FINAL REPORT NUMBER 225-MGA-03-005

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

SUBARU
2003 FORESTER WAGON
NHTSA No. C35502

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: April 28, 2003
Report Date: August 21, 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)
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16. Abstract

Compliance testing was conducted on the subject 2003 Subaru Forester, NHTSA No. C35502, 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 April 28, 2003. Test failures identified were as follows:

NONE

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

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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 Subaru Forester, NHTSA No. C35502, 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 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 lower anchorages for both rear outboard seating positions were tested with SFAD 2 fixtures and the tether anchorage in the rear outboard and center seating positions were tested with a tether strap.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The tests were conducted at MGA, Troy, Michigan on April 28, 2003.

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

The SFAD 2 at the rear left outboard seating position sustained a maximum force of 11,260 N and held the required load for 9.45 seconds with a total displacement of 46 mm, measured at Point "x". The SFAD2 at the rear right outboard seating position sustained a maximum force of 11,156 N and held the required load for 9.37 seconds with a total displacement of 60 mm, measured at Point "x". The tether anchors at the rear seating positions sustained a maximum force of 5,167 N (LH), 5,192 N (Ctr.), and 5,201 N (RH) and held the required load for 3 seconds with a total displacement of 3 mm (LH), 6 mm (Ctr.), and 5 mm (RH). 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)
SE3147	SFAD II	Rear Left	11,260	46
		Rear Right	11,156	60
SE3148	Tether Strap	Rear Center	5,192	6
SE3149	Tether Strap	Rear Left	5,167	3
		Rear Right	5,201	5

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2003 Subaru Forester
VEH. NHTSA NO.	C35502
VIN	JF1SG63683G748214
COLOR	Pearl Blue
VEH. BUILD DATE	11/02
TEST DATE	04/28/03
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Brad Reaume, Kevin Schmitzer, Brian Smith

GENERAL INFORMATION:

Date Received: 3/26/03 Odometer Reading: 32.2 miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Fuji Heavy Industries, LTD Japan

Date of Manufacture: 11/02; VIN: JF1SG63683G748214

GVWR: 1880 kg; GAWR FRONT: 930 kg

GAWR REAR: 1000 kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 200 kpa REAR: 250 kpa

Recommended Tire Size: P215/60R16

Recommended Cold Tire Pressure:

FRONT: 200 kpa REAR: 190 kpa

Size of Tire on Test Vehicle: P215/60R16

Type of Spare Tire: Standard: P215/60R16

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
Two (2) Load Cells 3,000 lb Capability	S/N 203 5/02/03 & S/N 222 5/02/03
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	10/2/03 (S/N Y9502D001)
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		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	N/A		N/A
	Ctr				
	RH				
Diameter of the bar (mm)	LH	N/A	5.94	5.99	N/A
	Ctr		N/A		
	RH		6.01	5.94	
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	28	28	N/A
	Ctr		N/A		
	RH		32	32	

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	30	35	N/A
	Ctr		N/A		
	RH		30	35	
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		281		
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 (2nd Row)	PITCH (deg)	YAW (deg)	ROLL (deg)
LH	12.2	No Data	1.4 to I/B
Ctr.	N/A		N/A
RH	13.8		0.6 to O/B

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			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
	Ctr.										
	RH										
Second Row	LH	Fixed	Fixed	Yes	-10	3	172.2	5,150	5,167*	6	3
	Ctr.	Fixed	Fixed	Yes	-10	1	172.2	5,150	5,192*	7	6
	RH	Fixed	Fixed	Yes	-10	4	172.2	5,150	5,201*	9	5
Third Row	LH	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:

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

SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Type of SFAD used	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 ?		Vert. (deg.)	Horiz. (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	N/A
	Ctr.												
	RH												
Second Row	LH	Fixed	Fixed	Yes	2	N/A	10	53	405.5	10,950	11,260*	99	46
	Ctr.	Fixed	Fixed	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH	Fixed	Fixed	Yes	2	N/A	10	43	405.5	10,950	11,156*	103	60
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	N/A
	Ctr.												
	RH												

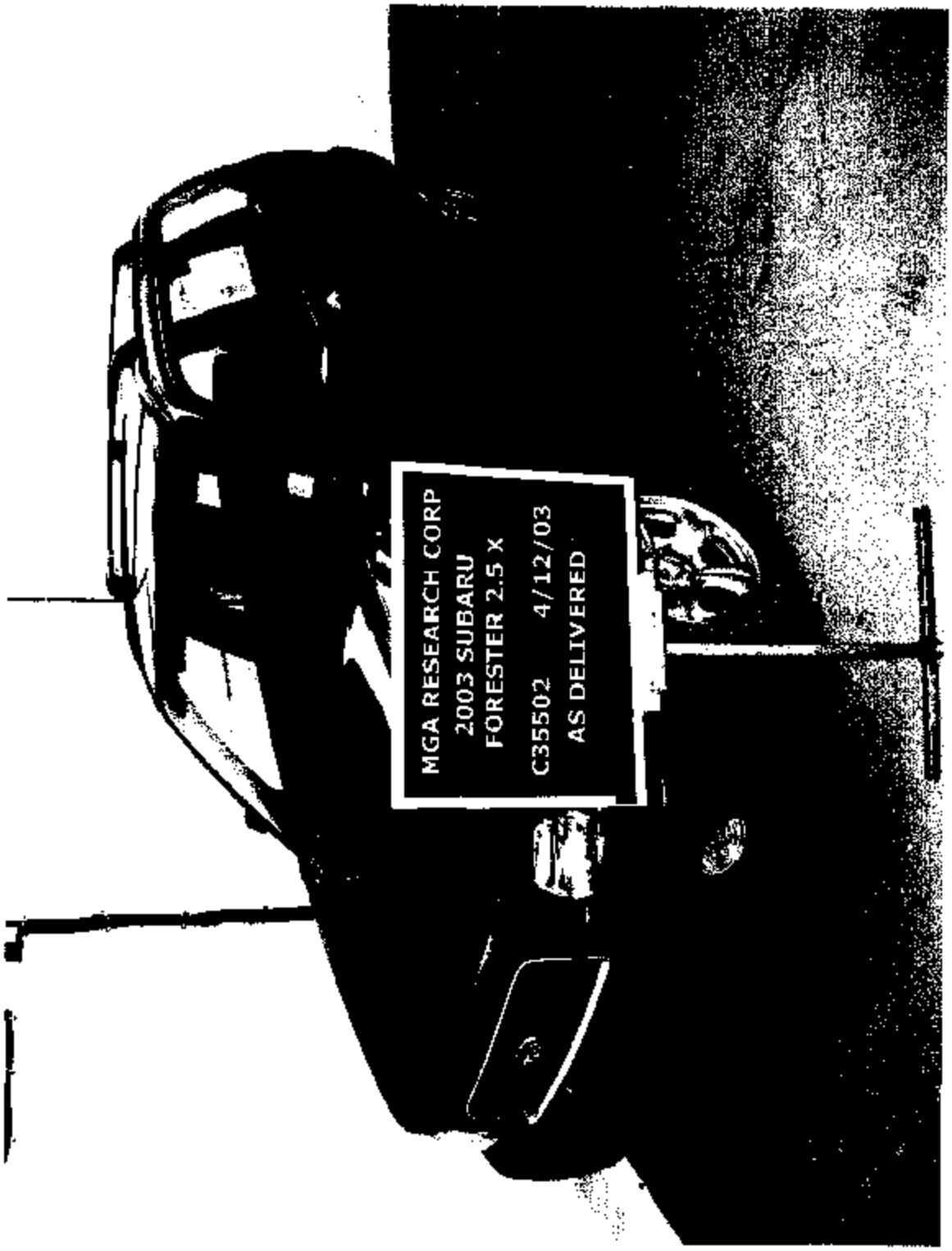
Note: (1) AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225L.
(2) FORWARD FORCE APPLICATION

