REPORT NUMBER: 222SB-MGA-2011-002

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 222 SCHOOL BUS PASSENGER SEATING AND CRASH PROTECTION

2011 GIRARDIN MICRO BIRD SCHOOL BUS
NHTSA NO.: CB0903

PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

TEST DATES: APRIL 14, 2011 – JUNE 15, 2011

FINAL REPORT DATE: AUGUST 2, 2011

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAILCODE: NVS-220
1200 NEW JERSEY AVENUE, S.E.
WASHINGTON, D.C. 20590

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by: _____ Date: August 2, 2011
Eric Peschman, Project Engineer

Reviewed by: _____ Date: August 2, 2011
Michael Janovicz, Program Manager

FINAL REPORT ACCEPTED BY:

Edward E. Chan
_____

Digitally signed by Edward E. Chan
DN: cn=Edward E. Chan, o=National Highway Traffic Safety Administration, ou=Office of Vehicle Safety Compliance, email=ed.chan@dot.gov, c=US
Date: 2011.08.02 14:55:11 -04'00'

_____
Date of Acceptance

Technical Report Documentation Page

1. Report No. 222SB-MGA-2011-002	*2. Government Accession No.*	*3. Recipient's Catalog No.*	
4. Title and Subtitle Final Report of FMVSS 222 Compliance Testing of 2011 Girardin Micro Bird School Bus NHTSA No.: CB0903		*5. Report Date* August 2, 2011 *6. Performing Organization Code* MGA	
7. Author(s) Eric Peschman, Project Engineer Michael Janovicz, Program Manager		*8. Performing Organization Report No.* 222SB-MGA-2011-002	
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-08-D-00075	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance Mail Code: NVS-220 1200 New Jersey Avenue, S.E. Washington, D.C. 20590		*13. Type of Report and Period Covered* Final Report 04/14/11 – 06/15/11 *14. Sponsoring Agency Code* NVS-220	
15. Supplementary Notes			
16. Abstract Compliance tests were conducted on the subject 2011 Girardin Micro Bird School Bus, NHTSA No.: CB0903, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-222-04 for the determination of FMVSS 222 compliance.			
17. Key Words Compliance Testing Safety Engineering FMVSS 222		*18. Distribution Statement* Copies of this report are available from: NHTSA Technical Information Services (TIS) Mail Code: NPO-411 1200 New Jersey Avenue, S.E. Washington, D.C. 20590 Fax No.: (202) 493-2833 E-mail: tis@dot.gov	
19. Security Classif. (of this report) Unclassified	*20. Security Classif. (of this page)* Unclassified	*21. No. of Pages* 190	22. Price

Form DOT F1700.7 (8-72)

TABLE OF CONTENTS

SECTION 1
PURPOSE OF COMPLIANCE TEST

All tests were conducted on a 2011 Girardin Micro Bird School Bus, NHTSA No.: CB0903, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-222-04 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 222, “School Bus Passenger Seating and Crash Protection”.

This program is sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No.: DTNH22-08-D-00075.

SECTION 2
TEST DATA SUMMARY

The passenger seating and crash protection tests were conducted from April 14, 2011 through June 15, 2011. All tests were conducted by MGA Research Corporation at the Wisconsin Operations. The test vehicle, 2011 Girardin Micro Bird School Bus NHTSA No.: CB0903, appears to meet all the requirements of FMVSS 222.

SECTION 2 (CONTINUED)
TEST DATA SUMMARY

LINEAR AND AREA MEASUREMENTS

Seat to seat/barrier spacing was checked on all seats and found to be 554 mm or less as shown on Data Sheet No. 1.

The seat back height and front surface area of Seat Nos. S1, S3, S7 and S8 were measured in accordance with Section 12.1 of OVSC TP-222-04. As shown in Data Sheet No. 2 for S1, S3, S7 and S8, the seat back area is greater than ninety percent of the seat bench width multiplied by 610.

The restraining barrier position and projected rear surface area of Barrier Nos. B1 and B8 were measured in accordance with OVSC TP-222-04. As shown in Data Sheet No. 3 for B1 and B8, the projected perimeters of the seats fall completely within the perimeters of the restraining barriers.

SEAT CUSHION RETENTION

Seat No. S1 was tested in accordance with Section 12.3 of OVSC TP-222-04. Seat cushion weight was 2.54 kg for S1. The maximum force reached for S1 was 134 N, and the lower time limit boundary (t1) was approximately 4 seconds with approximate load duration of 9 seconds. As shown in Data Sheet No. 4, the seat cushions tested met all requirements.

SEAT BACK FORCE DEFLECTION TEST - FORWARD

Seat Nos. S5 and S8 were tested in accordance with Section 12.4 of OVSC TP-222-04. Seat bench width was determined to be 770 mm for S5 and 1,000 mm for S8. "W" was calculated to be 2 for S5 and 3 for S8. The seating reference point (SRP) was 478 mm above the bus floor. The deflection of the seat back at conclusion of lower loading bar loading at 1,557 W N load was 66 mm for S5 and 75 mm for S8. The allowable maximum deflection without moving the seat back to within 102 mm of another seat or restraining barrier was 356 mm for both seats. The stroke rate of the upper loading bar was determined by the test engineer to be 12.7 mm/sec. The location of the upper loading bar was 406 mm above the SRP. The tests were stopped when the maximum deflection of 356 mm was reached. The minimum required area under the force versus deflection curve of the upper loading bar was 452W or 904 joules for S5. The minimum required area under the force versus deflection curve of the upper loading bar was 452W or 1,356 joules for S8. As shown on Data Sheet No. 5, S1 and S6 met the force deflection forward requirements.

SECTION 2 (CONTINUED)
TEST DATA SUMMARY

RESTRAINING BARRIER FORCE/DEFLECTION TEST - FORWARD

The right hand restraining Barrier No. B8 was tested in accordance with Section 12.4 of OVSC TP-222-04. Seat bench width of the aft seat was determined to be 1,000 mm. "W" was calculated to be 3 for B8. The SRP was 478 mm above the bus floor. The deflection of the restraining barrier at the conclusion of the lower loading bar loading at 1,557W was 104 mm. The allowable maximum deflection without moving the restraining barrier to within interference of a seat or door was 356 mm. The stroke rate of the upper loading bar was determined by the test engineer from test data to be 12.7 mm/sec. The location of the upper loading bar was 406 mm above the SRP. The tests were stopped when the maximum deflection of 356 mm was reached for B8. The area under the force versus deflection curve of the upper loading bar was 1,999 joules. The minimum required area under the force versus deflection curve of the upper loading bar was 452W or 1,356 joules. As shown on Data Sheet No. 6, B8 met the force deflection forward requirements.

SEAT BACK FORCE/DEFLECTION TEST - REARWARD

Seat No. S3 was tested in accordance with Section 12.4 of OVSC TP-222-04. Seat bench width was determined to be 770 mm. "W" was calculated to be 2. The seating reference point (SRP) was 343 mm above the bus floor. The allowable maximum deflection without moving the seat back to within 102 mm of another seat or restraining barrier was 254 mm. The stroke rate of the upper loading bar was determined by the test engineer to be 8.8 mm/sec for S3. The location of the loading bar was 343 mm above the SRP. The test was stopped when the maximum deflection of the seat back of 254 mm was achieved. The area under the force versus deflection curve of the loading bar was 829 joules for S3. The minimum required area under the force versus deflection curve of the loading bar was 316W or 632 joules. As shown in Data Sheet No. 7, S3 met the force deflection rearward requirements.

HEAD FORM IMPACT ZONE TESTS

Seat Nos. S2 and S7 and Barrier No. B1 were tested in accordance with Section 12.6 of OVSC TP-222-04. The mass of the head form was 5.21 kg. All head form contact area, impact energy, and head injury criteria were met for Seat Nos. S2 and S7 and Barrier No. B1. Data from these tests are presented in Data Sheet No. 8 and Data Sheet No.9.

KNEE FORM IMPACT ZONE TESTS

Seat Nos. S2 and S7 and Barrier No. B1 were tested in accordance with Section 12.7 of OVSC TP-222-04. The mass of the knee form was 4.53 kg. All knee form contact area criteria and impact energy criteria were met for Seat Nos. S2 and S7 and Barrier No. B1. Data from these tests are presented on Data Sheet No. 10.

ADMINISTRATIVE DATA SHEET

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

INCOMPLETE VEHICLE (IF APPLICABLE)

Manufacturer:	Ford Motor Company
Make/Model:	Girardin Micro Bird
VIN:	1FDEE3FLXBDA10617
Certification Date:	09/10

COMPLETED VEHICLE (SCHOOL BUS)

Manufacturer:	Corp. Micro Bird Inc.
Year/Make/Model:	2011 Girardin Micro Bird
VIN:	1FDEE3FLXBDA10617
NHTSA No.:	CB0903
Color:	Yellow
GVWR:	5,216 kg / 11,500 lb
Manufacture Date:	11/10

DATES

Vehicle Receipt:	12/09/10
Start of Compliance Test:	04/14/11
Completion of Compliance Test:	06/15/11

TEST VEHICLE DISPOSITION

Test: All tests were performed in accordance with the references outlined in FMVSS 222 as published in the Federal Register, Volume 41, No. 19, Jan 28, 1976, and as amended in 41FR28528, Jul 12, 1976; 41FR36027, Aug 26, 1976; 41FR54945, Dec 16, 1976; 42FR64120, Dec 23, 1977; 43FR9150, Mar 6, 1978; 44FR18675, Mar 29, 1979; and 48FR12386, Mar 24, 1983.

Compliance Test: All tests were performed in accordance with the references outlined in TP-222-04.

Recorded By: 

Approved By:  Date: 06/15/11

GENERAL TEST DATA SHEET

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SCHOOL BUS IDENTIFICATION

Model Year/Mfr./Make/Model:	2011 / Corp. Micro Bird Inc. Girardin / Micro Bird
Passenger Capacity:	1 Driver, 19 Passengers
NHTSA No.:	CB0903
VIN:	1FDEE3FLXBDA10617
Conventional or Forward Control:	Conventional
Wheel Base:	3,506
GAWR (Certification Label) FRONT:	1,837 kg / 4,050 lb
GAWR (Certification Label) REAR:	3,538 kg / 7,800 lb
GVWR (Certification Label) TOTAL:	5,216 kg / 11,500 lb

TEST CONDITIONS

Date(s) of Test:	04/14/11 – 06/15/11
Ambient Temperature (°C):	21°C
Required Temperature Range (°C):	0°C to 32°C

SEAT IDENTIFICATION

Seat Manufacturer:	The C.E. White Co.
Model Name & Number:	
Description of Seats:	Seat frames are constructed of 25.4 mm square and round welded steel tubing. The seat back is a steel pan welded to the tubing. The front of the seat is covered with 60 mm of soft foam. The rear of the seat back is covered with 25 mm Styrofoam and 25 mm of thick soft foam. The seat back vertical frame members are covered in 50 mm Styrofoam. The seat cushion is constructed of 8 mm plywood; which is 100 mm tapering to 75 mm seat foam. The seats are covered in 0.6 mm of vinyl.

SECTION 3
COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2011 Girardin Micro Bird School Bus, NHTSA No.: CB0903.

DATA SHEET 1

SEAT TO SEAT/BARRIER SPACING

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

Seat Number	Measurement of Spacing From SRP Forward to Seat/Barrier (mm)	Requirement ≤ 610 mm (≤ 24") Class 1 Buses Only PASS/FAIL
S1	**529**	**PASS**
S2	**512**	**PASS**
S3	**520**	**PASS**
S4	**540**	**PASS**
S5	**554**	**PASS**
S6	**526**	**PASS**
S7	**498**	**PASS**
S8	**550**	**PASS**

Comments: None

Recorded By: _____

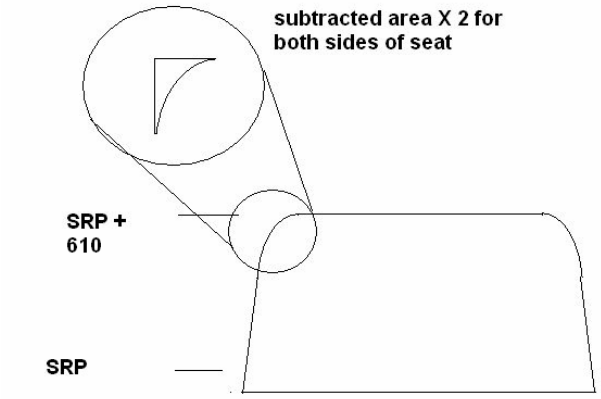
Approved By: _____ Date: 04/14/11

DATA SHEET 2

SEAT BACK HEIGHT AND FRONT SURFACE AREA TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S1



1. Maximum vertical height of the seat back above the SRP = 717 mm

		PASS/FAIL
2.	Is item 1 > 610 mm? (S5.1.2) Yes – Pass; No – Fail	**PASS**

3. Maximum transverse width of the seat cushion (W1) = 1,000 mm
4. Calculate the following: 0.75 x W1 = 750 mm
5. Calculate the following: 0.9 x W1 x 610 mm = 549,000 mm^2
6. Project the front surface of the seat back onto a vertical transverse plane. Measure the projected surface area that falls between:
   - A horizontal plane that passes through the SRP and a horizontal plane 610 mm above the SRP; and
   - A vertical longitudinal plane that passes through the inboard-most point of the seat cushion and a vertical longitudinal plane that passes through the outboard-most point of the seat cushion.

Use the following for a typical trapezoidal shape:

6.1 Seat back width at 610 mm above the SRP height (A) = 940 mm

6.2 Seat back width at the SRP height (B) = 984 mm

6.3 Area = ½ (A+B) x 610 mm = 586,820 mm^2 – * 7,940 mm^2 = 578,880 mm^2

DATA SHEET 2 (CONTINUED)

SEAT BACK HEIGHT & FRONT SURFACE AREA TEST

		PASS/FAIL
7.	Is item 6.1 > item 4? (S5.1.2) Yes – Pass; No – Fail	**PASS**
8.	Is item 6.3 > item 5? (S5.1.2) Yes – Pass; No – Fail	**PASS**

Note: For a seat back area that is not trapezoidal in shape or has a large radius at the corner(s), the above described measuring method (item 6.3) must be modified as required to obtain accurate area measurements.

Comments: * Denotes area of the trapezoid outside of radius.

Recorded By: _____

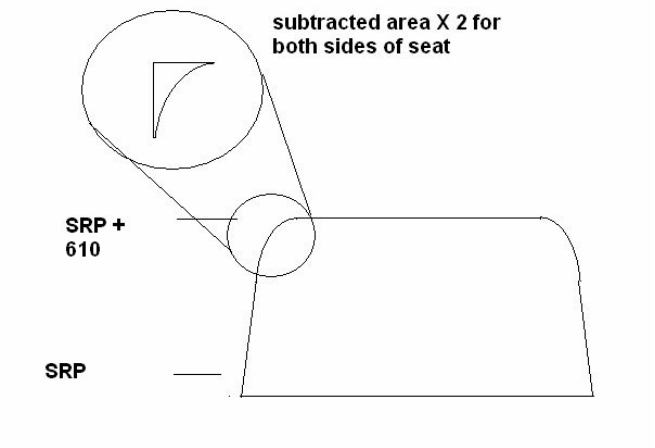
Approved By: _____ Date: 04/15/11

DATA SHEET 2

SEAT BACK HEIGHT AND FRONT SURFACE AREA TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S3



1. Maximum vertical height of the seat back above the SRP = 717 mm

		PASS/FAIL
2.	Is item 1 > 610 mm? (S5.1.2) Yes – Pass; No – Fail	**PASS**

3. Maximum transverse width of the seat cushion (W1) = 763 mm
4. Calculate the following: 0.75 x W1 = 572.25 mm
5. Calculate the following: 0.9 x W1 x 610 mm = 418,887 mm^2
6. Project the front surface of the seat back onto a vertical transverse plane. Measure the projected surface area that falls between:
   - A horizontal plane that passes through the SRP and a horizontal plane 610 mm above the SRP; and
   - A vertical longitudinal plane that passes through the inboard-most point of the seat cushion and a vertical longitudinal plane that passes through the outboard-most point of the seat cushion.
   2. Use the following for a typical trapezoidal shape:

6.1 Seat back width at 610 mm above the SRP height (A) = 710 mm

6.2 Seat back width at the SRP height (B) = 760 mm

6.3 Area = ½ (A+B) x 610 mm = 448,350 mm^2 – * 9,360 mm^2 = 438,990 mm^2

DATA SHEET 2 (CONTINUED)

SEAT BACK HEIGHT & FRONT SURFACE AREA TEST

		PASS/FAIL
7.	Is item 6.1 > item 4? (S5.1.2) Yes – Pass; No – Fail	**PASS**
8.	Is item 6.3 > item 5? (S5.1.2) Yes – Pass; No – Fail	**PASS**

Note: For a seat back area that is not trapezoidal in shape or has a large radius at the corner(s), the above described measuring method (item 6.3) must be modified as required to obtain accurate area measurements.

Comments: * Denotes area of the trapezoid outside of radius.

Recorded By: _____

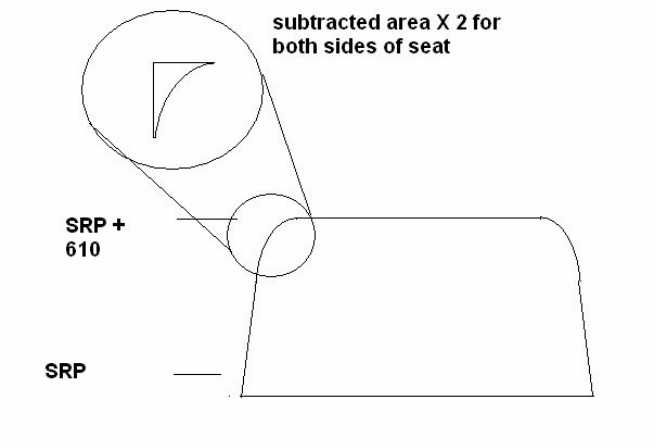
Approved By: _____ Date: 04/15/11

DATA SHEET 2

SEAT BACK HEIGHT AND FRONT SURFACE AREA TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S7



1. Maximum vertical height of the seat back above the SRP = 717 mm

		PASS/FAIL
2.	Is item 1 > 610 mm? (S5.1.2) Yes – Pass; No – Fail	**PASS**

3. Maximum transverse width of the seat cushion (W1) = 762 mm
4. Calculate the following: 0.75 x W1 = 571.5 mm
5. Calculate the following: 0.9 x W1 x 610 mm = 418,338 mm^2
6. Project the front surface of the seat back onto a vertical transverse plane. Measure the projected surface area that falls between:
   - A horizontal plane that passes through the SRP and a horizontal plane 610 mm above the SRP; and
   - A vertical longitudinal plane that passes through the inboard-most point of the seat cushion and a vertical longitudinal plane that passes through the outboard-most point of the seat cushion.

Use the following for a typical trapezoidal shape:

6.1 Seat back width at 610 mm above the SRP height (A) = 705 mm

6.2 Seat back width at the SRP height (B) = 757 mm

6.3 Area = ½ (A+B) x 610 mm = 445,910 mm^2 – * 10,340 mm^2 = 435,570 mm^2

DATA SHEET 2 (CONTINUED)

SEAT BACK HEIGHT & FRONT SURFACE AREA TEST

		PASS/FAIL
7.	Is item 6.1 > item 4? (S5.1.2) Yes – Pass; No – Fail	**PASS**
8.	Is item 6.3 > item 5? (S5.1.2) Yes – Pass; No – Fail	**PASS**

Note: For a seat back area that is not trapezoidal in shape or has a large radius at the corner(s), the above described measuring method (item 6.3) must be modified as required to obtain accurate area measurements.

Comments: * Denotes area of the trapezoid outside of radius.

Recorded By: _____

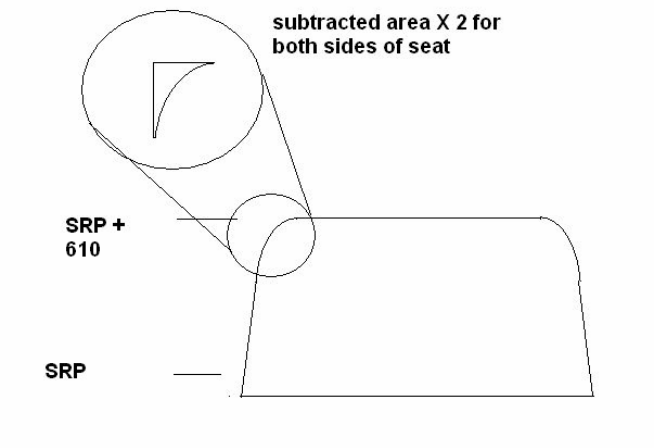
Approved By: _____ Date: 04/15/11

DATA SHEET 2

SEAT BACK HEIGHT AND FRONT SURFACE AREA TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S8



1. Maximum vertical height of the seat back above the SRP = 717 mm

		PASS/FAIL
2.	Is item 1 > 610 mm? (S5.1.2) Yes – Pass; No – Fail	**PASS**

3. Maximum transverse width of the seat cushion (W1) = 1,000 mm
4. Calculate the following: 0.75 x W1 = 750 mm
5. Calculate the following: 0.9 x W1 x 610 mm = 549,000 mm^2
6. Project the front surface of the seat back onto a vertical transverse plane. Measure the projected surface area that falls between:
   - A horizontal plane that passes through the SRP and a horizontal plane 610 mm above the SRP; and
   - A vertical longitudinal plane that passes through the inboard-most point of the seat cushion and a vertical longitudinal plane that passes through the outboard-most point of the seat cushion.

Use the following for a typical trapezoidal shape:

6.1 Seat back width at 610 mm above the SRP height (A) = 935 mm

6.2 Seat back width at the SRP height (B) = 992 mm

6.3 Area = ½ (A+B) x 610 mm = 587,735 mm^2 – * 8,970 mm^2 = 578,765 mm^2

DATA SHEET 2 (CONTINUED)

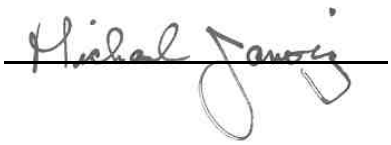
SEAT BACK HEIGHT & FRONT SURFACE AREA TEST

		PASS/FAIL
7.	Is item 6.1 > item 4? (S5.1.2) Yes – Pass; No – Fail	**PASS**
8.	Is item 6.3 > item 5? (S5.1.2) Yes – Pass; No – Fail	**PASS**

Note: For a seat back area that is not trapezoidal in shape or has a large radius at the corner(s), the above described measuring method (item 6.3) must be modified as required to obtain accurate area measurements.

Comments: * Denotes area of the trapezoid outside of radius.

Recorded By: 

Approved By:  Date: 04/15/11

DATA SHEET 3

RESTRAINING BARRIER POSITION AND PROJECTED REAR SURFACE AREA

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

BARRIER NUMBER: B1/S1

1. Measure the distance (X) from SRP of seat immediately aft of barrier in a horizontal longitudinal line forward to barrier. X = 529 mm.

		PASS/FAIL
2.	Is distance X $\leq$ 610 mm? (S5.2) Yes – Pass; No – Fail	**PASS**

3. Measure distance U at inboard (i) and outboard (o) side of barrier.

   U_i = 346 mm U_o = 358 mm

4. Measure distance V at inboard (i) and outboard (o) sides of seat.

   V_i = 358 mm V_o = 359 mm

		PASS/FAIL
5.	Is $U_i \leq V_i$? Yes – Pass; No – Fail	**PASS**

		PASS/FAIL
6.	Is $U_o \leq V_o$? Yes – Pass; No – Fail	**PASS**

7. Maximum vertical height of the barrier above the SRP of the seat located immediately rearward of the barrier (S) = 624 mm

		PASS/FAIL
8.	Is item 7 $\geq$ 610 mm? (S5.2 & S5.1.2) Yes – Pass; No – Fail	**PASS**

9. Maximum transverse width of the seat cushion of the seat immediately rearward of the barrier (W1) = 1,000 mm
10. Calculate the following: Calculate the following: 0.75 x W1 = 750 mm
11. Calculate the following: 0.9 x W1 x 610 mm = 549,000 mm^2

DATA SHEET 3 (CONTINUED)

RESTRAINING BARRIER POSITION AND PROJECTED REAR SURFACE AREA

12. Project the front surface of the barrier onto a vertical transverse plane. Measure the projected surface area (± 2%) that falls between the following planes, which are determined relative to the seat located immediately rearward of the barrier:
    - A horizontal plane that passes through the SRP and a horizontal plane 610 mm above the SRP; and
    - A vertical longitudinal plane that passes through the inboard-most point of the seat cushion and a vertical longitudinal plane that passes through the outboard-most point of the seat cushion.

Use the following for a typical trapezoidal shape:

12.1 Seat back width at 610 mm above the SRP height (A) = 920 mm

12.2 Seat back width at the SRP height (B) = 975 mm

12.3 Area = ½ (A+B) x 610 mm = 577,975 mm^2

Used this equation:

Area = ½ (A+B) x 610 mm = 577,975 mm^2 – * 10,500 mm^2 = 567,475 mm^2

		PASS/FAIL
13.	Is item 12.1 > item 10? (S5.1.2) Yes – Pass; No – Fail	**PASS**
14.	Is item 12.3 > item 11? (S5.1.2) Yes – Pass; No – Fail	**PASS**

Note: For a seat back area that is not trapezoidal in shape or has a large radius at the corner(s), the above described measuring method (item 12.3) must be modified as required to obtain accurate area measurements.

Comments: * Denotes area of the trapezoid outside of radius.

Recorded By: _____

Approved By: _____ Date: 04/18/11

DATA SHEET 3

RESTRAINING BARRIER POSITION AND PROJECTED REAR SURFACE AREA

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

BARRIER NUMBER: B8/S8

1. Measure the distance (X) from SRP of seat immediately aft of barrier in a horizontal longitudinal line forward to barrier. X = 550 mm.

		PASS/FAIL
2.	Is distance X $\leq$ 610 mm? (S5.2) Yes – Pass; No – Fail	**PASS**

3. Measure distance U at inboard (i) and outboard (o) side of barrier.
   U_i = 352 mm U_o = 358 mm
4. Measure distance V at inboard (i) and outboard (o) sides of seat.
   V_i = 354 mm V_o = 358 mm

		PASS/FAIL
5.	Is $U_i \leq V_i$? Yes – Pass; No – Fail	**PASS**

		PASS/FAIL
6.	Is $U_o \leq V_o$? Yes – Pass; No – Fail	**PASS**

7. Maximum vertical height of the barrier above the SRP of the seat located immediately rearward of the barrier (S) = 624 mm

		PASS/FAIL
8.	Is item 7 $\geq$ 610 mm? (S5.2 & S5.1.2) Yes – Pass; No – Fail	**PASS**

9. Maximum transverse width of the seat cushion of the seat immediately rearward of the barrier (W1) = 1,000 mm
10. Calculate the following: Calculate the following: 0.75 x W1 = 750 mm
11. Calculate the following: 0.9 x W1 x 610 mm = 549,000 mm^2

DATA SHEET 3 (CONTINUED)

RESTRAINING BARRIER POSITION AND PROJECTED REAR SURFACE AREA

12. Project the front surface of the barrier onto a vertical transverse plane. Measure the projected surface area (± 2%) that falls between the following planes, which are determined relative to the seat located immediately rearward of the barrier:
    - A horizontal plane that passes through the SRP and a horizontal plane 610 mm above the SRP; and
    - A vertical longitudinal plane that passes through the inboard-most point of the seat cushion and a vertical longitudinal plane that passes through the outboard-most point of the seat cushion.

Use the following for a typical trapezoidal shape:

12.1 Seat back width at 610 mm above the SRP height (A) = 909 mm

12.2 Seat back width at the SRP height (B) = 986 mm

12.3 Area = ½ (A+B) x 610 mm = 577,975 mm^2

Used this equation:

Area = ½ (A+B) x 610 mm = 577,975 mm^2 – * 10,830 mm^2 = 567,145 mm^2

		PASS/FAIL
13.	Is item 12.1 > item 10? (S5.1.2) Yes – Pass; No – Fail	**PASS**
14.	Is item 12.3 > item 11? (S5.1.2) Yes – Pass; No – Fail	**PASS**

Note: For a seat back area that is not trapezoidal in shape or has a large radius at the corner(s), the above described measuring method (item 12.3) must be modified as required to obtain accurate area measurements.

Comments: * Denotes area of the trapezoid outside of radius.

Recorded By: _____

Approved By: _____ Date: 04/18/11

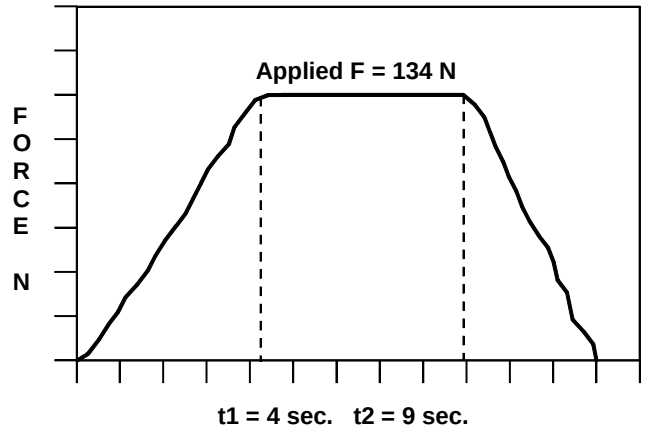
DATA SHEET 4

SEAT CUSHION LATCHING AND RETENTION TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S1

1. Cushion Weight = 24.9 N
2. Cushion Weight x 5 = F = 124.5 N (S5.1.5 (b))
3. Complete the following force/time graph:



F must be 5 x Cushion Weight; t1 and t2 must be according to the following expressions:

1 sec. < t1 < 5 sec. (+1.0 sec. and -0.0 sec.)

t2 = t1 + 5sec. (+1.0 sec. and -0.0 sec.)

		PASS/FAIL
4.	Did seat cushion separate from the seat structure at any attachment point? (S5.1.5 (b)) Yes – Fail; No – Pass	**PASS**

Describe Seat Cushion Attachments: The front of the seat cushion has half moon clips. The rear of the seat cushion has a sliding latch with catch bar.

Comments: None

Recorded By: _____

Approved By: _____ Date: 06/15/11

DATA SHEET 5

SEAT BACK FORCE DEFLECTION TEST - FORWARD

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S5

1. Seat Bench Width = 770 mm
   W = (Seat Bench Width)/381 mm (round to nearest whole number) = (2)
2. Seat Reference Point (SRP) location is: (Description of location as supplied by the COTR): 478 mm Above Floor, 0 mm from center
3. Location of lower loading bar is 0 mm above the SRP.
   (Requirement: Between 102 mm above and 102 mm below the SRP) (S5.1.3.1)
   Length of lower loading bar = 660 mm
   Seat Back width at SRP = 760 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
4. Include x-y plot of Force vs. Time for the lower loading bar.
5. Deflection of the seat back at conclusion of lower bar loading (1,557W position) = 66 mm.
6. Maximum deflection allowed without moving the seat back to within 102 mm of another seat or restraining barrier = 356 mm (must be 356 mm of less) (S5.1.3)
7. Seat back movement rate selected by the test engineer = 12.7 mm/sec
8. Location of upper loading bar is in a horizontal plane 406 mm above the SRP.
   (Requirement: 406 mm) (S5.1.3.3).
   Upper Loading Bar Length = 622 mm
   Seat back width at 406 mm above the SRP height = 720 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
9. Reason for stopping seat back deflection:
   ___ Reached deflection determined in Item 5 above (if less than 356 mm)
   _X_ Reached 356 mm maximum allowed deflection (Actual deflection was 357 mm)
   ___ Force exceeded 10676 N
   ___ Separation was about to occur
10. Include the x-y plot of force vs. deflection for the upper loading bar with boundaries of Figure 14 (OVSC TP-222) superimposed.

		PASS/FAIL
11.	Is the seat in its final deflected position within 102 mm of the next seat or barrier? Yes – Fail; No – Pass	**PASS**

DATA SHEET 5 (CONTINUED)

SEAT BACK FORCE DEFLECTION TEST – FORWARD

		PASS/FAIL
12.	Does the forward force vs. deflection trace of the seat back lie within the unshaded area? (S5.1.3) Yes – Pass; No – Fail	**PASS**

13. Include a deflection vs. time plot for the upper loading bar.

14. The area within the force vs. deflection curve = 1,432 Joules (N-m)

15. 452W = 904 Joules (N-m) (S5.1.3.4)

		PASS/FAIL
16.	Is item 14 $\geq$ item 15? (S5.1.3.4) Yes – Pass; No – Fail	**PASS**

Comments: None

Recorded By: _____

Approved By: _____ Date: 05/12/11

DATA SHEET 5

SEAT BACK FORCE DEFLECTION TEST - FORWARD

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S8

1. Seat Bench Width = 1,000 mm
   W = (Seat Bench Width)/381 mm (round to nearest whole number) = (3)
2. Seat Reference Point (SRP) location is: (Description of location as supplied by the COTR): 478 mm Above Floor, 0 mm from center
3. Location of lower loading bar is 0 mm above the SRP.
   (Requirement: Between 102 mm above and 102 mm below the SRP) (S5.1.3.1)
   Length of lower loading bar = 895 mm
   Seat Back width at SRP = 995 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
4. Include x-y plot of Force vs. Time for the lower loading bar.
5. Deflection of the seat back at conclusion of lower bar loading (1,557W position) = 75 mm.
6. Maximum deflection allowed without moving the seat back to within 102 mm of another seat or restraining barrier = 356 mm (must be 356 mm of less) (S5.1.3)
7. Seat back movement rate selected by the test engineer = 12.7 mm/sec
8. Location of upper loading bar is in a horizontal plane 406 mm above the SRP.
   (Requirement: 406 mm) (S5.1.3.3).
   Upper Loading Bar Length = 850 mm
   Seat back width at 406 mm above the SRP height = 950 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
9. Reason for stopping seat back deflection:
   ___ Reached deflection determined in Item 5 above (if less than 356 mm)
   _X_ Reached 356 mm maximum allowed deflection (Actual deflection was 357 mm)
   ___ Force exceeded 10,676 N
   ___ Separation was about to occur
10. Include the x-y plot of force vs. deflection for the upper loading bar with boundaries of Figure 14 (OVSC TP-222) superimposed.

		PASS/FAIL
11.	Is the seat in its final deflected position within 102 mm of the next seat or barrier? Yes – Fail; No – Pass	**PASS**

DATA SHEET 5 (CONTINUED)

SEAT BACK FORCE DEFLECTION TEST – FORWARD

		PASS/FAIL
12.	Does the forward force vs. deflection trace of the seat back lie within the unshaded area? (S5.1.3) Yes – Pass; No – Fail	**PASS**

13. Include a deflection vs. time plot for the upper loading bar.

14. The area within the force vs. deflection curve = 1,749 Joules (N-m)

15. 452W = 1,356 Joules (N-m) (S5.1.3.4)

		PASS/FAIL
16.	Is item 14 $\geq$ item 15? (S5.1.3.4) Yes – Pass; No – Fail	**PASS**

Comments: None

Recorded By: 

Approved By:  Date: 05/13/11

DATA SHEET 6

RESTRAINING BARRIER FORCE/DEFLECTION TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

BARRIER NUMBER: B8

1. Seat cushion width of seat immediately rearward of restraining barrier = 1,000 mm
   W = (Seat Cushion Width)/381 mm (round to nearest whole number) = (3)
2. Location of SRP of seat rearward of restraining barrier is: (Description of location as supplied by the manufacturer): 478 mm Above Floor.
3. Location of lower loading bar is 0 mm above/below the SRP.
   (Requirement: between 102 mm above and 102 mm below the SRP) (S5.1.3.1)
   Length of loading bar = 889 mm
   Width of barrier at SRP = 980 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
4. Include the x-y plot of force vs. time for the lower loading bar.
5. Deflection of the barrier at the conclusion of lower bar loading (1,557W position) = 104 mm.
6. Maximum deflection allowed without moving the restraining barrier to within interference of door operation = 356 mm (must be 356 mm or less).
7. Barrier movement rate selected by the test engineer = 12.7 mm/sec
8. Location of upper loading bar is in a horizontal plane 406 mm above the SRP.
   (Requirement: 406 mm) (S5.1.3.3)
   Upper loading bar length = 838 mm
   Barrier width at 406 mm above the SRP height = 939 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
9. Reason for stopping restraining barrier deflection:
   _X_ Reached 356 mm maximum
   ___ Force exceeded 10,676 N
   ___ Separation was about to occur
   ___ Interference with door operation
10. Maximum deflection of barrier 356 mm.
    (Requirement: maximum allowed is 356 mm) (S5.2.3 (b))

		PASS/FAIL
11.	Does the restraining barrier interfere with the normal operation of the door? (S5.2.3 (c)) Yes – Fail; No – Pass	**PASS**

DATA SHEET 6 (CONTINUED)

RESTRAINING BARRIER FORCE/DEFLECTION TEST

		PASS/FAIL
12.	Did any separation of barrier component or the separation of the barrier from the vehicle occur? (S5.1.3 (d) & (e)) Yes – Fail; No – Pass	**PASS**

13. Include the x-y plot of force vs. deflection for the upper loading bar with boundaries of Figure 14 (OVSC TP-222) superimposed.

		PASS/FAIL
14.	Does the forward force vs. deflection trace of the barrier back lie within the unshaded area? (S5.2.3(a)) Yes – Pass; No – Fail	**PASS**

15. Include a deflection vs. time plot for the upper loading bar.

16. The area within the force vs. deflection curve = 1,999 Joules (N-m)

17. 452W = 1,356 Joules (N-m) (S5.2.3) (S5.1.3.4)

		PASS/FAIL
18.	Is item 16 > item 17? Yes – Pass; No – Fail	**PASS**

Comments: None.

Recorded By: _____

Approved By: _____ Date: 05/13/11

DATA SHEET 7

SEAT BACK FORCE DEFLECTION TEST – REARWARD

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S3

1. Seat bench width = 770 mm
   W = (Seat Cushion Width)/381 mm (round to nearest whole number) = (2)
2. Location of the loading bar is in a horizontal plane 343 mm above the SRP of the test seat. (Requirement: 343 mm above SRP) (S5.1.4.1)
   Loading bar length = 622 mm
   Seat back width at 343 mm above the SRP height = 726 mm
   (Loading Bar Length = Seat Back Width – 102 mm, +13, -6.3)
3. Deflection of the seat back at 222 N preload = not recorded
4. Maximum deflection allowed without moving the seat back to within 102 mm of another seat = 254 mm (maximum allowed = 254 mm) (S5.1.4)
5. Seat back movement rate selected by the test engineer = 8.8 mm/sec
6. Reason for stopping deflection:
   ___ Reached deflection determined in item 3 above
   _X_ Reached 254 mm maximum allowed deflection
   ___ Force exceeded 9,786 N
   ___ Separation was about to occur
7. Include the x-y plot of force vs. deflection for the loading bar with the boundaries of Figure 18 (OVSC TP-222) superimposed.

		PASS/FAIL
8.	Does the force vs. deflection plot lie within the boundaries of Figure 18 (OVSC TP-222) Yes – Pass; No – Fail	**PASS**

9. Include a deflection vs. time plot for the loading bar.
10. 316W = 632 Joules (N-m)
11. The area within the force vs. deflection curve = 829 Joules (N-m)

		PASS/FAIL
12.	Is item 11 ≥ item 10? (S5.1.4.2) Yes – Pass; No – Fail	**PASS**

Comments: None.

Recorded By: _____

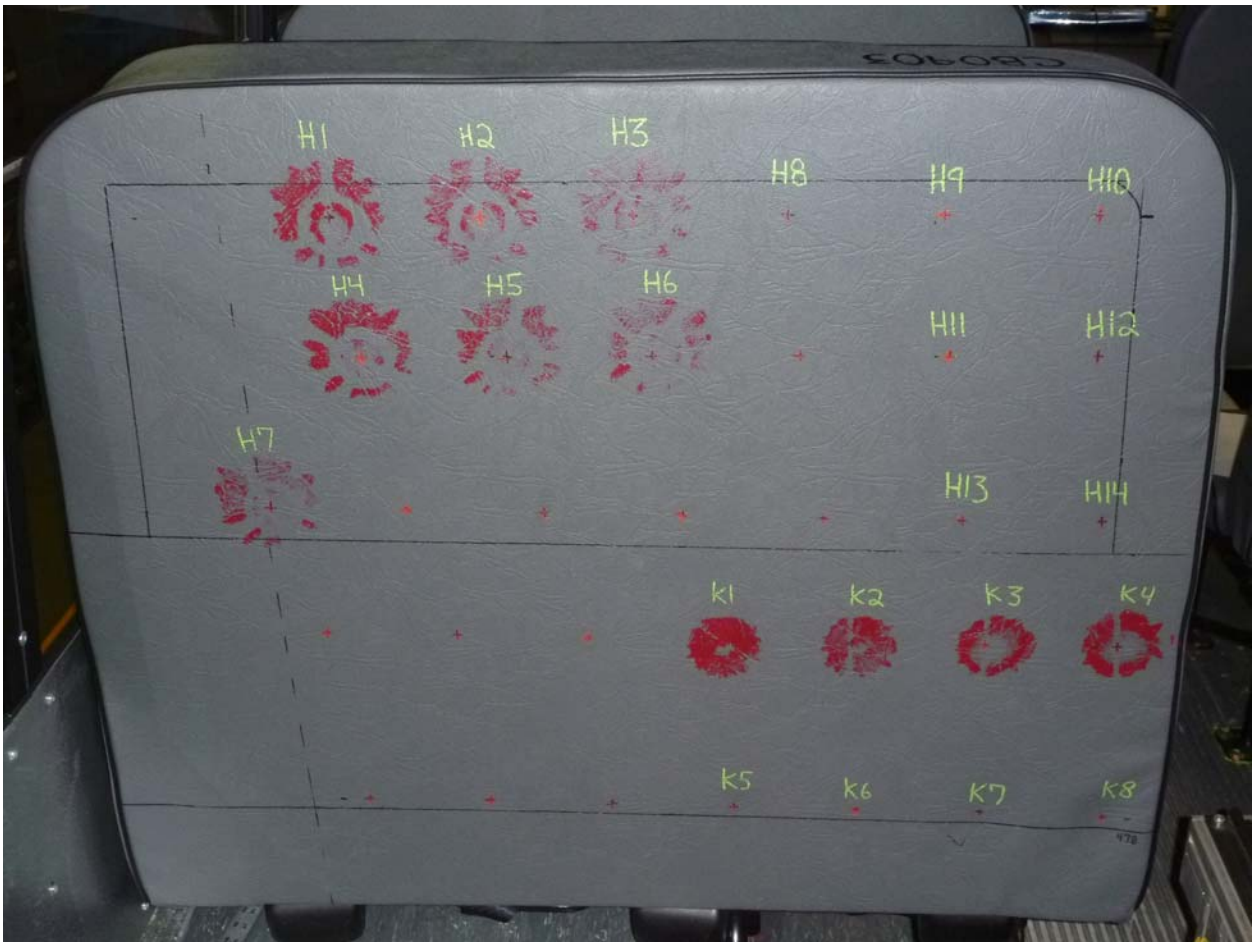
Approved By: _____ Date: 05/20/11

DATA SHEET 8

HEAD FORM IMPACT CONTACT AREA REQUIREMENT

Test Vehicle:	**2011 Girardin Micro Bird School Bus**	NHTSA No.:	**CB0903**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Dates:	**04/14/11 – 06/15/11**

SEAT NUMBER: S2



REAR SURFACE

1. Locate x-y reference point on sketch above for head form impact locations. (Label the positive and negative directions, if applicable)
2. Identify head form impact location on sketch by placing H1, H2, H3, H4, H5, H6, and H7 in the appropriate location.
3. Define the plane of reference for head form impact angle:

   0° = Parallel with Floor, (+) is Up, (-) is Down

   X = From Inboard Edge of Seat

   Y = Measured Vertically from the SRP

DATA SHEET 8 (CONTINUED)

HEAD FORM IMPACT CONTACT AREA REQUIREMENT

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)
Head Impact & Test #	Location			Speed Trap Impact Velocity** mps	Derived Velocity mps	Contact Area (CA) mm^2	CA ≥ 1935 mm^2	
	X	Y	Angle				Yes-PASS	No-FAIL
H1	-708	604	0º	1.56	1.80	5,730	**PASS**	
H2	-594	603	0º	1.58	1.91	5,600	**PASS**	
H3	-479	605	0º	1.60	1.75	5,480	**PASS**	
H4	-697	490	0º	1.59	1.47	5,900	**PASS**	
H5	-581	490	0º	1.59	1.94	5,450	**PASS**	
H6	-466	490	0º	1.59	1.49	5,390	**PASS**	
H7	-787	354	0º	1.60	1.85	5,910	**PASS**	

* Contact Velocity from Item 7 below

** Velocity Range = 1.52 mps, +0.08, -0 mps

5. Attach Contact Area Prints.
6. Attach acceleration versus time plots for each impact.
7. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat. In the case of Seat No. S2, the inboard edge of the seat is on the right hand side of the seat as viewed from the rear.

Recorded By: _____

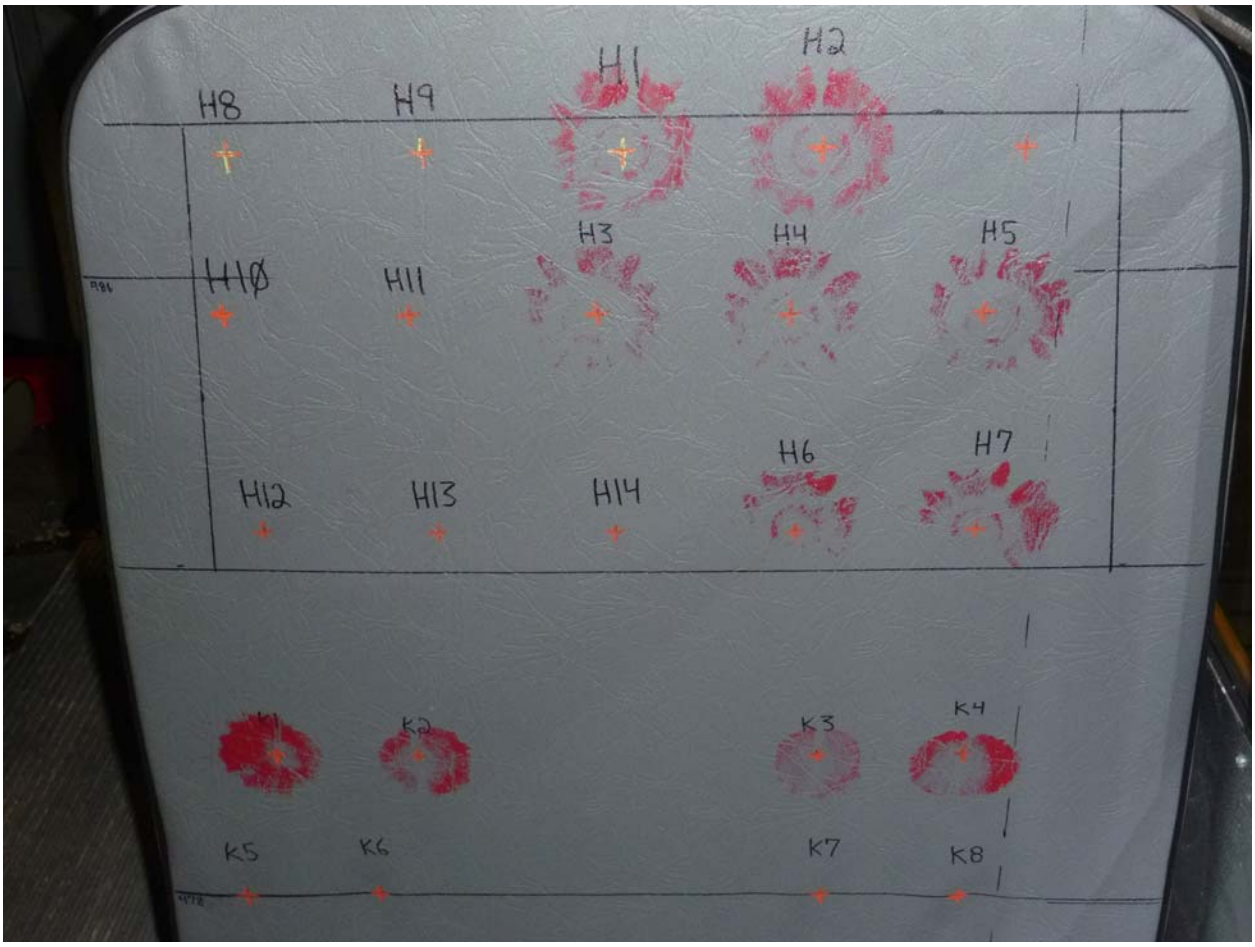
Approved By: _____ Date: 05/11/11

DATA SHEET 8

HEAD FORM IMPACT CONTACT AREA REQUIREMENT

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S7



REAR SURFACE

1. Locate x-y reference point on sketch above for head form impact locations. (Label the positive and negative directions, if applicable)
2. Identify head form impact location on sketch by placing H1, H2, H3, H4, H5, H6, and H7 in the appropriate location.
3. Define the plane of reference for head form impact angle:

   0° = Parallel with Floor, (+) is Up, (-) is Down

   X = From Inboard Edge of Seat

   Y = Measured Vertically from the SRP

DATA SHEET 8 (CONTINUED)

HEAD FORM IMPACT CONTACT AREA REQUIREMENT

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)
Head Impact & Test #	Location			Speed Trap Impact Velocity** mps	Derived Velocity mps	Contact Area (CA) mm^2	CA ≥ 1935 mm^2	
	X	Y	Angle				Yes-PASS	No-FAIL
H1	372	586	0º	1.56	2.04	5,850	**PASS**	
H2	485	586	0º	1.53	1.92	6,520	**PASS**	
H3	355	484	0º	1.56	1.64	5,240	**PASS**	
H4	469	481	0º	1.55	1.73	5,950	**PASS**	
H5	584	481	0º	1.55	1.83	5,200	**PASS**	
H6	475	330	0º	1.56	1.81	4,350	**PASS**	
H7	587	331	0º	1.55	1.79	5,810	**PASS**	

* Contact Velocity from Item 7 below

** Velocity Range = 1.52 mps, +0.08, -0 mps

5. Attach Contact Area Prints.
6. Attach acceleration versus time plots for each impact.
7. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat.

Recorded By: _____

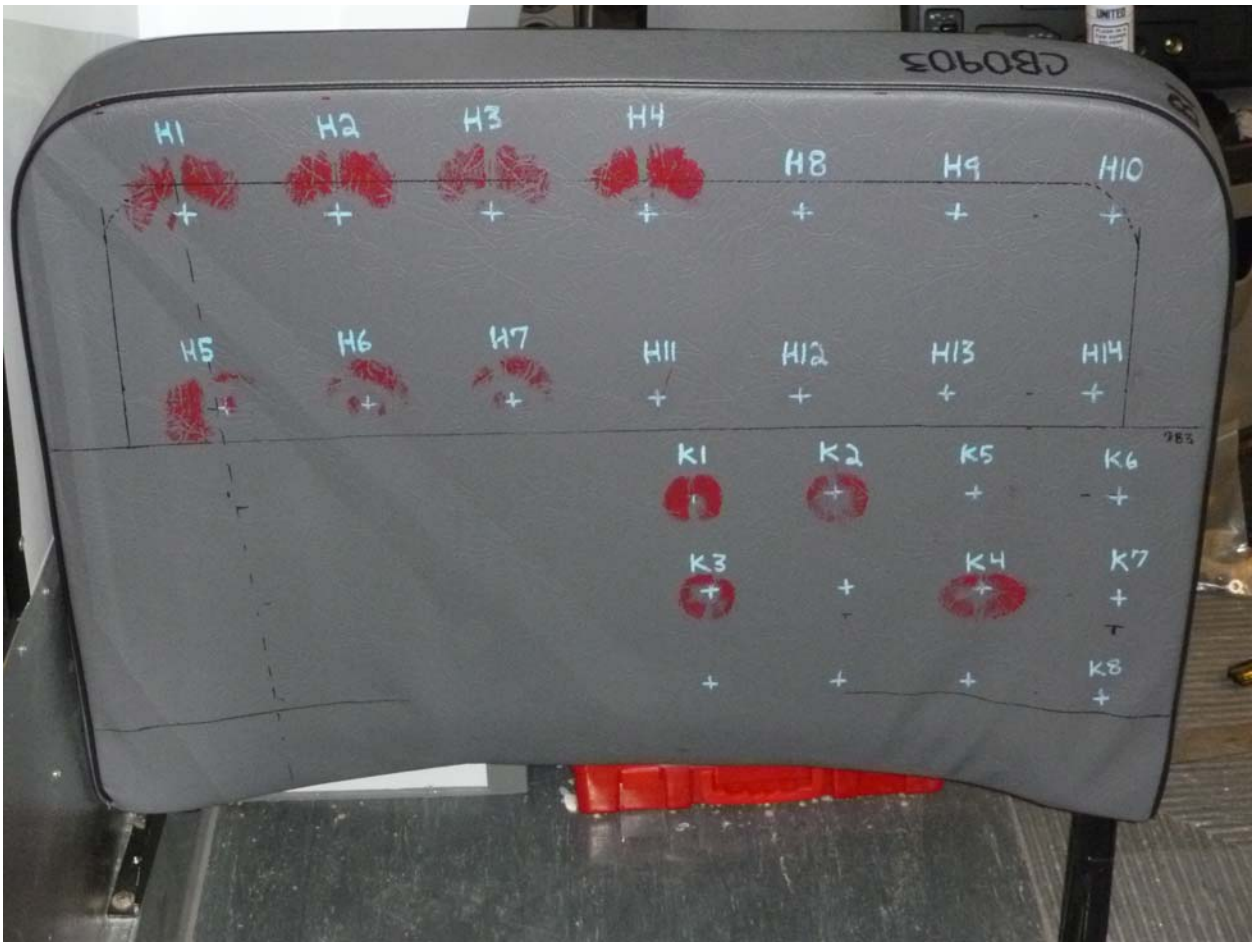
Approved By: _____ Date: 05/6/11

DATA SHEET 8

HEAD FORM IMPACT CONTACT AREA REQUIREMENT

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

BARRIER NUMBER: B1



REAR SURFACE

1. Locate x-y reference point on sketch above for head form impact locations. (Label the positive and negative directions, if applicable)
2. Identify head form impact location on sketch by placing H1, H2, H3, H4, H5, H6, and H7 in the appropriate location.
3. Define the plane of reference for head form impact angle:

   0° = Parallel with Floor, (+) is Up, (-) is Down

   X = From Inboard Edge of Seat

   Y = Measured Vertically from the SRP

DATA SHEET 8 (CONTINUED)

HEAD FORM IMPACT CONTACT AREA REQUIREMENT

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)
Head Impact & Test #	Location			Speed Trap Impact Velocity** mps	Derived Velocity mps	Contact Area (CA) mm^2	CA ≥ 1935 mm^2	
	X	Y	Angle				Yes-PASS	No-FAIL
H1	-801	509	0º	1.60	1.07	4,440	**PASS**	
H2	-684	511	0º	1.56	1.27	4,000	**PASS**	
H3	-571	510	0º	1.56	1.63	4,010	**PASS**	
H4	-456	510	0º	1.54	1.18	3,580	**PASS**	
H5	-796	336	0º	1.58	1.53	4,730	**PASS**	
H6	-684	336	0º	1.56	1.50	3,120	**PASS**	
H7	-570	339	0º	1.58	1.73	3,010	**PASS**	

* Contact Velocity from Item 7 below

** Velocity Range = 1.52 mps, +0.08, -0 mps

5. Attach Contact Area Prints.
6. Attach acceleration versus time plots for each impact.
7. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat.

Recorded By: _____

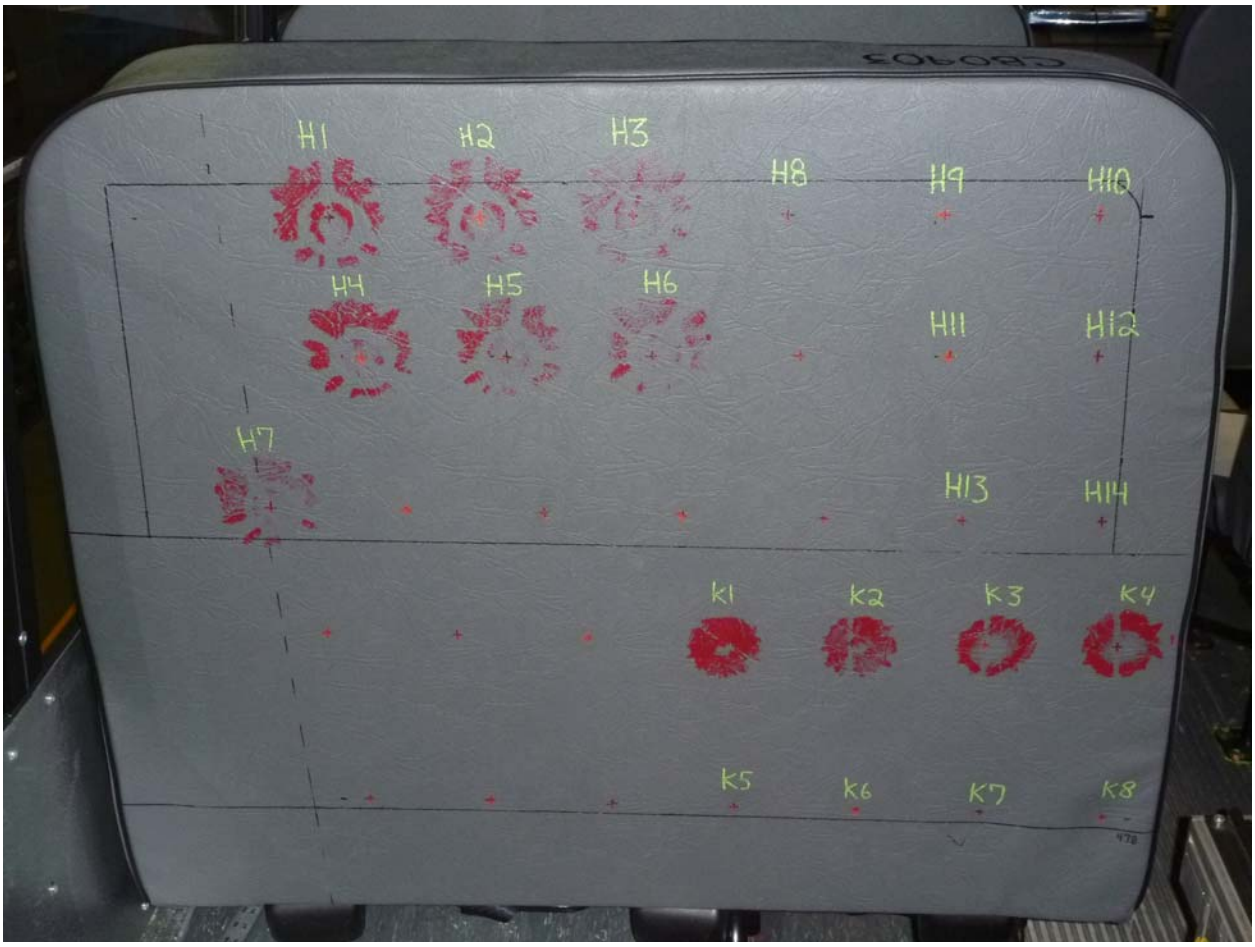
Approved By: _____ Date: 06/06/11

DATA SHEET 9

HEAD FORM IMPACT ENERGY REQUIREMENT

Test Vehicle:	**2011 Girardin Micro Bird School Bus**	NHTSA No.:	**CB0903**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Dates:	**04/14/11 – 06/15/11**

SEAT NUMBER: S2



REAR SURFACE

1. Locate x-y reference point on sketch above for head form impact locations. (Label the positive and negative directions, if applicable)
2. Identify head form impact location on sketch by placing H8, H9, H10, H11, H12, H13, and H14 in the appropriate location.
3. Define the plane of reference for head form impact angle:
   0° = Parallel with Floor, (+) is Up, (-) is Down
   X = From Inboard Edge of Seat
   Y = Measured Vertically from the SRP

DATA SHEET 9 (CONTINUED)

HEAD FORM IMPACT ENERGY REQUIREMENT

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)		(8)	
Head impact & Test #	Location			Speed Trap Impact Velocity ** mps	Derived Velocity ** mps	Max HIC	Energy Req'd joules	Column 5 < 1000		Column 6 > 4.5 joules	
	X	Y	Angle					Yes-PASS	No-FAIL	Yes-PASS	No-FAIL
H8	-365	604	0º	6.62	6.79	176	7.92	PASS		PASS	
H9	-249	603	0º	6.66	6.82	139	7.20	PASS		PASS	
H10	-135	603	0º	6.62	6.85	105	6.75	PASS		PASS	
H11	-239	486	0º	6.67	7.01	101	9.52	PASS		PASS	
H12	-124	487	0º	6.66	6.79	118	7.99	PASS		PASS	
H13	-216	340	0º	6.55	6.76	111	13.24	PASS		PASS	
H14	-101	340	0º	6.67	6.84	232	10.04	PASS		PASS	

* Impact velocity from item No. 6 below

** Impact velocity range = 6.69 mps, +0, -0.08 mps

5. Attach acceleration versus time plots for each impact.
6. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat. In the case of Seat No. S2, the inboard edge of the seat is on the right hand side of the seat as viewed from the rear.

Recorded By: _____

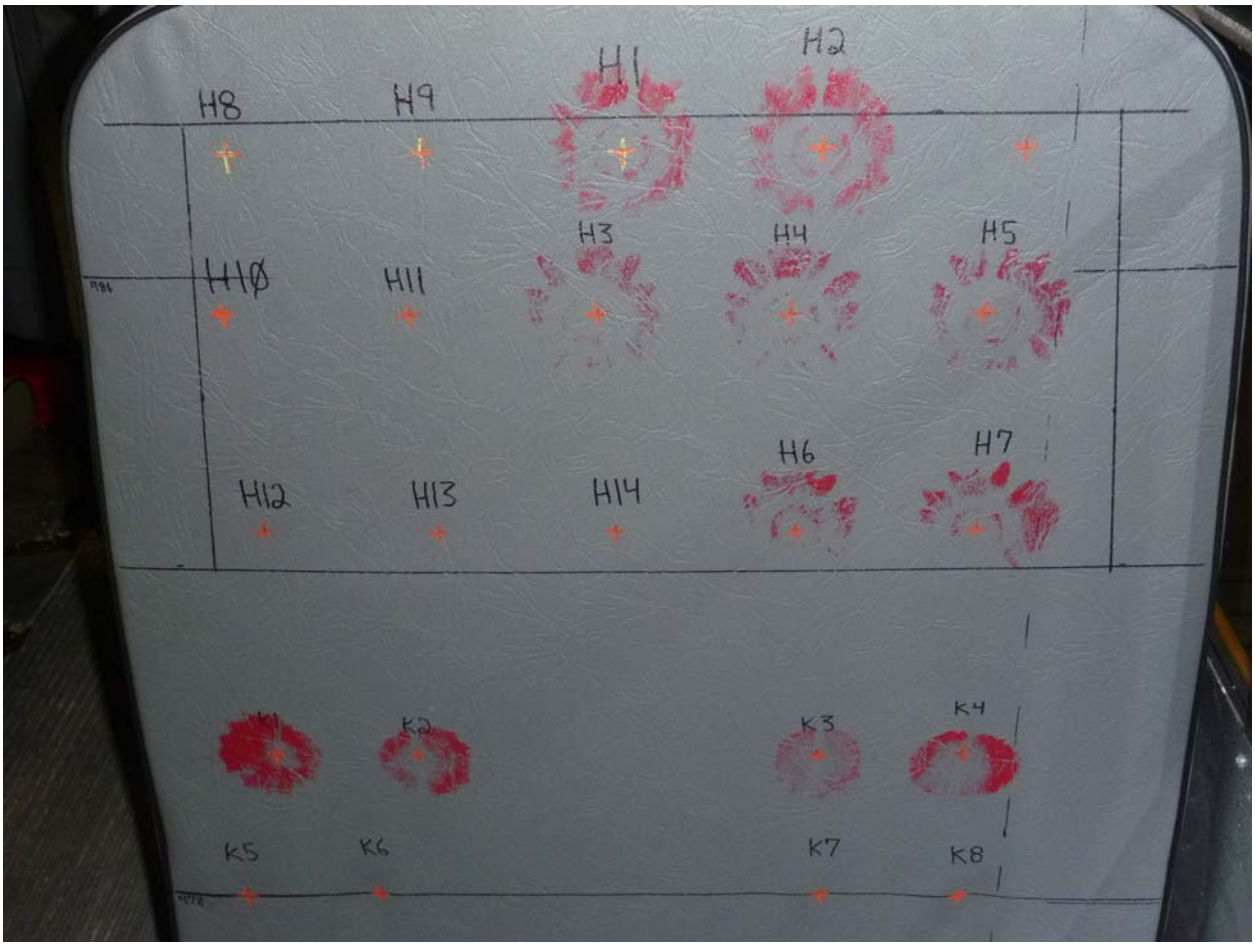
Approved By: _____ Date: 05/11/11

DATA SHEET 9

HEAD FORM IMPACT ENERGY REQUIREMENT

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S7



REAR SURFACE

1. Locate x-y reference point on sketch above for head form impact locations. (Label the positive and negative directions, if applicable)
2. Identify head form impact location on sketch by placing H8, H9, H10, H11, H12, H13, and H14 in the appropriate location.
3. Define the plane of reference for head form impact angle:

   0° = Parallel with Floor, (+) is Up, (-) is Down

   X = From Inboard Edge of Seat

   Y = Measured Vertically from the SRP

DATA SHEET 9 (CONTINUED)

HEAD FORM IMPACT ENERGY REQUIREMENT

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)		(8)	
Head impact & Test #	Location			Speed Trap Impact Velocity ** mps	Derived Velocity ** mps	Max HIC	Energy Req'd joules	Column 5 < 1000		Column 6 > 4.5 joules	
	X	Y	Angle					Yes- PASS	No- FAIL	Yes- PASS	No- FAIL
H8	144	588	0º	6.68	6.90	107	8.63	PASS		PASS	
H9	260	584	0º	6.65	6.83	126	8.81	PASS		PASS	
H10	130	484	0º	6.67	6.83	122	11.17	PASS		PASS	
H11	243	484	0º	6.68	6.75	81	16.19	PASS		PASS	
H12	130	330	0º	6.69	6.94	156	11.42	PASS		PASS	
H13	246	330	0º	6.67	6.77	102	16.48	PASS		PASS	
H14	360	330	0º	6.66	6.78	125	8.91	PASS		PASS	

* Impact velocity from item No. 6 below

** Impact velocity range = 6.69 mps, +0, -0.08 mps

5. Attach acceleration versus time plots for each impact.
6. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat.

Recorded By: _____

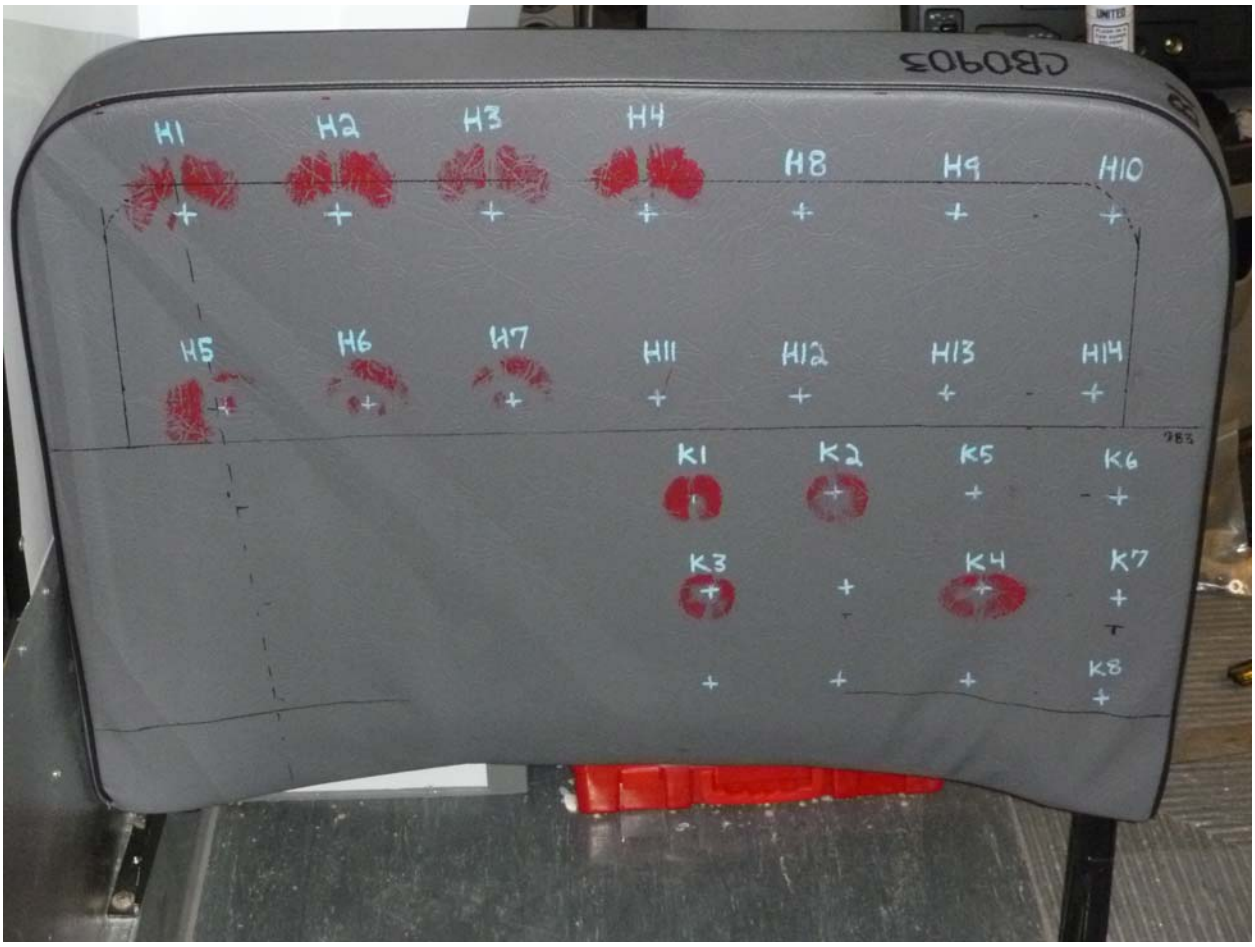
Approved By: _____ Date: 05/11/11

DATA SHEET 9

HEAD FORM IMPACT ENERGY REQUIREMENT

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

BARRIER NUMBER: B1



REAR SURFACE

1. Locate x-y reference point on sketch above for head form impact locations. (Label the positive and negative directions, if applicable)
2. Identify head form impact location on sketch by placing H8, H9, H10, H11, H12, H13, and H14 in the appropriate location.
3. Define the plane of reference for head form impact angle:

   0° = Parallel with Floor, (+) is Up, (-) is Down

   X = From Inboard Edge of Seat

   Y = Measured Vertically from the SRP

DATA SHEET 9 (CONTINUED)

HEAD FORM IMPACT ENERGY REQUIREMENT

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)		(8)	
Head impact & Test #	Location			Speed Trap Impact Velocity ** mps	Derived Velocity ** mps	Max HIC	Energy Req'd joules	Column 5 < 1000		Column 6 > 4.5 joules	
	X	Y	Angle					Yes-PASS	No-FAIL	Yes-PASS	No-FAIL
H8	-342	510	0º	6.62	6.81	132	6.96	PASS		PASS	
H9	-229	507	0º	6.61	6.75	106	5.90	PASS		PASS	
H10	-113	505	0º	6.62	6.79	87	7.05	PASS		PASS	
H11	-454	341	0º	6.67	6.89	127	13.11	PASS		PASS	
H12	-341	340	0º	6.65	6.77	110	13.34	PASS		PASS	
H13	-226	342	0º	6.65	6.79	83	17.78	PASS		PASS	
H14	-110	342	0º	6.63	6.75	150	7.62	PASS		PASS	

* Impact velocity from item No. 6 below

** Impact velocity range = 6.69 mps, +0, -0.08 mps

5. Attach acceleration versus time plots for each impact.
6. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat.

Recorded By: _____

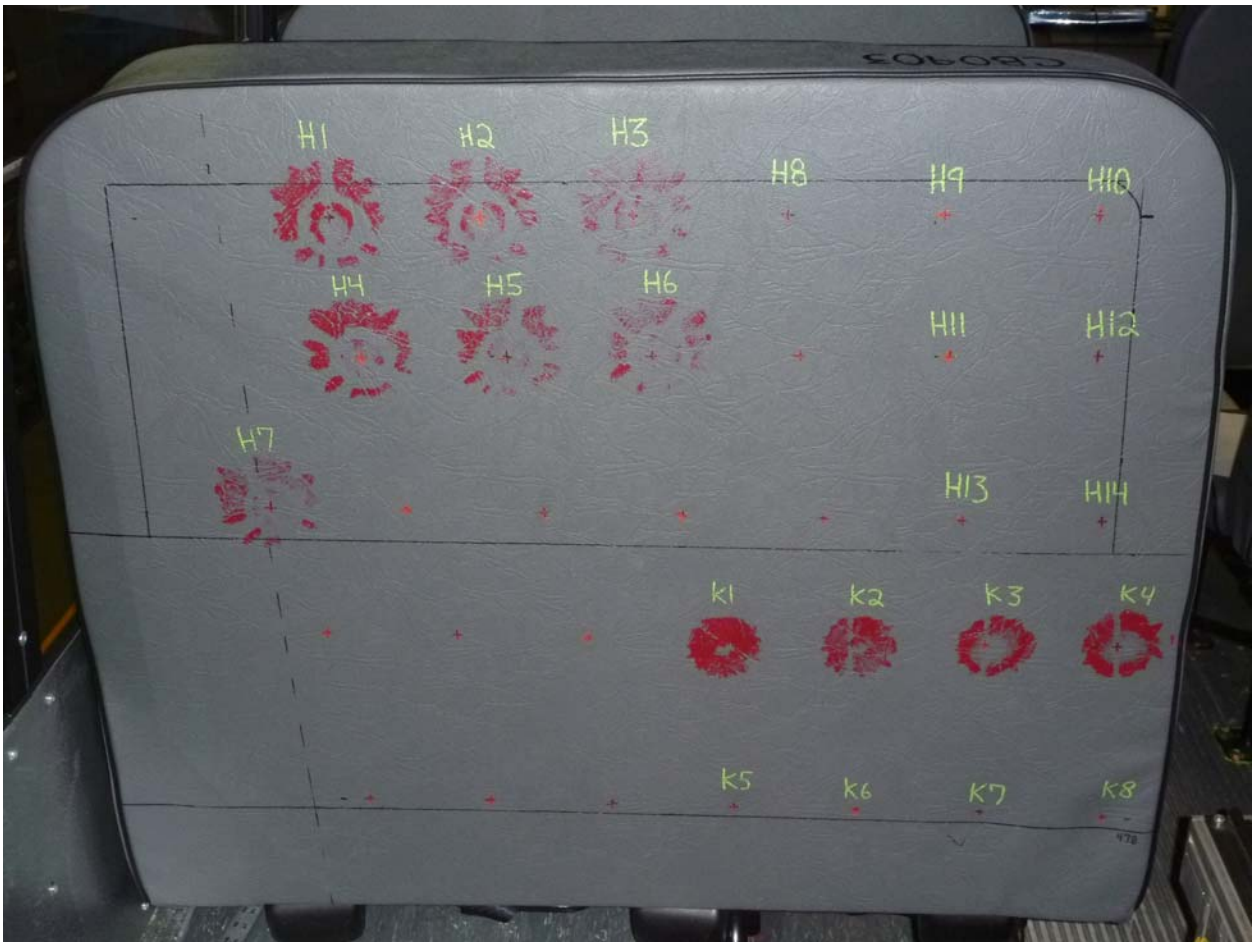
Approved By: _____ Date: 06/07/11

DATA SHEET 10

KNEE FORM IMPACT TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S2



REAR SURFACE

1. Locate x-y reference point on sketch above for knee form impact locations. (Label the positive and negative directions, if applicable)
2. Identify knee form impact location on sketch by placing K1, K2, K3, K4, K5, K6, K7, and K8 in the appropriate location.
3. Define the plane of reference for knee form impact angle:
   0° = Parallel with Floor, (+) is Up, (-) is Down
   X = From Inboard Edge of the Seat
   Y = Measured Vertically from the SRP

DATA SHEET 10 (CONTINUED)

KNEE FORM IMPACT TEST

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)		(8)	
Knee impact & Test #	Location			Speed Trap Impact Velocity ** mps	Derived Velocity ** mps	Cont. Area mm^2	Resist Force (N)	Column 5 > 1935 mm^2		Column 6 < 2669N	
	X	Y	Angle					Yes-PASS	No-FAIL	Yes-PASS	No-FAIL
K1	-415	219	0º	4.91	4.98	3,590	1,229	PASS			
K2	-300	217	0º	4.89	4.87	3,450	1,276	PASS			
K3	-186	215	0º	4.88	4.59	3,440	1,128	PASS			
K4	-72	214	0º	4.93	5.14	4,250	2,410	PASS			
K5	-400	21	0º	4.83	4.90		1,422			PASS	
K6	-285	20	0º	4.85	4.82		1,718			PASS	
K7	-172	18	0º	4.86	4.92		1,690			PASS	
K8	-57	13	0º	4.82	4.82		2,394			PASS	

* Impact velocity from item No. 7 below

** Impact velocity range = 4.86 mps, +0.076, -0 mps for contact area (K1 through K4)

** Impact velocity range = 4.86 mps, +0, -0.076 mps for contact area (K5 through K8)

5. Attach Contact Area Prints for K1, K2, K3 and K4.
6. Attach acceleration versus time plots for each impact.
7. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time for each plot K1 through K8.
8. Attach force vs. time plots for K5, K6, K7 and K8.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat. In the case of Seat No. S2, the inboard edge of the seat is on the right hand side of the seat as viewed from the rear.

