

REPORT NUMBER: 217-MGA-03-002

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

2003 Blue Bird Corporation
All American School Bus
NHTSA No.: C30900

PREPARED BY:
MGA RESEARCH CORPORATION
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BURLINGTON, WI 53105




Final Report Date: March 17, 2003

FINAL REPORT

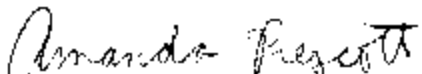
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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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WASHINGTON, D.C. 20590

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Prepared by:  Date: March 17, 2003
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FINAL REPORT ACCEPTED BY:



4/21/2003
Date of Acceptance

Technical Report Documentation Page

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16. Abstract Compliance tests were conducted on the subject 2003 Blue Bird All American School Bus, NHTSA No. C30900 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 rearmost emergency exit window handle is outside the high force access region as shown in Figure 3C of 49CFR Part 571.217. The diagram defines the lower limit of the high force access region as being 2" above the rear shelf. The actual handle location is 1.8" above the rear shelf.					
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No</u>
1	Purpose of Compliance Test	1
2	Test Data Summary	2
	Data Sheet 1 – Test Summary	3
3	Compliance Test Data	4
	Data Sheet 2 – Provision of Emergency Exits	5
	Data Sheet 3 – Emergency Exit Door Operational Requirements	7
	Data Sheet 4 – Emergency Exit Identification and Labeling	8
	Data Sheet 5 – Tape Reflectivity Test	11
	Data Sheet 6 – Force Tests to Unlatch the Emergency Exit	12
	Data Sheet 7 – Force Tests for Open the Emergency Exit	16
	Data Sheet 8 – Emergency Exit Extension	19
	Data Sheet 9 – Window Retention Test	20
4	Instrumentation and Equipment List	23
5	Photographs	24
6	Test Plots	62
7	Notice of Test Failure	66

SECTION 1
PURPOSE OF COMPLIANCE TEST

Tests were conducted on a MY2003 Blue Bird All American School Bus, NHTSA No. C30900, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedure, 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 Blue Bird All American School Bus, NHTSA No. C30900 did not appear to meet all of 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 Blue Bird All American	
NHTSA No.:	C30900	
GVWR:	16,420 kg	
Build Date for Bus Chassis:	Not Found	
VIN:	1BABNBPA33F210494	
Chassis VIN:	Not Found	
Seating Capacity:	84	
Type of Bus:	Type D	
Tire Pressure from tire placard (at capacity):	Front: 793 kPa	Rear: 793 kPa
Odometer Reading:	167 km	

	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
S5.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS	PASS
S5.3 EMERGENCY EXIT RELEASE	PASS
Forces to unlatch the emergency exits	PASS
Forces to open the emergency exits	PASS
S5.3.1 EMERGENCY EXIT RELEASE	FAIL
S5.4 EMERGENCY EXIT OPENING	PASS
S5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION	PASS
49CFR 571.131 S5.6 TAPE REFLECTIVITY	PASS

COMMENTS: NONE

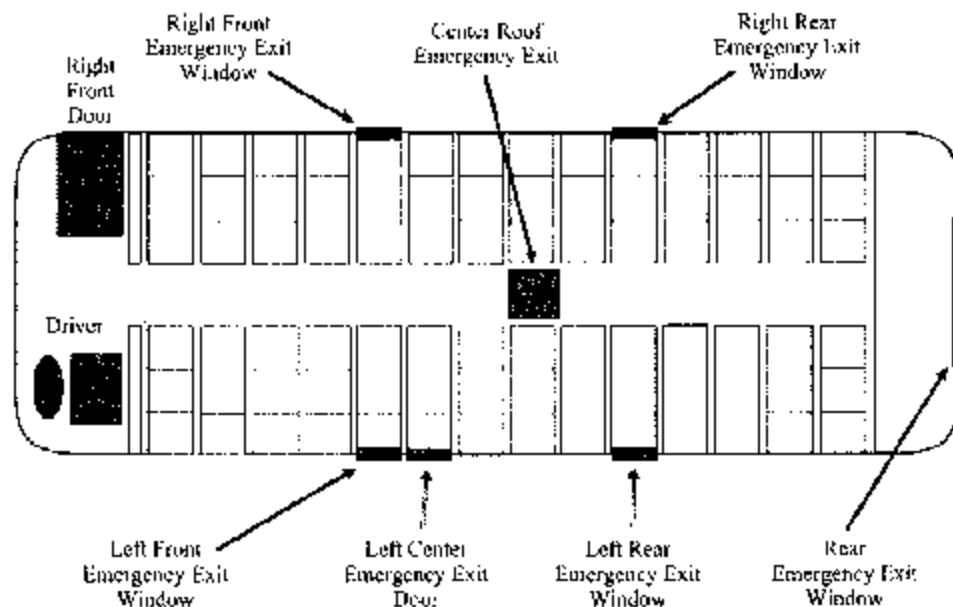
SECTION 3
COMPLIANCE TEST DATA

The following data sheets document the results of testing on the 2003 Blue Bird All American School Bus, NHTSA No. C30900.

DATA SHEET 2
PROVISION OF EMERGENCY EXITS

Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**



		Height (mm)	Width (mm)
1	Left Front Exit Window	505	612
2	Left Rear Exit Window	505	612
3	Right Front Exit Window	505	612
4	Right Rear Exit Window	505	612
5	Rear Exit Window	578	1,359
6	Left Side Exit Door	1,295	610
7	Roof Exit - Rear	580	585

Seating Capacity: 84 (Including Driver)

	PASS/FAIL
Bus meets minimum emergency exit provision, based upon Table 2	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)	N/A
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.	PASS
3	Rear Push Out Window – provides a minimum opening clearance 41 cm high and 122 cm wide (16" x 48")	PASS
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.	PASS
6	The bus is not equipped with both sliding and push-out windows, (except for buses equipped with rear push out emergency exit windows).	PASS
7	A right side emergency exit door	N/A

COMMENTS: NONE

Recorded By: _____

Approved By: _____

Date: 1/14/03

**DATA SHEET 3
EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS**


Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

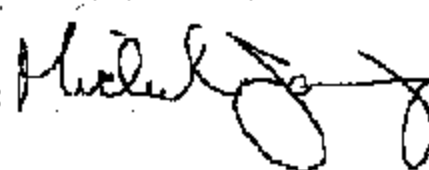
NHTSA No.: **C30900**
 Test Date: **1/14/03**

		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: 1/14/03

DATA SHEET 4A
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2003 Blue Bird All American School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30900
Test Date: 1/14/03

EMERGENCY EXIT LABELING - INTERIOR

Exit Location	Left		Right		Rear	Roof Exit - Center		Left Exit Door
	Front	Rear	Front	Rear		Roof Hatch	Center	
Exit Description	Exit Window	Exit Window	Exit Window	Exit Window	Exit Window	Roof Hatch	Roof Hatch	Exit Door
Letter Height (cm)	5.0	5.0	5.0	5.0	5.0	5.2	5.2	5.0
Background Color	Silver Above Window	Silver Above Window	Silver Above Window	Silver Above Window	Silver Above Window	White On Exit Hatch	White On Exit Hatch	Silver Top of Door Window
Location Inside	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Pass/Fail								

OPERATING INSTRUCTIONS - INTERIOR

Exit Location	Left		Right		Rear	Roof Exit - Center		Left Exit Door
	Front	Rear	Front	Rear		Roof Hatch	Center	
Instructions	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window	Emergency Exit To Open Pull Handle Push Out Window
Letter Height (cm)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.2
Letter Color	Black	Black	Black	Black	Black	Black	Black	Black
Background Color	Silver	Silver	Silver	Silver	Silver	Silver	Silver	White
Distance From Release (cm)	4.0	4.0	4.0	4.0	4.0	8.0	5.5	14.8
Reflective Tape Color	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Reflective Tape Width	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Recorded By: _____

Approved By: _____

Date: 1/14/03

DATA SHEET 4B
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: 2003 Blue Bird All American School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30900
Test Date: 1/14/03


EMERGENCY EXIT LABELING - EXTERIOR

Exit Location	Left Front	Left Rear	Right Front	Right Rear	Rear	Roof Exit - Center	Left Exit Door
Exit Description	Exit Window	Exit Window	Exit Window	Exit Window	Exit Window	Roof Hatch	Exit Door
Emer. Exit Letter Height (cm)	5.0	5.0	5.0	5.0	5.0	5.5	5.0
Instruction Letter Height (cm)	3.0	3.0	3.0	3.0	--	--	--
Background Color	Silver	Silver	Silver	Silver	Yellow	White	Silver
Location Inside	Above Window	Above Window	Above Window	Above Window	Above Window	On Hatch	Top of Door Window
Pass/Fail	PASS	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS - EXTERIOR

Exit Location	Left Front	Left Rear	Right Front	Right Rear	Rear	Roof Exit - Center	Left Exit Door
Instructions	Emergency Exit Operates from Inside Only	Emergency Exit Operates from Inside Only	Emergency Exit Operates from Inside Only	Emergency Exit Operates from Inside Only	Emergency Exit To Open Push Up Handle Put Out Window	Turn Handle & Lift	---
Letter Height (cm)	---	---	---	---	1.4	2.0	---
Letter Color	---	---	---	---	Black	Red	---
Background Color	---	---	---	---	Silver	White	---
Distance From Release (cm)	---	---	---	---	6.0	10.0	---
Reflective Tape Color	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Reflective Tape Width	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Recorded By: _____

Approved By: 

Date: 1/14/03

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

Test Vehicle: **2003 Blue Bird All American School Bus**
Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
Test Date: **1/14/03**

		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.	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.	PASS
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 contrasts 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 retro reflective tape of red, white, or yellow color.	PASS

COMMENTS: NONE

Recorded By: _____

Approved By: _____

Date: **1/14/03**

**DATA SHEET 5
TAPE RELECTIVITY TEST**

Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**

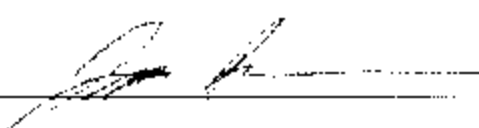
- _____ Color of retro reflective tape (white, red, or yellow)
- _____ Glass bead retro reflective element material – Fill in Part A
- _____ Prismatic retro reflective element material – Fill in Part B


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

Observation Angle	Entrance Angle	Min. Req'd. 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: 1/14/03

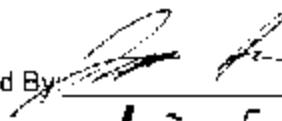
**DATA SHEET 6A
FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - INTERIOR**

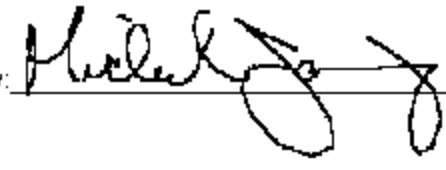
Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**

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
Left Front	Exit Window	High & Low	89	1. 81.5	Rotary	Pull Up Handle	PASS
				2. 75.5			
				3. 86.5			
				Average: 81.2			
Left Rear	Exit Window	High & Low	89	1. 80.5	Rotary	Pull Up Handle	PASS
				2. 69.5			
				3. 68.5			
				Average: 72.8			
Right Front	Exit Window	High & Low	89	1. 87.0	Rotary	Pull Up Handle	PASS
				2. 86.5			
				3. 81.0			
				Average: 84.5			
Right Rear	Exit Window	High & Low	89	1. 67.0	Rotary	Pull Up Handle	PASS
				2. 70.5			
				3. 74.0			
				Average: 70.5			
Rear	Exit Window	High	178	1. 37.5	Straight	Pull Up Handle	PASS
				2. 31.0			
				3. 32.5			
				Average: 33.7			
Roof Exit - Center	Roof Hatch	High & Low	89	1. 37.0	Rotary	Rotate Handle 90° Counter Clockwise	PASS
				2. 34.5			
				3. 38.0			
				Average: 36.5			
Left Side Door	Exit Door	High	178	1. 98.0	Straight	Pull Up Handle	PASS
				2. 89.0			
				3. 87.0			
				Average: 91.3			

COMMENTS: NONE

Recorded By:  _____

Approved By:  _____

Date: 1/14/03

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


Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**

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
Left Front	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Left Rear	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Right Front	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Right Rear	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Rear	Exit Window	High	178	1. 148.5	Straight	Pull Up Handle	PASS
				2. 161.0			
				3. 142.0			
				Average: 150.5			
Roof Exit - Center	Roof Hatch	High & Low	89	1. 72.0	Rotary	Rotate Handle 90° Clockwise	PASS
				2. 77.5			
				3. 71.5			
				Average: 73.7			
Left Side Door	Exit Door	High	178	1. 131.0	Straight	Pull Up Handle	PASS
				2. 138.0			
				3. 130.0			
				Average: 133.0			

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/14/03

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

Test Vehicle: 2003 Blue Bird All American School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30900
Test Date: 1/14/03

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
				1.	2.	3. Average:				
Left Front	Exit Window	High & Low	178	1. 32.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS		
				2. 36.0						
				3. 31.5 Average: 33.2						
Left Rear	Exit Window	High & Low	178	1. 33.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS		
				2. 31.5						
				3. 30.5 Average: 31.7						
Right Front	Exit Window	High & Low	178	1. 32.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS		
				2. 32.0						
				3. 29.5 Average: 31.3						
Right Rear	Exit Window	High & Low	178	1. 32.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS		
				2. 29.5						
				3. 32.0 Average: 31.3						

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

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

Test Vehicle: **2003 Blue Bird All American School Bus**
Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
Test Date: **1/14/03**

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, Parallelepiped, or Area	PASS/FAIL
Rear	Exit Window	High & Low	178	1. 52.0 2. 53.0 3. 55.0 Average: 53.3	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	135 cm x 57 cm AREA	PASS
Roof Exit - Center	Roof Hatch	High	178	1. 66.5 2. 64.5 3. 60.5 Average: 63.8	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
Left Side Door	Exit Door	High	178	1. 40.0 2. 38.0 3. 37.5 Average: 37.9	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	129 cm x 61 cm AREA	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: 1/14/03

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

Test Vehicle: 2003 Blue Bird All American School Bus NHTSA No.: C30900
 Test Lab: MGA Research-Wisconsin Operations Test Date: 1/14/03

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, Parallelepiped, or Area	PASS/FAIL
				1.	2.				
Rear	Exit Window	High	178	1. 64.5		Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	135 cm x 57 cm AREA	PASS
				2. 56.5					
				3. 64.0					
				Average: 61.7					
Roof Exit - Center	Roof Hatch	High	178	1. 52.0		Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	Ellipsoid	PASS
				2. 53.0					
				3. 48.0					
				Average: 51.0					
Left Side Door	Exit Door	High	178	1. 53.0		Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	129 cm x 61 cm AREA	PASS
				2. 55.0					
				3. 52.0					
				Average: 53.3					

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: 1/14/03

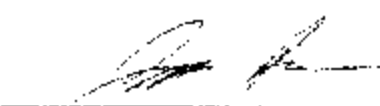
**DATA SHEET 8
EMERGENCY EXIT EXTENSION**

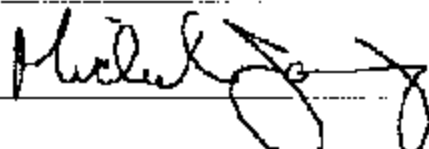
Test Vehicle: **2003 Blue Bird All American School Bus**
Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
Test Date: **1/14/03**

		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 S5.4.1 (3) of FMVSS 217).	PASS
3	There is a 30 cm (11.81") wide clear aisle space for each side emergency Exit Door.	PASS
4	There is no seat or barrier which extend past the side door opening	PASS
5	For flip-up seat adjacent to the side emergency Exit Door it automatically assumes and retains 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	PASS
6	There is no obstruction of door latch mechanism for the rear emergency door.	N/A

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/14/03

**DATA SHEET 9
WINDOW RETENTION TEST**


Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**

1	Test Window Identification:	Right Rear Exit Window – Top Glazing
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Push Out Exit Operation
3	Provide the horizontal and vertical glazing dimensions for each panel.	505 mm x 306 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 227 kg - PASS
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	PASS 86.5 N to Unlatch 34.8 N to Open

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/14/03


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

Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**

1	Test Window Identification:	Rear Exit Window Glazing
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Push Out Exit Operation
3	Provide the horizontal and vertical glazing dimensions for each panel.	1359 mm x 578 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 131kg - PASS
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	PASS 60.2 N to Unlatch 63.7 N to Open

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/14/03

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


Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30900**
 Test Date: **1/14/03**

1	Test Window Identification:	Left Side Exit Door – Glazing
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Double Glazed, Fixed
3	Provide the horizontal and vertical glazing dimensions for each panel.	470 mm x 470 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 407 kg - PASS
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	PASS 60.2 N to Unlatch 27.3 N to Open

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/14/03

**SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2003 Blue Bird All American School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

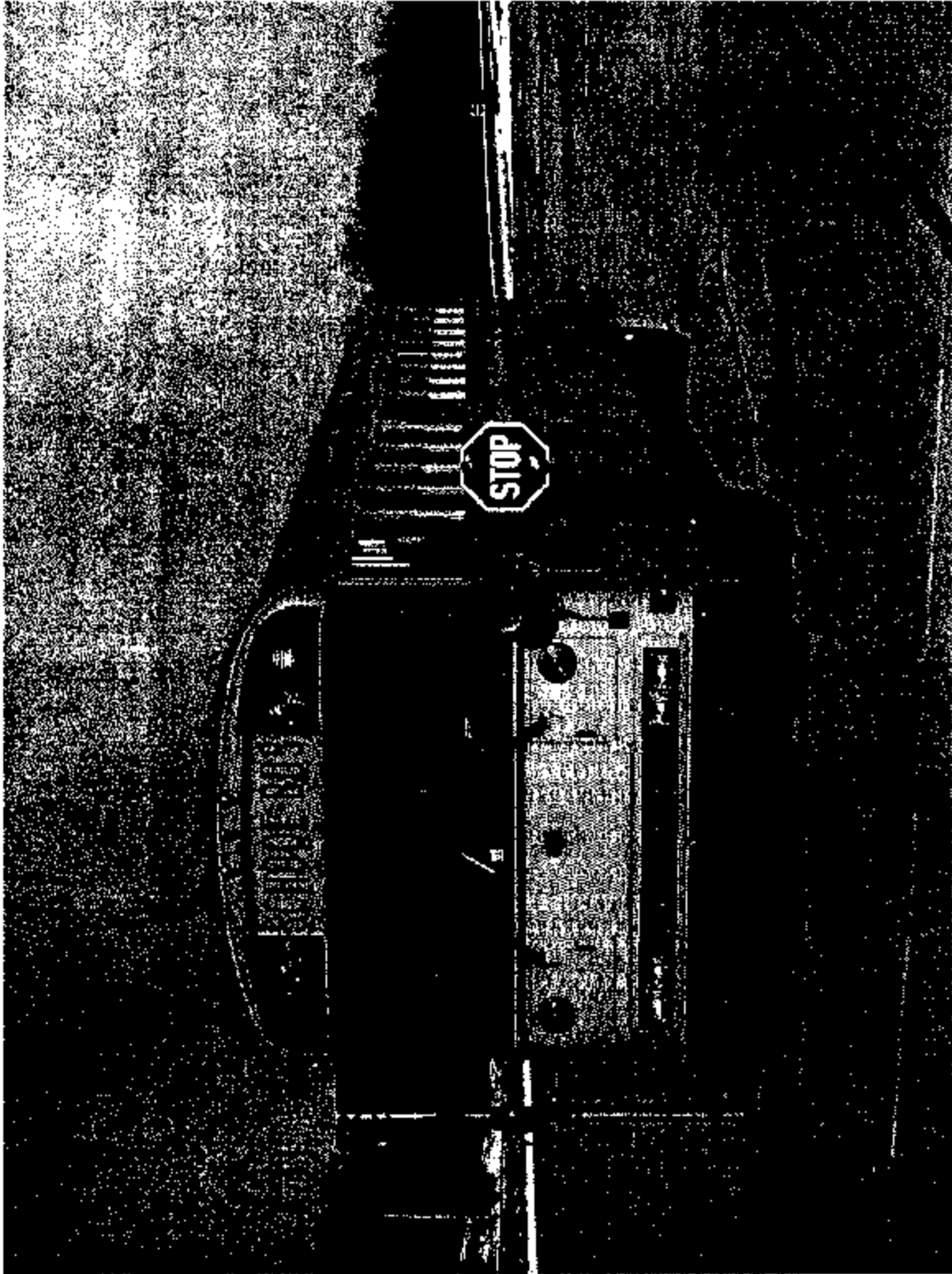
NHTSA No.: **C30900**
 Test Date: **1/14/03**

Equipment	Description	Model/Serial No.	Cal. Date	Next Cal. Date
Computer	HP	Vectra / US03263612	--	---
Head Form	MGA	217	12/4/02	5/4/03
A/D Interface	Metrabyte	DAS-1802	--	---
Sphere	MGA	Sphere - 1A	12/4/02	5/4/03
Load Cell	Interface	1210AF / 88409A	10/18/02	4/18/03
Inclinometer	Digital Protractor	Pro 360 / Comp Lab	11/15/02	5/15/03
Linear Potentiometer	Celeasco	PT-101-40A / A04253	1/14/03	7/8/03
Scale	GEI	Metric / 1	1/6/03	7/6/03
Steel Tape	Stanley	Powerlock / 101	10/28/02	4/28/03
Camera	Sony	DSC-S75	--	--
Ellipsoid	MGA	ELLIP - 1A	12/4/02	5/4/03
Parallelepiped	MGA	PARA - 1A	12/4/02	5/4/03
Force Gauge	Chatillon	DFGS-R-ND / F31754	12/13/02	6/13/03
Temp. Recorder	Oregon Scientific	WM-918	10/18/02	4/18/03

**SECTION 5
PHOTOGRAPHS**

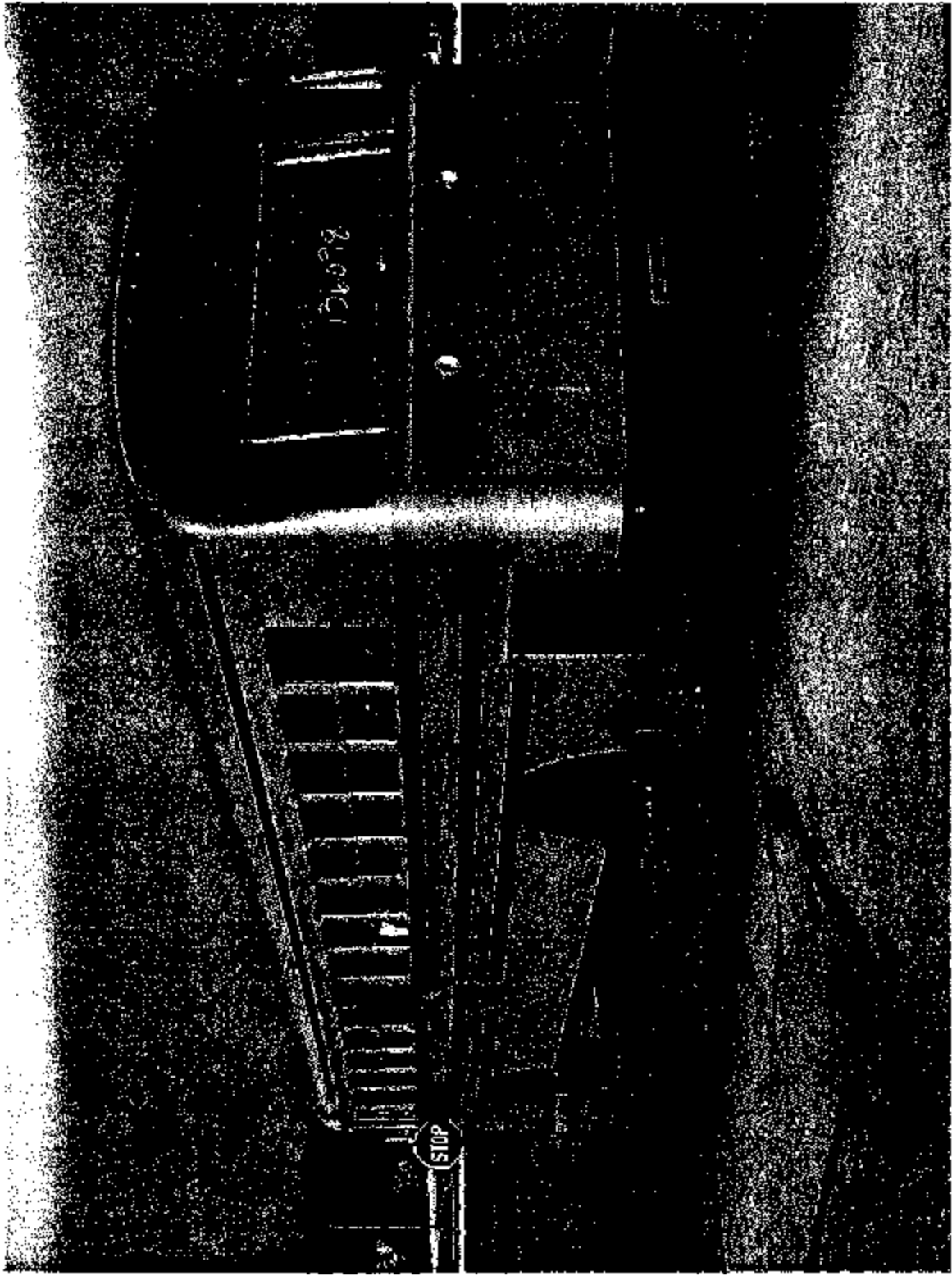
TABLE OF PHOTOGRAPHS

<u>No.</u>		<u>Page No.</u>
1	Exterior Left Front $\frac{3}{4}$ View of School Bus	26
2	Exterior Left Rear $\frac{3}{4}$ View of School Bus	27
3	Vehicle Certification and Tire Placard	28
4	Interior Front to Rear View Depicting Seating Arrangement	29
5	Interior Rear to Front View Depicting Seating Arrangement	30
6	Left Front Exit Window Identification (Outside View)	31
7	Left Front Exit Window Identification (Inside View)	32
8	Left Rear Exit Window Identification (Outside View)	33
9	Left Rear Exit Window Identification (Inside View)	34
10	Right Front Exit Window Identification (Outside View)	35
11	Right Front Exit Window Identification (Inside View)	36
12	Right Rear Exit Window Identification (Outside View)	37
13	Right Rear Exit Window Identification (Inside View)	38
14	Rear Exit Window Identification (Outside View)	39
15	Rear Exit Window Identification (Inside View)	40
16	Left Side Door Exit Identification (Outside View)	41
17	Left Side Door Exit Identification (Inside View)	42
18	Rear Roof Hatch Identification (Outside View)	43
19	Rear Roof Hatch Identification (Inside View)	44
20	Left Front Window Emergency Exit Ellipsoid Clearance	45
21	Left Rear Window Emergency Exit Ellipsoid Clearance	46
22	Right Front Window Emergency Exit Ellipsoid Clearance	47
23	Right Rear Window Emergency Exit Ellipsoid Clearance	48
24	Rear Window Emergency Exit Parallelepiped Clearance	49
25	Rear Roof Hatch Emergency Exit Ellipsoid Clearance	50
26	Loading Fixture	51
27	Retention Test of Right Rear Window (Pre-Test)	52
28	Retention Test of Right Rear Window (Post-Test)	53
29	Retention Test of Left Exit Door Window (Pre-Test)	54
30	Retention Test of Left Exit Door Window (In Progress)	55
31	Retention Test of Left Exit Door Window (Post-Test)	56
32	Retention Test of Rear Exit Window (Pre-Test)	57
33	Retention Test of Rear Exit Window (In Progress)	58
34	Retention Test of Rear Exit Window (Post-Test)	59
35	Rear Exit Window Interior Handle to Rear Deck Measurement	60
36	Rear Exit Window Interior Handle to Rear Deck Measurement (View #2)	61



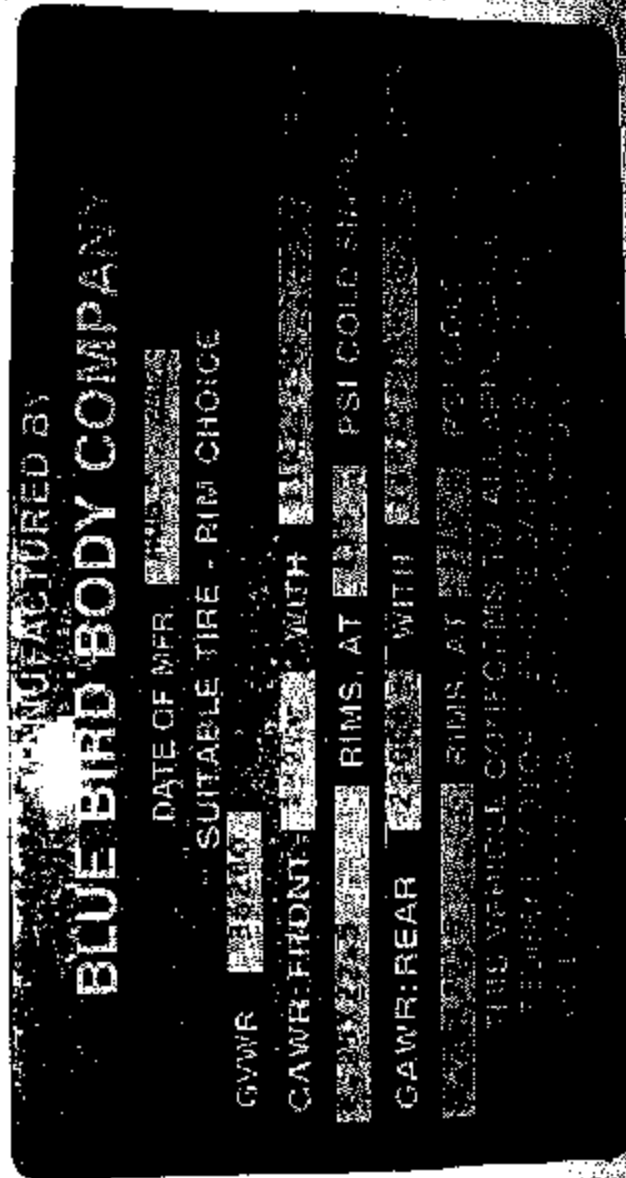
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 1:
Exterior Left Front 3/4 View of School Bus

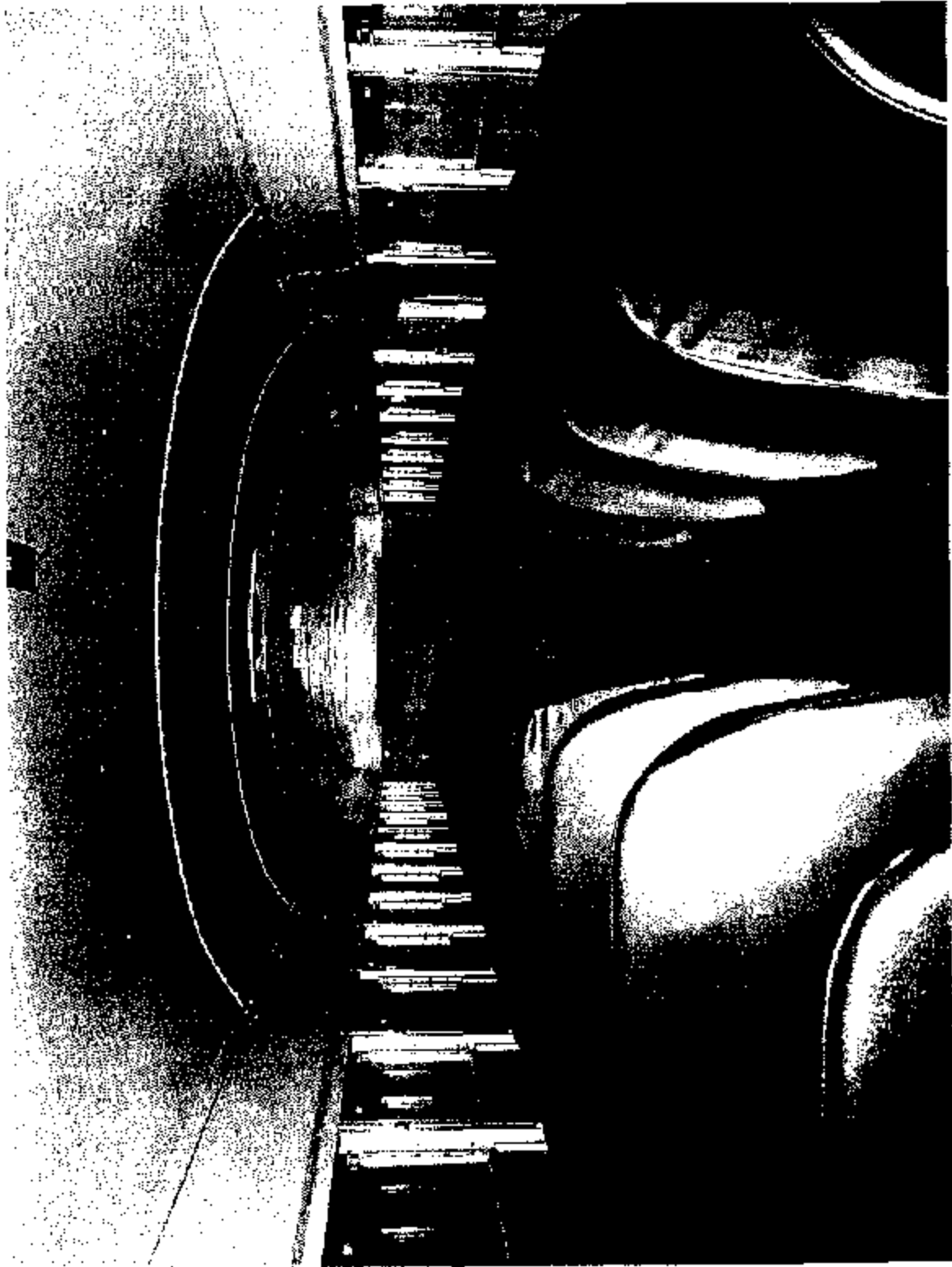


Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 2:
Exterior Left Rear 3/4 View of School Bus

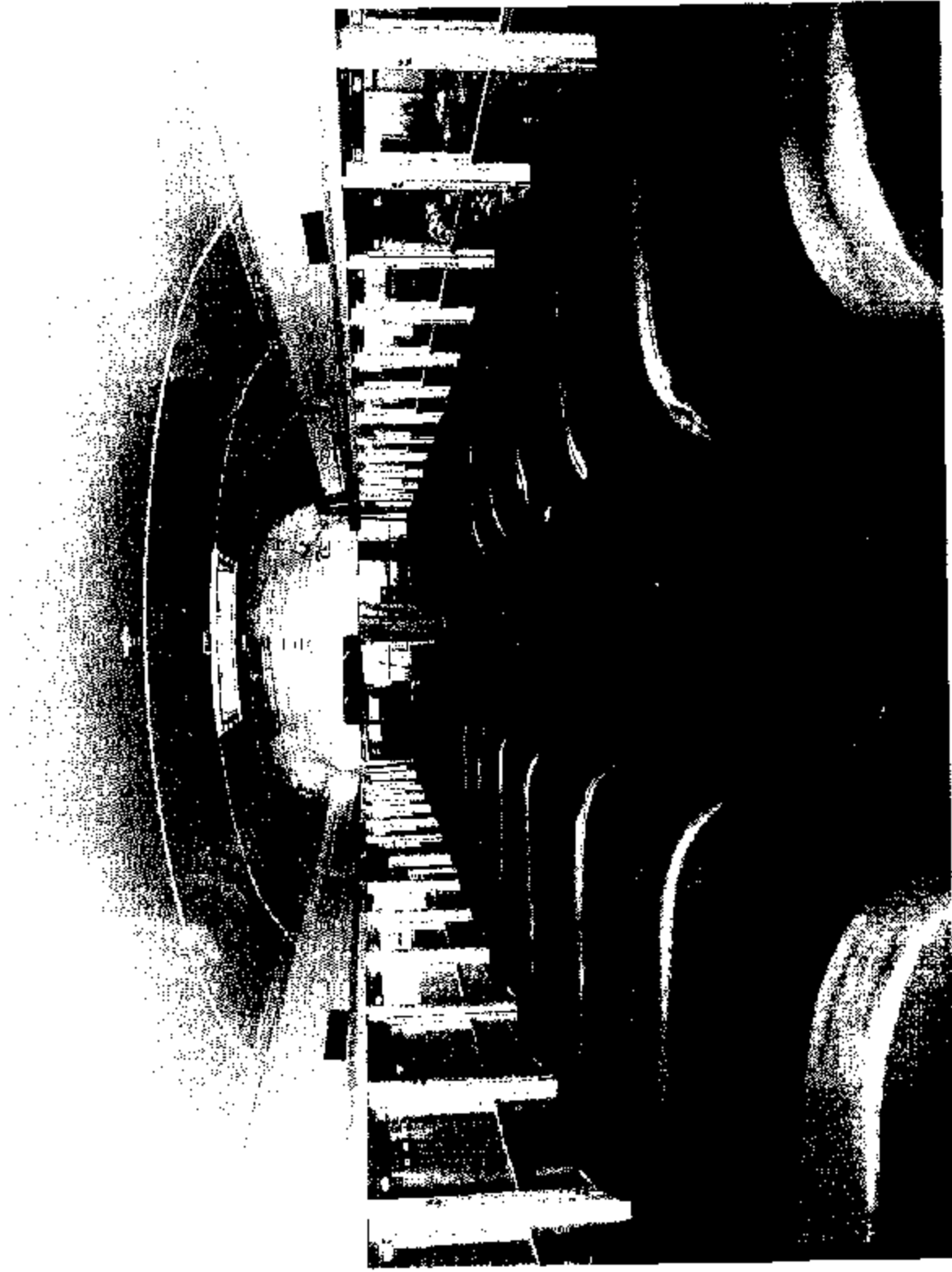


Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900
Photograph 3: Vehicle Certification and Tire Placard



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 4:
Inter or Front to Rear View Depicting Seating Arrangement



Photograph 5:
Interior Rear to Front View Depicting Seating Arrangement.

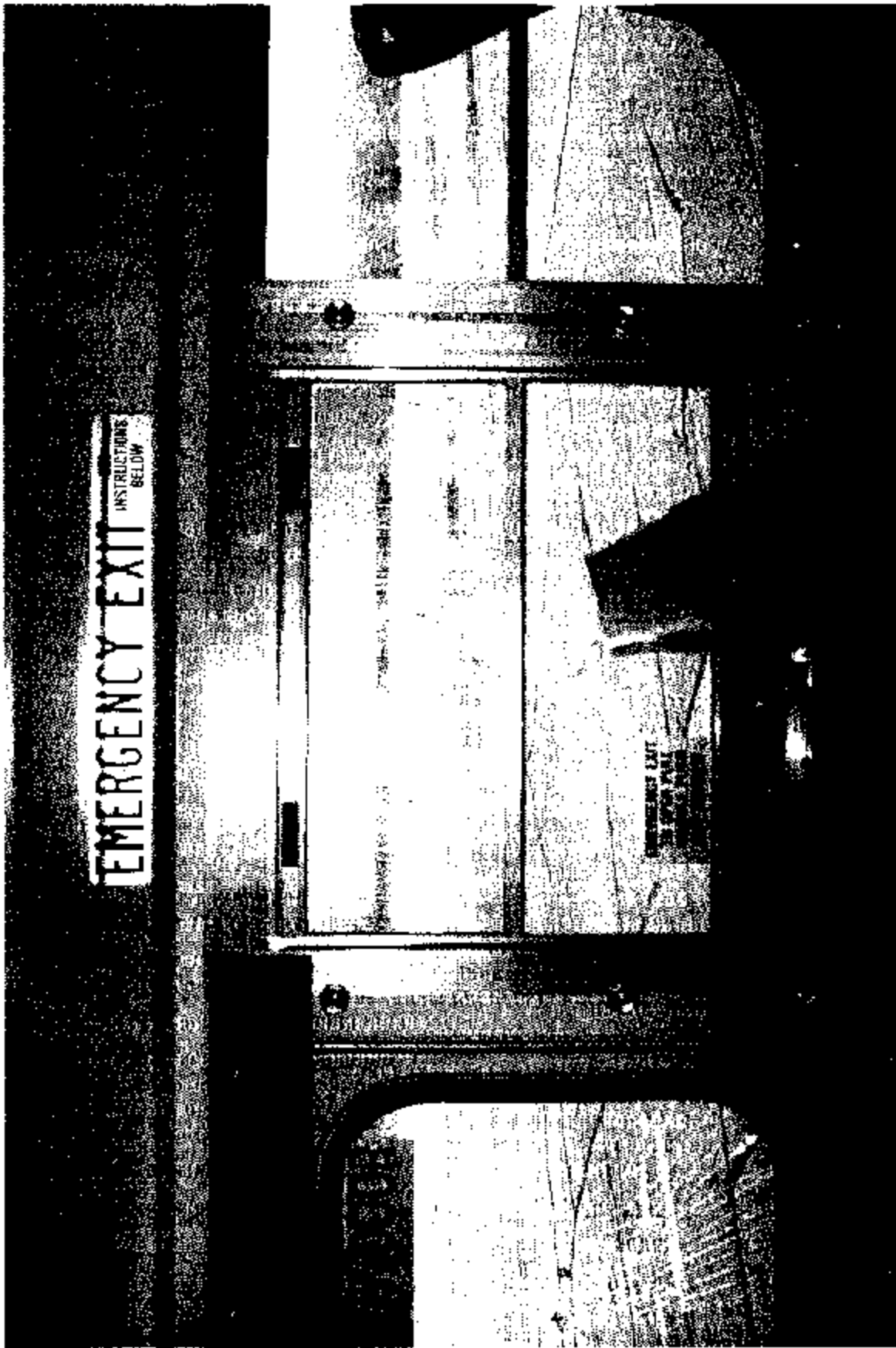
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



Test Vehicle:
Procedure:
NHTSA No.:

2003 Blue Bird All American School Bus
FMVSS 217
C30900

Photograph 6:
Left Front Exit Window Identification (Outside View)



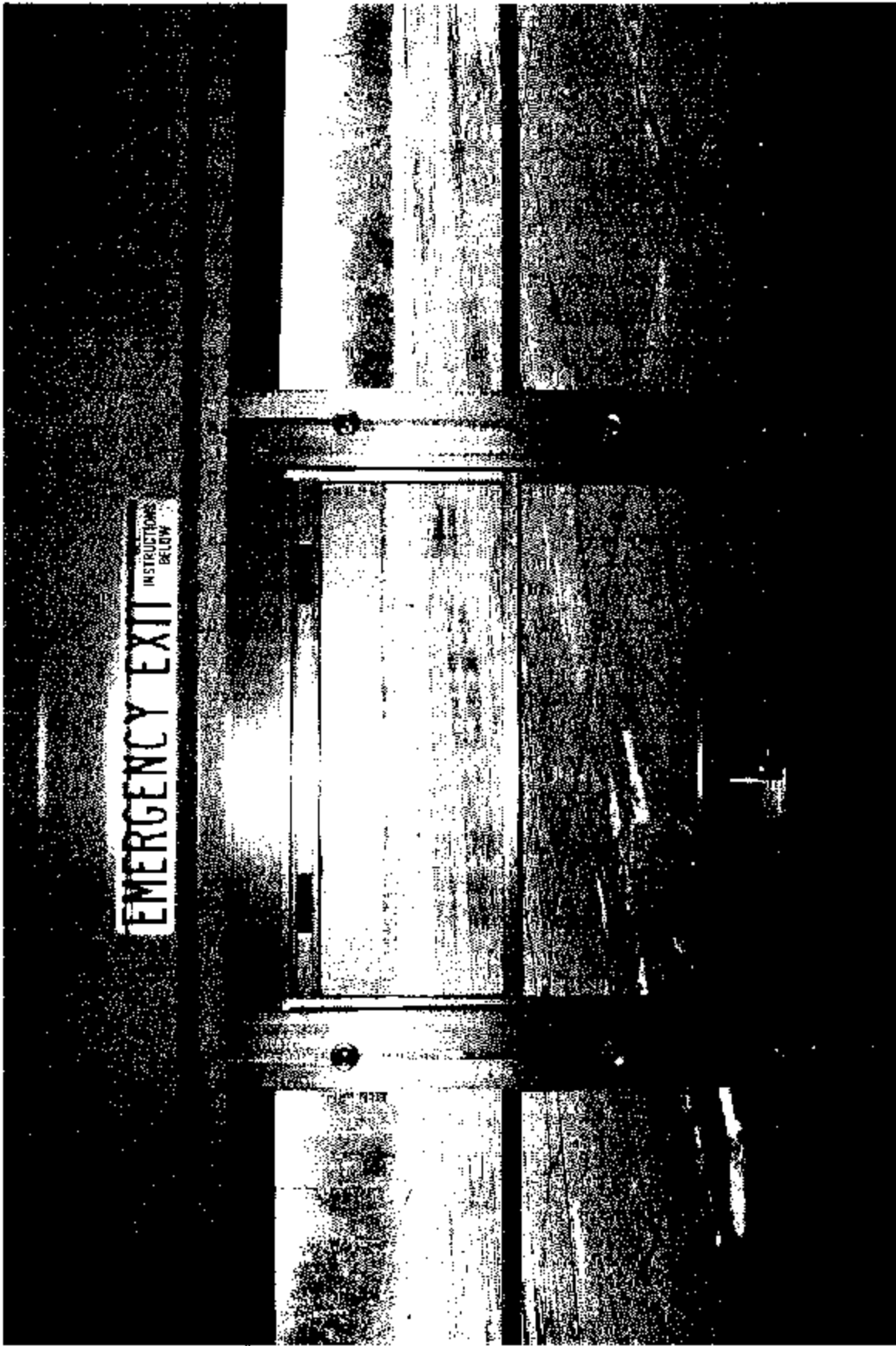
Photograph 7:
Left Front Exit Window Identification (Inside View)

Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



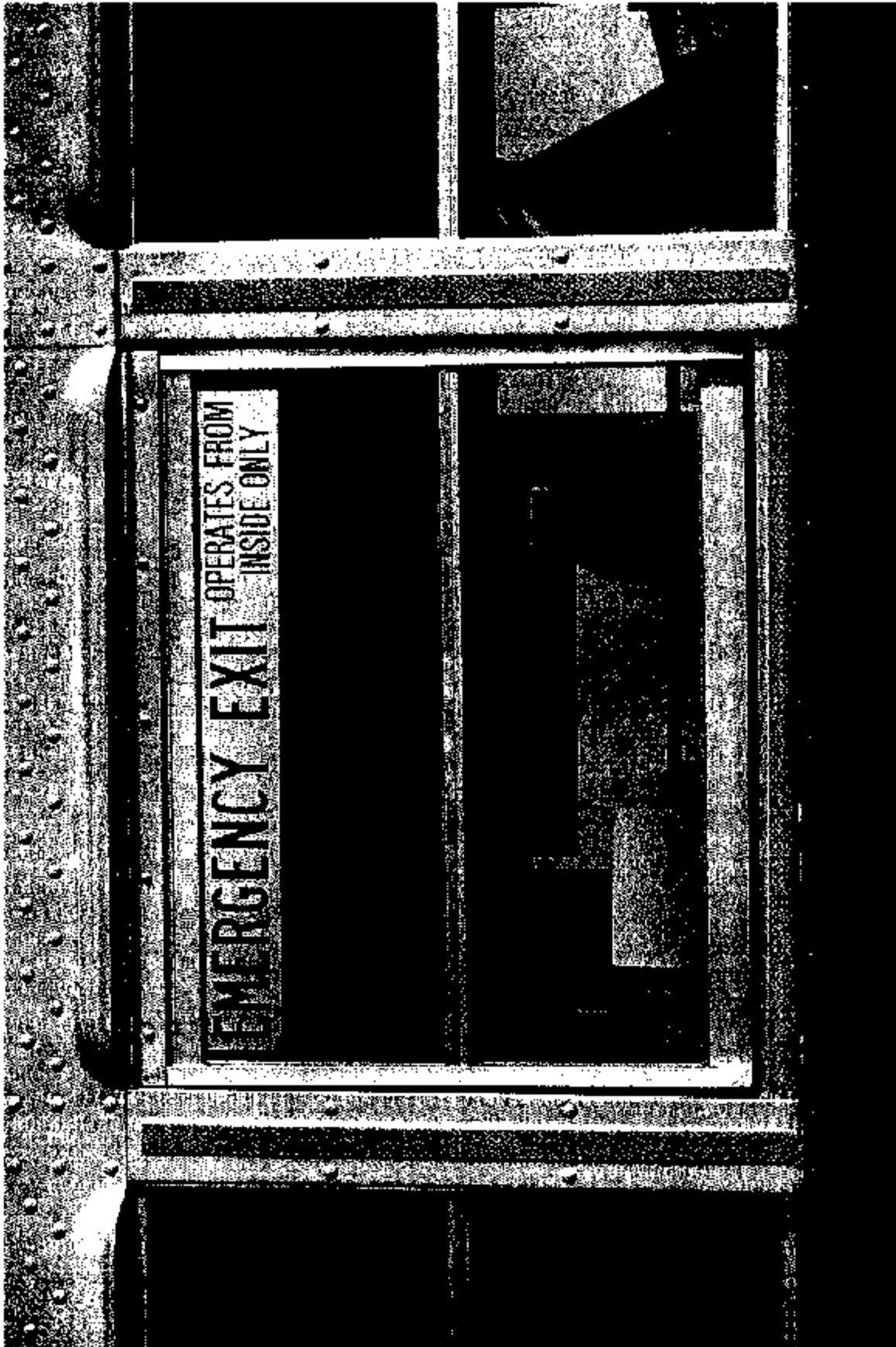
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 8:
Left Rear Exit Window Identification (Outside View)



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 9:
Left Rear Exit Window Identification (Inside View)



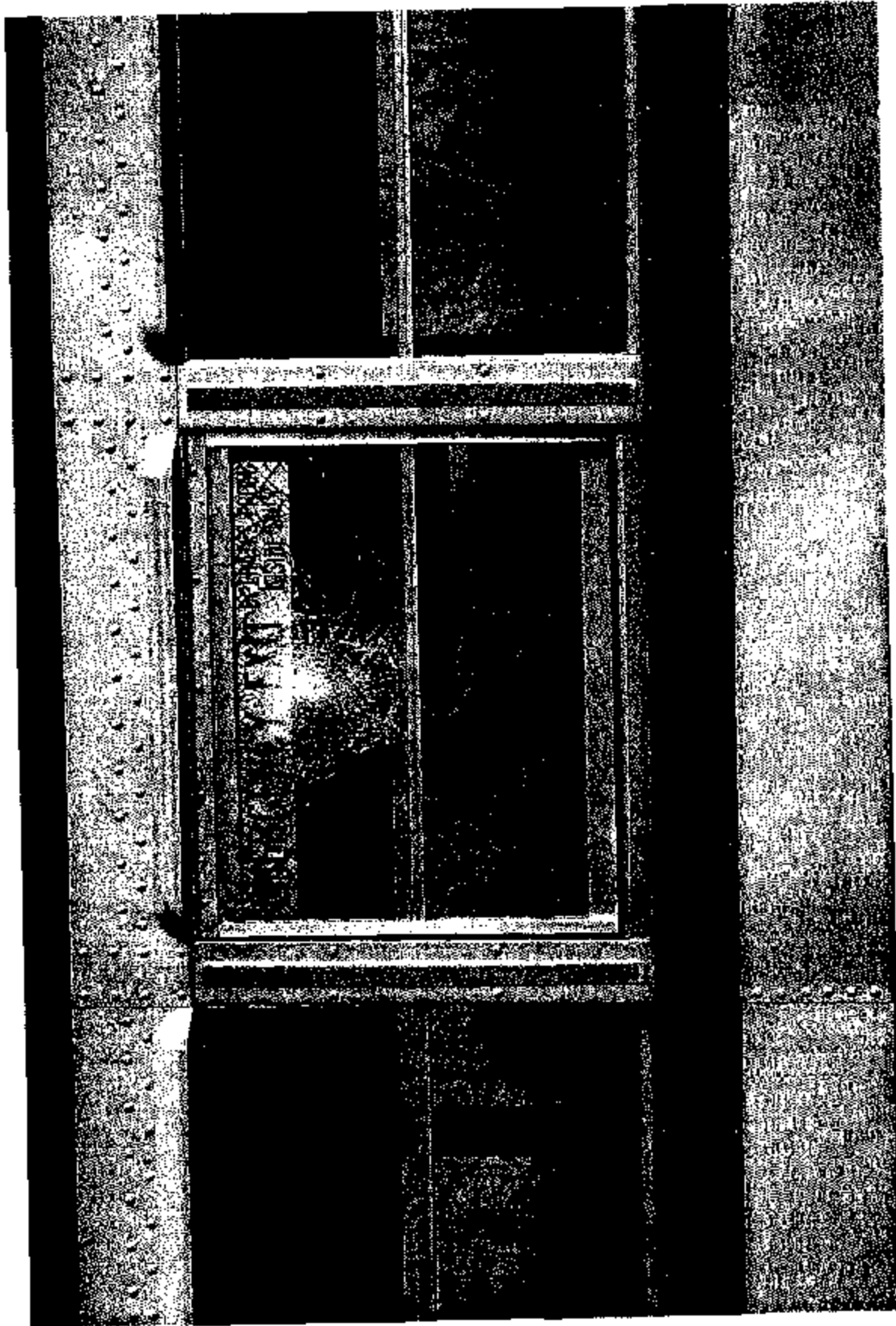
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 10:
Right Front Exit Window Identification (Outside View)



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C3090#

Photograph 11:
Right Front Exit Window Identification (Inside View)



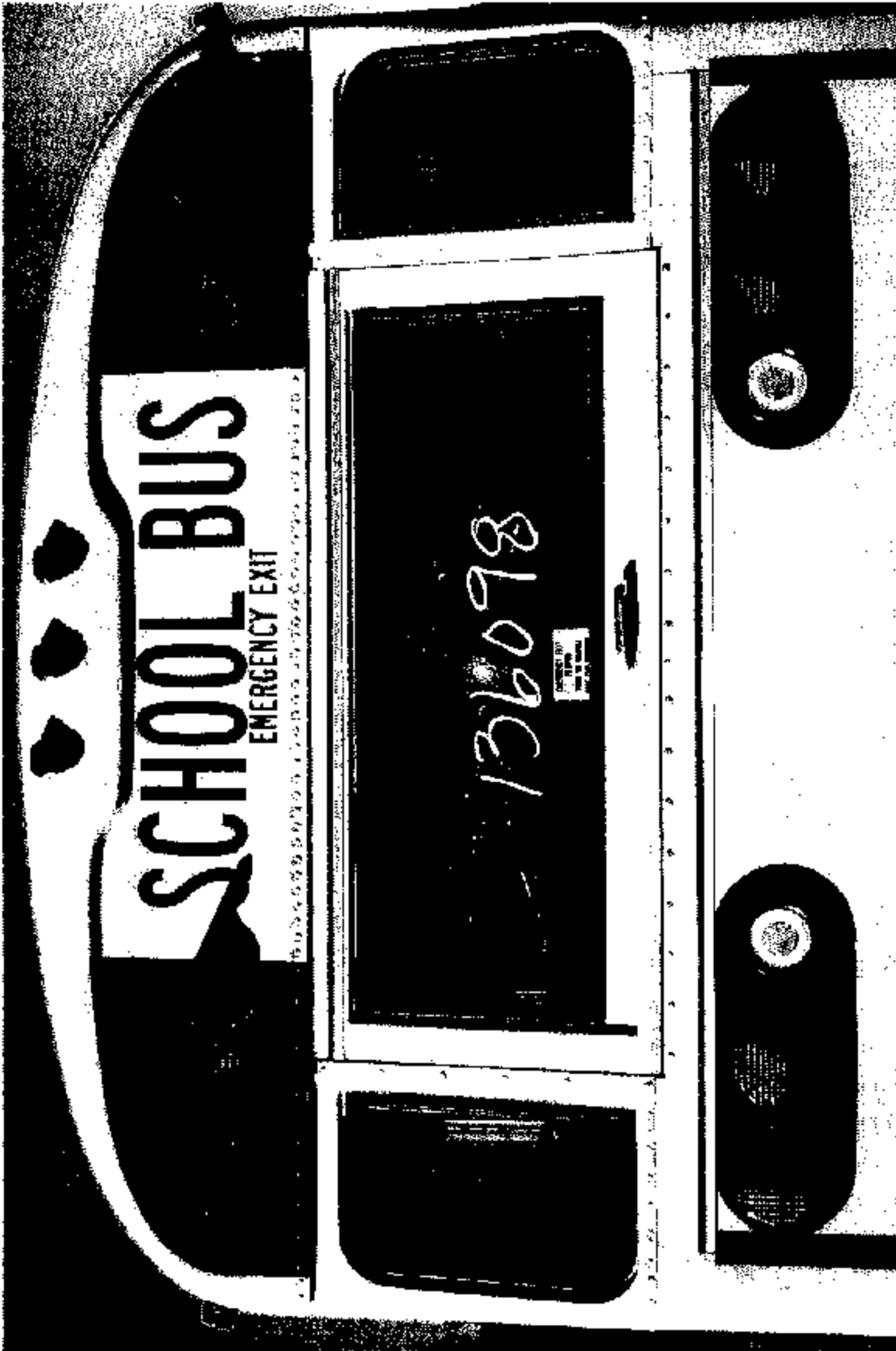
Photograph 12:
Right Rear Exit Window Identification (Outside View)

Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



Photograph 13:
Right Rear Exit Window Identification (Inside View)

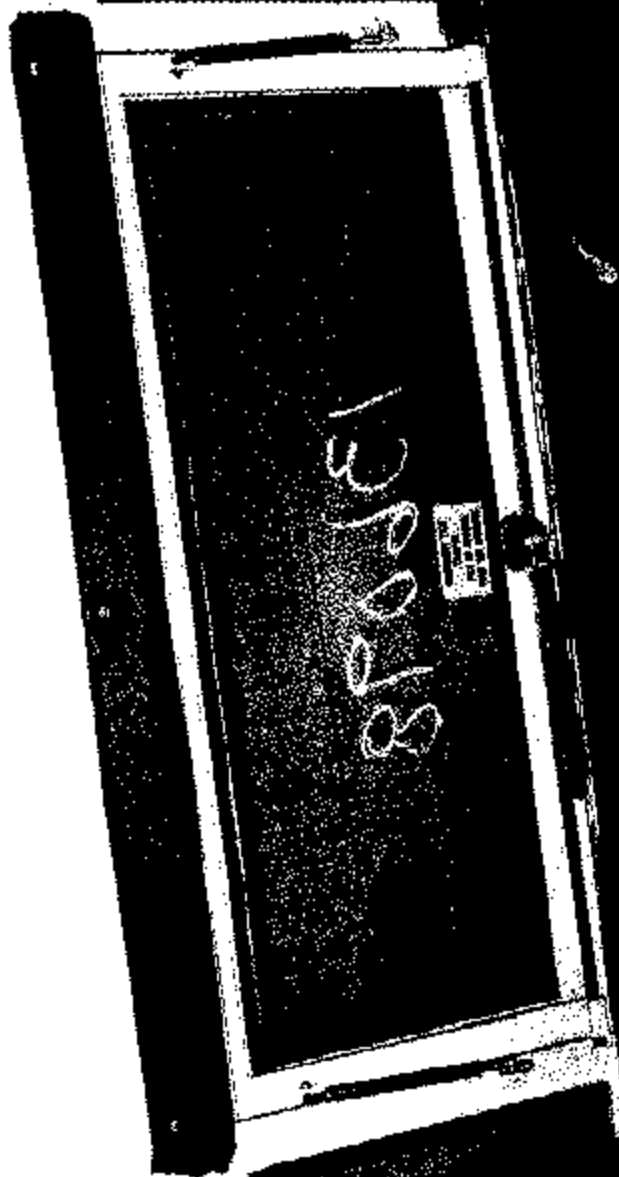
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 14:
Rear Exit Door Identification (Outside View)

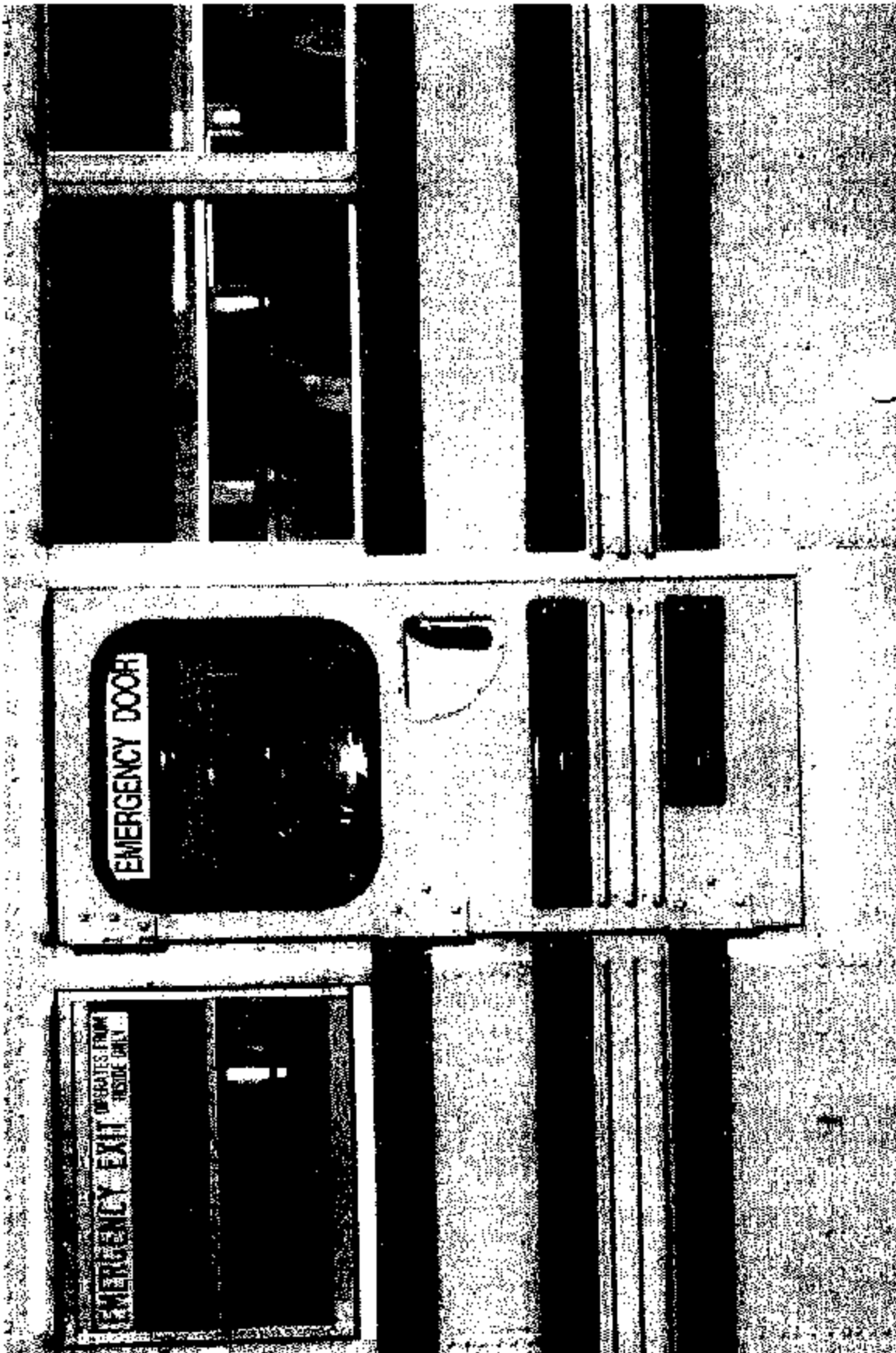
10/17



Photograph 15:
Rear Exit Door Identification (Inside View)

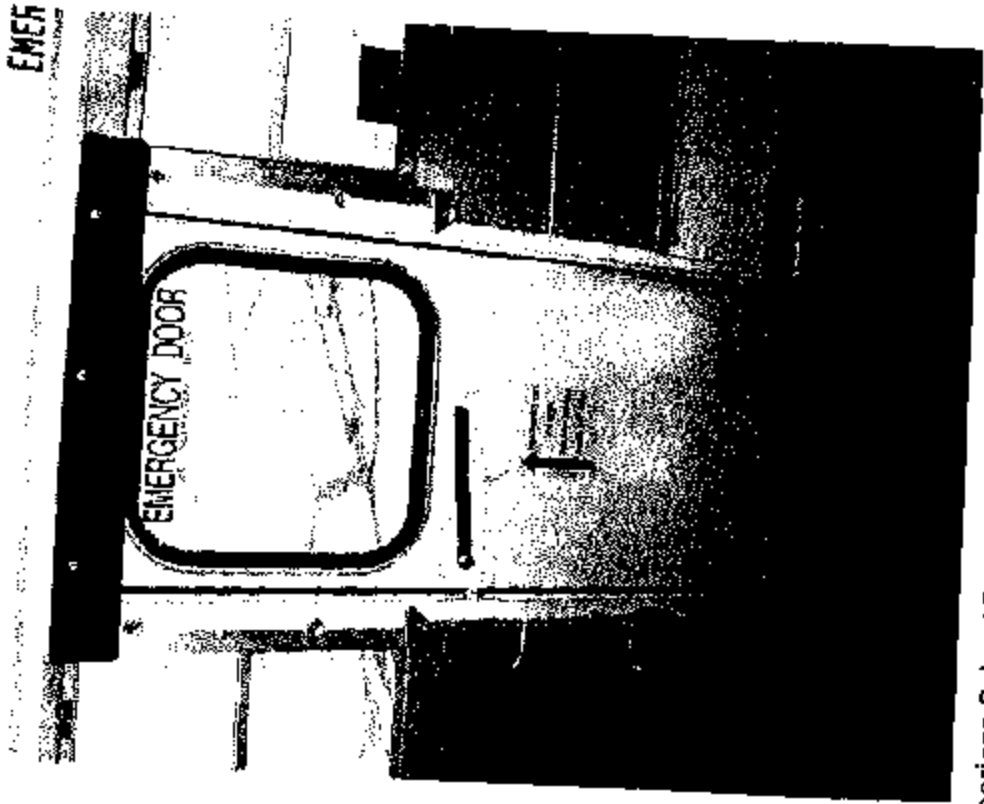
2003 Blue Bird All American School Bus

Truck Vehicle: 217



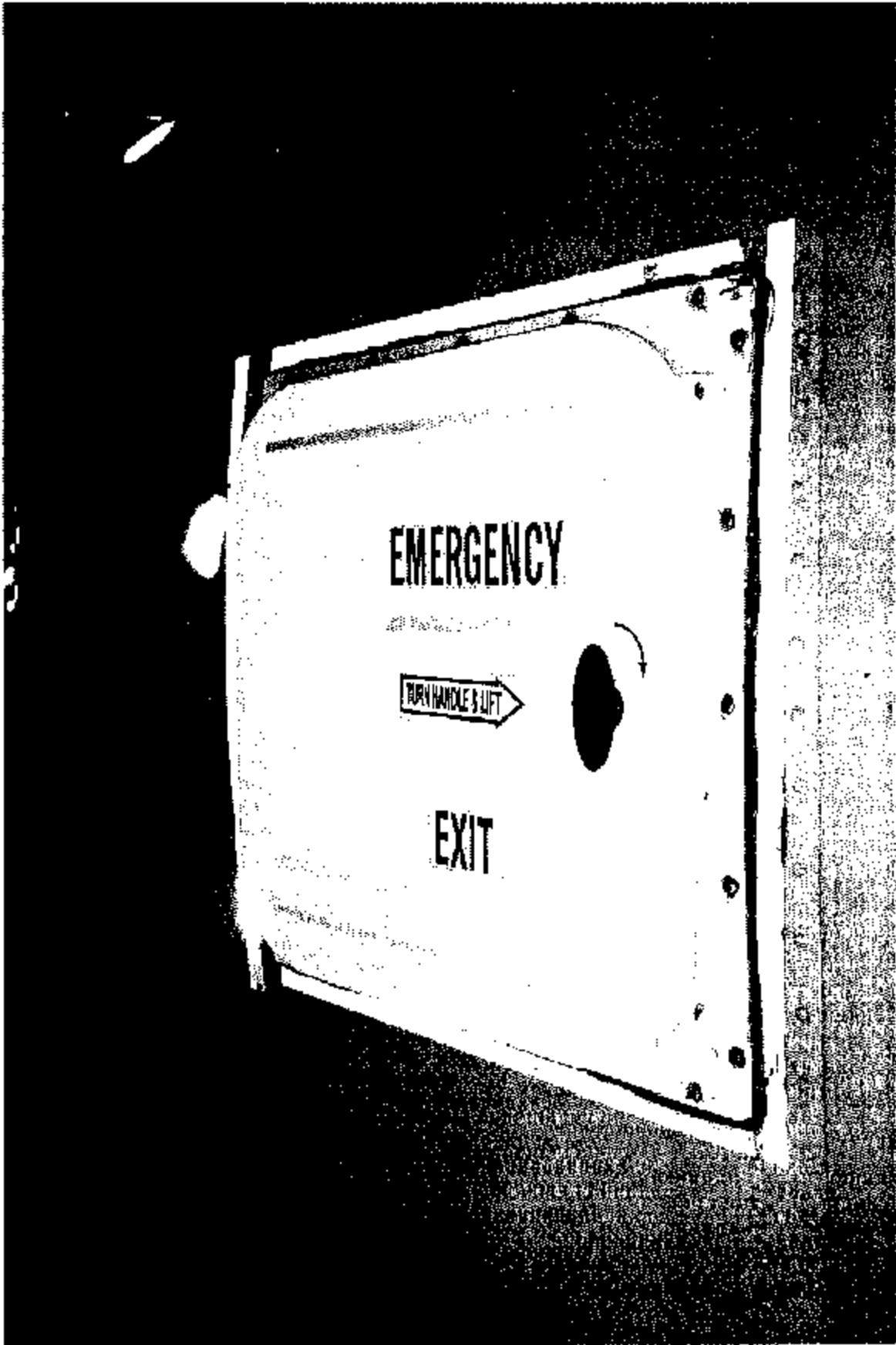
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 16:
Left Side Door Exit Identification (Outside View)



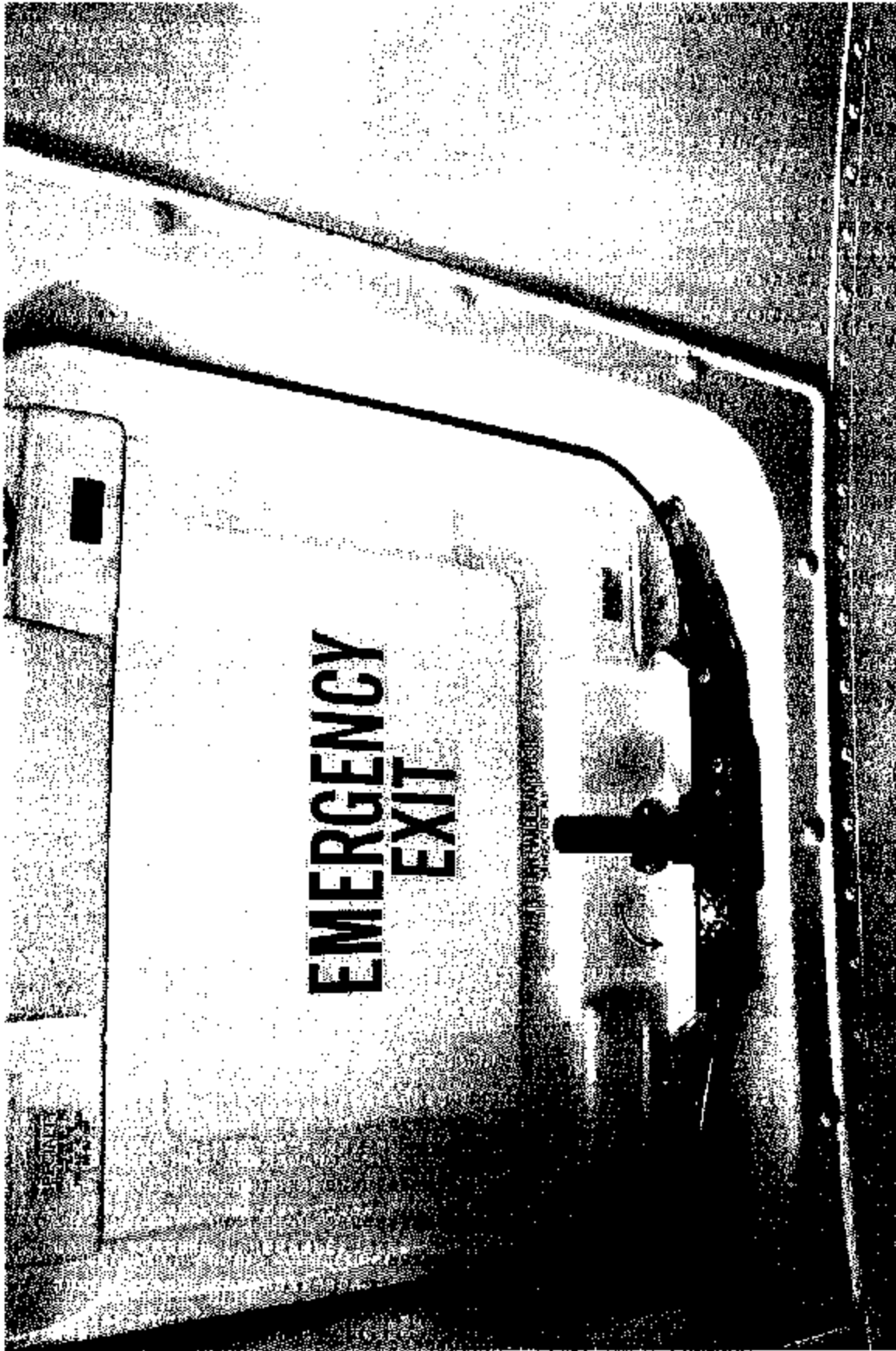
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 17:
Left Side Door Exit Identification (Inside View)



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 18:
Rear Roof Hatch Identification (Outside View)



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 19:
Rear Roof Hatch Identification (Inside View)



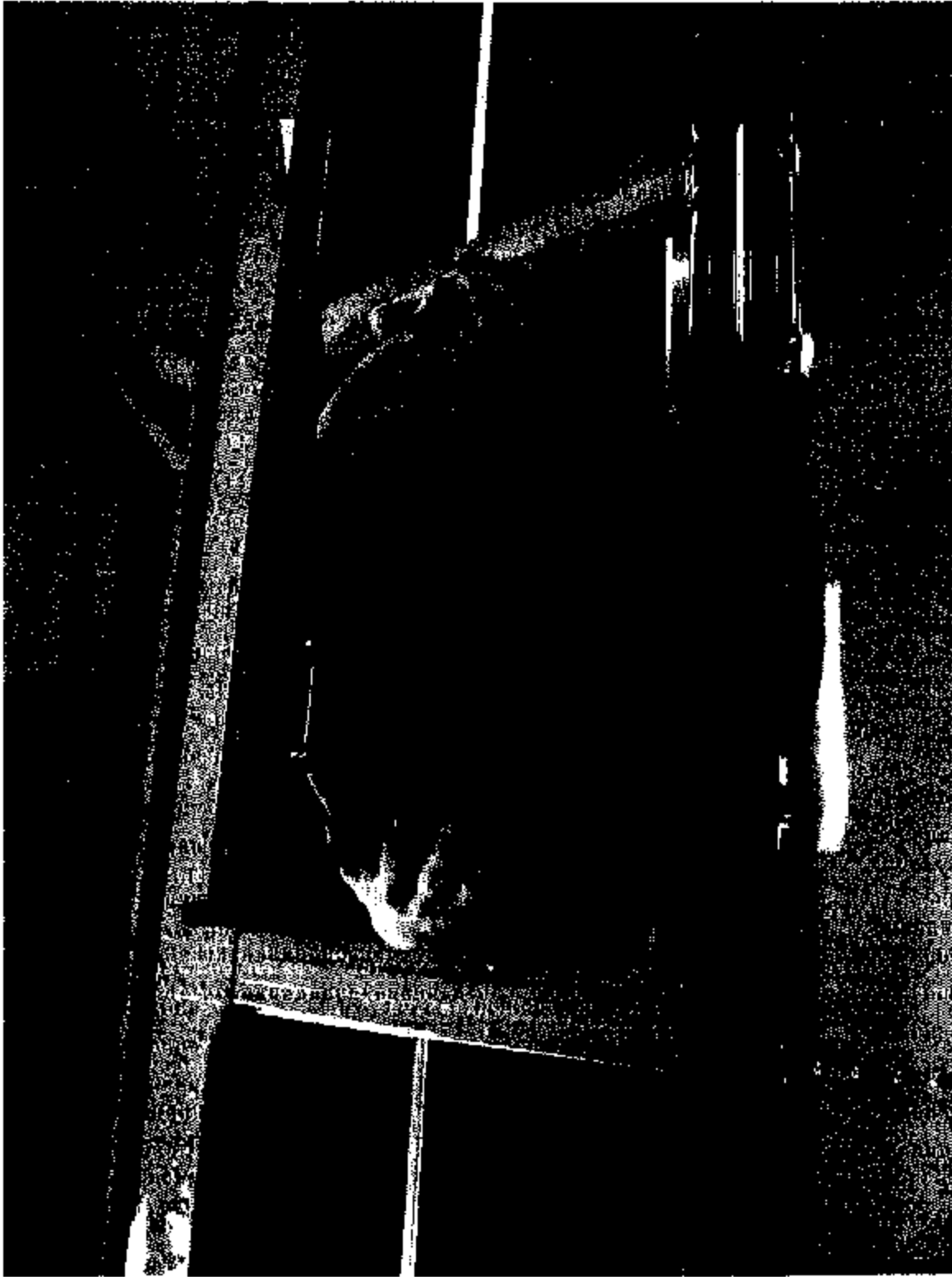
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 20:
Left Front Window Emergency Exit Ellipsoid Clearance



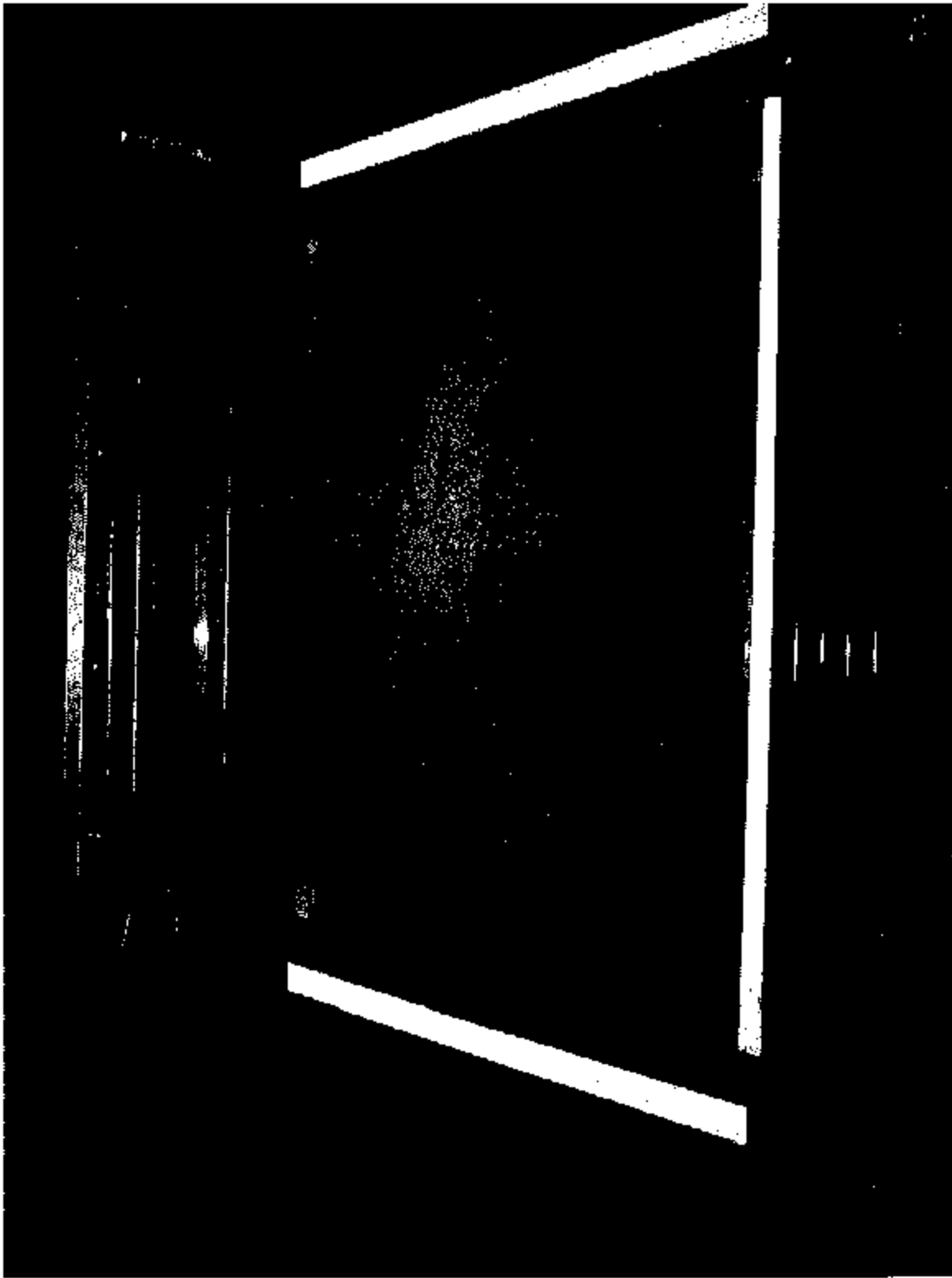
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 21:
Left Rear Window Emergency Exit Ellipsoid Clearance



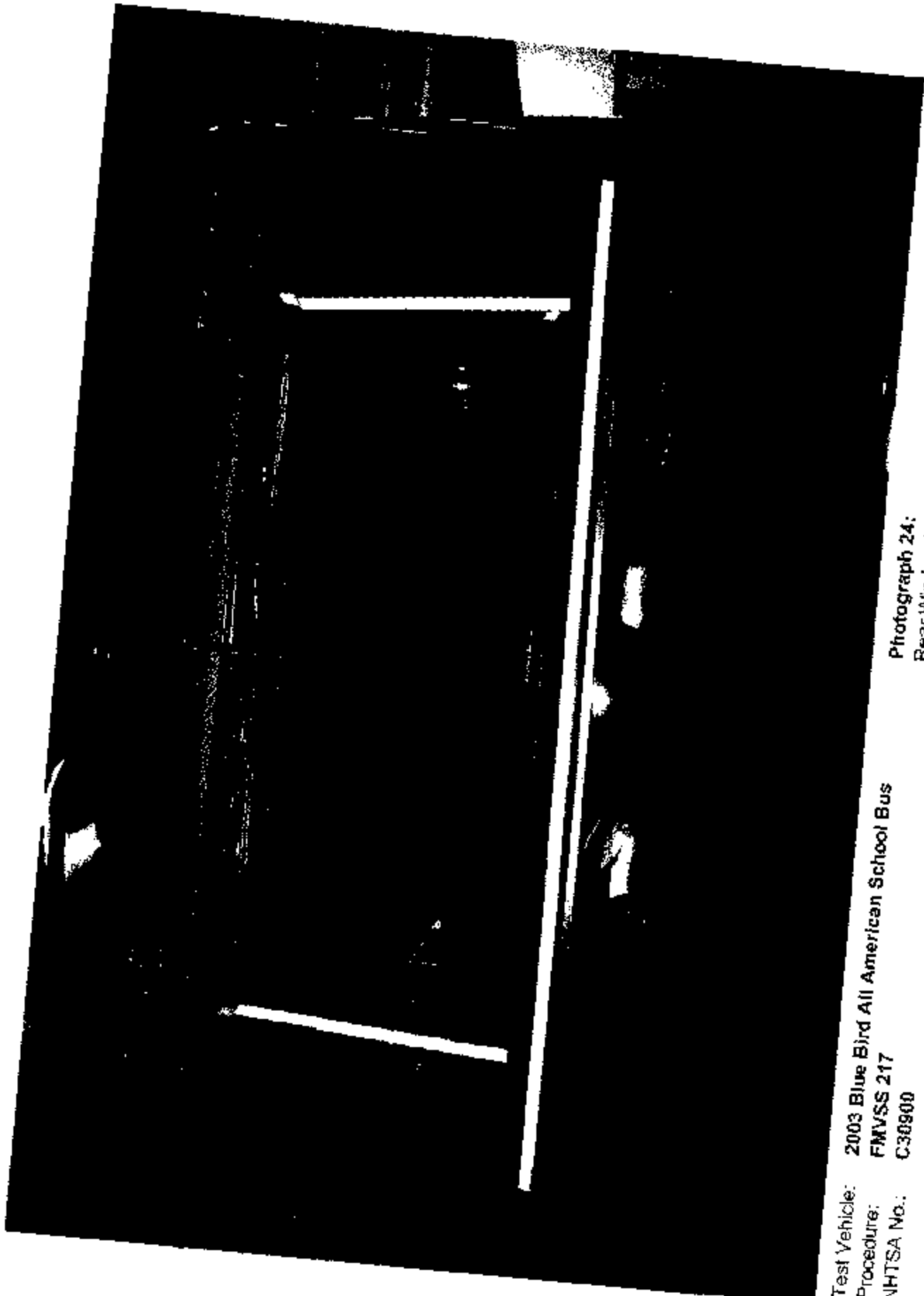
Photograph 22:
Right Front Window Emergency Exit Ellipsoid Clearance

Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



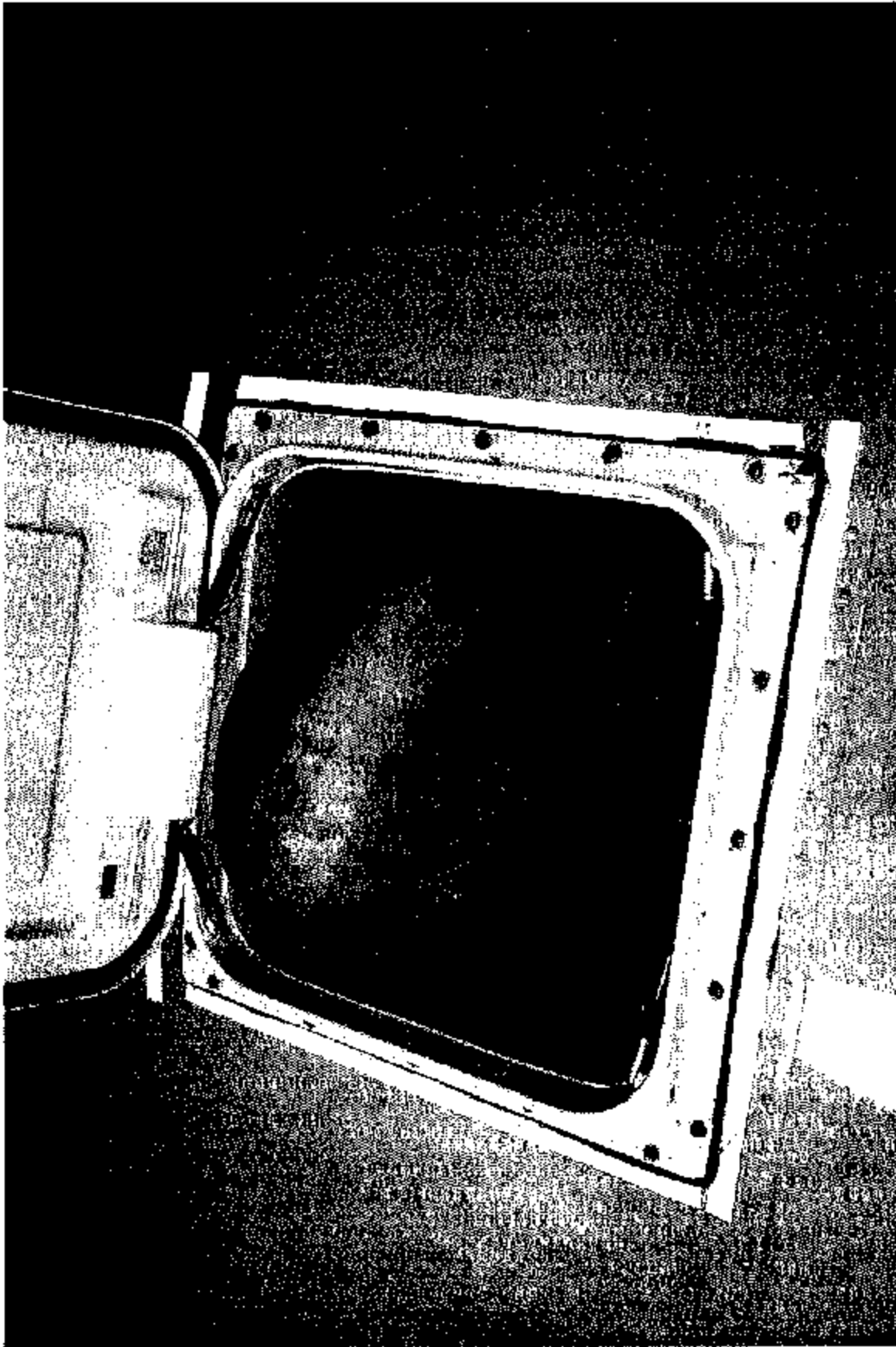
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 23:
Right Rear Window Emergency Exit Ellipsoid Clearance

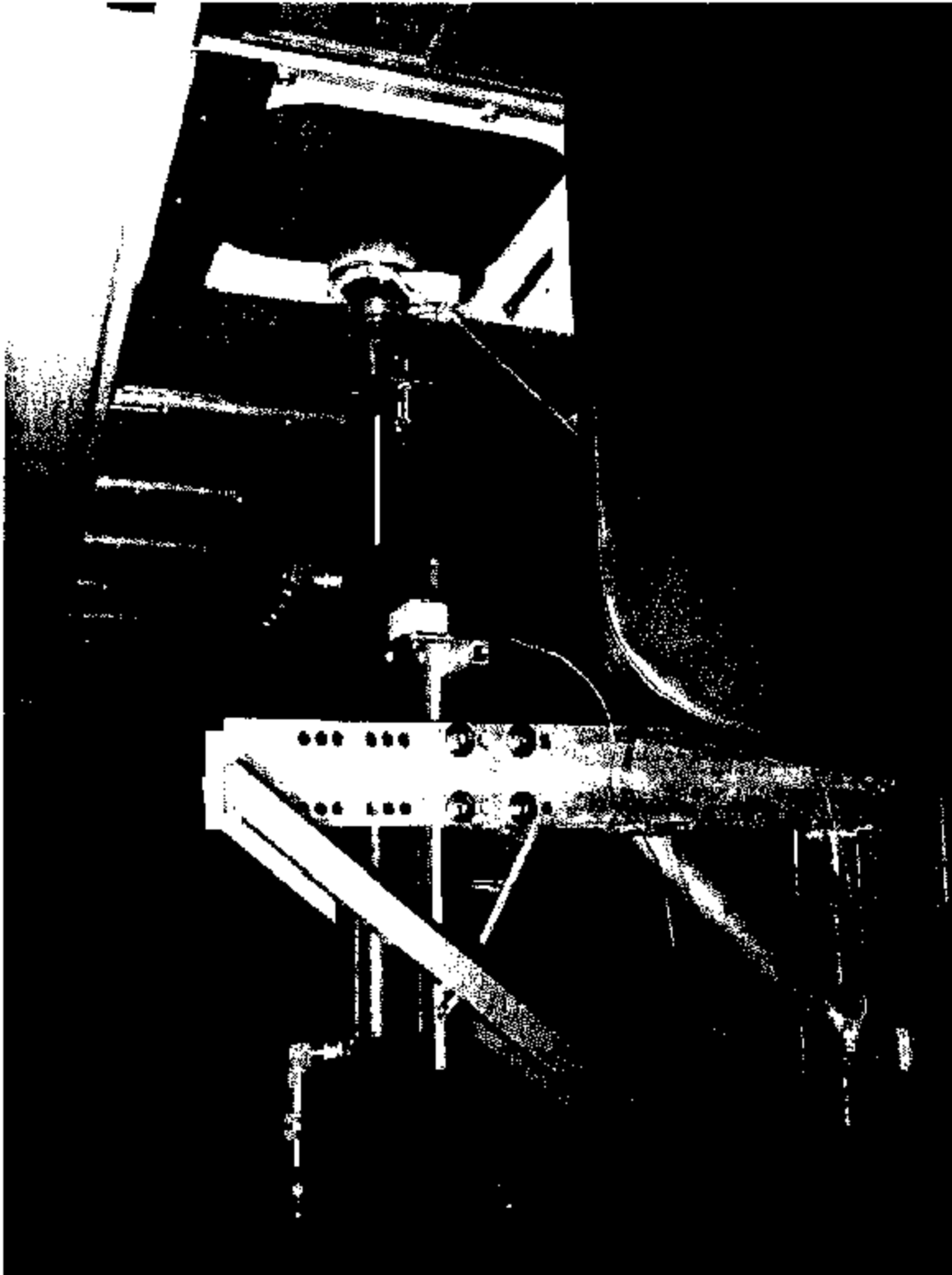


Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30800

Photograph 24:
Rear Window Emergency Exit Parallelepiped Clearance

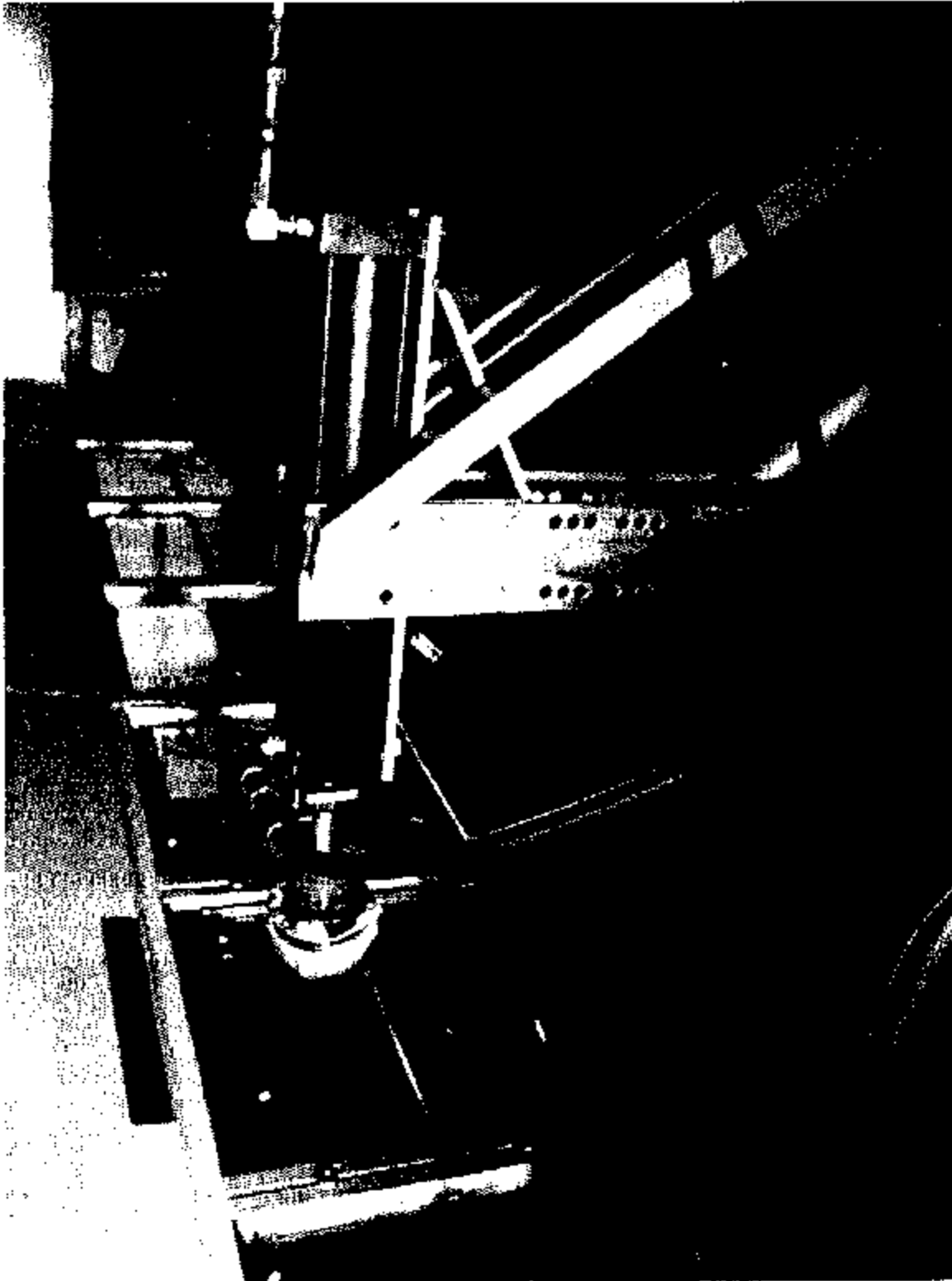


Test Vehicle: 2003 Blue Bird All American School Bus Photograph 25:
Procedure: FMVSS 217 Rear Roof Hatch Emergency Exit Ellipsoid Clearance
NHTSA No.: C30900



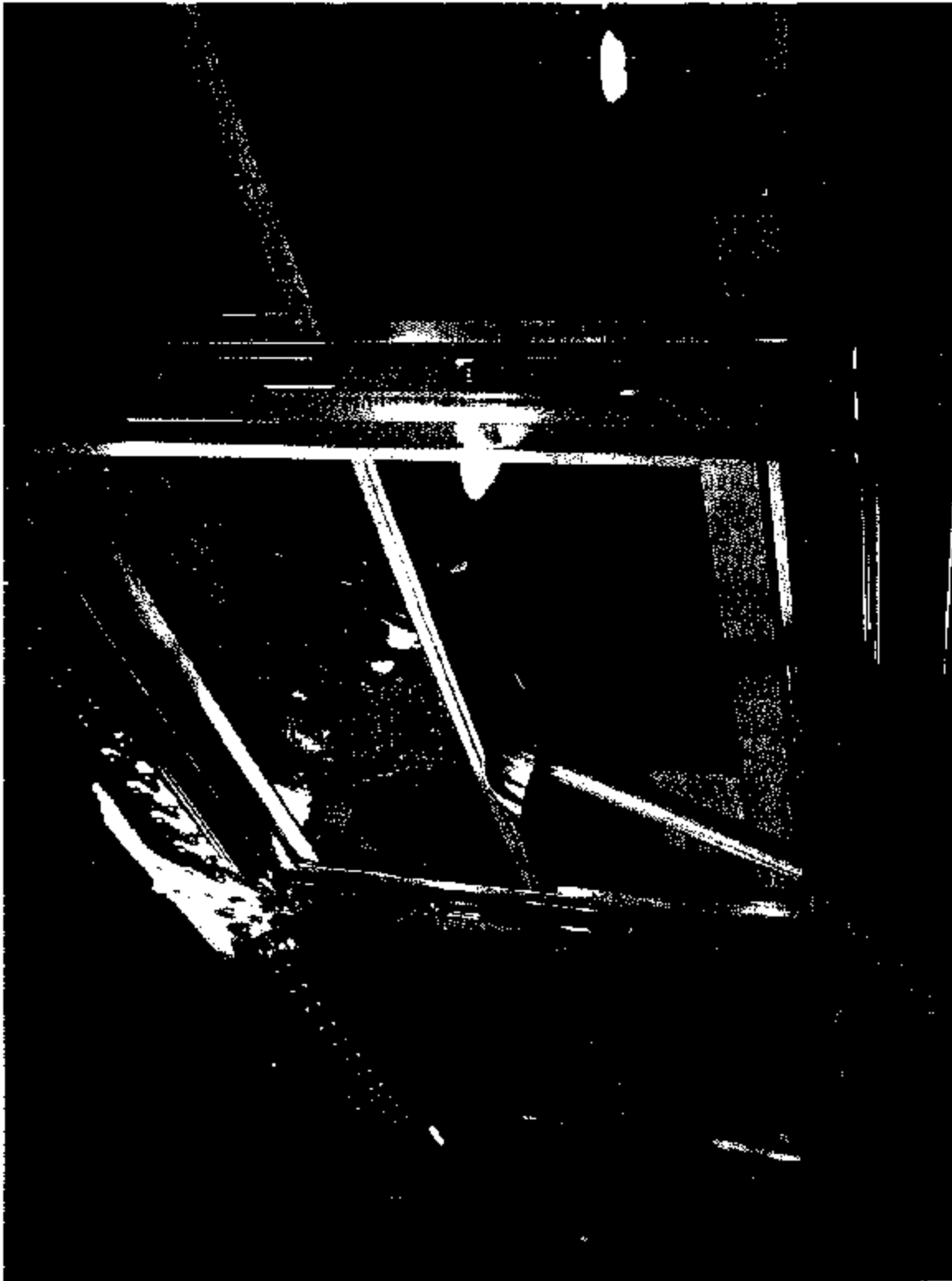
Photograph 26:
Loading Fixture

Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



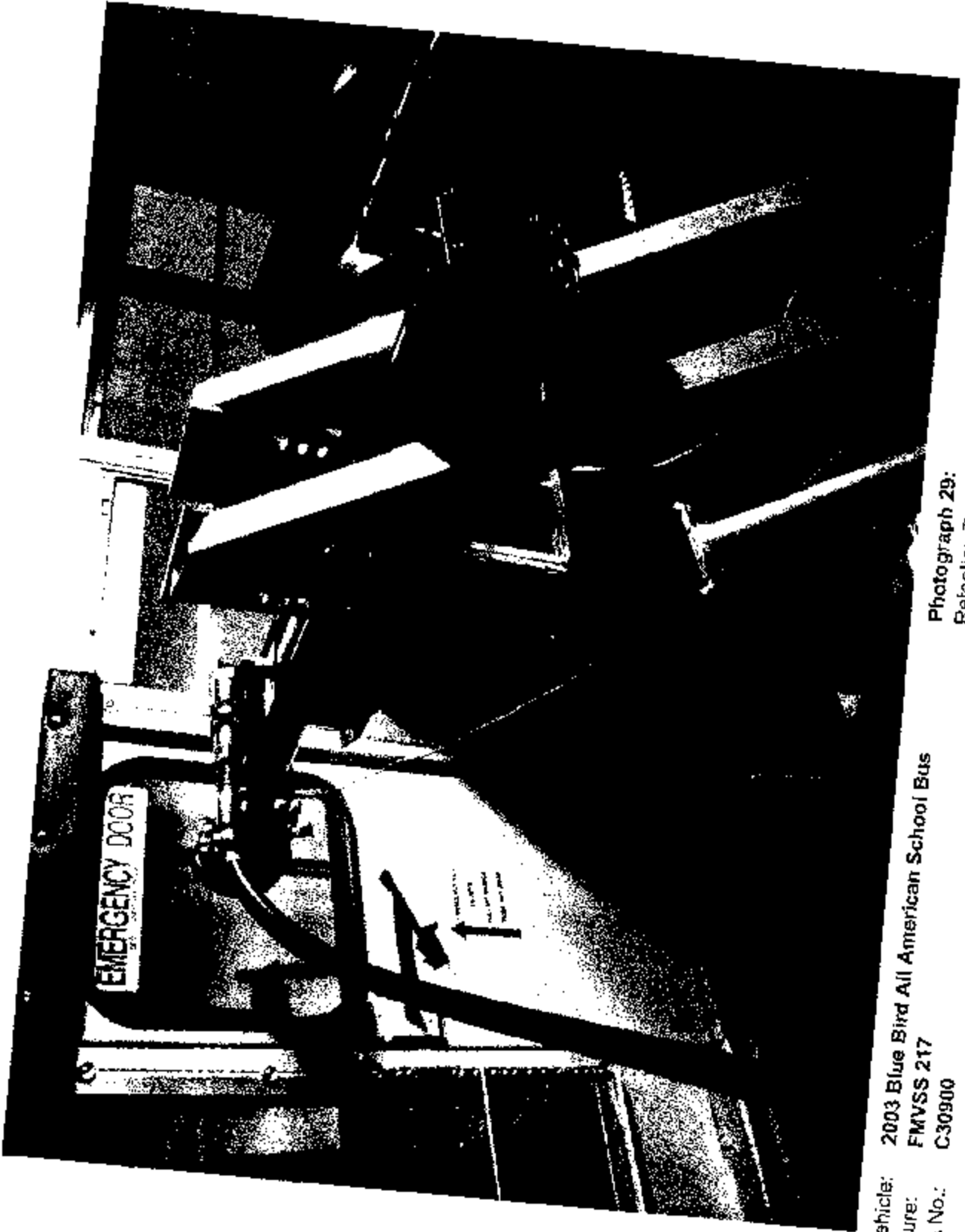
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 27:
Retention Test of Right Rear Window (Pre-Test)



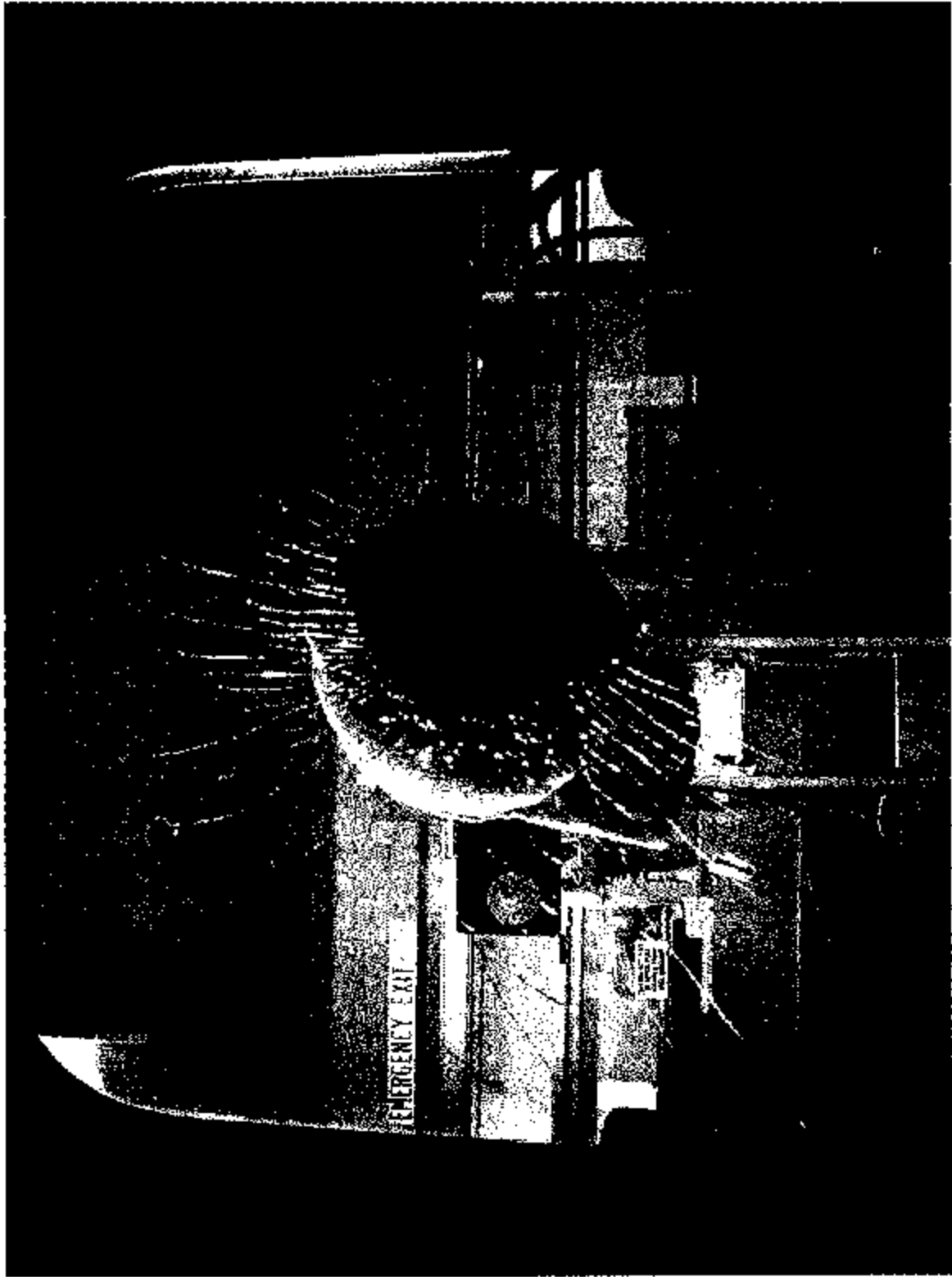
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 28:
Retention Test of Right Rear Window (Post-Test)



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 29:
Retention Test of Left Exit Door Window (Pre-Test)



Photograph 30:
Retention Test of Left Exit Door Window (in Progress)

Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 31:
Retention Test of Left Exit Door Window (Post-Test)



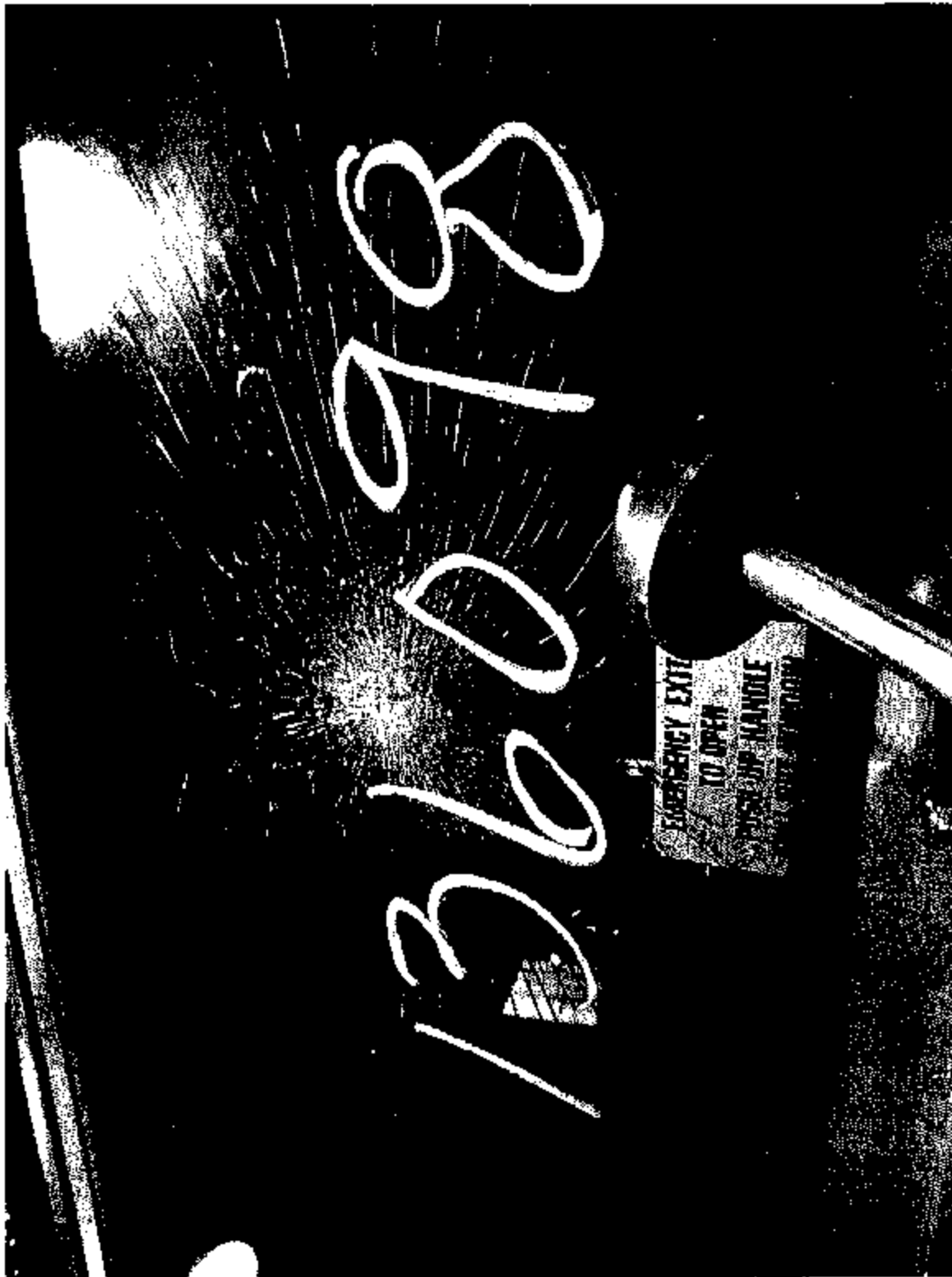
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 32:
Retention Test of Rear Exit Window (Pre-Test)



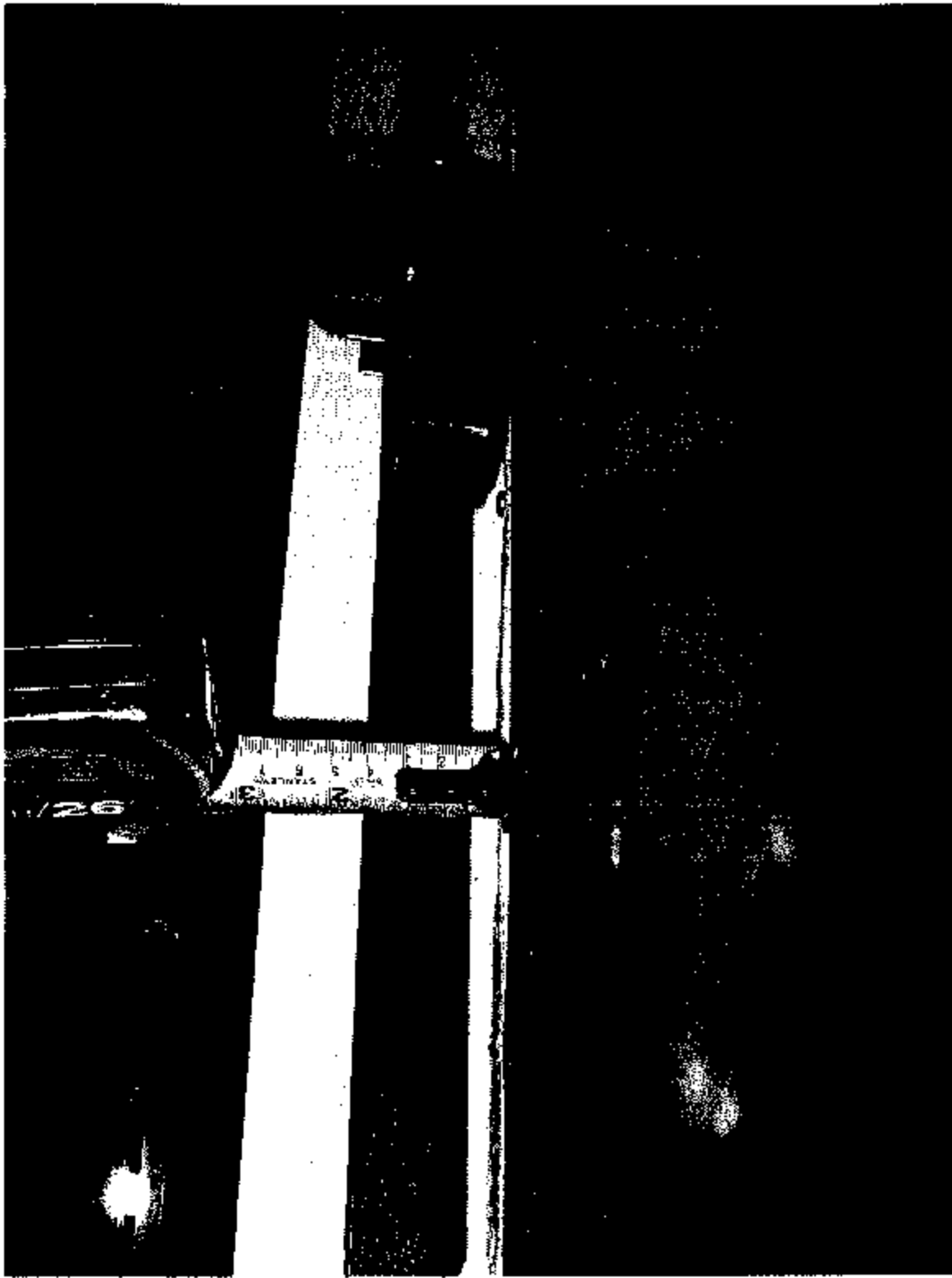
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 33:
Retention Test of Rear Exit Window (In Progress)



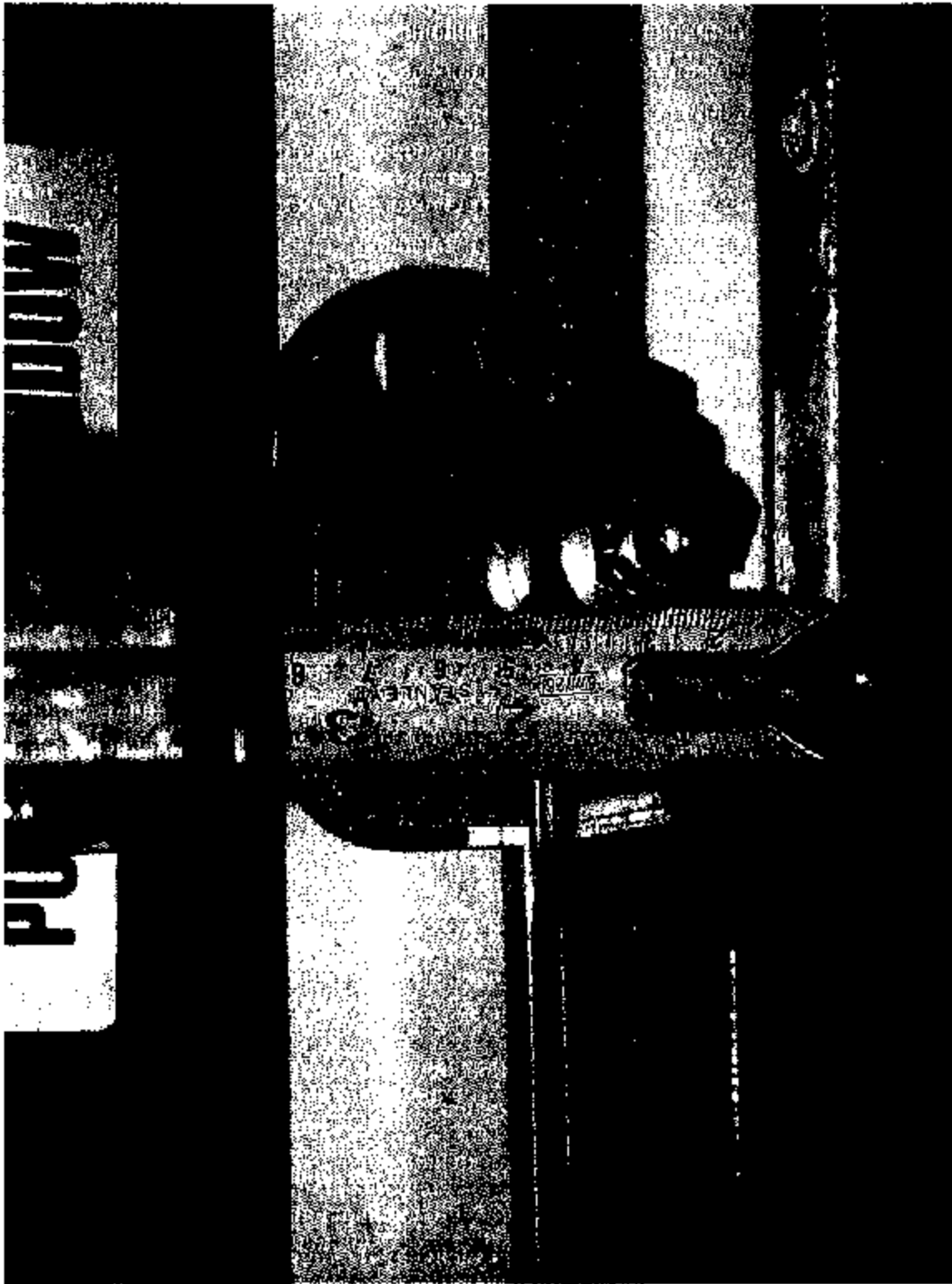
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 34:
Retention Test of Rear Exit Window (Post-Test)



Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

Photograph 35:
Rear Exit Window Interior Handle to Rear Deck
Measurement

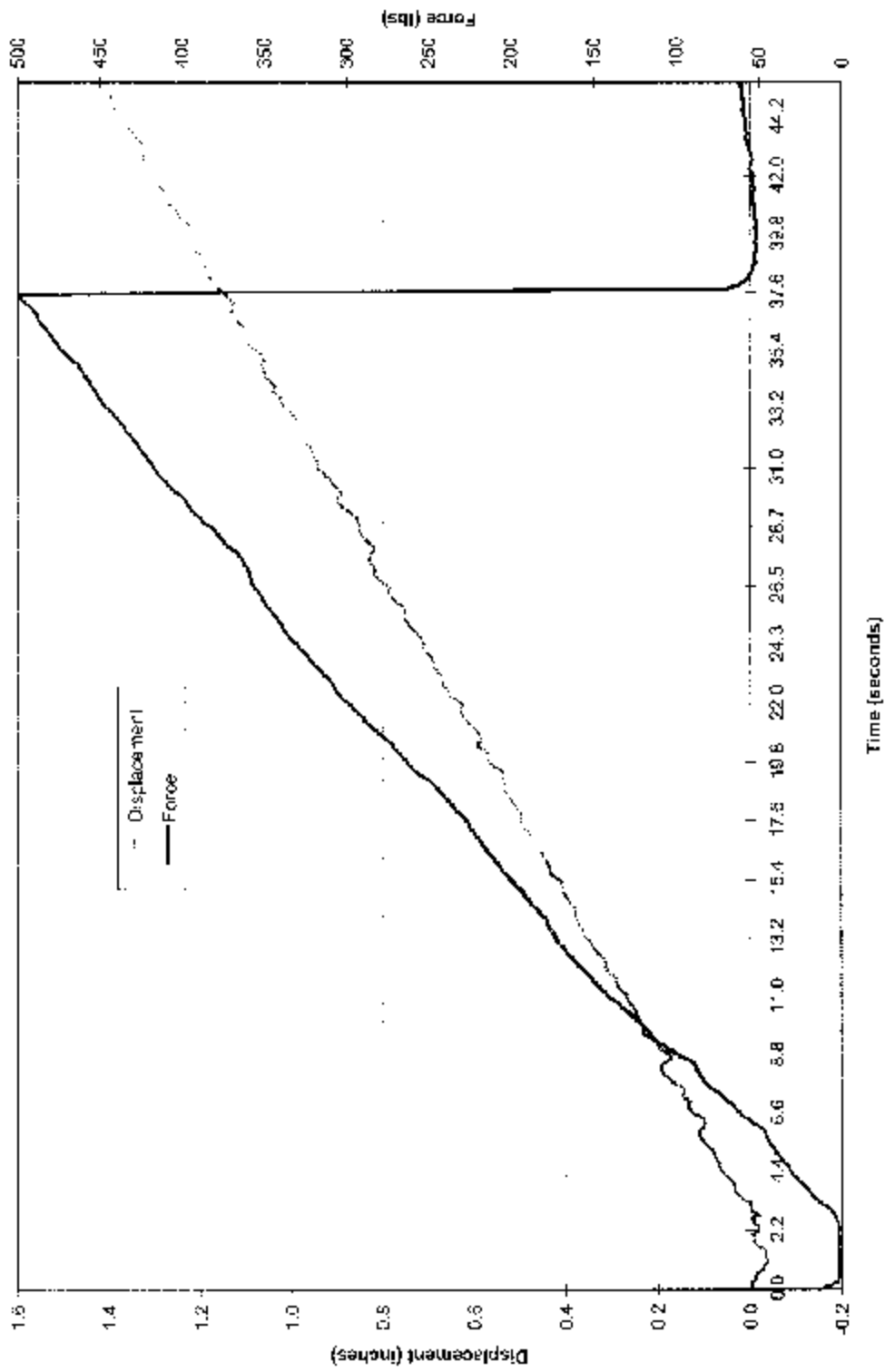


Photograph 36:
Rear Exit Window Interior Handle to Rear Deck
Measurement (View #2)

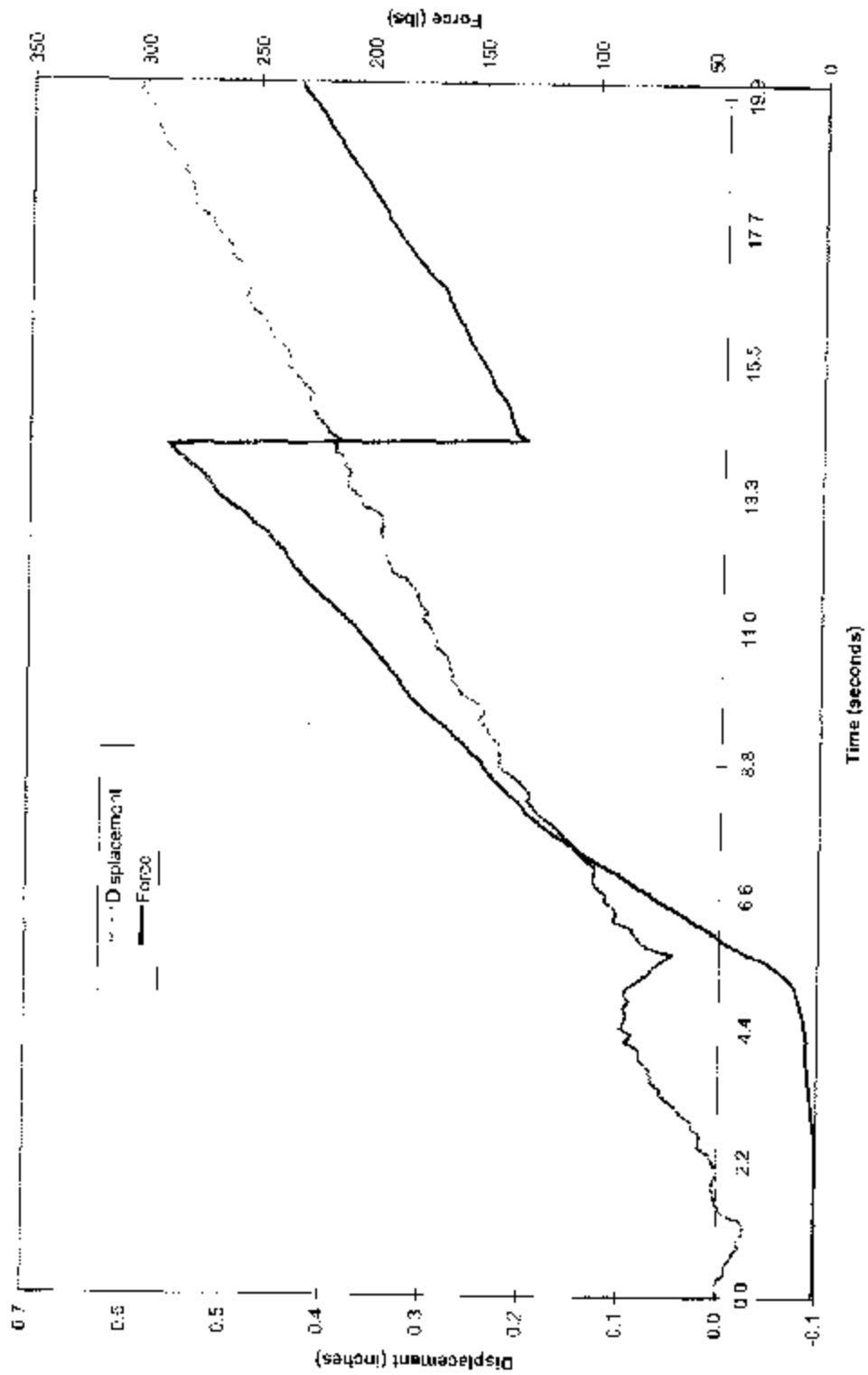
Test Vehicle: 2003 Blue Bird All American School Bus
Procedure: FMVSS 217
NHTSA No.: C30900

**SECTION 6
TEST PLOTS**

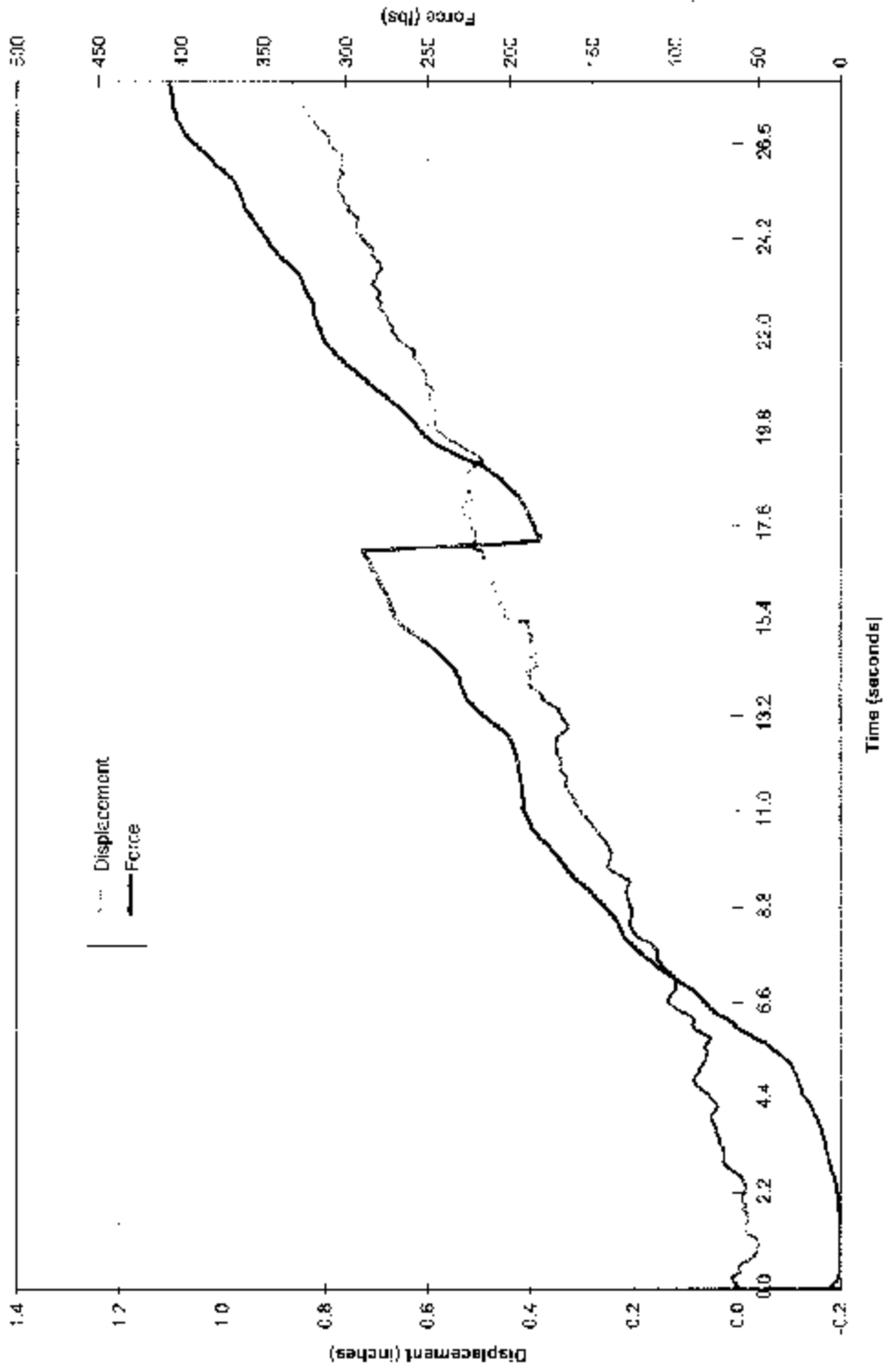
FMVSS 217 NHTSA No: C38900
 Blue Bird All American Right Rear Window - Upper Pane



FMVSS 217 NHTSA No: C30900
 Blue Bird All American Rear Window



FMVSS 217 NHTSA No: C30900
 Blue Bird All American Left Side Door Window Pane



**SECTION 7
NOTICE OF TEST FAILURE**



Report Number: MGA-03-001

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 217	Test Date:	January 13, 2003
Test Vehicle:	2003 Blue Bird All American	Test Lab:	MGA Research Corporation
NHTSA No.:	C30900	Project Engineer:	Michael Janovicz
Contract No.:	DTNH22-02-D-01057	Deliv. Order No.:	1
MFR.:	Bluebird	VIN:	1BABNBPA33F210494
Build Date:	8/02		

TEST FAILURE DESCRIPTION

The rearmost emergency exit window handle is outside the high force access region as shown in Figure 3C of 49CFR Part 571.217. The diagram defines the lower limit of the high force access region as being 2" above the rear shelf. The actual handle location is 1.8" above the rear shelf.

FMVSS REQUIREMENTS DESCRIPTION

Paragraph S.5.3.1: "Each emergency exit not required by S5.2.3 shall be releasable by operating one or two mechanisms located within the regions specified in Figure 1, Figure 2, or Figure 3."

Remarks: No remarks.

Notification to NHTSA (COTR): Amanda Prescott

Date: January 14, 2003

By: 