



**When
Quality
Counts**

**Not all Aftermarket Parts
are Created Equal**

Parts Covered CAPA 501: Bumper Parts Standard

- Bumpers (Front and Rear)
- Reinforcements (Rebars)
- Bumper Brackets
- Energy Absorbers (Plastic and Foam)

CAPA Bumper Parts Standard Development History

- April 2009: CAPA Board Decides to Develop Bumper Standard
- December 2009: CAPA begins evaluation of CCS and AM bumper parts.
- April 2010: CAPA Technical Committee reviews CAPA 501 Standard Draft.
- June/July 2010: IIHS performs high and low-speed damageability tests.
- October 2010: CAPA Technical Committee Approves CAPA 501

CAPA 501: Bumper Parts Standard: What Does the Standard Test?

Metal, Plastic, and Foam Parts

- Dimensions
 - Outward
 - Mounting Holes
 - Thickness
- Material Composition
- Density
- Mechanical Comparability (Strength)
 - Tensile
 - Yield
- Thermal properties
- Chemical Resistance
- Welds
- Fasteners
- Adhesives
- Hitches
- Coatings
- Galvanization
- Corrosion Resistance
- Coatings
 - Chrome
 - Paint
 - Primer
- CAPA Vehicle Test Fit
 - Appearance
 - Fit
- Full Part Stress Test
 - Dynamic
 - Quasi-Static

CAPA 501: Bumper Parts Standard: What Does the Standard Test?

- Full Part Stress Test: Dynamic



CAPA 501 Development Testing: Survey of Parts Currently in Market

Different Plastics Used

- Car company part = PP/PBT
- Aftermarket part = ABS

Different Metals Used

- CCS part = ultra high strength steel
- AM part = low carbon/low strength steel

Weaker Materials

- Tensile Strength: AM part 80% less
- Yield Strength: AM 89% less

CAPA 501 Development Testing: Survey of Parts Currently in Market

Different Material Thicknesses

- AM part 24% thicker than CCS part
- AM part 11% less thick than CCS part

Different Construction Techniques

- Welds – missing
- Fasteners – different shapes and types

Vehicle Test Fit Failures

- Adjacent parts don't fit
- Twisting and tilting when mounted

Why IHS?

- Worldwide reputation for safety and damageability research.
- Trusted authority on conducting and evaluating crash test results.
- CAPA wanted to take the extra step to insure that parts meeting CAPA's comprehensive requirements for comparability would in fact perform the same in comparative damageability and crash tests.

CAPA 501 Development Testing: IIHS Tested Part NOT meeting 501

2009 Toyota Camry Reinforcement Bar

- Too thick, failed material comparability
- Part did not buckle in center, and bumper frame ends crushed.

2005 Ford F-150 Front Bumper

- Too thick, too strong
- Had lower estimated repair costs due to incorrect fog lamp recess. IIHS “reverse engineered AM parts should match the car company part”

IIHS Low Speed Crash Testing: Front Bumper 2008 Dodge Ram 1500

PART MET CAPA 501

Result: Identical Repair.

Car Company Brand Service Bumper



\$1,120 in damage

Aftermarket Bumper



\$1,120 in damage

IIHS High Speed Crash Testing: Front Bumper 2008 Dodge Ram 1500

IIHS: The injury and intrusion measures for both tests were nearly identical; with both vehicles earning an overall IIHS rating of “Good.”

Car Company Brand Service Bumper



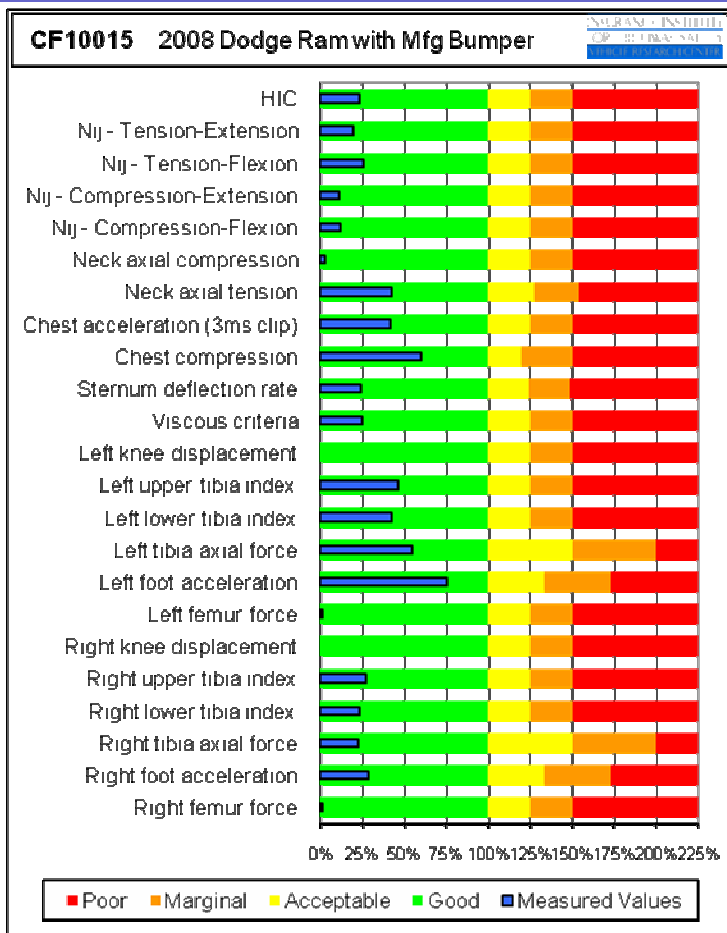
Test CF10015
IIHS Rating: Good

Aftermarket Bumper

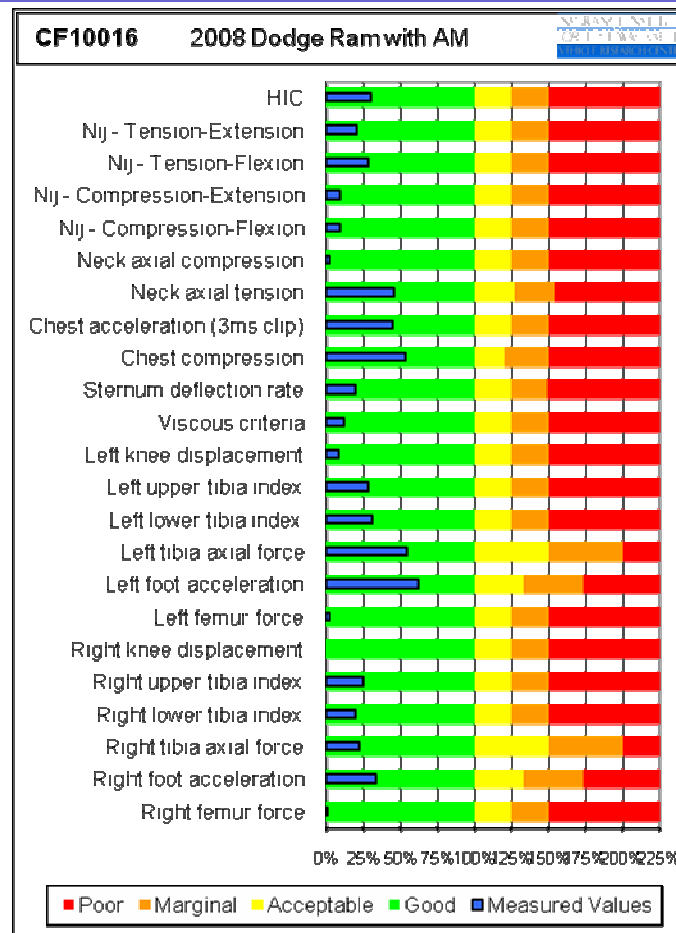


Test CF10016
IIHS Rating: Good

IIHS Frontal Offset High-Speed Testing Injury Measures – Hybrid III 50th percentile male dummy



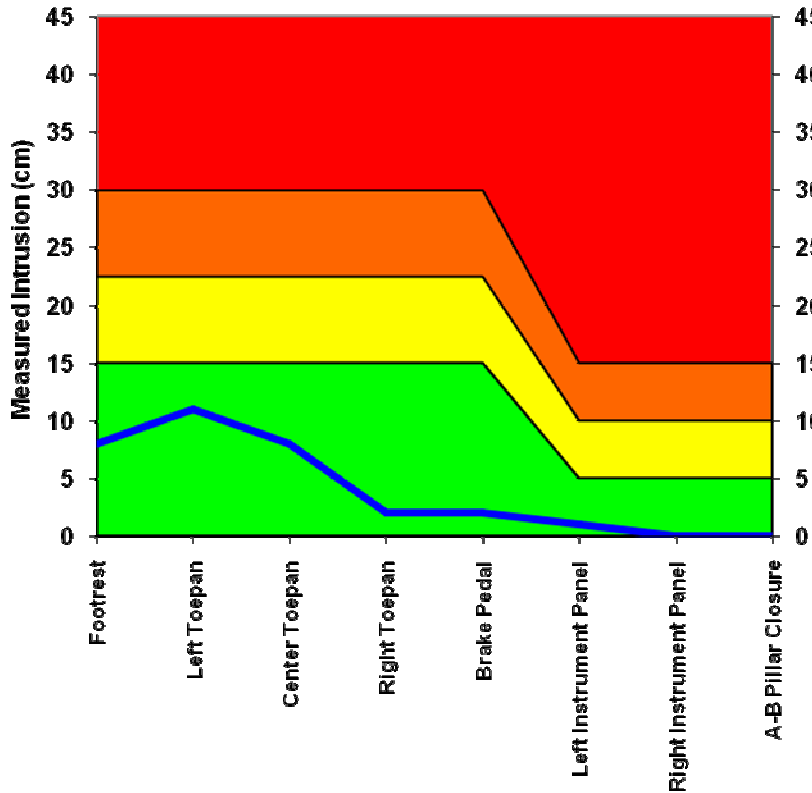
Car Company Service Bumper



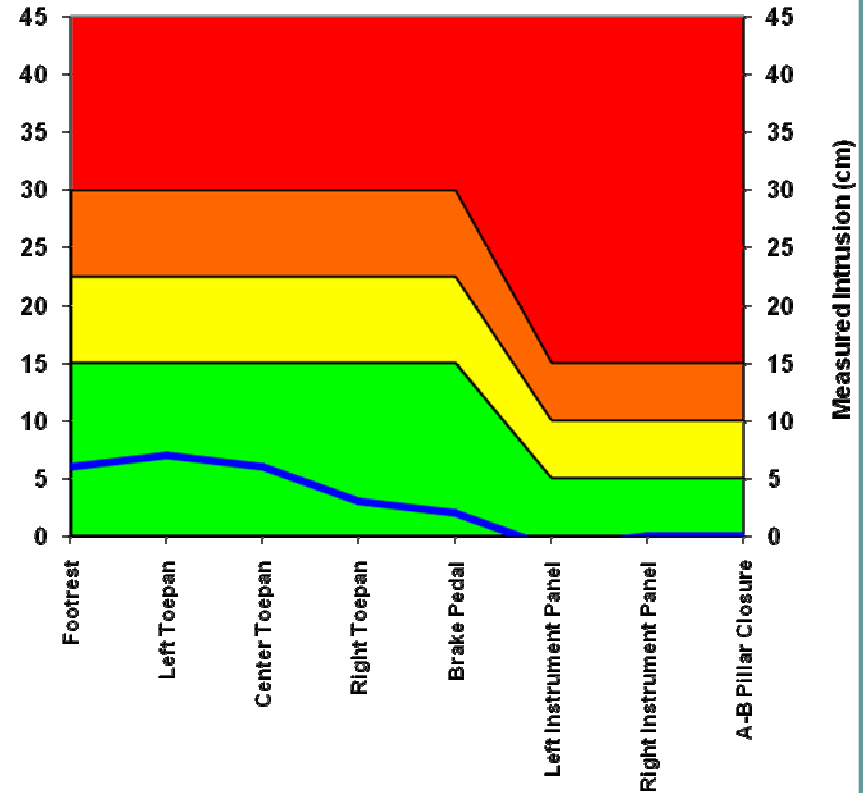
Aftermarket Bumper

IIHS Frontal Offset High-Speed Test Results Intrusion Measures

CF10015 2008 Dodge Ram 1500 w/Mfg Bumper



CF10016 2008 Dodge Ram w/AM Bumper



Manufacturer's bumper

Aftermarket Bumper

Good

Acceptable

Marginal

Poor

IIHS High Speed Crash Test Results :

- Post-crash



Car Company Service Bumper



Aftermarket Bumper