HSNO 637731

FINAL REPORT NUMBER 225-MGA-03-010

SAFETY COMPLIANCE TESTING FOR FMVSS 225
"Child Restraint Anchorage Systems"

HYUNDAI MOTOR COMPANY
2003 HYUNDAI SANTA FE
NHTSA No. C30504

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: September 2 and 9, 2003
Report Date: October 30, 2003

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-221)
WASHINGTON, D.C. 20590

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_____
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Approved By: _____

Approval Date: 3/16/04

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: 6/30/04

TECHNICAL REPORT STANDARD TITLE PAGE

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4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2003 Hyundai Santa Fe, NHTSA No. C30504		5. Report Date October 30, 2003 6. Performing Organization Code MGA
7. Author(s) Helen A. Kalcto, Laboratory Manager Brad Reaume, Test Personnel		8. Performing Organization Report No. 225-MGA-03-010
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No. 11. Contract or Grant No. DTNH22-02-D-11043
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-221) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report 14. Sponsoring Agency Code NSA-31

15. Supplementary Notes

16. Abstract

Compliance testing was conducted on the subject 2003 Hyundai Santa Fe, NHTSA No. C30504, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225T & 225L for the determination of FMVSS 225 compliance. The tests were conducted at MGA Research Corporation in Troy, Michigan on September 2 & 9, 2003. Test failures identified were as follows:

NONE

The data recorded indicates that the 2003 Hyundai Santa Fe tested appears to comply with the requirements for FMVSS 225, set forth by the National Highway Traffic Safety Administration.

17. Key Words Compliance Testing Safety Engineering FMVSS 225 2003 Hyundai Santa Fe		18. Distribution Statement Copies of this report are available From: NHTSA Technical Reference Division, Mail Code: NAD-52 400 Seventh Street, SW, Room 5108 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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1.0 PURPOSE AND PROCEDURE

PURPOSE

The child restraint anchorage test results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-02-D-11043. The purpose of the testing was to determine if the subject vehicle, a 2003 Hyundai Santa Fe, NHTSA No. C30504 meets the performance requirements of FMVSS No. 225, "Child Restraint Anchorage Systems."

PROCEDURE

These tests were conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedures, TP-225T (5/3/01) and TP-225L (6/11/01), and MGA's Laboratory Test Procedure, MGATP225GOV (3/20/03).

The front occupant compartment consisted of two (2) adjustable outboard bucket seats and the rear occupant compartment consisted of a three-passenger 60/40 split bench seat. Each rear outboard seating position was equipped with a child restraint anchorage system (one tether and two lower anchors). The rear center occupant position was equipped with a tether anchorage only. The center-to-center spacing between the rear outboard lower anchorage systems was approximately 700 mm. The lower anchorages and the tether anchorage for the left rear seating position was tested with the SFAD 2 fixture and the tether anchorage in the rear center seating position was tested with the SFAD 1 fixture.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The tests were conducted at MGA, Troy, Michigan on September 2 & 9, 2003.

Based on the test results, the 2003 Hyundai Santa Fe appeared to meet the performance requirements of FMVSS No. 225 for these tests.

The SFAD 2 at the left rear seating position sustained a maximum force of 11,071 N and held the required load for 11 seconds with a total displacement of 91 mm measured at Point "x". The SFAD 1 at the rear center seating position sustained a maximum force of 14,986 N and held the required load for 3 seconds with a total displacement of 72 mm measured at Point "x". The applied maximum forces and the measured displacements are provided in Table 1.

DATA SUMMARY

Strength and displacement summary data are provided below, and data for the configuration and the location of each child restraint anchorage system are provided in Section 5.0. Photographs are found in Section 6.0 and test plots are found in Section 7.0.

Table 1. Summary Data for Strength and Displacement

MGA Test #	Fixture Type	Seating Position	Max. Load (N)	Displacement (mm)
SE3446	SFAD II	Rear Left	11,071	91
SE3506	SFAD I	Rear Center	14,986	72

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2003 Hyundai Santa Fe
VEH. NHTSA NO.	C30504
VIN	KM8SB12B33U389801
COLOR	Red
VEH. BUILD DATE	10/18/02
TEST DATE	September 2 & 9, 2003
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Brad Reaume

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Hyundai Motor Company

Date of Manufacture: 10/18/02; VIN: KM8SB12B33U389801

GVWR: 4870kg; GAWR FRONT: 2645kg

GAWR REAR: 2865kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 207kpa REAR: 207kpa

Recommended Tire Size: P225/70R16 Load Range: 400kg

Size of Tire on Test Vehicle: P225/70R16

VEHICLE CAPACITY DATA:

Type of Front Seats:	Bench ___;	Bucket X;	Split Bench _____
Number of Occupants:	Front 2;	Rear 3;	TOTAL 5

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

MGA Research Corporation 446 Executive Drive Troy, Michigan 48083	
Test Equipment Used for Testing	**Calibration Due Date**
MGA Hydraulic Test Frame	N/A
Three (3) Load Cells 3,000 lb Capability	S/N 268S 11/23/03 & S/N 250 11/23/03
Two (2) String Potentiometers (S/N 18385 & 18386)	Calibrated at each use
Hydraulic Pump	N/A
MGA CRF Fixture	N/A
MGA SFAD2	N/A
MGA H-point Machine	N/A
MGA 2-Dimensional Template	N/A
Linear Scale	10/4/03 (S/N 109154)
MGA Data Acquisition System	N/A
Three (3) Hydraulic Cylinders	N/A
Calipers	2/14/04 (S/N DCL002)
Force Gauge	10/11/03 (S/N FRG001)
Inclinometer (Digital)	7/03/04 (S/N DGP005)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration (Data Sheet 1)

Seating Position		Permit the attachment of a tether hook	Accessible without the need for any tool other than a screwdriver or coin	Ready for use without the need for any tools	Sealed to prevent the entry of exhaust fumes
Front Row		N/A	N/A	N/A	N/A
Second Row	LH	Yes	Yes	Yes	Yes
	Ctr.	Yes	Yes	Yes	Yes
	RH	Yes	Yes	Yes	Yes
Third Row		N/A	N/A	N/A	N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225L & 225T.

REMARKS: NONE

Table 4. Child Restraint Lower Anchorage Configuration (Data Sheet 2)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW		THIRD ROW
			I/B	O/B	
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.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
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.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Diameter of the bar (mm)	LH	N/A	6.0	6.0	N/A
	Ctr		N/A		
	RH		6.0	6.0	
Inspect if the bars are straight, horizontal and transverse	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Optional Marking: At least one anchorage bar (when deployed for use, if storable anchorages), one guidance fixture, or one seat marking is visible.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Measure the distance between Point "Z" of the CRF and the center of the anchorage bar (mm)	LH	N/A	51	46	N/A
	Ctr		N/A		
	RH		59	55	
Measure the distance between the SRP to the center of the anchorage bar (mm)	LH	N/A	150		N/A
	Ctr		N/A		
	RH		150		

Table 4. Child Restraint Lower Anchorage Configuration (Data Sheet 2) (continued)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW I/B	SECOND ROW O/B	THIRD ROW
Inspect if the centroidal longitudinal axes are collinear within 5 degrees	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Inspect if 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 (mm).	LH	N/A	32	33	N/A
	Ctr		N/A		
	RH		33	32	
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		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 (mm).	LH	N/A	280		N/A
	Ctr		N/A		
	RH		280		
Inspect if the bars are an integral and permanent part of the vehicle.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		

PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
LH	11	No Data	0
Ctr.	N/A		N/A
RH	11		0

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225L & 225T.

REMARKS: NONE

Table 5. Tether Location and Dimensional Measurements (Data Sheet 3)

SEAT POSITION FOR TETHER		TETHER ANCHORAGE LOCATION Located in the required zone?
Front Row	LH	N/A
	Ctr.	
	RH	
Second Row	LH	Yes
	Ctr.	Yes
	RH	Yes
Third Row	LH	N/A
	Ctr.	
	RH	

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225L & 225T.

REMARKS: NONE

Table 6. Tether Anchorage Static Loading and Displacement (Data Sheet 5)

SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Type of SFAD used	Angle (deg)	Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (N)	Max. Load (N)	Final Location (mm)	Horiz. Displ. (mm)
		Seat	Seat Back	Is There a Head Restraint ?								
Front Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ctr.											
	RH											
Second Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ctr.	Fixed	Fixed	No	1	5	26	537	15,000	14,986*	98	72
	RH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Third Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ctr.											
	RH											

Note: (1) AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225L & 225T.

REMARKS: *Applied force was within the specified range stated in the test procedure.

Table 7. Lower Anchorage Static Loading and Displacement (Data Sheet 6) With SFAD 2

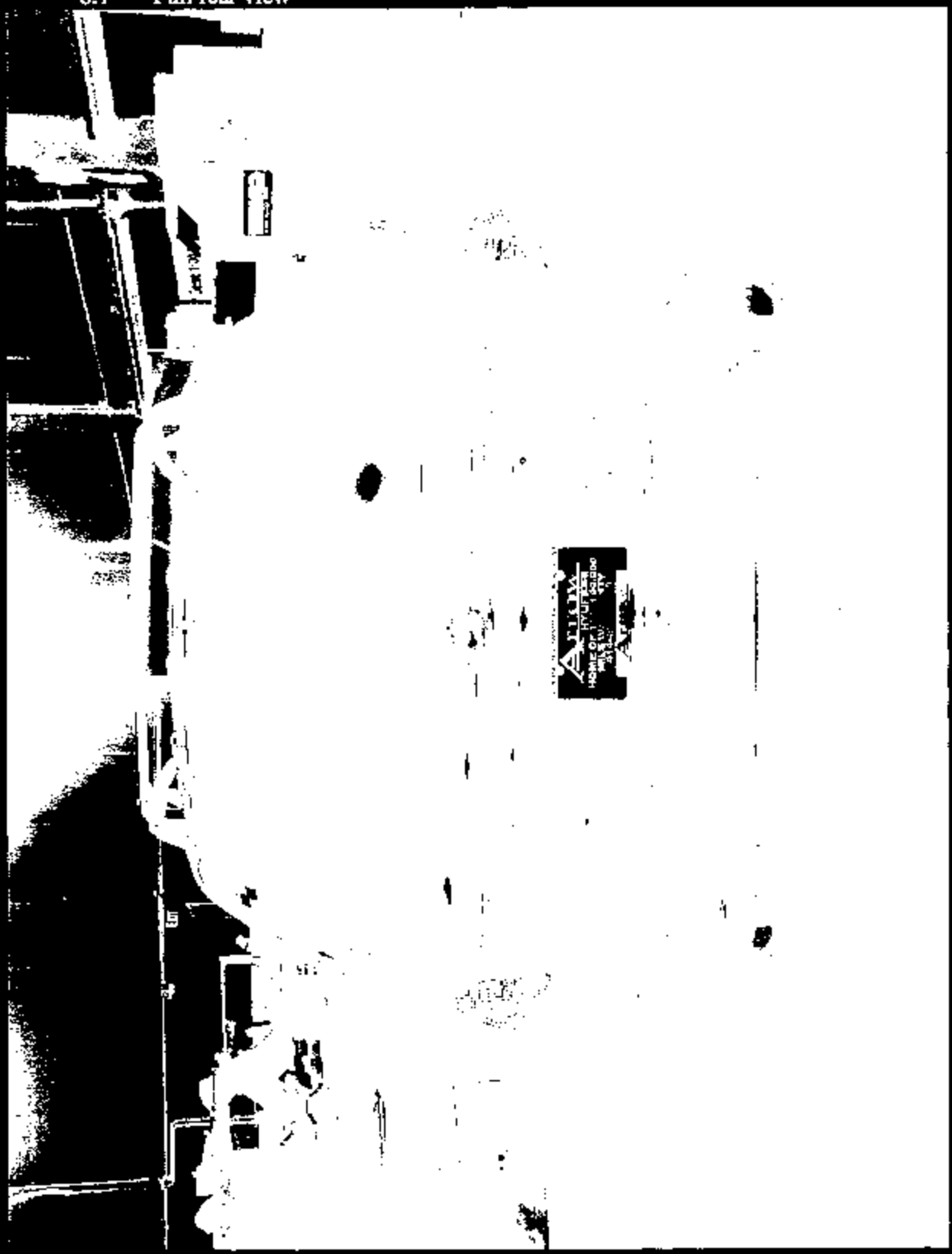
SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Measured Angles		Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (N)	Max. Load (N)	Final Location (mm)	Displ. (mm)
		Seat	Seat Back	Is There a Head Restraint ?	Vertical (deg.)	Horizontal (deg.)						
Front Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ctr.											
	RH											
Second Row	LH	Fixed	Fixed	Yes	N/A	10	17	389	11,000	11,071*	108	91
	Ctr.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Third Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ctr.											
	RH											

Note: (1) AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225L.
(2) FORWARD FORCE APPLICATION

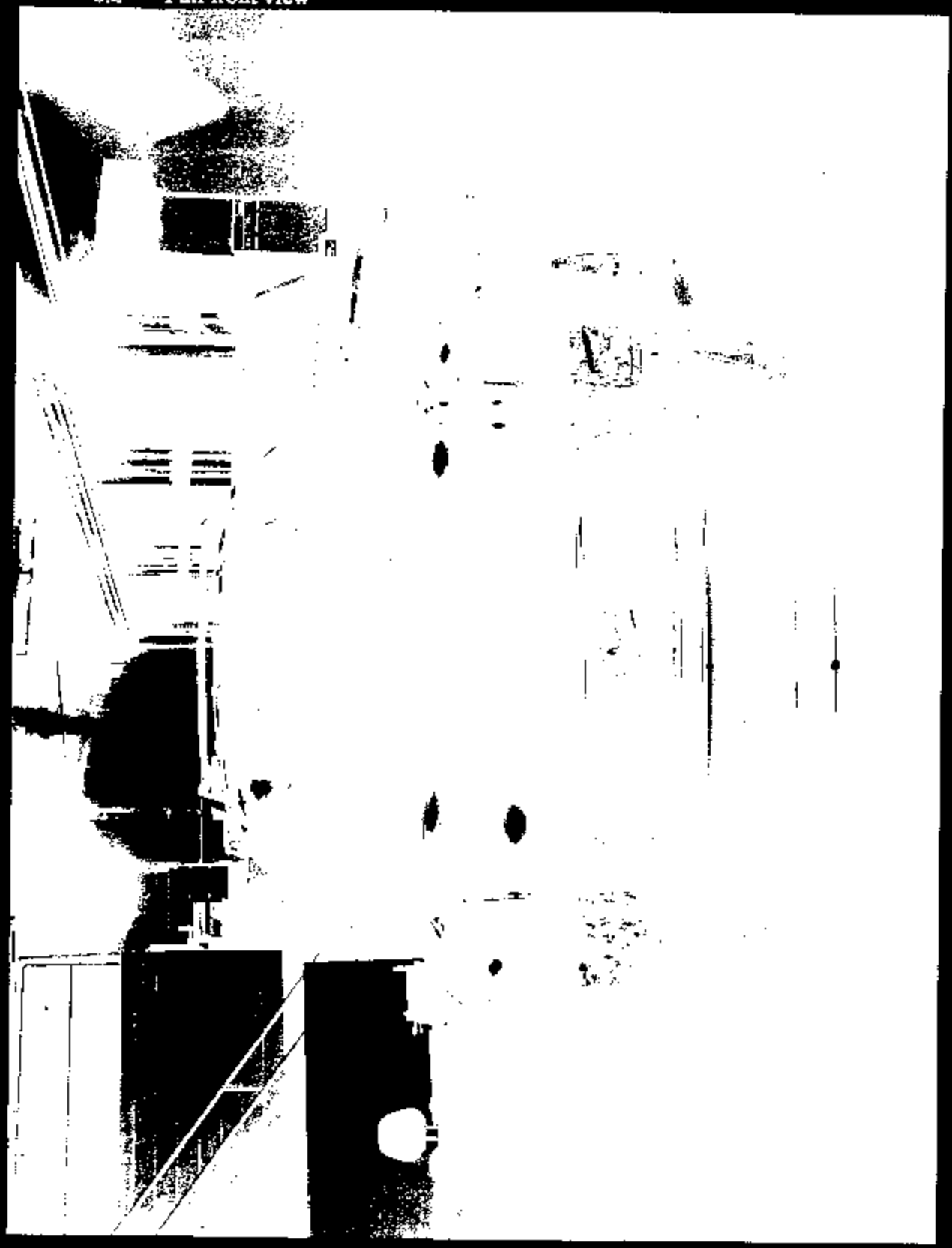
REMARKS: * Applied force was within the specified range stated in the test procedure.

6.0 PHOTOGRAPHS

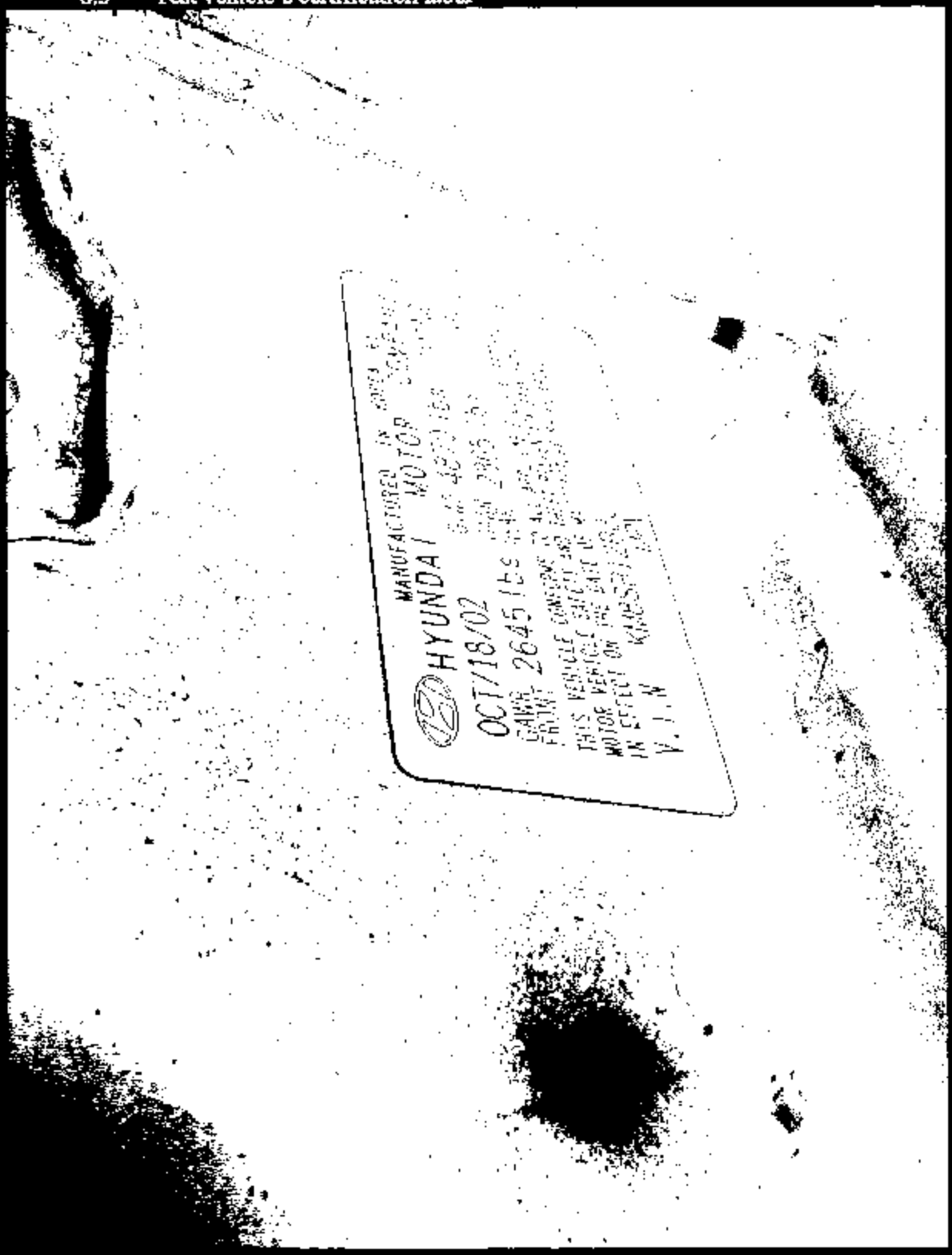
6.1 Full rear view



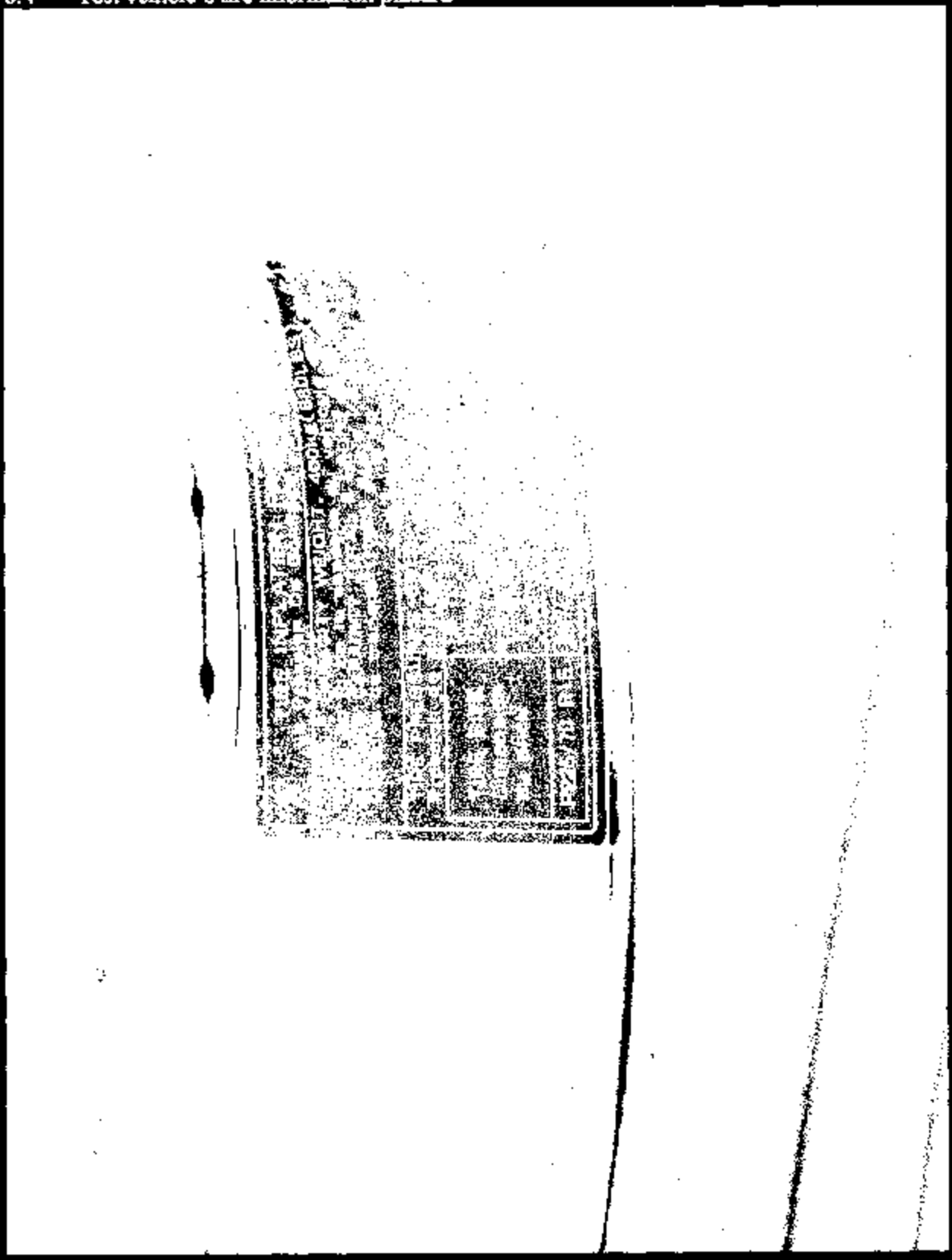
6.2 Full front view



6.3 Test vehicle's certification label



6.4 Test vehicle's tire information placard



6.5 ¾ Frontal left side view of test vehicle

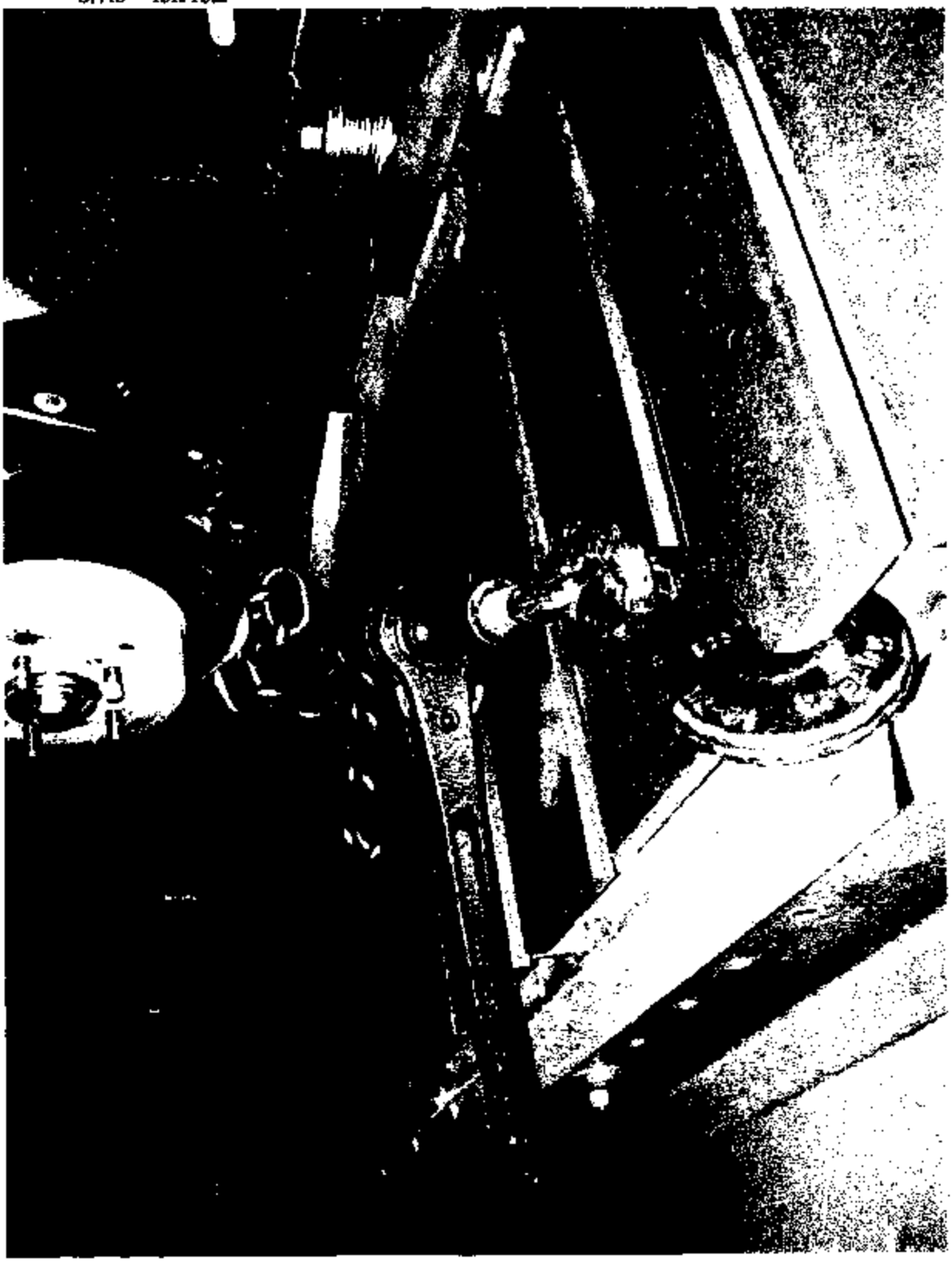
6.6 ¾ Frontal right side view of test vehicle

6.7 Vehicle tie down at each tie down location

6.7.1 left front

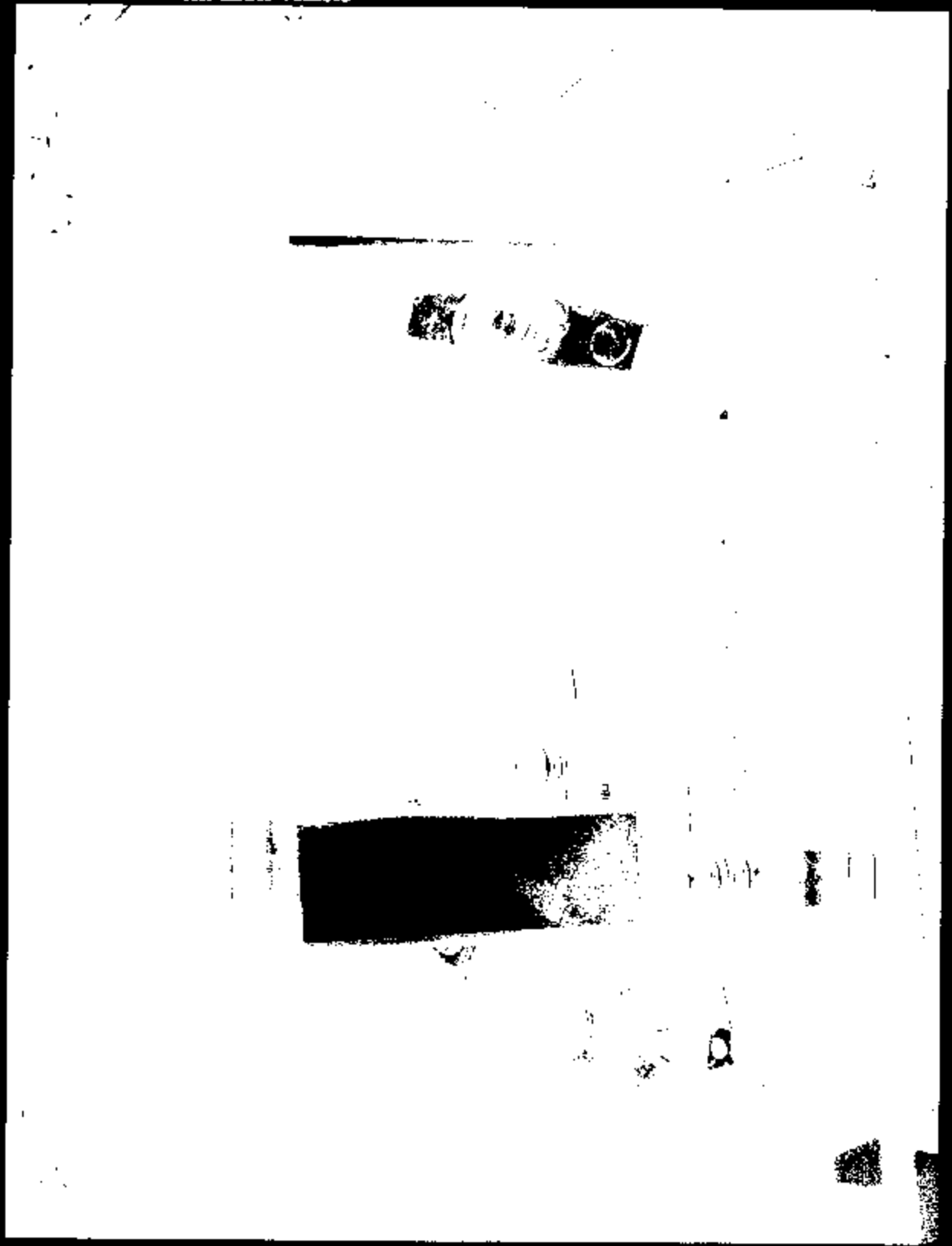
6.7.2 right front

6.7.3 left rear



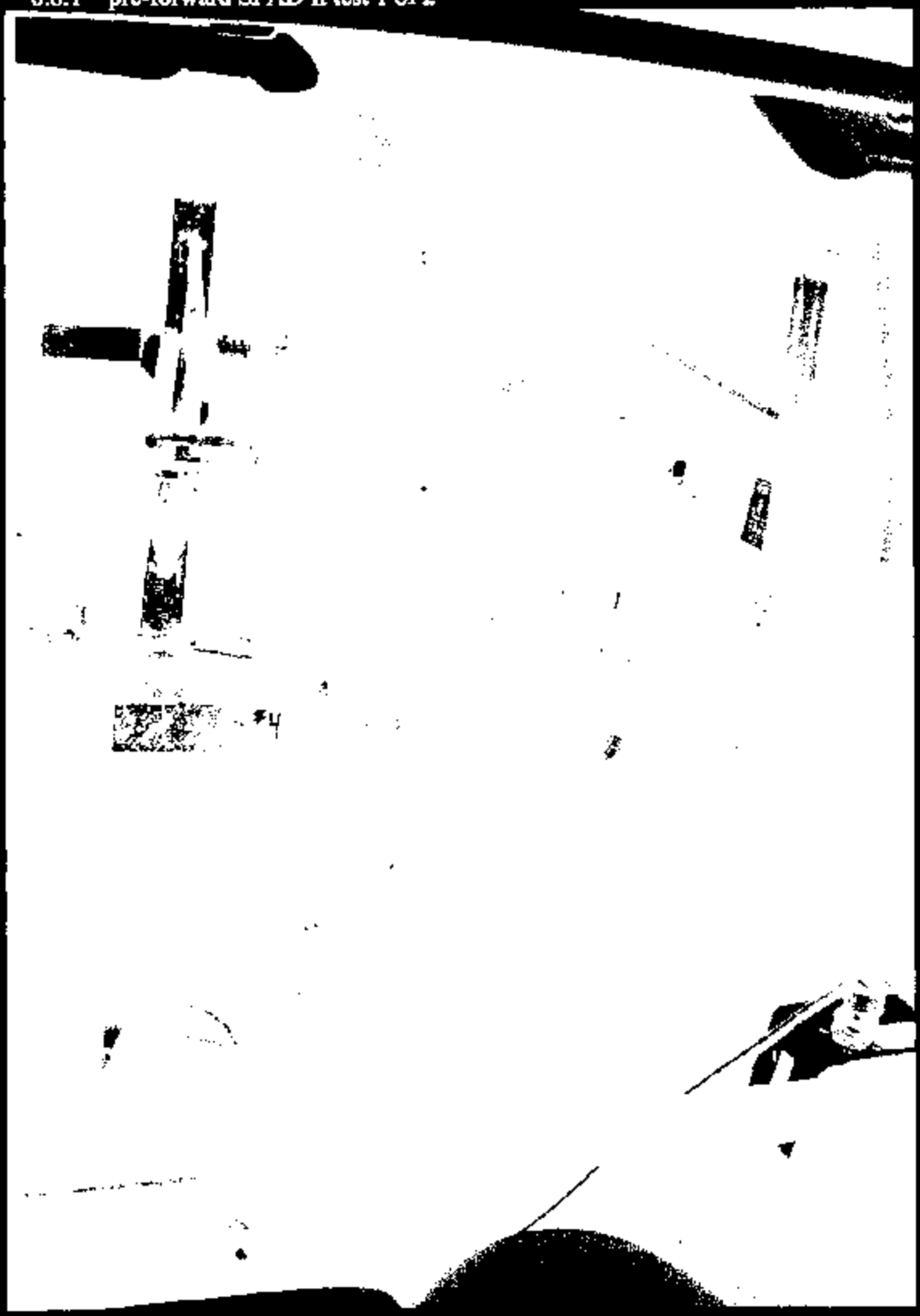
6.7.4 right rear

6.7.5 front under vehicle

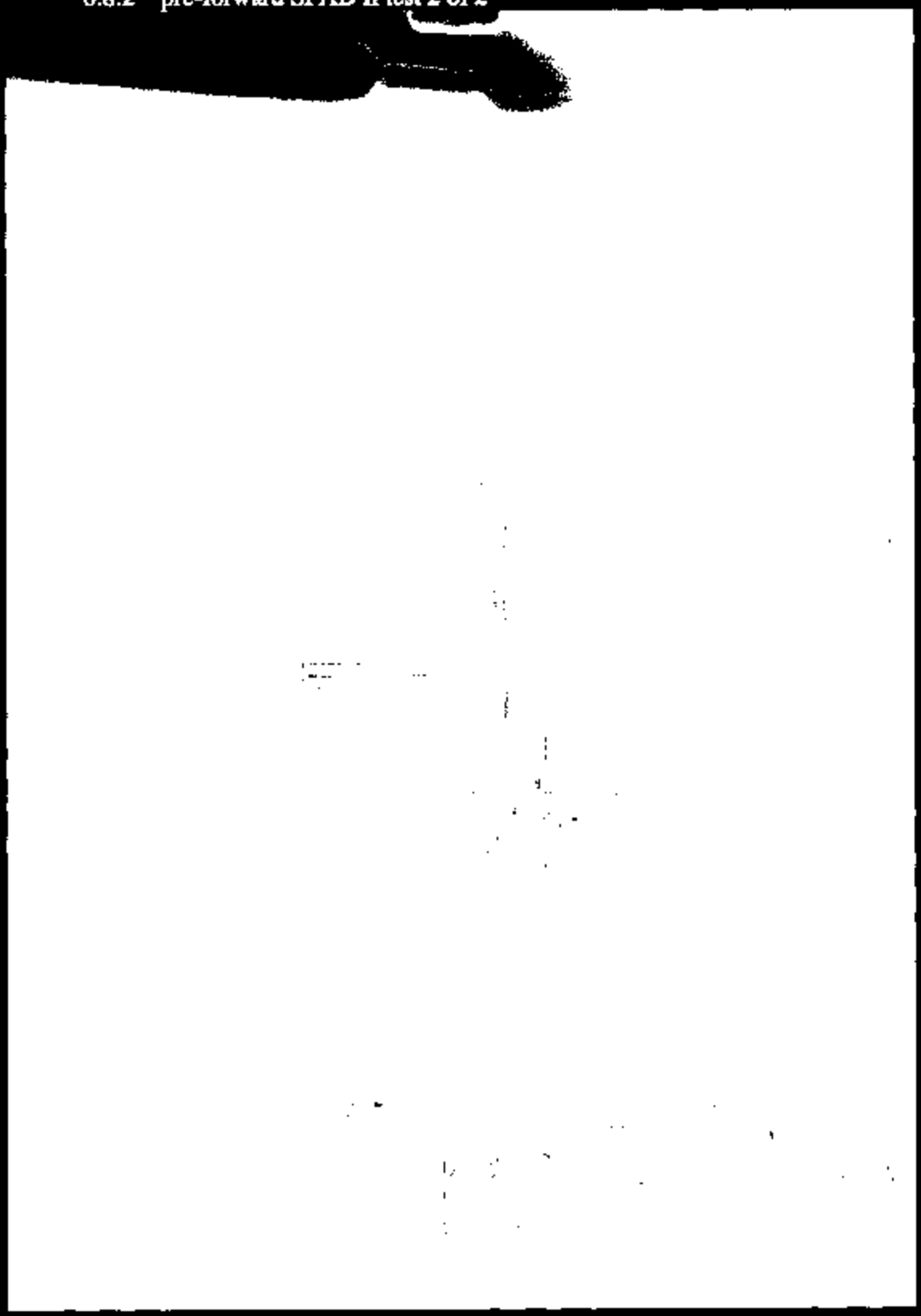


6.8 Pre-test views of the rear left and rear center child restraint anchorage systems installed in the vehicle

6.8.1 pre-forward SFAD II test 1 of 2



6.8.2 pre-forward SFAD II test 2 of 2

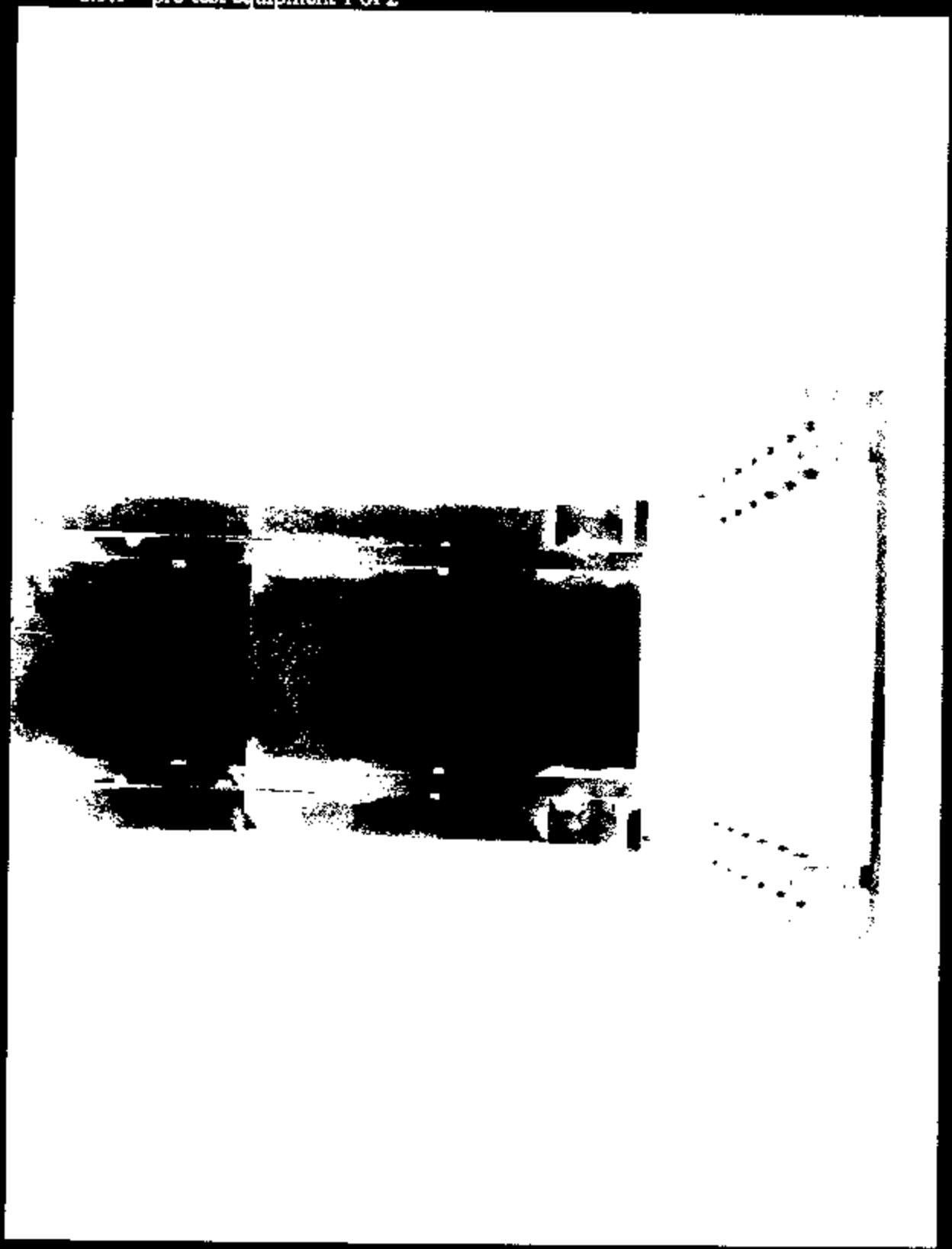


6.8.3 pre-forward SFAD I test 1 of 2

6.8.4 pre-forward SFAD I test 2 of 2

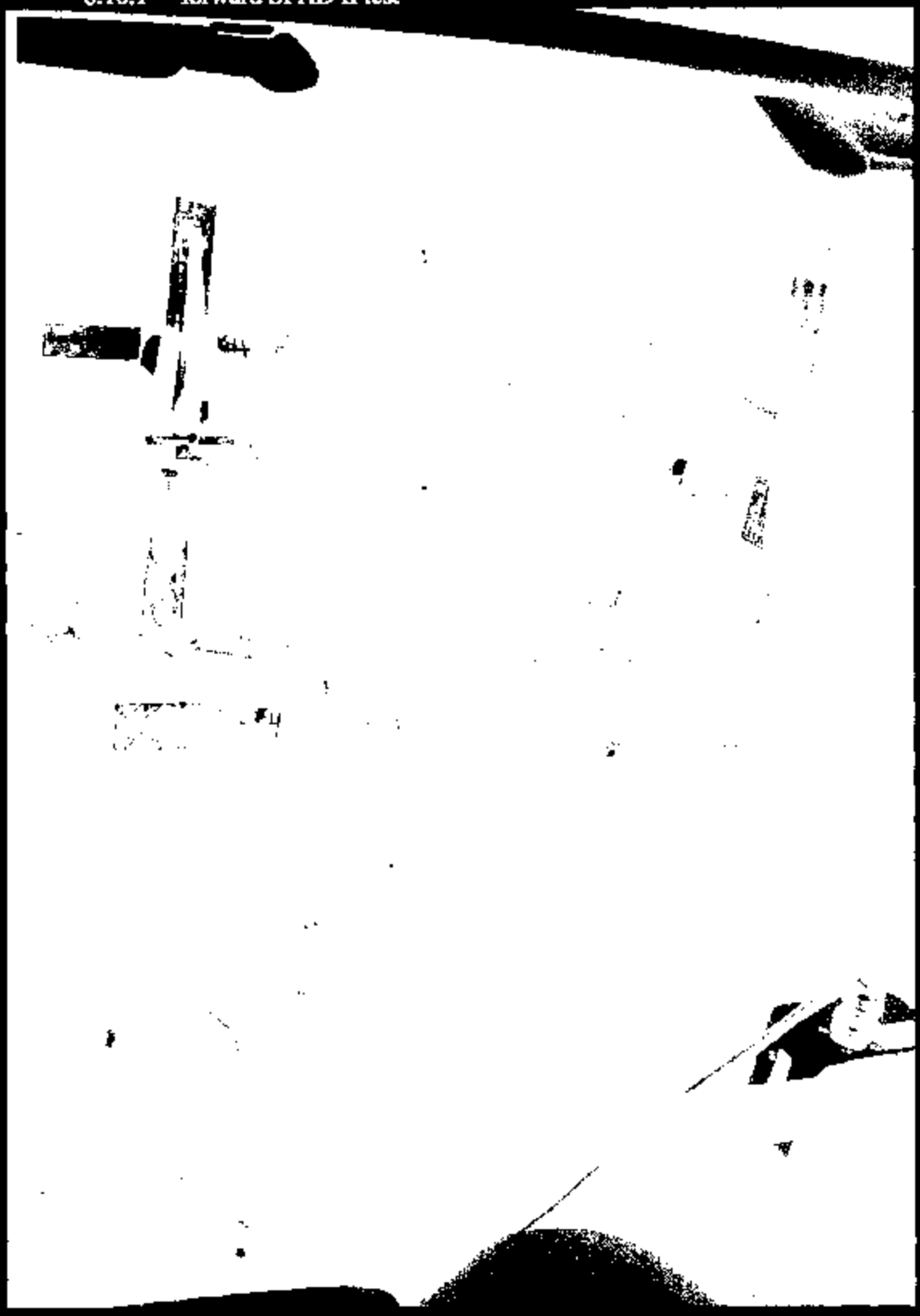
6.9 Pre-test equipment set up at the right rear designated seating position

6.9.1 pre-test equipment 1 of 2

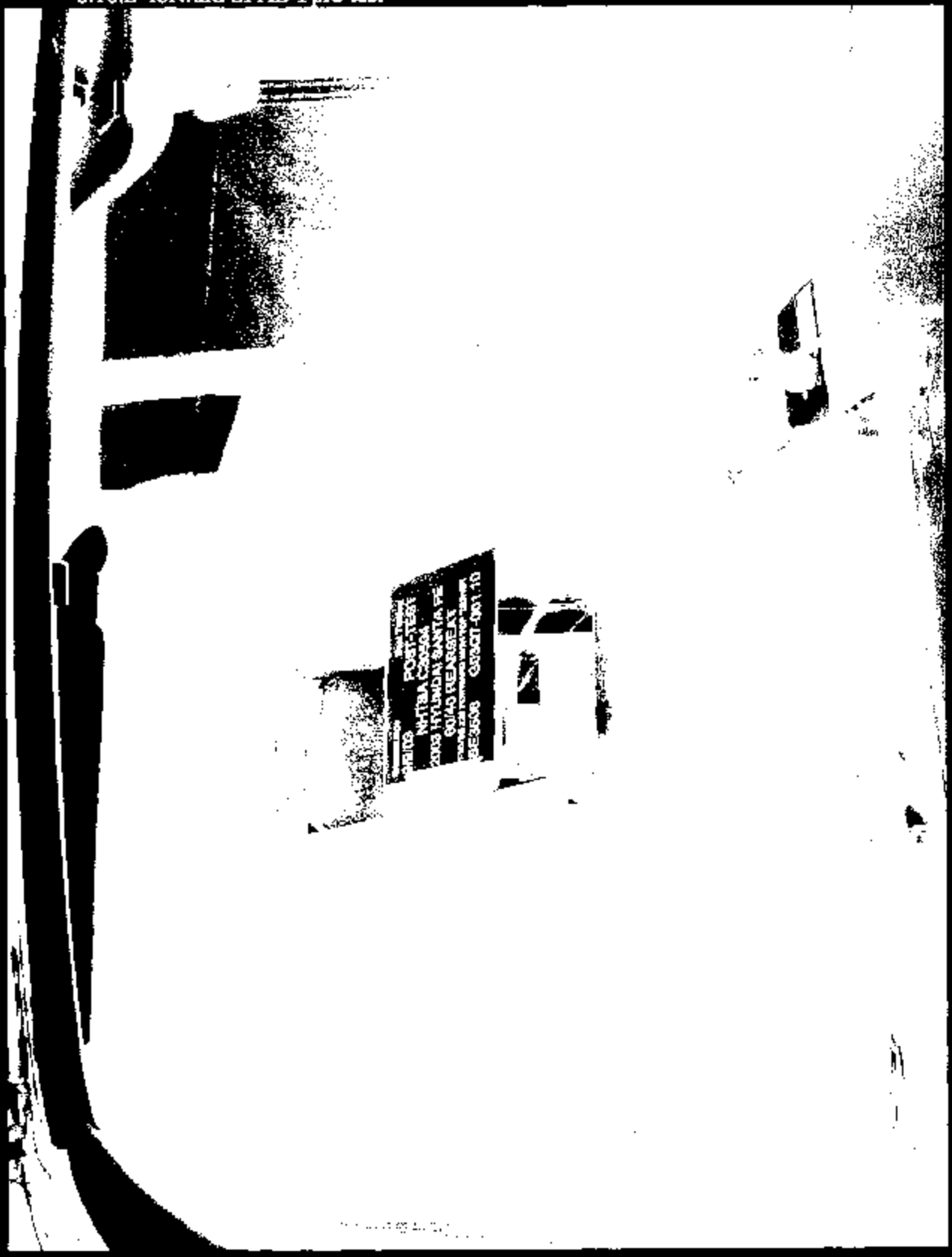


6.9.2 pre-test equipment 2 of 2

6.10 Load system control and data recording device in test position
6.10.1 forward SFAD II test

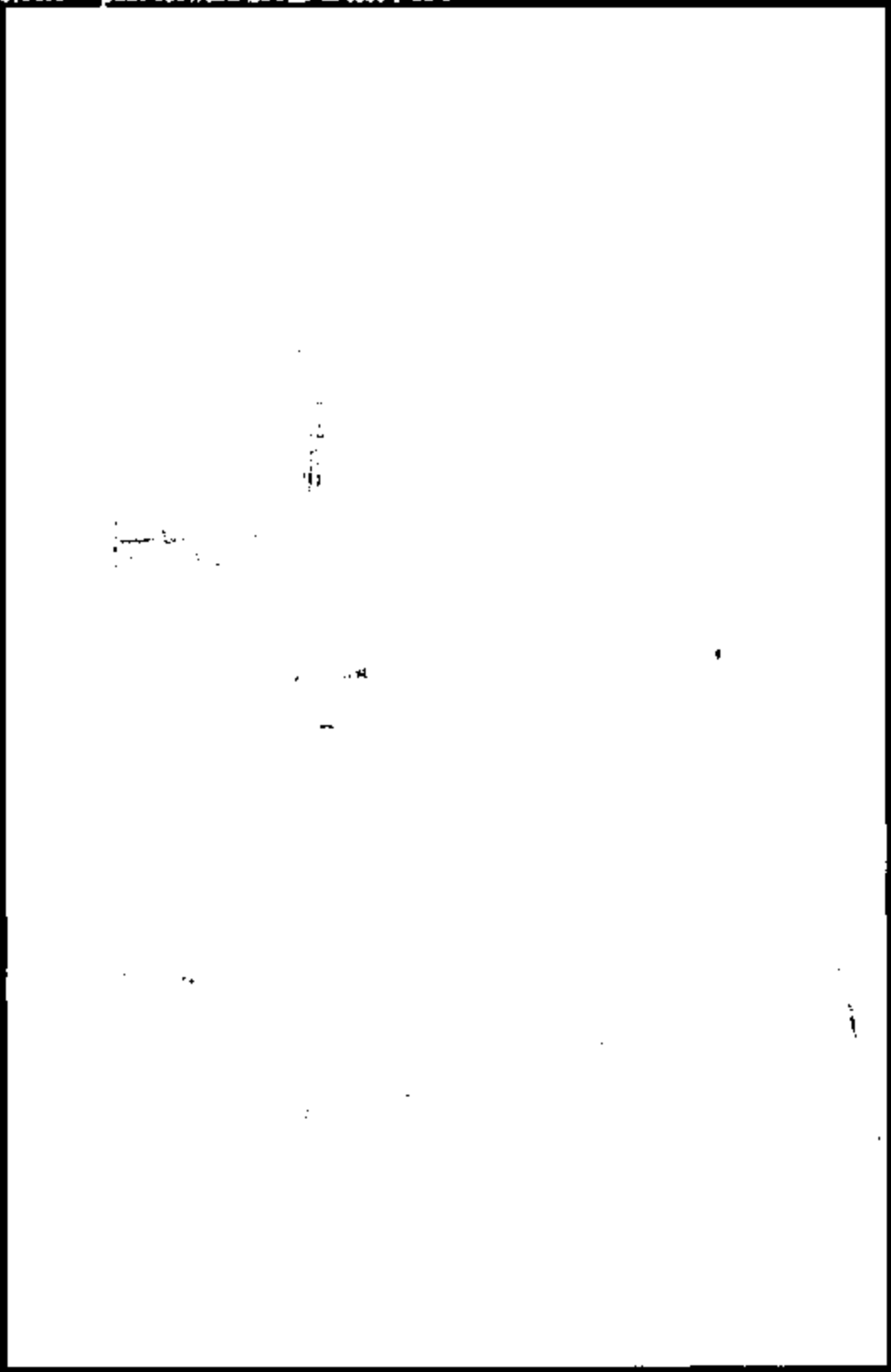


6.10.2 forward SFAD I pre-test



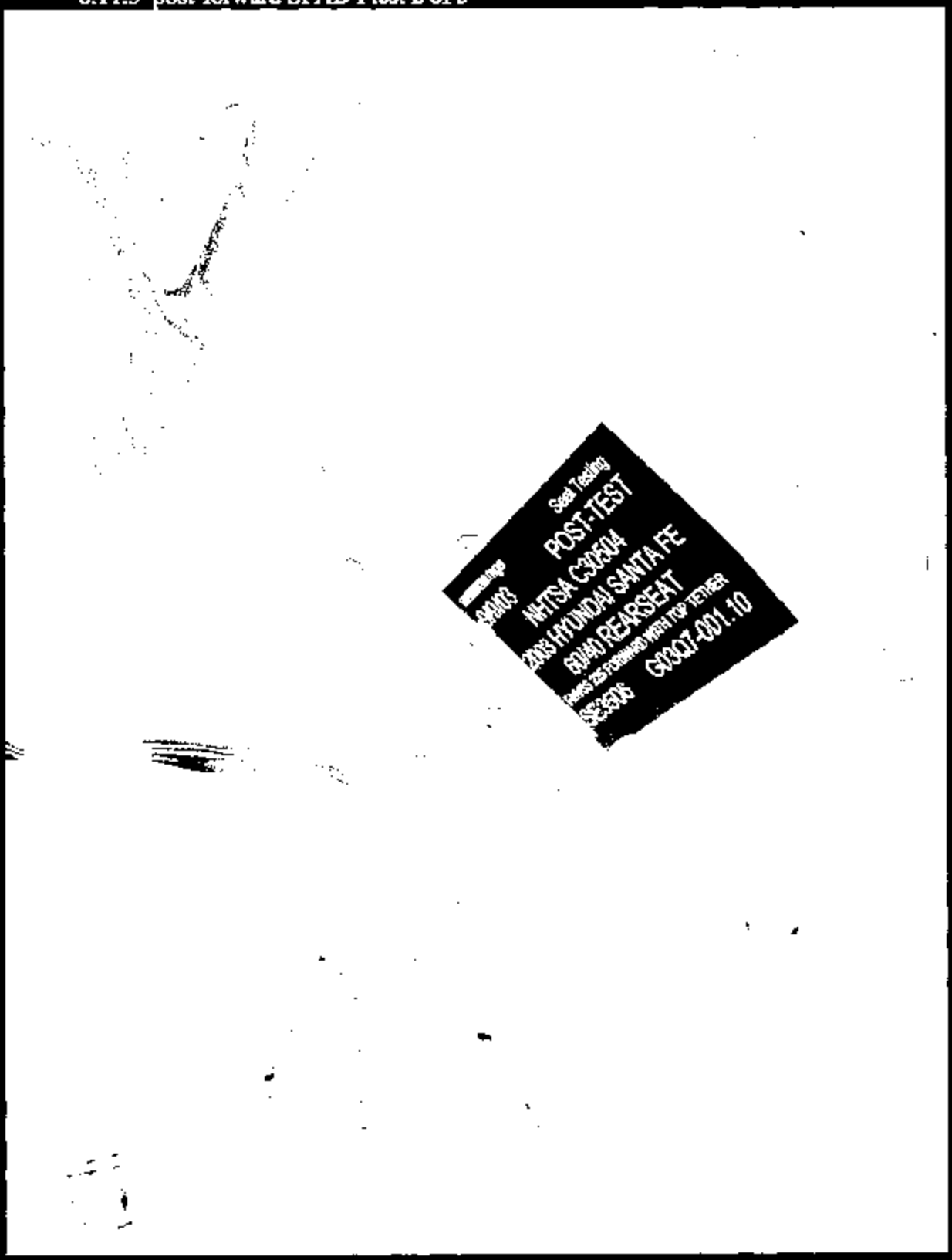
6.11 Post-test condition of each the child restraint anchorage system

6.11.1 post-forward SFAD II test 1 of 1

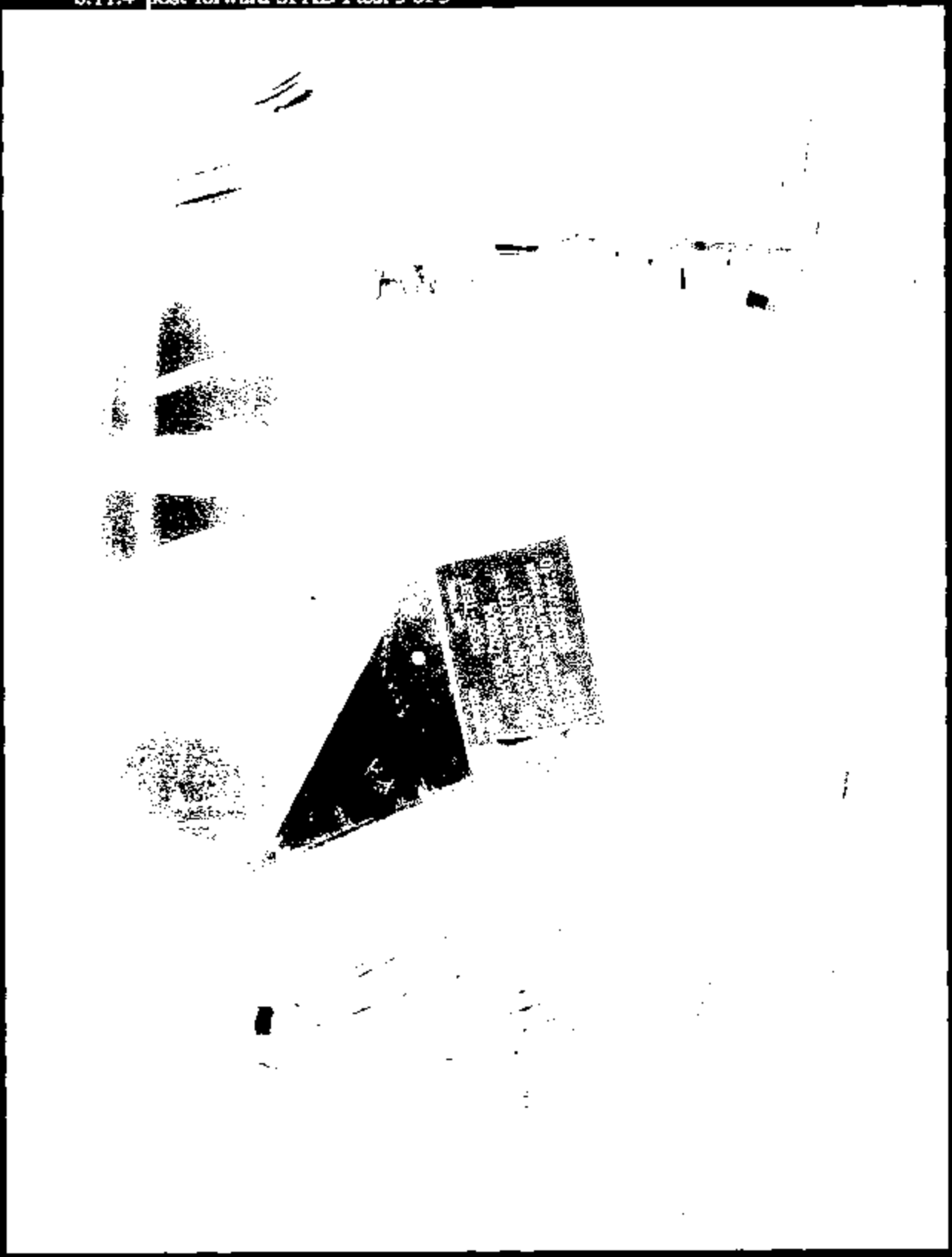


6.11.2 post-forward SFAD I test 1 of 3

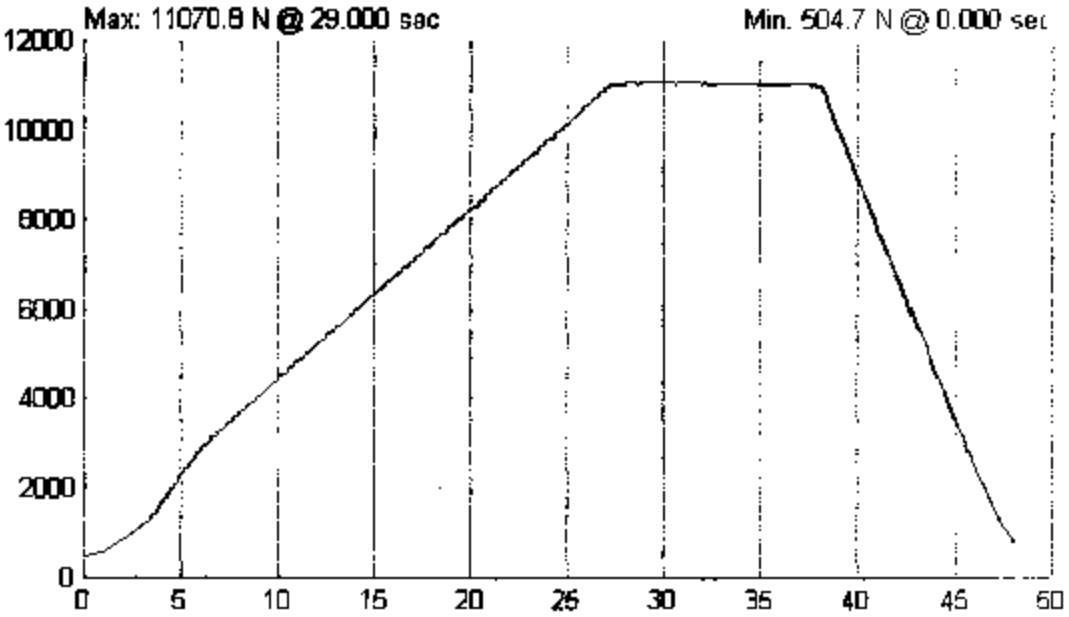
6.11.3 post-forward SFAD I test 2 of 3



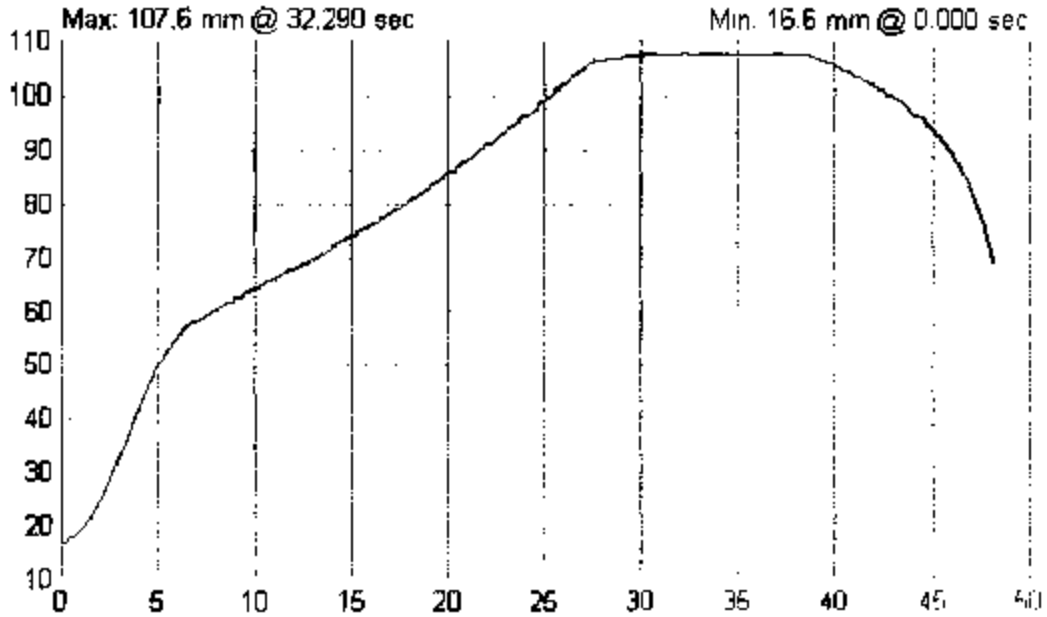
6.11.4 post-forward SFAD I test 3 of 3



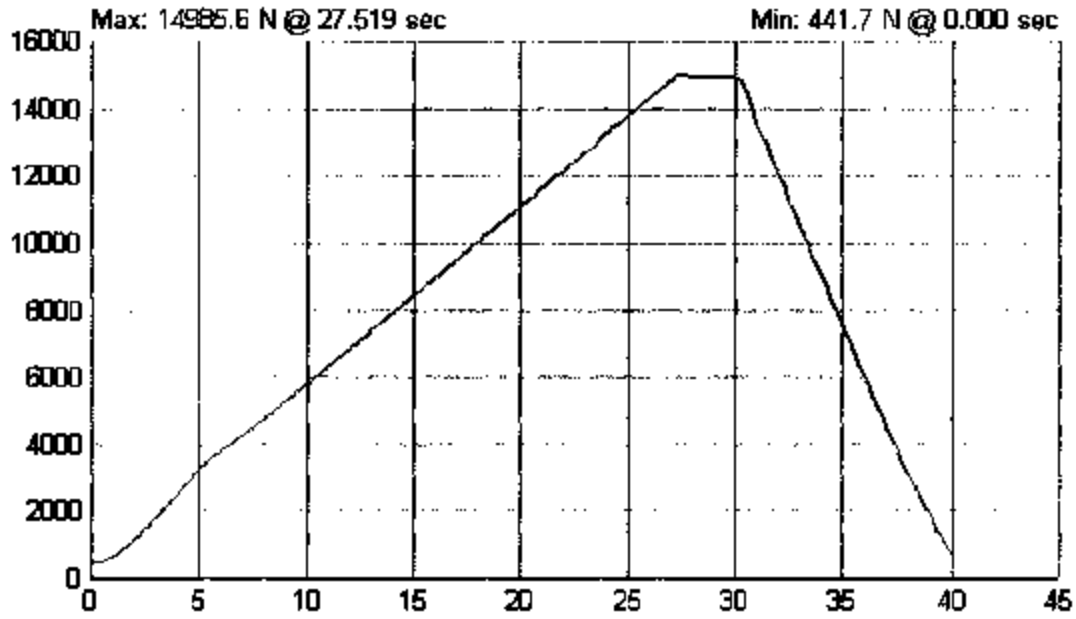
7.0 PLOTS



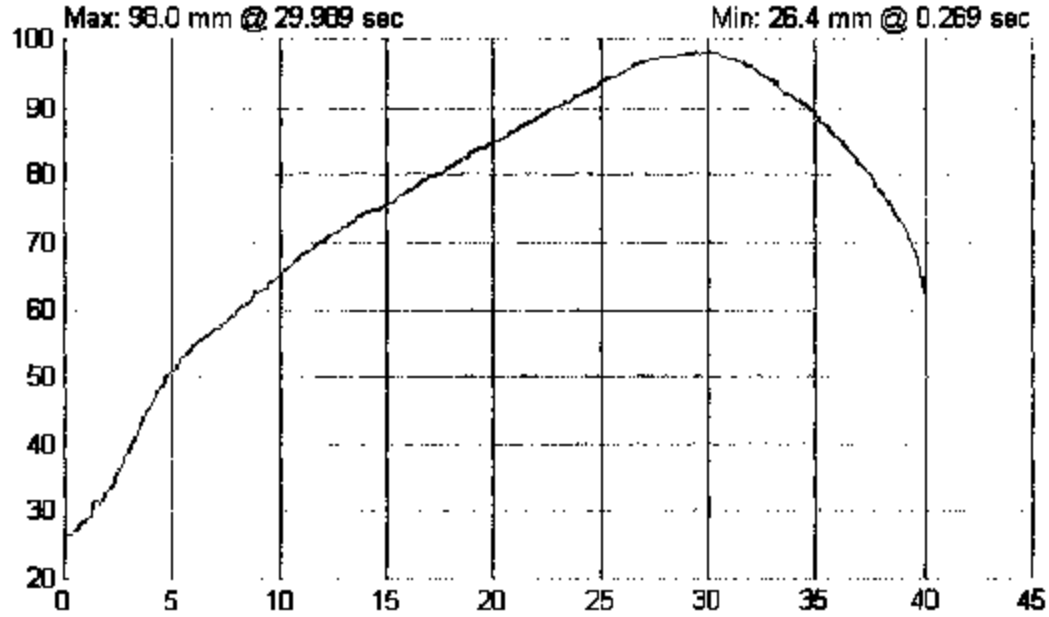
Run# SE3446: Lower Anchor Test (S11)-Rear Left Load (N) vs. Time (sec)



Run# SE3446: Lower Anchor Test (S11)-Rear Left SFAD X Displ. (mm) vs. Time (sec)



Run# SE3506: Tether Anchor Test (S6.3.1)-Rear Center Load (N) vs. Time (sec)



Run# SE3506: Tether Anchor Test (S6.3.1)-Rear Center SFAD X Displ. (mm) vs. Time (sec)

8.0 REPORT of VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-02-D-11043 DATE: September 9, 2003

From: MGA Research Corporation, 446 Executive Drive, Troy, MI 48083

To: NHTSA, OVSC (NVS-221)

The following vehicle has been subjected to compliance testing for FMVSS Nos. 208 and 225

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD0-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

VEH. MOD YR/MAKE/MODEL/BODY: 2003 Hyundai Santa Fe

VEH. NHTSA NO.: C30504 VIN: KB8SB12B33[redacted] COLOR: Red

ODOMETER READINGS: ARRIVAL 101 miles Date: 8/31/03

COMPLETION 101 miles Date: 9/9/03

PURCHASE PRICE: $17, 493 DEALER'S NAME: Arrow Hyundai

ENGINE DATA: 4 Cylinder __ Liters _ Cubic Inches

TRANSMISSION DATA: ___Automatic X Manual No. of Speeds 5

FINAL DRIVE DATA: ___Rear Drive __Front Drive X Wheel Drive

TIRE DATA: Size 225/70R16 Mfr. Bridgestone

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Brad Reaume

X	Air Conditioning		Traction Control	X	Clock
X	Tinted Glass	X	All Wheel Drive	X	Roof Rack
X	Power Steering		Speed Control	X	Console
X	Power Windows	X	Rear Window Defroster	X	Driver Air Bag
X	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
	Power Seat(s)	X	Tachometer	X	Front Disc Brakes
X	Power Brakes	X	Tilt Steering Wheel	X	Rear Disc Brakes
X	Antilock Brake System	X	AM/FM/Cassette Radio		Other

REMARKS:

Salvage only.

Equipment that is no longer on the test vehicle as noted on previous pages:

All equipment inventoried and placed in vehicle.

Explanation for equipment removal:

Windshield, I/P, front seats, & steering column removed for test. All removed parts were placed in the trunk.

Test Vehicle Condition:

Salvage only.

RECORDED BY: Kenney Godfrey DATE: September 9, 2003

APPROVED BY: Brad Reaume

APPENDIX A
MANUFACTURER'S DATA (OVSC FORM 14)

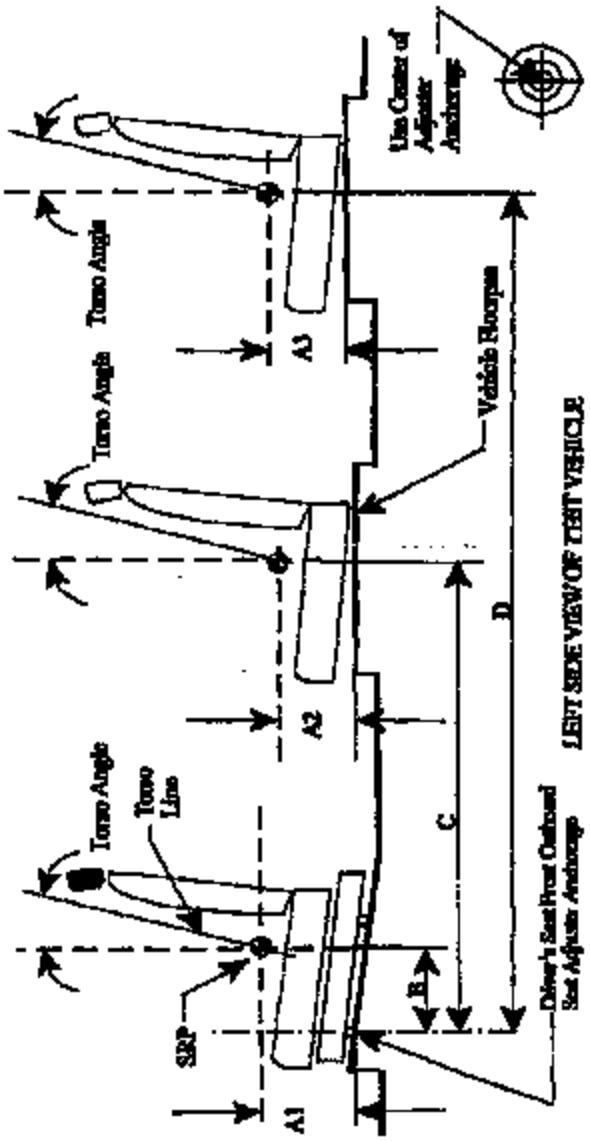
FROM : MGA EXECUTIVE 2nd# PHONE NO. : 12485696516 Aug. 11 2003 09:54AM P1

ATTACHMENT 5

FORM 14
Page 1 of 10

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

Model Year: 2003 ; Make: HYUNDAI ; Model: SANTA FE ; Body Style:
Seat Style: Front row: Bucket; Second row: Bench; Third row: NOT APPLICABLE



LEFT SIDE VIEW OF TEST VEHICLE

C30504

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Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (If any)	Right
A1		(Driver) 258	N/A	(Front Passenger) 258
A2		227.2	242.2	227.2
A3		N/A	N/A	N/A
B		369	N/A	369
C		1199	1179	1199
D		N/A	N/A	N/A
Torso Angle (degree)	Front Row	23	N/A	23
	Second Row	25	25	25
	Third Row	N/A	N/A	N/A

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: HYUNDAI ; Model: SANTA FE ; Body Style:
Seat Style: Front row: Buckets Second row: Bench ; Third row: NOT APPLICABLE

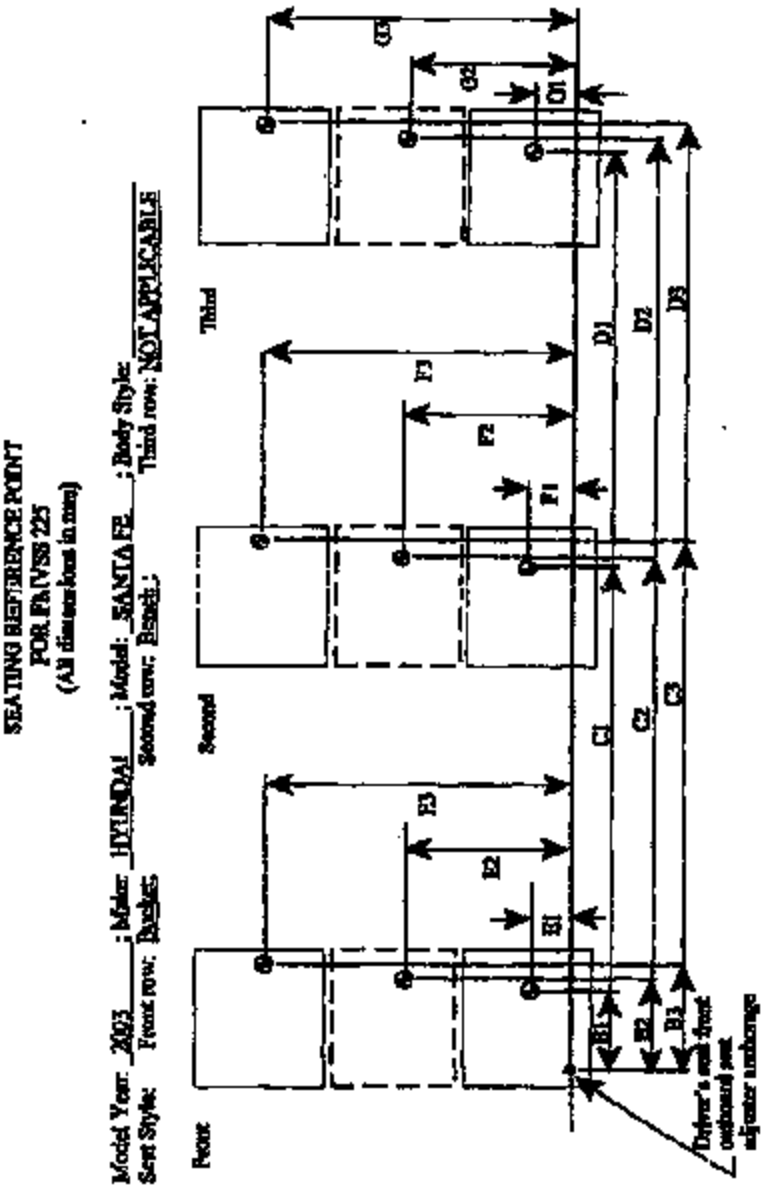

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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	369
	E1	252
	B2	N/A
	E2	N/A
	B3	369
	E3	982
Second Row	C1	1199
	F1	272
	C2	1179
	F2	617
	C3	1199
	F3	982
Third Row	D1	N/A
	G1	N/A
	D2	N/A
	G2	N/A
	D3	N/A
	G3	N/A

Note: 1. Use the center of anchorage.

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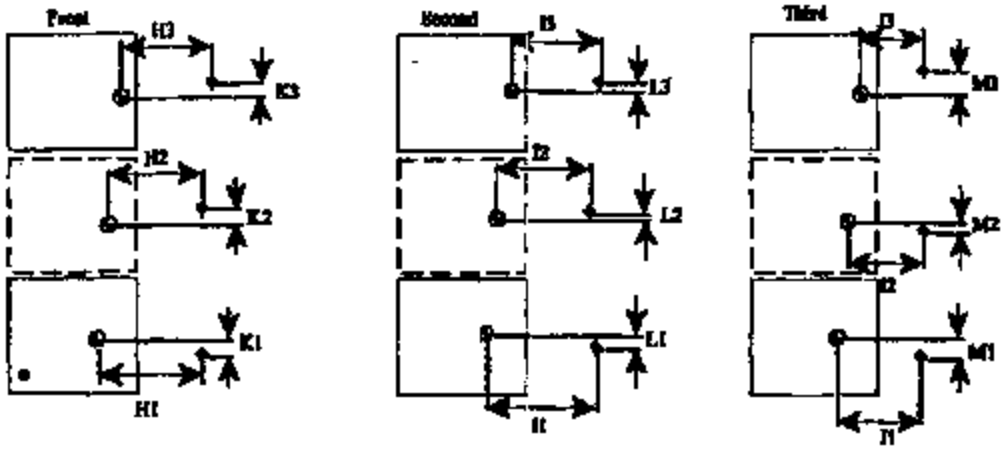
TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2003 ; Make: HYUNDAI ; Model: SANTA FE ; Body Style: _____
Seat Style: Front row: Bucket; Second row: Bench; Third row: NOT APPLICABLE



●: SRP
♦: Tether anchorage

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

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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	411
	L1	-30
	I2	431
	L2	0
	I3	411
	L3	-30
Third Row	J1	N/A
	M1	N/A
	J2	N/A
	M2	N/A
	J3	N/A
	M3	N/A

Note: 1. Use the center of anchorage.

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

Model Year: 2003 ; Make: _____; Model: _____; Body Style: _____
Seat Style: Front row: _____; Second row: _____; Third row: _____

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)	-43
	O2 (Center)	-63
	O3 (Right)	-43
Third Row	P1 (Left)	N/A
	P2 (Center)	N/A
	P3 (Right)	N/A

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

Test Procedures Used for Compliance Tests

* To be confirmed by Functional System Test Team 1.

Tether Anchorages

Seating Location		FMVSS Section(s) - Req.
Front	Driver	N/A
	Center (if any)	N/A
	Right (if any)	N/A
Second	Left	S6.3.1, S8.1
	Center	S6.3.1, S8.1
	Right (if any)	S6.3.1, S8.1
Third	Left	N/A
	Center	N/A
	Right	N/A
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	S9.4.1, S9.4.1.1, S11
	Center	N/A
	Right	S9.4.1, S9.4.1.1, S11
Third	Left	N/A
	Center	N/A
	Right	N/A
Fourth	Left	N/A
	Center	N/A
	Right	N/A

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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.**
   =>Second row outboard: Certified with S9.1
   =>Second row center: Not applicable

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.**
   =>Second row outboard: Certified with S9.2
   =>Second row center: Not applicable

3. **Lower Anchorage Marking and Complexity: 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.**
   =>Second row outboard: Certified with S9.3
   Markings are applicable.
   Guidance fixture are not applicable.
   =>Second row center: Not applicable

4. **Location of Tether Anchorage: Applicable section of FMVSS No. 225 for the option used for its certification.**
   =>Certified with S6.2.1

5. **Number of Tether Anchorage: Applicable section of FMVSS No. 225 for the option used for its certification**
   =>Certified with S4.4