

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
LABORATORY TEST PROCEDURE
FOR
FMVSS No. 214, DYNAMIC SIDE IMPACT PROTECTION
-Rigid Pole Side Impact Test Requirements-

**APPENDIX A
DATA SHEETS**



ENFORCEMENT
Office of Vehicle Safety Compliance
Mail Code: NVS-220
1200 New Jersey Ave. SE
Washington, DC 20590

TABLE OF CONTENTS

No.	Page No.
1. TEST VEHICLE INFORMATION AND OPTIONS	A-3
2. VEHICLE TIRE INFORMATION	A-4
3. GENERAL TEST AND VEHICLE PARAMETER DATA.....	A-5
4. SEAT AND SEAT BELT ADJUSTMENT DATA	A-6
5. FUEL SYSTEMS AND STEERING WHEEL POSITION DATA.....	A-7
6. DUMMY LONGITUDINAL CLEARANCE DIMENSIONS	A-8
7. DUMMY LATERAL CLEARANCE DIMENSIONS	A-9
8. LOCATION OF CAMERAS	A-10
9. TEST VEHICLE ACCELEROMETER LOCATIONS	A-11
10. TEST VEHICLE ACCELEROMETER DATA SUMMARY	A-12
11. DUMMY INJURY RESPONSE DATA.....	A-13
12. POST TEST OBSERVATIONS	A-15
13. VEHICLE PRETEST AND POSTTEST MEASUREMENTS	A-17
14. EXTERIOR CRUSH MEASUREMENTS	A-18
15. VEHICLE EXTERIOR CRUSH PROFILES	A-19
16. TEMPERATURE AND HUMIDITY TRACE.....	A-20

**DATA SHEET NO. 1
TEST VEHICLE INFORMATION AND OPTIONS**

Test Vehicle: _____
Test Facility: _____

NHTSA No.: _____
Test Date: _____

Test Vehicle Information		Optional Equipment	
Make		Anti-lock Brakes (ABS)	
Model		All-Wheel Drive (AWD)	
Body Style		Traction Control System (TCS)	
VIN		Electronic Stability Control (ECS)	
Body Color		Side Curtain Airbags	
Engine Disp (liters)		Torso Airbag - Front seats	
Number of Cylinders		Torso Airbag - Rear seats	
Engine Placement		Combination/Head Torso Bag	
Transmission Type		Pelvic Airbag - Front seats	
Transmission Speeds		Pelvic Airbag - Rear seats	
Overdrive		Knee Airbag – Driver	
Final Drive		Knee Airbag - Front Passenger	
Odometer Reading		Seat belt pretensioners - Front seats	
		Seat belt pretensioners - Rear seats	
		Seat belt load limiters - Front seats	
		Seat belt load limiters - Rear seats	
		Tire pressure monitoring system (TPMS)	
		Tilt Steering Wheel	
		Automatic Door Locks (ADL)	
		Power Window Auto-reverse	
		Power Seats	

CERTIFICATION LABEL DATA

Manufactured by	
Date of Manufacture	
Vehicle Type	

GVWR (kg)	
GAWR Front (kg)	
GAWR Rear (kg)	

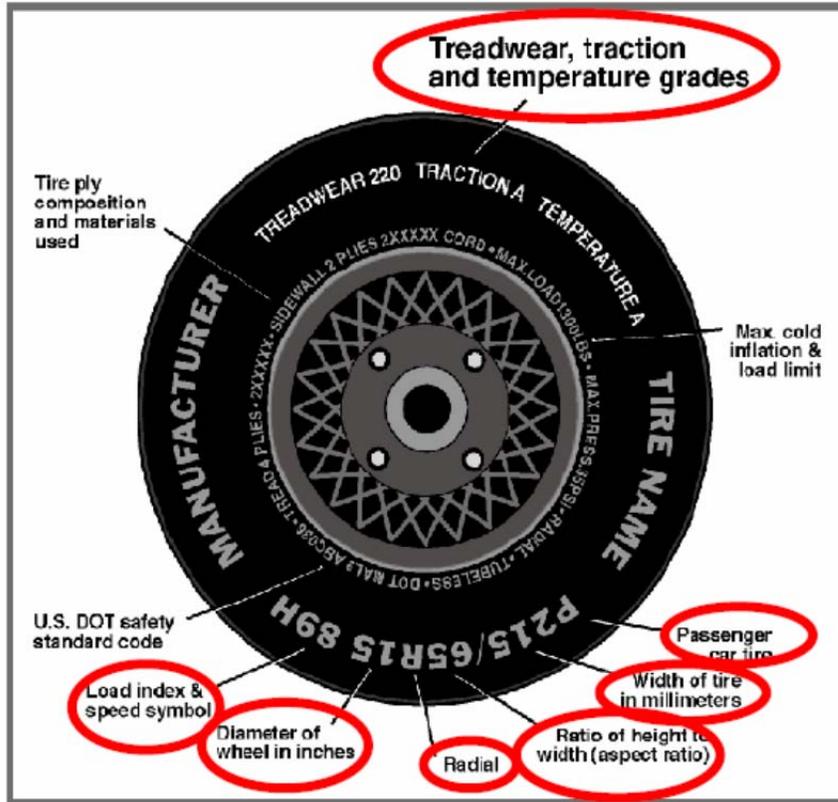
VEHICLE SEATING AND CAPACITY WEIGHT DATA

	Front	Rear	Third	Total
Type of Seats (Bench or Bucket)				
Number of Occupants (DSC)				
Vehicle Capacity Weight (VCW) (kg)				
Cargo Weight (RCLW)				

DATA SHEET NO. 2 VEHICLE TIRE INFORMATION

Test Vehicle: _____
 Test Facility: _____

NHTSA No.: _____
 Test Date: _____



Tire Placard	Front	Rear
Recommended Cold Pressure (kPa)		
Recommended Tire Size		
Tire Sidewall		
Maximum Tire Pressure (kPa)		
Tire Size on Vehicle		
Tire Manufacturer Model		
Tire Name		
Tire Type		
Tire Width		
Aspect Ratio		
Radial		
Wheel Diameter		
Load Index/Speed Symbol		
Treadwear		
Traction Grade		
Temperature Grade		

**DATA SHEET NO. 3
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: _____ NHTSA No.: _____
 Test Facility: _____ Test Date: _____

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa				
As Tested	kpa				

TEST VEHICLE WEIGHTS

	Units	As Delivered			Fully Loaded			As Tested		
		Front Axle	Rear Axle		Front Axle	Rear Axle		Front Axle	Rear Axle	
Left	kg									
Right	kg									
Ratio	%									
Totals	kg									

TEST VEHICLE TARGET WEIGHT (TVTW) CALCULATION

Measured Parameter	Units	Value
As Delivered Weight	kg	
Weight of Test Dummy	kg	
Rated Cargo/Luggage Weight (RCLW)	kg	
Calculated Target Vehicle Test Weight (TVTW)	kg	

TEST VEHICLE ATTITUDES

	As Delivered	Fully Loaded	As Tested
Right Door Sill Angle			
Left Door Sill Angle			
Front Bumper-Line Angle			
Rear Bumper-Line Angle			
ND=Nose Down, NU=Nose Up, LU = Left up, LD = Left Down, RU = Right up, RD = Right Down			

CALCULATION OF THE VERTICAL IMPACT REFERENCE LINE

Measured Parameter	Units	Value
Test Vehicle Wheel Base	mm	
Vertical Impact Reference Line Aft of Front Axle	mm	

WEIGHT of BALLAST and VEHICLE COMPONENTS REMOVED TO MEET TVTW

Description of Component	Weight (kg)
Ballast (if any)	

DATA SHEET NO. 4 SEAT AND SEAT BELT ANCHORAGE ADJUSTMENT DATA

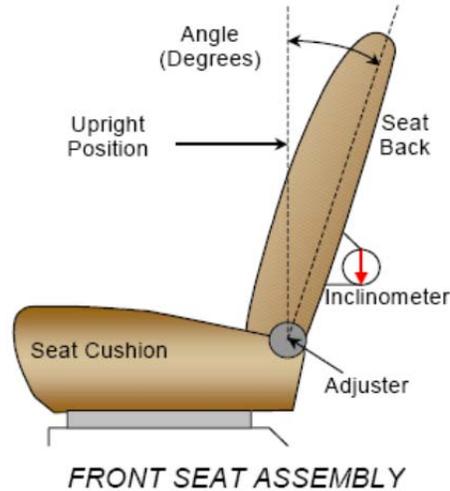
Test Vehicle: _____
 Test Program: _____

NHTSA No.: _____
 Test Date: _____

NORMAL DESIGN RIDING POSITION (ES-2re Only)

The driver and passenger seat backs are positioned to the manufacturer's designated angle. The procedure is as follows:

SEAT BACK ANGLE _____°



	SCRL Mid-Angle° (7.5)		SCR P Height (mm)		
			Rearmost (7.10)	Mid-fore/aft (7.12)	Full forward (7.14)
Driver		Max			
		Mid			
		Min			
Front Passenger		Max			
		Mid			
		Min			

SEAT FORE/AFT POSITIONING

Seat	Total Fore/Aft Travel	Placed in Position #
Driver		
Front Passenger		

SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Test Position		

HEAD RESTRAINT

	Total # of Positions	Placed in Position #
Test Position		

DATA SHEET NO. 5 FUEL SYSTEMS AND STEERING WHEEL POSITION DATA

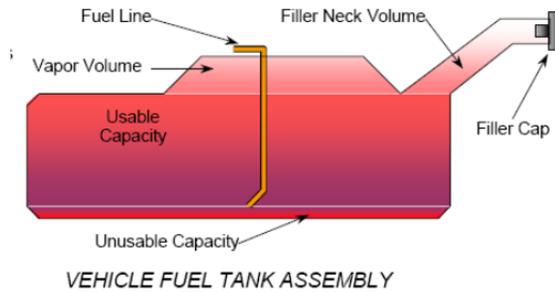
Test Vehicle: _____ NHTSA No.: _____
 Test Program: _____ Test Date: _____

FUEL TANK CAPACITY

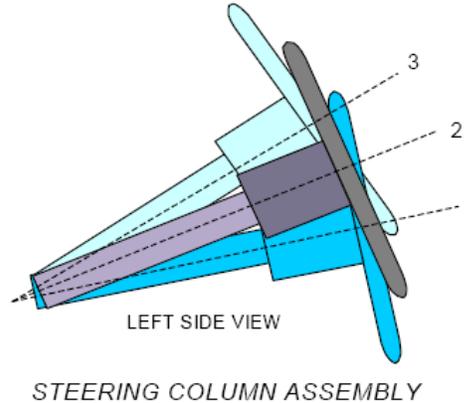
	Liters
Usable Capacity (Form 1)	
Usable Capacity (Owner's Manual)	
92-94% of Usable Capacity	
Actual Amount of Solvent Used	

FUEL PUMP OPERATION

Describe the operation of the fuel pump.



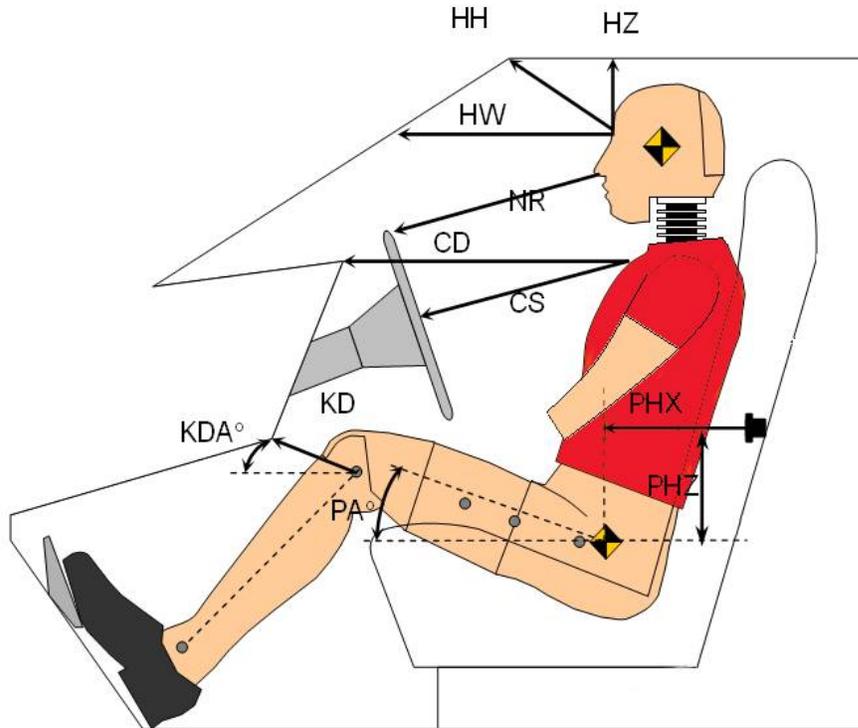
STEERING COLUMN ADJUSTMENT



	Degrees	Fore/Aft Position (mm)
Lowermost - Position 1		
Geometric Center – Position 2		
Uppermost – Position 3		
Telescoping Steering Wheel Travel		
Test Position		

DATA SHEET NO. 6 DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: _____ NHTSA No.: _____
 Test Facility: _____ Test Date: _____



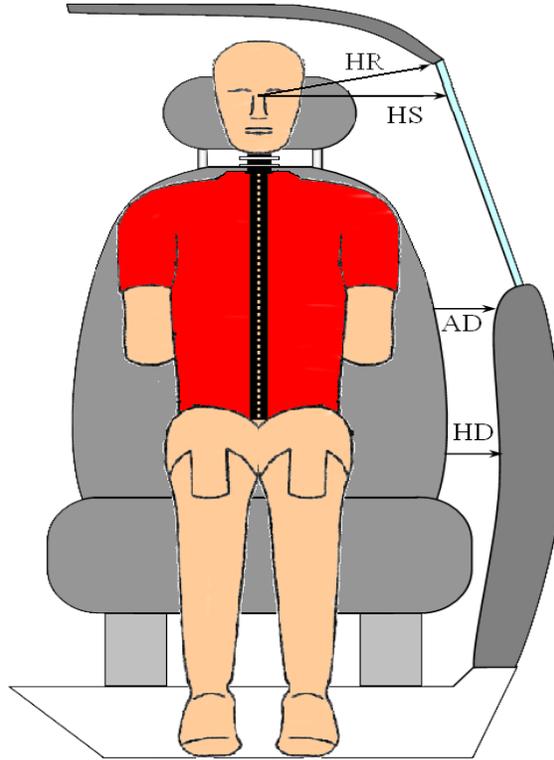
NOTE: 4-door vehicle shown. Rear dummy PHX and PHZ measurements for a 2-door vehicle would use the B-post striker as a reference point.

Driver Code	Measurement Description	Length (mm)	Angle
HH	Header to Header		
HW	Header to Windshield		
HZ	Head to Roof		
NR	Nose to Rim		
CD	Chest to Dash		
CS	Chest to Steering Wheel		
KDL	Left Knee to Dash		
KDR	Right Knee to Dash		
PA(X)	Pelvic Tilt Angle (X)		
PA(Y)	Pelvic Tilt Angle (Y)		
PHX	H-Point to Striker (X-Axis)		
PHZ	H-Point to Striker (Z-Axis)		

DATA SHEET NO. 7 DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: _____
 Test Facility: _____

NHTSA No.: _____
 Test Date: _____

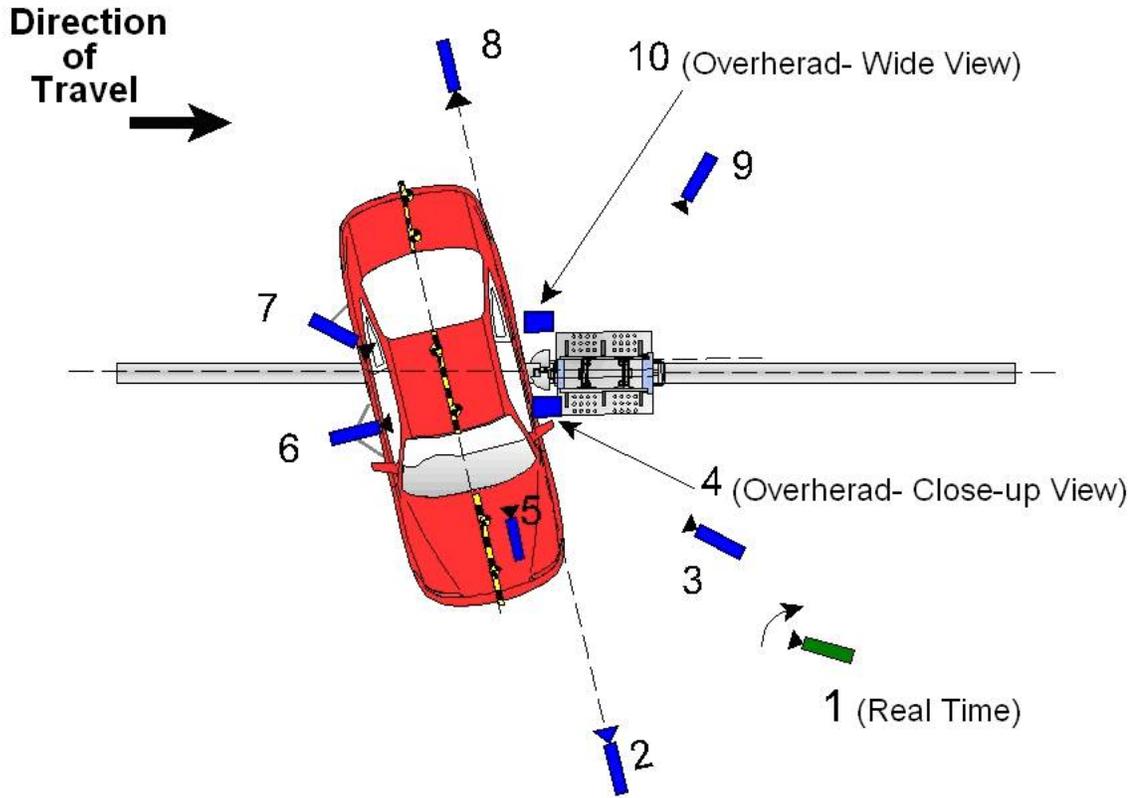


Code	Description	Units	Front Occupant
HR	Head to Side Header	mm	
HS	Head to Side Window	mm	
AD	Arm to Door	mm	
HD	H-point to Door	mm	

DATA SHEET NO. 8 LOCATION OF CAMERAS

Test Vehicle: _____
 Test Facility: _____

NHTSA No.: _____
 Test Date: _____

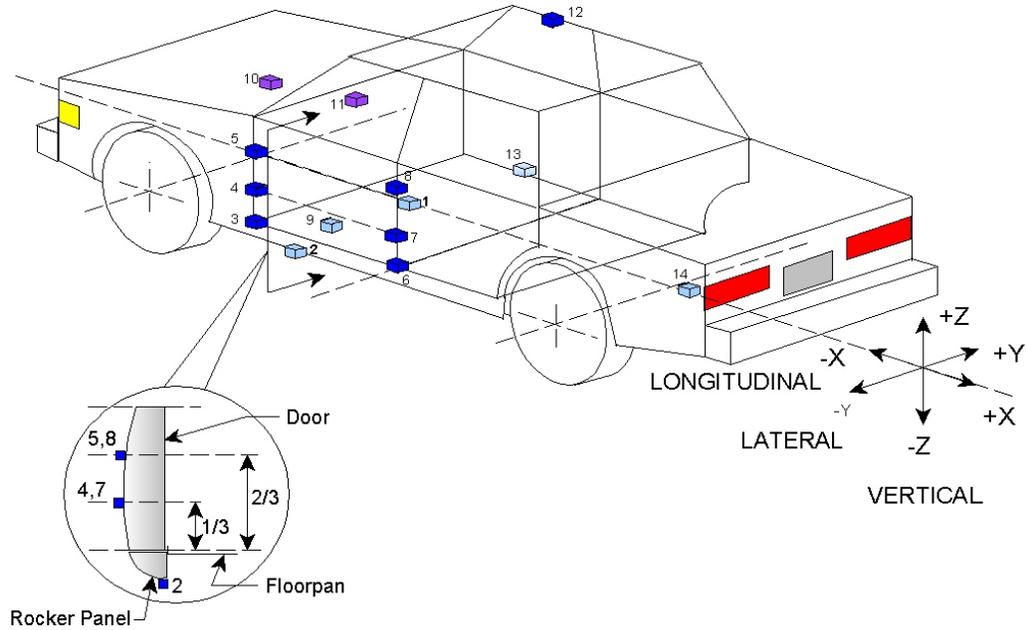


No.	CAMERA VIEW	Location			LENS (mm)	FILM SPEED (fps)
		X	Y	Z		
1	Real time (24 fps) film coverage					
2	Front ground level - impact view					
3	Impact side 45° - forward pole view					
4	Overhead Close-up view of impact					
5	Onboard – dummy front view					
6	Onboard – dummy side view					
7	Onboard – dummy rear view					
8	Rear ground level – impact view					
9	Impact side 45° - rearward pole view					
10	Overhead wide-view of impact					

DATA SHEET NO. 9 TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: _____
 Test Facility: _____

NHTSA No.: _____
 Test Date: _____



Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle C.G.			
2	Floor Sill (Impact side)			
3	A Pillar Sill			
4	A Pillar Low			
5	A Pillar Mid			
6	B Pillar Sill			
7	B Pillar Low			
8	B Pillar Mid			
9	Seat			
10	Engine			
11	Firewall			
12	Roof			
13	Floor Sill (Non-impact side)			
14	Rear Deck			

Reference: X – Test Vehicle Rear Bumper (+ forward)
 Y – Test Vehicle Centerline (+ to right)
 Z – Ground Plane (+ down)

**DATA SHEET NO. 10
TEST VEHICLE ACCELEROMETER DATA SUMMARY**

Test Vehicle: _____
Test Facility: _____

NHTSA No.: _____
Test Date: _____

Loc. No	Description	Peak Values (g's)			
		Max	Time (ms)	Min	Time (ms)
1	Vehicle CG (X)				
	Vehicle CG (Y)				
	Vehicle CG (Z)				
	Resultant				
2	Floor Sill (Impact side) (Y)				
3	A Pillar Sill (Y)				
4	A Pillar Low (Y)				
5	A Pillar Mid (Y)				
6	B Pillar Sill (Y)				
7	B Pillar Low (Y)				
8	B Pillar Mid (Y)				
9	Seat (Y)				
10	Engine (X)				
	Engine (Y)				
11	Firewall (Y)				
12	Roof (Y)				
13	Floor Sill (Y)				
14	Rear Deck (X)				
	Rear Deck (Y)				

**DATA SHEET NO. 11
DUMMY INJURY RESPONSE DATA
(Subpart U, ES-2re)**

Test Vehicle: _____ NHTSA No.: _____
 Test Facility: _____ Test Date: _____

Dummy Serial No. _____

	Positive		Negative	
	MAX	TIME (ms)	MAX	TIME (ms)
HEAD ACCELERATION (g)				
Longitudinal (X)				
Lateral (Y)				
Vertical (Z)				
Resultant (R)				
HIC36 (t1, t2)			t1 =	t2 =
THORAX DEFLECTION (mm)				
Upper Rib				
Middle Rib				
Lower Rib				
ABDOMINAL FORCES (N)				
Front				
Middle				
Rear				
SUM				
PELVIS FORCE (N)				
Pubic Symphysis (Y)				

Reference: Positive Direction - Longitudinal (X) = forward
 - Lateral (Y) = to right
 - Vertical (Z) = down

**DUMMY INJURY RESPONSE DATA
(Subpart V, SIDIs)**

Test Vehicle: _____ NHTSA No.: _____
 Test Facility: _____ Test Date: _____

Dummy Serial No. _____

	Positive		Negative	
	MAX	TIME (ms)	MAX	TIME (ms)
HEAD ACCELERATION (g)				
Longitudinal (X)				
Lateral (Y)				
Vertical (Z)				
Resultant (R)				
HIC36 (t1, t2)			t1 =	t2 =
LOWER SPINE (g)				
Longitudinal (X)				
Lateral (Y)				
Vertical (Z)				
Resultant (R)				
PELVIS FORCE (N)				
Acetabular				
Iliac				

Reference: Positive Direction - Longitudinal (X) = forward
 - Lateral (Y) = to right
 - Vertical (Z) = down

**DATA SHEET NO. 12
POST TEST OBSERVATIONS**

Test Vehicle: _____ NHTSA No.: _____
 Test Facility: _____ Test Date: _____

IMPACT POINT DATA

	Mm
Vertical Impact Ref. Line (aft of front axle)	
Actual Impact Point (aft of front axle)	
Diff	

DUMMY CONTACT INFORMATION

Front Occupant	Observation
Head Contact	
Upper Torso Contact	
Lower Torso Contact	
Left Knee Contact	
Right Knee Contact	

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

		Front	Rear	Hatch
Struck Doors	Total separation from vehicle at the hinges or latches			
Non-Struck Doors	Disengaged from latched position			
	Latch separated from striker			
	Hinge components separated from each other			
Seat	Latch or hinge systems pulled out of their anchorages			
	Seat track remained attached to the floor pan			
	Seat back moved from initial position			

DOOR AND DOOR PERFORMANCE**

	Observation
Struck Door	
Non-Struck Door – Front(Left/Right)	
Non-Struck Door – Right Rear	
Non-Struck Door – Left Rear	
Non-Struck Door – Rear Hatch	

POST TEST STRUCTURAL OBSERVATIONS

	Observation
Pillar Performance	
Sill Separation	
Windshield Damage	
Side Window Damage	

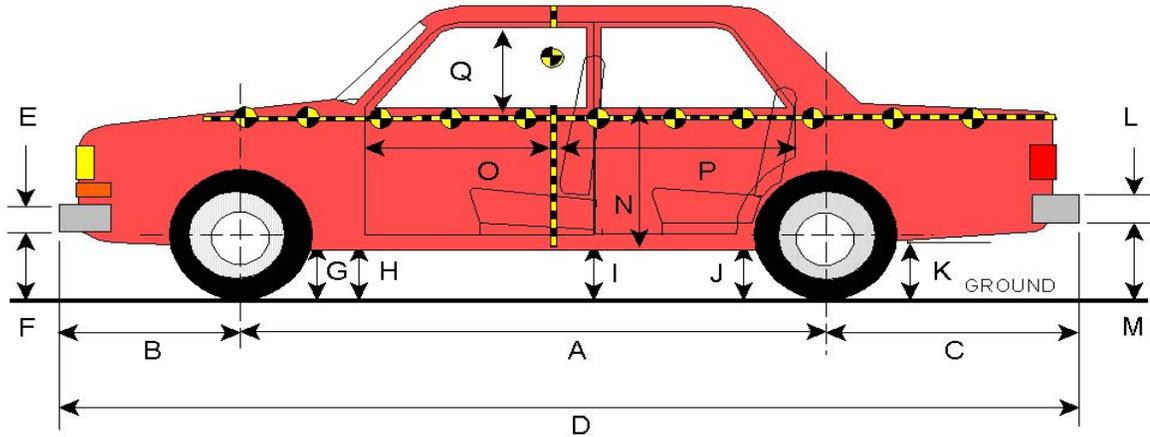
**DATA SHEET NO. 12
POST TEST OBSERVATIONS (Continued)**

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Front Occupant	
	Installed	Deployed
Front Airbag		
Side Torso Airbag		
Head Airbag		
Curtain Airbag		
Seat Belt Pretensioner		

DATA SHEET NO. 13 VEHICLE PRETEST AND POST TEST MEASUREMENTS

Test Vehicle: _____ NHTSA No.: _____
 Test Facility: _____ Test Date: _____



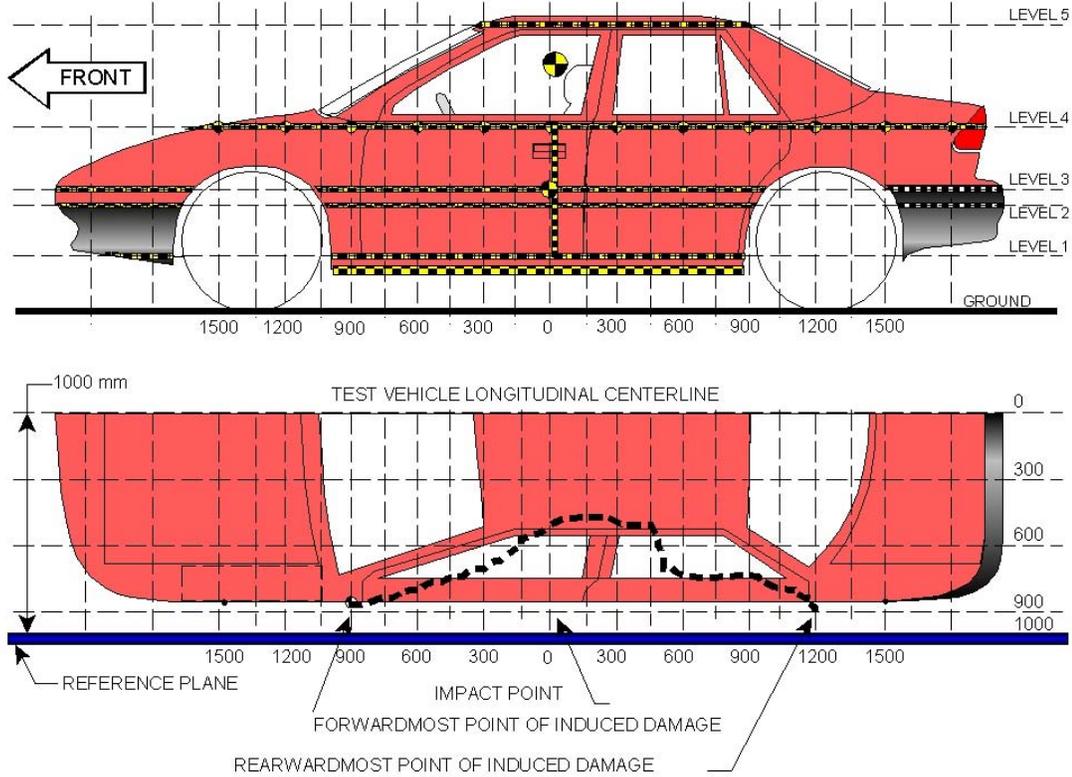
**IMPACT SIDE
VIEW**

Code	Description	Pre-Test	Post-Test	Diff Δ
A	Wheelbase			
B	Front Axle to FSOV			
C	Rear Axle to RSOV			
D	Total Length at Centerline			
E	Front Bumper Thickness			
F	Front Bumper Bottom to Ground			
G	Sill Height at Front Wheel Well			
H	Sill Height at Front Door Leading Edge			
I	Sill Height at B Pillar			
J1	Sill Height at Rear Wheel Well			
J2	Pinch Weld Height at Rear Wheel Well			
K	Sill Height Aft of Rear Wheel Well			
L	Rear Bumper Thickness			
M	Rear Bumper Bottom to Ground			
N	Sill Height to Window Bottom Sill			
O	Front Door Leading Edge to Impact CL			
P	Rear Door Trailing Edge to Impact CL			
Q	Front Window Opening			
R	Right Side Length			
S	Left Side Length			
T	Vehicle Width at B -Post			

DATA SHEET NO. 14 EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: _____
 Test Facility: _____

NHTSA No.: _____
 Test Date: _____



NOTE: All measurements are in millimeters (mm)

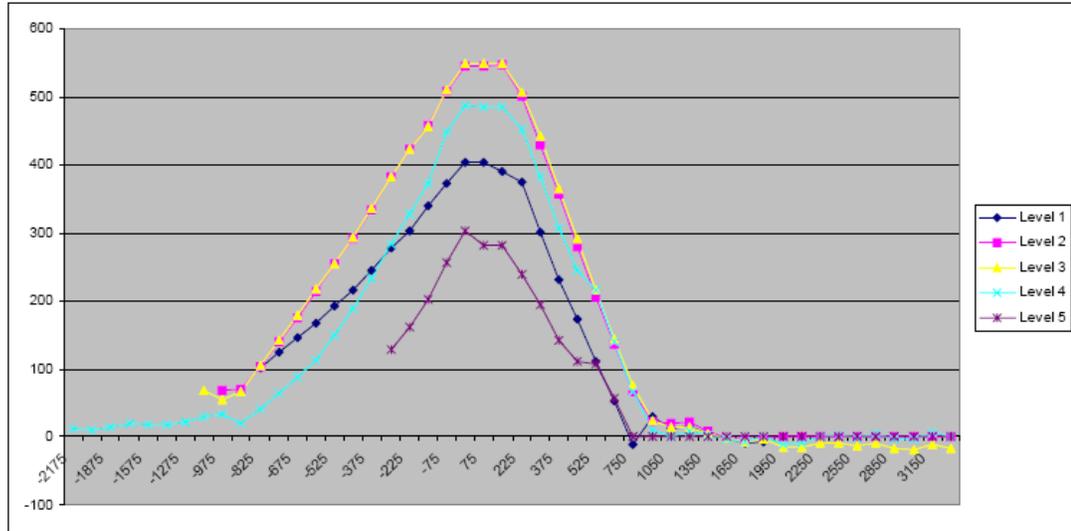
Maximum Exterior Crush Measurements

Level	Measurement Description	Maximum Exterior Static Crush	Distance from Impact	Height Above Ground
1	Sill Top			
2	Occupant H-Point			
3	Mid-Door			
4	Window Sill			
5	Window Top			

DATA SHEET NO. 15 VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: _____
 Test Facility: _____

NHTSA No.: _____
 Test Date: _____



Maximum Static Crush (mm) Level 1 ____ Level 2 ____ Level 3 ____ Level 4 ____ Level 5 ____

	Pre-Test					Post-Test					Diff Δ				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150															
0															
150															
300															
450															
600															
750															
900															
1050															
1200															
1350															
1500															
1650															
1800															
1950															
2100															
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 16 TEMPERATURE AND HUMIDITY TRACE

Test Vehicle: _____
Test Facility: _____

NHTSA No.: _____
Test Date: _____

