 PEM fan harness damage

Article #21970 - DFC 1211 DFC: Pole Fan Control OverTemp

Description

Trigger: Controller Chip Temp > 130C (pole fan is same as PEM fan). End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan

Article #21971 - DFC 1212 DFC: Pole Fan UnderCurrent

Description

Trigger: Current < 250ms for 50% of 3 seconds (pole fan is same as PEM fan). End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC
- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan
- Article #32596 - 1.5 PEM fan harness damage

Article #21972 - DFC 1213 DFC: Pole Fan VDD OverVoltage

Description

Trigger: Voltage > 5.6V (pole fan is same as PEM fan). End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Determine if the fan turns freely.

Steps to Fix

If the fan turns freely, the issue is in the Dual Fan Controller (DFC), internal to the Power Electronics Module (PEM). Replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC

Article #21973 - DFC 1214 DFC: Pole Fan VDD UnderVoltage

Description

Trigger: Voltage < 4.3V. End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Determine if the fan turns freely.

Steps to Fix

If the fan turns freely, the issue is in the Dual Fan Controller (DFC), internal to the Power Electronics Module (PEM). Replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC

Article #21974 - DFC 1215 DFC: Pole Fan Power Failed

Description

Trigger: Voltage < 10V downstream of fuse (pole fan is same as PEM fan). End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

Determine if the fan turns freely.

Steps to Fix

If the fan turns freely, the issue is in the Dual Fan Controller (DFC), internal to the Power Electronics Module (PEM). Replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC
- Article #32596 - 1.5 PEM fan harness damage

Article #21975 - DFC 1216 DFC: Motor Fan OverCurrent

Description

Trigger: Fan Current > 25amps. End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan

Article #21976 - DFC 1217 DFC: Motor Fan 12V OverVoltage

Description

Trigger: Fan Voltage > 18V. End-User Text String: Fan Controller Error. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan

Article #21977 - DFC 1218 DFC: Motor Fan 12V UnderVoltage

Description

Trigger: Fan Voltage less than 2V. End-User Text String: Fan Controller. Error. Vehicle Response: None.

Steps to Test

Check to see if the fan turns freely with no grinding.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan
- Article #23033 - Motor fan wiring reversed

Article #21978 - DFC 1219 DFC: Motor Fan Control OverTemp

Description

Trigger: Controller Chip Temp greater than 130C. End-User Text String: Fan Controller. Error. Vehicle Response: None.

Steps to Test

Using vehicle logs, verify motor temperatures.

Steps to Fix

- If temperatures are less than 130C - replace PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).
- Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan
- Article #23033 - Motor fan wiring reversed

Article #21979 - DFC 1220 DFC: Motor Fan UnderCurrent

Description

Trigger: Current less than 250mA for 50% of 3 seconds. End-User Text String: Fan Controller. Error. Vehicle Response: None.

Steps to Test

Check to see if the fan turns freely with no grinding.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan
- Article #23033 - Motor fan wiring reversed

Article #21980 - DFC 1221 DFC: Motor Fan VDD OverVoltage

Description

Trigger: Voltage greater than 5.6V. End-User Text String: Fan Controller. Error. Vehicle Response: None.

Steps to Test

Check to see if the fan turns freely.

Steps to Fix

Pursue possible causes to investigate further.

If pursuing possible causes does not resolve the fault, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC

Article #21981 - DFC 1222 DFC: Motor Fan UnderVoltage

Description

Trigger: Voltage less than 4.3V. End-User Text String: Fan Controller. Error. Vehicle Response: None.

Steps to Test

Check to see if the Motor Fan is UnderVoltage.

Steps to Fix

Pursue possible causes to investigate further.

If pursuing possible causes does not resolve the fault, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC

Article #21982 - DFC 1223 DFC: Motor Fan Power Failed

Description

Trigger: Voltage less than 10V downstream of fuse. End-User Text String: Fan Controller Error. Service Required. Vehicle Response: None.

Steps to Test

Check to see if the fan turns freely.

Steps to Fix

Pursue possible causes to investigate further. If the fault is not resolved after pursuing possible causes, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22848 - Faulty DFC

Article #21788 - DMC 1000 DMC FW: SPI Open

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21789 - DMC 1001 DMC FW: SPI Read

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21790 - DMC 1002 DMC FW: VBUS Present With ILoop Open

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21791 - DMC 1003 DMC FW: Lost Comms With Shifter

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Determine if the shifter board is receiving 12 volts of power.

Inspect the 12V shifter board connections, wiring, and fuse #8.

Steps to Fix

If the 12V shifter board is not receiving 12 volts of power and the wiring, connections, or fuse #8 are damaged or loose, replace as needed. If the wiring and connections are found to be okay, escalate your session for assistance. If the 12V shifter board is receiving 12 volts of power, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22830 - Faulty shifter board front-to-mid harness
- Article #22831 - Faulty shifter board mid-to-rear harness
- Article #22832 - Faulty shifter board center console harness

Article #21792 - DMC 1004 DMC FW: Relay Driver

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21793 - DMC 1005 DMC FW: Line Contactor

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21794 - DMC 1006 DMC FW: Antispark Contactor

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21795 - DMC 1007 DMC FW: Run Contactor

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21796 - DMC 1008 DMC FW: APS Undervoltage

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21797 - DMC 1009 DMC FW: Encoder Hardware

Description

End-User Text String: Alert's end-user text not yet specified.

Motor Encoder 1-This fault likely indicates a failed or damaged motor encoder.

Steps to Test

Steps to Fix

If fault is persistent OR has caused a loss of drive; proceed to replace the motor encoder

(Part# 6005225). When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor. Escalate to Service Support Team for further assistance if needed.

Possible Effects

Unknown.

Possible Causes

- Article #31914 - Faulty 5V Reference from PEC board

Article #21798 - DMC 1010 DMC FW: Voltage on Charge Port Line2 during drive with charge door open

Description

End-User Text String: Do not plug in charge cable while driving.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21799 - DMC 1011 DMC FW: Accelerator 5V

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21800 - DMC 1012 DMC FW: Firmware Error

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21801 - DMC 1013 DMC FW: Pole Power

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21802 - DMC 1014 DMC FW: Shifter Lights Don't Match Gear

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21803 - DMC 1015 DMC FW: EEPROM

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21804 - DMC 1016 DMC PEM Fan Problem

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21805 - DMC 1017 DMC FW: LCMC Sensor

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21806 - DMC 1018 DMC Motor Fan Problem

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21807 - DMC 1019 DMC Invalid Charge Current

Description

Trigger: US Car; VMS requests for 10A charge current End-User Text String: Charging Problem.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21808 - DMC 1020 DMC FAULT IA OverCurrent in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21809 - DMC 1021 DMC FAULT IB OverCurrent in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21810 - DMC 1022 DMC FAULT IA OverCurrent Peak in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21811 - DMC 1023 DMC FAULT IB OverCurrent Peak in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21812 - DMC 1024 DMC FAULT Charge Thermal Limit

Description

End-User Text String: Charge time increased due to high temperatures.

This fault occurs when charging time has been increased due to thermal limiting.

Steps to Test

1. Begin by inspecting Power Electronics Module (PEM) fan operation.
2. Remove the PEM, inspect the PEM cooling fan ducting.
3. Use compressed air to clean the heats sinks on the underside of the PEM.
4. Reinstall the PEM and test the PEM cooling during charge.
5. Pull the vehicle logs post charge for review.
6. Inspect fan connections.

Steps to Fix

If the fan is found to be faulty, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21813 - DMC 1025 DMC: Wear Factor Fault

Description

Trigger: > +- 6%. Railed wear factor indicated by TC disabled bit not set in drive status message bit (No TC light is on). End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21814 - DMC 1026 DMC FAULT 126

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21815 - DMC 1027 DMC FAULT 127

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21816 - DMC 1028 DMC FAULT 128

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21817 - DMC 1029 DMC HW: PhaseA OverCurrent warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21818 - DMC 1030 DMC HW: PhaseB OverCurrent warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21819 - DMC 1031 DMC HW: PhaseC OverCurrent warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21820 - DMC 1032 DMC HW: Battery OverVoltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21821 - DMC 1033 DMC HW: PhaseA Low Side Desat warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21822 - DMC 1034 DMC HW: PhaseA High Side Desat warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21823 - DMC 1035 DMC HW: PhaseA Bias UnderVoltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21824 - DMC 1036 DMC HW: PhaseA Bus OverVoltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21825 - DMC 1037 DMC HW: PhaseB Low Side Desat warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21826 - DMC 1038 DMC HW: PhaseB High Side Desat warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21827 - DMC 1039 DMC HW: PhaseB Bias UnderVoltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21828 - DMC 1040 DMC: HW PhaseB Bus OverVoltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21829 - DMC 1041 DMC HW: PhaseC Low Side Desat warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21830 - DMC 1042 DMC HW: Phase C High Side Desat warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21831 - DMC 1043 DMC HW: PhaseC Bias Under Voltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21832 - DMC 1044 DMC HW: PhaseC Bus Over Voltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21833 - DMC 1045 DMC HW: APS Under Voltage warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21834 - DMC 1046 DMC HW: Motor OverTemp warning

Description

End-User Text String: Debug Only.

This warning is triggered when motor temperature sensors report higher than normal operating temperatures, this warning will likely be accompanied by isolation faults.

Steps to Test

- Review the vehicle logs. Determine if this warning occurred during an extended period of heavy acceleration, or deceleration.
- Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool.

Steps to Fix

- If the fault occurred during an extended period of heavy acceleration or deceleration, this is considered expected behavior. Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool as a precaution. It is also possible that the extreme heat may have caused internal motor damage. Conduct a thorough road test, prior to release.
- If the motor fan ducting and operation analysis did not resolved the issue, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22792 - Motor fan ducting and operation articles

Article #21835 - DMC 1047 DMC HW: Pedal Monitor warning

Description

End-User Text String: Debug Only.

Steps to Test

- Verify that the vehicle is running firmware version 4.2.00 or newer.
- Investigate the pedal box and associated wiring connections.

Steps to Fix

If damage is found on the pedal box wiring connections or the wiring harnesses, repair the wiring, and if needed, replace the pedal box. If this does not resolve the issue, escalate your session for assistance.

If no damage is found, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22816 - Problem with front to mid (FHC 45 to MHC1) wiring harness
- Article #22817 - Problem with mid to rear (MHC1 to RHC1) wiring harness
- Article #22818 - Problem with PEM logic connector

Article #21836 - DMC 1048 DMC HW: Line Over Current warning

Description

End-User Text String: Debug Only.

Steps to Test

2.0 &; 2.5 Roadsters

Determine if the vehicle will charge on a "known good" charging station. The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station. Question customer about the location where the vehicle is normally charged, are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present?

1.5 Roadsters

If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

Inform customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charger. If the vehicle is not charged near heavy equipment, replace the PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). If this does not resolve the issue, escalate your session for assistance.

1.5 Roadsters

If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections. If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21837 - DMC 1049 DMC HW: PhaseA OverTemp warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21838 - DMC 1050 DMC HW: PhaseB OverTemp warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21839 - DMC 1051 DMC HW: PhaseC OverTemp warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21840 - DMC 1052 DMC HW: ESS Cable Interlock warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21841 - DMC 1053 DMC HW: Common Mode Sense warning

Description

End-User Text String: Power System Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21842 - DMC 1054 DMC HW: ESS Cable Interlock warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21843 - DMC 1055 DMCFW: PhaseA OverCurrent warning. Torque limited.

Description

Trigger: Current > 880 amps > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform Motor / Cable isolation test.

Steps to Fix

If the vehicle is in Charge Mode, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22784 - Failed motor / cable isolation test
- Article #22785 - Faulty motor-Passed Motor/Cable Isolation Test
- Article #23209 - PEM Malfunction

Article #21844 - DMC 1056 DMCFW: PhaseB OverCurrent warning. Torque limited.

Description

Trigger: Current > 880 amps > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable isolation test.

Steps to Fix

If the vehicle is in Charge Mode, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22784 - Failed motor / cable isolation test
- Article #22785 - Faulty motor-Passed Motor/Cable Isolation Tes
- Article #23209 - PEM Malfunction

Article #21845 - DMC 1057 DMCFW: PhaseC OverCurrent warning. Torque limited

Description

Trigger: Current > 880 amps > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Determine if the vehicle is in Charge Mode or if fault 907, 911, or 915 (Phase A,B,C UnderVoltage fault) present.
- Perform a Motor/Cable isolation test.

Steps to Fix

If the vehicle is in Charge Mode, replace the PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22784 - Failed motor / cable isolation test
- Article #22785 - Faulty motor-Passed Motor/Cable Isolation Test
- Article #23209 - PEM Malfunction

Article #21846 - DMC 1058 DMC FW: PhaseA OverCurrent Peak warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If this fault has occurred; please upload logs and escalate the session for assistance.

Steps to Fix

Escalate the session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21847 - DMC 1059 DMC FW: PhaseB OverCurrent Peak warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If this fault has occurred; please upload logs and escalate the session for assistance.

Steps to Fix

Escalate the problem

the session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21848 - DMC 1060 DMC FW: PhaseC OverCurrent Peak warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If this fault has occurred; please upload logs and escalate the session for assistance.

Steps to Fix

Escalate the problem

the session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21849 - DMC 1061 DMC FW: Line OverCurrent warning

Description

Trigger: Line Current > 75 amps > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station.

Steps to Test

2.0 &; 2.5 Roadsters

- Determine if the vehicle will charge on a "known good" charging station. The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station.
- Question customer about the location where the vehicle is normally charged, are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present?

1.5 Roadsters

- If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

- Inform customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charger.
- If the vehicle is not charged near heavy equipment, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If this does not resolve the issue, escalate your session for assistance.

1.5 Roadsters

- If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections.
- If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21850 - DMC 1062 DMC FW: Line OverCurrent Peak warning

Description

End-User Text String: Charge failure. Close charge port door to retry. Vehicle Response: Charge aborted.

The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station.

Steps to Test

2.0 &; 2.5 Roadsters Determine if the vehicle will charge on a "known good" charging station. The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station. Question customer about the location where the vehicle is normally charged, are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present?

1.5 Roadsters

If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

Inform customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charger. If the vehicle is not charged near heavy equipment, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). If this does not resolve the issue, escalate your session for assistance.

1.5 Roadsters

If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections. If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21851 - DMC 1063 DMC FW: Line OverVoltage warning

Description

Trigger: Line Voltage > 264V > 1sec or +15% from start of charge. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

Charge voltage has exceeded 264V for more that 1 second. Fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charging station.

Steps to Test

2.0 &; 2.5 Roadsters

- Determine if the vehicle will charge on a "known good" charging station.
- Question the customer about the location where the vehicle is normally charged. Are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present? It is also possible for lightning to cause this fault?
- Inspect the Power Electronics Module (PEM), charge port connections, and related wiring.

1.5 Roadsters

- If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

- Inform the customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charging station. In rare cases, lightning can also cause this fault to occur.
- If the vehicle charges using a "known good" charging station, the problem likely lies with the customer's home charging station or home electrical. Review and advise as needed.
- If upon inspection, there is no visual damage to the wiring and connections, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If the issue is not resolved, escalate your session for assistance.

1.5 Roadsters

- If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections. If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21852 - DMC 1064 DMC FW: Line OverVoltage Peak warning

Description

End-User Text String: Charging Problem. Close charge port door to retry. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21853 - DMC 1065 DMC FW: Line UnderVoltage warning

Description

Trigger: Line Voltage < 90V > 100ms or -15% from start of charge. End-User Text String: Charge Problem. Extension Cord Detected. Vehicle Response: Charge aborted.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage, or experienced a total loss of AC Main power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on known good Electric Vehicle Supply Equipment (EVSE).
- Check the charge port connections for corrosion and clean if necessary. Inspect the Power Electronics Module (PEM) side of the PEM-Charge Port cable. Inspect, tighten nuts, and clean as necessary.
- Compare the line voltage (using a DMM) with PEM line voltage reading (using MTS-2, PEM bus, Live Data).

Steps to Fix

- If it's determined that the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage, or experienced a total loss of AC Main power, this is expected behavior, no further action is necessary.
- If charging on a known good EVSE charges the vehicle, troubleshoot the customer's EVSE, if the issue is still unresolved, escalate your session for assistance.
- If the line voltages are not the same, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #23209 - PEM Malfunction

Article #21854 - DMC 1066 DMCFW: Battery OverVoltage warning. Torque limited.

Description

Trigger: ESS Voltage > 415.82V > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

Problem with Power Electronics Module (PEM) voltage sensor.

Steps to Test

Check the battery voltage reported by the Power Electronics Module (PEM) when the contactors are closed, and determine if they are the same as the Battery Safety Monitor (BSM) values.

Steps to Fix

If one PEM sensor does not equal other PEM sensor, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21855 - DMC 1067 DMCFW: Battery UnderVoltage warning. Torque limited.

Description

Trigger: ESS Voltage < 282V and Contactors Closed. End-User Text String: Debug Only. Vehicle Response: None.

Problem with Power Electronics Module (PEM) voltage sensor.

Steps to Test

- Check the battery voltage reported by the Power Electronics Module (PEM) when the contactors are closed, and determine if they are the same as the Battery Safety Monitor (BSM) values.
- Check the voltage on the battery (ESS) connector.

Steps to Fix

If one PEM sensor does not equal other PEM sensor, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21856 - DMC 1068 DMC FW: Motor OverSpeed warning

Description

Trigger: Corresponding fault appears; warning doesn't. End-User Text String: Powertrain Service Required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21857 - DMC 1069 DMCFW: Motor Sensor1 OverTemp warning. Torque limited.

Description

Trigger: Motor Temp 1 > 135C. End-User Text String: Debug Only. Vehicle Response: Torque limiting.

This fault is triggered when motor temperature sensors report values greater than 135C (275F), this fault is also often accompanied by isolation faults.

Steps to Test

- Review the vehicle logs. Determine if this fault occurred during an extended period of heavy acceleration or deceleration.
- Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool.

Steps to Fix

- If the fault occurred during an extended period of heavy acceleration or deceleration, this is considered expected behavior. Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool as a precaution. It is also possible that the extreme heat may have caused internal motor damage. Conduct a thorough road test, prior to release.
- If the motor fan ducting and operation analysis did not resolved the issue, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22287 - Encoder cable damaged
- Article #22792 - Motor fan ducting and operation articles

Article #21858 - DMC 1070 DMCFW: Motor Sensor2 OverTemp warning. Torque limited.

Description

Trigger: Motor Temp 2 > 135C. End-User Text String: Debug Only. Vehicle Response: Torque limiting.

Steps to Test

- Review the vehicle logs. Determine if this fault occurred during an extended period of heavy acceleration or deceleration.
- Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool.

Steps to Fix

- If the fault occurred during an extended period of heavy acceleration or deceleration, this is considered expected behavior. Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool as a precaution. It is also possible that the extreme heat may have caused internal motor damage. Conduct a thorough road test, prior to release.
- If the motor fan ducting and operation analysis did not resolved the issue, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22287 - Encoder cable damaged
- Article #22792 - Motor fan ducting and operation articles

Article #21859 - DMC 1071 DMC FW: Motor Sensor1 UnderTemp warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21860 - DMC 1072 DMC FW: Motor Sensor2 UnderTemp warning

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21861 - DMC 1073 DMCFW: PhaseA OverTemp warning. Torque limited.

Description

Trigger: Phase A Temp > 61C > 100ms. End-User Text String: Debug Only. Vehicle Response: Torque limiting.

This fault occurs when the phase of "pole" temperature has risen above 61C. This is usually a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan be activated using MTS-2 tool

(Information about this tool can be found in article 22957).

- Inspect the fan connections.
- Remove the PEM. Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #30006 - PEM 2.X air flow restricted

Article #21862 - DMC 1074 DMC FW: PhaseA Temp Diff warning

Description

Trigger: ABS(A-(B+C)/2) > 20C. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when phase of "pole" temperature is 20C greater than the other two phase or "pole" temperatures. This usually occurs as a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan be activated using MTS-2 tool

(Information about this tool can be found in article 22957).

- Inspect the fan connections.
- Remove the PEM. Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #30006 - PEM 2.X air flow restricted

Article #21863 - DMC 1075 DMCFW: Phase B Overtemp warning. Torque limited.

Description

Trigger: Phase B Temp > 61C > 100ms. End-User Text String: Debug Only. Vehicle Response: Torque limiting.

This fault occurs when the phase of "pole" temperature has risen above 61C. This is usually a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan be activated using MTS-2 tool

(Information about this tool can be found in article 22957)

.

- Inspect the fan connections.
- Remove the PEM.
    - Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #30006 - PEM 2.X air flow restricted

Article #21864 - DMC 1076 DMC FW: PhaseB Temp Diff warning

Description

Trigger: ABS(B-(A+C)/2) > 20C. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when phase of "pole" temperature is 20C greater than the other two phase or "pole" temperatures. This usually occurs as a result of insufficient PEM cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan be activated using MTS-2 tool.
2. Inspect the fan connections.
3. Remove the PEM. Inspect the cooling duct condition and fitment. Thoroughly clean the heatsinks on the underside of the PEM using compressed air. Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode. Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM (1.5-Part# 6003440, 2.0&2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #30006 - PEM 2.X air flow restricted

Article #21865 - DMC 1077 DMCFW: PhaseC OverTemp warning. Torque limited.

Description

Trigger: Phase C Temp > 61C > 100ms. End-User Text String: Debug Only. Vehicle Response: Torque limiting.

This fault occurs when the phase of "pole" temperature has risen above 61C. This is usually a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan be activated using MTS-2 tool.
2. Inspect the fan connections.
3. Remove the PEM. Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #30006 - PEM 2.X air flow restricted

Article #21866 - DMC 1078 DMC FW: PhaseC Temp Diff warning

Description

Trigger: ABS(C-(A+C)/2) > 20C. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when phase of "pole" temperature is 20C greater than the other two phase or "pole" temperatures. This usually occurs as a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan be activated using MTS-2 tool

(Information about this tool can be found in article 22957).

- Inspect the fan connections.
- Remove the PEM. Inspect the cooling duct condition and fitment. Thoroughly clean the heatsinks on the underside of the PEM using compressed air. Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode. Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #30006 - PEM 2.X air flow restricted

Article #21867 - DMC 1079 DMC FW: Ambient OverTemp warning

Description

Trigger: PEM Ambient > 65C > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check for other Power Electronics Module (PEM) overtemp warnings. If other temperature warnings are present, check the megapole fan.

Steps to Fix

If there are no other PEM overtemp warnings, the sensor is bad.

Replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21868 - DMC 1080 DMC FW: Ambient UnderTemp

Description

End-User Text String: Power electronics too cold.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21869 - DMC 1081 DMC FW: Line OverFrequency warning

Description

Trigger: Line Voltage Lost Sync or Frequency Too High. End-User Text String: Line Voltage Lost Sync. Vehicle Response: Charge aborted.

This fault can be expected when charging from a generator or using a long extension cord. Poor grid quality would show up as a fluctuation or low line voltage which can be seen in the logs.

Steps to Test

Determine if both Power Electronics Modules (PEM) sensors are reading the same values.

Steps to Fix

If one PEM sensor does not equal the other PEM sensor, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #32535 - Blown line fuse

Article #21870 - DMC 1082 DMC FW: Line UnderFrequency warning

Description

Trigger: Line Voltage Lost Sync or Underfrequency. End-User Text String: Line Voltage Lost Sync. Vehicle Response: Charge aborted.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage, or experienced a total loss of AC Main power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on known good Electric Vehicle Supply Equipment (EVSE).

Steps to Fix

- If it's determined that the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage, or experienced a total loss of AC Main power, this is expected behavior, no further action is necessary.
- If charging on a known good EVSE charges the vehicle, troubleshoot the customer's EVSE, if the issue is still unresolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21871 - DMC 1083 DMC FW: Line Sync Loss warning

Description

Trigger: ABS(PLL dfreq) > 525us AND Vac > 80V > 250ms. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

Unplugging the charger or a breaker trip will cause this. This fault is expected when charging from a generator.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage or did it experience a total loss of AC Mains power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on a known good Electric Vehicle Supply Equipment (EVSE).

Steps to Fix

- If the vehicle was charged using a generator, long extension cord, or by a poor quality supply, this is expected behavior, no further action necessary.
- If the 70A charge was successful, troubleshoot the customer's EVSE. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21872 - DMC 1084 DMC FW: HCS Faulted warning

Description

Trigger: Pilot High and Low Levels < -6.00V. End-User Text String: External Charger Problem. Vehicle Response: Charge aborted.

Smoke, cable breakaway, GFCI tripped, or overtemperature detected inside Electrical Vehicle Supply Equipment (EVSE). Pilot Fault - the problem is inside of the Power Electronics Module (PEM).

Steps to Test

Check the vehicle with a known good EVSE. Use the known good Charge Port Cable to isolate the problem to the wiring or the PEM.

Steps to Fix

If it is determined that the wiring is damaged, replace the harness. Otherwise, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #22930 - Charge cable fault

Article #21873 - DMC 1085 DMC FW: PEM Vbat different from BSM Vbat warning

Description

Alert Trigger:

- The Vehicle Management System (VMS) reported the Battery Safety Monitor (BSM) voltage differs from the Digital Motor Control (DMC) measured voltage by more than 10% when the filtered battery current reported by the VMS is less than 10amps and essContactorsClosed > 2 seconds.

End-User Text String:

- Debug Only.

Vehicle Response:

- None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21874 - DMC 1086 DMC FW: HCS Invalid Pilot Signal warning

Description

Trigger: Invalid Pilot Frequency. End-User Text String: Charging Problem. Vehicle Response: Charge aborted.

Steps to Test

Connect vehicle with a known good High Power Connector (HPC).

Steps to Fix

If the vehicle charges properly, further investigation of the customer's HPC is required. Otherwise, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21875 - DMC 1087 DMC FW: Line Current or Voltage Offset Too Large warning

Description

Trigger: Line voltage offset > 5V OR Line current offset > 5A. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check the battery voltage reported by the Power Electronics Module (PEM) when the contactors are closed, and determine if they are the same as the Battery Safety Monitor (BSM) values.

Steps to Fix

If one PEM sensor does not equal the other PEM sensor, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21876 - DMC 1088 DMC FW: VBrickMax versus VBattery Error warning

Description

Trigger: VbrickMax and Vbat do not match OR VbrickMax > 4.25V OR Vbat > 418. End-User Text String: Charging System Service Required. Vehicle Response: Charge aborted.

Steps to Test

1. Use the battery (ESS) interface tool (Omitec), to verify the Vbrick Max. versus the pack voltage.
2. Check the Vehicle Monitor System (VMS) interface for the Vbrick according to the VMS numbers.
3. Check the CAN status on the Omitec tool.
4. Check the cable to the test fixture.

Steps to Fix

- If the Vbrick Max. versus the pack voltage is bad (Vbrick max. * 99 less than the battery voltage), check for ESS faults. If good, check the VMS.
- If the Vbrick according the the VMS is bad, check the VMS. If good, check the CAN BUS interface.
- If one PEM sensor does not equal the other PEM sensor. replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21877 - DMC 1089 DMC FW: VBrickMax is Zero warning

Description

Trigger: VbrickMax = 0V or Vbrick Limit (charge to voltage) >= 4.2. End-User Text String: Charging System Service Required. Vehicle Response: Charge aborted.

Steps to Test

Check the Vehicle Monitor System (VMS) interface for Vbrick according to VMS numbers.

Steps to Fix

If there are Vbrick numbers that are out of the appropriate range, check the VMS.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21878 - DMC 1090 DMC FW: Line Current Error warning

Description

Trigger: Ia > Iline + 10A or Ia < Iline - 10A > 100ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check the battery voltage reported by the Power Electronics Module (PEM) when the contactors are closed, and determine if they are the same as the Battery Safety Monitor (BSM) values.

Steps to Fix

If one PEM sensor does not equal the other PEM sensor, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21879 - DMC 1091 DMC FW: Line Current Not Equal Request warning

Description

End-User Text String: Charging System Service Required. Vehicle Response: Fault Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21880 - DMC 1092 DMC FW: Pilot Signal Present in Drive Mode warning

Description

Trigger: DMC mode = Drive AND Heard from VMS AND ABS(ADC_EVSE) > 3V. End-User Text String: Do not plug in charge cable while driving. Vehicle Response: None.

Steps to Test

- Determine if the ignition key was cycled, or the vehicle was put into drive with the charging cable connected.
- Check to see that the charge port micro switch is working properly.
- Determine if the switch is activated while the door is closed. Examine the switch connections to determine if they are secure (CPDC -1-1 and CPDC -1-4).

Steps to Fix

- If the ignition key was cycled or the vehicle was put into drive with the charging cable connected, remove the charging cable before cycling the ignition key or entering drive. Otherwise, escalate your session for assistance.
- If the switch connections are damaged or not secured, repair as needed. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21881 - DMC 1093 DMC FW: Shifter error warning

Description

Trigger: Invalid Shift Clock. /End-User Text String: WARNING: Gear Selection Problem Gear Selector May Not Work. /Vehicle Response: None.

Steps to Test

- Test with a known good gear selector.
- Visually examine and test the harness for damage, or loose connections.

Steps to Fix

Replace the gear selector if the known good gear selector functions properly, otherwise, replace the harness.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21882 - DMC 1094 DMC FW: Invalid Shift Request warning

Description

Trigger: No gear selected while ESS contactors closed > 1s. End-User Text String: Debug Only. Vehicle Response: None.

This warning is thrown when the shift lever position is invalid and the gear selection is unknown for greater than 1 second. This can happen normally when the user holds the shift lever in between gears.

Steps to Test

Inspect the gear selector for damage and normal actuation, replace as needed.

Steps to Fix

If the gear selector is in good working order, and the vehicle will not enter any gear, this fault usually points to an internal problem with the switchpack. Escalate your session for assistance

Possible Effects

Unknown.

Possible Causes

- Article #22617 - Faulty Switchpack

Article #21883 - DMC 1095 DMC FW: Press brake before shifting warning

Description

Trigger: < 5mph requires brake. End-User Text String: Press brake pedal before shifting. Vehicle Response: None.

Steps to Fix

Check the brake switch status at the Power Electronics Module (PEM) using the Diagnostic tool.

Steps to Fix

If it is determined that there is a problem with the brake switch, replace as needed. Otherwise, pursue possible causes

Possible Effects

Unknown.

Steps to Fix

- Article #22962 - Faulty Gear Selector
- Article #22963 - Faulty Brake Light Switch

Article #21884 - DMC 1096 DMC FW: Lost VMS comms warning

Description

Trigger: No messages received from VMS > 8sec. End-User Text String: Debug Only. Vehicle Response: Power reduced.

