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REPORT NUMBER 225-GTL-04-009

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

FORD MOTOR CO.
2004 FORD ECONOLINE , MPV
NHTSA NO. C40208

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

OCTOBER 8, 2004

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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ROOM 6111 (NVS-220)
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Approval Date: 10/08/04

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4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of 2004 FORD ECONOLINE, MPV NHTSA No. C40208		5. Report Date October 8, 2004 6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-04-225-009
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		10. Work Unit No. (TRAIS) N/A 11. Contract or Grant No. DTNH22-02-D-01043
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Safety Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 7th Street, S.W., Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report September 15 -27, 2004 14. Sponsoring Agency Code NVS-220
15. Supplementary Notes		
16. Abstract Compliance tests were conducted on the subject, 2004 Ford Econoline 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: The Lower Anchorages are not visible, S15.4.		
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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2004 Ford Econoline 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 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 2004 Ford Econoline MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1FMRE11W94H[redacted]

B. NHTSA No.: C40208

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 11/03

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 225 testing during the time period September 15 - 27, 2004.

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 2004 Ford Econoline MPV did not appear to meet the requirements of FMVSS 225. 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)
5255	SFAD 1 Tether Strap	2nd Row Left	9875	114.4
5256	SFAD 1 Tether Strap	2nd Row Right	9887	114.2
5257	SFAD 2 Lower Anchor	2nd Row Center	4906	28.4
5258	SFAD 2 Lower Anchor	3rd Row Center	7837	86.0

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL BODY	2004 Ford Econoline
VEH. NHTSA NO.	C40208
VIN	1FMRE11W94H[redacted]
VEH. BUILD DATE	11/03
TEST DATE	09/15/04 – 09/27/04
TEST LABORATORY	GTL
OBSERVERS	Grant Farrand, Jimmy Latane

GENERAL INFORMATION:

Date Received: 06/11/04 Odometer Reading: 993.7

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: FORD MOTOR CO.

Date of Manufacture: 11/03 VIN: 1FMRE11W94HA29971

GVWR: 3175 kg; GAWR FRONT: 1632 kg
GAWR REAR: 1723 kg

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of testing on the 2004 Ford Econoline MPV.

DATA SHEET 1
CHILD RESTRAINT TETHER ANCHORAGE CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 15, 2004
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
Second Row Seat=	3
Third Row Seat=	3
Total=	8

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	YES*	YES	YES	YES
Second	Left	YES	YES	YES	YES
	Center	YES	YES	YES	YES
	Right	YES	YES	YES	YES
Third	Left	NO	N/A	N/A	N/A
	Center	YES	YES	YES	YES
	Right	NO	N/A	N/A	N/A

REMARKS: *OWNER'S MANUAL SUGGESTS NOT PUTTING CHILD SEAT IN THIS POSITION DUE TO NO AIR BAG CUT-OFF SWITCH ON THIS VEHICLE.

RECORDED BY: [signature] DATE: 09/15/04

APPROVED BY: [signature]

DATA SHEET 2
CHILD RESTRAINT LOWER ANCHORAGES CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 15, 2004
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

OBSERVED LOWER ANCHORAGE CONFIGURATION		SEAT POSITION				
		FRONT	SECOND		THIRD	
			LEFT	RIGHT	LEFT	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	N/A		N/A	
	Center	N/A	NO	NO	NO	NO
	Right	N/A	N/A		N/A	
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	N/A		N/A	
	Center	N/A	NO	NO	NO	NO
	Right	N/A	N/A		N/A	
Diameter of the bar (mm)	Left	N/A	N/A		N/A	
	Center	N/A	6.06	6.06	6.06	6.06
	Right	N/A	N/A		N/A	
Inspect if the bars are straight, horizontal and transverse	Left	N/A	N/A		N/A	
	Center	N/A	YES	YES	YES	YES
	Right	N/A	N/A		N/A	

DATA SHEET 2 CONTINUED
CHILD RESTRAINT LOWER ANCHORAGES CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 15, 2004
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION	FRONT	SECOND	THIRD
Inspect if the centroidal longitudinal axes are collinear within 5 degrees.	Left	N/A*	N/A	N/A
	Center	N/A	YES	YES
	Right	N/A	N/A	N/A
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*	N/A	N/A
	Center	N/A	28 MM 28MM	28 MM 28 MM
	Right	N/A	N/A	N/A
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	Left	N/A*	N/A	N/A
	Center	N/A	YES	YES
	Right	N/A	N/A	N/A
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*	N/A	N/A
	Center	N/A	280	280
	Right	N/A	N/A	N/A
Inspect if the bars are an integral and permanent part of the vehicle.	Left	N/A*	N/A	N/A
	Center	N/A	YES	YES
	Right	N/A	N/A	N/A
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*	N/A	N/A
	Center	N/A	YES	YES
	Right	N/A	N/A	N/A

* DRIVER'S SEAT

RECORDED BY: _____ DATE: 09/15/04
APPROVED BY: _____

DATA SHEET 2 CONTINUED
CHILD RESTRAINT LOWER ANCHORAGES CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 15, 2004
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

OBSERVED LOWER ANCHORAGE CONFIGURATION		SEAT POSITION FRONT	SECOND	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	NO	NO
	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: _____ DATE: 09/15/04

APPROVED BY: _____

DATA SHEET 3
LOCATION AND DIMENSIONAL MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 15, 2004
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
Second Row Seat= 3
Third Row Seat= 3
Total= 8

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

*OWNER'S MANUAL SUGGESTS NOT INSTALLING CHILD SEAT IN THIS POSITION DUE TO NO AIR BAG CUT-OFF SWITCH ON THIS VEHICLE.

RECORDED BY: [signature] DATE: 09/15/04

APPROVED BY: [signature]

DATA SHEET 3 CONTINUED
LOCATION AND DIMENSIONAL MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE:11/03 ; TEST DATE: SEPTEMBER 15, 2004
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 3 Third Seat= 3 Total= 8

SEAT POSITION FOR LOWER ANCHORAGE	PRESENCE OF ANCHORAGES		COMMENTS
	REQUIRED	OBSERVED	
FRONT	NONE	NONE	N/A
SECOND	1	1	CENTER
THIRD	1	1	CENTER

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		
SECOND	Left	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center	60	59	187	189	11.5°	0°	0°
	Right	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
	Center	60	60	180	180	12°	0°	0°
	Right	N/A	N/A	N/A	N/A	N/A	N/A	N/A

RECORDED BY: _____ DATE: 09/20/04
APPROVED BY: _____

DATA SHEET 4
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 27, 2004
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE
TEST # 5255 & 5256

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	FIXED	FIXED	N/A	1	0°	0.0	385 N/SEC	9875	114.4	114.4
	Center	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right (if any)	FIXED	FIXED	N/A	1	0°	0.0	385 N/SEC	9887	114.2	114.1
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	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: 09/27/04
APPROVED BY: _____

DATA SHEET 5
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 27, 2004
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

TEST # 5258
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
Second	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	FIXED	FIXED	N/A	9°	0°	0.0	4000 N/SEC	7837	86.0	86.0
	Right	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: TESTED TO S15

RECORDED BY: [signature]
APPROVED BY: [signature]

DATE: 09/27/04

DATA SHEET 6
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: 2004 FORD ECONOLINE MPV
VEH. NHTSA NO: C40208; VIN: 1FMRE11W94H[redacted]
VEH. BUILD DATE: 11/03 ; TEST DATE: SEPTEMBER 27, 2004
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

TEST # 5257
LOWER ANCHORAGE- LATERAL 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
Second	Left	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center	FIXED	FIXED	N/A	0°	75°	0.0	2500 N/SEC	4906	28.4	28.4
	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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: TESTED TO S15

RECORDED BY: [signature]
APPROVED BY: [signature]
DATE: 09/27/04

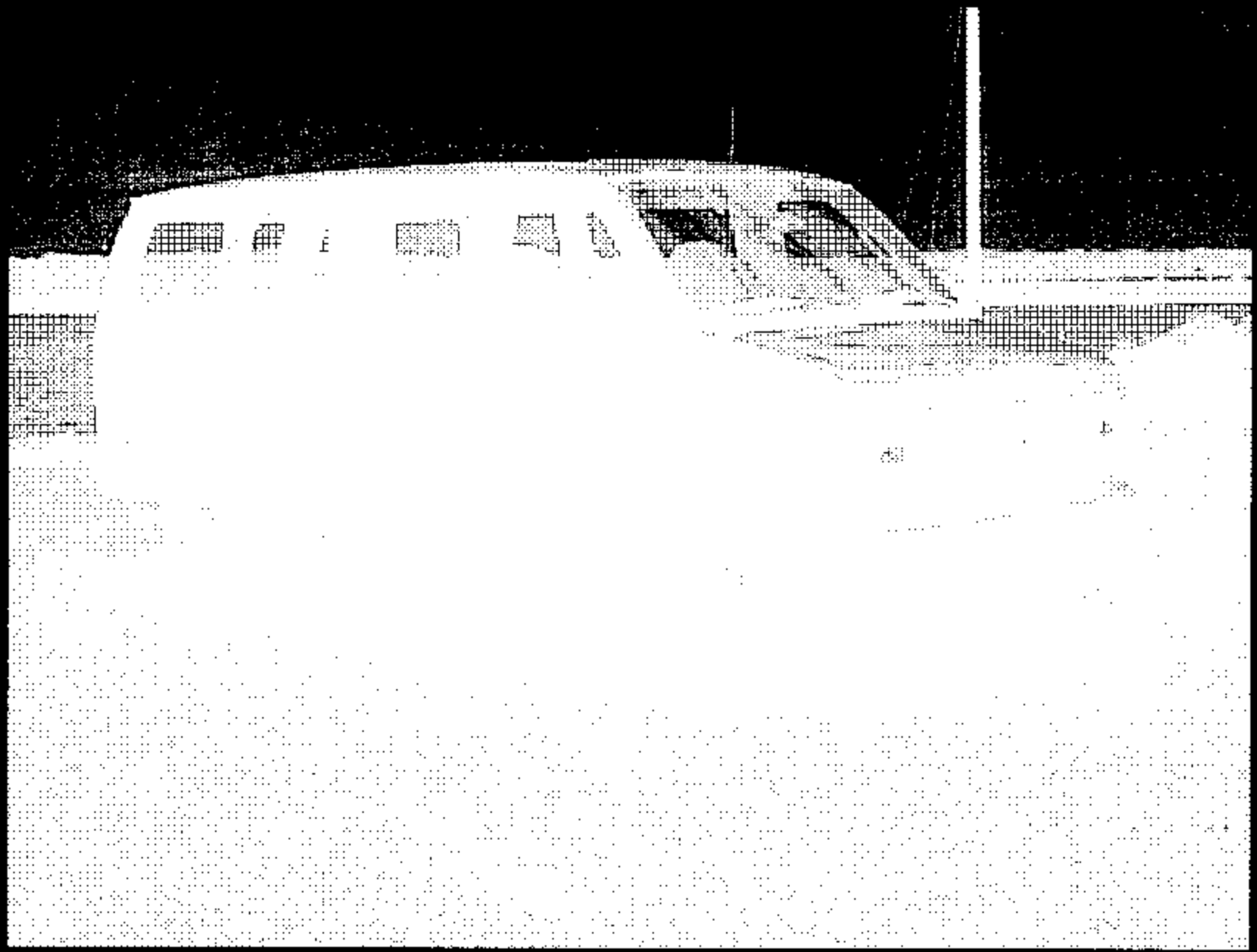
SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

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	INTERFACE	496	07/04	07/05
LINEAR TRANSDUCER	CELESCO	69	BEFORE USE	BEFORE USE
LINEAR TRANSDUCER	CELESCO	70	BEFORE USE	BEFORE USE
LINEAR TRANSDUCER	CELESCO	72	BEFORE USE	BEFORE USE
LEVEL	STANLEY	42-449	11/03	02/05
FORCE GAUGE	CHATILLON	8761	BEFORE USE	BEFORE USE
CALIPER	N/A	Q9322365	BEFORE USE	BEFORE USE

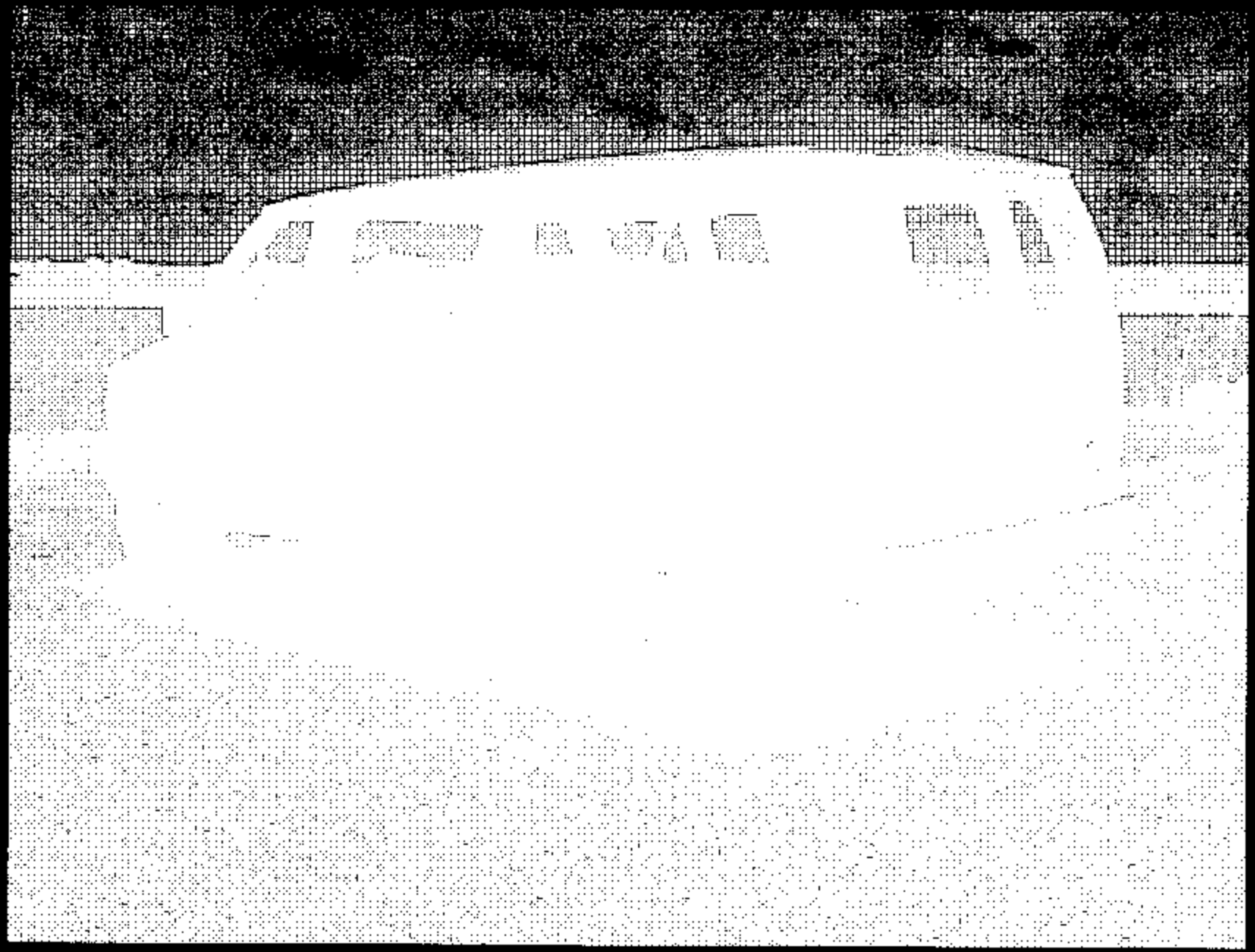
SECTION 5

PHOTOGRAPHS



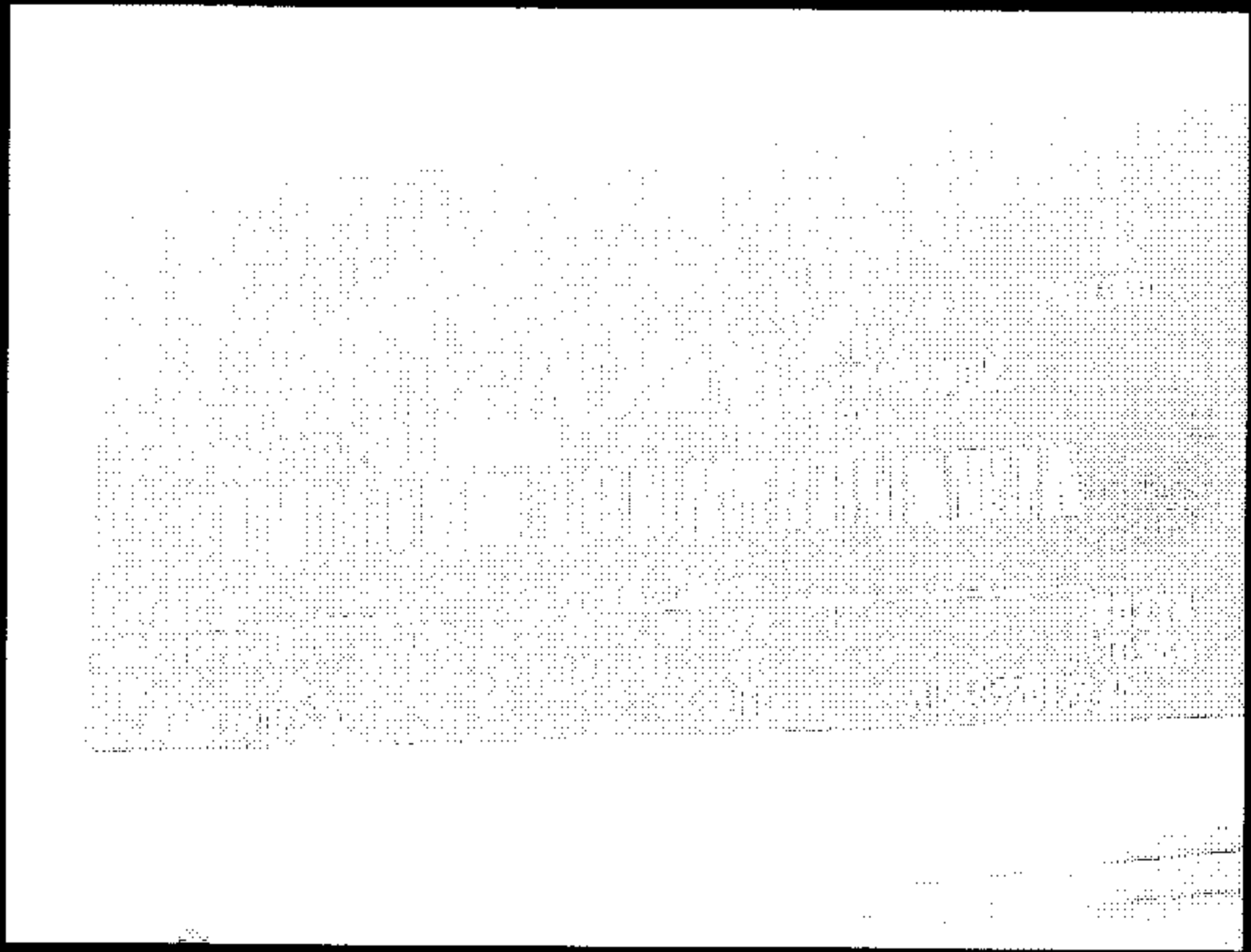
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.1
¾ FRONTAL RIGHT SIDE VIEW OF VEHICLE



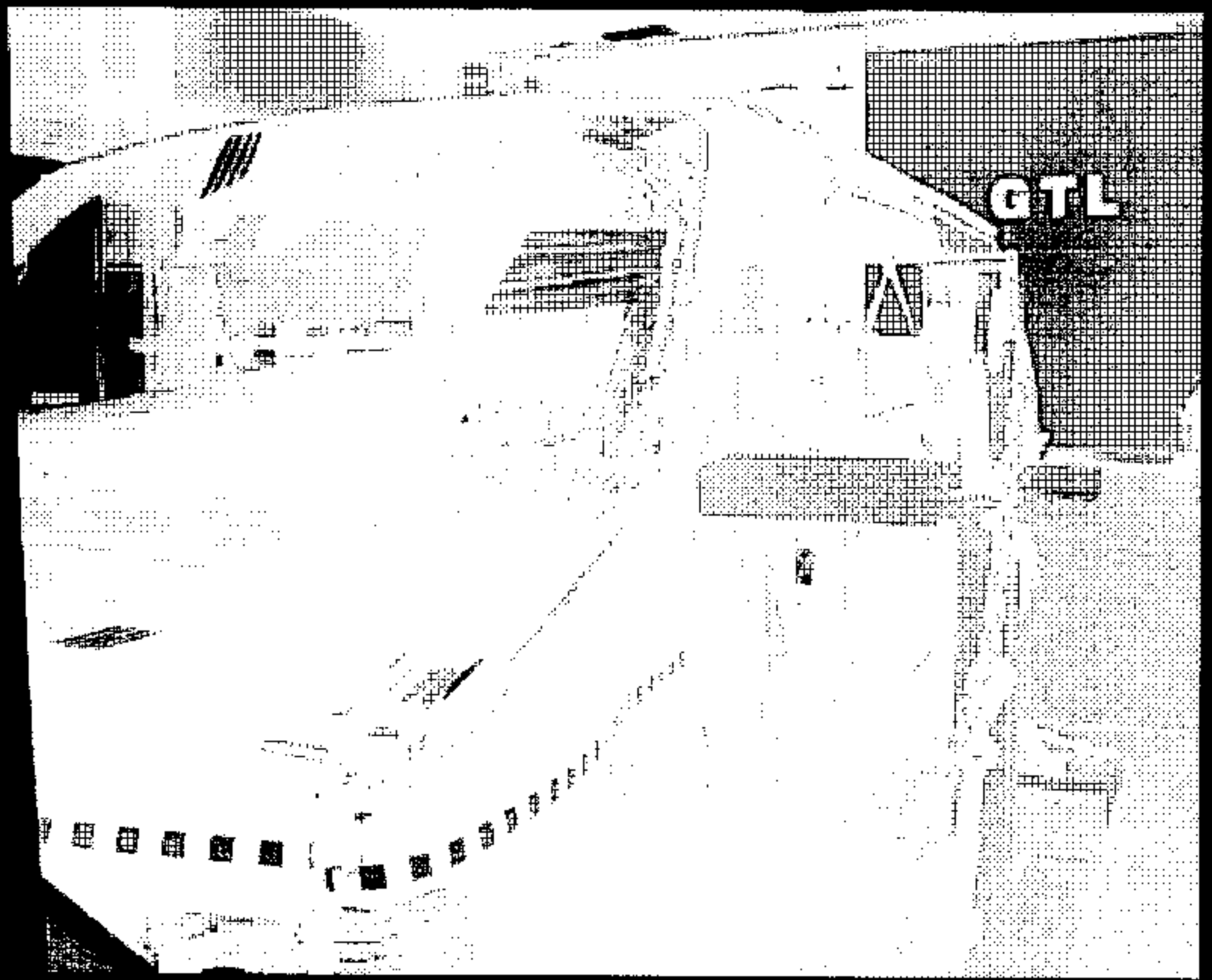
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.2
¾ REARWARD LEFT SIDE VIEW OF VEHICLE



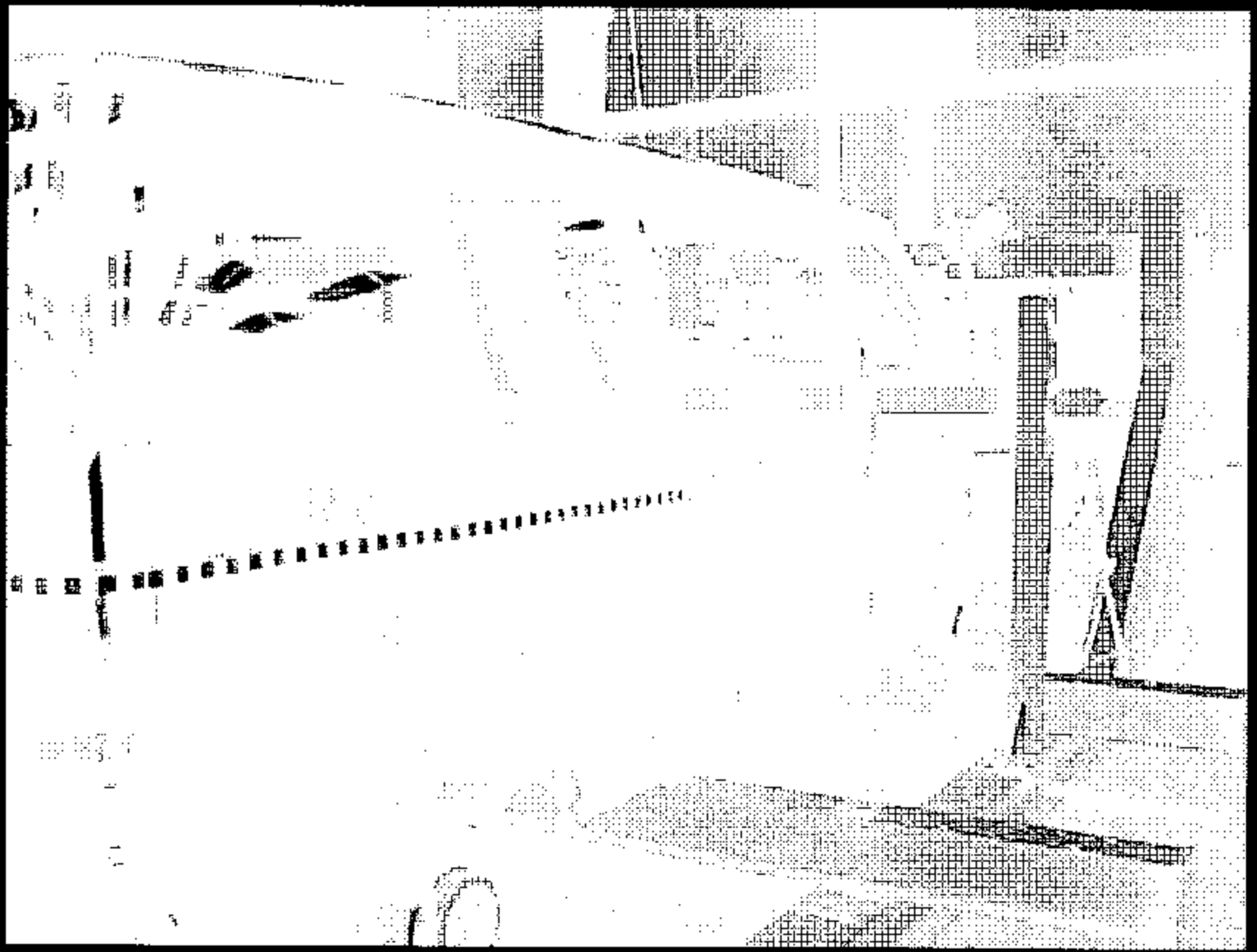
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.3
CLOSE-UP VIEW OF VEHICLE CERTIFICATION
AND TIRE INFORMATION LABEL



