REPORT NUMBER: 110-MGA-07-004

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 110 TIRE SELECTION AND RIMS FOR MOTOR VEHICLES WITH A GVWR OF 4,536 KG OR LESS

US BUS CORPORATION
2006 US BUS STURDIBUS SCHOOL BUS
NHTSA NO.: C60900

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

FINAL REPORT DATE: JULY 12, 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 12, 2007
James Hansen, Project Engineer

Reviewed by: _____ Date: July 12, 2007
Michael Janovicz, Program Manager

FINAL REPORT ACCEPTED BY OVSC:

Theresa M. Lacouture

July 12, 2007
Date of Acceptance

Technical Report Documentation Page

1. Report No. 110-MGA-07-004	*2. Government Accession No.*	*3. Recipient's Catalog No.*
4. Title and Subtitle Final Report of FMVSS 110 Compliance Testing of 2006 US BUS Sturdibus School Bus NHTSA No.:C60900		*5. Report Date* July 12, 2007 *6. Performing Organization Code* MGA
7. Author(s) James Hansen, Project Engineer Michael Janovicz, Program Manager		*8. Performing Organization Report No.* MGA-DOT-110-07-004
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-02-D-01057
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 04/03/2007 – 07/12/2007 *14. Sponsoring Agency Code* NVS-220
15. Supplementary Notes		

16. Abstract

A compliance test was conducted on the subject 2006 US Bus Sturdibus School Bus, NHTSA No. C60900, in accordance with FMVSS 110, "Tire selection and rims for motor vehicles with a GVWR of 4,536 KG or less," and TP-110T-01. The vehicle was weighed in the unloaded and fully loaded conditions and its tires, rims, and related information were checked.

Test failures: There was no Vehicle Placard present as required by FMVSS 110.

17. Key Words Compliance Testing Safety Engineering FMVSS 120 FMVSS 110		*18. Distribution Statement* Copies of this report are available from: NHTSA Technical Information Services (NPO-411) 1200 New Jersey Ave., S.E. Washington, DC 20590 Email: tis@nhtsa.dot.gov FAX: 202-493-2833	
19. Security Classif. (of this report) Unclassified	*20. Security Classif. (of this page)* Unclassified	*21. No. of Pages* 37	22. Price

Form DOT F1700.7 (8-72)

TABLE OF CONTENTS

SECTION 1
PURPOSE OF COMPLIANCE TEST

The purpose of this test report is to document the results of tests performed on a MY 2006 US BUS Sturdibus, NHTSA No.: C60900, in accordance with the requirements stated in Federal Motor Vehicle Safety Standard (FMVSS) No. 110, “Tire Selection and Rims for Motor Vehicles with a GVWR of 4,536 KG or less. ”

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. This standard also establishes location, content, and format requirements for the Vehicle Placard and optional Tire Inflation Pressure Label.

SECTION 2
TEST PROCEDURE AND DISCUSSION OF RESULTS

Testing of the 2006 US BUS Sturdibus School Bus, NHTSA No. C60900 was conducted at MGA Research Corporation in accordance with NHTSA TP-110T-01, dated December 15, 2005 and MGA-TP-110-02 dated December 11, 2006. 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 fifteen passengers (one adult driver and fourteen 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. 110. The vehicle rims are suitable for the vehicle tires and contain the required markings. The vehicle placard was not present as required.

SECTION 2…continued

TEST PROCEDURE AND DISCUSSION OF RESULTS

Model Year/Mfr. /Make/Model:	2006 US BUS Sturdibus	
Incomplete Vehicle Make/Model:	General Motors Corporation	
NHTSA No.:	C60900	
GVWR:	4,536 KG / 10,000 lbs	
Build Date for Bus Chassis:	03/06	
VIN:	1GBHG31V561226021	
Chassis VIN:	1GBHG31V561226021	
Designated Seating Capacity:	(1 Driver, 14 Passengers)	
Vehicle Type:	School Bus	
Tire Pressure from certification label (at capacity):	Front: 420 KPa	Rear: 420 KPa
Odometer Reading:	959 Miles	
Dealer Installed Optional Accessories	None Noted	