Steps to Test

Check CAN status on Omitec tool. Check VMS for CAN output. Check harness using break-out cable.

Steps to Fix

If the harness is determined to be damaged/faulty, replace the harness. If the VMS or CAN are determined to be faulty, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21885 - DMC 1097 DMC FW: Lost DFC comms warning

Description

Trigger: No Messages received from DFC > 3sec. End-User Text String: Fan Controller Error Service Required. Vehicle Response: Turns PEM fans full-on.

Steps to Test

With diagnostic tool, check the CAN status, also check the Dual Fan Controller (DFC) for CAN output. Check the harness using the break-out cable.

Steps to Fix

If the harness is faulty/damaged, replace the harness. If the CAN is faulty, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21886 - DMC 1098 DMC: Lost ABS Comms (and TC) warning

Description

Trigger: No Messages received from ABS > 100ms. End-User Text String: ABS &; Traction Control Problems. Service Required. Vehicle Response: No cruise control or traction control.

Steps to Test

With diagnostic tool, check the CAN status, also check the Dual Fan Controller (DFC) for CAN output. Check the harness using the break-out cable.

Steps to Fix

If the harness is faulty/damaged, replace the harness. If the CAN is faulty, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

- Article #23023 - Faulty Anti-lock Braking System (ABS) module

Article #21887 - DMC 1099 DMC FW: CAN comms error warning

Description

Trigger: CAN message has wrong length. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check CAN status on Omitec tool.

Check the harness using the break-out cable.

Steps to Fix

If the harness is faulty/damaged, replace the harness. If the CAN is faulty, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21888 - DMC 1100 DMC FW: Accelerator Error warning

Description

End-User Text String: Accelerator Pedal Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21889 - DMC 1101 DMC FW: Motor Encoder Error warning

Description

Trigger: Motor Encoder lines do not match > 1s. /End-User Text String: Motor Service Required. /Vehicle Response: None.

This fault likely indicates a failed or damaged motor encoder.

Steps to Test

Steps to Fix

If the fault is persistent or has caused a loss of drive; proceed to replace the motor encoder

(Part# 6005225). When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor. Escalate your session for assistance if needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21890 - DMC 1102 DMC FW: Pole Current Error warning

Description

Trigger: Phase imbalance during drive > 1 second. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #23209 - PEM Malfunction

Article #21891 - DMC 1103 DMC FW: ABS Error warning

Description

Trigger: ABS Reports one or more invalid wheelspeeds > 10ms. End-User Text String: ABS &; Traction Control Problems. Service Required. Vehicle Response: Disables TC, MPT shifting.

This fault occurs when the ABS system reports one or more invalid wheel speeds for more than 10ms.

Steps to Test

1. Review the vehicle logs, an intermittent fault is often caused by wheel spin induced by wet driving surfaces or aggressive driving. Check to see if the fault is currently present.
2. Use the MTS-2/Linux-based Engineering tool to monitor all 4 wheel speeds while the vehicle is moving. Watch for one or more wheel speed sensor reporting erratic or irregular values.
3. Visually inspect all wheel speed sensors and wire routing.
4. Inspect Anti-lock Braking System (ABS) module for damage or water ingress.

Steps to Fix

- If one or more speed sensor reports erratic or irregular values, repair and replace the speed sensor(s) and wiring as needed.
- If damage is found on the ABS module, repair as needed. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21892 - DMC 1104 DMC FW: Invalid State warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Firmware failure - See chief technician/engineering---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21893 - DMC 1105 DMC FW: Moving during charge warning

Description

Trigger: > 0.4 mph during charge. End-User Text String: Car moved while charging - charge stopped. Vehicle Response: None.

Steps to Test

- Find context of fault in logs.
- Verify function works correctly by testing.
- If the fault is thrown while not moving, check the Anti-lock Braking System (ABS) controller/sensors.
- Verify that no "Pilot during drive" fault is present.

Steps to Fix

If ABS passes, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21894 - DMC 1106 DMC FW: Invalid State Request warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

DMC Firmware issue - chief tech.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21895 - DMC 1107 DMC FW: Invalid Mode Request warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

DMC Firmware issue - chief tech.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21896 - DMC 1108 DMC FW: Invalid Charge Request warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate the the session for assistance .---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21897 - DMC 1109 DMC FW: Bad State Transition warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when a charge condition is not met, i.e parking brake not set, parking pawl not set, contactors open, or line voltage too low.

Steps to Test

- Determine if the parking brake was set, the vehicle was in Park, and the parking pawl was engaged

when the vehicle attempted to charge. (The parking brake and parking pawl must be engaged in order to charge the vehicle.)

- Investigate the operation of the parking pawl.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22819 - Problem with tripped GFI, home wiring, or circuit breaker while charging

Article #21898 - DMC 1110 DMC FW: Mode Trans Condition warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

This fault may be thrown during the transition between Battery pack heating and charging.

Steps to Test

Review the vehicle logs. Determine if fault code 1110 occurred between heating and charging cycles.

Steps to Fix

If fault code 1110 occurred between heating and charging cycles, this is a known bug. No further action required. See Bugzilla Bug #7985 for more information.

Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21899 - DMC 1111 DMC FW: Code CRC Error warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Firmware failure - See chief technician/engineering.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21900 - DMC 1112 DMC FW: Bad Argument warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Use the diagnostic tool to show fault data. Fault data is a bitfield of faults. (Bit 0), (Bit 1 Unknown msg Rx Use diagnostic tool to determine health of PEM CAN BUS), (Bit 2 Unknown Tx mbox DMC Firmware issue - chief tech), (Bit 3 CAN Tx overrun Use diagnostic tool to determine health of PEM CAN BUS), (Bit 4 Bad charge state DMC Firmware issue - chief tech.), (Bit 5), (Bit 6 SPI open problem Internal PEM fault - replace PEM), (Bit 7 SPI read problem Internal PEM fault - replace PEM)

Steps to Fix

Replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21901 - DMC 1113 DMC FW: Interrupt Time too Long warning

Description

Trigger: DMC software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Begin by reviewing the vehicle logs.

Steps to Fix

- If this fault occurred while the vehicle was on Charge, there may be an issue with the pilot signal.
- If this fault occurred during Drive it likely indicates a failed or damaged motor encoder.
- If the fault is persistent or has caused a loss of drive; proceed to replace the motor encoder. When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor.
- Escalate your session for assistance if needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21902 - DMC 1114 DMCFW: Motor Temp Sensor1 warning. Torque limited.

Description

Trigger: Motor Temp 1 Change > 10C/s OR Temp > 220C. End-User Text String: Debug Only. Vehicle Response: Torque limit with 1115.

This fault is triggered when motor temperature sensors report values greater than 220C (428F), this fault is also often accompanied by isolation faults.

Steps to Test

- Review the vehicle logs. Determine if this fault occurred during an extended period of heavy acceleration or deceleration.
- Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool.

Steps to Fix

- If the fault occurred during an extended period of heavy acceleration or deceleration, this is considered expected behavior. Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool as a precaution. It is also possible that the extreme heat may have caused internal motor damage. Conduct a thorough road test, prior to release.
- If the motor fan ducting and operation analysis did not resolved the issue, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22792 - Motor fan ducting and operation articles

Article #21903 - DMC 1115 DMCFW: Motor Temp Sensor2 warning. Torque limited.

Description

Trigger: Motor Temp 2 Change > 10C/s OR Temp > 220C. End-User Text String: Debug Only. Vehicle Response: Torque limit with 1114.

This fault is triggered when motor temperature sensors report values greater than 220C (428F), this fault is also often accompanied by isolation faults.

Steps to Test

- Review the vehicle logs. Determine if this fault occurred during an extended period of heavy acceleration or deceleration.
- Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool.

Steps to Fix

- If the fault occurred during an extended period of heavy acceleration or deceleration, this is considered expected behavior. Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool as a precaution. It is also possible that the extreme heat may have caused internal motor damage. Conduct a thorough road test, prior to release.
- If the motor fan ducting and operation analysis did not resolved the issue, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22792 - Motor fan ducting and operation articles

Article #21904 - DMC 1116 DMC FW: Motor Temp Sensors Differ warning

Description

Alert Trigger: Motor Temp 1 and 2 different >10°C. End-User Text String: Debug Only. Vehicle Response: None.

This alert triggers when the motor temperature sensor 1 and motor temperature sensor 2 measurements vary by > 10°C.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22826 - Faulty SHC5 connector
- Article #22827 - Failed PEM ground fuse/internal fuse

Article #21905 - DMC 1117 DMC FW: VBrickMin Not Increasing

Description

Trigger: No increase in Vbrick Min during charge. End-User Text String: Battery Service Required. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate the session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21906 - DMC 1118 DMC FW: Voltage Discharge Time Warning

Description

Trigger: Pilot Signal AND V < 10V OR No Pilot Signal and V > 10V. End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Check to see if the voltage on the charge port decays over time.

Steps to Fix

If the voltage > 10V, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21907 - DMC 1119 DMC FW: 5V Power

Description

End-User Text String: Debug Only. Vehicle Response: None.

The Auxiliary Power Supply (APS) power is regulated by the Power Electronics Controller (PEC) PCBA in the Power Electronics Module (PEM) to support various components, such as the motor encoder.

The following limits exist on 5V power:

- VENC Under Voltage Warning 4.68V
- VENC Over Voltage Warning 5.333 V
- VACCEL5V Under Voltage Warning 4.68V
- VACCEL5V Over Voltage Warning 5.333V
- VPLUS5V Under Voltage Warning 4.729V
- VPLUS5V Over Voltage Warning 5.282V

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #31914 - Faulty 5V Reference from PEC board

Article #21908 - DMC 1120 DMCFW: Lost TCM comms warning. Torque limited

Description

Trigger: No message from TCM > 3sec. End-User Text String: Park Lock Problem Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

- Check CAN status on the Power Electronics Module (PEM) BUS.
  - Check the CAN communication status of CAN BUS 3 and verify if other modules on CAN 3 are able to communicate - PEM, ABS, VMS.
- Check the power/ground/CAN to Transmission Control Module (TCM).
  - Measure the voltage at TCM connector RHC19, pin 5, 9, 14 (+) / pin 4, 8, 13 (-), check for open/short circuit to ground/harness between the TCM connector and the PEM connector.

Steps to Fix

Replace the TCM (Part# 6002793). Contact Chief Technician to replace TCM due to internal failure.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #21909 - DMC 1121 DMC FW: PCS Current Offset Too Large warning

Description

Alert Trigger: Lab offset > 10A *or* Iline offset > 5A *or* Vline offset > 5V. End-User Text String: Debug Only. Vehicle Response: None.

This alert triggers when one or more of the Pole Current Sensors (PCS) has failed or fallen out of calibration. This alert may also occur as a result of a phase imbalance developing on one of the phases in the motor or motor cable.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21910 - DMC 1122 DMC FW: Watchdog timer reset warning

Description

Trigger: DMC Code Freezes > 270ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Determine if the fault happened within 10 seconds of the Auxiliary Power Supply (APS) turning on.

Steps to Fix

- If the fault happened within 10 seconds of the APS turning on, this is expected behavior, no further action necessary.
    - Faults 983 and 1122 can sometimes be thrown when the Power Electonics Module (PEM) first gets powered by the APS.
    - With firmware version 4.2.30 and newer, this fault is not shown to the user.
- If the fault did not happen within 10 seconds of the APS turning on, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21911 - DMC 1123 DMC FW: TCM Refusal Warning

Description

Trigger: Current Gear does not match commanded gear > 2seconds. End-User Text String: Park Lock Problem Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21912 - DMC 1124 DMC FW: Unsafe gear transition warning

Description

Trigger: Unsafe gear request (eg. request for R when >5mph in Drive). End-User Text String: Unsafe Gear Transition - Shift Denied. Vehicle Response: None.

This fault occurs when drive torque is commanded opposite the vehicles direction of travel.

Steps to Test

Determine if the drive torque is commanded opposite the vehicles direction of travel.

Inspect Drive buttons or shifter (1.5 models) for faulty connections or pinched wires.

Steps to Fix

If the drive torque has been commanded opposite the vehicles direction of travel, the issue should be resolved. If there are no pinched wires or faulty connections, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21913 - DMC 1125 DMC FW: CAN Rx

Description

Trigger: Unknown CAN message received. End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21914 - DMC 1126 DMC FW: CAN Tx

Description

Trigger: Unknown CAN message. End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21915 - DMC 1127 DMC FW: CAN Overrun

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #23023 - Faulty Anti-lock Braking System (ABS) module

Article #21916 - DMC 1128 DMC FW: SPI Open

Description

Trigger: Lost Comms with CPLD. End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21917 - DMC 1129 DMC FW: SPI Read

Description

Trigger: Lost Comms with CPLD. End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21918 - DMC 1130 DMC FW: VBUS Present with ILoop Open

Description

Trigger: High voltage measured in PEM while safety interlock open. End-User Text String: PEM Service Issue Consult Repair Manual before servicing PEM. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21919 - DMC 1131 DMC FW: Lost Comms With Shifter

Description

Trigger: Lost Comms with Gear Selector. /End-User Text String: WARNING: Gear Selection Problem Gear Selector May Not Work. /Vehicle Response: None.

Steps to Test

Determine if the shifter board is receiving 12 volts of power. Inspect the 12V shifter board connections, wiring, and fuse #8. Problem found

Steps to Fix

If the 12V shifter board is not receiving 12 volts of power and the wiring, connections, or fuse #8 are damaged or loose, replace as needed.

If the 12V shifter board is receiving 12 volts of power, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22830 - Faulty shifter board front-to-mid harness
- Article #22831 - Faulty shifter board mid-to-rear harness
- Article #22832 - Faulty shifter board center console harness
- Article #22833 - Faulty CAN connections

Article #21920 - DMC 1132 DMC FW: Relay Driver

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate the problem to the Service Support Team for further assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21921 - DMC 1133 DMC FW: Line Contactor

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Using the vehicle logs, determine if this fault occurred while the vehicle was in drive.

Steps to Fix

If the vehicle was not in drive, escalate your session for assistance. If the vehicle was in drive, replace Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21922 - DMC 1134 DMC FW: Antispark Contactor

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21923 - DMC 1135 DMC FW: Run Contactor

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21924 - DMC 1136 DMC FW: APS Undervoltage

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21925 - DMC 1137 DMC FW: Encoder Hardware

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Motor Encoder 1- This fault likely indicates a failed or damaged motor encoder.

Steps to Test

Steps to Fix

If fault is persistent OR has caused a loss of drive; proceed to replace the motor encoder

(Part# 6005225). When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor. Escalate to Service Support Team for further assistance if needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21926 - DMC 1138 DMC FW: Voltage on Charge Port Line2 during drive

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21927 - DMC 1139 DMC FW: Accelerator 5V

Description

End-User Text String: Power Failure Do Not Charge Contact Tesla Service. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21928 - DMC 1140 DMC FW: Firmware Error

Description

End-User Text String: Powertrain Problem Service Required.

Steps to Test

Steps to Fix

If this fault has occurred, please upload logs to your Toolbox session and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21929 - DMC 1141 DMC FW: Pole Power

Description

End-User Text String: Debug Only.

Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21930 - DMC 1142 DMC FW: DMC FAULT Shifter Lights Don't Match Gear

Description

Trigger: Active gear doesn't match gear indicated by Gear Selector End-User Text String: WARNING: Gear Indication Failure: Active Gear not Indicated. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21931 - DMC 1143 DMC FW: EEPROM

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21932 - DMC 1144 DMC PEM Fan Problem

Steps to Test

The Power Electronics Module (PEM) monitors the fan voltage and current. This alert indicates one or both of these values has gone outside of the expected range. This can be due to an obstructed or malfunctioning fan (short / open circuit), issues with the fan wiring and connectors, or an incorrect fan configuration in the firmware.

The Roadster 1.5 has the fan integral to the PEM. The Roadster 2.0 / 2.5 have an externally mounted PEM fan.

Firmware Details:

- End-User Text String: Powertrain Problem
- Service Required
- Vehicle Response: None

Steps to Fix

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23029 - Obstructed Power Electronics Module (PEM) fan
- Article #30006 - PEM 2.X air flow restricted
- Article #30014 - Fan configuration incorrect
- Article #30257 - Melted PEM fan connector
- Article #37569 - PEM fan fuses blown roadster 2.X
- Article #37893 - Female pins in PEM fan connector improperly seated
- Article #38962 - Wiring problem between PEM and PEM / Motor fans

Article #21933 - DMC 1145 DMC WARNING LCMC Sensor

Description

End-User Text String: Debug Only. Vehicle Response: None.

LCMC Sensor 1-This fault indicates an issue with either the

Large Common Mode Choke (LCMC) or the temperature sensor located on the LCMC. The LCMC is located inside the Power Electronics Module (PEM) and acts to suppress noise during a charge.

Steps to Test

If this fault is consistently present in vehicle logs the effect on the vehicle will be a decrease in maximum allowable charge current from 70A to 61A.

Steps to Fix

In this case the PEM should be replaced

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). If the fault has occurred less than 10 times no corrective action is required.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21934 - DMC 1146 DMC Motor Fan Problem

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- 110600 - Third party device connected to the OBDII port
- Article #23026 - Faulty Power Electronics Module (PEM) fan
- Article #23031 - Faulty Motor fan
- Article #23032 - Obstructed Motor fan
- Article #23033 - Motor fan wiring reversed
- Article #30014 - Fan configuration incorrect
- Article #37569 - PEM fan fuses blown roadster 2.X
- Article #38962 - Wiring problem between PEM and PEM / Motor fans

Article #21935 - DMC 1147 DMC FW: Invalid Charge Current

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21936 - DMC 1148 DMC WARNING IA OverCurrent in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate the session for assistance. ---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21937 - DMC 1149 DMC WARNING IB OverCurrrent in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21938 - DMC 1150 DMC WARNING IA OverCurrent PeaK in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21939 - DMC 1151 DMC WARNING IB OverCurrent PeaK in Charge

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21940 - DMC 1152 DMC WARNING Charge Thermal Limit

Description

End-User Text String: Charge time increased due to high temperatures.

Charge_Thermal_1-This fault occurs when charging time has been increased due to thermal limiting.

Steps to Test

Begin by inspecting the Power Electronics Module (PEM) fan operation.

Steps to Fix

- If the PEM fan is not operating, inspect the fan connections. Replace the fan as needed.
- If the PEM fan is operating, remove the PEM, and inspect the PEM cooling fan ducting.
    - Use compressed air to clean the heats sinks on the underside of the PEM.
    - Reinstall the PEM and test the PEM cooling during a charge.
    - Pull the vehicle logs, post charge, for a review.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21941 - DMC 1153 DMC: Wear Factor Warning

Description

DMC 1153 DMC: Wear Factor Warning.

This alert indicates potential uneven wear on the rear tires, but it is also triggered for winter tires with more flex on the treads. The warning can be considered normal vehicle behavior and is not customer facing.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further .---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21942 - DMC 1154 DMC WARNING 126

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21943 - DMC 1155 DMC WARNING 127

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21944 - DMC 1156 DMC WARNING 128

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21945 - DMC 1160 Driver door ajar

Description

End-User Text String: Driver's door is ajar. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21946 - DMC 1161 Passenger door ajar

Description

End-User Text String: Passenger's door is ajar. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21947 - DMC 1162 Trunk ajar

Description

End-User Text String: Trunk is ajar. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21948 - DMC 1163 Hood ajar

Description

End-User Text String: Hood is ajar. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21949 - DMC 1164 Driver door ajar

Description

End-User Text String: Driver's door is ajar. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21950 - DMC 1165 Key in Key SwitchDoor Ajar

Description

End-User Text String: Key in Key Switch. Door Ajar. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21951 - DMC 1166 Release parking brake

Description

End-User Text String: Release parking brake. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21952 - DMC 1167 Headlights still on

Description

End-User Text String: Headlights are on. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21953 - DMC 1169 Charge port door opened while key in

Description

End-User Text String: Charge port open Remove key before charging. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21954 - DMC 1170 Tow Mode is not available while car is on

Description

End-User Text String: Tow Mode is not available while car is on. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21955 - DMC 1171 Charging is not allowed while in Tow Mode

Description

End-User Text String: Charging is not allowed while in Tow Mode. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21956 - DMC 1172 Tow Mode is not available while charging

Description

End-User Text String: Tow Mode is not available while charging. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21957 - DMC 1173 To gain the advantages of storage mode, car must be plugged in

Description

End-User Text String: Please plug car in while in Storage Mode. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21958 - DMC 1174 Fasten seatbelt

Description

End-User Text String: Fasten Seatbelt. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21689 - DMC 901 DMC HW: PhaseA OverCurrent Fault

Description

Trigger: Current > 1188A > 1ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode or if fault 907, 911, or 915 (Phase A,B,C UnderVoltage fault) present.
- Perform a Motor/Cable isolation test.

Steps to Fix

If the vehicle is in Charge Mode or if fault 907, 911, or 915 is present, replace the PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22784 - Failed motor / cable isolation test
- Article #22785 - Faulty motor-Passed Motor/Cable Isolation Test

Article #21690 - DMC 902 DMC HW: PhaseB OverCurrent Fault

Description

Trigger: Current > 1188A > 1ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode or if fault 907, 911, or 915 (Phase A,B,C UnderVoltage fault) present.
- Perform a Motor/Cable isolation test.

Steps to Fix

If the vehicle is in Charge Mode or if fault 907, 911, or 915 is present, replace the PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22784 - Failed motor / cable isolation test
- Article #22785 - Faulty motor-Passed Motor/Cable Isolation Test

Article #21691 - DMC 903 DMC HW: PhaseC OverCurrent Fault

Description

Trigger: Current > 1188A > 1ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode or if fault 907, 911, or 915 (Phase A,B,C UnderVoltage fault) present.
- Perform a Motor/Cable isolation test.

Steps to Fix

If the vehicle is in Charge Mode or if fault 907, 911, or 915 is present, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22784 - Failed motor / cable isolation test
- Article #22785 - Faulty motor-Passed Motor/Cable Isolation Test

Article #21692 - DMC 904 DMC HW: Battery OverVoltage Fault

Description

Trigger: Voltage > 428.3 > 1ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Compare the Battery Safety Monitor (BSM) and Power Electronics Module (PEM) voltages, and determine if they are the same.
- Determine if the battery (ESS) opens the contactor or a sheet fuse has blown during regen.

If a fuse has blown, the Auxiliary Power Supply (APS) will not work.

Steps to Fix

- If the BSM and PEM voltages are not the same, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). If the voltages match, troubleshoot overvoltage in the battery.

- Replace the blown fuse, and test the APS.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21693 - DMC 905 DMC HW: PhaseA Low Side Desat Fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
    - Perform a Motor/Cable isolation test https://service.teslamotors.com/documents?keys=hipot
-

Replace the failed component - check the motor cable connector at

Power Electronics Module (PEM) side.

Steps to Fix

- If the vehicle is in Charge Mode, replace the PEM

(1.5-Part# 6003440, 2.0&2.5 Part# 6005203).

- If neither the Motor/Cable Isolation Test nor replacing the failed component resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21694 - DMC 906 DMC HW: PhaseA High Side Desat Fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
  - Perform a Motor/Cable isolation test.
- Replace the failed component - check the motor cable connector at Power Electronics Module (PEM) side.

Steps to Fix

If the vehicle is in Charge Mode, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). If neither the Motor/Cable Isolation Test nor replacing the failed component resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21695 - DMC 907 DMC: HW PhaseA Bias Under Voltage Fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

This fault indicates a failure internal to the PEM.

Steps to Test

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21696 - DMC 908 DMC: HW PhaseA Bus Over voltage fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- There is a possilbe problem with

Power Electronics Module (PEM) voltage sense. Check the battery voltage reported by the PEM when the contactors are closed - make sure that it agrees with the Battery Safety Module (BSM).

- Determine if the battery (ESS) opens the contactor or a sheet fuse has blown during regen. If a fuse has blown, the Auxiliary Power Supply (APS) will not work.

Steps to Fix

- Replace the blown fuse, and test the APS.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21697 - DMC 909 DMC HW: PhaseB Low Side Desat fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
    - Perform a Motor/Cable isolation test.
- Replace the failed component - check the motor cable connector at Power Electronics Module (PEM) side.

Steps to Fix

- If the vehicle is in Charge Mode, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If neither the Motor/Cable Isolation Test nor replacing the failed component resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21698 - DMC 910 DMC HW: PhaseB High Side Desat fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
  - Perform a Motor/Cable isolation test.
- Replace the failed component - check the motor cable connector at Power Electronics Module (PEM) side.

Steps to Fix

- If the vehicle is in Charge Mode, replace the PEM (1.5-Part#6001479, 2.0&;2.5-Part# 1014547-02-A).
- If neither the Motor/Cable Isolation Test nor replacing the failed component resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21699 - DMC 911 DMC HW: PhaseB Bias UnderVoltage fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

This fault indicates a failure internal to the PEM.

Steps to Test

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21700 - DMC 912 DMC HW: PhaseB Bus OverVoltage fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- There is a possilbe problem with Power Electronics Module (PEM) voltage sense. Check the battery voltage reported by the PEM when the contactors are closed - make sure that it agrees with the Battery Safety Module (BSM).
- Determine if the battery (ESS) opens the contactor or a sheet fuse has blown during regen. If a fuse has blown, the Auxiliary Power Supply (APS) will not work.

Steps to Fix

- Replace the blown fuse, and test the APS.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21701 - DMC 913 DMC HW: PhaseC Low Side Desat fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21702 - DMC 914 DMC HW: PhaseC High Side Desat fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
    - Perform a Motor/Cable isolation test.
- Replace the failed component - check the motor cable connector at Power Electronics Module (PEM) side.

Steps to Fix

- If the vehicle is in Charge Mode, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If neither the Motor/Cable Isolation Test nor replacing the failed component resolves the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21703 - DMC 915 DMC HW: PhaseC Bias UnderVoltage fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

This fault indicates a failure internal to the PEM.

Steps to Test

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21704 - DMC 916 DMC: HW PhaseC Bus OverVoltage fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21705 - DMC 917 DMC HW: APS UnderVoltage fault

Description

End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

There are several possible Auxiliary Power Supply (APS) related faults from the Battery Safety Module (BSM). Digital Motor Control (DMC) 12V undervoltage fault may be present.

Steps toTest

Check for Power Electronics Module (PEM) communication errors

and 12V undervoltage faults in the vehicle logs . Check for intermittent opens/shorts on the PEM harness and 12V power connector.

Steps to Fix

If the issue is not related to the PEM harness or 12V connector, replace the PEM (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21706 - DMC 918 DMC HW: Motor OverTemp fault

Description

Trigger: Motor Temp 1 and Motor Temp 2 > 196 End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

This fault is triggered when motor temperature sensors report values greater than 196C (385F), this fault will likely be accompanied by isolation faults.

Steps to Test

- Review the vehicle logs. Determine if this fault occurred during an extended period of heavy acceleration or deceleration.
- Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool.

Steps to Fix

- If the fault occurred during an extended period of heavy acceleration or deceleration, this is considered expected behavior. Check the motor fan ducting and operation using the MTS-2/Linux-based Engineering Tool as a precaution. It is also possible that the extreme heat may have caused internal motor damage. Conduct a thorough road test, prior to release.
- If the motor fan ducting and operation analysis did not resolved the issue, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22792 - Motor fan ducting and operation articles

Article #21707 - DMC 919 DMC HW: Pedal Monitor Fault

Description

Trigger: Pedal Monitor in fault condition. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Verify that the vehicle is running firmware version 4.2.00 or newer.
- Investigate the pedal box and associated wiring connections.

Steps to Fix

If damage is found on the pedal box wiring connections or the wiring harnesses, repair the wiring, and if needed, replace the pedal box.

If no damage is found, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22816 - Problem with front to mid (FHC 45 to MHC1) wiring harness
- Article #22817 - Problem with mid to rear (MHC1 to RHC1) wiring harness
- Article #22818 - Problem with PEM logic connector

Article #21708 - DMC 920 DMC HW: Line OverCurrent fault

Description

Alert Trigger: Current > 90amps RMS (127A) from charge plug. End-User Text String: Charging Problem. Vehicle Response: Charge aborted.

This alert is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #32535 - Blown line fuse

Article #21709 - DMC 921 DMC HW: PhaseA OverTemp fault

Description

Trigger: Mega Pole > 75C. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Verify by component activating the fan with the MTS-2/Linux-based Engineering Tool. Check the ducts for restrictions and damaged fins.

(Information about the MTS-2 tool can be found in article 22957)

Steps to Fix

If the component activation fails, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Otherwise, repair/clear as needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21710 - DMC 922 DMC HW: PhaseB OverTemp fault

Description

Trigger: Mega Pole > 75C. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

If this fault has occurred; please upload the vehicle logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21711 - DMC 923 DMC HW: PhaseC OverTemp fault

Description

Trigger: Mega Pole > 75C. /End-User Text String: Powertrain Problem Restart When Safe. /Vehicle Response: Vehicle stops immediately.

Steps to Test

Verify by component activating the fan with the MTS-2/Linux-based Engineering Tool. Check the ducts for restrictions and damaged fins.

(Information about the MTS-2 tool can be found in article 22957)

Steps to Fix

If the component activation fails, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Otherwise, repair/clear as needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21712 - DMC 924 DMC HW: ESS Cable Interlock fault

Description

Trigger: Safety loop is broken (PEM cover, ESS connector, ESS contactor). End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22316 - Power Electronics Module (PEM) access door micro switch not functioning properly
- Article #22317 - High Voltage Interlock Loop (HVIL) is damaged

Article #21713 - DMC 925 DMC HW: Common Mode Sense fault

Description

End-User Text String: Debug Only. Vehicle Response: Charge aborted.

This fault commonly occurs when first initiating charge, causing the vehicle to abort charging. The vehicle will attempt to charge a second time, usually resulting in a successful charge.

Steps to Test

Review the logs near the time-stamp when this fault occurred, and determine if the vehicle initiated a successful charge after the fault was triggered.

Steps to Fix

If the vehicle initiated a successful charge after the fault was triggered, this is expected behavior. No further action is necessary. Otherwise, it is likely that there is an internal problem with the Power Electronics Module (PEM). Escalate your session for assistance.

NOTE: This is a "debug only" fault. If the VDS settings are set to "end user" the customer will not see this warning. This is intended. Check the VDS reporting state and set to end user as needed.

Possible Effects

Unknown.

Possible Causes

- Article #32535 - Blown line fuse

Article #21714 - DMC 926 DMC HW: PDP Interrupt fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21715 - DMC 927 DMC FW: PhaseA OverCurrent fault

Description

Trigger: Current > 710amps > 100ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable Isolation Test.

