Hs No 637553

REPORT NUMBER 225-GTL-03-008

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 225 CHILD RESTRAINT ANCHORAGE SYSTEMS LOWER AND TETHER ANCHORAGES

FORD MOTOR CO.
2003 FORD WINDSTAR, MPV
NHTSA NO. C30208

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

NOVEMBER 3, 2003

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590

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Prepared By: ______________

Approved By: ______________

Approval Date: 11/3/03

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Final Report of FMVSS 225 Compliance Testing of 2003 FORD WINDSTAR, MPV NHTSA No. C30208	November 3, 2003
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15. Supplementary Notes

16. Abstract

Compliance tests were conducted on the subject, 2003 Ford Windstar MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225T and TP-225L for the determination of FMVSS 225 compliance.

Test failures identified were as follows:

During Loading of the SFAD2 in the 3rd Row Passenger per S15.3 to 8K N, the 3rd Row Seat released from the floor due to the right side latch releasing and allowing point X of the SFAD to exceed the allowed 125 mm maximum excursion. The release occurred at 6111 Newtons force at .78 seconds into the test.

17. Key Words	18. Distribution Statement
Compliance Testing Safety Engineering FMVSS 225	Copies of this report are available from NHTSA Technical Reference Div., Rm. 5108 (NPO-230) 400 7th St., S.W. Washington, DC 20590 Telephone No. (202) 366-4946

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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2003 Ford Windstar MPV was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 225 testing to determine if the vehicle was in compliance with the requirements of the standard. The purpose of this standard is to is to establish requirements for child restraint anchorage systems to ensure their proper location and strength for the effective securing of child restraints, to reduce the likelihood of the anchorage systems' failure and to increase the likelihood that child restraints are properly secured and thus more fully achieve their potential effectiveness in motor vehicles.

1.1 The test vehicle was a 2003 Ford Windstar MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 2FMZA53493BA03994

B. NHTSA No.: C30208

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 08/02

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 225 testing during the time period August 13-28, 2003.

SECTION 2

COMPLIANCE TEST RESULTS SUMMARY

2.0 TEST RESULTS

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-225T dated 3 May 2001 and TP-225L dated 11, June, 2001.

Based on the test performed, the 2003 Ford Windstar MPV did not appear to meet the requirements of FMVSS 225 testing. Strength and displacement summary data are provided below.

Table 1. Summary Data for Strength and Displacement

GTL Test #	Fixture Type	Seating Position	Max. Load (N)	Displacement (mm)
5122	SFAD II Tether Strap	2nd Row Left	9964	77.9
5123	SFAD II Tether Strap	3rd Row Left	9950	68.5
5124	SFAD I Tether Strap	3rd Row Center	9888	98.7
5125	Lower Anchorage	3rd Row Right	7860	245.4

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL BODY	2003 Ford Windstar
VEH. NHTSA NO.	C30208
VIN	2FMZA53493BA03994
VEH. BUILD DATE	08/02
TEST DATE	08/13/03-08/28/03
TEST LABORATORY	GTL
OBSERVERS	Grant Farrand, Jimmy Latane

GENERAL INFORMATION:

Date Received: 02/24/03 Odometer Reading: 173

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Ford Motor Co.

Date of Manufacture:08/02 VIN: 2FMZA53493BA03994

GVWR:2549 kg; GAWR FRONT: 1315 kg
GAWR REAR: 1251 kg

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of testing on the 2003 Ford Windstar MPV.

DATA SHEET 1
CHILD RESTRAINT TETHER ANCHORAGE CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE: 08/02 ; TEST DATE: AUGUST 13, 2003
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

Number of DSP's In Test Vehicle As Stated on Tire Label using Figures for Maximum Vehicle Loading:

Front Seat= 2
Rear Seat= 2
Third Seat= 3
Total= 7

SEATING POSITION		OBSERVED CONFIGURATION			
		Permit the attachment of a tether hook	Accessible without the need for any tool other than a screwdriver of coin	Ready for use without the need for any tools	Sealed to prevent the entry of exhaust fumes
Front	Left	N/A	N/A	N/A	N/A
	Center	N/A	N/A	N/A	N/A
	Right	N/A	N/A	N/A	N/A
Second	Left	YES	YES	YES	YES
	Center	N/A	N/A	N/A	N/A
	Right	YES	YES	YES	YES
Third	Left	YES	YES	YES	YES
	Center	YES	YES	YES	YES
	Right	YES	YES	YES	YES

REMARKS:

RECORDED BY: _____ DATE: 08/13/03

APPROVED BY: _____

DATA SHEET 2
CHILD RESTRAINT LOWER ANCHORAGES CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE: 08/02 ; TEST DATE: AUGUST 13, 2003
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION	FRONT	REAR LEFT	REAR RIGHT	THIRD LEFT	THIRD RIGHT
Above anchorage permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its center is not less than 50 mm and not more than 75 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	Left	N/A	NO	NO	NO	NO
	Center	N/A	N/A		N/A	
	Right	N/A	NO	NO	NO	NO
Each of the bars is visible, without the compression of the seat cushion or seat back, when the bar is viewed, in a vertical longitudinal plane passing through the center of the bar, along a line marking an upward 30 degree angle with a horizontal plane.	Left	N/A	YES	YES	YES	YES
	Center	N/A	N/A		N/A	
	Right	N/A	NO*	NO*	YES	YES
Diameter of the bar (mm)	Left	N/A	5.94	5.94	5.94	5.94
	Center	N/A	N/A		N/A	
	Right	N/A	5.94	5.94	5.94	5.94
Inspect if the bars are straight, horizontal and transverse	Left	N/A	YES	YES	YES	YES
	Center	N/A	N/A		N/A	
	Right	N/A	YES	YES	YES	YES

*LEATHER SEAT COVER IS NOT POSITIONED CORRECTLY ON SEAT AND IS THEREFORE COVERING THE LOWER ANCHORS.

DATA SHEET 2 CONTINUED
CHILD RESTRAINT LOWER ANCHORAGES CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE: 08/02 ; TEST DATE: AUGUST 13, 2003
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

OBSERVED LOWER ANCHORAGE CONFIGURATION		SEAT POSITION FRONT	REAR	THIRD
Inspect if the centroidal longitudinal axes are collinear within 5 degrees.	Left	N/A*	YES	YES
	Center	N/A	N/A	N/A
	Right	N/A	YES	YES
Inspect the inside surface of the bar that is straight and horizontal section of the bars, and determine they are not less than 25 mm, but not more than 40 mm in length.	Left	N/A*	YES 27 MM	YES 27 MM
	Center	N/A	N/A	N/A
	Right	N/A	YES 27 MM	YES 27 MM
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	Left	N/A*	YES	YES
	Center	N/A	N/A	N/A
	Right	N/A	YES	YES
Measure the distance between the center of the length of one bar to the center of the length of the other bar. The requirement is 280 mm ± 1 mm.	Left	N/A*	280	280
	Center	N/A	N/A	N/A
	Right	N/A	280	280
Inspect if the bars are an integral and permanent part of the vehicle.	Left	N/A*	YES	YES
	Center	N/A	N/A	N/A
	Right	N/A	YES	YES
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	Left	N/A*	YES	YES
	Center	N/A	N/A	N/A
	Right	N/A	YES	YES

* DRIVER'S SEAT

RECORDED BY: _____ DATE: 08/13/03
APPROVED BY: _____

DATA SHEET 2 CONTINUED
CHILD RESTRAINT LOWER ANCHORAGES CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE:08/02 ; TEST DATE: AUGUST 13, 2003
TEST LABORATORY:GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

OBSERVED LOWER ANCHORAGE CONFIGURATION		SEAT POSITION FRONT	REAR	THIRD
Optional Marking: At least one anchorage bar (when deployed for use, if storable anchorages), one guidance fixture, or one seat marking is visible	Left	N/A*	N/A	N/A
	Center	N/A	N/A	N/A
	Right	N/A	N/A	N/A
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	Left	N/A*	N/A	N/A
	Center	N/A	N/A	N/A
	Right	N/A	N/A	N/A

* DRIVER'S SEAT

RECORDED BY: L. Farrand DATE: 08/13/03

APPROVED BY: D. Mersich

DATA SHEET 3
LOCATION AND DIMENSIONAL MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE:08/02 ; TEST DATE: AUGUST 13, 2003
TEST LABORATORY:GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

Number of DSP's In Test Vehicle As Stated on Tire Label using Figures for Maximum Vehicle Loading:

Front Seat= 2
Rear Seat= 2
Third Seat= 3
Total= 7

SEAT POSITION FOR TETHER		LOCATION OF DSPs	TETHER ANCHORAGE LOCATION	
		TETHER OBSERVED	REQUIRED	MEASURED Is it in the required zone?
FRONT	Left	NO	N/A	N/A
	Center	N/A	N/A	N/A
	Right	NO	NO	N/A
SECOND	Left	YES	YES	YES
	Center	N/A	N/A	N/A
	Right	YES	**	YES
THIRD	Left	YES	**	YES
	Center	YES	YES	YES
	Right	YES	**	YES

** ONLY ONE OF THESE LOCATIONS IS REQUIRED

RECORDED BY: _____ DATE: 08/13/03

APPROVED BY: _____

DATA SHEET 3 CONTINUED
LOCATION AND DIMENSIONAL MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE: 08/02 ; TEST DATE: AUGUST 13, 2003
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

Number of DSP's in Test Vehicle As Stated on Tire Label using Figures for Maximum Vehicle Loading: Front Seat= 2 Rear Seat 2 Third Seat= 3 Total= 7

SEAT POSITION FOR LOWER ANCHORAGE	PRESENCE OF ANCHORAGES		COMMENTS
	REQUIRED	OBSERVED	
FRONT	NONE	NONE	N/A
REAR	1	2	LEFT & RIGHT
THIRD	1	2	LEFT & RIGHT

SEAT POSITIONS FOR LOWER ANCHORAGES		LOCATION OF ANCHORAGE				COMMENTS		
		MEASURED FROM "Z" (mm)		MEASURED FROM "SRP" (mm)				
		Left	Right	Left	Right	PITCH	ROLL	YAW
FRONT	Left	N/A		N/A		N/A		
	Center	N/A		N/A		N/A		
	Right	N/A		N/A		N/A		
REAR	Left	38*	35*	162	162	14°	0°	0°
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right			132	135	14°	0°	0°
THIRD	Left	52	53	175	172	20°	0°	0°
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right	52	52	172	174	20°	0°	0°

*CRF FIXTURE WOULD NOT BOTTOM ON ANCHORAGE DUE TO INTERFERENCE WITH SEAT COVER.

RECORDED BY: _____ DATE: 08/08/03
APPROVED BY: _____

DATA SHEET 4
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE: 08/02 ; TEST DATE: AUGUST 28, 2003
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE
TEST # 5122, 5123 & 5124
TETHER ANCHORAGE- WITH SFAD:

SEATING POSITION		Seat, Seat Back & Head Restraint positions			Type of SFAD used	Angle	Initial location	Onset rate	Force Applied	Final location	Horizontal Displacement
		Seat	Seat Back	Head Restraint							
Front	Driver	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Second	Left	FULL REAR	21°	UP	2	0°	0.0	385 N/SEC	9964 N	77.9	77.9
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right (if any)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Third	Left	REAR	21°	UP	2	0°	0.0	385 N/SEC	9950 N	68.5	68.5
	Center	REAR	21°	UP	1	0°	0.0	385 N/SEC	9888 N	98.7	98.7
	Right	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: TESTED TO S6.3.4

RECORDED BY: _____ DATE: 08/28/03
APPROVED BY: _____

DATA SHEET 5
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: 2003 FORD WINDSTAR MPV
VEH. NHTSA NO: C30208; VIN: 2FMZA53493BA03994
VEH. BUILD DATE: 08/02 ; TEST DATE: AUGUST 28, 2003
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

TEST # 5125
LOWER ANCHORAGE- FORWARD FORCE APPLICATION:

SEATING POSITION		Seat, Seat Back & Head Restraint positions			Measured Angles		Initial location	Onset rate	Force Applied	Final location	Displacement
		Seat	Seat Back	Head Restraint	Vertical	Horizontal					
Front	Driver	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rear	Left	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right (if any)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Third	Left	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right	REAR	21°	UP	10°	0°	0.0	8K N/SEC	7860 N	245.4	245.4

REMARKS: TESTED TO S15.3. SEAT RELEASED FROM FLOOR AT 6111 N. FORCE AT .78 SECONDS INTO THE TEST.

RECORDED BY: [signature]
APPROVED BY: [signature]
DATE: 08/28/03

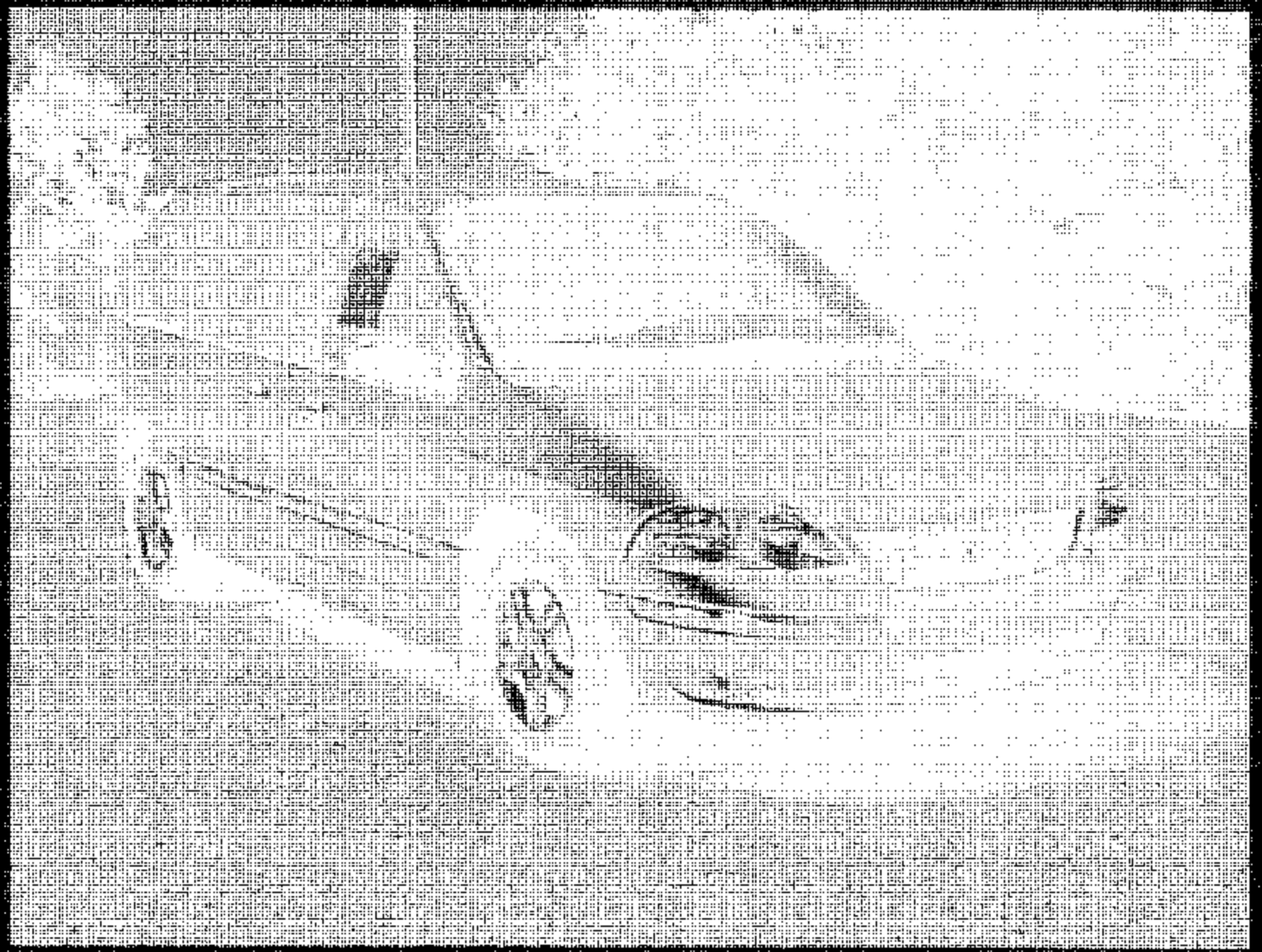
SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
COMPUTER	AT&T	486DX266	BEFORE USE	BEFORE USE
LOAD CELL	REVERE	1353	06/03	06/04
LINEAR TRANSDUCER	CELESCO	69	BEFORE USE	BEFORE USE
LINEAR TRANSDUCER	CELESCO	70	BEFORE USE	BEFORE USE
LINEAR TRANSDUCER	CELESCO	71	BEFORE USE	BEFORE USE
LEVEL	STANLEY	42-449	04/03	04/04
FORCE GAUGE	CHATILLON	8761	BEFORE USE	BEFORE USE
CALIPER	N/A	Q9322365	BEFORE USE	BEFORE USE

SECTION 5

PHOTOGRAPHS



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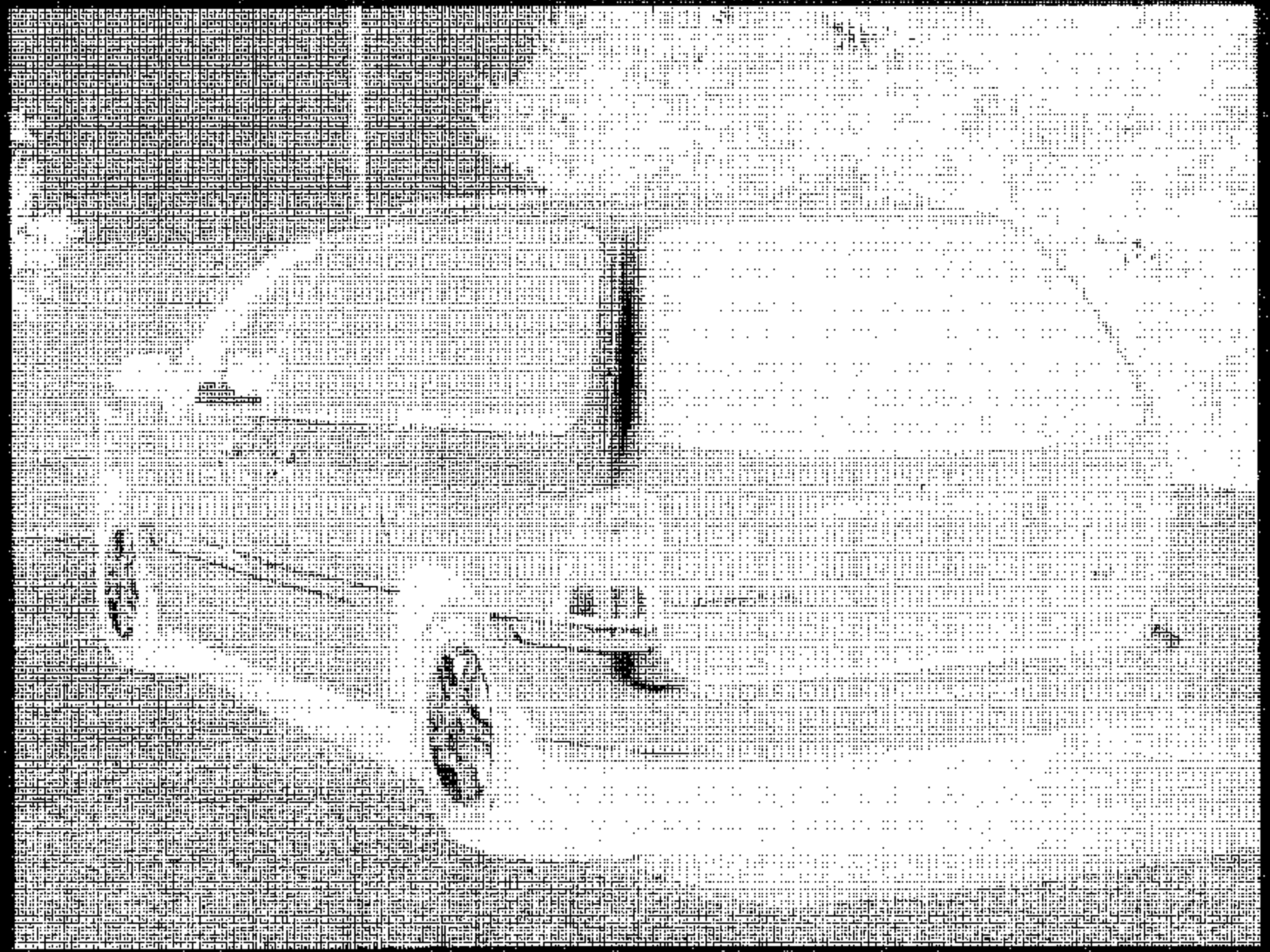
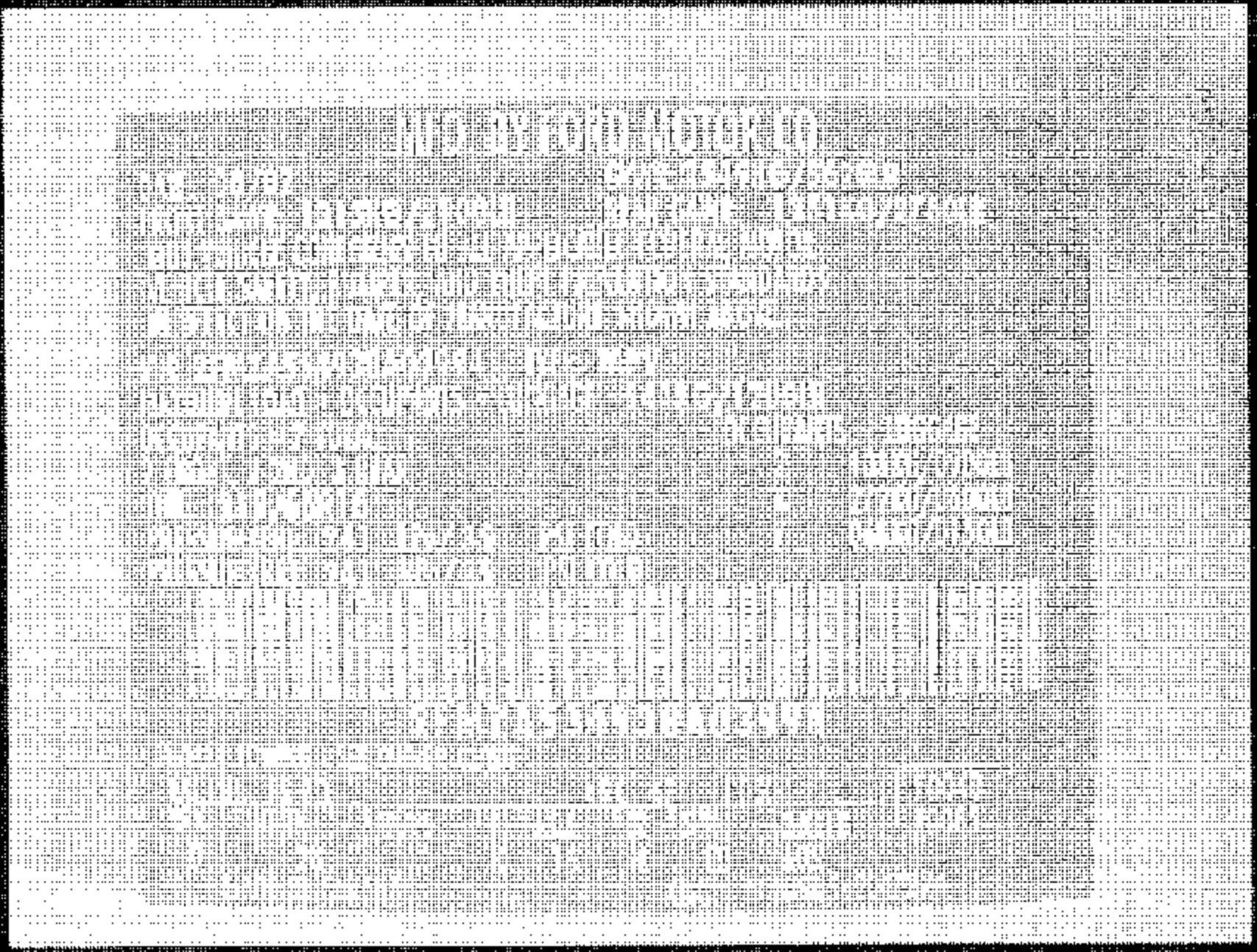
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.1
¾ FRONTAL RIGHT SIDE VIEW OF VEHICLE



2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.2
¾ REARWARD LEFT SIDE VIEW OF VEHICLE



2003 FORD WINDSTAR
NHTSA NO. C30208
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FIGURE 5.3
CLOSE-UP VIEW OF VEHICLE CERTIFICATION AND TIRE INFORMATION LABEL

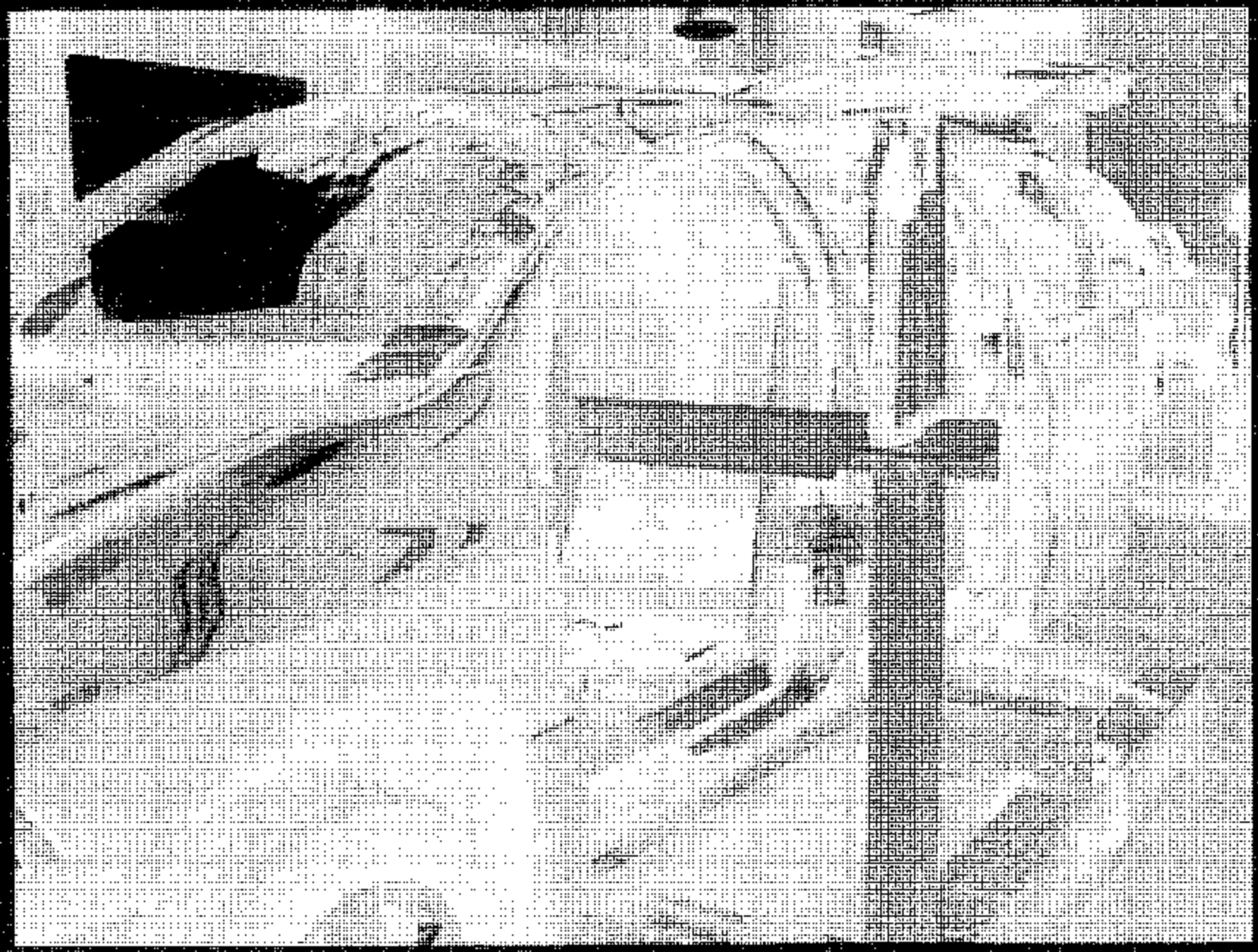

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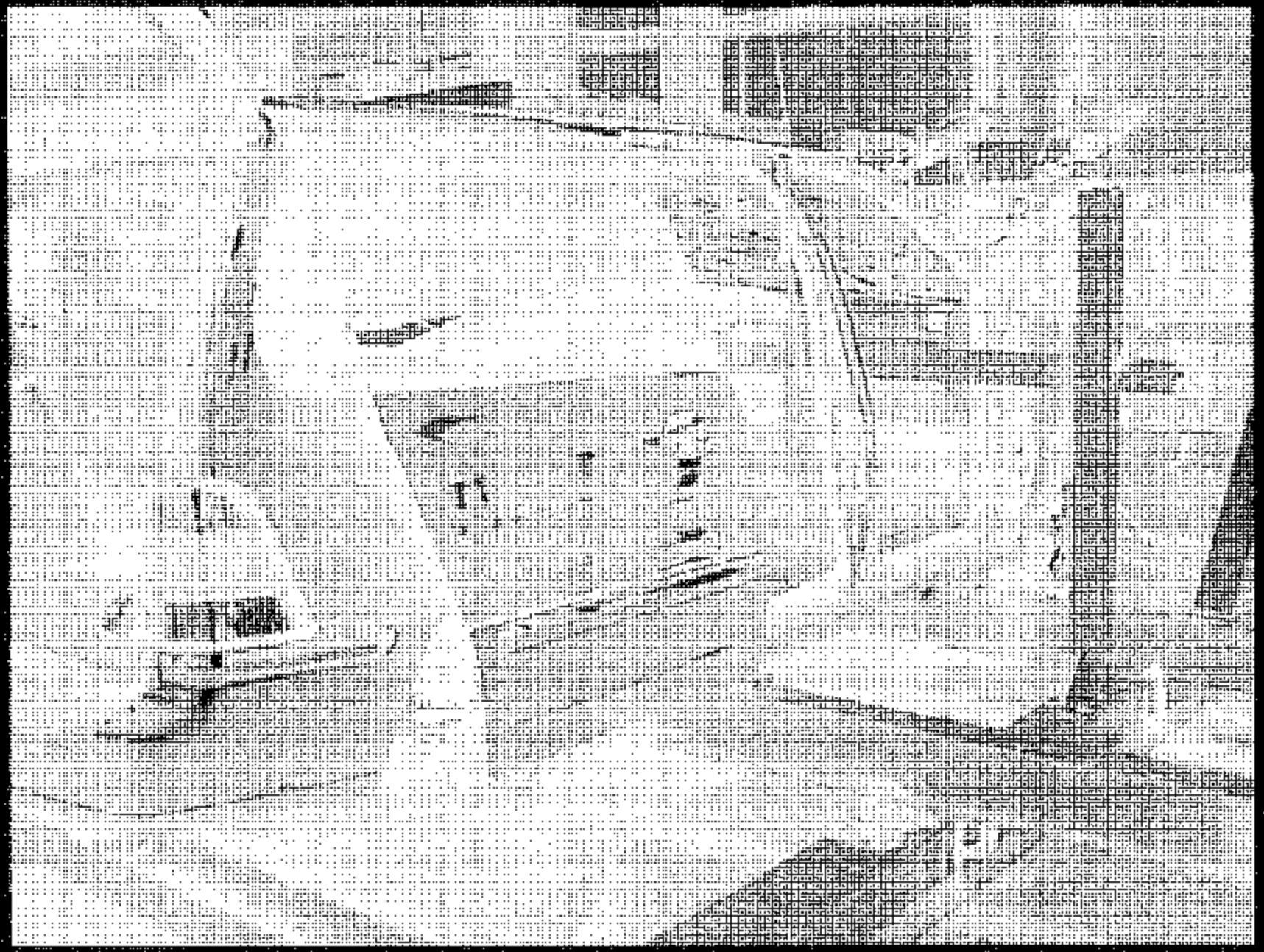
FIGURE 5.4
¾ FRONTAL LEFT SIDE VIEW OF TEST VEHICLE WITH TEST APPARATUS IN PLACE



2003 FORD WINDSTAR
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FIGURE 5.5
¾ REARWARD RIGHT SIDE VIEW OF TEST VEHICLE
WITH TEST APPARATUS IN PLACE

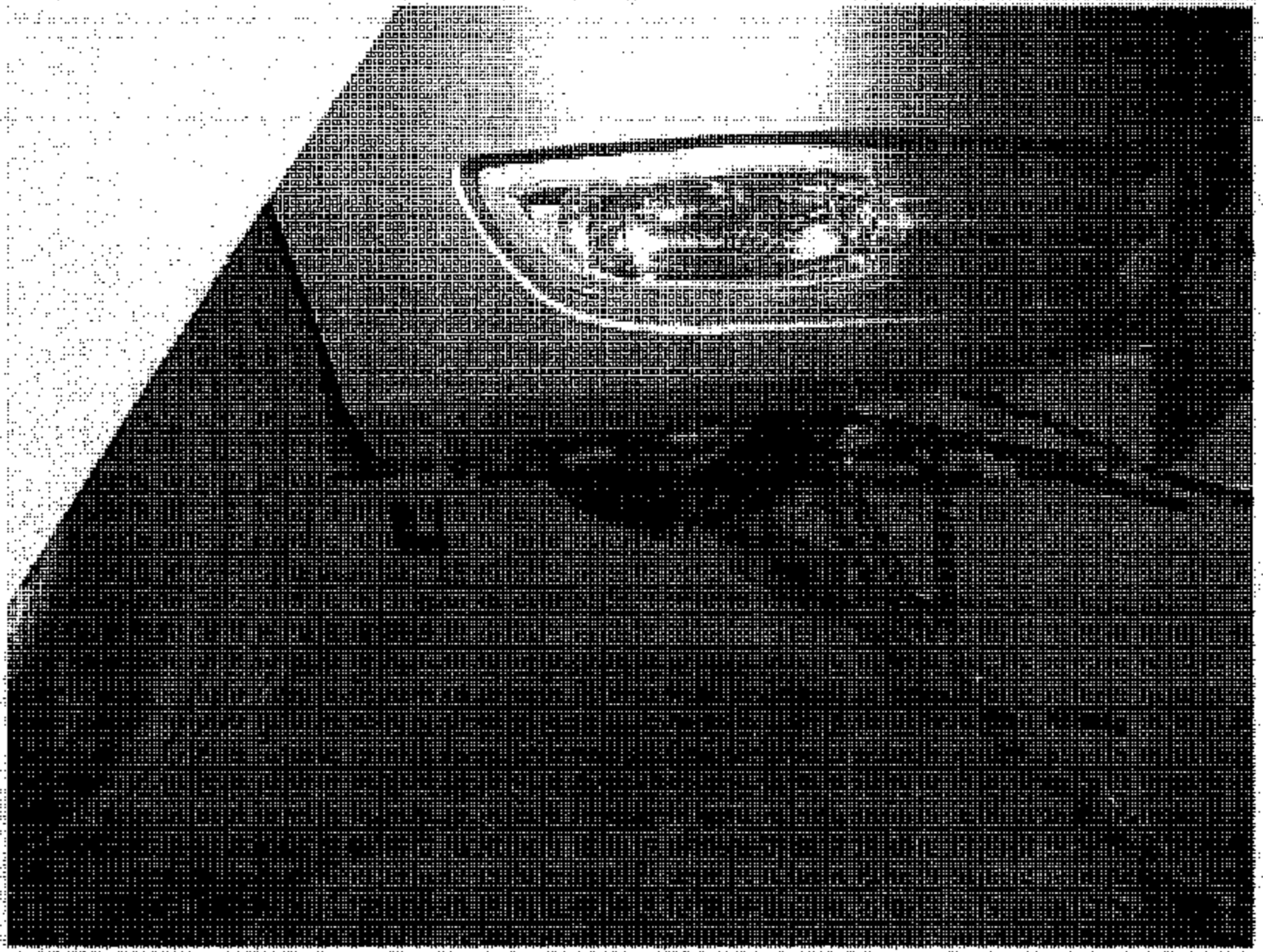

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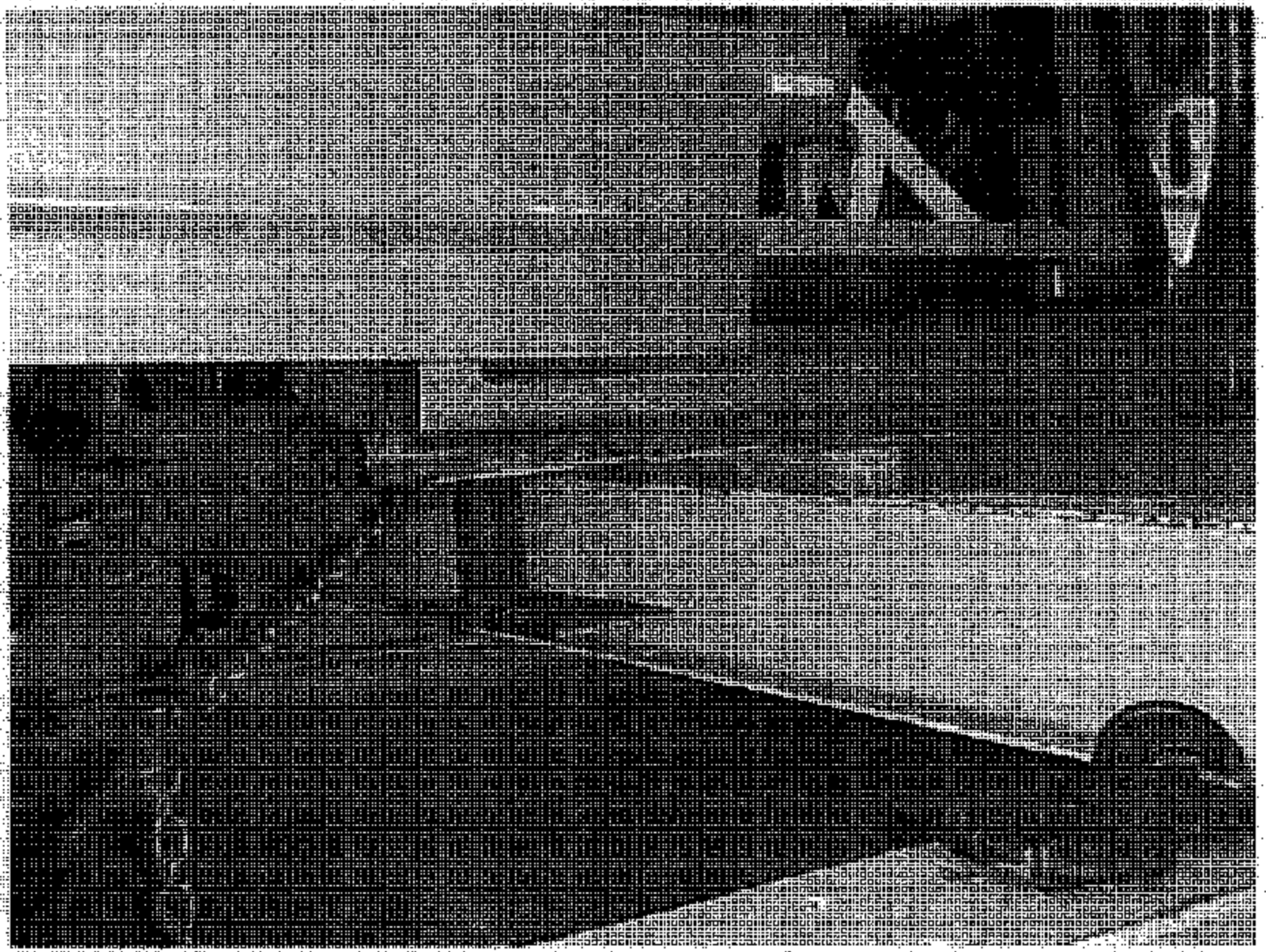
FIGURE 5.6
RIGHT FRONT VEHICLE TIE DOWN



2003 FORD WINDSTAR
NHTSA NO. C30208
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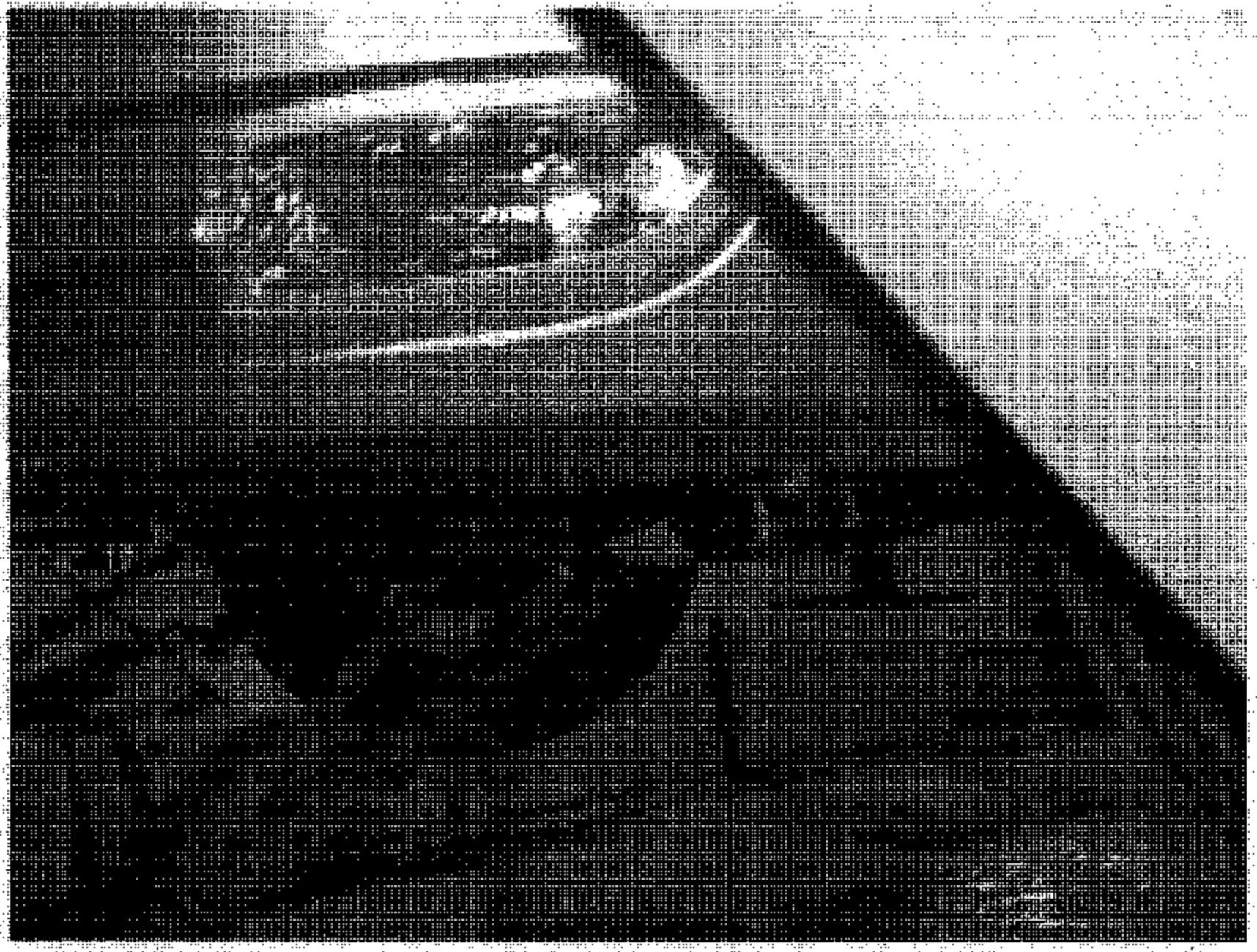
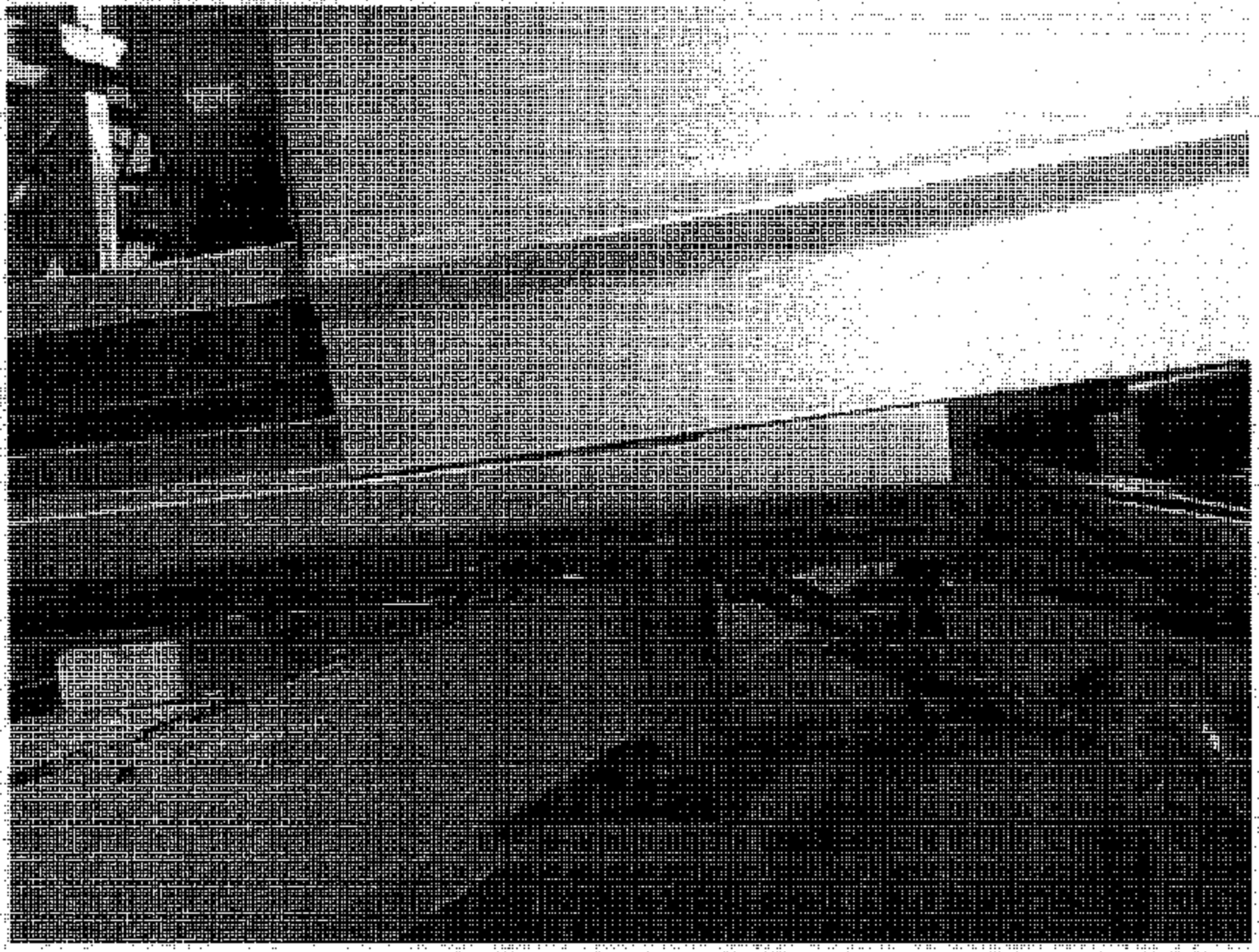
FIGURE 5.7
RIGHT REAR VEHICLE TIE DOWN



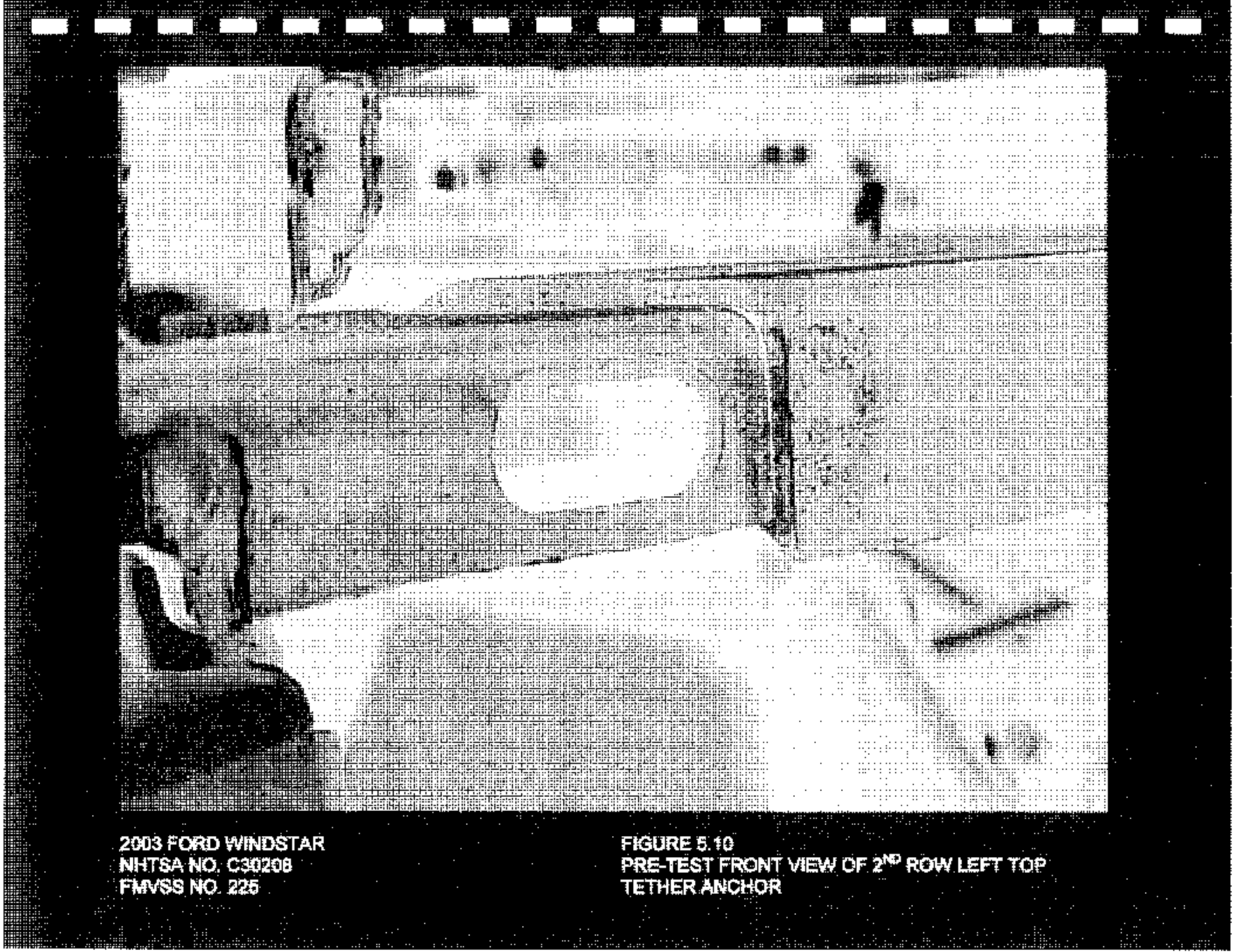
2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.8
LEFT FRONT VEHICLE TIE DOWN



2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.9
LEFT REAR VEHICLE TIE DOWN



2003 FORD WINDSTAR
NHTSA NO. C30208
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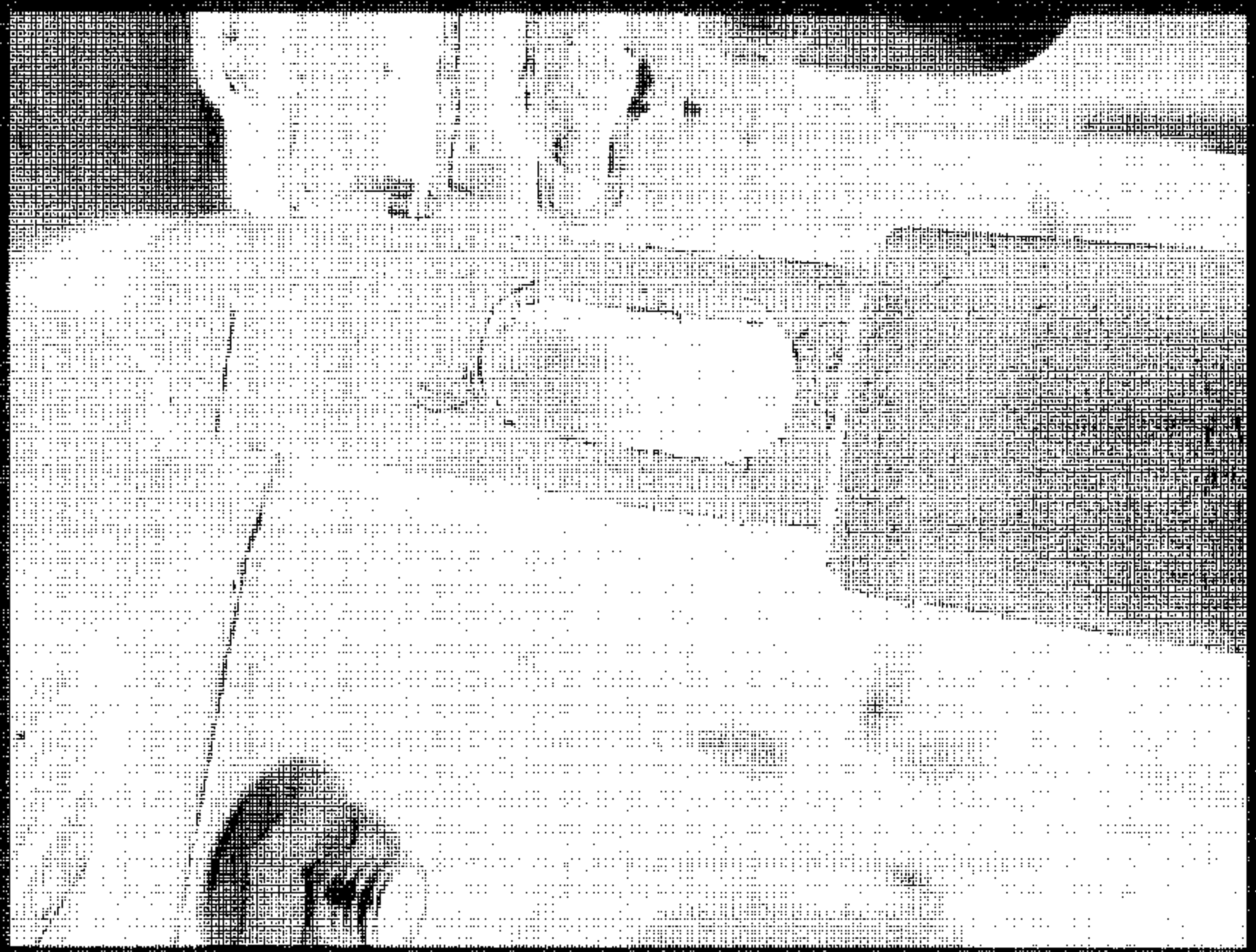
FIGURE 5.10
PRE-TEST FRONT VIEW OF 2ND ROW LEFT TOP TETHER ANCHOR



2003 FORD WINDSTAR
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FIGURE 5.11
PRE-TEST FRONT VIEW OF 2ND ROW RIGHT
TOP TETHER ANCHOR

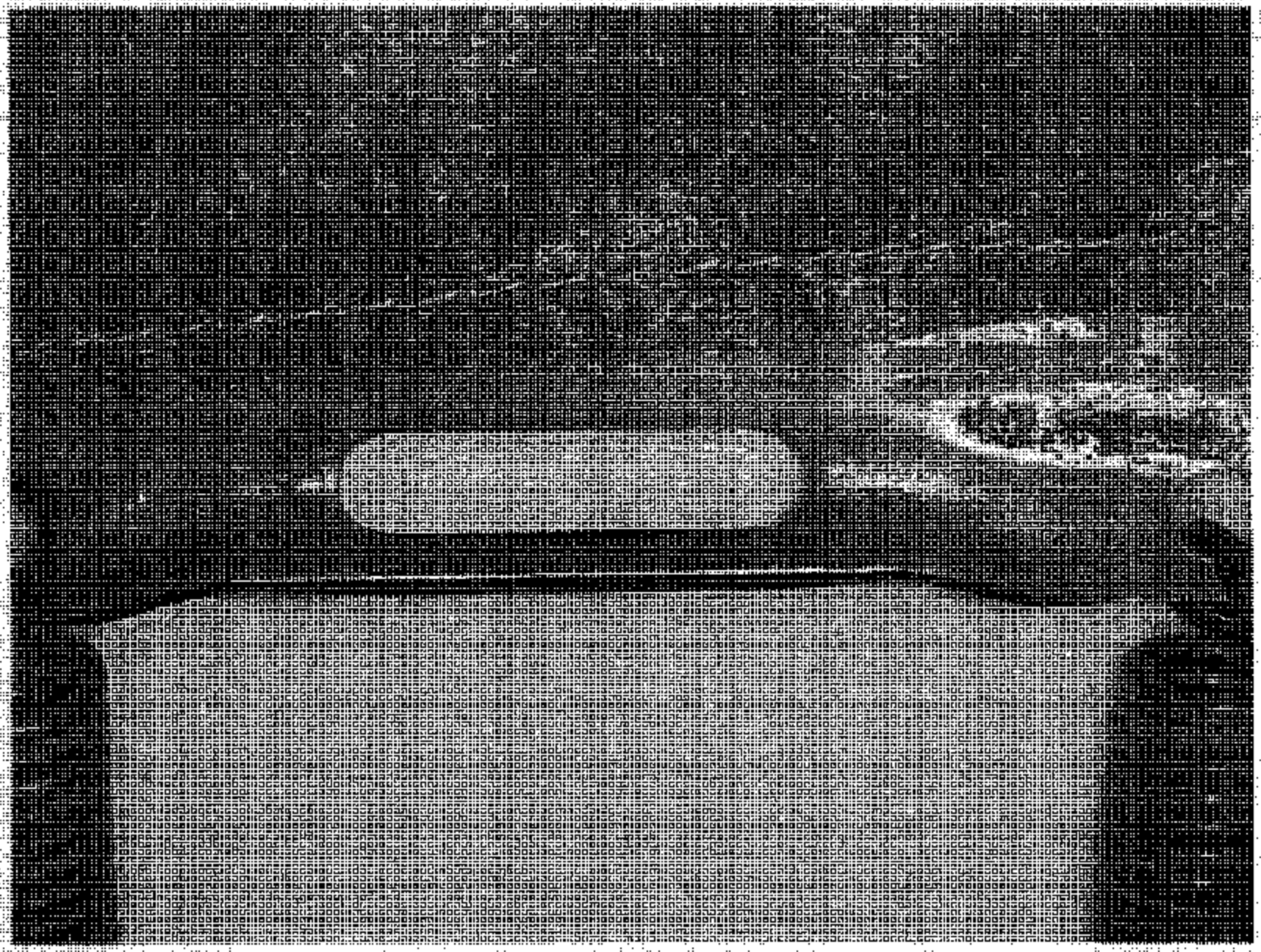

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FIGURE 5.12
PRE-TEST FRONT VIEW OF 3RD ROW LEFT TOP
TETHER ANCHOR

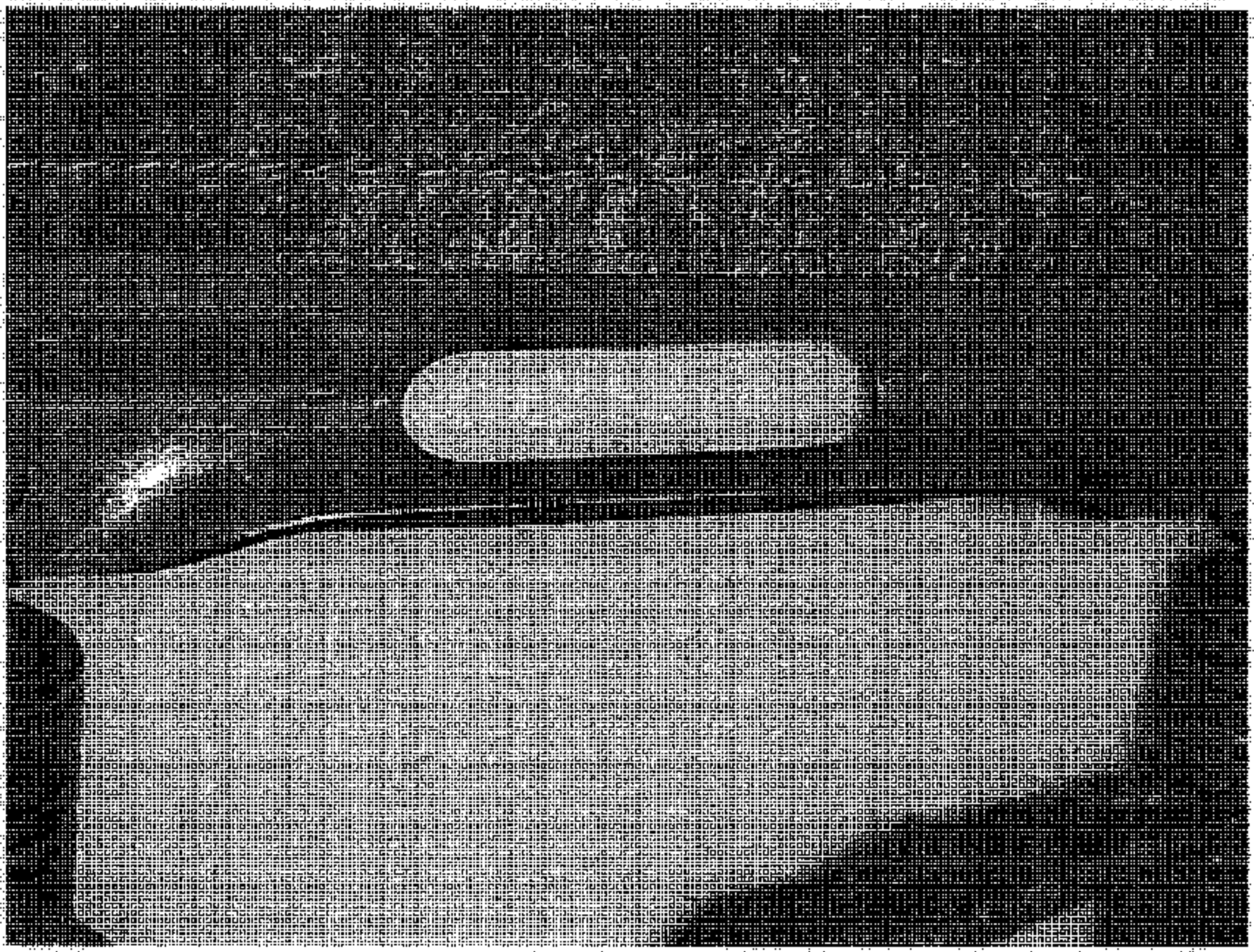

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FIGURE 5.13
PRE-TEST FRONT VIEW OF 3RD ROW CENTER TOP TETHER ANCHOR

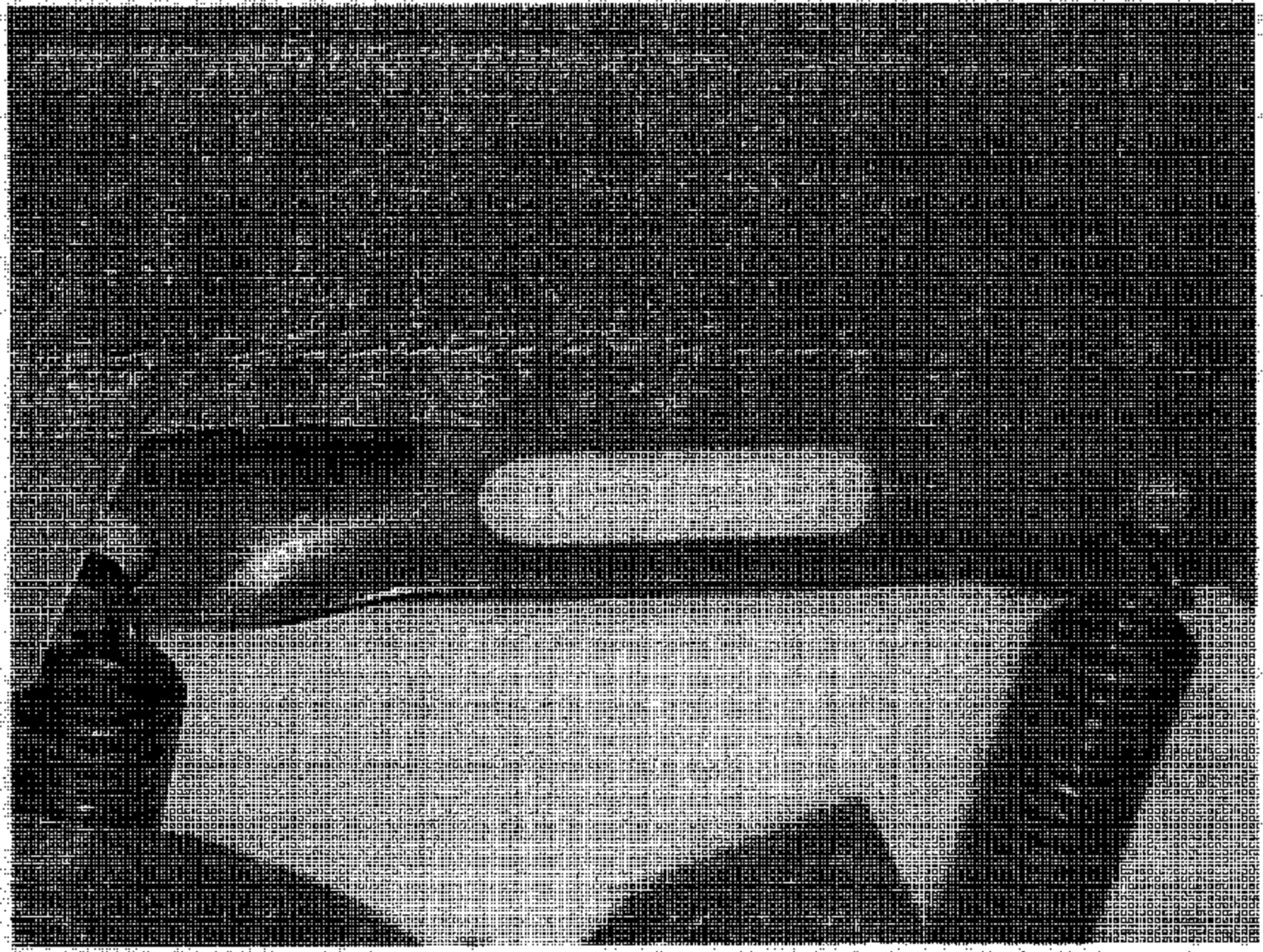

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FIGURE 5.14
PRE-TEST FRONT VIEW OF 3RD ROW RIGHT
TOP TETHER ANCHOR

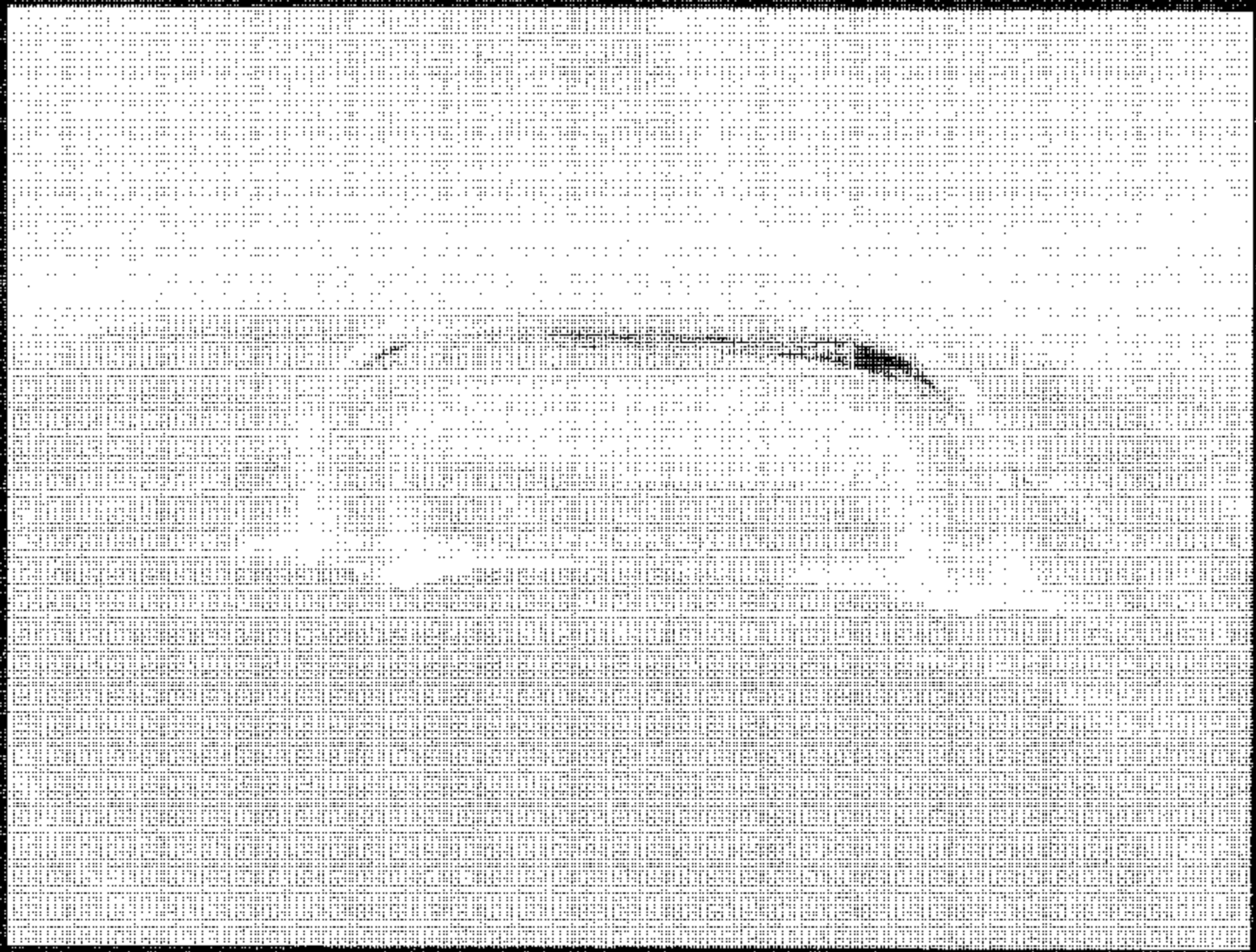

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FIGURE 6.15
PRE-TEST FRONT VIEW OF 2ND ROW LEFT
OUTBOARD LOWER ANCHOR

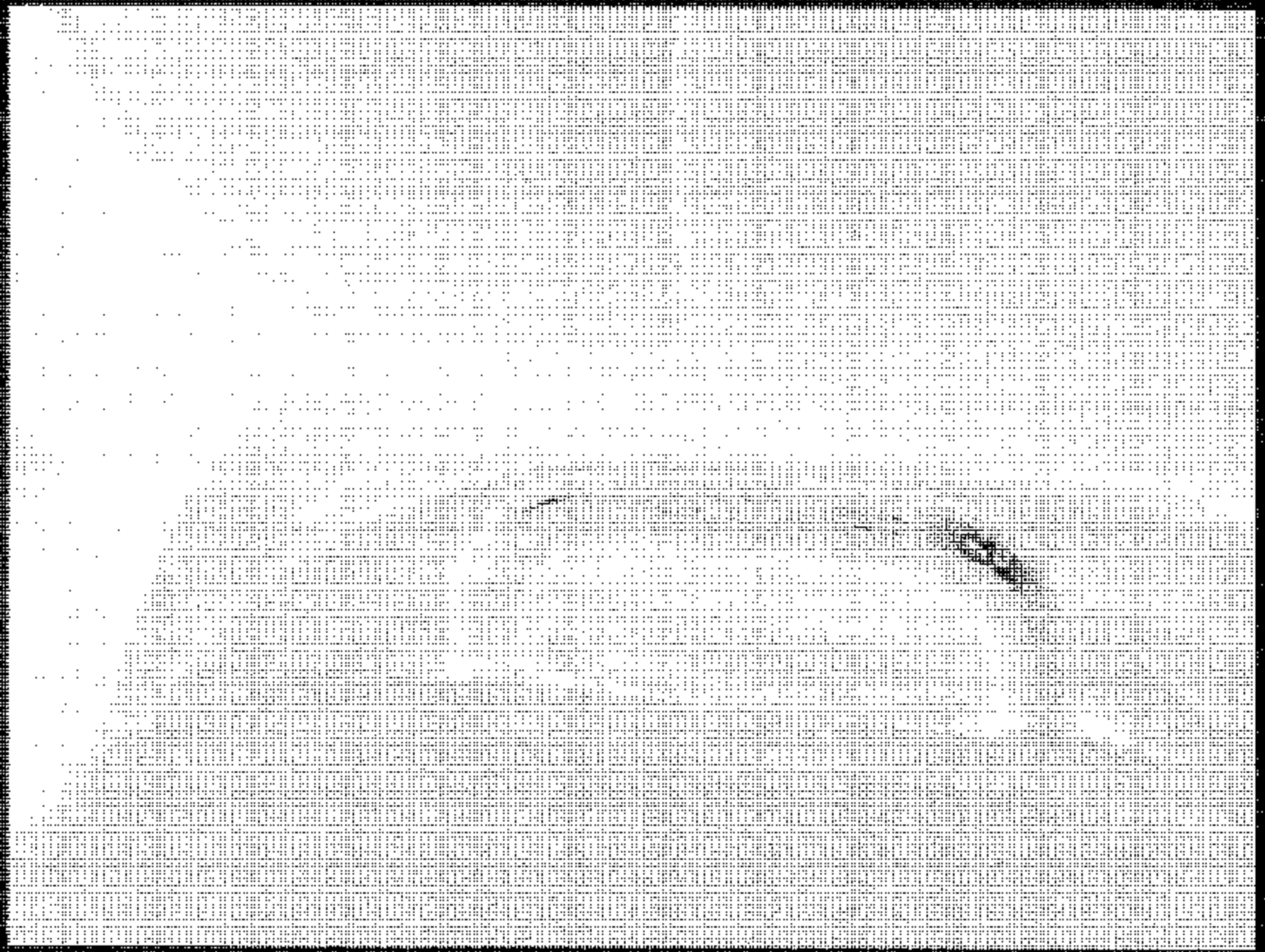

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FIGURE 5.16
PRE-TEST FRONT VIEW OF 2ND ROW LEFT
INBOARD LOWER ANCHOR

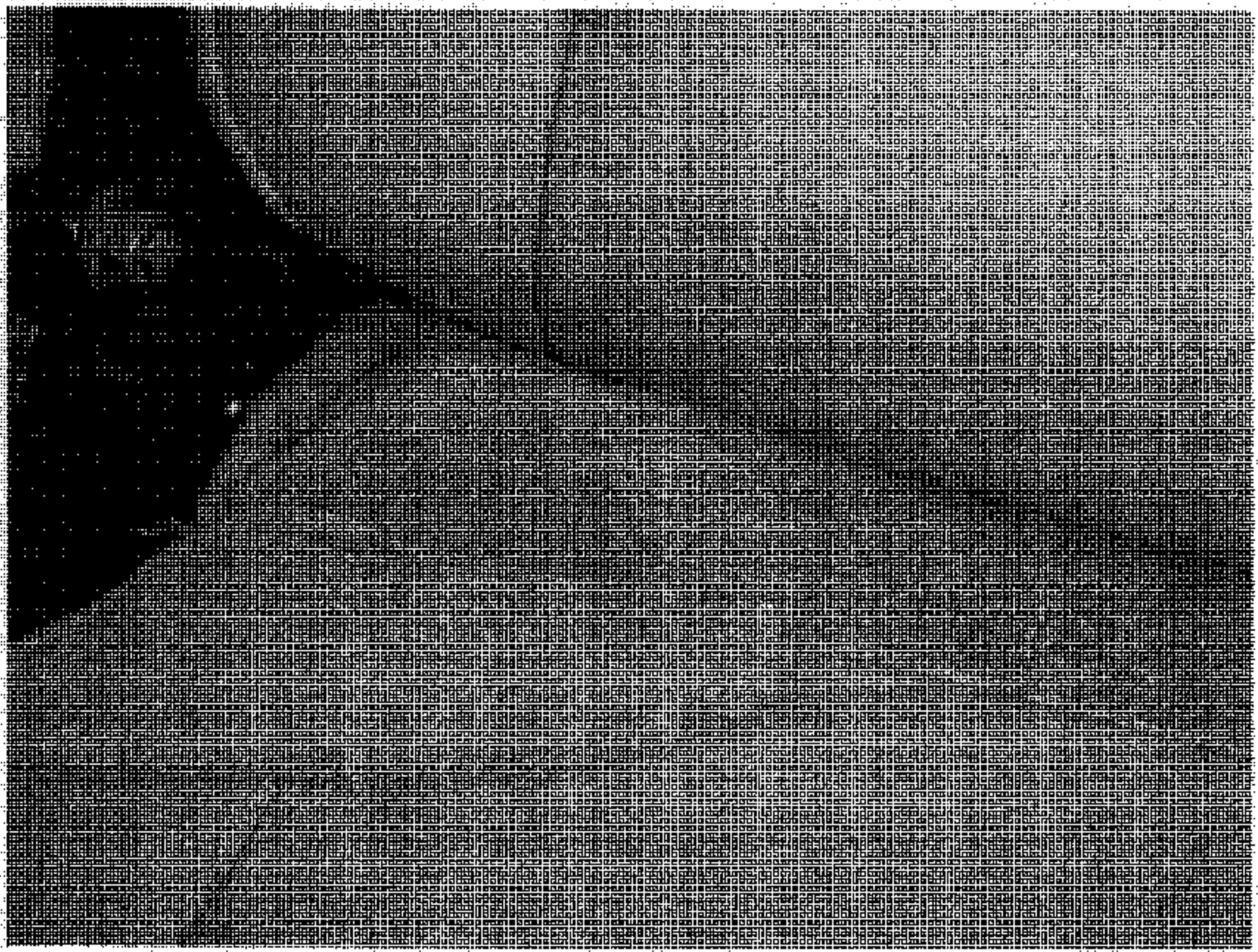

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FIGURE 5.17
PRE-TEST FRONT VIEW OF 2ND ROW RIGHT
OUTBOARD LOWER ANCHOR

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FIGURE 5.18
PRE-TEST FRONT VIEW OF 2ND ROW RIGHT
INBOARD LOWER ANCHOR

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FIGURE 5.19
PRE-TEST FRONT VIEW OF 3RD ROW LEFT
OUTBOARD LOWER ANCHOR

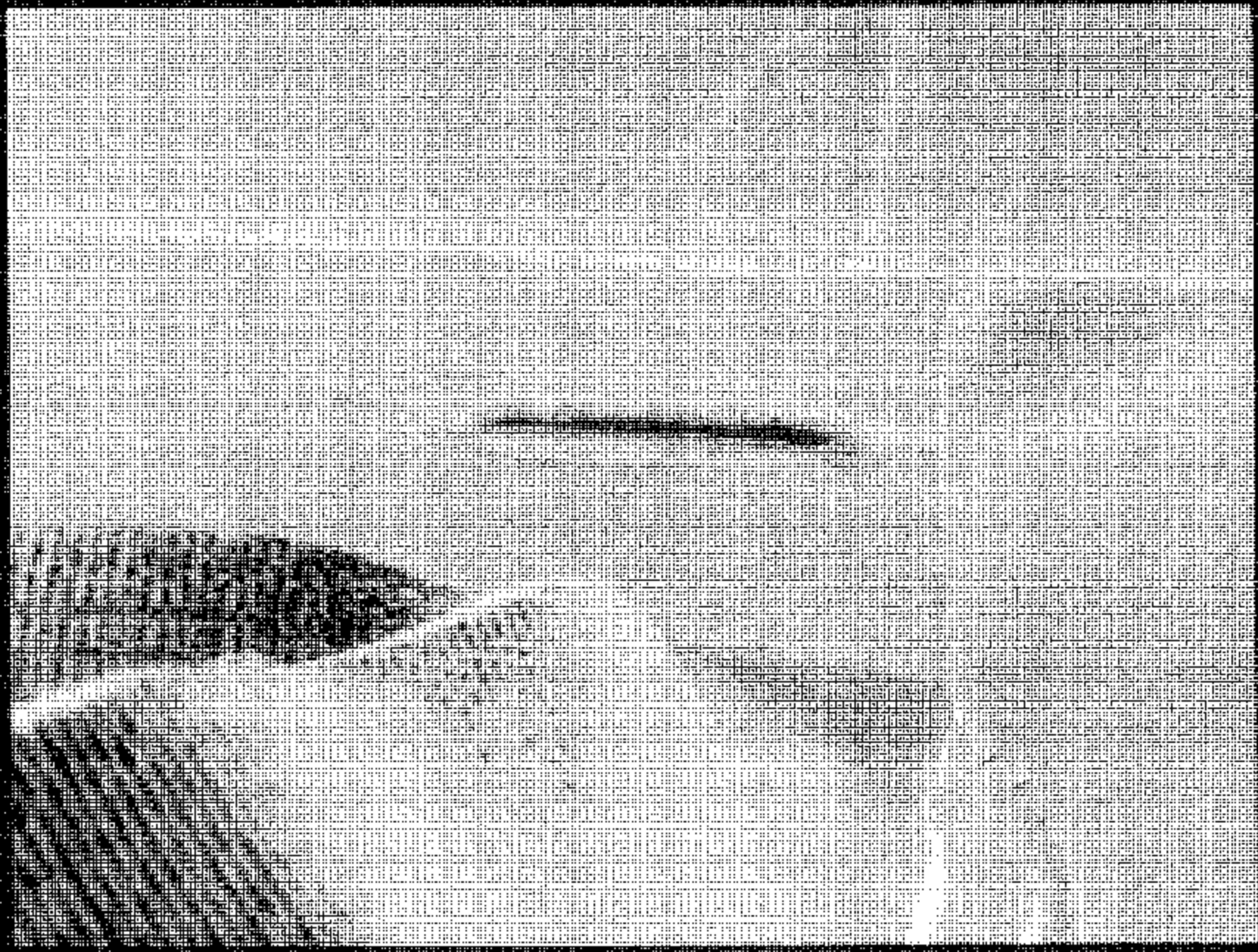

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FIGURE 5.20
PRE-TEST FRONT VIEW OF 3RD ROW LEFT
INBOARD LOWER ANCHOR

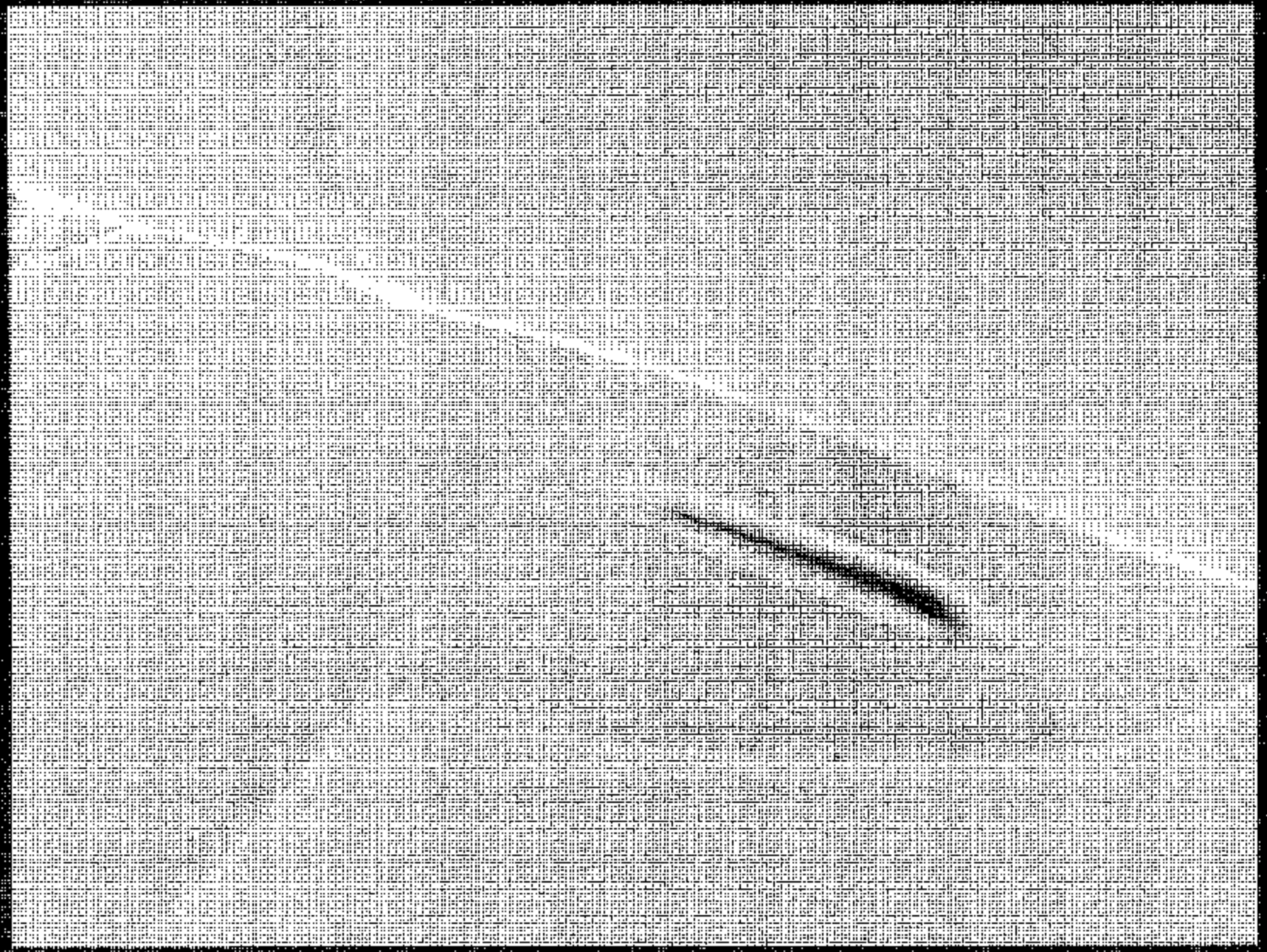

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FIGURE 5.21
PRE-TEST FRONT VIEW OF 3RD ROW RIGHT
OUTBOARD LOWER ANCHOR

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FIGURE 5.22
PRE-TEST FRONT VIEW OF 3RD ROW RIGHT
INBOARD LOWER ANCHOR

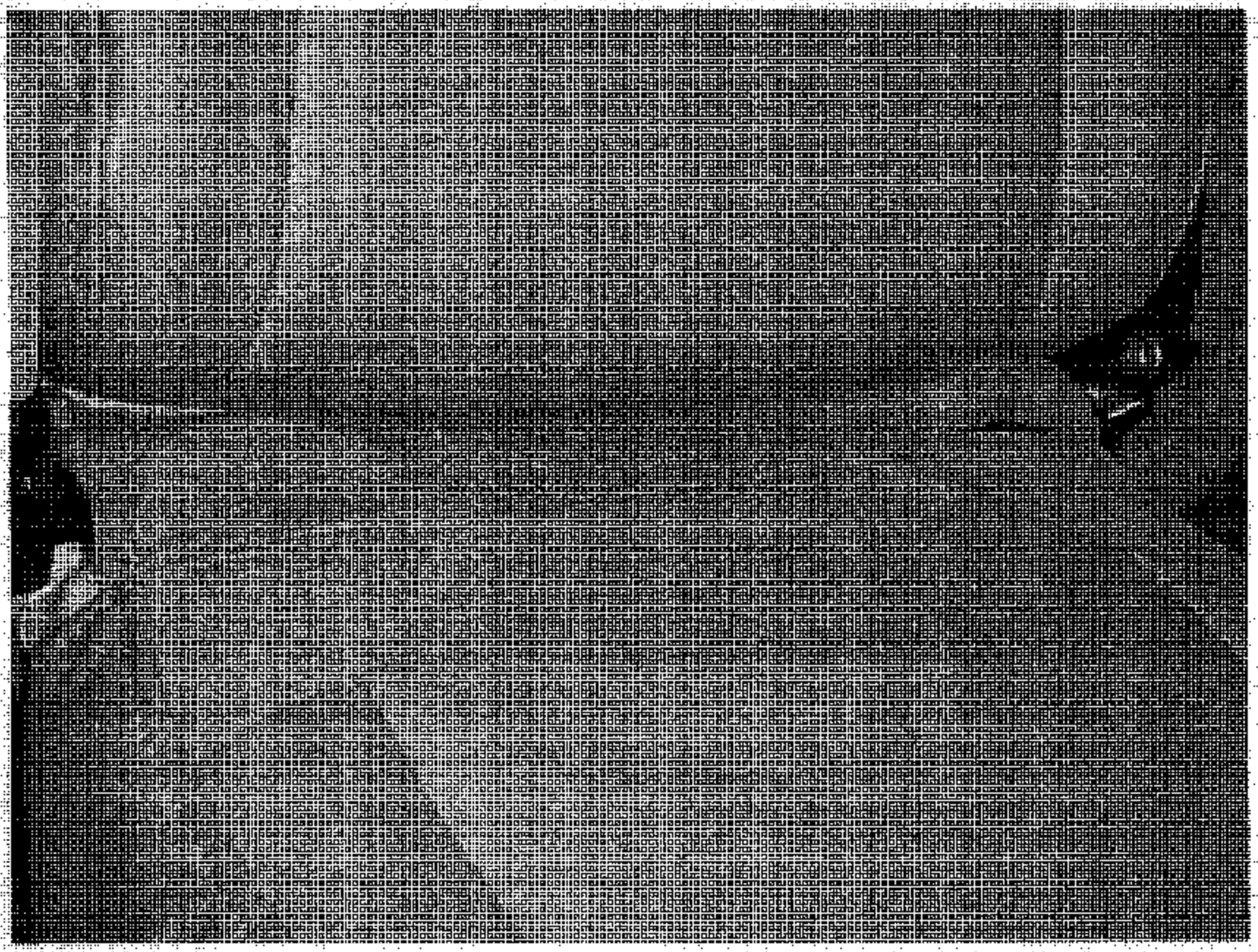

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FIGURE 5.23
PRE-TEST FRONT VIEW OF 2ND ROW RIGHT
SEAT COVER/ANCHORS

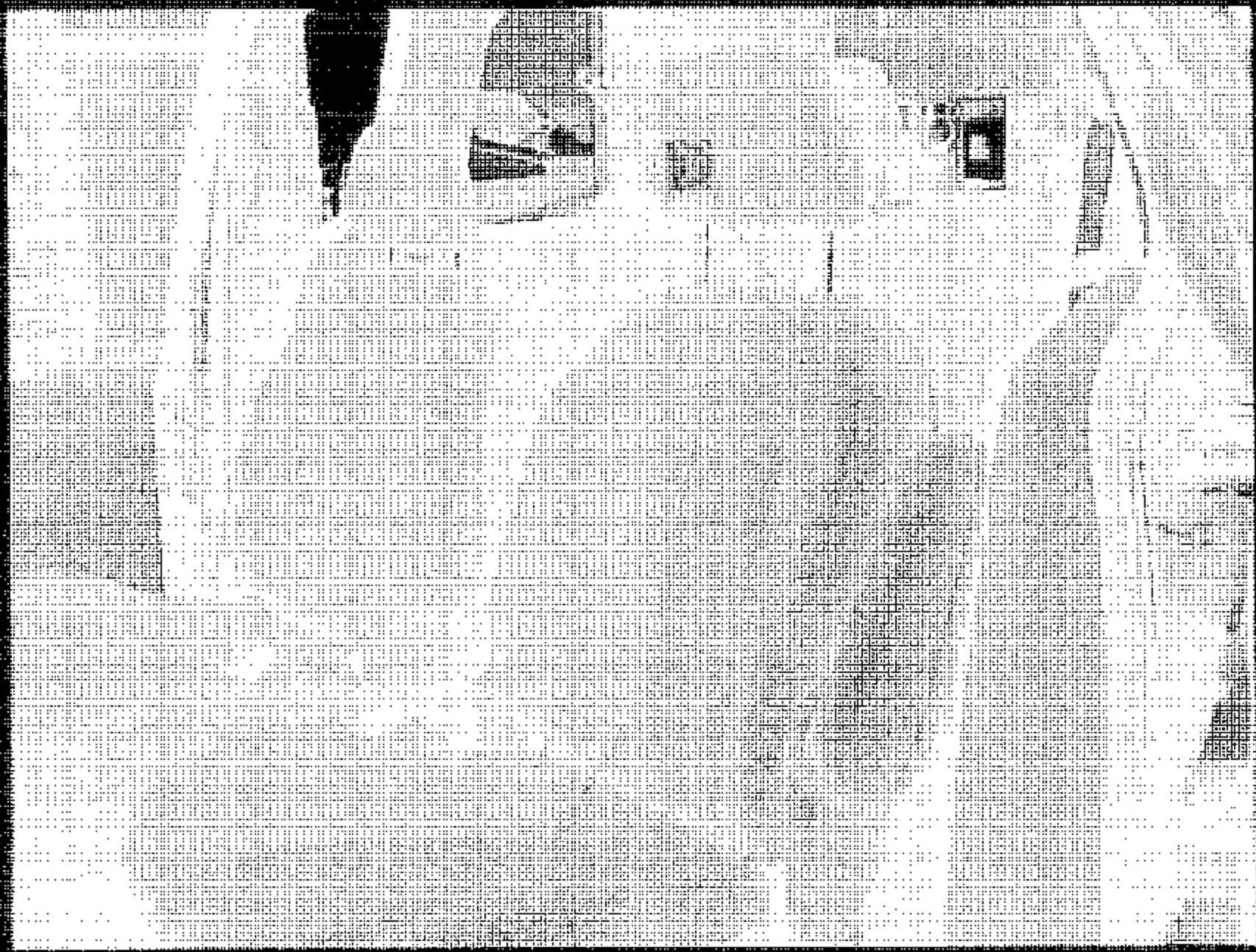

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FIGURE 5.24
VIEW OF 2D TEMPLATE IN 2ND ROW LEFT SEAT

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FIGURE 5.25
VIEW OF 2D TEMPLATE IN 2ND ROW RIGHT SEAT

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FIGURE 5.26
VIEW OF 2D TEMPLATE IN 3RD ROW LEFT SEAT

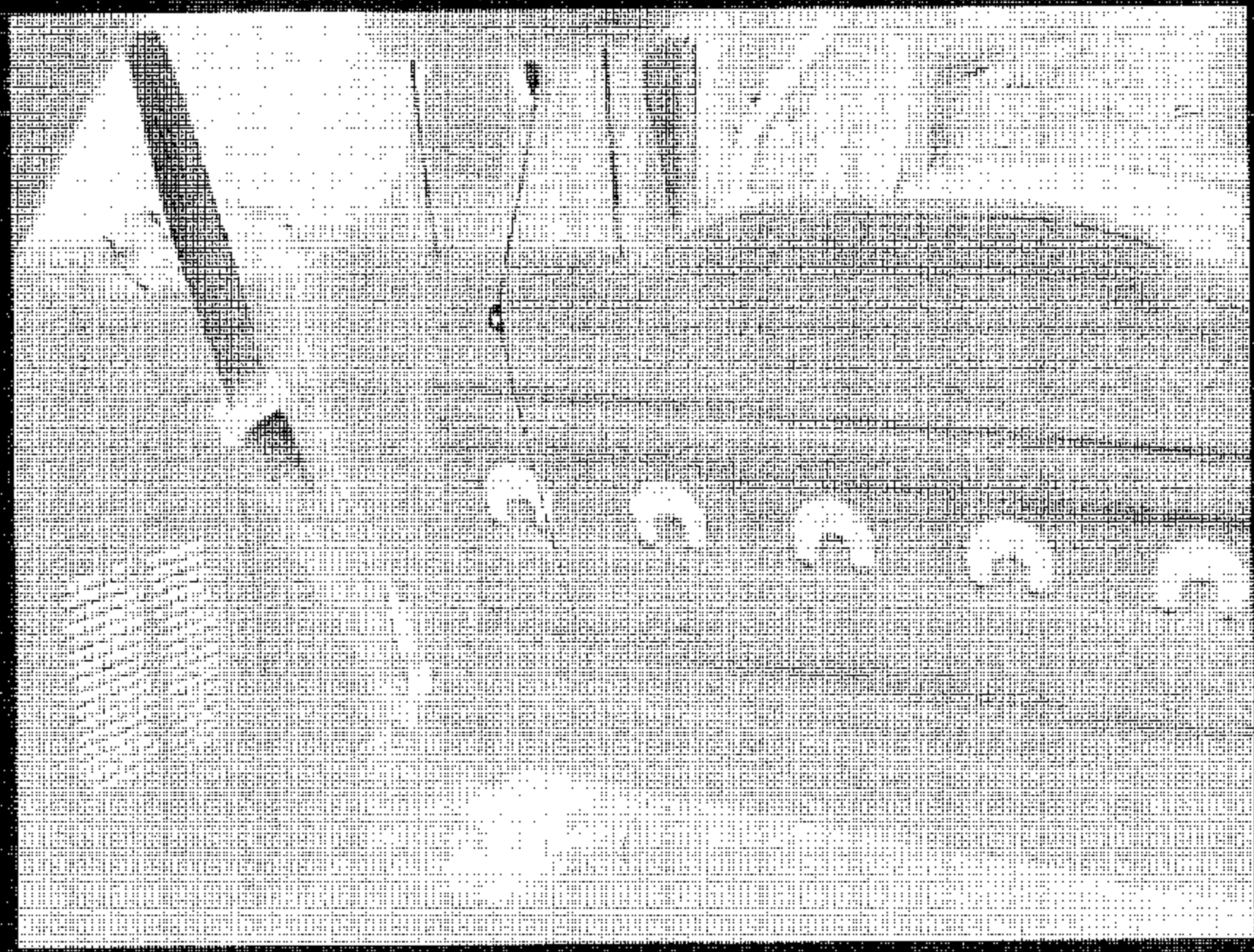

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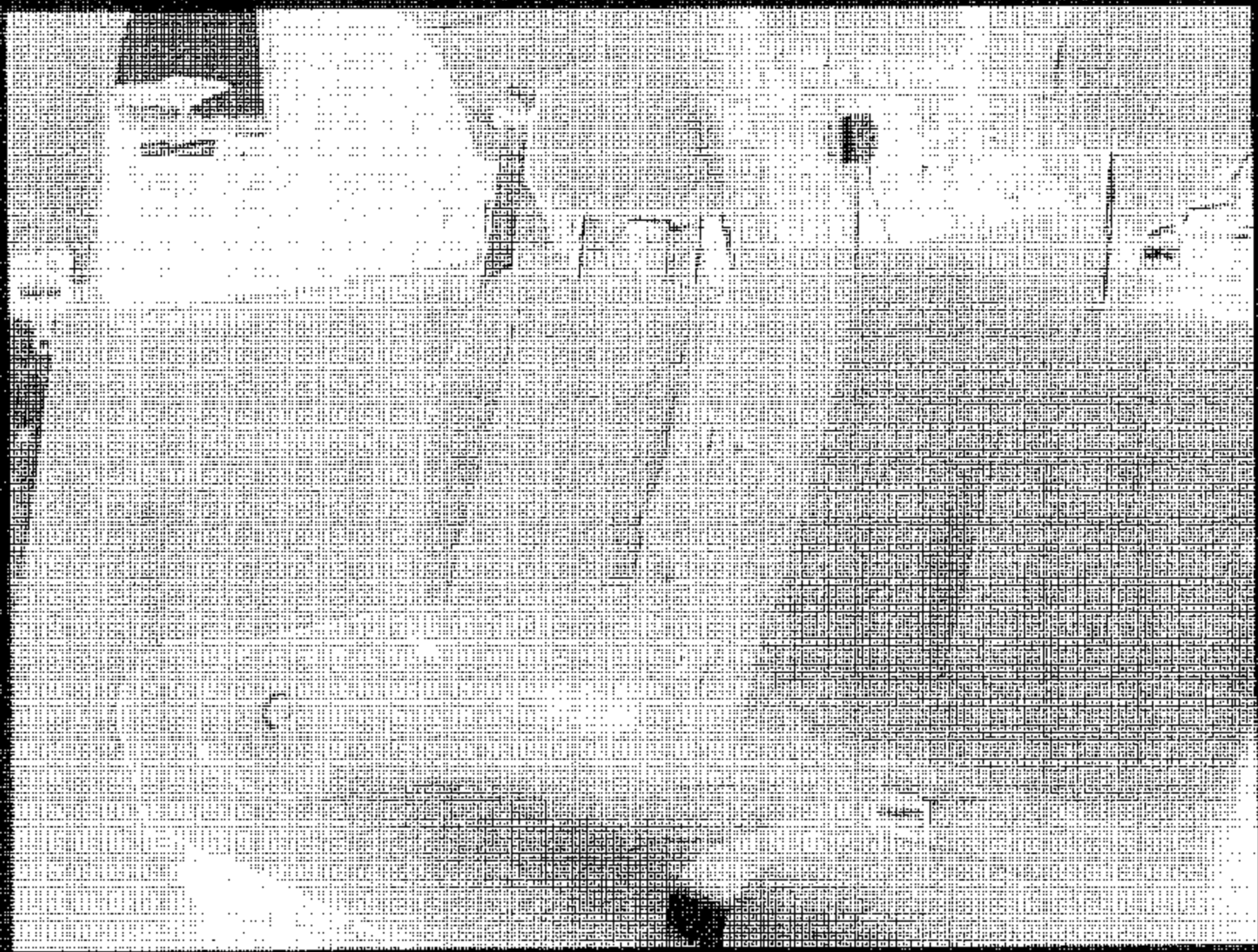
FIGURE 5.27
VIEW OF 2D TEMPLATE IN 3RD ROW LEFT SEAT



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FMVSS NO. 225

FIGURE 6.28
VIEW OF 2D TEMPLATE IN 3RD ROW CENTER SEAT

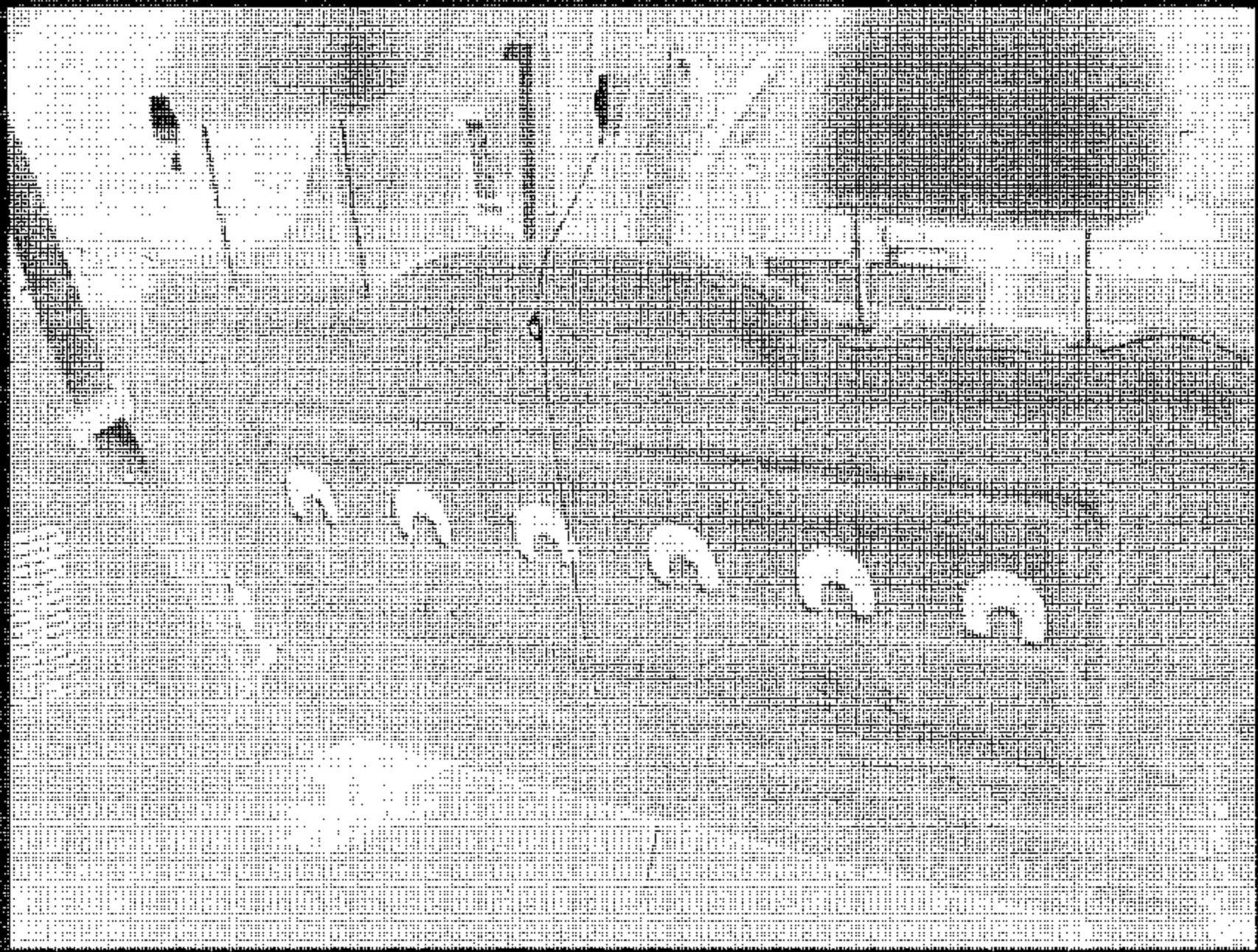

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FIGURE 5.29
VIEW OF 2D TEMPLATE IN 3RD ROW CENTER SEAT

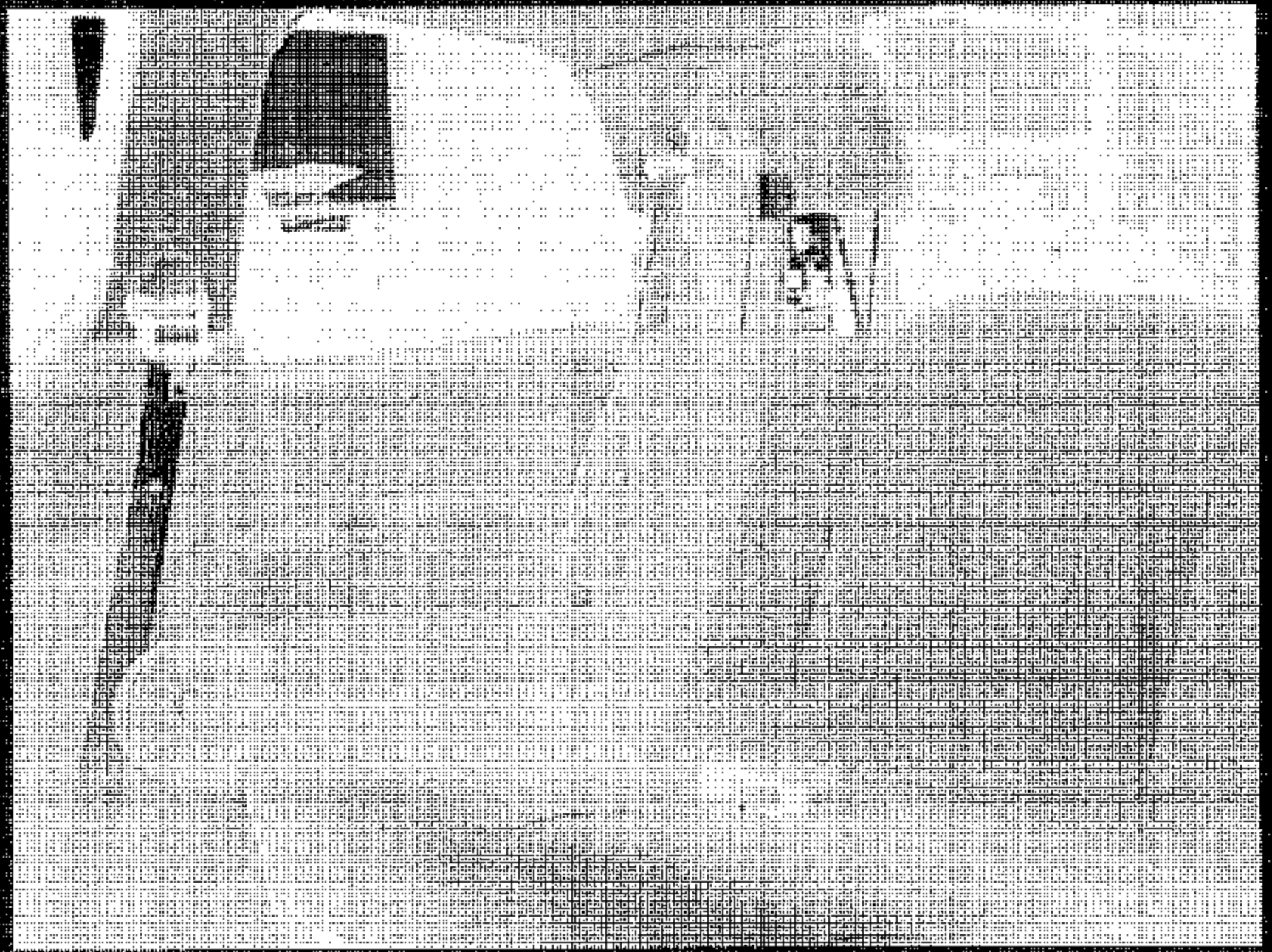

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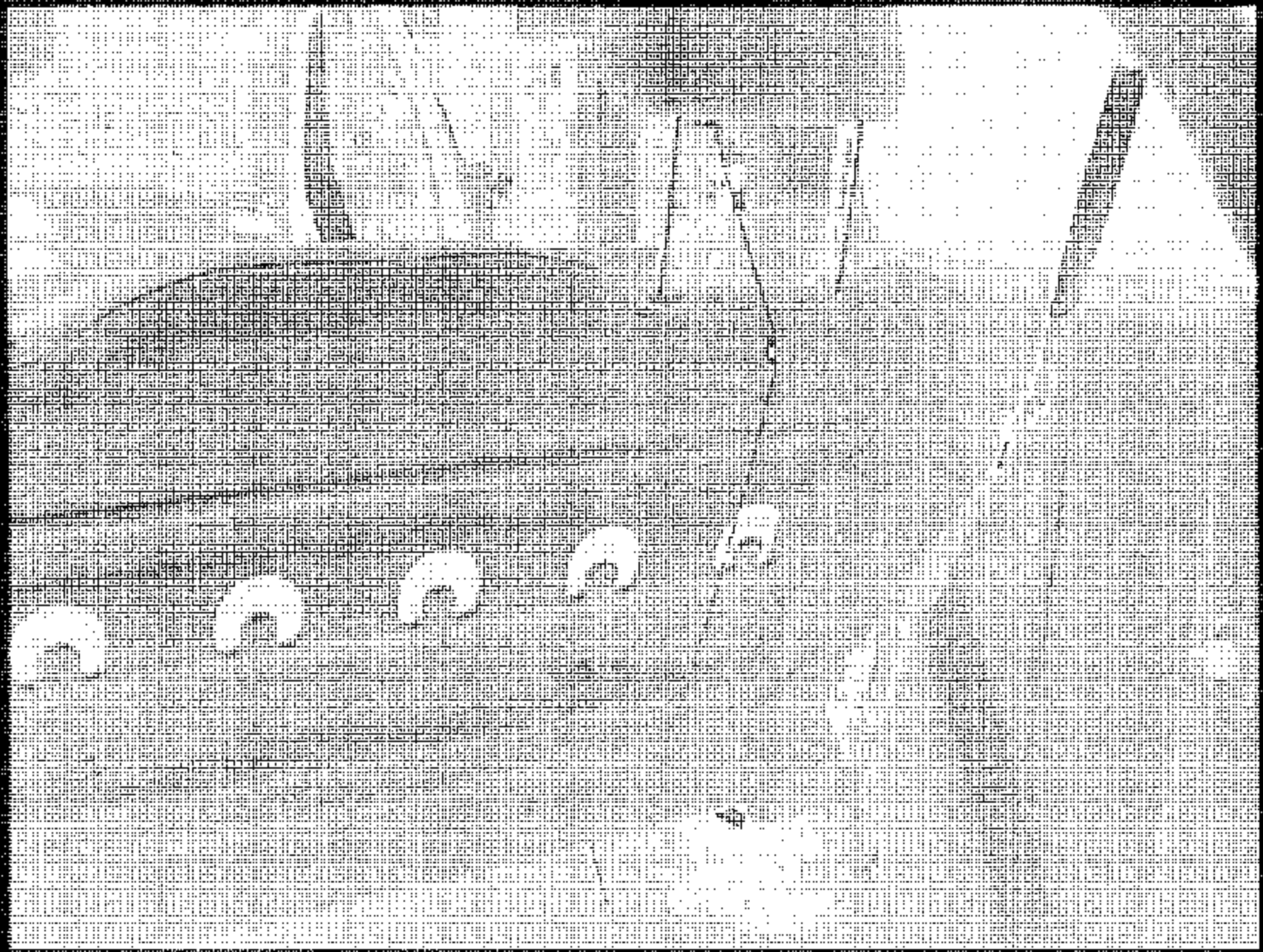
FIGURE 6.30
VIEW OF 2D TEMPLATE IN 3RD ROW RIGHT SEAT



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FMVSS NO. 225

FIGURE 5.31
VIEW OF 2D TEMPLATE IN 3RD ROW RIGHT SEAT

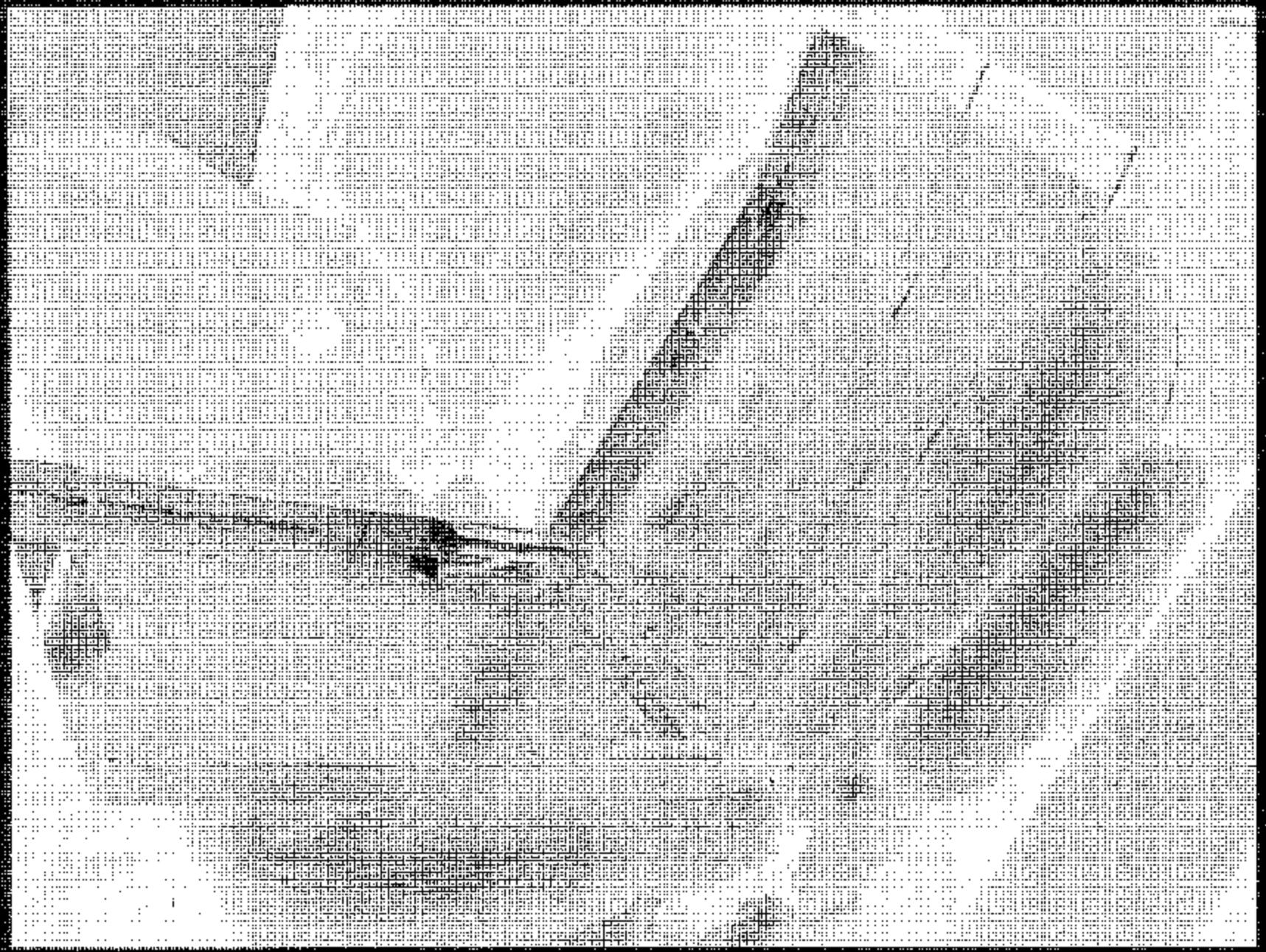

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FIGURE 5.32
VIEW OF CRF IN 2ND ROW LEFT SEAT

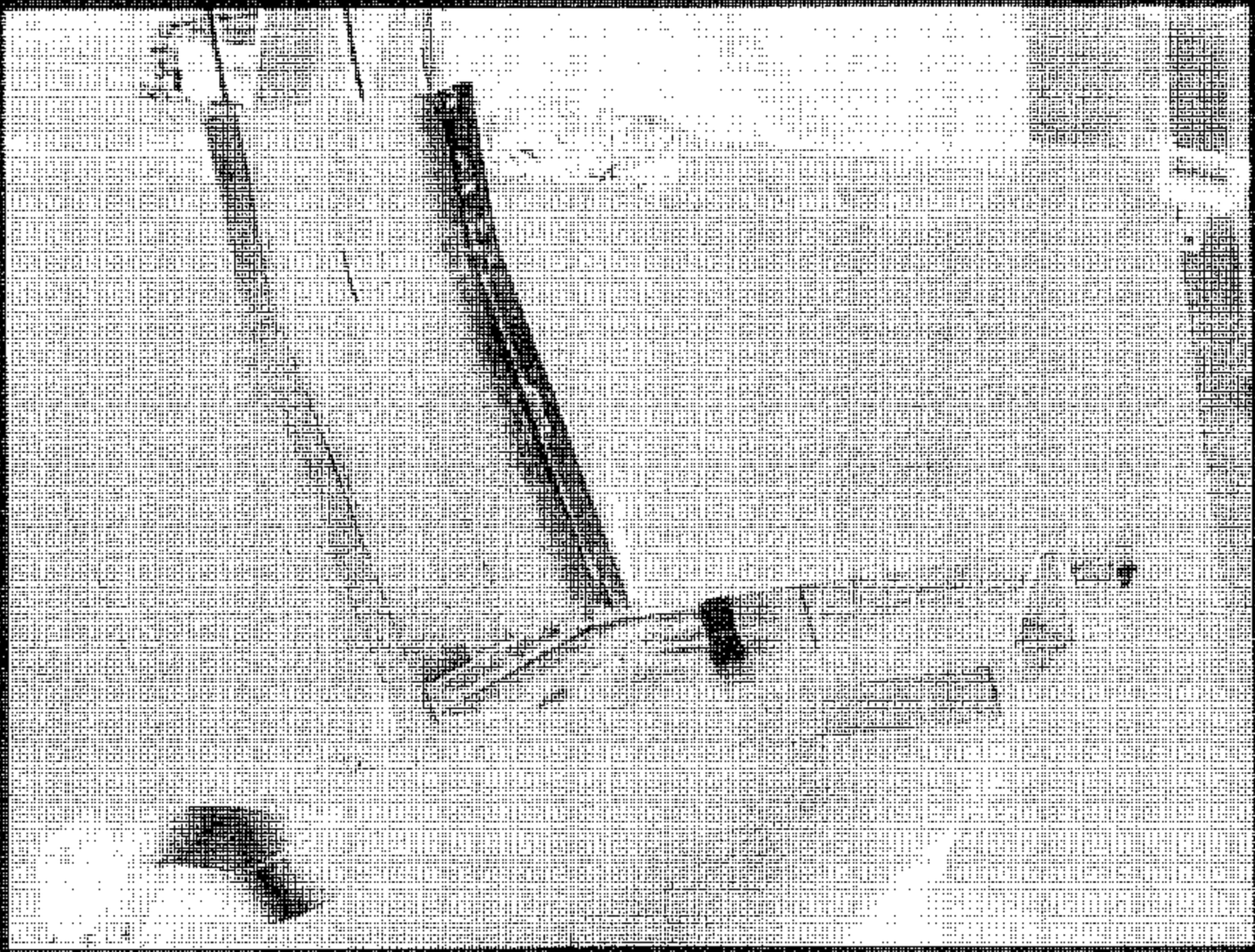

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FIGURE 5.33
VIEW OF CRF IN 3RD ROW LEFT SEAT

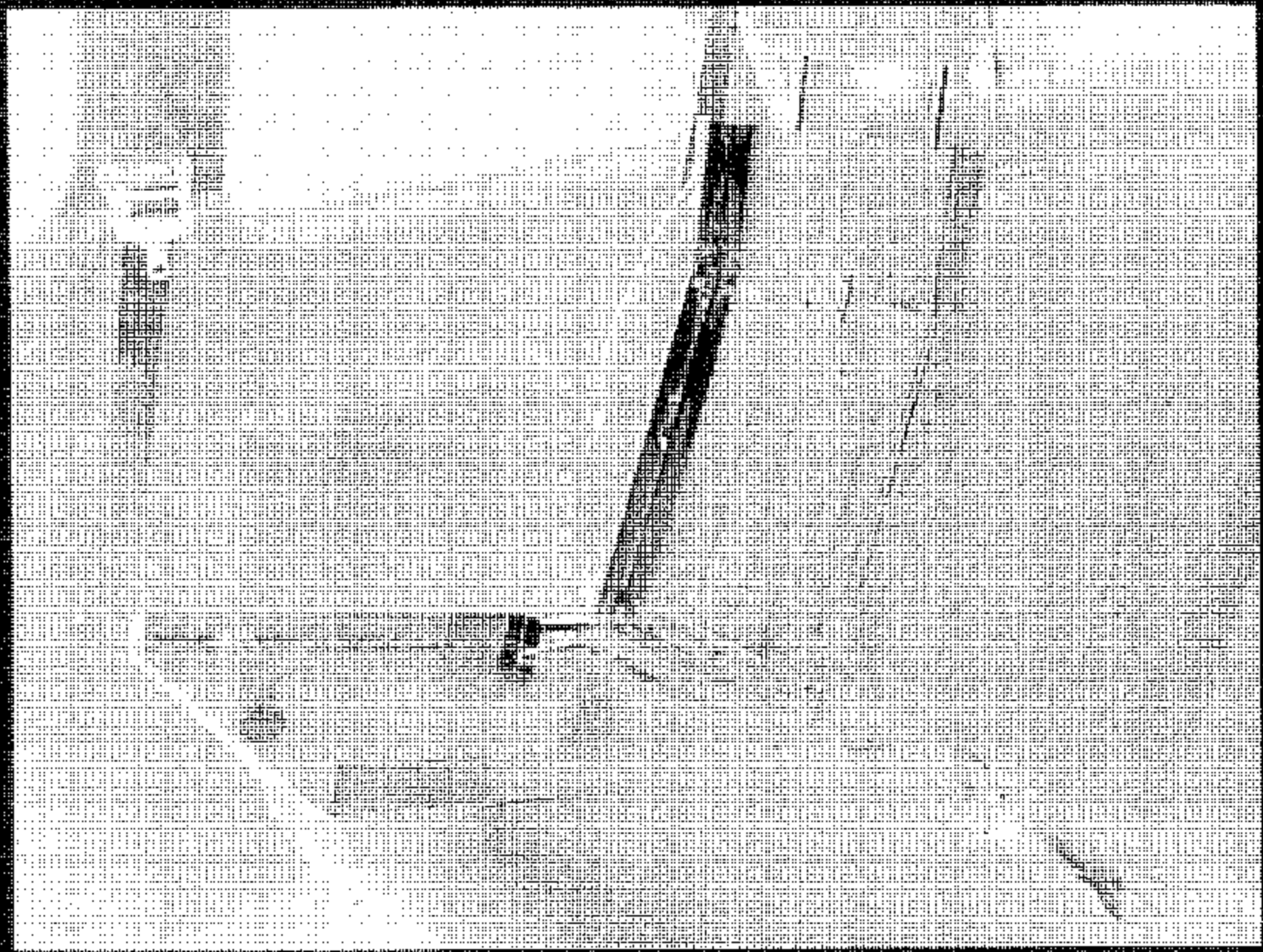

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FIGURE 5.34
VIEW OF CRF IN 3RD ROW RIGHT SEAT

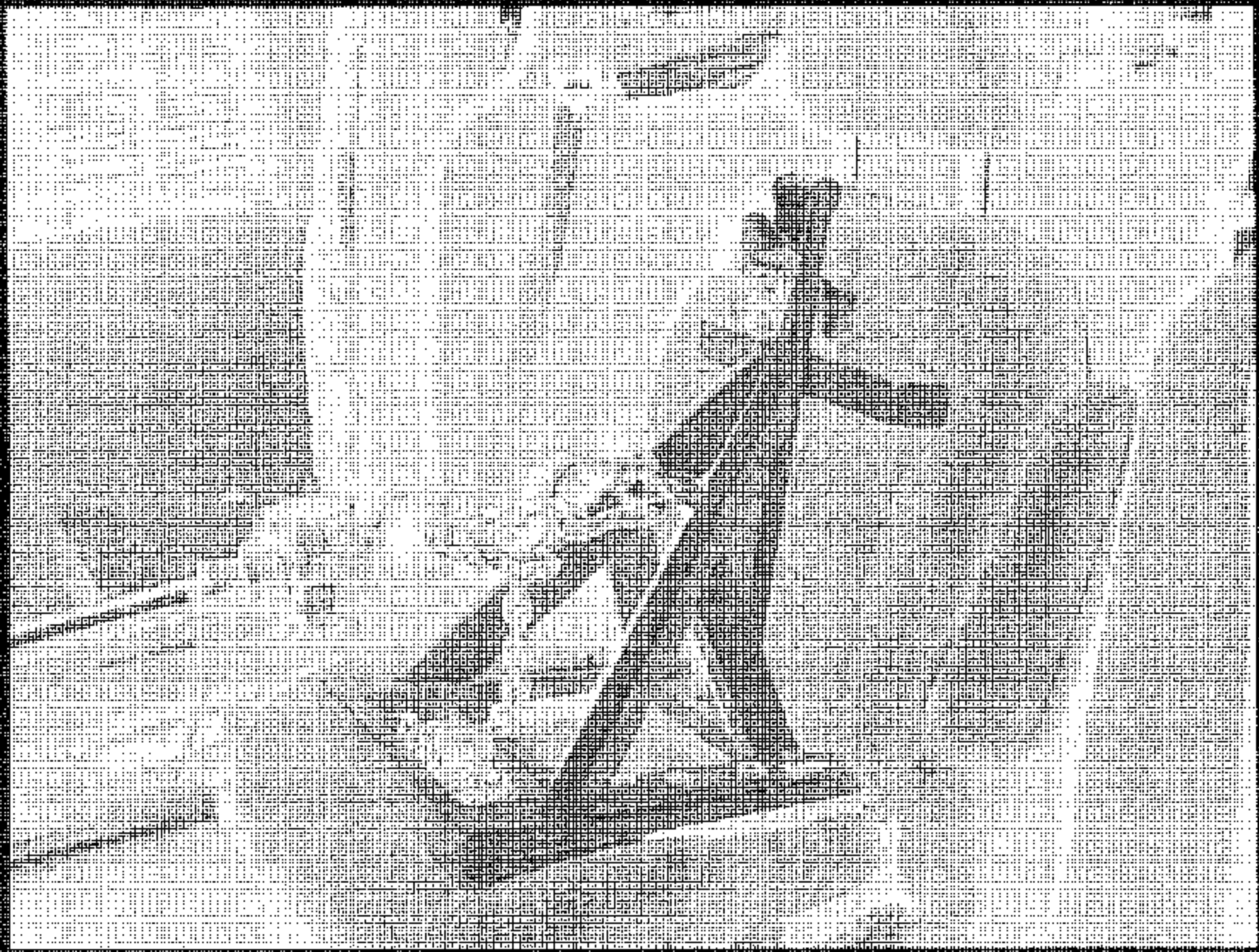

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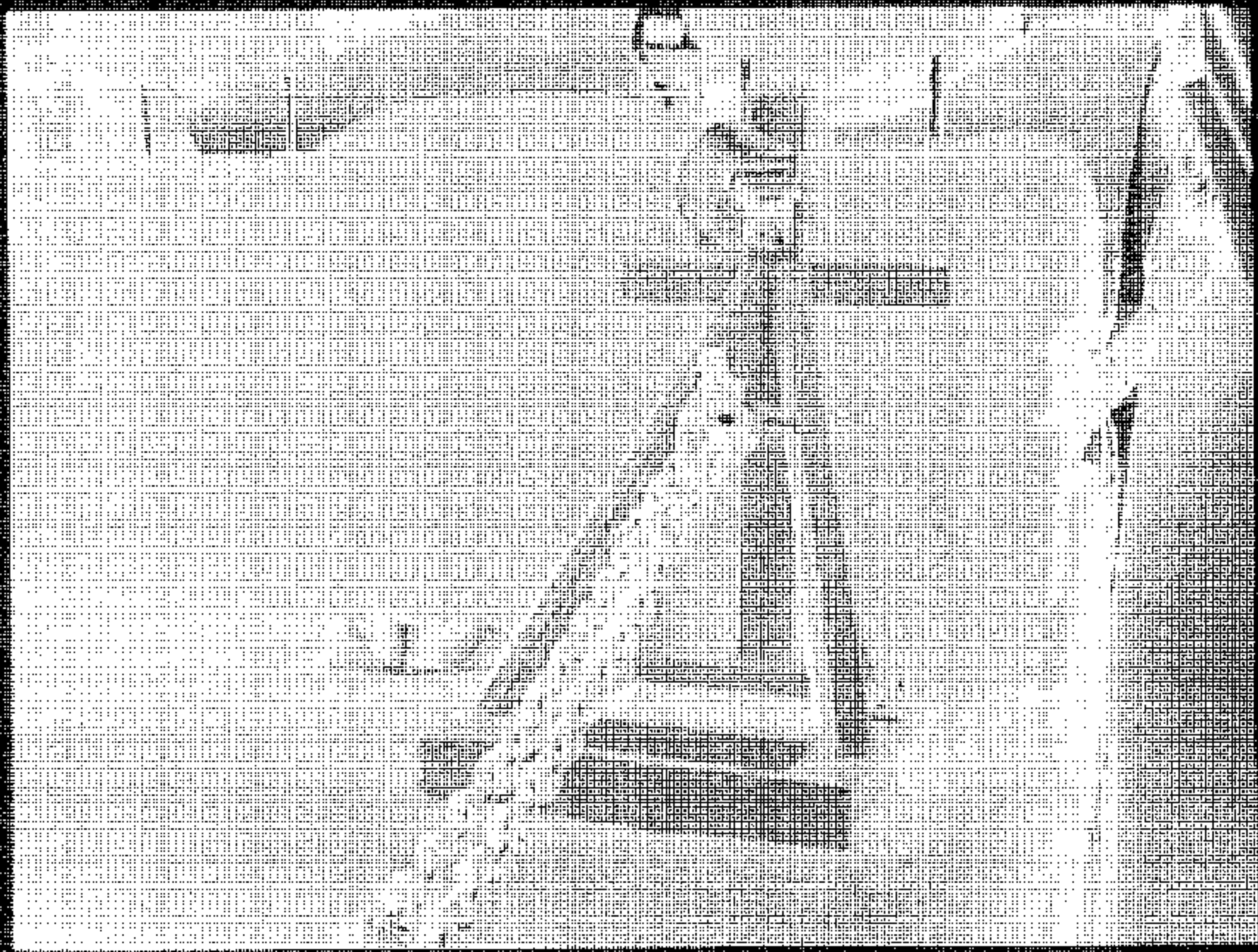
FIGURE 5.35
PRE-TEST SET-UP 2ND ROW LEFT POSITION



2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.36
PRE-TEST SET-UP 3RD ROW LEFT POSITION

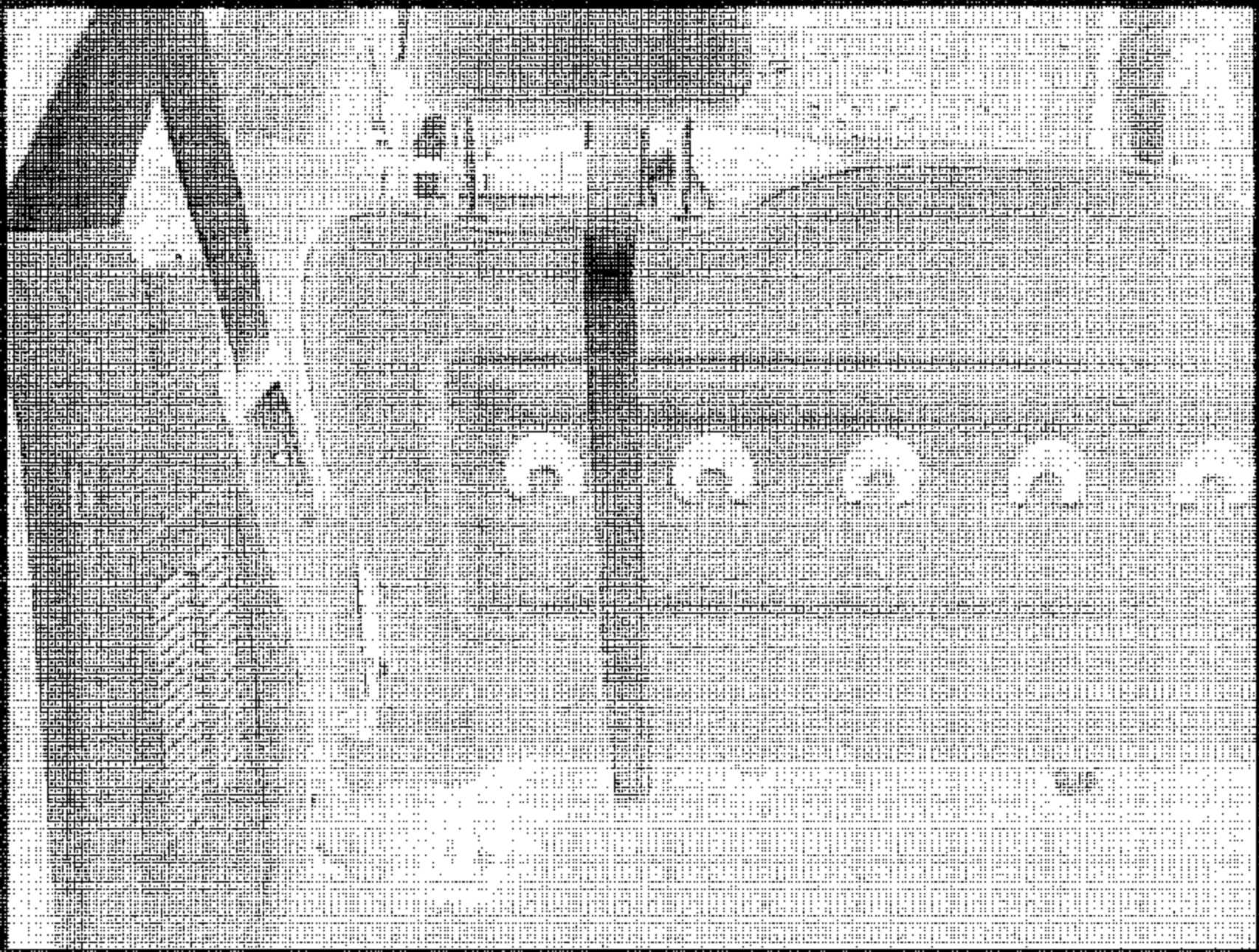


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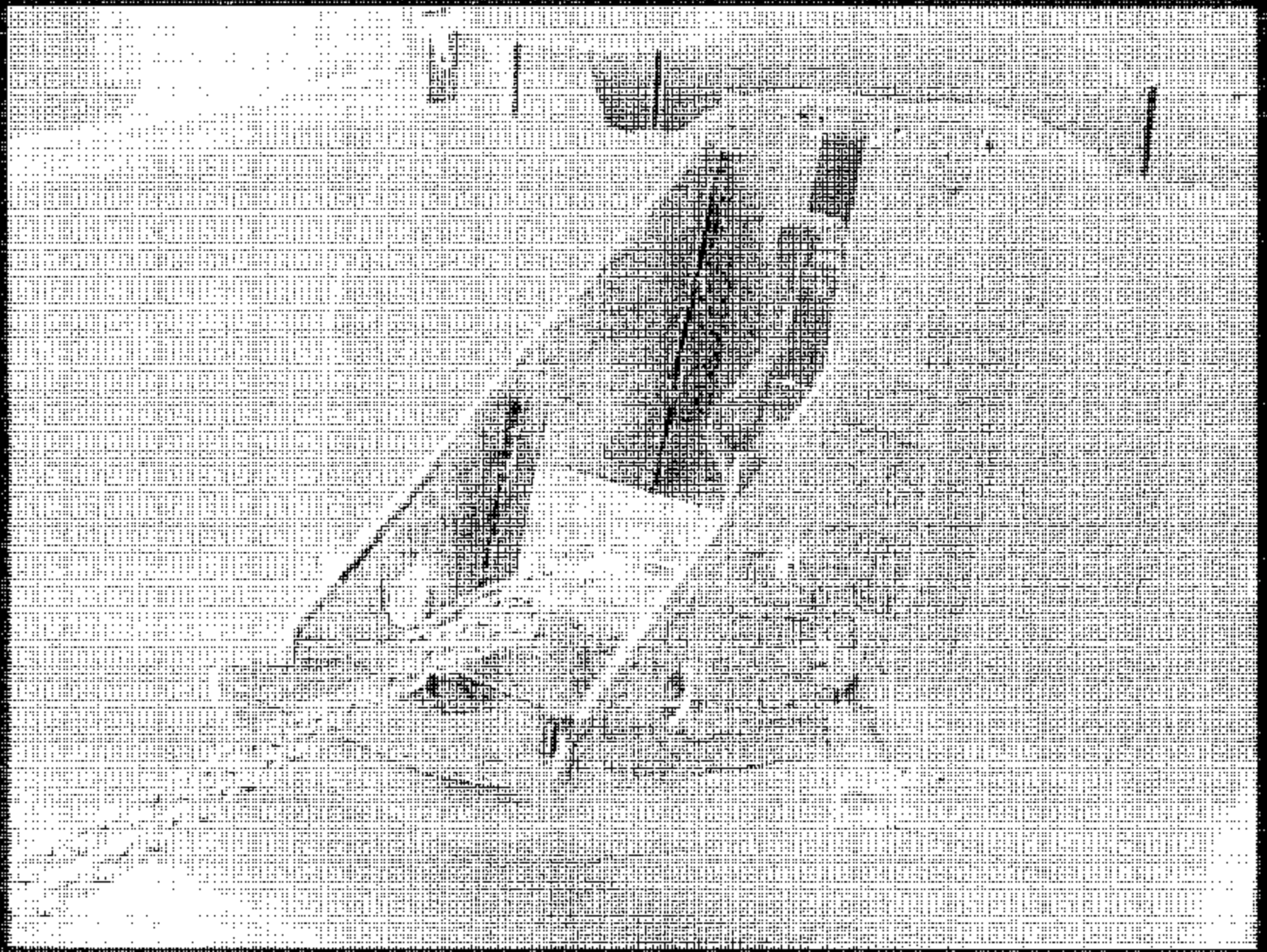
FIGURE 5.37
PRE-TEST SET-UP 3RD ROW LEFT POSITION



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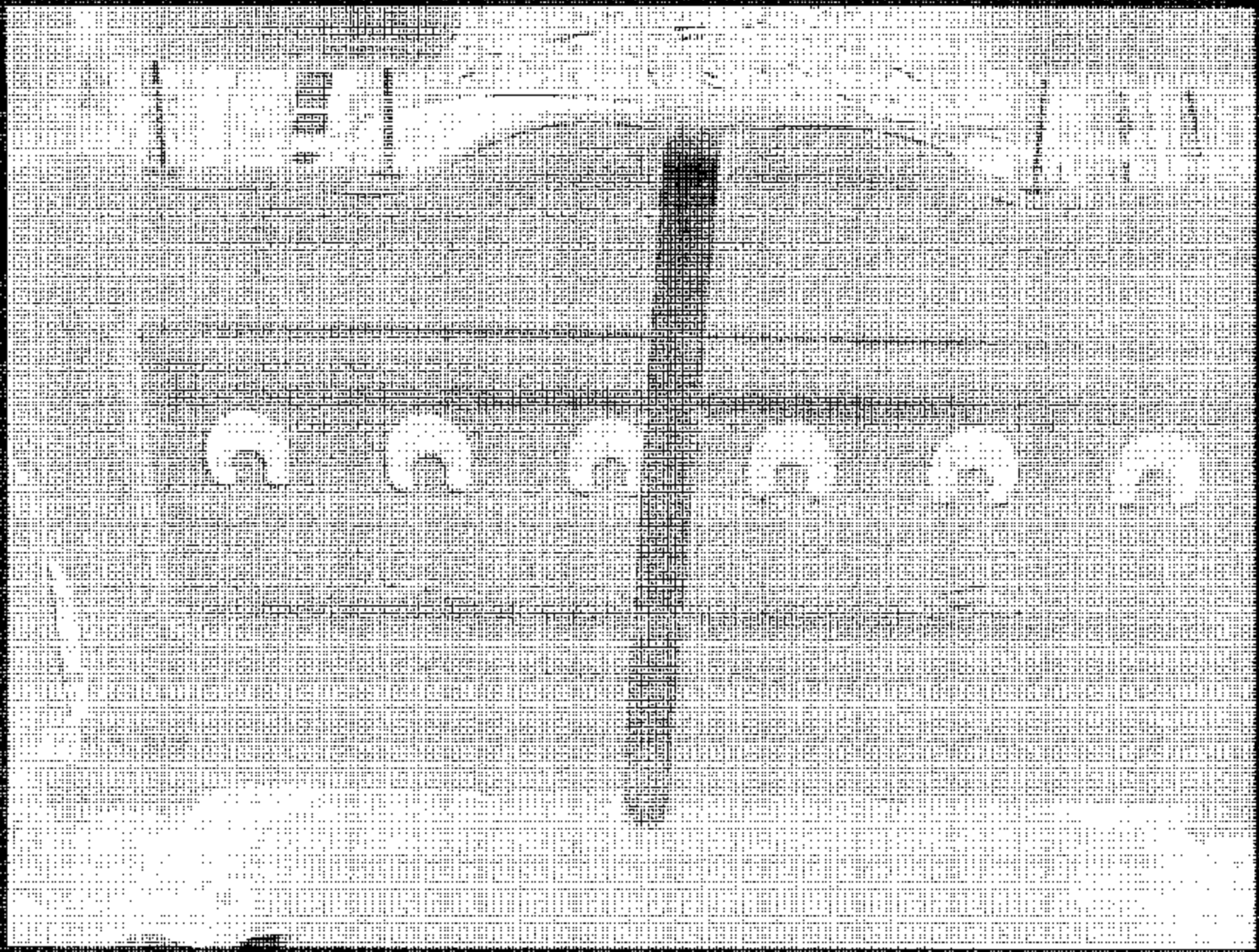
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.36
PRE-TEST SET-UP 3RD ROW CENTER POSITION



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NHTSA NO. C30208
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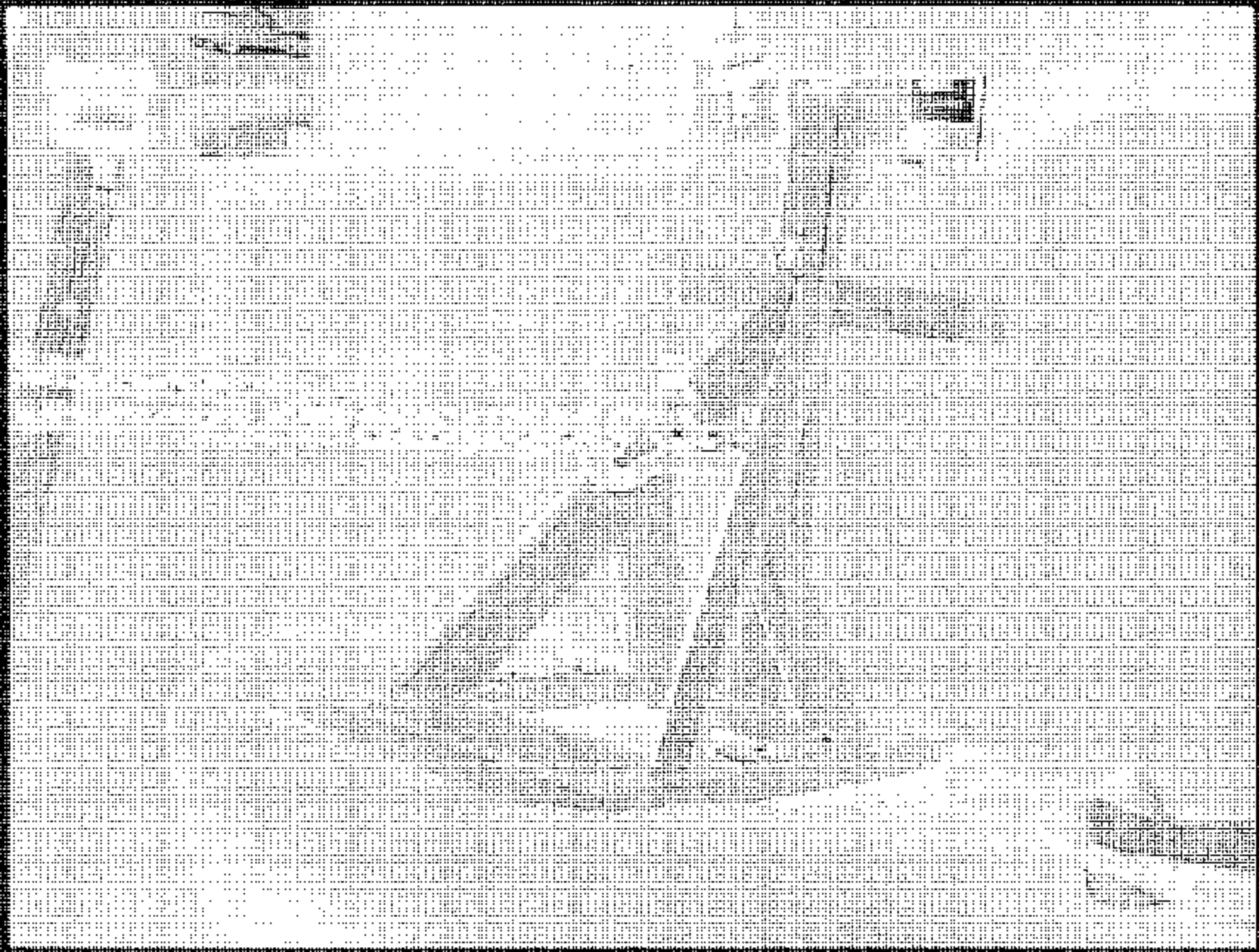
FIGURE 5.39
PRE-TEST SET-UP 3RD ROW CENTER POSITION



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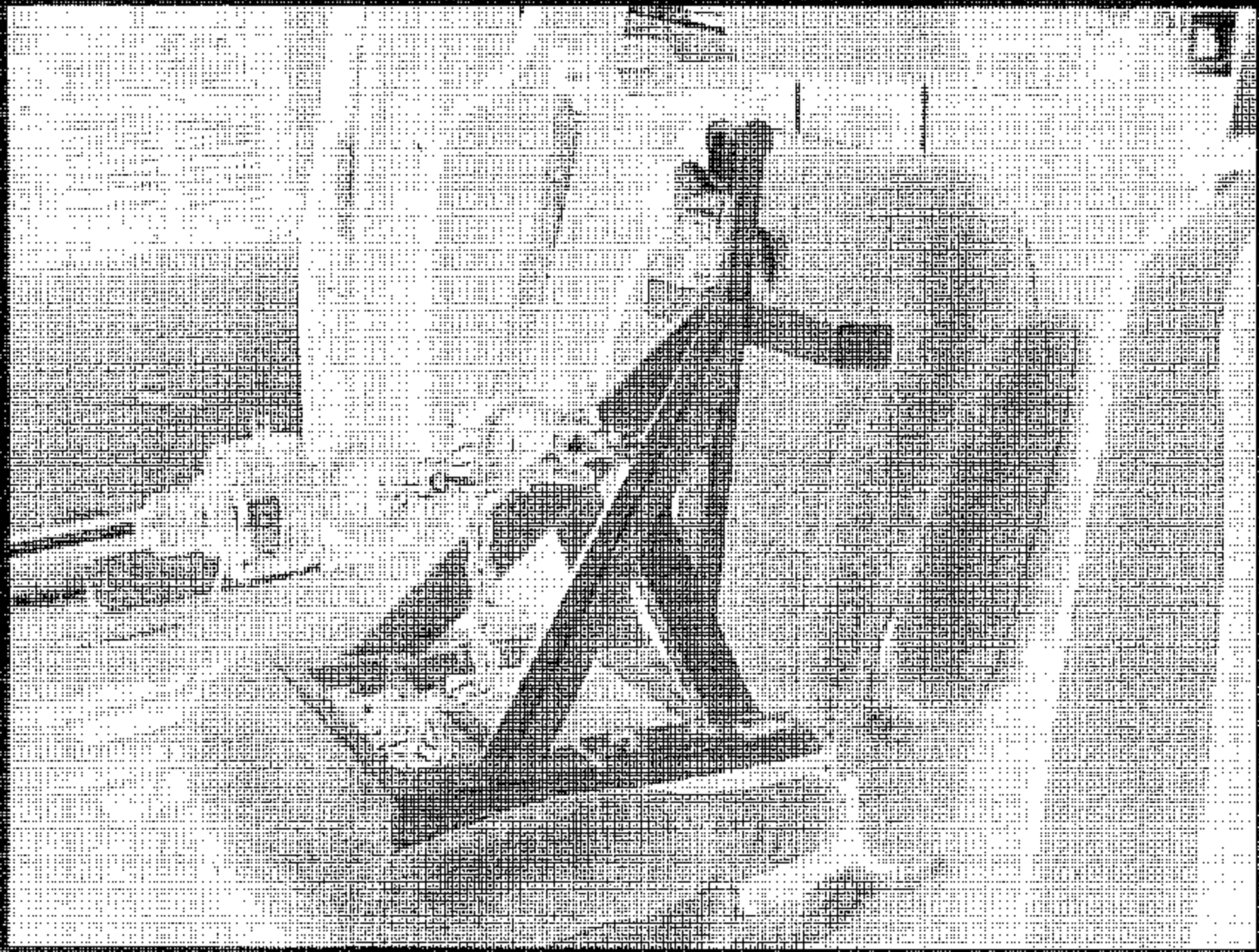
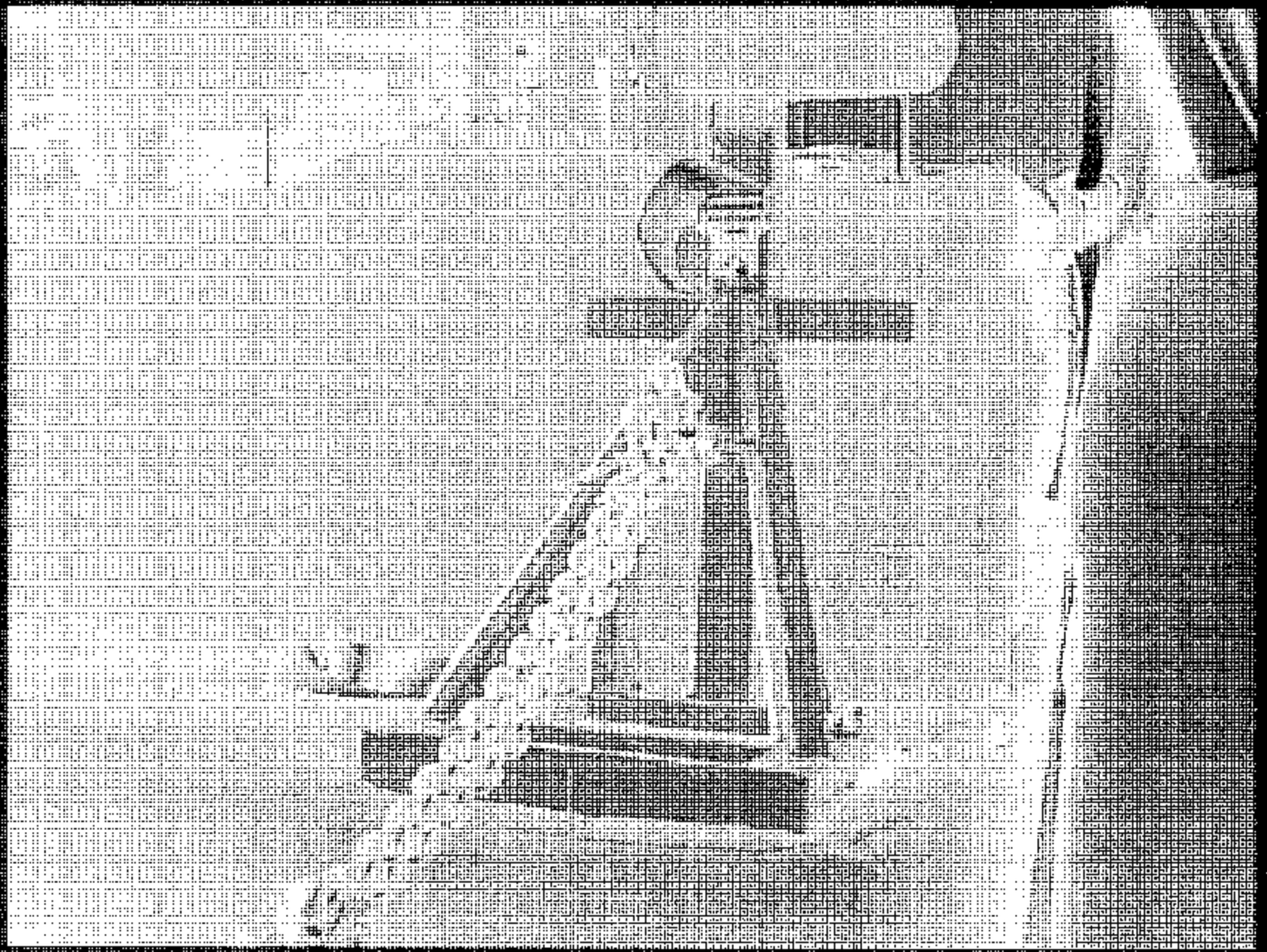
NHTSA NO. C30206
FMVSS NO. 225

FIGURE 6.40
PRE-TEST SET-UP 3RD ROW RIGHT POSITION



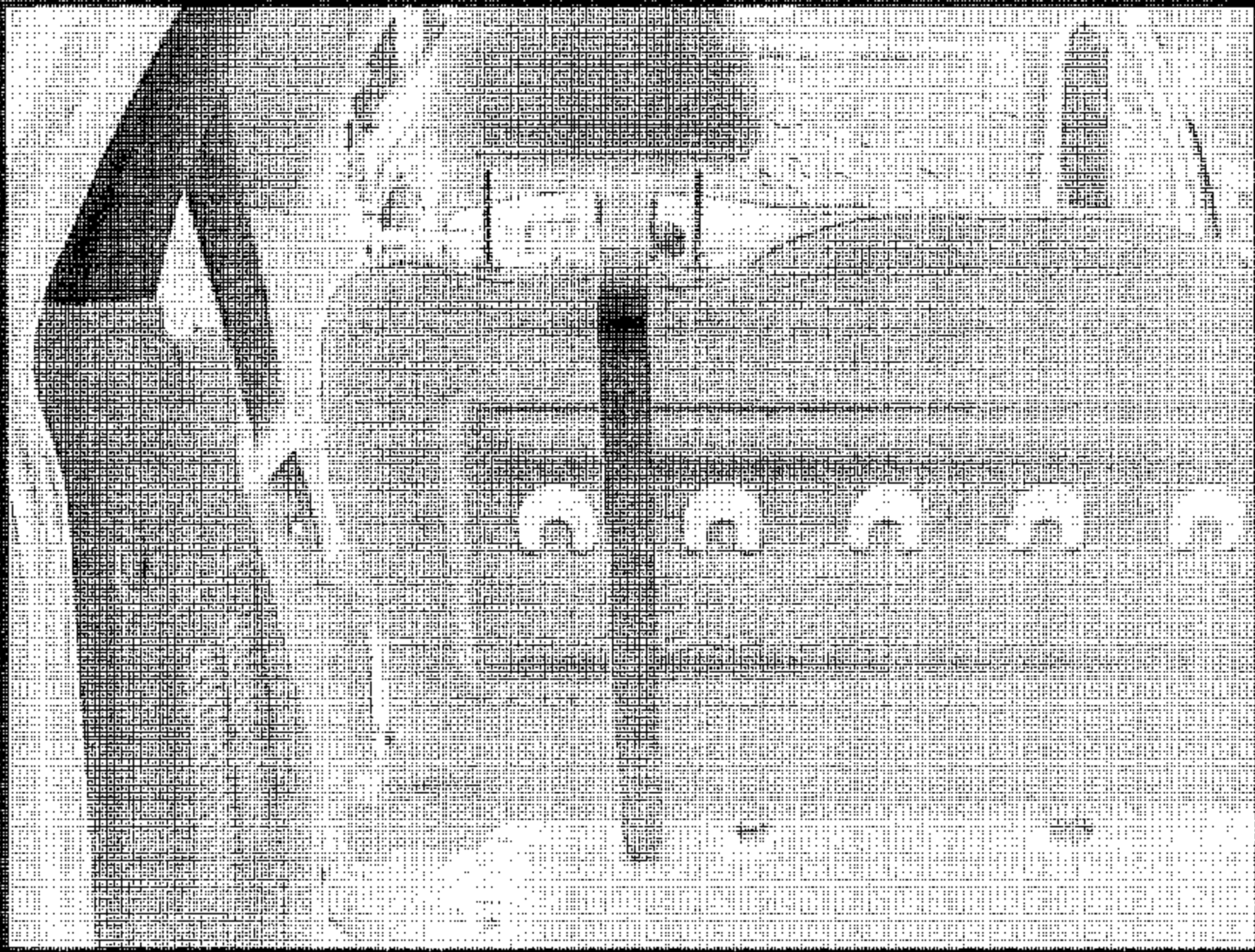
2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.41
POST TEST 2ND ROW LEFT POSITION



2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 226

FIGURE 5.42
POST TEST 3RD ROW LEFT POSITION



2003 FORD WINDSTAR
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 6.43
POST TEST 3RD ROW RIGHT POSITION

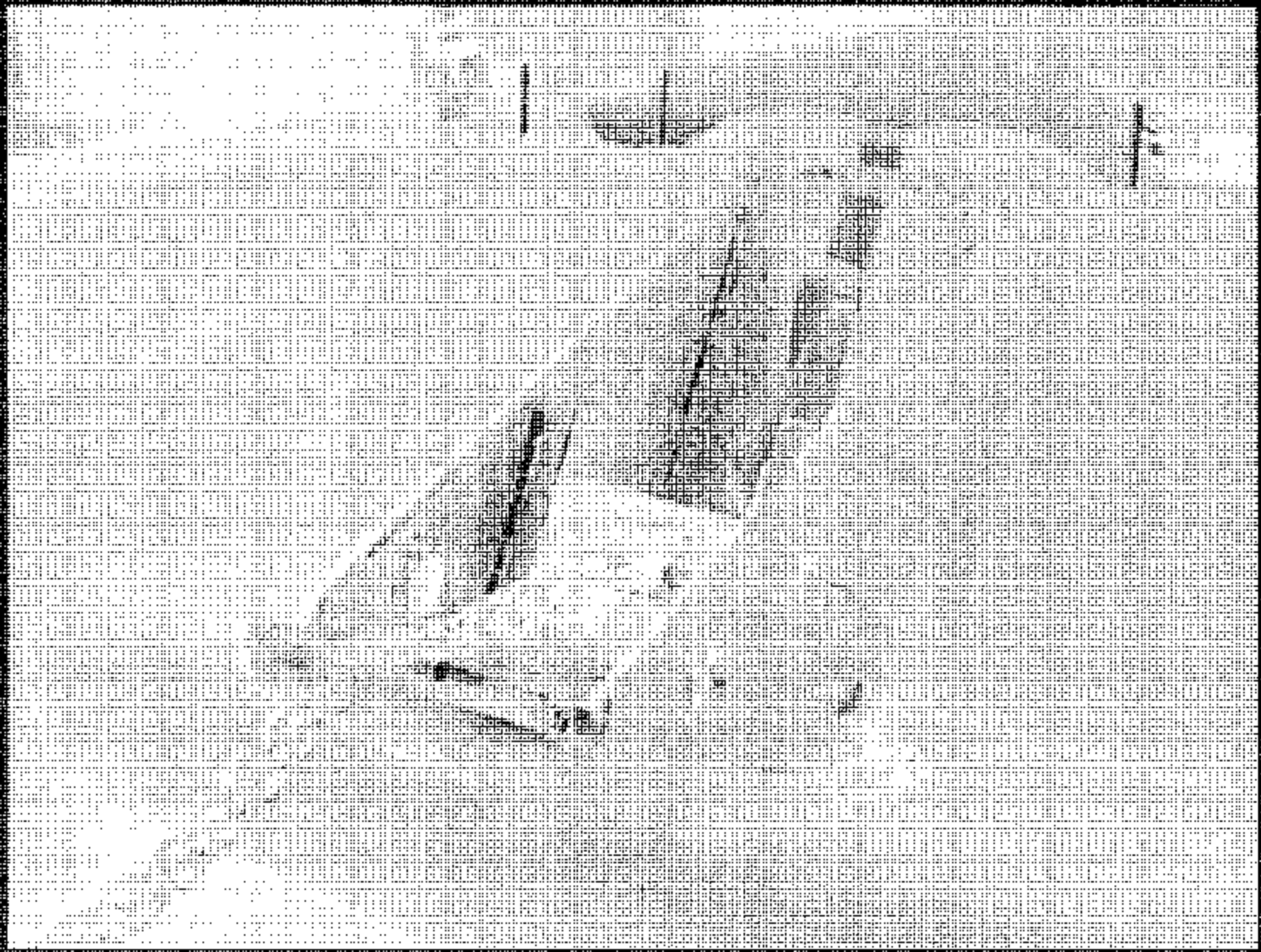


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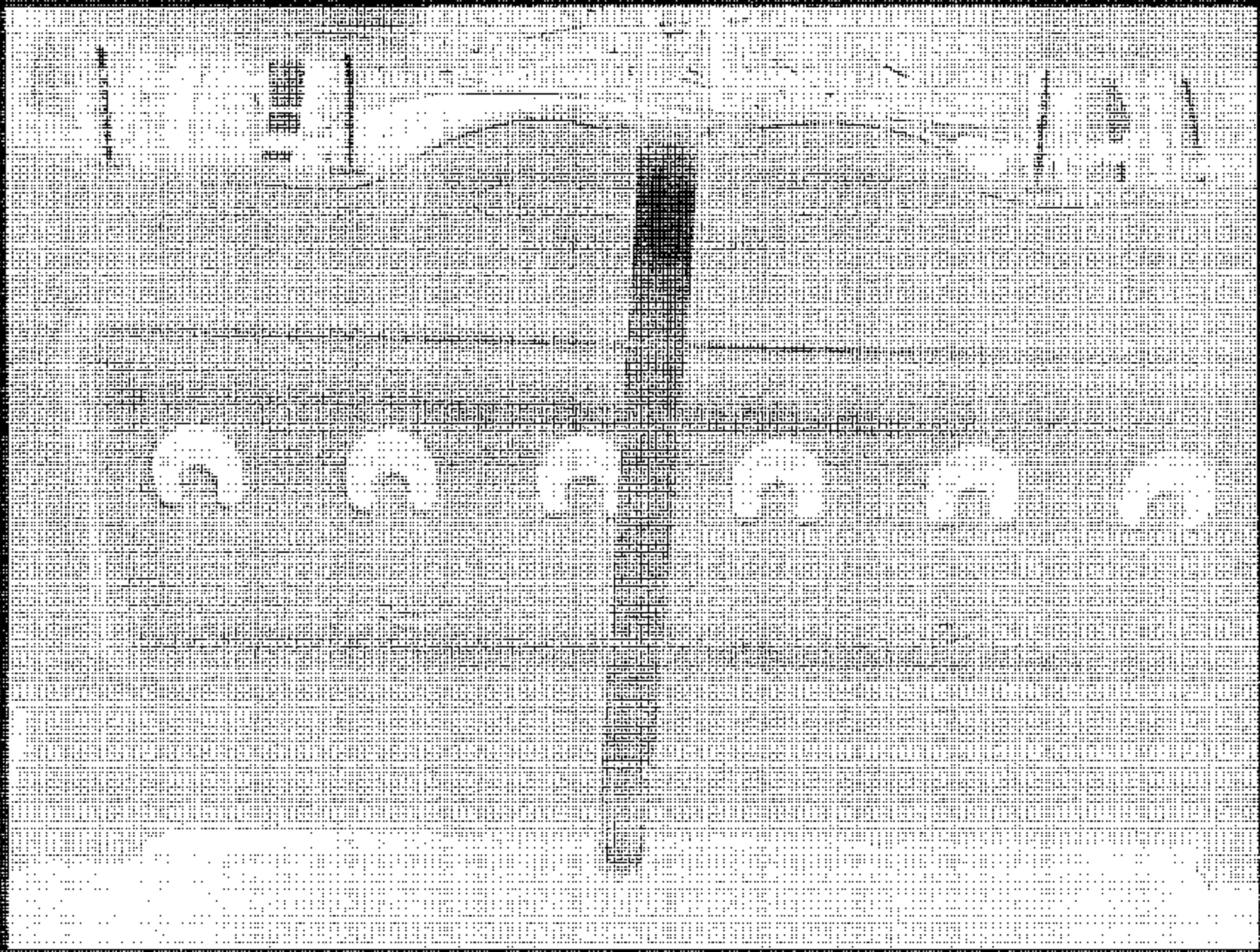
FIGURE 5.44
POST TEST 3RD ROW CENTER POSITION



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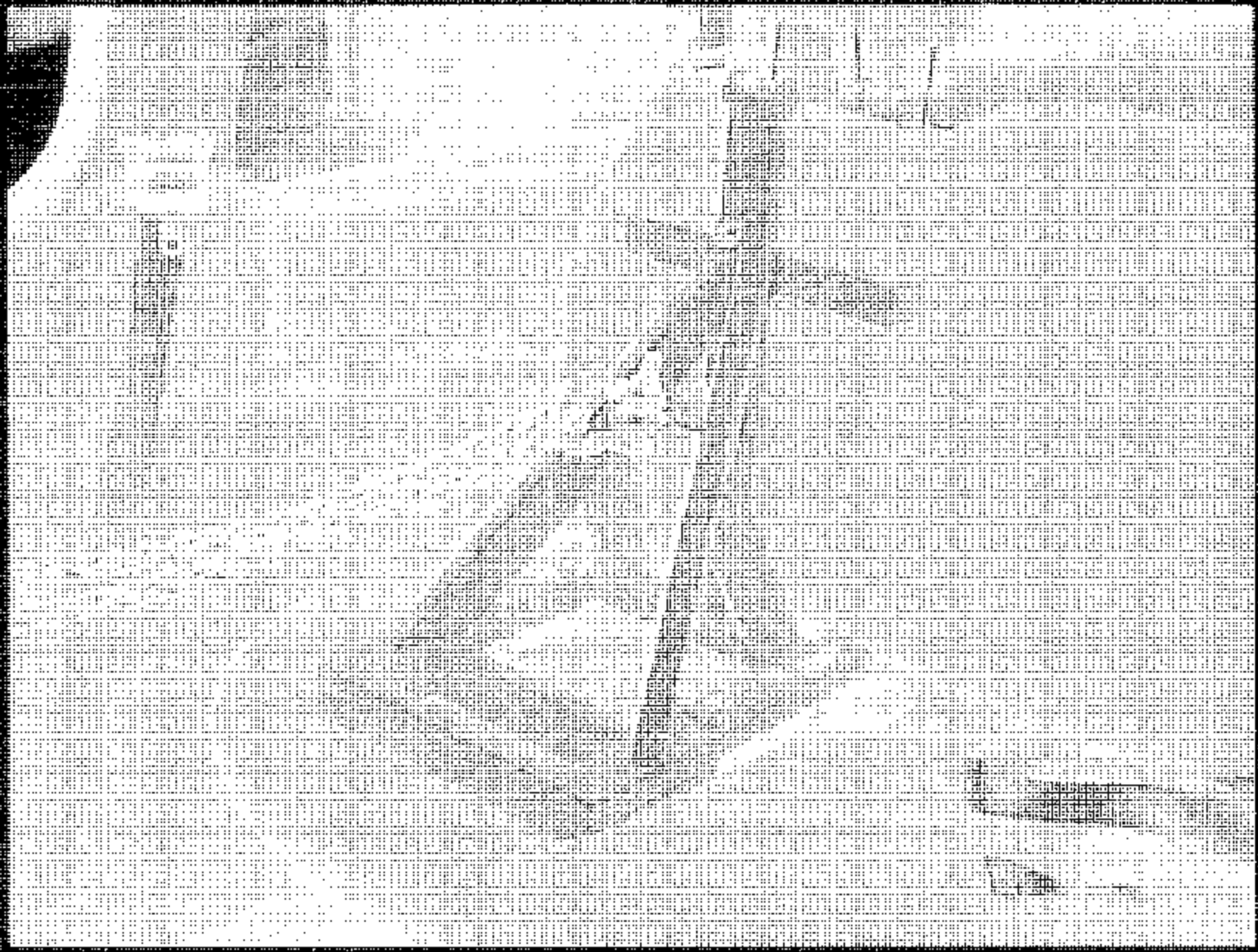
NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.45
POST TEST 3RD ROW CENTER POSITION



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NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.46
POST TEST 3RD ROW RIGHT

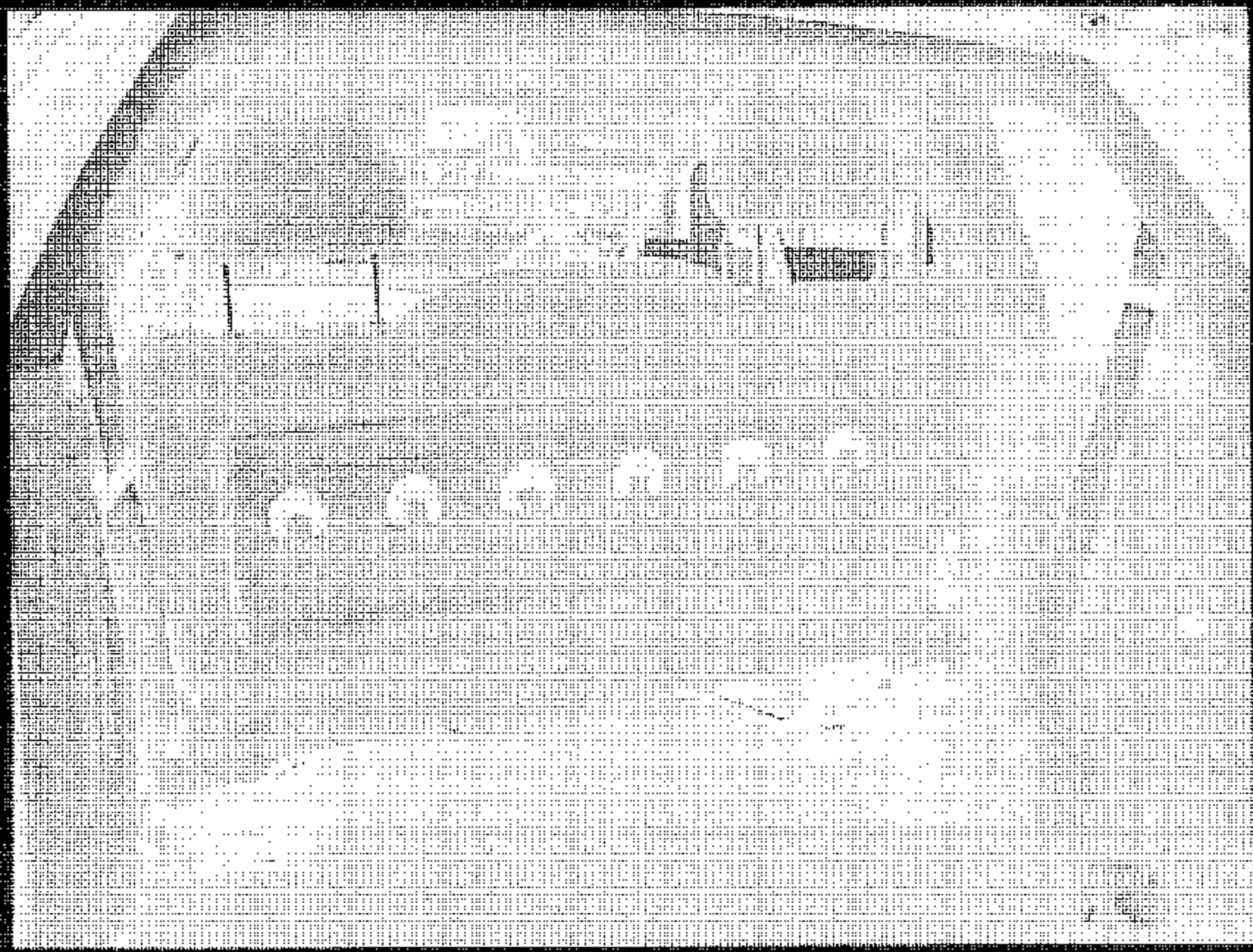

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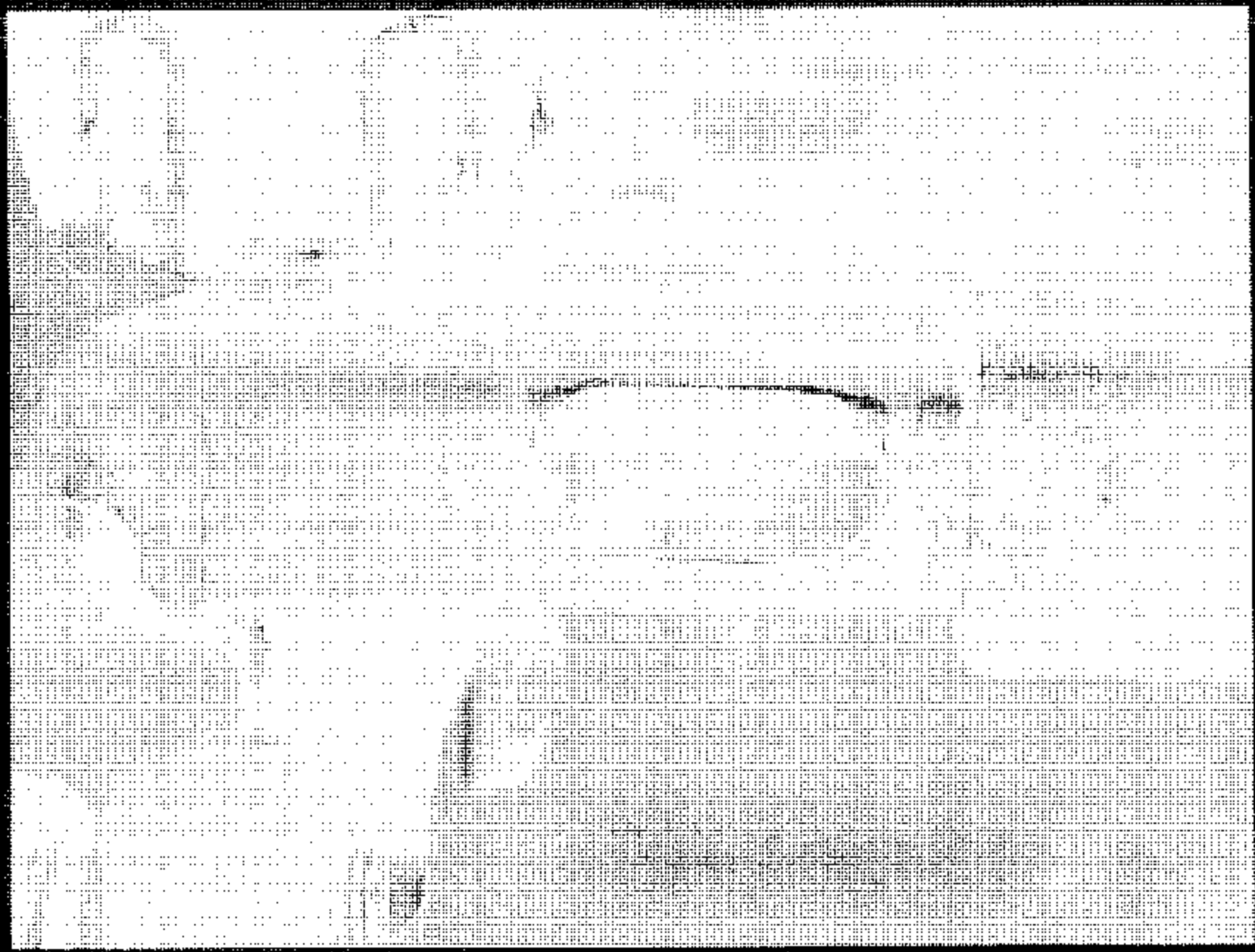
FIGURE 5.47
POST TEST 3RD ROW SEAT



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NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.48
POST TEST 2ND ROW LEFT TETHER ANCHOR

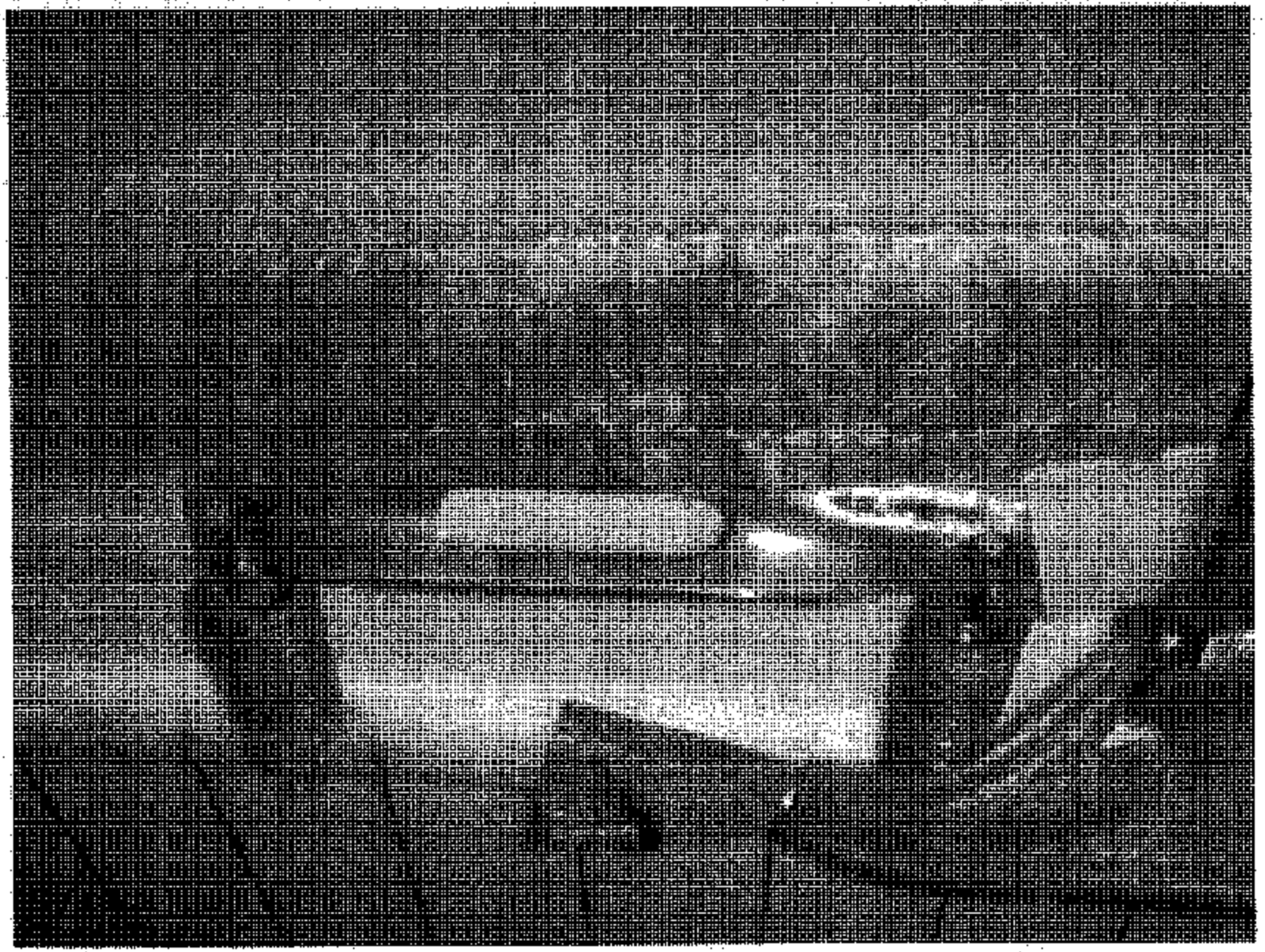

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FIGURE 5.49
POST TEST 3RD ROW LEFT TETHER ANCHOR

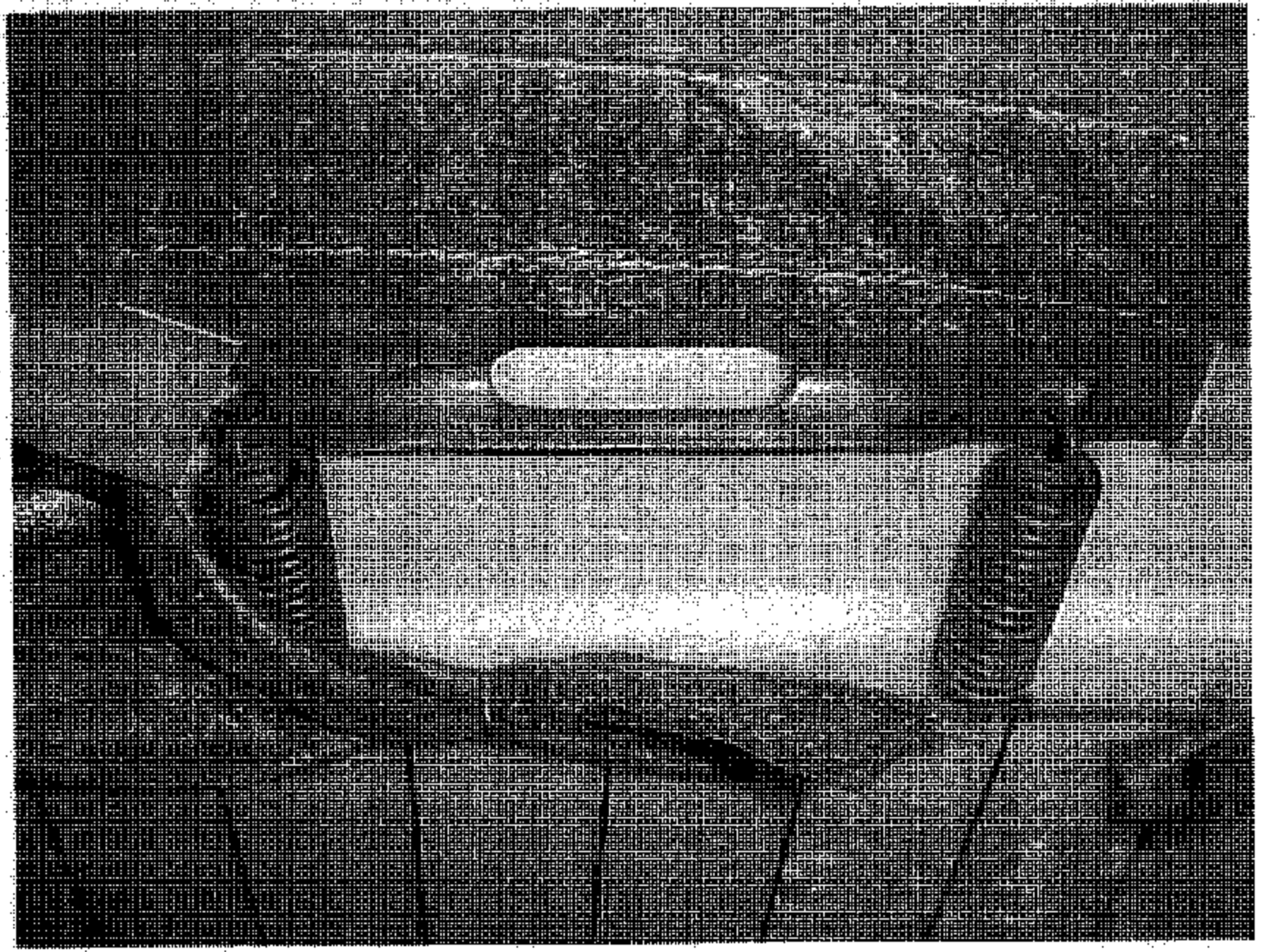

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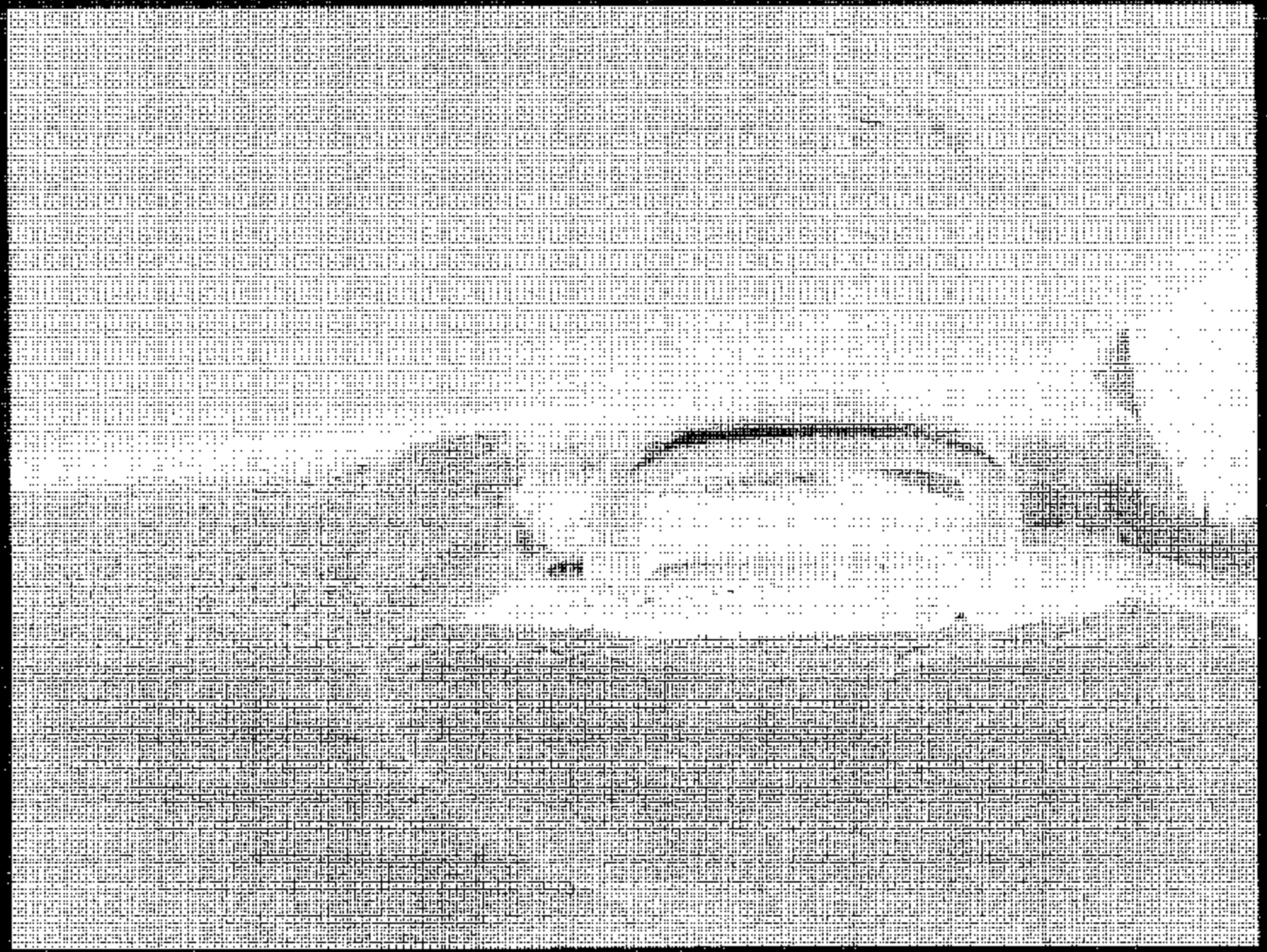
FIGURE 5.50
POST TEST 3RD ROW TETHER ANCHOR CENTER



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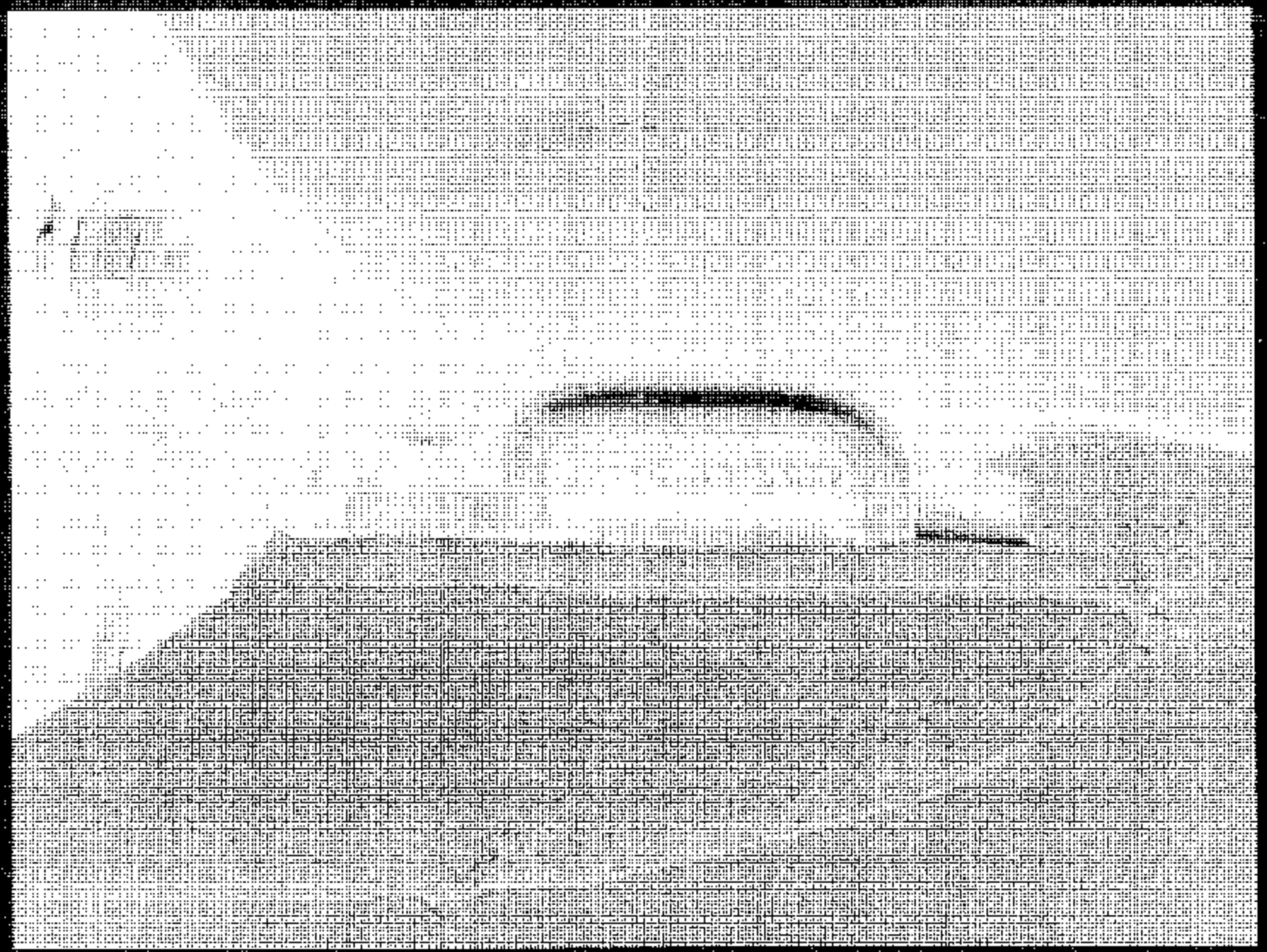
FMVSS NO. 225

FIGURE 5.51
POST TEST 2ND ROW LEFT OUTBOARD LOWER ANCHOR



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NHTSA NO. C30208
FMVSS NO. 225

FIGURE 5.52
POST TEST 2ND ROW LEFT INBOARD LOWER ANCHOR

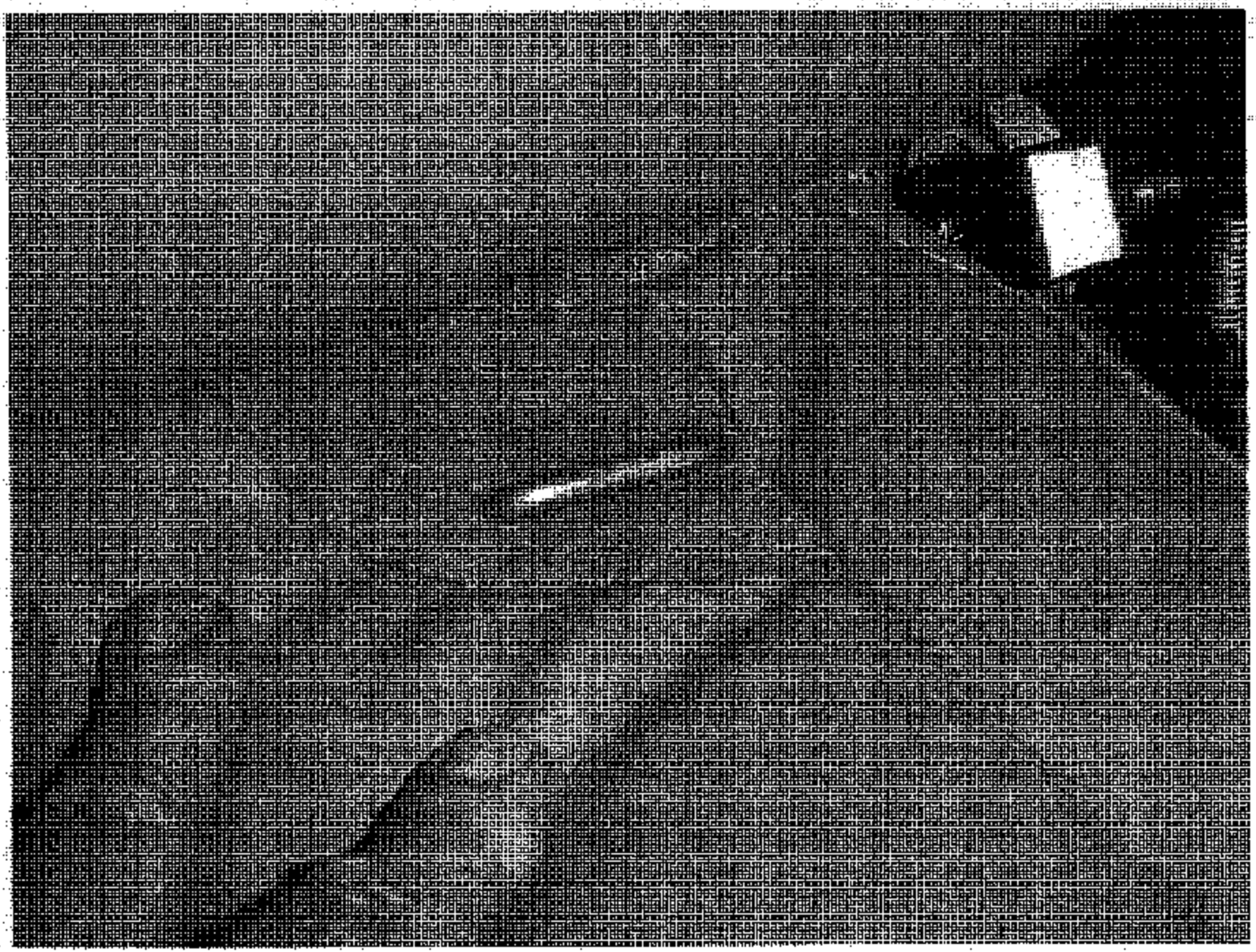

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FIGURE 5.53
POST TEST 3RD ROW LEFT OUTBOARD LOWER ANCHOR

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FIGURE 5.54
POST TEST 3RD ROW LEFT INBOARD LOWER ANCHOR

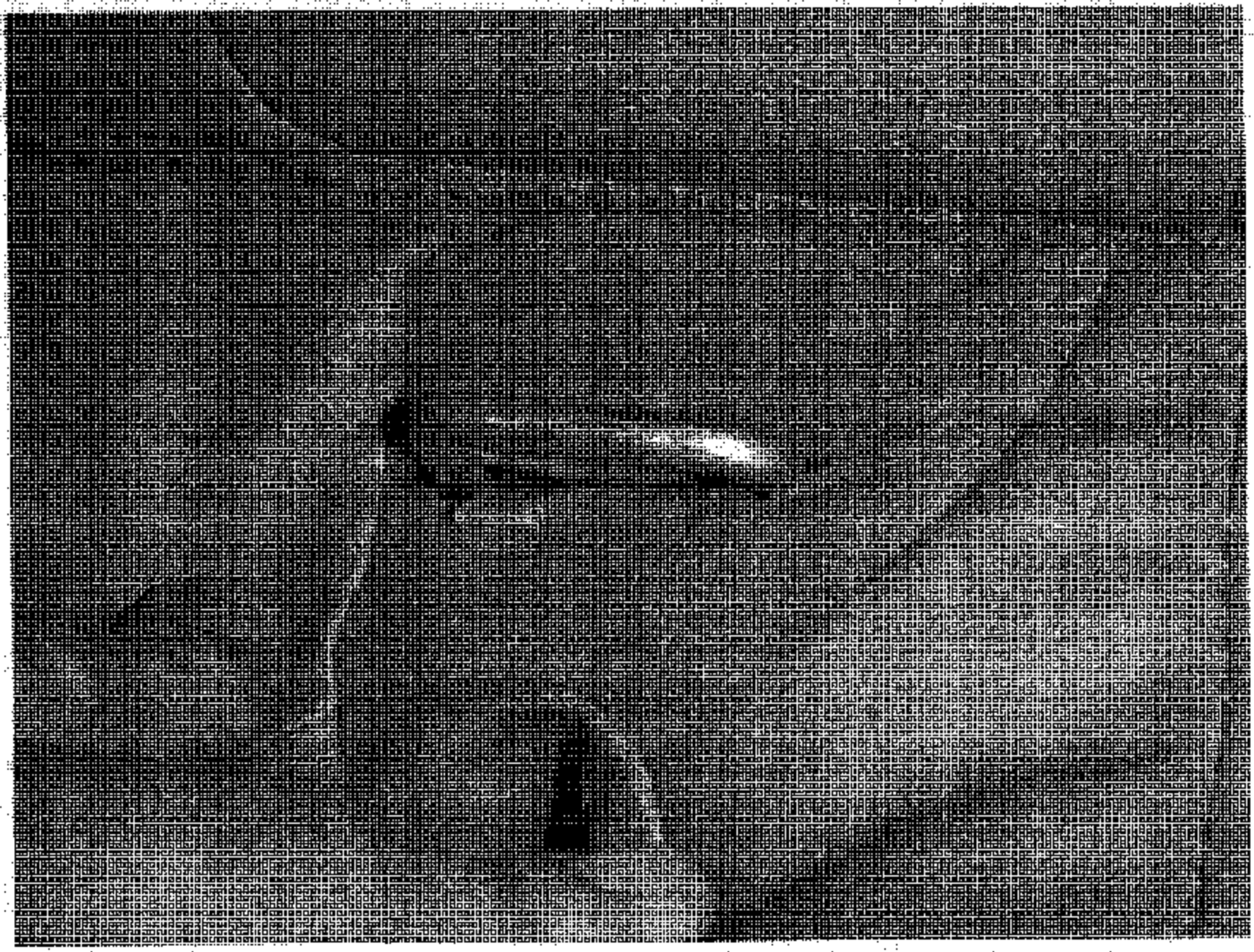

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FIGURE 5.55
POST TEST 3RD ROW RIGHT OUTBOARD
LOWER ANCHOR

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FIGURE 5.56
POST TEST 3RD ROW RIGHT INBOARD LOWER ANCHOR

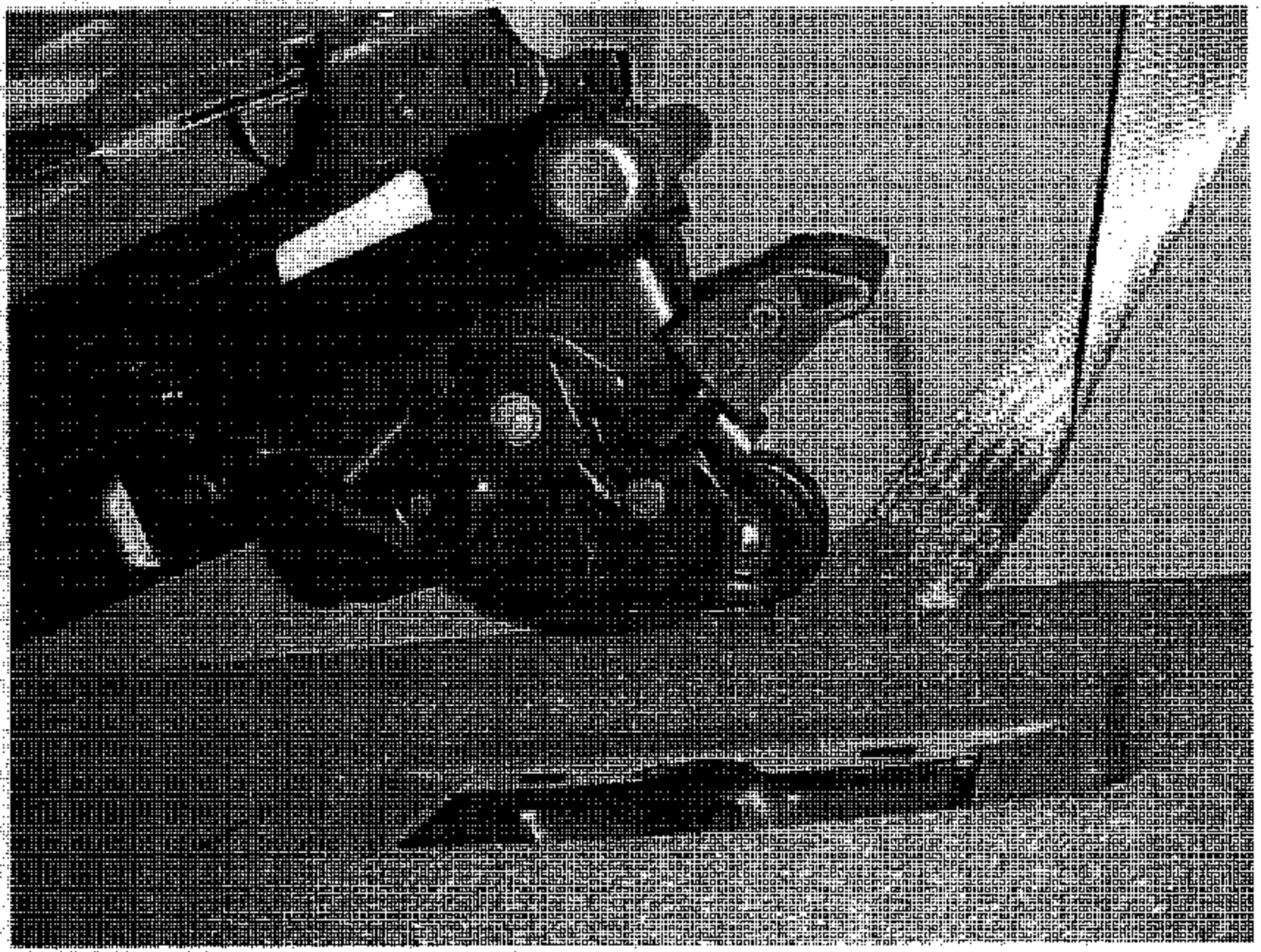

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FIGURE 5.57
POST TEST 3RD ROW RIGHT SEAT ANCHOR LATCH
SIDE VIEW

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FIGURE 5.56
POST TEST 3RD ROW RIGHT SEAT ANCHOR LATCH
REAR VIEW

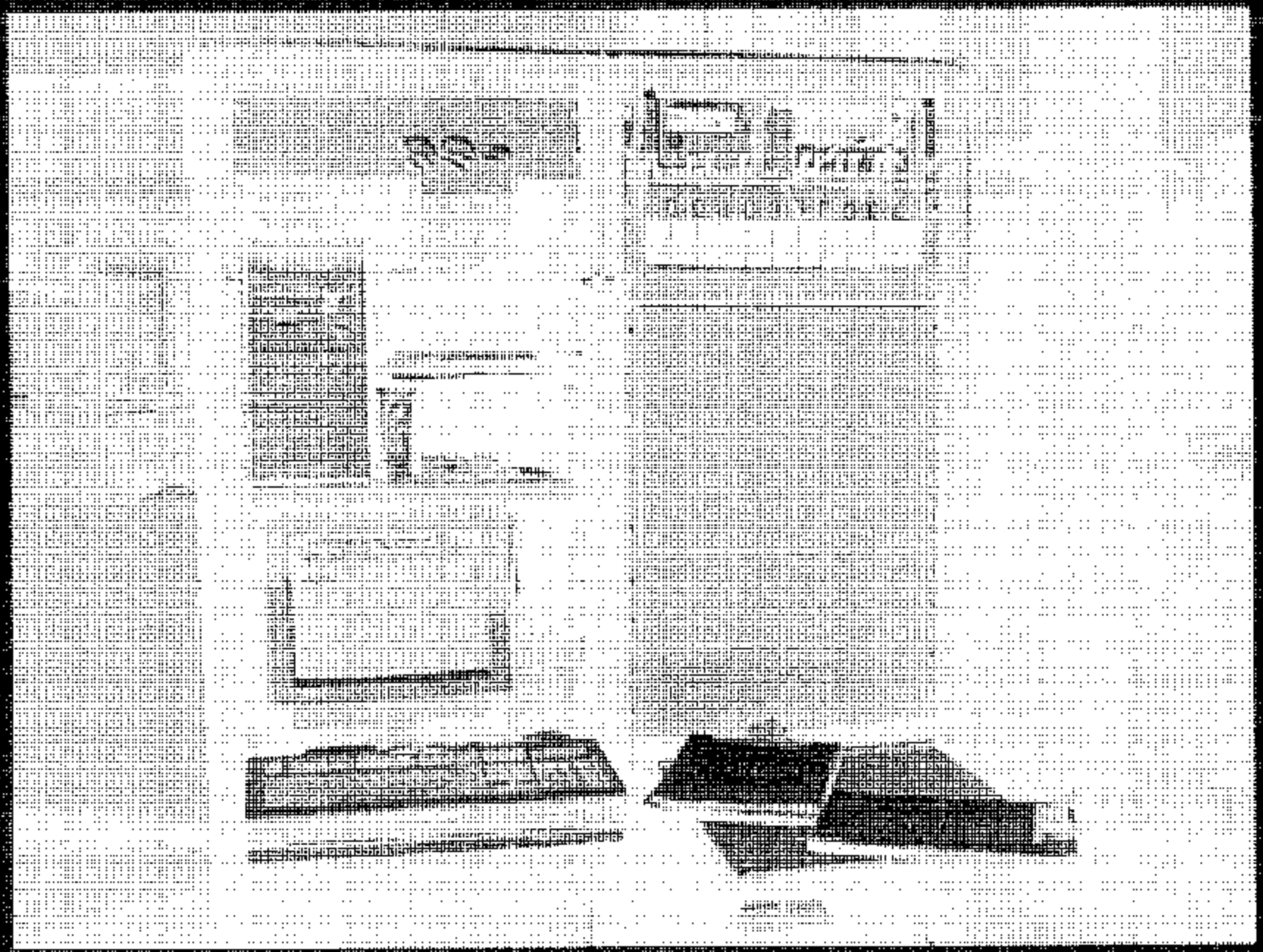

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FIGURE 5.59
LOAD SYSTEM CONTROL AND DATA RECORDING
DEVICE IN TEST POSITION

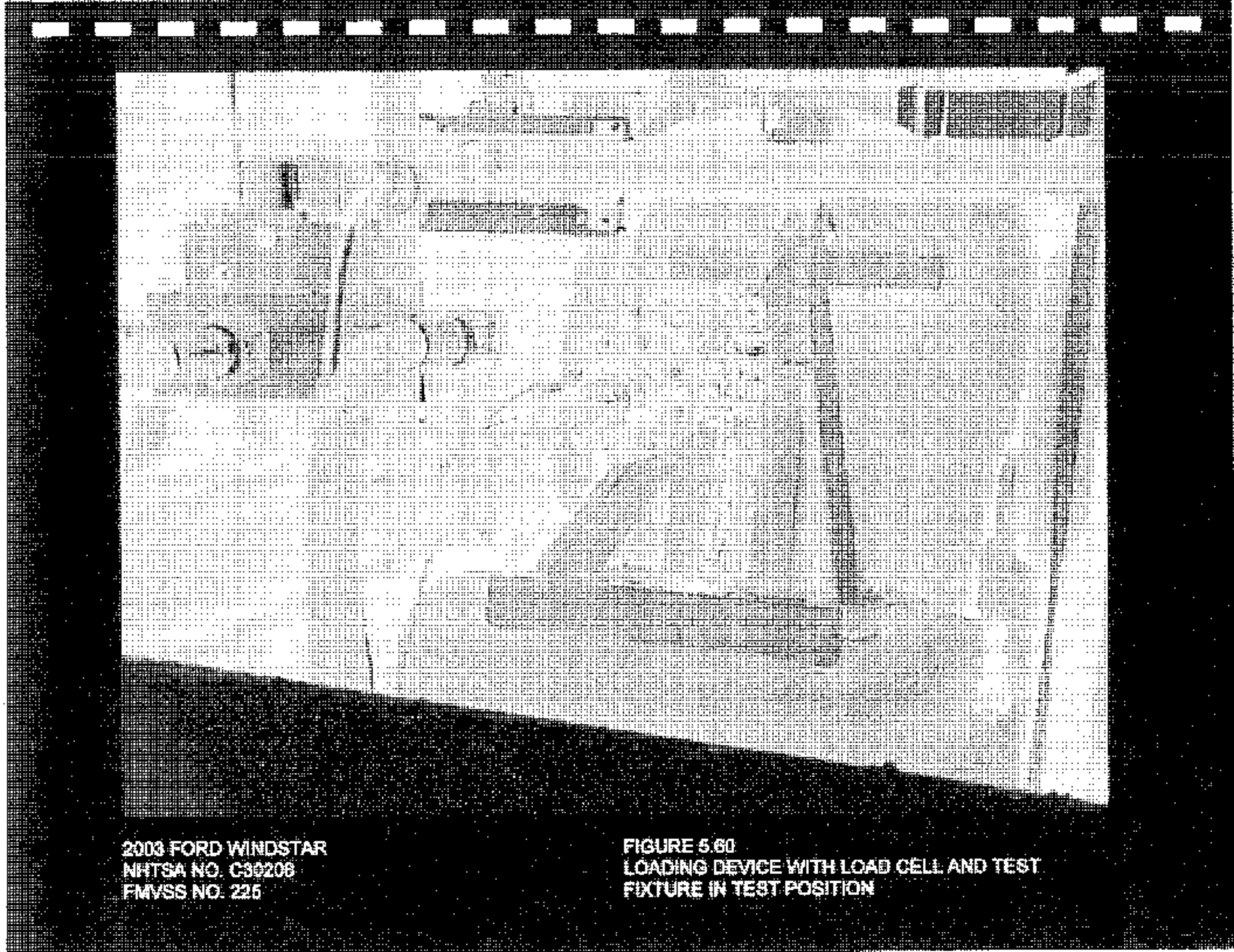

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FIGURE 5.60
LOADING DEVICE WITH LOAD CELL AND TEST FIXTURE IN TEST POSITION

SECTION 6

PLOTS

FIGURE 6.1

2ND ROW LEFT TOP TETHER ANCHOR

GTL 5122, NHTSA C30208

225, Child Restraint, S6.3.4

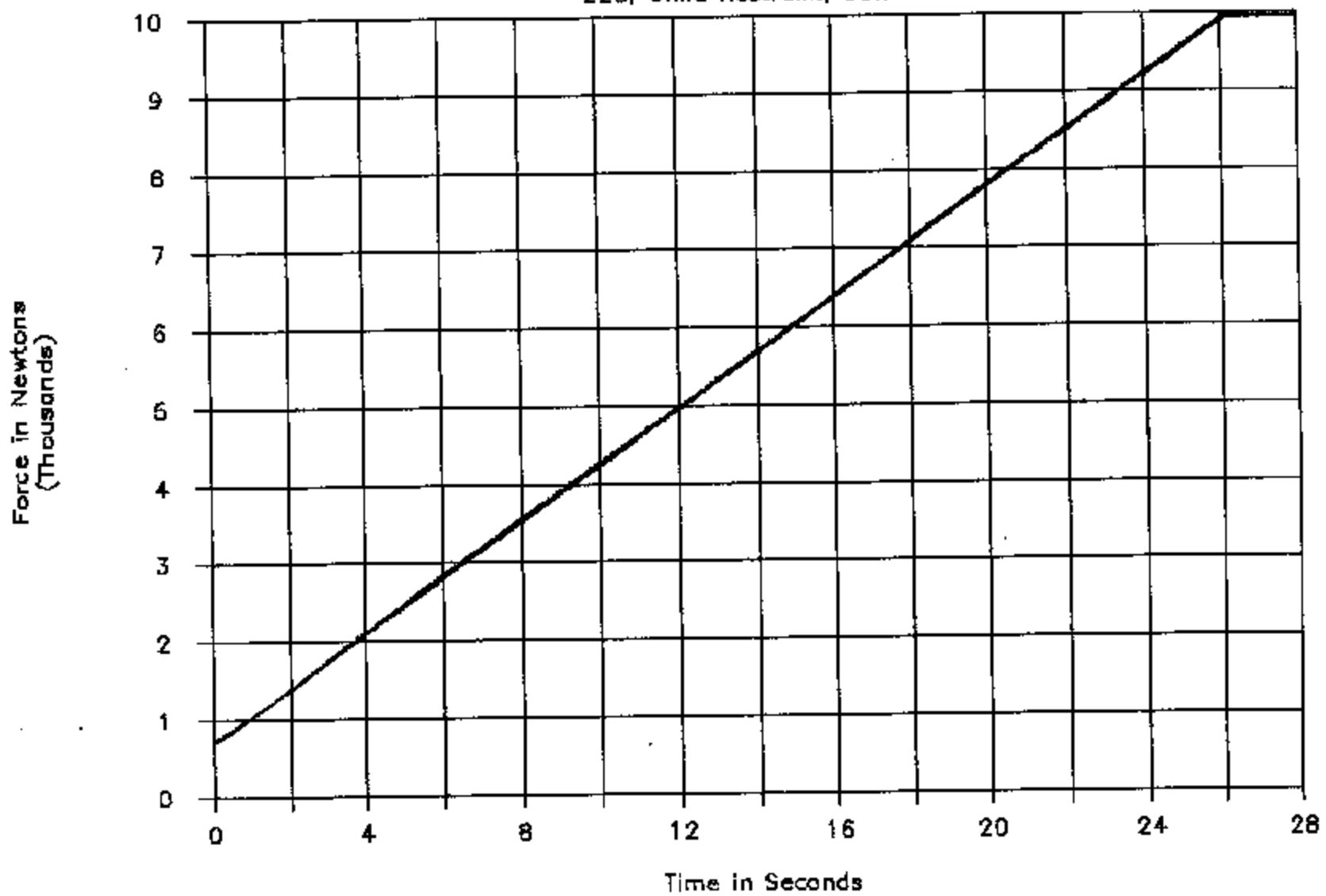


FIGURE 6.2

2ND ROW LEFT TOP TETHER ANCHOR

GTL 5122, NHTSA C30208

225, Child Restraint, S6.3.4

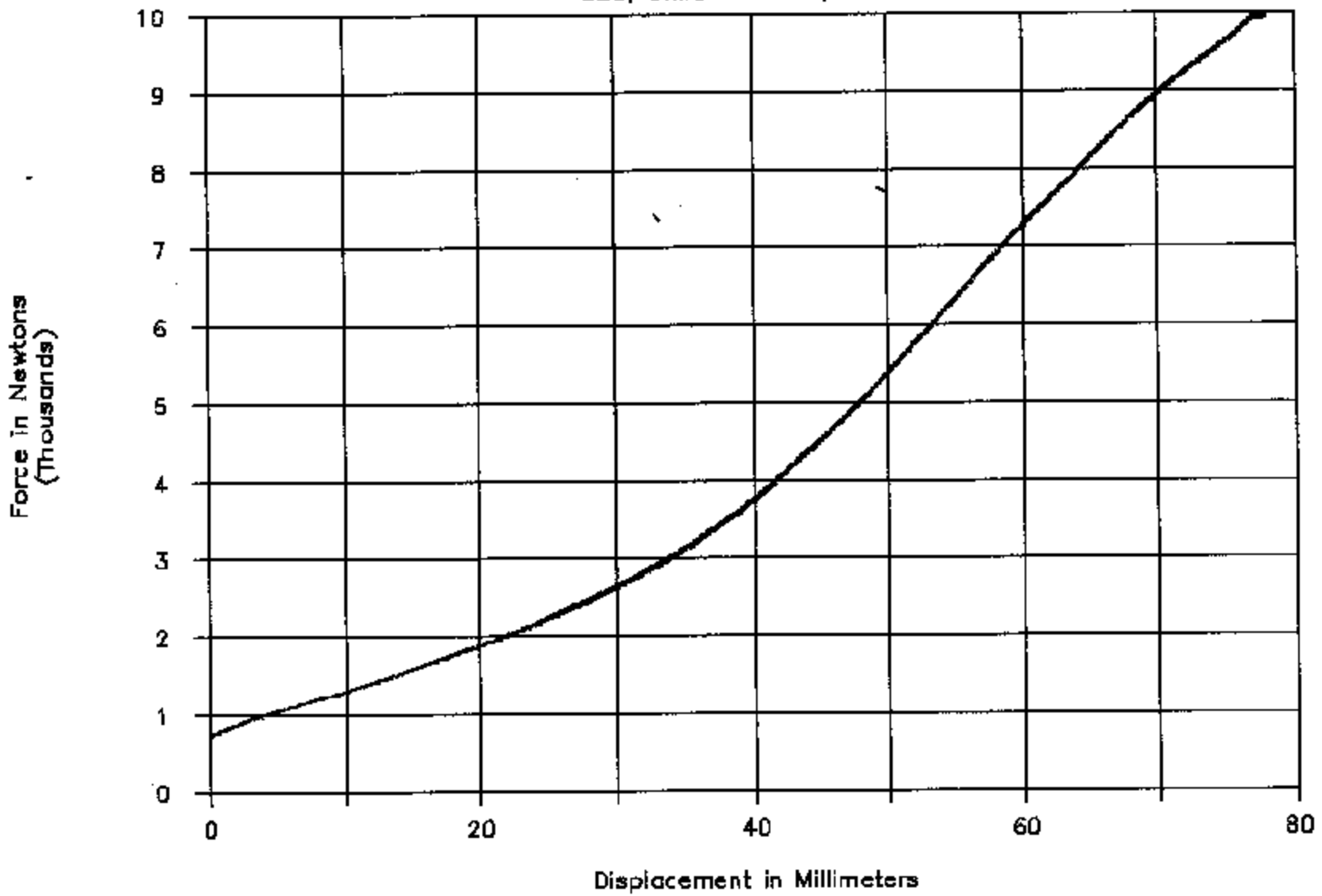


FIGURE 6.3

2ND ROW LEFT TOP TETHER ANCHOR

GTL 5122, NHTSA C30208

225, Child Restraint, S6.3.4

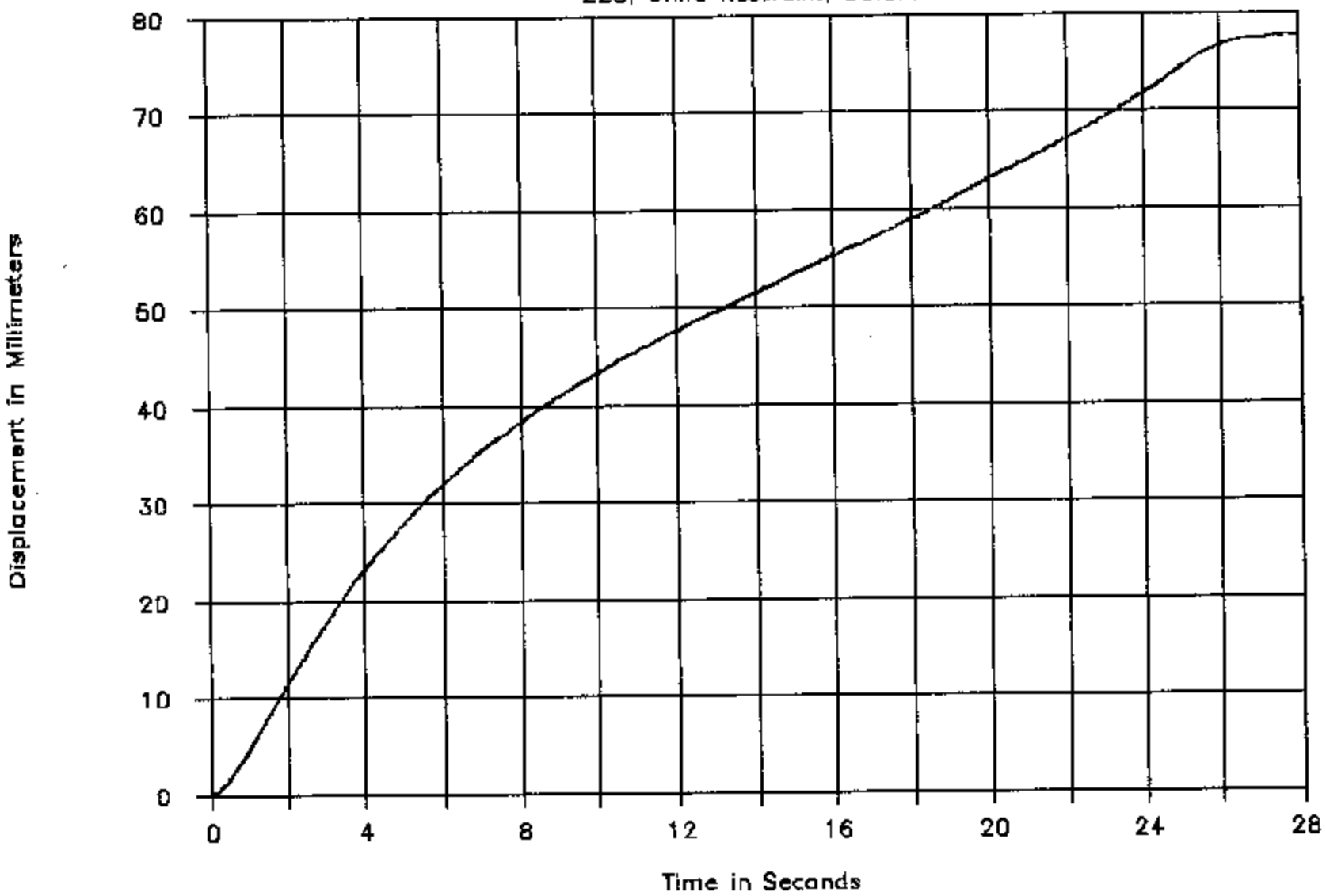


FIGURE 6.4

3RD ROW LEFT TOP TETHER ANCHOR

GTL 5123, NHTSA C30208

225, Child Restraint, S6.3.4

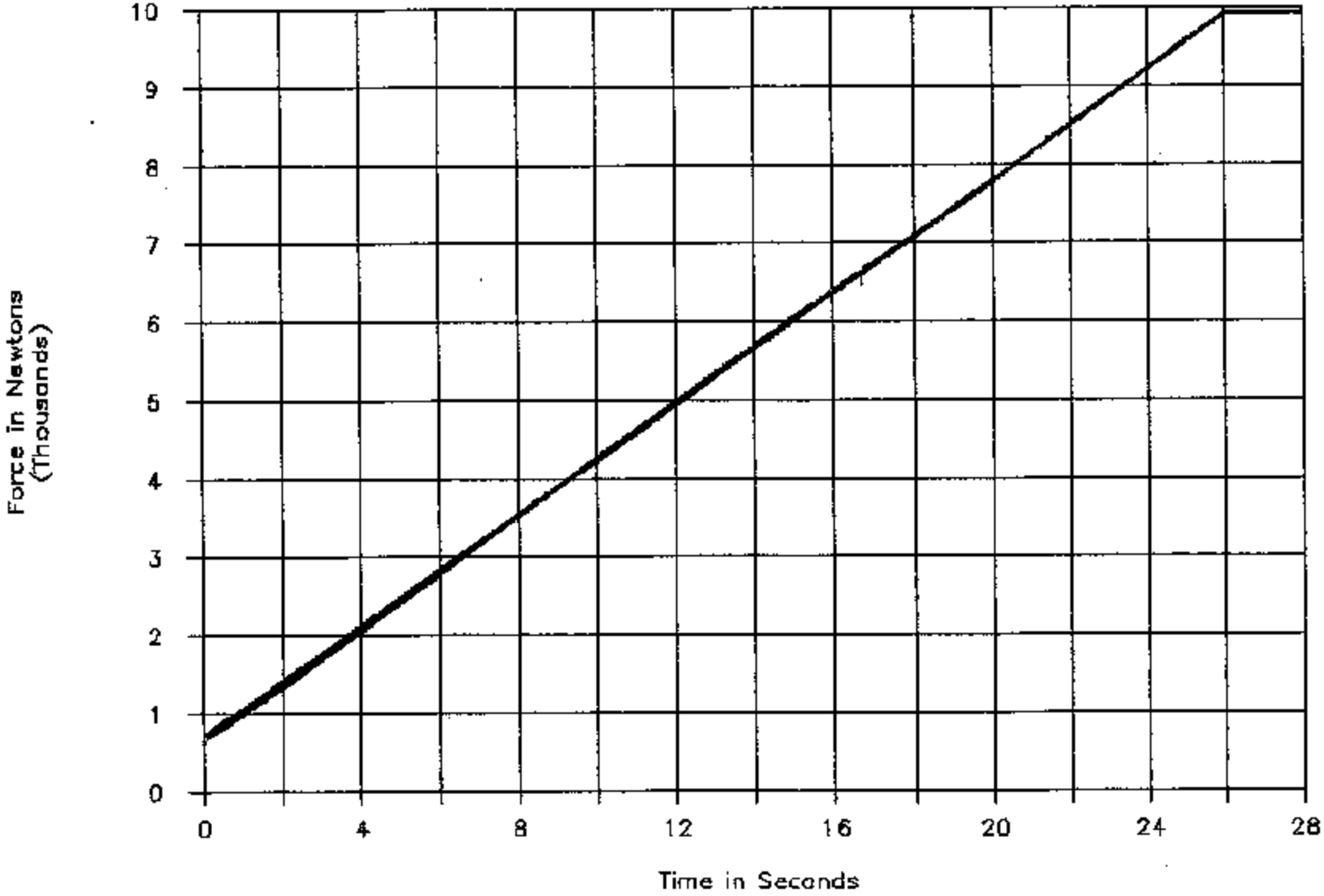


FIGURE 6.5

3RD ROW LEFT TOP TETHER ANCHOR

GTL 5123, NHTSA C30208

225, Child Restraint, S6.3.4

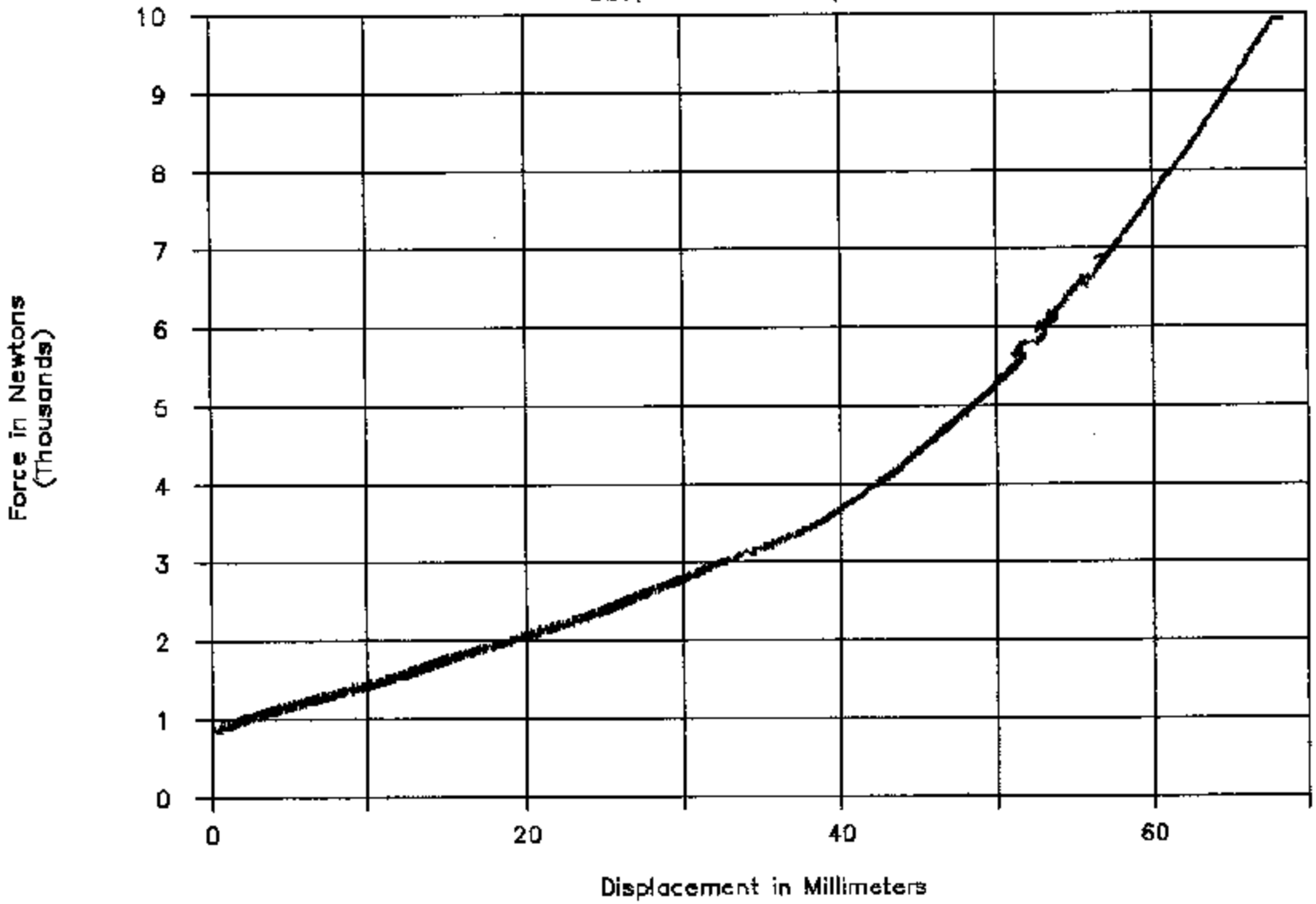


FIGURE 6.6

3RD ROW LEFT TOP TETHER ANCHOR

GTL 5123, NHTSA C30208

225, Child Restraint, S6.3.4

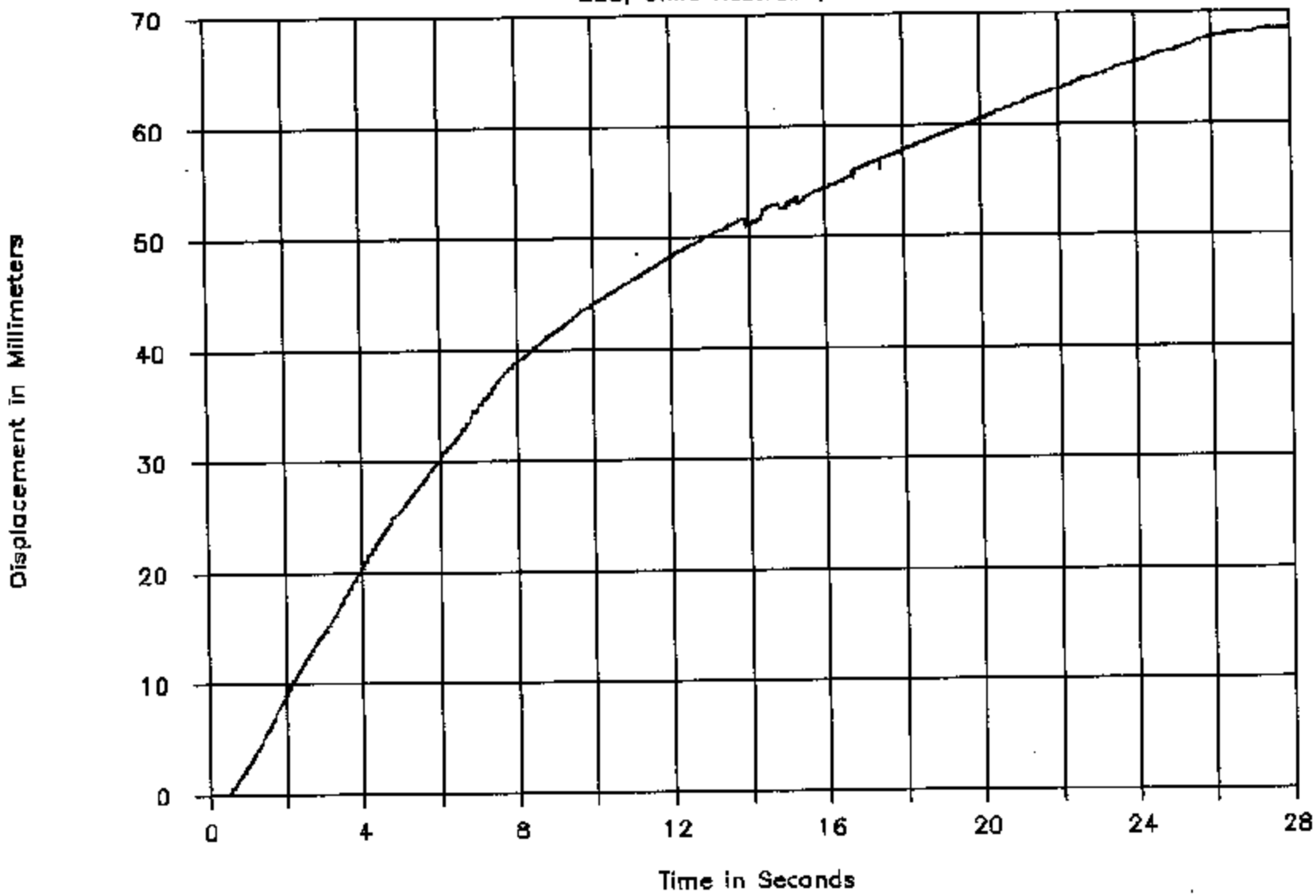


FIGURE 6.7

3RD ROW CENTER TOP TETHER ANCHOR

GTL 5124, NHTSA C30208

225, Child Restraint, S6.3.4

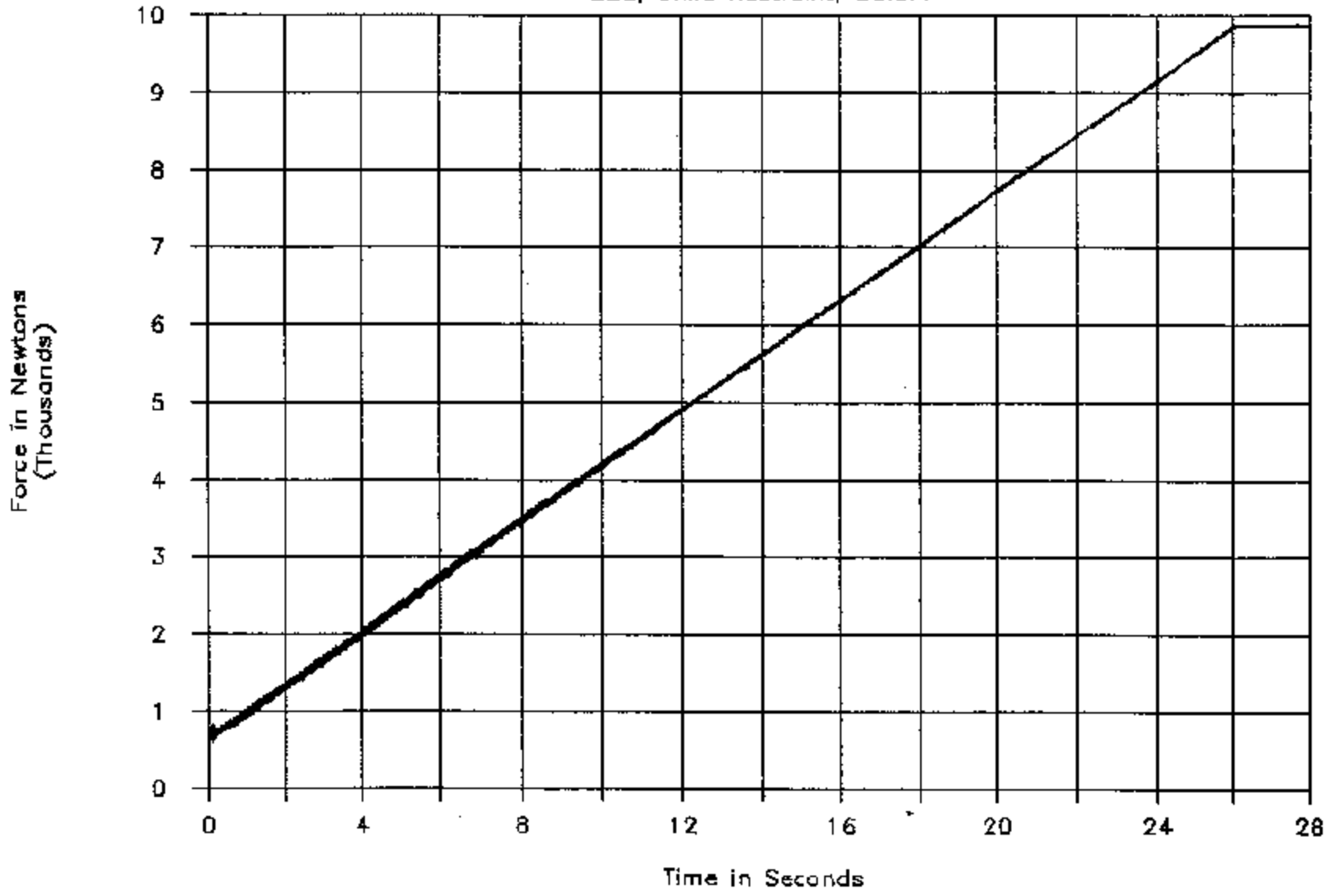


FIGURE 6.8

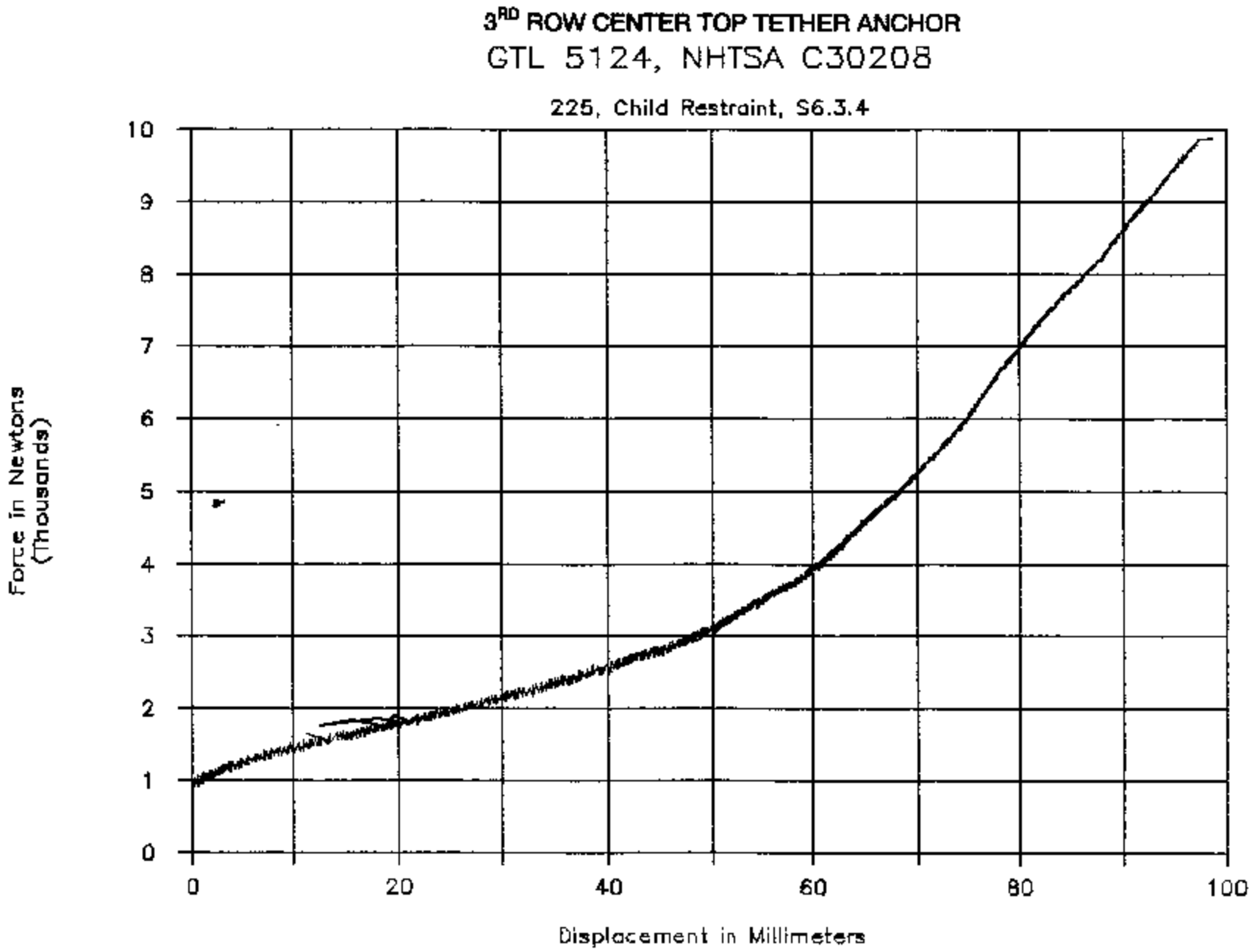

3RD ROW CENTER TOP TETHER ANCHOR
GTL 5124, NHTSA C30208
225, Child Restraint, S6.3.4
Force in Newtons (Thousands)
0
1
2
3
4
5
6
7
8
9
10
0
20
40
60
80
100
Displacement in Millimeters

FIGURE 6.9

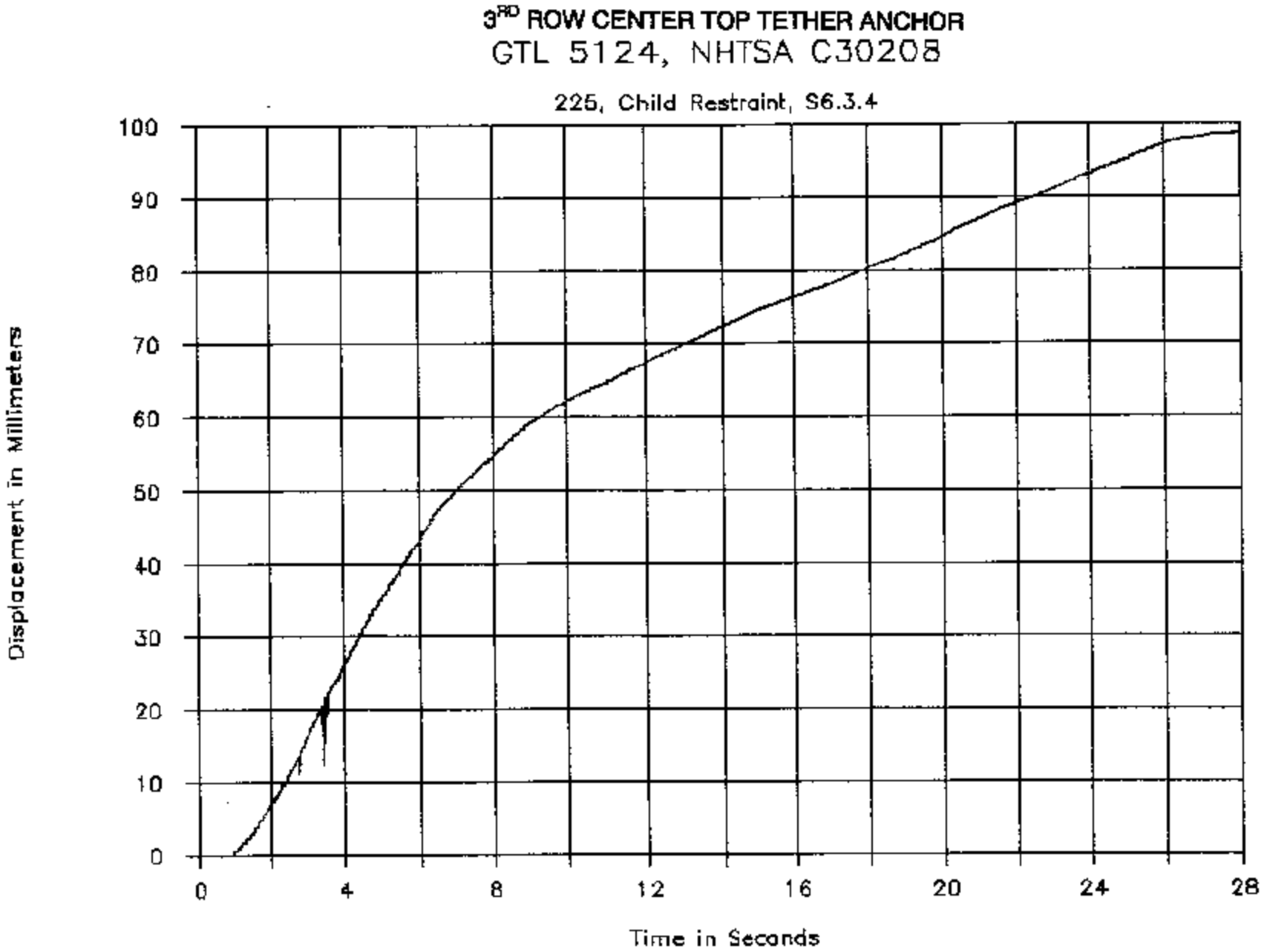

3RD ROW CENTER TOP TETHER ANCHOR
GTL 5124, NHTSA C30208
225, Child Restraint, S6.3.4
Displacement in Millimeters
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
Time in Seconds

FIGURE 6.10

3RD ROW RIGHT LOWER ANCHOR

GTL 5125, NHTSA C30208

225, Child Restraint, S15.3

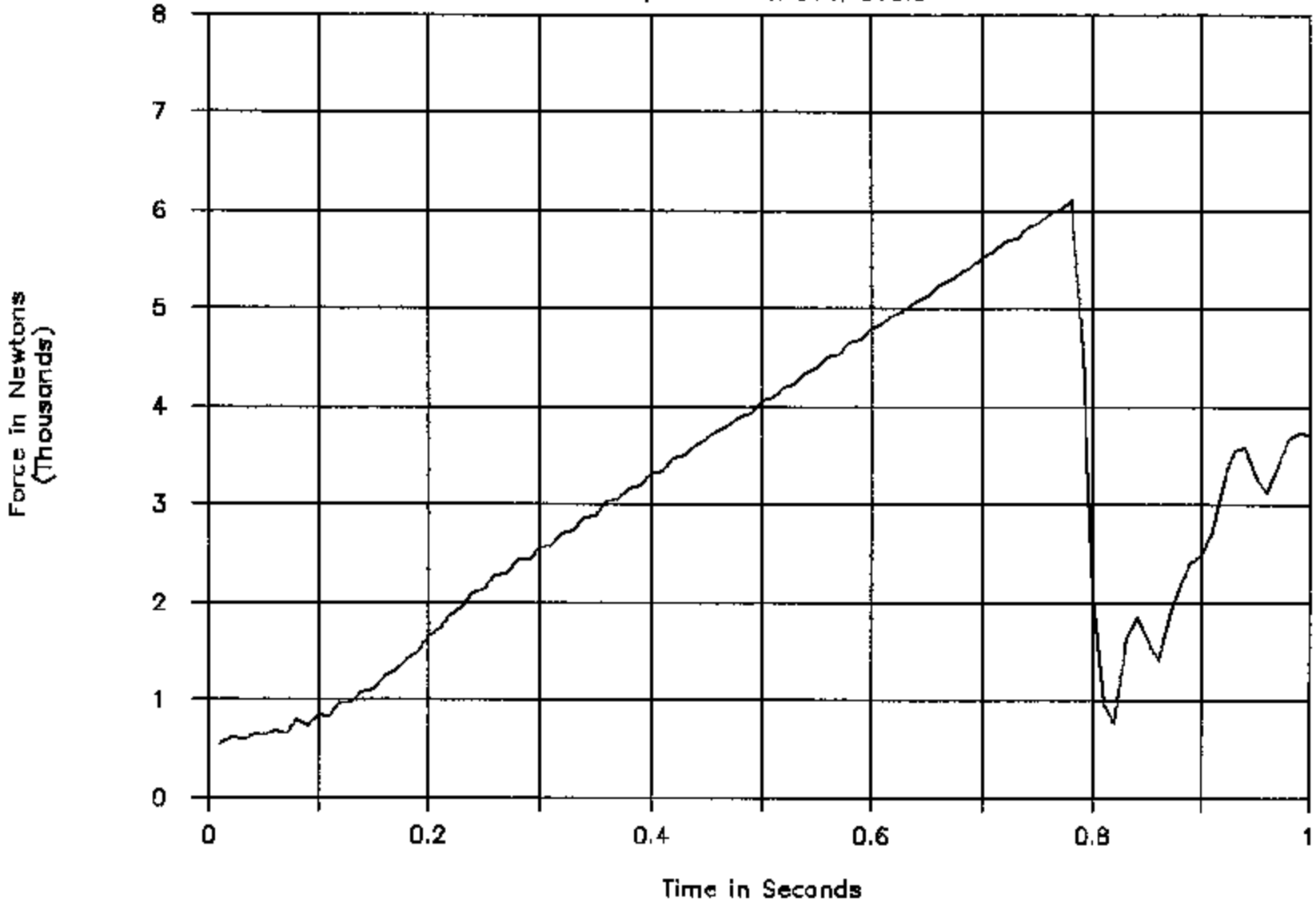


FIGURE 6.11

3RD ROW RIGHT LOWER ANCHOR

GTL 5125, NHTSA C30208

225, Child Restraint, S15.3

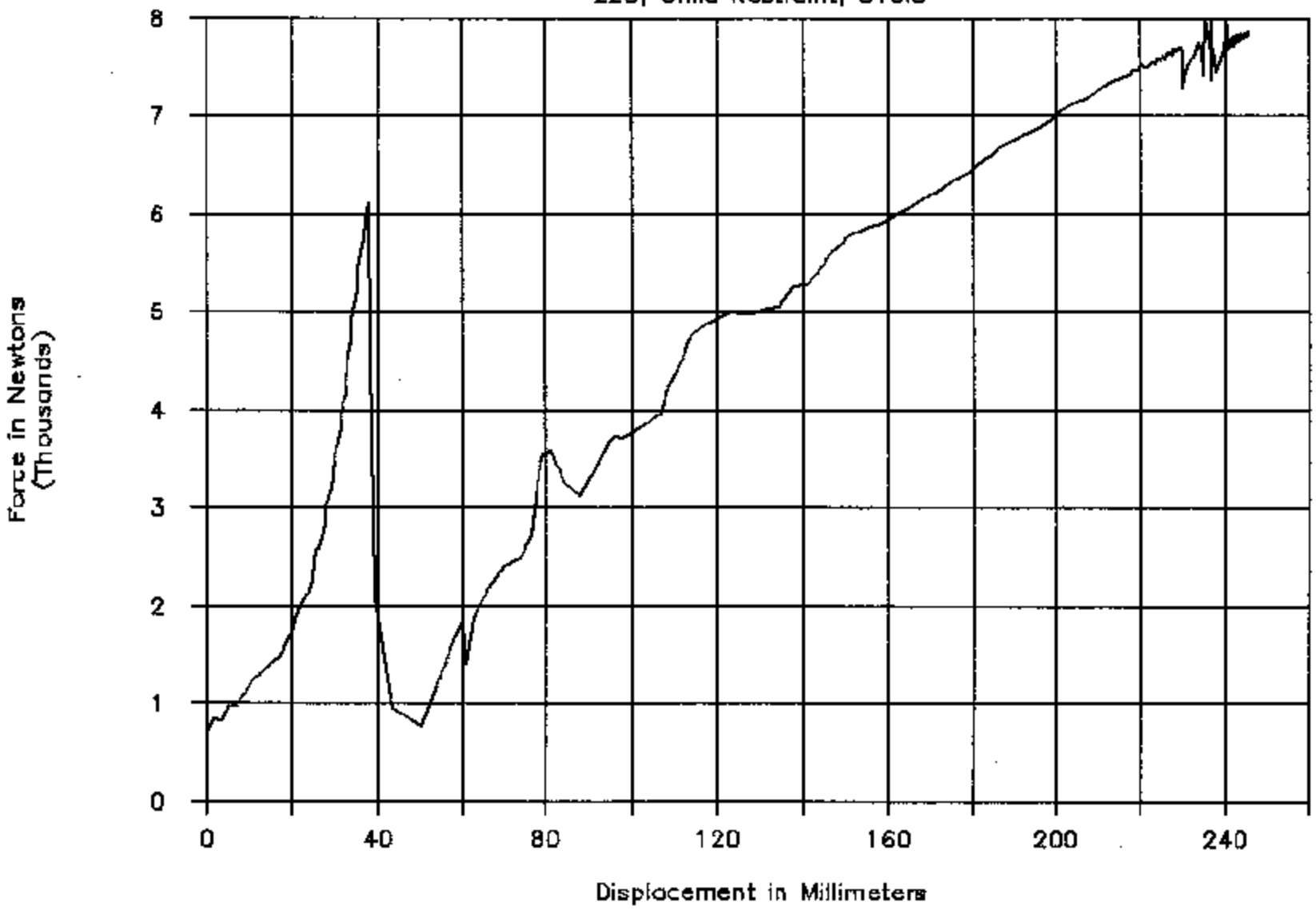


FIGURE 6.12

3RD ROW RIGHT LOWER ANCHOR

GTL 5125, NHTSA C30208

225, Child Restraint, S15.3

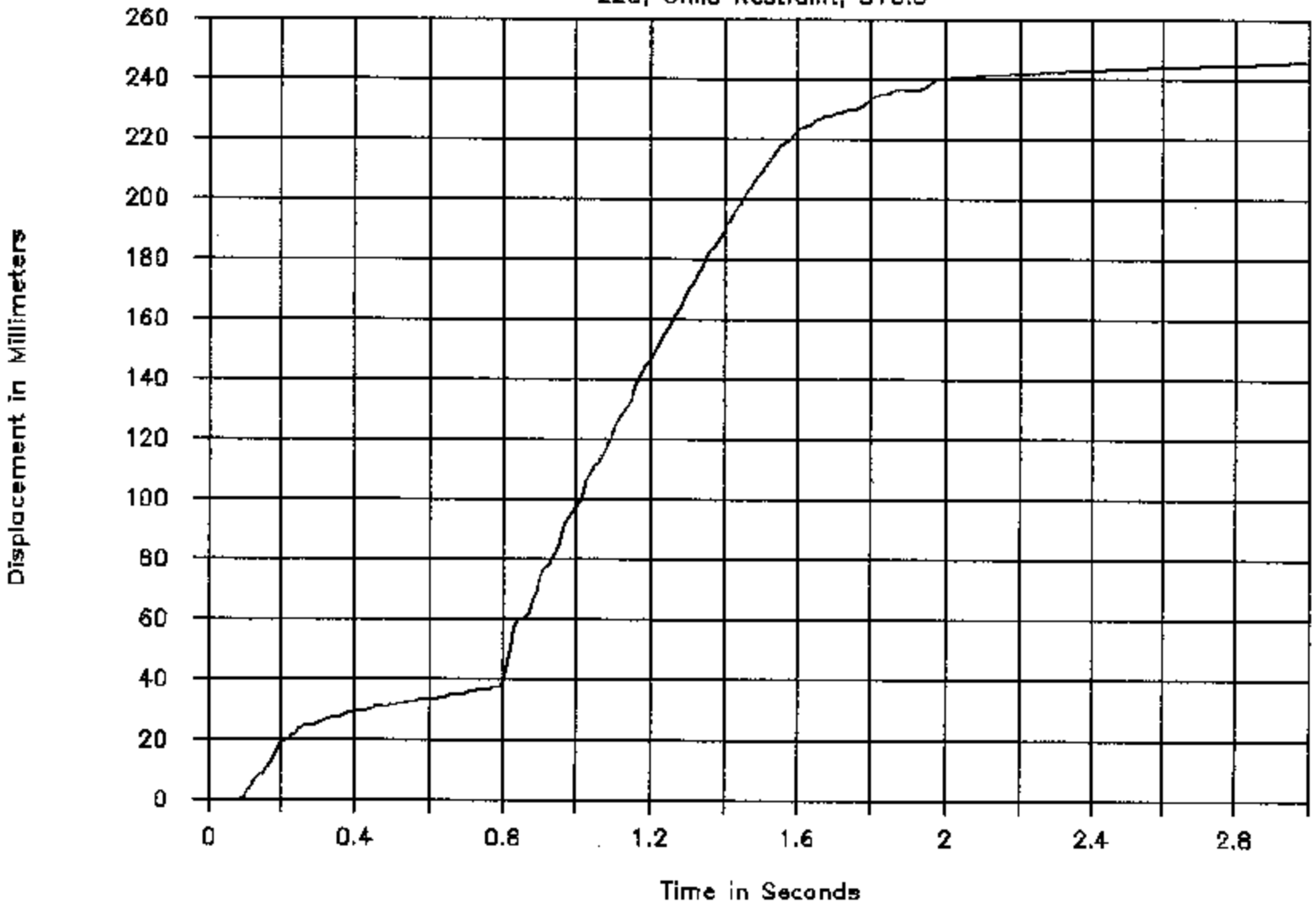
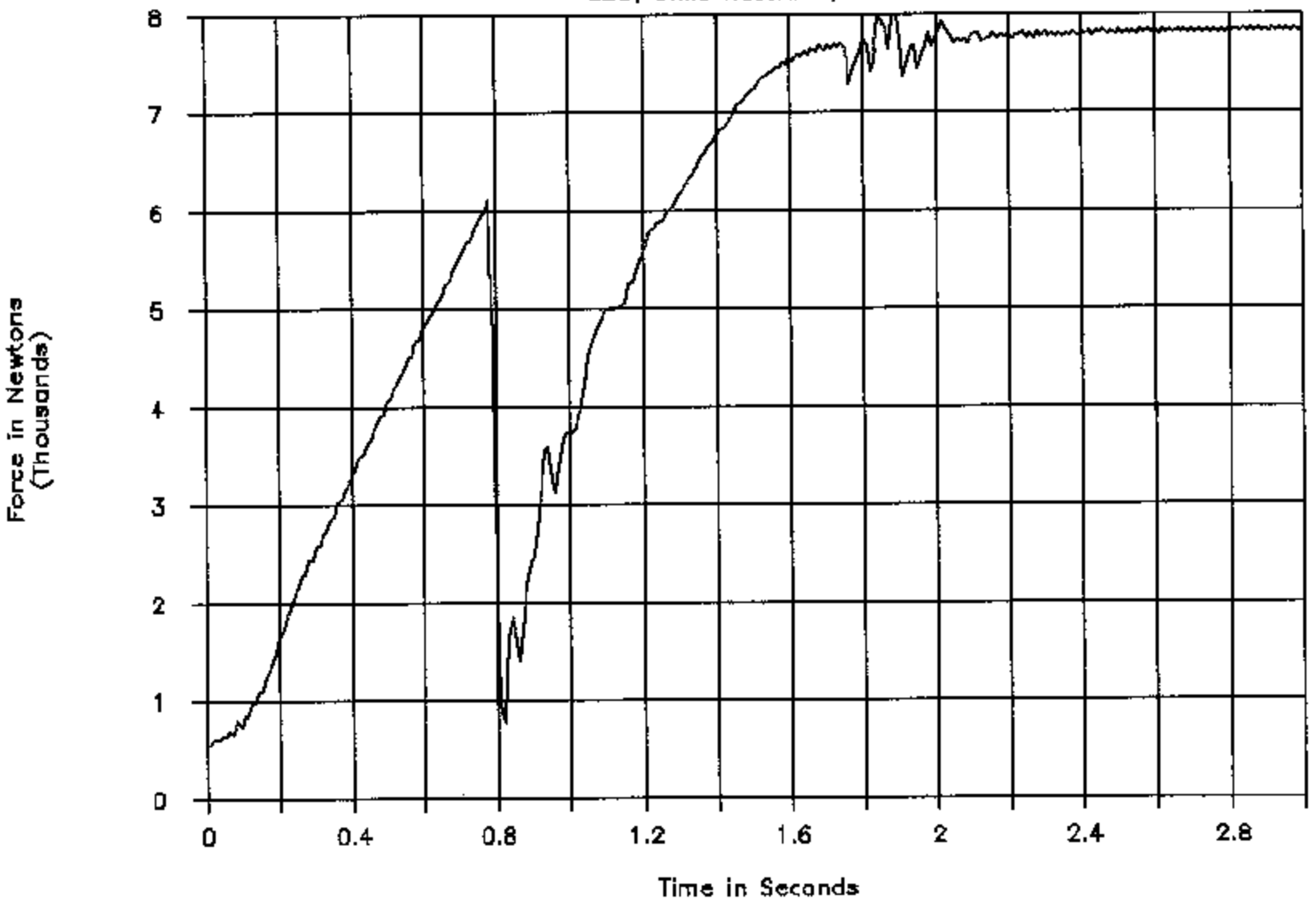


FIGURE 6.13

3RD ROW RIGHT LOWER ANCHOR

GTL 5125, NHTSA C30208

225, Child Restraint, S15.3



APPENDIX A

OWNER'S MANUAL CHILD RESTRAINT INFORMATION

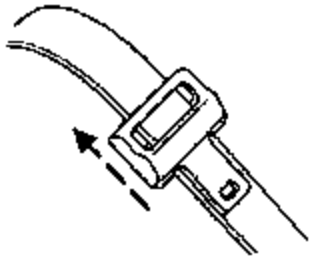
The front and rear outboard safety restraints in the vehicle are combination lap and shoulder belts. The front and rear seat passenger outboard safety belts have locking cinch tongues described below:

Safety belts with locking cinch tongue

The locking cinch tongue will slide up and down the belt webbing when the belt is in the stowed position or while putting seat belts on. When the locking cinch tongue of the lap/shoulder combination seat belt is latched into the buckle, the cinch tongue will allow the lap portion to become shorter, but locks the webbing in place to restrict it from becoming longer.

Before you can reach and latch a combination lap and shoulder belt having a cinch tongue into the buckle, you may have to lengthen the lap belt portion of it.

1. To lengthen the lap belt, pull some webbing out of the shoulder belt retractor.
2. While holding the webbing below the tongue, grasp the tip (metal portion) of the tongue so that it is parallel to the webbing and slide the tongue upward.



3. Provide enough lap belt length so that the tongue can reach the buckle.

How to fasten the cinch tongue

1. Pull the combination lap and shoulder belt from the retractor so that the shoulder belt portion of the safety belt crosses your shoulder and chest.
2. Be sure the belt is not twisted. If the belt is twisted, remove the twist.
3. Insert the belt tongue into the proper buckle for your seating position until you hear a snap and feel it latch.
4. Make sure the tongue is securely fastened to the buckle by pulling on the tongue.

⚠ The lap belt should fit snugly and as low as possible around the hips, not across the waist.

⚠ Front and rear seat occupants, including pregnant women, should wear safety belts for optimum protection in an accident.

⚠ Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair. 1) Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. 2) Never swing the safety belt around your neck over the inside shoulder. 3) Never use a single belt for more than one person.

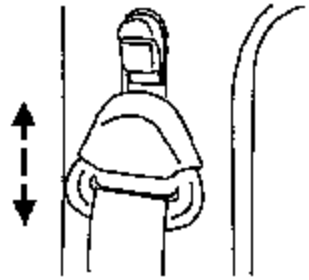
While you are fastened in the seat belt, the combination lap/shoulder belt with a cinch tongue adjusts to your movement. However, if you brake hard, turn hard, or if your vehicle receives an impact of 8 km/h (5 mph) or more, the safety belt will become locked and help reduce your forward movement.

Energy Management Feature

- This vehicle has a safety belt system with an energy management feature at the front passenger and 2nd row bench seat adjacent to the sliding door seating positions to help further reduce the risk of injury in the event of a head-on collision.
- This safety belt system has a retractor assembly that is designed to extend the seat belt webbing in a controlled manner. This helps reduce the belt force acting on the user's chest.

⚠ Failure to inspect and replace if necessary the Belt and Retractor assembly after an accident could increase the risk of injury in a collision.

Front safety belt height adjustment



Your vehicle has safety belt height adjustments at the front and second row outboard seating positions. Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

To adjust the shoulder belt height, push the button and slide the height adjuster up or down. Release the button and pull down on the height adjuster to make sure it is locked in place.

⚠ Position the safety belt height adjusters so that the belt rests across the middle of your shoulder. Failure to adjust the safety belt properly could reduce the effectiveness of the seat belt and increase the risk of injury in a collision.

Lap belts

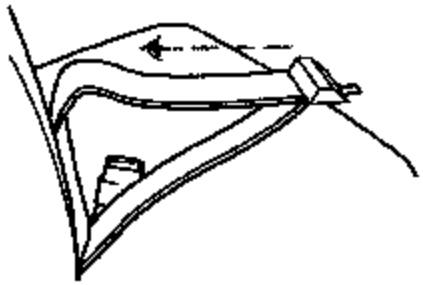
Adjusting the 3rd row center lap belt

The lap belt does not adjust automatically.

⚠ The lap belt should fit snugly and as low as possible around the hips, not across the waist.

Insert the tongue into the correct buckle (the buckle closest to the direction the tongue is coming from). To lengthen the belt, turn the tongue at a right angle to the belt and pull across your lap until it reaches the buckle. To tighten the belt, pull the loose end of the belt through the tongue until it fits snugly across the hips.

Shorten and fasten the belt when not in use.



Safety belt warning light and indicator chime

The safety belt warning light illuminates in the instrument cluster and a chime sounds to remind the occupants to fasten their safety belts.

Conditions of operation

If...	Then...
The driver's safety belt is not buckled before the ignition switch is turned to the ON position...	The safety belt warning light illuminates 1-2 minutes and the warning chime sounds 4-8 seconds.
The driver's safety belt is buckled while the indicator light is illuminated and the warning chime is sounding...	The safety belt warning light and warning chime turn off.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The safety belt warning light and indicator chime remain off.

BeltMinder

The BeltMinder feature is a supplemental warning to the safety belt warning function. This feature provides additional reminders to the driver that the driver's safety belt is unbuckled by intermittently sounding a chime and illuminating the safety belt warning lamp in the instrument cluster.

If...	Then...
The driver's safety belt is not buckled before the vehicle has reached at least 5 km/h (3 mph) and 1-2 minutes have elapsed since the ignition switch has been turned to ON...	The BeltMinder feature is activated - the safety belt warning light illuminates and the warning chime sounds for 6 seconds every 30 seconds, repeating for approximately 5 minutes or until safety belt is buckled.
The driver's safety belt is buckled while the safety belt indicator light is illuminated and the safety belt warning chime is sounding...	The BeltMinder feature will not activate.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The BeltMinder feature will not activate.

The following are reasons most often given for not wearing safety belts: (All statistics based on U.S. data)

Reasons given...	Consider...
"Crashes are rare events"	**36700 crashes occur every day.** The more we drive, the more we are exposed to "rare" events, even for good drivers. *1 in 4 of us will be seriously injured in a crash during our lifetime.*
"I'm not going far"	**3 of 4** fatal crashes occur within **25** miles of home.
"Belts are uncomfortable"	We design our safety belts to enhance comfort. If you are uncomfortable - try different positions for the safety belt upper anchorage and seatback which should be as upright as possible; this can improve comfort.
"I was in a hurry"	**Prime time for an accident.** BeltMinder reminds us to take a few seconds to buckle up.
"Seat belts don't work"	**Safety belts,** when used properly, **reduce risk of death** to front seat occupants by **45% in cars,** and by **60% in light trucks.**

Reasons given...	Consider...
"Traffic is light"	**Nearly 1 of 2 deaths occur in single-vehicle crashes,** many when no other vehicles are around.
"Belts wrinkle my clothes"	Possibly, but a serious crash can do much more than wrinkle your clothes, particularly if you are unbelted.
"The people I'm with don't wear belts"	Set the example, teen deaths occur 4 times more often in vehicles with TWO or MORE people. Children and younger brothers/sisters imitate behavior they see.
"I have an air bag"	Air bags offer greater protection when used with safety belts. Frontal airbags are not designed to inflate in rear and side crashes or rollovers.
"I'd rather be thrown clear"	Not a good idea. **People** who are **ejected are 40 times more likely to DIE.** Safety belts help prevent ejection, WE CAN'T "PICK OUR CRASH".

⚠ Do not sit on top of a buckled safety belt to avoid the Belt Minder chime. Sitting on the safety belt will increase the risk of injury in an accident. To disable (one time) or deactivate the Belt Minder feature please follow the directions stated below.

One time disable

Any time the safety belt is buckled and then unbuckled during an ignition ON cycle, BeltMinder will be disabled for that ignition cycle only.

Deactivating/activating the BeltMinder feature

Before following the procedure, make sure that:

- The ignition switch and headlamp control are in the OFF position and all the doors are closed.
- The parking brake is set and the gearshift is in P (Park) (automatic transmission) or neutral (manual transmission).
- The driver's safety belt is unbuckled.

Read steps 1 - 9 before proceeding with the deactivation/activation procedure.

BeltMinder deactivation/activation procedure:

⚠ To reduce the risk of injury, do not deactivate/activate the Belt Minder feature while driving the vehicle.

1. Turn the ignition switch to the RUN (or ON) position without starting the engine.
2. Wait for the safety belt warning light to turn off. (Approximately 1–2 minutes.)
   - Steps 3–5 must be completed within 60 seconds or the procedure will have to be repeated.
3. Buckle, then unbuckle, the safety belt three times, ending with the safety belt unbuckled. This can be done before or during BeltMinder warning activation.
4. Turn on the headlamp control, then turn it off.
5. Buckle then unbuckle the safety belt three times, ending with the safety belt unbuckled.
   - After step 5, the safety belt warning light will be turned on for three seconds.
6. Within seven seconds of the safety belt warning light turning off, buckle, then unbuckle, the safety belt once.
   - This will disable BeltMinder if it is currently enabled, or enable BeltMinder if it is currently disabled.
7. Confirmation of disabling BeltMinder is provided by the safety belt warning light flashing four times per second for three seconds.
8. Confirmation of enabling BeltMinder is provided by:
   - The safety belt warning light flashing four times per second for three seconds, followed by three seconds with the safety belt warning light off.
   - Once again, the safety belt warning light will flash four times per second for three seconds.
9. After receiving confirmation, the deactivation/activation procedure is complete.

Safety belt extension assembly

If the safety belt is too short when fully extended, there is a 20 cm (8 inch) safety belt extension assembly that can be added (part number 611C22). This assembly can be obtained from your dealer at no cost.

Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on the label. Also, use the safety belt extension only if the safety belt is too short for you when fully extended.

⚠ Do not use extensions to change the fit of the shoulder belt across the torso.

Safety belt maintenance

Inspect the safety belt systems periodically to make sure they work properly and are not damaged. Inspect the safety belts to make sure there are no nicks, tears or cuts, replacing if necessary. All safety belt assemblies, including retractors, buckles, front seat belt buckle assemblies, buckle support assemblies (slide bar-if equipped), shoulder belt height adjusters (if equipped), child safety seat tether bracket assemblies (if equipped), LATCH child seat tether anchors and lower anchors (if equipped), and attaching hardware, should be inspected after a collision. Ford recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced, except as described in the *Replacing the front passenger and second row bench seat belt assemblies after a collision* section of this chapter. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

⚠ Failure to inspect and if necessary replace the safety belt assembly under the above conditions could result in severe personal injuries in the event of a collision.

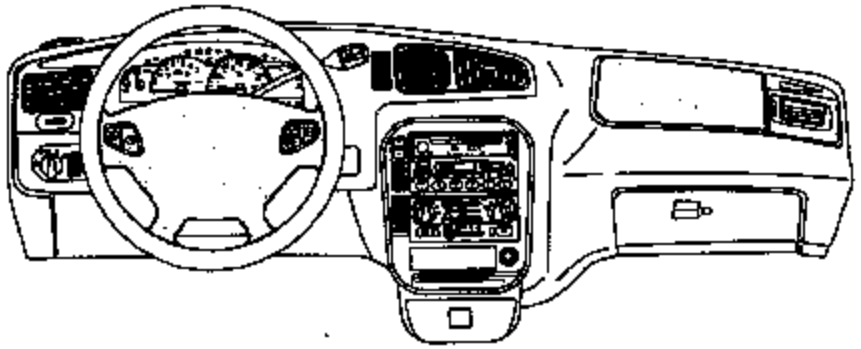
Refer to *Interior* in the *Cleaning* chapter.

Replacing the front passenger and second row bench seat belt assemblies after a collision

All front passenger and second row bench seat belt assemblies adjacent to a sliding door have special energy management retractors designed to further reduce the risk of injury in the event of a head-on collision. These retractors should be replaced if they were used in any accident in which the front airbags deploy. If the safety belt assemblies are not replaced, there may be increased risk of injury in the event of a subsequent collision.

⚠ Failure to inspect and if necessary replace the safety belt assembly under the above conditions could result in severe personal injuries in the event of a collision.

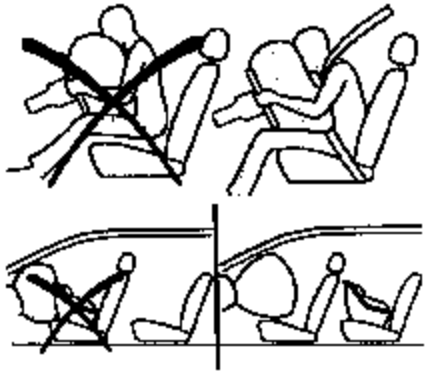
AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM



The air bag supplemental restraint system is designed to work in conjunction with the safety belts to help protect the driver and front outboard passenger from certain upper body injuries. The term "supplemental restraint" means the air bags are intended as a supplement to the safety belts. Air bags alone cannot protect as well as air bags plus safety belts in impacts for which the air bags are designed to deploy, and air bags do not offer any protection in crashes for which they do not deploy.

Important SRS precautions

The SRS is designed to work with the safety belt to help protect the driver and right front passenger from certain upper body injuries. Air bags DO NOT inflate slowly; there is a risk of injury from a deploying air bag.



⚠ All occupants of the vehicle, including the driver, should always properly wear their safety belts, even when an air bag (SRS) is provided.

⚠ Always transport children 12 years old and under in the back seat and always properly use appropriate child restraints.

⚠ The National Highway Traffic Safety Administration (NHTSA) recommends a minimum distance of at least 25 cm (10 inches) between an occupant's chest and the driver air bag module.

⚠ Never place your arm over the air bag module as a deploying air bag can result in serious arm fractures or other injuries.

To properly position yourself away from the air bag:

- Move your seat to the rear as far as you can while still reaching the pedals comfortably.
- Recline the seat slightly one or two degrees from the upright position.

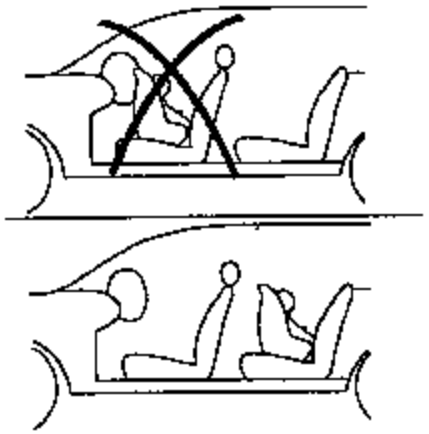
⚠ Do not put anything on or over the air bag module. Placing objects on or over the air bag inflation area may cause those objects to be propelled by the air bag into your face and torso causing serious injury.

⚠ Do not attempt to service, repair, or modify the air bag supplemental restraint systems or its fuses. See your Ford or Lincoln Mercury dealer.

⚠ Modifying or adding equipment to the front end of the vehicle (including frame, bumper, front end body structure and tow hooks) may affect the performance of the air bag system, increasing the risk of injury. Do not modify the front end of the vehicle.

Children and air bags

Children must always be properly restrained. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position. Failure to follow these instructions may increase the risk of injury in a collision.



⚠ Air bags can kill or injure a child in a child seat. NEVER place a rear-facing child seat in front of an active air bag. If you must use a forward-facing child seat in the front seat, move the seat all the way back.

Determining if the system is operational

The supplemental restraint system uses a warning indicator in the instrument cluster or a back-up tone to indicate the condition of the system. Refer to the *Warning light* section in the *Instrument cluster* chapter. Routine maintenance of the air bag is not required.

A difficulty with the system is indicated by one or more of the following:

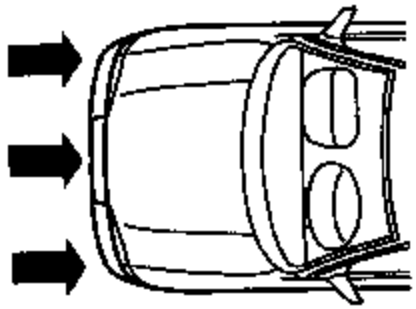
- The readiness light (same light for front and side air bag system) will either flash or stay lit.

- The readiness light will not illuminate immediately after ignition is turned on.

- A series of five beeps will be heard. The tone pattern will repeat periodically until the problem and/or light are repaired.

If any of these things happen, even intermittently, have the supplemental restraint system serviced at your dealership or by a qualified technician immediately. Unless serviced, the system may not function properly in the event of a collision.

How does the air bag supplemental restraint system work?



The air bag SRS is designed to activate when the vehicle sustains longitudinal deceleration sufficient to cause the sensors to close an electrical circuit that initiates air bag inflation. The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to cause activation. Front air bags are designed to inflate in frontal and near-frontal collisions, not rollover, side-impact, or rear-impacts unless the collision causes sufficient longitudinal deceleration.

The air bags inflate and deflate rapidly upon activation. After air bag deployment, it is normal to notice a smoke-like, powdery residue or smell the burnt propellant. This may consist of cornstarch, talcum powder (to lubricate the bag) or sodium compounds (e.g., baking soda) that result from the combustion process that inflates the air bag. Small amounts of sodium hydroxide may be present which may irritate the skin and eyes, but none of the residue is toxic.

While the system is designed to help reduce serious injuries, contact with a deploying air bag may also cause abrasions, swelling or temporary hearing loss. Because air bags must inflate rapidly and with considerable

force, there is the risk of death or serious injuries such as fractures, facial and eye injuries or internal injuries, particularly to occupants who are not properly restrained or are otherwise out of position at the time of air bag deployment. Thus, it is extremely important that occupants be properly restrained as far away from the air bag module as possible while maintaining vehicle control.

⚠ Several air bag system components get hot after inflation. Do not touch them after inflation.

⚠ If the air bag has deployed, the air bag will not function again and must be replaced immediately. If the air bag is not replaced, the unprotected area will increase the risk of injury in a collision.

The SRS consists of:

- driver and passenger air bag modules (which include the inflators and air bags).
- side air bags (if equipped). Refer to *Side air bag system* later in this chapter.
- one or more impact and safing sensors.
- a readiness light and tone.
- diagnostic module.
- and the electrical wiring which connects the components.

The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system warning (including the impact sensors), the system wiring, the air bag system readiness light, the air bag back up power and the air bag igniters.

Side air bag system (if equipped)

⚠ Do not place objects or mount equipment on or near the air bag cover on the side of the seatbacks of the front seats or in front seat areas that may come into contact with a deploying air bag. Failure to follow these instructions may increase the risk of personal injury in the event of a collision.

⚠ Do not use accessory seat covers. The use of accessory seat covers may prevent the deployment of the side air bags and increase the risk of injury in an accident.

⚠ Do not lean your head on the door. The side air bag could injure you as it deploys from the side of the seatback.

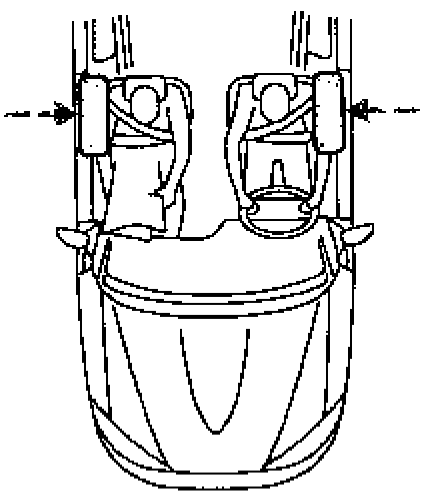
⚠ [illegible]

⚠ [illegible]

How does the side air bag system work?

The side air bag system consists of the following:

- An inflatable nylon bag (air bag) with a gas generator concealed behind the outboard bolster of the driver and front passenger seatbacks.
- A special seat cover designed to allow airbag deployment.
- The same warning light, electronic control and diagnostic unit as used for the front air bags.
- Two crash sensors located under the outboard side of the front seats, attached to the floor.



Side air bags, in combination with seat belts, can help reduce the risk of severe injuries in the event of a significant side impact collision.

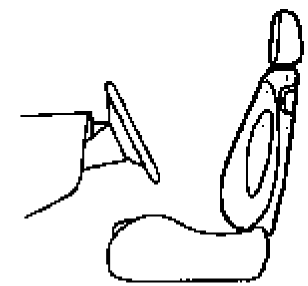
The side air bags are fitted on the outboard side of the seatbacks of the front seats. In certain lateral collisions, the air bag on the side affected by the collision will be inflated, even if the respective seat is not

occupied. The air bag was designed to inflate between the door panel and occupant to further enhance the protection provided occupants in side impact collisions.

The air bag SRS is designed to activate when the vehicle sustains lateral deceleration sufficient to cause the sensors to close an electrical circuit that initiates air bag inflation.

The fact that the air bags did not inflate in a collision does not mean that something is wrong with the system. Rather, it means the forces were not of the type sufficient to cause activation. Side air bags are designed to inflate in side-impact collisions, not roll-over, rear-impact, frontal or near-frontal collisions, unless the collision causes sufficient lateral deceleration.

⚠ Several air bag system components get hot after inflation. Do not touch them after inflation.



⚠ If the side air bag has deployed, the air bag will not function again. The side air bag system (including the seat) must be inspected and serviced by a qualified technician in accordance with the vehicle service manual. If the air bag is not replaced, the unrepaired area will increase the risk of injury in a collision.

Disposal of air bags and air bag equipped vehicles (including pretensioners)

See your local dealership or qualified technician. Air bags MUST BE disposed of by qualified personnel.

SAFETY RESTRAINTS FOR CHILDREN

See the following sections for directions on how to properly use safety restraints for children. Also see *Air bag supplemental restraint system (SRS)* in this chapter for special instructions about using air bags.

Important child restraint precautions

You are required by law to use safety restraints for children in the U.S. and Canada. If small children (generally children who are four years old

or younger and who weigh 18 kg [40 lbs] or less) ride in your vehicle, you must put them in safety seats made especially for children. Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle. When possible, always place children under age 12 in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position.

Always follow the instructions and warnings that come with any infant or child restraint you might use.

Children and safety belts

If the child is the proper size, restrain the child in a safety seat. Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

Follow all the important safety restraint and air bag precautions that apply to adult passengers in your vehicle.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving the child closer to the center of the vehicle may help provide a good shoulder belt fit.

Child booster seats

Children outgrow a typical convertible or toddler seat when they weigh 40 pounds and are around 4 years of age. Although the lap/shoulder belt will provide some protection, these children are still too small for lap/shoulder belts to fit properly, which could increase the risk of serious injury.

To improve the fit of both the lap and shoulder belt on children who have outgrown child safety seats, Ford Motor Company recommends use of a belt-positioning booster.

Booster seats position a child so that safety belts fit better. They lift the child up so that the lap belt rests low across the hips and the knees

bend comfortably. Booster seats also make the shoulder belt fit better and more comfortably for growing children.

When children should use booster seats

Children need to use booster seats from the time they outgrow the toddler seat until they are big enough for the vehicle seat and lap/shoulder belt to fit properly. Generally this is when they weigh about 80 lbs (about 8 to 12 years old).

Booster seats should be used until you can answer YES to ALL of these questions:

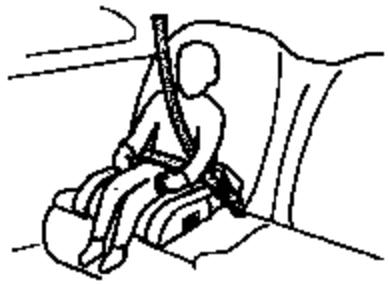
- Can the child sit all the way back against the vehicle seat back with knees bent comfortably at the edge of the seat without slouching?

- Does the lap belt rest low across the hips?
- Is the shoulder belt centered on the shoulder and chest?
- Can the child stay seated like this for the whole trip?

Types of booster seats

There are two types of belt-positioning booster seats:

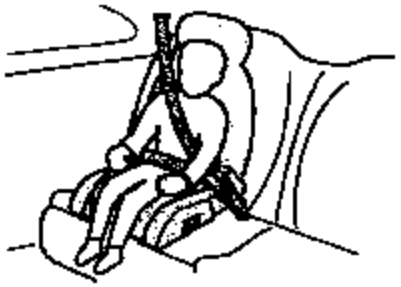
- Those that are backless.



If your backless booster seat has a removable shield, remove the shield and use the lap/shoulder belt. If a seating position has a low seat back and no head restraint, a backless booster seat may place your child's head (top of ear level) above the top of the seat. In this case, move the backless booster to another seating position with a higher seat back and lap/shoulder belts.

- Those with a high back.

  If, with a backless booster seat, you cannot find a seating position that adequately supports your child's head, a high back booster seat would be a better choice.



Both can be used in any vehicle in a seating position equipped with lap/shoulder belts if your child is over 40 lbs.

The shoulder belt should cross the chest, resting snugly on the center of the shoulder. The lap belt should rest low and snug across the hips, never up high across the stomach.

If the booster seat slides on the vehicle seat, placing a rubberized mesh sold as shelf or carpet liner under the booster seat may improve this condition.

The importance of shoulder belts

Using a booster without a shoulder belt increases the risk of a child's head hitting a hard surface in a collision. For this reason, you should never use a booster seat with a lap belt only. It is best to use a booster seat with lap/shoulder belts in the back seat- the safest place for children to ride.

⚠ Follow all warnings provided by the manufacturer of the booster seat.

⚠ Never put the shoulder belt under a child's arm or behind the back because it decreases the protection for the upper part of the body and may increase the risk of injury occurring in a collision.

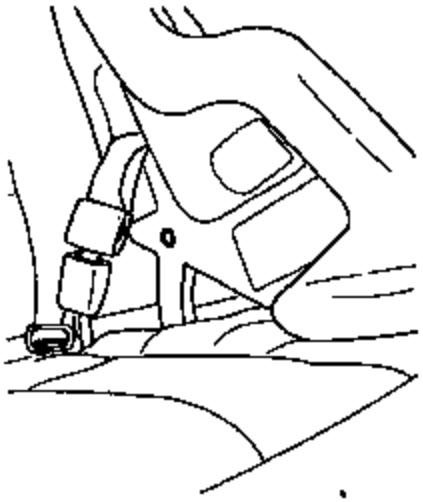
⚠ Never use pillows, books, or towels to raise a child. They can slide around and increase the likelihood of injury or death in a collision.

SAFETY SEATS FOR CHILDREN

Child and infant or child safety seats

Use a safety seat that is recommended for the size and weight of the child. Carefully follow all of the manufacturer's instructions with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

When installing a child safety seat:



- Review and follow the information presented in the *Air Bag Supplemental Restraint System* section in this chapter.
- Use the correct safety belt buckle for that seating position.
- Insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child seat and the release button, to prevent accidental unbuckling.
- Place seat back in upright position.

Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position which is capable

of providing a tether anchorage. For more information on top tether straps, refer to *Attaching safety seats with tether straps.*

⚠ Carefully follow all of the manufacturer's instructions included with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

Installing child safety seats in cinch tongue combination lap and shoulder belt seating positions

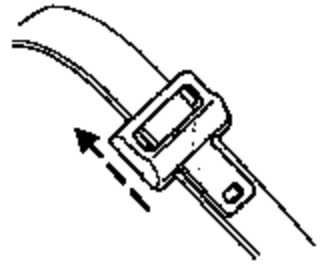
The belt webbing below the tongue is the lap portion of the combination lap/shoulder belt, and the belt webbing above the tongue is the shoulder belt portion of the combination lap/shoulder belt.

1. Position the child safety seat in a seat with a combination lap and shoulder belt.

⚠ Air bags can kill or injure a child in a child seat. If you must use a forward-facing child seat in the front seat, move seat all the way back.

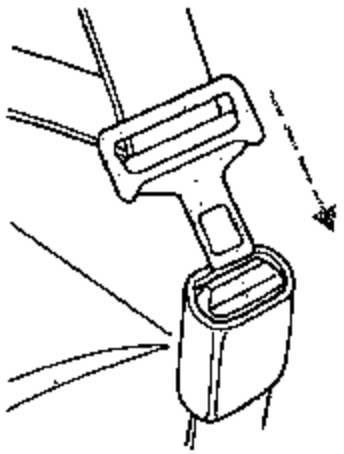
⚠ Rear facing child seats should NEVER be used in front of an active air bag.

2. Slide the tongue up the webbing.



3. While holding both shoulder and lap portions next to the tongue, route the tongue and webbing through the child seat according to the child seat manufacturer's instructions. Be sure that the belt webbing is not twisted.

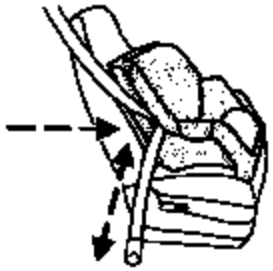
4. Insert the belt tongue into the proper buckle for that seating positions until you hear a snap and feel it latch. Make sure the tongue is securely latched to the buckle by pulling on the tongue.



5. While pushing down with your knee on the child seat pull up on the shoulder belt portion to tighten the lap belt portion of the combination lap and shoulder belt.

6. Allow the safety belt to retract and remove any slack in the belt to securely tighten the child safety seat in the vehicle.

7. Before placing the child into the child seat, forcibly pull the child seat forward and back to make sure that the seat is held securely in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than one inch of movement for proper installation.



8. Check from time to time to be sure that there is no slack in the lap/shoulder belt. The shoulder belt must be snug to keep the lap belt tight during a collision.

Installing child safety seats in the lap belt seating positions

1. Lengthen the lap belt. To lengthen the belt, hold the tongue so that its bottom is perpendicular to the direction of webbing while sliding the tongue up the webbing.

2. Place the child safety seat in the center seating position.

3. Route the tongue and webbing through the child seat according to the child seat manufacturer's instructions.

4. Insert the belt tongue into the proper buckle for the center seating position until you hear a snap and feel it latch. Make sure the tongue is securely fastened to the buckle by pulling on tongue.

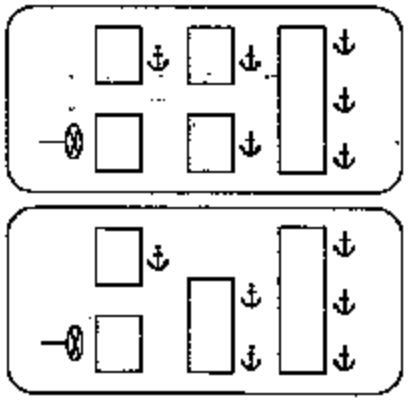
5. Push down on the child seat while pulling on the loose end of the lap belt webbing to tighten the belt.

6. Before placing the child into the child seat, forcibly tilt the child seat from side to side and in forward direction to make sure that the seat is securely held in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than one inch of movement for proper installation.

Attaching child safety seats with tether straps

Most new forward-facing child safety seats include a tether strap which goes over the back of the seat and hooks to an anchoring point. Tether straps are available as an accessory for many older safety seats. Contact the manufacturer of your child seat for information about ordering a tether strap.

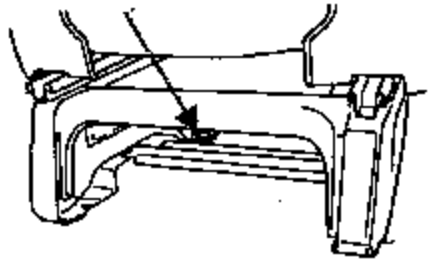
The tether anchors in your vehicle are in the positions shown:



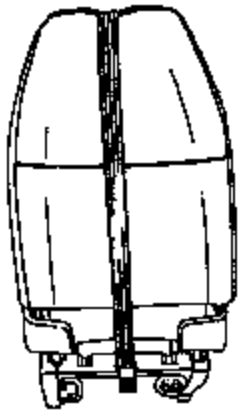
The tether can be attached directly to the rear of all passenger seating except the front passenger seat equipped with power adjustment. The front passenger seat with manual adjustment does have a tether anchor.

Front passenger seating position (manual adjusting seats only)

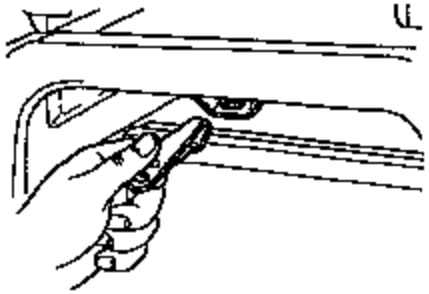
1. Position the child safety seat on the passenger seat cushion.



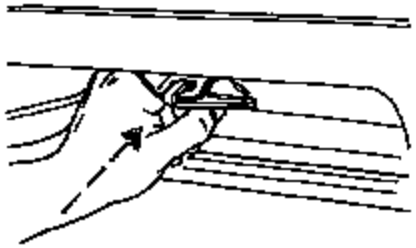
2. Route the child safety seat tether strap over the back of the seat. If the head restraint is adjustable, route the tether strap under the head restraint and between the head restraint posts. If the top of the safety seat hits the head restraint, raise the head restraint to let the child seat fit further rearward.

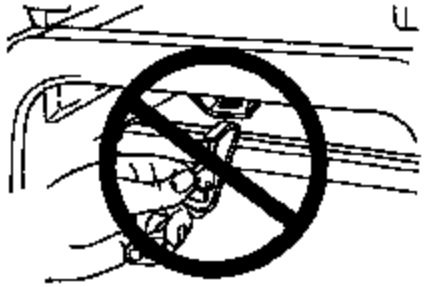


3. Grasp the tether strap and position it to the seat frame.



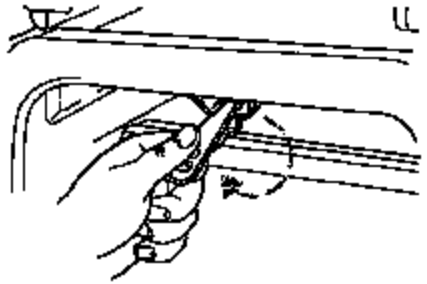
4. Rotate the tether hook, and clip the tether strap to the seat frame.



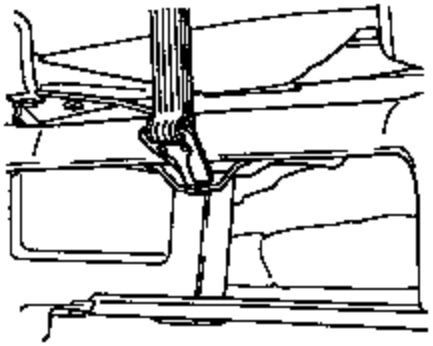


5. Rotate the tether strap clip.

6. Refer to the instructions in this section under *Installing child safety seats in cinch tongue combination lap and shoulder belt seating positions* to secure the child safety seat.



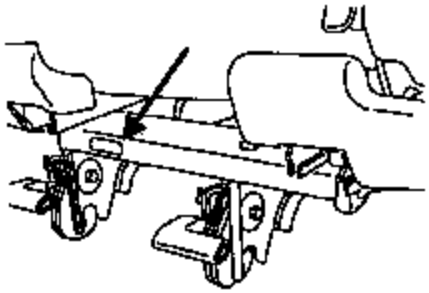
7. Tighten the child safety seat tether strap according to the manufacturer's instructions.



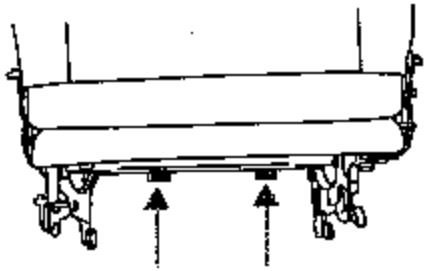
Rear seating positions

Follow steps 1–8 as described above for the following available seats:

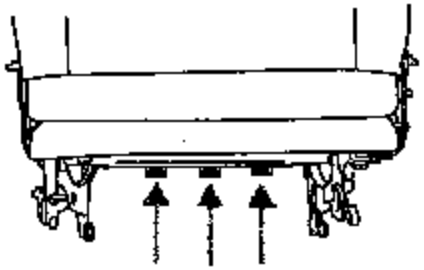
- 2nd row bucket



- 2nd row bench



- 3rd row bench



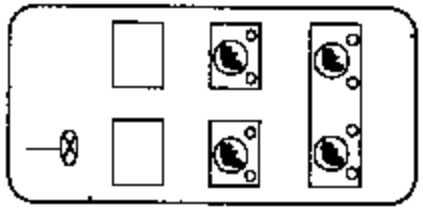
For additional important safety information on the proper use of seatbelts, child seats and infant seats, please read the entire *Seating and safety restraints* chapter in this owner's guide.

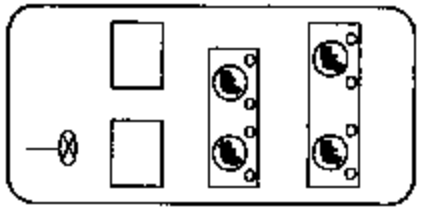
Attaching safety seats with LATCH (Lower Anchors and Tethers for Children) attachments for child seat anchors

Some child safety seats have two rigid or webbing mounted attachments that connect to two anchors at certain seating positions in your vehicle. This type of child seat eliminates the need to use seat belts to attach the child seat. For forward-facing child seats, the tether strap must also be attached to the proper tether anchor. See *Attaching safety seats with tether straps* in this chapter.

Your vehicle has LATCH anchors for child seat installation at the seating positions marked with the child seat symbol.

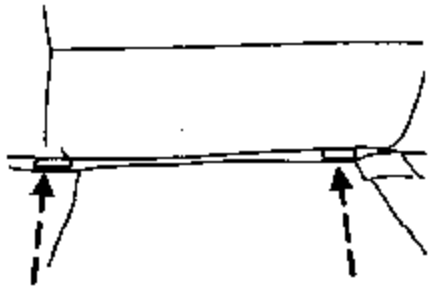
The anchors on both sides of the center of the rear seat are provided primarily for child seats at the outboard seats, and are further apart than the pairs of lower anchors for child seat installation at other seating positions. A child seat with rigid LATCH attachments cannot be installed at the center rear seat. A child seat with LATCH attachments on belt webbing can be used at the center rear seat unless a child seat at an outboard rear seat is attached to one of these lower anchors.





⚠ Never attach two LATCH child safety seats to the same anchor. In a crash, one anchor may not be strong enough to hold two child safety seat attachments and may break, causing serious injury or death.

The lower anchors for child seat installation are located at the rear section of the rear seat between the cushion and seat back.



Follow the child seat manufacturer's instructions to properly install a child seat with LATCH attachments.

⚠ Attach LATCH lower attachments of the child seat only to the anchors shown.

If you install a child seat with rigid LATCH attachments, do not tighten the tether strap enough to lift the child seat off the vehicle seat cushion when the child is seated in it. Keep the tether strap just snug without lifting the front of the child seat. Keeping the child seat just touching the vehicle seat gives the best protection in a severe crash. Adjusting the seat back angle may allow the tether strap to be tight without lifting the child seat.

Each time you use the safety seat, check that the seat is properly attached to the lower anchors and tether anchor. Try to tilt the child seat from side to side. Also try to tug the seat forward. Check to see if the anchors hold the seat in place.

⚠ If the safety seat is not anchored properly, the risk of a child being injured in a crash greatly increases.

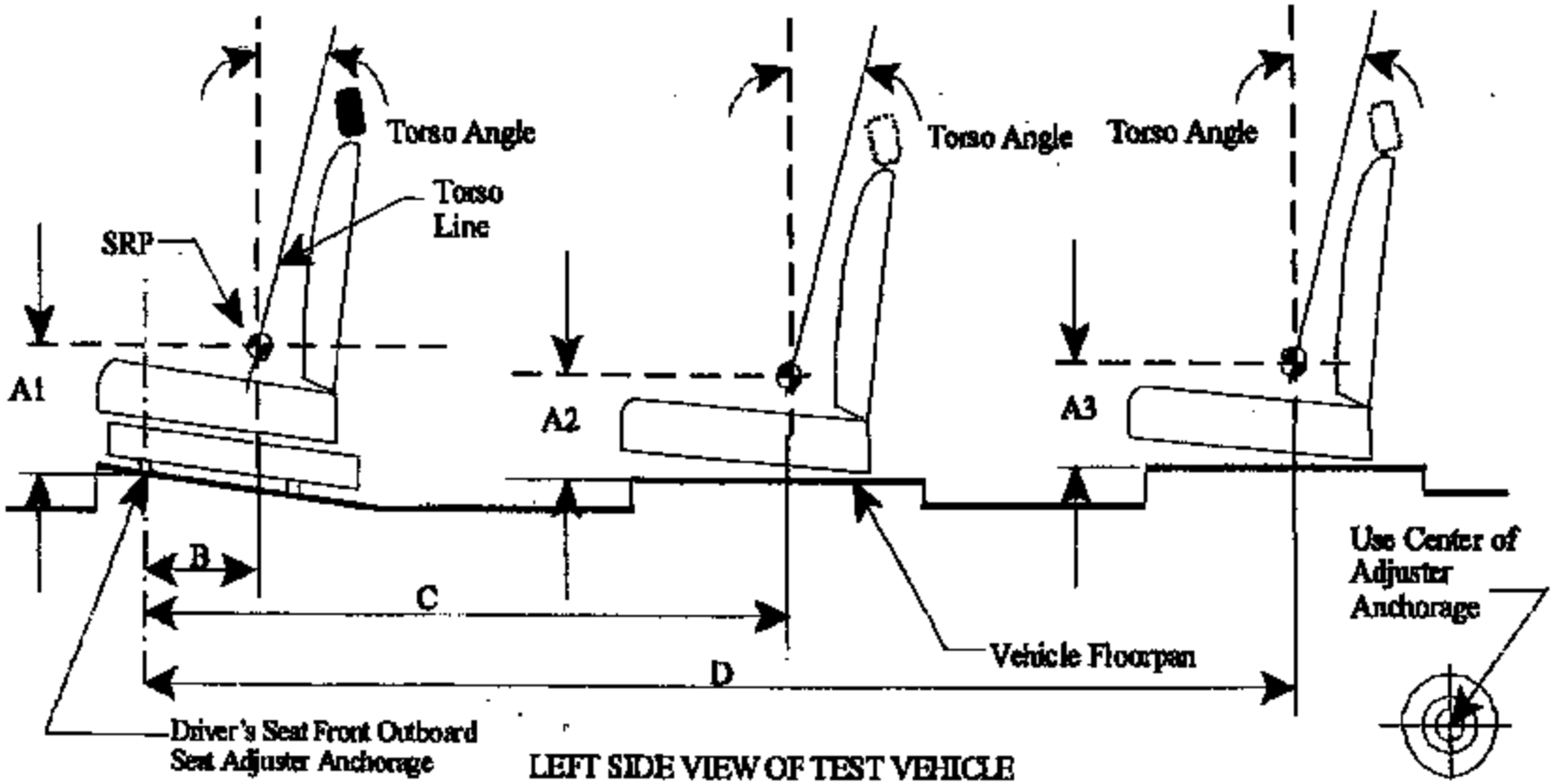
APPENDIX B

MANUFACTURER'S DATA

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA FOR FMVSS 225

(All dimensions in mm[1])

Model Year: ___2003____; Make: __WIN126_____; Model: _____; Body Style: _____
Seat Style: Front row: __LOW BACK_____; Second row: __QUAD_____; Third row: __3 PASS BENCH__



LEFT SIDE VIEW OF TEST VEHICLE

C302O8

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		372.90 mm	N/A	372.90 mm
A2		344.90 mm	N/A	344.90 mm
A3		393.90 mm	393.90 mm	393.90 mm
B		258.70 mm	N/A	258.70 mm
C		1106.70 mm	N/A	1106.70 mm
D		1943.40 mm	1943.40 mm	1943.40 mm
Torso Angle (degree)	Front Row	21 deg.	N/A	21 deg.
	Second Row	21 deg.	N/A	21 deg.
	Third Row	21 deg.	21 deg.	21 deg.

Note: 1. All dimensions are in mm. If not, provide the unit used.

SEATING REFERENCE POINT
FOR FMVSS 225
(All dimensions in mm)

Model Year: ___2003____; Make: __WIN126_____; Model: _____; Body Style: _____
Seat Style: Front row: __LOW BACK_____; Second row: __QUAD_____; Third row: __3 PASS BENCH__

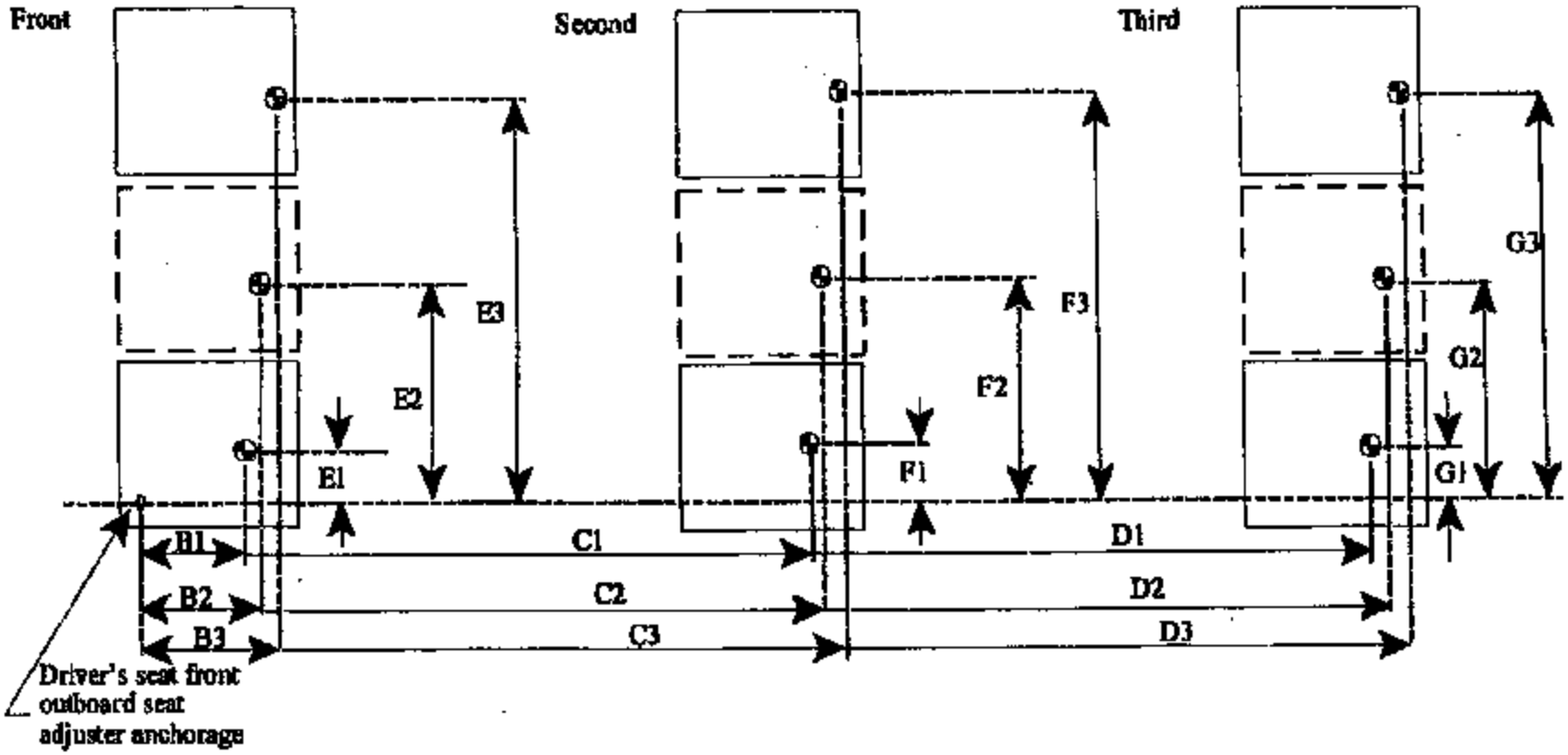


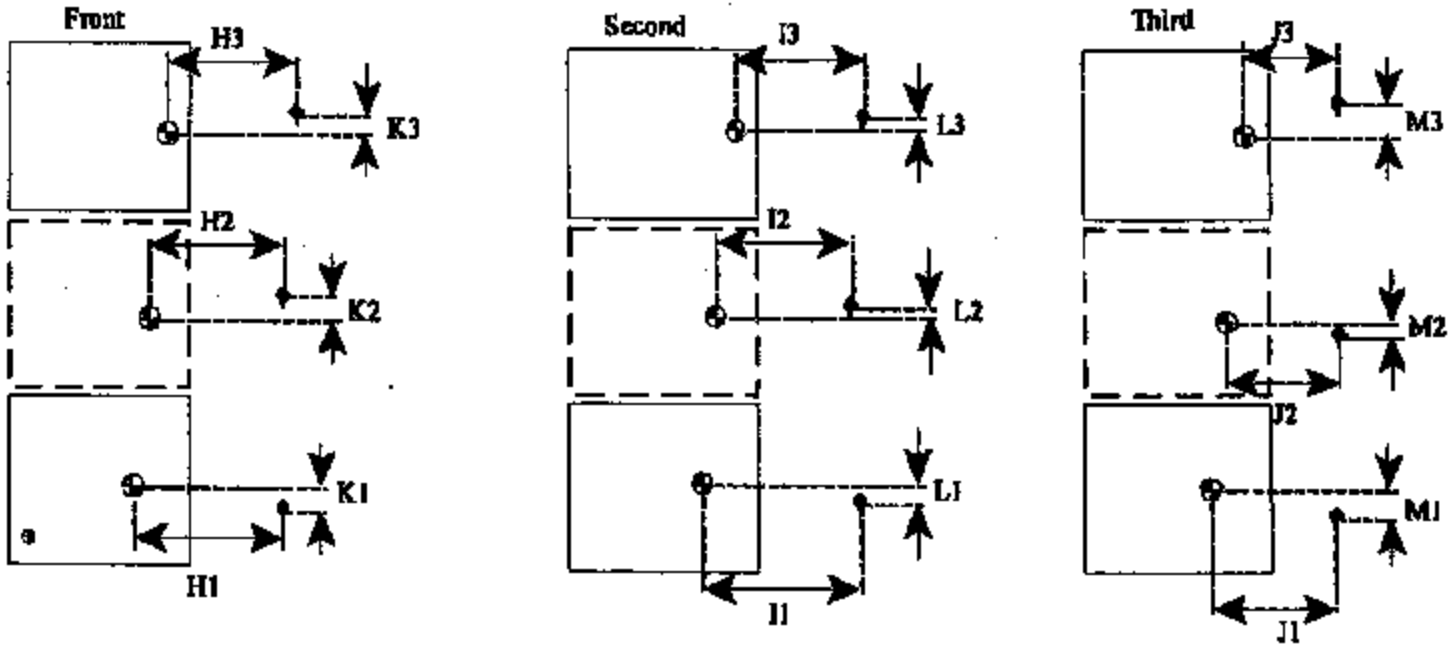
Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	258.7mm
	E1	179.5mm
	B2	N/A
	E2	N/A
	B3	258.7mm
	E3	1016.5mm
Second Row	C1	1106.7mm
	F1	283.5mm
	C2	N/A
	F2	N/A
	C3	1106.7mm
	F3	1021.5mm
Third Row	D1	1943.4mm
	G1	179.5mm
	D2	1943.4mm
	G2	591.5mm
	D3	1943.4mm
	G3	1003.5mm

Note: 1. Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year: ___2003____; Make: __WIN126_____; Model: _____; Body Style: _____
Seat Style: Front row: __LOW BACK_____; Second row: __QUAD_____; Third row: __3 PASS BENCH__



⊕: SRP
♦: Tether anchorage

Note: 1. The location shall be measured at the center of the bar.

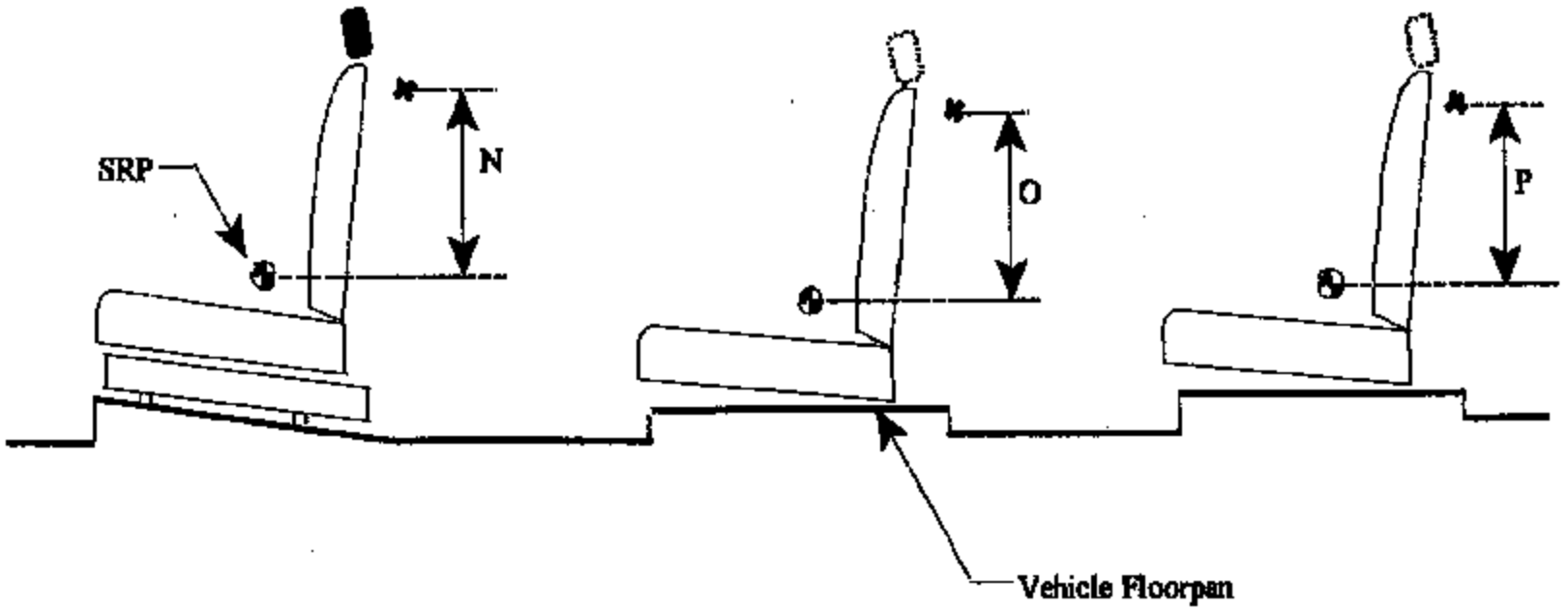
Table 3. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	N/A
	K3	N/A
Second Row	I1	155.65 mm
	L1	116.08 mm
	I2	N/A
	L2	N/A
	I3	155.65 mm
	L3	-116.08 mm
Third Row	J1	107.19 mm
	M1	-121.56 mm
	J2	107.19 mm
	M2	66.01 mm
	J3	107.19 mm
	M3	-124.61 mm

Note: 1. Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS - VERTICAL
FOR FMVSS 225
(All dimensions in mm)

Model Year: ___2003____; Make: __WIN126_____; Model: _____; Body Style: _____
Seat Style: Front row: __LOW BACK_____; Second row: __QUAD_____; Third row: __3 PASS BENCH__



LEFT SIDE VIEW OF TEST VEHICLE

Table 4. Vertical Dimension For The Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point	
Front Row	N1 (Driver)	N/A
	N2 (Center)	N/A
	N3 (Right)	N/A
Second Row	O1 (Left)	-215.67 mm
	O2 (Center)	N/A
	O3 (Right)	-215.67 mm
Third Row	P1 (Left)	-161.45 mm
	P2 (Center)	-161.45 mm
	P3 (Right)	-161.45 mm

Note: 1. All dimensions are in mm. If not, provide the unit used.

Test Procedures Used for Compliance Tests

Tether Anchorages

Seating Location		FMVSS Section(s) - Req.
Front	Driver	N/A
	Center (if any)	N/A
	Right (if any)	S6.3.4/S8
Second	Left	S6.3.4/S8
	Center	N/A
	Right (if any)	S6.3.4/S8
Third	Left	S6.3.4/S8
	Center	S6.3.4/S8
	Right	S6.3.4/S8
Fourth	Left	N/A
	Center	N/A
	Right	N/A

Lower Anchorages

Seating Location		FMVSS Section(s) - Req.
Front	Driver	N/A
	Center (if any)	N/A
	Right (if any)	N/A
Second	Left	S15.3
	Center	N/A
	Right	S15.3
Third	Left	S15.3
	Center	N/A
	Right	S15.3
Fourth	Left	N/A
	Center	N/A
	Right	N/A

For each anchorage system, provide the following information:

1. **Lower Anchorage Dimensions:** Whether the anchorages are certified with S15.1.2.1 of FMVSS No. 225.

   Yes: The lower anchorage dimensions were certified to S15.1.2.1 of FMVSS No. 225.

2. **Lower Anchorage Location:** Whether the anchorages are certified with S15.1.2.2 of FMVSS No. 225. If the anchorages are certified with S15.1.2.2, provide the pitch, roll and yaw angles.

   Yes: By design (drawing requirements) 2003 Windstar meets the requirements of S15.1.2.2 of FMVSS No. 225. The pitch, roll and yaw angels are as follows:

Description	Pitch	Roll	Yaw
3rd Row Bench Passenger side	20 deg.	0 deg.	0 deg.
3rd Row Bench Driver side	20 deg.	3 deg.	0 deg.
2nd Row Quad	11 deg.	2 deg.	0 deg.

3. **Lower Anchorage Marking and Conspicuity:** Whether the anchorages are certified with S15.4 of FMVSS No. 225. If guidance fixtures are used, provide the location of the seating systems that are equipped with the guidance fixture.

   Yes: The lower anchorage marking and conspicuity were certified to S15.4 of FMVSS No. 225. No guidance fixtures were used.

4. **Location of Tether Anchorage:** Applicable section of FMVSS No. 225 for the option used for its certification.

   The locations of tether anchorages were certified to S6.2.2 of FMVSS No. 225.

5. **Number of Tether Anchorage:** Applicable section of FMVSS No. 225 for the option used for its certification

   The number of tether anchorages were certified to S4.4(a) of FMVSS No. 225.

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 225 TEST DATE: 08/28/03

LABORATORY: General Testing Laboratories, Inc.

CONTRACT NO.: DTNH22-02-D-01043 ; DELV. ORDER NO.:

LABORATORY PROJECT ENGINEER'S NAME: Grant Farrand

TEST VEHICLE MAKE/MODEL/BODY STYLE: 2003 Ford Windstar

VEHICLE NHTSA NO.: C30208 : VIN: 2FMZA53493BA03994

VEHICLE MODEL YEAR: 2003 : BUILD DATE: 08/02

TEST FAILURE DESCRIPTION: During loading of the SFAD 2 in the 3rd Row Passenger Position of the above vehilce per S15.3 to 8K N, the 3rd Row Sofa released from the floor due to the right side latch releasing and allowing point X of the SFAD to exceed the allowed 125 mm maximum excursion. The release occurred at 6111 Newtons force at .78 seconds into the test.

S225 REQUIREMENT, PARAGRAPH S15.2.2 :Horizontal excursion of point X during application of the 8K N and 5K N forces must be not more than 125 mm after preloading the device.

NOTIFICATION TO NHTSA (COTR): Brian Smith

DATE: 09/03/03 BY: Grant Farrand

REMARKS: