

REPORT NUMBER: 217-MGA-2011-001

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 217
SCHOOL BUS EMERGENCY EXITS AND WINDOW
RETENTION AND RELEASE**

**2011 STARCRAFT QUEST SCHOOL BUS
NHTSA NO.: CB0902**

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



TEST DATE: AUGUST 31, 2011

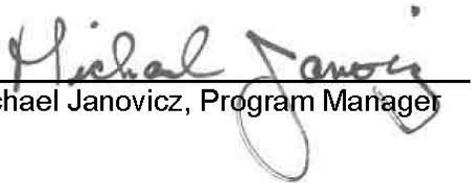
FINAL REPORT DATE: OCTOBER 12, 2011

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Prepared by:  Date: October 12, 2011
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Reviewed by:  Date: October 12, 2011
Michael Janovicz, Program Manager

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Technical Report Documentation Page

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				6. Performing Organization Code MGA	
7. Author(s) Eric Peschman, Project Engineer Michael Janovicz, Program Manager				8. Performing Organization Report No. 217-MGA-2011-001	
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16. Abstract Compliance tests were conducted on the subject 2011 Starcraft Quest School Bus, NHTSA No.: CB0902, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-217-06 for the determination of FMVSS 217 compliance. Data Sheet 5 omitted as test was not performed. Failure: The force to unlatch rear Emergency Exit Door exceeded the limit of 178 N following the window retention test on the Emergency Exit Door. Actual force required to unlatch was 244.7 N					
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose of Compliance Test	1
2	Test Data Summary	2
3	Compliance Test Data	3
	Data Sheet 1 - Test Summary	4
	Data Sheet 2 - Provision of Emergency Exits	5
	Data Sheet 3 - Emergency Exit Door Operational Requirements	7
	Data Sheet 4 - Emergency Exit Identification and Labeling	8
	Data Sheet 6 - Force Tests to Unlatch the Emergency Exit	11
	Data Sheet 7 - Force Tests for Open the Emergency Exit	13
	Data Sheet 8 - Emergency Exit Extension	15
	Data Sheet 9 - Window Retention Test	16
4	Instrumentation and Equipment List	19
5	Photographs	20
6	Test Plots	42
7	Laboratory Notice of Test Failure to OVSC	46

SECTION 1
PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2011 Starcraft Quest School Bus, NHTSA No.: CB0902, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-217-06 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 217, "School Bus Emergency Exits and Window Retention and Release".

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

SECTION 2
TEST DATA SUMMARY

Based on the tests performed, the 2011 Starcraft Quest School Bus, NHTSA No.: CB0902, does not appear to meet the requirements of FMVSS 217. See Data Sheet 1 for Test Summary.

SECTION 3
COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2011 Starcraft Quest School Bus, NHTSA No.: CB0902.

**DATA SHEET 1
TEST SUMMARY**

GENERAL VEHICLE IDENTIFICATION

Model Year / Mfr. / Make / Model	2011 / Starcraft / Quest	
NHTSA No.	CB0902	
GVWR	5,579 kg / 12,300 lb	
Build Date for Bus Chassis	11/10	
VIN	1GB3G3BG2B1112157	
Seating Capacity	1 Driver, 28 Passengers	
Type of Bus	School Bus	
Tire Pressure from tire placard (at capacity)	Front: 448 kPa	Rear: 448 kPa
Odometer Reading	315 miles	

	Pass / Fail
S5.1 WINDOW RETENTION	FAIL
S5.2 PROVISION OF EMERGENCY EXITS	PASS
Meets minimum exit provisions	PASS
Meets all other exit requirements	PASS
Meets requirements for additional exits	PASS
S5.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS	PASS
S5.3 EMERGENCY EXIT RELEASE	PASS
Forces to unlatch the emergency exits	FAIL
Forces to open the emergency exits	PASS
S5.4 EMERGENCY EXIT OPENING	PASS
S5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION	PASS
S5.5 TAPE REFLECTIVITY (49CFR 571.131)	Not Tested

Comments: None

Recorded By: 

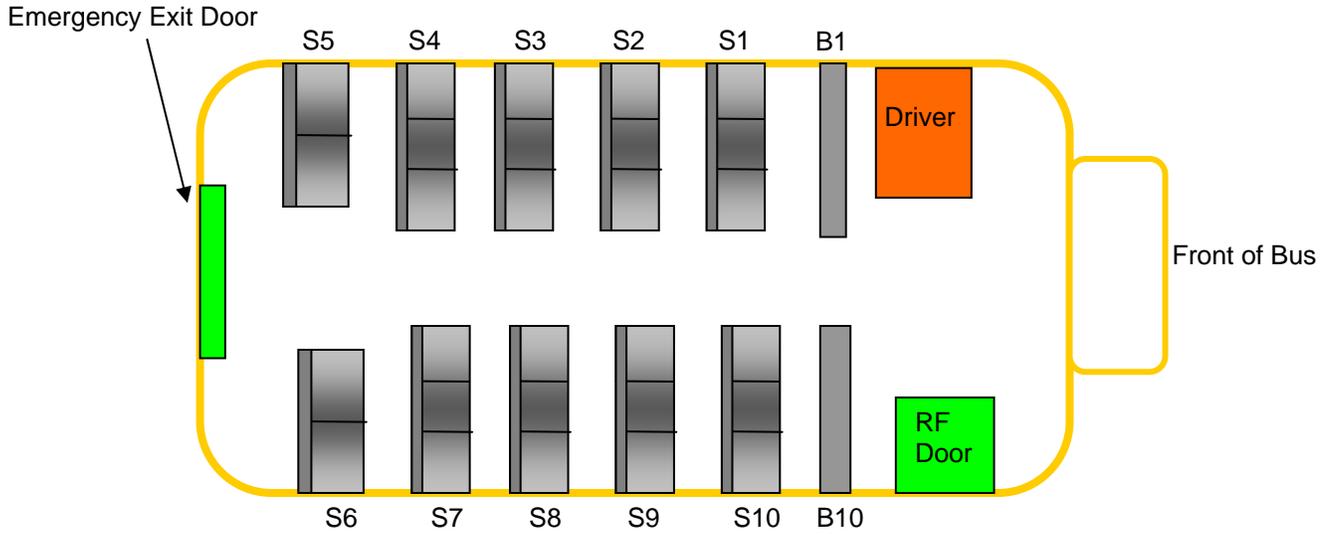
Approved By: 

Date: 08/31/11

DATA SHEET 2
PROVISION OF EMERGENCY EXITS

Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**



		Height (mm)	Width (mm)
1	Emergency Exit Door	1,456	844

Seating Capacity: 29 (Including Driver & Passengers)

Requirements	Pass / Fail
Bus meets minimum emergency exit provision, based upon Table 1. Yes – Pass; No – Fail	PASS

DATA SHEET 2 (CONTINUED)
PROVISION OF EMERGENCY EXITS

	Requirements	Pass / Fail
1	Rear Emergency Door – opens outward and is hinged on the right side (either side, if the bus has a GVWR of 10,000 pounds or less). Yes – Pass; No – Fail	PASS
2	Side Emergency Door – hinged on its forward side. No more than one side emergency exit door is located, in whole or in part, within the same post and roof bow panel space.	N/A
3	Rear Push Out Window – provides a minimum opening clearance 41 cm high and 122 cm wide (16" x 48").	N/A
4	Roof Exit – is hinged on its forward side, and operable from both the inside and outside the vehicle.	N/A
5	There is an even number of side emergency exit windows on each side of bus. Yes – Pass; No – Fail	PASS
6	The bus is not equipped with both sliding and push-out windows, (except for buses equipped with rear push out emergency exit windows).	PASS
7	A right side emergency exit door, if any, is located as near as practicable to the midpoint of the passenger compartment.	N/A

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

DATA SHEET 3

EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS

Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**

	Requirements	Pass / Fail
1	The engine starting system does NOT operate if any Emergency Exit is LOCKED. Yes – Pass; No – Fail	N/A
2	All Emergency Door and Roof Exits can be released by one person (from inside and outside of bus). Yes – Pass; No – Fail	PASS
3	When the Release Mechanism is NOT in the closed position and the vehicle ignition is in the "ON" position, there is a continuous warning sound audible at the Driver's DSP and in the vicinity of the Emergency Door(s) having the unclosed mechanism. Yes – Pass; No – Fail	PASS
4	Emergency exit release mechanism does not use remote controls or central power systems. Yes – Pass; No – Fail	PASS

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

DATA SHEET 4A

EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

EMERGENCY EXIT LABELING - INTERIOR

Exit Location	Rear Door
Exit Description	Emergency Exit Door
Letter Height (cm)	5.0
Background Color	White
Location Inside	Top of Door
Pass / Fail	PASS

OPERATING INSTRUCTIONS - INTERIOR

Exit Location	Rear Door
Instructions	To Open Lift Handle And Push Out
Letter Height (cm)	0.91
Letter Color	Black
Background Color	White
Distance From Release (cm)	7.0
Reflective Tape Color	N/A
Reflective Tape Width (cm)	N/A
Pass / Fail	PASS

Comments: None

Recorded By: *Eve Leonard*

Approved By: *Michael Janoy*

Date: 08/31/11

DATA SHEET 4B

EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

EMERGENCY EXIT LABELING - EXTERIOR

Exit Location	Rear Door
Exit Description	Emergency Exit Door
Letter Height (cm)	5.0
Background Color	Yellow
Location Outside	Top of Door
Pass / Fail	PASS

OPERATING INSTRUCTIONS – EXTERIOR

Exit Location	Rear Door
Instructions	No Written Instructions Picture of Arrow
Letter Height (cm)	N/A
Letter Color	N/A
Background Color	N/A
Distance From Release (cm)	N/A
Reflective Tape Color	Yellow
Reflective Tape Width (cm)	2.5 cm
Pass / Fail	PASS

Comments: None

Recorded By: *Eve Leonard*

Approved By: *Michael Janoy*

Date: 08/31/11

DATA SHEET 4

EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

	Requirements	Pass / Fail
1	Each required Emergency Exit is labeled with the words "Emergency Exit" or "Emergency Door" as appropriate in letters at least 5 cm high (2") of a color that contrasts with its background. Yes – Pass; No – Fail	PASS
2	Emergency Doors – The designation "Emergency Exit" or "Emergency Door" is located at the top of, or directly above the exit door on both inside and outside surfaces of the bus. Yes – Pass; No – Fail	PASS
3	Roof Exits – The designation for roof exits is located on an inside surface of the exit, or within 30 cm (11.8") of the roof exit opening.	N/A
4	Emergency Window Exits – The designation is located at the top of, or directly above, or at the bottom of the emergency window exit on both the inside and outside surfaces of the bus.	N/A
5	Exit Operating Instructions indicate all motions required to unlatch and open the exit, in letters at least 1 cm (.39") high and of a color that contrast with its background and shall be located within 15 cm (5.9") of the release mechanism on the inside surface of the bus. Yes – Pass; No – Fail	PASS
6	Each required Emergency Exit opening is outlined around its perimeter with a 2.5 cm (1") wide retroreflective tape of red, white, or yellow color. Yes – Pass; No – Fail	PASS

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

DATA SHEET 6A

FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - INTERIOR

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual Force Measured (N)	Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Pass / Fail
Rear Door	Emergency Door	High	178	1. 62.3	Straight	Lift Handle Upward	PASS
				2. 60.0			
				3. 57.8			
				Average: 60.0			

Comments: None

Recorded By: *Eva Lovelace*

Approved By: *Michael Janusz*

Date: 08/31/11

DATA SHEET 6B

FORCE TESTS TO UNLATCH THE EMERGENCY EXITS – EXTERIOR

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual Force Measured (N)	Motion(s) Required to Release Exit	Actual Motion(s) to Release Exit	Pass / Fail
Rear Door	Emergency Door	High	178	1. 173.5	Rotary	Turn Handle Counter-Clockwise	PASS
				2. 178.0			
				3. 175.7			
				Average: 175.7			

Comments: None

Recorded By: *Eva Lovdahl*

Approved By: *Michael Janoy*

Date: 08/31/11

DATA SHEET 7A

FORCE TESTS TO OPEN THE EMERGENCY EXITS – INTERIOR

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual Force Measured (N)	Motion(s) Required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	Pass / Fail
Rear Door	Emergency Door	High	178	1. 61.2	Straight	Push Outward	114x61x30 Parallelepiped	PASS
				2. 57.8				
				3. 55.6				
				Average: 58.2				

Describe in the comments section if more than one force and motion are required to unlatch the exit.

Comments: None

**DATA SHEET 7A
 FORCE TESTS TO
 OPEN THE
 EMERGENCY
 EXITS – INTERIOR**

Recorded By: *Eva Lechner*

Approved By: *Michael Janney*

Date: 08/31/11

DATA SHEET 7B

FORCE TESTS TO OPEN THE EMERGENCY EXITS – EXTERIOR

Test Vehicle: **2011 Starcraft Quest School Bus**
 Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
 Test Date: **08/31/11**

Exit Location	Exit Description	High / Low Force Area	Maximum Force Requirement (N)	Actual Force Measured (N)	Motion(s) Required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	Pass / Fail
Rear Door	Emergency Door	High	178	1. 72.3	Straight	Pull Outward	114x61x30 Parallelepiped	PASS
				2. 67.8				
				3. 64.5				
				Average: 68.2				

Describe in the comments section if more than one force and motion are required to unlatch the exit.

Comments: None

Recorded By: *Eva Lechner*

Approved By: *Michael Janicz*

Date: 08/31/11

DATA SHEET 8
EMERGENCY EXIT EXTENSION

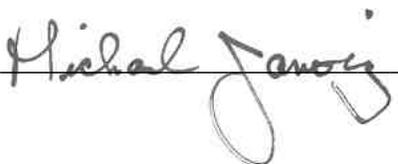
Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**

	Requirements	Pass / Fail
1	Exit(s) can be extended by a single person. Yes – Pass; No – Fail	PASS
2	Each emergency exit door is equipped with a positive door opening device that meets the requirements (outlined in Section S5.4.1 (3) of FMVSS 217).	PASS
3	There is a 30 cm (11.81") wide clear aisle space for each side emergency door exit.	N/A
4	For flip-up seat adjacent to the side emergency door exit it automatically assumes and retain a vertical position when not in use, so that no portion of the seat bottom is within the 30 cm (11.81") aisle clearance space	N/A
5	There is no seat or barrier which extend past the side door opening	N/A
6	There is no obstruction of door latch mechanism for the rear emergency door. Yes – Pass; No – Fail	PASS

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

DATA SHEET 9
WINDOW RETENTION TEST

Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**

1	Test Window Identification:	Rear Emergency Door Upper Pane		
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Fixed, Single Glaze		
3	Provide the horizontal and vertical glazing dimensions for each panel.	Horizontal: 606 mm Vertical: 606 mm		
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cracked at 39 sec. PASS		
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? Yes – Pass; No – Fail	Unlatch Force Measured (N)	Open Force Measured (N)	Pass / Fail
		1. 258.0	1. 53.4	FAIL
		2. 244.7	2. 44.5	FAIL
		3. 249.1	3. 44.5	FAIL

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

DATA SHEET 9
WINDOW RETENTION TEST

Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**

1	Test Window Identification:	Window W5 Left Side Rearmost Upper Pane		
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Sliding, Single Glazed		
3	Provide the horizontal and vertical glazing dimensions for each panel.	Horizontal: 316 mm Vertical: 590 mm		
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cracked at 46 sec. PASS		
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? Yes – Pass; No – Fail	Unlatch Force Measured (N)	Open Force Measured (N)	Pass / Fail
		N/A	N/A	N/A
		N/A	N/A	N/A
		N/A	N/A	N/A

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

DATA SHEET 9
WINDOW RETENTION TEST

Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**

1	Test Window Identification:	Window W6 Right Side Rearmost Lower Pane		
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Fixed, Single Glazed		
3	Provide the horizontal and vertical glazing dimensions for each panel.	Horizontal: 590 mm Vertical: 316 mm		
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS / FAIL criteria: Yes – Pass; No – Fail	Glazing Cracked at 33 sec. PASS		
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? Yes – Pass; No – Fail	Unlatch Force Measured (N)	Open Force Measured (N)	Pass / Fail
		N/A	N/A	N/A
		N/A	N/A	N/A
		N/A	N/A	N/A

Comments: None

Recorded By: 

Approved By: 

Date: 08/31/11

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2011 Starcraft Quest School Bus**
Test Lab: **MGA Research Corporation**

NHTSA No.: **CB0902**
Test Date: **08/31/11**

Equipment	Description	Model / Serial No.	Cal. Date	Next Cal. Date
Head Form	MGA	217	When Used	When Used
Sphere	MGA	Sphere – 1A	When Used	When Used
Load Cell	Interface	1010AF-5K-B / 258576	03/22/11	09/22/11
String Pot.	Ametek	P-25A / 1202-19367	08/25/11	02/25/12
Inclinometer	Digital Protractor	Pro 360 / 006	When Used	When Used
Digital Calipers	Mitutoyo	CD 6"CSX / 07416506	12/28/10	12/28/11
Steel Tape	Stanley	Powerlock / 612	03/24/11	09/24/11
Parallelepiped	MGA	PARA – 1A	When Used	When Used
Force Gauge	Wagner	FDK-60 / 18109	03/07/11	09/07/11
Force Gauge	Wagner	FDK-20 / 3423	06/01/11	01/01/12

