

REPORT NUMBER: 217-MGA-06-002

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

**US Bus Corporation
2006 US Bus SturdiBus HD
NHTSA No.: C50900**

**PREPARED BY:
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BURLINGTON, WI 53106**



Final Report Date: June 20, 2006

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 8115 (NVS-224)
WASHINGTON, D.C. 20590**

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Prepared by:  Date: June 20, 2005
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John Roberts, Program Manager

FINAL REPORT ACCEPTED BY:



7/11/05
Date of Acceptance

Technical Report Documentation Page

| | | | | | |
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SECTION 1
PURPOSE OF COMPLIANCE TEST

Tests were conducted on a MY2005 US Bus Sturdivus HD School Bus, NHTSA No. C50900, 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 MY2005 US Bus SturdiBus HD School Bus, NHTSA No. C50900 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: | 2005/ US Bus/ Sturdibus | |
| NHTSA No.: | C50900 | |
| GVWR: | 8,845 kg 19,500 lb | |
| Build Date for Bus Chassis: | 12/04 | |
| VIN: | 1GBE5V1255F515430 | |
| Chassis VIN: | 1GBE5V1255F515430 | |
| Seating Capacity: | (1 Driver, 28 Passengers) | |
| Type of Bus: | School Bus | |
| Tire Pressure from tire placard (at capacity): | Front: 660 kPa | Rear: 680 kPa |
| Odometer Reading: | 16 miles | |

| | PASS/FAIL |
|--|-------------------|
| §5.1 WINDOW RETENTION | FAIL |
| §5.2 PROVISION OF EMERGENCY EXITS | PASS |
| Meets minimum exit provisions | PASS |
| Meets all other exit requirements | PASS |
| Meets requirements for additional exits | PASS |
| §5.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS | PASS |
| §5.3 EMERGENCY EXIT RELEASE | PASS |
| Forces to unlatch the emergency exits | PASS |
| Forces to open the emergency exits | PASS |
| §5.4 EMERGENCY EXIT OPENING | PASS |
| §5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION | PASS |
| §5.6 TAPE REFLECTIVITY (49CFR 571.131) | NOT TESTED |

COMMENTS: NONE

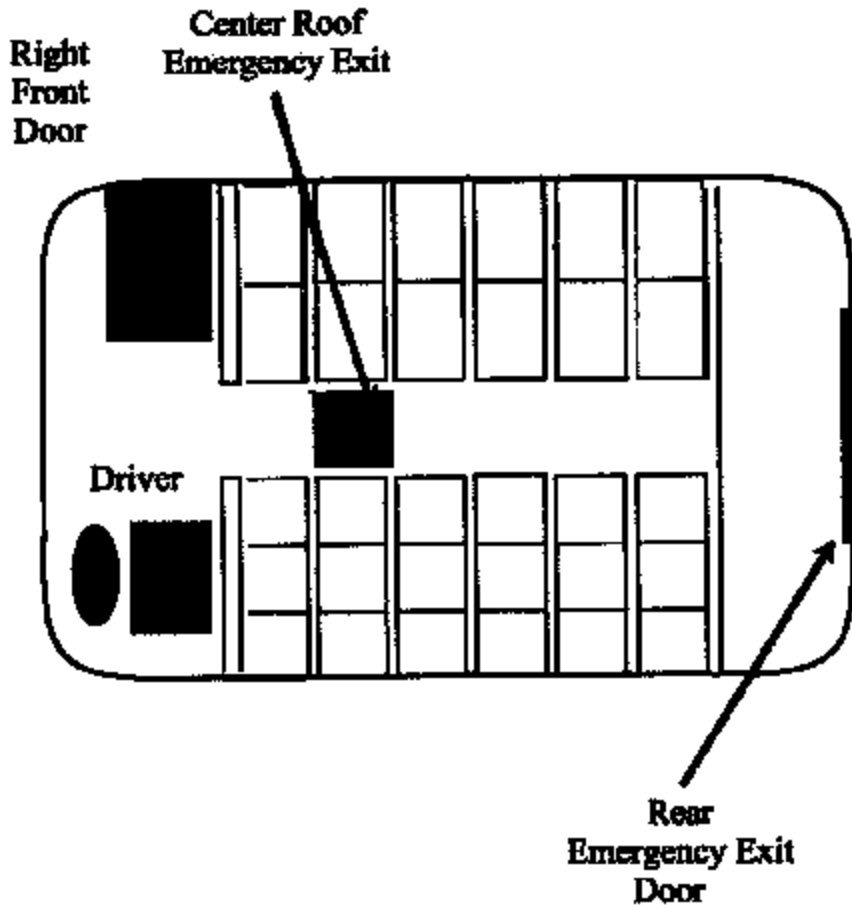
SECTION 3
COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2005 US Bus Sturdibus HD School Bus, NHTSA No. C50900.

DATA SHEET 2
PROVISION OF EMERGENCY EXITS

Test Vehicle: 2005 US Sturdlbus HD School Bus
 Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
 Test Date: 05/25/06-05/26/05



| | | Height (cm) | Width (cm) |
|---|----------------|-------------|------------|
| 1 | Roof Exit | 56 | 57 |
| 2 | Rear Exit Door | 134 | 94 |

Seating Capacity: 30 (Including Driver)

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

Comments: NONE

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 | PASS |
| 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, if any, is located as near as practicable to the midpoint of the passenger compartment. | N/A |

COMMENTS: NONE

Recorded By: _____



Approved By: _____



Date: 05/26/05

DATA SHEET 3
EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS

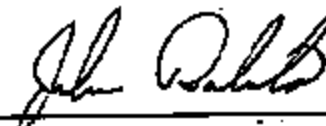
Test Vehicle: 2005 US Sturdi bus HD School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
Test Date: 05/25/05- 05/26/05

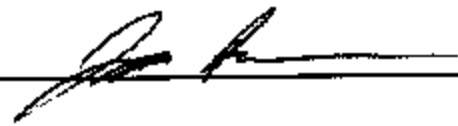
| | | PASS/FAIL |
|---|--|-----------|
| 1 | The engine starting system does NOT operate if any Emergency Exit is LOCKED | N/A |
| 2 | All Emergency Door and Roof Exits can be released by one person (from inside and outside of bus) | PASS |
| 3 | When the Release Mechanism is NOT in the closed position 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:

Recorded By: _____



Approved By: _____



Date: 05/26/05

SHEET 4A
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2005 US Sturdivus HD School Bus
 Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
 Test Date: 05/25/05- 05/26/05

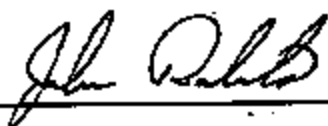
EMERGENCY EXIT LABELING - INTERIOR

| Exit Location | Rear Door | Roof Exit Center |
|--------------------|---------------------|------------------|
| Exit Description | Emergency Exit Door | Roof Hatch |
| Letter Height (cm) | 5.0 | 5.0 |
| Background Color | White | White |
| Location Inside | Middle of Door | On Exit Hatch |
| Pass/Fall | PASS | PASS |

OPERATING INSTRUCTIONS - INTERIOR

| Exit Location | Rear Door | Roof Exit Center |
|----------------------------|---|--|
| Instructions | Emergency Exit Lift Handle and Push to Open | For Emergency Exit 1) Turn, 2) Push |
| Letter Height (cm) | 2.8 | 1.1 |
| Letter Color | Red and Black | Red |
| Background Color | White | White |
| Distance From Release (cm) | 12 | 0 |
| Reflective Tape Color | N/A | N/A |
| Reflective Tape Width | N/A | N/A |
| Pass/Fall | PASS | PASS |

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 05/26/05

**DATA SHEET 4B
EMERGENCY EXIT IDENTIFICATION AND LABELING**

Test Vehicle: **2005 US Sturdlbus HD School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C60900**
 Test Date: **05/25/05- 05/26/05**

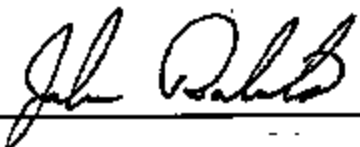
EMERGENCY EXIT LABELING - EXTERIOR

| Exit Location | Rear Door | Roof Exit Center |
|--------------------|----------------|------------------|
| Exit Description | Emergency Door | Emergency Exit |
| Letter Height (cm) | 5.0 | 5.0 |
| Background Color | Yellow | White |
| Location Outside | Above Door | Middle of Hatch |
| Pass/Fail | PASS | PASS |

OPERATING INSTRUCTIONS - EXTERIOR

| Exit Location | Rear Door | Roof Exit Center |
|----------------------------|-----------------------------|--------------------------|
| Instructions | To Open (Arrow Pointing Up) | Emergency Exit Turn Pull |
| Letter Height (cm) | 2.6 | 1.1 |
| Letter Color | Black | Black |
| Background Color | Yellow | White |
| Distance From Release (cm) | 16 | 0 |
| Reflective Tape Color | Yellow | Silver |
| Reflective Tape Width | 2.6 cm | 2.5 |
| Pass/Fail | PASS | PASS |

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 05/26/05

**DATA SHEET 4 (CONTINUED)
EMERGENCY EXIT IDENTIFICATION AND LABELING**

Test Vehicle: 2006 US Sturdlbus HD School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
Test Date: 05/25/05- 05/26/05

| | | 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. | PASS |
| 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. | PASS |
| 6 | Each required Emergency Exit opening is outlined around its perimeter with a 2.5 cm (1") wide retroreflective tape of red, white, or yellow color. | PASS |

