![Tesla logo]	**Tesla, Inc.** **Service Bulletin**	***Replace VCM To Upgrade 8GB eMMC***	
SB-21-21-001 March 30, 2021	**R1**		
Classification		**Section/Group**	**Mobile Service**
Recall Bulletin		21 - Infotainment	Cannot Perform
Model Year	**Model**	**Country/Region**	**Version**
2012 - 2018	Model S, Model X	All	All
The model(s) and model year(s) listed are a general approximation of the affected VIN list. Refer to the VIN/Bulletin Tracker or Customer/Vehicle profile to determine applicability of this bulletin for a particular vehicle.			

Recall Bulletin: Recall Bulletins are mandatory service procedures that must be carried out by Tesla-certified Service Centers. Recall work performed by uncertified technicians could lead to unsafe conditions or voided warranty provisions.

This Service Document supersedes SB-21-21-001, dated February 1, 2021. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Condition

For some Model S and Model X vehicles built before March 2018, an 8GB embedded MultiMediaCard ("8GB eMMC") in the Media Control Unit (MCU) might malfunction due to accumulated wear. This may result in a blank or intermittently blank MCU display and/or prompt an alert on the MCU display that a memory storage device has degraded and to contact Service. If the eMMC malfunctions on a vehicle running software older than 2020.48.12 it may lose access to the rearview backup camera display, exterior turn signal lighting on subsequent drives after eMMC malfunction, and access to windshield defogging and defrosting controls.

Correction

The purpose of this recall is to install software release 2020.48.12 or newer to address all potential safety concerns. Additionally, this recall is to proactively upgrade, free of charge to the customer, the available memory storage from 8GB to 64GB. Replace the Tegra Visual Compute Module (VCM) Daughterboard containing the 8GB eMMC with an upgraded component and ensure that the vehicle is operating FW 2020.48.12 or a newer release.

NOTE: During the initial rollout of this recall bulletin, parts will be constrained. Owners were informed the only action they need to take to address all potential safety concerns is to confirm their vehicle is running software release 2020.48.12 or a newer release, and they will receive further notification when proactive replacement parts are available. Apply the bulletin if any of the following conditions are met:

- The owner has scheduled an appointment as a result of receiving a notice letter indicating that parts are available for their VIN.
- The vehicle has experienced a malfunction of the eMMC filesystem. A reference section at the end of this document describes how to determine if the eMMC filesystem malfunction is due to accumulated wear.
- Automated diagnostic results indicate to apply the bulletin, even in the absence of a malfunction.

Correction Description	Correction	Time
SB-21-21-001 Not Applicable; Vehicle Without Applicable Infotainment System	S012121001	0.05
SB-21-21-001 Not Applicable; Upgraded eMMC Already Installed	S022121001	0.05
Replace VCM To Upgrade eMMC (Model S)	S032121001	1.15
Replace VCM To Upgrade eMMC (Model X)	S042121001	1.45

Parts, Special Tools, and Shop Supplies

Parts, special tools, and shop supplies required are listed in SI-20-21-010.

Procedure

1. Log in to Garage, provide the VIN, click **VITALS** > **Basic**, and under "Vehicle", note the value to the right of "Car Computer":

   - If the value is "**mcu_transition**", the vehicle does not contain infotainment system hardware relevant to this bulletin. Discontinue this procedure and use correction code S012121001.

   - If the value is "**mcu**", continue to the next step.

2. Click **VITALS** > **UI**, scroll down to "eMMC Vitals", and note the value to the right of "Name":

   If the name is "**S0J58x**", an upgraded 64GB eMMC has already been installed to replace the 8GB eMMC, so do not perform the upgrade. Discontinue this procedure and use correction code S022121001.

   - If the name is _not_ "**S0J58x**", continue to the next step.

3. Replace the Visual Compute Module (VCM) daughterboard. Refer to service internal document SI-20-21-010.

   - **Model S** - Use correction code S032121001

   - **Model X** - Use correction code S042121001

   📄 **NOTE:** Do not use any correction code from SI-20-21-010.

4. Make sure to return the removed VCM daughterboard to MRB through the standard process.

   📄 **NOTE:** As a condition of applying this recall, it is not possible for the customer to retain the removed hardware.

Repair Reimbursement

If the vehicle owner had previously paid for a repair for the specific part and condition covered under this recall, the owner might be entitled to reimbursement of the amount paid subject to certain terms and conditions. The reimbursement process is not yet available at this time. Affected owners will be notified shortly with details about the requirements for eligibility and the process to submit a claim.

Reference Material on How to Determine If the eMMC Filesystem Malfunction Is Due to Accumulated Wear

This section is provided for reference on how to determine if a malfunction occurred as a result of accumulated wear.

ⓘ **TIP:** Refer to Toolbox article #53486 for diagnostic assistance.

1. Log in to Garage, provide the VIN, click **VITALS** > **UI**, scroll down to eMMC Vitals, and record the values to the right of "Name" and "Reserved Blocks".

   - If the name is _not_ "**H8G2d**" or "**Hynix**", the vehicle no longer contains the 8GB eMMC hardware applicable to this bulletin.

   - If the name is something other than "**H8G2d**", "**Hynix**" or "**S0J58x**", the vehicle contains a non-OEM supplied eMMC aftermarket modification. The system may behave in unexpected ways, including, but not limited to, being unable to provide diagnostic information regarding eMMC filesystem malfunction.

2. If the eMMC name is "**H8G2d**", determine if the eMMC filesystem malfunctioned due to wear.

    - If alerts "**MCU_w088_eMMCNeedsReplacement**" or "**MCU_w086_eMMCEOL**" are actively asserted, recently asserted, or present in vehicle logs, the eMMC filesystem has malfunctioned due to wear.

    - If alert "**MCU_w031_cidSquashfsError**" is actively asserted, recently asserted, or present in vehicle logs, AND there are fewer than 65 reserve blocks remaining, the eMMC filesystem has malfunctioned due to wear.

    - If neither of the above is true, the eMMC filesystem has not malfunctioned due to wear.

3. If the eMMC name is "**Hynix**", it is not possible to determine if the eMMC filesystem malfunctioned specifically to due to wear. Determine if the eMMC filesystem has simply malfunctioned.

    - If alert "**MCU_w031_cidSquashfsError**" is actively asserted, recently asserted, or present in vehicle logs, the eMMC filesystem has malfunctioned.

    - If alert "**MCU_w031_cidSquashfsError**" is not present, the eMMC filesystem has not malfunctioned.