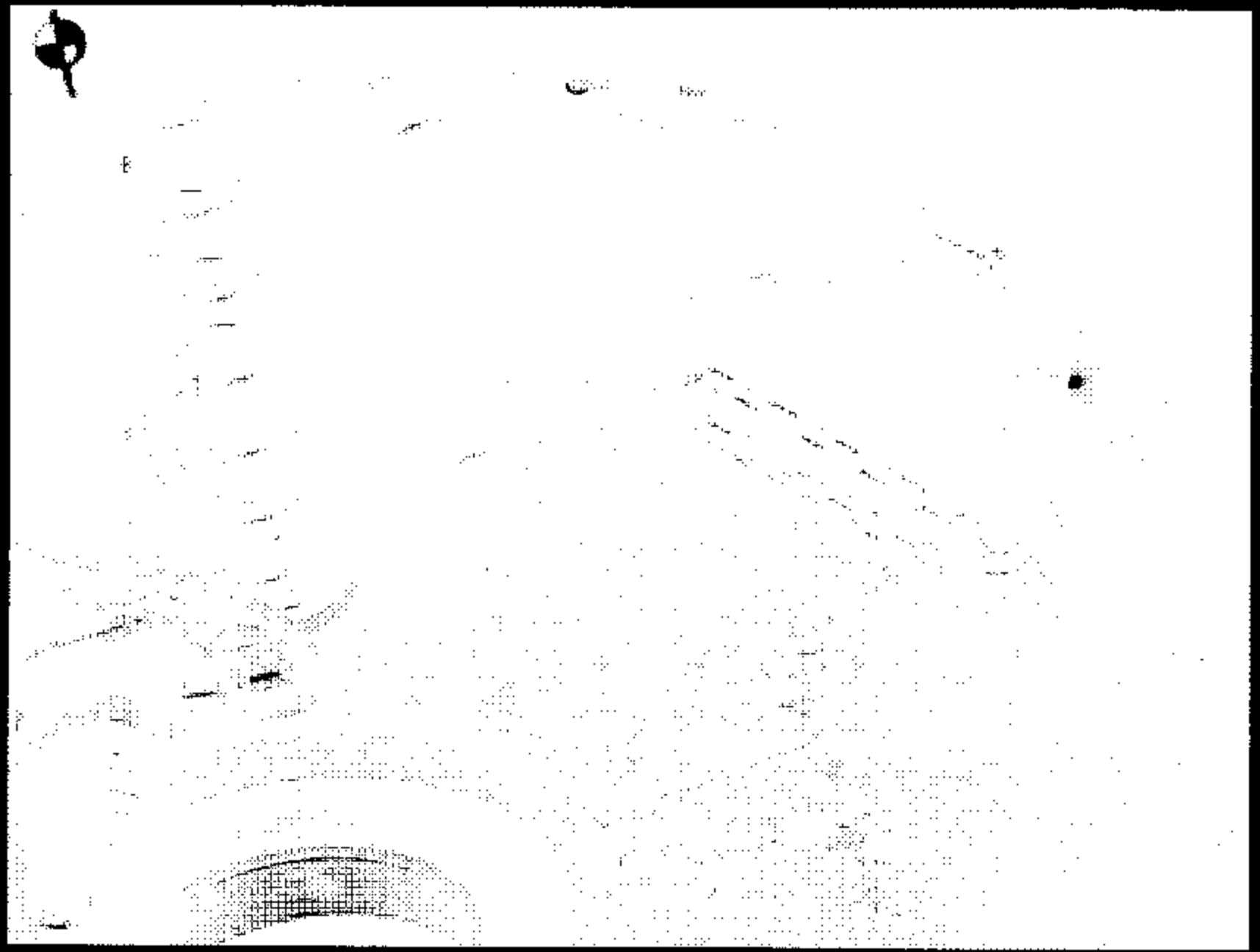
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.4
¾ LEFT FRONT VIEW OF TEST VEHICLE IN TEST RIG



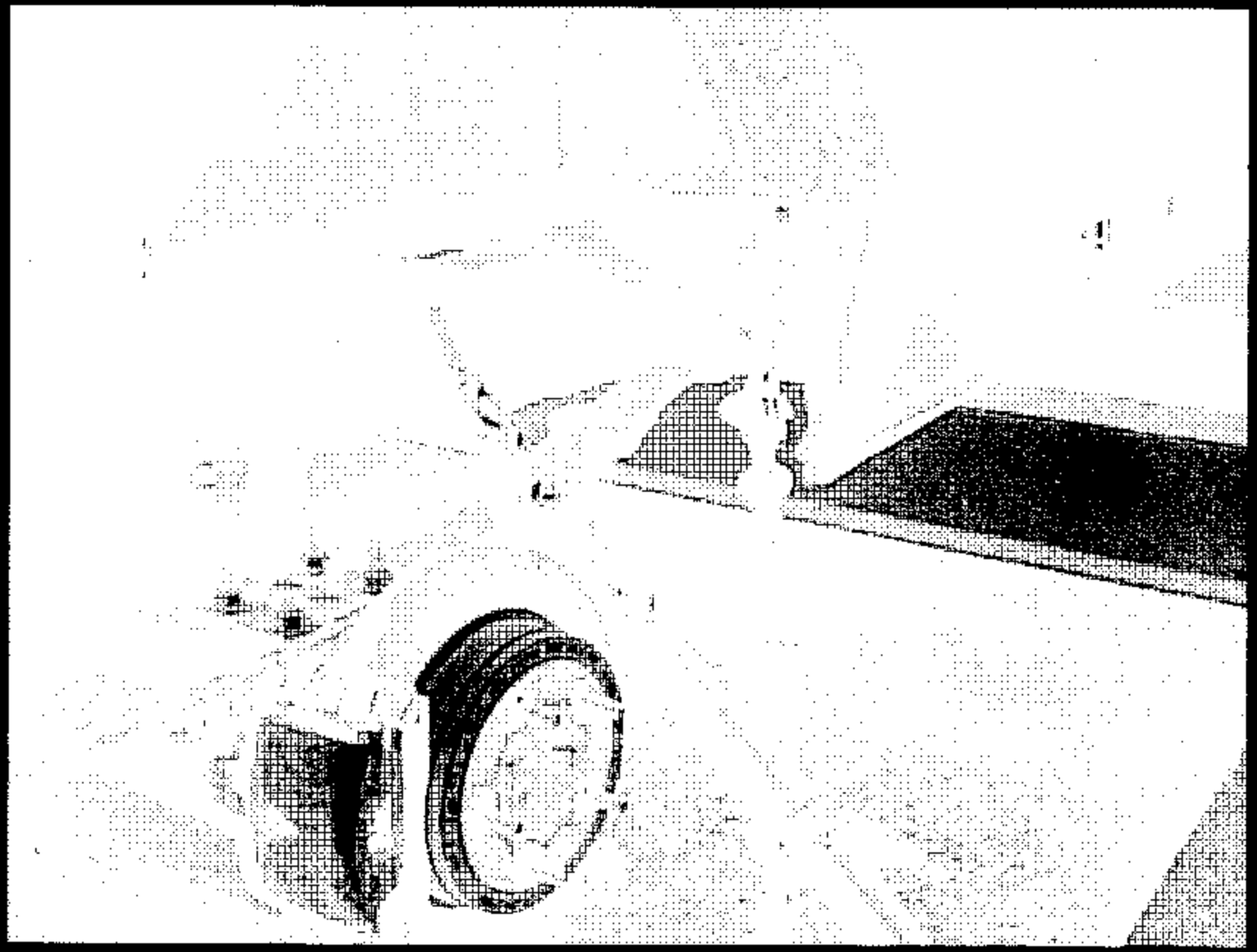
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.5
¾ RIGHT FRONT VIEW OF TEST VEHICLE IN TEST RIG



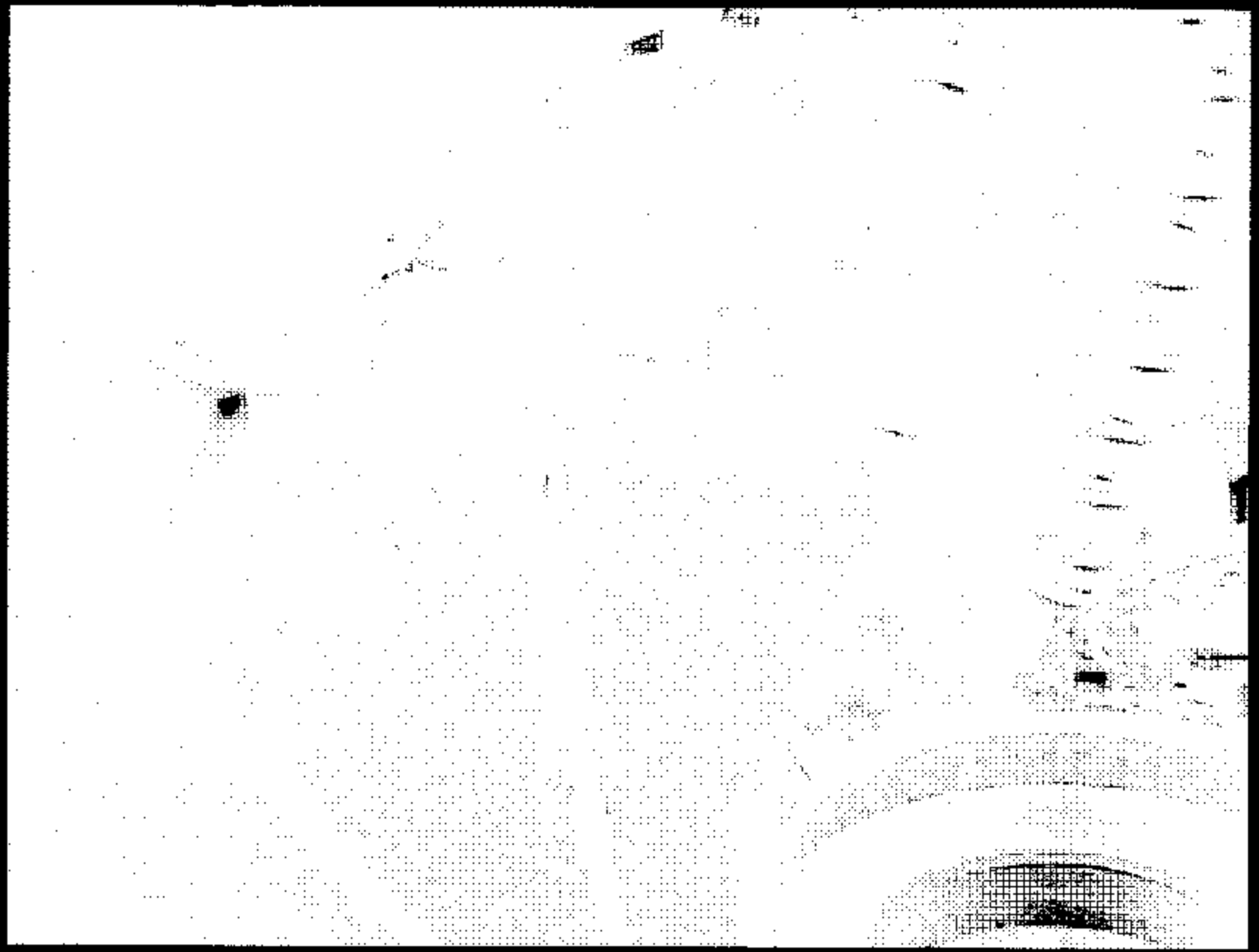
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.6
RIGHT FRONT VEHICLE TIE DOWN



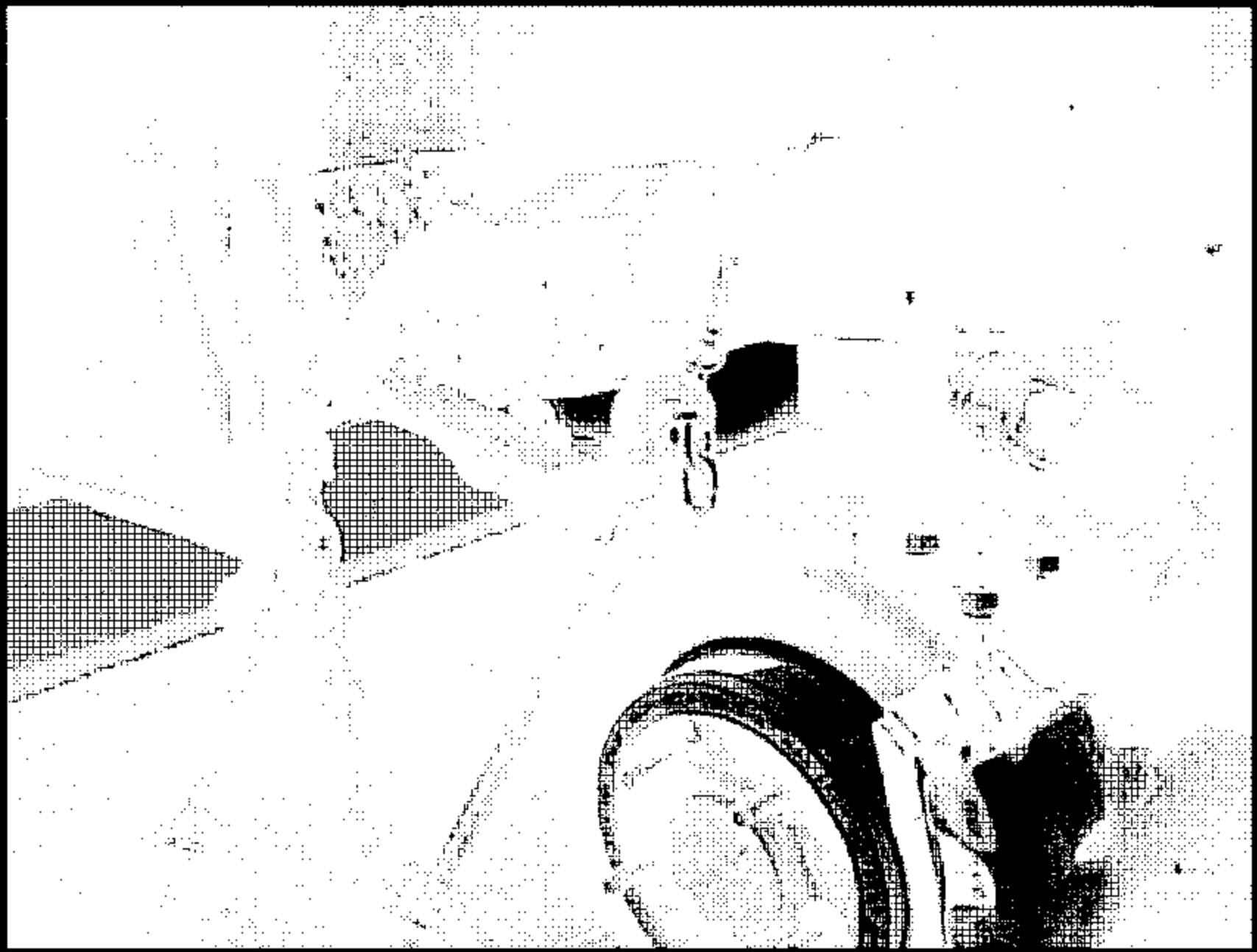
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.7
RIGHT REAR VEHICLE TIE DOWN



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.8
LEFT FRONT VEHICLE TIE DOWN



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NHTSA NO. C40208
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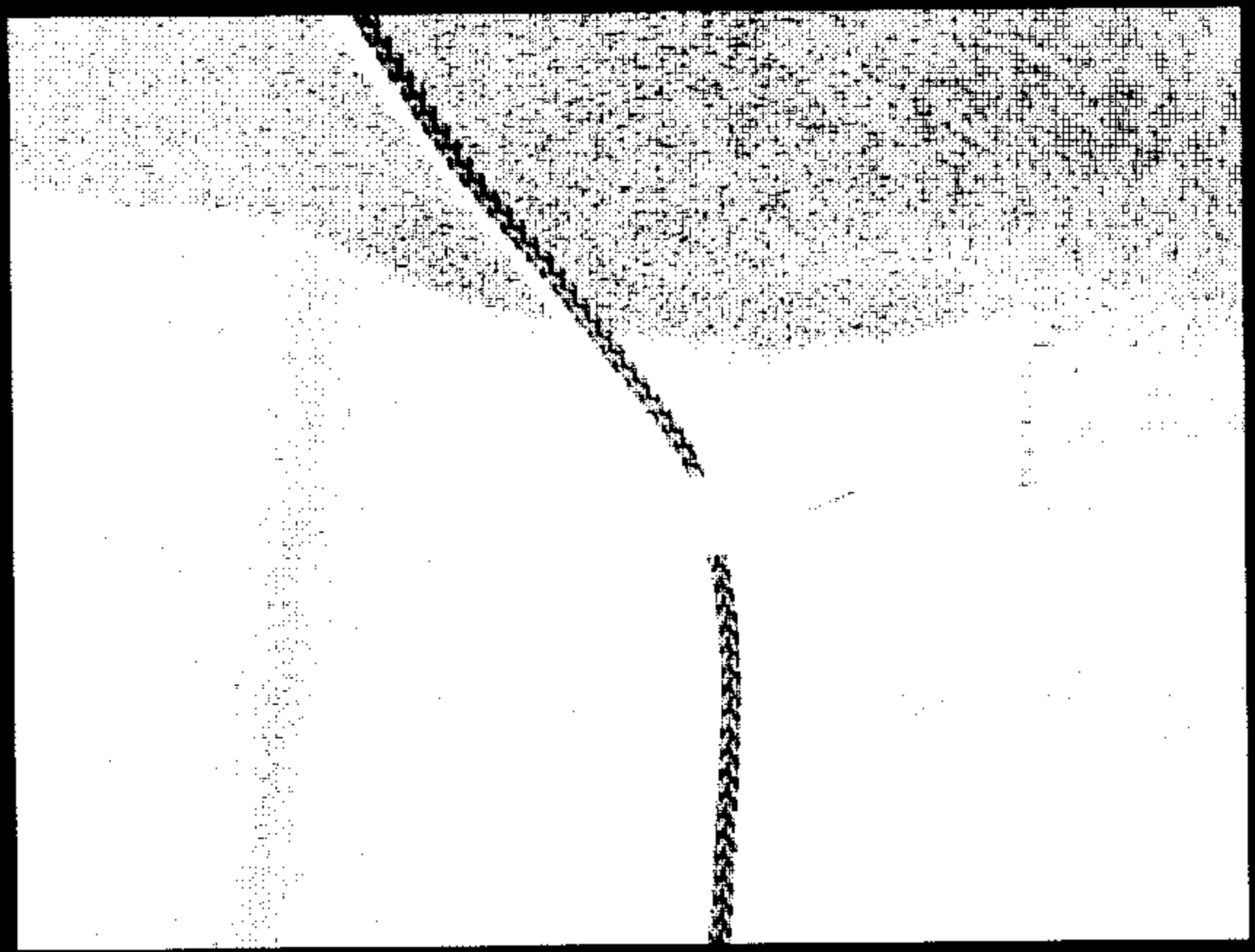
FIGURE 5.9
LEFT REAR VEHICLE TIE DOWN



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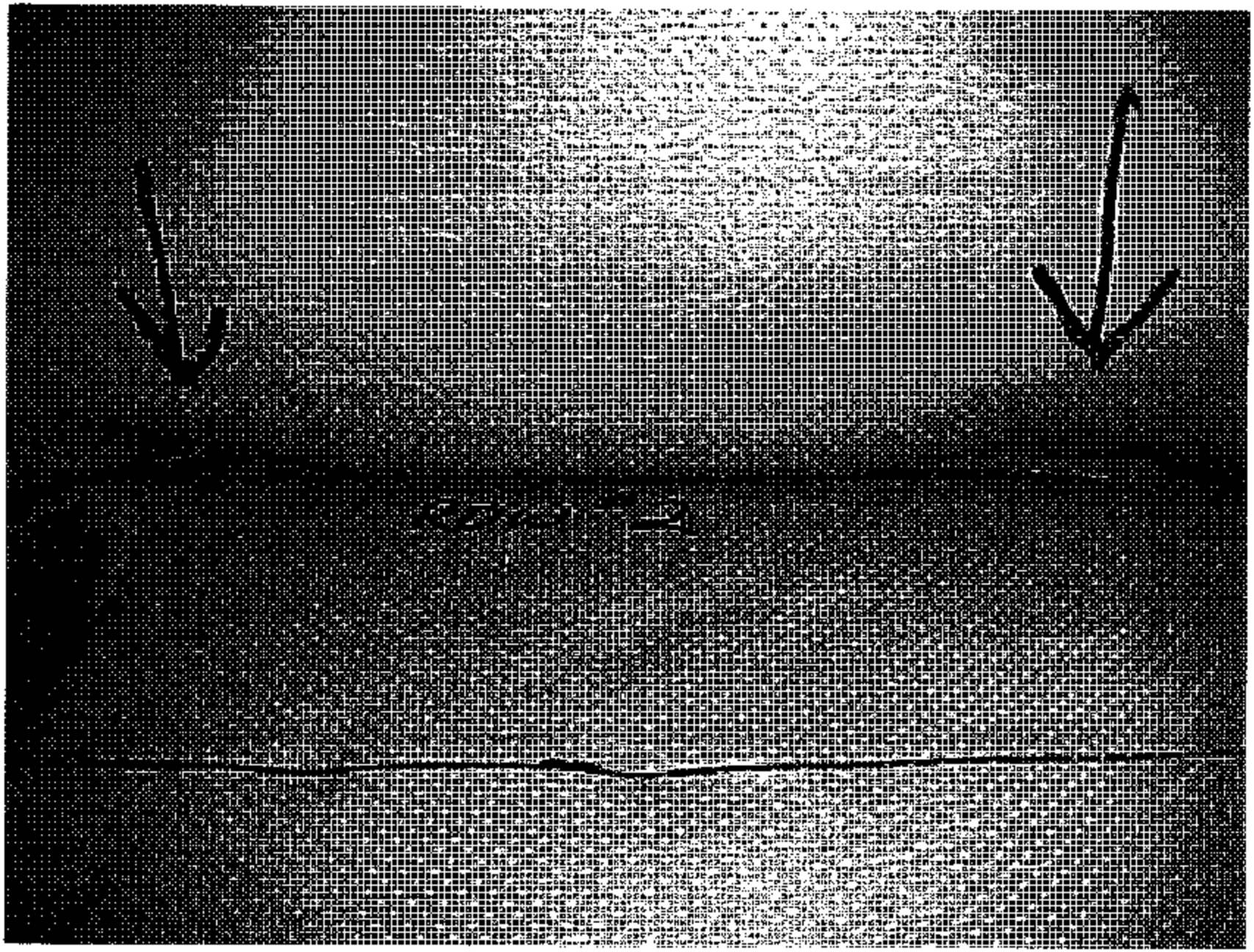
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.10
PRE-TEST 2ND ROW RIGHT SIDE TOP TETHER ANCHOR



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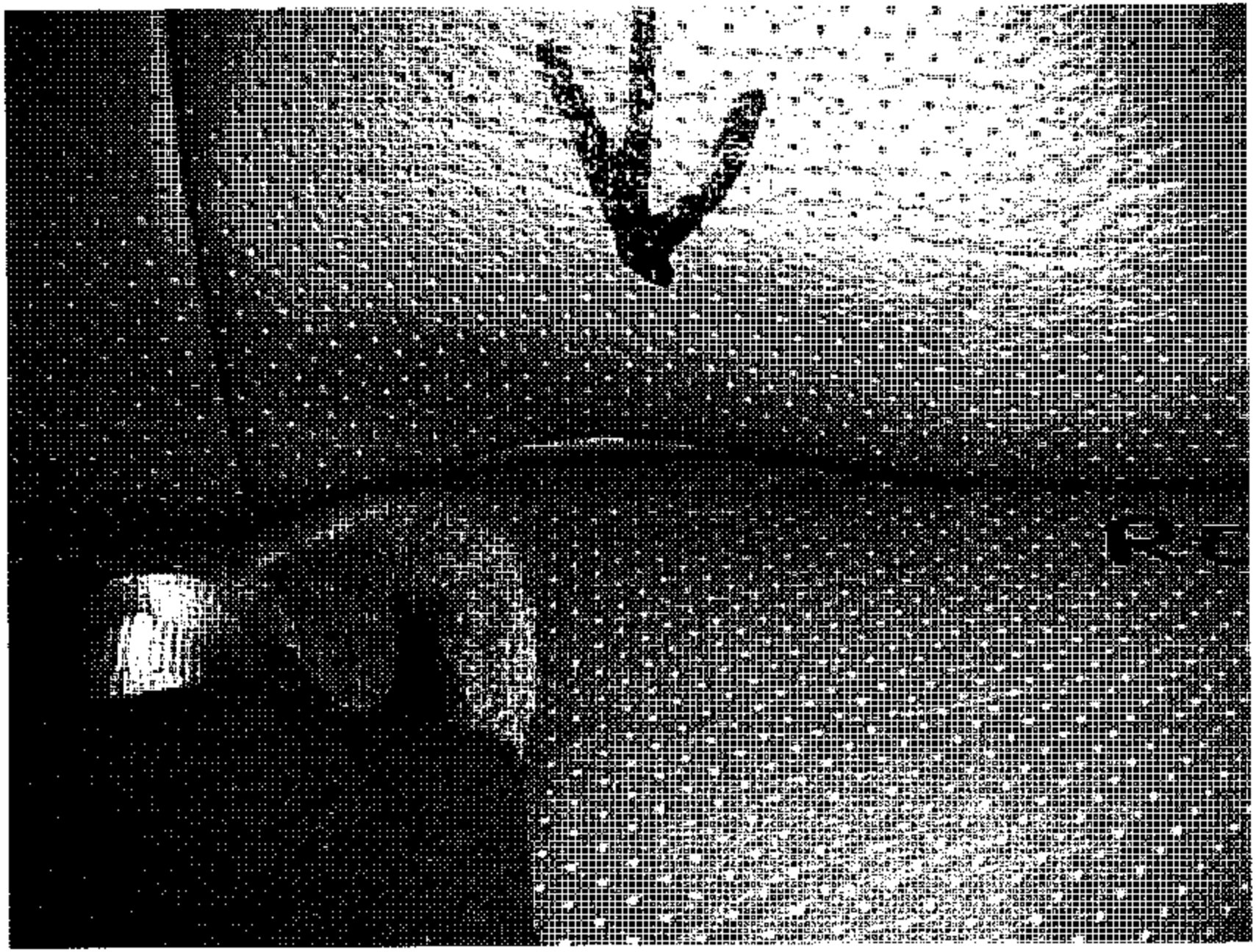
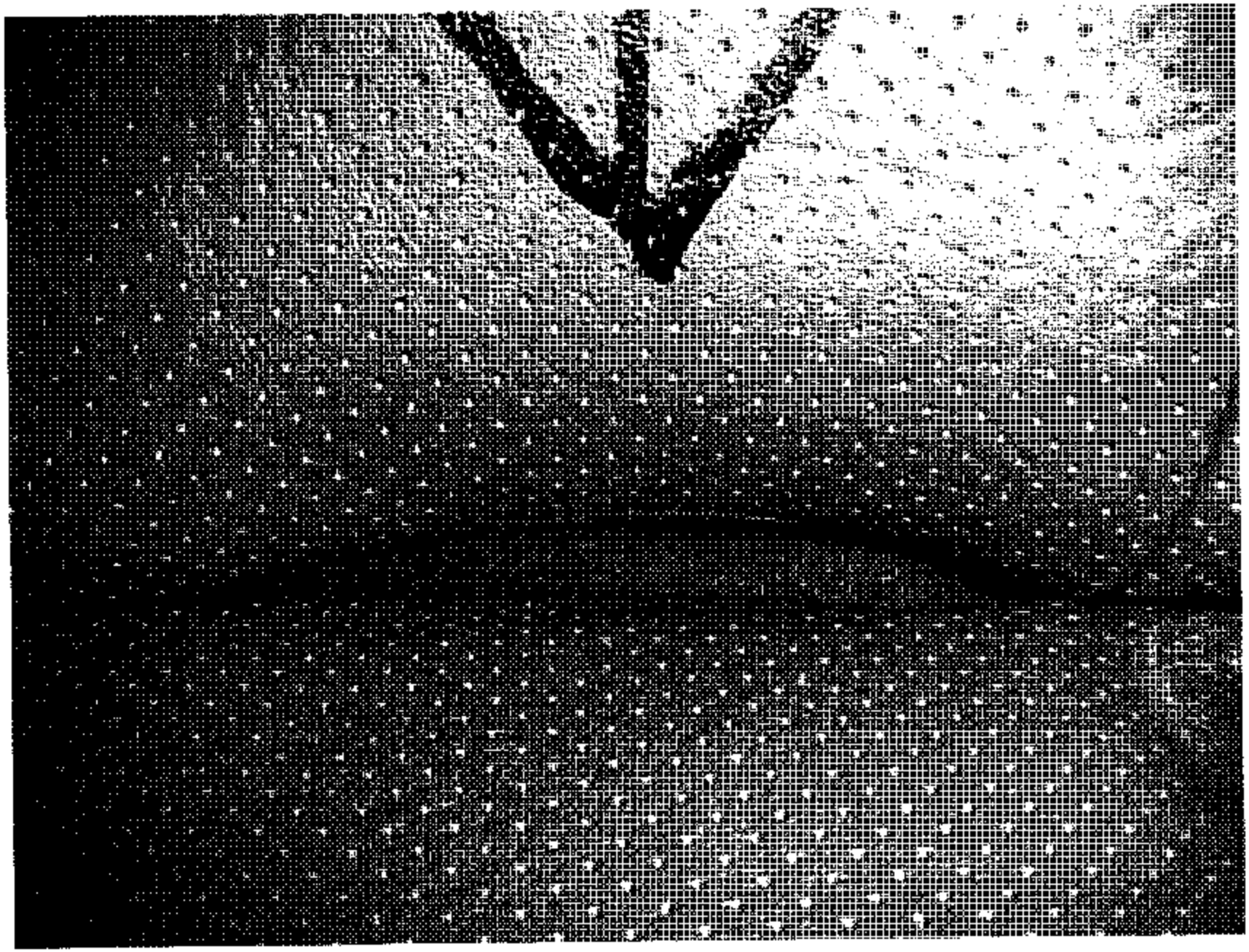
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.11
VIEW OF 2ND ROW CENTER LOWER ANCHORS



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.12
CLOSE-UP VIEW OF 2ND ROW CENTER RIGHT LOWER ANCHOR



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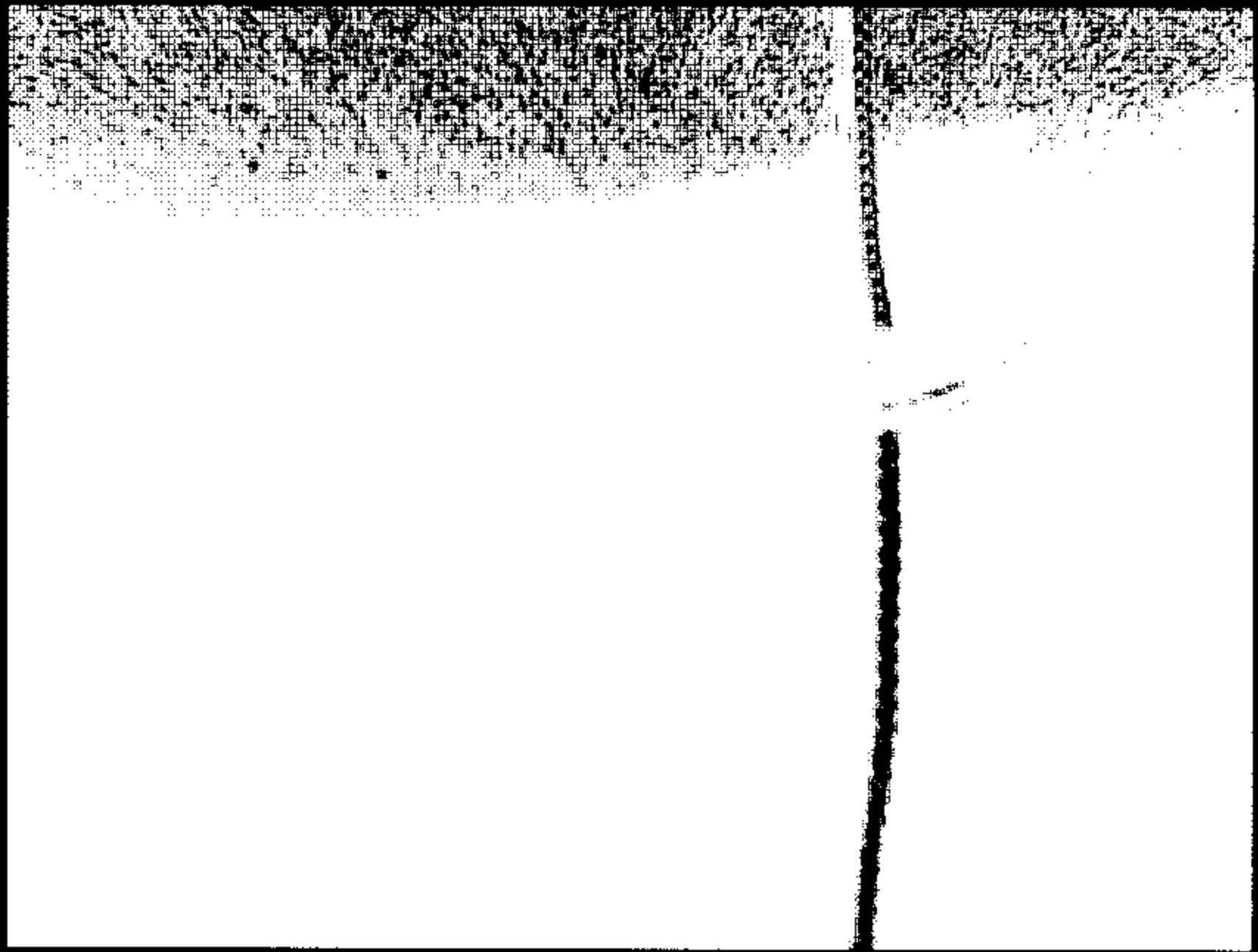
FMVSS NO. 225

FIGURE 5.13
CLOSE-UP VIEW OF 2ND ROW CENTER LEFT
LOWER ANCHOR

2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.14
PRE-TEST 2ND ROW CENTER TOP TETHER ANCHOR



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NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.15
PRE-TEST 2ND ROW LEFT TOP TETHER ANCHOR

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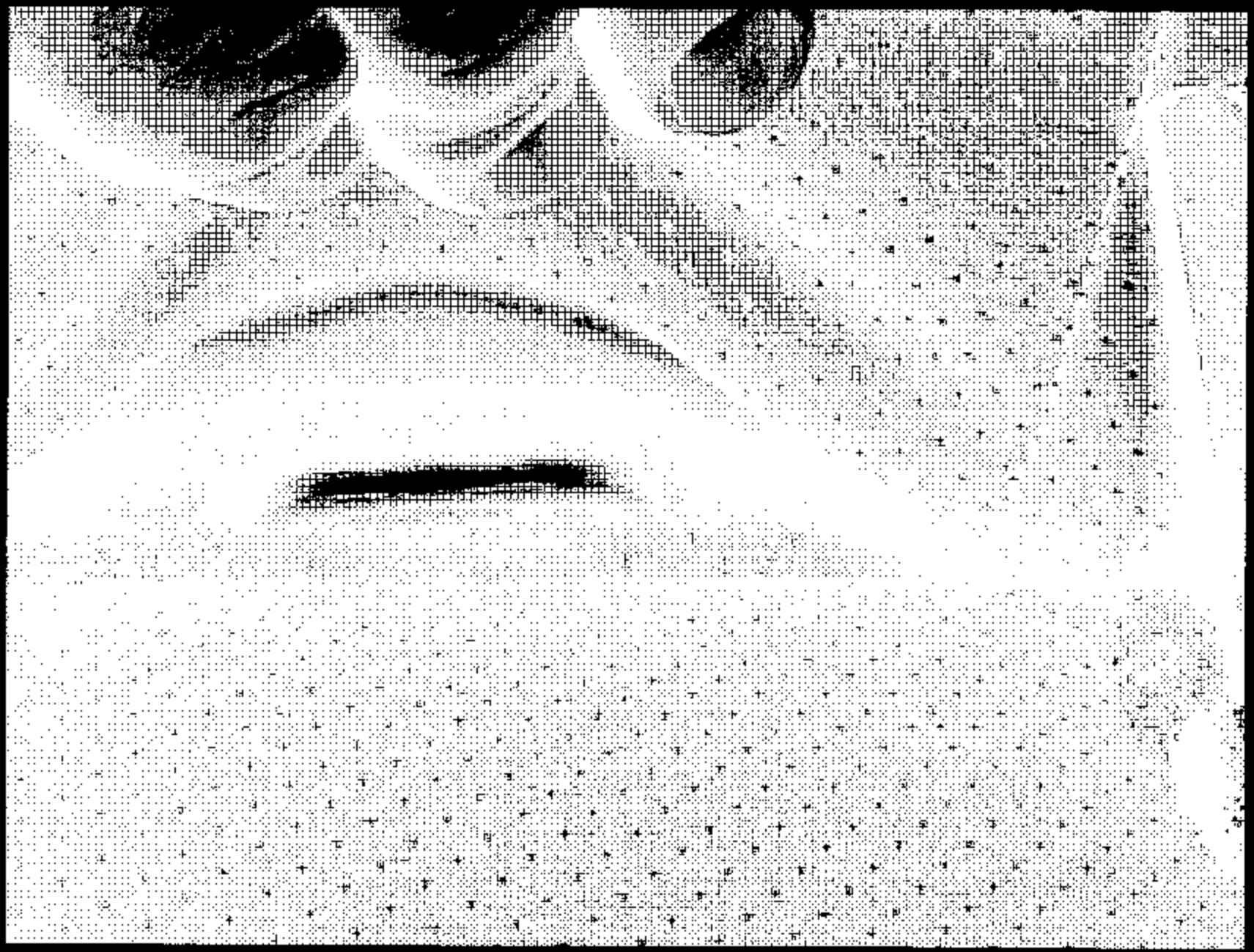
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.16
PRE-TEST 3RD ROW CENTER RIGHT LOWER ANCHOR



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.17
PRE-TEST 3RD ROW CENTER LEFT LOWER ANCHOR

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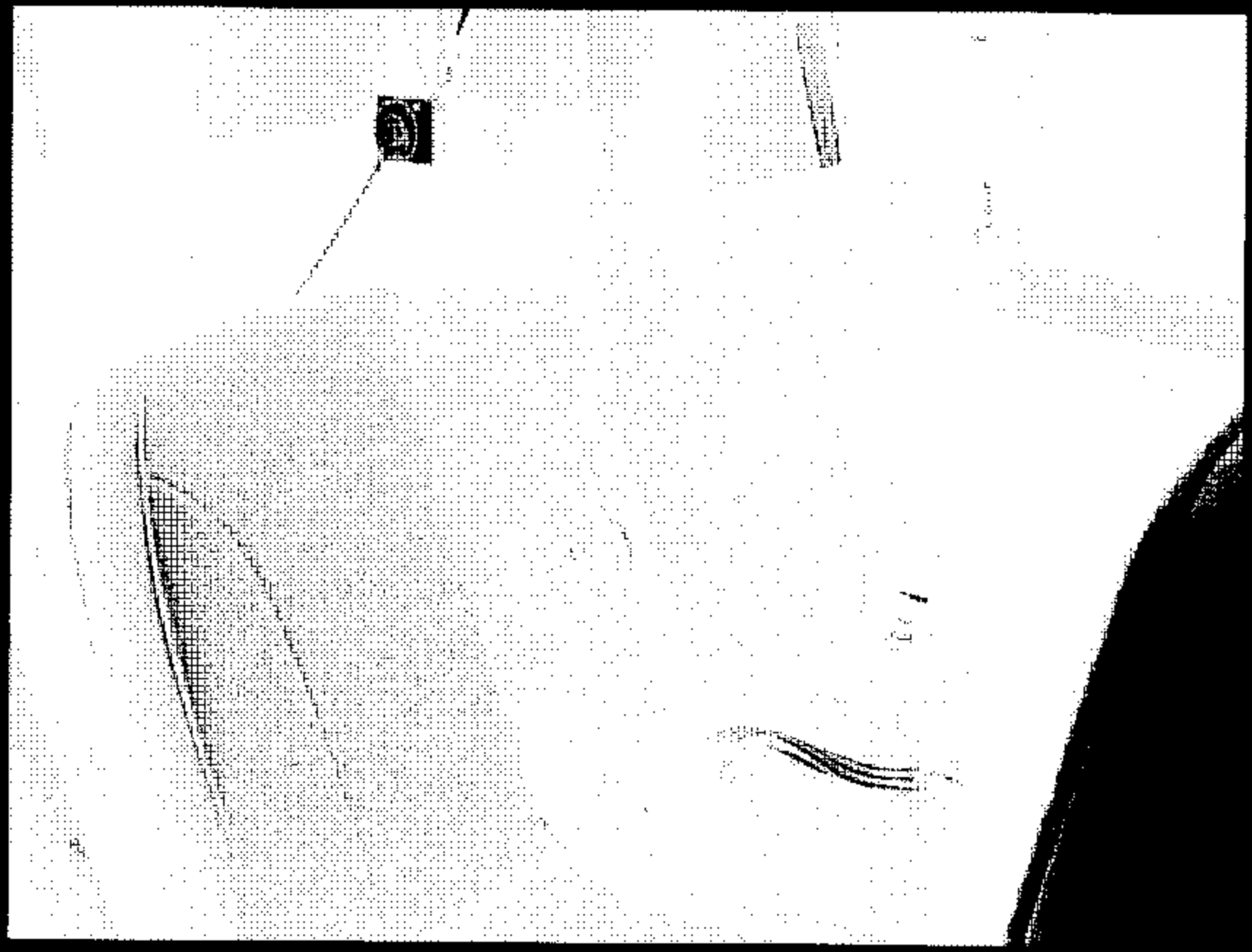
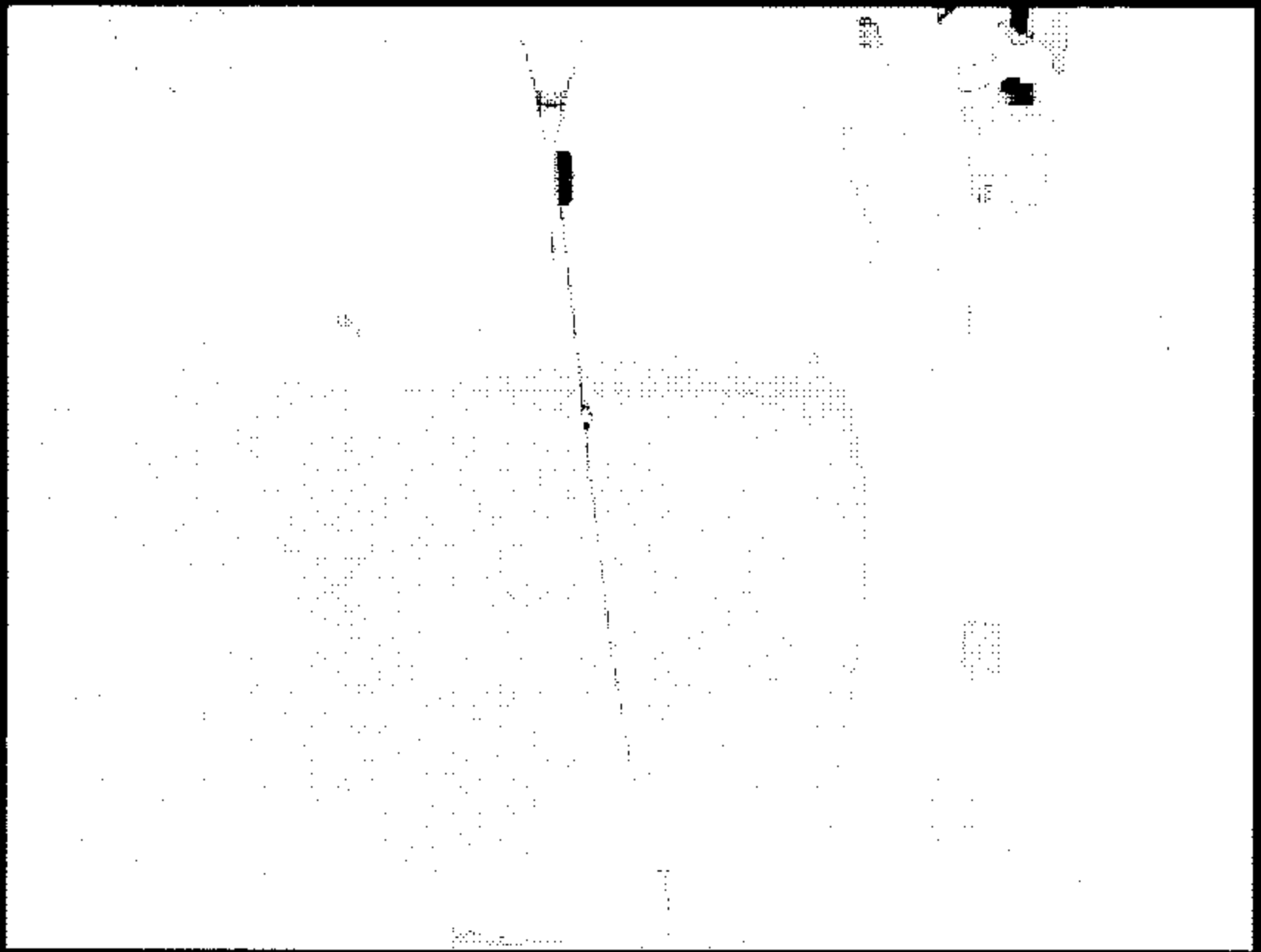
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.18
PRE-TEST 3RD ROW TOP TETHER ANCHOR



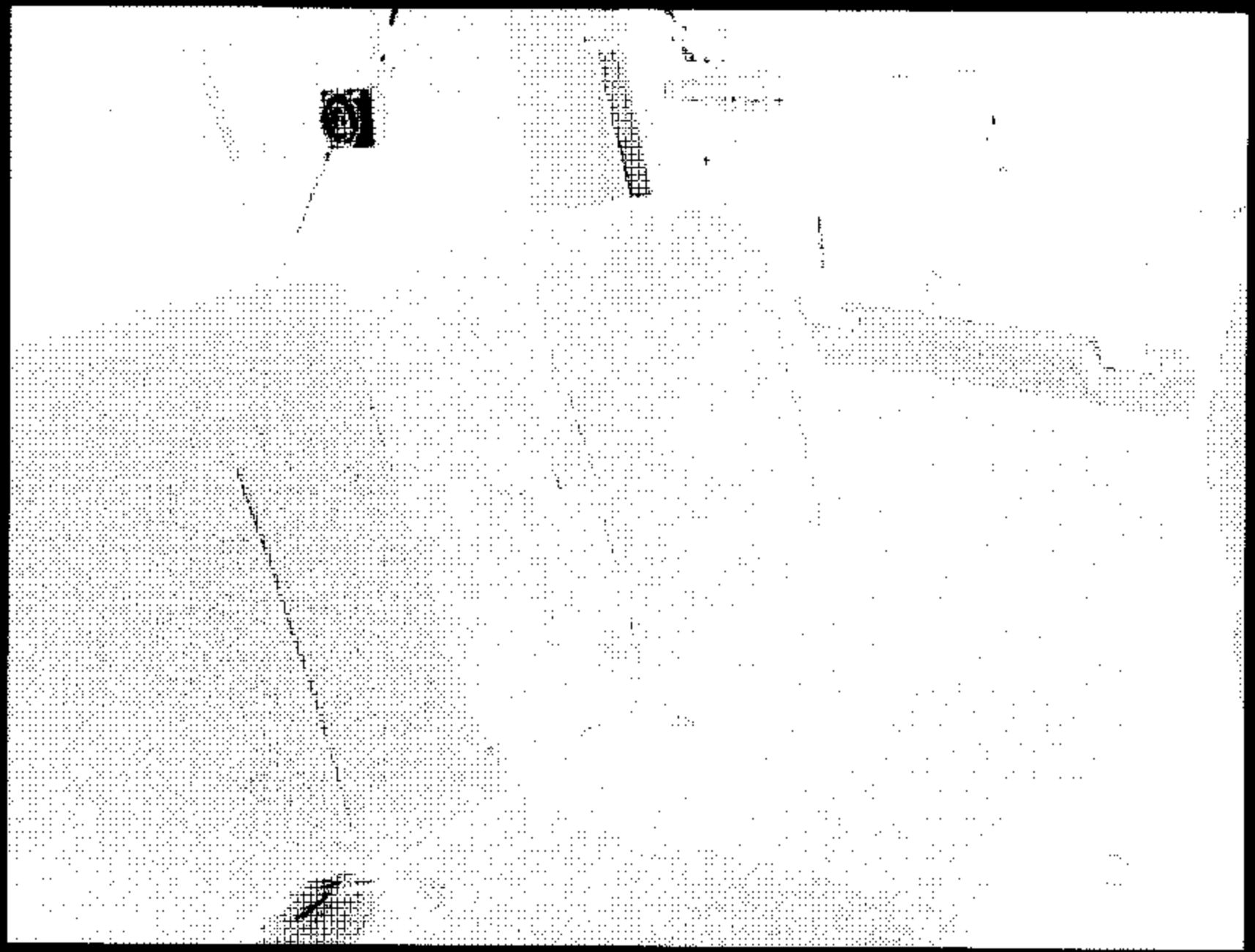
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.19
VIEW OF 2D TEMPLATE IN 2ND ROW RIGHT SEAT



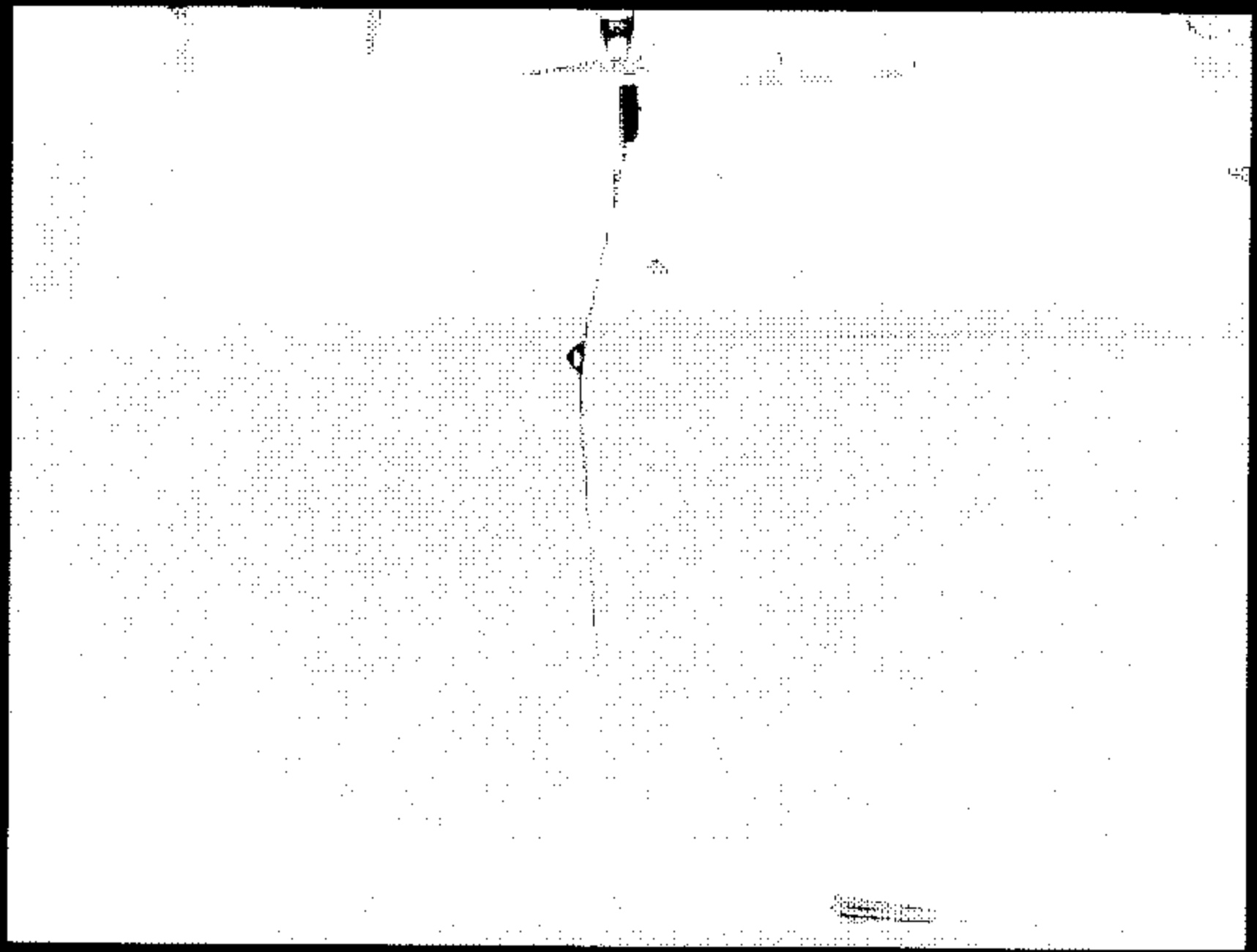
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.20
VIEW OF 2D TEMPLATE IN 2ND ROW RIGHT SEAT



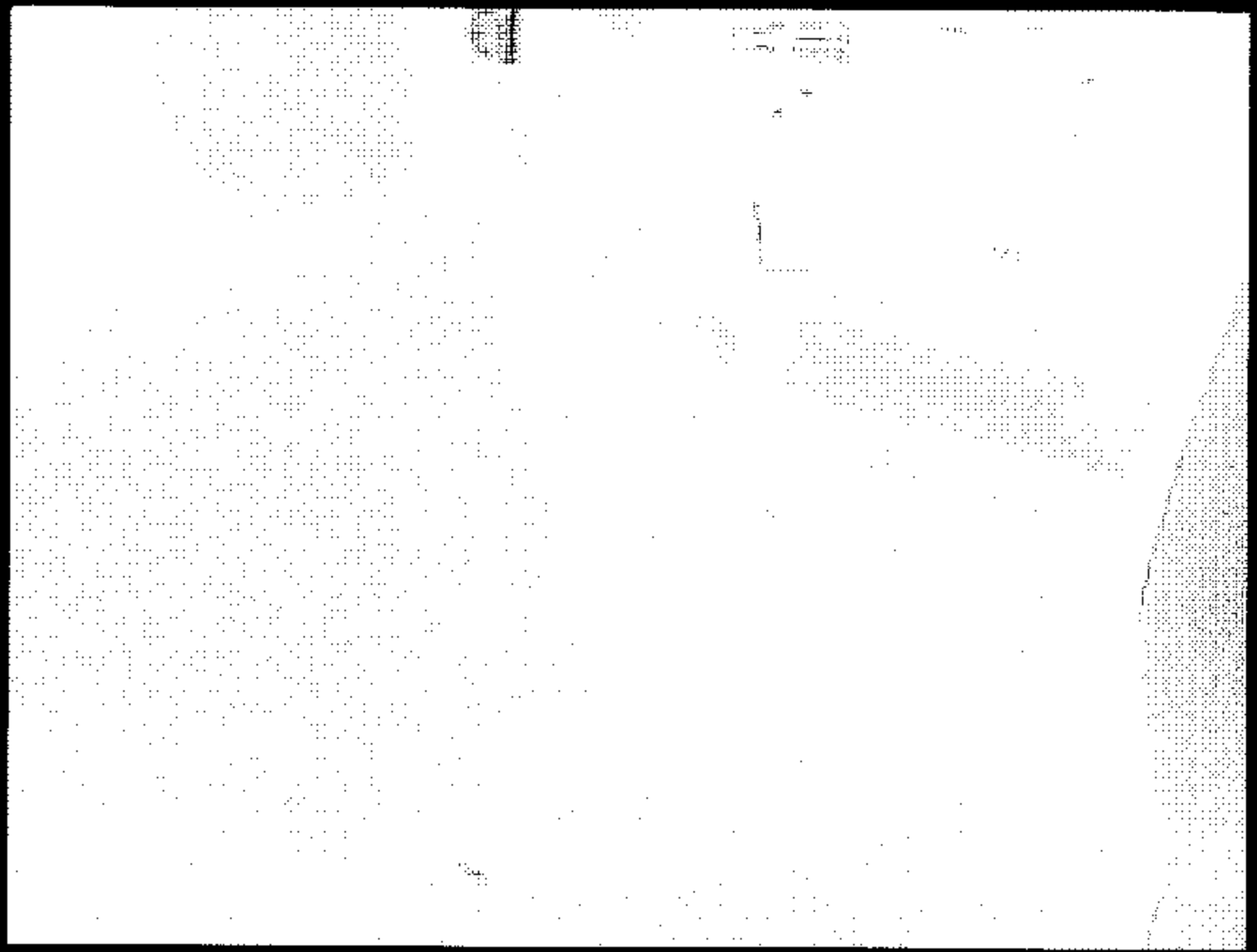
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.21
VIEW OF 2D TEMPLATE IN 2ND ROW CENTER SEAT



