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FINAL REPORT NUMBER 225-MGA-05-006

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

NISSAN MOTOR CO., LTD.
2005 NISSAN PATHFINDER
NHTSA No. C55202

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: June 30, 2005
Report Date: July 7, 2005

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Amanda Preecott

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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
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15. Supplementary Notes

16. Abstract

A compliance test was conducted on the subject 2005 Nissan Pathfinder, NHTSA No. C55202, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225-01 for the determination of FMVSS 225 compliance. The tests were conducted at MGA Research Corporation in Troy, Michigan on June 30, 2005. Test failures identified were as follows:

NONE

The data recorded indicates that the 2005 Nissan Pathfinder tested appears to comply with the requirements of FMVSS 225.

17. Key Words Compliance Testing Safety Engineering FMVSS 225 2005 Nissan Pathfinder		18. Distribution Statement Copies of this report are available From: NHTSA Technical Reference Division, Mail Code: NPO-230 400 Seventh Street, SW, Room PL-403 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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1.0 PURPOSE AND PROCEDURE

PURPOSE

The child restraint anchorage testing 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 2005 Nissan Pathfinder, NHTSA No. C55202 meets the performance requirements of FMVSS No. 225, "Child Restraint Anchorage Systems."

PROCEDURE

This testing was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-225-01 (4/11/05) and MGA's Laboratory Test Procedure, MGATP225GOV (2/24/05).

The front occupant compartment consisted of two (2) adjustable outboard bucket seats and the rear occupant compartment consisted of a 2nd row three-passenger 40/20/40 seat and a 3rd row 50/50 seat. Each 2nd row outboard seating position was equipped with a child restraint anchorage system (one tether and two lower anchors). The 2nd row center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2nd row outboard lower anchorages was approximately 800 mm. Each 2nd row outboard seating position was tested with the SFADII fixture and the 2nd row center seating position was tested with the SFADI fixture.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The testing was conducted at MGA in Troy, Michigan on June 30, 2005.

Based on the test results, the 2005 Nissan Pathfinder appears to comply with the performance requirements of FMVSS No. 225 for these tests.

The SFADII at the 2nd row left seating position sustained a maximum force of 11,314 N and held the required load for 3 seconds. The total displacement from point "X" on the SFADII for the 2nd row left seating position was 96 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 11,280 N and held the required load for 3 seconds. The total displacement from point "X" on the SFADII for the 2nd row right seating position was 90 mm. The SFADI at the 2nd row center position sustained a maximum force of 15,096 N and held the required load for 2 seconds.

DATA SUMMARY

Strength and displacement summary data are provided below. 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	Test Configuration	Seating Position	Max. Load (N)	Displacement (mm)
SB5248	SFAD II	Lower with Top Tether	2nd Row Left	11,314	96
			2nd Row Right	11,280	90
SB5249	SFAD I	Top Tether Only	2nd Row Center	15,096	N/A

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

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2005 Nissan Pathfinder
VEH. NHTSA NO.	C55202
VIN	5N1AR18W15C738075
COLOR	White
VEH. BUILD DATE	02/05
TEST DATE	June 30, 2005
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Melanie Schick, Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Nissan Motor Co., Ltd.

Date of Manufacture: 02/05; VIN: 5N1AR18W15C738075

GVWR: 6000 lbs; GAWR FRONT: 2775 lbs

GAWR REAR: 3500 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 240 kPa REAR: 240 kPa

Recommended Tire Size: P245/75R16

Recommended Cold Tire Pressure:

FRONT: 240 kPa REAR: 240 kPa

Size of Tire on Test Vehicle: P245/75R16

Type of Spare Tire: P245/75R16

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ____; Bucket _X_; Split Bench ____

Number of Occupants: Front _2_; Middle _3_; Rear _2_; TOTAL _7_

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 Cell 10,000 lb Capability	S/N 251 (10/18/05), S/N 180s (07/10/05)
String Potentiometer	Calibrated at each use (S/N 20763, 20769)
Hydraulic Pump	N/A
MGA CRF Fixture	N/A
MGA SFADI	N/A
MGA SFADII	N/A
MGA 2-Dimensional Template	N/A
Linear Scale	S/N TPM483 (03/29/06)
MGA Data Acquisition System	N/A
Digital Calipers	S/N MGA00305 (03/22/06)
Force Gauge	S/N MGA00015 (02/02/06)
Inclinometer (Digital)	S/N MGA00034 (08/23/05)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

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-225-01.

REMARKS: NONE.

Table 4. Child Restraint Lower Anchorage Configuration

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 100 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	LH	N/A	52	52	N/A
	Ctr		N/A		
	RH		52	52	
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	No		N/A
	Ctr		N/A		
	RH		No		
Diameter of the bar (mm)	LH	N/A	5.99	5.97	N/A
	Ctr		N/A		
	RH		5.98	5.98	
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	69		N/A
	Ctr		N/A		
	RH		69		
Measure the distance between the SRP to the center of the anchorage bar (mm)	LH	N/A	200		N/A
	Ctr		N/A		
	RH		200		

Table 4. Child Restraint Lower Anchorage Configuration (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 60 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)
2nd Row Left	15.2	No Data	0.8
2nd Row Center	N/A	N/A	N/A
2nd Row Right	17.5	No Data	0.5

N/A indicates that there were no lower anchors in the center seating position.

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: NONE

Table 5. Tether Location and Dimensional Measurements

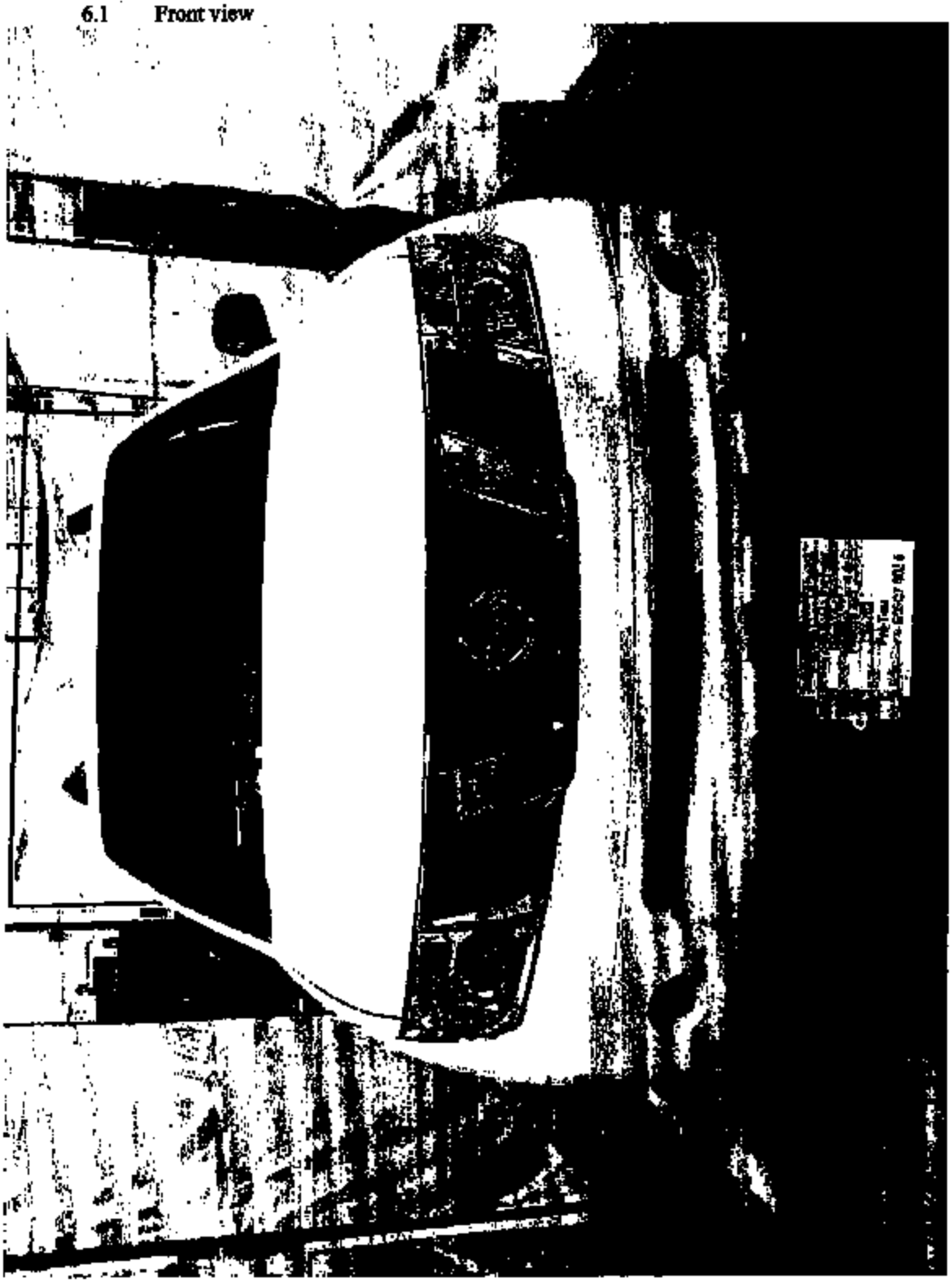
SEAT POSITION FOR TETHER		TETHER ANCHORAGE LOCATION Located in the required zone?
Front Row		N/A
Second Row	LH	Yes
	Ctr.	Yes
	RH	Yes
Third Row		N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

