637242

FINAL REPORT NUMBER 225-MGA-03-004

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

HONDA CANADA, INC.
2003 PILOT 5-DOOR WAGON
NHTSA No. C35304

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: May 13-14, 2003
Report Date: October 29, 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

Prepared By: _____
Brad Reaume, Test Personnel

_____
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Approved By: _____

Approval Date: 2/24/04

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: 7/8/04

TECHNICAL REPORT STANDARD TITLE PAGE

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		6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Laboratory Manager Brad Reaume, Test Personnel		8. Performing Organization Report No. 225-MGA-03-004	
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 Safety Assurance 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 Honda Pilot, NHTSA No. C35304, 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 May 13-14, 2003. Test failures identified were as follows:

NONE

The data recorded indicates that the 2003 Honda Pilot 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 Honda Pilot		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 Honda Pilot, NHTSA No. C35304 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 in the second row and third row. For the second row, each outboard seating position was equipped with a child restraint anchorage system (one tether and two lower anchors) and the center seating position was equipped with a tether anchorage only. The center-to-center spacing between the second row outboard lower anchorage systems was approximately 700 mm. For the third row, each seating position was equipped with a tether anchorage only. The lower anchorages for both second row outboard seating positions were tested with SFAD 2 fixtures and the tether anchorage in the second row center seating position was tested with a SFAD 1 fixture.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The tests were conducted at MGA, Troy, Michigan on May 13-14, 2003.

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

The SFAD 2 at the second row left outboard seating position sustained a maximum force of 11,292 N and held the required load for 11 seconds with a total displacement of 58 mm, measured at Point "x". The SFAD2 at the second row right outboard seating position sustained a maximum force of 11,092 N and held the required load for 11 seconds with a total displacement of 52 mm, measured at Point "x". The SFAD 1 at the second row center seating position sustained a maximum force of 10,171 N and held the required load for 3 seconds. 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)
SE3176	SFAD II	2nd Row Left	11,292	57
		2nd Row Right	11,092	52
SE3177	SFAD I	2nd Row Center	10,171	N/A

– N/A indicates that the displacement criteria does not apply to the test.

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2003 Honda Pilot
VEH. NHTSA NO.	C35304
VIN	2HKYF18463H560711
COLOR	Silver
VEH. BUILD DATE	01/03
TEST DATE	May 13-14, 2003
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Brad Reaume

GENERAL INFORMATION:

Date Received: 3/14/03 Odometer Reading: 41miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Honda of Canada, Mfg.

Date of Manufacture:01/03; VIN: 2HKYF18463H560711

GVWR: 5950 lbs; GAWR FRONT: 2865 lbs

GAWR REAR: 3155 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 420 kpa REAR: 420kpa

Recommended Tire Size: P235/70R16

Recommended Cold Tire Pressure:

FRONT: 420 kpa REAR: 420kpa

Size of Tire on Test Vehicle: P235/70R16 104S

Type of Spare Tire: Space Saver T155/90D16

VEHICLE CAPACITY DATA:

Type of Front Seats:	Bench ___;	Bucket X;	Split Bench _____
Number of Occupants:	Front 2;	Rear 6;	TOTAL 8

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
Two (2) Load Cells 3,000 lb Capability	S/N 203 6/2/03, S/N 222 6/2/03, & 117 6/2/03
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	6/26/03 (S/N MGAC01)
Force Gauge	10/11/03 (S/N FRG001)
Inclinometer (Digital)	6/26/03 (S/N 950-315 (201/202))

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	LH	Yes	Yes	Yes	Yes
	Ctr.	Yes	Yes	Yes	Yes
	RH	Yes	Yes	Yes	Yes

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	6.01	6.00	N/A
	Ctr		N/A		
	RH		5.99	6.01	
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	59	57	N/A
	Ctr		N/A		
	RH		59	59	
Measure the distance between the SRP to the center of the anchorage bar (mm)	LH	N/A	134		N/A
	Ctr		N/A		
	RH		134		

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

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW		THIRD ROW
			I/B	O/B	
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	29	29	N/A
	Ctr		N/A		
	RH		29	29	
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	Yes
	Ctr.	Yes
	RH	Yes

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.	Full Rwd	Most upright	Yes	1	4.8	N/A	352	10,000	10,171*	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-225T.

REMARKS: *Applied force exceeded force specified in the test procedure.

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

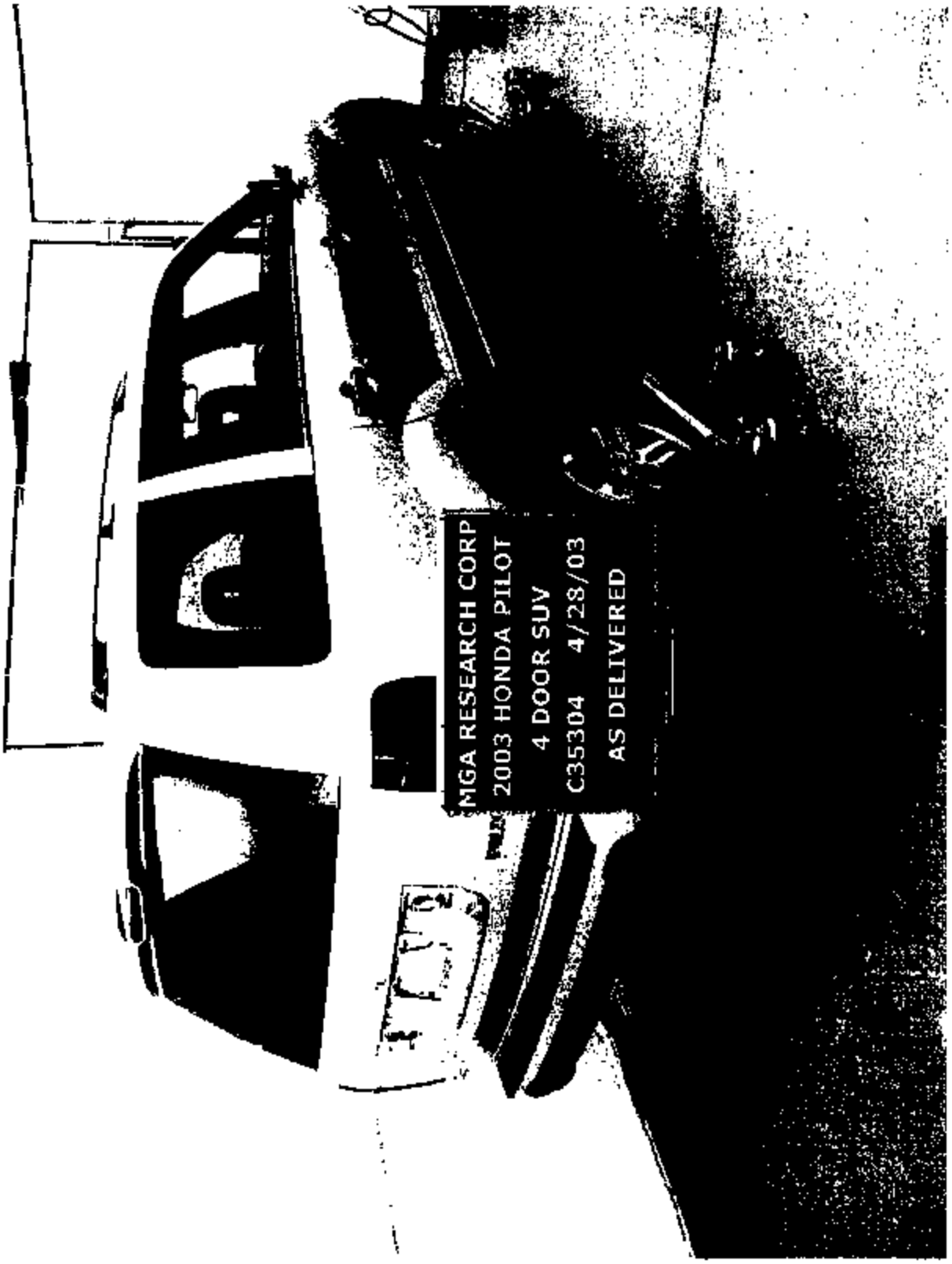
SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Measured Angles		Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (N)	Max. Load (N)	Final Location (mm)	Displ. (mm)
		Seat	Seat Back	Is There a Head Restraint?	Vertical (deg.)	Horizontal (deg.)						
Front Row	LH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ctr.											
	RH											
Second Row	LH	Full Rwd	Most upright	Yes	N/A	9	23	389	11,000	11,292*	81	58
	Ctr.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH	Full Rwd	Most upright	Yes	N/A	9	24	389	11,000	11,092*	76	52
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 and 225T.
(2) FORWARD FORCE APPLICATION

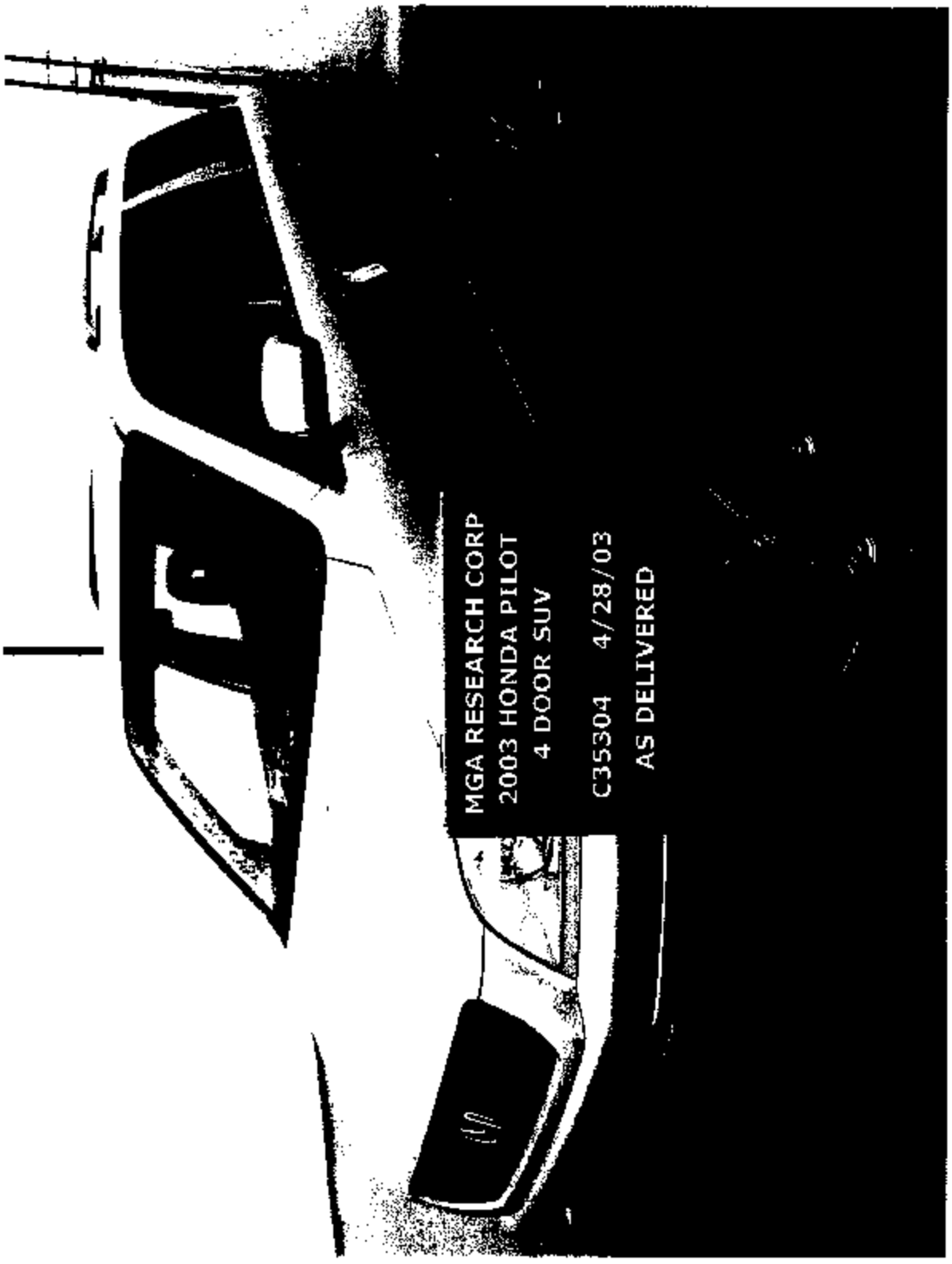
REMARKS: *Applied force exceeded force specified in the test procedure.

6.0 PHOTOGRAPHS

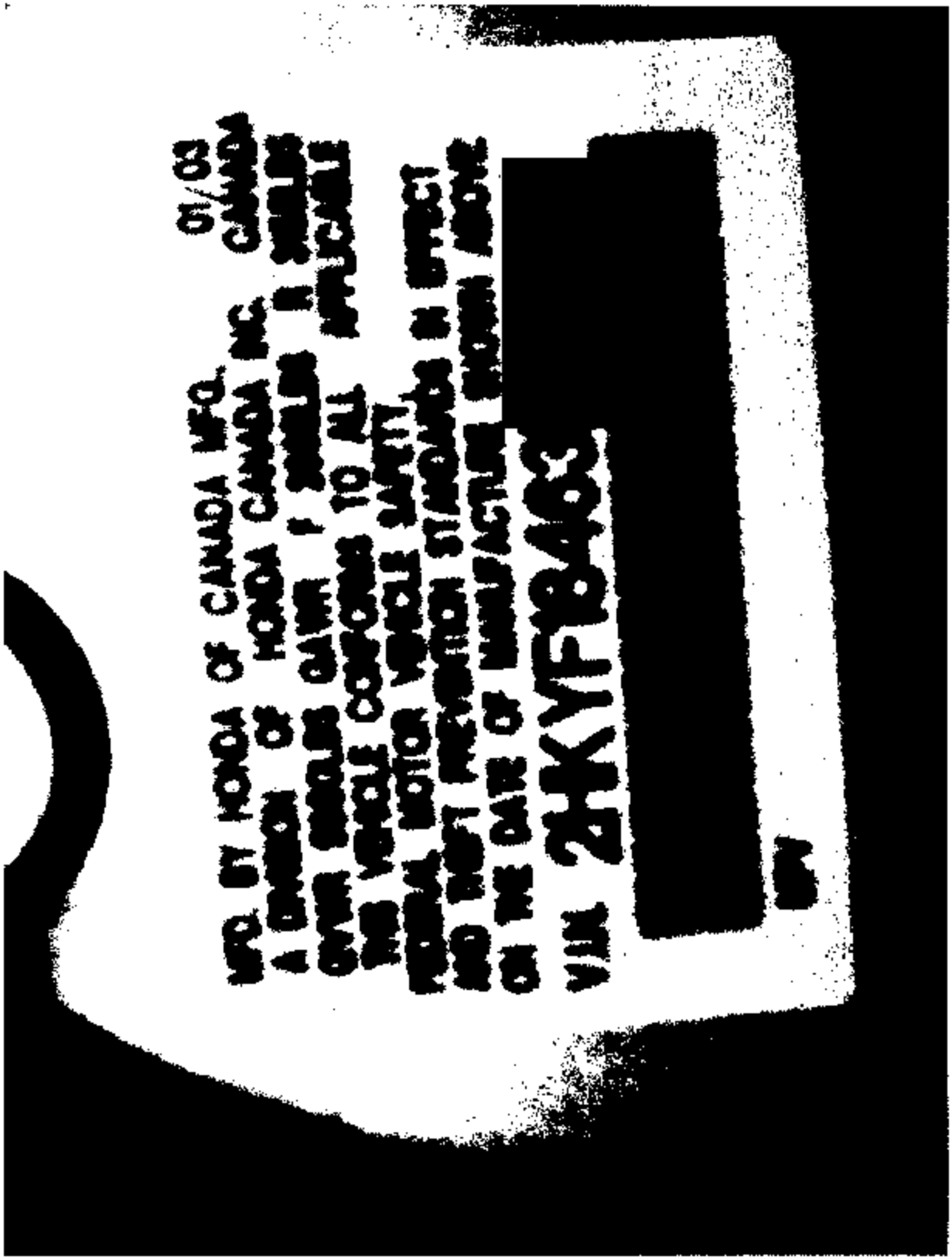
6.1 ¾ right rear view



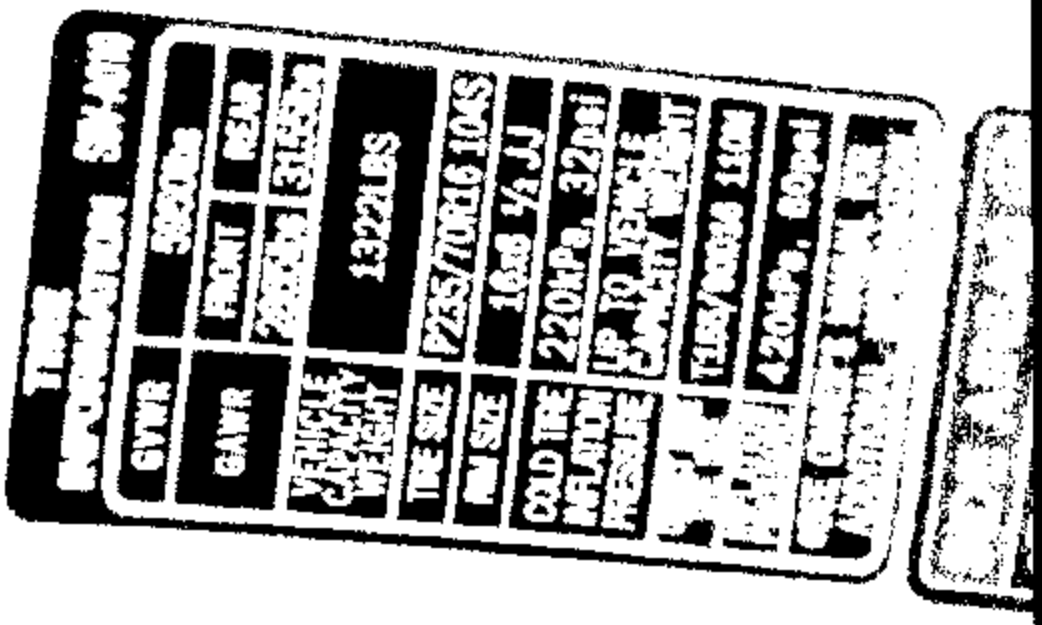
6.2 ¾ left front view



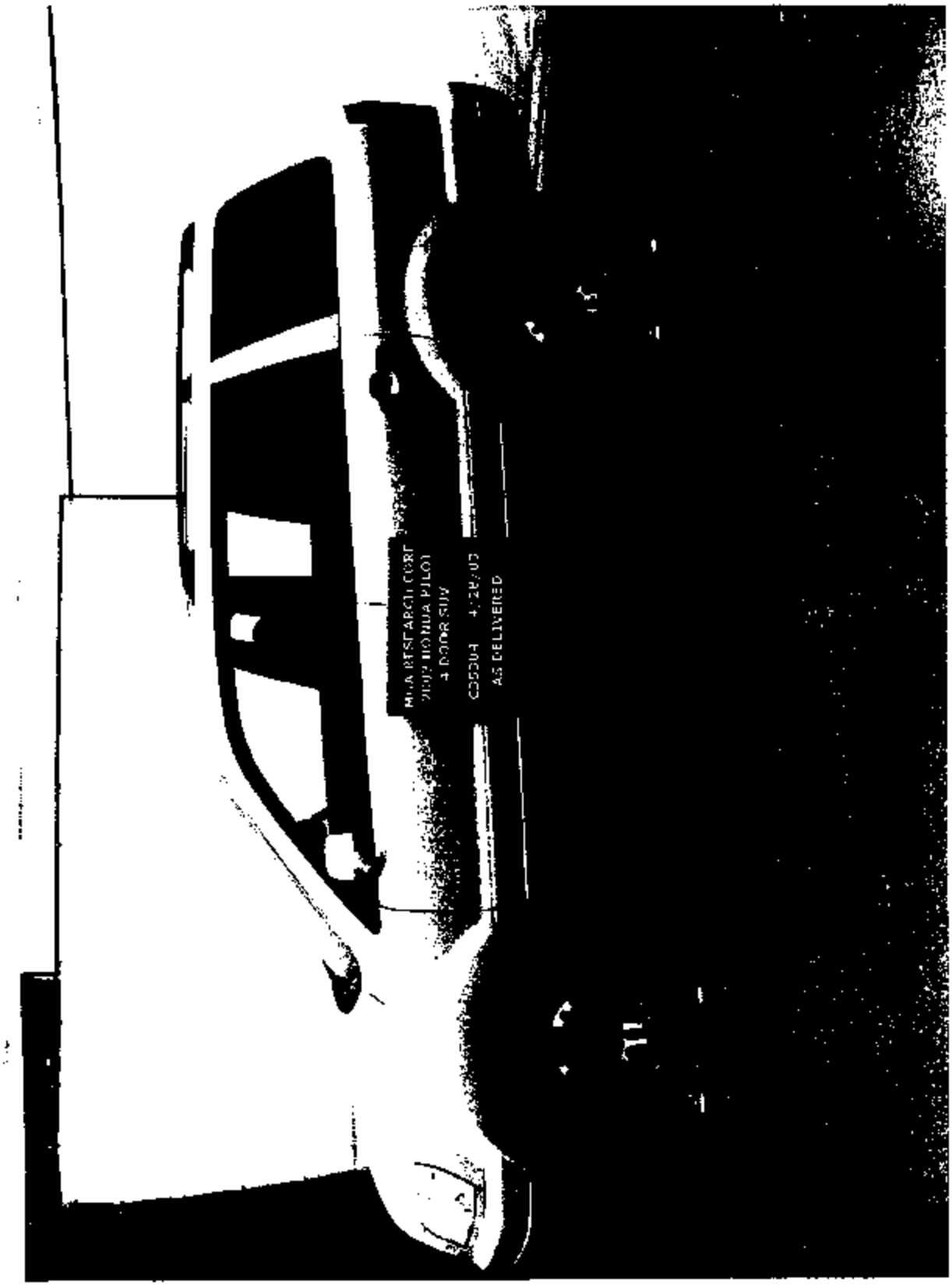
6.3 Test vehicle's certification label



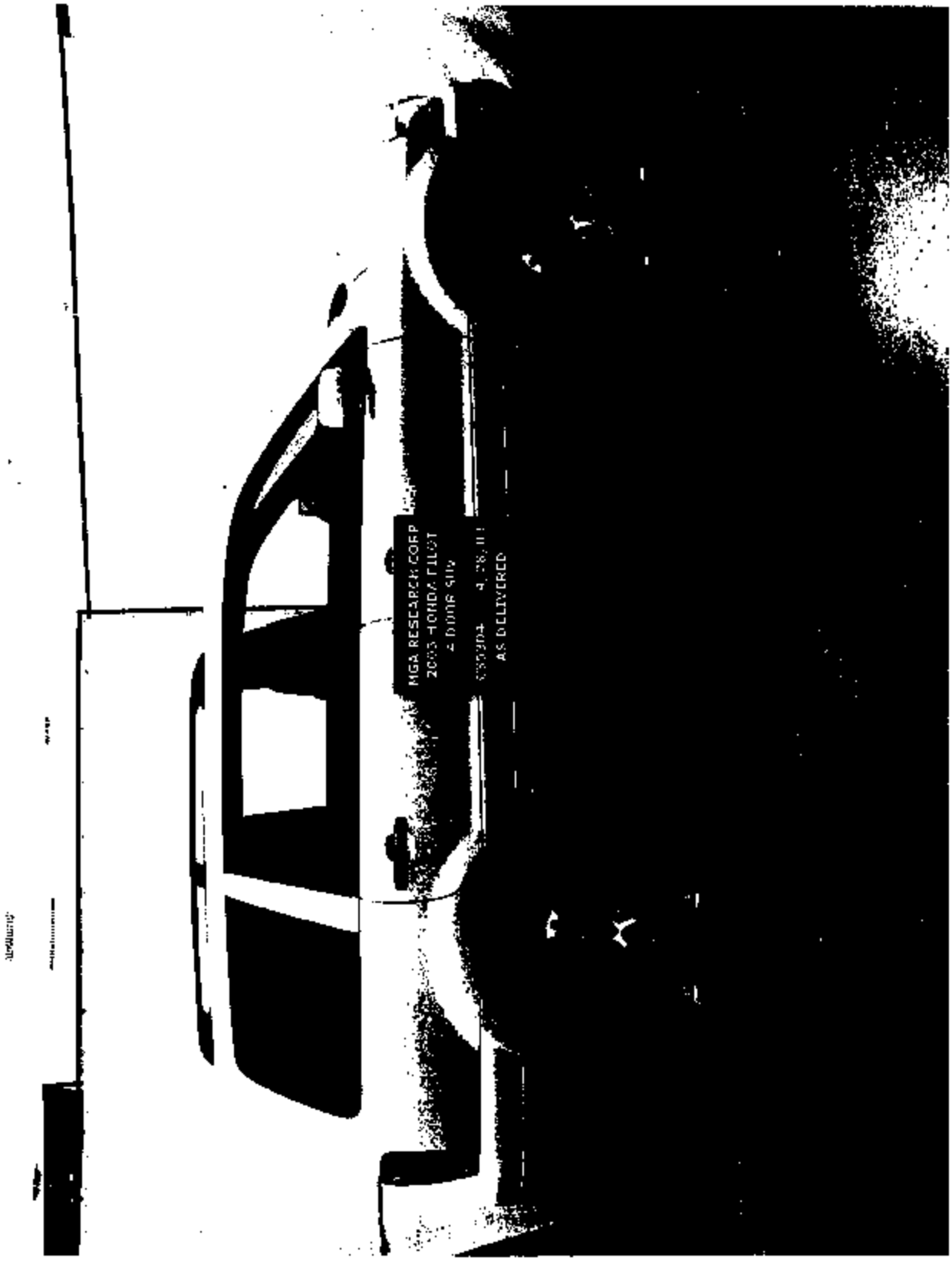
6.4 Test vehicle's tire information placard



6.5 Full left side view of test vehicle



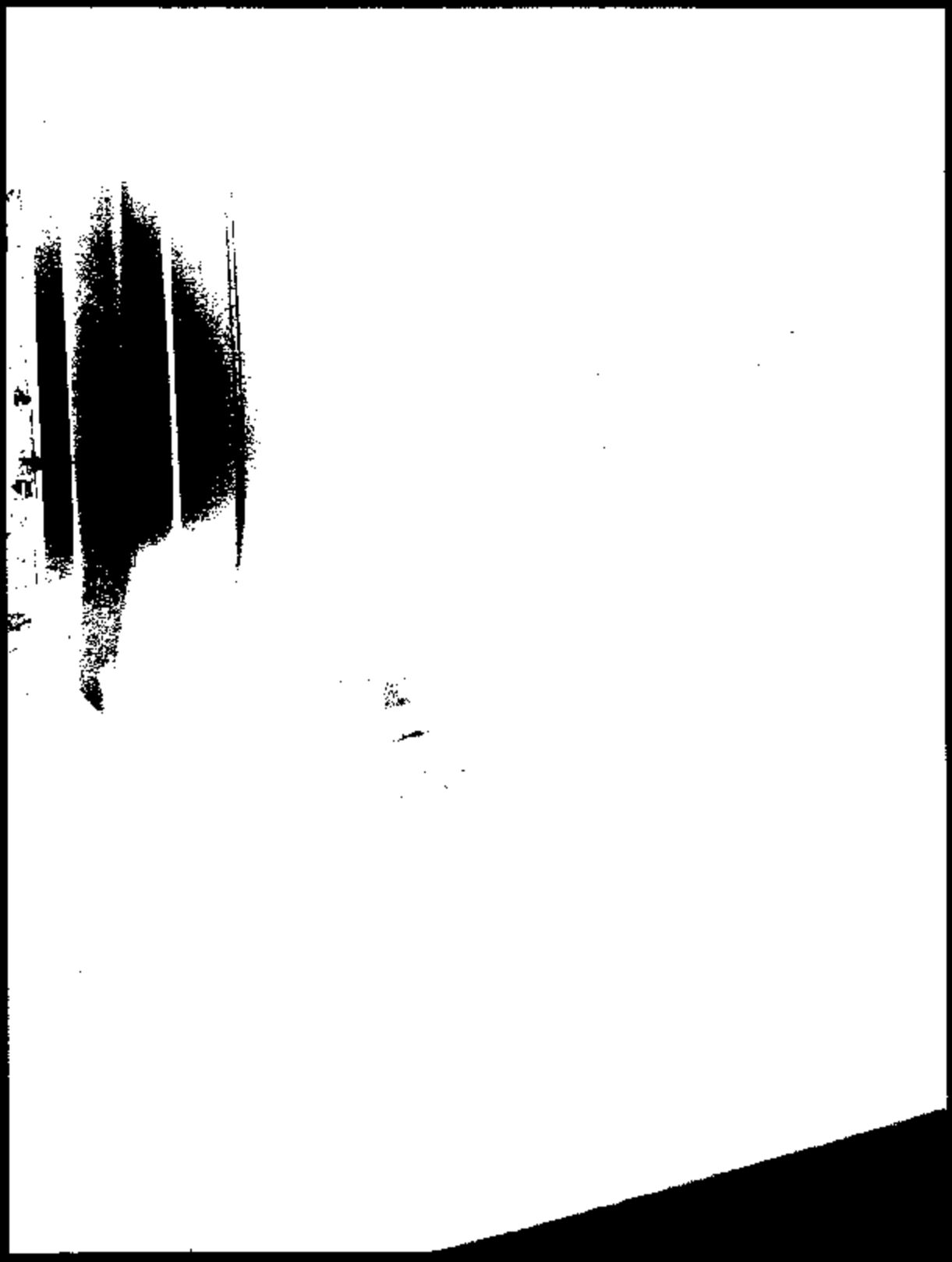
6.6 Full right side view of test vehicle



6.7 Vehicle tie down at each tie down location
6.7.1 left front

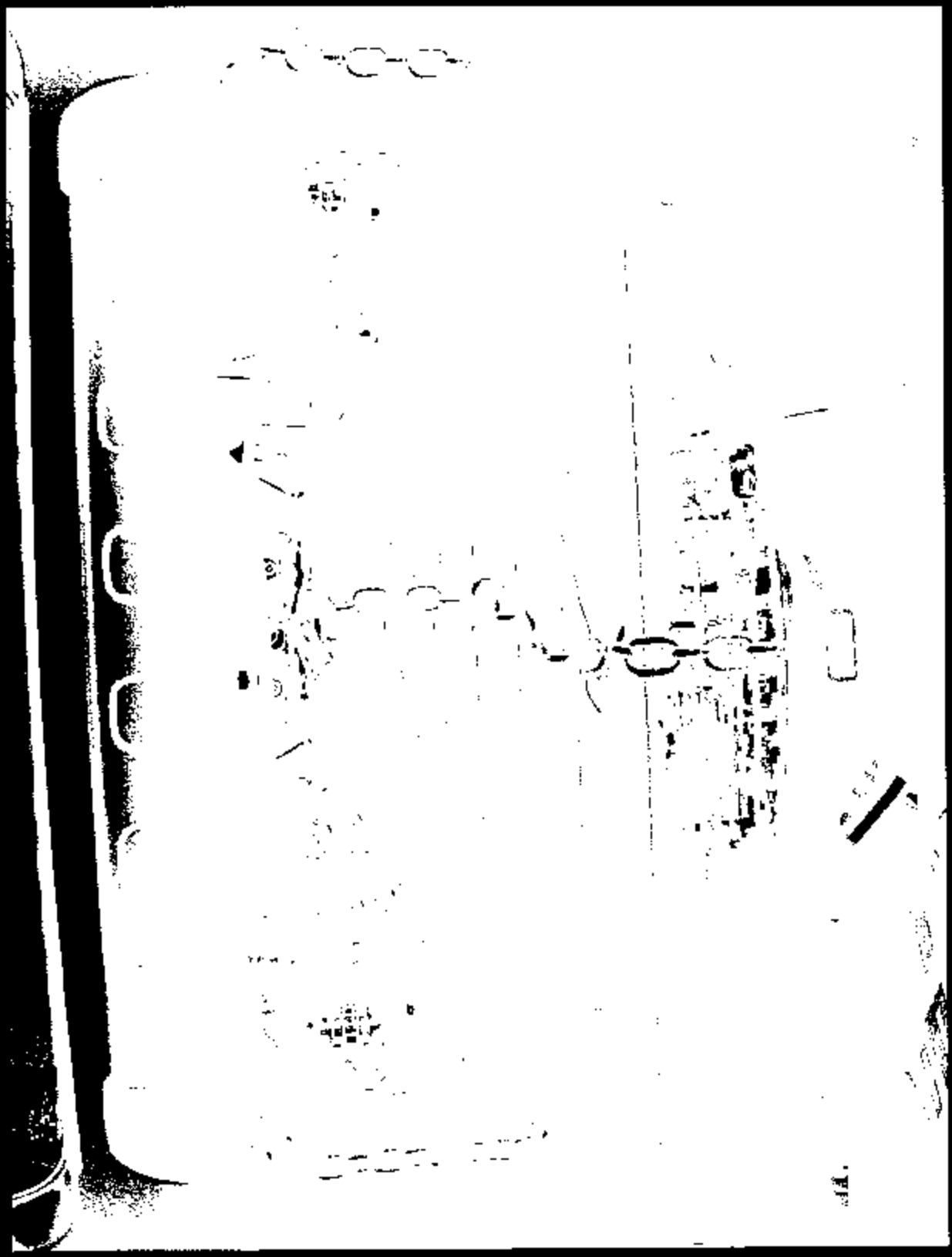
6.7.2 left rear

6.7.3 right front



6.7.4 right rear

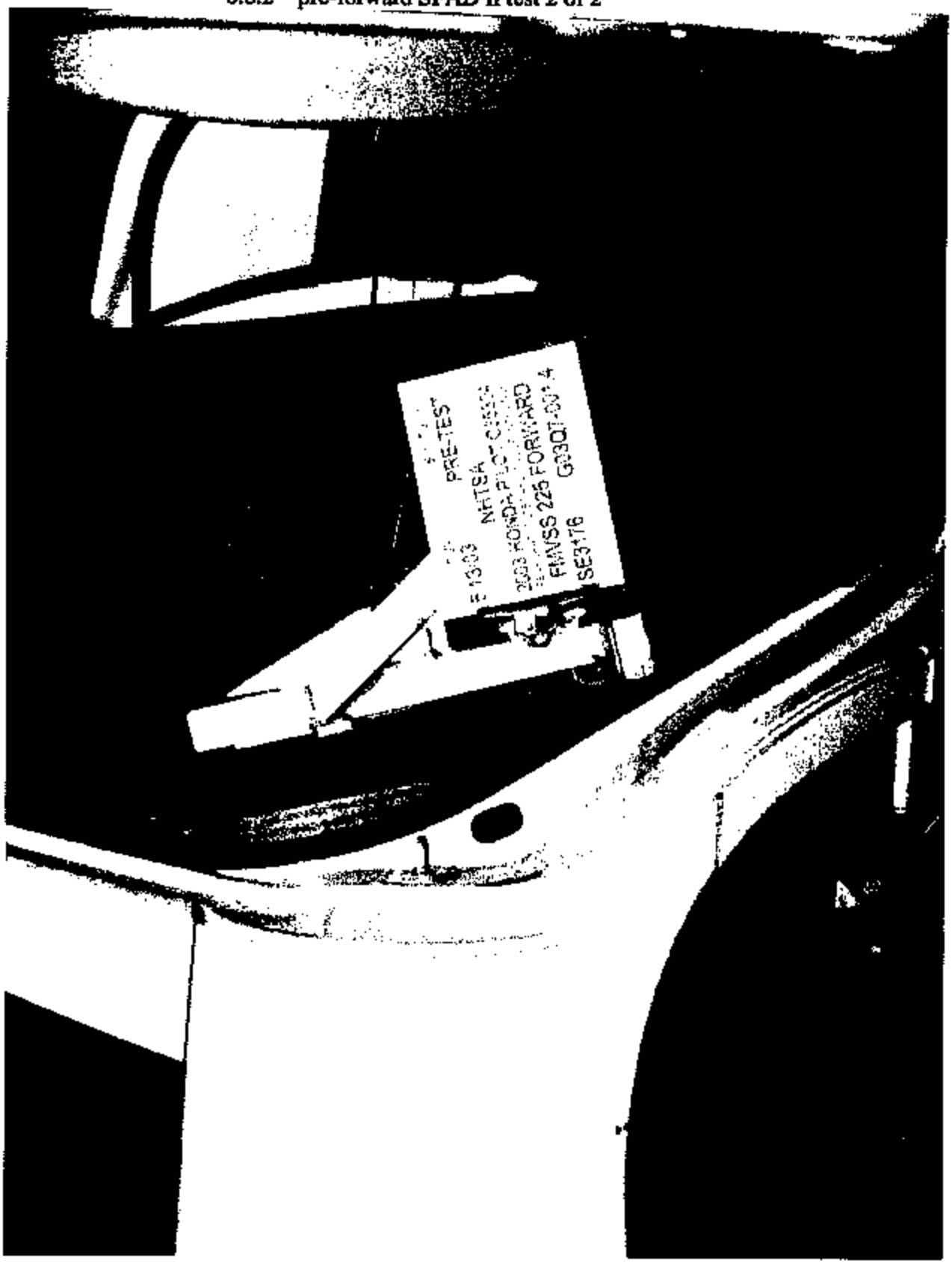
6.7.5 rear under vehicle



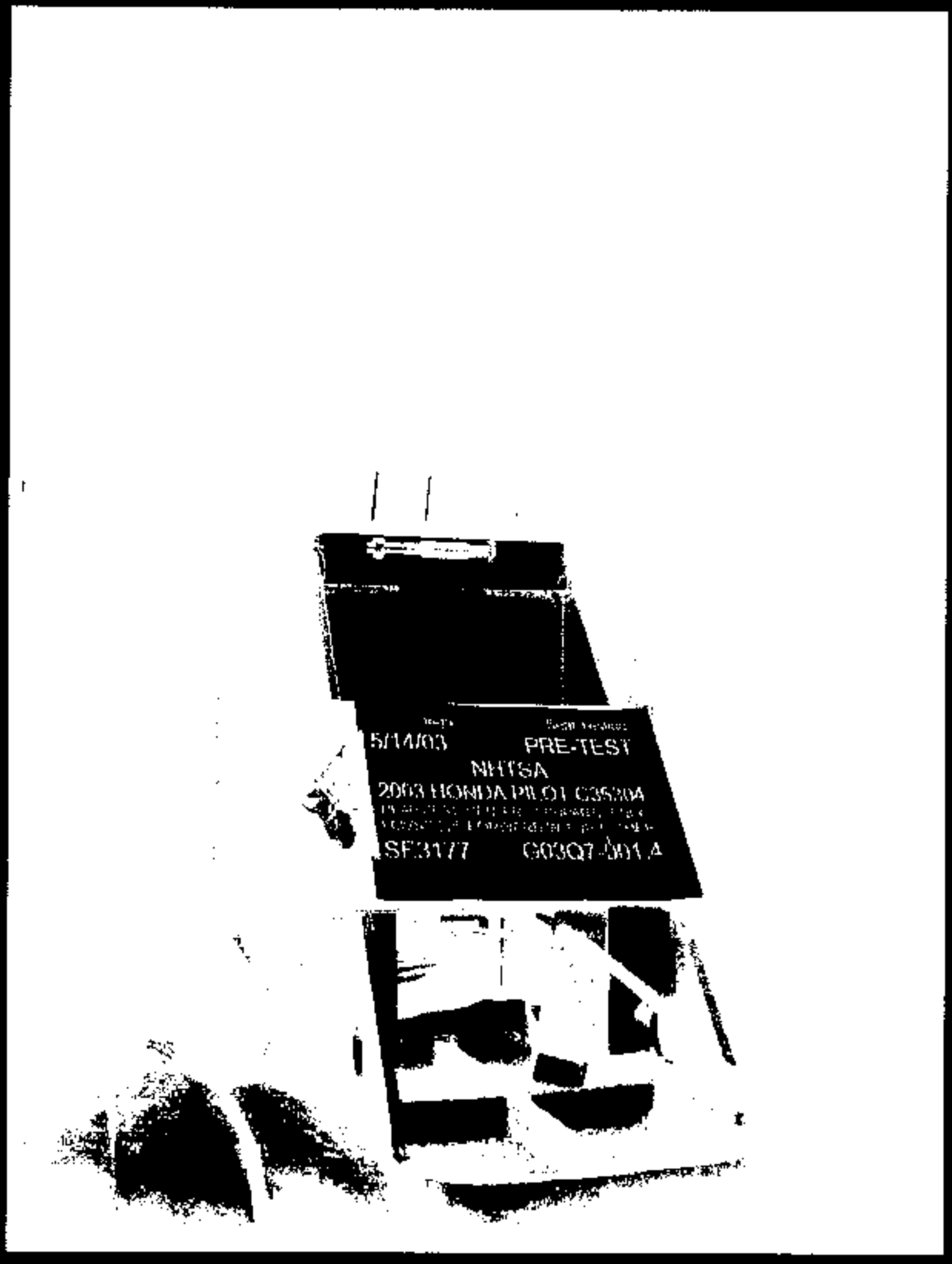
6.8 Pre-test views of each child restraint anchorage system installed in the vehicle

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



6.9 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 posi

6.10.1 forward SFAD II test 1 of 1

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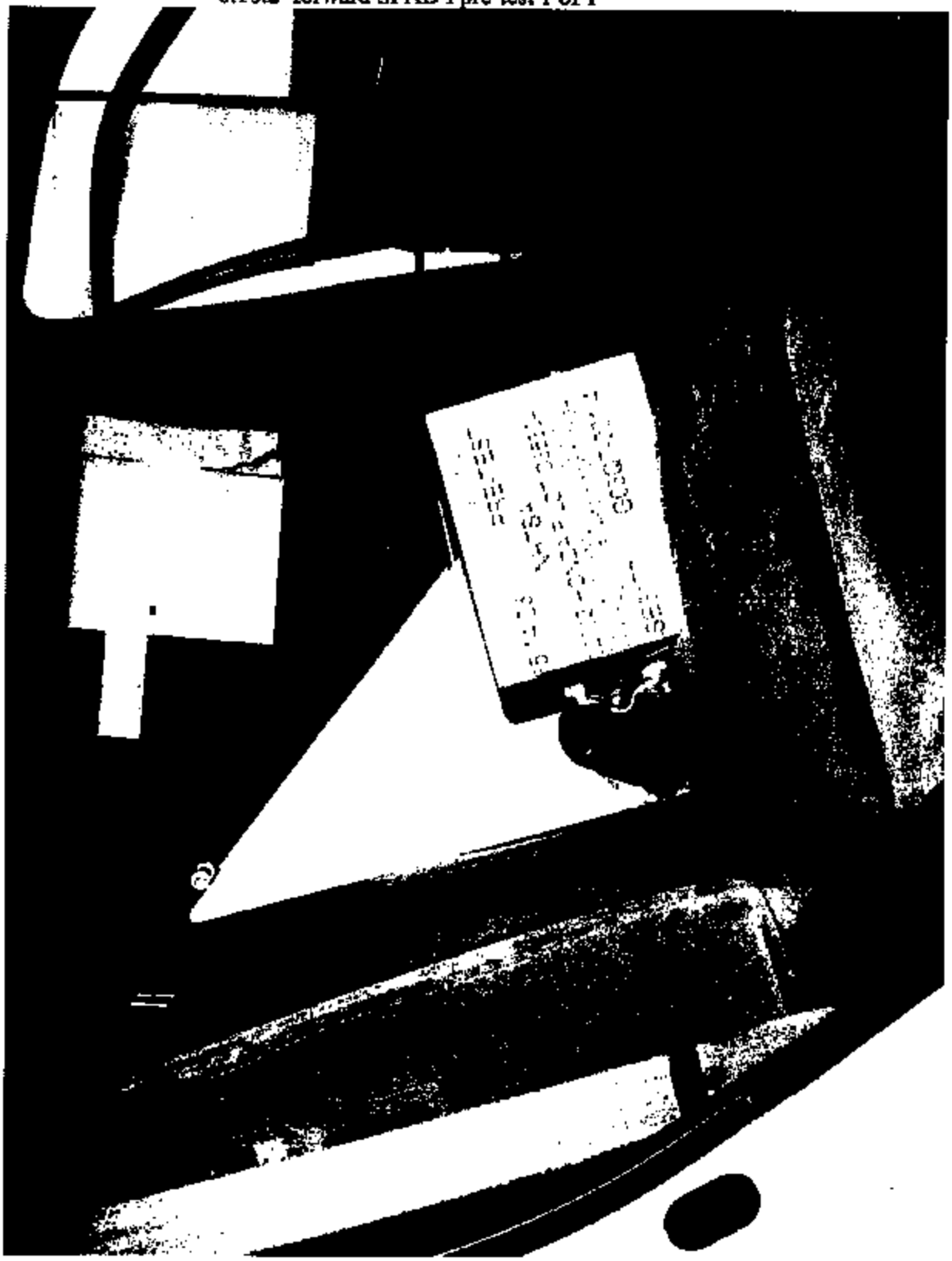
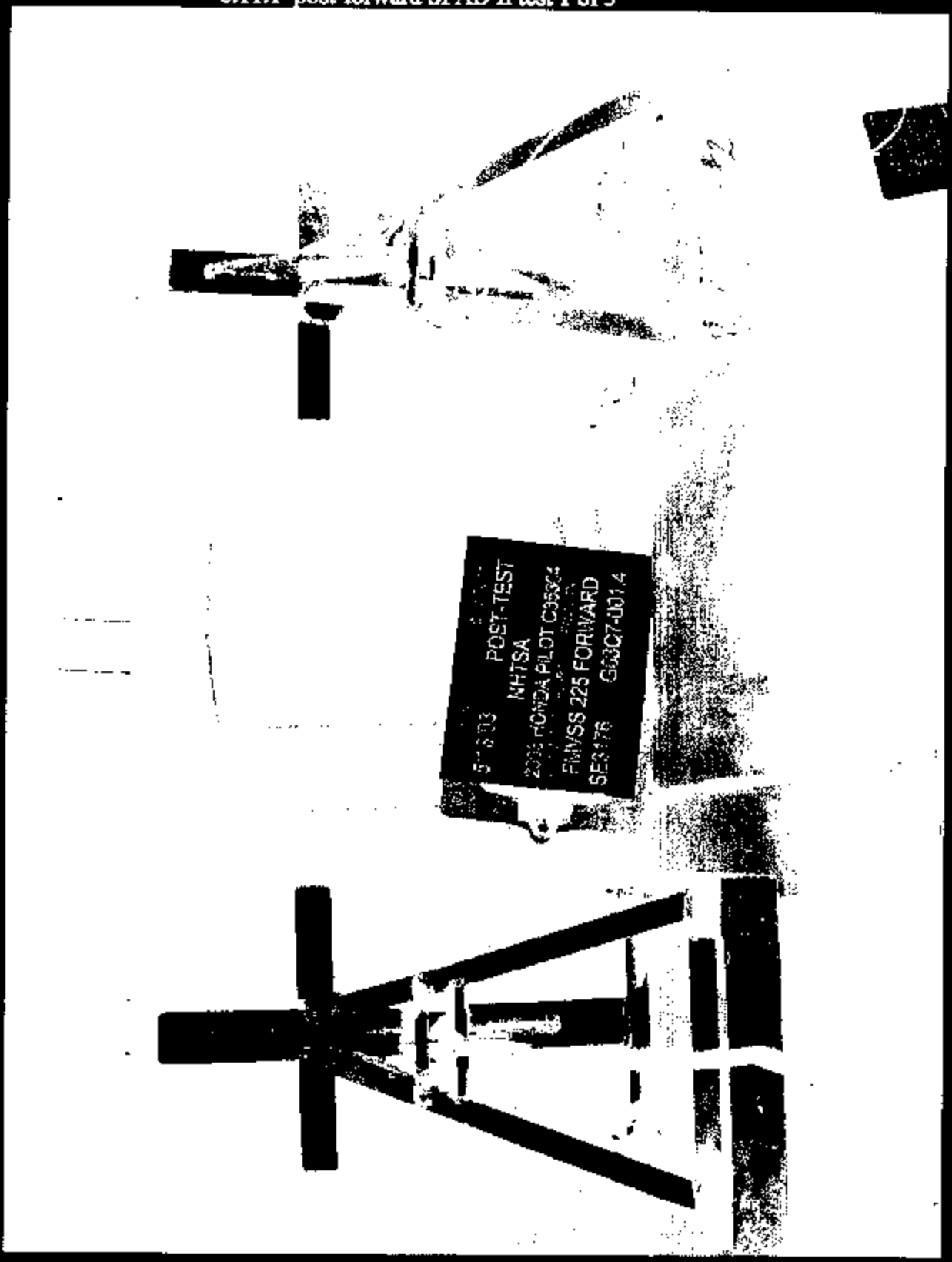
6.10.2 forward SFAD I pre-test 1 of 1



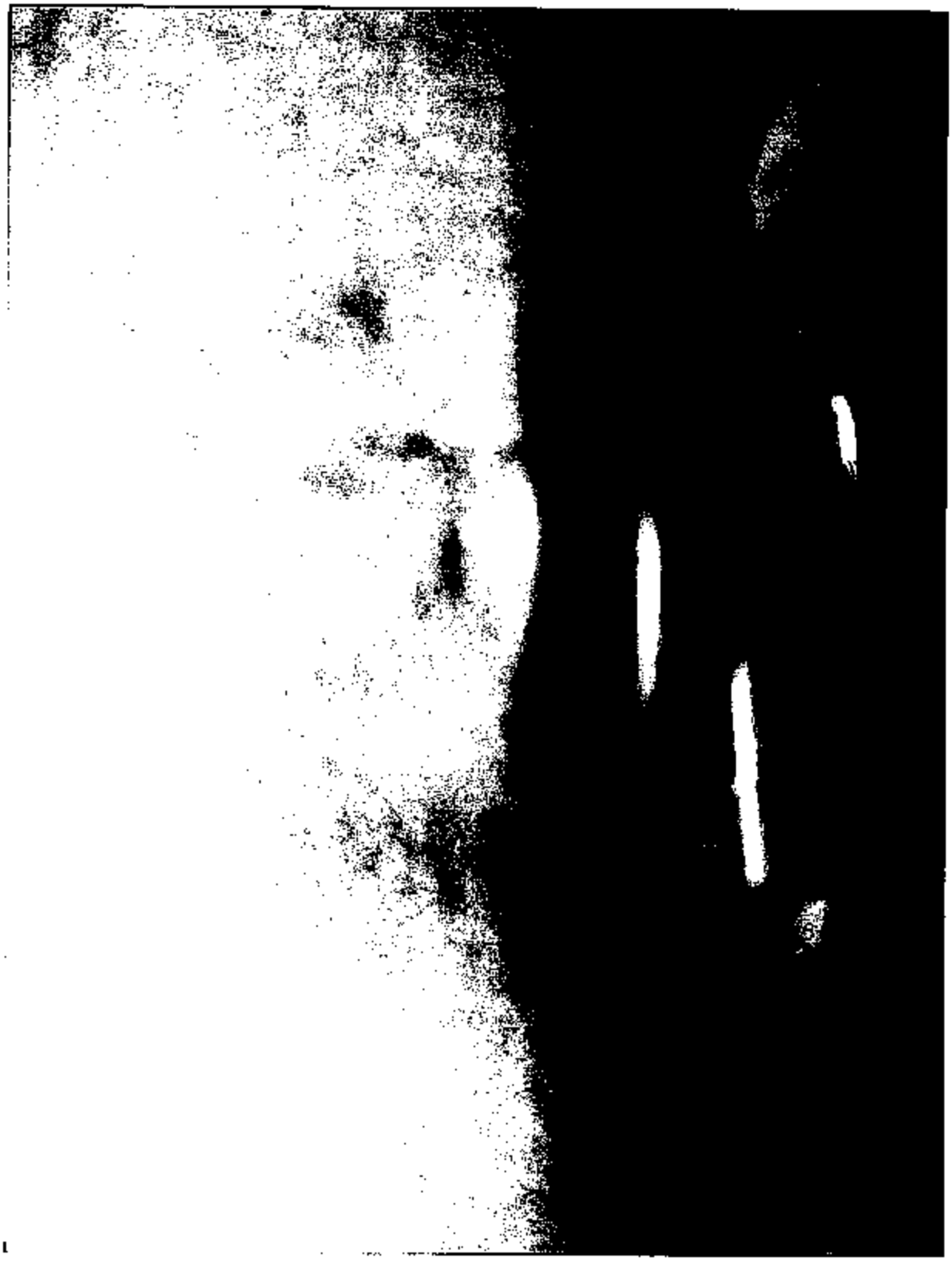
6.11 Post-test condition of each child restraint anchorage system

