

Is this event from my crash?

The driver of a Volvo XC60 is involved in a hit and run collision. The driver of the Volvo states he was driving down a residential street when he was struck from behind by a pick-up truck. The collision caused him to lose control and strike a decorative tree on the sidewalk on the right side of the road. The truck reportedly passed the Volvo on the left and departed the scene at a high rate of speed. The Volvo driver indicated he was travelling less than 20 mph when struck. He called a tow truck and had the Volvo towed from the scene then days later went to report the collision at a local police station. The owner/driver signed a consent form for the EDR to be imaged at the tow yard where the vehicle was stored. Photographs of the vehicle are below. The following pages are the EDR report from the collision. Answer the following questions **with justification for each answer**.

1. Based on the EDR report and the information below, which, if any, of the EDR events are from the reported crash? None of the events are from this “crash.”
 - a. Is the crash pulse consistent? – No, both events are very small events but the damage suggests much larger events.

Longitudinal Crash Pulse (Event Record 1)

Time (msec)	Delta-V, Longitudinal (MPH [km/h])	Longitudinal Acceleration (g)
0	0.0 [0.0]	0.0
10	0.0 [0.0]	0.0
20	0.0 [0.0]	0.0
30	0.0 [0.0]	0.0
40	0.0 [0.0]	0.0
50	0.0 [0.0]	0.0
60	0.0 [0.0]	0.0
70	0.0 [0.0]	0.0
80	0.0 [0.0]	0.0
90	0.0 [0.0]	0.0
100	0.0 [0.0]	0.0
110	0.0 [0.0]	0.0
120	0.0 [0.0]	0.0
130	0.0 [0.0]	0.0
140	0.0 [0.0]	0.0
150	0.0 [0.0]	0.0
160	0.0 [0.0]	0.0
170	0.0 [0.0]	0.0
180	0.0 [0.0]	0.0
190	0.0 [0.0]	0.0
200	0.0 [0.0]	0.0
210	0.0 [0.0]	0.0
220	0.0 [0.0]	0.0
230	0.0 [0.0]	0.0
240	0.0 [0.0]	0.0
250	0.0 [0.0]	0.0

Longitudinal Crash Pulse (Event Record 2)

Time (msec)	Delta-V, Longitudinal (MPH [km/h])	Longitudinal Acceleration (g)
0	0.0 [0.0]	0.0
10	0.0 [0.0]	0.0
20	0.0 [0.0]	0.0
30	0.0 [0.0]	0.0
40	0.0 [0.0]	0.0
50	0.0 [0.0]	0.0
60	0.0 [0.0]	0.0
70	0.0 [0.0]	0.0
80	0.0 [0.0]	0.0
90	0.0 [0.0]	0.0
100	0.0 [0.0]	0.0
110	0.0 [0.0]	0.0
120	0.0 [0.0]	0.0
130	0.0 [0.0]	0.0
140	0.0 [0.0]	0.0
150	0.0 [0.0]	0.0
160	0.0 [0.0]	0.0
170	0.0 [0.0]	0.0
180	0.0 [0.0]	0.0
190	0.0 [0.0]	0.0
200	0.0 [0.0]	0.0
210	0.0 [0.0]	0.0
220	0.0 [0.0]	0.0
230	0.0 [0.0]	0.0
240	0.0 [0.0]	0.0
250	0.0 [0.0]	0.0

- a.
 - b. Is the pre-crash data consistent? – No, the driver stated they were going less than 20 mph when they were struck from behind.

Pre-Crash -5 to 0 sec (Event Record 1)

Time (sec)	Speed, Vehicle Indicated (MPH [km/h])	Accelerator Pedal, % Full	Service Brake (On, Off)	Steering input (%)	ABS Activity	Stability Control Status
-5.0	58.4 [94.0]	61.0	Off	0.0	Off	On
-4.5	59.7 [96.0]	61.0	Off	0.0	Off	On
-4.0	60.9 [98.0]	61.0	Off	0.0	Off	On
-3.5	62.1 [100.0]	64.0	Off	0.0	Off	On
-3.0	63.4 [102.0]	64.0	Off	0.0	Off	On
-2.5	64.6 [104.0]	64.0	Off	0.0	Off	On
-2.0	65.9 [106.0]	57.0	Off	0.0	Off	On
-1.5	66.5 [107.0]	47.0	Off	0.0	Off	On
-1.0	67.1 [108.0]	45.0	Off	0.0	Off	On
-0.5	67.7 [109.0]	47.0	Off	0.0	Off	On
0.0	68.4 [110.0]	42.0	Off	0.0	Off	On

Pre-Crash -5 to 0 sec (Event Record 2)

Time (sec)	Speed, Vehicle Indicated (MPH [km/h])	Accelerator Pedal, % Full	Service Brake (On, Off)	Steering input (%)	ABS Activity	Stability Control Status
-5.0	73.3 [118.0]	7.0	Off	0.0	Off	On
-4.5	72.7 [117.0]	28.0	Off	0.0	Off	On
-4.0	72.7 [117.0]	33.0	Off	0.0	Off	On
-3.5	72.1 [116.0]	30.0	Off	0.0	Off	On
-3.0	72.1 [116.0]	36.0	Off	0.0	Off	On
-2.5	71.5 [115.0]	38.0	Off	0.0	Off	On
-2.0	71.5 [115.0]	38.0	Off	0.0	Off	On
-1.5	71.5 [115.0]	33.0	Off	0.0	Off	On
-1.0	71.5 [115.0]	33.0	Off	0.0	Off	On
-0.5	70.8 [114.0]	16.0	Off	0.0	Off	On
0.0	70.8 [114.0]	0.0	Off	0.0	Off	On

- a.
 - b.
 - c. Is what it says deployed, deployed? – No, side airbags are “deployed” but EDR states nothing was deployed in either event.

Is this event from my crash?

Deployment Command Data (Event Record 1)

Frontal Airbag Deployment, Time to Deploy, First Stage, Driver (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, First Stage, Front Passenger (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Second Stage, Passenger (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Third Stage, Passenger (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Second Stage, Driver (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Third Stage, Driver (msec)	Not Deployed
Left Side Airbag, Time to Deploy (msec)	Not Deployed
Right Side Airbag, Time to Deploy (msec)	Not Deployed
Left Side Curtain, Time to Deploy (msec)	Not Deployed
Right Side Curtain, Time to Deploy (msec)	Not Deployed
Driver Shoulder Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Passenger Shoulder Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Adaptive Steering Column, Time to Deploy (msec)	Not Deployed
Driver Lap Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Passenger Lap Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Driver Belt Load Limiter, Time to Deploy (msec)	Not Deployed
Passenger Belt Load Limiter, Time to Deploy (msec)	Not Deployed
2nd Row Right Belt Pretensioner, Time to Deploy (msec)	Not Deployed
2nd Row Middle Belt Pretensioner, Time to Deploy (msec)	Not Deployed
2nd Row Left Belt Pretensioner, Time to Deploy (msec)	Not Deployed
3rd Row Right Belt Pretensioner, Time to Deploy (msec)	Not Deployed
3rd Row Left Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Driver knee airbag, time to deploy, first stage (msec)	Not Deployed
Driver knee airbag, time to deploy, second stage (msec)	Not Deployed
Passenger knee airbag, time to deploy, first stage (msec)	Not Deployed
Passenger knee airbag, time to deploy, second stage (msec)	Not Deployed

Deployment Command Data (Event Record 2)

Frontal Airbag Deployment, Time to Deploy, First Stage, Driver (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, First Stage, Front Passenger (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Second Stage, Passenger (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Third Stage, Passenger (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Second Stage, Driver (msec)	Not Deployed
Frontal Airbag Deployment, Time to Deploy, Third Stage, Driver (msec)	Not Deployed
Left Side Airbag, Time to Deploy (msec)	Not Deployed
Right Side Airbag, Time to Deploy (msec)	Not Deployed
Left Side Curtain, Time to Deploy (msec)	Not Deployed
Right Side Curtain, Time to Deploy (msec)	Not Deployed
Driver Shoulder Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Passenger Shoulder Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Adaptive Steering Column, Time to Deploy (msec)	Not Deployed
Driver Lap Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Passenger Lap Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Driver Belt Load Limiter, Time to Deploy (msec)	Not Deployed
Passenger Belt Load Limiter, Time to Deploy (msec)	Not Deployed
2nd Row Right Belt Pretensioner, Time to Deploy (msec)	Not Deployed
2nd Row Middle Belt Pretensioner, Time to Deploy (msec)	Not Deployed
2nd Row Left Belt Pretensioner, Time to Deploy (msec)	Not Deployed
3rd Row Right Belt Pretensioner, Time to Deploy (msec)	Not Deployed
3rd Row Left Belt Pretensioner, Time to Deploy (msec)	Not Deployed
Driver knee airbag, time to deploy, first stage (msec)	Not Deployed
Driver knee airbag, time to deploy, second stage (msec)	Not Deployed
Passenger knee airbag, time to deploy, first stage (msec)	Not Deployed
Passenger knee airbag, time to deploy, second stage (msec)	Not Deployed

- d. Are the ignition cycles consistent? No – both events recorded in the EDR occurred at a time significantly in the past.

System Status at Retrieval

Vehicle Identification Number	LYV102RK1JB*****
Application Diagnostic Database Part Number	31387255 AO
Ignition Cycle, Download	6,806
Lifetime Operating Timer (sec)	8,626,688

Pre-Crash Data -1 Sec (Event Record 1)

Ignition Cycle, Crash	4,446
Safety Belt Status, Driver	Off, Unbelted
Safety Belt Status, Passenger	Off, Unbelted
Frontal Airbag Warning Lamp	Off
Frontal Airbag Suppression Switch Status, Front Passenger	Not Equipped
Seat Track Position Switch, Foremost, Status, Driver	No
Seat Track Position Switch, Foremost, Status, Front Passenger	No
Occupant Size Right Front Passenger Child	No

Pre-Crash Data -1 Sec (Event Record 2)

Ignition Cycle, Crash	3,550
Safety Belt Status, Driver	On, Belted
Safety Belt Status, Passenger	On, Belted
Frontal Airbag Warning Lamp	Off
Frontal Airbag Suppression Switch Status, Front Passenger	Not Equipped
Seat Track Position Switch, Foremost, Status, Driver	No
Seat Track Position Switch, Foremost, Status, Front Passenger	No
Occupant Size Right Front Passenger Child	No

- e. Does the lifetime counter or day/date/time match? Unknown – While the lifetime operating timer at retrieval is available the lifetime operating timer at event is not available. No Day/Date/Time information is available in this unit.
- Did the airbags deploy? No – Based on the EDR data, nothing was commanded to be deployed. The airbags appear to be pulled out, not inflated. Frontal airbags are likely to be deployed based on the damage to the front of the vehicle.
 - What charges would you file in this case? Group discussion based on your jurisdiction.