REPORT NUMBER: 111SB-MGA-2007-002

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 111 SCHOOL BUS REARVIEW MIRRORS

U.S. Bus Corporation
2006 US BUS School Bus
NHTSA No. C60900

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

Final Report Date: December 11, 2006

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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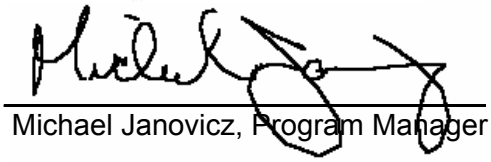
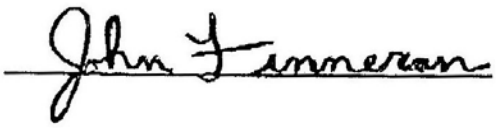
Prepared by:  Date: December 11, 2006

Jeff Koehler, Project Engineer

Reviewed by:  Date: December 11, 2006

Michael Janovicz, Program Manager

FINAL REPORT ACCEPTED BY:



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16. Abstract Compliance tests were conducted on the subject 2006 US BUS School Bus, NHTSA No. C60900 in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-111SB-00 for the determination of FMVSS 111 compliance. Test failures were as follows: The required label indicating that the cross view mirrors are not to be used while driving is not visible to the seated driver.			
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SECTION 1
PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2006 US BUS School Bus, NHTSA No. C60900, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedure TP-111SB-00 to determine compliance to the requirements of Federal Motor Vehicle Safety Standard (FMVSS) 111, “School Bus Rearview Mirrors.”

This program is sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-02-D-01057.

SECTION 2
TEST DATA SUMMARY

Based on the tests performed, the MY2006 US BUS School Bus, NHTSA No. C60900, appears to meet all of the requirements of FMVSS 111, except as noted. See Test Summary Data Sheets on the following pages.

There was one non-compliance issue:

1. Title 49 CFR part 571.111 Paragraph S.9.3(c): “Each school bus which has a mirror installed…that has an average radius of curvature of less that 889 mm…shall have a label visible to the seated driver… The label shall state the following: USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS WHILE THE BUS IS STOPPED. DO NOT USE THESE MIRRORS TO VIEW TRAFFIC…”

   The required label indicating that the cross view mirrors are not to be used while driving is not visible to the seated driver.

FMVSS 111SB, SCHOOL BUS REARVIEW MIRRORS

TEST SUMMARY DATA SHEET

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

System A Mirrors

A. Driver Side Mirror #3 - Unit Magnification

	Pass/Fail	Comments
Mounting	PASS	--
Field of View	PASS	--
Surface Area	PASS	--
Reflectance	PASS	--
Unit Magnification	PASS	--

B. Passenger Side Mirror #4 - Unit Magnification

	Pass/Fail	Comments
Mounting	PASS	--
Field of View	PASS	--
Surface Area	PASS	--
Reflectance	PASS	--
Unit Magnification	PASS	--

C. Driver Side Mirror #5 - Convex

	Pass/Fail	Comments
Mounting	PASS	--
Field of View	PASS	--
Reflectance	PASS	--

D. Passenger Side Mirror #6 - Convex

	Pass/Fail	Comments
Mounting	PASS	--
Field of View	PASS	--
Reflectance	PASS	--

FMVSS 111SB, SCHOOL BUS REARVIEW MIRRORS

TEST SUMMARY DATA SHEET…continued

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

System B Mirrors

E. Driver Side Front Mirror #1 - Cross View

	Pass/Fail	Comments
Mounting	PASS	--
Field of View	PASS	--
Overlap with System A	PASS	--
Distance to Eye Point	PASS	--
No Surface Discontinuities	PASS	--
Surface Area	PASS	--
If Convex – Radius of Curvature	PASS	--
Radius of Curvature Label	FAIL	Label is not visible to the driver.
Arc Separation	PASS	--
Reflectance	PASS	--

F. Passenger Side Front Mirror #2 - Cross View

	Pass/Fail	Comments
Mounting	PASS	--
Field of View	PASS	--
Overlap with System A	PASS	--
Distance to Eye Point	PASS	--
No Surface Discontinuities	PASS	--
Surface Area	PASS	--
If Convex – Radius of Curvature	PASS	--
Radius of Curvature Label	FAIL	Label is not visible to the driver.
Arc Separation	PASS	--
Reflectance	PASS	--

SECTION 3
COMPLIANCE TEST DATA

FMVSS 111SB – DATA SHEET 1

SCHOOL BUS INSPECTION AND IDENTIFICATION

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

GENERAL VEHICLE IDENTIFICATION

Final Stage Manufacturer	US Bus Corporation	Date of Mfg.	08/2006
Chassis Manufacturer	General Motors	Date of Mfg.	03/2006
Seating Capacity (including driver)	15	GVWR (kg)	4536
VIN No.	1GBHG31V561226021	GAWR Front (kg)	1860
		GAWR Rear (kg)	3402

DESCRIPTION OF MIRRORS

Mirror No.	Type			Description	Manufacturer
	Unit Mag	Convex	Cross View		
1			X	Driver Side	Rosco Mirrors
2			X	Passenger Side	
3	X			Driver Side	
4	X			Passenger Side	
5		X		Driver Side	
6		X		Passenger Side	

Recorded By: Jeff Kaehler

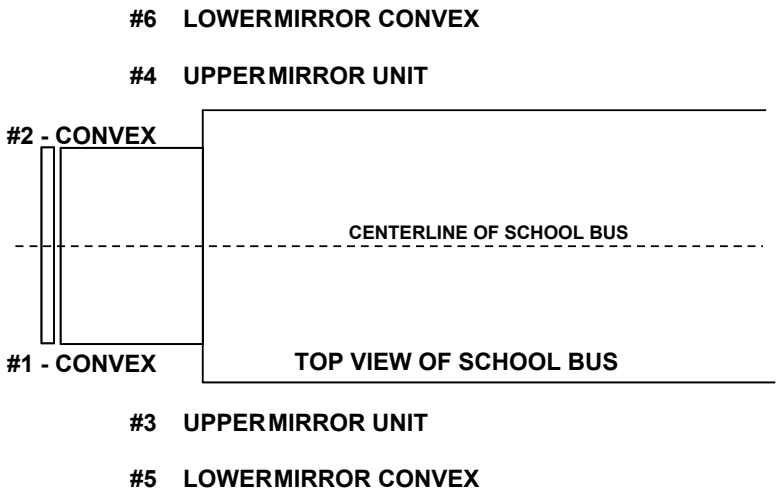
Approved By: _____ Date: September 27, 2006

FMVSS 111SB – DATA SHEET 2

MIRROR LOCATION AND FIELD OF VIEW

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

MIRROR DIAGRAM



MIRROR NO.	TYPE	MIRROR SYSTEM	CYLINDERS VIEWED **(entire top surface)**
1	CROSS VIEW/CONVEX	B	B,C,E,F,H,I,J,L,M
2	CROSS VIEW/CONVEX	B	A,D,E,G,H,I,K,N,O,P
3	UNIT MAGNIFICATION	A	61 Meter INDICATOR
4	UNIT MAGNIFICATION	A	61 Meter INDICATOR
5	CONVEX	A	L,M
6	CONVEX	A	N,O

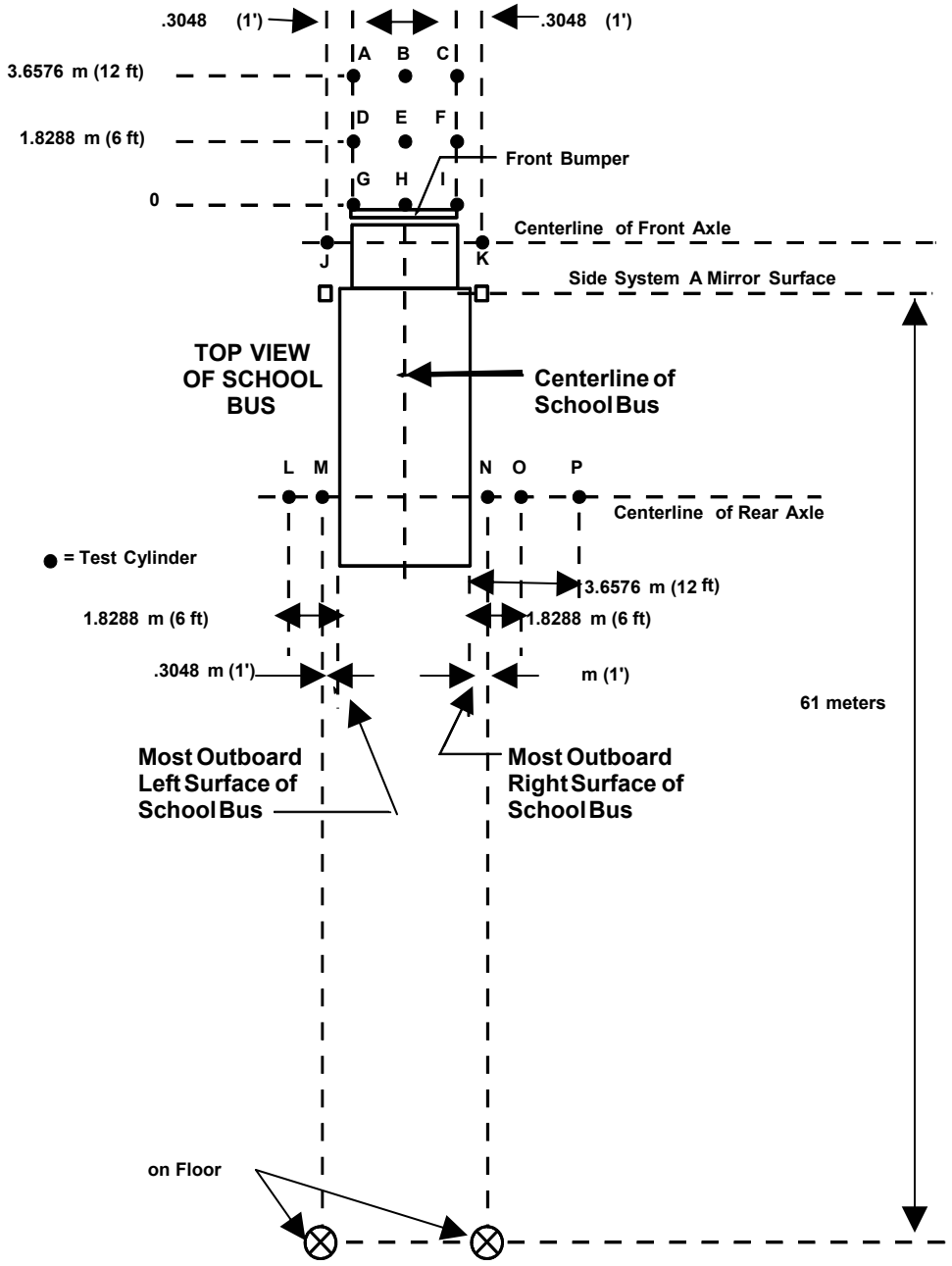
SEE FIGURE ON NEXT PAGE

FMVSS 111SB – DATA SHEET 2…continued

MIRROR LOCATION AND FIELD OF VIEW

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

MIRROR LOCATIONS OF TEST CYLINDERS AND INDICATOR



NOTES:
1. The cylinders shall be a color which provides a high contrast with the surface on which the bus is parked (S13.1).
2. The cylinders are 0.3048 m high and 0.3048 m in diameter, except for cylinder P which is 0.9144 m high and 0.3048 m in diameter.

FMVSS 111SB DATA SHEET 2…continued

MIRROR LOCATION AND FIELD OF VIEW

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

SYSTEM A AND DIRECT VISION

System A Mirrors	Pass/Fail
Entire top surface of cylinder N and the indicator 61 meters (200 feet) rearward of the mirror surface be viewed in the photograph	PASS
Entire top surface of cylinder M and indicator 61 meters (200 feet) rearward of the mirror surface be viewed in the photograph	PASS
Which test cylinders A through P can not be photographed directly from the driver's eye location within the semi-circle viewing area using no mirror system:	D,E,F,G,H, I,J,K,L,M,N,O,P

SYSTEM B ARC'S AND DISTANCE

Mirror Number (from data sheet 2)	Mirror Location	Distance from the Driver's Eye Point to the Center of the Mirror (cm)	3 Minutes of Arc (cm)	9 Minutes of Arc (cm)
#1	Left Front	212.5	0.186	--
#2	Right Front	263	0.230	0.689

Distance determined in column 3 multiplied by 0.000873 yield 3 minutes of arc, for column 4, for that mirror as viewed from the driver's eye point; the distances determined in column 3 multiplied by 0.002618 yield 9 minutes of arc, for column 5, for that mirror as viewed from the driver's eye point. The minimum distance for any system B mirror between the driver's eye point and the center of the mirror is more than 95 centimeters (37.5 inches):

	Distance	Pass/Fail
Distance between center of System B mirror #1 and driver's eye point	212.5 cm	PASS
Distance between center of System B mirror #2 and driver's eye point	263 cm	PASS

Recorded By: Jeff Kaehler

Approved By: _____ Date: September 27, 2006

FMVSS 111SB DATA SHEET 3

FIELD OF VIEW TEST – PHOTOGRAPHS System B

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

		Pass/Fail
All test cylinders with entire top surface not directly visible from the driver's semi-circle eye location are able to be viewed with System B mirrors from the driver's semi-circle location:		PASS
All test cylinders with entire top surface not directly visible from the driver's semi-circle eye location but the image can be viewed with System B mirrors. The image is separated for the edge of the effective mirror surface of the mirror providing that image by a distance of not less than 3 minutes of arc:		PASS
If the entire top surface of test cylinder P is not directly visible from the driver's semi-circle eye location, the image can be viewed with System B mirrors from the driver's semi-circle eye location, where the angular size of the shortest dimension of that cylinder's image is not less than 3 minutes of arc, and the angular size of the longest dimension of that cylinder's image is not less than 9 minutes of arc:		PASS
Shortest arc length dimension	0.230 cm	
Longest arc length dimension	0.689 cm	
For each of the test cylinders whose entire top surface is not directly visible from the driver's eye location, System B provides a view of the ground that overlaps with the view of the ground provided by System A.		PASS

Recorded By: Jeff Kaehler

Approved By: _____ Date: September 27, 2006

FMVSS 111SB DATA SHEET 4

MOUNTING ADEQUACY TEST

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

MOUNTING SUPPORT OF ALL MIRRORS

Mirror No. (from data sheet 2)	Type	System	Stable Support Yes/No
1	Cross View/Convex	B	Yes
2	Cross View/Convex	B	Yes
3	Unit Magnification	A	Yes
4	Unit Magnification	A	Yes
5	Convex	A	Yes
6	Convex	A	Yes

	Pass/Fail
Outside mirrors free of sharp points or edges that could contribute to pedestrian injury	PASS
System B mirrors have no discontinuities in the slope of the surface of the mirror	PASS

Recorded By: Jeff Kaehler

Approved By: _____ Date: September 27, 2006

FMVSS 111SB DATA SHEET 5

REFLECTANCE TEST – ALL MIRRORS

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

Mirror No.	Type	Light meter reading from calibration (FC)	Light meter reading from light reflected by mirror (FC)	Pass/Fail	Observations
1	Crossview/Convex	119	72.67	PASS	
2	Crossview/Convex	115.67	71.67	PASS	
3	Unit	116.67	59.33	PASS	
4	Unit	115.33	63.33	PASS	
5	Convex	115	63.33	PASS	
6	Convex	114.33	63	PASS	

Note: Reflectance % = [Reflectance Reading / Calibration reading] x 100
Minimum Requirement = 35 percent

Mirror No.	Type	Reflectance	Requirement
1	Crossview/Convex	61%	>35%
2	Crossview/Convex	62%	>35%
3	Unit	51%	>35%
4	Unit	55%	>35%
5	Convex	55%	>35%
6	Convex	55%	>35%

Recorded By: Jeff Kaehler

Approved By: _____ Date: September 27, 2006

FMVSS 111SB DATA SHEET 6

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

CONVERSION DATA TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE

MIRROR NO. 1 (CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.05265	136.4	44.6	24.7%
2	0.03625	197.5	-16.5	-9.1%
3	0.02555	279.9	-98.9	-54.7%
4	0.05085	141.1	39.9	22.0%
5	0.05135	139.8	41.2	22.8%
6	0.03520	203.4	-22.4	-12.4%
7	0.05050	142.1	38.9	21.5%
8	0.03065	233.5	-52.5	-29.0%
9	0.05380	133.5	47.5	26.3%
10	0.03530	202.8	-21.8	-12.1%
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: 181 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: 54.7%	

MIRROR NO. 2 (CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.05350	134.2	46.5	25.7%
2	0.03610	198.3	-17.7	-9.8%
3	0.02535	282.1	-101.5	-56.2%
4	0.05110	140.4	40.2	22.3%
5	0.05050	142.1	38.6	21.3%
6	0.03530	202.8	-22.2	-12.3%
7	0.05165	139.0	41.7	23.1%
8	0.03060	233.8	-53.2	-29.4%
9	0.05355	134.1	46.6	25.8%
10	0.03585	199.7	-19.1	-10.5%
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: 180.7 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: 56.2%	

FMVSS 111SB DATA SHEET 6…continued

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

CONVERSION DATA TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE

MIRROR NO. 3 (UNIT MAGNIFICATION)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.00000	N/A	N/A	N/A
2	0.00000	N/A	N/A	N/A
3	0.00000	N/A	N/A	N/A
4	0.00000	N/A	N/A	N/A
5	0.00000	N/A	N/A	N/A
6	0.00000	N/A	N/A	N/A
7	0.00000	N/A	N/A	N/A
8	0.00000	N/A	N/A	N/A
9	0.00000	N/A	N/A	N/A
10	0.00000	N/A	N/A	N/A
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: N/A			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: N/A	

MIRROR NO. 4 (UNIT MAGNIFICATION)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.00000	N/A	N/A	N/A
2	0.00000	N/A	N/A	N/A
3	0.00000	N/A	N/A	N/A
4	0.00000	N/A	N/A	N/A
5	0.00000	N/A	N/A	N/A
6	0.00000	N/A	N/A	N/A
7	0.00000	N/A	N/A	N/A
8	0.00000	N/A	N/A	N/A
9	0.00000	N/A	N/A	N/A
10	0.00000	N/A	N/A	N/A
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: N/A			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: N/A	

FMVSS 111SB DATA SHEET 6…continued

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

CONVERSION DATA TABLE FROM SPHEROMETER DIAL READING TO RADIUS OF CURVATURE

MIRROR NO. 5 (CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.01360	525.4	-12.5	-2.4%
2	0.01325	539.3	-26.4	-5.1%
3	0.01410	506.8	6.1	1.2%
4	0.01395	512.3	0.6	0.1%
5	0.01415	505.0	7.9	1.5%
6	0.01415	505.0	7.9	1.5%
7	0.01435	498.0	14.9	2.9%
8	0.01400	510.4	2.5	0.5%
9	0.01370	521.6	-8.7	-1.7%
10	0.01415	505.0	7.9	1.5%
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: 512.9 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: 5.1%	

MIRROR NO. 6 (CONVEX)

Test Position	Dial Reading (inches)	Radius of Curvature (mm)	Deviation between the Average Radius of Curvature and the Test Position Radius of Curvature (mm)	Percent Deviation from the Average Radius of Curvature
1	0.01395	512.3	-2.2	-0.4%
2	0.01407	507.9	2.1	0.4%
3	0.01395	512.3	-2.2	-0.4%
4	0.01345	531.3	-21.3	-4.2%
5	0.01260	567.1	-57.1	-11.2%
6	0.01360	525.4	-15.4	-3.0%
7	0.01630	438.5	71.6	14.0%
8	0.01415	505.0	5.0	1.0%
9	0.01355	527.4	-17.3	-3.4%
10	0.01510	473.3	36.8	7.2%
Avg. Radius of Curvature – the Summation of Column 3 divided by 10: 510.1 mm			Greatest Percent Deviation from the Average Radius of Curvature, Column 5: 14%	

FMVSS 111SB DATA SHEET 6…continued

UNIT MAGNIFICATION/CONVEX MIRROR TEST – ALL MIRRORS

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

UNIT MAGNIFICATION IN SYSTEM A

	Pass/Fail
At least one System A Mirror on the left and right sides of the bus is unit magnification -0 Radius of Curvature	PASS

AVERAGE RADIUS OF CURVATURE OF CONVEX MIRRORS USED IN SYSTEM B

Mirror No.	Radius of Curvature	If needed, wording printed properly* Pass/Fail
1	181 mm	FAIL
2	180.7 mm	FAIL

* If any of the Convex Mirrors in System B have an average radius of curvature less than 889 mm, then the following words must be printed on a label in type face and color that are clear and conspicuous to the driver:

"USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS WHILE BUS IS STOPPED. DO NOT USE THESE MIRRORS TO VIEW TRAFFIC WHILE BUS IS MOVING, IMAGES IN SUCH MIRRORS DO NOT ACCURATELY SHOW ANOTHER VEHICLE'S LOCATION."

Note: The required label indicating that the cross view mirrors are not to be used while driving is not visible to the seated driver.

Recorded By: Jeff Kaehler

Approved By: _____ Date: September 27, 2006

FMVSS 111SB DATA SHEET 7

MIRROR REFLECTIVE SURFACE AREA TEST

SYSTEM A & B

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

DATA TABLE FOR SURFACE AREA

System A Mirrors Mirror No.	Area	Requirement Min. 323 cm²	Pass/Fail
3	390 cm^2	323 cm^2	PASS
4	381 cm^2	323 cm^2	PASS
System B Mirrors Mirror No.	Area	Requirement Min. 258 cm²	Pass/Fail
1	568 cm^2	258 cm^2	PASS
2	557 cm^2	258 cm^2	PASS

Recorded By: Jeff Kaehler

Approved By:

Date: September 27, 2006

SECTION 4

INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2006 US BUS School Bus** NHTSA No.: **C60900**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **9/27/06**

	Digital Caliper	Light Meter	Tape Measure	Spherometer
Make	Mitutoyo	AEMC	Stanley	MGA
Model	ID-F150HE	CA813	Powerlock	001
Serial # (s)	001462	04L1017Y	SN101	001
Range	0-50.8 mm	2000fc, 2000lux	0-8 m	2.25×10^{13} $(cm * Hz^{1/2}) \div W$
Accuracy	.001 mm	0.0 fc or 0.01 lux	1 mm	1.1×10^{-13} $W/H^{1/2}$
Cal. Date	7/26/06	4/18/06	8/16/06	Daily when used
Cal. Due Date	7/26/07	4/18/07	2/16/07	N/A

SECTION 5
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 1 - Three-Quarter Left Front View of School Bus

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 2 - Three-Quarter Left Rear View of School Bus

Photo 3 - Close-up View of Manufacturer Information Label

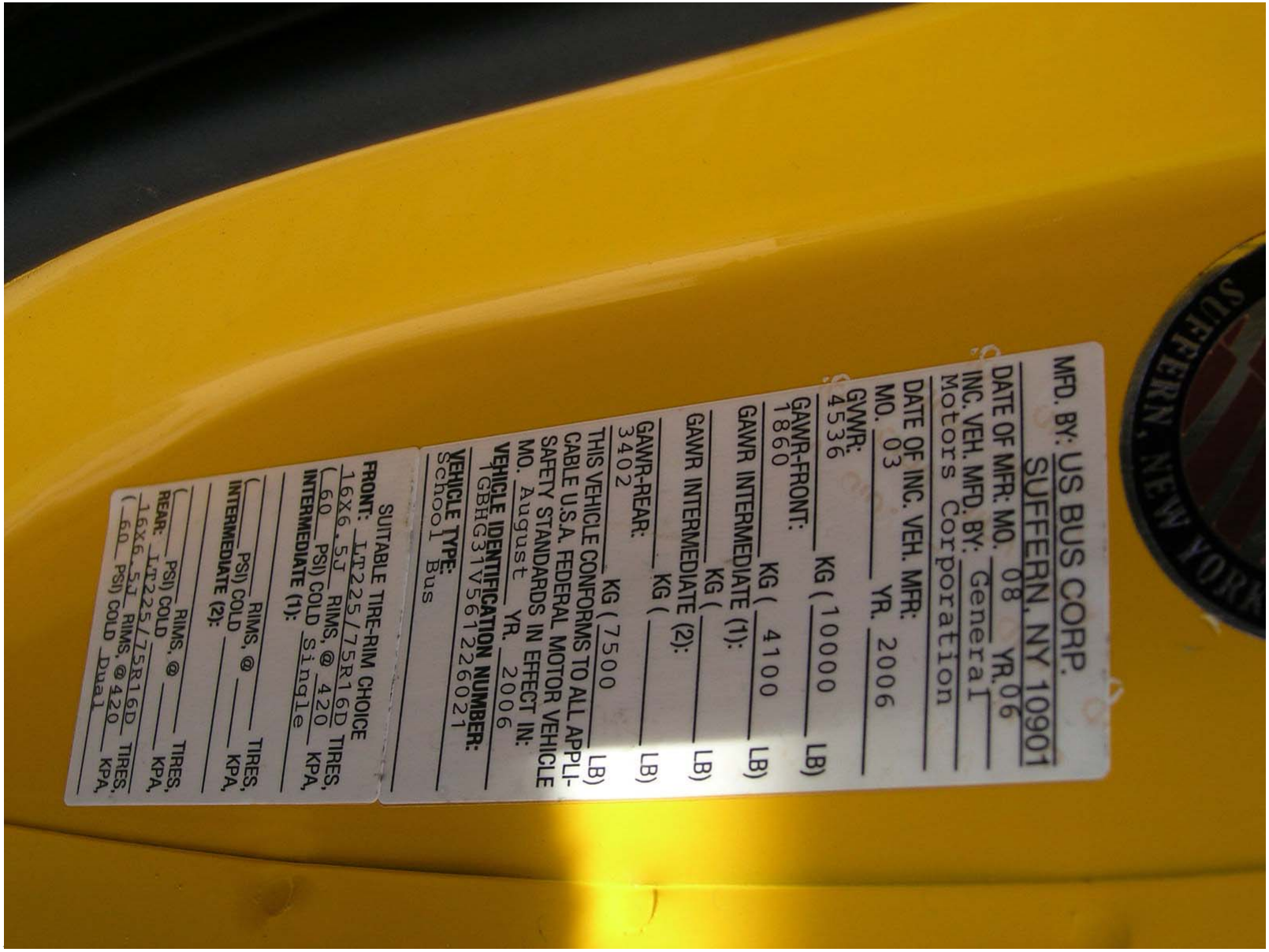


Photo 4 - Close-up View of Certification and Tire Information Label

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 5 - Right Front Cross View Mirror and Mounting

Test Vehicle: **2006 US School Bus** NHTSA No.: **C60900**
Procedure: **FMVSS 111** Test Date: **9/27/06**

Photo 6 - Passenger Side Rearview Mirror and Mounting

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 7 - Inside Rearview Mirror and Mounting

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 8 - Left Front Cross View Mirror and Mounting

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 9 - Driver Side Rearview Mirror and Mounting

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 10 - Field of View Instrument Setup

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 11 - Driver's view without mirrors

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 12 - Mirror #2 System B Field of View

Test Vehicle: **2006 US School Bus** NHTSA No.: **C60900**
Procedure: **FMVSS 111** Test Date: **9/27/06**

Photo 13 - Mirror #1 System B Field of View

Photo 14 - Mirror #4 and #6 System A Field of View

Test Vehicle: **2006 US School Bus** NHTSA No.: **C60900**
Procedure: **FMVSS 111** Test Date: **9/27/06**

Photo 15 - Mirror #3 and #5 System A Field of View

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 16 - View of Cylinder Setup from Front

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

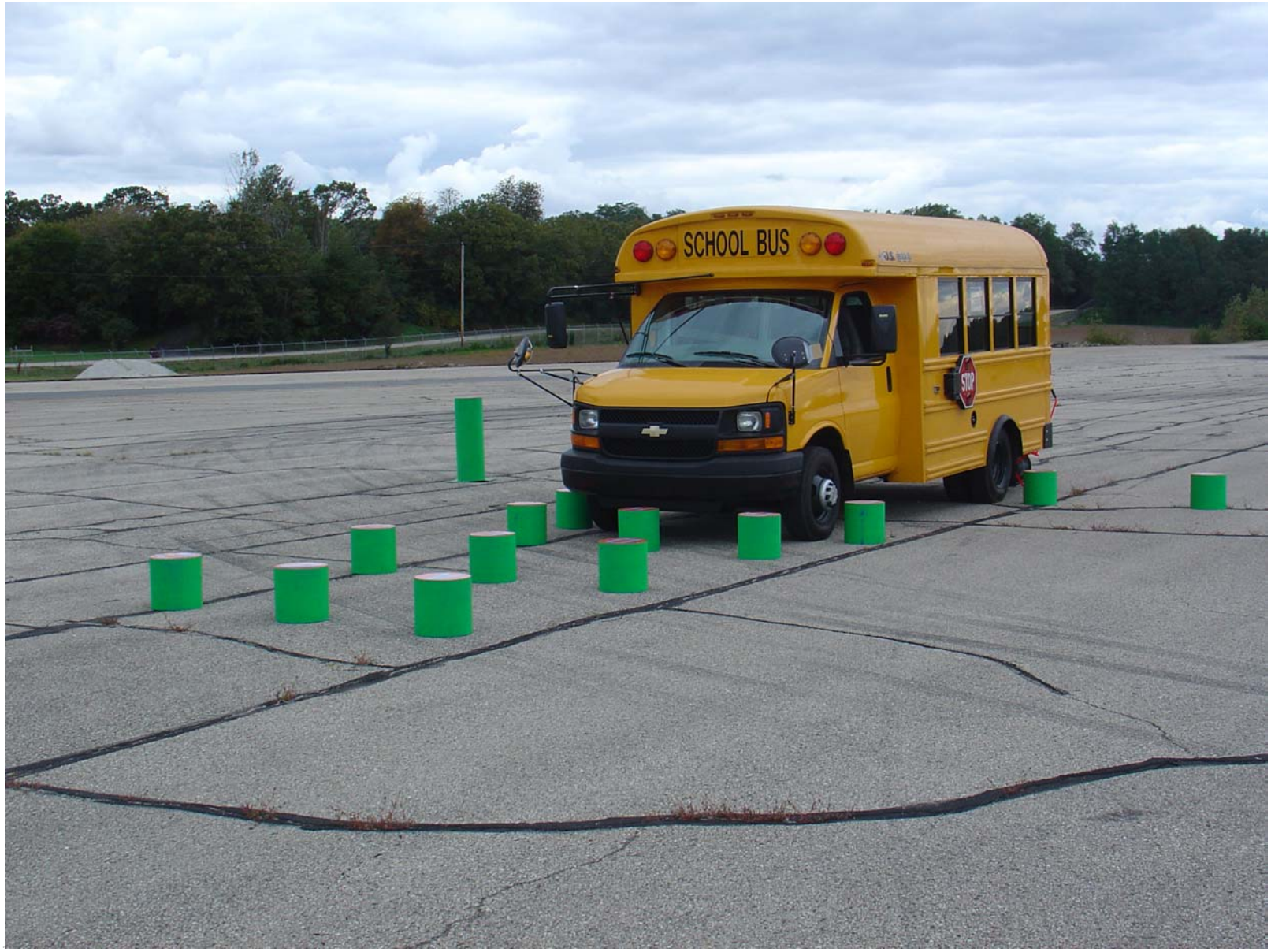


Photo 17 - Three-Quarter Left Front View of Cylinder Setup

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

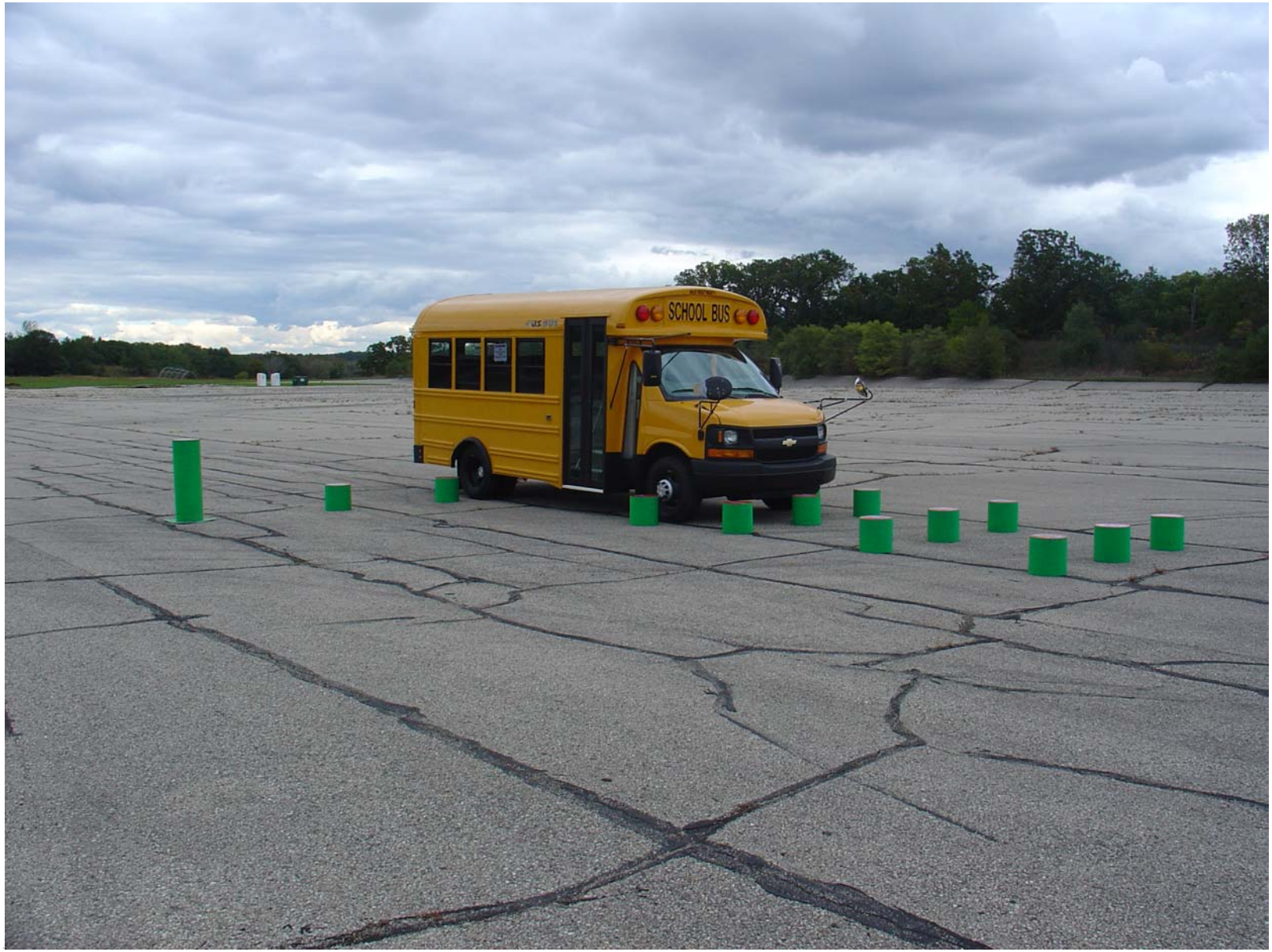


Photo 18 - Three-Quarter Right Front View of Cylinder Setup

Test Vehicle:	**2006 US School Bus**	NHTSA No.:	**C60900**
Procedure:	**FMVSS 111**	Test Date:	**9/27/06**

Photo 19 - Reflectance Test Set-up

Photo 20 - Label for Cross View Mirror Warning

Photo 21 - Rearview Mirror blocking Driver's sight of Cross View Mirror Warning

SECTION 6
NOTICE OF TEST FAILURE

mga research corporation

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 111	Test Date:	September 29, 2006
Test Vehicle:	US BUS	Test Lab:	MGA Research Corp.
NHTSA No.:	C60900	Project Engineer:	Jeff Koehler
Contract No.:	DTNH22-02-D-01057	Delivery Order No.:	5
MFR.:	US BUS	VIN:	1GBHG31V561226021
Build Date:	08/03/2006		

TEST FAILURE DESCRIPTION

The required label indicating that the cross view mirrors are not to be used while driving is placed behind the rearview mirror in such a way that it is not visible to the seated driver.

FMVSS REQUIREMENTS DESCRIPTION

Paragraph S.9.3(c): "Each school bus which has a mirror installed…that has an average radius of curvature of less that 889 mm…shall have a label visible to the seated driver… The label shall state the following: USE CROSS VIEW MIRRORS TO VIEW PEDESTRIANS WHILE THE BUS IS STOPPED. DO NOT USE THESE MIRRORS TO VIEW TRAFFIC…"

Remarks: No remarks.

Notification to NHTSA (COTR): John Finneran

Date: 10/4/2006

By: Jeff Koehler