



September 19, 2019

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US Department of Transportation  
National Highway Traffic Safety Administration (NVS-210)  
Office of Defect Investigations  
1200 New Jersey Avenue Southeast  
West Building  
Washington, D.C. 20590

**Re: PETITION FOR DEFECT INVESTIGATION – Toyota Hybrid Brake Failures Causing Crashes & Injury**

Dear Administrator Owens and National Highway Traffic Safety Administration Staff,

My name is Roger Hogan, and I am the President of Claremont Toyota and Capistrano Toyota in Southern California. I write to report the existence of a dangerous safety defect in the brakes of certain Toyota hybrid vehicles, and hereby, in accordance with 49 U.S.C. 30162 and 49 C.F.R § 552.1, petition NHTSA to initiate a Defect Investigation into defective brake booster pump assemblies (with master cylinder) in 2010-2015 Prius, 2012-2014 Camry Hybrid, and 2013-2015 Avalon Hybrid vehicles. This brake defect is causing crashes that are injuring people - and Toyota is mishandling it.

The reliable operation of brake booster pump assemblies with the master cylinder ("brake booster pump assembly" or "brakes") is crucial to a vehicle's ability to stop itself. Toyota has issued at least two safety (or noncompliance) recalls on hybrid vehicles containing these defective brake components - DOH in 2013 (NHTSA ID 13V-235) and KOL in 2019 (NHTSA ID 19V-544).

Toyota has put innocent lives at risk by knowingly excluding hundreds of thousands of hybrids with defective brakes from past safety recall populations. I have written Toyota letters requesting answers about these dangerous decisions, but Toyota has refused to answer. The National Highway Traffic Safety Administration should immediately investigate this safety defect and prevent additional injuries and potential deaths.

**TOYOTA EXCLUDED HYBRIDS WITH DEFECTIVE BRAKES FROM PAST SAFETY RECALLS (DOH & KOL)**

The Prius, Camry Hybrid, and Avalon Hybrid vehicles Toyota covered **only** with post-failure, reactionary brake repairs (warranty enhancements ZJB & ZKK) are suffering the same dangerous consequences from brake booster pump assembly failures as those Toyota covered by their preventative safety recalls (DOH & KOL). By excluding hybrids with defective brakes from the DOH and KOL safety recalls, Toyota is leaving the owners to helplessly experience the life-threatening brake failure or malfunction **before** Toyota will provide the replacement brake components needed to make the vehicle safe.





The defect information report for Toyota's 2013 DOH safety recall states it was launched because a "crack" in brake booster pump assembly accumulator, made by **Advics Co, Ltd.**, causes a gas "leak." This gas leak causes "the brake pedal stroke to become longer, resulting in decreased hydraulic pressure" and "could affect stopping distance and increase the risk of a crash." DOH covered a limited population of only 82,000 2010 model year Prius vehicles. Toyota excluded many 2010 model year - and all 2011, 2012, 2013, 2014, or 2015 model year - Prius vehicles (including Prius Plug-In models) from the DOH safety recall population. The excluded Prius, including the 2010 model years, contain defective brake booster pump assemblies.

Then, on March 7, 2019, due to "reports about **certain internal malfunctions of the brake booster pump assemblies**," Toyota announced phase II of their post-brake-failure repair program. Now, **after** the brakes in the 2010-2015 Prius excluded from safety recall DOH fail or malfunction, Toyota offers repair reimbursement. Reimbursement is not enough. A preventative safety recall must be done.

The story for defective brakes in Camry Hybrids and Avalon Hybrids is the same as the Prius. Toyota knows the brakes in these vehicles are failing or malfunctioning, but has unilaterally decided not to acknowledge the brake booster pump defect and launch a preventative safety recall.

On July 24, 2019, Toyota launched **noncompliance** recall KOL because, "there is a possibility the brake booster pump...may stop operating." Toyota states this could cause, "brake assist to be lost completely" and Vehicle Stability Control (ESC) to become "deactivated." KOL covers only a small population of 6,500 hybrid vehicles containing defective brake booster pumps **again manufactured by Advics Co, Ltd.** Even though they are experiencing the same dangerous consequences and noncompliance caused by brake booster pump defects, Toyota excluded 2012-2014 Camry Hybrids, 2013-2015 Avalon Hybrids, and 2010-2015 Priuses from the recall population.

On September 4, 2019, Toyota issued Technical Service Bulletin 0130-19 for 2012-2014 Camry Hybrids and 2013-2015 Avalon Hybrids. Toyota acknowledged that these hybrids are experiencing the same dangers and noncompliance as the hybrids covered by safety recalls DOH and KOL. The TSB states a "condition may be caused by a small internal brake **fluid leak in the brake booster assembly with master cylinder**" that will result in "diagnostic trouble codes (DTCs) C1391, C1252, C1256, or C1253" being stored. Notably, Toyota signaled DTC C1256 indicates an unreasonable risk to safety by listing it on page 2 of the Technical Instructions for the DOH safety recall.

In addition to the TSB, on September 11, 2019, Toyota launched another post-brake-failure repair program on these Camry Hybrid and Avalon Hybrid vehicles – warranty enhancement ZKK. In ZKK Toyota states, "reports have indicated **certain internal malfunctions of the Brake Booster Assembly**" in 2012-2014 Camry Hybrids and 2013-2015 Avalon hybrids. Toyota knows these hybrids are experiencing the same increased stopping distance, loss of hydraulic pressure in the brakes, deactivation of vehicle stability control, and deactivation of brake assist as the hybrids covered by their DOH and KOL safety recalls.

The law requires Toyota to prevent the life-threatening dangers of this brake defect **before** the failure occurs, not provide a part **after** the dangerous brake failure has already happened. Toyota's cost-cutting strategies are causing crashes and injuries.





## CRASHES AND INJURIES CAUSED BY TOYOTA'S DEFECTIVE HYBRID BRAKES

Injuries and crashes caused by the brake defect explained in this letter have occurred and been reported to the National Highway Traffic Safety Administration. Toyota's decision to provide a reactionary, post-failure repair - instead of a *preventative* safety recall remedy - explains many of the crashes and injuries on NHTSA's [safercar.gov](http://safercar.gov) website.

These stories include Toyota hybrid drivers that, when attempting to brake on the freeway, or when approaching stationary vehicles ahead, depress the brake pedal all the way to the floor, but get no response from the vehicle's brakes. No slowing down and no stopping. This is scary.

Only a small fraction of crashes that have occurred due to this brake defect are reported to NHTSA's [safercar.gov](http://safercar.gov) website. The true volumes of injuries and crashes caused by this safety defect are undoubtedly much higher. Below is a list of relevant VOQs from [safercar.gov](http://safercar.gov). This list does not include all crashes and injuries citing the brake system that were reported to NHTSA. The "C" indicated a reported crash and "I" indicates a reported injury. There are 60 crashes listed below:

**PRIUS      *SOME 2010s & ALL OTHER MODEL YEARS POST BRAKE FAILURE REPAIR ONLY***  
***(warranty enhancement ZJB)***

- 2015: 10794873 (c), 10875685 (c), 10876015 (c), 10927047, 11231660, 11219354, 11014878
- 2014: 11151142 (c), 10680404 (c), 10627821 (c)(i), 11154835 (c)(ix3), 10983408 (c), 10704553 (c), 10734278 (c), 11173353 (c), 11064519 (c), 10971881
- 2013: 11186947(c), 10923921 (c), 10573591(c), 11243249 (c)(i), 10819439(c)(i), 10592400(c), 10919990(c), 10851950(c)(i), 10855586(c), 11240240, 11197067, 11193820, 11173721, 11156466
- 2012: 11144698 (c), 11235210, 10550179(c), 11253950, 11102264(c), 11044156(c), 11253725, 10616134(c), 10875625(c), 11231596, 10584723(c), 11207636, 10749388(c), 11014797(c), 11203834, 11203591, 11193354, 11182610, 11155778, 11130742, 11129946
- 2011: 11164336, 10498096(c), 11219901, 11154783 (c), 10598545(c), 11228248, 10547701 (c), 11110691 (c), 11164990, 11222966, 11207630, 11192342, 11184751, 11183661, 11183178, 11173804, 11173173, 11173044, 11162242, 11144888, 11139660, 11121916, 11088447, 11080403, 11061959, 10984549
- 2010: 11073636(c), 11034572(c)(i), 10870866(c)(ix2), 10929397(c), 11104163 (c)(ix4)



**CAMRY POST BRAKE FAILURE REPAIR ONLY (warranty enhancement ZKK)**

2014: 10681105 (c), 10883971 (c)

2013: 10971542 (c), 10664739(c)(i), 10807100 (c), 10794987 (c), 10605988(c), 11154818 (c)(i), 10606258, 10592072, 10967838

2012: 10626061(c), 10604544 (c)(i), 10569158 (c)(i), 11090508 (c)(i), 11057737 (c)(i), 10779877(c)(i), 10722560 (c)(i), 10692225 (c), 10560809 (c), 10523025 (c), 10502158 (c), 10616767 (c), 10641347, 10611145, 10596979, 1051996, 11003054, 10597316, 10705883, 10875822, 10510996, 10564619

**AVALON POST BRAKE FAILURE REPAIR ONLY (warranty enhancement ZKK)**

2015: 11093611

2013: 10515182

**DTC ANALYSIS – SAFETY RECALL D0H vs. POST FAILURE REPAIR PROGRAMS (ZJB & ZKK)**

Documents confirm that when the brake booster pump assembly malfunctions in Prius Hybrid, Camry Hybrid, and Avalon Hybrid vehicles excluded from Toyota's D0H and K0L safety recalls, the same DTC codes that presented an unreasonable risk to safety and noncompliance under safety recalls D0H and K0L are being stored. The DTC codes being stored in the hybrid vehicles covered only by Toyota's post-failure repair programs include (but are not limited to) C1256, C1253, C1252, C1391, and U0293.

Tellingly, Toyota lists C1256 in both its Technical Instructions for the D0H safety recall repair and in its warranty enhancements. C1256 is stored because a "significant drop in accumulator pressure continues." This malfunction of the brake booster pump assembly is being stored at alarmingly high rates in hybrids excluded from Toyota's D0H and K0L safety recalls.

Below is a description of the other DTC codes listed on Toyota's brake-failure warranty enhancements:

- C1252 indicates the brake booster pump motor has been running for an "abnormally long" time.
- C1253 indicates a brake booster "Pump Motor Relay Malfunction" and Toyota lists the "Brake Booster with master cylinder" as a trouble area.
- C1391 is an "Accumulator *Leak* Malfunction" and Toyota documentation again lists the "Brake Booster with master cylinder (Brake Actuator)(Malfunctioning internal seal, **low gas pressure in accumulator**, etc.)" as a trouble area.



To close the circle, keeping in mind C1391 indicates a **gas leak** in the brake booster pump assembly of vehicles excluded from Toyota's DOH safety recall, Toyota's June 2013 DOH defect information report described the safety defect in the brake booster pump as follows: "...nitrogen **gas** could **leak** into the brake fluid and gradually cause the brake pedal stroke to become longer, resulting in decreased hydraulic pressure...this condition could affect stopping distance and increase the risk of a crash."

***How could a gas leak in the accumulator be an unreasonable risk to safety for the 82,000 hybrid vehicles covered by safety recall DOH, but not for over 1,000,000 (one million) hybrid vehicles covered only by Toyota's post-brake-failure-repair programs? This is not right.***

DTC analysis also demonstrates that FMVSS noncompliance, such as the deactivation of brake assist and vehicle stability control, occur when brake booster pump assemblies malfunction in the hybrid vehicles excluded from Toyota's DOH and KOL recalls. U0293, U0126, U0124, U0129, U0073, and U0123 are being stored during the brake failures in these hybrids. These DTC codes result in fail-safe operations that cause ABS/VSC control to be "inoperative" (U0293, U00073, U0123, U0124) and "depression of EPS assist (deterioration of steering assist)" (U0129, U0293). DTC code U0100 is also being stored and results in a condition in which the gas "engine is not used" and only the "electric motor operation is used."

When it comes to brake assist, Toyota's Electronic Brake System Fail-Safe Chart for these hybrids states that, "If a malfunction is detected in the brake booster with master cylinder (i.e. C1391, C1256, C1252)...control will be stopped" and continues to state that, "If brake control is stopped...the pressure generated in the master cylinder by the driver" provides braking force.

Toyota has long had knowledge of the unreasonable risks to safety and FMVSS noncompliance occurring in hybrids excluded from their safety recalls. Toyota gets real-time transmissions of DTCs and freeze frame data from hybrids with failed brakes through the Techstream tool at its franchise dealerships.

## **ADDITIONAL EVIDENCE**

Enclosed are reports to assist in you with this urgent safety concern. The reports include:

- A compilation of Safercar.gov VOQs detailing crashes, injuries, and various dangerous scenarios caused by brake failures and/or malfunctions in Toyota Prius hybrid vehicles, Toyota Camry Hybrid vehicles, and Toyota Avalon Hybrid vehicles.
- For Claremont Toyota and Capistrano Toyota, a list of Prius vehicles which Toyota excluded from safety recalls DOH and KOL but suffered a brake booster pump failure (DTC codes included)
- For Claremont Toyota and Capistrano Toyota, the DTC histories for each VIN number included in the reports
- For Prius Hybrids, Camry Hybrids, and Avalon Hybrids, Toyota's DTC code definitions for C1391, C1256, C1253, C1252, U0293, and other DTC codes stored when the brake booster pump assembly malfunctions





- Toyota's limp-home mode ("fail-safe") mechanisms for DTC codes C1391, C1256, C1253, U0293, U0100 and others (indicating unreasonable risk to safety and/or FMVSS noncompliance) in Prius Hybrids, Camry Hybrids, and Avalon Hybrids
- Some of Toyota's historical documentation for defective brake booster pump assemblies: Page 2 of safety recall DOH technical instructions with DTC codes, TSB 0024-19, TSB 0079-18, TSB 0130-19, Page 2 of ZJB warranty enhancement with DTC codes, Page 1-2 of ZKK warranty enhancement with DTC codes
- NHTSA VOQ #10923921's Bosch EDR information, EDR explanation, and Tucson City Court Judgement

## CONCLUSION

NHTSA VOQ #10923921 was sent to your agency because a crash occurred as a result of a "catastrophic failure of the brake system" in a 2013 Toyota Prius. An Arizona court of law had initially tried to hold the driver of the 2013 Prius responsible for the crash, charging the driver "failed to control" the vehicle.

The Arizona court changed its mind after reviewing the Bosch Event Data Recorder (EDR) information. The "black box" clearly proved that the driver applied maximum pressure to the brake pedal prior to rear ending the vehicle ahead, but that the brakes of the Prius failed to respond. The court decided that, "car data appears to show that vehicle brakes malfunctioned/failed to properly engage when applied. This mitigating factor justified a finding of Not Responsible due to failure beyond defendants control."

NHTSA's Randy Reid responded to the 2013 Prius owner in a letter saying that the complaint "would be considered with other reports to identify...safety-related defect trends that require our attention," and that, "In order for the agency to initiate an investigation, we look carefully at the body of consumer complaints and other available data to determine whether a defect trend may exist".

NHTSA VOQ #11093611 details the story of an Avalon owner who experienced the dangers of depressing the brake pedal all the way to the floor, only to have the vehicle's brakes fail to respond. The complaint contains a DTC report for C1202. This DTC code pertains to a "Master Reservoir Level Malfunction." The reservoir mentioned is in the vehicle's brake booster pump assembly with master cylinder. A NHTSA letter dated October 19, 2018, and signed by Randy Reid, was sent back. It states, "At this time, there is insufficient evidence to warrant opening a safety defect investigation or to initiate a recall."

NHTSA VOQ #11104163 states, "the brakes on my 2010 Toyota failed on the freeway. I rear ended another vehicle and was injured myself." The owner also stated, "***I believe more cars are impacted than what was originally stated***" and provided an explanatory VIN range analysis. He urged NHTSA: "Please don't continue to let Toyota get away with this." NHTSA's L. Thomas responded to the VOQ in an email stating, "If a trend is suspected and a problem has a potential for causing a risk to safety,

***the agency will open an investigation..."***

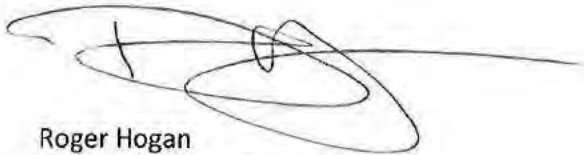
This petition provides enough evidence ("original information") to the National Highway Traffic Safety Administration for the agency to "suspect a trend for a problem that has potential for causing a risk to safety." An investigation into the defective brake booster pump assemblies (with master cylinder) in 2010-2015 Toyota Prius, 2012-2014 Camry Hybrid, and 2013-2015 Avalon Hybrids should be launched. Innocent Lives are at risk.

Federal law requires that a defect causing an unreasonable risk to safety or noncompliance with Federal Motor Vehicle Safety Standards (such as FMVSS 126) be reported within 5 working days of discovery. Federal law also states that Toyota has three options when presented with of a defect that causes an unreasonable risk to safety or an FMVSS noncompliance: a preventative safety repair; replacing the vehicle with a comparable one; or refunding the price of the vehicle less depreciation. Toyota has not taken any of these required actions. Instead, Toyota continues to allow the unsuspecting public to experience life-threatening brake failures. Toyota has violated of the National Traffic and Motor Vehicle Safety Act of 1966.

Pursuant to 49 U.S.C. § 30162(d), I formally request NHTSA respond to this petition within 120 days, if not soon due to the number of crashes and injuries cause by this brake defect.

Thank you for your consideration of this urgent safety matter.

Sincerely,



Roger Hogan  
Claremont Toyota, President  
Capistrano Toyota, President  
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