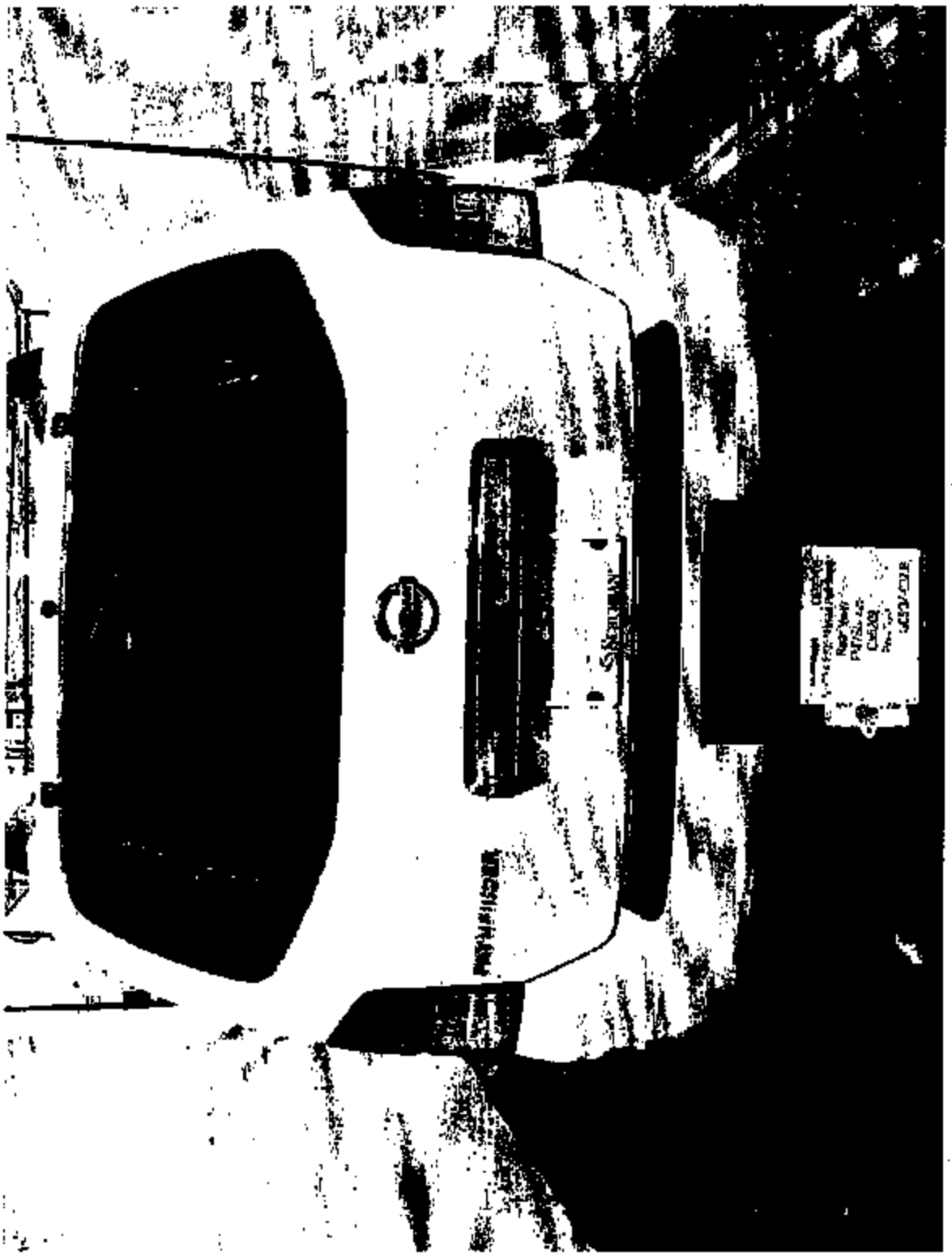
REMARKS: NONE

6.0 PHOTOGRAPHS

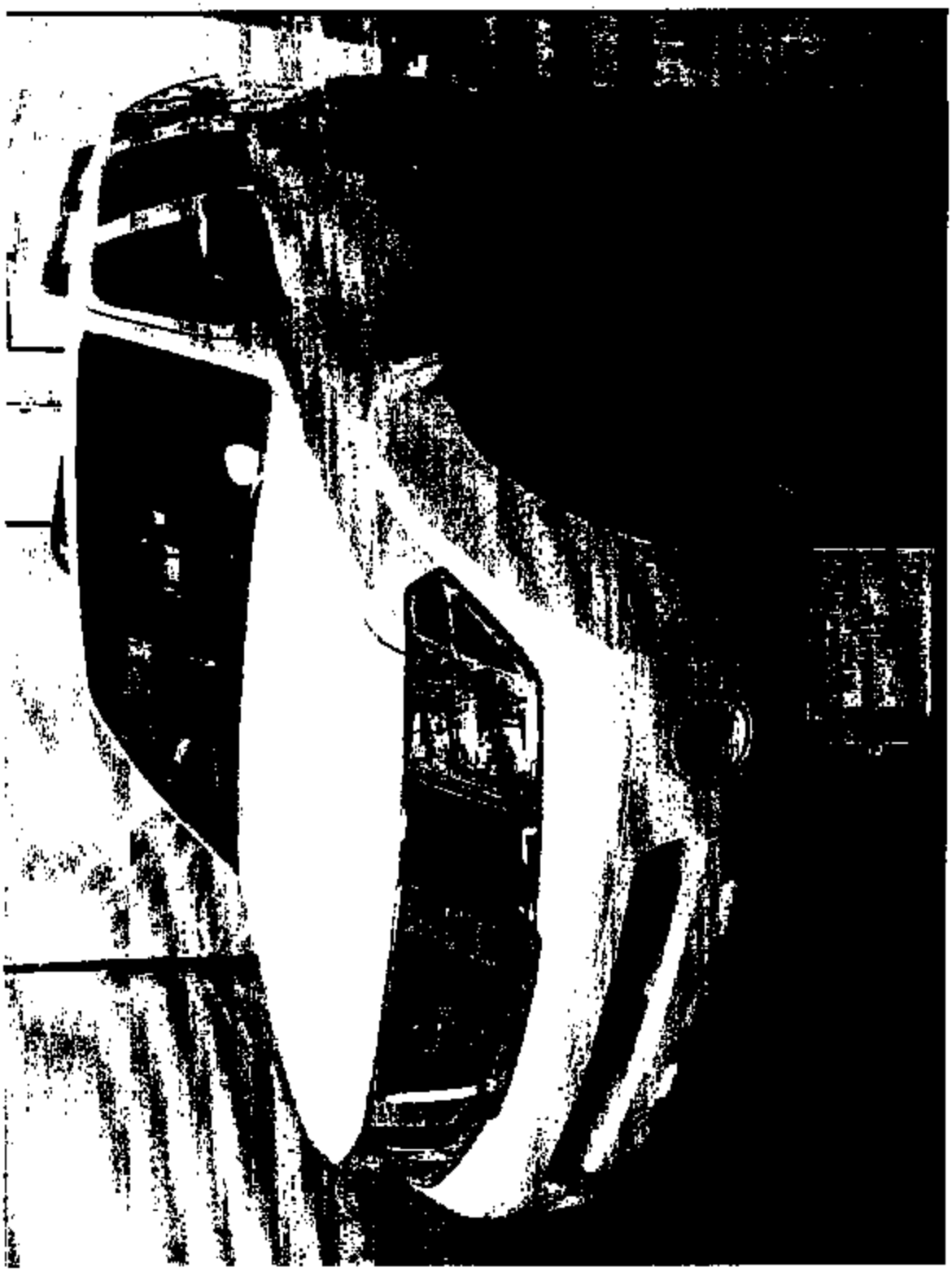
6.1 Front view



6.2 Rear view



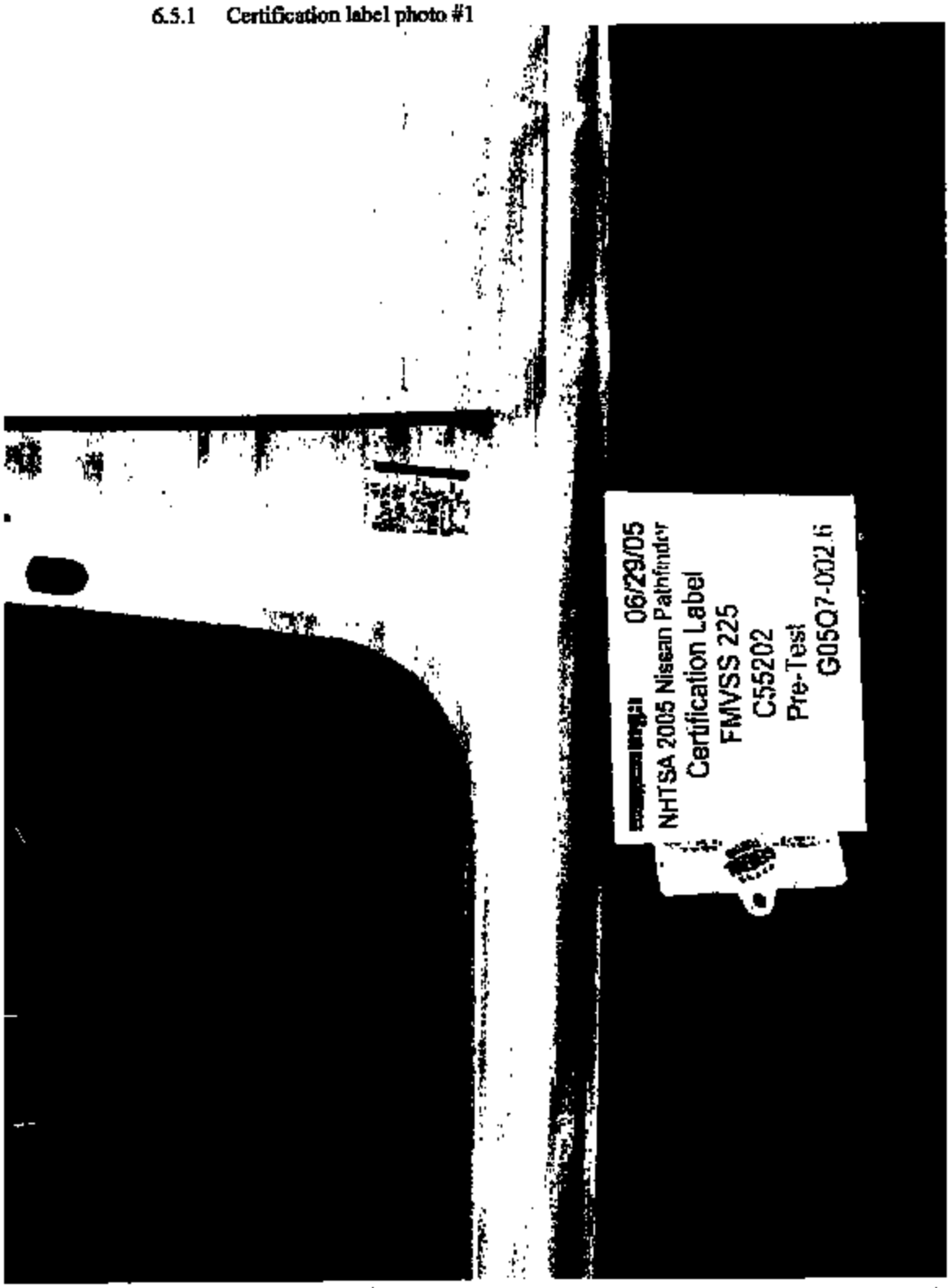
6.3 ¾ Front left view



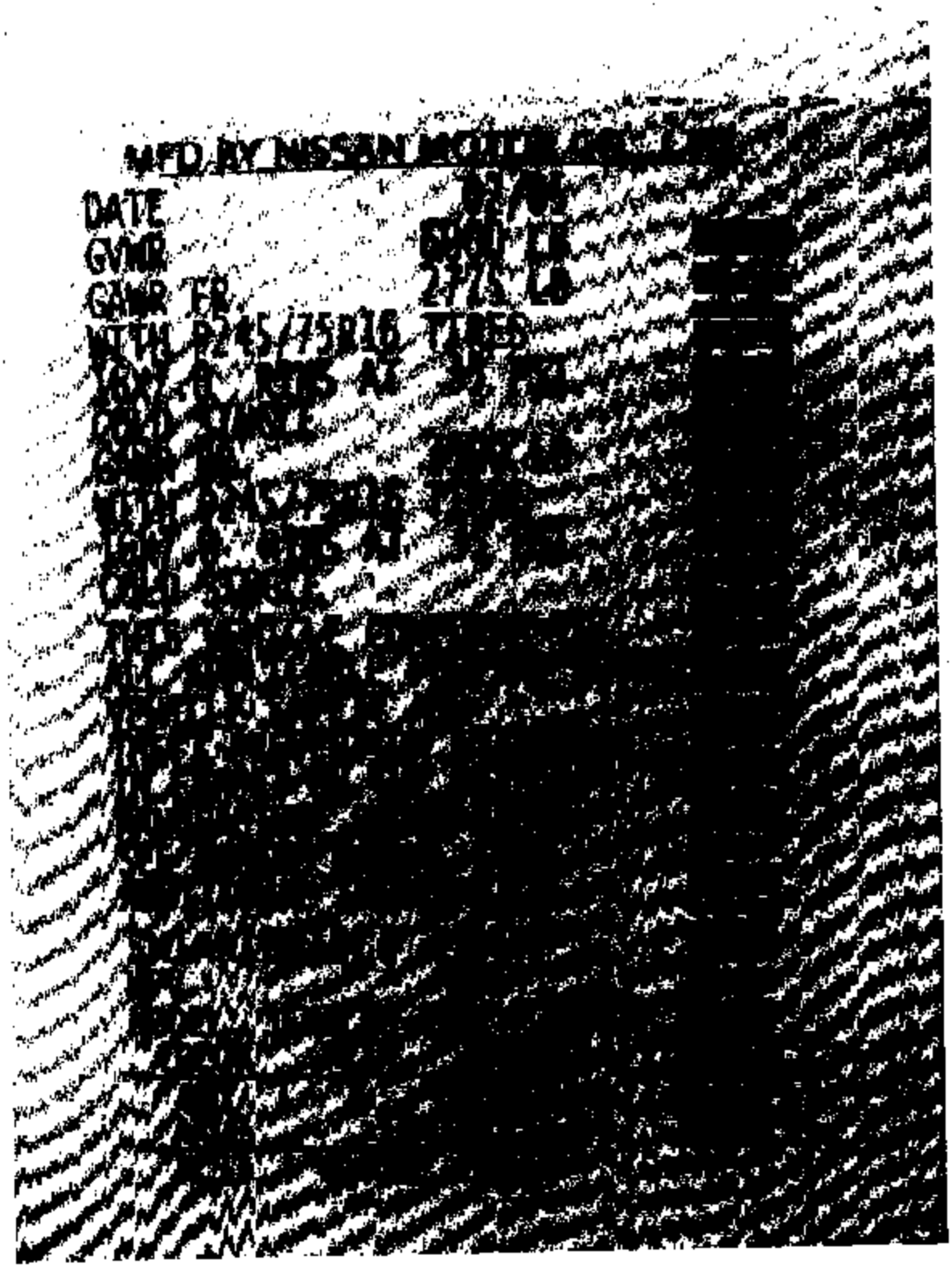
6.4 ¾ Front right view

6.5 Test vehicle's certification label

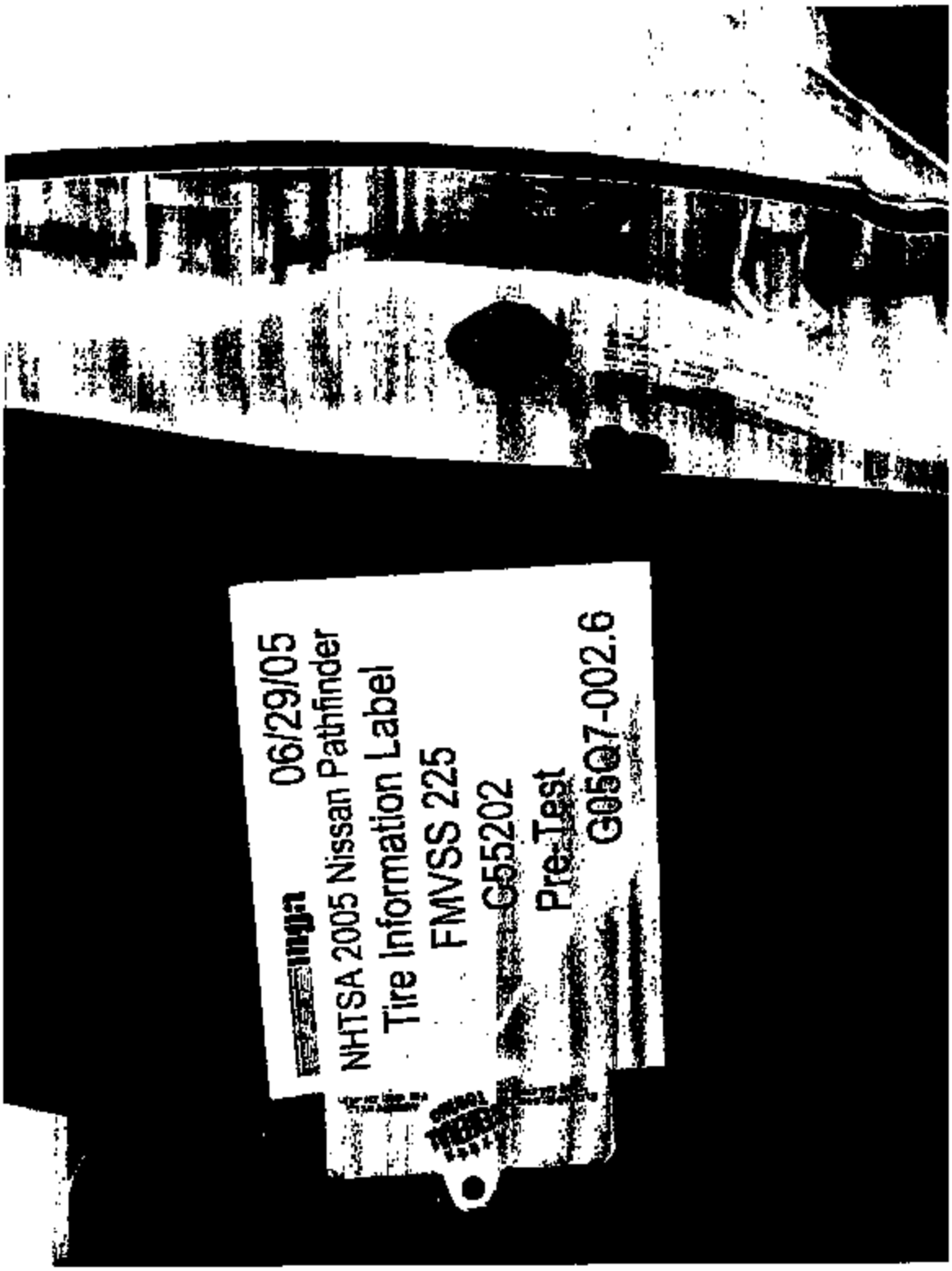
6.5.1 Certification label photo #1



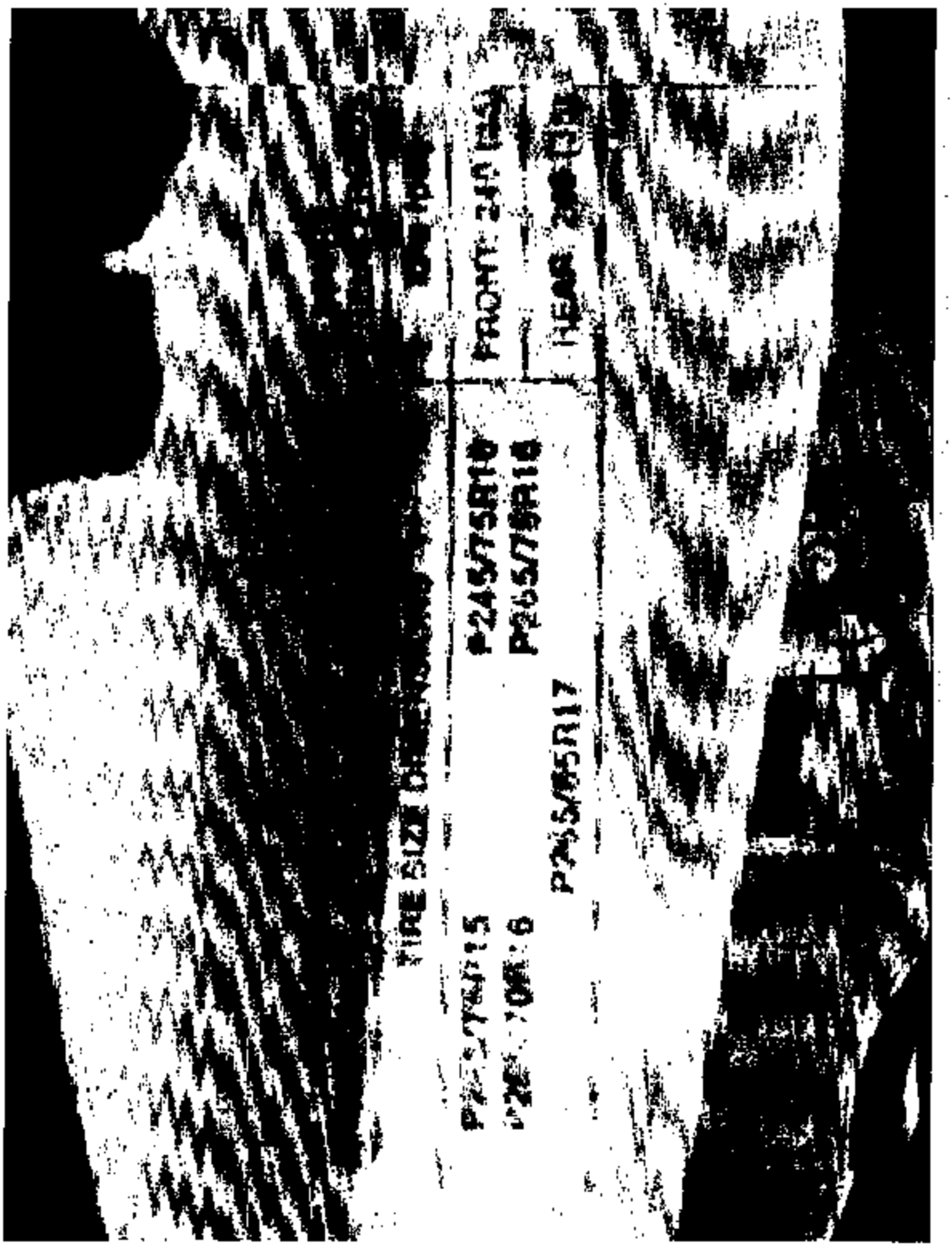
6.5.2 Certification label photo #2



6.5.3 Tire information label photo #1



6.5.4 Tire information label photo #2



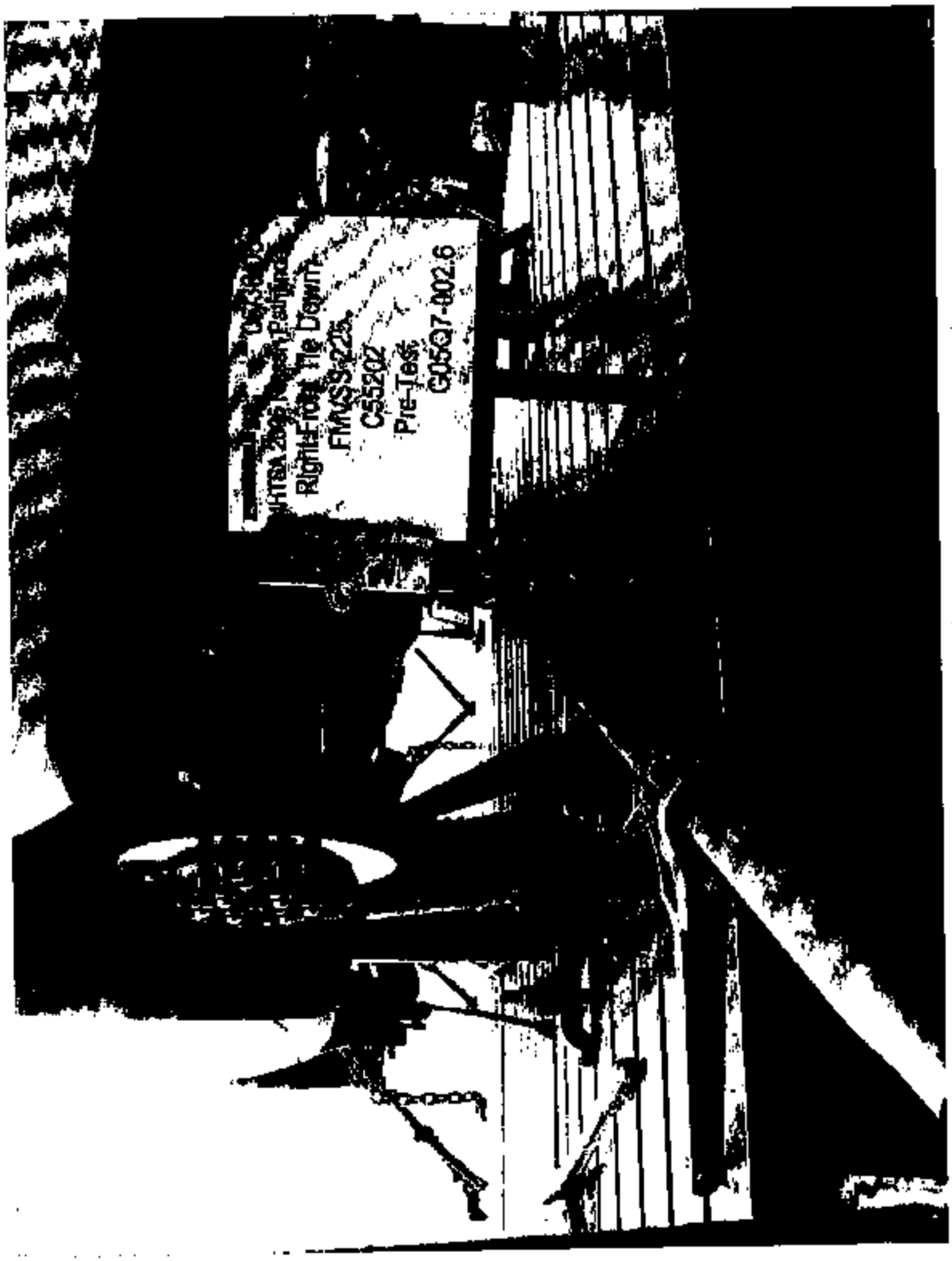
6.6 Vehicle tie down at each tie down location