SUMMARY

Requirements	PASS/FAIL
TIRE AND RIM SELECTION (FMVSS 120, S5.1) Installed tires and rims are suitable for vehicle	**PASS**
RIM MARKING (FMVSS 120, S5.2) Rims contain all required markings of proper dimensions	**PASS**
LABEL INFORMATION The placard and tire inflation pressure label (if provided) are affixed and located correctly, and display the information and format required. (S110, S4.3) The Part 567 certification label shows the size designation of the tires and rims appropriate for the vehicle including the tire size(s) listed on the vehicle placard and, if provided, tire inflation pressure label. (S110, 4.3.3) No inflation pressure other than the maximum permissible inflation pressure is shown on the placard and, if any, tire inflation pressure label unless as required. (S110, S4.3.4)	**FAIL**
WEIGHT DISTRIBUTION (49 CFR 567 CERTIFICATION) Vehicle loaded with occupants and cargo does not exceed GVWR	**PASS**
RESULTS: Test data indicates compliance with FMVSS 110	**FAIL**

SECTION 3

COMPLIANCE TEST DATA

DATA SHEET 1
GENERAL TIRE AND RIM DATA

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

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 0806	N/A

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

	Front Axle	Rear Axle
A. GAWR (KG) from certification label	1860	3402
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	Yes

DATA SHEET 1…continued
GENERAL TIRE AND RIM DATA

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

RIM MARKINGS

	Right Front	Spare
A. Source of published dimensions (letter designation)	T	N/A
B. Rim Size	16 X 6 ½ 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	10 26 05	N/A
Do items A-C appear on weather side of rim? (Yes/No)	Yes	N/A
Letter height (not less than 3mm)	3.5 - 5.4 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 mm	N/A
Rim diameter	406 mm	N/A
Rim measurements same as rim markings? (Yes/No)	Yes	N/A

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

Remarks: None

Tested By: _____ Approved By: Michael Janosz

Date: 05/01/2007

DATA SHEET 2
CERTIFICATION, PLACARD, AND TIRE INFLATION PRESSURE LABELS

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

CERTIFICATION 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:	Driver's Door Sill at B-Post

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

GVWR: **4536** KG	Front Axle	Rear Axle
Tire Size	LT225/75R16	LT225/75R16
Rim Size	16 x 6 ½ J	16 x 6 ½ J
Recommended inflation pressure (KPa)	420	420
Are labeled rims suitable for labeled tires (Yes/No)[1]	Yes	Yes
Referenced load rating at label recommended inflation pressure (KG)[1]	993	905

[1] Referenced source for tire/rim match and load rating data: 2007 Year Book Tire & Rim Association

RESULTS	PASS/FAIL
LABEL INFORMATION (FMVSS 110, S4.3.3) The Part 567 certification label shows the size designation of the tires and rims appropriate for the vehicle including the tire size(s) listed on the vehicle placard and, if provided, tire inflation pressure label.	**PASS***

*The vehicle placard was missing on this vehicle.

Tested By: _____ Approved By: _____

Date: 05/01/2007

DATA SHEET 2…continued
CERTIFICATION, PLACARD, AND TIRE INFLATION PRESSURE LABELS

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

IDENTIFICATION OF VEHICLE LABELING

	(Yes/No)	Location	PASS/FAIL
Vehicle Placard	No	N/A	**FAIL**
Tire Inflation Pressure Label	N/A	N/A	N/A

NOTE: For a vehicle manufactured on and after September 1, 2005, the Vehicle Placard and if provided, Tire Inflation Pressure Label, are to conform to figures 1B and 2B. See the Labeling Notes for additional requirements.

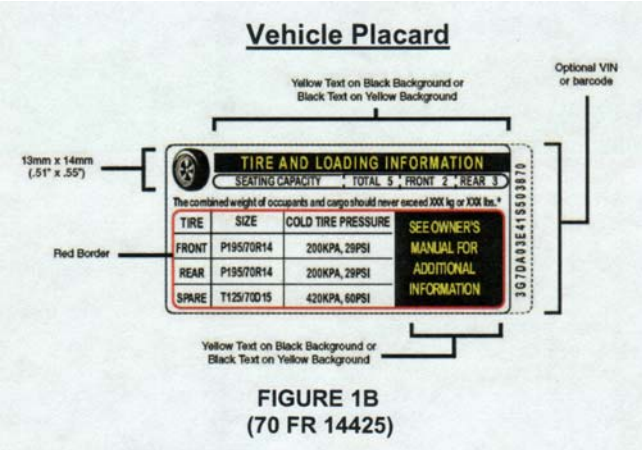

FIGURE 1B
(70 FR 14425)

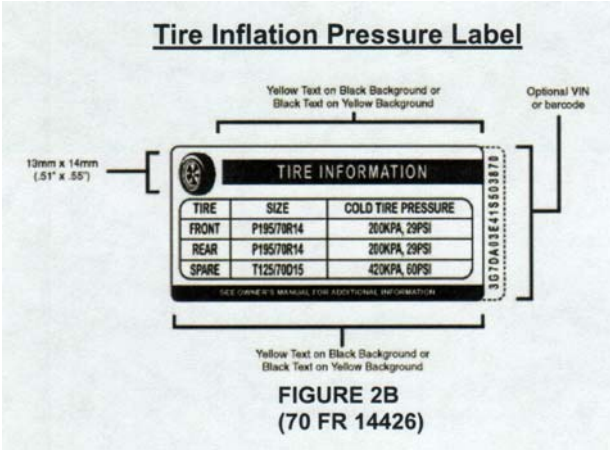

FIGURE 2B
(70 FR 14426)

Labeling Notes:

1. Tire size and pressure can be omitted from the Vehicle Placard if same data is displayed on a Tire Inflation Pressure Label.
2. The Alphanumeric Identifier or Barcode, is optional. It can be located vertically, along the right edge or the left edge of the placard or the label, or horizontally, along the bottom edge of the placard or the label.
3. Tire size can include the tire load range identification symbol (“XL” or “reinforced”, “B”, “C”, “D”, “E”, or “F”), the load index number, and the speed rating symbol, located immediately to the right of the tire size designation.
4. The tire “SIZE” heading can be replaced with “ORIGINAL TIRE SIZE” or ‘ORIGINAL SIZE.”
5. The “SPARE” tire heading can be replaced with “SPARE TIRE.”
6. For full size tires, the recommended cold tire inflation pressure can be replaced with “SEE ABOVE.”
7. If no spare tire is provided, the word “NONE” is to replace the manufacturer’s cold tire inflation pressure.

DATA SHEET 2…continued
CERTIFICATION, PLACARD, AND TIRE INFLATION PRESSURE LABELS

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

	Yes/No
Vehicle Placard has the exact color and format as specified in the above Figure 1B and text is in English Language.	N/A(1)
Tire Inflation Pressure Label, if provided, has the exact color and format as specified in the above Figure 2B and text is in English language.	N/A(1)
Vehicle Placard and if provided, Tire Inflation Pressure Label are permanently affixed.	N/A(1)

VEHICLE PLACARD

Combined weight of occupants and cargo:	N/A(1)
Seating Capacity:	N/A(1)
Is the number of belted seating positions the same as the labeled seating capacity?	N/A(1)
Is the tire size and pressure provided?	N/A(1)
If no, is the tire size and pressure provided on the Tire Inflation Pressure label?	

VEHICLE PLACARD OR TIRE INFLATION PRESSURE LABEL TIRE INFORMATION

Tire Size:	N/A(1)	N/A(1)
Tire Inflation Pressure (KPa):	N/A(1)	N/A(1)
Are the sizes of the installed tires the same as the sizes of the labeled tires?	N/A(1)	
Is the labeled cold tire inflation pressure equal to or less than the sidewall labeled maximum cold tire inflation pressure?	N/A(1)	N/A(1)

DATA SHEET 2…continued
CERTIFICATION, PLACARD, AND TIRE INFLATION PRESSURE LABELS

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

Is (Are) tire size(s) listed on the vehicle placard and/or tire inflation pressure label also listed on the certification label with suitable rim size?	N/A(1)

LABELED TIRE CAPACITY AT SPECIFIED PRESSURE

GVWR	N/A(1)	
	Front Axle	Rear Axle
A. GAWR (KG) from certification label	N/A(1)	N/A(1)
B. Tire Load Rating (KG) of labeled tire size at labeled inflation pressure *	N/A(1)	N/A(1)
C. Reduced tire load rating if applicable**	N/A(1)	N/A(1)
D. (no. of tires) x (tire load rating de-rated if appropriate (KG))	N/A(1)	N/A(1)
Is “D” equal to or greater than “A”?	N/A(1)	N/A(1)

*Reference source used for determining load rating: Tire and Rim Association
** If a passenger car tire is installed on a multipurpose passenger vehicle (MPV), truck or bus, the tire’s load rating is reduced by dividing by 1.10.

Remarks: (1) No vehicle placard or tire inflation pressure label tire information.

RESULTS	PASS/FAIL
PLACARD (FMVSS 110, S4.3) The placard and tire inflation pressure label (if provided) are affixed and located correctly, and display the information and format required.	**FAIL**
PLACARD (FMVSS 110, S4.3.4) No inflation pressure other than the maximum permissible inflation pressure is shown on the placard and, if any, tire inflation pressure label unless as required.	**FAIL**

Tested By: _____ Approved By: Michael Janosz

Date: 05/01/2007

DATA SHEET 3
WEIGHT DISTRIBUTION

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

FLUID LEVELS	
Fuel:	FULL
Coolant:	FULL
Other Fluids: Washer fluid, brake fluid, etc.	FULL

TIRE PRESSURES				
Tire	Left Front	Right Front	Left Rear	Right Rear
Tire Pressure (KPa)	420	420	420	420

OCCUPANT AND CARGO LOADS	
Total Occupant Load (KG): [# of designated seating positions x 68 KG per adult or 54 KG per student]	824 (1-driver, 14-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 4536 KG - 3364 KG - 824 KG = 348 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	993	760	No	814	No	818	No
Right Front Tire	993	746	No	804	No	830	No
Front Axle	1860	1506	No	1618	No	1648	No
Left Rear Tire	1810	932	No	1300	No	1432	No
Right Rear Tire	1810	926	No	1280	No	1460	No
Rear Axle	3402	1858	No	2580	No	2892	No
Total Vehicle	4536	3364	No	4198	No	4540	Yes

*Vehicle and axle weight ratings (GVWR & GAWR) are located on the vehicle certification label. Since this vehicle does not have a vehicle placard, 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 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

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

Remarks: None

Tested By: _____ Approved By: _____

Date: 05/01/2007

DATA SHEET 4
OWNER'S MANUAL REQUIREMENTS

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

OWNER'S MANUAL DISCUSSES

Part 575.6 (a) Paragraph	Required Discussion Topic	Discussed in Manual? (Yes/No)	Page Numbers
(4)(i)	Tire labeling, including a description and explanation of each marking on the tires provided with the vehicle, and information about the location of the Tire Identification Number (TIN).	Yes	5-54
(4)(ii)	(A) Description and explanation of recommended cold tire inflation pressure.	Yes	5-54
	(B) Description and explanation of FMVSS 110 Vehicle Placard and Tire Inflation Pressure Label and their location (s).	Yes	4-31, 4-34
	(C) Description and explanation of adverse safety consequences of under-inflation including tire failure.	Yes	5-59
	(D) Description and explanation for measuring and adjust air pressure to achieve proper inflation.	Yes	5-60
(4)(iii)	Glossary of tire terminology, including "cold tire pressure," maximum inflation pressure," and "recommended inflation pressure," and all non-technical terms defined in S3 of FMVSS 110 & 139.	Yes	5-57-5-59
(4)(vi)	Tire care, including maintenance and safety practices.	Yes	5-61-5-63
(4)(v)	(A) Description and explanation of loading and understanding load limit information, total load capacity, seating capacity, towing capacity, and cargo capacity.	Yes	4-30-4-52
	(B) Description and explanation for calculating total and cargo load capacities with varying seating configurations including quantitative examples showing/illustrating how the vehicle's cargo and luggage capacity decreases as the combined number and size of occupants increase.	Yes	4-32-4-33
	(C) Description and explanation for determining compatibility of tire and vehicle load capabilities.	Yes	4-34
	(D) Description and explanation of adverse safety consequences of overloading on handling and stopping and on tires.	Yes	4-34

DATA SHEET 4…continued
OWNER'S MANUAL REQUIREMENTS

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

	(Yes/No)
The following verbatim statement, in the English language, is provided in the Owner's Manual. Reference Part 575.6(a)(5)	Yes

STEPS FOR DETERMINING CORRECT LOAD LIMIT---

(1) Locate the statements "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs." on your vehicle's placard.

(2) Determine the combined weight of the driver and passengers that will be riding in your vehicle.

(3) Subtract the combined weight of the driver and passenger from XXX kg or XXX lbs.

(4) The resulting figure equals the available amount of cargo and luggage load capacity. For Example, if the "XXX" amount equals 1400lbs. and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. (1400-750 (5x150)=650 lbs.)

(5) Determine the combined weight of the luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.

(6) If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

RESULTS	PASS/FAIL
Owner's Manual Requirements, Part 575.6(a) Paragraph (4)(i), (4)(ii), (4)(iii), (4)(vi) and (4)(v) Owner's manual or other document has discussion of Vehicle Placard, Loading and Tires. (49 CFR 575.6 (a)(4)). Owner's manual includes exact statement relating to "Steps for Determining Correct Load Limits." (49 CFR 575.6 (a)(5)).	**PASS**

Remarks: None

Tested By: _____ Approved By: Michael Janosz

Date: 05/01/2007

SECTION 4

INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

	Digital Caliper	Vehicle Scale	Tape Measure
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	03/26/07
Cal. Due Date	09/11/07	09/11/07	03/26/08

SECTION 4…continued

INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

SCALE CALIBRATION SHEET

Confidential **REPORT OF INSPECTION AND CALIBRATION** *Trade Secret*

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 DIGITAL FLOOR CLASS IIIL MODEL 465 CAPACITY 20,000
MANUFACTURER GSE SERIAL # 004804 ID# NONE MAX. LOAD 15,000
LOCATION BUS AND TRUCK BAY 1 MINIMUM DIVISION 5 UNITS Lbs.

TEST AND UNCERTAINTY PROCEDURE JUSTIFICATION	NIST TRACEABLE TEST STANDARDS USED THIS CALIBRATION
PLEASE REFER TO TEST JUSTIFICATION AND UNCERTAINTY POLICY MADE PART OF SCALE MAINTENANCE	50# NUMBERS C800/NX01 THRU C819 /NSC34
AND CALIBRATION PROCEDURE MANUAL; SERIAL # MGA-704-L1	500# NUMBERS B05 THRU 016
☑ THERE WAS NO DEVIATION IN PROCEDURE AS WRITTEN	1000# NUMBERS NSI-A100 THRU NSI-A114
☐ DEVIATION FROM PROCEDURE IS NOTED HEREUPON	SUBSTITUTION LOAD ☐ none
TEST WEIGHT CERTIFICATION	**ESTIMATE OF ENVIRONMENTAL CONDITIONS**
PLEASE REFER TO TEST STANDARD TRACEABILITY DOCUMENTS MADE PART OF SCALE MAINTENANCE	Temperature 65 ° Humidity 70 % Air Movement minimal
AND CALIBRATION PROCEDURE MANUAL; SERIAL # MGA-704-L1	Vibration minimal Other none

VISUAL INSPECTION	ACCEPT	REJECT
FUNCTIONALITY; as left	✓	
REPEATABILITY/SENSITIVITY; as left	✓	
PHYSICAL CONDITION; as left	✓	
SUITABILITY FOR INTENDED USE	✓	

LOCATION OF TEST/NOTICE OF SUB-CONTRACTOR
☐ This test was conducted at Certified Scale Inc. facility, Menomonee Falls, WI.
☑ This test was conducted within the customer facility; located at :
5000 Warren Road, Burlington, WI 53105
☐ Subcontracted to:

***** FINAL TEST RESULTS *****

TEST POINT	AS FOUND EXPECTED VALUE	AS FOUND MEASURED VALUE	AS FOUND ERROR	AS FOUND ACCEPT	AS FOUND REJECT	AS LEFT MEASURED VALUE	AS LEFT ERROR	AS LEFT ACCEPT	AS LEFT REJECT	TOLERANCES LOW LIMIT	TOLERANCES HIGH LIMIT
SCALE #1											
DISTRIBUTION	1000	1000	0	✓		1000	0	✓		995	1005
DISTRIBUTION	2000	2005	5	✓		2000	0	✓		1995	2005
DISTRIBUTION	3000	3010	10	✓		3000	0	✓		2990	3010
DISTRIBUTION	4000	4015	15		✓	4000	0	✓		3990	4010
DISTRIBUTION	5000	5020	20		✓	5000	0	✓		4990	5010
DISTRIBUTION	10,000	10,040	40		✓	10,000	0	✓		9980	10,020
DISTRIBUTION	15,000	15,060	60		✓	15,000	0	✓		14,970	15,030
DISTRIBUTION	18,000	18,075	75		✓	18,000	0	✓		17,960	18,040

M.W.D.
APPROVED

PAGE (1) OF (2)

***** FINAL CONCLUSIONS *****

AS FOUND: ACCEPT ☐ REJECT ☑ AS LEFT: ACCEPT ☑ REJECT ☐ ACTION PENDING: ☐

***** STATEMENT OF ESTIMATED UNCERTAINTY AND CONFIDENCE *****

☐ ESTIMATED UNCERTAINTY OF THIS CALIBRATION IS _____; BY CSI TYPE EVALUATION DEFAULT; WITH A CONFIDENCE LEVEL OF 99%.
☑ UNCERTAINTY OF THIS CALIBRATION IS UNKNOWN BY STATISTICAL CALCULATION; ASSUMED EQUAL TO ±50% OF THE MINIMUM VALID DIVISION.

Technician's Comments/Observations/Opinions: tested, cleaned pit of debris, adjusted calibration, tested for as left results 5# pivot to lock shift error

MGA2 - NM:6/05

** 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 (1) of (2) was completed on 09-11-2006 (Date) by _____ (Certified Scale Inc. Representative).
Next scheduled Full Calibration is due 09-2007 (Date). Next Preventive Maintenance visit is due none (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 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

SCALE CALIBRATION SHEET

Confidential — **REPORT OF INSPECTION AND CALIBRATION** — Trade Secret

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 DIGITAL FLOOR — CLASS IIIL — MODEL 465 — CAPACITY 20,000
MANUFACTURER GSE — SERIAL # 004804 — ID# NONE — MAX. LOAD 15,000
LOCATION BUS AND TRUCK BAY 2 — MINIMUM DIVISION 5 — UNITS Lbs.

TEST AND UNCERTAINTY PROCEDURE JUSTIFICATION

Please refer to test justification and uncertainty policy made part of Scale Maintenance and Calibration Procedure Manual; Serial # MGA-704-L1

- ☑ There was no deviation in procedure as written
- ☐ Deviation from procedure is noted hereupon

NIST TRACEABLE TEST STANDARDS USED THIS CALIBRATION

50# NUMBERS C800/NSC01 THRU 819 NSC34
500# NUMBERS 805 THRU 06
1000# NUMBERS NSTA160 THRU NSTA176
SUBSTITUTION LOAD ☐ NOW

TEST WEIGHT CERTIFICATION

Please refer to test standard traceability documents made part of Scale Maintenance and Calibration Procedure Manual; Serial # MGA-704-L1

ESTIMATE OF ENVIRONMENTAL CONDITIONS

Temperature 65° Humidity 70 % Air Movement minimal
Vibration minimal Other none

VISUAL INSPECTION	ACCEPT	REJECT
FUNCTIONALITY; as left	✓	
REPEATABILITY/SENSITIVITY; as left	✓	
PHYSICAL CONDITION; as left	✓	
SUITABILITY FOR INTENDED USE	✓	

LOCATION OF TEST/NOTICE OF SUB-CONTRACTOR

- ☐ This test was conducted at Certified Scale Inc. facility, Menomonee Falls, WI.
- ☑ This test was conducted within the customer facility; located at :
  5000 Warren Road, Burlington, WI 53105
- ☐ Subcontracted to:

***** FINAL TEST RESULTS *****

TEST POINT	AS FOUND EXPECTED VALUE	AS FOUND MEASURED VALUE	AS FOUND ERROR	AS FOUND ACCEPT	AS FOUND REJECT	AS LEFT MEASURED VALUE	AS LEFT ERROR	AS LEFT ACCEPT	AS LEFT REJECT	TOLERANCES LOW LIMIT	TOLERANCES HIGH LIMIT
SCALE #2											
DISTRIBUTION	1000	1000	0	✓		1000	0	✓		995	1005
DISTRIBUTION	2000	2000	0	✓		2000	0	✓		1995	2005
DISTRIBUTION	3000	3005	5	✓		3000	0	✓		2990	3010
DISTRIBUTION	4000	4005	5	✓		4000	0	✓		3990	4010
DISTRIBUTION	5000	5010	10	✓		5000	0	✓		4990	5010
DISTRIBUTION	10,000	10,020	20	✓		10000	0	✓		9980	10,020
DISTRIBUTION	15,000	15,030	30	✓		15,000	0	✓		14,970	15,030
DISTRIBUTION	18,000	18,035	35	✓		18,000	0	✓		17,960	18,040

M.W.D.
APPROVED

PAGE (2) OF (2)

***** FINAL CONCLUSIONS *****

AS FOUND: ACCEPT ☑ REJECT ☐ — AS LEFT: ACCEPT ☑ REJECT ☐ — ACTION PENDING: ☐

***** STATEMENT OF ESTIMATED UNCERTAINTY AND CONFIDENCE *****

- ☐ ESTIMATED UNCERTAINTY OF THIS CALIBRATION IS _____; BY CSI TYPE EVALUATION DEFAULT; WITH A CONFIDENCE LEVEL OF 99%.
- ☑ UNCERTAINTY OF THIS CALIBRATION IS UNKNOWN BY STATISTICAL CALCULATION; ASSUMED EQUAL TO ±50% OF THE MINIMUM VALID DIVISION.

Technician's Comments/Observations/Opinions: tested, cleaned pit, adjusted calibration, tested for as left results

MGA2 - NM:6/05

** 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 04110604MGA01. "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 (Date) by _____ (Certified Scale Inc. Representative).

Next scheduled Full Calibration is due 09-2007 (Date). Next Preventive Maintenance visit is due none (Date).

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

SECTION 5
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Three-Quarter Frontal View of Left Side of Vehicle

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Three-Quarter Rear View of Left Side of Vehicle

Certification Label

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Right Front Tire Manufacturer

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Right Front Tire Model Number

Right Front Tire DOT Serial Number

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Right Front Tire Load Ratings

Test Vehicle: **2006 US BUS STURDIBUS SCHOOL BUS** NHTSA No.: **C60900**
Test Lab: **MGA RESEARCH CORPORATION** Test Date: **4/3/2007**

Right Front Tire Size Designation

Right Front Rim Manufacturer

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

DOT, Source of Published Information, and Date of Manufacture Markings

Rim Size

Vehicle on Scales Doing Measurement of Front Axle Loads

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Vehicle on Scales Doing Measurement of Rear Axle Loads

Test Vehicle:	**2006 US BUS STURDIBUS SCHOOL BUS**	NHTSA No.:	**C60900**
Test Lab:	**MGA RESEARCH CORPORATION**	Test Date:	**4/3/2007**

Simulated Occupant Loading

Simulated Cargo Loading

SECTION 6

LABORATORY NOTICE OF TEST FAILURE

mga research corporation

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 110	Test Date:	April 3, 2007
Test Vehicle:	US Bus Sturdibus	Test Lab:	MGA Research Corp.
NHTSA No.:	C60900	Project Engineer:	Jim Hansen
Contract No.:	DTNH22-02-D-01057	Delivery Order No.:	5
MFR.:	US Bus	VIN:	1GBHG31V561226021
Build Date:	08/06		

TEST FAILURE DESCRIPTION

There was no Vehicle Placard present as required by FMVSS 110.

FMVSS REQUIREMENTS DESCRIPTION

Paragraph S4.3.1: "A placard or placard and label shall be affixed to the completed vehicle by the final-stage manufacturer in accordance with S4.3 and with the vehicle capacity weight and seating designations as finally manufactured."

Remarks: No remarks.

Notification to NHTSA (COTR): Lawrence Q. Valvo

Date: June 11, 2007

By: _____