Steps to Fix

- If the vehicle is in Charge Mode, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If the vehicle does not pass the Motor/Cable Isolation Test, escalate your session for assistance.
    - Replace the failed component, and check the motor cable connector at the PEM side.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21716 - DMC 928 DMC FW: PhaseB OverCurrent fault

Description

Trigger: Current > 710amps > 100ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable Isolation Test.

Steps to Fix

- If the vehicle is in Charge Mode, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If the vehicle does not pass the Motor/Cable Isolation Test, escalate your session for assistance.
    - Replace the failed component, and check the motor cable connector at the PEM side.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21717 - DMC 929 DMC FW: PhaseC OverCurrent fault

Description

Trigger: Current > 710amps > 100ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable Isolation Test.

Steps to Fix

- If the vehicle is in Charge Mode, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If the vehicle does not pass the Motor/Cable Isolation Test, escalate your session for assistance.
    - Replace the failed component, and check the motor cable connector at the PEM side.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21718 - DMC 930 DMC FW: PhaseA OverCurrent Peak fault

Description

Trigger: Current > 1012amps > 1ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable Isolation Test.

Steps to Fix

- If the vehicle is in Charge Mode, replace the Power Electronics Module (PEM) (1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).
- If the vehicle does not pass the Motor/Cable Isolation Test, escalate your session for assistance.
    - Replace the failed component, and check the motor cable connector at the PEM side.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21719 - DMC 931 DMC FW: PhaseB OverCurrent Peak fault

Description

Trigger: Current > 1012amps > 1ms. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable Isolation Test.

Steps to Fix

- If the vehicle is in Charge Mode, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If the vehicle does not pass the Motor/Cable Isolation Test, escalate your session for assistance.
    - Replace the failed component, and check the motor cable connector at the PEM side.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21720 - DMC 932 DMC FW: PhaseC OverCurrent Peak fault

Description

Trigger: Current > 1012amps > 1ms. /End-User Text String: Powertrain Problem Restart When Safe. /Vehicle Response: Vehicle stops immediately.

Steps to Test

- Determine if the vehicle is in Charge Mode.
- Perform a Motor/Cable Isolation Test following the HIPOT Test document appropriate for your vehicle.

Steps to Fix

- If the vehicle is in Charge Mode, replace the Power Electronics Module (PEM)

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If the vehicle does not pass the Motor/Cable Isolation Test (See Roadster's Service Memo HIPOT testing) , escalate your session for assistance.

- Replace the failed component, and check the motor cable connector at the PEM side.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21721 - DMC 933 DMC FW: Line OverCurrent fault

Description

Trigger: Line Current > 90amps > 100ms. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

Steps to Test

2.0 &; 2.5 Roadsters

- Determine if the vehicle will charge on a "known good" charging station. The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station.
- Question customer about the location where the vehicle is normally charged, are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present?

1.5 Roadsters

- If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

- Inform customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charger.
- If the vehicle is not charged near heavy equipment, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If this does not resolve the issue, escalate your session for assistance.

1.5 Roadsters

- If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections.
- If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21722 - DMC 934 DMC FW: Line OverCurrent Peak fault

Description

Trigger: Line Current > 130amps > 1ms. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

Steps to Test

2.0 &; 2.5 Roadsters

- Determine if the vehicle will charge on a "known good" charging station. The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charge station.
- Question customer about the location where the vehicle is normally charged, are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present?

1.5 Roadsters

- If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

- Inform customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charger.
- If the vehicle is not charged near heavy equipment, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- If this does not resolve the issue, escalate your session for assistance.

1.5 Roadsters

- If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections.
- If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32535 - Blown line fuse

Article #21723 - DMC 935 DMC FW: Line OverVoltage fault

Description

Trigger: Line Voltage > 270V > 1sec. End-User Text String: Charging Problem. Vehicle Response: Charge aborted.

Charge voltage has exceeded 270V for more that 1 second. Fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charging station.

Steps to Test

2.0 &; 2.5 Roadsters

Determine if the vehicle will charge on a "known good" charging station.

Question the customer about the location where the vehicle is normally charged. Are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present? It is also possible for lightning to cause this fault?

Inspect the Power Electronics Module (PEM), charge port connections, and related wiring.

1.5 Roadsters

If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

Inform the customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charging station. In rare cases, lightning can also cause this fault to occur.

If the vehicle charges using a "known good" charging station, the problem likely lies with the customer's home charging station or home electrical. Review and advise as needed.

If upon inspection, there is no visual damage to the wiring and connections, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203). If the issue is not resolved, escalate your session for assistance.

1.5 Roadsters

If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections. If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21724 - DMC 936 DMC FW: Line OverVoltage Peak fault

Description

Trigger: Line Voltage > 410V > 1ms. End-User Text String: Charging Problem. Vehicle Response: Charge aborted.

The charge voltage has exceeded 410V for more that 1 millisecond. The fault is likely the result of electrical noise caused by heavy equipment operating near the vehicle while charging or on the same home circuit as the vehicle charging station.

Steps to Test

2.0 &; 2.5 Roadsters

- Determine if the vehicle will charge on a "known good" charging station.
- Question the customer about the location where the vehicle is normally charged. Are items like air compressors, vacuums, washers, dryers, fluorescent lights, or shop tools present? It is also possible for lightning to cause this fault?
- Inspect the Power Electronics Module (PEM), charge port connections, and related wiring.

1.5 Roadsters

- If the vehicle is a 1.5 Roadster and it will not charge on a "known good' charging station, perform a High Potential Testing (HIPOT) of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

2.0 &; 2.5 Roadsters

- Inform the customer that this fault can occur due to charging the vehicle near heavy electrical equipment. Especially if large electrical loads are drawn from the same circuit as the vehicle charging station. In rare cases, lightning can also cause this fault to occur.
- If the vehicle charges using a "known good" charging station, the problem likely lies with the customer's home charging station or home electrical. Review and advise as needed.
- If upon inspection, there is no visual damage to the wiring and connections, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). If the issue is not resolved, escalate your session for assistance.

1.5 Roadsters

- If the vehicle does not pass the HIPOT test, replace the failed component/check for loose connections. If the vehicle passes the HIPOT or the repaired component/connection does not resolve the issue, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32512 - CIC I/O Failure
- Article #32535 - Blown line fuse

Article #21725 - DMC 937 DMC FW: Line UnderVoltage fault

Description

Trigger: Line Voltage < 85V > 100ms. End-User Text String: Charge Problem. Extension Cord Detected. Vehicle Response: Charge aborted.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage, or experienced a total loss of AC Main power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on known good Electric Vehicle Supply Equipment (EVSE).
- Check the charge port connections for corrosion and clean if necessary. Inspect the Power Electronics Module (PEM) side of the PEM-Charge Port cable. Inspect, tighten nuts, and clean as necessary.
- Compare the line voltage (using a DMM) with PEM line voltage reading (using MTS-2, PEM bus, Live Data).

Steps to Fix

- If it's determined that the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage, or experienced a total loss of AC Main power, this is expected behavior, no further action is necessary.
- If charging on a known good EVSE charges the vehicle, troubleshoot the customer's EVSE, if the issue is still unresolved, escalate your session for assistance.
- If the line voltages are not the same, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21726 - DMC 938 DMC FW: Battery OverVoltage fault

Description

Trigger: Battery Voltage > 420 > 100ms. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Vehicle stops immediately.

Problem with Power Electronics Module (PEM) voltage sense.

Steps to Test

Compare the battery voltage reported by the PEM, when the contactors are closed, to the BSM.

Steps to Fix

If the voltages are not similar, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21727 - DMC 939 DMC FW: Battery UnderVoltage fault

Description

Trigger: Battery Voltage < 270 AND Contactors closed > 100ms. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Check the ESS BUS voltage reading from the PEM and compare it to the ESS reading.

If the PEM is undervoltage, inspect the cable.

Steps to Fix

If the ESS voltage is under voltage itself, it is not a PEM problem. Repair cable as needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21728 - DMC 940 DMC FW: OverSpeed fault

Description

Trigger: Motor Speed > 14500RPM > 10ms. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

This fault likely indicates a failed or damaged motor encoder.

Steps to Fix

If the fault is persistent or has caused a loss of drive; proceed to replace the motor encoder. When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor. Escalate your session for assistance if needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21729 - DMC 941 DMC FW: Motor Sensor1 OverTemp fault

Description

Trigger: Motor Temp 1 AND 2 > 180 > 100ms. End-User Text String: System Too Hot. Vehicle Shutting Down. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Evaluate the vehicle logs by comparing both the motor and the Power Electronics Module (PEM) temperatures for plausibility.
- Use the MTS-2 to activate fan to 100 %.
- Remove the motor monitoring encoder cable connector SHC5 from the PEM.
    - Using a digital multi-meter, measure the resistance between pins 4 and 13 (temp sensor 1) and pins 3 and 12 (temp sensor 2).
    - Determine if the two measurements are nearly identical and between 1 and 1.5k ohms at room temperature.

Steps to Fix

If the fan is not operating properly, or the measured resistances are between 1 and 1.5k ohms, and identical, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22792 - Motor fan ducting and operation articles
- Article #22794 - Resistance between pins 4 and 13 (temp. sensor 1) and pins 3 and 12 (temp. sensor 2) not within range

Article #21730 - DMC 942 DMC FW: Motor Sensor2 OverTemp fault

Description

Trigger: Motor Temp 1 AND 2 > 180 > 100ms. End-User Text String: System Too Hot. Vehicle Shutting Down. Vehicle Response: Vehicle stops immediately.

Steps to Test

- Evaluate the vehicle logs by comparing both the motor and the Power Electronics Module (PEM) temperatures for plausibility.
- Use the MTS-1 to activate fan to 100 %.
- Remove the motor monitoring encoder cable connector SHC5 from the PEM.
    - Using a digital multi-meter, measure the resistance between pins 4 and 13 (temp sensor 1) and pins 3 and 12 (temp sensor 2).
    - Determine if the two measurements are nearly identical and between 1 and 1.5k ohms at room temperature.

Steps to Fix

If the fan is not operating properly, or the measured resistances are between 1 and 1.5k ohms, and identical, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21731 - DMC 943 DMC FW: Motor Sensor1 UnderTemp fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21732 - DMC 944 DMC FW: Motor Sensor2 UnderTemp fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21733 - DMC 945 DMC FW: PhaseA OverTemp fault

Description

Trigger: Phase A Temp > 66C > 100ms. End-User Text String: System Too Hot. Vehicle Shutting Down. Vehicle Response: Vehicle stops immediately.

This fault occurs when the phase of "pole" temperature has risen above 61C. This is usually a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan can be activated using the MTS-2 tool

(Information on this tool can be found in article 22957)

.

- Inspect the fan connections.
- Remove the PEM. Inspect the cooling duct condition and fitment.
  - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
  - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
  - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&2.5 Part# 6005203)

.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21734 - DMC 946 DMC FW: PhaseA Temp Diff fault

Description

Trigger: Phase A > 20DegC different than Avg. B and C. End-User Text String: Motor Controller error Service required. Vehicle Response: None.

This fault occurs when phase of "pole" temperature is 20C greater than the other two phase or "pole" temperatures. This usually occurs as a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan can be activated using MTS-2 tool

(Information about this tool can be found in article 22957).

- Inspect the fan connections.
- Remove the PEM. Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21735 - DMC 947 DMC FW: PhaseB OverTemp fault

Description

Trigger: Phase B Temp > 66C > 100ms. End-User Text String: System Too Hot. Vehicle Shutting Down. Vehicle Response: Vehicle stops immediately.

This fault occurs when phase of "pole" temperature has risen above 61C. This is usually a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan can be activated using MTS-2 tool (Information on this tool can be found in article 22957).
2. Inspect the fan connections.
3. Remove the PEM. Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM (1.5-Part# 6003440, 2.0&2.5-Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21736 - DMC 948 DMC FW: PhaseB Temp Diff fault

Description

Trigger: Phase B > 20DegC different than Avg. A and C. End-User Text String: Motor Controller error Service required. Vehicle Response: None.

This fault occurs when phase of "pole" temperature is 20C greater than the other two phase or "pole" temperatures. This usually occurs as a result of insufficient PEM cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan can be activated using MTS-2 tool.
2. Inspect the fan connections.
3. Remove the PEM.
    - Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21737 - DMC 949 DMC FW: PhaseC OverTemp fault

Description

Trigger: Phase C Temp > 66C > 100ms. End-User Text String: System Too Hot. Vehicle Shutting Down. Vehicle Response: Vehicle stops immediately.

This fault occurs when phase of "pole" temperature has risen above 61C. This is usually a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan can be activated using MTS-2 tool

(Information on this tool can be found in article 22957)

.

- Inspect the fan connections.
- Remove the PEM. Inspect the cooling duct condition and fitment. Thoroughly clean the heatsinks on the underside of the PEM using compressed air. Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode. Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21738 - DMC 950 DMC FW: PhaseC Temp Diff fault

Description

Trigger: Phase C > 20DegC different than Avg. A and B. End-User Text String: Motor Controller error Service required. Vehicle Response: None.

This fault occurs when phase of "pole" temperature is 20C greater than the other two phase or "pole" temperatures. This usually occurs as a result of insufficient Power Electronics Module (PEM) cooling.

Steps to Test

1. Begin by inspecting PEM fan operation. Determine if the PEM fan can be activated using MTS-2 tool.
2. Inspect the fan connections.
3. Remove the PEM. Inspect the cooling duct condition and fitment.
    - Thoroughly clean the heatsinks on the underside of the PEM using compressed air.
    - Reinstall the PEM and retest the PEM cooling by charging the vehicle in performance mode.
    - Review the vehicle logs post charge to confirm the PEM cooling.

Steps to Fix

- If the fan cannot be activated using the MTS-2 tool, replace the fan as needed and retest.
- If the PEM cooling issue is not resolved, replace the PEM

(1.5-Part# 6003440, 2.0&2.5 Part# 6005203).---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21739 - DMC 951 DMC FW: Ambient OverTemp fault

Description

End-User Text String: Power electronics too hot. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21740 - DMC 952 DMC FW: Ambient UnderTemp fault

Description

End-User Text String: Power electronics too cold. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21741 - DMC 953 DMC FW Line OverFrequency fault

Description

Trigger: Line Voltage Lost Sync or Over Frequency. End-User Text String: Line Voltage Lost Sync. Vehicle Response: Vehicle will attempt to restart Charge 3 times.

This fault is expected when charging from a generator.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage or did it experience a total loss of AC Mains power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on a known good Electric Vehicle Supply Equipment (EVSE).

Steps to Fix

- If the vehicle was charged using a generator, long extension cord, or by a poor quality supply, this is expected behavior, no further action necessary.
- If the 70A charge was successful, troubleshoot the customer's EVSE. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21742 - DMC 954 DMC FW: Line UnderFrequency fault

Description

Trigger: Line Voltage Lost Sync or Frequency Too Low. End-User Text String: Line Voltage Lost Sync. Vehicle Response: Vehicle will attempt to restart Charge 3 times.

This fault is expected when charging from a generator.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage or did it experience a total loss of AC Mains power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on a known good Electric Vehicle Supply Equipment (EVSE).

Steps to Fix

- If the vehicle was charged using a generator, long extension cord, or by a poor quality supply, this is expected behavior, no further action necessary.
- If the 70A charge was successful, troubleshoot the customer's EVSE. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21743 - DMC 955 DMC FW: Line Sync Loss fault

Description

Trigger: ABS(PLL_dfreq) > 625us &; Vac > 80V. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

Unplugging the charger or a breaker trip will cause this. This fault is expected when charging from a generator.

Steps to Test

- Determine if the vehicle was charged with a generator, a long extension cord, charged with poor quality supply voltage or experienced a total loss of AC Mains power. Poor quality would show in the logs as a fluctuation or low line voltage.
- Charge the vehicle at 70A on a known good Electric Vehicle Supply Equipment (EVSE).

Steps to Fix

- If the vehicle was charged using a generator, long extension cord, or by a poor quality supply, this is expected behavior, no further action necessary.
- If the 70A charge was successful, troubleshoot the customer's EVSE and pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22930 - Charge cable fault

Article #21744 - DMC 956 DMC FW: HCS Faulted

Description

End-User Text String: External Charger Problem. Vehicle Response: Charge aborted (Only on 220V MCK).

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #32512 - CIC I/O Failure

Article #21745 - DMC 957 DMC FW: PEM Vbat diff from BSM Vbat fault

Description

Trigger: Warning only. End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21746 - DMC 958 DMC FW: HCS Invalid Pilot Signal fault

Description

End-User Text String: External Charger Problem. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21747 - DMC 959 DMC FW: Line Current or Voltage Offset Too Large fault

Description

Trigger: Warning only. End-User Text String: Debug Only. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21748 - DMC 960 DMC FW: VBrickMax versus VBattery Error fault

Description

Trigger: 98*VbrickMax < Vbatt-10% OR VbrickMax > 4.25 OR Vbatt > 418V. End-User Text String: Powertrain Problem Service Required. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21749 - DMC 961 DMC FW: VBrickMax or VBrickLimit is invalid

Description

Trigger: VbrickMax = 0V or Vbrick Limit (charge to voltage) >= 4.2. End-User Text String: Powertrain Problem Service Required. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21750 - DMC 962 DMC FW: Line Current Error fault

Description

Trigger: Ia > Iline + 10A or Ia < Iline - 10A > 500ms. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Charge aborted.

Steps to Test

One Power Electronics Module (PEM) sensor does not equal another PEM sensor.

Steps to Fix

Replace the PEM (1.5-Part# 6003440, 2.0&2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21751 - DMC 963 DMC FW: Line Current Not Equal Request fault

Description

Alert Trigger: Ireq > 3amps *and* Iline < 2amps > 3 seconds. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Charge aborted.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #32535 - Blown line fuse

Article #21752 - DMC 964 DMC FW: Pilot Signal Present in Drive Mode fault

Description

Trigger: Pilot signal detected in drive. End-User Text String: Unplug charge cable before driving.

Steps to Test

Determine if the ignition key was cycled, or the vehicle was put into drive with the charging cable connected.

Steps to Fix

If the ignition key was cycled or the vehicle was put into drive with the charging cable connected, remove the charging cable before cycling the ignition key or entering drive. No further action required.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21753 - DMC 965 DMC FW: Gear Selector Comms Fault

Description

Trigger: Warning only. End-User Text String: WARNING: Shifter broken. Active gear is indicated on display. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21754 - DMC 966 DMC FW: Invalid Shift Request fault

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21755 - DMC 967 DMC FW: Press brake before shifting fault

Description

End-User Text String: Press brake pedal before shifting. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21756 - DMC 968 DMC FW: Lost VMS Comms fault

Description

Trigger: No messages from VMS > 8sec. End-User Text String: Communication Problem. Service Required. Vehicle Response: Will set fault (can no longer drive) next time vehicle stops.

Steps to Test

- Use the diagnostic tool to verify that all Vehicle Monitor System (VMS) to Power Electronics Module (PEM) messages are being sent. If not, check to see if other modules are active on the BUS.
- If other modules are active on the BUS, check the cables to the PEM for open/short, including unplugging Transmission Control Module (TCM).
- Verify that the VMS is transmitting when not connected to the harness.

Steps to Fix

- If wiring/harness is damaged, replace as needed.
- If there is no damage to the wiring/harness, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21757 - DMC 969 DMC FW: Lost DFC Comms fault

Description

End-User Text String: Fan Controller Error Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21758 - DMC 970 DMC FW: Lost ABS Comms (and TC) fault

Description

End-User Text String: Debug Only. Vehicle Response: User unable to change gears.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21759 - DMC 971 DMC FW: CAN Comms Error fault

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21760 - DMC 972 DMC FW: Accelerator Ratio Error fault

Description

Alert Trigger: Accelerator 1 and Accelerator 2 Signals do not match. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Will set alert next time the vehicle stops, and the vehicle can no longer be driven.

If measured, the voltage of the pedal signals should be inversely proportional, but they always sum to the same value. The Power Electronics Module (PEM) converts these signals to a pedal percentage, and if they do not match, then this alert is triggered.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22815 - Faulty Pedal Position Sensor

Possible Causes

- Article #22816 - Problem with front to mid (FHC 45 to MHC1) wiring harness
- Article #22817 - Problem with mid to rear (MHC1 to RHC1) wiring harness
- Article #22818 - Problem with PEM logic connector
- 42747 - DMC 972 accelerator ratio error fault after performing 3.0 upgrade

Article #21761 - DMC 973 DMC FW: Motor Encoder Error fault

Description

Trigger: Motor Encoder Issue. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Motor Encoder 1-This fault likely indicates a failed or damaged motor encoder.

Steps to Test

Steps to Fix

If fault is persistent OR has caused a loss of drive; proceed to replace the motor encoder.
When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor. Escalate to Service Support Team for further assistance if needed .---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21762 - DMC 974 DMC FW: Pole Current Error fault

Description

Trigger: < 5amps during drive OR > 5amps not in drive OR IA rms != IB rms. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Will set fault (can no longer drive) next time vehicle stops.

Steps to Test

Steps to Fix

Replace the Power Electronics Module (PEM)

(please consult the Roadster Parts Manual for current information on part numbers for your vehicle configuration and region).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21763 - DMC 975 DMC FW: ABS Error fault

Description

End-User Text String: ABS &; Traction Control Problems. Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21764 - DMC 976 DMC FW: Invalid State fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21765 - DMC 977 DMC FW: Moving during charge fault

Description

End-User Text String: Car moved while charging - charge stopped. Vehicle Response: Charge aborted.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21766 - DMC 978 DMC FW: Invalid State Request fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21767 - DMC 979 DMC FW: Invalid Mode Request fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21768 - DMC 980 DMC FW: Invalid Charge Request fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21769 - DMC 981 DMC FW: Bad State Transition fault

Description

Trigger: While entering charge, both parking pawl and hand brake not set (need at least one to not fault); or low PEM line voltage (sensed at input to PEM). End-User Text String: Charging Problem. Vehicle Response: Charge aborted.

This fault occurs when a charge condition is not met, i.e. parking brake not set, parking pawl not set, contactors open, or line voltage too low.

Steps to Test

Determine if the parking brake was set when the vehicle attempted to charge. (The parking brake must be engaged in order to charge the vehicle.) Determine if the vehicle was in Park and that the parking pawl was engaged when attempting to charge. Investigate the operation of the parking pawl. Investigate each of the charge conditions listed above in the Description.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22819 - Problem with tripped GFI, home wiring, or circuit breaker while charging

Article #21770 - DMC 982 DMC FW: Mode Trans Condition fault

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21771 - DMC 983 DMC FW: Memory Error fault

Description

Trigger: RAM constants differ from initial values loaded from flash and debug is not active. End-User Text String: Debug Only. Vehicle Response: Vehicle stops immediately.

Steps to Test

Determine if the fault occurred within 10 seconds of the APS turning on.

Steps to Fix

- If the fault occurred within 10 seconds of the APS turning on, this is expected behavior, no further action necessary.
    - Faults 983 and 1122 can sometimes be thrown when the PEM first gets powered by the APS.
    - With firmware version 4.2.30 and newer, this fault is not shown to the user.
- If

the fault did not occur within 10 seconds of the APS turning on

, escalate the session for further assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21772 - DMC 984 DMC FW: Bad Argument fault

Description

End-User Text String: Debug Only

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21773 - DMC 985 DMC FW: Interrupt Time too Long fault

Description

End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

Begin by reviewing vehicle logs. If this fault occurred while the vehicle was on Charge there may be an issue with the pilot signal. If this fault occurred during Drive it likely indicates a failed or damaged motor encoder. If fault is persistent OR has caused a loss of drive; proceed to replace the motor encoder.

Steps to Fix

Replace the motor encoder. When replacing the motor encoder, installation of the following electrostatic discharge (ESD) components is highly recommended, part numbers: 2006461 M3-.5 x14 bolt; 6005224 Nylon Clocking Washer; and 6005226 ESD Conductor. These components will prevent future damage to the motor encoder as a result of ESD. Install the components in place of one of the motor encoder mounting nuts nearest the encoder; allow a 0.5 to 1.0mm gap between the encoder wheel and the ESD Conductor. Escalate your session for assistance, if needed.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21774 - DMC 986 DMC FW: MotorTemp Sensor1 fault

Description

Trigger: Warning Only. End-User Text String: Motor Sensor Service Required Power Reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21775 - DMC 987 DMC FW: MotorTemp Sensor2 fault

Description

Trigger: Warning Only. End-User Text String: Motor Sensor Service Required Power Reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21776 - DMC 988 DMC FW: MotorTemp Sensors differ fault

Description

End-User Text String: Debug Only.

This fault occurs when motor temperature sensor 1 and motor temperature sensor 2 measurements vary by > 10C.

Steps to Test

Remove connector SHC5 from the Power Electronics Module (PEM). Using a digital multi-meter, measure the resistance between pins 4 and 13 (temp sensor 1) and pins 3 and 12 (temp sensor 2). Determine if the two measurements are nearly identical and between 1 and 1.5k ohms at room temperature.

Steps to Fix

If the measurements are not nearly identical, or between 1 and 1.5k ohms, the temperature sensor is faulty. Replace the motor (1.5-Part# 6002584, 2.0&;2.5-Part# 6003228). Otherwise, pursue possible causes to investigate further

Possible Effects

Unknown.

Possible Causes

- Article #22826 - Faulty SHC5 connector
- Article #22827 - Failed PEM ground fuse/internal fuse

Article #21777 - DMC 989 DMC FW: VBrickMin Not Increasing

Description

Trigger: Min Brick Voltage < 3V > 90min. End-User Text String: Powertrain Problem. Service Required. Vehicle Response: Charge aborted.

Steps to Test

If the car drives, there is an error in what vbrick min. is being reported. Use the diagnostic tool to compare the battery (ESS) vbrick min. to the Vehicle Monitor System (VMS) vbrick min.
Using the diagnostic tool, verify the brick min. voltage is less than 3V and match. Using the diagnostic tool, verify the brick min. voltage is less than 3V inside of the ESS.

Steps to Fix

If the brick min. voltage is less than 3V inside of the ESS, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21778 - DMC 990 DMC FW: Voltage Discharge Time fault

Description

Trigger: Warning only. End-User Text String: Accelerator Pedal Service Required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21779 - DMC 991 DMC FW: 5V Power

Description

End-User Text String: Powertrain Service Required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21780 - DMC 992 DMC FW: Lost TCM comms

Description

Trigger: TCM type does not match DMC TCM type. End-User Text String: Park Lock Problem. Vehicle May be Free-Rolling. Vehicle Response: Vehicle stops immediately.

Steps to Test

Use the diagnostic tool to verify that the Transmission Control Module (TCM) is communicating over the CAN. If the diagnostic tool shows communication, the Power Electronics Module (PEM) has failed. Using a known good TCM, verify that the PEM to TCM CAN wiring is functioning properly.

Steps to Fix

If the wiring is damaged, replace the harness. Otherwise, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21781 - DMC 993 DMC FW: PCS Current Offset Too Large fault

Description

End-User Text String: Powertrain Service Required.

This fault occurs when one or more of the

Pole Current Sensors (PCS) has failed or fallen out of calibration. This fault may also occur as a result of a phase imbalance developing on one of the phases in the motor or motor cable.

Steps to Test

- Begin by inspecting the motor cable to Power Electronics Module (PEM) connections for signs of arching.
- If there are no signs of arching found, perform a High Potential Testing (HIPOT) and milli-ohm test of the motor and motor cable. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.
- Determine if the motor and motor cable pass all of the tests outlined in the procedures.

Steps to Fix

- If the motor and motor cable do not pass all of the tests, replace the component(s) causing the HIPOT or milli-ohm test to fail.
    - Test-drive and charge the vehicle to confirm the repair.
- If they pass, the PCS has likely failed, no field tests may be performed on this component.
    - The PEM should be replaced

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- Test-drive and charge vehicle to confirm the repair.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21782 - DMC 994 DMC FW: Watchdog timer reset fault

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21783 - DMC 995 DMC FW: TCM Refusal Fault

Description

End-User Text String: Park Lock Problem Vehicle May be Free-Rolling.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21784 - DMC 996 DMC FW: Unsafe gear transition fault

Description

End-User Text String: Unsafe Gear Transition - Shift Denied. Vehicle Response: None.

This fault occurs when the drive torque is commanded opposite the vehicle's direction of travel.

Steps to Test

Determine if the

drive torque is commanded opposite the vehicle's direction of travel.

Inspect Drive buttons or shifter (1.5 models) for faulty connections or pinched wires.

Steps to Fix

If there are faulty connections or pinched wires, replace the harnesses as needed. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21785 - DMC 997 DMC FW: CAN Rx

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21786 - DMC 998 DMC FW: CAN Tx

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21787 - DMC 999 DMC FW: CAN Overrun

Description

End-User Text String: Alert's end-user text not yet specified.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21983 - HVAC 1400 HVAC: Coolant Pump UnderCurrent

Description

Trigger: Current less than 1.75 Amps for 60 seconds. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

- Check Coolant level for a low amount.
-

Check for flow through the reservoir.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22601 - 12V HVAC Controller Failure
- Article #22602 - Coolant Pump failure
- Article #22842 - Coolant Level Low
- Article #22845 - Wiring Problem between 12V HVAC Controller and Coolant Pump
- Article #22885 - Faulty coolant pump less than 3amps

Article #21984 - HVAC 1401 HVAC: Coolant Pump OverCurrent

Description

Trigger: Current greater than 7 Amps. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Check coolant flow and listen for unusual pump operation. Check voltage value through diagnostic tool. If value is suspect, controller may be reporting incorrectly. Proceed by measuring voltage at coolant pump connector RHC3, pin A (+) / pin B (-).

Steps to Fix

If voltage is less than 12V, replace coolant pump.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21985 - HVAC 1402 HVAC: Coolant OverTemp

Description

Trigger: Glycol Temp greater then 80C. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

- Review logs for A/C related faults. This fault may be the result of a malfunctioning air conditioning system.
- Check to see if this fault has occurred in conjunction with Coolant UnderTemp fault code 1403 or 1443.

Steps to Fix

Check to see if the coolant level is low before pursuing other possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22801 - Malfunctioning Coolant Temp Sensor
- Article #28704 - Insufficient Coolant Flow

Article #21986 - HVAC 1403 HVAC: Coolant UnderTemp

Description

Trigger: Glycol Temp less than -25C. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Check to see if this fault occurred in conjunction with Coolant OverTemp fault code 1402 or 1442.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22605 - Battery coolant heater failure
- Article #22801 - Malfunctioning Coolant Temp Sensor
- Article #22823 - Cold Ambient Temperature
- Article #22824 - Damaged Harness FHC49 to 12V HVAC Controller
- Article #28704 - Insufficient Coolant Flow

Article #21987 - HVAC 1404 HVAC: Ambient OverTemp

Description

Trigger: Ambient Temp > 80C. End-User Text String: Heating/Ventilation/AC Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21988 - HVAC 1405 HVAC: Ambient UnderTemp

Description

Trigger: Ambient Temp <-25C. End-User Text String: Heating/Ventilation/AC Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21989 - HVAC 1406 HVAC: Outlet UnderTemp

Description

Trigger: Outlet Temp < -25C. End-User Text String: Heating/Ventilation/AC. Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21990 - HVAC 1407 HVAC: Outlet OverTemp

Description

Alert Trigger: Outlet Temp > 83°C. End-User Text String: Heating / Ventilation / AC. Service required. Vehicle Response: None.

This alert indicates a failed or disconnected cabin outlet air temp sensor.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22600 - 12V HVAC Assembly failure
- Article #22601 - 12V HVAC Controller Failure

Article #21991 - HVAC 1408 HVAC: Inlet UnderTemp

Description

Trigger: Inlet Temp < -25C. End-User Text String: Heating/Ventilation/AC Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21992 - HVAC 1409 HVAC: Inlet OverTemp

Description

Trigger: Inlet Temp > 80C. End-User Text String: Heating/Ventilation/AC Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21993 - HVAC 1410 HVAC: Blower UnderCurrent

Description

Trigger: current < 25% of nominal. End-User Text String: Heating/Ventilation/AC. Service required. Vehicle Response: None.

This fault occurs when cabin fan current is less than 25% of nominal. This may indicate a failing or damaged cabin fan or an issue with the current sensor in the 12V HVAC controller.

Steps to Test

Refer to Article 22603 for instructions on troubleshooting the 12V HVAC controller.
Refer to Article 23037 for instructions on troubleshooting the cabin fan.

Steps to Fix

- As replacement of the 12V HVAC controller is relatively easy in comparison to cabin fan replacement; it is recommended to replace the 12V HVAC controller and reassess.
- If fault is still present proceed with replacement of the cabin fan.

Possible Effects

Unknown.

Possible Causes

- Article #22603 - HVAC 12V Controller failure
- Article #23037 - Faulty Cabin Fan

Article #21994 - HVAC 1411 HVAC: Blower OverCurrent

Description

Trigger: current > twice nominal. End-User Text String: Heating/Ventilation/AC. Service required. Vehicle Response: None.

This fault occurs when the cabin fan current is greater than twice the nominal value (condition may have blown fuse #3). This fault usually indicates a blocked or seized cabin fan.

Steps to Test

- Inspect cabin fan intake in the front grille of the vehicle for blockage or debris.
- If no blockage or debris is found, inspect fan connections FHC74-1 and FHC74-2, as well as 12V HVAC controller fans for corrosion or signs of excessive resistance.

Steps to Fix

If all connections and wiring appear normal; the cabin fan has likely failed and will require replacement.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21995 - HVAC 1412 HVAC: Low Pressure

Description

Trigger: Pressure <= 2bar (29psi). End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Several Roadster 2.0 vehicles have been identified with frequent low refrigerant pressure faults reported while the HVAC appeared to be performing well enough to cool the battery pack and cabin. It was discovered that the pressure transducer was being affected by noise from the HVAC condenser fans where the supply power to the transducer was dropping momentarily below the minimum supply voltage and the transducer power was shut down. In order to correct this issue a capacitor is added per this procedure to filter this noise and prevent the fault described above.

Steps to Test

1. Determine if the vehicle is a 2.0 Roadster.
2. Check for extreme low temperatures in log.
3. Check refrigerant pressure using gauges and Diagnostic Tool.
4. If the refrigerant system pressure is low, then this is your issue.

Steps to Fix

1. If the vehicle is determined to be a 2.0 Roadster and the HVAC appears to be functioning properly, refer to Service Bulletin TSB-09-17-009.
2. If it is determined that a recovery and recharge of the refrigerant is necessary, please reference the Service Manual procedure: 18 - HEATING, VENTILATION, AIR CONDITIONING (HVAC) - FRT No: 18033302

Possible Effects

Unknown.

{44368 - HVAC failure

Article #21996 - HVAC 1413 HVAC: High Pressure

Description

Alert Trigger: Pressure greater than or equal to 28bar (406psi). End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22849 - Faulty Condenser Fan
- Article #22896 - Poor Air Flow Over Condenser
- Article #22897 - Faulty Solenoid
- Article #22928 - Faulty Fan Control Module in Roadster 1.5
- Article #22931 - Faulty 400V Controller related to fuse #12

Article #21997 - HVAC 1414 HVAC: Thermostat Stuck Shut

Description

Trigger: While ESS solenoid powered, and air temp < 0C and thermostat is closed for 6 minutes. End-User Text String: Heating/Ventilation/AC. Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21998 - HVAC 1415 HVAC: Thermostat Stuck Open

Description

Alert Trigger: While Energy Storage System (ESS) solenoid is powered, the air temperature is >8°C, and the thermostat is open for 6 minutes. End-User Text String: Heating / Ventilation / AC Service required. Vehicle Response: None.

The cabin Heating, Ventilation, Air-Conditioning (HVAC) may be disabled while the ESS receives full cooling capacity. This alert can be set if the ambient air temperature is high and the vehicle is being driven hard, increasing the cooling needs of the battery beyond the 6 minute threshold.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22603 - HVAC 12V Controller failure
- Article #22801 - Malfunctioning Coolant Temp Sensor
- Article #22897 - Faulty Solenoid
- Article #30732 - ESS requires cooling

Article #21999 - HVAC 1416 HVAC: Load Shed Timeout

Description

Trigger: Load shed detected for greater than 20 seconds. End-User Text String: Low Power System. Service Required. Vehicle Response: None.

Load shed feature is designed to shed unnecessary accessory loads in the event of ABS activation. Power to the HVAC system and 12V aux power socket will be lost in the event of load shed.

Steps to Test

- If load shedding is suspected, check the voltage at the 12V Auxiliary Power socket. It is also possible that High Intensity Discharge (HID) headlamps or other aftermarket accessories may cause this fault. Determine if there are any aftermarket accessories present.
- If it is determined that there are aftermarket accessories attached, detach the HID headlamps and accessories, and check for a fault.

Steps to Fix

If the fault is resolved by detaching the headlamps or accessories, no further investigation is needed. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus
- Article #22617 - Faulty Switchpack
- Article #22791 - Faulty HID headlamps
- Article #22798 - FHC Harness
- Article #22799 - Faulty FHC Connection
- Article #22800 - Failed ABS Release
- Article #23021 - Poor connection/blown Fuse 23
- Article #23024 - Faulty Switchpack related to Fuse 23

Article #22000 - HVAC 1417 HVAC: Compressor Low Speed

Description

Trigger: Compressor unable to reach setpoint. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Force compressor on using the MTS-2/Linux-based Engineering Tool. Observe compressor behavior. Check high voltage to controller using Heating, Ventilation, Air-conditioning (HVAC) fake plug.

Steps to Fix

If behavior observed is not as expected, replace compressor controller.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22001 - HVAC 1418 HVAC: Compressor Stalled

Description

Trigger: Compressor not turning. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

- This fault occurs when the 12V controller detects that the A/C compressor is not turning when commanded on.
- This fault is usually the symptom of another failure in the HVAC system such as:
  - Refrigerant over or under charge
  - Failed condenser fans
  - Vehicle not equipped with fan shroud
  - Ceased compressor
  - 400V controller failure

Steps to Test

1. Pull vehicle logs and review for other related HVAC faults that may point toward the root cause.
2. Recover and recharge refrigerant to manufacturer's specification. Proper recovery and recharge instructions can be found in the Service Manual. Please reference the Service Manual procedure: 18 - HEATING, VENTILATION, AIR CONDITIONING (HVAC) - FRT No: 18033302 .

Steps to Fix

If fault persists and there are no other related HVAC faults present; escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22002 - HVAC 1419 HVAC: Compressor Startup Failed

Description

Trigger: Compressor not reaching startup setpoint. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Check high voltage to controller using Heating, Ventilation, Air-conditioning (HVAC) fake plug.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22003 - HVAC 1420 HVAC: Compressor OverCurrent

Description

Trigger: Current > 60A. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Force compressor on using the MTS-2/Linux-based Engineering Tool. Observe compressor behavior. Check high voltage to controller using Heating, Ventilation, Air-conditioning (HVAC) fake plug.

Steps to Fix

If behavior observed is not as expected, replace compressor controller .---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22004 - HVAC 1421 HVAC: Compressor Controller UnderVoltage

Description

Trigger: Voltage < 60V. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Check high voltage controller using Heating, Ventilation, Air-Conditioning (HVAC) fake plug.

Steps to Fix

Replace compressor controller.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22005 - HVAC 1422 HVAC: Compressor Controller OverVoltage

Description

Trigger: Voltage > 420V. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Check high voltage controller using Heating, Ventilation, Air-Conditioning (HVAC) fake plug.

Steps to Fix

Replace compressor controller.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22006 - HVAC 1423 HVAC: Compressor Overheated

Description

Trigger: Compressor Temperature > 120C. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22007 - HVAC 1424 HVAC: Compressor Controller Overheated

Description

Trigger: Controller Temperature > 100C. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22008 - HVAC 1425 HVAC: Low current pump failure

Description

Alert Trigger: Pump current < 1A. End-User Text String: Critical Battery Error. Contact Tesla Service. Vehicle Response: None.

The pump is commanded on, however, a low pump current draw is observed by the controller. This indicates there is a problem with the pump, which may be malfunctioning.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22602 - Coolant Pump failure
- Article #22845 - Wiring Problem between 12V HVAC Controller and Coolant Pump

Article #22009 - HVAC 1426 HVAC: High current pump failure

Description

Alert Trigger: Pump Current > 8A. End-User Text String: Critical Battery Error. Contact Tesla Service. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22602 - Coolant Pump failure
- Article #31861 - Coolant pump leak

Article #22010 - HVAC 1427 HVAC: Compressor Speed Limited Range

Description

Trigger: Avg. Compressor Current > 10 amps or Controller temp > 88C. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22011 - HVAC 1428 HVAC: Consolidated Compressor Fault(s)

Description

Alert Trigger: One of the compressor faults triggered after filtering. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22012 - HVAC 1429 HVAC: No HV Controller Clock Detected

Description

Trigger: No Clock detected greater than 30 seconds. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Symptoms include the following:

- Vehicle does not start
- Contactors do not close
- Red LED on 400V HVAC controller is not illuminated

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22786 - Faulty 400V HVAC Controller-400V HVAC controller simulator (TPN 6005456)
- Article #22787 - PTC heater and A/C compressor do not function-Faulty 12V HVAC Controller

Article #22013 - HVAC 1430 HVAC: Temp Sensor Failed

Description

Alert Trigger: Cabin Outlet Temp > 92°C and is outside of the expected range. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

This alert indicates a failed or disconnected cabin outlet air temperature sensor.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22014 - HVAC 1431 HVAC: Spare fault

Description

End-User Text String: Coolant System Problem Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22015 - HVAC 1432 HVAC: Pump Current Out Of Range

Description

Trigger: While coolant heater is running during charge, pump current less than 1.4 or greater than 4.6 amps. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

This fault occurs when the HVAC pump current draw is less than 1.4A when the battery heater is activated.

Steps to Test

Note: because the fault can only occur during battery heating, all testing should be done when battery heating is active.

- Begin by inspecting the battery coolant level and reservoir return flow.
    - Determine the sufficiency of the return flow.
- Inspect the coolant lines for kinks or damage.
- Check to see if the pump is functioning, and that it can be actuated by the MTS-2 Tool.
- Inspect the coolant pump connections from the coolant pump to the 12V controller.
- Examine wiring connections: FHC49-H1, RHC3-1, RHC32-1, RHC3-2, RHC32-2 and the front ground post for poor connections, corrosion, or harness damage.

Steps to Fix

- If the coolant lines or wiring connections are kinked, corroded, damaged, or have poor connections, repair as needed.
- Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22602 - Coolant Pump failure
- Article #22603 - HVAC 12V Controller failure
- Article #22604 - Improper coolant mixture
- Article #22842 - Coolant Level Low

Article #22016 - HVAC 1433 HVAC: Coolant Too Hot

Description

Trigger: When heater running during charge, Coolant Temp >52C. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

Steps to Test

Upload logs and escalate the session for assistance.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22017 - HVAC 1434 HVAC: Coolant Heater Failed

Description

Alert Trigger: When coolant heater is on during charge and the ESS average temperature is not increased by 1°C for greater than 15 minutes. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

This alert will trigger when the battery minimum brick temperature has dropped below 3°C, the vehicle is plugged into a charger, and battery heating is required but is not received. If the battery average temperature does not increase by 1°C after 15 minutes of being plugged in, this alert will be set.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22604 - Improper coolant mixture
- Article #22605 - Battery coolant heater failure
- Article #22842 - Coolant Level Low
- Article #32729 - Blown ESS Heater fuse
- Article #32731 - Kinked coolant lines

Article #22018 - HVAC 1435 HVAC: Insufficient Coolant Flow

Description

End-User Text String: Coolant System Problem Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22019 - HVAC 1440 HVAC: Coolant Pump UnderCurrent

Description

Trigger: Current < 1.75 Amps for 60 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

-

This fault code has been removed/altered/or displays differently in newer firmware releases. Update firmware before proceeding.

- Check Coolant level to determine if it is low.
- Check for flow through the reservoir.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22601 - 12V HVAC Controller Failure
- Article #22602 - Coolant Pump failure
- Article #22845 - Wiring Problem between 12V HVAC Controller and Coolant Pump
- Article #22885 - Faulty coolant pump less than 3amps

Article #22020 - HVAC 1441 HVAC: Coolant Pump OverCurrent

Description

Trigger: Current > 7 Amps. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22021 - HVAC 1442 HVAC: Coolant OverTemp

Description

Trigger: Glycol Temp greater than 80C. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Review logs for A/C related faults. This fault may be the result of a malfunctioning air conditioning system.
- Check to see if this fault has occurred in conjunction with Coolant UnderTemp fault code 1403 or 1443.

Steps to Fix

Check to see if the coolant level is low before pursuing other possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22801 - Malfunctioning Coolant Temp Sensor
- Article #28704 - Insufficient Coolant Flow

Article #22022 - HVAC 1443 HVAC: Coolant UnderTemp

Description

Trigger: Glycol Temp less than -25C. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check to see if this fault occurred in conjunction with Coolant OverTemp fault code 1402 or 1442.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22605 - Battery coolant heater failure
- Article #22801 - Malfunctioning Coolant Temp Sensor
- Article #22823 - Cold Ambient Temperature
- Article #22824 - Damaged Harness FHC49 to 12V HVAC Controller
- Article #28704 - Insufficient Coolant Flow

Article #22023 - HVAC 1444 HVAC: Ambient Temp Sensor Fault

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22024 - HVAC 1447 HVAC: Outlet OverTemp

Description

Trigger: Outlet Temp > 83C. End-User Text String: Coolant System Problem Service required. Vehicle Response: None.

Fault 1447 and 1470 often appear in conjunction. These fault codes indicate a failed or disconnected cabin outlet air temp sensor.

Steps to Test

- To test for a failed sensor, inhibit the APS and disconnect connector FHC81 located on the top left side of the Heating, Ventilation, Air-Conditioning (HVAC) assembly. Using a digital multi-meter, measure the resistance between pins A and B of the FHC81 connector (the HVAC assembly side). Determine whether the measurement indicates a short, open loop, or a value that would appear to be incorrect. For reference; at 25C expected resistance would be 10k ohms, at 0C resistance would be 32.6k ohms and at 40C resistance would be 5.3k ohms.
- Inspect wiring connections between 12V HVAC controller and the HVAC assembly, particularly FHC50 and FHC81, for damaged pins, corrosion, shorts, or otherwise faulty or damaged wiring.

Steps to Fix

- If wiring or connections appear to be faulty or damaged, repair as needed. Otherwise, pursue possible causes to investigate further.
- If the fault does not clear after the repairs have been completed, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22600 - 12V HVAC Assembly failure
- Article #22601 - 12V HVAC Controller Failure

Article #22025 - HVAC 1448 HVAC: Evap Outlet UnderTemp

Description

Trigger: Inlet Temp < -25C. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22026 - HVAC 1450 HVAC: Blower UnderCurrent

Description

Trigger: Current < 25% of nominal. End-User Text String: Debug Only. Vehicle Response: None.

Cabin_Fan_Over_Undercurrent_1-This fault occurs when cabin fan current is less than 25% of nominal. This may indicate a failing or damaged cabin or an issue with the current sensor in the 12V Heating, Ventilation, Air-Conditioning (HVAC) controller.

Steps to Test

Steps to Fix

As replacement of the 12V HVAC controller is relatively easy in comparison to cabin fan replacement; it is recommended to replace the 12V HVAC controller and reassess. If fault is still present, proceed with replacement of the cabin fan.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22027 - HVAC 1451 HVAC: Blower OverCurrent

Description

Trigger: Current > twice nominal. End-User Text String: Debug Only. Vehicle Response: None.

Cabin_Fan_Over_Current_1-This fault occurs when the cabin fan current is greater than twice the nominal value (condition may have blown fuse #3). This fault usually indicates a blocked or seized cabin fan.

Steps to Test

Begin by inspecting cabin fan intake in the front grille of the vehicle for blockage or debris. If none is found, inspect fan connections FHC74-1 and FHC74-2, as well as 12V Heating, Ventilation, Air-Conditioning (HVAC) controller fans for corrosion or signs of excessive resistance.

Steps to Fix

If all connections and wiring appears normal; the cabin fan has likely failed and will require replacement.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22028 - HVAC 1452 HVAC: Low Pressure

Description

Trigger: Pressure <= 2bar (29psi). End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22029 - HVAC 1453 HVAC: High Pressure

Description

Trigger: Pressure >= 28bar (406psi). End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Pull the coolant out and measure the amount present. Put the right amount back in (if more than the desired amount was present).
- The alert should no longer be triggered.
- Ensure all applicable service campaigns (found in http://service.teslamotors.com/documents) have been completed:
    - Fan shroud update, as seen in SVC-10-18-010
    - Pressure reduction (2.0 only), as seen in TSB-09-17-009
    - Condenser fan fuse upgrade (2.0 only), as seen in TSB-10-17-004

Steps to Fix

- Complete applicable service bulletins and reevaluate HVAC operation.
- Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22849 - Faulty Condenser Fan
- Article #22896 - Poor Air Flow Over Condenser
- Article #22897 - Faulty Solenoid
- Article #22928 - Faulty Fan Control Module in Roadster 1.5
- Article #22931 - Faulty 400V Controller related to fuse #12

Article #22030 - HVAC 1455 HVAC: Pressure Sensor Fail

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22031 - HVAC 1456 HVAC: SWP Load Shed Error

Description

Trigger: Load shed detected for >20 seconds. End-User Text String: Power System Service Required. Vehicle Response: None.

Load shed feature is designed to shed unnecessary accessory loads in the event of ABS activation. Power to the HVAC system and 12V aux power socket will be lost in the event of load shed.

Steps to Test

- If load shedding is suspected, check the voltage at the 12V Auxiliary Power socket. It is also possible that High Intensity Discharge (HID) headlamps or other aftermarket accessories may cause this fault. Determine if there are any aftermarket accessories present.
- If it is determined that there are aftermarket accessories attached, detach the HID headlamps and accessories, and check for a fault.

Steps to Fix

If the fault is resolved by detaching the headlamps or accessories, no further investigation is needed. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23021 - Poor connection/blown Fuse 23

Article #22032 - HVAC 1457 HVAC: Compressor 410 Timeout

Description

Trigger: Comms Fault. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when the Heating, Ventilation, Air-Conditioning (HVAC) compressor is having difficulty interpreting CAN messages sent from the 12V controller. The 410 message communicates compressor demand.

Steps to Test

Inspect CAN high and low connections to the compressor and 12V controller at FHC130-2, FHC130-3, FHC1-R3, and FHC1-P3 looking for damage, poor connection, or corrosion.

If none is noted proceed to testing CAN with multi-meter.

Steps to Fix

Pursue possible causes to investigate further.

Possible Causes

- Article #22289 - Damage or corrosion at the compressor
- Article #22290 - Damage or corrosion at the CAN high/low connection to the compressor
- Article #22291 - CAN communication problem with compressor

Possible Causes

Unknown.

Article #22033 - HVAC 1458 HVAC: Compressor 7D Timeout

Description

Trigger: Comms Fault. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when the Heating, Ventilation, Air-Conditioning (HVAC) compressor is having difficulty interpreting CAN messages sent from the 12V controller. The 7D message communicates key state to the compressor.

Steps to Test

Inspect CAN high and low connections to the compressor and 12V controller at FHC130-2, FHC130-3, FHC1-R3, and FHC1-P3 looking for damage, poor connection or corrosion. If none is noted proceed to testing CAN with multi-meter.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22289 - Damage or corrosion at the compressor
- Article #22290 - Damage or corrosion at the CAN high/low connection to the compressor
- Article #22291 - CAN communication problem with compressor.

Article #22034 - HVAC 1459 HVAC: Compressor Electric Fault

Description

Trigger: Compressor Failure. End-User Text String: Debug Only. Vehicle Response: None. HVAC: Compressor Electric Fault

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate

the session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22035 - HVAC 1460 HVAC: Compressor OverCurrent

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate the session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22036 - HVAC 1461 HVAC: Compressor UnderVoltage

Description

End-User Text String: Debug Only Vehicle Response: None.

Steps to Test

Inspect 400V Heating, Ventilation, Air-Conditioning (HVAC) controller connections. Switch the ignition key on to see if the red LED on the 400V controller illuminates

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22368 - Red LED on 400V HVAC controller illuminates while investigating HVAC: Compressor UnderVoltage
- Article #22369 - Red LED on 400V HVAC controller fails to illuminate while investigating HVAC: Compressor UnderVoltage
- 44368 - HVAC failure

Article #22037 - HVAC 1462 HVAC: Compressor Over Voltage

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22038 - HVAC 1463 HVAC: Compressor OverTemp

Description

End-User Text String: Debug Only. Vehicle Response: None.

This fault may occur due to insufficient air-flow over the condenser during charge or drive.

Steps to Test

Before beginning diagnosis, check condenser for an updated fan shroud, if the shroud has not been installed follow SVC-10-18-010 in Service Documents for the installation procedure. In most cases, installation of the fan shroud will alleviate the fault.

If the fan shroud is already in place, ensure the condenser is free of obstruction and debris.

Verify that the condenser fans are functioning properly.

- Check the condenser fan fuse, (fuse #12 labeled "Radiator Fans") in the fuse panel.
-

Verify that the refrigerant charge is at 750g, as per SVC-10-18-007 in Service Documents.

Steps to Fix

- If the fuse is determined to be blown, replace it with a 30 amp fuse, as per TSB-10-17-004 in Service Documents. Recheck the condenser fan operation.

-

Evacuate and refill the refrigerant system, as per SVC-10-18-007 in Service Documents, and recheck compressor operation.

If procedures above do not remedy the fault, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22039 - HVAC 1464 HVAC: Compressor Controller Electric Fault

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22040 - HVAC 1465 HVAC: Low current pump fault

Description

Trigger: Pump current < 1A. End-User Text String: Coolant System Problem Charging restricted to 50%. Vehicle Response: Charge limited to Storage Mode level.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22041 - HVAC 1466 HVAC: High current pump failure

Description

Trigger: Pump Current > 8A. End-User Text String: Coolant System Problem Charging restricted to 50%. Vehicle Response: Charge limited to Storage Mode level.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22042 - HVAC 1467 HVAC: Compressor 410 Invalid

Description

End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when the Heating, Ventilation, Air-conditioning (HVAC) compressor is having difficulty interpreting CAN messages sent from the 12V controller. The 410 message communicates compressor demand.

Steps to Test

- Begin by inspecting CAN high and low connections to the compressor and 12V controller at FHC130-2, FHC130-3, FHC1-R3, and FHC1-P3 for damage, poor connection, or corrosion.
-

Using a multi-meter tool, record a trace of CAN traffic on bus 4 while altering compressor demand.

Steps to Fix

After inspecting the CAN high and low connections to the compressor and 12V controller, repair as needed. If nothing is found in the inspection, escalate your session for assistance; include recorded CAN traces in the diagnostic case.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22043 - HVAC 1468 HVAC: Compressor 7D Invalid

Description

End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when the Heating, Ventilation, Air-Conditioning (HVAC) compressor is having difficulty interpreting CAN messages sent from the 12V controller. The 7D message communicates key state to the compressor.

Steps to Test

- Begin by inspecting CAN high and low connections to the compressor and 12V controller at FHC130-2, FHC130-3, FHC1-R3, and FHC1-P3 for damage, poor connection, or corrosion.
-

Using a multi-meter tool record a trace of CAN traffic on bus 4. Alter key states while operating the compressor.

Steps to Fix

After inspecting the CAN high and low connections to the compressor and 12V controller, repair as needed. If nothing is found in the inspection, escalate your session for assistance; include recorded CAN traces in the diagnostic case.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22044 - HVAC 1469 HVAC: Compressor Comms Timeout

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22045 - HVAC 1470 HVAC: Temp Sensor Fault

Description

Trigger: Cabin Outlet Temp greater than 92C; outside of expected range. End-User Text String: Debug Only. Vehicle Response: None.

Fault 1447 and 1470 often appear in conjunction. These fault codes indicate a failed or disconnected cabin outlet air temp sensor.

Steps to Test

- To test for a failed sensor, inhibit the APS and disconnect connector FHC81 located on the top left side of the Heating, Ventilation, Air-Conditioning (HVAC) assembly. Using a digital multi-meter, measure the resistance between pins A and B of the FHC81 connector (the HVAC assembly side). Determine whether the measurement indicates a short, open loop, or a value that would appear to be incorrect. For reference; at 25C expected resistance would be 10k ohms, at 0C resistance would be 32.6k ohms and at 40C resistance would be 5.3k ohms.
-

Inspect wiring connections between 12V HVAC controller and the HVAC assembly, particularly FHC50 and FHC81, for damaged pins, corrosion, shorts, or otherwise faulty or damaged wiring.

Steps to Fix

- If wiring or connections appear to be faulty or damaged, repair as needed. Otherwise, pursue possible causes to investigate further.
- If the fault does not clear after the repairs have been completed, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22600 - 12V HVAC Assembly failure
- Article #22601 - 12V HVAC Controller Failure

Article #22046 - HVAC 1471 HVAC: Compressor DTC Comms Timeout

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22047 - HVAC 1472 HVAC: Pump Current Out Of Range

Description

Trigger: While coolant heater is running during charge, pump current less than 1.0 or greater than 3.25 amps. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when the Heating, Ventilation, Air-Conditioning (HVAC) pump current draw is less than 1.4A when the battery heater is activated.

Steps to Test

Note: because the fault can only occur during battery heating, all testing should be done when battery heating is active.

- Begin by inspecting the battery coolant level and reservoir return flow.
- Determine the sufficiency of the return flow.
- Inspect the coolant lines for kinks or damage.
- Check to see if the pump is functioning, and that it can be actuated by the MTS-2.
-

Inspect the coolant pump connections from the coolant pump to the 12V controller. Examine wiring connections: FHC49-H1, RHC3-1, RHC32-1, RHC3-2, RHC32-2 and the front ground post for poor connections, corrosion, or harness damage.

Steps to Fix

- If the coolant lines or wiring connections are kinked, corroded, damaged, or have poor connections, repair as needed.
- Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22602 - Coolant Pump failure
- Article #22603 - HVAC 12V Controller failure
- Article #22604 - Improper coolant mixture

Article #22048 - HVAC 1473 HVAC: Coolant Too Hot

Description

Trigger: When heater running during charge, Coolant Temp greater than 52C. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check for sufficient coolant in the reservoir.

Steps to Fix

If there is sufficient coolant in the reservoir, escalate your session for assistance. Otherwise, add coolant, and verify that the fault has cleared.
If the fault has not cleared, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22049 - HVAC 1474 HVAC: Coolant Heater Fault

Description

Alert Trigger: When coolant heater on during charge, the Energy Storage System (ESS) average temperature not increased by 1°C for greater than 15 minutes. End-User Text String: Coolant System Problem. Service required. Vehicle Response: None.

This alert will trigger when the battery minimum brick temperature has dropped below 3°C, the vehicle is plugged into a charger, and battery heating is required but is not received. If the battery average temperature does not increase by 1°C after 15 minutes of being plugged, this alert will be set.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22604 - Improper coolant mixture
- Article #22605 - Battery coolant heater failure
- Article #22842 - Coolant Level Low
- Article #32729 - Blown ESS Heater fuse
- Article #32731 - Kinked coolant lines

Article #22050 - HVAC 1475 HVAC: Insufficient Coolant Flow

Description

End-User Text String: Coolant System Problem Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21656 - IP 700 Brake fluid low

Description

Trigger: Brake Fluid Low Switch. End-User Text String: Brake fluid low. Vehicle Response: None.

This fault occurs when the brake fluid is below normal operating level or there is damage to the brake reservoir filler cap sensor.

Steps to Test

- Check the level of the brake fluid.
-

Remove the reservoir cap and inspect that the cap's float freely moves up and down.

-

Inspect the wire connections to the top of the reservoir cap, if the connections are secure, clean, and free of damage proceed to conduct a resistance value check using a DMM. The measured resistance between the two pins on the cap should read "open loop" when the float is depressed. If the float were to drop indicating a low fluid level the resistance would read .2 to .3 ohms.

Steps to Fix

-

Top off the brake reservoir with approved brake fluid. Be sure to inspect the brake system for possible leaks. Retest.

- If the reservoir's float moves freely, replace the reservoir cap.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22254 - Low Battery Capacity / Range

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response:

Steps to Test

- Determine the balance level of the battery pack.
  - If the battery pack balance level is above 4%, perform a Battery Bleed Test as per SB-12-16-002 in the Service Documents.
  - If the battery pack balance level is below 4%, determine if the decrease occurred after a firmware update.

Steps to Fix

- If the battery fails the Battery Bleed Test, escalate your session for assistance. Otherwise, pursue possible causes to investigate further.
- If it is determined that the decrease occurred after a firmware update, newer firmware versions contain more accurate algorithms for calculating vehicle range. As a result, it may appear that vehicle range has decreased when in fact it has not. This is considered expected behavior.
- If it is determined that the decrease was not related to a firmware update, determine the Computed Amp-hour Capacity(CAC) of the battery. Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22998 - Range decrease after Battery Bleed Test
- Article #31869 - "Charging completed" at low SOC
- Article #39452 - Brick-Voltage-Imbalance or range concerns after 3.0 upgrade

Article #22094 - PM 1640 PM: Invalid Pedal Current fault

Description

Trigger: Motor current not valid for pedal position. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22095 - PM 1641 PM: Current in Neutral fault

Description

Trigger: Current > 50A while vehicle in Neutral. End-User Text String: Powertrain Problem. Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22096 - PM 1642 PM: Cruise Not Off fault

Description

Trigger: DMC reports Cruise active when PM thinks it should be off - Off button pressed; brake pedal pressed; speed < 26mph; gear change; vehicle in R or N; Cruise not set. End-User Text String: Motor Controller error Service required. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

If this fault has occurred, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22097 - PM 1643 PM: Torque Reverse fault

Description

Trigger: Motor torque direction does not match gear selected. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22098 - PM 1644 PM: Invalid Shift Request fault

Description

Trigger: No gear selected while ESS contactors closed. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22099 - PM 1645 PM: Gear Selector Comms Fault

Description

Trigger: Invalid Shift Clock from Gear Selector. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22100 - PM 1646 PM: No Shifter Clock Detected fault

Description

Trigger: No shifter clock dectedted from DMC. End-User Text String: Powertrain Problem Restart When Safe. Vehicle Response: Vehicle stops immediately.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22101 - PM 1647 PM: Code CRC Error fault

Description

Trigger: Warning Only. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Firmware failure.

Steps to Fix

Escalate your session for assistance. ---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22102 - PM 1648 PM: Lost VMS comms fault

Description

Trigger: No messages from VMS > 8sec. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22103 - PM 1649 PM: Lost ABS Comms fault

Description

Trigger: No CAN messages received from ABS controller. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22104 - PM 1650 PM: Lost DMC Comms fault

Description

Trigger: No CAN message received from DMC. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22105 - PM 1651 PM: ABS Error fault

Description

Trigger: ABS reports one or more invalid wheel speeds > 10ms. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22106 - PM 1652 PM: PCS Error fault

Description

Trigger: Ia,b offset > 10A OR Iline offeste > 5A OR Vline offset > 5V. End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when one or more of the

Pole Current Sensors (PCSs) has failed or fallen out of calibration. This fault may also occur as a result of a phase imbalance developing on one of the phases in the motor or motor cable.

Steps to Test

- Inspect the motor cable to Power Electronics Module (PEM) connections for signs of arching.
- If no signs of arching are found, perform a High Potential Testing (HIPOT) and milli-ohm test of the motor and motor cable as per MEM-09-012 found in https://service.teslamotors.com/documents.
- Determine if the the motor and motor cable pass all tests.

Steps to Fix

- If the motor and motor cable pass, the PCS has likely failed. No field tests may be performed on this component.
    - The PEM should be replaced

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203).

- Otherwise, replace the component causing the HIPOT or milli-ohm test to fail.
- Test drive and charge vehicle to confirm repair.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22107 - PM 1653 PM: CAN Error fault

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22108 - PM 1654 PM: Accelerator Error fault

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22109 - PM 1655 PM: Accelerator Ratio Error fault

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

If this fault has occurred, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22110 - PM 1656 PM: Invalid Pedal Current warning

Description

End-User Text String: Motor Controller error Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22111 - PM 1657 PM: Current in Neutral warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22112 - PM 1658 PM: Cruise Not Off warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Determine if the vehicle is running the latest firmware.
    - Determine if the vehicle's speed was less than 30mph/48km/h or nearing the upper limit of vehicle capabilities when the cruise control canceled.
- Determine if the key switch is providing the "key on" signal.
    - Determine if the stalk switch operation is normal.

Steps to Fix

- If the firmware is a previous version, update to the latest firmware.
    - If the vehicle was at a speed less than 30mph/48km/h or nearing the upper limit of vehicle capabilities when the cruise control canceled, this is expected behavior. Otherwise, check the brake switch &; wiring for damage and repair as needed.
- If the key switch is not providing the "key on" signal, inspect the switch and associated wiring for damage/loose connections, and repair/replace as needed.
    - If the stalk switch is not operational, inspect and repair as needed. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22113 - PM 1659 PM: Torque Reverse warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22114 - PM 1660 PM: Invalid Shift Request warning

Description

Trigger: No gear selected while ESS contactors closed > 250ms. End-User Text String: Debug Only. Vehicle Response: None.

This warning is thrown when the shift lever position is invalid and the gear selection is unknown for greater than 250 milliseconds. This can happen normally when the user holds the shift lever in between gears.

Steps to Test

Inspect the gear selector for damage and normal actuation.

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

If the gear selector is damaged, replace (Part# 6004192).
If the gear selector is in good working order, and the vehicle will not enter any gear, this fault usually points to an internal problem with the switchpack.

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22617 - Faulty Switchpack

Article #22115 - PM 1661 PM: Shifter Error warning

Description

Trigger: Invalid shift clock. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

If accompanied with Digital Motor Control (DMC) fault, troubleshoot with DMC test.

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22116 - PM 1662 PM: No Shifter Clock Detected warning

Description

Trigger: No shifter clock detected from DMC. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22117 - PM 1663 PM: Code CRC Error warning

Description

Trigger: PM Software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Firmware failure.<br

Steps to Fix

Steps to Fix

If this fault has occurred, upload logs and escalate your session for assistance. ---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22118 - PM 1664 PM: Lost VMS comms warning

Description

Trigger: No messages from VMS > 8sec. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22119 - PM 1665 PM: Lost ABS Comms warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22120 - PM 1666 PM: Lost DMC Comms warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22121 - PM 1667 PM: ABS Error warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22122 - PM 1668 PM: PCS Error warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

PCS_1-This fault occurs when one or more of the PCSs (Pole Current Sensor) has failed or fallen out of calibration. This fault may also occur as a result of a phase imbalance developing on one of the phases in the motor or motor cable.

Steps to Test

Begin by inspecting the motor cable to Power Electronics Module (PEM) connections for signs of arching. If no signs of arching are found, perform a High Potential Testing (HIPOT) and milli-ohm test of the motor and motor cable, as per MEM-09-012 in Service Documents. Determine if the motor and motor cable pass all tests outlined in MEM-09-012.

Steps to Fix

- If the motor and motor cable do not pass all of the tests, replace the component causing the HIPOT or milli-ohm test to fail.
- If the components pass, The PCS has likely failed. No field tests may be performed on this component.
    - The PEM should be replaced

(1.5-Part# 6003440, 2.0&;2.5 Part# 6005203). Refer to MEM-10-002 for proper installation for Roadster 2.0.

- Test drive and charge vehicle to confirm repair.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22123 - PM 1669 PM: CAN Error warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #23023 - Faulty Anti-lock Braking System (ABS) module

Article #22124 - PM 1670 PM: Accelerator Error warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22125 - PM 1671 PM: Regen Current Warning

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22222 - SHFT 3001 SHFT: APS Voltage

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22223 - SHFT 3002 SHFT: Bad CAN Receive

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22224 - SHFT 3003 SHFT: Warning Lost Comms VMS

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22225 - SHFT 3004 SHFT: Warning Lost Comms DMC

Description

Trigger: Loss of comms with DMC. End-User Text String: WARNING: Gear Selection Problem Gear Selector May Not Work. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #22628 - 12V not registering when measuring from PEM

Article #22226 - SHFT 3005 SHFT: Lost Comms TCM

Description

End-User Text String: Park Lock Problem Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22227 - SHFT 3006 SHFT: SPI Tx

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22228 - SHFT 3007 SHFT: SPI_Rx

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22229 - SHFT 3008 SHFT: Warning PARK Switch Problem

Description

End-User Text String: Park Button Problem Key Off to Engage Park. Vehicle Response: None.

Steps to Test

Determine if the vehicle is running the latest firmware.

Steps to Fix

If the vehicle is not running the latest firmware, update the firmware. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22981 - Faulty Park Shift button

Article #22230 - SHFT 3009 SHFT: Warning REVERSE Switch Problem

Description

End-User Text String: Reverse Button Problem Vehicle May not be Able to Enter Reverse. Vehicle Response: None.

Steps to Test

Determine if the vehicle is running the latest firmware.

Steps to Fix

If the vehicle is not running the latest firmware, update the firmware. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22982 - Faulty Reverse Shift button

Article #22231 - SHFT 3010 SHFT: Warning NEUTRAL Switch Problem

Description

End-User Text String: Neutral Button Problem Vehicle May not be Able to Enter Neutral. Vehicle Response: None.

Steps to Test

Determine if the vehicle is running the latest firmware.

Steps to Fix

If the vehicle is not running the latest firmware, update the firmware. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22983 - Faulty Neutral Shift button

Article #22232 - SHFT 3011 SHFT: Warning DRIVE Switch Problem

Description

End-User Text String: Drive Button Problem Vehicle May not be Able to Enter Drive. Vehicle Response: None.

Steps to Test

Determine if the vehicle is running the latest firmware.

Steps to Fix

If the vehicle is not running the latest firmware, update the firmware. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22984 - Faulty Drive Shift button

Article #22233 - SHFT 3012 SHFT: Warning TC Switch Problem

Description

End-User Text String: Drive Button Problem Vehicle May not be Able to Enter Drive. Vehicle Response: None.

Steps to Test

Determine if the vehicle is running the latest firmware.

Steps to Fix

If the vehicle is not running the latest firmware, update the firmware. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22985 - Faulty Traction Control button

Article #22234 - SHFT 3013 SHFT: Five Volt Supply

Description

End-User Text String: Drive Button Problem Vehicle May not be Able to Enter Drive. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22235 - SHFT 3014 SHFT: Park LED

Description

End-User Text String: Shifter Park Light Problem Service Required. Vehicle Response: None.

Steps to Test

Determine if the vehicle will transition through gear selection.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22987 - Faulty Park Shift button relating to Fault 3019
- Article #22988 - Faulty Park Shift button-Park Shift button not changing color

Article #22236 - SHFT 3015 SHFT: Reverse LED

Description

End-User Text String: Shifter Reverse Light Problem Service Required. Vehicle Response: None.

Steps to Test

Determine if the vehicle will transition through gear selection.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22989 - Faulty Reverse Shift button relating to Fault 3020
- Article #22990 - Faulty Reverse Shift button-Reverse Shift button not changing color

Article #22237 - SHFT 3016 SHFT: Neutral LED

Description

End-User Text String: Shifter Neutral Light Problem Service Required. Vehicle Response: None.

Steps to Test

Determine if the vehicle will transition through gear selection.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22991 - Faulty Neutral Shift button relating to Fault 3021
- Article #22992 - Faulty Neutral Shift button-Neutral Shift button not changing color

Article #22238 - SHFT 3017 SHFT: Drive LED

Description

End-User Text String: Shifter Drive Light Problem Service Required. Vehicle Response: None.

Steps to Test

Determine if the vehicle will transition through gear selection.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22993 - Faulty Drive Shift button-Drive Shift button not changing color
- Article #22994 - Faulty Park Shift button relating to Fault 3022

Article #22239 - SHFT 3018 SHFT: Traction Control LED

Description

This Alert will only be present in "Debug mode" which should not be customer facing.

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #28566 Disable Debug Mode

Article #22240 - SHFT 3019 SHFT: PARK Switch Stuck Down

Description

End-User Text String: Park Switch Stuck Down. Vehicle Response: None.

Steps to Test

- Review the vehicle logs, look for fault code 3019.
-

If fault code 3019 is not reported, or not reported multiple times, determine if the Park button was depressed for greater than 5 seconds.

Steps to Fix

- If the Park button was depressed for greater than 5 seconds, this is expected behavior,

Inspect the Park button, button connections and

gear selector circuit

board connections as a precaution.

- Otherwise, inspect the Park button and

gear selector circuit

board connections and check the Park button for sticking. After checking the connections and button, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22987 - Faulty Park Shift button relating to Fault 3019

Article #22241 - SHFT 3020 SHFT: REVERSE Switch Stuck Down

Description

End-User Text String: Reverse Switch Stuck Down. Vehicle Response: None.

Steps to Test

- Review the vehicle logs, look for fault code 3020.
- If fault code 3020 is not reported, or not reported multiple times, determine if the Reverse button was depressed for greater than 5 seconds.

Steps to Fix

If the Reverse button was depressed for greater than 5 seconds, this is expected behavior, Inspect the Reverse button, button connections and

gear selector circuit

board connections as a precaution.
Otherwise, inspect the Reverse button and

gear selector circuit

board connections and check the Reverse button for sticking. After checking the connections and button, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22989 - Faulty Reverse Shift button relating to Fault 3020

Article #22242 - SHFT 3021 SHFT: NEUTRAL Switch Stuck Down

Description

End-User Text String: Neutral Switch Stuck Down. Vehicle Response: None.

Steps to Test

- Review the vehicle logs, look for fault code 3021.
- If fault code 3021 is not reported, or not reported multiple times, determine if the Neutral button was depressed for greater than 5 seconds.

Steps to Fix

If the Neutral button was depressed for greater than 5 seconds, this is expected behavior, Inspect the Neutral button, button connections and gear selector circuit board connections as a precaution.
Otherwise, inspect the Neutral button and

gear selector circuit

board connections and check the Neutral button for sticking. After checking the connections and button, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22991 - Faulty Neutral Shift button relating to Fault 3021

Article #22243 - SHFT 3022 SHFT: DRIVE Switch Stuck Down

Description

End-User Text String: Drive Switch Stuck Down. Vehicle Response: None.

Steps to Test

- Review the vehicle logs, look for fault code 3022.
- Determine if the Drive button modification has been performed as per TSB-10-47-006, in the Service Documents.

- If fault code 3022 is not reported, or not reported multiple times, determine if the Drive button was depressed for greater than 5 seconds.

Steps to Fix

- If the Drive button modification has not been performed, make the modification

as per TSB-10-47-006 and determine if the fault is still present.

- If the Park button was depressed for greater than 5 seconds, this is expected behavior, Inspect the Park button, button connections and gear selector circuit board connections as a precaution.
- Otherwise, inspect the Park button and gear selector circuit board connections and check the Park button for sticking.
- After checking the connections and button, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22994 - Faulty Park Shift button relating to Fault 3022

Article #22244 - SHFT 3023 SHFT: TC Switch Stuck Down

Description

End-User Text String: Traction Control Switch Stuck Down. Vehicle Response: None.

Steps to Test

- Review the vehicle logs, look for fault code 3023.
- If fault code 3023 is not reported, or not reported multiple times, determine if the Traction Control button was depressed for greater than 5 seconds.

Steps to Fix

If the

Traction Control

button was depressed for greater than 5 seconds, this is expected behavior, Inspect the

Traction Control

button, button connections and gear selector circuit board connections as a precaution.
Otherwise, inspect the

Traction Control

button and gear selector circuit board connections and check the

Traction Control

button for sticking. After checking the connections and button, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22997 - Faulty Traction Control Shift button relating to Fault 3023

Article #22245 - SHFT 3024 SHFT: 24

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22246 - SHFT 3025 SHFT: 25

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22247 - SHFT 3026 SHFT: 26

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22248 - SHFT 3027 SHFT: 27

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22249 - SHFT 3028 SHFT: 28

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

.

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22250 - SHFT 3029 SHFT: 29

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22251 - SHFT 3030 SHFT: 30

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22252 - SHFT 3031 SHFT: 31

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22253 - SHFT 3032 SHFT: 32

Description

End-User Text String: Alert's end-user text not yet specified. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21527 - SRS 30 SRS: Airbag enabled in car, but disabled in VMS config

Description

Trigger: VMS config file says SRS is disabled and SRS is sending data. End-User Text String: Airbag System Service required. Vehicle Response: None.

SRS: Airbag enabled in car, but disabled in VMS config

Steps to Test

Look for faults in the Supplementary Restraint System (SRS) controller.

Steps to Fix

If faults are present, replace the failed SRS components. If no faults are present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21528 - SRS 31 SRS: Airbag deployed. Contact Tesla Service Center

Description

Trigger: SRS Deploy Signal. End-User Text String: Airbag System, Service required. Vehicle Response: None.

Steps to Test

SRS controller is reporting that the airbags have been deployed. Communicate with the SRS controller via scan tool.

Steps to Fix

Check and rectify any SRS faults.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21529 - SRS 32 SRS: Airbag must be serviced. Contact Tesla Service Center

Description

Trigger: Communications lost with SRS and VMS. End-User Text String: Airbag System, Service required. Vehicle Response: None.

Steps to Test

Use the MTS-2 to try to communicate with the Supplementary Restraint System (SRS) ECU.

Steps to Fix

If the MTS-2 is able to communicate with the SRS ECU, replace the the failed SRS components. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22364 - SRS ECU connector power at pin 35, and ground at pin 7 voltage is less than 12V
- Article #22365 - No communication between MTS-2 and SRS ECU
- Article #22366 - SRS ECU connector power at pin 35, and ground at pin 7 voltage is greater than 12V

Article #22059 - SWP 1522 SWP: BPS Active

Description

Trigger: BPS Active after APS Failure. End-User Text String: Backup Power Active Contact Tesla Service. Vehicle Response: None.

Steps to Test

- Check for pinched, crushed, or otherwise compromised wires or connections on the Auxiliary Power Supply (APS) output lines.
- Turn the key to the "on" position and check for a current reading that is less than 5.5A at the APS main.
- Turn the key to the "acc" position and check for a current reading that is less than 5A at the APS main.

Steps to Fix

- If there are any pinched, crushed, etc. output lines, repair, and re-evaluate.
- If the currents on each of the key positions do not fall below the 5A or 5.5A, escalate your session for assistance. Otherwise, pursue possible causes to investigate further.
- If the possible causes are inconclusive, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22615 - APS voltage drops below 13V (output pin #1) or 12V (output pin #2) with the addition of a load

Article #21615 - SWP 420 SWP: APS off, but no pulse from BPS

Description

This alert is for Roadster 1.5 only.

Alert Trigger: No BPS fault is detected by the SwitchPack (SWP) within 2.5 Seconds of the APS shutting down. Normally, this occurs within 1 second for 1 second.

End-User Text String: Backup Power Supply Service required. Vehicle Response: None.

If the Backup Power Supply (BPS) system is functioning properly when the Auxiliary Power Supply (APS) is inhibited, a "blip" of voltage will be momentarily present within 1 second of the APS being turned off.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22617 - Faulty Switchpack
- Article #22618 - Repair Battery (Reman.) SWP: APS off, but no pulse from BPS
- Article #328100 - PEM not supplying enough 12v to back up power supply

Article #21616 - SWP 428 SWP: Aux Battery Supply Low

Description

Alert Trigger: Battery voltage falls below 10.5V for 500ms. End-User Text String: 12V Battery. Service Required. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22944 - Faulty Switchpack, resistance of circuits is less than 0.5 ohms
- Article #22945 - Faulty Auxiliary Battery

Article #21617 - SWP 429 SWP: Eeprom checksum error

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21618 - SWP 430 SWP: CAN Rx OverFlow

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21624 - SWP 525 ABS: Open/short circuit

Description

Trigger: Current > 80A > 10ms after initial 100ms inrush period. End-User Text String: Anti-Lock Braking System service required. Vehicle Response: None.

Steps to Test

- Check for communication with the Anti-lock Braking System (ABS) control unit.
- Check for communication with the Vehicle Monitor System (VMS). Reference the Roadster circuit diagrams in the Service Manual.
- If the switchpack was replaced be sure that the firmware has been updated, otherwise, proceed by checking the 10 amp fuse in the fuse block and 60A Maxi Fuse located behind the fuse block.
- Check for power/ground or short/open at ABS controller. Pins 1, 32, 4 (+), 16, 47 (-).

Steps to Fix

If there is an issue with the fuse, repair shorted wiring and replace the fuse.
If a power/ground or short/open exists, replace the ABS controller (Part# 6000055).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21625 - SWP 526 SWP: Radio open/short circuit

Description

End-User Text String: Radio System Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred, please upload logs to your Toolbox session and escalate the session for further assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21626 - SWP 527 Check right front high beam bulb

Description

Trigger: Open Circuit - Current < 2.8A; Short Circuit - Current > 28A inrush, 24A Normal. End-User Text String: Check right high beam bulb. Vehicle Response: None.

Steps to Test

- Visually inspect the bulb, and pins on the connector.
- Measure for Power/Ground at the bulb connector.
- Measure the output at the switchpack.
- Check for an open/short from the switchpack to the bulb connector.

Steps to Fix

- If the bulb (Part# 2005037) or connector appear to be damaged, replace as needed.
- Repair any open/shorts from the switchpack to the bulb connector.
- If there are not any open/shorts, replace the switchpack (1.5-Part# 6003276, 2.0&;2.5-Part# 6002894).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21627 - SWP 528 Check left front high beam bulb

Description

Trigger: Open Circuit - Current < 2.8A; Short Circuit - Current > 28A inrush, 24A Normal. End-User Text String: Check left high beam bulb. Vehicle Response: None.

Steps to Test

- Visually inspect the bulb, and pins on the connector.
- Measure for Power/Ground at the bulb connector.
- Measure the output at the switchpack.
- Check for an open/short from the switchpack to the bulb connector.

Steps to Fix

- If the bulb or connector appear to be damaged, replace as needed (High beam bulb-Part# 2005037, connector-1.5-Part# 6001545, 2.0&;2.5-Part# 6004224 (preJan2010) or 6009270 (postJan2010)).
- Repair any open/shorts from the switchpack to the bulb connector.
- If there are not any open/shorts, replace the switchpack (1.5-Part# 6003276, 2.0&;2.5-Part# 6002894).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21628 - SWP 529 Check right front low beam bulb

Description

Trigger: Open Circuit - Current < 2.8A; Short Circuit - Current > 28A inrush, 24A Normal. End-User Text String: Check right low beam bulb. Vehicle Response: None.

Steps to Test

- Visually inspect the bulb, and pins on the connector.
- Measure for Power/Ground at the bulb connector.
- Measure the output at the switchpack.
- Check for an open/short from the switchpack to the bulb connector.

Steps to Fix

- If the bulb (Part# 2005038) or connector appear to be damaged, replace as needed.
- Repair any open/shorts from the switchpack to the bulb connector.
- If there are not any open/shorts, replace the switchpack (1.5-Part# 6003276, 2.0&;2.5-Part# 6002894).

Possible Effects

Unknown.

Possible Causes

- Article #31050 - Halogen headlight assembly internal connector/wiring issue

Article #21629 - SWP 530 Check left front low beam bulb

Description

Trigger: Open Circuit - Current < 2.8A; Short Circuit - Current > 28A inrush, 24A Normal. End-User Text String: Check left low beam bulb. Vehicle Response: None.

Steps to Test

- Visually inspect the bulb, and pins on the connector.
- Measure for Power/Ground at the bulb connector.
- Measure the output at the switchpack.
- Check for an open/short from the switchpack to the bulb connector.

Steps to Fix

- If the bulb (Part# 2005038) or connector appear to be damaged, replace as needed.
- Repair any open/shorts from the switchpack to the bulb connector.
- If there are not any open/shorts, replace the switchpack (1.5-Part# 6003276, 2.0&2.5-Part# 6002894).

Possible Effects

Unknown.

Possible Causes

- Article #31050 - Halogen headlight assembly internal connector/wiring issue

Article #21630 - SWP 531 Check marker light bulbs

Description

Trigger: Open Circuit - Current <1.5A; Short Circuit - Current > 6A. End-User Text String: Check marker light bulbs. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21631 - SWP 532 Left side turn signal open/short circuit

Description

End-User Text String: Check left side turn signal bulb. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21632 - SWP 533 Right side turn signal open/short circuit

Description

End-User Text String: Check right side turn signal bulb. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21633 - SWP 534 Left window motor issue

Description

Trigger: Open Circuit - Current < 1A; Short Circuit - Current > 13A. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22947 - Faulty window switch: no continuity
- Article #22948 - Faulty window motor
- Article #22949 - Faulty switchpack related to the window motor
- Article #22950 - Damaged wiring between Switchpack and window motor

Article #21634 - SWP 535 Right window motor issue

Description

Trigger: Open Circuit - Current < 1A; Short Circuit - Current > 13A. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22947 - Faulty window switch: no continuity
- Article #22948 - Faulty window motor
- Article #22949 - Faulty switchpack related to the window motor
- Article #22950 - Damaged wiring between Switchpack and window motor

Article #21635 - SWP 536 Check left back turn signal bulb

Description

Trigger: Open Circuit - Current < 100mA; Short Circuit - Current > 500mA. End-User Text String: Check left rear signal bulb. Vehicle Response: None.

Steps to Test

Verify the output from the switchpack by activating the turn signal switch

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22637 - "Check left/right back turn signal bulb" alert, with proper output from switchpack
- Article #22638 - "Check left/right back turn signal bulb" alert, with improper output from switchpack

Article #21636 - SWP 537 Check left front turn signal bulb

Description

Trigger: Open Circuit - Current < 800mS; Short Circuit - Current > 8A. End-User Text String: Check left front signal bulb. Vehicle Response: None.

Steps to Test

Verify output from the switchpack by activating the turn signal switch.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22640 - "Check left/right front turn signal bulb" alert, with improper output from switchpack

Article #21637 - SWP 538 Check right back turn signal bulb

Description

Trigger: Open Circuit - Current < 100mA; Short Circuit - Current > 500mA. End-User Text String: Check right rear signal bulb. Vehicle Response: None.

Steps to Test

Verify the output from the switchpack by activating the turn signal switch

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22637 - "Check left/right back turn signal bulb" alert, with proper output from switchpack
- Article #22638 - "Check left/right back turn signal bulb" alert, with improper output from switchpack

Article #21638 - SWP 539 Check right front turn signal bulb

Description

Trigger: Open Circuit - Current < 800mS; Short Circuit - Current > 8A. End-User Text String: Check right front signal bulb. Vehicle Response: None.

Steps to Test

Verify output from the switchpack by activating the turn signal switch.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22640 - "Check left/right front turn signal bulb" alert, with improper output from switchpack
- Article #22641 - "Check left/right front turn signal bulb" alert, with proper output from switchpack

Article #21639 - SWP 547 Check rear fog lamps

Description

End-User Text String: Check rear fog lamp. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22255 - Symptom Based Diagnostics 999002 Cruise Control Cancels Unexpectedly

Description

End-User Text String: 1 mile left! Switch to Range Mode to access reserve.

Steps to Test

- Determine if the vehicle is running the latest firmware.
    - Determine if the vehicle's speed was less than 30mph/48km/h or nearing the upper limit of vehicle capabilities when the cruise control canceled.
- Determine if the key switch is providing the "key on" signal.
    - Determine if the stalk switch operation is normal.

Steps to Fix

- If the firmware is a previous version, update to the latest firmware.
    - If the vehicle was at a speed less than 30mph/48km/h or nearing the upper limit of vehicle capabilities when the cruise control canceled, this is expected behavior. Otherwise, check the brake switch &; wiring for damage and repair as needed.
- If the key switch is not providing the "key on" signal, inspect the switch and associated wiring for damage/loose connections, and repair/replace as needed.
    - If the stalk switch is not operational, inspect and repair as needed. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22256 - Symptom Based Diagnostics 999003 BPS Active

Description

End-User Text String: Backup Power Active Contact Tesla Service.

Steps to Test

Examine the APS output lines for pinched, crushed, or otherwise compromised wires or connections.

Steps to Fix

Replace damaged wiring and tighten any loose connections, then re-evaluate. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23003 - Auxiliary Power Supply (APS) fault relating to poor current output

Article #21555 - TCM 100 TCM: Hall Sensors both on

Description

Trigger: Both hall sensors seen at the same time. End-User Text String: Park Lock Problem Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

- Check green connector. Check parking pawl actuator connector THC3 for loose, corroded, or damaged terminals.
    - Note: use caution when separating, the connector is very fragile.
- Check for open/short circuit to ground/harness damage between pawl actuator connector THC3 and transmission controller (TCM) connector THC2.

Steps to Fix

If there are no signs of loose, corroded, or damaged terminals/connectors, replace the TCM (Part# 6002793).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21556 - TCM 101 TCM: CRC error

Description

End-User Text String: Parking System Service Required. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21557 - TCM 102 TCM: Lost VMS comms

Description

End-User Text String: Parking System Service Required. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21558 - TCM 103 TCM: Lost ABS comms

Description

End-User Text String: Parking System Service Required. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21559 - TCM 104 TCM: Lost DMC comms

Description

Trigger: TCM does not receive shift request message for 2 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Verify that the fault occurred within 10 seconds of the Auxiliary Power Supply (APS) turning on.

Steps to Fix

If the fault occurred within 10 seconds, this is expected behavior. No further action is necessary. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21560 - TCM 105 TCM: Lost DFC comms

Description

End-User Text String: Parking System Service Required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21561 - TCM 106 TCM: ABS error

Description

End-User Text String: Parking System Service Required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21562 - TCM 107 TCM: CAN error

Description

End-User Text String: Parking System Service Required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #23023 - Faulty Anti-lock Braking System (ABS) module

Article #21563 - TCM 108 TCM: Watchdog timer reset

Description

End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22092 - TCM 1564 TCM: Lube temp too high

Description

End-User Text String: Transmission too hot. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21545 - TCM 90 TCM: Oil Pump Open Circuit

Description

Trigger: Open circuit measured while pump off. End-User Text String: Transmission error, Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21546 - TCM 91 TCM: Oil Pump Low Current

Description

End-User Text String: Transmission error. Service required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21547 - TCM 92 TCM: Oil Pump High Current

Description

End-User Text String: Transmission error. Service required

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21548 - TCM 93 TCM: Oil Pump Driver Fault

Description

End-User Text String: Transmission error. Service required.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21549 - TCM 94 TCM: Park Motor Open Circuit

Description

Trigger: Motor open circuit detected while motor off. End-User Text String: Park Lock Problem, Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

- Check green connector. Check parking pawl actuator connector THC3 for loose, corroded, or damaged terminals.
    - Note: use caution when separating, the connector is very fragile.
- Check for open/short circuit to ground/harness damage between pawl actuator connector THC3 and transmission controller (TCM) connector THC2.
- Measure voltage at pawl; Force actuator.
- Component activate parking pawl actuator with MTS-2, check actuator operation.
- Measure the voltage at the parking pawl actuator connector THC3 while operating actuator.

Steps to Fix

If there are no signs of loose, corroded, or damaged terminals/connectors, replace the parking pawl actuator (Part# 2006494).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21550 - TCM 95 TCM: Park Motor jammed in Park

Description

Trigger: Park Hall sensor seen for 2 seconds after pawl commanded out. End-User Text String: Park failed to disengage. Service required. Vehicle Response: Vehicle does not exit park.

Steps to Test

- Check green connector. Check parking pawl actuator connector THC3 for loose, corroded, or damaged terminals.
    - Note: use caution when separating, the connector is very fragile.
- Check for open/short circuit to ground/harness damage between pawl actuator connector THC3 and transmission controller (TCM) connector THC2.
- Measure voltage at pawl; Force actuator.
- Component activate parking pawl actuator with MTS-2, check actuator operation.
- Measure the voltage at the parking pawl actuator connector THC3 while operating actuator.

Steps to Fix

If there are no signs of loose, corroded, or damaged terminals/connectors, replace the parking pawl actuator

(Part# 2006494).

Possible Causes

- Article #22053 - VMS 1492 VMS: Transmission lock should not be engaged

Possible Causes

Unknown.

Article #21551 - TCM 96 TCM: Park Motor jammed in Unpark

Description

Trigger: Unpark hall sensor seen for 2 seconds after being commanded into park. End-User Text String: Park Lock Problem, Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

- Check green connector. Check parking pawl actuator connector THC3 for loose, corroded, or damaged terminals.
    - Note: use caution when separating, the connector is very fragile.
- Check for open/short circuit to ground/harness damage between pawl actuator connector THC3 and transmission controller (TCM) connector THC2.
- Measure voltage at pawl; Force actuator.
- Component activate parking pawl actuator with MTS-2, check actuator operation.
- Measure the voltage at the parking pawl actuator connector THC3 while operating actuator.

Steps to Fix

If there are no signs of loose, corroded, or damaged terminals/connectors, replace the parking pawl actuator

(Part# 2006494).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21552 - TCM 97 TCM: Park motor jammed in the middle

Description

End-User Text String: Park Lock Problem, Vehicle May be Free-Rolling. Vehicle Response: Vehicle does not exit park

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21553 - TCM 98 TCM: Park Hall Sensor not seen

Description

Trigger: No hall sensors seen for 2 seconds after being commanded into park. End-User Text String: Park Lock Problem, Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

- Check green connector. Check parking pawl actuator connector THC3 for loose, corroded, or damaged terminals.
    - Note: use caution when separating, the connector is very fragile.
- Check for open/short circuit to ground/harness damage between pawl actuator connector THC3 and transmission controller (TCM) connector THC2.
- Measure voltage at pawl; Force actuator.
- Component activate parking pawl actuator with MTS-2, check actuator operation.
- Measure the voltage at the parking pawl actuator connector THC3 while operating actuator.

Steps to Fix

If there are no signs of loose, corroded, or damaged terminals/connectors, replace the parking pawl actuator

(Part# 2006494).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21554 - TCM 99 TCM: Unpark Hall sensor not seen

Description

Trigger: No unpark hall sensor seen 2 seconds after being commanded into unpark. End-User Text String: Park Lock Problem, Vehicle May be Free-Rolling. Vehicle Response: Vehicle does not exit park.

Steps to Test

- Check green connector. Check parking pawl actuator connector THC3 for loose, corroded, or damaged terminals.
    - Note: use caution when separating, the connector is very fragile.
- Check for open/short circuit to ground/harness damage between pawl actuator connector THC3 and transmission controller (TCM) connector THC2.
- Measure voltage at pawl; Force actuator.
- Component activate parking pawl actuator with MTS-2, check actuator operation.
- Measure the voltage at the parking pawl actuator connector THC3 while operating actuator.

Steps to Fix

If there are no signs of loose, corroded, or damaged terminals/connectors, replace the parking pawl actuator

(Part# 2006494).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21599 - TPMS 401 TPMS: Left front tire very soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left front tire pressure. Vehicle Response: None.

Steps to Test

Check the left front tire pressure.

Steps to Fix

Inflate to the recommended tire pressure.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21600 - TPMS 402 TPMS: Left front tire soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left front tire pressure. Vehicle Response: None.

Steps to Test

Check the left front tire pressure.

Steps to Fix

Inflate to the recommended tire pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21601 - TPMS 403 TPMS: Right front tire very soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check right front tire pressure. Vehicle Response: None.

Steps to Test

Check the right front tire pressure.

Steps to Fix

Inflate to the recommended tire pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21602 - TPMS 404 TPMS: Right front tire soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check right front tire pressure. Vehicle Response: None.

Steps to Test

Check the right front tire pressure.

Steps to Fix

Inflate to the recommended tire pressure.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21603 - TPMS 405 TPMS: Left rear tire very soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left rear tire pressure. Vehicle Response: None.

Steps to Test

Check the left rear tire pressure.

Steps to Fix

Inflate to the recommended tire pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21604 - TPMS 406 TPMS: Left rear tire soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left rear tire pressure. Vehicle Response: None.

Steps to Test

Check the left rear tire pressure.

Steps to Fix

Inflate to the recommended tire pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21605 - TPMS 407 TPMS: Right rear tire very soft

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check right rear tire pressure. Vehicle Response: None.

Steps to Test

Check the right rear tire pressure.

Steps to Fix

Inflate to the recommended tire pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21606 - TPMS 408 TPMS: Right rear tire soft

Description

Trigger: Not a Fault - message to end use. End-User Text String: Check right rear tire pressure. Vehicle Response: None.

Steps to Test

Check the right rear tire pressure.

Steps to Fix

Inflate to the recommended tire pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21608 - TPMS 410 TPMS: Tire over-pressure warning

Description

Trigger: Not a Fault - message to end user. End-User Text String: Tire Overpressure. Vehicle Response: None.

Steps to Test

Check tire pressure.

Steps to Fix

Deflate tire(s) to recommended pressure

(located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21609 - TPMS 411 TPMS: Tire OverTemp warning

Description

Trigger: Not a Fault - message to end user. End-User Text String: Tire Overpressure. Vehicle Response: None.

Steps to Test

Check tire pressure.

Steps to Fix

Deflate tire(s) to recommended pressure (located in the Roadster Service Manual-Technical Data-Tire Pressures).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21610 - TPMS 412 TPMS: Rapid tire pressure loss

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check tire pressure. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21611 - TPMS 413 TPMS: Check left front tire

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left front tire. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21612 - TPMS 414 TPMS: Check right front tire

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left right tire. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21613 - TPMS 415 TPMS: Check left back tire

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check left rear tire. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21614 - TPMS 416 TPMS: Check right back tire

Description

Trigger: Not a Fault - message to end user. End-User Text String: Check right rear tire. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22058 - VDS 1497 VMS: Recovery charging failed

Description

Trigger: Trickle charge times out at 90 minutes. End-User Text String: Battery over-discharge error. Service required. Vehicle Response: Charge aborted.

Steps to Test

If this fault has occurred, please upload logs.

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22127 - VDS 1901

Description

End-User Text String: Debug Only. Vehicle Response:

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22128 - VDS 1902 VDS: ALERT string too long

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22129 - VDS 1903 VDS: malloc trace histogram saved

Description

Trigger: Pressing a button on a VDS diagnostic screen. End-User Text String: Debug Only.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22130 - VDS 1904 VDS: Engage hand brake when vehicle is parked

Description

End-User Text String: Engage hand brake when vehicle is parked. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22131 - VDS 1905 To enter Tow Mode, APS power is required

Description

End-User Text String: Unable to enter Tow Mode Flatbed recovery recommended. Vehicle Response: None.

Steps to Fix

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22132 - VDS 1906 To exit Tow Mode, APS power is required

Description

End-User Text String: Unable to exit Tow Mode Service required. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #23023 - Faulty Anti-lock Braking System (ABS) module

Article #22133 - VDS 1907 VDS: Tire pressures / temperatures only available when car is on

Description

End-User Text String: Tire pressures are available only when car is on.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22134 - VDS 1908 To access settings, first disarm the security lock.

Description

End-User Text String: To access settings, first disarm the security lock.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22135 - VDS 2003 No response to request to start charging

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22136 - VDS 2004 Request to start charging rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS
- Article #31869 - "Charging completed" at low SOC

Article #22137 - VDS 2005 No response to request to stop charging

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22138 - VDS 2006 Request to stop charging rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22139 - VDS 2007 No response to request to change user current limit

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22140 - VDS 2008 Request to change user current limit rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22141 - VDS 2009 No response to request to uninhibit APS power

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22142 - VDS 2010 Request to uninhibit APS power rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22143 - VDS 2011 No response to request to inhibit APS power

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22144 - VDS 2012 Request to inhibit APS power rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22145 - VDS 2013 No response to request to change charge timing

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22146 - VDS 2014 Request to change charge timing rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22147 - VDS 2015 No response to request to change charge time

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22148 - VDS 2016 Request to change charge time rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22149 - VDS 2017 No response to request to change charge mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22150 - VDS 2018 Request to change charge mode rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22151 - VDS 2019 No response to request to restore default charge mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22152 - VDS 2020 Request to restore default charge mode rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22153 - VDS 2021 No response to request to restore default charging time

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22154 - VDS 2022 Request to restore default charging time rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22155 - VDS 2023 No response to request to restore default charge timing

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22156 - VDS 2024 Request to restore default charge timing rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22157 - VDS 2025 No response to request to restore default current limit

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22158 - VDS 2026 Request to restore default current limit rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22159 - VDS 2027 No response to request to restore default cost/kWh

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22160 - VDS 2028 Request to restore default cost/kWh rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22161 - VDS 2029 No response to request to save charge mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22162 - VDS 2030 Request to save charge mode rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22163 - VDS 2031 No response to request to save charging time

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22164 - VDS 2032 Request to save charging time rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22165 - VDS 2033 No response to request to save charge timing

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22166 - VDS 2034 Request to save charge timing rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22167 - VDS 2035 No response to request to save current limit

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22168 - VDS 2036 Request to save current limit rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22169 - VDS 2037 No response to request to save cost/kWh

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22170 - VDS 2038 Request to save cost/kWh rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22171 - VDS 2039 No response to request to enter valet mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22172 - VDS 2040 No response to request to exit valet mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22173 - VDS 2041 No response to request to enter pin locked mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22174 - VDS 2042 No response to request to exit pin locked mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22175 - VDS 2047 No response to request to change PIN code

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22176 - VDS 2048 Request to change PIN code rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22177 - VDS 2050 No response to request to change transmission lock state

Description

End-User Text String: There was a problem processing your request.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22178 - VDS 2051 Request to change transmission lock state rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22179 - VDS 2061 No response to request to change data logging

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22180 - VDS 2062 Request to change data logging rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22181 - VDS 2065 No response to request to unmount USB drive

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22182 - VDS 2066 Request to unmount USB drive rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22183 - VDS 2070 No response to request to get keyfob function

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22184 - VDS 2071 Request to get keyfob function rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22185 - VDS 2072 No response to request to set keyfob function

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22186 - VDS 2073 Request to set keyfob function rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22187 - VDS 2074 No response to request to get keyfob-activated homelink ID

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22188 - VDS 2075 Request to get keyfob-activated homelink ID rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22189 - VDS 2076 No response to request to set keyfob-activated homelink ID

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22190 - VDS 2077 Request to set keyfob-activated homelink ID rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22191 - VDS 2078 No response to request to enter Tow Mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22192 - VDS 2079 Request to enter Tow Mode rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22193 - VDS 2080 No response to request to exit Tow Mode

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22194 - VDS 2081 Request to exit Tow Mode rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22195 - VDS 2086 No response to request to reset PEM Limits table

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22196 - VDS 2087 Request to reset PEM Limits table rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22197 - VDS 2088 Request to set TPMS limits rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22198 - VDS 2089 No response to request to set TPMS limits

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22199 - VDS 2090 No response to request to reset SOC parameters

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22200 - VDS 2091 Request to reset SOC parameters rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22201 - VDS 2092 No response to request to reset IP needles

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22202 - VDS 2093 Request to reset IP needles rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22203 - VDS 2094 No response to request to change verbose logging

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22204 - VDS 2095 Request to change verbose logging rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22205 - VDS 2096 No response to PIN submission

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22206 - VDS 2098 No response to request to update next service info

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22207 - VDS 2099 Request to update next service info rejected

Description

End-User Text String: There was a problem processing your request. Vehicle Response: None.

This fault likely indicates one of three potential failures; faulty Vehicle Display System (VDS), faulty Vehicle Monitor System (VMS), or faulty CAN-BUS wiring between the two components.

Steps to Test

1. Begin by disconnecting the CAN-BUS connection from the Vehicle Display System (VDS) and inspecting the pin connections and wiring for damage.
2. If no problems are found, allow the VDS to remain disconnected for five minutes. This will allow the VDS to reset.
3. After five minutes reconnect the VDS.

Steps to Fix

If the fault is not resolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22968 - Damaged wiring between VDS and VMS

Article #22208 - VDS 2410 VDS: Undefined instruction exception

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22209 - VDS 2411 VDS: Prefetch abort exception

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22210 - VDS 2412 VDS: Data abort exception

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22211 - VDS 2413 VDS: Software interrupt exception

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22212 - VDS 2414 VDS: Software assert tested false

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22213 - VDS 2415 VDS: Saved data checksum mismatch. Flash may be corrupted

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22214 - VDS 2416 VDS: App checksum mismatch. Flash may be corrupted

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22215 - VDS 2417 VDS: Memory allocation failed

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22216 - VDS 2418 VDS: Memory allocation below the heap

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22217 - VDS 2419 VDS: Memory allocation above the heap

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22218 - VDS 2420 VDS: Memory deallocation below the heap

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22219 - VDS 2421 VDS: Memory deallocation above heap

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22220 - VDS 2422 VDS: PEG message queue overflow

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred; please upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22221 - VDS 2423 VDS: Memory buffer overflow

Description

End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21596 - VDS 398 Key must be on to select new tires

Description

End-User Text String: Key must be on to select new tires. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21506 - VMS 0 Critical Brick OverVoltage fault

Description

Trigger: F(vBrickMax) > 4.2v > 1 second. End-User Text String: Battery Problem Service Required. Vehicle response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

If fault occurs, retrieve vehicle logs.

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21516 - VMS 10 VMS: Battery Discharging During Charge

Description

End-User Text String: Charging Problem.

Steps to Test

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21517 - VMS 13 Critical Brick UnderVoltage fault

Description

Trigger: F(vBrickMin) < 2.4v > 1sec. End-User Text String: Battery Problem, Service Required. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

This fault occurs when a recorded battery brick voltage is reported below 2.4V for more than 1 second.

Steps to Test

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22299 - Battery Over-Discharge

Article #22051 - VMS 1490 HL: Homelink hardware error

Description

Trigger: Loss of communication with HomeLink Module. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Check the harness/connector.
- Scope the i/o line.

Steps to Fix

Swap the module (Homelink-Part# 2002011).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22052 - VMS 1491 VMS: Transmission lock should be engaged

Description

Trigger: Parking Pawl Commanded and not sensed. End-User Text String: Park Lock Problem Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22053 - VMS 1492 VMS: Transmission lock should not be engaged

Description

Trigger: Parking pawl not detected after being commanded to engage. End-User Text String: Park lock failure. Park lock may not function. Vehicle Response: None.

Steps to Test

- Check for fault 95. Verify that the car rolls.
- With the wheels up, remove the parking pawl actuator.
- Check for free movement of the parking pawl.
- Check the parking pawl actuator connector and measure the actuator signal while activating tow mode. (12V PWM).
- Check for shorts/open.
- Verify power from the Transmission Control Module (TCM) to the actuator.

Steps to Fix

If the car rolls, replace the actuator (Part# 2006494). If the car does not roll, check for a jammed parking pawl.

Possible Effects

Unknown.

Possible Causes

- Article #21550 - TCM 95 TCM: Park Motor jammed in Park

Article #22054 - VMS 1493 ESS: Extremely Low. Begin Charging ASAP

Description

End-User Text String: BATTERY VERY LOW CHARGE ASAP. Vehicle Response: None; VDS beeps.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22055 - VMS 1494 VMS: Odometer value suspect.

Description

Alert Trigger: Odometer values for the Battery Safety Monitor (BSM), Vehicle Management System (VMS), and IP do not match. End-User Text String: Odometer value may be incorrect. Contact Tesla Service Center. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22056 - VMS 1495 ESS: Smoke sensed. Power limited, charging prevented.

Description

Trigger: Smoke detected by BMS in ESS. End-User Text String: Critical Battery Error Contact Tesla Service. Vehicle Response: None.

Steps to Test

Verify that the vehicle is running the latest firmware.

Steps to Fix

Update the firmware. If the latest firmware does not clear the fault, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22057 - VMS 1496 VMS: Key state mismatch

Description

Trigger: VMS key state does not match DMC key state. End-User Text String: Powertrain Problem Service Required. Vehicle Response: None.

Steps to Test

- If the vehicle being repaired is a federal VIN, it is possible that a Euro Remote Keyless Entry (RKE) unit was installed.
-

Check the vehicle logs for multiple occurrences of the fault.

-

A Power Electronics Module (PEM) BUS CAN communications error may cause fault code 1496. Inspect the PEM BUS wiring and connections for damage, loose connections, splayed pins, etc.

Steps to Fix

- A single occurrence may be the result of a "race" condition in which the Vehicle Display System (VDS) reports one key state while the Digital Motor Control (DMC) is reporting another (key turned on or off quickly, etc.), no repair necessary.
- Install a Federal spec. RKE unit.
    - NOTE: If a Federal spec RKE is installed in a Euro VIN, it will disable the vehicle's locking function . Unlocking the vehicle will still be possible. No fault code will appear in this scenario.
- If there have been multiple fault occurrences, and the wiring on the PEM BUS has damage, loose connections, etc., repair the wiring.
- If the wiring is not damaged, or the repair does not clear the fault, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #29982 - Wrong vehicle country configuration

Article #21518 - VMS 14 ESS Temperature Sensor Fault

Description

Trigger: A Thermistor is detected as open circuit. End-User Text String: Battery Problem, Service Required Vehicle Response: None.

Steps to Test

Ensure vehicle is running the latest firmware:

- For 1.5 vehicle: 3.6.12.
- For 2.0 &; 2.5 vehicles: 4.6.8

Steps to Fix

If firmware update resolves the problem, release the vehicle to the customer. If issue is not resolved, escalate your session for assistance.

NOTE: For Firmware Update Procedure, refer to Article# 23100.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22060 - VMS 1532 VMS: Problem reading firmware versions file

Description

Trigger: VMS File corruption. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22061 - VMS 1533 VMS: VMS firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22062 - VMS 1534 VMS: VMSIO firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22063 - VMS 1535 VMS: Linux kernel version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22064 - VMS 1536 VMS: BSM firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22065 - VMS 1537 VMS: CSB firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22066 - VMS 1538 VMS: BMB firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22067 - VMS 1539 VMS: SWP firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22068 - VMS 1540 VMS: VDS firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22069 - VMS 1541 VMS: DMC firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue
- Article #34806 - PEC board bootloader incorrect

Article #22070 - VMS 1542 VMS: PM firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue
- Article #34806 - PEC board bootloader incorrect

Article #22071 - VMS 1543 VMS: DFC firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If the fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22072 - VMS 1544 VMS: TCM firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If the fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22073 - VMS 1545 VMS: HVAC firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If the fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22074 - VMS 1546 VMS: IP firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem. Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If the fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22075 - VMS 1547 VMS: CPLD firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22076 - VMS 1548 VMS: Not receiving VMSIO version number

Description

Trigger: VMS software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Steps to Fix

If this fault has occurred, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22077 - VMS 1549 VMS: Not receiving Linux kernel version number

Description

Trigger: VMS software problem. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Determine if the vehicle is running the latest firmware.

Steps to Fix

Update to the latest firmware. If the vehicle is running the latest firmware, and the issue is still unresolved, replace the Vehicle Monitor System (VMS)

(VMS Part# 6001180).

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22078 - VMS 1550 VMS: Not receiving BSM version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

-

If this fault has occurred; please upload logs.

- Inspect the module grounding. Ensure ground points are secure and free of corrosion.

Steps to Fix

- Restore ground(s).
- Pursue possible causes to investigate further.
- If all possible causes are ruled out, replace the module

(VMS Part# 6001180). If the issue still isn't resolved, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus
- 44340 - ESS Loose Connection

Article #22079 - VMS 1551 VMS: Not receiving CSB version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

-

If this fault has occurred; please upload logs.

- Inspect the module grounding. Ensure ground points are secure and free of corrosion.

Steps to Fix

- Restore ground(s).
- Pursue possible causes to investigate further. If all causes are ruled out, replace the module

(VMS Part# 6001180). If the issue still isn't resolved, upload logs and escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22080 - VMS 1552 VMS: Not receiving BMB version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
  - If communication has not been restored, proceed to perform a hard reset of the Battery Monitor Board (BMB) by inhibiting the Auxiliary Power Supply (APS) and removing the BMB connector RHC20.
  - Allow vehicle to sit 10 minutes before reconnecting RHC20.
  - If fault is still present, continue by inspecting CAN-bus connector RHC20 pins 5 and 6.
  - Inspect associated CAN wiring from BMB to VMS, for damage, grounding, and poor pin connections.
- Inspect the module grounding. Ensure ground points are secure and free of corrosion.

Steps to Fix

- Restore ground(s).
- Replace the module

(VMS Part# 6001180). If the issue still isn't resolved, escalate your session for assistance.

- Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22081 - VMS 1553 VMS: Not receiving SWP version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

1.5 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Switchpack (SWP) by inhibiting the Auxiliary Power Supply (APS) and removing the SWP connector (FHC21). Allow the vehicle to sit 10 minutes before reinstalling the FHC21.
- Inspect CAN-bus connector FHC21 pins 11 and 12.
- Inspect associated CAN wiring from SWP to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

2.0 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the SWP by inhibiting the APS and removing the SWP connector (FHC22). Allow the vehicle to sit 10 minutes before reinstalling the FHC22.
- Inspect CAN-bus connector FHC22 pins 23 and 24.
- Inspect associated CAN wiring from SWP to VMS, for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest. If present, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
- Replace the module (VMS Part# 6001180). If the issue still isn't resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus
- Article #22617 - Faulty Switchpack
- Article #31950 - Switchpack bootloader is missing

Article #22082 - VMS 1554 VMS: Not receiving VDS version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

1.5 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Vehicle Display System (VDS) by inhibiting the Auxiliary Power Supply (APS) and removing the VDS connector (FHC11). Allow the vehicle to sit 10 minutes before reinstalling the FHC21.
- Inspect CAN-bus connector FHC11 pins 8 and 3.
- Inspect associated CAN wiring from VDS to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

2.0 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the VDS by inhibiting the APS and removing the VDS connector (CCHC17). Allow the vehicle to sit 10 minutes before reinstalling the CCHC17.
- Inspect CAN-bus connector CCHC17 pins 8 and 3.
- Inspect associated CAN wiring from VDS to VMS, for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest. If present, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
- Replace the module

(VMS Part# 6001180)

. If the issue still isn't resolved, escalate your session for assistance.</ul

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22083 - VMS 1555 VMS: Not receiving DMC version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
  - If communication has not been restored proceed to perform a hard reset of the Digital Motor Control (DMC) by inhibiting the Auxiliary Power Supply (APS) and removing the Power Electronics Module (PEM) logic connector (RHC12).
  - Allow vehicle to sit 10 minutes before reconnecting RHC12. If fault is still present, continue by inspecting CAN-bus connector RHC12 pins 3 and 4.
  - Inspect associated CAN wiring from DMC to VMS, for damage, grounding, and poor pin connections.
- Inspect the module grounding. Ensure ground points are secure and free of corrosion.
- Check for aftermarket accessories. If present, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
- Replace the module

(1.5-Part# 6001180, 2.0&;2.5-Part# 6004158). If the issue still isn't resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22084 - VMS 1556 VMS: Not receiving PM version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
  - If communication has not been restored proceed to perform a hard reset of the Pedal Monitor (PM) by inhibiting the Auxiliary Power Supply (APS) and removing the PM connector.
  - Allow vehicle to sit 10 minutes before reconnecting PM.
  - If fault is still present, continue by inspecting CAN-bus connections and associated CAN wiring from PM to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Inspect the module grounding. Ensure ground points are secure and free of corrosion.
- Check for aftermarket accessories. If present, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
- Replace the module

(VMS Part# 6001180). If the issue still isn't resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22085 - VMS 1557 VMS: Not receiving DFC version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
  - If communication has not been restored proceed to perform a hard reset of the Dual Fan Controller (DFC) by inhibiting the Auxiliary Power Supply (APS) and removing the Power Electronics Module (PEM) logic connector (RHC12).
  - Allow vehicle to sit 10 minutes before reconnecting RHC12.
  - If fault is still present, continue by inspecting CAN-bus connector RHC12 pins 3 and 4.
  - Inspect associated CAN wiring from DFC to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Inspect the module grounding. Ensure ground points are secure and free of corrosion.
- Check for aftermarket accessories. If present, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
- Replace the module

(VMS Part# 6001180). If the issue still isn't resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22086 - VMS 1558 VMS: Not receiving TCM version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

1.5 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Transmission Control Module (TCM) by inhibiting the Auxiliary Power Supply (APS) and removing the TCM connector (THHC2). Allow the vehicle to sit 10 minutes before reinstalling the THHC2.
- Inspect CAN-bus connector THHC2 pins D and J.
- Inspect associated CAN wiring from TCM to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

2.0 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the TCM by inhibiting the APS and removing the TCM connector (RHC19). Allow the vehicle to sit 10 minutes before reinstalling the RHC19.
- Inspect CAN-bus connector RHC19 pins D and J.
- Inspect associated CAN wiring from TCM to VMS, for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore ground(s).
- Replace the module

(VMS Part# 6001180). If the issue still isn't resolved, escalate your session for assistance.

- If aftermarket accessories are present, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

---

Article #22087 - VMS 1559 VMS: Not receiving HVAC version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
  - If communication has not been restored proceed to perform a hard reset of the Heating, Ventilation, Air-Conditioning (HVAC) by inhibiting the Auxiliary Power Supply (APS) and removing the HVAC connector (FHC50).
  - Allow vehicle to sit 10 minutes before reconnecting FHC50.
  - If fault is still present continue by inspecting CAN-bus connector FHC50 pins R1 and R2.
  - Also inspect associated CAN wiring from HVAC to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Inspect the module grounding. Ensure ground points are secure and free of corrosion.

Steps to Fix

- Restore ground(s).
- Pursue possible causes to investigate further.
- If all possible causes are ruled out, replace the module (VMS Part# 6001180) .

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22088 - VMS 1560 VMS: Not receiving IP version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
  - If communication has not been restored proceed to perform a hard reset of the Instrument Pack (IP) by inhibiting the Auxiliary Power Supply (APS) and removing the IP connector (RHC33).
  - Allow vehicle to sit 10 minutes before reconnecting RHC33.
  - If fault is still present continue by inspecting CAN-bus connector RHC33 pins A7 and B7.
  - Also inspect associated CAN wiring from IP to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Inspect the module grounding. Ensure ground points are secure and free of corrosion.
- Check for aftermarket accessories. If found, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
- Replace the module

(1.5-Part# 6001180, 2.0&;2.5-Part# 6004158). If the issue still isn't resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22089 - VMS 1561 VMS: Not receiving CPLD version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

- Update or Reload latest firmware release:
    - If communication has not been restored proceed to perform a hard reset of the Complex Programmable Logic Device (CPLD) by inhibiting the Auxiliary Power Supply (APS) and removing the Power Electronics Module (PEM) logic connector (RHC12).
    - Allow vehicle to sit 10 minutes before reconnecting RHC12.
    - If fault is still present continue by inspecting CAN-bus connector RHC12 pins 3 and 4.
    - Also inspect associated CAN wiring from PEM to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
-

Inspect the module grounding. Ensure ground points are secure and free of corrosion.

- Check for aftermarket accessories. If present, pursue possible causes to investigate further.

Steps to Fix

- Restore ground(s).
-

Replace the module

(VMS Part# 6001180). If the issue still isn't resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22616 - Aftermarket accessories can cause interference with the CAN-bus

Article #22090 - VMS 1562 VMS: Not receiving GS version number

Description

Trigger: VMS does not receive module version data. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the gear selector (GS) by inhibiting the Auxiliary Power Supply (APS) and removing the GS connector (CCHC15). Allow the vehicle to sit 10 minutes before reconnecting CCHC15.
- Inspect CAN-bus connector CCHC15 pins 1 and 3.
- Inspect associated CAN wiring from gear selector to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If needed, replace the module (1.5-Part# 6001180, 2.0&;2.5-Part# 6004158).
- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #22091 - VMS 1563 VMS: GS firmware version doesn't match car-wide release

Description

Trigger: Firmware version does not match. End-User Text String: Software Problem Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Firmware mismatch-This fault indicates that one or more modules is reporting a Firmware version that does not match the car-wide release.

Steps to Fix

Update Firmware to latest release. If the fault has not been resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #32525 - Firmware job issue

Article #22093 - VMS 1565 VMS: Sport/Base Mismatch

Description

Trigger: Sport/Base PEM does not match VIN. End-User Text String: Software Problem Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21520 - VMS 19 Isolation resistance warning

Description

Trigger: <500k threshold unless BSM threw an Iso fault. End-User Text String: Debug Only. Vehicle Response: None.

It has been found that 2.0 and newer roadster models may be prone to isolation faults in humid environments due to a plug placed inside the HVAC vent tube below the vehicle. The plug may cause fluid build-up in the Positive Temperature Coefficient (PTC) heater box causing isolation faults. Inspect the vent tube for blockage or rubber insert plug before proceeding with diagnosis. If blockage is not found or fault persists, proceed to review the vehicle logs noting motor temperature when the fault occurred. If the motor temperature was greater than 90C, this is expected behavior.

In 1.5 Roadsters, this is expected behavior if the vehicle has been exposed to water (rain, car wash, etc.).

Steps to Test

Use the 400V simulator to confirm or eliminate the source of low isolation to the HVAC system in the front of the roadster

If the vehicle is a 2.0 or 2.5, and the alert was not triggered by a temperature that was greater than 90C, or if the vehicle is a 1.5 and was not exposed to water, perform a High Potential Testing (HIPOT) of the powertrain. The procedure for a HIPOT can be found in Service Documents under MEM-11-004 for 2.0 &; 2.5 Roadsters, and MEM-09-012 for 1.5 Roadsters.

Steps to Fix

If contactors close and isolation is normal with the 400V simulator installed, the problem lies either with the 400V controller, the PTC HVAC box, or the compressor. Pursue possible causes.

This is expected behavior if the HVAC vent tube was blocked or the vehicle was exposed to water. If the HIPOT test fails, escalate your session for assistance in diagnosing Motor, Motor Cable, or Motor / Trans insulator ring isolation failures.
Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22343 - 400V HVAC Controller Isolation
- Article #22344 - PTC Heater Isolation
- Article #22345 - Faulty 400V HVAC Controller (Isolation resistance test)
- Article #22346 - Faulty A/C Compressor
- 44344 - ESS Internal Isolation-Failure

Article #21507 - VMS 1 ESS Bootp or Custom Alert

Description

End-User Text String: Alert's end-user text not yet specified.

A bootp message is thrown when a module powers up unexpectedly.

Steps to Test

Check for unexpected loss of power to module. The CAN ID for the bootp will identify the module: 501 - HVAC 701 - VMSIO 601 - BSM 609 - CSB 521 - Pressure Sensor 409 - BMB1 411 - BMB2 419 - BMB3 421 - BMB4 429 - BMB5 431 - BMB6 439 - BMB7 441 - BMB8 449 - BMB9 451 - BMB10 459 - BMB1

Steps to Fix

Pursue possible causes to investigate further. If unrelated to a bootp fault, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22326 - Bootp message fault

Article #21521 - VMS 21 APS OverTemp fault

Description

Trigger: BSM requests APS cooling (If > 1min, fault 600 is thrown). End-User Text String: Debug Only. Vehicle Response: None.

This fault occurs when the Auxiliary Power Supply (APS) requests cooling and cooling is not received.

Steps to Test

1. Check the coolant to verify that it is at the proper level.
2. Inspect the coolant lines for kinks, leaks, or damage.

- Check service records to verify that the coolant system was properly vacuum filled when last serviced.

Steps to Fix

If the coolant is not at the proper level, and there are no leaks, vacuum refill the coolant system,

per SB-12-18-013, available in the Service Documents.

If the coolant wasn't properly vacuum filled when last serviced, drain the coolant and refill, per SB-12-18-013. If the issue is still unresolved, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22613 - Improper cooling of the APS

Article #21522 - VMS 23 SHUTTING DOWN PULL OVER SAFELY

Description

Trigger: Thrown prior to 30 second shut-down fault explanations. End-User Text String: SHUTTING DOWN PULL OVER SAFELY. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

This fault occurs when vehicle shutdown is imminent. Power will be limited and vehicle will shut down in 30 seconds.

Steps to Test

Retrieve vehicle logs and review for root cause of vehicle shutdown.

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21523 - VMS 25 Memory stick transfer in progress. Please do not remove

Description

End-User Text String: Memory stick transfer in progress. Please do not remove. Vehicle Response: None.

This fault code indicates a memory stick log transfer is underway. NOTE: Removing the memory stick before the transfer is complete or disrupting the vehicle during the transfer may cause the Vehicle Monitor System (VMS) to enter a latched state, requiring a hard reset.

Steps to Test

Ensure that there is a USB stick in the USB dock.

If there is no USB present:

- Inspect the USB to VMS cable for damage.
- Complete a hard reset of the VMS by keeping it disconnected for 10 to 15 minutes.

Steps to Fix

Replace the USB to VMS cable (Part# 6007577) if it is found to be damaged.

If the fault is unresolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21524 - VMS 27 Memory stick transfer failure. Reinsert stick to try again

Description

End-User Text String: Memory stick transfer failure. Reinsert stick to try again. Vehicle Response: None.

This fault occurs while pulling vehicle logs with a USB drive.

Steps to Test

If this fault occurs while attempting to pull vehicle logs with a USB drive, ensure that the USB drive being used is no larger than a 2.0GB drive. Also, ensure that the drive has been properly formatted with a top level folder named "VehicleLogs". The drive must have adequate available memory (6MB should be sufficient). The drive may contain other files, however, it should not contain any .exe files.

Steps to Fix

Attempt a second log pull or an alternate USB drive. In some cases it may be necessary to perform a hard reset of the VMS. The VMS is located in the passenger side foot well. To perform a hard reset:

1. Ensure the vehicle is idle and key is removed from the ignition
2. disconnect the J1 and J2 (large multi-pin connectors) from the VMS
3. Leave connectors disconnected for at least 15 minutes
4. reconnect J1 and J2 connections and wait for VMS to reboot and vehicle to become responsive once again
5. re-attempt log pull

If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21525 - VMS 28 Transfer to memory stick has failed

Description

End-User Text String: Transfer to memory stick has failed. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21526 - VMS 29 APS: APS power inhibited

Description

Trigger: User request. End-User Text String: Auxiliary Power Supply inhibited. Vehicle Response: None.

Steps to Test

This fault is logged when the Auxiliary Power Supply (APS) has been inhibited due to user request in the Vehicle Display System (VDS) diagnostic screens.

Steps to Fix

As this is normal behavior, no further diagnostic inquiry is required.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21508 - VMS 2 PEM Bootp or Critical Sheet UnderTemp fault

Description

Trigger: tBrickMin < -19c. End-User Text String: Battery too cold Vehicle shutting down. Vehicle response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

Look for the Bootp message. The CAN ID for the bootp will identify the module:

- 409 - Gear Selector
- 411 - Pedal Monitor
- 419 - Switchpack (2.0 Roadsters Only)
- 421 - CPLD
- 429 - TCM
- 431 - DMC

Review the logs for "ESS min temp" and min "temp id" while vehicle is in drive, idle, and charge modes to determine if the ambient air temperature where the vehicle is operated could have reached -19C or -2F. Note: Battery heater only operates when charging on a High Power Connector (HPC) 240.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22326 - Bootp message fault
- Article #22327 - Sheet Undertemp

Article #21597 - VMS 399 Cannot select new tires while moving.

Description

End-User Text String: Cannot select new tires while moving.. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

If there are no possible causes, escalate for assistance.

When new causes are found, appropriately link those articles here.---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21509 - VMS 3 Maintenance Service Required

Description

End-User Text String: Maintenance Service Required.

This message is displayed when the vehicle has determined a maintenance service is due, based on either time or distance. It can also be displayed if the interval was not reset after a service was performed.

Steps to Test

Look for historical data in the service records. Determine if the service has been performed, or needs to be performed.

Steps to Fix

Proceed with scheduled maintenance. If the root cause is not scheduled maintenance, pursue possible causes to investigate further

Possible Effects

Unknown.

Possible Causes

- Article #22295 - Maintenance Service Required has not been reset
- Article #22296 - Maintenance Service Interval has been reset, but alert has not cleared

Article #21598 - VMS 400 Coast in a straight line at 20-60mph for 10 seconds

Description

Trigger: Learn new tires selected through VDS. End-User Text String: Coast in a straight line at 20-60mph for 10 seconds. Vehicle Response: None.

Steps to Test

Steps to Fix

Coast in a straight line at 20-60mph for 10 seconds.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21530 - VMS 43 VMS: APS Inhibited due to low brick voltage

Description

Trigger: If contactors are open for >=5sec and Vmin is below 2.75, APS is turned off. End-User Text String: Debug Only. Vehicle Response: Vehicle stops immediately.

Auxiliary Power Supply (APS) inhibited due to low brick voltage.

Steps to Test

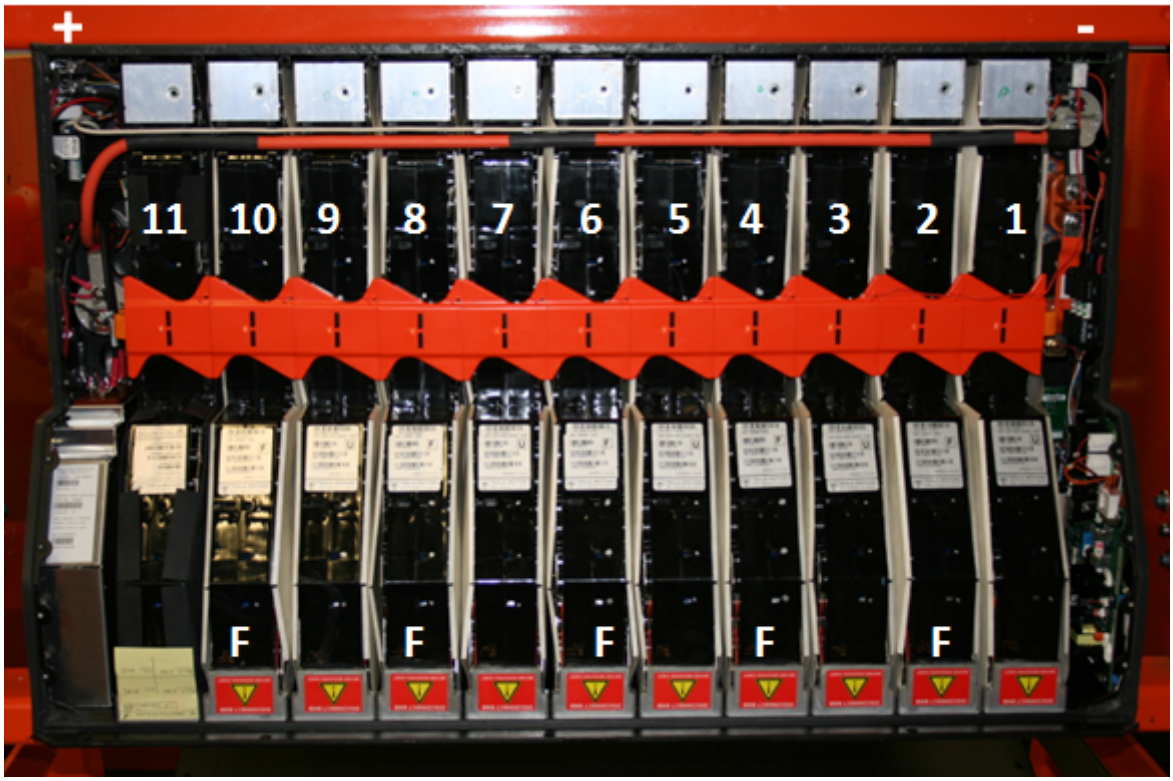
Connect MTS-2 or Linux-based Engineering Tool to determine the location of the brick, and sheet that is triggering the alert

(Information about the MTS-2 tool can be found in article 22957)

.

Steps to Fix

Try to charge car and retest. Attempt emergency charge procedure. Remove and replace Battery Monitor Board (BMB). Enumerate BMB's.



Possible Effects

Unknown.

Possible Causes

- Article #22299 - Battery Over-Discharge

Article #21510 - VMS 4 Critical Sheet OverTemp fault

Description

Trigger: tBrickMax > 54c for 1 sec. End-User Text String: Battery too hot, Vehicle shutting down. Vehicle response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

- Check the coolant level, check for pump operation , and check for restrictions in the lines.

If the coolant level is low, check the cooling system for leaks.

- Compare the temperature with other thermistors in the sheet.

Steps to Fix

- Top off the coolant, per SB-12-18-013, available in Service Documents.
- If the thermistors are not within 30C, swap the Battery Monitor Board (BMB).
- If fault persists, replace the Auxiliary Power Supply (APS) (Part# 2005576) and see if fault clears.

Possible Effects

Unknown.

Possible Causes

- Article #22623 - BMB temperature fault
- 44443 - ESS TVSH-Failure

Article #21619 - VMS 500 VMS: Security alert, left door opened

Description

End-User Text String: Alarm: Left Door Opened. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21620 - VMS 501 VMS: Security alert, right door opened

Description

End-User Text String: Alarm: Right Door Opened. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21621 - VMS 502 VMS: Security alert, trunk opened

Description

End-User Text String: Alarm: Trunk Opened. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21622 - VMS 503 VMS: Security alert, hood opened

Description

End-User Text String: Alarm: Hood Opened. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21623 - VMS 504 VMS: Security alert, key inserted

Description

End-User Text String: Alarm On Please Enter PIN to Exit. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21531 - VMS 50 BMB: No data fault

Description

This alert is triggered when the VMS fails to communicate with one or more of the BMBs inside the battery pack.

Trigger: No comm for > 65 seconds. End-User Text String: Communication Problem, Service Required. Vehicle Response: Vehicle does not start; power reduced if driving.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Battery Monitor Board (BMB) by inhibiting the Auxiliary Power Supply (APS) and removing the BMB connector RHC20. Allow the vehicle to sit 10 minutes before reconnecting RHC20.
- Inspect CAN-bus connector RHC20 pins 5 and 6.
- Inspect associated CAN wiring from BMB to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.

Steps to Fix

- Restore, or replace connectors where necessary.
- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #34797 - BMB damaged
- Article #34798 - BMB wiring harness damaged
- 44209 - Blown Sheet-Fuse

Article #21532 - VMS 51 BSM: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Communication Problem, Service Required. Vehicle Response: Vehicle does not start; power reduced if driving.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Battery Safety Monitor (BSM) by inhibiting the Auxiliary Power Supply (APS) and removing the Battery Monitor Board (BMB) connector RHC20. Allow the vehicle to sit 10 minutes before reconnecting RHC20.
- Inspect CAN-bus connector RHC20 pins 5 and 6.
- Inspect associated CAN wiring from BSM to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
-

Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

{44340 - ESS Loose Connection

Article #21533 - VMS 52 CSB: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Communication Problem, Service Required. Vehicle Response: Power reduced.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Current Sensor Board (CSB) by inhibiting the Auxiliary Power Supply (APS) and removing the service disconnect. Allow the vehicle to sit 10 minutes before reinstalling the

service disconnect.

- Inspect CAN-bus connector RHC20 pins 5 and 6.
- Inspect associated CAN wiring from CSB to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
-

Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

Restore or replace connectors where necessary. If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21534 - VMS 53 GPS: No data fault

Description

Alert Trigger: No communication for > 65 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #33014 - Clock Will Not Set

Article #21535 - VMS 54 HVAC: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Coolant System Problem, Charging restricted to 50%. Vehicle Response: None.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Heating, Ventilation, Air-Conditioning (HVAC) by inhibiting the Auxiliary Power Supply (APS) and removing the HVAC connector (FHC50). Allow the vehicle to sit 10 minutes before reconnecting

FHC50.

- Inspect CAN-bus connector

FHC50

pins R1 and R2.

- Inspect associated CAN wiring from HVAC to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.

- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

Restore or replace connectors where necessary.

Possible Effects

Unknown.

Possible Causes

{44368 - HVAC failure

Article #21536 - VMS 55 IP: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Instrument Pack (IP) by inhibiting the Auxiliary Power Supply (APS) and removing the IP connector (RHC33). Allow the vehicle to sit 10 minutes before reinstalling the RHC33 .
- Inspect CAN-bus connector RHC33 pins A7 and B7.
- Inspect associated CAN wiring from IP to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21640 - VMS 560 Timed out of Range Mode (after charging)

Description

End-User Text String: Timed out of Range Mode. Vehicle Response: Charge mode reverts to Standard.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21641 - VMS 561 Timed out of Performance Mode (after charging)

Description

End-User Text String: Timed out of Performance Mode. Vehicle Response: Charge mode reverts to Standard.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21537 - VMS 56 PEM: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Communication Problem, Power Reduced. Vehicle Response: None.

Steps to Test

Determine if "TCM: No data fault" is present. Check the

Power Electronics Module (PEM) CAN status with the MTS-2/Linux-based Engineering Tool.

Steps to Fix

If "TCM: No data fault" is present, troubleshoot PEM BUS failure.

- If the PEM CAN status is okay, cycle the Auxiliary Power Supply (APS), and pursue possible causes to investigate further. If cycling the APS does not work, escalate your session for assistance.
- If the PEM CAN status is unavailable, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22628 - 12V not registering when measuring from PEM
- Article #22629 - PEM CAN status is unavailable

Article #21538 - VMS 57 SWP: No data fault

Description

Trigger: No comm for > 10 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

1.5 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Switchpack (SWP) by inhibiting the Auxiliary Power Supply (APS) and removing the SWP connector (FHC21). Allow the vehicle to sit 10 minutes before reinstalling the FHC21.
- Inspect CAN-bus connector FHC21 pins 11 and 12.
- Inspect associated CAN wiring from SWP to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

2.0 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the SWP by inhibiting the APS and removing the SWP connector (FHC22). Allow the vehicle to sit 10 minutes before reinstalling the FHC22.
- Inspect CAN-bus connector FHC22 pins 23 and 24.
- Inspect associated CAN wiring from SWP to VMS, for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

Repair, restore, or replace connectors where necessary. If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21539 - VMS 58 TPMS: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Check for "IP No Data Fault".

Steps to Fix

If "IP No Data Fault" is present, troubleshoot the Video Display System (VDS)/ Instrument Pack (IP) BUS. Otherwise, pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #22632 - TPMS CAN status

Article #21540 - VMS 59 VMSIO: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Communication Problem, Service Required. Vehicle Response: None.

Steps to Test

Operate trunk release switch to verify operation of Vehicle Management System (VMS). Reboot VMS and check CAN communication status with MTS-2. If fault clears, send QFR.

If fault does not clear:

- Check VMS fuse 21.
- Measure voltage at VMS connector FHC48, check for 12V Main at pin 6 (+) / ground.
- Measure voltage at VMS connector FHC47 for STBY12 at pin 1 (+) / ground.
- Check ground circuit to VMS by measuring resistance at VMS connector FHC47 pin 8 (-) / ground.
- Check resistance at VMS connector FHC48 pin 21, 22 / ground.

Steps to Fix

Replace VMS

(1.5-Part# 6001180, 2.0&;2.5-Part# 6004158), as per SI-12-17-002, found in Service Documents.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21511 - VMS 5 VMS Watchdog

Description

Trigger: VMS Watchdog. End-User Text String: Debug Only. Vehicle response: None.

Steps to Test

- Determine the number of instances of Vehicle Management System (VMS) watchdog events.
- Determine if the vehicle is a 1.5 Roadster or if it is running firmware earlier than 4.2.30.
- Determine if there are any CAN or communication faults.

Steps to Fix

- If the vehicle is a 1.5 Roadster or running firmware earlier than 4.2.30 and there are a number of instances of VMS watchdog events, this is expected behavior.
- Troubleshoot any CAN or communication faults.
- Replace the VMS (Part# 6001180) if there are no CAN or communication faults.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21643 - VMS 601 ESS: MaxT brick too hot; power limiting in effect

Description

Trigger: Max Brick Temp > 45C. End-User Text String: Battery Hot. Power Reduced. Vehicle Response: Power reduced.

If the car is being driven hard, this is not an issue.

Steps to Test

Compare the temperature with the other thermistors in the sheet.

Steps to Fix

If the thermistor is not within 30C of the rest of the sheet, swap the Battery Monitor Board (BMB). If the fault is still present, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #28704 - Insufficient Coolant Flow

Article #21644 - VMS 602 SHUTDOWN IMMINENT Power limited

Description

Trigger: Not a Fault - Warning for end user. End-User Text String: SHUTTING DOWN PULL OVER SAFELY. Vehicle Response: Power reduced; vehicle stops after 30 seconds.

Steps to Test

This fault occurs when vehicle shutdown is imminent. Power will be limited and the vehicle will shut down in 30 seconds. Retrieve the vehicle logs and review them for the root cause of the vehicle shutdown.

Steps to Fix

Escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21646 - VMS 604 ESS: Low state of charge; power limiting in effect

Description

End-User Text String: Battery Low Power Reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21647 - VMS 605 Standard range SOC floor reached. Stop & Charge.

Description

Trigger: Not a Fault - message to end user. End-User Text String: CAR WILL STOP IN LESS THAN 1 MINUTE. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21648 - VMS 606 ESS: Range Mode Remaining charge uncertain

Description

Trigger: Not a Fault - message to end user. End-User Text String: Battery Almost Empty Range Uncertain. Vehicle Response: Power reduced.

This is not a fault but rather a warning, informing the end user that the vehicle range estimation may not be accurate due to a low SOC.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

- Article #31869 - "Charging completed" at low SOC

Article #21649 - VMS 607 ESS: MaxT brick extremely hot; power limiting in effect

Description

Trigger: Not a Fault - message to end user. End-User Text String: Battery Too Hot. Power Further Reduced. Vehicle Response: Power reduced.

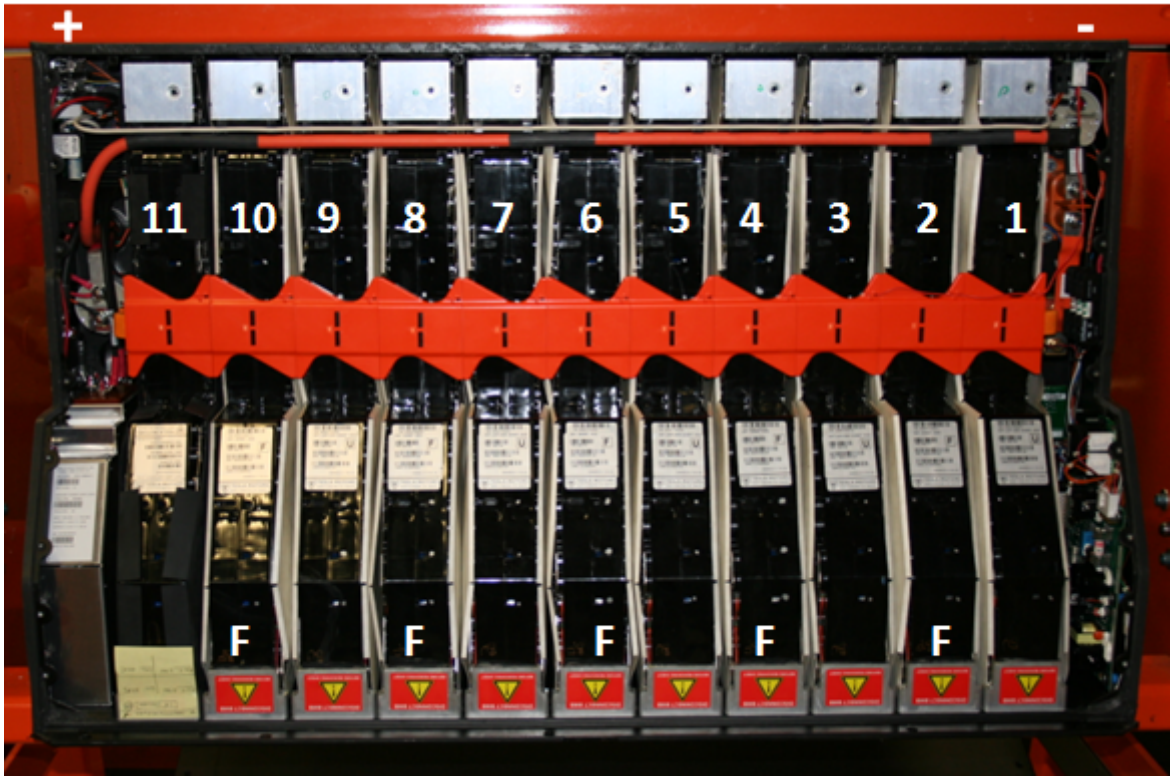
If the car is being driven hard, this is not an issue.

Steps to Test

Compare the temperature with the other thermistors in the sheet.

Steps to Fix

If the thermistor is not within 30C of the rest of the sheet, swap the Battery Monitor Board (BMB). If the fault is still present, escalate your session for assistance.



Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21650 - VMS 608 ESS: Almost empty. Car stops in 3 miles

Description

Trigger: Not a Fault - message to end user. End-User Text String: 3 miles left! Switch to Range Mode to access reserve. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21651 - VMS 609 ESS: BSM/CSB/BMB no data fault; power limited

Description

Trigger: Not a Fault - message to end user. End-User Text String: Communication Problem. Power Reduced. Vehicle Response: Power reduced.

Steps to Test

- Update or Reload the latest firmware release, if communication has not been restored, proceed to perform a hard reset of the Battery Safety Monitor (BSM), Current Sensor Board (CSB), and Battery Monitor Board (BMB) by inhibiting the Auxiliary Power Supply (APS) and removing connector RHC20. Allow the vehicle to sit 10 minutes before reconnecting RHC20. If the fault is still present, continue by inspecting CAN-BUS connector RHC20 pins 5 and 6. Also, inspect the associated CAN wiring from RHC20 to the Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Inspect the module grounding.
-

Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Repair/restore the grounding.
- Replace the module

(1.5-Part# 6001180, 2.0&2.5-Part# 6004158). If communication to the VMS has not been restored, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22299 - Battery Over-Discharge
- Article #34797 - BMB damaged
- Article #34798 - BMB wiring harness damaged
- 44209 - Blown Sheet-Fuse

- 44340 - ESS Loose Connection

Article #21541 - VMS 60 DFC: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Dual Fan Controller (DFC) by inhibiting the Auxiliary Power Supply (APS) and removing the Power Electronics Module (PEM) logic connector (RHC12). Allow the vehicle to sit 10 minutes before reconnecting RHC12.
- Inspect CAN-bus connector RHC12 pins 3 and 4.
- Inspect associated CAN wiring from DFC to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If needed, replace the PEM

(1.5-Part# 6003440, 2.0&;2.5-Part# 6005203).

- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21652 - VMS 610 ESS: Almost empty Car stops in 2 miles

Description

Trigger: Not a Fault - message to end user. End-User Text String: 2 miles left! Switch to Range Mode to access reserve. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21653 - VMS 611 ESS: Almost empty. Car stops in 1 mile

Description

Trigger: Not a Fault - message to end user. End-User Text String: 1 mile left! Switch to Range Mode to access reserve. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21654 - VMS 612 Multiple Temp Sensor Faults; Vehicle entering limp mode

Description

Trigger: More than one temperature sensor detected open for one BMB. End-User Text String: Battery Problem Power Reduced. Vehicle Response: Power reduced.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21655 - VMS 613 VMS: Use MC120 to avoid trickle charge

Description

Trigger: Vehicle enters trickle charge. End-User Text String: Battery voltage low Initial charging will be faster with MC120. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21542 - VMS 61 TCM: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Park Lock Problem, Vehicle May be Free-Rolling. Vehicle Response: None.

Steps to Test

1.5 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Transmission Controller (TCM) by inhibiting the Auxiliary Power Supply (APS) and removing the TCM connector (THHC2). Allow the vehicle to sit 10 minutes before reconnecting the THHC2.
- Inspect the CAN-bus connector THHC2 pins D and J.
- Inspect the associated CAN wiring from the TCM to the Vehicle Management System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

2.0 Roadster:

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the TCM by inhibiting the APS and removing the TMC connector (RHC19). Allow the vehicle to sit 10 minutes before reconnecting RHC19.
- Inspect the CAN-bus connector RHC19 pins D and J.
- Inspect the associated CAN wiring from the TCM to the VMS, for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21543 - VMS 62 PM: No data fault

Description

Trigger: No comm for > 65 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the Pedal Monitor (PM) by inhibiting the Auxiliary Power Supply (APS) and removing the PM connector. Allow the vehicle to sit 10 minutes before reconnecting PM.
- Inspect CAN-bus connections.
- Inspect associated CAN wiring from the PM to the Vehicle Management System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If needed, replace the module

(1.5-Part# 6001180, 2.0&;2.5-Part# 6004158). ---

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21544 - VMS 63 GS: No data fault

Description

Trigger: No comm for > 15 seconds. End-User Text String: Debug Only. Vehicle Response: None.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the gear selector (GS) by inhibiting the Auxiliary Power Supply (APS) and removing the GS connector (CCHC15). Allow the vehicle to sit 10 minutes before reconnecting CCHC15.
- Inspect CAN-bus connector CCHC15 pins 1 and 3.
- Inspect associated CAN wiring from gear selector to Vehicle Monitor System (VMS), for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- If needed, replace the module

(1.5-Part# 6001180, 2.0&;2.5-Part# 6004158).

- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21512 - VMS 6 VMS: APS Failure

Description

This fault occurs when the Auxiliary Power Supply (APS) turns on within 3 seconds of turning off 12 times consecutively. This fault likely indicates a failing APS.

Trigger: If the Auxillary Power Supply (APS) turns on within 3 seconds of it turning off 12 times in a row, this fault is thrown. End-User Text String: Battery Problem, Service Required. Vehicle Response: None.

Steps to Test

Load test the APS. This can be done either while the battery is in or out of the vehicle by using the appropriate instructions below.

The means of loading are simple. The idea is to connect a light load to the APS main output and connect a computer running BSMUI to the pack for control. With the proper defeats for the interlocks, the APS can be turned on and the pack will discharge.

Note: this is an UNSUPERVISED discharge which will require constant checking to assure that over discharge does not occur, which could result in a destroyed battery.

The requirements for this system are as follows. The first list is items any tech should already have. The second is components specific to this procedure.

- A computer that can run LINUX diagnostic tools suite. For more info on creating a bootable USB drive from which to install these tools see Toolbox Article 23547.
- Gridconnect USB-CAN interface device
- ESS logic connect cable (TPN 02-000321-00)
- **the HVAC simulator box (TPN 06-002950-00) (**only needed if pack is out of the car)

The following three items are also needed:

- 12 volt, 300 Watt heater, McMaster part # 17075K71 or equivalent.
- **Submersible pump, 120VAC, Grainger part # 1P321, or equivalent. (**if pack is out of the car)
- **3/8 inch ID Tubing or hose to connect the pump to the APS coolant manifold. (**if pack is out of the car)
- **A 5-10 gallon bucket or can for coolant. (**if pack is out of the car)

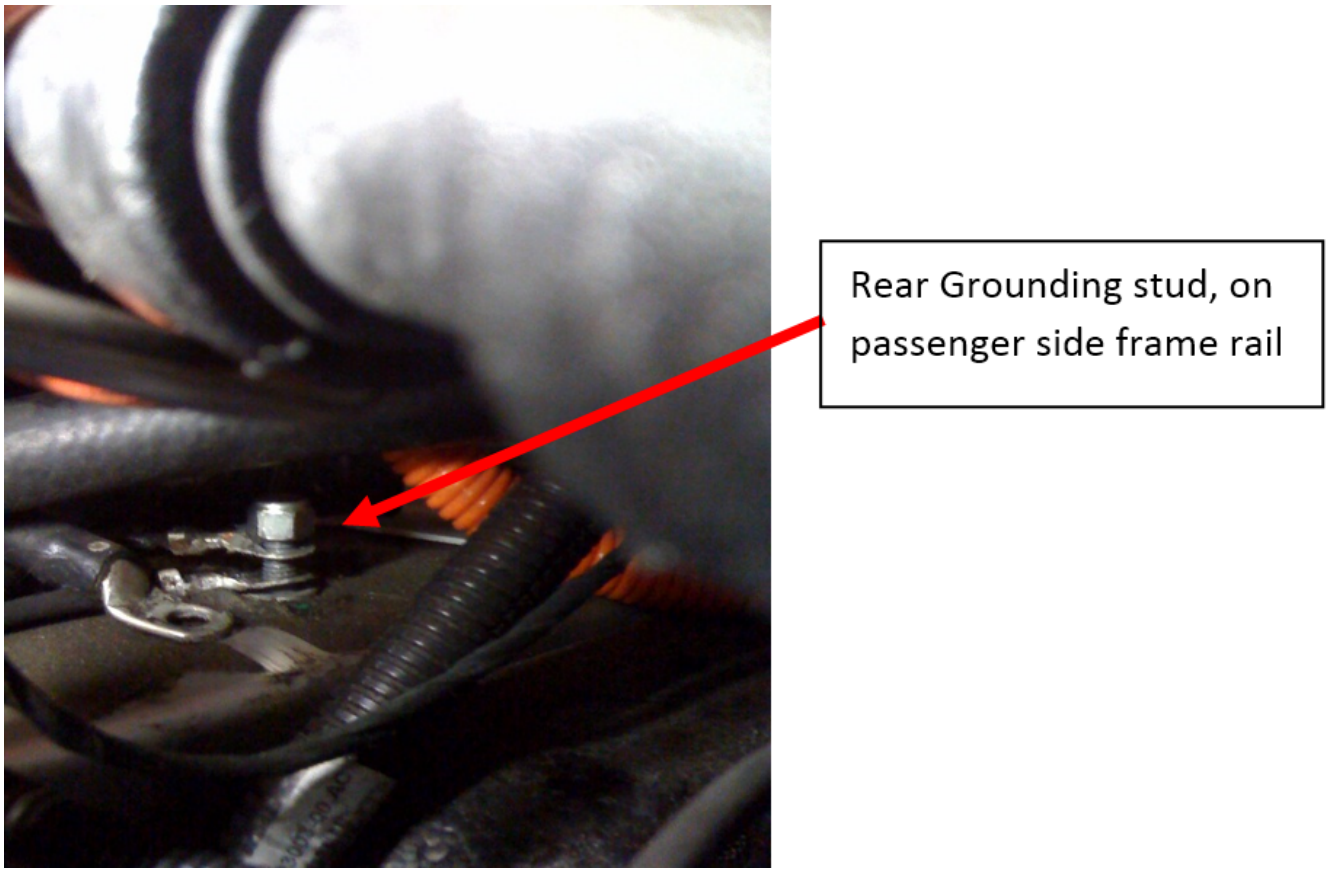
If the battery pack is still in the car:

1. Turn OFF the APS via the VDS.

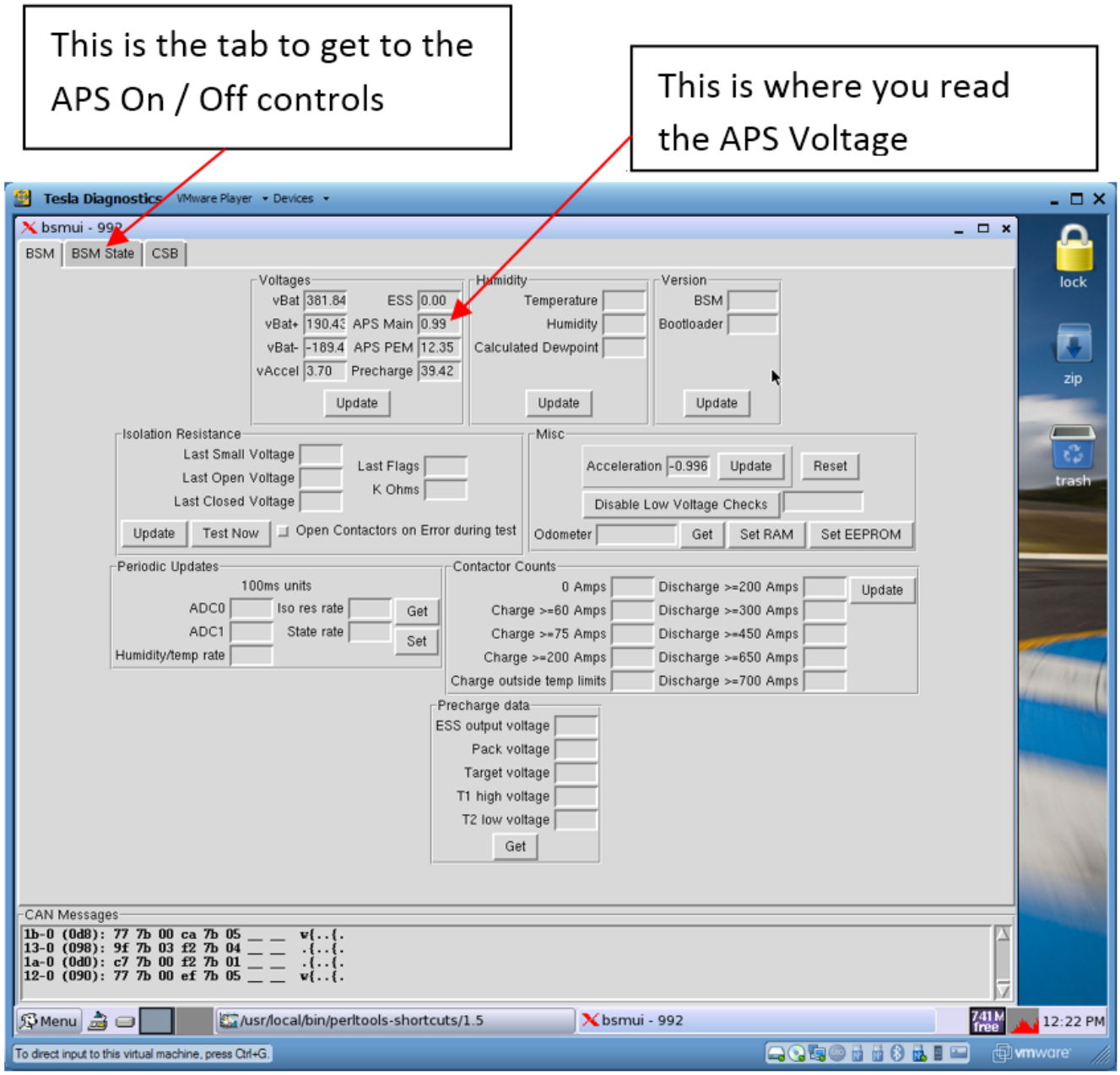
2. Next, disconnect the main output from the dual binding post as shown below.

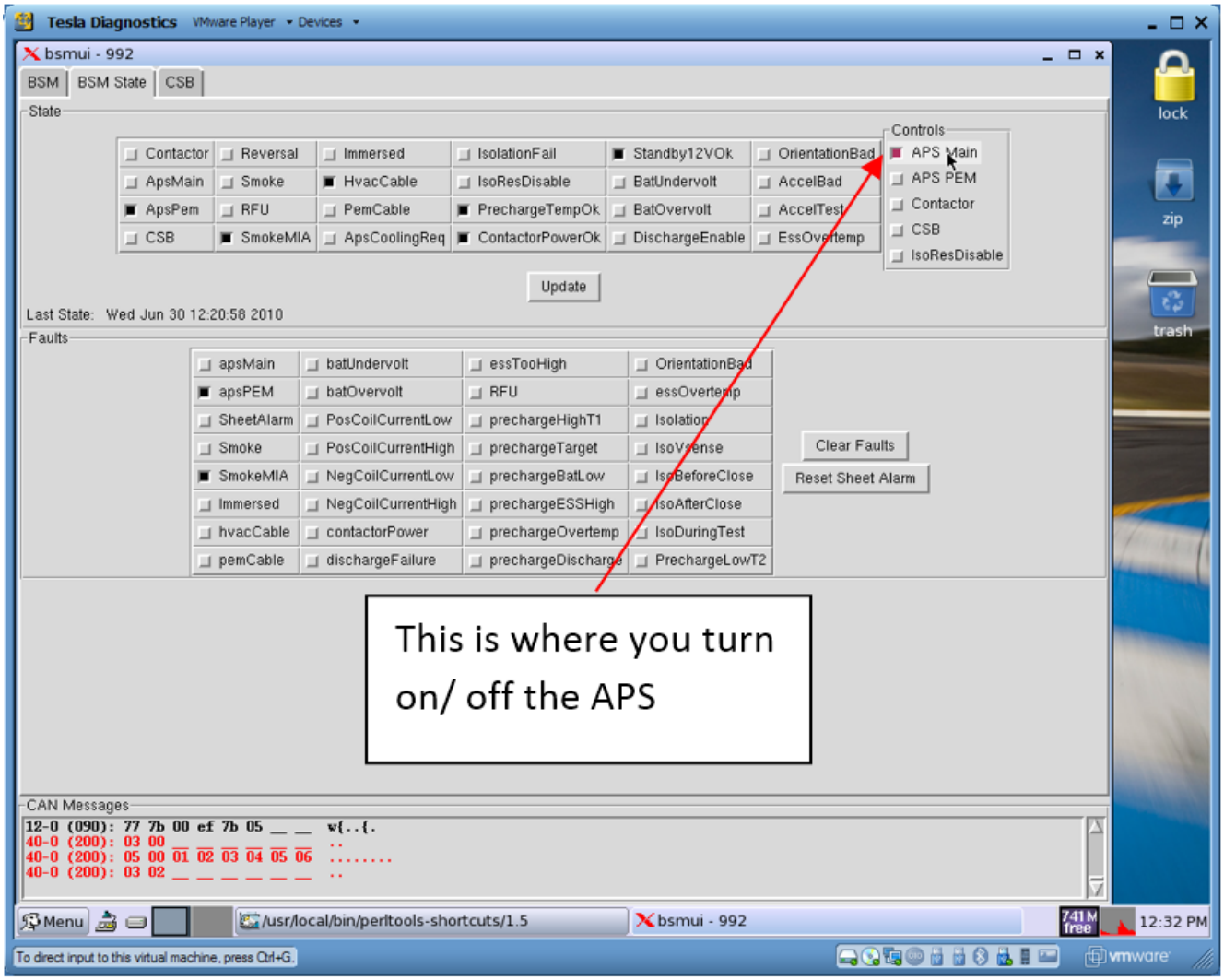
3. Then connect the RED heater wire to the APS Main output and wrap it with an insulating tape to avoid any shorts. (Note the image shows the black wire for clarity, but the RED wire goes to APS main.)

4. Put the BLACK heater wire onto the main grounding stud at the rear of the vehicle; this will complete the APS loading circuit.


Rear Grounding stud, on passenger side frame rail

5. Start the BSMUI application, and under the BSM State tab click the APS Main button to turn on the APS.





6. Then go back to the BSM tab to verify that the APS is on and that the APS Main voltage is between 12.5 and 13.5 volts. **Do not leave the load in place and the APS turned on for more than 1 minute!**
7. If the APS is running properly the value will be stable. If the APS has a problem, this voltage will drop. Any value below 12.2 volts is unacceptable and will require APS replacement.

If the battery pack is out of the car:

The out of car set-up is fairly simple, and safe. The following images show the APS main outputs. These cables shall be connected to the INPUT of the 12 volt heater.

1. Connect these lugs to the 12V heater inlet:

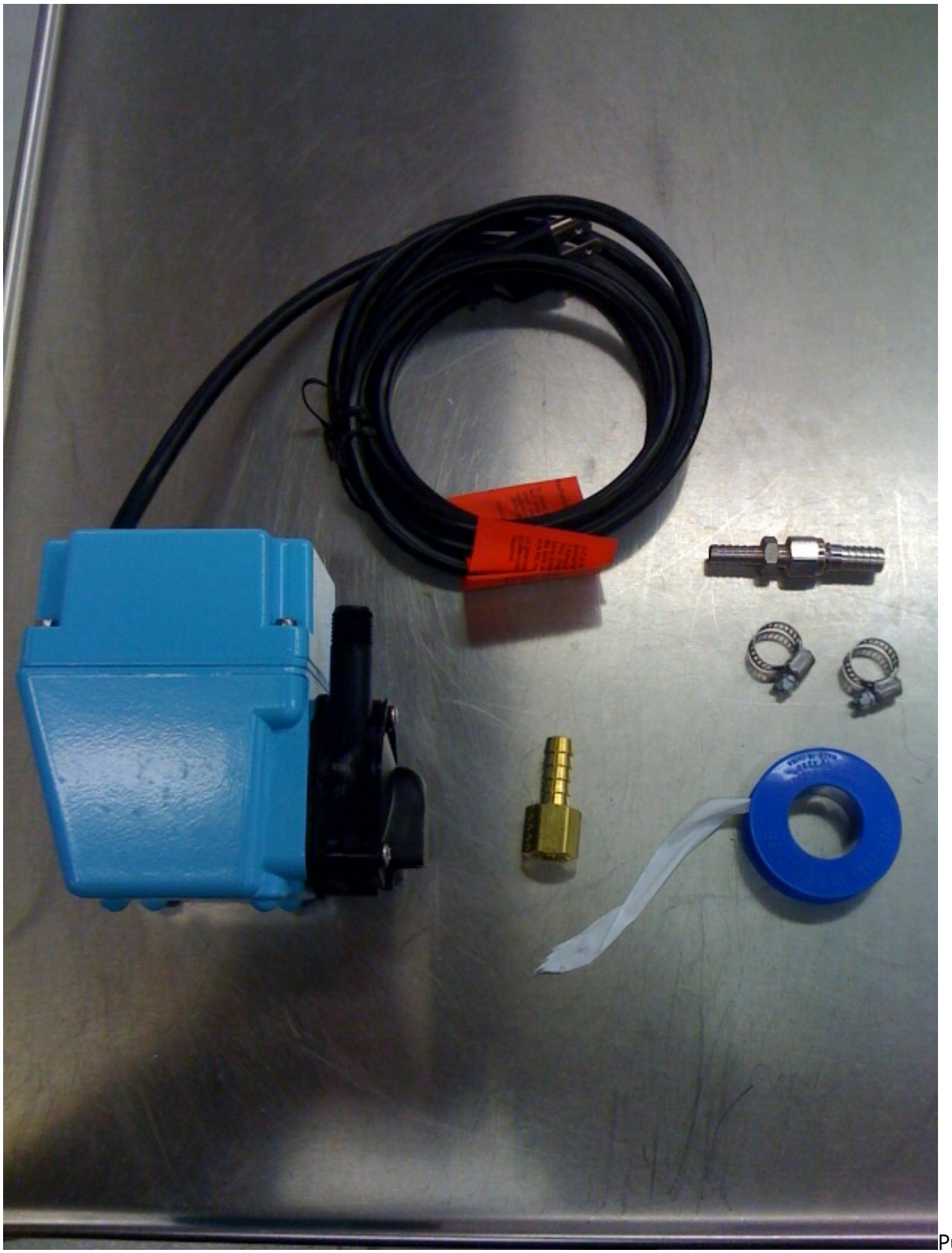
2. Pull off the rubber covers on the APS output, one at a time and connect to the heater inputs. Even though the APS outputs only 12 volts, it is capable of driving HUGE current loads, so after making any electrical connections, be sure to cover them with an insulating tape, such as electrician's vinyl tape.

3. The lugs need to be connected to the wires from the heaters using a nut and bolt. Finger tight is good; there is no need for a torque specification. In this case, as shown in the picture below, a ¼-20 fine thread screw and nut were used.

4. Be sure to connect the RED wire from the heater to the RED banded APS cable, and the BLACK wire from the heater to the BLACK wire from the APS.
5. **Be sure that the switch on the 12 volt heater is set to the middle position, "Off".**

6. Put the heater on the floor, or on a cart next to the battery, but **do not put the heater on the case.**

7. After the lugs are connected, remember to wrap the connections with electrician's tape.
8. Once the heater is secure, move to the submersible fluid pump.


Pump kit with barb fittings and clamps

- You will need to obtain about 2-3 feet (1 meter) of 3/8 ID tubing (8mm tubing). This tubing will go between the pump and the APS coolant inlet.

- If the kit is new, put the ¼ NPT-to-3/8" barb fitting onto the pump outlet using a short piece of Teflon (PTFE) tape.  Placing the Teflon tape on the outlet.

Barb fitting on the pump.

- Next, push the tubing onto the barb fitting and secure with one of the included hose clamps.
- Then put the 3/8 to ¼ adapter onto the other end and secure with the other hose clamp. The pump outlet hose with the adapter on it will be connected to the shorter of the two APS coolant tubes. The other tube will serve as the outlet for the coolant.

- Next, you will need to fill a 5 to 10 gallon bucket with coolant, coolant and distilled water mixed to 50:50 or just distilled water. This bucket will serve as the reservoir for cooling the APS as you discharge the pack through the heater.
- Lower the pump into the reservoir, and be sure that the power cord and the outlet tube are coming straight up, out of the tank. Let the longer APS coolant tube hang back into the tank, as shown below.

- After the pump and load have been set up, you will need to connect the HVAC simulator.


HVAC simulator


HVAC simulator installed in place

This device goes onto the HVAC outlet of the pack and contains the 65 Ohm End-Of-Line resistor that is needed in order to turn on the APS. Connect as shown above.

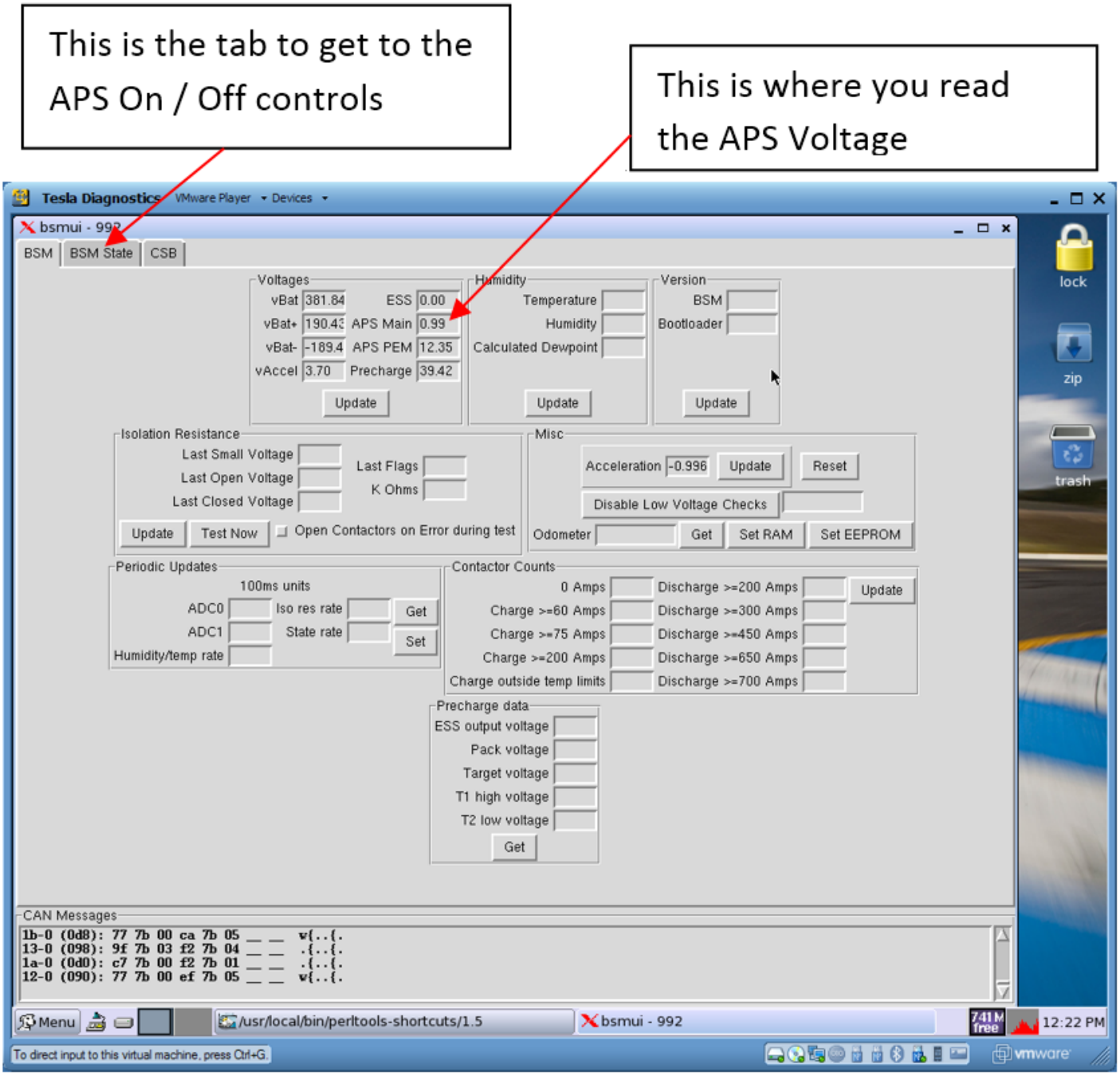
- Then connect your laptop PC running LINUX and the PERL diagnostic suite via the ESS logic connector, the USB-CAN adapter and the ESS Logic connect cable.

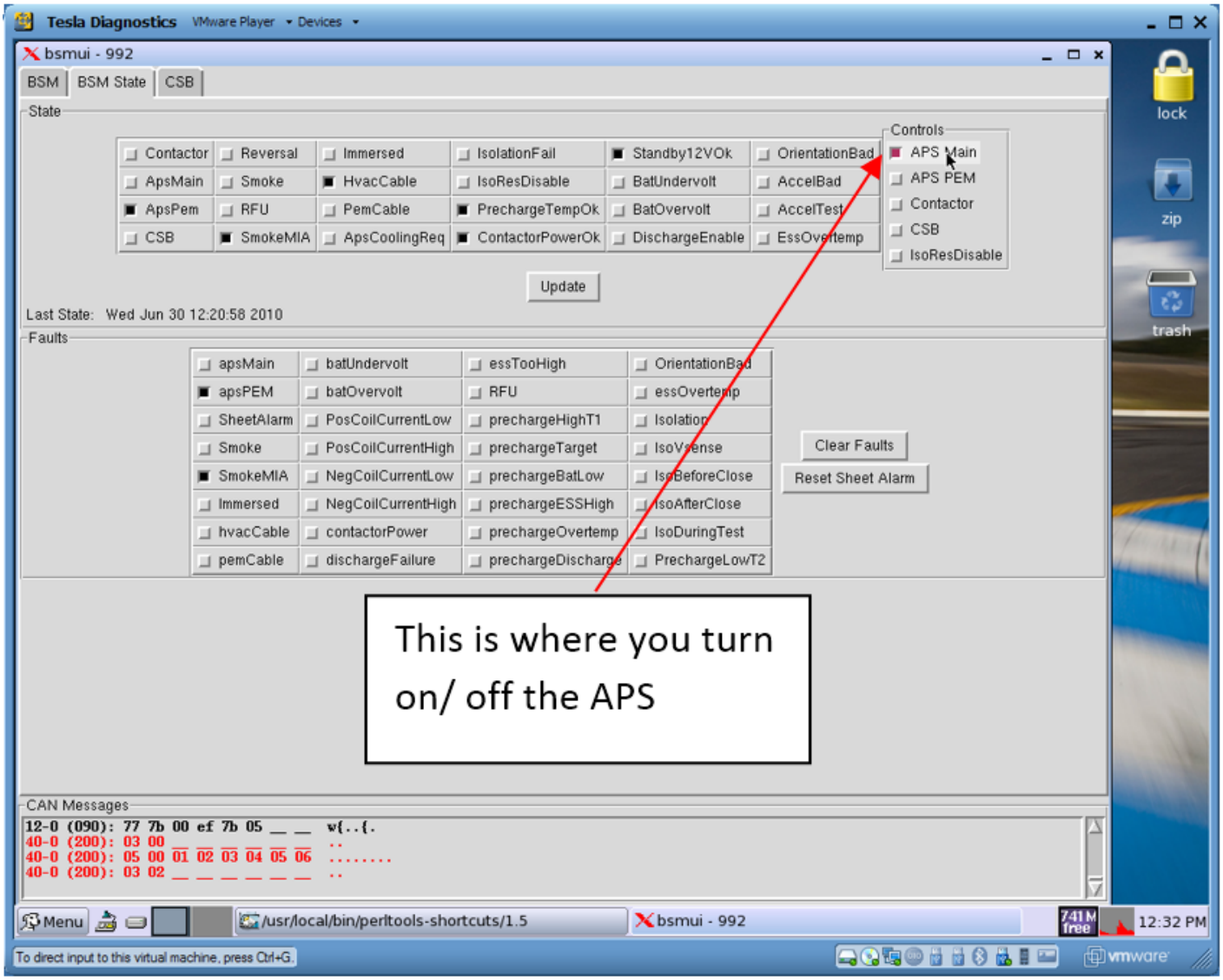
ESS logic connect cable

Gridconnect USB-CAN adapter

- Insert the Service Disconnect plug in the pump. It requires 120 VAC and will mate to the standard Edison outlet in North America. Fluid should start coming out of the APS fluid outlet pipe and go back into the reservoir.
- After you have verified that fluid is circulating, turn on the heater by pushing the switch to the right position. The APS is now set up for loading.

- Start the BSMUI application, and under the BSM State tab click the APS Main button to turn on the APS.





- Then go back to the BSM tab to verify that the APS is on and that the APS Main voltage is between 12.5 and 13.5 volts.
- If the APS is running properly the value will be stable. If the APS has a problem, this voltage will drop. Any value below 12.2 volts is unacceptable and will require APS replacement.

Steps to Fix

1. If the APS fails the load test described above, the battery will have to be replaced.
2. Send pack to Fremont for MRB Reman.

Possible Effects

Unknown.

Possible Causes

- Article #27490 - Alpine head unit replacement

- Article #31789 - Faulty standby power supply
- 44235 - ESS Blown Auxiliary-Fuse

Article #21513 - VMS 7 Battery Bleed Scan Failure

Description

Alert Trigger: Fails Bleed Resister Scan Test. End-User Text String: Battery Service Required. Vehicle Response: None.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

- Article #23053 - Bleed Test Procedure
- Article #23512 - Analyzing bleed test results
- 44443 - ESS TVSH-Failure

Article #21678 - VMS 880 While starting, keep foot off accelerator pedal

Description

End-User Text String: While starting, keep foot off accelerator pedal. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21679 - VMS 881 While starting, foot brake must be pressed

Description

End-User Text String: While starting, brake pedal must be pressed. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21680 - VMS 882 Before starting, close charge port door

Description

End-User Text String: Before starting, charge port door must be closed. Vehicle Response: None.

This fault occurs when the charge port door is open and ignition key is turned to the start position.

Steps to Test

Determine if the fault is still present. Determine if the port door is open.

Check that the charge port micro switch is working properly, the switch is activated when door is closed, and the switch connections are secure. (CPDC -1-1 and CPDC -1-4)

Steps to Fix

If the fault is not still present when initially troubleshooting, escalate your session for assistance. If the port door is open, close the door. If the micro switch is not working properly, the switch is not activated when the door is closed, or the switch connections are not secure, repair as needed. Otherwise, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21681 - VMS 883 Before starting, exit Tow Mode

Description

End-User Text String: Exit Tow Mode before starting. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21682 - VMS 884 Battery empty Can't start

Description

End-User Text String: Battery Empty. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

--

Possible Effects

Unknown.

Possible Causes

- Article #22299 - Battery Over-Discharge

Article #21683 - VMS 885 BMB No Data fault/Cannot start

Description

Trigger: Not a Fault - message to end user. End-User Text String: Communication Problem Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Update and reload the latest firmware release. If a firmware update does not resolve the issue:

- Perform a hard reset of the BSM by inhibiting the APS and removing the BMB connector RHC20. Allow the vehicle to sit 10 minutes before reconnecting RHC20.
- Inspect CAN-bus connector RHC20 pins 5 and 6.
- Inspect associated CAN wiring from BSM to VMS, for damage, grounding, and poor pin connections.
- Aftermarket accessories can cause interference with the CAN-bus. Disconnect or remove any aftermarket accessories and retest.

Steps to Fix

- Restore or replace connectors where necessary.
- After removing the aftermarket accessories, if the issue is not resolved, replace the module

(1.5-Part# 6001180, 2.0&;2.5-Part# 6004158).

- If the issue is not resolved, escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

- Article #22299 - Battery Over-Discharge
- Article #34797 - BMB damaged
- Article #34798 - BMB wiring harness damaged
- 44209 - Blown Sheet-Fuse
- 44340 - ESS Loose Connection

Article #21684 - VMS 886 Battery cold Can't start

Description

End-User Text String: Too cold to start Plug in to warm battery. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21685 - VMS 887 Can't start Version number mismatch.

Description

Trigger: VMS software version does not match release. End-User Text String: Software Problem Service Required. Vehicle Response: Vehicle does not start.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21686 - VMS 888 VMS/PEM key mismatch

Description

The customer is unable to put the vehicle into Drive. This alert is visible on the Vehicle Display Screen (VDS).

Alert Trigger: VMS reads a key state different from what the PEM is telling it.
End-User Text String: Disarm vehicle with key fob before starting.
Vehicle Response: Contactors do not close.

An example of the End-User Text String is shown below:

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21687 - VMS 889 Service Required. Charging restricted to storage level

Description

Trigger: Not a Fault - message to end user. End-User Text String: Service required Charging restricted. Vehicle Response: Charge limited to Storage Mode level.

Steps to Test

Confirm the alert is present on the vehicle or in the logs.

Steps to Fix

Pursue possible causes to investigate further.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21688 - VMS 891 Transmission lock has been released

Description

End-User Text String: Transmission lock has been released. Vehicle Response: None.

Steps to Test

Steps to Fix

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21514 - VMS 8 Vehicle Idle for 1 hour; Shutting Down

Description

End-User Text String: Vehicle Idle for 1 Hour Shutting Down.

Steps to Test

This fault occurs when BPS (Backup Power Supply) is active and the vehicle has been idle in drive mode for more than 1 hour. This fault is normal behavior under the above circumstances. The condition causing the BPS to be active should be addressed.

Steps to Fix

If this fault has occurred outside of the above mentioned scenario; escalate your session for assistance.

Possible Effects

Unknown.

Possible Causes

Unknown.

Article #21515 - VMS 9 Contactors Closed While not Expected

Description

Trigger: Contactors closed while key out and not charging. End-User Text String: Debug Only.

Steps to Test

Check to see if the key is in the "Off" position. Cycle the key twice to see if alert clears.

Steps to Fix

If the alert does not clear, Escalate your session for assistance

Possible Effects

Unknown.

Possible Causes

- Article #21505 - Contactors are closed unexpectedly
- 44344 - ESS Internal Isolation-Failure