6.6.1 Front under vehicle

6.6.2 Left front

6.6.3 Left rear

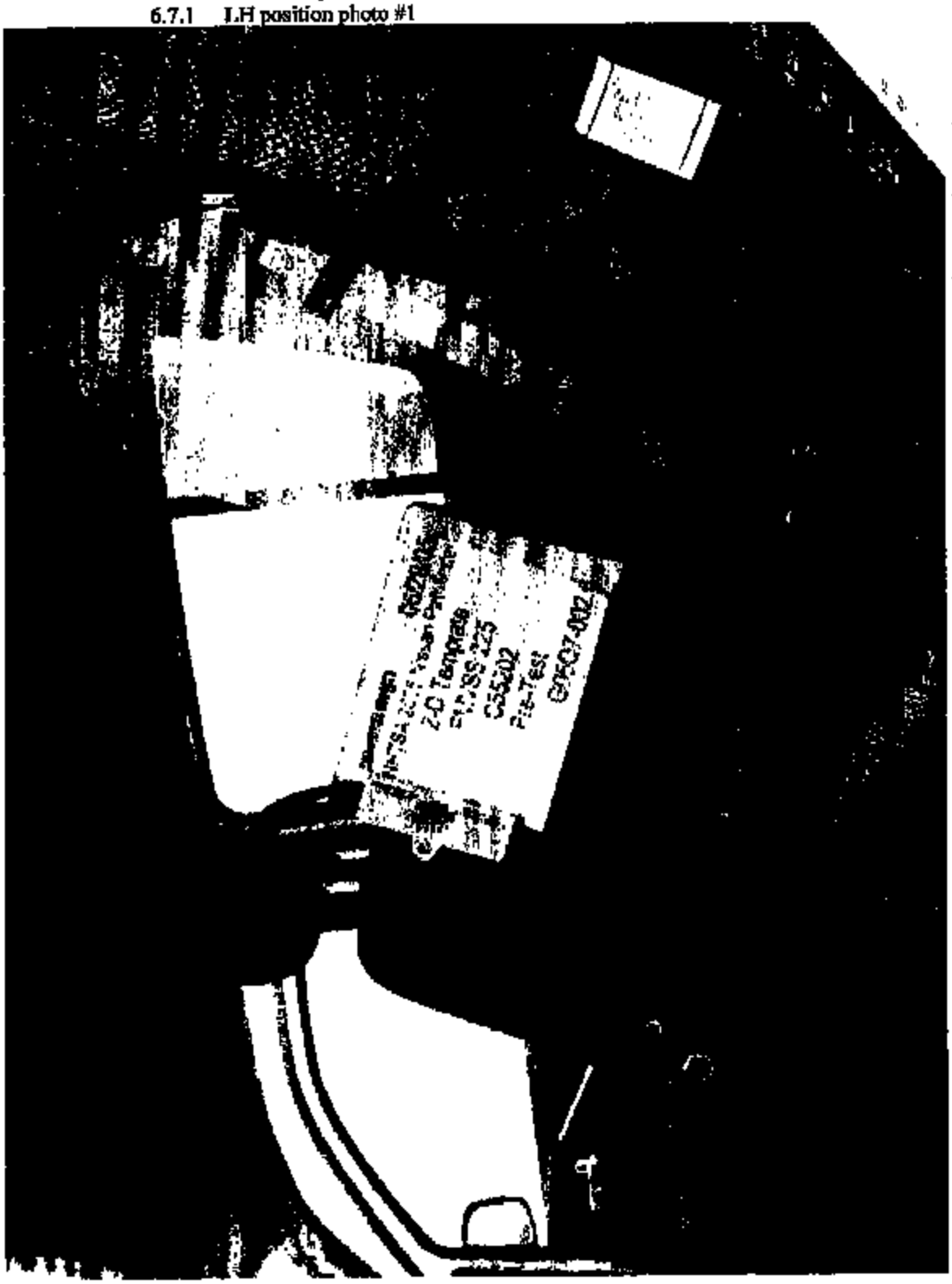
6.6.4 Right front



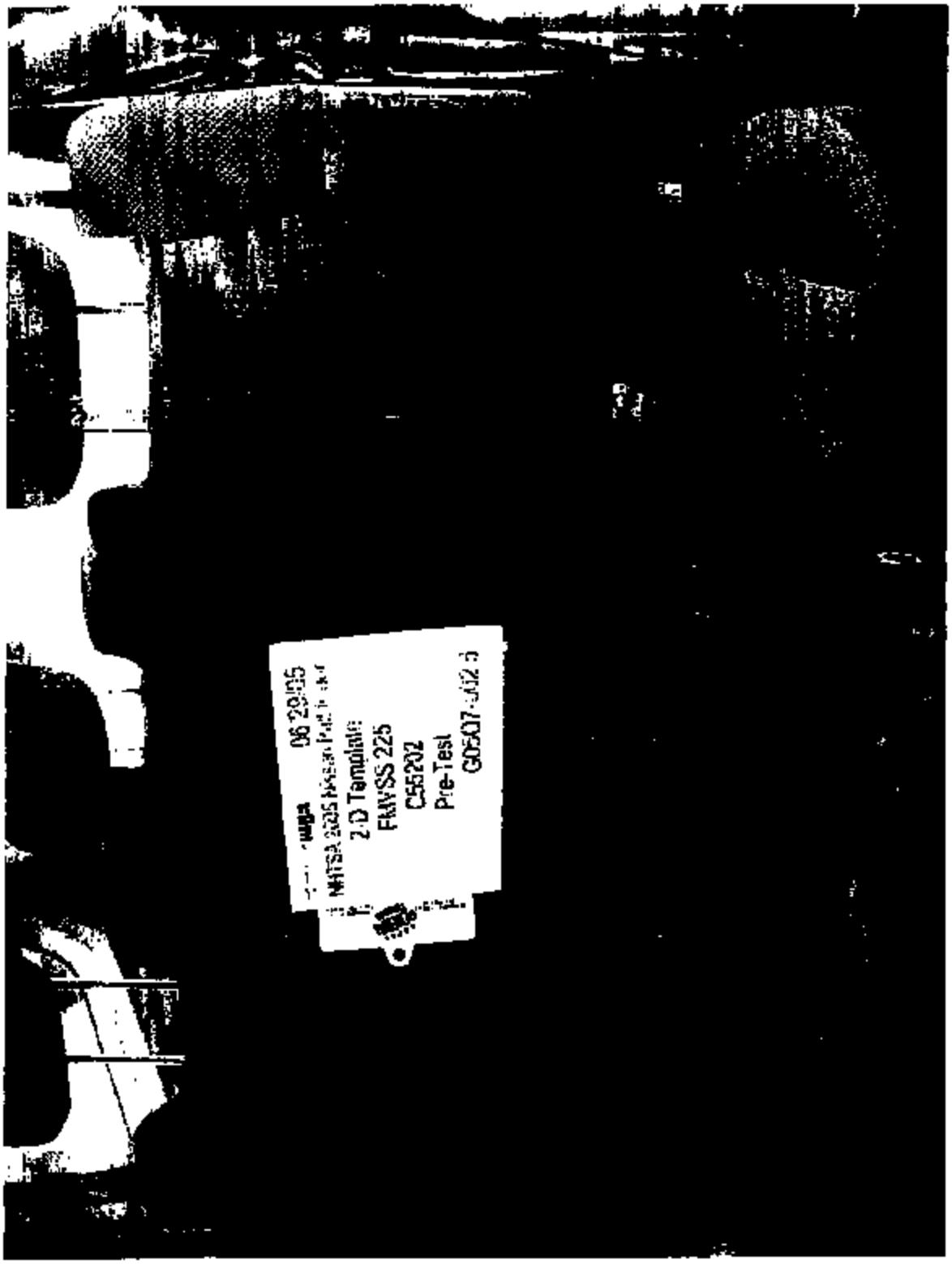
6.6.5 Right rear

6.7 2-dimensional template

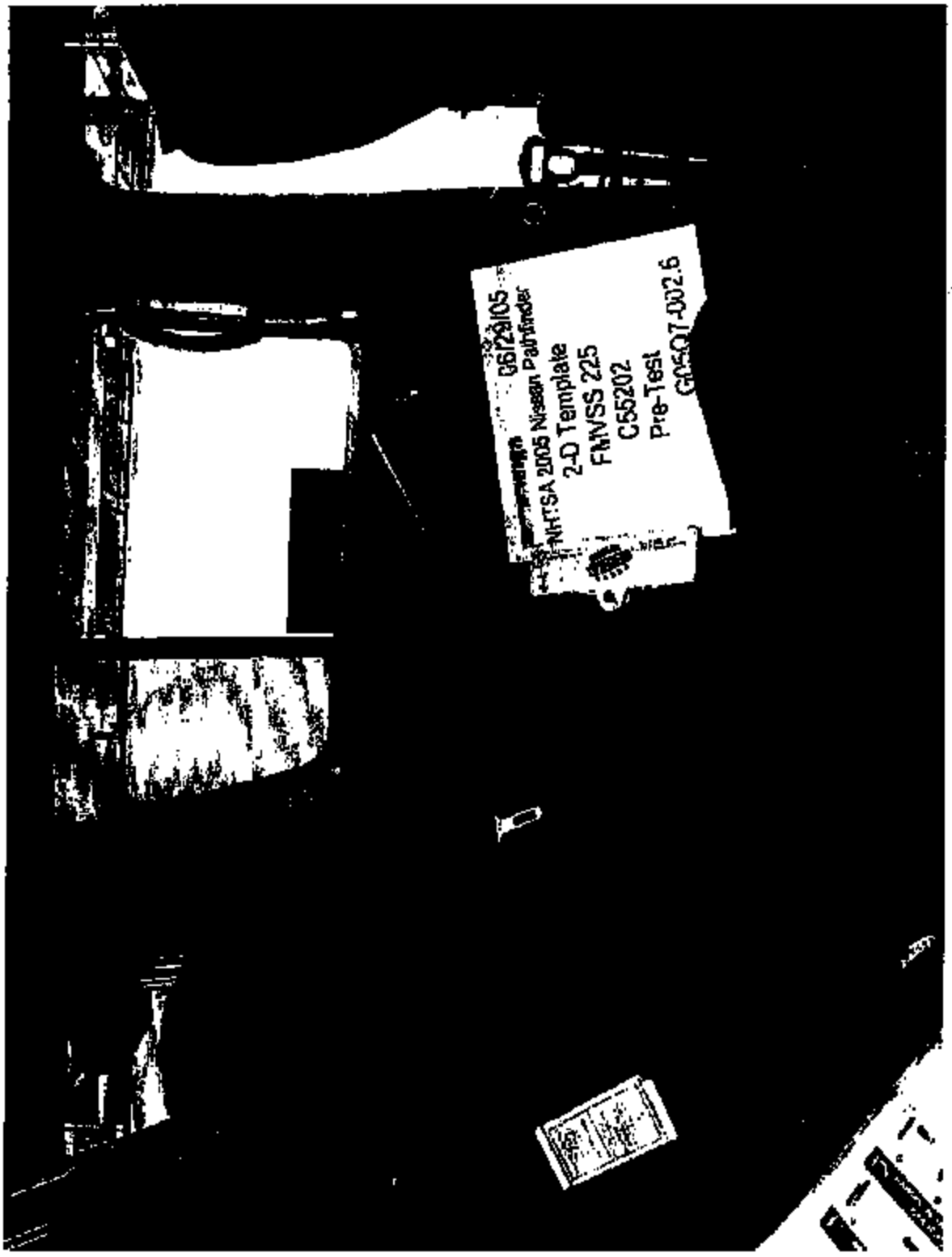
6.7.1 LH position photo #1



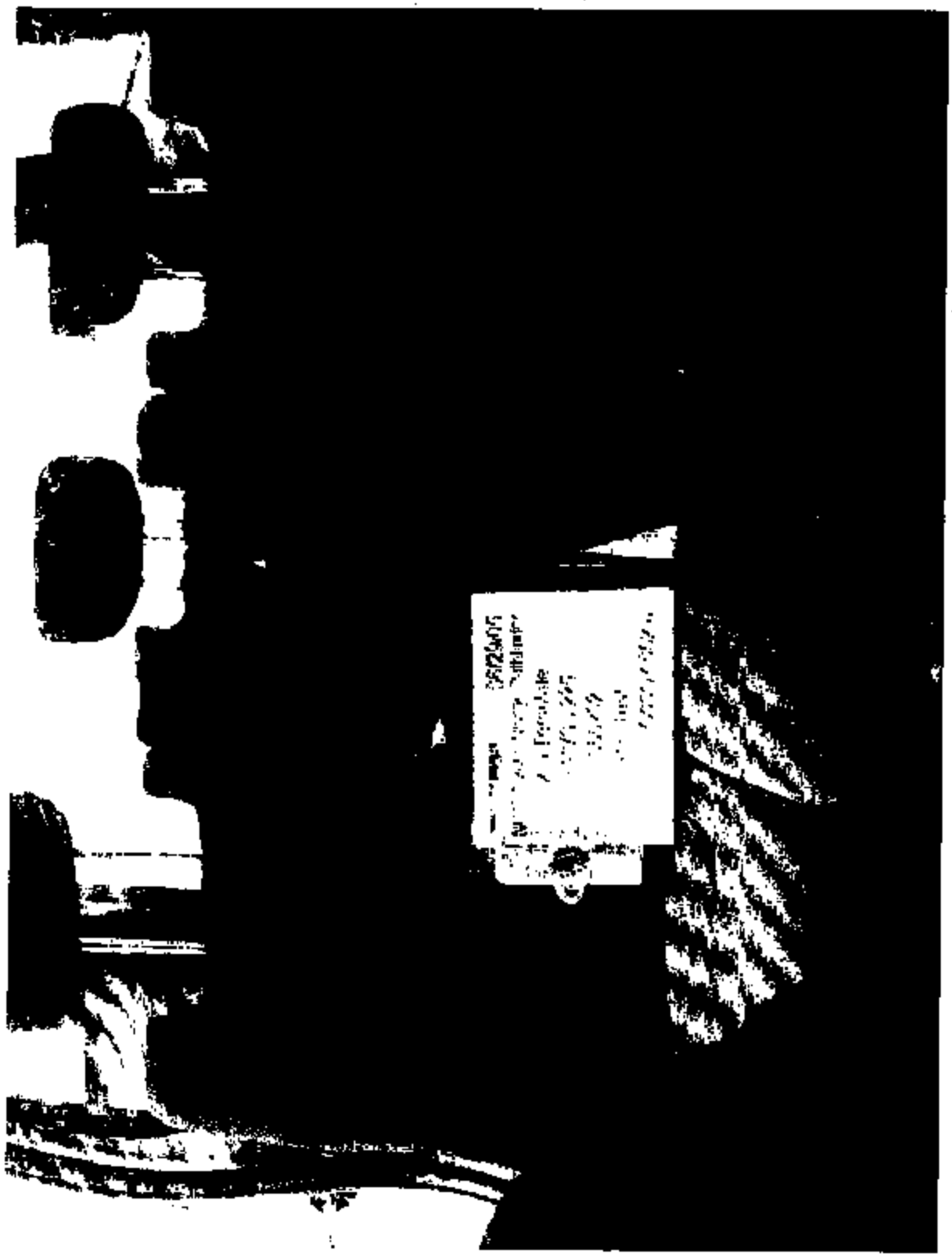
6.7.2 LH position photo #2



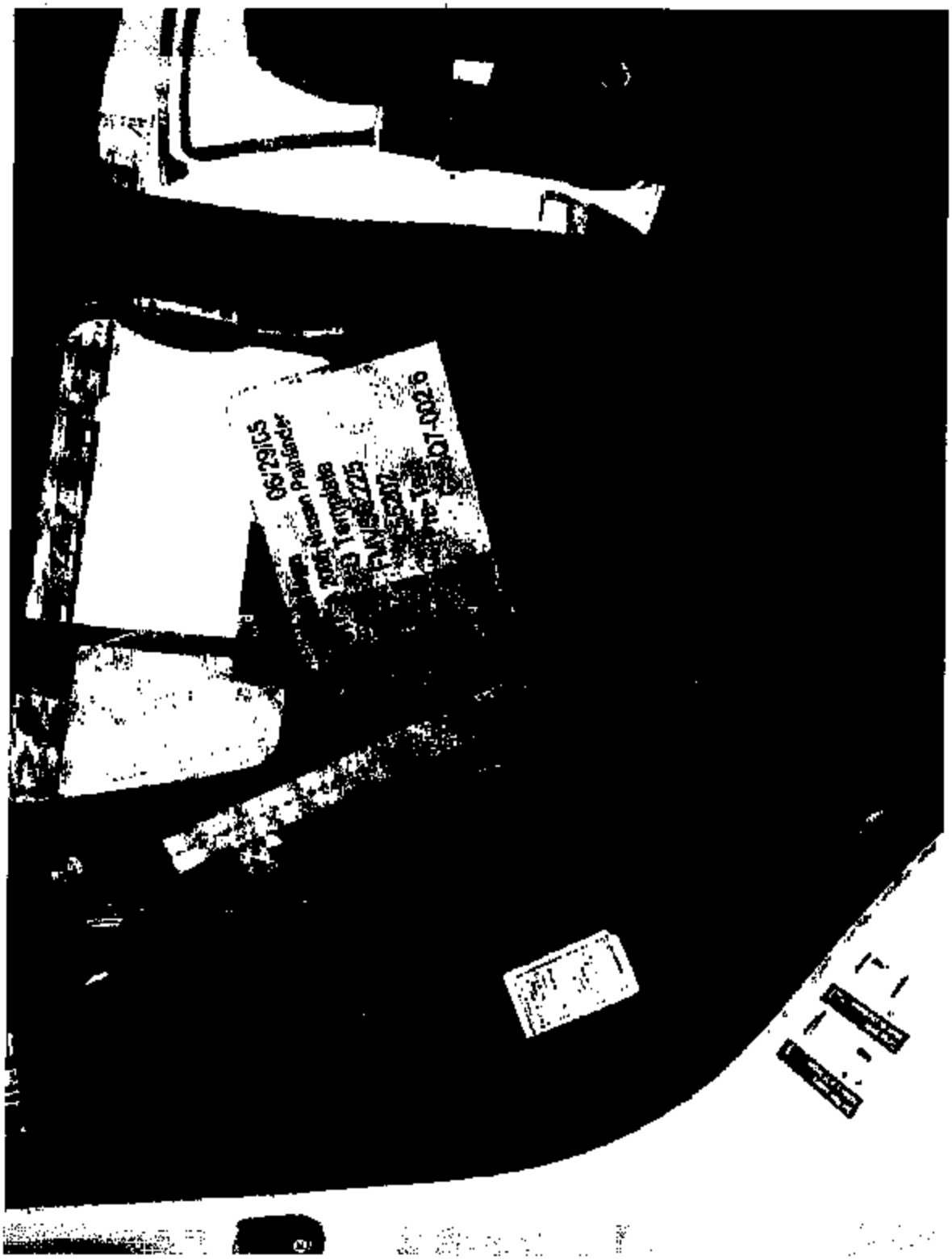
6.7.3 Center position photo #1



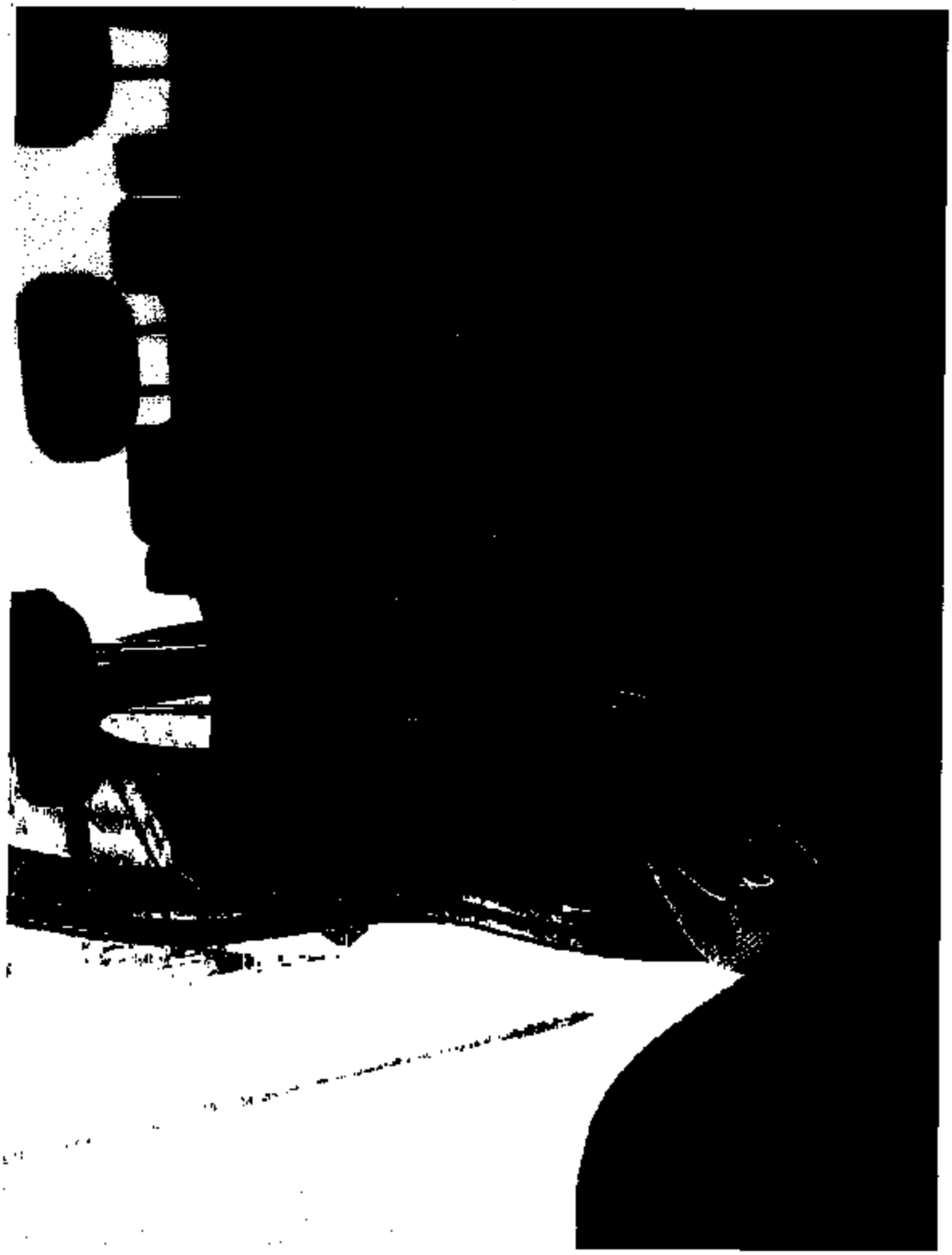
6.7.4 Center position photo #2



6.7.5 RH position photo #1

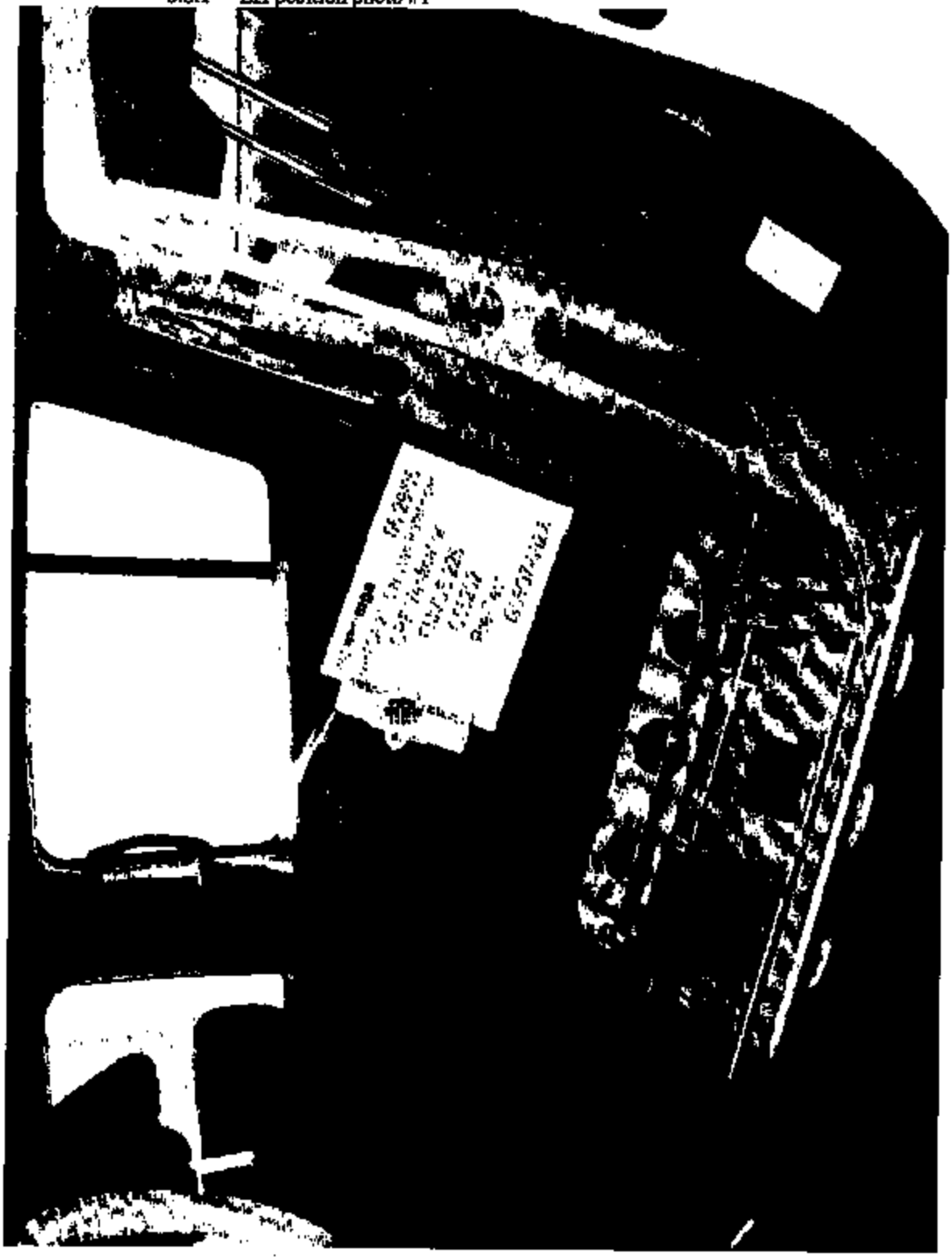


6.7.6 RH position photo #2

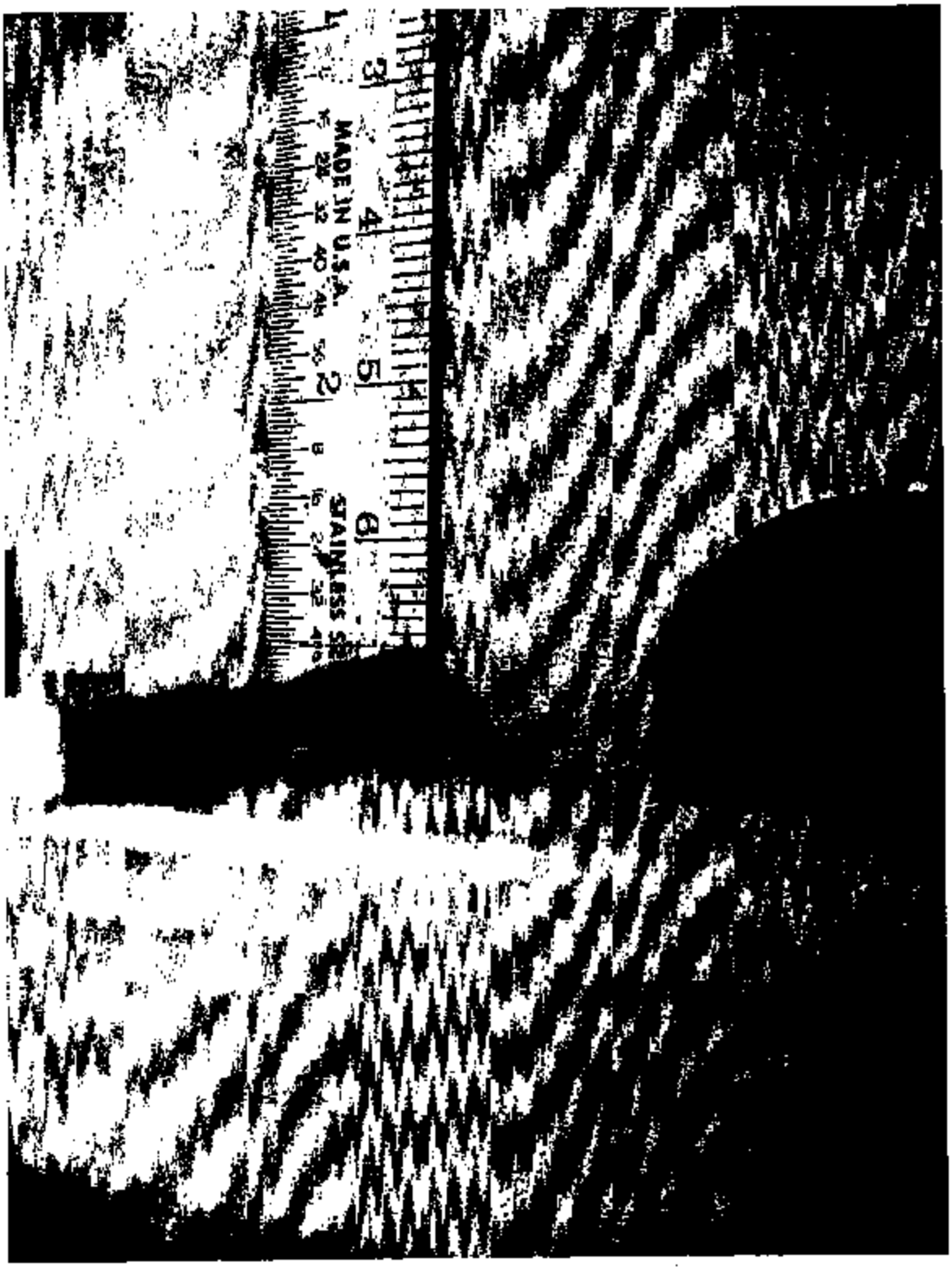


6.8 CRF verification

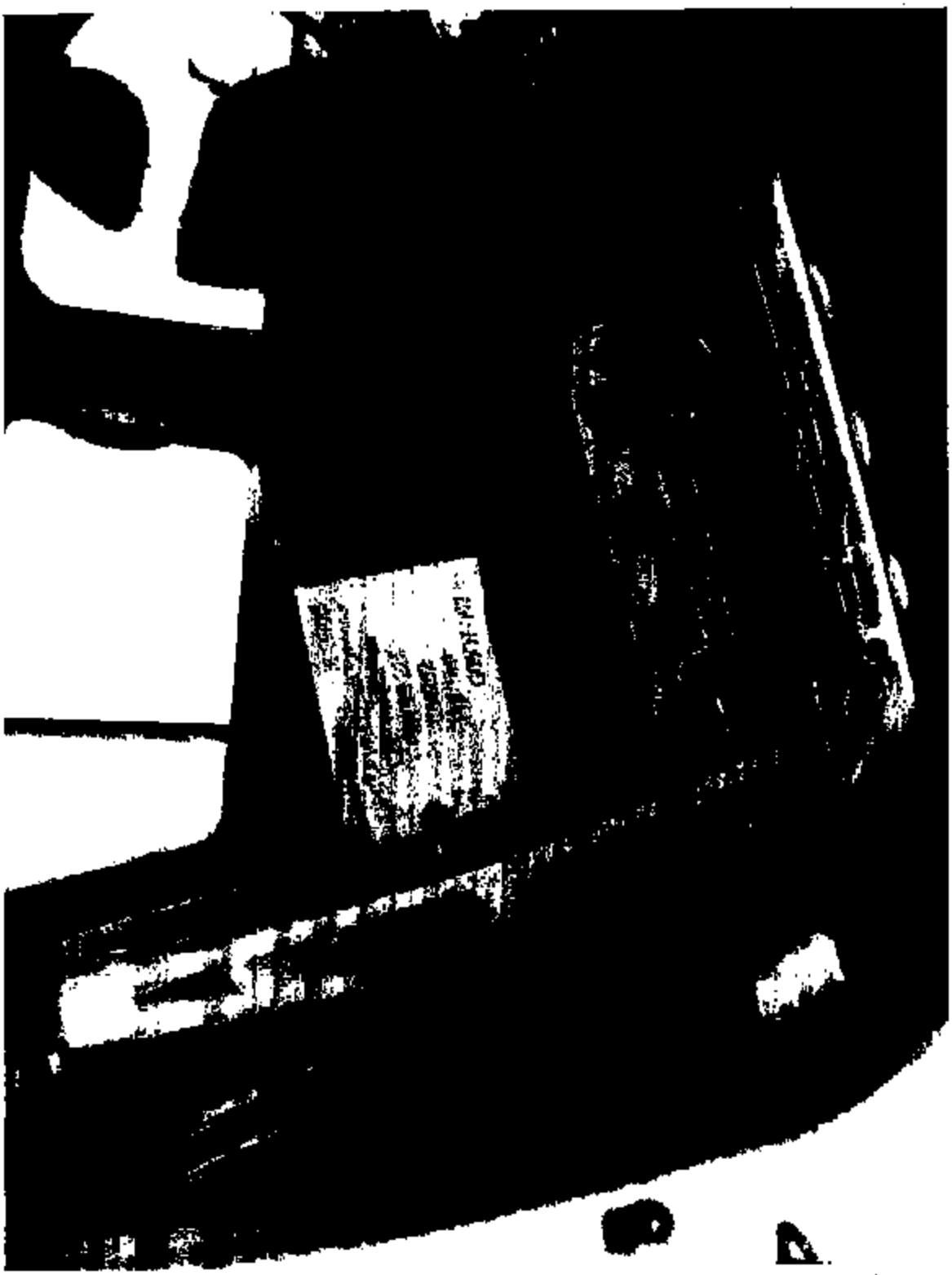
6.8.1 LH position photo #1



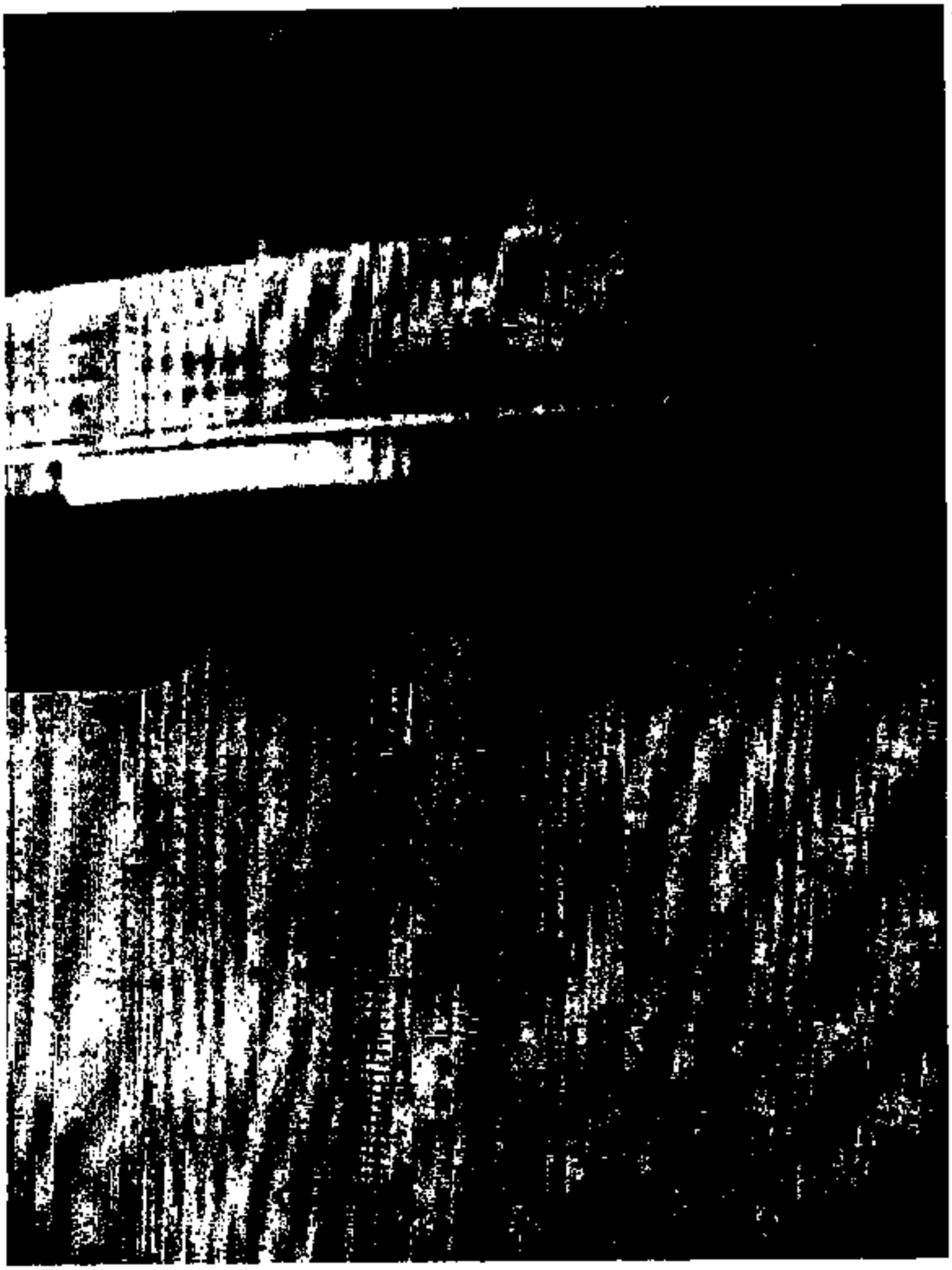
6.8.2 LH position photo #2



6.8.3 RH position photo #1

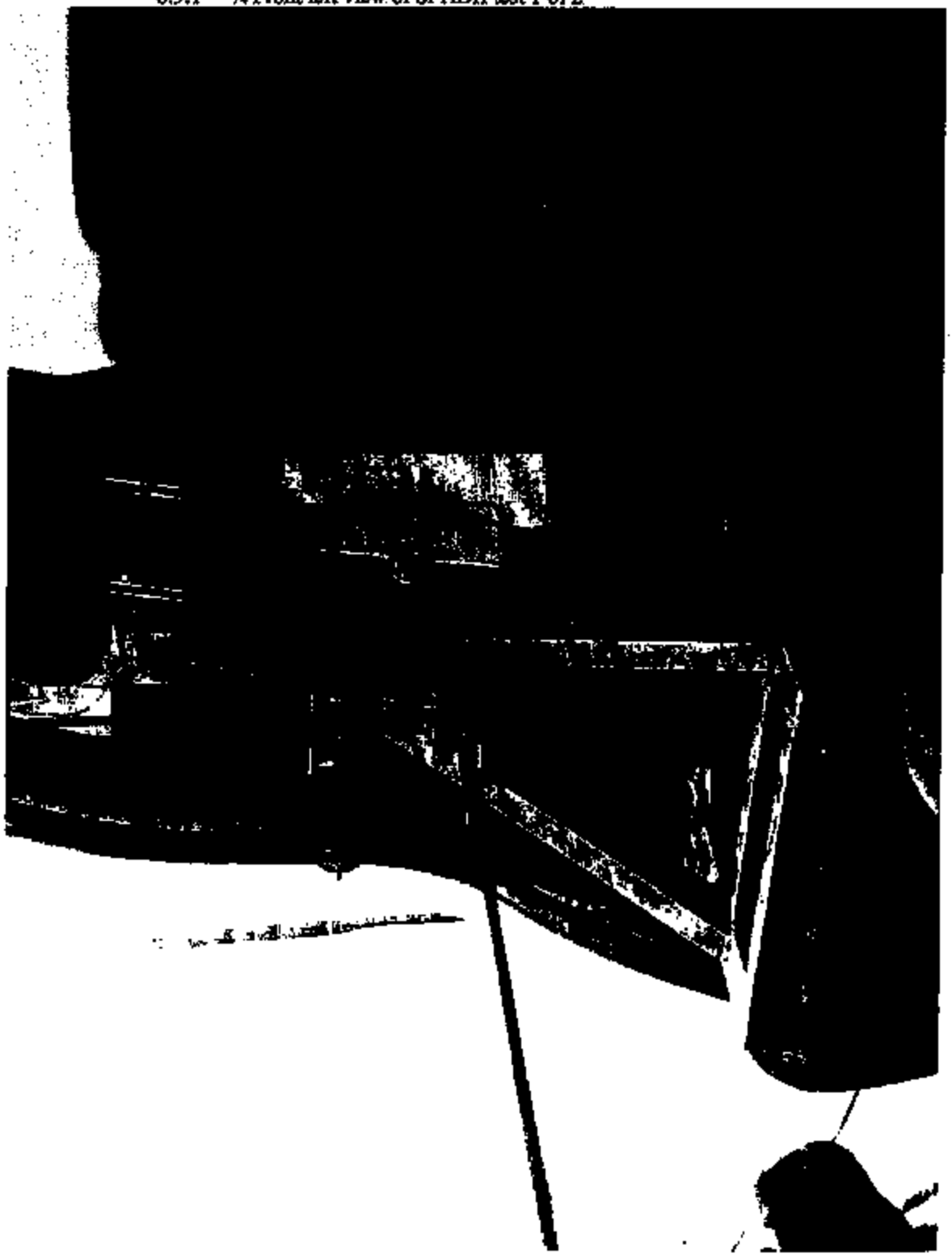


6.8.4 RH position photo #2



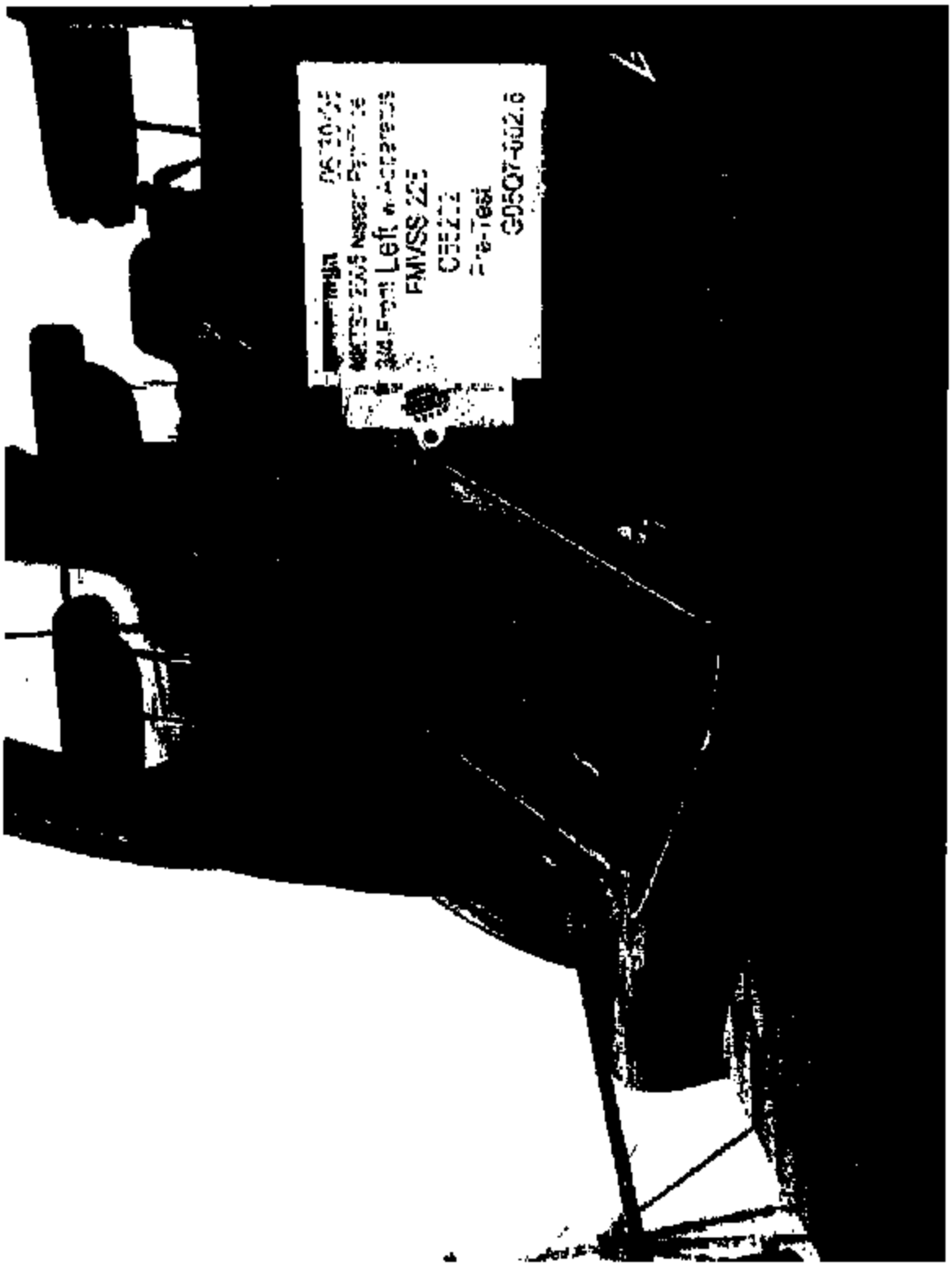
6.9 ¾ Front view of test vehicle with test apparatus in place

6.9.1 ¾ Front left view of SFADII test 1 of 2

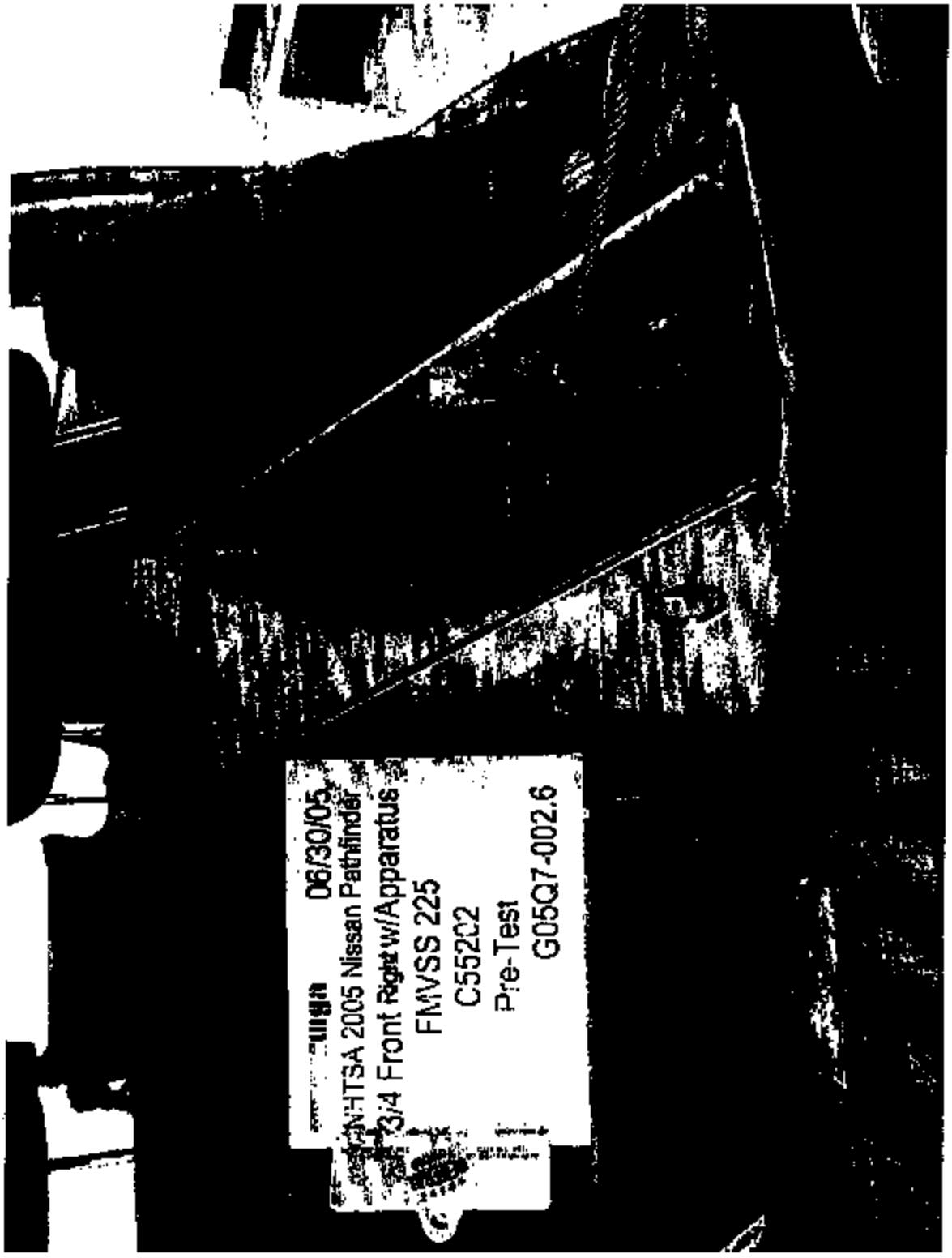


6.9.2 ¾ Front right view of SFADII test 1 of 2

6.9.3 ¾ Front left view of SFADI test 2 of 2

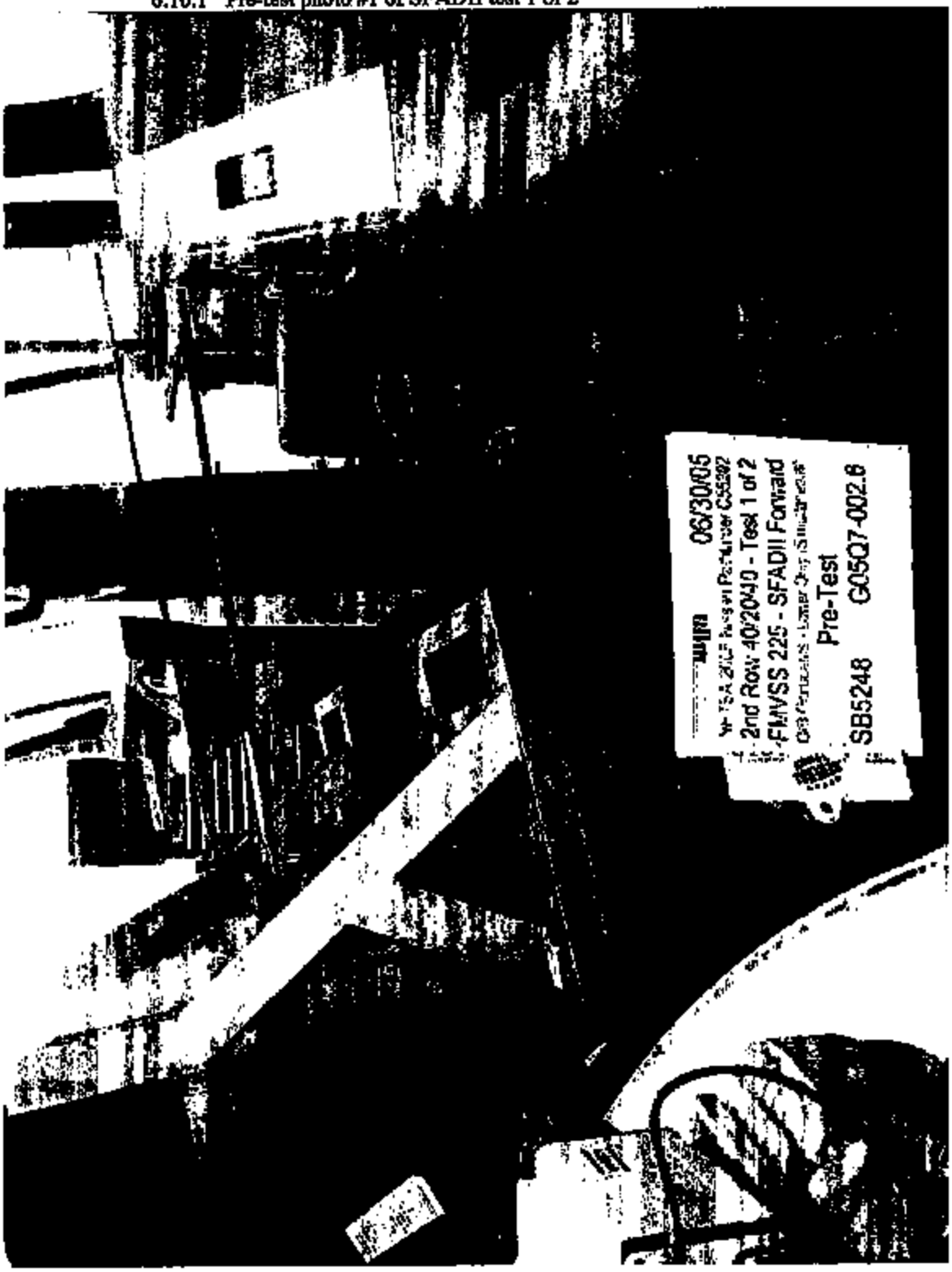


6.9.4 ¾ Front right view of SFADI test 2 of 2

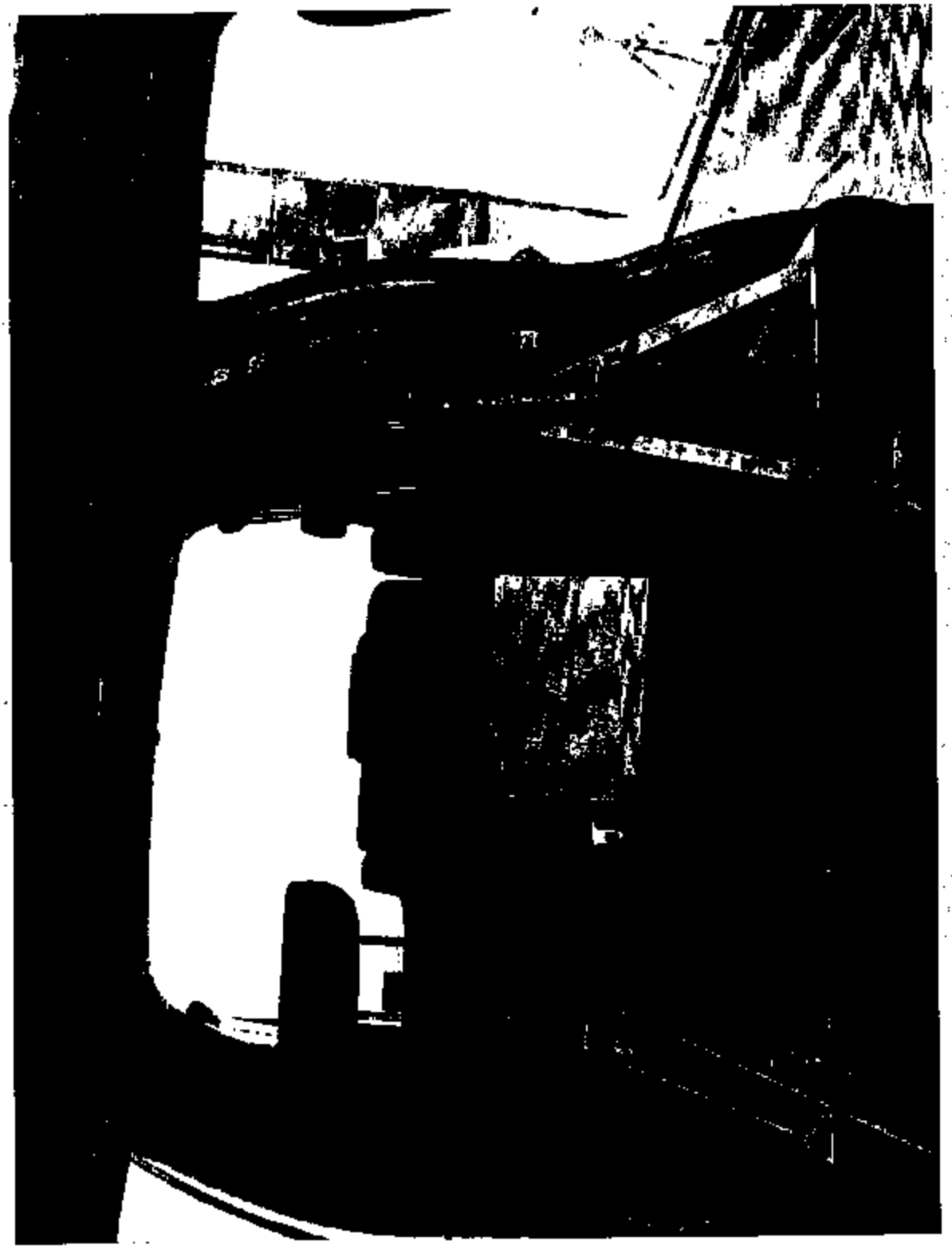


6.10 Pre-test views of each child restraint anchorage system installed in the vehicle.

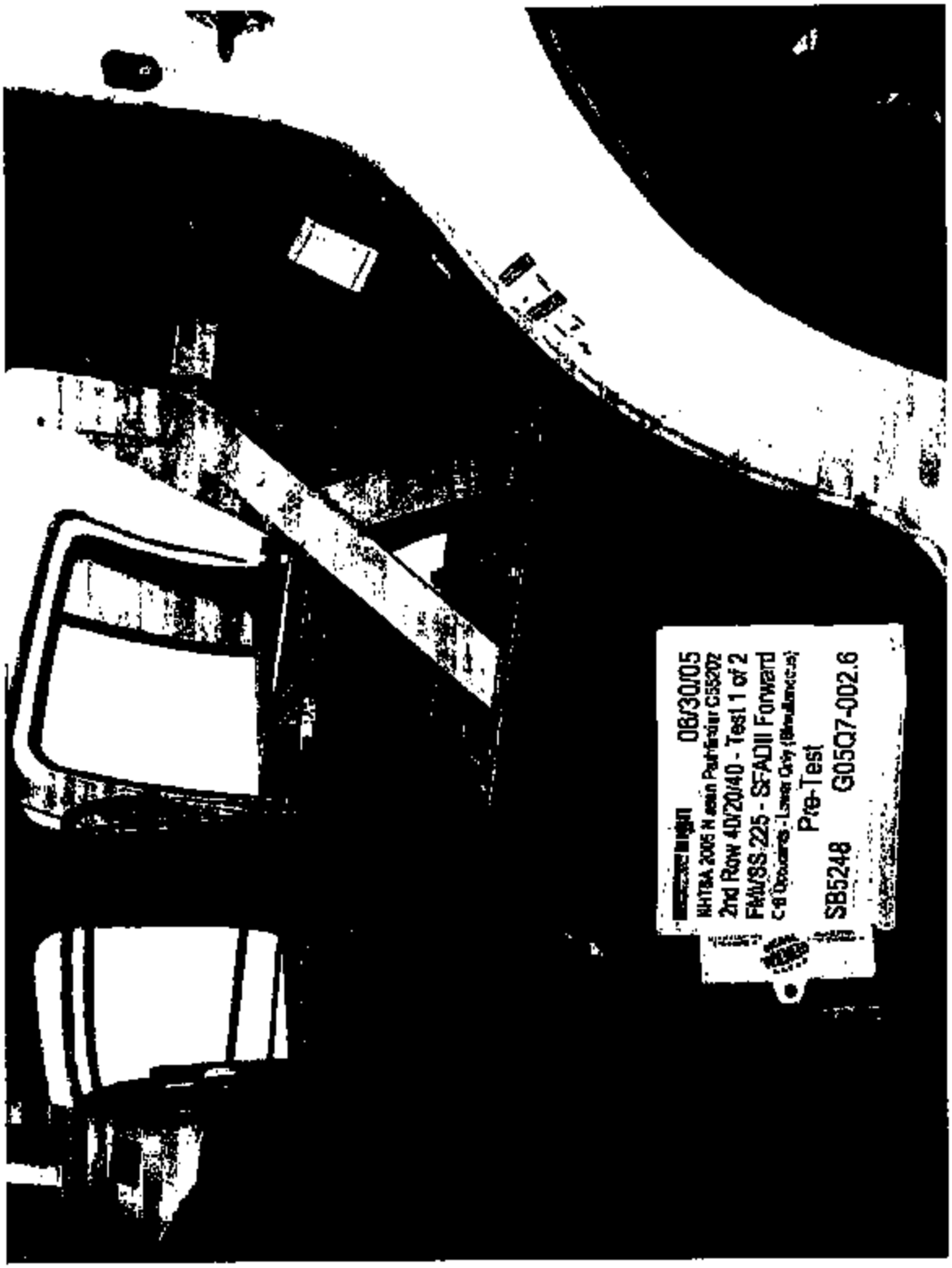
6.10.1 Pre-test photo #1 of SFADII test 1 of 2



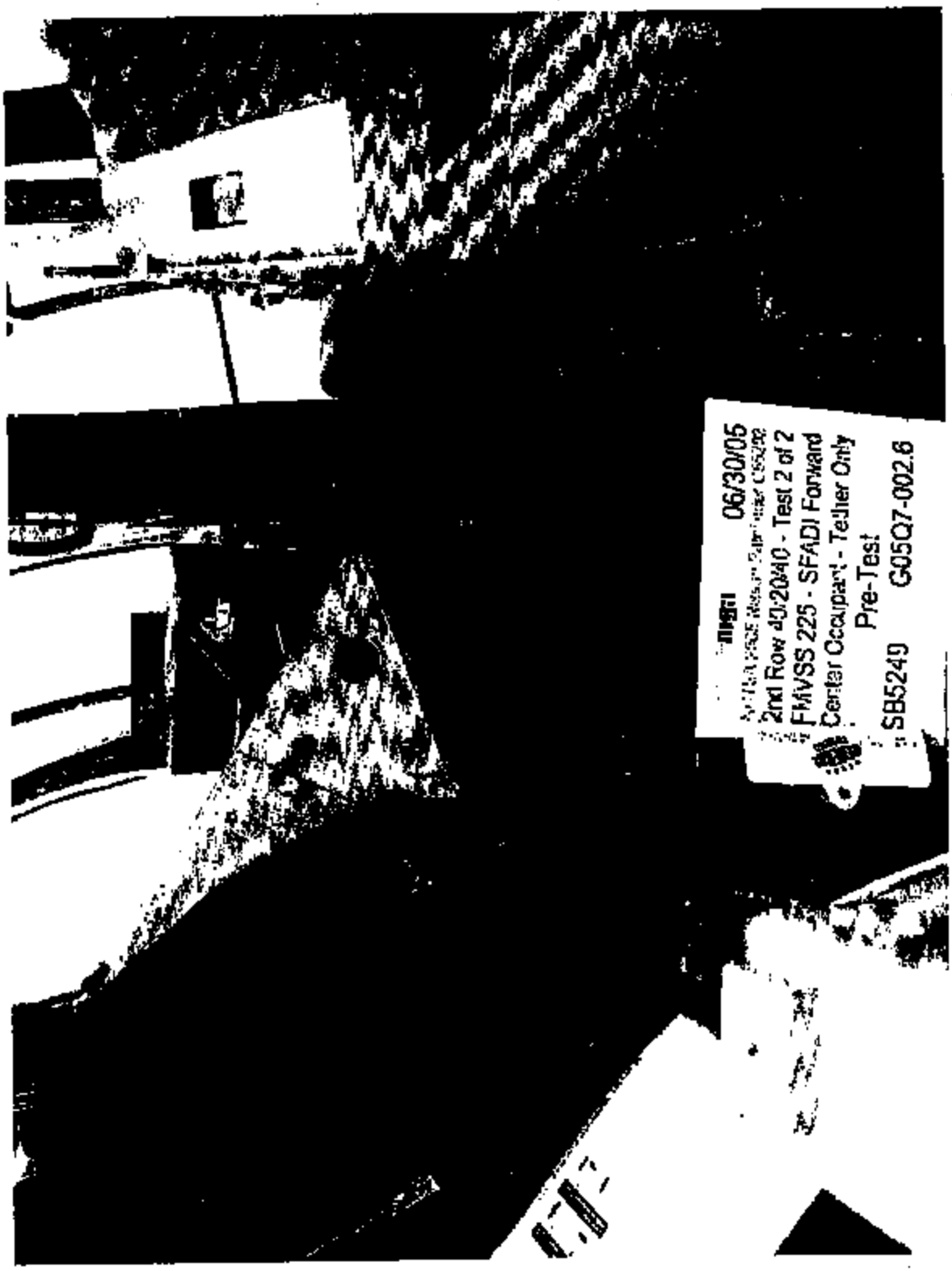
6.10.2 Pre-test photo #2 of SFADII test 1 of 2



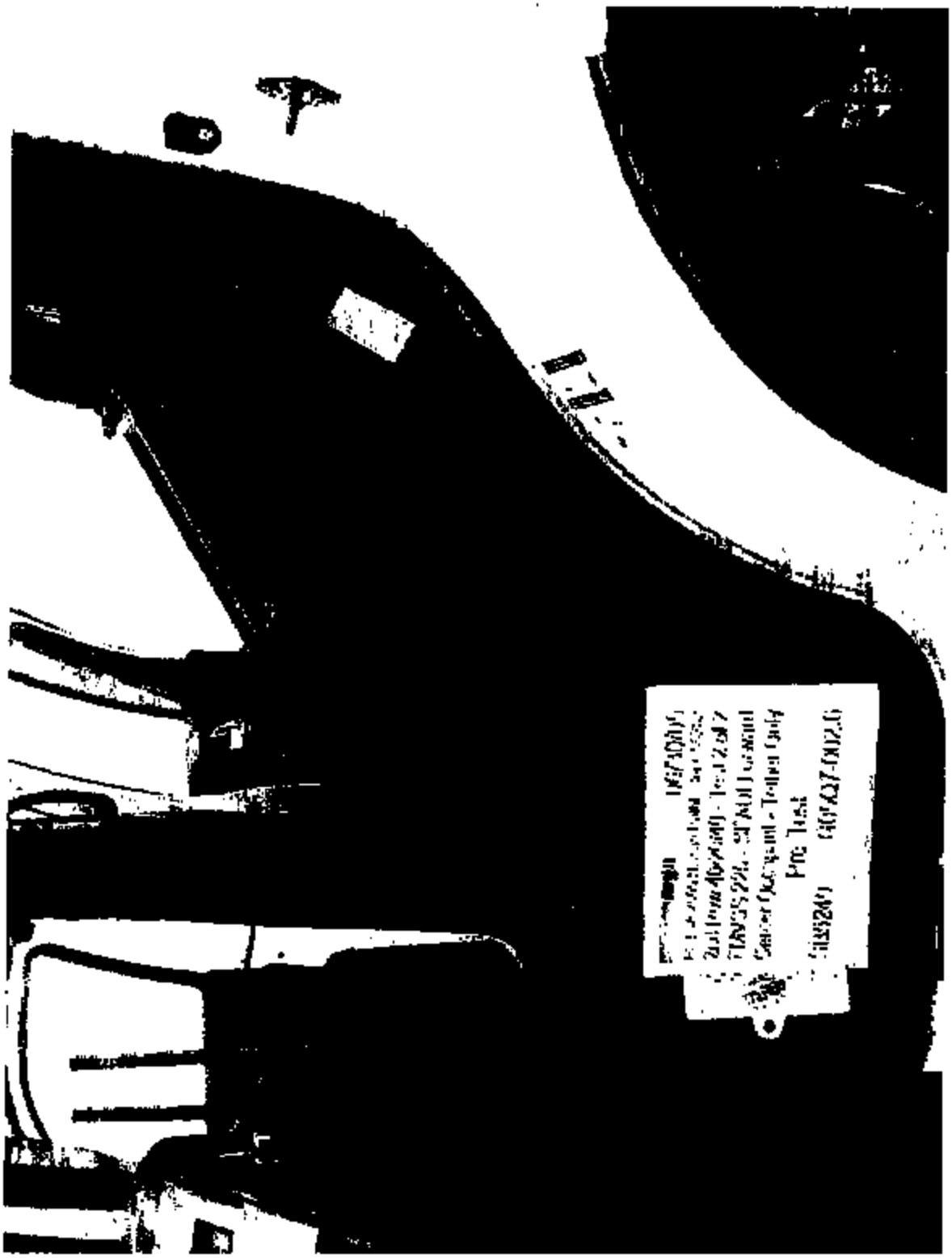
6.10.3 Pre-test photo #3 of SFADII test 1 of 2