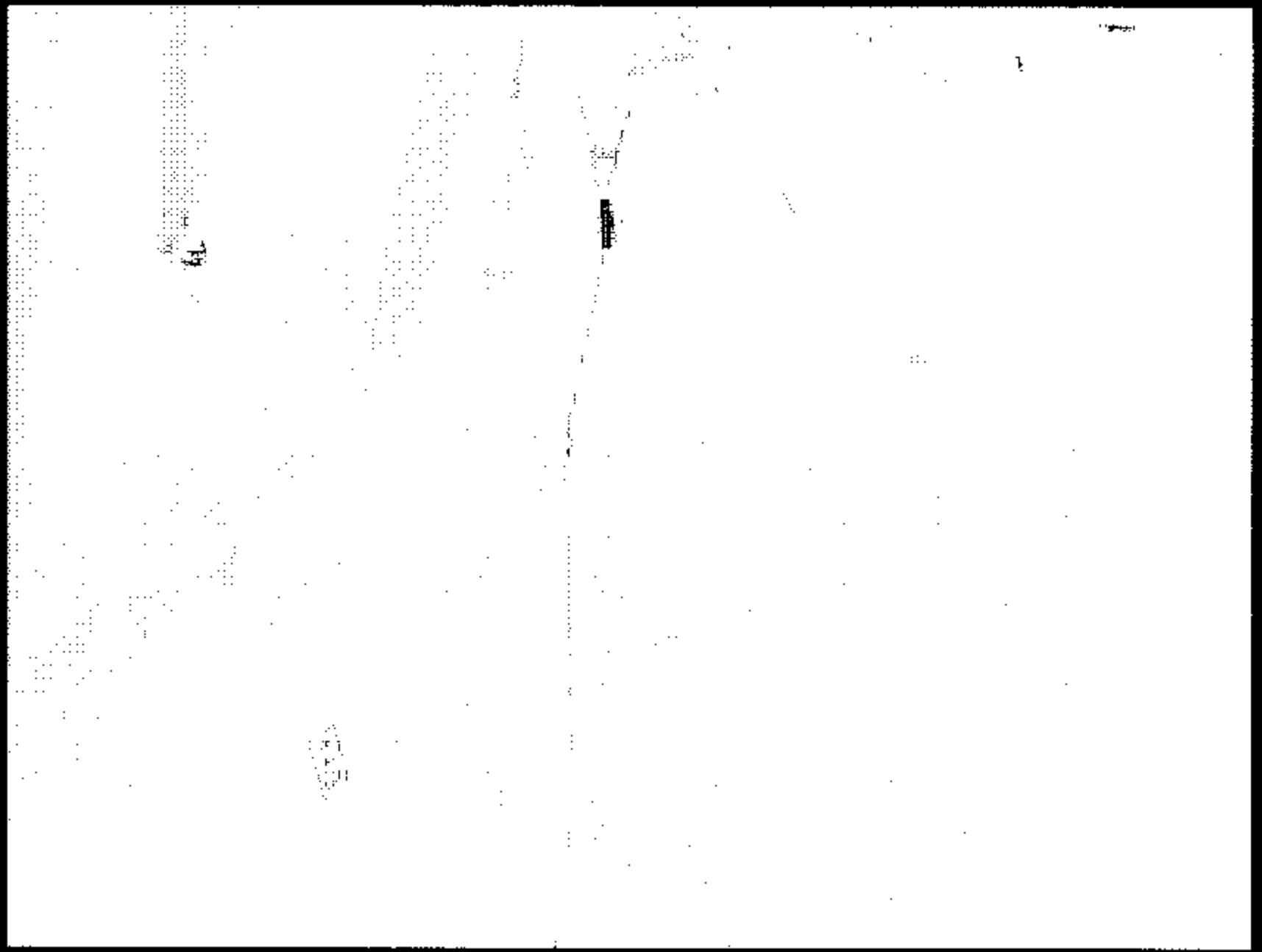
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.22
VIEW OF 2D TEMPLATE IN 2ND ROW CENTER SEAT



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.23
VIEW OF 2D TEMPLATE IN 2ND ROW LEFT SEAT



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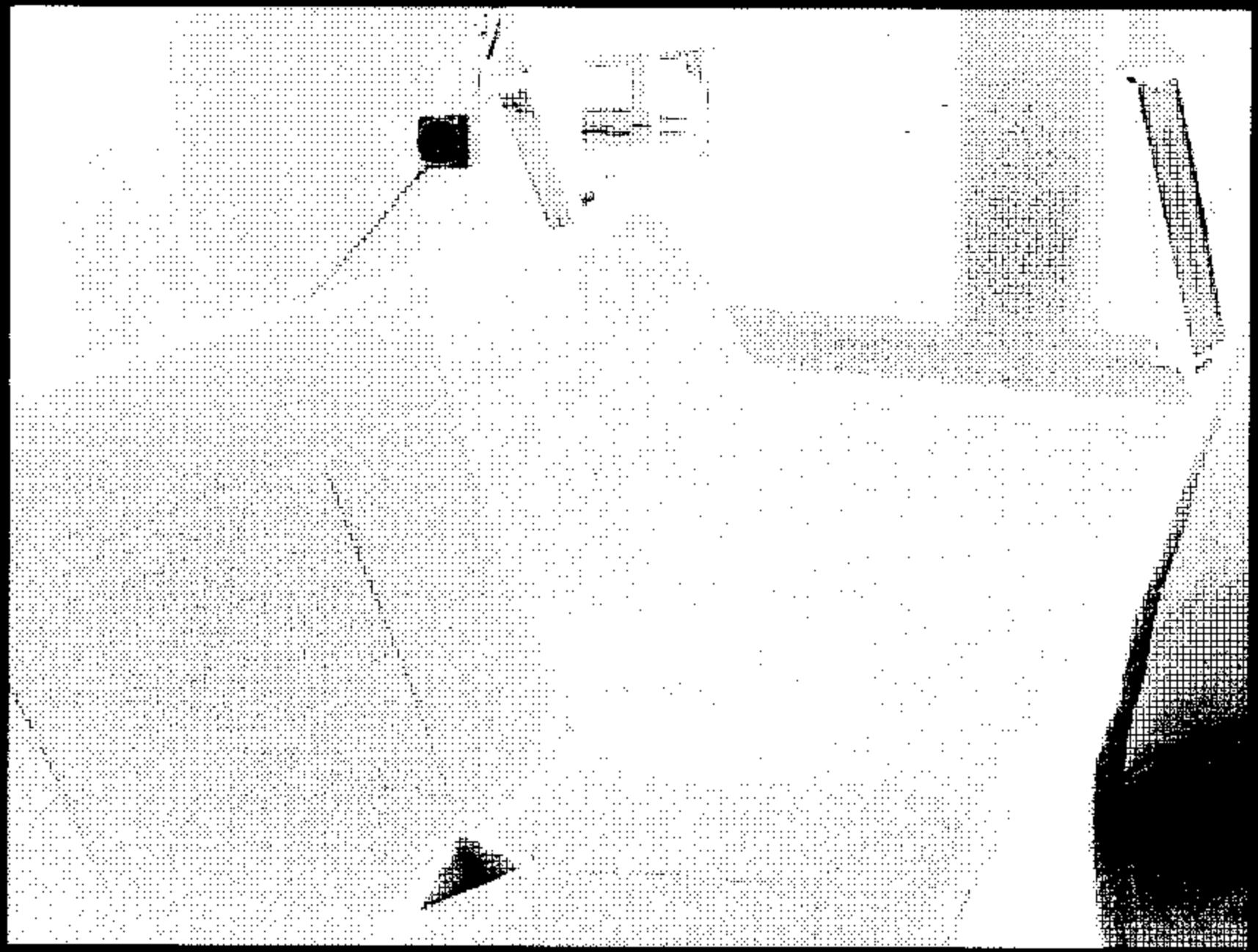
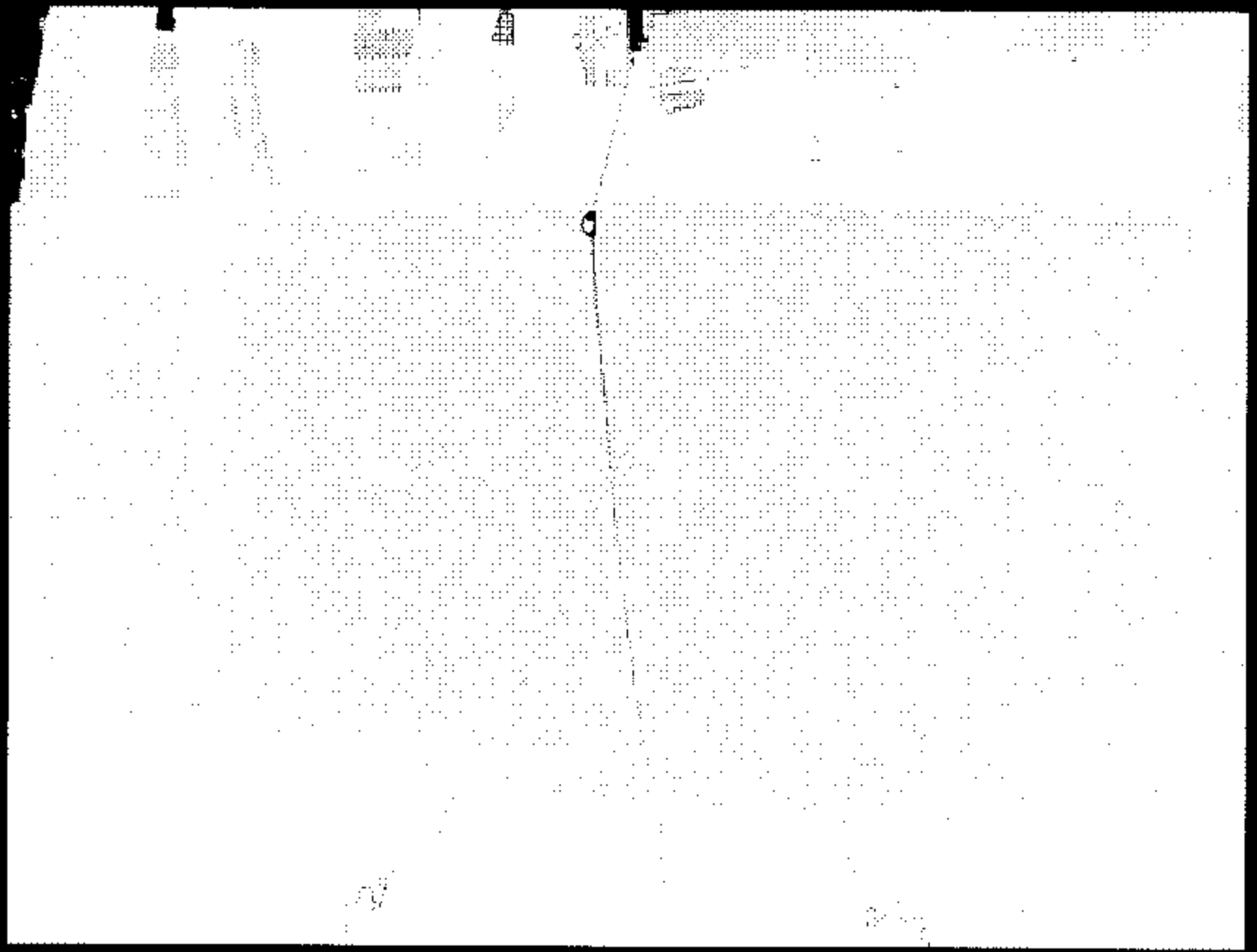
NHTSA NO. C40208
FMVSS NO. 225

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



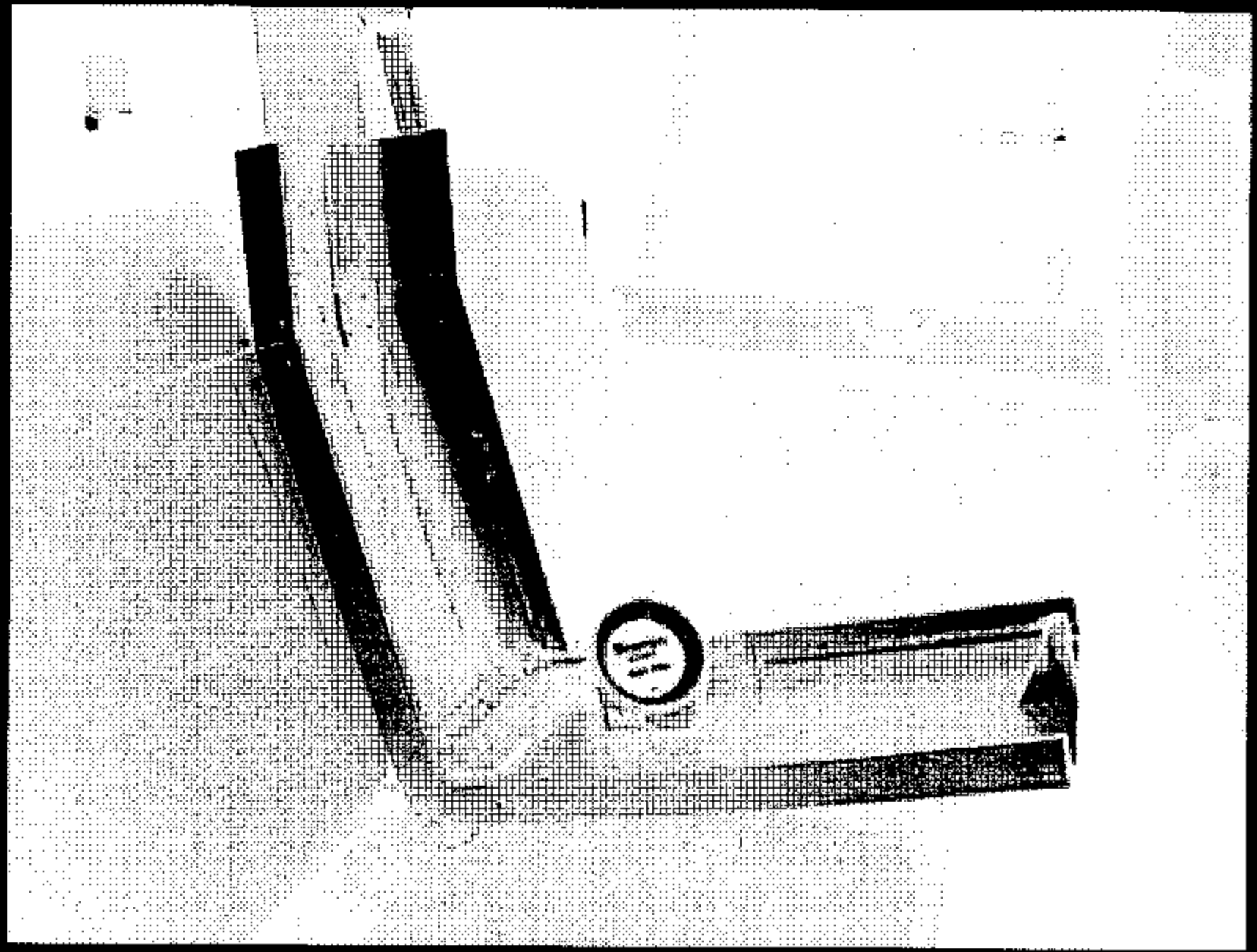
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.25
VIEW OF 2D TEMPLATE IN 3RD ROW CENTER SEAT



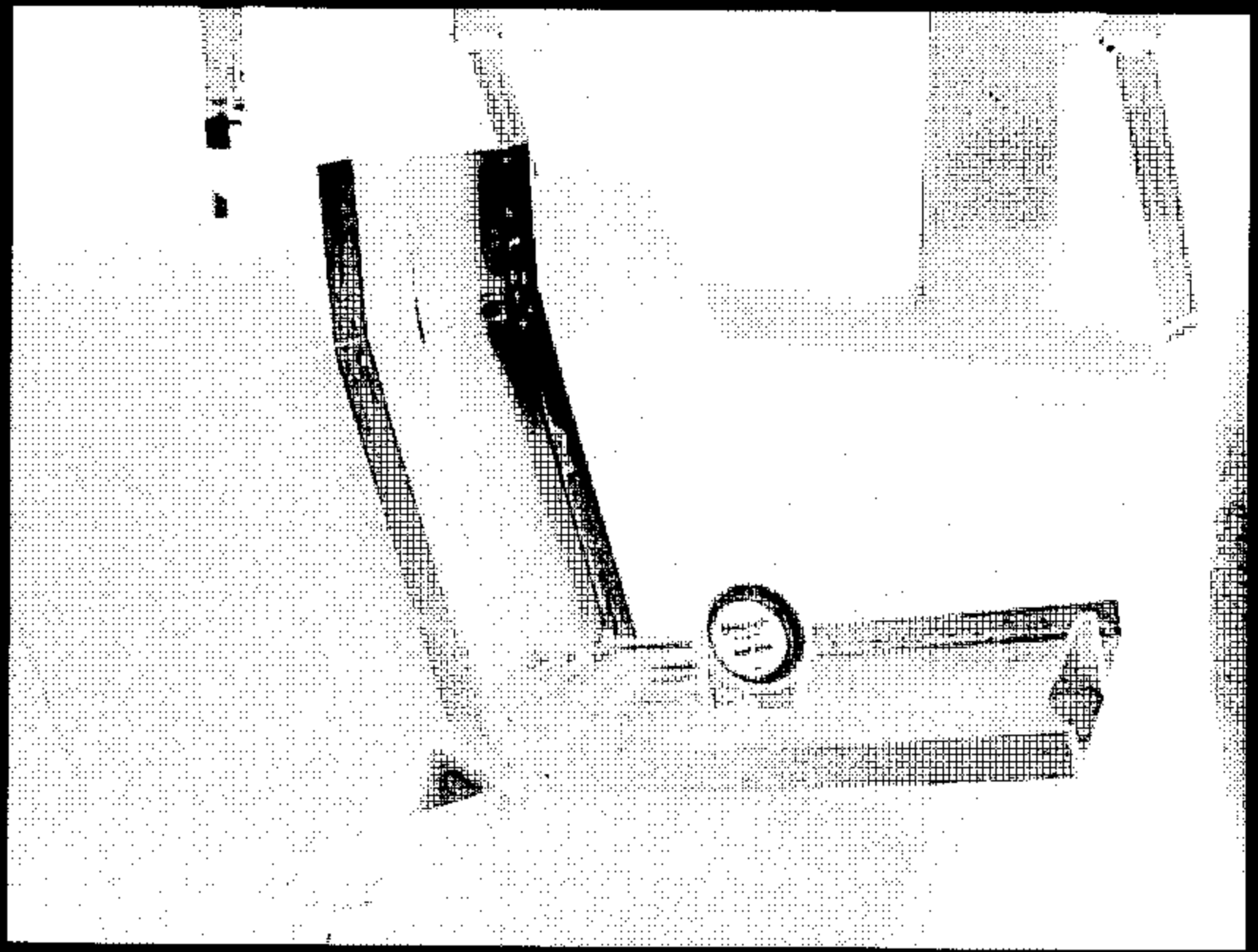
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

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



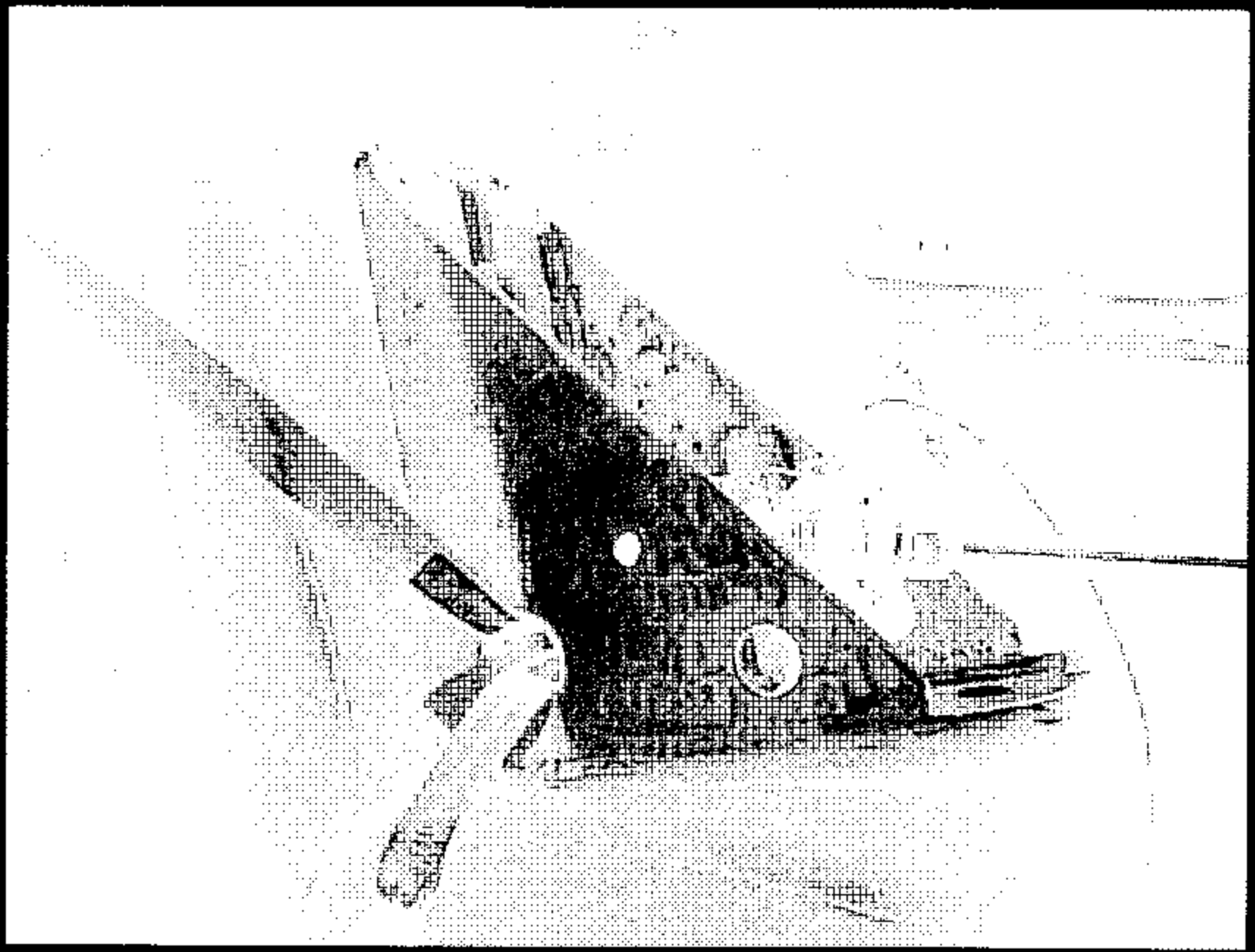
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.27
VIEW OF CRF IN 2ND ROW CENTER SEAT



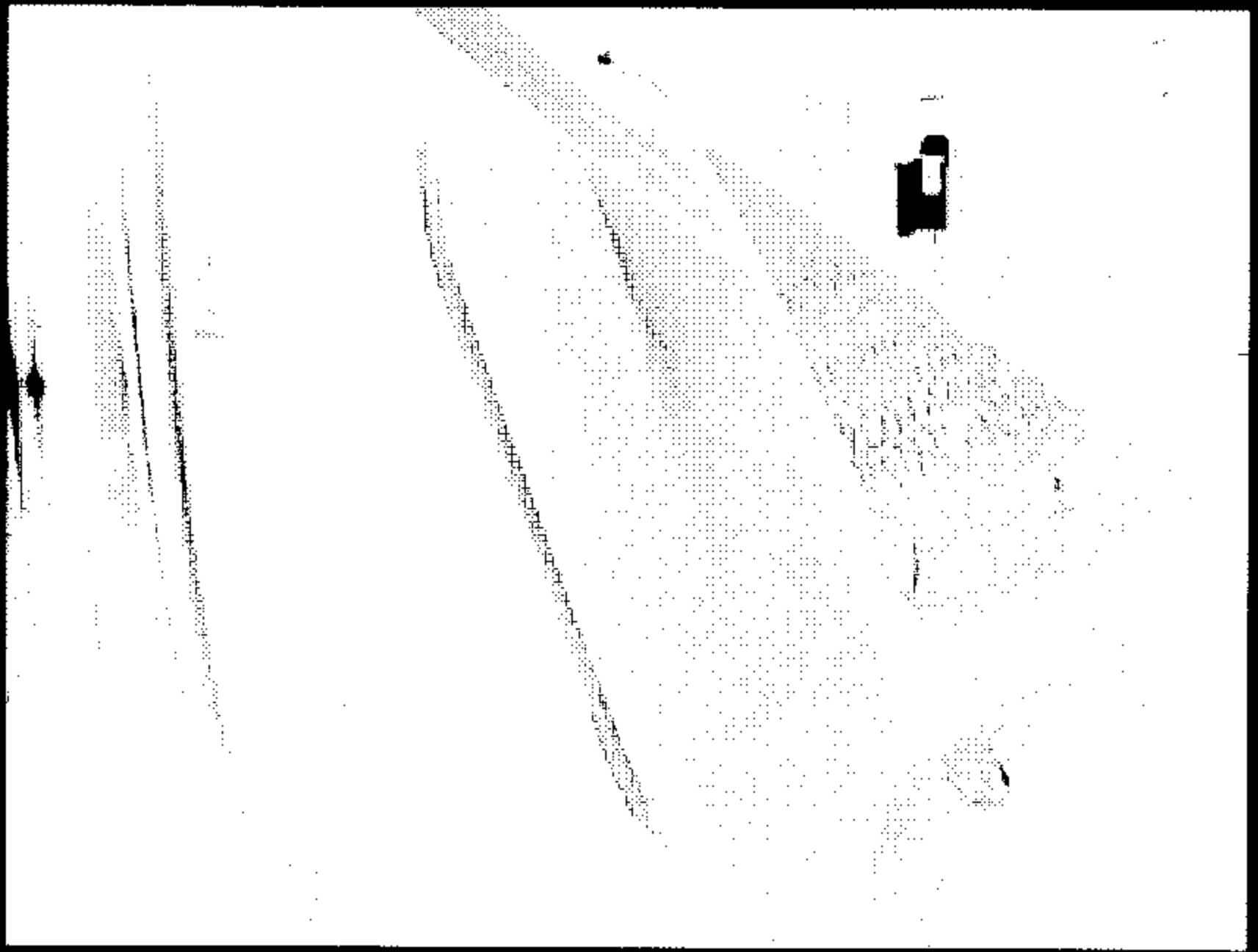
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.28
VIEW OF CRF IN 3RD ROW CENTER SEAT



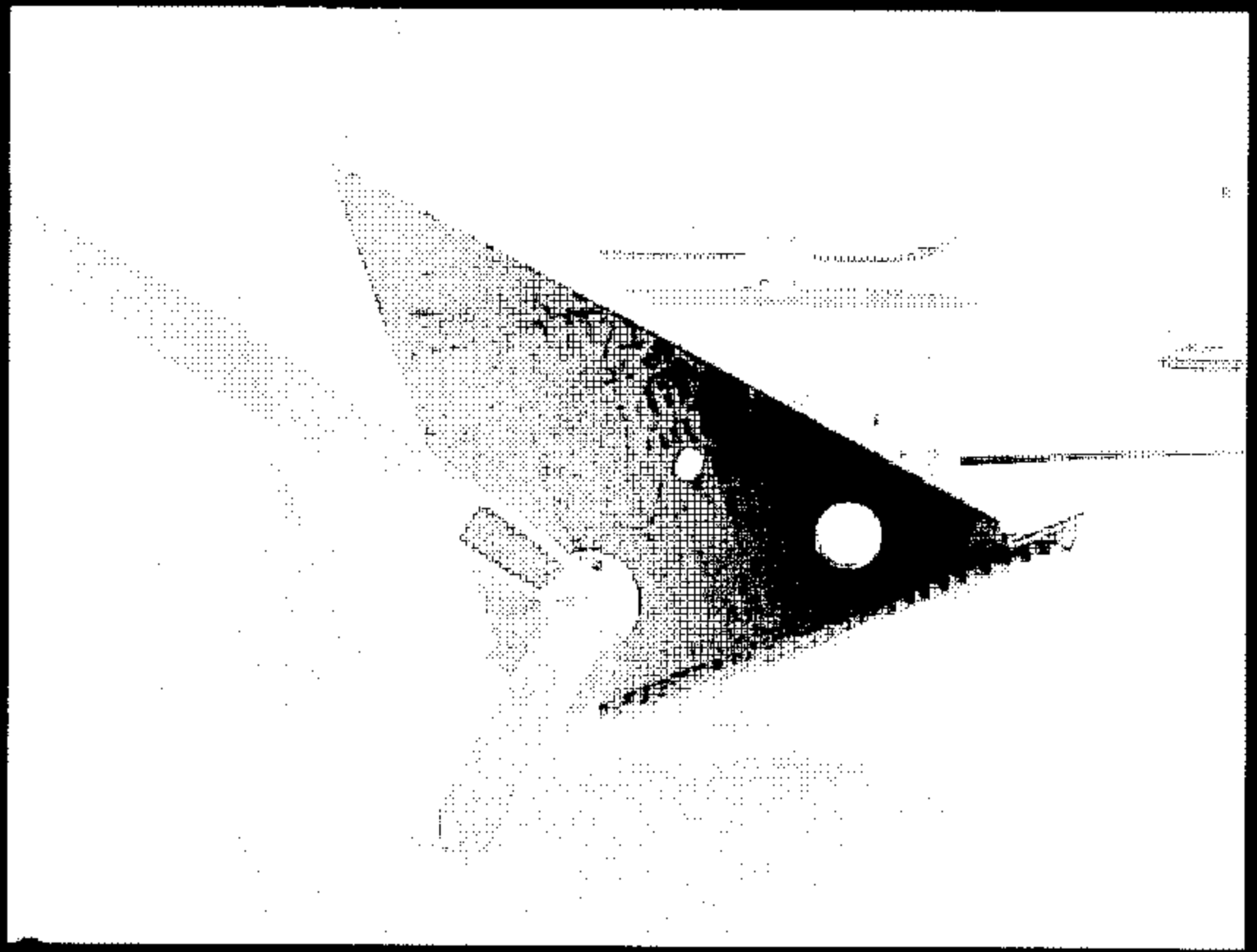
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.29
PRE-TEST SET-UP 2ND ROW RIGHT POSITION



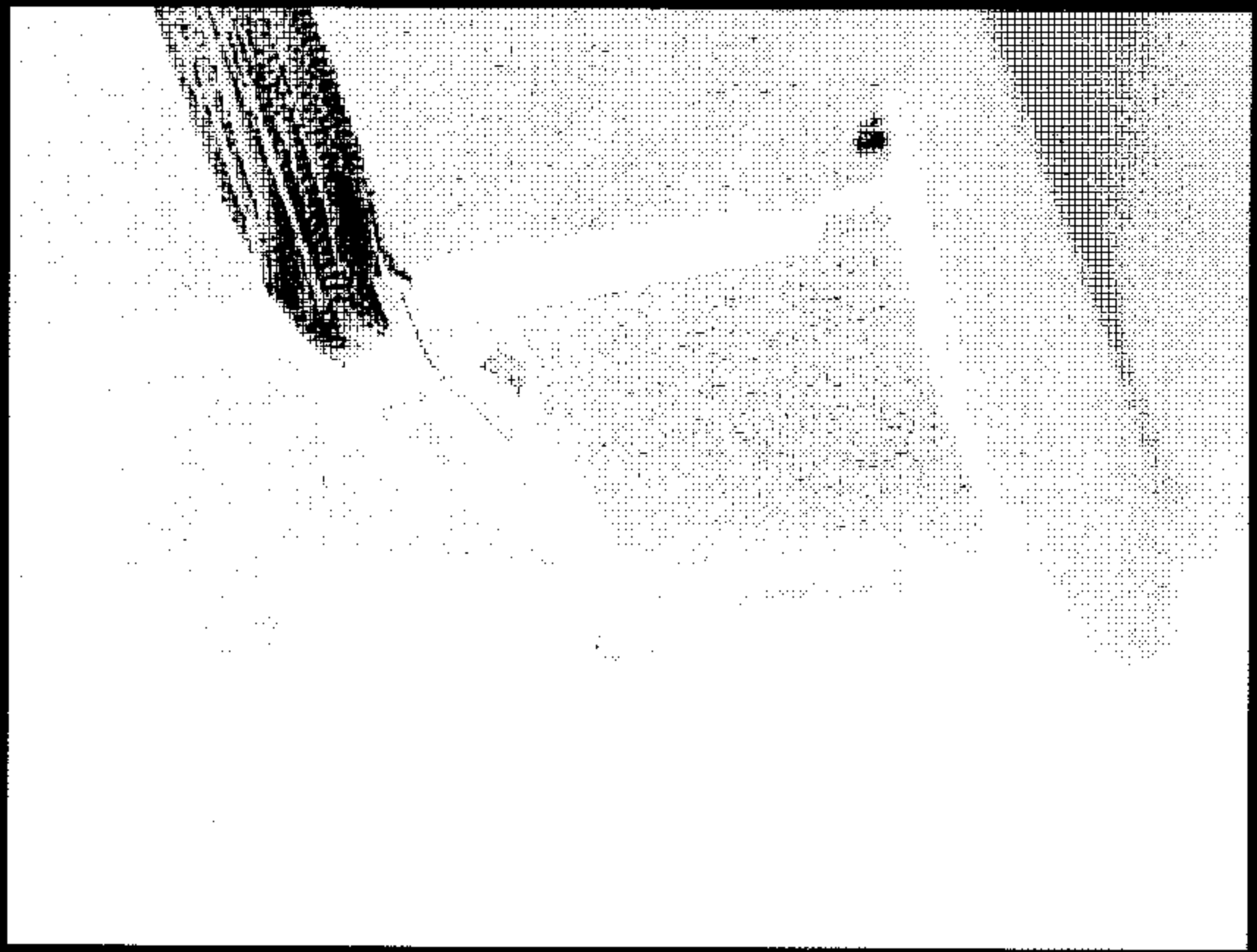
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.30
PRE-TEST SET-UP 2ND ROW RIGHT TOP
TETHER ANCHOR



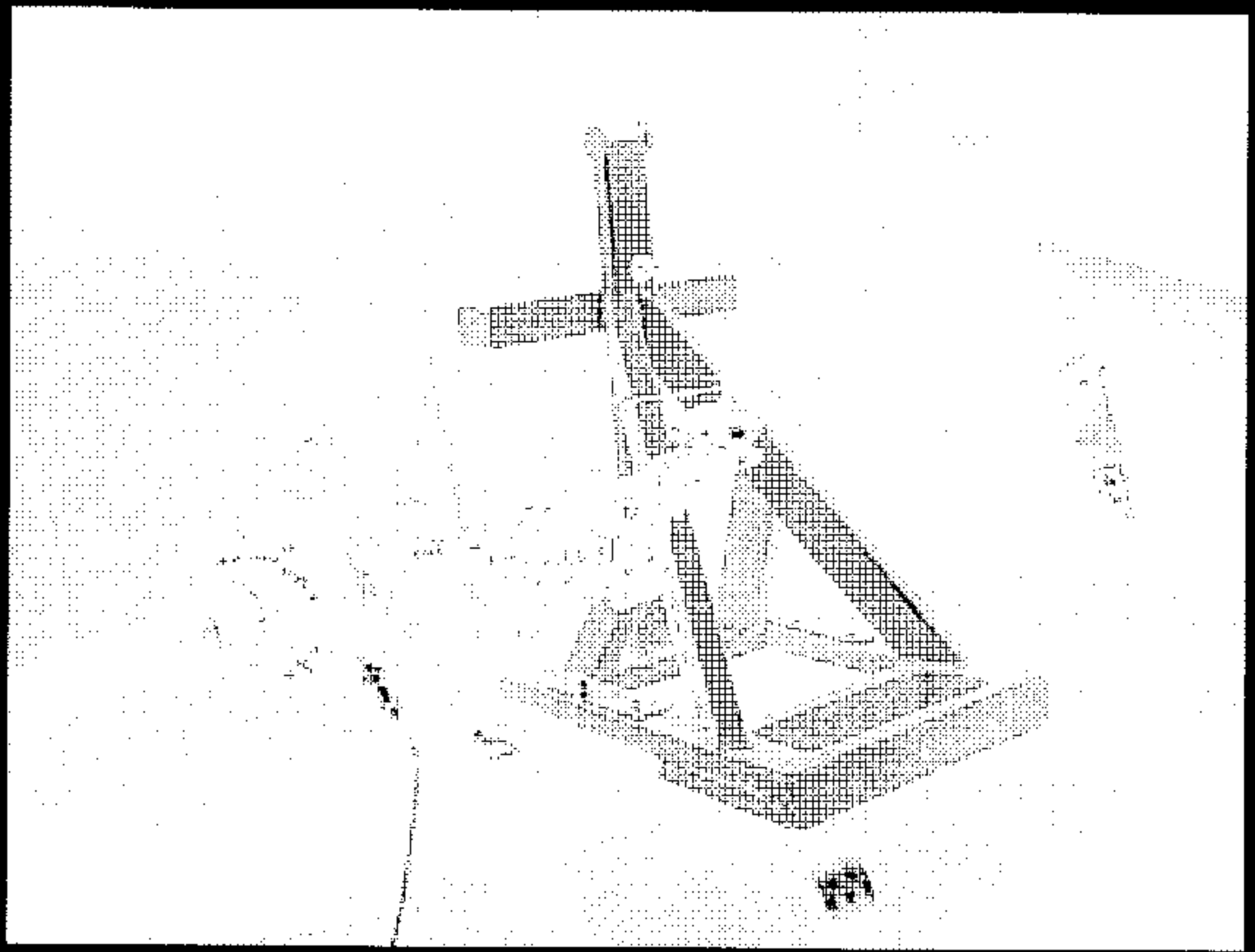
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.31
POST TEST 2ND ROW RIGHT POSITION



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.32
POST TEST 2ND ROW TOP TETHER ANCHOR



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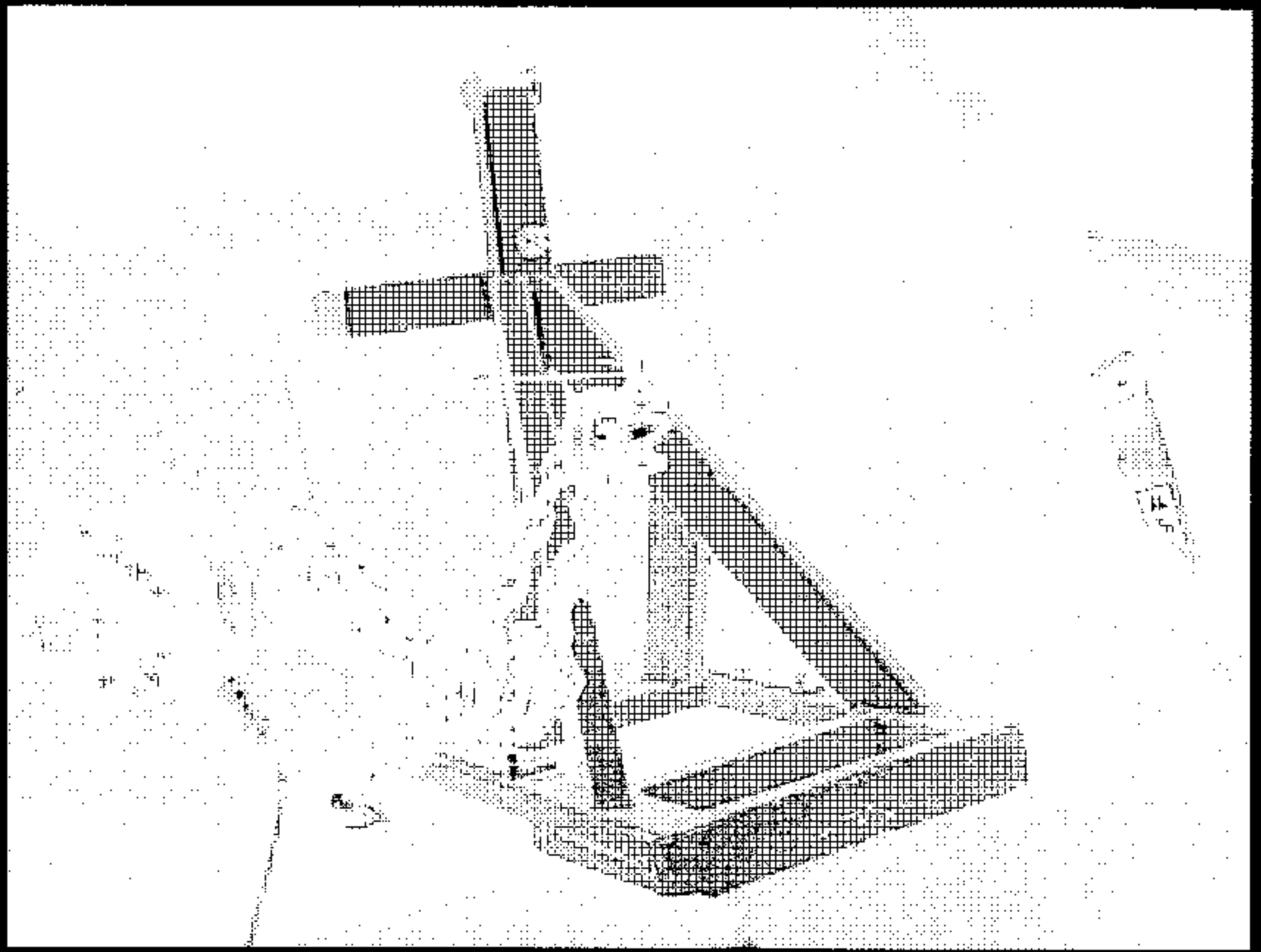
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.33
PRE-TEST 2ND ROW CENTER POSITION



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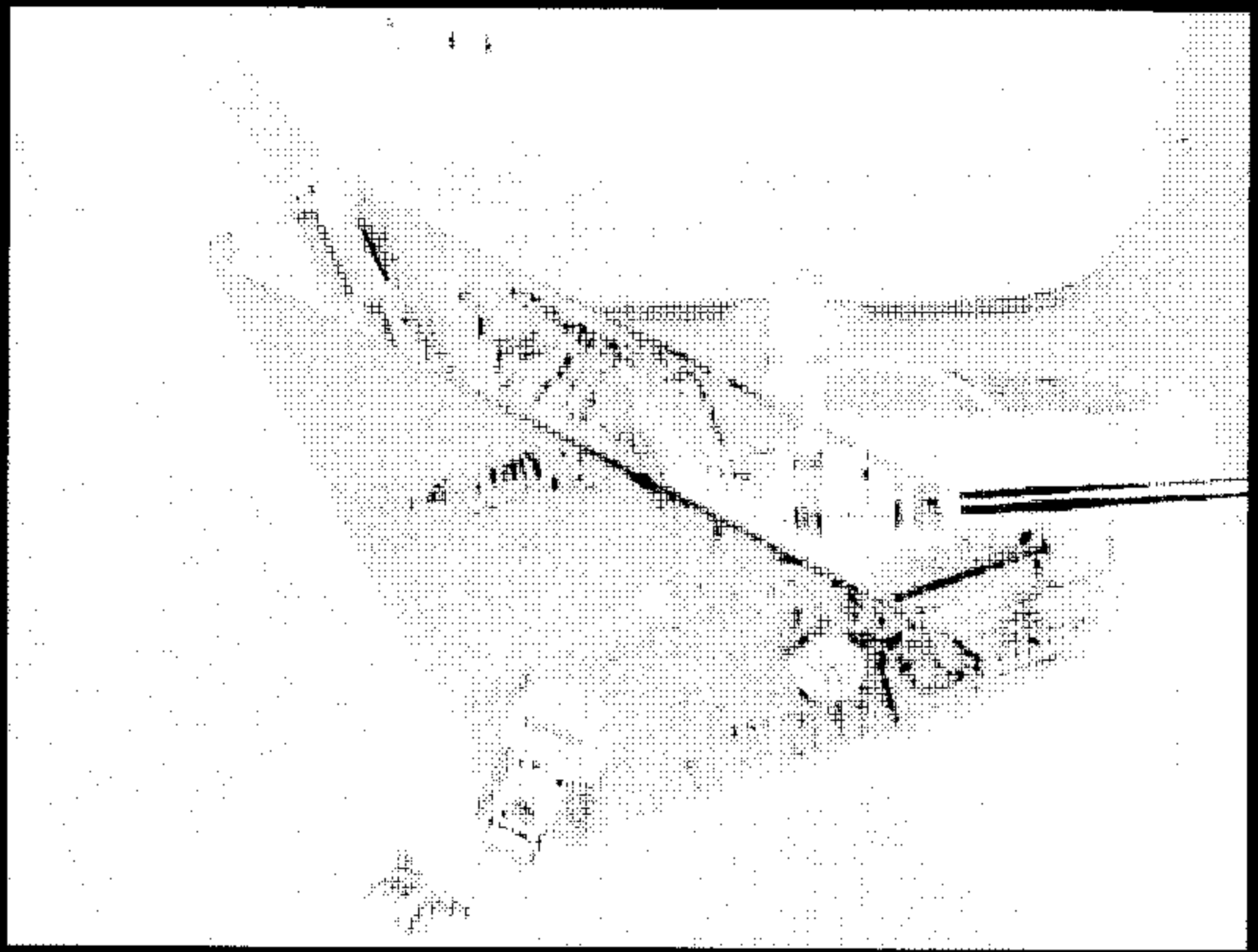
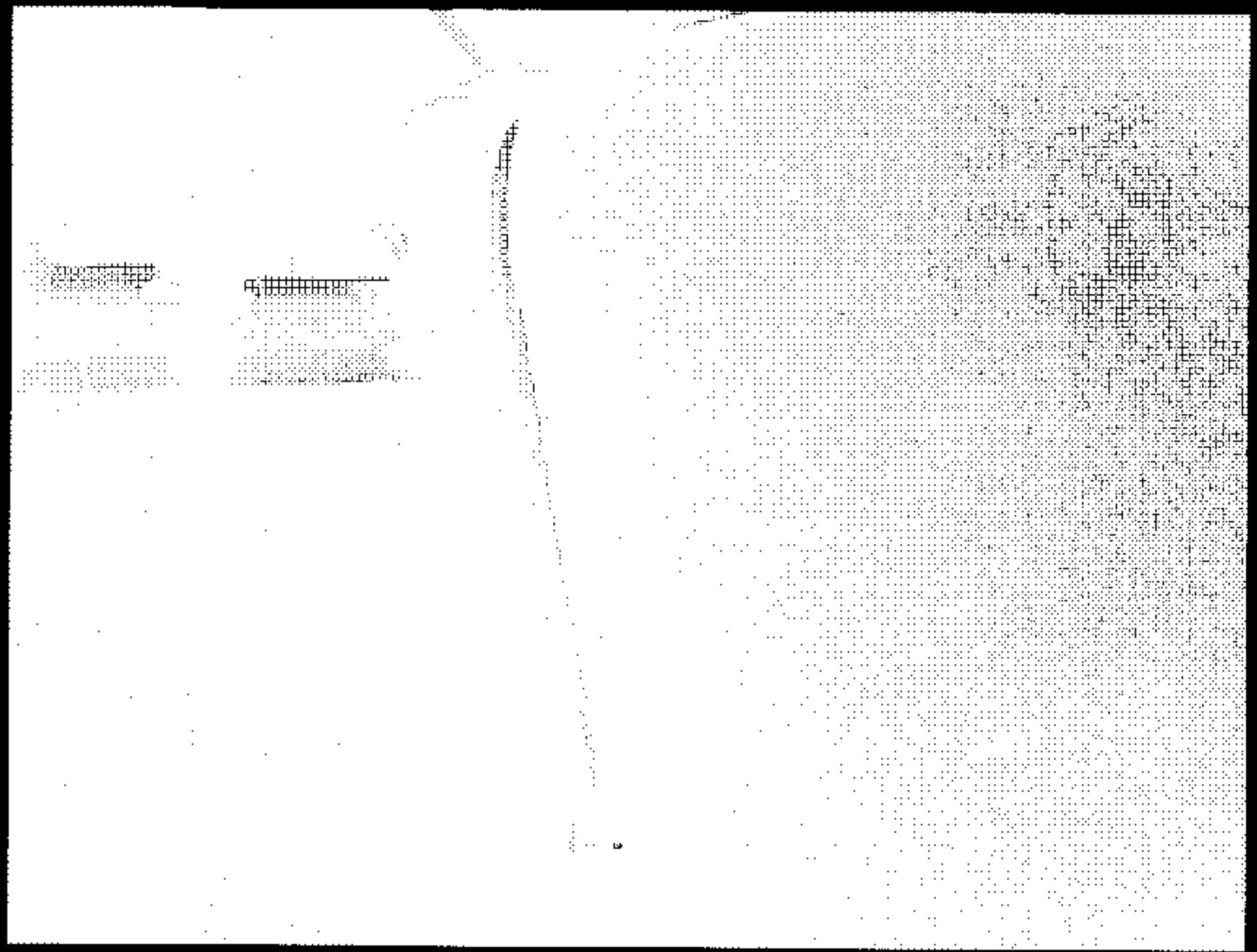
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.34
POST TEST 2ND ROW CENTER POSITION



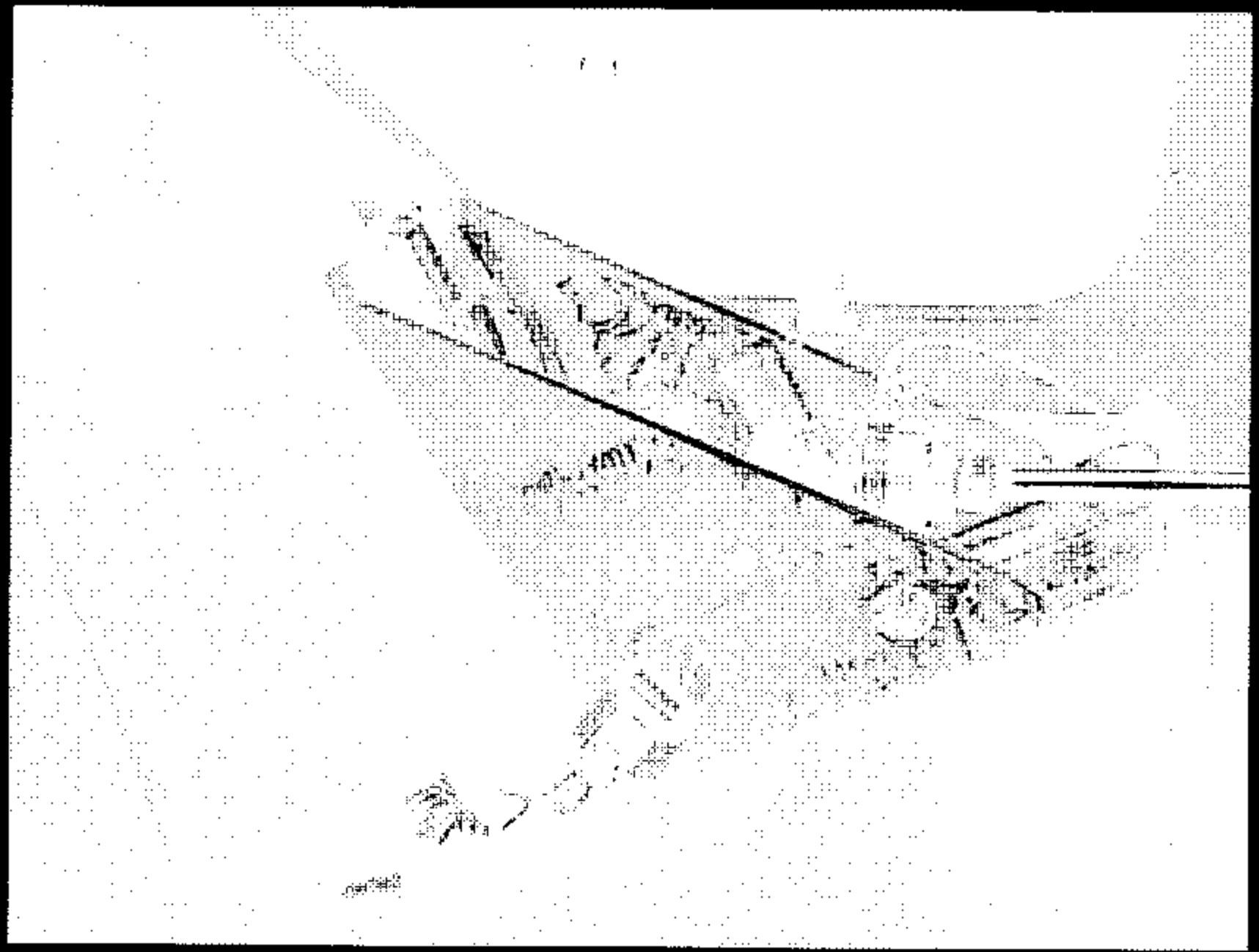
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

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



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.36
PRE-TEST SET-UP 2ND ROW LEFT TOP TETHER ANCHOR



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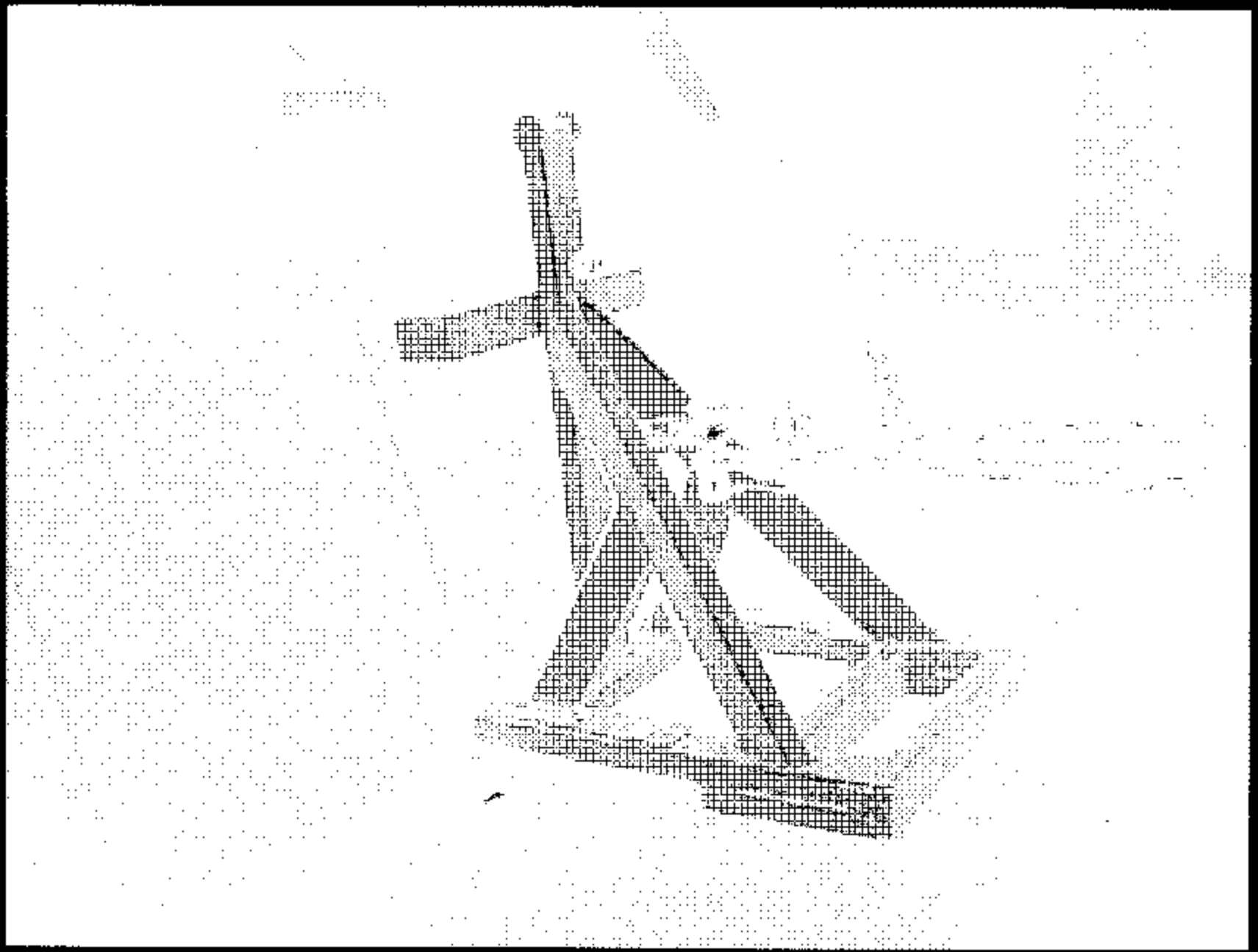
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.37
POST TEST 2ND ROW LEFT POSITION

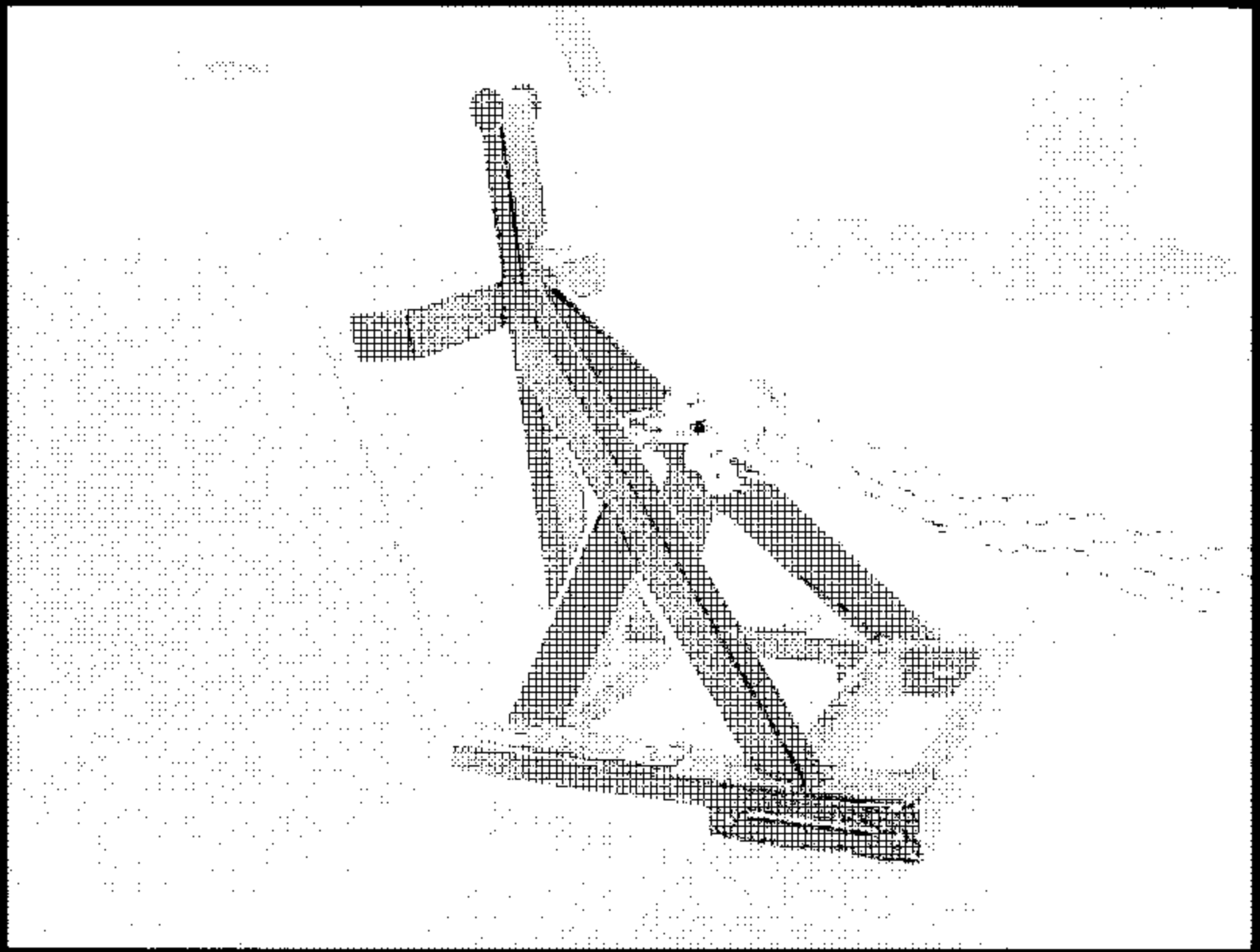
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.38
POST TEST 2ND ROW LEFT TOP TETHER ANCHOR



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.39
PRE-TEST SET-UP 3RD ROW CENTER POSITION



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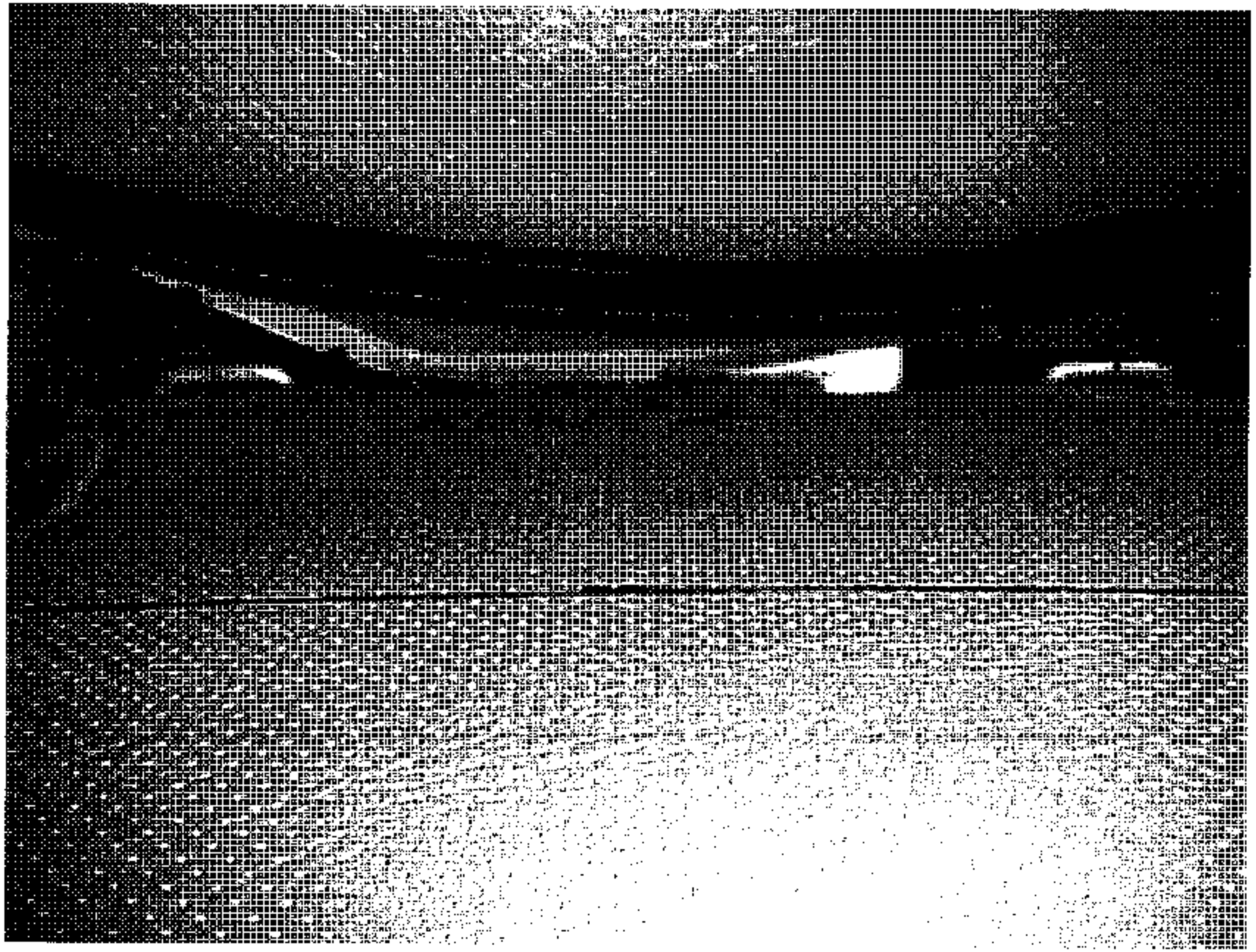
FMVSS NO. 225

FIGURE 5.40
POST TEST 3RD ROW CENTER POSITION

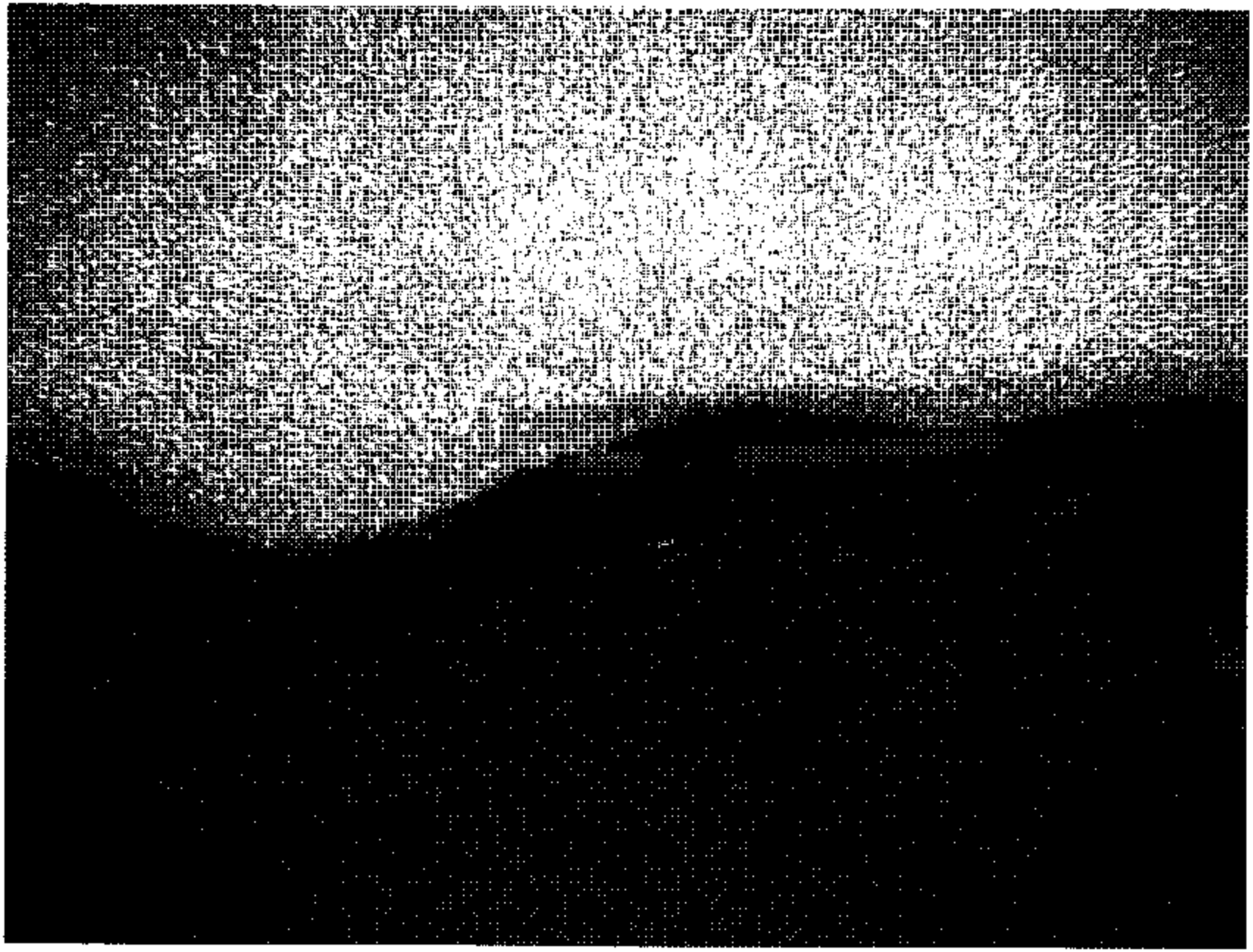
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.41
POST TEST 2ND ROW RIGHT TOP TETHER ANCHOR



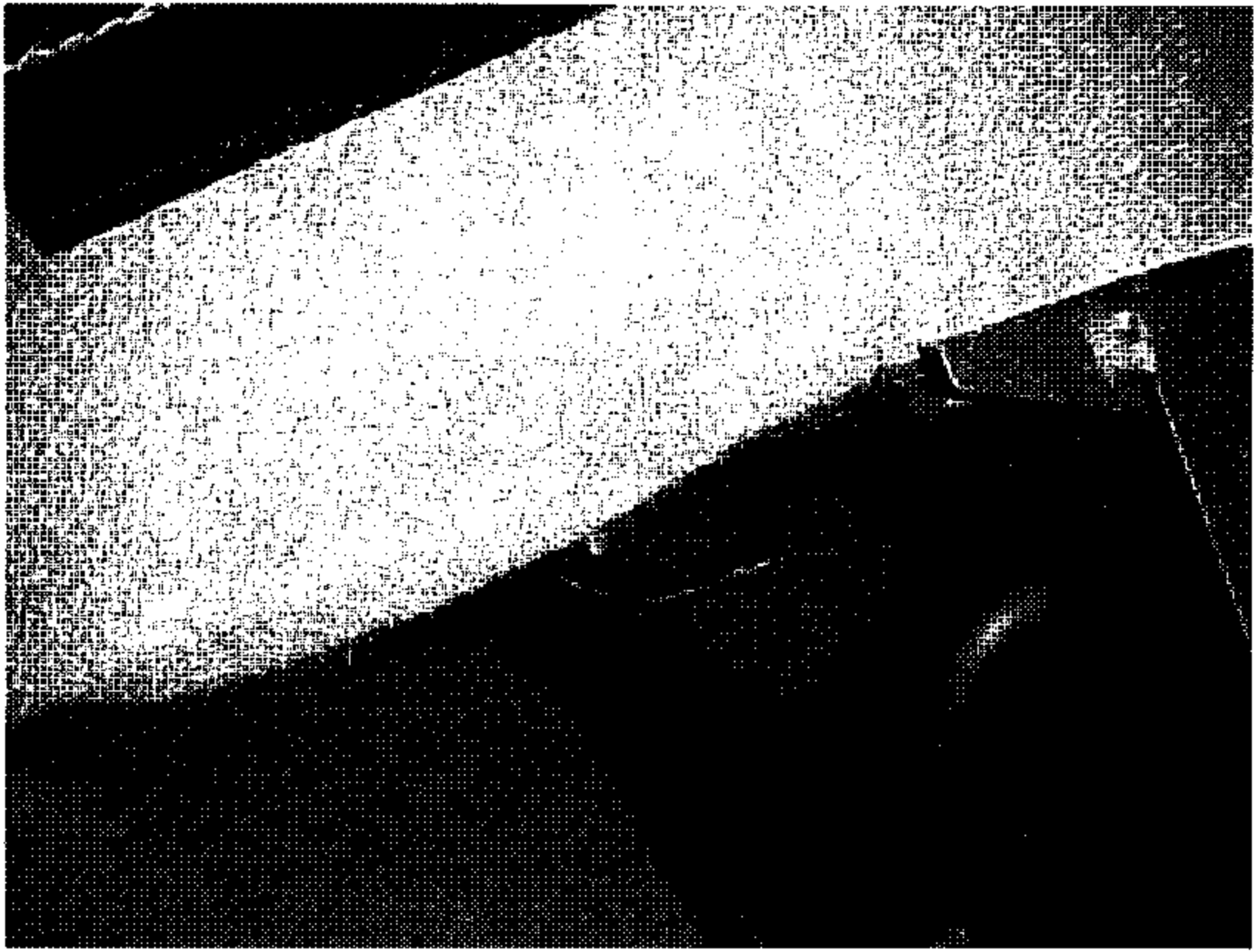
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.42
POST TEST 2ND ROW CENTER LOWER ANCHORS



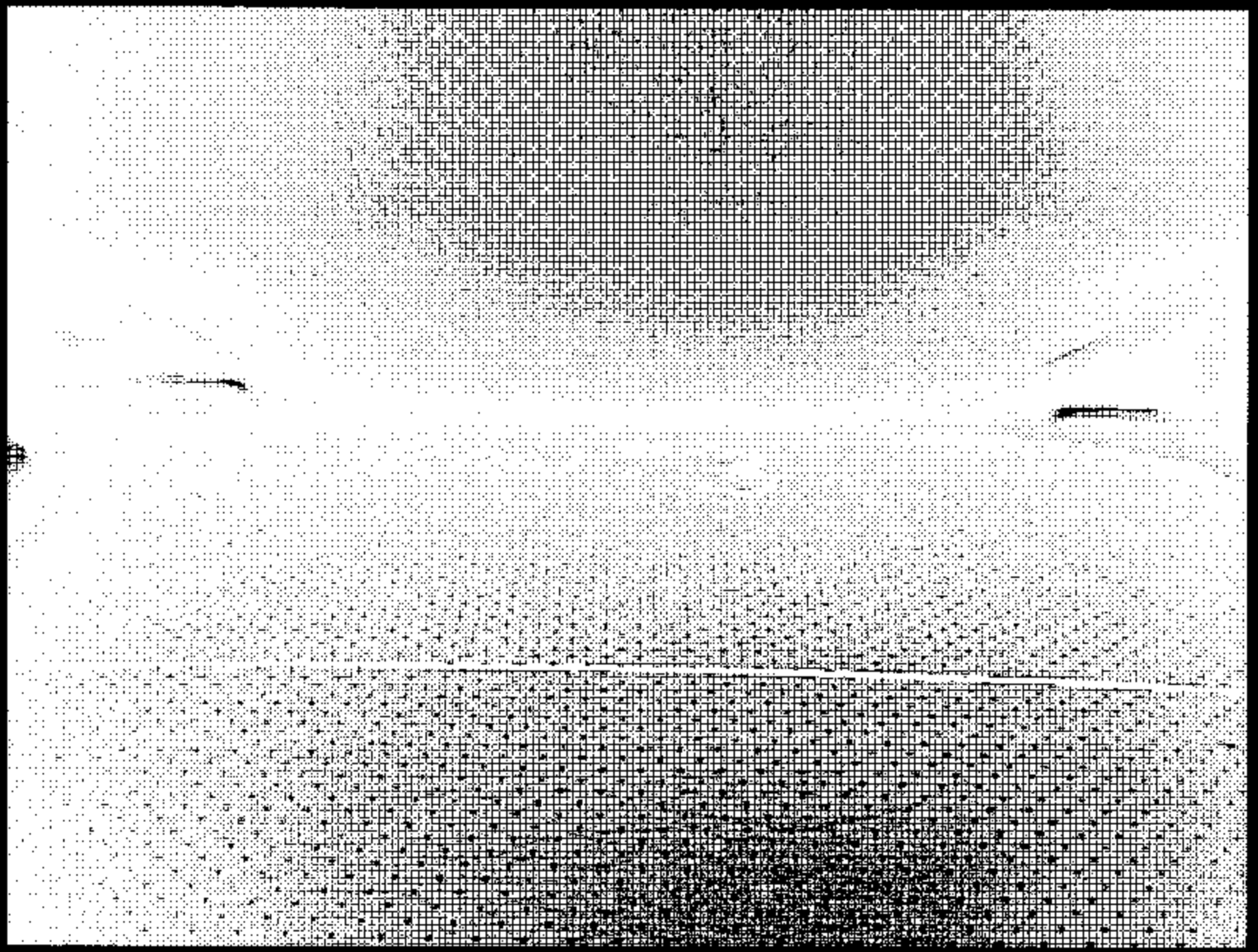
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.43
POST TEST 2ND ROW CENTER TOP TETHER ANCHOR



2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.44
POST TEST 2ND ROW LEFT TOP TETHER ANCHOR



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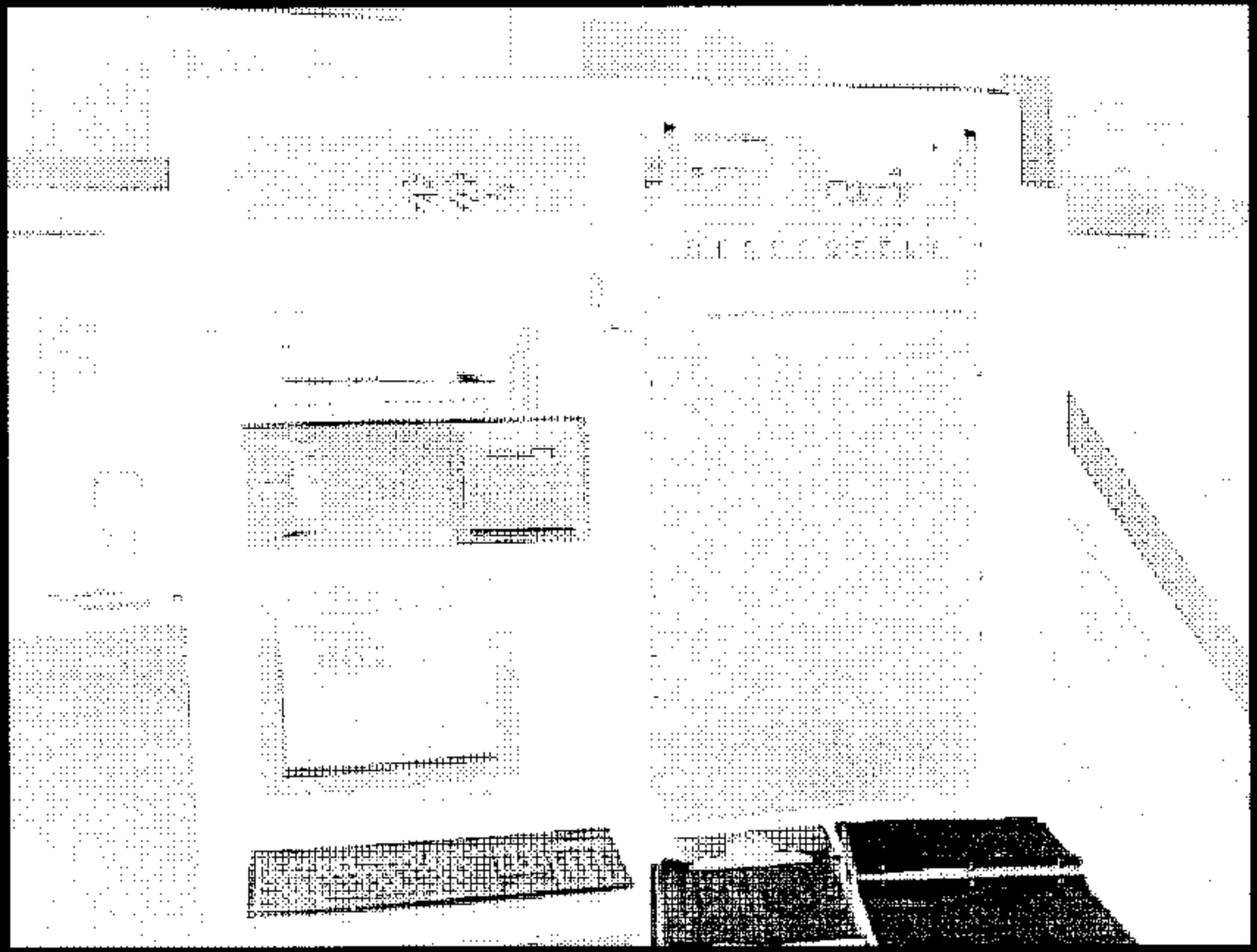
NHTSA NO. C40208
FMVSS NO. 225

FIGURE 5.45
POST TEST 3RD ROW CENTER LOWER ANCHORS

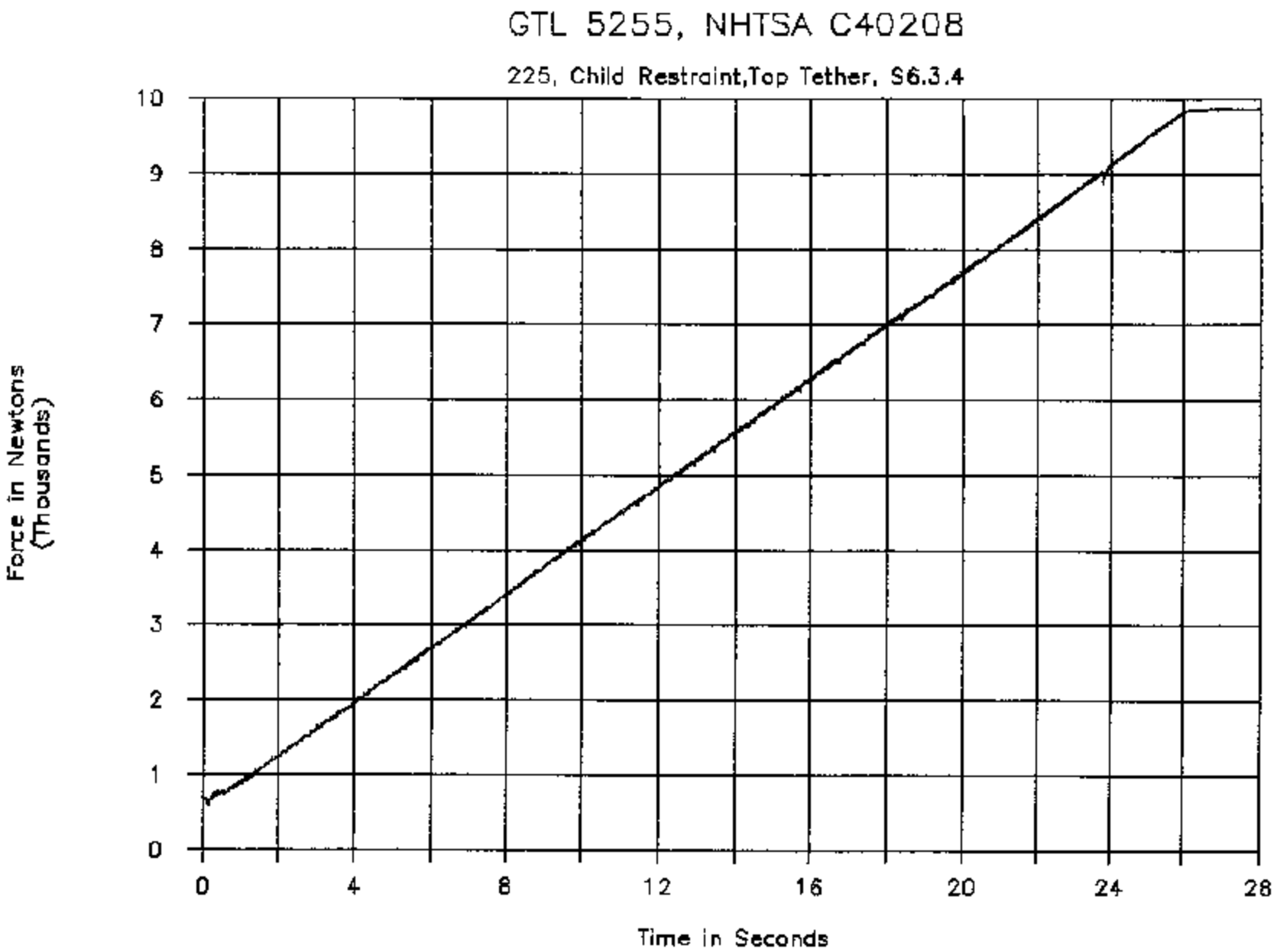


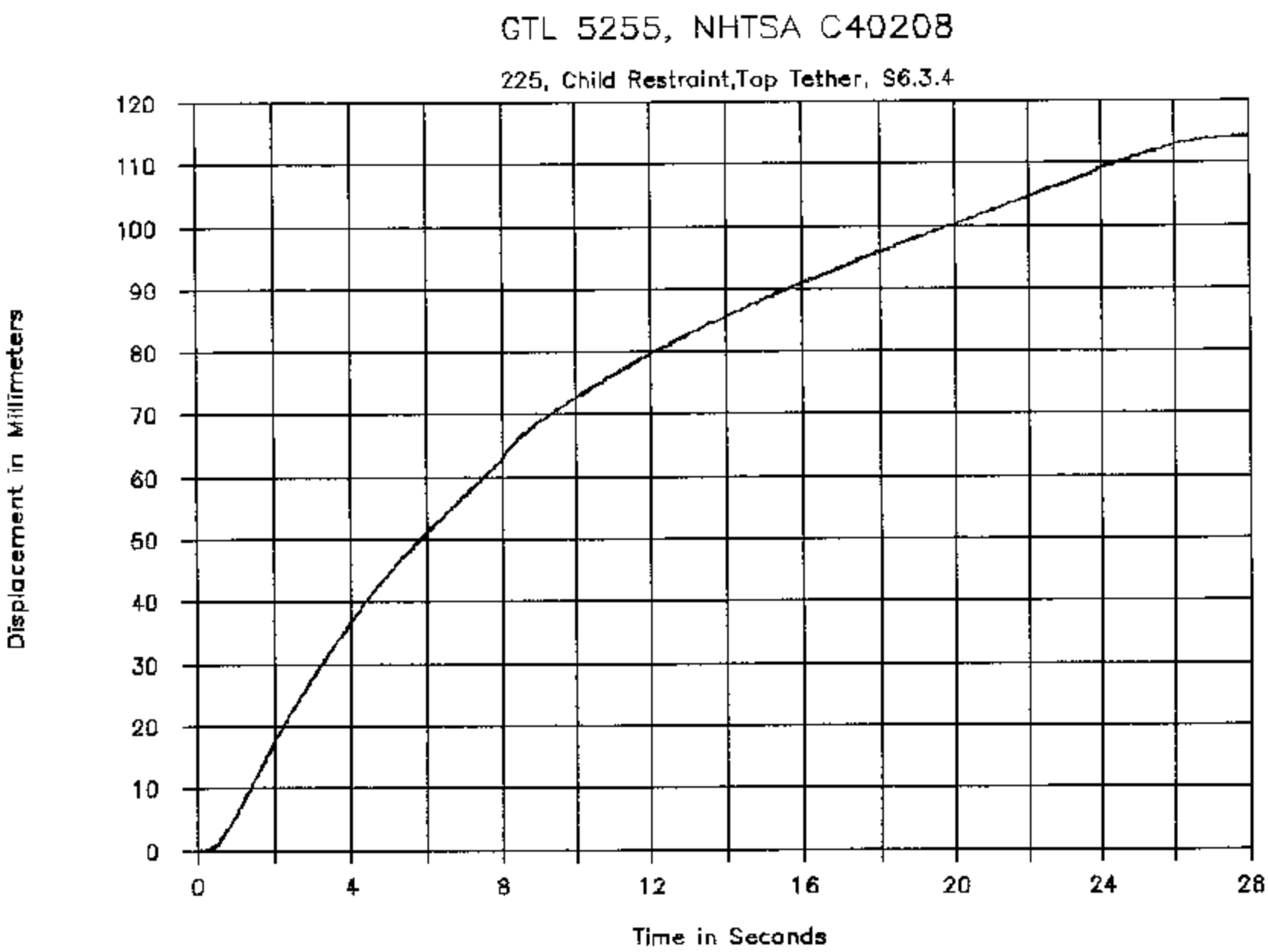
2004 FORD ECONOLINE
NHTSA NO. C40208
FMVSS NO. 225

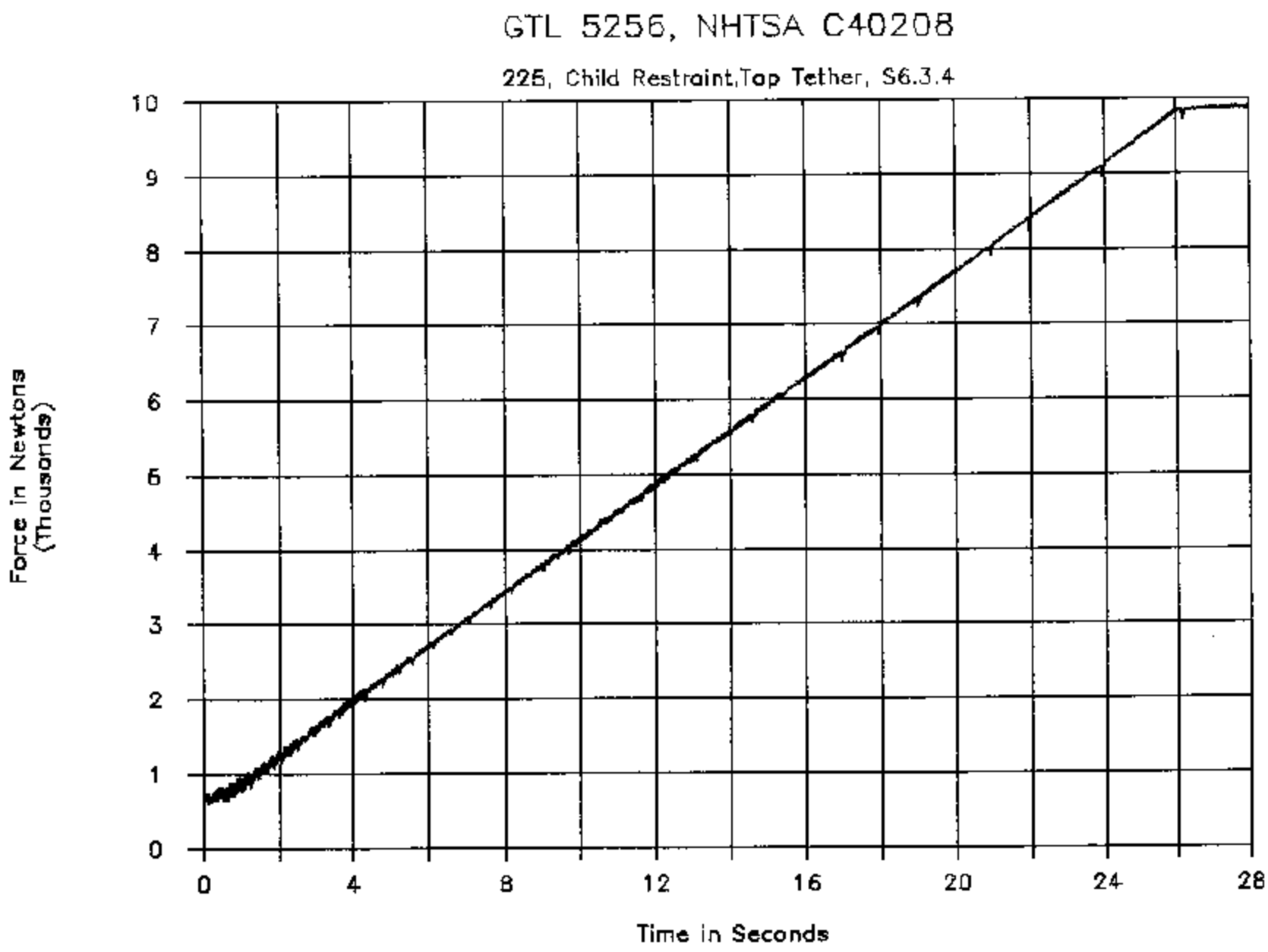
FIGURE 5.46
LOAD SYSTEM CONTROL AND DATA RECORDING DEVICE IN POSITION

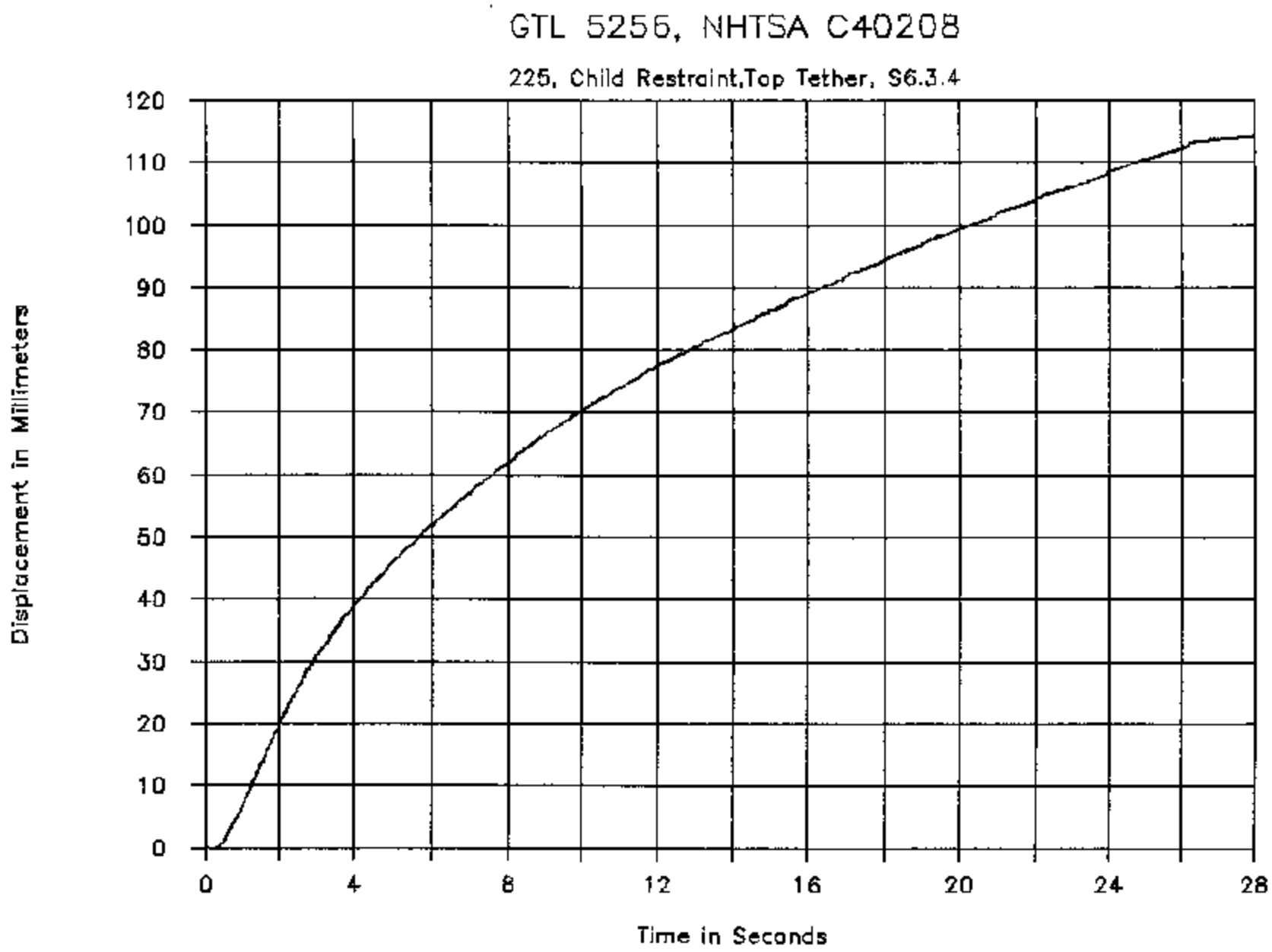
SECTION 6

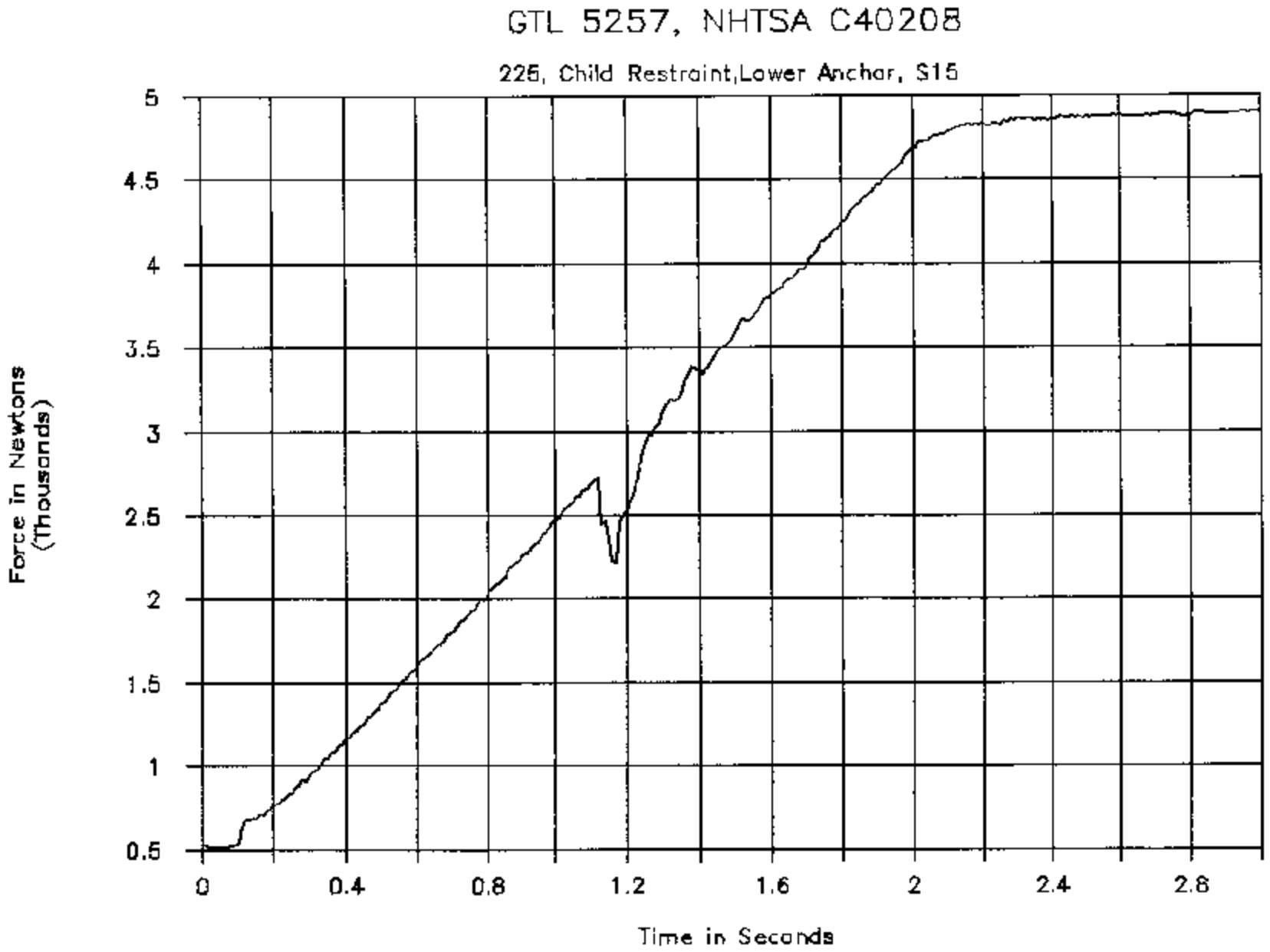
PLOTS

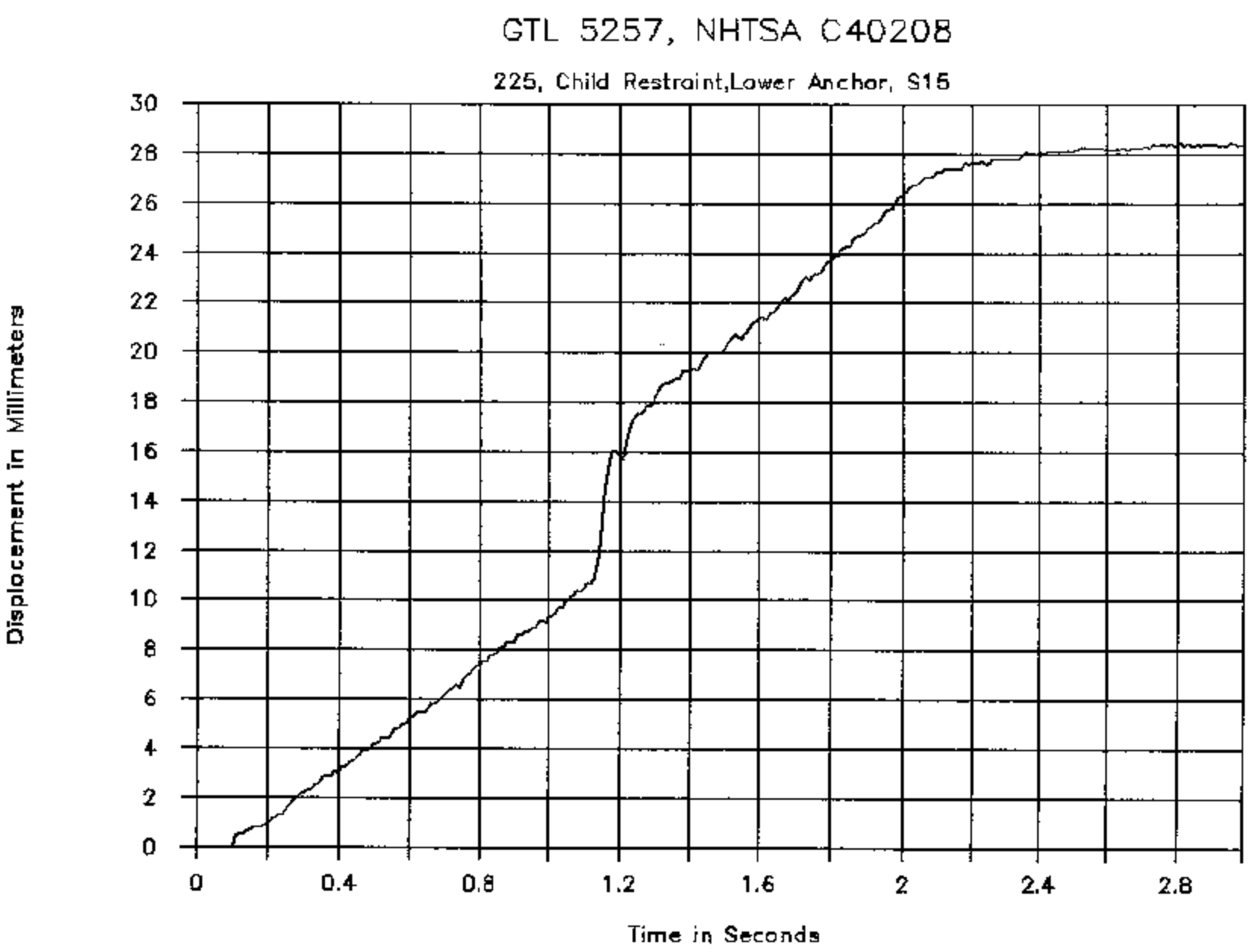

GTL 5255, NHTSA C40208
225, Child Restraint,Top Tether, S6.3.4
Force in Newtons
(Thousands)
10
9
8
7
6
5
4
3
2
1
0
0
4
8
12
16
20
24
28
Time in Seconds

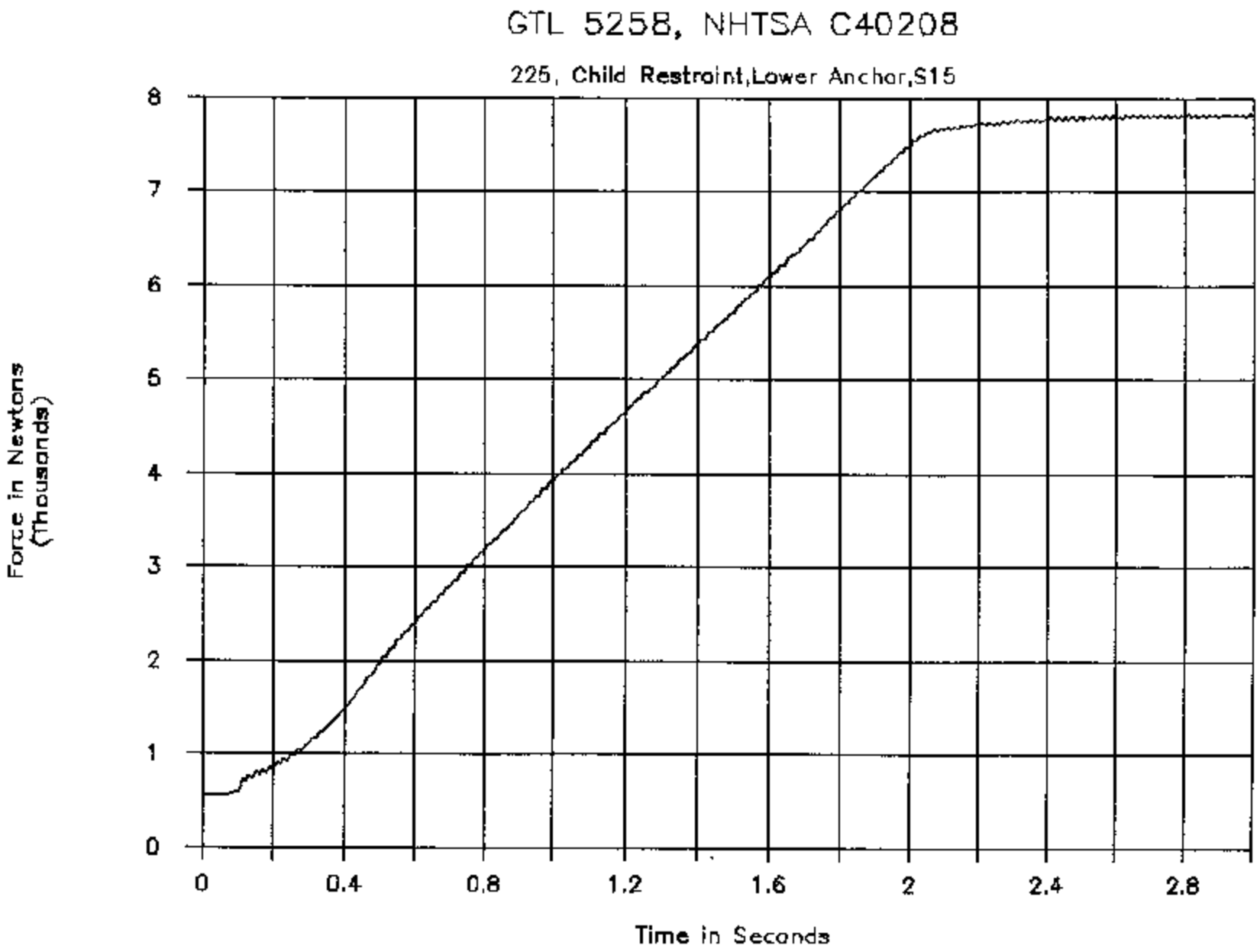

GTL 5255, NHTSA C40208
225, Child Restraint,Top Tether, S6.3.4
Displacement in Millimeters
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
Time in Seconds

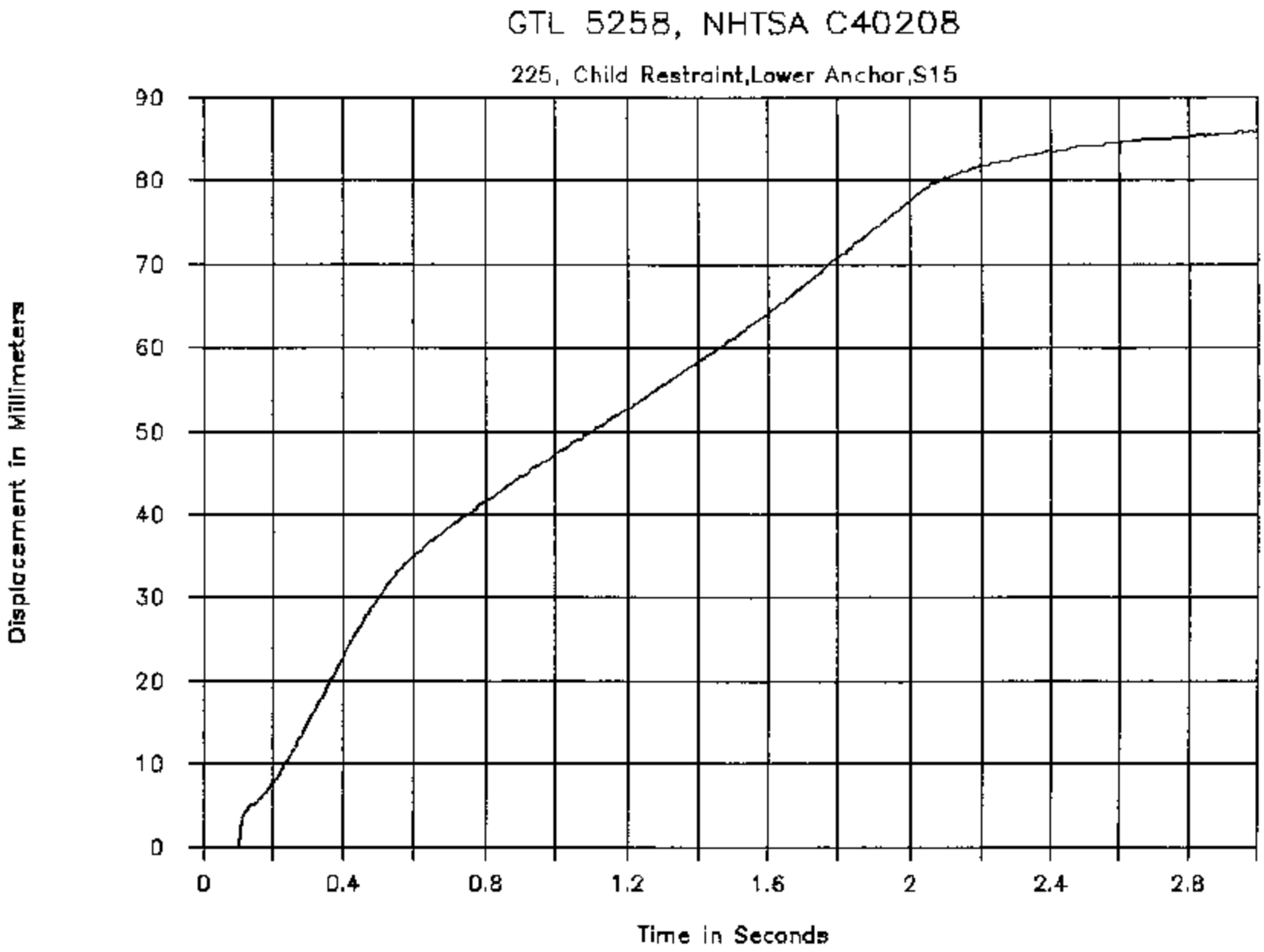

GTL 5256, NHTSA C40208
225, Child Restraint,Top Tether, S6.3.4
Force in Newtons
(Thousands)
10
9
8
7
6
5
4
3
2
1
0
0
4
8
12
16
20
24
28
Time in Seconds


GTL 5256, NHTSA C40208
225, Child Restraint,Top Tether, S6.3.4
Displacement in Millimeters
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
Time in Seconds


GTL 5257, NHTSA C40208
225, Child Restraint,Lower Anchor, S15
Force in Newtons (Thousands)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0.4
0.8
1.2
1.6
2
2.4
2.8
Time in Seconds

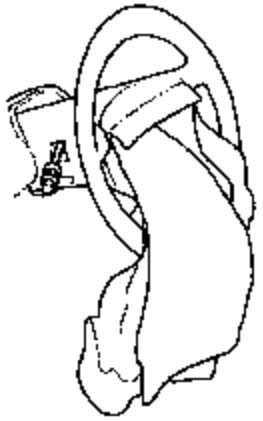

GTL 5257, NHTSA C40208
225, Child Restraint,Lower Anchor, S15
Displacement in Millimeters
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0
0.4
0.8
1.2
1.6
2
2.4
2.8
Time in Seconds


GTL 5258, NHTSA C40208
225, Child Restraint,Lower Anchor,S15
Force in Newtons (Thousands)
8
7
6
5
4
3
2
1
0
0
0.4
0.8
1.2
1.6
2
2.4
2.8
Time in Seconds


GTL 5258, NHTSA C40208
225, Child Restraint,Lower Anchor,S15
Displacement in Millimeters
90
80
70
60
50
40
30
20
10
0
0
0.4
0.8
1.2
1.6
2
2.4
2.8
Time in Seconds

APPENDIX A

OWNER'S MANUAL CHILD RESTRAINT INFORMATION



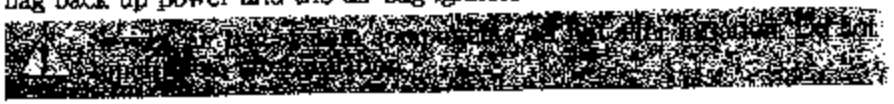
The air bags inflate and deflate rapidly upon activation. After air bag deployment, it is normal to notice a smoke-like, powdery residue or smell the burnt propellant. This may consist of cornstarch, talcum powder or sodium compounds which may irritate the skin and eyes, but none of the residue is toxic.

While the SRS 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. It is extremely important that occupants be properly restrained as far away from the air bag module as possible while maintaining vehicle control.

The SRS consists of:

- driver and passenger air bag modules (which include the inflators and air bags)
- one or more impact and safing sensors
- a readiness light and tone
- a 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 wiring (including the impact sensors), the system wiring, the air bag system readiness light, the air bag back up power and the air bag ignitors.



Determining if the system is operational

The SRS uses a readiness light in the instrument cluster or a tone to indicate the condition of the system. Refer to *Air bag readiness* 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 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 SRS serviced at your dealership or by a qualified technician immediately. Unless serviced, the system may not function properly in the event of 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. Many states require that children use approved booster seats until they are eight years old. 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.

⚠ Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

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

Ford recommends using child safety seats equipped with LATCH attachments, attached to LATCH anchors and tether anchors. Some child seat manufacturers sell LATCH accessory belts that attach child seats that are not equipped with LATCH attachments onto LATCH anchors. See *Attaching safety seats with LATCH attachments for child seat anchors* in this section for seating positions with LATCH anchors.

If you install a forward-facing child safety seat using the vehicle safety belts:

- use only seats equipped with lap-shoulder belts;
- forward-facing child safety seats can be used in the center of the three-passenger 2nd row bench seat only if a top tether strap is used;
- Ford recommends placing forward-facing safety seats in the 2nd row and using top tether straps for added protection.

For more information on top tether straps, see *Attaching safety seats with tether straps* in this section.

Any booster seat that places the vehicle's lap belt or shoulder belt around a shield above and ahead of the child's hips should not be used in this vehicle.

⚠ **Do not use a forward-facing safety seat or an infant seat in the 3rd row of a 12- or 15-passenger Club Wagon.**

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.

⚠ Do not leave children, unreliable adults, or pets unattended in your vehicle.

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?

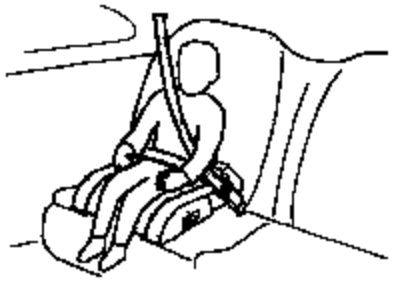
- Does the lap belt rest low across the hips?
- Is the shoulder belt centered on the shoulder and chest?
- Can the child stay seated like this for the whole trip?

Types of booster seats

There are two types of belt-positioning booster seats:

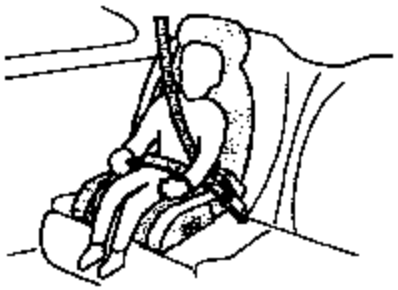
- Those that are backless.

  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 instructions provided by the manufacturer of the booster seat.

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

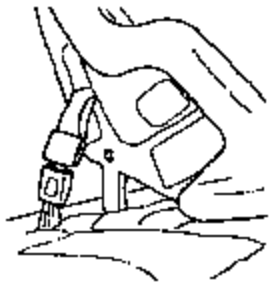
⚠ Never use pillows, books, or towels to boost a child. They can slide around and increase the likelihood of injury or death in a collision.

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 (the buckle closest to the direction the tongue is coming from).
- 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.
- For the front passenger seat, 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.
- For the front passenger seat, place seat back in upright position.
- Put the safety belt in the automatic locking mode. Refer to *Automatic locking mode* (passenger side front and outboard rear seating positions) (if equipped).

