HS No
636799

REPORT NUMBER: 217-MGA-03-004

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

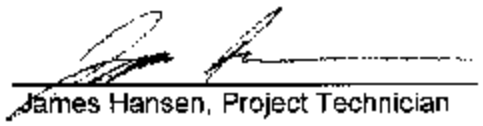
2003 Liberty Bus
Freedom School Bus
NHTSA No.: C30901

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

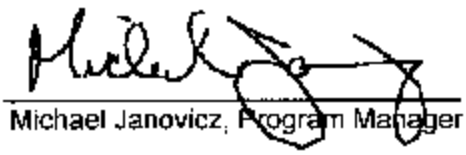
Final Report Date: September 10, 2003

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW, ROOM 6115 (NVS-220)
WASHINGTON, D.C. 20590

Prepared by: 
James Hansen, Project Technician

Date: September 10, 2003

Reviewed by: 
Michael Janovicz, Program Manager

Date: September 10, 2003

FINAL REPORT ACCEPTED BY:

Amanda Prescott

9-16-03

Date of Acceptance

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15. Supplementary Notes

16. Abstract

Compliance tests were conducted on the subject 2003 Liberty Bus Freedom School Bus, NHTSA No. C30901 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. Test failures were as follows:

1. The label describing the motions required to unlatch and open the rear emergency exit door is engraved with lettering .9 cm to .95 cm in height. FMVSS 217 requires these letters be 1 centimeter high at a minimum.
2. The rear emergency door is equipped with a positive door opening device which keeps the door from opening past approximately 60° - 70° to the rear of the bus body. FMVSS 217 requires these opening devices to keep the door from closing past the point where they are perpendicular to the bus body.
3. The right rear emergency door is equipped with a pull type opening device which is NOT recessed beyond the rim of the recessed receptacle as FMVSS 217 requires.

17. Key Words	18. Distribution Statement
Compliance Testing Safety Engineering FMVSS 217	Copies of this report are available from: NHTSA Technical Information Services (TIS) Room 5108, (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590 (202) 366-4946

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Form DOT F1700.7 (8-72)

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SECTION 1
PURPOSE OF COMPLIANCE TEST

Tests were conducted on a MY2003 Liberty Bus Freedom School Bus, NHTSA No. C30901, 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. DTNH22-02-D-01057.

SECTION 2
TEST DATA SUMMARY

Based on the tests performed, the MY2003 Liberty Bus Freedom School Bus, NHTSA No. C30901 did not appear to meet the requirements of FMVSS 217. See Data Sheet 1 for Test Summary on the following page.

DATA SHEET 1

TEST SUMMARY

GENERAL VEHICLE IDENTIFICATION

Model Year/Make/Model:	2003 Liberty Bus	
NHTSA No.:	C30901	
GVWR:	4,355 kg	
Build Date for Bus Chassis:	10/02	
VIN:	1GBHG39U831110237	
Chassis VIN:	1GBHG39U831110237	
Seating Capacity:	17 (16 students, 1 driver)	
Type of Bus:	Type A	
Tire Pressure from tire placard (at capacity):	Front: 340 kPa	Rear: 550 kPa
Odometer Reading:	1280 km	
Vehicle Manufacture Date:	02/03	

	PASS/FAIL
S5.1 WINDOW RETENTION	**PASS**
S5.2 PROVISION OF EMERGENCY EXITS	**PASS**
Meets minimum exit provisions	**PASS**
Meets all other exit requirements	**PASS**
Meets requirements for additional exits	**PASS**
S6.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS	**PASS**
S5.3 EMERGENCY EXIT RELEASE	**FAIL**
Forces to unlatch the emergency exits	**PASS**
Forces to open the emergency exits	**PASS**
S5.4 EMERGENCY EXIT OPENING	**FAIL**
S5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION	**FAIL**
49CFR 571.131 S5.6 TAPE REFLECTIVITY	**NOT TESTED**

COMMENTS: NONE

SECTION 3

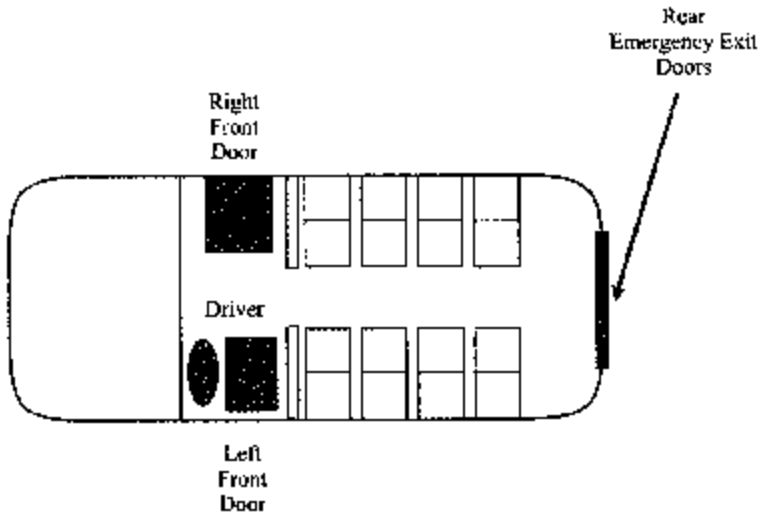
COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2003 Liberty Bus Freedom School Bus, NHTSA No. C30901.

DATA SHEET 2

PROVISION OF EMERGENCY EXITS

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**



		Height (mm)	Width (mm)
1	Rear Exit Door (Right Door Only)	1260	683
2	Rear Exit Door (Both Doors Open)	1260	1452

Seating Capacity: 17 (Including Driver)

	PASS/FAIL
Bus meets minimum emergency exit provision, based upon Table 1	**PASS**

Comments: An additional rear emergency exit door was provided.

DATA SHEET 2 (CONTINUED)

PROVISION OF EMERGENCY EXITS

		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)	**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.	**N/A**
6	The bus is not equipped with both sliding and push-out windows, (except for buses equipped with rear push out emergency exit windows).	**N/A**
7	A right side emergency exit door	**N/A**

COMMENTS: NONE

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

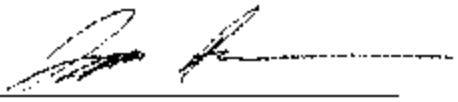
DATA SHEET 3
EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS

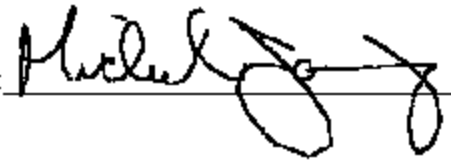
Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

		PASS/FAIL
1	The engine starting system does NOT operate if any Emergency Exit is LOCKED	**N/A**[1]
2	All Emergency Door and Roof Exits can be released by one person (from inside and outside of bus)	**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.	**PASS**
4	Emergency exit release mechanism does not use remote controls or central power systems	**PASS**

COMMENTS:

(1) The emergency exits cannot be locked.

Recorded By: 

Approved By:  Date: **August 19, 2003**

SHEET 4A
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle:	**2003 Liberty Bus Freedom School Bus**	NHTSA No.:	**C30901**
Test Lab:	**MGA Research-Wisconsin Operations**	Test Date:	**8/19/03**

EMERGENCY EXIT LABELING - INTERIOR

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

OPERATING INSTRUCTIONS - INTERIOR

Exit Location	Rear Left Door	Rear Right Door
Instructions	Move Handle To Open: Push out	Move Handle To Open: Push out
Letter Height (cm)	0.9	0.9
Letter Color	Black	Black
Background Color	White	White
Distance From Release (cm)	4	15
Reflective Tape Color	**N/A**	**N/A**
Reflective Tape Width	**N/A**	**N/A**
Pass/Fail	**FAIL**	**FAIL**

COMMENTS: NONE

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

DATA SHEET 4B
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

EMERGENCY EXIT LABELING - EXTERIOR

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

OPERATING INSTRUCTIONS - EXTERIOR

Exit Location	Rear Left Door	Rear Right Door
Instructions	Pull Tab Open Door	Pull Tab Open Door
Letter Height (cm)	1.3	1.3
Letter Color	Black	Black
Background Color	Yellow	Yellow
Distance From Release (cm)	3.5	3.5
Reflective Tape Color	Yellow	Yellow
Reflective Tape Width	2.5 cm	2.5 cm
Pass/Fail	**Pass**	**Pass**

COMMENTS: NONE

Recorded By: _____

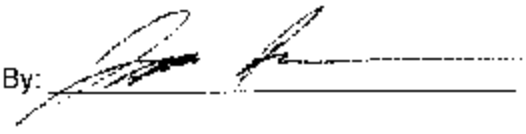
Approved By: _____ Date: **August 19, 2003**

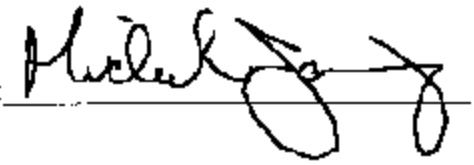
DATA SHEET 4 (CONTINUED)
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

		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.	**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.	**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.	**FAIL**
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.	**PASS**

COMMENTS:

Recorded By: 

Approved By:  Date: **August 19, 2003**

DATA SHEET 5
TAPE RELECTIVITY TEST

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

_____ Color of retroreflective tape (white, red, or yellow)

... Glass bead retroreflective element material – **Fill in Part A**

_____ Prismatic retroreflective element material – **Fill in Part B**

SPECIFIC INTENSITY PER UNIT AREA
(Candela Per Foot Candle Per Square Foot)

Observation Angle	Entrance Angle	Min. Reqd. Intensity	Recorded Intensity	Pass/Fail
Part A – Glass Bead				
Part B - Prismatic				

This section of tape passes the REFLECTIVITY requirement. Yes___ No___

COMMENTS: NOT TESTED

Recorded By:_____

Approved By:_____ Date:

DATA SHEET 6A
FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - INTERIOR

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Release Exit	Actual Motion(s) to Release Exit	PASS/FAIL
Rear Left Door[1]	Door Exit	High	178	1. 69.0 2. 57.5 3. 65.5 Average: 64	Pull	Pull Handle	**PASS**
Rear Right Door	Door Exit	High	178	4. 54.0 5. 47.0 6. 56.0 Average: 52.3	Pull	Pull Handle	**FAIL[2]**

COMMENTS:

[1] The rear left door uses the same unlatching mechanism from both inside and outside the bus.

[2] The release mechanism uses a pull type motion and is required to be recessed such that the mechanism does not protrude beyond the rim of the recessed receptacle (49 CFR 571.217 Paragraph S.5.3.3.1(b)). The release mechanism is not recessed below the rim of the receptacle.

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

DATA SHEET 6B
FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - EXTERIOR

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Release Exit	Actual Motion(s) to Release Exit	PASS/FAIL
Rear Left Door[1]	Door Exit	High	178	1. 69.0 2. 57.5 3. 65.5 Average: 64.0	Pull	Pull Handle	**PASS**
Rear Right Door	Door Exit	High	178	1. 59.0 2. 64.5 3. 55.0 Average: 59.5	Pull	Pull Handle	**PASS**

COMMENTS:

[1] The rear left door uses the same unlatching mechanism from both inside and outside the bus.

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

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

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	PASS/FAIL
Rear Left Door	Door Exit	High	178	1. 20.5 2. 21.0 3. 18.0 Average: 19.8	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	114x55x15 Parallelepiped	**PASS**
Rear Right Door	Door Exit	High	178	1. 16.0 2. 17.0 3. 13.5 Average: 15.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	114x55x15 Parallelepiped	**PASS**

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

COMMENTS: NONE

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

DATA SHEET 7B
FORCE TESTS TO OPEN THE EMERGENCY EXITS - EXTERIOR

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	PASS/FAIL
Rear Left Door	Door Exit	High	178	1. 18.0 2. 18.5 3. 23.0 Average: 19.8	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	114x55x15 Parallelepiped	**PASS**
Rear Right Door	Door Exit	High	178	1. 13.0 2. 12.0 3. 12.0 Average: 12.3	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	114x55x15 Parallelepiped	**PASS**

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

COMMENTS: NONE

Recorded By: _____

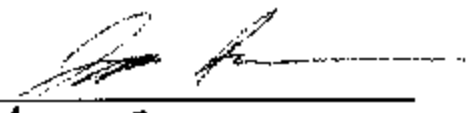
Approved By: _____ Date: **August 19, 2003**

DATA SHEET 8
EMERGENCY EXIT EXTENSION

Test Vehicle:	**2003 Liberty Bus Freedom School Bus**	NHTSA No.:	**C30901**
Test Lab:	**MGA Research-Wisconsin Operations**	Test Date:	**8/19/03**

		PASS/FAIL
1	Exit(s) can be extended by a single person.	**PASS**
2	Each emergency exit door is equipped with a positive door opening device that meets the requirements (outlined in Section S5.4.2.1(a) (3) (i) (B) of FMVSS 217).	**FAIL[1]**
3	There is a 30 cm (11.81") wide clear aisle space for each side emergency door exit.	**N/A**
4	There is no seat or barrier which extend past the side door opening	**N/A**
5	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**
6	There is no obstruction of door latch mechanism for the rear emergency door.	**PASS**

COMMENTS:
[1] The rear emergency doors are equipped with positive door opening devices which keep the door from opening more than 60-70 degrees from the rear of the bus body. 49 CFR 571.217 Paragraph S.5.4.2.1(a)(3)(i)(B) requires the door opening devices keep the door from closing past the point when they are perpendicular to the bus body.

Recorded By: 

Approved By: 

Date: **August 19, 2003**

DATA SHEET 9
WINDOW RETENTION TEST

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

1	Test Window Identification:	Right Front 2nd Window – Top Glazing[1]
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Sliding
3	Provide the horizontal and vertical glazing dimensions for each panel.	660 mm x 273 mm
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS/FAIL criteria:	Glazing deflected 43.2 mm at 215 kg without creating a 102 mm opening **PASS**[2]
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	**N/A**

COMMENTS:
[1]There were no emergency exit windows in this vehicle.

