

**REPORT NUMBER: 120-MGA-07-005**

**SAFETY COMPLIANCE TESTING FOR  
FMVSS NO. 120  
TIRE SELECTION AND RIMS  
FOR MOTOR VEHICLES WITH A GVWR OF MORE THAN 4,536 KG**

**MID BUS INC.  
2006 MID BUS GUIDE DW SCHOOL BUS  
NHTSA NO.: C60901**

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



**FINAL REPORT DATE: JULY 13, 2007**

**FINAL REPORT**

**PREPARED FOR:  
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**

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: July 13, 2007  
James Hansen, Project Engineer

Reviewed by:  Date: July 13, 2007  
Michael Janovicz, Program Manager

**FINAL REPORT ACCEPTED BY OVSC:**



July 13, 2007  
Date of Acceptance

### Technical Report Documentation Page

<b>1. Report No.</b> 120-MGA-07-005	<b>2. Government Accession No.</b>	<b>3. Recipient's Catalog No.</b>	
<b>4. Title and Subtitle</b> Final Report of FMVSS 120 Compliance Testing of 2006 Mid Bus Guide DW School Bus NHTSA No.:C60901		<b>5. Report Date</b> July 13, 2007	
		<b>6. Performing Organization Code</b> MGA	
<b>7. Author(s)</b> James Hansen, Project Engineer Michael Janovicz, Program Manager		<b>8. Performing Organization Report No.</b> MGA-DOT-120-07-005	
<b>9. Performing Organization Name and Address</b> MGA Research Corporation 5000 Warren Road Burlington, WI 53105		<b>10. Work Unit No.</b>	
		<b>11. Contract or Grant No.</b> DTNH22-02-D-01057	
<b>12. Sponsoring Agency Name and Address</b> 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		<b>13. Type of Report and Period Covered</b> Final Report 05/07/07 – 07/13/07	
		<b>14. Sponsoring Agency Code</b> NVS-220	
<b>15. Supplementary Notes</b>			
<b>16. Abstract</b> A compliance test was conducted on the subject 2006 Mid Bus Guide DW School Bus, NHTSA No. C60901, in accordance with FMVSS 120, "Tire selection and rims for motor vehicles with a GVWR of more than 4,536 kilograms," and TP-120-03. The vehicle was weighed in the unloaded and fully loaded conditions and its tires, rims, and related information were checked.  Test failures: None			
<b>17. Key Words</b>  Compliance Testing Safety Engineering FMVSS 120		<b>18. Distribution Statement</b> Copies of this report are available from: NHTSA Technical Information Services (NPO-411) 1200 New Jersey Ave., S.E. Washington, DC 20590 Email: <a href="mailto:tis@nhtsa.dot.gov">tis@nhtsa.dot.gov</a> FAX: 202-493-2833	
<b>19. Security Classif. (of this report)</b> Unclassified	<b>20. Security Classif. (of this page)</b> Unclassified	<b>21. No. of Pages</b> 31	<b>22. Price</b>

## TABLE OF CONTENTS

<u>Section</u>		<u>Page No</u>
1	Purpose of Compliance Test	1
2	Test Procedure and Discussion of Results	2
3	Compliance Test Data	4
	Data Sheet 1 - General Tire and Rim Data	4
	Data Sheet 2 - Certification and Tire Label Information	6
	Data Sheet 3 - Weight Distribution	7
4	Instrumentation and Equipment List	9
5	Photographs	12

**SECTION 1**  
**PURPOSE OF COMPLIANCE TEST**

The purpose of this test report is to document the results of tests performed on a MY 2006 Mid Bus Guide DW School Bus, NHTSA No.: C60901, in accordance with the requirements stated in Federal Motor Vehicle Safety Standard (FMVSS) No. 120, “ Tire selection and rims for motor vehicles with a GVWR of more than 4,536 kilograms.”

This standard establishes requirements to ensure that applicable vehicles are equipped with tires of adequate size and load rating and rims of appropriate size and type designation.

## **SECTION 2**

### **TEST PROCEDURE AND DISCUSSION OF RESULTS**

Testing of the 2006 Mid Bus Guide DW School Bus, NHTSA No. C60901 was conducted at MGA Research Corporation in accordance with NHTSA TP-120-03, dated April 10, 2000 and MGA-TP-120-03 dated November 20, 2002. The vehicle mounted tires and rims were surveyed to ensure that the rims were suitable for the tires and that the tires inflated to the maximum inflation pressure stated on the tire sidewall were appropriate for the vehicle's certified Gross Axle Weight Ratings (GAWR). The vehicle certification and tire information labeling was surveyed to ensure that the vehicle manufacturer's recommended rims were suitable for the recommended tires, and that the recommended tires inflated to the recommended inflation pressures stated on the labeling were appropriate for the vehicle's certified GAWRs. The vehicle was ballasted and weighed in three different loading conditions to determine if axle or tire overloading could occur. The three loading conditions were:

Condition 1 – Unloaded Vehicle Weight (UVW).

Condition 2 – Vehicle in Condition 1 state plus the addition of ballast to simulate twenty-eight passengers, (one adult driver, twenty-seven students)

Condition 3 – Vehicle in Condition 2 state plus the addition of ballast to simulate cargo loading. Target vehicle load is the certified gross weight rating (GVWR).

The vehicle mounted tires inflated to the inflation pressure labeled on the tire sidewall have a load rating appropriate to carry the maximum loads as required by FMVSS No. 120. The vehicle rims are suitable for the vehicle tires and contain the required markings.

**SECTION 2...continued**  
**TEST PROCEDURE AND DISCUSSION OF RESULTS**

Model Year/Mfr. /Make/Model:	2006 Mid Bus Guide DW	
Incomplete Vehicle Make/Model:	Chevrolet / CSD-7450-C-063336	
NHTSA No.:	C60901	
GVWR:	5,579 KG / 12,300 lbs	
Build Date for Bus Chassis:	04/06	
VIN:	1GBJG31U461237309	
Chassis VIN:	1GBJG31U461237309	
Designated Seating Capacity:	(1 Driver, 27 Passengers)	
Vehicle Type:	School Bus	
Tire Pressure from certification label (at capacity):	Front: 450 KPa	Rear: 450 KPa
Odometer Reading:	450 Miles	
Dealer Installed Optional Accessories	None Noted	

**SUMMARY**

Requirements	PASS/FAIL
<b>TIRE AND RIM SELECTION (S5.1)</b> Installed tires and rims are suitable for vehicle	<b>PASS</b>
<b>Rim Marking (S5.2)</b> Rims contain all required markings of proper dimensions	<b>PASS</b>
<b>LABEL INFORMATION (S5.3)</b> Vehicle has proper certification/tire information label. Label tires at recommended inflation pressure and rims are suitable for vehicle.	<b>PASS</b>
<b>Weight Distribution (49 CFR 567 Certification)</b> Vehicle loaded with occupants and cargo does not exceed GVWR	<b>PASS</b>
<b>Results:</b> Test data indicates compliance with FMVSS 120	<b>PASS</b>

**SECTION 3**  
**COMPLIANCE TEST DATA**  
**DATA SHEET 1**  
**GENERAL TIRE AND RIM DATA**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
 Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
 Test Date: **05/07/07**

**GENERAL DATA**

Tire Type: (Passenger car or other)	Light Truck
Are the tire and rim sizes the same for all axles, including the spare?	Yes
Does the tire size fitted to the axles appear on the Certification or Tire label? (If NO, describe)	Yes
Number of axles	2
Dual tires on rear axle(s)	Yes

**TIRE DATA FROM SIDEWALL**

	Right Front	Spare
Manufacturer	Uniroyal	N/A
Brand	Laredo	N/A
Tire Size	LT225/75R16	N/A
Maximum Tire Load Rating (KG)	Single: 1060 Dual: 975	N/A
De-rated Tire Load Rating (KG)	N/A	N/A
Maximum Inflation Pressure (KPA)	450	N/A
Tire has DOT symbol (Yes/No)	Yes	N/A
DOT serial number	DOT M31L JH3U 1306	N/A

**MOUNTED TIRE VS. AXLE RATING COMPARISON**  
 (AT SIDEWALL MAXIMUM INFLATION PRESSURE)

	Front Axle	Rear Axle
A. GAWR (KG) from certification label	1951	3901
B. (No. of tires) x (tire load rating (KG) from above table)	2120	3900
C. Is "B" equal to or greater than "A"? (Yes/No)	Yes	No*

\* The rear GAWR, listed in KG, exceeds the tire load rating for this axle by one kilogram. However, when listed in pounds, the GAWR and tire load ratings are equal. The sum of tire load ratings for this axle is 8,600 lbs. The GAWR is 8,600 lbs. Because this is clearly a unit conversion issue, this is not considered a failure.

**DATA SHEET 1...continued  
GENERAL TIRE AND RIM DATA**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**

**RIM MARKINGS**

	Right Front	Spare
A. Source of published dimensions (letter designation)	T	N/A
B. Rim Size	16 X 6½ J	N/A
C. Does rim contain DOT symbol? (Yes/No)	Yes	N/A
D. Manufacturer's name, symbol or trademark (copy format)	Accuride	N/A
E. Date of manufacture or symbol	01 11 06	N/A
Do items A-C appear on weather side of rim? (Yes/No)	Yes	N/A
Letter height (not less than 3mm)	4 mm	N/A
Lettering (impressed or embossed)	Impressed	N/A
Are all rim markings legible? (Yes/No)	Yes	N/A
Do all markings comply with requirements? (Yes/No)	Yes	N/A
Rims are suitable for tires on vehicles? (Yes/No)	Yes	N/A

**RIM MEASUREMENTS**

	Right Front	Spare
Rim width	165.1 mm	N/A
Rim diameter	406.4 mm	N/A
Rim measurements same as rim markings? (Yes/No)	Yes	N/A

Results	Pass/Fail
<b>TIRE AND RIM SELECTION (S5.1)</b> Installed tires and rims are suitable for vehicle	<b>PASS</b>
<b>Rim Marking (S5.2)</b> Rims contain all required markings of proper dimensions	<b>PASS</b>

Remarks: None

Tested :  Approved By:   
Date: 05/07/07

**DATA SHEET 2  
CERTIFICATION AND TIRE LABEL INFORMATION**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**

**LABEL INFORMATION**

Label in English? (Yes/No)	Yes
Block capital letter and numbers are not less than 2.4 mm in height (yes/no):	Yes
Label is permanently affixed; describe method of affixing (rivets, glue, etc.)	Yes/ Glue
Does label text color contrast with background? (yes/no)	Yes
Location of Label(s) on the vehicle:	On the Driver's Side Door

**TIRE AND RIM DATA FROM LABEL (FOR EACH GAWR/GVWR)**

GVWR: <b>5579</b> KG	Front Axle	Rear Axle
Tire Size	LT225/75R16D	LT225/75R16D
Rim Size	16 X 6½ J	16 X 6½ J
Recommended inflation pressure (KPa)	450	450
Are labeled rims suitable for labeled tires (Yes/No) <sup>1</sup>	Yes	Yes
Referenced load rating at label recommended inflation pressure (KG) <sup>1</sup>	1060	975

<sup>1</sup> Referenced source for tire/rim match and load rating data: 2007 Year Book Tire & Rim Assoc.

**CERTIFICATION/TIRE LABEL MAXIMUM CAPACITY COMPARISON**

GVWR: <b>5579</b> KG	Front axle	Rear Axle
A.GAWR (KG) FROM CERTIFICATION LABEL	(C) 1951	(D) 3901
B.(No. of tires) x (Tire load rating (KG))	2120	3900
Is "B" equal or greater than "A"? (Yes/No)	Yes	No
Is (C) plus (D) equal to or greater than GVWR? (Yes/No)	Yes	

RESULTS	PASS/FAIL
<b>LABEL INFORMATION (S5.3)</b> Vehicle has proper certification/tire information label. Label tires at recommended inflation pressure and rims are suitable for vehicle.	<b>PASS</b>

Tested By:  Approved By:   
Date: 05/07/07

**DATA SHEET 3  
WEIGHT DISTRIBUTION**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
 Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
 Test Date: **05/07/07**

FLUID LEVELS				
Fuel:	FULL			
Coolant:	FULL			
Other Fluids: <u>Washer fluid, brake fluid, etc.</u>	FULL			
TIRE PRESSURES				
Tire	Left Front	Right Front	Left Rear	Right Rear
Tire Pressure (KPa)	450	450	450	450
OCCUPANT AND CARGO LOADS				
Total Occupant Load (KG): [# of designated seating positions x 68 KG per adult or 54 KG per student]	1526 (1-driver, 27-students)			
Manufacturer's Rated Cargo Load (KG): [If not stated on vehicle or provided in owner's manual leave blank]	N/A			
Certified GVWR - Measured UVW - Total Occupant Load = Rated Cargo Load <u>5,579</u> KG - <u>3,596</u> KG - <u>1,526</u> KG = 457 KG (must be positive)				
Describe Placement of Cargo:	Down Center aisle			

**WEIGHT DISTRIBUTION**

ITEM	Tire or Vehicle Rating* (KG)	CONDITION 1 UVW (KG)		CONDITION 2 Cond. 1 + occupants (KG)		CONDITION 3 Cond. 2 + cargo (KG)	
		Measured	Overload	Measured	Overload	Measured	Overload
Left Front Tire	1060	728	No	752	No	760	No
Right Front Tire	1060	734	No	798	No	808	No
Front Axle	1951	1462	No	1550	No	1568	No
Left Rear Tire	1950	1094	No	1784	No	2004	Yes
Right Rear Tire	1950	1040	No	1802	No	2002	Yes
Rear Axle	3901	2134	No	3586	No	4006	Yes
Total Vehicle	5579	3596	No	5136	No	5574	No

\* Vehicle and axle weight ratings (GVWR & GAWR) are located on the vehicle certification label plate. Vehicle tire load ratings are based upon the inflation pressure specified on the certification label plate for each respective axle, as determined from the appropriate tire manufacturer's specification table.

**DATA SHEET 3...continued  
WEIGHT DISTRIBUTION**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**

RESULTS	PASS/FAIL
<b>Weight Distribution (49 CFR 567 Certification)</b> Vehicle loaded with occupants and cargo does not exceed GVWR	<b>PASS</b>

Remarks: None

Tested By:  Approved By:   
Date: 05/07/07

**SECTION 4**  
**INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**

	<b>Digital Caliper</b>	<b>Vehicle Scale</b>	<b>Tape Measure</b>
Make	Mitutoyo	GSE	Stanley
Model	CD-6" CS	Pro-Weigh 84	Powerlock
Serial # (s)	0441288	004804	SN 278
Range	0-150mm	0 to 20,000 lb	0-8 m
Accuracy	.01mm	0.25% static	1 mm
Cal. Date	09/11/06	09/11/06	09/26/07
Cal. Due Date	09/11/07	09/11/07	03/26/07

SECTION 4...continued

INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
 Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
 Test Date: **05/07/07**

SCALE CALIBRATION SHEET

<small>Confidential</small> <b>REPORT OF INSPECTION AND CALIBRATION</b> <small>Trade Secret</small> Operating Under A2LA Accreditation #2006.01; Performed by Certified Scale Inc. N57 W13640 Carmen Avenue, Menomonee Falls, WI 53051. As Directed by <b>MGA Research Corporation</b>											
TYPE <u>DIGITAL FLOOR</u>		CLASS <u>III</u>		MODEL <u>465</u>		CAPACITY <u>20,000</u>					
MANUFACTURER <u>GSE</u>		SERIAL # <u>004804</u>		ID# <u>NONE</u>		MAX. LOAD <u>15,000</u>					
LOCATION <u>BUS AND TRUCK BAY 1</u>		MINIMUM DIVISION <u>5</u>		UNITS <u>Lbs.</u>							
<b>TEST AND UNCERTAINTY PROCEDURE JUSTIFICATION</b>					<b>NIST TRACEABLE TEST STANDARDS USED THIS CALIBRATION</b>						
PLEASE REFER TO TEST JUSTIFICATION AND UNCERTAINTY POLICY MADE PART OF SCALE MAINTENANCE AND CALIBRATION PROCEDURE MANUAL; SERIAL # MGA-704-L1					50# NUMBERS <u>C800/NL 01</u> THRU <u>C819 /NSC 34</u>						
<input checked="" type="checkbox"/> THERE WAS NO DEVIATION IN PROCEDURE AS WRITTEN					1000# NUMBERS <u>NSI-A100</u> THRU <u>NSI-A114</u>						
<input type="checkbox"/> DEVIATION FROM PROCEDURE IS NOTED HEREUPON					SUBSTITUTION LOAD <input type="checkbox"/> <u>1624</u>						
<b>TEST WEIGHT CERTIFICATION</b>					<b>ESTIMATE OF ENVIRONMENTAL CONDITIONS</b>						
PLEASE REFER TO TEST STANDARD TRACEABILITY DOCUMENTS MADE PART OF SCALE MAINTENANCE AND CALIBRATION PROCEDURE MANUAL; SERIAL # MGA-704-L1					Temperature <u>105</u> ° Humidity <u>70</u> % Air Movement <u>minimal</u>						
Vibration <u>minimal</u> Other <u>none</u>											
<b>VISUAL INSPECTION</b>					<b>LOCATION OF TEST/NOTICE OF SUB-CONTRACTOR</b>						
FUNCTIONALITY; as left		ACCEPT <input checked="" type="checkbox"/>		REJECT <input type="checkbox"/>		<input type="checkbox"/> This test was conducted at Certified Scale Inc. facility, Menomonee Falls, WI					
REPEATABILITY/SENSITIVITY; as left		ACCEPT <input checked="" type="checkbox"/>		REJECT <input type="checkbox"/>		<input checked="" type="checkbox"/> This test was conducted within the customer facility; located at :					
PHYSICAL CONDITION; as left		ACCEPT <input checked="" type="checkbox"/>		REJECT <input type="checkbox"/>		5000 Warren Road, Burlington, WI 53105					
SUITABILITY FOR INTENDED USE		ACCEPT <input checked="" type="checkbox"/>		REJECT <input type="checkbox"/>		<input type="checkbox"/> Subcontracted to:					
<b>*** FINAL TEST RESULTS ***</b>											
TEST POINT	AS FOUND			A C C E P T	R E J E C T	AS LEFT		A C C E P T	R E J E C T	TOLERANCES	
	EXPECTED VALUE	MEASURED VALUE	ERROR			MEASURED VALUE	ERROR			LOW LIMIT	HIGH LIMIT
<b>SCALE #1</b>											
DISTRIBUTION	1000	<u>1000</u>	<u>0</u>	<input checked="" type="checkbox"/>		<u>1000</u>	<u>0</u>	<input checked="" type="checkbox"/>		995	1005
DISTRIBUTION	2000	<u>2005</u>	<u>5</u>	<input checked="" type="checkbox"/>		<u>2000</u>	<u>0</u>	<input checked="" type="checkbox"/>		1995	2005
DISTRIBUTION	3000	<u>3010</u>	<u>10</u>	<input checked="" type="checkbox"/>		<u>3000</u>	<u>0</u>	<input checked="" type="checkbox"/>		2990	3010
DISTRIBUTION	4000	<u>4015</u>	<u>15</u>	<input checked="" type="checkbox"/>		<u>4000</u>	<u>0</u>	<input checked="" type="checkbox"/>		3990	4010
DISTRIBUTION	5000	<u>5020</u>	<u>20</u>	<input checked="" type="checkbox"/>		<u>5000</u>	<u>0</u>	<input checked="" type="checkbox"/>		4990	5010
DISTRIBUTION	10,000	<u>10,040</u>	<u>40</u>	<input checked="" type="checkbox"/>		<u>10000</u>	<u>0</u>	<input checked="" type="checkbox"/>		9980	10,020
DISTRIBUTION	15,000	<u>15,060</u>	<u>60</u>	<input checked="" type="checkbox"/>		<u>15000</u>	<u>0</u>	<input checked="" type="checkbox"/>		14,970	15,030
DISTRIBUTION	18,000	<u>18,075</u>	<u>75</u>	<input checked="" type="checkbox"/>		<u>18,000</u>	<u>0</u>	<input checked="" type="checkbox"/>		17,960	18,040
<b>M.W.D.</b>											
<b>PAGE (1) OF (2) APPROVED</b>											
<b>*** FINAL CONCLUSIONS ***</b>											
As FOUND: ACCEPT <input type="checkbox"/> REJECT <input checked="" type="checkbox"/>			As LEFT: ACCEPT <input checked="" type="checkbox"/> REJECT <input type="checkbox"/>			ACTION PENDING: <input type="checkbox"/>					
<b>*** STATEMENT OF ESTIMATED UNCERTAINTY AND CONFIDENCE ***</b>											
<input type="checkbox"/> ESTIMATED UNCERTAINTY OF THIS CALIBRATION IS _____; BY CSI TYPE EVALUATION DEFAULT; WITH A CONFIDENCE LEVEL OF 99%.											
<input checked="" type="checkbox"/> UNCERTAINTY OF THIS CALIBRATION IS UNKNOWN BY STATISTICAL CALCULATION; ASSUMED EQUAL TO ±50% OF THE MINIMUM VALID DIVISION.											
Technician's Comments/Observations/Opinions: <u>tested, cleaned pit of debris, adjusted calibration, tested for as left results. 5# front to back shift error</u>											
<small>MGA2 - NM-695</small>											
<small>** THIS REPORT IS APPLICABLE ONLY TO THE DEVICE IDENTIFIED IN THE LOCATION SPECIFIED AS PART OF THIS REPORT. **</small>											
The serial number of this report is <u>091106MGA01</u> . This report may not be duplicated without written consent of Certified Scale Inc.											
This report, page <u>(1)</u> of <u>(2)</u> was completed on <u>09-11-2006</u> by <u>[Signature]</u> Certified Scale Inc. Representative											
Next scheduled Full Calibration is due <u>09-2007</u> Date. Next Preventive Maintenance visit is due <u>none</u> Date											
Revision - 0		Certified Scale Inc. - Quality Procedure Manual - Controlled Document						R-510L1RIC (File #5.10.c)			

**SECTION 4...continued**  
**INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
 Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
 Test Date: **05/07/07**

**SCALE CALIBRATION SHEET**

<i>Confidential</i> <b>REPORT OF INSPECTION AND CALIBRATION</b> <i>Trade Secret</i> Operating Under A2LA Accreditation #2006.01; Performed by Certified Scale Inc. N57 W13640 Carmen Avenue, Menomonee Falls, WI 53051. As Directed by MGA Research Corporation											
TYPE <u>DIGITAL FLOOR</u>		CLASS <u>III</u>	MODEL <u>465</u>	CAPACITY <u>20,000</u>							
MANUFACTURER <u>GSE</u>		SERIAL # <u>004804</u>	ID# <u>NONE</u>	MAX. LOAD <u>15,000</u>							
LOCATION <u>BUS AND TRUCK BAY 2</u>		MINIMUM DIVISION <u>5</u>	UNITS <u>Lbs.</u>								
<b>TEST AND UNCERTAINTY PROCEDURE JUSTIFICATION</b>					<b>NIST TRACEABLE TEST STANDARDS USED THIS CALIBRATION</b>						
PLEASE REFER TO TEST JUSTIFICATION AND UNCERTAINTY POLICY MADE PART OF SCALE MAINTENANCE AND CALIBRATION PROCEDURE MANUAL; SERIAL # MGA-704-L1					50# NUMBERS <u>CRD/NSC 01</u> THRU <u>819 NSC 34</u>						
<input checked="" type="checkbox"/> THERE WAS NO DEVIATION IN PROCEDURE AS WRITTEN					500# NUMBERS <u>B05</u> THRU <u>06</u>						
<input type="checkbox"/> DEVIATION FROM PROCEDURE IS NOTED HEREUPON					1000# NUMBERS <u>NSIA 100</u> THRU <u>NSIA 114</u>						
<b>TEST WEIGHT CERTIFICATION</b>					<b>ESTIMATE OF ENVIRONMENTAL CONDITIONS</b>						
PLEASE REFER TO TEST STANDARD TRACEABILITY DOCUMENTS MADE PART OF SCALE MAINTENANCE AND CALIBRATION PROCEDURE MANUAL; SERIAL # MGA-704-L1					Temperature <u>65°</u> Humidity <u>70%</u> Air Movement <u>minimal</u>						
Vibration <u>minimal</u> Other <u>none</u>											
<b>VISUAL INSPECTION</b>			Accept	Reject	<b>LOCATION OF TEST/NOTICE OF SUB-CONTRACTOR</b>						
FUNCTIONALITY; as left			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> This test was conducted at Certified Scale Inc. facility, Menomonee Falls, WI.						
REPEATABILITY/SENSITIVITY; as left			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> This test was conducted within the customer facility; located at:						
PHYSICAL CONDITION; as left			<input checked="" type="checkbox"/>	<input type="checkbox"/>	5000 Warren Road, Burlington, WI 53105						
SUITABILITY FOR INTENDED USE			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Subcontracted to:						
<b>*** FINAL TEST RESULTS ***</b>											
TEST POINT	As Found			A C C E P T	R E J E C T	As Left		A C C E P T	R E J E C T	TOLERANCES	
	EXPECTED VALUE	MEASURED VALUE	ERROR			MEASURED VALUE	ERROR			LOW LIMIT	HIGH LIMIT
<b>SCALE #2</b>											
DISTRIBUTION	1000	<u>10250</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>1000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	995	1005
DISTRIBUTION	2000	<u>2020</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1995	2005
DISTRIBUTION	3000	<u>3005</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>3000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2990	3010
DISTRIBUTION	4000	<u>4005</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>4000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3990	4010
DISTRIBUTION	5000	<u>5000</u>	<u>10</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>5000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4990	5010
DISTRIBUTION	10,000	<u>10020</u>	<u>20</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>10000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9980	10,020
DISTRIBUTION	15,000	<u>15030</u>	<u>30</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>15000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14,970	15,030
DISTRIBUTION	18,000	<u>18035</u>	<u>35</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>18000</u>	<u>0</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17,960	18,040
										<b>M.W.D.</b>	
<b>PAGE (2) OF (2) APPROVED</b>											
<b>*** FINAL CONCLUSIONS ***</b>											
As Found: ACCEPT <input checked="" type="checkbox"/> REJECT <input type="checkbox"/>			As Left: ACCEPT <input checked="" type="checkbox"/> REJECT <input type="checkbox"/>			ACTION PENDING: <input type="checkbox"/>					
<b>*** STATEMENT OF ESTIMATED UNCERTAINTY AND CONFIDENCE ***</b>											
<input type="checkbox"/> ESTIMATED UNCERTAINTY OF THIS CALIBRATION IS _____ BY CSI TYPE EVALUATION DEFAULT; WITH A CONFIDENCE LEVEL OF 99%.											
<input checked="" type="checkbox"/> UNCERTAINTY OF THIS CALIBRATION IS UNKNOWN BY STATISTICAL CALCULATION; ASSUMED EQUAL TO ±50% OF THE MINIMUM VALID DIVISION.											
Technician's Comments/Observations/Opinions: <u>tested, cleaned pit, adjusted calibration, noted for as left results</u>											

\*\* THIS REPORT IS APPLICABLE ONLY TO THE DEVICE IDENTIFIED IN THE LOCATION SPECIFIED AS PART OF THIS REPORT. \*\*

The serial number of this report is 091106MGA01. This report may not be duplicated without written consent of Certified Scale Inc.  
 This report, page (2) of (2) was completed on 09-11-2006 by [Signature] Certified Scale Inc. Representative  
 Next scheduled Full Calibration is due 09-2007 Date. Next Preventive Maintenance visit is due 12/06 Date.

Revision - 0 Certified Scale Inc. - Quality Procedure Manual - Controlled Document R-510L1RIC (File #5.10.c)

**SECTION 5  
PHOTOGRAPHS**

**TABLE OF PHOTOGRAPHS**

<u>No.</u>		<u>Page No.</u>
1	Three-Quarter Frontal View of Left Side of Vehicle	13
2	Three-Quarter Rear View of Left Side of Vehicle	14
3	Certification Label	15
4	Tire Manufacturer	16
5	Tire Model Number	17
6	Tire DOT Serial Number	18
7	Tire Load Ratings and Tire Size Designation	19
8	Rim Manufacturer	20
9	Rim DOT and Source of Published Information	21
10	Rim Size	22
11	Date of Manufacture Markings	23
12	Vehicle on Scales Doing Measurement of Front Axle Loads	24
13	Vehicle on Scales Doing Measurement of Rear Axle Loads	25
14	Simulated Occupant Loading	26
15	Simulated Cargo Loading	27

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Three-Quarter Frontal View of Left Side of Vehicle

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Three-Quarter Rear View of Left Side of Vehicle

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Certification Label

Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Tire Model Number

Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Tire DOT Serial Number

Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Tire Load Ratings and Tire Size Designation

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**

20



Rim Manufacturer

Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Rim DOT and Source of Published Information

Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Rim Size

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Date of Manufacture Markings

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Vehicle on Scales Doing Measurement of Front Axle Loads

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Vehicle on Scales Doing Measurement of Rear Axle Loads

Test Vehicle: **2006 MID BUS GUIDE DW SCHOOL BUS**  
Test Lab: **MGA RESEARCH CORPORATION**

NHTSA No.: **C60901**  
Test Date: **05/07/07**



Simulated Occupant Loading

Test Vehicle: 2006 MID BUS GUIDE DW SCHOOL BUS  
Test Lab: MGA RESEARCH CORPORATION

NHTSA No.: C60901  
Test Date: 05/07/07



Simulated Cargo Loading