SECTION 5
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

<u>No.</u>		<u>Page No.</u>
1	Exterior Left Side View of School Bus	21
2	Exterior Right Side View of School Bus	22
3	Exterior Left Front $\frac{3}{4}$ View of School Bus	23
4	Exterior Right Front $\frac{3}{4}$ View of School Bus	24
5	Exterior Left Rear $\frac{3}{4}$ View of School Bus	25
6	Exterior Right Rear $\frac{3}{4}$ View of School Bus	26
7	Certification Label	27
8	Incomplete Vehicle Certification Label	28
9	Interior Front to Rear View Depicting Seating Arrangement	29
10	Interior Rear to Front View Depicting Seating Arrangement	30
11	Rear Exit Door Identification (Outside View)	31
12	Rear Exit Door Identification (Inside View)	32
13	Rear Exit Door Identification (Inside View Close-Up)	33
14	Rear Door Emergency Exit Parallelepiped Clearance	34
15	Loading Fixture	35
16	Window Retention Test of W5 Left Side Rearmost Upper Pane Window (Pre-Test)	36
17	Window Retention Test of W5 Left Side Rearmost Upper Pane Window (Post-Test)	37
18	Window Retention Test of W6 Right Side Rearmost Lower Pane Window (Pre-Test)	38
19	Window Retention Test of W6 Right Side Rearmost Lower Pane Window (Post-Test)	39
20	Window Retention Test of Rear Emergency Door Upper Window (Pre-Test)	40
21	Window Retention Test of Rear Emergency Door Upper Window (Post-Test)	41

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Exterior Left Side View of School Bus

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Exterior Right Side View of School Bus

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Exterior Left Front 3/4 View of School Bus

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Exterior Right Front 3/4 View of School Bus

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Exterior Left Rear $\frac{3}{4}$ View of School Bus

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Exterior Right Rear $\frac{3}{4}$ View of School Bus

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11

STARCRAFT BUS

a division of Forest River, Inc.

COMPLETED VEHICLE MANUFACTURED BY:

Starcraft Bus a Division of Forest River, Inc.
2376 Century Drive, Goshen, IN 46528
Phone: 800-348-7440

Date of Manufacture: Nov-10

INCOMPLETE VEHICLE MANUFACTURED BY:

Chevrolet
1500 East Route A, Wentzville, MO 63385
Phone: 586-492-7440
Date of Manufacture: Oct-10
GVWR: 12300

GAWR Front: 4300 With LT225/75R16E Tires 16 X 6.5J Rims @ 65 PSI Cold SINGLE

GAWR Rear: 8600 With LT225/75R16E Tires 16 X 6.5J Rims @ 65 PSI Cold DUAL

VIN: 1GB3G3BG2B1112157

VEHICLE TYPE: STARCRAFT SCHOOL BUS/QUEST

VEHICLE MAKE: Chevrolet

MODEL NUMBER: ETD021727

GROSS VEHICLE WEIGHT: 8174

Maximum Permitted Seated Passenger: 28

Actual Configured Seating Capacity: 28

Maximum Permitted W/C Passengers: 0

Actual Configured W/C Capacity: 0

Approval Numbers
MIDWEST TRANSIT

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

Certification Label

Test Vehicle: 2011 Starcraft Quest School Bus
 Test Lab: MGA Research Corporation

NHTSA No.: CB0902
 Test Date: 08/31/11

ETD0217Z

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED UNDER THE CANADIAN MOTOR VEHICLE SAFETY REGULATIONS IN EFFECT ON THE DATE OF MANUFACTURE.

CE VEHICULE EST CONFORME A TOUTES LES NORMES QUI SONT APPLICABLES EN VERTU DU REGLEMENT SUR LA SECURITE DES VEHICLES AUTOMOBILES DU CANADA EN VIGEUR A LA DATE DE SA FABRICATION.

INC. VEL MFG BY Chevrolet

DATE 11/1/2010

MANUFACTURED BY / FABRIQUE PAR FOREST RIVER, Inc

VIN / NHTA 5NHSET326BD021727 1GB3G3BG2B112157 ST6917SC

GVWR/PNBV: 5579KG (12300LB) TYPE/TYPE: STARCRAFT SCHOOL BUS/QUEST

DESIG. SEAT CAP./NOMBRE D'ESIGNE' DE PLACES ASSISES 28X54kg=1582 kg or 28X120lbs=3510 lb

	CAVRES/PNEUS	TRES/PNEU	RIMS/JOINTE	COLD INFL. PRESSURE DE GONFL. A FROID
FRONT / AVANT	1950 KG 4300 LB	LT225/75R16E	16 X 6.5J	448 kPa SINGLE <input type="checkbox"/> 65 PSI/PSI.P. <input checked="" type="checkbox"/>
MID/MIEN	0 KG 0 LB			0 kPa SINGLE <input type="checkbox"/> 0 PSI/PSI.P. <input checked="" type="checkbox"/>
REAR / ARRIERE	3901 KG 8600 LB	LT225/75R16E	16 X 6.5J	448 kPa SINGLE <input type="checkbox"/> 65 PSI/PSI.P. <input checked="" type="checkbox"/>

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Interior Front to Rear View Depicting Seating Arrangement

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Interior Rear to Front View Depicting Seating Arrangement

Test Vehicle: 2011 Starcraft Quest School Bus NHTSA No.: CB0902
Test Lab: MGA Research Corporation Test Date: 08/31/11



Rear Exit Door Identification (Outside View)

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Rear Exit Door Identification (Inside View)

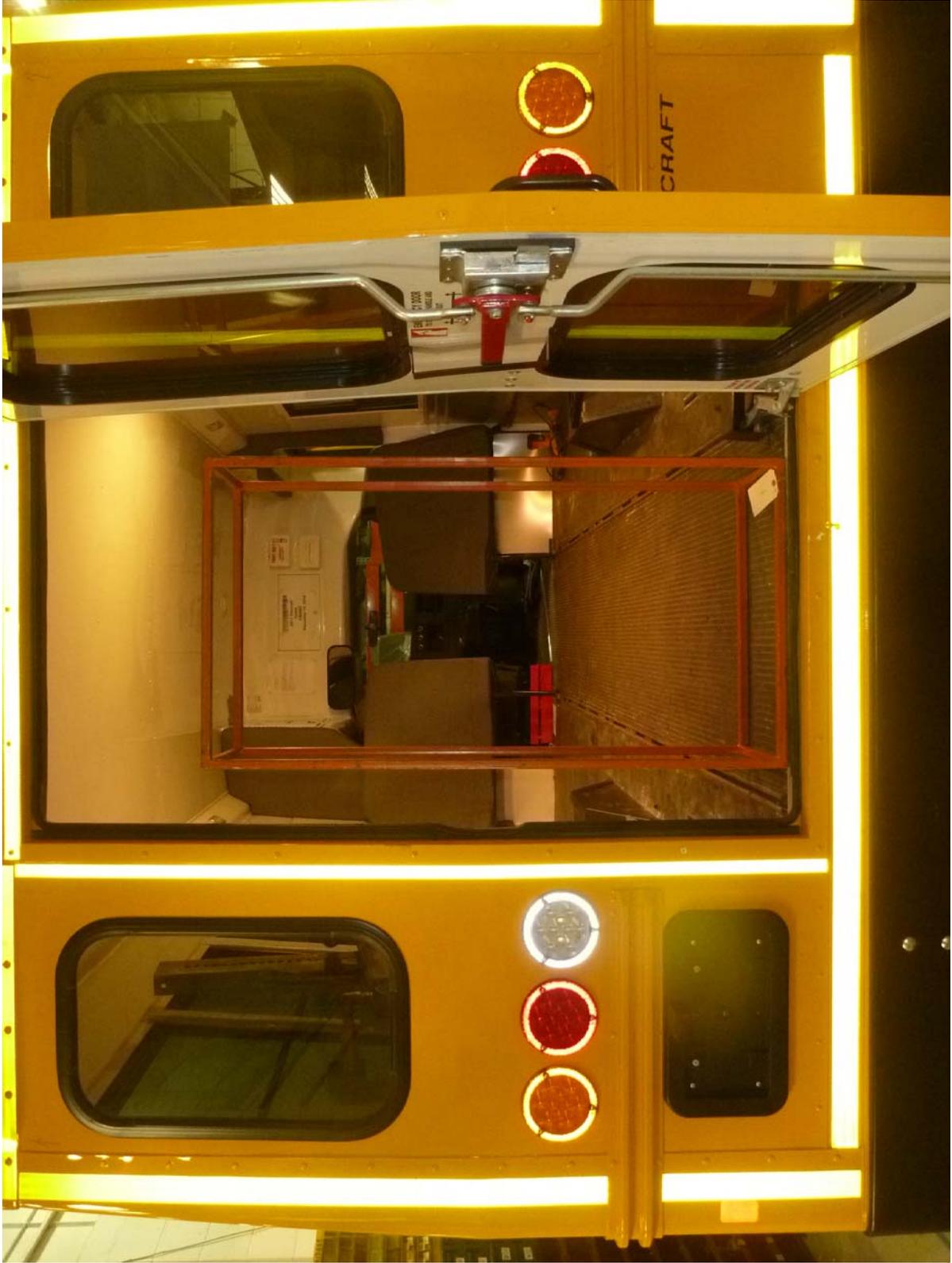
Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Rear Exit Door Identification (Inside View Close-Up)

Test Vehicle: 2011 Starcraft Quest School Bus NHTSA No.: CB0902
Test Lab: MGA Research Corporation Test Date: 08/31/11



Rear Door Emergency Exit Parallelepiped Clearance

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Loading Fixture

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Window Retention Test of W5 Left Side Rearmost Upper Pane Window (Pre-Test)

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Window Retention Test of W5 Left Side Rearmost Upper Pane Window (Post-Test)

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Window Retention Test of W6 Right Side Rearmost Lower Pane Window (Pre-Test)

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Window Retention Test of W6 Right Side Rearmost Lower Pane Window (Post-Test)

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



Window Retention Test of Rear Emergency Door Upper Window (Pre-Test)

Test Vehicle: 2011 Starcraft Quest School Bus
Test Lab: MGA Research Corporation

NHTSA No.: CB0902
Test Date: 08/31/11



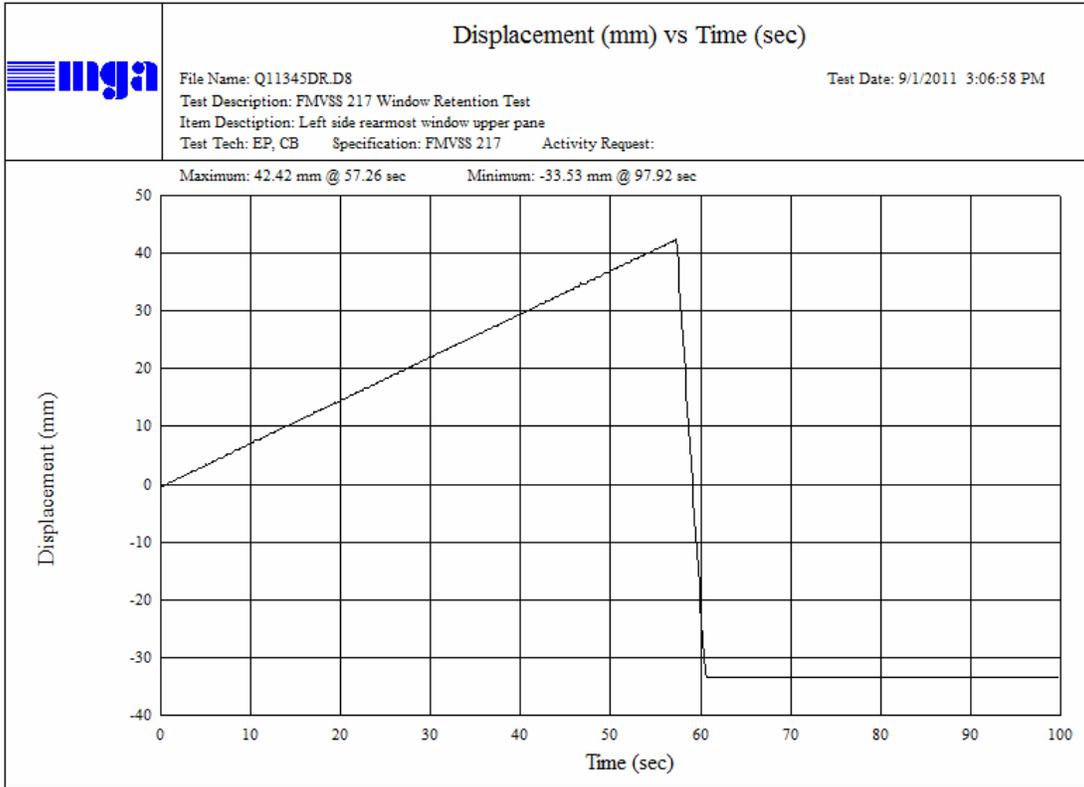
Window Retention Test of Rear Emergency Door Upper Window (Post-Test)

SECTION 6
TEST PLOTS

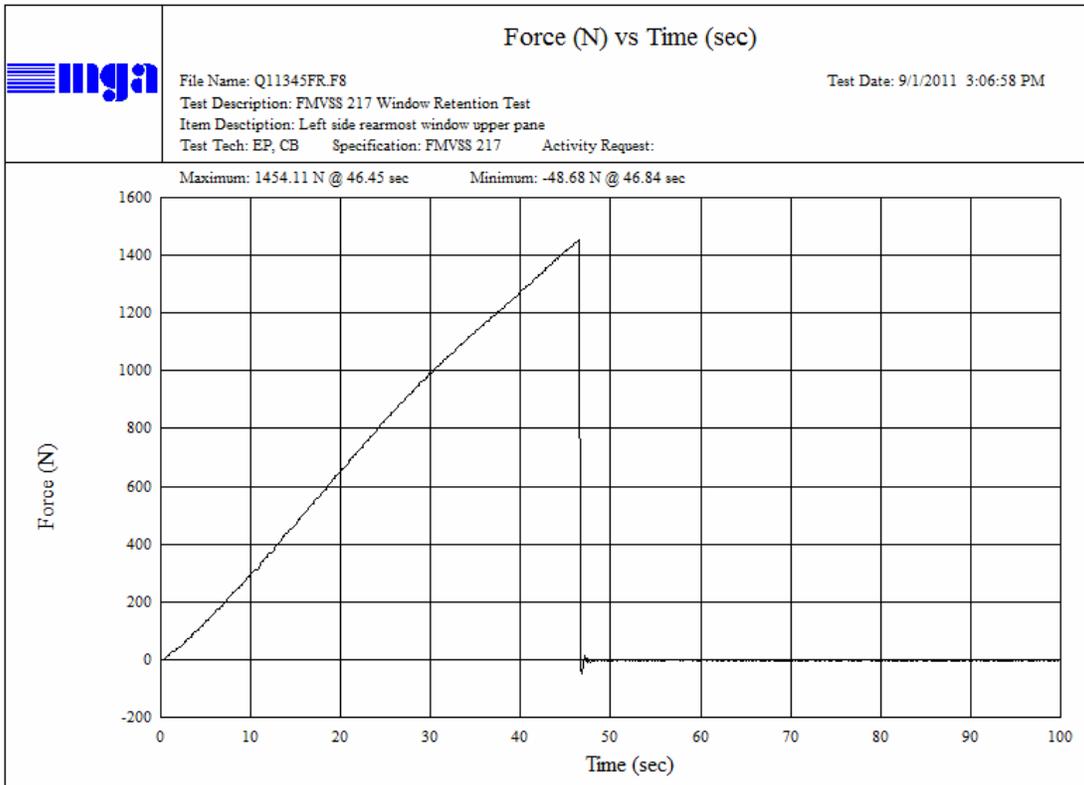
TABLE OF TEST PLOTS

<u>No.</u>		<u>Page No.</u>
1	W5 Left Side Rearmost Upper Pane Window Displacement vs. Time	43
2	W5 Left Side Rearmost Upper Pane Window Force vs. Time	43
3	W6 Right Side Rearmost Lower Pane Window Displacement vs. Time	44
4	W6 Right Side Rearmost Lower Pane Window Force vs. Time	44
5	Rear Emergency Door Upper Window Displacement vs. Time	45
6	Rear Emergency Door Upper Window Force vs. Time	45

SECTION 6 TEST PLOTS

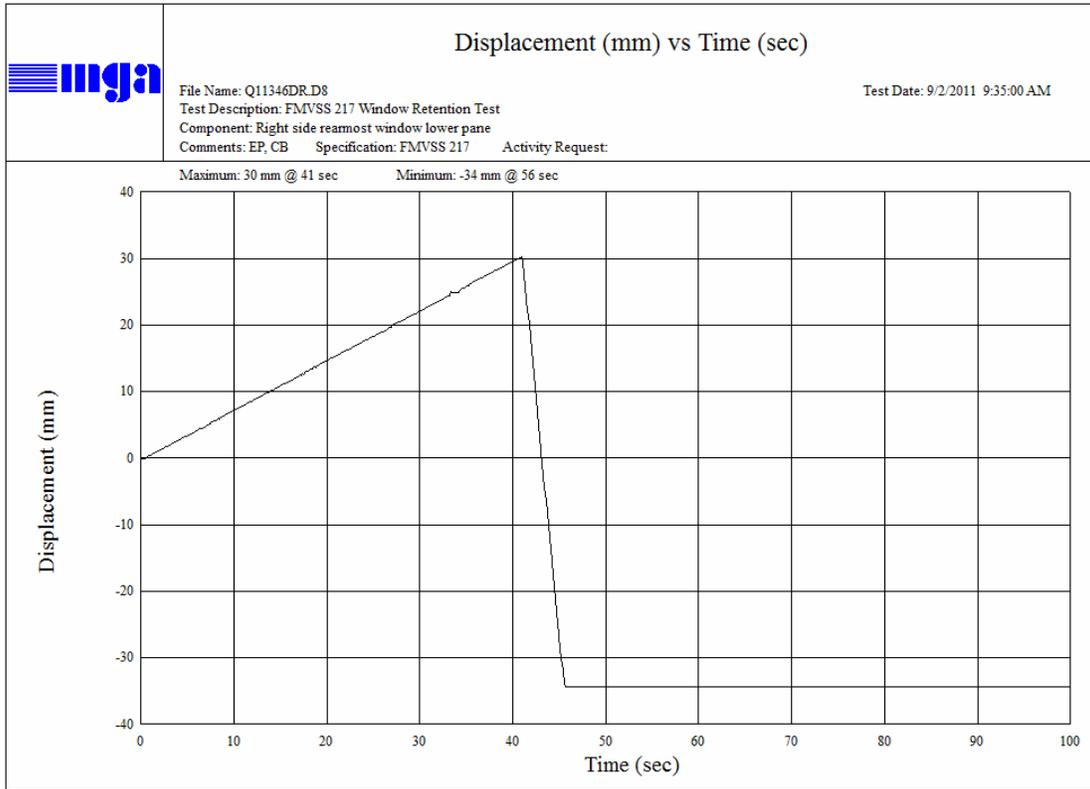


W5 Left Side Rearmost Upper Pane Window Displacement vs. Time

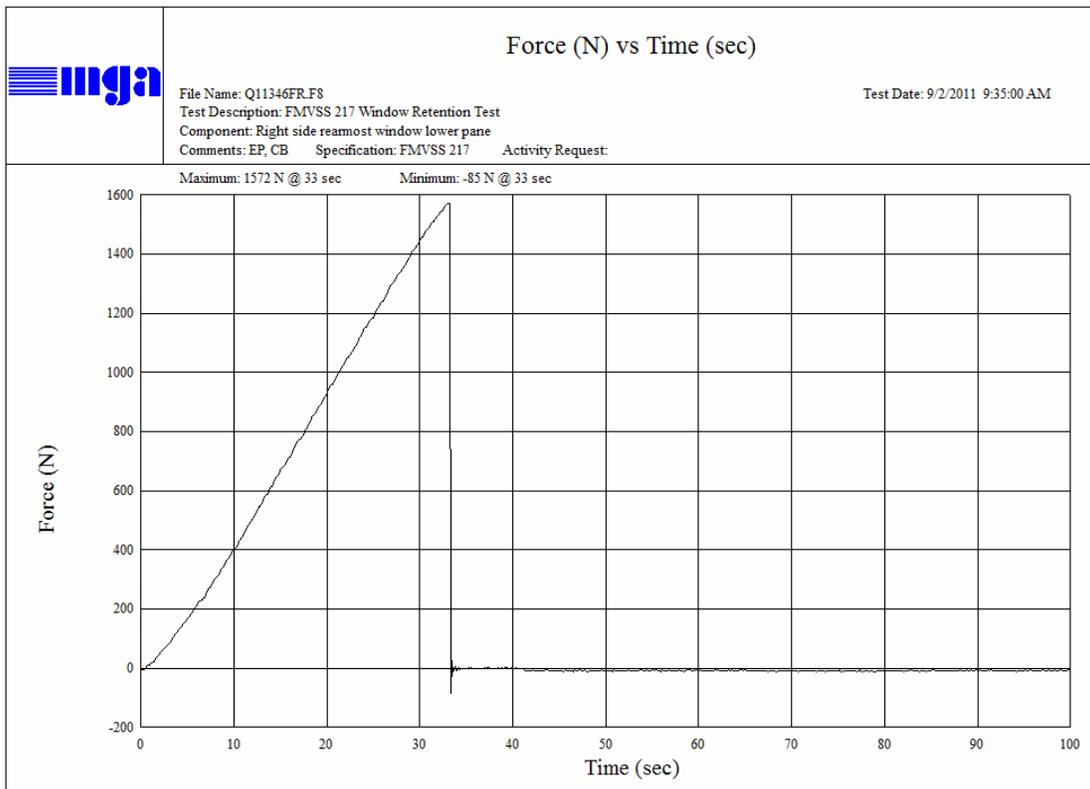


W5 Left Side Rearmost Upper Pane Window Force vs. Time

SECTION 6 TEST PLOTS

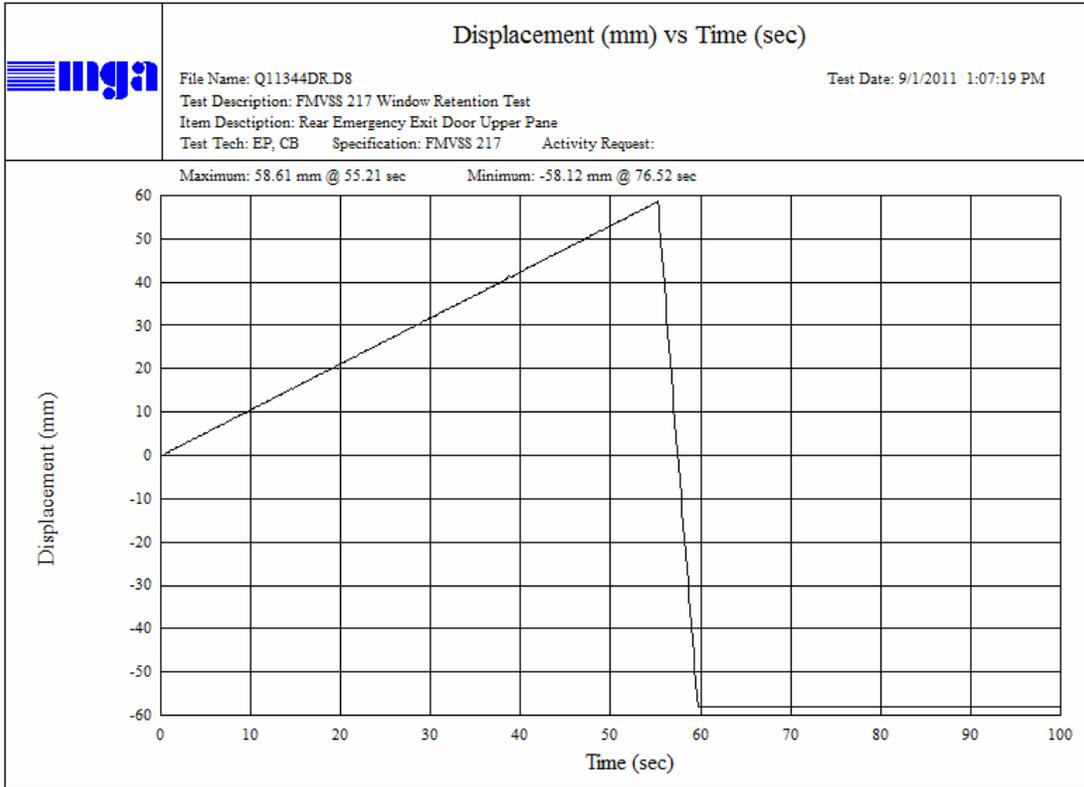


W6 Right Side Rearmost Lower Pane Window Displacement vs. Time

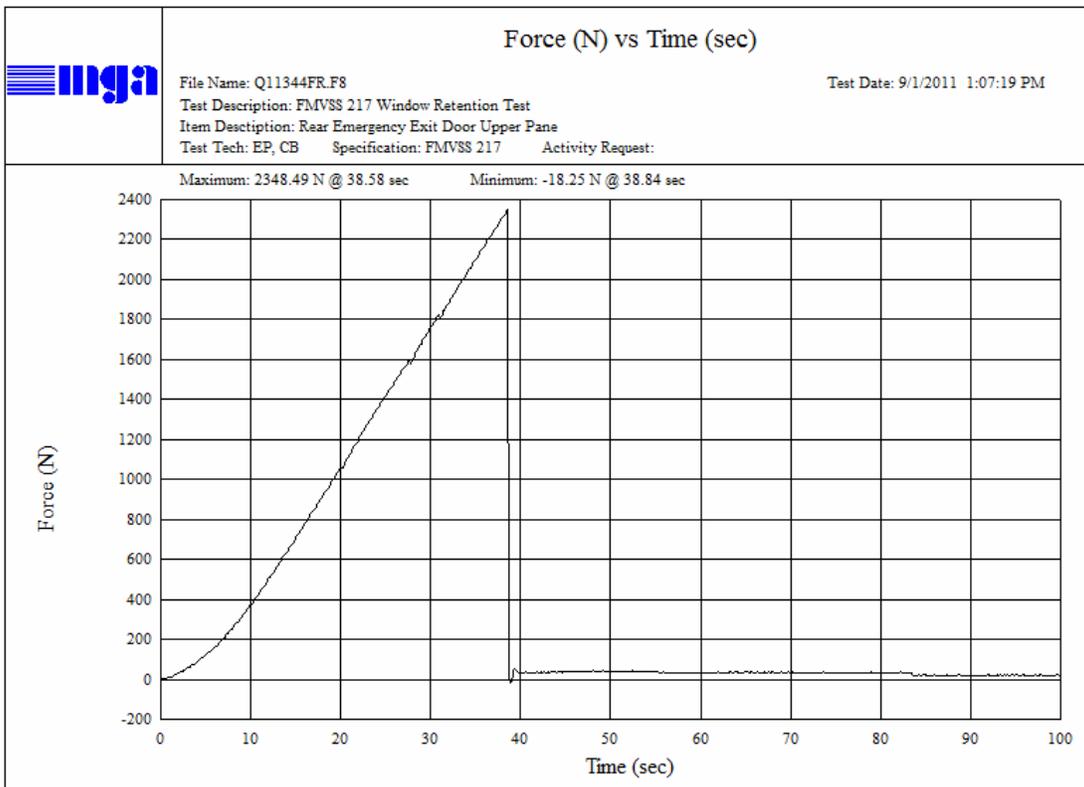


W6 Right Side Rearmost Lower Pane Window Force vs. Time

SECTION 6 TEST PLOTS



Rear Emergency Door Upper Window Displacement vs. Time



Rear Emergency Door Upper Window Force vs. Time

SECTION 7

LABORATORY NOTICE OF TEST FAILURE TO OVSC



LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 111	Test Date:	08/31/11
Test Vehicle:	2011 Starcraft Quest	Test Lab:	MGA Research Corp.
NHTSA No.:	CB0902	Project Engineer:	Eric Peschman
Contract No.:	DTNH22-08-D-00075	Delivery Order No.:	3
MFR.:	Starcraft Bus	VIN:	1GB3G3BG2B1112157
Build Date:	11-2010		

TEST FAILURE DESCRIPTION

The force to unlatch rear Emergency Exit Door exceeded the limit of 178 N following the window retention test on the Emergency Exit Door. Actual force required to unlatch was 244.7 N

FMVSS REQUIREMENTS DESCRIPTION

Paragraph S5.3.3.1 When tested under the conditions of S6., both before and after the window retention test required by S5.1, each school bus emergency exit door shall allow manual release of the door by a single person, from both inside and outside the passenger compartment, using a force application that conforms to S5.3.3.1 (a) through (c) of this section, except a school bus with a GVWR of 10,000 pounds or less is not required to conform to S5.3.3.1 (a). The release mechanism shall operate without the use of remote controls or tools, and notwithstanding any failure of the vehicle's power system. When the release mechanism is not in the position that causes an emergency exit door to be closed and the vehicle's ignition is in the "on" position, a continuous warning sound shall be audible at the driver's seating position and in the vicinity of the emergency exit door.

Remarks: No remarks.

Notification to NHTSA (COTR): Lawrence Valvo

Date: 08/31/11

By: Eric Peschman