[2] Window reached the deflection requirement of S.5.1

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

DATA SHEET 9 (CONTINUED)
WINDOW RETENTION TEST

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

1	Test Window Identification:	Left Rear Emergency Door Window
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Fixed Window - Push Out Door Operation
3	Provide the horizontal and vertical glazing dimensions for each panel.	536 mm x 596 mm
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS/FAIL criteria:	Glazing shattered at 489 kg - **PASS**
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	**PASS** 53.0 N to Unlatch 21.2 N to Open

COMMENTS:

Recorded By: _____

Approved By: _____ Date: **August 19, 2003**

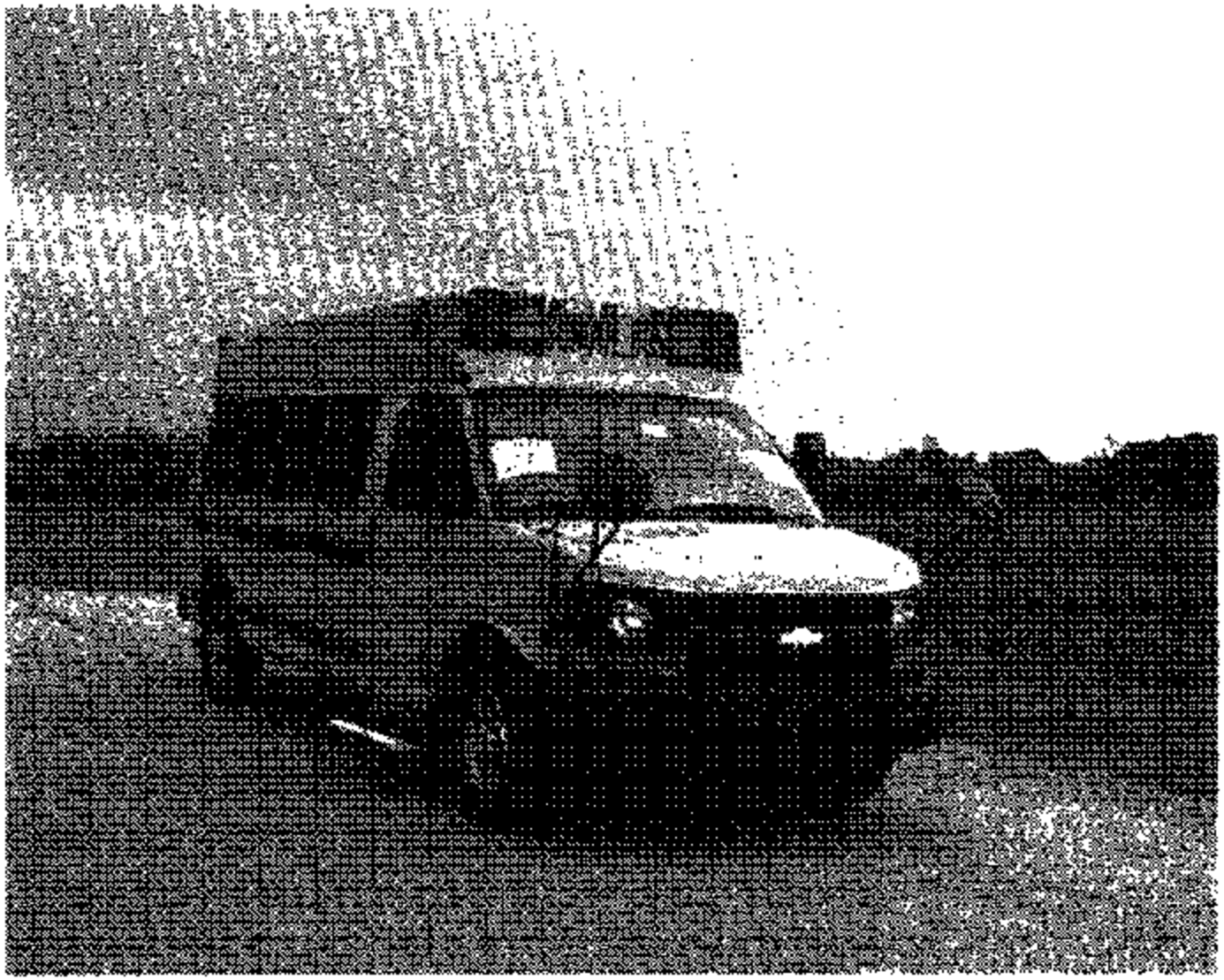
SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

Test Vehicle: **2003 Liberty Bus Freedom School Bus** NHTSA No.: **C30901**
Test Lab: **MGA Research-Wisconsin Operations** Test Date: **8/19/03**

Equipment	Description	Model/Serial No.	Cal. Date	Next Cal. Date
Computer	HP	Vectra / US03263612	—	—
Head Form	MGA	217	5/4/03	11/4/03
A/D Interface	Metrabyte	DAS-1802	—	—
Sphere	MGA	Sphere – 1A	5/4/03	11/4/03
Load Cell	Interface	1210AF / 61219	6/16/03	12/16/03
Inclinometer	Digital Protractor	Pro 360 / Comp Lab	5/20/03	11/20/03
Linear Potentiometer	Ametek	P-25A / 112-19182	5/7/03	11/7/03
Digital Caliper	Mitutoyo	CD-6"GS/ 0004174	1018/02	10/18/03
Steel Tape	Stanley	Powerlock / 149	5/30/03	11/30/03
Camera	Sony	DSC-S75	---	---
Ellipsoid	MGA	ELLIP – 1A	5/4/03	11/4/03
Parallelepiped	MGA	PARA – 1A	5/4/03	11/4/03
Force Gauge	Chatillon	DFGS-R-ND / F31754	6/17/03	12/17/03
Temp. Recorder	Dickson	TR320 / 03039010	2/1/03	2/1/04

