

HS# 637921

REPORT NUMBER: 3018-MGA-05-001

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 301S
FUEL SYSTEM INTEGRITY - SCHOOL BUSES**

**US Bus Corporation
2005 Sturdlbus School Bus
NHTSA No.: C60900**

**PREPARED BY:
MGA RESEARCH CORPORATION
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BURLINGTON, WI 53105**



Final Report Date: June 29, 2006

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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7/11/05
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Technical Report Documentation Page

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15. Supplementary Notes					
16. Abstract A compliance test was conducted on the subject 2005 US Bus Corporation Sturdibus School Bus, NHTSA No. C50900 in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-301-02 for the determination of FMVSS 301S compliance.					
17. Key Words Compliance Testing Safety Engineering FMVSS 301S				18. Distribution Statement Copies of this report are available from: NHTSA Technical Information Services (TIS) Room 2336, (NPO-405) 400 Seventh Street, S.W. Washington, D.C. 20590 (202) 366-4946	
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SECTION 1
PURPOSE OF COMPLIANCE TEST AND SUMMARY

A fuel system integrity test was performed on a MY2005 US Bus Corp Sturdivus School Bus, NHTSA No. C50900, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-301-02 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 301S, "Fuel System Integrity - School Buses".

Based on the test results, the MY2005 US Bus Corp Sturdivus School Bus, NHTSA No. C50900 appears to meet the requirements of FMVSS 301S testing.

This program is sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-02-D-01057.

SECTION 2
COMPLIANCE TEST DATA

The following data sheets document the results of testing on the MY2005 US Bus Corp Sturdibus School Bus, NHTSA No. C50900.

**DATA SHEET 1
SCHOOL BUS DATA**

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

NHTSA No.: **C50900**
 Test Date: **6/14/05**

GENERAL VEHICLE IDENTIFICATION

School Bus Manufacturer:	US Bus Corporation	
School Bus Model:	2005 Sturdlbus	
Build Date:	03/05	
Incomplete Vehicle Manufactured By:	General Motors	
Build Date for Bus Chassis:	12/04	
School Bus GVWR (kg):	8845	
School Bus GAWR Front (kg):	3175	
School Bus GAWR Rear (kg):	8123	
School Bus VIN:	1GBE5V1255F515430	
No. of Designated Seating Positions (DSP) including Driver:	30	
School Bus NHTSA No.:	C50900	
Bus Body Color:	Yellow	
Engine Displacement	6.6L	
No. of Cylinders:	8	
Fuel Pump Actuation:	Electrical Pump "ON" with Ignition	
School Bus Width (mm):	2680	
School Bus Length (mm):	8008	
Bus Unloaded Vehicle Weight (UVW) (kg):	5906	
Bus Occupant Load:	1566 kg - Passenger 68 kg - Driver 1634 kg - Total	
Target Bus Test Weight (SBTW) (kg):	7540	
Actual (SBTW) (kg):	7538	
School Bus Tire Manufacturer:	Goodyear	
	Front	Rear
Rec. Cold Tire Inflation Pressure (kpa):	655	655
Tire Size:	225/70R19.5	225/70R19.5
Load Range:	F	F

DATA SHEET 1 (CONTINUED)

SCHOOL BUS DATA

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

NHTSA No.: **C50900**
 Test Date: **6/14/05**

GENERAL VEHICLE IDENTIFICATION

SCHOOL BUS ATTITUDE

	Units	LF	RF	LR	RR
As Received:	mm	NR	NR	NR	NR
Pre-Test:	mm	992	1065	979	994
Post-Test:	mm	990	1065	975	990

NR = Not Recorded

Weight of Fuel:	3.19 kg/liter (7.03 lbs./gallon)
Fuel Tank Capacity (liters/kg):	159 liters/134 kg (42 gallons/295 lbs.)
Tank Test Volume (liters/kg):	146 liters/123 kg (38.5 gallons/271 lbs.)

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)*		
		Front	Rear	Total	Front	Rear	Total
Left	kg	1262	1810		1402	2570	
Right	kg	1126	1708		1234	2332	
Ratio	%	40.4	59.6		35.0	65.0	
Totals	kg	2388	3518	5906	2836	4902	7538

COMMENTS: NONE

Recorded By: *Jordan Hayes*

Approved By: *[Signature]*

Date: 6/14/05

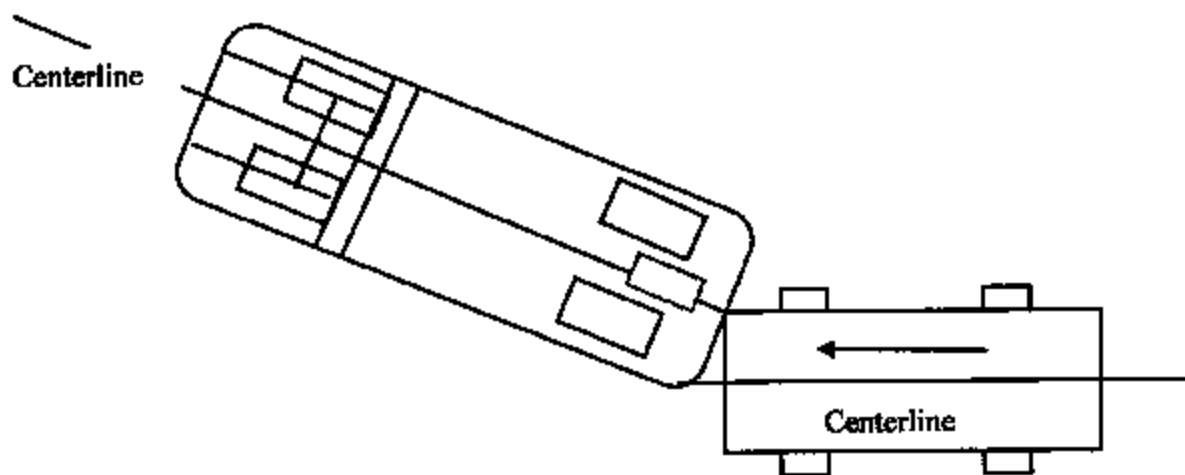
DATA SHEET 2
SCHOOL BUS IMPACT DATA

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

NHTSA No.: **C50900**
Test Date: **6/14/05**

Time of Impact:	9:40 am
Ambient Temperature (°C)	21.1
Barrier Velocity – Speed Trap 1 (kph):	47.5
Barrier Velocity – Speed Trap 2 (kph):	47.5
Barrier Penetration:	180 mm

INDICATE IMPACT POINT BELOW:



LEGEND: Red dotted line indicates location of fuel tank
Arrow indicates point and angle of barrier impact (C_L of arrow coincides with C_L of monorail).

DATA SHEET 2 (CONTINUED)
SCHOOL BUS IMPACT DATA

Fuel Spillage Noted:	No
Failure, if applicable:	None

Stoddard Solvent Spillage Measurements

Timeframe	Description	Allowable Spillage	Measured Spilled	Results
$T_0 - T_1$	Time Zero to Cessation of Motion	31 grams (1 ounce)	0	PASS
$T_1 - T_2$	Cessation of Motion to 5 minutes after Cessation of Motion	156 grams (5 ounces)	0	PASS
$T_2 - T_3$	5 Minutes after Cessation of Motion to 30 minutes after Cessation of Motion	31 grams (1 ounce) per minute 933 grams (30 ounces) Total Allowed	0	PASS

COMMENTS: The Rear Emergency Exit Door unlatched during the Impact event.

Recorded By: *Jordan Hayes*

Approved By: *[Signature]*

Date: 6/14/05

**SECTION 3
INSTRUMENTATION AND EQUIPMENT LIST**

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

NHTSA No.: C50900
Test Date: 6/14/05

Equipment	Description	Serial No.	Cal. Date	Next Cal. Date
Counter/Timer	DCI	939095	10/26/04	10/26/05
Counter/Timer	DCI	939094	10/26/04	10/26/05
Vehicle Scales	GSE	212081 & 212092	6/10/05	12/10/05
Tape Measure	Stanley Powerlock 8M	162	5/19/05	11/19/05

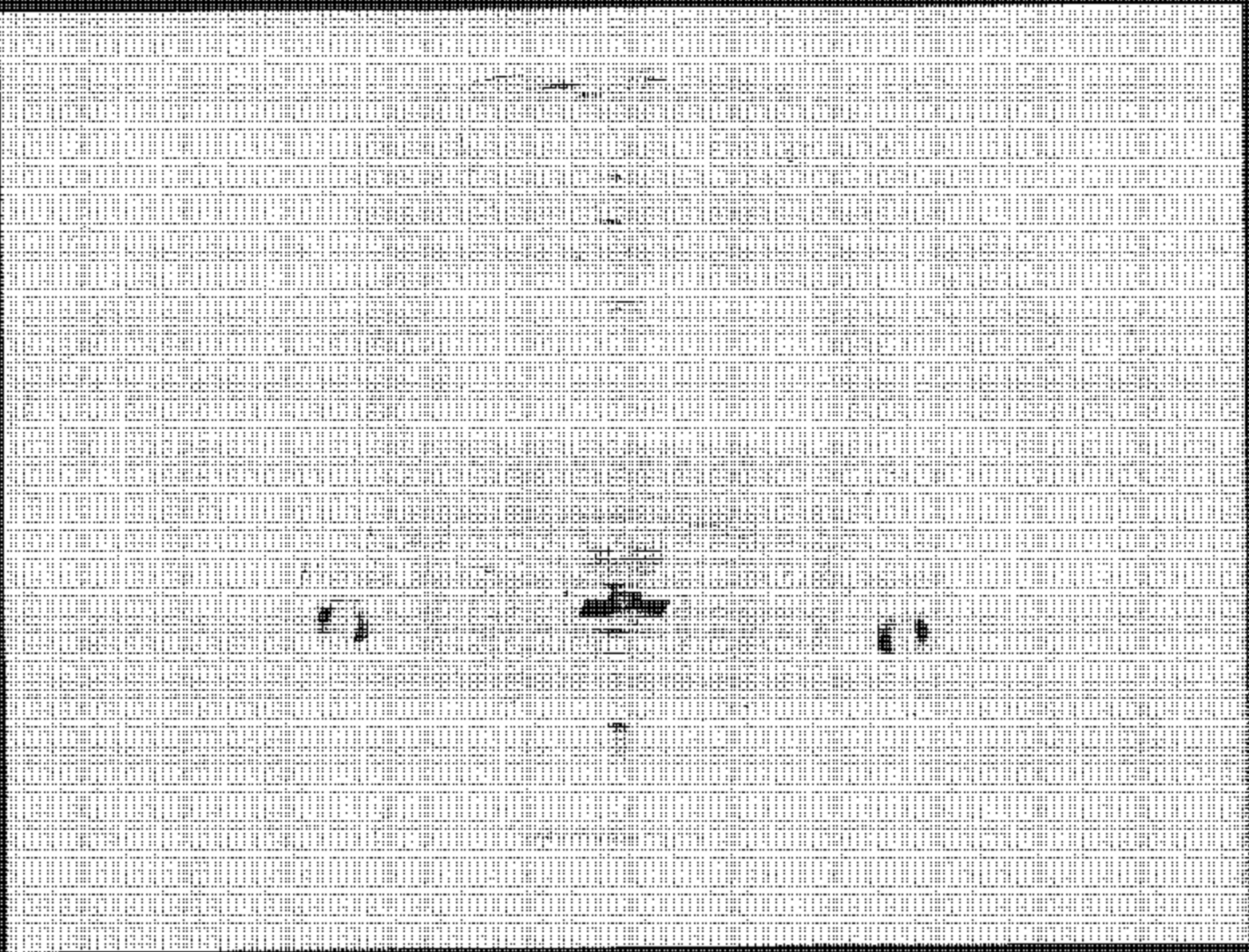
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Test Vehicle: 2006 US Bus Starliner AP-Gulfport Bus
Procedure: FLYSS 303

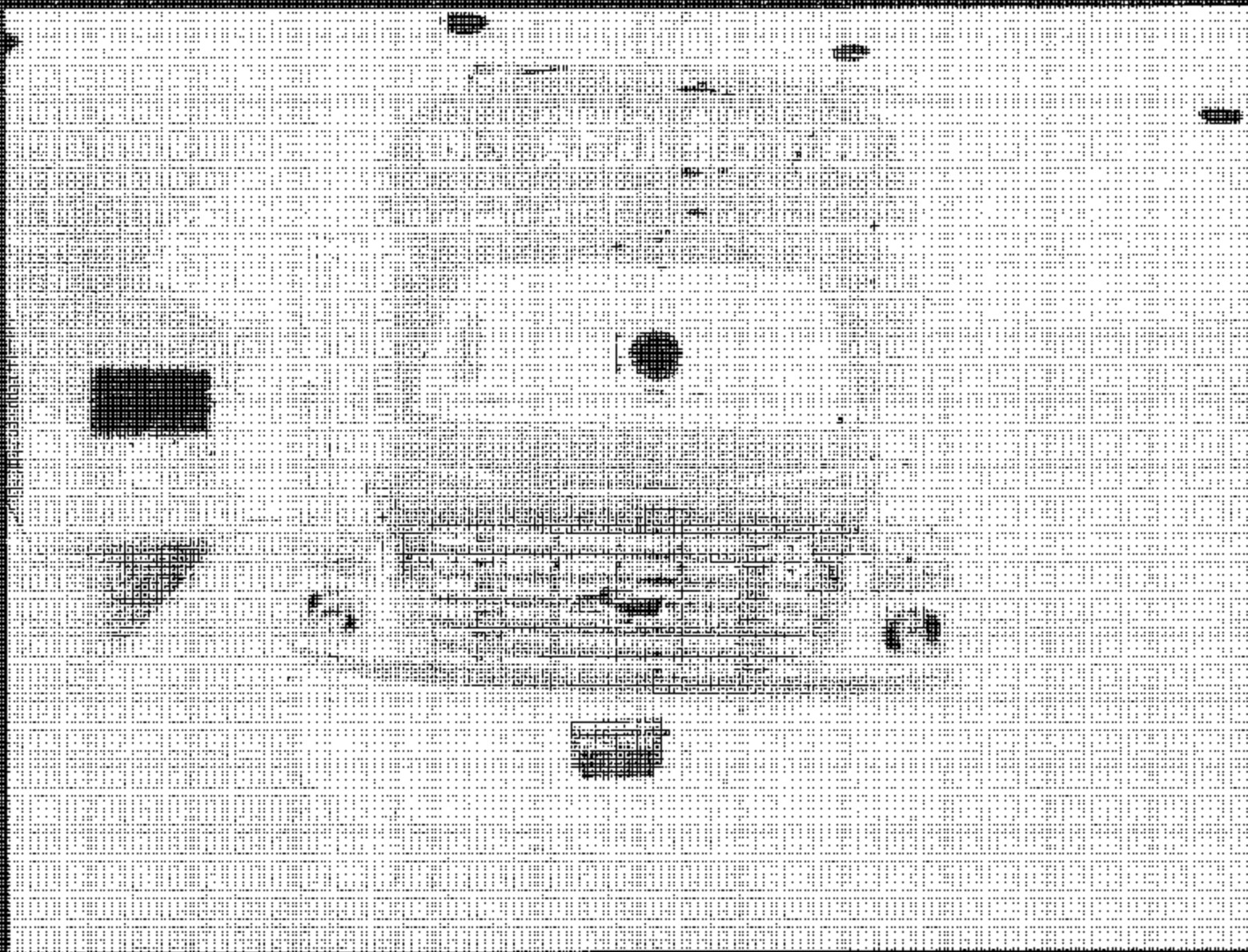
PLMBA 145 009440



Pre-test Front View of School Bus

Test Vehicle: 2005 US Bus Chevrolet MC-10 School Bus
Procedure: FMVSS 201

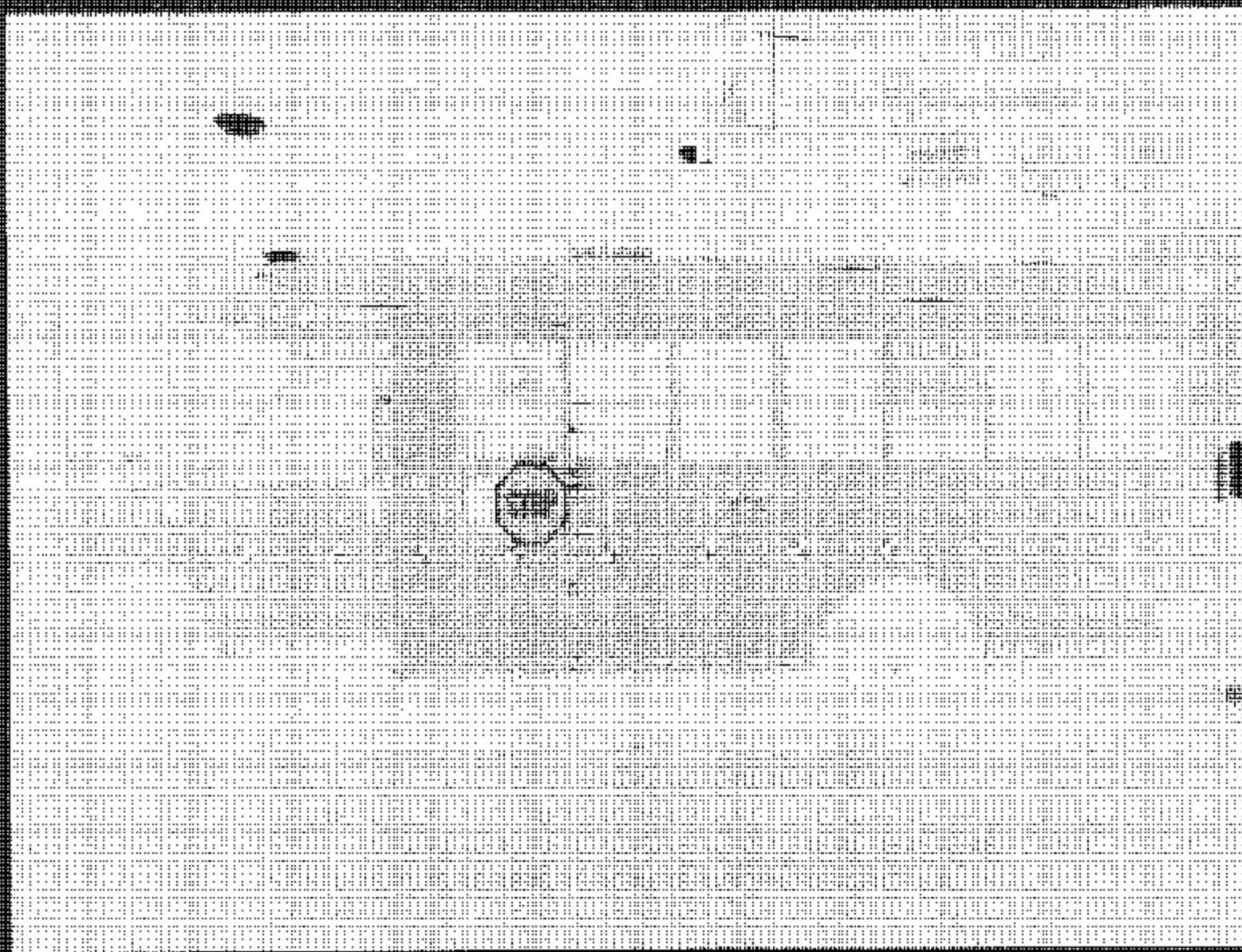
NHTSA NEL 603140



Post-Test Front View of School Bus

Test Vehicle: 1985 US Bus Company MD School Bus
Procedure: FMVSS 301

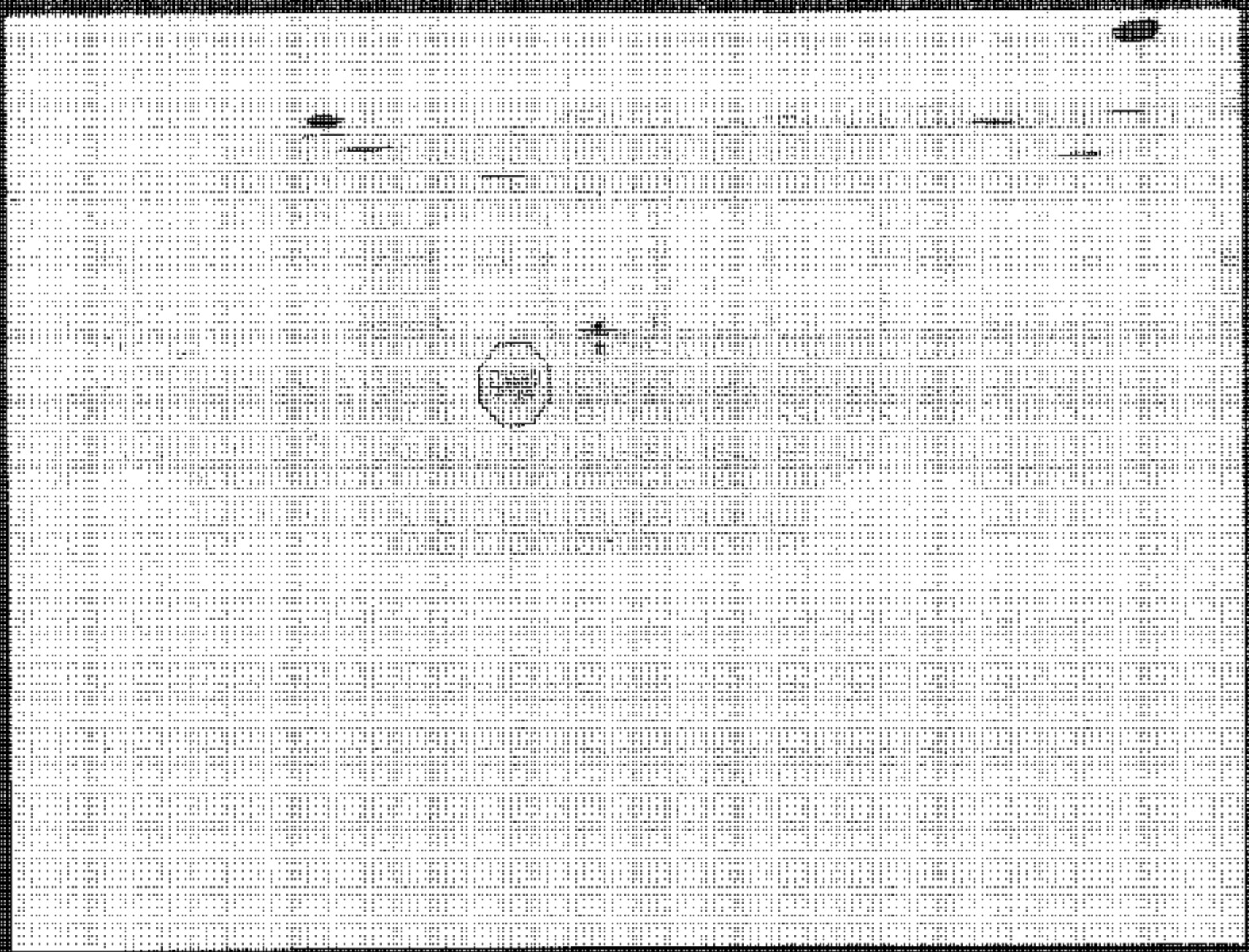
NHTSA No. C54940



Pre-Test Left Side of School Bus

Test Vehicle: 2006 GMC Bus (Manufacturer and Model Name)
Procedure: FMVSS 1501

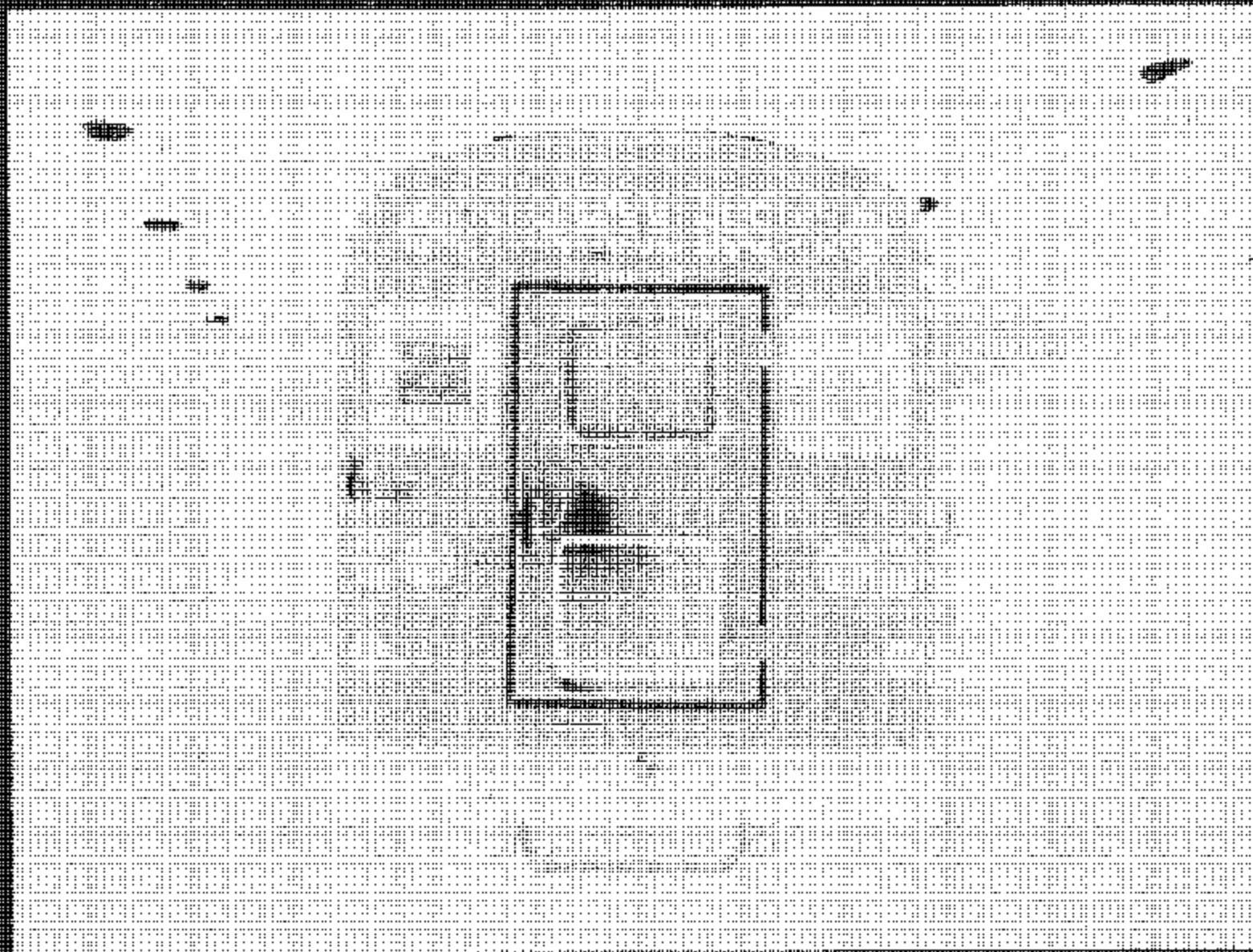
NHTSA No: C-09994



Test Vehicle
Procedure

2000 US Mail Service HD School Bus
PAYOS 101

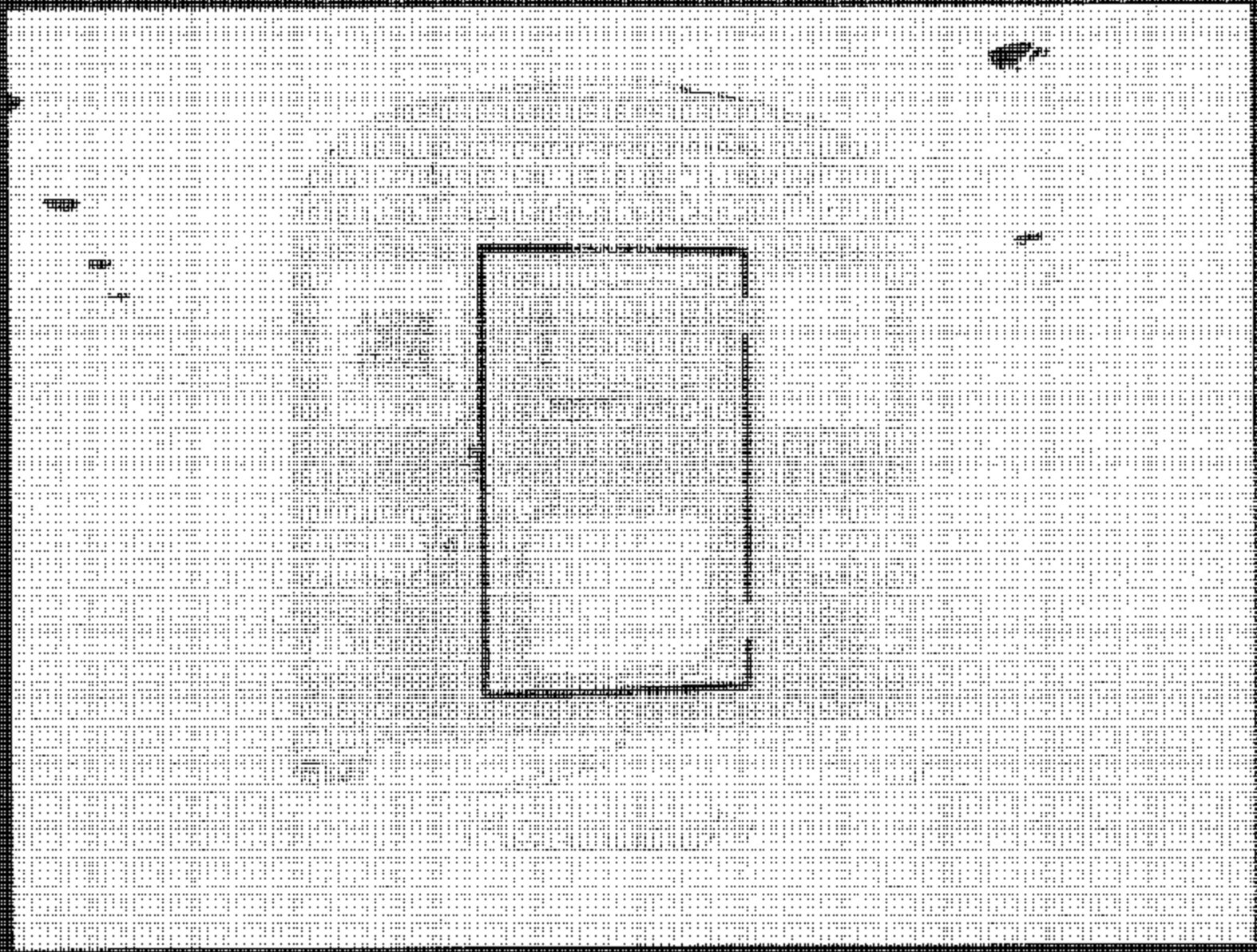
NHTSA No. C80900



Pre-Test Rear View of School Bus

Total Vehicle: 2005 US Bus Guard Bus HC School Bus
Procedure: PLYSS 301

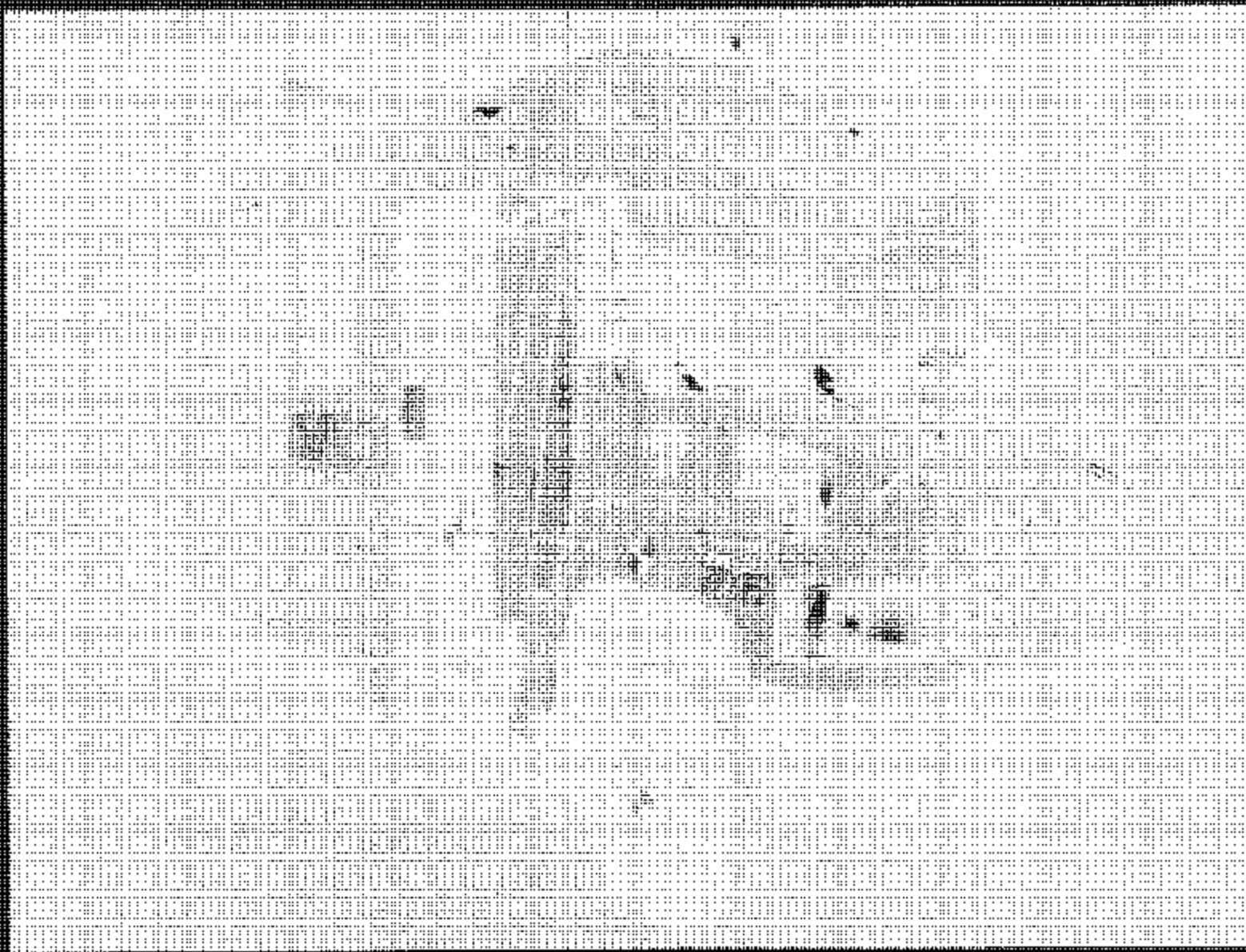
APFISA No: 64980



Post Test Rear View of School Bus

Test Vehicle: 2005 110 Blue Honda Motor Cycle
Procedure: CHY553 31M

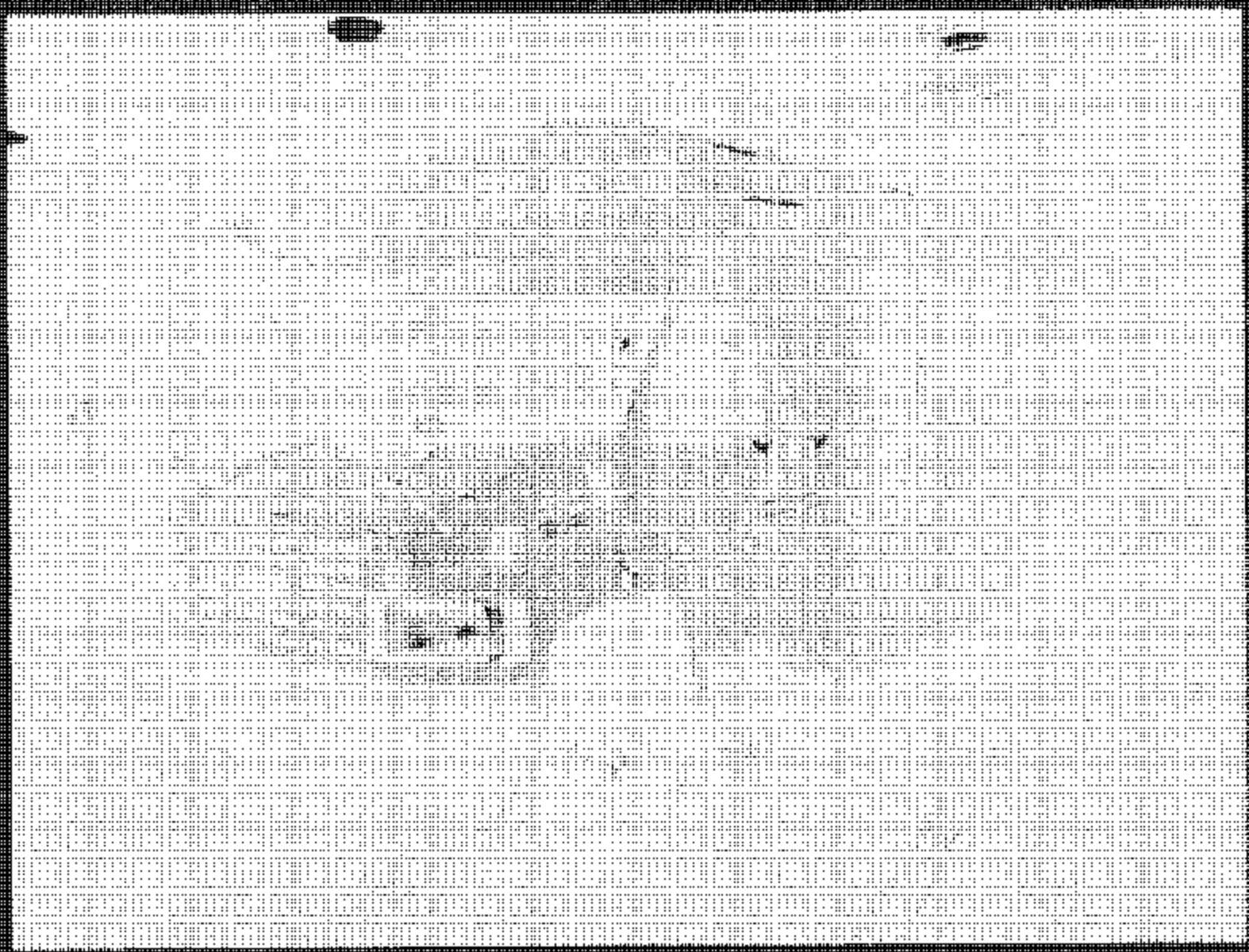
NHTSA No. CFP4901



Pre-Test Right Front 3/4 View of School Bus

Test Vehicle: 2001 US Gas Chevrolet MD School Bus
Procedure: FMVSS 301

NHTSA No: C4490



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Front Left Front 1/4 View of School Bus

Test Vehicle: 2014 US 3000 Mercedes-Benz School Bus
Prepared by: CMVSS 301

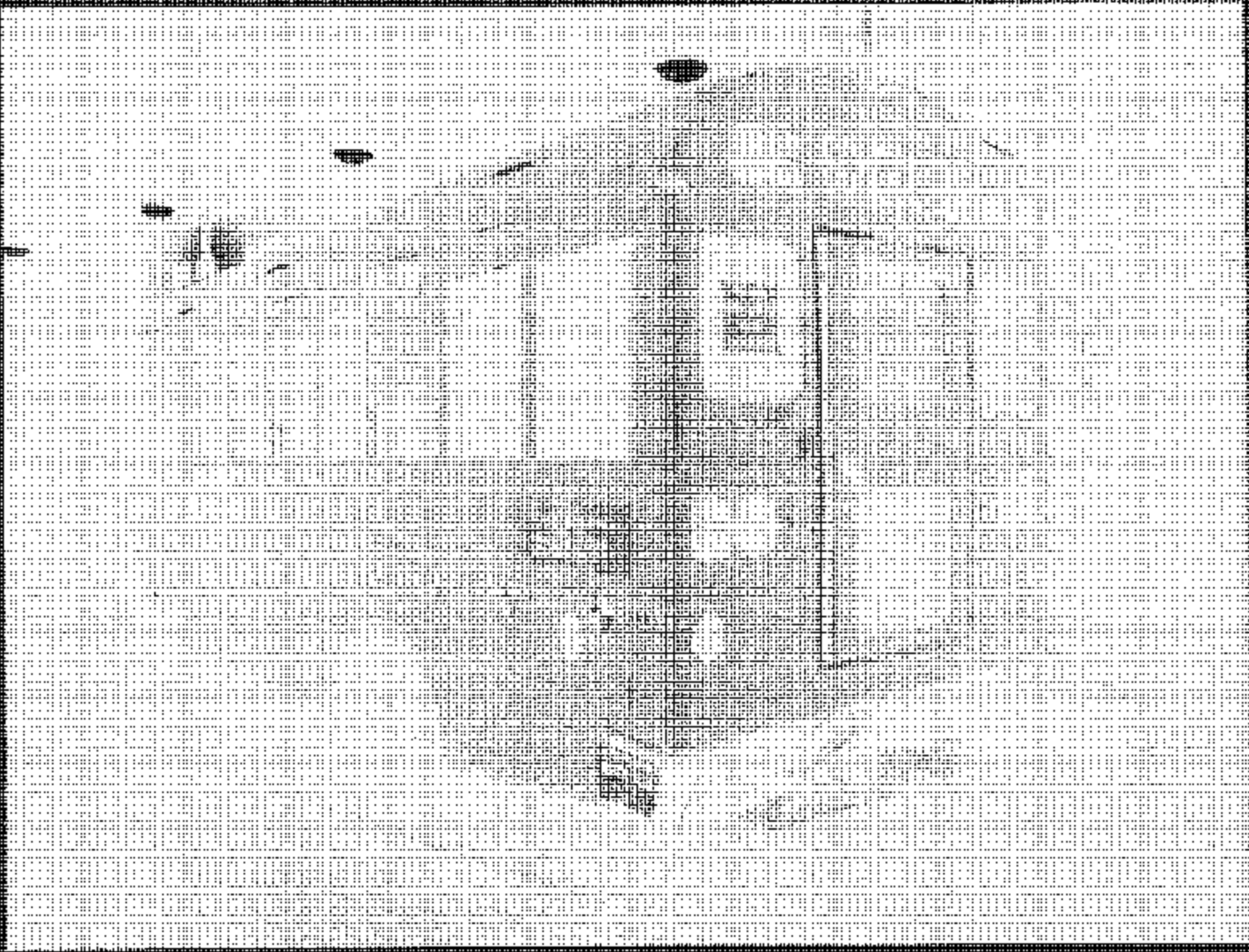
NHTSA No. C03901



Pre-Test Right Rear 3/4 View of School Bus

Test Vehicle: 2004 Ford Focus
Procedure: PMS 201

NHTSA No. C6090



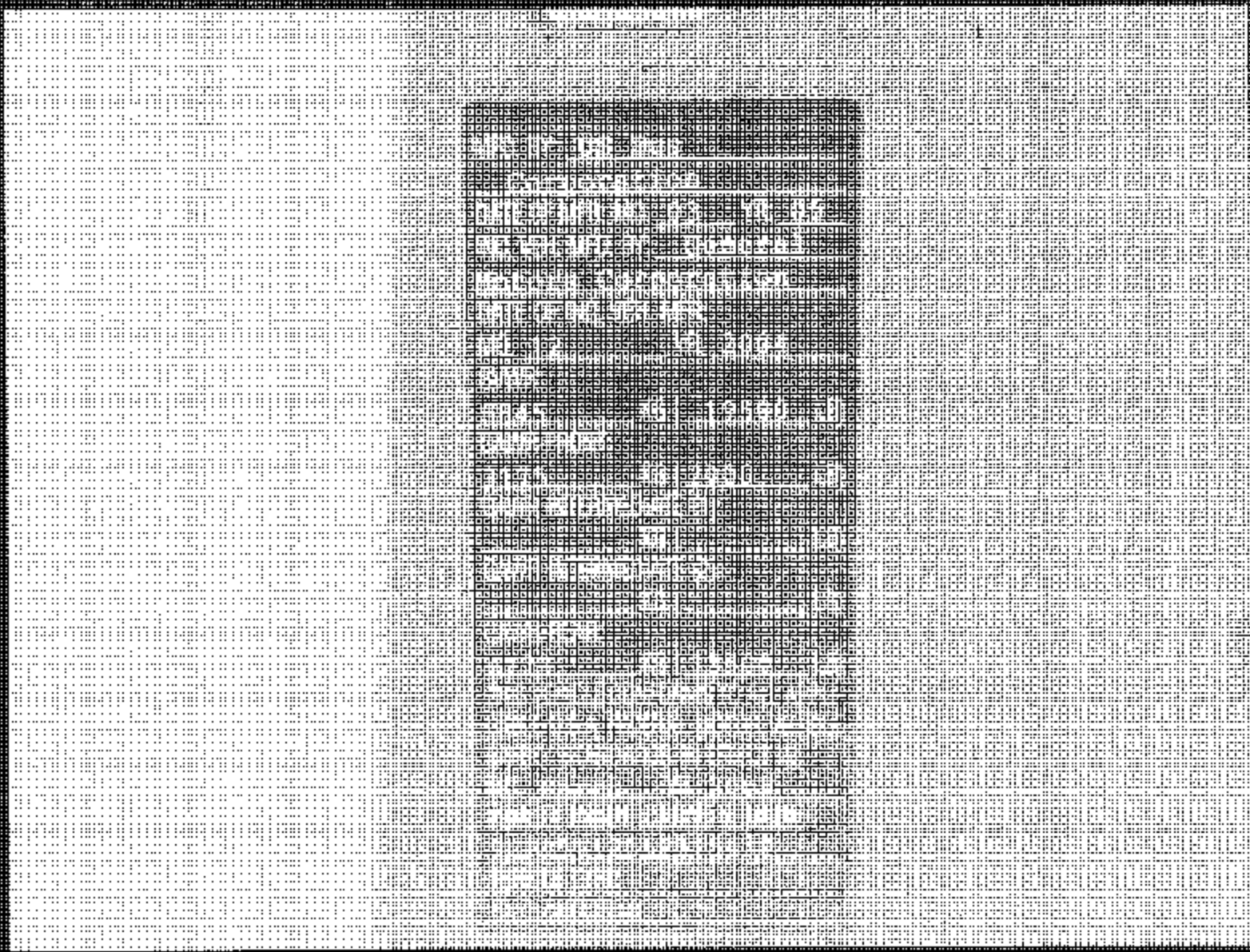
15

Post-Test 1 All Rear 3/4 View of School Bus

Test Vehicle
Procedure

2006 Ford School Bus
MAYES 141

NHTSA No. 434900



Taat Vahlele: ZITHI 45 KHIT SUNDLEBAK HD School Bus
Prozessor: FAYOIC 301

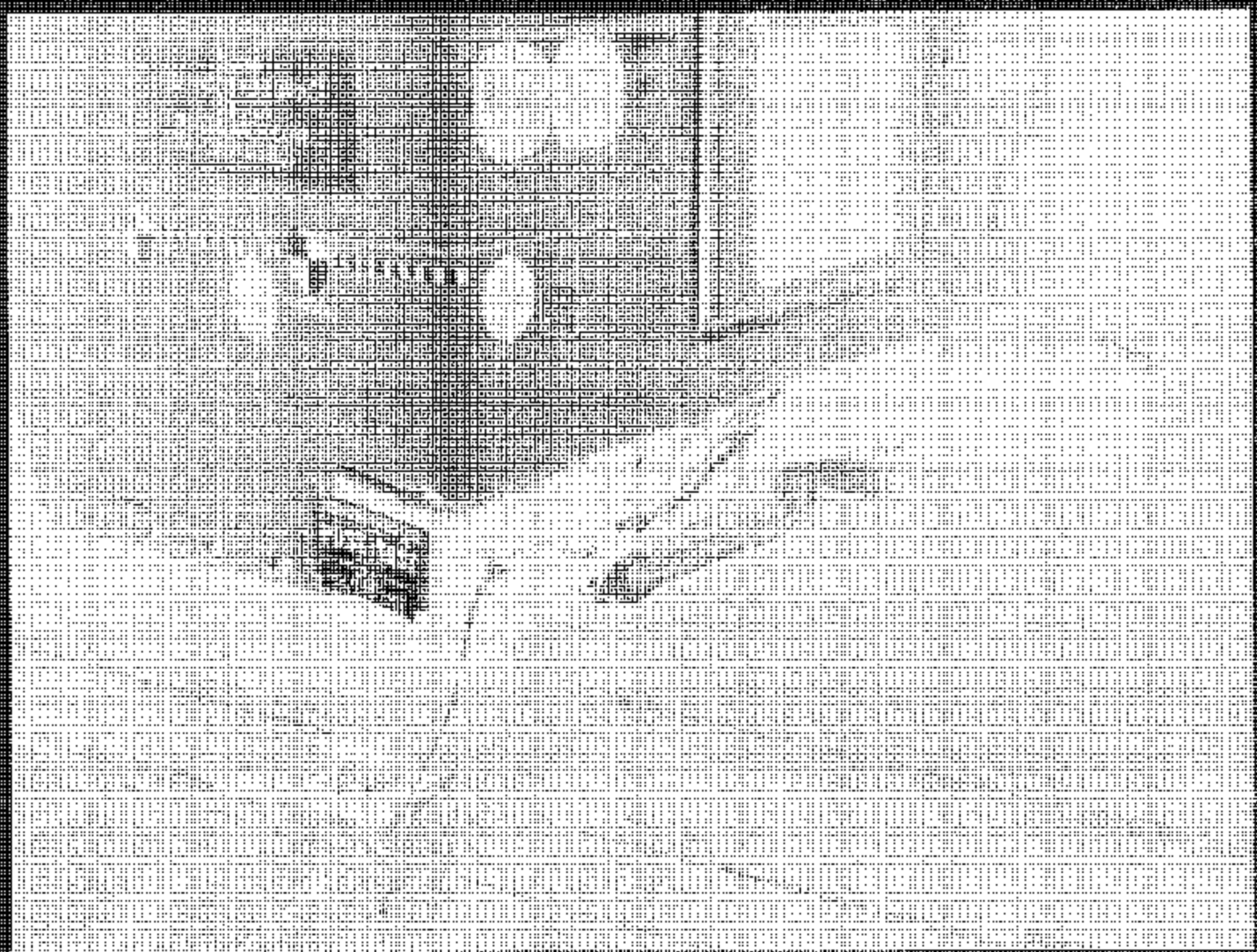
NETSA No. 000900



Pre-Test: Inicial Target

Test Vehicle: 2004 Ford Focus Sedan, NHTSA No. 050900
Procedure: FMVSS 204

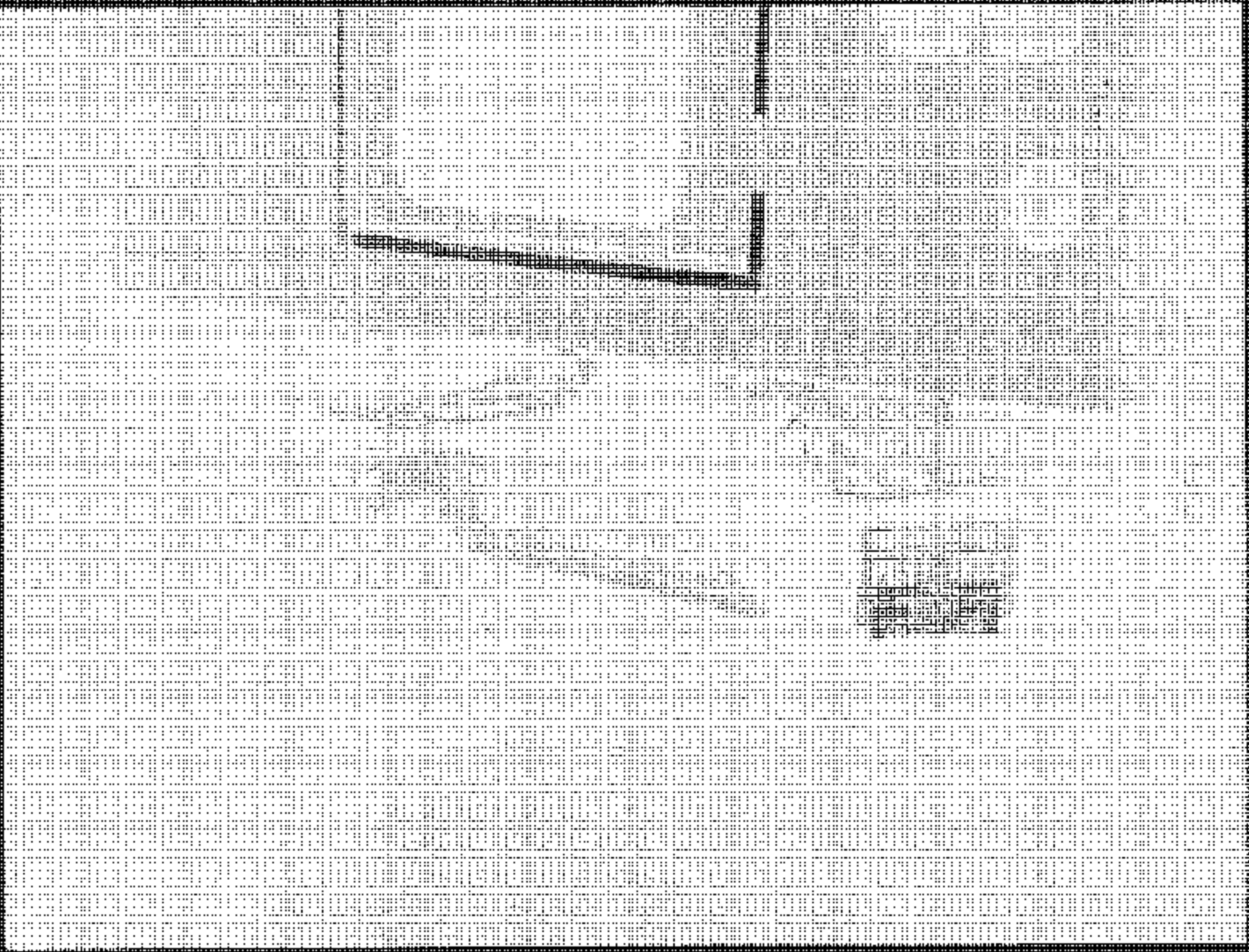
NHTSA No. 050900



Post-Test of Impact Location

Test Vehicle: 2006 US Army Humvee, MC-11943 622
Procedure: FMVSS 301

NHTSA No. 050440



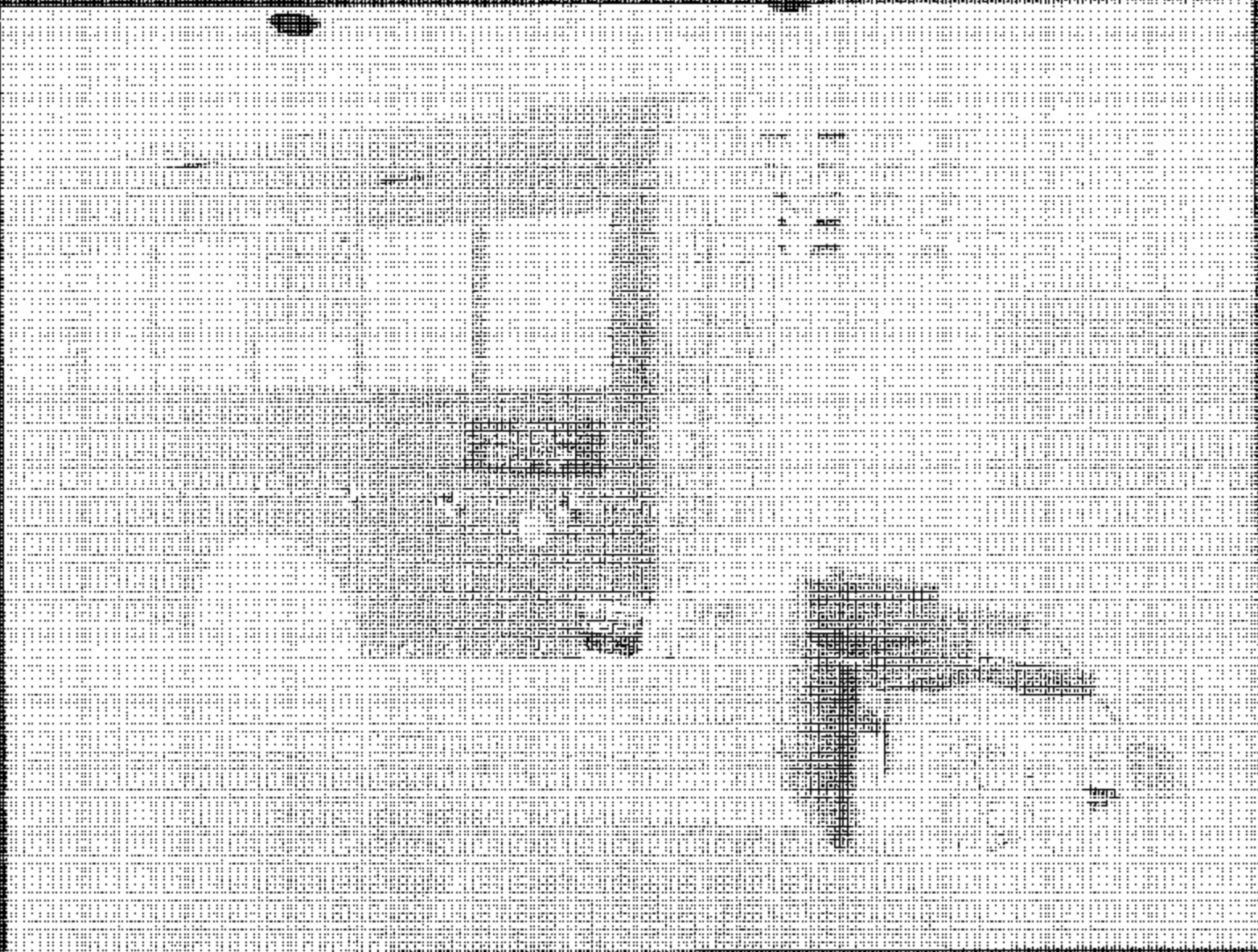
Point-Test of Impact Location #2

Test Vehicle: 2006 4x4 Dodge Durango NID 307-001 Blue
Procedure: FMVSS 301

NHTSA No. C-3994



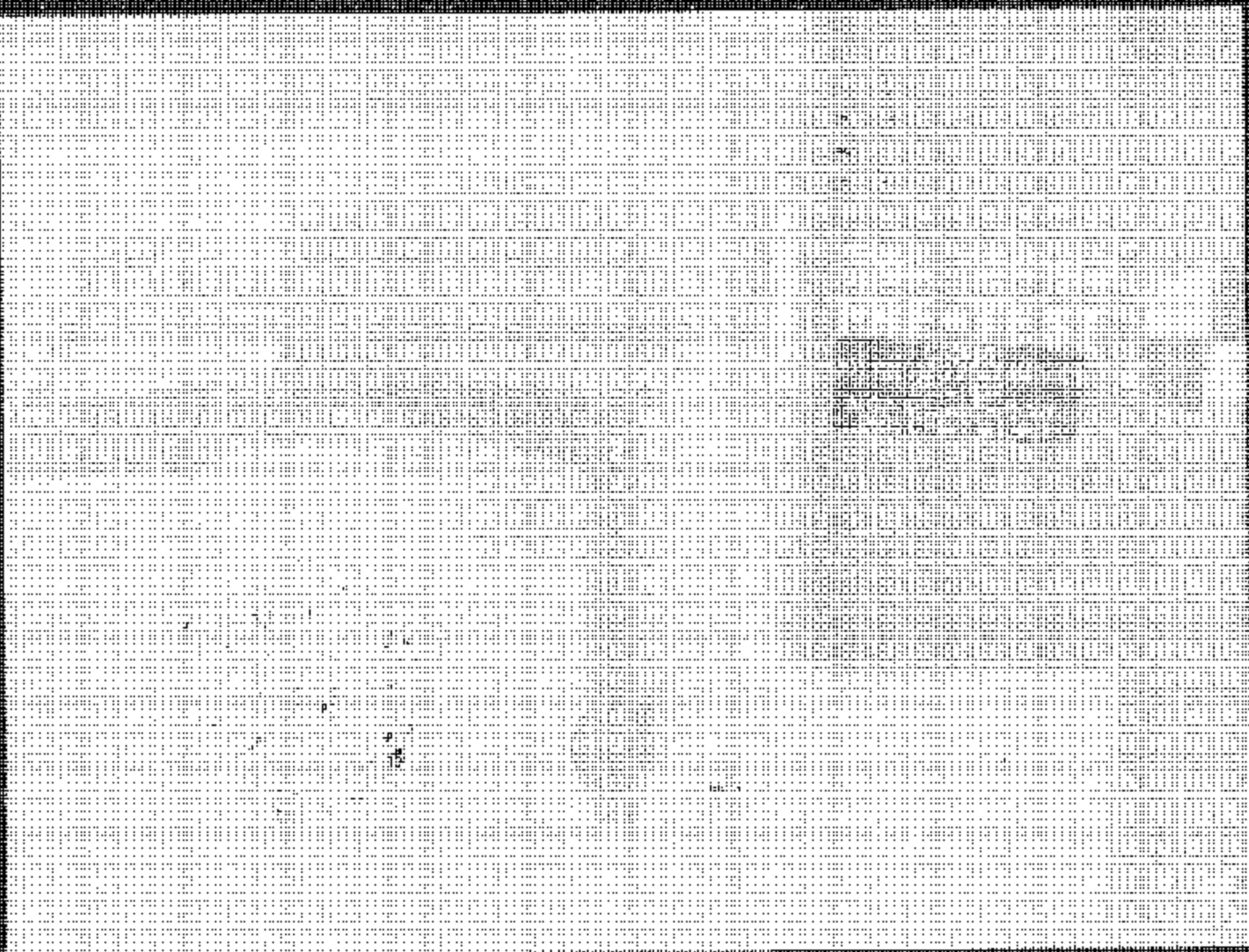
Post-Test of Diameter (left side)



24

Test Vehicle: 2006 4500 4x4 Chevrolet Equinox
Procedure: FMVSS 204

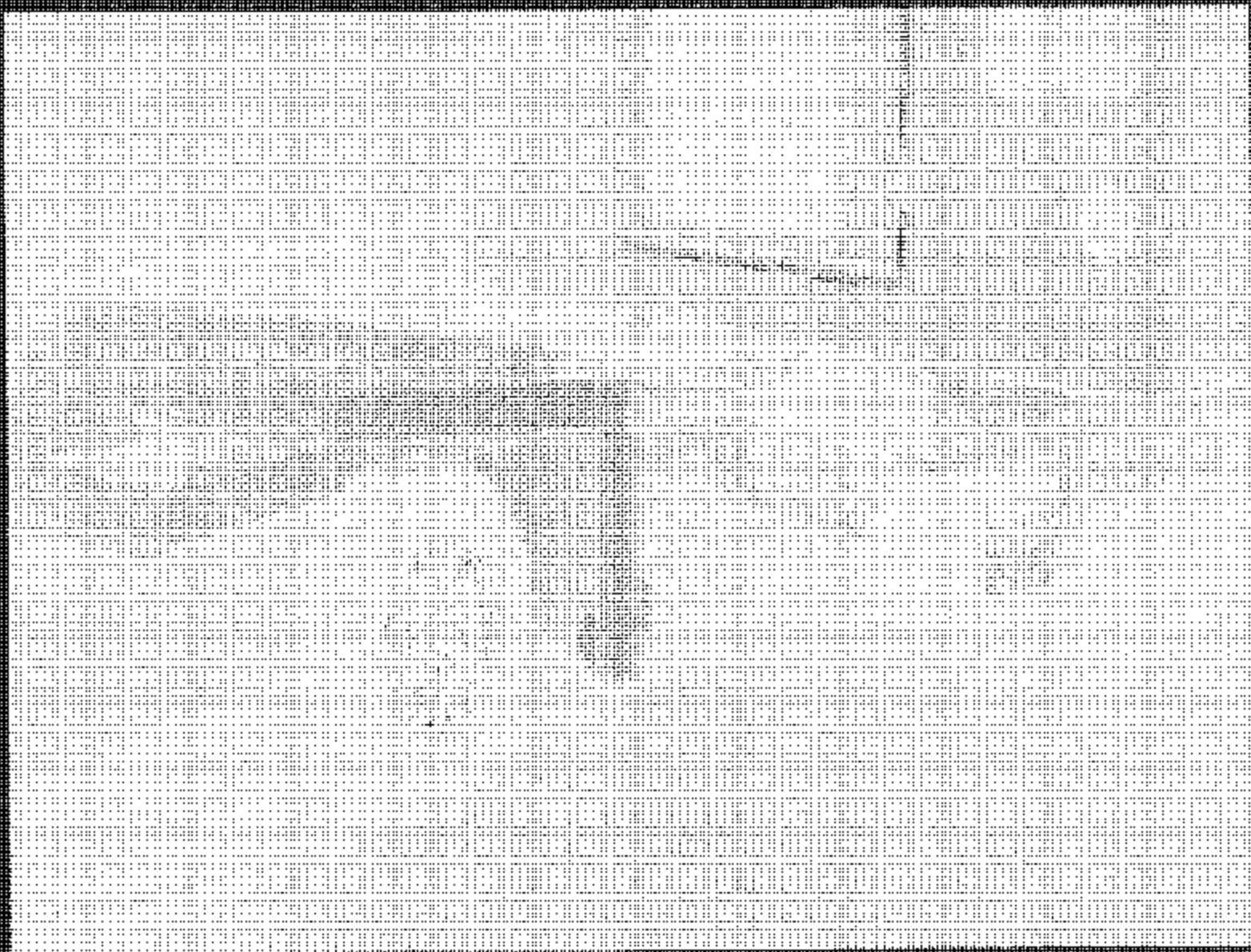
NHTSA No. C-00900



Front view of Car on right side

Test Vehicle: 2004 Ford Focus
Procedure: FMVSS 204

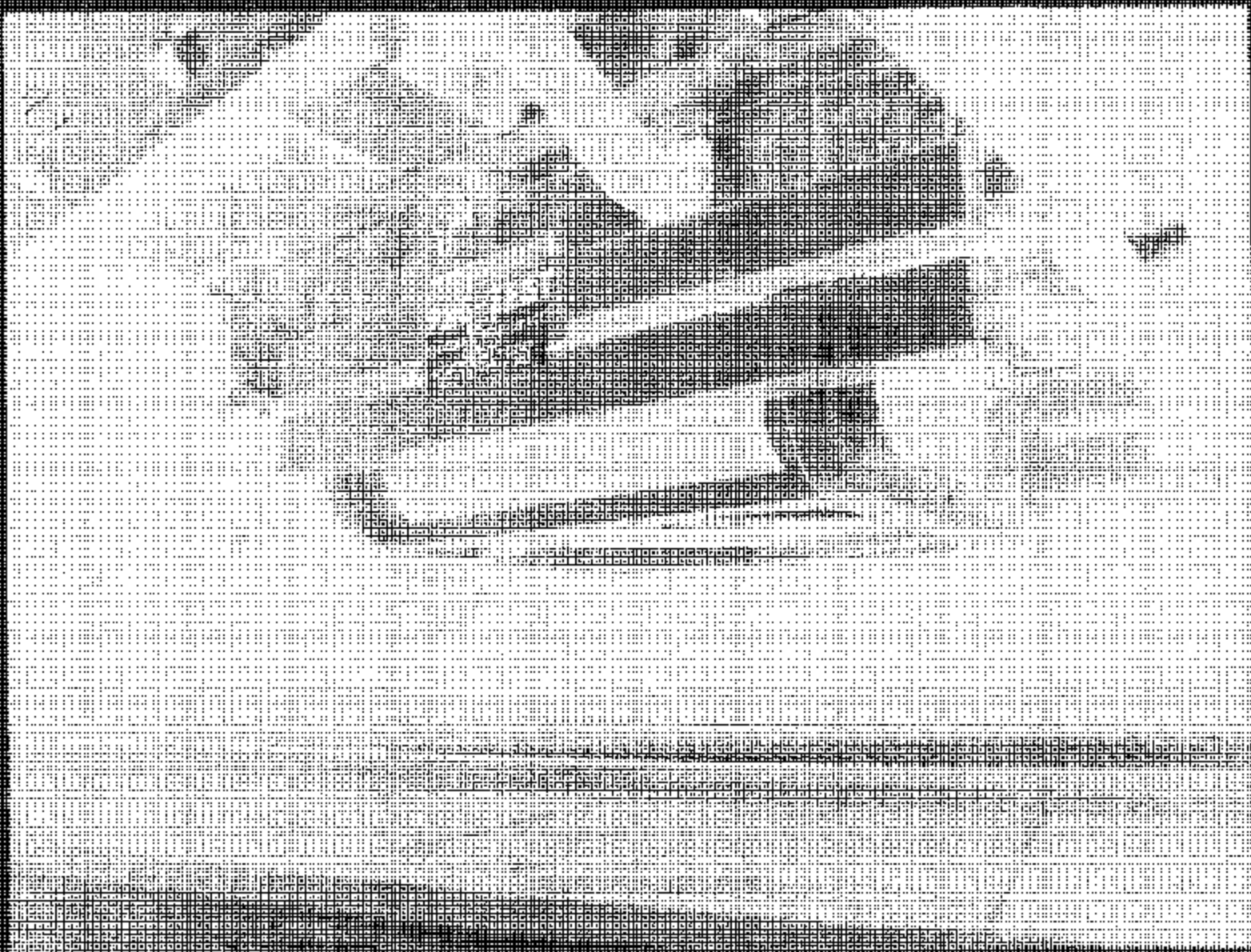
NHTSA No. C60000



Post-Test of 04/04/04 (Night 010)

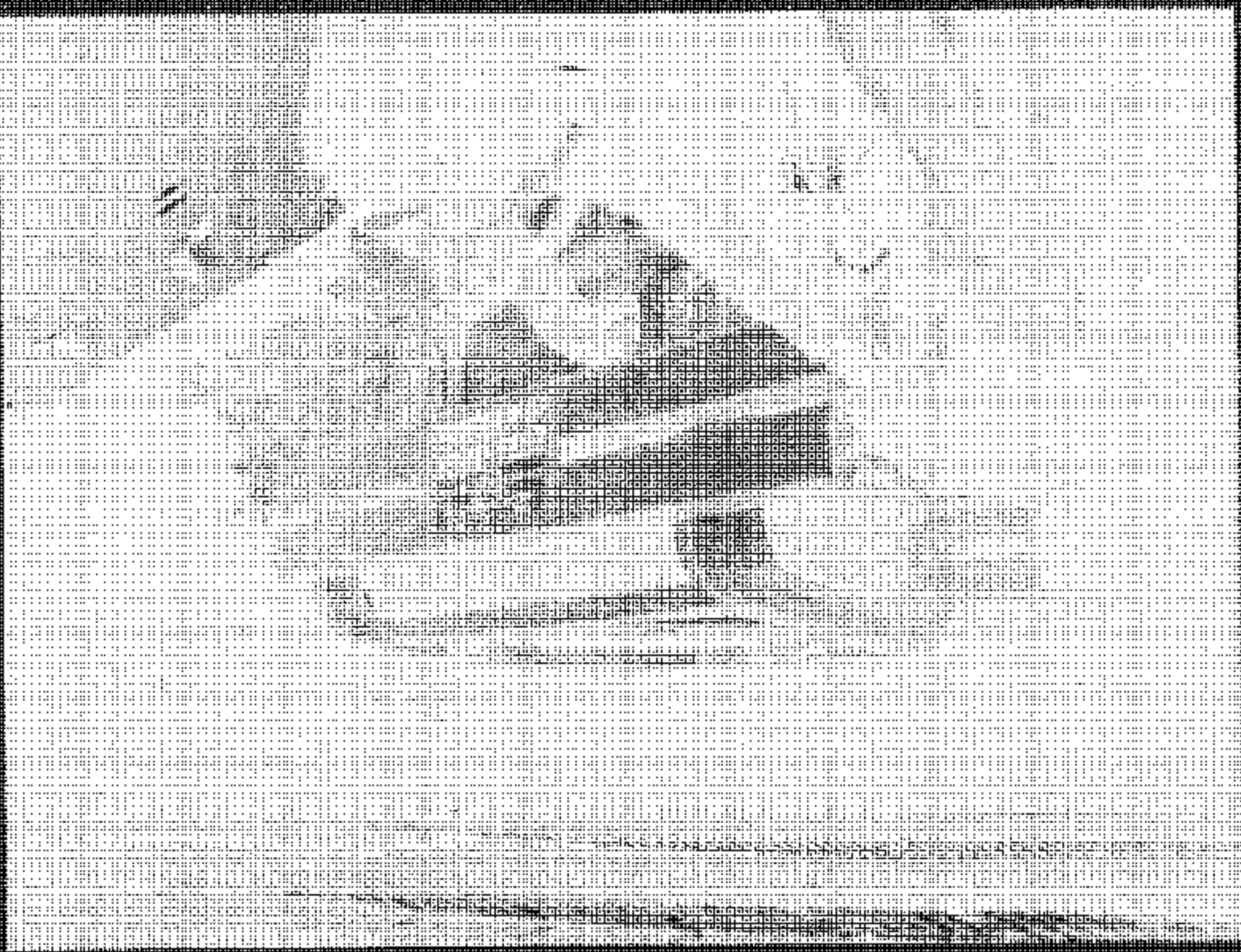
Test Vehicle: 2005 Ford Expedition HD Special Edition
Procedure: FMVSS 141

NHTSA No: 400900



Test Vehicle: 2001 US Bus Chevrolet MD-5300-1 Bus
Procedure: FMVSS 301

NETS, No. 00000

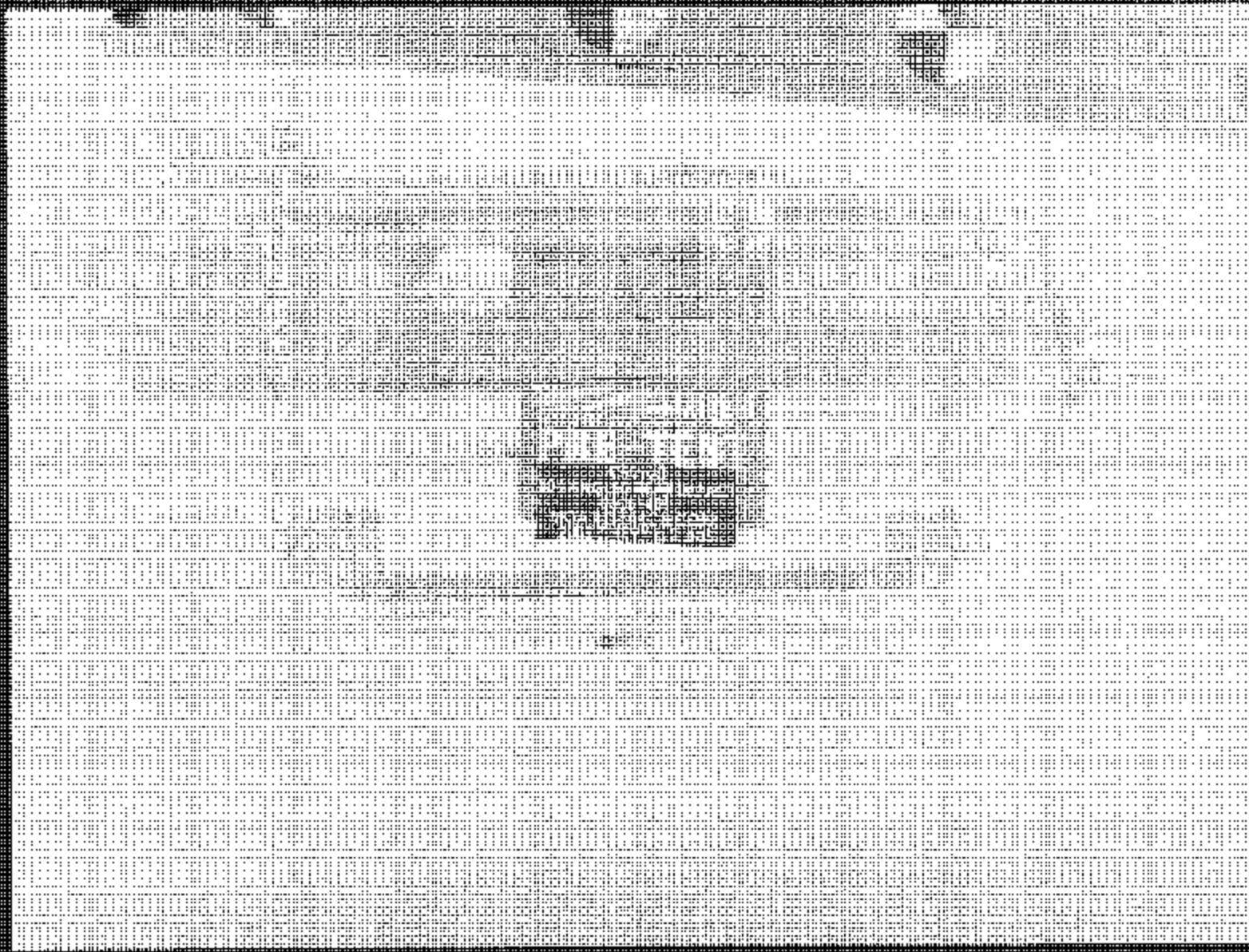


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Post-Test of Fuel Tank Cage (View #1)

Test Vehicle: 2005 US Bus (Handbus) ID: 509-001 Bus
Procedure: FMVSS 301

NHTSA No: C24900



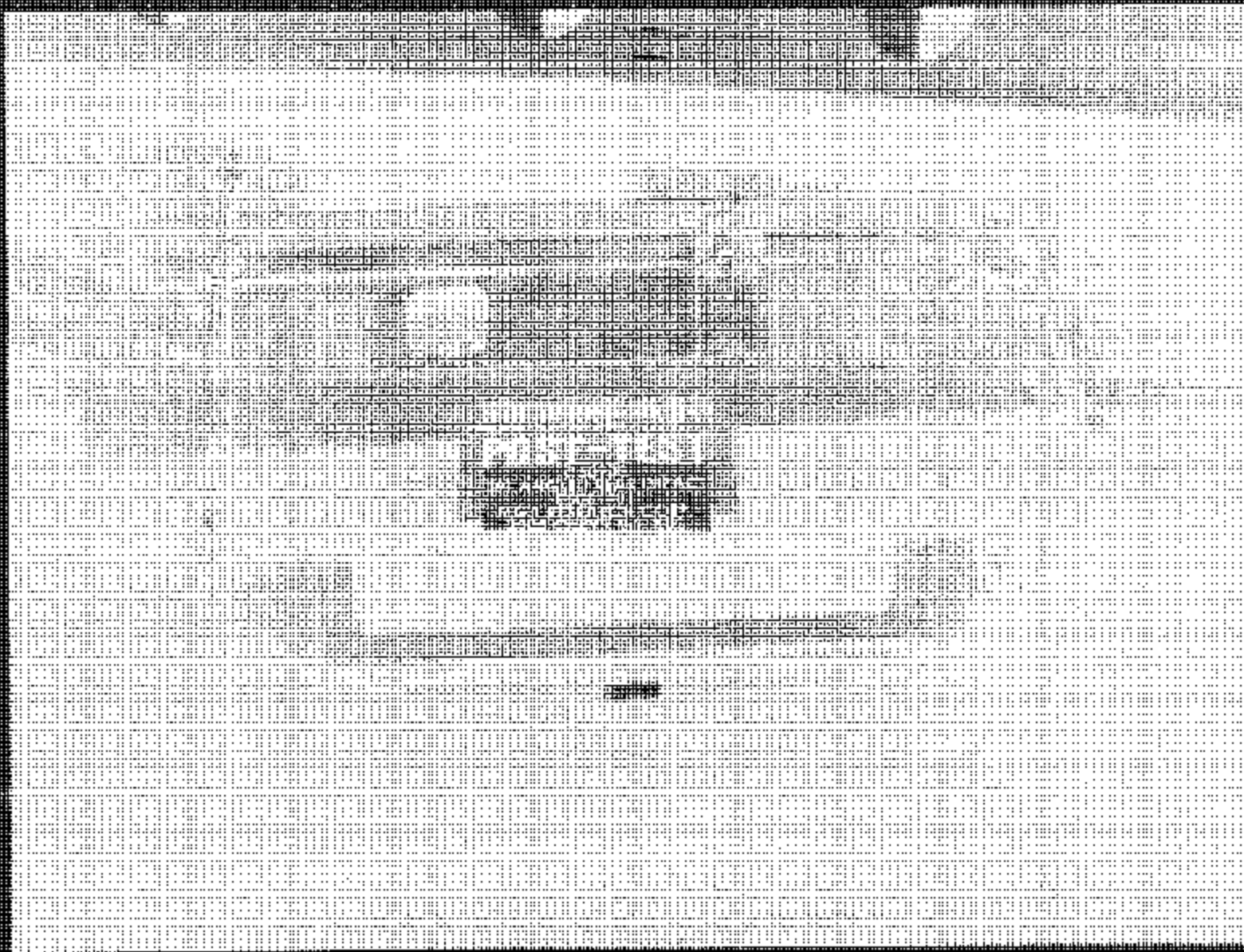
Pre-Test of Fuel Tank Cage (View #2)

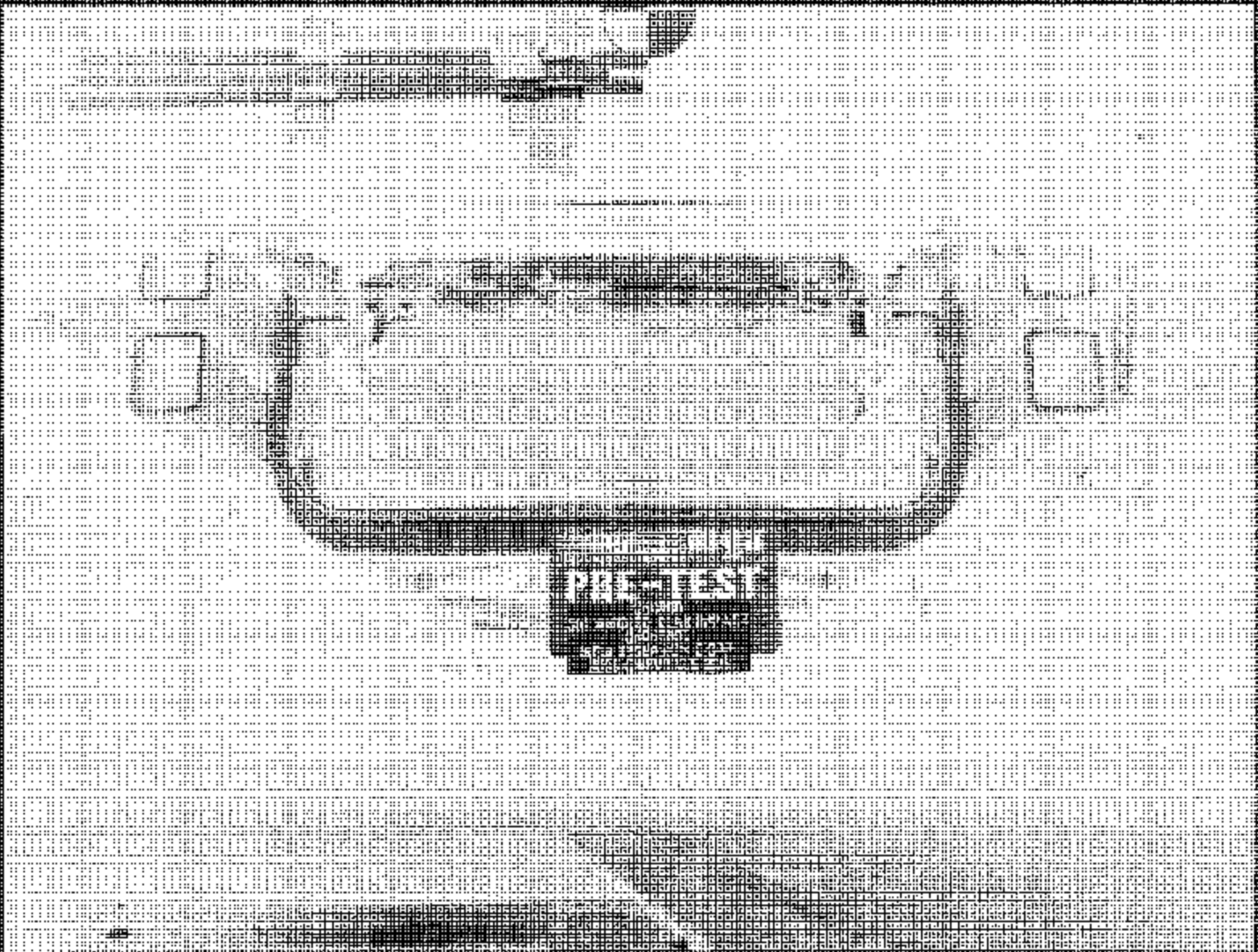
24

Test 140140
Procedure

2015 US Air Academy 40 School Bus
MAYNS 104

NETSA No. C-0000



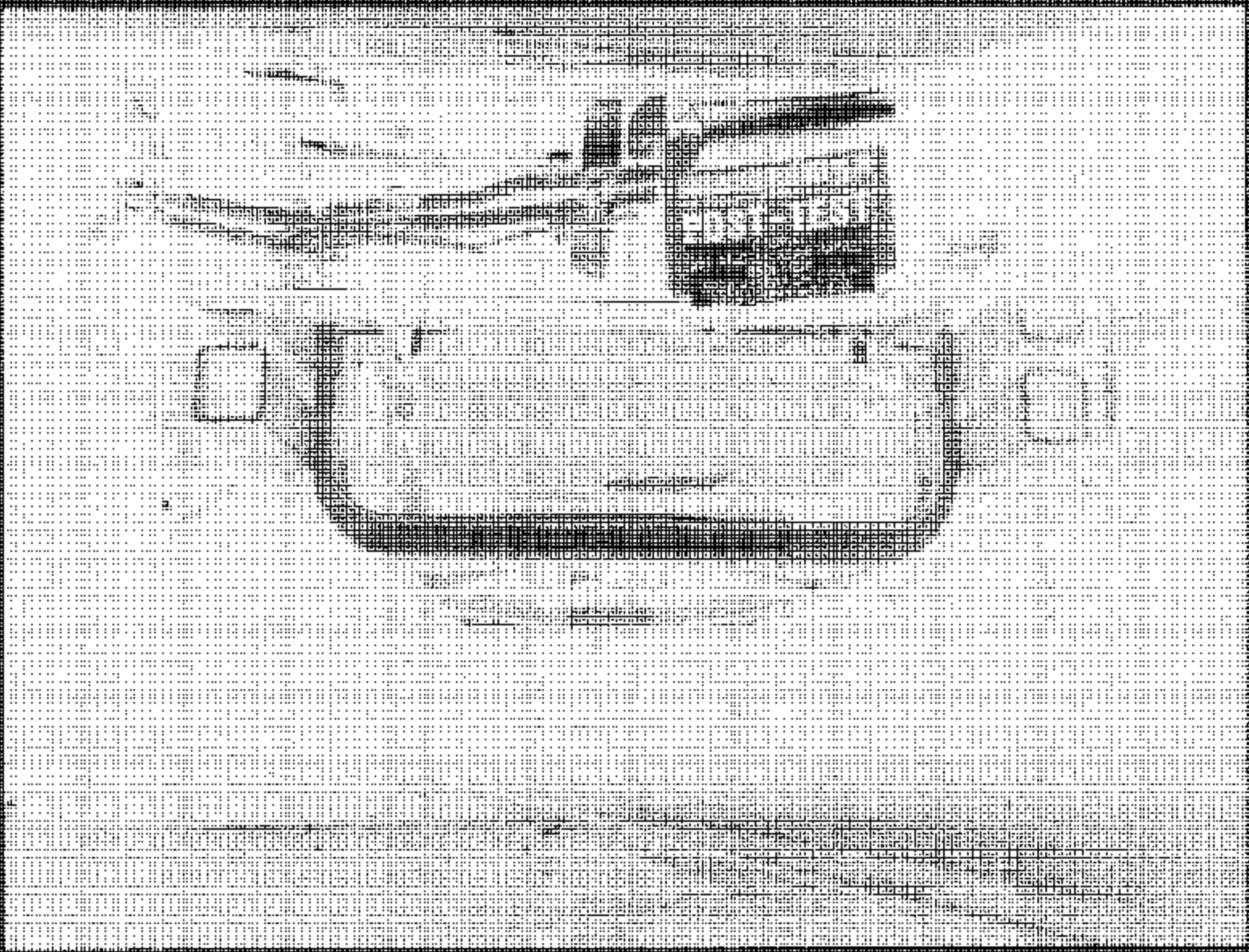


Pre-Test of Fuel Tank Cage (Year #3)

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Test Vehicle: 2005 L30 Starliner HD Control Van
Procedure: FMVSS 301

NHTSA No. C500041



Post-Test of Fuel Tank: Cogen (View #3)

Year: 2005
Procedure: 2005 US Bus Standards HD School Bus

NHTSA No: C50500

The image shows a large, complex table with a grid-like structure, possibly a data log or test results table. The table is filled with numerous rows and columns of data, which are heavily obscured by dark rectangular redaction boxes. The text within the table is extremely small and difficult to read, appearing as a dense pattern of black and white pixels. The overall appearance is that of a highly detailed but mostly illegible data set.

Form 4242-01
Procedure:

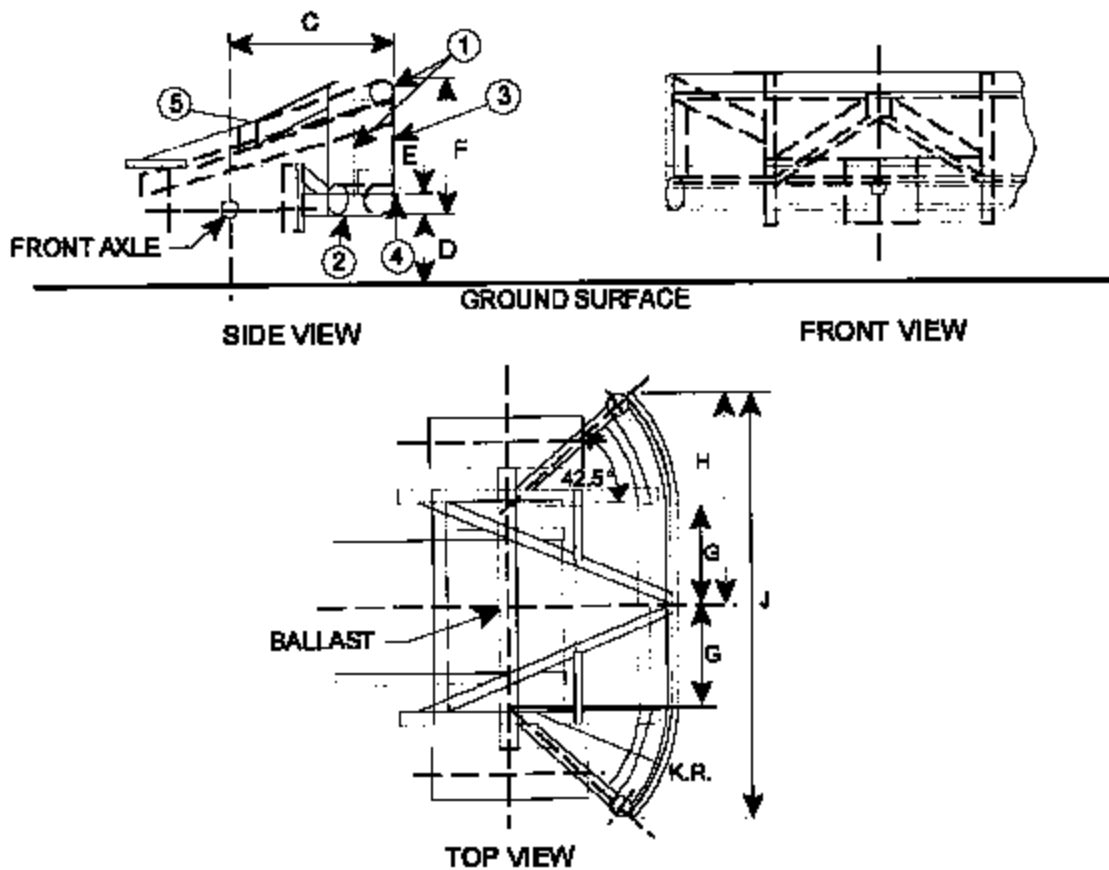
2005 US Gov Standards ID-Report Card
FMVSS 301

NHTSA No. 43499



**SECTION 5
BARRIER INFORMATION**

CONTOURED IMPACT SURFACE FOR COMMON CARRIAGE



DIMENSIONS SHOWN IN TABLE ON NEXT PAGE

NOTES:

1. Upper Frame 4.0 in. dia x 0.25 in. wall (102 mm dia x 6 mm wall)
Steel Tubing (3 Sides)
2. Lower Frame 6.0 in. dia x 0.50 in. wall (152 mm dia x 13 mm wall)
Steel Tubing
3. Face Plate 0.75 in. (19 mm) thick cold rolled steel
4. Leading Edge 1.0 s 4.0 in. (25 x 102 mm) steel band, sharp
edges broken
5. All Inner Reinforcements 4.0 x 2.0 x 0.19 in. (102 x 51 x 5 mm)
steel tubing

Total Weight = 4,000 ± 50 lbs (1,814.1 ± 22.7 kg)

**Weight at each Rear Wheel =
900 ± 25 lbs (408.2 ± 11.3 kg)**

**Weight at each Front Wheel =
1,100 ± 25 lbs (499.0 ± 11.3 kg)**

Moments of Inertia:

$I_x = 271 \pm 13.6 \text{ slug-ft}^2 (367 \pm 18.4 \text{ kg-m}^2)$

$I_z = 3,475 \pm 174 \text{ slug-ft}^2 (4,711 \pm 236 \text{ kg-m}^2)$

DIMENSIONS FOR CONTOURED IMPACT SURFACE

LETTER	INCHES	MILLIMETERS
A	54.0	1372
B	15.8	401
C	30.0	762
D	5.25	133
E	3.75	95
F	24.75	629
G	18.0	457
H	39.0	991
J	78.0	1981
K	30.0	762