- LATCH lower anchors are recommended for use by children up to 22 kg (48 pounds) in a child restraint. Top tether anchors can be used for children up to 27 kg (60 pounds) in a child restraint, and to provide upper torso restraint for children up to 36 kg (80 pounds) using an upper torso harness and a belt-positioning booster.

Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position with LATCH and tether anchors. For more information on top tether straps and anchors, refer to *Attaching safety seats with tether straps* in this chapter. For more information of LATCH anchors refer to *Attaching safety seats with LATCH (Lower Anchors and Tethers for Children) attachments* in this chapter.

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.

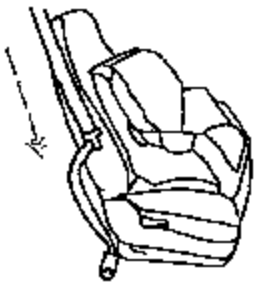
Installing child safety seats with combination lap and shoulder belts

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

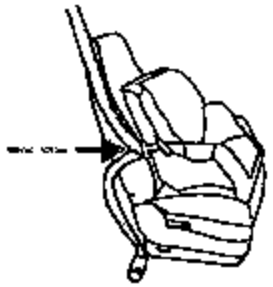
An air bag can kill or injure a child in a child seat. If you must use a forward-facing child seat in the front seat, move seat all the way back.

Children 12 and under should be properly restrained in the rear seat whenever possible.

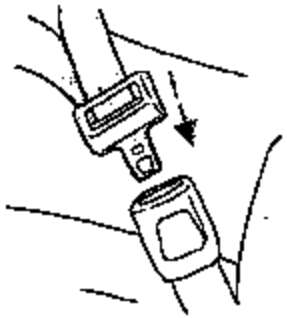
2. Pull down on the shoulder belt and then grasp the shoulder belt and lap belt together.



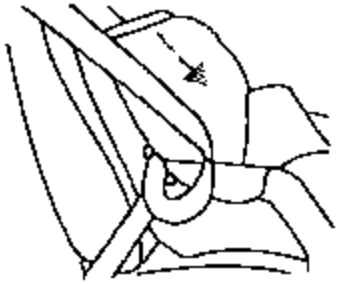
3. While holding the shoulder and lap belt portions together, route the tongue through the child seat according to the child seat manufacturer's instructions. Be sure the belt webbing is not twisted.



4. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) for that seating position until you hear a snap and feel the latch engage. Make sure the tongue is latched securely by pulling on it.

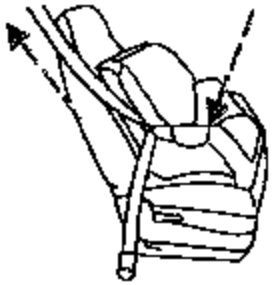


5. To put the retractor in the automatic locking mode, grasp the shoulder portion of the belt and pull downward until all of the belt is extracted.



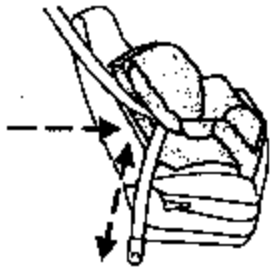
6. Allow the belt to retract. The belt will click as it retracts to indicate it is in the automatic locking mode.

7. Pull the lap belt portion across the child seat toward the buckle and pull up on the shoulder belt while pushing down with your knee on the child seat.



8. Allow the safety belt to retract to remove any slack in the belt.

9. Before placing the child in the seat, forcibly tilt the seat forward and back to make sure 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.



10. Try to pull the belt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat steps two through nine.

Check to make sure the child seat is properly secured before each use.

Attaching safety seats with tether straps

⚠ Children should be placed in the rear in an appropriate child safety seat that is properly secured to the vehicle.

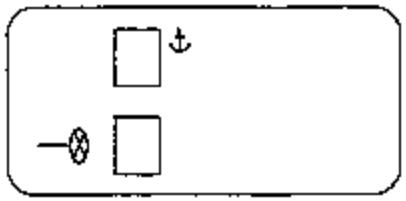
⚠ When using forward-facing child safety seats in vehicles with only two seating positions so the forward-facing child safety seat cannot be placed in the rear of the vehicle, move the passenger seat as far back from the instrument panel as possible.

⚠ **Do not** use a forward–facing safety seat or an infant seat in the last row of a 12– or 15–passenger Club Wagon.

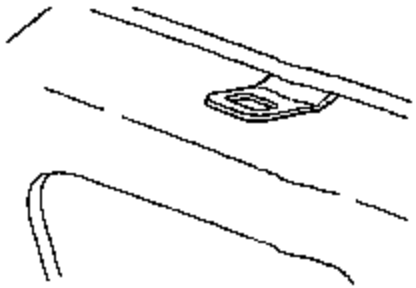
⚠ Air bags can kill or injure a child in a child seat. **NEVER** place a rear-facing child seat in front of an active air bag. If you must use a forward-facing child seat in the front seat, move the seat all the way back.

Front passenger seating position

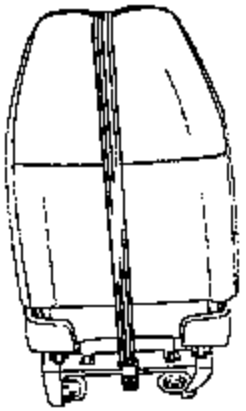
The tether can be attached directly to the rear of the front seat.



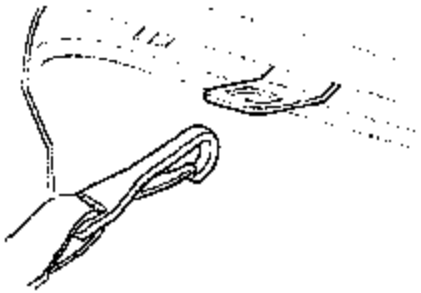
1. Position the child safety seat on the front right-hand passenger seat.
2. Adjust the front right-hand passenger seat full forward.



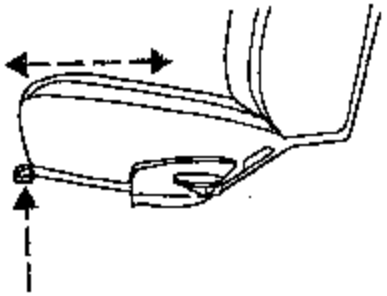
3. Route the child safety seat tether strap over the back of the front right-hand passenger seat as shown.



4. Clip the tether strap hook to the seat pedestal to the location shown.



5. Adjust the front right hand passenger seat to the full rearward position.

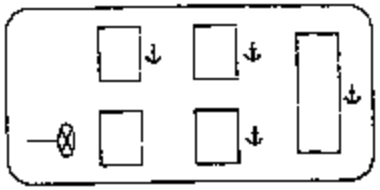


6. Install the child safety seat lightly using the LATCH anchors or safety belts. Follow the instructions in this chapter.

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

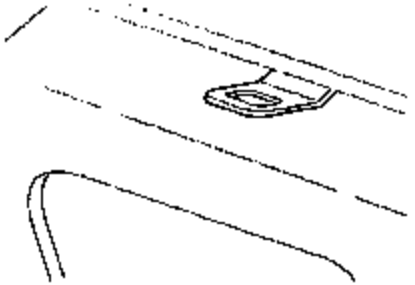
Second row bucket seats (Chateau Quads)

The tether strap can be attached directly to the tether bracket under the back edge of the seat cushion.



1. Position the child safety seat on the second row left hand or right hand bucket seat.

2. Route the child safety tether strap over the back of the left hand or right hand second row bucket seat.



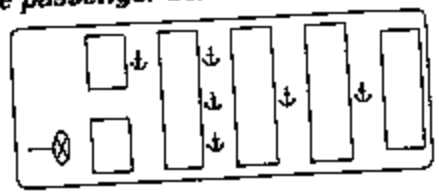
3. Clip the tether strap hook to the seat pedestal at the location shown.

4. Install the child safety seat tightly using the LATCH anchors or safety belts. Follow the instructions in this chapter.

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

Second, Third and Fourth row three passenger bench seats

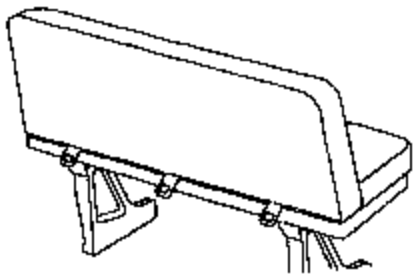
The tether strap can be attached directly to the tether bracket provided under the back edge of the seat cushion.



1. For second row 3–Passenger bench seat, place the child safety seat on the left hand outboard position, the center position, or the right hand outboard position as desired.

For third row or fourth row 3–Passenger bench seat, place the child safety seat on the center position.

2. Route the child safety tether strap over the back of 3–Passenger bench seat.



3. Clip the tether strap hook to the tether bracket mounted under rear rail of seat cushion frame.

4. Install the child safety seat tightly using the LATCH anchors or safety belts. Follow the instructions in this chapter.

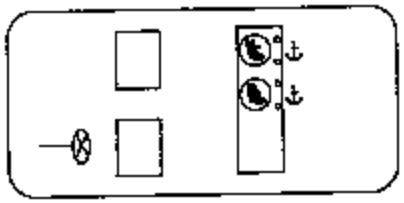
5. Tighten the child safety seat tether strap according to the manufacturer's instructions.

For additional important safety information on the proper use of seat belts, child seats and infant seats, please read the entire *Seating and Safety Restraints* chapter in this Owner's Guide.

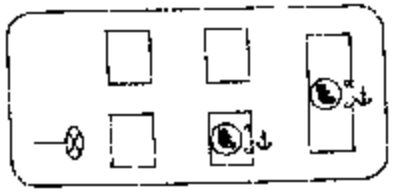
Attaching safety seats with LATCH (Lower Anchors and Tethers for Children) attachments for child seat anchors

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.

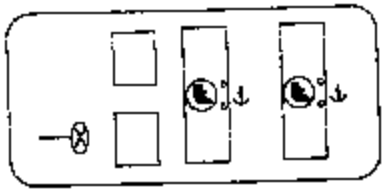
Your vehicle may be equipped with LATCH anchors for child seat installation at the seating positions marked with the child seat symbol:



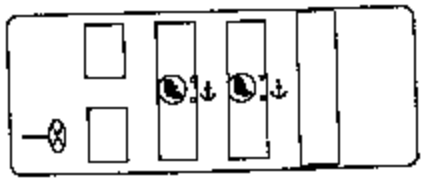
- Five passenger crew van



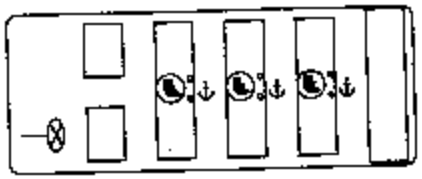
- Seven passenger wagon



- Eight passenger wagon



- Twelve passenger wagon



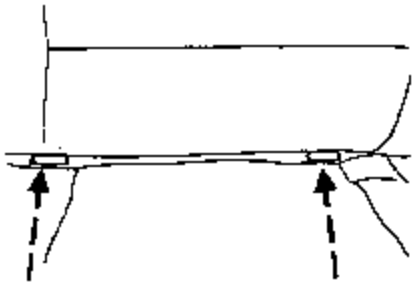
- Fifteen passenger wagon

LATCH represents LATCH anchors.

⚓ represents tether strap 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 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.

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.

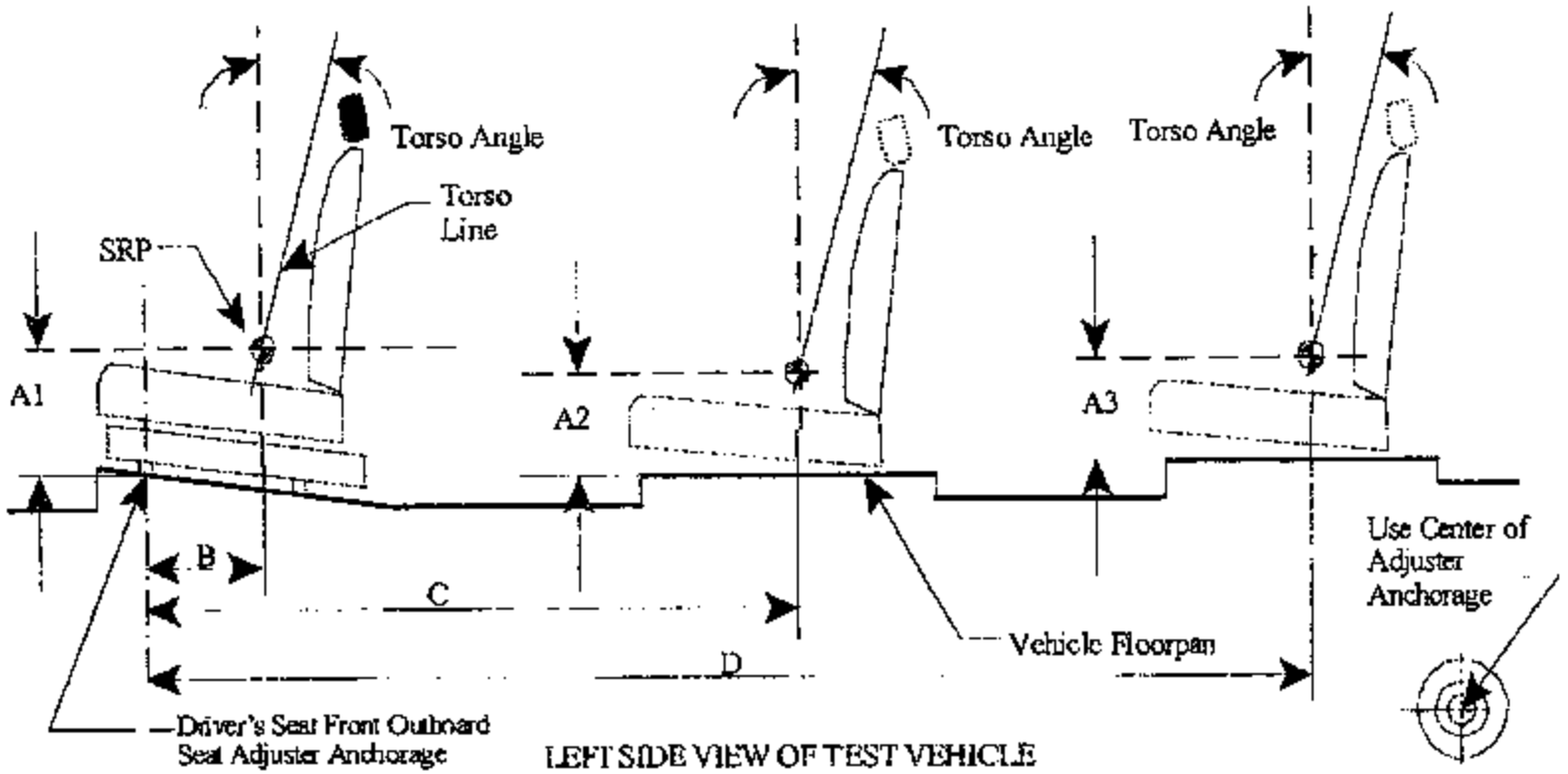
⚠ If the safety seat is not anchored properly, the risk of a child being injured in a crash greatly increases.

APPENDIX B

MANUFACTURER'S DATA

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA
FOR FMVSS 225
(All dimensions in mm[1])

Model Year: __2004 __; Make: __FORD_____; Model: ECONOLINE____; Body Style: __WAGON___
Seat Style: Front row: __CAPTAIN__; Second row: _BENCH___; Third row: _ BENCH____



LEFT SIDE VIEW OF TEST VEHICLE

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		377.90	N/A	377.90
A2		424.80	424.80	424.80
A3		424.80	424.80	424.80
B		277.27	277.27	277.27
C		1061.70	1061.70	1061.70
D		1912.90	1912.90	1912.90
Torso Angle (degree)	Front Row	17 DEGREE	N/A	17 DEGREE
	Second Row	21 DEGREE	21 DEGREE	21 DEGREE
	Third Row	21 DEGREE	21 DEGREE	21 DEGREE

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: __2004 __; Make: __FORD_____; Model: __ECONOLINE____; Body Style: __WAGON___
Seat Style: Front row: __CAPTAIN__; Second row: _BENCH___; Third row: _BENCH___

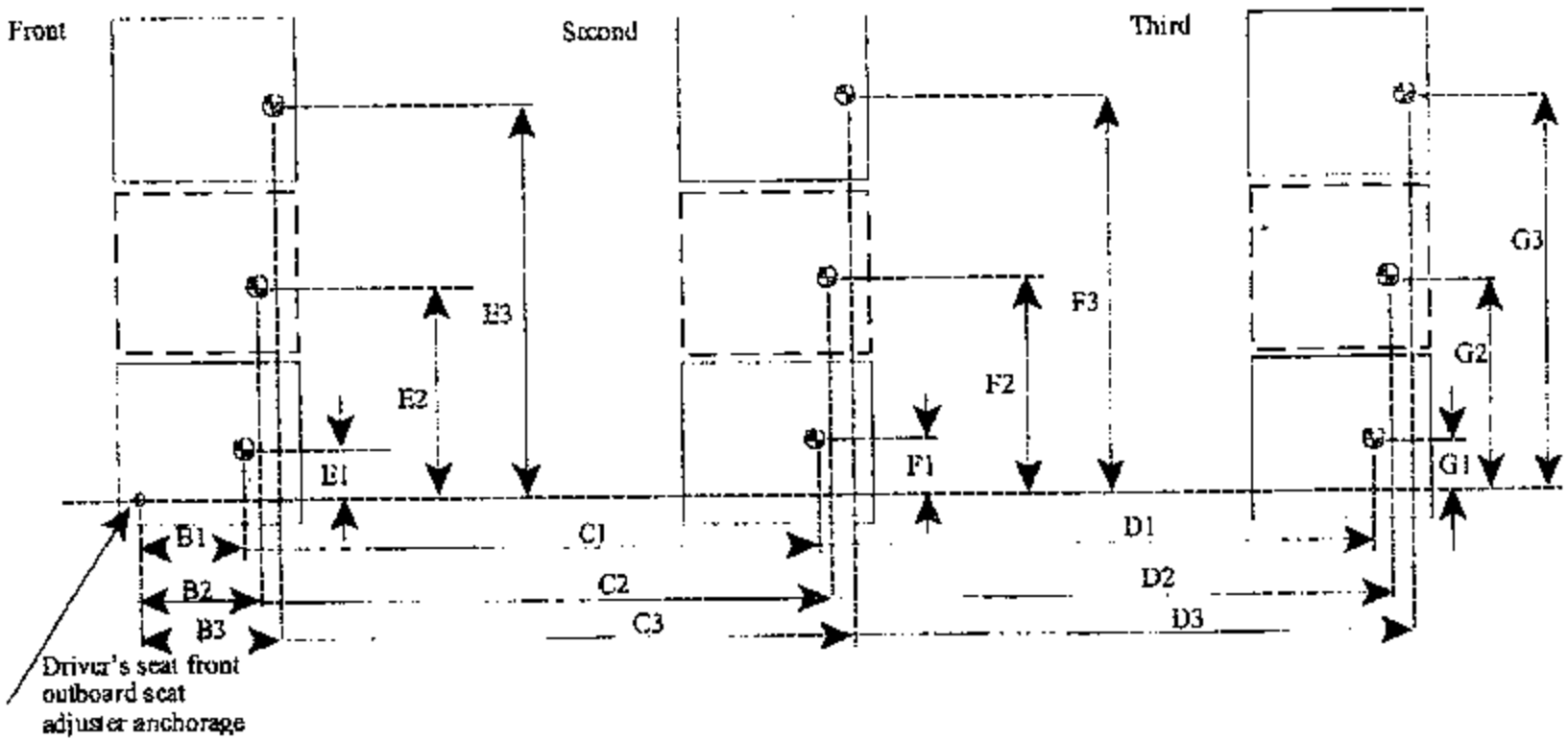


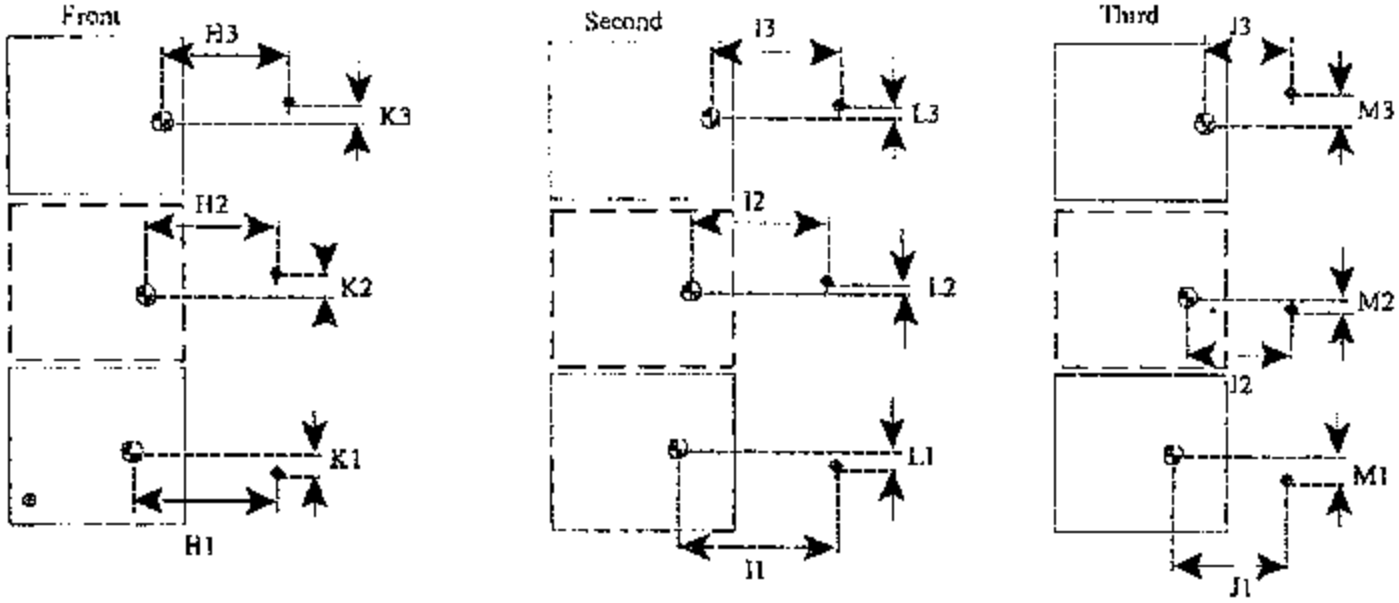
Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	N/A
	E1	N/A
	B2	N/A
	E2	N/A
	B3	374.21
	E3	1149.07
Second Row	C1	1189.0
	F1	41.92
	C2	1189.0
	F2	528.80
	C3	1189.0
	F3	1116.07
Third Row	D1	N/A
	G1	N/A
	D2	2040.16
	G2	528.80
	D3	N/A
	G3	N/A

Note: 1. Use the center of anchorage.

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

Model Year: __2004__; Make: __FORD_____; Model: __ECONOLINE___; Body Style: __WAGON___
Seat Style: Front row: __CAPTAIN__; Second row: _BENCH___; Third row: _BENCH____



⊖: SRP
↟: Tether anchorage

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

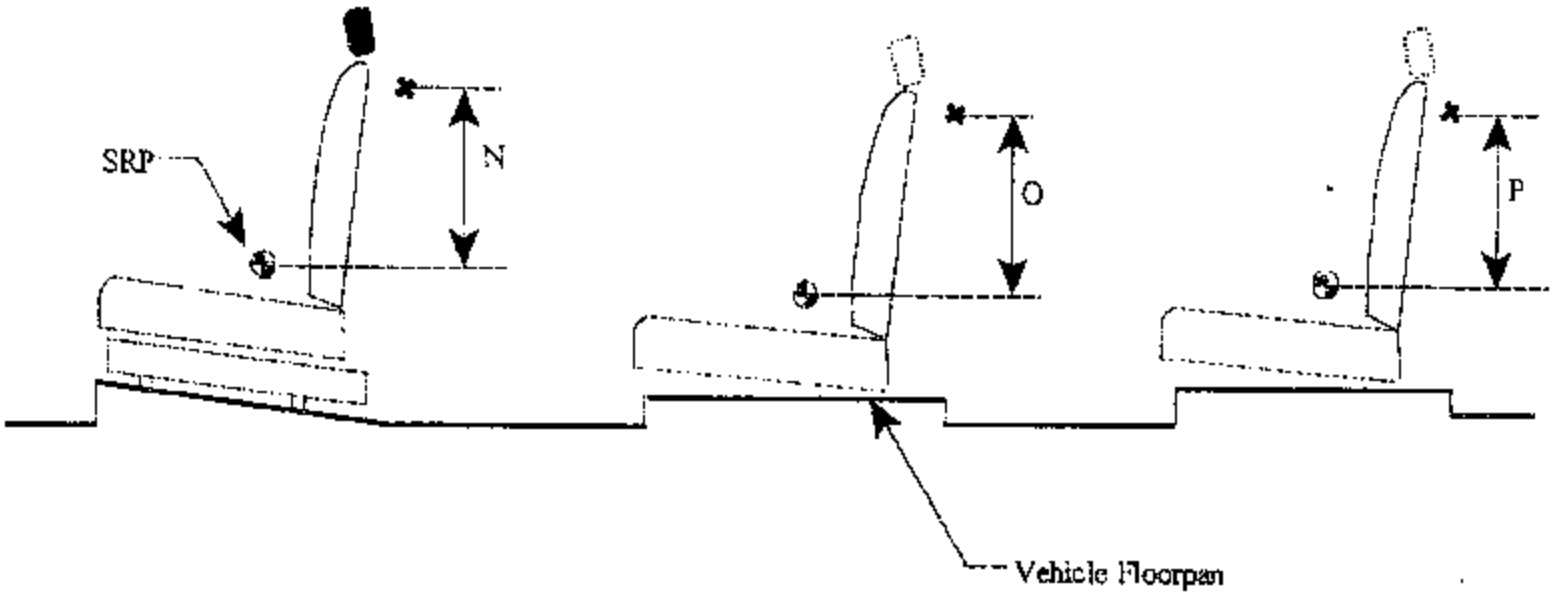
Table 3. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	96.94
	K3	0.0
Second Row	I1	127.30
	L1	44.48
	I2	127.30
	L2	0.0
	I3	127.30
	L3	44.48
Third Row	J1	127.30
	M1	44.48
	J2	127.30
	M2	0.0
	J3	127.30
	M3	44.48

Note: 1. Use the center of anchorage.

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

Model Year: __2004 _ _; Make: __FORD_____ ; Model: __ECONOLINE_ _ ; Body Style: __WAGON__
Seat Style: Front row: __CAPTAIN__; Second row: _BENCH___; Third row: _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)	200.35
Second Row	O1 (Left)	168.26
	O2 (Center)	168.26
	O3 (Right)	168.26
Third Row	P1 (Left)	168.26
	P2 (Center)	168.26
	P3 (Right)	168.26

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)	FMVSS 225 S6.3.4
Second	Left	FMVSS 225 S6.3.4
	Center	FMVSS 225 S6.3.4
	Right (if any)	FMVSS 225 S6.3.4
Third	Left	FMVSS 225 S6.3.4
	Center	FMVSS 225 S6.3.4
	Right	FMVSS 225 S6.3.4
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	N/A
	Center	FMVSS 225 S15
	Right	N/A
Third	Left	N/A
	Center	FMVSS 225 S15
	Right	N/A
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. By design (drawing requirement) this vehicle is certified to the requirements of section S15.2.1 of FMVSS 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. This vehicle is certified to the requirements of section S15.1.2.2 of FMVSS 225. For three passenger bench seats, the Pitch angle is 10 – 12 degrees, the Roll angle is 0 degrees, and Yaw angle is 0 degrees (the yaw angle is a drawing requirement, not a physical measurement).

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. By design (drawing requirement) this vehicle is certified to the requirements of section S15.4 of FMVSS 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 location of tether anchorages was certified to S6.2.1 of FMVSS 225.

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

The number of tether anchorages was certified to S4.4(a) of FMVSS 225.

APPENDIX C
LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: 225 TEST DATE: 09/15/04

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: 2004 Ford Econoline MPV

VEHICLE NHTSA NO.: C40208 : VIN: 1FMRE11W94H[redacted]

VEHICLE MODEL YEAR: 2004 : BUILD DATE: 11/03

TEST FAILURE DESCRIPTION: INABILITY TO SEE LOWER ANCHORAGE BAR

S225 REQUIREMENT, PARAGRAPH S15.4 : AT LEAST ONE ANCHORAGE BAR, ONE GUIDANCE FIXTURE, OR ONE SEAT MARKING FEATURE SHALL BE READILY VISIBLE TO THE PERSON INSTALLING THE CRF.

NOTIFICATION TO NHTSA (COTR): Amanda Prescott

DATE: 10/08/04 BY: Grant Farrand

REMARKS: