Part 573 Safety Recall Report 23E-029

Manufacturer Name :	Cruise LLC
Submission Date :	APR 03, 2023
NHTSA Recall No. :	23E-029
Manufacturer Recall No. :	23-01

Manufacturer Information :

Manufacturer Name :	Cruise LLC
Address :	333 Brannan San Francisco CA 94107
Company phone :	415-335-4097

Population :

Number of potentially involved :	300
Estimated percentage with defect :	100 %

Equipment Information :

Brand / Trade 1 :	Cruise LLC
Model :	Cruise ADS software versions: (a) all versions of Delta/2023.01.12.00, and (b) all versions of Delta/2023.02.09.00 prior to version Delta/2023.02.09.00-08.00 (collectively, “Subject ADS Software”).
Part No. :	N/A
Size :	N/A
Function :	N/A
Descriptive Information :	The subject population includes Cruise Automated Driving Systems (“ADS”) with the Subject ADS Software. At the time of the incident described in the chronology, this totaled 300 ADS units, determined through a review of software release records.
Production Dates :	JAN 12, 2023 - MAR 25, 2023

Description of Defect :

Description of the Defect :	In certain rare circumstances, the Cruise ADS operating with the Subject ADS Software could inaccurately predict the movement of "articulated" vehicles. This issue could occur when (a) the ADS perceived both the front section and rear section of an articulated vehicle initially; (b) the articulated vehicle then maneuvered in such a manner that the rear section of the vehicle fully obstructed the front section of the vehicle; and (c) the articulated vehicle then decelerated close to the AV within a few seconds of the front section becoming obstructed. In such a circumstance, the ADS could inaccurately determine that the obstructed front section of the vehicle was continuing to move forward, and that the rear section of the vehicle would continue to move forward with the front section, even if the vehicle was decelerating. This issue resulted in a single collision on March 23, 2023, in which a Cruise AV inaccurately predicted the movement of an articulated San Francisco Municipal Transit Authority ("MUNI") bus. In this incident, the ADS initially perceived both sections of the bus as the bus was pulling out of a bus stop in front of the AV. As the bus proceeded forward into the AV's lane of travel, the rear section of the bus obstructed the front section. Shortly thereafter, the bus began decelerating. The ADS inaccurately determined that the bus was continuing to move forward in traffic based on the anticipated behavior of the front section of the bus, which was by then obstructed, and the ADS commanded the AV to begin decelerating too late to avoid a rear-end collision with the bus. The aspect of the Subject ADS Software that caused this issue was implemented with a software release on January 12, 2023. Cruise has determined that this scenario would not recur after a software update was installed on all affected vehicles on March 25, 2023. No other collisions have occurred as a result of this issue. [continued on attached report]
FMVSS 1 :	NR
FMVSS 2 :	NR
Description of the Safety Risk :	In the rare circumstances described above, the Cruise ADS operating with the Subject ADS Software could inaccurately predict the movement of articulated vehicles, which could increase the risk of a collision.
Description of the Cause :	NR
Identification of Any Warning that can Occur :	NR

Involved Components :

Component Name :	NR
Component Description :	NR
Component Part Number :	NR

Supplier Identification :

Component Manufacturer

Name :	Cruise LLC
Address :	333 Brannan Street San Francisco California 94107
Country :	United States

Chronology :

On March 23, 2023, a Cruise AV, operating in driverless mode, was involved in a collision with a San Francisco Municipal Transit Authority ("MUNI") bus. Immediately following the incident, Cruise began an investigation of the collision. The next day, Cruise also reported the incident to NHTSA in accordance with NHTSA's Standing General Order.

In the course of its investigation, Cruise determined that the collision was caused by an issue related to prediction of the unique movements of articulated vehicles in rare circumstances. On March 25, 2023, Cruise implemented a software update for all vehicles addressing the issue.

Cruise continued its investigation in order to assess the risk to safety, evaluate the software updates, and ascertain, among other things, the circumstances in which the issue could have occurred. On March 29, 2023, after completing its investigation, Cruise decided to submit this voluntary report in light of the anomalous nature of the issue and in hopes of adding transparency to the public's understanding of this singular incident.

Description of Remedy :

Description of Remedy Program :	On March 25, 2023, Cruise released a new software update for all vehicles that it has determined remedied the issue. Cruise has determined that the issue would not recur after the software update was installed.
How Remedy Component Differs from Recalled Component :	The updated software is a new release.
Identify How/When Recall Condition was Corrected in Production :	The prior ADS software installed in vehicles was updated to the newer software release.

Recall Schedule :

Description of Recall Schedule :	Cruise AVs have never been offered for sale to third parties and are solely owned by Cruise or GM. As such, there are no owners or dealers to notify under 49 C.F.R. Parts 573 or 577 and part 577 is therefore inapplicable.
Planned Dealer Notification Date :	NR - NR
Planned Owner Notification Date :	NR - NR

Purchaser Information :

The following manufacturers purchased this defective/noncompliant equipment for possible use or installation in new motor vehicles or new items of motor vehicle equipment:

Name :	NR
Address :	NR
	NR
Country :	NR
Company Phone :	NR

* NR - Not Reported