FINAL REPORT NUMBER 201UI-MGA-09-01

SAFETY COMPLIANCE TESTING FOR FMVSS 201
Occupant Protection In Interior Impact
Upper Interior Head Impact Protection

HONDA MOTOR CO., LTD.
2009 Honda Fit 4-Door Hatchback
NHTSA No. C95305

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Dates: April 14-15, 2009
Report Date: April 20, 2009

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 New Jersey Avenue, SE
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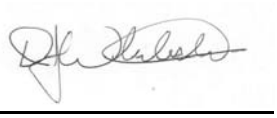
Prepared By: 
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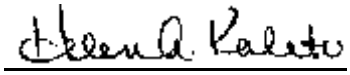
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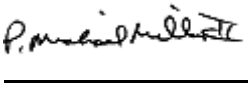
Approved By: 

Approval Date: April 20, 2009

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 201UI-MGA-09-01	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 201 Compliance Testing of a 2009 Honda Fit 4-Door Hatchback, NHTSA No. C95305		5. Report Date April 20, 2009 6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Project Manager Donald J. Whiteside, Project Engineer		8. Performing Organization Report No. 201UI-MGA-09-01	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No. 11. Contract or Grant No. DTNH22-04-C-11027	
12. Sponsoring Agency Name and Address U.S. Department Of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance 1200 New Jersey Avenue, SE West Building, 4th Floor Washington, D.C. 20590		13. Type of Report and Period Covered Final Test Report 14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes			
16. Abstract A compliance test series was conducted on the subject 2009 Honda Fit 4-Door Hatchback, NHTSA No. C95305, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-201U-01 for the determination of FMVSS 201 compliance. The testing was conducted at MGA Research Corporation in Troy, Michigan on April 14-15, 2009. Test failures identified were as follows: None The data recorded indicates that the 2009 Honda Fit, 4-Door Hatchback tested appears to comply with the upper interior requirements of FMVSS 201.			
17. Key Words Compliance Testing Safety Engineering FMVSS 201UI 2009 Honda Fit 4-Door Hatchback		18. Distribution Statement Copies of this report are available from: NHTSA Technical Reference Division, Mail Code: NPO-410 1200 New Jersey Avenue, SE West Building Washington, D.C. 20590	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 172	22. Price N/A

Form DOT F 1700.7 (8-69)

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1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this head impact compliance test was to determine whether the subject vehicle, a 2009 Honda Fit 4-Door Hatchback, meets the performance requirements of FMVSS 201, Occupant Protection in Interior Impact - Upper Interior Head Impact Protection.

Tests were conducted on April 14-15, 2009 on a 2009 Honda Fit 4-Door Hatchback, manufactured by Honda Motor Co., Ltd.

All tests were conducted in accordance with the U. S. Department of Transportation, National Highway Traffic Safety Administration's Laboratory Test Procedure TP-201U-01 dated April 3, 1998 and the corresponding MGA Research Corporation's FMVSS 201U procedure number MGATP201U_FRAME#2 dated July 1, 2005.

All tests were conducted at MGA Research Corporation in Troy, Michigan and were performed by MGA engineers and technicians. The FMVSS 201U impactor test machine was used to conduct the testing. Target locations were determined by using a Coordinate Measurement Machine in conjunction with the MGA EZ-Target™ program and MGA procedure MGATP201U_Test Series dated July 1, 2005.

2.0 COMPLIANCE TEST DATA SUMMARY

The 2009 Honda Fit 4-Door Hatchback was equipped with A, B, O (Other), and rear-pillars, an adjustable seat belt anchorage on each B-pillar, a fixed seat belt anchorage on each rearmost side rail, a fixed seat belt anchorage at the left rear corner of the upper roof zone, a grab handle located on the side rail above each door (front and rear), and a dome light located on the middle upper roof.

Upon completion of targeting the test vehicle, twelve (12) targets were chosen to be impacted based upon engineering judgment and certification test data provided by the manufacturer. The twelve (12) targets chosen were:

AP1	BP4	RP2	UR3@ Right B-Pillar
AP3	OP2	SR3-3	UR4@Left O-Pillar
BP3	RP1	RH	UR6@ Rear Anchorage

The 2009 Honda Fit 4-Door Hatchback, tested appears to comply with the upper interior performance criteria for FMVSS 201. The HIC(d) measured using the Part 572L (Free Motion Headform) was below 1000 for each tested component.

TABLE 2-1

SUMMARY TABLE OF TEST RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Honda Fit 4-Door Hatchback

VEH. NHTSA NO.: C95305 VIN: JHMGE872X9S036736 COLOR: Blue

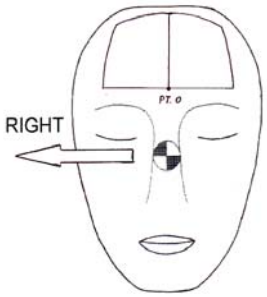
VEH. BUILD DATE: December, 2008 TEST DATES: April 14-15, 2009

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Andrew Gould, Ryan Jones, Helen A. Kaleto, Donald J. Whiteside

TARGET	VEHICLE SIDE	HORIZONTAL ANGLE (deg)	VERTICAL ANGLE (deg)	VELOCITY (kph)	HIC(d)	FMH HIC	IMPACT ON FMH (mm)	
							Above	Left/Right
AP1	Left	240	18	18.8	364	262	21	14 Left
AP3	Right	161	5	19.1	403	313	32	14 Left
BP3	Right	90	5	24.3	616	596	9	13 Left
BP4	Right	157	-6	24.0	687	690	14	8 Left
OP2	Left	270	2	19.0	424	342	21	0
RP1	Right	56	28	24.0	900	972	8	7 Left
RP2	Left	311	-6	24.0	511	457	8	4 Left
SR3-3	Right	90	43	18.8	381	284	32	3 Left
RH	Right	0	50	24.0	931	1014	9	11 Left
UR3@B-Pillar	Right	90	25	24.2	634	620	60	4 Right
UR4@O-Pillar	Left	270	40	24.0	565	529	30	10 Left
UR6@Rear Anch.	Left	331	22	23.9	729	745	22	6 Right

Above and left/right refers to the position relative to reference pt. 0 where the target made contact with the Free Motion Headform. See the diagram below for details.



POST TEST COMMENTS:

The following description lists any post-test damage or other test observations for each target.

AP3 Right: A-pillar trim loose.

RP2 Left: Dislodged trim cover.

SR3-3 Right: Small crack on seat belt anchorage.

REMARKS:

The targets listed were impacted in the following order:

Right: AP3, BP3, UR3@B-Pillar, BP4, SR3-3, RH, RP1

Left: AP1, OP2, UR4@O-Pillar, RP2, UR6@Rear Anchorage

The 150 mm rule was observed for targets horizontal to each other and the 200 mm rule was observed for vertical components.

RECORDED BY: Donald J. Whiteside DATE: April 15, 2009

APPROVED BY: Helen A. Kaleto

TABLE 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Honda Fit 4-Door Hatchback

VEH. NHTSA NO.: C95305 VIN: JHMGE872X9S036736 COLOR: Blue

VEH. BUILD DATE: December, 2008 TEST DATES: April 14-15, 2009

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Andrew Gould, Ryan Jones, Helen A. Kaleto, Donald J. Whiteside

INTERIOR TRIM INFORMATION: A, B, O (Other), and rear-pillars, an adjustable seat belt anchorage on each B-pillar, a fixed seat belt anchorage on each rearmost side rail, a fixed seat belt anchorage at the left rear corner of the upper roof zone, a grab handle located on the side rail above each door (front and rear), and a dome light located on the middle upper roof.

SUNROOF INFORMATION:

Installed: _____Yes __X__ No

Operation: _____Electric ____ Manual

SIDE RAIL CURTAIN AIRBAG INFORMATION:

Installed: __X__Yes ____ No

ROLL-BAR INFORMATION:

Installed: _____Yes __X__ No

Padded: _____Yes __X__ No

Braces: _____Yes __X__ No

GENERAL INFORMATION:

Date Received: February 19, 2009; Odometer Reading 21 miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Honda Motor Co., Ltd.

Date of Manufacture: December, 2008; VIN: JHMGE872X9S036736

GVWR: 1594 kg; GAWR FRONT: 872 kg;

GAWR REAR: 735 kg;

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 220 kPa REAR: 220 kPa

Recommended Tire Size: 175/65R15

Recommended Cold Tire Pressure:

FRONT: 220 kPa REAR: 220 kPa

Size of Tire on Test Vehicle: 175/65R15

Type of Spare Tire: T125/70D15; Space Saver: X; Standard__

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench__; Bucket X; Split Bench __

Number of Occupants: Front 2; Rear 3; TOTAL 5

VEHICLE CAPACITY WEIGHT:

Vehicle Capacity Weight (VCW) = 385 kg

No. of Occupants x 68 kg = 340 kg

Rated Cargo/Luggage Weight (RCLW) = 45 kg (difference)

WEIGHT OF TEST VEHICLE AS DELIVERED AT LABORATORY: (with maximum fluids)

Right Front =	353.5 kg	Right Rear =	210.0 kg
Left Front =	345.5 kg	Left Rear =	212.5 kg
TOTAL FRONT =	699.0 kg	TOTAL REAR =	422.5 kg
% Total Weight =	62.3 %	% Total Weight =	37.7 %

TOTAL DELIVERED WEIGHT = 1121.5 kg

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 1121.5 kg

Max. Test Cargo/Luggage Weight = 45.0 kg

Target Test Weight = 1166.5 kg

WEIGHT OF TEST VEHICLE FULLY LOADED:

Right Front =	344.0 kg	Right Rear =	236.5 kg
Left Front =	351.5 kg	Left Rear =	234.5 kg
TOTAL FRONT =	695.5 kg	TOTAL REAR =	471.0 kg
% Total Weight =	59.6 %	% Total Weight =	40.4 %

TOTAL TEST WEIGHT = 1166.5 kg

Weight of ballast secured in vehicle's cargo area = 45.0 kg

TEST VEHICLE ATTITUDE:

AS DELIVERED: Right Front 658 mm; Left Front 653 mm;
Right Rear 665 mm; Left Rear 665 mm;
Pitch Angle at Right Door Sill = 0.6 Rear is higher
Pitch Angle at Left Door Sill = 0.3 Rear is higher
Roll Angle at Front Bumper = 0.1 Left is higher
Roll Angle at Rear Bumper = 0.1 Right is higher

FULLY LOADED: Right Front 659 mm; Left Front 656 mm;
Right Rear 652 mm; Left Rear 652 mm;
Pitch Angle at Right Door Sill = 0.1 Front is higher
Pitch Angle at Left Door Sill = 0.1 Front is higher
Roll Angle at Front Bumper = 0.1 Left is higher
Roll Angle at Rear Bumper = 0.2 Right is higher

AS TARGETED: Right Front 803 mm; Left Front 800 mm;
Right Rear 798 mm; Left Rear 798 mm;
Pitch Angle at Right Door Sill = 0.3 Rear is higher
Pitch Angle at Left Door Sill = 0.1 Rear is higher
Roll Angle at Front Bumper = 0.1 Left is higher
Roll Angle at Rear Bumper = 0.2 Right is higher

AS TESTED ON RIGHT SIDE:

Pitch Angle at Right Door Sill =	0.3 Rear is higher
Pitch Angle at Left Door Sill =	0.1 Rear is higher
Roll Angle at Front Bumper =	0.1 Left is higher
Roll Angle at Rear Bumper =	0.1 Right is higher

AS TESTED ON LEFT SIDE:

Pitch Angle at Right Door Sill =	0.0
Pitch Angle at Left Door Sill =	0.1 Rear is higher
Roll Angle at Front Bumper =	0.1 Left is higher
Roll Angle at Rear Bumper =	0.2 Right is higher

VEHICLE WHEELBASE = 2500 mm

REMARKS: The seat travel distance was measured to be 240 mm for the driver front seat and 240 mm for the passenger front seat.

RECORDED BY: Donald J. Whiteside DATE: March 30, 2009

APPROVED BY: Helen A. Kaleto

TABLE 2-3

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Honda Fit 4-Door Hatchback

VEH. NHTSA NO.: C95305 VIN: JHMGE872X9S036736 COLOR: Blue

VEH. BUILD DATE: December, 2008 TEST DATES: April 14-15, 2009

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Andrew Gould, Ryan Jones, Helen A. Kaleto, Donald J. Whiteside

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

	HORIZONTAL ANGLE SPECIFIED RANGE	MINIMUM HORIZONTAL ANGLE	MAXIMUM HORIZONTAL ANGLE
A-PILLAR	L 195º-255º	L 198.6º	L 239.4º
	R 105º-165º	R 121.0º	R 161.0º
B-PILLAR	L 195º-345º	L 202.3º	L 278.9º
	R 15º-165º	R 79.4º	R 157.6º

AS DETERMINED USING THE PROCEDURES SPECIFIED IN S8.13.4.1

REMARKS:

RECORDED BY: Donald J. Whiteside DATE: March 30, 2009

APPROVED BY: Helen A. Kaleto

TABLE 2-4

VERTICAL IMPACT ANGLE RANGES

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Honda Fit 4-Door Hatchback

VEH. NHTSA NO.: C95305 VIN: JHMGE872X9S036736 COLOR: Blue

VEH. BUILD DATE: December, 2008 TEST DATES: April 14-15, 2009

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Andrew Gould, Ryan Jones, Helen A. Kaleto, Donald J. Whiteside

VERTICAL IMPACT ANGLE RANGES

		VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
FRONT HEADER	FH1	L 0º-50º	L 0º	L 50º
		R 0º-50º	R 0º	R 50º
	FH2	L 0º-50º	L 0º	L 50º
		R 0º-50º	R 0º	R 50º
SIDE RAIL	SR1	L 0º-50º	L 0º	L 34º
		R 0º-50º	R 0º	R 36º
	SR2A	L 0º-50º	L 0º	L 45º
		R 0º-50º	R 0º	R 48º
	SR2B	L 0º-50º	L 0º	L 50º
		R 0º-50º	R 0º	R 50º
	SR3-1	L 0º-50º	L 0º	L 50º
		R 0º-50º	R 0º	R 50º
	SR3-2	L 0º-50º	L 0º	L 50º
		R 0º-50º	R 0º	R 50º
	SR3-3*	L 0º-50º	L 0º	L 43º
		R 0º-50º	R 0º	R 43º

		VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
REAR HEADER	RH	L 0º-50º	L 0º	L 50º
		R 0º-50º	R 0º	R 50º
A-PILLAR	AP1	L -5º-50º	L -5º	L 18º
		R -5º-50º	R -5º	R 17º
	AP2	L -5º-50º	L -5º	L 50º
		R -5º-50º	R -5º	R 50º
	AP3	L -5º-50º	L -5º	L 5º
		R -5º-50º	R -5º	R 5º
B-PILLAR	BP1	L -10º-50º	L -10º	L 10º
		R -10º-50º	R -10º	R 10º
	BP2*	L 0º-50º	L 0º	L 8º
		R 0º-50º	R 0º	R 7º
	BP3*	L 0º-50º	L 0º	L 5º
		R 0º-50º	R 0º	R 5º
	BP4	L -10º-50º	L -10º	L -5º
		R -10º-50º	R -10º	R -6º
OTHER-PILLAR	OP1	L -10º-50º	L -10º	L 8º
		R -10º-50º	R -10º	R 6º
	OP2	L -10º-50º	L -10º	L 2º
		R -10º-50º	R -10º	R 3º
REAR PILLAR	RP1	L -10º-50º	L -10º	L 26º
		R -10º-50º	R -10º	R 28º
	RP2	L -10º-50º	L -10º	L -6º
		R -10º-50º	R -10º	R -4º
UPPER ROOF 1		0º-50º	0º	40º
UPPER ROOF 2		0º-50º	0º	50º
UPPER ROOF 3		0º-50º	0º	25º

	VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
UPPER ROOF 4	0º-50º	0º	40º
UPPER ROOF 5	0º-50º	0º	50º
UPPER ROOF 6	0º-50º	0º	22º

As determined using the Procedures specified in S8.13.4.2. *Targets BP2, BP3, SR3-3, and UR6 are seat belt anchorage locations.

RECORDED BY: Donald J. Whiteside DATE: March 30, 2009

APPROVED BY: Helen A. Kaleto

TABLE 2-5

TARGET MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Honda Fit 4-Door Hatchback

VEH. NHTSA NO.: C95305 VIN: JHMGE872X9S036736 COLOR: Blue

VEH. BUILD DATE: December, 2008 TEST DATES: April 14-15, 2009

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Andrew Gould, Ryan Jones, Helen A. Kaleto, Donald J. Whiteside

Measurement	Description	Left Side	Right Side
M	Seat Fore/Aft Travel (Front seats)	240 mm	240 mm
Tº	Horizontal < {CG-F1 (Left Seat) to (Right A-Pillar)}	120.6º	--
A1º	360º - Tº	239.4º	--
Wº	Horizontal < {CG-2 (Left Seat) to (Left A-Pillar)}	198.6º	--
A2º	A2º = Wº	198.6º	--
Uº	Horizontal < {CG-2 (Left Seat) to (Left B-Pillar)}	278.9º	--
B1º	B1º = Uº	278.9º	--
Vº	Horizontal < {CG-R (Left Seat) to (Left B-Pillar)}	202.3º	--
B2º	B2º = Vº	202.3º	--
Wº (right)	Horizontal < {CG-F2 (Right Seat) to (Right A-Pillar)}	--	161.0º
A1º (right)	A1º (right) = Wº (right)	--	161.0º
T º (right)	Horizontal < {CG-F1 (Right Seat) to (Left A-Pillar)}	--	239.0º
A2º (right)	360º-Tº (right)	--	121.0º
V º (right)	Horizontal < {CG-R (Right Seat) to (Right B-Pillar)}	--	157.6º
B1º (right)	B1º (right) = Vº (right)	--	157.6º
U º (right)	Horizontal < {CG-F2 (Right Seat) to (Right B-Pillar)}	--	79.4º
B2º (right)	B2º (right) = Uº (right)	--	79.4º
J	A-Pillar {(Plane 3) – (Plane 5)}	379.8 mm	383.5 mm
J/2	J ÷ 2	189.9 mm	191.8 mm
D1	Upper Roof {(Plane A) – (Plane B)}	1925.4 mm	
D1/2	D1 ÷ 2	962.7 mm	
D2	Upper Roof {(Plane C) – (Plane D)}	1150.9 mm	

Measurement	Description	Left Side	Right Side
D2/2	D2 ÷ 2	575.5 mm	
.35D1	.35 x D1	673.9 mm	
.35D2	.35 x D2	402.8 mm	
N	B-Pillar {(BPR) – (lowest point on daylight opening forward of B-Pillar)}	480.0 mm	484.1 mm
N/2	B-Pillar {(BP3) – (lowest point on daylight opening forward of B-Pillar)}	240.0 mm	242.1 mm
N/4	B-Pillar {(BP4) – (lowest point on daylight opening forward of B-Pillar)}	120.0 mm	121.0 mm
Q	O-Pillar (Plane 13 – Plane 14)	411.5 mm	413.2 mm
Q/2	Q / 2	205.8 mm	206.6 mm
D	R-Pillar (Point 7 – Point M)	791.0 mm	791.0 mm
3D/7	3*D / 7	339.0 mm	339.0 mm

As determined using the Procedures specified in S10.1-10.13.

SgRP Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	301.0	-329.4	56.2	301.0	330.5	56.2
Rear	1088.9	-314.4	92.0	1088.9	315.5	92.0

SgRP Locations (vehicle coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	2801.1	543.2	593.2	1485.4	492.7	201.9
Rear	3589.0	558.2	632.0	2273.3	477.7	237.7

CG Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	X	y	z
CGF1	221.0	-329.4	716.2	221.0	330.5	716.2
CGF2	461.0	-329.4	716.2	461.0	330.5	716.2
CGR	1248.9	-314.4	752.0	1248.9	315.5	752.0

REFERENCE FOR VEHICLE COORDINATE SYSTEM (measured in millimeters):

Plastic cap floor center (x, y, z) = 0, 0, 0

Rear driver door check bolt (x, y, z) = 521.5, -713.4, 213.8

Rear passenger striker bolt top (x, y, z) = 1315.7, 710.4, 394.3

REMARKS:

RECORDED BY: Donald J. Whiteside DATE: March 30, 2009

APPROVED BY: Helen A. Kaleto

TABLE 2-6

SUMMARY OF TARGETING RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Honda Fit 4-Door Hatchback

VEH. NHTSA NO.: C95305 VIN: JHMGE872X9S036736 COLOR: Blue

VEH. BUILD DATE: December, 2008 TEST DATES: April 14-15, 2009

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Andrew Gould, Ryan Jones, Helen A. Kaleto, Donald J. Whiteside

SUMMARY OF TARGETING RESULTS								
Target	**Location (mm)**			**Horizontal Angle (deg)**	**Vertical Angle (deg)**	**Relocation (Yes/No)**	**Extension (# of 25 mm Spheres)**	**Impact (Yes/No)**
	x	**y**	**z**					
A-Pillar Left Side								
AP1	32.8	-509.4	904.5	--	--	Yes	--	--
REL	34.6	-522.3	863.3	240	18	--	2	Yes
AP2	-85.4	-547.9	816.3	240	50	No	--	No
AP3	-331.7	-594.2	715.0	240	5	No	--	No
A-Pillar Right Side								
AP1	31.0	506.8	905.7	--	--	Yes	--	--
REL	35.3	524.2	864.0	121	17	--	2	No
AP2	-78.0	549.7	818.5	161	50	No	--	No
AP3	-330.1	600.0	714.2	161	5	No	--	Yes
B-Pillar Left Side								
BP1	581.3	-462.6	951.0	270	10	No	--	No
BP2	542.2	-564.0	676.4	270	8	No	--	No
BP3	499.8	-589.2	709.4	203	5	No	--	No
BP4	592.6	-630.8	589.3	279	-5	No	--	No
B-Pillar Right Side								
BP1	577.8	465.0	953.0	90	10	No	--	No
BP2	541.3	565.7	673.9	90	7	No	--	No
BP3	540.8	553.1	711.9	90	5	No	--	Yes

SUMMARY OF TARGETING RESULTS								
Target	**Location (mm)**			**Horizontal Angle (deg)**	**Vertical Angle (deg)**	**Relocation (Yes/No)**	**Extension (# of 25 mm Spheres)**	**Impact (Yes/No)**
	x	**y**	**z**					
BP4	590.6	630.6	585.3	157	-6	No	--	Yes
Other Pillar Left Side								
OP1	1252.7	-436.9	938.5	270	8	No	--	No
OP2	1307.6	-567.3	733.5	270	2	No	--	Yes
Other Pillar Right Side								
OP1	1250.6	437.9	935.8	90	6	No	--	No
OP2	1305.3	568.4	729.5	90	3	No	--	No
Rear Pillar Left Side								
RP1	1644.0	-455.2	821.5	304	26	No	--	No
RP2	1643.8	-590.6	670.8	--	--	Yes	--	--
REL	1667.2	-559.9	702.4	311	-6	--	2	Yes
Rear Pillar Right Side								
RP1	1653.2	453.1	816.6	56	28	No	--	Yes
RP2	1646.7	589.5	667.3	--	--	Yes	--	--
REL	1670.3	556.6	700.1	49	-4	--	2	No
Front Header Left Side								
FH1	-35.9	-382.4	908.5	180	50	No	--	No
FH2	-50.1	-232.2	915.8	180	50	No	--	No
Front Header Right Side								
FH1	-36.0	388.4	906.4	180	50	No	--	No
FH2	-49.2	240.7	914.1	180	50	No	--	No
Side Rail Left Side								
SR1	182.1	-487.2	918.9	--	--	Yes	--	--
REL	205.0	-480.8	910.2	270	34	--	1	No
SR2A	332.0	-490.9	937.6	--	--	Yes	--	--
REL	372.7	-472.9	923.6	270	45	--	2	No
SR2B	281.5	-494.5	932.9	--	--	Yes	--	--
REL	273.8	-511.1	893.3	270	50	--	2	No
SR3-1	917.3	-441.5	937.4	270	50	No	--	No

SUMMARY OF TARGETING RESULTS								
Target	**Location (mm)**			**Horizontal Angle (deg)**	**Vertical Angle (deg)**	**Relocation (Yes/No)**	**Extension (# of 25 mm Spheres)**	**Impact (Yes/No)**
	x	**y**	**z**					
SR3-2	1081.2	-436.9	931.8	270	50	No	--	No
SR3-3	1402.1	-477.8	868.2	270	43	No	--	No
Side Rail Right Side								
SR1	181.9	489.1	919.3	--	--	Yes	--	--
REL	205.6	488.9	906.9	90	36	--	1	No
SR2A	331.9	493.0	937.4	--	--	Yes	--	--
REL	374.1	474.6	925.6	90	48	--	2	No
SR2B	277.5	493.1	935.6	--	--	Yes	--	--
REL	281.1	516.5	895.2	90	50	--	2	No
SR3-1	913.4	442.2	937.5	90	50	No	--	No
SR3-2	1075.2	436.2	932.1	90	50	No	--	No
SR3-3	1399.8	473.1	868.1	--	--	Yes	--	--
REL	1518.6	494.4	889.9	90	43	--	1	Yes
Rear Header Left Side								
RH	1645.3	-313.6	849.3	--	--	Yes	--	--
REL	1624.1	-323.5	841.9	0	50	--	1	No
Rear Header Right Side								
RH	1652.7	316.2	861.3	0	50	No	--	Yes
Upper Roof Left Side								
UR1@Right Side above SR1	198.2	386.3	959.3	180	40	No	--	No
UR2@Dome Light	630.0	2.6	996.7	180	50	No	--	No
UR3@ Right B-Pillar	588.5	393.6	984.2	90	25	No	--	Yes
Upper Roof Right Side								
UR4@ Left O-Pillar	1237.9	-345.3	982.0	270	40	No	--	Yes
UR5@Center of Roof between O-Pillars	1257.0	11.7	1000.0	0	50	No	--	No

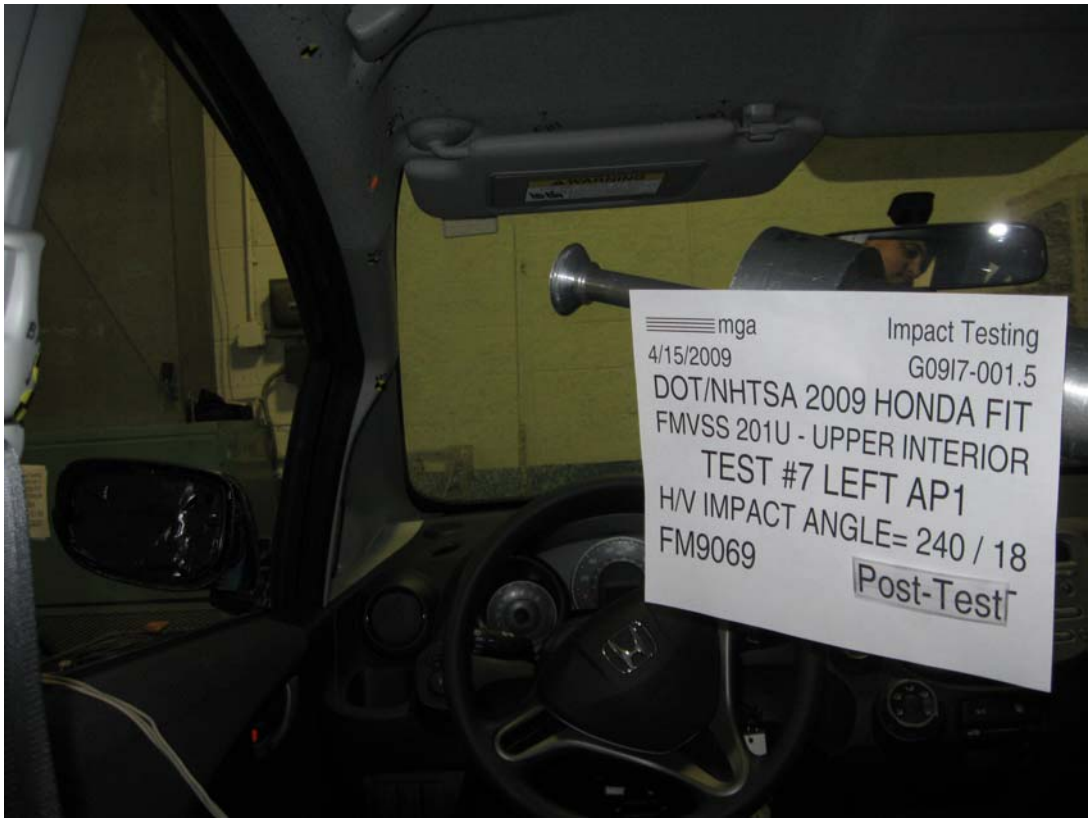
SUMMARY OF TARGETING RESULTS								
Target	**Location (mm)**			**Horizontal Angle (deg)**	**Vertical Angle (deg)**	**Relocation (Yes/No)**	**Extension (# of 25 mm Spheres)**	**Impact (Yes/No)**
	x	**y**	**z**					
UR6@ Rear Anchorage	1476.8	-284.7	930.1	331	22	No	--	Yes

As determined using the Procedures specified in S10.1-10.13.

RECORDED BY: Donald J. Whiteside DATE: March 30, 2009

APPROVED BY: Helen A. Kaleto

3.0 TEST DATA (Including Acceleration and Velocity Plots)


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #7 LEFT AP1
H/V IMPACT ANGLE= 240 / 18
FM9069
Post-Test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DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #7 LEFT AP1
H/V IMPACT ANGLE= 240 / 18
FM9069
Post-Test


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #7 LEFT AP1
H/V IMPACT ANGLE= 240 / 18
FM9069
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#7

Target (Vehicle Side): AP1Left

Temperature:21.4C

MGA Test Reference No.:FM9069

Humidity:36.6%

Approach Horizontal Angles:240º

Time of Test:12:32:04 PM

Approach Vertical Angles:18º

FMH Serial No:[037]

Additional Description:Relocation Spheres: 2

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
364	262	4.6	18.8	21	14 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	AHTB2	-115.9	1.05	1.05
Y	6	J14103	93.7	0.84	0.84
Z	7	J35800	97.1	0.93	0.93

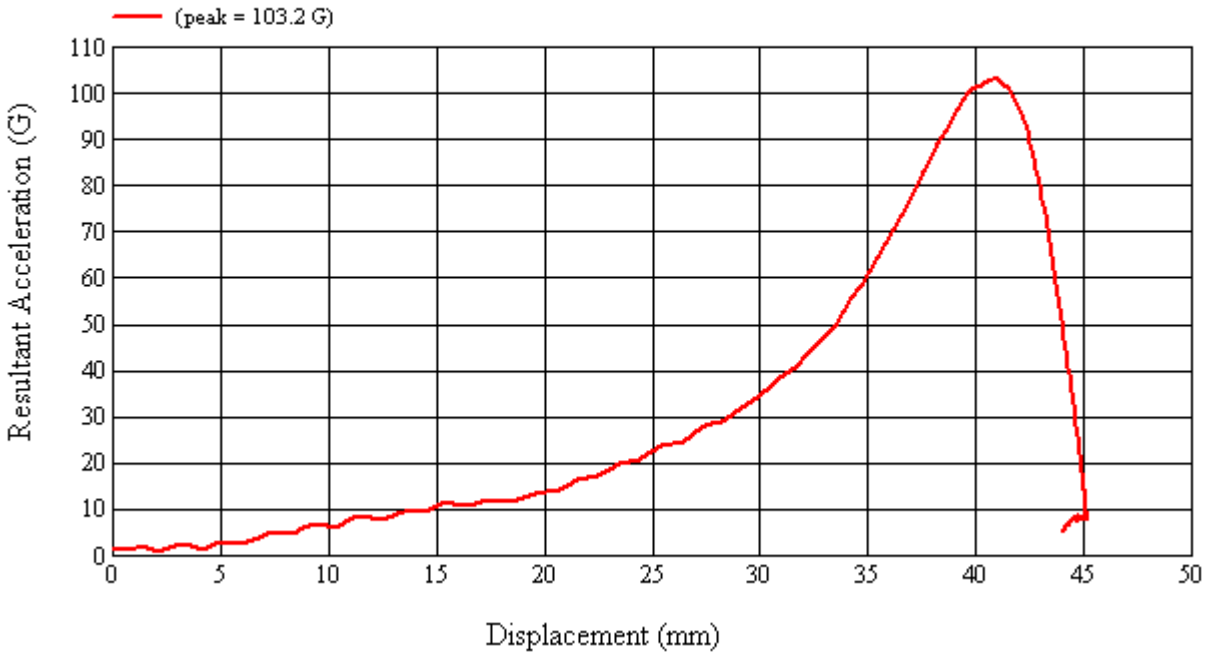
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

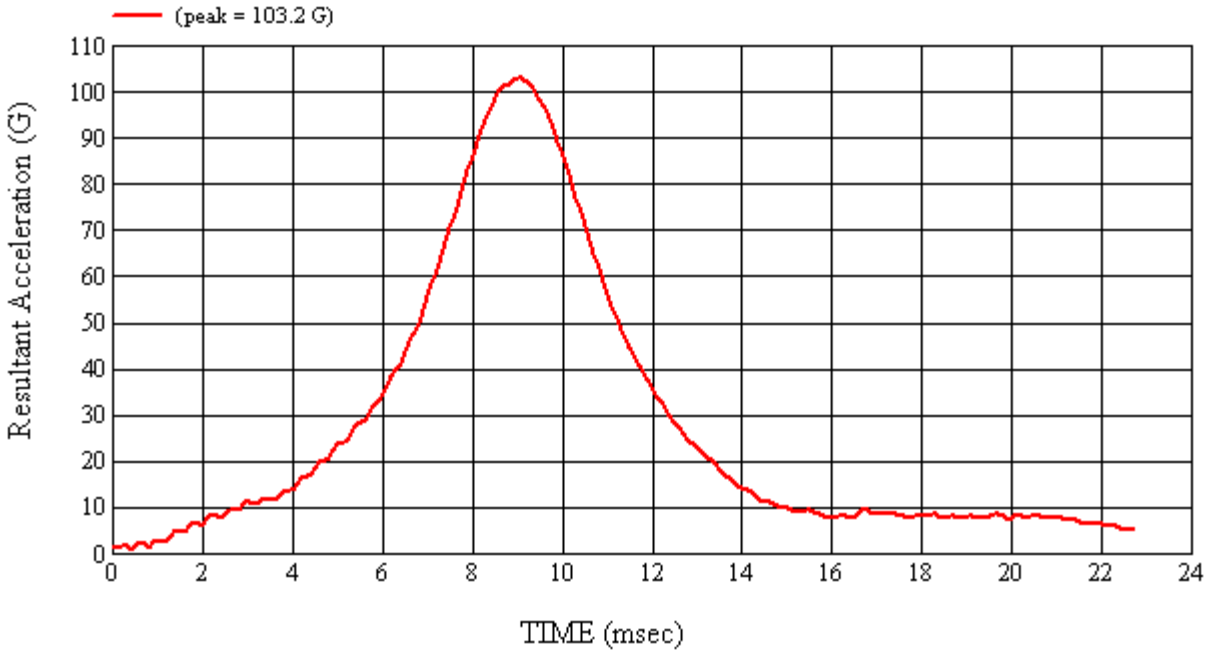
No damage observed

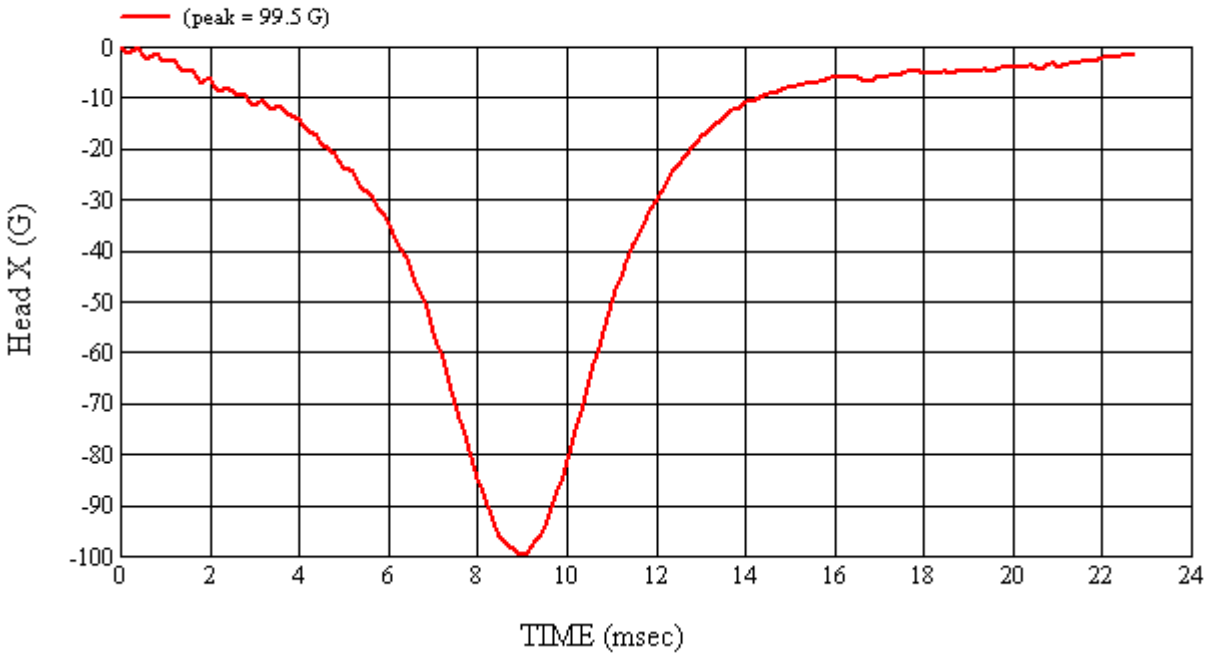
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

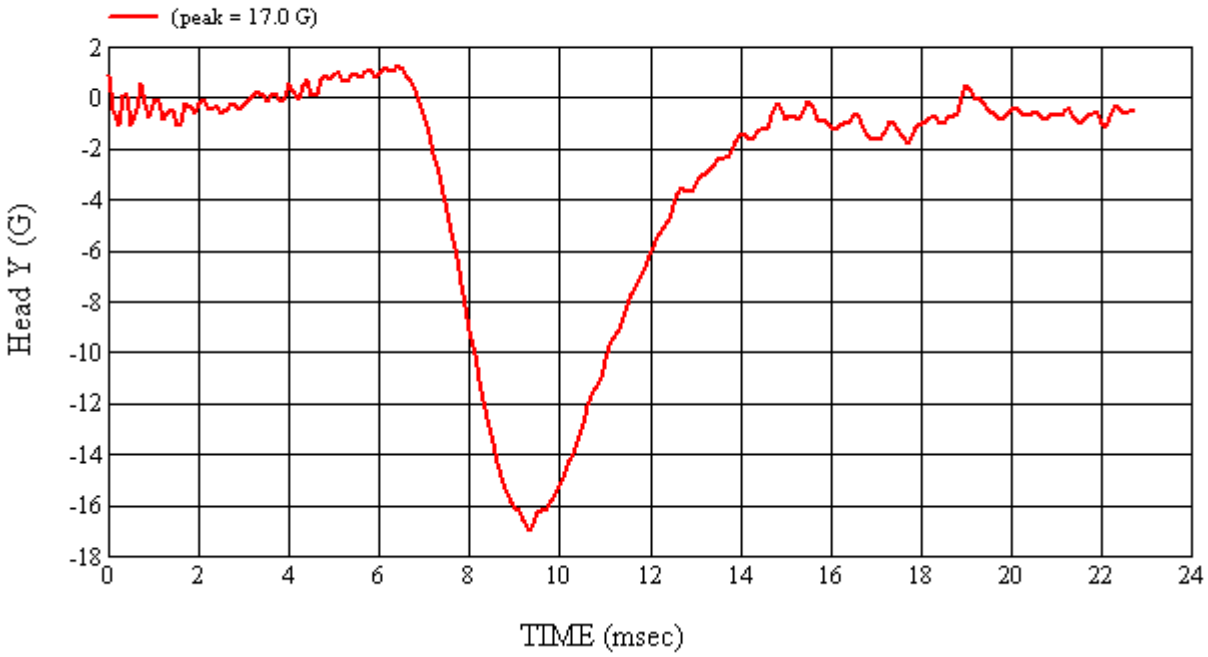
*Only necessary for NHTSA (Government) Compliance testing.

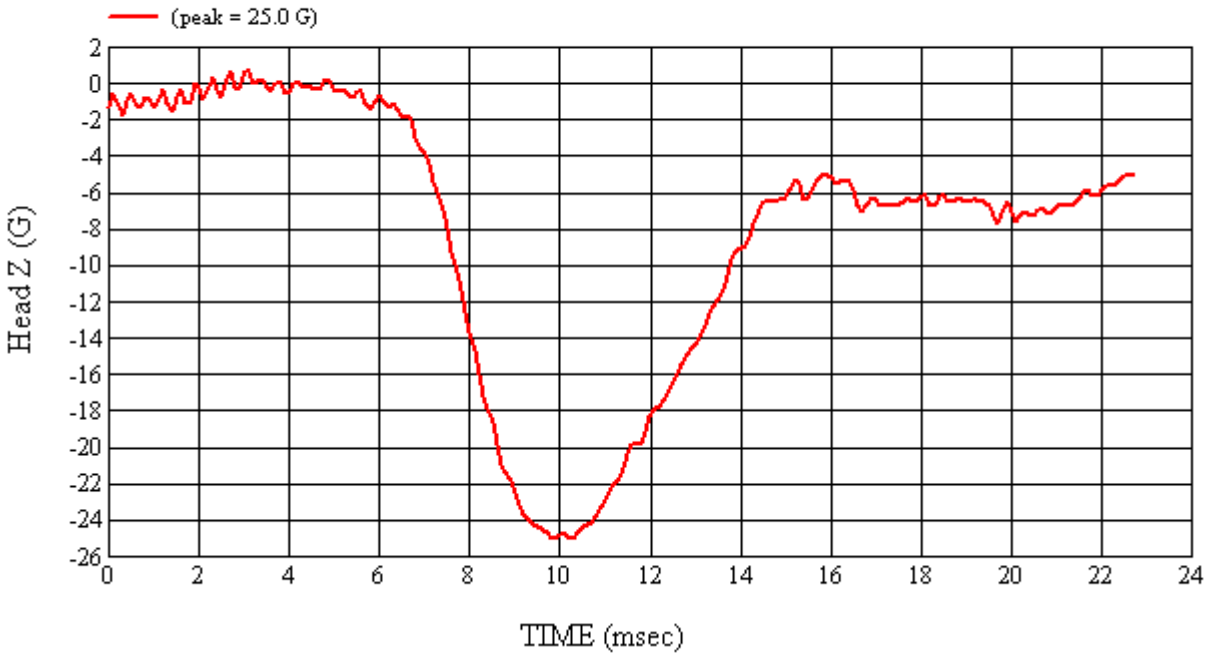
MGA Test #: FM9069 Target Location: AP1, Left Side Test Date: 4/15/2009

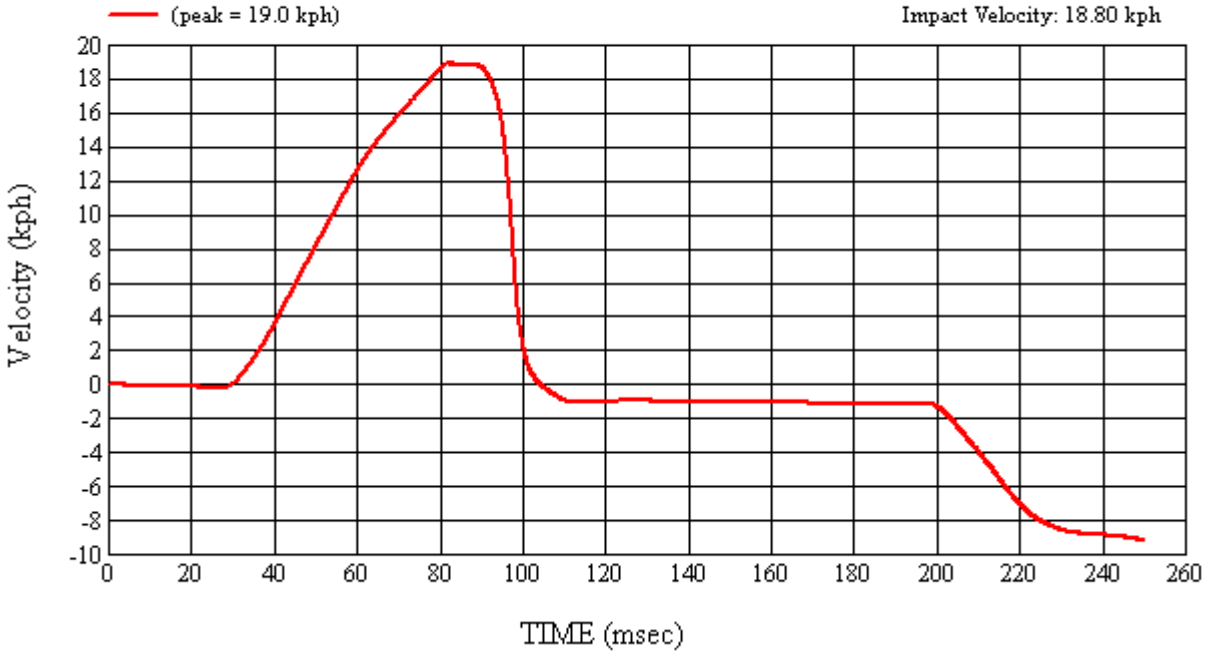


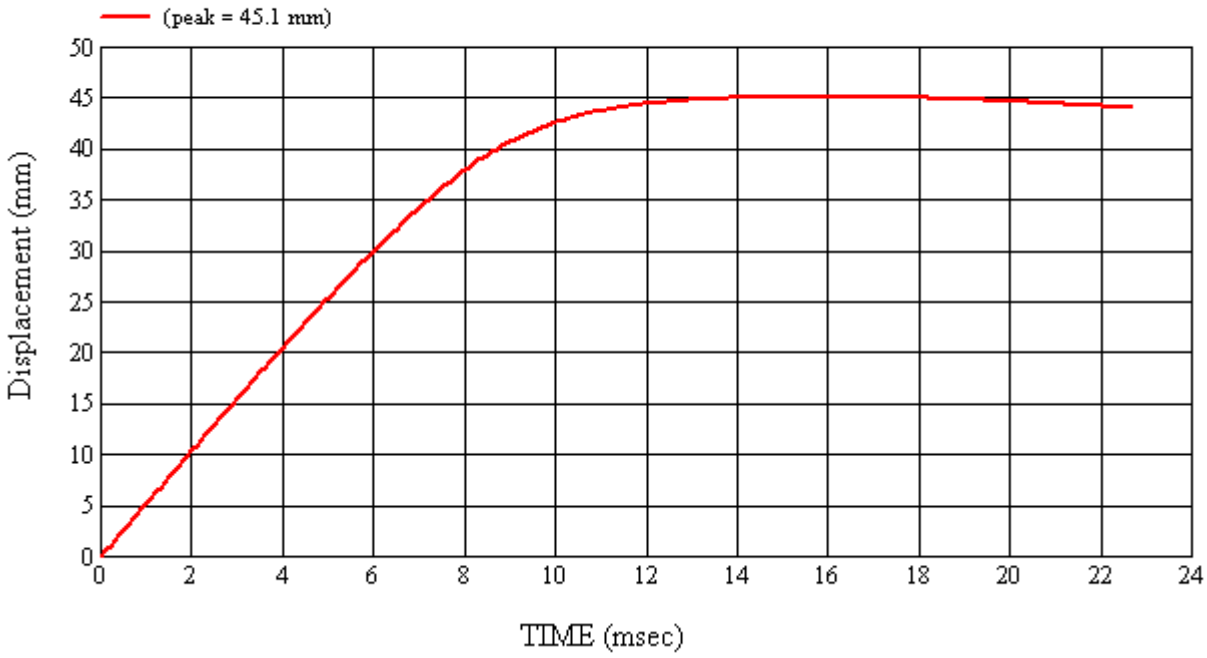



(peak = 99.5 G)
Head X (G)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 17.0 G)
Head Y (G)
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 25.0 G)
Head Z (G)
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 19.0 kph)
Impact Velocity: 18.80 kph
Velocity (kph)
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 45.1 mm)
Displacement (mm)
50
45
40
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)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Impact Testing
4/14/2009
G09I7-001.5
2009 DOT/NHTSA HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #1 RIGHT AP3
H/V IMPACT ANGLE= 161 / 5
FM9063
PRE TEST


AIR BAG WARNING
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Impact Testing
4/14/2009
G09I7-001.5
2009 DOT/NHTSA HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #1 RIGHT AP3
H/V IMPACT ANGLE= 161 / 5
FM9063
PRE TEST


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G09I7-001.5
2009 DOT/NHTSA HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #1 RIGHT AP3
H/V IMPACT ANGLE= 161 / 5
FM9063
Post-Test


AIR BAG WARNING
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G09I7-001.5
2009 DOT/NHTSA HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #1 RIGHT AP3
H/V IMPACT ANGLE= 161 / 5
FM9063
Post-Test


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4/14/2009
G09I7-001.5
2009 DOT/NHTSA HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #1 RIGHT AP3
H/V IMPACT ANGLE= 161 / 5
FM9063
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#1

Target (Vehicle Side): AP3Right

Temperature:21.3C

MGA Test Reference No.:FM9063

Humidity:30.8%

Approach Horizontal Angles:161º

Time of Test:12:46:56 PM

Approach Vertical Angles:5º

FMH Serial No:[035]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
403	313	7.3	19.1	32	14 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35919	-95.6	1.04	1.04
Y	6	J22664	94.3	0.83	0.83
Z	7	J35924	92.8	0.92	0.93

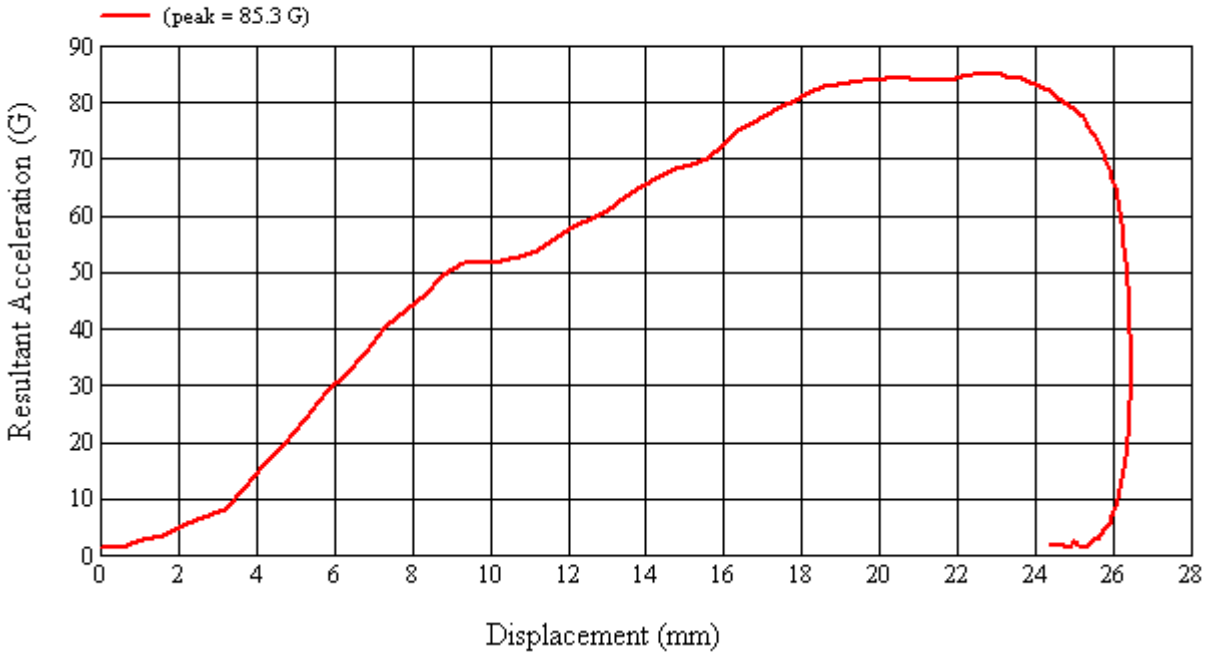
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

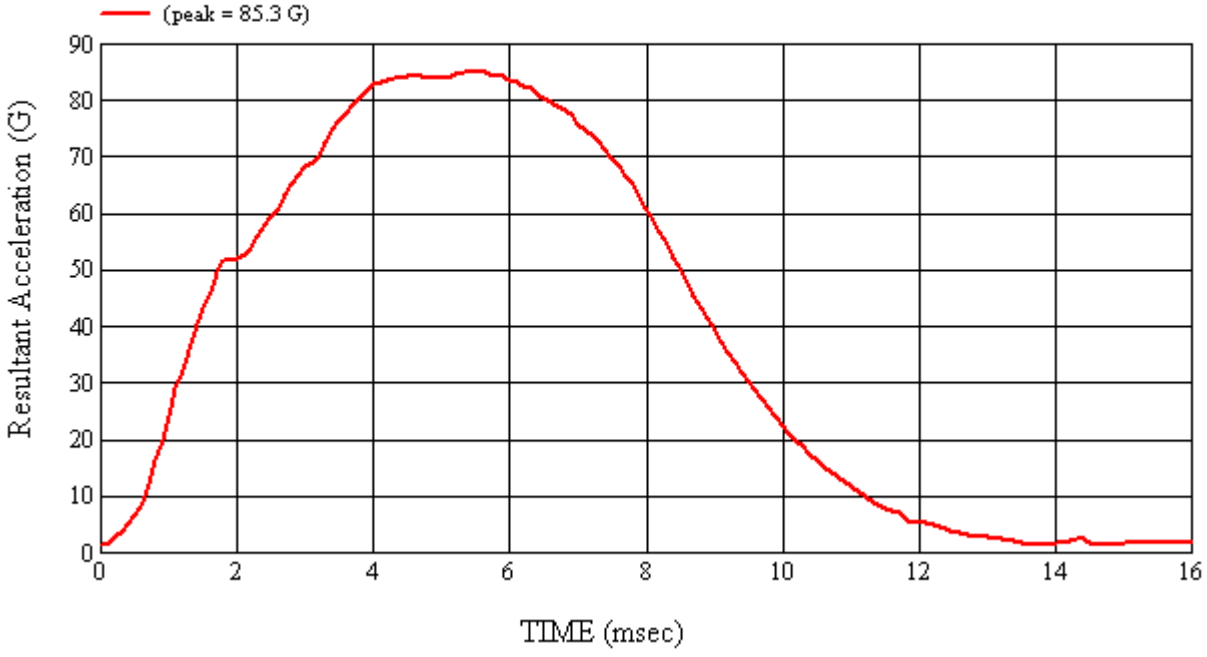
A-Pillar trim loose

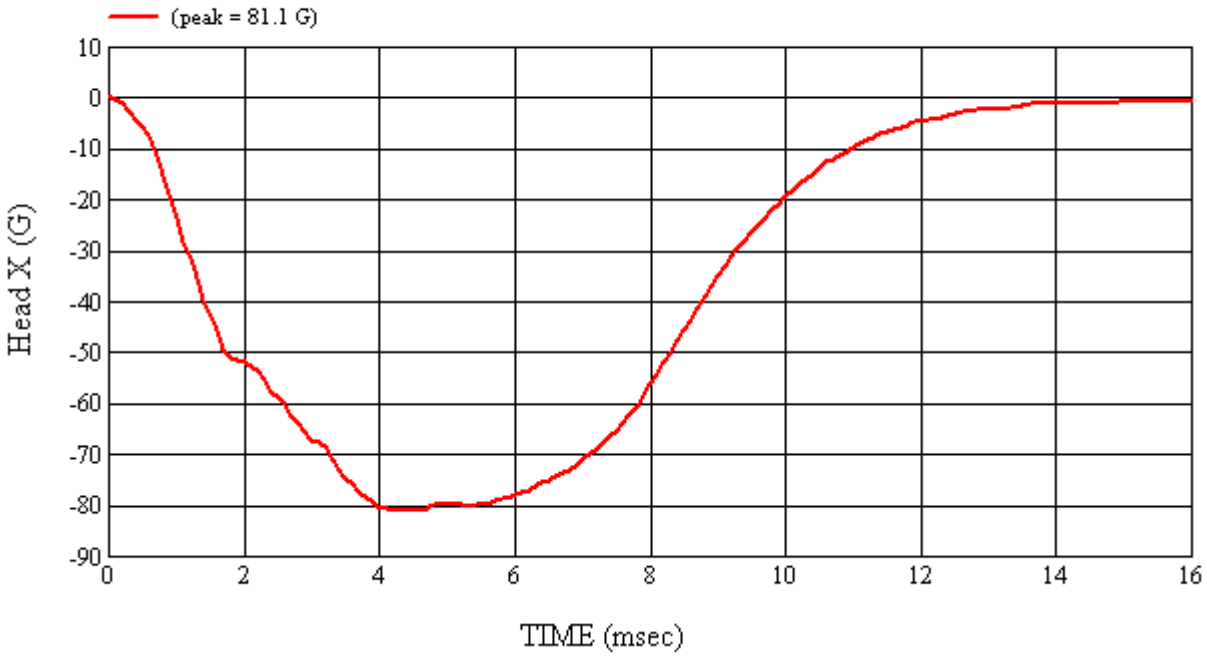
Recorded By: _____ Approved By*: _____ Date: 4/14/2009

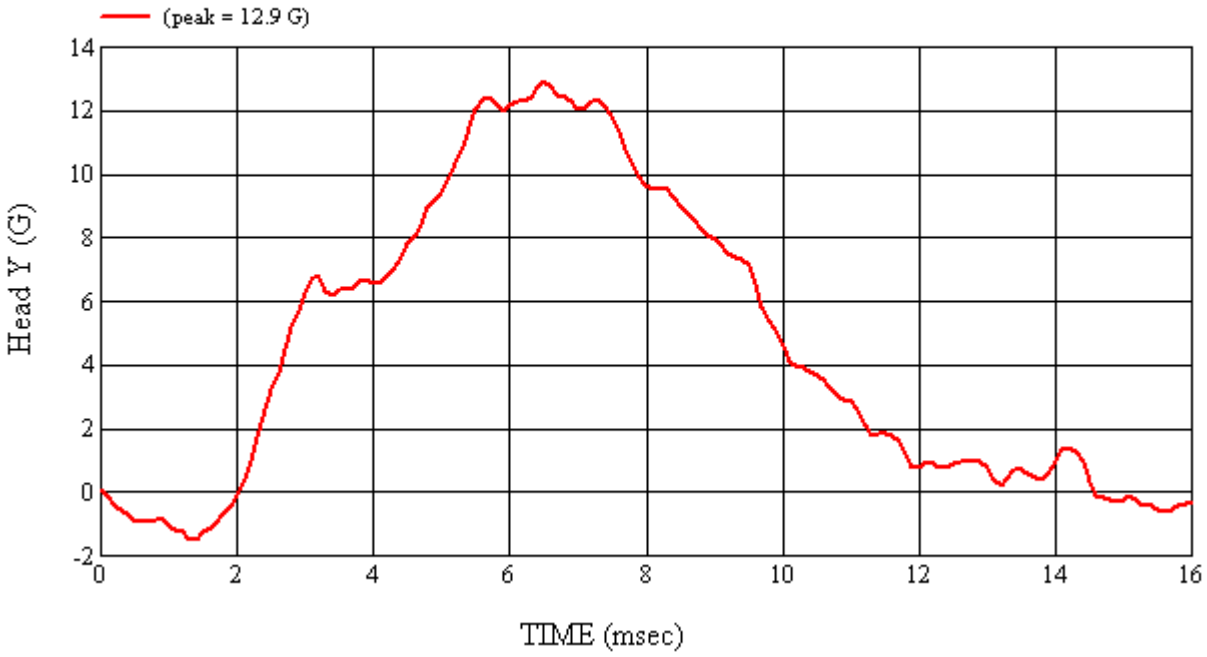
*Only necessary for NHTSA (Government) Compliance testing.

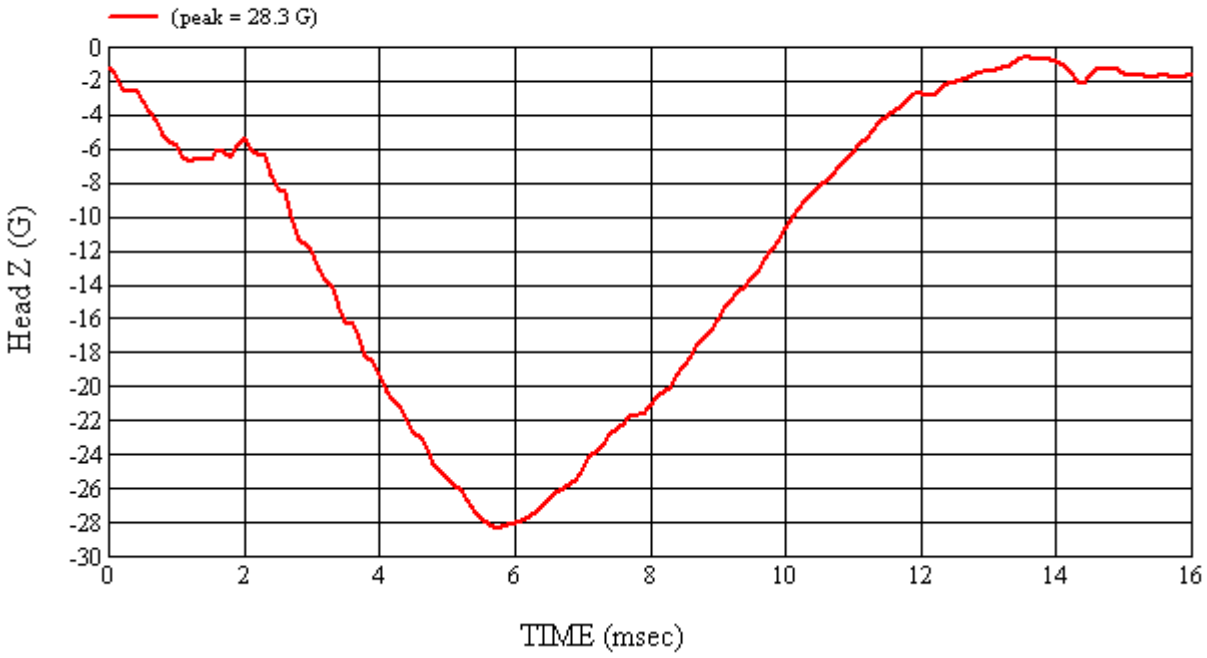
MGA Test #: FM9063 Target Location: AP3, Right Side Test Date: 4/14/2009

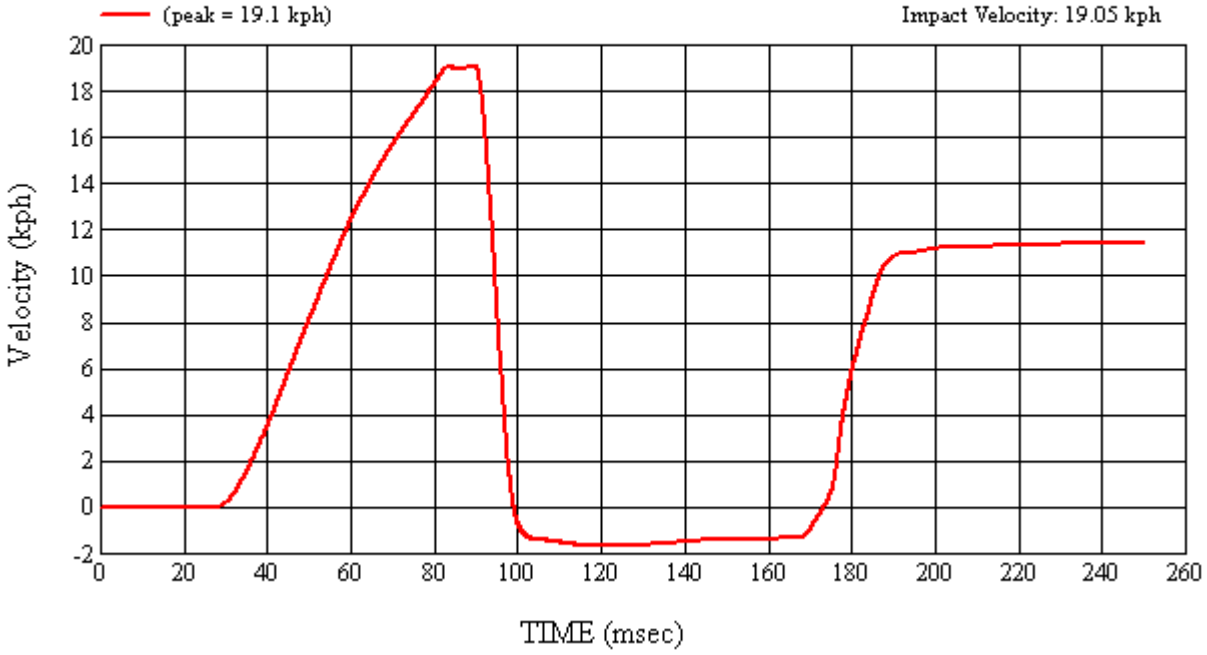


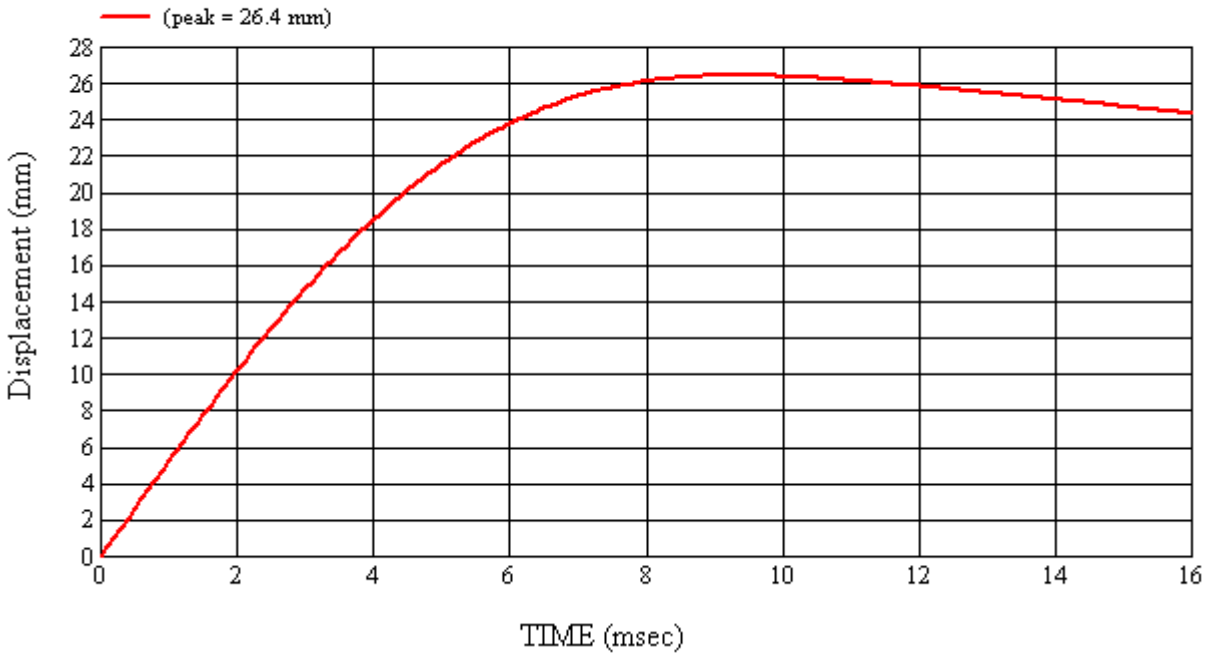


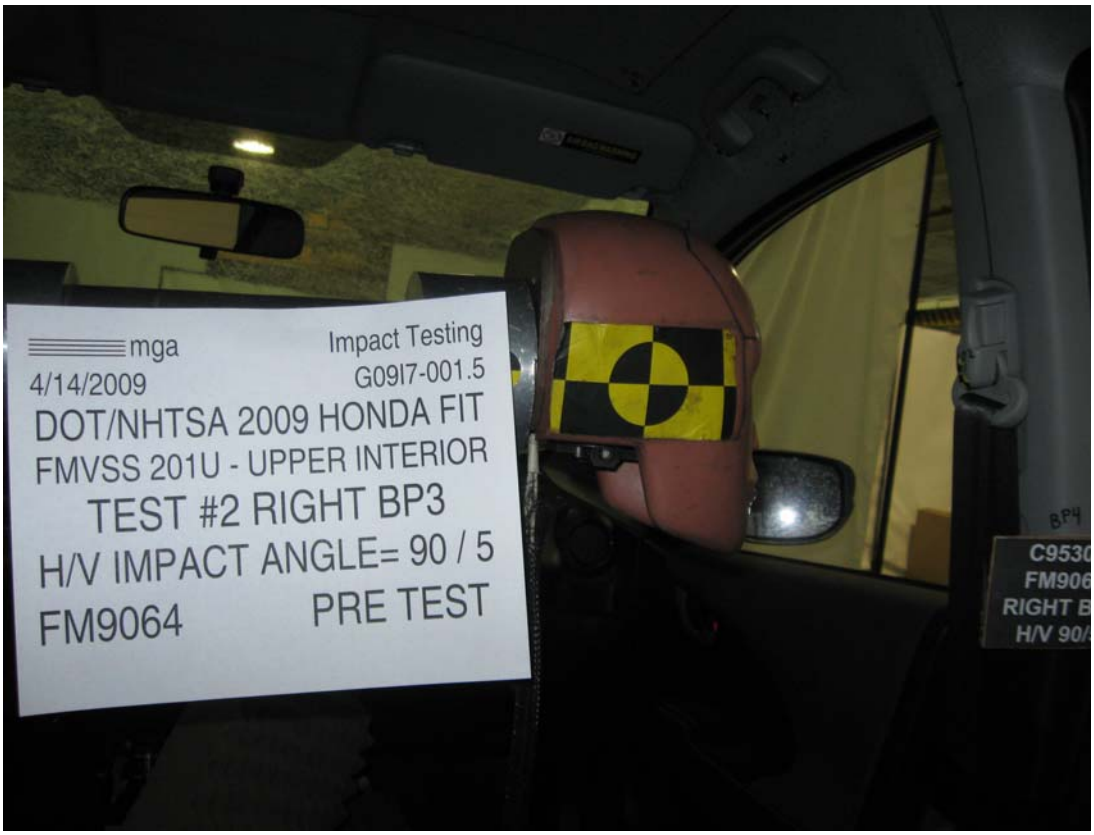

(peak = 81.1 G)
Head X (G)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
0
2
4
6
8
10
12
14
16
TIME (msec)


(peak = 12.9 G)
Head Y (G)
14
12
10
8
6
4
2
0
-2
0
2
4
6
8
10
12
14
16
TIME (msec)


(peak = 28.3 G)
Head Z (G)
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
-30
0
2
4
6
8
10
12
14
16
TIME (msec)


(peak = 19.1 kph)
Impact Velocity: 19.05 kph
Velocity (kph)
20
18
16
14
12
10
8
6
4
2
0
-2
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 26.4 mm)
Displacement (mm)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
0
2
4
6
8
10
12
14
16
TIME (msec)


mga
Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #2 RIGHT BP3
H/V IMPACT ANGLE= 90 / 5
FM9064
PRE TEST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Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #2 RIGHT BP3
H/V IMPACT ANGLE= 90 / 5
FM9064
PRE TEST


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4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #2 RIGHT BP3
H/V IMPACT ANGLE= 90 / 5
FM9064
Post-Test


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4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #2 RIGHT BP3
H/V IMPACT ANGLE= 90 / 5
FM9064
Post-Test


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4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #2 RIGHT BP3
H/V IMPACT ANGLE= 90 / 5
FM9064
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#2

Target (Vehicle Side): BP3Right

Temperature:21.3C

MGA Test Reference No.:FM9064

Humidity:32.1%

Approach Horizontal Angles:90º

Time of Test:2:55:53 PM

Approach Vertical Angles:5º

FMH Serial No:[037]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
616	596	8.6	24.3	9	13 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

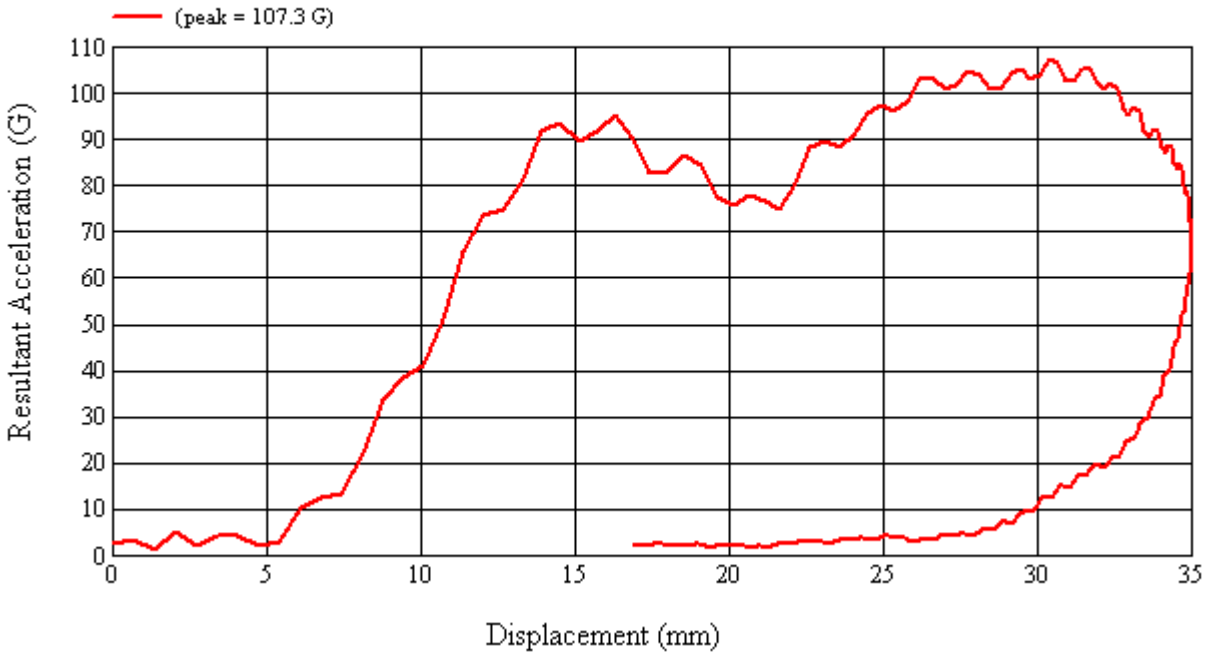
Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	AHTB2	-115.9	1.04	1.05
Y	6	J14103	93.7	0.83	0.83
Z	7	J35800	97.1	0.92	0.92

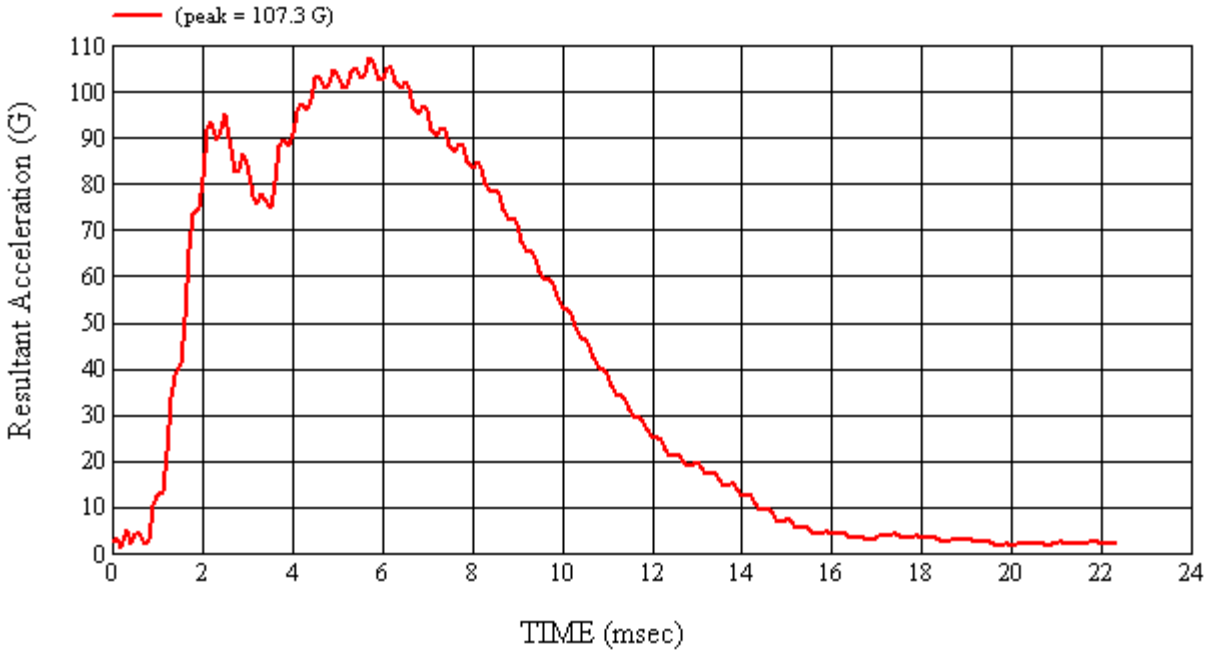
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

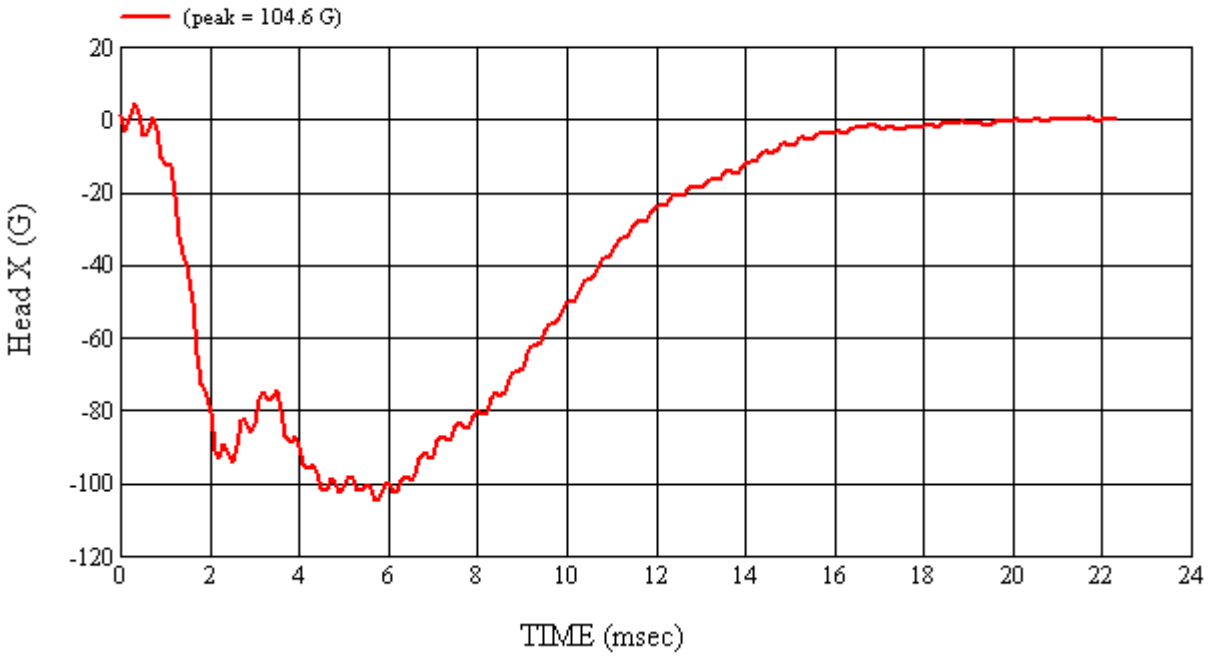
Recorded By: _____ Approved By*: _____ Date: 4/14/2009

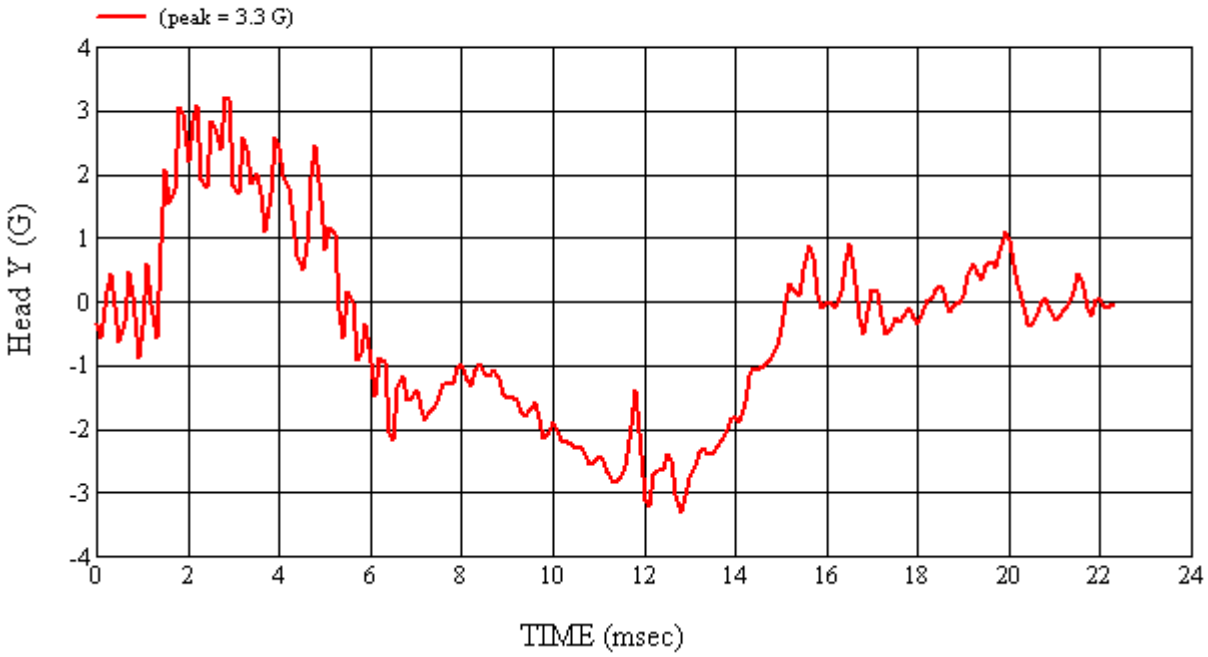
*Only necessary for NHTSA (Government) Compliance testing.

MGA Test #: FM9064 Target Location: BP3, Right Side Test Date: 4/14/2009






(peak = 104.6 G)
Head X (G)
20
0
-20
-40
-60
-80
-100
-120
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)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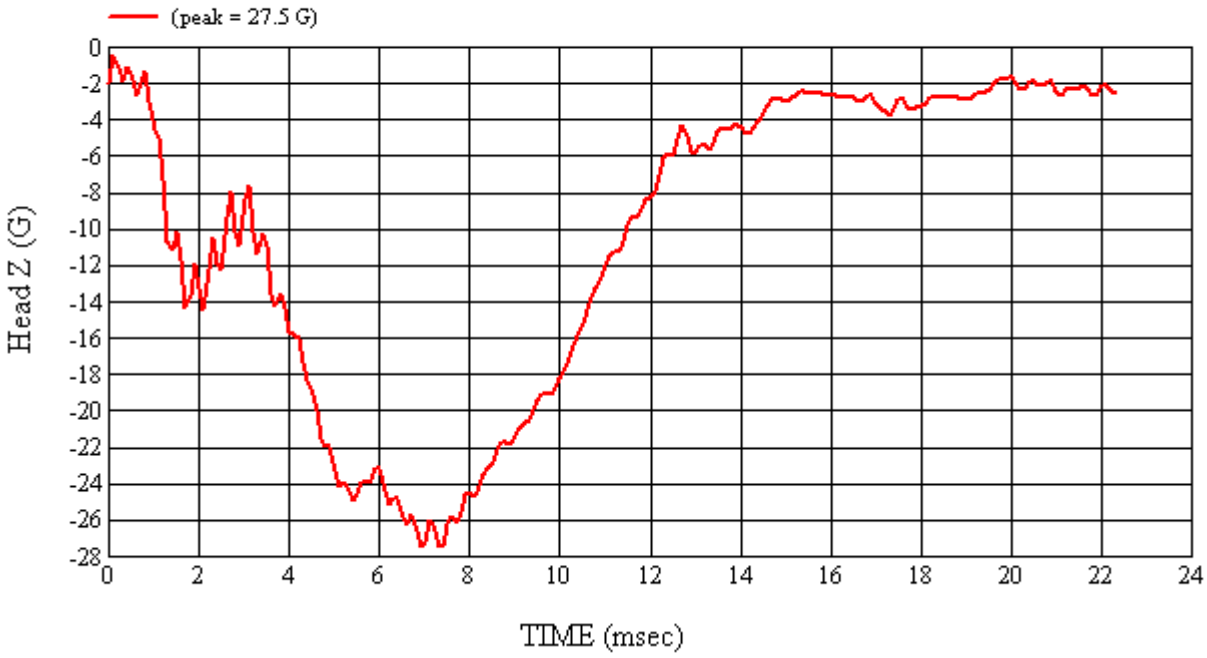
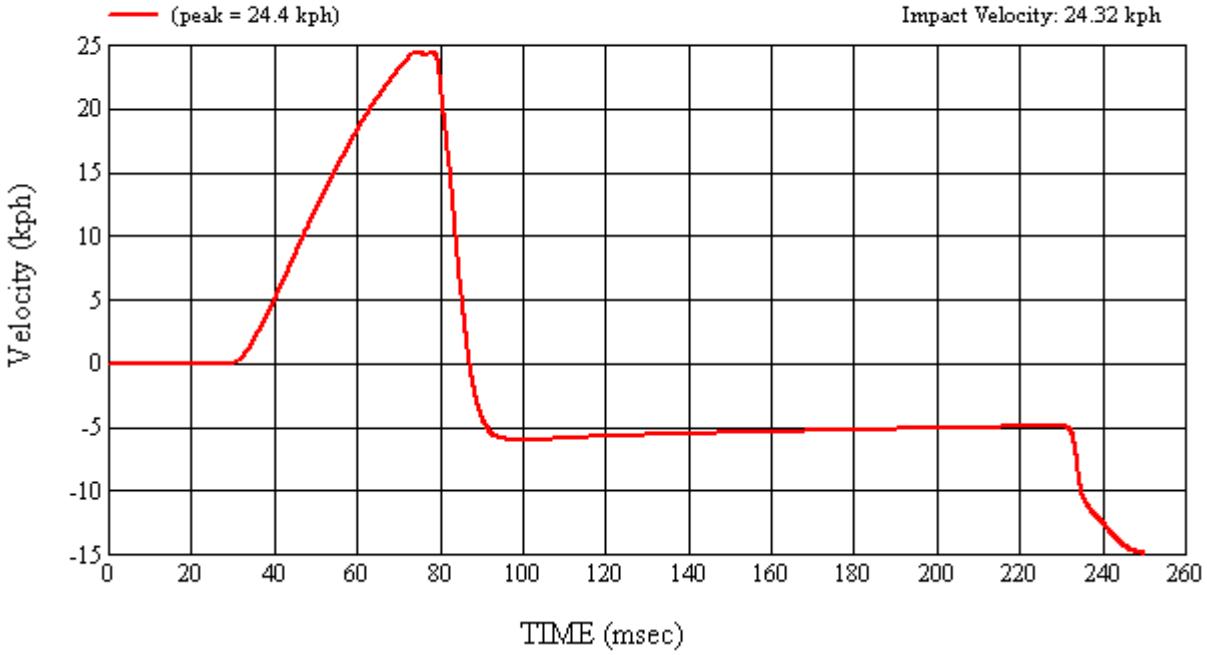
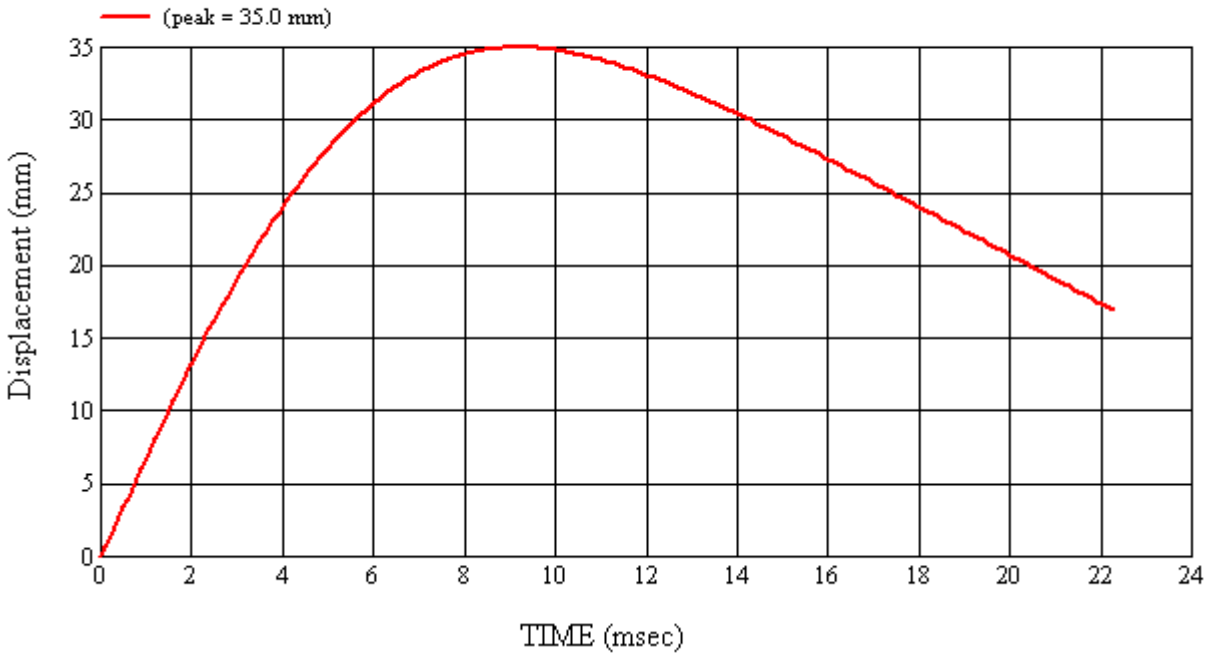
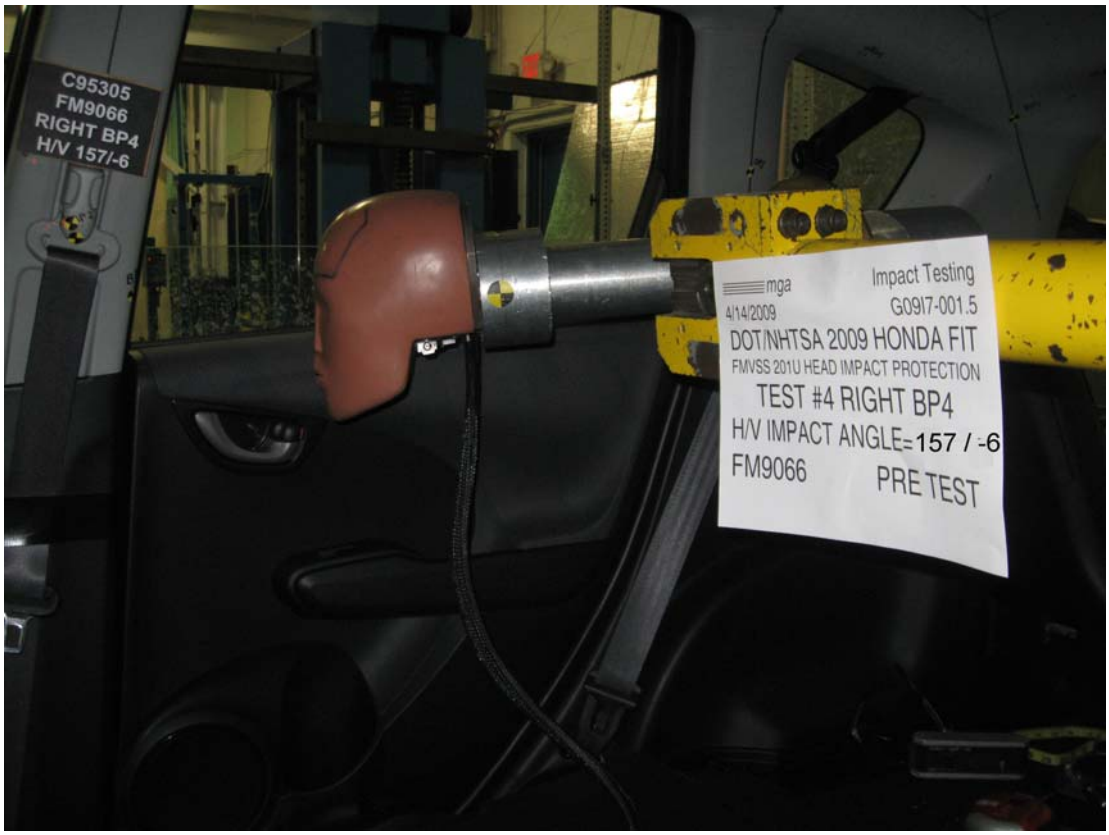
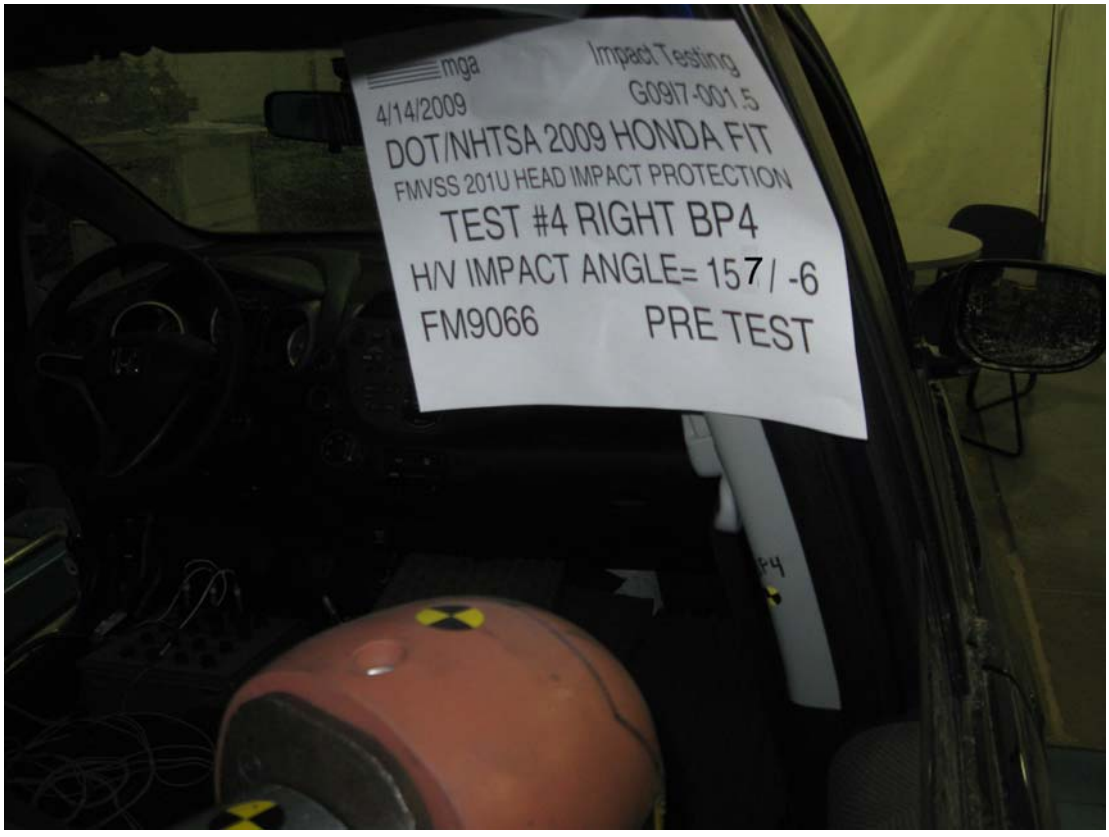
Head Y (G)
4
3
2
1
0
-1
-2
-3
-4
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 27.5 G)
Head Z (G)
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
-26
-28
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 24.4 kph)
Impact Velocity: 24.32 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
-15
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 35.0 mm)
Displacement (mm)
0
5
10
15
20
25
30
35
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


C95305
FM9066
RIGHT BP4
H/V 157/-6
mga
Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U HEAD IMPACT PROTECTION
TEST #4 RIGHT BP4
H/V IMPACT ANGLE=157 / -6
FM9066
PRE TEST


mga
Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U HEAD IMPACT PROTECTION
TEST #4 RIGHT BP4
H/V IMPACT ANGLE= 157 / -6
FM9066
PRE TEST


C95305
FM9066
RIGHT BP4
H/V 157/-6
mga
Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U HEAD IMPACT PROTECTION
TEST #4 RIGHT BP4
H/V IMPACT ANGLE= 157/ -6
FM9066
Post-Test


mga
Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U HEAD IMPACT PROTECTION
TEST #4 RIGHT BP4
H/V IMPACT ANGLE= 157/ -6
FM9066
Post-Test


mga
4/14/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U HEAD IMPACT PROTECTION
TEST #4 RIGHT BP4
H/V IMPACT ANGLE= 157 / -6
FM9066
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#4

Target (Vehicle Side): BP4Right

Temperature:21.4C

MGA Test Reference No.:FM9066

Humidity:35.0%

Approach Horizontal Angles:157º

Time of Test:5:39:38 PM

Approach Vertical Angles:-6º

FMH Serial No:[035]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
687	690	8	24.0	14	8 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35919	-95.6	1.04	1.04
Y	6	J22664	94.3	0.83	0.83
Z	7	J35924	92.8	0.92	0.92

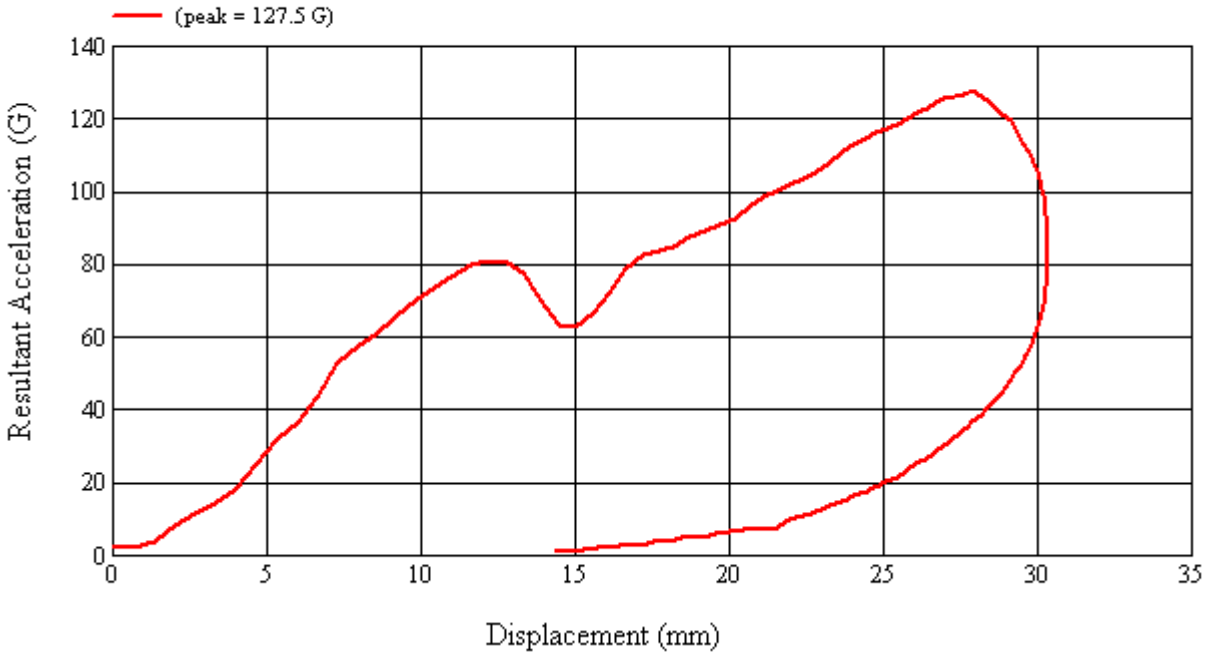
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

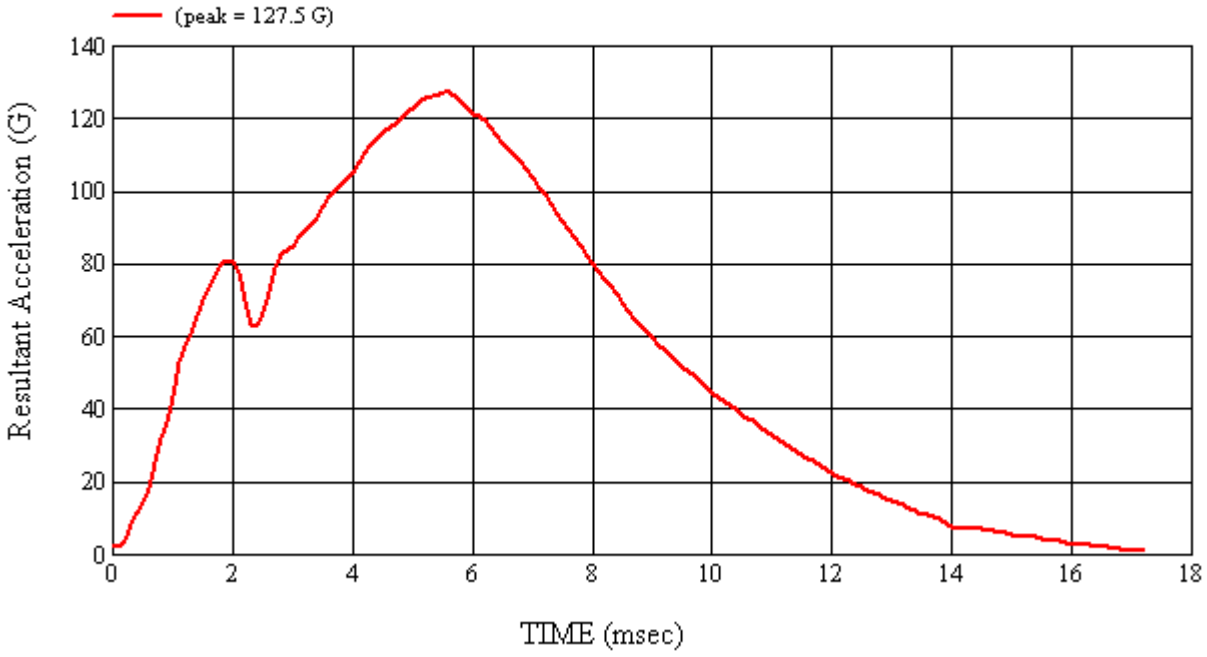
None

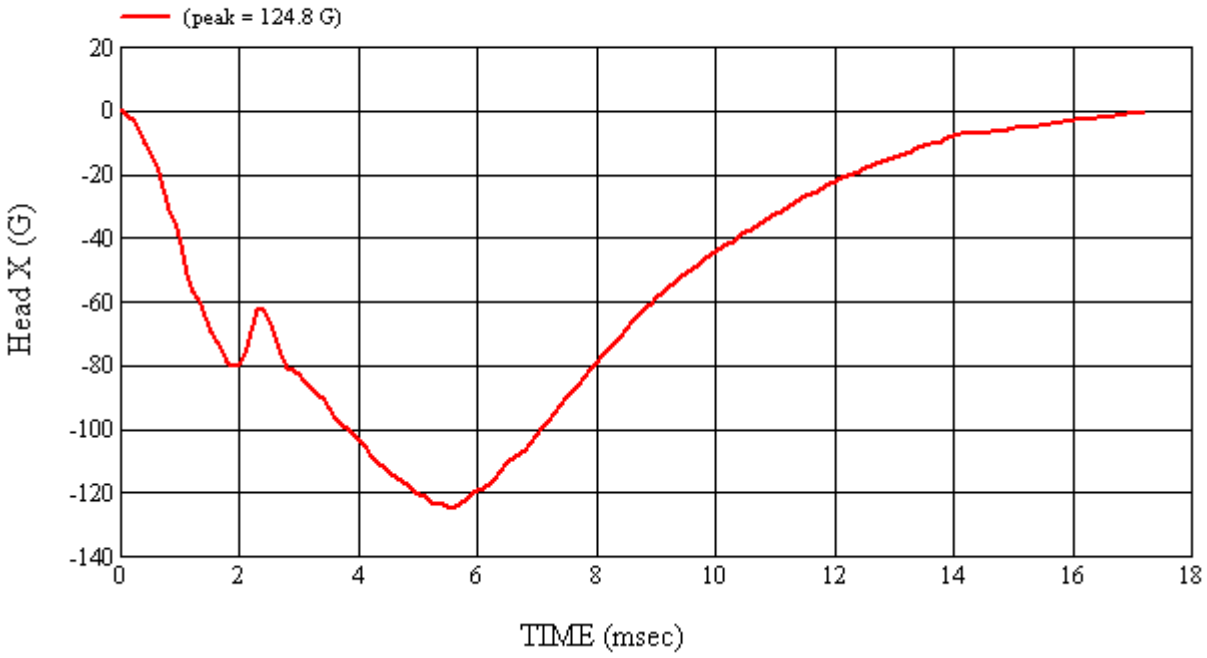
Recorded By: _____ Approved By*: _____ Date: 4/14/2009

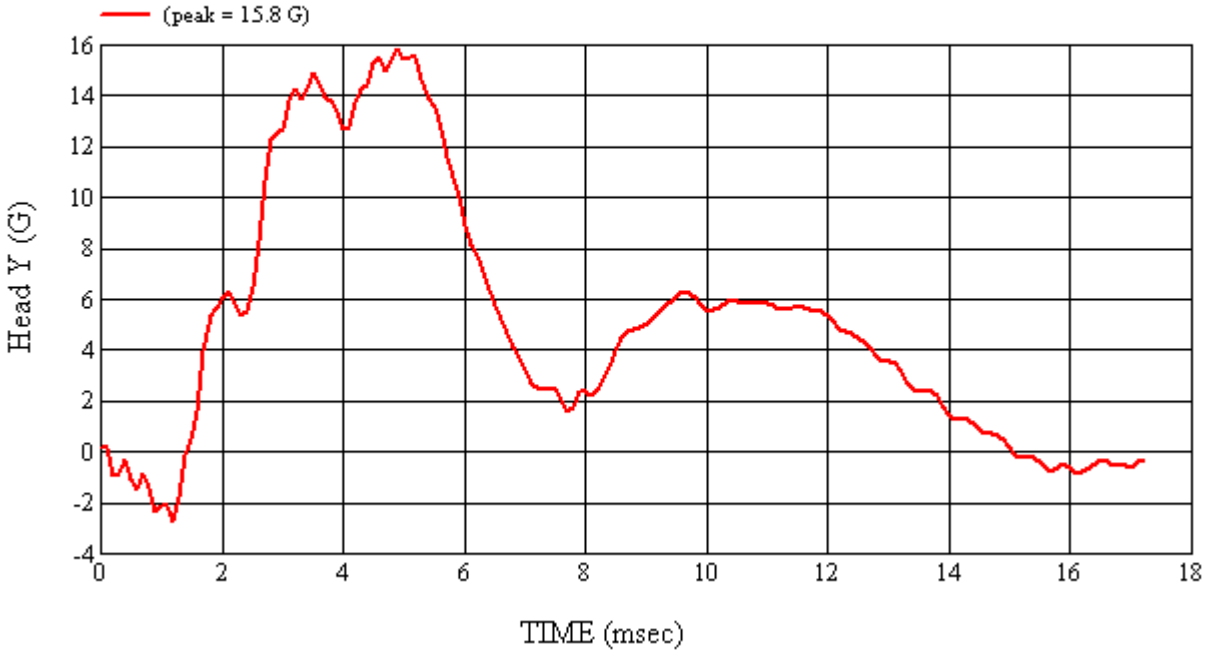
*Only necessary for NHTSA (Government) Compliance testing.

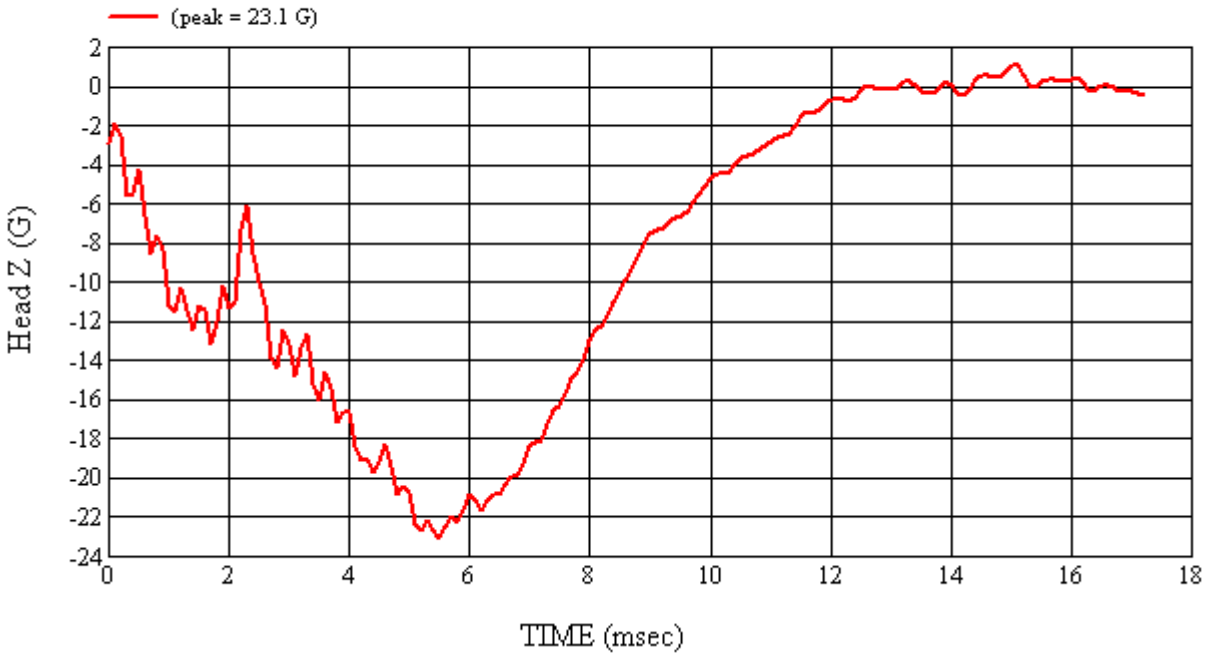
MGA Test #: FM9066 Target Location: BP4, Right Side Test Date: 4/14/2009

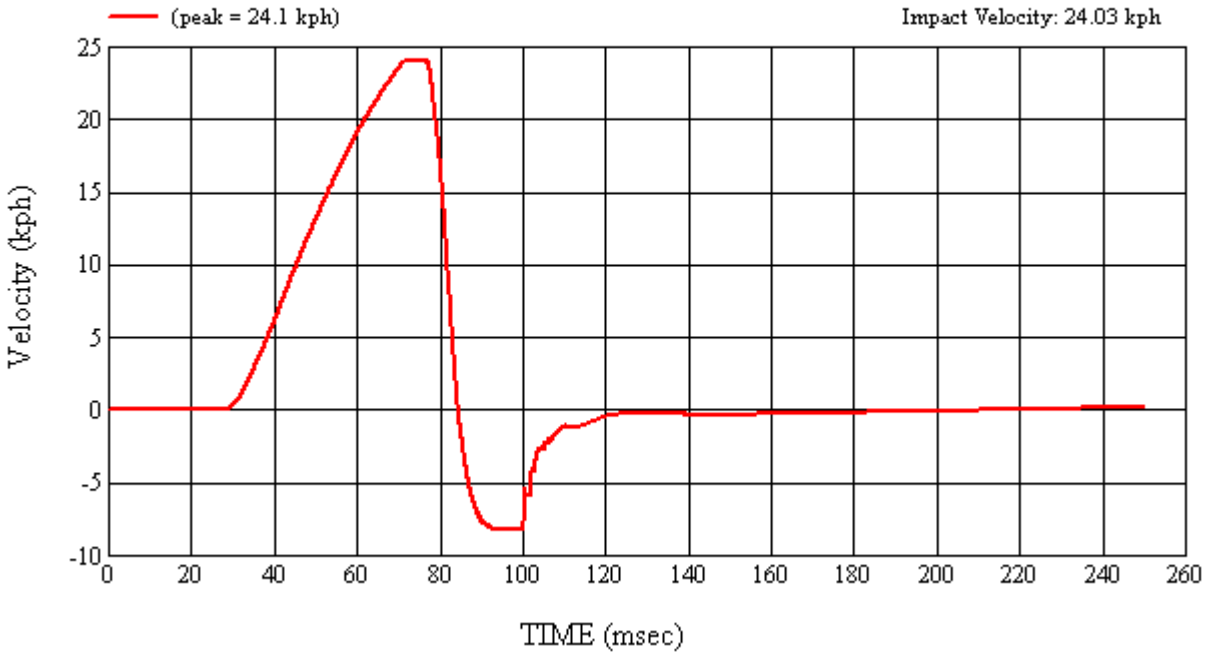


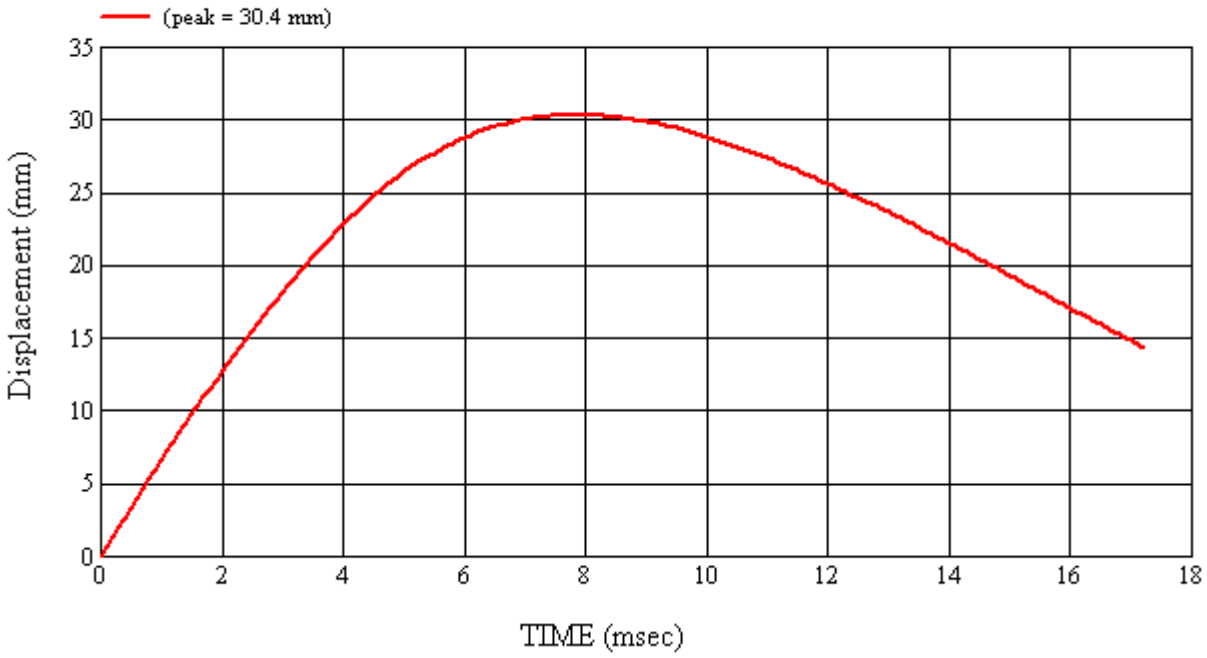



(peak = 124.8 G)
Head X (G)
20
0
-20
-40
-60
-80
-100
-120
-140
0
2
4
6
8
10
12
14
16
18
TIME (msec)


(peak = 15.8 G)
Head Y (G)
16
14
12
10
8
6
4
2
0
-2
-4
0
2
4
6
8
10
12
14
16
18
TIME (msec)


(peak = 23.1 G)
Head Z (G)
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
0
2
4
6
8
10
12
14
16
18
TIME (msec)

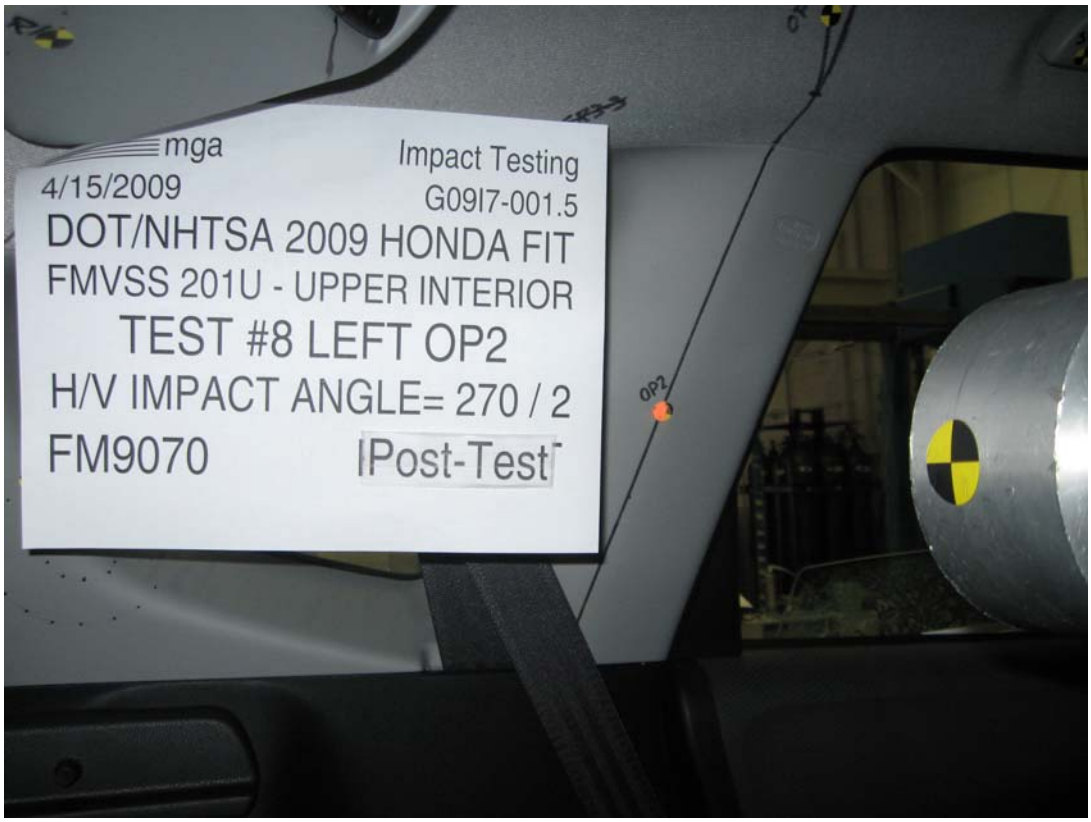

(peak = 24.1 kph)
Impact Velocity: 24.03 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 30.4 mm)
Displacement (mm)
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
TIME (msec)


FM9070
LEFT OP2
H/V 270/2
OP2
mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #8 LEFT OP2
H/V IMPACT ANGLE= 270 / 2
FM9070
PRE TEST


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #8 LEFT OP2
H/V IMPACT ANGLE= 270 / 2
FM9070
PRE TEST
OP2


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #8 LEFT OP2
H/V IMPACT ANGLE= 270 / 2
FM9070
Post-Test


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #8 LEFT OP2
H/V IMPACT ANGLE= 270 / 2
FM9070
Post-Test


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #8 LEFT OP2
H/V IMPACT ANGLE= 270 / 2
FM9070
IPost-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#8

Target (Vehicle Side): OP2Left

Temperature:21.4C

MGA Test Reference No.:FM9070

Humidity:36.1%

Approach Horizontal Angles:270º

Time of Test:1:24:54 PM

Approach Vertical Angles:2º

FMH Serial No:[038]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
424	342	8.7	19.0	21	0

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J22700	-95.8	1.05	1.05
Y	6	J36197	108.5	0.84	0.84
Z	7	J36353	98.7	0.93	0.93

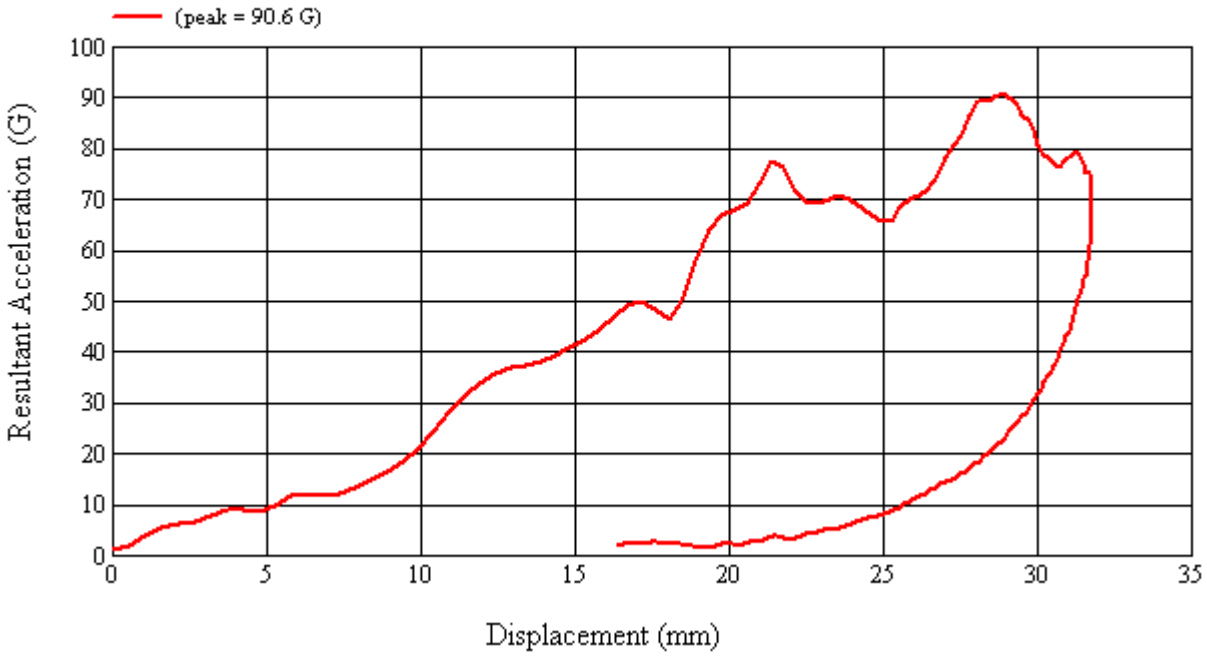
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

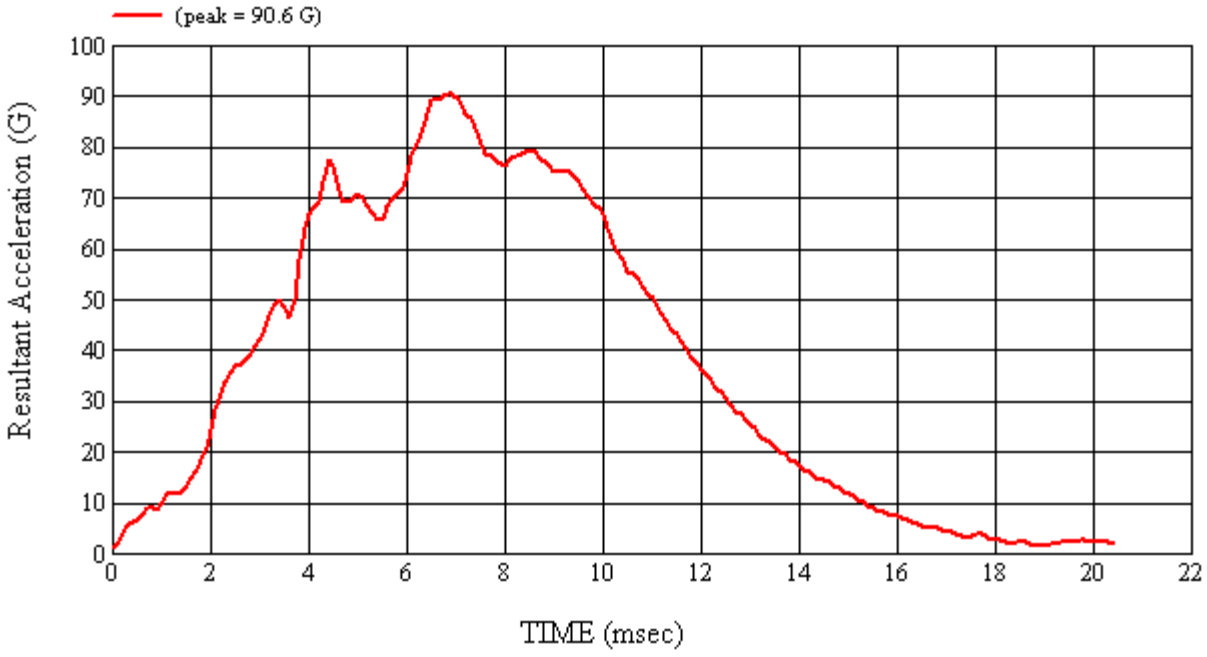
No damage observed

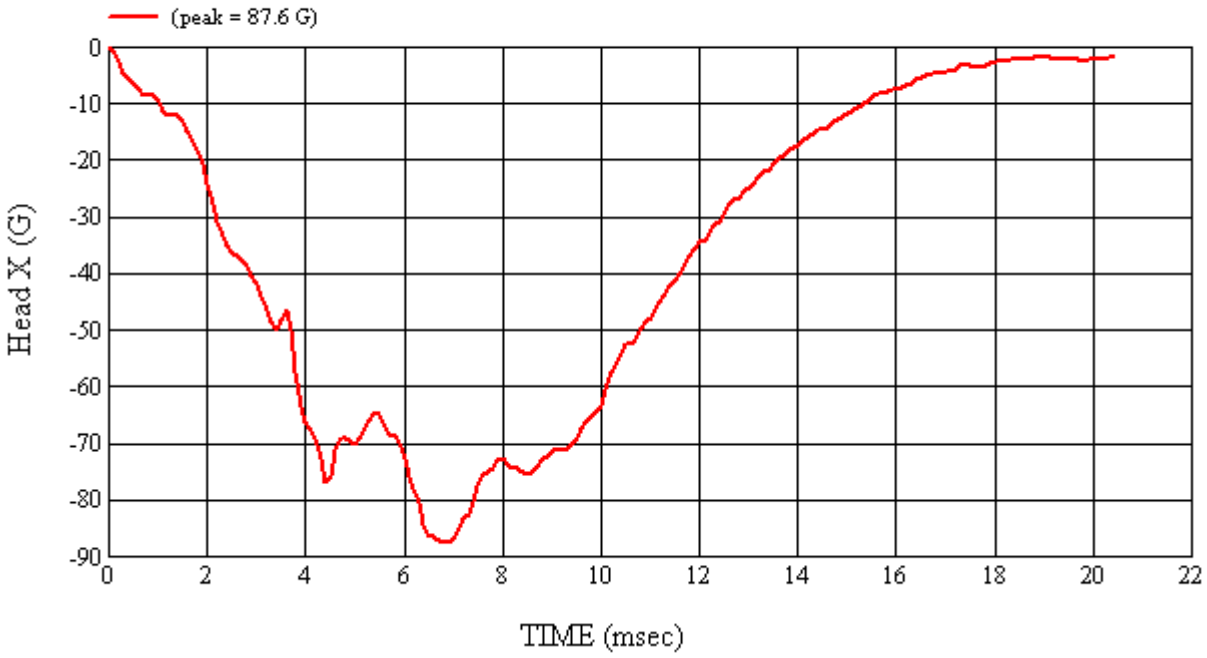
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

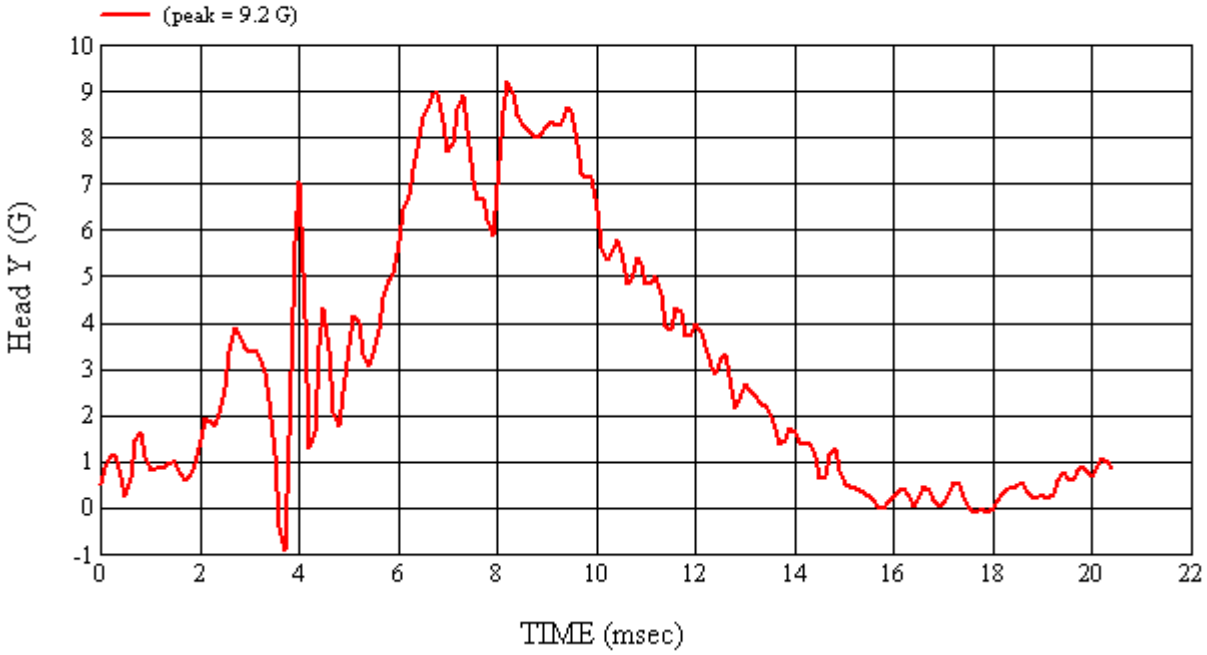
*Only necessary for NHTSA (Government) Compliance testing.

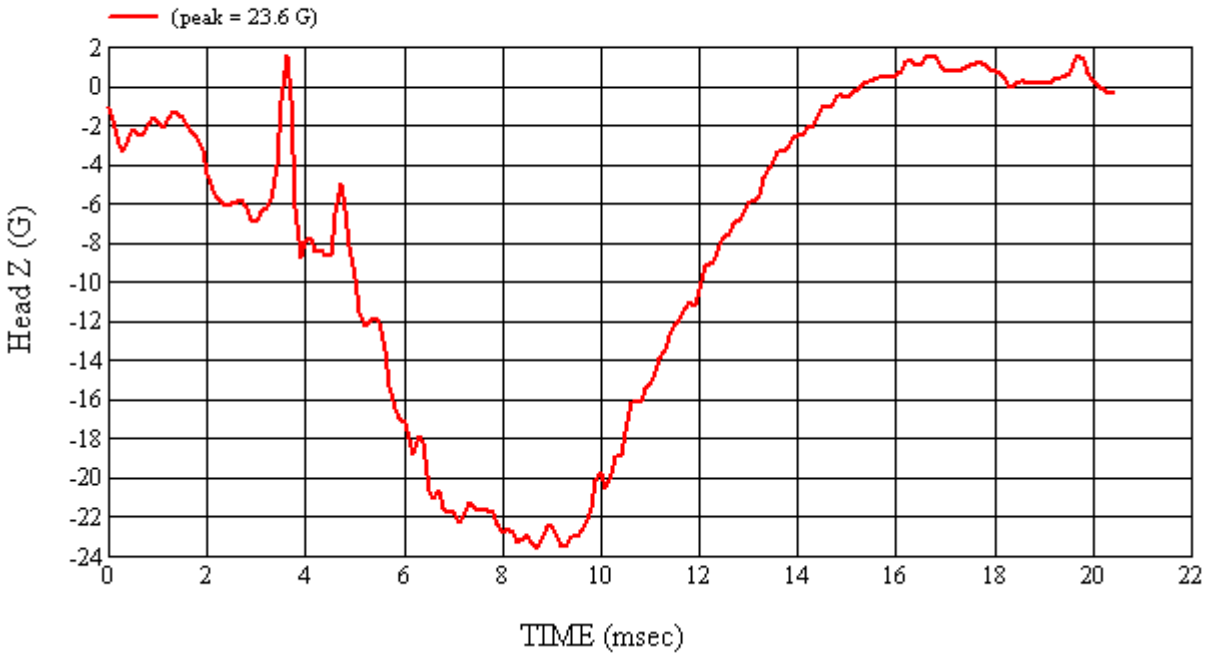
MGA Test #: FM9070 Target Location: OP2, Left Side Test Date: 4/15/2009

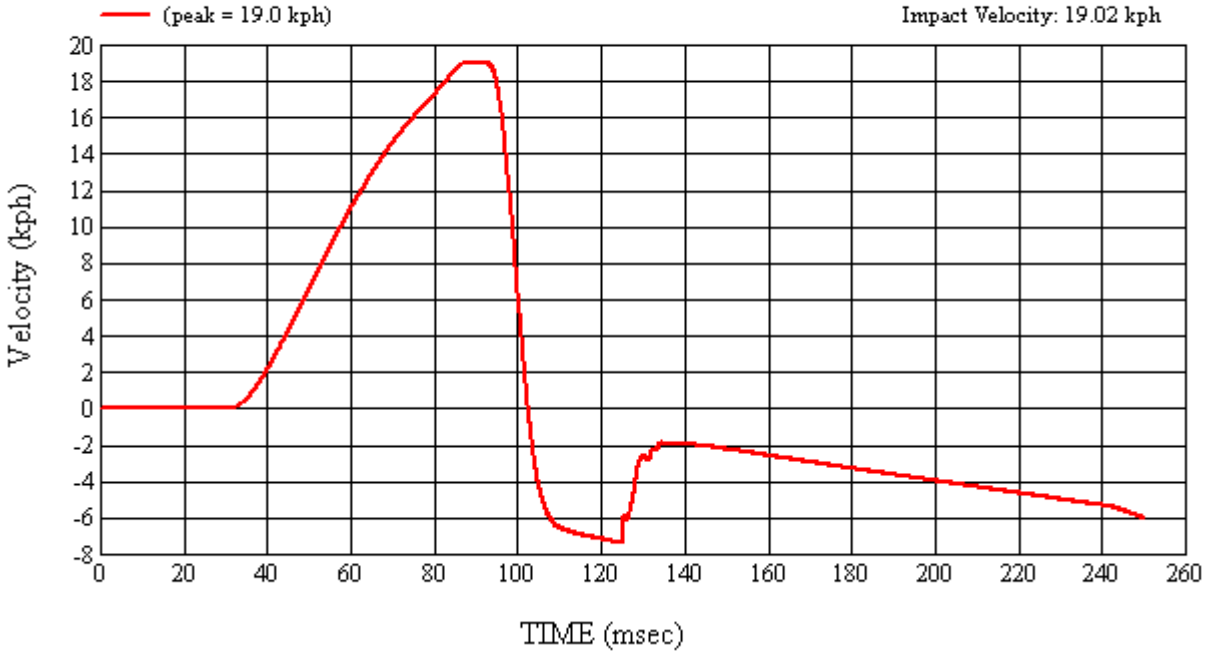


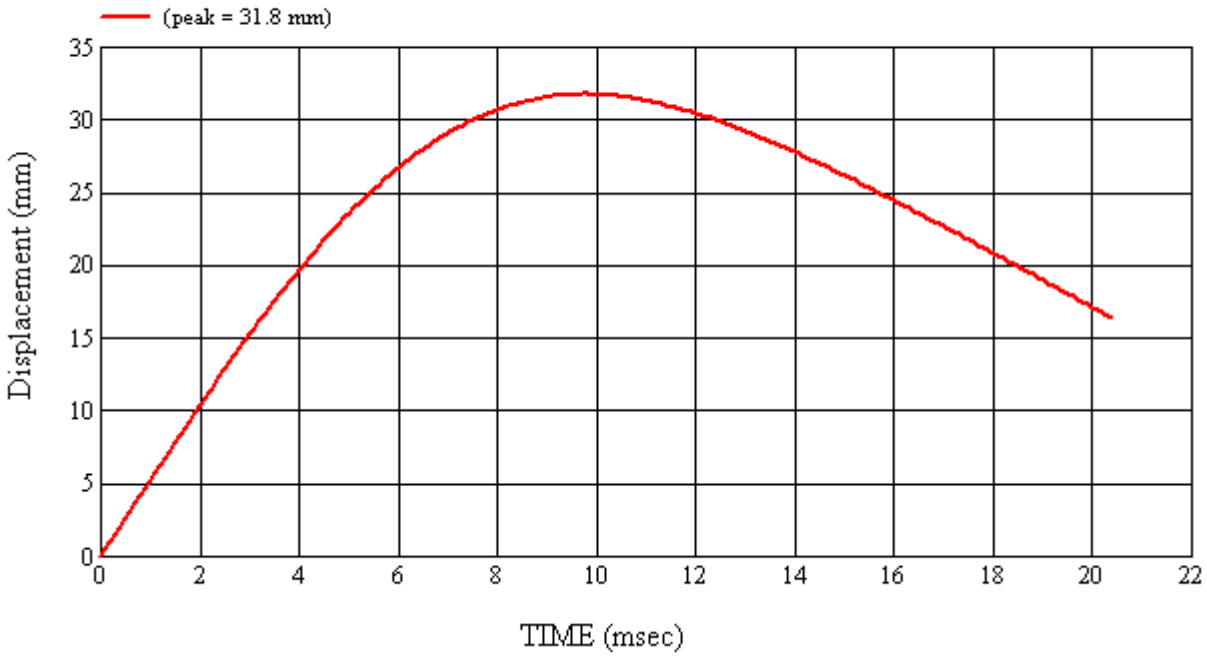


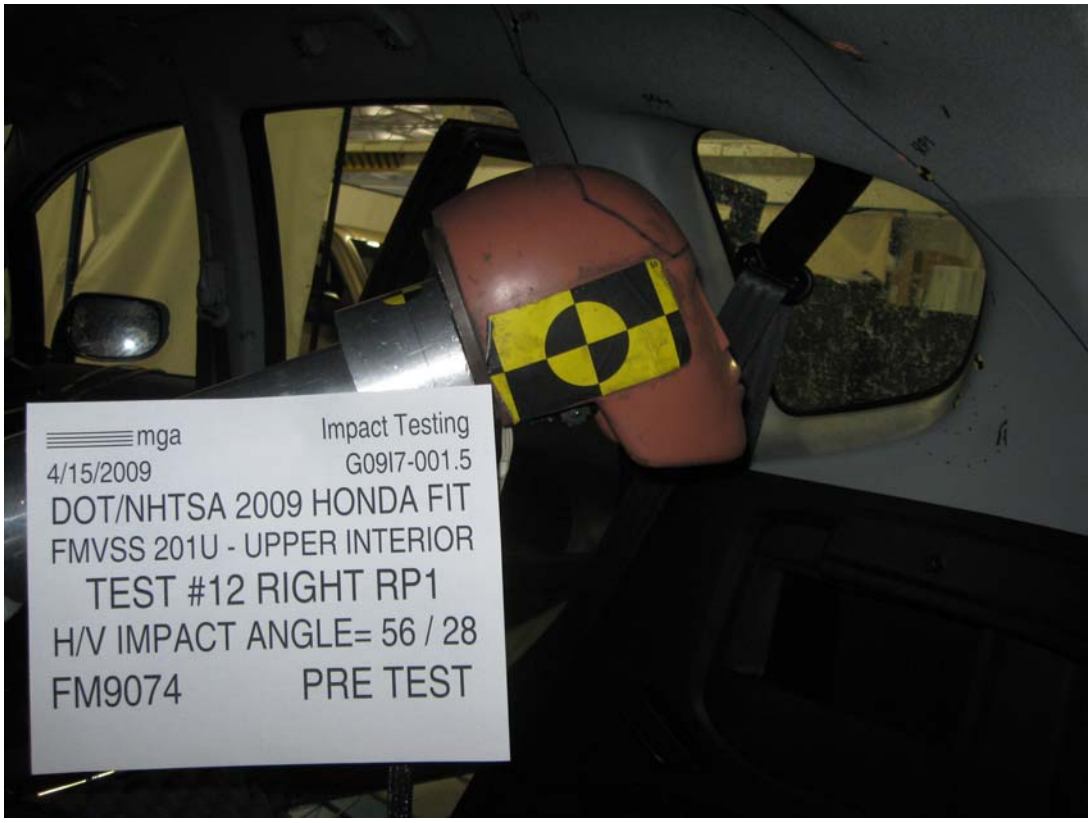

(peak = 87.6 G)
Head X (G)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)

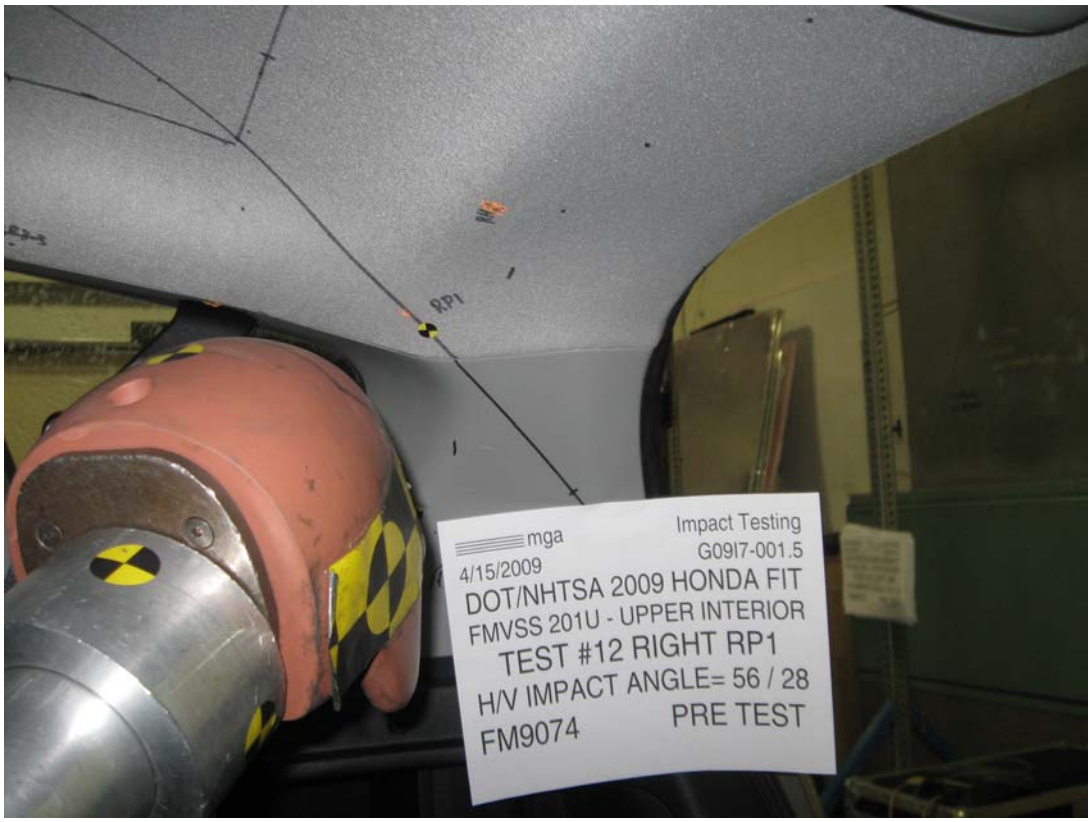

(peak = 9.2 G)
Head Y (G)
10
9
8
7
6
5
4
3
2
1
0
-1
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)


(peak = 23.6 G)
Head Z (G)
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)

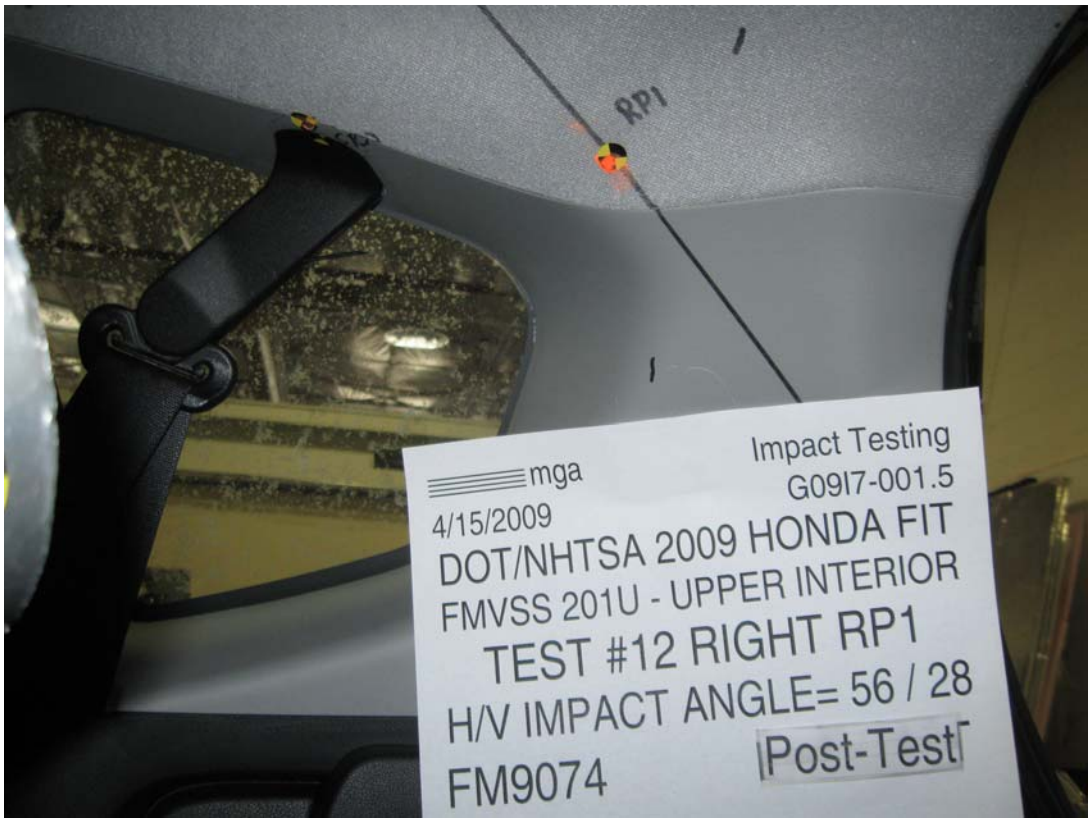

(peak = 19.0 kph)
Impact Velocity: 19.02 kph
Velocity (kph)
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 31.8 mm)
Displacement (mm)
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #12 RIGHT RP1
H/V IMPACT ANGLE= 56 / 28
FM9074
PRE TEST


RP1
mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #12 RIGHT RP1
H/V IMPACT ANGLE= 56 / 28
FM9074
PRE TEST


RP2
mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #12 RIGHT RP1
H/V IMPACT ANGLE= 56 / 28
FM9074
Post-Test


RP1
mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #12 RIGHT RP1
H/V IMPACT ANGLE= 56 / 28
FM9074
Post-Test


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #12 RIGHT RP1
H/V IMPACT ANGLE= 56 / 28
FM9074
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#12

Target (Vehicle Side): RP1Right

Temperature:21.5C

MGA Test Reference No.:FM9074

Humidity:33.2%

Approach Horizontal Angles:56º

Time of Test:5:50:29 PM

Approach Vertical Angles:28º

FMH Serial No:[035]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
900	972	4.4	24.0	8	7 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35919	-95.6	1.05	1.05
Y	6	J22664	94.3	0.84	0.84
Z	7	J35924	92.8	0.93	0.93

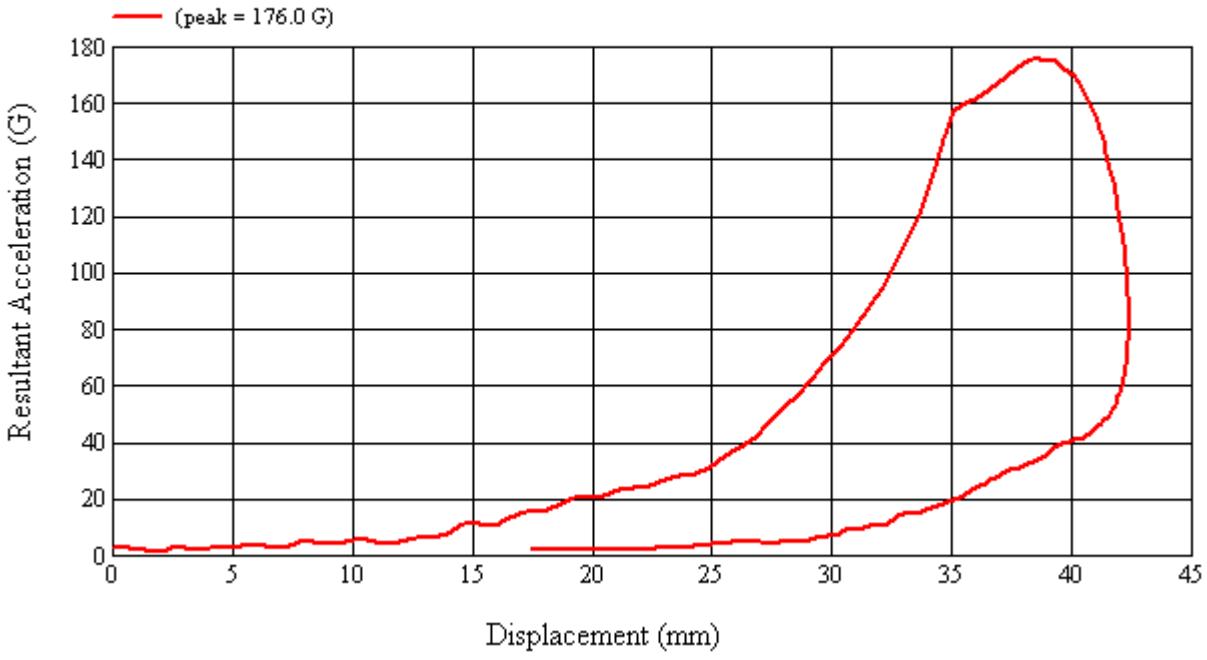
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

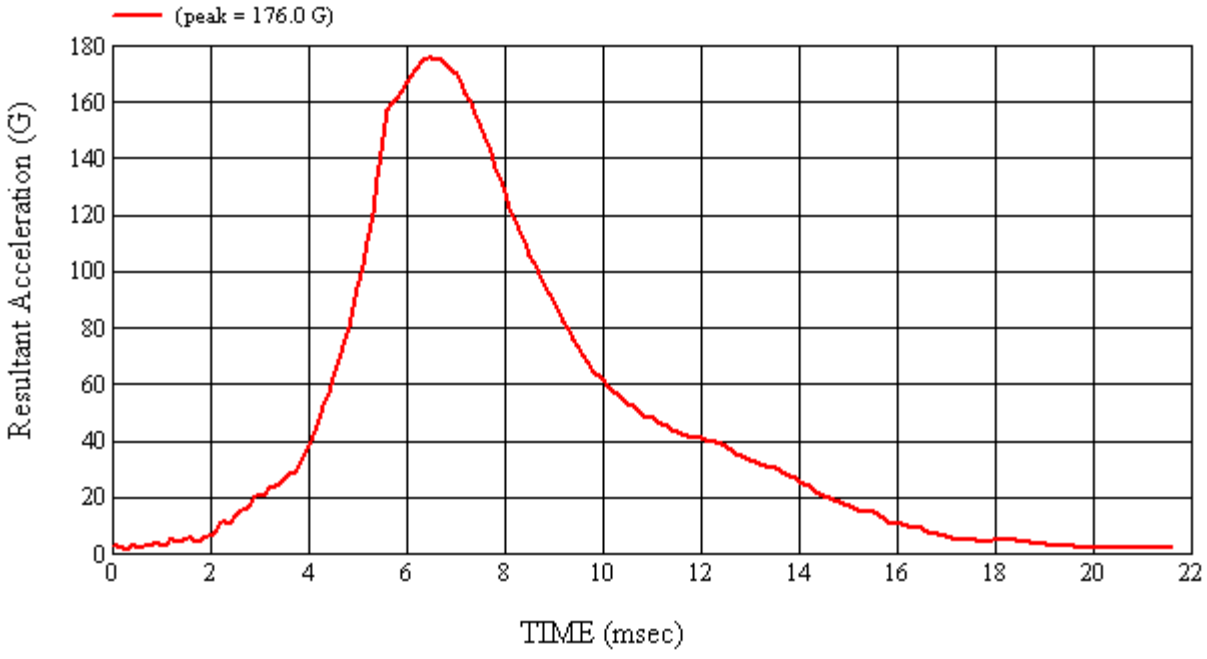
No damage observed

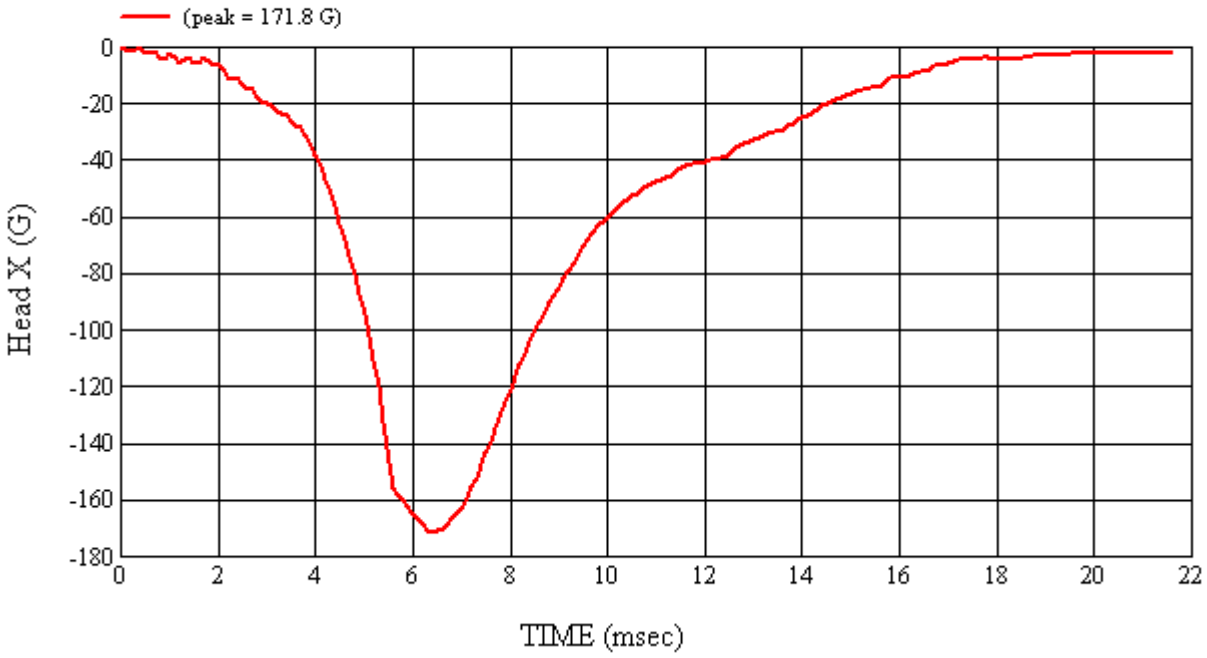
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

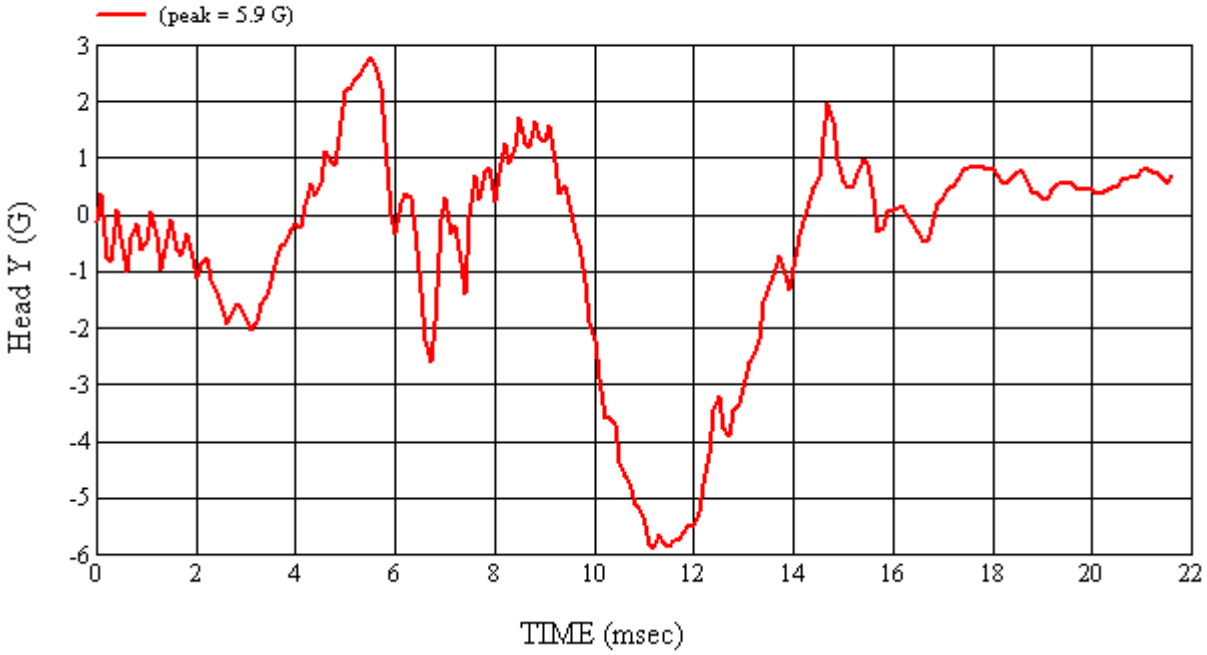
*Only necessary for NHTSA (Government) Compliance testing.

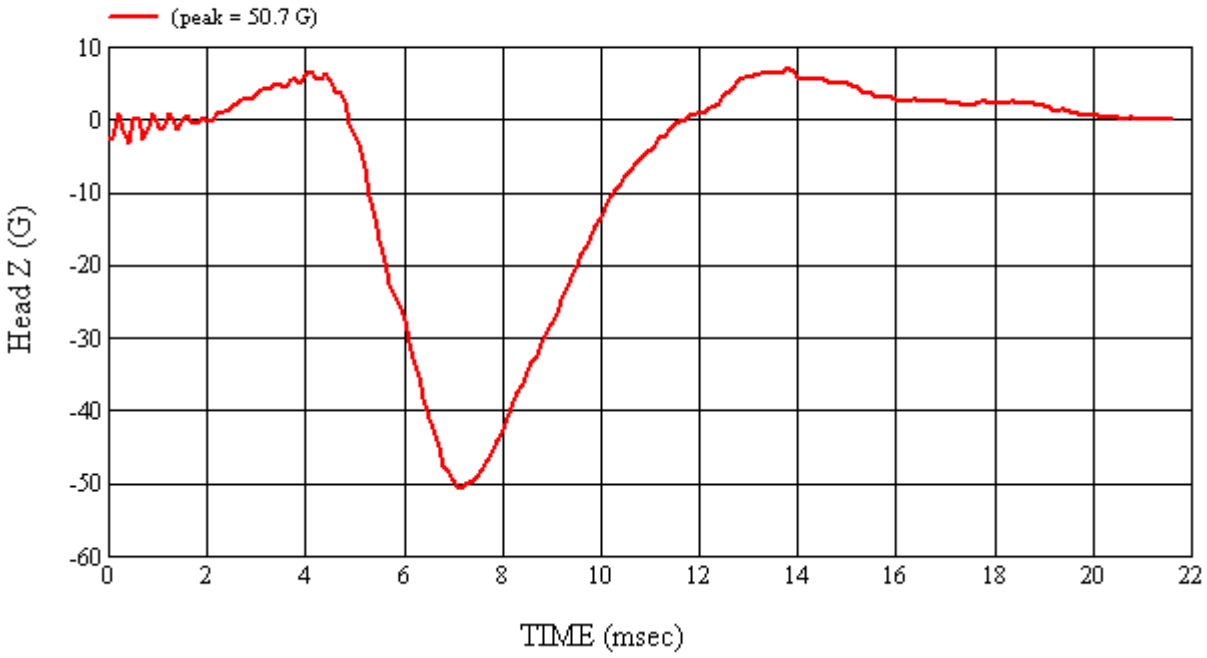
MGA Test #: FM9074 Target Location: RP1, Right Side Test Date: 4/15/2009

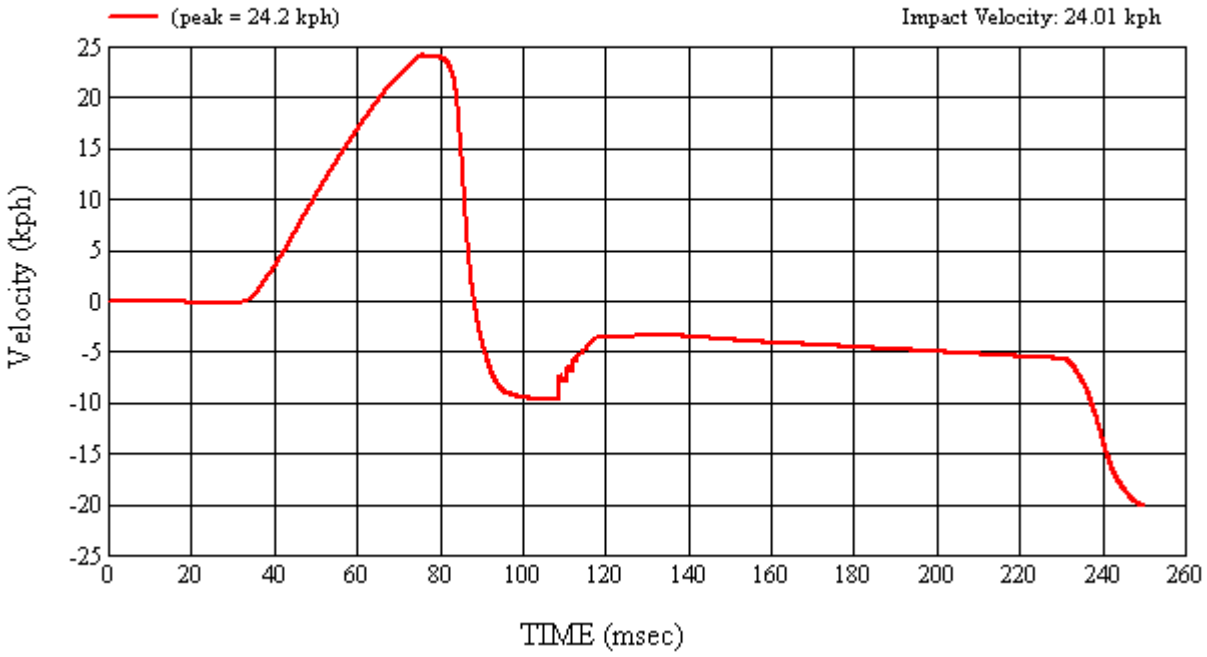


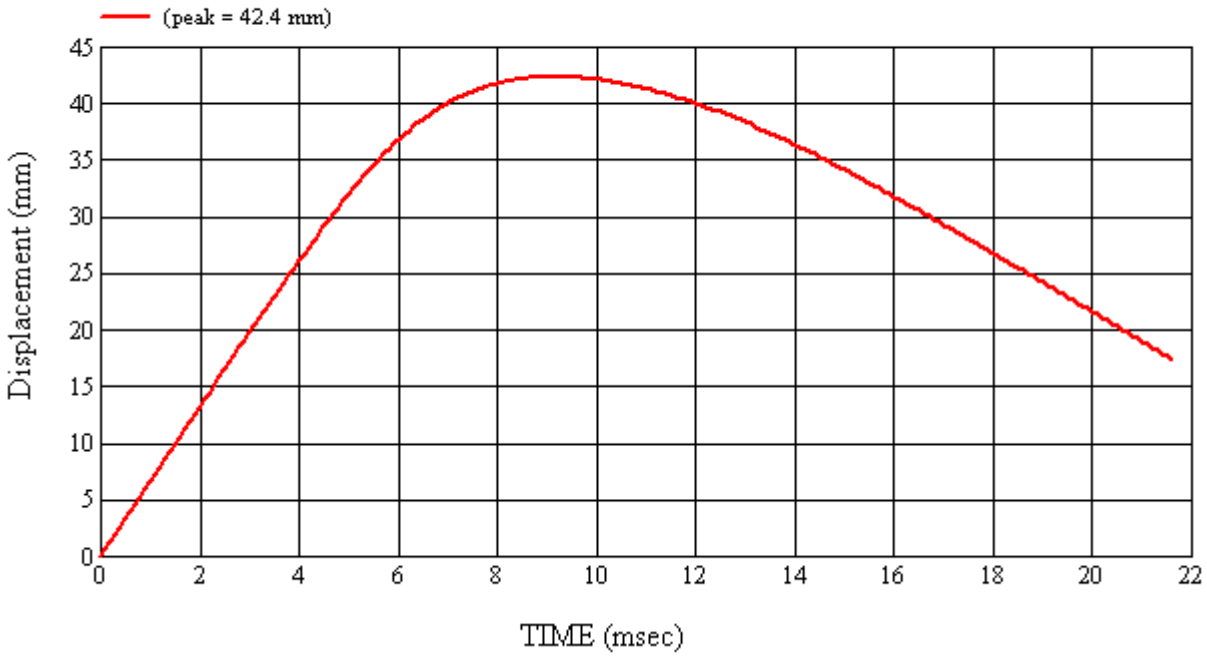


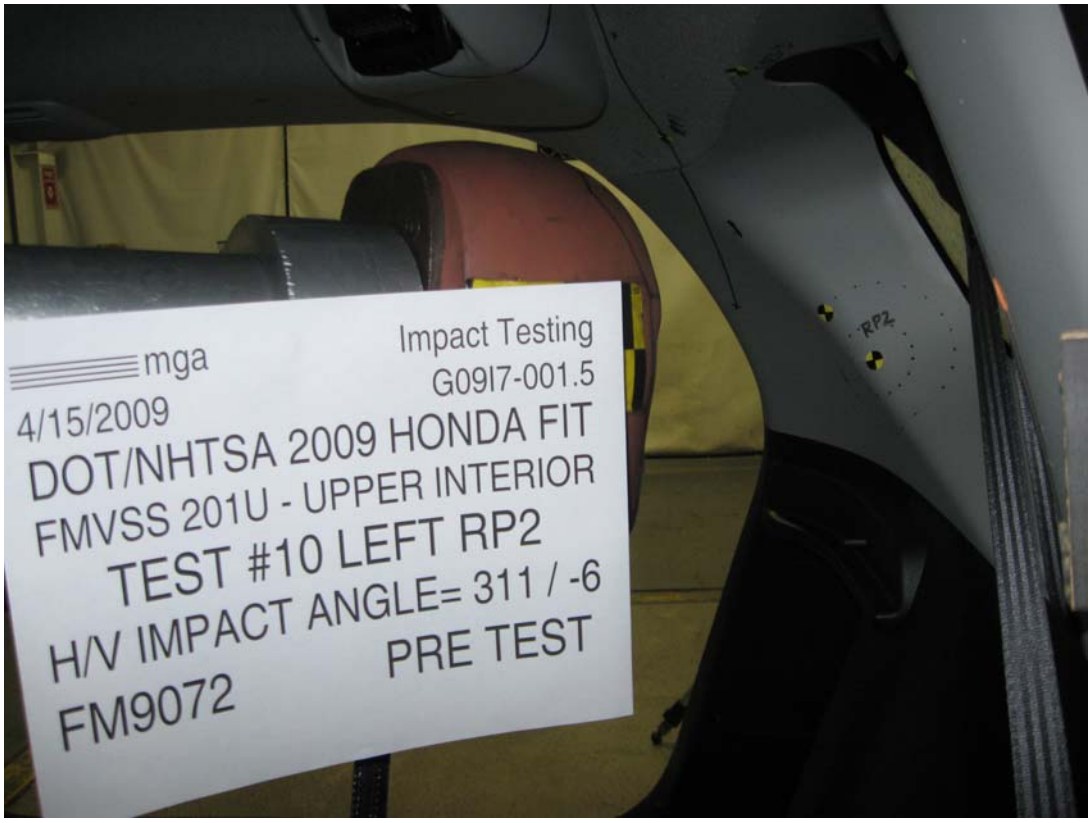

(peak = 171.8 G)
Head X (G)
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)

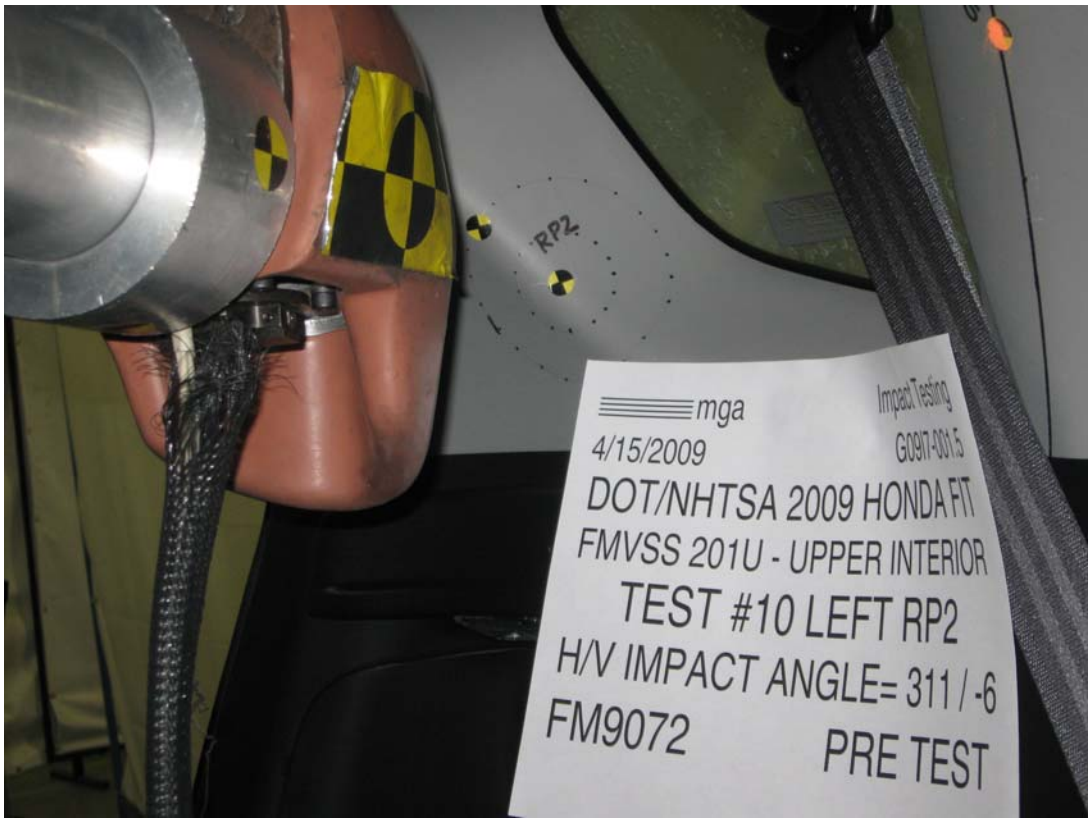

(peak = 5.9 G)
Head Y (G)
3
2
1
0
-1
-2
-3
-4
-5
-6
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)

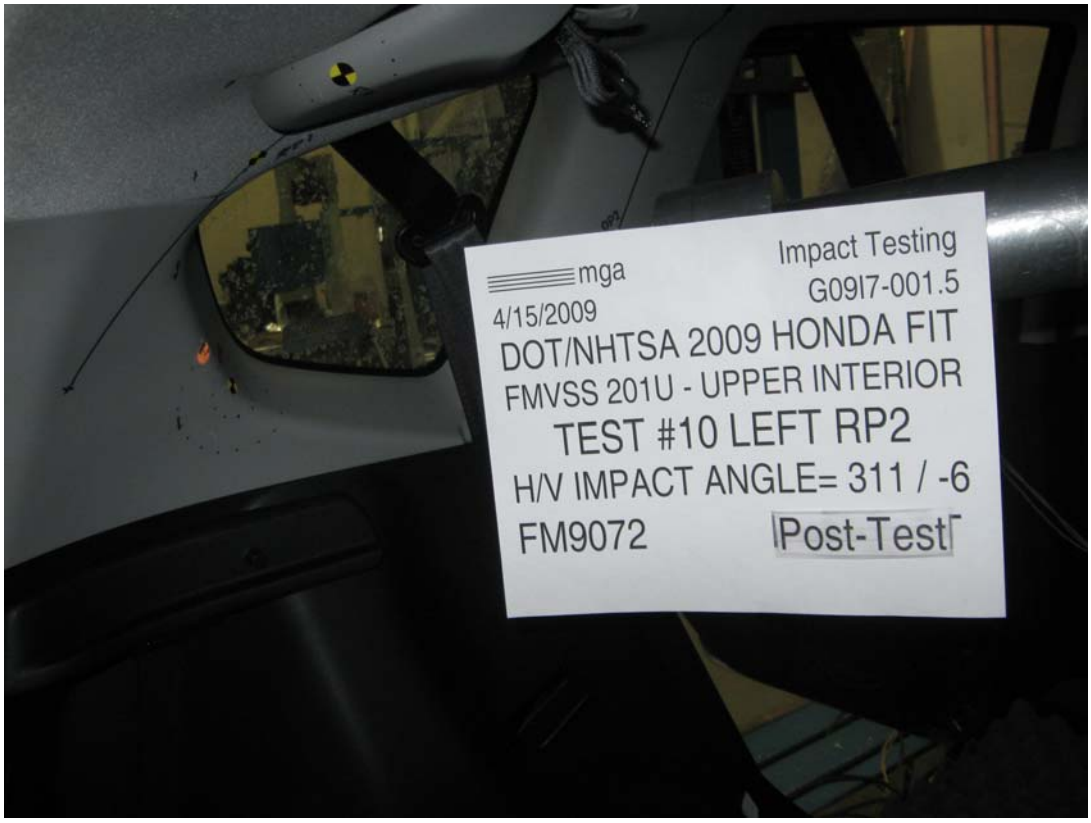

(peak = 50.7 G)
Head Z (G)
10
0
-10
-20
-30
-40
-50
-60
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)

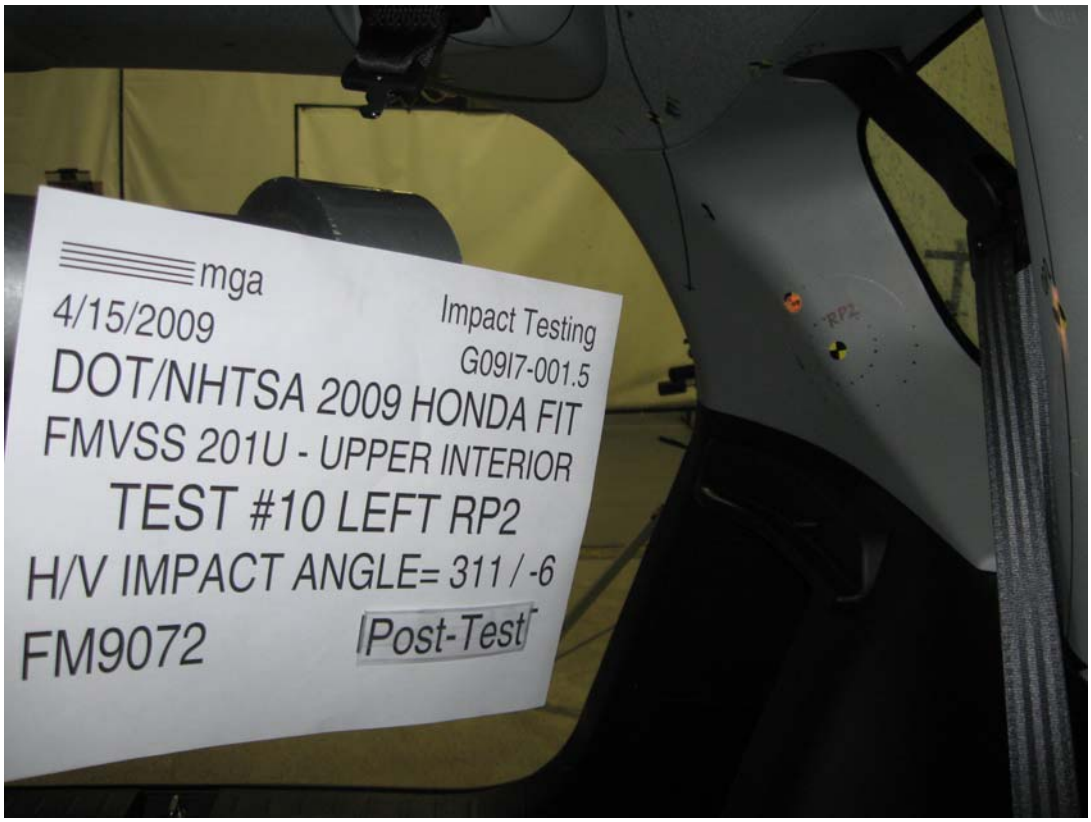

(peak = 24.2 kph)
Impact Velocity: 24.01 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
-15
-20
-25
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 42.4 mm)
Displacement (mm)
0
5
10
15
20
25
30
35
40
45
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)


mga
Impact Testing
G09I7-001.5
4/15/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #10 LEFT RP2
H/V IMPACT ANGLE= 311 / -6
FM9072
PRE TEST
RP2


mga
Impact Testing
G09I7-001.5
4/15/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #10 LEFT RP2
H/V IMPACT ANGLE= 311 / -6
FM9072
PRE TEST
RP2


mga
Impact Testing
G09I7-001.5
4/15/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #10 LEFT RP2
H/V IMPACT ANGLE= 311 / -6
FM9072
Post-Test


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #10 LEFT RP2
H/V IMPACT ANGLE= 311 / -6
FM9072
Post-Test


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #10 LEFT RP2
H/V IMPACT ANGLE= 311 / -6
FM9072
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#10

Target (Vehicle Side): RP2Left

Temperature:21.4C

MGA Test Reference No.:FM9072

Humidity:34.4%

Approach Horizontal Angles:311º

Time of Test:3:40:32 PM

Approach Vertical Angles:-6º

FMH Serial No:[037]

Additional Description: Relocation Spheres: 2

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
511	457	7.3	24.0	8	4 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	AHTB2	-115.9	1.05	1.05
Y	6	J14103	93.7	0.84	0.84
Z	7	J35800	97.1	0.93	0.93

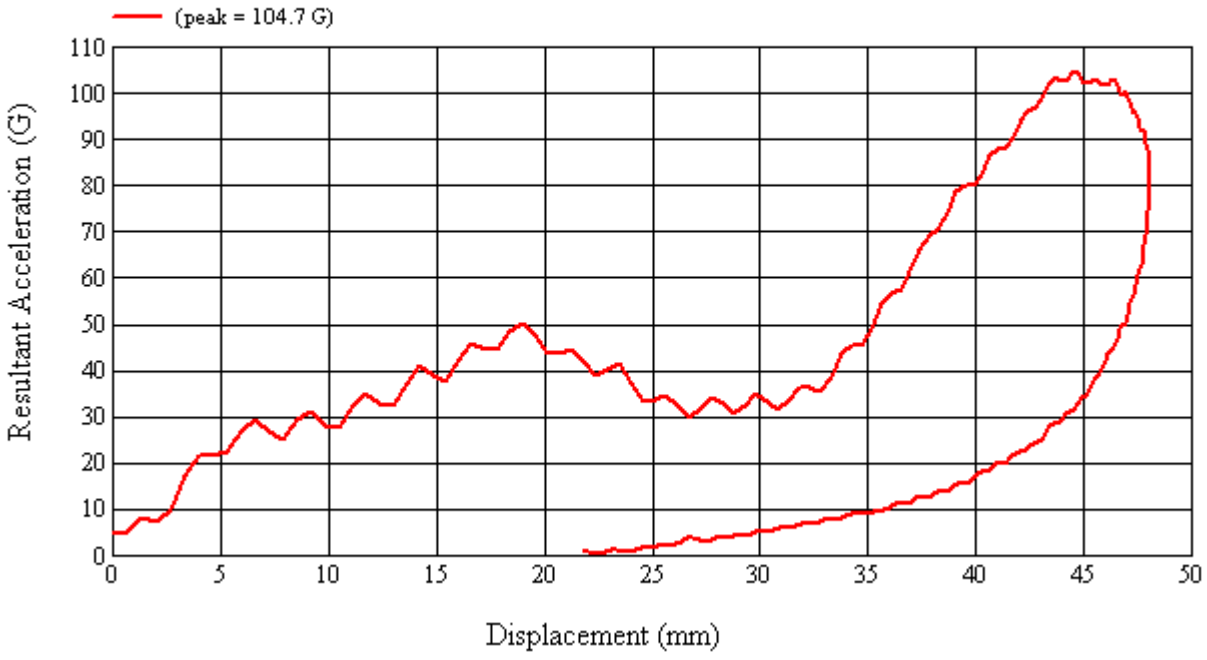
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

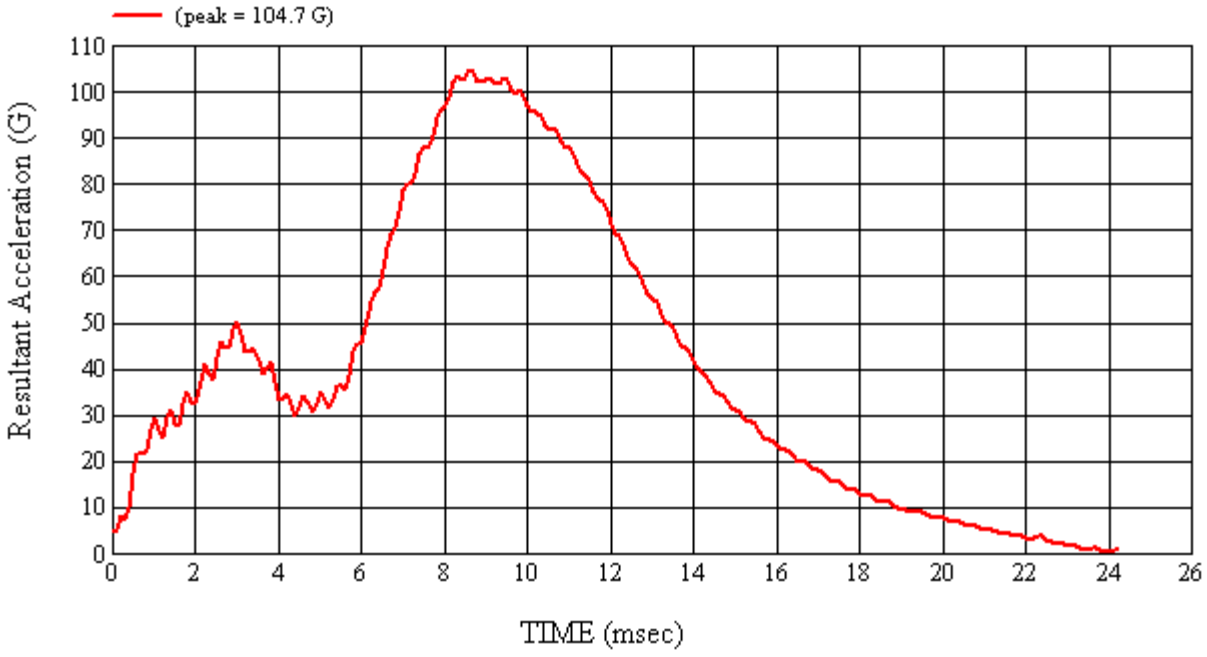
Dislodged trim cover

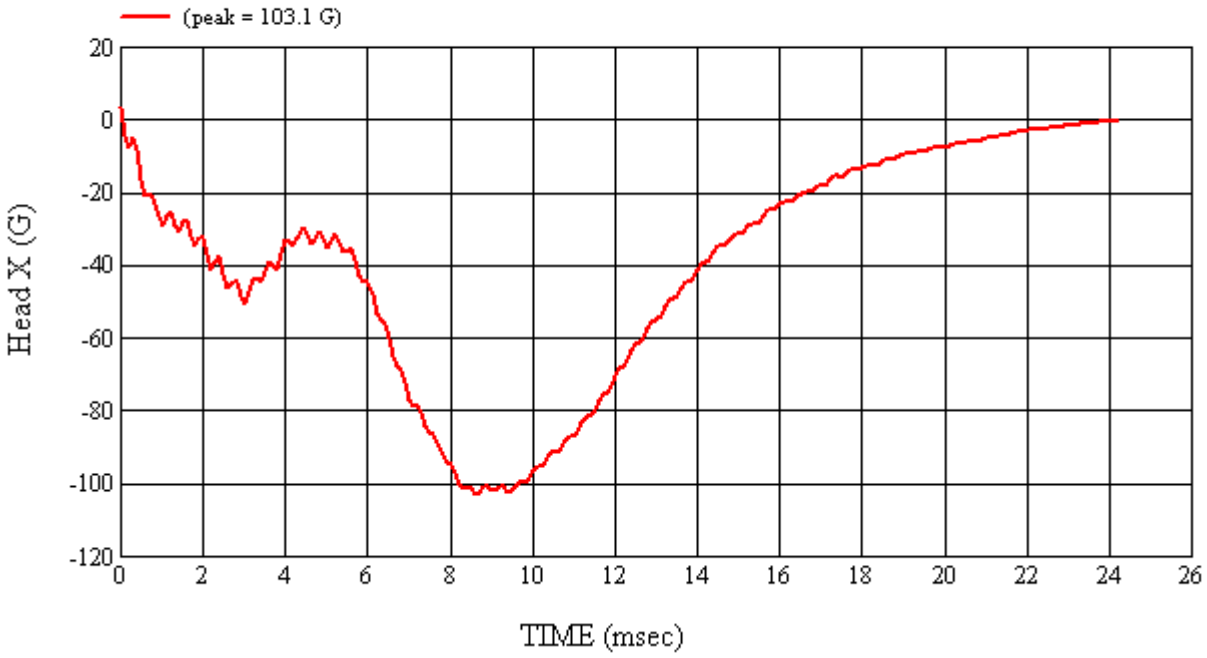
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

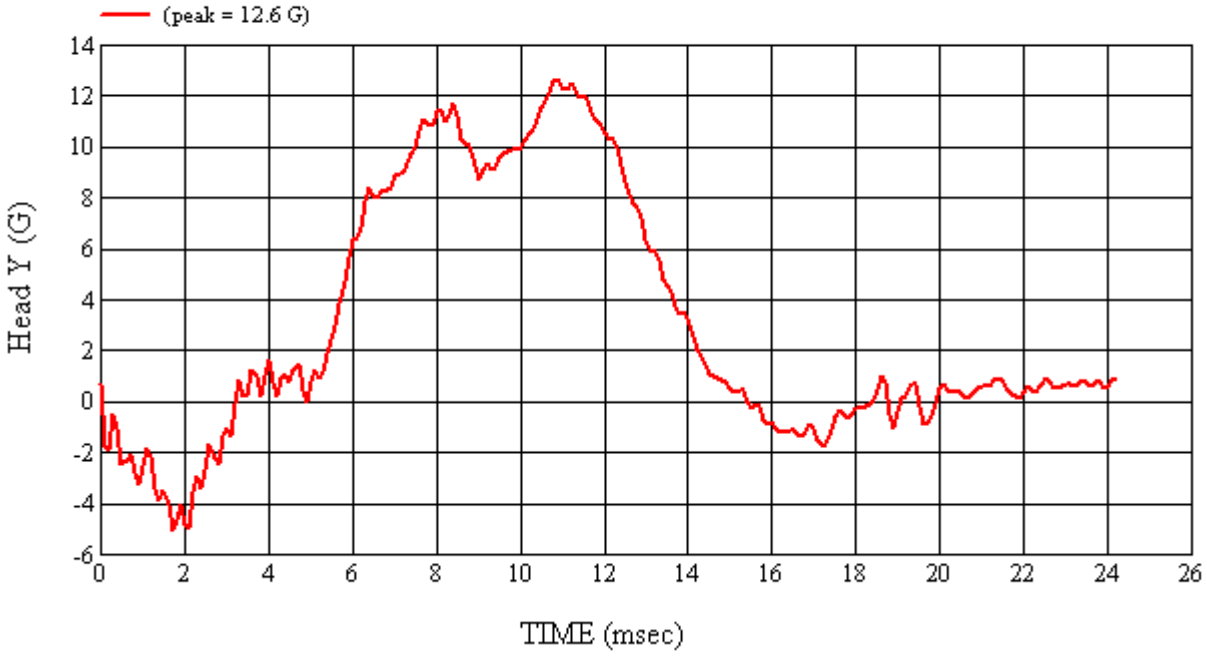
*Only necessary for NHTSA (Government) Compliance testing.

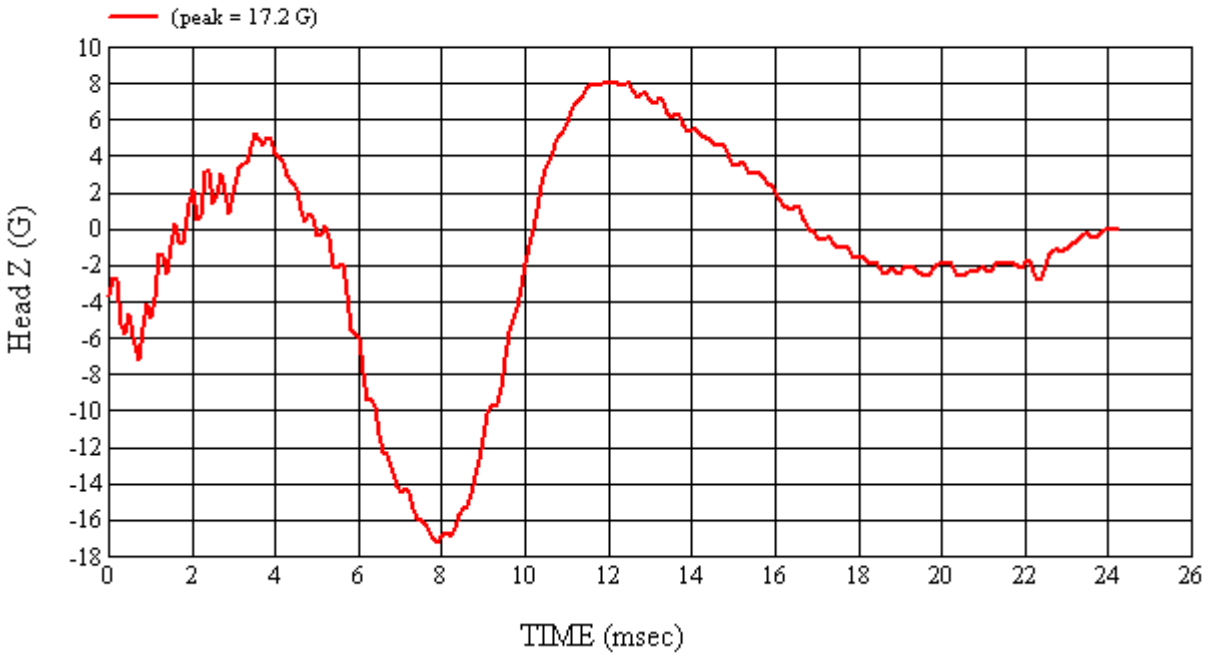
MGA Test #: FM9072 Target Location: RP2, Left Side Test Date: 4/15/2009

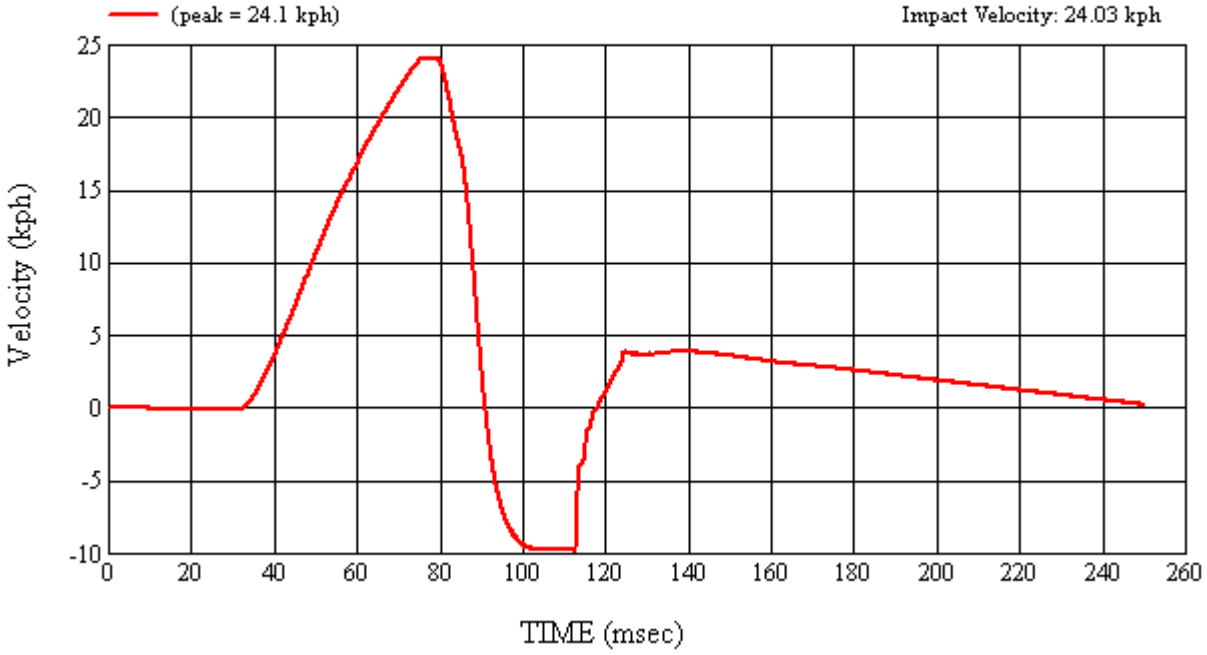


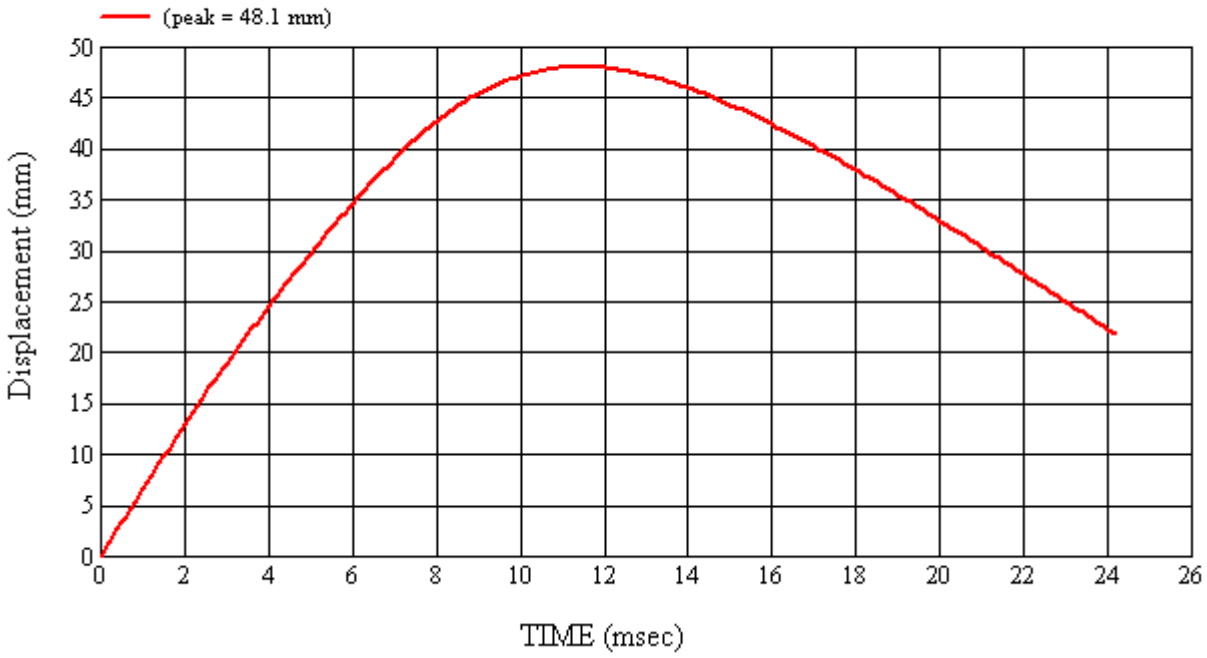



(peak = 103.1 G)
Head X (G)
20
0
-20
-40
-60
-80
-100
-120
0
2
4
6
8
10
12
14
16
18
20
22
24
26
TIME (msec)

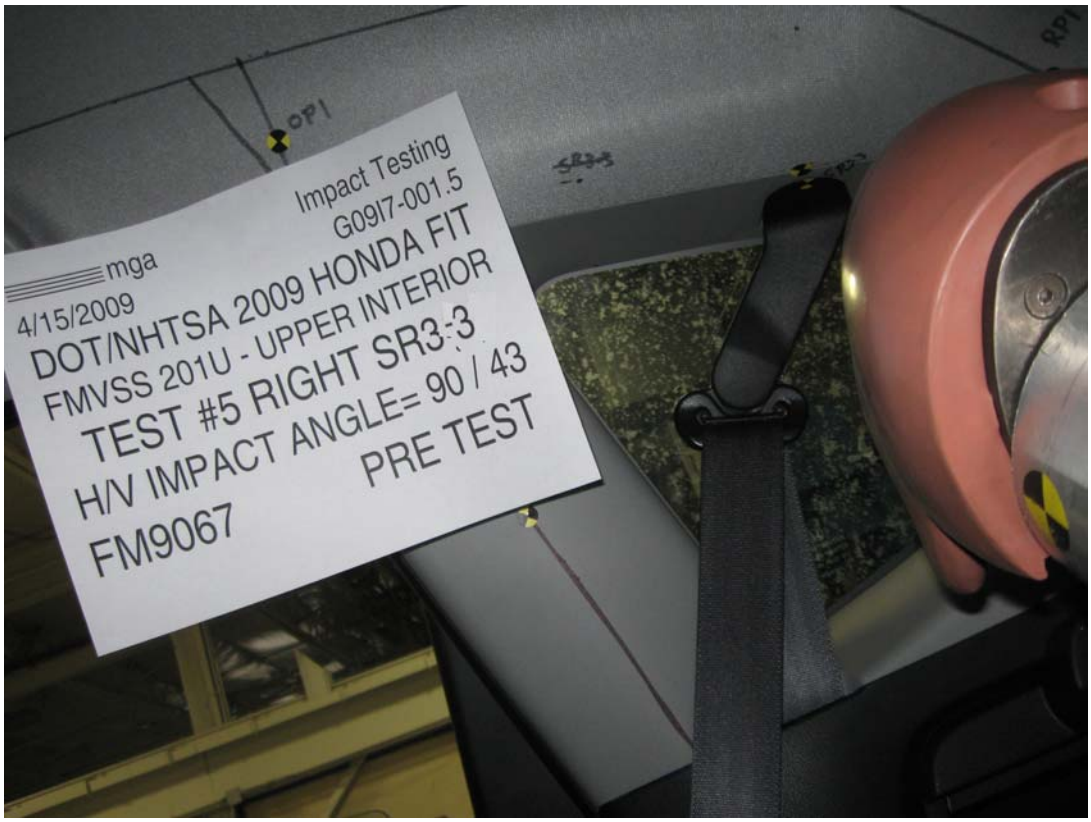

(peak = 12.6 G)
Head Y (G)
14
12
10
8
6
4
2
0
-2
-4
-6
0
2
4
6
8
10
12
14
16
18
20
22
24
26
TIME (msec)

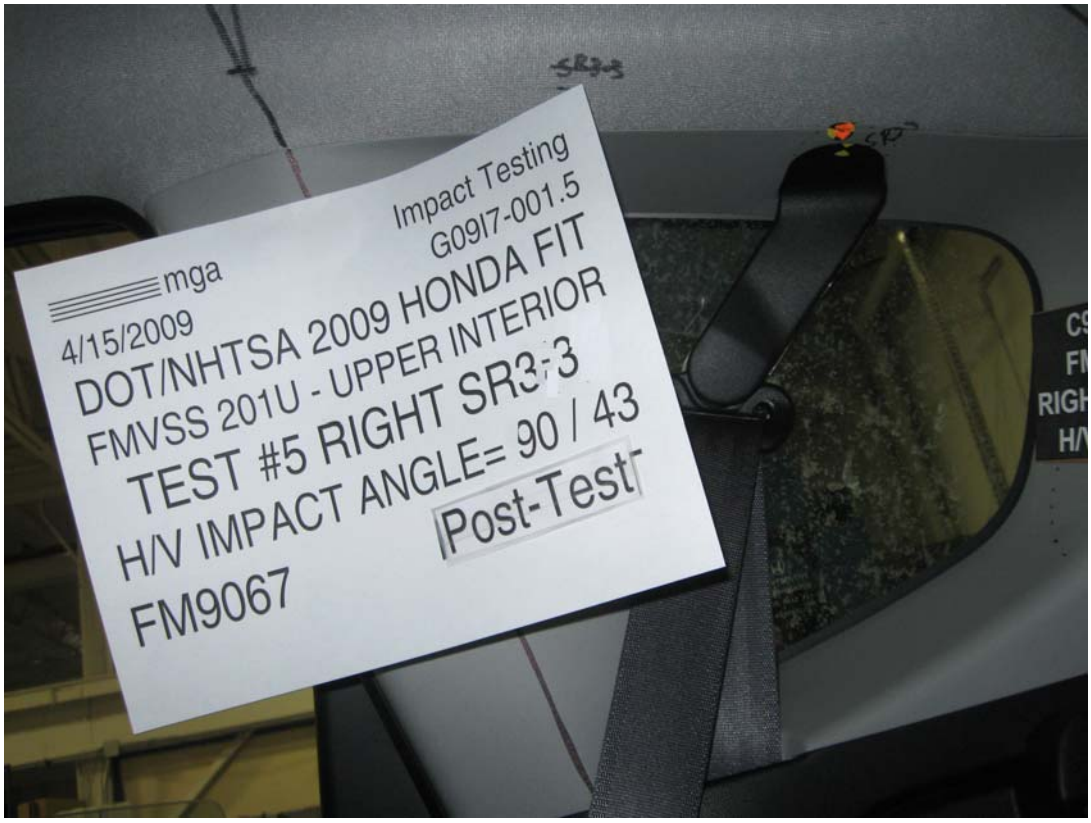

(peak = 17.2 G)
Head Z (G)
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
0
2
4
6
8
10
12
14
16
18
20
22
24
26
TIME (msec)


(peak = 24.1 kph)
Impact Velocity: 24.03 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 48.1 mm)
Displacement (mm)
0
5
10
15
20
25
30
35
40
45
50
0
2
4
6
8
10
12
14
16
18
20
22
24
26
TIME (msec)


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #5 RIGHT SR3-3
H/V IMPACT ANGLE= 90 / 43
FM9067
PRE TEST


OP1
mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #5 RIGHT SR3-3
H/V IMPACT ANGLE= 90 / 43
FM9067
PRE TEST


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #5 RIGHT SR3-3
H/V IMPACT ANGLE= 90 / 43
FM9067
Post-Test


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #5 RIGHT SR3-3
H/V IMPACT ANGLE= 90 / 43
FM9067
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/ NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#5

Target (Vehicle Side): SR3(3)Right

Temperature:21.4C

MGA Test Reference No.:FM9067

Humidity:37.0%

Approach Horizontal Angles:90º

Time of Test:9:03:34 AM

Approach Vertical Angles:43º

FMH Serial No:[038]

Additional Description:Relocation Spheres: 1

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
381	284	11.1	18.8	32	3 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J22700	-95.8	1.05	1.05
Y	6	J36197	108.5	0.84	0.84
Z	7	J36353	98.7	0.93	0.93

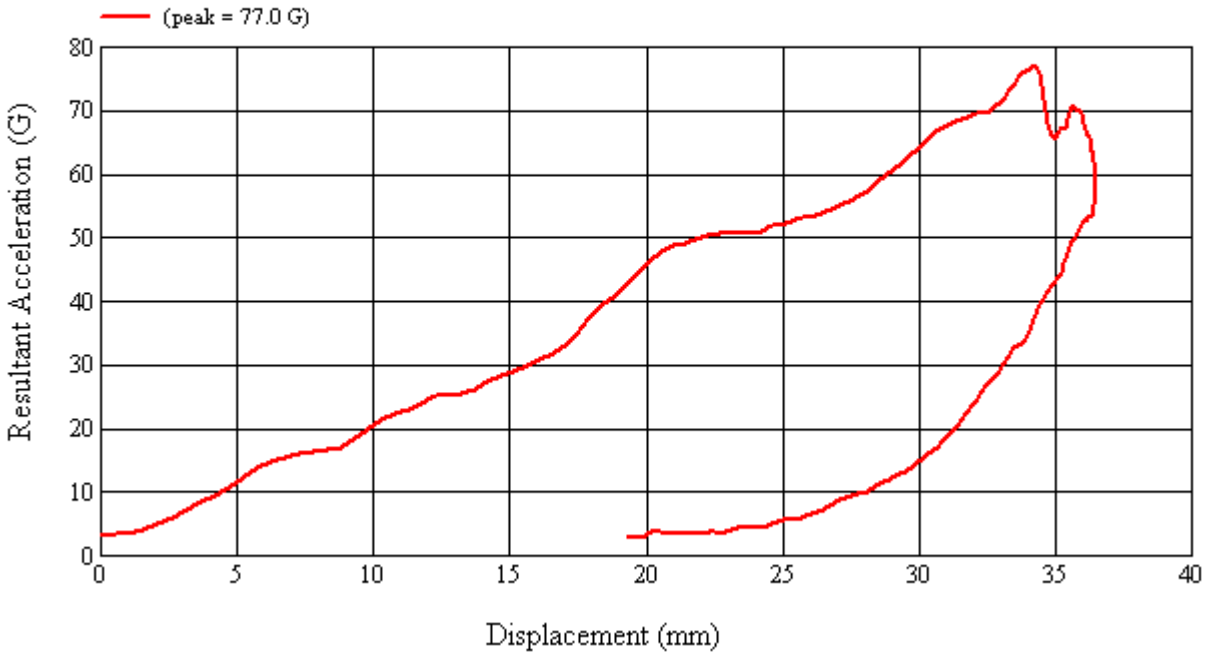
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

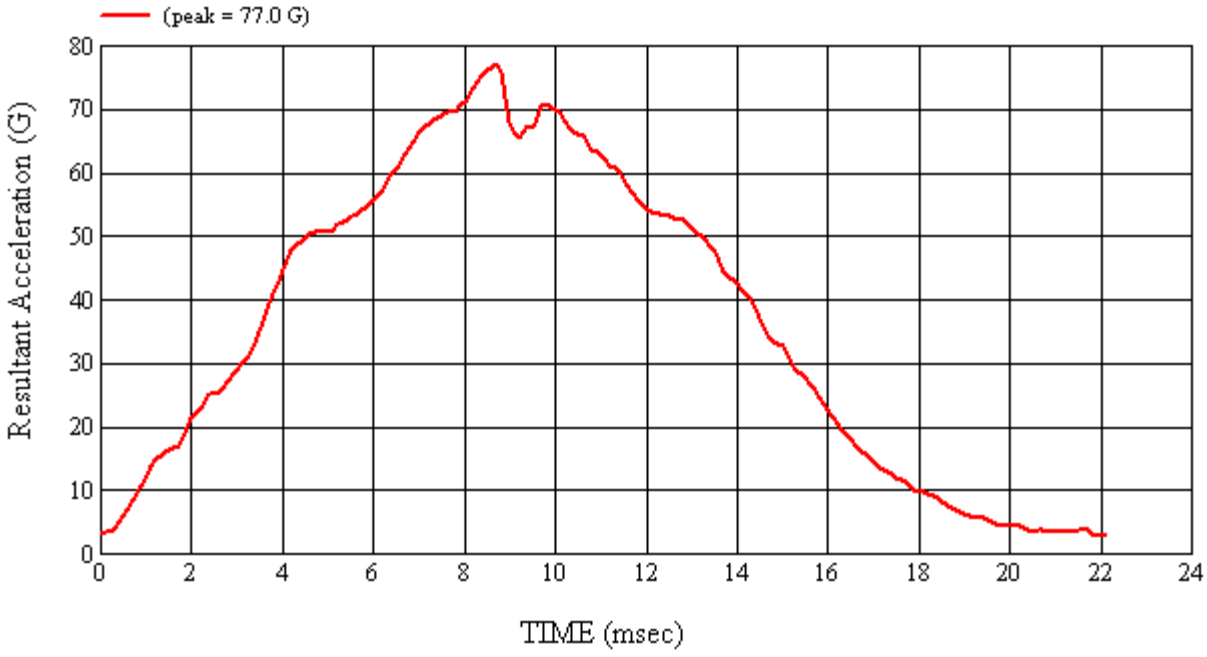
Small crack on seatbelt anchorage

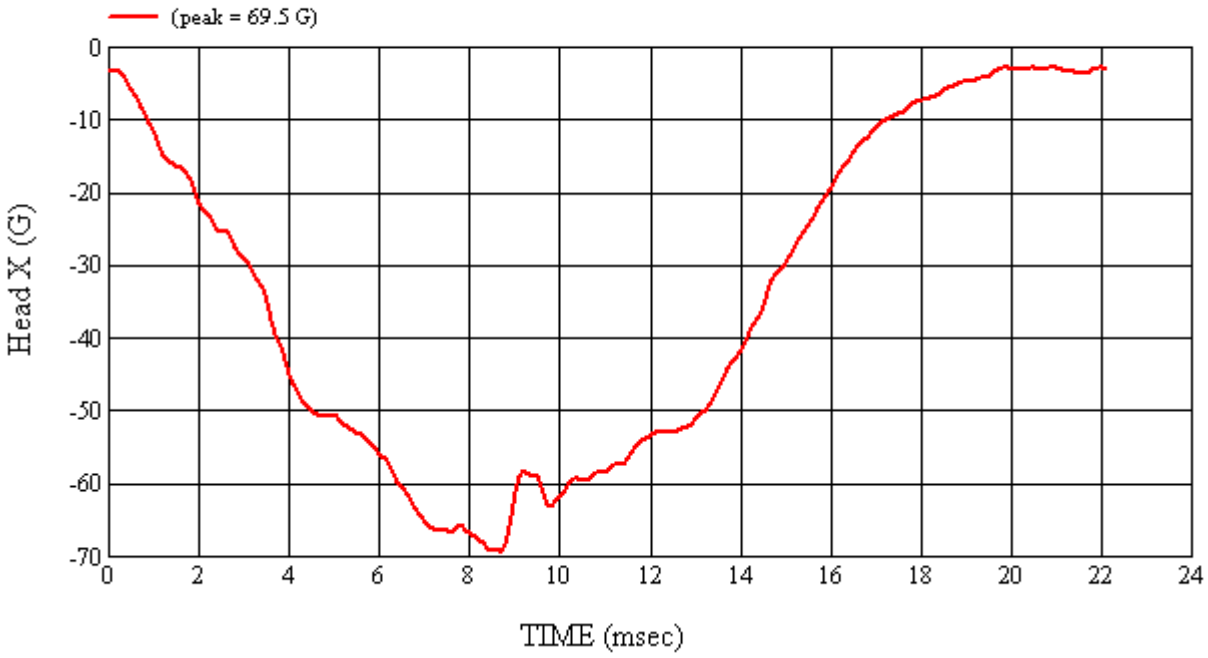
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

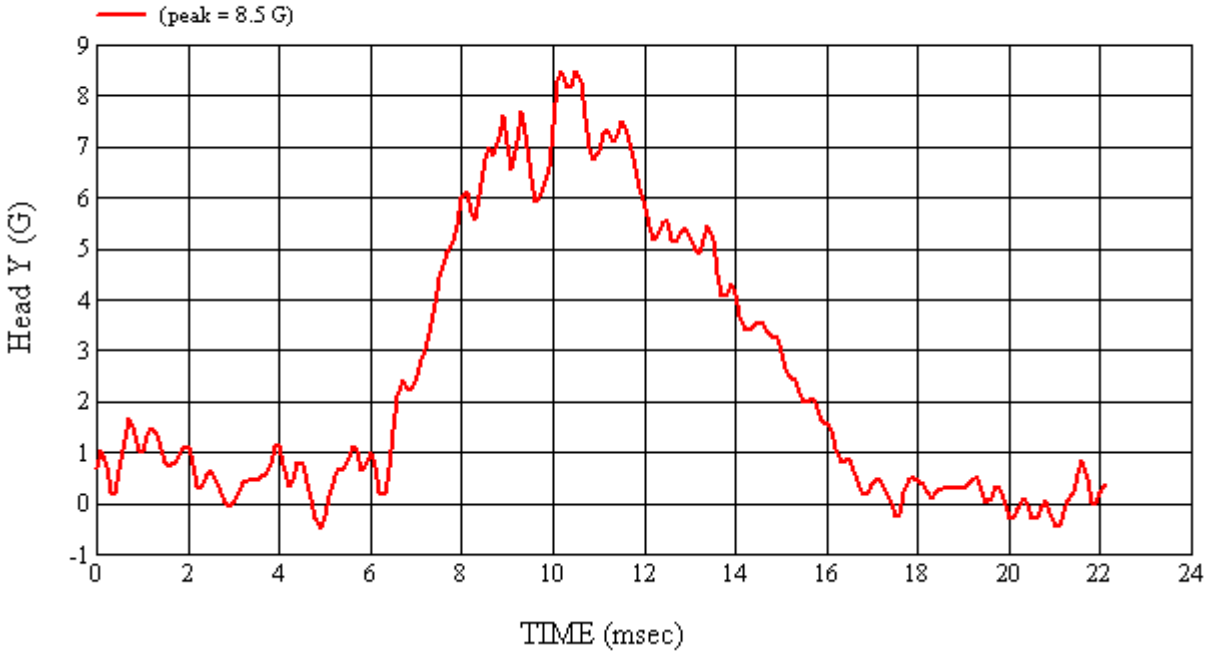
*Only necessary for NHTSA (Government) Compliance testing.

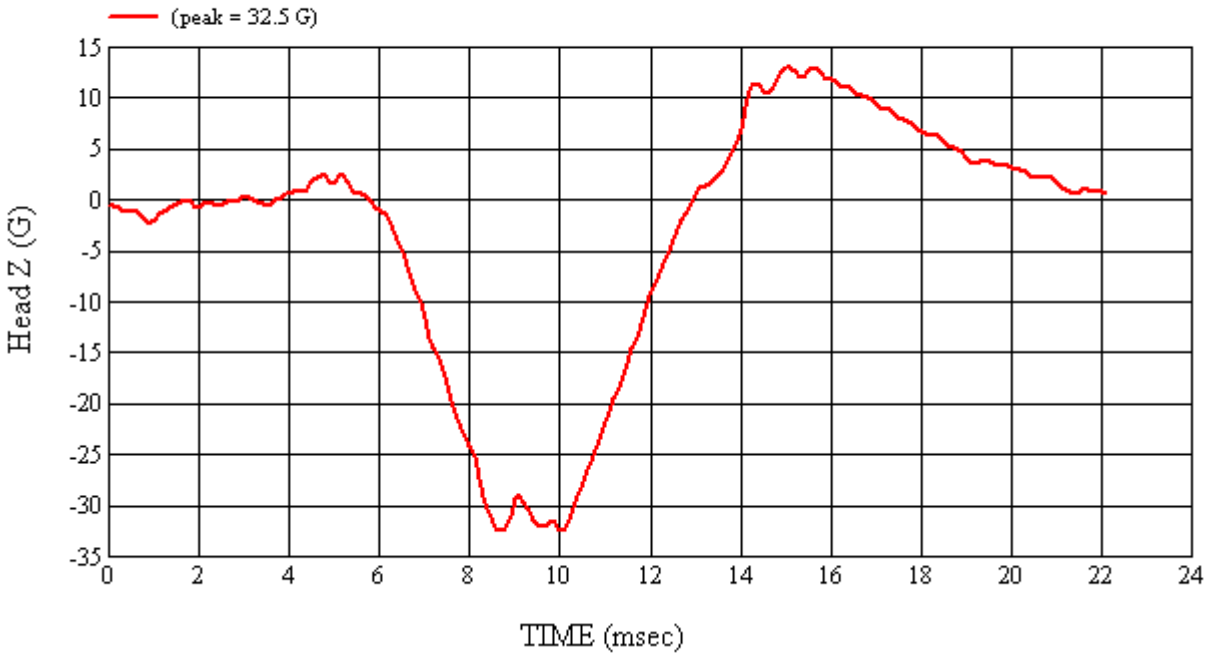
MGA Test #: FM9067 Target Location: SR3(3), Right Side Test Date: 4/15/2009

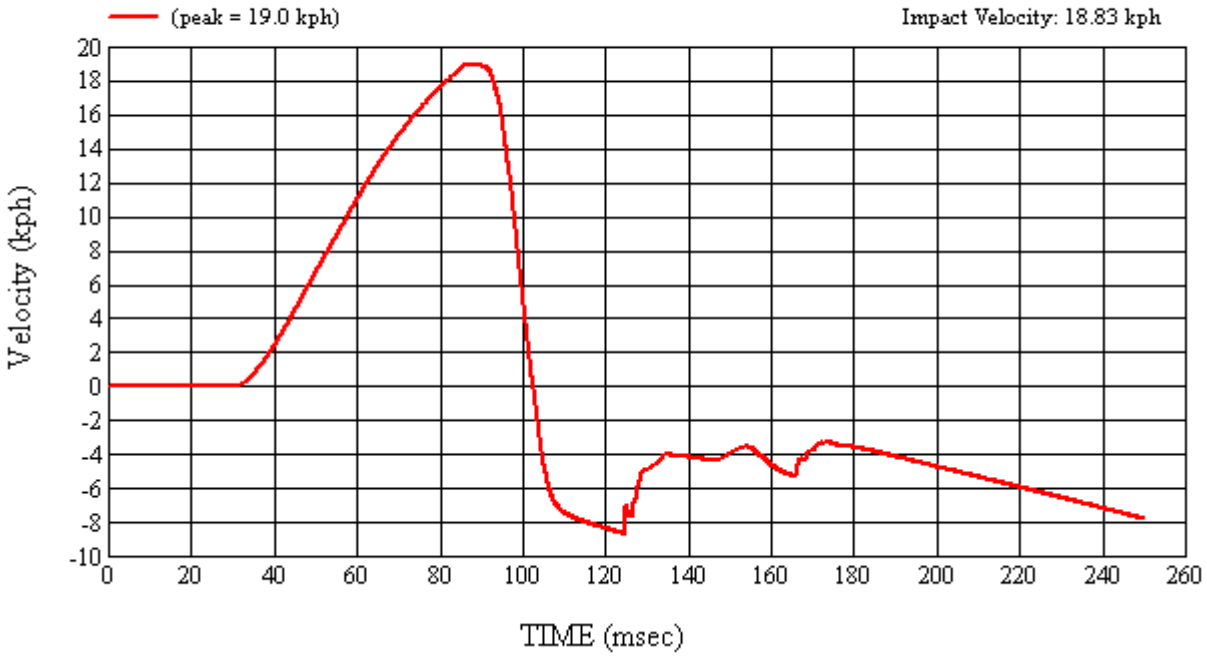


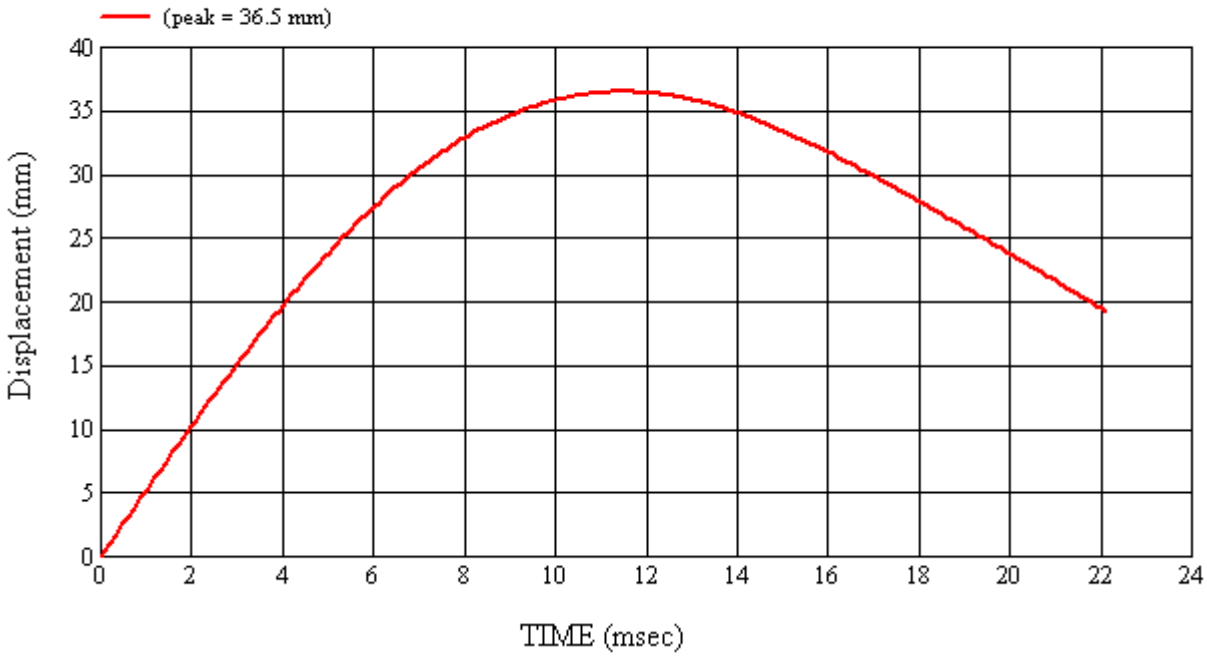


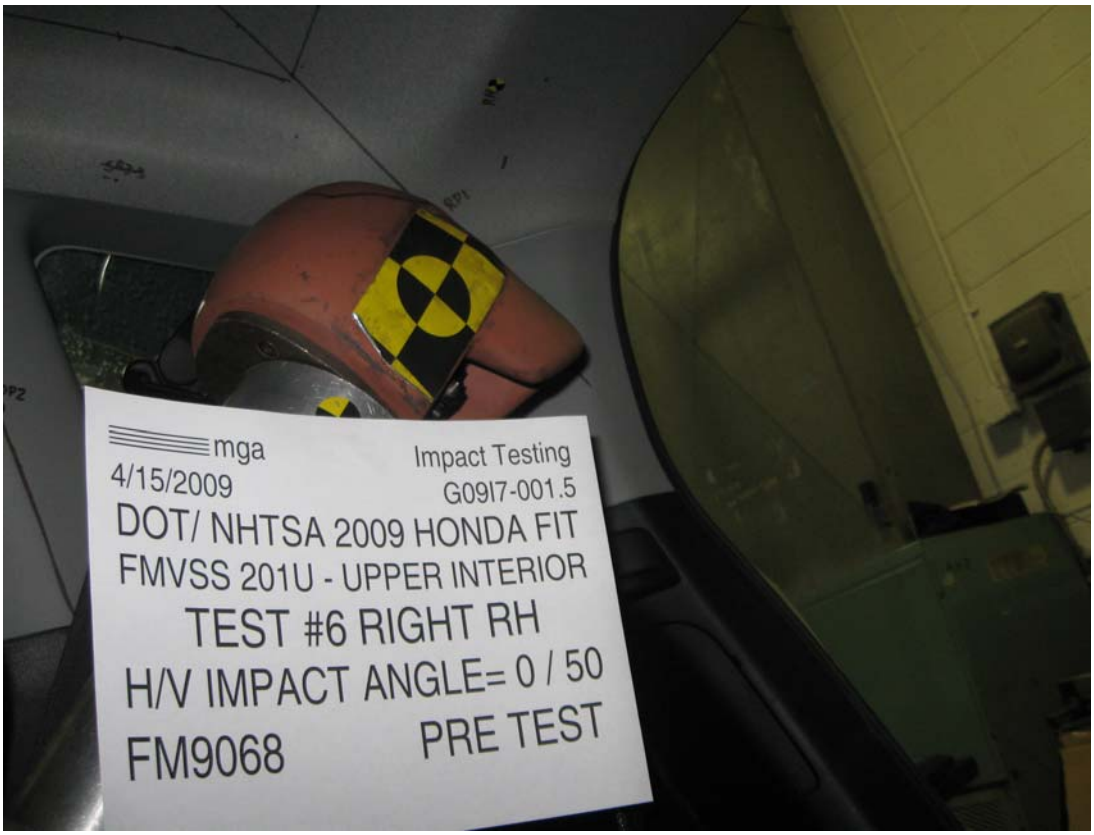

(peak = 69.5 G)
Head X (G)
0
-10
-20
-30
-40
-50
-60
-70
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

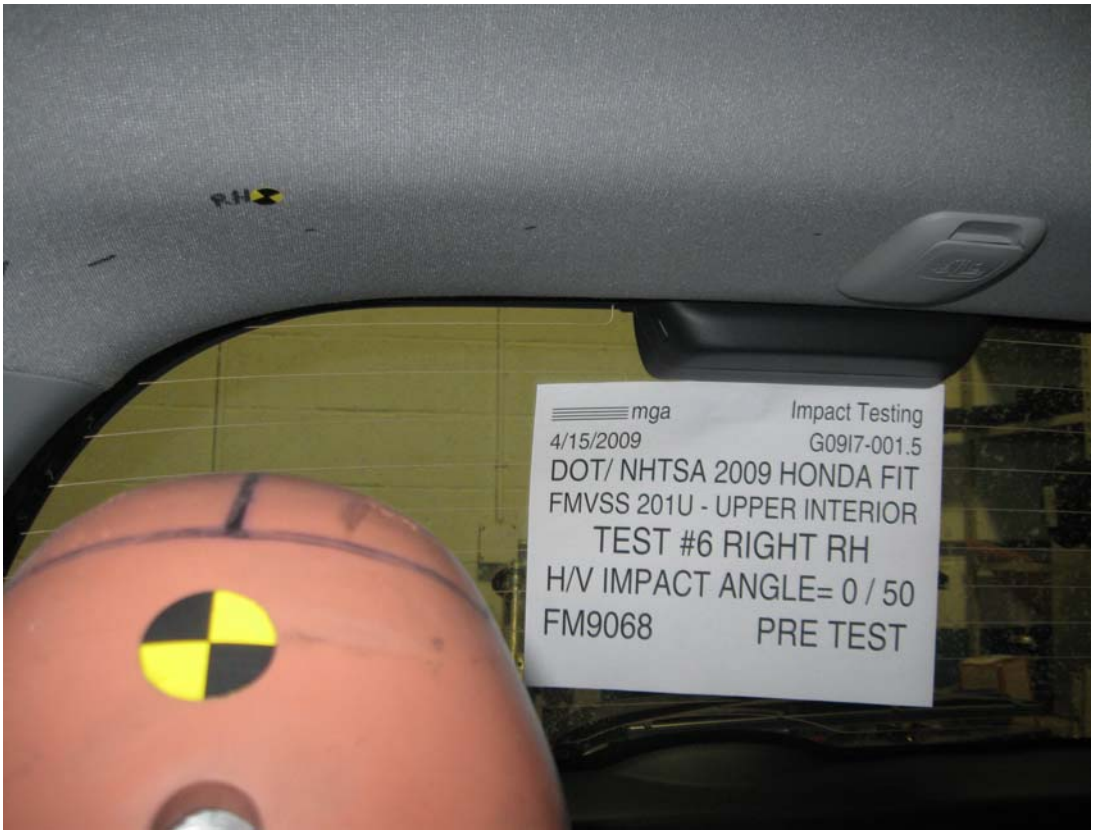

(peak = 8.5 G)
Head Y (G)
9
8
7
6
5
4
3
2
1
0
-1
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

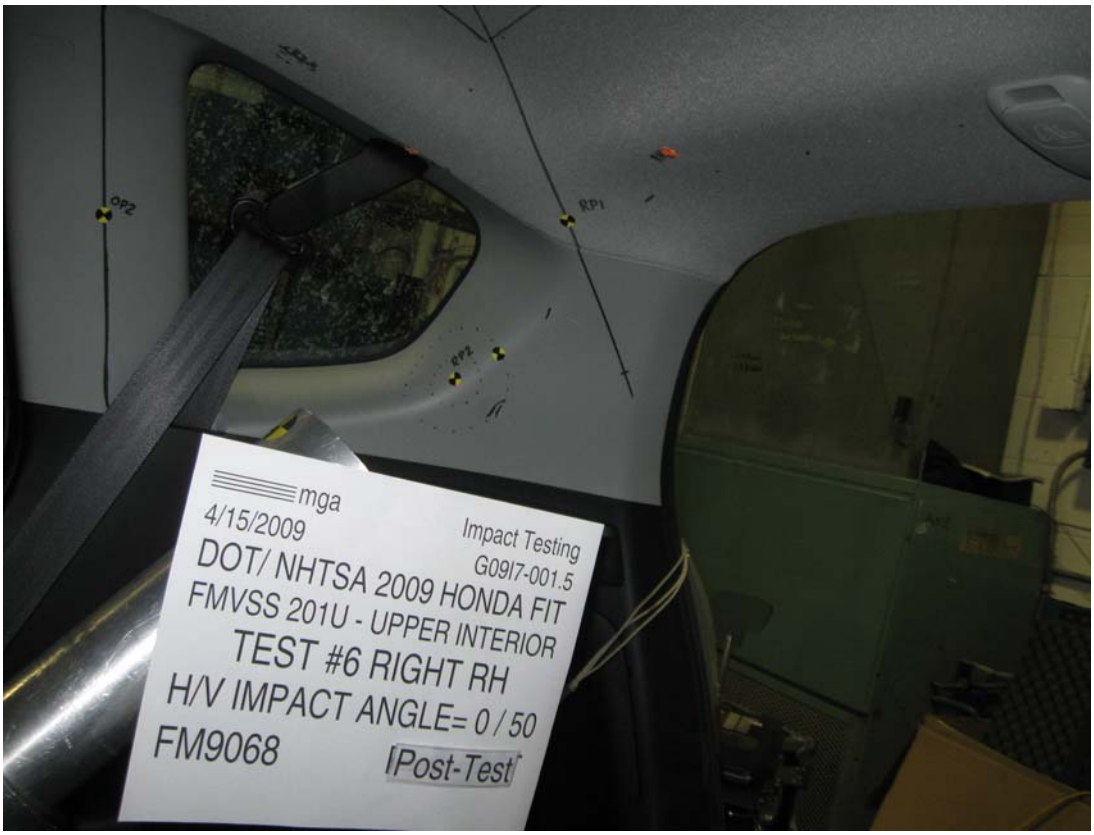

(peak = 32.5 G)
Head Z (G)
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

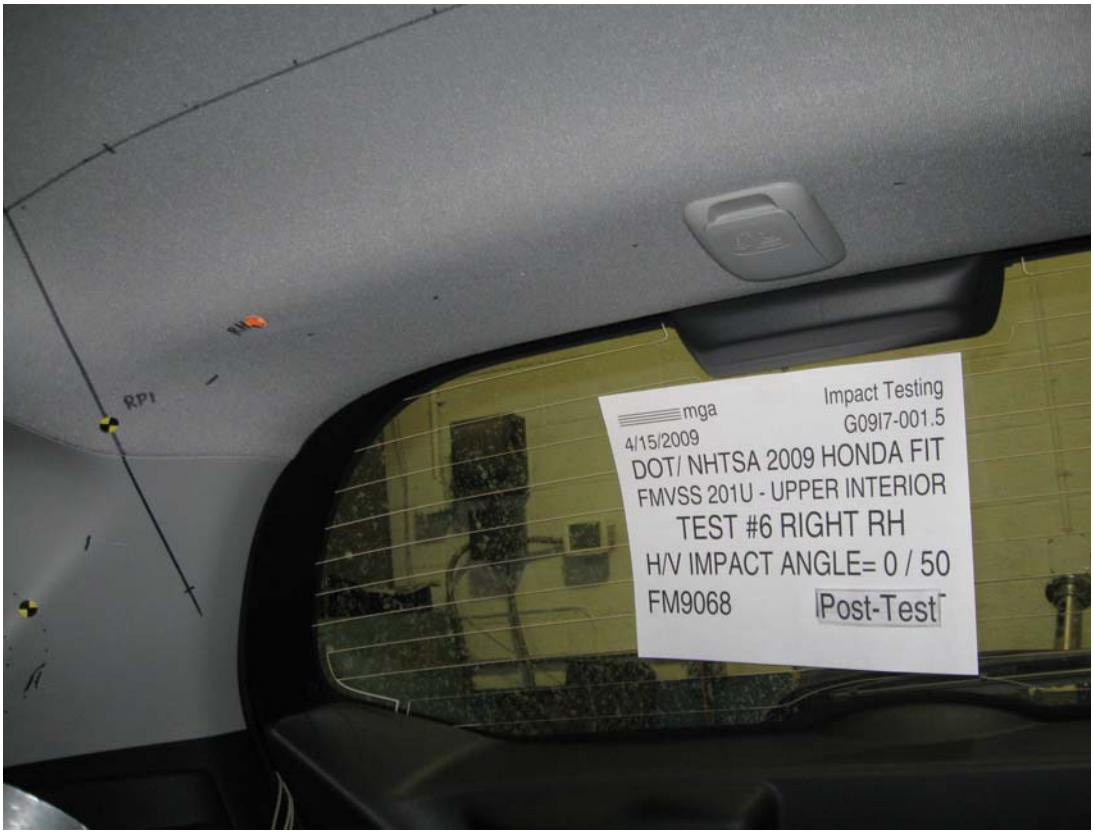

(peak = 19.0 kph)
Impact Velocity: 18.83 kph
Velocity (kph)
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 36.5 mm)
Displacement (mm)
0
5
10
15
20
25
30
35
40
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/ NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #6 RIGHT RH
H/V IMPACT ANGLE= 0 / 50
FM9068
PRE TEST


R.H
mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/ NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #6 RIGHT RH
H/V IMPACT ANGLE= 0 / 50
FM9068
PRE TEST


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/ NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #6 RIGHT RH
H/V IMPACT ANGLE= 0 / 50
FM9068
Post-Test


RP1
mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/ NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #6 RIGHT RH
H/V IMPACT ANGLE= 0 / 50
FM9068
Post-Test


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/ NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #6 RIGHT RH
H/V IMPACT ANGLE= 0 / 50
FM9068
IPost-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/ NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#6

Target (Vehicle Side): RH Right

Temperature:21.4C

MGA Test Reference No.:FM9068

Humidity:36.9%

Approach Horizontal Angles:0º

Time of Test:10:23:20 AM

Approach Vertical Angles:50º

FMH Serial No:[035]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
931	1014	4.1	24.0	9	11 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35919	-95.6	1.05	1.05
Y	6	J22664	94.3	0.84	0.84
Z	7	J35924	92.8	0.93	0.93

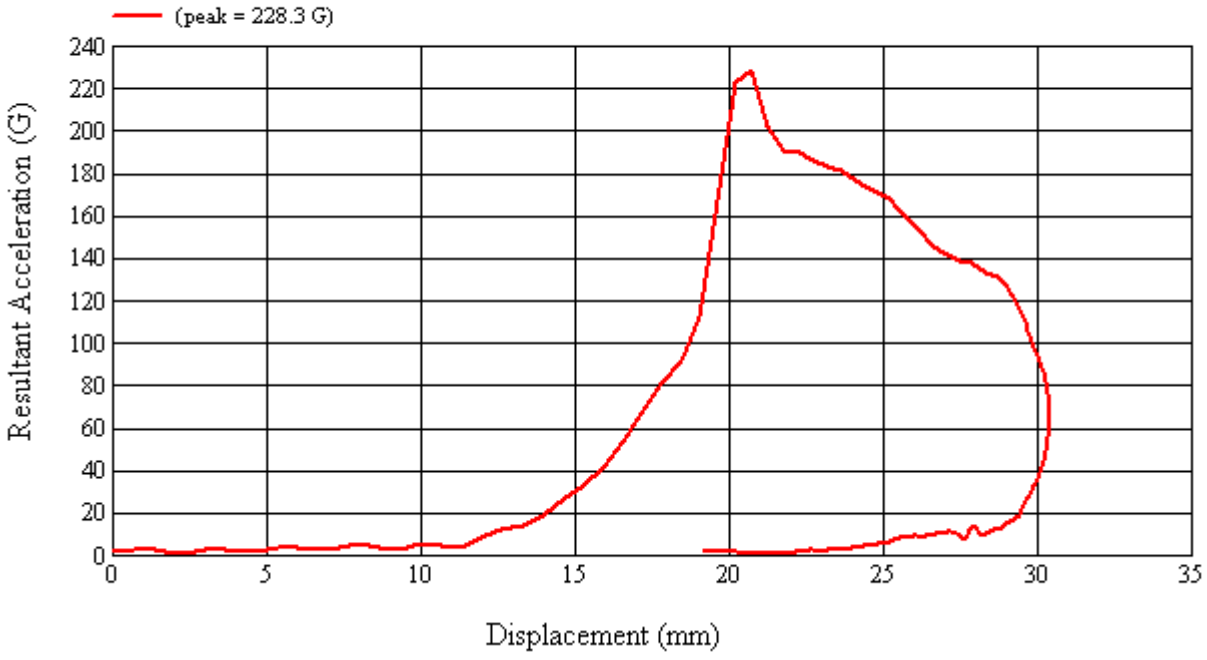
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

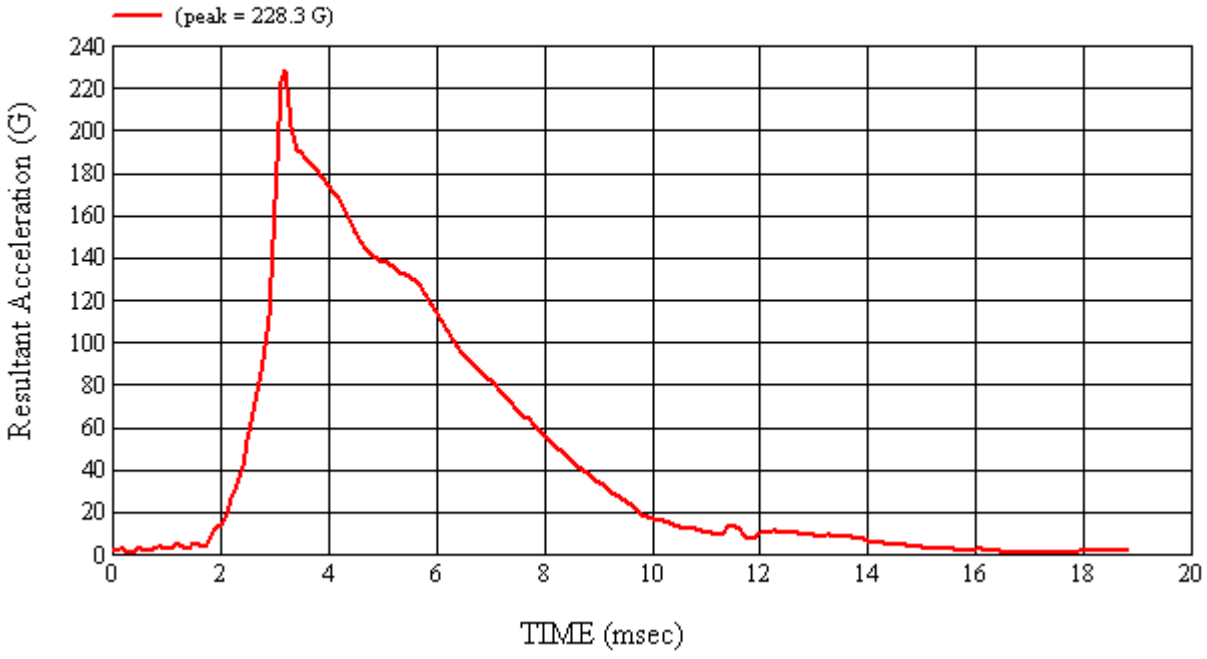
No damage observed

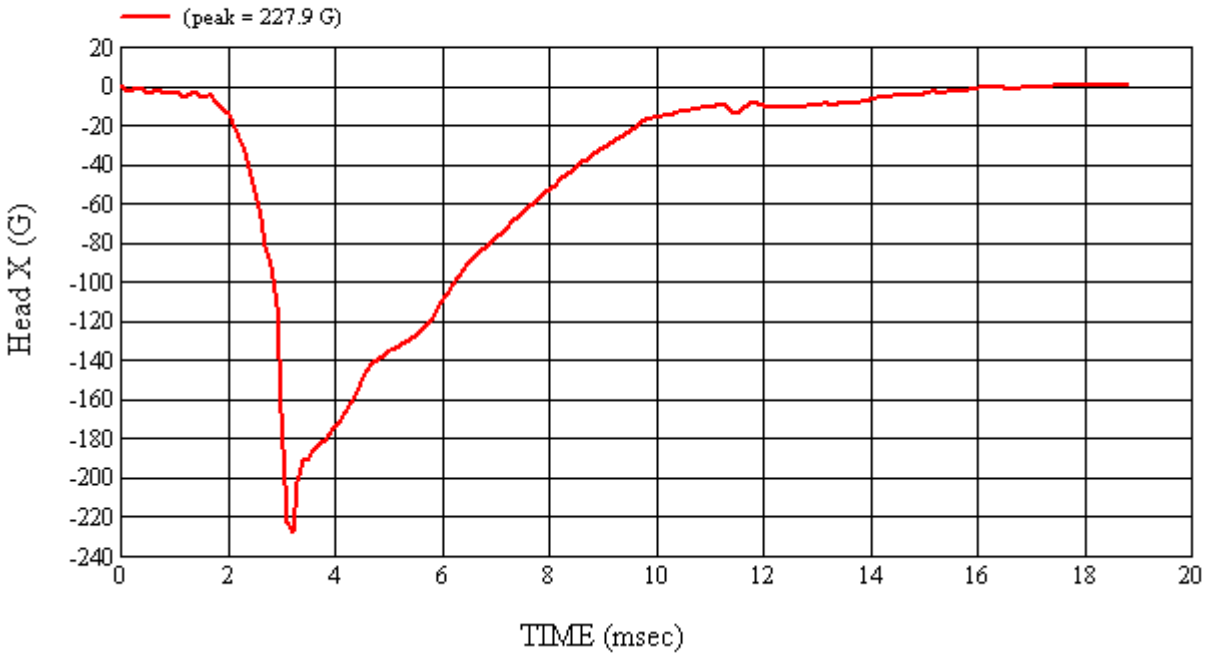
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

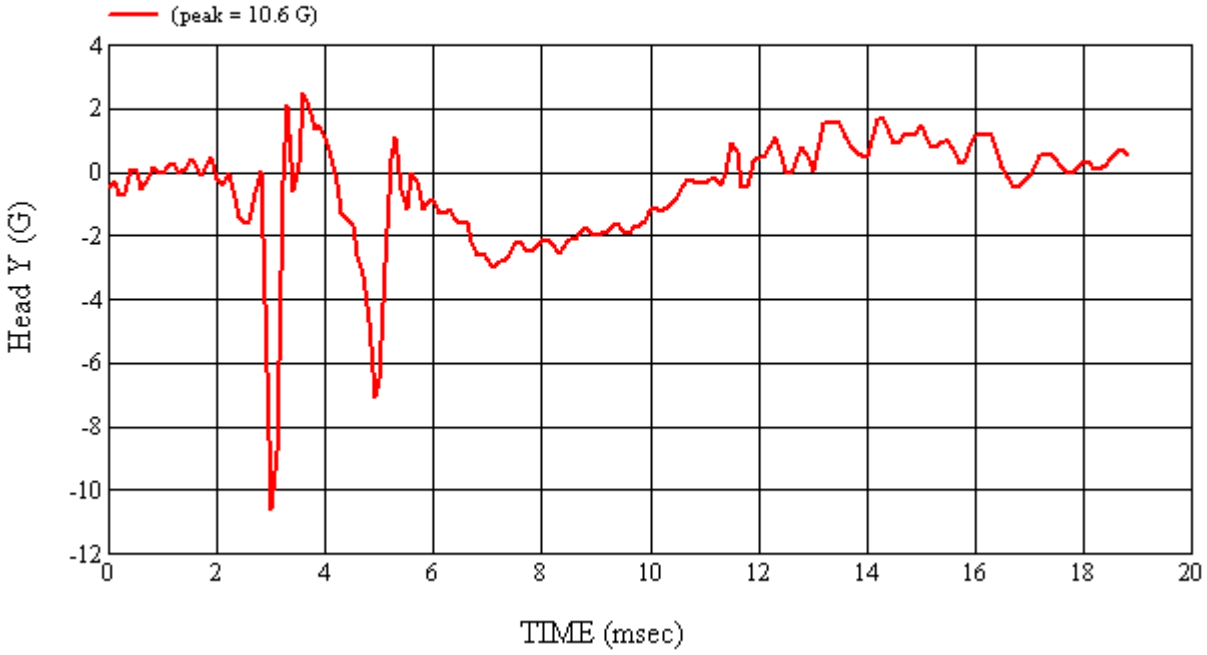
*Only necessary for NHTSA (Government) Compliance testing.

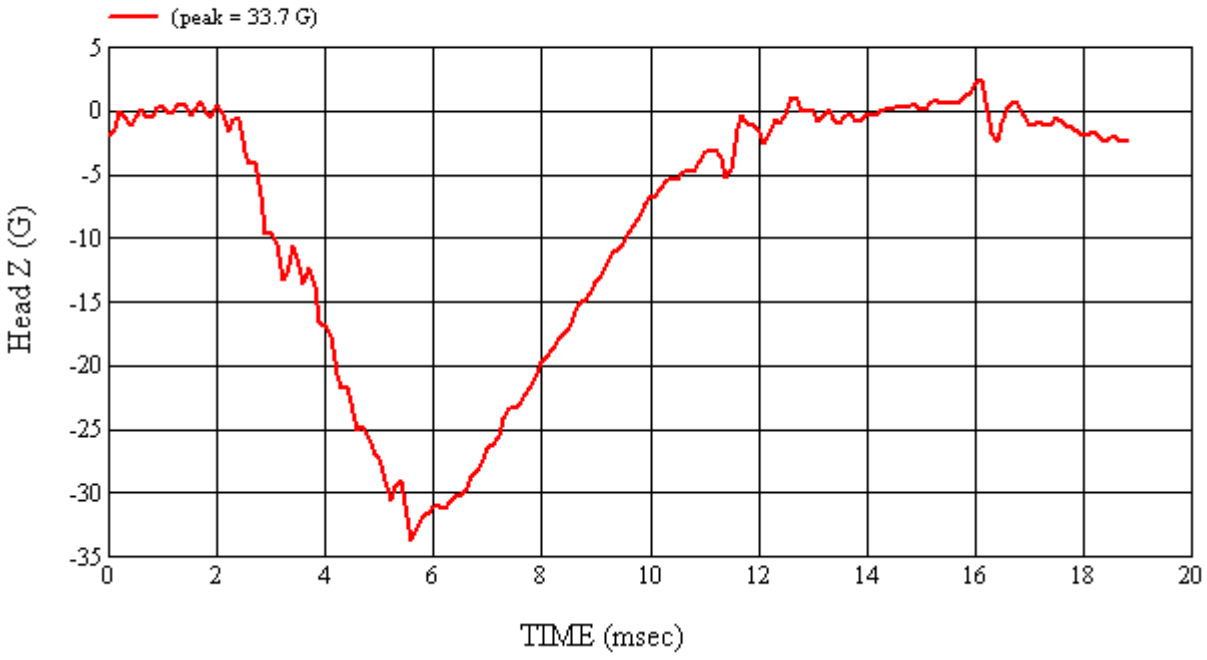
MGA Test #: FM9068 Target Location: RH, Right Side Test Date: 4/15/2009

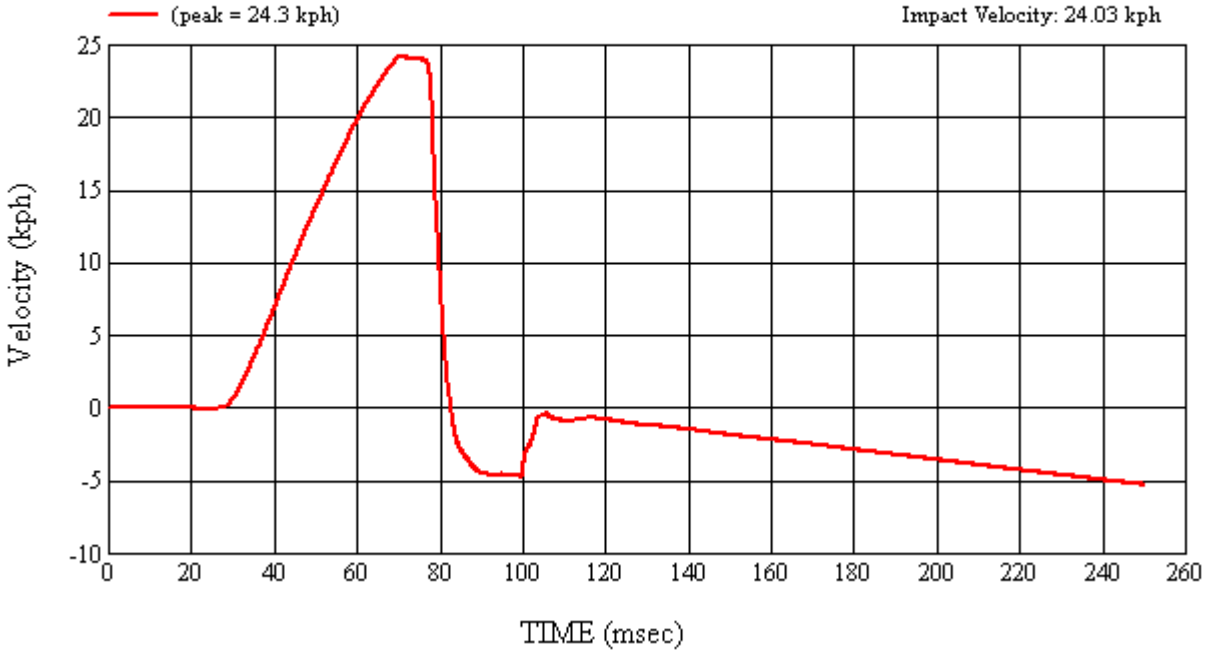


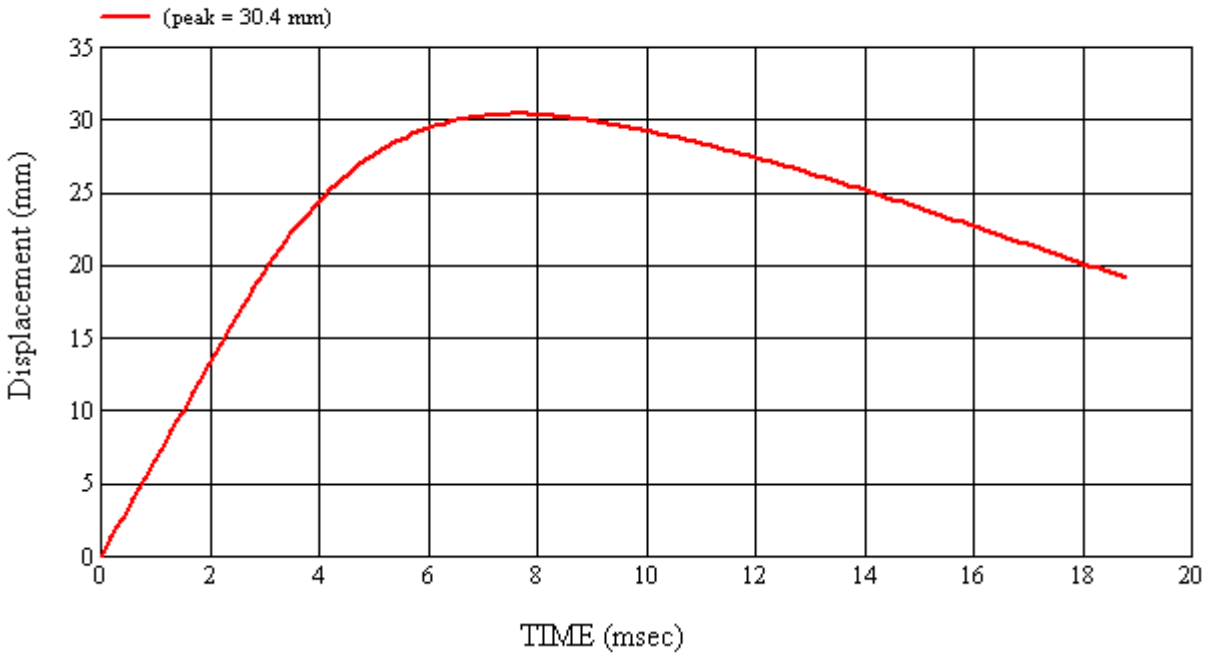



(peak = 227.9 G)
Head X (G)
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
-220
-240
0
2
4
6
8
10
12
14
16
18
20
TIME (msec)


(peak = 10.6 G)
Head Y (G)
4
2
0
-2
-4
-6
-8
-10
-12
0
2
4
6
8
10
12
14
16
18
20
TIME (msec)

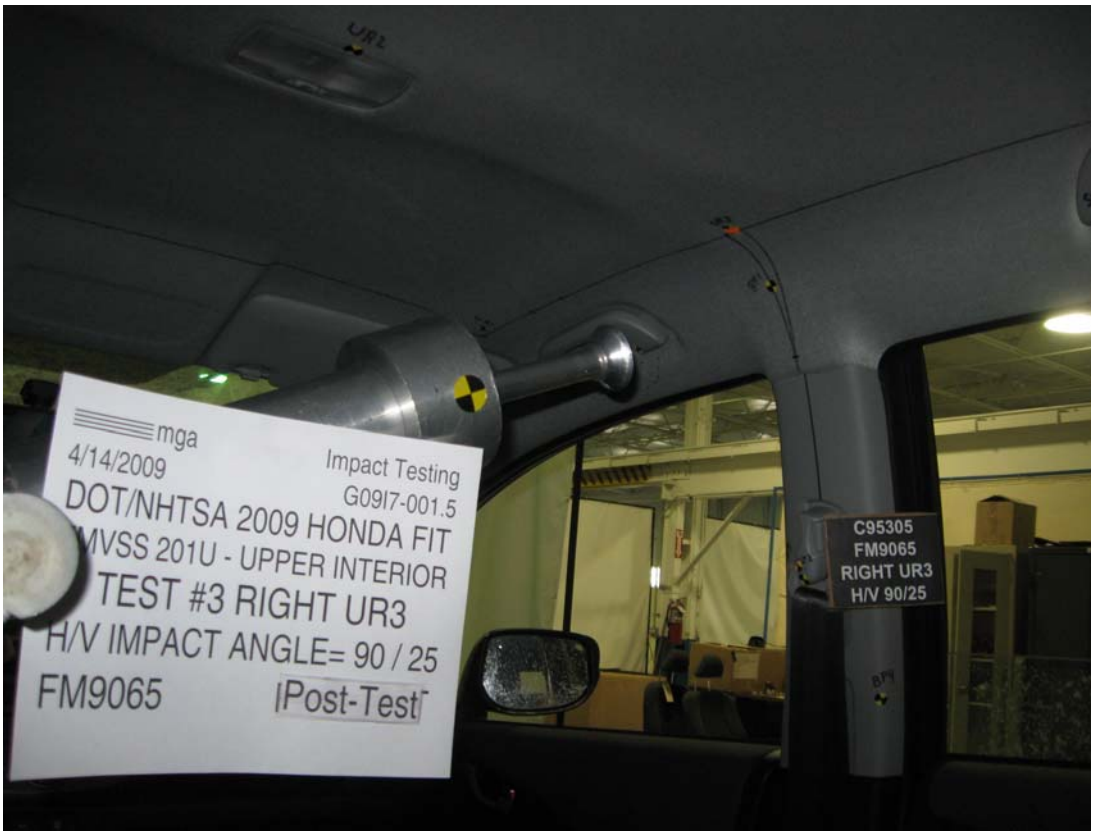

(peak = 33.7 G)
Head Z (G)
5
0
-5
-10
-15
-20
-25
-30
-35
0
2
4
6
8
10
12
14
16
18
20
TIME (msec)


(peak = 24.3 kph)
Impact Velocity: 24.03 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 30.4 mm)
Displacement (mm)
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
TIME (msec)


mga
Impact Testing
G09I7-001.5
4/14/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #3 RIGHT UR3
H/V IMPACT ANGLE= 90 / 25
FM9065
PRE TEST
C95305
FM9065
RIGHT UR3
H/V 90/25


mga
Impact Testing
G09I7-001.5
4/14/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #3 RIGHT UR3
H/V IMPACT ANGLE= 90 / 25
FM9065
PRE TEST
C95305
FM9065
RIGHT UR3
H/V 90/25


UR1
mga
4/14/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
MVSS 201U - UPPER INTERIOR
TEST #3 RIGHT UR3
H/V IMPACT ANGLE= 90 / 25
FM9065
Post-Test
C95305
FM9065
RIGHT UR3
H/V 90/25


UR3
BP1
mga
4/14/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #3 RIGHT UR3
H/V IMPACT ANGLE= 90 / 25
FM9065
Post-Test


mga
Impact Testing
4/14/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #3 RIGHT UR3
H/V IMPACT ANGLE= 90 / 25
FM9065
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#3

Target (Vehicle Side): UR3Right

Temperature:21.3C

MGA Test Reference No.:FM9065

Humidity:33.1%

Approach Horizontal Angles:90º

Time of Test:3:52:24 PM

Approach Vertical Angles:25º

FMH Serial No:[038]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
634	620	8.3	24.2	60	4 Right

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J22700	-95.8	1.04	1.04
Y	6	J36197	108.5	0.83	0.83
Z	7	J36353	98.7	0.92	0.92

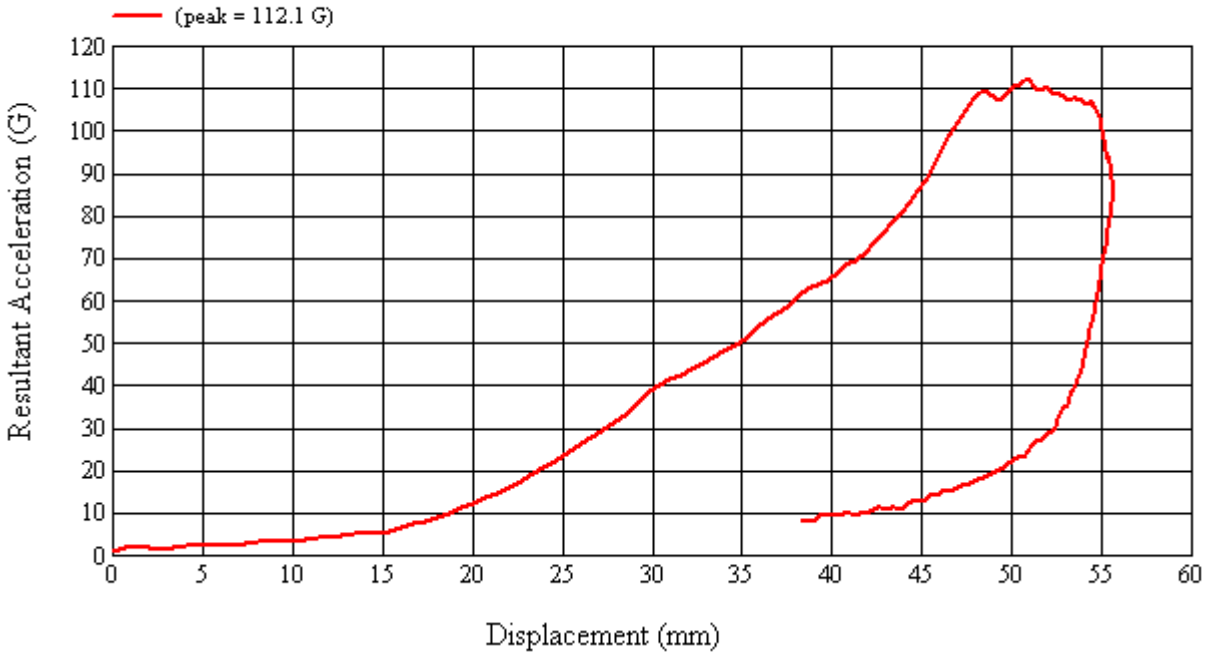
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

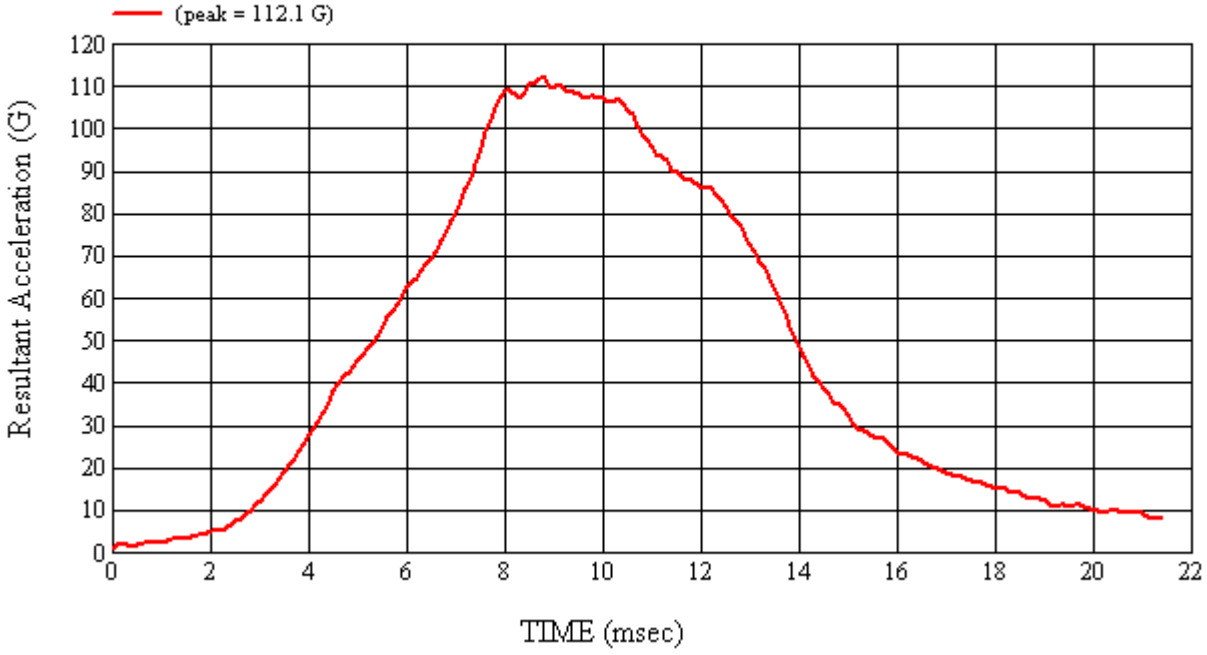
None

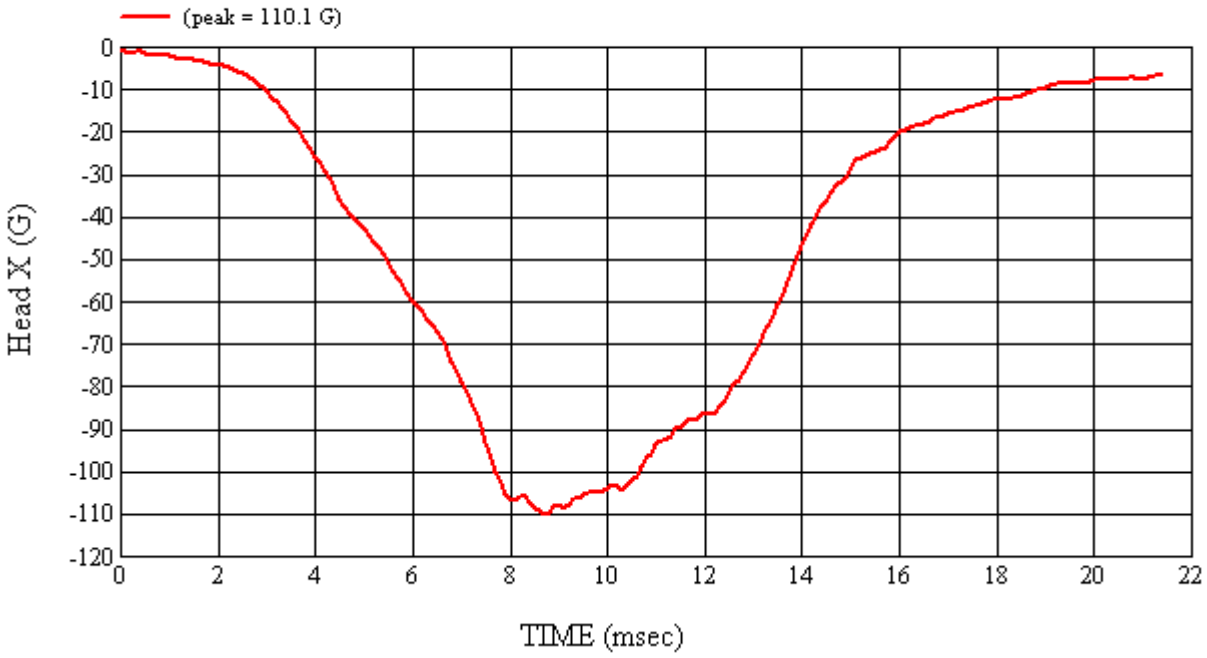
Recorded By: Andrew Gould Approved By*: Helen A. Kaleto Date: 4/14/2009

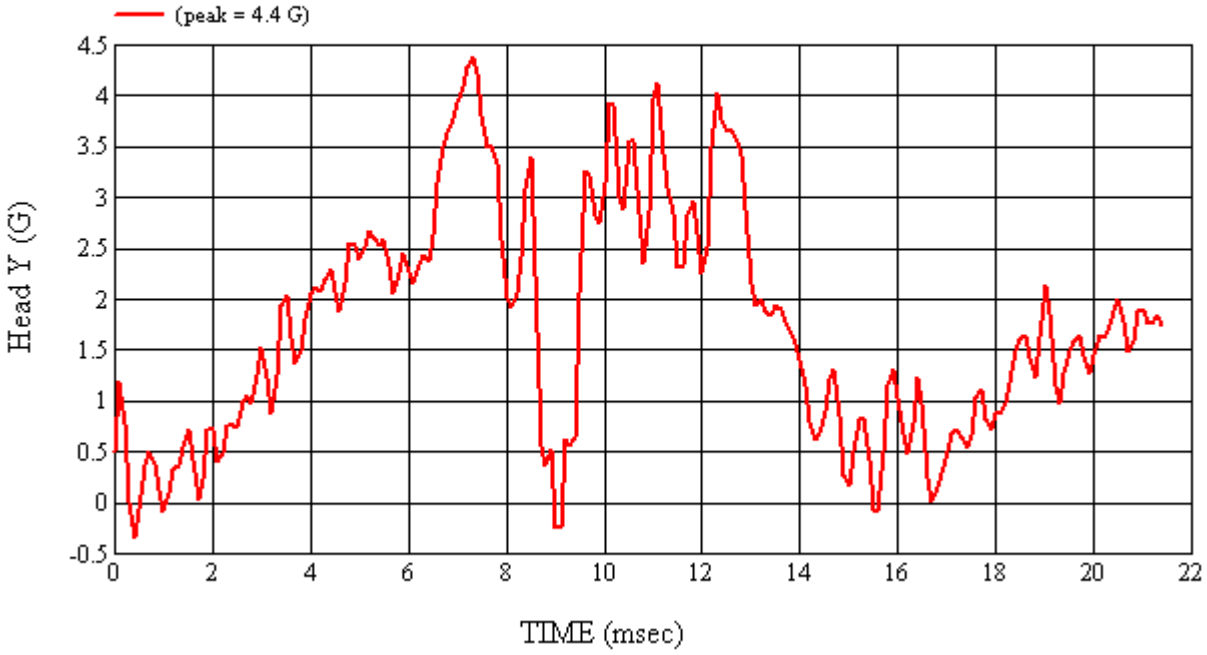
*Only necessary for NHTSA (Government) Compliance testing.

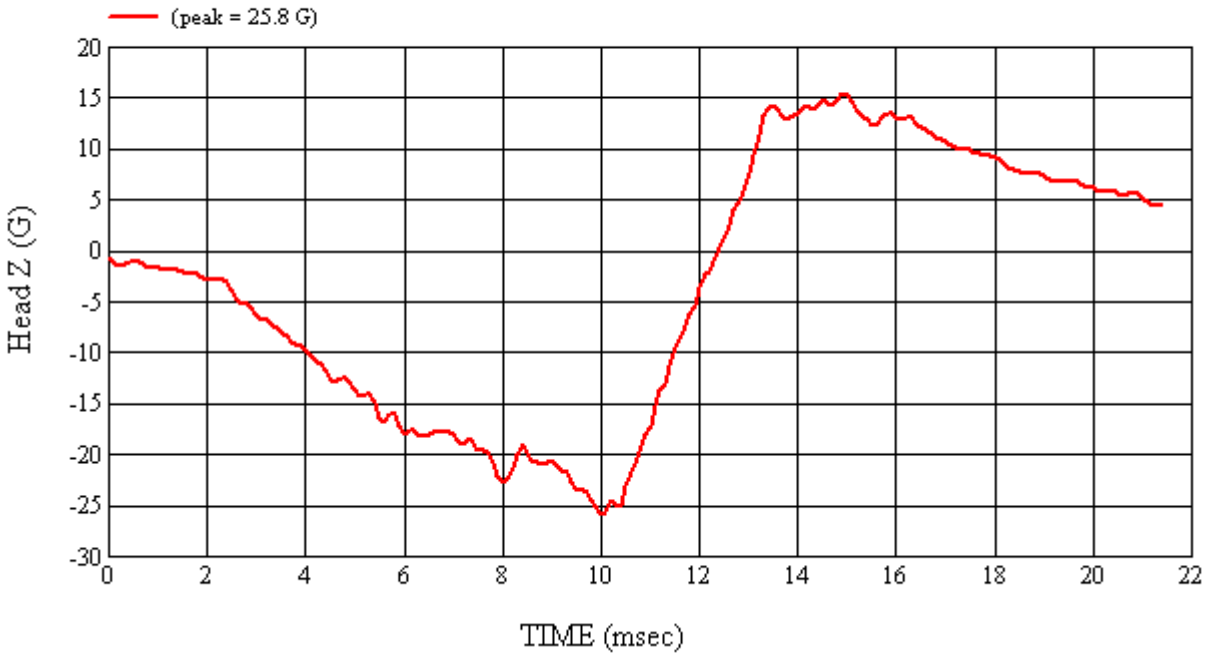
MGA Test #: FM9065 Target Location: UR3, Right Side Test Date: 4/14/2009

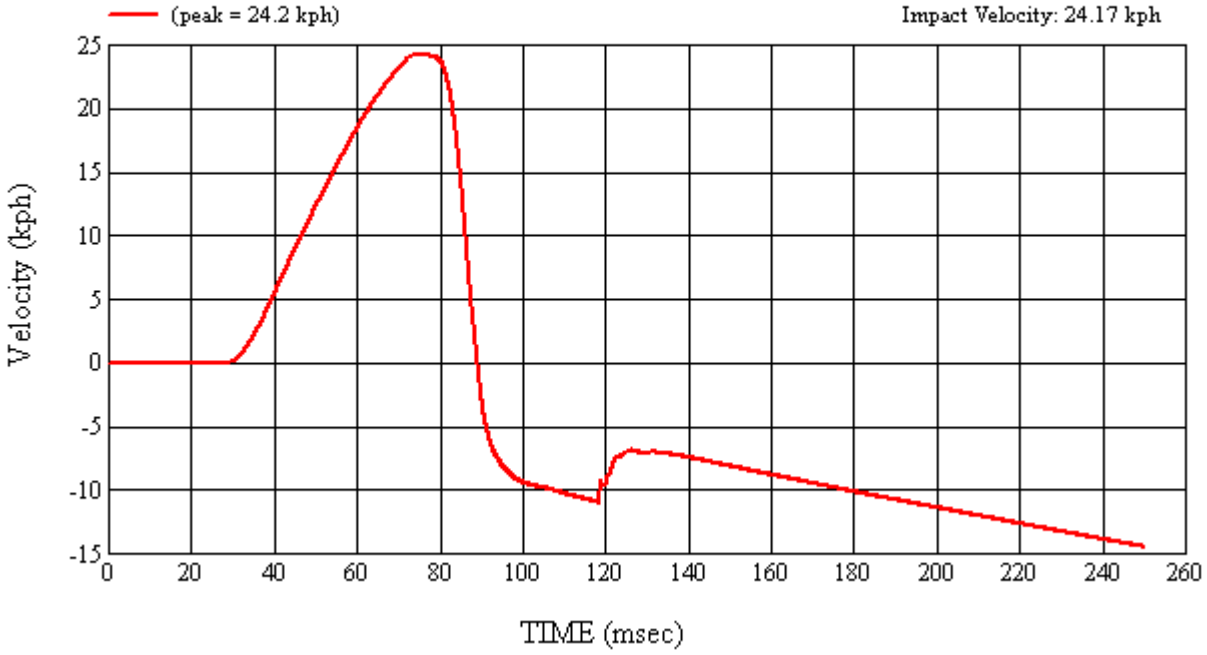


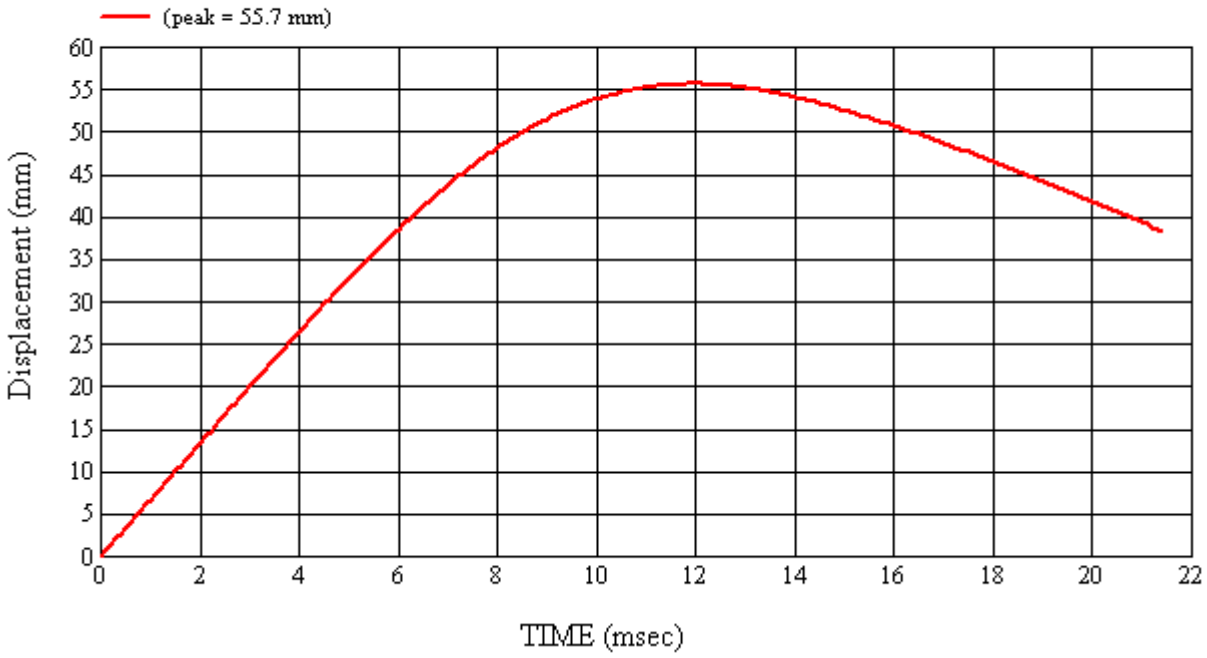


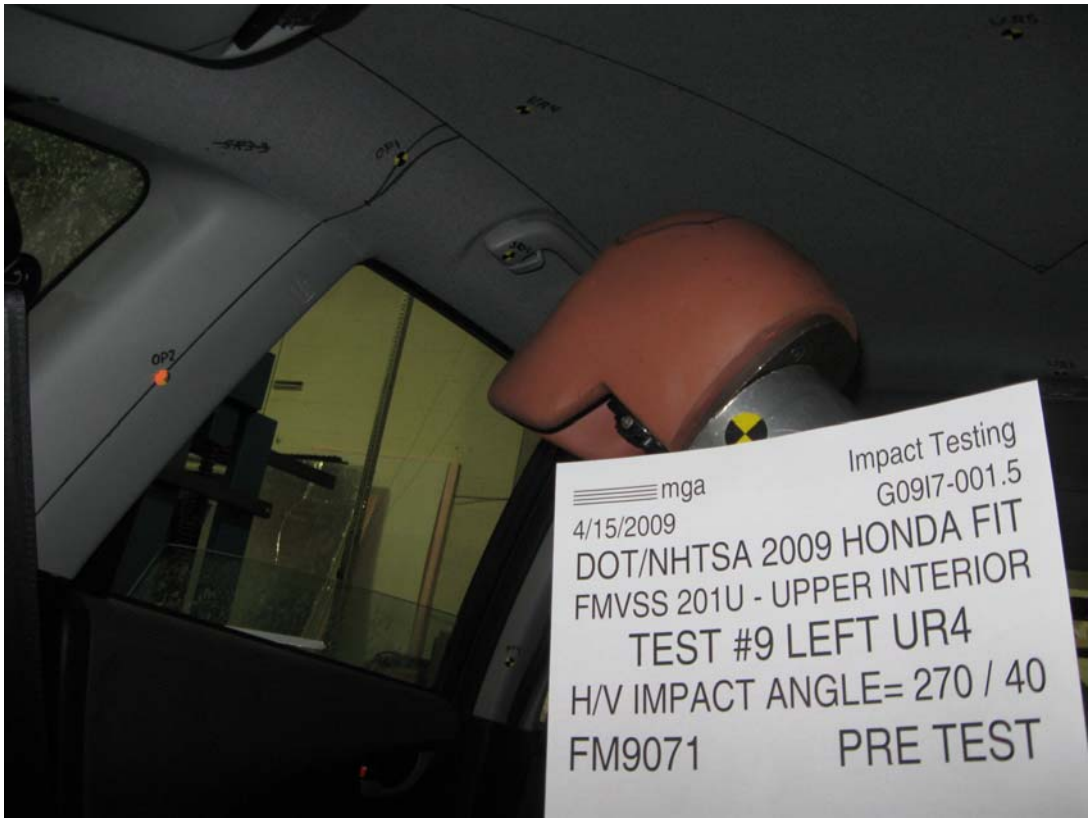

(peak = 110.1 G)
Head X (G)
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)


(peak = 4.4 G)
Head Y (G)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)

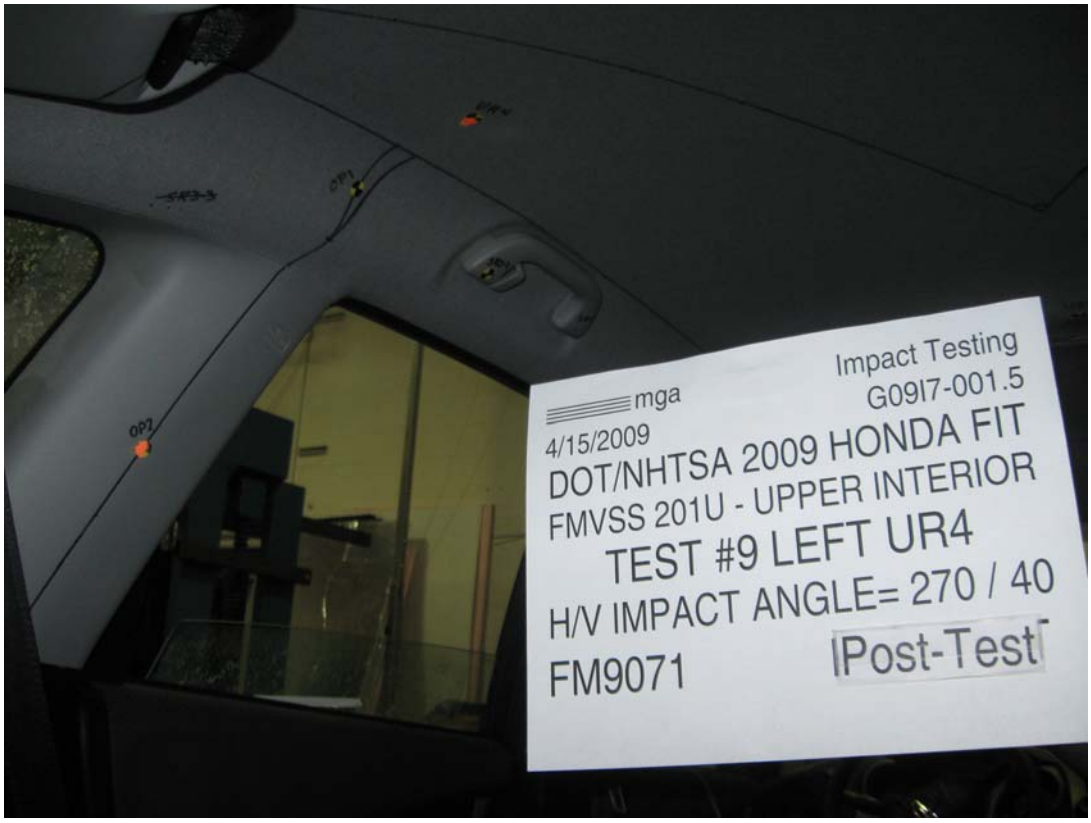

(peak = 25.8 G)
Head Z (G)
TIME (msec)

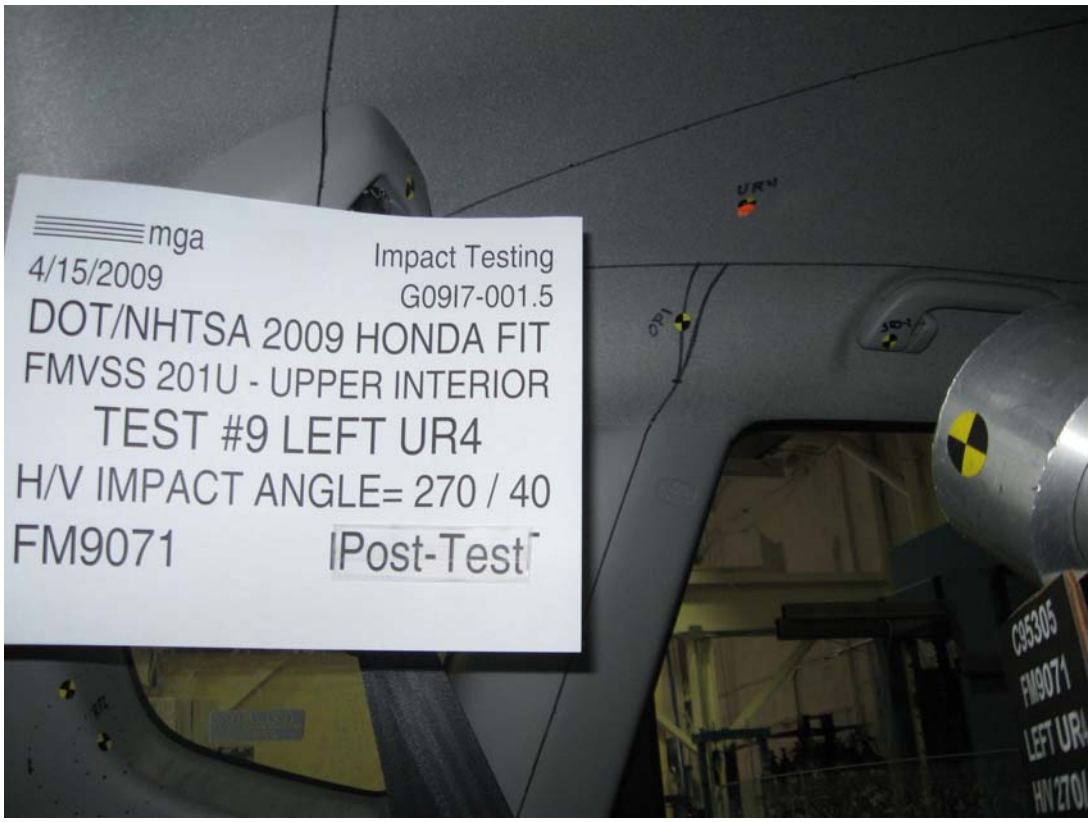

(peak = 24.2 kph)
Impact Velocity: 24.17 kph
Velocity (kph)
TIME (msec)


(peak = 55.7 mm)
Displacement (mm)
60
55
50
45
40
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
22
TIME (msec)


OP2
mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #9 LEFT UR4
H/V IMPACT ANGLE= 270 / 40
FM9071
PRE TEST


UR4
OP1
mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #9 LEFT UR4
H/V IMPACT ANGLE= 270 / 40
FM9071
PRE TEST


mga
Impact Testing
G09I7-001.5
4/15/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #9 LEFT UR4
H/V IMPACT ANGLE= 270 / 40
FM9071
Post-Test


mga
Impact Testing
G09I7-001.5
4/15/2009
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #9 LEFT UR4
H/V IMPACT ANGLE= 270 / 40
FM9071
Post-Test
C95305
FM9071


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #9 LEFT UR4
H/V IMPACT ANGLE= 270 / 40
FM9071
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#9

Target (Vehicle Side): UR4Left

Temperature:21.5C

MGA Test Reference No.:FM9071

Humidity:35.6%

Approach Horizontal Angles:270º

Time of Test:1:59:47 PM

Approach Vertical Angles:40º

FMH Serial No:[035]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
565	529	10.4	24.0	30	10 Left

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35919	-95.6	1.05	1.05
Y	6	J22664	94.3	0.84	0.84
Z	7	J35924	92.8	0.93	0.93

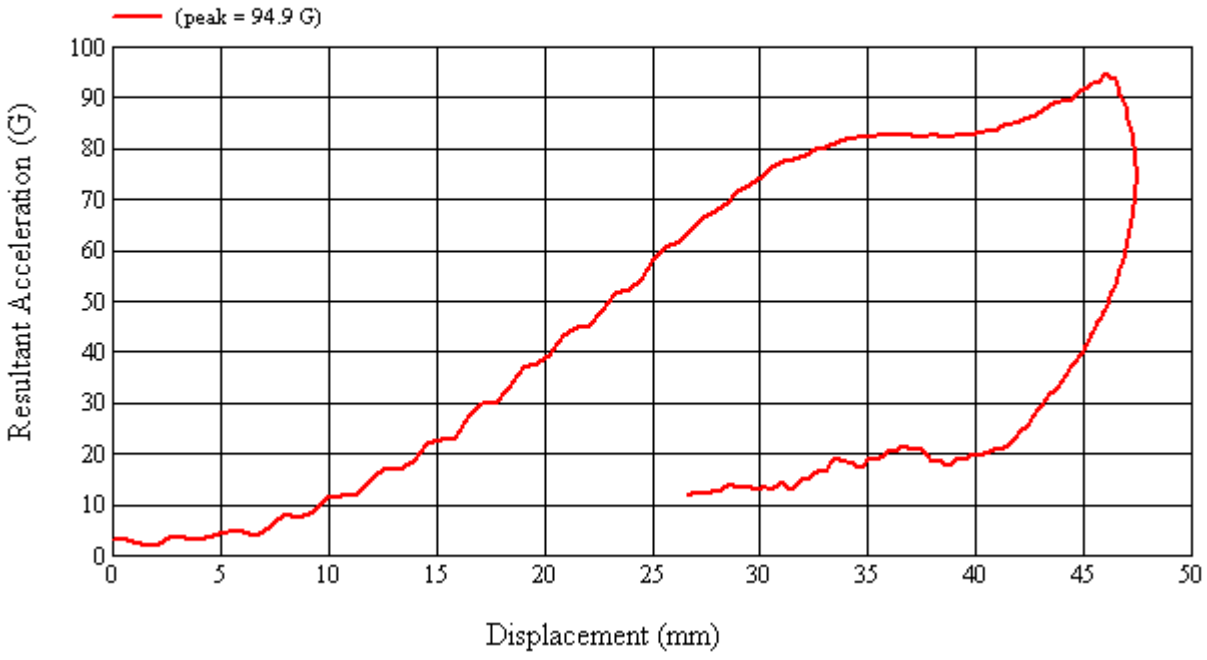
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

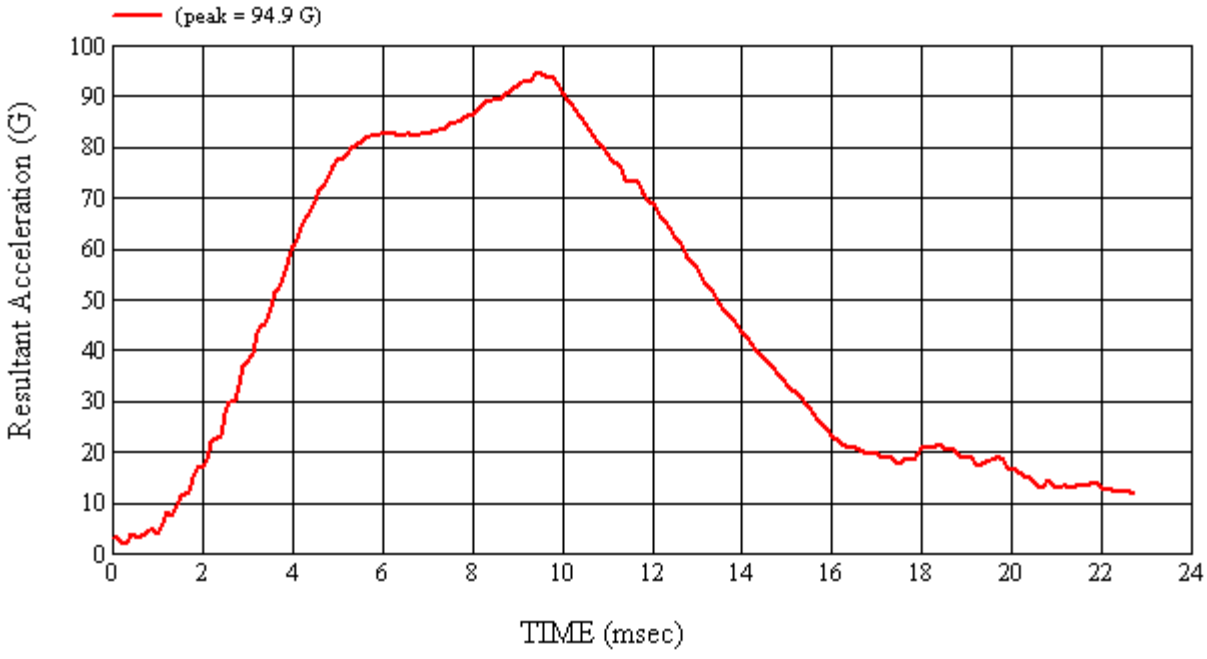
No damage observed

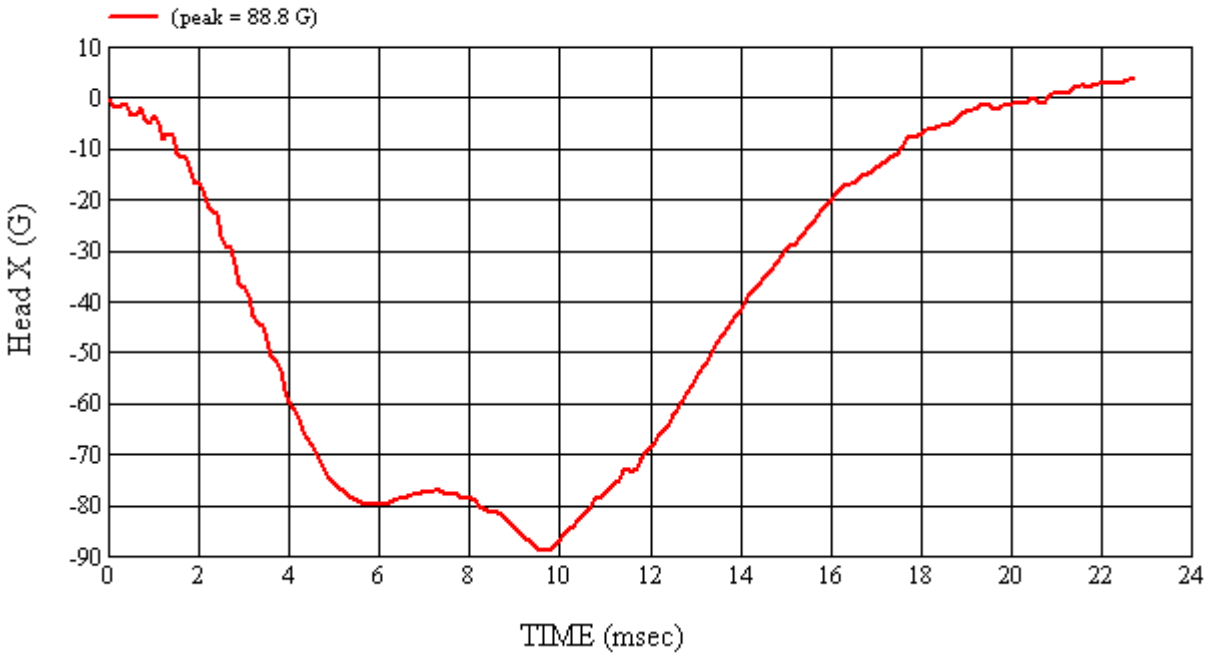
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

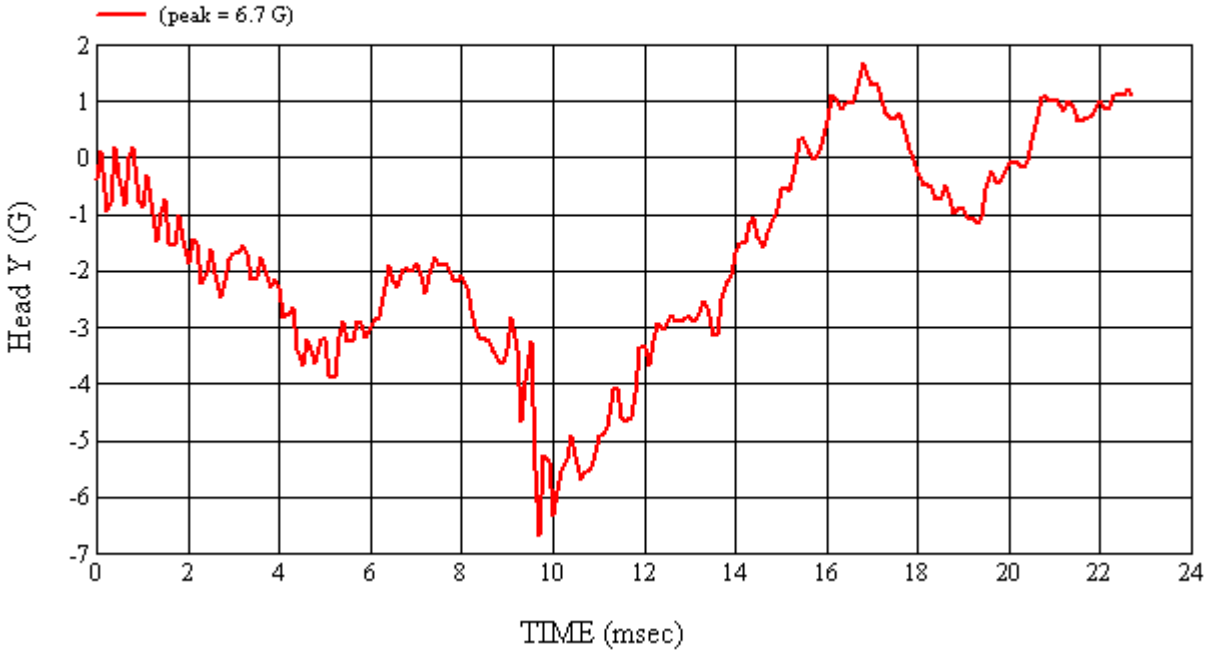
*Only necessary for NHTSA (Government) Compliance testing.

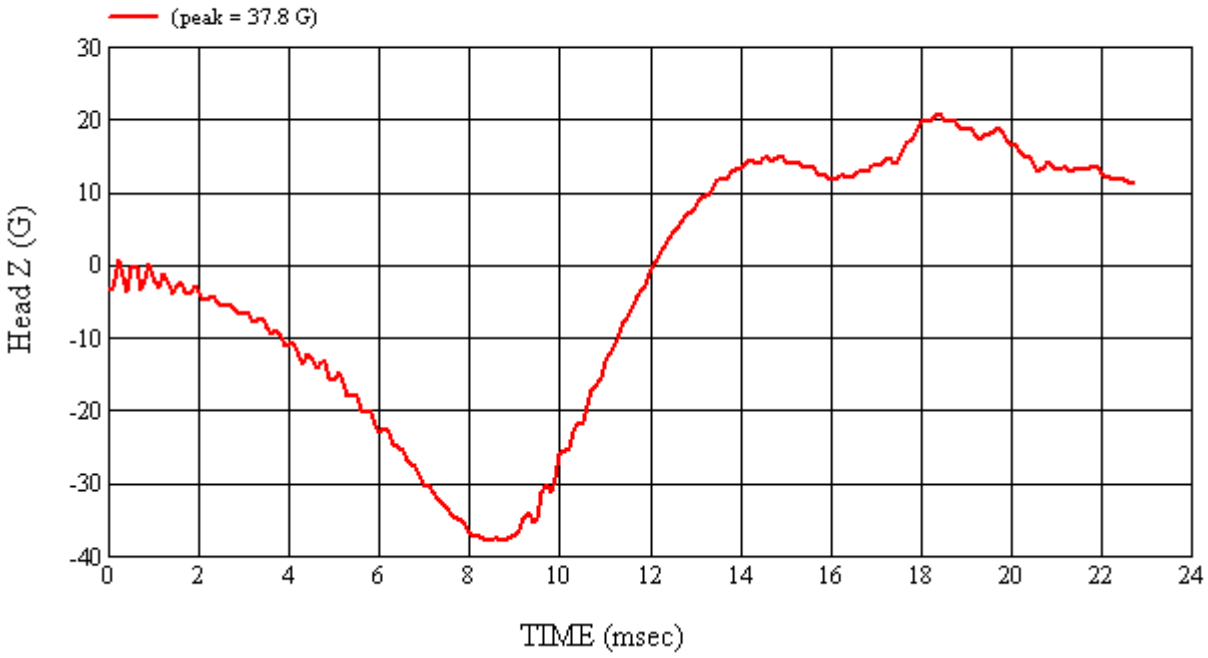
MGA Test #: FM9071 Target Location: UR4, Left Side Test Date: 4/15/2009

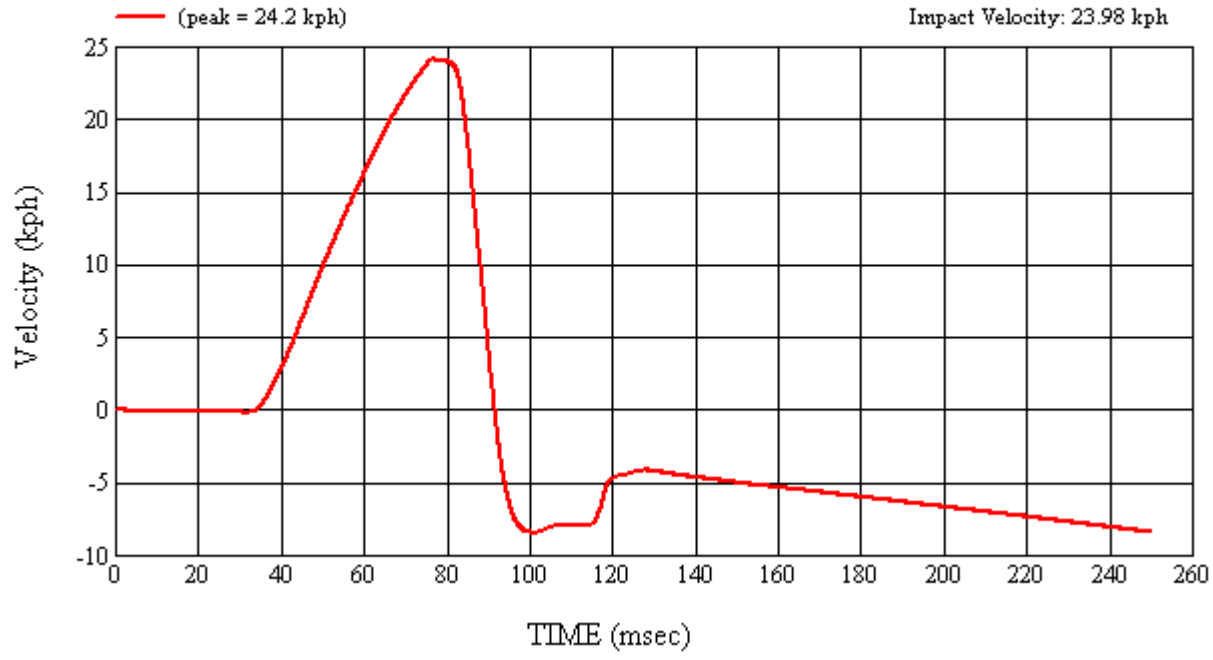




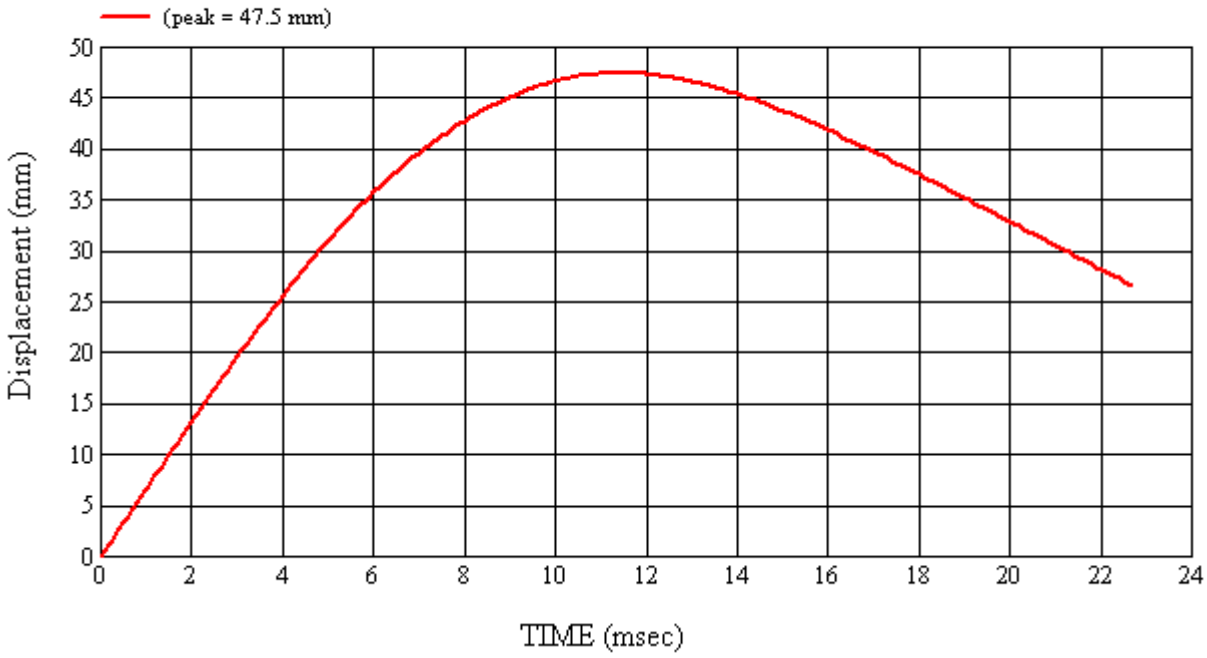

(peak = 88.8 G)
Head X (G)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

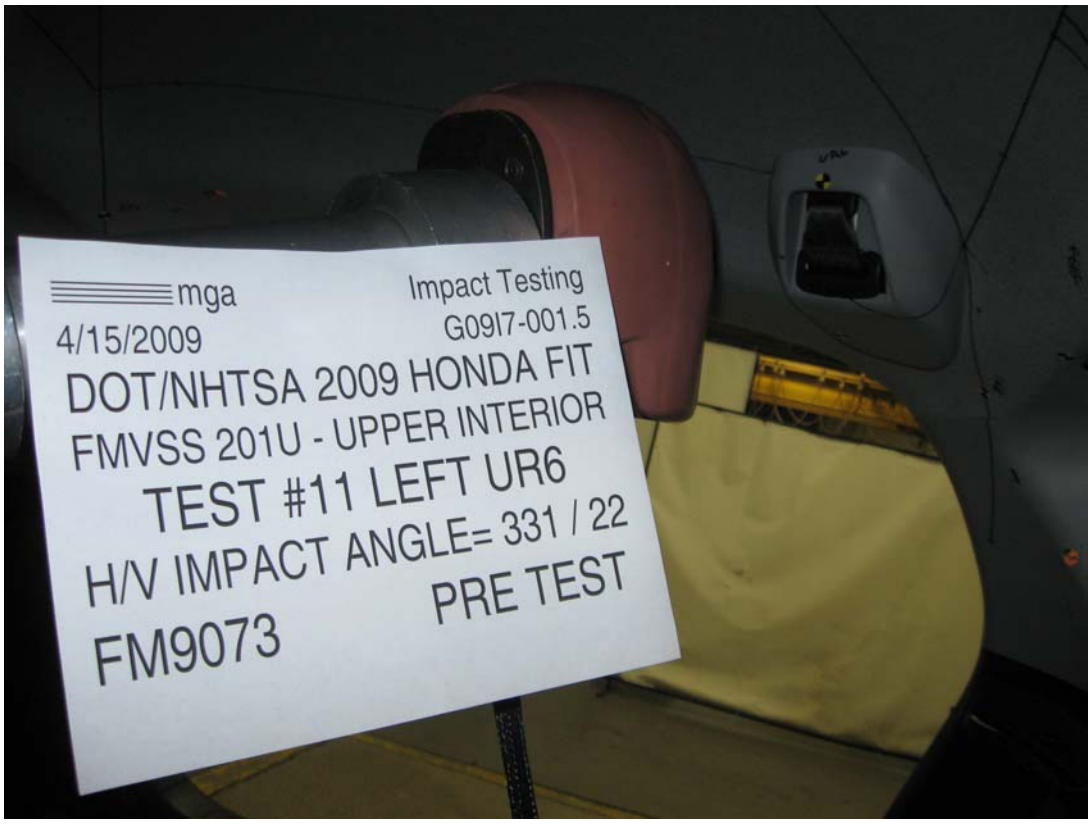

(peak = 6.7 G)
Head Y (G)
2
1
0
-1
-2
-3
-4
-5
-6
-7
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

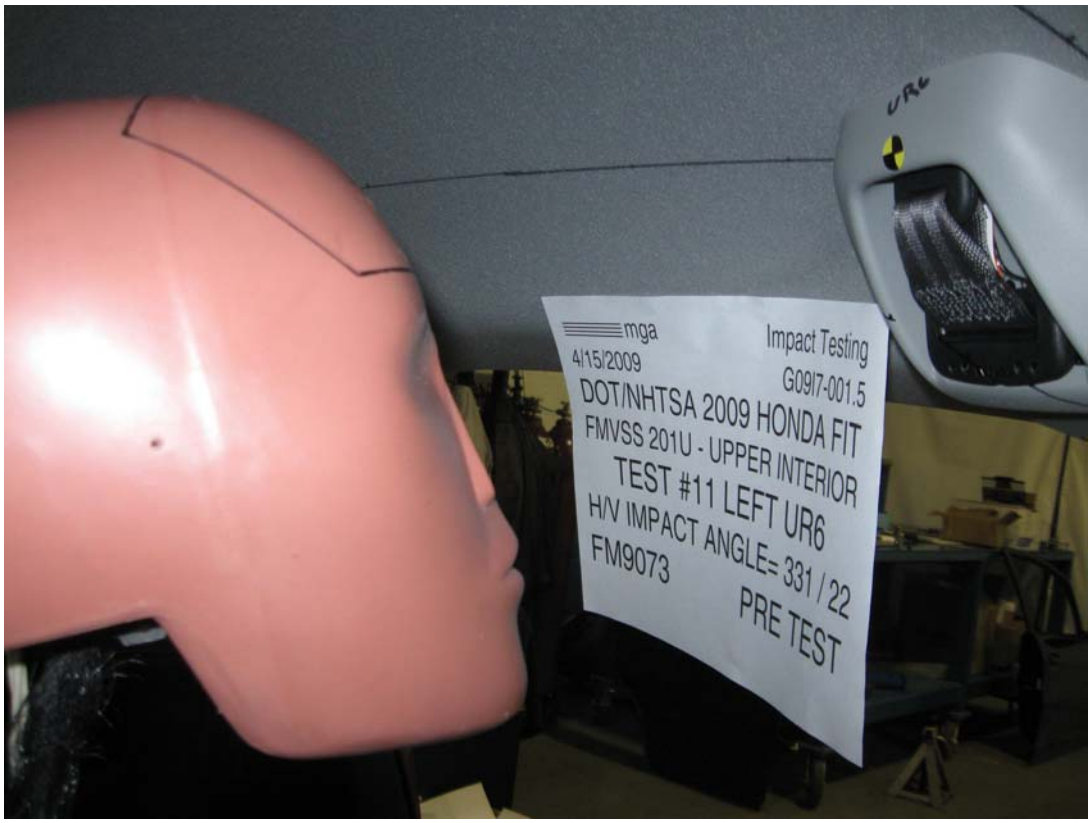

(peak = 37.8 G)
Head Z (G)
30
20
10
0
-10
-20
-30
-40
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

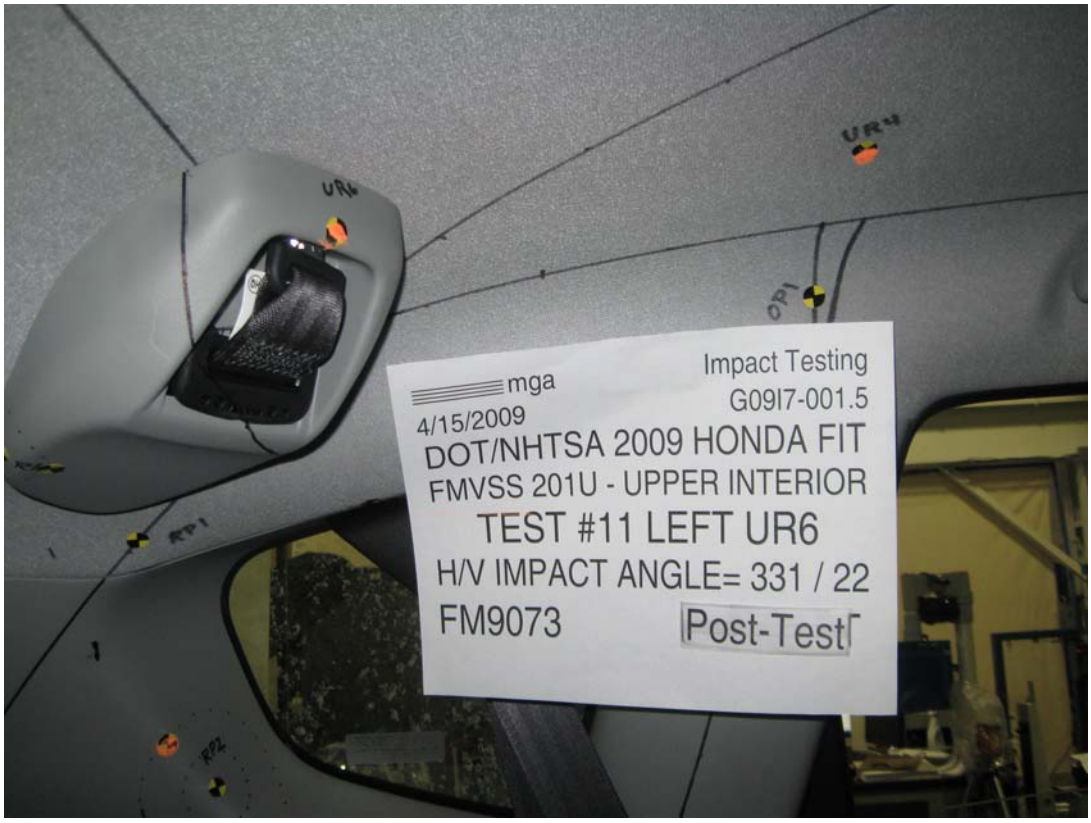

(peak = 24.2 kph)
Impact Velocity: 23.98 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)

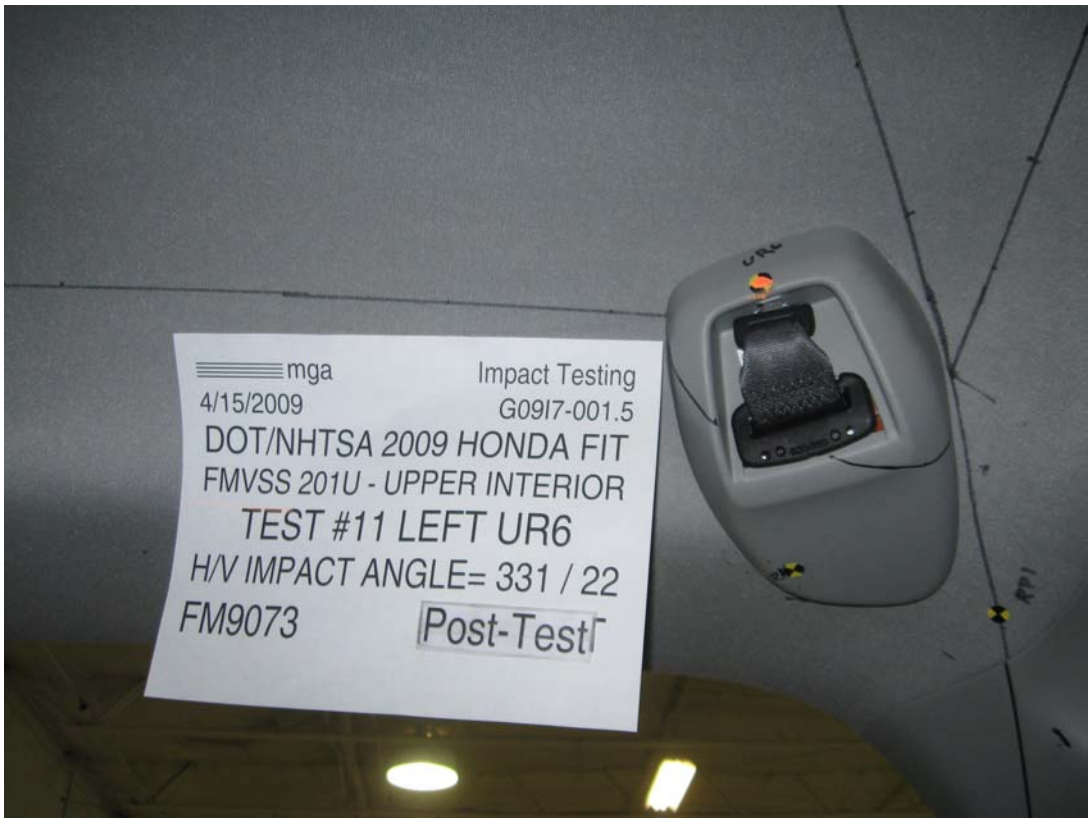
1


(peak = 47.5 mm)
Displacement (mm)
50
45
40
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #11 LEFT UR6
H/V IMPACT ANGLE= 331 / 22
FM9073
PRE TEST


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #11 LEFT UR6
H/V IMPACT ANGLE= 331 / 22
FM9073
PRE TEST


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #11 LEFT UR6
H/V IMPACT ANGLE= 331 / 22
FM9073
Post-Test


mga
4/15/2009
Impact Testing
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #11 LEFT UR6
H/V IMPACT ANGLE= 331 / 22
FM9073
Post-Test


mga
Impact Testing
4/15/2009
G09I7-001.5
DOT/NHTSA 2009 HONDA FIT
FMVSS 201U - UPPER INTERIOR
TEST #11 LEFT UR6
H/V IMPACT ANGLE= 331 / 22
FM9073
Post-Test

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G09I7-001.5 VEHICLE YR/MAKE/MODEL:2009/DOT/NHTSA/Honda Fit

GENERAL TEST PARAMETERS:

Test Number:#11

Target (Vehicle Side): UR6Left

Temperature:21.4C

MGA Test Reference No.:FM9073

Humidity:34.1%

Approach Horizontal Angles:331º

Time of Test:4:25:24 PM

Approach Vertical Angles:22º

FMH Serial No:[038]

Additional Description:

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
729	745	8.1	23.9	22	6 Right

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J22700	-95.8	1.05	1.05
Y	6	J36197	108.5	0.84	0.84
Z	7	J36353	98.7	0.93	0.93

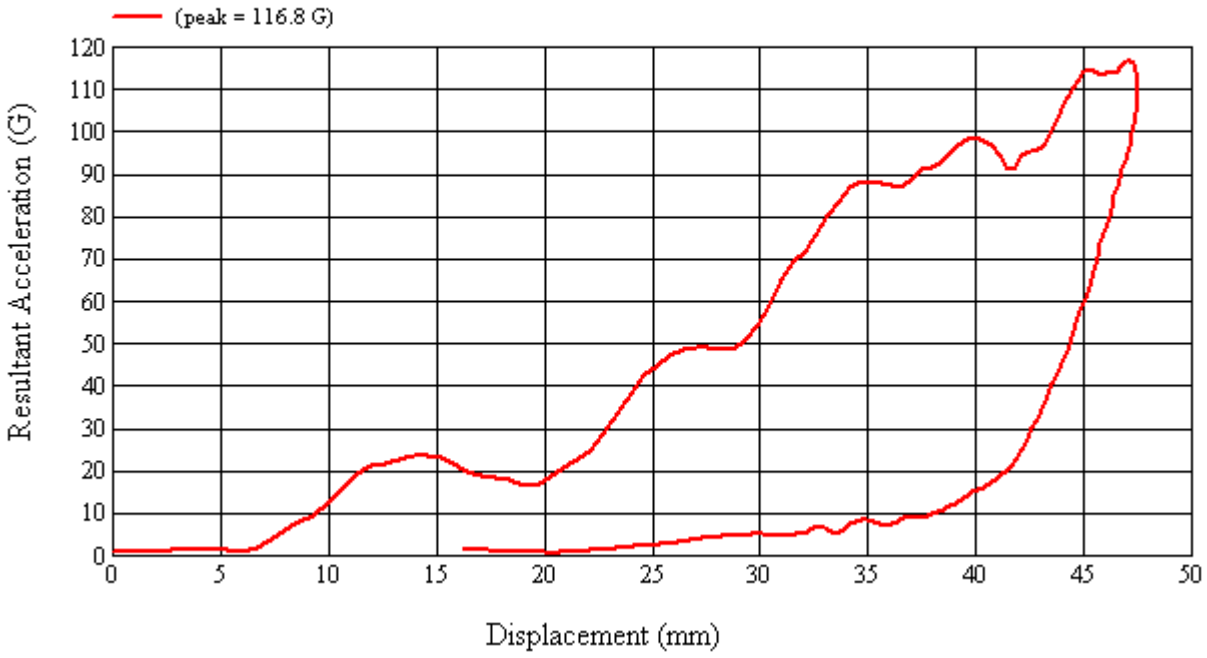
REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

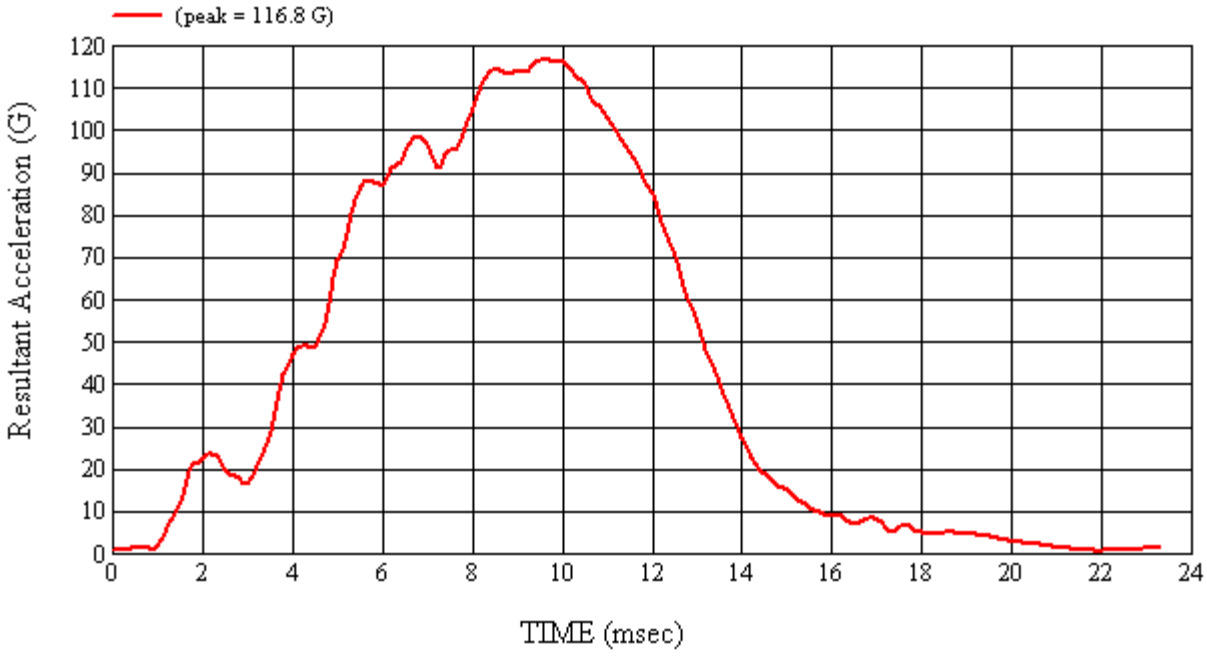
No damage observed

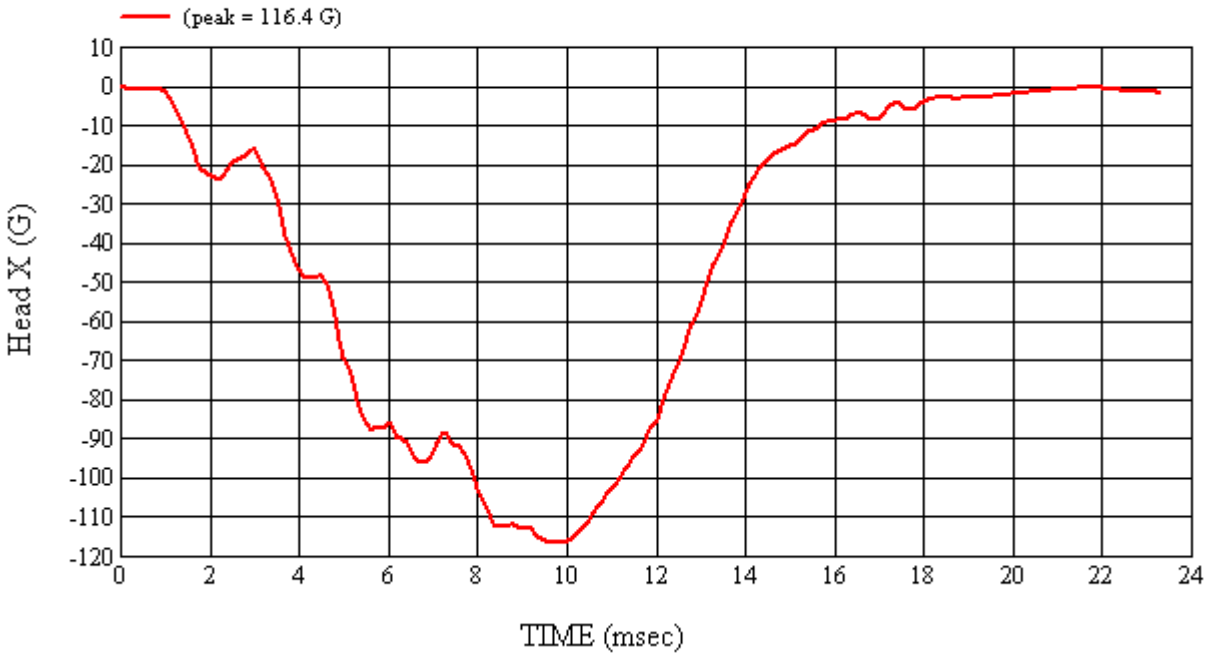
Recorded By: _____ Approved By*: _____ Date: 4/15/2009

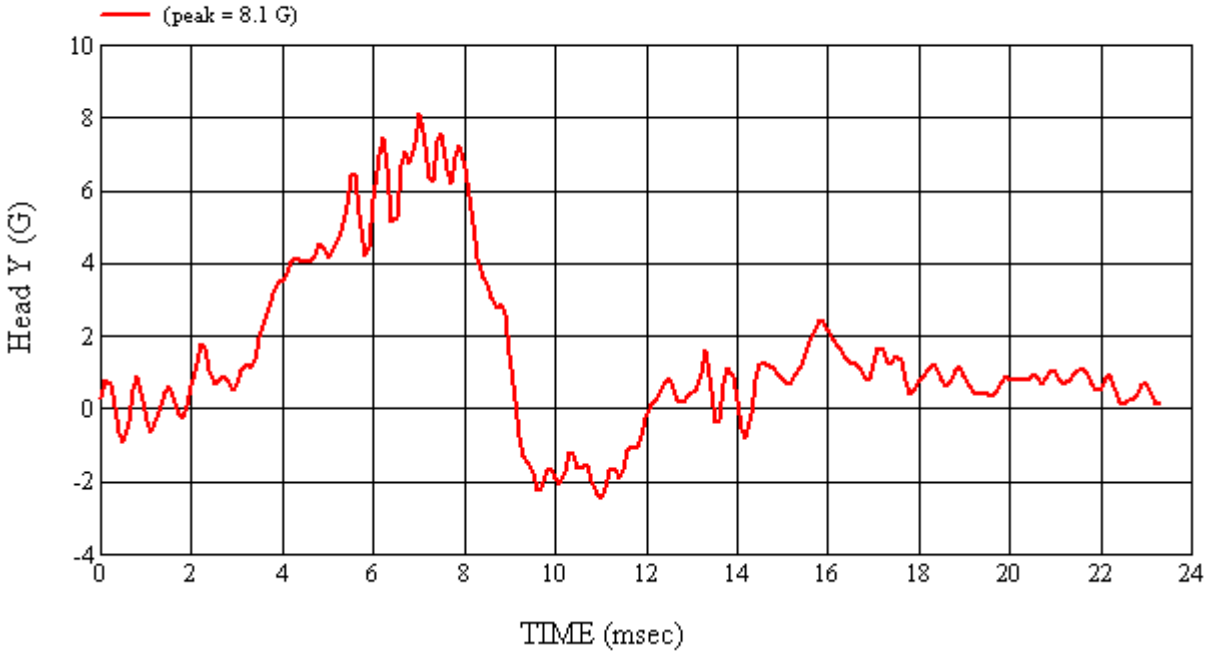
*Only necessary for NHTSA (Government) Compliance testing.

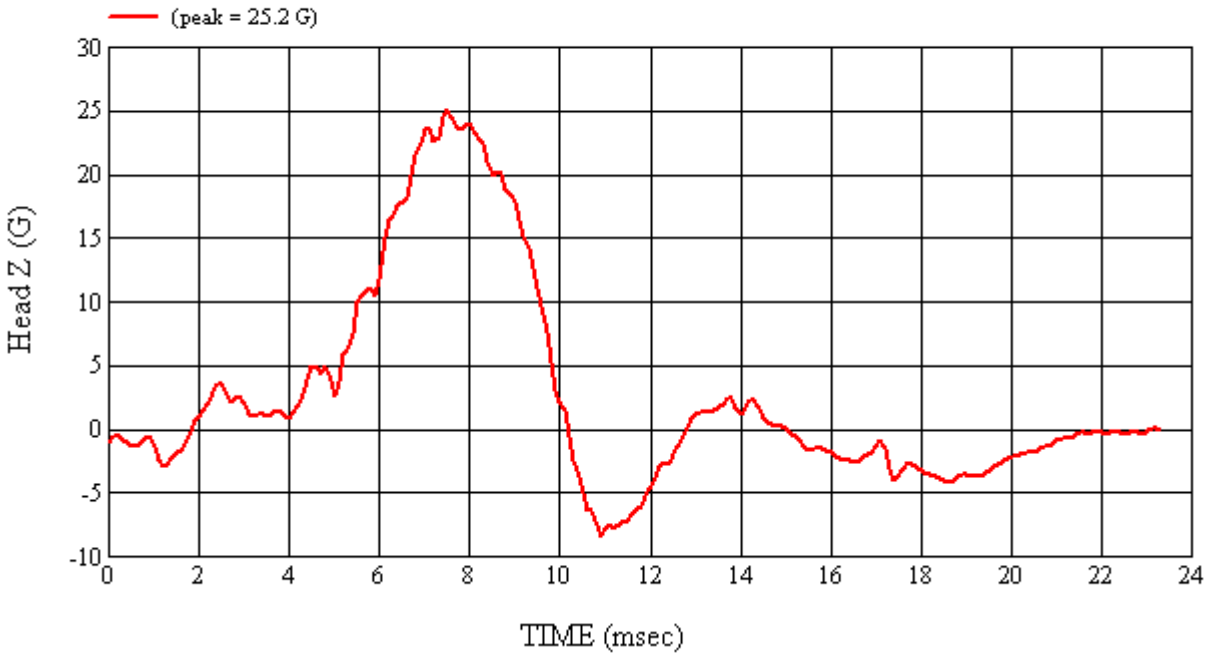
MGA Test #: FM9073 Target Location: UR6, Left Side Test Date: 4/15/2009

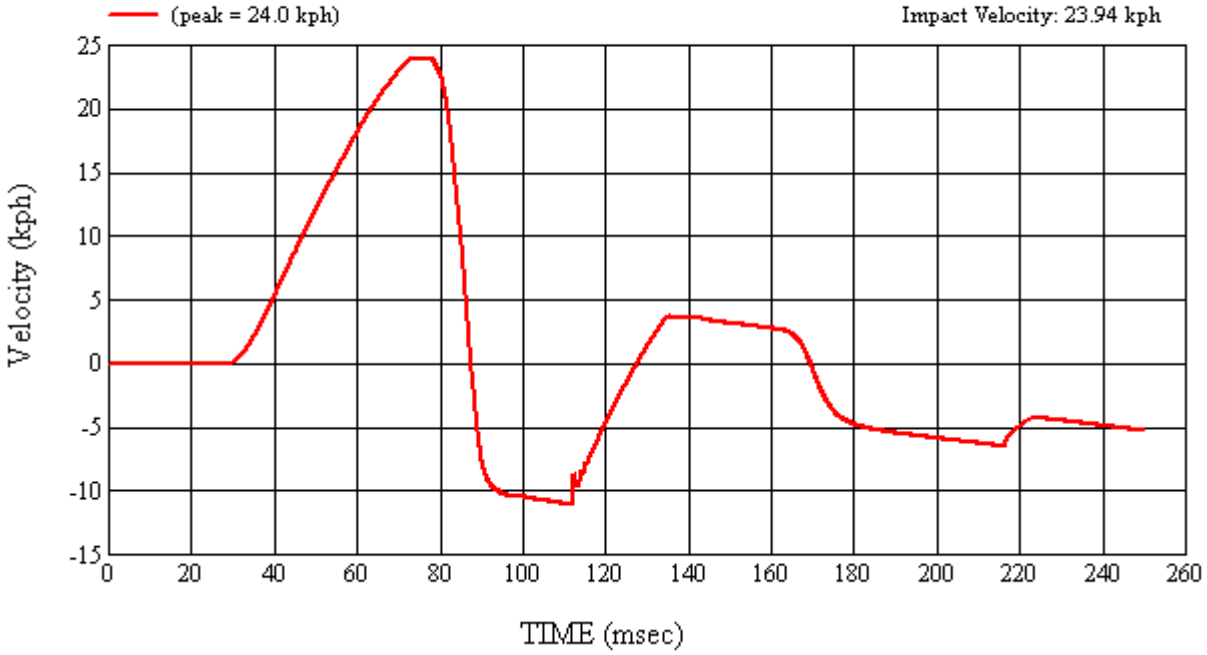


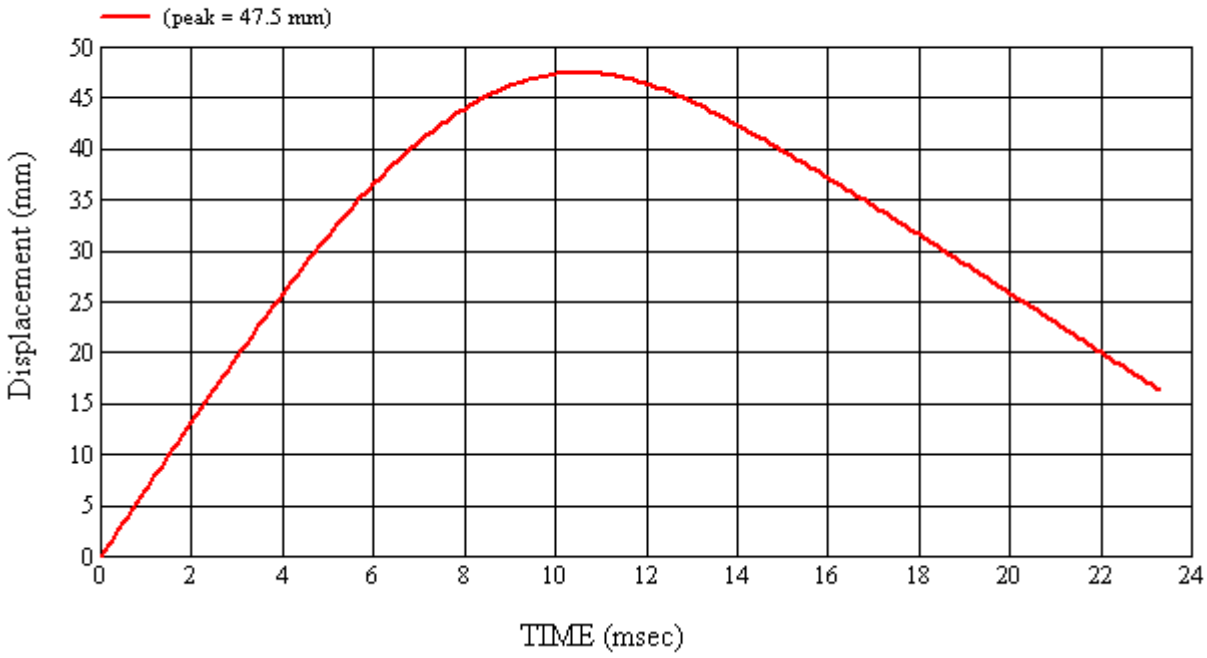



(peak = 116.4 G)
Head X (G)
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 8.1 G)
Head Y (G)
10
8
6
4
2
0
-2
-4
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 25.2 G)
Head Z (G)
30
25
20
15
10
5
0
-5
-10
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)


(peak = 24.0 kph)
Impact Velocity: 23.94 kph
Velocity (kph)
25
20
15
10
5
0
-5
-10
-15
0
20
40
60
80
100
120
140
160
180
200
220
240
260
TIME (msec)


(peak = 47.5 mm)
Displacement (mm)
50
45
40
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
22
24
TIME (msec)

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

The following section lists the test equipment for the compliance test series. Items marked with an asterisk are calibrated by an external lab. An additional summary table is given for the pre and post-test calibration data for the Free Motion Headforms. The temperature trace to confirm testing was conducted between 66ºF and 78ºF (19ºC – 26ºC) is included in Appendix A. Calibration certificates can be found in Appendix B.

TABLE 4-1 LIST OF ITEMS USED

ITEM	MANUFACTURER NAME	MODEL #	FUNCTION OF ITEM	ACCURACY	CAL. INTERNAL
Head Drop Tower (includes test frame and DAS)	MGA Research Corp.	MGA-100-DC	FMH Calibration	N/A	N/A
Accelerometers	Endevco	7264-2000	Acceleration Data	±0.5%	6 months
*Digital Inclinometer	Macklanburg-Duncan	PRO 360 (MGA00725)	Set Angle of FMH/Targeting	0.1°	Annual
FMVSS 201U Test Frame (includes the propulsion control system, actuator, test frame, and DAS)	MGA Research Corp.	MGA-100-FMH	Test System	N/A	N/A
Free Motion Headforms	UTAMA UTAMA UTAMA	035 037 038	Test Device	N/A	Pre and Post-Test Series
High Speed Video	Vision Research	Miro	Record Event	N/A	N/A
*FARO™	Faro Technologies	S08059801273	Targeting	0.1 mm	Annual
Measuring Devices: - Tape Measure - Plumb Bobs - Digital Protractor	 Stanley N/A Macklanburg-Duncan	 TPM906 -- MGA00725	 Measurement Targeting FMH setup Horizontal Measurement	 1 mm N/A 0.5°	Annual
*Temperature Recorder	Dickson	MGA00152	Record Temperature and Humidity	± 1°C ± 1% RH	Annual
* Scale	Detecto	MGA00081	Weigh FMH Head	± 0.01 lb	Annual
*Vehicle Scale	Sterling Scale Co.	26032389	Weighing Vehicle	± .5 kg	Annual

Each headform was calibrated by an engineer after the headform had soaked in an environment of 66ºF to 78ºF (19ºC to 26ºC) for a period of at least four hours.

Each headform was found to comply with the performance criteria under Part 572L for pre and post-test calibrations. That is, the peak resultant acceleration was between 225 and 275 G's, the peak lateral acceleration was less than 15 G's, the headform weighed between 9.9 and 10.1 lbs., the pulse was determined to be unimodal, and there was no major damage to the headform.

TABLE 4-2 FMH CALIBRATION SUMMARY

FMH Serial #		Headform Calibration Date	Weight (lbs)	Temp (ºC)	% Humidity	Peak Resultant Acceleration (G's)	Peak Lateral Acceleration (G's)	Unimodal
Pre	#035	4/9/2009	9.90	21.1	25.6	240.4	2.8	Yes
Post	#035	4/16/2009	9.90	21.2	29.0	243.4	7.0	Yes
Pre	#037	4/9/2009	9.96	21.1	25.6	257.3	6.0	Yes
Post	#037	4/16/2009	9.96	21.2	29.0	252.6	7.0	Yes
Pre	#038	4/13/2009	9.90	21.1	25.6	266.5	13.0	Yes
Post	#038	4/17/2009	9.90	21.2	30.6	271.6	3.9	Yes

4-1 Pre-Test Calibration

HEAD DROP TEST SUMMARY
PART 572L

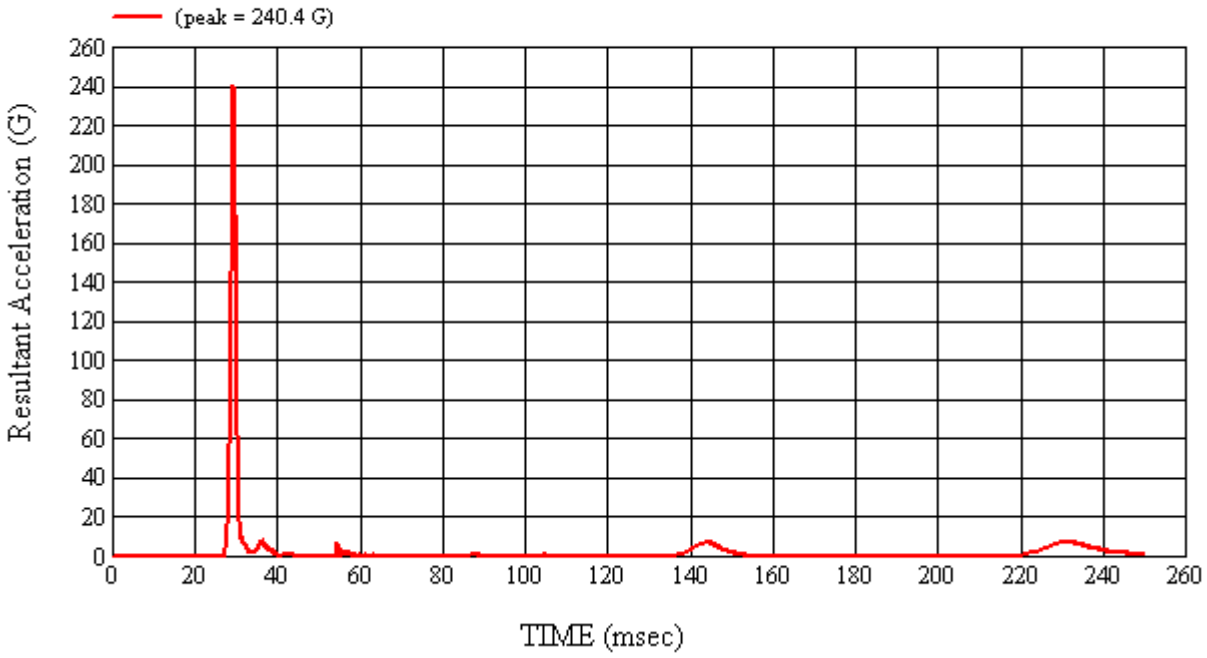
HEADFORM SERIAL NUMBER:035	CALIBRATION DATE: 04/09/09 CALIBRATION TIME: 4:19:00 PM	
TEST PARAMETER	**SPECIFICATION**	**TEST RESULTS**
Weight	9.90 to 10.10 lbs.	9.9
Temperature	19° C to 26° C	21.1
Relative Humidity	10% to 70%	25.6
Peak Resultant Acceleration	225 G's to 275 G's	240.4
Peak Lateral Acceleration	15 G's Maximum	2.8
Unimodal Acceleration Curve	YES	YES

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	**Manufacturer**	**Model Number**	**Serial Number**	**Date of Last Calibration**	**Date of Next Calibration**
1	ENDEVCO	7264-2000	J35919	03/02/09	09/02/09
2	ENDEVCO	7264-2000	J22664	03/02/09	09/02/09
3	ENDEVCO	7264-2000	J35924	03/02/09	09/02/09

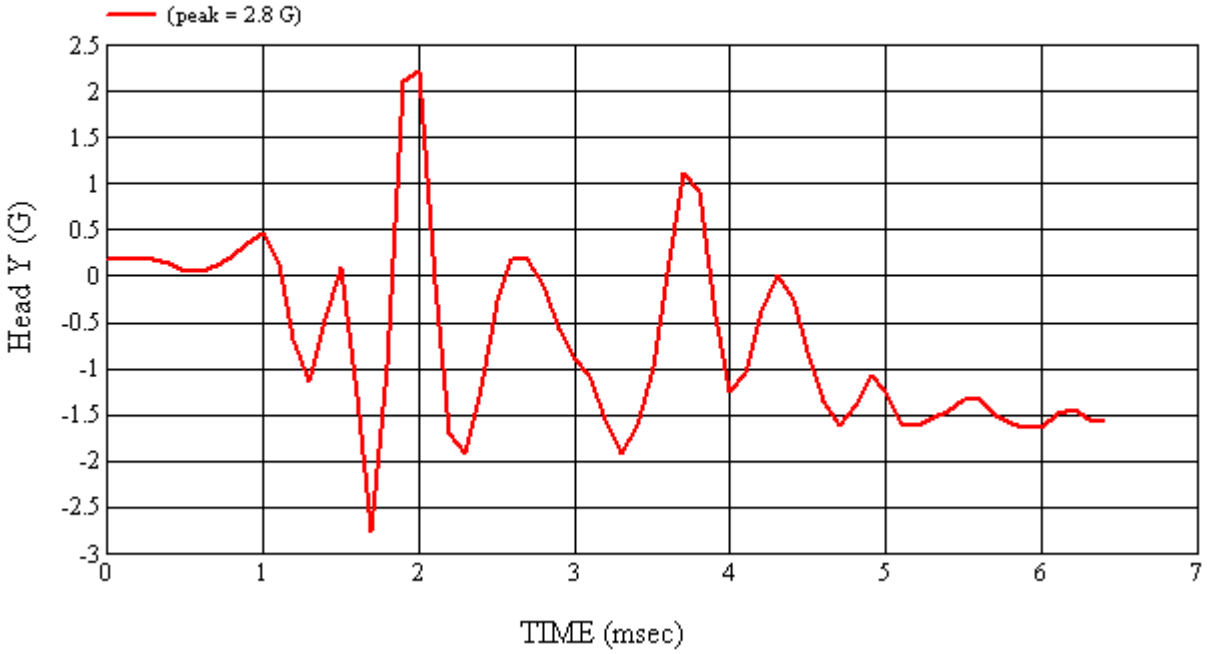
REMARKS:

RECORDED BY: _____ DATE: April 9, 2009

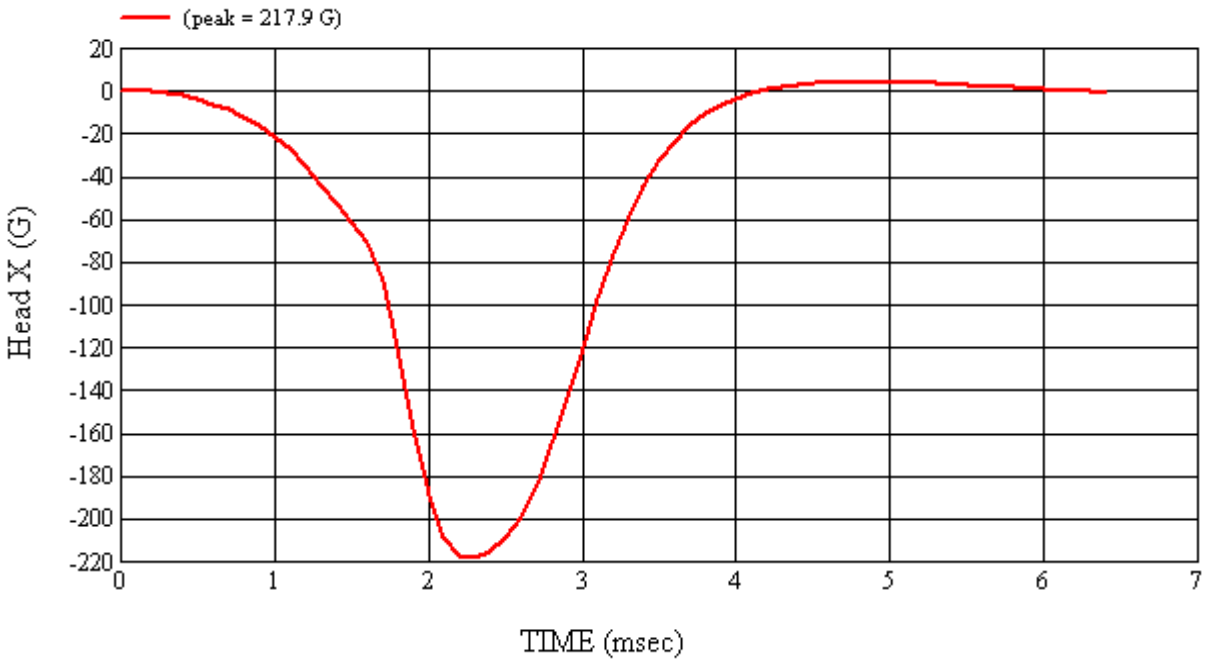
APPROVED BY: Helen A. Kaleto



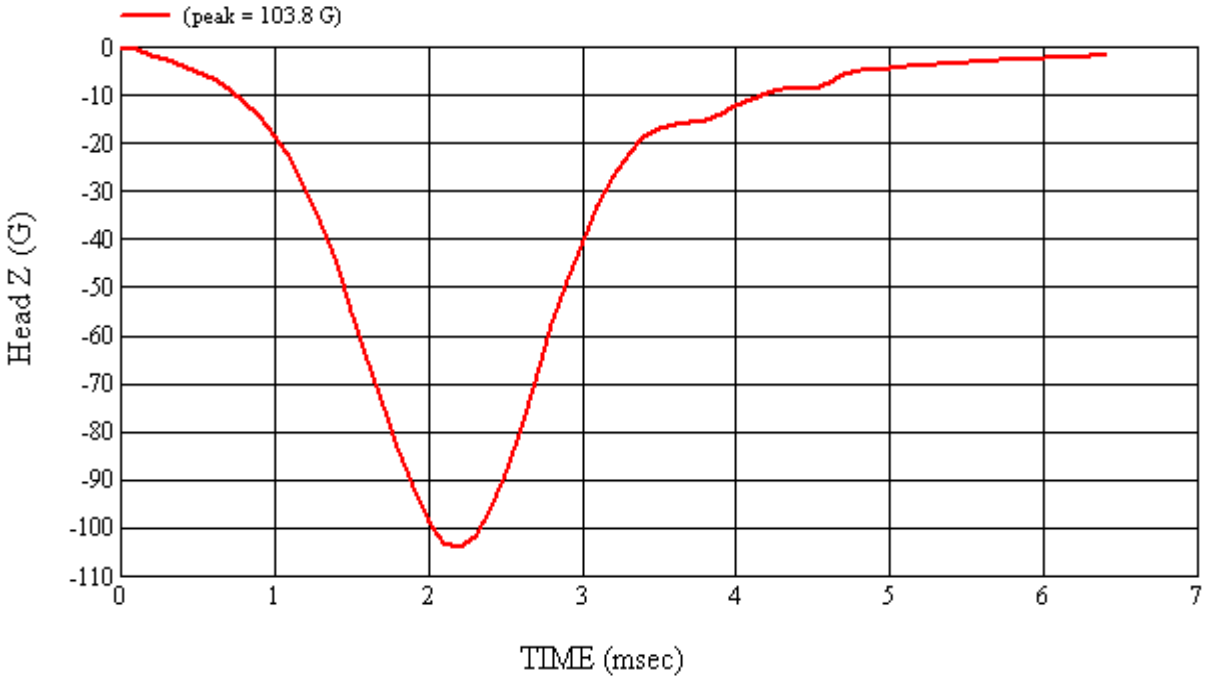
Head 035 (Pre) Calibration #H35007



Head 035 (Pre) Calibration #H35007



Head 035 (Pre) Calibration #H35007



Head 035 (Pre) Calibration #H35007

4-2 Post-Test Calibration

HEAD DROP TEST SUMMARY
PART 572L

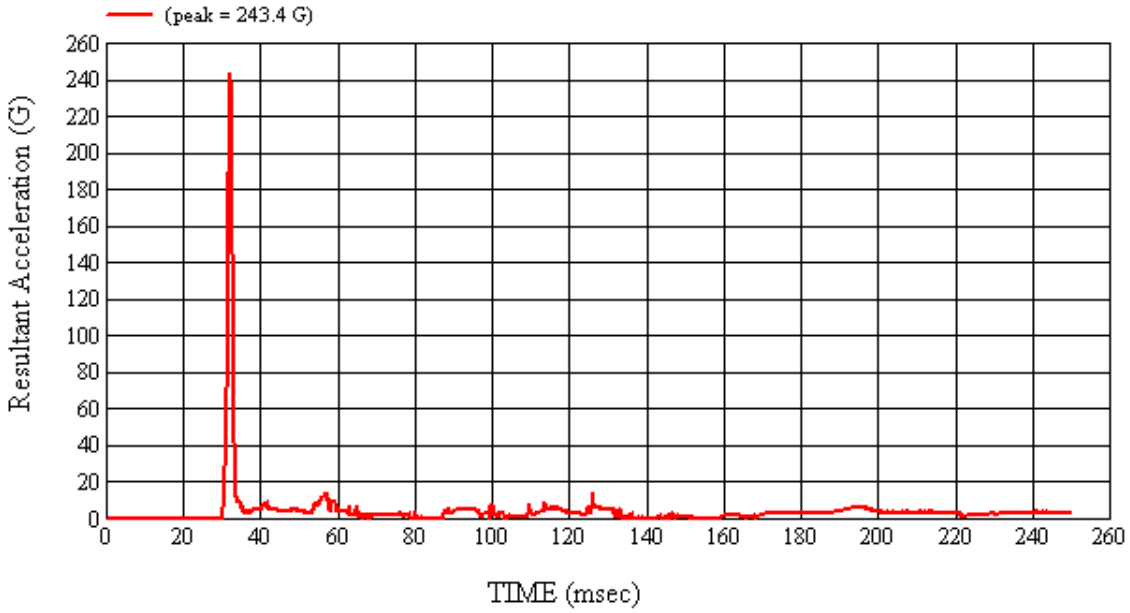
HEADFORM SERIAL NUMBER: 035	CALIBRATION DATE: 4/16/2009 CALIBRATION TIME: 11:12:06 AM	
TEST PARAMETER	**SPECIFICATION**	**TEST RESULTS**
Weight	9.90 to 10.10 lbs.	9.9
Temperature	19° C to 26° C	21.2
Relative Humidity	10% to 70%	29.0
Peak Resultant Acceleration	225 G's to 275 G's	243.4
Peak Lateral Acceleration	15 G's Maximum	7.0
Unimodal Acceleration Curve	YES	YES

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	**Manufacturer**	**Model Number**	**Serial Number**	**Date of Last Calibration**	**Date of Next Calibration**
1	ENDEVCO	7264-2000	J35919	03/02/09	09/02/09
2	ENDEVCO	7264-2000	J22664	03/02/09	09/02/09
3	ENDEVCO	7264-2000	J35924	03/02/09	09/02/09

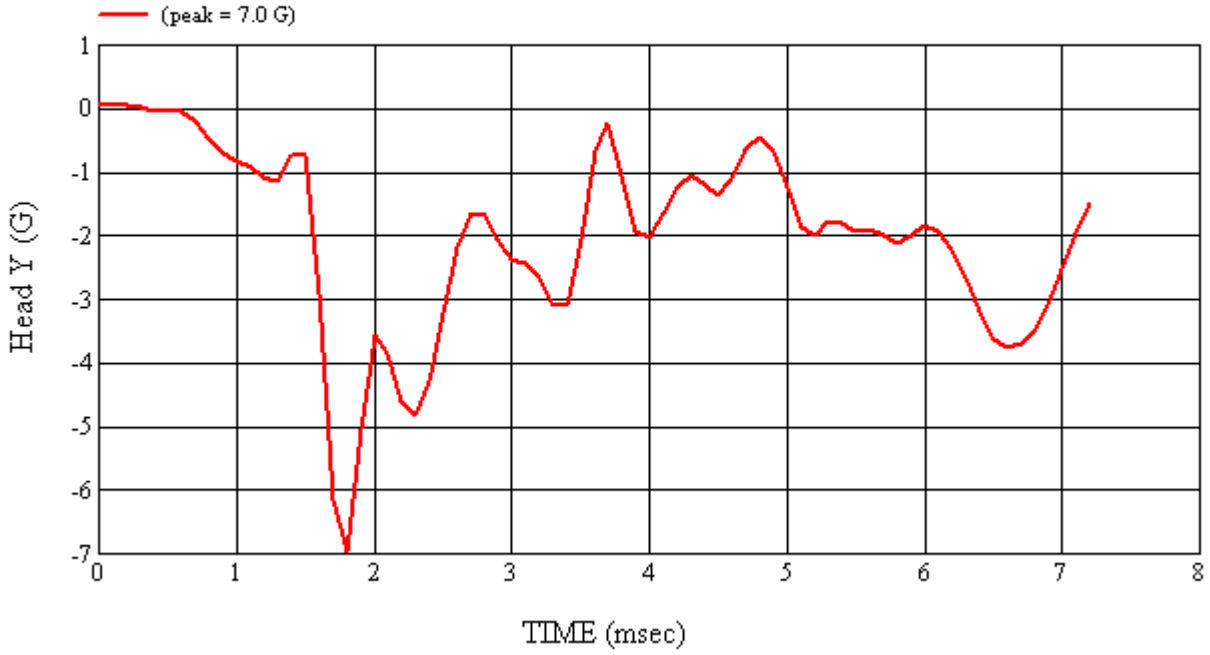
REMARKS:

RECORDED BY: _____ DATE: April 16, 2009

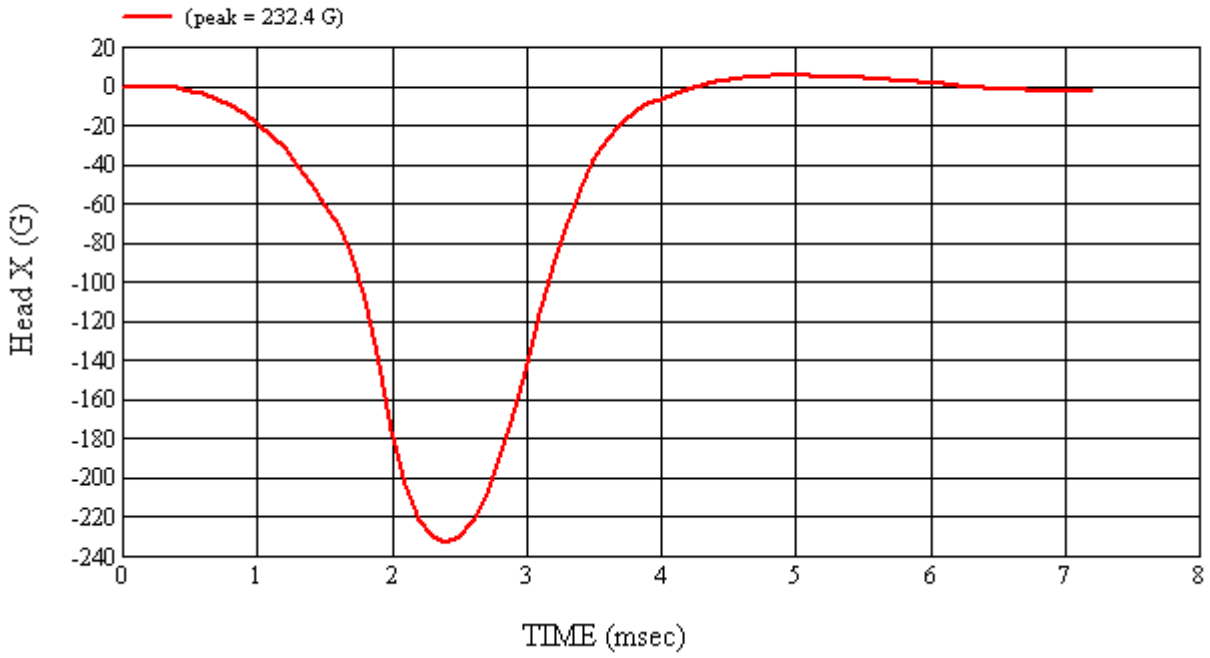
APPROVED BY: Helen A. Kaleto



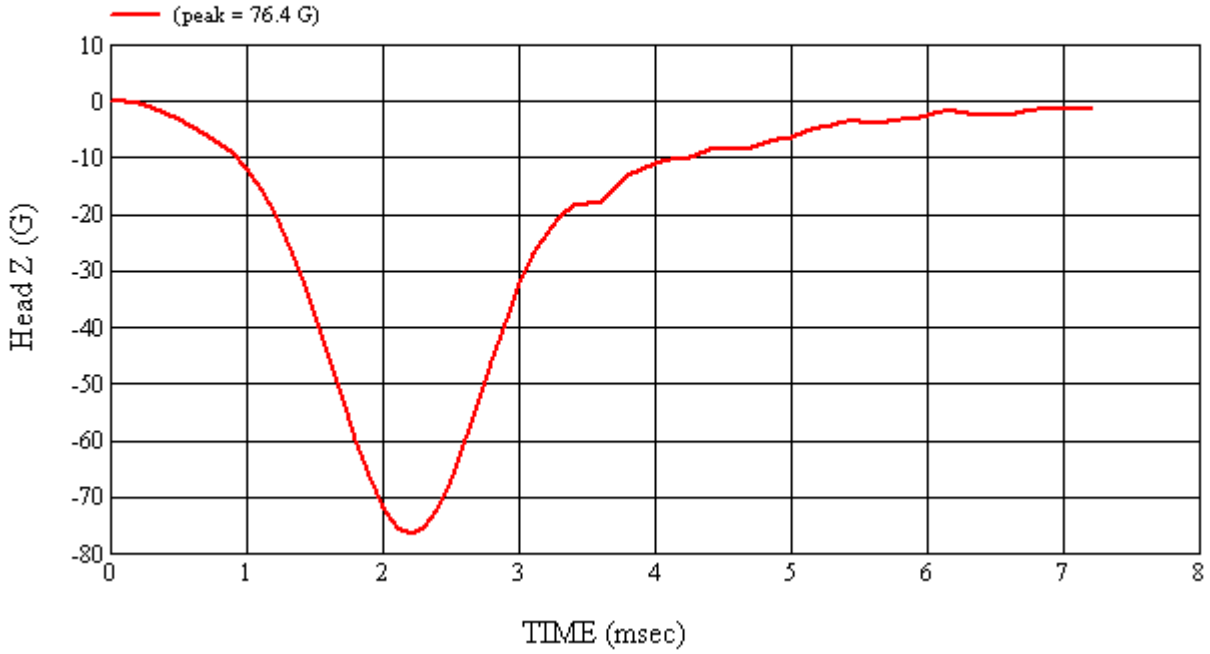
Head 035 (Post) Calibration #H35007



Head 035 (Post) Calibration #H35007



Head 035 (Post) Calibration #H35007



Head 035 (Post) Calibration #H35007

4-3 Pre-Test Calibration

HEAD DROP TEST SUMMARY
PART 572L

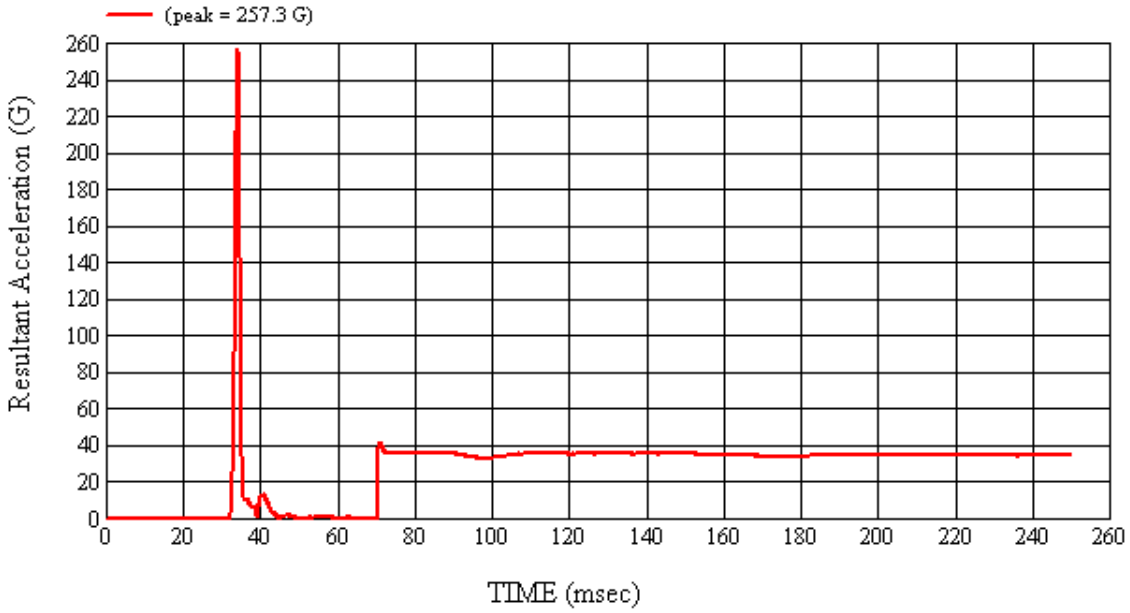
HEADFORM SERIAL NUMBER:037	CALIBRATION DATE: 04/09/09 CALIBRATION TIME: 3:59:00 PM	
TEST PARAMETER	**SPECIFICATION**	**TEST RESULTS**
Weight	9.90 to 10.10 lbs.	9.96
Temperature	19° C to 26° C	21.1
Relative Humidity	10% to 70%	25.6
Peak Resultant Acceleration	225 G's to 275 G's	257.3
Peak Lateral Acceleration	15 G's Maximum	6.0
Unimodal Acceleration Curve	YES	YES

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	**Manufacturer**	**Model Number**	**Serial Number**	**Date of Last Calibration**	**Date of Next Calibration**
1	ENDEVCO	7264-2000	AHTB2	03/02/09	09/02/09
2	ENDEVCO	7264-2000	J14103	03/02/09	09/02/09
3	ENDEVCO	7264-2000	J35800	03/02/09	09/02/09

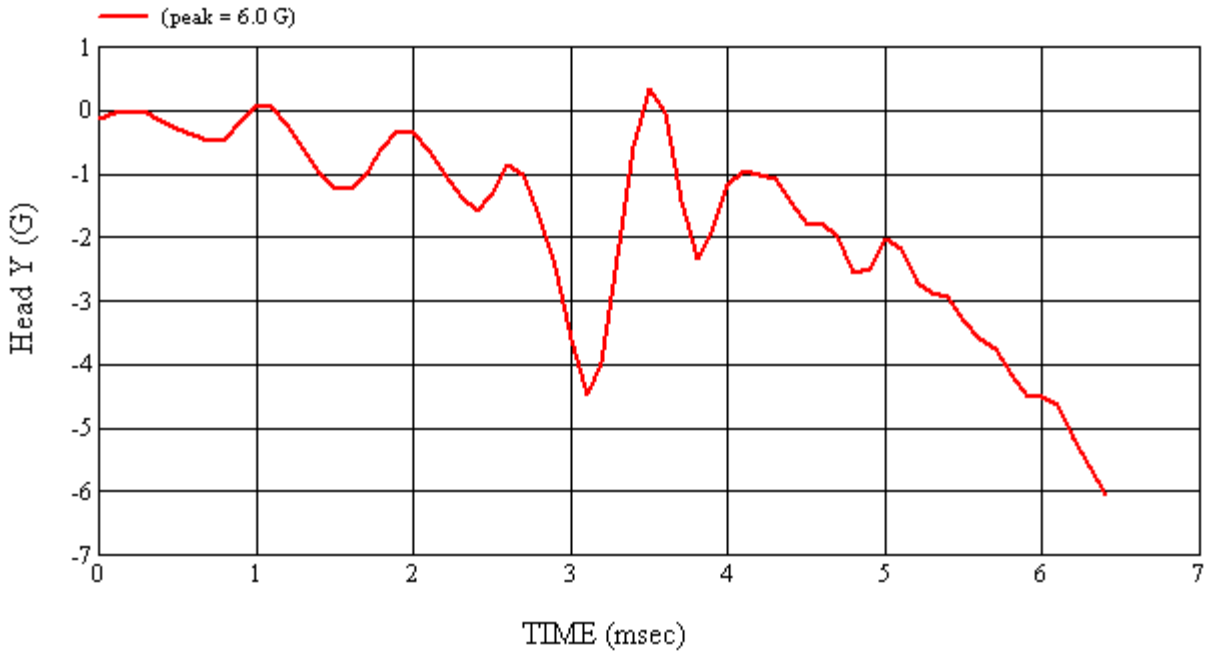
REMARKS:

RECORDED BY: _____ DATE: April 9, 2009

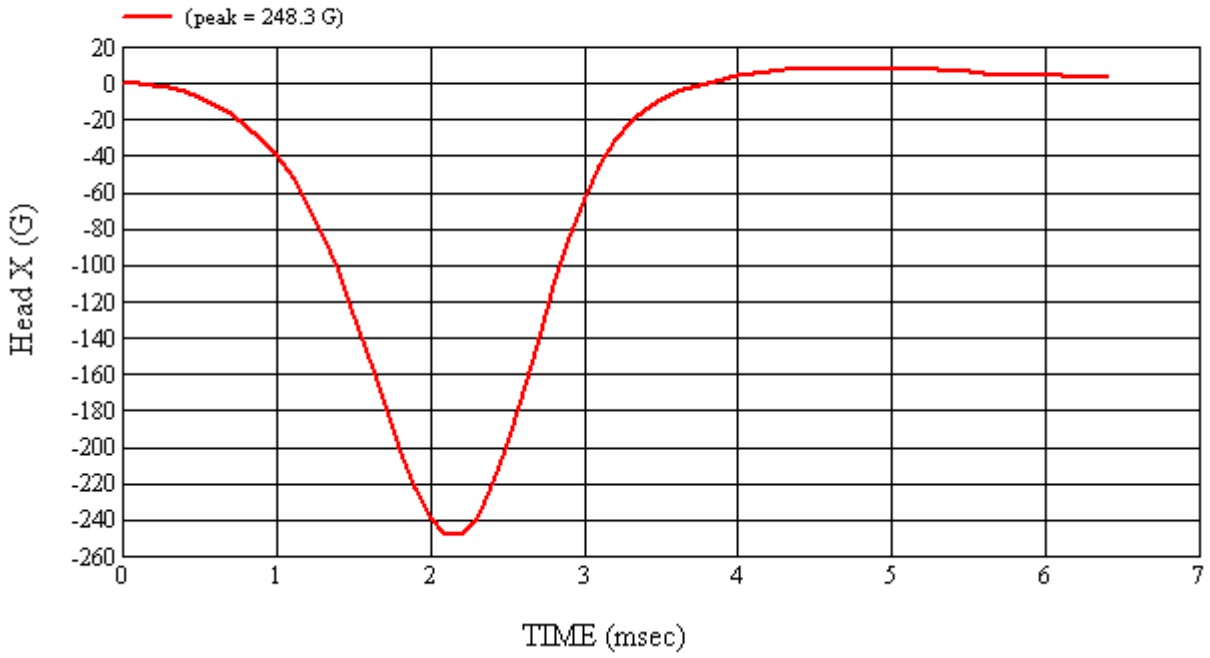
APPROVED BY: _____



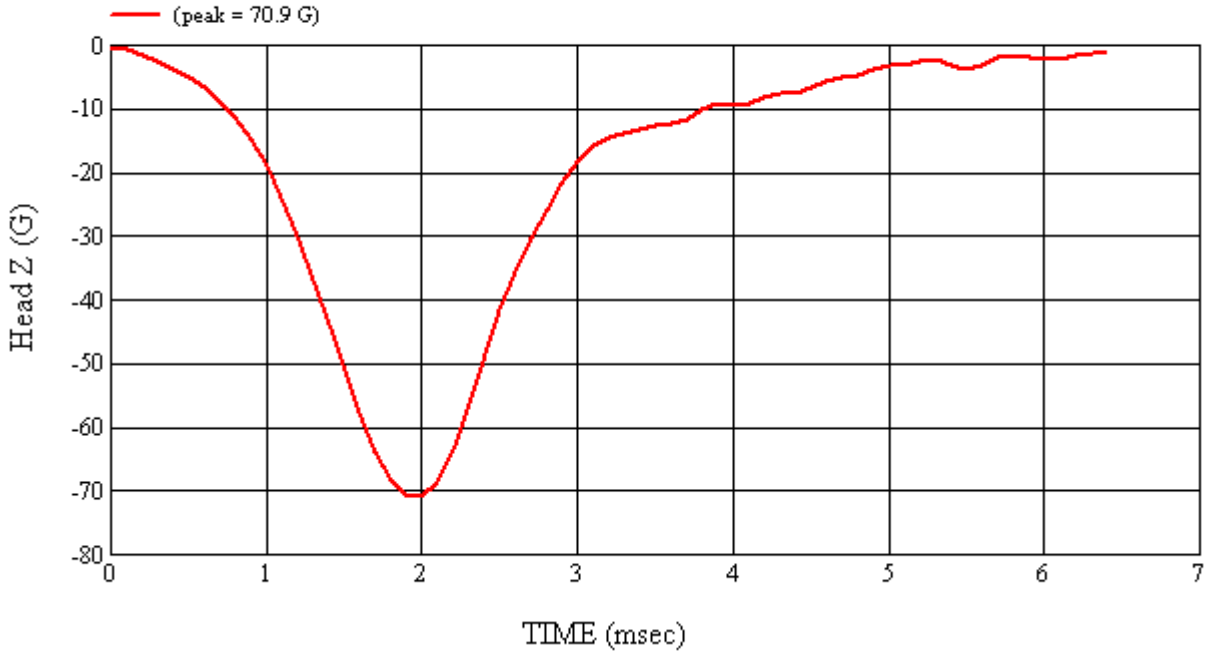
Head 037 (Pre) Calibration #H37005



Head 037 (Pre) Calibration #H37005



Head 037 (Pre) Calibration #H37005



Head 037 (Pre) Calibration #H37005

4-4 Post-Test Calibration

HEAD DROP TEST SUMMARY
PART 572L

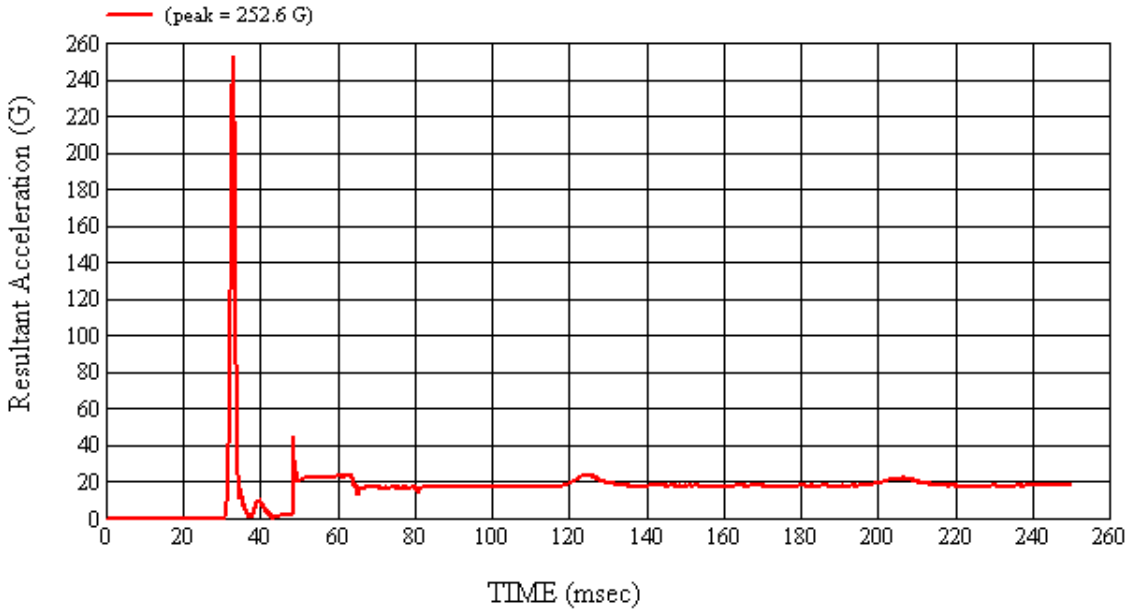
HEADFORM SERIAL NUMBER: 037	CALIBRATION DATE: 4/16/2009 CALIBRATION TIME: 2:40:00 PM	
TEST PARAMETER	**SPECIFICATION**	**TEST RESULTS**
Weight	9.90 to 10.10 lbs.	9.96
Temperature	19° C to 26° C	21.2
Relative Humidity	10% to 70%	29.0
Peak Resultant Acceleration	225 G's to 275 G's	252.6
Peak Lateral Acceleration	15 G's Maximum	7.0
Unimodal Acceleration Curve	YES	YES

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	**Manufacturer**	**Model Number**	**Serial Number**	**Date of Last Calibration**	**Date of Next Calibration**
1	ENDEVCO	7264-2000	AHTB2	03/02/09	09/02/09
2	ENDEVCO	7264-2000	J14103	03/02/09	09/02/09
3	ENDEVCO	7264-2000	J35800	03/02/09	09/02/09

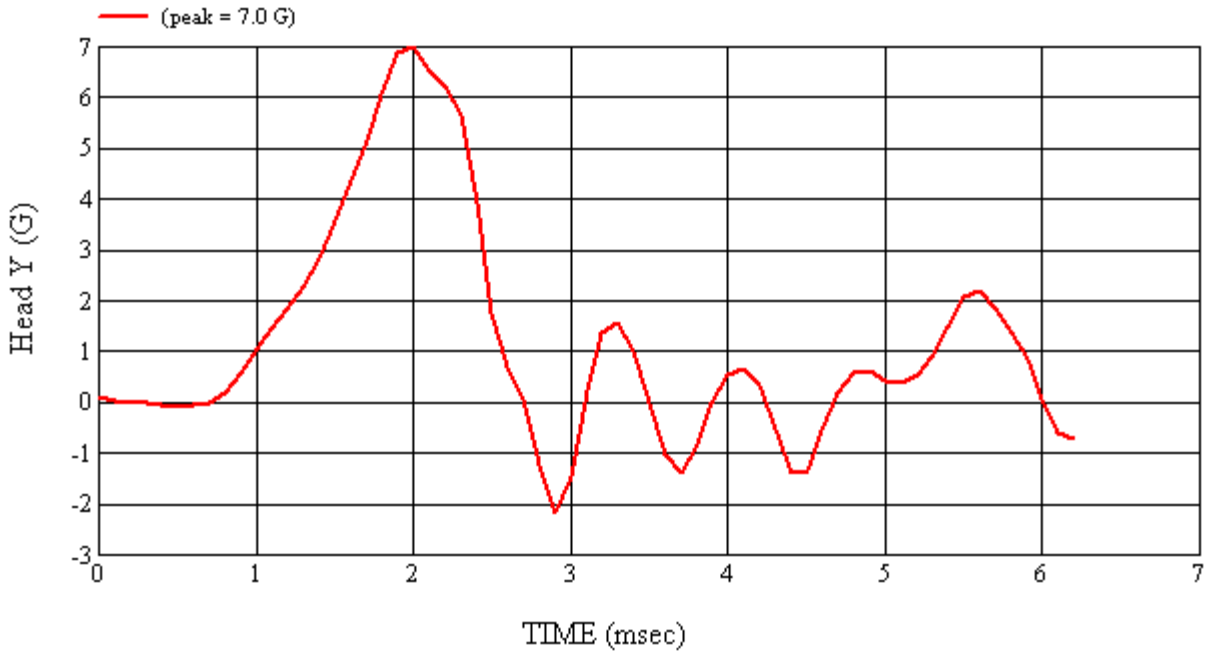
REMARKS:

RECORDED BY: _____ DATE: April 16, 2009

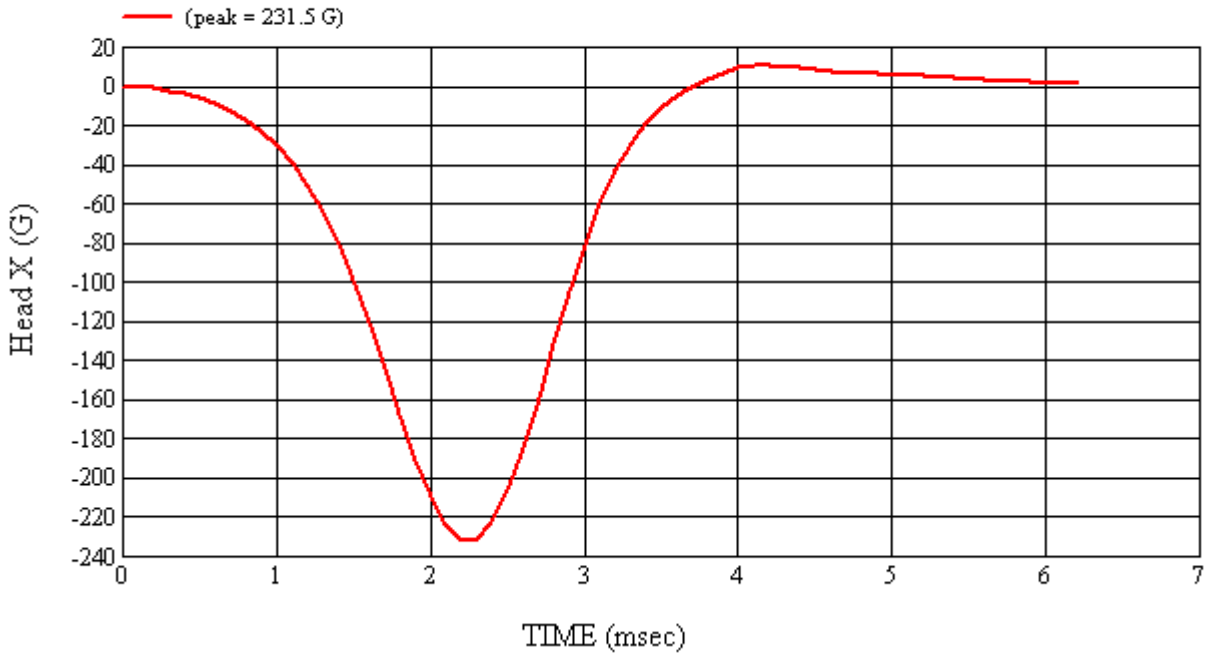
APPROVED BY: _____



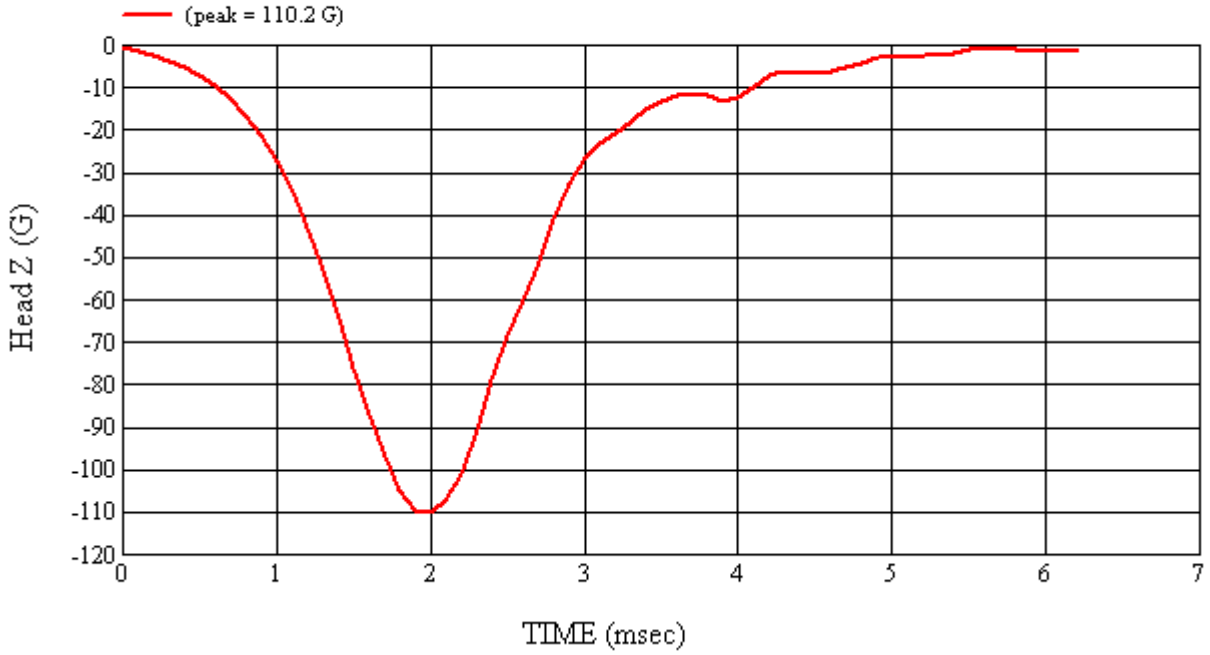
Head 037 (Post) Calibration #H37006



Head 037 (Post) Calibration #H37006



Head 037 (Post) Calibration #H37006



Head 037 (Post) Calibration #H37006

4-5 Pre-Test Calibration

HEAD DROP TEST SUMMARY
PART 572L

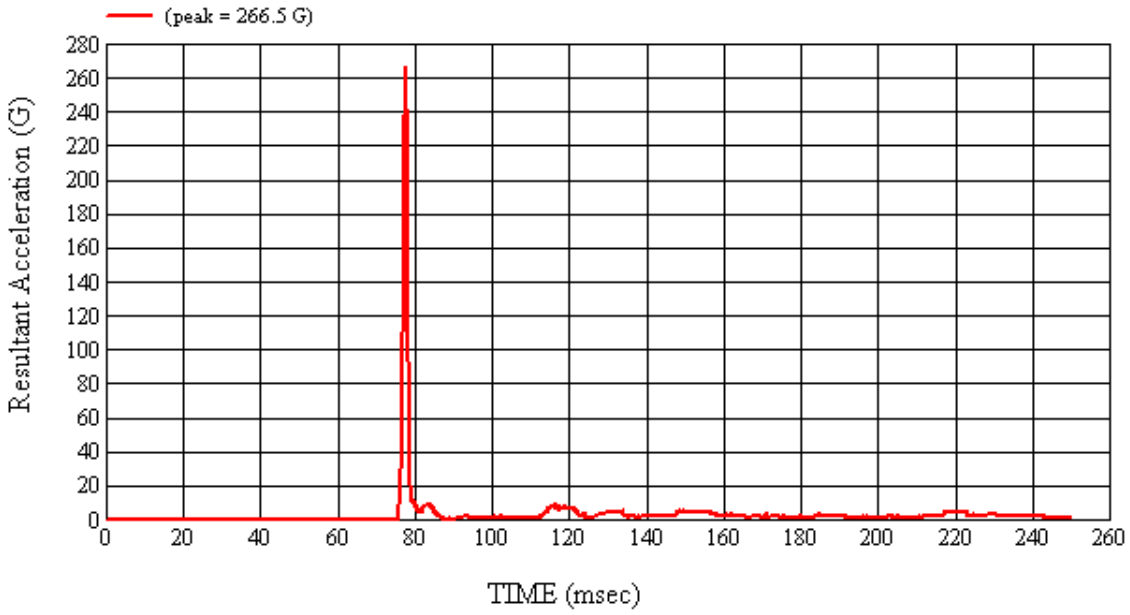
HEADFORM SERIAL NUMBER: 038	CALIBRATION DATE: 4/13/2009 CALIBRATION TIME: 9:09:58 AM	
TEST PARAMETER	**SPECIFICATION**	**TEST RESULTS**
Weight	9.90 to 10.10 lbs.	9.9
Temperature	19° C to 26° C	21.1
Relative Humidity	10% to 70%	25.6
Peak Resultant Acceleration	225 G's to 275 G's	266.5
Peak Lateral Acceleration	15 G's Maximum	13.0
Unimodal Acceleration Curve	YES	YES

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	**Manufacturer**	**Model Number**	**Serial Number**	**Date of Last Calibration**	**Date of Next Calibration**
1	ENDEVCO	7264-2000	J22700	03/02/09	09/02/09
2	ENDEVCO	7264-2000	J36197	03/02/09	09/02/09
3	ENDEVCO	7264-2000	J36353	03/02/09	09/02/09

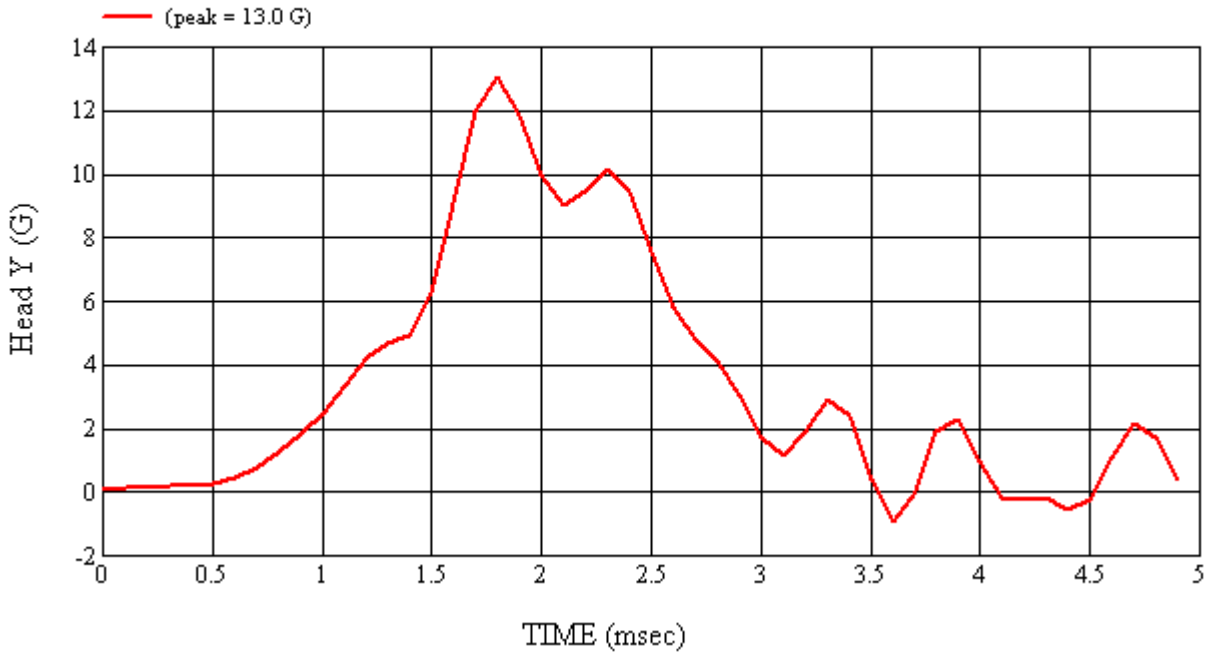
REMARKS:

RECORDED BY: _____ DATE: April 13, 2009

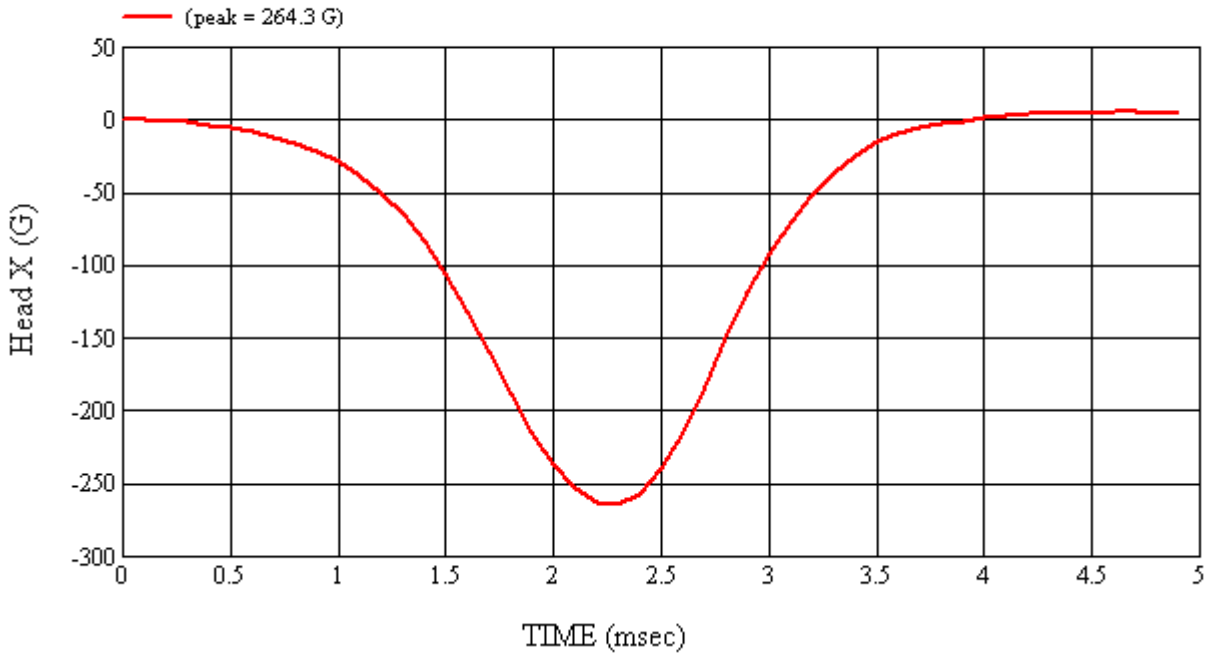
APPROVED BY: Helen A. Kalesto



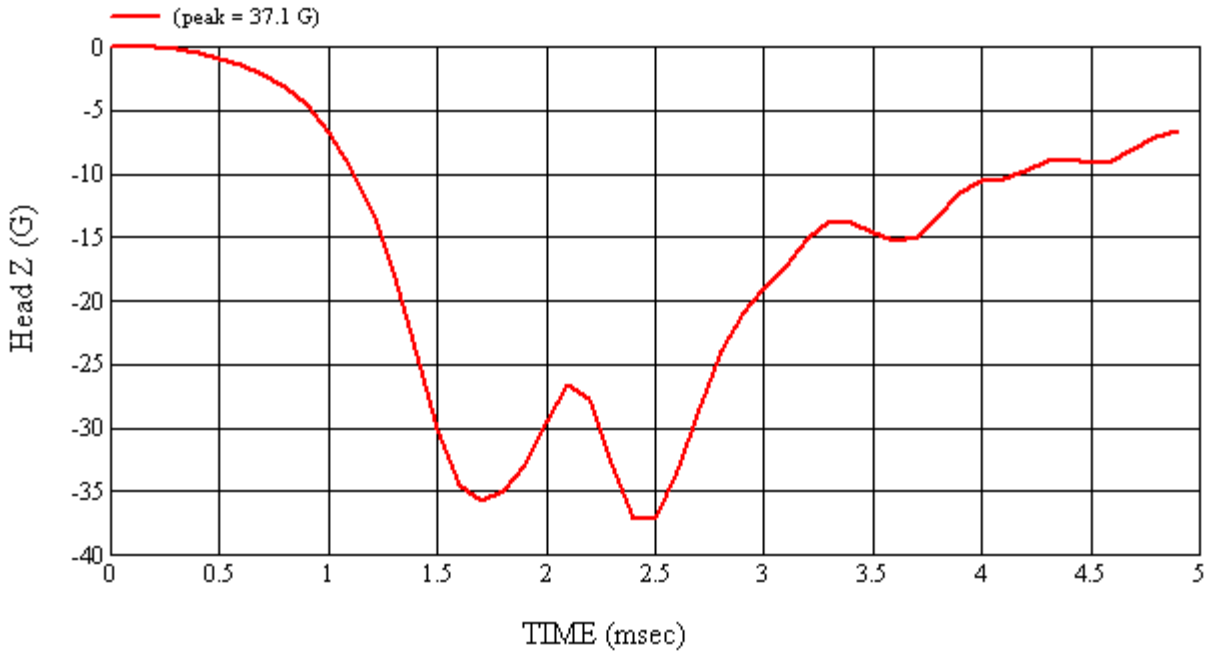
Head 038 (Pre) Calibration #H38007



Head 038 (Pre) Calibration #H38007



Head 038 (Pre) Calibration #H38007



Head 038 (Pre) Calibration #H38007

4-6 Post-Test Calibration

HEAD DROP TEST SUMMARY
PART 572L

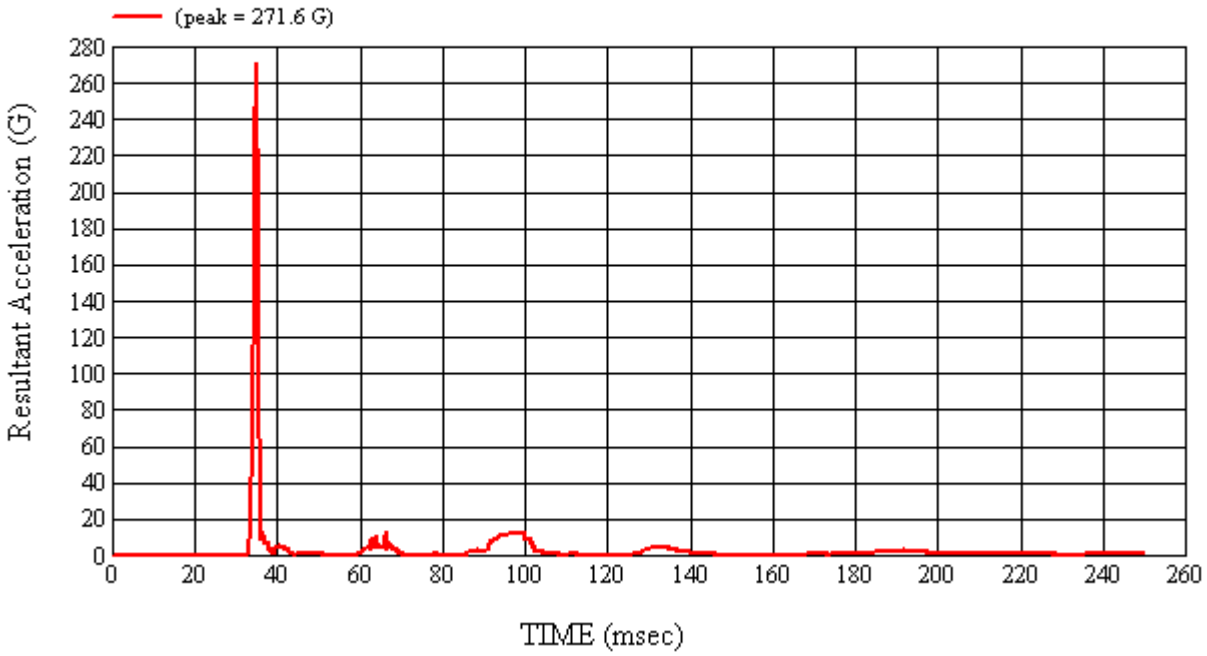
HEADFORM SERIAL NUMBER: 038	CALIBRATION DATE: 4/17/2009 CALIBRATION TIME: 2:50:50 PM	
TEST PARAMETER	**SPECIFICATION**	**TEST RESULTS**
Weight	9.90 to 10.10 lbs.	9.9
Temperature	19° C to 26° C	21.2
Relative Humidity	10% to 70%	30.6
Peak Resultant Acceleration	225 G's to 275 G's	271.6
Peak Lateral Acceleration	15 G's Maximum	3.9
Unimodal Acceleration Curve	YES	YES

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	**Manufacturer**	**Model Number**	**Serial Number**	**Date of Last Calibration**	**Date of Next Calibration**
1	ENDEVCO	7264-2000	J22700	03/02/09	09/02/09
2	ENDEVCO	7264-2000	J36197	03/02/09	09/02/09
3	ENDEVCO	7264-2000	J36353	03/02/09	09/02/09

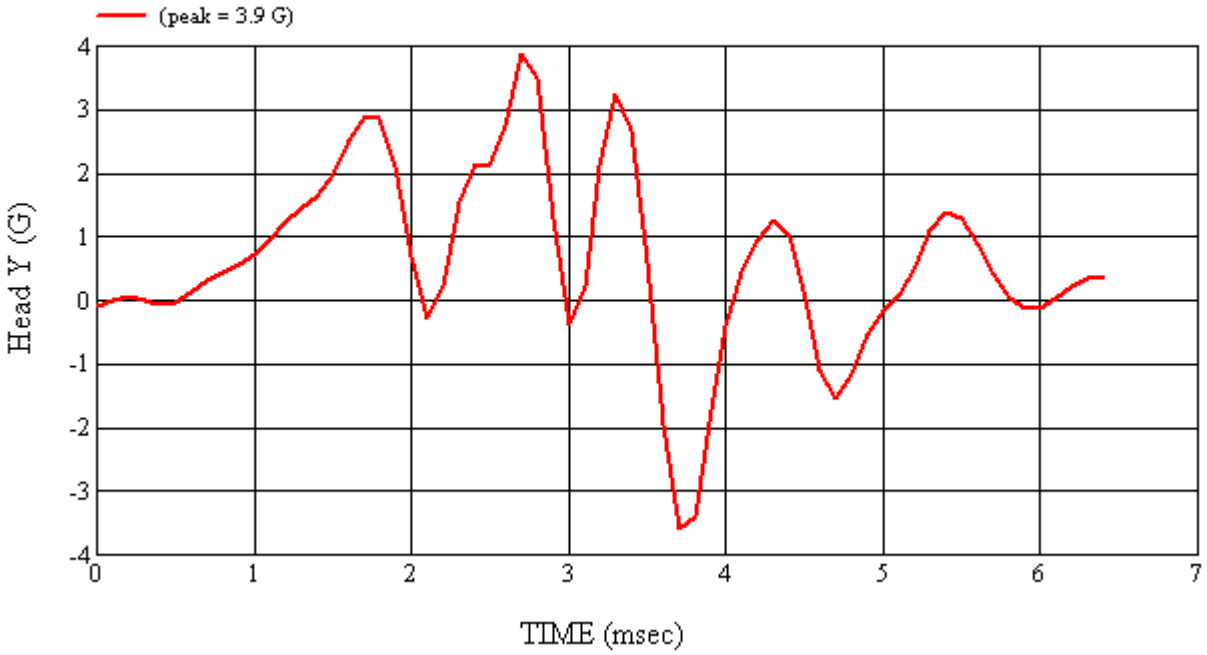
REMARKS:

RECORDED BY: _____ DATE: April 17, 2009

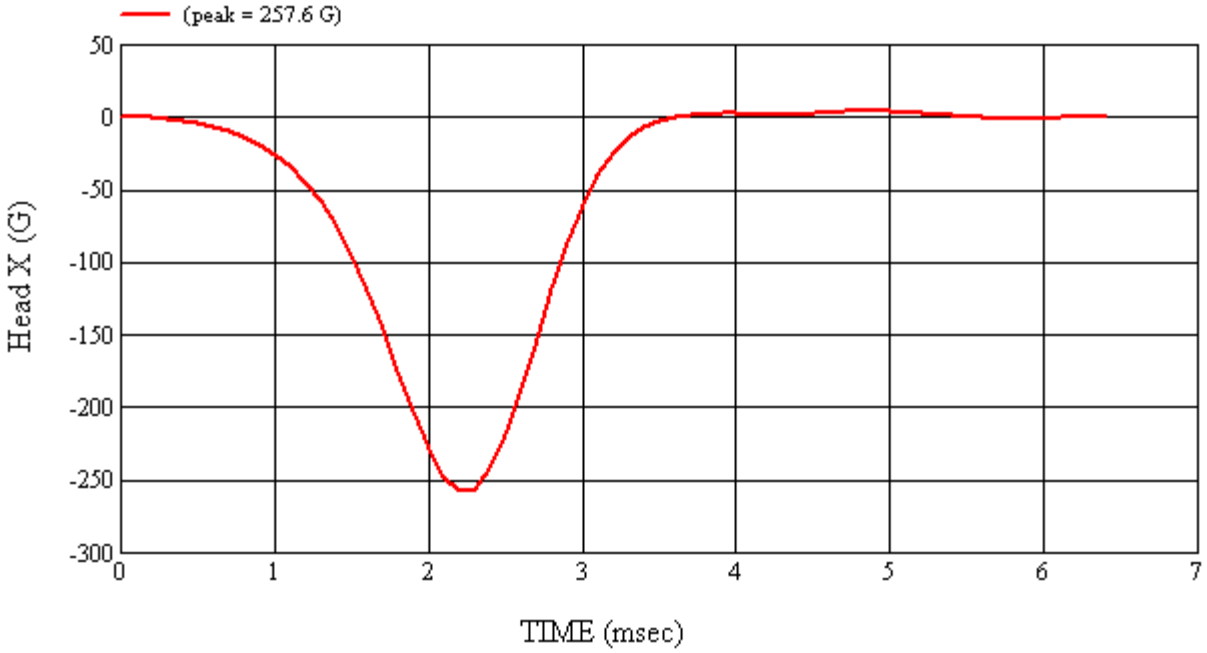
APPROVED BY: Helen A. Kalesto



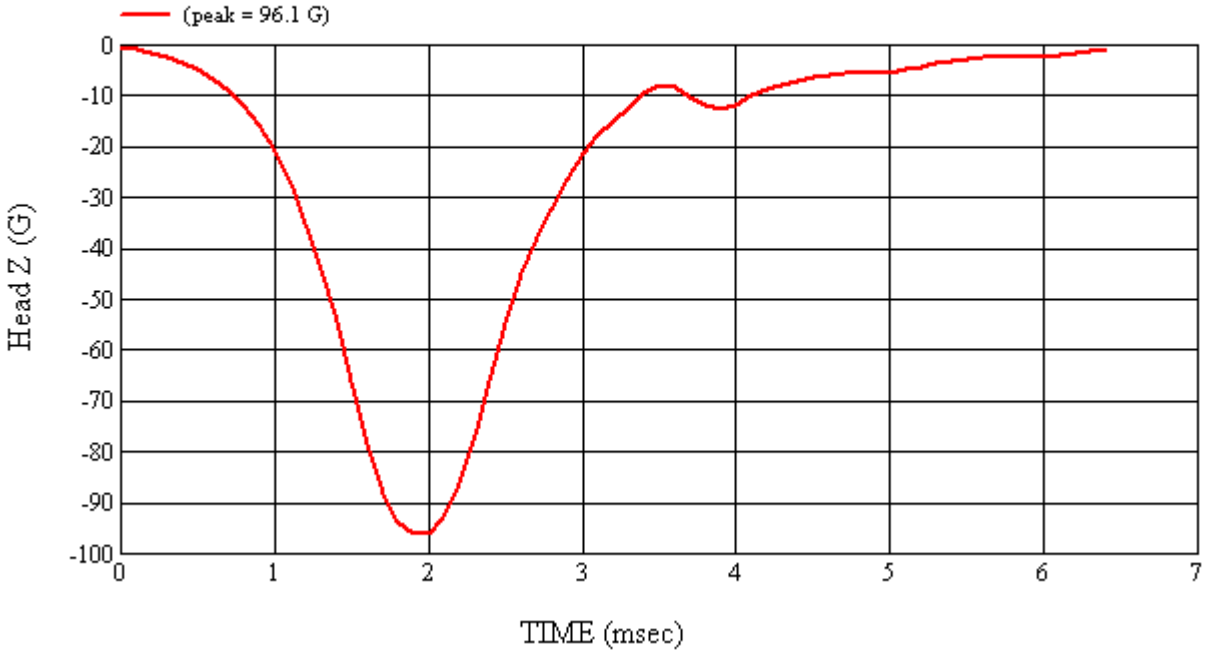
Head 038 (Post) Calibration #H38007



Head 038 (Post) Calibration #H38007



Head 038 (Post) Calibration #H38007



Head 038 (Post) Calibration #H38007

5.0 PHOTOGRAPHS

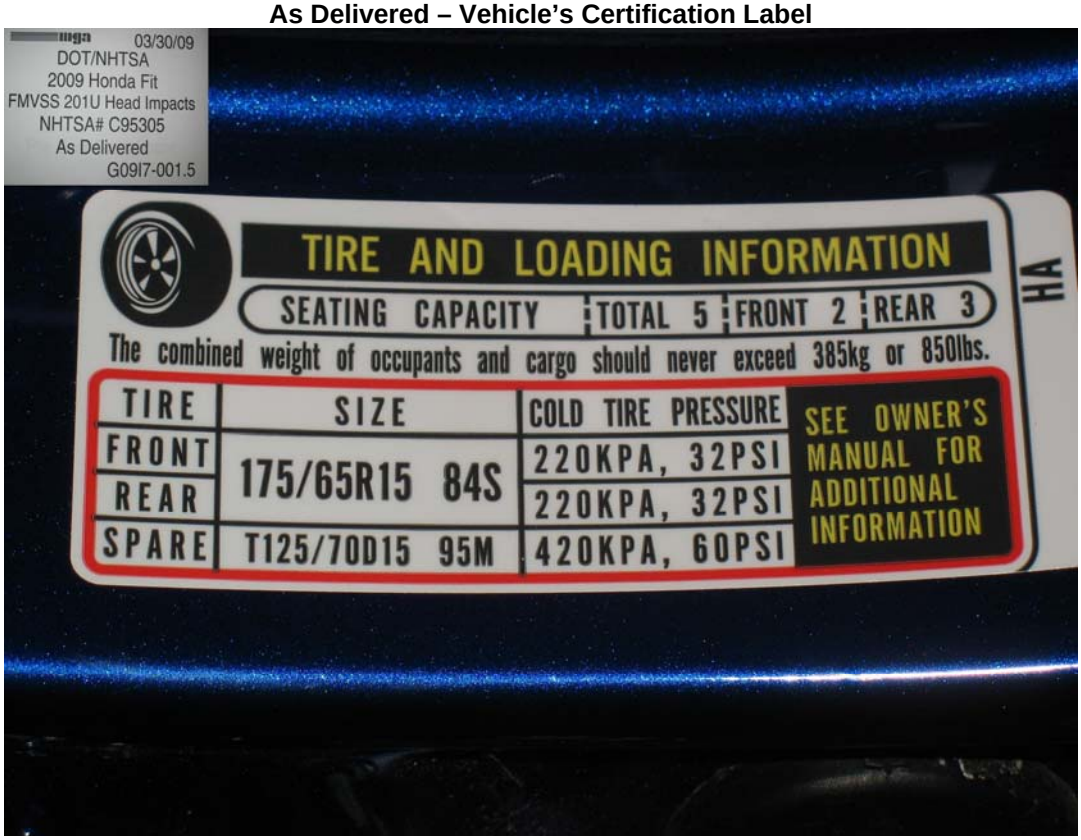
As Delivered – Left Side View

As Delivered – Right Side View

As Delivered – ¾ Front View From Left Side

As Delivered – ¾ Rear View From Right Side

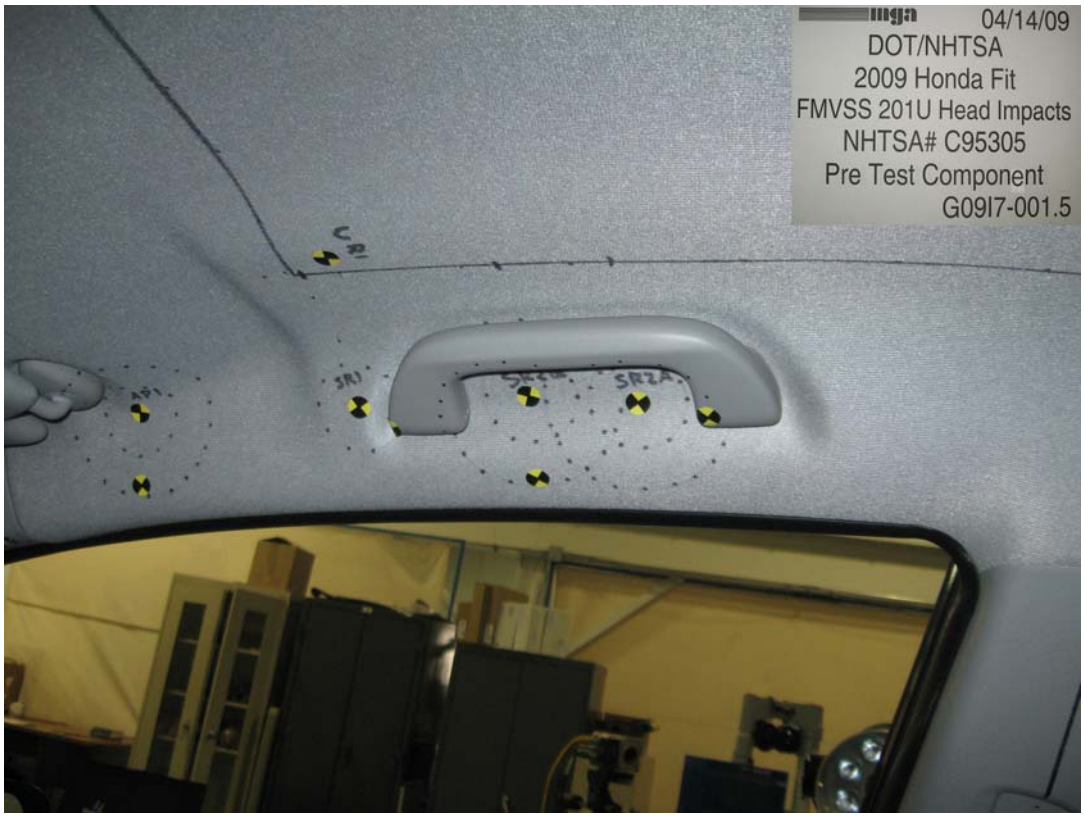
As Delivered – Vehicle's Certification Label



As Delivered – Vehicle's Tire Information Label

Pre-Test Component Photographs


WARNING
mga
04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5


mga
04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5


mga
04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5


SR3-1
SR3-2
mga
04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5


URL
OP1
RP1
RP2
OP2
mga
04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5


BP1
RP2
RP3
RP4
mga
04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5


04/14/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Pre Test Component
G09I7-001.5

Post-Test Component Photographs


WARNING
mga
04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5


mga
04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5


SRS-1
SRS-2
OP1
OP2
RP1
RP2
mga
04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5


RP1
RP2
mga
04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5

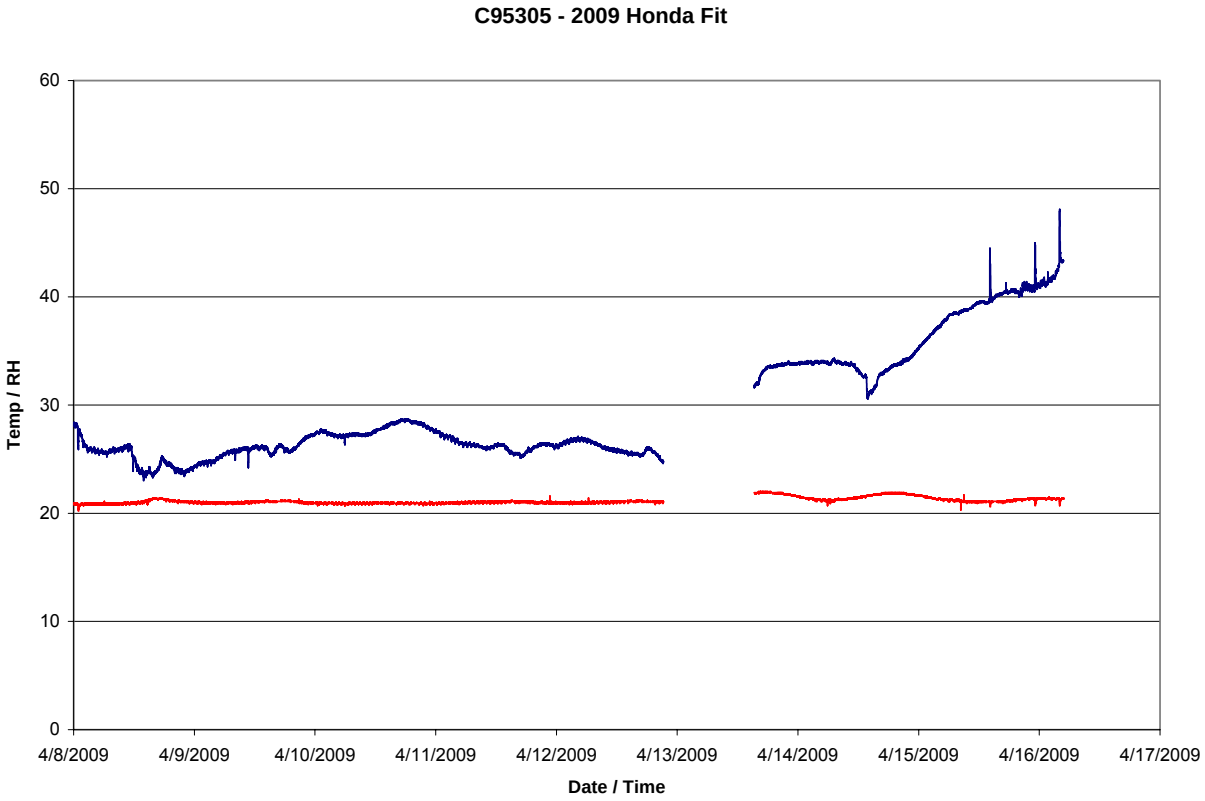

URL
RP1
RP2
mga 04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5


URL
OP1
RP2
mga 04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5


BP1
BP2
BP3
mga
04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5


AIRBAG WARNING
mga
04/16/09
DOT/NHTSA
2009 Honda Fit
FMVSS 201U Head Impacts
NHTSA# C95305
Post Test Component
G09I7-001.5

Appendix A – Temperature Trace



Appendix B – Calibration Certificates

Calibration Certificate

Part Description: Silver
Certification Date: 08/26/08
Serial#: S08-05-98-01273
Single Point (Max-Min/2) Specification: S08-05 .076mm (.0030")
Certificate#: S0127339686
Volumetric (Max Deviation) Specification: S08-05 +/-.108mm (+/-.0042")
Temperature: See attached data

Measurement Standards Traceability

Ball Bar Kit	Asset Number: 543	Calibration Date: 07/08/08	*SI Traceability: METAS-L20080708AB1
Thermometer	Asset Number: TQ023	Calibration Date: 02/19/08	*SI Traceability: NVLAP-A7C20031

*The artifact above has been calibrated with a device traceable to the International System of Units (SI) through a National Metrological Institute (NMI) or through an ISO17025 Accredited Laboratory. Expanded measurement uncertainty is 3.9 + 5.9X micrometers, where X=measured value in meters. Uncertainty is expressed at approximately a 95% Level of Confidence using k=2.00.

Certification Results

3 Single Point Articulation Tests at <=20%, 20%-80% and >=80% range.	PASSED
1 Effective diameter sphere test.	PASSED
20 Volumetric ball bar tests in 4 quadrants and 2 orientations.	PASSED

Calibration and certification conforms to procedures developed in accordance with ASME B89.4.22-2004.

Instrument condition as received:
Inoperative

Instrument condition outgoing:
Within specifications

Technician: [signature] Arnold Torres Date: 8/26/08

FARO Technologies, Inc.
PH1:1-800-736-2771
PH2:407-333-9911
FAX:407-333-8056
L-A-B Cert Number: L1147

125 Technology Park
Lake Mary, FL 32746
USA

@ 9/2/08

FARO®

Page 1 of 6

LABORATORY ACCREDITATION BUREAU
ISO/IEC 17025 Accredited

Revised: March 15, 2008

f:\control\records\05manufa\partspec\XH08-0495 ens Rev1 RevDate: 12/08/04

MICHIGAN OPERATIONS
DATE: 2/7/04
SUPERCEDES: MGATPTMC.5

DOC. NO.: MGATPTMC
REVISION NO.: 6
PAGE 3 OF 3

Tape Measure Calibration Certificate

Reference Steel Rule
Brand: SWANSON
S/N: MGA 00798
Calibration Date: 1/15/09

Subject Tape Measure
Brand: TPM 906 Stanley
S/N: TPM 906
Calibration Date: 1/23/09

Reference (in) (mm)	Subject Tape Measure	Difference	Reference (in) (mm)	Subject Tape Measure	Difference
0 (0)	0	0	18 (450)	18	0
1 (25)	1	0	19 (475)	19	0
2 (50)	2	0	20 (500)	20	0
3 (75)	3	0	21 (525)	21	0
4 (100)	4	0	22 (550)	22	0
5 (125)	5	0	23 (575)	23	0
6 (150)	6	0	24 (600)	24	0
7 (175)	7	0	25 (625)	25	0
8 (200)	8	0	26 (650)	26	0
9 (225)	9	0	27 (675)	27	0
10 (250)	10	0	28 (700)	28	0
11 (275)	11	0	29 (725)	29	0
12 (300)	12	0	30 (750)	30	0
13 (325)	13	0	31 (775)	31	0
14 (350)	14	0	32 (800)	32	0
15 (375)	15	0	33 (825)	33	0
16 (400)	16	0	34 (850)	34	0
17 (425)	17	0	35 (875)	35	0

If all differences are ± 1/32 of an inch (1 mm), then the tape measure is acceptable.
Pass X Fail ____ Maximum Difference = 0

Date: 1/23/2009 Performed By: [signature]

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is ± 0.2%. All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor k=2.

MetroCal inc.

ACCREDITED #0513.01

4700 Barden Court SE, Kentwood MI 49512, Telephone: 616-698-3124, Fax: 616-698-2364, www.metrocal.com

Certificate of Calibration

MGA Research
446 Executive Drive
Troy, MI 48083

Order Number: **60596**
Certificate Number: **080730205**
Page: **1 of 1**

Gauge Number: **MGA00725**
Gauge Desc: **Digital Protractor**
Manufacturer: **N/A**
Model Number: **N/A**
Serial Number: **N/A**

Customer PO: **A070805**
Last Calibration: **4/4/07**
Calibration Date: **7/30/08**
Next Calibration: **7/30/09**

As Found Condition: **In Tolerance**

As Left Condition: **In Tolerance**

MetroCal, Inc maintains reference standards of measurement which are traceable to the National Institute of Standards and Technology, or other authorized National Standards. Calibration was performed in accordance with MetroCal Procedure CP045 and complies with the ANSI/NCSL Z540-1 and ISO/IEC 17025 Standards. Results shall not be reproduced, except in full, without the written approval of MetroCal, Inc. Results relate only to the item(s) calibrated. Any number of factors may cause the calibration item to drift out of calibration before the recommended interval has expired. Statements of compliance made using simple acceptance rule.

Standard Used	Cal Date	Due Date	Traceable No.	Calibration Procedure Uncertainty Expressed at 95% confidence (K=2)
Gage Blk Set ID# 105	6/3/08	6/3/09	821/274921-07	0.0015°
DoAll Sine Bar ID#1879	12/31/07	12/31/08	Cert# 071231399	0.0015°

Results:

As Found Readings

Units	Nominal	Actual	Deviation
Decimal Deg.	5.00	5.0	0.00
	10.00	10.0	0.00
	20.00	20.0	0.00
Tolerance	30.00	30.0	0.00
± 0.1°	40.00	40.1	0.10

Reference Level Check: Within ± 0.1 degrees

As Left Readings

Nominal	Actual	Deviation
5.00	5.0	0.00
10.00	10.0	0.00
20.00	20.0	0.00
30.00	30.0	0.00
40.00	40.1	0.10

Reference Level Check: Within ± 0.1 degrees

Comments: Environmental conditions during calibration: 68 °F, 40% RH.

Bradley R Wood Issued: 7/31/08

Brad Wood/bjk
Calibration Technician

☐ Checked box indicate this calibration was performed at the customers facility.

Certificate of Calibration

Schober Calibration Service, Inc.
2550 Oakley Park Road, Suite #300
Walled Lake, MI 48390
Phone: (248) 926-6000 FAX: (248) 926-6006

ACCREDITED
CALIBRATION 1563.01

Certificate Number: 0001591:1212069510

CUSTOMER: MGA Research Corporation
446 Executive Drive
Troy MI 48083
Contact: Thomas Hutter

Calibration Location: **In House**

Equipment Calibrated

Manufacturer:	Dickson	Date Received:	05/08/2008
Description:	Temp/Humidity Recorder	Date Calibrated:	05/29/2008
Model Number:	FH125	Calibration Due Date:	05/29/2009
Serial Number:	06163263	Calibration Procedure:	CP0001
Asset Number:	MGA00152	Revision:	
Received Status:	Good	Performed By:	C. Atkinson

Condition as Received: In Tolerance
Condition as Returned: In Tolerance

Notes:

Ambient Calibration Conditions

Ambient Temperature: 21 °C Relative Humidity: 40 % RH Barometric Pressure: 988 mbar

Calibration Equipment Used

Asset Number:	Manufacturer:	Model:	Serial:	Cal Due:
RMS042	Fluke/Hart	1502A	A6C537	15 Feb 2009
RMS043	Hart Scientific	5614	778109	15 Feb 2009
RMS045	Vaisala	HMP76	C0630009	04 Jun 2008

The Uncertainty is estimated using expanded uncertainties and coverage factor (k) of 2, providing a confidence level of approximately 95%.
This calibration is traceable to the international system of units (SI) through standards calibrated by accredited laboratories, or through standards calibrated at NIST. This laboratory meets the requirements of ISO/IEC 17025-2005 and ANSI/NCSL Z540-1-1994. This certificate shall not be reproduced, except in full, without prior written approval by Schober Calibration Service.
Calibration interval determined by the customer. When determining the calibration interval, the customer should take into consideration that any number of factors may cause the calibration item to drift out of calibration before the calibration interval has expired.
The results herein apply only to the calibration of the item described above. No sampling plan was used for this calibration.

Approved By: _____ Quality Manager Date: 5/29/08
6/2/08

Calibration Data

MFG/MODEL: **Dickson / FH125**

Serial / ID #: **06163263 / MGA00152**

Location: **Schober Cal Lab (MGA Research)**

Date Calibrated: **05/29/08**

Certificate No.: **0001591:1212069510**

All calculations and data transfers have been reviewed for accuracy and completeness

Range	Nominal	Lower Limit	As Found	As Left	Upper Limit
Data Logger with Sensor System Tests					
Channel 1					
	20.9° C	19.1° C	20.5° C		22.7° C
	-0.4° C	-2.2° C	-0.6° C		1.4° C
Channel 2 (RH @ 21° C)					
	41.0 %rh	39.0 %rh	40.5 %rh		43.0 %rh
	98.8 %rh	96.8 %rh	98.8 %rh		100.8 %rh

Calibration Performed By: C. Atkinson

Temperature Measurement Uncertainty Utemp = 0.46°C Uhumidity = 1.6 %RH

MetroCal inc.
Cert#0513.01
4700 Barden Court SE, Kentwood MI 49512, Telephone: 616-698-3124, Fax: 616-698-2364, www.metrocal.com

Certificate of Calibration

MGA Research
446 Executive Drive
Troy, MI 48083

Order Number: **60394**
Certificate Number: **080711801**
Page: **1 of 1**

Gauge Number: **MGA00081**
Gauge Desc: **0 to 20lb x 0.01lb Digital Scale**
Manufacturer: **Detecto**
Model Number: **AP-20**
Serial Number: **E33603-0213**

Customer PO: **A070765**
Last Calibration: **7/9/07**
Calibration Date: **7/11/08**
Next Calibration: **7/11/09**

As Found Condition: **In Tolerance**

As Left Condition: **In Tolerance**

MetroCal Inc. maintains reference standards of measurement which traceable to the National Institute of Standards and Technology, or other authorized National Standards. Calibration was performed in accordance with MetroCal's Procedure No. CP-042 and the relevant sections of the manufacturers manual. This Calibration complies with the ISO/IEC 17025 and ANSI/NCSL Z540-1 Standards. Results shall not be reproduced except in full without the written approval of MetroCal Inc. Results relate only to the item(s) calibrated. Any number of factors may cause the calibration item to drift out of calibration before the recommended interval has expired. Statements of compliance made using simple acceptance rule.

Standard Used	Cal. Date	Due Date	Traceable No.	Calibration Procedure Uncertainty Expressed at 95% confidence , (K=2)
Weight Set ID# 2463	8/10/06	8/10/08	MI-04-06-8325	+/-0.001% of Load

Results:
Tolerance used: ± 0.02

Units: lbs **TI Division/Increment:** 0.01

	As Found				As Left		
Weight Test	**Nominal**	**Indication**	**Deviation**		**Nominal**	**Indication**	**Deviation**
0-25% fs	5	5.00	0.00		5	5.00	0.00
26-50% fs	10	9.99	-0.01		10	9.99	-0.01
51-75% fs	15	14.99	-0.01		15	14.99	-0.01
76-100% fs	20	19.99	-0.01		20	19.99	-0.01
Shift Test:	Pass			**Shift Test:**	Pass		
Half Load Test:	Pass			**Half Load Test:**	Pass		

Comments: Environmental conditions during calibration: 68 °F, 46 % RH.

Issued: 7/15/08

Shannon Shoemaker/bjk
Calibration Technician

☐ Checked box indicate this calibration was performed at the customers facility.

7/17/08

Sterling Scale Co., Inc.
20950 Boening St.
Southfield, MI 48075

Certificate of Calibration

F410/12-3
Rev. Date 11/23/05

calibration cert. 1448.01

Customer: MGA Research *Cert#* 08-4587 *Temp/Humidity:* 70-20
Location of Calibration: 2839 Elliott Ave. Troy MI 48083
Calibration Date: 6/15/2008 *Cal Due:* 7-09 *Condition of Item:* Good
Equipment Make: Intercomp *Model:* SWD Deluxe *Serial/ID:* 26032389
Capacity single pad capacity 2200 x 1lb

Applied Test Wt	*Before Adustment*	*Tolerance*	*In-Tolerance Y/N*	*After Adjustment*	*In-Tolerance Y/N*	*Unc .5lb*	
100lb	100lb	1lb	y	n/a	n/a	.5lb	RR
1000lb	1000lb	2lb	y	n/a	n/a	.5lb	
100lb	101lb	1lb	y	n/a	n/a	.5lb	LR
1000lb	1000lb	2lb	y	n/a	n/a	.5lb	
100lb	100lb	1lb	y	n/a	n/a	.5lb	RF
1000lb	1000lb	2lb	y	n/a	n/a	.5lb	
100lb	100lb	1lb	y	n/a	n/a	.5lb	LF
1000lb	1000lb	2lb	y	n/a	n/a	.5lb	

shift test

Platform #1	*Platform #2*	*Platform #3*
☑ Pass	☐ Pass	☐ Pass
☐ Fail	☐ Fail	☐ Fail

Tests performed: ☑ Repeatability ☑ Linearl☐ Sensitivity ☑ Discrimination

Technician COMMENTS/ System passes all tests.

Test wts used Our test weights s/n on file.

☑ Scale Certified ☐ Scale Rejected

Sterling Scale Service Rep: ED **Date:** 6/12/2008 1 of 1

The above item has been calibrated using the relevant EPO or OEM procedures utilizing test weights
Traceable to International Systems of Units (SI), through the Michigan Department of Agriculture.
Test numbers on file. Expanded uncertainty(k=2) confidence level of 95% as reported.
Results relate only to items listed.
The reported uncertainty is valid only for the environment in which it is determined.
Any number of factors may cause the item to drift out of calibration before recommended interval has expired
This report shall not be reproduced, except in full without approval of the laboratory
Tolerances followed are maintenance/acceptance per HB 44 or as detremined by the customer

QA 6/19/08

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	J35919
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) [1] 100K SHUNT	95.6
Linearity:[2]	0.99981
New vs Old Sensitivit (% Difference)	-0.4
Temperature:	69.9 ^{O}F
Humidity:	38 %
Sensitivity (mV/V/G):	0.026030
Calibrated By:	Thomas Miller

Signature: Thom D Miller

Approved by: David Winkelbauer

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean) .

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	J22664
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) [1] 100K SHUNT	94.3
Linearity:[2]	0.99958
New vs Old Sensitivit (% Difference)	-0.5
Temperature:	69.9 °F
Humidity:	38 %
Sensitivity (mV/V/G):	0.026381
Calibrated By:	Thomas Miller

Signature: Thomas D Miller

Approved by: David Winkelbauer

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean) .

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference		Sensor	
Name:	Accel Standard	**Name:**	MGA MI
Model #	Q353B01	**Manufacturer**	Endevco
Serial #:	84592	**Model #:**	7264-2000
Capacity:	G's:250	**Serial #:**	J35924
Calibration Date:	9/18/2008	**Capacity/Range: (G's)**	2,000
Calibrated By:	DTI		

Calibration Date:	3/2/2009
New DLR(Units:G'S) [1] **100K SHUNT**	92.8
Linearity:[2]	0.99935
New vs Old Sensitivit (% Difference)	-0.4
Temperature:	69.9 °F
Humidity:	38 %
Sensitivity (mV/V/G):	0.026815
Calibrated By:	Thomas Miller

Signature: [signature]

Approved by: [signature]

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean)

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	AHTB2
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) 100K SHUNT [1]	115.9
Linearity: [2]	0.99947
New vs Old Sensitivit (% Difference)	-0.7
Temperature:	69.9 ^{O}F
Humidity:	38 %
Sensitivity (mV/V/G):	0.021450
Calibrated By:	Thomas Miller

Signature: Thomas D Miller

Approved by: David Winbellbauer

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean) .

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	J14103
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) 100K SHUNT [1]	93.7
Linearity: [2]	0.99893
New vs Old Sensitivit (% Difference)	-0.9
Temperature:	69.9 ^{o}F
Humidity:	38 %
Sensitivity (mV/V/G):	0.026528
Calibrated By:	Thomas Miller

Signature: Thomas L Miller

Approved by: David Winkelbauer

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean)

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference		Sensor	
Name:	Accel Standard	Name:	MGA MI
Model #	Q353B01	Manufacturer	Endevco
Serial #:	84592	Model #:	7264-2000
Capacity:	G's:250	Serial #:	J35800
Calibration Date:	9/18/2008	Capacity/Range: (G's)	2,000
Calibrated By:	DTI		

Calibration Date:	3/2/2009
New DLR(Units:G'S) [1] **100K SHUNT**	97.1
Linearity:[2]	0.99893
New vs Old Sensitivit (% Difference)	-0.5
Temperature:	69.9 °F
Humidity:	38 %
Sensitivity (mV/V/G):	0.025575
Calibrated By:	Thomas Miller

Signature: [signature]

Approved by: [signature]

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean)

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	J22700
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) [1] 100K SHUNT	95.8
Linearity:[2]	0.99973
New vs Old Sensitivit (% Difference)	-1.0
Temperature:	69.9 ^{O}F
Humidity:	38 %
Sensitivity (mV/V/G):	0.025954
Calibrated By:	Thomas Miller

Signature: Thomas D Miller

Approved by: David Winkelbauer

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean) .

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	J36197
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) 100K SHUNT [1]	108.5
Linearity: [2]	0.99918
New vs Old Sensitivit (% Difference)	-0.6
Temperature:	69.9 °F
Humidity:	38 %
Sensitivity (mV/V/G):	0.022916
Calibrated By:	Thomas Miller

Signature: Thomas D Miller

Approved by: David Winkelbauer

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean) .

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

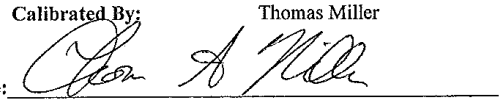
MGA Research Corporation-Calibration Certificate

ACCELEROMETER

Reference	
Name:	Accel Standard
Model #	Q353B01
Serial #:	84592
Capacity:	G's:250
Calibration Date:	9/18/2008
Calibrated By:	DTI

Sensor	
Name:	MGA MI
Manufacturer	Endevco
Model #:	7264-2000
Serial #:	J36353
Capacity/Range: (G's)	2,000

Calibration Date:	3/2/2009
New DLR(Units:G'S) [1] 100K SHUNT	98.7
Linearity:[2]	0.99929
New vs Old Sensitivit (% Difference)	-1.0
Temperature:	69.9 ^{o}F
Humidity:	38 %
Sensitivity (mV/V/G):	0.025169
Calibrated By:	Thomas Miller

Signature: 

Approved by: 

1. Actual data of reference and sensor instruments is found in calibration files

2. Linearity is defined as 1- (Standard Deviation/ Mean) .

All calibrations are traceable to the National Institute of Standards and Technology

Calibration uncertainty no greater than 4.0 % at the 95% confidence level.

Dynamic Technology, Inc.

Certificate of Calibration

Certificate #: 125456001 *T*

Calibration Laboratory
Certificate #: 1022.01

Acct #:	090100
Customer:	MGA Research Corporation
Shipper #:	
Address:	5000 Warren Road Burlington, WI, 53105
Contact:	Jessica Gall
PO #:	03-08-0741

Manufacturer:	PCB
Model:	484B06
Description:	Power Unit
Serial Number:	00001458
Asset Number:	
Barcode:	

As Received	As Returned	Action Taken	
In Tolerance X	In Tolerance X	Full Calibration X	**Cal Date:** 09/18/2008
Out of Tolerance	Out of Tolerance	Special Calibration	**Due Date:** 03/18/2009
Malfunctioning	Malfunctioning	Oper. Verification	**Temperature:** 73.00 deg. F
Operational	Operational	Adjusted	**Humidity:** 36.00 %
Damaged	N/A	Repaired	**Baro. Press.:**
N/A		Charted	**Procedure:** DCN 05156
		Returned As Is	**Reference:** manufacturer's manual

Incoming Remarks:
Replacement for unit on WO#124720006 In case with connector cable/power cord and accelerometer in case

Technical Remarks:
Uncertainty data to follow.

Calibration Standards Utilized

Cert. #	Manufacturer	Model #	Description	Cal Date	Due Date
108256017	TMS	9155C	Accelerometer Calibration W	02/18/2008	02/18/2009
108256027	PCB	442A102	Signal Conditioner	01/10/2008	01/10/2009

System Instrumentation Includes

ID	Manufacturer	Model	Description	Serial Number
84592	PCB	Q353B01	Accelerometer	84592

The above identified unit was calibrated in our laboratory at the address shown below.

This report applies only to the item(s) identified above and shall not be reproduced, except in full, without the written approval of Dynamic Technology, Inc. This unit has been calibrated utilizing standards with a Test Uncertainty Ratio (TUR) of greater than 4:1 at 95 % confidence level with a coverage factor of k=2 unless otherwise stated above. The calibration was performed using references traceable to the SI through NIST or other recognized national laboratory, accepted fundamental or natural physical constants, ratio type of calibration, or by comparison to consensus standards. Dynamic Technology's calibration program is in compliance with ANSI/NCSL Z-540-1, MILSTD 45662A, ISO 17025, QD-4000 .

Dynamic Technology warrants all material and labor performed for ninety (90) days unless covered under a separate policy.

* Any number of factors may cause the calibrated item to drift out of calibration before the interval has expired.

Technician Name/Date: Joseph Leonard, 09/18/2008 Signatory: Kerry Stanley QA Approved:

1200 N. Old US 23, PO Box 559, Hartland, MI 48353-0559 (810) 225-4601 FAX (810) 225-4602

~Report of Calibration~

Sensor Information

Model Number	484B06/Q353B01
Serial Number	1458/84592
Manufacturer:	PCB
ID Number:	1458/84592
Description:	ICP® Accelerometer

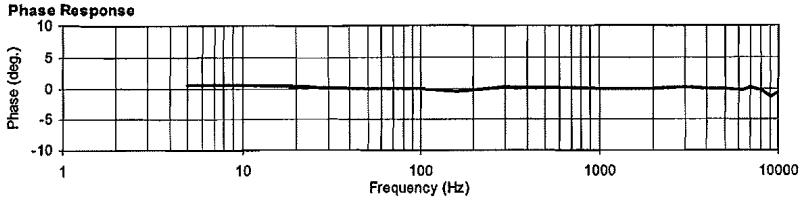
Calibration Data

Sensitivity @ Ref. Freq.:	20.28	mV/g
Phase @ Ref. Freq.:	-0.06	deg.
Test Level:	1.00	g

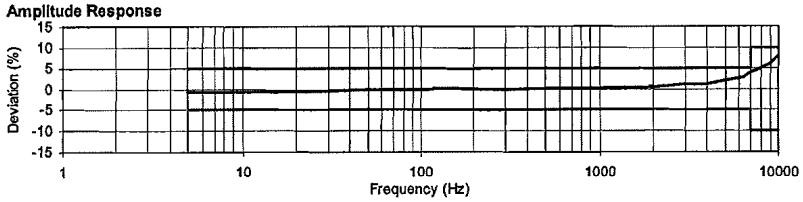
Transducer Specifications

Range:	250.00	+/- g
Resolution:	0.0000	g
Temp Range:	-54 to 121	°C
	-65 to 250	°F
Axis:	Uniaxial	

Phase Response



Amplitude Response



Data Table

Frequency (Hz)	Sen(mV/g)	Phase (deg)
5.00	20.140	0.63
10.00	20.109	0.47
30.00	20.212	0.18
50.00	20.225	-0.07
100.00	20.281	-0.06
159.00	20.287	-0.44
300.00	20.254	0.04
500.00	20.325	0.03
1000.00	20.309	-0.10
2000.00	20.409	-0.16
3000.00	20.483	0.12
4000.00	20.498	-0.05
5000.00	20.672	-0.11
6300.00	20.825	-0.29
7000.00	21.059	0.14
8000.00	21.295	-0.25
9000.00	21.512	-1.27
10000.00	21.912	-0.67

Notes

This certificate may not be reproduced except in full, without written permision.

Back-to-Back Comparison Calibration

This calibration was performed with TMS 9155c Calibration Workstation version 3.9.0

Calibration is NIST Traceable through project number 822/271196.

Customer

090100

User Notes

125456001 T

Unit Condition

As Found: In Tolerance

As Left: In Tolerance

Lab Conditions

Temperature:	23.89	°C
	75.00	°F
Humidity:	36.00	%

Approval Information

Technician: J Leonard

Dynamic Technology, Inc.
1200 N. Old US-23 (Ph) 810.225.4601
P.O. Box 559 (Fx) 810.225.4602
Hartland, MI
48353-0559 www.dynamictechnology.com

2 of 2