6.11.1 post-forward SFAD II test 1 of 5



6.11.2 post-forward SFAD II test 2 of 5

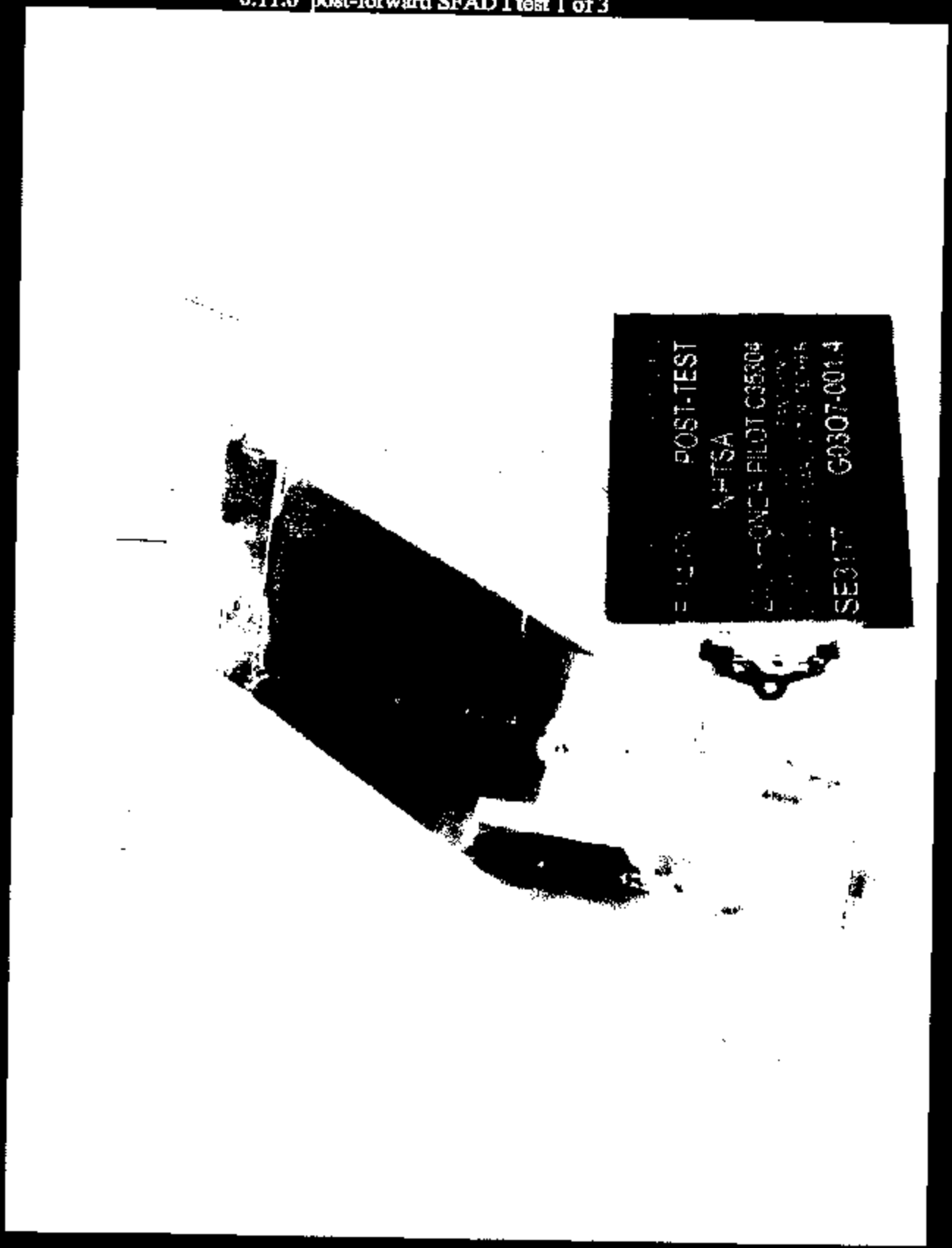
6.11.3 post-forward SFAD II test 3 of 5



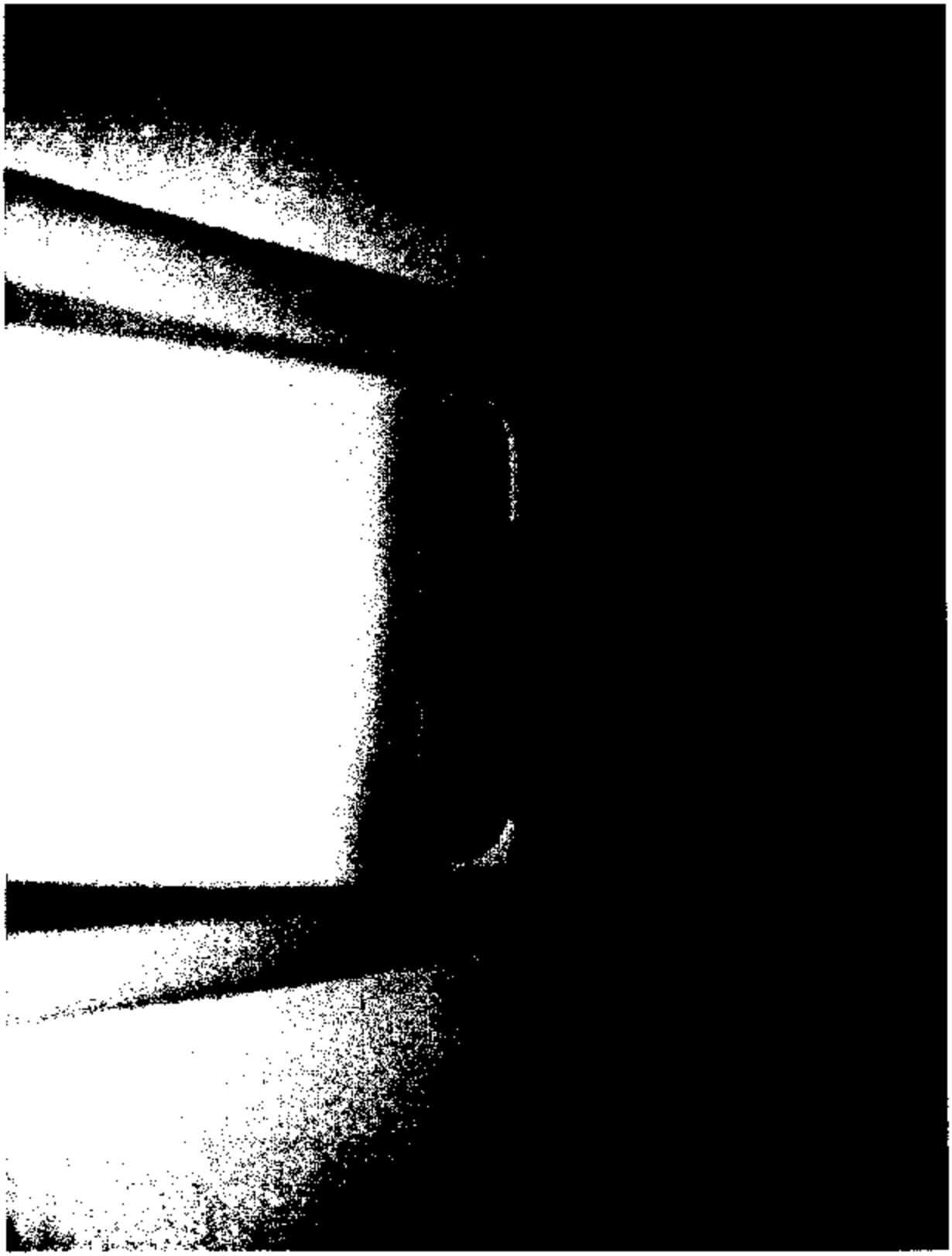
6.11.4 post-forward SFAD II test 4 of 5

6.11.5 post-forward SFAD II test 5 of 5

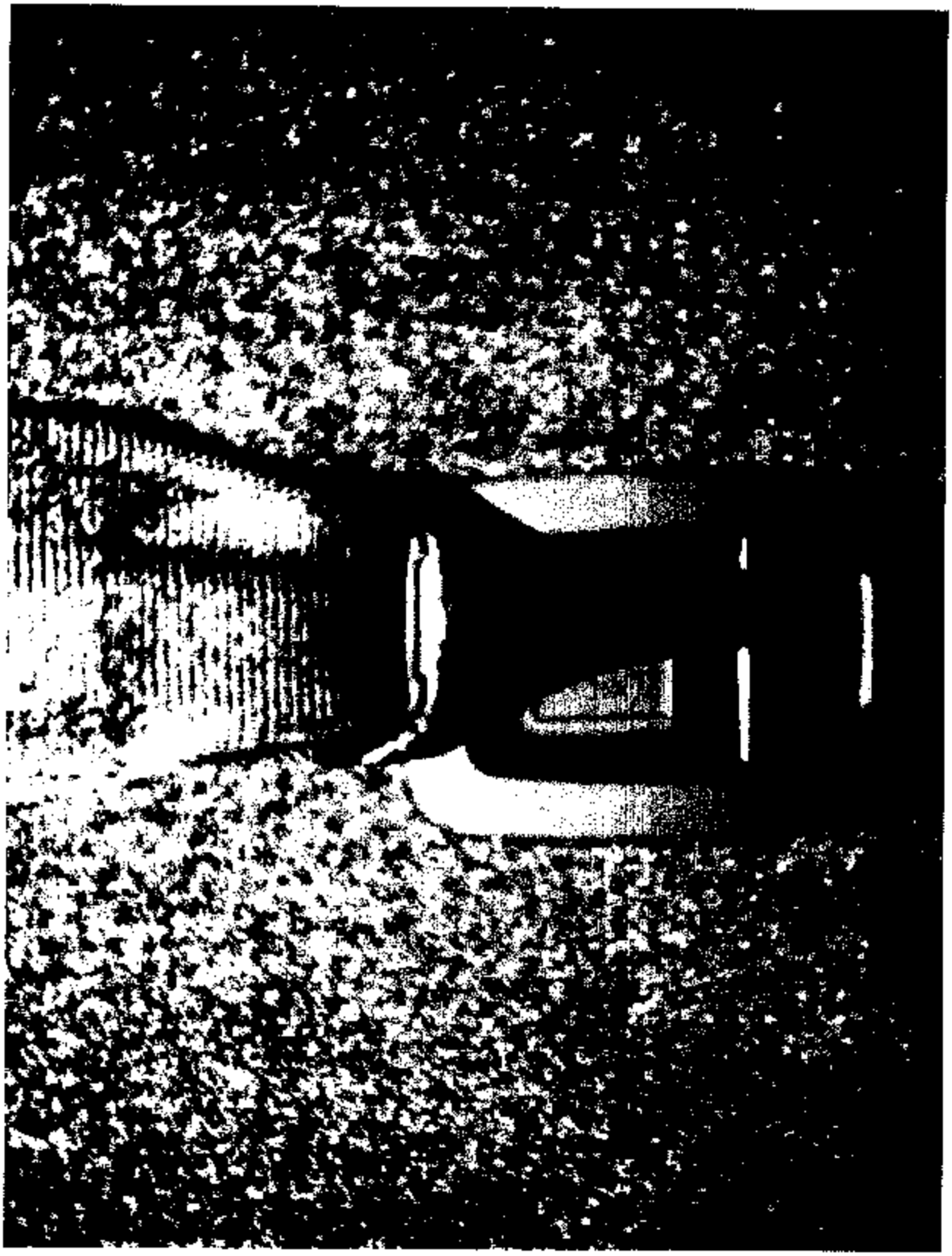
6.11.6 post-forward SFAD I test 1 of 3



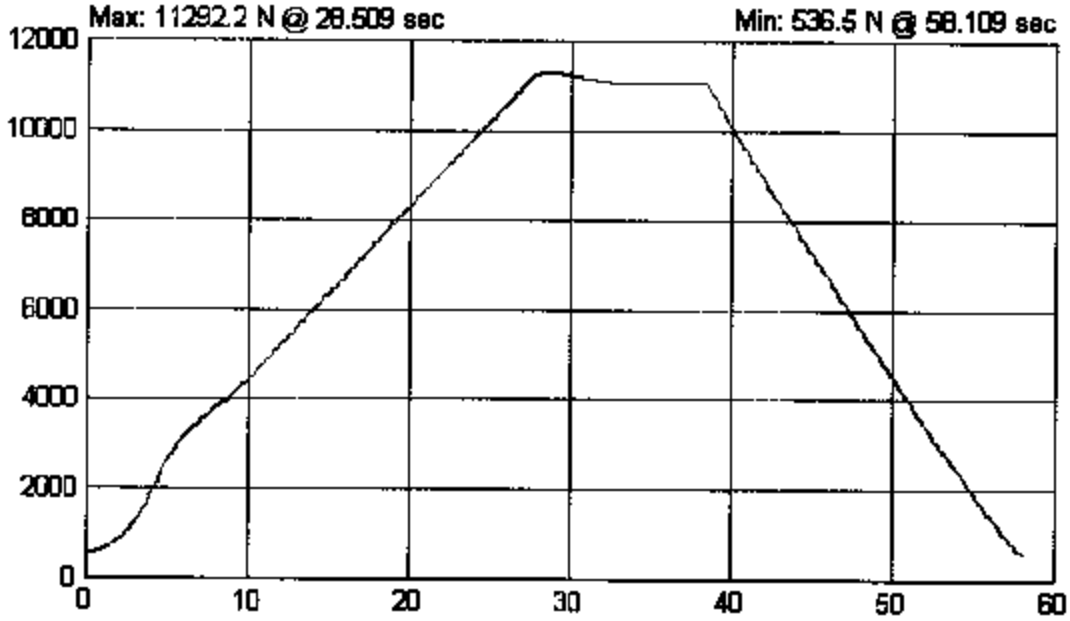
6.11.7 post-forward SFAD I test 2 of 3



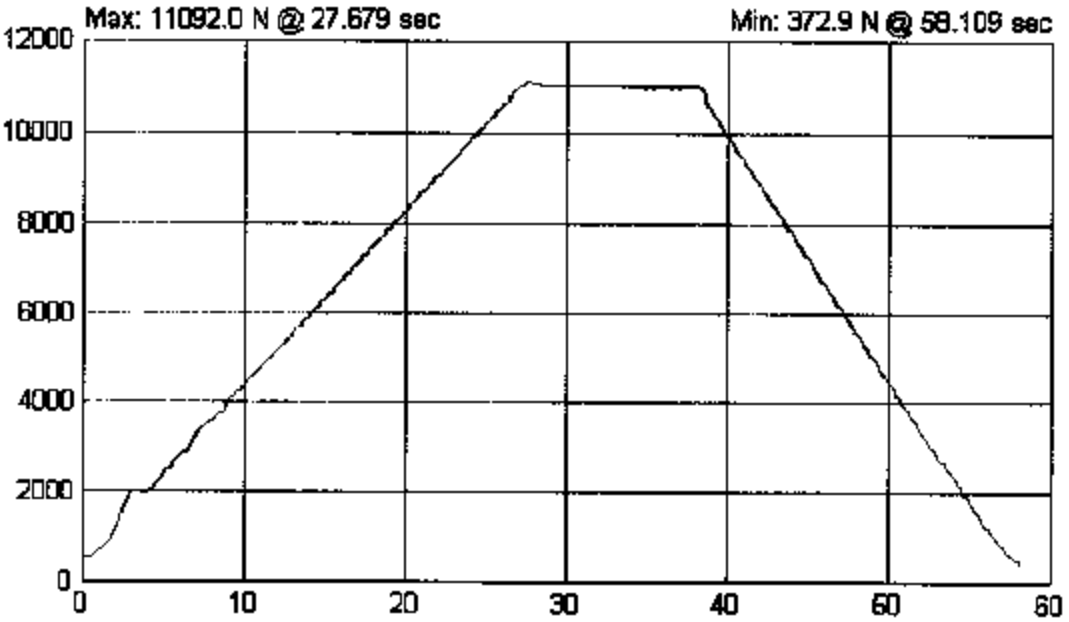
6.11.8 post-forward SFAD I test 3 of 3



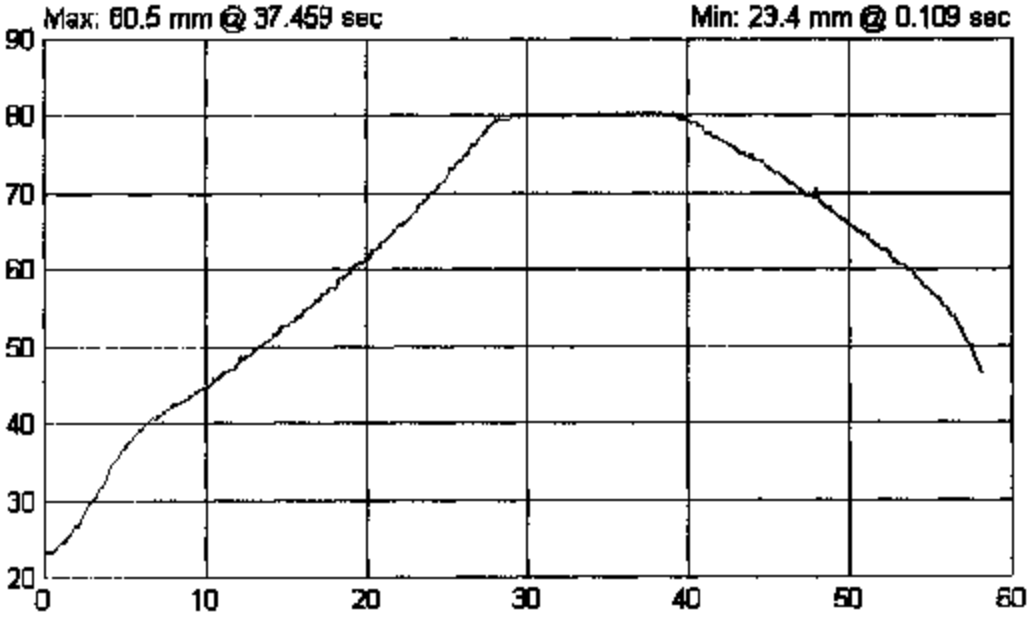
7.0 PLOTS



Run# SE3176: Lower Anchor Test (S11)-2nd Row Left Load (N) vs. Time (sec)



Run# SE3176: Lower Anchor Test (S11)-2nd Row Right Load (N) vs. Time (sec)



Run# SE3176: Lower Anchor Test (S11)-2nd Row Left SFAD X Disp. (mm) vs. Time (sec)

Run# SE3176: Lower Anchor Test (S11)-2nd Row Right SFAD X Disp. (mm) vs. Time (sec)

Run# SE3177: Tether Test (S6.3.4)-2nd Row Center Load (N) 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: May 14, 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 No's 201U & 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 Honda Pilot

VEH. NHTSA NO.: C35304 VIN: 2HKYF18463H560711 COLOR: Silver

ODOMETER READINGS: ARRIVAL 41 miles Date: 3/14/03

COMPLETION 41 miles Date: 5/14/03

PURCHASE PRICE: $27,793 DEALER'S NAME: Tamaroff Buick, Inc.

ENGINE DATA: 6 Cylinders ___ Liters 211.8 Cubic Inches

TRANSMISSION DATA: __ Automatic X Manual No. of Speeds 5

FINAL DRIVE DATA: __Rear Drive __Front Drive X 4 Wheel Drive

TIRE DATA: Size P235/70R16 104S

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	X	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, front seats, I/P, and steering column were removed in order to conduct the test.

Test Vehicle Condition:

Salvage only.

RECORDED BY: Kenney Godfrey DATE: May 14, 2003

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

Protecting Children

Children depend on adults to protect them. However, despite their best intentions, many parents and other adults may not know how to *properly* protect young passengers.

So if you have children, or if you ever need to drive with a grandchild or other children in your vehicle, be sure to read this section.

WARNING!

Children who are unrestrained or improperly restrained can be seriously injured or killed in a crash.

Any child too small for a seat belt should be properly restrained in a child seat. A larger child should be properly restrained with a seat belt.

All Children Must Be Restrained

Each year, many children are injured or killed in vehicle crashes because they are either unrestrained or not properly restrained. In fact, vehicle accidents are the number one cause of death of children ages 12 and under.

To reduce the number of child deaths and injuries, every state and Canadian province requires that infants and children be restrained whenever they ride in a vehicle.

Any child who is too small to wear a seat belt should be properly restrained in a child seat. (See page 26.)

A larger child should always be restrained with a seat belt, and use a booster, if needed. (See page 38.)

Protecting Children

Additional Precautions to Parents

- ***Never hold an infant or child on your lap.*** If you are not wearing a seat belt in a crash, you could be thrown forward into the dashboard and crush the child.

  If you are wearing a seat belt, the child can be torn from your arms during a crash. For example, if your vehicle crashes into a parked vehicle at 30 mph (48 km/h), a 20-lb (9 kg) infant will become a 600-lb (275 kg) force, and you will not be able to hold on.

- ***Never put a seat belt over yourself and an infant or child.*** During a crash, the belt could press deep into the child and cause very serious injuries.

Children Should Sit in the Back Seat

According to accident statistics, children of all ages and sizes are safer when they are restrained in the back seat, not the front seat. The National Highway Traffic Safety Administration and Transport Canada recommend that all children ages 12 and under be properly restrained in a back seat.

In a back seat, children are less likely to be injured by striking hard interior parts during a collision or hard braking. Also, children cannot be injured by an inflating airbag when they ride in the back.

Protecting Children

The Passenger's Front Airbag Poses Serious Risks to Children
Front airbags have been designed to help protect adults in a moderate to severe frontal collision. To do this, the passenger's front airbag is quite large, and it inflates with tremendous speed.

Infants
Never put a rear-facing child seat in the front seat of a vehicle equipped with a passenger's front airbag. If the airbag inflates, it can hit the back of the child seat with enough force to kill or very seriously injure an infant.

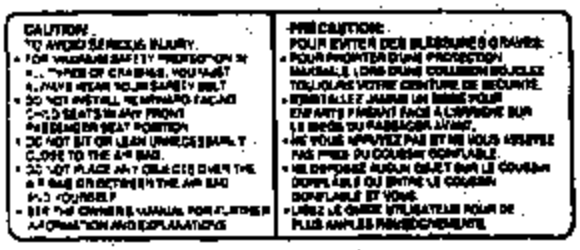
Small Children
Placing a forward-facing child seat in the front seat of a vehicle equipped with a passenger's front airbag can be hazardous. If the vehicle seat is too far forward, or the child's head is thrown forward during a collision, an inflating front airbag can strike the child with enough force to kill or very seriously injure a small child.

Larger Children
Children who have outgrown child seats are also at risk of being injured or killed by an inflating passenger's front airbag. Whenever possible, larger children should sit in the back seat, in a booster seat if needed, and be properly restrained with a seat belt. (See page 38 for important information about protecting larger children.)

Protecting Children

U.S. Models
To remind you of the passenger's front airbag hazards, and that children must be properly restrained in a back seat, your vehicle has warning labels on the dashboard and on the driver's and front passenger's visors. Please read and follow the instructions on these labels.

Canadian Models
To remind you of the front airbag hazards, your vehicle has warning labels on the driver's and front passenger's visors. Please read and follow the instructions on these labels.



If You Must Drive with Several Children
Your vehicle has two rows of back seats where children can be properly restrained.

If you ever have to carry a group of children (when carpooling for example), and a child must ride in front:

- Place the largest child in the front seat, provided the child is large enough to wear a seat belt properly (see page 38).
- Move the vehicle seat as far to the rear as possible (see page 12).
- Have the child sit upright and well back in the seat (see page 18).
- Make sure the seat belt is properly positioned and secured (see page 15).

If a Child Requires Close Attention
Many parents say they prefer to put an infant or small child in the front passenger seat so they can watch the child, or because the child requires attention.

Placing a child in the front seat exposes the child to hazards from the passenger's front airbag, and paying close attention to a child distracts the driver from the important tasks of driving, placing both of you at risk.

If a child requires physical attention or frequent visual contact, we strongly recommend that another adult ride with the child in a back seat. The back seat is far safer for a child than the front.

Additional Safety Precautions
- ***Use childproof door locks to prevent children from opening the doors.*** Using this feature will prevent children from opening the doors and accidentally falling out (see page 87).
- ***Use the main power window switch to prevent children from opening the rear windows.*** Using this feature will prevent children from playing with the windows, which could expose them to hazards or distract the driver (see page 99).
- ***Keep vehicle keys and remote transmitters out of the reach of children.*** Even very young children learn how to unlock vehicle doors, turn on the ignition, and open the tailgate, which can lead to accidental injury or death.

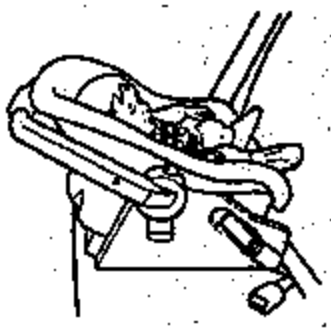
CONTINUED

- ***Do not leave children alone in your vehicle.*** Leaving children without adult supervision is illegal in most states and Canadian provinces, and can be very hazardous. For example, infants and small children left in a vehicle on a hot day can die from heatstroke. And children left alone with the key in the ignition can accidentally set the vehicle in motion, possibly injuring themselves or others.

General Guidelines for Using Child Seats
The following pages give general guidelines for selecting and installing child seats for infants and small children.

Selecting a Child Seat
To provide proper protection, a child seat should meet three requirements:

1. ***The child seat should meet safety standards.*** The child seat should meet Federal Motor Vehicle Safety Standard 213 (FMVSS 213) or Canadian Motor Vehicle Safety Standard 213 (CMVSS 213). Look for the manufacturer's statement of compliance on the box.
2. ***The child seat should be of the proper type and size to fit the child.***



Infants: Children up to about one year old should be restrained in a rear-facing, reclining child seat. Only a rear-facing seat provides the proper support to protect an infant's head, neck, and back. See page 30 for additional information on protecting infants.

Small Children: A child who is too large for a rear-facing child seat, and who can sit up without support, should be restrained in a forward-facing child seat. See page 35 for additional information on protecting small children.

3. The child seat should fit the vehicle seating position (or positions) where it will be used.

Due to variations in the design of child seats, vehicle seats, and seat belts, all child seats will not fit all vehicle seating positions.

However, Honda is confident that one or more child seat models can fit and be properly installed in all recommended seating positions in your vehicle.

Before purchasing a child seat, we recommend that parents test the child seat in the specific vehicle seating position (or positions) where they intend to use the seat. If a previously purchased child seat does not fit, you may need to buy a different one that will fit.

Protecting Children

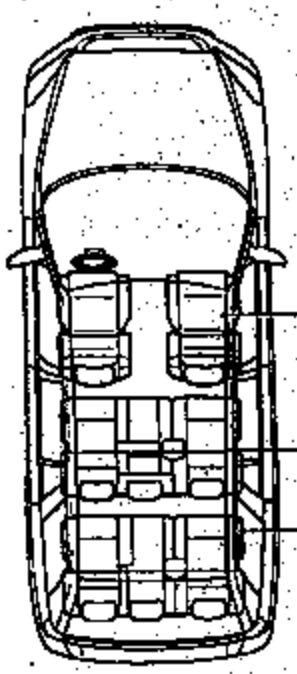
Placing a Child Seat
This page briefly summarizes Honda's recommendations on where to place rear-facing and forward-facing child seats in your vehicle.

Airbags Pose Serious Risks to Children

The passenger's front airbag inflates with enough force to kill or seriously injure an infant in a rear-facing child seat.

A small child in a forward-facing child seat is also at risk. If the vehicle seat is too far forward, or the child's head is thrown forward during a collision, an inflating airbag can kill or seriously injure the child.

If a small child must ride in the front, follow the instructions provided in this section.



Front Passenger's Seat
Infants: Never in the front seat, due to the front airbag hazard.

Small children: Not recommended, due to the front airbag hazard. If a small child must ride in front, move the vehicle seat to the rear-most position and secure a front-facing child seat with the seat belt (see page 36).

Back Seats
Infants: Recommended positions. Properly secure a rear-facing child seat (see page 31).

Small children: Recommended positions. Properly secure a front-facing child seat (see page 36).

Protecting Children

Installing a Child Seat
After selecting a proper child seat, and a good position to install the seat, there are three main steps in installing the seat:

1. *Properly secure the child seat to the vehicle.* All child seats are designed to be secured to the vehicle with the lap part of a lap/shoulder belt. Some child seats can be secured to the vehicle's LATCH anchorage system instead. A child whose seat is not properly secured to the vehicle can be endangered in a crash. See pages 31, 36 and 44 for instructions on how to properly secure child seats in this vehicle.

2. ***Make sure the child seat is firmly secured.*** After installing a child seat, push and pull the seat forward and from side to side to verify that it is secure.

To provide security during normal driving maneuvers as well as during a collision, we recommend that parents secure a child seat as firmly as possible.

However, a child seat does not need to be "rock solid." In some vehicles or seating positions, it may be difficult to install a child seat so that it does not move at all. Some side-to-side or back-and-forth movement can be expected and should not reduce the child seat's effectiveness.

If the child seat is not secure, try installing it in a different seating position, or use a different style of child seat that can be firmly secured in the desired seating position.

3. ***Secure the child in the child seat.*** Make sure the child is properly strapped in the child seat according to the child seat maker's instructions. A child who is not properly secured in a child seat can be thrown out of the seat in a crash and be seriously injured.

Storing a Child Seat
When you are not using a child seat, either remove it and store it in a safe place, or make sure it is properly secured. An unsecured child seat can be thrown around the vehicle during a crash or sudden stop and injure someone.

Protecting Children

Protecting Infants

Child Seat Type
Only a rear-facing child seat provides proper support for a baby's head, neck, and back. Infants up to about one year of age must be restrained in a rear-facing child seat.

Two types of seats may be used: a seat designed exclusively for infants, or a convertible seat used in the rear-facing, reclining mode.

⚠ WARNING

Placing a rear-facing child seat in the front seat can result in serious injury or death if the passenger's front airbag inflates.

Always place a rear-facing child seat in the back seat, not the front.

We recommend that an infant be restrained in a rear-facing child seat until the infant reaches the seat maker's weight or height limit and is able to sit up without support.

Rear-Facing Child Seat Placement
In this vehicle, a rear-facing child seat can be placed in any seating position in a back seat, but not in the front seat.

Never put a rear-facing child seat in the front seat. If the passenger's front airbag inflates, it can hit the back of the child seat with enough force to kill or seriously injure an infant. If an infant must be closely watched, we recommend that another adult sit in the back seat with the baby.

Do not put a rear-facing child seat in a forward-facing position. If placed facing forward, an infant could be very seriously injured during a frontal collision.

Installing a Rear-Facing Child Seat with a Lap/Shoulder Belt

The lap/shoulder belts in the back seats have a locking mechanism that must be activated to secure a child seat.

The following pages provide instructions on how to secure a rear-facing child seat with this type of seat belt.

If you have a child seat designed to attach to the vehicle's LATCH anchorage system, follow the instructions on page 44 .

1. Before installing a child seat in the center seat of the second row or one of the third row seats, make sure the seat belt detachable anchor is latched (see page 97).

2. With the child seat in the desired back seating position, route the belt through the child seat according to the seat maker's instructions, then insert the latch plate into the buckle.

3. To activate the lockable retractor, slowly pull the shoulder part of the belt all the way out until it stops, then let the belt feed back into the retractor (you might hear a clicking noise as the belt retracts).

CONTINUED

4. After the belt has retracted, tug on it. If the belt is locked, you will not be able to pull it out. If you can pull the belt out, it is not locked and you will need to repeat these steps.

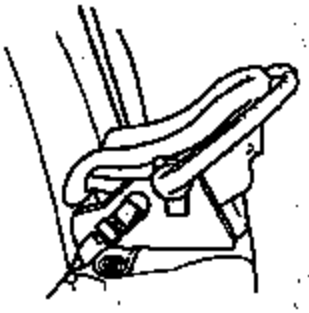
5. After confirming that the belt is locked, grab the shoulder part of the belt near the buckle and pull up to remove any slack from the lap part of the belt. Remember, if the lap part of the belt is not tight, the child seat will not be secure. To remove slack, it may help to put weight on the child seat, or push on the back of the seat, while pulling up on the belt.

6. Push and pull the child seat forward and from side to side to verify that it is secure enough to stay upright during normal driving maneuvers. If the child seat is not secure, unlatch the belt, allow it to retract fully, then repeat these steps.

To deactivate the locking mechanism and remove a child seat, unlatch the buckle, unroute the seat belt, and let the belt fully retract.

Protecting Children

Rear-Facing Child Seat Installation Tips



For proper protection, an infant must ride in a reclined, or semi-reclined position. To determine the proper reclining angle, check with the baby's doctor or follow the seat maker's recommendations.

To achieve the desired reclining angle, it may help to put a rolled up towel under the toe of the child seat, as shown.

When properly installed, a rear-facing child seat may prevent the driver or a front-seat passenger from moving the seat as far back as recommended (see page 12). Or it may prevent them from locking the seat-back in the desired upright position (see page 13).

In either case, we recommend that you place the child seat in another back seating position, or leave the affected seat unoccupied. If the problem cannot be solved, you may wish to get a smaller rear-facing child seat.

Protecting Children

Protecting Small Children

Child Seat Type
A child at least one year old who can sit up without support, and who fits within the child seat maker's weight and height limits, should be restrained in a forward-facing, upright child seat.

Of the different seats available, we recommend those that have a five-point harness system as shown.

We also recommend that a small child stay in the child seat as long as possible, until the child reaches the weight or height limit for the seat.

Child Seat Placement
In this vehicle, the best place to install a forward-facing child seat is in one of the seating positions in a back seat.

Placing a forward-facing child seat in the front seat of a vehicle equipped with a passenger's front airbag can be hazardous. If the vehicle seat is too far forward, or the child's head is thrown forward during a collision, an inflating front airbag can strike the child with enough force to cause very serious or fatal injuries. If a small child must be closely watched, we recommend that another adult sit in the back seat with the child.

CONTINUED

Protecting Children

AWARNING

Improperly placing a forward-facing child seat in the front seat can result in serious injury or death if the front airbags inflate.

If you must place a forward-facing child seat in front, move the vehicle seat as far back as possible and properly restrain the child.

If it is necessary to put a forward-facing child seat in the front, move the vehicle seat as far to the rear as possible, be sure the child seat is firmly secured to the vehicle, and the child is properly strapped in the seat.

Installing a Child Seat with a Lap/Shoulder Belt
The lap/shoulder belts in the outer back and front passenger seating positions have a locking mechanism that must be activated to secure a child seat.

The following pages provide instructions on how to secure a forward-facing child seat with this type of seat belt.

If you have a child seat designed to attach to the vehicle's LATCH anchorage system, follow the instructions on page 44.

1. Before installing a child seat in the center seat of the second row or one of the third row seats, make sure the seat belt detachable anchor is latched (see page 97).

2. With the child seat in the desired seating position, route the belt through the child seat according to the seat maker's instructions, then insert the latch plate into the buckle.

Protecting Children

3. To activate the lockable retractor, slowly pull the shoulder part of the belt all the way out until it stops, then let the belt feed back into the retractor (you might hear a clicking noise as the belt retracts).

4. After the belt has retracted, tug on it. If the belt is locked, you will not be able to pull it out. If you can pull the belt out, it is not locked and you will need to repeat these steps.

5. After confirming that the belt is locked, grab the shoulder part of the belt near the buckle and pull up to remove any slack from the lap part of the belt. Remember, if the lap part of the belt is not tight, the child seat will not be secure. It may help to put weight on the child seat, or push on the back of the seat, while pulling up on the belt.

6. Push and pull the child seat forward and from side to side to verify that it is secure enough to stay upright during normal driving maneuvers. If the child seat is not secure, unlatch the belt, allow it to retract fully, then repeat these steps.

CONTINUED

Protecting Children

To deactivate the locking mechanism in order to remove a child restraint system, unlatch the buckle, unroute the seat belt, and let the belt fully retract.

Protecting Larger Children
When a child reaches the recommended weight or height limit for a forward-facing child seat, the child should sit in the back seat on a booster and wear a lap/shoulder belt.

We recommend that the child use a booster seat until the child is tall enough to use the seat belt without a booster.

The following pages give instructions on how to check proper seat belt fit, what kind of booster seat to use if one is needed, and important precautions for a child who must sit in the front seat.

⚠WARNING

Allowing a larger child to sit improperly in the front seat can result in injury or death if the passenger's front airbag inflates.

If a larger child must sit in front, make sure the child moves the seat as far back as possible, uses a booster seat if needed, and wears the seat belt properly.

Protecting Children

Checking Seat Belt Fit

To determine if a lap/shoulder belt properly fits a child, have the child sit in the rear seat, all the way back against the seat, and put on the seat belt. Follow the instructions on page 15. Then check how the belt fits.

If the shoulder part of the belt rests over the child's collarbone and against the center of the chest, and the lap belt rests over the child's hipbones and touches the tops of the thighs as shown, the child is probably big enough to wear the seat belt.

However, if the shoulder belt touches or crosses the child's neck, or if the lap belt crosses the child's stomach, the child needs to use a booster seat.

Do not let a child wear a seat belt across the neck or over the stomach. This could result in serious neck and internal injuries during a crash.

Do not let a child put the shoulder part of a seat belt behind the back or under the arm. This could cause very serious injuries during a crash. It also increases the chance that the child will slide under the belt in a crash and be injured.

Do not put any accessories on a seat belt. Devices intended to improve occupant comfort or reposition the shoulder part of a seat belt, severely compromise the protective capability of the seat belt and increase the chance of serious injury in a crash.

Two children should never use the same seat belt. If they do, they could be very seriously injured in a crash.

CONTINUED

Protecting Children

Using a Booster Seat

If a child needs a booster seat, we recommend choosing a high or low-back style that allows the child to be directly secured with the lap/shoulder belt.

Whichever style you select, follow the booster seat maker's instructions.

A child should continue using a booster seat until the child exceeds the booster seat manufacturer's requirements.

Even then, the child may still need to use a booster seat. Note that some states now require children to use boosters until they reach a certain age and/or weight. Be sure to check current laws in the state or states where you intend to drive.

When Can a Larger Child Sit in Front
The National Highway Traffic Safety Administration and Transport Canada recommend that all children ages 12 and under be properly restrained in a back seat.

The back seat is the safest place for a child of any age or size.

In addition, the passenger's front airbag poses serious risks to children. If the seat is too far forward, or the child's head is thrown forward during a collision, or the child is unrestrained or out of position, an inflating front airbag can kill or seriously injure the child.

The side airbag also poses risks. If any part of a larger child's body is in the path of a deploying airbag, the child could receive possibly serious injuries.

Of course, children vary widely. And while age may be one indicator of when a child can safely ride in the front, there are other important factors you should consider.

Physical Size
Physically, a child must be large enough for the lap/shoulder belt to properly fit over the hips, chest, and shoulder (see pages 15 and 39). If the seat belt does not fit properly, the child should not sit in the front.

Maturity
To safely ride in front, a child must be able to follow the rules, including sitting properly and wearing the seat belt properly throughout a ride.

If you decide that a child can safely ride up front, be sure to:

- Carefully read the owner's manual and make sure you understand all seat belt instructions and all safety information.
- Move the vehicle seat to the rearmost position.
- Have the child sit up straight, back against the seat, and feet on or near the floor.
- Check that the child's seat belt is properly positioned and secured.
- Remind the child not to lean toward the door because of the side airbag.
- Supervise the child. Even mature children sometimes need to be reminded to fasten the seat belts or sit properly.

Using Child Seats with Tethers
Your vehicle has attachment points for a tether-style child seat to be installed on the second or third row as shown.

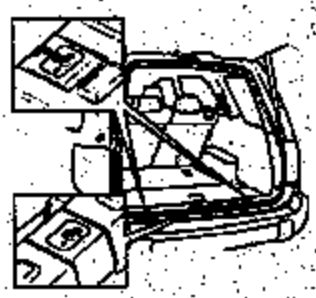
Since a tether can provide additional security, we recommend using a tether whenever one is required or available.

Second Seat Installation:

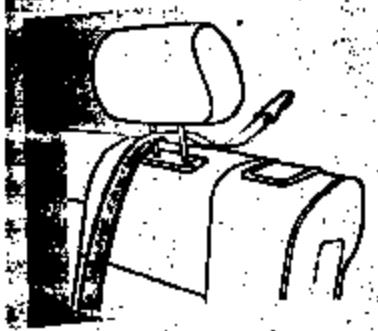
TETHER ANCHORAGE POINT

Each second row seat has a tether anchorage point behind the seat back.

Third Seat Installation:



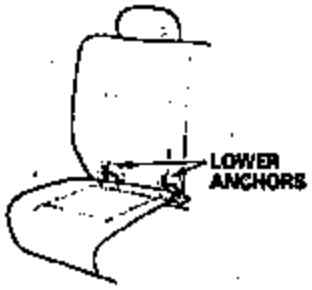
There are three anchorage points on the tailgate sill. Select the anchorage point you want to use, and slide the cover to open it (outboard anchor), or remove the cover (center anchor).



Lift the head restraint, then route the tether strap over the seat-back between the legs of the head restraint.

Attach the tether strap hook to the tether attachment point, and tighten the strap according to the child seat maker's instructions. Make sure the strap is not twisted.

Using LATCH



Your vehicle is equipped with LATCH (Lower Anchors and Tethers for Children) at the second row seats. The lower anchors are located between the seat-back and seat bottom.

The exact location of each lower anchor is marked with a small button above the lower anchor point.

Lower anchors are to be used only with a child seat designed for use with LATCH.

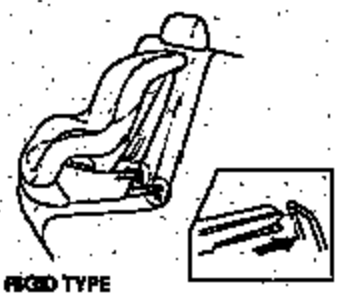
Canada Only

LOWER UNIVERSAL ANCHORAGE SYSTEM SYMBOL

This symbol on rear or forward facing child seats or booster cushions indicates the presence of LATCH compatible hardware.

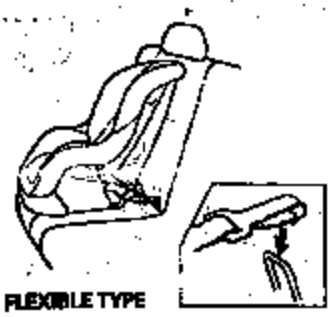
To install a LATCH-compatible child seat:

1. Move the seat belt buckle or seat belt tongue away from the lower anchors.
2. Make sure there are no foreign objects around the anchors. Foreign objects could get in the way of a secure connection between the child seat and the anchors.



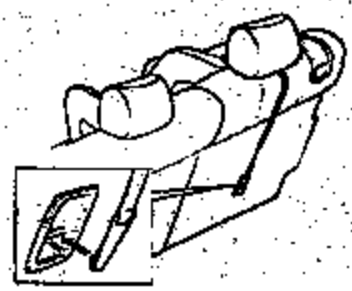
RIGID TYPE

3. Put the child seat in a second row vehicle seat and attach the child seat to the lower anchors according to the child seat maker's instructions.



FLEXIBLE TYPE

4. Follow the child seat maker's instructions for any additional advice on adjusting or tightening the fit.



5. Attach the attaching clip to the tether anchor fitting and tighten the strap according to the child seat maker's instructions. Make sure the strap is not twisted.

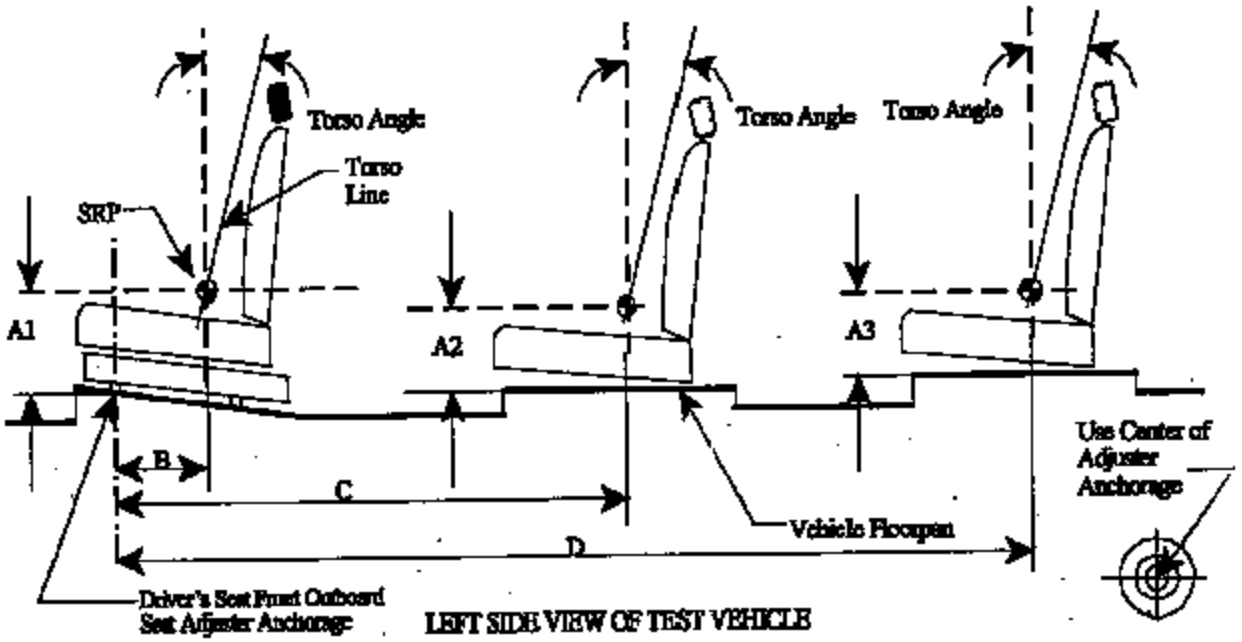
6. Push and pull the child seat forward and from side to side to verify that it is secure enough to stay upright during normal driving maneuvers.

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

FORM 14
Page 1 of 10

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

Model Year: 2003 ; Make: HONDA ; Model: PILOT ; Body Style: 5 door wagon
Seat Style: Front row: Bucket ; Second row: Bench ; Third row: Bench



LEFT SIDE VIEW OF TEST VEHICLE

C35304

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		(Driver) 351	N/A	(Front Passenger) 351
A2		273	278	273
A3		261	261	261
B		310	N/A	310
C		1192	1162 / 1142*1	1192
D		1924	1924	1924
Torso Angle (degree)	Front Row	23 degree	N/A	23 degree
	Second Row	23 degree	23 degree	23 degree
	Third Row	23 degree	23 degree	23 degree

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

*1: With center table

FORM 14
Page 3 of 10

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

Model Year: 2003 ; Make: HONDA ; Model: PILOT ; Body Style: 4 door wagon
Seat Style: Front row: Bucket ; Second row: Bench ; Third row: Bench

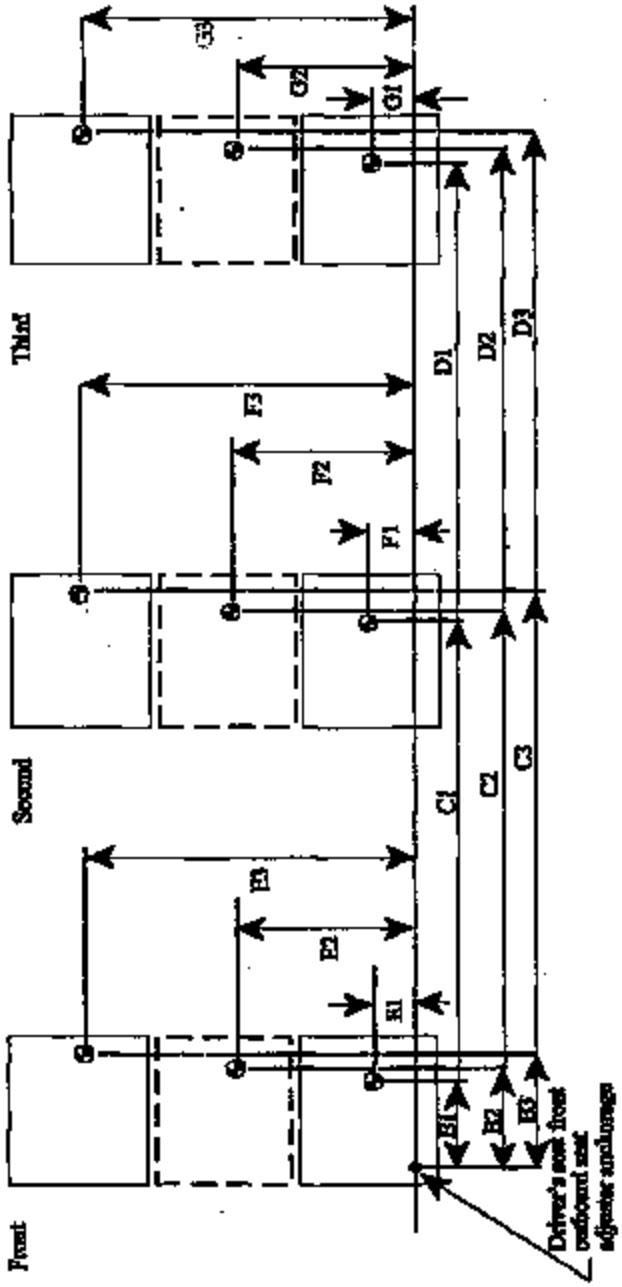


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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	310
	E1	229
	B2	N/A
	E2	N/A
	B3	310
	E3	1049
Second Row	C1	1192
	F1	224
	C2	1162 / 1142*1
	F2	619
	C3	1192
	F3	1054
Third Row	D1	1924
	G1	254
	D2	1924
	G2	644
	D3	1924
	G3	1024

Note: 1. Use the center of anchorage.

*1: With center table

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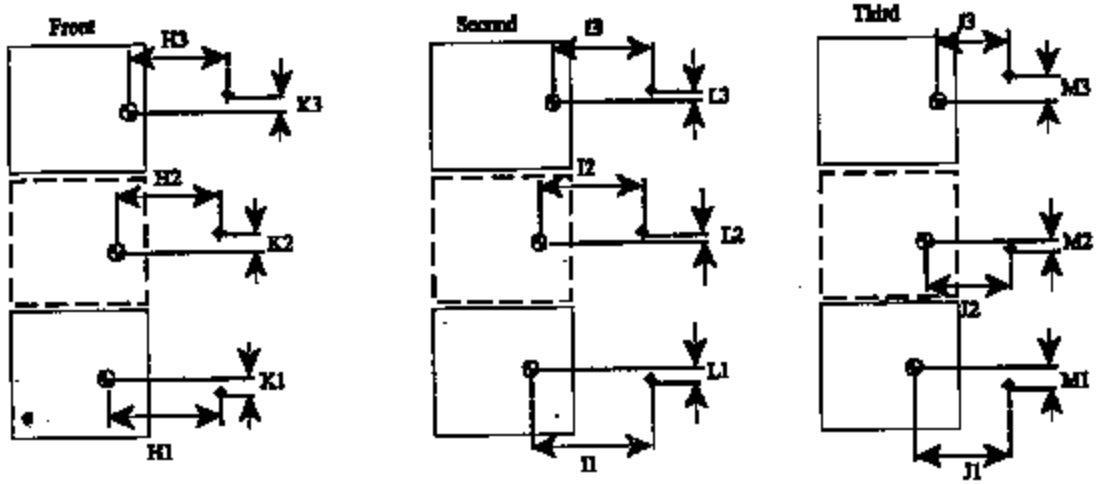
TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2003 ; Make: HONDA ; Model: PILOT ; Body Style: 5 door wagon
Seat Style: Front row: Bucket ; Second row: Bench ; Third row: Bench



⊕: 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	215
	L1	0
	I2	247 / 267*1
	L2	0
	I3	215
	L3	0
Third Row	J1	602
	M1	2
	J2	612
	M2	5
	J3	602
	M3	2

Note: 1. Use the center of anchorage.

*1; With center table

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

Model Year: 2003 ; Make: HONDA ; Model: PILOT ; Body Style: 5 door wagon
Seat Style: Front row: Bucket ; Second row: Bench ; Third row: Bench

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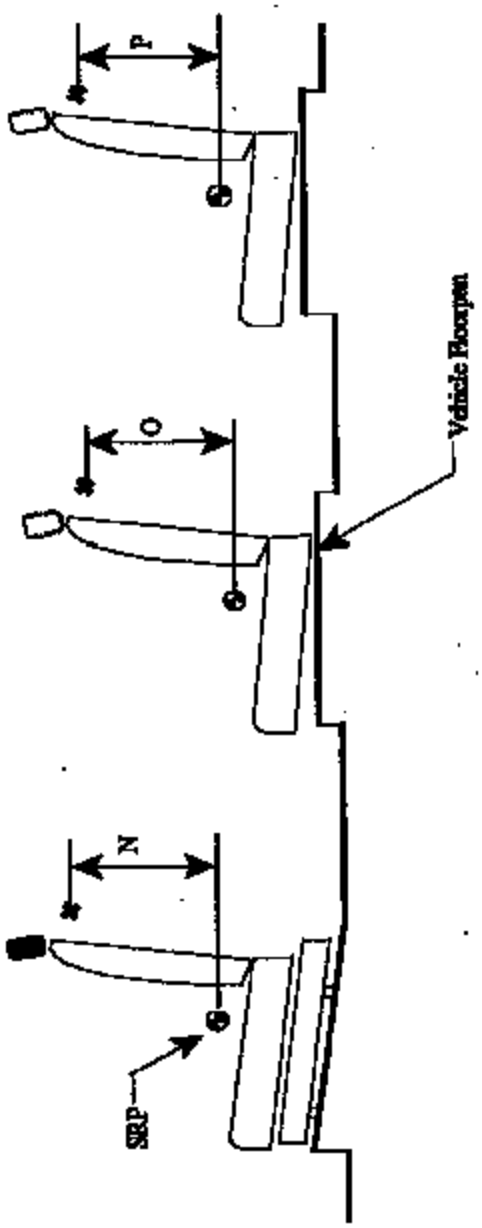

LEFT SIDE VIEW OF TEST VEHICLE

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)	6
	O2 (Center)	2
	O3 (Right)	6
Third Row	P1 (Left)	117
	P2 (Center)	139
	P3 (Right)	117

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)	N/A
Second	Left	S6.3.4
	Center	S6.3.4
	Right (if any)	S6.3.4
Third	Left	S6.3.4
	Center	S6.3.4
	Right	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	S9
	Center	N/A
	Right	S9
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.

   Answer : No, the anchorages are certified with S9.1.

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.

   Answer : No, the anchorages are certified with S9.2.

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.

   Answer : No, the anchorages are certified with S9.5(a).

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

   Answer : S6.2.1

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

   Answer : S.4.4(a)

Other things, which need to be noted:

For the strength test of this vehicle's rear tether anchorages, the right and left sides were tested simultaneously and the center was tested separately because the distance between each anchorage is less than 400 mm.