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

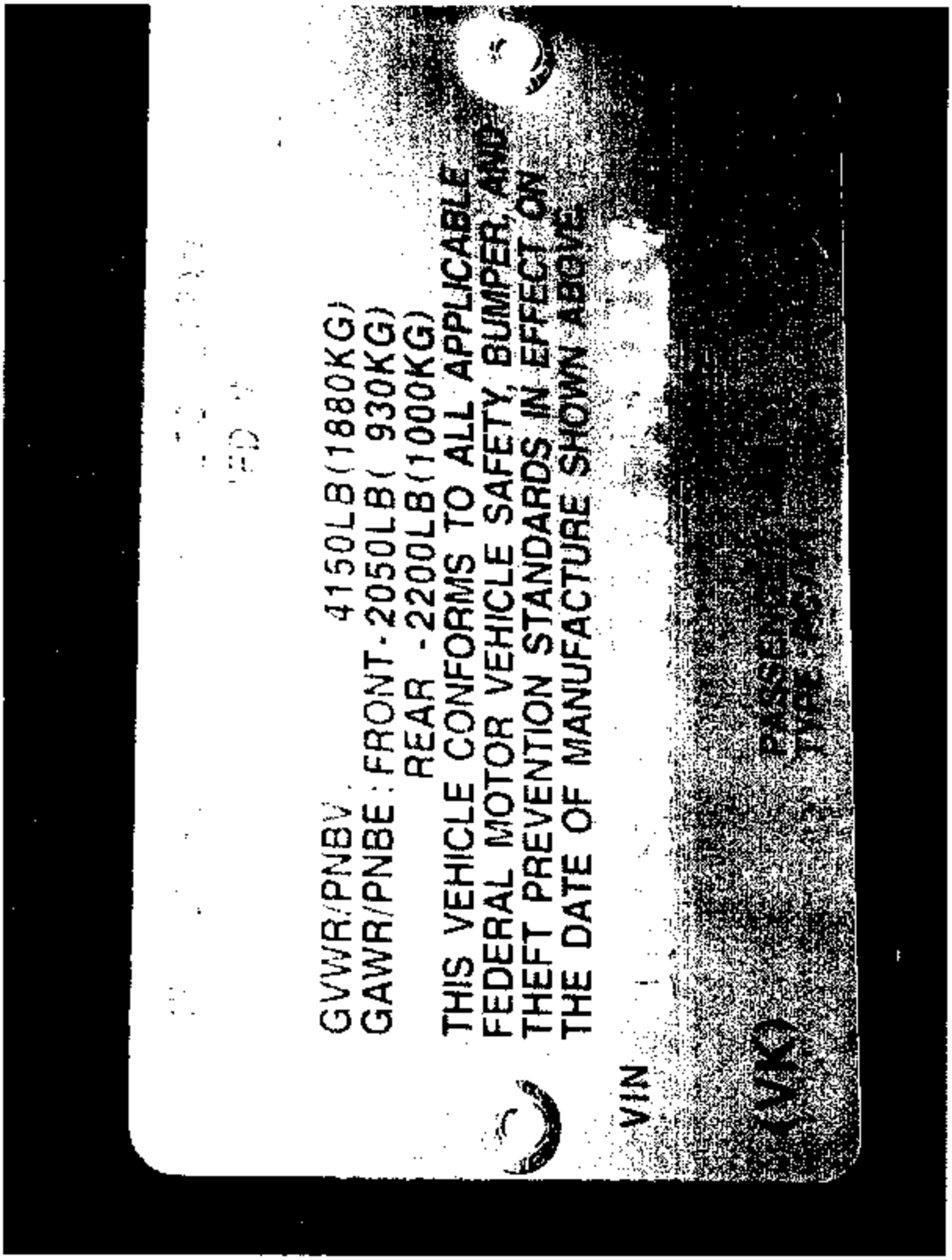
6.0 PHOTOGRAPHS

6.1 ¾ right rear view

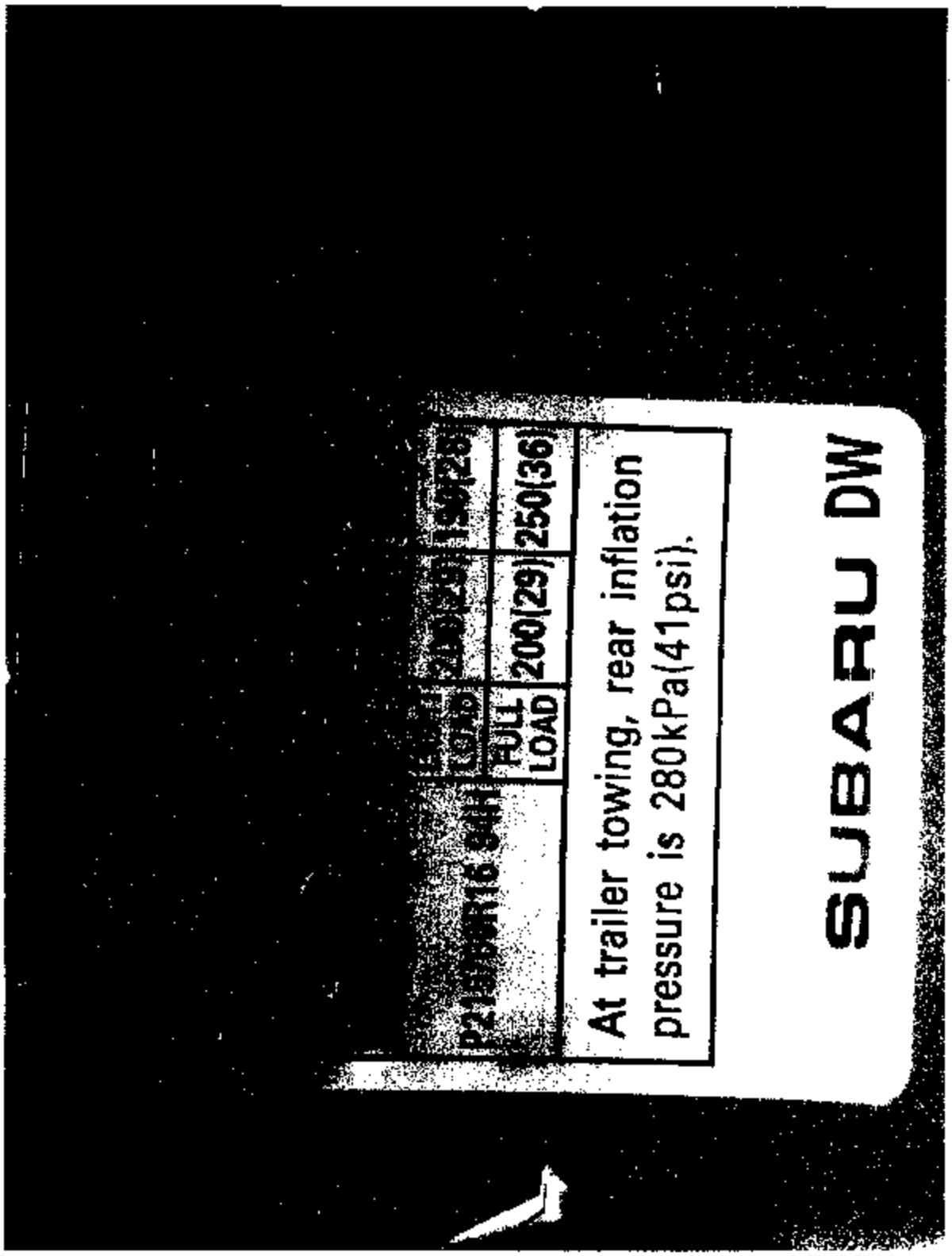
6.2 ¾ left front view



6.3 Test vehicle's certification label



6.4 Test vehicle's tire information placard

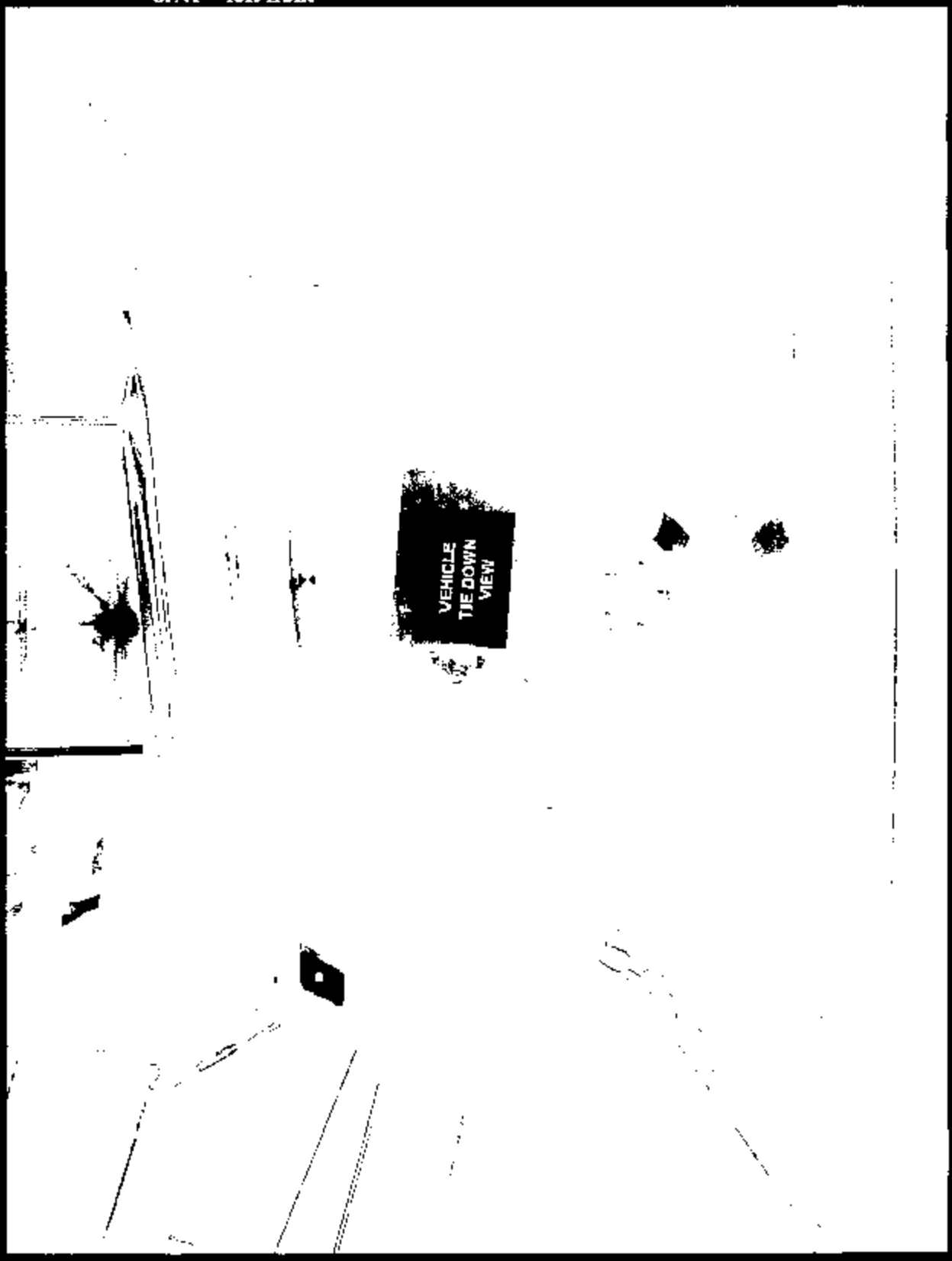


6.5 ¾ Frontal left side view of test vehicle with test apparatus in place

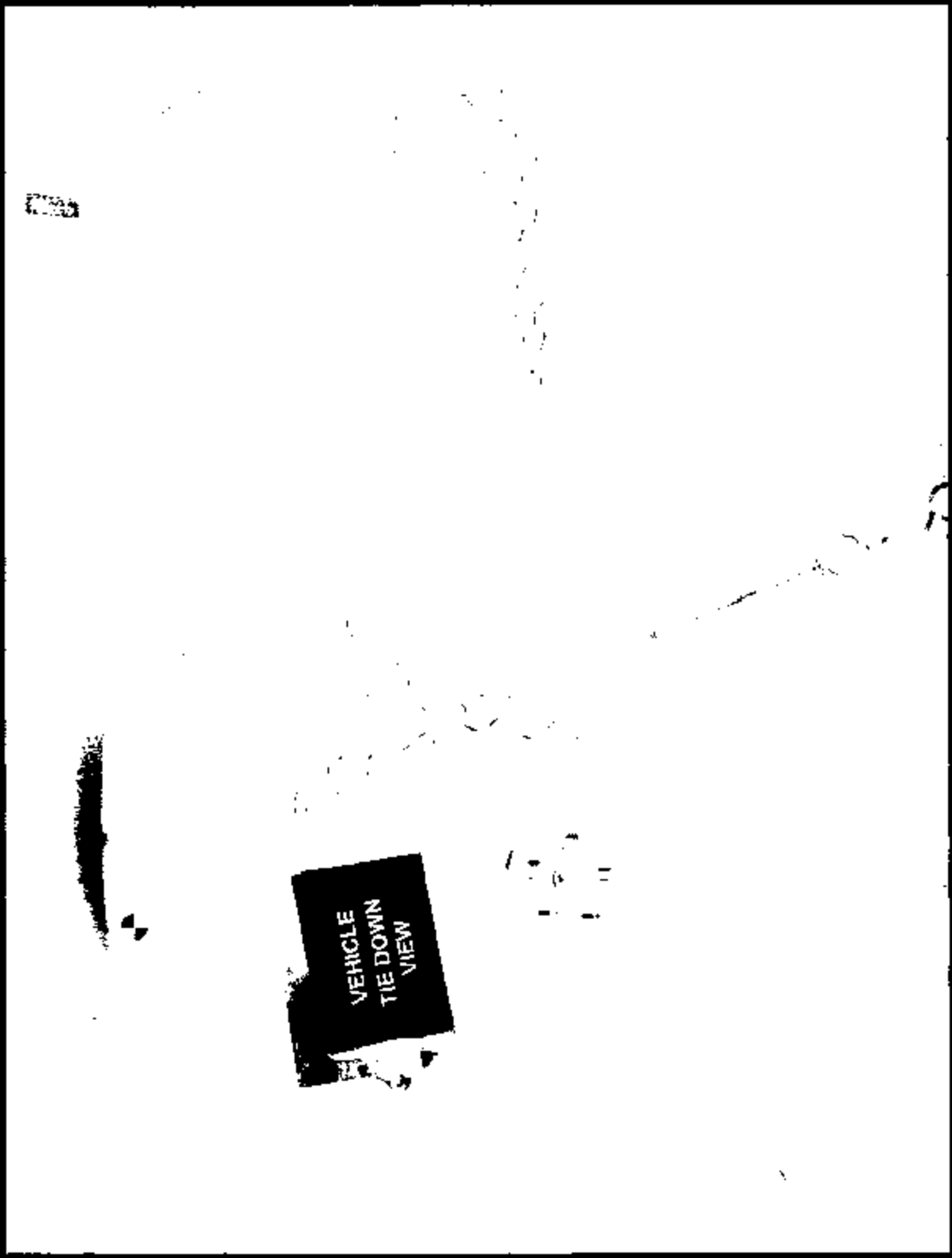
6.6 Right side view of test vehicle with test apparatus in place

6.7 Vehicle tie down at each tie down location

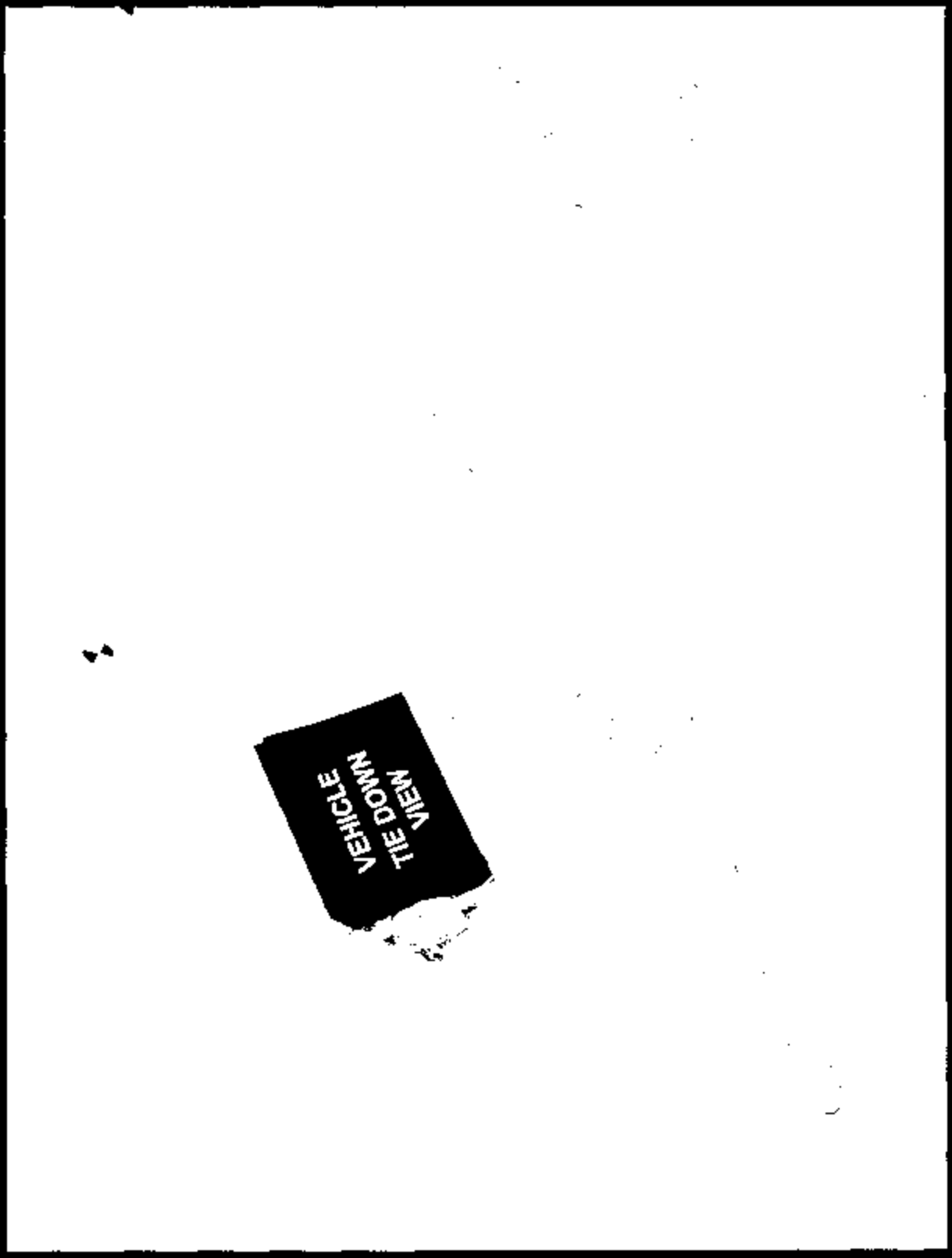
6.7.1 left front



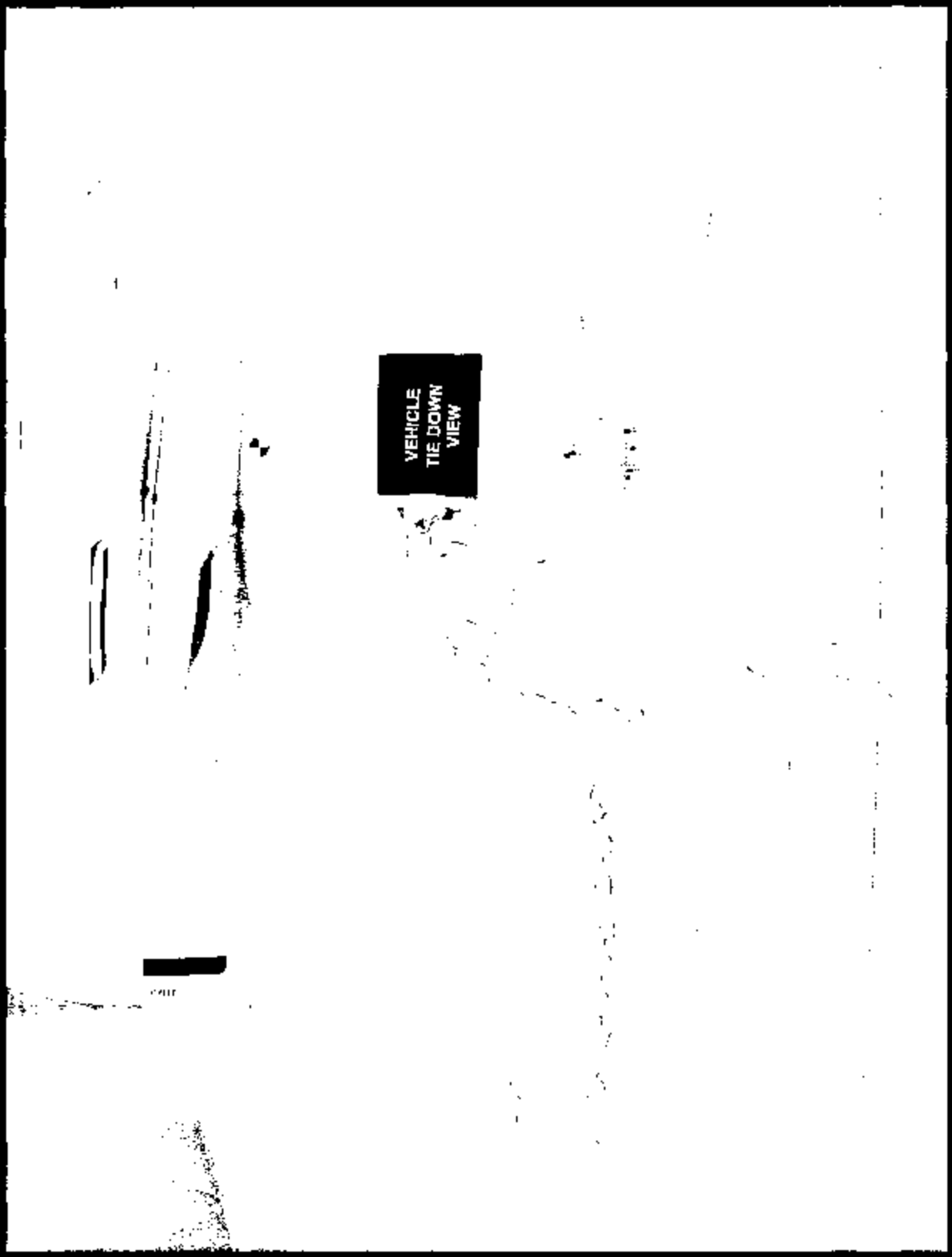
6.7.2 left rear



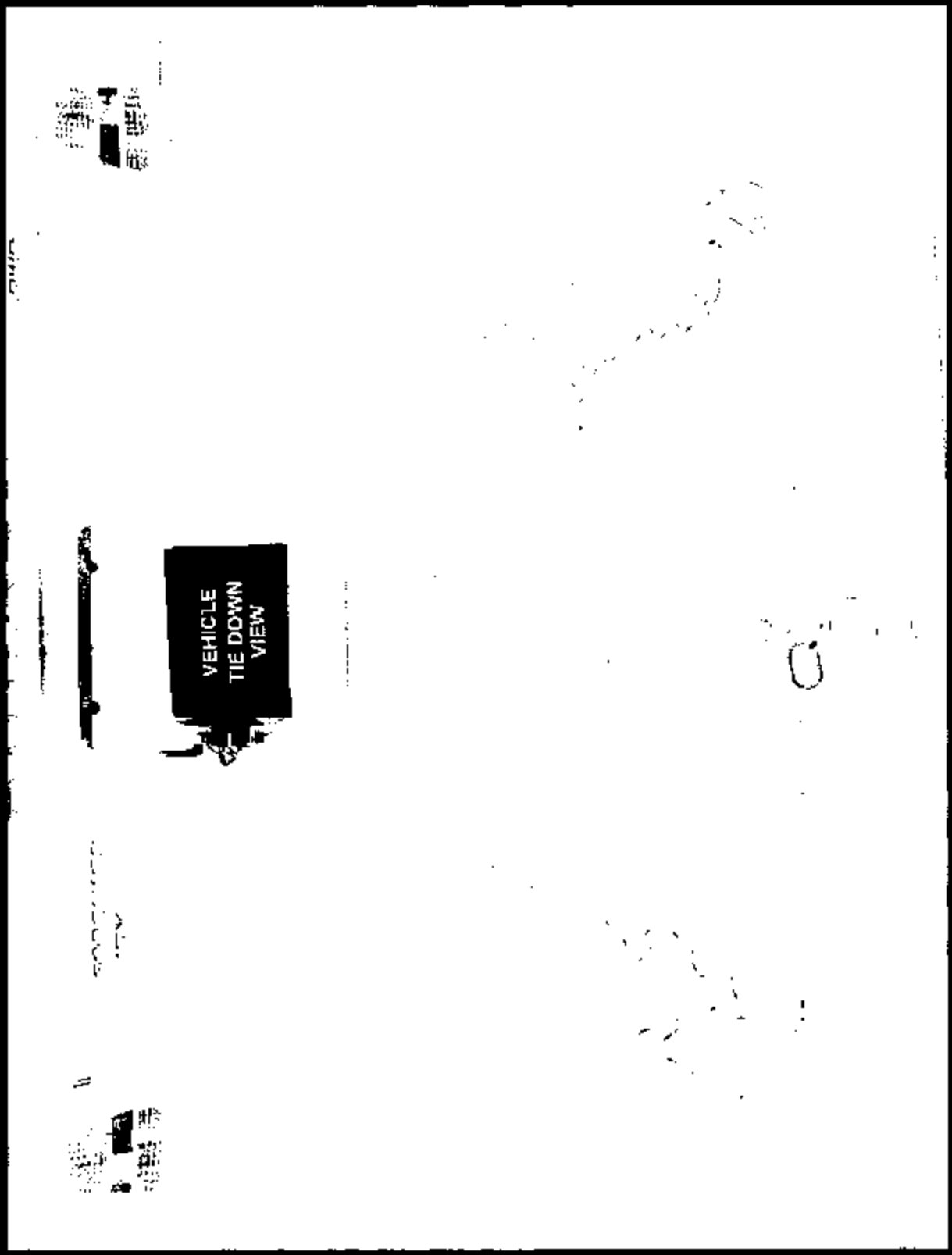
6.7.3 right front



6.7.4 right rear

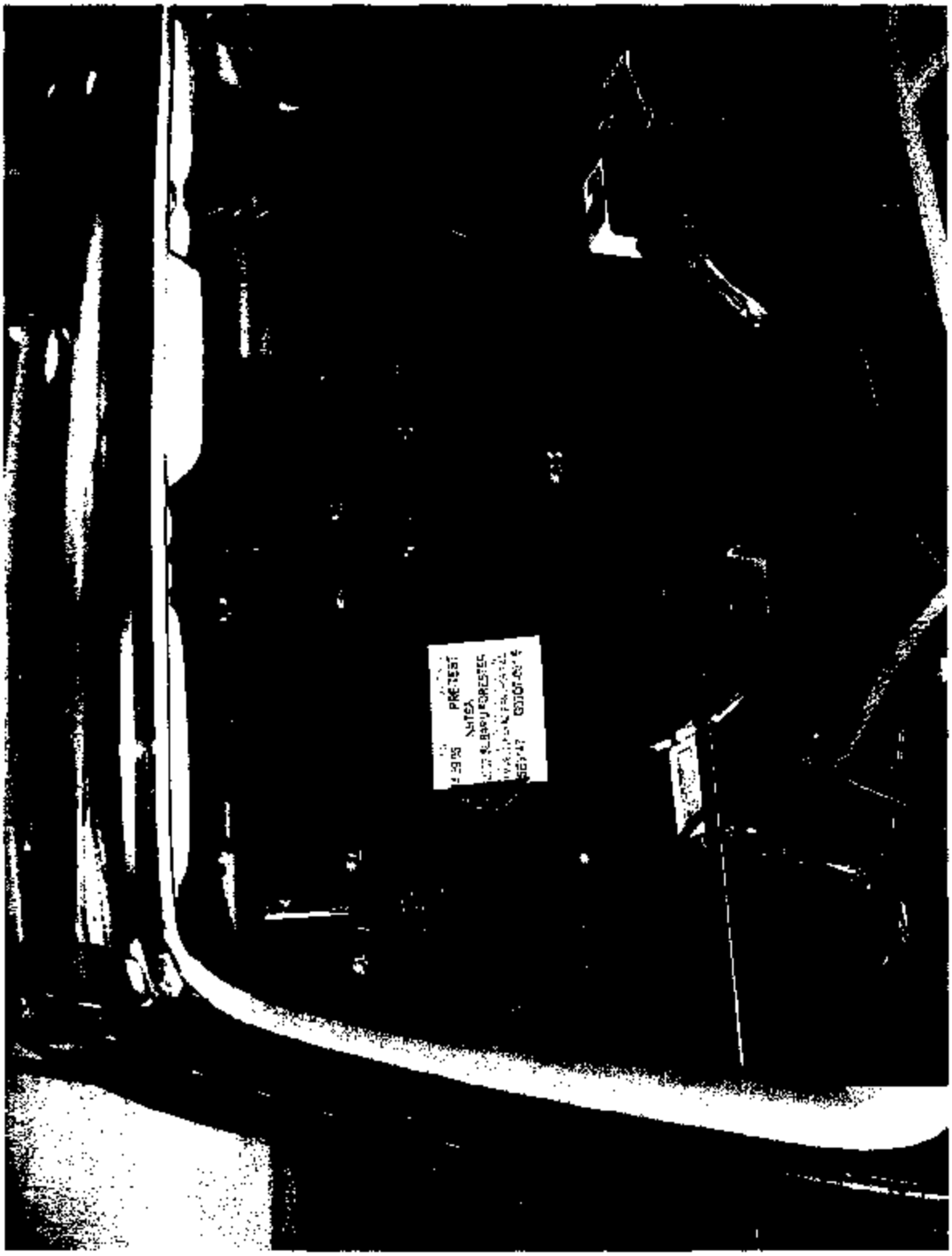


6.7.5 rear under vehicle

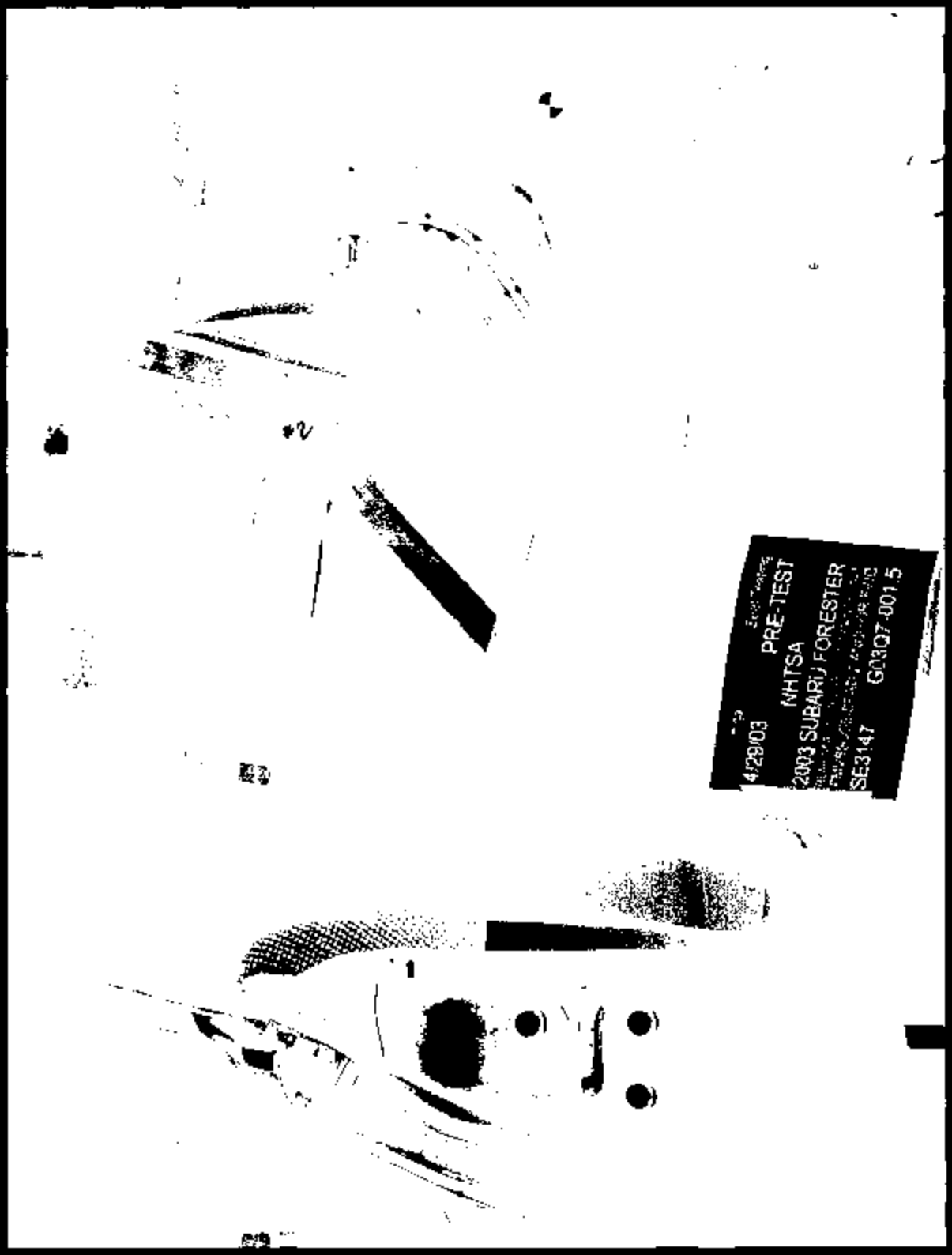


6.8 Pre-test views of each child restraint anchorage system installed in the vehicle

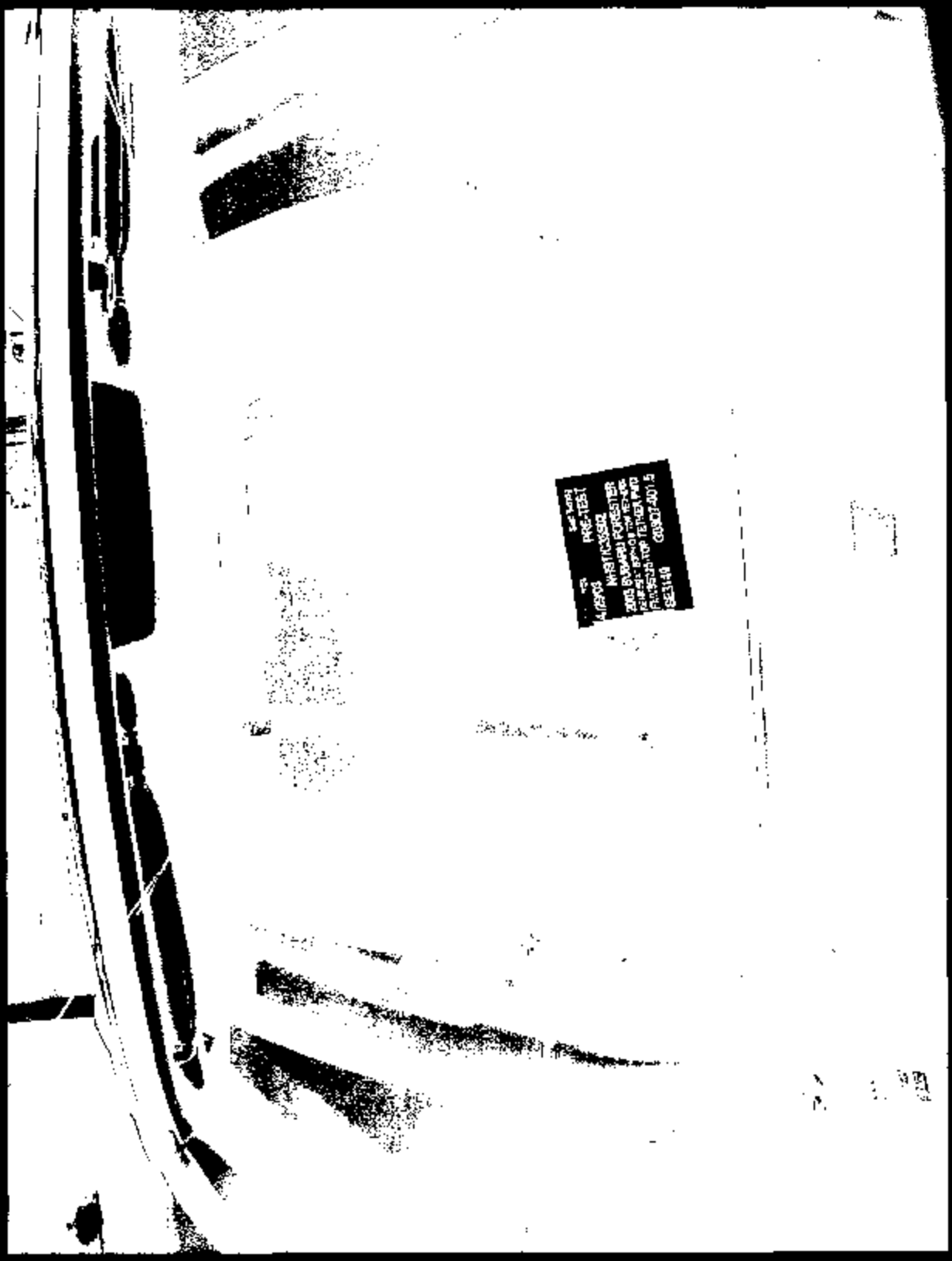
6.8.1 pre-forward SFAD II test 1 of 2



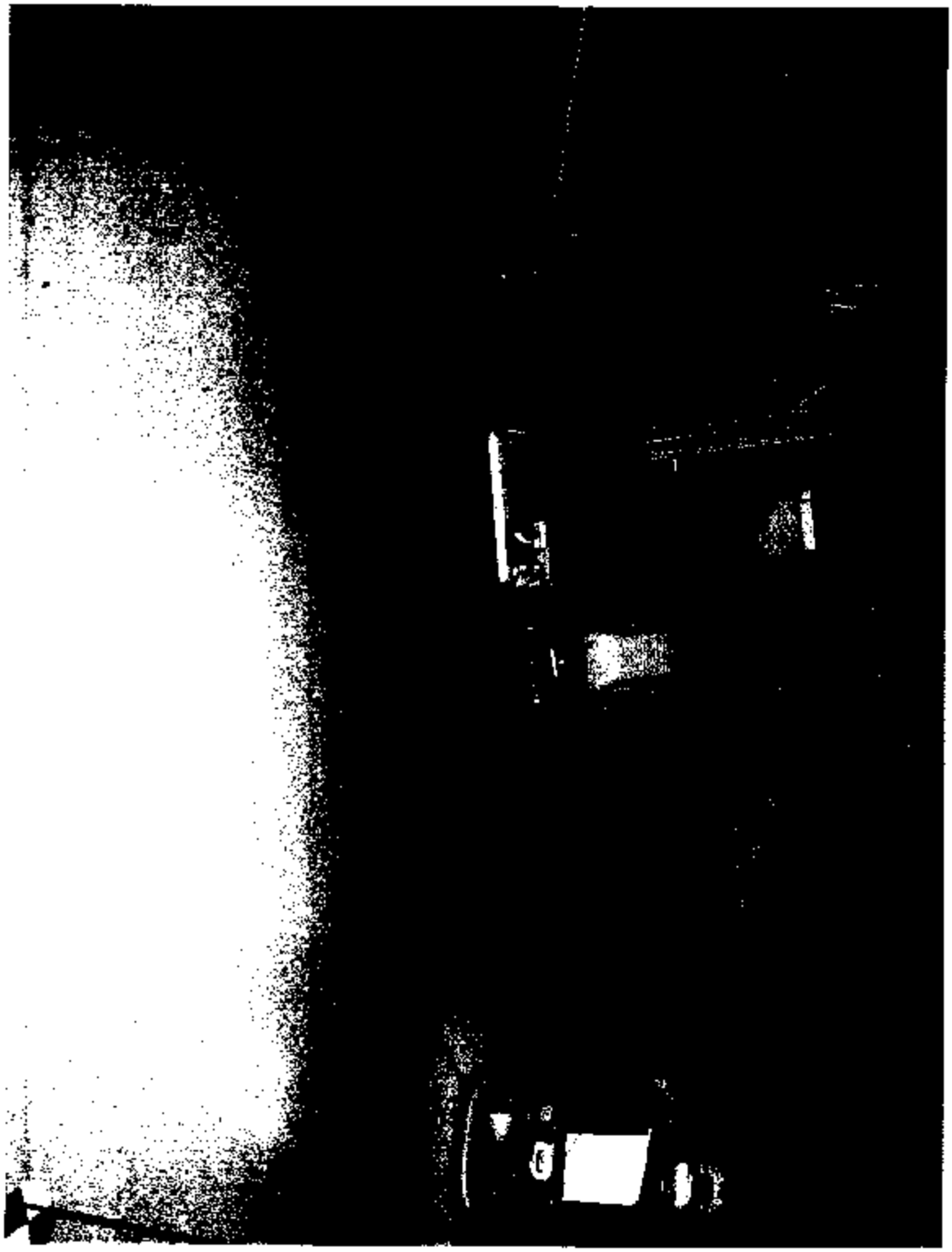
6.8.2 pre-forward SFAD II test 2 of 2



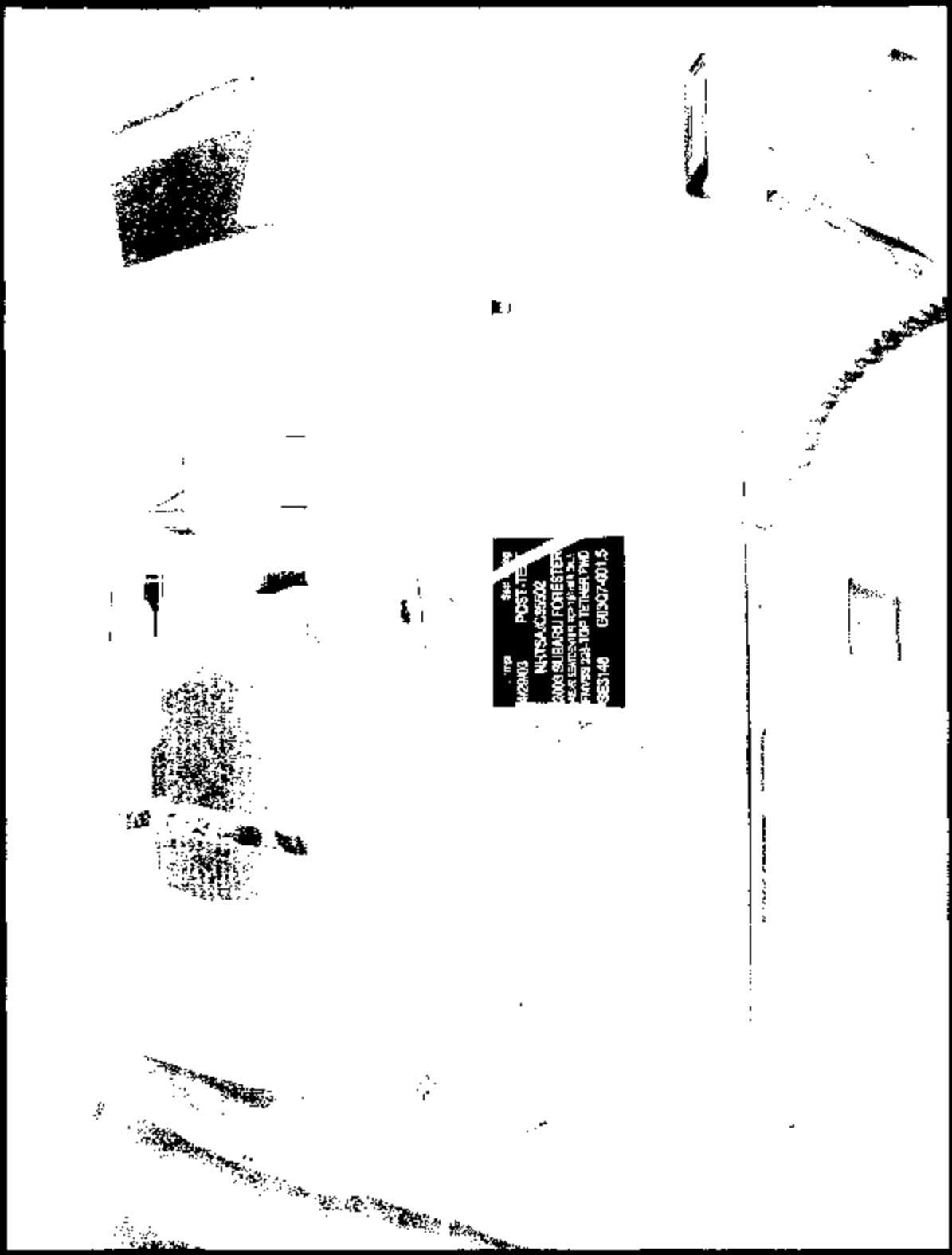
6.8.3 pre-forward outboard tethers test 1 of 2



6.8.4 pre-forward outboard tethers test 2 of 2

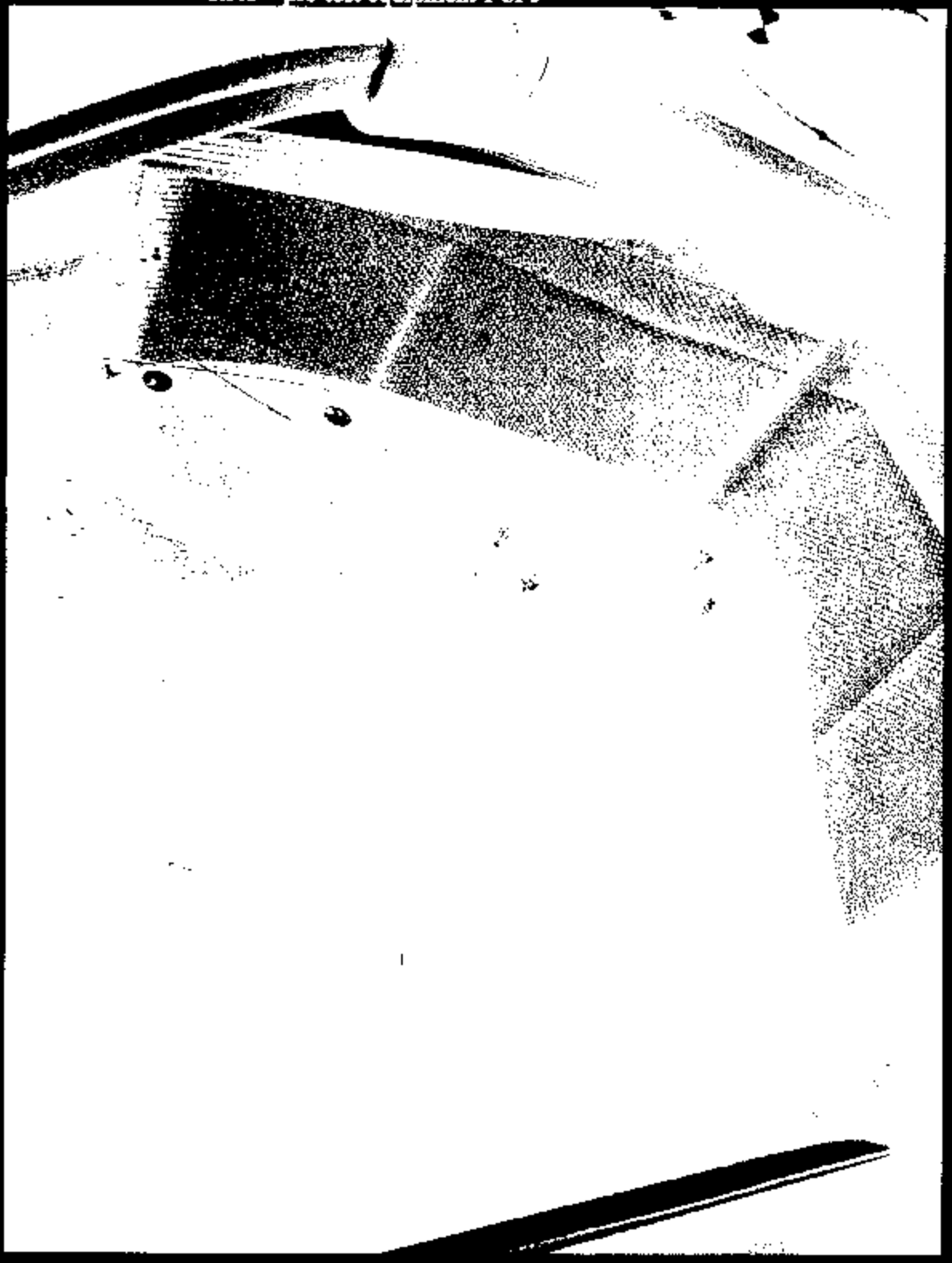


6.8.5 pre-forward center tether 1 of 1

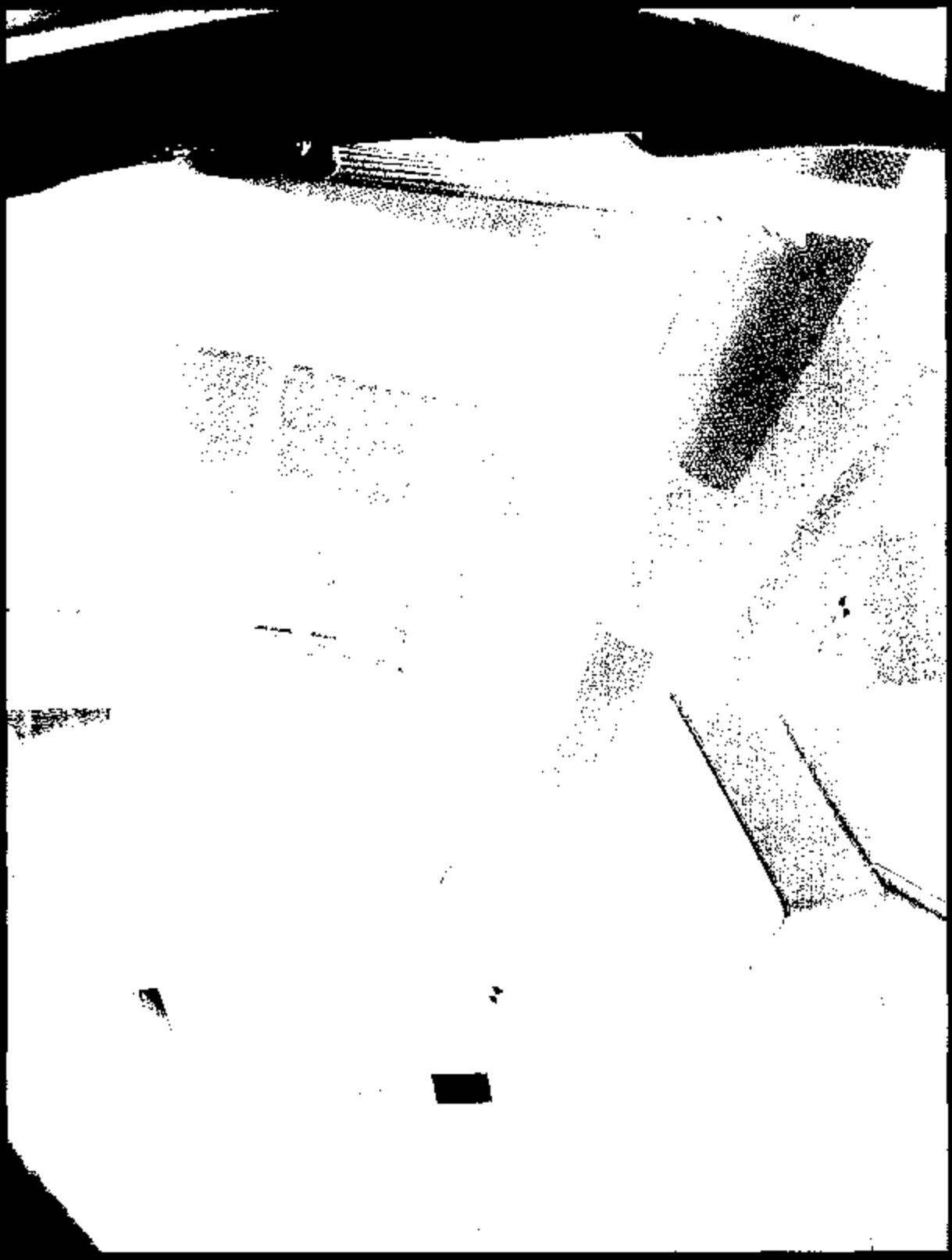


6.9 Pre-test equipment set up at each designated seating position & loading device with load cell and the test fixture in test position

6.9.1 pre-test equipment 1 of 5

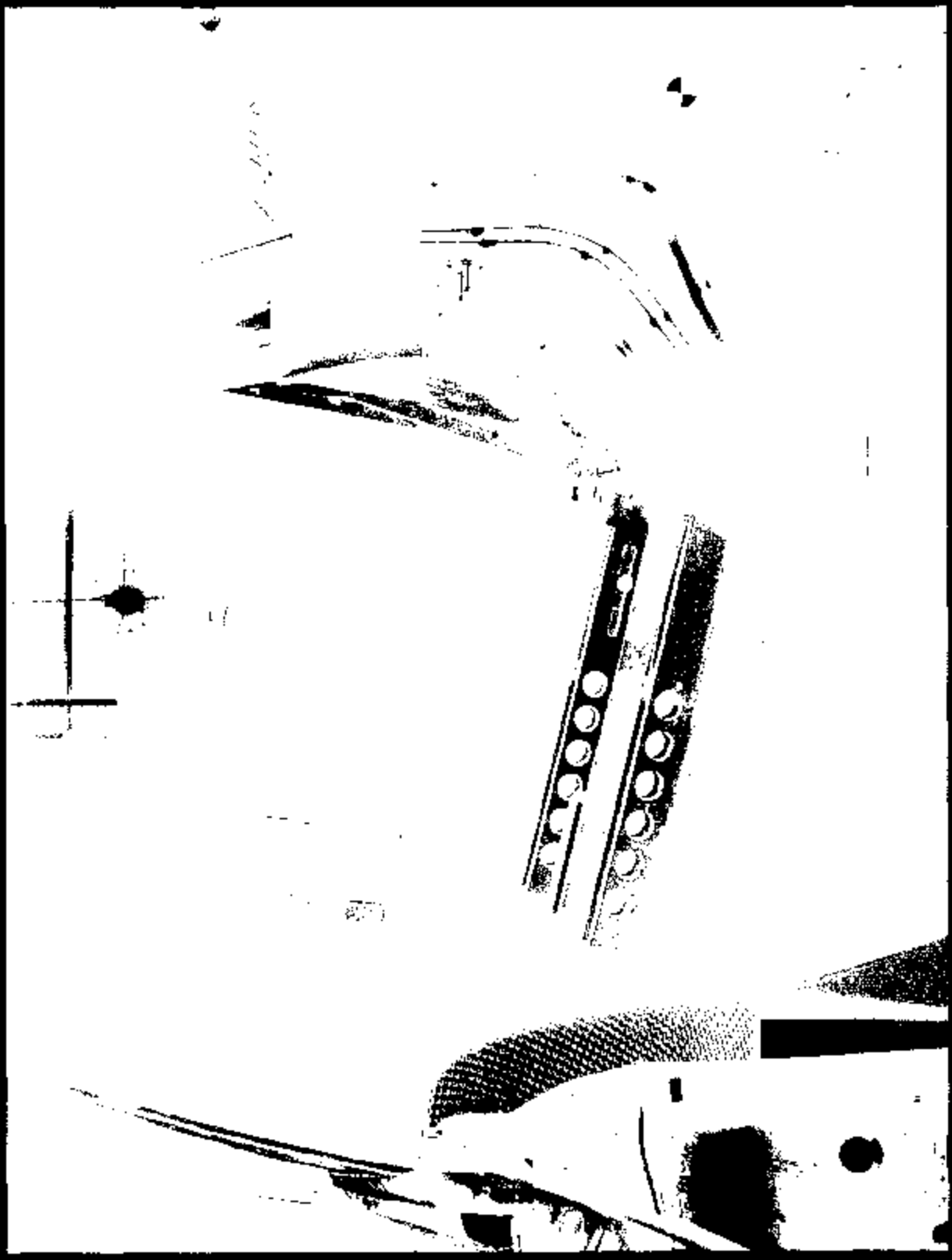


6.9.2 pre-test equipment 2 of 5

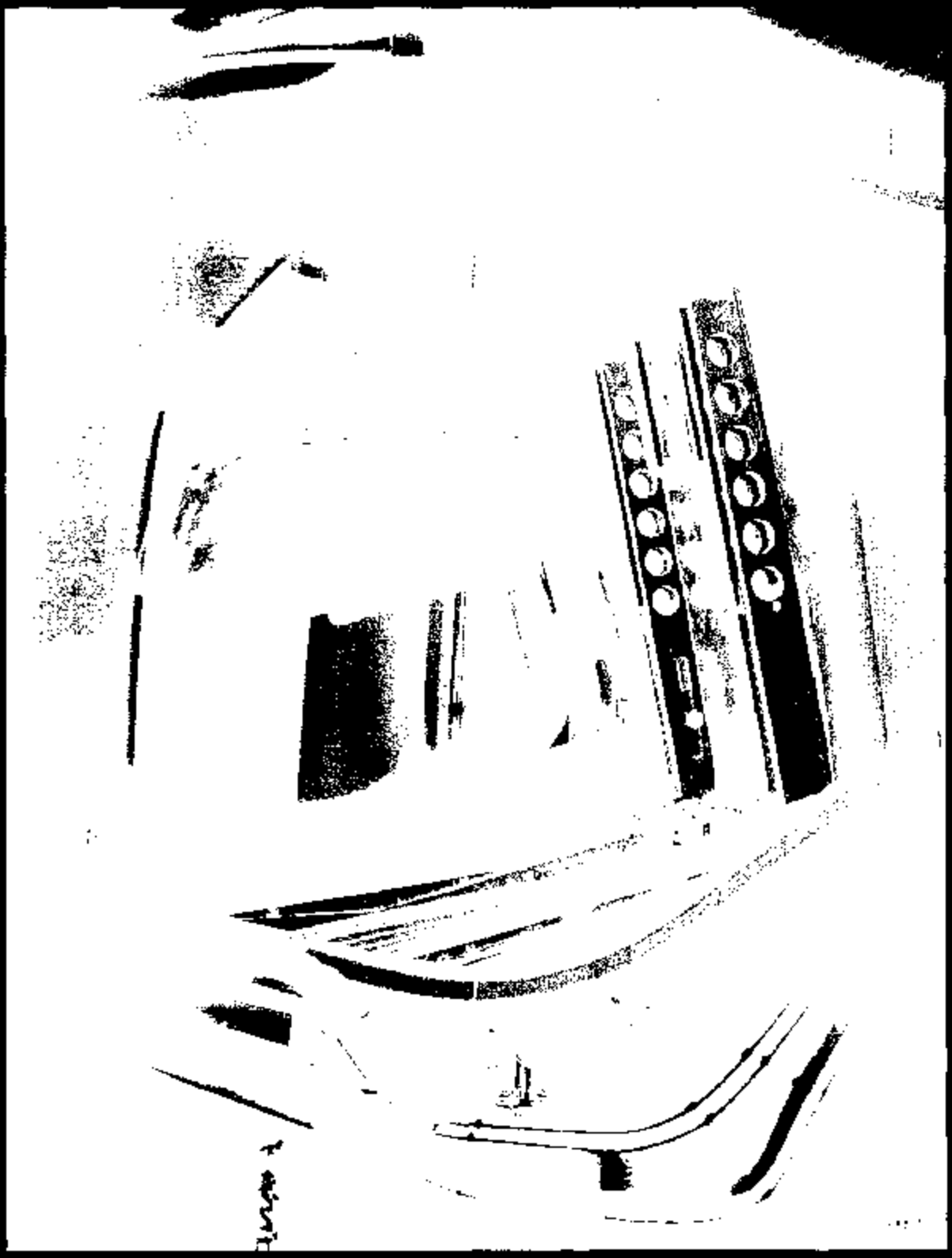


6.9.3 pre-test equipment 3 of 5

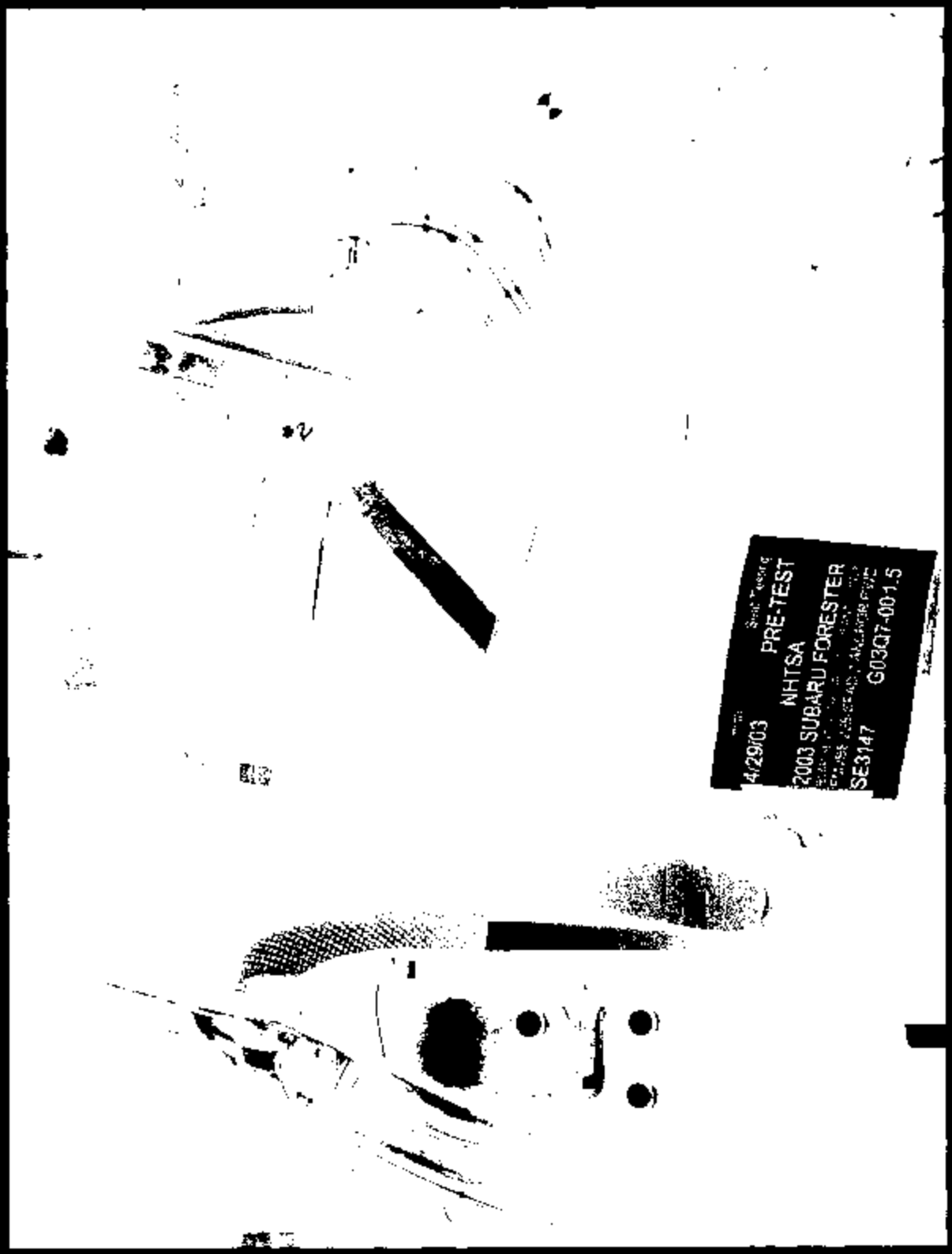
6.9.4 pre-test equipment 4 of 5



6.9.5 pre-test equipment 5 of 5

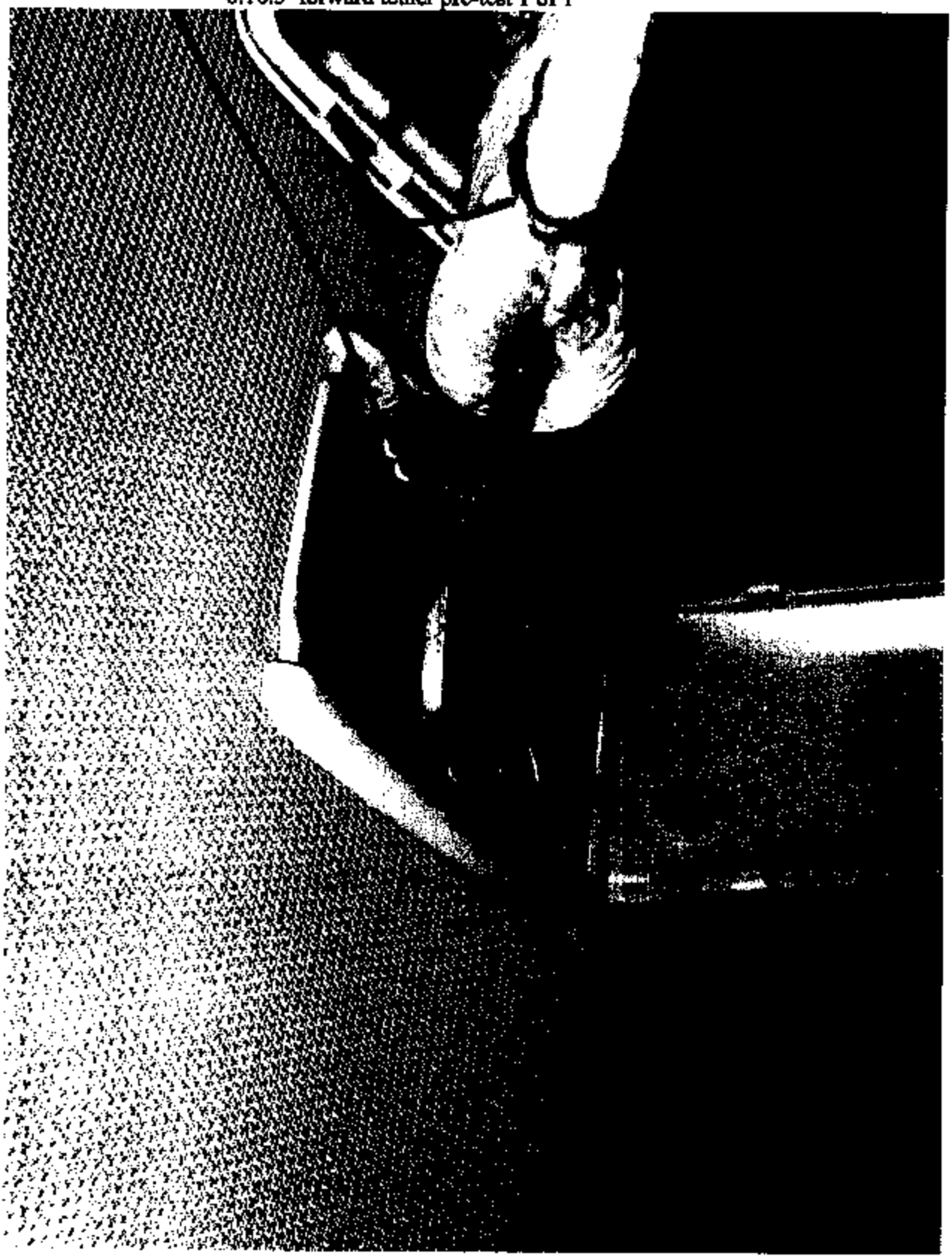


6.10 Load system control and data recording device in test position
6.10.1 forward SFAD II test 1 of 2



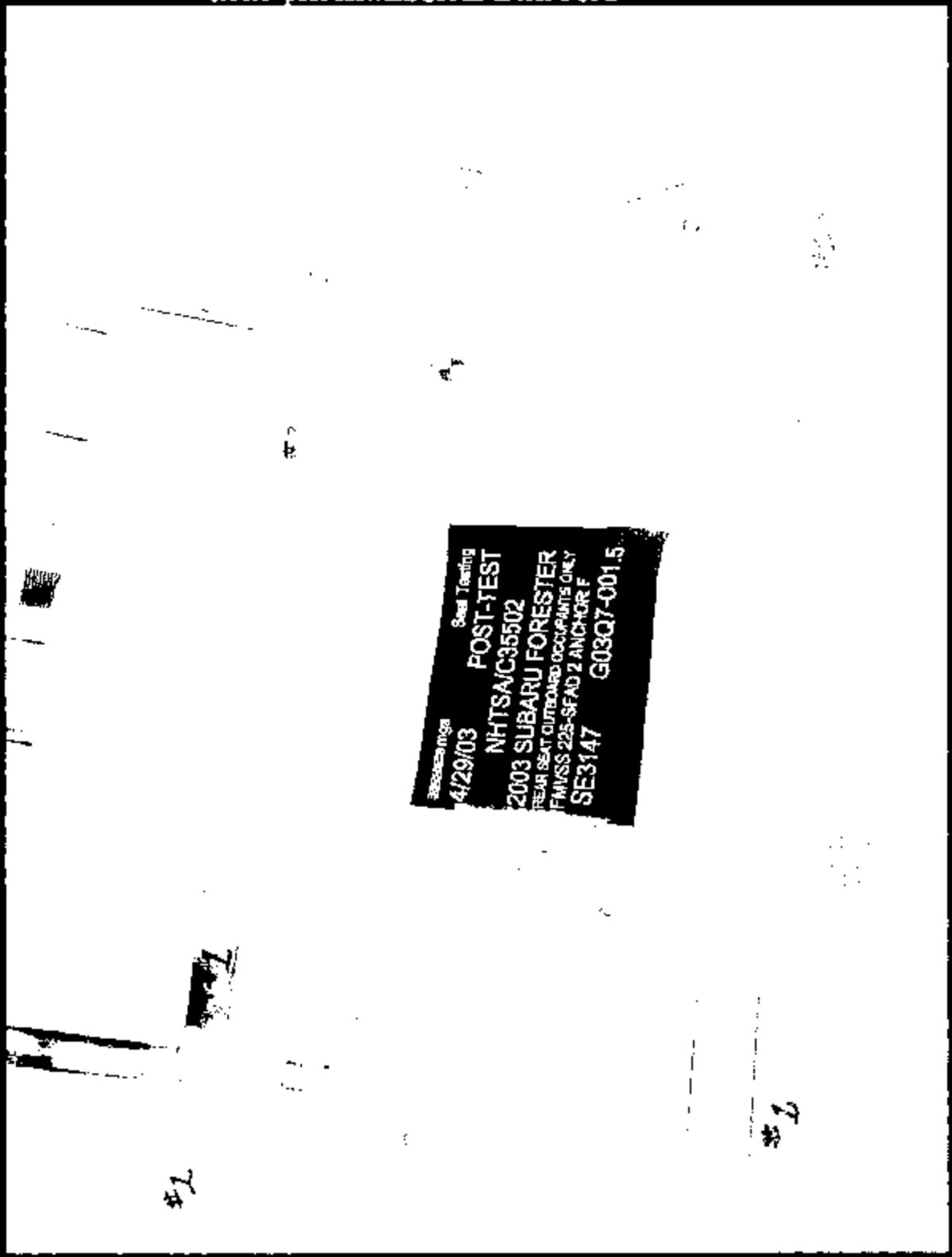
6.10.2 forward SFAD II pre-test 2 of 2

6.10.3 forward tether pre-test 1 of 1

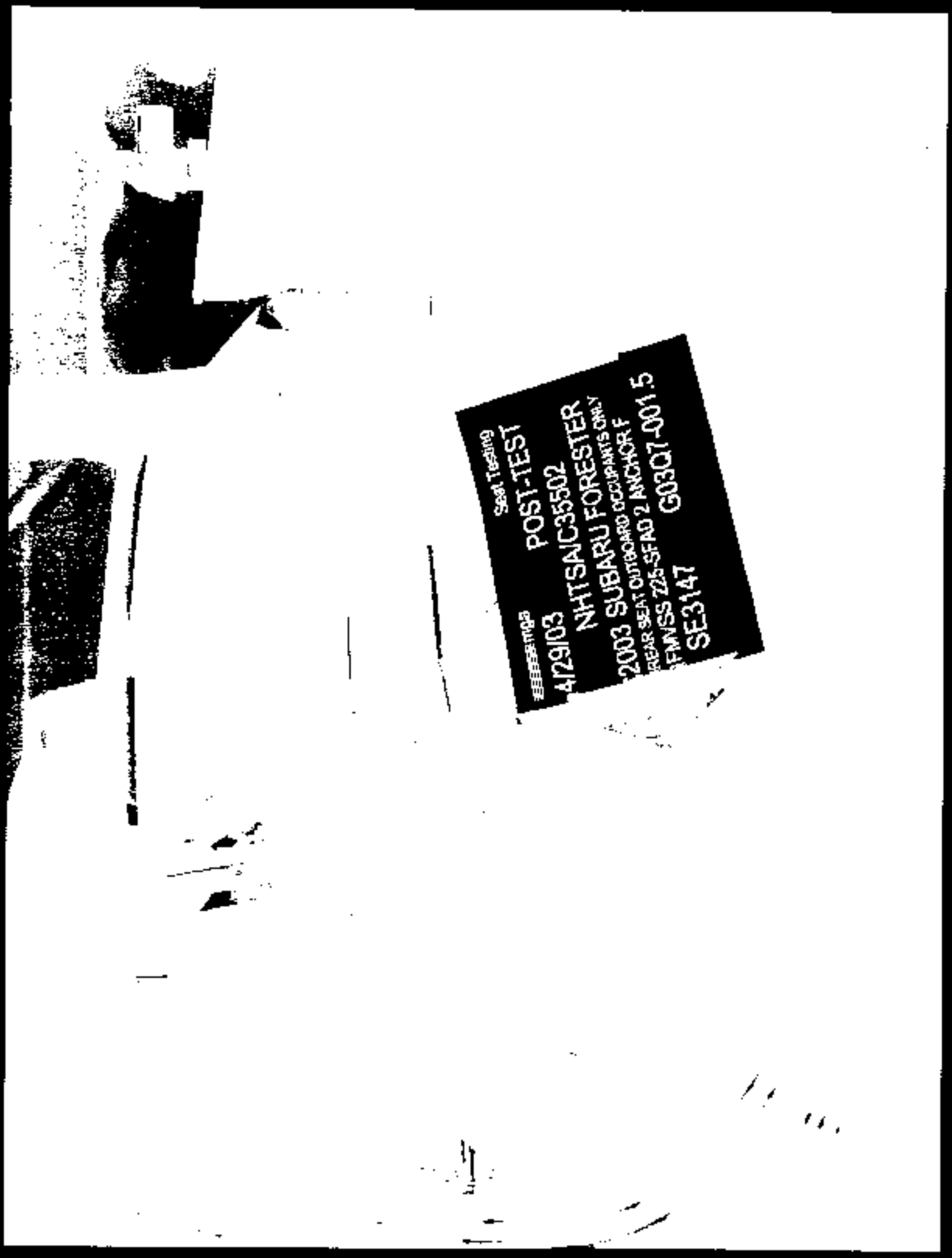


6.11 Post-test condition of each child restraint anchorage system

6.11.1 post-forward SFAD II test 1 of 2

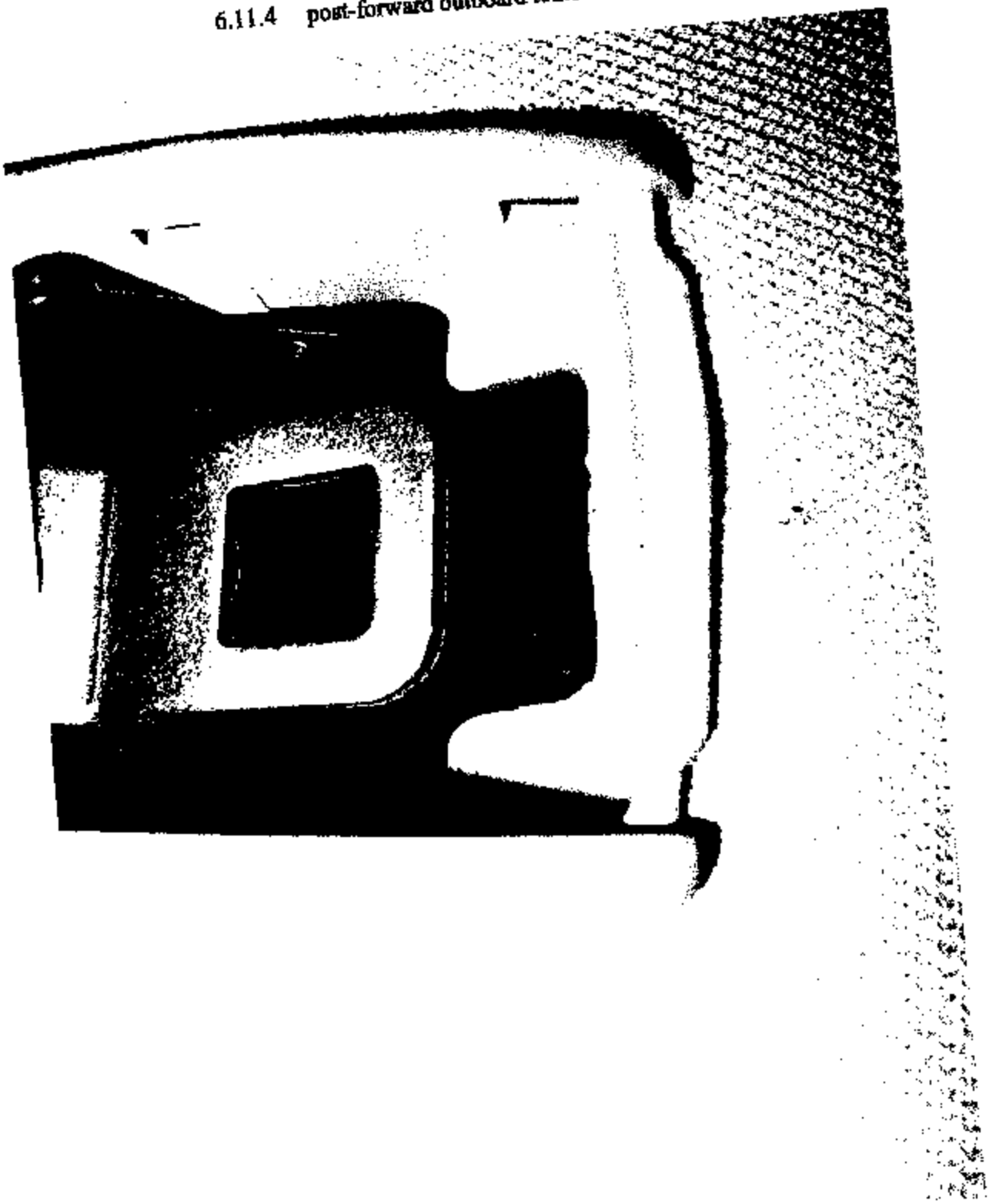


6.11.2 post-forward SFAD II test 2 of 2



6.11.3 post-forward outboard tethers test 1 of 6

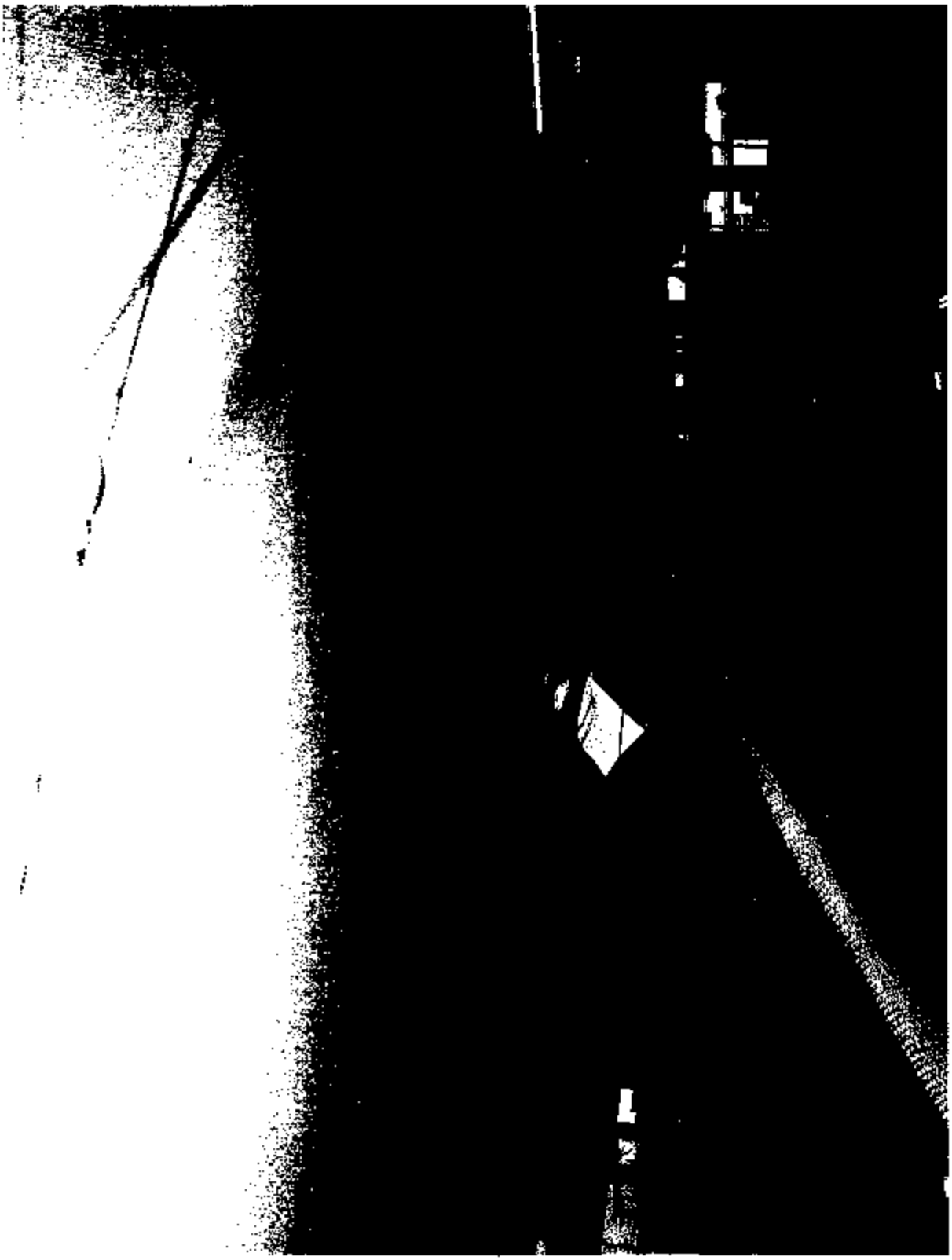
6.11.4 post-forward outboard tethers test 2 of 6



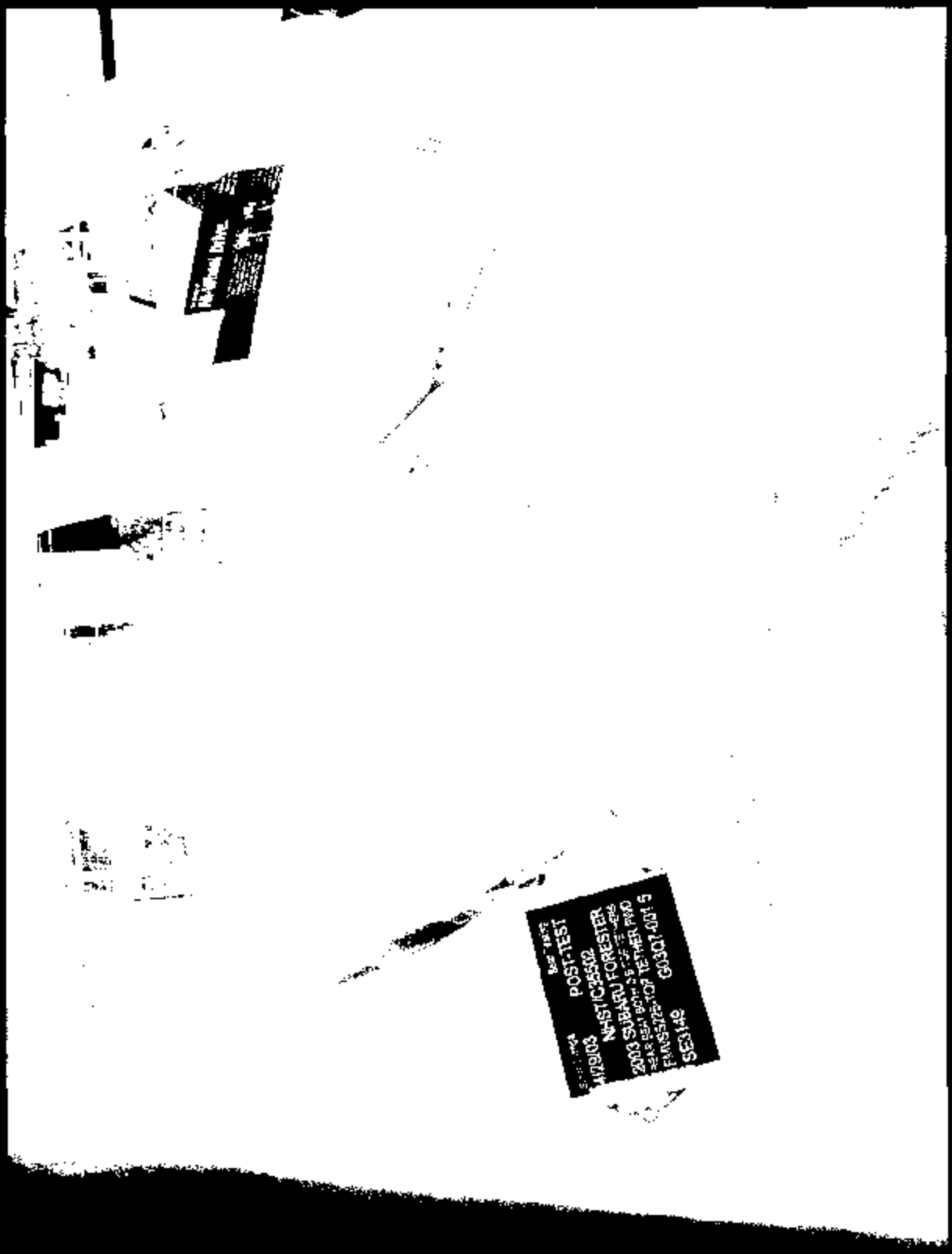
6.11.5 post-forward outboard tethers test 3 of 6

6.11.6 post-forward outboard tethers test 4 of 6

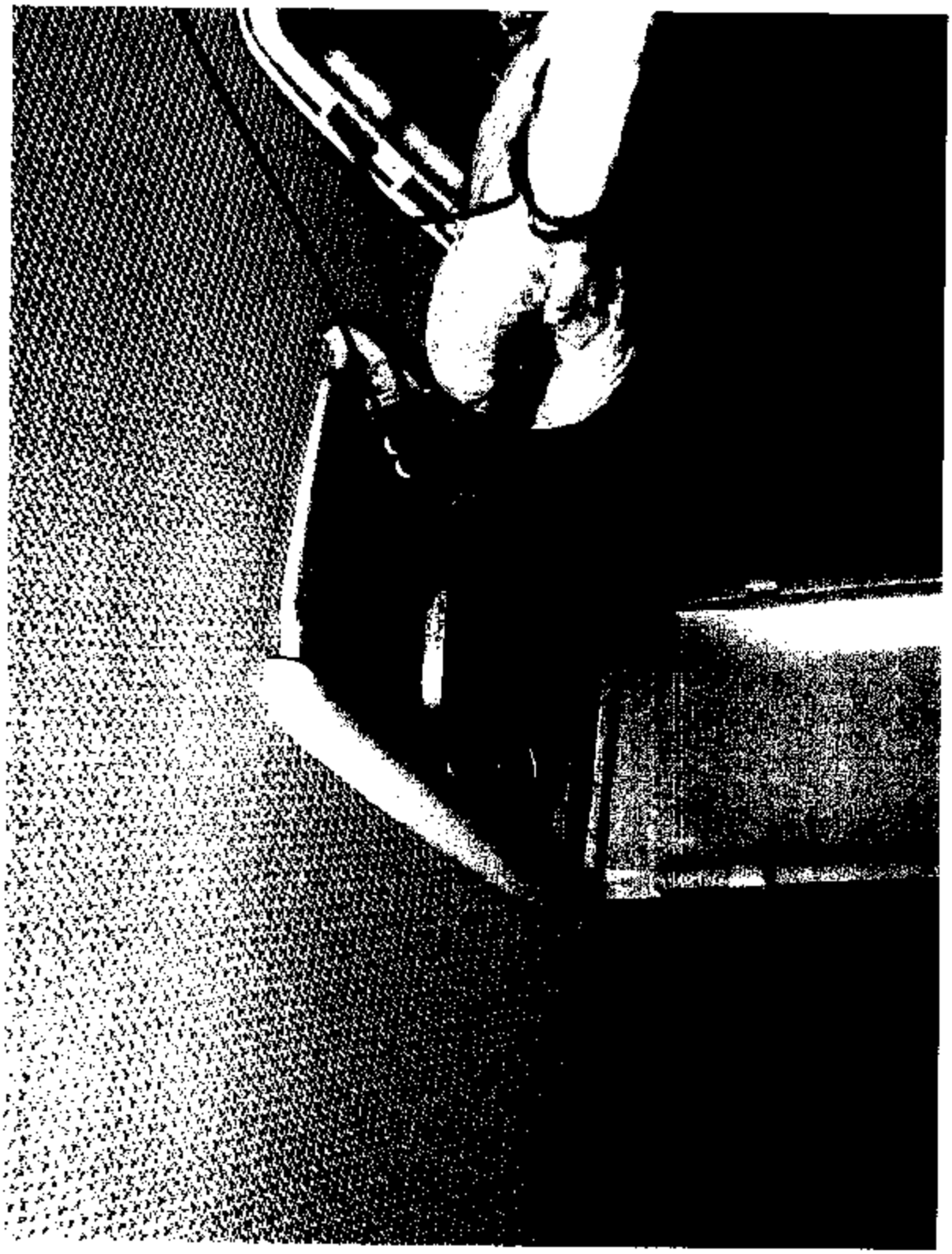
6.11.7 post-forward outboard tethers test 5 of 6



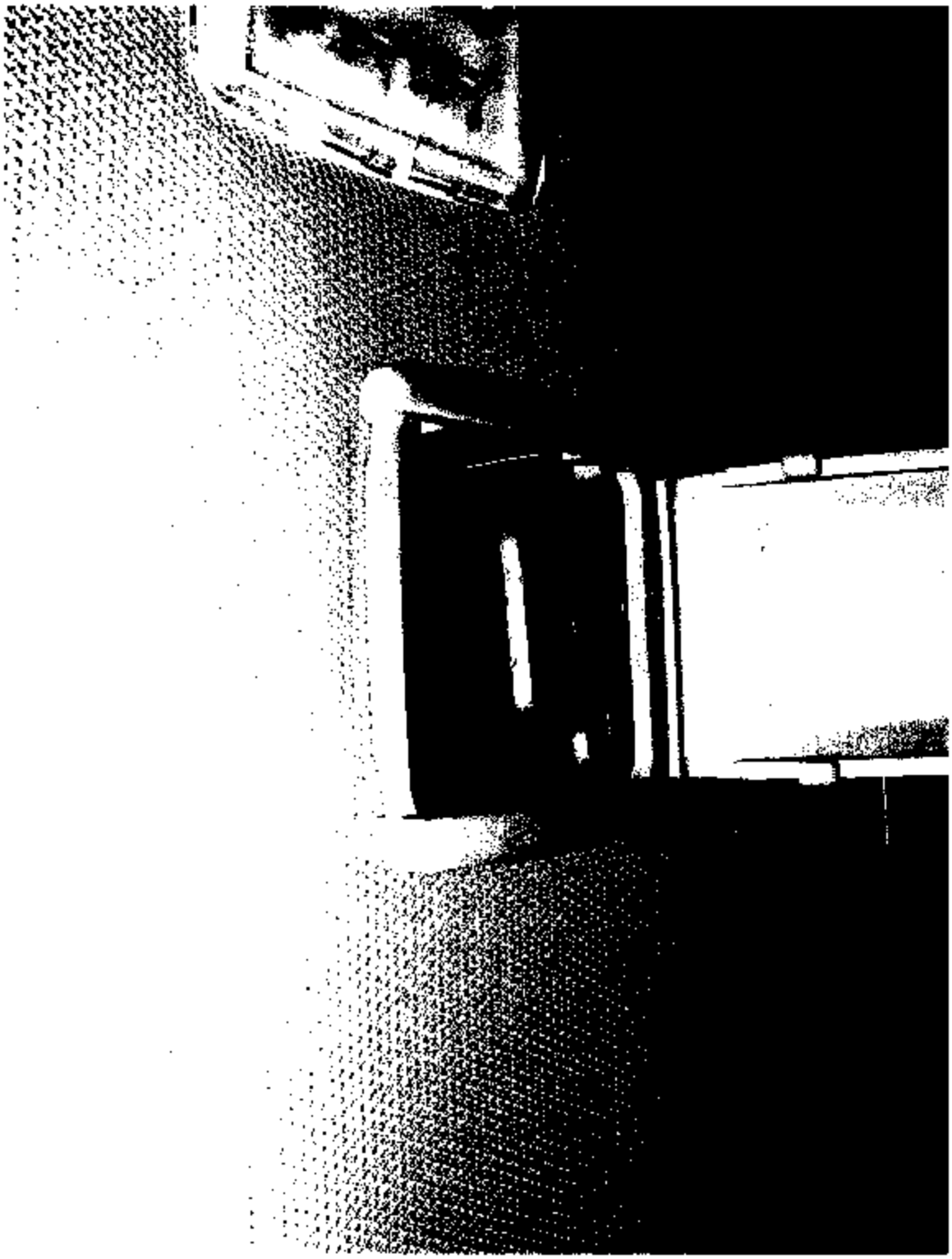
6.11.8 post-forward outboard tethers test 6 of 6



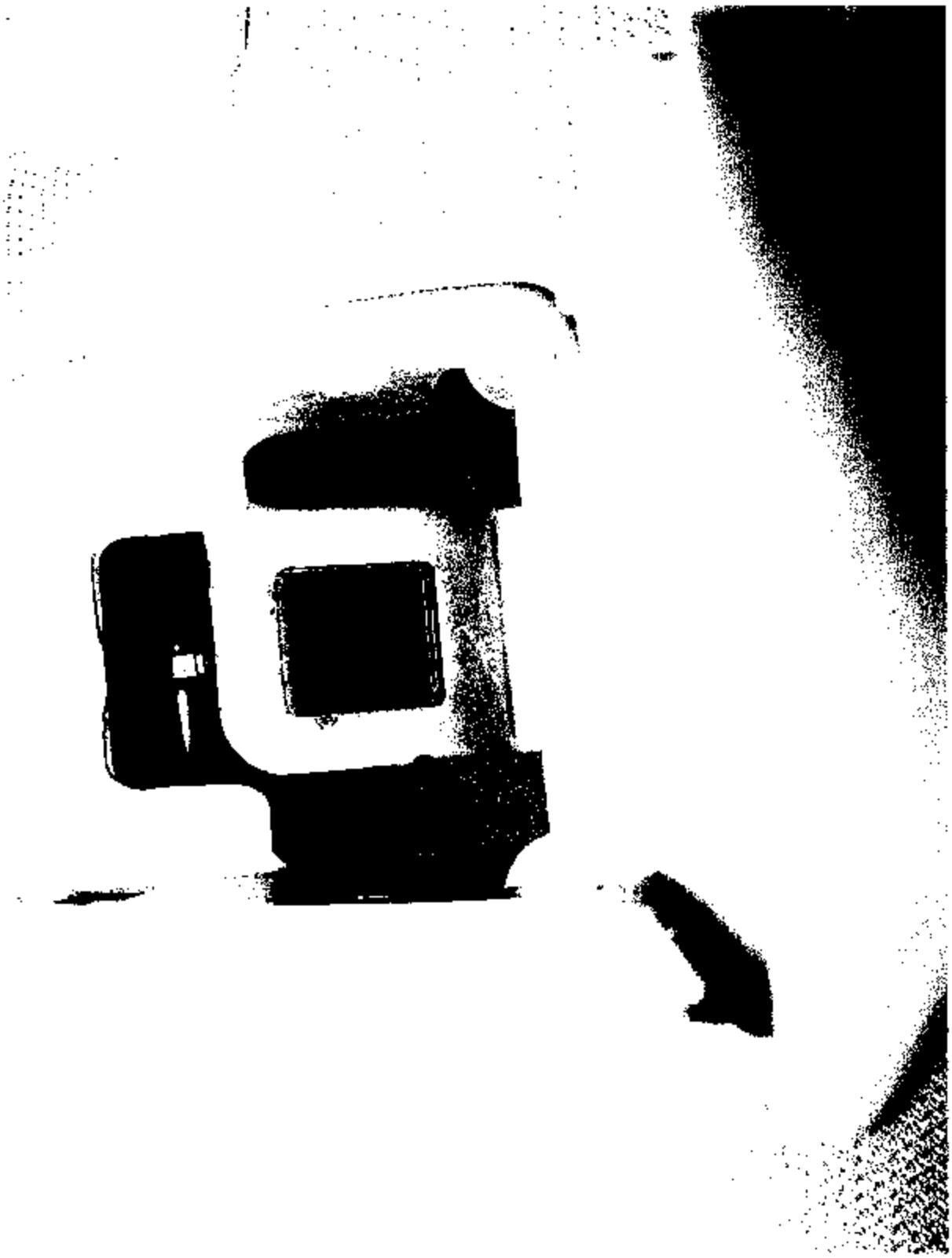
6.11.9 post-forward center tether test 1 of 3



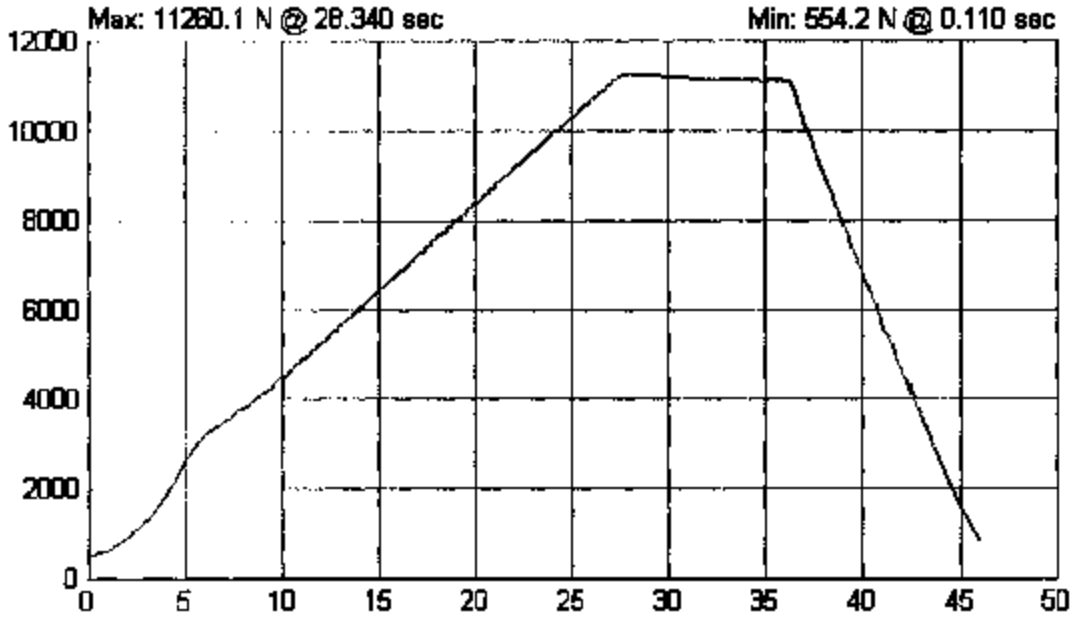
6.11.10 post-forward center tether test 2 of 3



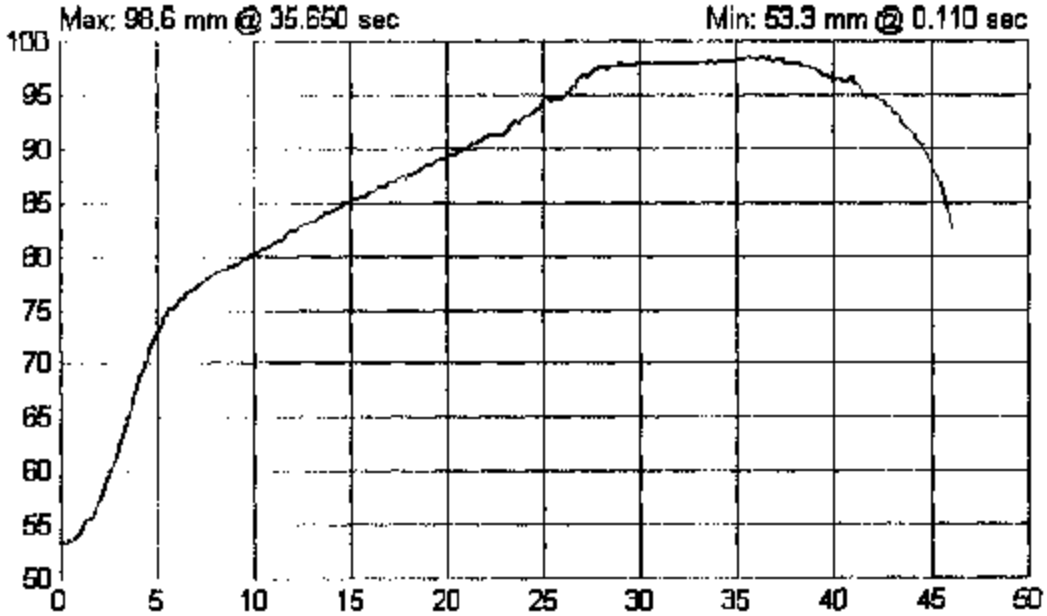
6.11.11 post-forward center tether test 3 of 3



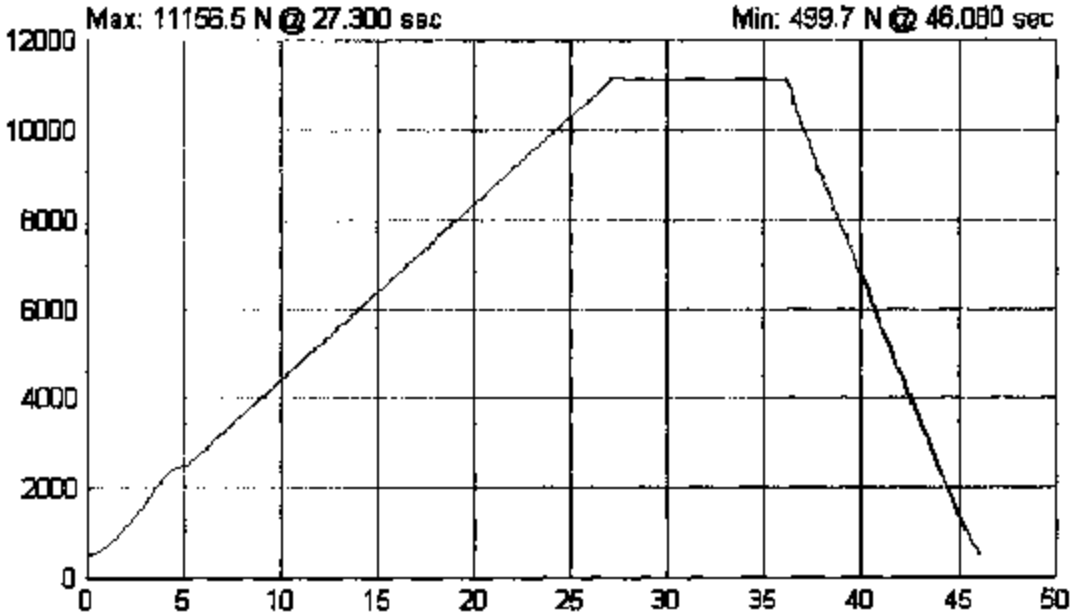
7.0 PLOTS



Run# SE3147: Forward Lower Anchor Test (S11)-LH Load (N) vs. Time (sec)



Run# SE3147: Forward Lower Anchor Test (S11)-LH SFAD2 X Disp. (mm) vs. Time (sec)



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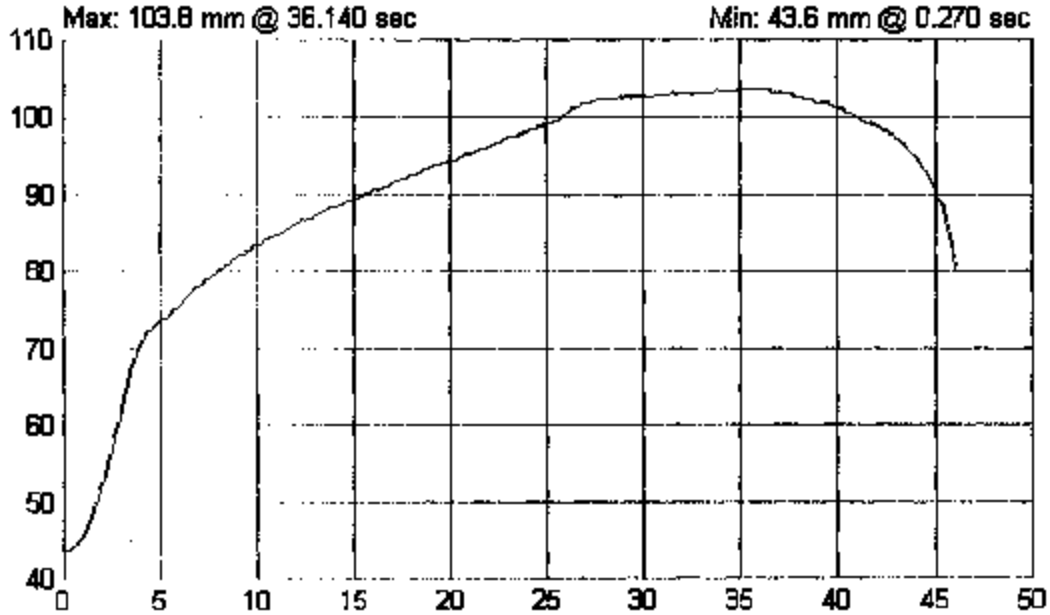
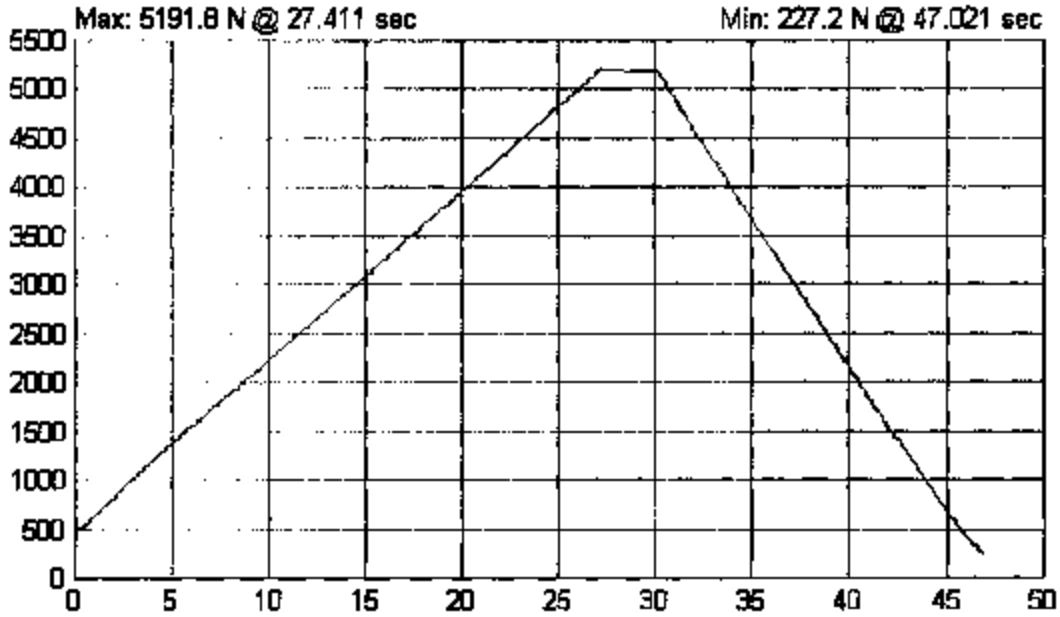
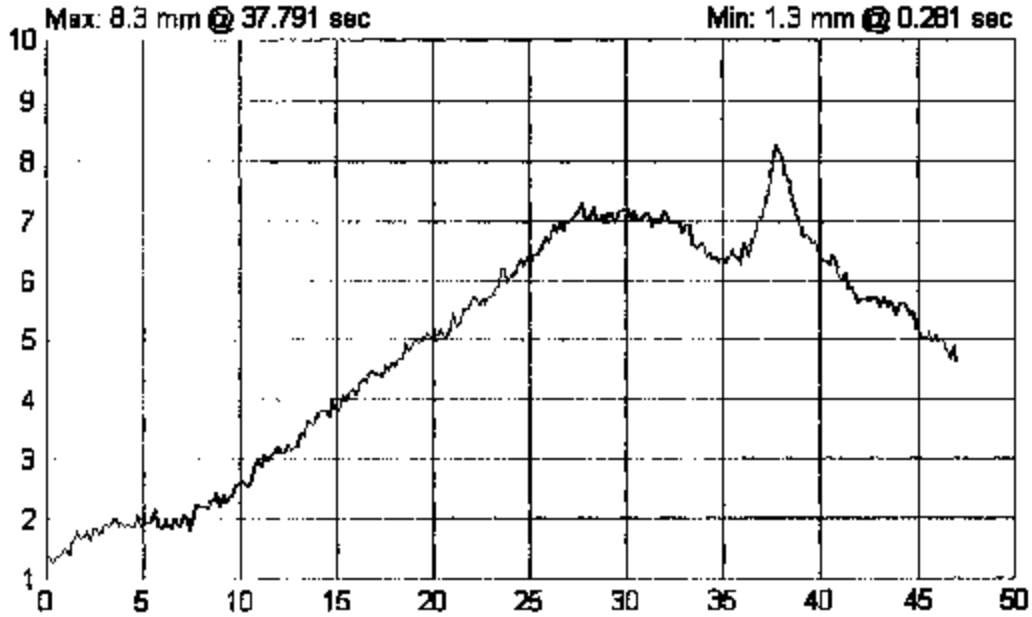


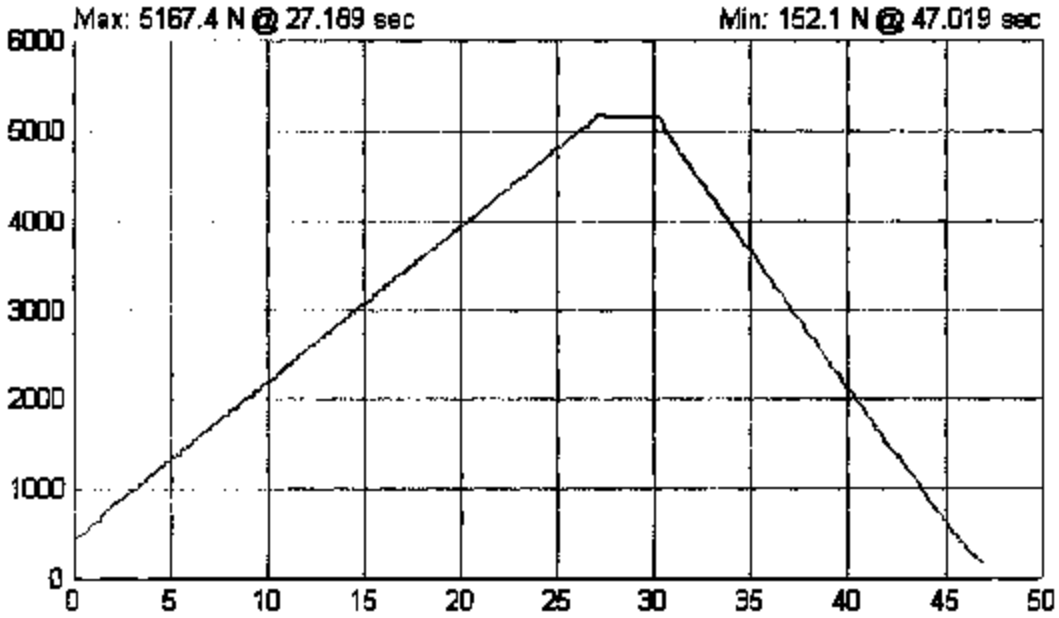
Run# SE3147: Forward Lower Anchor Test (S11)-RH SFAD2 X Disp. (mm) vs. Time (sec)



Run# SE3148: Tether Test (S6.3.4.1)-Center Top Tether (N) vs. Time (sec)



Run# SE3148: Tether Test (S6.3.4.1)-Center Tether X Disp. (mm) vs. Time (sec)



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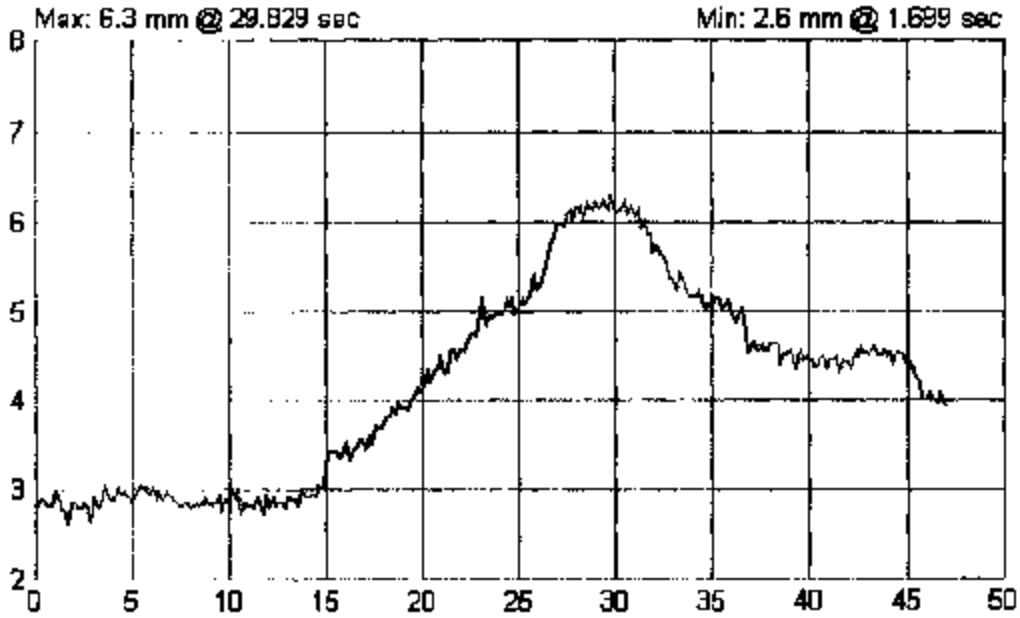
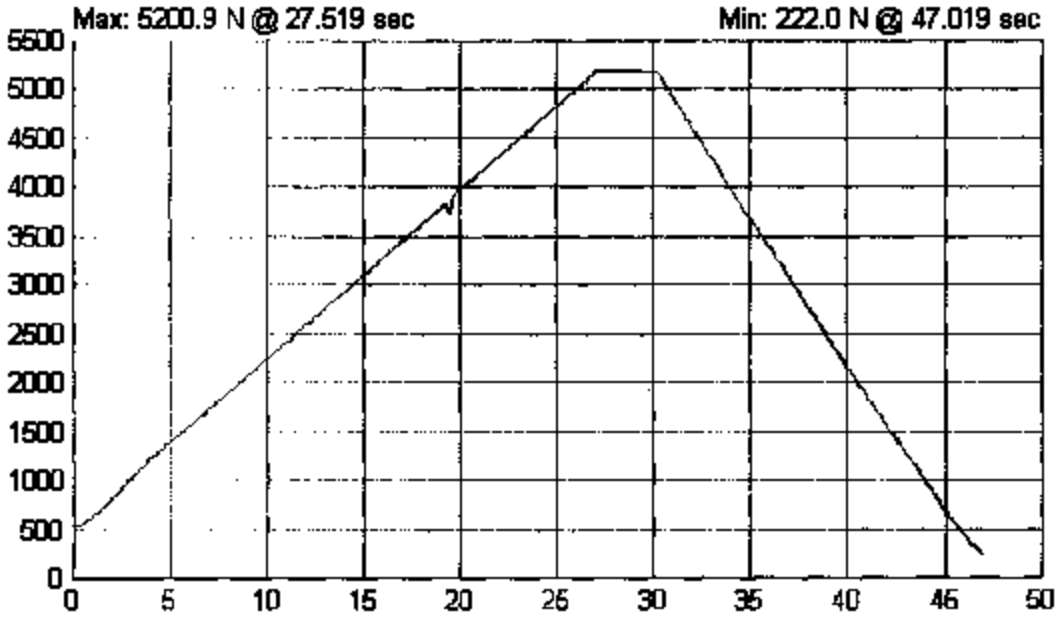
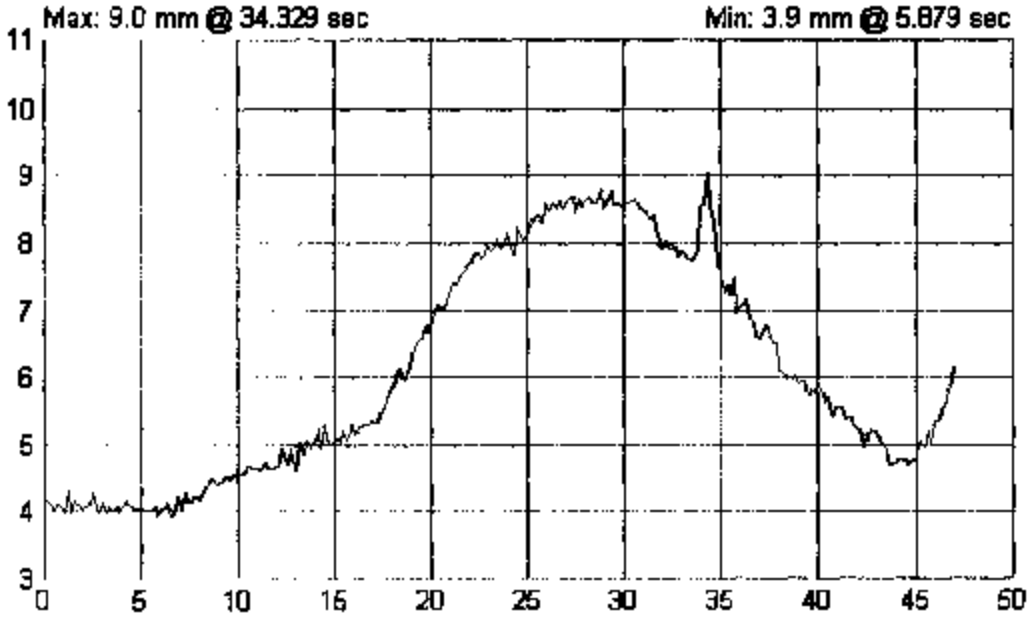


Run# SE3149: Tether Test (S6.3.4.1)-LH Tether X Disp. (mm) vs. Time (sec)



Run# SE3149: Tether Test (S6.3.4.1)-RH Top Tether (N) vs. Time (sec)



Run# SE3149: Tether Test (S6.3.4.1)-RH Tether X Disp. (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: 7/9/03

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

To: _____

The following vehicle has been subjected to compliance testing for FMVSS Nos. 201U 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 Subaru Forester

VEH. NHTSA NO.: C35502 VIN: JF1SG63683[redacted] COLOR: Blue

ODOMETER READINGS: ARRIVAL 32.2 miles Date: 3/26/03

REMARKS:

Salvage only.

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

The windshield was broken during removal.

Explanation for equipment removal:

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

Test Vehicle Condition:

Salvage only.

RECORDED BY: Brad Reaume DATE: 7/9/03

APPROVED BY: Brad Reaume

APPENDIX A
OWNER'S MANUAL – CHILD RESTRAINT SYSTEMS

NOTE
If the front part of the vehicle is damaged in an accident to the extent that the seatbelt pretensioner does not operate, contact your SUBARU dealer as soon as possible.

■ Precautions against vehicle modification

⚠ CAUTION

Do not perform any of the following modifications. Such modifications can interfere with proper operation of the seatbelt pretensioners.
• Attachment of any equipment (bush bar, winches, snow plow, skid plate, etc.) other than SUBARU genuine accessory parts to the front end.
• Modification of the suspension system or front end structure.
• Installation of a tire of different size and construction from the tires specified on the tire placard attached to the driver's door jamb.

Always consult your SUBARU dealer if you want to install any accessory parts to your vehicle.

Child restraint systems

Infants and small children should always be placed in an infant or child restraint system in the rear seat while riding in the vehicle. You should use an infant or child restraint system that meets Federal Motor Vehicle Safety Standards or Canada Motor Vehicle Safety Standards, is compatible with your vehicle and is appropriate for the child's age and size. All child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap/shoulder belt (except those covered under the section in this manual, entitled "Installation of child restraint systems by use of lower and tether anchorages").

Children could be endangered in an accident if their child restraints are not properly secured in the vehicle. When installing the child restraint system, carefully follow the manufacturer's instructions.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

All U.S. states and Canadian provinces require that infants and small children be restrained in an approved child restraint system at all times while the vehicle is moving.

Never let a passenger hold a child on his or her lap or in his or her arms while the vehicle is moving. The passenger cannot protect the child from injury in a collision, because the child will be caught between the passenger and objects inside the vehicle.
Additionally, holding a child in your lap or arms in the front seat exposes that child to another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.

Children should be properly restrained at all times. Never allow a child to stand up, or to kneel on any seat. Unrestrained children will be thrown forward during sudden stop or in an accident and can be injured seriously.
Additionally, children standing up or kneeling on or in front of the front seat are exposed another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.

– CONTINUED –

Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

For that reason, be sure to secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times. You should choose a restraint device which is appropriate for the child's age, height and weight. According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

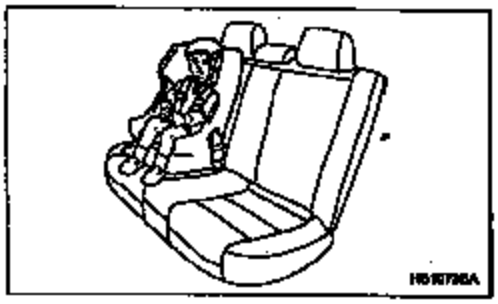
SINCE YOUR VEHICLE IS EQUIPPED WITH A PASSENGER'S SRS AIRBAG, NEVER INSTALL A REARWARD FACING CHILD SAFETY SEAT IN THE FRONT PASSENGER'S SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

- Child restraint systems and seatbelts can be-

come hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check the child restraint system before you place a child in it.

- Do not leave an unsecured child restraint system in your vehicle. Unsecured child restraint systems can be thrown around inside of the vehicle in a sudden stop, turn or accident; it can strike and injure vehicle occupants as well as result in serious injuries or death to the child.

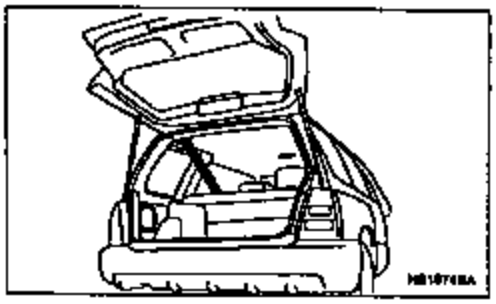
Installing child restraint systems with seatbelt



1. Set the child restraint system in the seating position.
2. Run the lap and shoulder belt through or around the child restraint system following the instructions provided by its manufacturer. If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint system.
3. Insert the tongue plate into the buckle.
4. Take up the slack in the lap belt.
5. Pull out the seatbelt fully from the retractor to change the retractor over from the Emergency Lock-

– CONTINUED –

ing Retractor (ELR) to the Automatic Locking Retractor (ALR) function. Then, allow the belt to rewind into the retractor. As the belt is rewinding, clicks will be heard which indicate the retractor functions as ALR.
6. Before having a child sit in the child restraint system, move it back and forth to check if it is firmly secured. Sometimes a child restraint can be more firmly secured by pushing it down into the seat cushion and then tightening the seatbelt.
7. Pull at the shoulder portion of the belt to confirm that it cannot be pulled out (ALR properly functioning).



If the child restraint system requires a top tether, latch the hook onto the top tether anchor and tighten the top tether. See the "Top tether anchorages" for additional instructions.
8. To remove the child restraint system, press the release button on the seatbelt buckle and allow the belt to retract completely. The belt will return to the ELR mode.

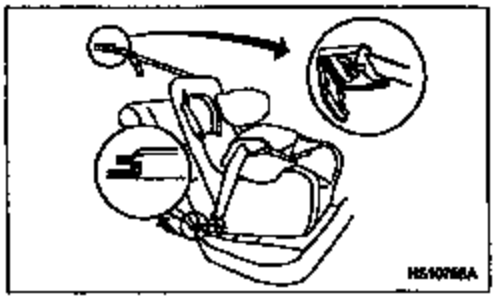
If you have any question concerning this type of child restraint system, ask your SUBARU dealer.

NOTE

When the child restraint system is no longer in use, remove it and restore the ELR function of the retractor. That function is restored by allowing the seatbelt to retract fully.

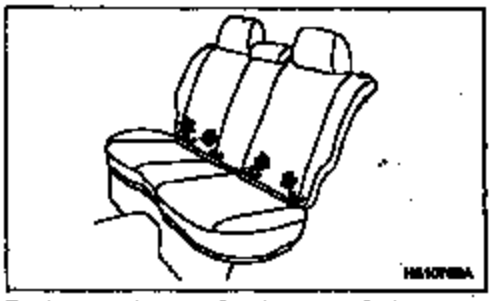
When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

■ Installation of child restraint systems by use of lower and tether anchorages



Some types of child restraint systems can be installed on the rear seat of your vehicle without use of the seatbelts. Such child restraint systems are secured to the designated anchorages provided on the vehicle body.

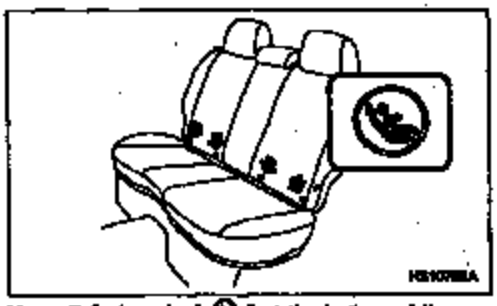
Your vehicle is equipped with four lower anchorages (bars) and three upper anchorages (tether anchorages) for accommodating such child restraint systems.



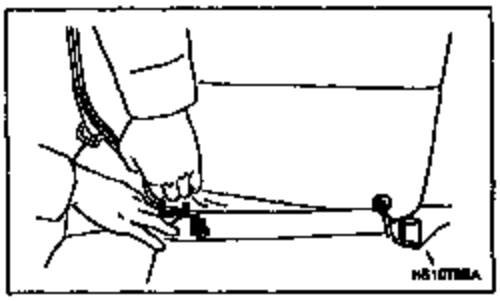
The lower anchorages (bars) are used for installing a child restraint system only on the rear seat window-side seating positions. For each window-side seating position, two lower anchorages are provided.

– CONTINUED –

The tether anchorages (upper anchorages) are provided for all the seating positions (middle and both window-side ones) of the rear seat.



You will find marks " " at the bottom of the rear seat seatbacks. These marks indicate the positions of the lower anchorages (bars).



Each lower anchorage is located where the seat cushion meets the seatback.

1. Use the " " marks to locate the two lower anchorages (bars) for the position where you want to install the child restraint system.
2. While following the instructions supplied by the child restraint system manufacturer, connect the connectors of the child restraint system to the lower anchorages.
When the connectors are fastened, make sure that the adjacent seatbelts are not caught.
If your child restraint system is of a flexible attachment type (which uses tether straps to connect the child restraint system proper to the lower anchorages), firmly tighten the straps after connecting the connectors.
3. Connect the top tether hook to the tether anchorage and firmly tighten the tether.
For information on how to set the top tether, read the following "Top tether anchorages".
4. Before seating a child in the child restraint system, try to move seat back and forth to verify that it is held securely in position.

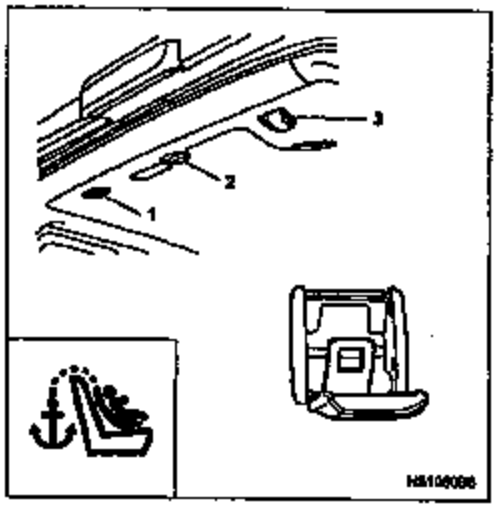
If you have any question concerning this type of child restraint system, ask your SUBARU dealer.

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

– CONTINUED –

■ Top tether anchorages

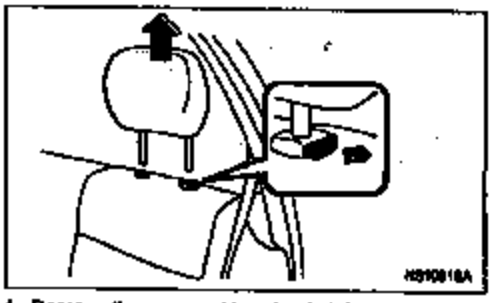
▼ Anchorage location



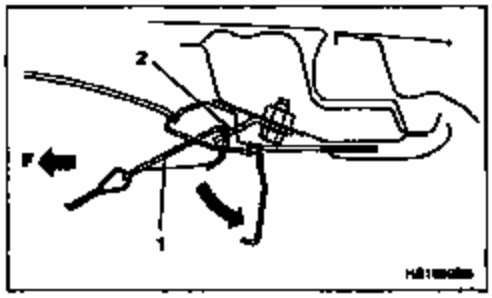
1) For left seat
2) For center seat
3) For right seat

Three anchorages, i.e., ones for the right, center and left positions, are already installed on the rear edge of the roof. Open the cover flaps to use the anchorages.

▼ To hook the top tether



1. Remove the rear seat headrest at the seating position where the child restraint system has been installed with the seatbelt or lower anchorages; lift up the headrest while pressing the release button. Store the headrest in the cargo area. Avoid placing the headrest in the passenger compartment to prevent it from being thrown around in the passenger compartment in a sudden stop or a sharp turn.



F: Front of vehicle
1) Top tether hook
2) Upper anchorage

2. Fasten the top tether hook of the child restraint system to the appropriate upper anchorage.
3. Tighten the top tether securely.

⚠ CAUTION

Always remove the headrest when mounting a child restraint system with a top tether. Otherwise, it may not be possible to fasten the top tether tightly.

*SRS airbag (Supplemental Restraint System airbag)

*SRS: This stands for supplemental restraint system. This name is used because the airbag system supplements the vehicle's seatbelts.

■ Vehicle with driver's and front passenger's SRS airbags and lap/shoulder restraints

Your vehicle is equipped with a supplemental restraint system in addition to a lap/shoulder belt at each front seating position.
The supplemental restraint system (SRS) consists of two airbag (driver's and front passenger's frontal airbags) or four airbags (driver's and front passenger's frontal airbags and driver's and front passenger's side airbags).
These SRS airbags are designed only as a supplement to the primary protection provided by the seatbelt.

• To obtain maximum protection in the event of an accident, the driver and all passengers in the

– CONTINUED –

vehicle should always wear seatbelts when the vehicle is moving. The SRS airbag is designed only as a supplement to the primary protection provided by the seatbelt. It does not do away with the need to fasten seatbelts. In combination with the seatbelts, it offers the best combined protection in case of a serious accident.
Not wearing a seatbelt increases the chance of severe injury or death in a crash even when the car has the SRS airbag.
For instructions and precautions concerning the seatbelt system, see the "Seatbelts" sections in this chapter.
• Do not sit or lean unnecessarily close to the SRS airbag. Because the SRS airbag deploys with considerable speed – faster than the blink of an eye – and force to protect in high speed collisions, the force of an airbag can injure an occupant whose body is too close to SRS airbag.
It is also important to wear your seatbelt to help avoid injuries that can result when the SRS airbag contacts an occupant not in proper position such as one thrown forward during pre-accident braking.
Even when properly positioned, there remains a possibility that an occupant may suffer minor injury such as abrasions and bruises to the face or arms because of the SRS airbag deployment force.
• The SRS airbags deploy with considerable speed and force. Occupants who are out of proper position when the SRS airbag deploys could suffer very serious injuries. Because the SRS airbag needs enough space for deployment, the driver should always sit upright and well back in the seat as far from the steering wheel as practical while still maintaining full vehicle control and the front passenger should move the seat as far back as possible and sit upright and well back in the seat.
• Do not place any objects over or near the SRS airbag cover or between you and the SRS airbag. If the SRS airbag deploys, those objects could interfere with its proper operation and could be propelled inside the car and cause injury.

• Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.
For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's age, height and weight.
Secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times.
According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.
For instructions and precautions concerning the child restraint system, see the "Child restraint systems" section in this chapter.
• NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.
• Never allow a child to stand up, or to kneel on the front passenger's seat, or never hold a child on your lap or in your arms. The SRS airbag deploys with considerable force and can injure or even kill the child.

– CONTINUED –

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

04/23/2003 13:39 FAX 202 336 3081 OVSC/NVS/221 → MGA TROY 002

Carol Miglavy - NHTSA225Forester03Form14.doc

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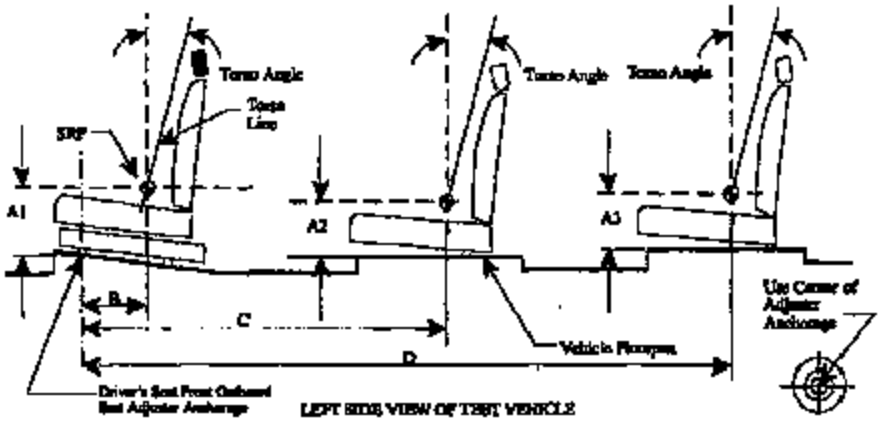
SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA
FOR FMVSS 225
(All dimensions in mm)

Model Year:2003; Make: SUBARU; Model: Forester; Body Style: Wagon
Seat Style; Front row: Individual; Second row: Contoured; Third row: N.A.



LEFT SIDE VIEW OF TEST VEHICLE

C35502

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Table 1. Seating Positions and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		(Driver) 295.3		(Front Passenger) 295.3
A2		287.4	277.4	287.4
A3				
B		382.8		382.8
C		1118.6	1098.6	1118.6
D				
Torso Angle (degree)	Front Row	23		23
	Second Row	23	18	23
	Third Row			

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

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

Model Year: 2003; Make: SUBARU; Model: Forester; Body Style: Wagon
Seat Style; Front row: Individual; Second row: Continuous; Third row: N.A.

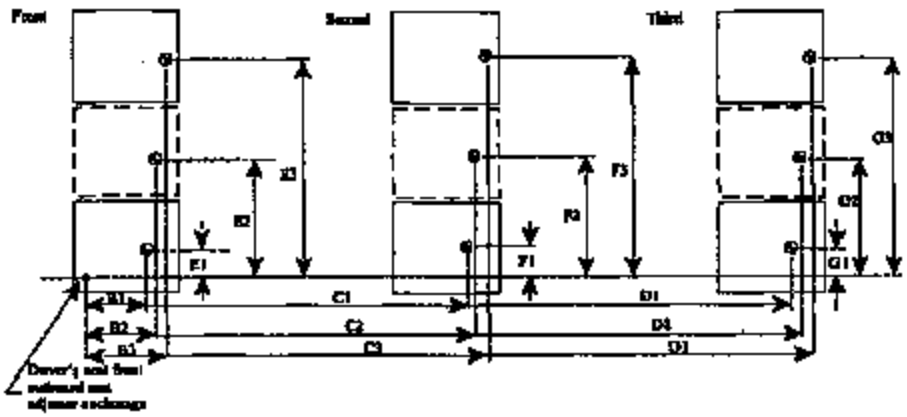

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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	382.6
	E1	564.0
	B2	
	E2	
	B3	382.6
	E3	1284.0
Second Row	C1	1118.6
	F1	204.0
	C2	1098.6
	F2	569.0
	C3	1118.6
	F3	934.0
Third Row	D1	
	G1	
	D2	
	G2	
	D3	
	G3	

Note: 1. Use the center of anchorage.

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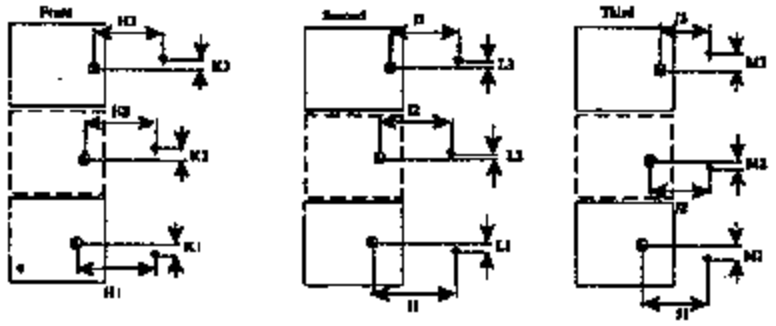
TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year:2003; Make: SUBARU; Model: Forester; Body Style: Wagon
Seat Style: Front row: Individual; Second row: Centered; Third row: N.A.



⊕: ISF
⊕: 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	
	K1	
	H2	
	K2	
	H3	
	K3	
Second Row	I1	631.7
	L1	59.0
	I2	656.5
	L2	0.0
	I3	619.3
	L3	65.0
Third Row	J1	
	M1	
	J2	
	M2	
	J3	
	M3	

Note: 1. Use the center of anchorage.

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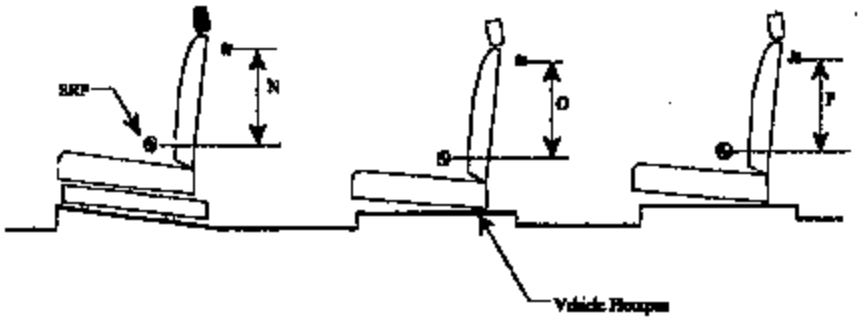
TETHER ANCHORAGE LOCATIONS - VERTICAL
FOR FMVSS 225
(All dimensions in mm)

Model Year:2003; Make: SUBARU; Model: Forester; Body Style: Wagon
Seat Style; Front row: Individual; Second row: Contoured; Third row: N.A.



LEFT SIDE VIEW OF TEST VEHICLE

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Table 4. Vertical Dimension For Tie Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point	
Front Row	N1 (Driver)	
	N2 (Center)	
	N3 (Right)	
Second Row	O1 (Left)	331.8
	O2 (Center)	358.5
	O3 (Right)	331.4
Third Row	P1 (Left)	
	P2 (Center)	
	P3 (Right)	

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

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Test Protocols to Used for Compliance Tests

Tether Anchorages

Seating Location		FMVSS Section(s) - Req.
Front	Driver	
	Center (if any)	
	Right (if any)	
Second	Left	88.2
	Center	88.2
	Right (if any)	88.2
Third	Left	
	Center	
	Right	
Fourth	Left	
	Center	
	Right	

Lower Anchorages

Seating Location	FMVSS Section(s) - Req.

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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.

   No.

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.

   No.

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.

   No.

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

   S6.2.2.1

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

   S4.3. and S4.4