Recorded By: 

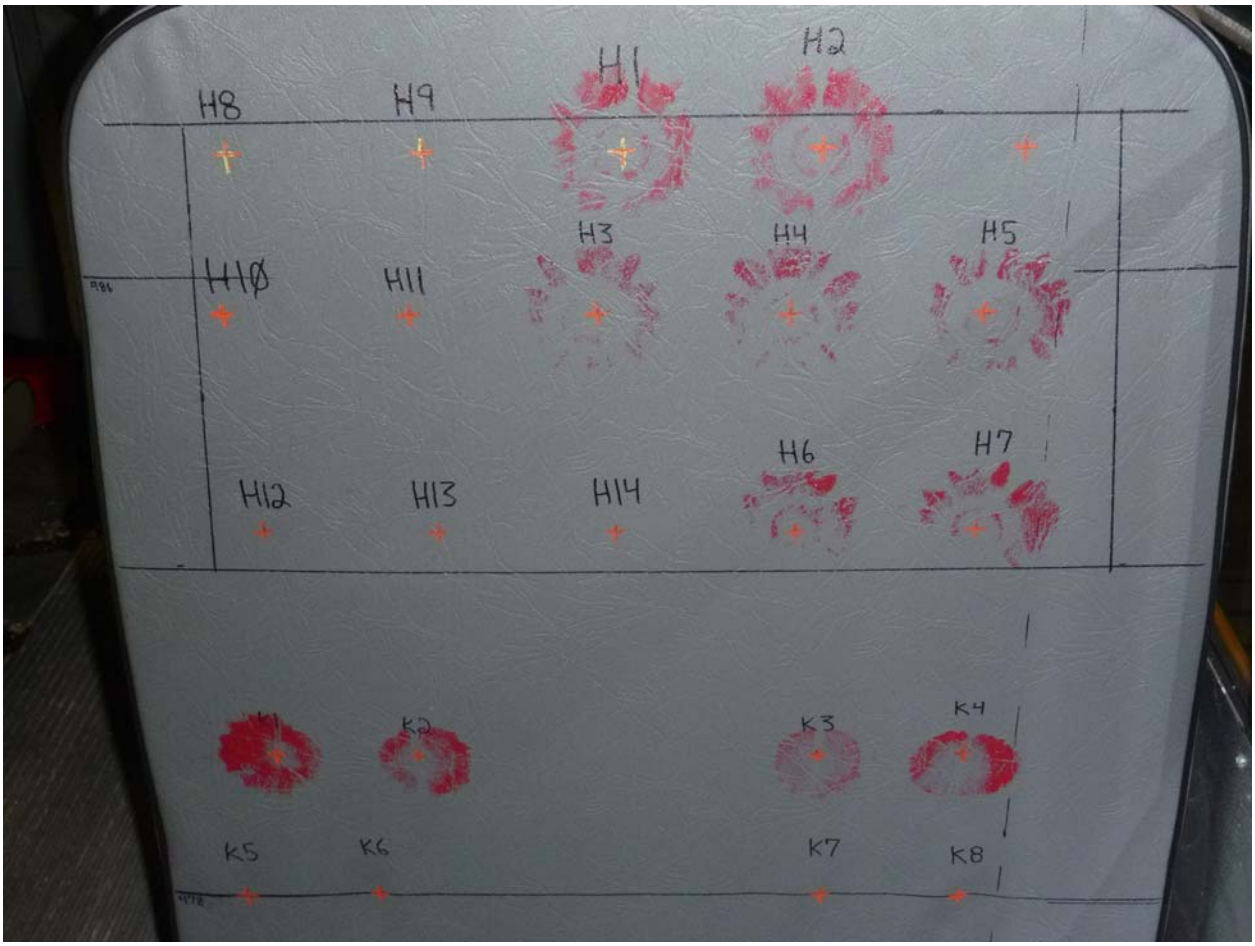
Approved By:  Date: 04/19/11

DATA SHEET 10

KNEE FORM IMPACT TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

SEAT NUMBER: S7



REAR SURFACE

1. Locate x-y reference point on sketch above for knee form impact locations. (Label the positive and negative directions, if applicable)
2. Identify knee form impact location on sketch by placing K1, K2, K3, K4, K5, K6, K7, and K8 in the appropriate location.
3. Define the plane of reference for knee form impact angle:
   0° = Parallel with Floor, (+) is Up, (-) is Down
   X = From Inboard Edge of the Seat
   Y = Measured Vertically from the SRP

DATA SHEET 10 (CONTINUED)

KNEE FORM IMPACT TEST

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)		(8)	
Knee impact & Test #	Location			Speed Trap Impact Velocity ** mps	Derived Velocity ** mps	Cont. Area mm^2	Resist Force (N)	Column 5 > 1935 mm^2		Column 6 < 2669N	
	X	Y	Angle					Yes-PASS	No-FAIL	Yes-PASS	No-FAIL
K1	110	140	0º	4.86	5.04	3,790	2,007	PASS			
K2	214	140	0º	4.88	5.01	3,620	1,409	PASS			
K3	493	140	0º	4.90	4.97	3,330	1,527	PASS			
K4	594	141	0º	4.89	5.02	3,910	1,369	PASS			
K5	65	0	0º	4.82	5.02		2,529			PASS	
K6	167	0	0º	4.84	4.88		1,376			PASS	
K7	499	0	0º	4.84	4.76		1,782			PASS	
K8	601	0	0º	4.85	4.75		1,626			PASS	

* Impact velocity from item No. 7 below

** Impact velocity range = 4.86 mps, +0.076, -0 mps for contact area (K1 through K4)

** Impact velocity range = 4.86 mps, +0, -0.076 mps for contact area (K5 through K8)

5. Attach Contact Area Prints for K1, K2, K3 and K4.
6. Attach acceleration versus time plots for each impact.
7. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time for each plot K1 through K8.
8. Attach force vs. time plots for K5, K6, K7 and K8.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat.

Recorded By: 

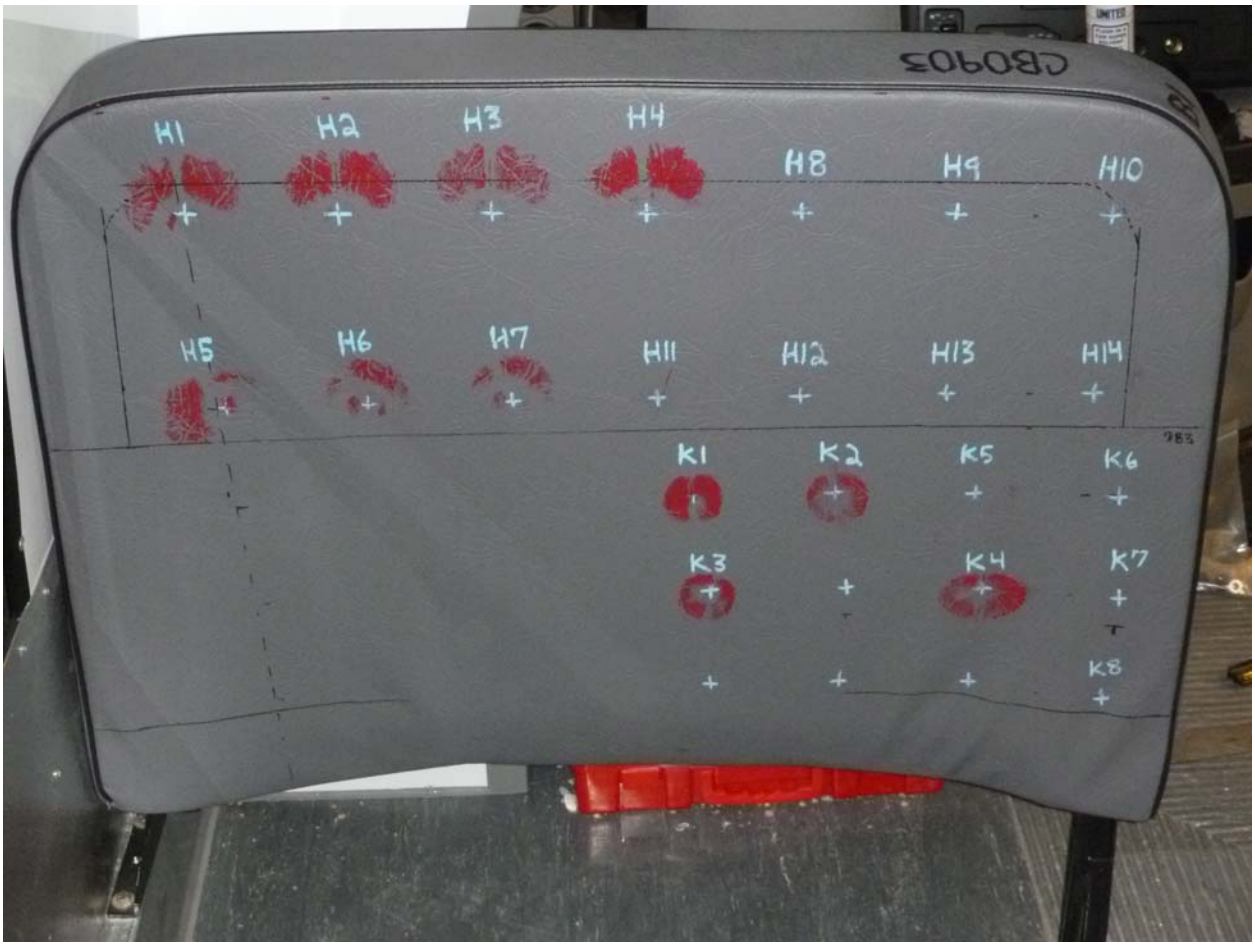
Approved By:  Date: 05/06/11

DATA SHEET 10

KNEE FORM IMPACT TEST

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA RESEARCH CORPORATION** Test Dates: **04/14/11 – 06/15/11**

BARRIER NUMBER: B1



REAR SURFACE

1. Locate x-y reference point on sketch above for knee form impact locations. (Label the positive and negative directions, if applicable)
2. Identify knee form impact location on sketch by placing K1, K2, K3, K4, K5, K6, K7, and K8 in the appropriate location.
3. Define the plane of reference for knee form impact angle:
   0° = Parallel with Floor, (+) is Up, (-) is Down
   X = From Inboard Edge of the Seat
   Y = Measured Vertically from the SRP

DATA SHEET 10 (CONTINUED)

KNEE FORM IMPACT TEST

4. Complete the following table:

(1)	(2)			(3)	(4)*	(5)	(6)	(7)		(8)	
Knee impact & Test #	Location			Speed Trap Impact Velocity ** mps	Derived Velocity ** mps	Cont. Area mm^2	Resist Force (N)	Column 5 > 1935 mm^2		Column 6 < 2669N	
	X	Y	Angle					Yes-PASS	No-FAIL	Yes-PASS	No-FAIL
K1	-430	241	0º	4.94	5.07	2,530	1,296	PASS			
K2	-312	241	0º	4.94	4.88	2,320	1,536	PASS			
K3	-416	132	0º	4.89	4.87	2,430	1,598	PASS			
K4	-182	135	0º	4.90	4.83	3,470	1,143	PASS			
K5	-198	241	0º	4.86	4.93		1,644			PASS	
K6	-81	241	0º	4.84	4.76		1,728			PASS	
K7	-69	133	0º	4.81	4.81		1,475			PASS	
K8	-72	10	0º	4.82	4.81		1,764			PASS	

* Impact velocity from item No. 7 below

** Impact velocity range = 4.86 mps, +0.076, -0 mps for contact area (K1 through K4)

** Impact velocity range = 4.86 mps, +0, -0.076 mps for contact area (K5 through K8)

5. Attach Contact Area Prints for K1, K2, K3 and K4.
6. Attach acceleration versus time plots for each impact.
7. Integrate the acceleration versus time plots and attach plots of the results that show velocity versus time for each plot K1 through K8.
8. Attach force vs. time plots for K5, K6, K7 and K8.

Comments: All measurements are referenced to the point where the horizontal plane through the SRP intersects the vertical line tangent to the inboard edge at the seat.

Recorded By: _____

Approved By: _____ Date: 06/02/11

SECTION 4

INSTRUMENTATION AND EQUIPMENT LIST

Equipment	Description	Model / Serial No.	Cal. Date	Cal. Due Date
Load Cell	Interface	1210AF-300 / 184552	06/14/11	12/14/11
Load Cell	PCB	1315-101-01A / 634-10k	04/07/11	10/07/11
Load Cell	PCB	1315-101-01A / 671	02/10/11	08/10/11
Load Cell	Key Transducer	1315-101-01 / 260	02/11/11	08/11/11
Load Cell	Key Transducer	1315-101-01 / 271	02/11/11	08/11/11
Load Cell	Interface	1210AF-25K-B / 137781	12/16/10	06/16/11
String Pot.	Ametek	P-40A / 0108-27165	02/11/11	08/11/11
String Pot.	Ametek	P-40A / 0504-21782	02/11/11	08/11/11
Inclinometer	Digital Protractor	Pro 360 / 001	Daily	Daily
Steel Tape	Stanley	Powerlock / 173	02/28/11	08/28/11
Impact Fixture	MGA	IF2003A	---	---
Camera	Sony	DSC-575	---	---
Planimeter	Sokkia Corp.	Planix5 / 007319	Daily	Daily

SECTION 5

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA Research Corporation** Test Dates: **04/14/11 – 06/15/11**

Left Side View of School Bus

Test Vehicle: **2011 Girardin Micro Bird School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0903**
Test Dates: **04/14/11 – 06/15/11**

Right Side View of School Bus

Test Vehicle: **2011 Girardin Micro Bird School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0903**
Test Dates: **04/14/11 – 06/15/11**

¾ Front View From Left Side of School Bus

Test Vehicle: **2011 Girardin Micro Bird School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0903**
Test Dates: **04/14/11 – 06/15/11**

¾ Front View From Right Side of School Bus

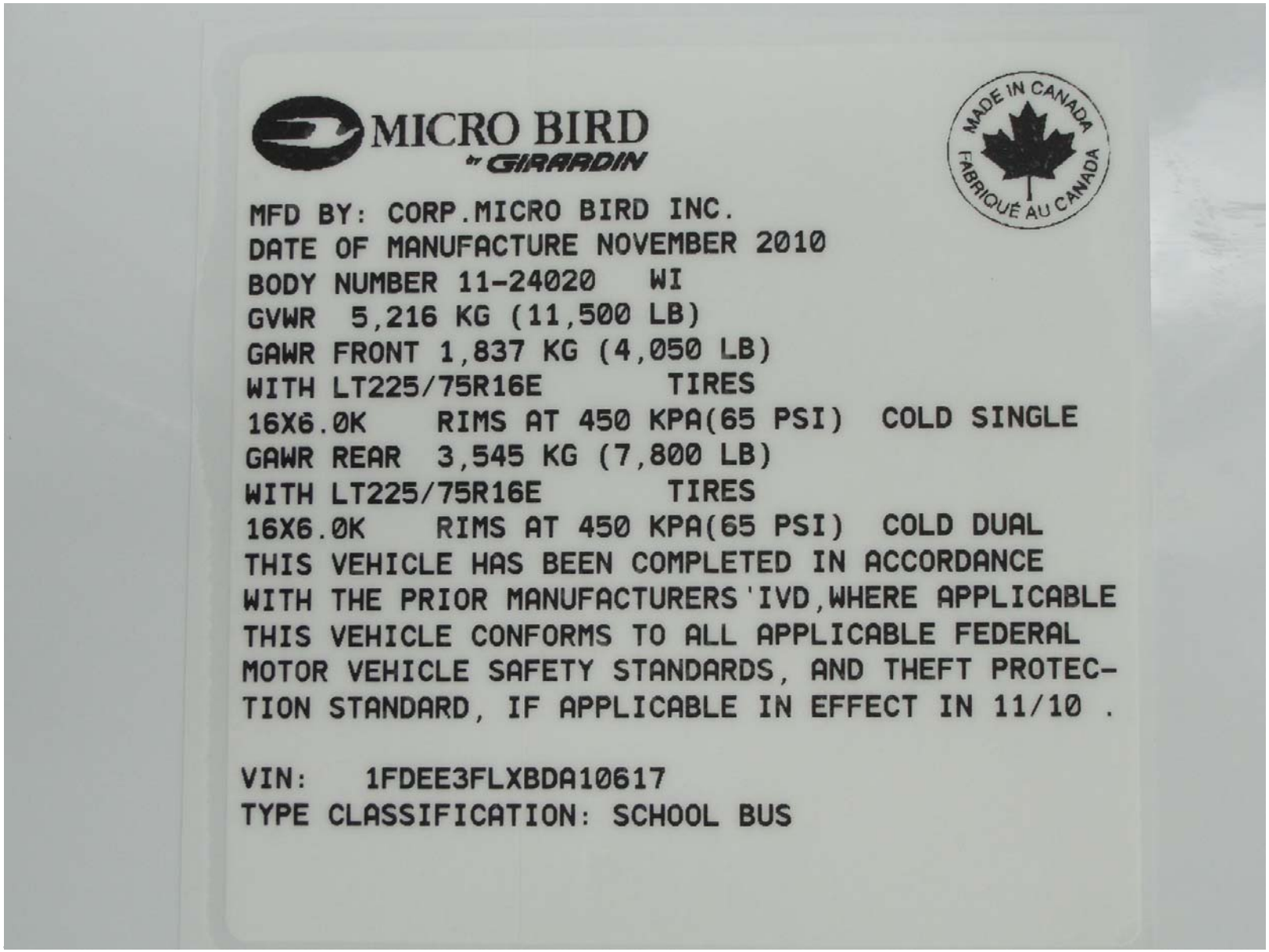
Test Vehicle: **2011 Girardin Micro Bird School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0903**
Test Dates: **04/14/11 – 06/15/11**

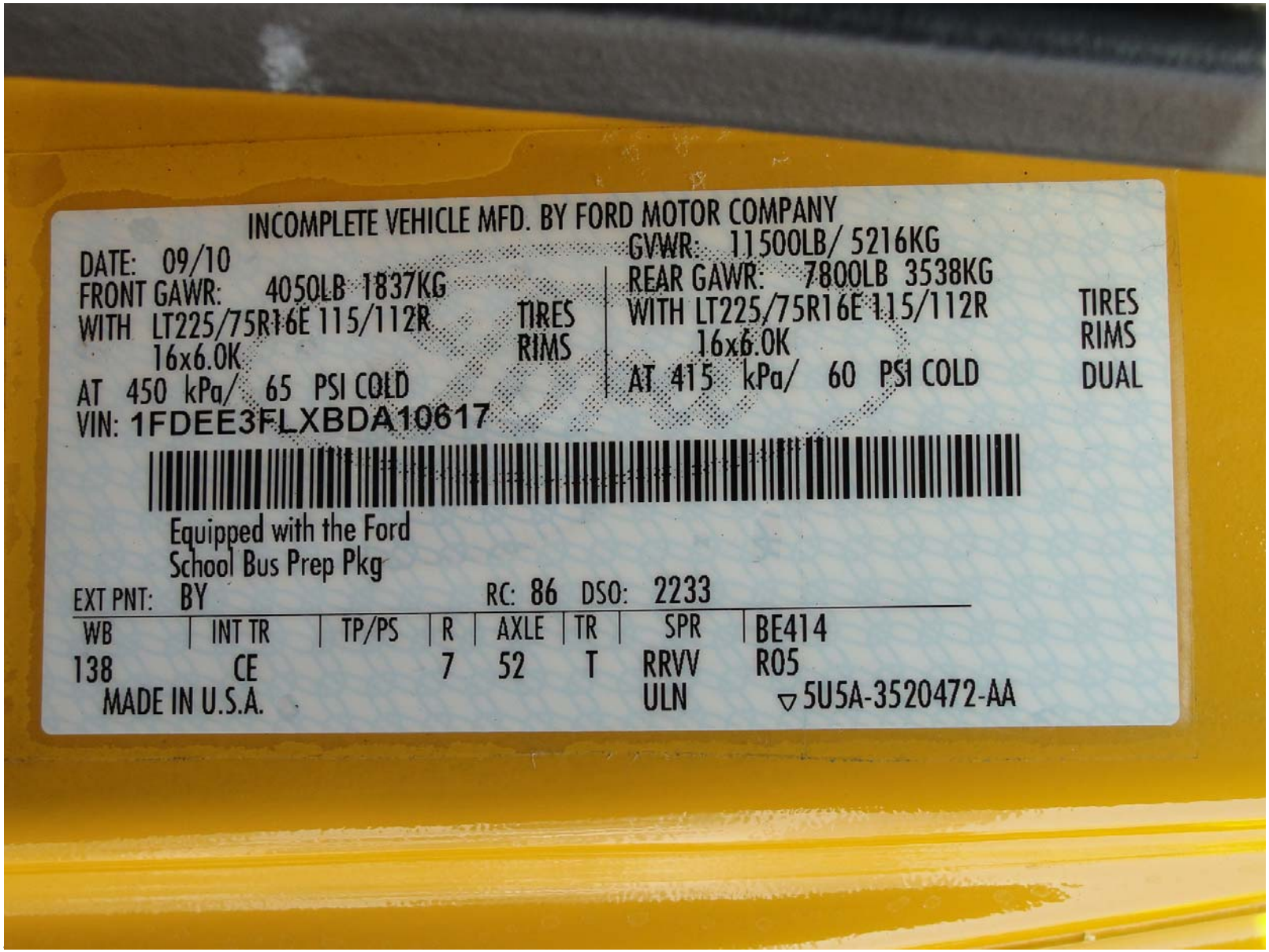
¾ Rear View From Left Side of School Bus

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA Research Corporation** Test Dates: **04/14/11 – 06/15/11**

¾ Rear View From Right Side of School Bus



Certification Label & Tire Placard



Incomplete Vehicle Label

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA Research Corporation** Test Dates: **04/14/11 – 06/15/11**

Vehicle Interior View From Front to Rear

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA Research Corporation** Test Dates: **04/14/11 – 06/15/11**

Vehicle Interior View From Rear to Front

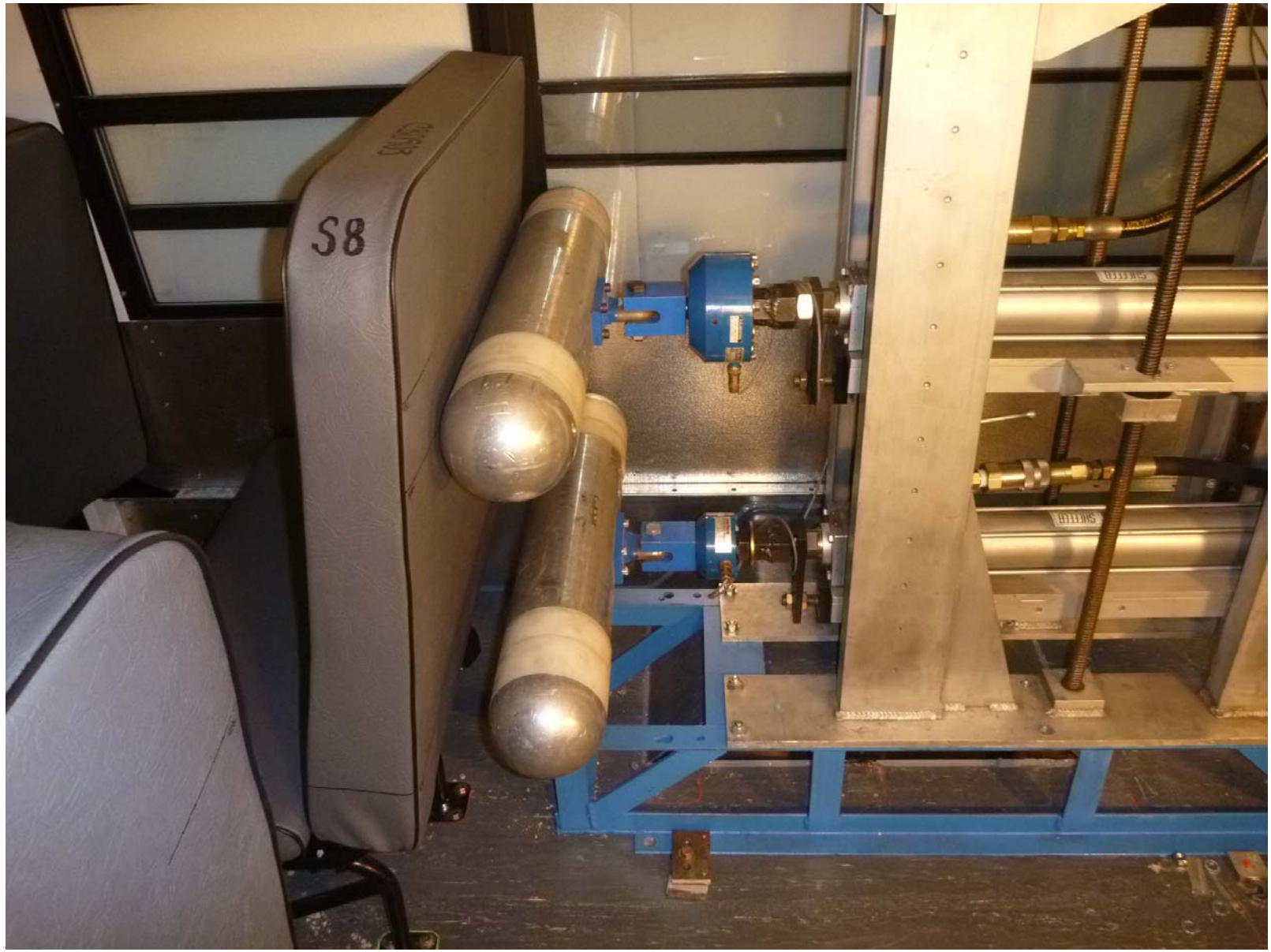
Test Vehicle: **2011 Girardin Micro Bird School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0903**
Test Dates: **04/14/11 – 06/15/11**

Pre-Test of Seat Cushion Retention Set Up on Seat S1

Pre-Test of Seat S5 Force Deflection Forward Test

Post-Test of Seat S5 Force Deflection Forward Test



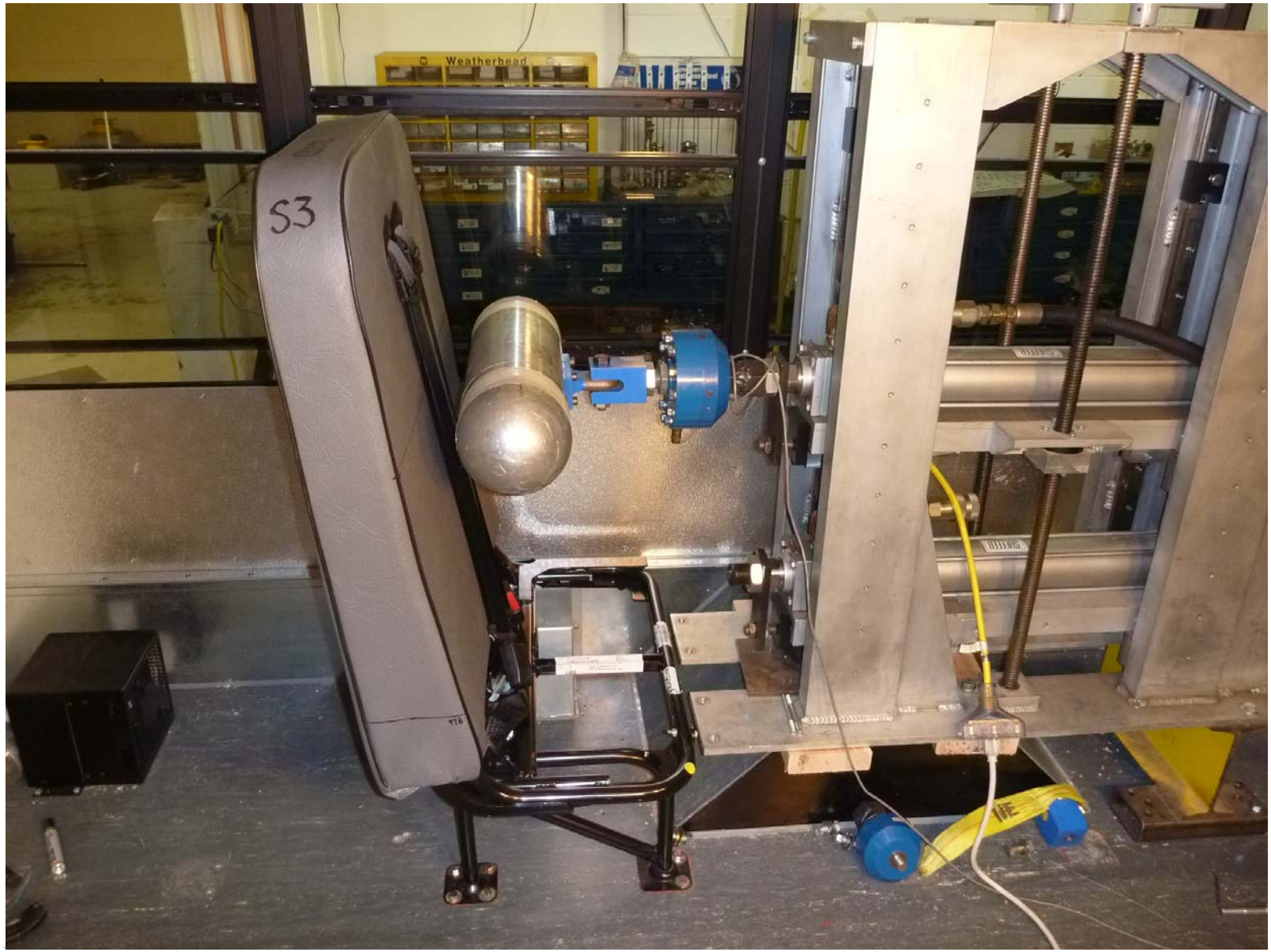
Pre-Test of Seat S8 Force Deflection Forward Test

Post-Test of Seat S8 Force Deflection Forward Test

Pre-Test of Barrier B8 Force Deflection Forward Test

Post-Test of Barrier B8 Force Deflection Forward Test

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA Research Corporation** Test Dates: **04/14/11 – 06/15/11**



Pre-Test of Seat S3 Force Deflection Rearward Test

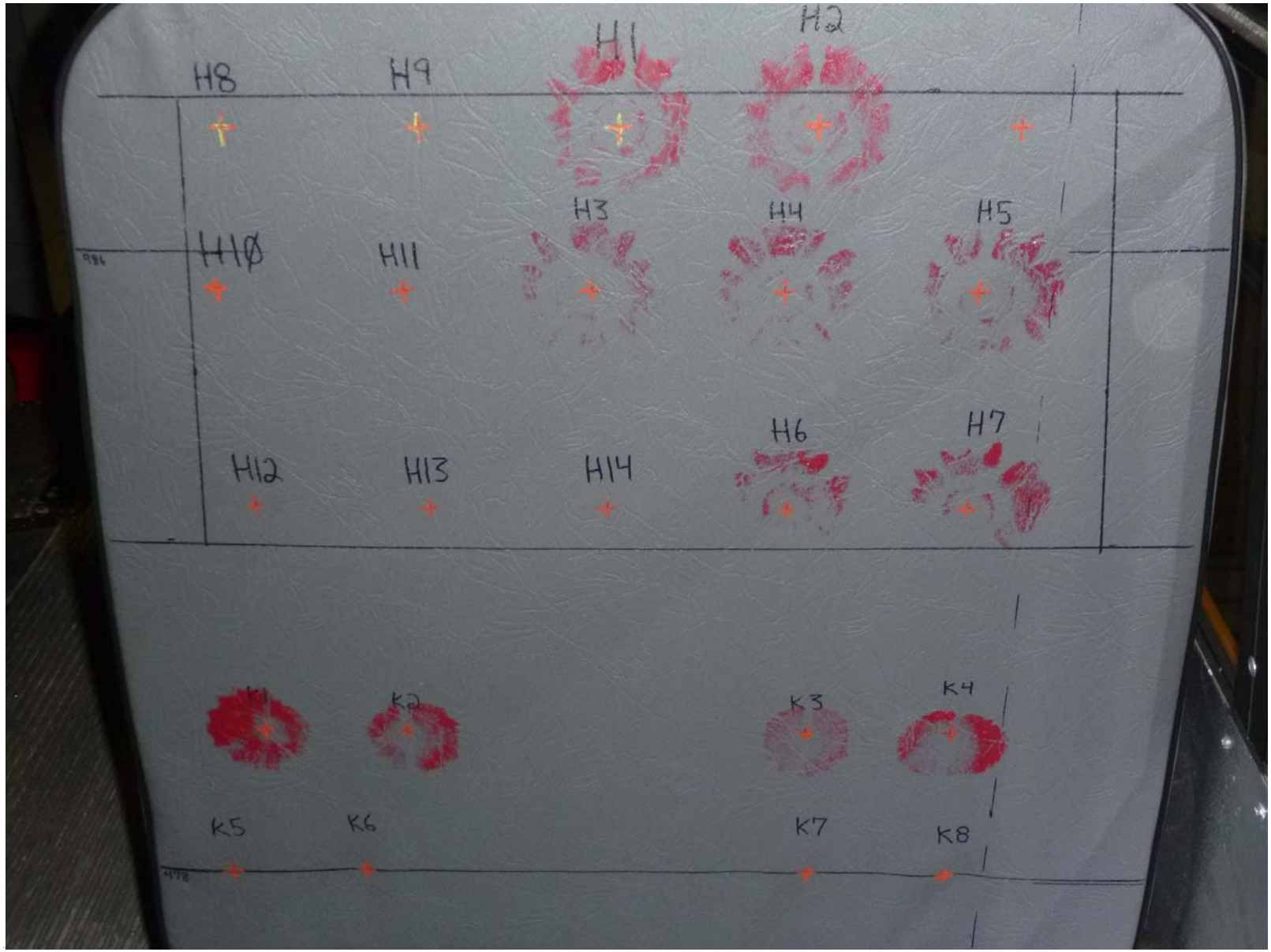
Post-Test of Seat S3 Force Deflection Rearward Test

Test Vehicle: **2011 Girardin Micro Bird School Bus**
Test Lab: **MGA Research Corporation**

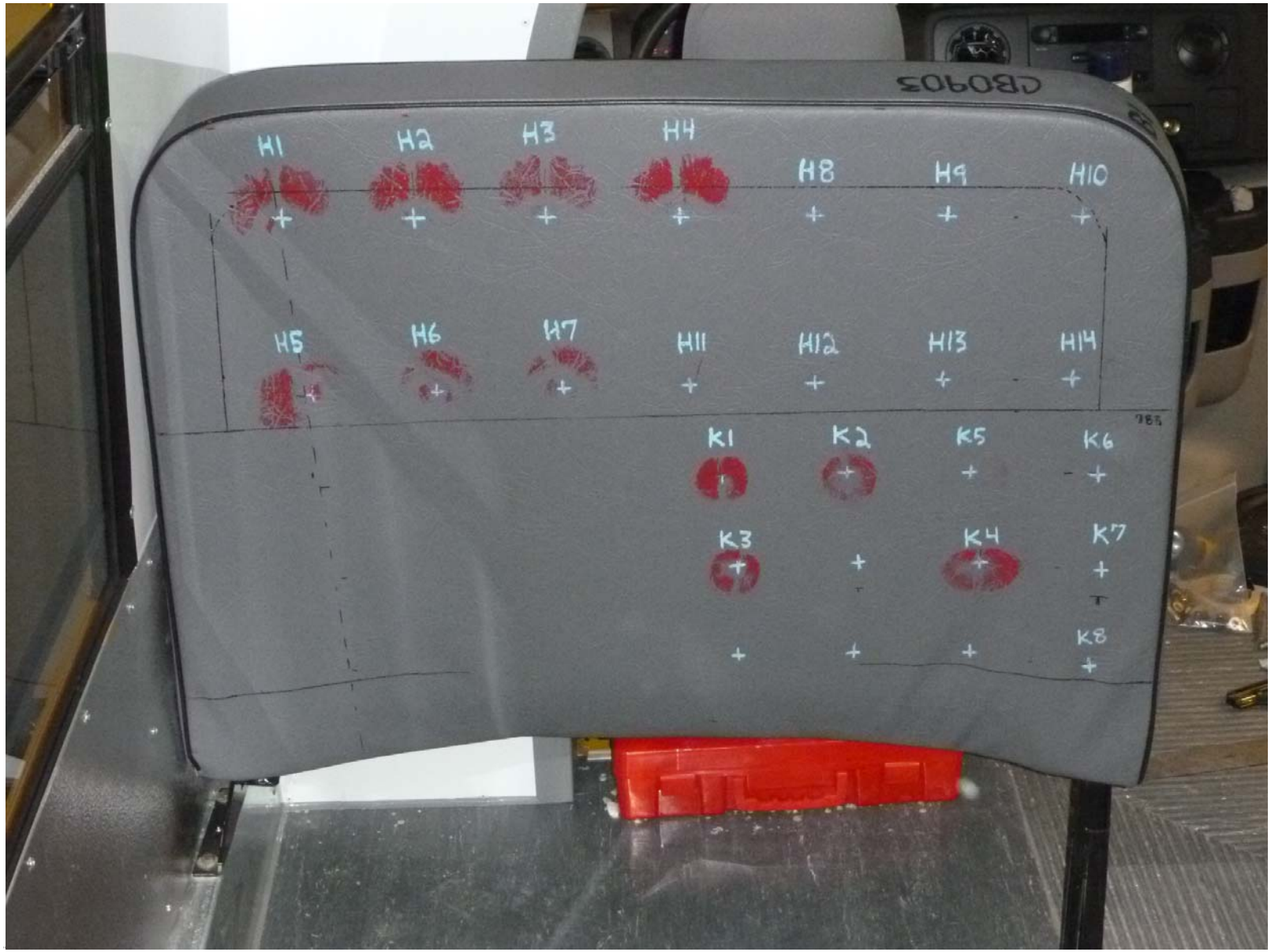
NHTSA No.: **CB0903**
Test Dates: **04/14/11 – 06/15/11**

Post-Test of Head and Knee Impact Locations on Seat S2

Test Vehicle: **2011 Girardin Micro Bird School Bus** NHTSA No.: **CB0903**
Test Lab: **MGA Research Corporation** Test Dates: **04/14/11 – 06/15/11**



Post-Test of Head and Knee Impact Locations on Seat S7



Post-Test of Head and Knee Impact Locations on Barrier B1

SECTION 6

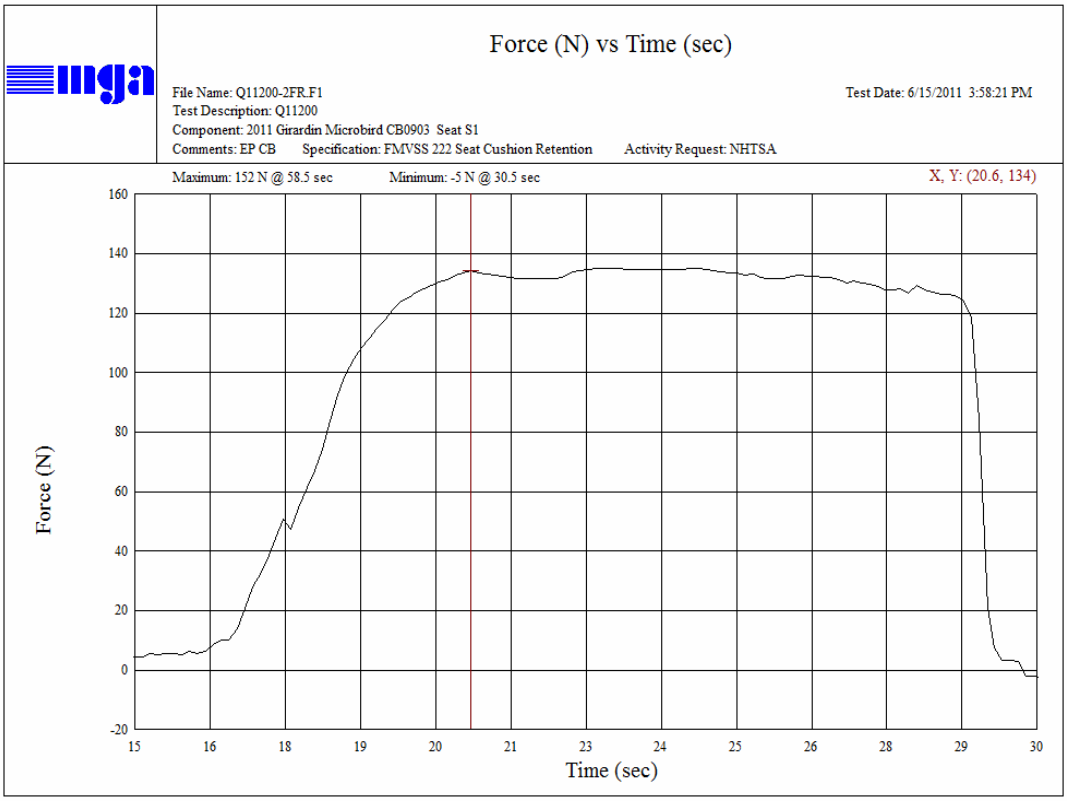
TEST PLOTS

TABLE OF TEST PLOTS

TABLE OF TEST PLOTS

SECTION 6 (CONTINUED)

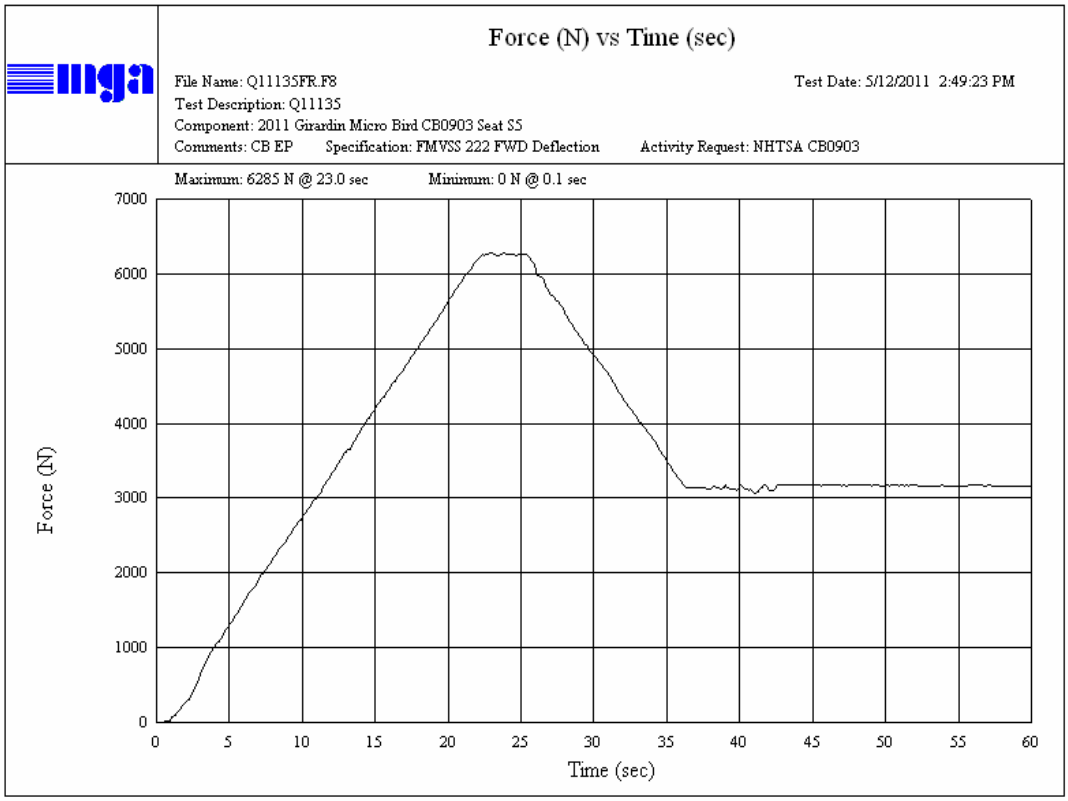
TEST PLOTS



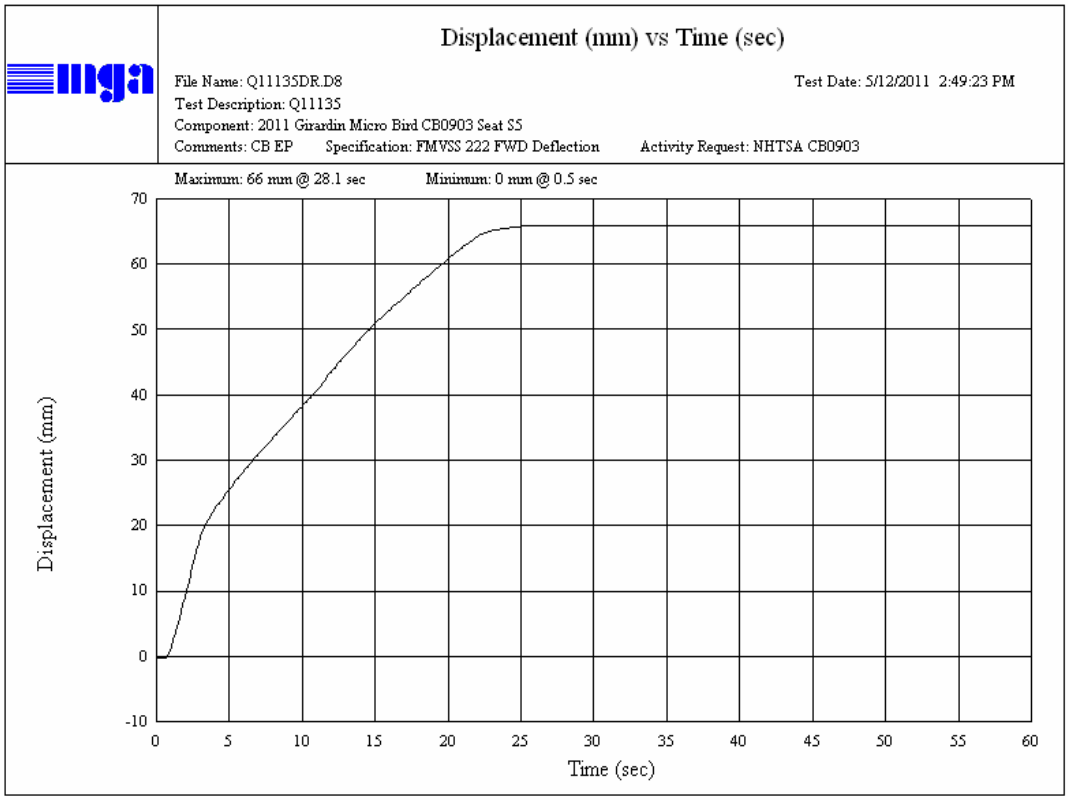
Seat Cushion Retention Seat S1 Force vs. Time

SECTION 6 (CONTINUED)

TEST PLOTS



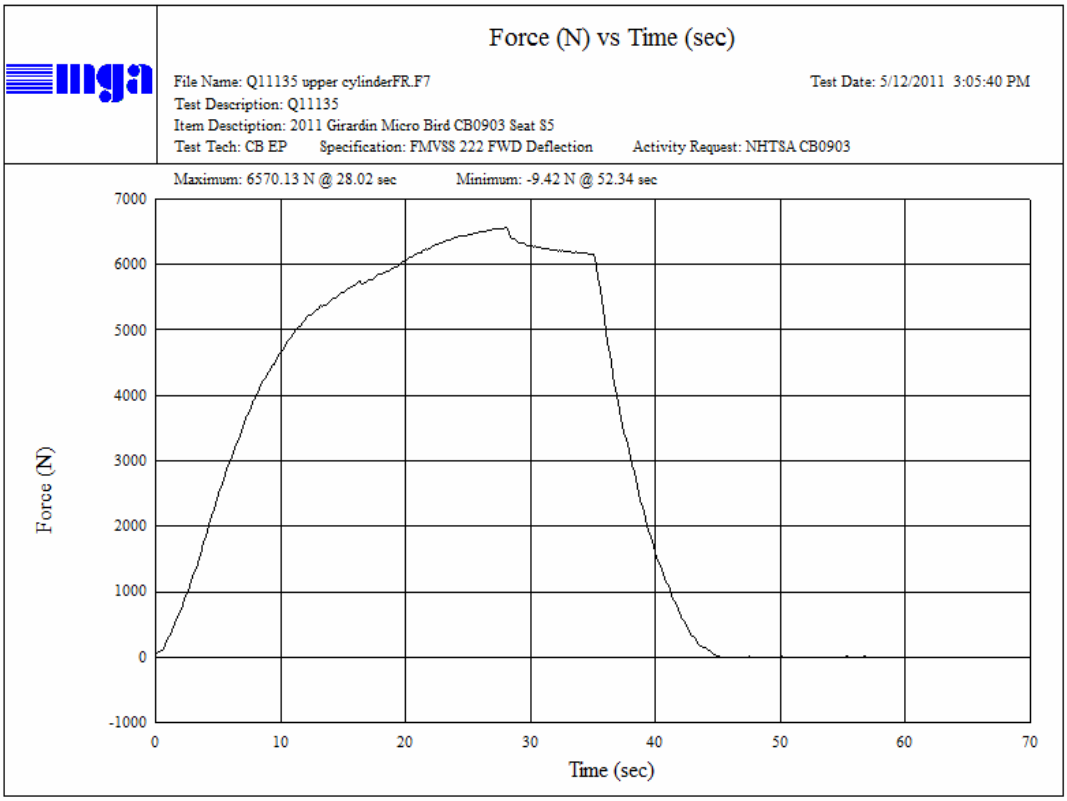
Seat Back Forward Deflection Seat S5 (Lower) Force vs. Time



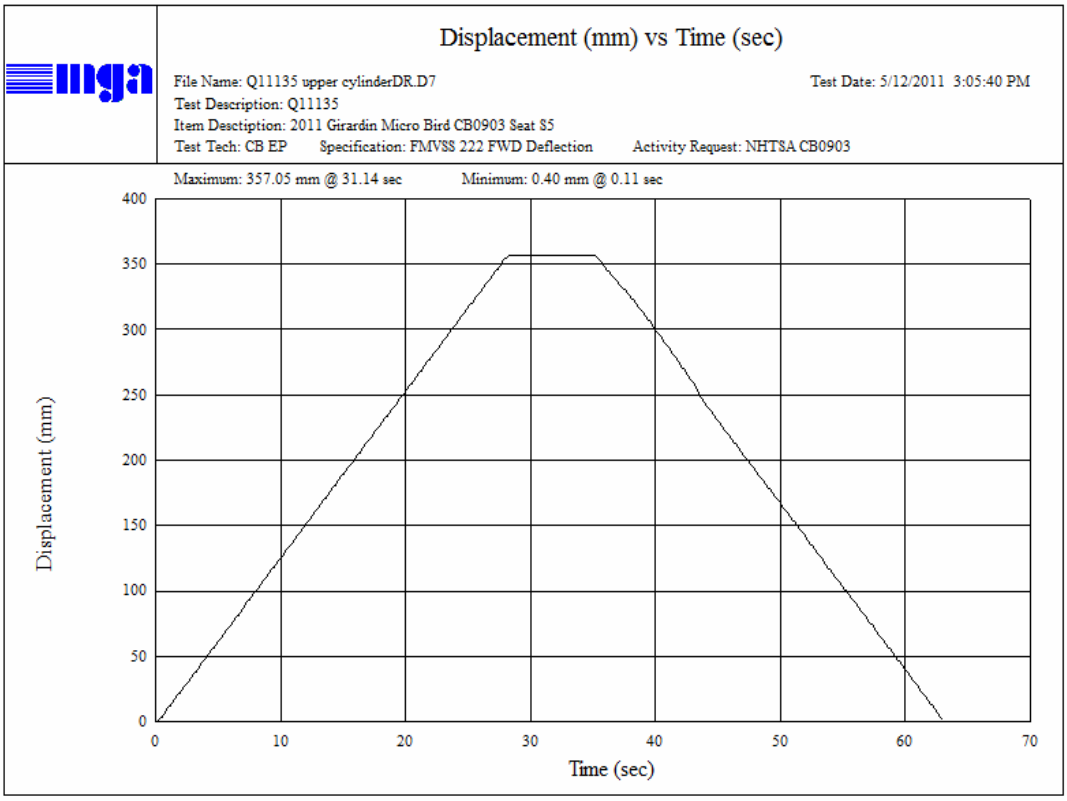
Seat Back Forward Deflection Seat S5 (Lower) Displacement vs. Time

SECTION 6 (CONTINUED)

TEST PLOTS



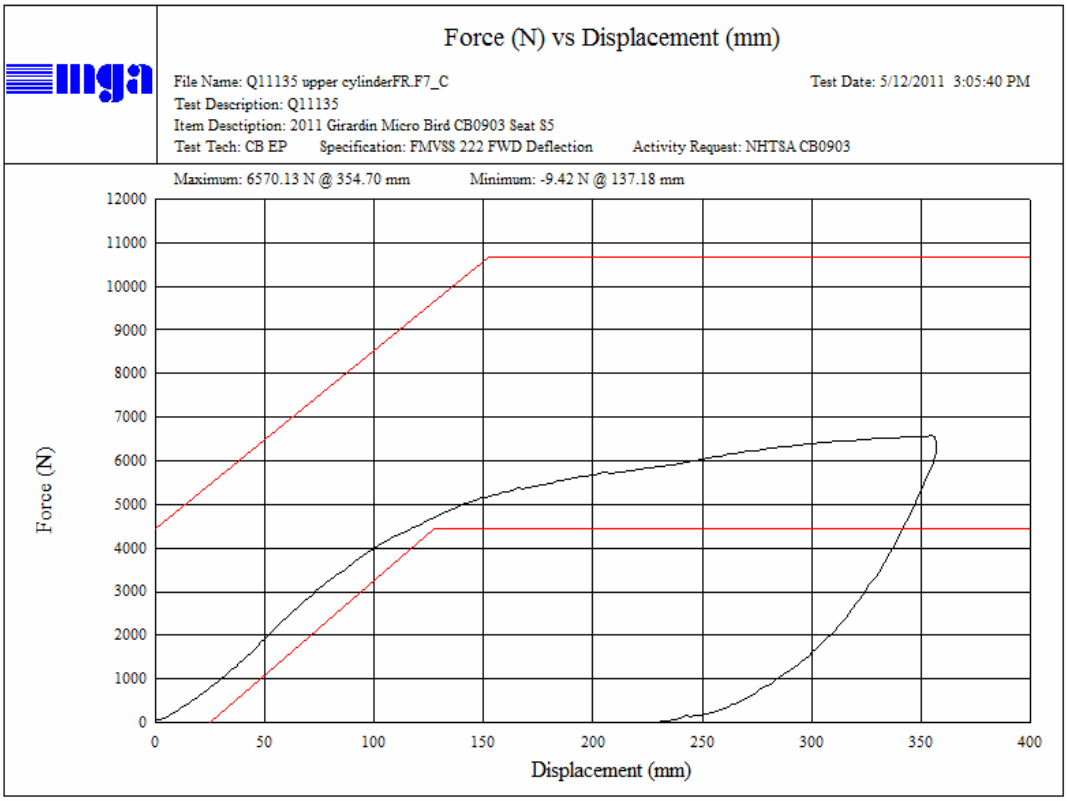
Seat Back Forward Deflection Seat S5 (Upper) Force vs. Time



Seat Back Forward Deflection Seat S5 (Upper) Displacement vs. Time

SECTION 6 (CONTINUED)

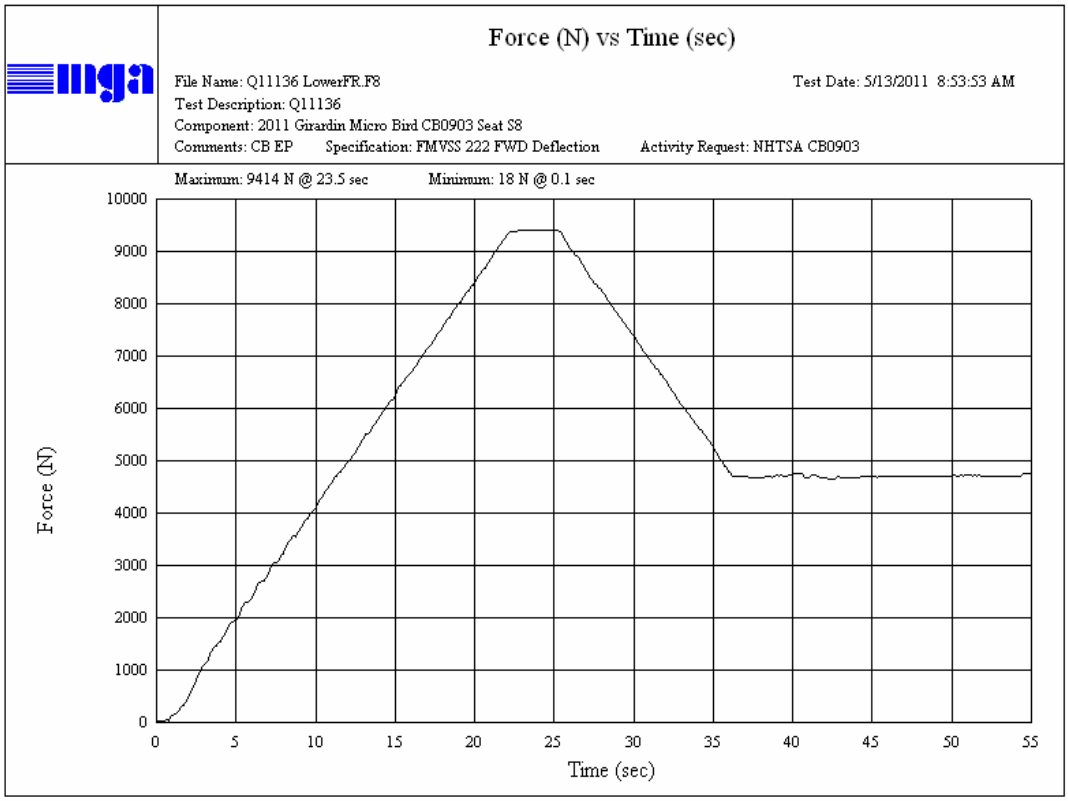
TEST PLOTS



Seat Back Forward Deflection Seat S5 (Upper) Force vs. Displacement

SECTION 6 (CONTINUED)

TEST PLOTS

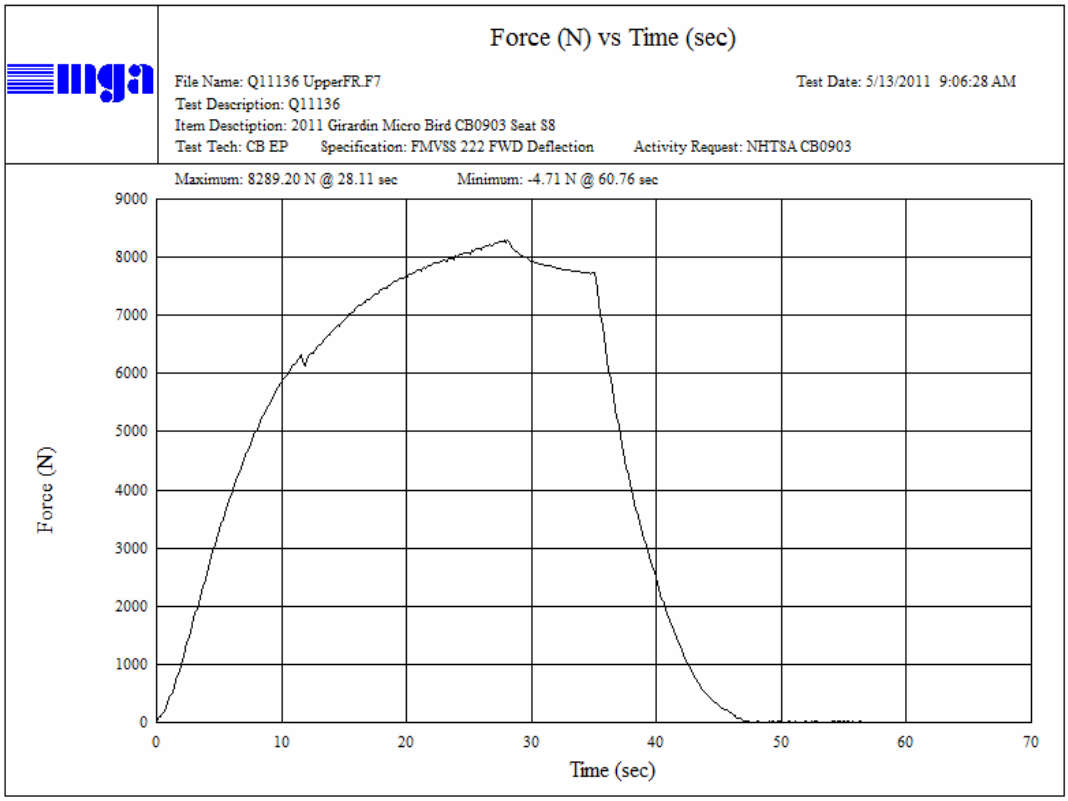


Seat Back Forward Deflection Seat S8 (Lower) Force vs. Time

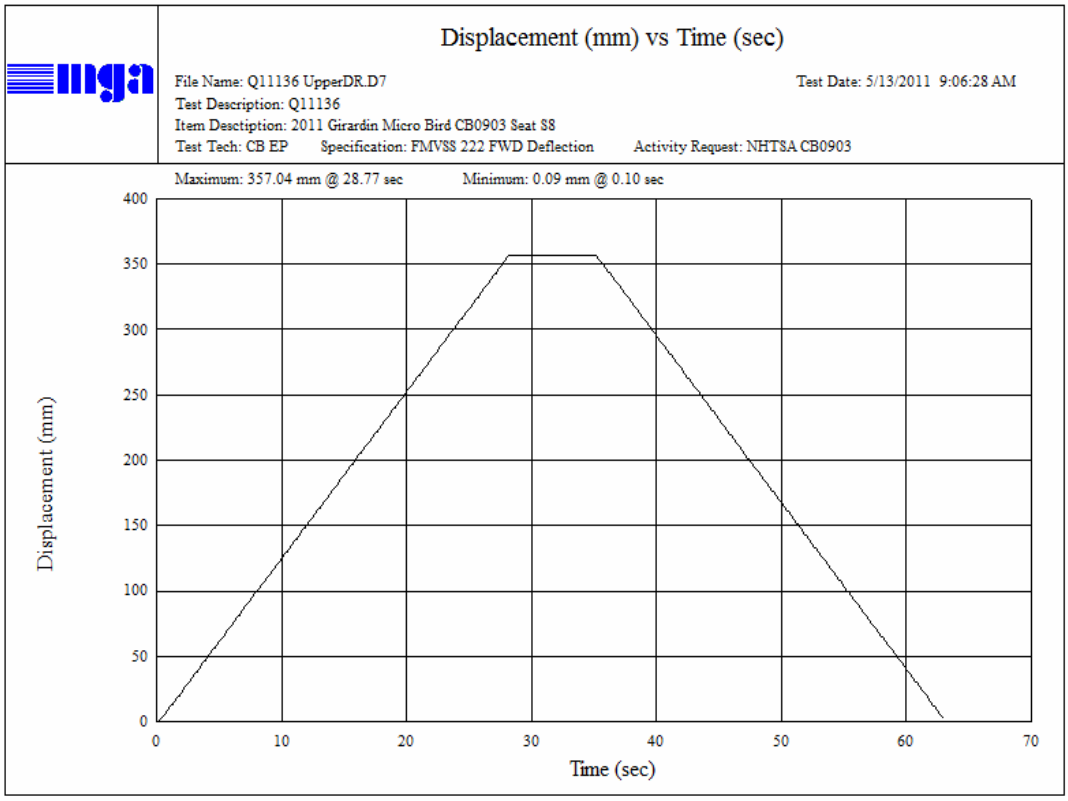
Seat Back Forward Deflection Seat S8 (Lower) Displacement vs. Time

SECTION 6 (CONTINUED)

TEST PLOTS



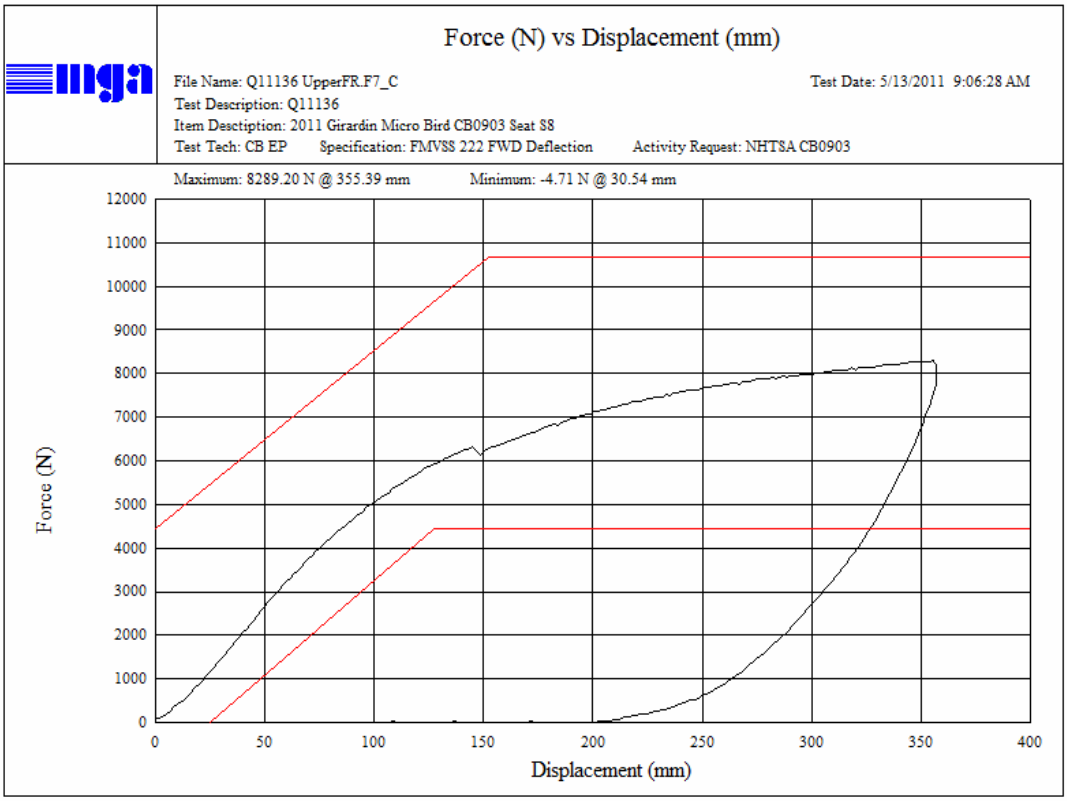
Seat Back Forward Deflection Seat S8 (Upper) Force vs. Time



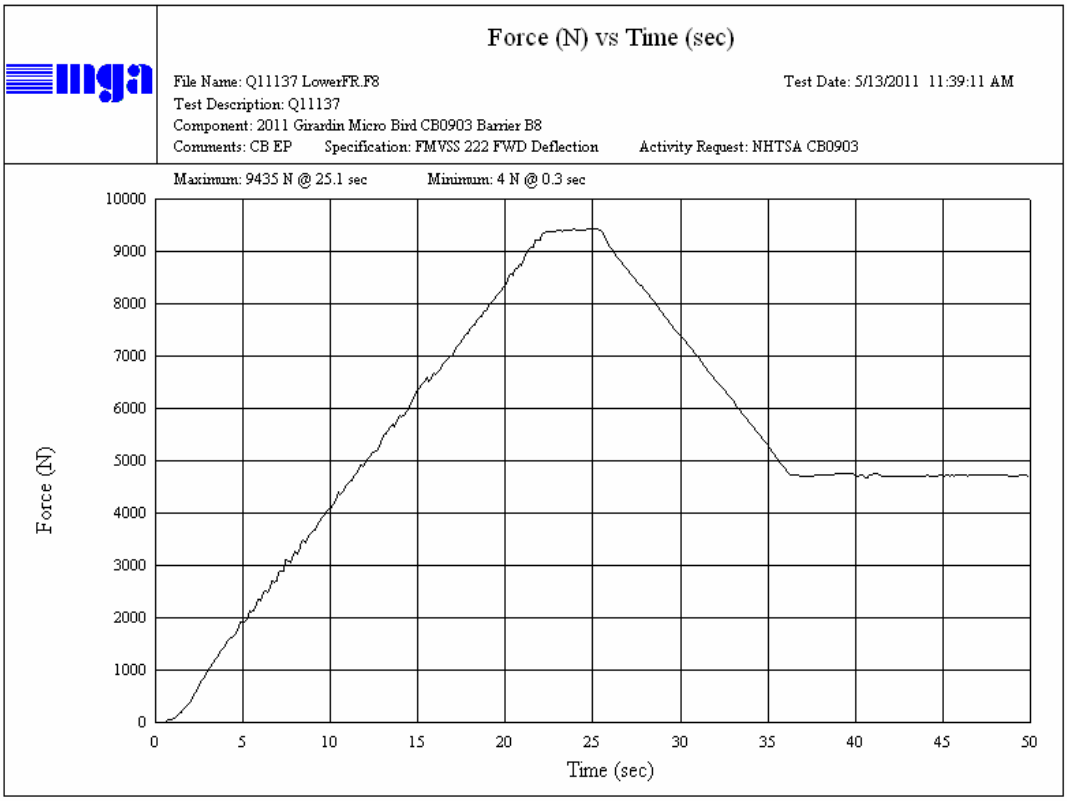
Seat Back Forward Deflection Seat S8 (Upper) Displacement vs. Time

SECTION 6 (CONTINUED)

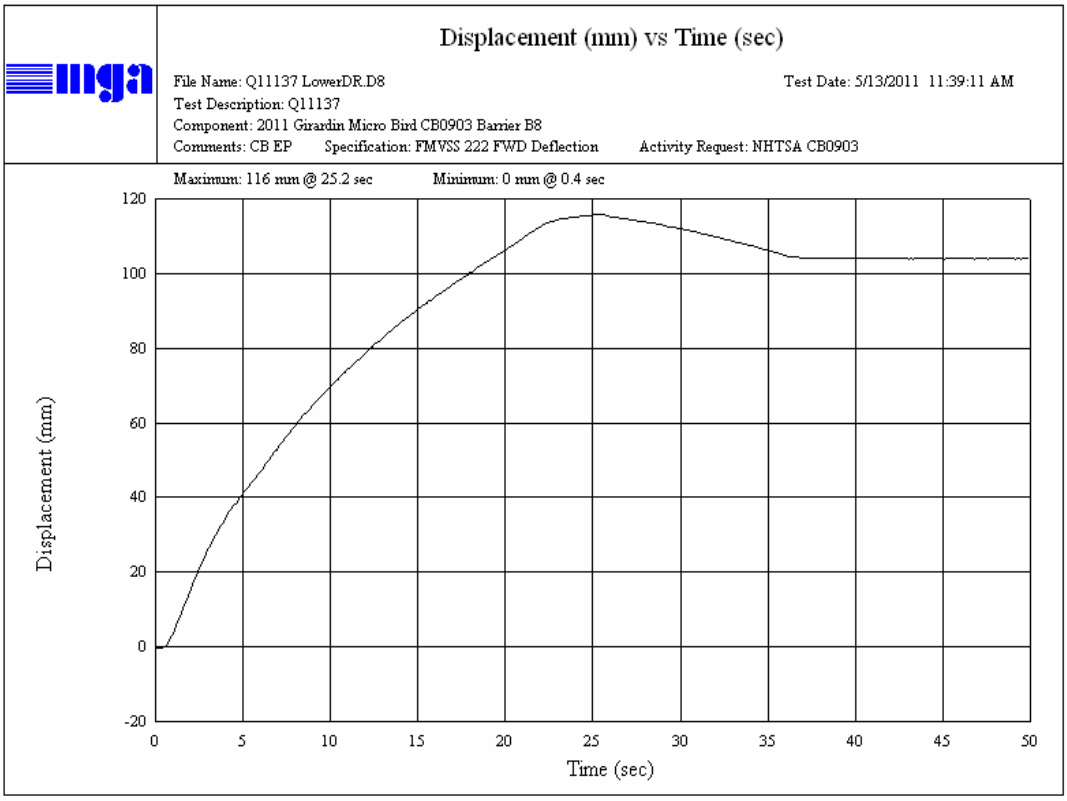
TEST PLOTS



Seat Back Forward Deflection Seat S8 (Upper) Force vs. Displacement

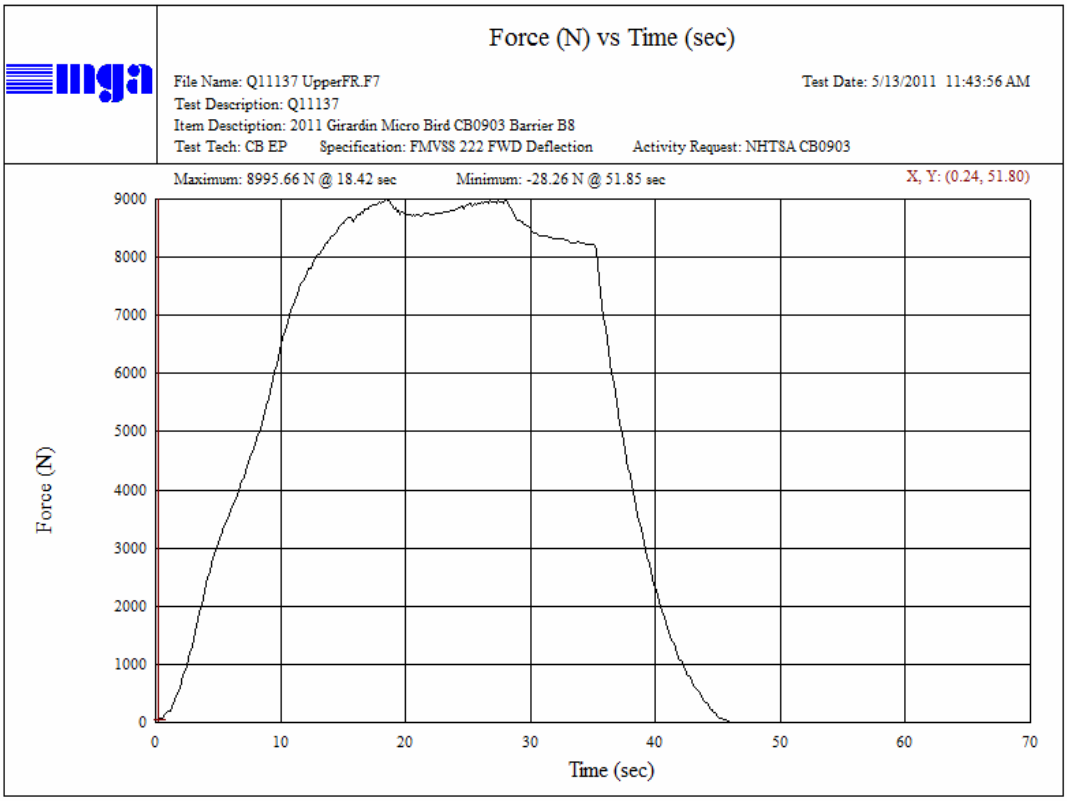


Barrier Forward Deflection Barrier B8 (Lower) Force vs. Time

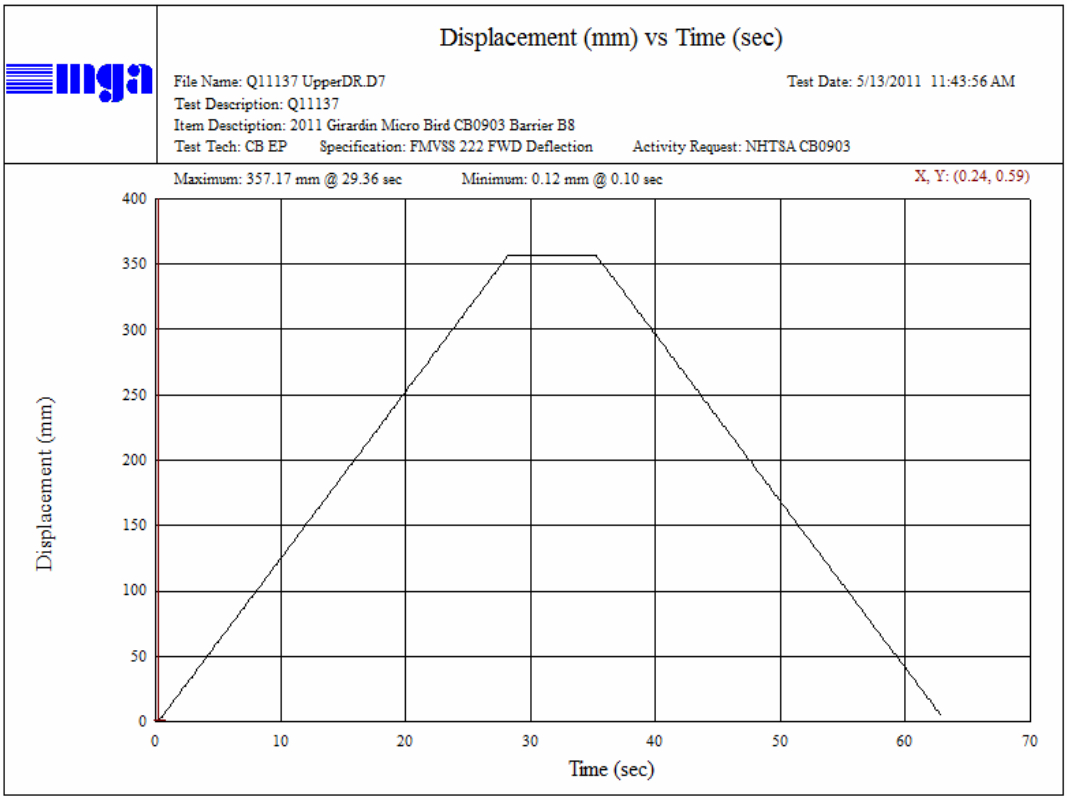


Barrier Forward Deflection Barrier B8 (Lower) Displacement vs. Time

TEST PLOTS

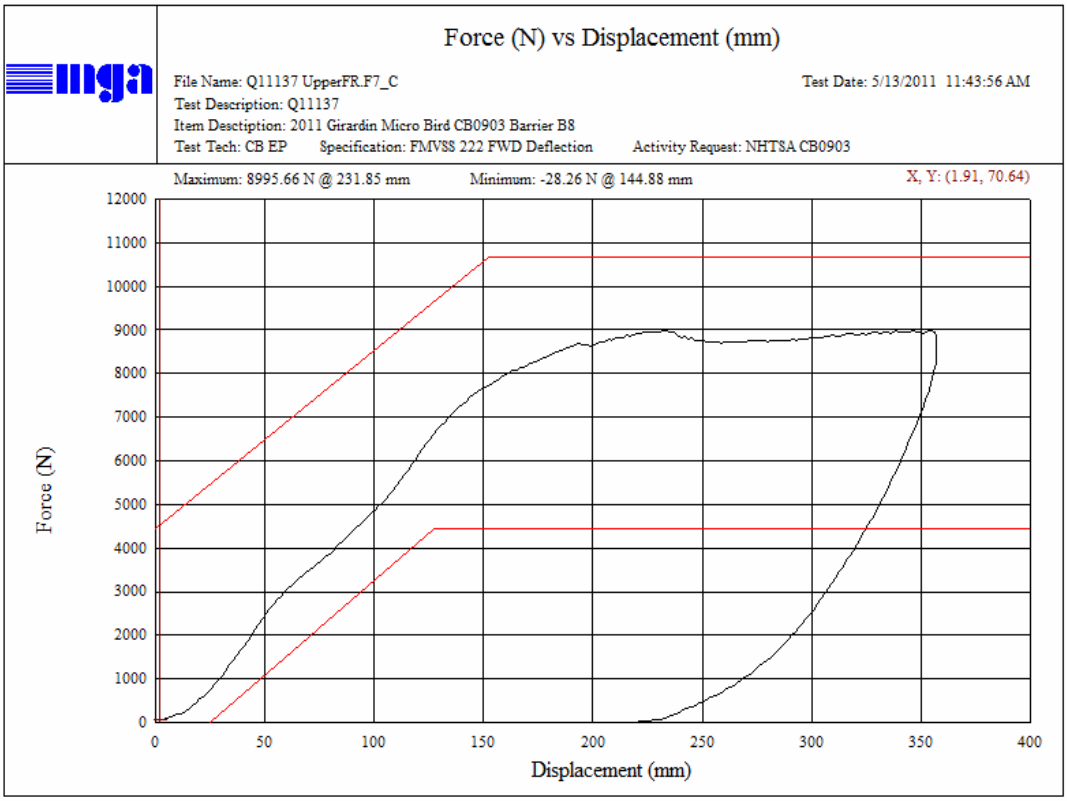


Barrier Forward Deflection Barrier B8 (Upper) Force vs. Time

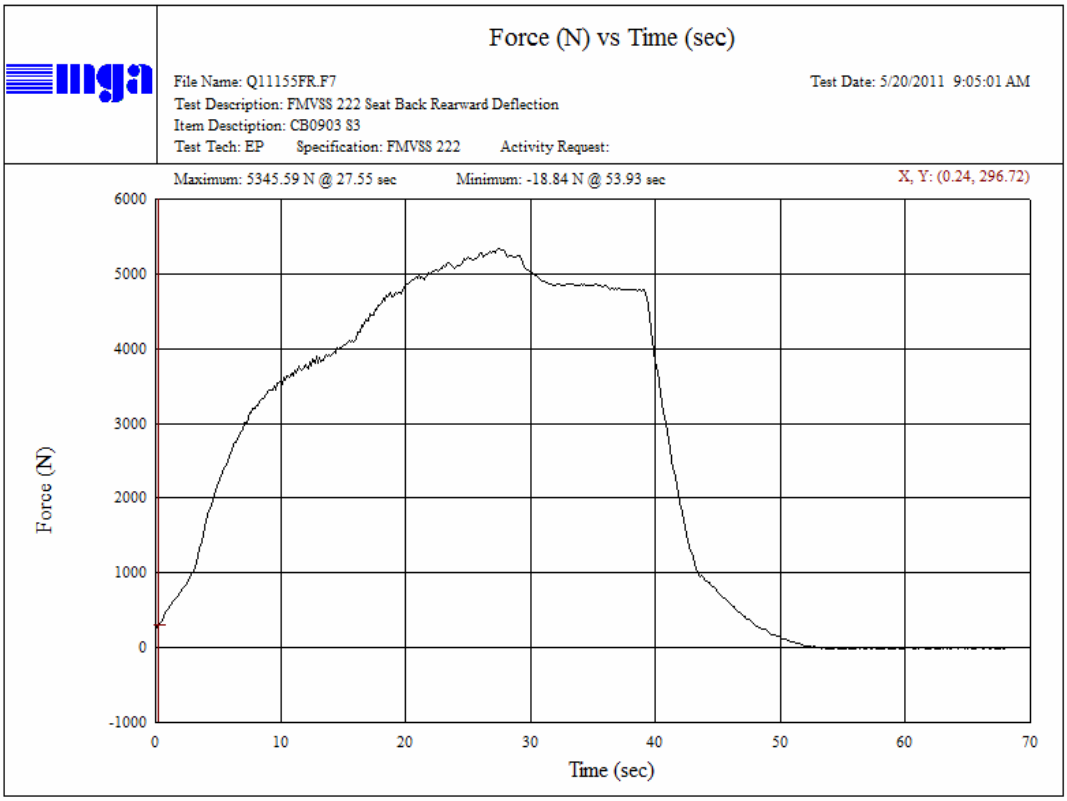


Barrier Forward Deflection Barrier B8 (Upper) Displacement vs. Time

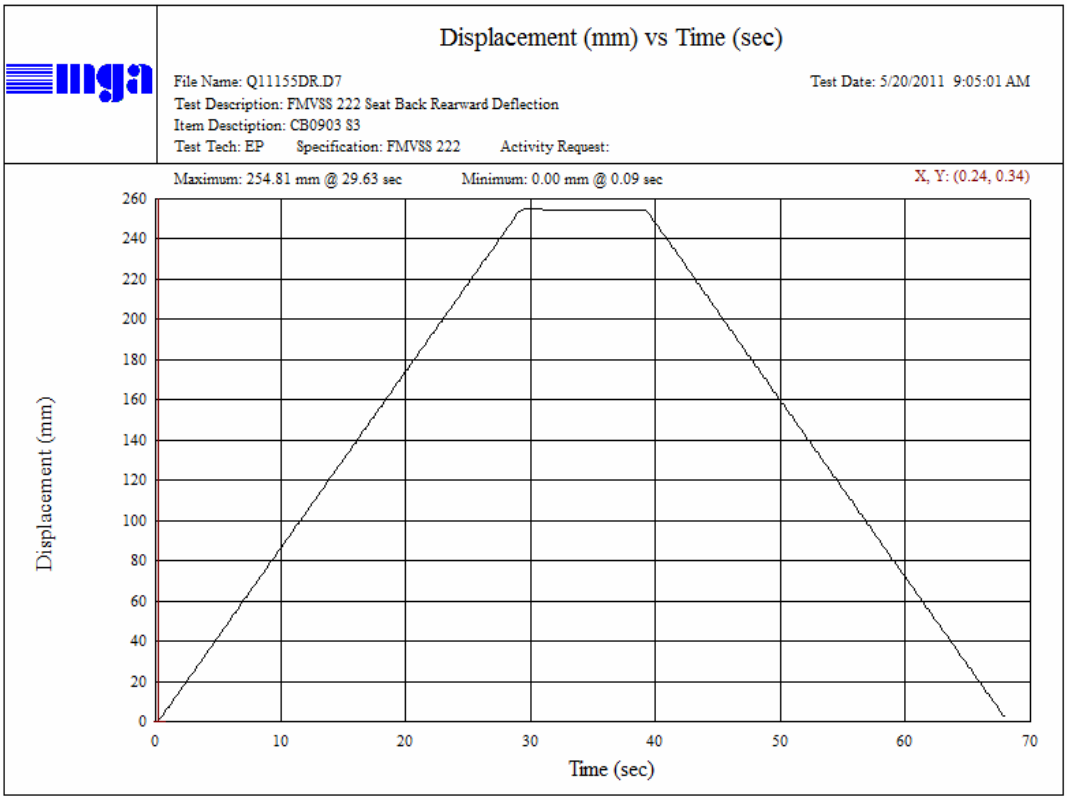
TEST PLOTS



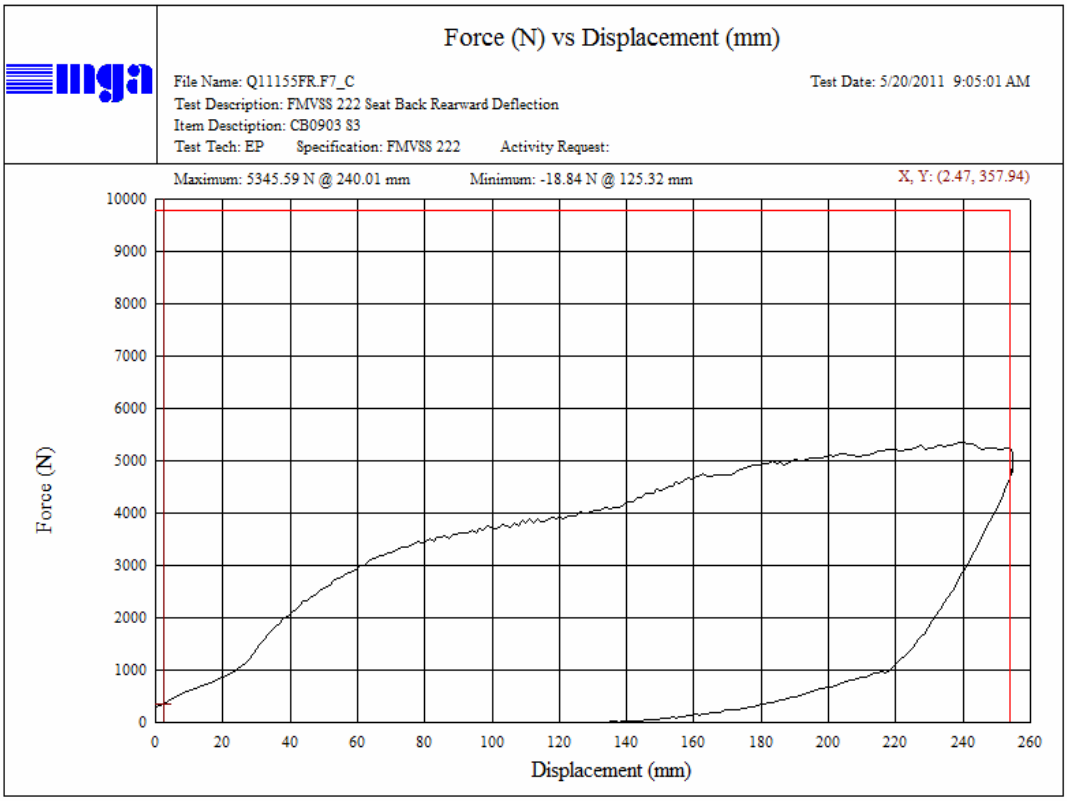
Barrier Forward Deflection Barrier B8 (Upper) Force vs. Displacement



Seat Back Rearward Deflection Seat S3 (Lower) Force vs. Time



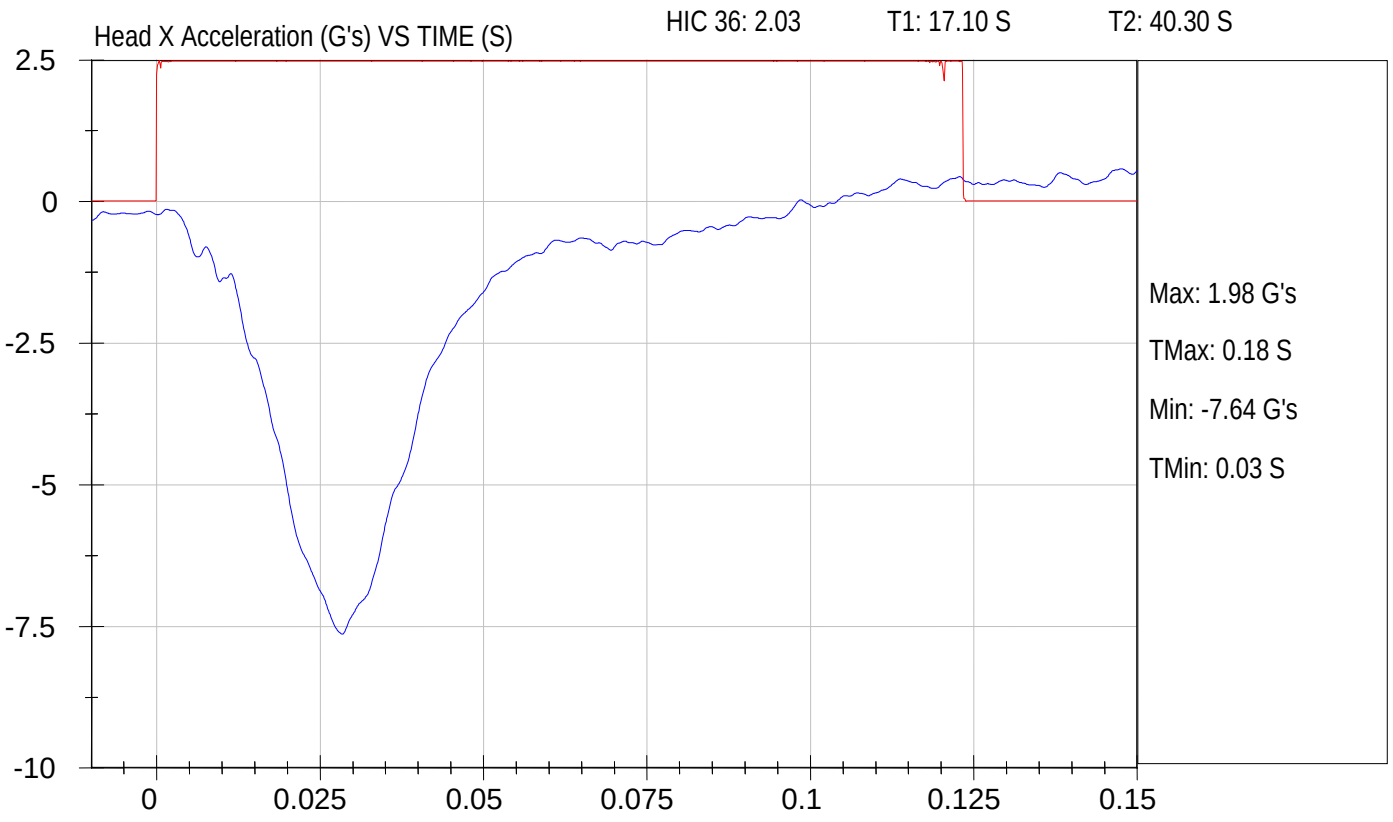
Seat Back Rearward Deflection Seat S3 (Lower) Displacement vs. Time

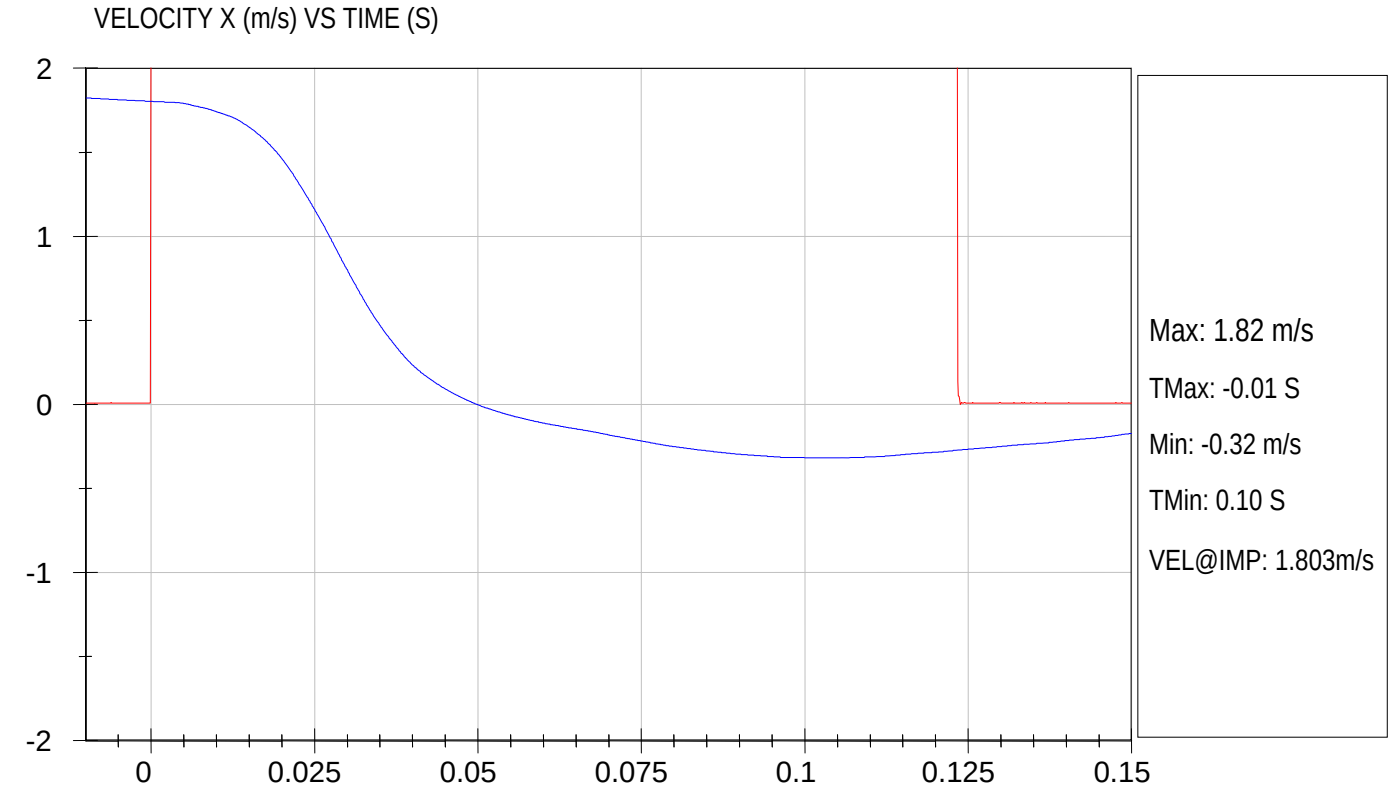


Seat Back Rearward Deflection Seat S3 (Lower) Force vs. Displacement

FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H1

Test Date: 5-10-2011
NHTSA #: CB0903
speed trap: 1.563 m/s



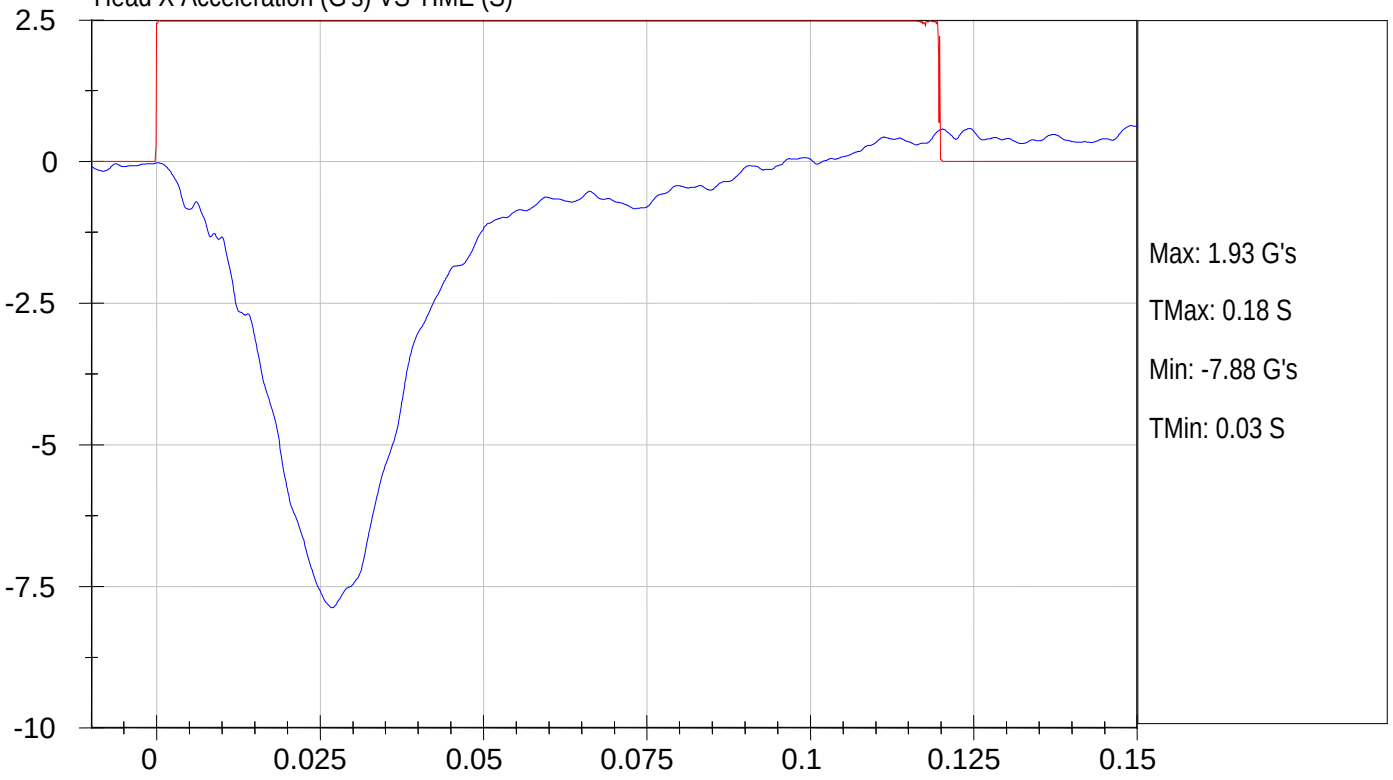


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H2

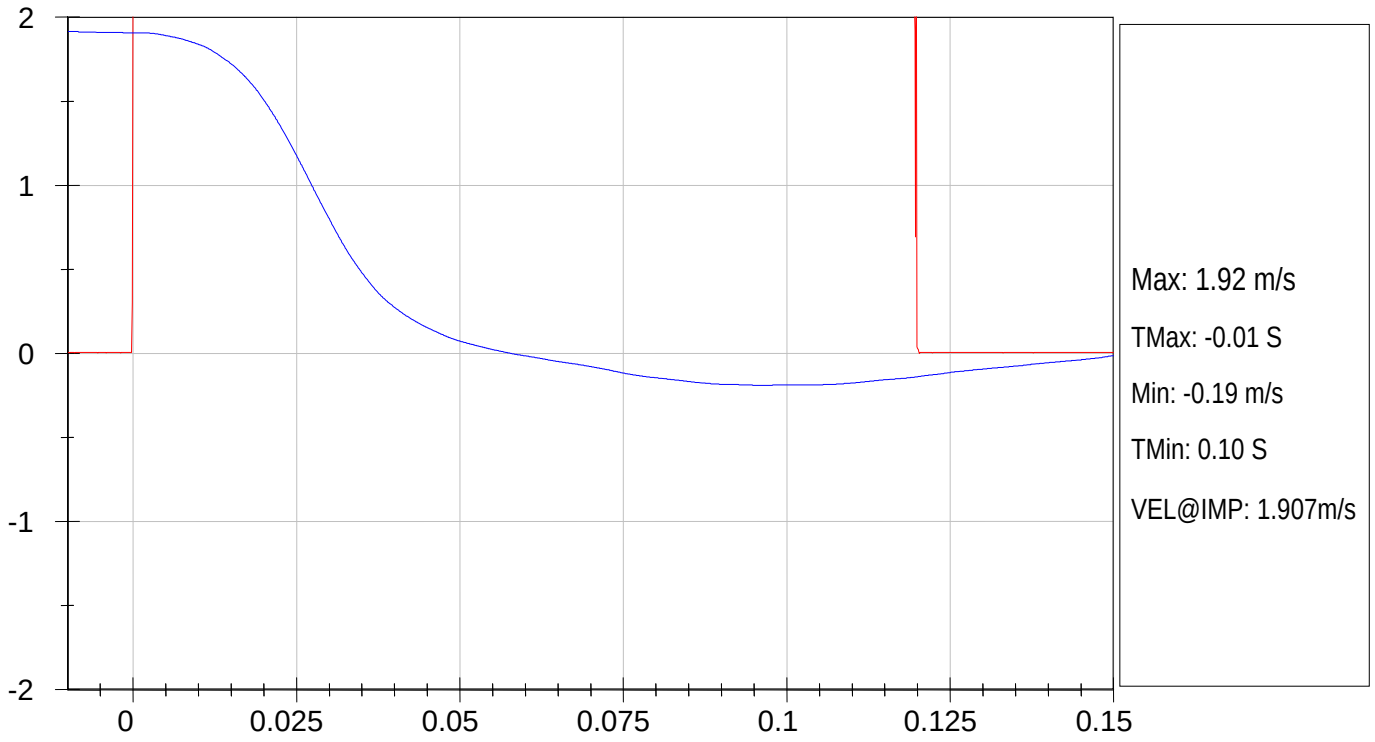
Test Date: 5-10-2011
NHTSA #: CB0903
speed trap: 1.580 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 2.15 T1: 16.10 S T2: 38.20 S

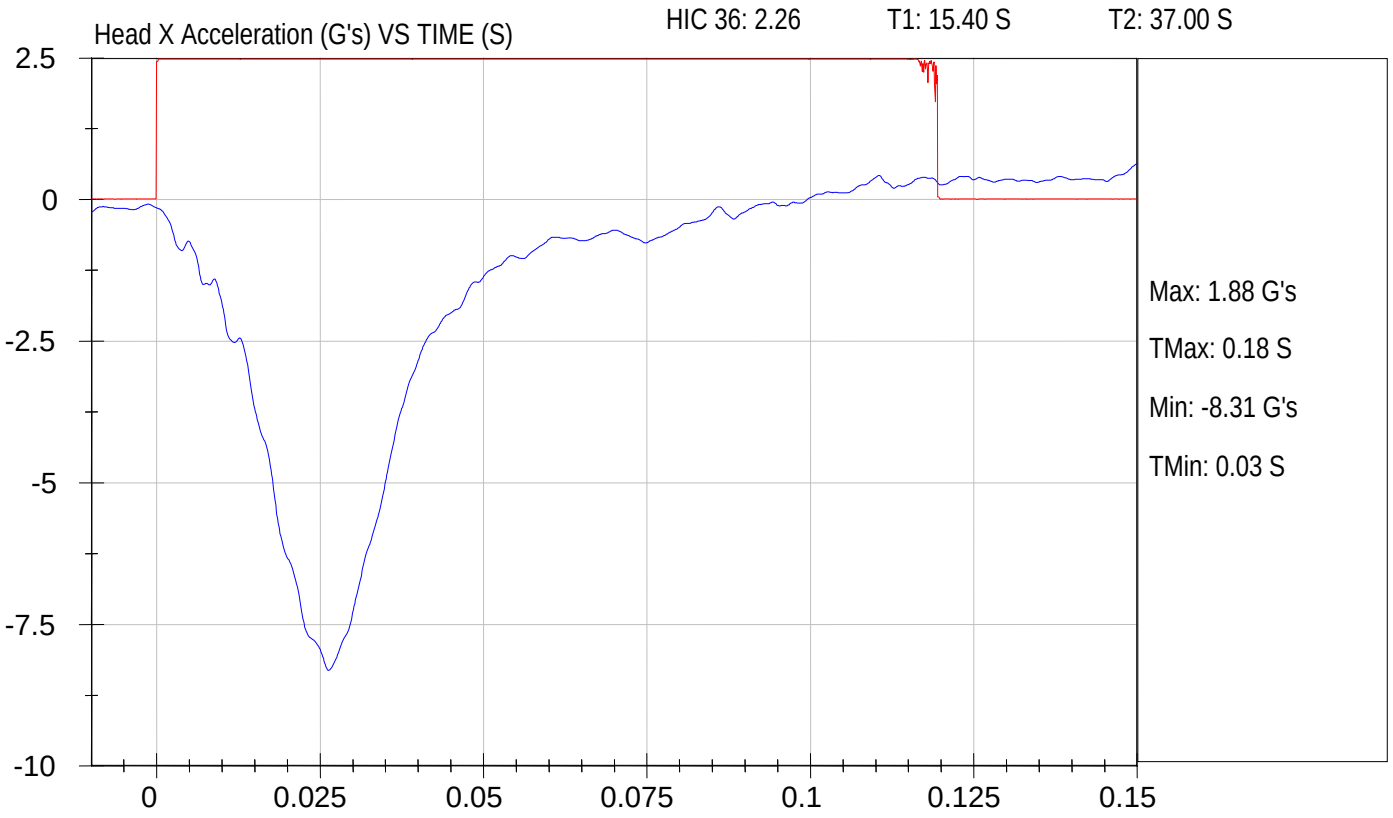


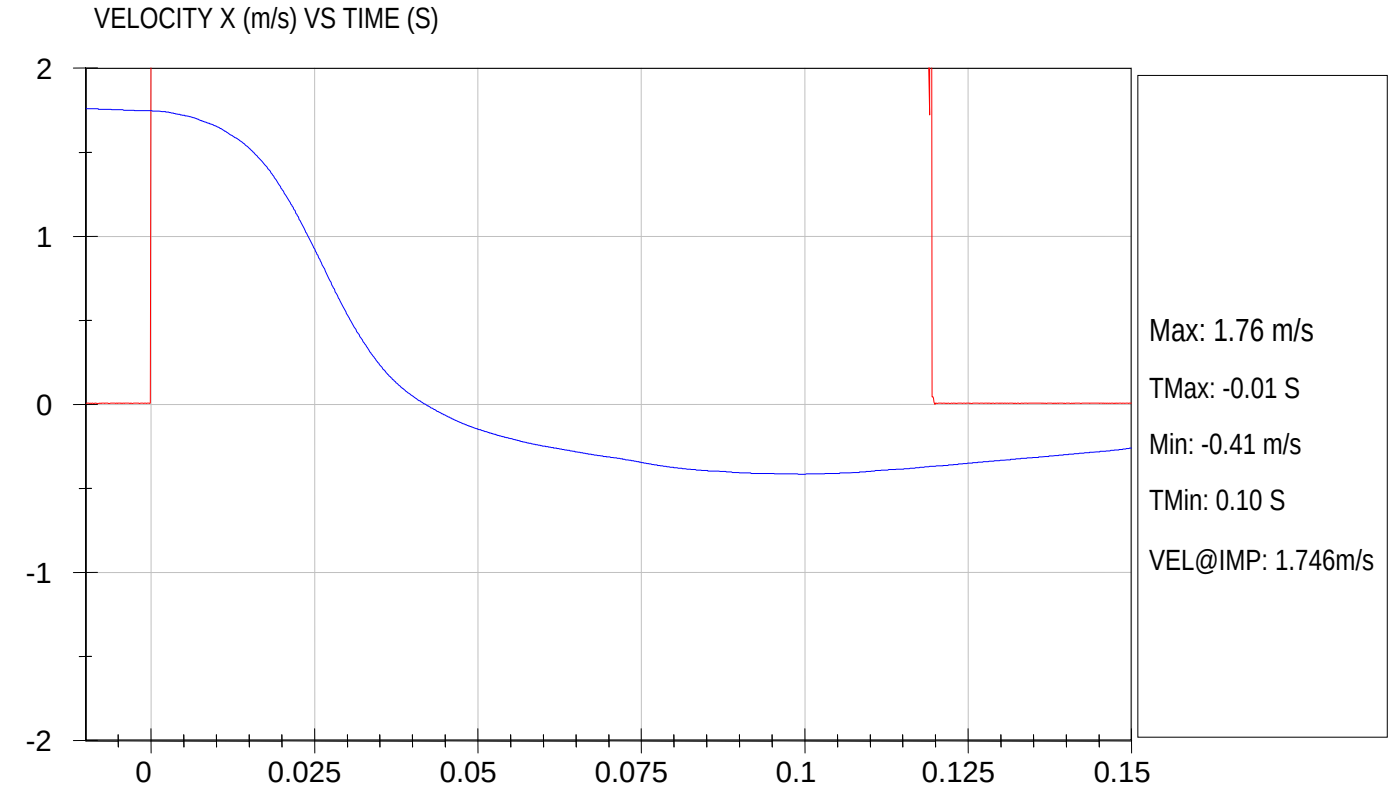
VELOCITY X (m/s) VS TIME (S)



FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H3

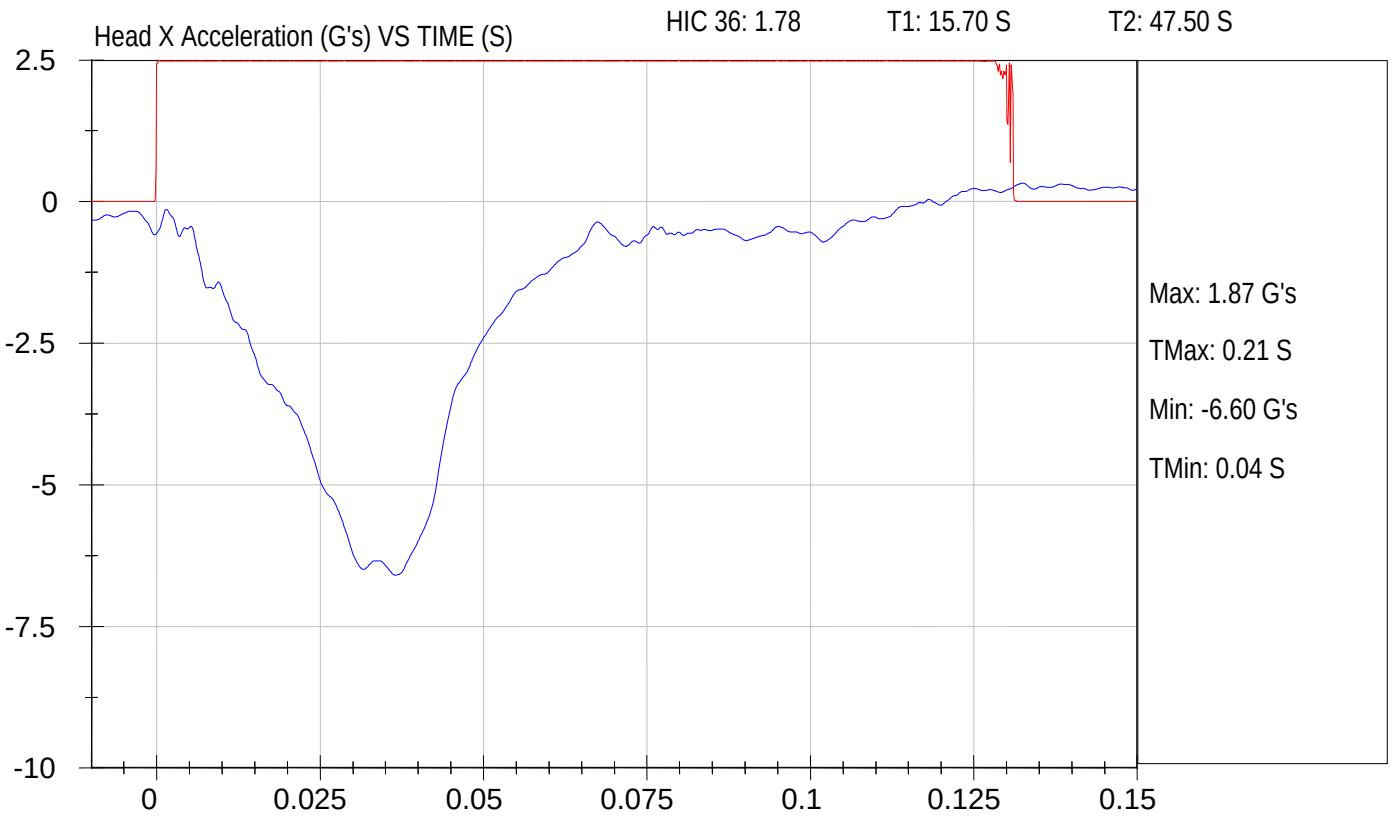
Test Date: 5-10-2011
NHTSA #: CB0903
speed trap: 1.595 m/s

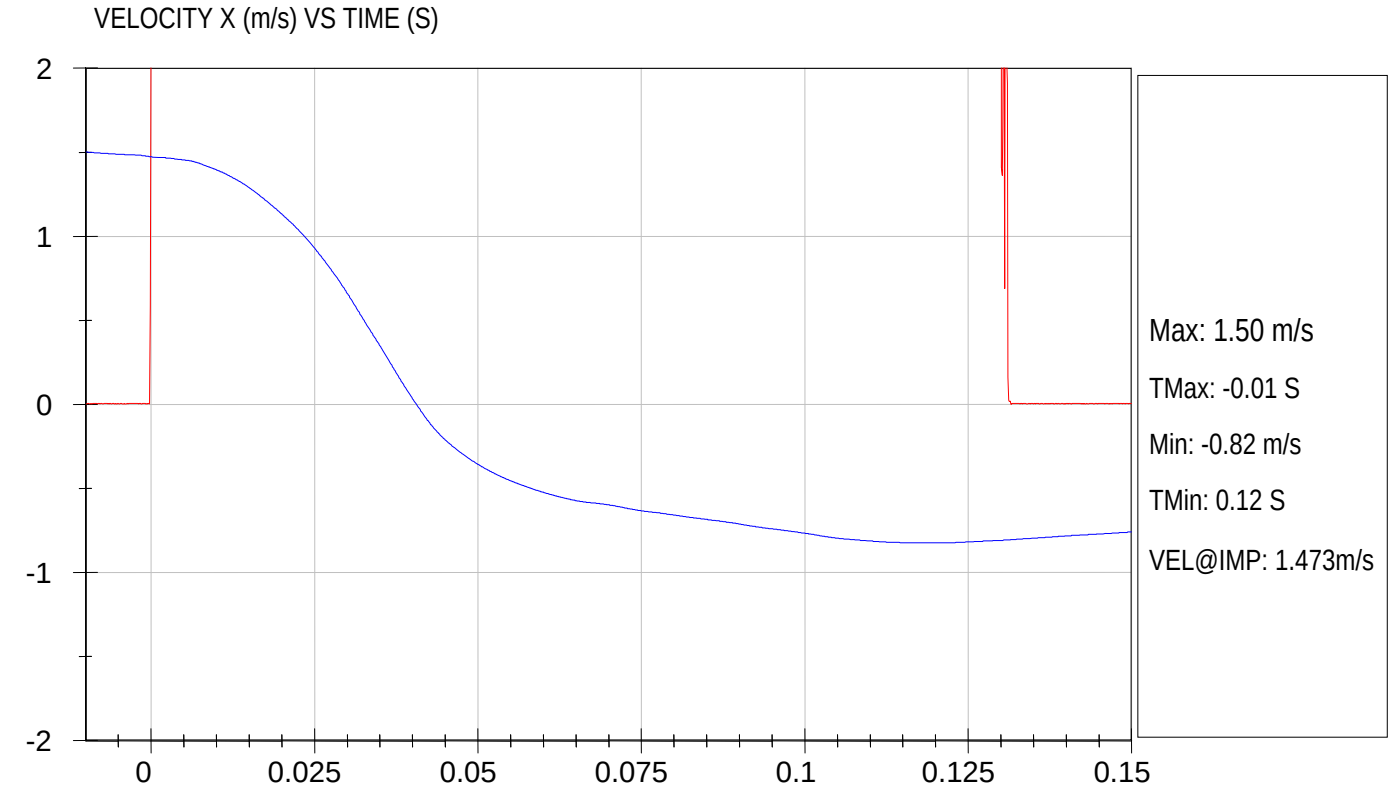




FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H4

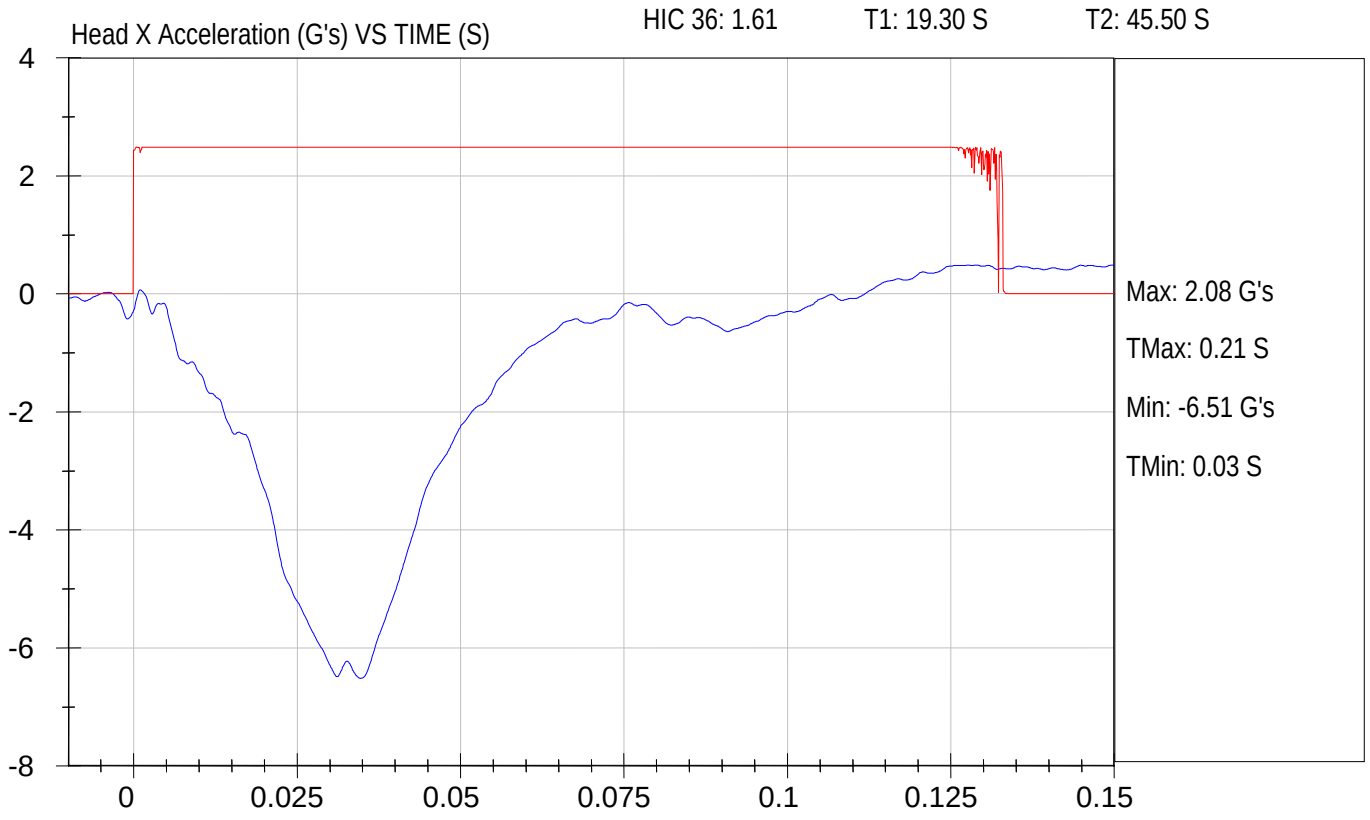
Test Date: 5-11-2011
NHTSA #: CB0903
speed trap: 1.593 m/s

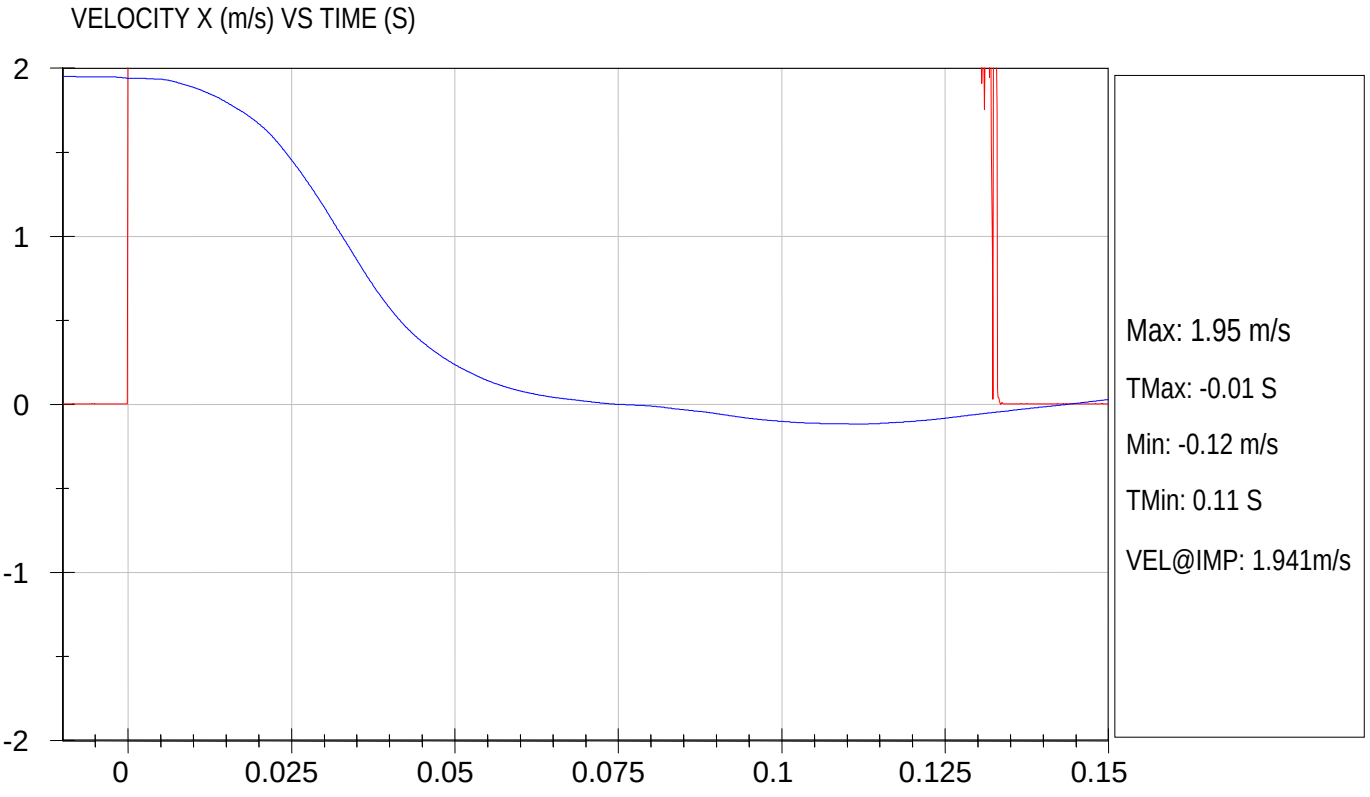




FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H5

Test Date: 5-11-2011
NHTSA #: CB0903
speed trap: 1.586 m/s



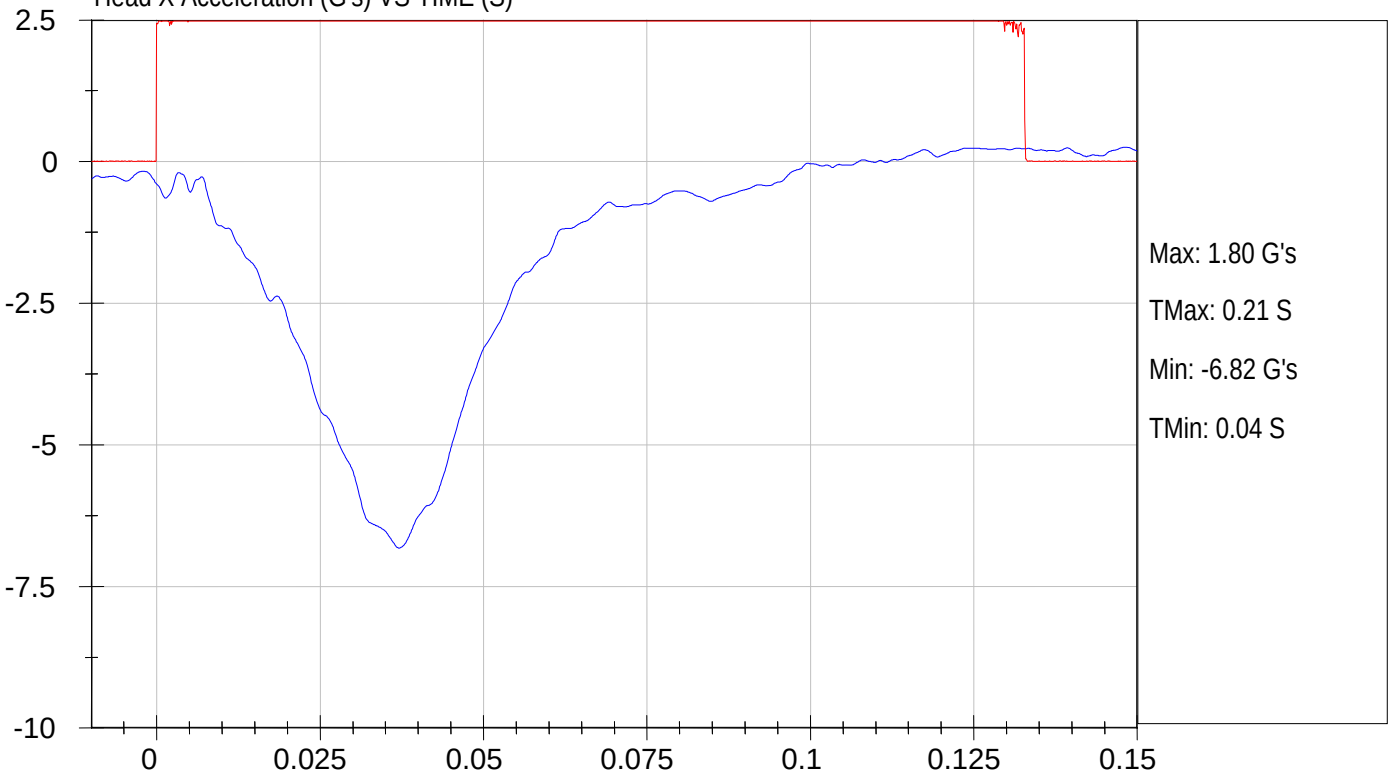


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H6

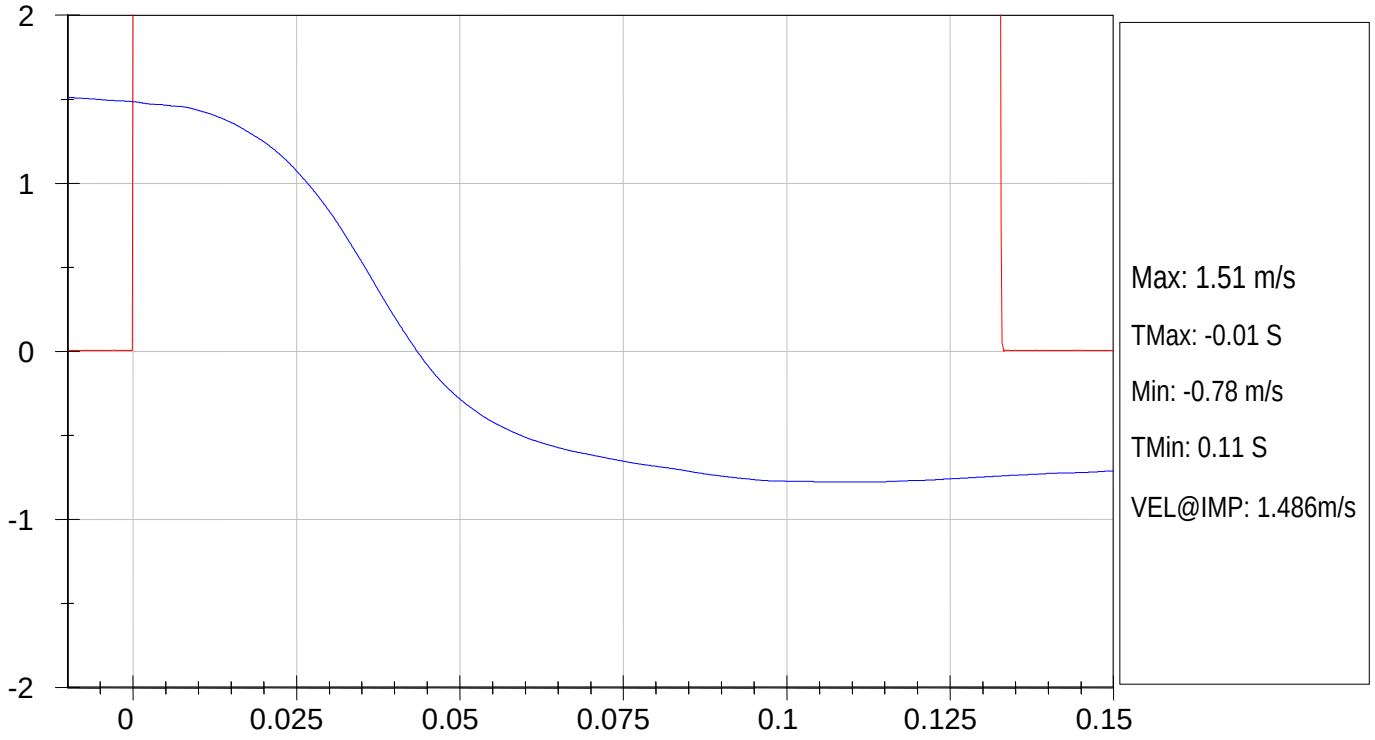
Test Date: 5-11-2011
NHTSA #: CB0903
speed trap: 1.586 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.86 T1: 21.20 S T2: 51.00 S



VELOCITY X (m/s) VS TIME (S)

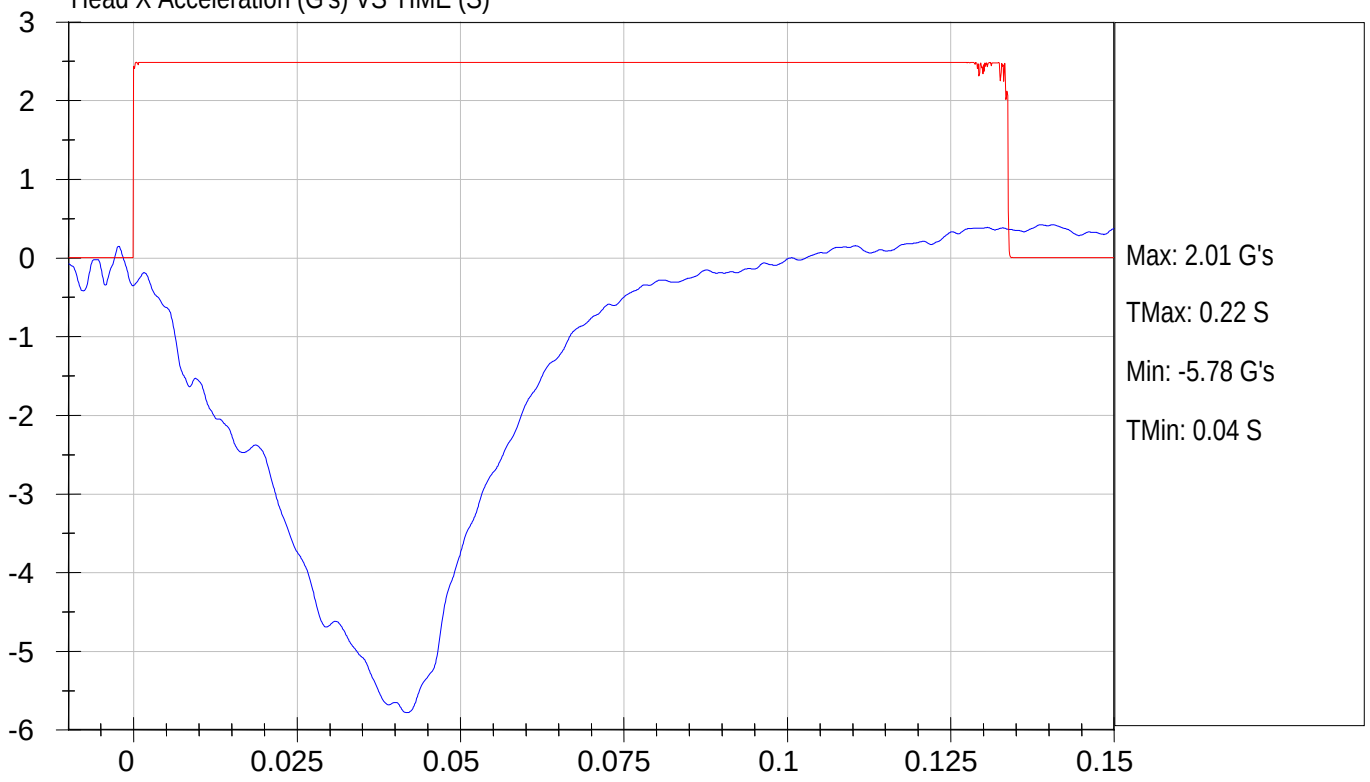


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S2 H7

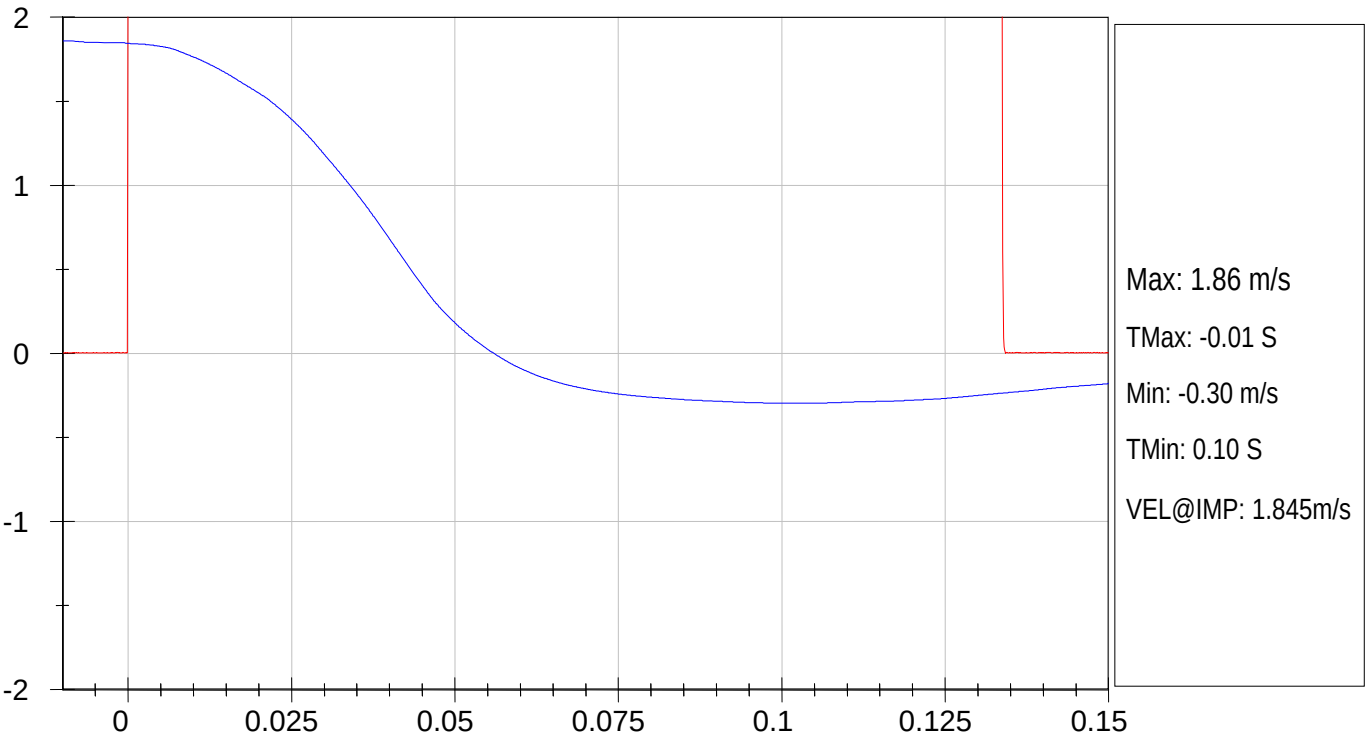
Test Date: 5-11-2011
NHTSA #: CB0903
speed trap: 1.598 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.45 T1: 20.60 S T2: 55.60 S

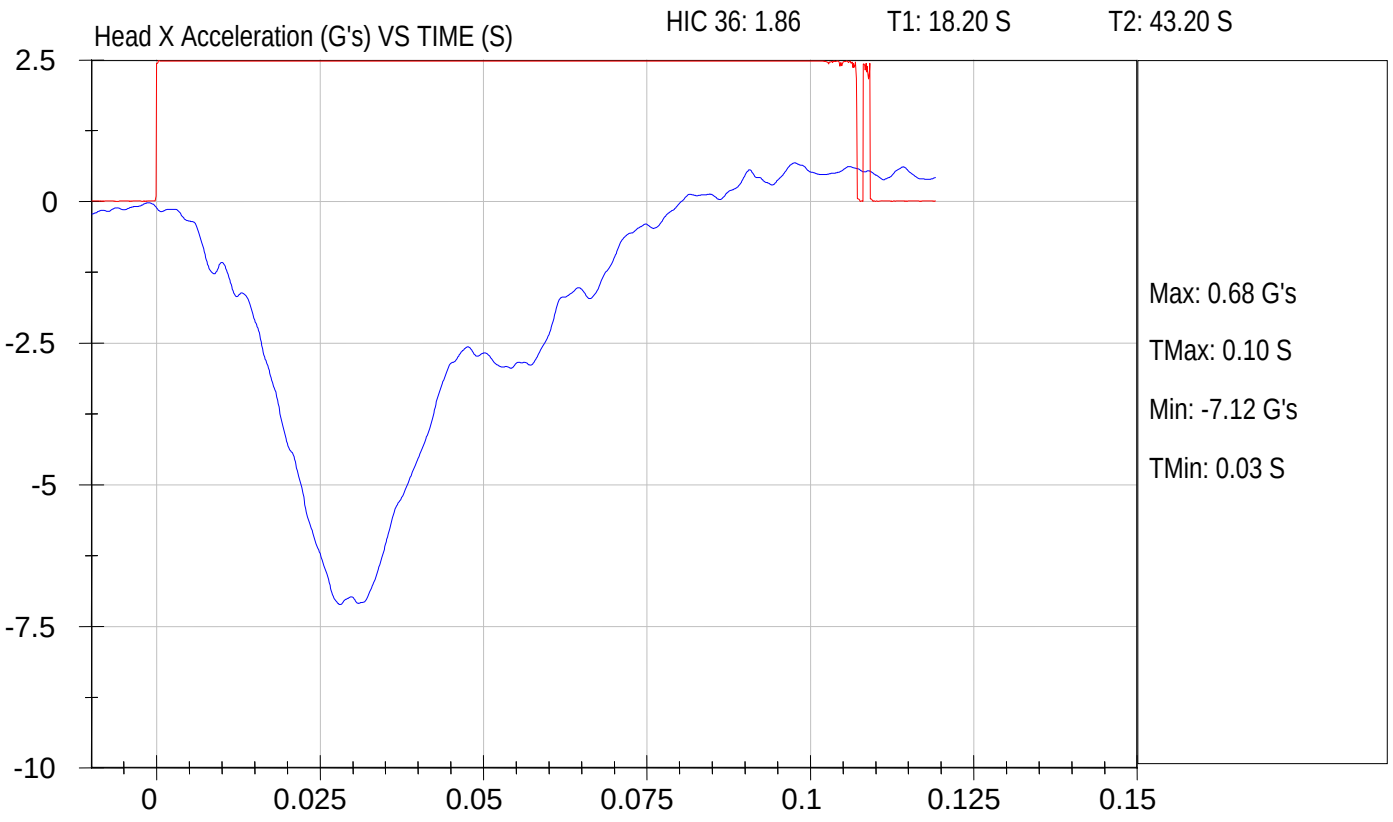


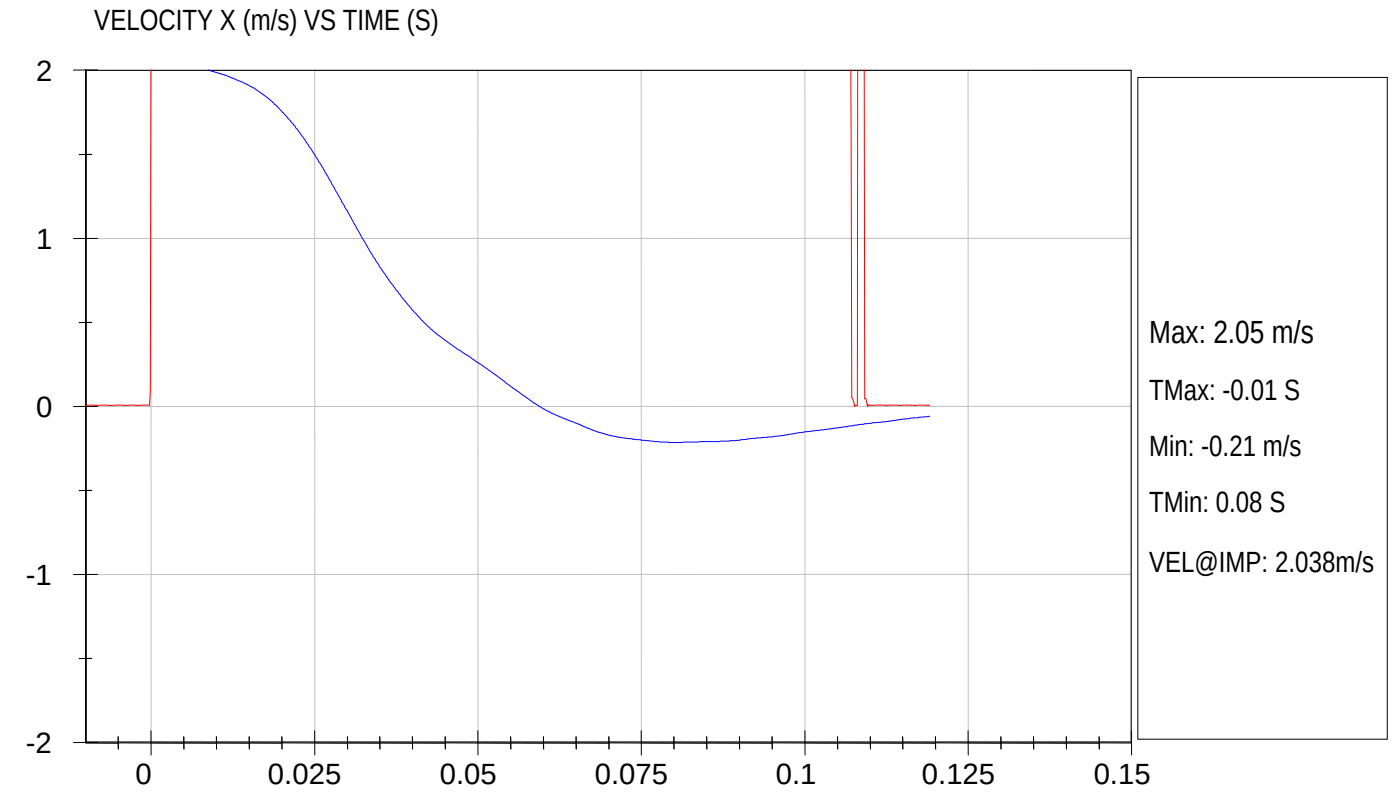
VELOCITY X (m/s) VS TIME (S)



FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H1

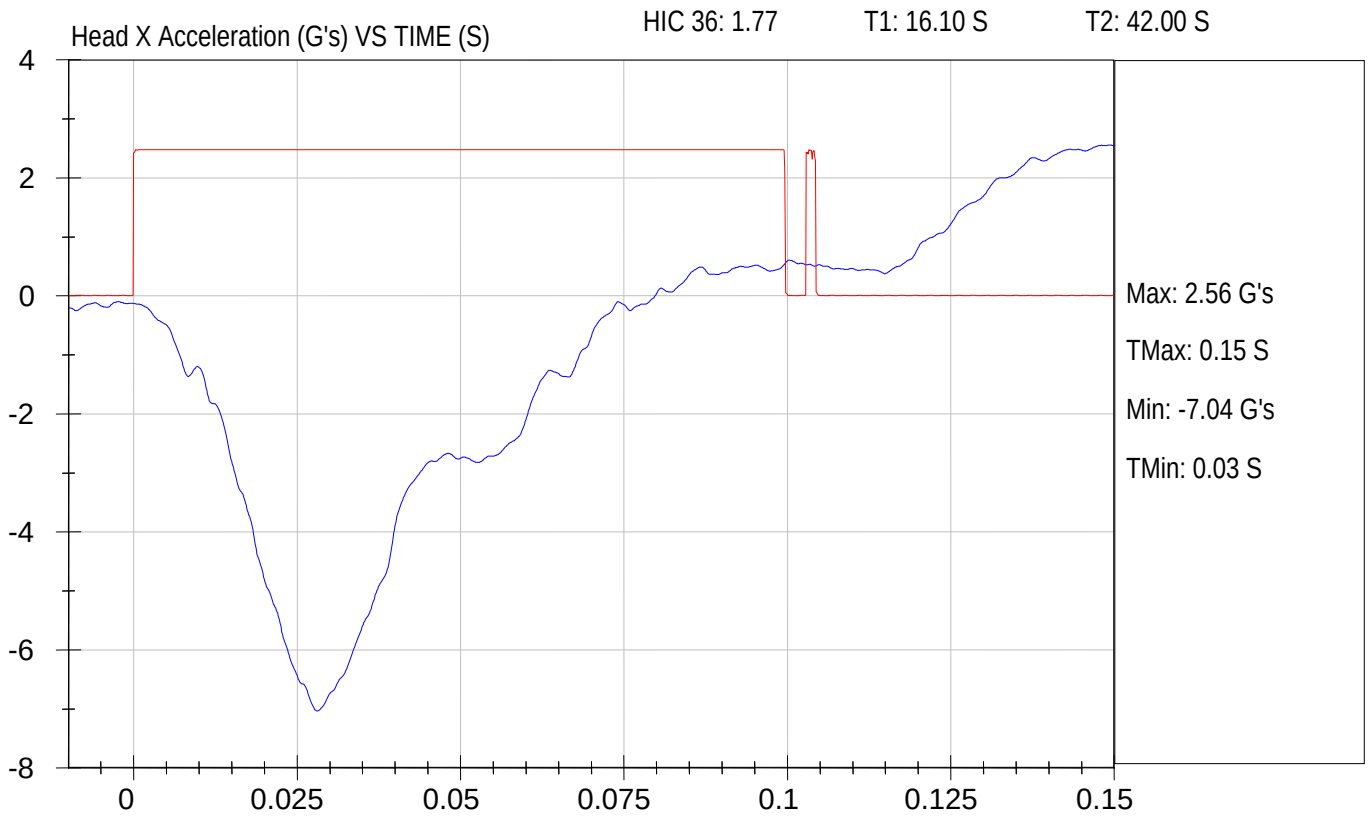
Test Date: 5-6-2011
NHTSA #: CB0903
speed trap: 1.561 m/s

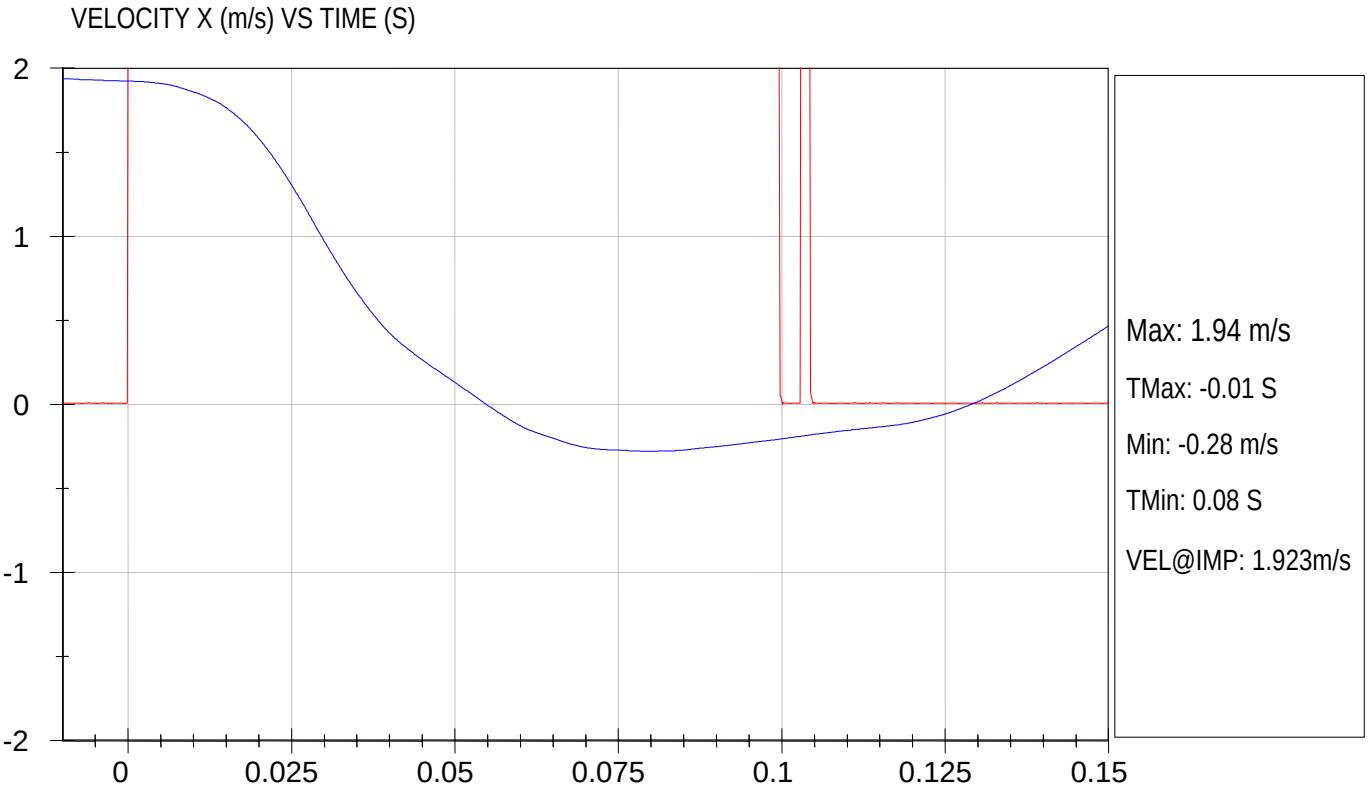




FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H2

Test Date: 5-6-2011
NHTSA #: CB0903
speed trap: 1.527 m/s



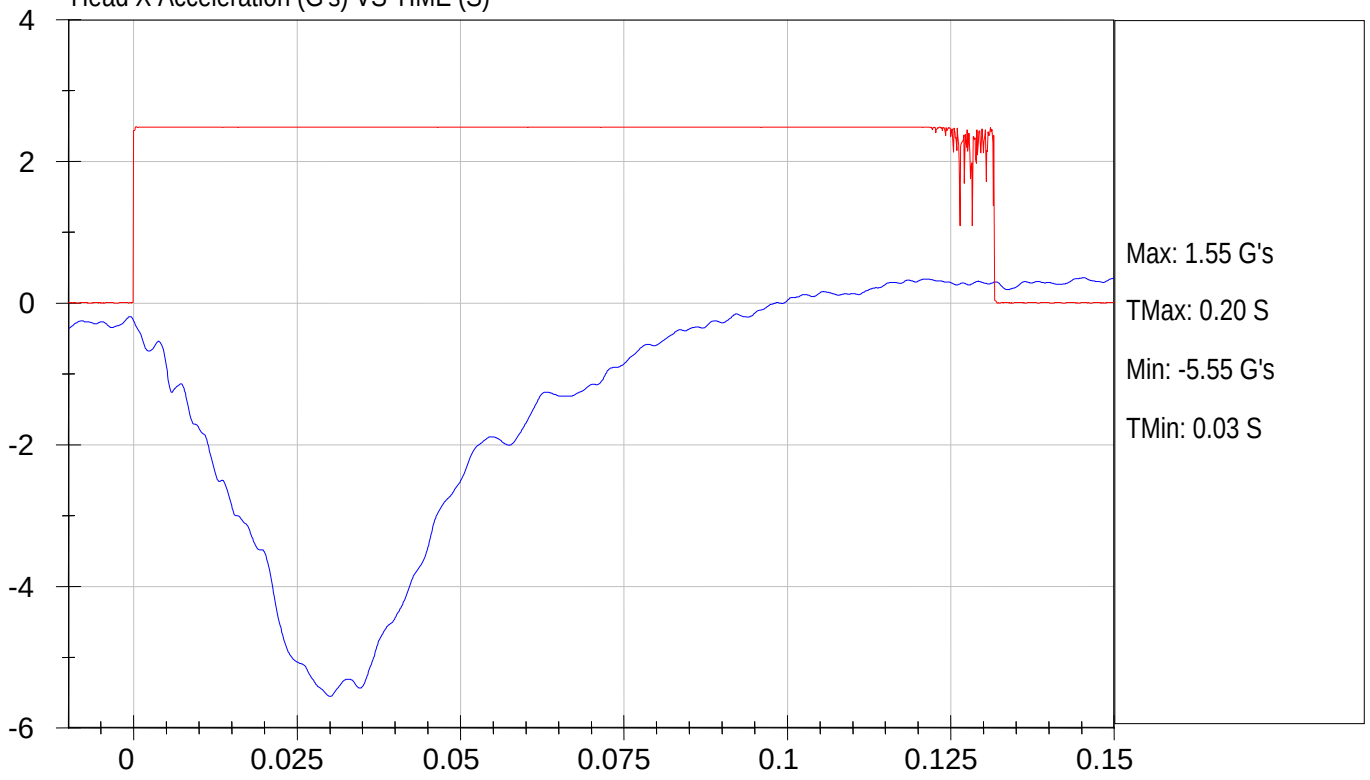


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H3

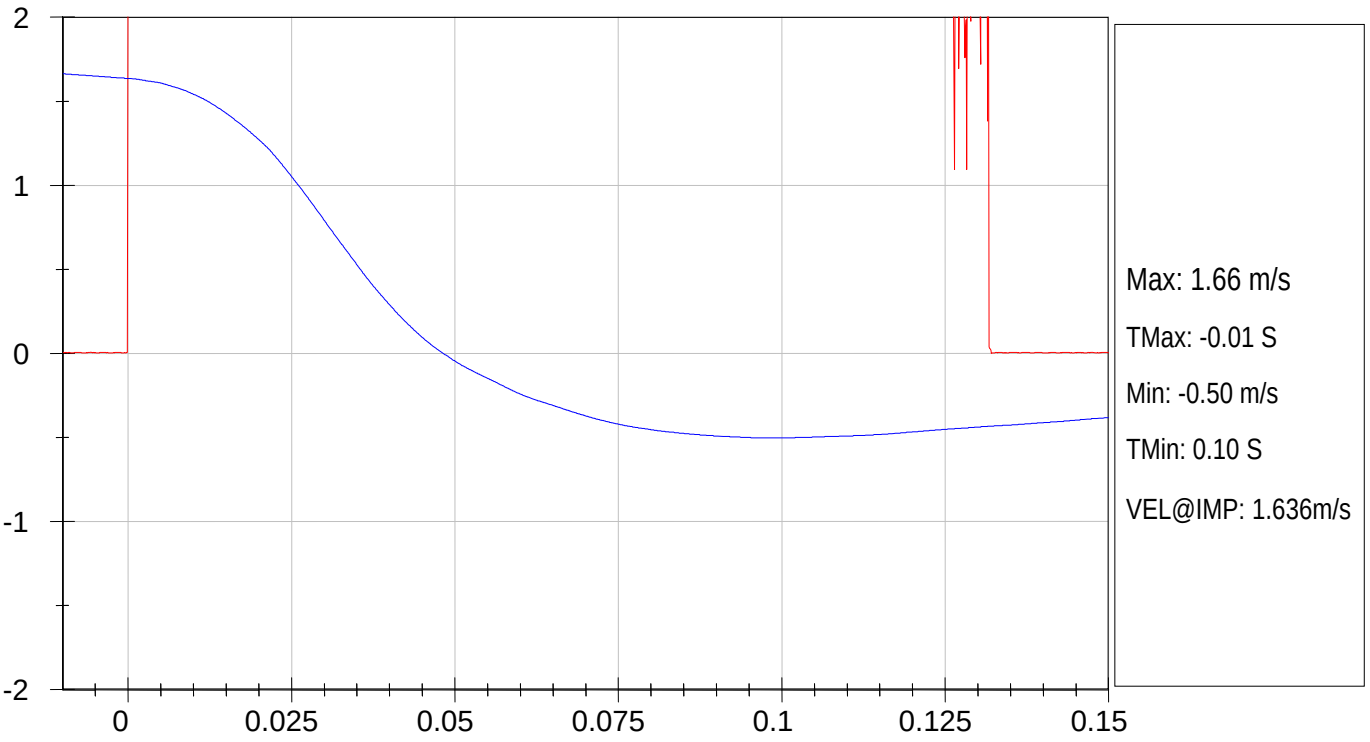
Test Date: 5-9-2011
NHTSA #: CB0903
speed trap: 1.559 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.34 T1: 14.00 S T2: 49.70 S



VELOCITY X (m/s) VS TIME (S)

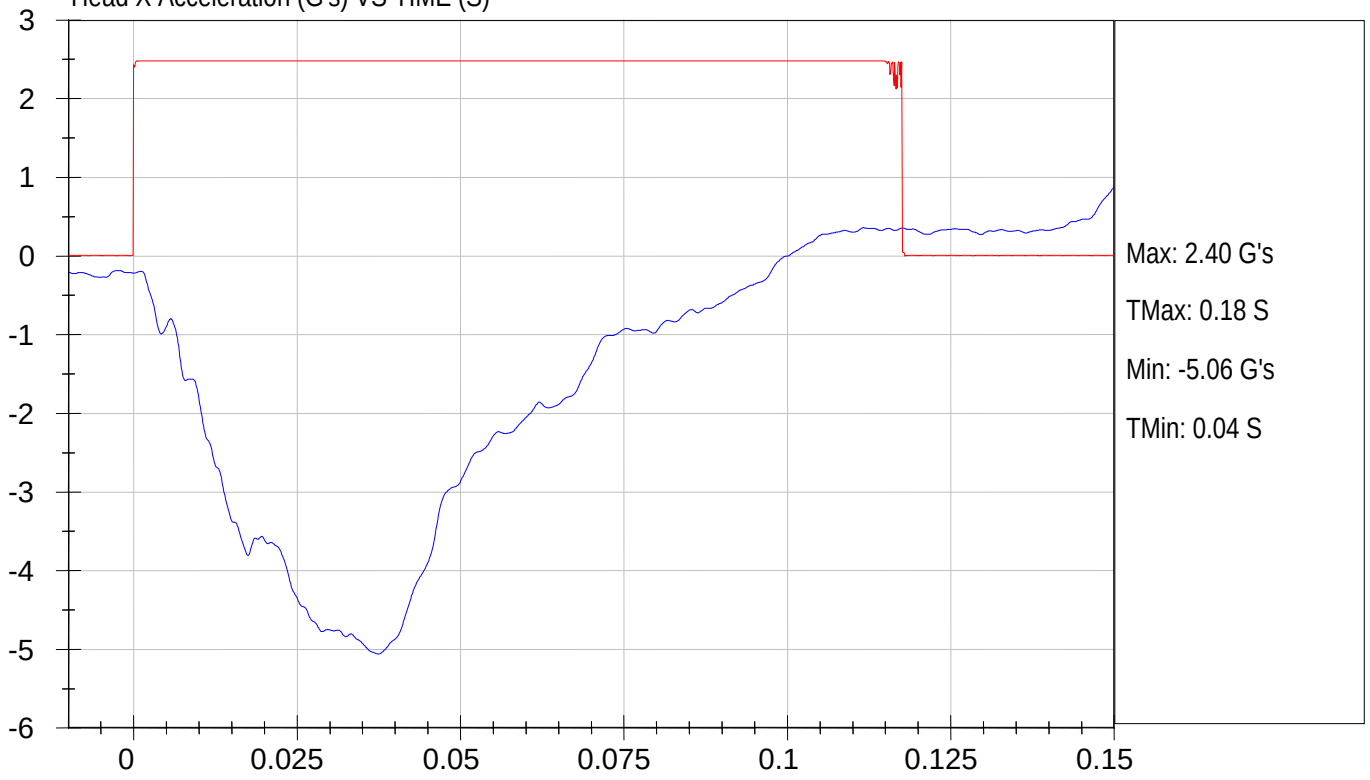


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H4

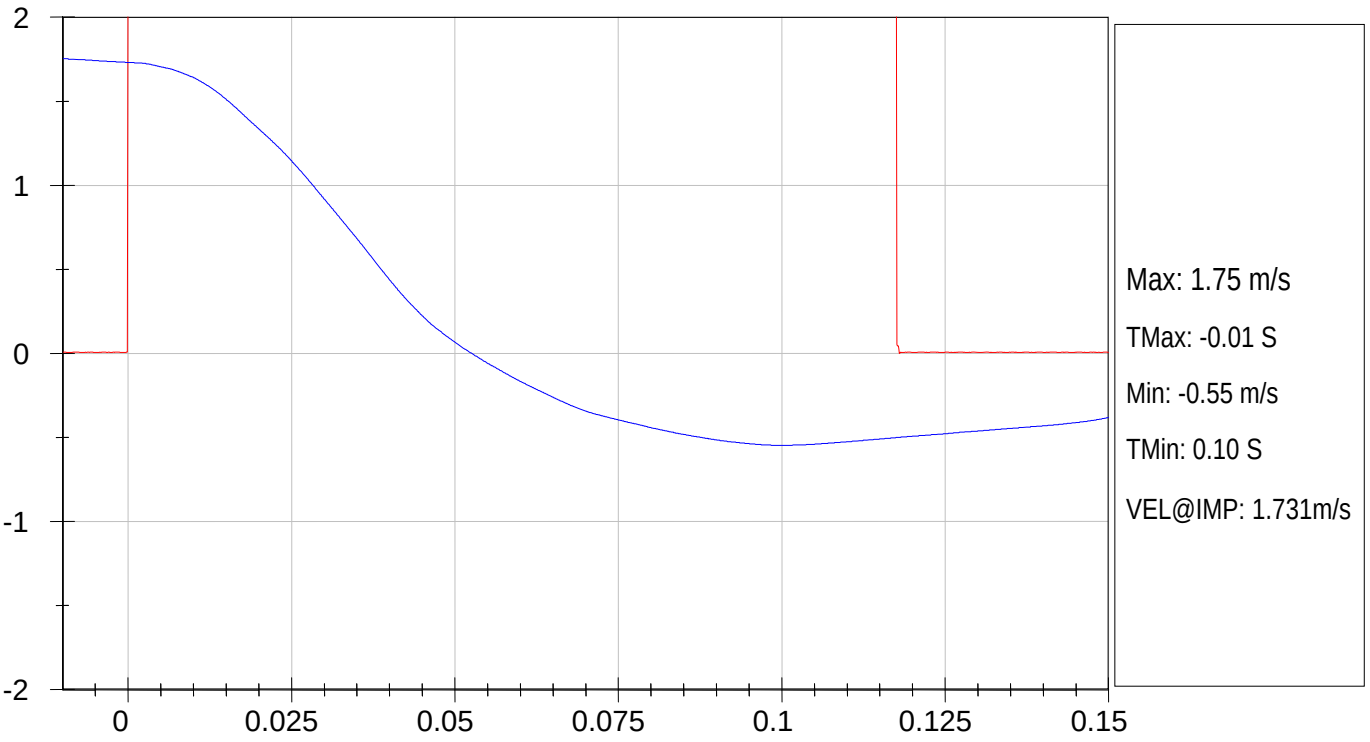
Test Date: 5-9-2011
NHTSA #: CB0903
speed trap: 1.550 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.29 T1: 13.60 S T2: 49.60 S

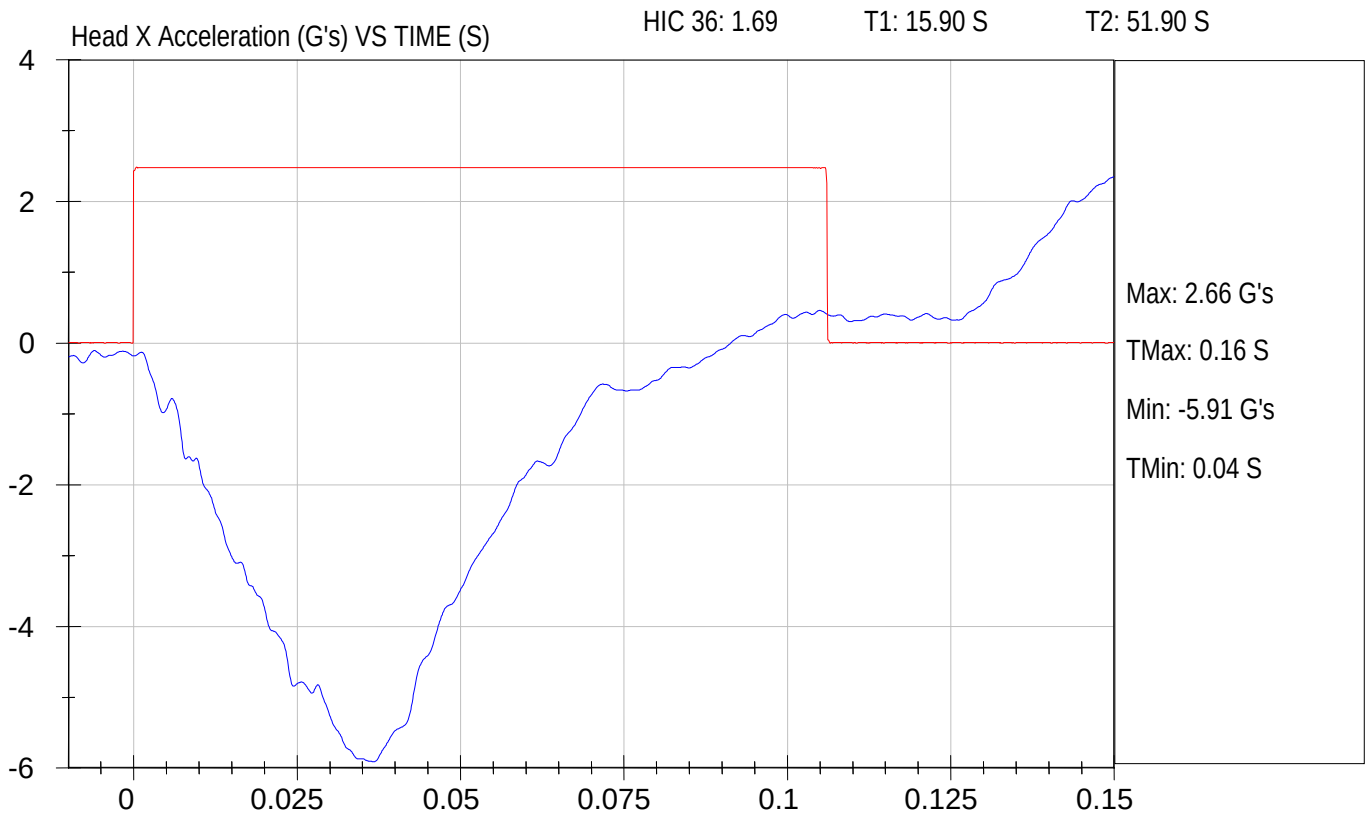


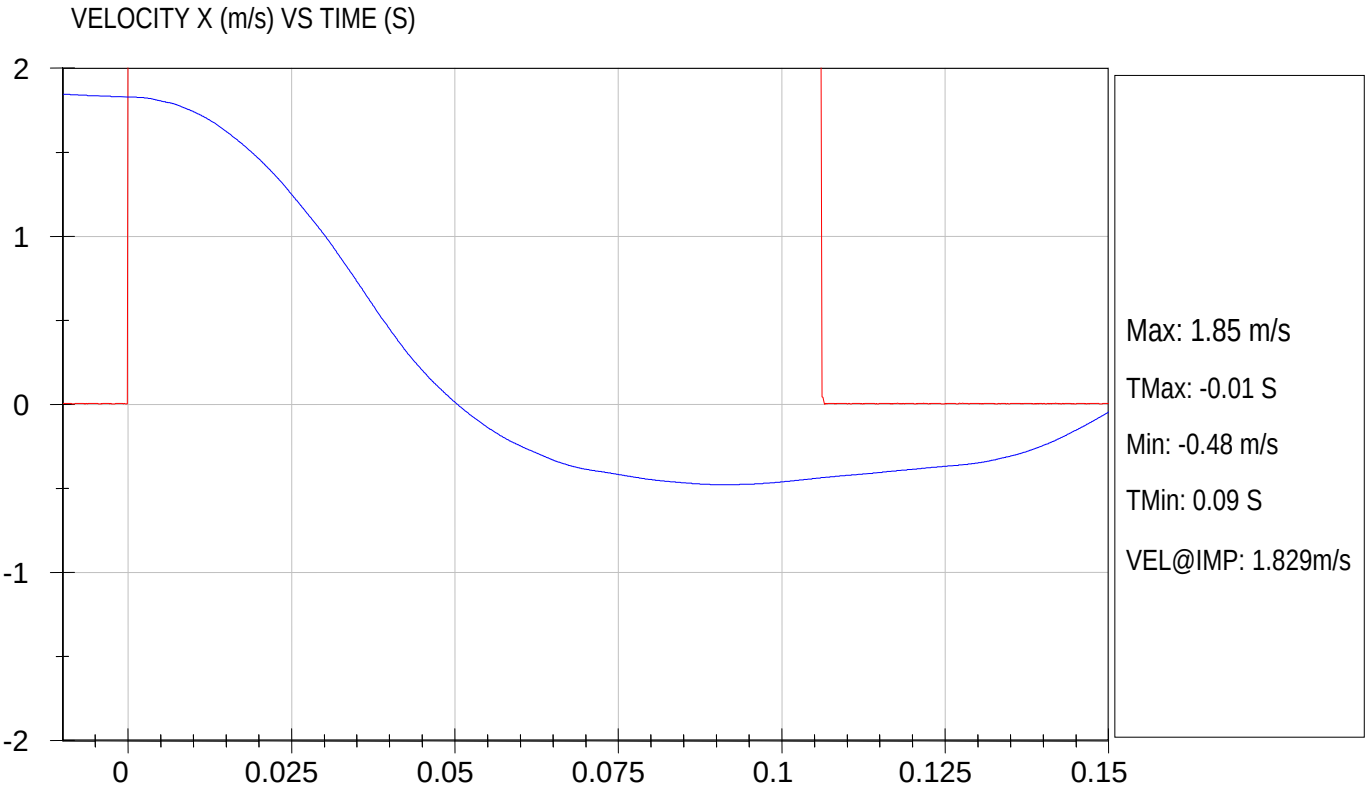
VELOCITY X (m/s) VS TIME (S)



FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H5

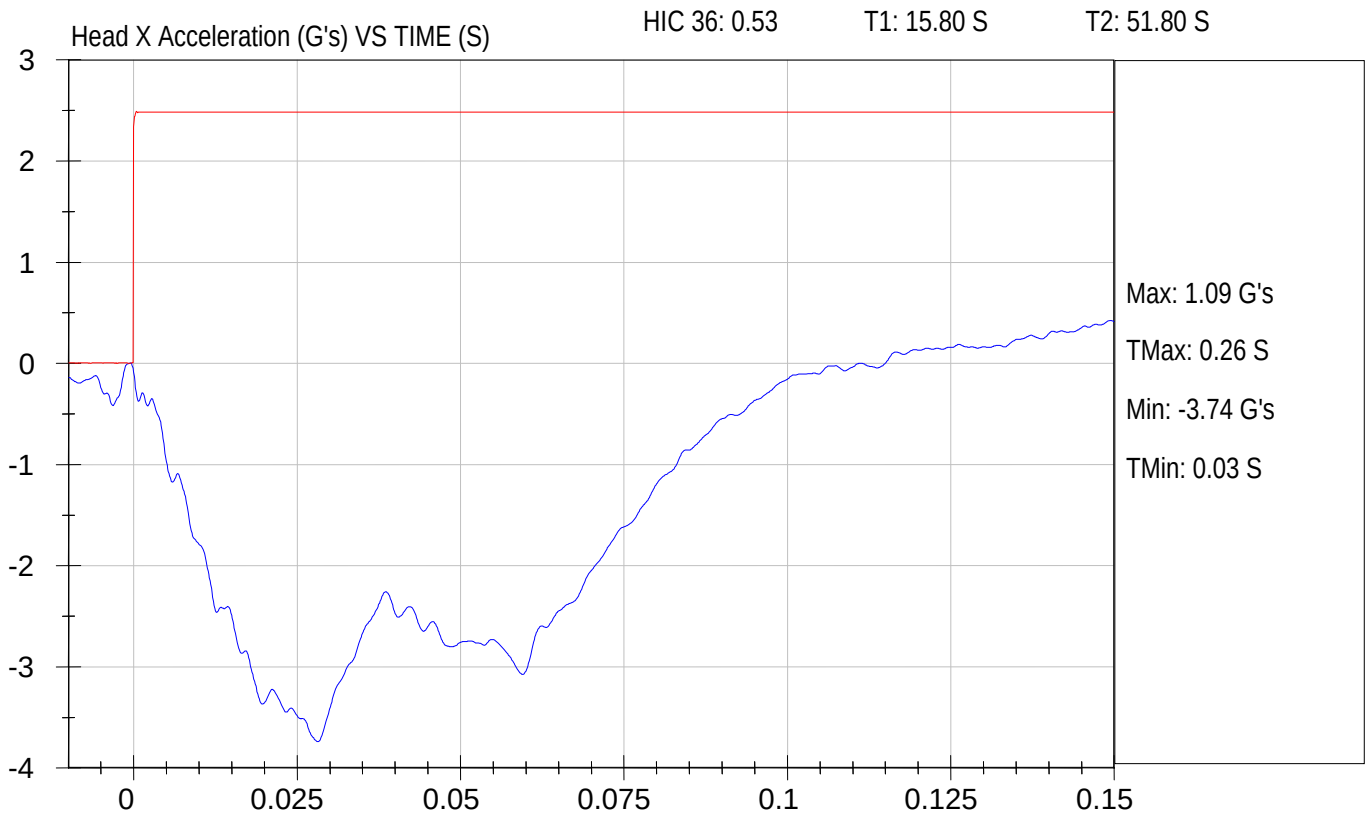
Test Date: 5-6-2011
NHTSA #: CB0903
speed trap: 1.553 m/s

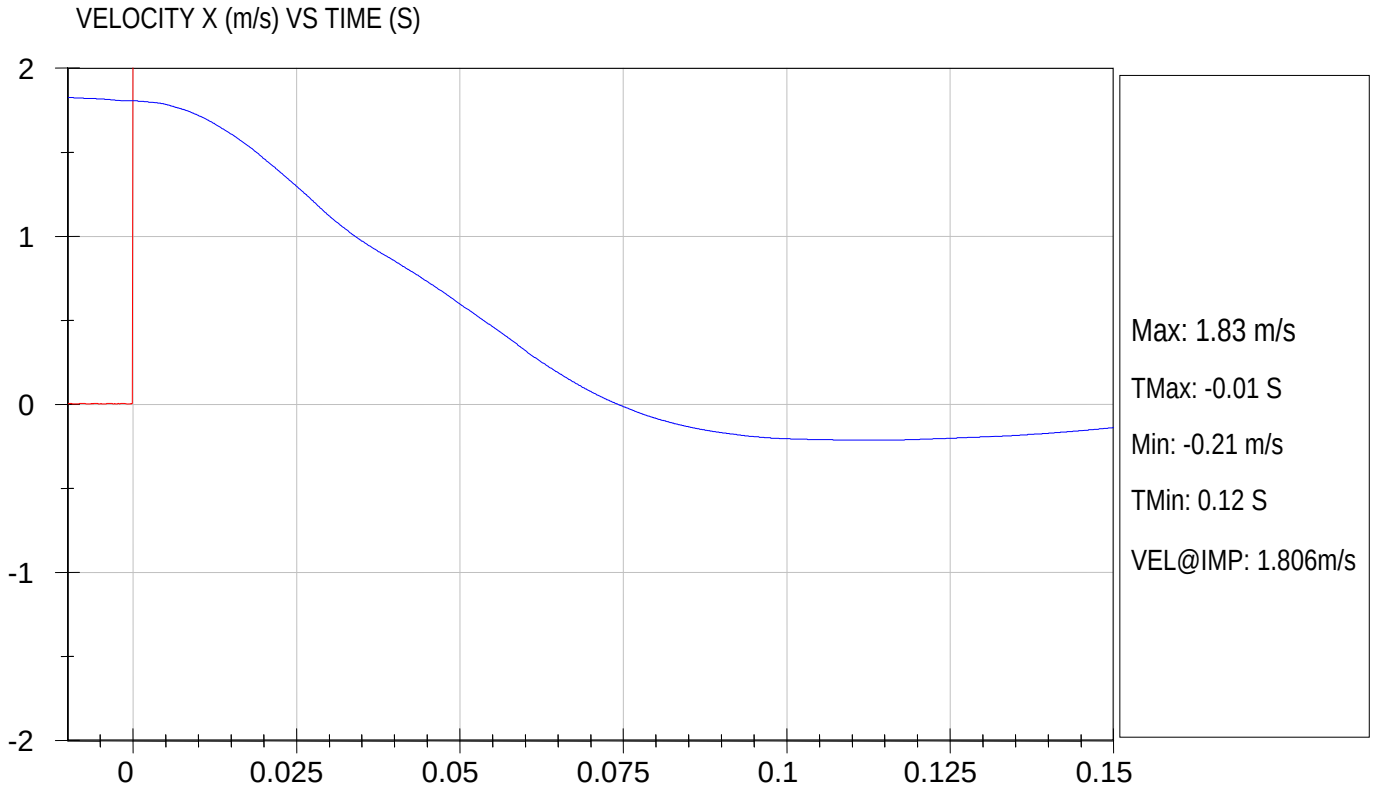




FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H6

Test Date: 5-9-2011
NHTSA #: CB0903
speed trap: 1.559 m/s



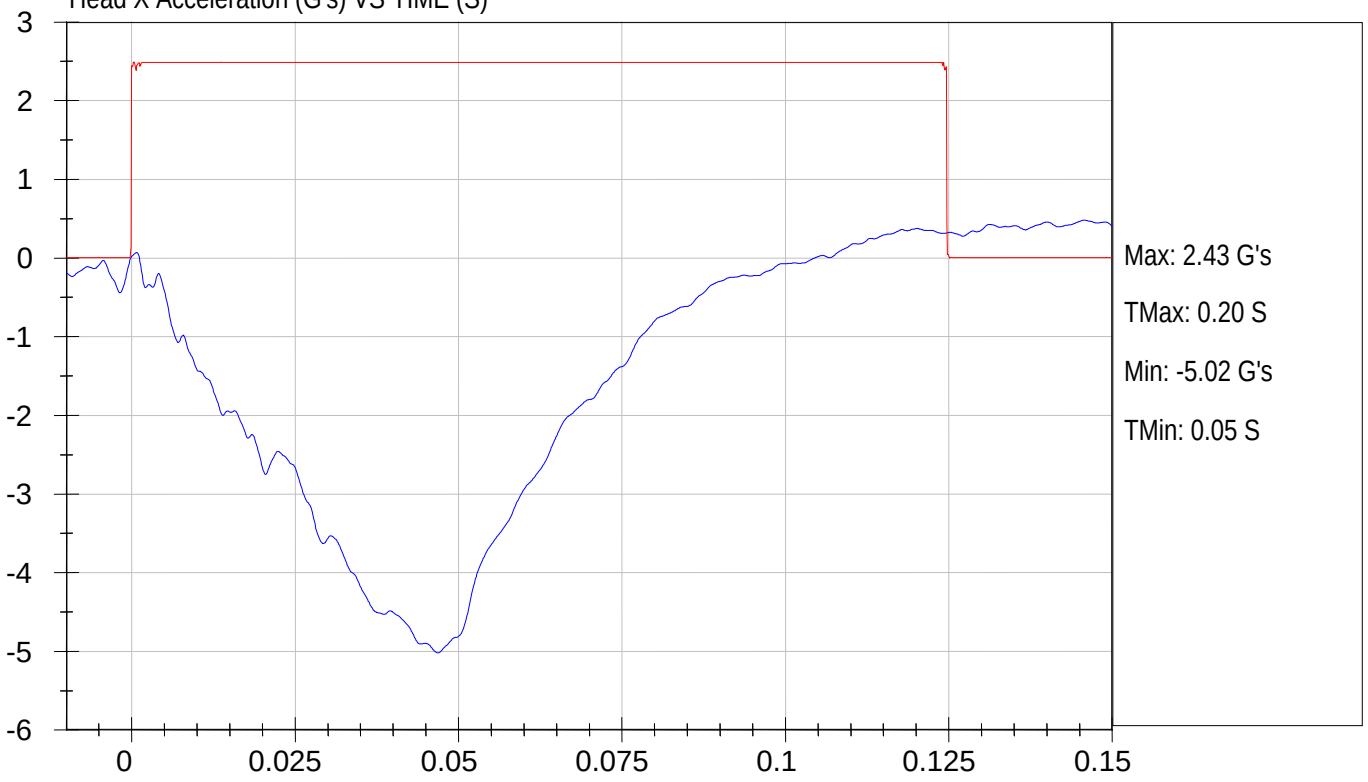


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: S7 H7

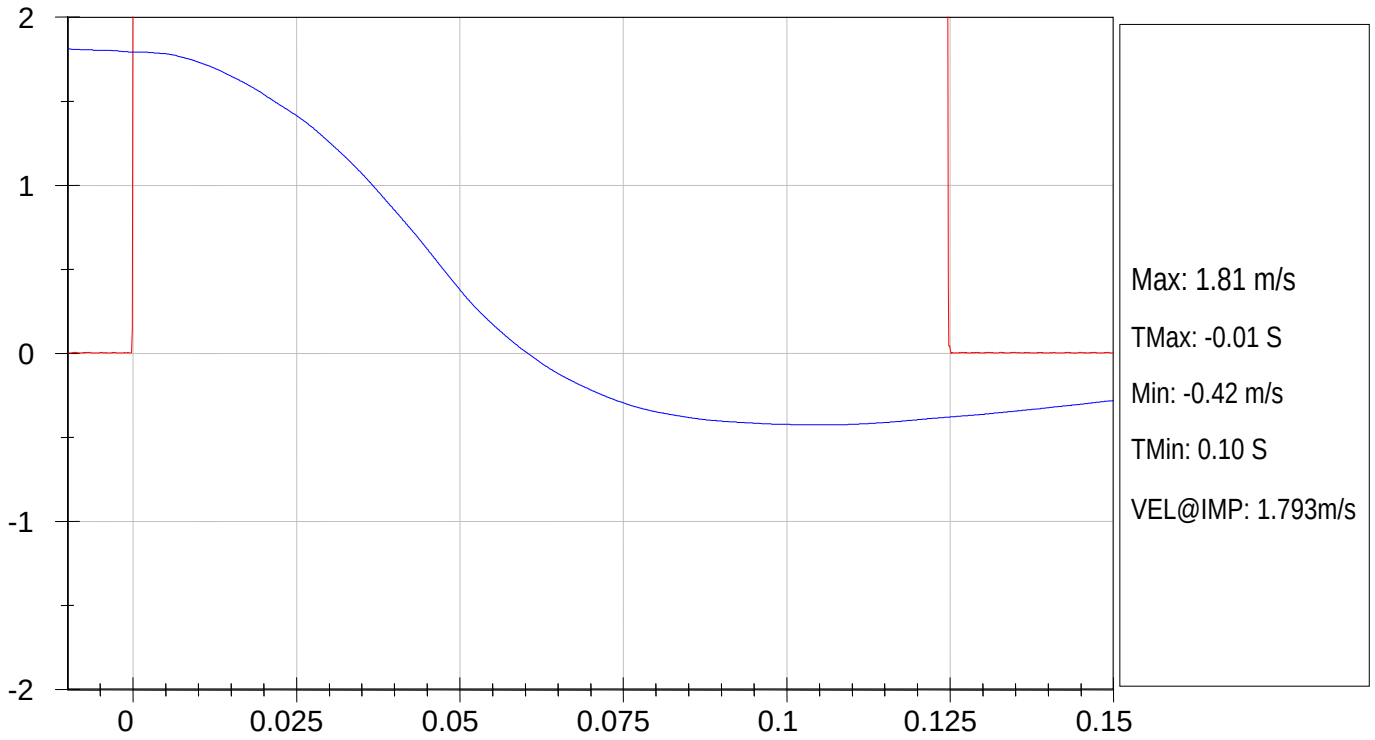
Test Date: 5-9-2011
NHTSA #: CB0903
speed trap: 1.553 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.19 T1: 25.50 S T2: 61.50 S



VELOCITY X (m/s) VS TIME (S)

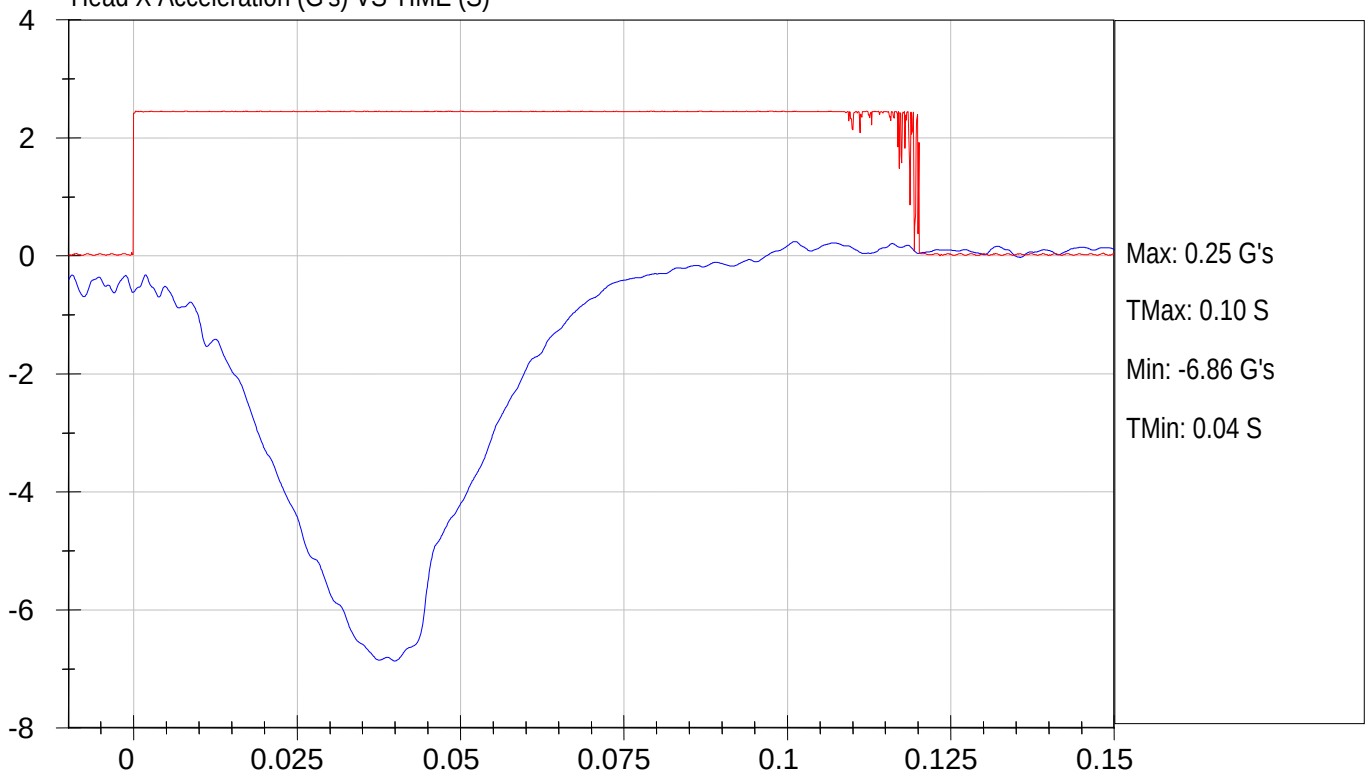


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H1

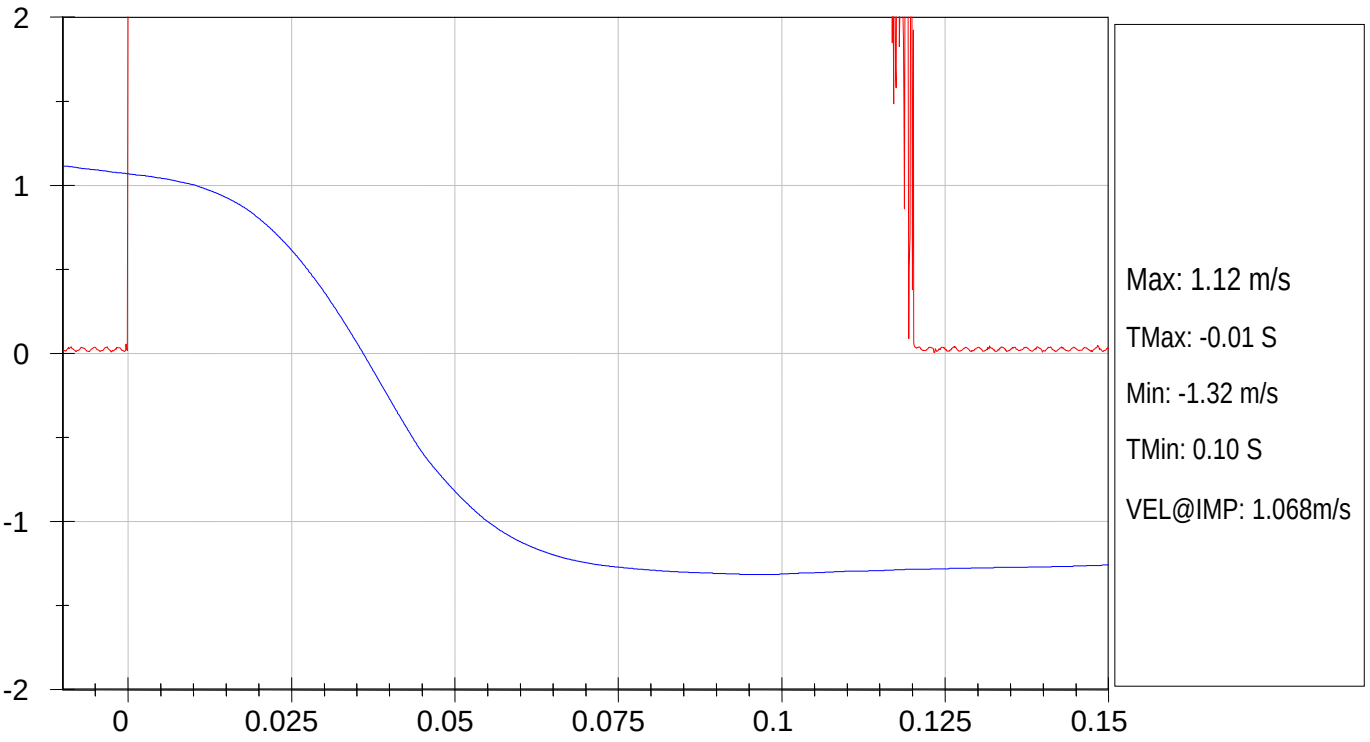
Test Date: 6-2-2011
NHTSA #: CB0903
speed trap: 1.598 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 2.21 T1: 19.60 S T2: 54.60 S

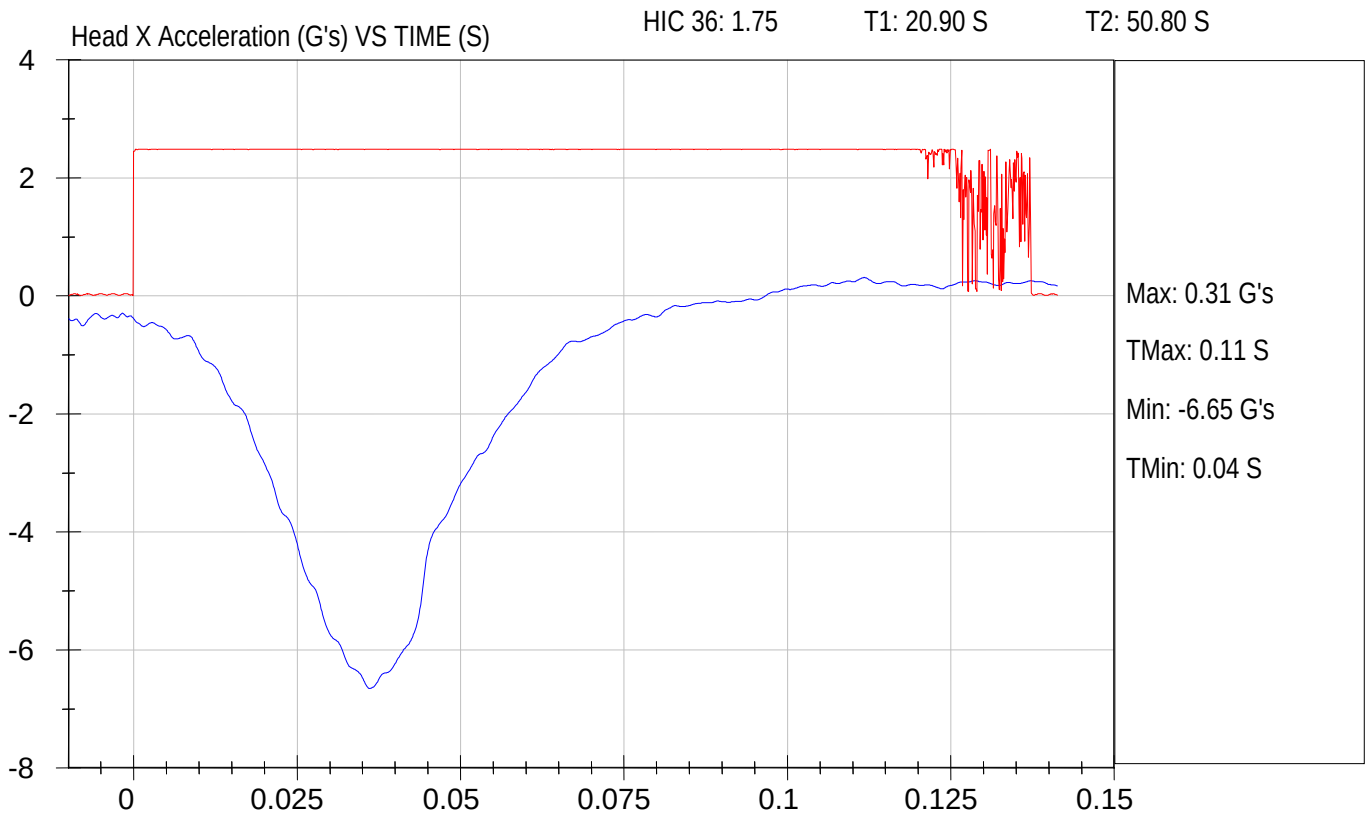


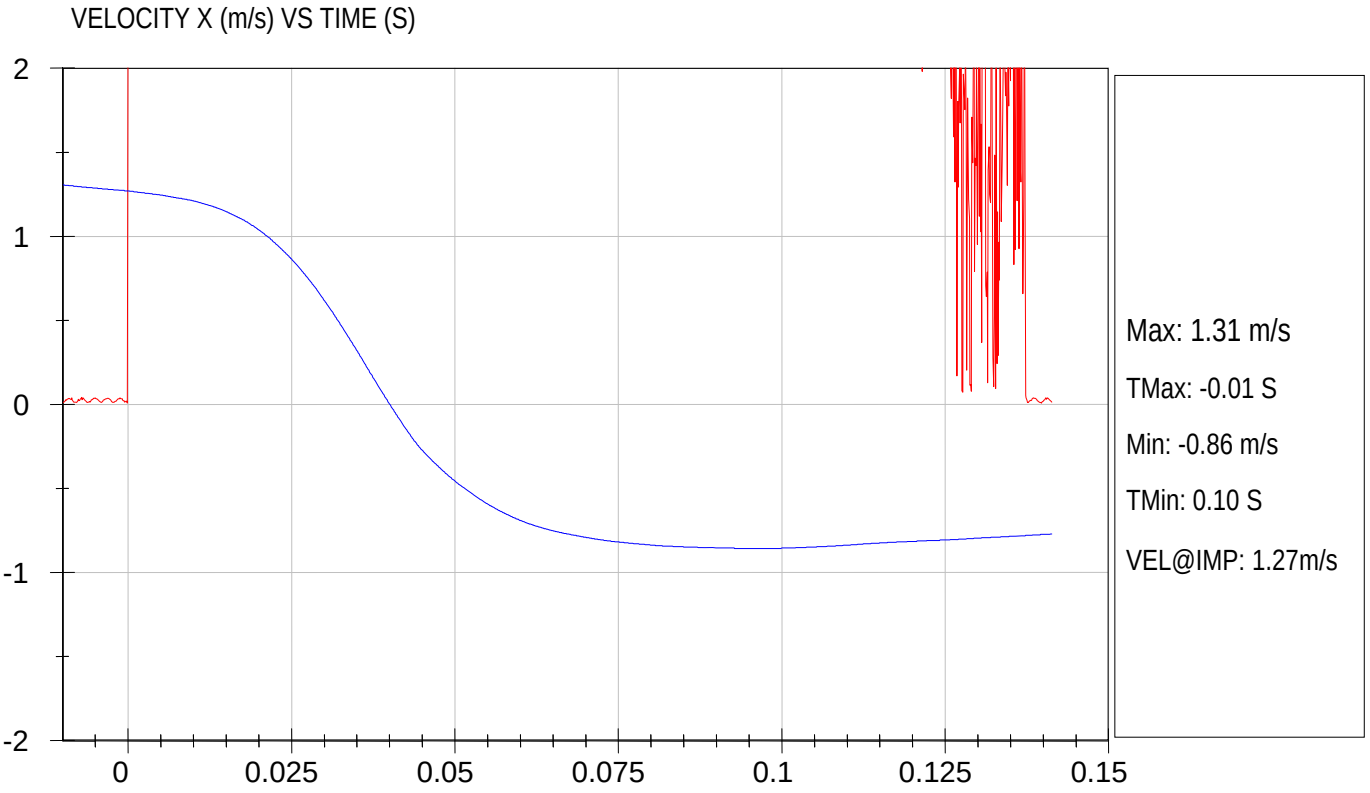
VELOCITY X (m/s) VS TIME (S)



FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H2

Test Date: 6-6-2011
NHTSA #: CB0903
speed trap: 1.559 m/s



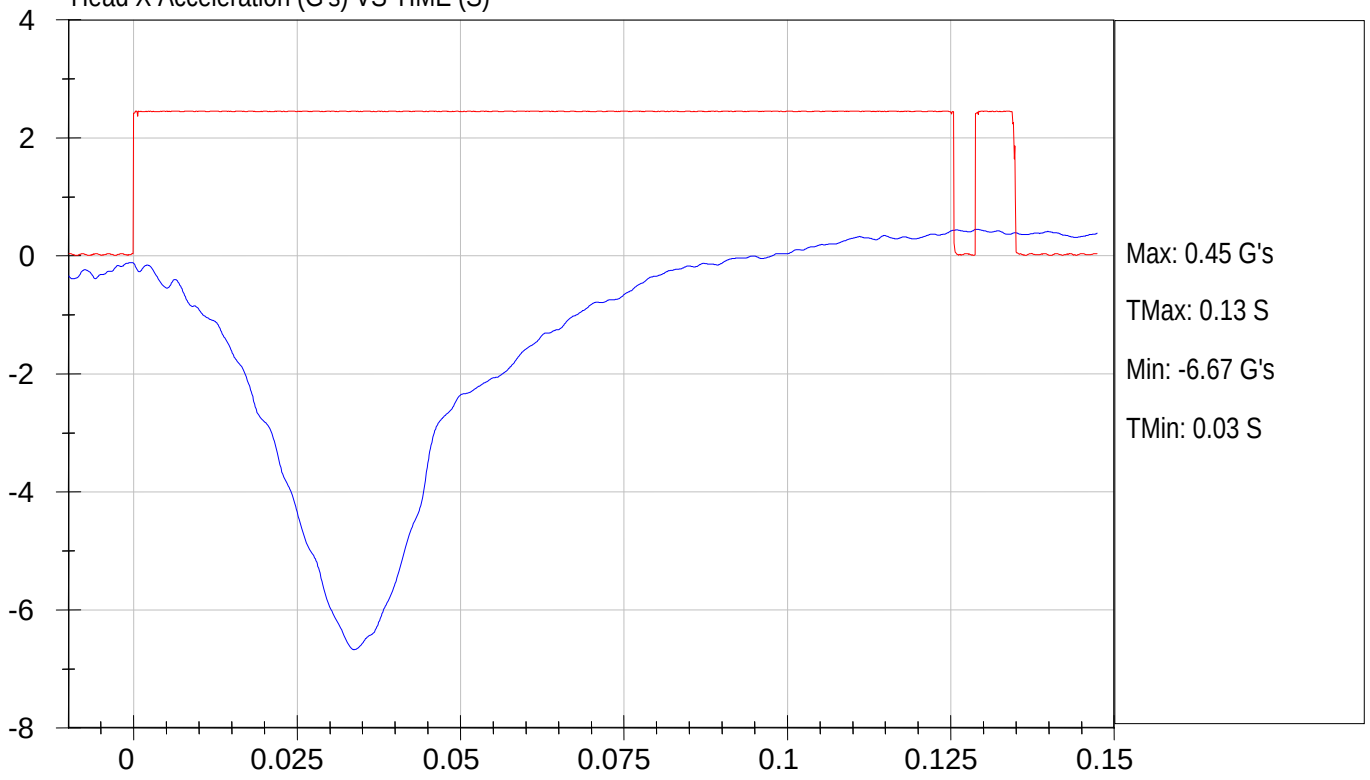


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H3

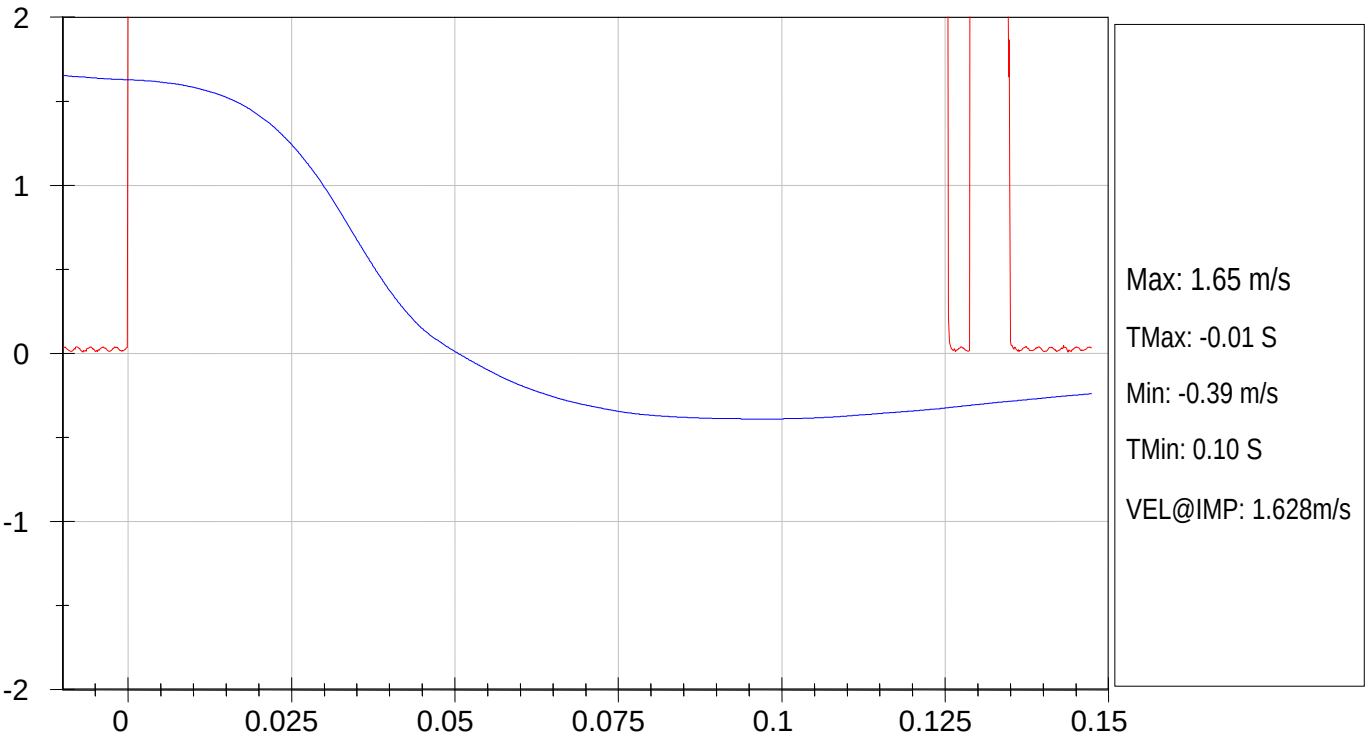
Test Date: 6-6-2011
NHTSA #: CB0903
speed trap: 1.559 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.53 T1: 21.60 S T2: 45.60 S



VELOCITY X (m/s) VS TIME (S)

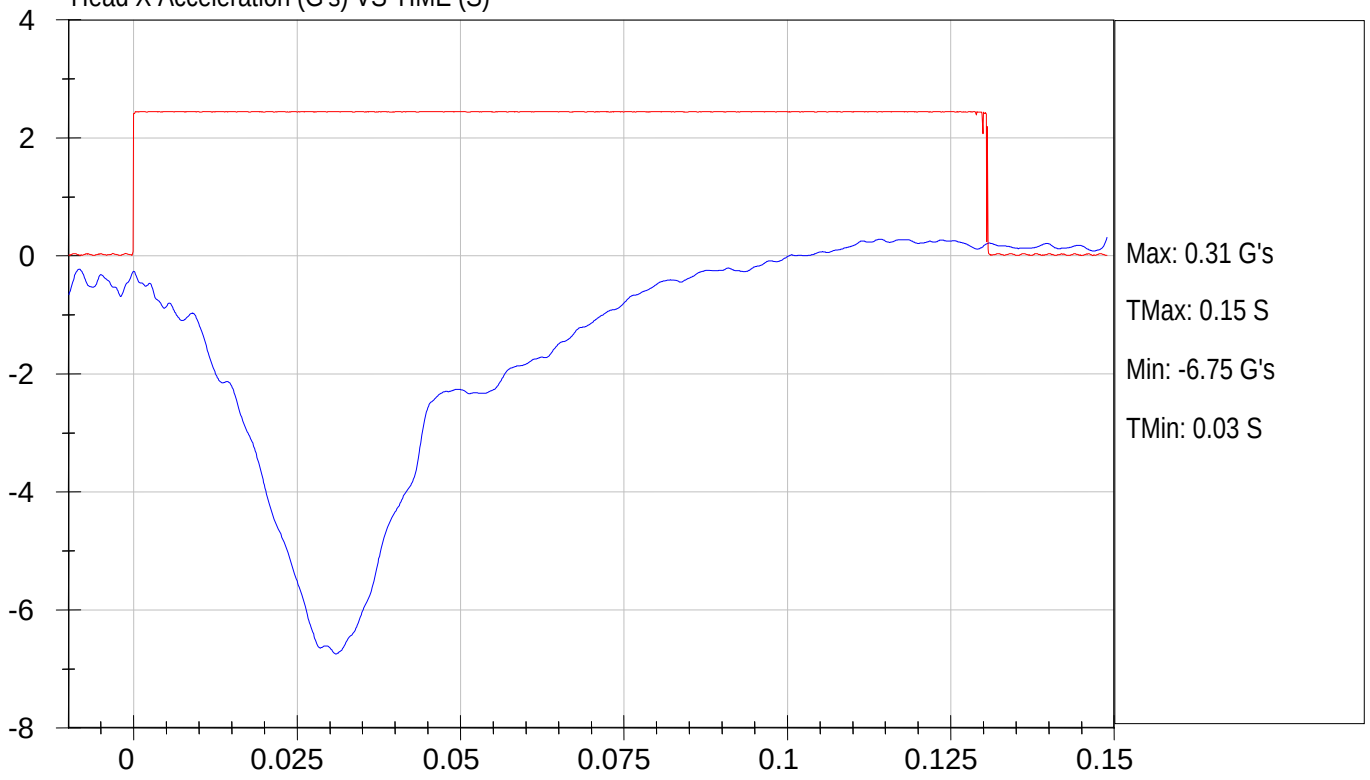


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H4

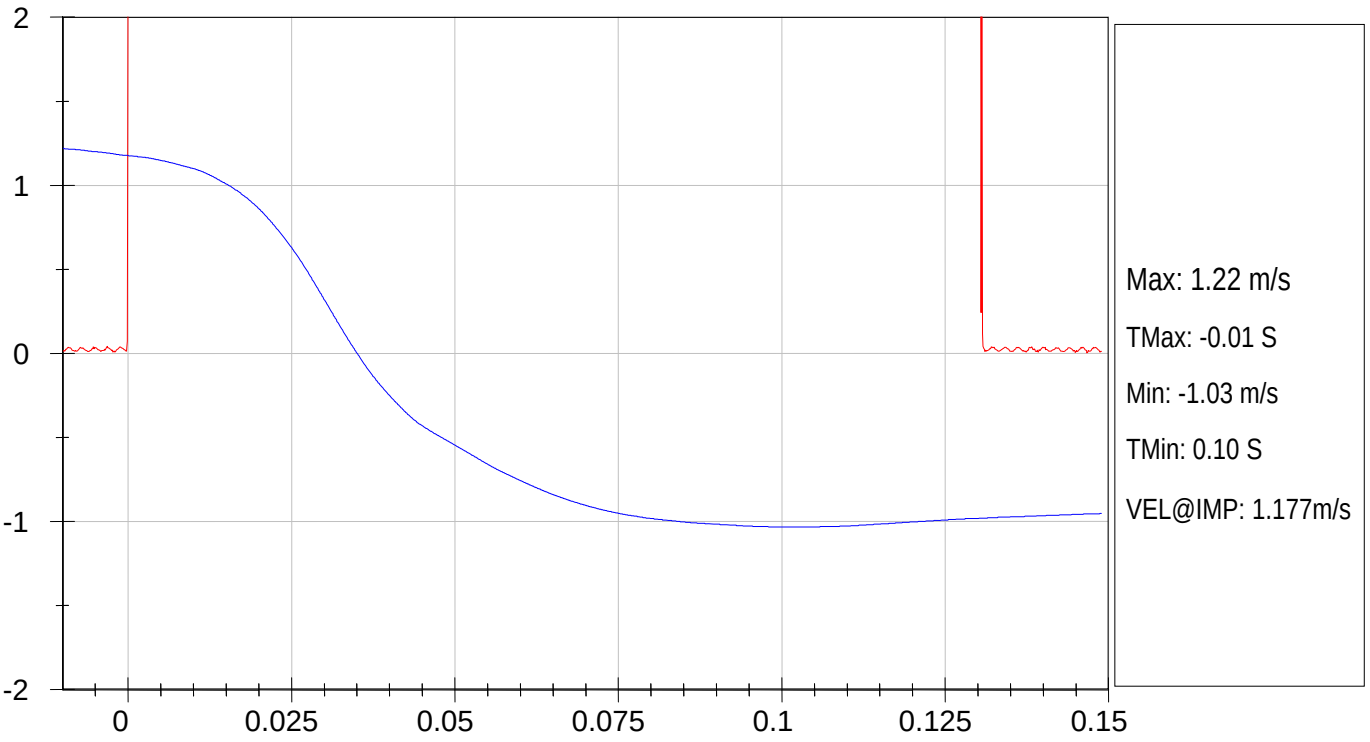
Test Date: 6-6-2011
NHTSA #: CB0903
speed trap: 1.535 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.62 T1: 18.10 S T2: 43.90 S



VELOCITY X (m/s) VS TIME (S)

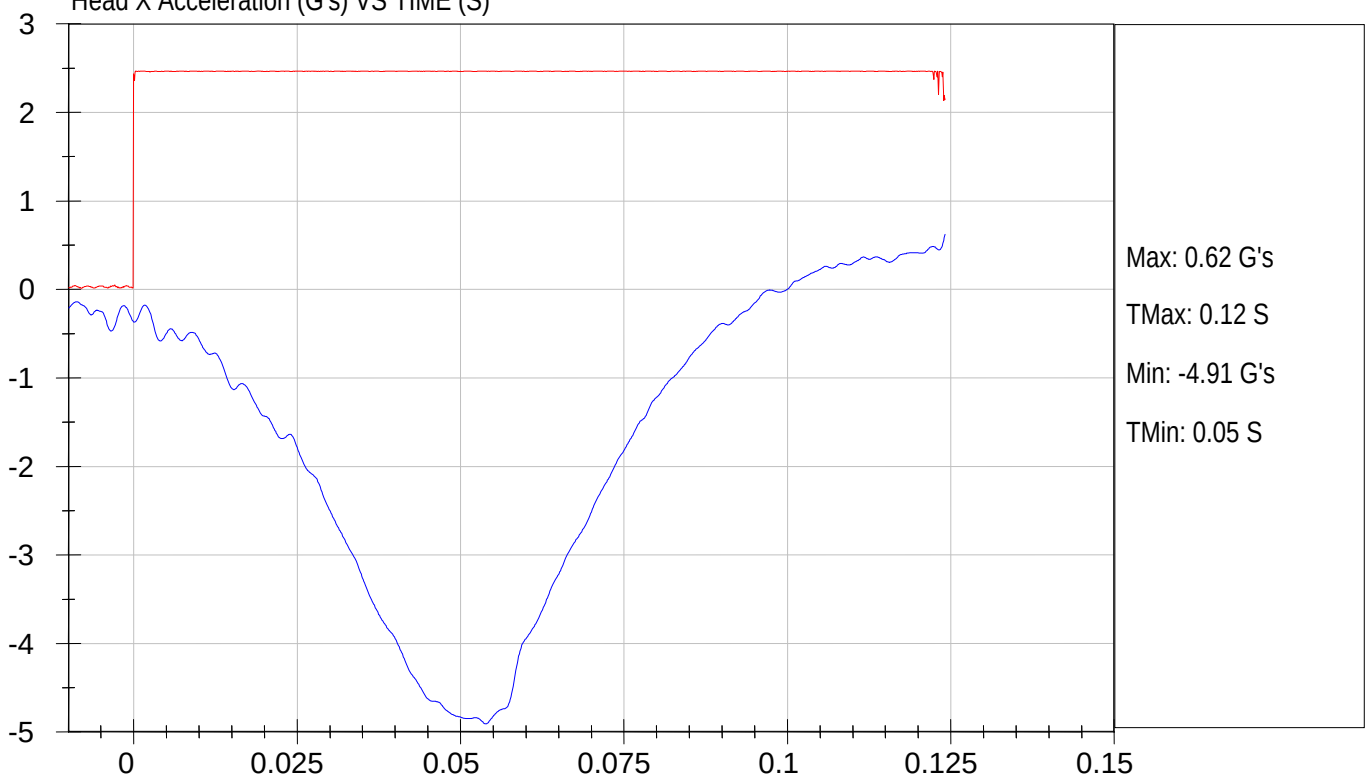


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H5

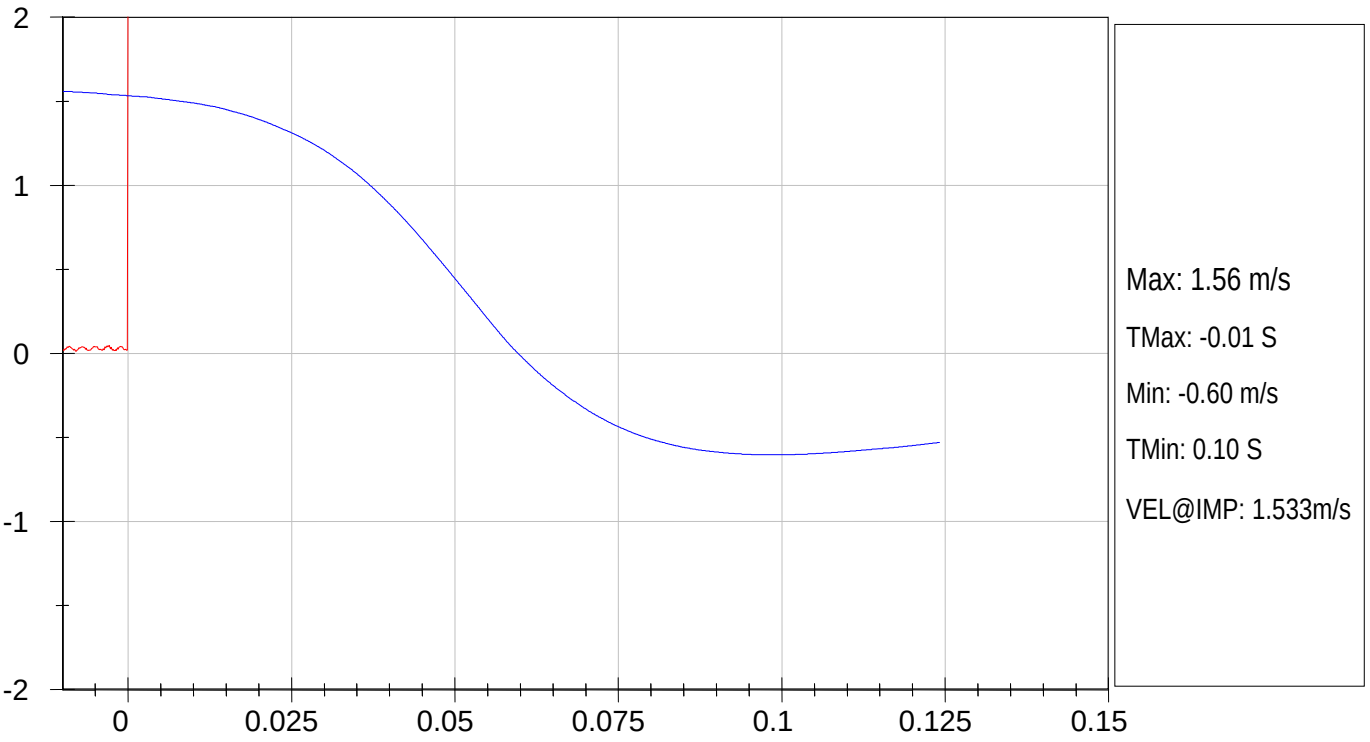
Test Date: 6-6-2011
NHTSA #: CB0903
speed trap: 1.575 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 1.20 T1: 32.00 S T2: 68.00 S



VELOCITY X (m/s) VS TIME (S)

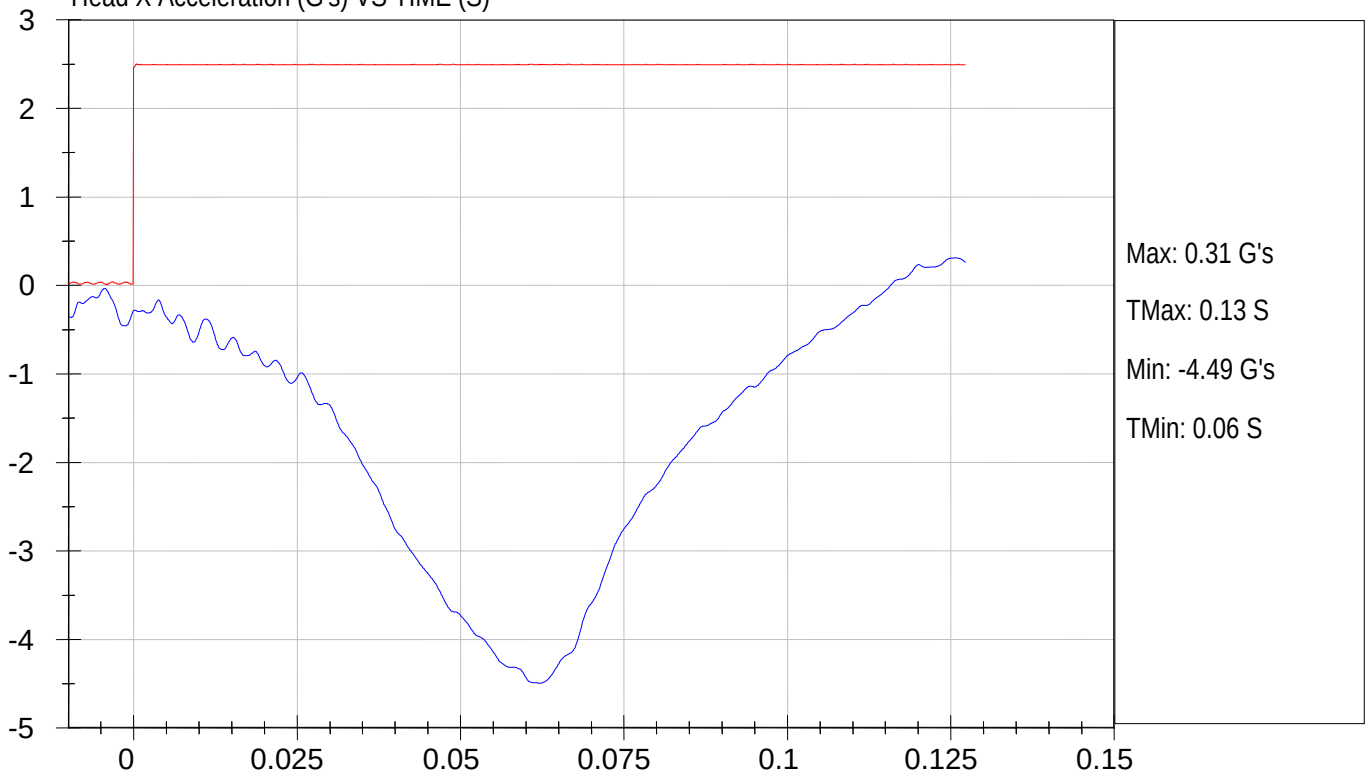


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H6

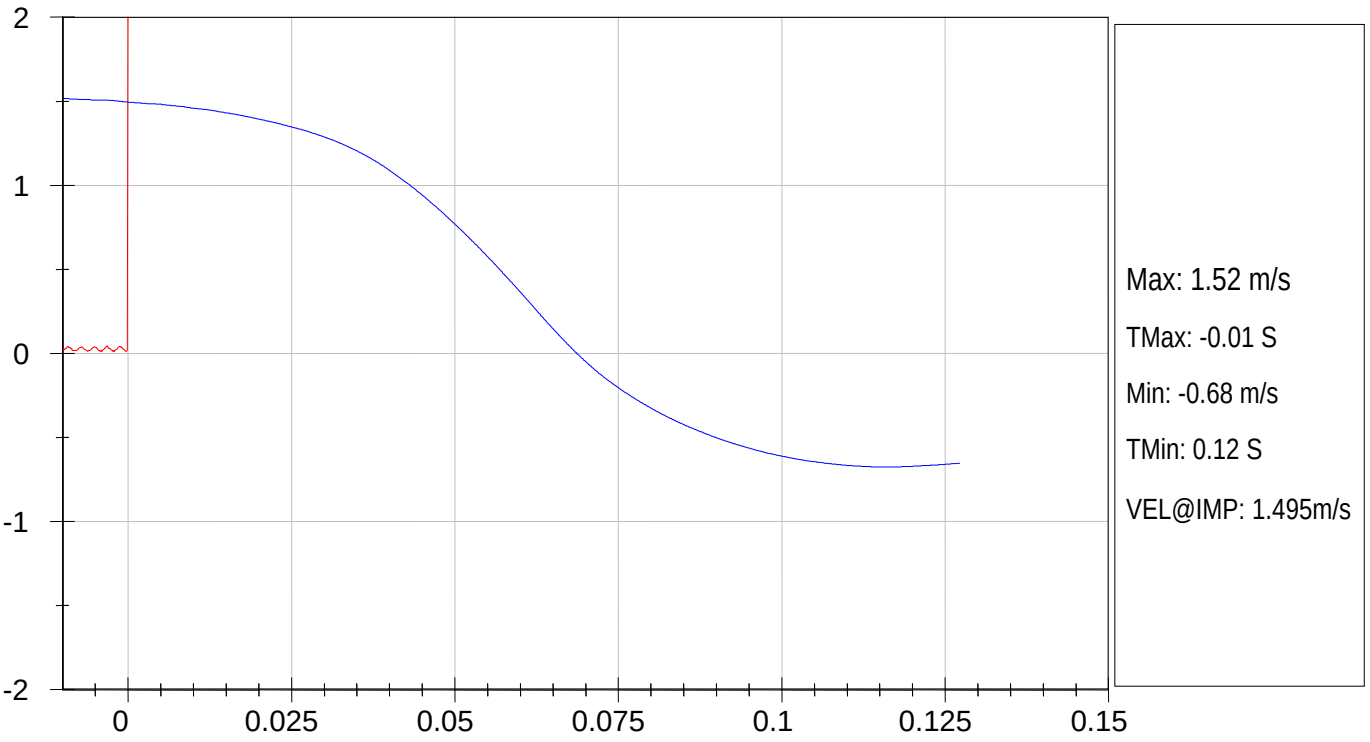
Test Date: 6-6-2011
NHTSA #: CB0903
speed trap: 1.561 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 0.97 T1: 39.60 S T2: 75.60 S



VELOCITY X (m/s) VS TIME (S)

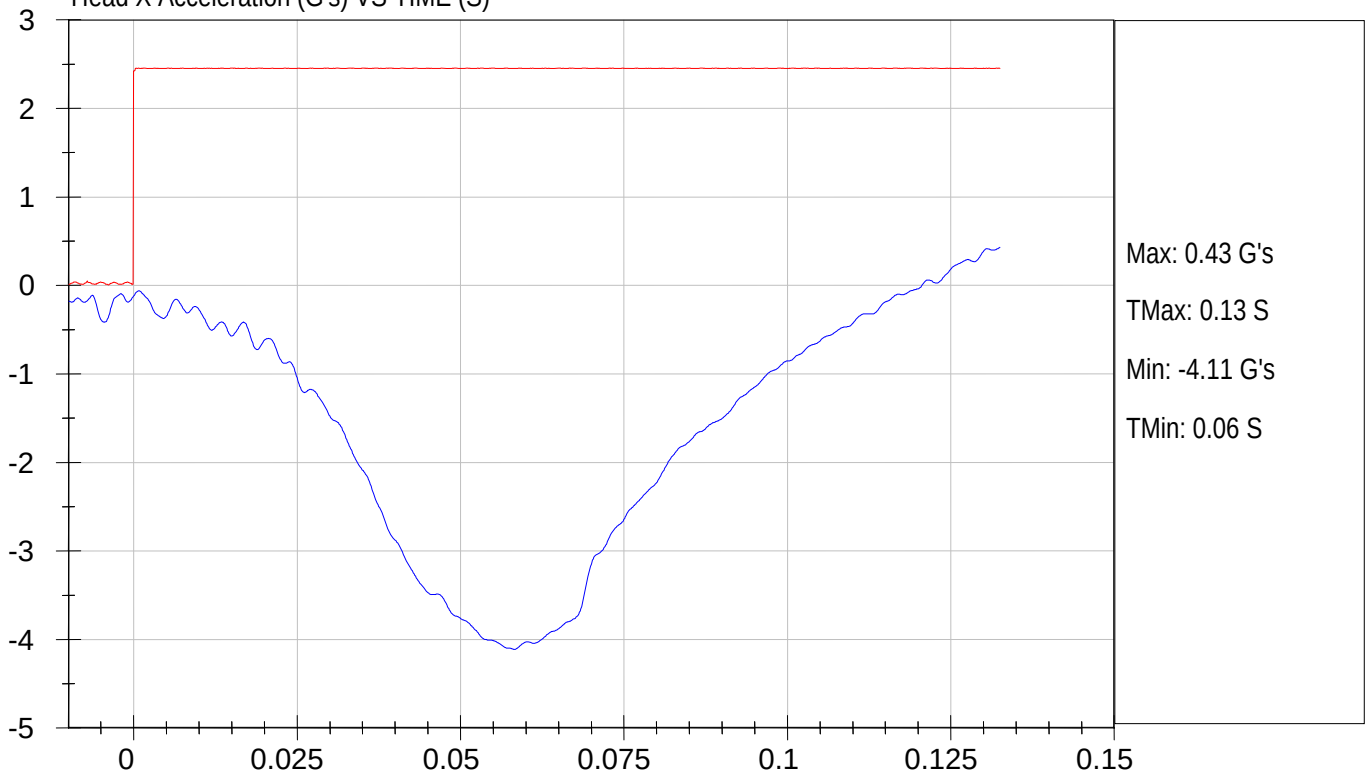


FMVSS 222 HEAD FORM IMPACTS (1.5 m/s)
Component ID: 2011 Girardin Micro Bird
Location: B1 H7

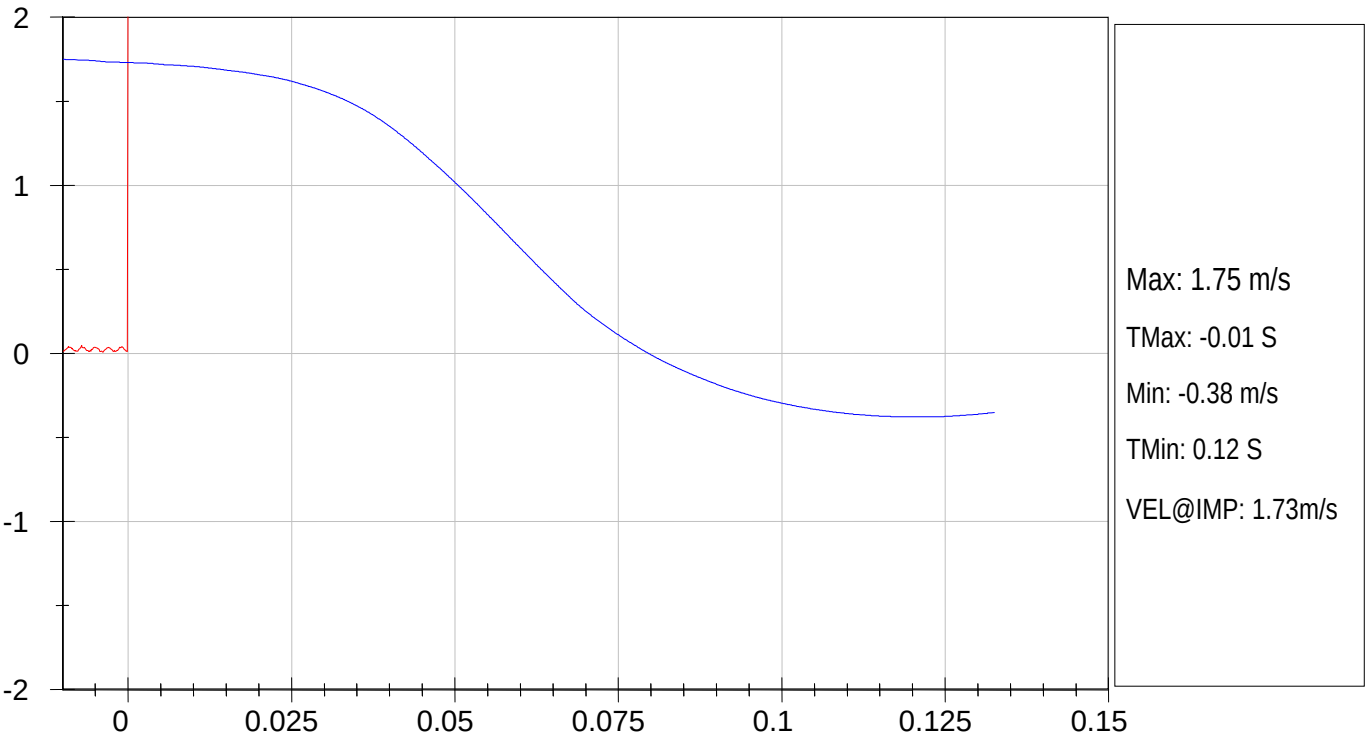
Test Date: 6-6-2011
NHTSA #: CB0903
speed trap: 1.576 m/s

Head X Acceleration (G's) VS TIME (S)

HIC 36: 0.88 T1: 38.60 S T2: 74.60 S



VELOCITY X (m/s) VS TIME (S)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-11-2011

Component ID: 2011 Girardin Micro Bird

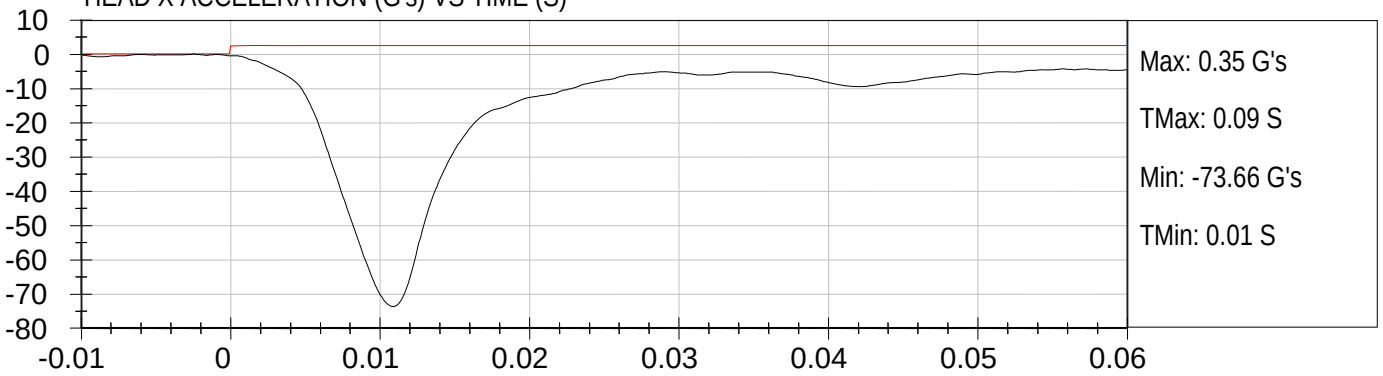
NHTSA#: CB0903

Location: S2 H8

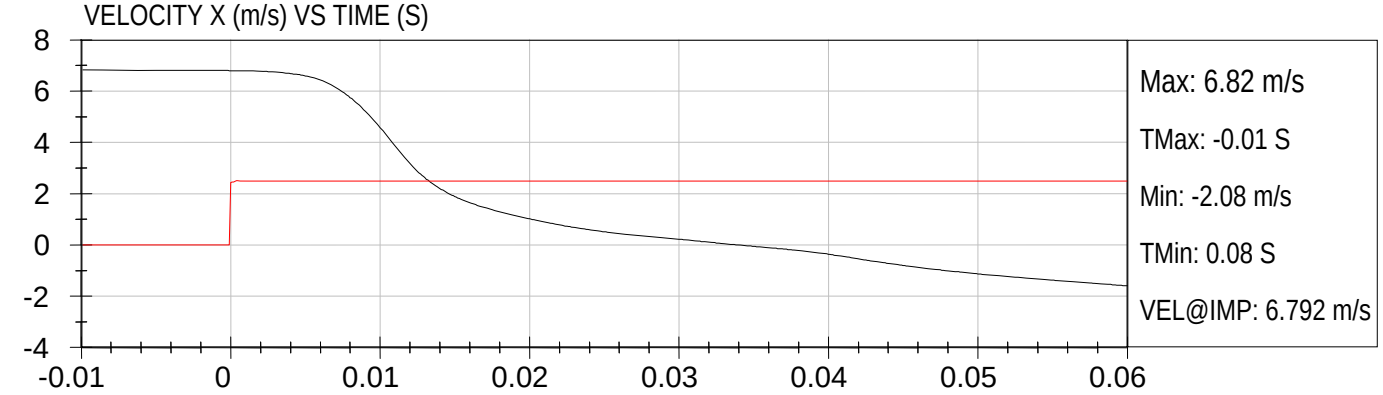
speed trap: 6.620 m/s

Hic: 176.01 T1: 6.90 ms T2: 14.30 ms

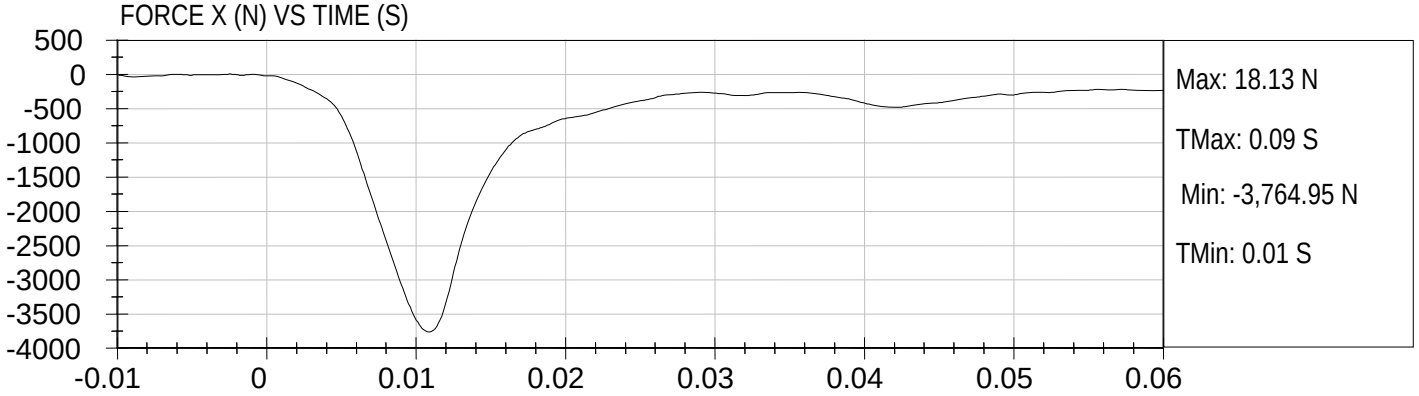
HEAD X ACCELERATION (G's) VS TIME (S)



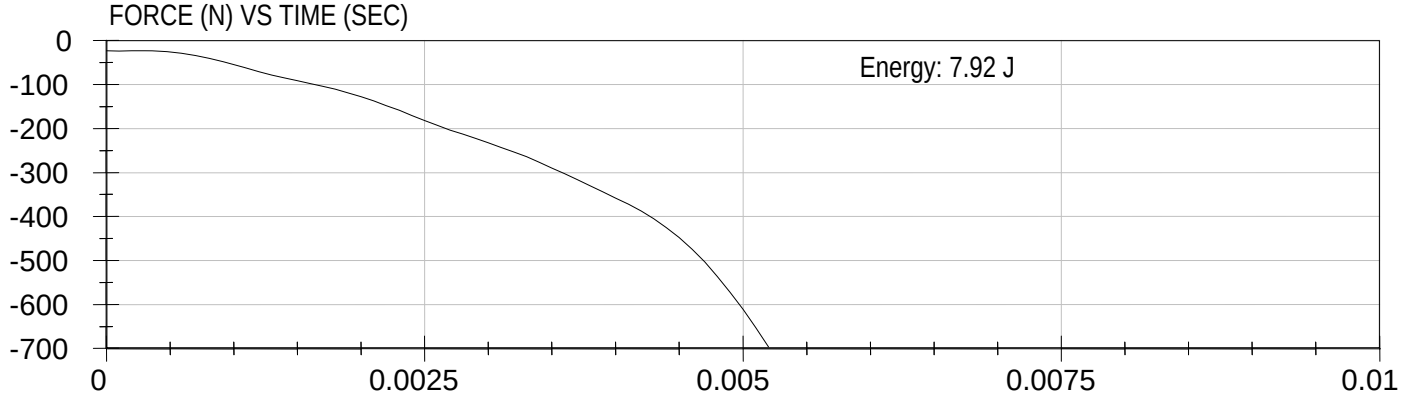
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-11-2011

Component ID: 2011 Girardin Micro Bird

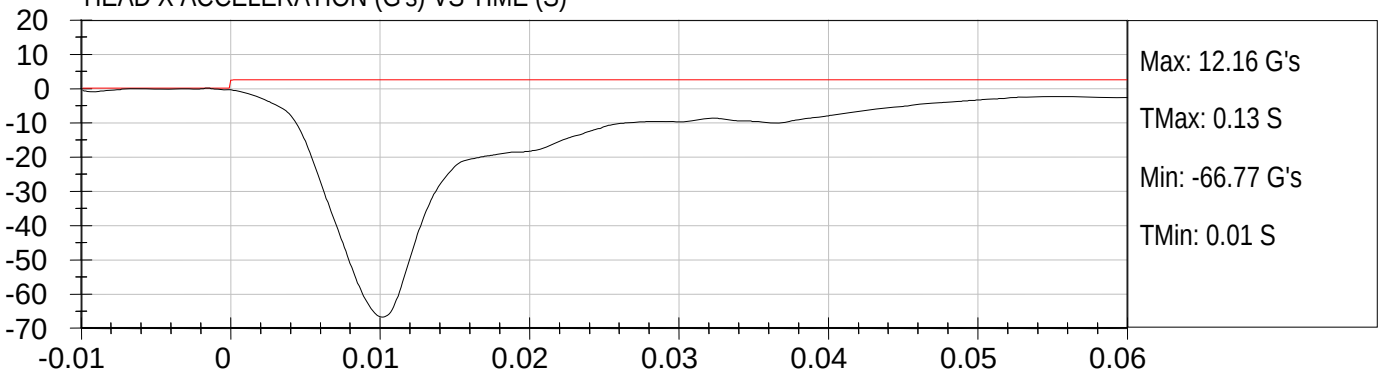
NHTSA#: CB0903

Location: S2 H9

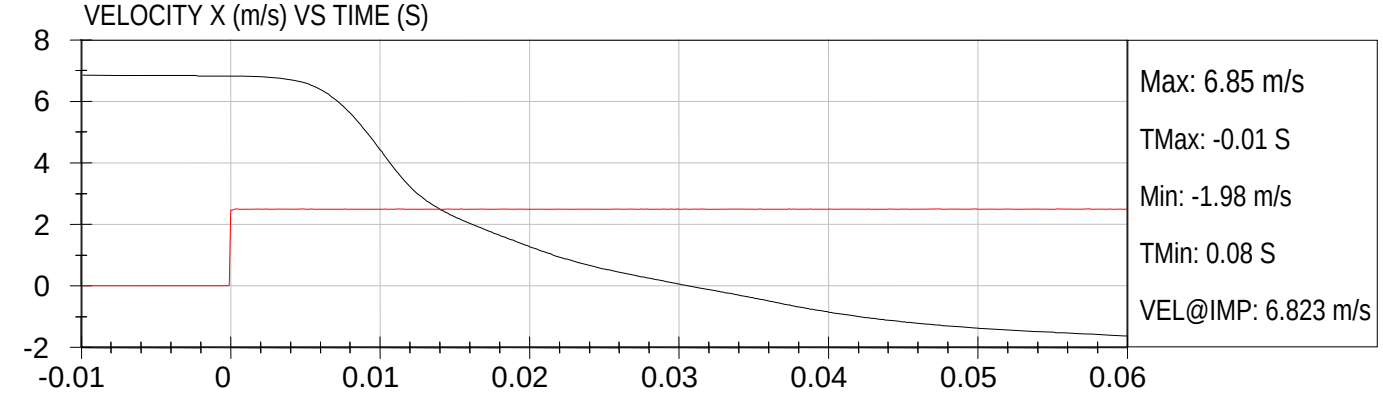
speed trap: 6.655 m/s

Hic: 139.08 T1: 6.30 ms T2: 13.60 ms

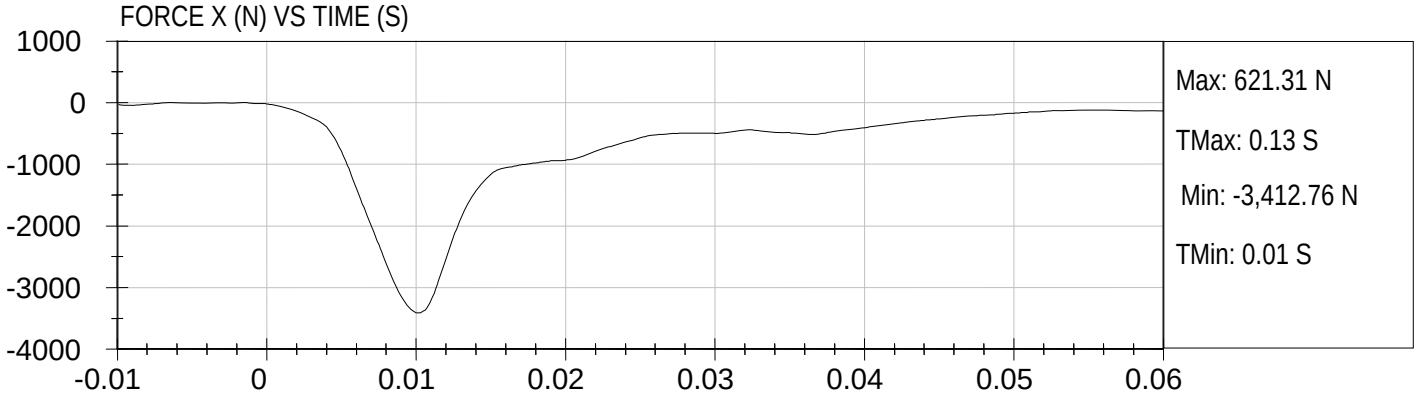
HEAD X ACCELERATION (G's) VS TIME (S)



