

REPORT NUMBER 207-GTL-05-002

**FMVSS NO. 207
INDICANT TEST**

**VOLKSWAGEN AG GERMANY
2005 VOLKSWAGEN PASSAT, PASSENGER CAR
NHTSA NO. C55800**

**GENERAL TESTING LABORATORIES, INC.
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COLONIAL BEACH, VIRGINIA 22443**



JUNE 24, 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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WASHINGTON, D.C. 20590**

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16. Abstract Inducant tests were conducted on the subject 2005 Volkswagen Passat passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-207-09 for the determination of FMVSS 207 compliance. Test failures identified were as follows: NONE		
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SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2005 Volkswagen Passat 4-door passenger car was subjected to the following tests to determine the effects of the newly developed FMVSS 207/210 force application devices (FAD) (a.k.a. Tommy (FAD 1) and Tommy Jr (FAD 2) as compared to the current FMVSS 207/210 seat belt body blocks.

1.1 TEST VEHICLE

The test vehicle was a 2005 Volkswagen Passat 4-door passenger car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: WVWME63B15P023983

B. NHTSA No.: C55800

C. Manufacturer: VOLKSWAGEN AG GERMANY

D. Manufacture Date: 09/04

1.2 TEST DATE

The test vehicle was subjected to testing on June 14, 2005.

SECTION 2 TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 GENERAL

The 2005 Volkswagen Passat 4-door passenger car, NHTSA No. C55800, was subjected to testing on June 14, 2005.

2.1 TEST PROCEDURE

FAD Positioning Procedure:

1. Place seat in full rearward and full downward position.
2. Set seatback angle per manufacturers recommendation.
3. Identify and mark the centerline of the seat and seat back for each seating position.
4. Place the FAD so the midsagittal plane of the FAD contains the centerline for both the seat and back support of the seat. (Centerline of Body aligns with the centerline of the seat)
5. Rotate torso forward.
6. Push on pelvis parallel to surface of seating surface so the back of the pelvis is solidly against the seat back.
7. Rotate the torso up against the seatback while holding the pelvis in place.
8. Push on torso at center of gravity, perpendicular to the seat back with a force of 40 pounds.
9. Attach seatbelt and position the seatbelt so lap belt is over the FAD's hips and the shoulder strap over the torso (chest).
10. If seatbelts need to be replaced with wire rope, install ratchet-type-belt tensioner on B-pillar between D-Ring and retractor and remove excess belt from the retractor. If a second retractor is installed on the lap belt, install a second ratchet type-belt tensioner between the FAD and the lap belt retractor.
11. Attach one actuator to the torso pull yoke and one to the pelvis eyelet.

Pull Test Procedure:

1. Connect load cells and actuators to the FAD's so they pull in a plane that is inclined $10^{\circ} \pm 4^{\circ}$ above the horizontal. The applied load shall be parallel to the vehicle's centerline $\pm 3^{\circ}$. Also connect the standard test blocks in accordance with FMVSS 207/210 compliance testing.
2. Take pre-test photographs.
3. Ramp to holding load within 30 seconds.
4. Take photographs
5. Hold the maximum force for a period of not less than ten seconds.
6. Take post test photographs.

SECTION 2 Continued

Test Configuration for VW Passat 5 Passenger Sedan:

1. LF FAD1
2. RF Standard Blocks
3. LR Standard Blocks
4. RR FAD1
5. CR FAD2

2.2 SUMMARY OF RESULTS

The test results are provided in Section 3, Test Data.

SECTION 3 TEST DATA

3.0 DATA

The following items were noted during the conduct of these tests.

1. The new FMVSS 207/210 FAD (Tommy Blocks) are much easier to position and set for lap and shoulder belts than the current FMVSS 207/210 body blocks.
2. The current FMVSS 207/210 shoulder belt body block wants to slide down and rest on top of the lower body block. This is no longer a problem with the new FMVSS 207/210 FAD (Tommy Blocks).
3. The new FMVSS 207/210 FAD (Tommy Blocks) appear to be more "seat belt friendly" than the current FMVSS 207/210 body blocks. ie: A remote chance of breakage of the lap belt buckle due to bending around the corner of the current FMVSS 207/210 lap belt body block and less pay-out of shoulder belt during the test due to the torso being connected to the lap on the new FMVSS 207/210 FAD (Tommy Blocks).
4. Using existing body block, pay-out of seat belt webbing due to load limiters causes hydraulic test load application cylinders to bottom-out and test cannot be completed without resetting and starting the test over again. The resetting of the hydraulic test load application cylinders was not necessary using the new proposed FMVSS 207/210 FAD (Tommy Blocks).
5. This vehicle appears to meet the requirements of FMVSS 210 when tested with current FMVSS 207/210 body blocks and the proposed FMVSS 207/210 FAD force application device (a.k.a.) Tommy (FAD 1) and Tommy Jr. (FAD 2).

DATA SHEET 1
LAP AND SHOULDER BELT ASSEMBLY ANCHORAGE LOADING

VEHICLE MAKE/MODEL/BODY STYLE: 2005 VOLKSWAGEN PASSAT PASSENGER CAR
 VEHICLE NHTSA NO.: C55800 ; VIN: WVWME63B15P023983
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 06/14/05
 OBSERVERS: G. Farrand, J. Latane

SEAT	BELT ASSEMBLY TESTED	MAXIMUM LOAD REQUIREMENT	APPLIED LOAD
FRONT GTL TEST #5307*	Left Lap	3000 lbs, -10, -50	2968
	Left Shoulder	3000 lbs, -10, -50	2990
	Right Lap	3000 lbs, -10, -50	2965
	Right Shoulder	3000 lbs, -10, -50	2846
FRONT GTL TEST #5308 RETEST OF 5307	Left Lap	3000 lbs, -10, -50	2975
	Left Shoulder	3000 lbs, -10, -50	2967
	Right Lap	3000 lbs, -10, -50	2981
	Right Shoulder	3000 lbs, -10, -50	2972
REAR GTL TEST #5309	Left Lap	3000 lbs, -10, -50	2975
	Left Shoulder	3000 lbs, -10, -50	3022
	Right Lap	3000 lbs, -10, -50	2979
	Right Shoulder	3000 lbs, -10, -50	2972
	Center Lap	3000 lbs, -10, -50	2960
	Center Shoulder	3000 lbs, -10, -50	2983

REMARKS: *Left side shoulder belt hydraulic ram ran out of travel due to spool-out of the shoulder belt retractor. Hydraulic rams were re-hooked and test was continued. See Test #5308.

RECORDED BY: *G. Farrand*

DATE: 06/14/05

APPROVED BY: *D. Messick*

DATA SHEET 2
SEAT BELT ASSEMBLY LOAD ANGLE MEASUREMENT

VEHICLE MAKE/MODEL/BODY STYLE: 2005 VOLKSWAGEN PASSAT PASSENGER CAR
 VEHICLE NHTSA NO.: C55800 ; VIN: WVWME63B15P023983
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 06/14/05
 OBSERVERS: G. Farrand, J. Latane

TYPE	ANGLE MEASURED	ANGLE REFERENCE	ANGLE AT 10% LOAD (degrees)					
			LEFT DSP		CENTER DSP		RIGHT DSP	
			FRT	RR	FRT	RR	FRT	RR
LAP BELT	Load Application Angle (degrees)	From Side View Horizontal 10 ± 4	12°	9°	N/A	9°	12°	9°
		From Plan View Vehicle Centerline 0 ± 3	0°	0°	N/A	0°	0°	0°
SHOULDER BELT	Load Application Angle (degrees)	From Side View Horizontal 10 ± 4	13°	10°	N/A	10°	13°	10°
		From Plan View Vehicle Centerline 0 ± 3	0°	0°	N/A	0°	0°	0°

REMARKS:

RECORDED BY: *G. Farrand*

DATE: 06/14/05

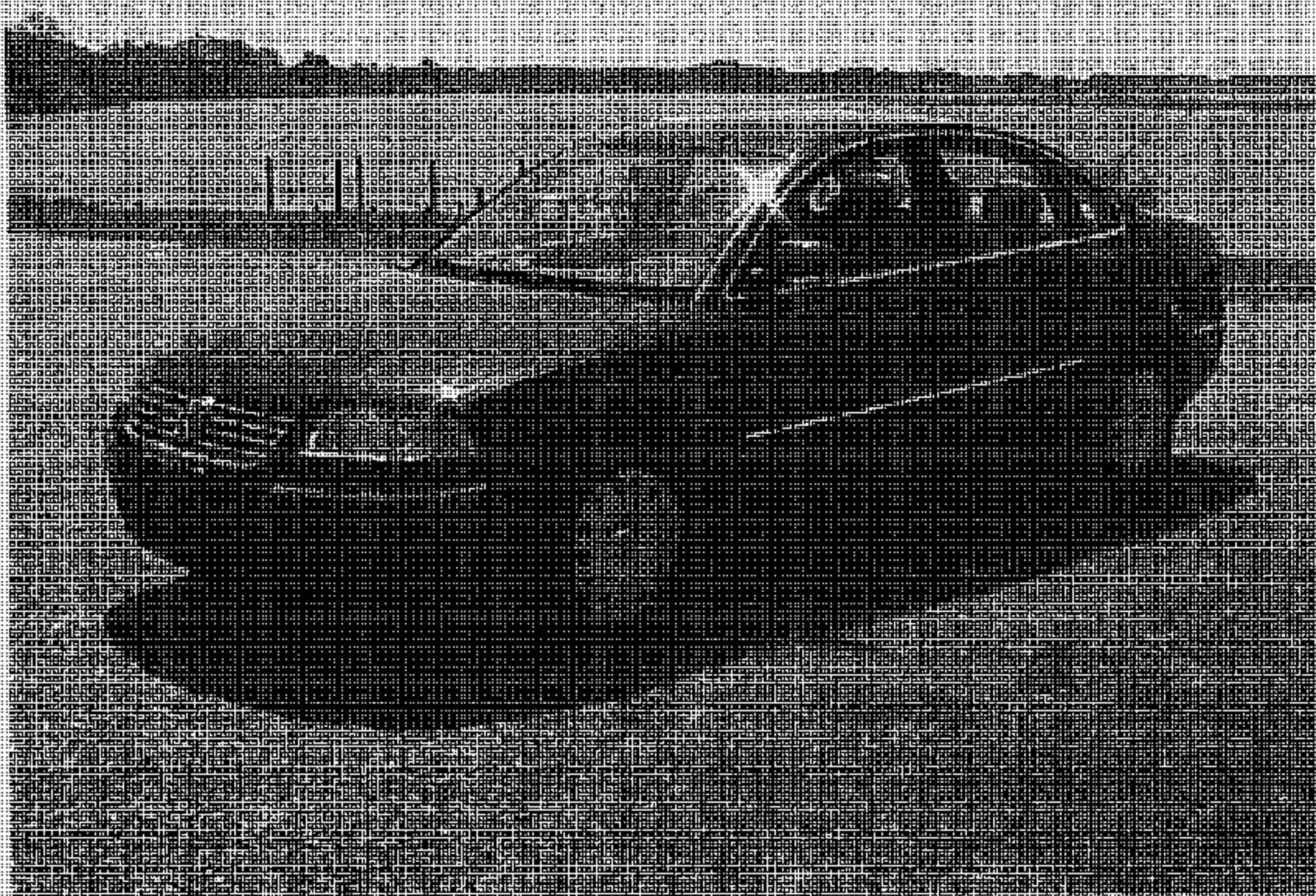
APPROVED BY: *D. Murrill*

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

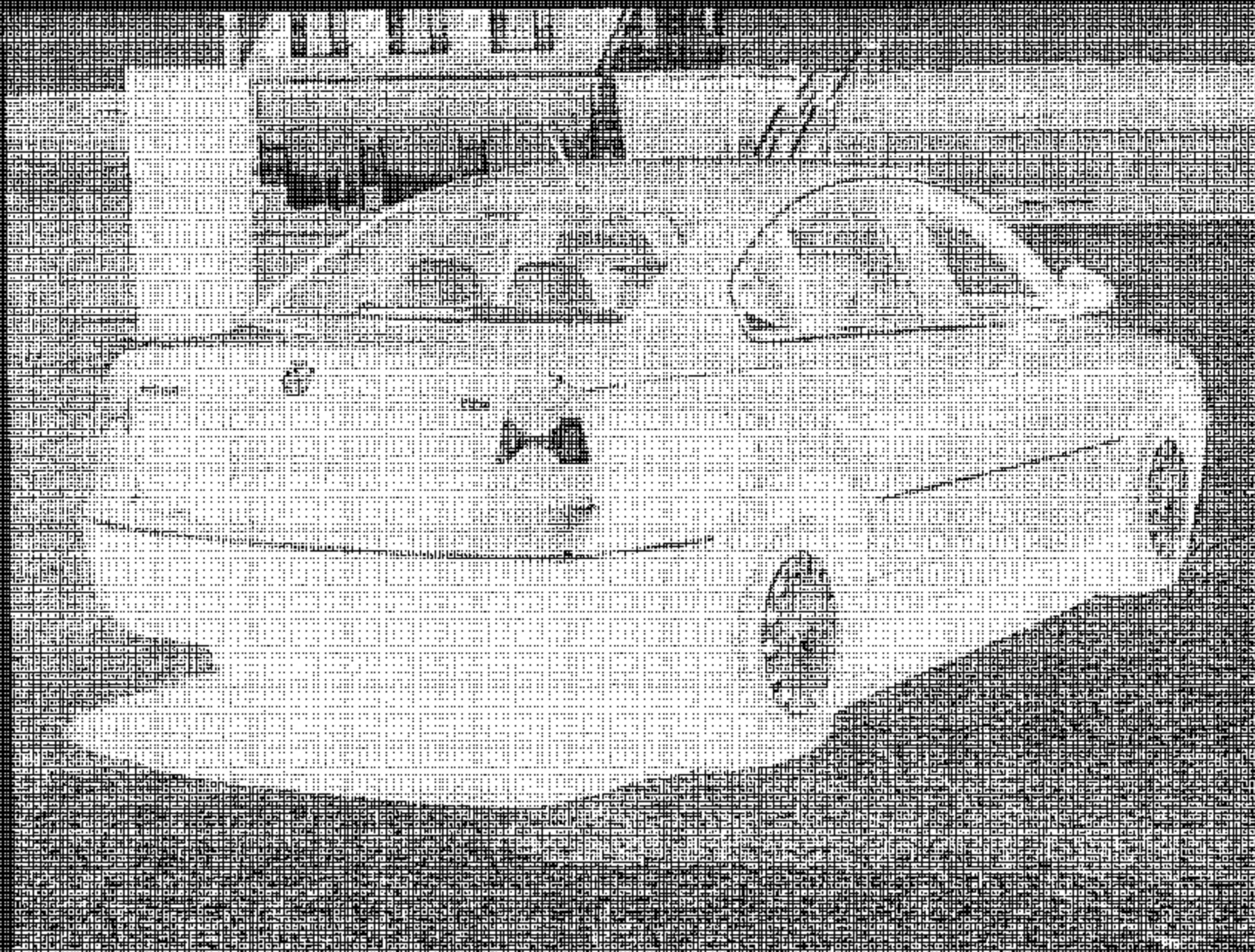
EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
COMPUTER	AT&T	486DX266	N/A	N/A
TEST FIXTURE	GTL	N/A	BEFORE USE	BEFORE USE
SIGNAL CONDITIONER	METRABYTE	EXP-RES	BEFORE USE	BEFORE USE
LOAD CELL	REVERE	48021	01/05	01/06
LOAD CELL	REVERE	48022	01/05	01/06
LOAD CELL	REVERE	48023	01/05	01/06
LOAD CELL	REVERE	48024	01/05	01/06
LOAD CELL	REVERE	48025	01/05	01/06
LOAD CELL	REVERE	44243	01/05	01/06

SECTION 5
PHOTOGRAPHS



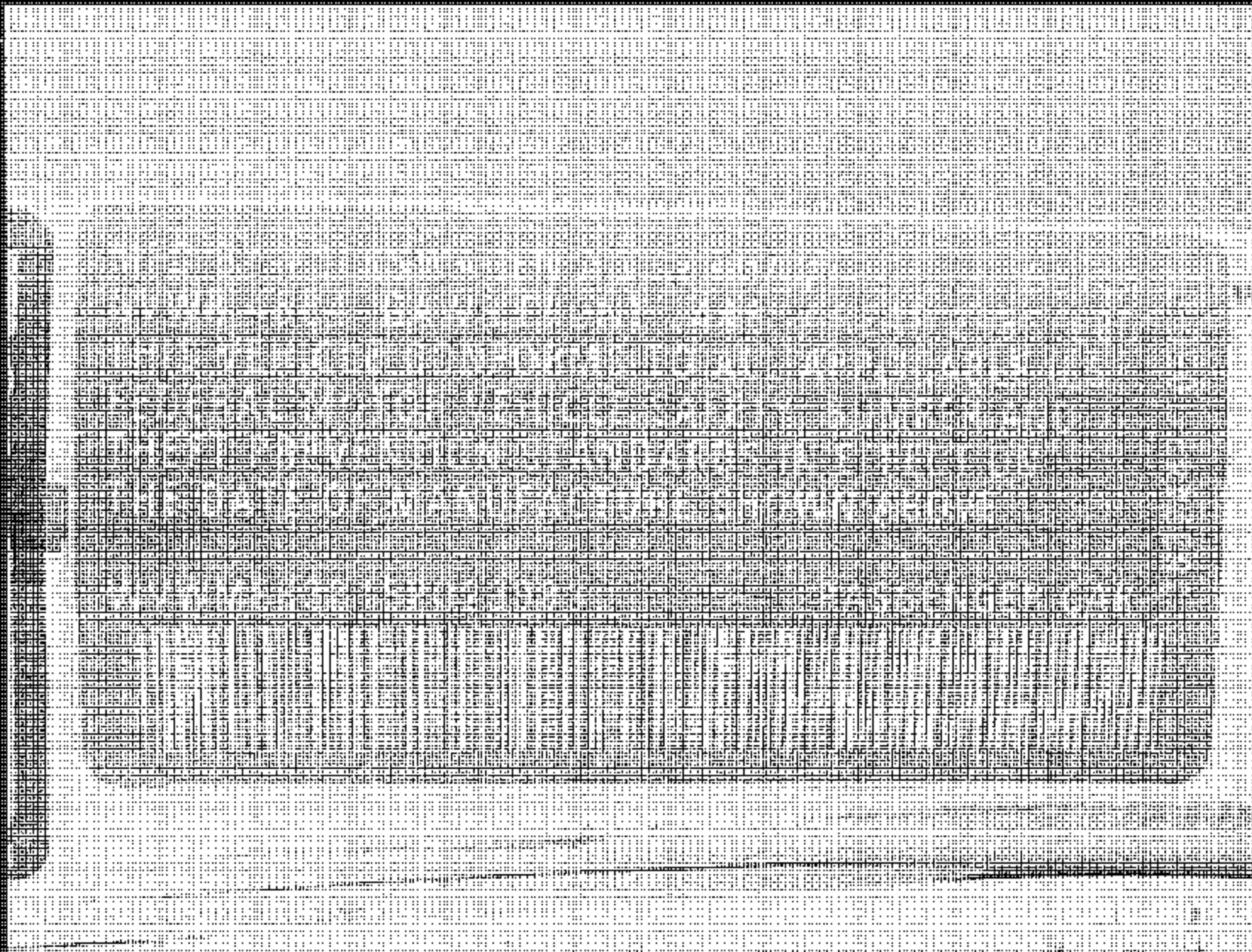
2005 VOLKSWAGEN PASSAT
NHTSA NO. C56800
FMVSS NO. 210

FIGURE 5.1
¾ FRONTAL LEFT SIDE VIEW OF VEHICLE



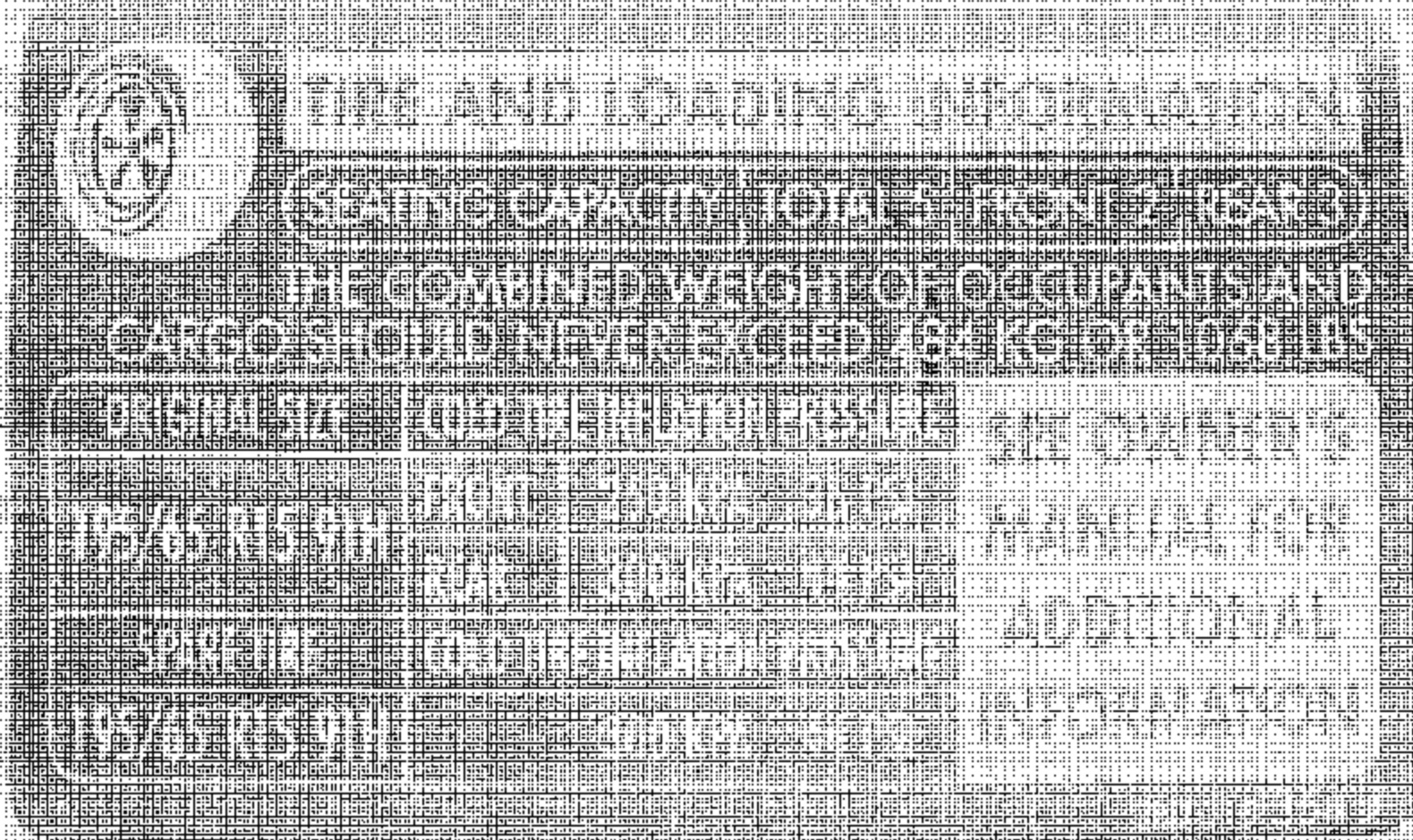
2005 VOLKSWAGEN PASSAT
NHTSA NO. C35803
FAVSS NO. 210