SECTION 5
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

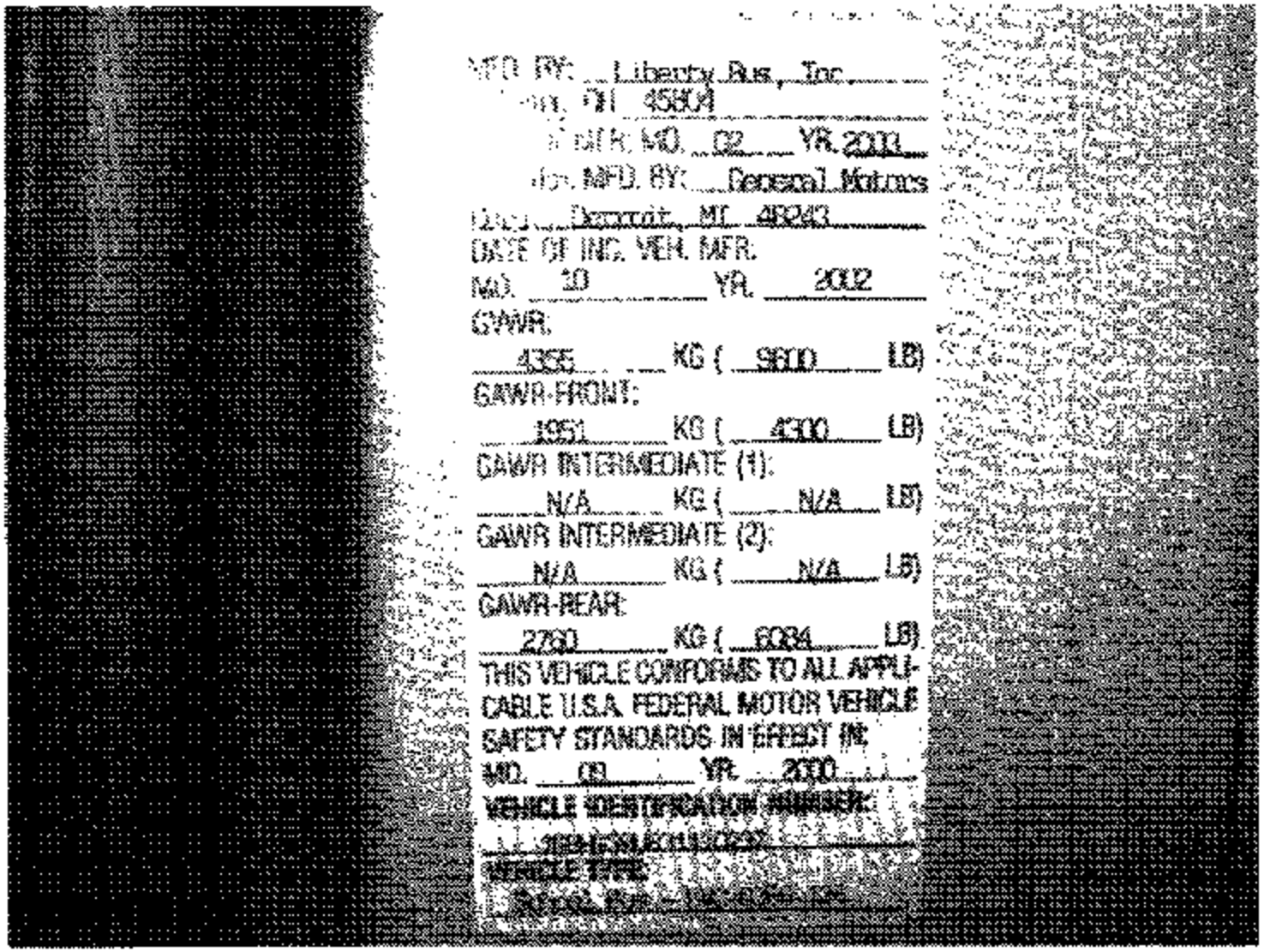


Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30991**

Photograph 1:
Exterior Right Front ¾ View of School Bus

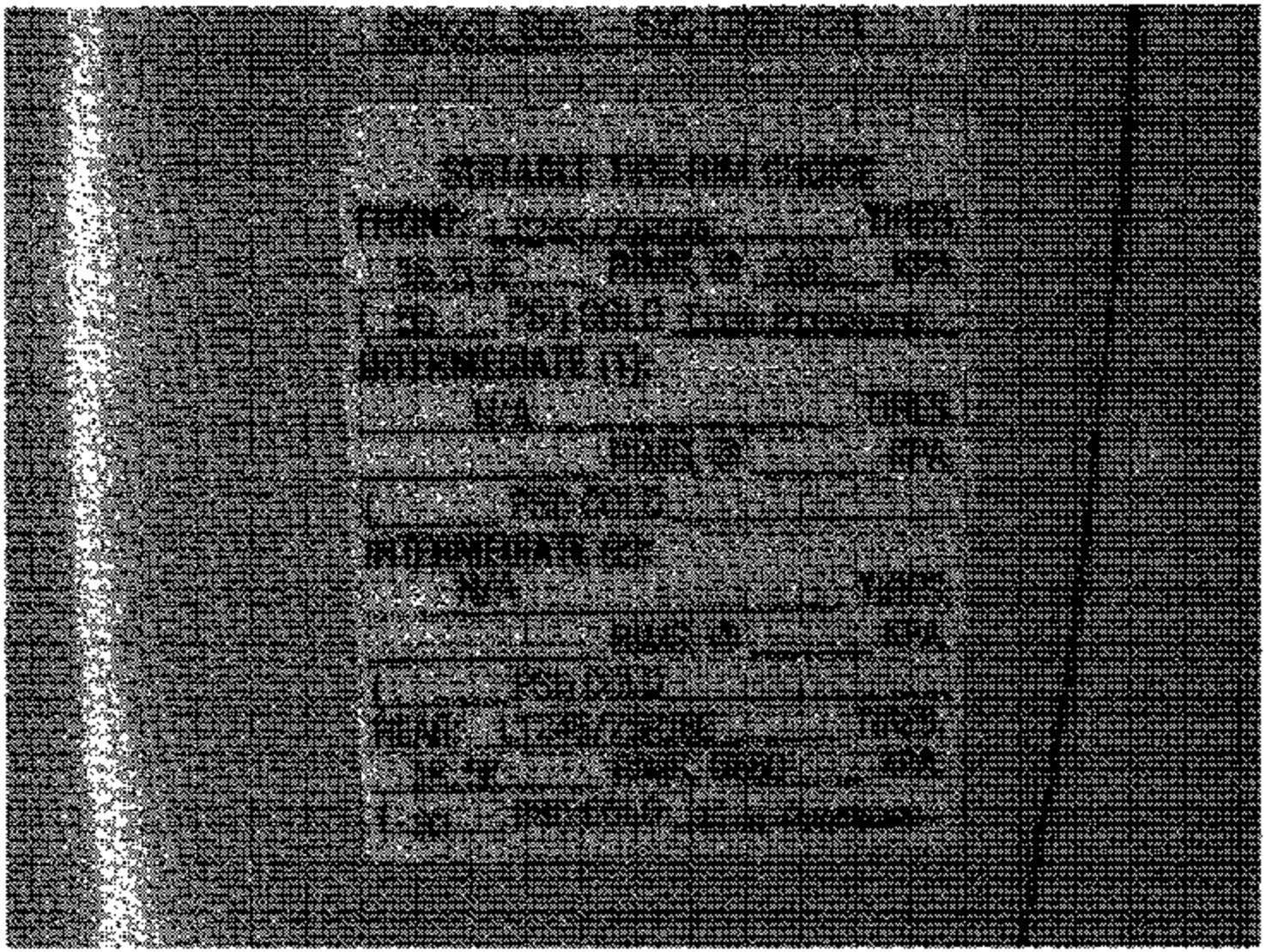
Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

Photograph 2:
Exterior Left Rear ¾ View of School Bus



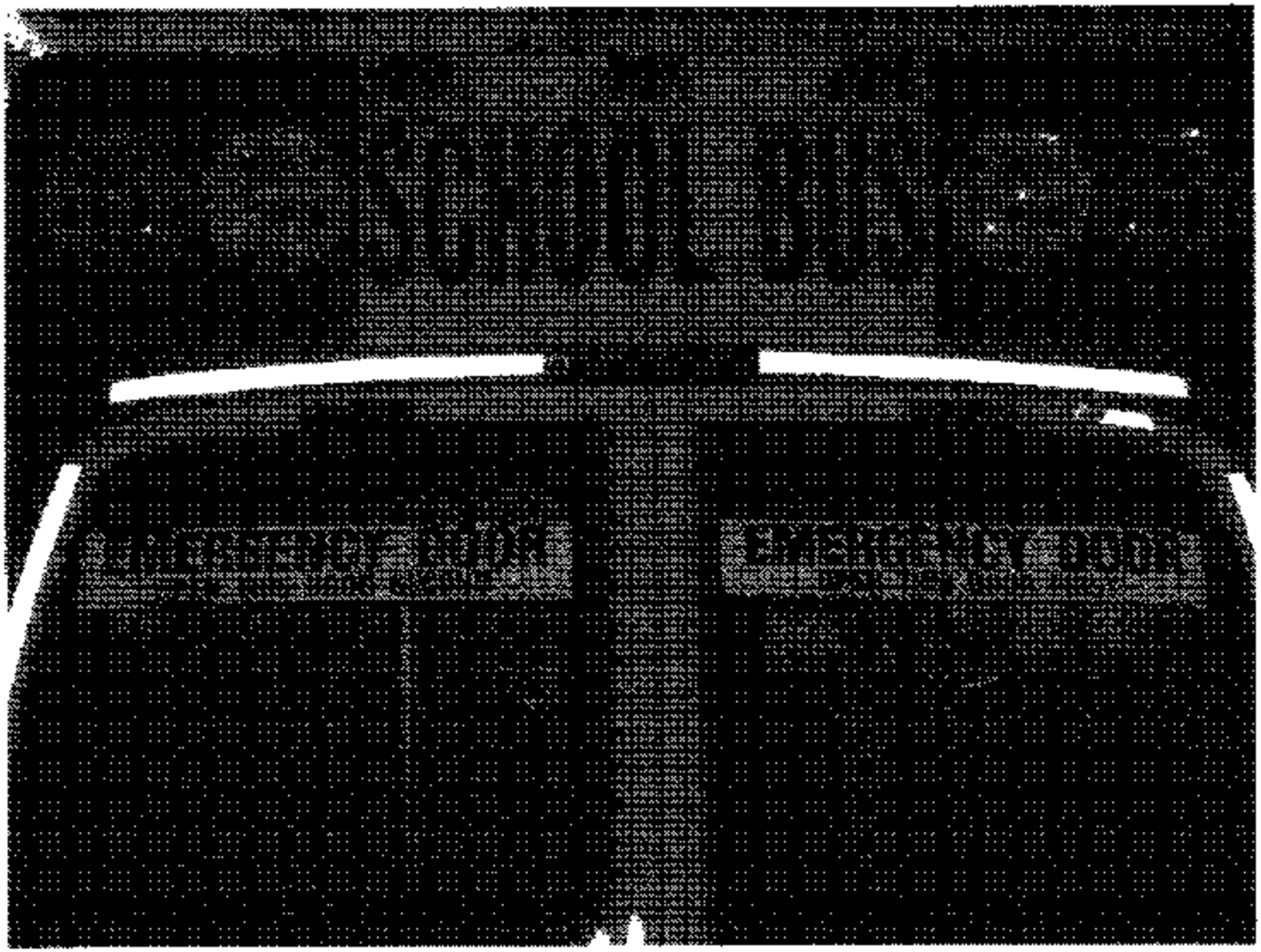
Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No. **C30901**