6.10.4 Pre-test photo #1 of SFADI test 2 of 2



6.10.5 Pre-test photo #2 of SFADI test 2 of 2

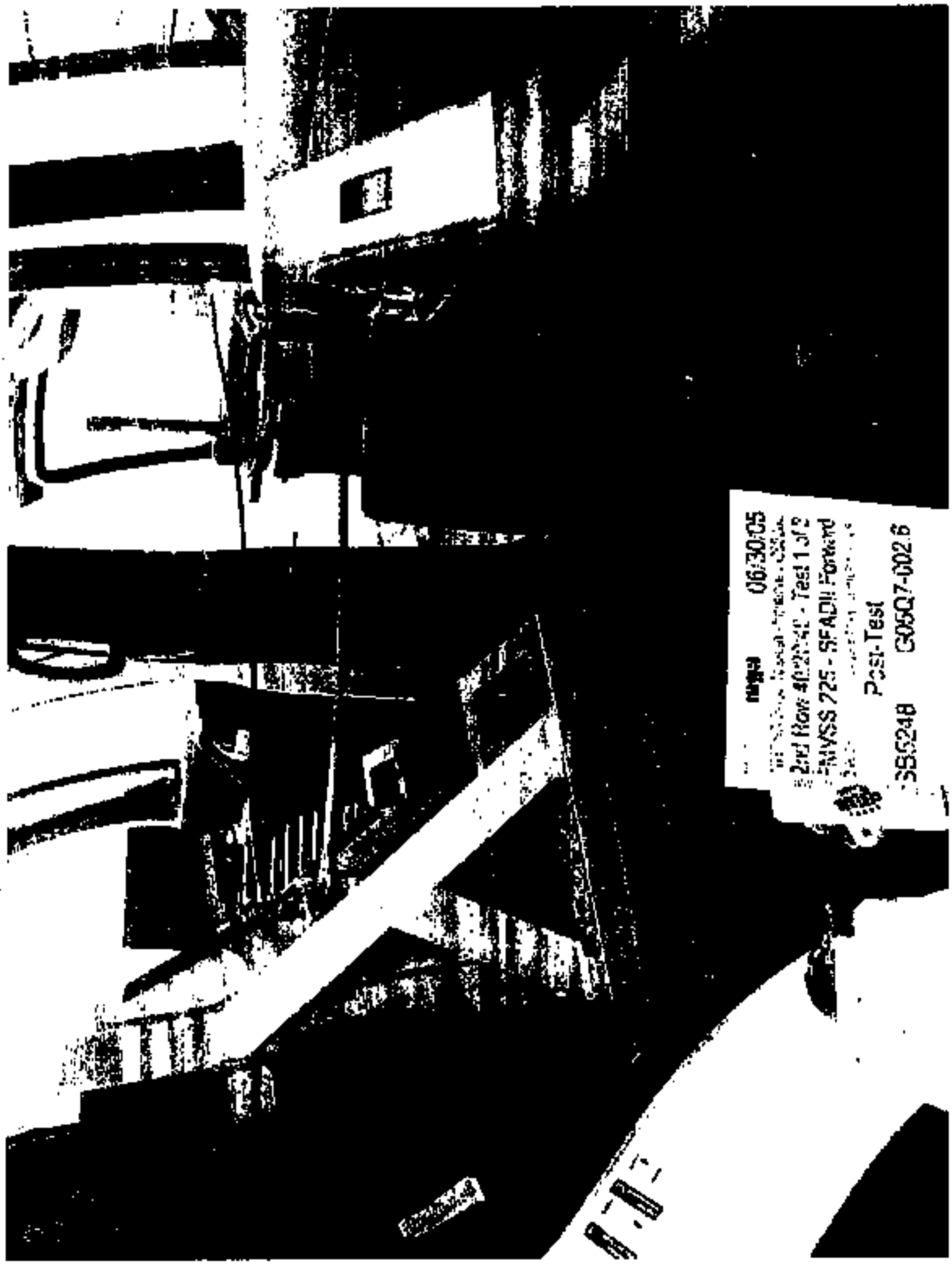


6.10.6 Pre-test photo #3 of SFADI test 2 of 2

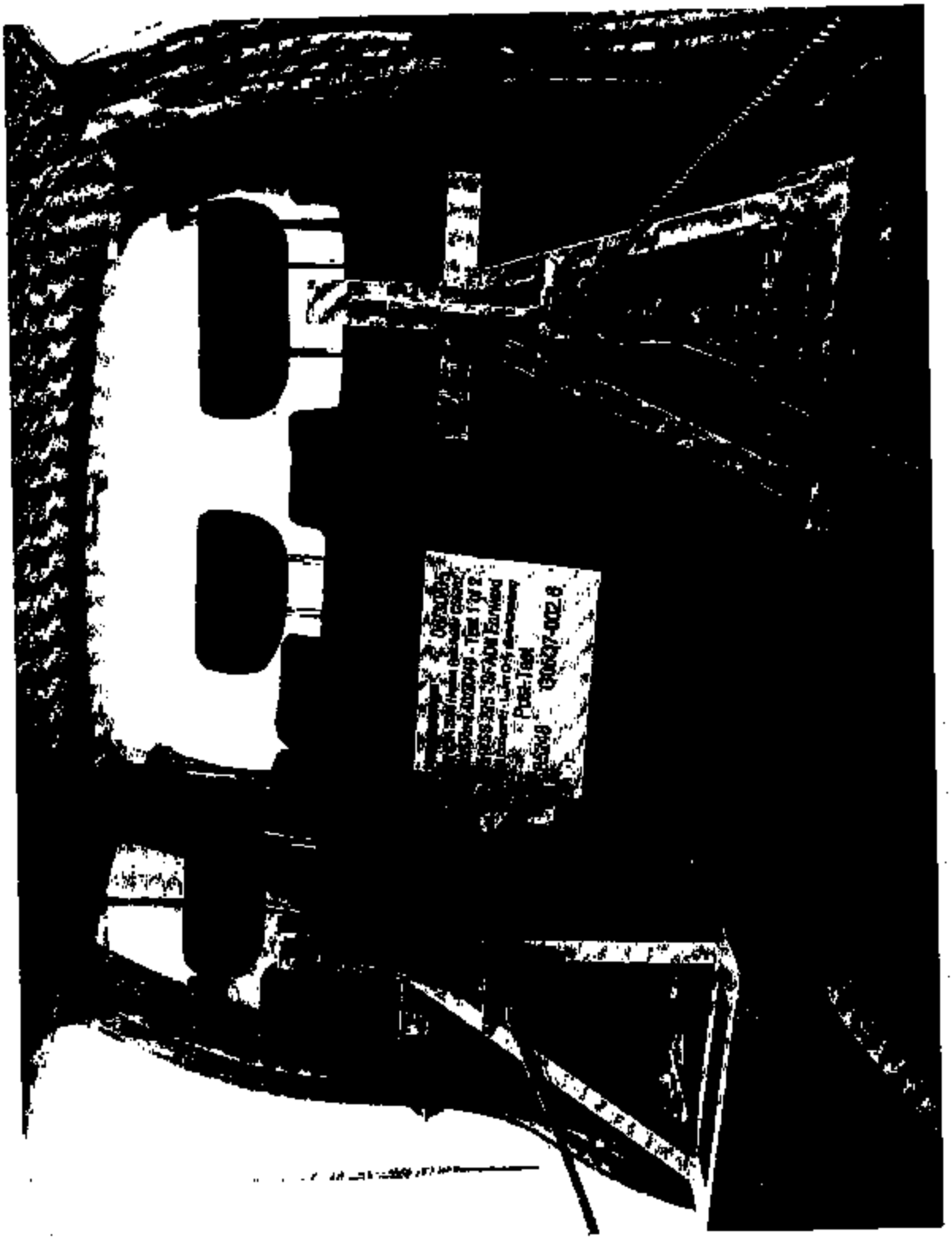
6.11 Post-test condition of each child restraint anchorage system

6.11.1 Post-test photo #1 of SFADII test 1 of 2

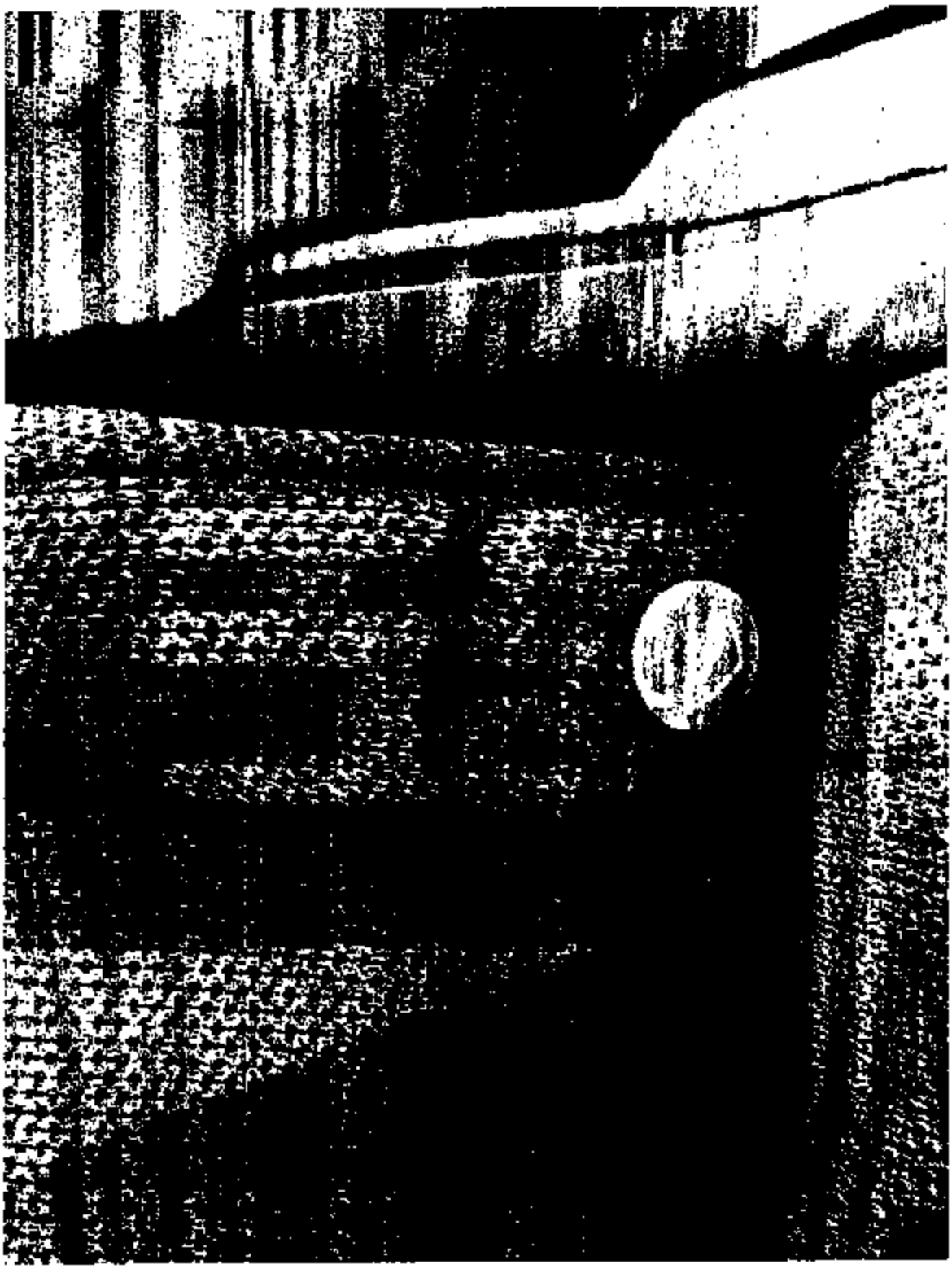
6.11.2 Post-test photo #2 of SFADII test 1 of 2



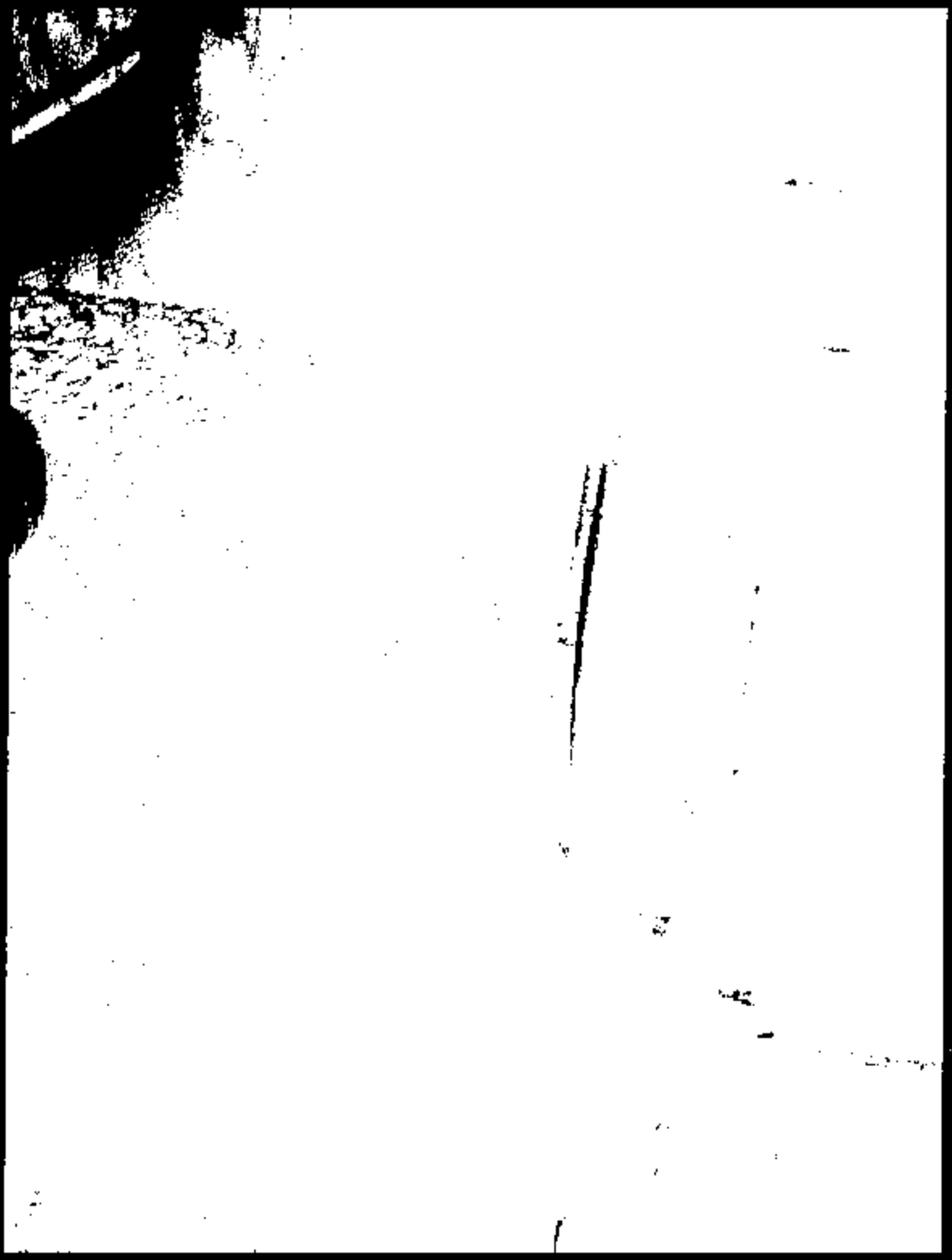
6.11.3 Post-test photo #3 of SFADII test 1 of 2



6.11.4 Post-test photo #4 of SFADII test 1 of 2



6.11.5 Post-test photo #5 of SFADII test 1 of 2



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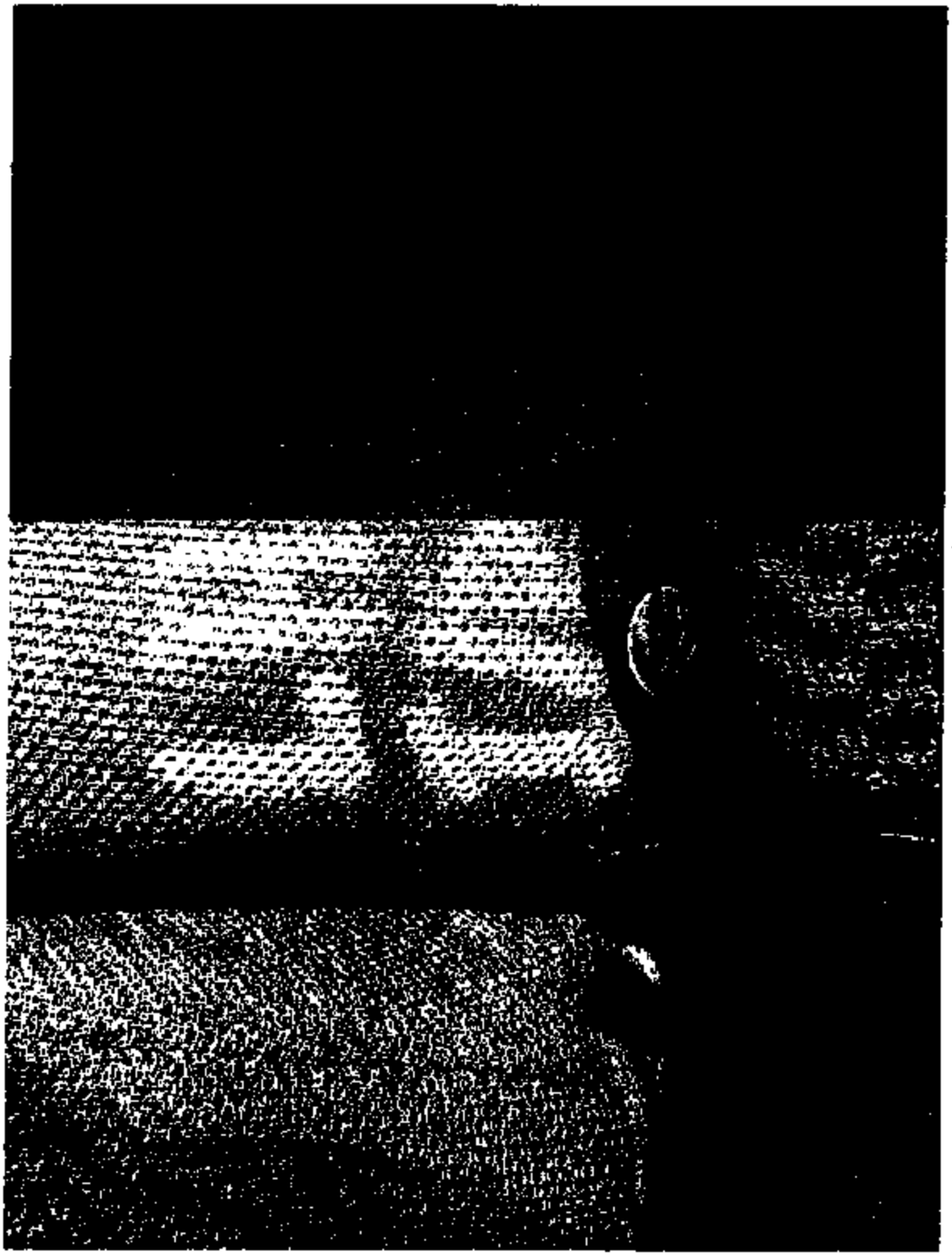

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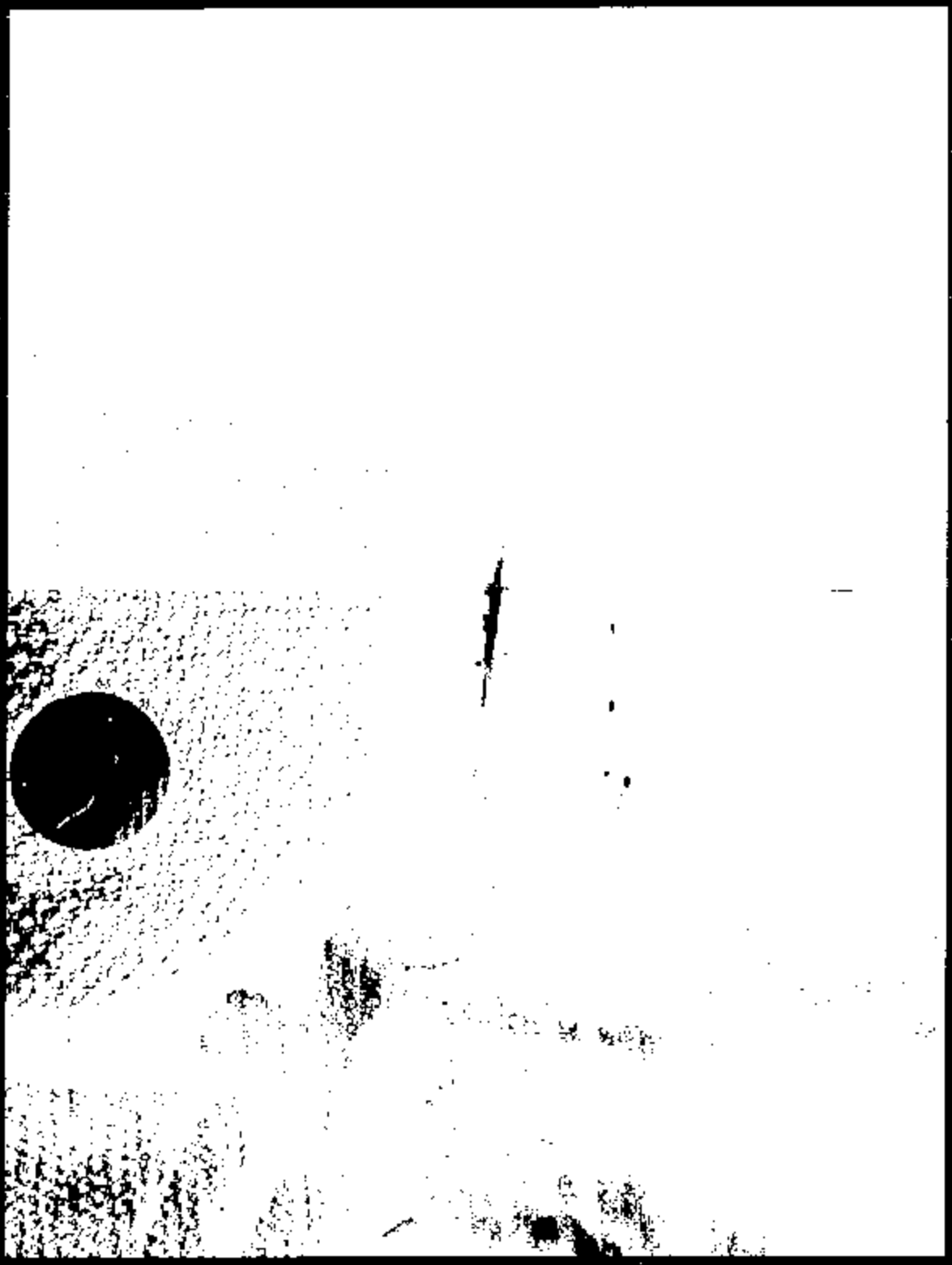

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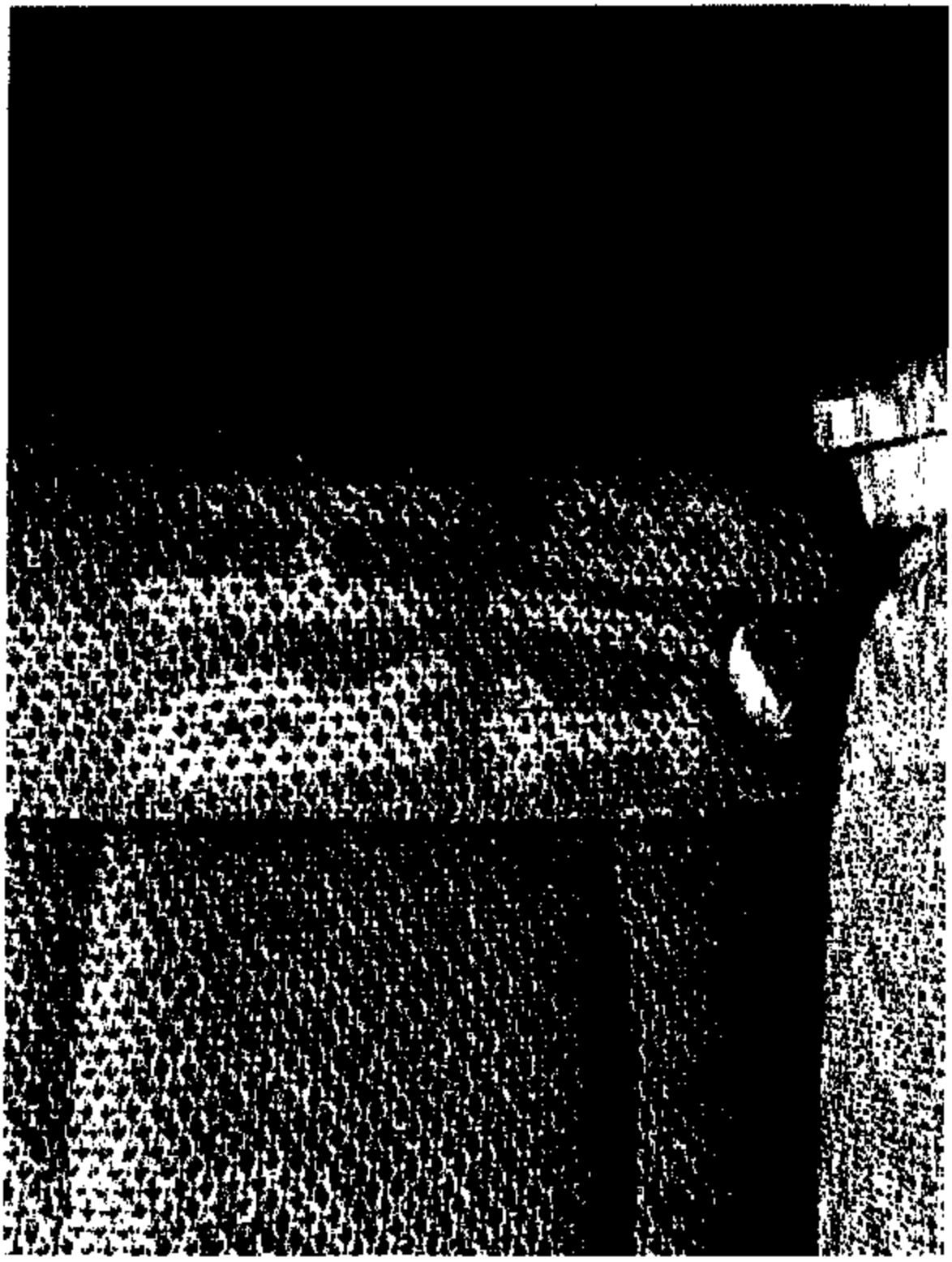

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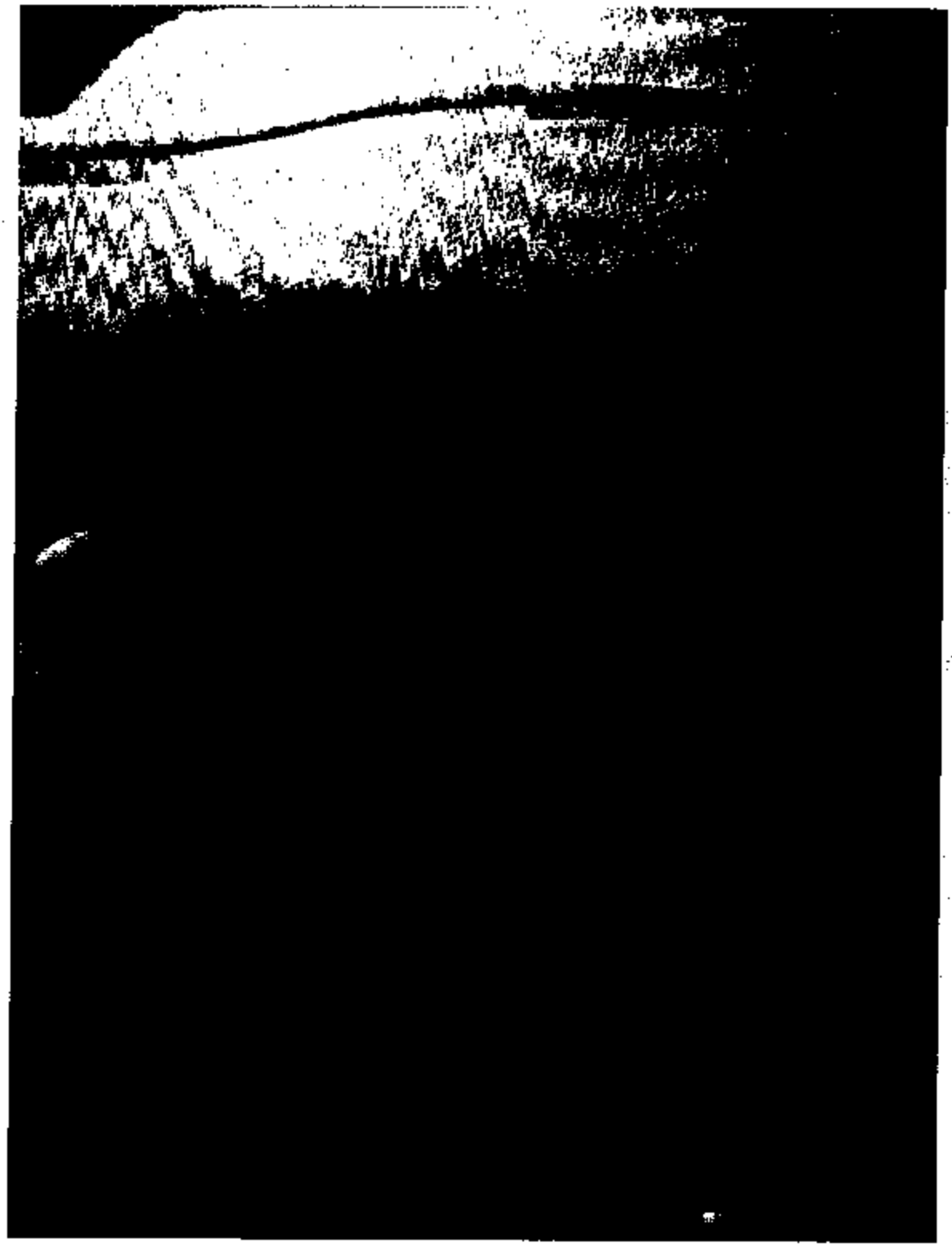

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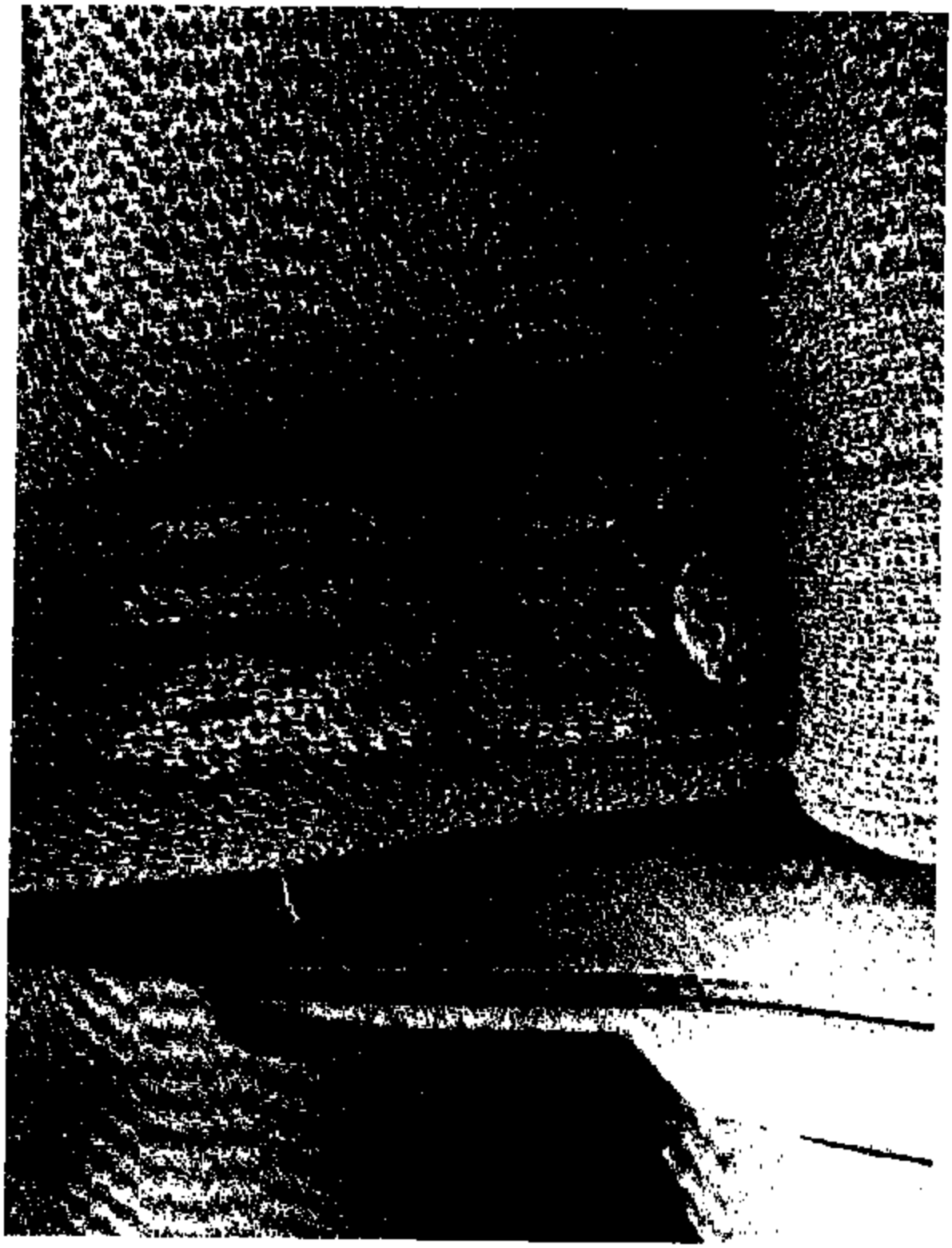
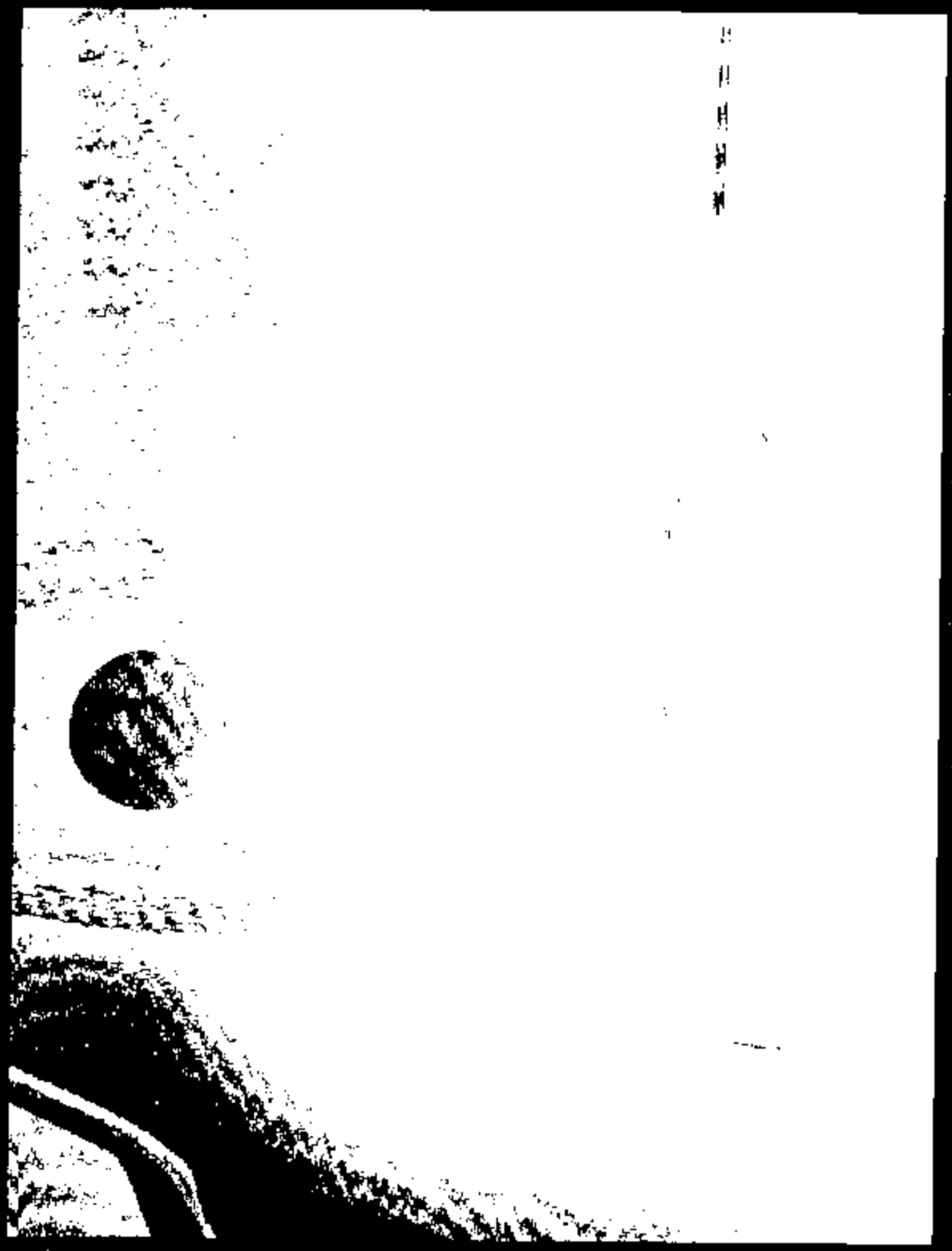
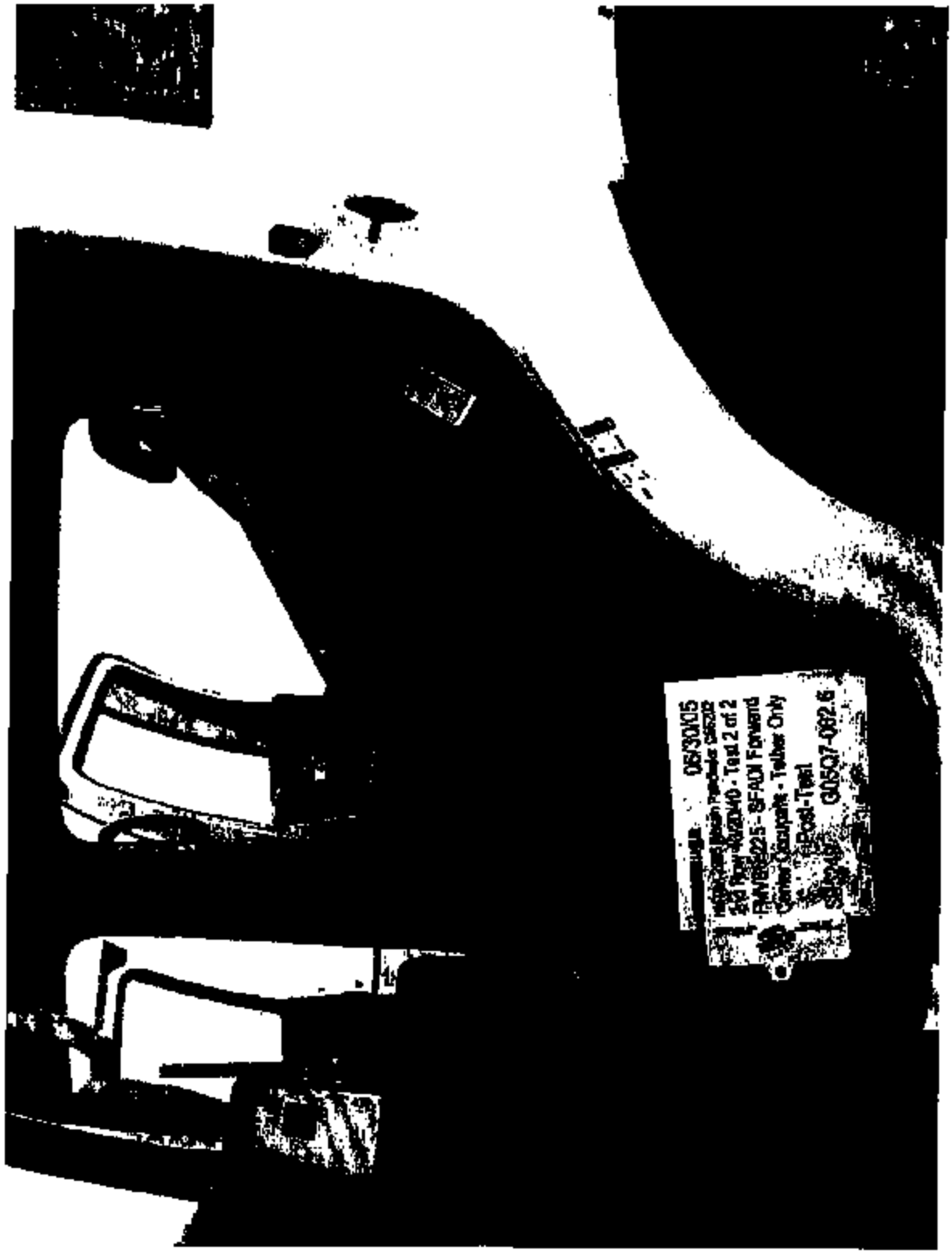


6.11.11 Post-test photo #11 of SFADII test 1 of 2



6.11.12 Post-test photo #12 of SFADI test 2 of 2



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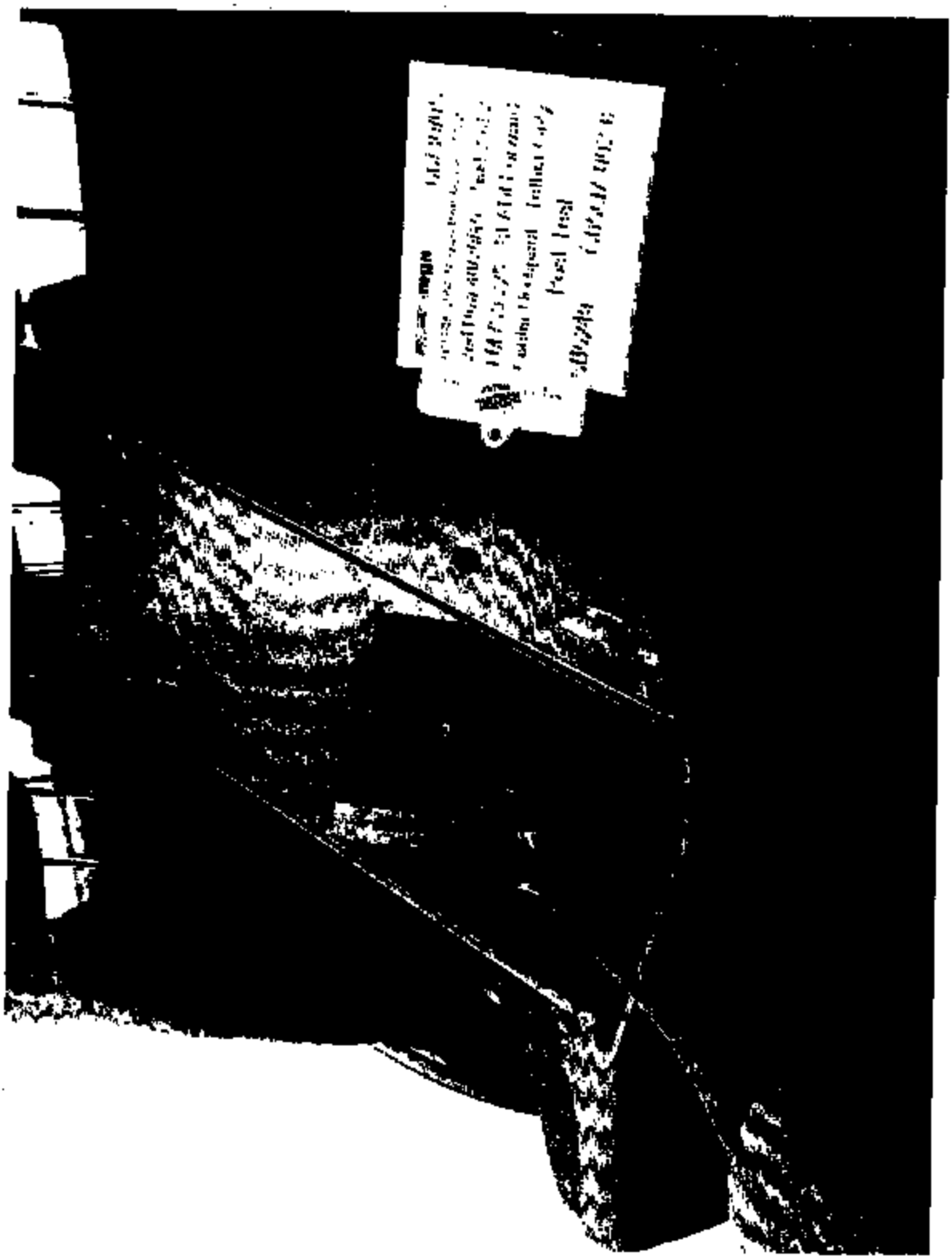

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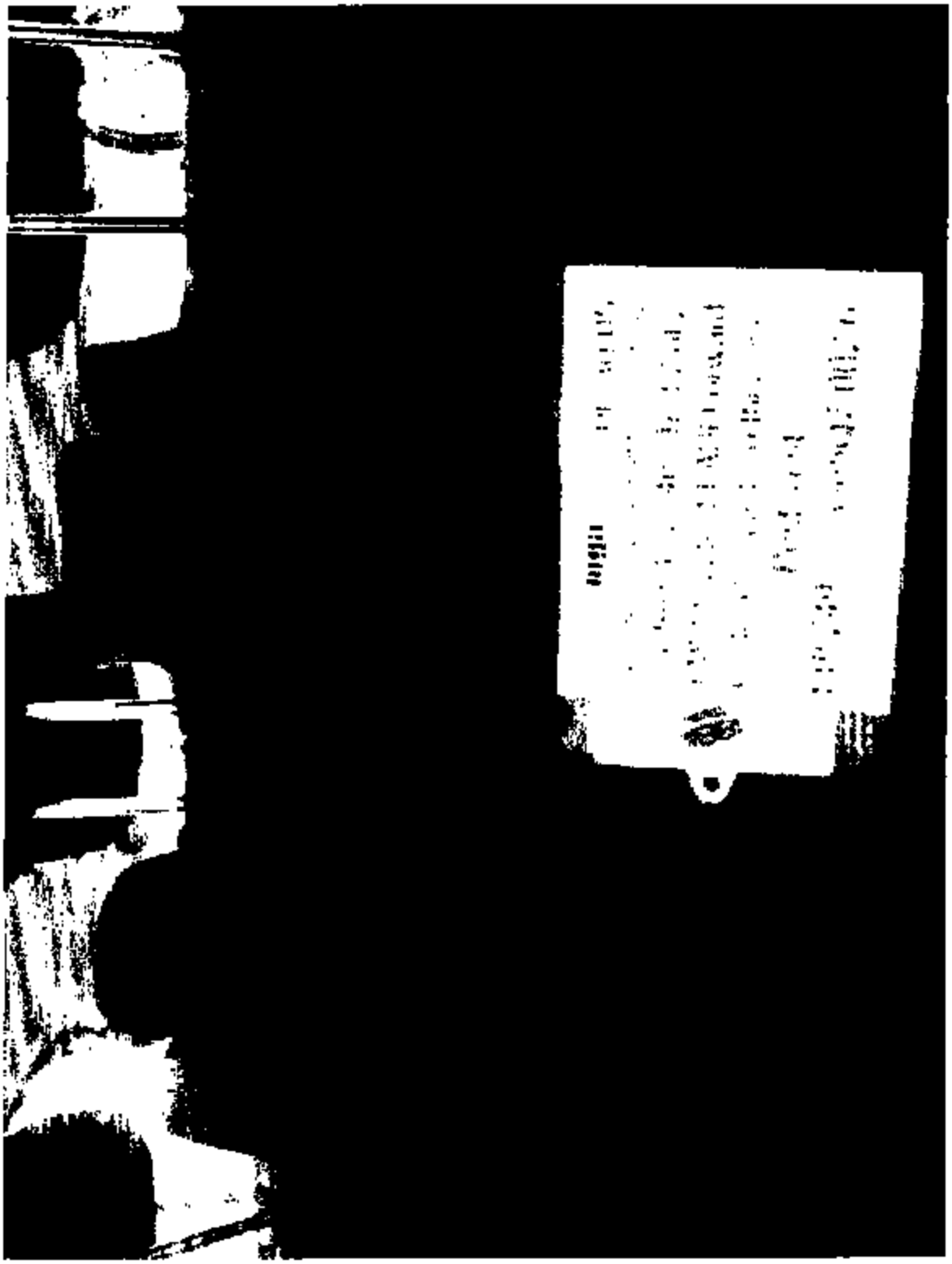
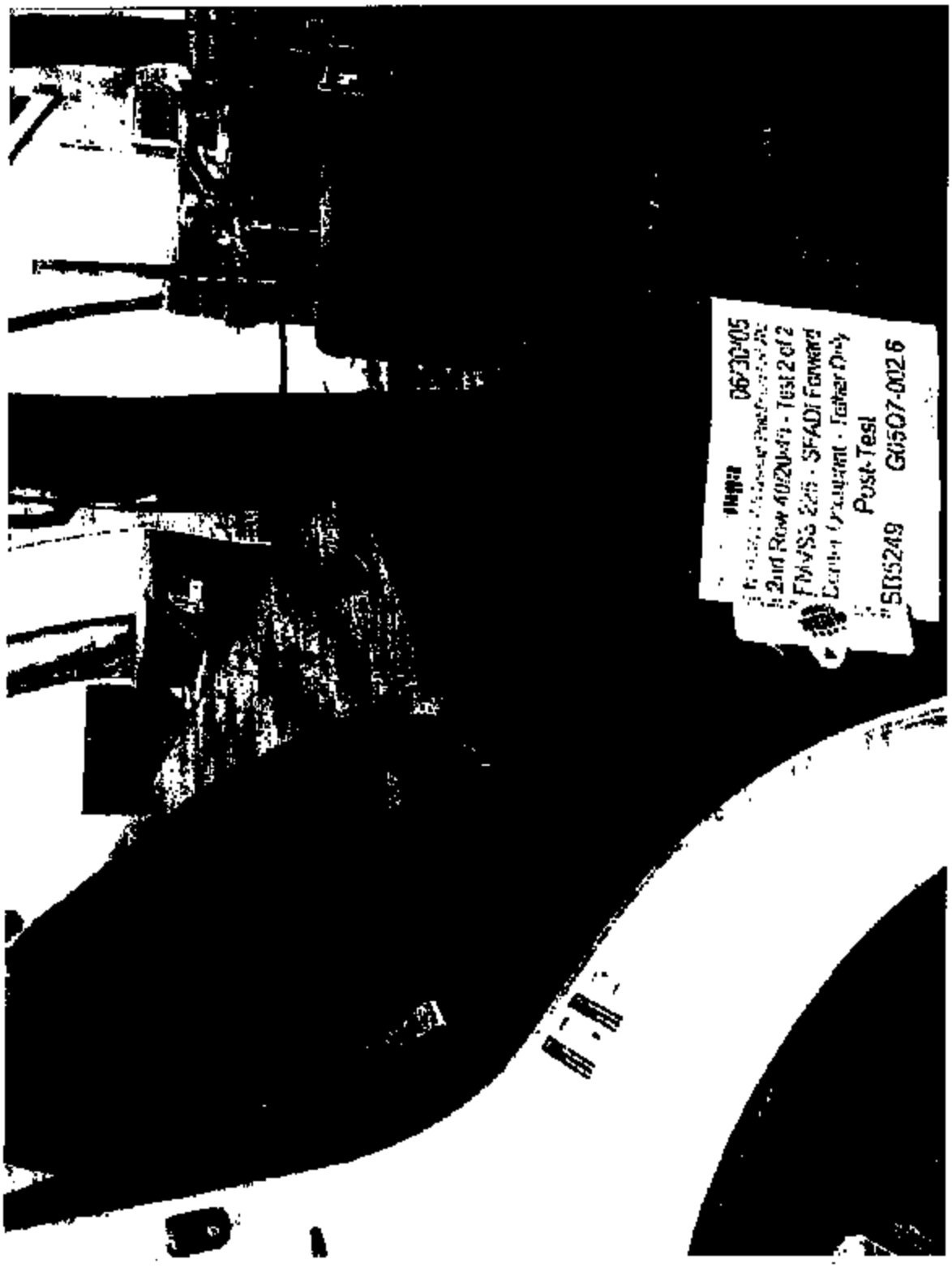
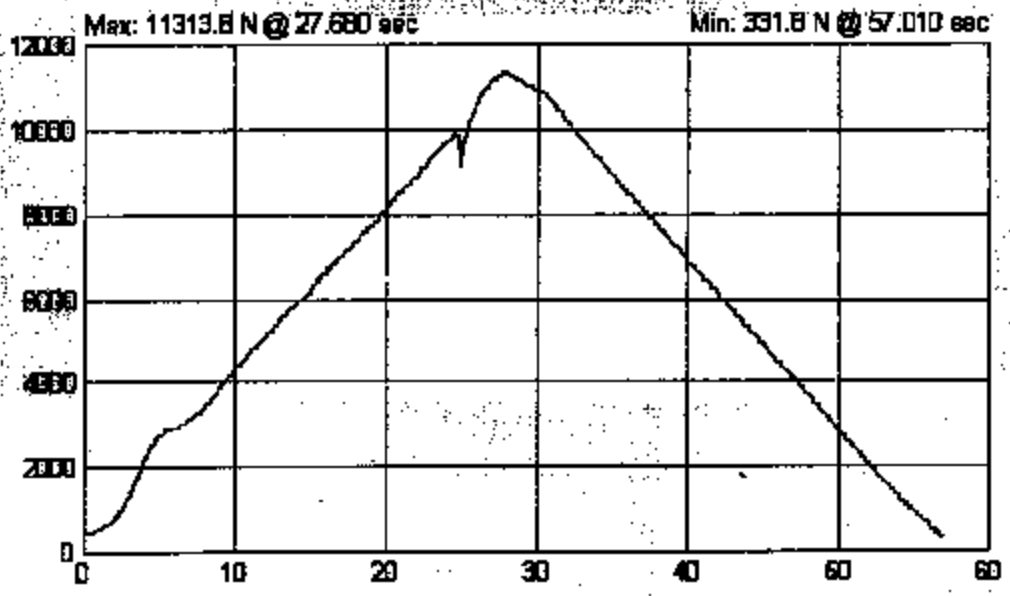


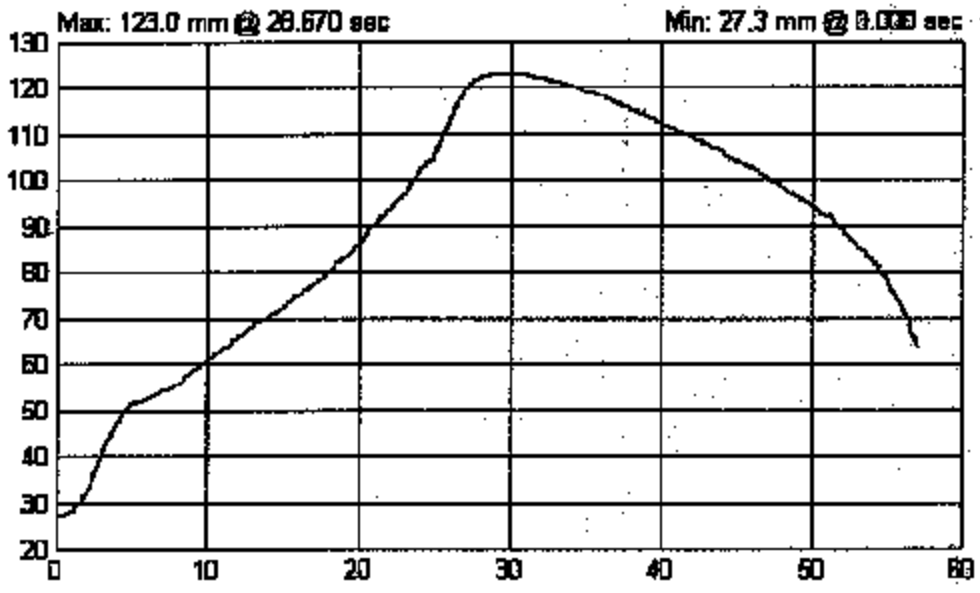
6.11.15 Post-test photo #15 of SFADI test 2 of 2



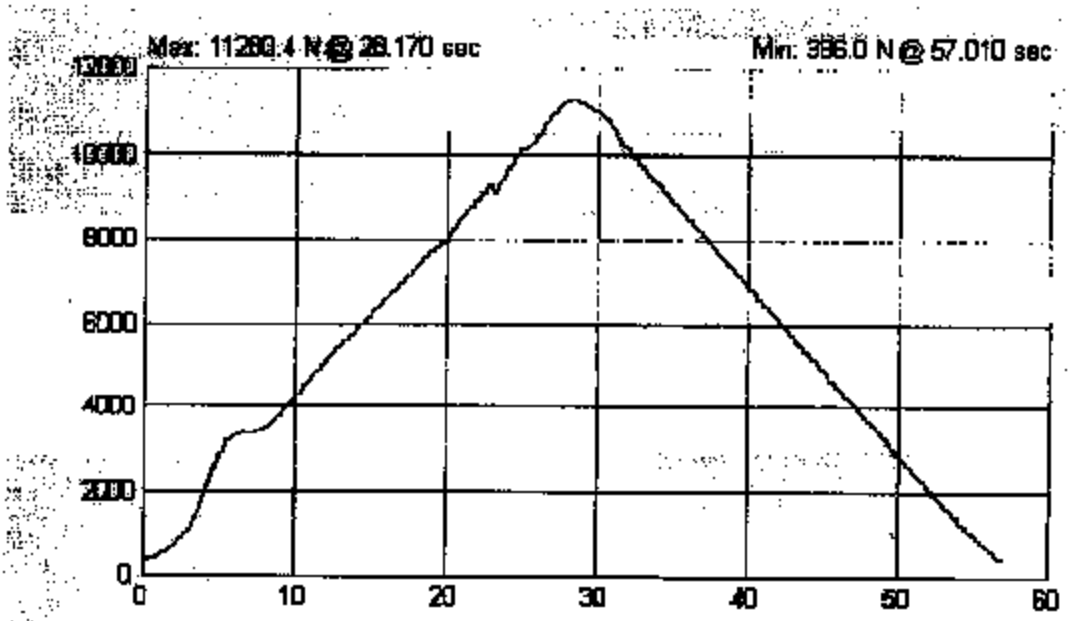
7.0 PLOTS



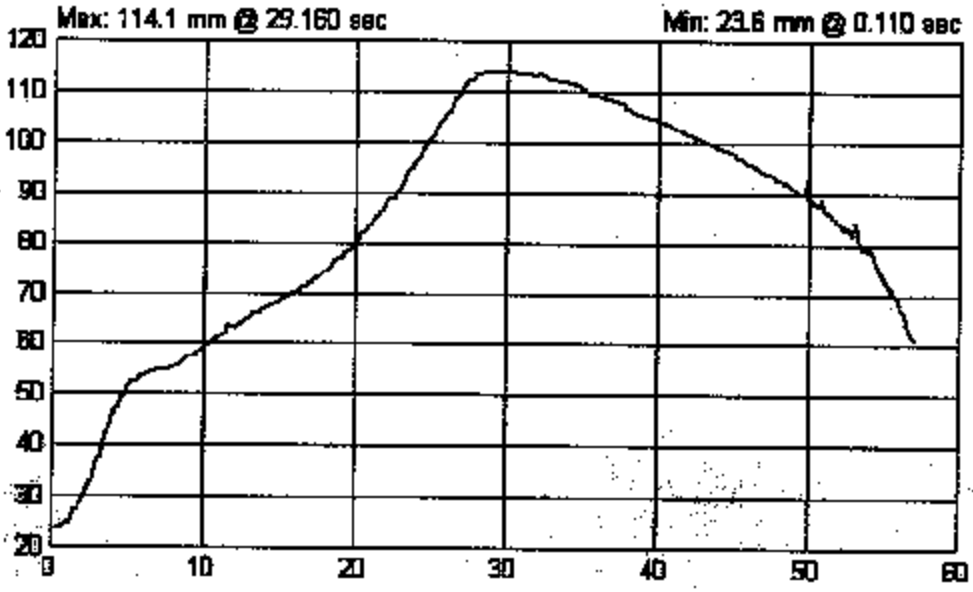
Run# SB5248: Lower Anchor Test (S9.4)-RS LH Load (N) vs. Time (sec)



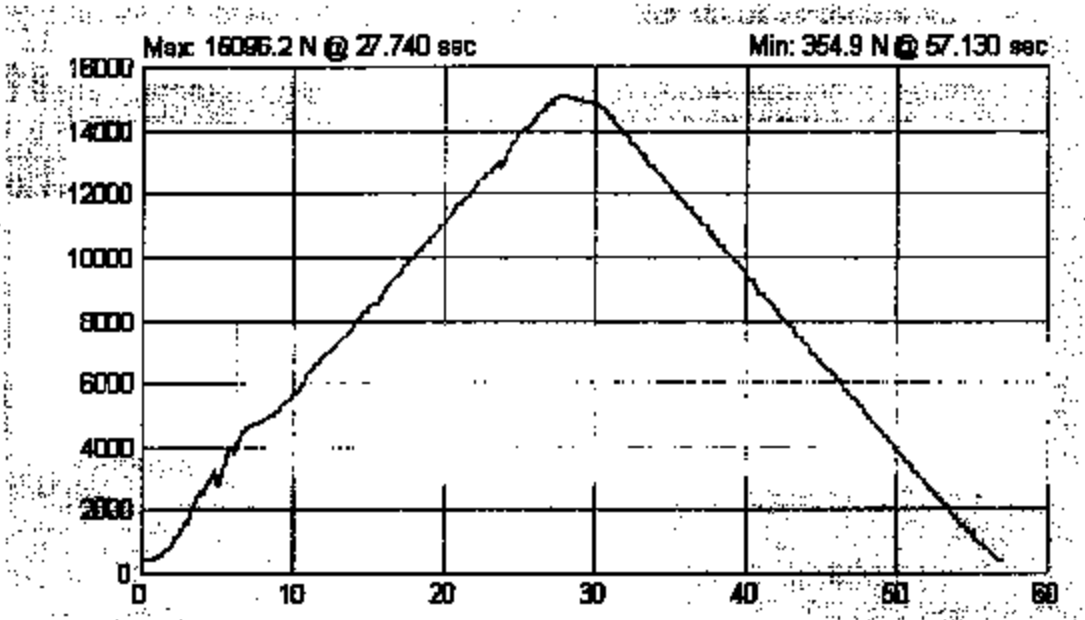
Run# SB5248: LH X Displacement (S9.4) (mm) vs. Time (sec)



Run# SB5248: Lower Anchor Test (S9.4)-RS RH Load (N) vs. Time (sec)



Run# SB5248: RH X Displacement (S9.4) (mm) vs. Time (sec)



Run# SB5249: Top Tether Test (S6.3.1)-RS 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: June 30, 2005

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

To: NHTSA, OVSC, NVS-220

The following vehicle has been subjected to compliance testing for FMVSS No. 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: 2005 Nissan Pathfinder

VEH. NHTSA NO.: C55202 VIN: 5N1AR18W18C738075

COLOR: White

ODOMETER READINGS: ARRIVAL 37 miles Date: 03/29/05

COMPLETION 40 miles Date: 06/30/05

PURCHASE PRICE: N/A DEALER'S NAME: Suburban Nissan

ENGINE DATA: 6 Cylinders ____ Liters 241 Cubic Inches

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

FINAL DRIVE DATA: ____ Rear Drive ____ Front Drive X 4 Wheel Drive

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Melanie Schick, Brad Reaume, Kenney Godfrey

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/Compact Disc		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 and front seats were removed before conducting the testing.

Test Vehicle Condition:

Salvage only.

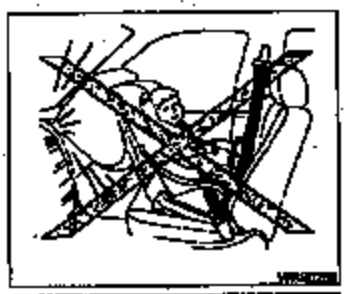
RECORDED BY: Melanie Schick, Kenney Godfrey DATE: June 30, 2005

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

CHILD RESTRAINTS

- Periodically check to see that the seat belt and the metal components, such as buckles, tongues, retractors, flexible wires and anchors, work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire seat belt assembly should be replaced.



PRECAUTIONS ON CHILD RESTRAINTS

[redacted]

[redacted]

1-20 Safety—Seats, seat belts and supplemental restraint system

[redacted]

In general, child restraints are designed to be installed with the lap portion of a lap/shoulder seat belt. In addition, the vehicle is equipped with a universal child restraint lower anchor system, referred to as the LATCH (Lower Anchors and Tethers for CHildren) system. Some child restraints include two rigid or webbing-mounted attachments that can be connected to these lower anchors. For details, see the "LATCH (Lower Anchors and Tethers for CHildren) system" later in this section.

Child restraints for infants and small children of various sizes are offered by several manufacturers. When selecting any child restraint, keep the following points in mind:

- Choose only a restraint with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.
- Check the child restraint in your vehicle to be sure it is compatible with the vehicle's seat and seat belt system.
- If the child restraint is compatible with your vehicle, place your child in the child restraint and check the various adjustments to be sure the child restraint is compatible with your child. Choose a child restraint that is designed for your child's height and weight. Always follow all recommended procedures.

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

[redacted]

[redacted]

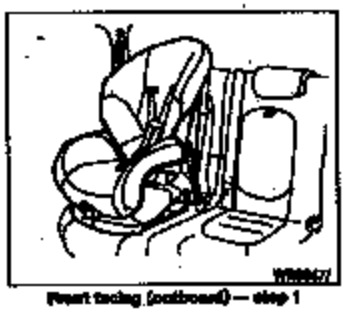
Safety—Seats, seat belts and supplemental restraint system 1-21

[redacted]

[redacted]

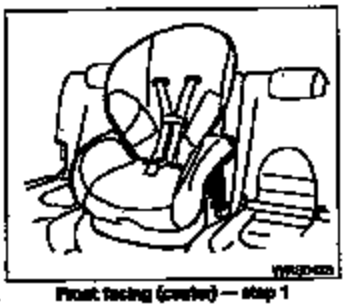
CHILD RESTRAINT INSTALLATION
ON 2ND ROW BENCH SEATS

[redacted]



Front facing (outboard) — step 1

1-22 Safety—Seats, seat belts and supplemental restraint system

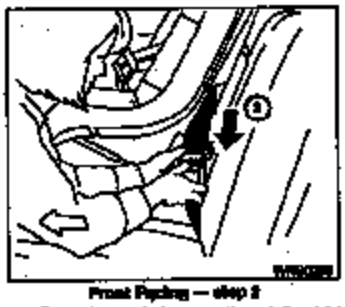


Front facing (center) — step 1

Front facing

When you install a child restraint on the 2nd row bench seat, follow these steps:

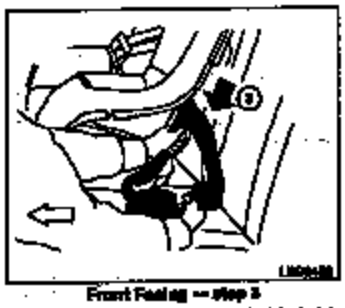
1. Position the child restraint on the seat. Always follow the restraint manufacturer's instructions. The back of the child restraint should be secured against the vehicle seat back. If necessary, adjust or remove the head restraint to obtain the correct child restraint fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the child restraint is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper child restraint fit, try another seating position or a different child restraint.



Front facing — step 2

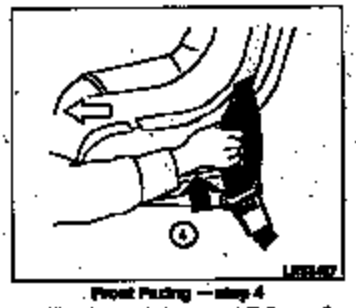
2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

Be sure to follow the child restraint manufacturer's instructions for belt routing.



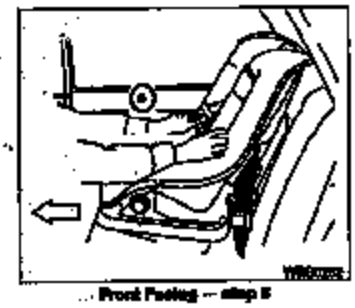
Front Facing — step 3

3. Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts back to emergency locking mode when the seat belt is fully retracted.



Front Facing — step 4

4. Allow the seat belt to retract. Pull up on the shoulder belt to remove any slack in the belt.



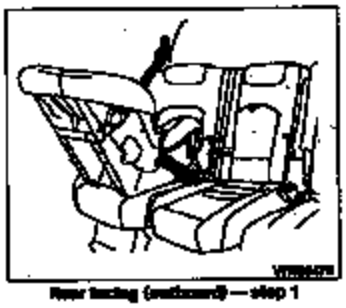
Front Facing — step 5

5. Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25 mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another seating position and try again, or try a different child restraint. Not all child restraints fit in all types of vehicles.

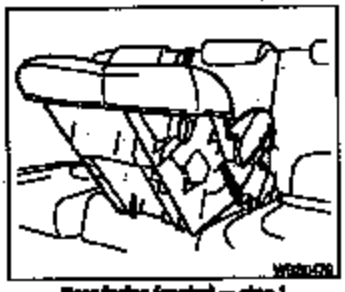
1-24 Safety—Seats, seat belts and supplemental restraint system

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the retractor is in the automatic locking mode.
7. Check to make sure that the child restraint is properly secured prior to each use. If the belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt is fully retracted, the automatic locking mode (child restraint mode) is canceled.



Rear facing (outboard) — step 1

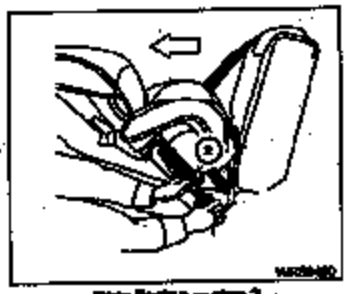


Rear facing (center) — step 1

Rear facing

When you install a child restraint on the 2nd row bench seat, follow these steps:

1. Position the child restraint on the seat. Always follow the restraint manufacturer's instructions.



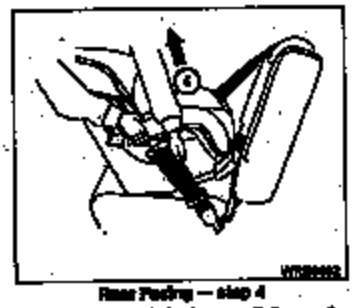
Rear Facing — step 2

9. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

   Be sure to follow the child restraint manufacturer's instructions for belt routing.

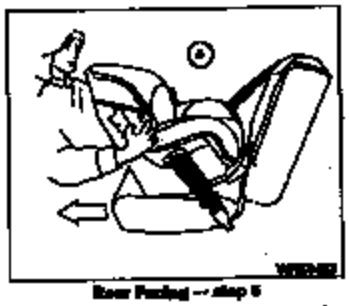
Rear Facing — step 3

8. Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts to emergency locking mode when the seat belt is fully retracted.



Rear Facing — step 4

4. Allow the seat belt to retract. Pull up on the shoulder belt to remove any slack in the belt.



Rear Facing — step 5

6. Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25 mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another seating position and try again, or try a different child restraint. Not all child restraints fit in all types of vehicles.

8. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more seat belt webbing out of the retractor, the retractor is in the automatic locking mode.

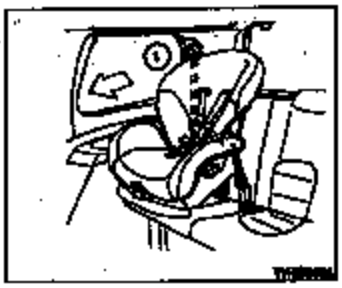
7. Check to make sure that the child restraint is properly secured prior to each use. If the belt is not locked, repeat steps 3 through 8.

After the child restraint is removed and the seat belt fully retracted, the automatic locking mode (child restraint mode) is canceled.

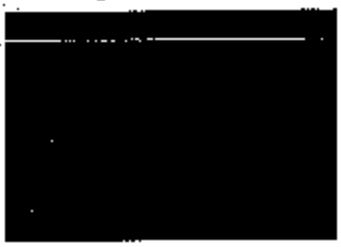
[redacted]

CHILD RESTRAINT INSTALLATION ON 3RD ROW BENCH SEAT

[redacted]

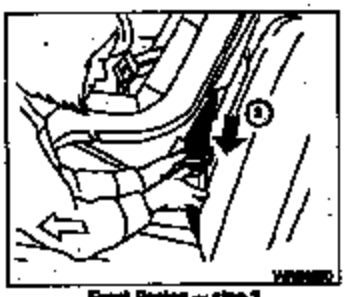


Front facing



When you install a child restraint on the 3rd row bench seat, follow these steps:

1. Position the child restraint on the seat. Adjust the head restraint to its highest position. Always follow the restraint manufacturer's instructions. The back of the child restraint should be secured against the vehicle seat back. If necessary, adjust or remove the head restraint to obtain the correct child restraint fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the child restraint is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper child restraint fit, try another seating position or a different child restraint.



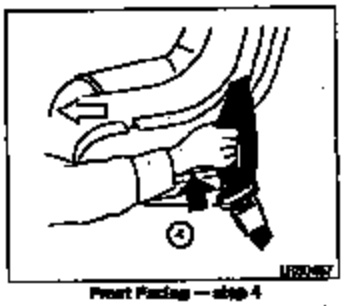
Front Facing — step 2

2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

   Be sure to follow the child restraint manufacturer's instructions for belt routing.

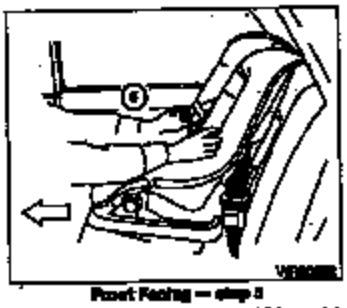
Front Facing — step 3

3. Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts back to emergency locking mode when the seat belt is fully retracted.



Front Facing — step 4

4. Allow the seat belt to retract. Pull up on the shoulder belt to remove any slack in the belt.

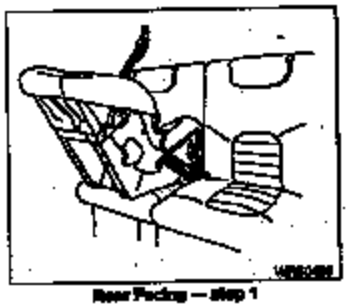


Front Facing — step 5

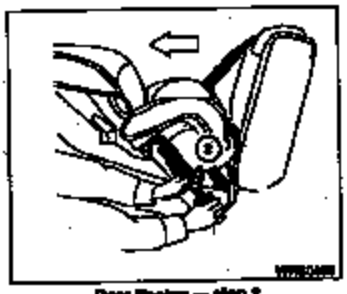
5. Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint, move the restraint to another seating position and try again, or try a different child restraint. Not all child restraints fit in all types of vehicles.

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the retractor is in the automatic locking mode.
7. Check to make sure that the child restraint is properly secured prior to each use. If the belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt is fully retracted, the automatic locking mode (child restraint mode) is canceled.



Rear Facing — step 1



Rear Facing — step 2

Rear facing

When you install a child restraint on the 3rd row bench seat, follow these steps:

1. Position the child restraint on the seat. Always follow the restraint manufacturer's instructions.
2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

Be sure to follow the child restraint manufacturer's instructions for belt routing.

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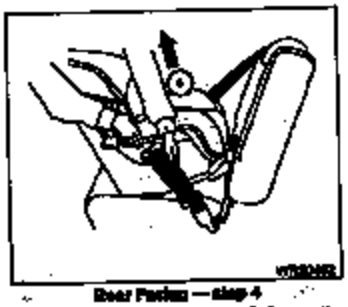
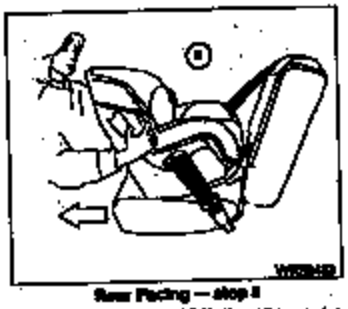
Rear Facing — step 3



Rear Facing — step 4



Rear Facing — step 5

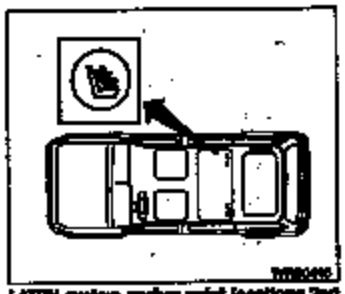
3. Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts to emergency locking mode when the seat belt is fully retracted.
4. Allow the seat belt to retract. Pull up on the shoulder belt to remove any slack in the belt.
5. Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another

all types of vehicles.

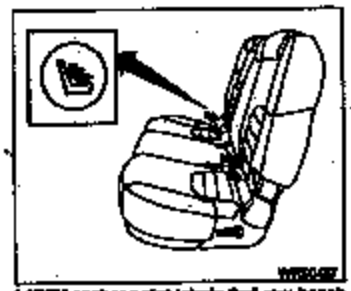
Safety—Seats, seat belts and supplemental restraint system 1-61

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more seat belt webbing out of the retractor, the retractor is in the automatic locking mode.
7. Check to make sure that the child restraint is properly secured prior to each use. If the belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt fully retracted, the automatic locking mode (child restraint mode) is canceled.



LATCH system anchor point locations 2nd row bench seat



LATCH anchor point labels 2nd row bench seat

LATCH (Lower Anchors and Tethers for CHildren) SYSTEM

Some child restraints include two rigid or webbing-mounted attachments that can be connected to two anchors located at certain seating positions in your vehicle. This system is known as the LATCH (Lower Anchors and Tethers for CHildren) system. This system may also be referred to as the ISOFIX or ISOFIX compatible system. With this system, you do not have to use a vehicle seat belt to secure the child restraint. Your vehicle is equipped with special anchor points that are used with LATCH-system compatible child restraints. Check your child restraint for a label stating that it is compatible with the LATCH system. This information may also be in the child restraint owner's manual. If you have such a child restraint, refer to the illustration for the seating positions equipped with LATCH system anchors which can be used to secure the child restraint.

The LATCH system anchors are located at the rear of the seat cushion near the seatback. A label is attached to the seatback to help you locate the LATCH system anchors.

LATCH child restraints generally require the use of a top tether strap. See "Top tether strap child restraint" later in this section for installation instructions.

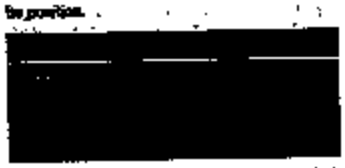
When installing a child restraint, carefully read and follow the instructions in this manual and those supplied with the child restraint.

When you install a LATCH system compatible child restraint to the lower anchor attachments, follow these steps:

1. To install the LATCH system compatible child restraint, insert the child restraint LATCH system anchor attachments into the anchor points on the seat. If the child restraint is equipped with a top tether, see "Top tether strap child restraint" later in this section for installation instructions.
2. After attaching the child restraint and before placing the child in it, use force to push the child restraint from side to side and tug it forward to make sure that the child restraint is securely held in place. It should not move more than 1 inch (25 mm).
3. Check to make sure that the child restraint is properly secured prior to each use.

TOP TETHER STRAP CHILD RESTRAINT

If your child restraint has a top tether strap, it must be secured to the anchor point provided behind the position.



First, secure the child restraint with the seat belt or the LATCH system (2nd row outboard seat positions only), as applicable.

For the 2nd row bench seats, position the tether over the top of the head restraint, with the head restraint in the full "down" position. Secure the tether strap to the tether anchor point located on the back of the seatback of the same seat that the child restraint is in.

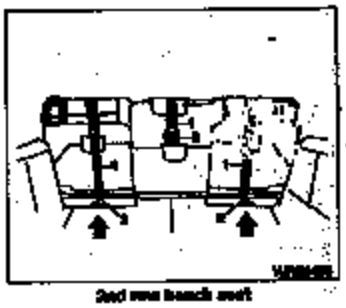
The 3rd row bench seat is not equipped with top tether anchor points.

For best child restraint fit, see the child restraint installation instructions in this section and the child restraint manufacturer's instructions.

Anchor point locations

Anchor points are located on the back of each seatback for all three seating positions of the 2nd row bench seat as shown.

If you have any questions when installing a top strap child restraint on the rear seat, consult your NISSAN dealer for details.



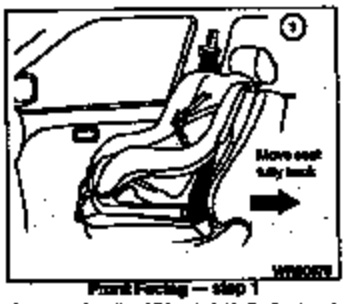
2nd row bench seat
1. Top tether strap
2. Anchor point

CHILD RESTRAINT INSTALLATION ON FRONT PASSENGER SEAT

[redacted]

1-34 Safety—Seats, seat belts and supplemental restraint system

[redacted]



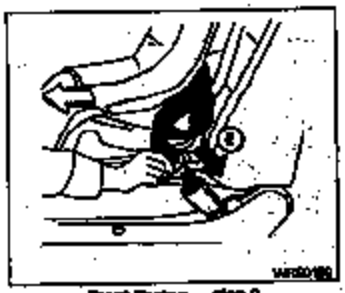
Front Facing — step 1

If you must install a child restraint in the front seat, follow these steps:

1. Position the child restraint on the front passenger seat. It should be placed in a front-facing direction only. Move the seat to the rearmost position. Adjust the head restraint to its highest position. Always follow the child restraint manufacturer's instructions. Child restraints for infants must be used in the rear-facing direction and therefore must not be used in the front seat.

Safety—Seats, seat belts and supplemental restraint system 1-35

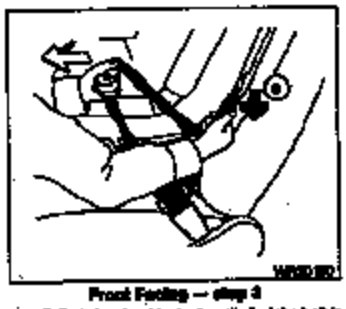
The back of the child restraint should be secured against the vehicle seat back. If necessary, adjust or remove the head restraint to obtain the correct child restraint fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the child restraint is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper child restraint fit, try another seating position or a different child restraint.



Front Facing — step 2

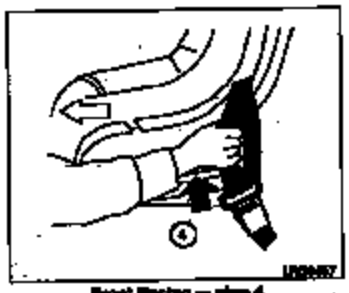
2. Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

   Be sure to follow the child restraint manufacturer's instructions for belt routing.



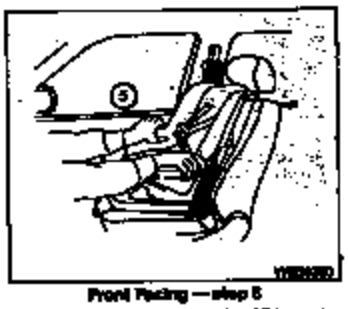
Front Facing — step 3

3. Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts to emergency locking mode when the seat belt is fully retracted.



Front Facing — step 4

4. Allow the seat belt to retract slightly. Pull up on the shoulder belt to remove any slack in the belt.



Front Facing — step 5

5. Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25 mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another seating position and try again, or try a different child restraint. Noted child restraints fit in all types of vehicles.

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the retractor is in the automatic locking mode.

7. Check to make sure the child restraint is properly secured prior to each use. If the seat belt is not locked, repeat steps 5 through 6.

8. Turn the ignition to the ON position. The passenger air bag status light should [illegible]. Have the system checked by a NISSAN dealer.

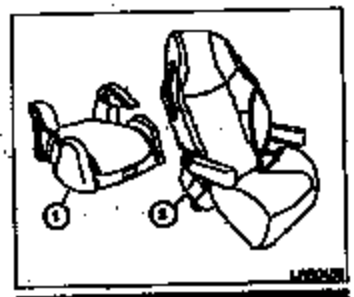
After the child restraint is removed and the seat belt is fully retracted, the automatic locking mode (child restraint mode) is cancelled.

BOOSTER SEATS

PRECAUTIONS ON BOOSTER SEATS

[redacted]

[redacted]



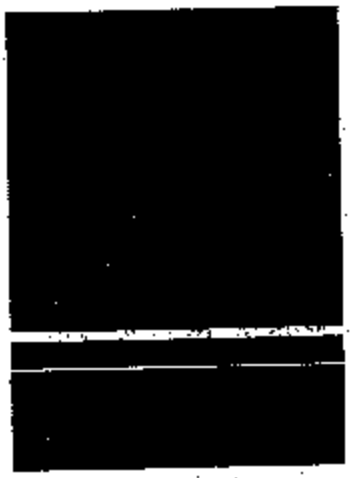
[redacted]

Booster seats of various sizes are offered by several manufacturers. When selecting any booster seat, keep the following points in mind:

- Choose only a booster seat with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.
- Check the booster seat in your vehicle to be sure it is compatible with the vehicle's seat and seat belt system.
- Make sure the child's head will be properly supported by the booster seat or vehicle seat. The seat back must be at or above the center of the child's ears. For example, if a low back booster seat ① is chosen, the vehicle seat back must be at or above the center of the child's ears. If the seat back is lower than the center of the child's ears, a high back booster seat ② should be used.
- If the booster seat is compatible with your child, always follow all recommended procedures.

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

[redacted]



(Outboard position)

Booster seat installation on 2nd row bench seat positions

(Center position)

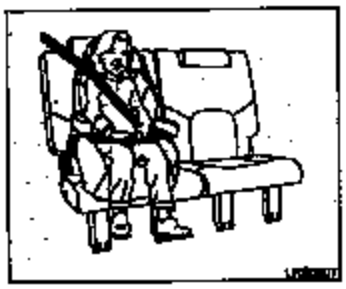
1. Position the booster seat on the seat. Only place it in a front facing direction. Always follow the booster seat manufacturer's instructions.

2. The booster seat should be positioned on the vehicle seat so that it is stable. If necessary, adjust or remove the head restraint to obtain the correct booster seat fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the booster seat is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper booster seat fit, try another seating position or a different booster seat.

3. Position the lap portion of the seat belt low and snug on the child's hips. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.

4. Pull the shoulder belt portion of the seat belt toward the retractor to take up extra slack. Be sure the shoulder belt is positioned across the top, middle portion of the child's shoulder. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.

5. Follow the warnings, cautions and instructions for properly fastening a seat belt shown in the "Three-point seat belt with retractor" earlier in this section.



Booster seat installation on 3rd row bench seat positions

1. Position the booster seat on the seat. Only place it in a front facing direction. Always follow the booster seat manufacturer's instructions.

2. The booster seat should be positioned on the vehicle seat so that it is stable. If necessary, adjust or remove the head restraint to obtain the correct booster seat fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the booster seat is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper booster seat fit, try another seating position or a different booster seat.

3. Position the lap portion of the seat belt low and snug on the child's hips. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.

4. Pull the shoulder belt portion of the seat belt toward the retractor to take up extra slack. Be sure the shoulder belt is positioned across the top, middle portion of the child's shoulder. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.

5. Follow the warnings, cautions and instructions for properly fastening a seat belt shown in the "Three-point seat belt with retractor" earlier in this section.

Booster seat installation on front passenger seat

If you must install a booster seat in the front seat, follow these steps:

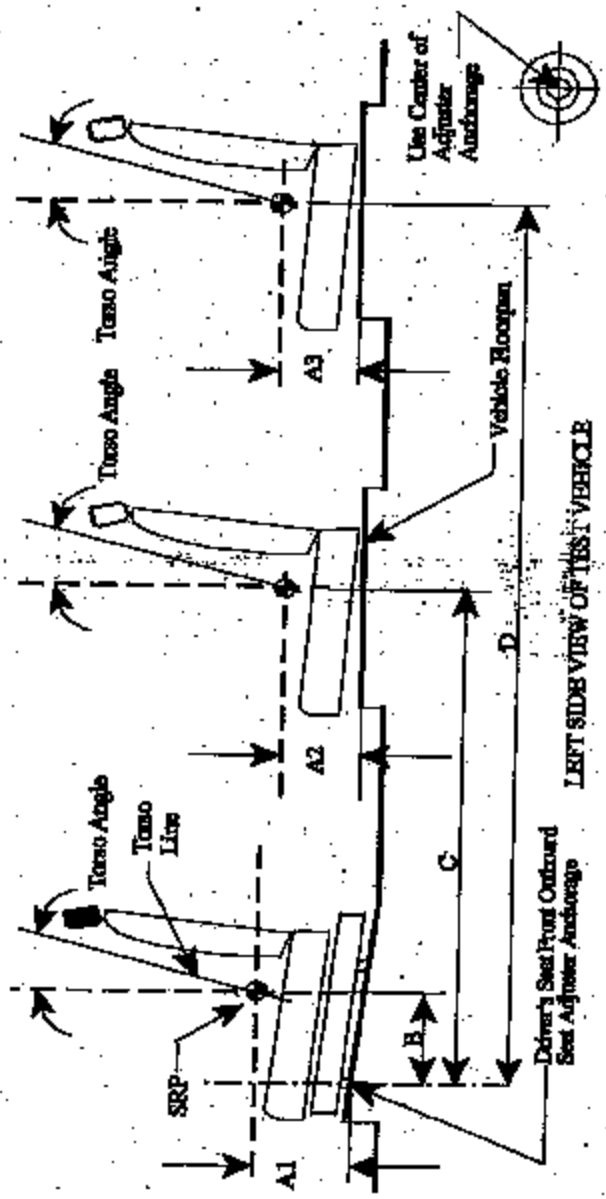
1. Move the seat to the rear-most position.
2. Position the booster seat on the seat. Only place it in a front facing direction. Always follow the booster seat manufacturer's instructions.
3. The booster seat should be positioned on the vehicle seat so that it is stable. If necessary, adjust or remove the head restraint to obtain the correct booster seat fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the booster seat is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper booster seat fit, try another seating position or a different booster seat.
4. Position the lap portion of the seat belt low and snug on the child's hips. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.
5. Pull the shoulder belt portion of the seat belt toward the retractor to take up extra slack. Be sure the shoulder belt is positioned across the top, middle portion of the child's shoulder. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.
6. Follow the warnings, cautions and instructions for properly fastening a seat belt shown in the "Three-point seat belt with retractor" earlier in this section.
7. When the ignition is turned to the ON position, the passenger air bag status light may or may not be illuminated, depending on the size of the child and the type of booster seat being used. See "NISSAN advanced air bag system" later in this section.

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

FORM 14
Page 1 of 11

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

Model Year: 2005 ; Make: Nissan ; Model: Pathfinder ; Body Style: MPV
Seat Style: Front row: Bucket ; Second row: 40/20/40 ; Third row: 50/50



FORM 14
Page 2 of 11

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		280.5	N/A	280.5
A2		308.3	316.3	308.3
A3		338.9	N/A	338.9
B		395.8	N/A	395.8
C		1184.2	1164.2 (w/o AR 1154.2)	1184.2
D		1958.6	N/A	1958.6
Torso Angle (degree)	Front Row	21	N/A	21
	Second Row	23	23	23
	Third Row	18	N/A	18

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

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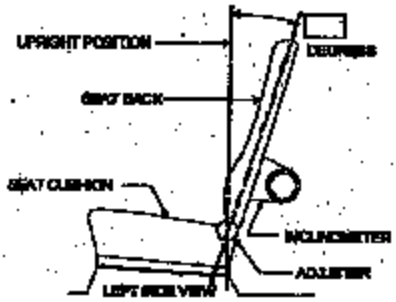
Page 3 of 11

NOMINAL DESIGN RIDING POSITION – For adjustable driver, passenger, 2nd row and 3rd row seat backs, describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent if applicable. Indicate if applicable, how the detents are numbered (Is the first detent "0" or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.



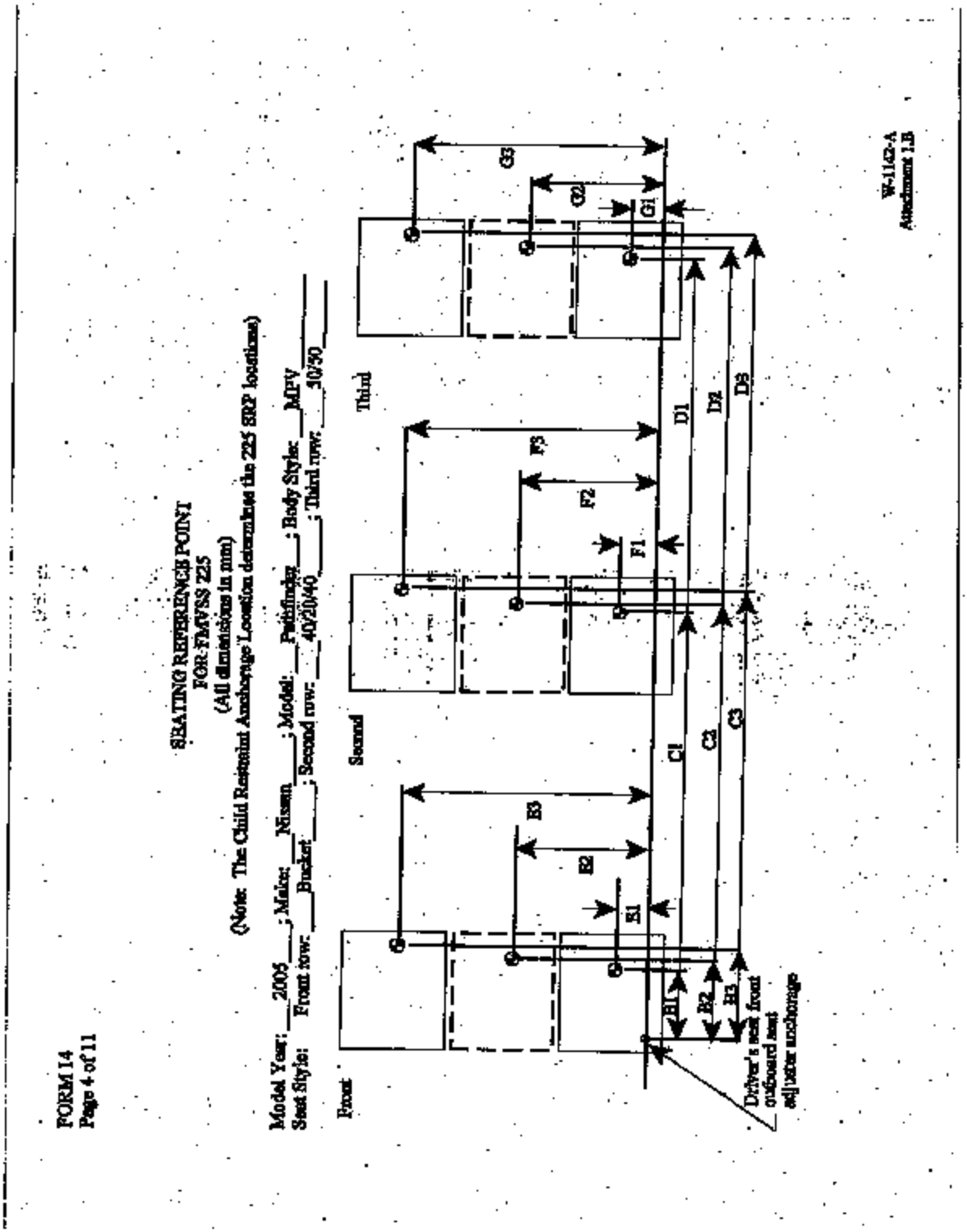
Seat back angle for driver's seat = _8_ degrees
Measurement Instructions:
Measurement is off head rest post, of which 0 degree is parallel to the vertical axis.

Seat back angle for passenger's seat = _8_ degrees
Measurement Instructions:
Measurement is off head rest post, of which 0 degree is parallel to the vertical axis.

Seat back angle for 2nd row seat = _16_ degrees
Seat back angle for 2nd row outboard seat = _8_ degrees
Measurement Instructions:
Outboard seats – Place the seat back in most upright position. The design position is 3 adjustments from the first lock position.
Center seat – Fixed.

Seat back angle for 3rd row seat = _14_ degrees
Measurement Instructions:
Fixed.

W-1142-A
Attachment 1.B


W-1142-A
Attachment 1.B
SEATING REFERENCE POINT
FOR FMVSS 225
(All dimensions in mm)
(Note: The Child Restraint Anchorage Location determines the 225 SRP locations)
Model Year: 2005 ; Make: Nissan ; Model: Pathfinder ; Body Style: MPV
Seat Style: Front row: Bucket ; Second row: 40/20/40 ; Third row: 30/30
FORM 14
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Front
Second
Third
G3
G2
G1
F3
F2
F1
E3
E2
E1
D1
D2
D3
C1
C2
C3
B1
B2
B3
Driver's seat front outboard seat adjuster anchorage

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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	395.8
	B1	220.0
	B2	N/A
	E2	N/A
	B3	395.8
	E3	1010.0
Second Row	C1	1184.2
	F1	225.0
	C2	1184.2 (w/o AE 1134.2)
	F2	615.0
	C3	1184.2
	F3	1005.0
Third Row	D1	1958.6
	G1	365.0
	D2	N/A
	G2	N/A
	D3	1958.6
	G3	365.0

Note: 1. Use the center of anchorage.

W-1142-A
Attachment 1.B

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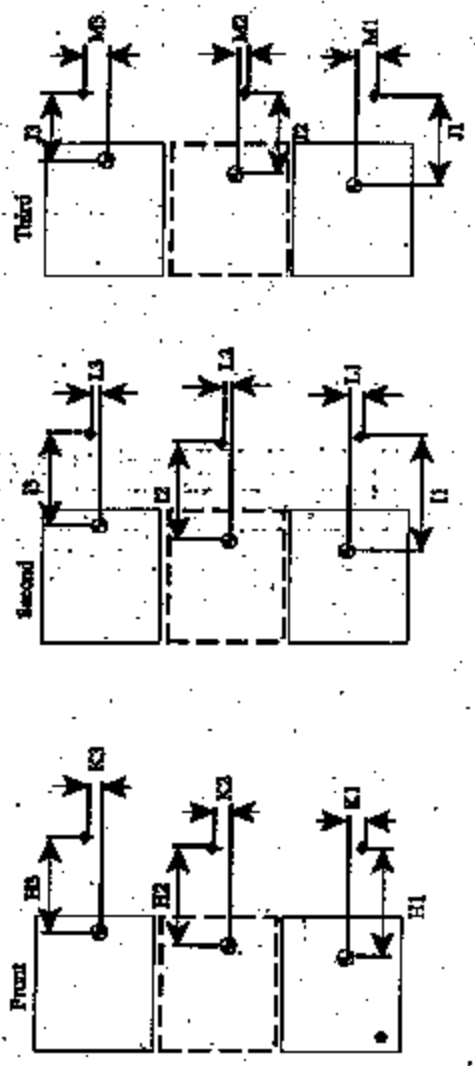
TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2005 ; Make: Nissan ; Model: Pathfinder ; Body Style: MPV
Seat Style: Front row: Bucket ; Second row: 40/20/40 ; Third row: 50/50



W-1142-A
Attachment 1.B

⊕: SRP
✦: Tether anchorage

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

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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	262.8
	L1	0
	I2	385.6 (w/o AR 395.6)
	L2	0
	I3	262.8
	L3	0
Third Row	J1	N/A
	M1	N/A
	J2	N/A
	M2	N/A
	J3	N/A
	M3	N/A

Note: 1. Use the center of anchorage.

W-1142-A
Attachment 1.B

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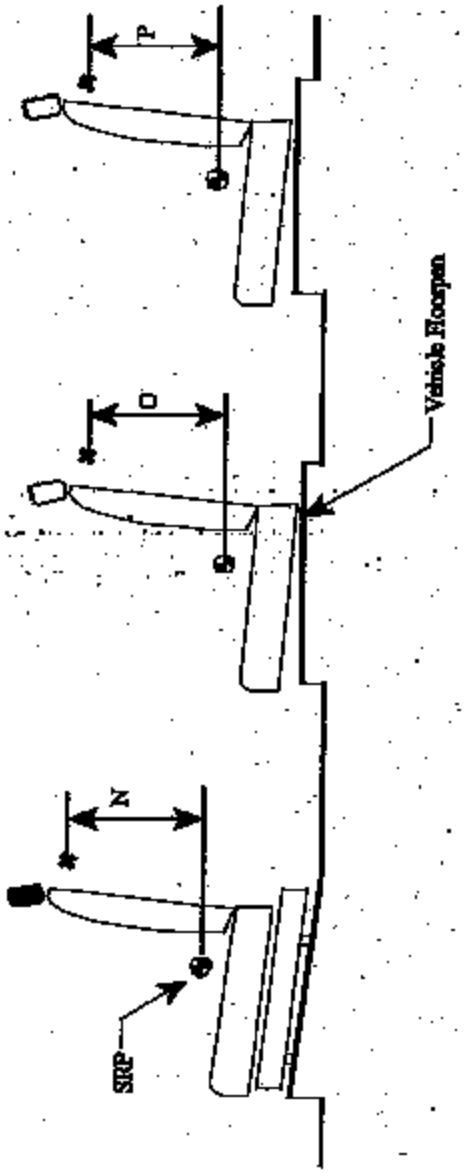
Page 8 of 11

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

Model Year: 2005 ; Make: Nissan ; Model: Pathfinder ; Body Style: MPV
Seat Style: Front row: Bucket ; Second row: 40/20/40 ; Third row: 50/50



LEFT SIDE VIEW OF TEST VEHICLE

W-1142-A
Attachment 1.B

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)	60.7
	O2 (Center)	316.3
	O3 (Right)	60.7
Third Row	P1 (Left)	N/A
	P2 (Center)	N/A
	P3 (Right)	N/A

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

W-1102A
Attachment 1.B

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Test Procedures Used for Compliance Tests

Lower Anchorages

For each seating location in each row record applicable FMVSS Section		FMVSS 225 Section(s)			
Block 1		Lower anchorage location certification method used (Enter applicable section used in block 1 of each position by circling A or B) (A) 9.2.1 or B) 15.1.2.2			
Block 2		Lower anchorage dimension (Enter applicable section used in block 2 by circling A or B) (A) 9.1.1 or B) 15.1.2.2 (also provide roll and yaw angles) pitch_15_° roll_0_° yaw_0_°			
Block 3		Lower anchorage marking (Enter applicable section used in block 3 by circling A or B) (A) 9.5 or B) 15.4			
Block 4		Strength requirement (Enter applicable section used in block 4 by circling A or B) (A) Section 9 or B) Section 15			
Front	Driver	N/A			
	Center (if any)	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right (if any)	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
Second	Left	Block 1 (A) B	Block 2 (A) B Pitch °, Roll °, Yaw °	Block 3 (A) B	Block 4 (A) B
	Center	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right (if any)	Block 1 (A) B	Block 2 (A) B Pitch °, Roll °, Yaw °	Block 3 (A) B	Block 4 (A) B
Third	Left	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Center	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
Fourth	Left	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Center	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B
	Right	Block 1 A B	Block 2 A B Pitch °, Roll °, Yaw °	Block 3 A B	Block 4 A B

W-1142-A
Attachment 1.B

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Test Procedures Used for Compliance Tests

Tether Anchorages

For each seating location in each row record applicable FMVSS Section		FMVSS Section(s) - Req.		
Block 1		Tether anchorage location certification method used (Enter applicable section used in block 1 by circling A, B, C, D, E or F) (A) 6.2.1 B) 6.2.1.1 C) 6.2.1.2 D) 6.2.2 E) 6.2.2.1 F) 6.2.2.2		
Block 2		Number or tether anchorages based upon the applicable section (Enter applicable section used in block 2 by circling A or B) (A) 4.4 B) 4.5		
Block 3		Tether anchorage strength requirement (Enter applicable section used in block 3 by circling A, B, or C) (A) 6.3.1 B) 6.3.2 C) 6.3.4		
Front	Driver	N/A		
	Center (if any)	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right (if any)	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
Second	Left	Block 1 (A) B C D E F	Block 2 (A) B	Block 3 (A) B C
	Center	Block 1 (A) B C D E F	Block 2 (A) B	Block 3 (A) B C
	Right	Block 1 (A) B C D E F	Block 2 (A) B	Block 3 (A) B C
Third	Left	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Center	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
Fourth	Left	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Center	Block 1 A B C D E F	Block 2 A B	Block 3 A B C
	Right	Block 1 A B C D E F	Block 2 A B	Block 3 A B C

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Attachment 1.B