FIGURE 5.2
¾ REAR RIGHT SIDE VIEW OF VEHICLE



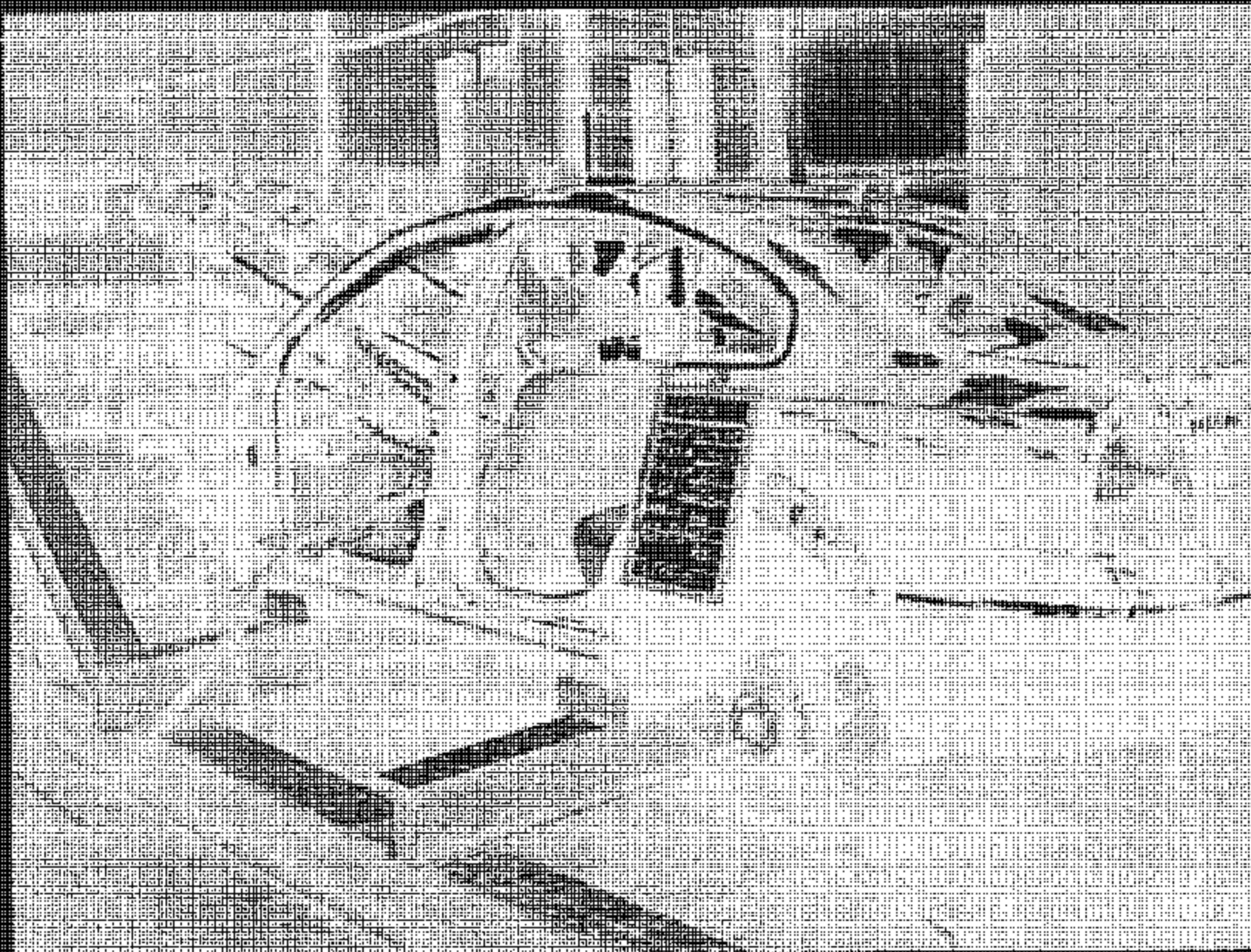
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.3
VEHICLE CERTIFICATION LABEL



2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.4
VEHICLE TIRE INFORMATION LABEL



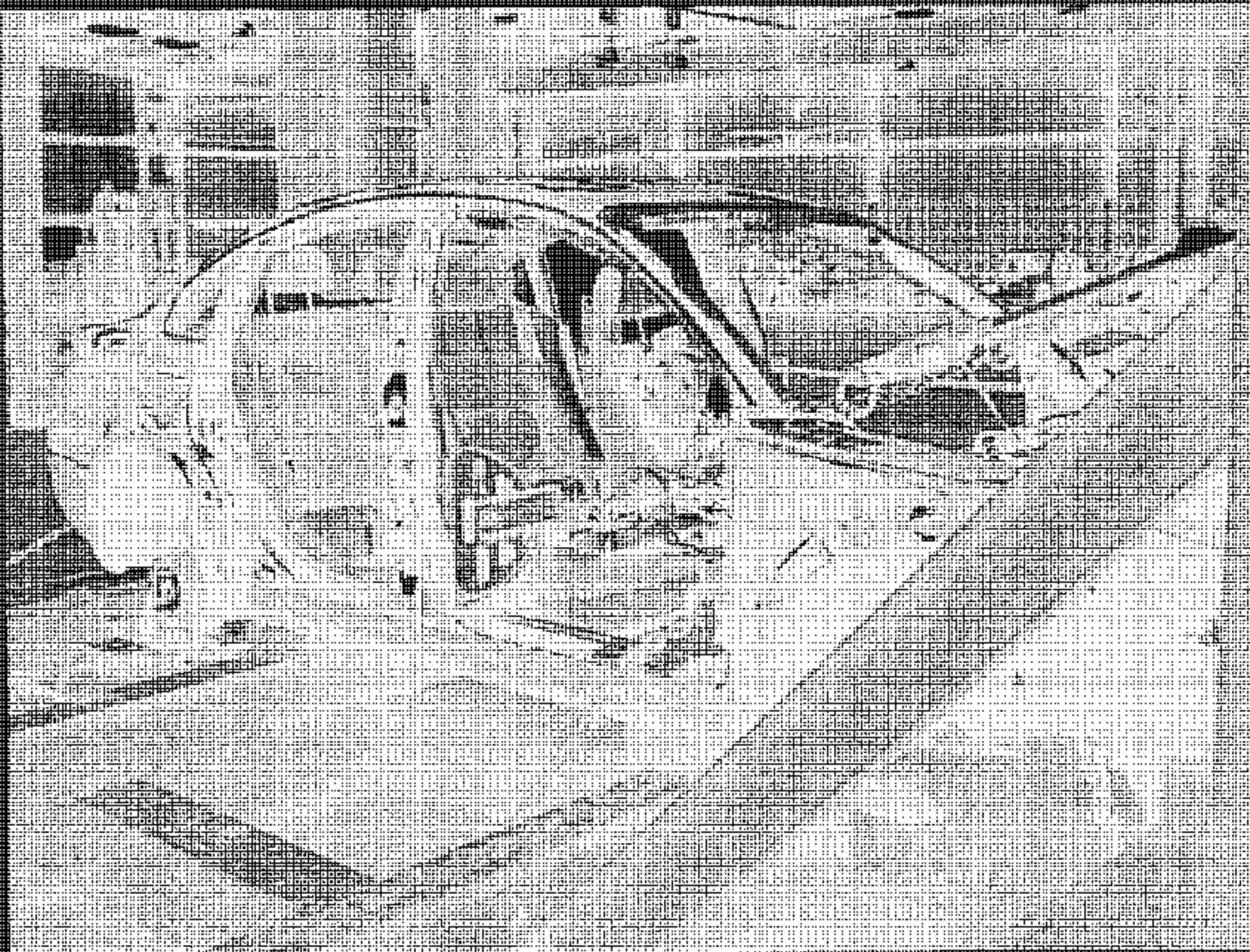
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.5
3/4 LEFT REAR VIEW OF VEHICLE IN TEST RIG



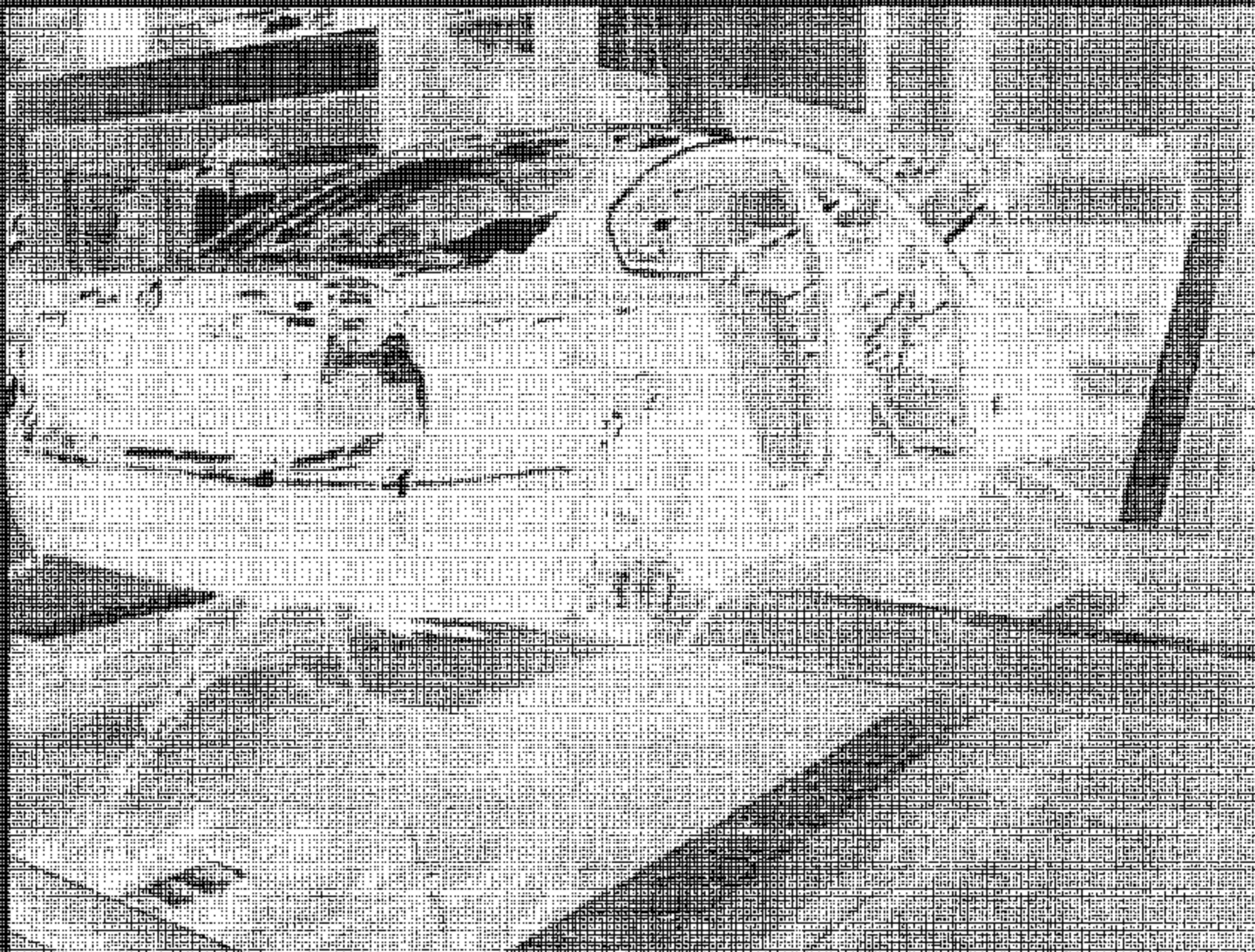
2005 VOLKSWAGEN PASSAT
NHTSA NO. C558306
FMVSS NO. 210

FIGURE 5.6
3/4 LEFT FRONT VIEW OF VEHICLE IN TEST RIG



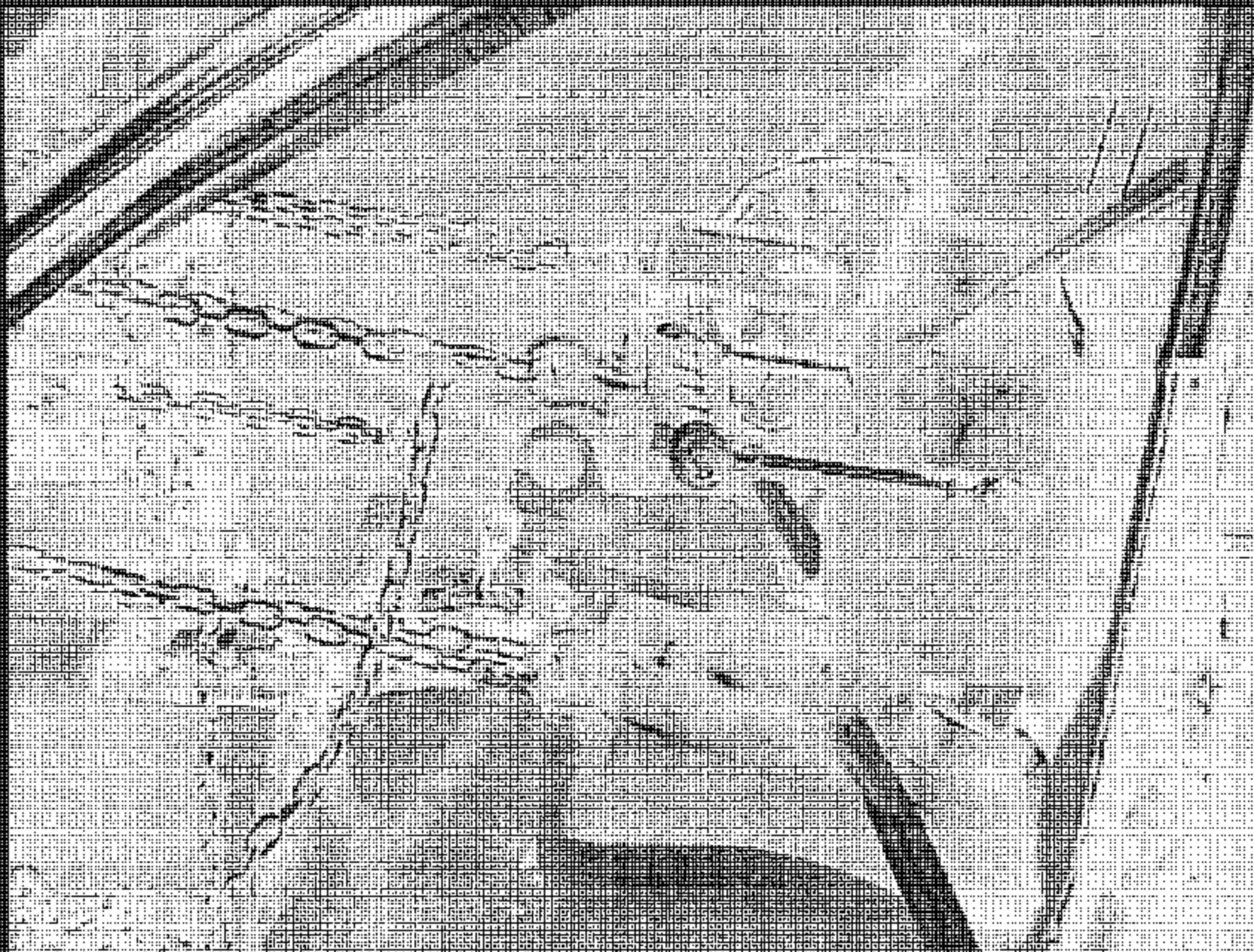
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 57
¾ RIGHT FRONT VIEW OF VEHICLE IN TEST RIG



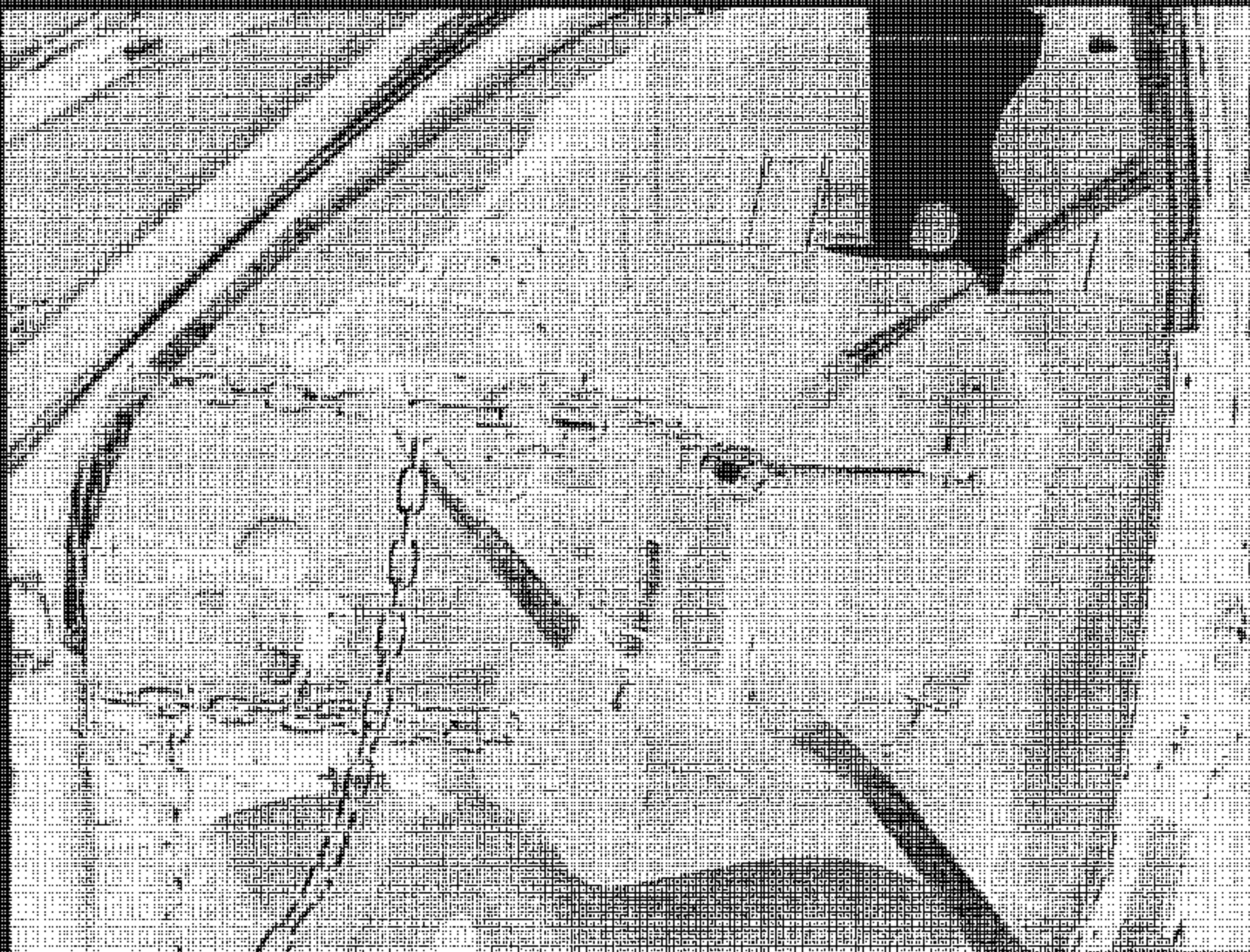
2005 VOLKSWAGEN PASSAT
NHTSA NO. C35900
FMVSS NO. 210

FIGURE 5.8
¾ RIGHT REAR VIEW OF VEHICLE IN TEST RIG



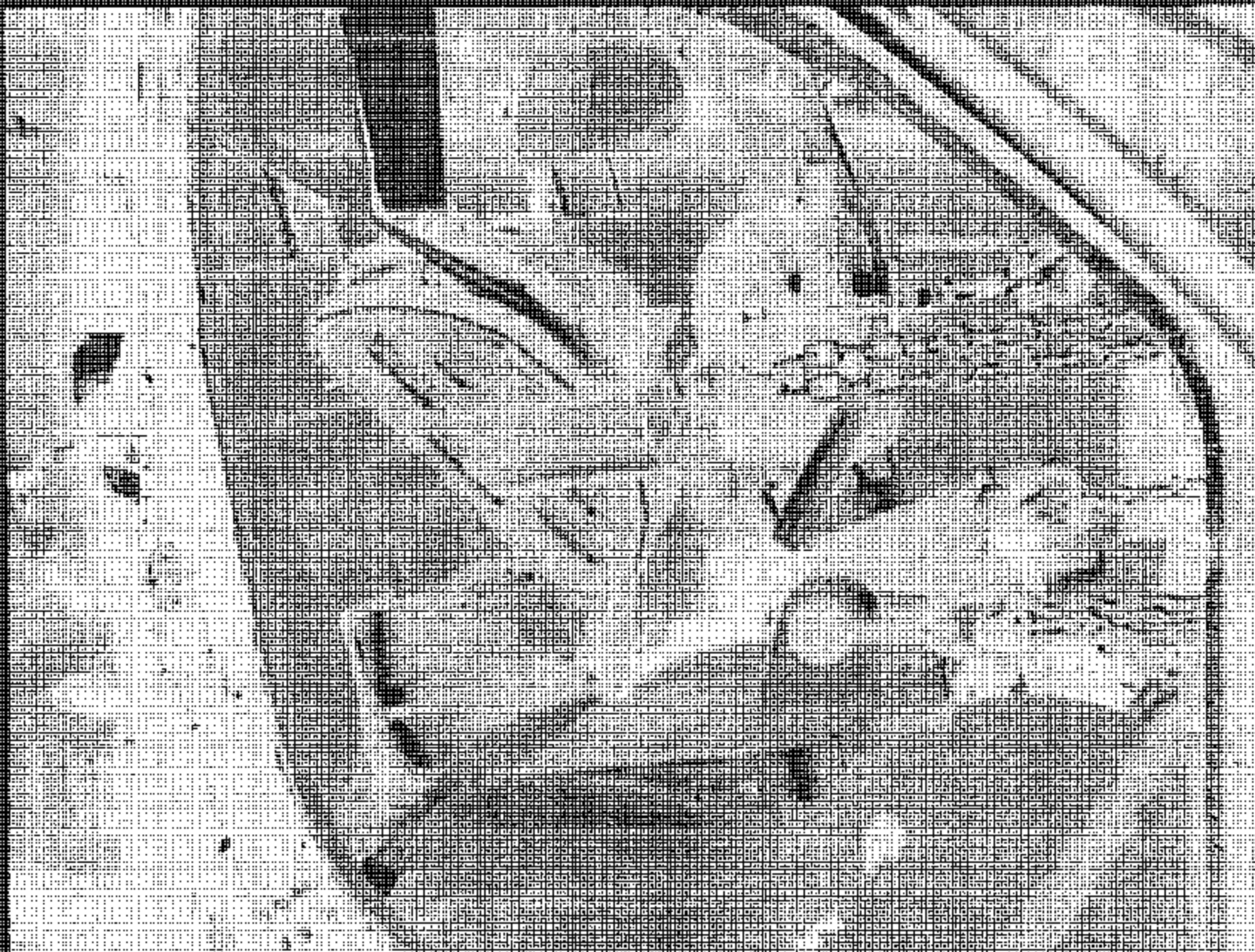
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.3
PRE-TEST ROW 1, LEFT SIDE VIEW



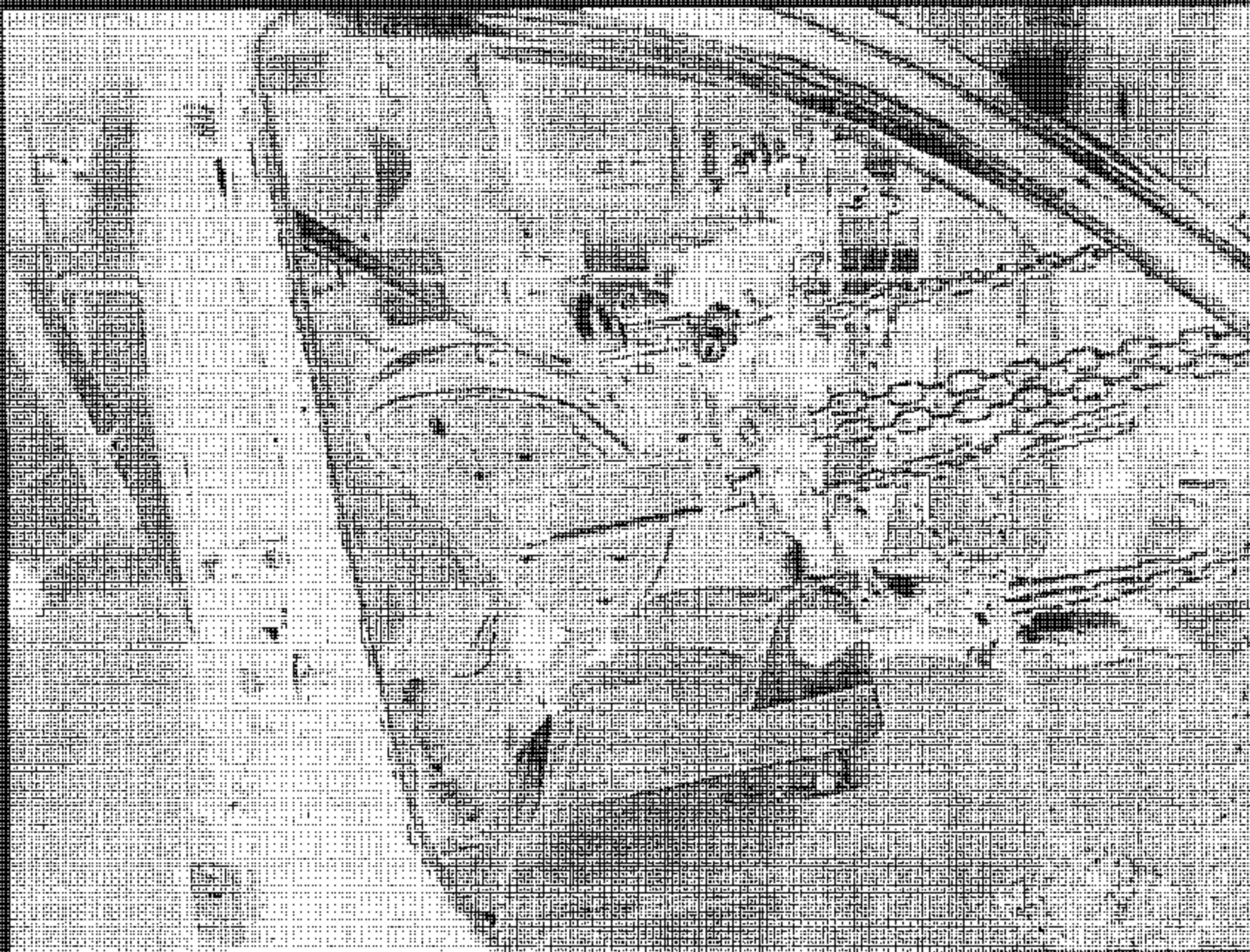
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.10
PRE-TEST ROW 1, ¼ LEFT FRONT VIEW



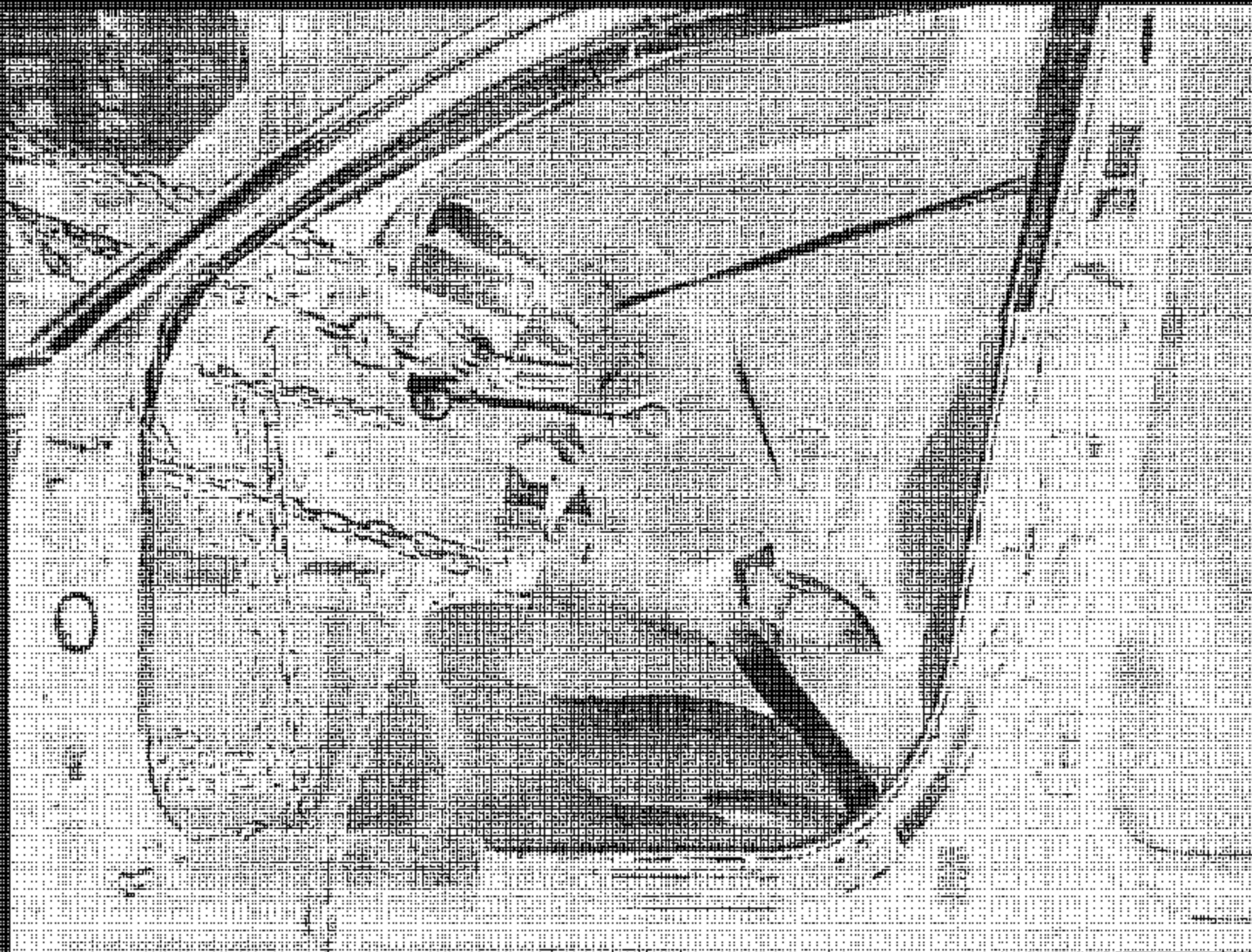
2006 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.11
PRE-TEST ROW 1, ¾ RIGHT FRONT VIEW



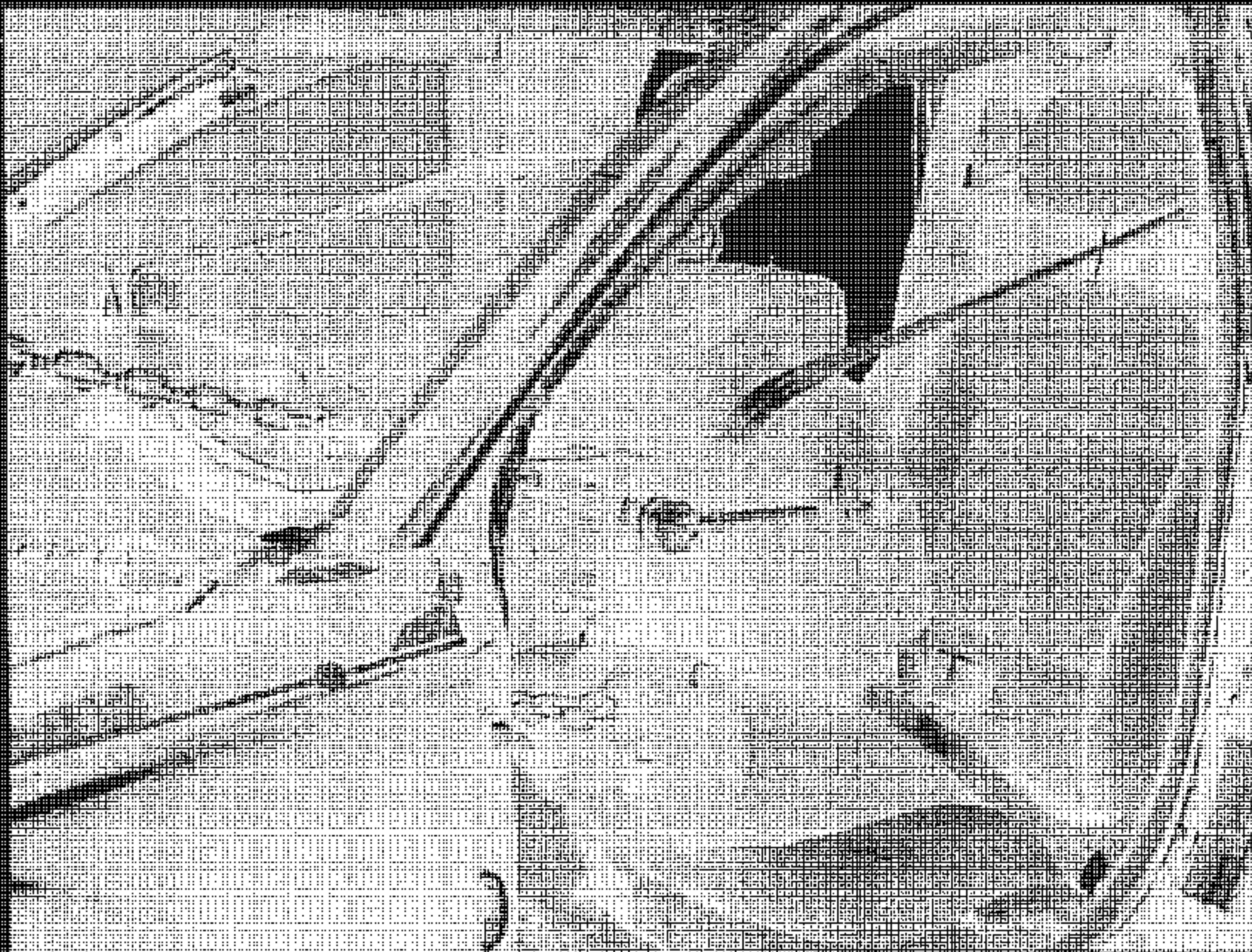
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.12
PRE-TEST ROW 1, RIGHT SIDE VIEW



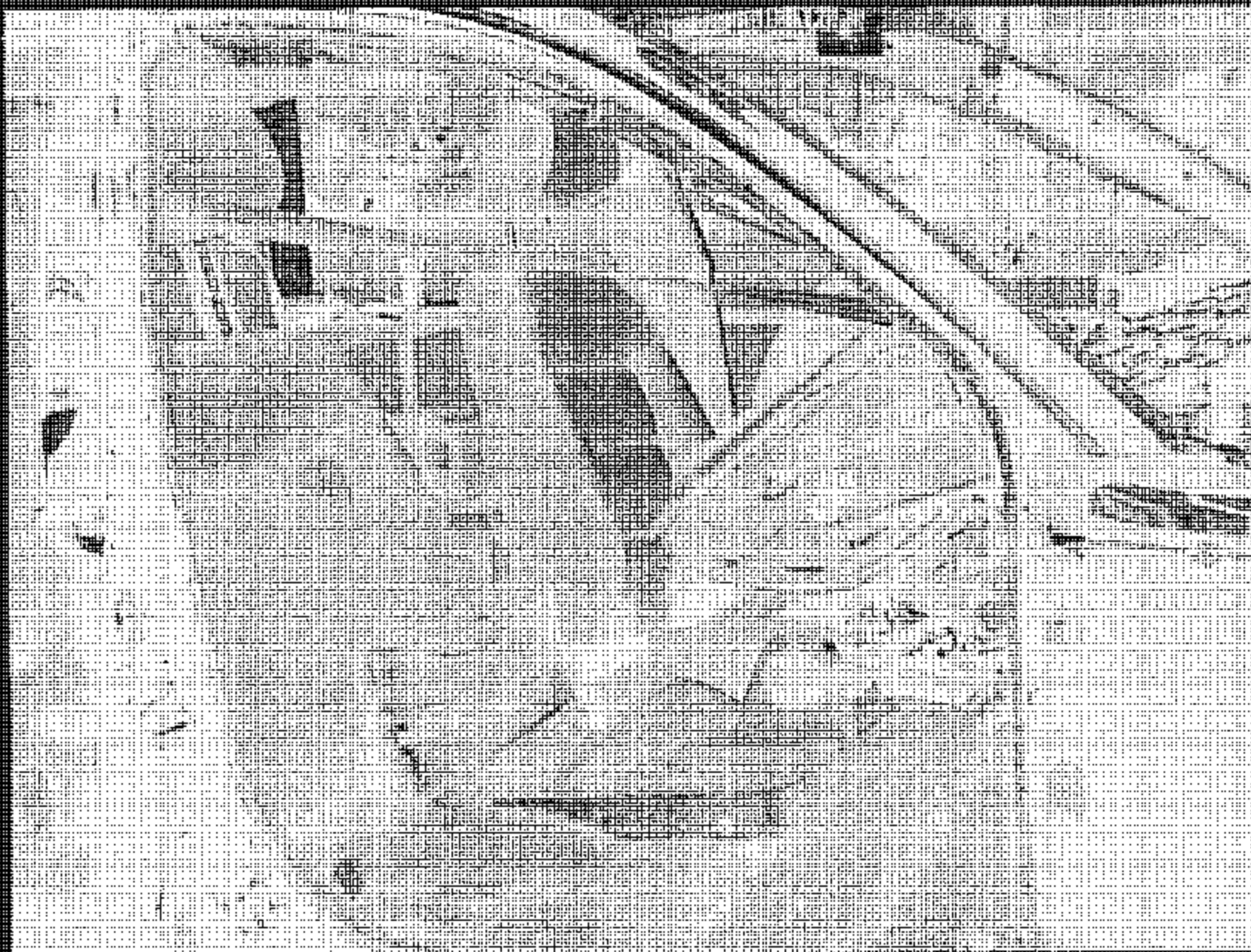
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.13
END OF TEST ROW 1, LEFT SIDE VIEW



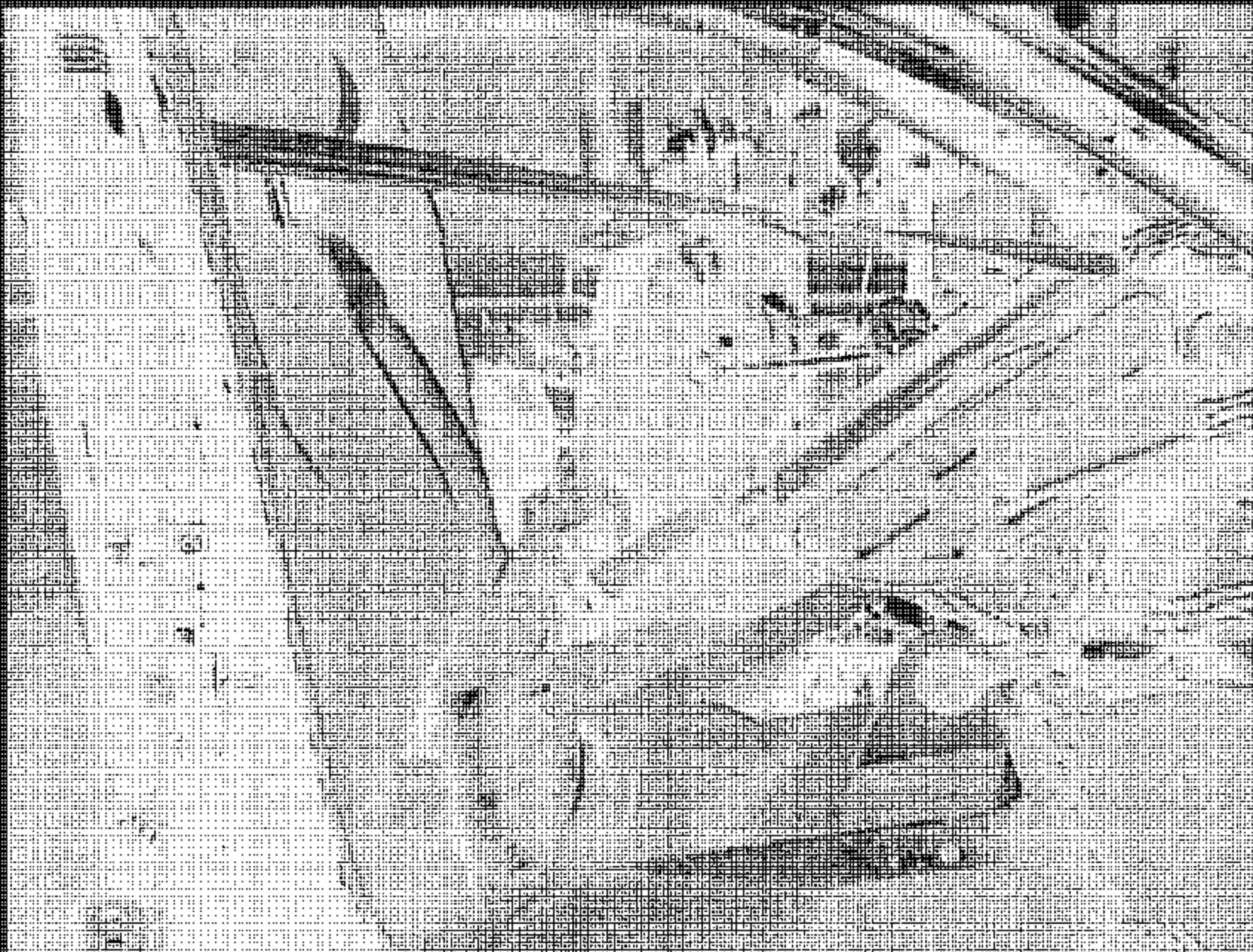
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55500
FMVSS NO. 210

FIGURE 5.14
END OF TEST ROW 1, 1/2 LEFT FRONT VIEW



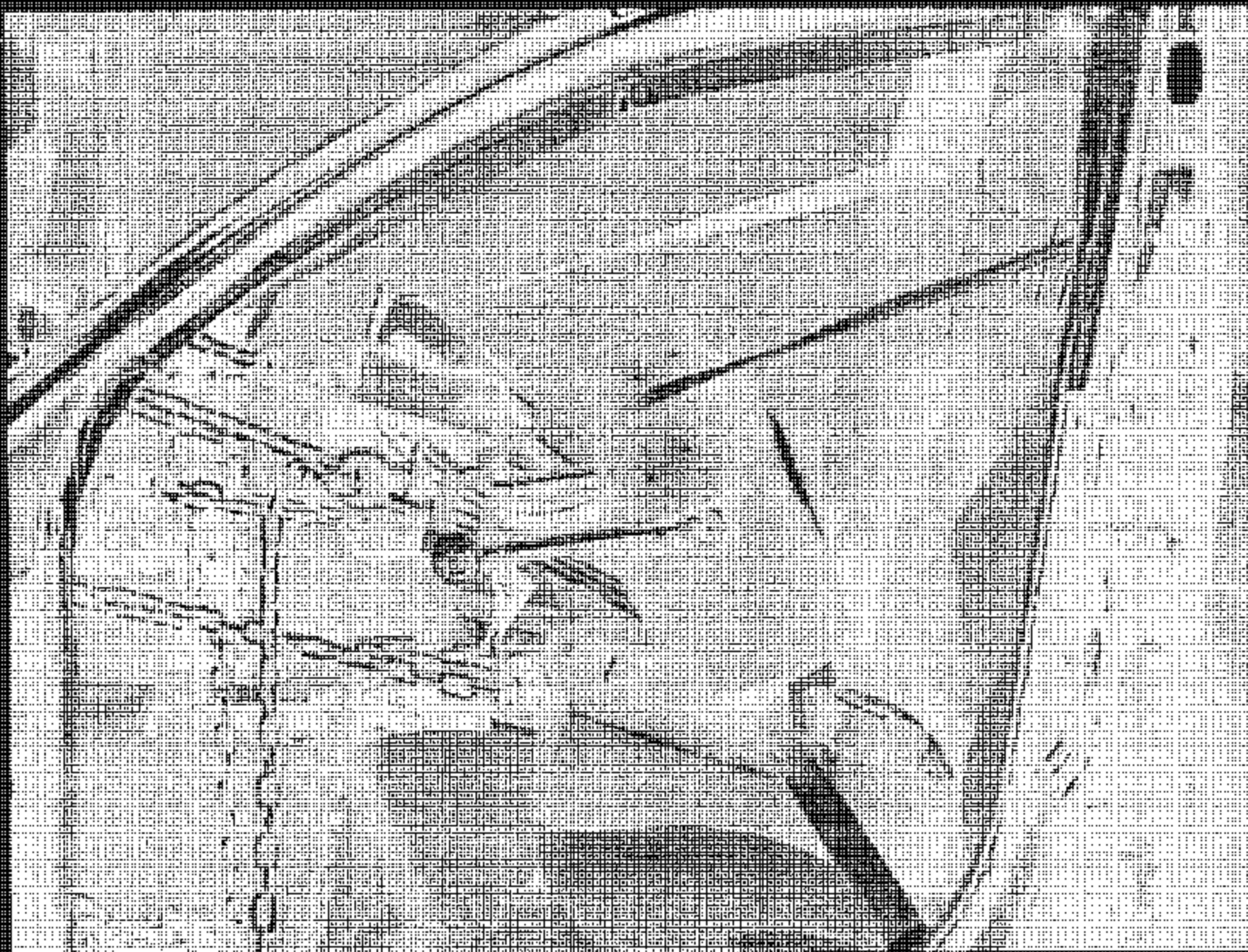
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.15
END OF TEST ROW 1, ¼ RIGHT FRONT VIEW



2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.15
END OF TEST ROW 1. RIGHT SIDE VIEW



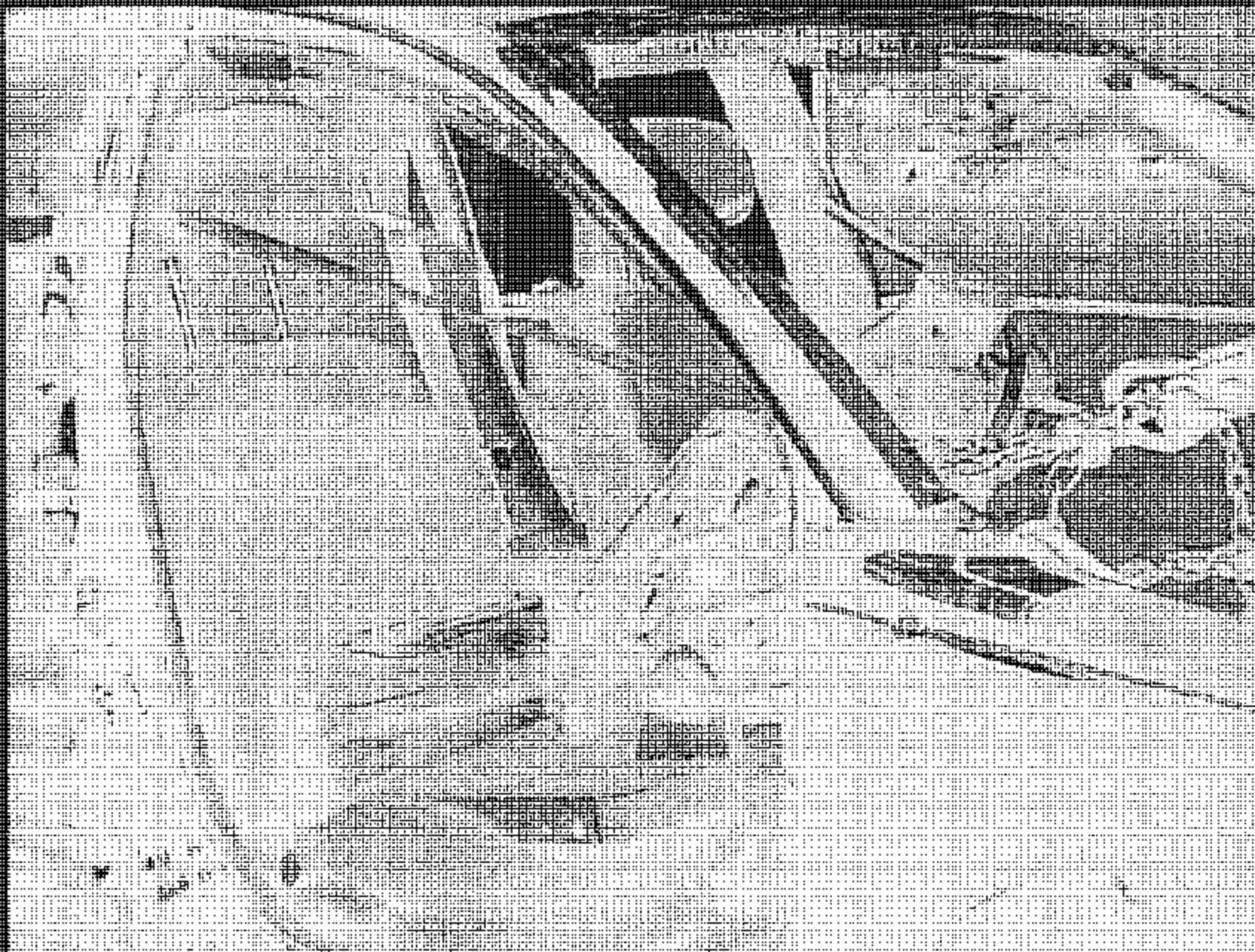
2005 VOLKSWAGEN PASSAT
NHTSA NO. C65800
FMVSS NO. 210

FIGURE 5.17
PRE-TEST ROW 1, LEFT SIDE VIEW



2005 VOLKSWAGEN PASSAT
NHTSA NO. C55300
FMVSS NO. 210

FIGURE 5.18
PRE-TEST ROW 1, ¾ LEFT FRONT VIEW



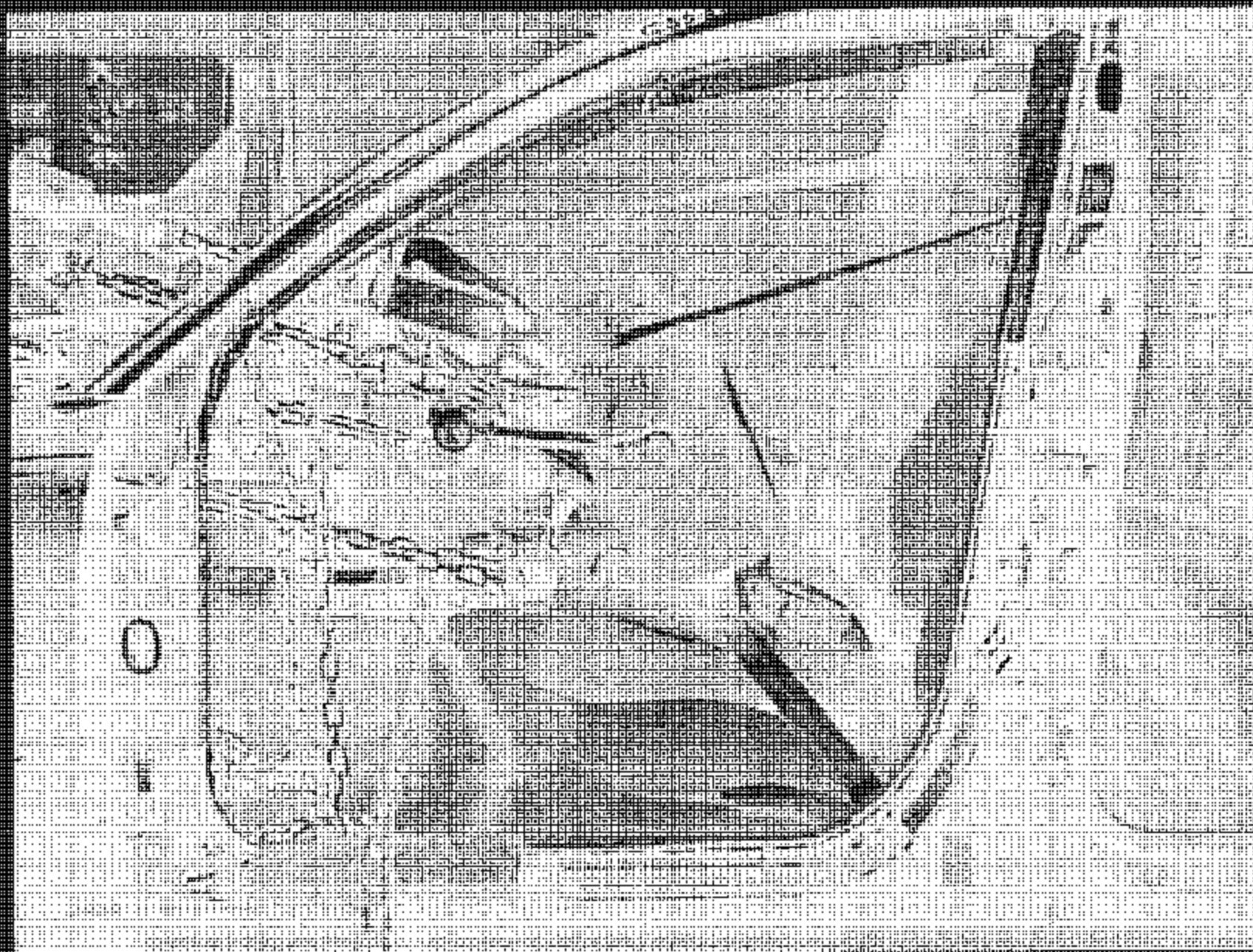
2005 VOLKSWAGEN PASSAT
NH-TSA NO. C55970
FMVSS NO. 210

FIGURE 5.10
PRE-TEST ROW 1, 1/4 RIGHT FRONT VIEW



2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 6.20
PRE-TEST ROW 1, LEFT SIDE VIEW



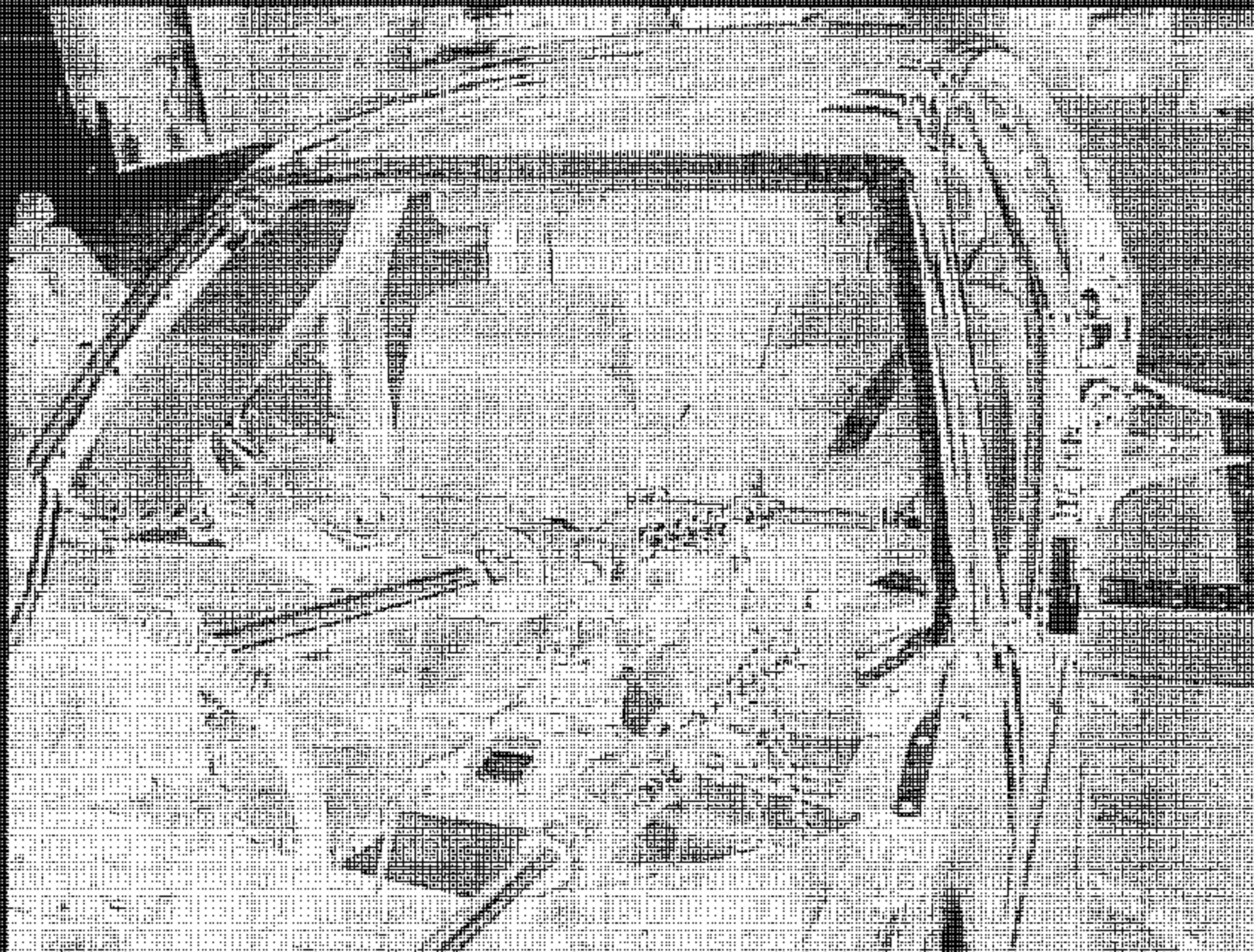
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.21
FULL LOAD ROW 1 LEFT SIDE VIEW



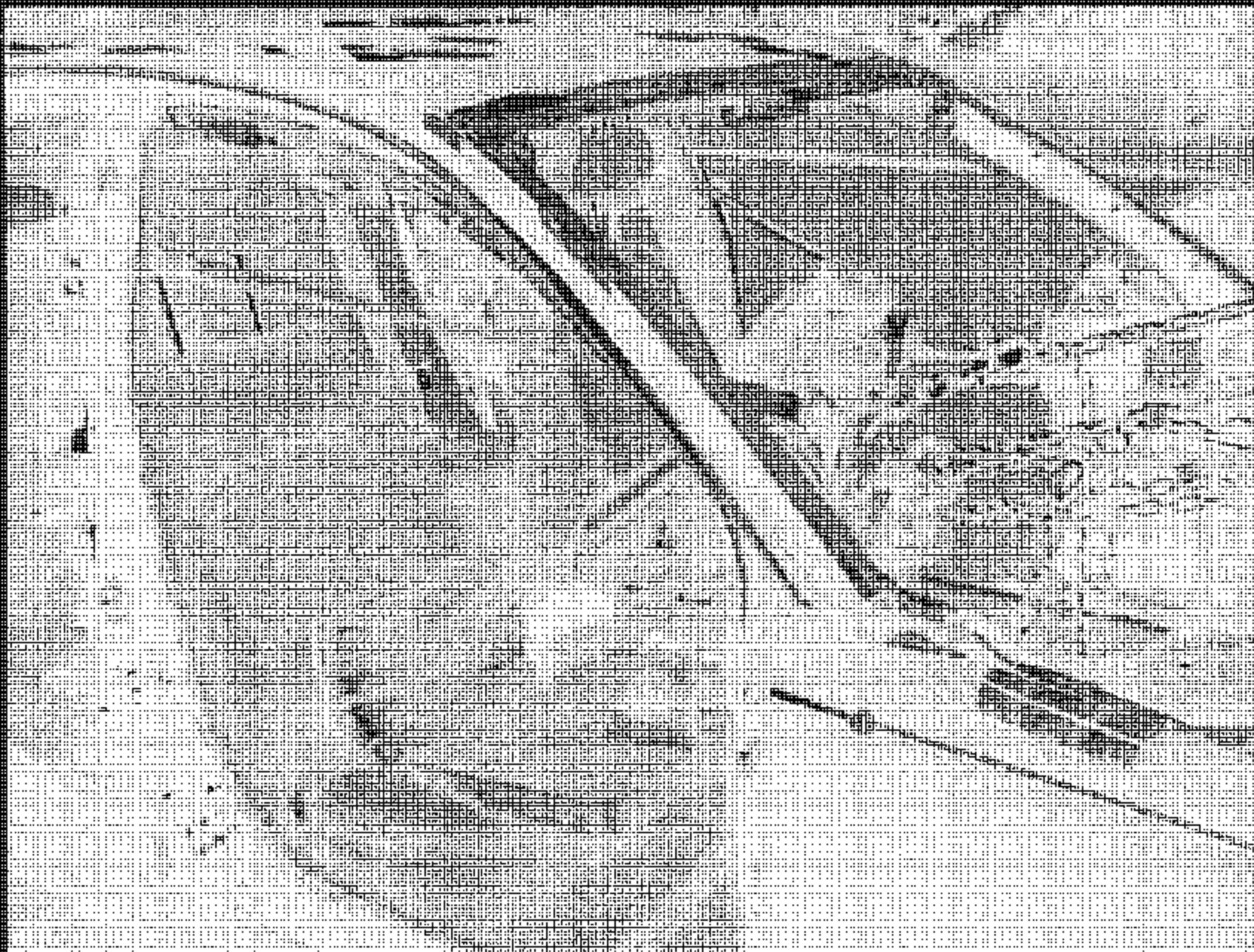
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.22
FULL LOAD ROW 1, LEFT SIDE VIEW



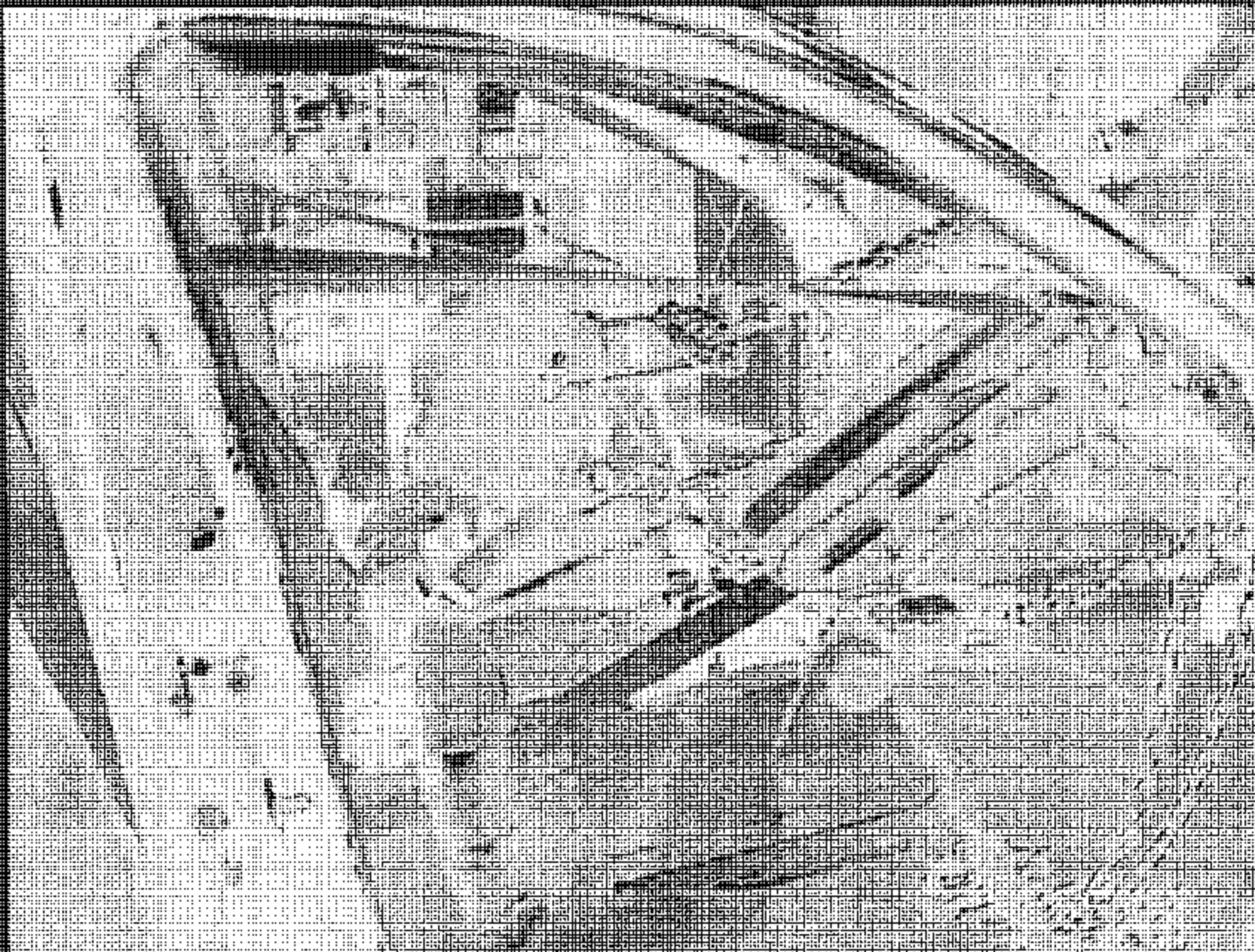
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55506
FMVSS NO. 210

FIGURE 5.23
FULL LOAD ROW 1, ¾ LEFT FRONT VIEW



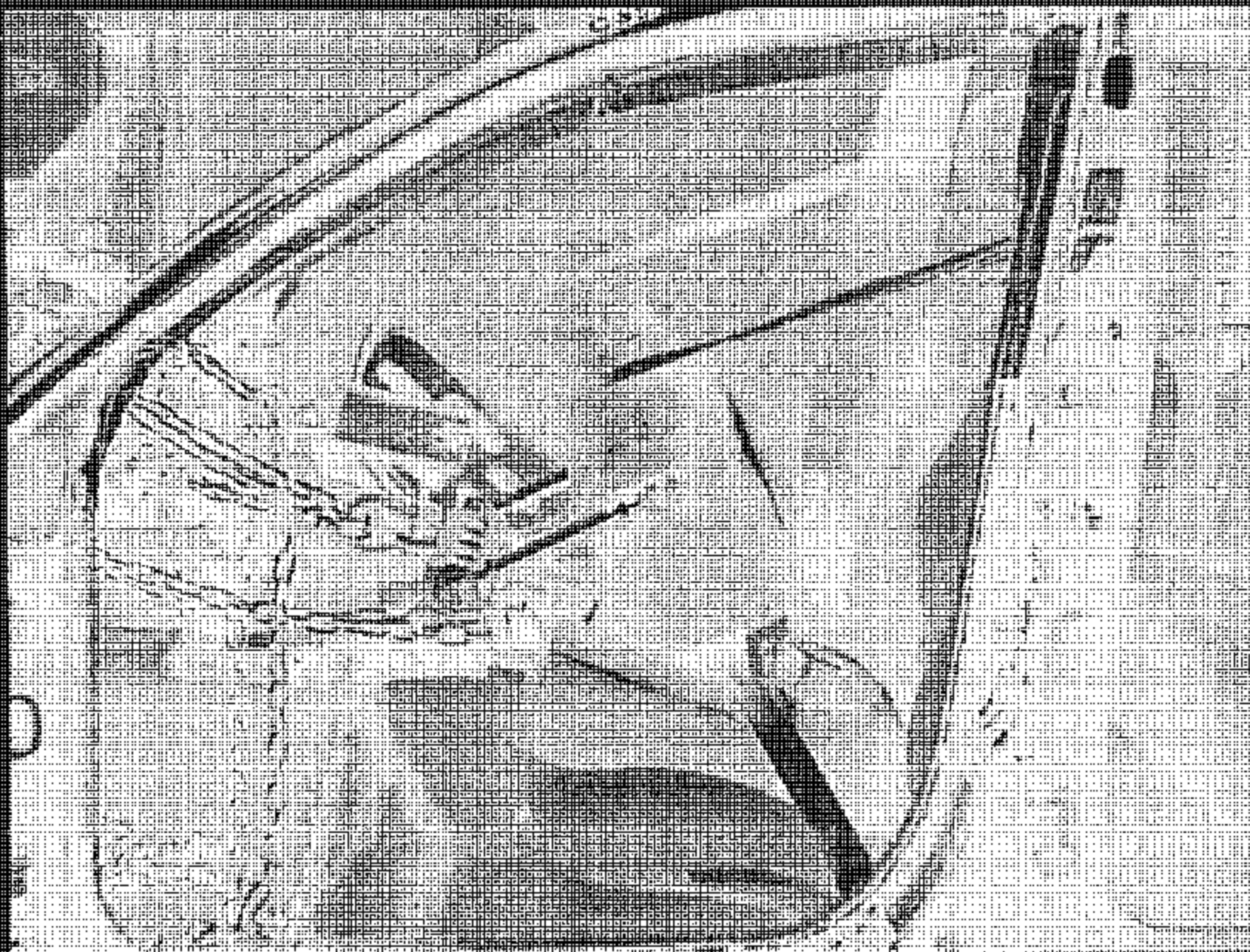
2005 VOLKSWAGEN PASSAT
NHTSA NO. C558C0
FMVSS NO. 210

FIGURE 6-24
FULL LOAD ROW 1, 1/2 RIGHT FRONT VIEW



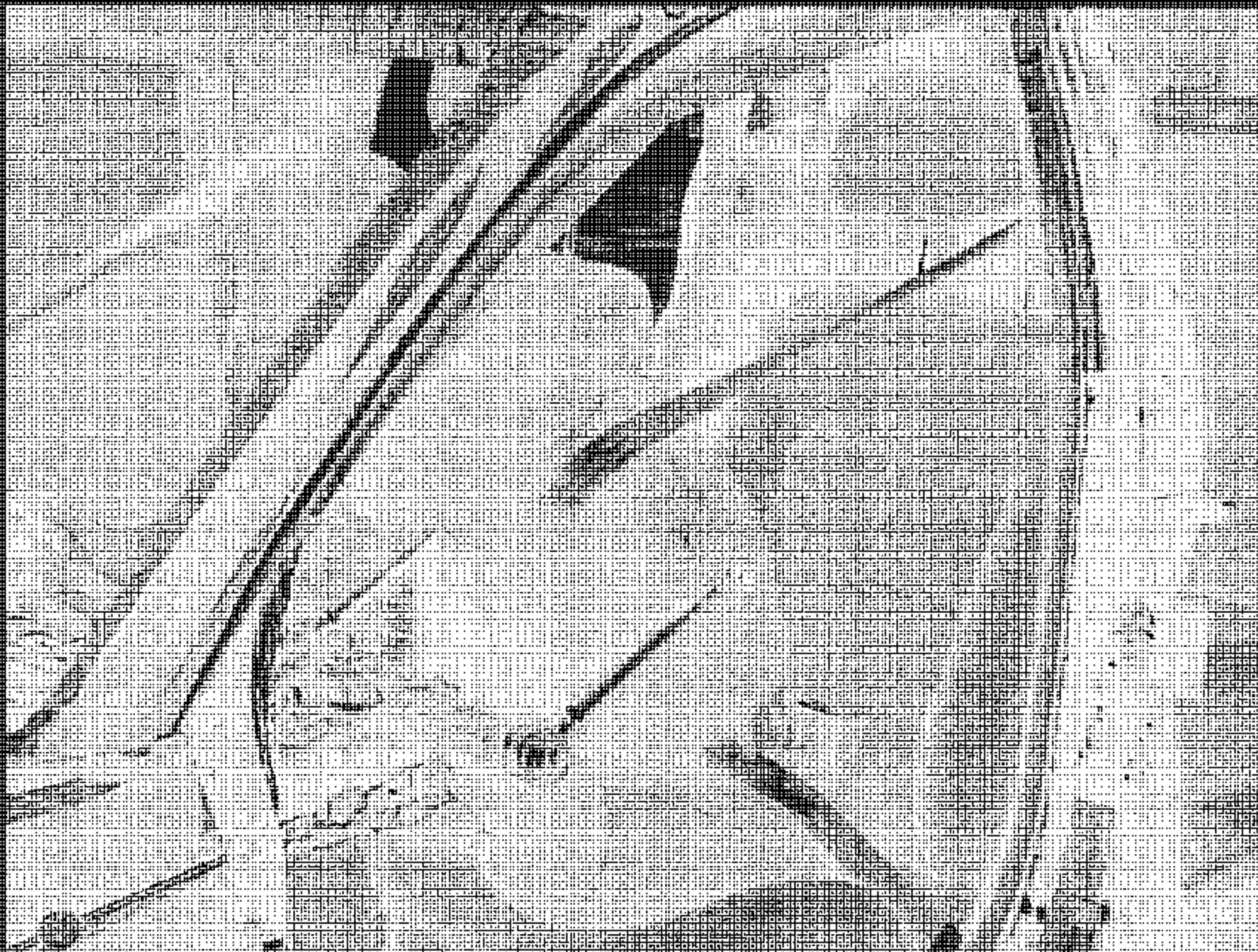
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.25
FULL LOAD ROW 1, RIGHT SIDE VIEW



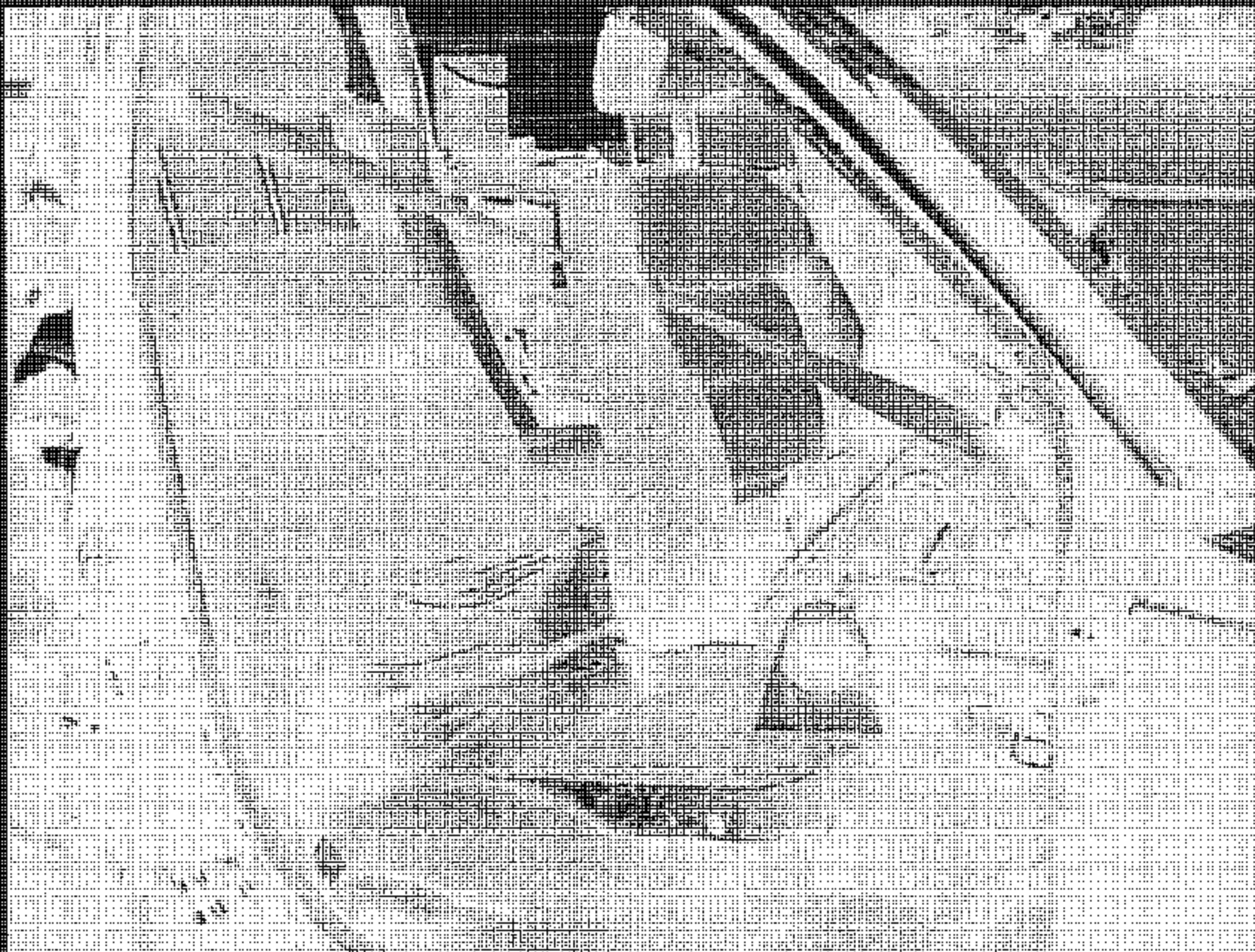
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55300
FMVSS NO. 210

FIGURE 5 28
POST TEST ROW 1, LEFT SIDE VIEW



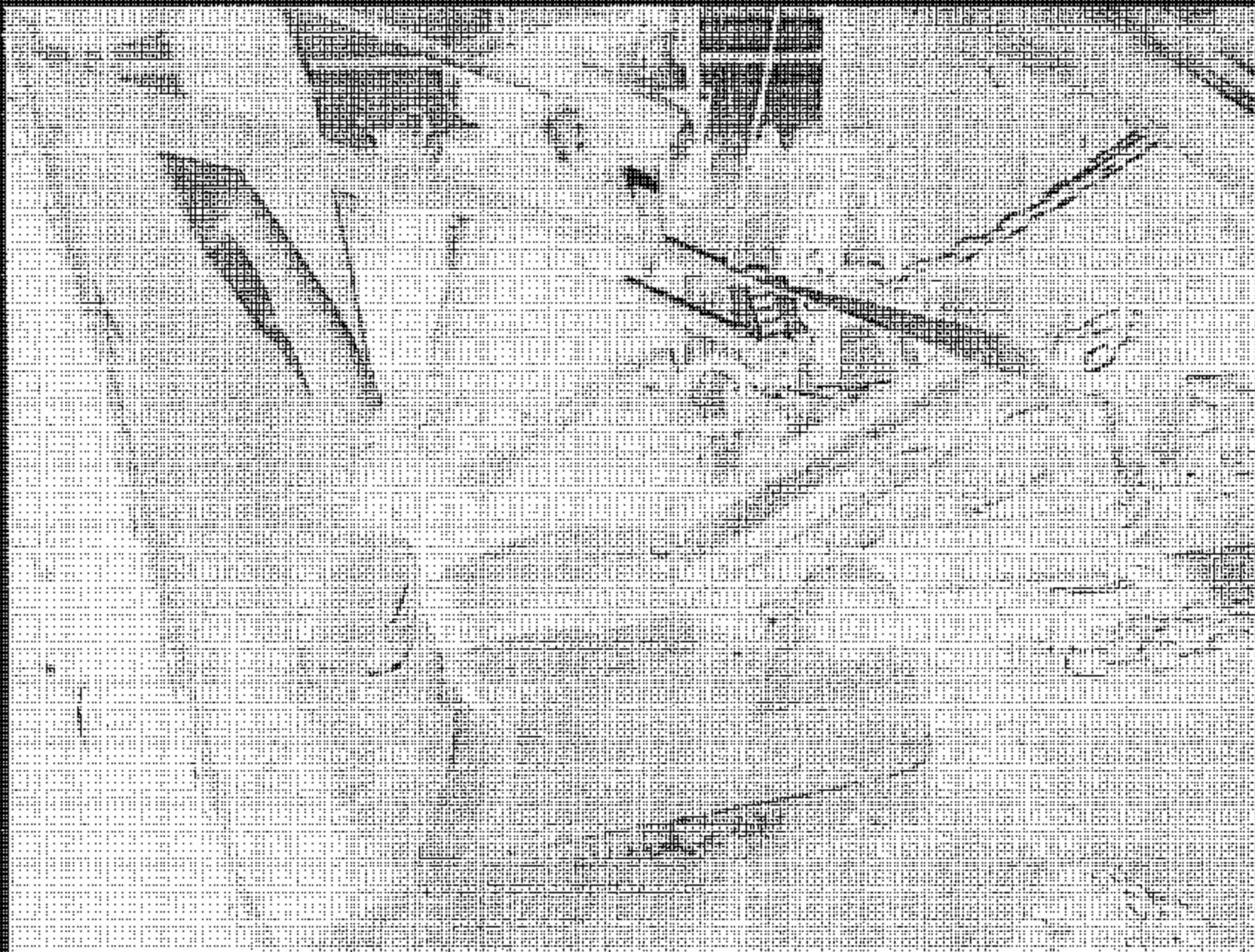
2015 VOLKSWAGEN PASSAT
NHTSA NO. C53BC0
FMVSS NO. 210

FIGURE 5.27
POST TEST ROW 1. 1/2 LEFT FRONT VIEW



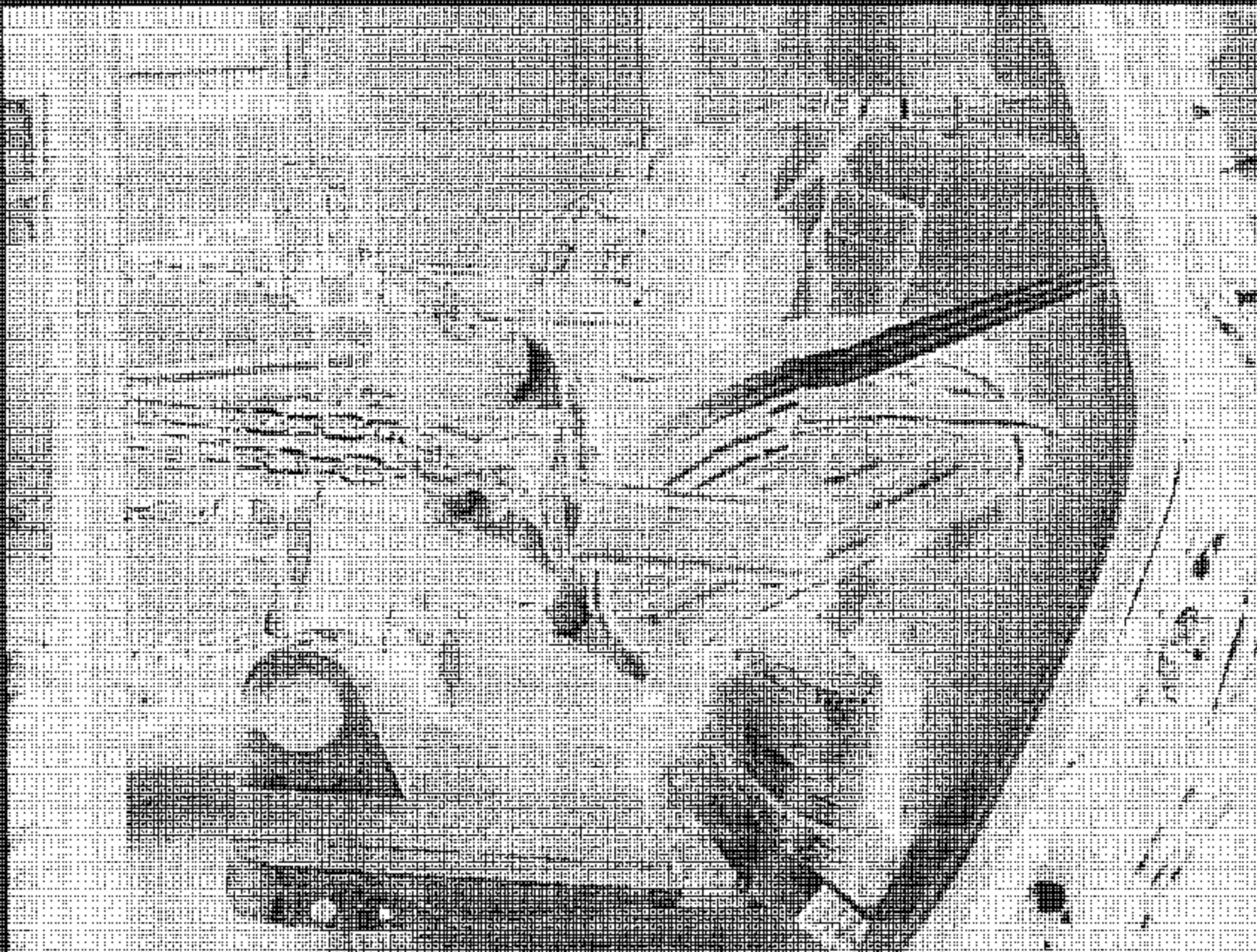
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55B00
FMVSS NO. 210

FIGURE S.28
POST TEST ROW 1, 3/4 RIGHT FRONT VIEW



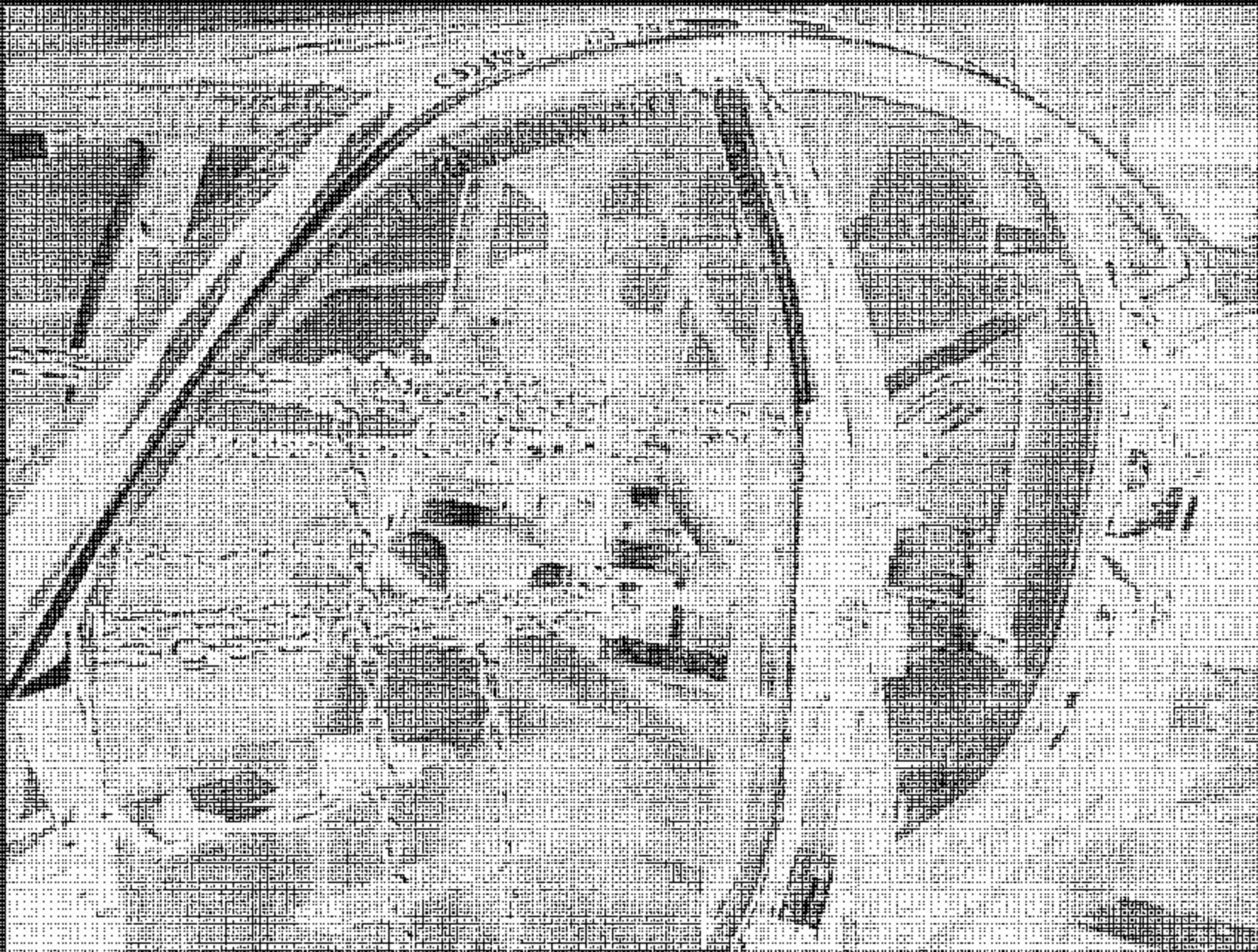
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5-29
POST TEST ROW 1, RIGHT SIDE VIEW



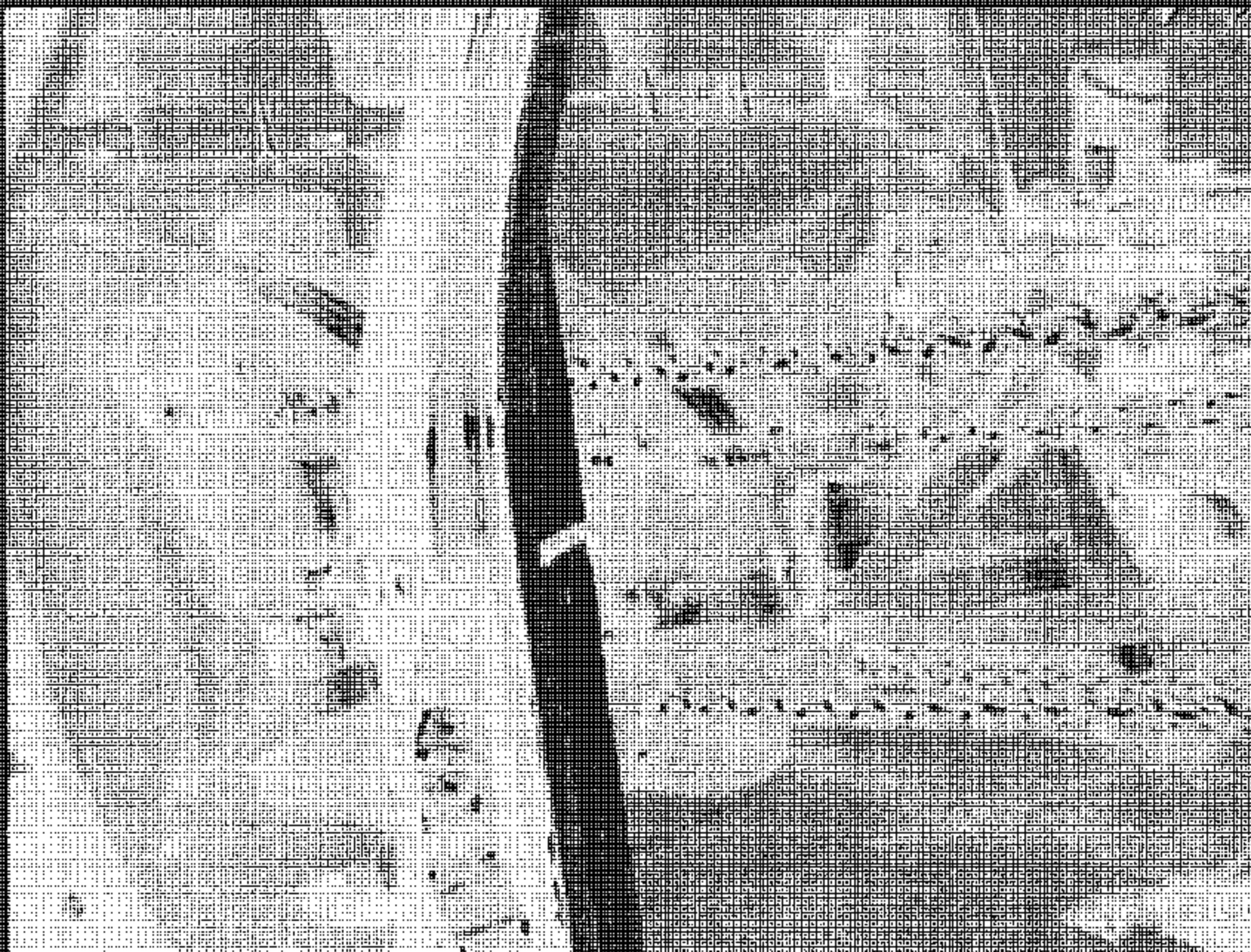
2008 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.30
PRE-TEST ROW 2, LEFT SIDE VIEW



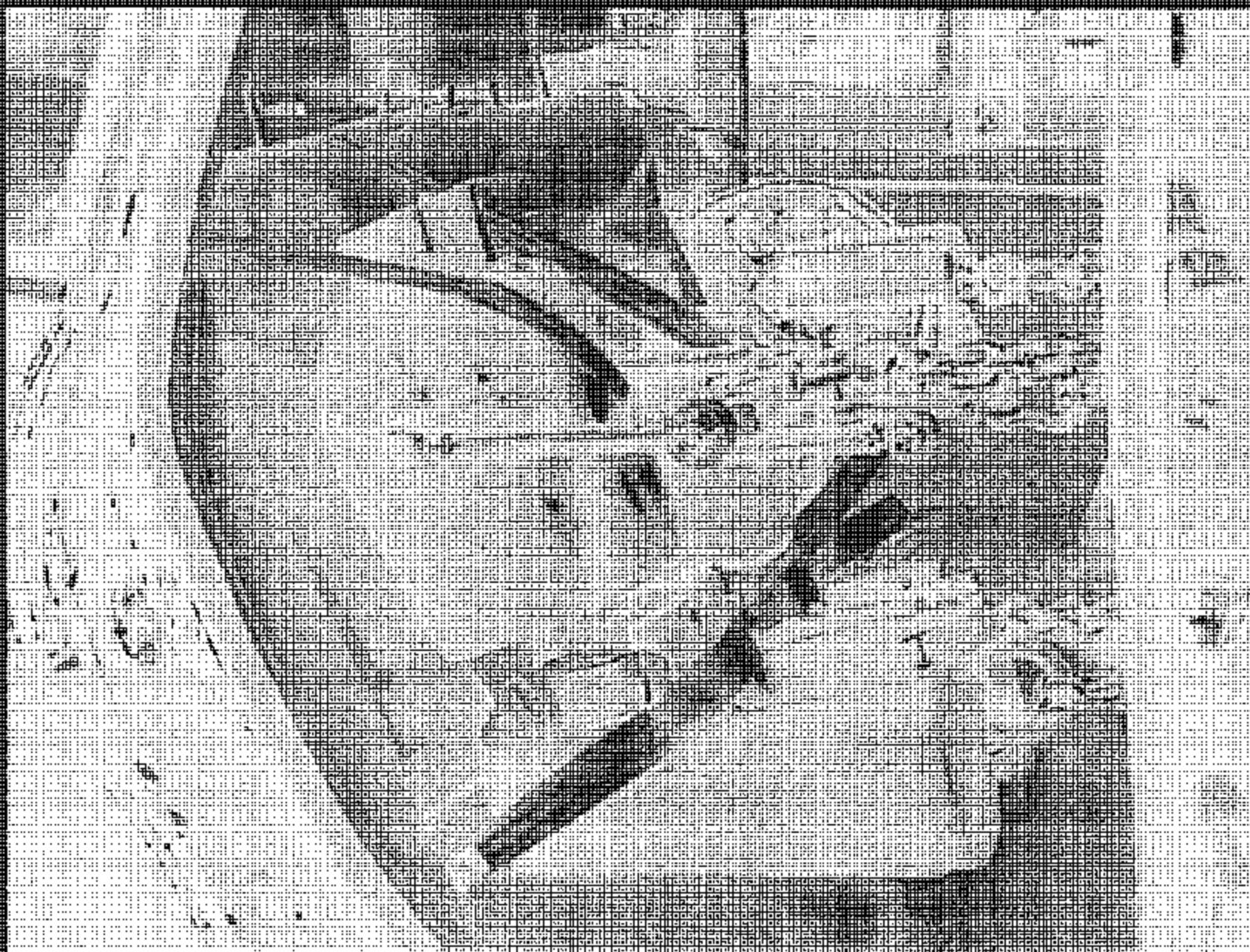
2005 VOLKSWAGEN PASSAT
NHTSA NO. 065800
FMVSS NO. 210

FIGURE 5.31
PRE-TEST ROW 2, ¼ LEFT FRONT VIEW



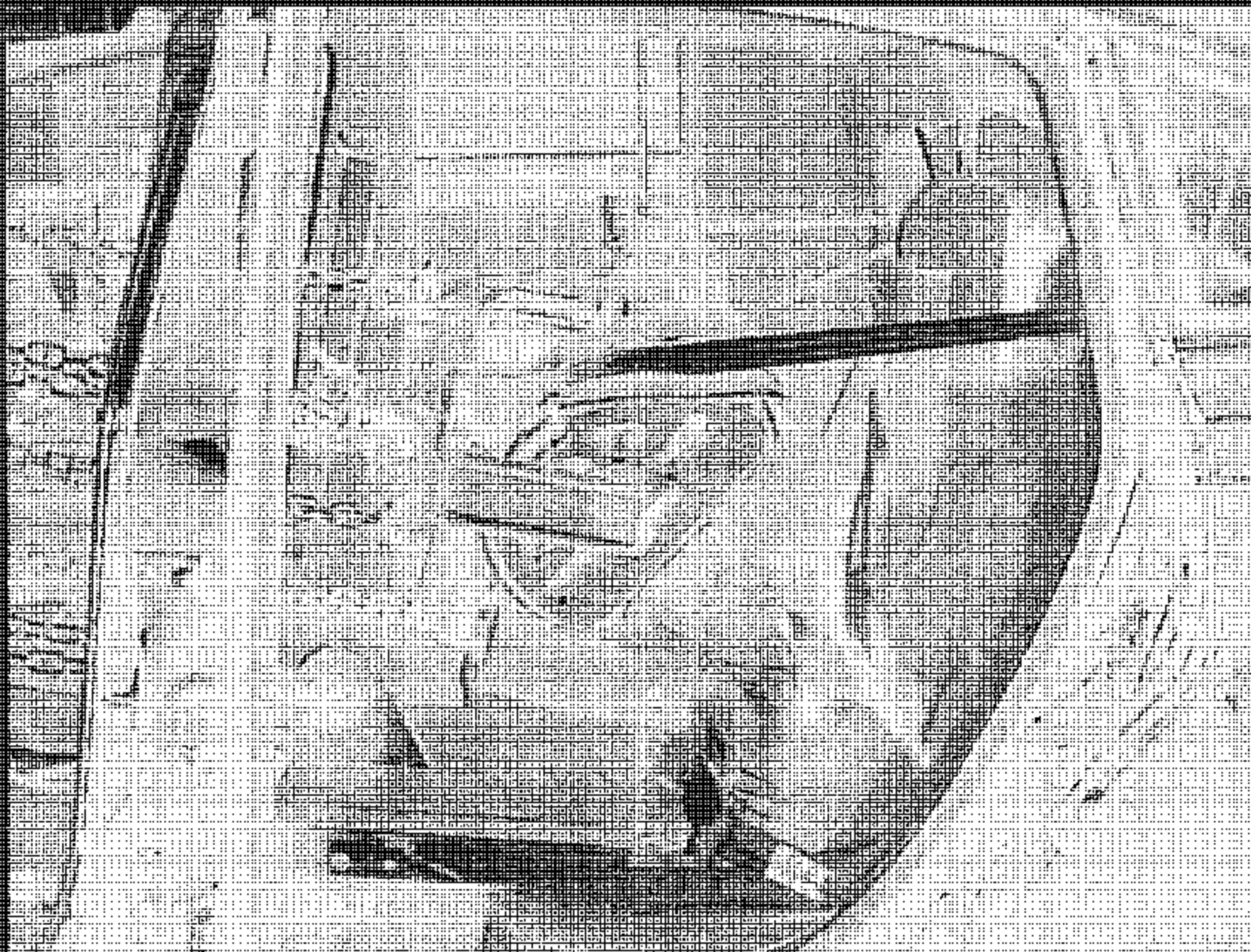
2005 VOLKSWAGEN PASSAT
NHTSA NO. C55800
FMVSS NO. 210

FIGURE 5.32
PRE-TEST ROW 2, 3/4 RIGHT FRONT VIEW



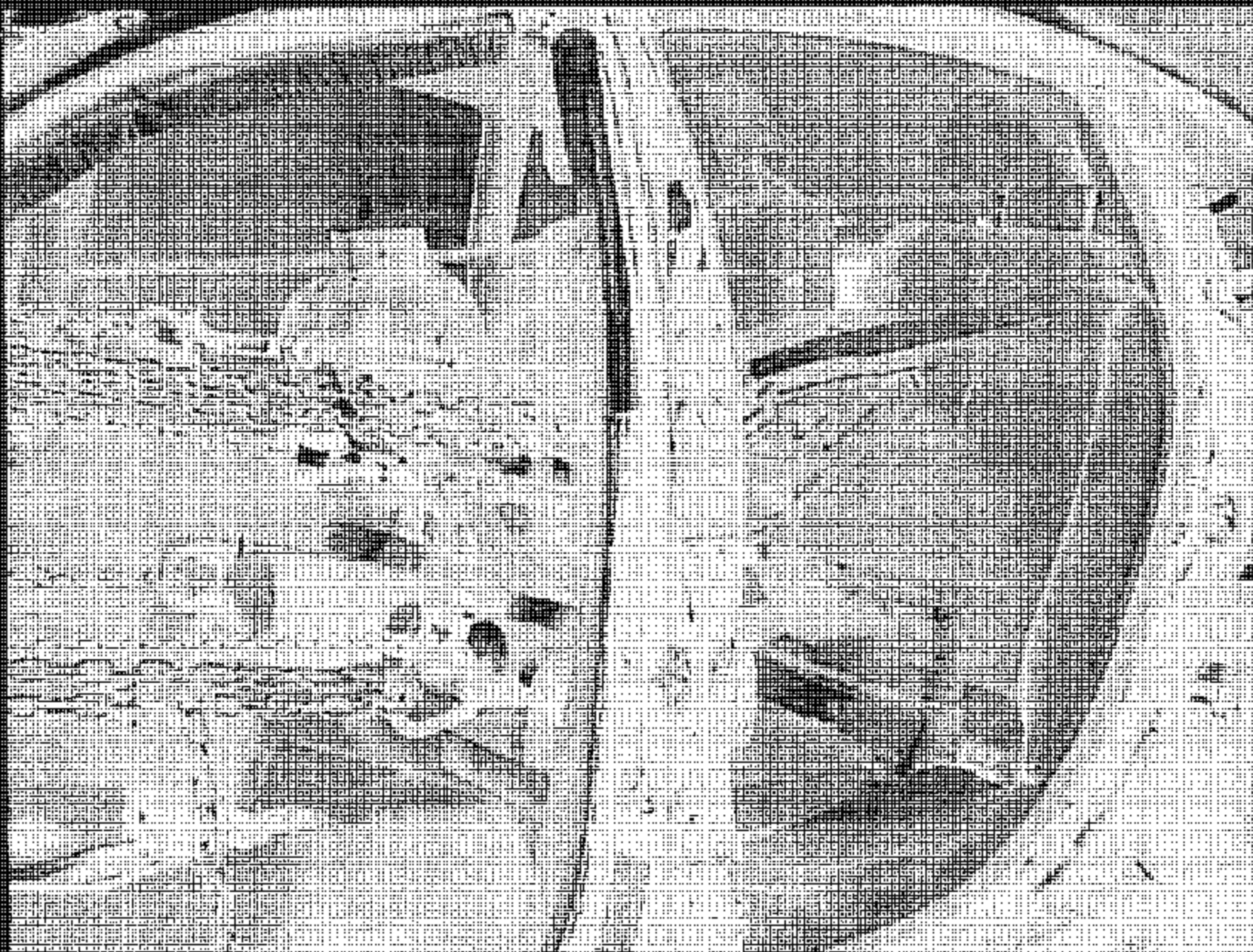
2005 VOLKSWAGEN PASSAT
NHTSA NO. C65800
FMVSS NO. 210

FIGURE 6.33
PRE-TEST ROW 2, RIGHT SIDE VIEW



2005 VOLKSWAGEN PASSAT
NHTSA NO. C35800
FMVSS NO. 210

FIGURE 5.34
FULL LOAD ROW 2, LEFT SIDE VIEW



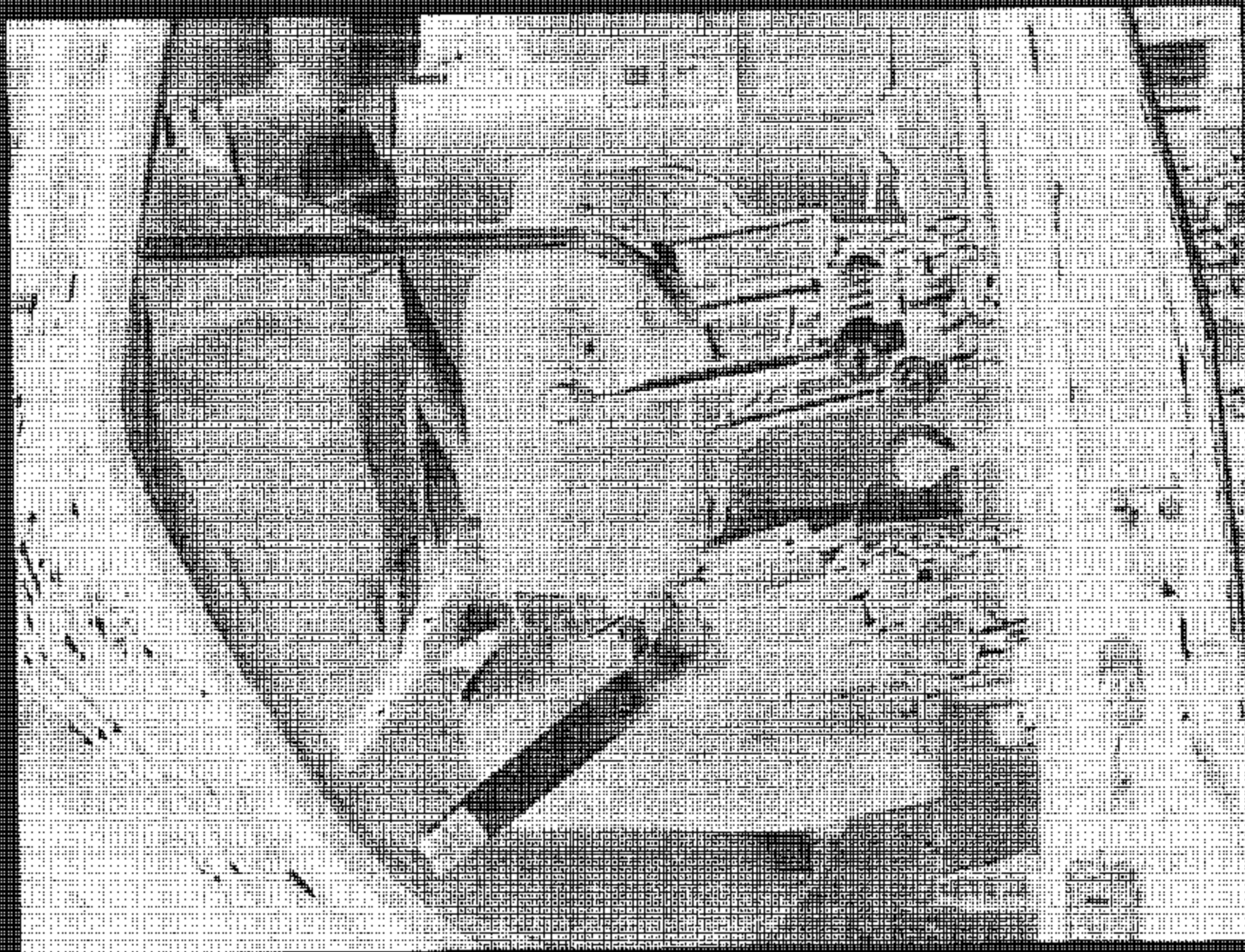
2005 VOLKSWAGEN PASSAT
NHTSA NO. C58800
FMVSS NO. 210

FIGURE 5.35
FULL LOAD ROW 2, 1/4 LEFT FRONT VIEW



2005 VOLKSWAGEN PASSAT
NHTSA NO. C35800
FMVSS NO. 210

FIGURE 5.38
FULL LOAD ROW 2, 1/2 RIGHT FRONT VIEW



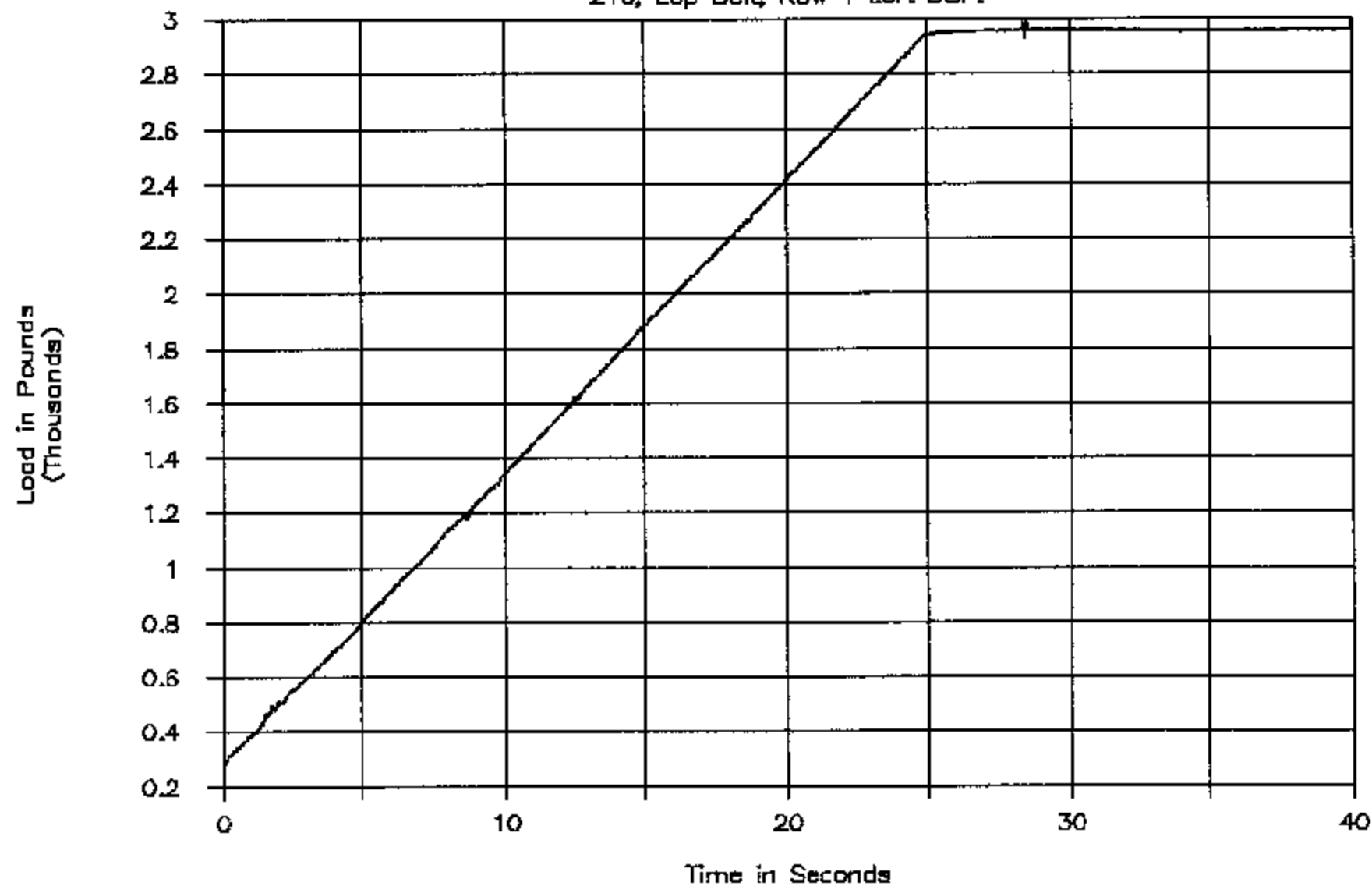
2015 VOLKSWAGEN PASSAT
NHTSA NO. C56R03
FMVSS NO. 210

FIGURE 5.37
FULL LOAD ROW 2, RIGHT SIDE VIEW

SECTION 6
TEST PLOTS

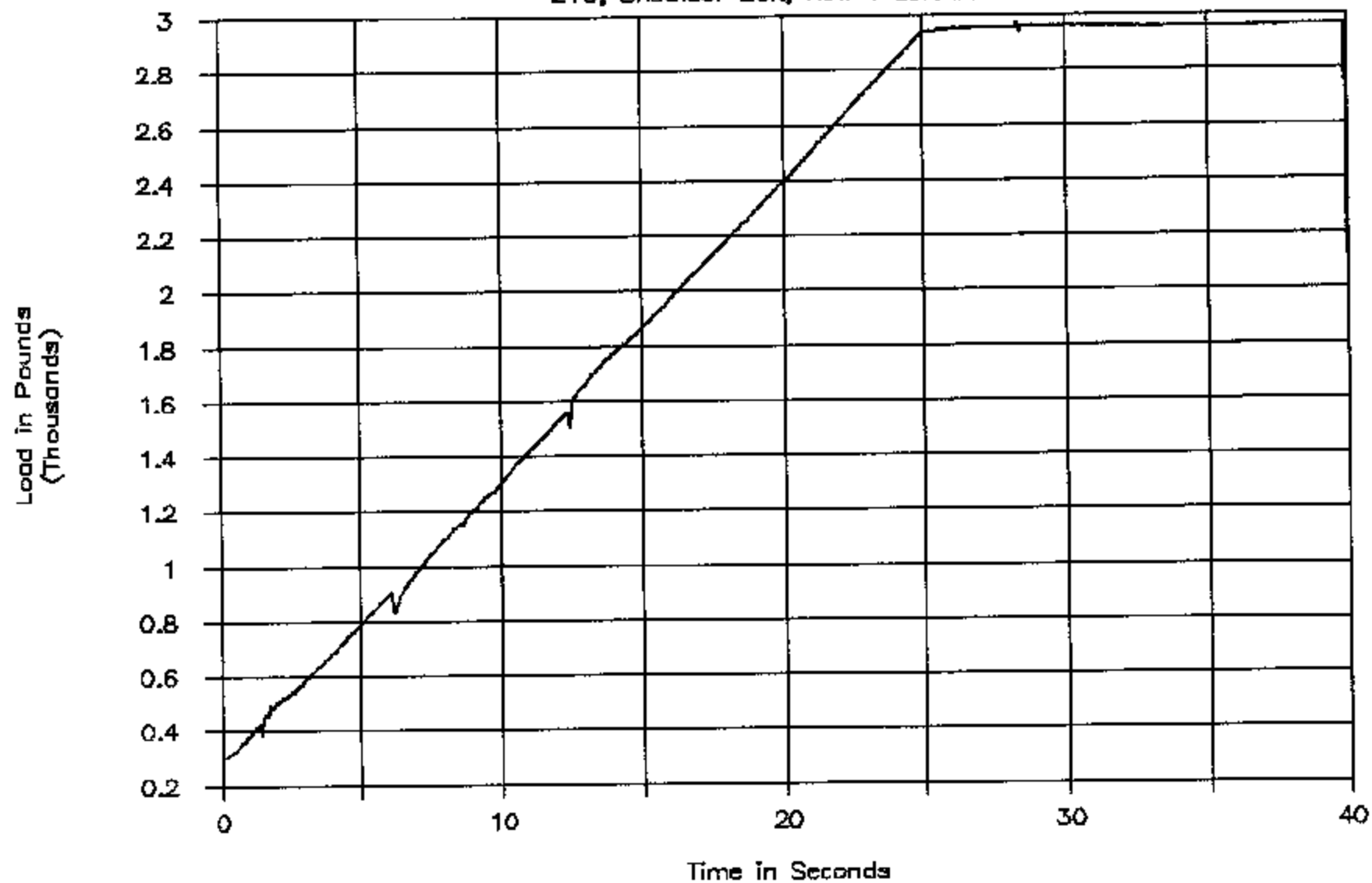
GTL 5307, NHTSA C55800.

210, Lap Belt, Row 1 Left DSP.



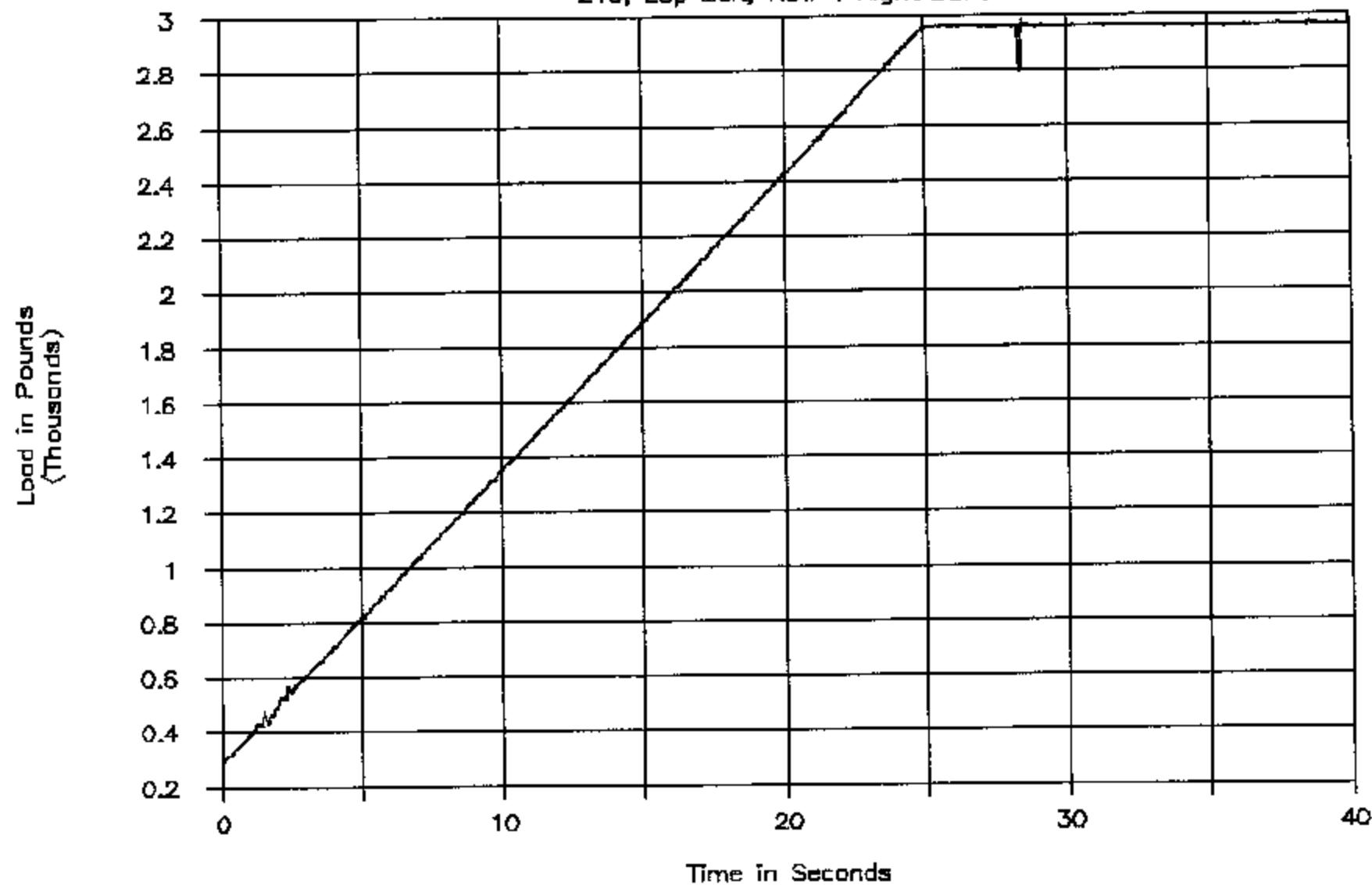
GTL 5307, NHTSA C55800.

210, Shoulder Belt, Row 1 Left DSP.



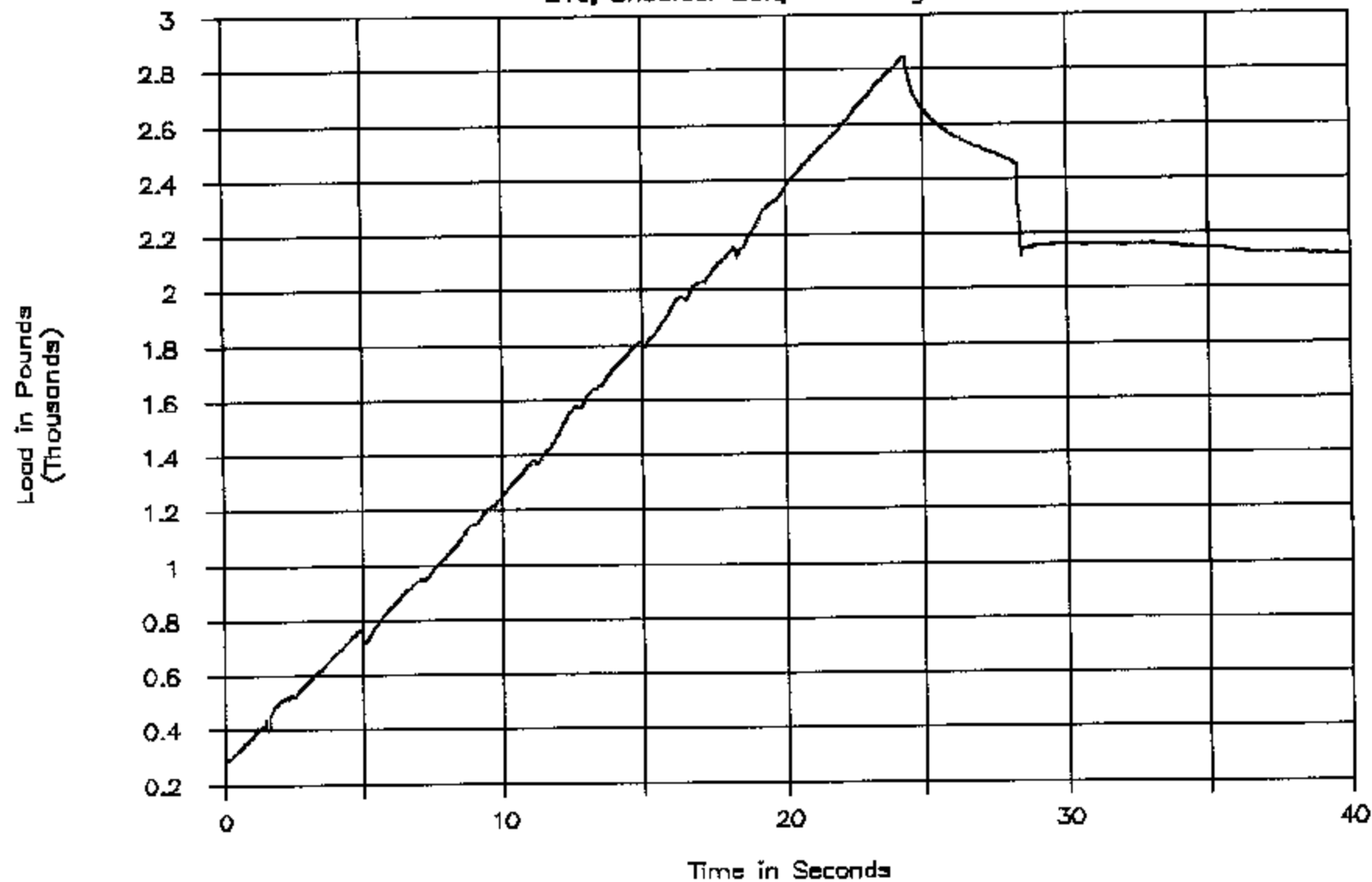
GTL 5307, NHTSA C55800.

210, Lap Belt, Row 1 Right DSP.



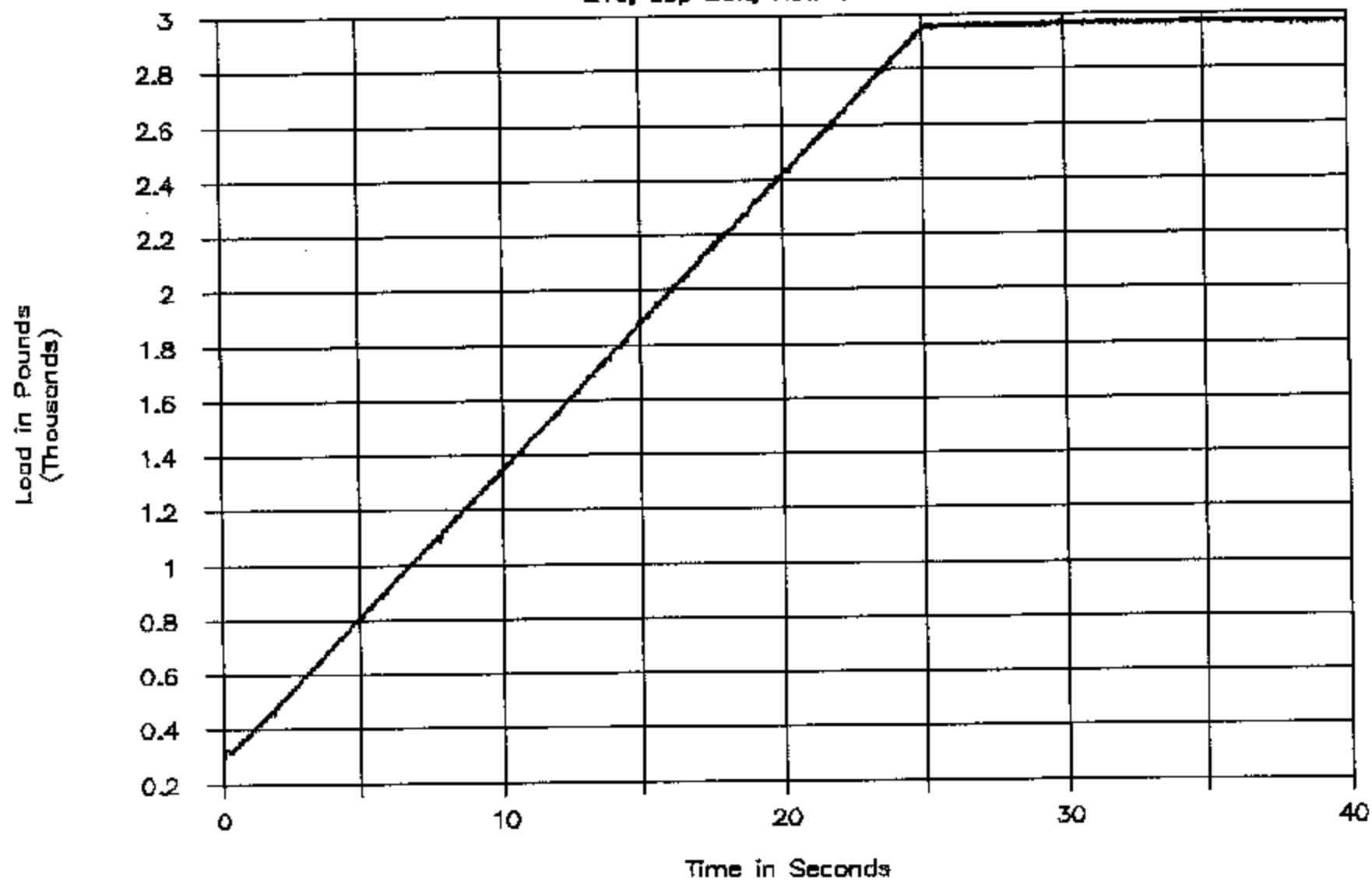
GTL 5307, NHTSA C55800.

210, Shoulder Belt, Row 1 Right DSP.



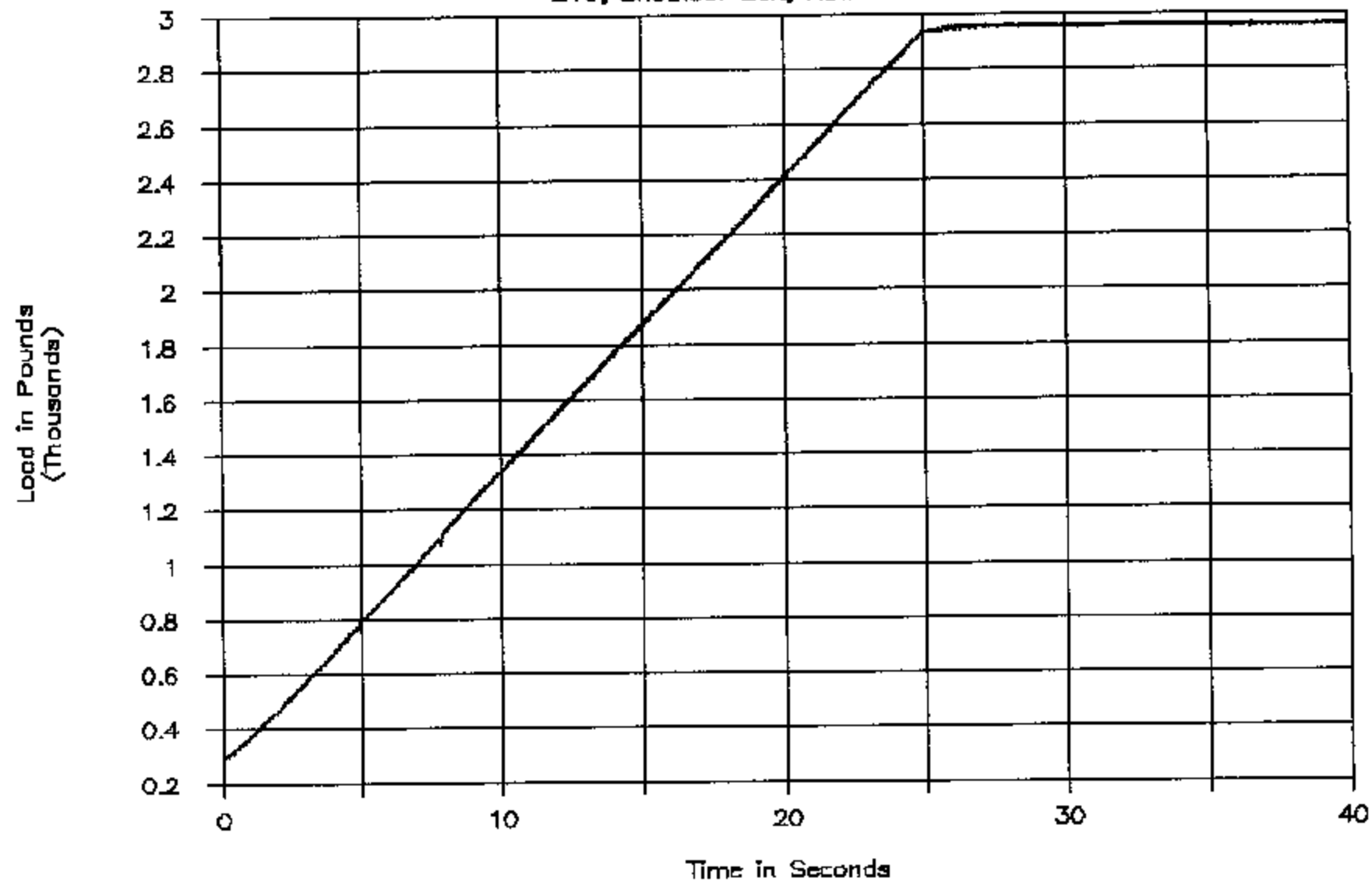
GTL 5308, NHTSA C55800.

210, Lap Belt, Row 1 Left DSP.



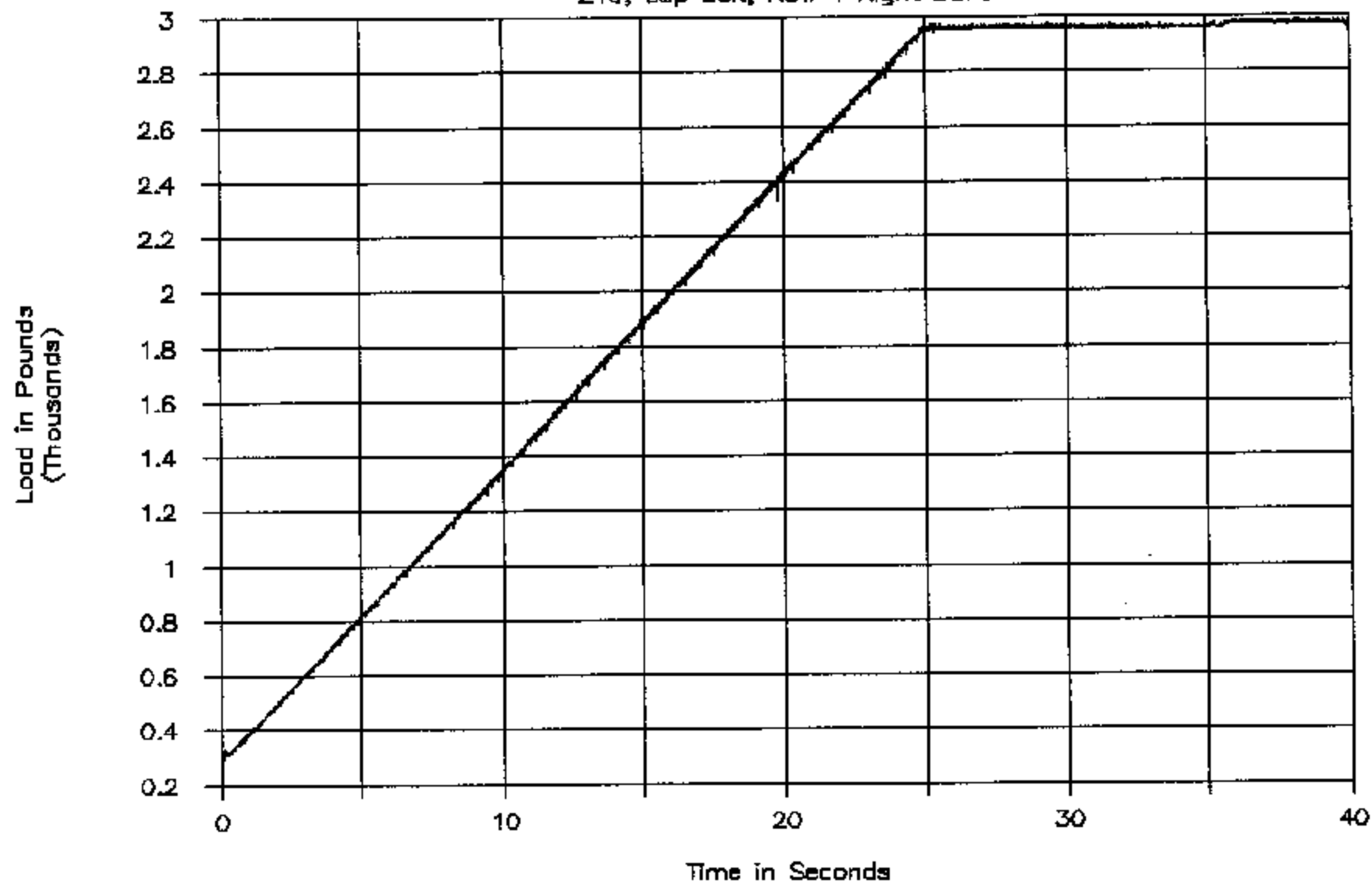
GTL 5308, NHTSA C55800.

210, Shoulder Belt, Row 1 Left DSP.



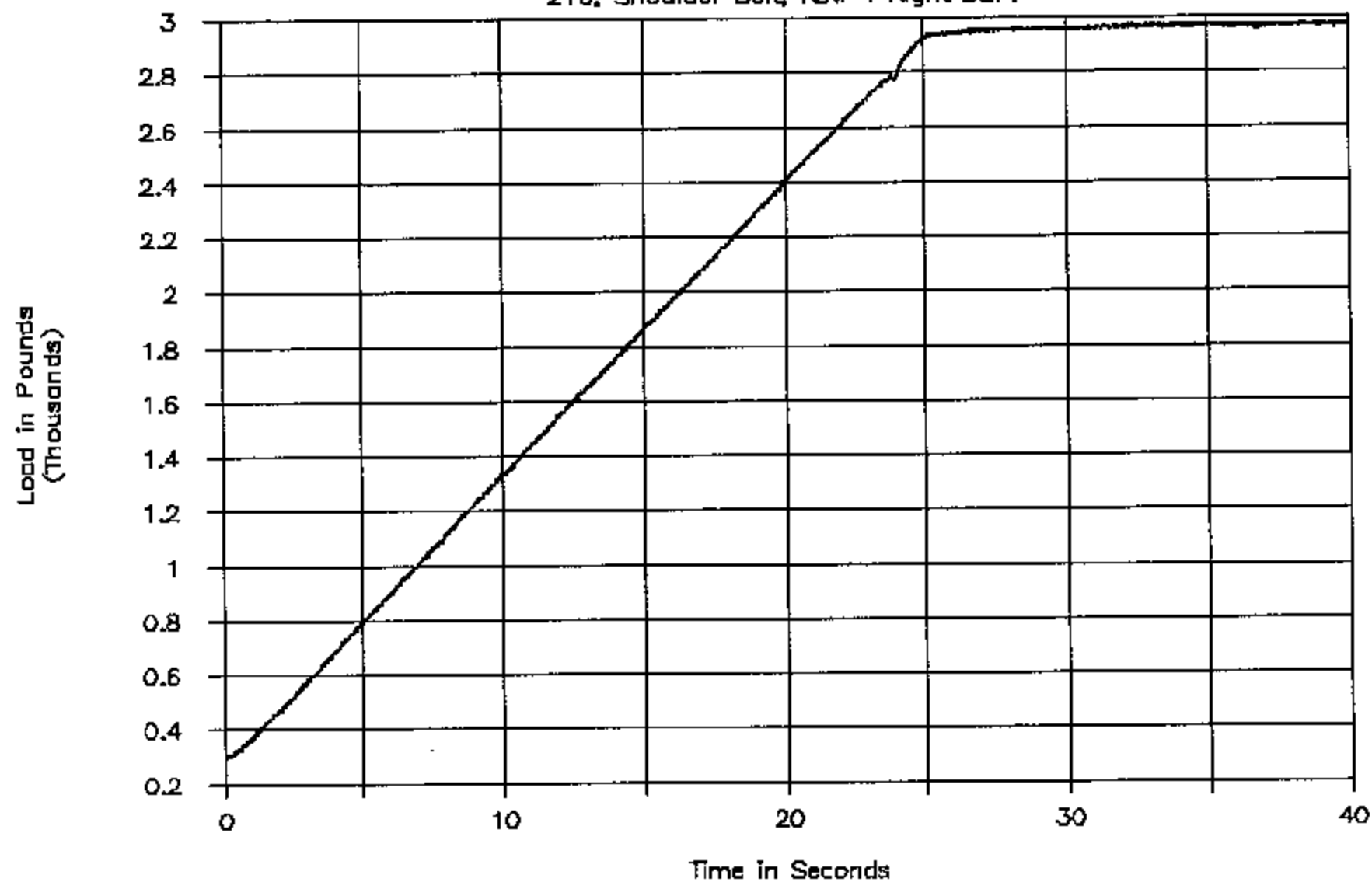
GTL 5308, NHTSA C55800.

210, Lap Belt, Row 1 Right DSP.



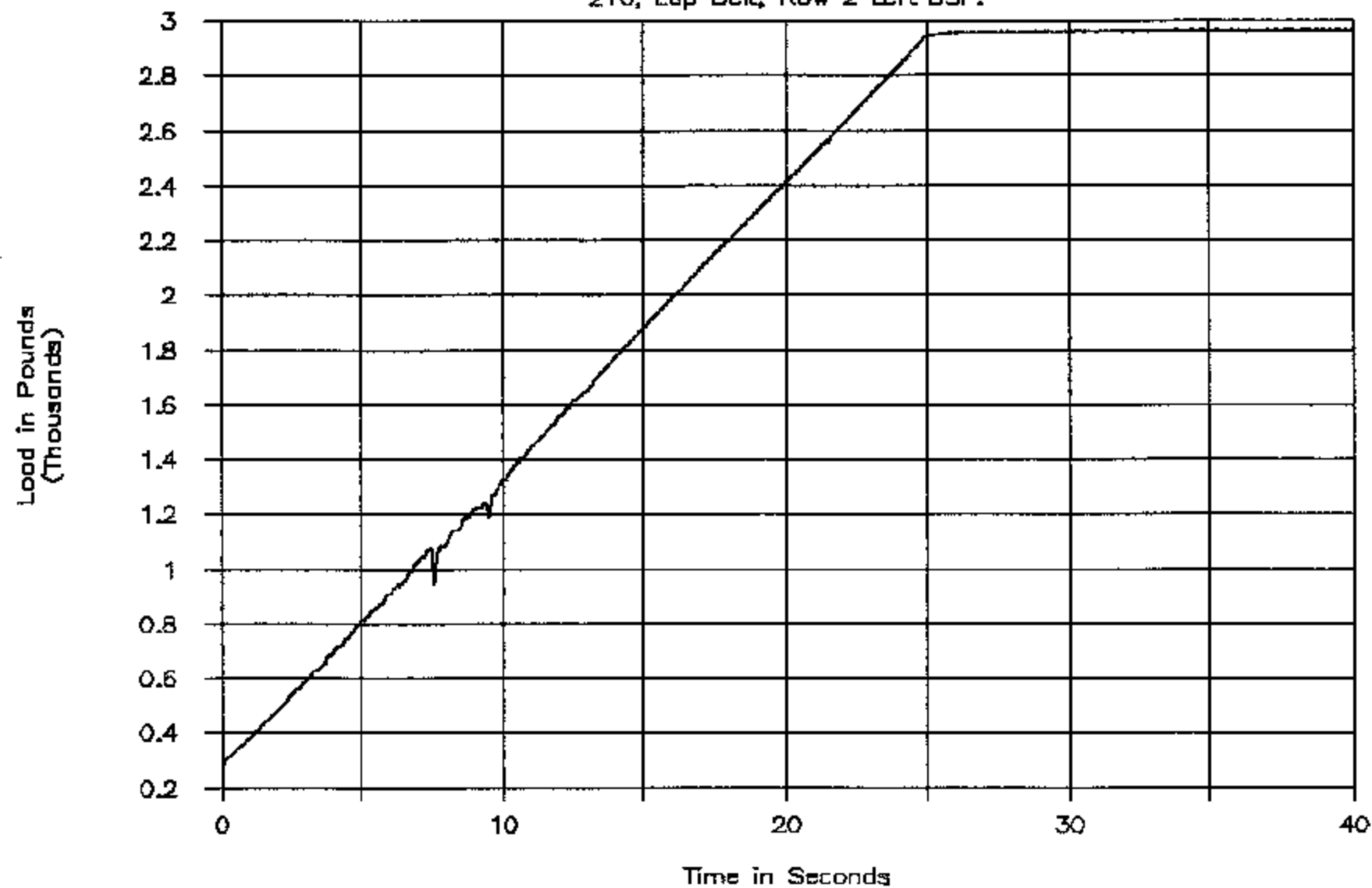
GTL 5308, NHTSA C55800.

210. Shoulder Belt, Row 1 Right DSP.



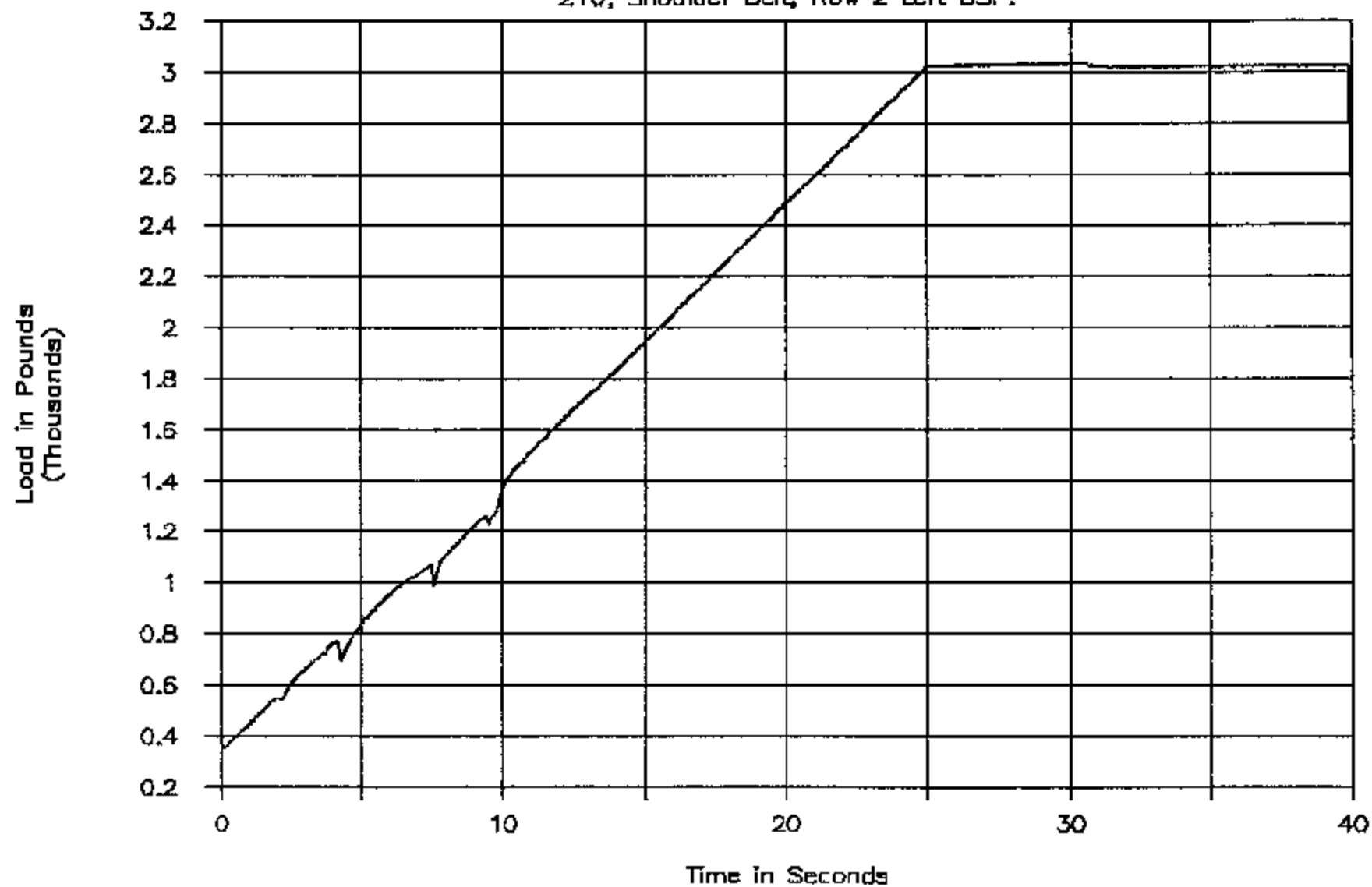
GTL 5309, NHTSA C55800.

210, Lap Belt, Row 2 Left DSP.



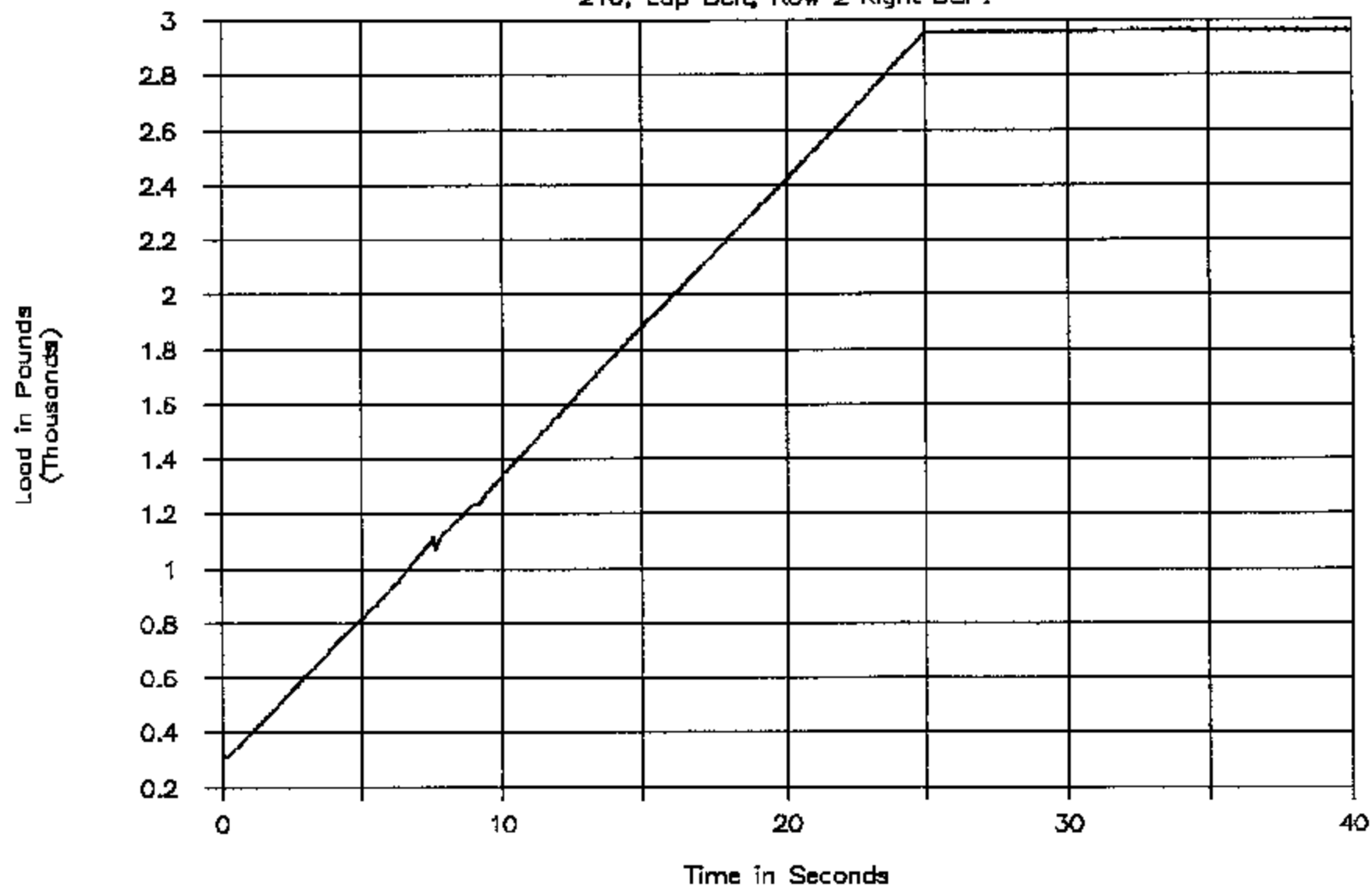
GTL 5309, NHTSA C55800.

210, Shoulder Belt, Row 2 Left DSP.



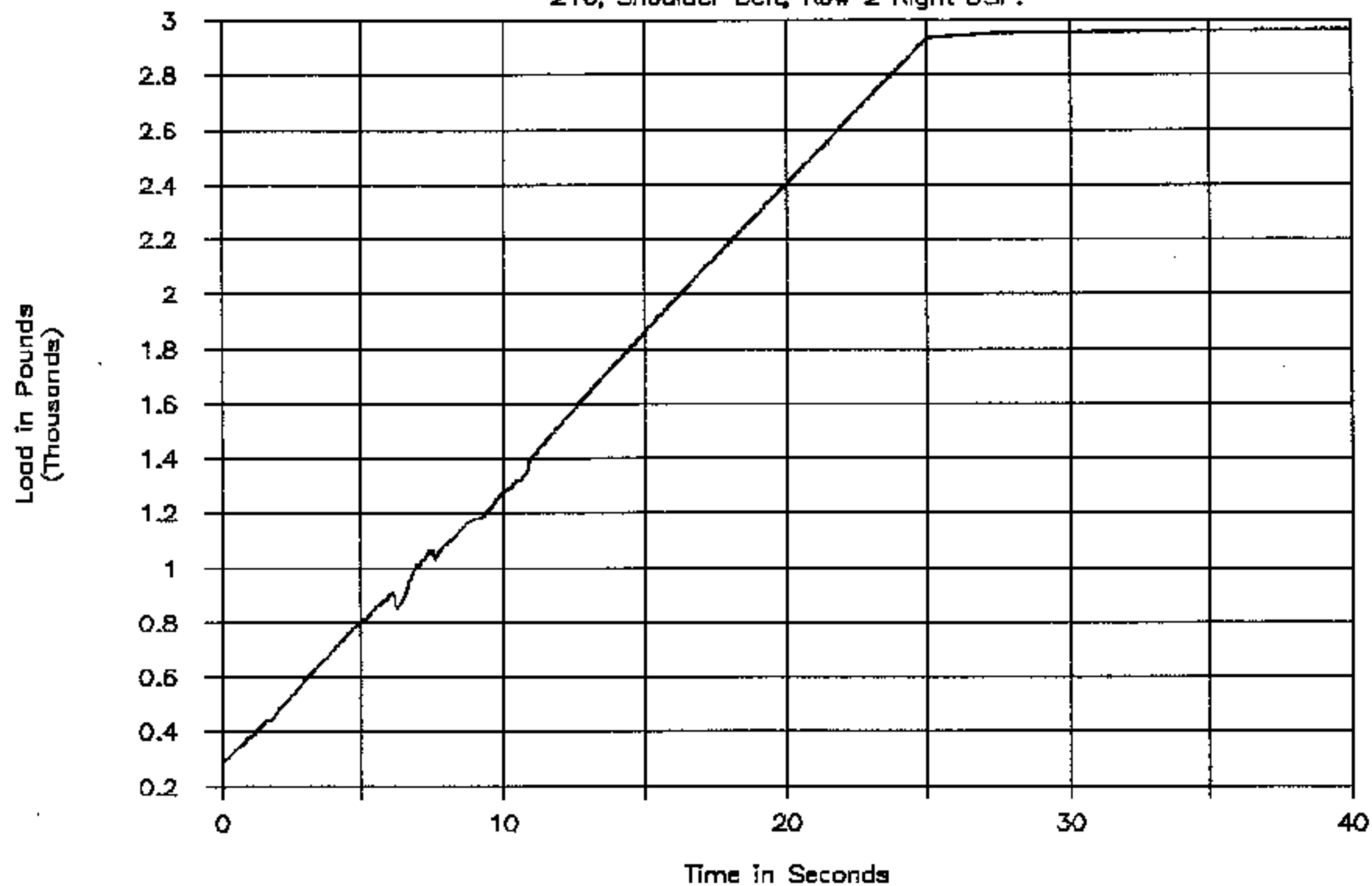
GTL 5309, NHTSA C55800.

210, Lap Belt, Row 2 Right DSP.



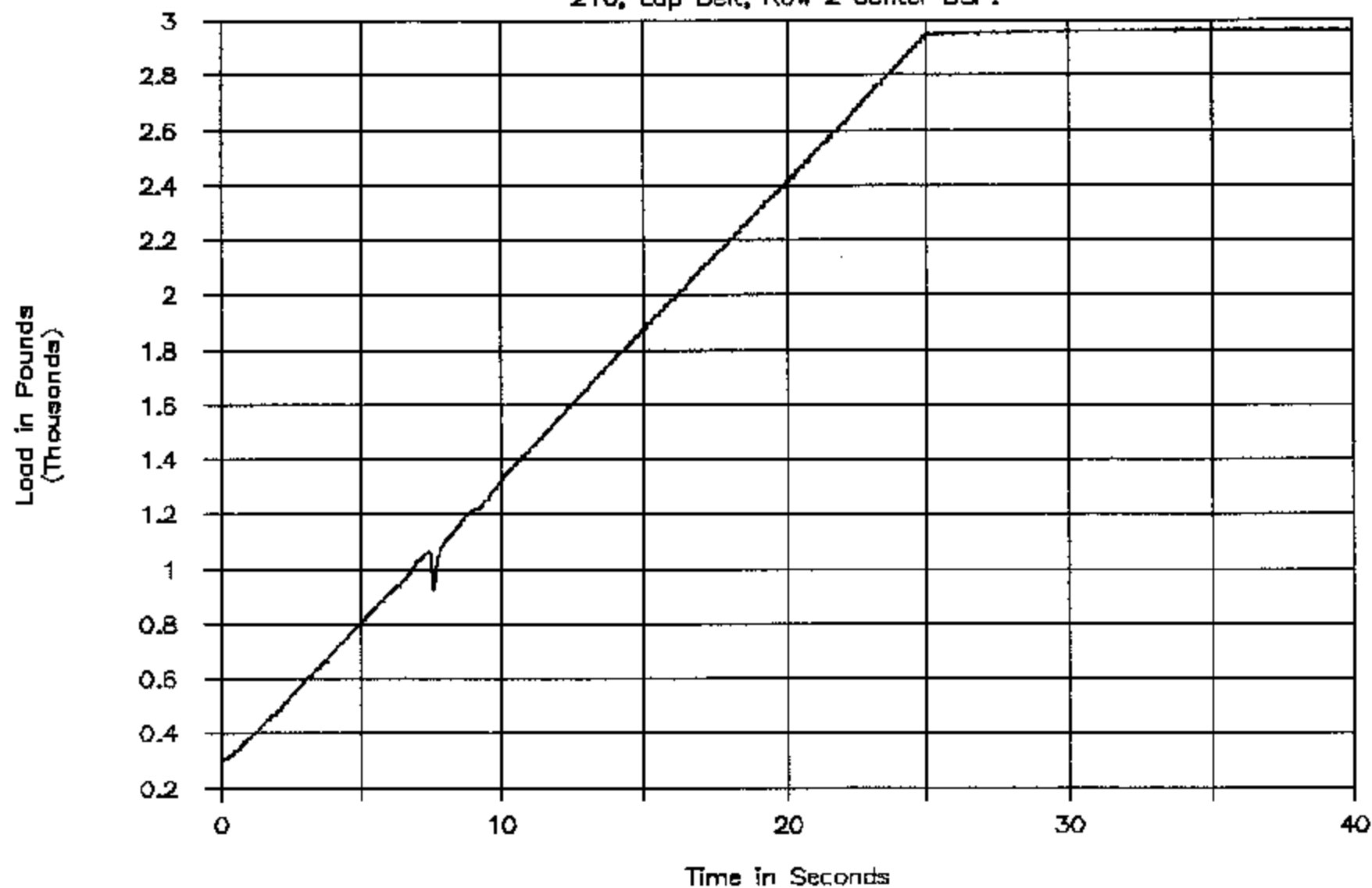
GTL 5309, NHTSA C55800.

210, Shoulder Belt, Row 2 Right DSP.



GTL 5309, NHTSA C55800.

210, Lap Belt, Row 2 Center DSP.



GTL 5309, NHTSA C55800.

210, Shoulder Belt, Row 2 Center DSP.