Photograph 3:
Vehicle Certification Label



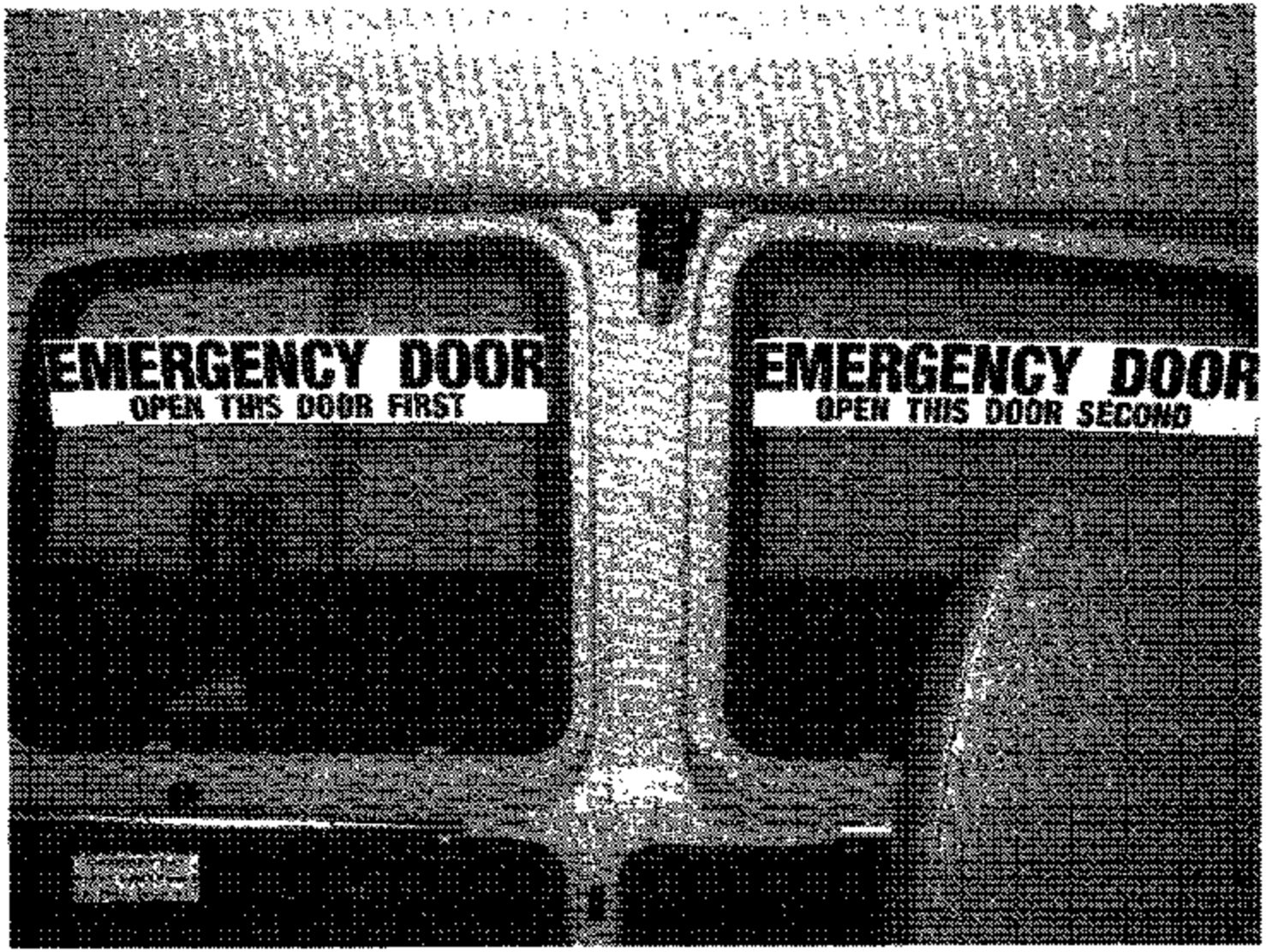
Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

Photograph 4:
Tire Placard



Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

Photograph 5:
Rear Exit Door Identification (Outside View)



Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

Photograph 6:
Rear Exit Door Identification (Inside View)

Test Vehicle: 2003 Liberty Bus Freedom School Bus
Procedure: FMVSS 217
NHTSA No.: C30901

Photograph 7:
Rear Door Emergency Exit Parallelepiped Clearance

Test Vehicle: 2003 Liberty Bus Freedom School Bus
Procedure: FMVSS 217
NHTSA No.: C30901

Photograph 8:
Both Rear Doors Emergency Exit Parallelepiped Clearance

Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

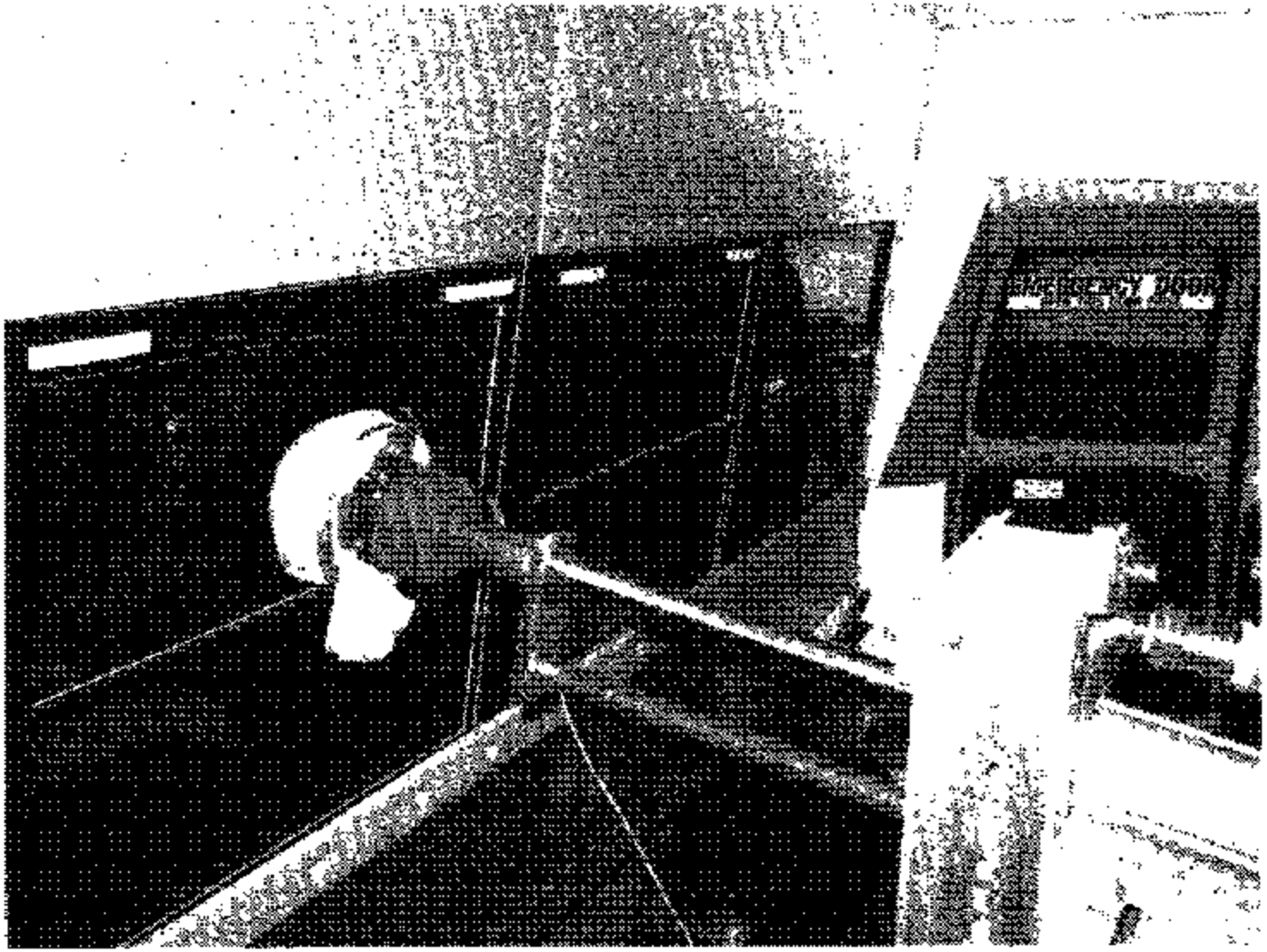
Photograph 9:
Loading Fixture

Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

Photograph 10:
Retention Test of Left Rear Window (Pre-Test)

Test Vehicle 2003 Liberty Bus Freedom School Bus
Procedure: FMVSS 217
NHTSA No. C30901

Photograph 11:
Retention Test of Left Rear Window (Post-Test)

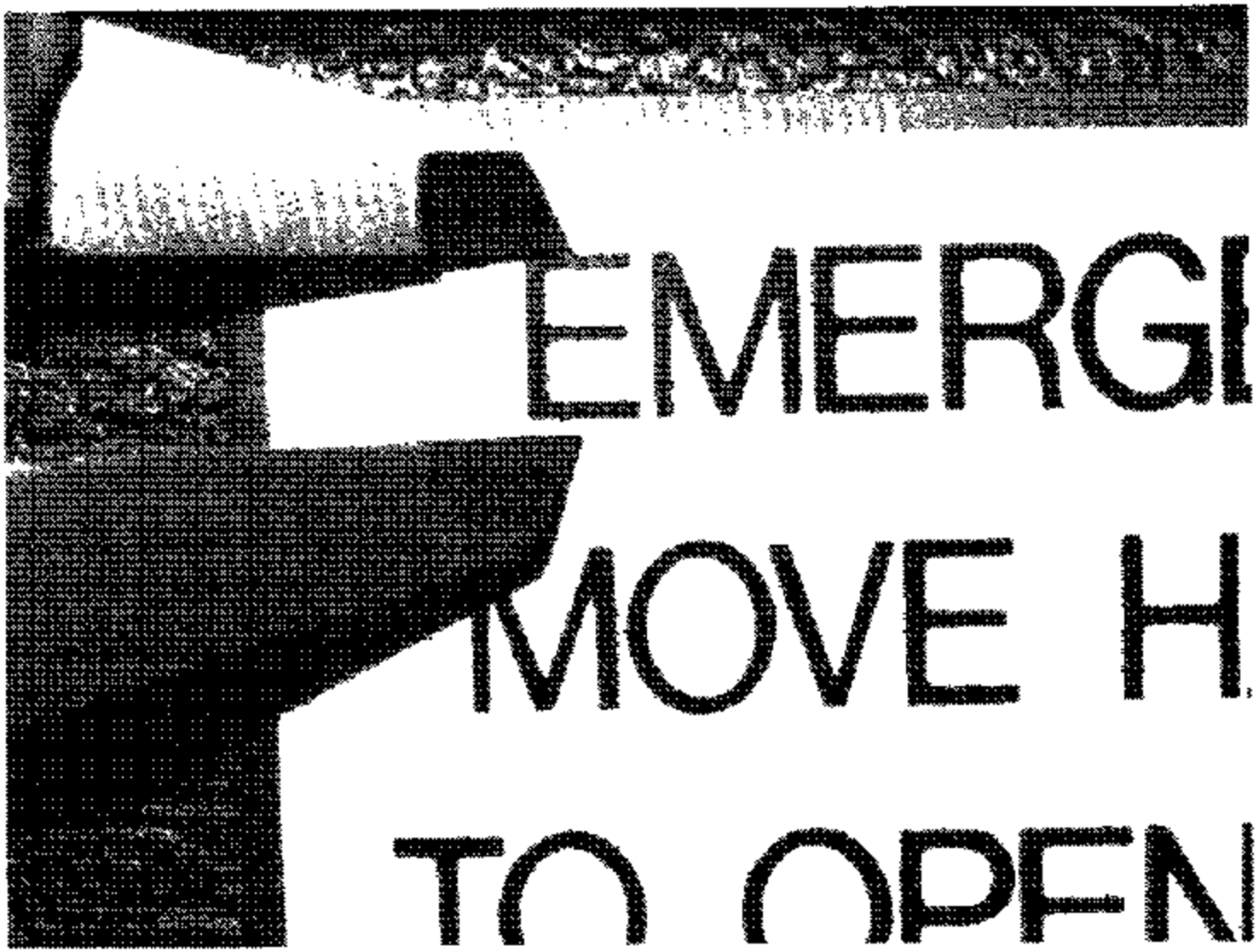


Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

Photograph 12:
Retention Test of Right Front Window (Pre-Test)

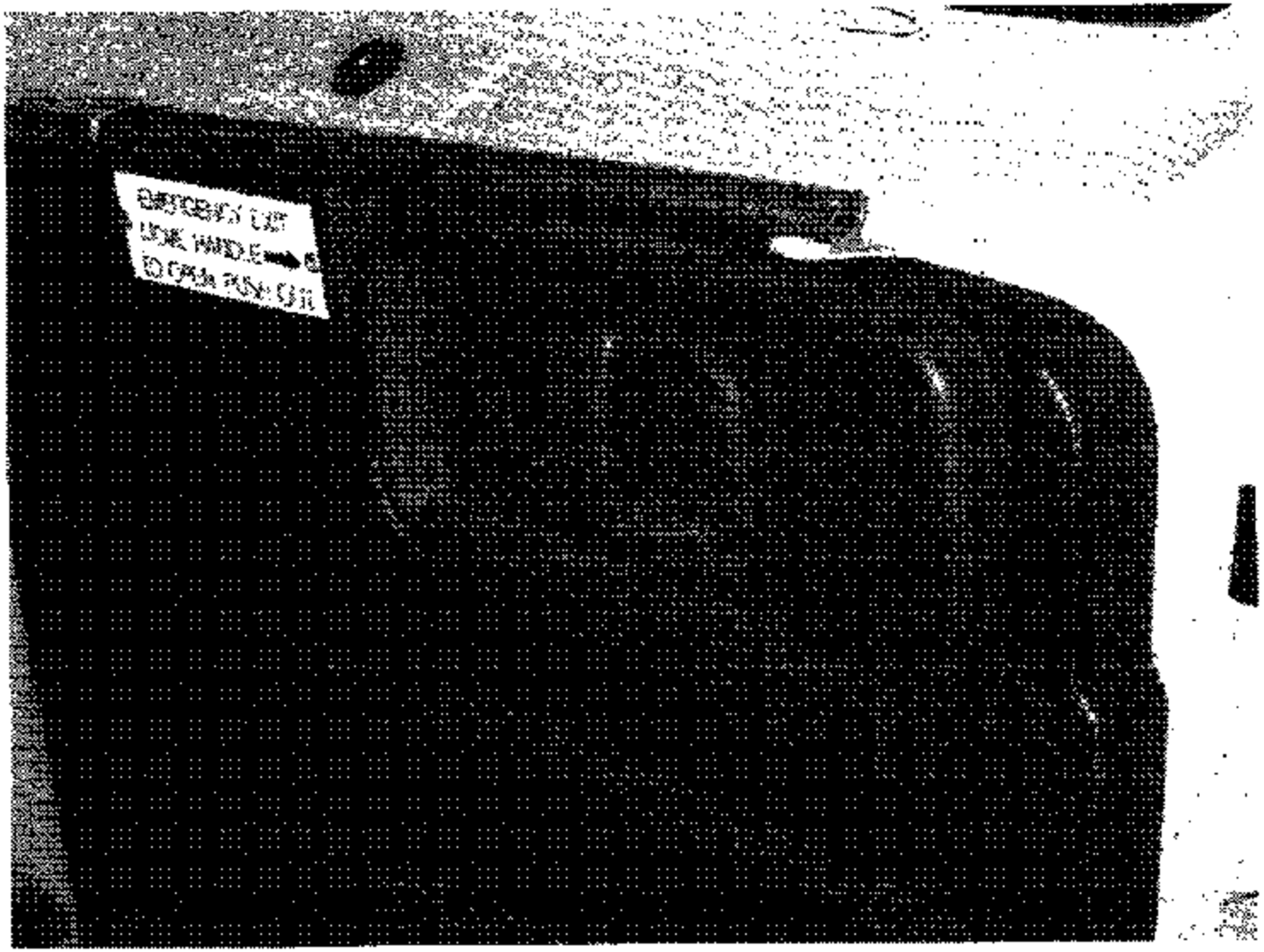
Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No. **C30901**

Photograph 13:
Retention Test of Right Front Window (In Progress)



Test Vehicle: 2003 Liberty Bus Freedom School Bus
Procedure: FMVSS 217
NHTSA No: C30901

Photograph 14:
Interior Labeling Failure



Test Vehicle: **2003 Liberty Bus Freedom School Bus**
Procedure: **FMVSS 217**
NHTSA No.: **C30901**

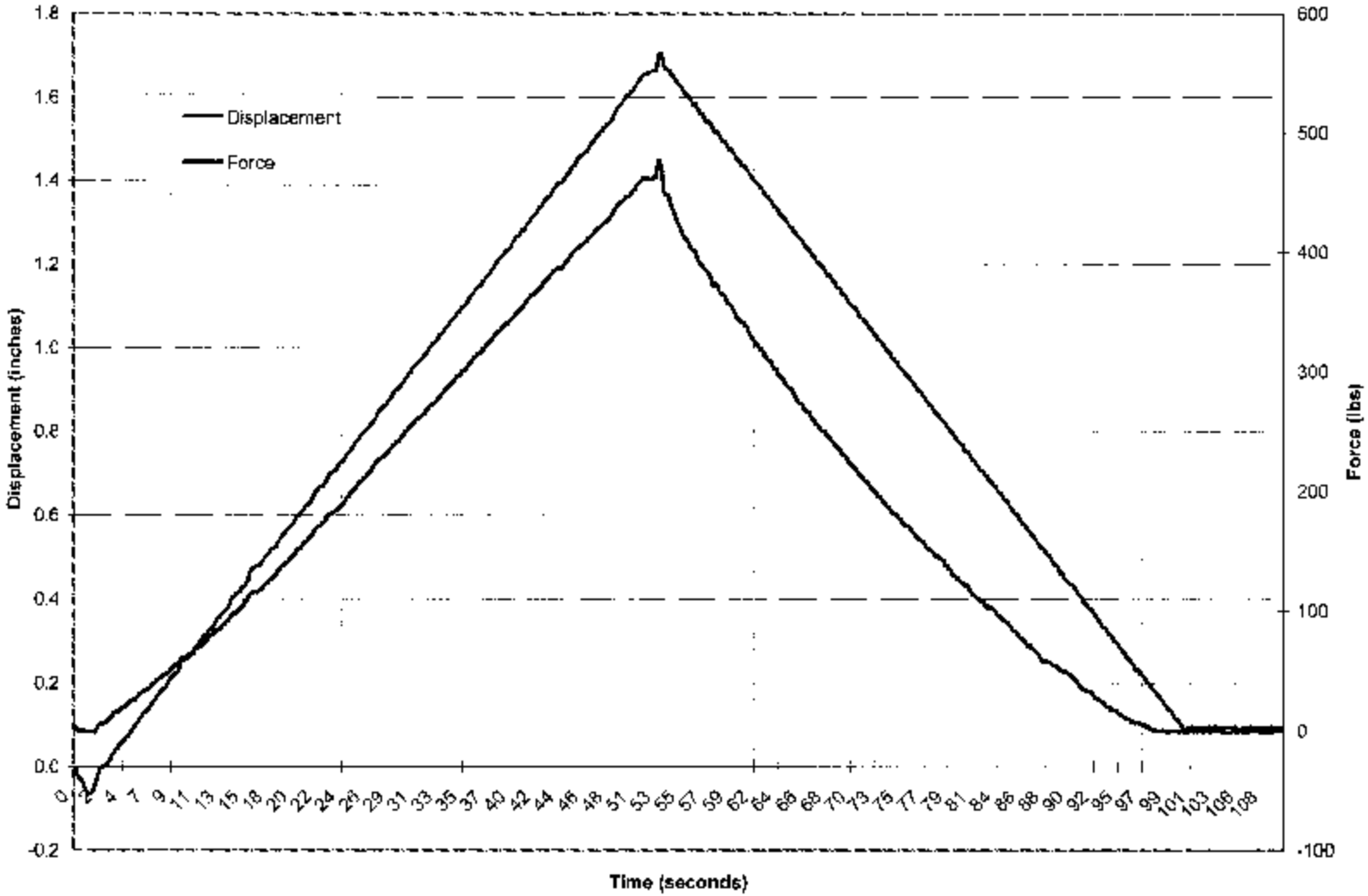
Photograph 16:
Door Handle Failure

Test Vehicle: 2003 Liberty Bus Freedom School Bus
Procedure: FMVSS 217
NHTSA No.: C30901

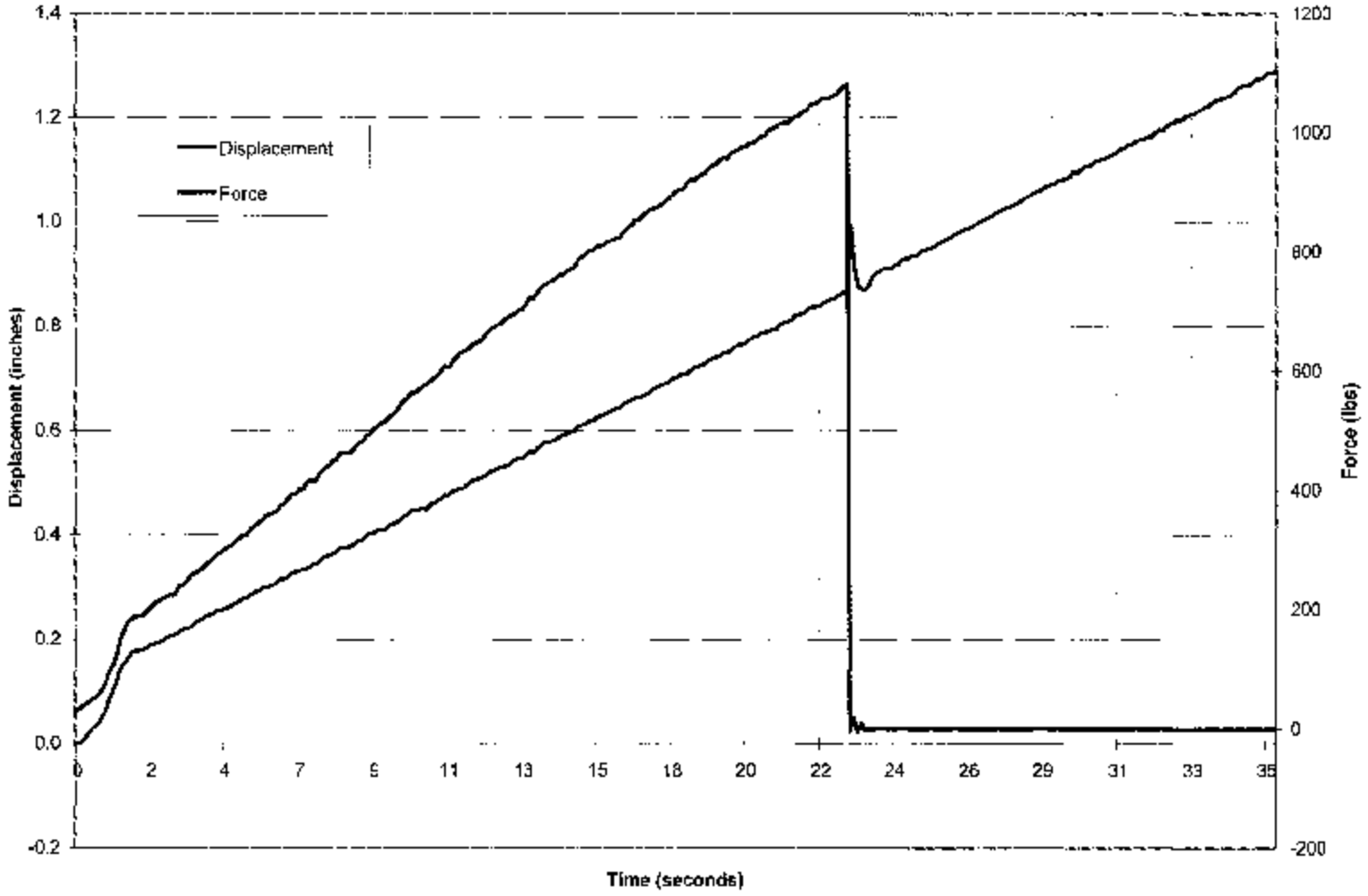
Photograph 16:
Door Opening Device Failure (Door at Maximum Extension)

SECTION 6
TEST PLOTS

FMVSS 217 NHTSA No: C30901
Liberty Bus Freedom Right Front 2nd Window - Upper Pane



FMVSS 217 NHTSA No: C30901
Liberty Bus Freedom Left Rear Emergency Door Window



SECTION 7
LABORATORY NOTICE OF TEST FAILURE

mga research corporation

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 217	Test Date:	August 19, 2003
Test Vehicle:	2003 Liberty Bus Freedom	Test Lab:	MGA Research Corporation
NHTSA No.:	C30901	Project Engineer:	Michael Janovicz
Contract No.:	DTNH22-02-D-01057	Delivery Order No.:	1
MFR.:	Liberty Bus	VIN:	1GBHG39U831110237
Build Date:	2/03		

TEST FAILURE DESCRIPTION

The label describing the motions required to unlatch and open the rear emergency exit door is engraved with lettering .9 cm to .95 cm in height. FMVSS 217 requires these letters be 1 centimeter high at a minimum.

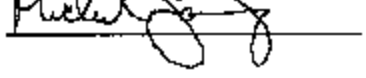
FMVSS REQUIREMENTS DESCRIPTION

Paragraph S.5.5.3(b): "Concise operating instructions describing the motions necessary to unlatch and open the emergency exit..." "These instructions shall be in letters at least 1 centimeter high and of a color that contrasts with its background."

Remarks: No remarks.

Notification to NHTSA (COTR): Amanda Prescott

Date: August 20, 2003

By: 

mga research corporation

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 217	Test Date:	August 19, 2003
Test Vehicle:	2003 Liberty Bus Freedom	Test Lab:	MGA Research Corporation
NHTSA No.:	C30901	Project Engineer:	Michael Janovicz
Contract No.:	DTNH22-02-D-01057	Delivery Order No.:	1
MFR.:	Liberty Bus	VIN:	1GBHG39U831110237
Build Date:	2/03		

TEST FAILURE DESCRIPTION

The rear emergency doors are equipped with positive door opening devices which keep the door from closing past the point where they are open approximately 60° - 70° to the rear of the bus body. FMVSS 217 requires these opening devices to keep the door from closing past the point where they are perpendicular to the bus body.

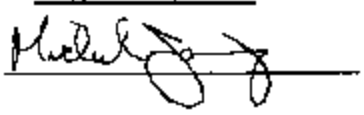
FMVSS REQUIREMENTS DESCRIPTION

Paragraph S.5.4.2.1(a)(3)(i)(B): "Each emergency exit door of a school bus shall be equipped with a positive door opening device that"... "Keeps the door from closing past the point at which the door is perpendicular to the side of the bus body, regardless of orientation."

Remarks: No remarks.

Notification to NHTSA (COTR): Amanda Prescott

Date: August 20, 2003

By: 

mga research corporation

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 217	Test Date:	August 19, 2003
Test Vehicle:	2003 Liberty Bus Freedom	Test Lab:	MGA Research Corporation
NHTSA No.:	C30901	Project Engineer:	Michael Janovicz
Contract No.:	DTNH22-02-D-01057	Delivery Order No.:	1
MFR.:	Liberty Bus	VIN:	1GBHG39U831110237
Build Date:	2/03		

TEST FAILURE DESCRIPTION

Due to its pull type motion, FMVSS 217 requires the handle to unlatch the right rear emergency door from the interior of the bus be recessed so that it does not protrude beyond the rim of the recessed receptacle. The handle does protrude beyond the rim of the recessed receptacle.

FMVSS REQUIREMENTS DESCRIPTION

Paragraph S.5.3.1(b): "... The pull type motion shall be used only when the release mechanism is recessed in such a manner that the handle,..., does not protrude beyond the rim of the recessed receptacle.

Remarks: No remarks.

Notification to NHTSA (COTR): Amanda Prescott

Date: August 20, 2003

By: