Put Your Money Where Your Mouth is ……

So That's Exactly What Was Done

Todd Tracy
Dallas, Texas

Aftermarket Parts

1) CAPA certified Hood
2) CAPA certified left and right fenders
3) Aftermarket left and right hood hinges (CAPA N/A)
4) Aftermarket bumper reinforcement bar (CAPA N/A)
5) Aftermarket radiator support (CAPA N/A)
6) Aftermarket left front wheel (CAPA N/A)
7) Aftermarket front windshield

Test #2 (Blue Test)

Roof Removed and Reapplied with Adhesive




Test #1 (Red Test)

No Modifications from Original Factory Condition

Test #3 (Black Test)

Insurance Institute for Highway Safety

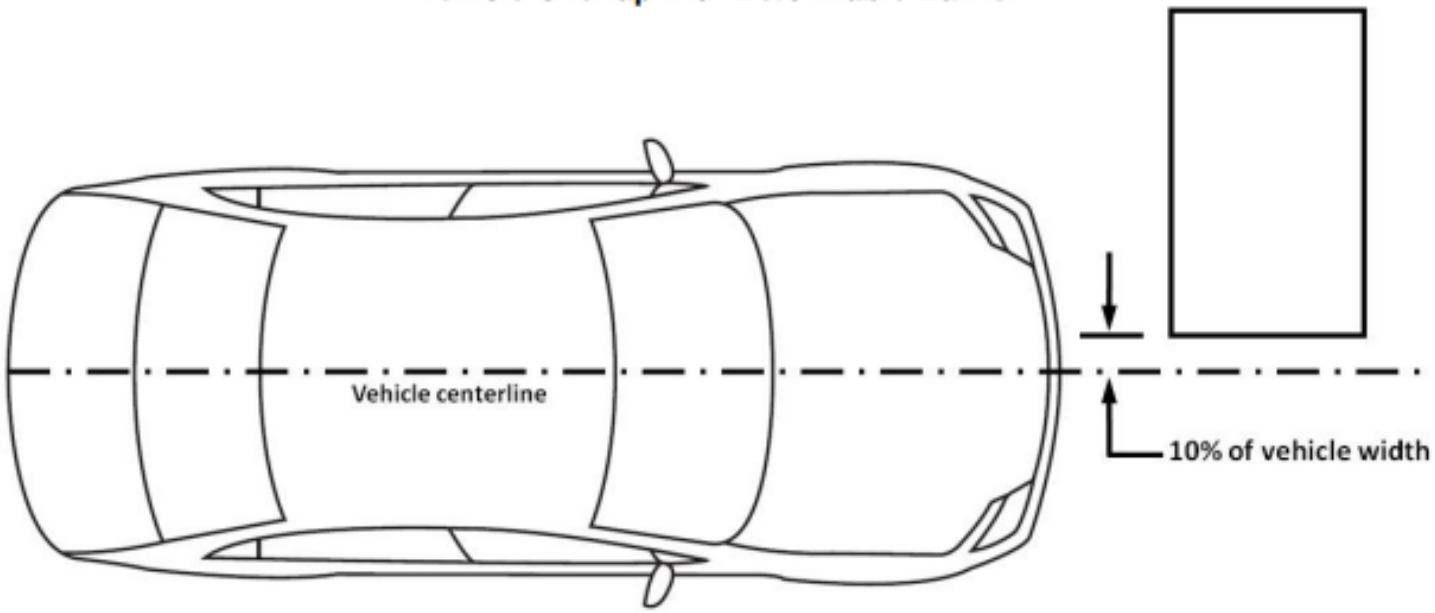
Moderate Overlap Frontal Crashworthiness Evaluation

Crash Test Protocol (Version XVIII)

July 2017

IIHS Moderate Overlap Test Protocol Followed to the Letter

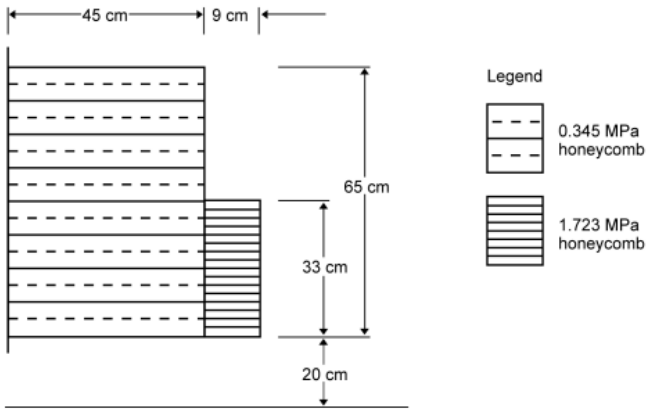
Figure 1
Vehicle Overlap with Deformable Barrier



Tests Conducted at KARCO Testing Facility in Adelanto, CA

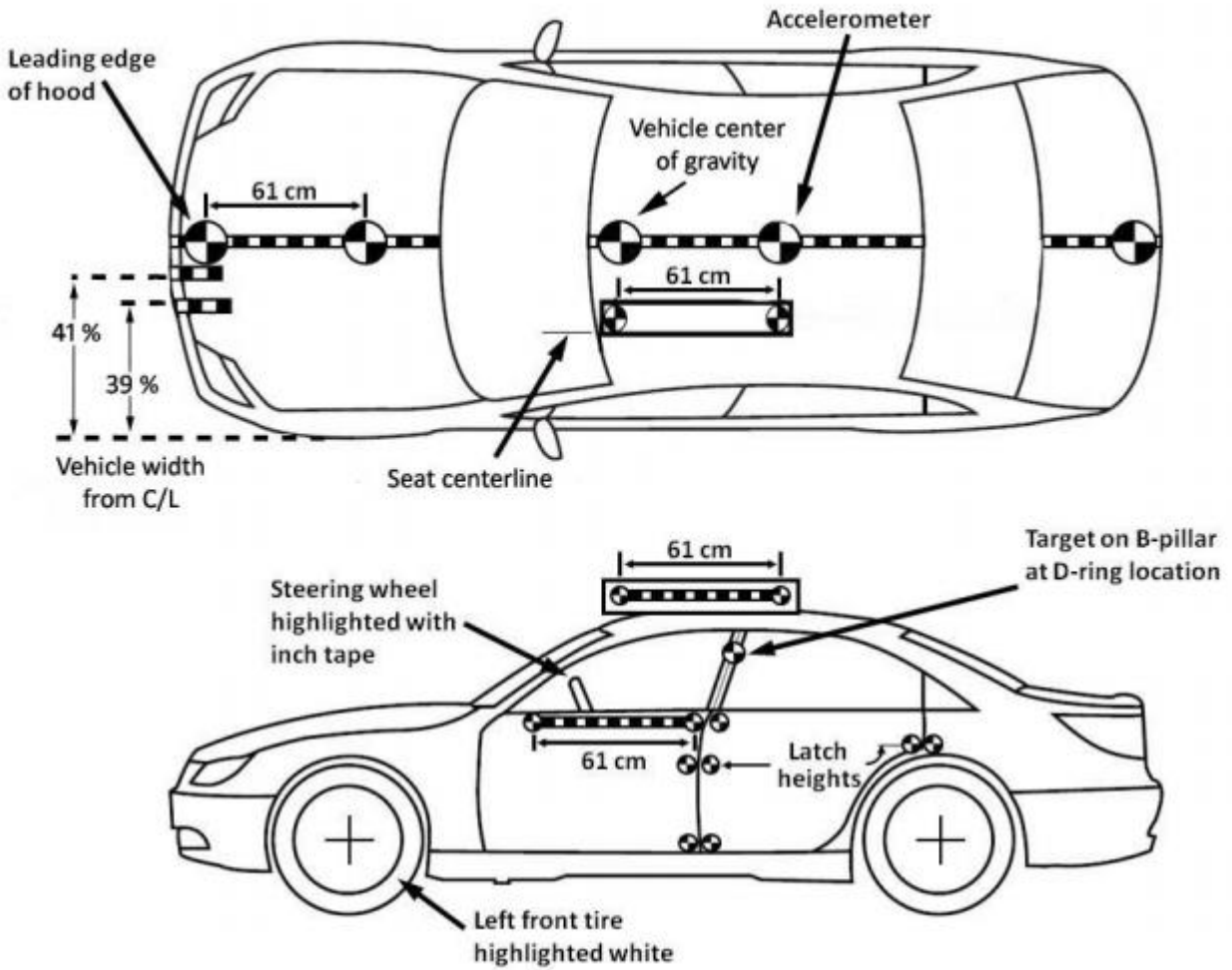
Figure 3
Deformable Barrier Face Profile and Dimensions

Single Stage with Bumper Element



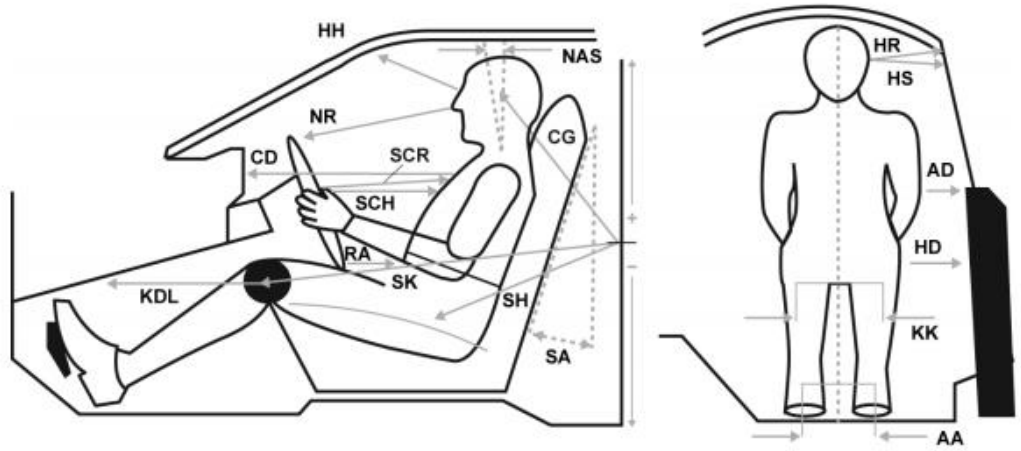
A Vehicle will pass this test if the injury criteria thresholds are not exceeded.

Figure 4
Exterior Surface Marking



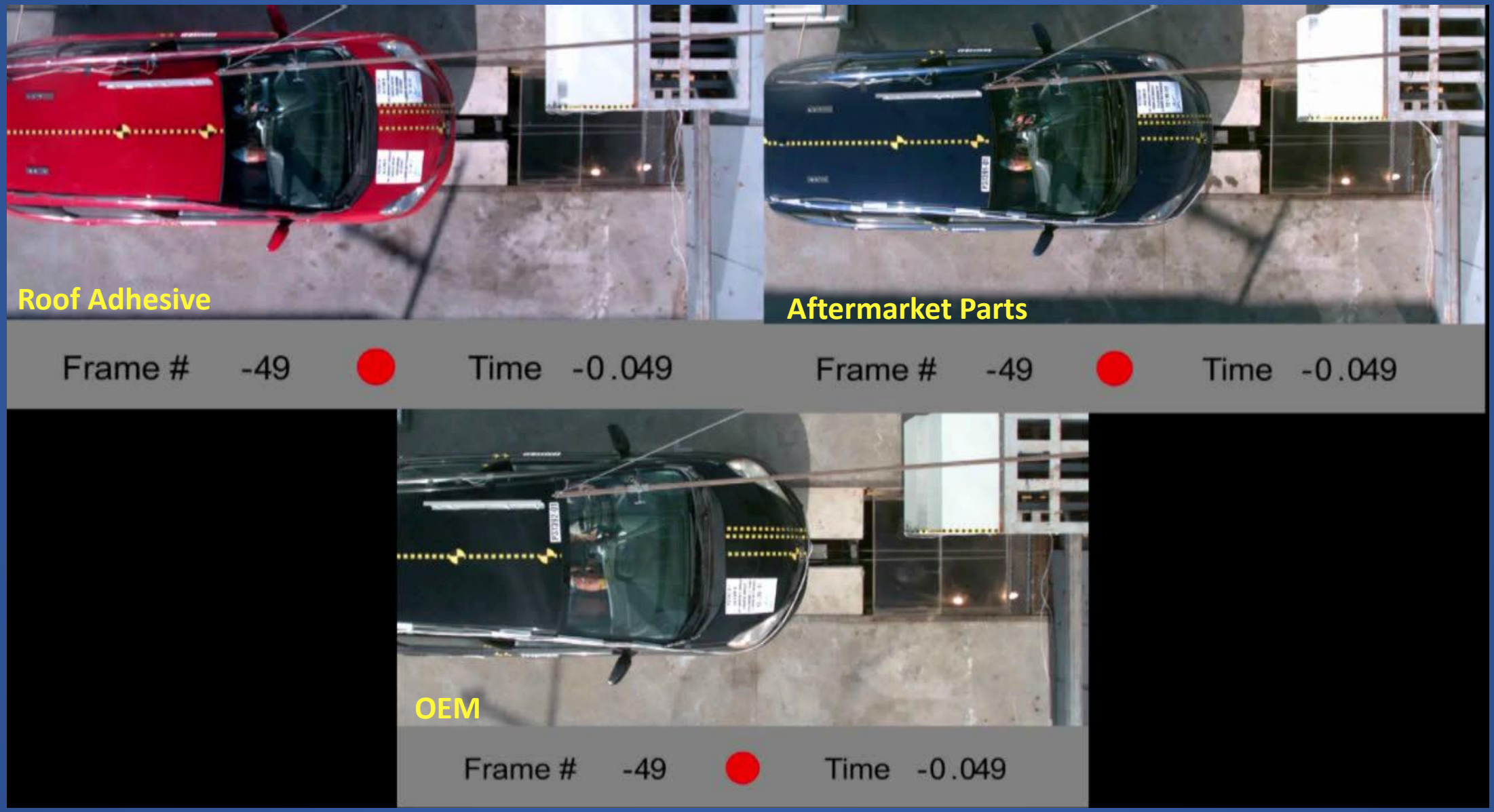
APPENDIX A

Dummy Clearance Measurement Definitions



Location	Code	Definition of Measurement
Ankle to ankle	AA	Taken between the center points of both ankles, after the feet are placed per Institute protocol.
Arm to door	AD	Taken from the center point of the elbow to the first contact point of the door panel.
Chest to dash	CD	Taken from the clavicle adjustment holes in the chest to the point on the dash at level of chest landmark.
Head to A-pillar	HA	Horizontal measurement taken from the center of the outboard target to the A-pillar.

Text Box


Roof Adhesive
Frame # -49
Time -0.049
Aftermarket Parts
Frame # -49
Time -0.049
OEM
Frame # -49
Time -0.049


THE REST OF THE
STORY

Vehicle Design

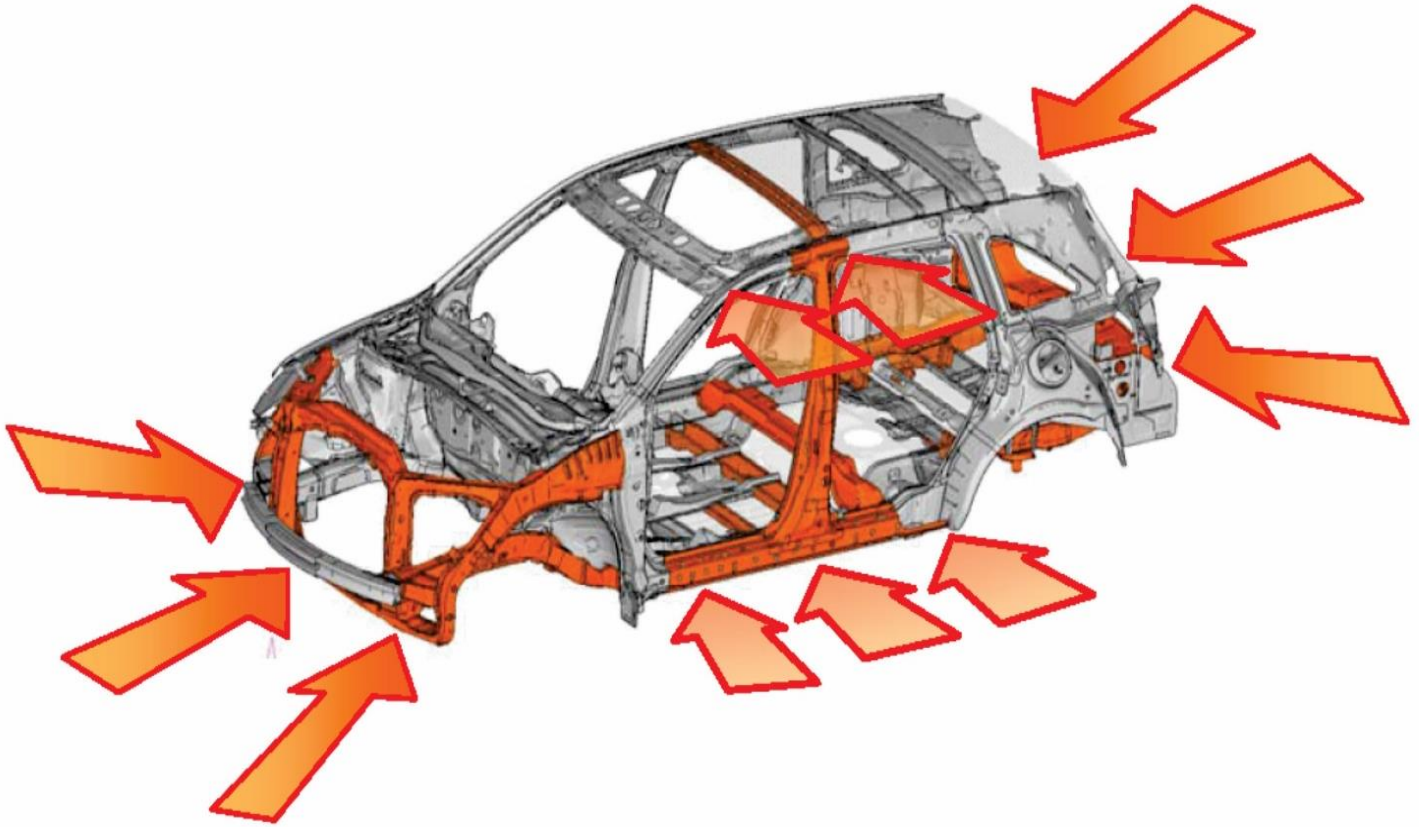
Safety is designed from the drawing board. Vehicles are tuned to meet specific performance and safety goals. Vehicle tuning is the foundation of safety. Improper assembly and inadequate replacement parts WILL affect tuning which alters vehicle safety.

Structural Performance

HONDA Technical Challenge

Create 360º Safety Cage

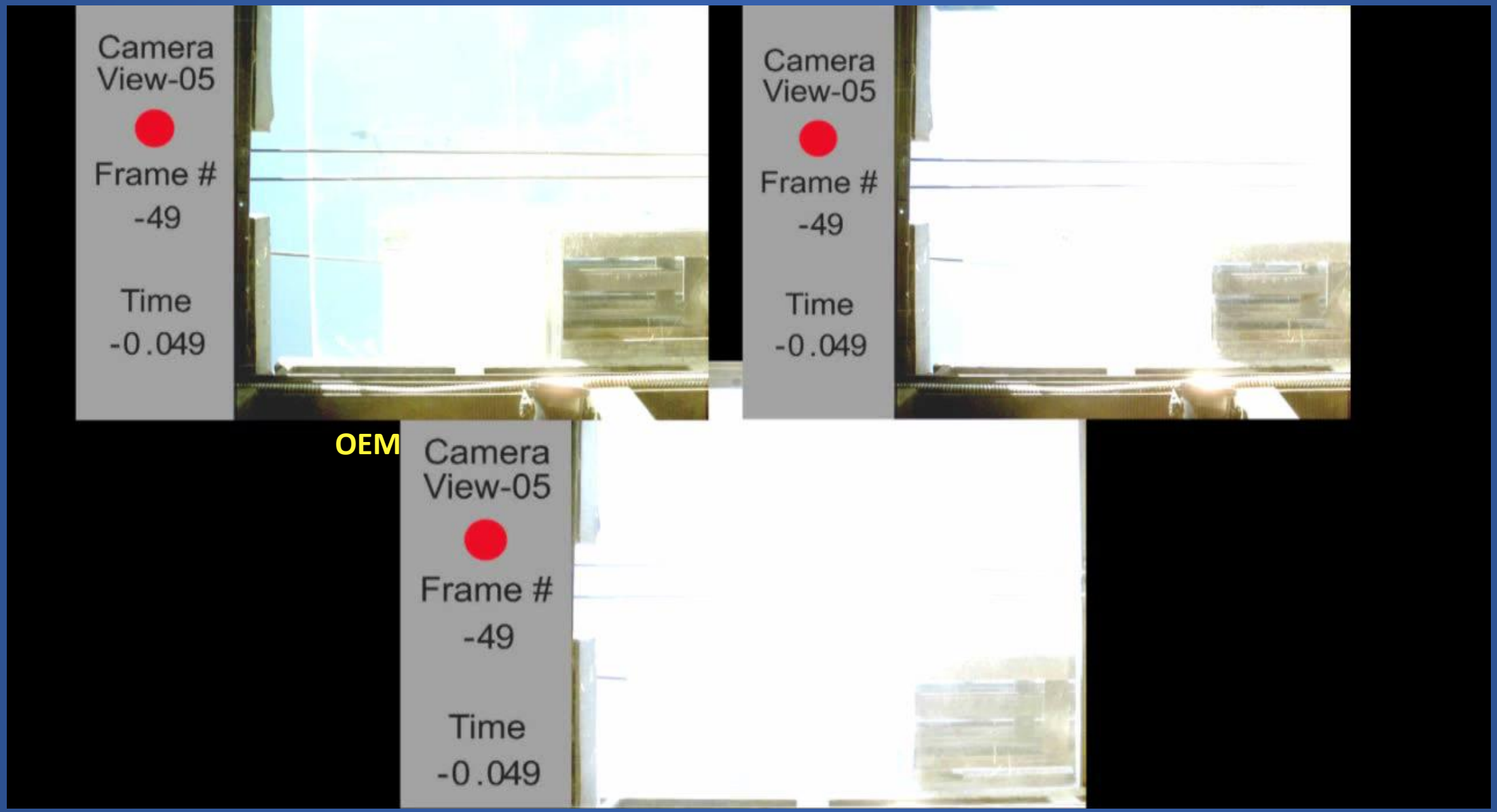
By optimizing Materials and Design



Underbody

Roof Adhesive

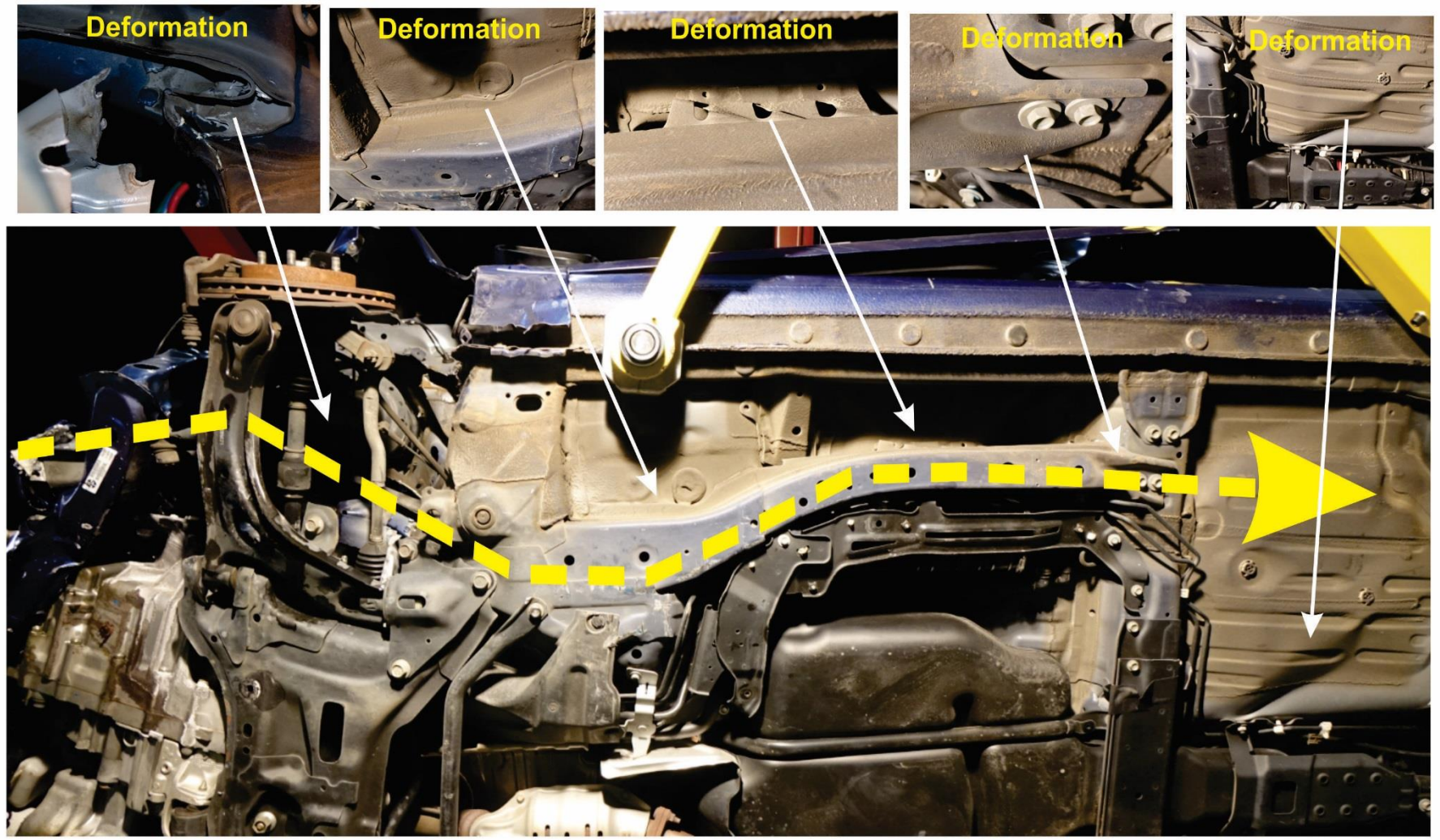
Aftermarket Parts

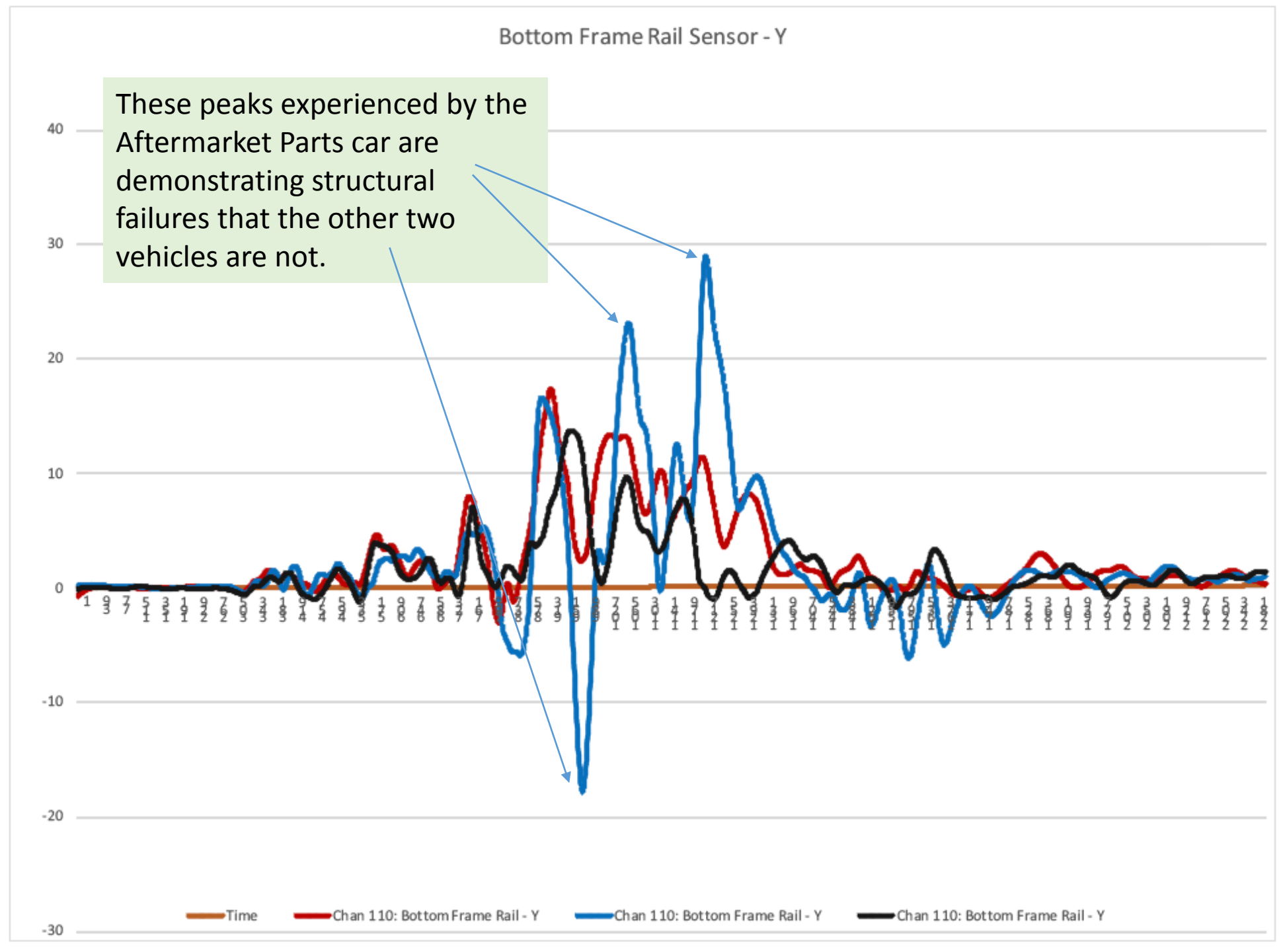


OEM

Structure Underneath the occupants caused injurious vertical loads

Aftermarket Parts

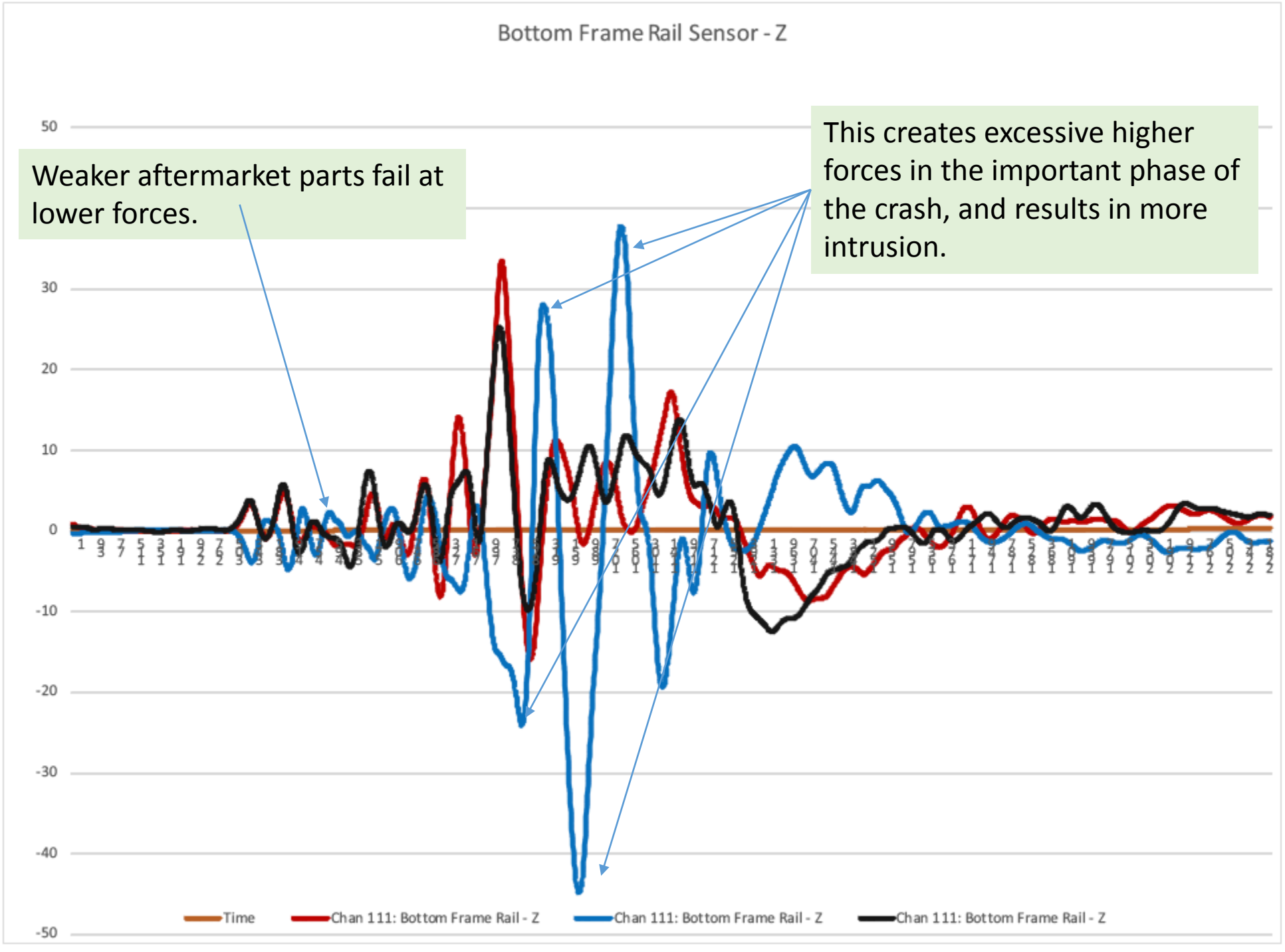




Blue-Aftermarket

Red-Adhesive

Black-OEM

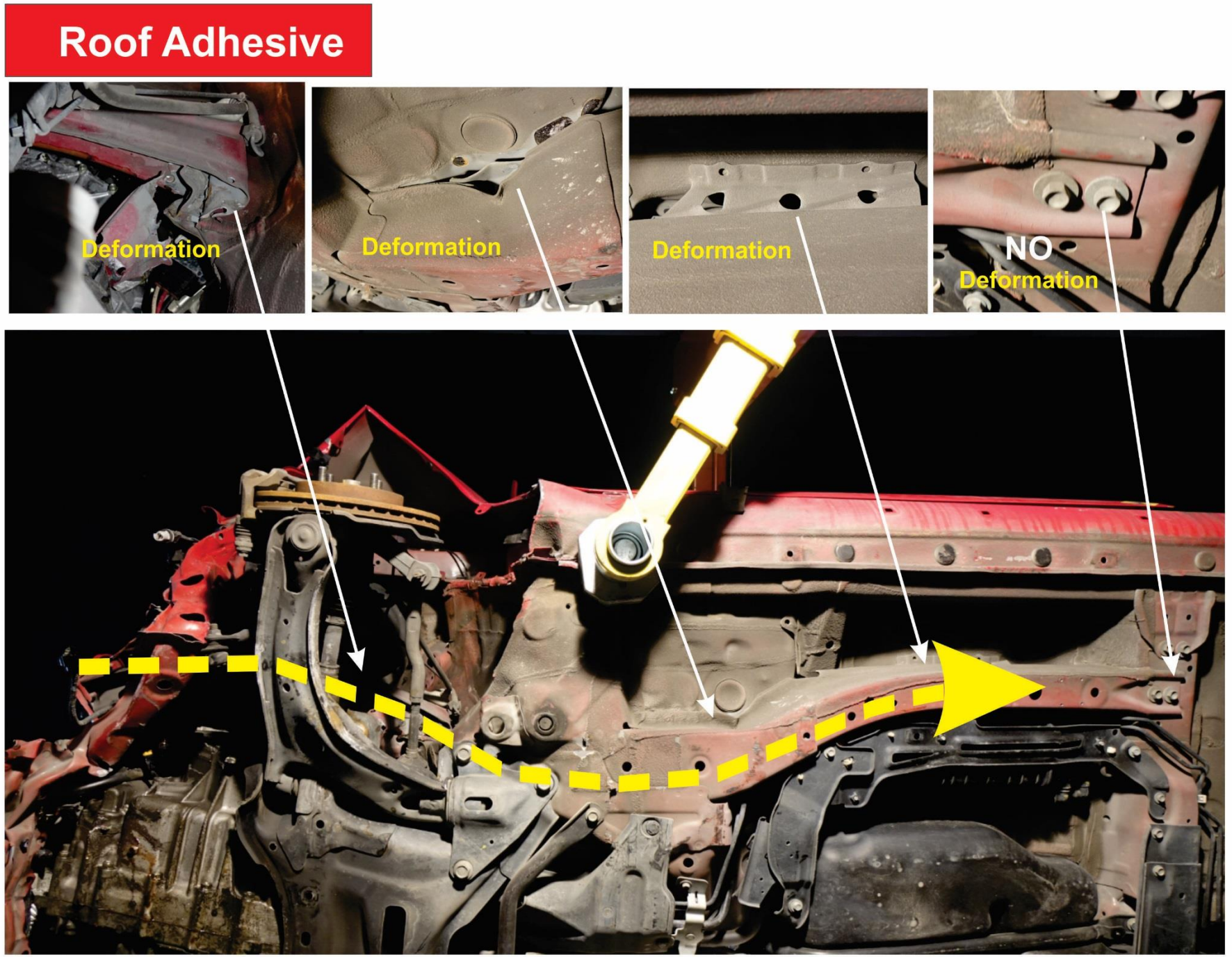


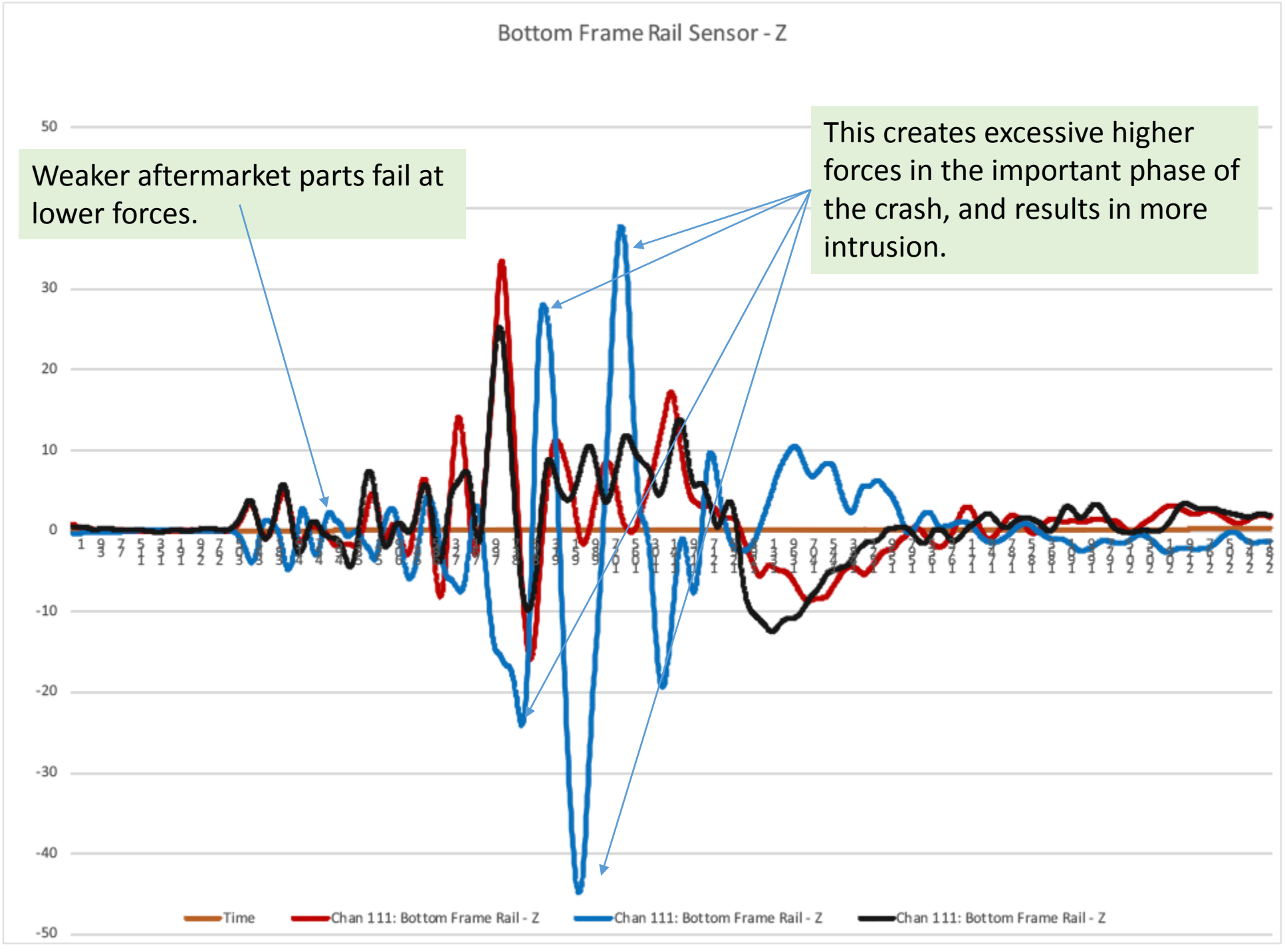
Blue-Aftermarket

Red-Adhesive

Black-OEM

Frame buckled underneath the driver



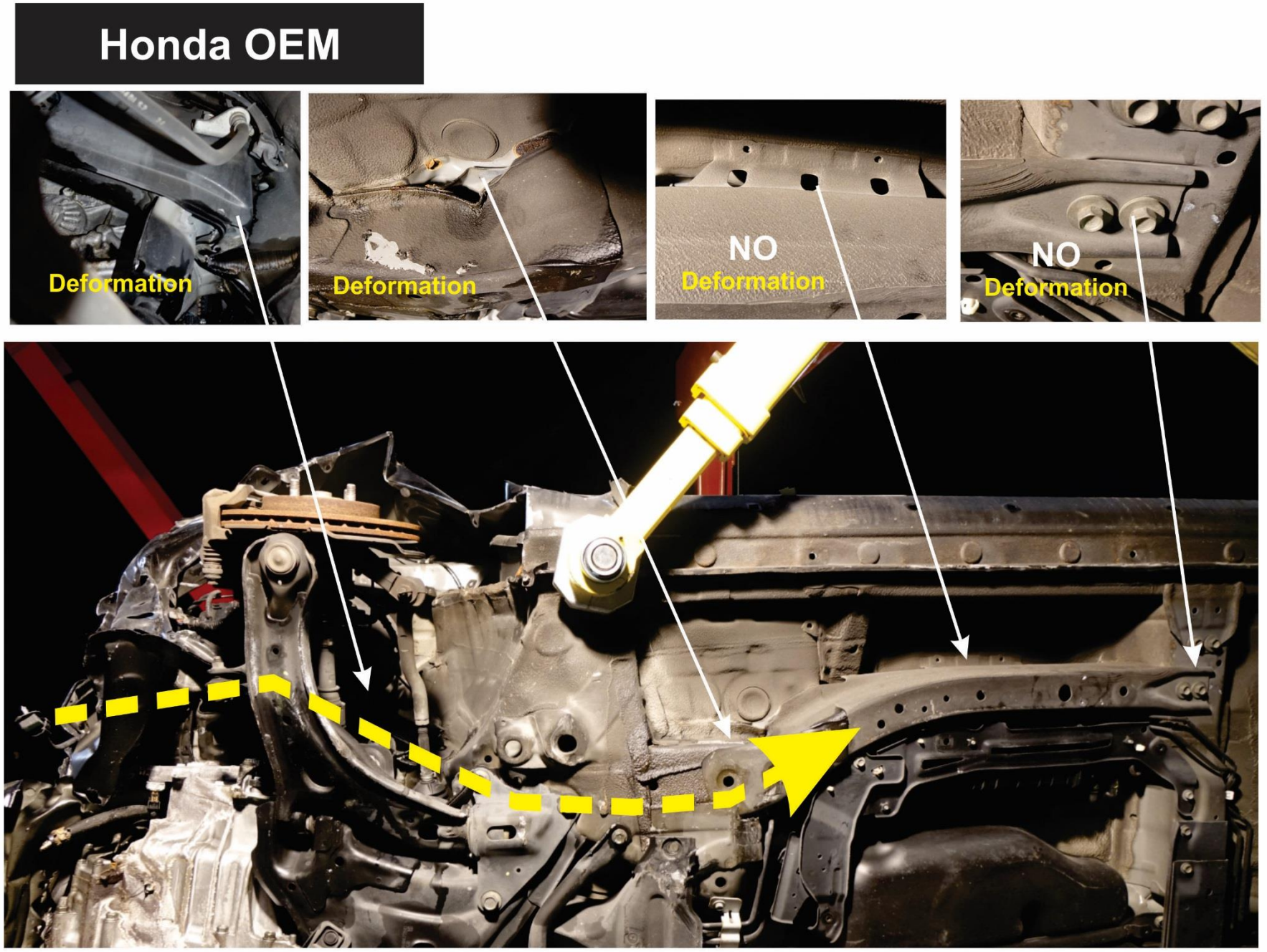


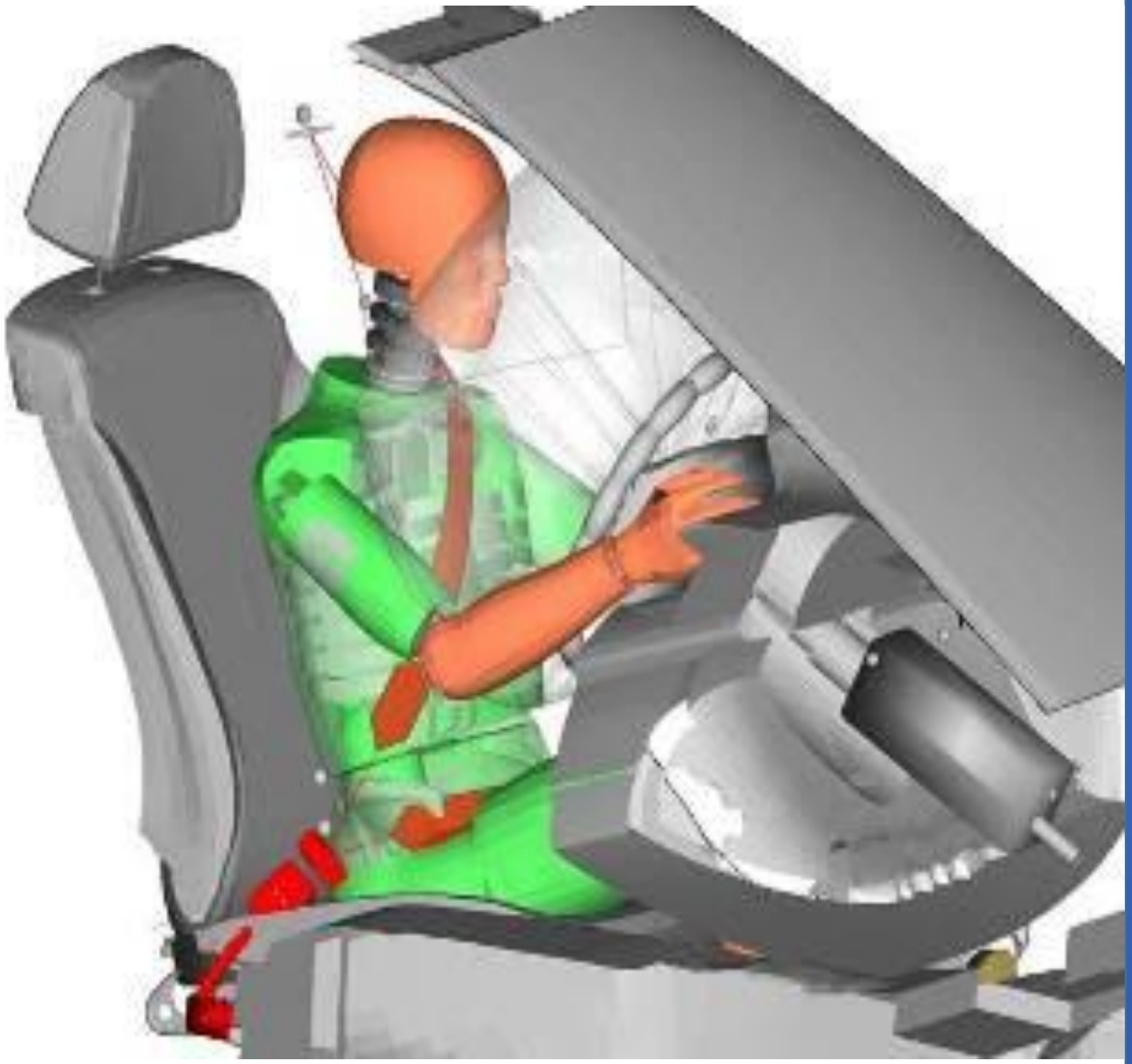
Blue-Aftermarket

Red-Adhesive

Black-OEM

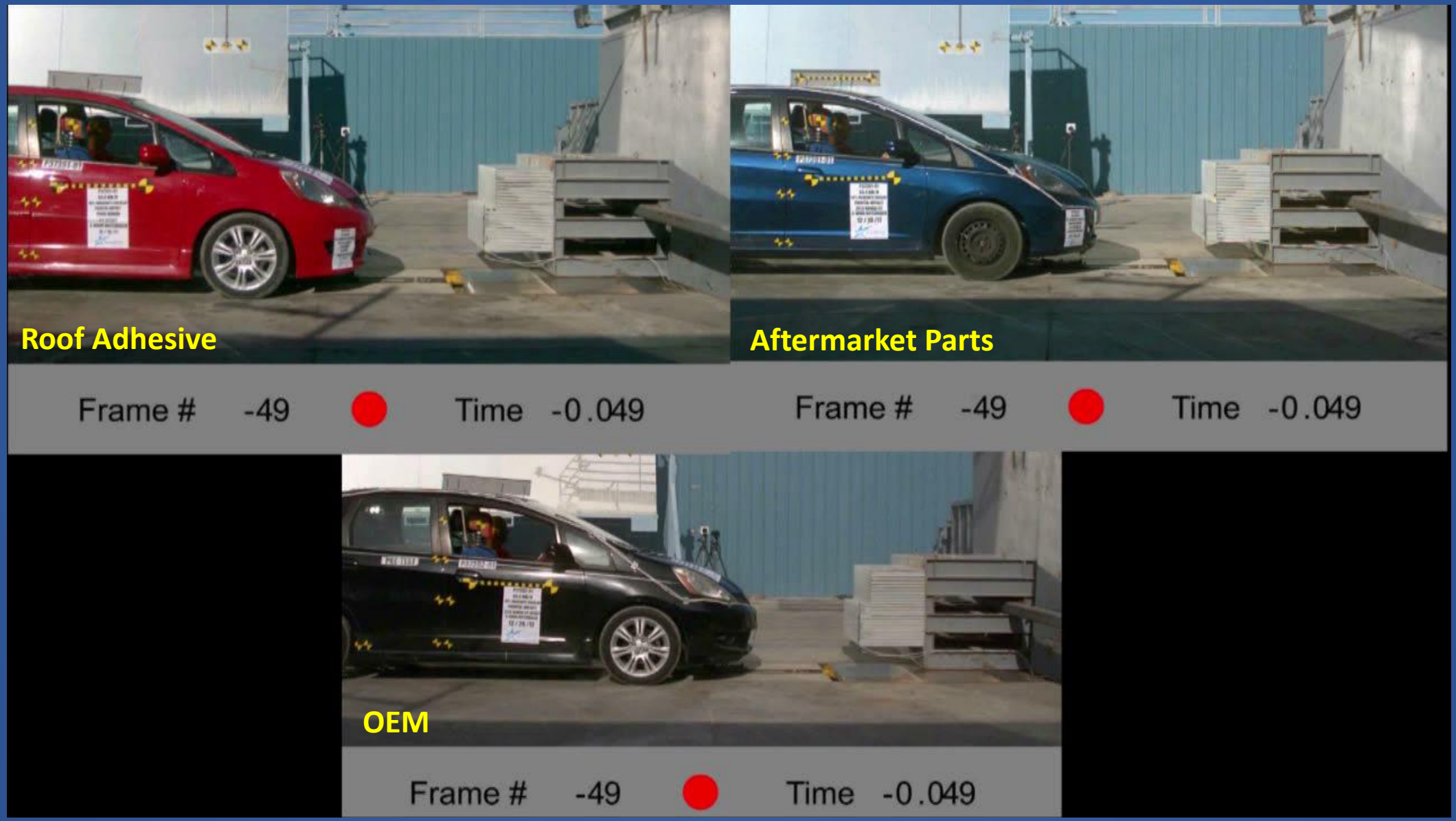
No frame damage underneath the driver





Restraint System Performance Affected By Improper Parts and Repair

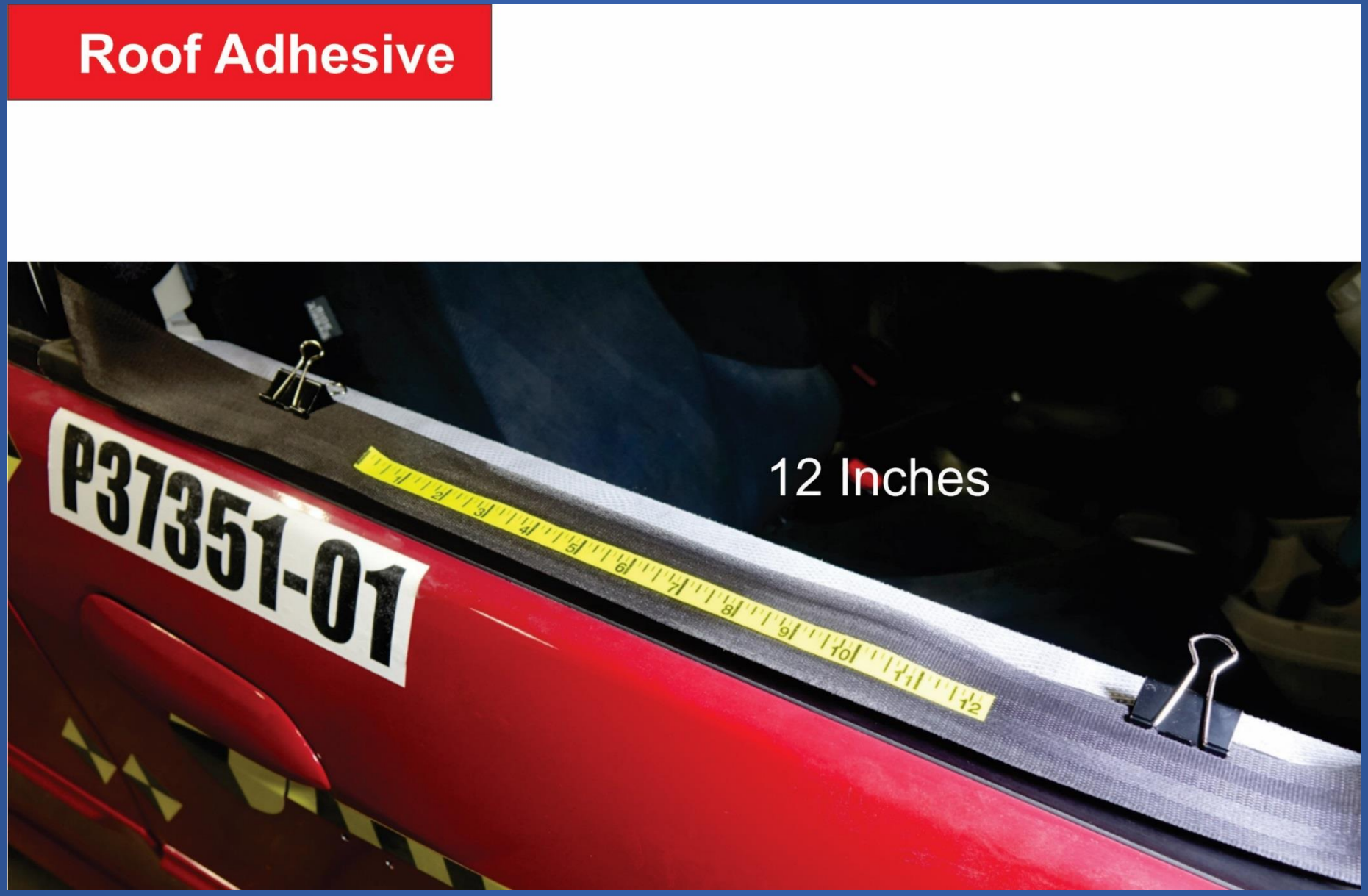
Safety Systems Are Tied Together and Must Work In Harmony With Other Safety Systems



Excessive Frame Crush Affects Seatbelt Performance

Aftermarket Parts

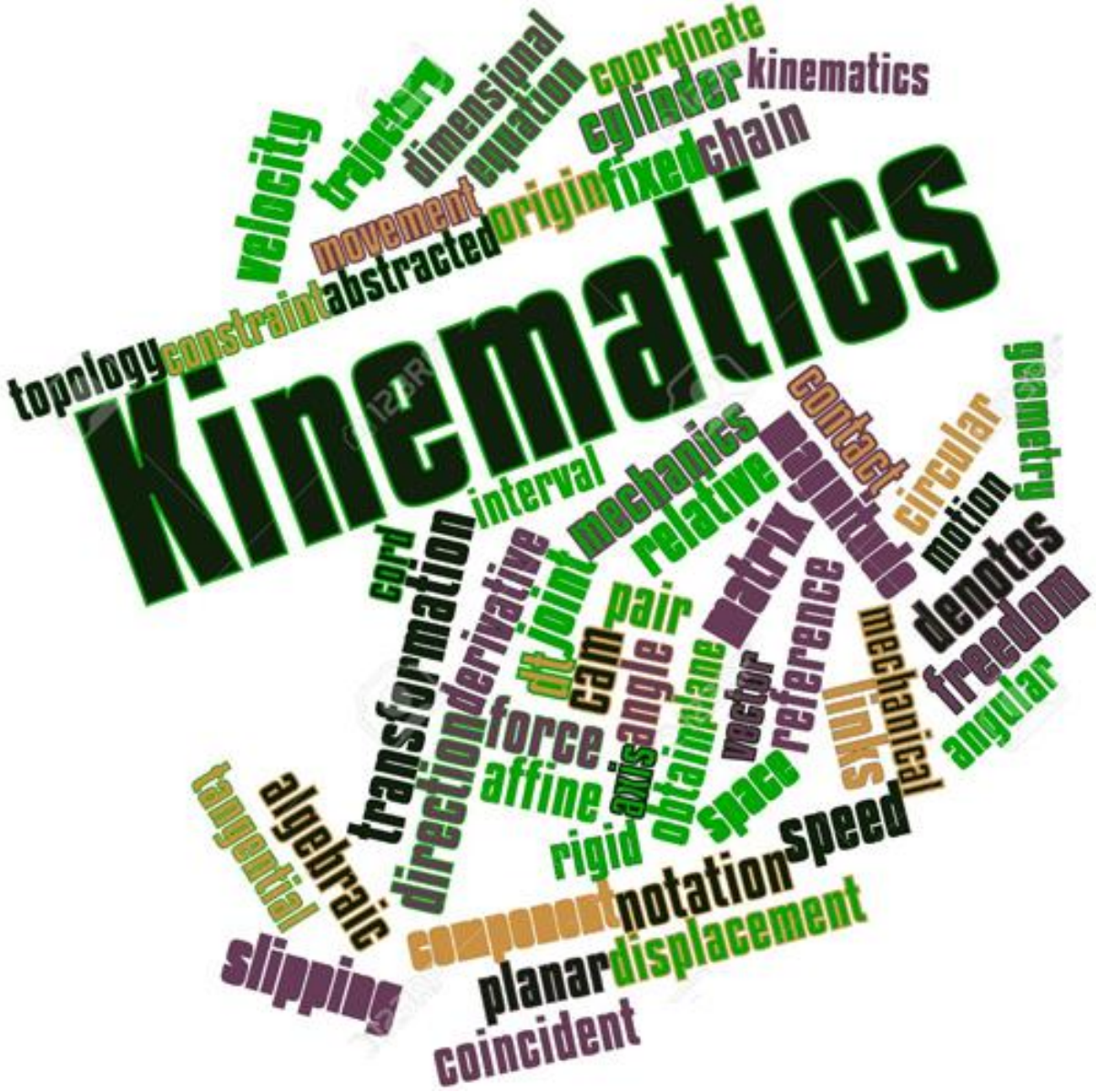
Excessive Frame Crush Affects Seatbelt Performance



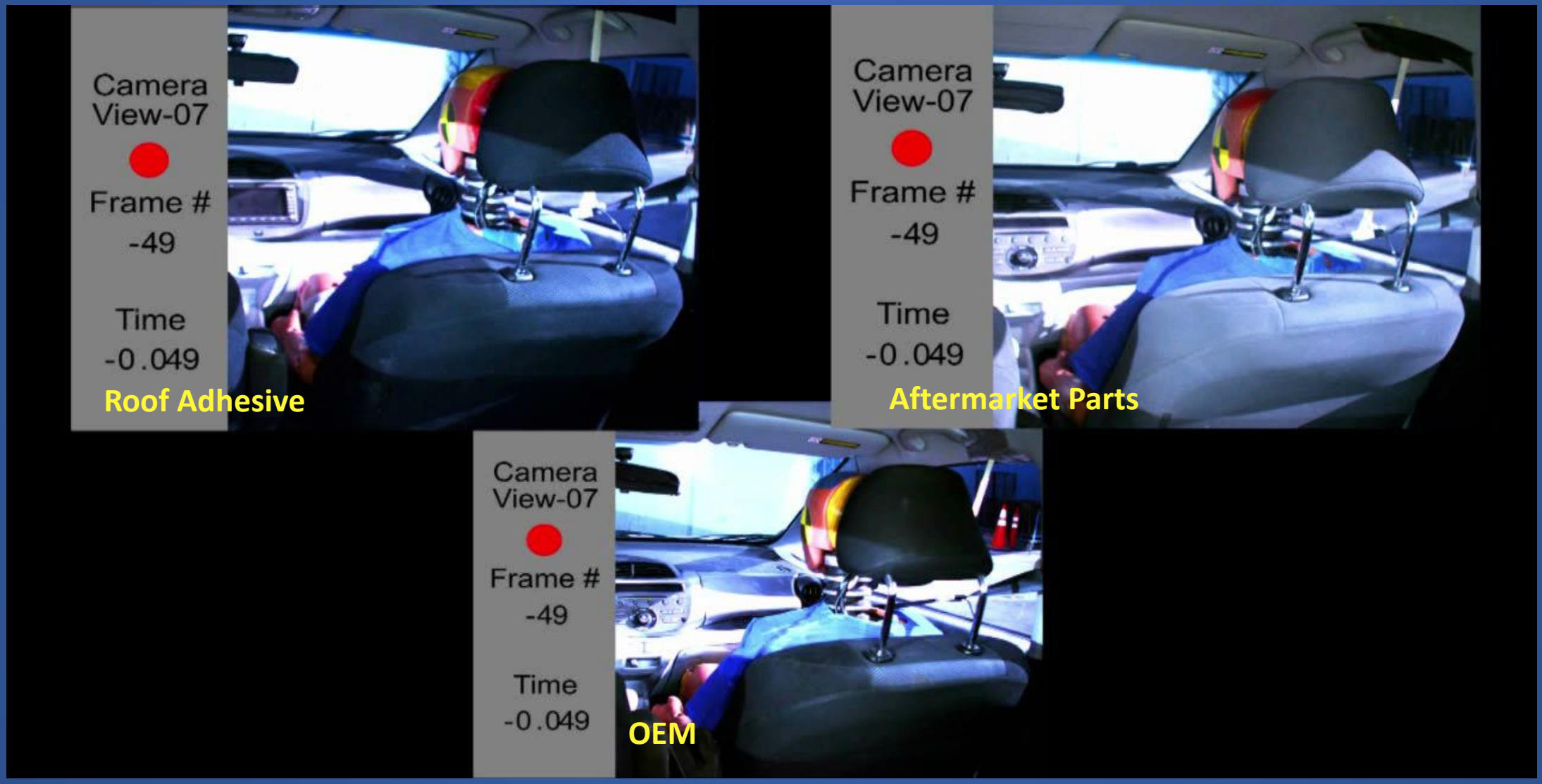
When Safety Systems Work Together, The Seatbelt System Works More Efficiently

Honda OEM

Safety Systems Have A Direct Correlation to Proper Kinematics

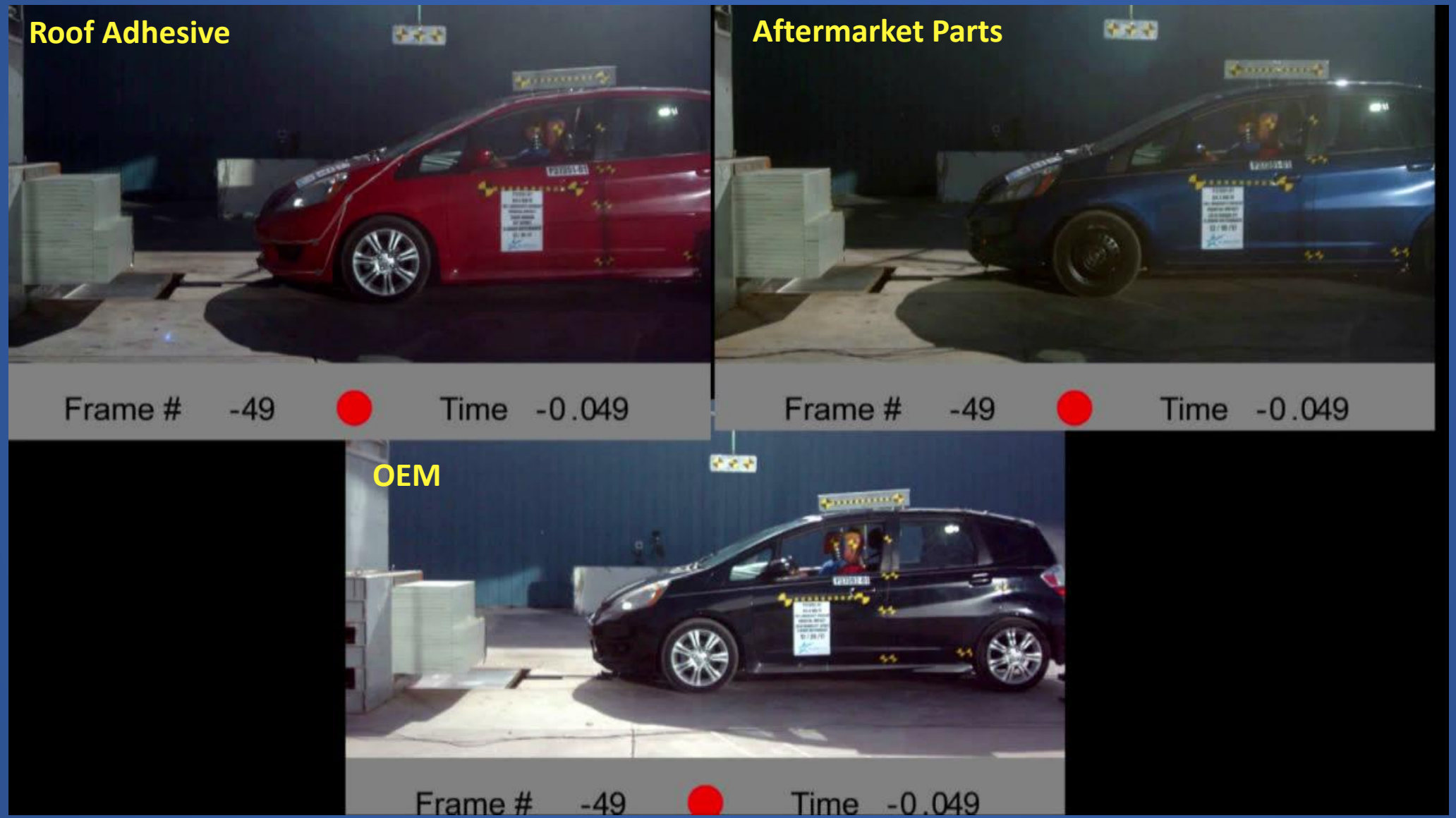


Excessive Structural Crush and Increased Seatbelt Payout Negatively Affects Seatbelt Performance



Injuries start with the weakest link, once that link is broken, subsequent failures will increase the potential for injury.

Improper Repairs and Material Increase Probability of Harm



The HIC numbers for the adhesive vehicle are high because the vehicle failed to properly distribute energy

Roof Adhesive

Curve Description	Units	HIC/CLP	t1	t2	Avg. G's	ms.
Driver HIC15 Primary	HIC15	427.4	91.0	106.0	60.5	15.0
Driver HIC15 Redundant	HIC15	424.5	91.2	106.2	60.3	15.0

Aftermarket Parts

Curve Description	Units	HIC/CLP	t1	t2	Avg. G's	ms.
Driver HIC15 Primary	HIC15	332.4	86.9	101.9	54.7	15.0
Driver HIC15 Redundant	HIC15	316.6	86.8	101.8	53.6	15.0

Honda OEM

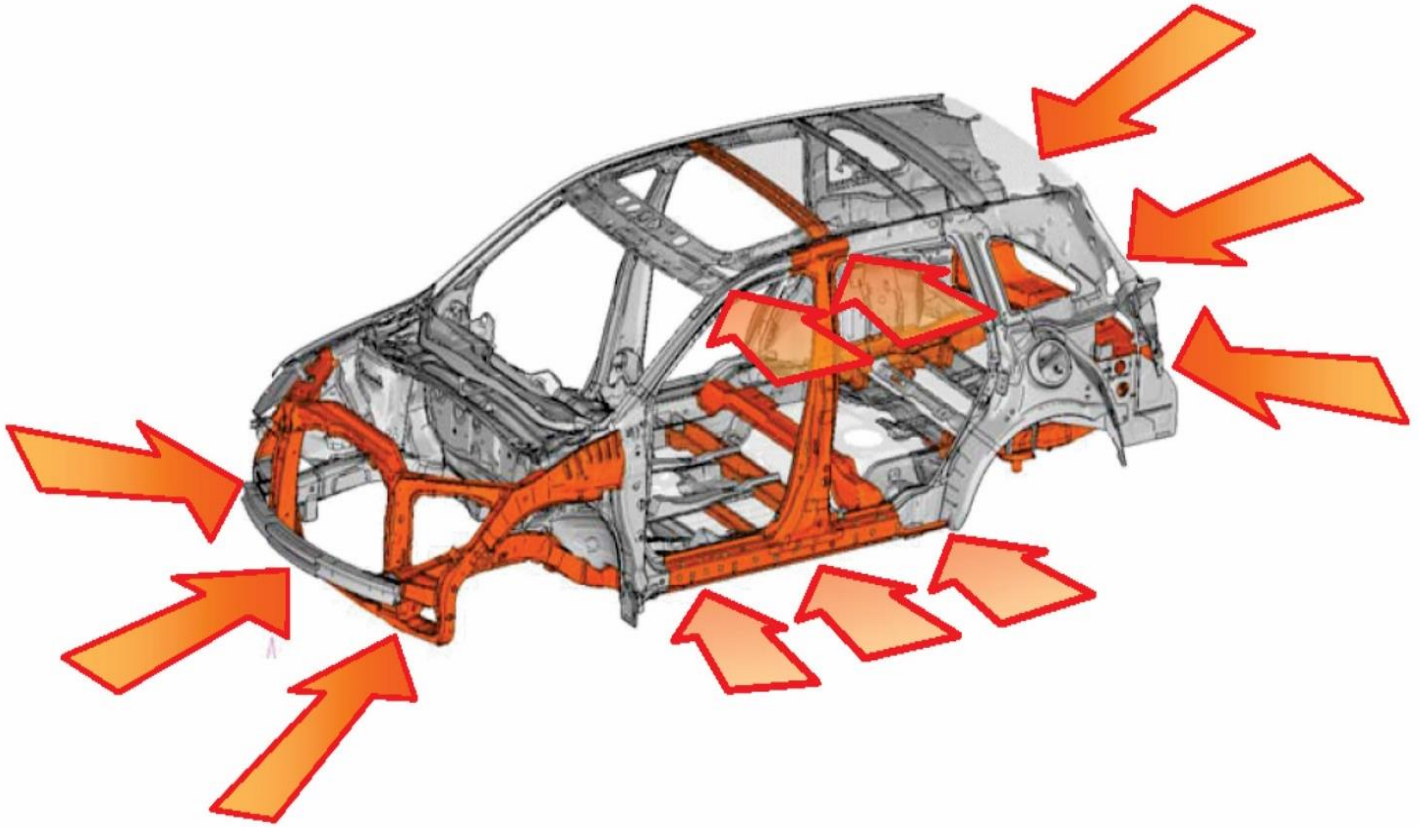
Curve Description	Units	HIC/CLP	t1	t2	Avg. G's	ms.
Driver HIC15 Primary	HIC15	282.6	91.8	106.8	51.3	15.0
Driver HIC15 Redundant	HIC15	280.7	91.9	106.9	51.1	15.0

Structural Performance

HONDA Technical Challenge

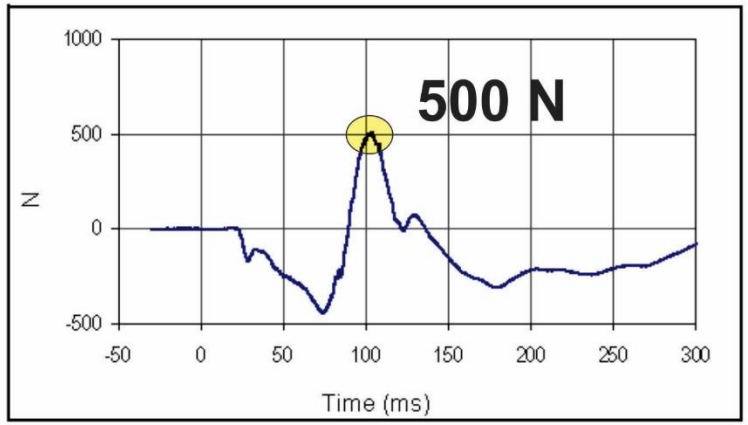
Create 360º Safety Cage

By optimizing Materials and Design



Inadequate Repairs and Material Cause Neck Injury

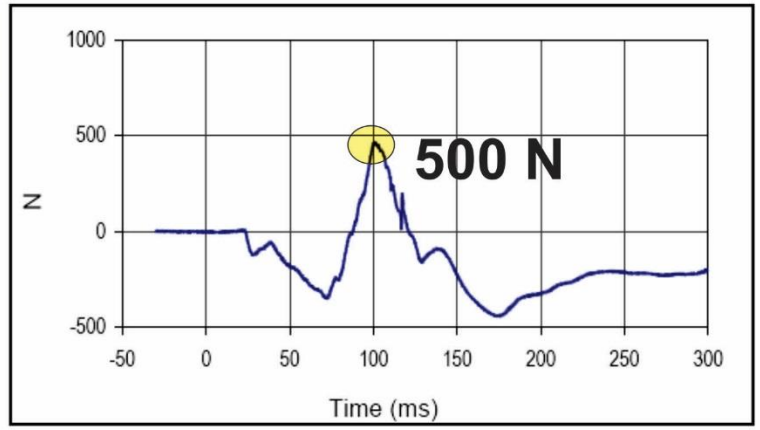
Roof Adhesive



Driver Upper Neck Force X

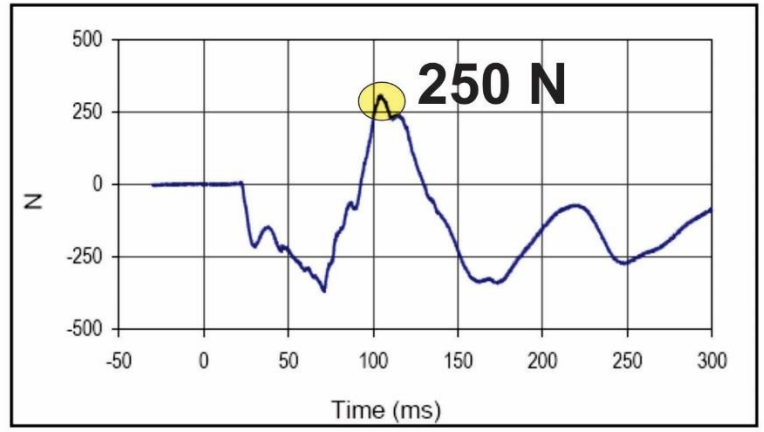
Curve Description			
Driver Upper Neck Force X			
Plot No.		SAE Class	Units
009		1000	N
Max	Time	Min	Time
508.6	104.2	-444.0	74.3

Aftermarket Parts

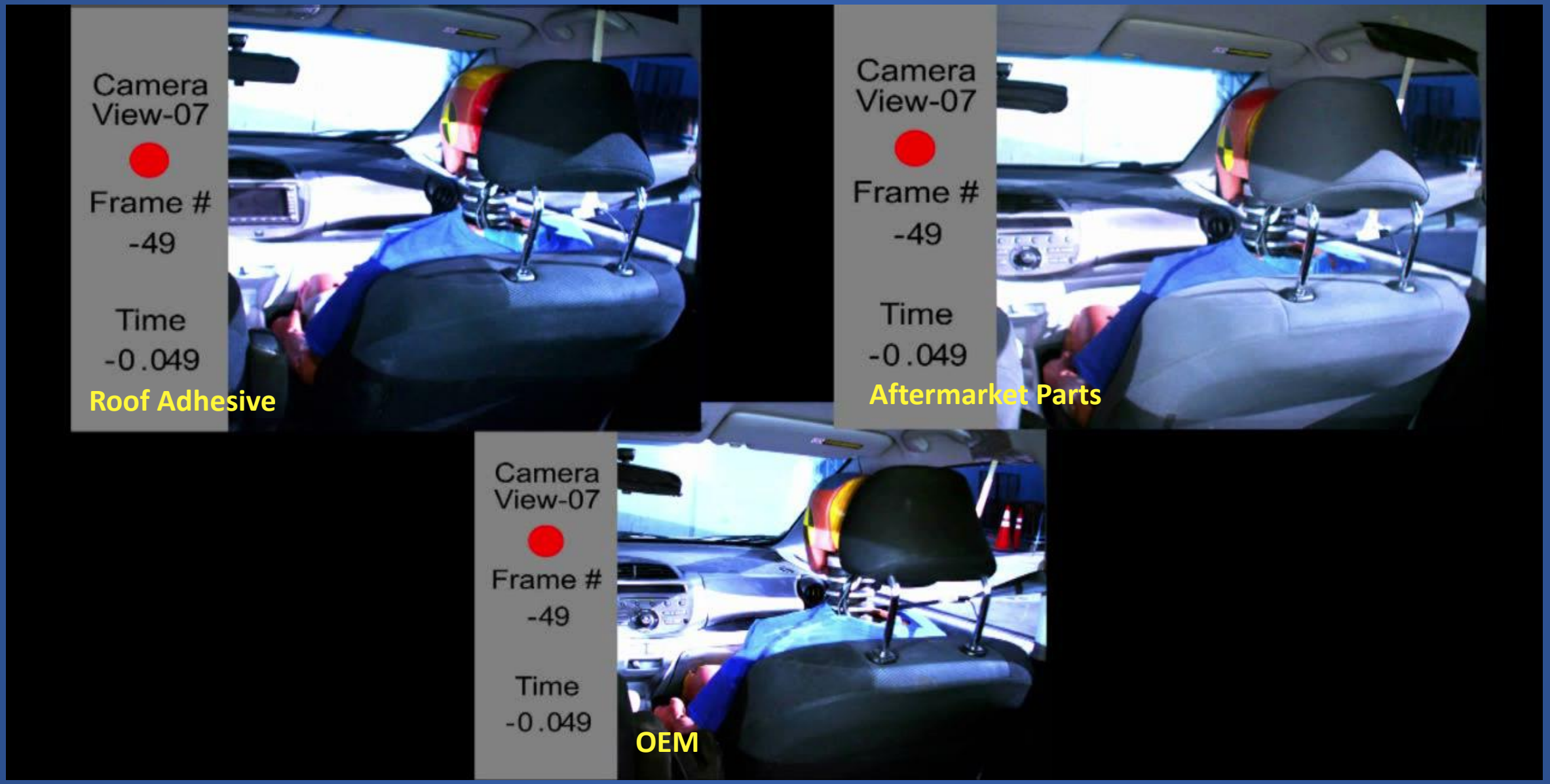


Curve Description			
Driver Upper Neck Force X			
Plot No.		SAE Class	Units
009		1000	N
Max	Time	Min	Time
465.7	101.4	-439.9	175.3

Honda OEM

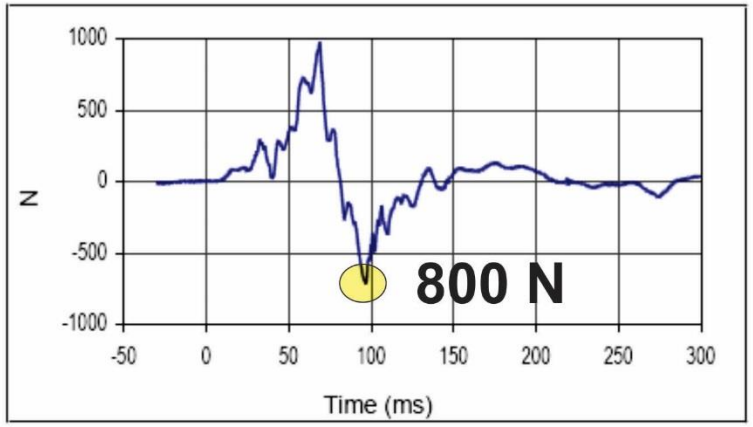


Curve Description			
Driver Upper Neck Force X			
Plot No.		SAE Class	Units
009		1000	N
Max	Time	Min	Time
306.5	104.4	-370.5	71.1


Camera
View-07
Frame #
-49
Time
-0.049
Roof Adhesive
Camera
View-07
Frame #
-49
Time
-0.049
Aftermarket Parts
Camera
View-07
Frame #
-49
Time
-0.049
OEM

Inadequate Repairs and Material Cause Femur Fractures

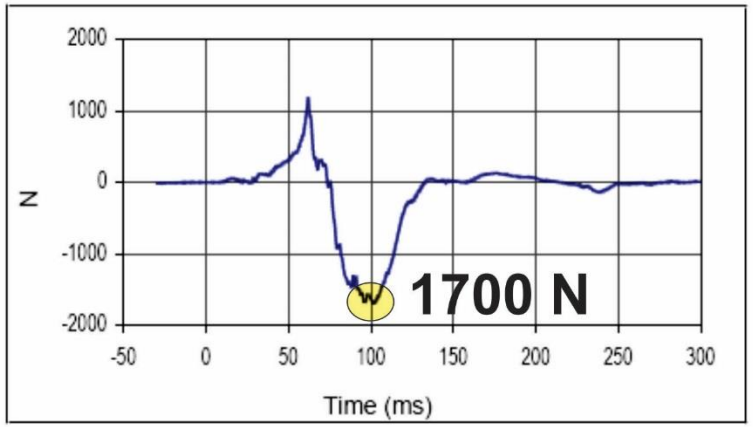
Roof Adhesive



Driver Left Femur

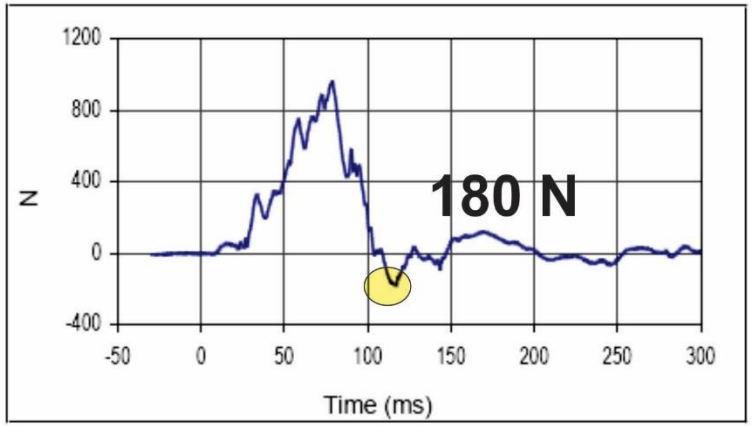
Curve Description			
Driver Left Femur Force Z			
Plot No.		SAE Class	Units
033		600	N
Max	Time	Min	Time
971.1	68.8	-708.9	96.6

Aftermarket Parts



Curve Description			
Driver Left Femur Force Z			
Plot No.		SAE Class	Units
033		600	N
Max	Time	Min	Time
1178.6	61.9	-1685.4	101.4

Honda OEM



Curve Description			
Driver Left Femur Force Z			
Plot No.		SAE Class	Units
033		600	N
Max	Time	Min	Time
960.8	78.8	-179.7	117.1

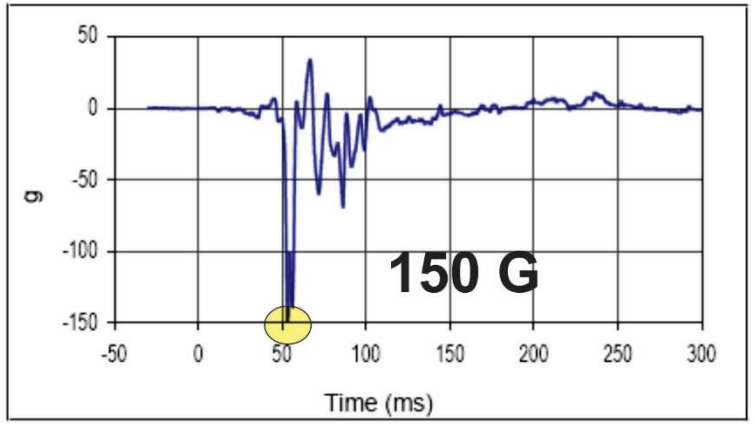

Roof Adhesive


Aftermarket Parts


Honda OEM

Inadequate Repairs and Material Cause Ankle Fractures

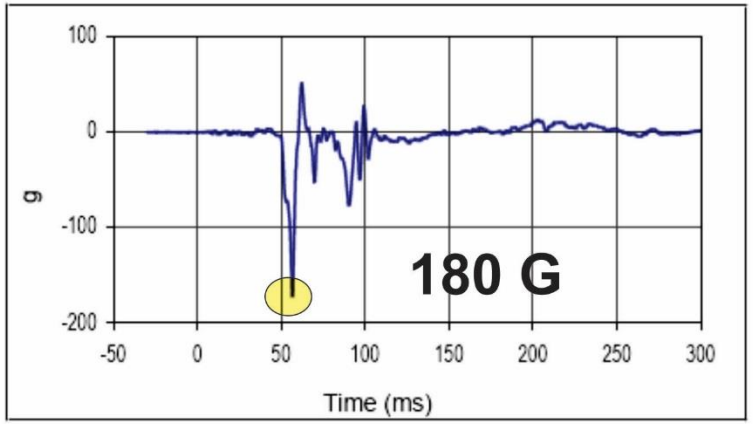
Roof Adhesive



Driver Right Toe

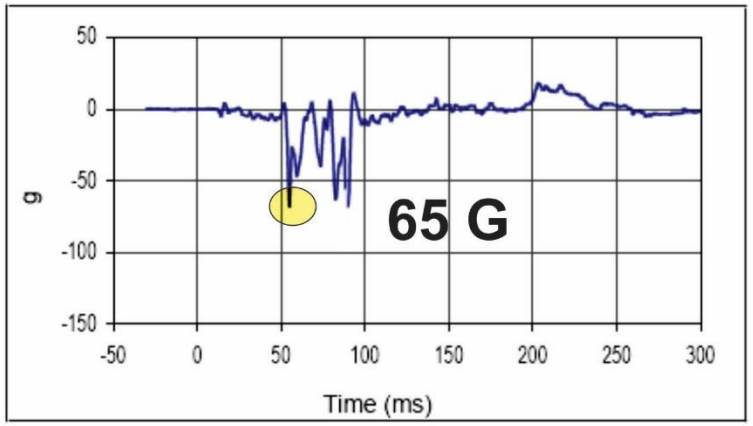
Curve Description			
Driver Right Toe Acceleration Z			
Plot No.		SAE Class	Units
056		180	g
Max	Time	Min	Time
33.9	66.6	-149.3	53.3

Aftermarket Parts



Curve Description			
Driver Right Toe Acceleration Z			
Plot No.		SAE Class	Units
056		180	g
Max	Time	Min	Time
51.1	62.1	-173.6	56.6

Honda OEM



Curve Description			
Driver Right Toe Acceleration Z			
Plot No.		SAE Class	Units
056		180	g
Max	Time	Min	Time
18.2	203.7	-102.1	89.3


Roof Adhesive


Aftermarket Parts


Honda OEM

These Tests Prove that Aftermarket Parts and Non-OEM Repair Methods Destroy Designed and Engineered Safety Systems and Increase the Likelihood of Serious Injury.