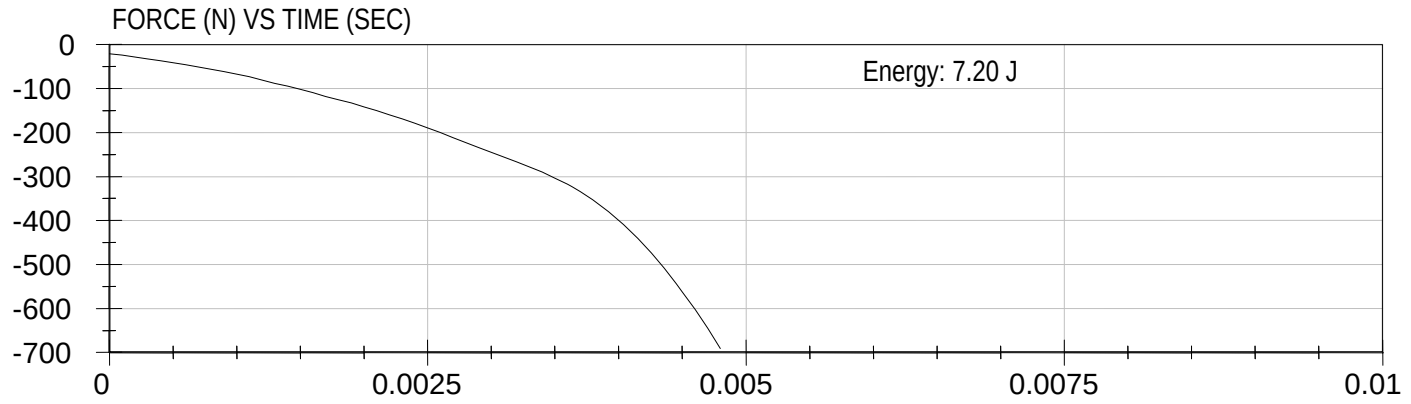
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-11-2011

Component ID: 2011 Girardin Micro Bird

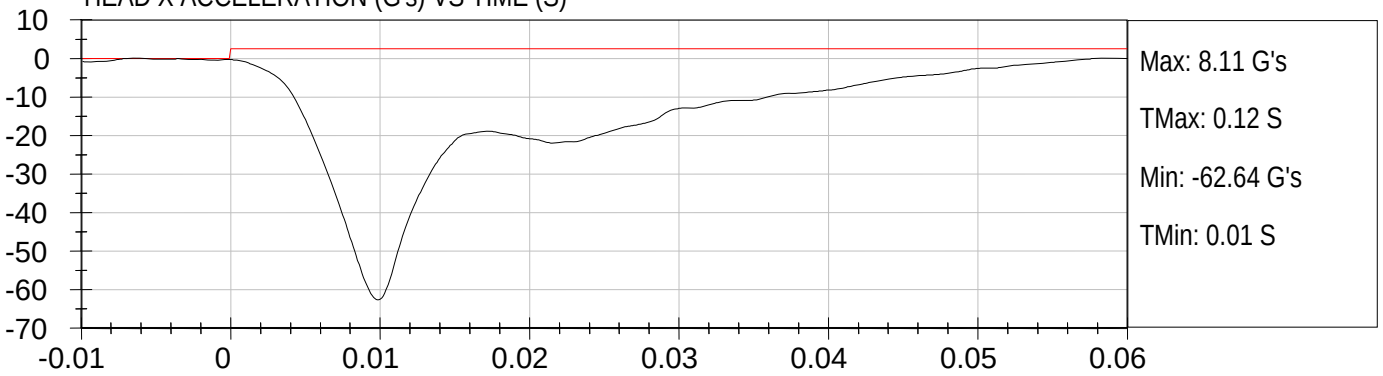
NHTSA#: CB0903

Location: S2 H10

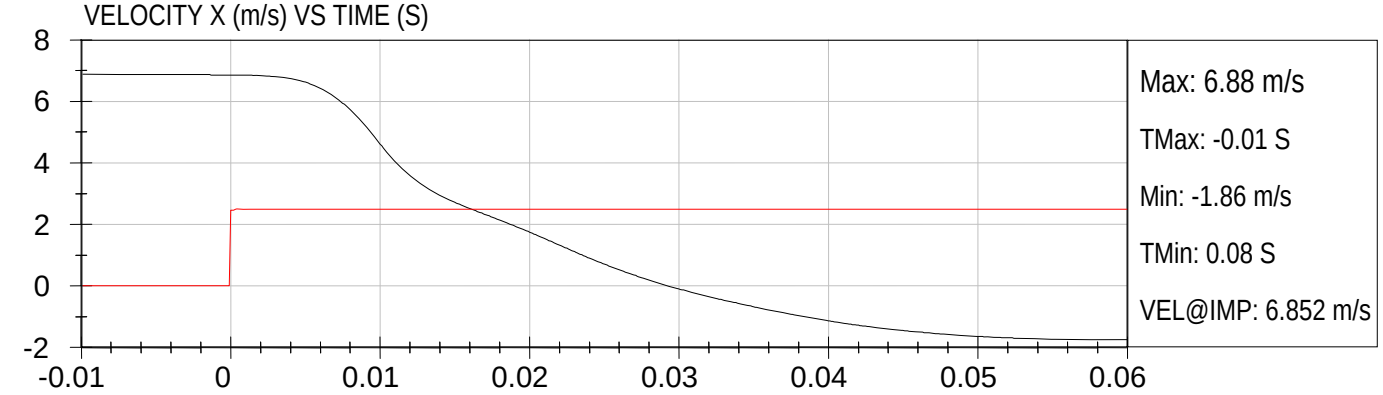
speed trap: 6.617 m/s

Hic: 104.66 T1: 6.20 ms T2: 13.70 ms

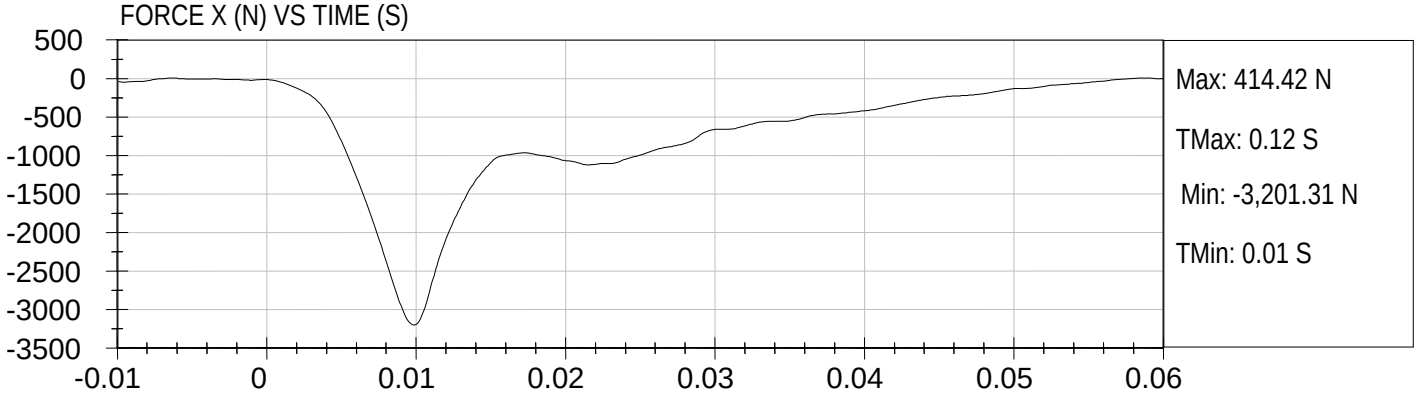
HEAD X ACCELERATION (G's) VS TIME (S)



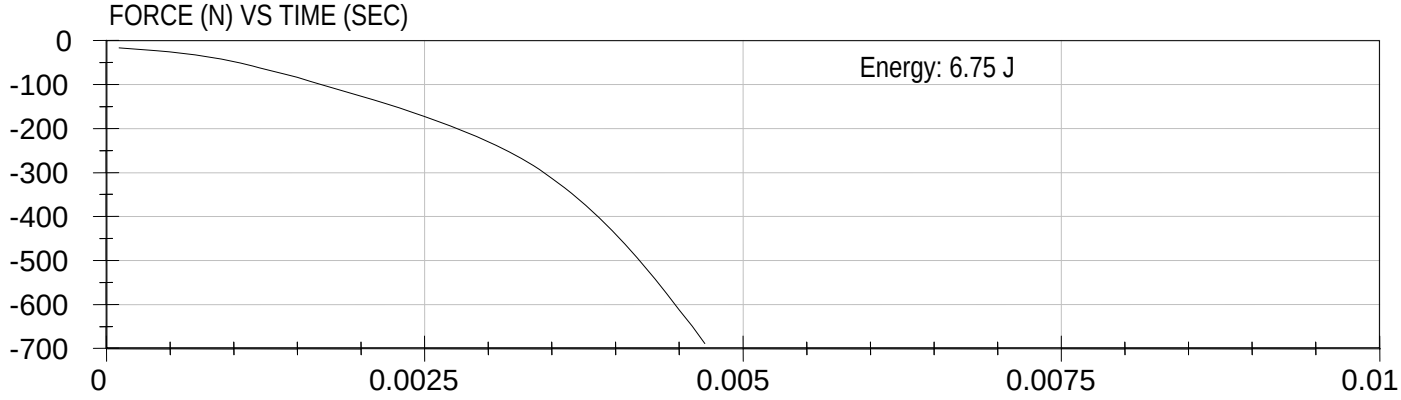
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-11-2011

Component ID: 2011 Girardin Micro Bird

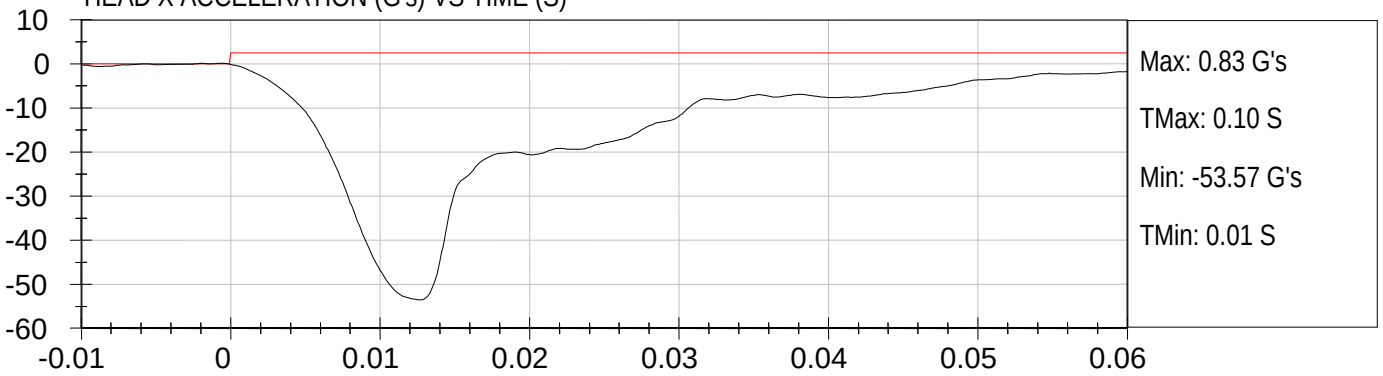
NHTSA#: CB0903

Location: S2 H11

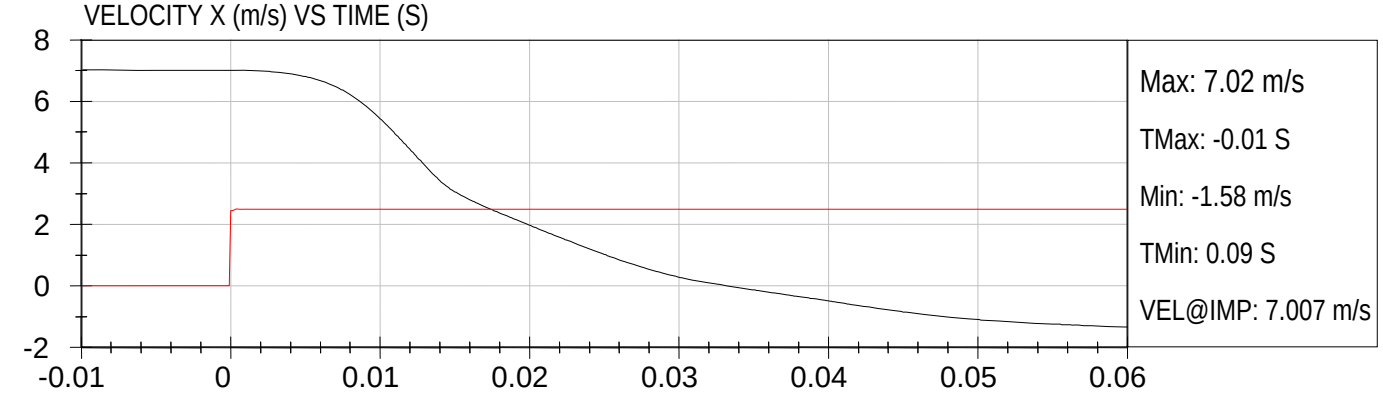
speed trap: 6.666 m/s

Hic: 101.01 T1: 7.30 ms T2: 15.80 ms

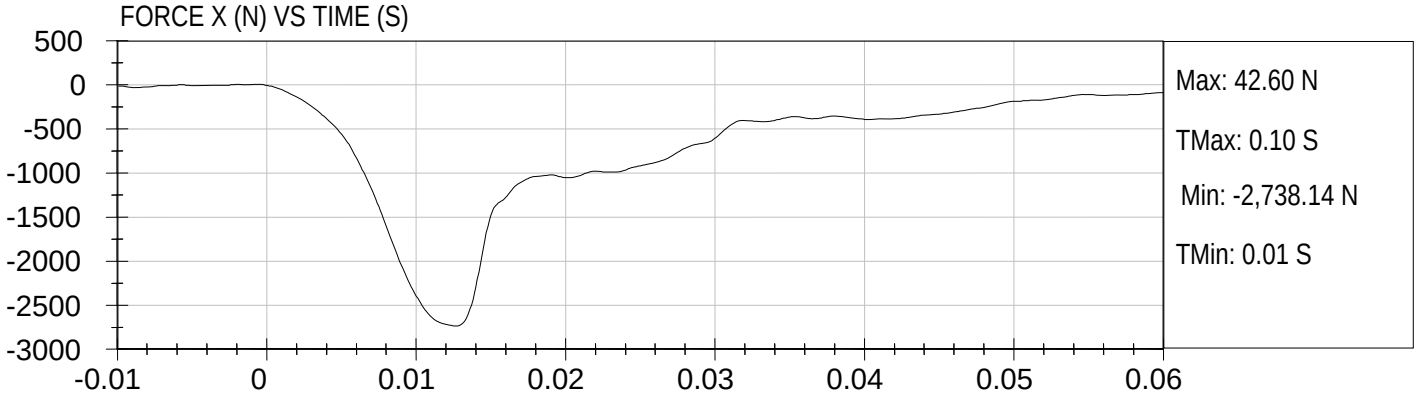
HEAD X ACCELERATION (G's) VS TIME (S)



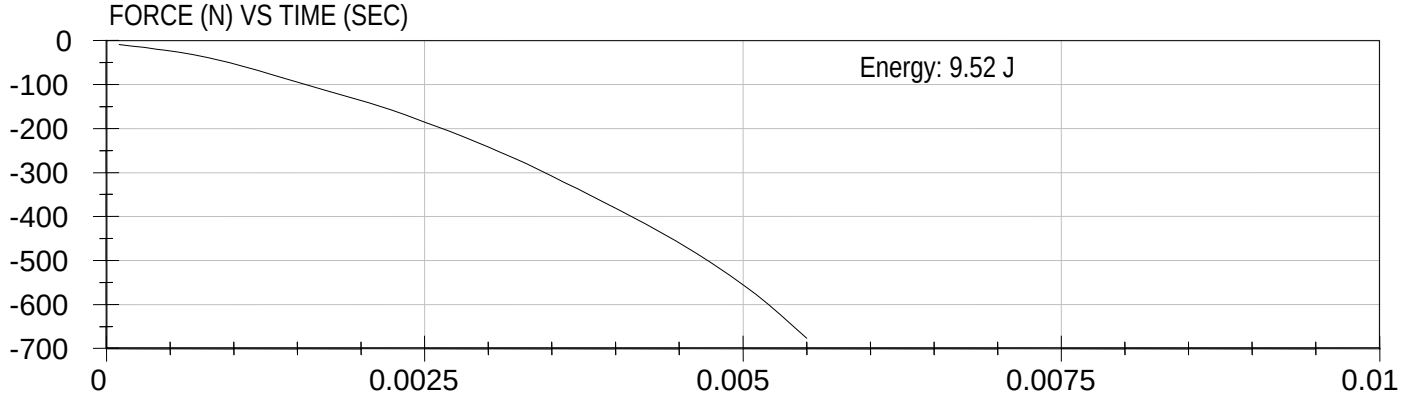
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-11-2011

Component ID: 2011 Girardin Micro Bird

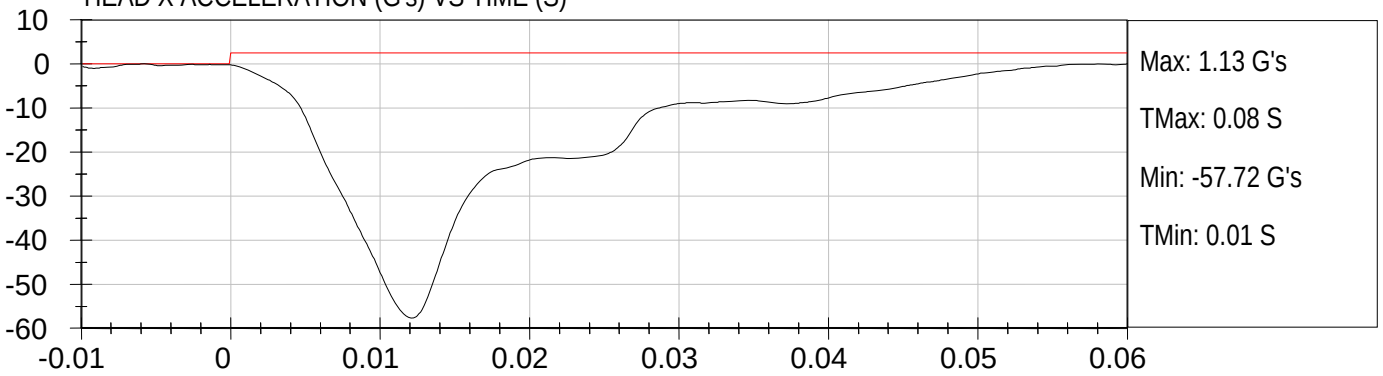
NHTSA#: CB0903

Location: S2 H12

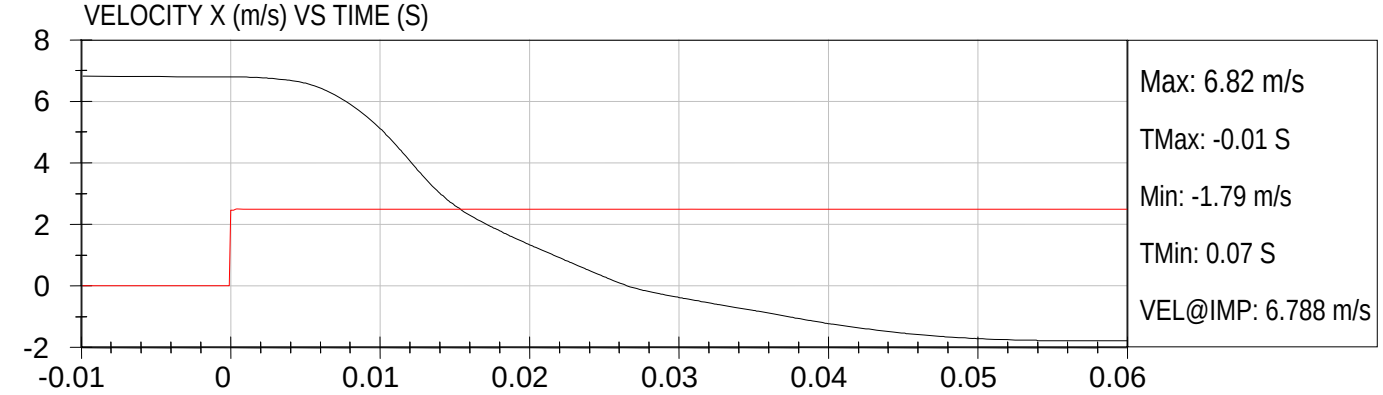
speed trap: 6.661 m/s

Hic: 118.18 T1: 5.90 ms T2: 25.80 ms

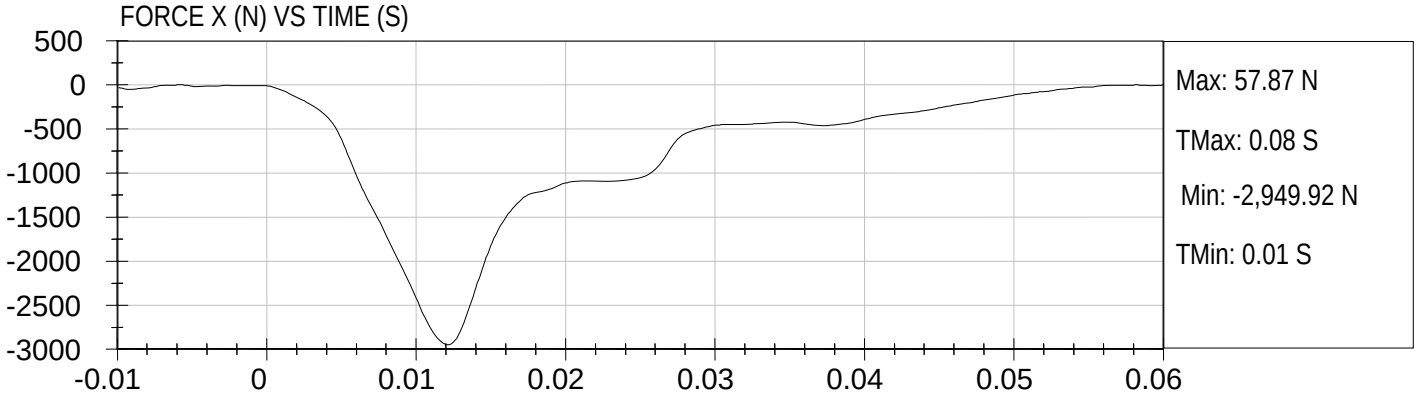
HEAD X ACCELERATION (G's) VS TIME (S)



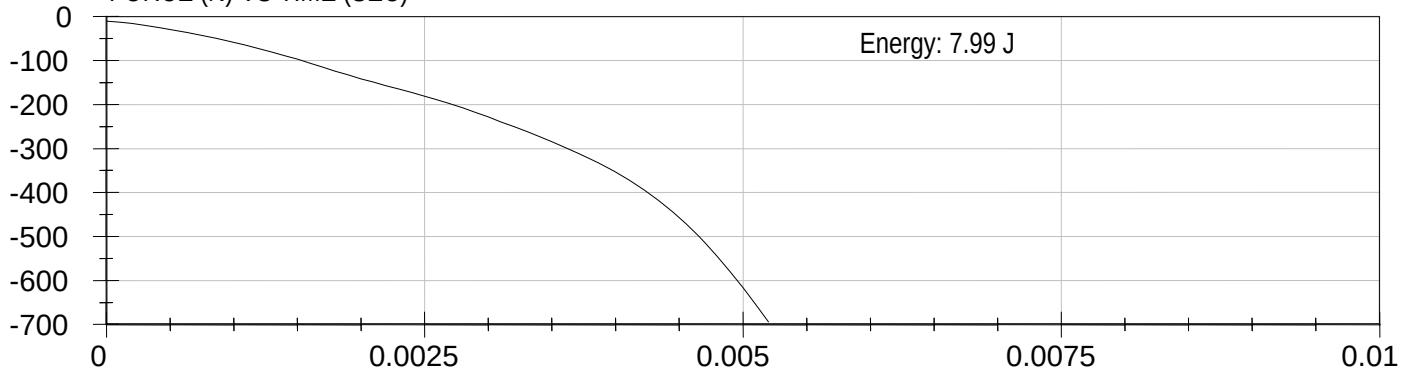
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Component ID: 2011 Girardin Micro Bird

Location: S2 H13

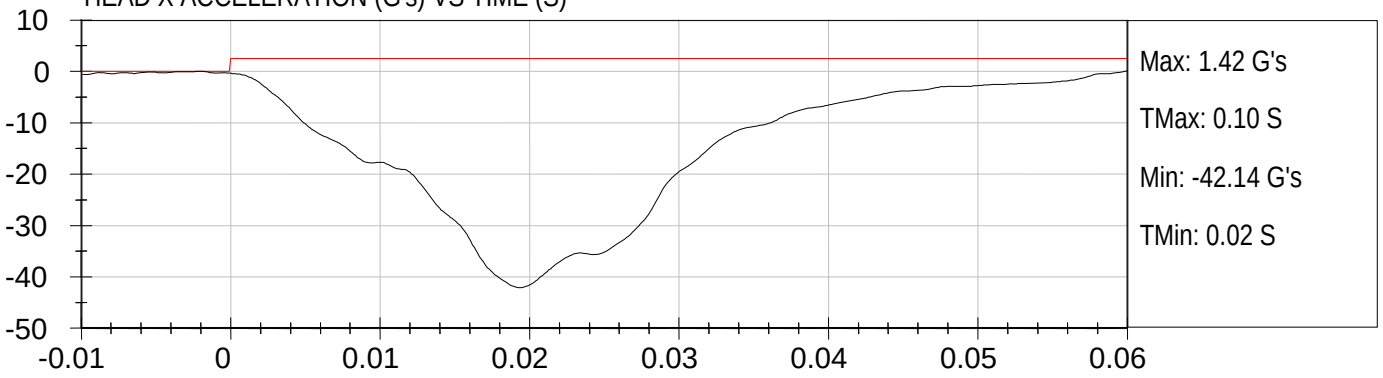
Test Date: 5-11-2011

NHTSA#: CB0903

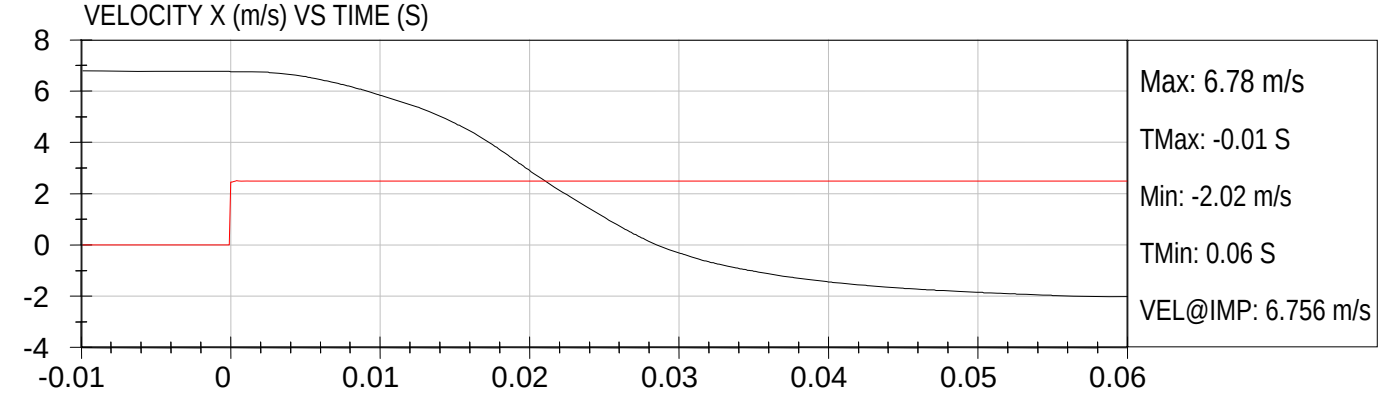
speed trap: 6.654 m/s

Hic: 110.80 T1: 12.00 ms T2: 29.90 ms

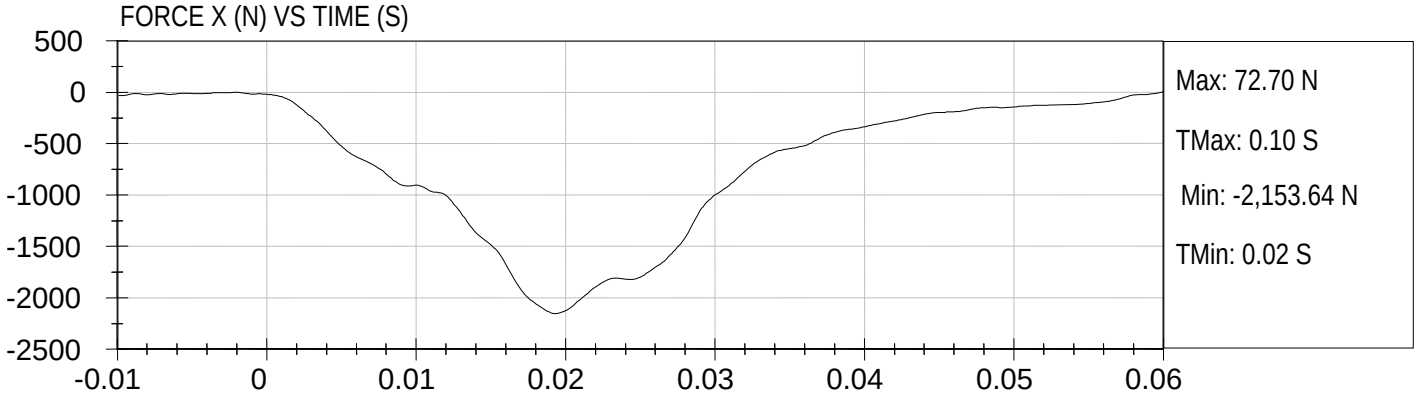
HEAD X ACCELERATION (G's) VS TIME (S)



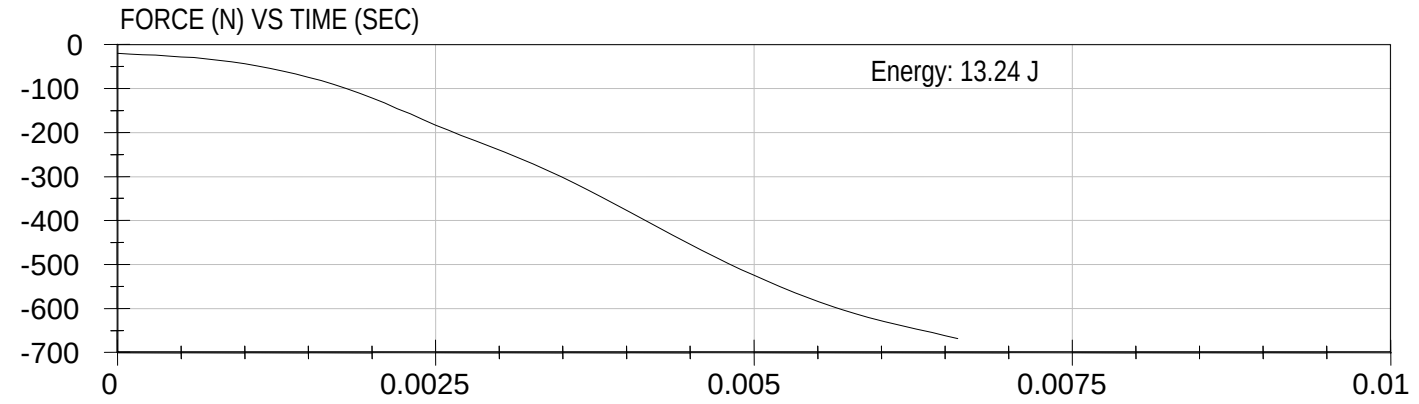
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-11-2011

Component ID: 2011 Girardin Micro Bird

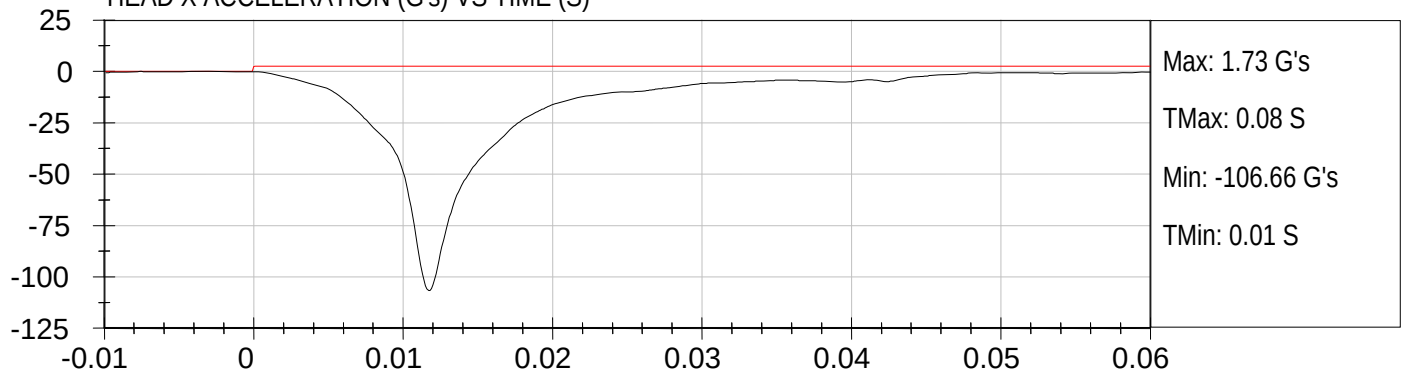
NHTSA#: CB0903

Location: S2 H14

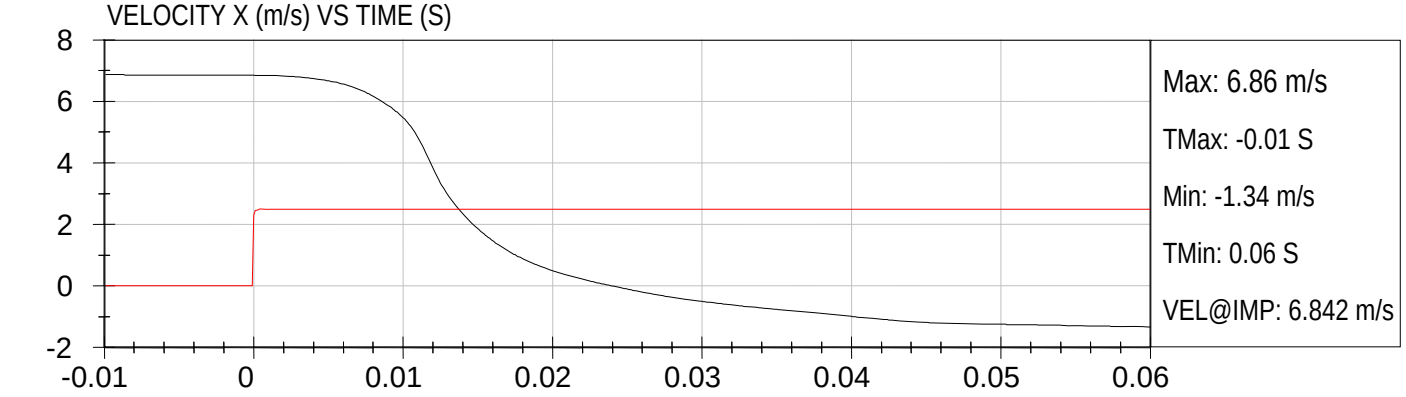
speed trap: 6.672 m/s

Hic: 232.48 T1: 9.70 ms T2: 15.10 ms

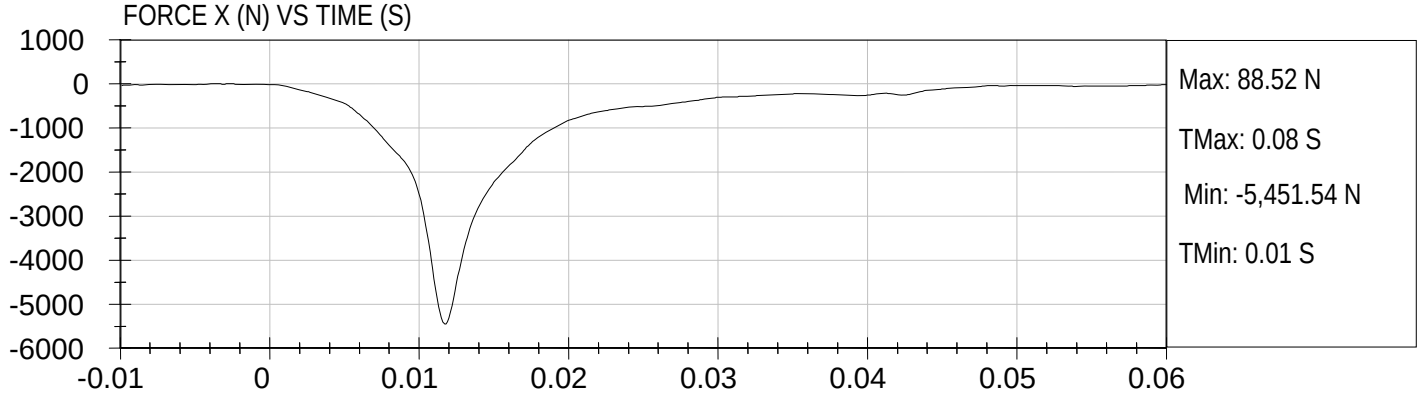
HEAD X ACCELERATION (G's) VS TIME (S)



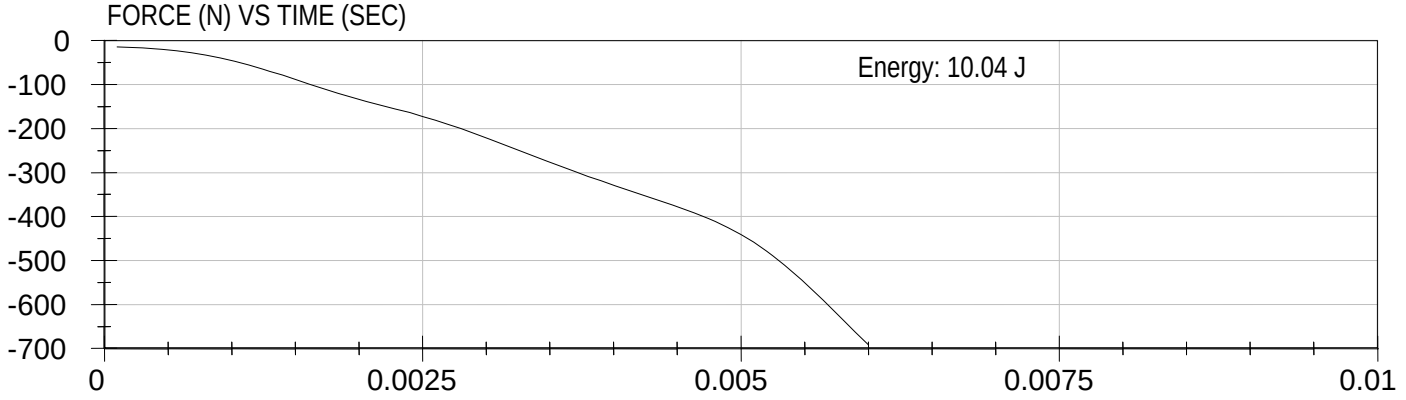
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



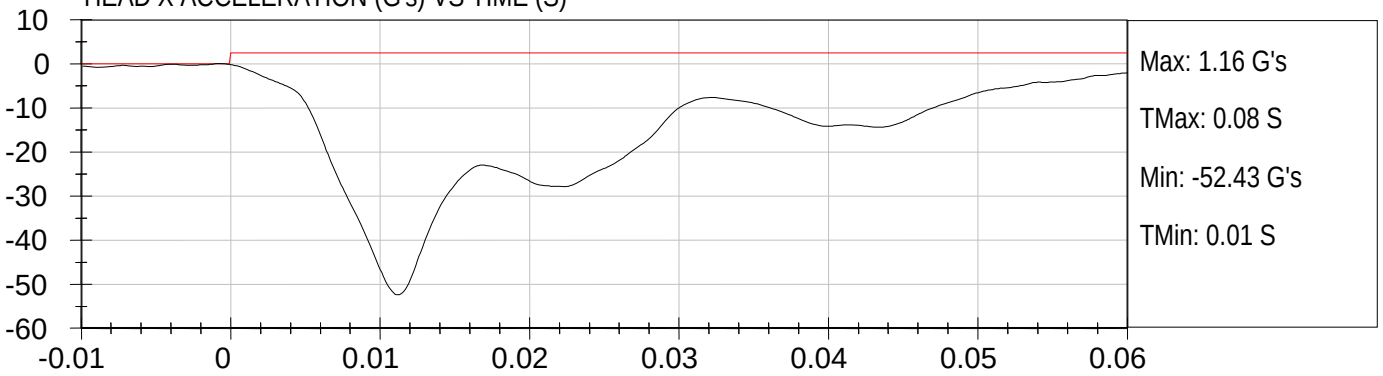
HEAD FORM IMPACT (6.69 m/s) Test Date: 5-9-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

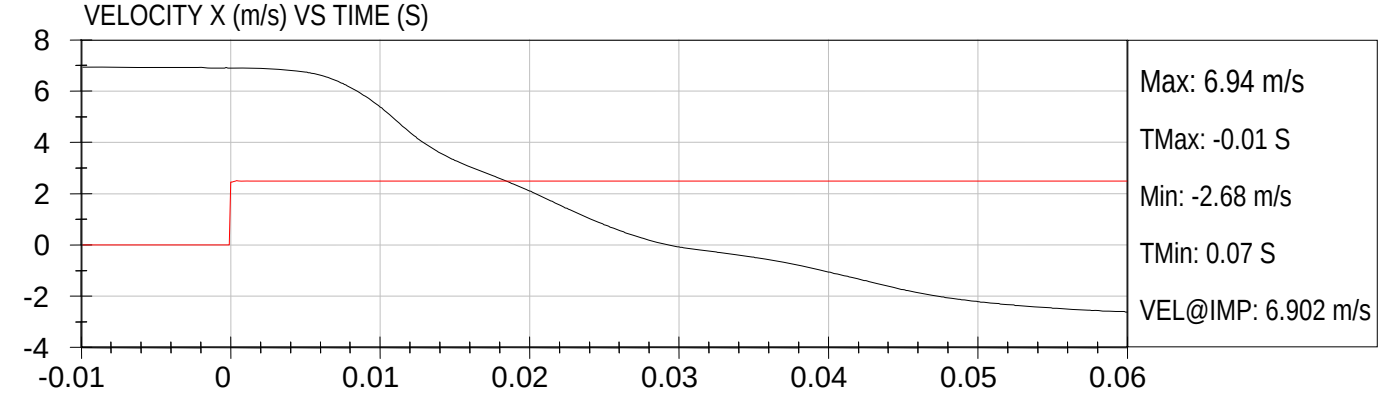
Location: S7 H8 speed trap: 6.676 m/s

Hic: 106.85 T1: 6.20 ms T2: 27.60 ms

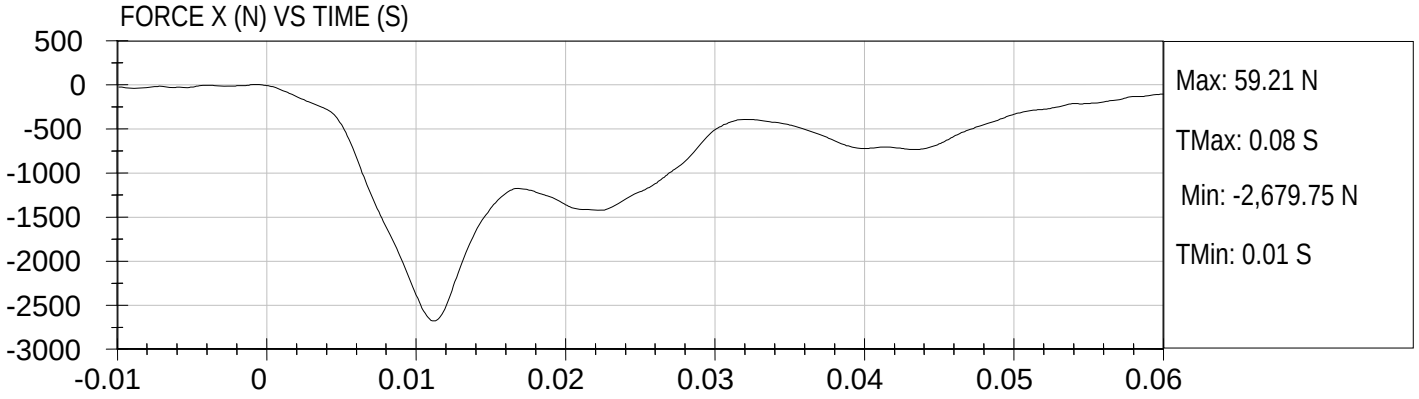
HEAD X ACCELERATION (G's) VS TIME (S)



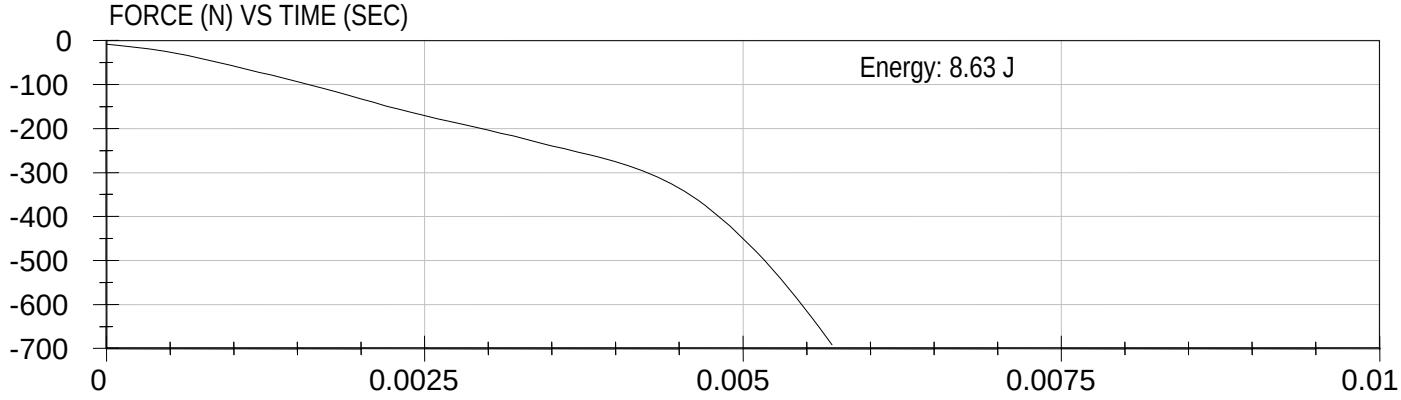
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



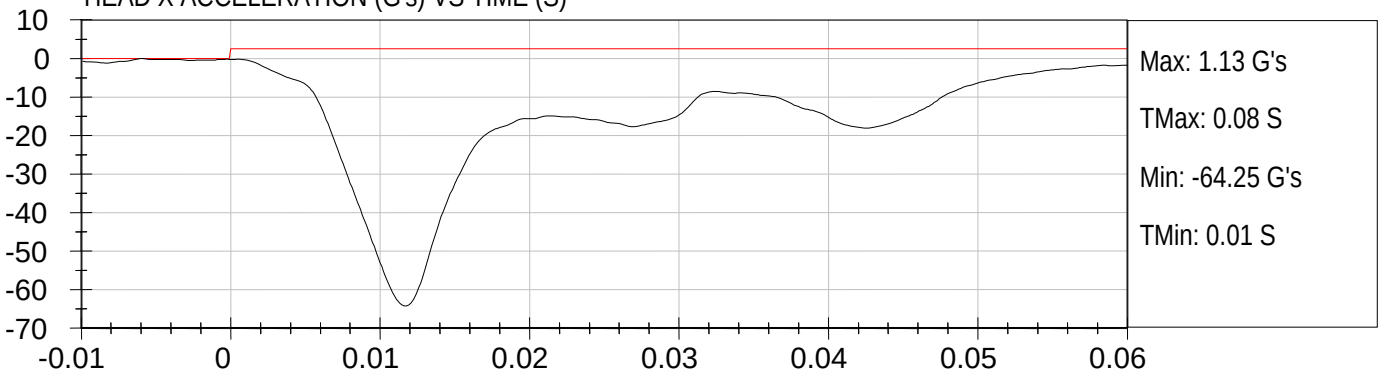
HEAD FORM IMPACT (6.69 m/s) Test Date: 5-9-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

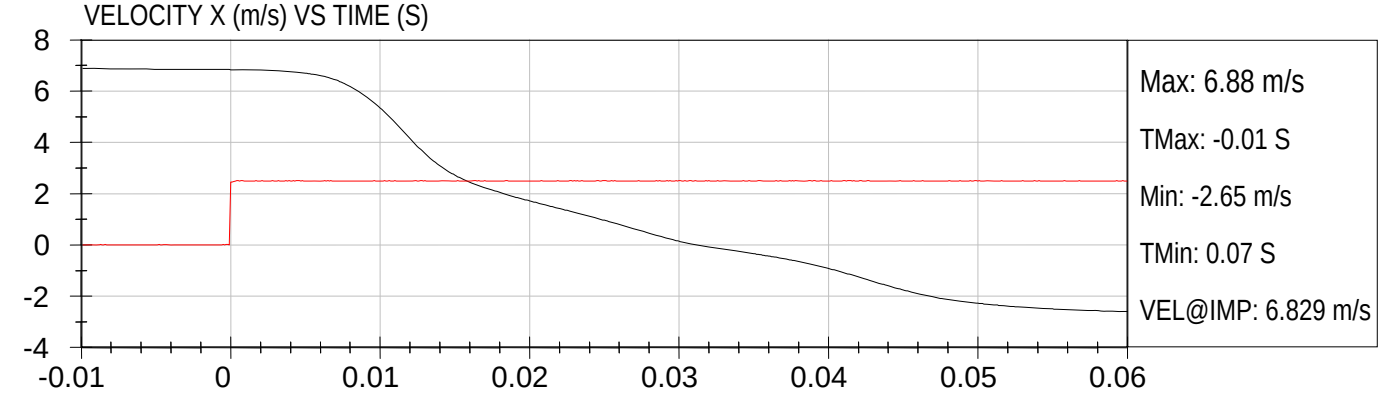
Location: S7 H9 speed trap: 6.647 m/s

Hic: 126.05 T1: 7.70 ms T2: 15.40 ms

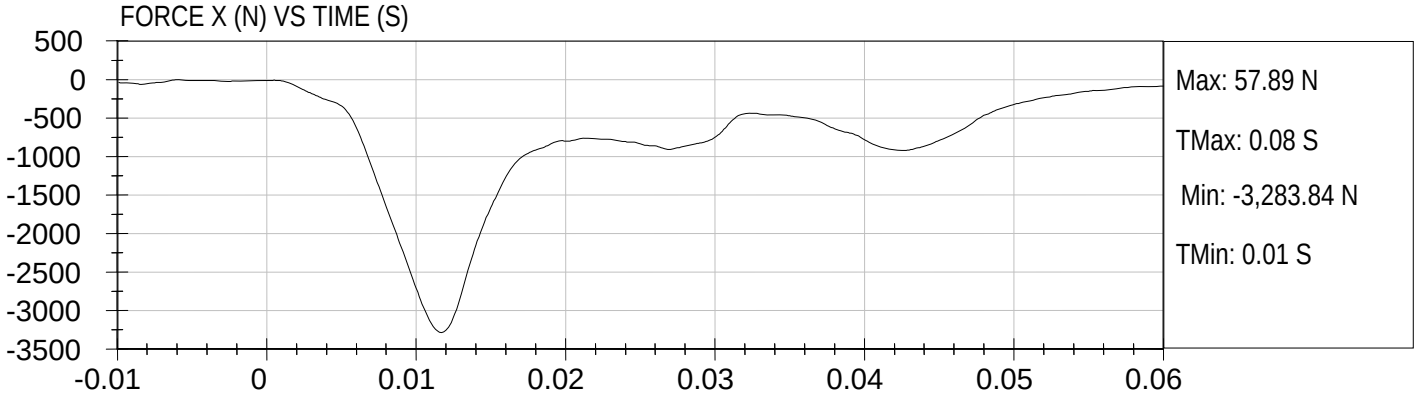
HEAD X ACCELERATION (G's) VS TIME (S)



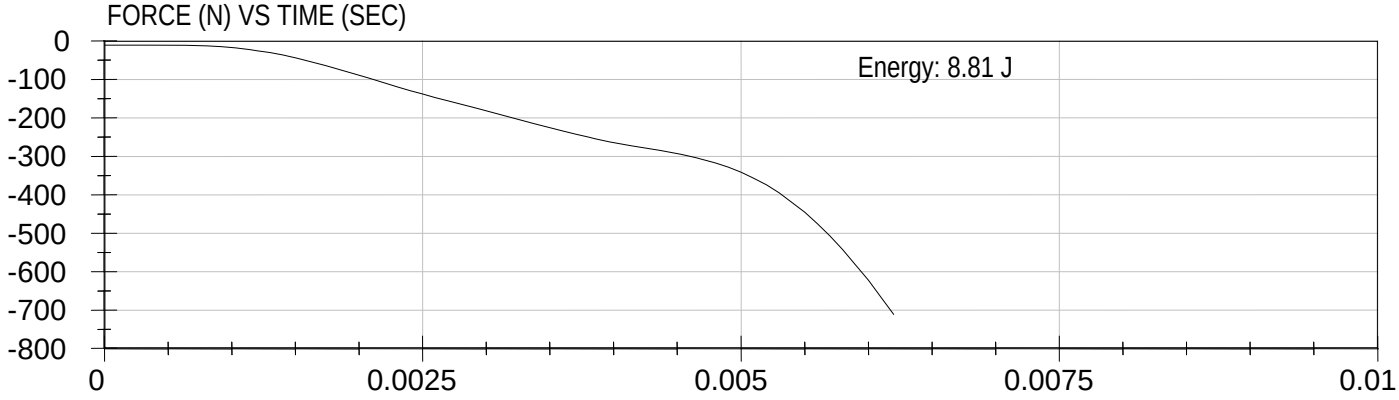
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



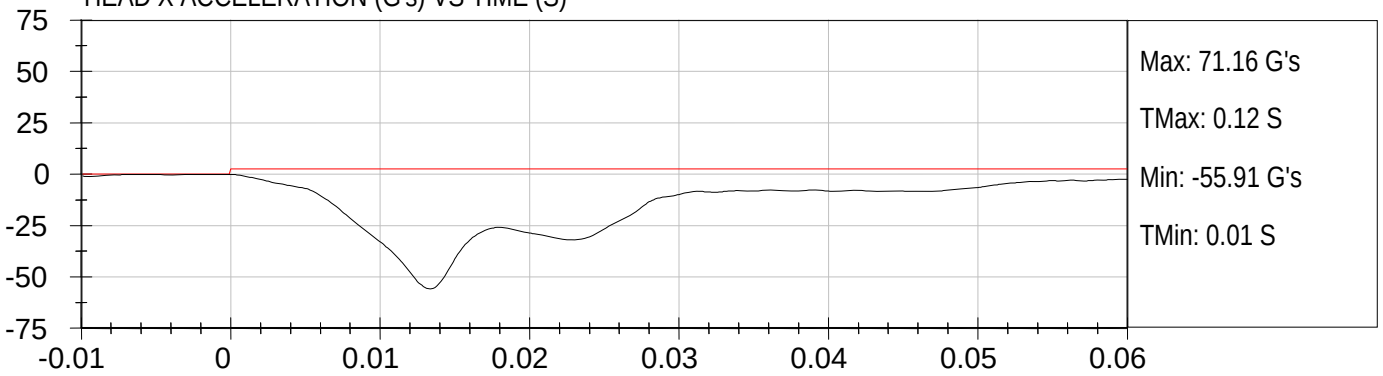
HEAD FORM IMPACT (6.69 m/s) Test Date: 5-9-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

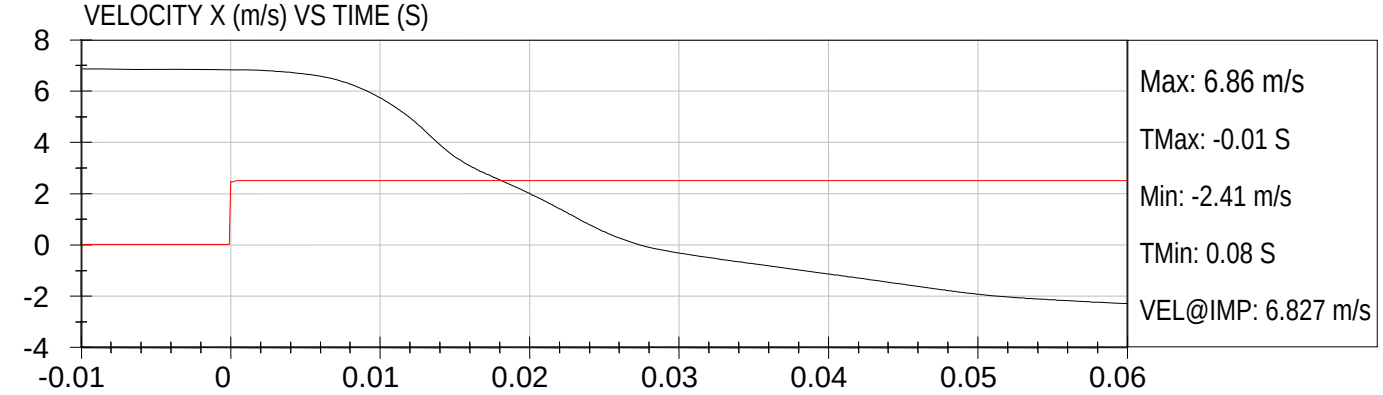
Location: S7 H10 speed trap: 6.665 m/s

Hic: 121.73 T1: 7.70 ms T2: 26.80 ms

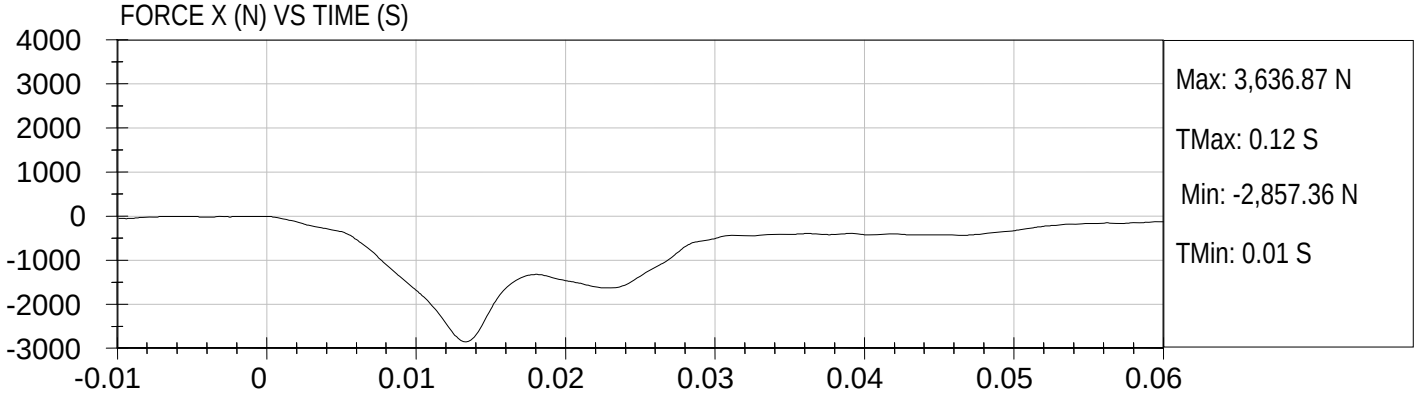
HEAD X ACCELERATION (G's) VS TIME (S)



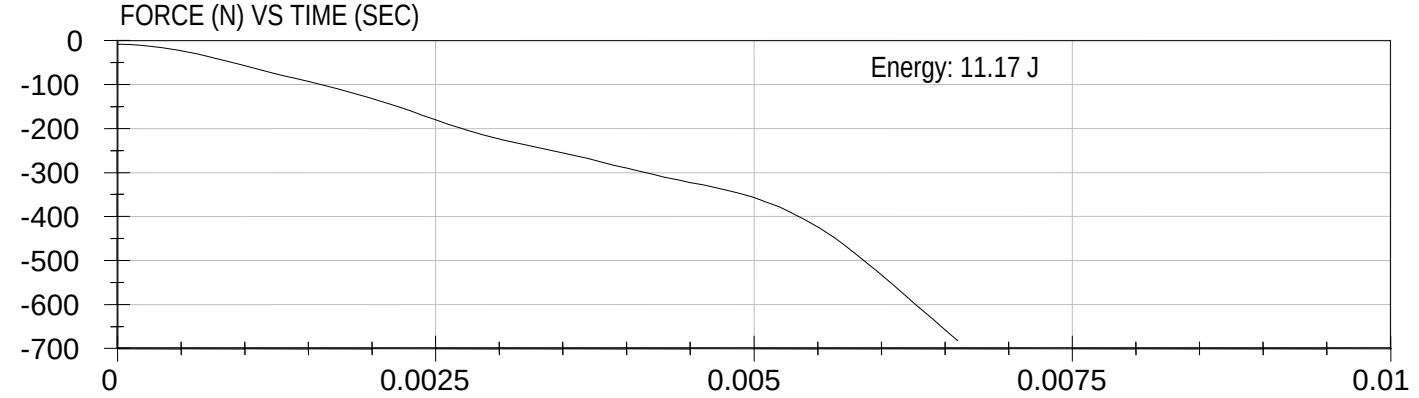
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



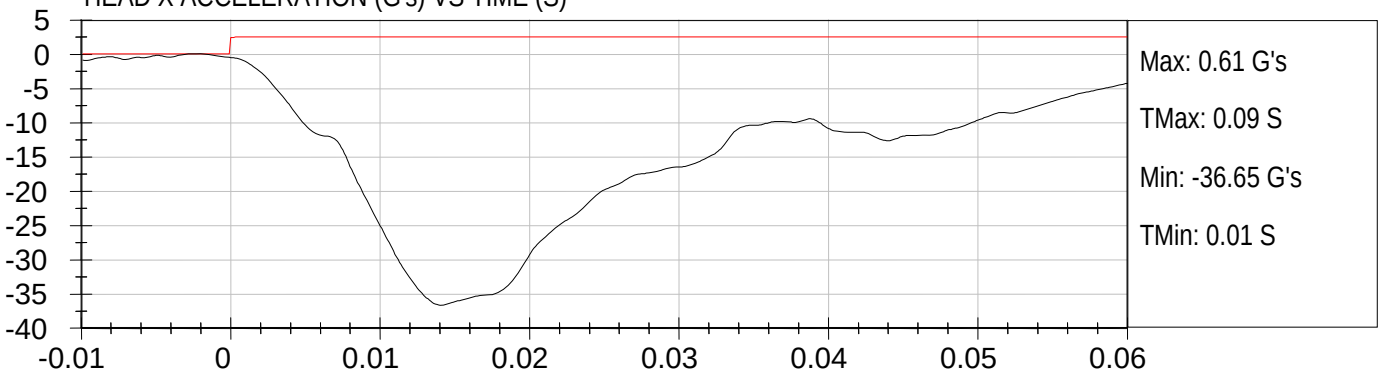
HEAD FORM IMPACT (6.69 m/s) Test Date: 5-9-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

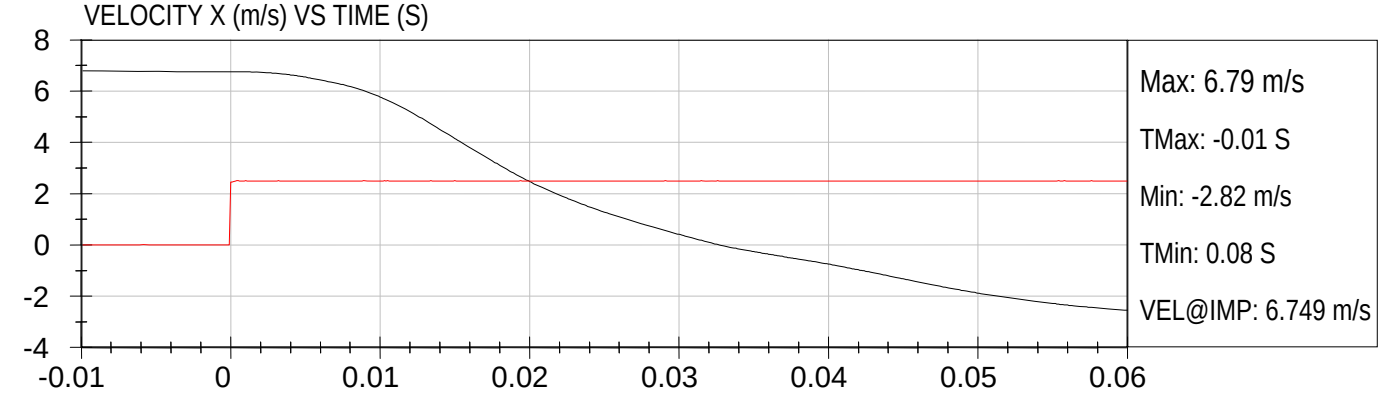
Location: S7 H11 speed trap: 6.676 m/s

Hic: 81.19 T1: 7.80 ms T2: 31.40 ms

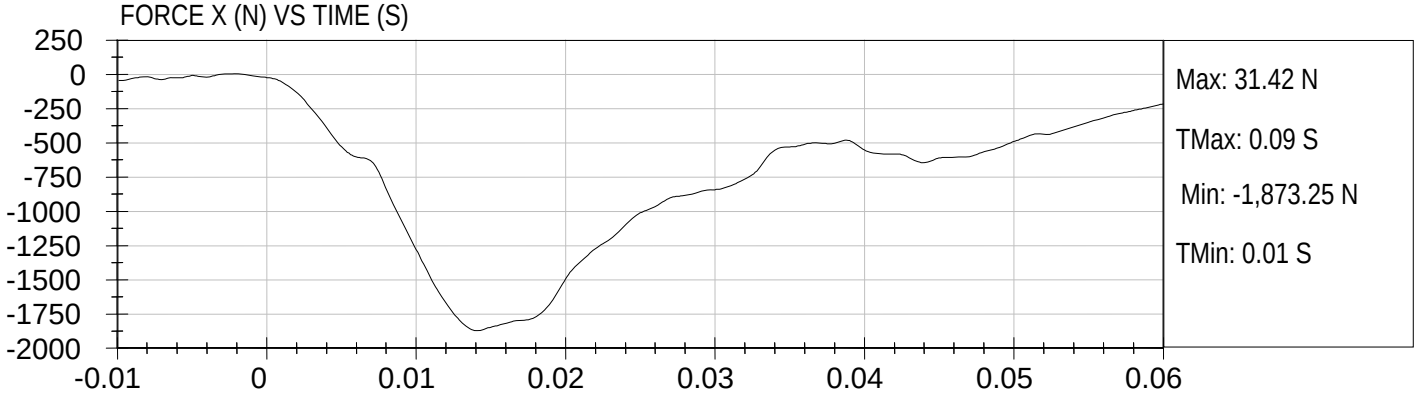
HEAD X ACCELERATION (G's) VS TIME (S)



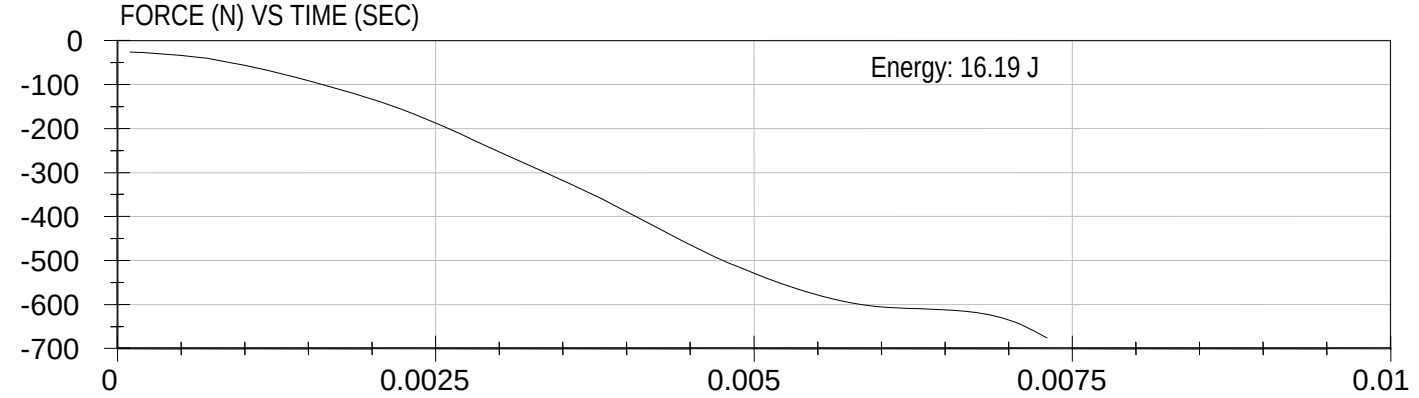
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 5-9-2011

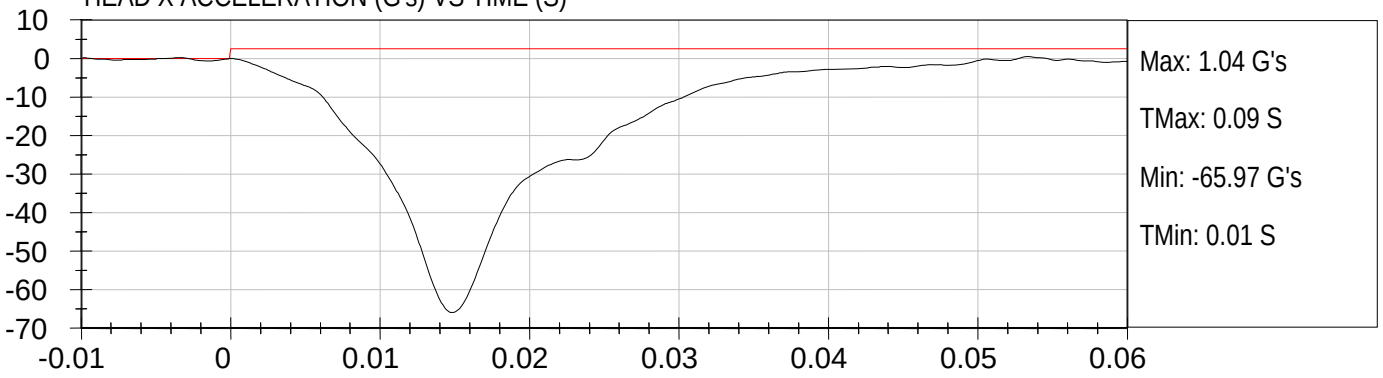
Component ID: 2011 Girardin Micro Bird

NHTSA#: CB0903

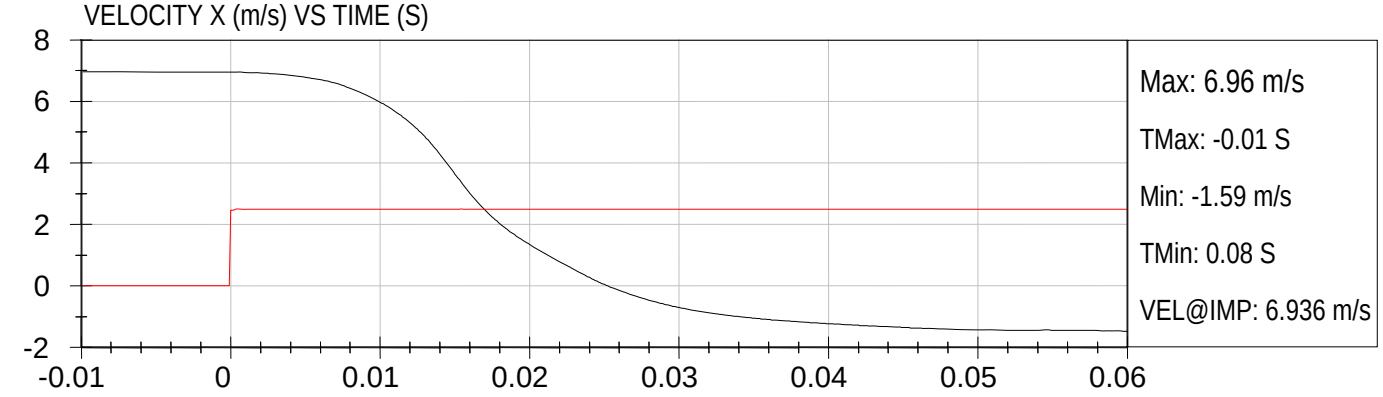
Location: S7 H12 speed trap: 6.690 m/s

Hic: 155.55 T1: 9.30 ms T2: 24.40 ms

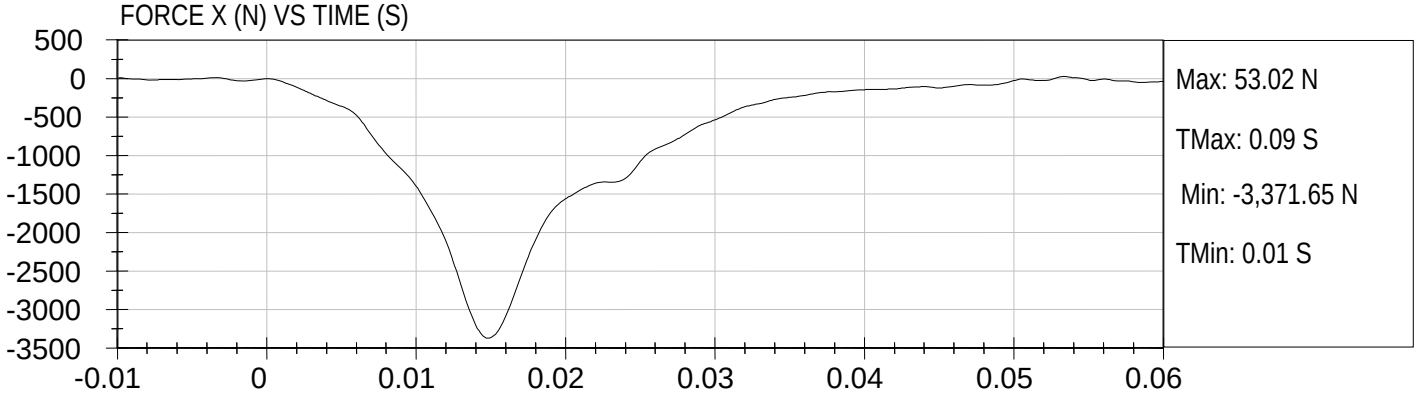
HEAD X ACCELERATION (G's) VS TIME (S)



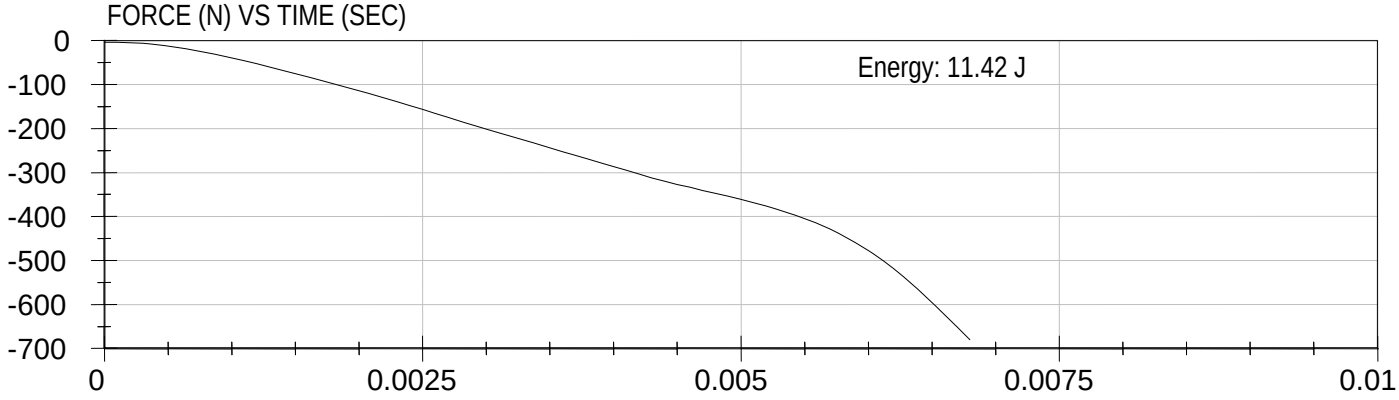
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



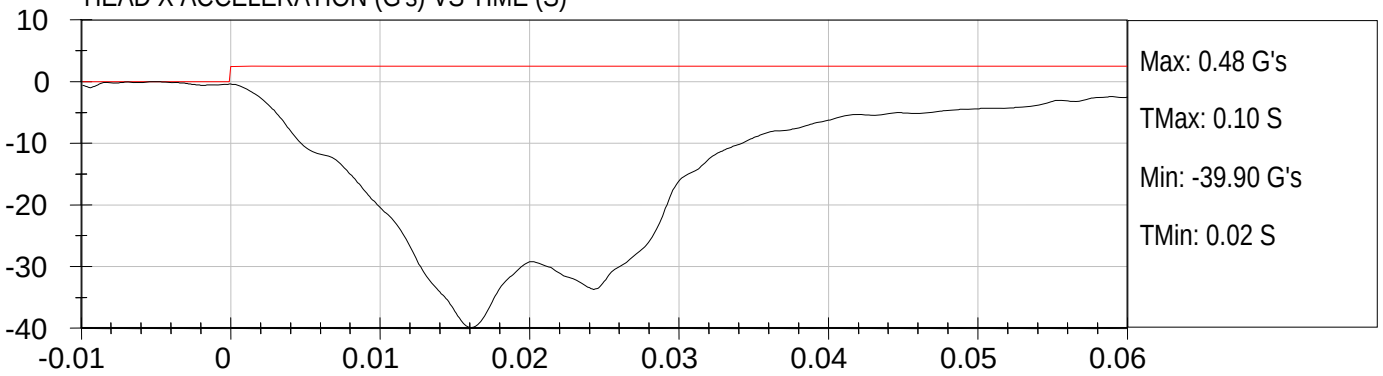
HEAD FORM IMPACT (6.69 m/s) Test Date: 5-9-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

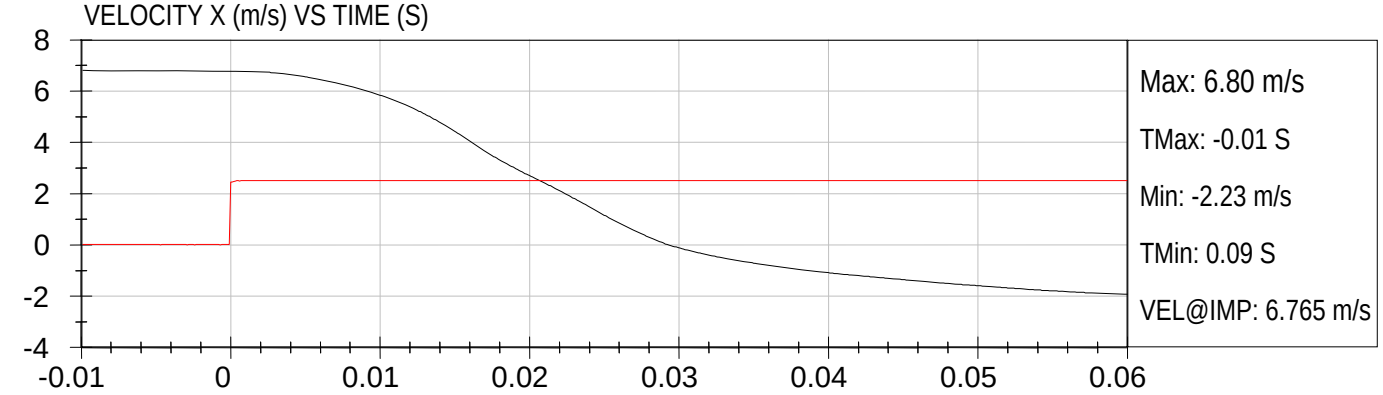
Location: S7 H13 speed trap: 6.671 m/s

Hic: 102.04 T1: 9.10 ms T2: 29.50 ms

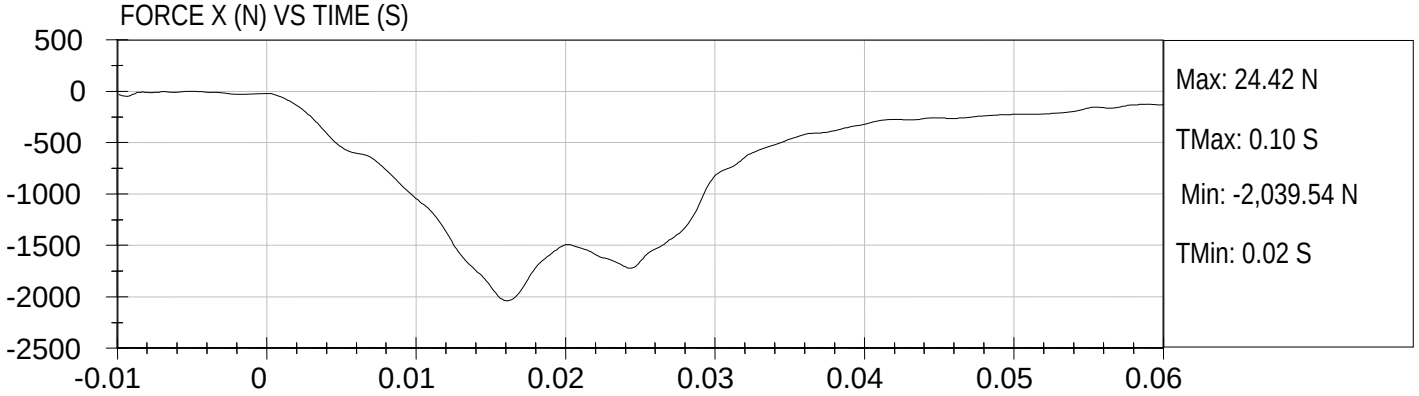
HEAD X ACCELERATION (G's) VS TIME (S)



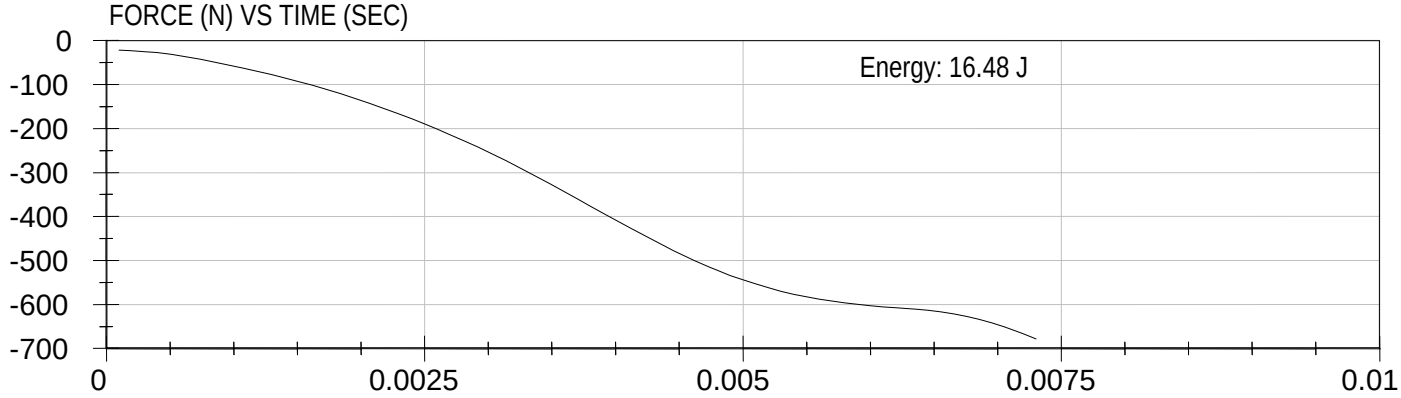
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



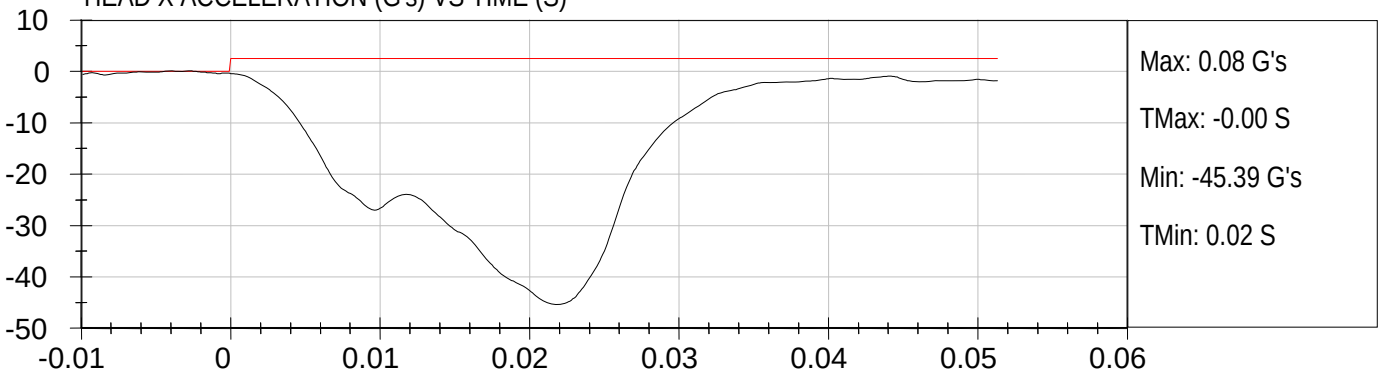
HEAD FORM IMPACT (6.69 m/s) Test Date: 5-9-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

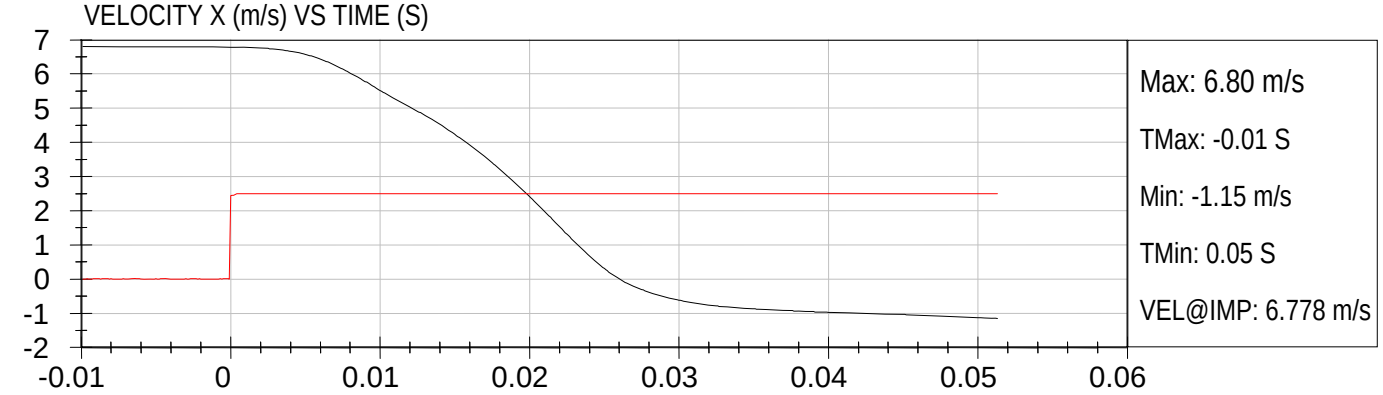
Location: S7 H14 speed trap: 6.660 m/s

Hic: 124.77 T1: 6.60 ms T2: 27.00 ms

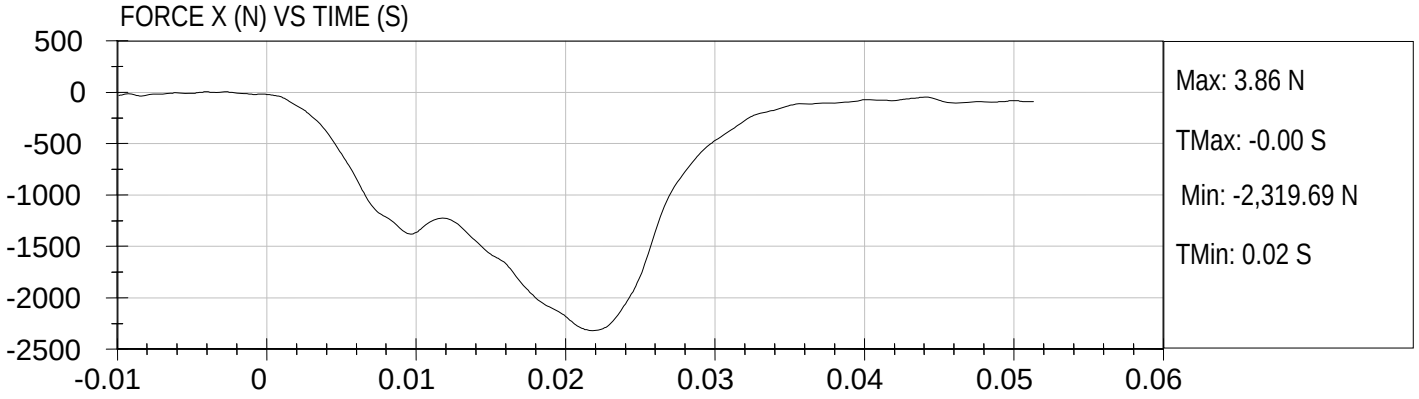
HEAD X ACCELERATION (G's) VS TIME (S)



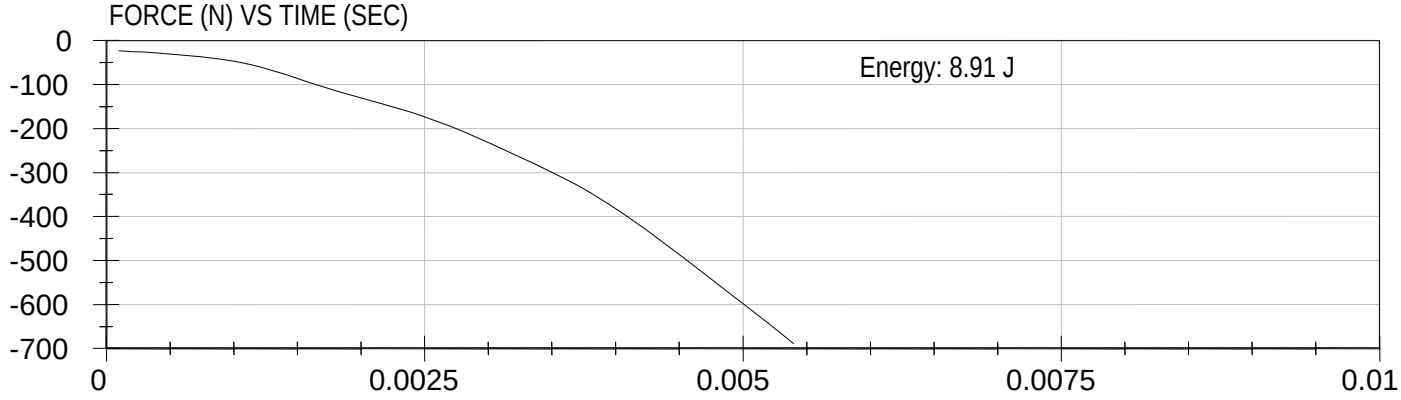
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



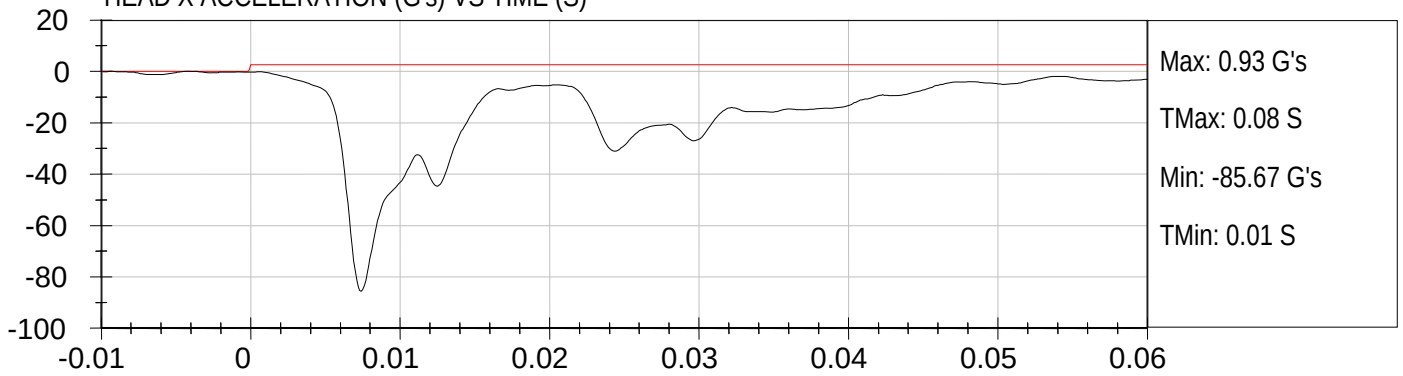
HEAD FORM IMPACT (6.69 m/s) Test Date: 6-7-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

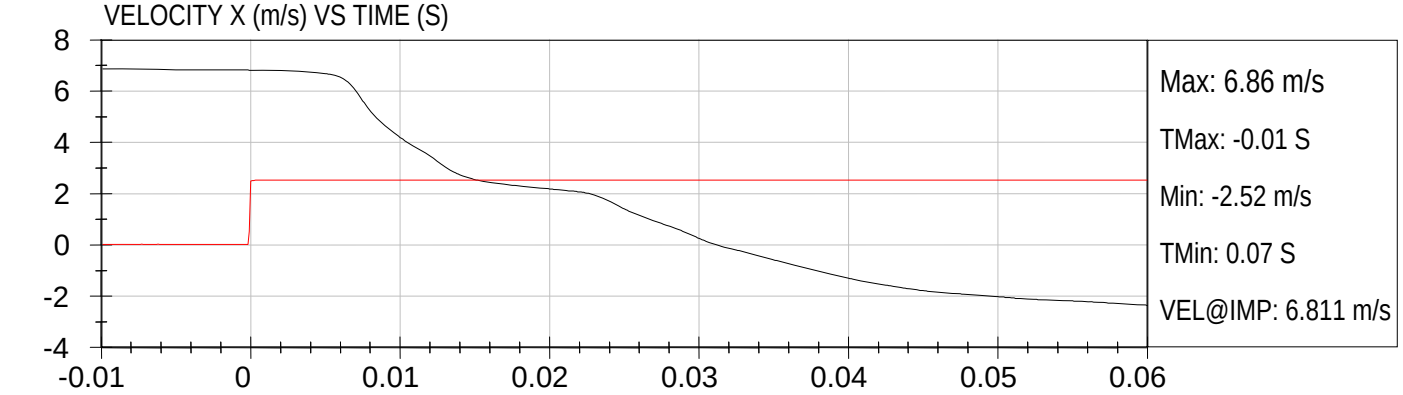
Location: B1 H8 speed trap: 6.621 m/s

Hic: 131.74 T1: 6.10 ms T2: 13.60 ms

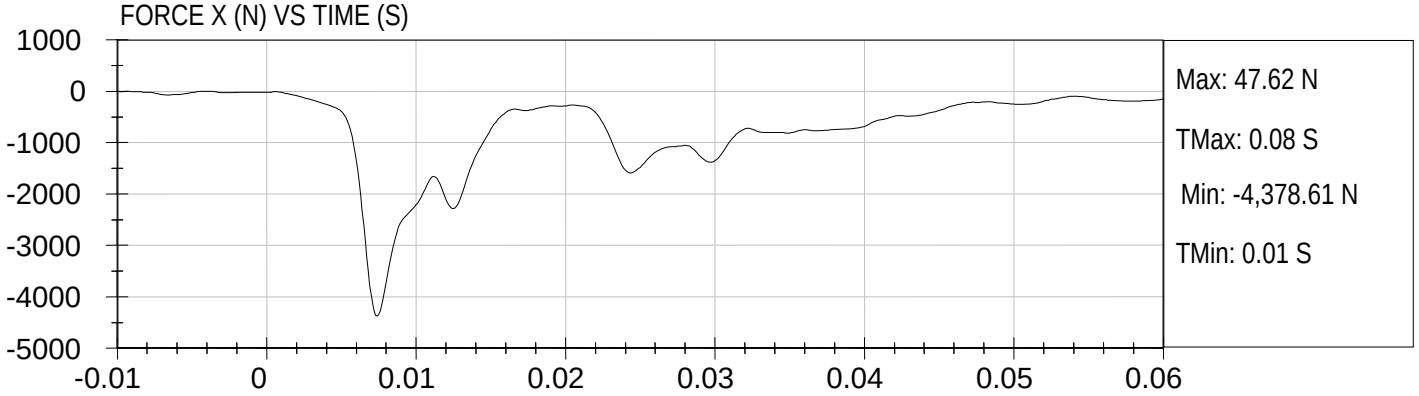
HEAD X ACCELERATION (G's) VS TIME (S)



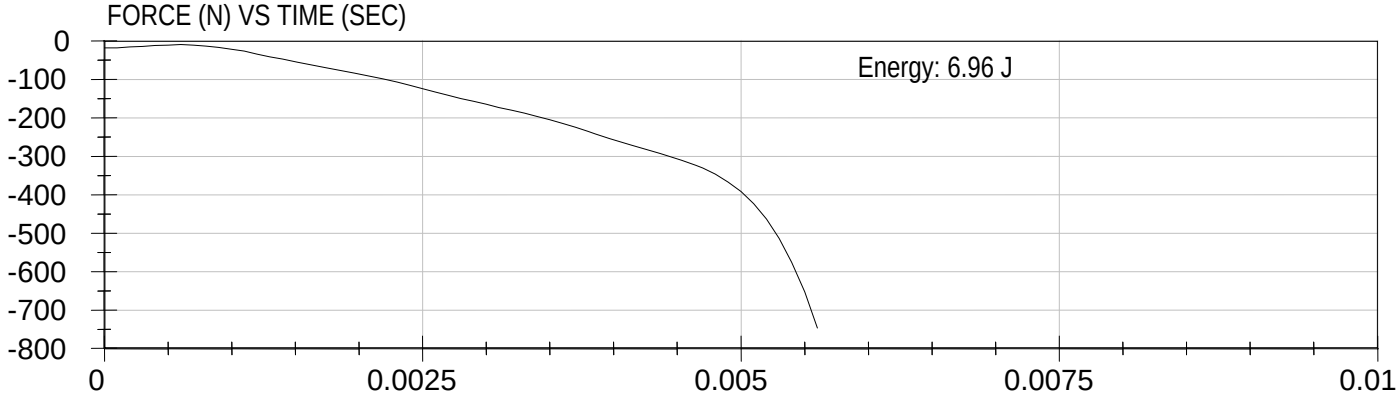
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



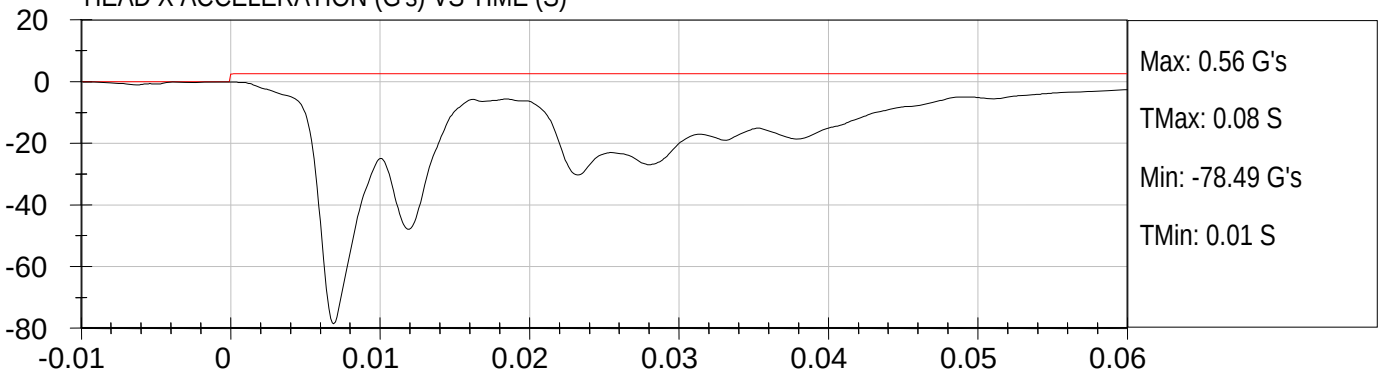
HEAD FORM IMPACT (6.69 m/s) Test Date: 6-7-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

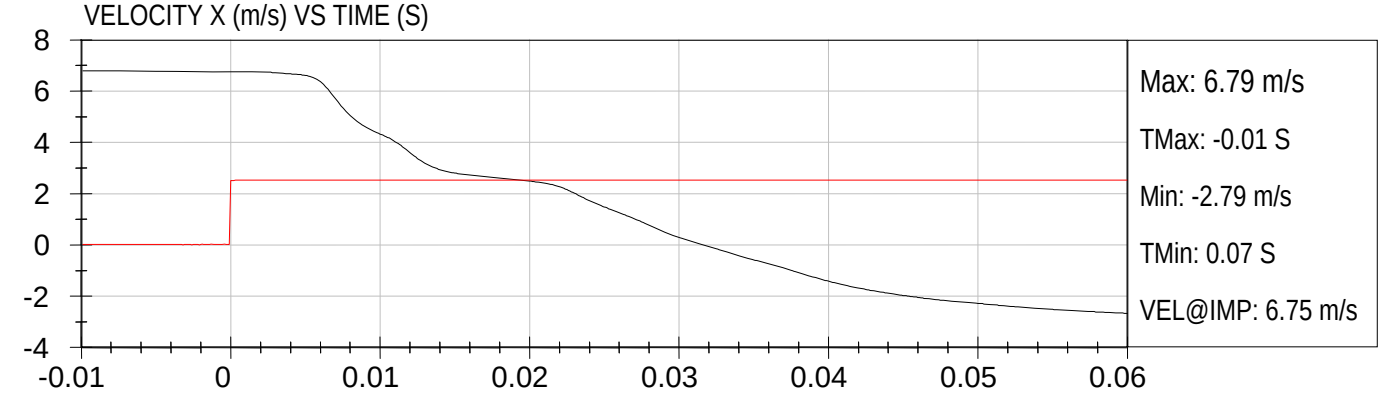
Location: B1 H9 speed trap: 6.611 m/s

Hic: 105.69 T1: 5.60 ms T2: 13.30 ms

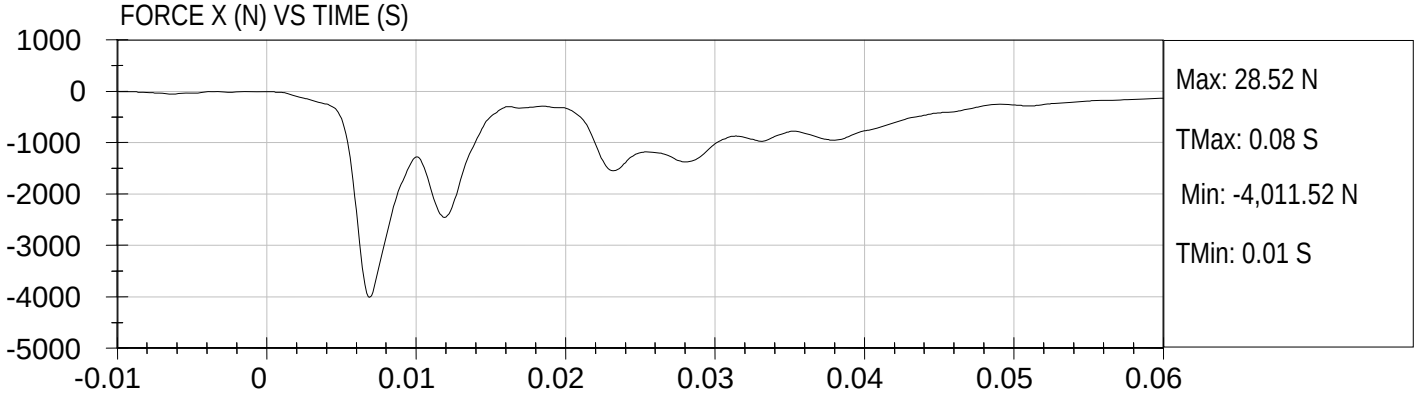
HEAD X ACCELERATION (G's) VS TIME (S)



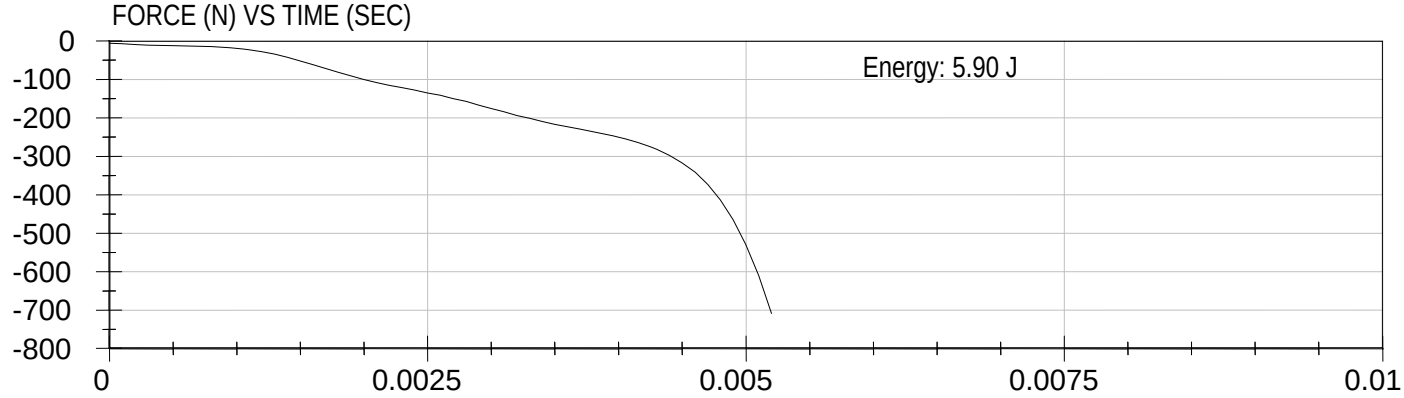
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



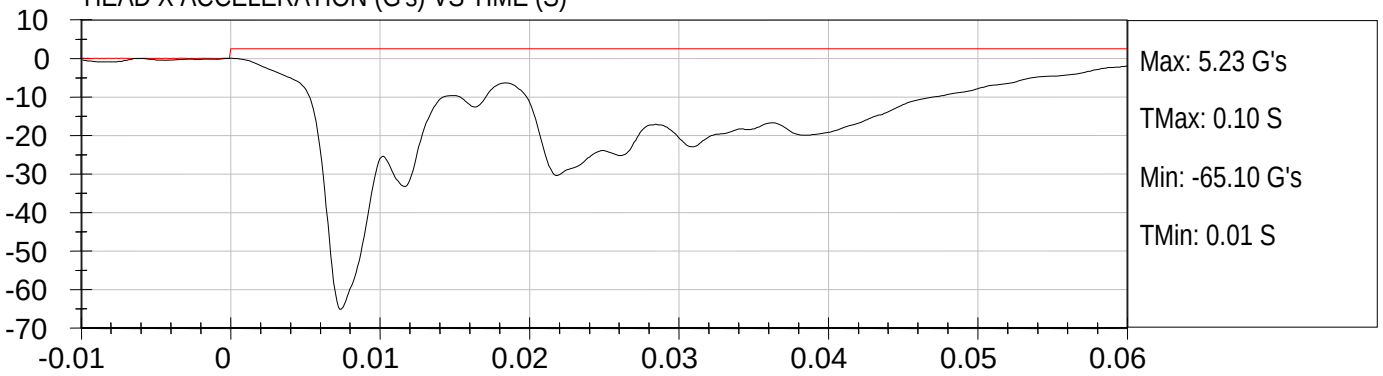
HEAD FORM IMPACT (6.69 m/s) Test Date: 6-7-2011

Component ID: 2011 Girardin Micro Bird NHTSA#: CB0903

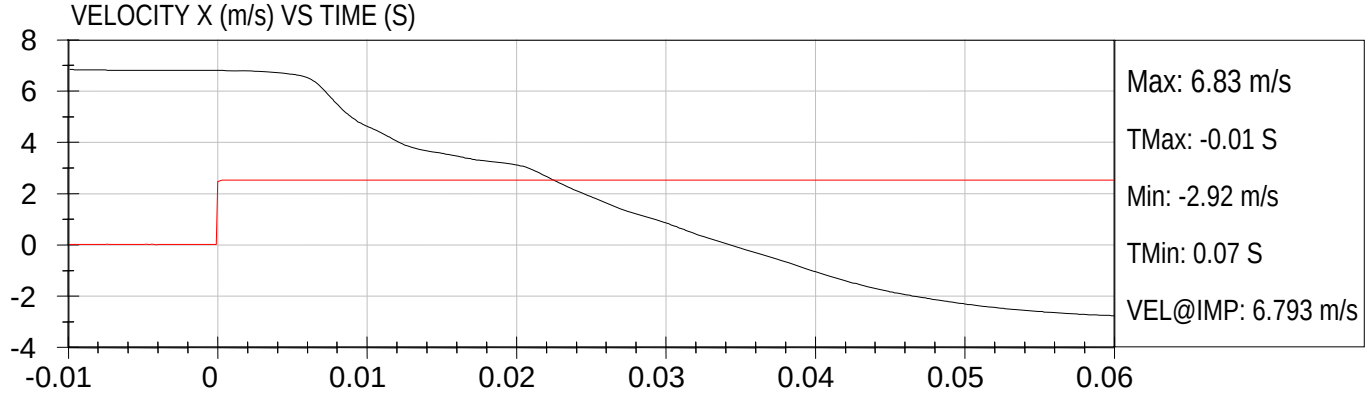
Location: B1 H10 speed trap: 6.620 m/s

Hic: 87.31 T1: 5.50 ms T2: 44.40 ms

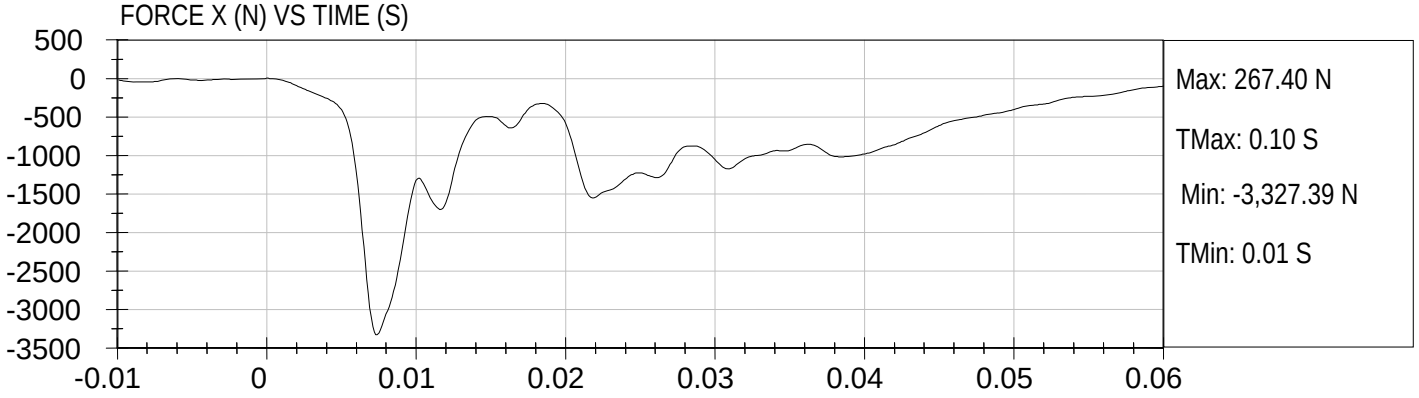
HEAD X ACCELERATION (G's) VS TIME (S)



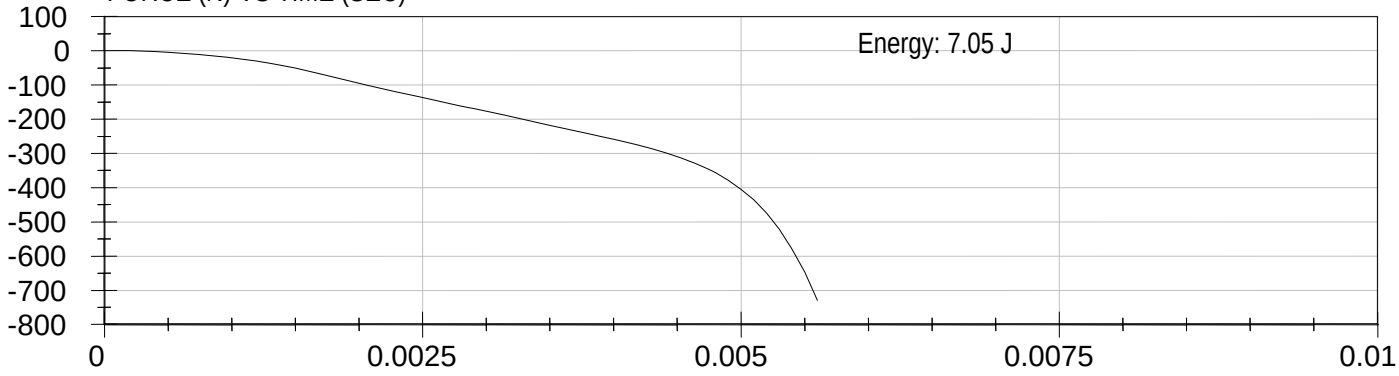
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 6-6-2011

Component ID: 2011 Girardin Micro Bird

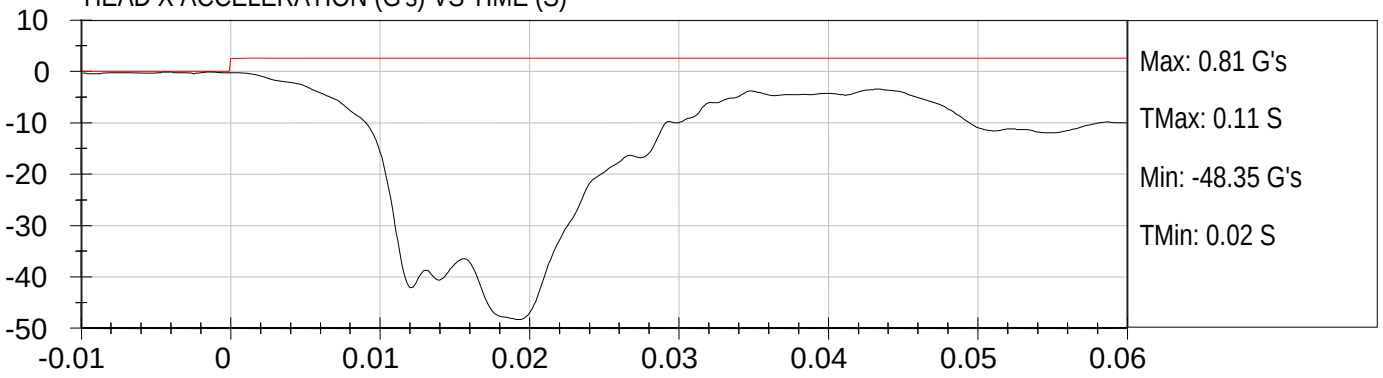
NHTSA#: CB0903

Location: B1 H11

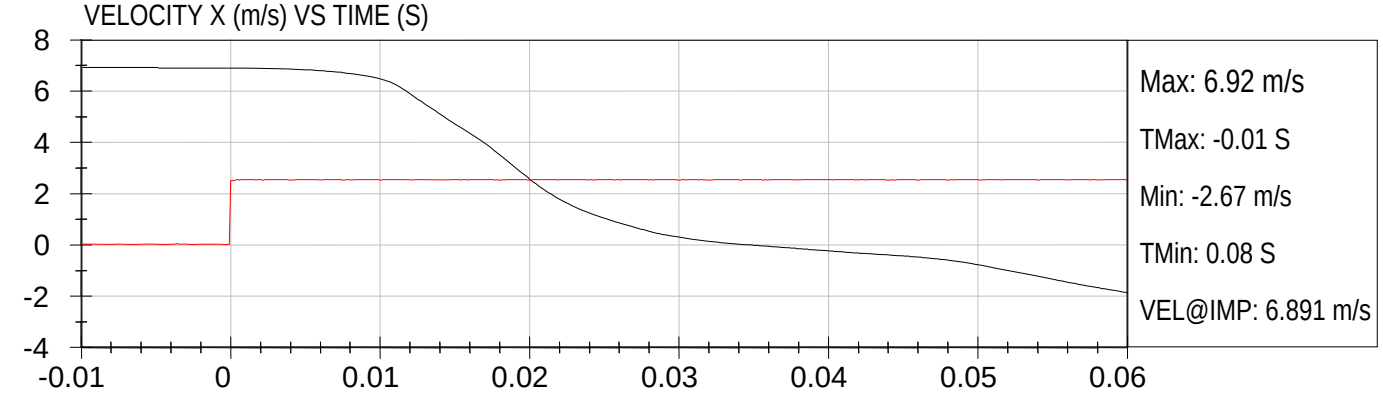
speed trap: 6.671 m/s

Hic: 127.04 T1: 10.60 ms T2: 23.70 ms

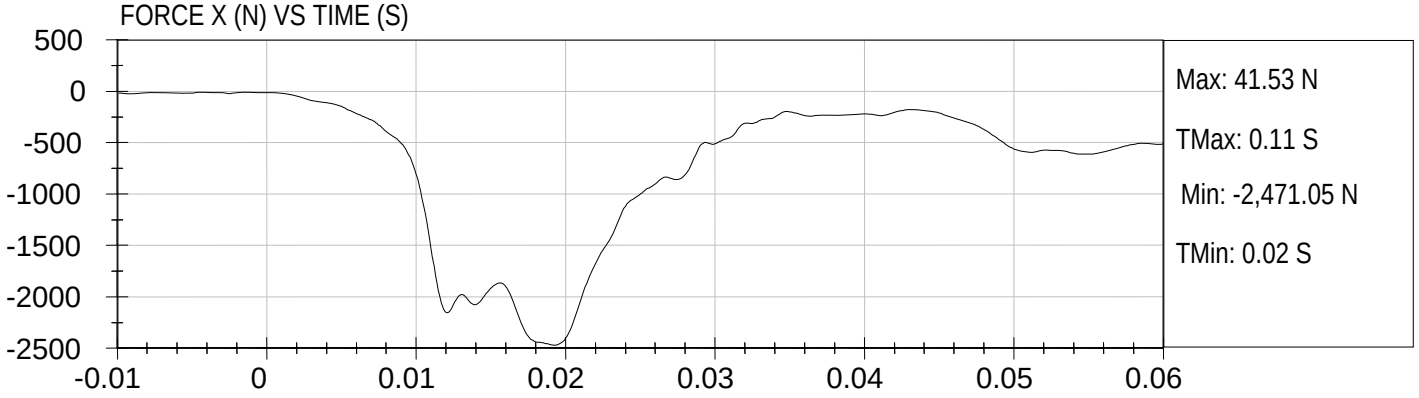
HEAD X ACCELERATION (G's) VS TIME (S)



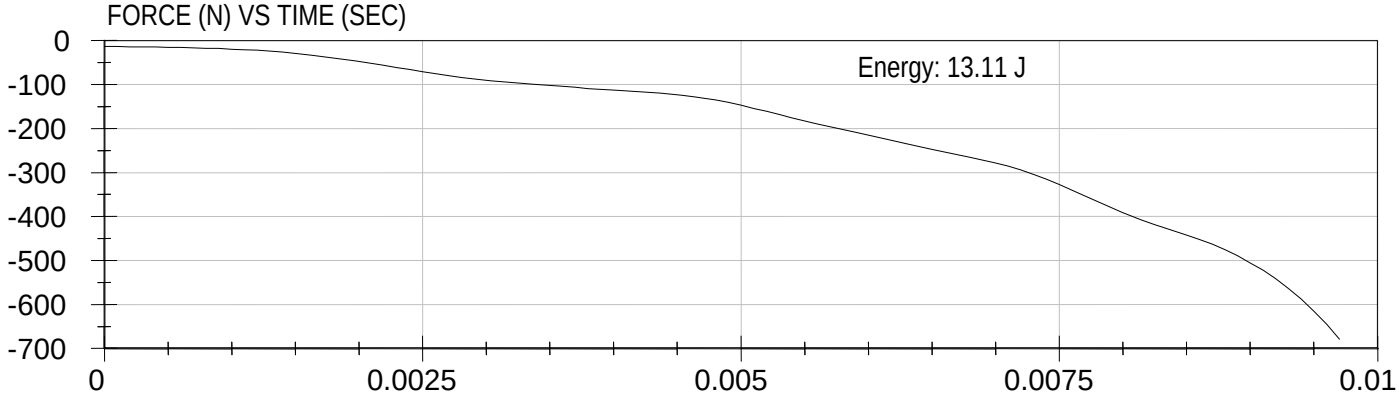
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 6-6-2011

Component ID: 2011 Girardin Micro Bird

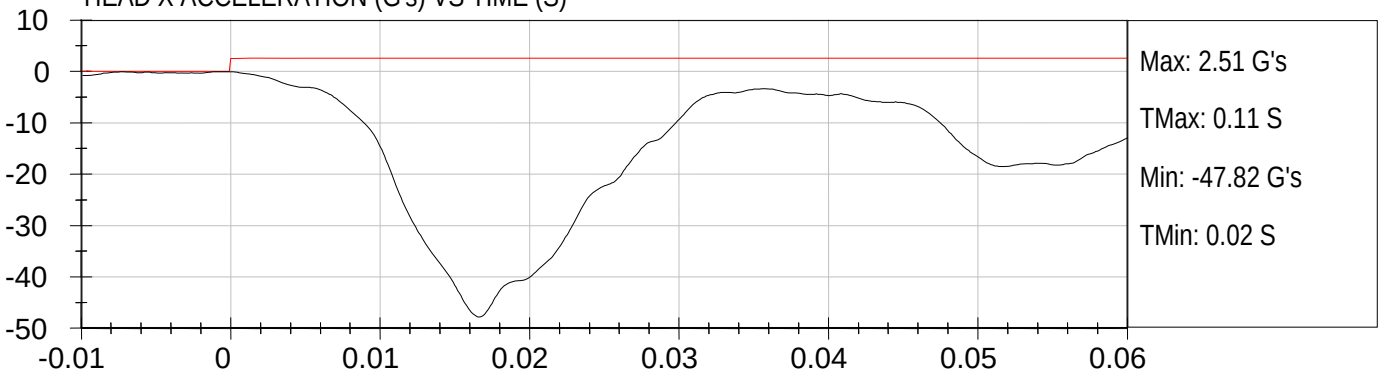
NHTSA#: CB0903

Location: B1 H12

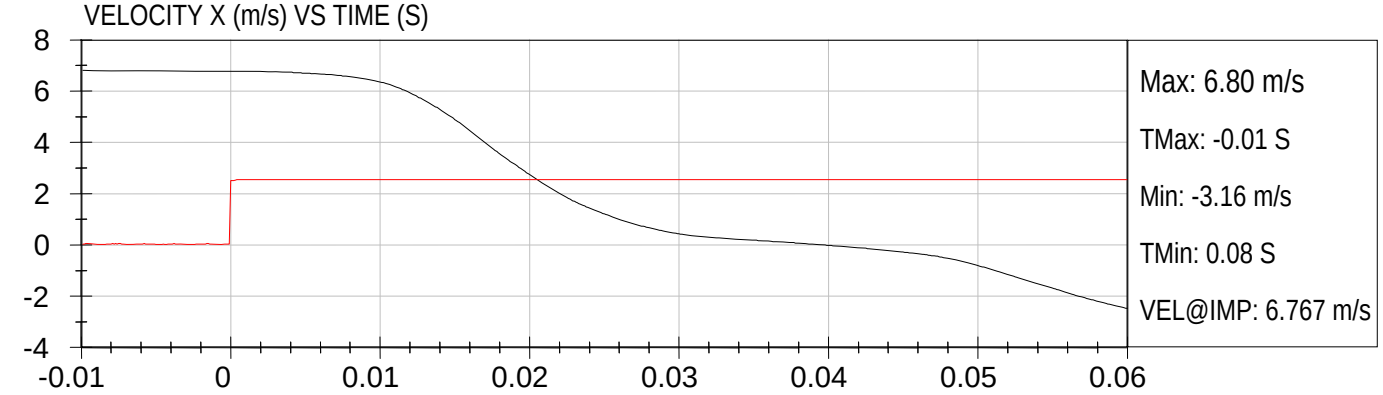
speed trap: 6.649 m/s

Hic: 110.20 T1: 10.90 ms T2: 25.80 ms

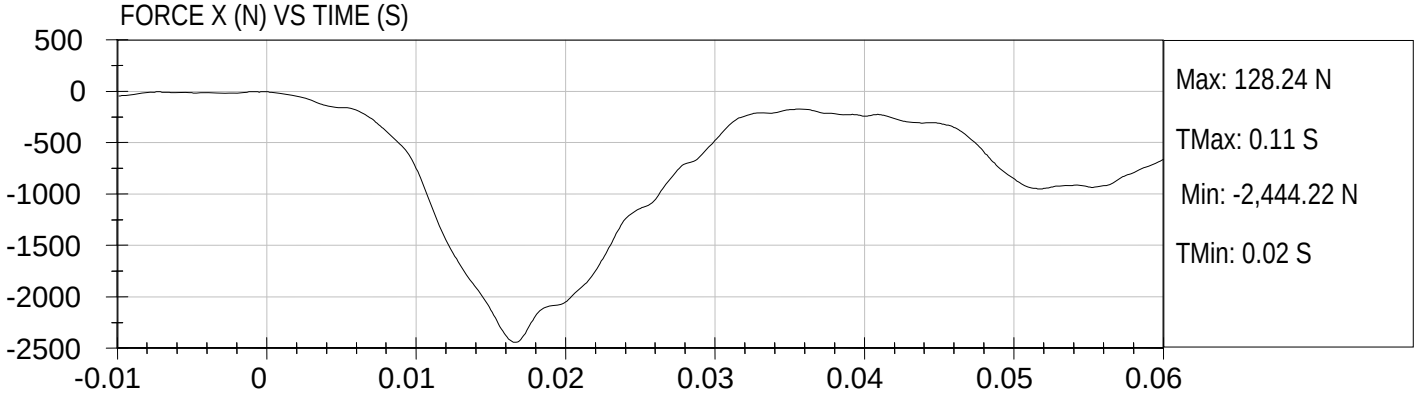
HEAD X ACCELERATION (G's) VS TIME (S)



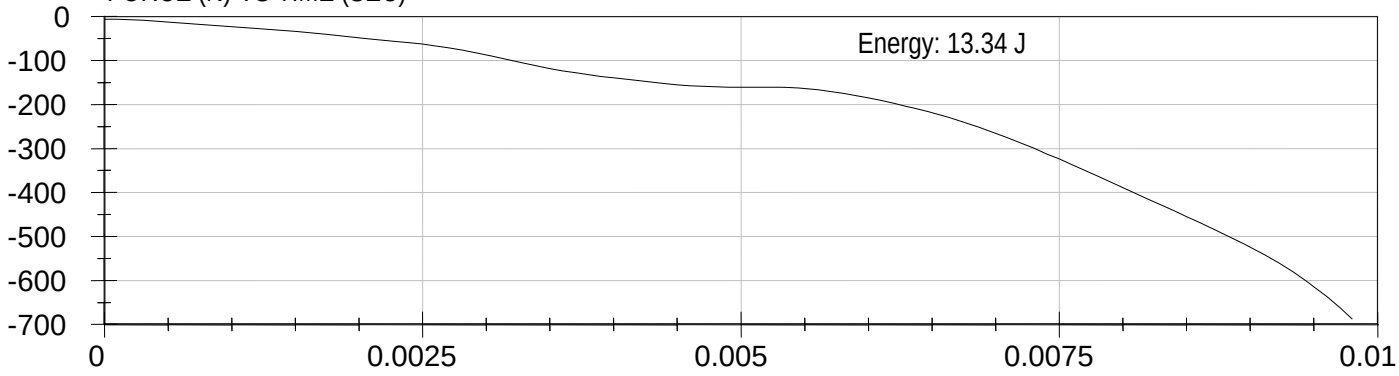
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 6-7-2011

Component ID: 2011 Girardin Micro Bird

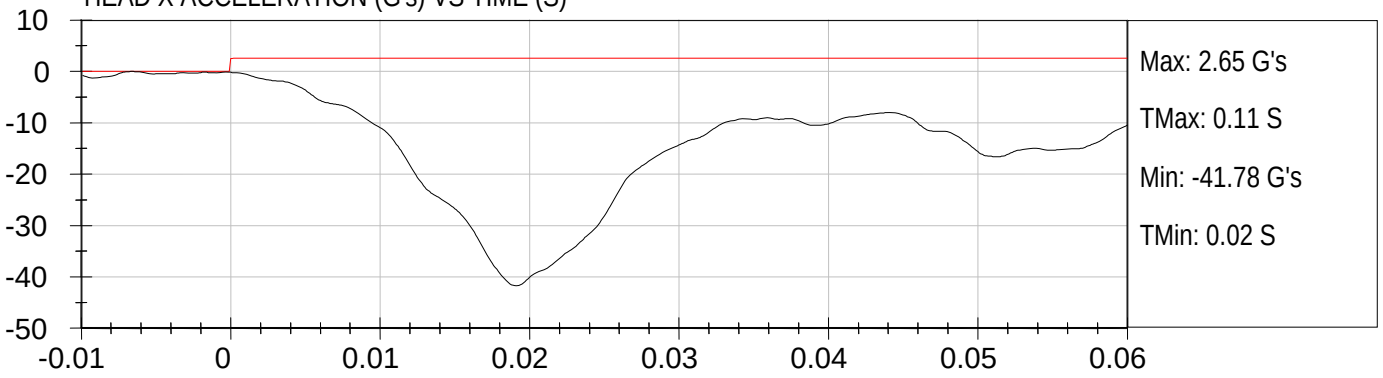
NHTSA#: CB0903

Location: B1 H13

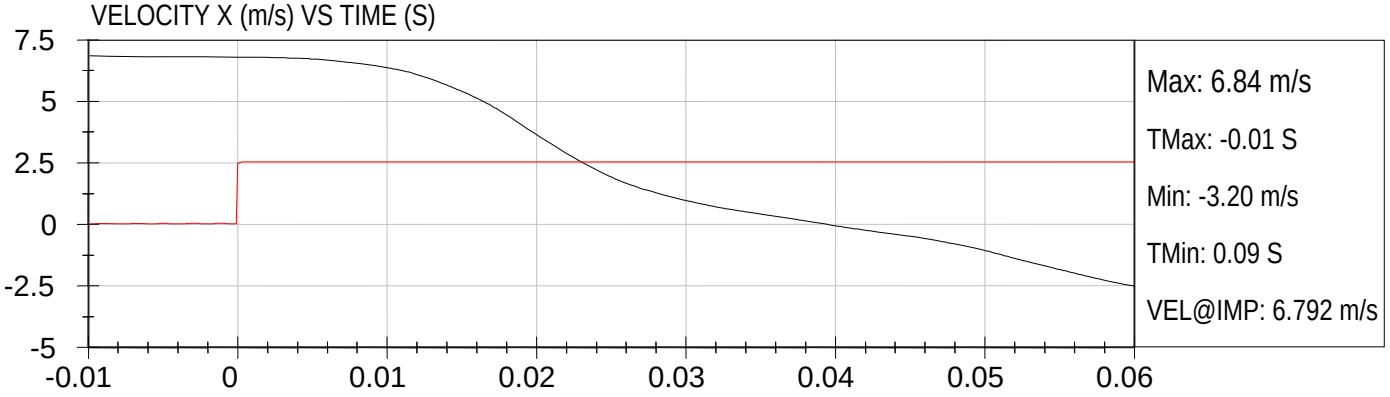
speed trap: 6.653 m/s

Hic: 83.27 T1: 12.10 ms T2: 27.40 ms

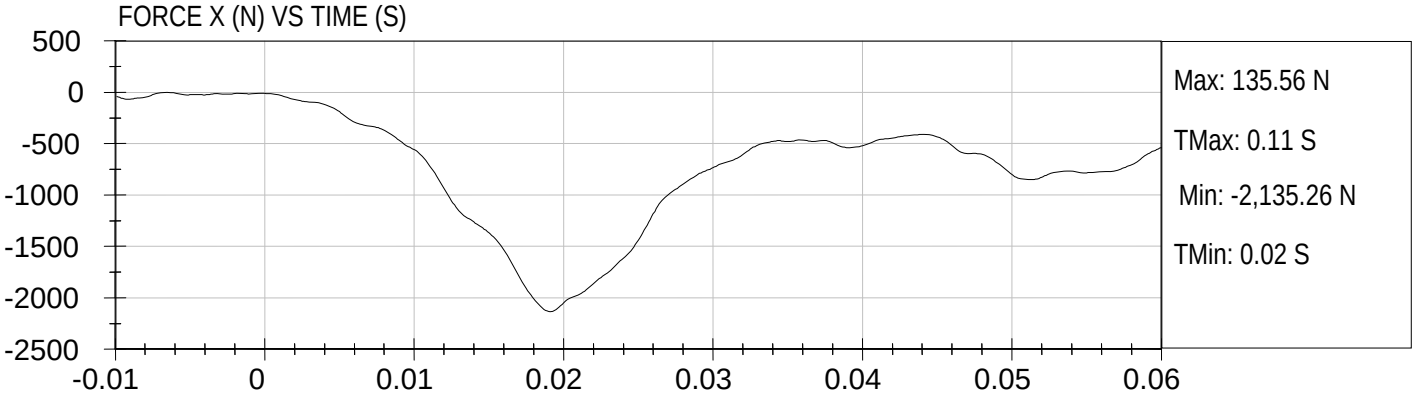
HEAD X ACCELERATION (G's) VS TIME (S)



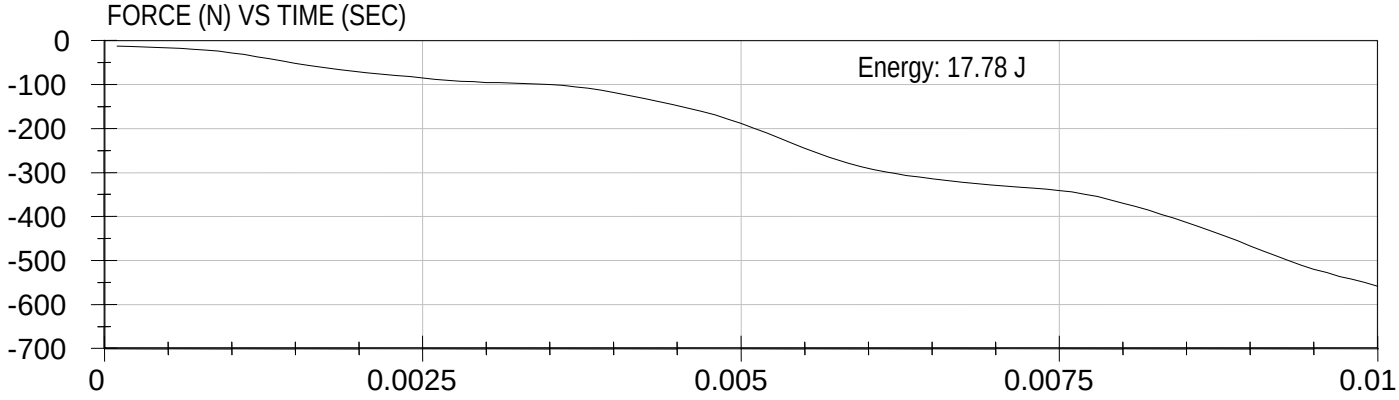
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)



FORCE (N) VS TIME (SEC)



HEAD FORM IMPACT (6.69 m/s)

Test Date: 6-7-2011

Component ID: 2011 Girardin Micro Bird

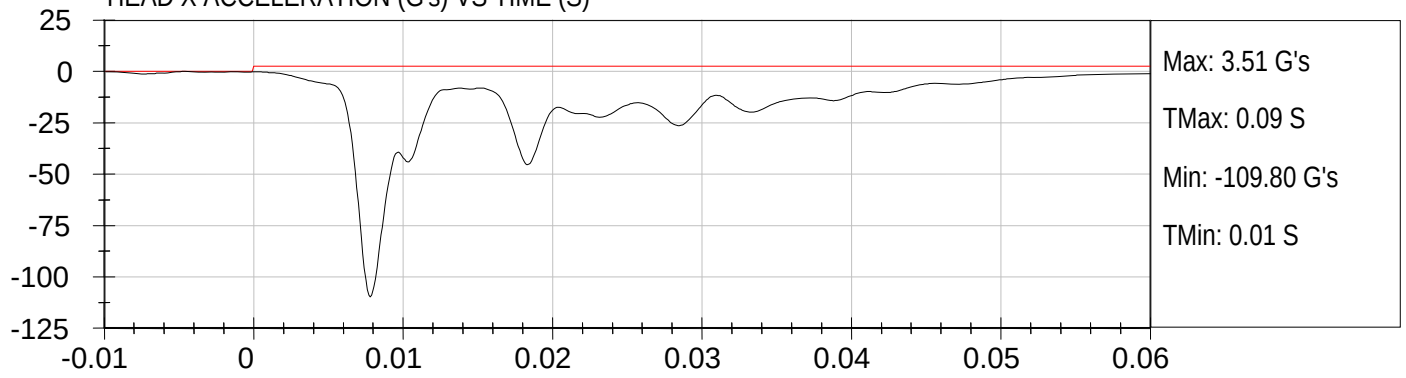
NHTSA#: CB0903

Location: B1 H14

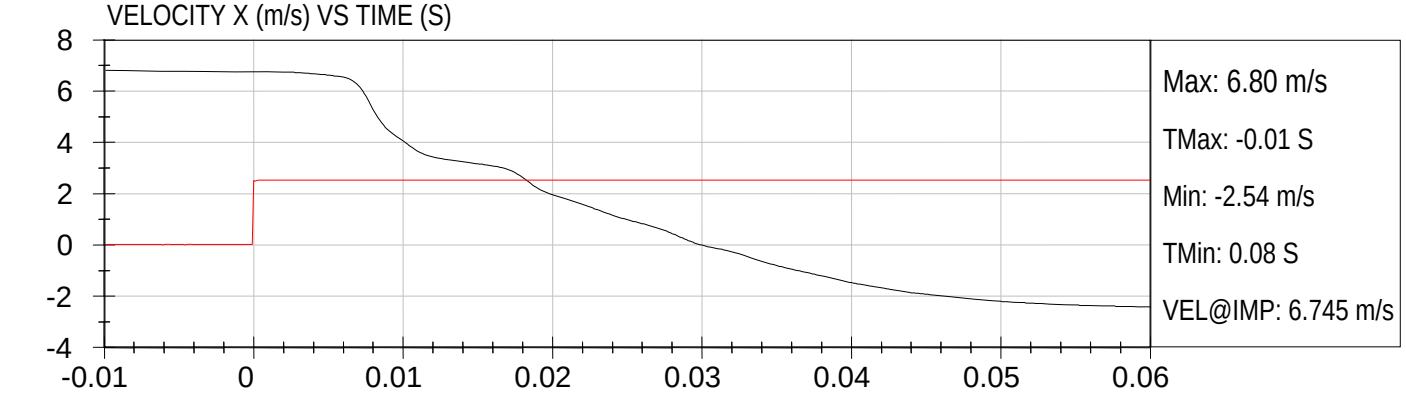
speed trap: 6.631 m/s

Hic: 150.29 T1: 6.80 ms T2: 9.10 ms

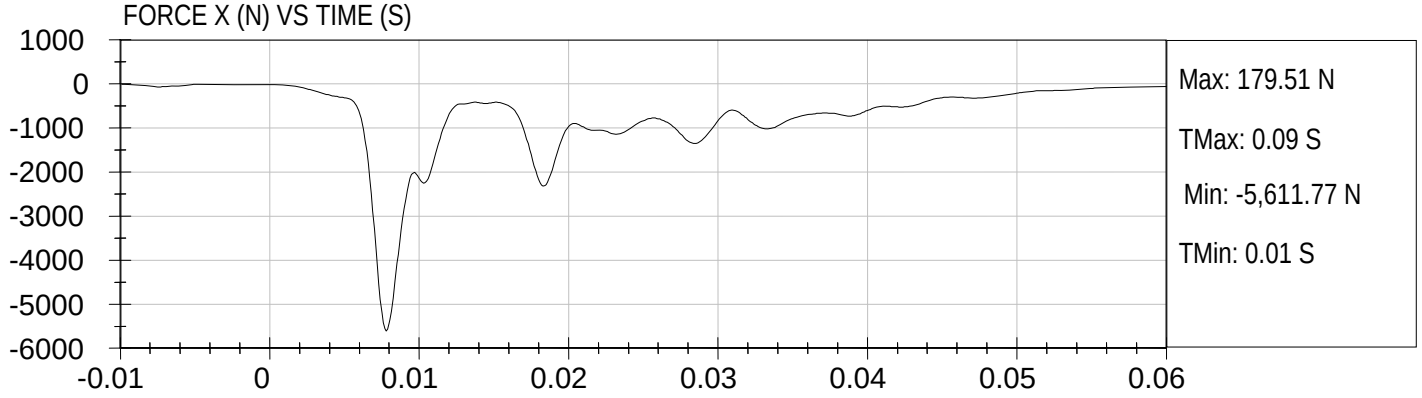
HEAD X ACCELERATION (G's) VS TIME (S)



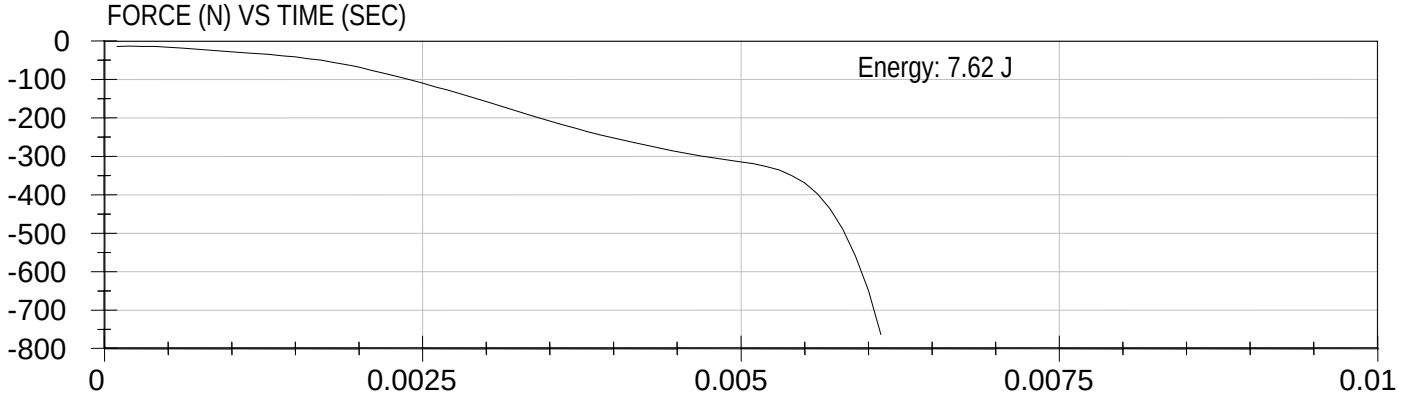
VELOCITY X (m/s) VS TIME (S)



FORCE X (N) VS TIME (S)

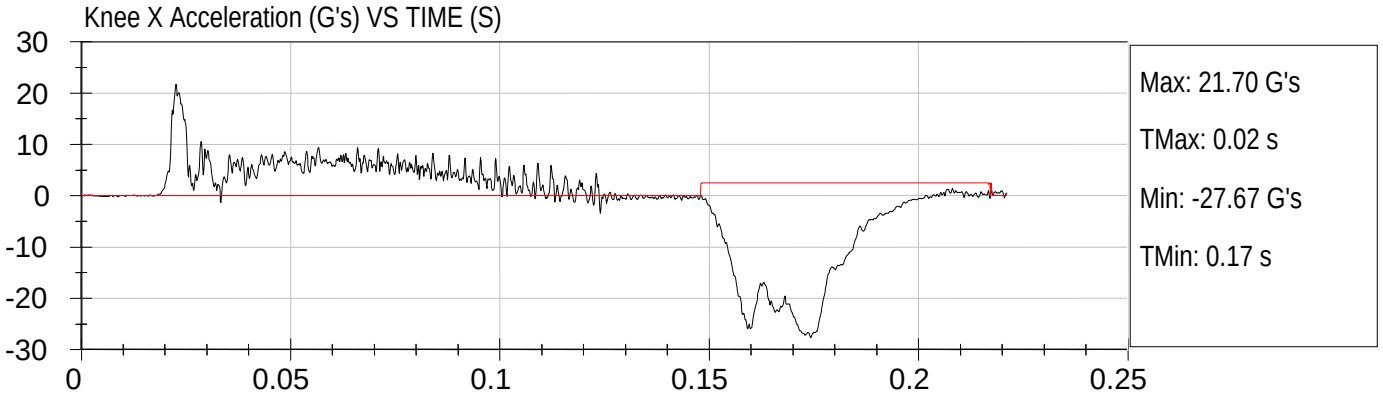


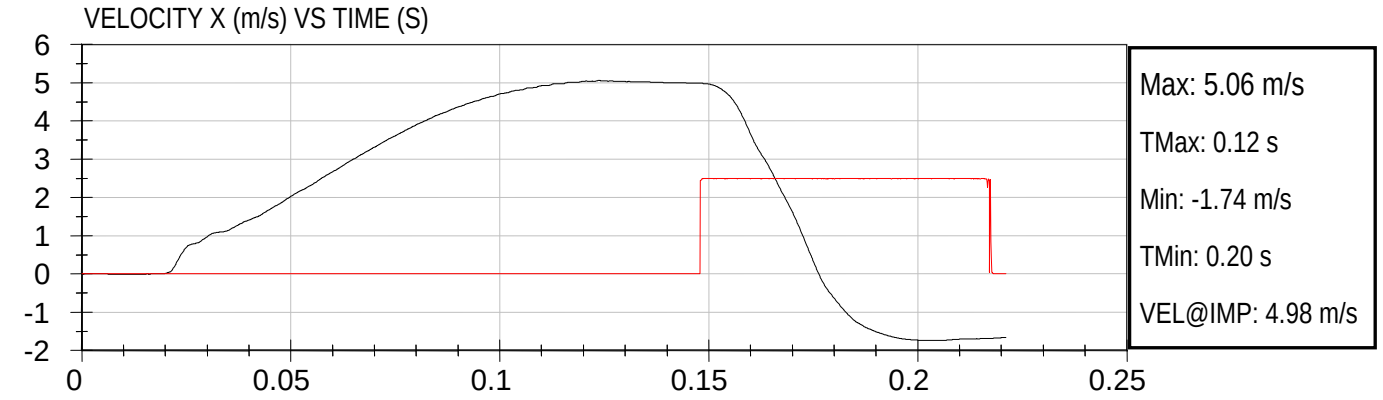
FORCE (N) VS TIME (SEC)

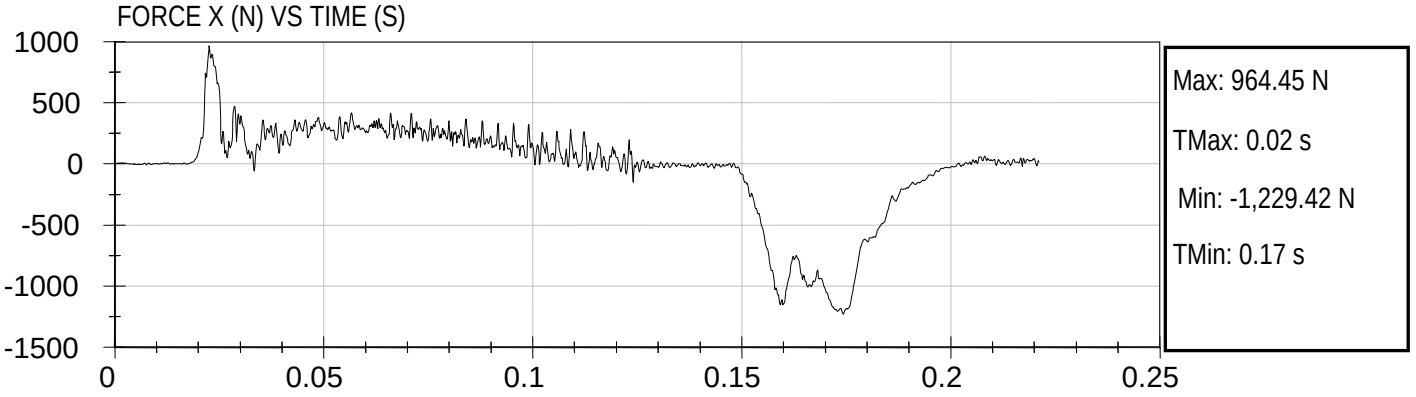


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K1 speed trap: 4.909 m/s

Test Date: 5-11-2011
NHTSA #: CB0903

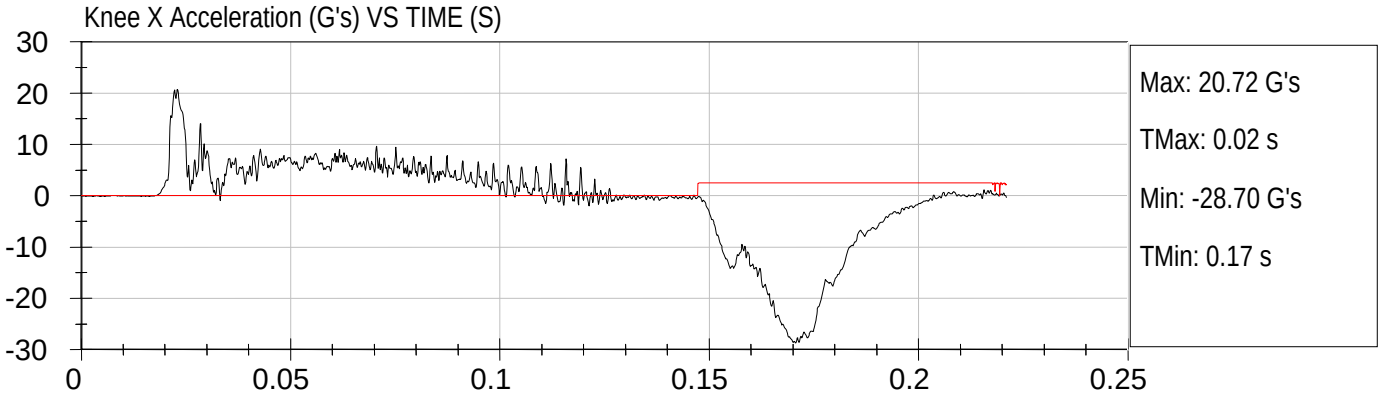


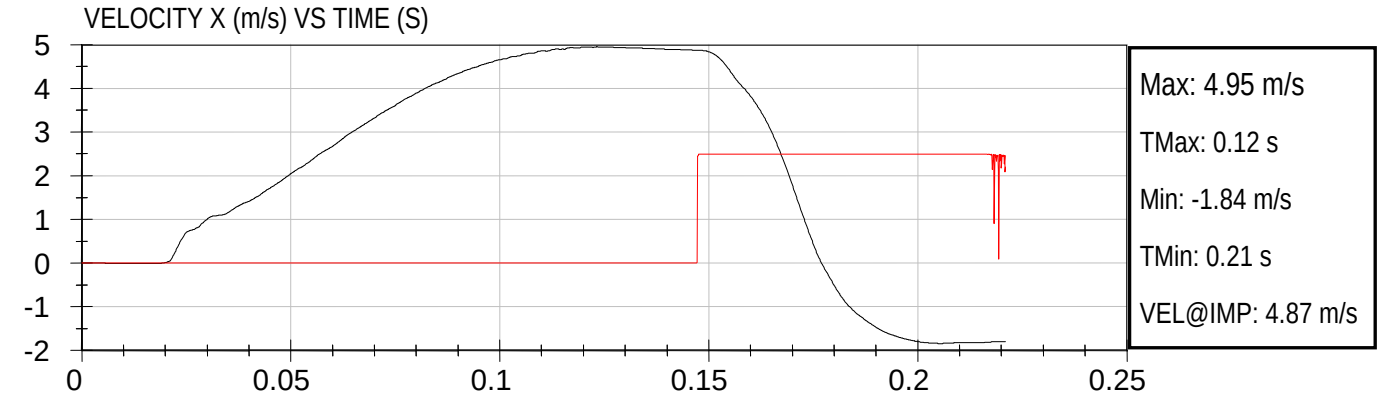


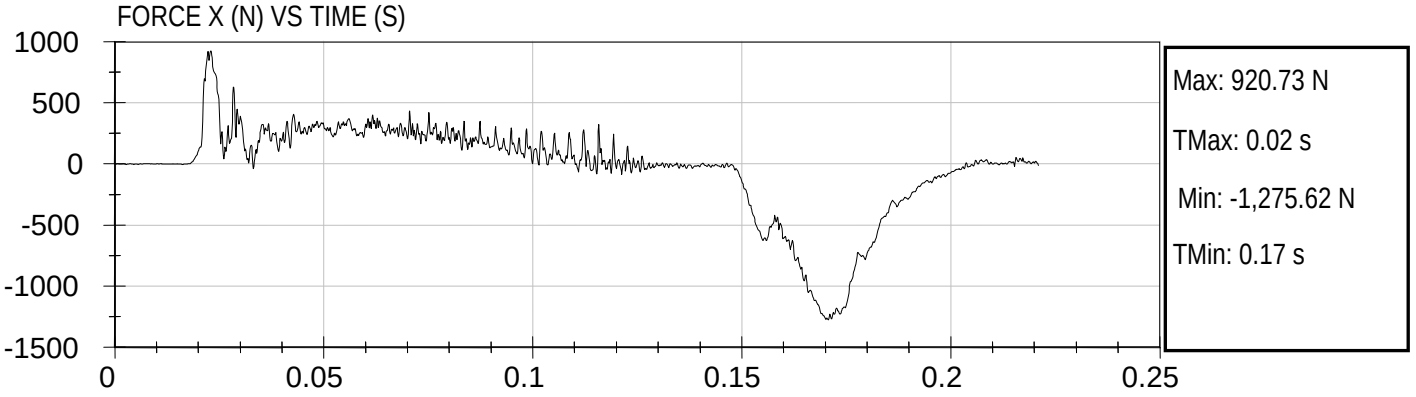


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K2 speed trap: 4.894 m/s

Test Date: 5-11-2011
NHTSA #: CB0903

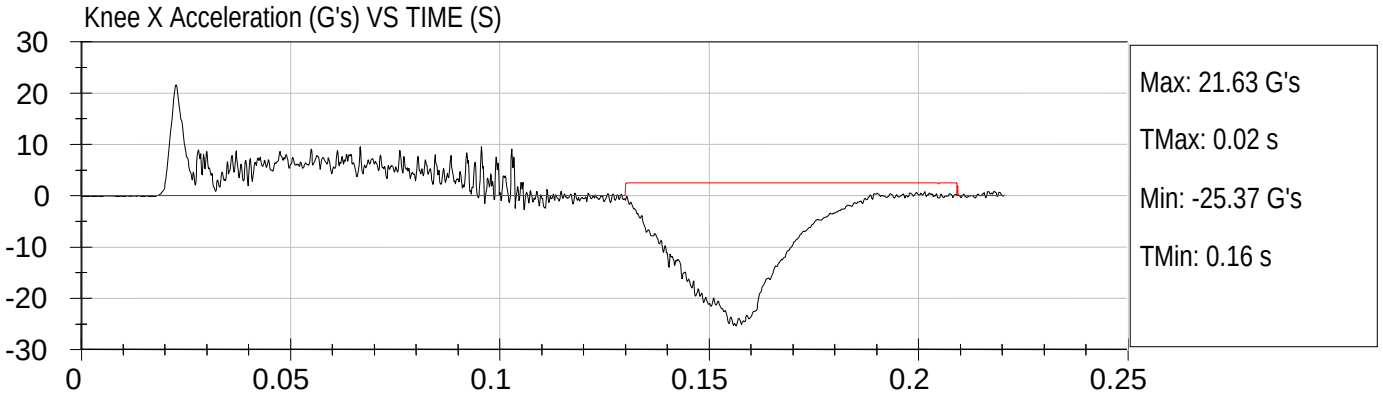


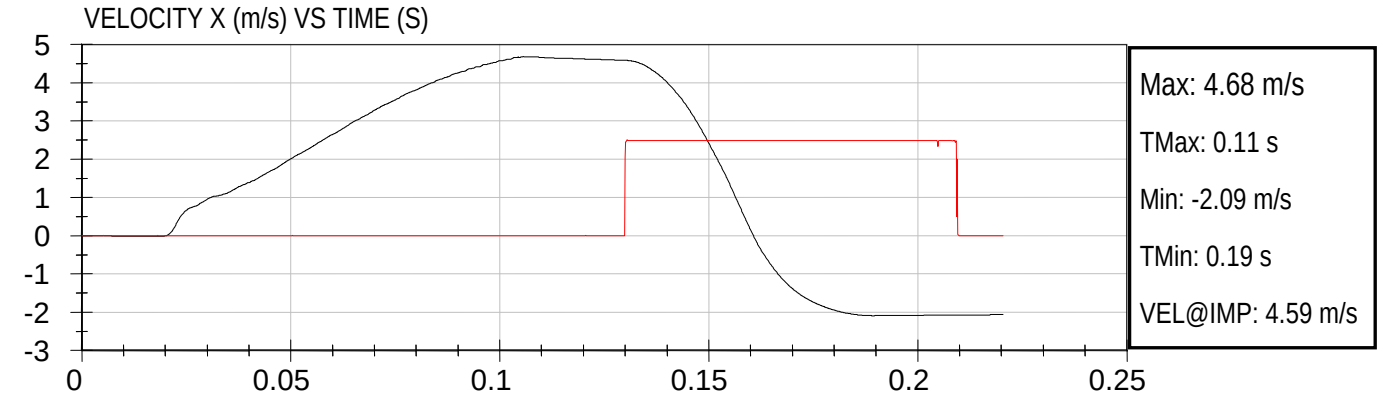


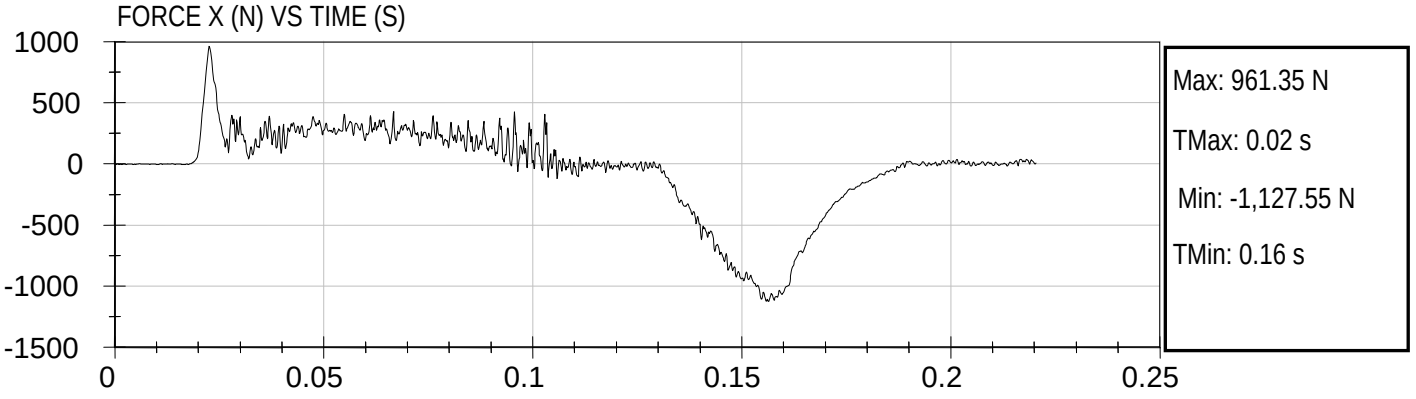


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K3 speed trap: 4.879 m/s

Test Date: 5-11-2011
NHTSA #: CB0903



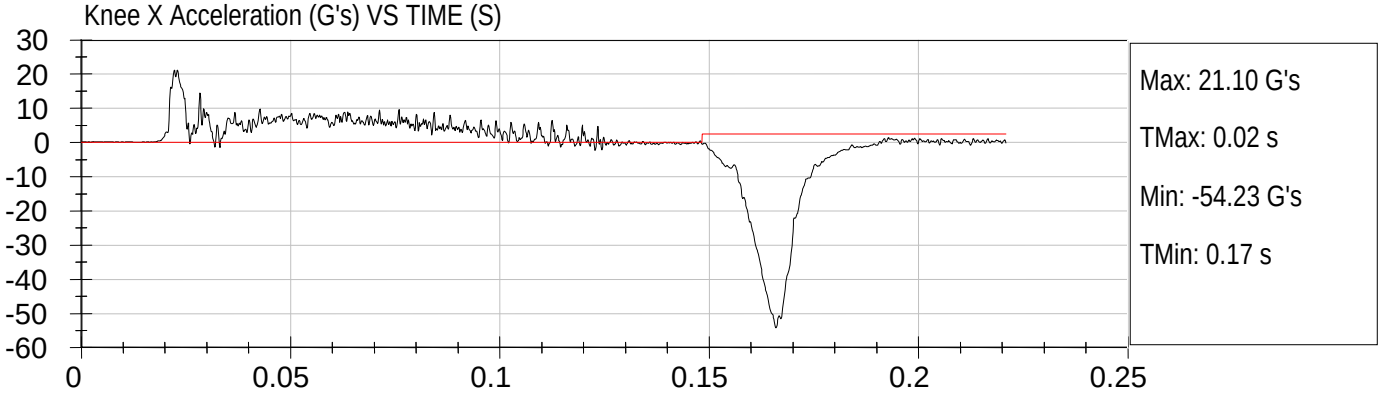




FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K4 speed trap: 4.925 m/s

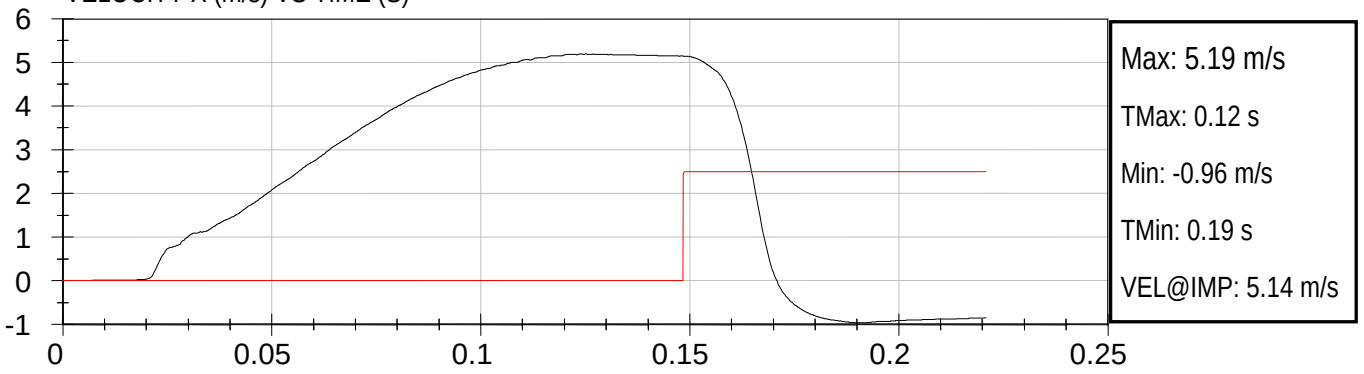
Test Date: 5-11-2011
NHTSA #: CB0903

Knee X Acceleration (G's) VS TIME (S)



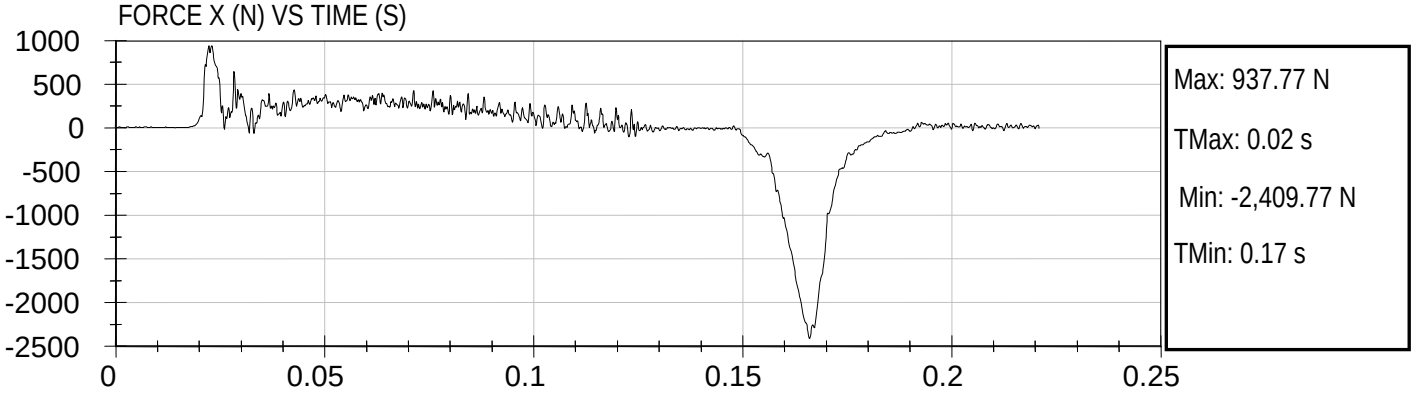
Max: 21.10 G's
TMax: 0.02 s
Min: -54.23 G's
TMin: 0.17 s

VELOCITY X (m/s) VS TIME (S)



Max: 5.19 m/s
TMax: 0.12 s
Min: -0.96 m/s
TMin: 0.19 s
VEL@IMP: 5.14 m/s

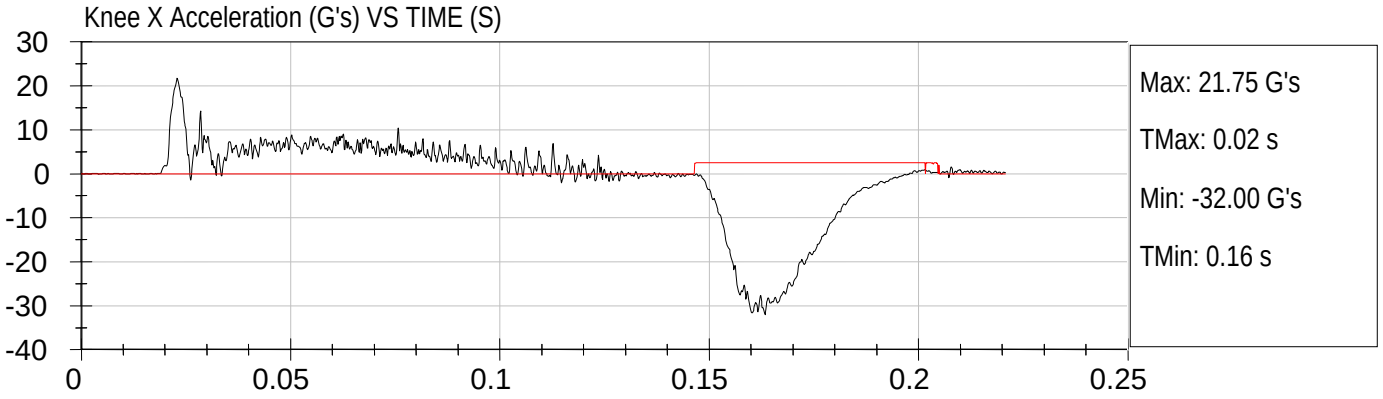
FORCE X (N) VS TIME (S)

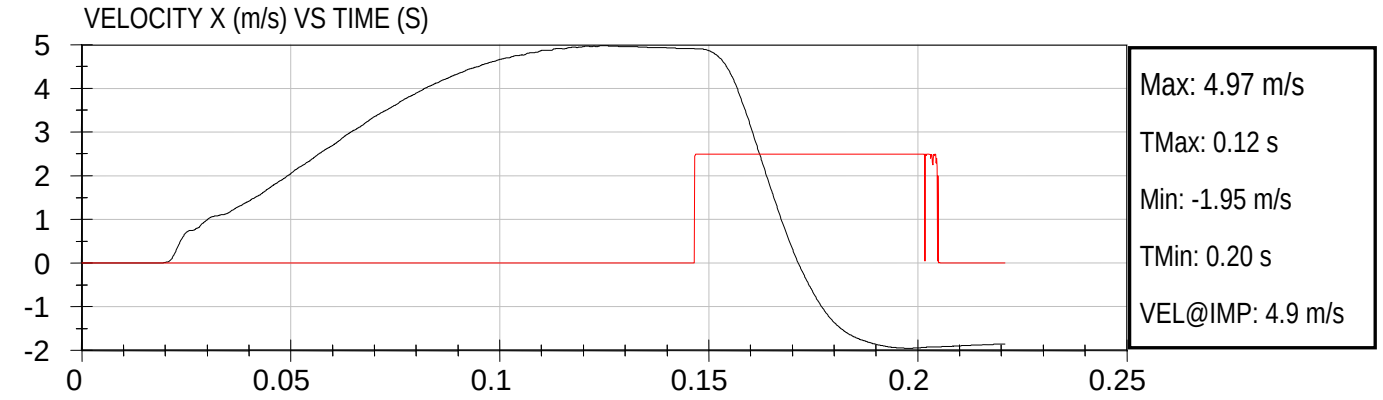


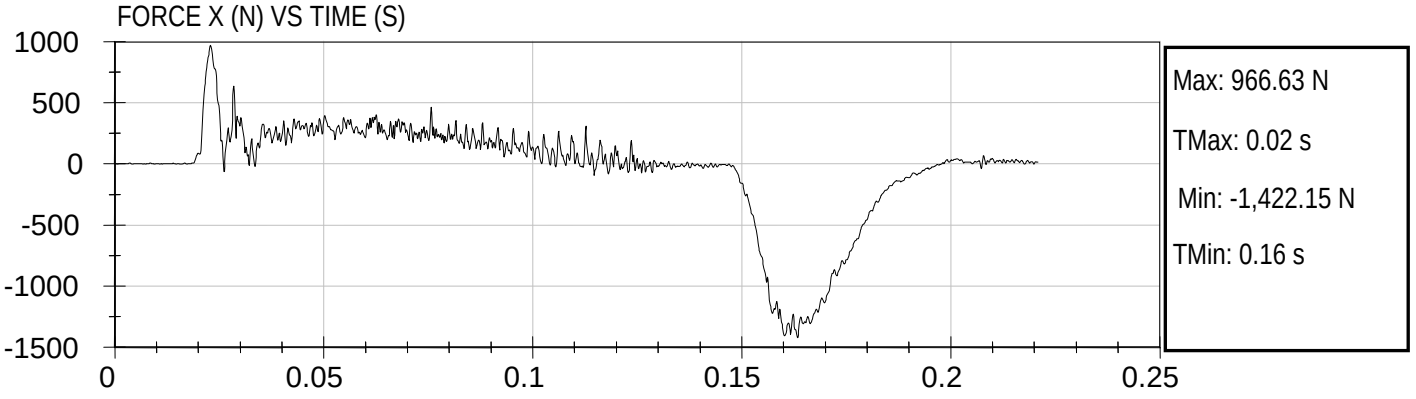
Max: 937.77 N
TMax: 0.02 s
Min: -2,409.77 N
TMin: 0.17 s

FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K5 speed trap: 4.827 m/s

Test Date: 5-11-2011
NHTSA #: CB0903



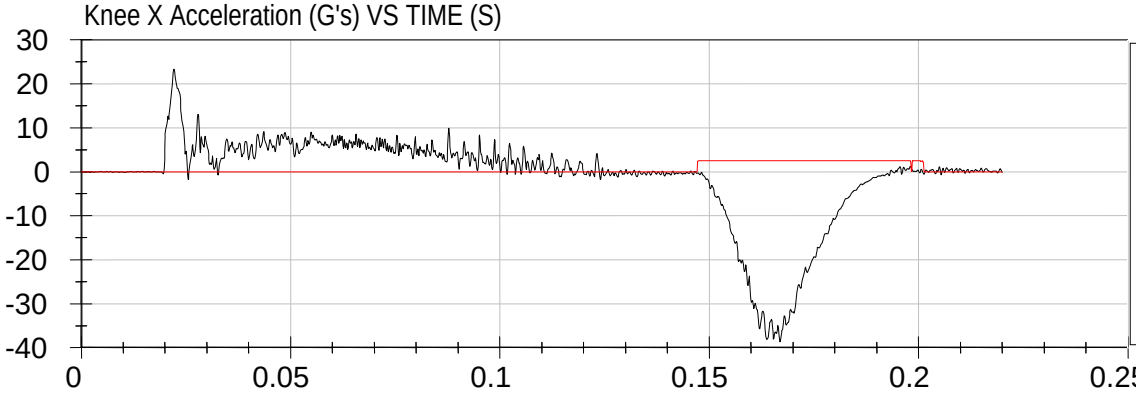




FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K6 speed trap: 4.854 m/s

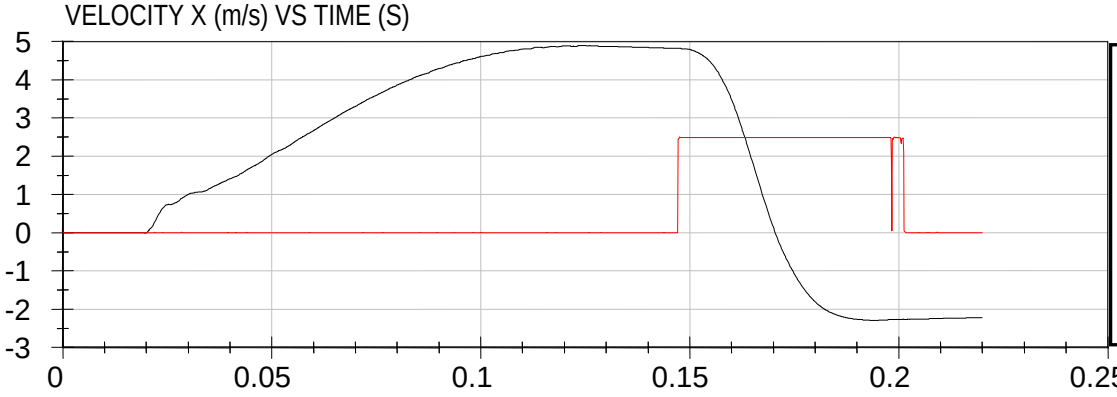
Test Date: 5-11-2011
NHTSA #: CB0903

Knee X Acceleration (G's) VS TIME (S)



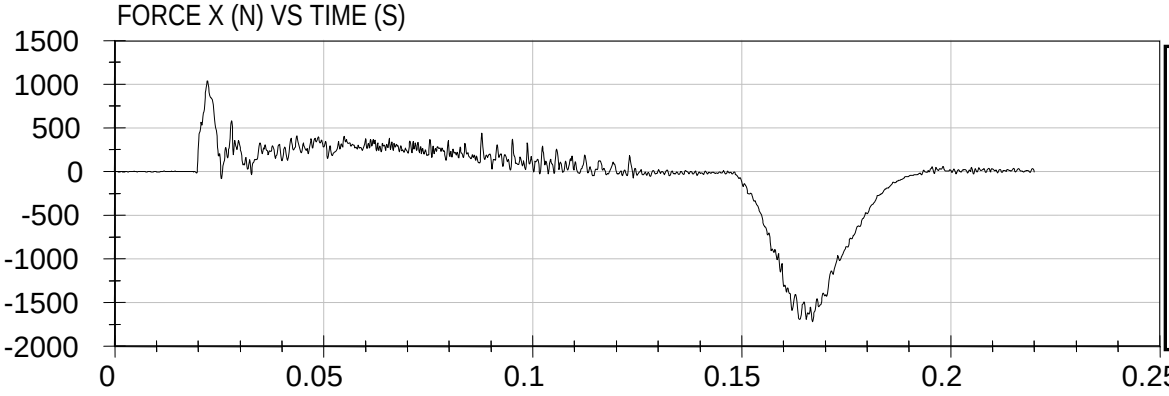
Max: 23.36 G's
TMax: 0.02 s
Min: -38.66 G's
TMin: 0.17 s

VELOCITY X (m/s) VS TIME (S)



Max: 4.90 m/s
TMax: 0.12 s
Min: -2.29 m/s
TMin: 0.19 s
VEL@IMP: 4.82 m/s

FORCE X (N) VS TIME (S)

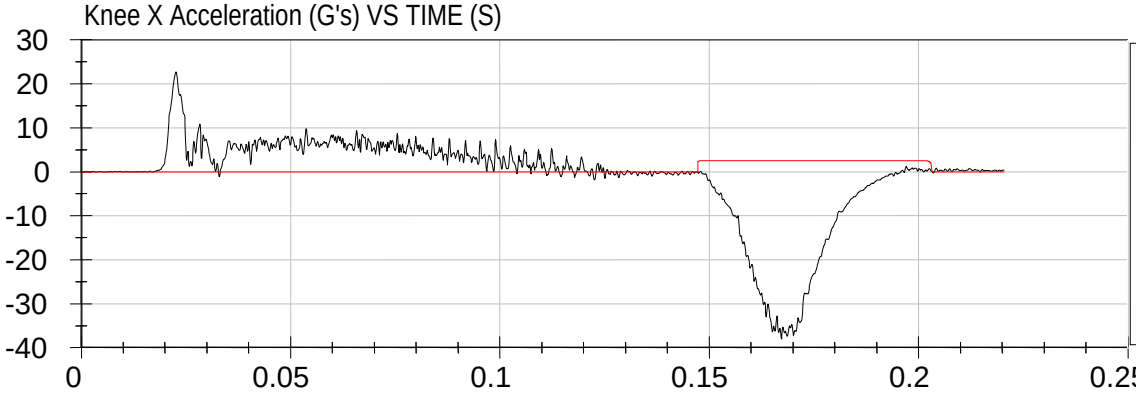


Max: 1,037.98 N
TMax: 0.02 s
Min: -1,717.89 N
TMin: 0.17 s

FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K7 speed trap: 4.856 m/s

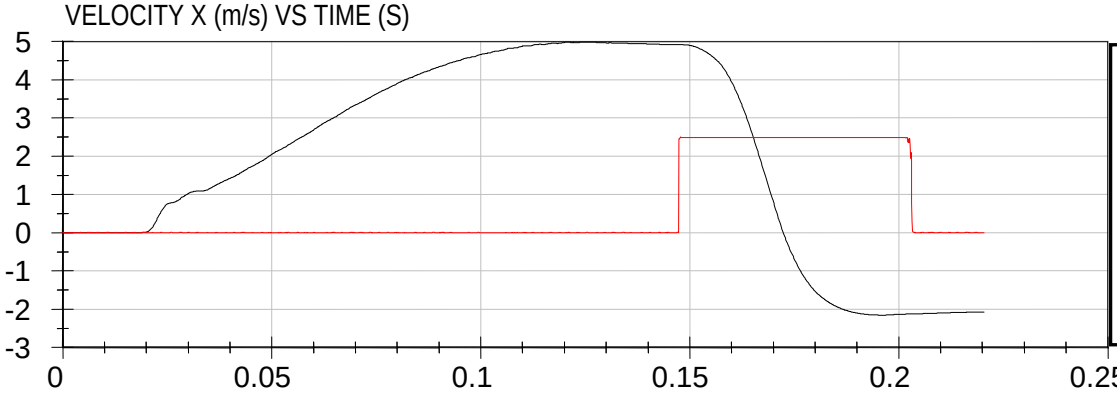
Test Date: 5-11-2011
NHTSA #: CB0903

Knee X Acceleration (G's) VS TIME (S)



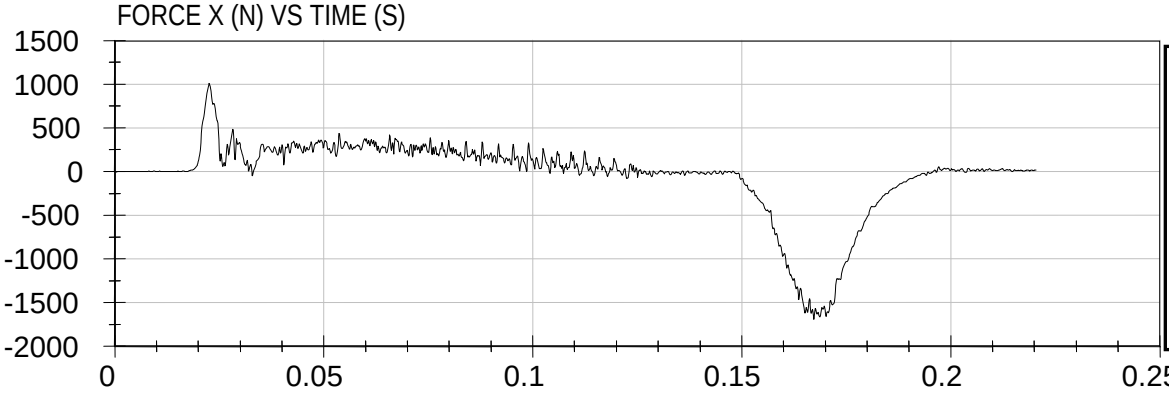
Max: 22.65 G's
TMax: 0.02 s
Min: -38.04 G's
TMin: 0.17 s

VELOCITY X (m/s) VS TIME (S)



Max: 4.98 m/s
TMax: 0.12 s
Min: -2.16 m/s
TMin: 0.20 s
VEL@IMP: 4.92 m/s

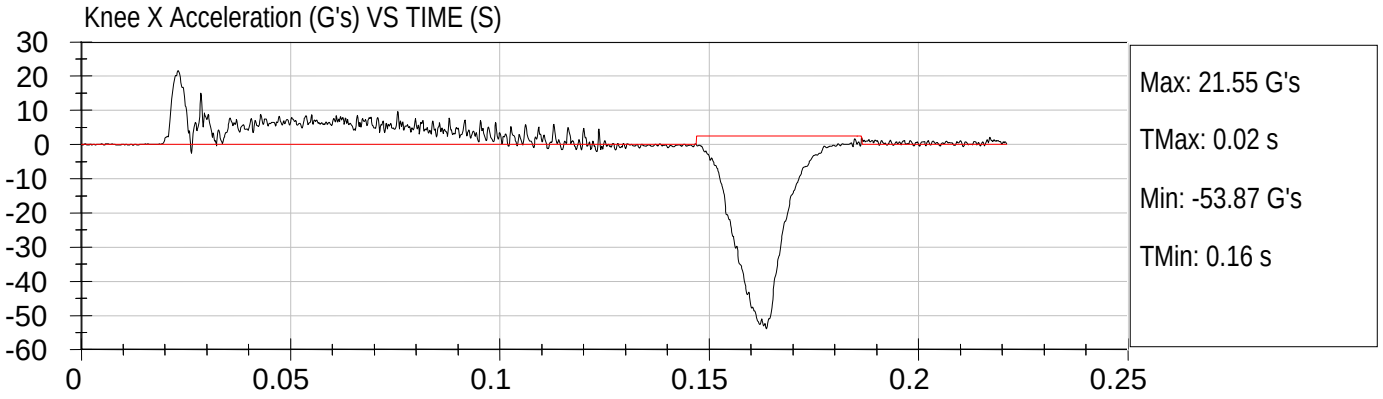
FORCE X (N) VS TIME (S)

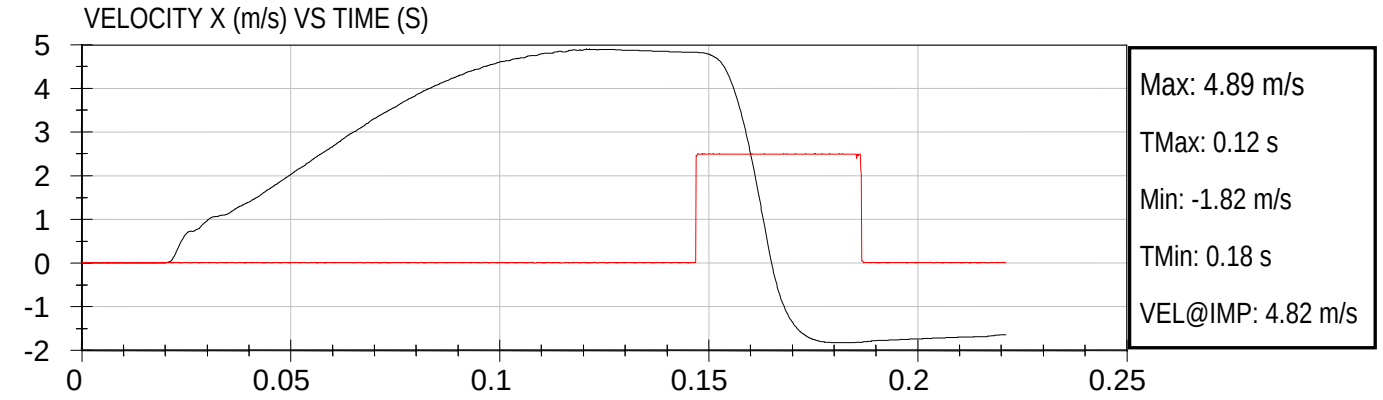


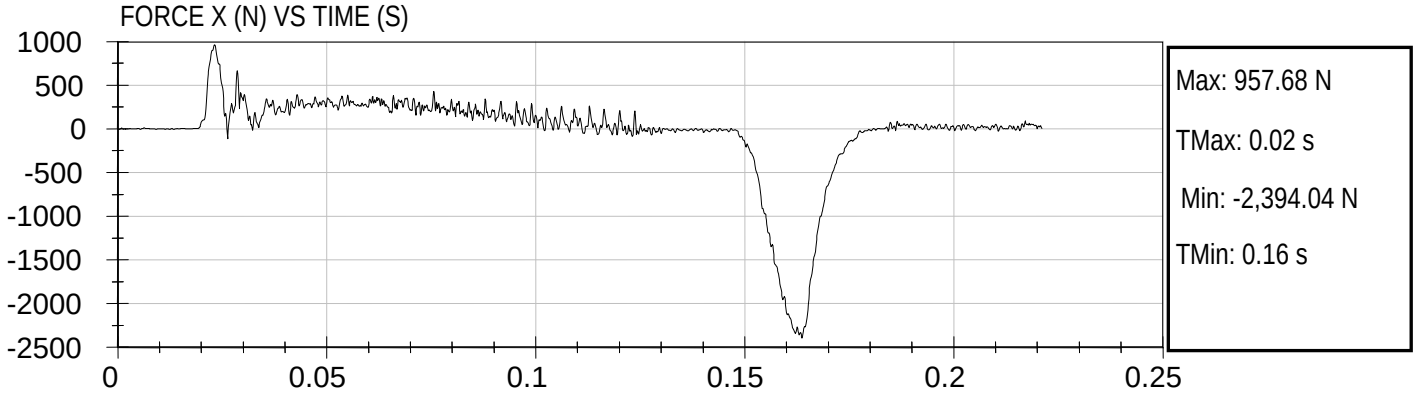
Max: 1,006.57 N
TMax: 0.02 s
Min: -1,690.28 N
TMin: 0.17 s

FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S2 K8 speed trap: 4.822 m/s

Test Date: 5-11-2011
NHTSA #: CB0903

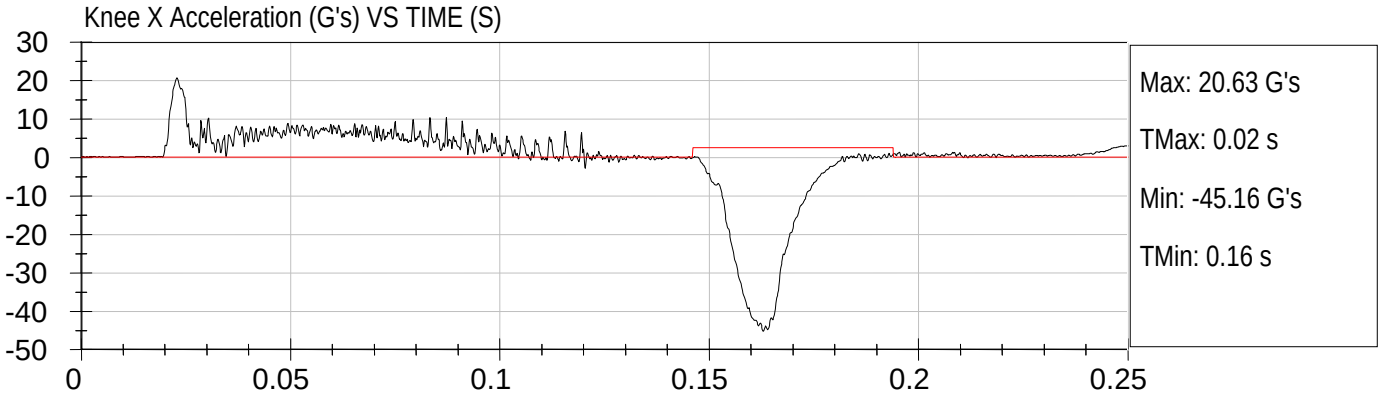


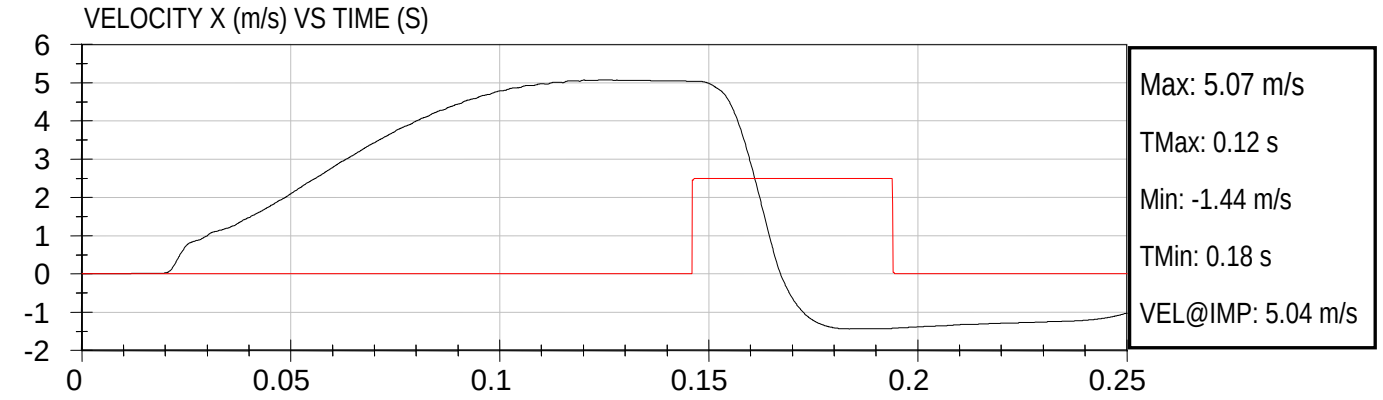


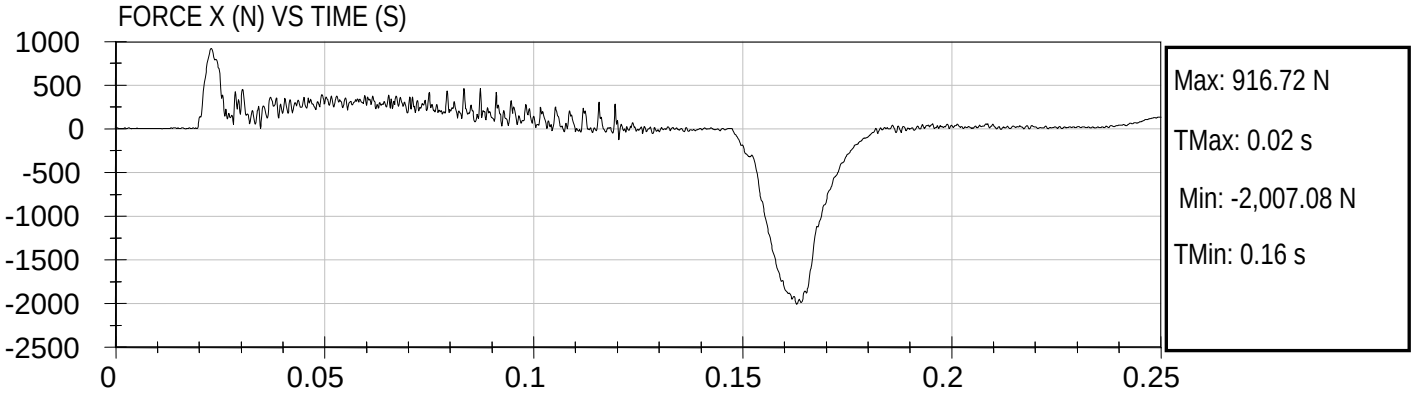


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K1 speed trap: 4.863 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

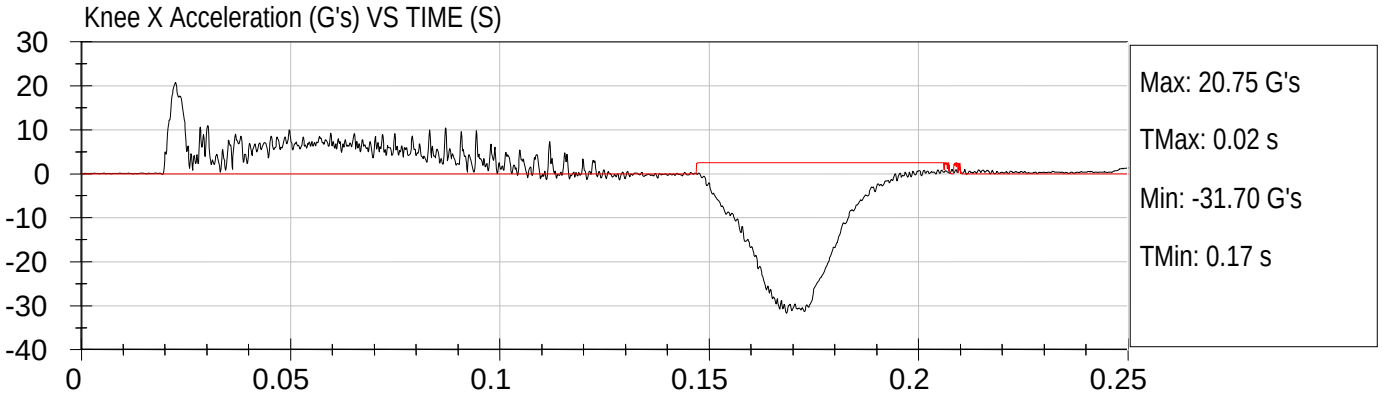


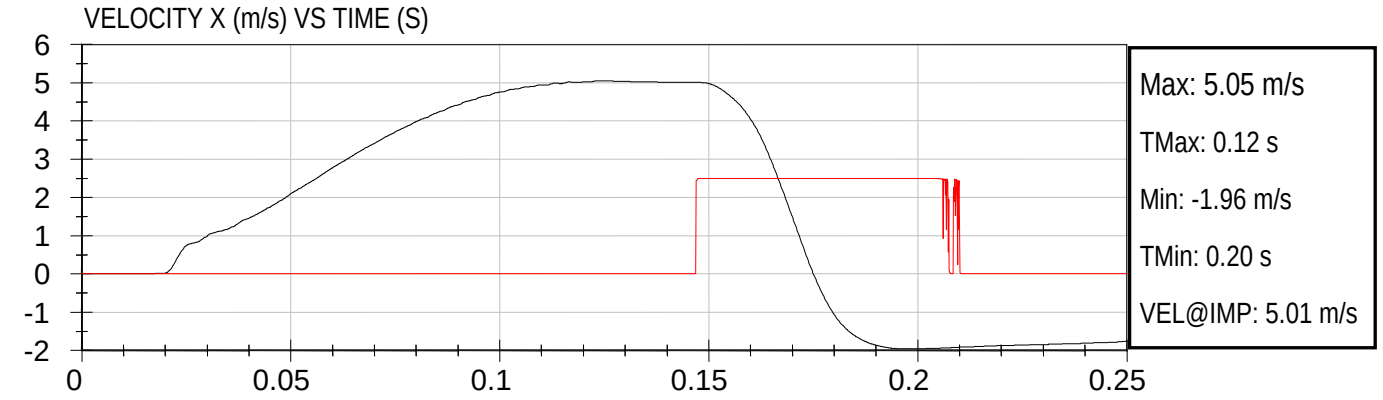


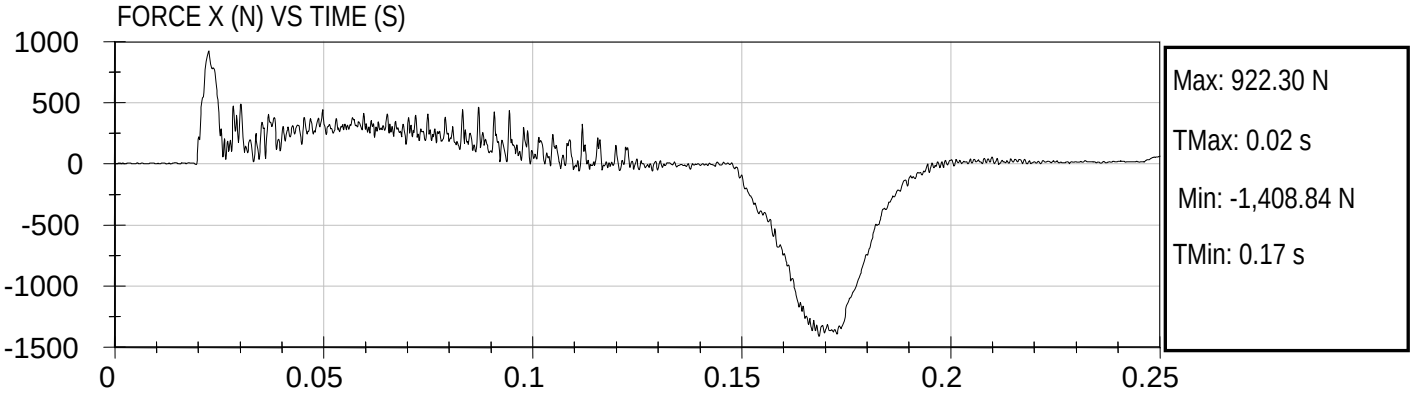


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K2 speed trap: 4.884 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

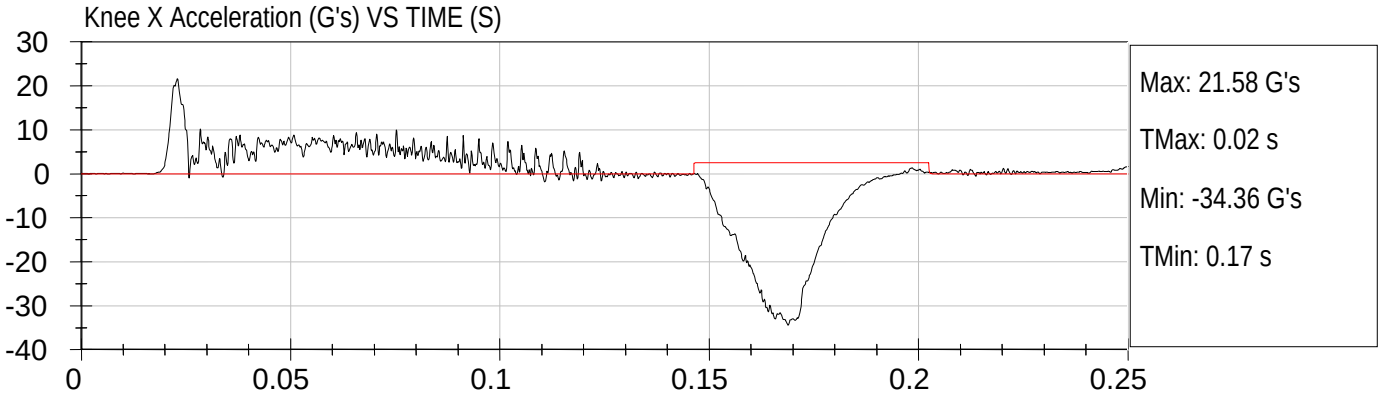


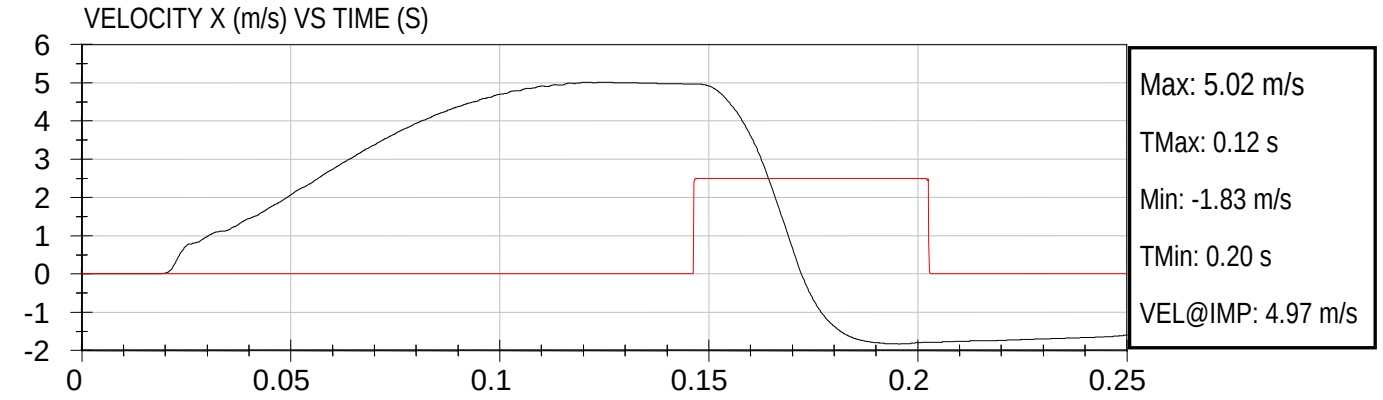


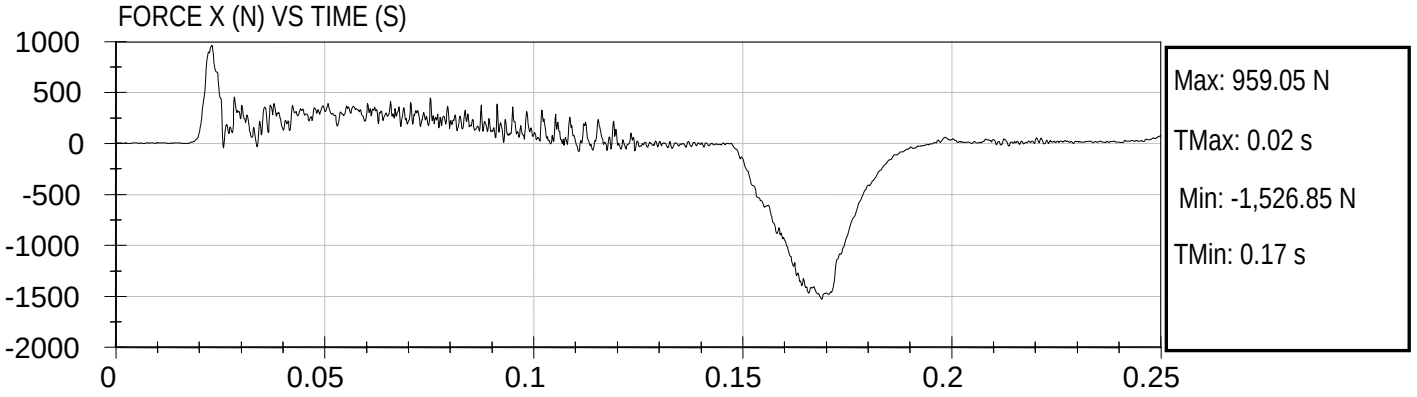


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K3 speed trap: 4.898 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

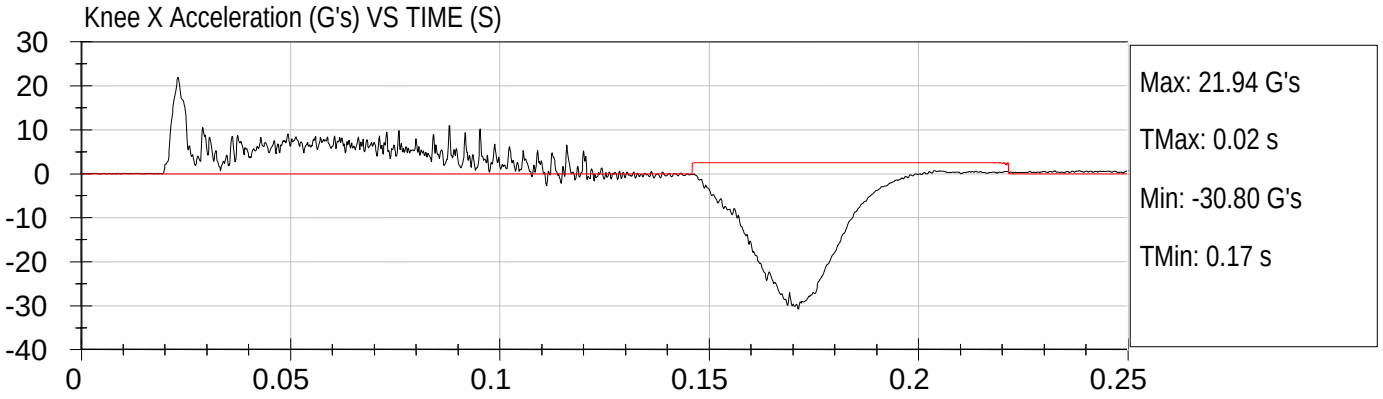


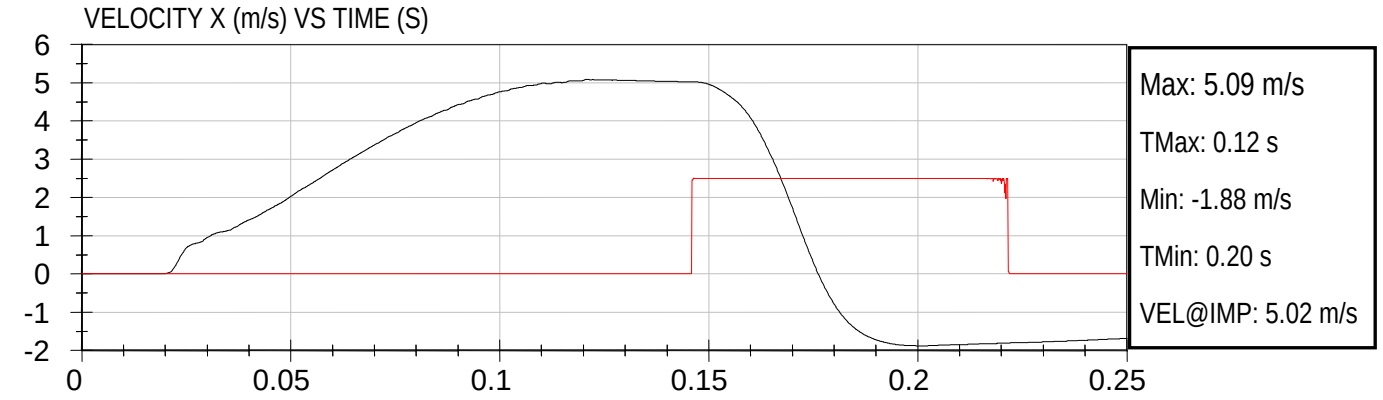


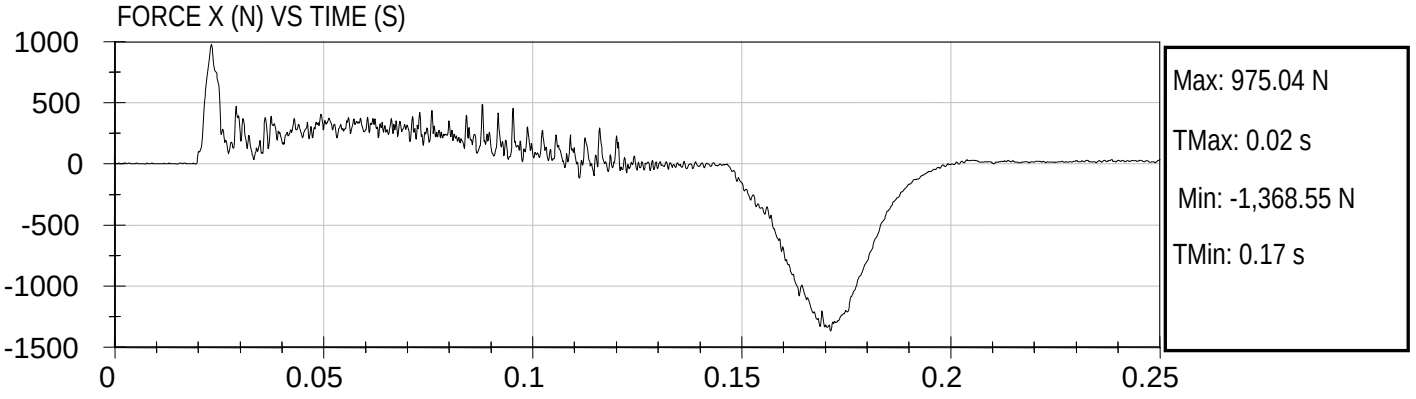


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K4 speed trap: 4.888 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

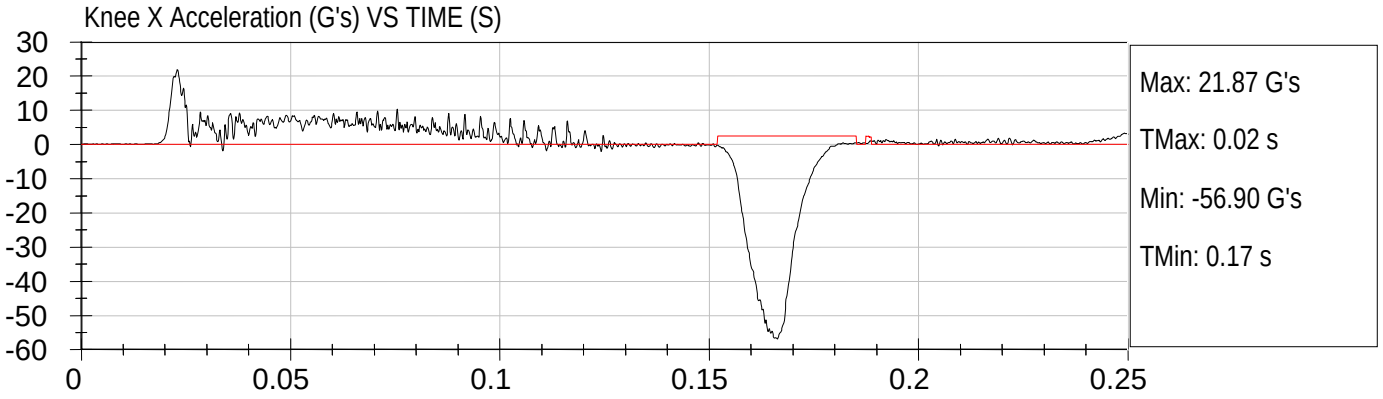


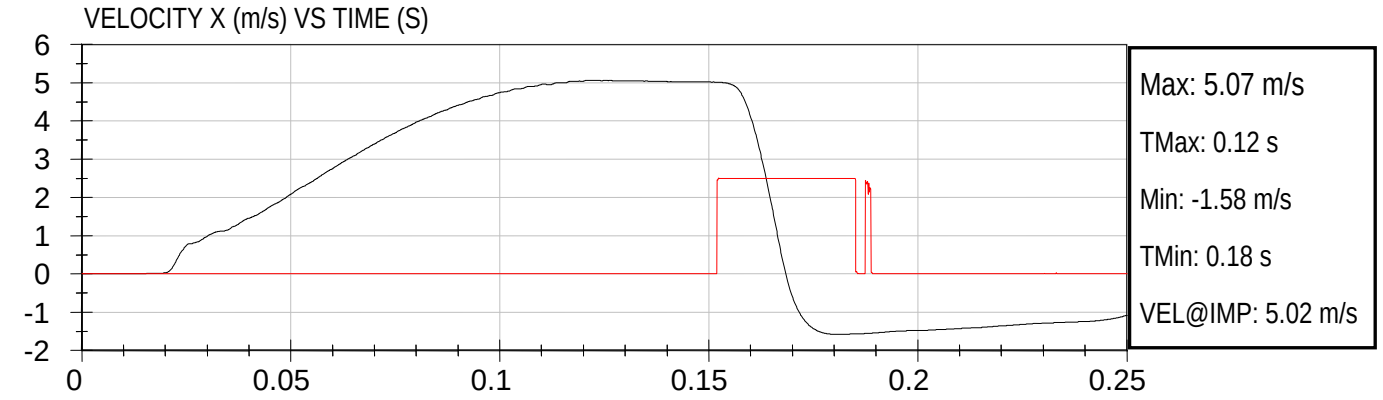


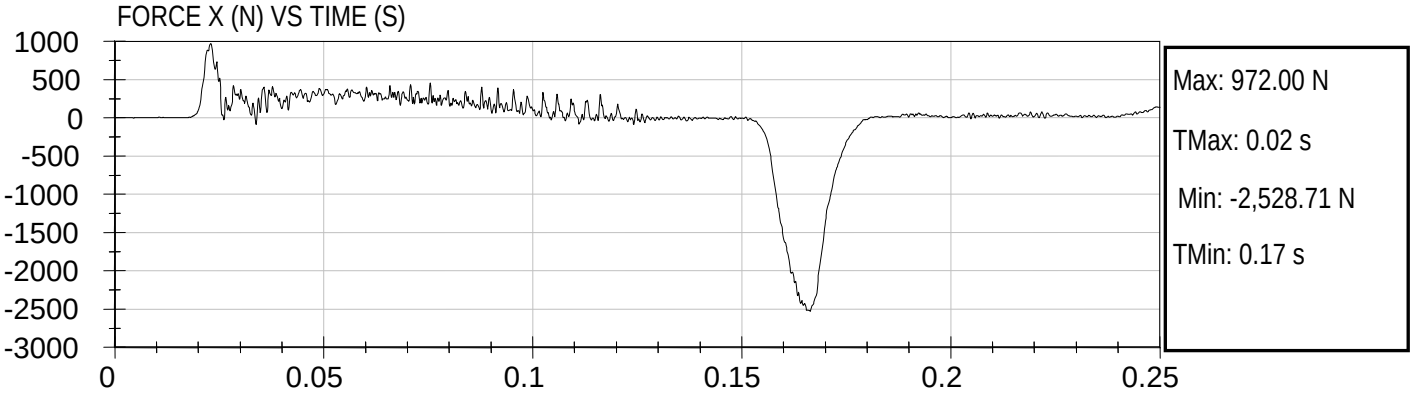


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K5 speed trap: 4.823 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

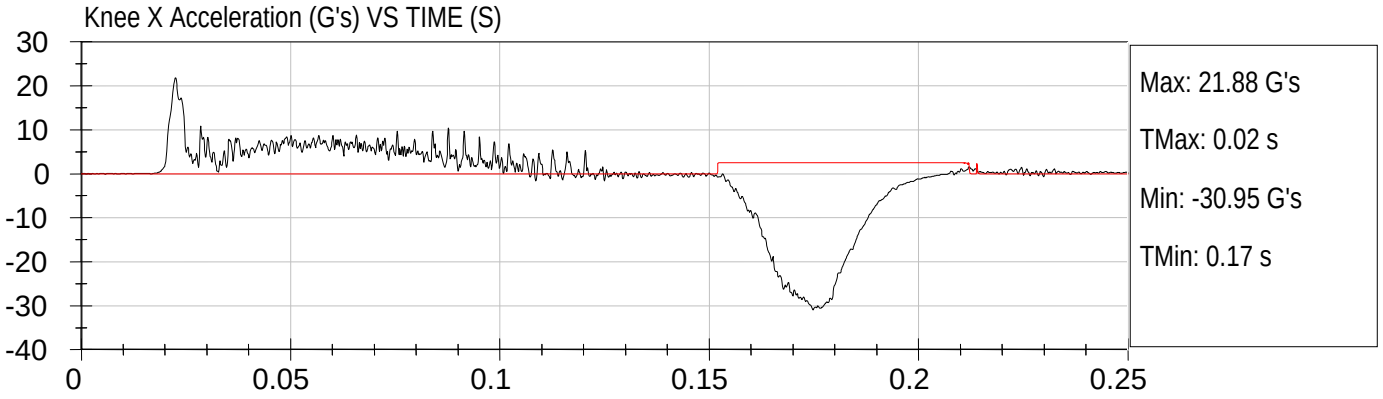


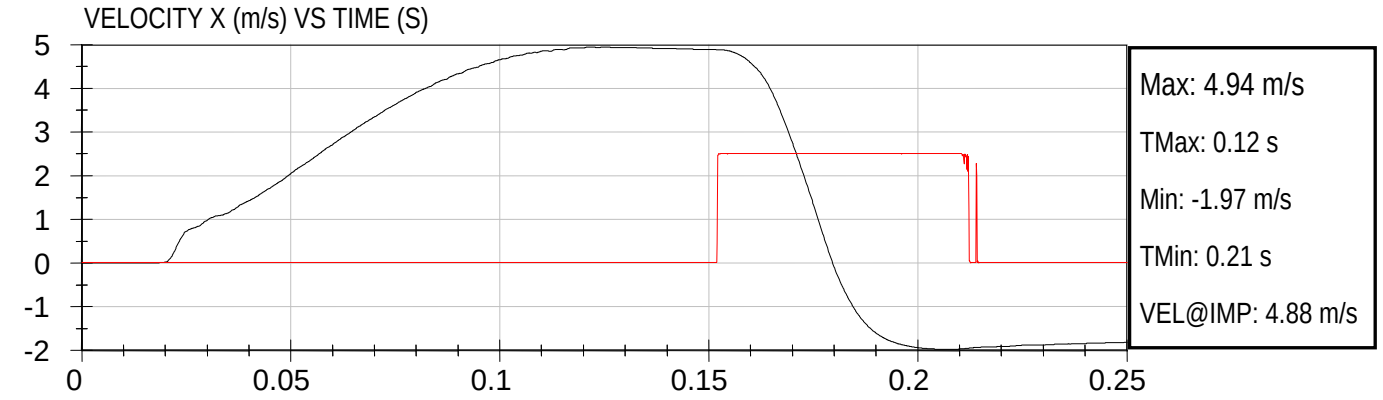


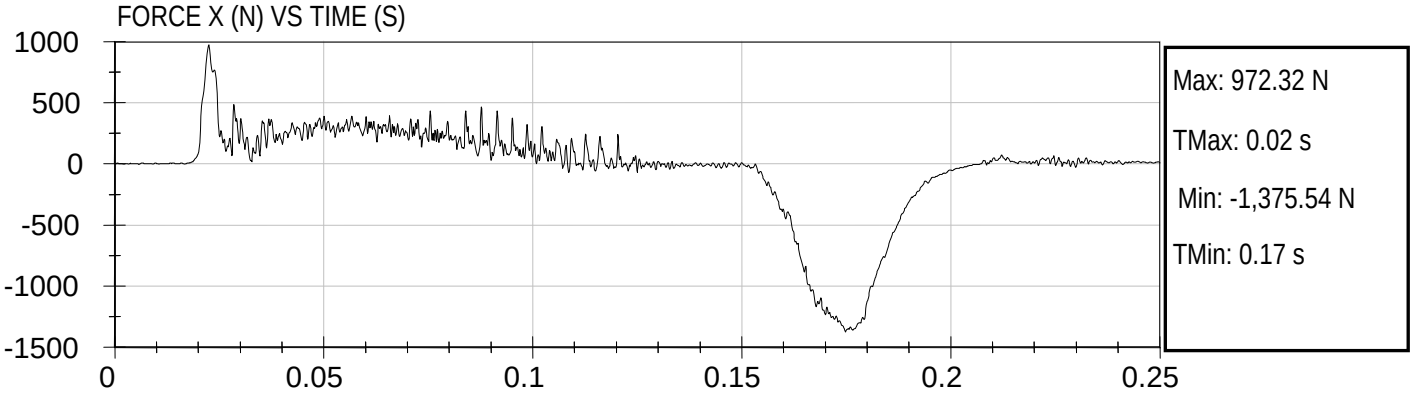


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K6 speed trap: 4.837 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

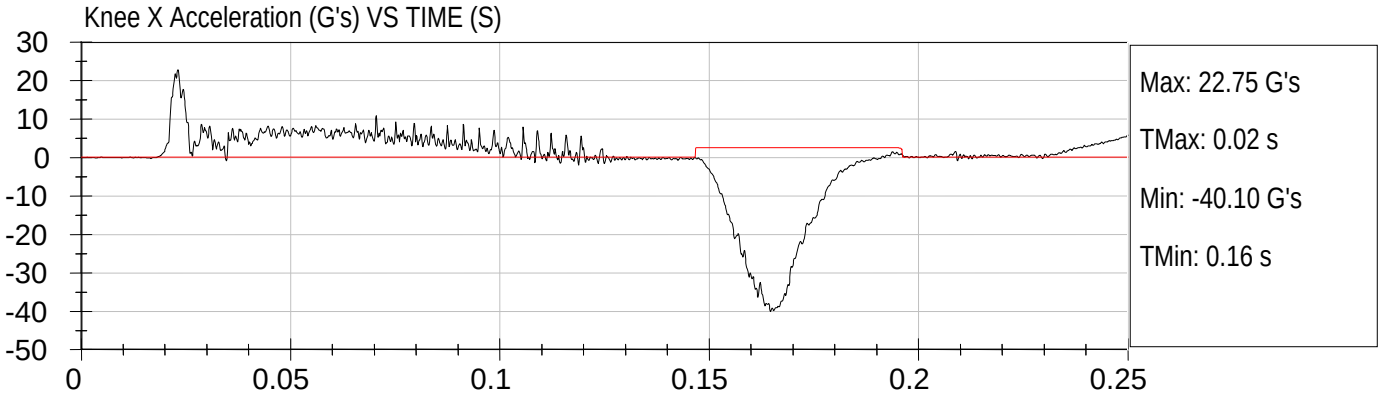


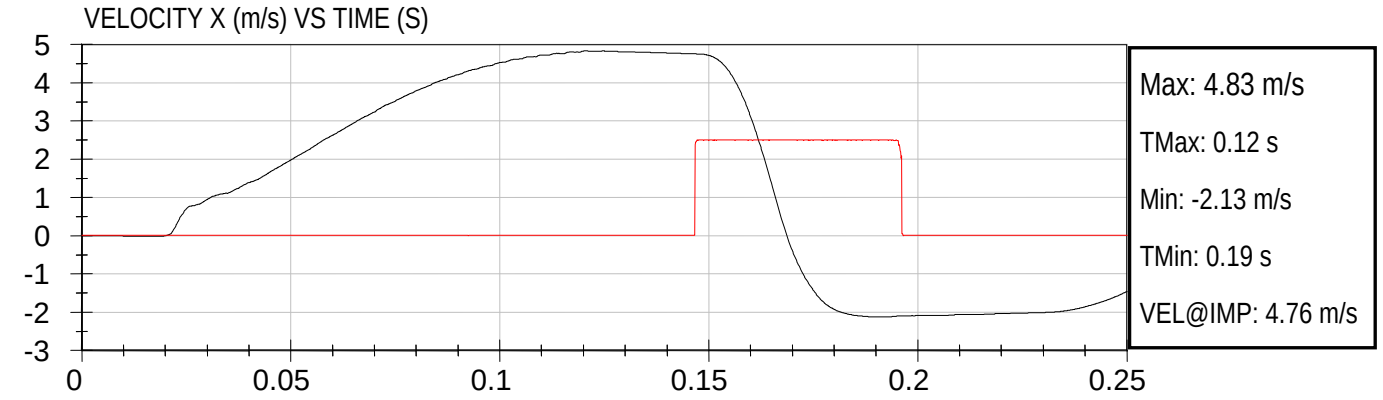


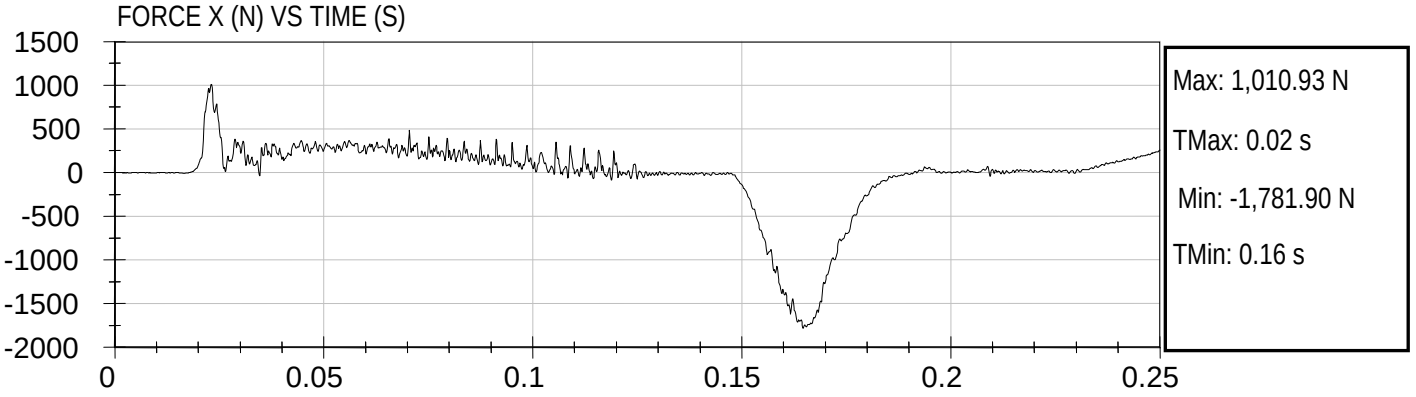


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K7 speed trap: 4.836 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

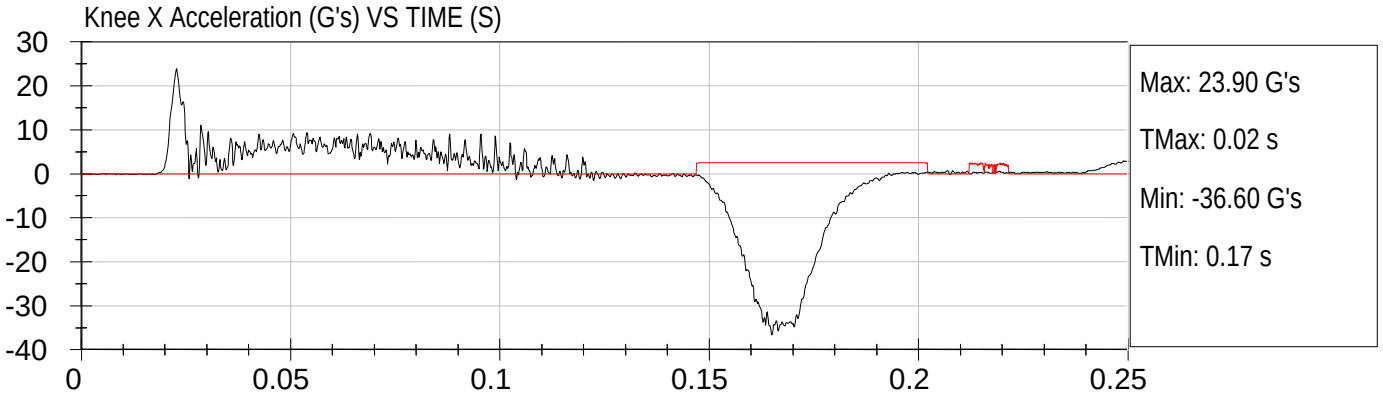


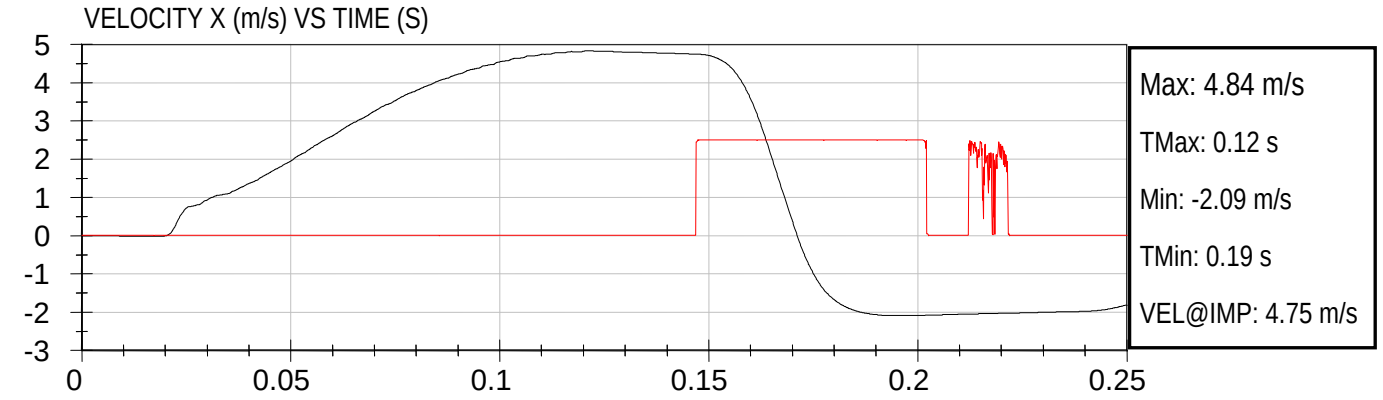


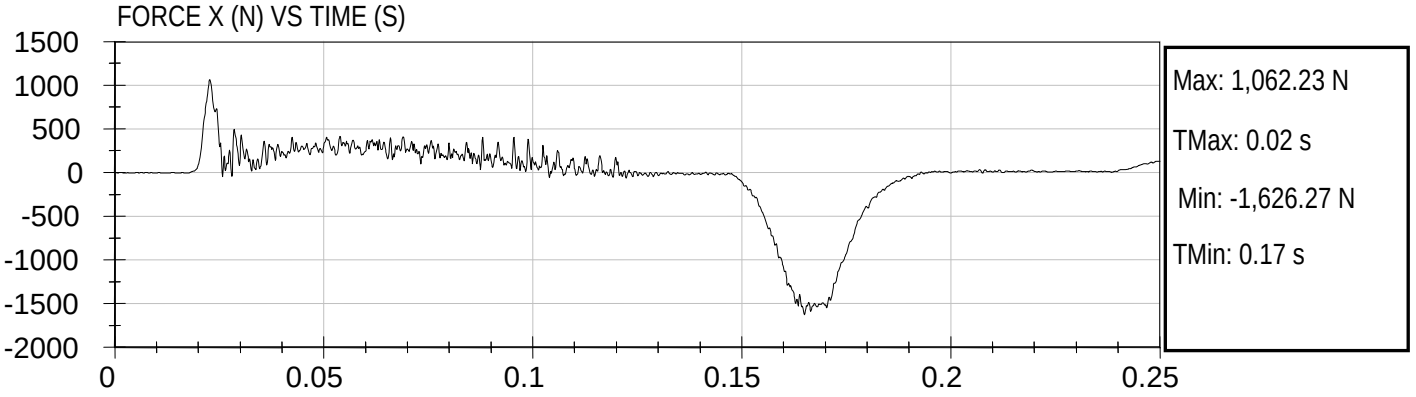


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: S7 K8 speed trap: 4.850 m/s

Test Date: 5-6-2011
NHTSA #: CB0903

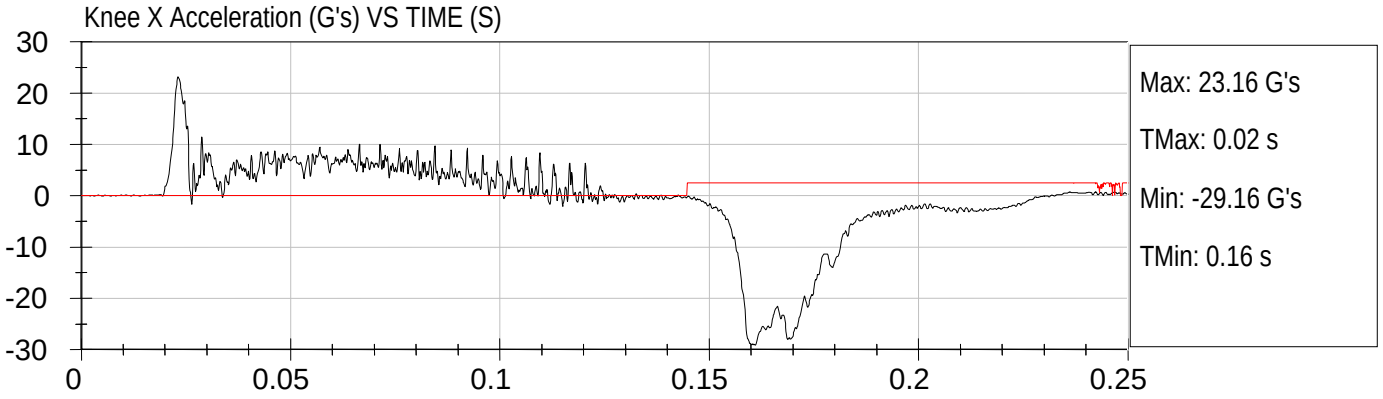


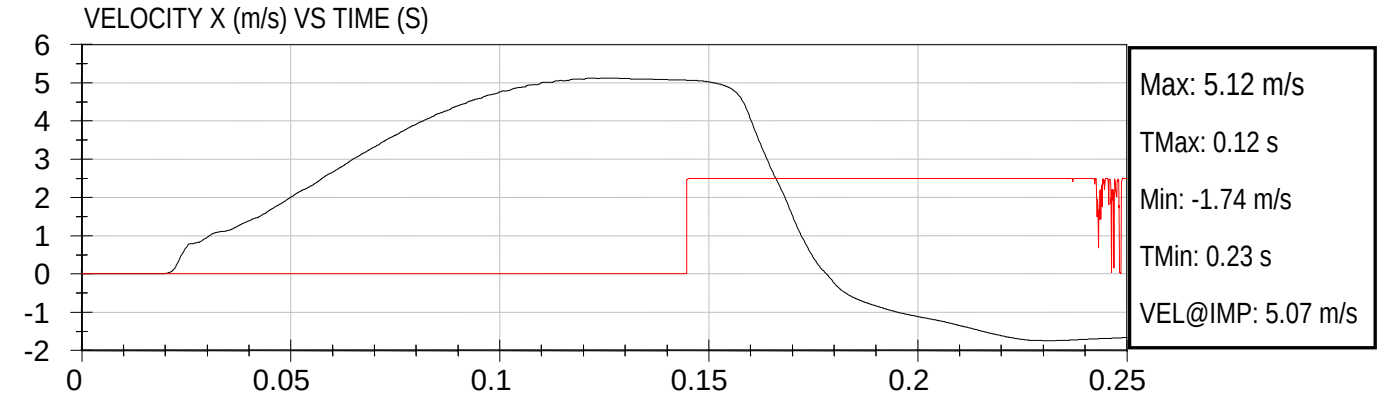


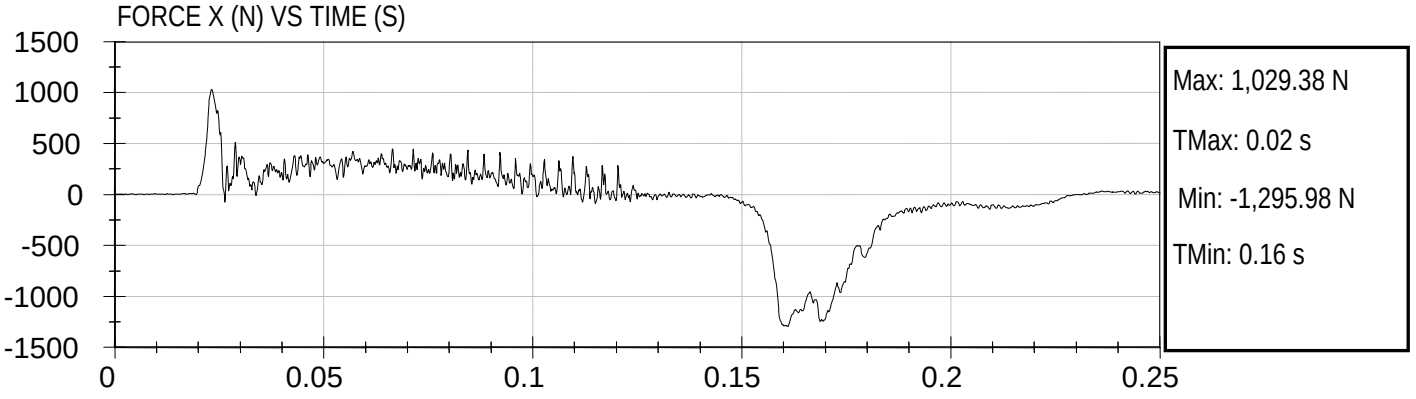


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K1 speed trap: 4.940 m/s

Test Date: 6-1-2011
NHTSA #: CB0903

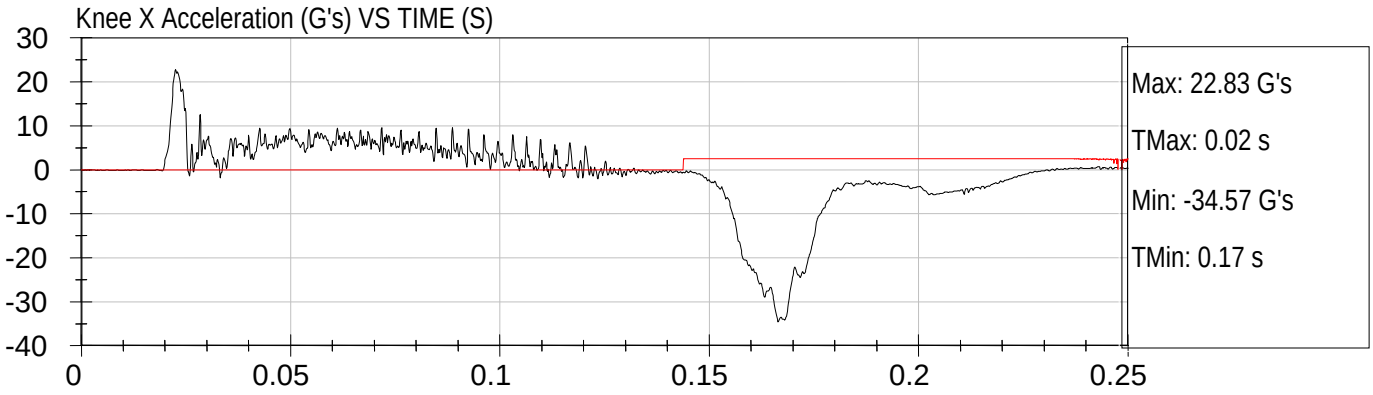


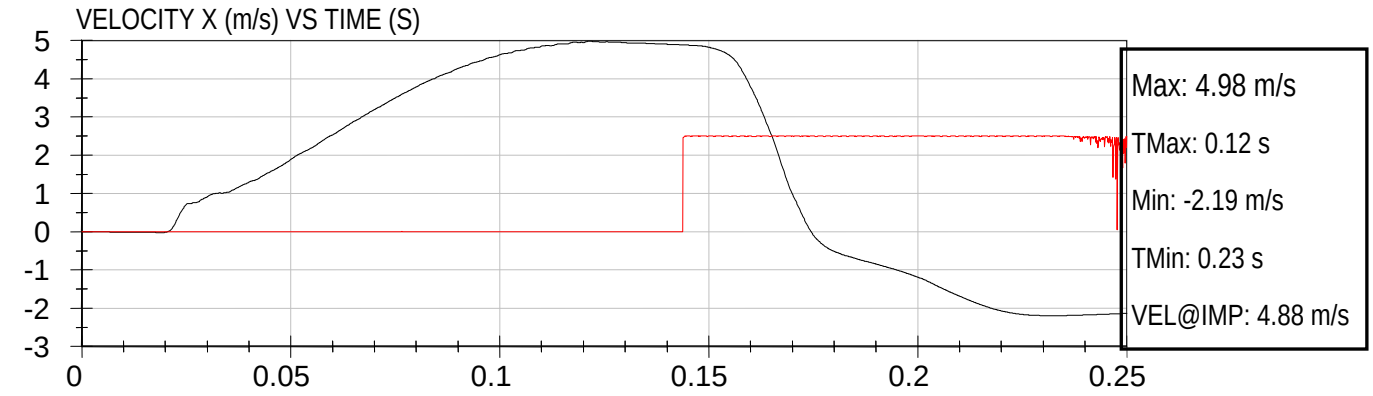


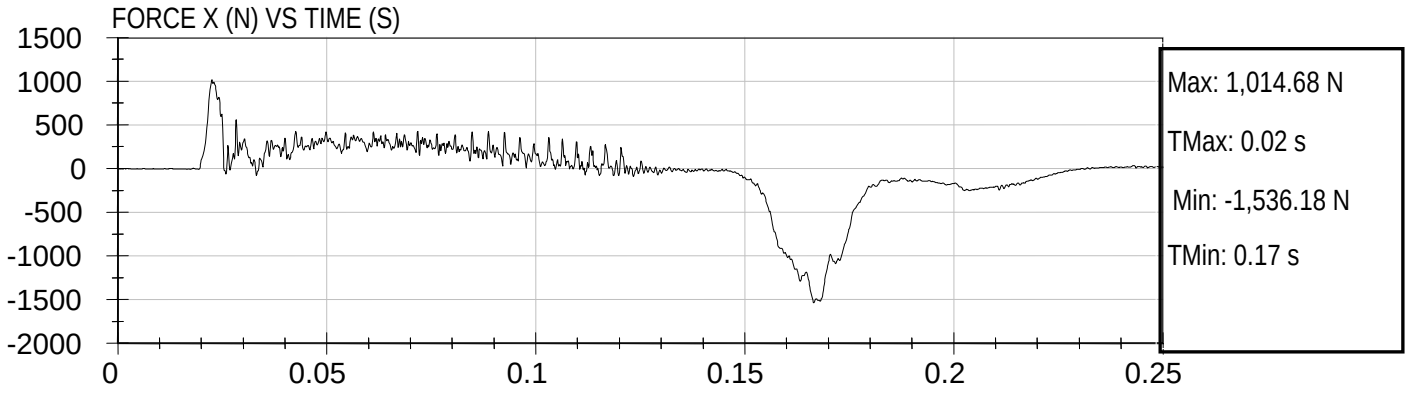


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K2 speed trap: 4.938 m/s

Test Date: 6-1-2011
NHTSA #: CB0903

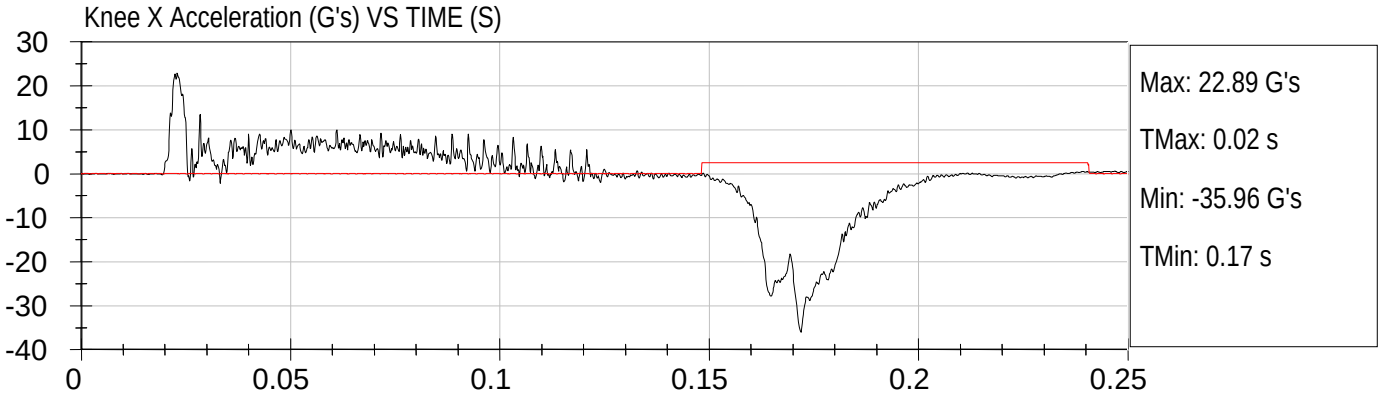


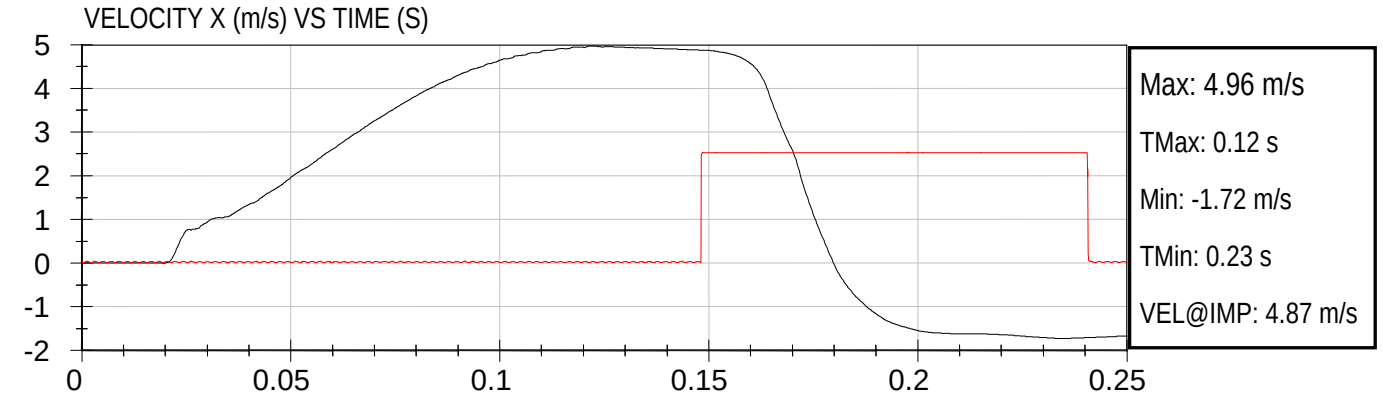


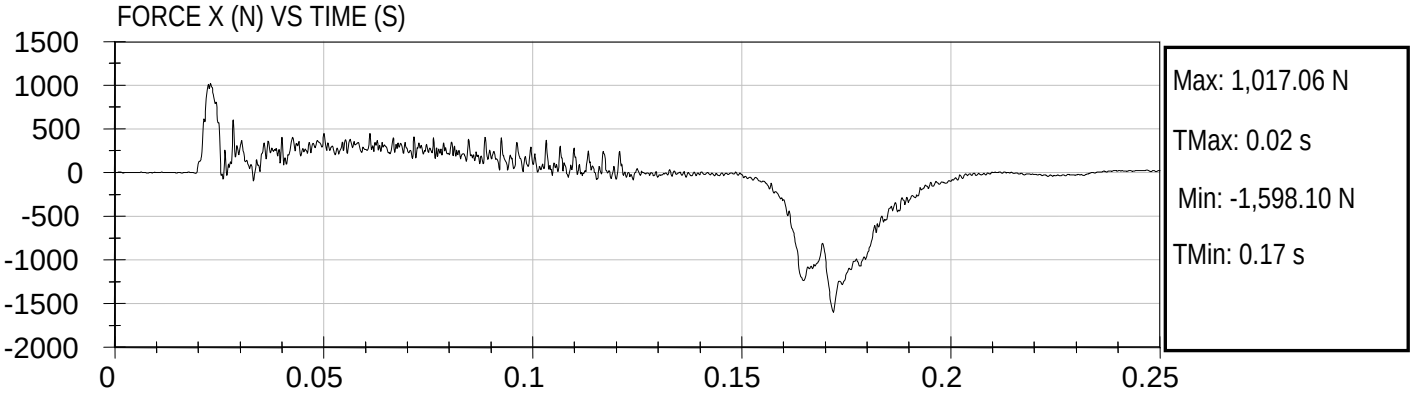


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K3 speed trap: 4.885 m/s

Test Date: 6-2-2011
NHTSA #: CB0903



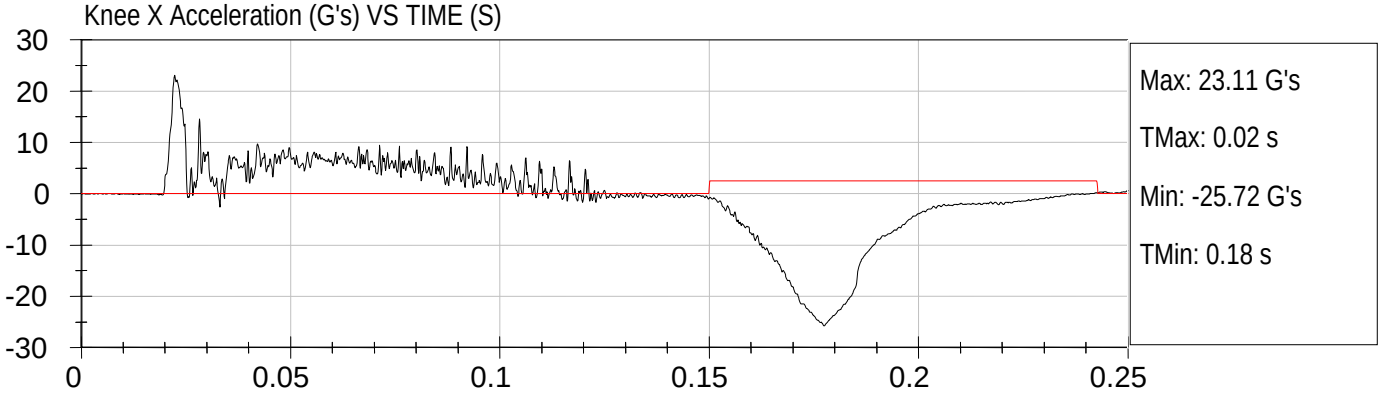




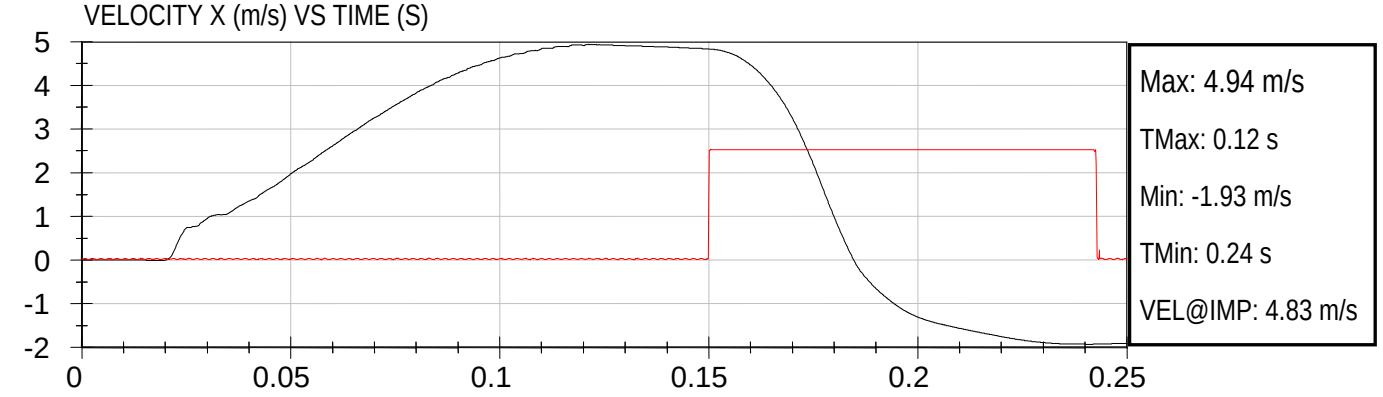
FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K4 speed trap: 4.903 m/s

Test Date: 6-2-2011
NHTSA #: CB0903

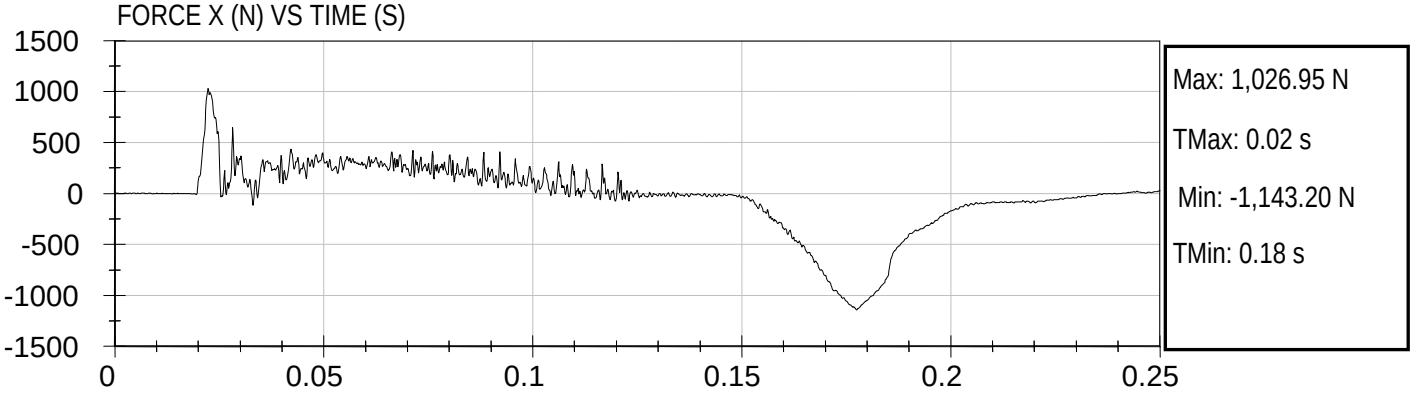
Knee X Acceleration (G's) VS TIME (S)



VELOCITY X (m/s) VS TIME (S)

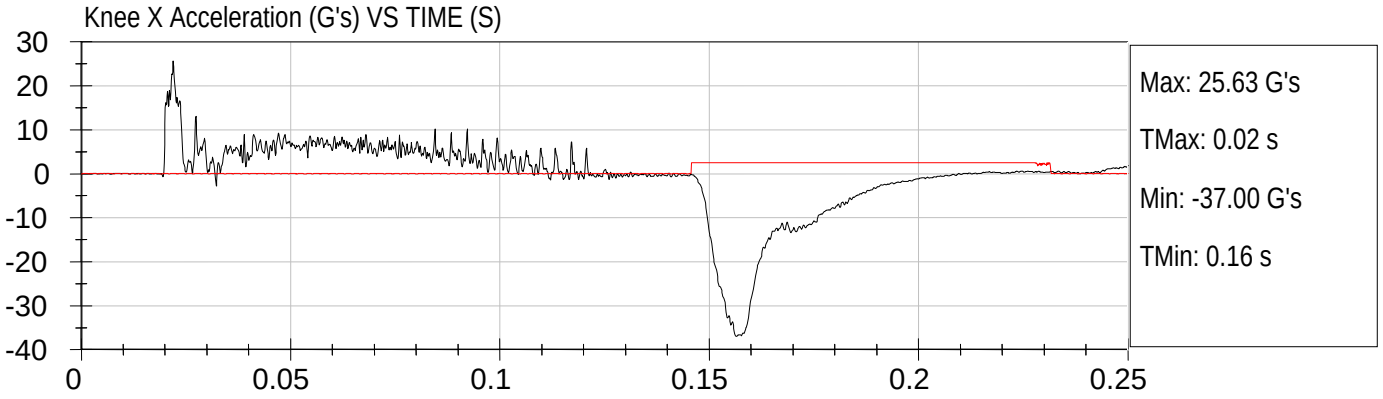


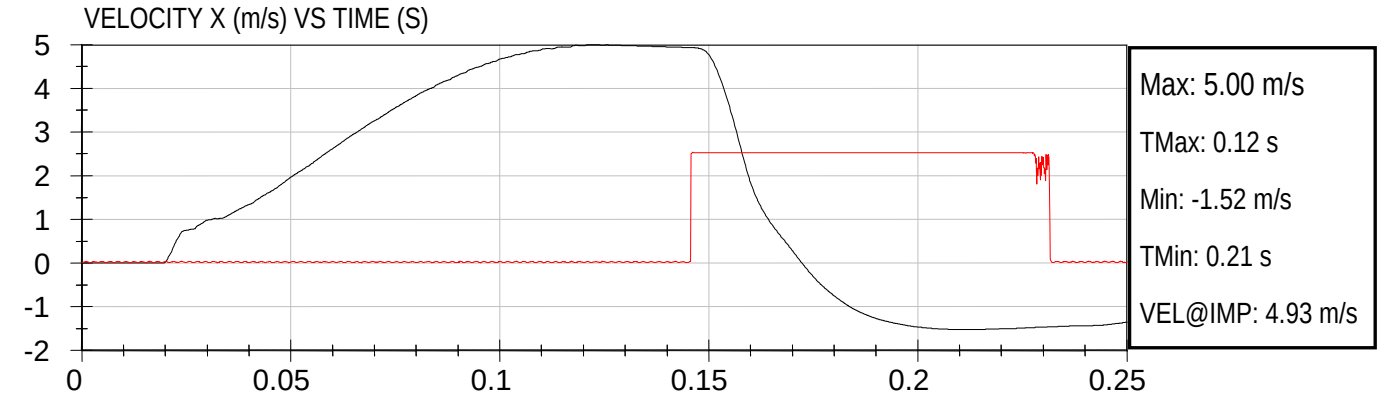
FORCE X (N) VS TIME (S)

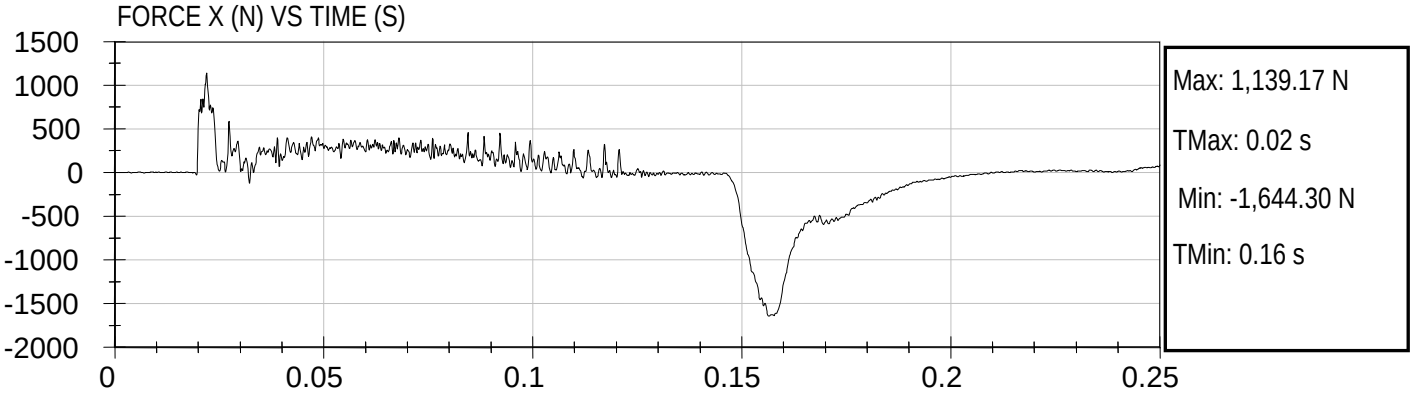


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K5 speed trap: 4.860 m/s

Test Date: 6-2-2011
NHTSA #: CB0903

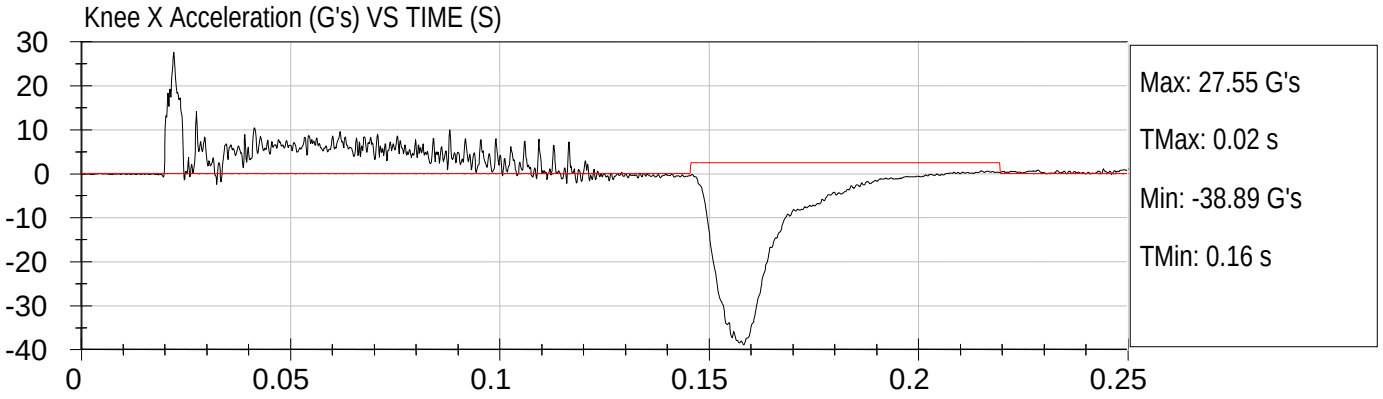


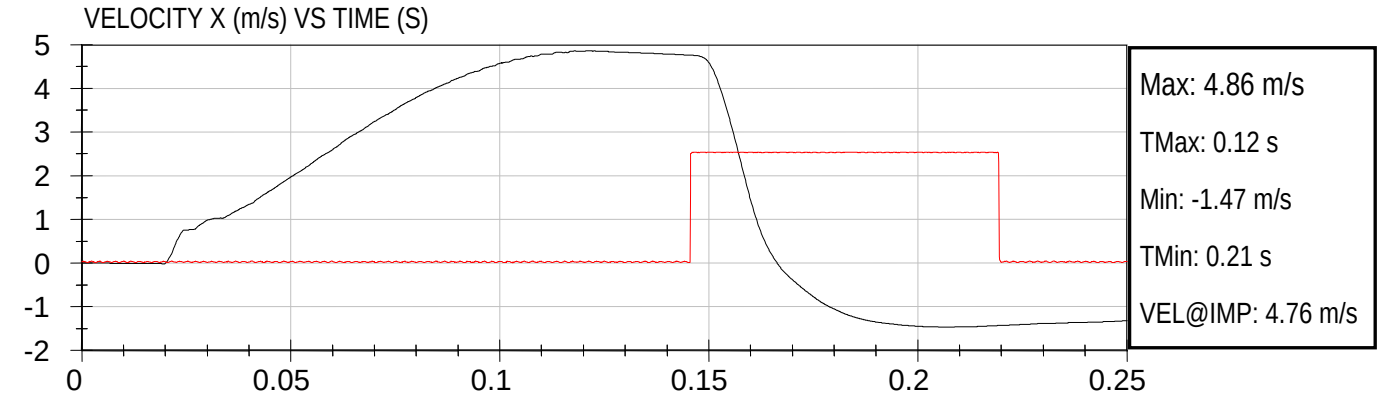


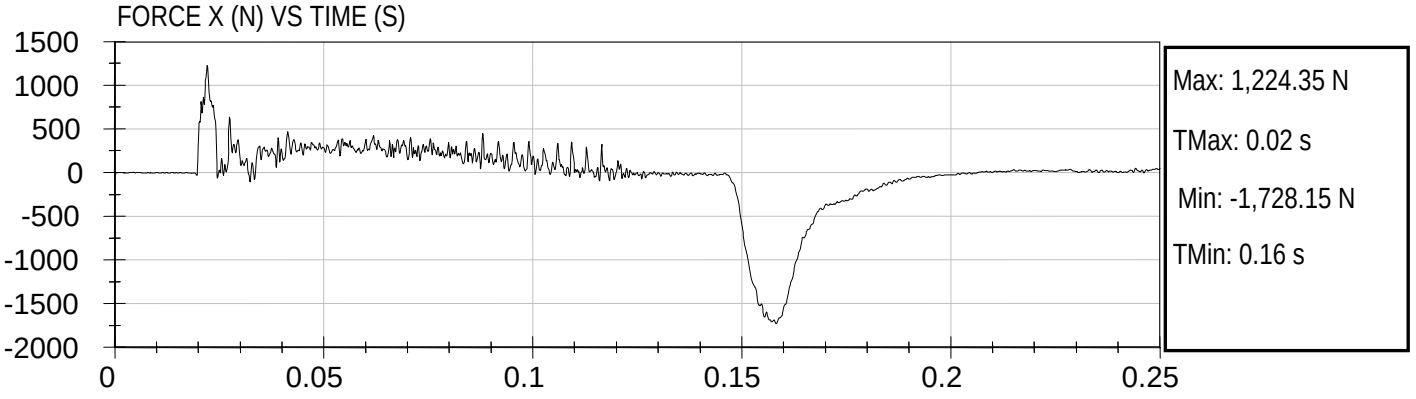


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K6 speed trap: 4.842 m/s

Test Date: 6-2-2011
NHTSA #: CB0903

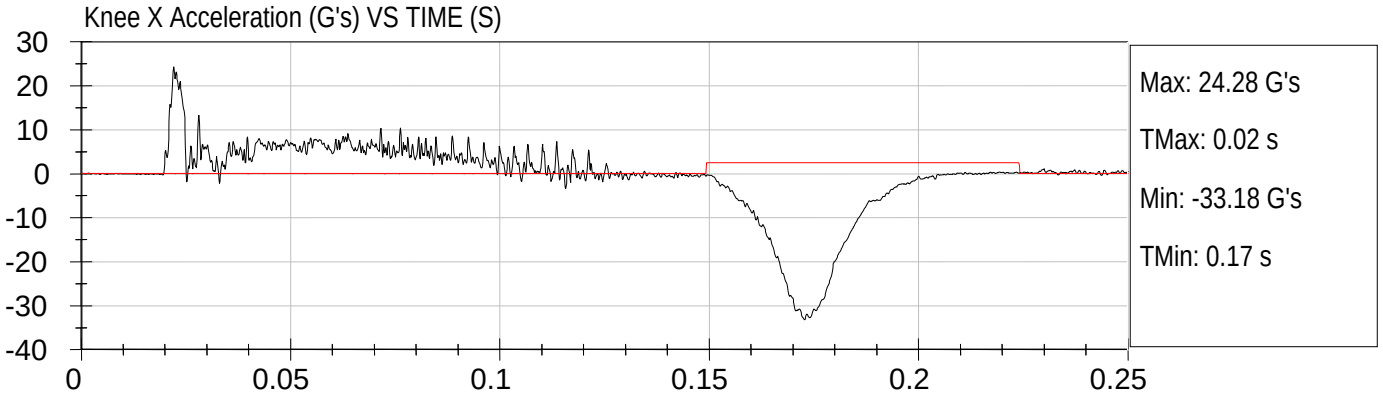


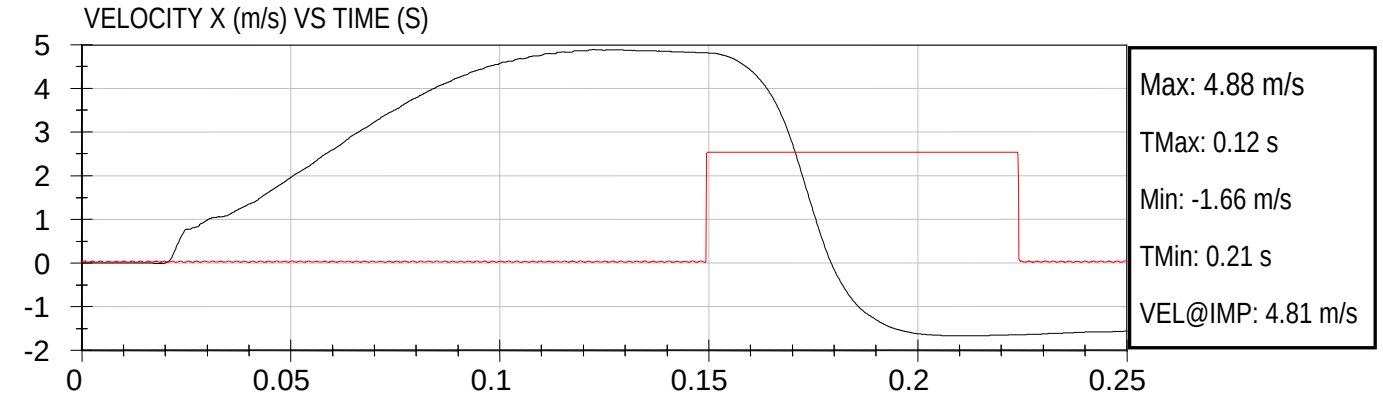


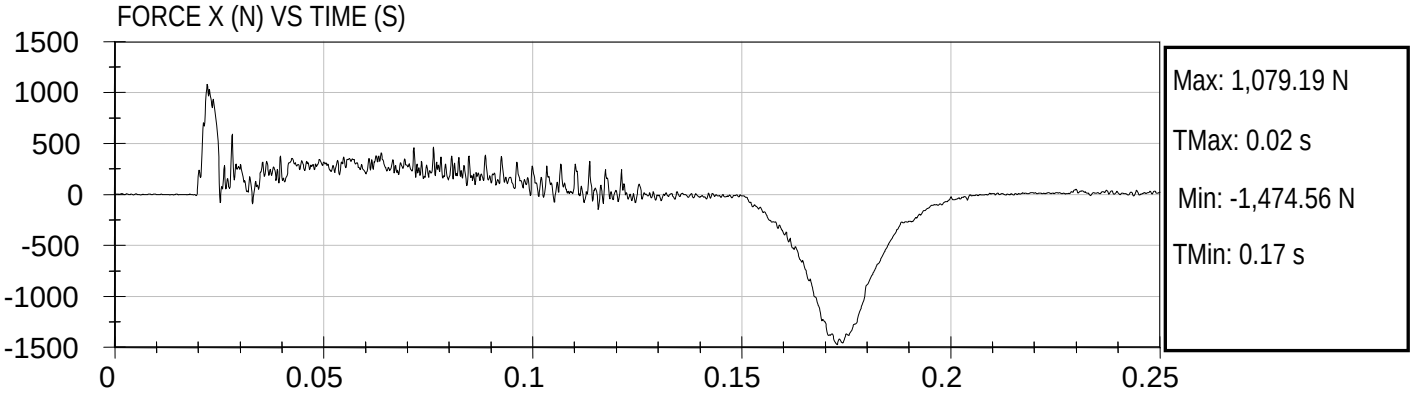


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K7 speed trap: 4.805 m/s

Test Date: 6-2-2011
NHTSA #: CB0903

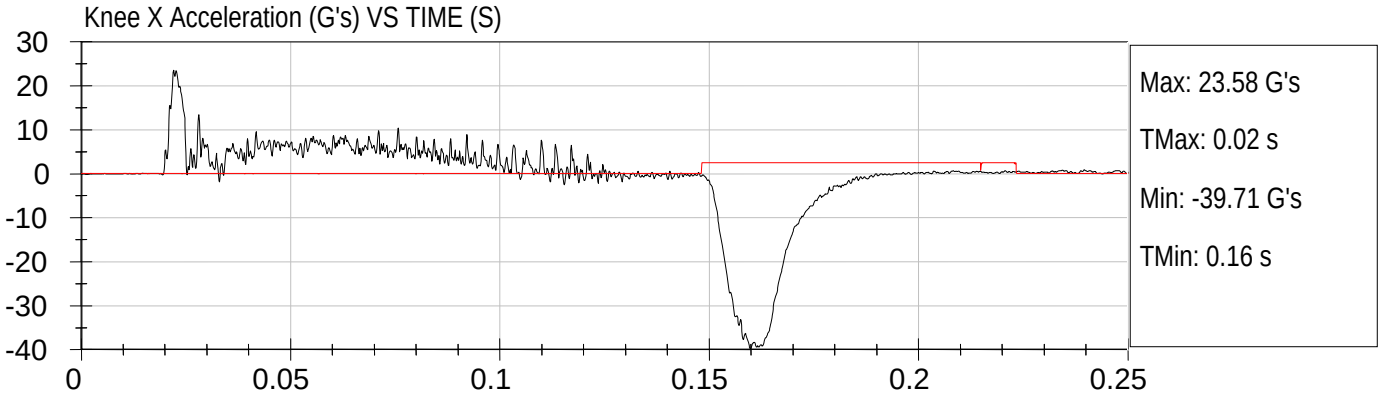


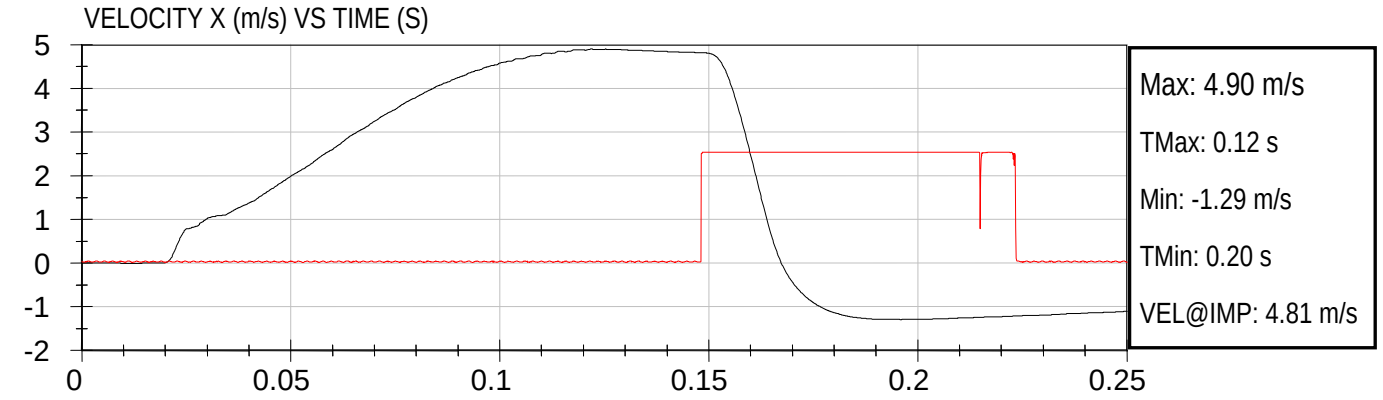


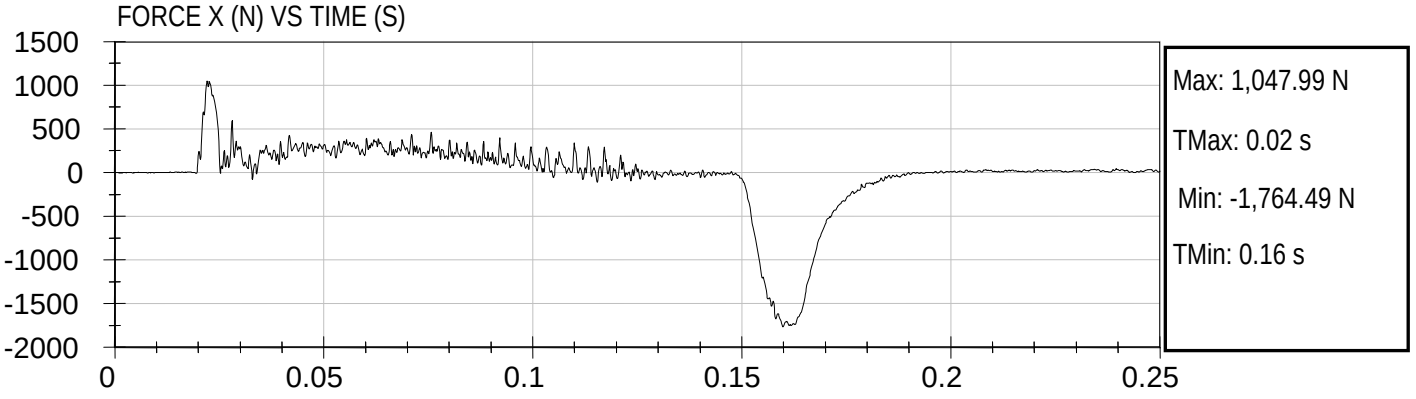


FMVSS 222 KNEE FORM IMPACTS
Component ID: 2011 Girardin Micro Bird
Location: B1 K8 speed trap: 4.818 m/s

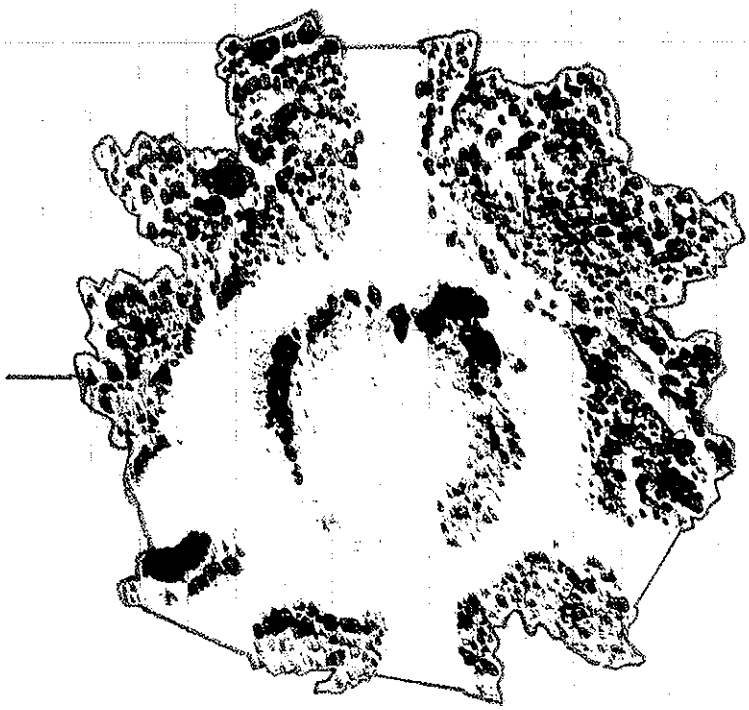
Test Date: 6-2-2011
NHTSA #: CB0903



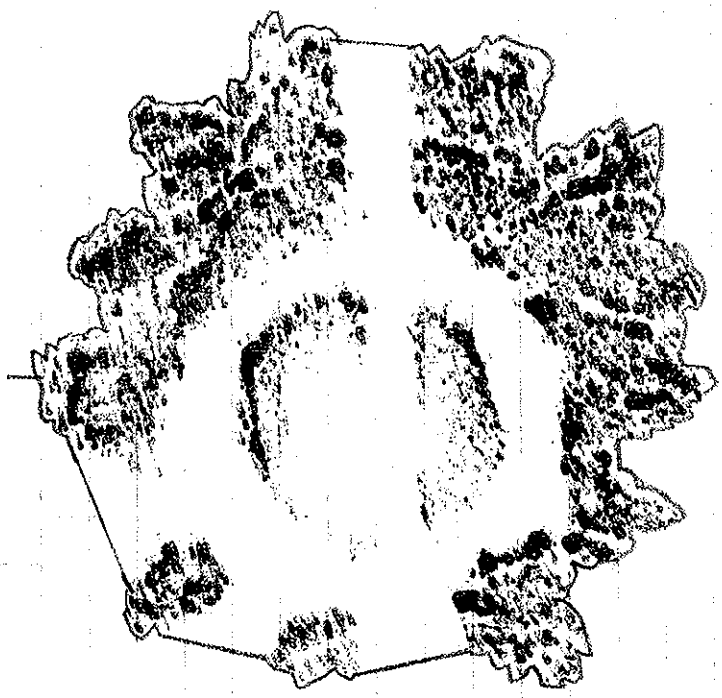




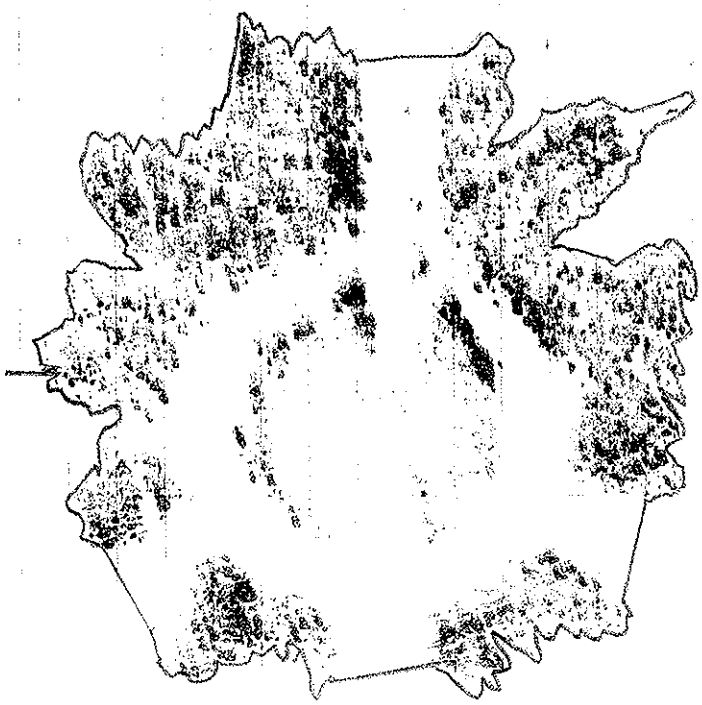
SECTION 7
WELT CONTACT POINTS



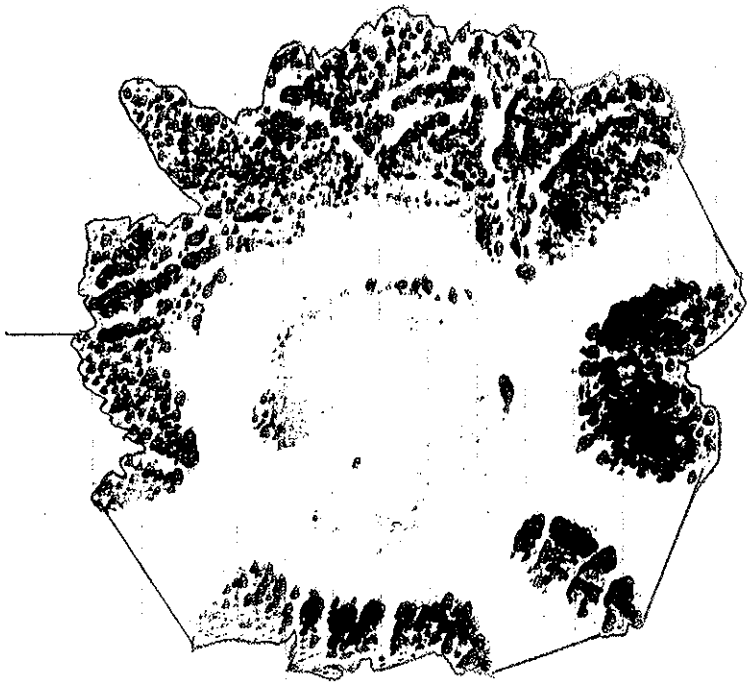
CB0903
52H1
5-10-2011
5730 mm2



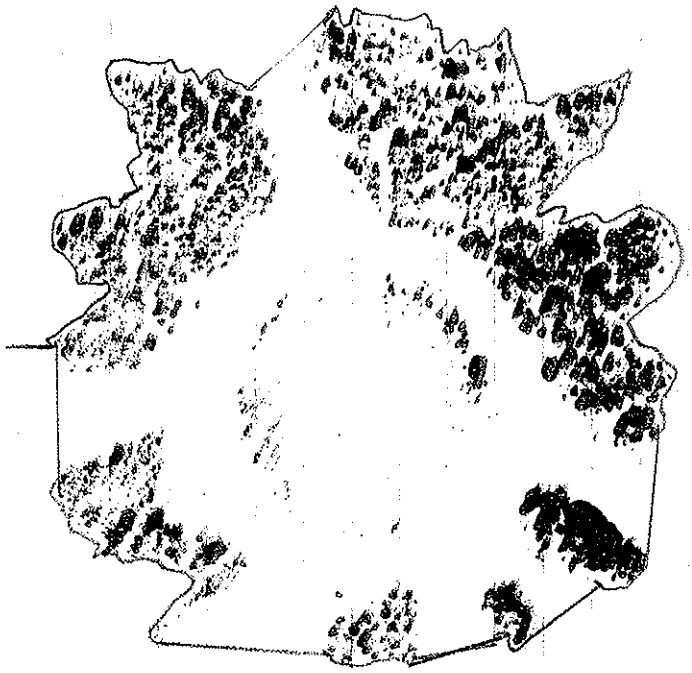
CB0903
Salt2
5-10-2011
5600 μm^2



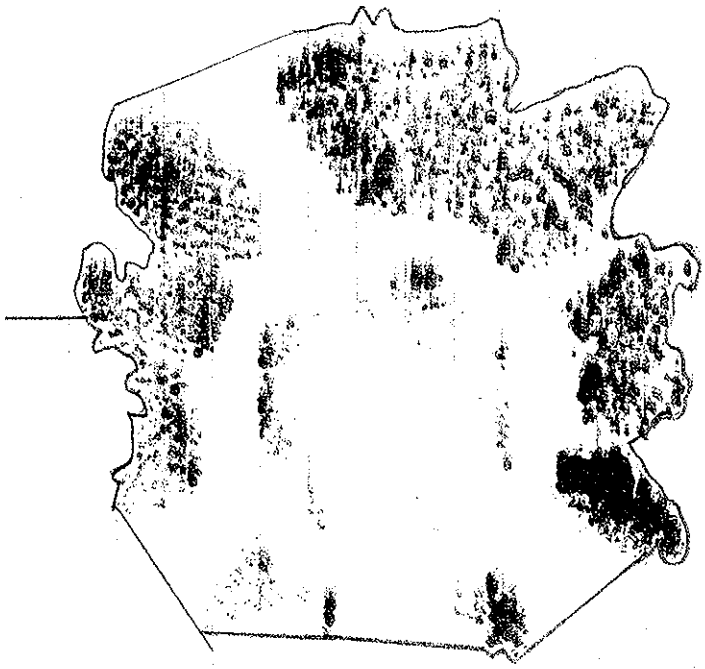
CB0903
S243
5-11-2011
548 MM²



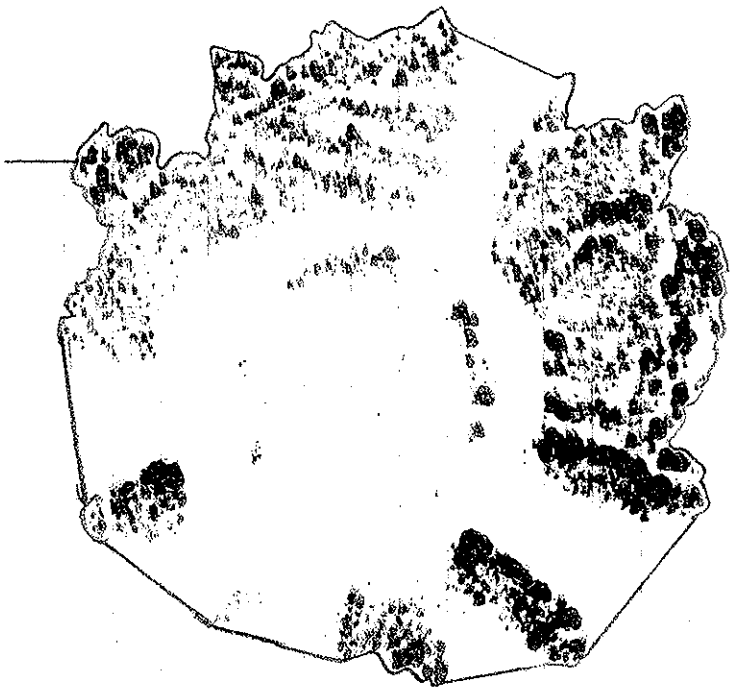
CB 8903
5244
5-11-2011
5900 MM2



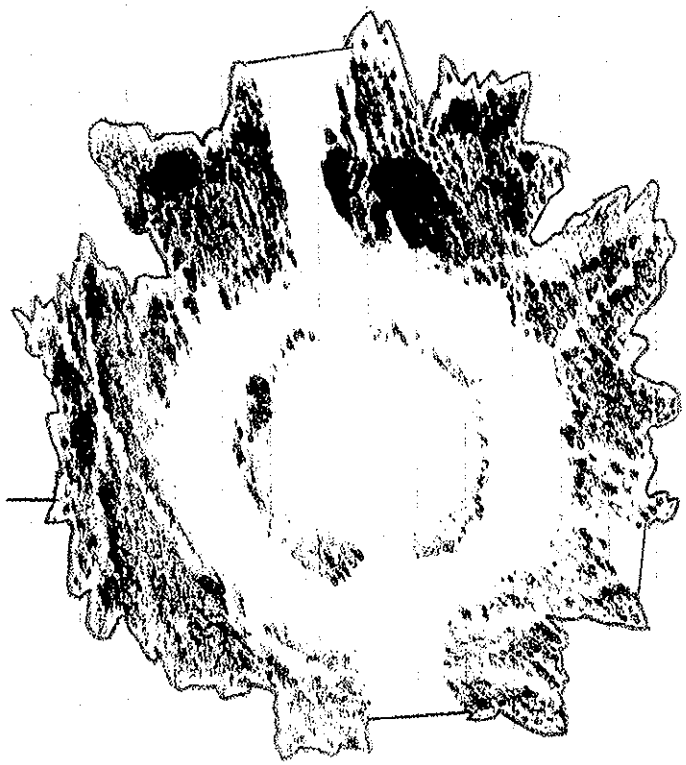
CB0903
S2H5
5-11-2011
5450 mm



CB0903
5246
5-11-2011
5390 mm2

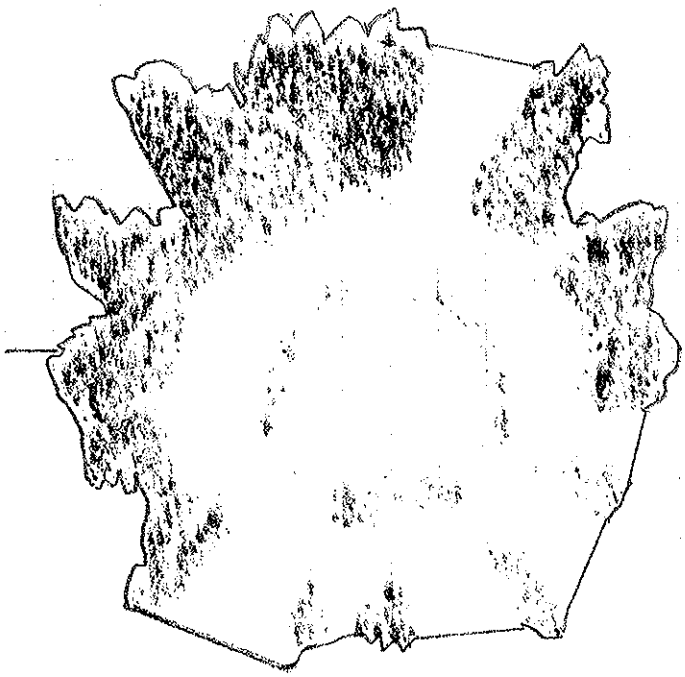


CB0903
S2H7
5-11-2011
5910 mm2

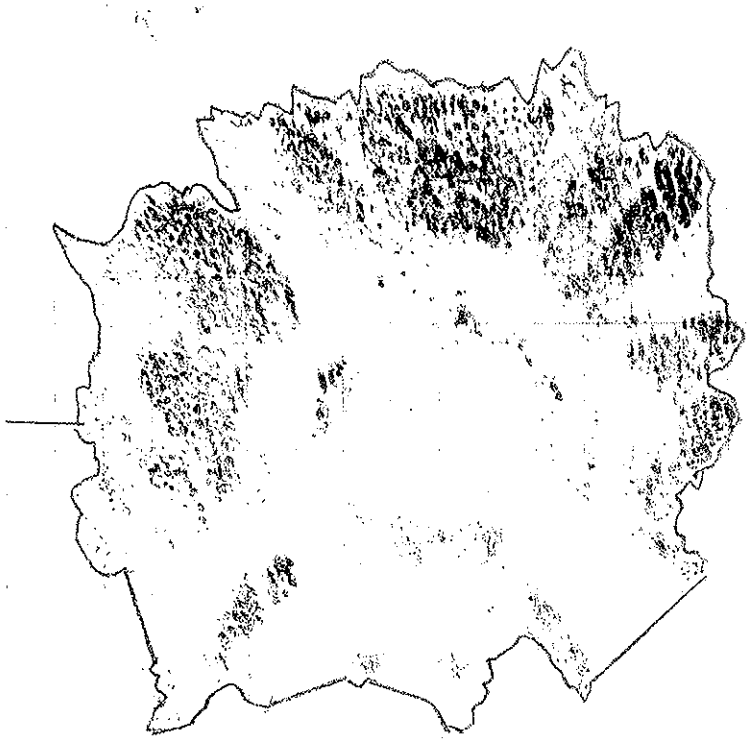


CB0903
S7H1
5-6-2011
5850 mm2

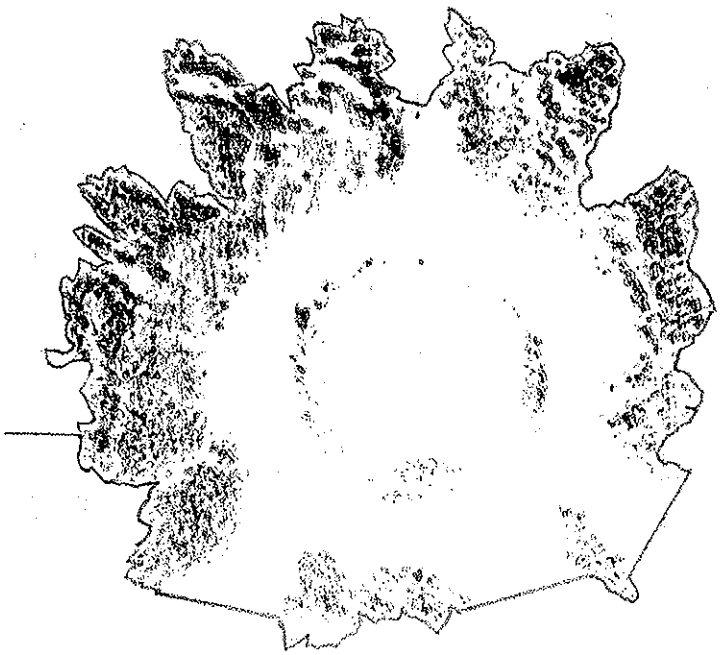
CB0903
S7H2
5-6-2011
6520 mm2



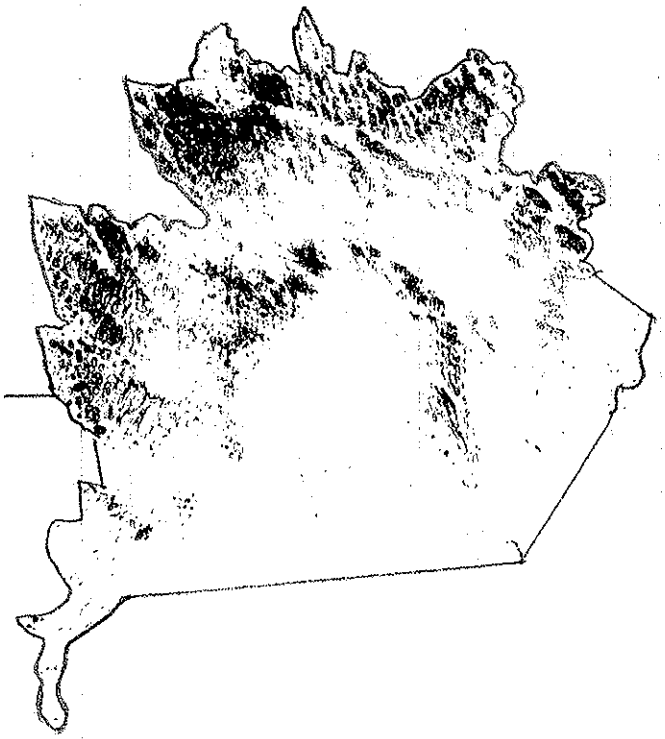
CR0903
STH3
5-9-2011
5240 mm²



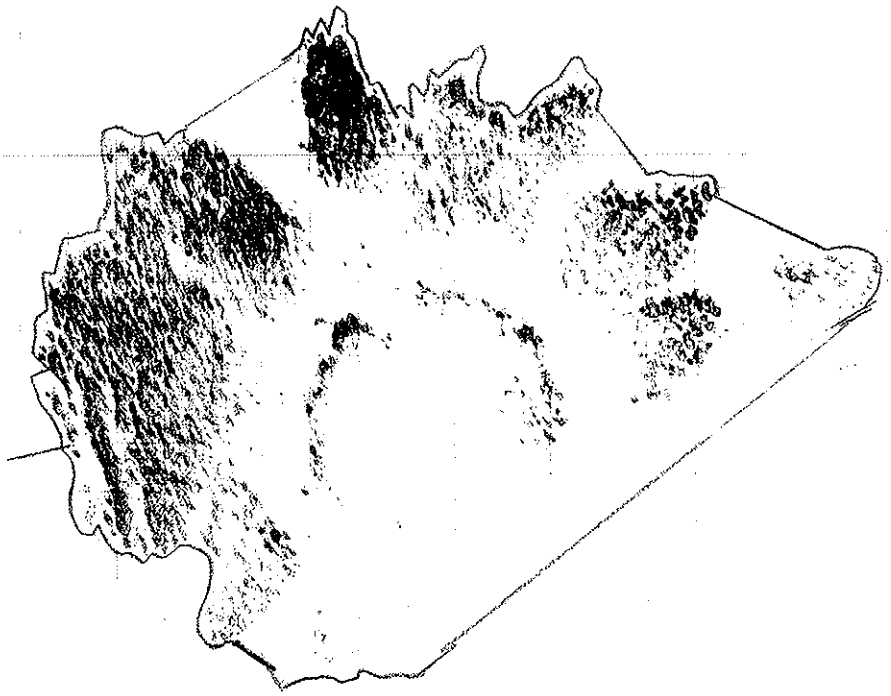
CB0905
S7144
5-9-2011
5950 mm²



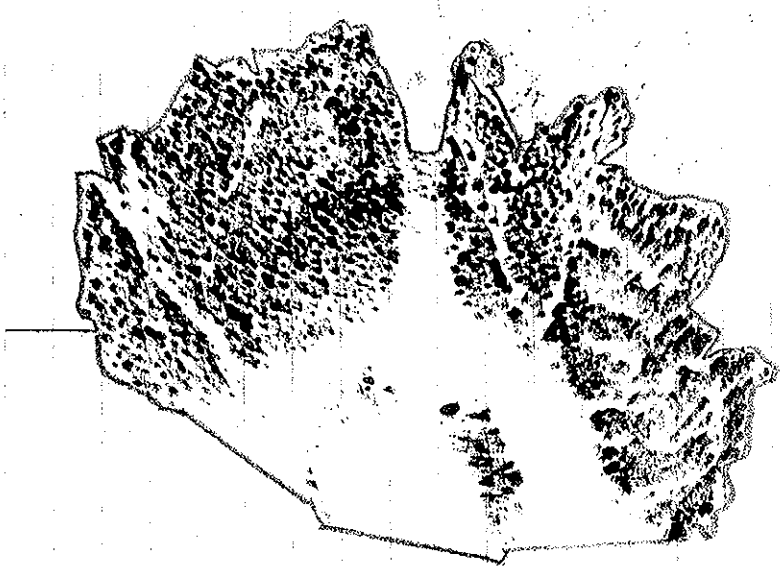
CB0903
S7H5
5-9-2011
5200 mm²



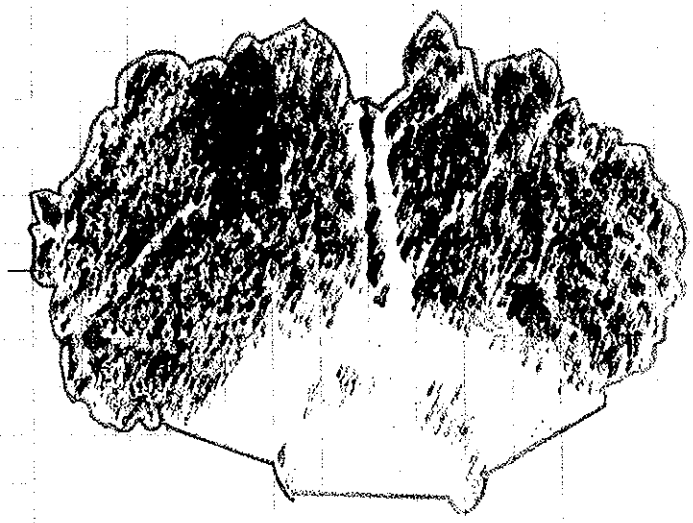
CB09Ø3
S7H6
5-9-2011
4350mm²



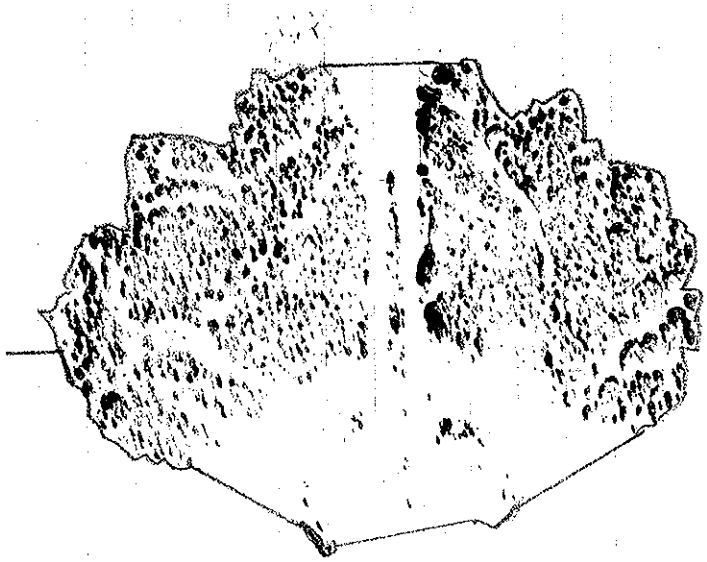
CB0903
S7H7
5-9-2011
5810 mm 2

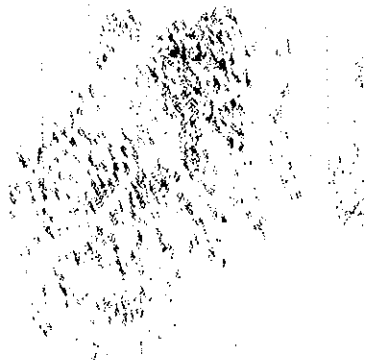


CB0903
B1H1
6-2-2011
440 MM²

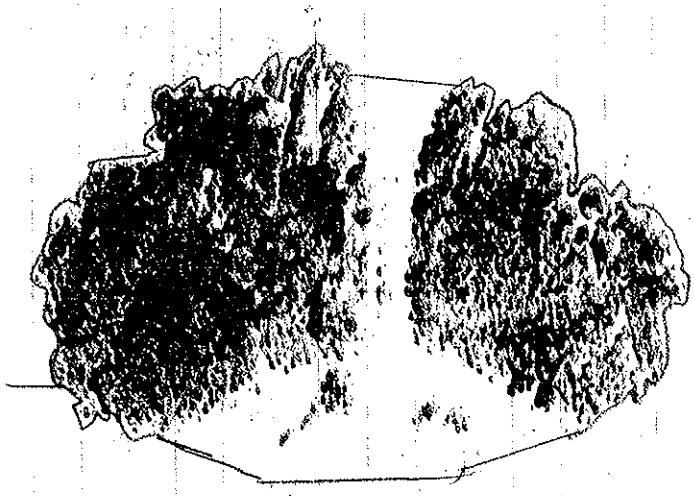


CB0903
B1H2
6-6-2011
4000 MM²

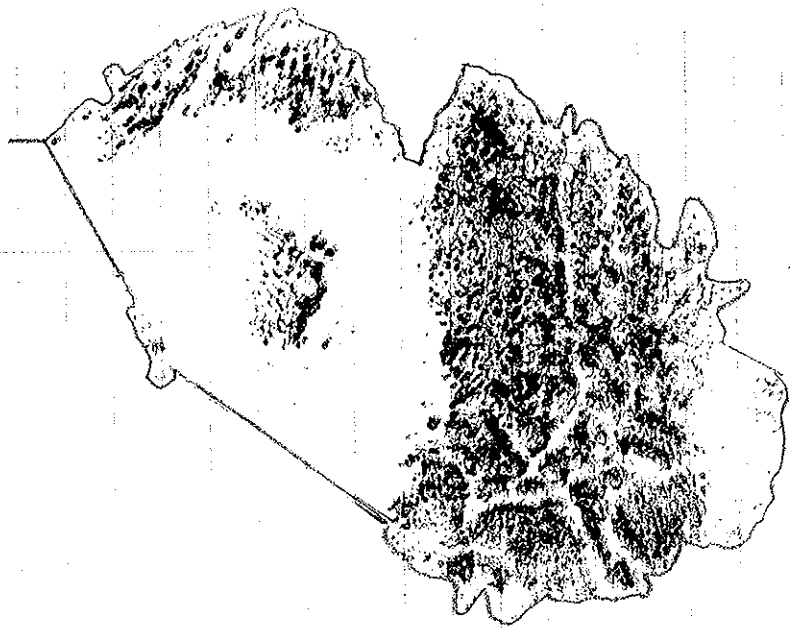




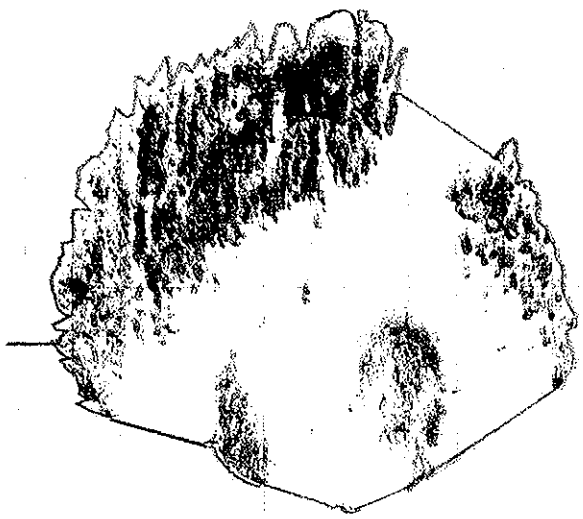
CBQ103
B1H3
6-6-2011
4010 MMD



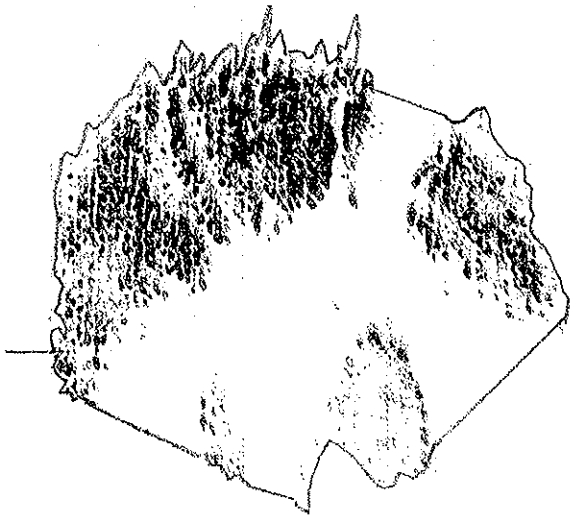
CB0903
BIH4
6-6-2011
3580 mm²



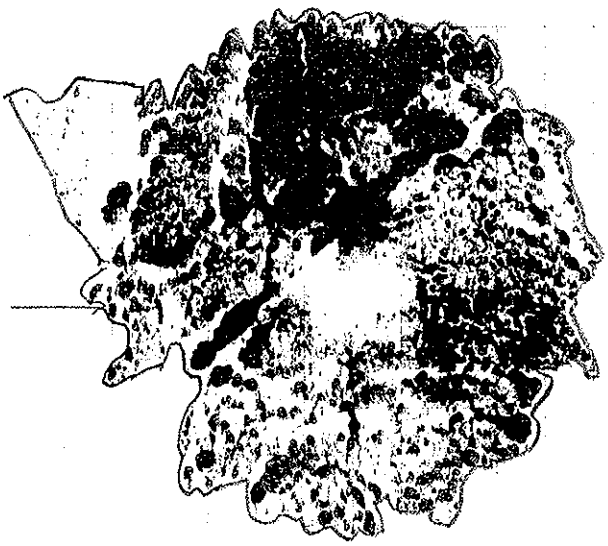
CB0903
BIHS
6-6-2011
4730 mm



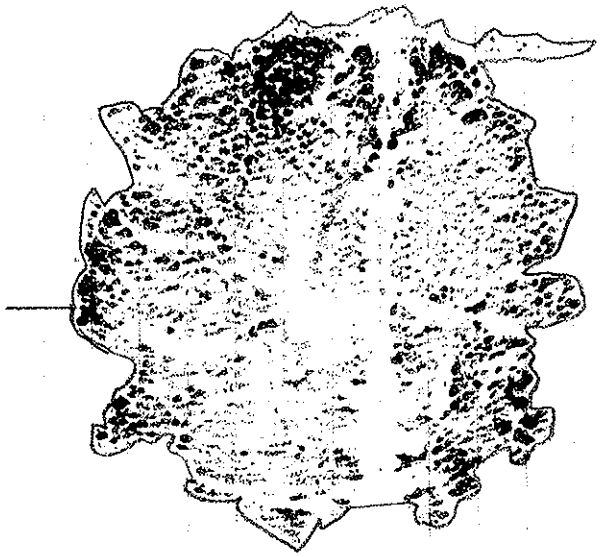
CB0903
B1H6
6-6-2011
3120 mm²



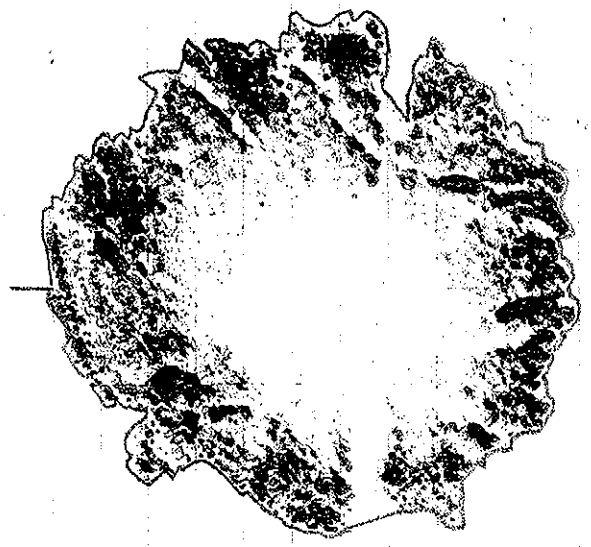
CB0903 (EP)
BJH7
6-6-2011
3010 mm2



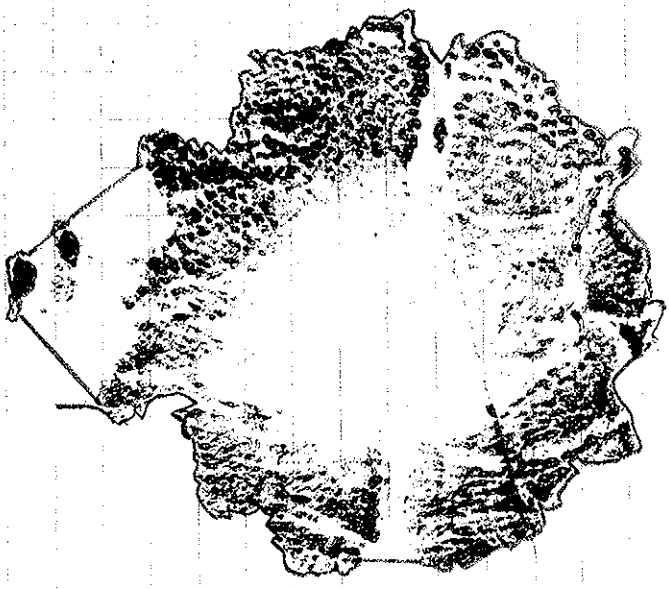
CB0903
52K1
5-11-2011
3590 mm2



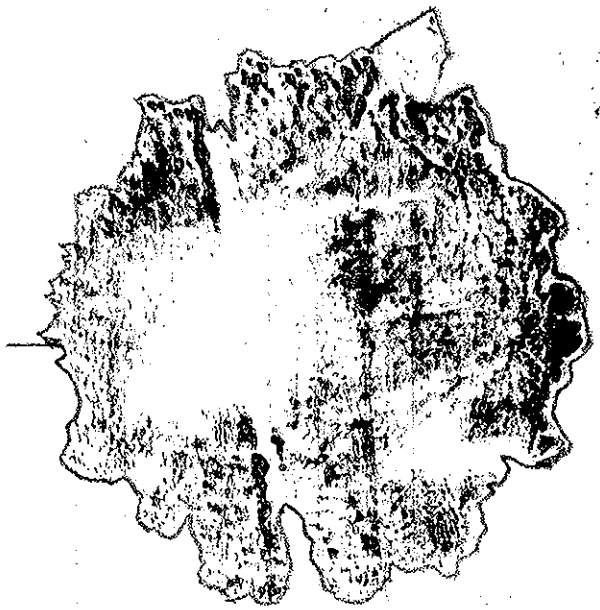
CB0903
52kD
5-11-2011
3450 mm^2



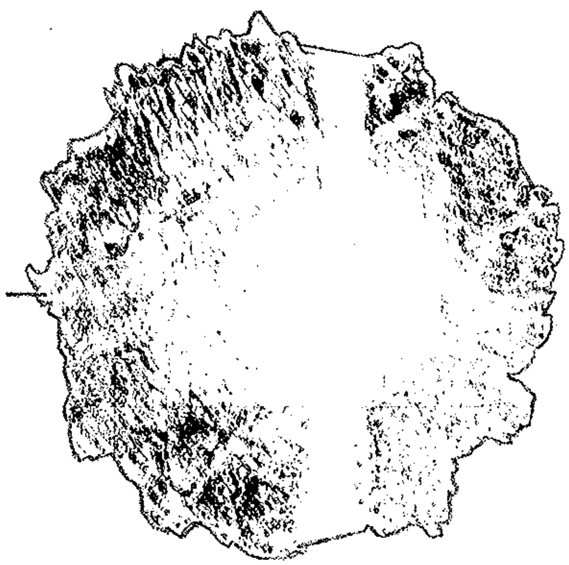
CB0903
S2<3
5-11-2011
3440 MMD



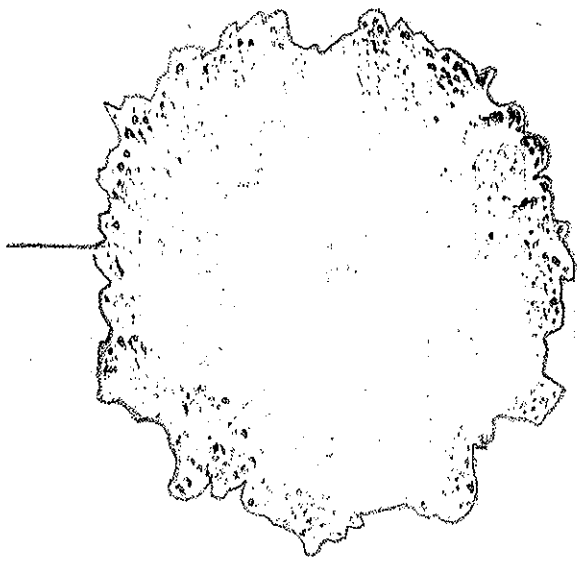
CB0903
Sak4
5-11-2011
4/250 mm



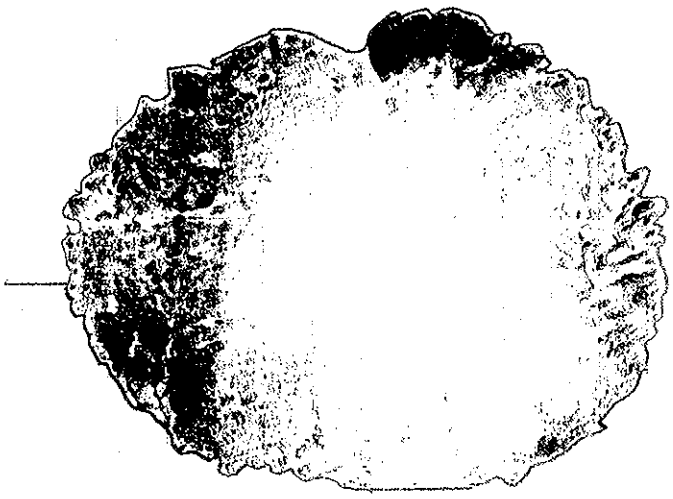
CB0903
JTK1
5-6-2011
3790 mm2



CB0903
57K2
5-6-2011
3620 mm2

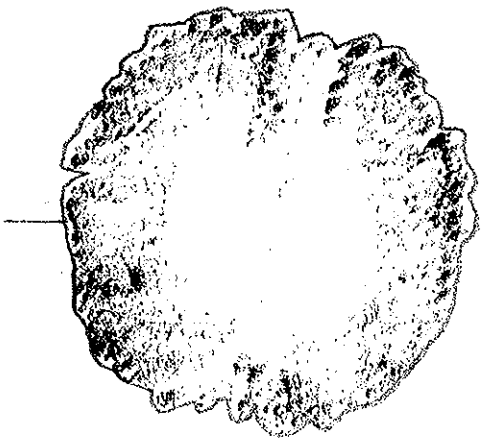


CB0903
57 K3
5-6-2011
3330 mm²

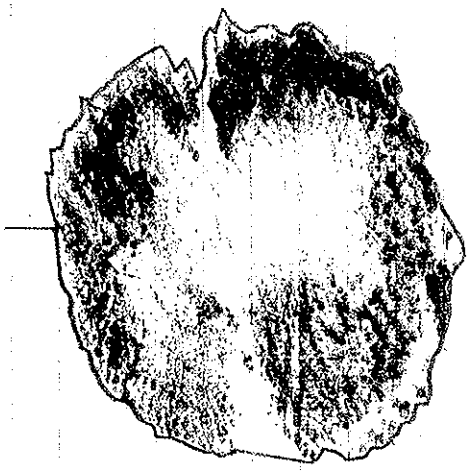


CB0903
S7K4
5-6-2011
3910 mm2

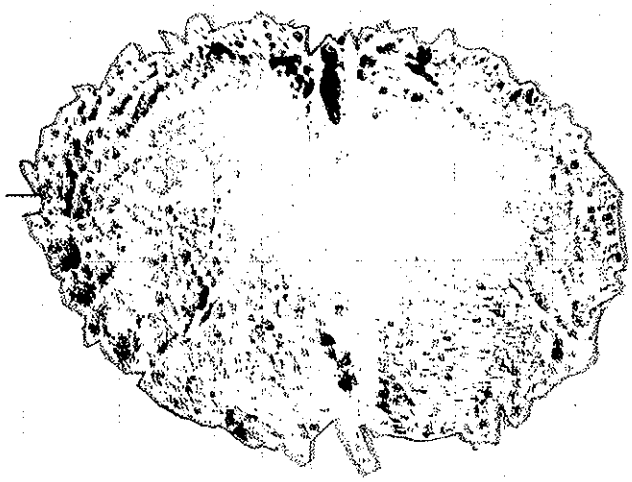
CB0903
BIKI
6-1-2011
2530 mm



CB0903
B1K2
6-1-2011
2320 MM²



CB0903
B1K3
6-2-2011
2430 nm²



CB0903
BIK4
6-2-2011
3470 mm2

SECTION 8

BUS FLOOR PLAN