COMMENTS:

Recorded By: 

Approved By: 

Date: 05/26/05

**DATA SHEET 5
TAPE RELECTIVITY TEST**

Test Vehicle: 2005 US Sturdlbus HD School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
Test Date:

- _____ 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

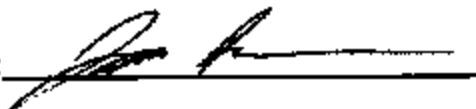
Test Vehicle: **2005 US Sturdibus HD School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C50900**
 Test Date: **05/25/05- 05/26/05**

| 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 Exit Door | Emergency Exit Door | High | 178 | 1. 15.8 | Straight | Pull Handle Up | PASS |
| | | | | 2. 15.6 | | | |
| | | | | 3. 17.2 | | | |
| | | | | Average: 16.2 | | | |
| Roof Exit Center | Roof Exit | High | 178 | 1. 40.2 | Rotary | Turn Handle 90° | PASS |
| | | | | 2. 26.8 | | | |
| | | | | 3. 28.3 | | | |
| | | | | Average: 31.1 | | | |
| 2 nd Step Roof Exit Center | Roof Exit | High | 178 | 1. 65 | Straight | Push | PASS |
| | | | | 2. 65 | | | |
| | | | | 3. 71.4 | | | |
| | | | | Average: 67.1 | | | |

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 05/26/05

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

Test Vehicle: **2006 US Sturdlbus HD School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C50900**
 Test Date: **05/26/05 - 05/26/05**

| 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 Exit Door | Emergency Exit Door | High | 178 | 1. 44.8 | Rotary | 90° Counter Clockwise Turn | PASS |
| | | | | 2. 40.3 | | | |
| | | | | 3. 40.9 | | | |
| | | | | Average: 41.9 | | | |
| Center Roof Exit | Roof Hatch | High | 178 | 4. 33.4 | Rotary | 90° Counter Clockwise Turn | PASS |
| | | | | 5. 28.8 | | | |
| | | | | 6. 26.2 | | | |
| | | | | Average: 28.8 | | | |
| 2 nd Step Center Roof Exit | Roof Hatch | High | 178 | 1. 73.8 | Straight | Pull Up | PASS |
| | | | | 2. 77.7 | | | |
| | | | | 3. 70.9 | | | |
| | | | | Average: 74.1 | | | |

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 05/26/05

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

Test Vehicle: 2005 US Sturdlbus HD School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
Test Date: 05/25/05- 05/26/05

| 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 |
|---------------|---------------------|---------------------|-----------------------------------|---------------------------|---------------------------------|-------------------------------|--|-----------|
| Roof Exit | Roof Hatch | High | 178 | 1. 44.2 | Straight | Push Upward | Ellipsoid | PASS |
| | | | | 2. 45.4 | | | | |
| | | | | 3. 42.9 | | | | |
| | | | | Average: 44.2 | | | | |
| Rear Door | Emergency Exit Door | High | 178 | 1. 41.8 | Straight | Push Outward | 114x61x30 Parallelepiped | PASS |
| | | | | 2. 47.6 | | | | |
| | | | | 3. 42.4 | | | | |
| | | | | Average: 43.9 | | | | |

14

COMMENTS: NONE

Recorded By: *John Pahl*

Approved By: *[Signature]*

Date: 05/26/05

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

Test Vehicle: **2005 US Sturdlibus HD School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C50900**
 Test Date: **05/25/05 - 05/26/05**

| 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 |
|---------------|------------------|---------------------|-----------------------------------|---------------------------|---------------------------------|-------------------------------|--|-----------|
| Roof Exit | Roof Hatch | High | 178 | 1. 43.1 | Straight | Pull Up | Ellipsoid | PASS |
| | | | | 2. 43.1 | | | | |
| | | | | 3. 41.5 | | | | |
| | | | | Average: 42.6 | | | | |
| Rear Door | Exit Door | High | 178 | 1. 44.4 | Straight | Pull Out | 114x61x30 Parallelepiped | PASS |
| | | | | 2. 42.4 | | | | |
| | | | | 3. 43.6 | | | | |
| | | | | Average: 43.5 | | | | |

15

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 05/26/05

**DATA SHEET 8
EMERGENCY EXIT EXTENSION**

Test Vehicle: 2005 US Sturdibus HD School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
Test Date: 05/25/05- 05/26/05

| | | 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 S5.4.1 (3) of FMVSS 217). | PASS |
| 3 | There is a 30 cm (11.81") wide clear aisle space for each side emergency door exit. | N/A |
| 4 | 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: NONE

Recorded By: 

Approved By: 

Date: 05/26/05

**DATA SHEET 9
WINDOW RETENTION TEST**


Test Vehicle: 2005 US Sturdlbus HD School Bus
 Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C50900
 Test Date: 05/25/05- 05/26/05

| | | |
|---|---|-------------------------------------|
| 1 | Test Window Identification: | Left Side Window 5 |
| 2 | Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc. | Vertical Sliding Not Emergency Exit |
| 3 | Provide the horizontal and vertical glazing dimensions for each panel. | 12" H x 23 1/4" W |
| 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 2025N PASS |
| 5 | Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? | N/A |

COMMENTS:

Recorded By: 

Approved By: 

Date: 05/26/05

**DATA SHEET 9 (CONTINUED)
WINDOW RETENTION TEST**


Test Vehicle: **2005 US Sturdlbus HD School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C50900**
 Test Date: **05/25/05- 05/26/05**

| | | | | |
|---|---|---|----------------------------------|------------|
| 1 | Test Window Identification: | Rear Door Top Window | | |
| 2 | Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc. | Fixed | | |
| 3 | Provide the horizontal and vertical glazing dimensions for each panel. | 17 1/2" H x 24" W | | |
| 4 | Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS/FAIL criteria: | FAIL Glazing came out of rubber gasket at 1762N | | |
| 5 | Did the window pass the force tests to unlatch and open the exit after the completion of the retention test? | Unlatch Force Measured (N) | Open Force Measured (N) | Pass/ Fail |
| | | 1. 17.8 | 1. 58.3 | PASS |
| | | 2. 17.8 | 2. 44.5 | PASS |
| | | 3. 19.4 | 3. 54.8 | PASS |

COMMENTS:

Recorded By: 

Approved By: 

Date: 05/26/05

**SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2005 US Sturdlbus HD School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C50900**
 Test Date: **05/25/05- 05/26/05**

| Equipment | Description | Model/Serial No. | Cal. Date | Next Cal. Date |
|----------------------|--------------------|----------------------|-----------|----------------|
| Head Form | MGA | 217 | When Used | When Used |
| A/D Interface | Metabyte | DAS-1802 | — | — |
| Sphere | MGA | Sphere – 1A | When Used | When Used |
| Load Cell | Interface | 1210A/137751 | 03/09/05 | 09/09/05 |
| Inclinometer | Digital Protractor | Pro 360 / Comp Lab | 02/16/05 | 08/16/05 |
| Linear Potentiometer | Ametek | P40A/0504-21782 | 05/23/05 | 11/23/05 |
| Digital Calipers | Mitutoyd | CD-6" ca/ 0441288 | 04/01/05 | 10/01/05 |
| Steel Tape | Stanley | Powerlock / 232 | 02/03/05 | 08/03/05 |
| Camera | Sony | DSC-S75 | — | — |
| Ellipsoid | MGA | ELLIP – 1A | When Used | When Used |
| Parallelepiped | MGA | PARA – 1A | When Used | When Used |
| Force Gauge | Dillon | AFG/DMLC | 05/19/05 | 11/19/05 |

**SECTION 5
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Procedure FMY35 217

NHTSA 415, 50000



21

Exterior Left Side View of School Bus

Test Vehicle: 2005 US Bus Standard HD
Procedure: FMVSS 217

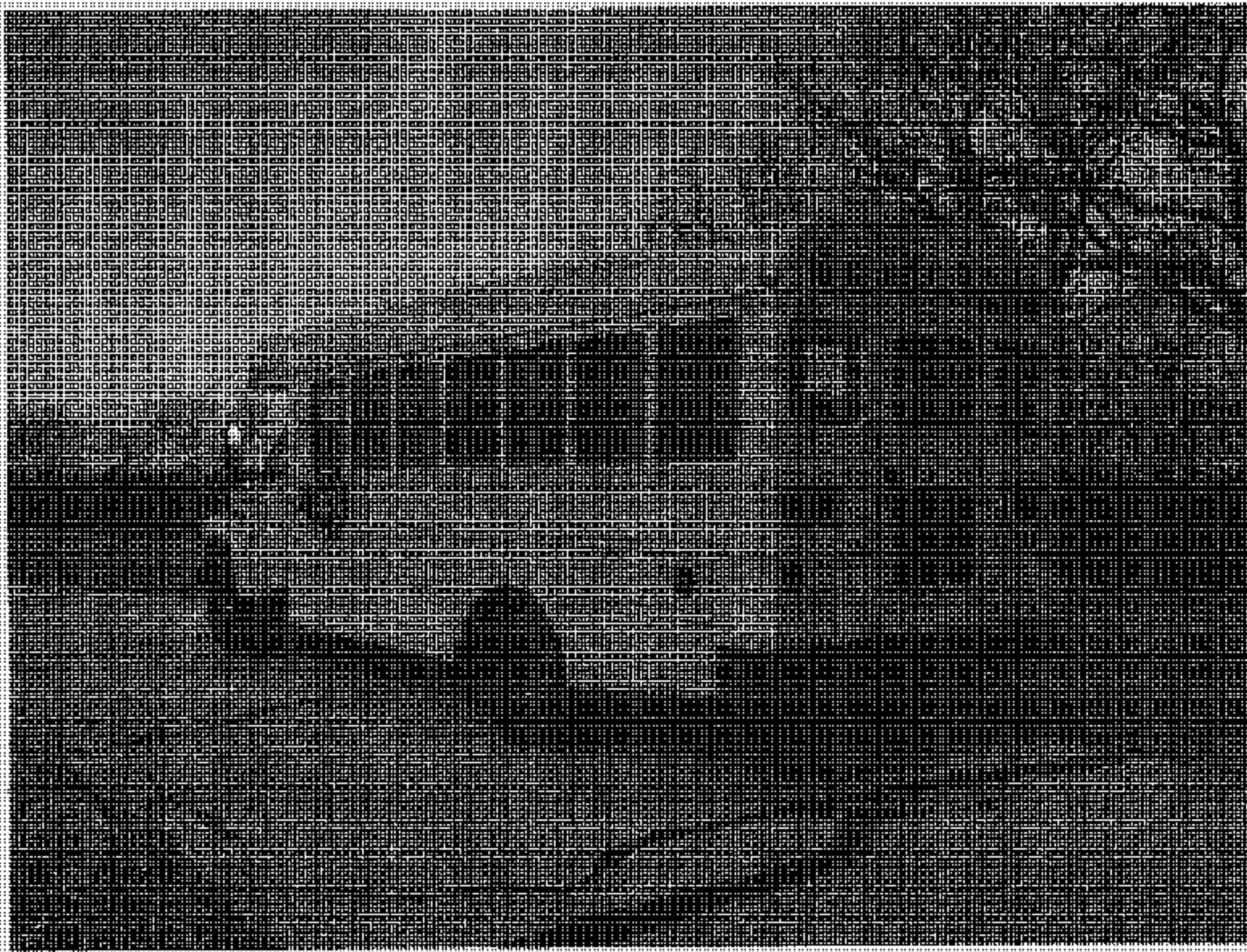
NHTSA No. Q50900



Exterior Right Front 3/4 View of School Bus

Test Vehicle: 2004 US Bus Starliner HD
Procedure: FMVSS 217

NHTSA No.: C60994

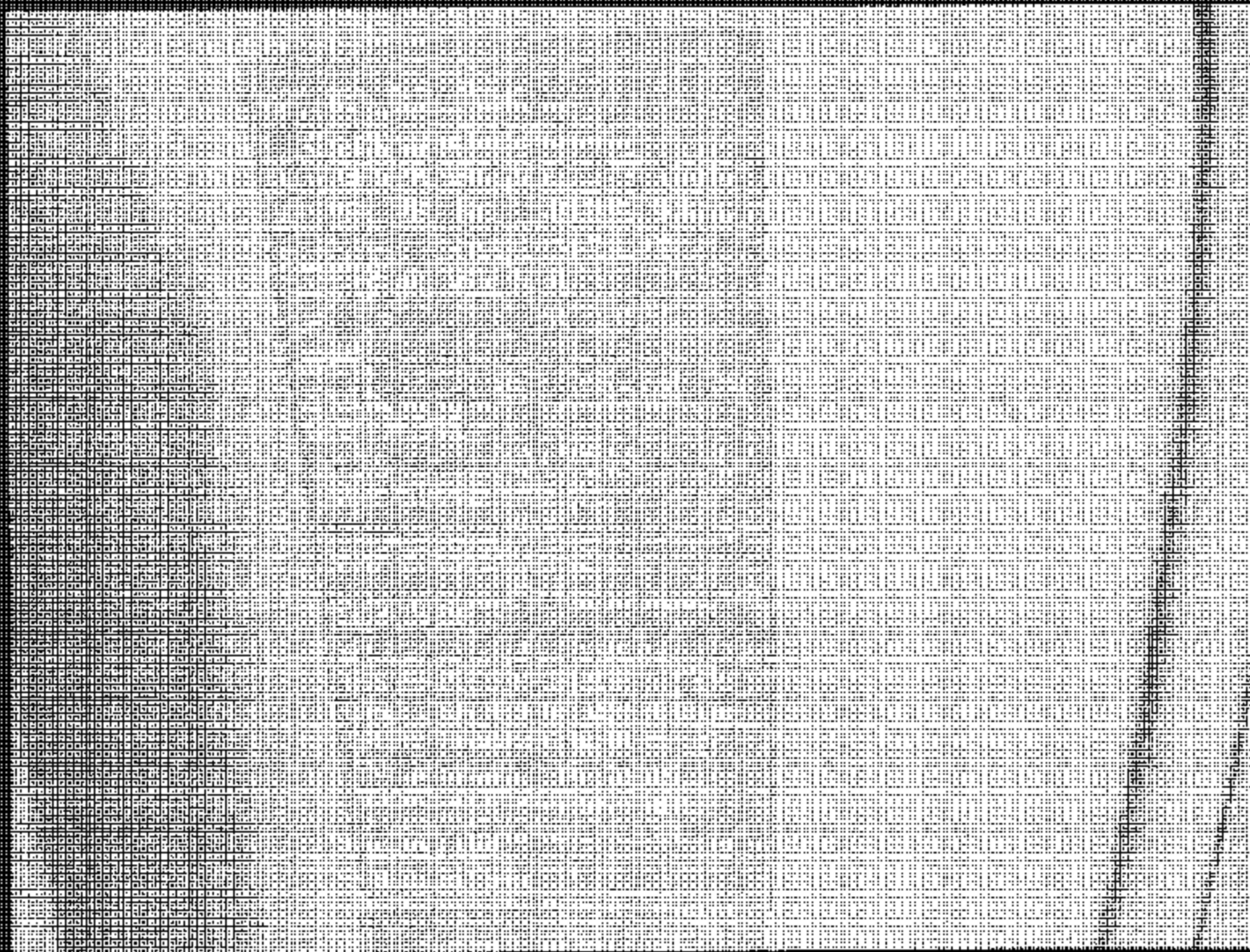


23

Exterior Left Rear 3/4 View of School Bus

Test Vehicle: 2001 Buick Starfire HD
Procedure: FMVSS 217

NHTSA No.: C60499



Vehicle Certification

Test Vehicle: 2005 Ford Excursion HD
Procedure: FMVSS 217

NHTSA No.: 050994

Test Vehicle: 2005 US Gov Sturdibar MD
Procedure: FMVSS 217

APTESA (s): C54ND

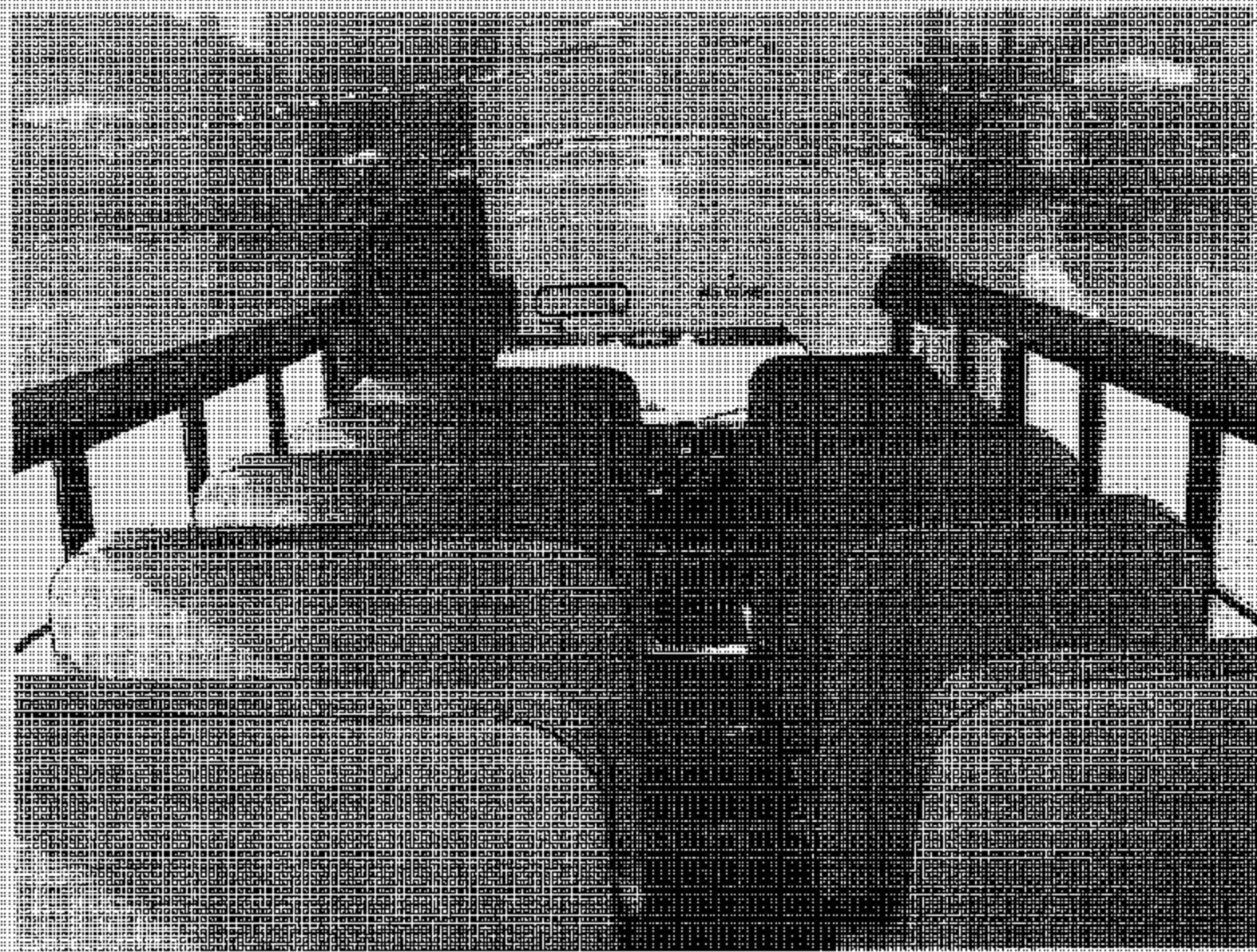


25

Interior Front to Rear View Depicting Seating Arrangement

Test Vehicle: 2005 US Bus Sturdikore HD
Procedure: FMVSS 217

NHTSA No: CE0900

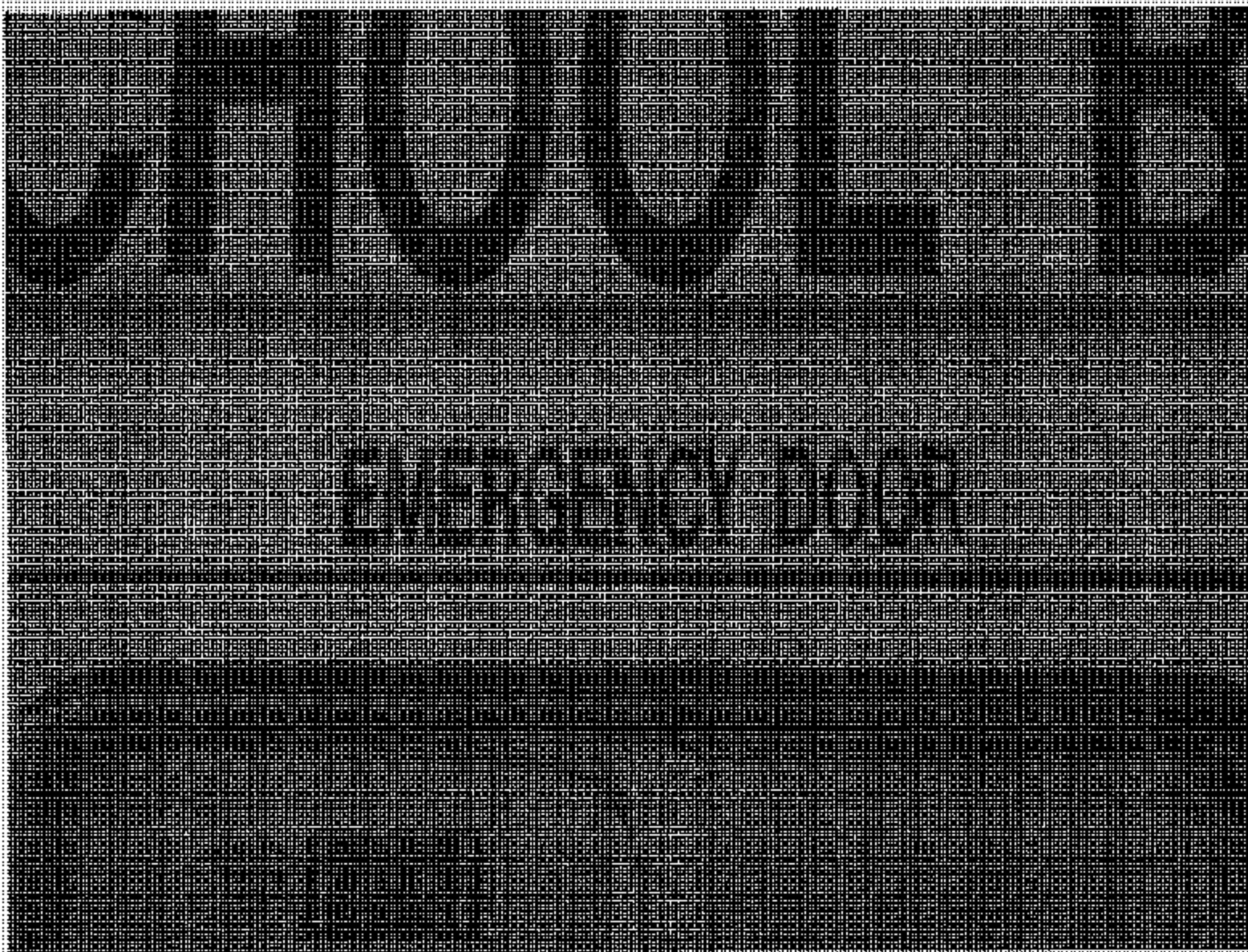


27

Interior Rear to Front View Displaying Seating Arrangement

Test Vehicle: 2011 US Gov SUV Hybrid MD
Procedure: FMVSS 217

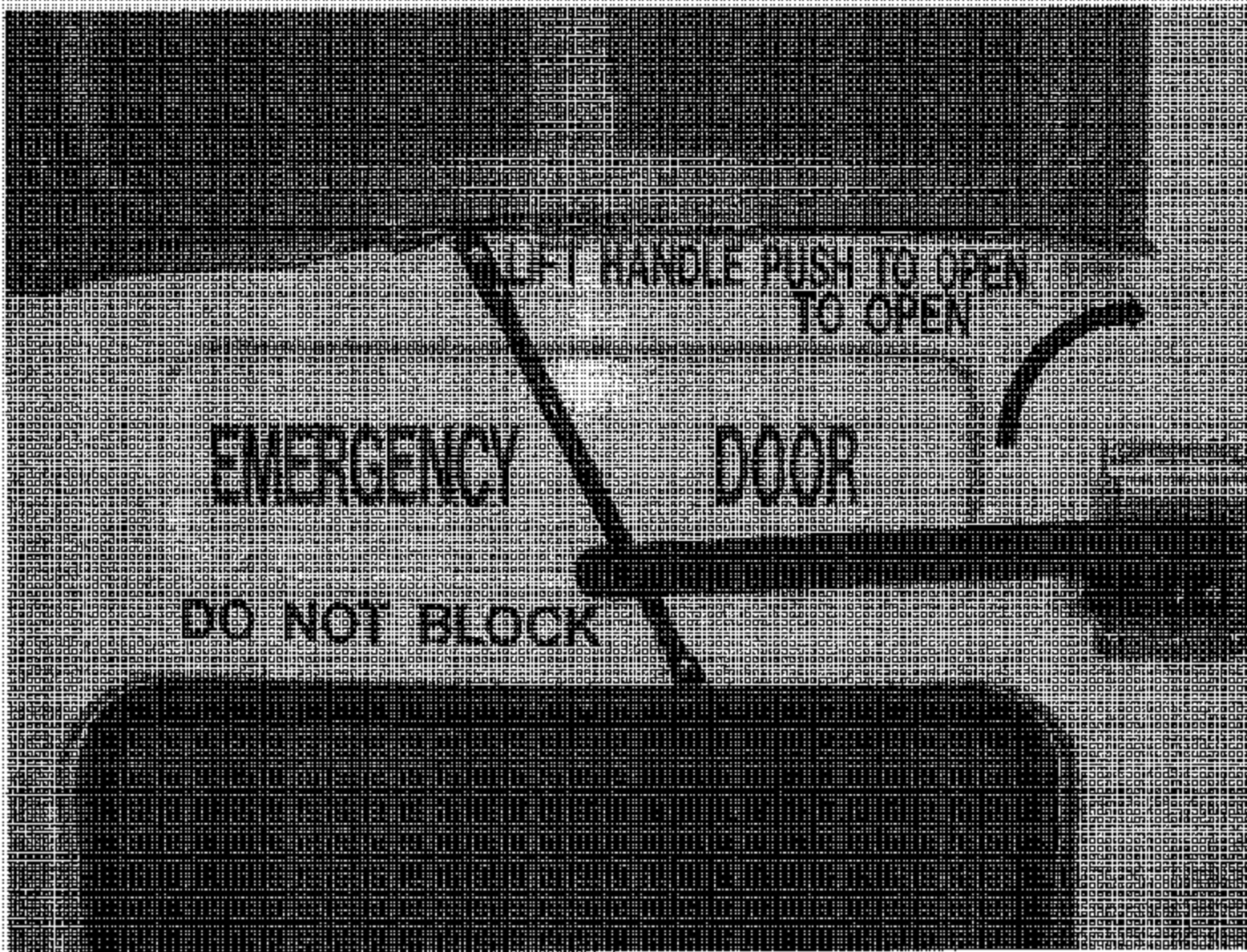
NHTSA No.: C50340



Rear Exit Door Identification (Outside View)

Test Vehicle: 2005 Lexus RX 400h
Procedure: FMVSS 217

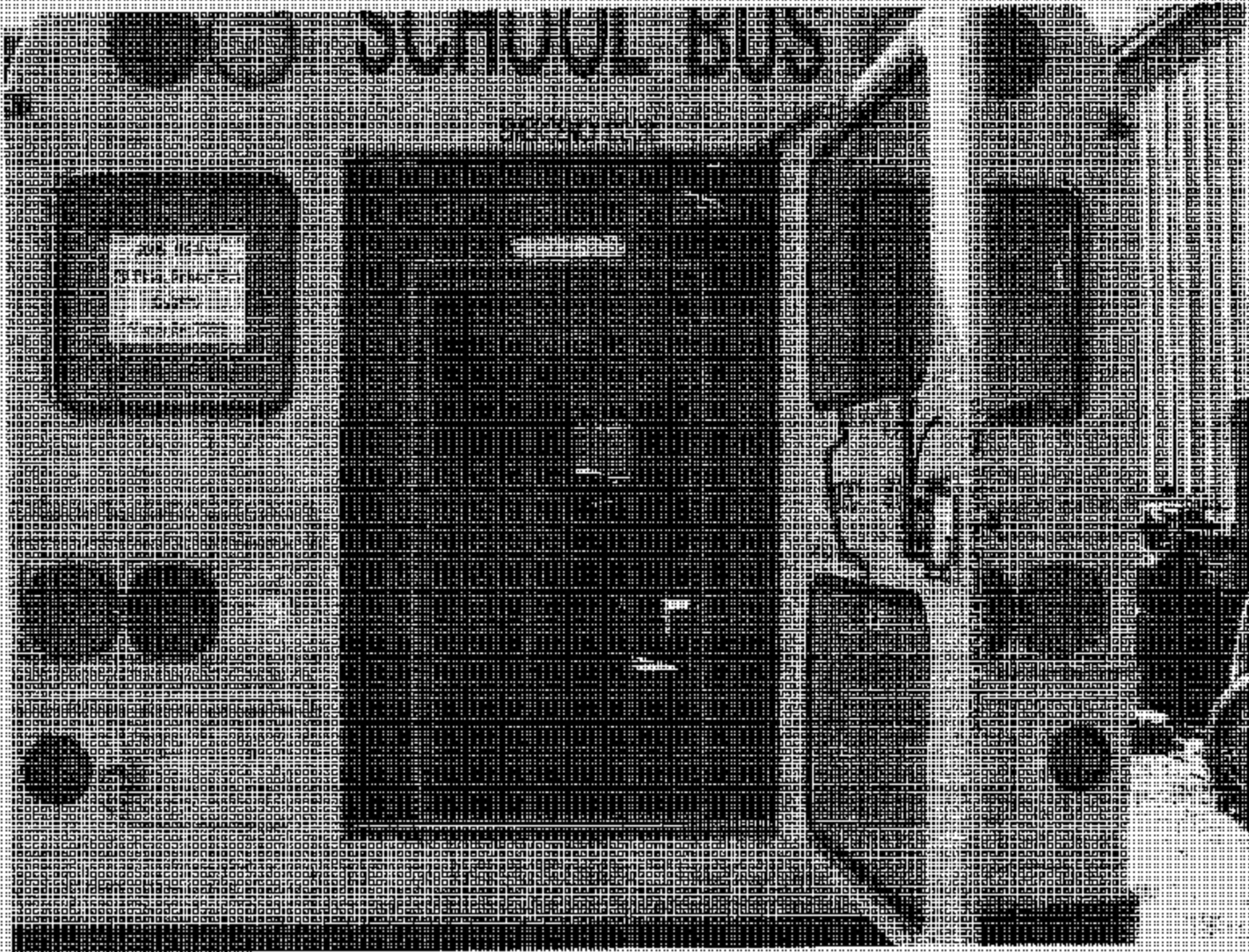
NHTSA No: CE0900



Rear Exit Door Identification (Inside View)

Test Vehicle: 2005 US Gas Standard HD
Procedure: FMVSS 217

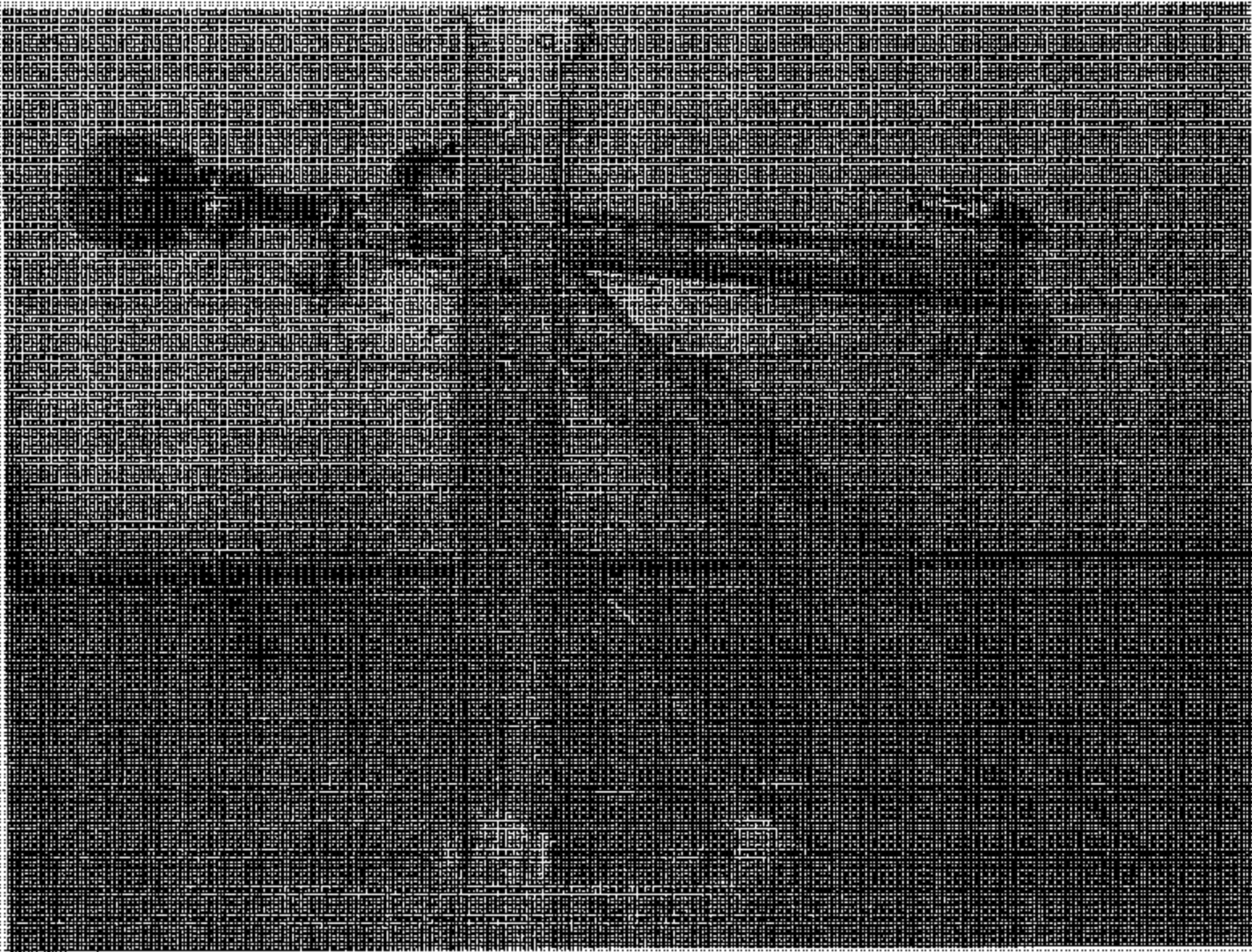
NHTSA No. C501000



Rear Door Emergency Exit Parallelogram Clearance

Test Vehicle: 2004 US Gov Chevrolet MD
Procedure: FMVSS 217

NTSA No: C60900



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Loading Picture

Test Vector: 2001 US Gov Stimulus HD
Procedure: FMVSS 217

NHTSA No: 000901



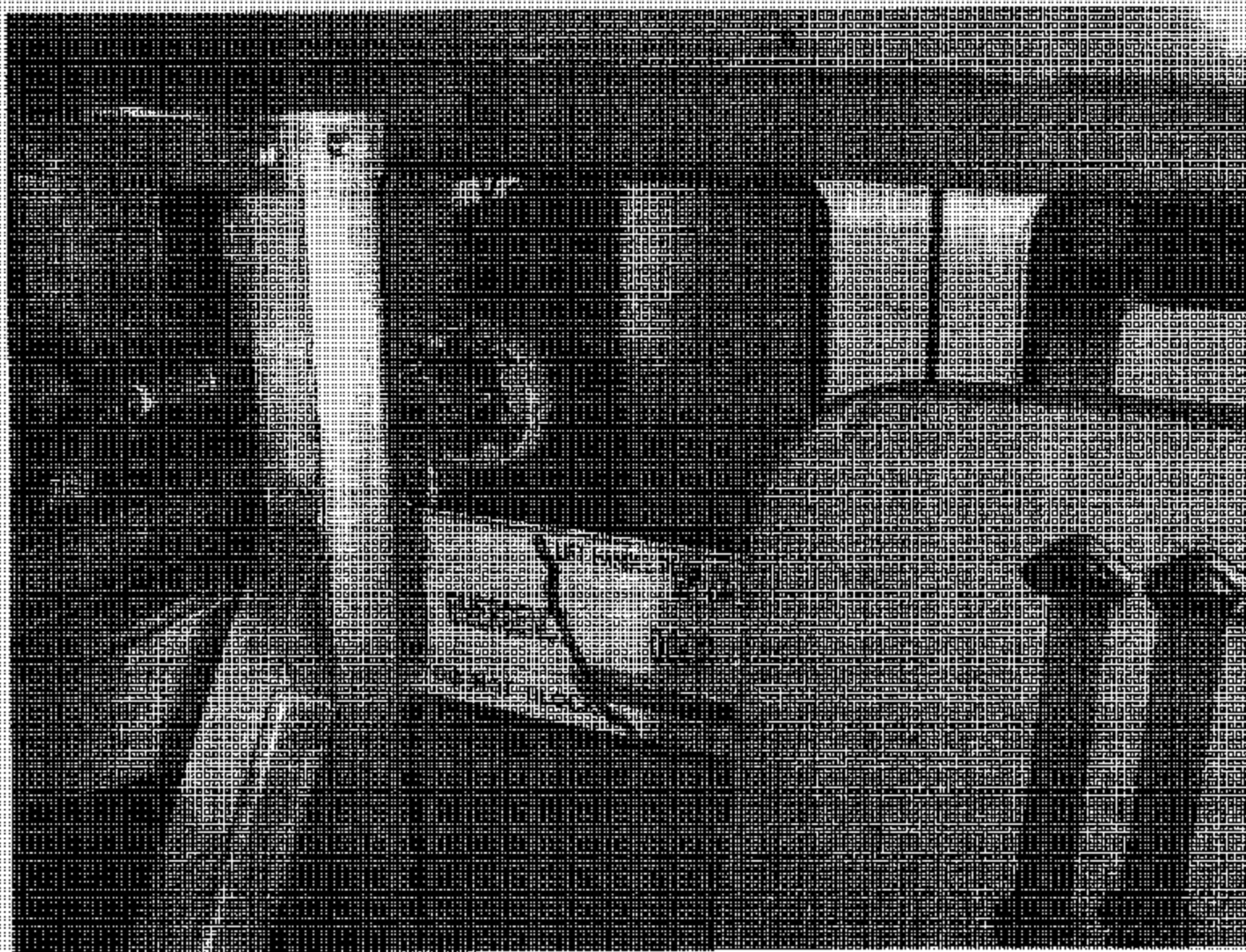


15

Reference Test of Left Side Window (Post-Test)

Test Vehicle: 2001 US Van-Birdbus HD
Procedure: FMVSS 217

NHTSA No. C50300

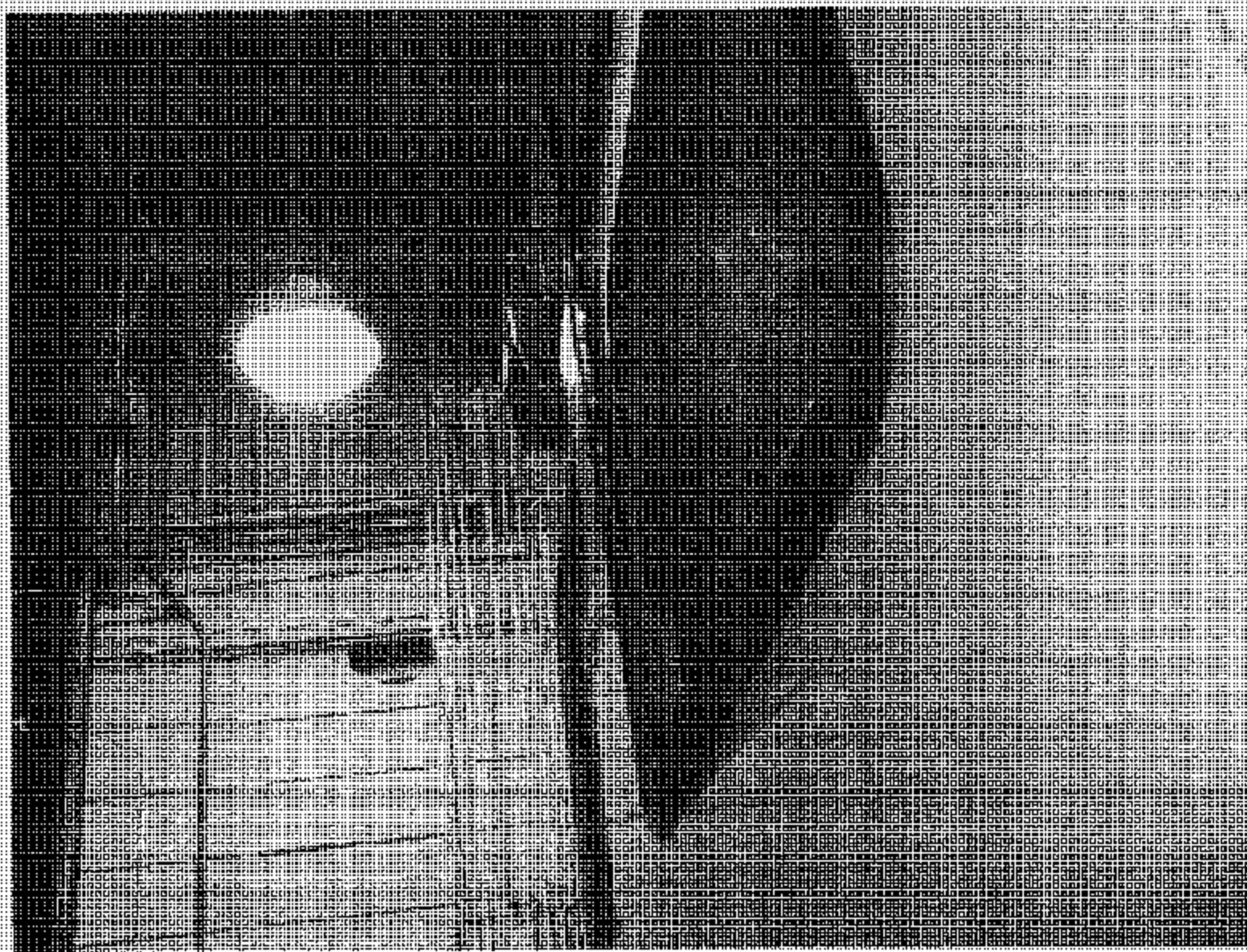


54

Retention Test of Rear Door Window (Pre-Test)

Test Vehicle: 1995 Oldsmobile Cutlass 100
Procedure: FMVSS 217

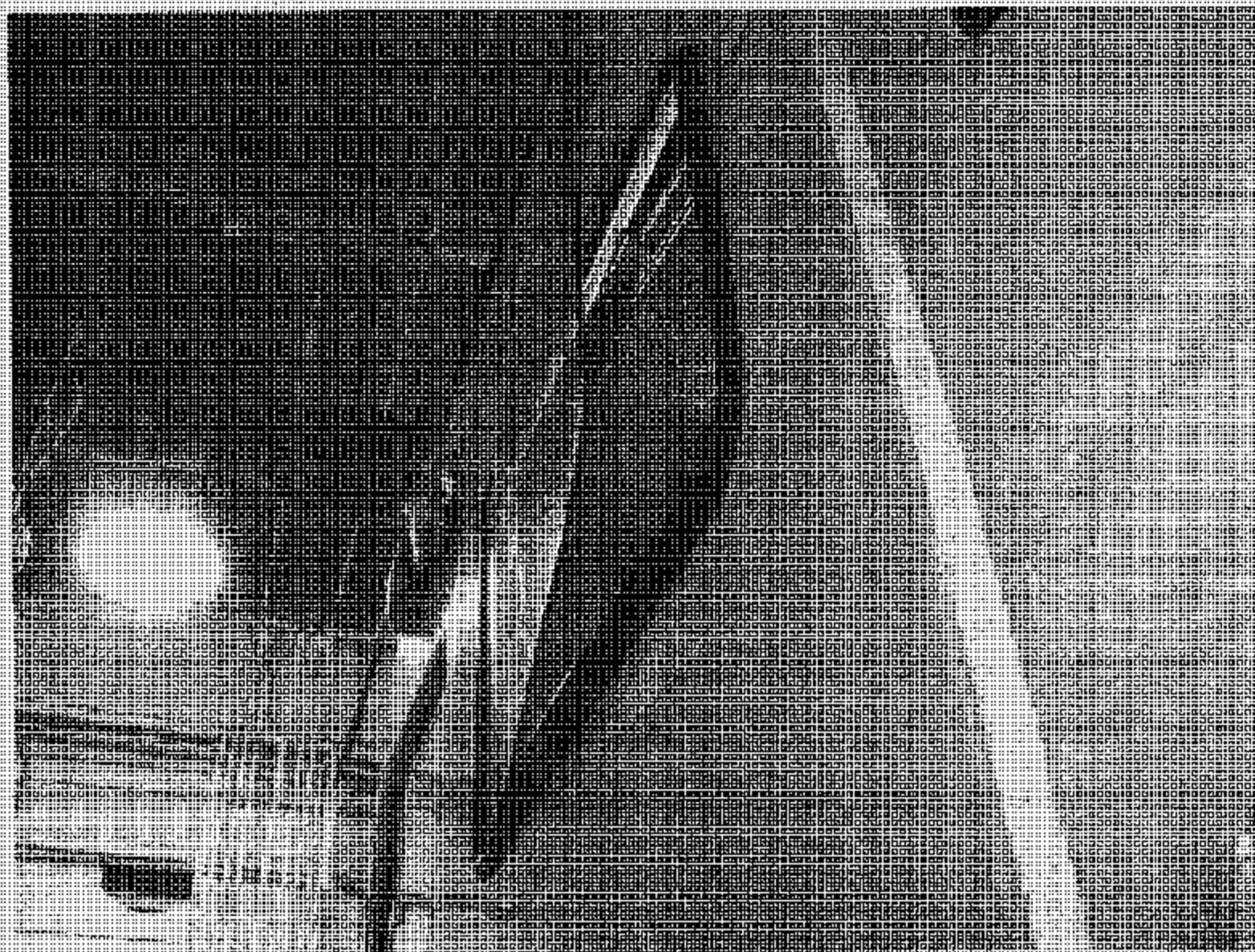
NHTSA No: C60900



Retention Test of Rear Door Window (Post-Test)

Test Vehicle: 2005 Ford Excursion MD
Procedure: FMVSS 217

NHTSA No.: C509X1



Retention Test of Rear Door Window (Post-Test) View 2

Test Vehicle: 2005 US Sub Stundbas HD
Procedure: FMVSS 217

NHTSA No. C50400

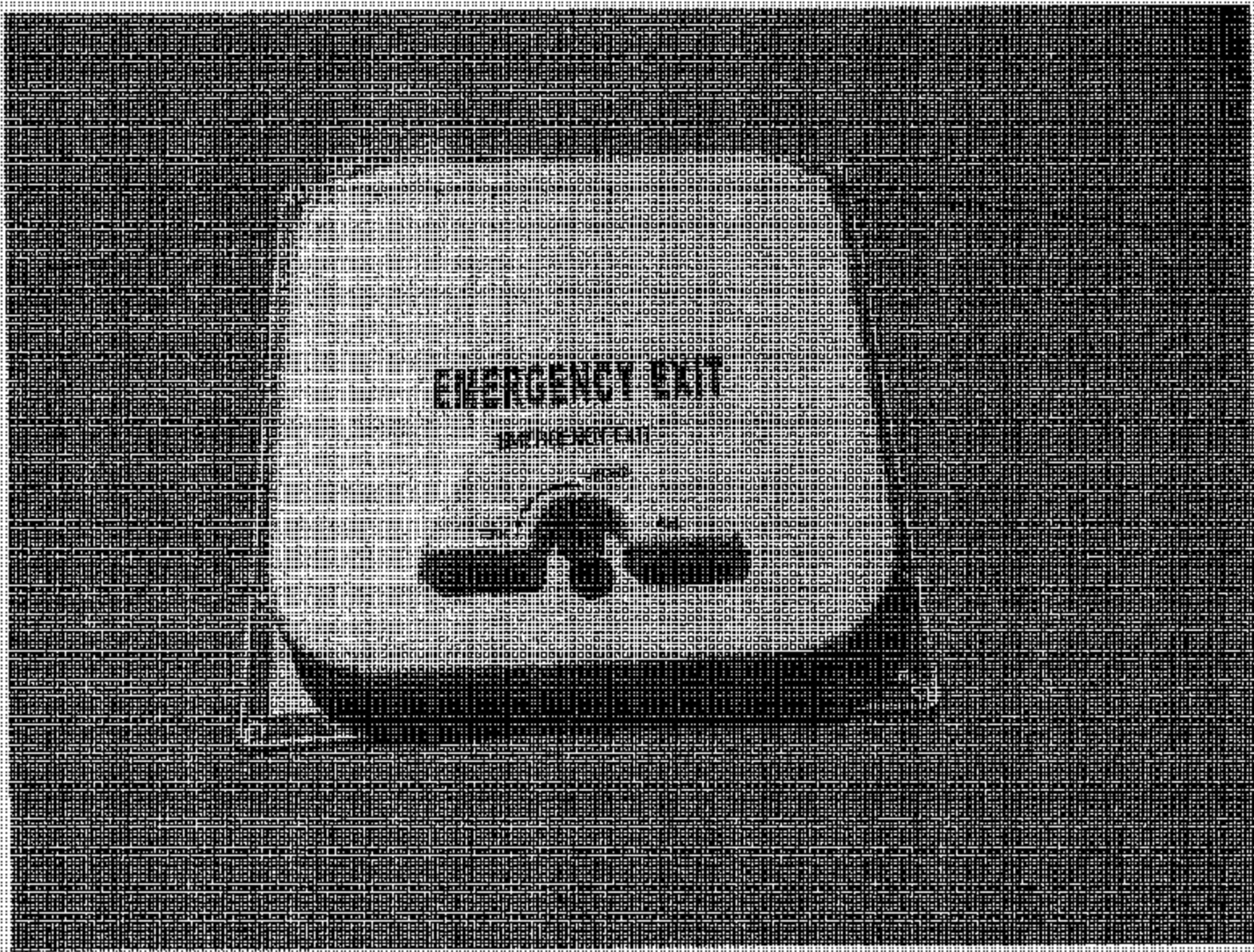


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Roof Exit Identification Inside View

Test Vehicle: 2005 US Bus Starliner HD
Procedure: FMVCS 217

NHTSA No.: C60900



Roof Exit Identification Outside View

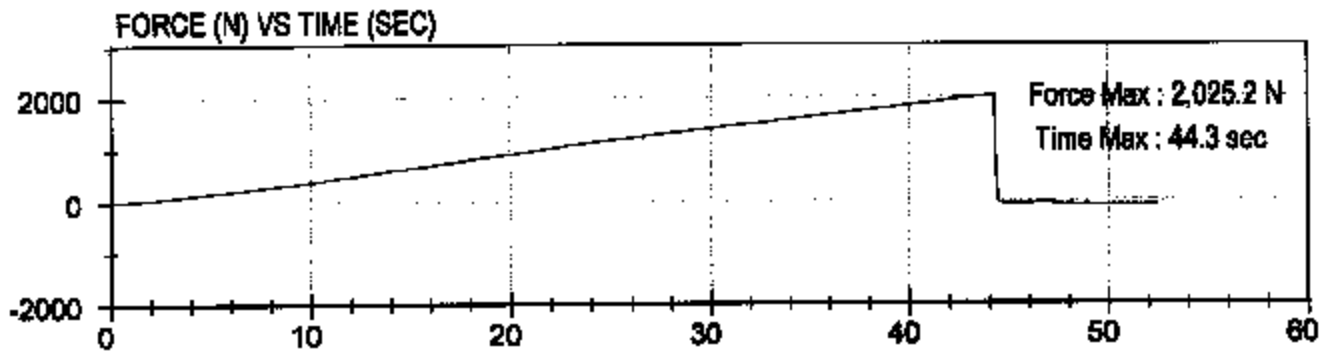
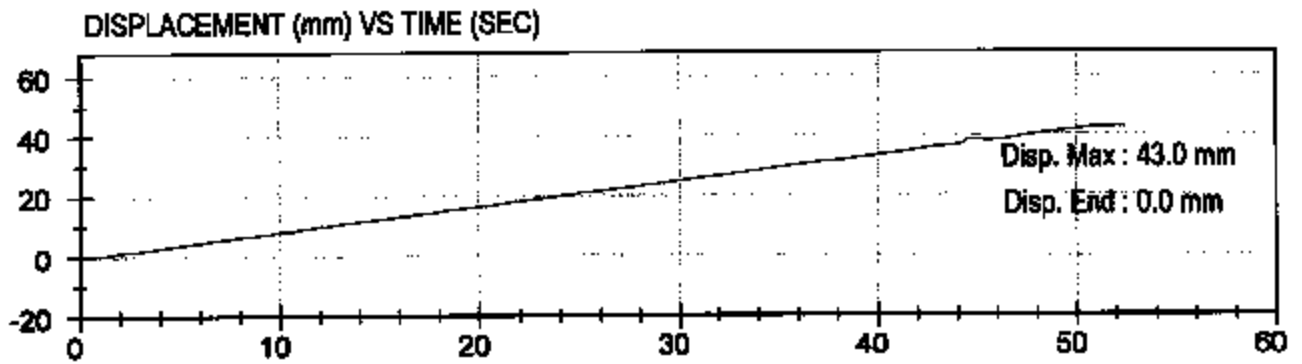
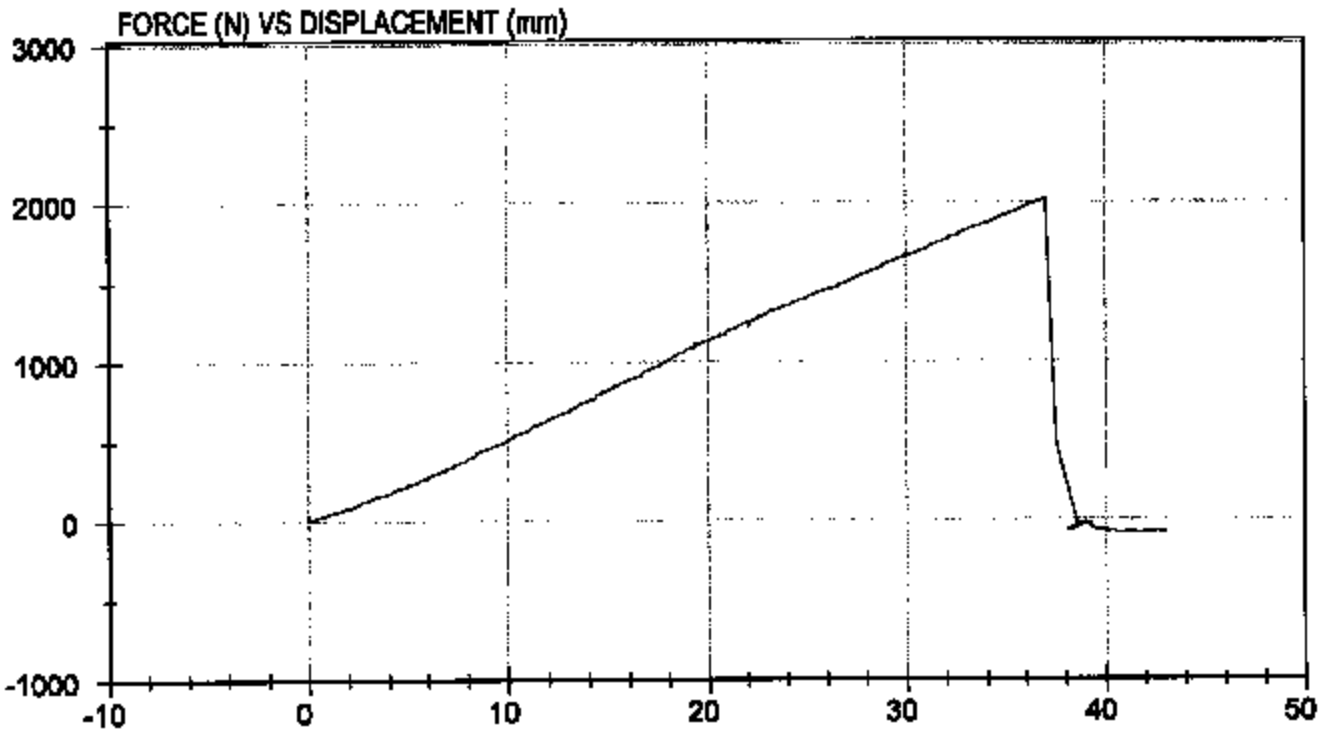
Test Vehicle: 2001 Oldsmobile Alero
Procedure: FMVSS 217

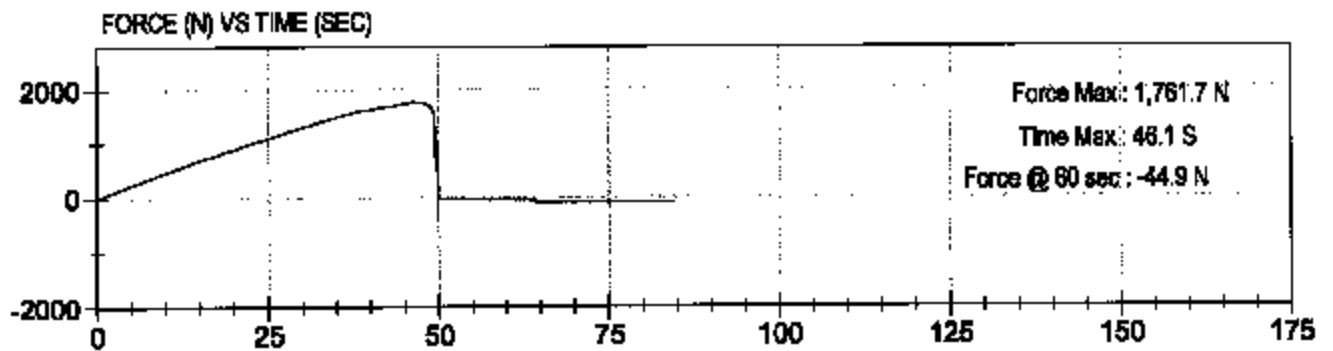
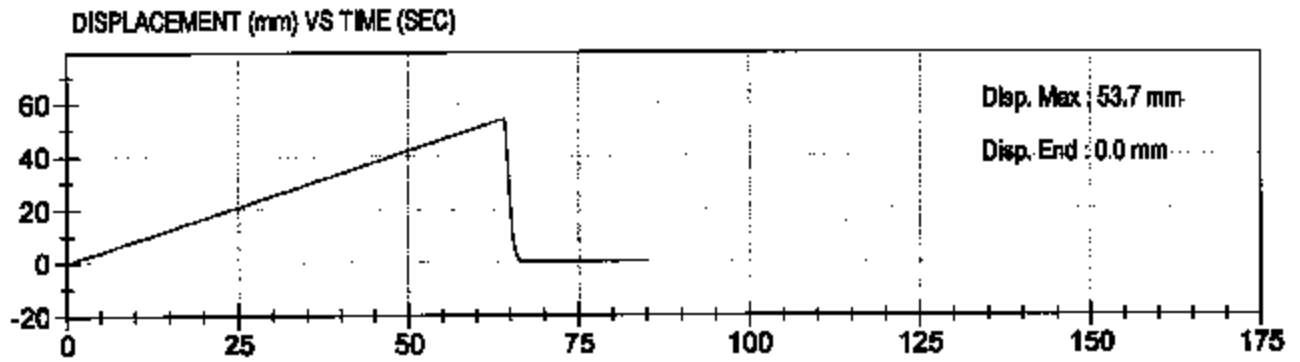
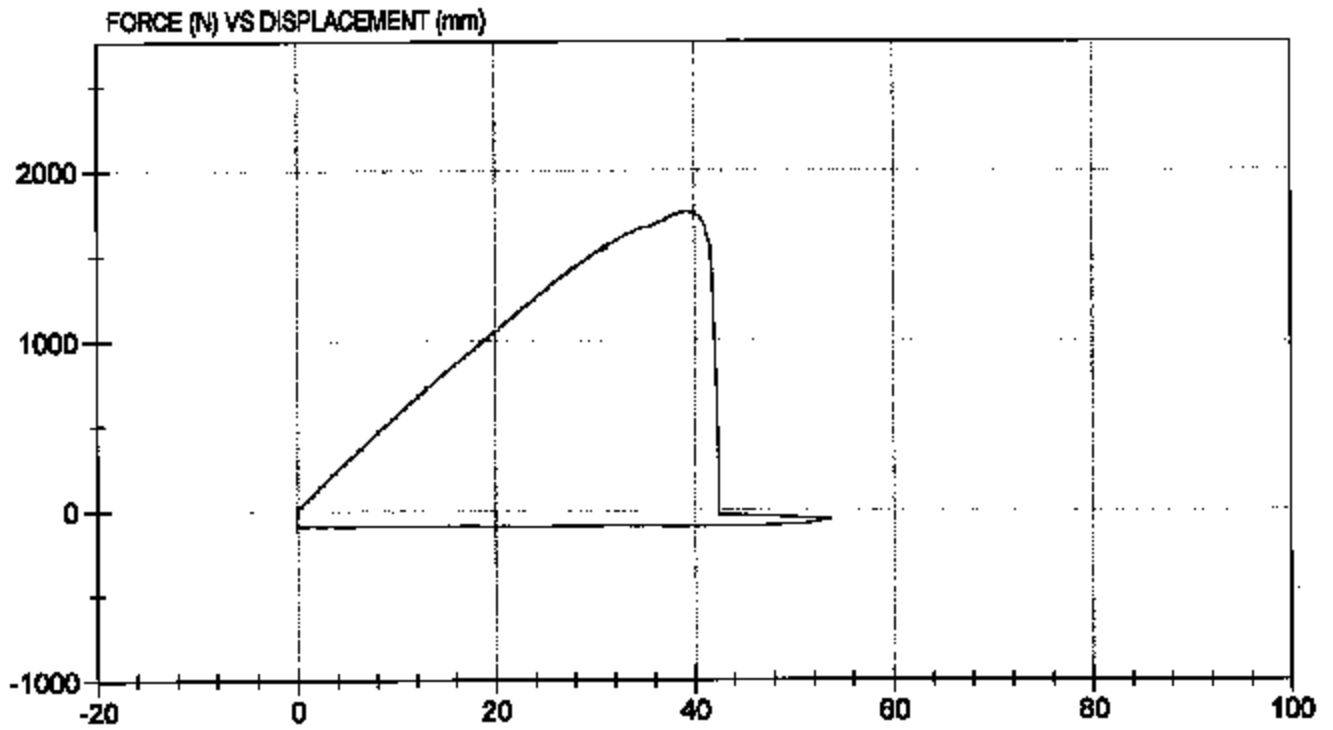
NHTSA No: C60900



Roof Exit Ellipsoid Clearance

**SECTION 6
TEST PLOTS**





**SECTION 7
NOTICE OF TEST FAILURE**



mga research corporation

LABORATORY NOTICE OF TEST FAILURE TO OVSC

| | | | |
|-----------------|-------------------|---------------------|--------------------|
| Test Procedure: | FMVSS 217 | Test Date: | May 26, 2005 |
| Test Vehicle: | US Bus | Test Lab: | MGA Research Corp. |
| NHTSA No.: | C50900 | Project Engineer: | Jim Hansen |
| Contract No.: | DTNH22-02-D-01057 | Delivery Order No.: | 2 |
| MFR.: | US Bus | VIN: | 1GBE5V1255F515430 |
| Build Date: | 3/05 | | |

TEST FAILURE DESCRIPTION

The upper window in the rear emergency door was not retained in place when a load was applied to the center of the glazing. The window came out of its rubber gasket at a load of 1761N of force and 43mm of displacement. The opening created was large enough to permit passing of the 4-inch sphere with less than 5 pounds force applied.

FMVSS REQUIREMENTS DESCRIPTION

Paragraph S5.1: "Window retention. Except as provided in S5.1.2, each piece of window glazing and each surrounding window frame when tested in accordance with the procedure in S5.1.1 under the conditions of S6.1 through S6.3, shall be retained by its surrounding structure in a manner that prevents the formation of any opening large enough to admit the passage of a 4-inch diameter sphere under a force, including the weight of the sphere, of 5 pounds

Remarks: No remarks.

Notification to NHTSA (COTR): Amanda Prescott

Date: May 26, 2005

By: 