

**SAFETY COMPLIANCE TESTING FOR  
FMVSS NO. 110  
TIRE SELECTION AND RIMS**

**TOYOTA MOTOR MANUFACTURING,  
KENTUCKY, INC.  
2005 TOYOTA AVALON, 4-DOOR PASSENGER CAR  
NHTSA NO. C55104**

**GENERAL TESTING LABORATORIES, INC.  
1623 LEEDSTOWN ROAD  
COLONIAL BEACH, VIRGINIA 22443**



**JUNE 21, 2005**

**FINAL REPORT**

**PREPARED FOR**

**U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
400 SEVENTH STREET, SW  
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WASHINGTON, D.C. 20590**

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Prepared By: Debbie Messick  
Approved By: [Signature]  
Approval Date: 6/21/05

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## SECTION 1

### INTRODUCTION

#### 1.0 PURPOSE OF COMPLIANCE TEST

A 2005 Toyota Avalon 4-door passenger car was subjected to FMVSS No. 110 testing to determine if the vehicle was in compliance with the requirements of the standard. All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure, TP-110-02 dated 14 December 1989 and General Testing Laboratories, Inc (GTL) Test Procedure, TP-110-02 dated 22 May 2002.

#### 1.1 TEST VEHICLE

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

- A. Vehicle Identification Number: 4T1BK36B75U024613
- B. NHTSA No.: C55104
- C. Manufacturer: TOYOTA MOTOR MANUFACTURING, KENTUCKY, INC.
- D. Manufacture Date: 03/05

#### 1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 110 testing during the time period May 23 through May 31, 2005.

## SECTION 2

### TEST PROCEDURE AND SUMMARY OF RESULTS

#### 2.0 GENERAL

The 2005 Toyota Avalon 4-door passenger car, NHTSA No. C55104, was subjected to FMVSS No. 110 testing during the time period May 23 through May 31, 2005.

#### 2.1 TEST PROCEDURE

Prior to test, the test vehicle was inspected for completeness, systems operability and appropriate fuel and liquid levels, i.e., oil and coolant. The vehicle was then photographically documented as required by the DOT/NHTSA and GTL test procedures. Subsequent events included weighing the vehicle to establish delivered curb weight and the distribution of weight on the front and rear axles and each wheel position. The vehicle normal load as well as the maximum load on each wheel were measured. Data from each tire furnished with the vehicle were recorded. The vehicle tire placard was surveyed and photographed. Required dimensional data and other identifying data for the left front and right rear rims were obtained. The contour of the aforementioned rims was documented photographically.

In preparation for the deflated tire retention test, test instrumentation was installed in the vehicle. With the driver aboard, the vehicle was ballasted to equal the "vehicle maximum load on the tire" on the front and rear axle, as previously established. The tire pressure of all tires was adjusted to placard specifications for cold tire inflation at maximum loaded vehicle weight. The deflated tire retention test was then conducted on the left front tire followed by the right rear tire. The tests were conducted with the vehicle traveling in a straight line at 98.6 kph (60 mph). The respective tire was blown by an explosive charge on the tire's sidewall. Test data collected during the test included vehicle speed, deceleration, stopping distance, distance of uncontrolled deviation from a straight line and tire pressure. After the vehicle was stopped, any tire bead separation from the rim flange was documented photographically.

#### 2.2 SUMMARY OF RESULTS

The test vehicle appears to be in compliance with the requirements of FMVSS No. 110.

## SECTION 3

## TEST DATA

# DATA SHEET 1 SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON PASSENGER CAR  
 VEHICLE NHTSA NO.: C55104; VIN: 4T1BK36B75U024613  
 LABORATORY: GENERAL TESTING LABORATORIES  
 TEST DATE: 05/31/05

<u>REQUIREMENT</u>	<u>PASS/FAIL</u>
<b>TIRE LOAD LIMITS AND PLACARD</b>	
The vehicle is equipped with tires that meet the requirements of FMVSS 109. (FMVSS 110, S4.1)	<u>PASS</u>
The vehicle maximum load on the tire shall not be greater than the applicable maximum load rating as marked on the sidewall of the tire. (FMVSS 110, S4.2.1)	<u>PASS</u>
The vehicle normal load on the tire shall not be greater than the high speed performance test load specified in FMVSS 109 paragraph S5.5. (FMVSS 110, S4.2.2)	<u>PASS</u>
The placard must be permanently affixed to the glove compartment door or equally accessible location; and display the required information. (FMVSS 110, S4.3)	<u>PASS</u>
No inflation pressure other than the maximum permissible inflation pressure is specified unless as required. (FMVSS 110, S4.3.1)	<u>PASS</u>
<b>RIM DIMENSIONS</b>	
Each rim shall be constructed to the dimensions of a rim or alternate specified for the tire size. (FMVSS No. 110, S4.4.1 (a))	<u>PASS</u>
<b>DEFLATED TIRE RETENTION</b>	
Each rim shall retain the deflated tire until the vehicle can be stopped. (FMVSS 110, S4.4.1(b))	<u>PASS</u>
Statement of indication of compliance or noncompliance to FMVSS 110 and data reference: <u>THE TOYOTA AVALON APPEARS TO COMPLY WITH THE REQUIREMENTS OF</u> <u>FMVSS 110.</u>	
<b>REMARKS:</b>	

RECORDED BY: [Signature]  
 APPROVED BY: D. Messick

DATE: 05/31/05

# **DATA SHEET 2** **TEST VEHICLE INFORMATION/RECEIVING INSPECTION**

LABORATORY: GENERAL TESTING LABORATORIES DATE: 05/23/05

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON

MANUFACTURE DATE: 03/05 NHTSA NO.: C55104 BODY COLOR: SAND MICA

VIN: 4T1BK36B75U024613 VEHICLE TYPE: PASSENGER CAR

GVWR 2071 kg (4565 lbs) GAWR(Fr) 1209 kg (2685 lbs) GAWR(Rr) 1136 kg (2505 lbs)

BELTED SEATING POSITIONS: FRONT 2 MID N/A REAR 3 OTHER N/A

ENGINE DATA: 8 Cylinders 3.5 Liters  Cubic Inches

TRANSMISSION DATA: X Automatic  Manual 5 No. of Speeds

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

INSTALLED TIRE DATA: Size - P215/60R16 Mfr. - BRIDGESTONE

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT/MAKE SURE ALL OPTIONS ON WINDOW STICKER ARE LISTED:

<input checked="" type="checkbox"/>	Air Conditioning		Traction Control	<input checked="" type="checkbox"/>	Clock
<input checked="" type="checkbox"/>	Tinted Glass		All Wheel Drive		Roof Rack
<input checked="" type="checkbox"/>	Power Steering	<input checked="" type="checkbox"/>	Cruise Control	<input checked="" type="checkbox"/>	Console
<input checked="" type="checkbox"/>	Power Windows	<input checked="" type="checkbox"/>	Rear Window Defroster	<input checked="" type="checkbox"/>	Driver Air Bag
<input checked="" type="checkbox"/>	Power Door Locks	<input checked="" type="checkbox"/>	Sun Roof or T-Top	<input checked="" type="checkbox"/>	Passenger Air Bag
<input checked="" type="checkbox"/>	Power Seat(s)	<input checked="" type="checkbox"/>	Tachometer	<input checked="" type="checkbox"/>	Front Disc Brakes
<input checked="" type="checkbox"/>	Power Brakes	<input checked="" type="checkbox"/>	Tilt Steering Wheel	<input checked="" type="checkbox"/>	Rear Disc Brakes
<input checked="" type="checkbox"/>	Antilock Brake System	<input checked="" type="checkbox"/>	AM/FM/CD		Other -

REMARKS:

RECORDED BY: *J. L. L...*

DATE: 05/23/05

APPROVED BY: *D. Messick*

**DATA SHEET 3**  
**CURB WEIGHT WITH OPTIONS, NORMAL LOAD, VEHICLE MAXIMUM LOAD**

VEHICLE MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON PASSENGER CAR

VEHICLE NHTSA NO.: C55104 ; VIN: 4T1BK38B75U024613

LABORATORY: GENERAL TESTING LABORATORIES

TEST DATE: 05/23/05

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids Full

Tire Pressure:      LF 200 KPA (29 psi)      LR 200 KPA (29 psi)  
                          RF 200 KPA (29 psi)      RR 200 KPA (29 psi)

**A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES**

LF <u>492</u> KG (1085 LB)	LR <u>310</u> KG (684 LB)
RF <u>486</u> KG (1072 LB)	RR <u>304</u> KG (671 LB)
Front Axle <u>978</u> KG (2157 LB)	Rear Axle <u>615</u> KG (1355 LB)
Total Vehicle <u>1593</u> KG (3512 LB)	

**B. VEHICLE NORMAL LOAD ON THE TIRE**

(1) Seating Capacity (from Tire Information Placard) = 5

(2) Normal Load # of Occupants from FMVSS 110, Table I 3

Occupant Distribution:      Front Seat- 2      Second Seat- 1  
                                          Third Seat - N/A      Fourth Seat- N/A

(3) Total Normal Occupant Load 204 KG (450 LB)  
 (# of occupants x 68 KG per occupant)

(4) Measured Normal Load on Axles

LF <u>538</u> KG (1187 LB)	LR <u>367</u> KG (808 LB)
RF <u>535</u> KG (1179 LB)	RR <u>357</u> KG (788 LB)
Frt Axle <u>1073</u> KG (2366 LB)	Rr Axle <u>724</u> KG (1596 LB)
Total Vehicle <u>1797</u> KG (3982 LB)	

## DATA SHEET 3 - CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire  
 Front Tires (measured front axle normal load/2) = 537 KG (1183 LB)  
 Rear Tires (measured rear axle normal load/2) = 362 KG (798 LB)

- (6) High Speed Test Load from FMVSS 109 (S5.5)

	Front	Rear
Installed Tire Size	<u>P215/60R16</u>	<u>P215/60R16</u>
Max. Load Rating on Sidewall	<u>670 KG (1477 LBS)</u>	<u>670 KG (1477 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>590 KG (1300 LBS)</u>	<u>590 KG (1300 LBS)</u>
Optional Tire Size(s)	<u>P215/55R17</u>	<u>P215/55R17</u>
Max. Load Rating on Sidewall (Obtain from approved reference manual)	<u>650 KG (1433 LBS)</u>	<u>650 KG (1433 LBS)</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>572 KG (1261 LBS)</u>	<u>572 KG (1261 LBS)</u>

Vehicle Normal Load on the Tire is not greater than the High Speed Test Load

Installed Tires; [(5) < (6)]	Front Tires Rear Tires	PASS/FAIL <u>PASS</u> <u>PASS</u>
Optional Tires; [(5) < (6)]	Front Tires Rear Tires	<u>PASS</u> <u>PASS</u>

## C. MEASURED VEHICLE WITH FULL OCCUPANT LOAD

LF <u>553 KG (1220 LB)</u>	LR <u>419 KG (923 LB)</u>
RF <u>548 KG (1209 LB)</u>	RR <u>413 KG (910 LB)</u>
Front Axle <u>1102 KG (2429 LB)</u>	Rear Axle <u>831 KG (1833 LB)</u>
Total Vehicle <u>1933 KG (4262 LB)</u>	

## DATA SHEET 3 – CONTINUED

## D. VEHICLE MAXIMUM LOAD ON THE TIRE

- (1) Vehicle Capacity Weight (from Placard) 397 KG (875 LB)
- (2) Seating Capacity (from Placard) 5
- (3) Total Occupant Load (seating capacity x 68 KG) 340 KG (750 LB)
- (4) Luggage/Cargo Load (Subtract (3) from (1)) 57 KG (125 LB)
- (5) Measured Maximum Load on Axles
- |                                        |                                 |
|----------------------------------------|---------------------------------|
| LF <u>549 KG (1211 LB)</u>             | LR <u>452 KG (996 LB)</u>       |
| RF <u>546 KG (1201 LB)</u>             | RR <u>444 KG (979 LB)</u>       |
| Fr Axle <u>1094 KG (2412 LB)</u>       | Rr Axle <u>896 KG (1975 LB)</u> |
| Total Vehicle <u>1990 KG (4387 LB)</u> |                                 |

- (6) Calculated Vehicle Maximum Load on the Tire
- Front Tires (measured front axle max. load/2) = 547 KG (1206 LB)
- Rear Tires (measured rear axle max. load/2) = 448 KG (988 LB)
- (7) Maximum Load Rating on Tire Sidewall (obtain data from B.(6))

	Front	Rear
Installed Tire Size	<u>P215/60R16</u>	<u>P215/60R16</u>
Max. Load Rating on Sidewall	<u>670 KG (1477 LBS)</u>	<u>670 KG (1477 LBS)</u>
Optional Tire Size(s)	<u>P215/55R17</u>	<u>P215/55R17</u>
Max Load Rating on Sidewall (obtain from approved reference manual)	<u>650 KG (1433 LBS)</u>	<u>650 KG (1433 LBS)</u>

Vehicle Maximum Load on the Tire is not greater than the Maximum Load Rating Marked on the Tire Sidewall

Installed Tires; [(6) < (7)]	Front Tires	<u>PASS/FAIL</u>
	Rear Tires	<u>PASS</u>
Optional Tires; [(6) < (7)]	Front Tires	<u>PASS</u>
	Rear Tires	<u>PASS</u>

## DATA SHEET 3 – CONTINUED

## E. VEHICLE LOAD ON THE TIRE FOR OTHER DISPLAYED LOAD AND TIRE INFLATION PRESSURE CONDITIONS

- (1) Condition Description (Load, Tire Size, Inflation Pressure)  
Vehicle at maximum load of 1990 kg (4387 lbs) with P215/60R16 tire at 200 kPa (29 psi) on tire label.
- (2) Condition Load on Tire/Axle – Maximum Load
- |                                        |     |              |                                 |     |             |
|----------------------------------------|-----|--------------|---------------------------------|-----|-------------|
| LF                                     | 549 | KG (1211 LB) | LR                              | 452 | KG (998 LB) |
| RF                                     | 545 | KG (1201 LB) | RR                              | 444 | KG (979 LB) |
| Frt Axle <u>1094KG (2412 LB)</u>       |     |              | Rr Axle <u>896 KG (1975 LB)</u> |     |             |
| Total Vehicle <u>1990 KG (4387 LB)</u> |     |              |                                 |     |             |

- (3) Load Rating of Tire at Recommended Inflation Pressure

	Front	Rear
Displayed Tire Size	<u>P215/60R16</u>	<u>P215/60R16</u>
Recommended Inflation Pressure	<u>200 kPa (29 psi)</u>	<u>200 kPa (29 psi)</u>
Tire Load Rating (obtained from 2005 Tire and Rim Association Yearbook)	<u>610 KG (1345 LBS)</u>	<u>610 KG (1345 LBS)</u>

Vehicle Load on the Tire is not greater than the Tire Load Rating at the Tire Recommended Inflation Pressure

	PASS/FAIL
Front Tires [(2) < (3)]	<u>PASS</u>
Rear Tires [(2) < (3)]	<u>PASS</u>

NOTE: Section E should be repeated for every different load/tire inflation pressure condition displayed.

REMARKS:

RECORDED BY: 

DATE: 05/23/05

APPROVED BY: 

## DATA SHEET 3 – CONTINUED

## E. VEHICLE LOAD ON THE TIRE FOR OTHER DISPLAYED LOAD AND TIRE INFLATION PRESSURE CONDITIONS

- (1) Condition Description (Load, Tire Size, Inflation Pressure)  
High Speed operation above 99 mph inflation pressure should be 240 kPa (35 psi) for all loads.

- (2) Condition Load on Tire/Axle – Maximum Load

LF	<u>549</u>	KG (1211 LB)	LR	<u>452</u>	KG (996 LB)
RF	<u>545</u>	KG (1201 LB)	RR	<u>444</u>	KG (979 LB)
Frt Axle <u>1094</u> KG (2412 LB)			Rr Axle <u>896</u> KG (1975 LB)		

Total Vehicle 1990 KG (4387 LB)

- (3) Load Rating of Tire at Recommended Inflation Pressure

	Front	Rear
Displayed Tire Size	<u>P215/60R16</u>	<u>P215/60R16</u>
Recommended Inflation Pressure	<u>240 kPa (35 psi)</u>	<u>240 kPa (35 psi)</u>
Tire Load Rating (obtained from 2005 Tire and Rim Association Yearbook)	<u>670 KG (1477 LBS)</u>	<u>670 KG (1477 LBS)</u>

Vehicle Load on the Tire is not greater than the Tire Load Rating at the Tire Recommended Inflation Pressure

	PASS/FAIL
Front Tires [(2) < (3)]	<u>PASS</u>
Rear Tires [(2) < (3)]	<u>PASS</u>

NOTE: Section E should be repeated for every different load/tire inflation pressure condition displayed.

REMARKS:

RECORDED BY: [Signature]

DATE: 05/23/05

APPROVED BY: [Signature]

DATA SHEET 4  
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON PASSENGER CAR

VEHICLE NHTSA NO.: C55104 ; VIN: 4T1BK36B75U024813

LABORATORY: GENERAL TESTING LABORATORIES

TEST DATE: 05/31/05

		<b>PASS/FAIL</b>
A.	Description of Placard: <u>Self Adhesive decal - Red, Black Yellow and White</u>	<u>Pass</u>
B.	Description of Placard Location: <u>Driver's "B" pillar</u>	<u>Pass</u>
	Permanently Affixed <span style="margin-left: 100px;"><input checked="" type="checkbox"/> YES</span> <span style="margin-left: 100px;"><input type="checkbox"/> NO</span>	
C.	Enter Information from Placard:	
	Vehicle Capacity Weight - <u>397 KG (875 LBS)</u>	
	Designated Seating Capacity (DSC) - <u>5</u>	<u>Pass</u>
	Expressed In—	
	(1) Total No. of Occupants <span style="margin-left: 50px;"><input checked="" type="checkbox"/> Yes</span> <span style="margin-left: 50px;"><input type="checkbox"/> No</span>	
	(2) Terms of Occupants for Each Seat Location <span style="margin-left: 50px;"><input checked="" type="checkbox"/> YES</span> <span style="margin-left: 50px;"><input type="checkbox"/> NO</span>	<u>Pass</u>
	Manufacturer's Recommended Cold Tire Inflation Pressure for Maximum Load Vehicle Weight:	
	FRONT - <u>200 kPa (29 psi)</u> REAR - <u>200 kPa (29 psi)</u>	
	All Other Recommended Inflation Pressures: <u>None</u>	
	All Other Recommended Loading Conditions: <u>None</u>	
	Manufacturer's Recommended Size Designation: <u>P215/60R16</u>	
	All Other Manufacturer's Recommended Size Designation: <u>P215/55R17</u>	
	DATA CORRECTLY DISPLAYED	<u>Pass</u>

## DATA SHEET 4 continued

PASS/FAIL

D. For Every Inflation Pressure Listed Above Indicate:

(1)	Less than Maximum?	(YES/NO)	<u>Yes</u>	<u>Pass</u>
(2)	Loading Condition Stated?	(YES/NO)	<u>Yes</u>	<u>Pass</u>

DATA INDICATES COMPLIANCE (X) YES ( ) NO

REMARKS:

RECORDED BY:

DATE: 05/23/05

APPROVED BY:

# DATA SHEET 5 VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON PASSENGER CAR

VEHICLE NHTSA NO.: C55104; VIN: 4T1BK38B75U024613

LABORATORY: GENERAL TESTING LABORATORIES

TEST DATE: 05/23/05

All tires on the vehicle are the same size: (Yes/No) Yes

## INFORMATION FROM TIRE SIDEWALL:

	Front Axle (R.F. Tire)	Rear Axle (L.R. Tire)	Spare
Tire Size Designation	<u>P215/60R16</u>	<u>P215/60R16</u>	<u>P215/60R16</u>
Tire Load Index/Speed Symbol	<u>94V</u>	<u>94V</u>	<u>94V</u>
Maximum Inflation Pressure	<u>300 kPa (44 psi)</u>	<u>300 kPa (44 psi)</u>	<u>300 kPa(44psi)</u>
Maximum Load Rating	<u>670 KG (1477 LBS)</u>	<u>670 KG(1477 LBS)</u>	<u>670KG(1477LB)</u>
Mfr. Name or Brand & Code	<u>BRIDGESTONE</u>	<u>BRIDGESTONE</u>	<u>BRIDGESTONE</u>
Tube or Tubeless	<u>Tubeless</u>	<u>Tubeless</u>	<u>Tubeless</u>
Treadwear/Traction/Temp. Grades	<u>160-A-A</u>	<u>160-A-A</u>	<u>160-A-A</u>
Sidewall (Plies & Composition)	<u>2 polyester</u>	<u>2 polyester</u>	<u>2 polyester</u>
Tread (Plies & Composition)	<u>2 steel</u> <u>2 polyester</u>	<u>2 steel</u> <u>2 polyester</u>	<u>2 steel</u> <u>2 polyester</u>

Serial Number: Left Front - DOT OBX8 PFA 1205  
 Right Front - DOT OBX8 PFA 1205  
 Left Rear - DOT OBX8 PFA 1205  
 Right Rear - DOT OBX8 PFA 1205  
 Spare - DOT OBX8 PFA 1205

Tires have "DOT" markings: (X) YES ( ) NO

## REMARKS:

RECORDED BY: [Signature]

DATE: 05/23/05

APPROVED BY: [Signature]

# DATA SHEET 6 RIM DIMENSIONS

VEHICLE MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON PASSENGER CAR

VEHICLE NHTSA NO.: C55104 ; VIN: 4T1BK36B75U024613

LABORATORY: GENERAL TESTING LABORATORIES

TEST DATE: 05/23/05

## A. Rim Size & Flange

	Tire Size	Specfd. Rims	Measured Width of Rims	Measured Height of Rims	PASS/ FAIL
Right Front:	<u>P215/60R16</u>	<u>16 x 6.5</u>	<u>6.5"</u>	<u>16"</u>	<u>Pass</u>
Left Rear:	<u>P215/60R16</u>	<u>16 x 6.5</u>	<u>6.5"</u>	<u>16"</u>	<u>Pass</u>

REFERENCE USED: 2005 Tire and Rim Association Yearbook

## B. Trade Stamps, Marks, Symbols: 02/05,J,DOT,TOYOTA

Rim Manufacturer's Name or Label: TOYOTA

Other Rim/Wheel Marking: CLA, 45, K2, 16 x 6.5 JJ

Rim Inspection Comments: None

Tire Inspection Comments: None

Wheel/Rim Construction (i.e., welded, one piece, cast, deep dish, etc.)  
One piece cast aluminum

DATA INDICATES COMPLIANCE: (X) YES ( ) NO

REMARKS:

RECORDED BY: [Signature]

DATE: 05/23/05

APPROVED BY: [Signature]

# DATA SHEET 7 DEFLATED TIRE RETENTION

VEHICLE MAKE/MODEL/BODY STYLE: 2005 TOYOTA AVALON PASSENGER CAR  
 VEHICLE NHTSA NO.: C55104 ; VIN: 4T1BK36B75U024613  
 LABORATORY: GENERAL TESTING LABORATORIES  
 TEST DATE: 05/26/05

Tire Pressures: LF 200 kPa (29 psi) LR 200 kPa (29 psi)  
 (cold) RF 200 kPa (29 psi) RR 200 kPa (29 psi)

Test Weight (should be the same weight and distribution recorded on Data Sheet 3 Section D.5.)

LF 554 kg (1222 lb) LR 448 kg (987 lb)  
 RF 547 kg (1207 lb) RR 441 kg (972 lb)  
 Front Axle 1102 kg (2429 lb) Rear Axle 889 kg (1959 lb)

TOTAL VEHICLE 1990 kg (4388 lb)

Description of Weight Distribution: Salt bags in front passenger seat, rear seat and trunk.

## A. Retention Test Left Front:

Odometer (START): 251 km (156 miles) Fuel Level: Full

Tire Pressure: 200 kPa (29 psi)

Ambient Temperature: 25.6 degrees C (78 F)

Wind Speed: 4.8 kmph (3.0 mph)

Size of Deflation Opening: 2.5 cm (1.0 in.) in diameter

Speed: 96.4 kmph (59.9 mph)

Deceleration Rate: 2.13 mpsps avg. ( 7 fpsps)

Distance Traveled After Initial Release of Air: 296 m (970 ft)

Distance of Deviation: < .3 m (<1 ft)

Description of Bead Separation, Outboard: None

Description of Bead Separation, Inboard: None

DATA SHEET 7 continued  
DEFLATED TIRE RETENTION

B. Retention Test Right Rear:

Odometer (START): 256 km (159 miles) Fuel Level: Full

Tire Pressure: 200 kPa (29 psi)

Ambient Temperature: 25.6 degrees C (78 F)

Wind Speed: 4.8 kmph (3 mph)

Size of Deflation Opening: 2.5 cm (1.0 in.) in diameter

Speed: 96.8 kmph (60.2 mph)

Deceleration Rate: 2.44 mpsps avg. ( 8 fpsps)

Distance Traveled After Initial Release of Air: 143 m (470 ft)

Distance of Deviation: <.3 m (<1 ft)

Description of Bead Separation, Outboard: None

Description of Bead Separation, Inboard: None

NOTE: No rotation of tire on rim

C. REMARKS: (Stability, Control, Suspension, etc.)

Good control, normal stopping

PASS/FAIL

Left Front  
Right Rear

Pass  
Pass

DATA INDICATES COMPLIANCE: (X) YES ( ) NO

REMARKS:

RECORDED BY: H. [Signature]

DATE: 05/31/05

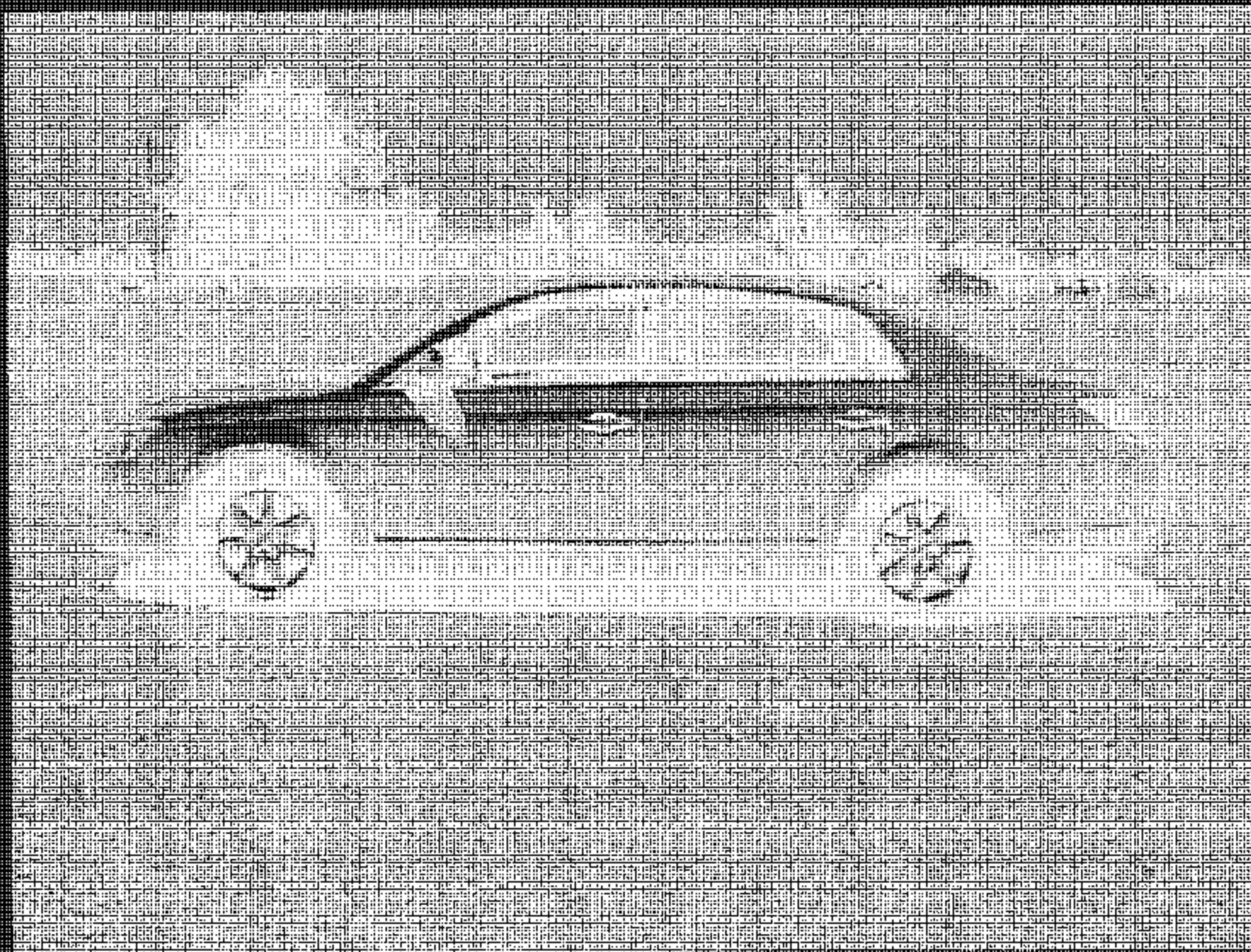
APPROVED BY: D. Messick

**SECTION 4**  
**INSTRUMENTATION AND EQUIPMENT LIST**

**TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST**

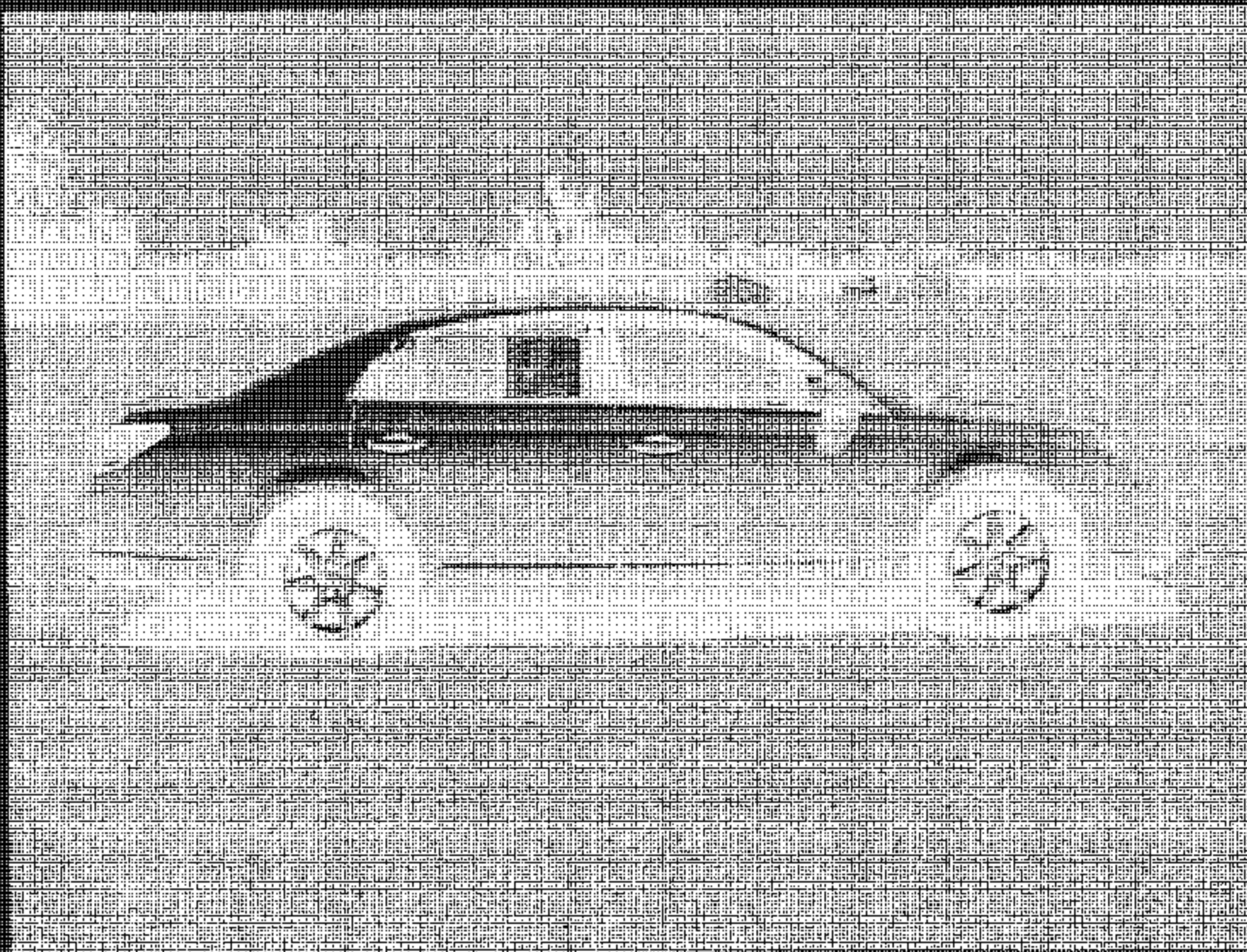
<b>EQUIPMENT</b>	<b>DESCRIPTION</b>	<b>MODEL/ SERIAL NO.</b>	<b>CAL. DATE</b>	<b>NEXT CAL DATE</b>
<b>PAD SCALES</b>	<b>#1 199744LF</b>	<b>199744LF</b>	<b>07/04</b>	<b>07/05</b>
	<b>#2 199744RF</b>	<b>199744RF</b>	<b>07/04</b>	<b>07/05</b>
	<b>#3 199744LR</b>	<b>199744LR</b>	<b>07/04</b>	<b>07/05</b>
	<b>#4 199744RR</b>	<b>19974RR</b>	<b>07/04</b>	<b>07/05</b>
<b>PRESSURE TRANSDUCER</b>	<b>BLH</b>	<b>D-HF #65409</b>	<b>BEFORE USE</b>	<b>BEFORE USE</b>
<b>SURFACE LEVEL</b>	<b>STANLEY</b>	<b>641186</b>	<b>05/05</b>	<b>05/06</b>
<b>DATA ACQUISITION COMPUTER</b>	<b>GEO1</b>	<b>N/A</b>	<b>BEFORE USE</b>	<b>BEFORE USE</b>
<b>ANEMOMETER</b>	<b>HASTINGS</b>	<b>RM-1</b>	<b>05/05</b>	<b>05/06</b>
<b>SLIP RING ASSEMBLY</b>	<b>GTL</b>	<b>N/A</b>	<b>BEFORE USE</b>	<b>BEFORE USE</b>
<b>DECELEROMETER</b>	<b>GTL</b>	<b>N/A</b>	<b>BEFORE USE</b>	<b>BEFORE USE</b>
<b>INCLINOMETER</b>	<b>STARRETT</b>	<b>002</b>	<b>05/05</b>	<b>05/06</b>
<b>VBOX</b>	<b>RACELOGIC</b>	<b>VB2 #004337</b>	<b>BEFORE USE</b>	<b>BEFORE USE</b>

SECTION 5  
PHOTOGRAPHS



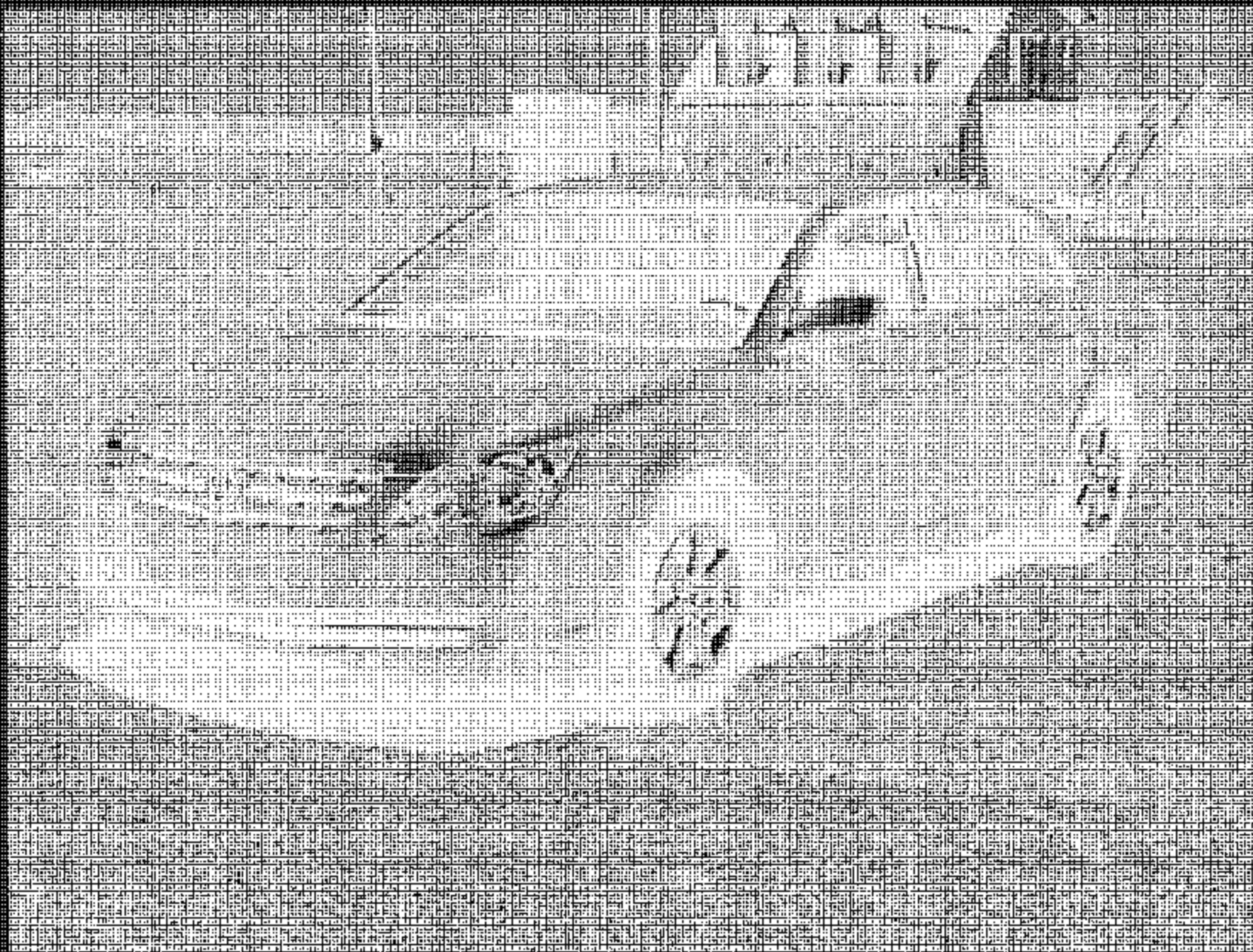
2003 TOYOTA AVALON  
NHTSA NO. C56104  
FMVSS NO. 110

FIGURE 5.1  
LEFT SIDE VIEW OF VEHICLE



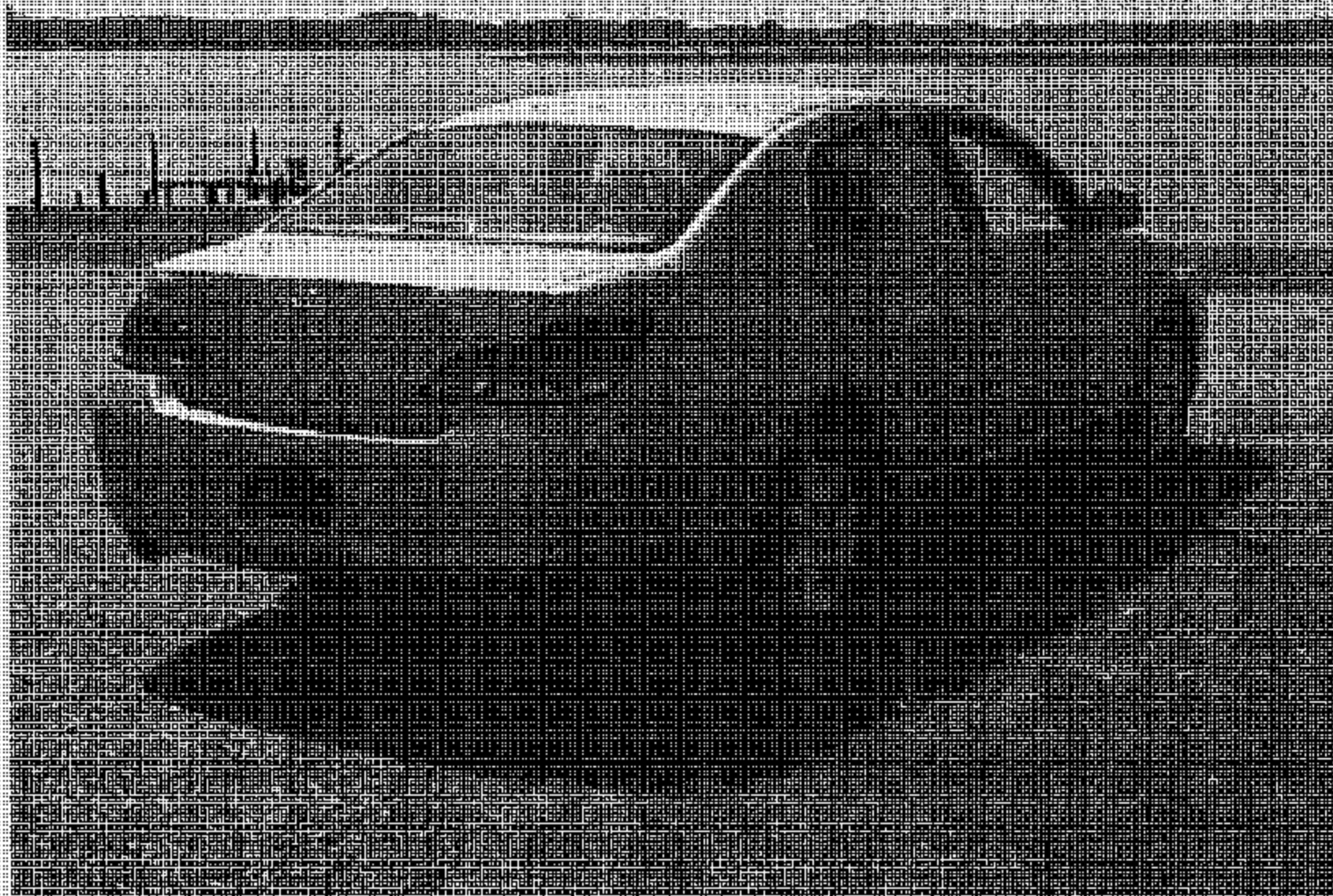
2005 TOYOTA AVALON  
NHTSA NO. C56104  
FMVSS NO. 110

FIGURE S.2  
RIGHT SIDE VIEW OF VEHICLE



2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.1  
3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.4  
3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE

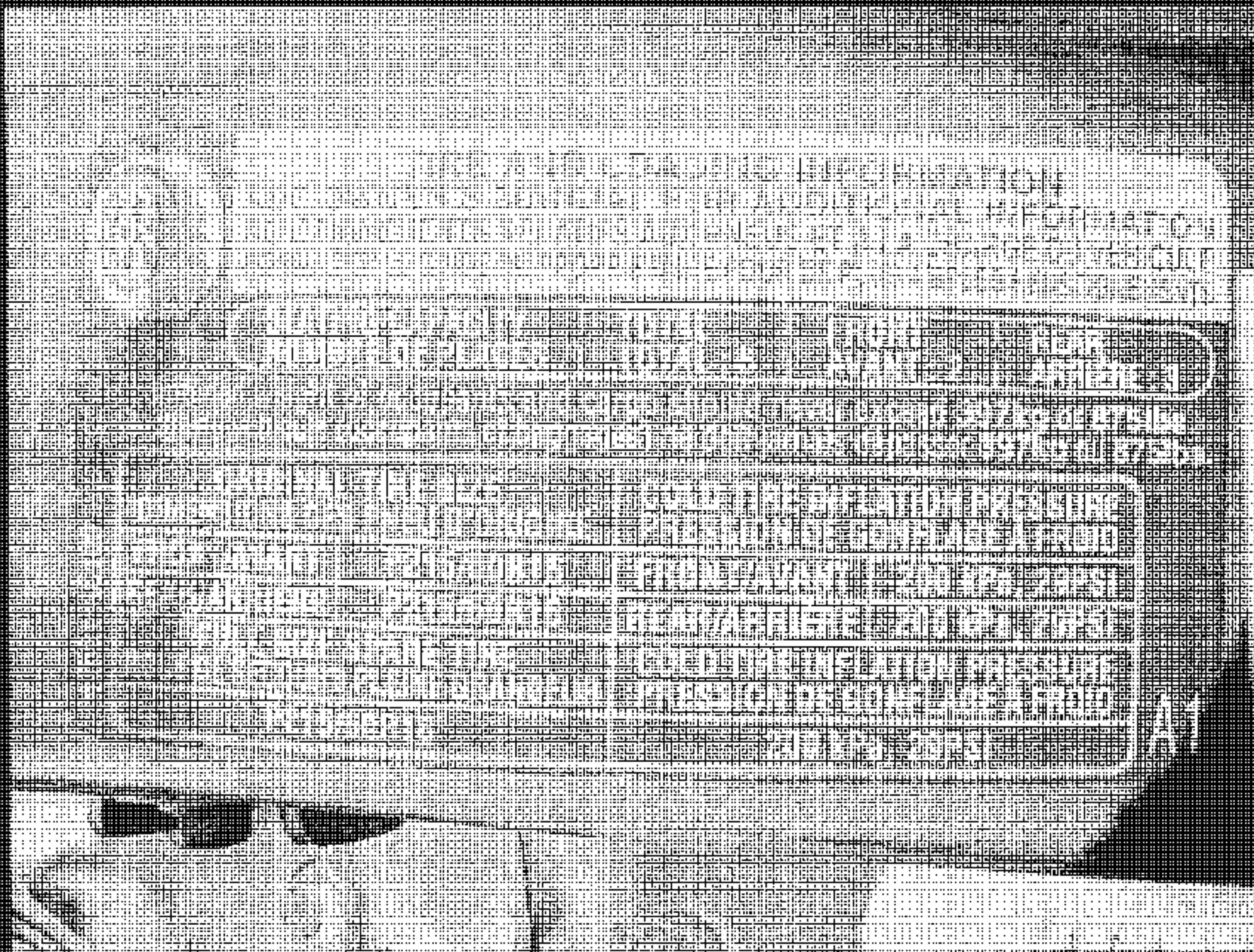
2005 TOYOTA AVALON MANUFACTURING  
TUCKY INC. 08105

2505L0  
APPLICABLE  
BUMPER AND  
STANDARDS IN EFFECT ON  
DATE OF MANUFACTURE SHOWN ABOVE.  
4T1BK3CR250024013 PASS. CAR



4T1BK3CR250024013  
LEX300-ATANKA

27629



2005 TOYOTA AVALON  
NHTSA NO. C56104  
FMVSS NO. 110

FIGURE 5.6  
VEHICLE TIRE INFORMATION LABEL



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FIGURE 5.7  
TIRE SHOWING BRAND



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FMVSS NO. 110

FIGURE 5.8  
TIRE SHOWING SIZE, LOAD INDEX AND SPEED  
SYMBOL

MAX LOAD 670 kg (1475 lb)  
900 kPa (44 PSI) MAX PRESSURE

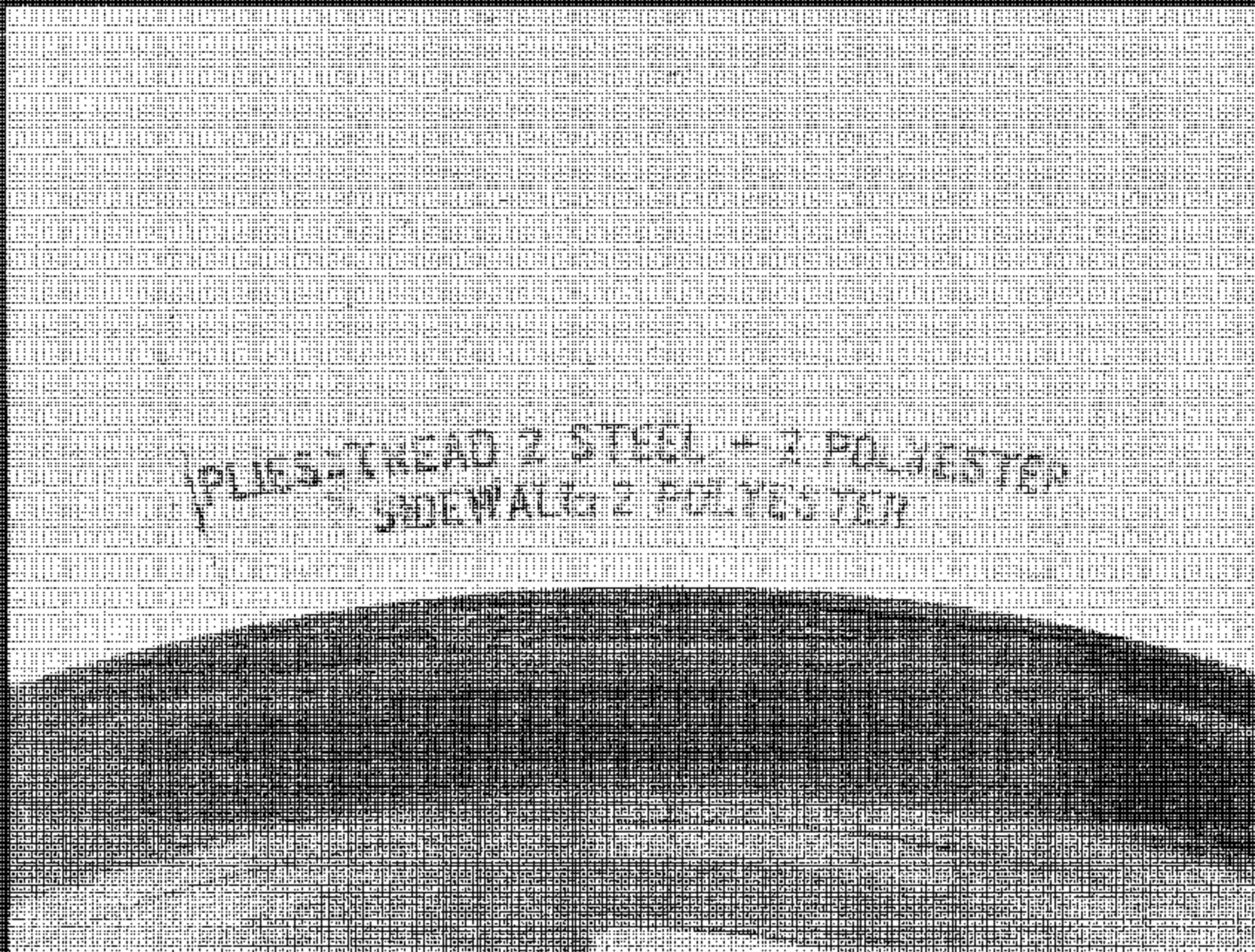
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.9  
TIRE SHOWING MAX INFLATION PRESSURE  
AND MAX LOAD RATING



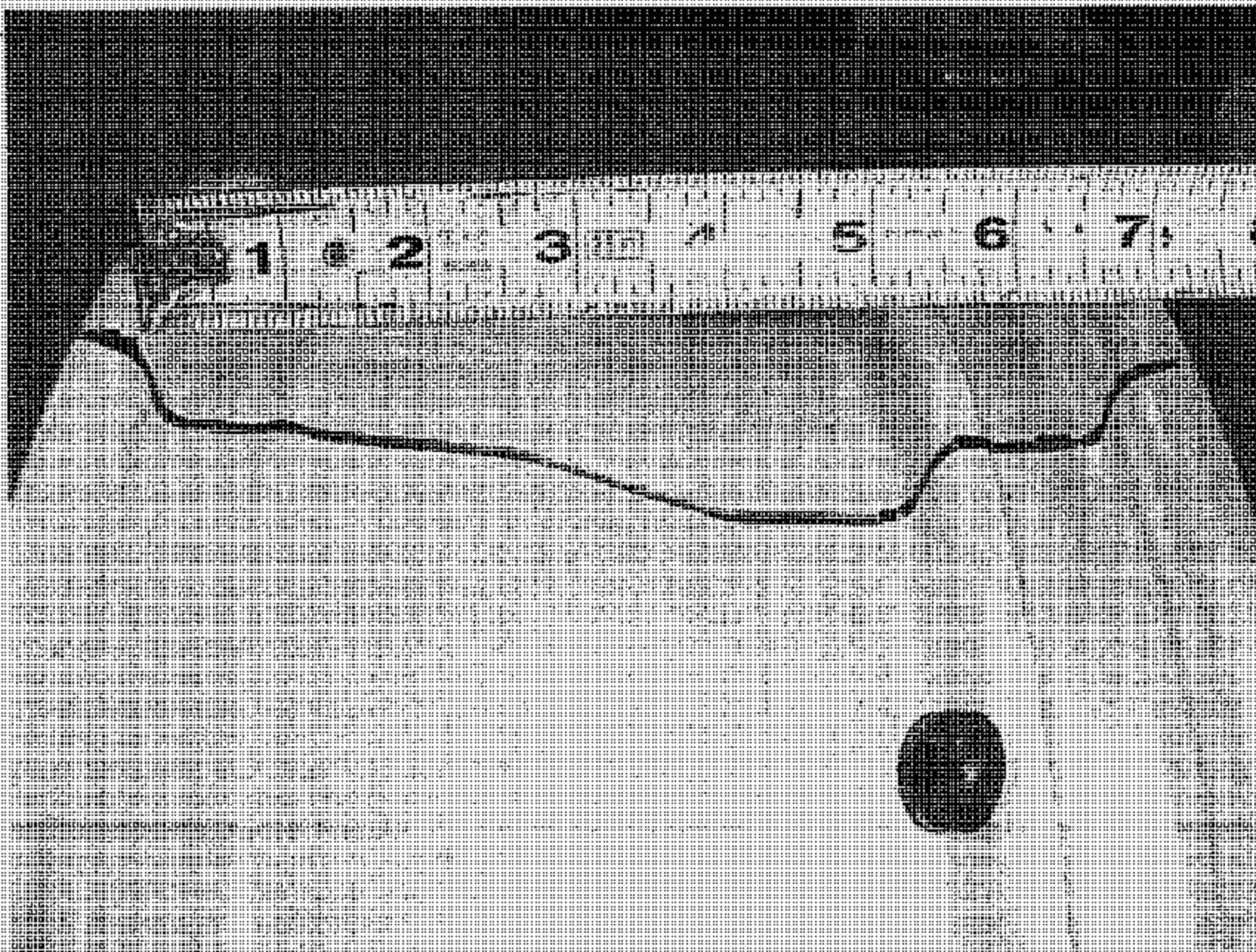
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.10  
TIRE SHOWING SERIAL NUMBER



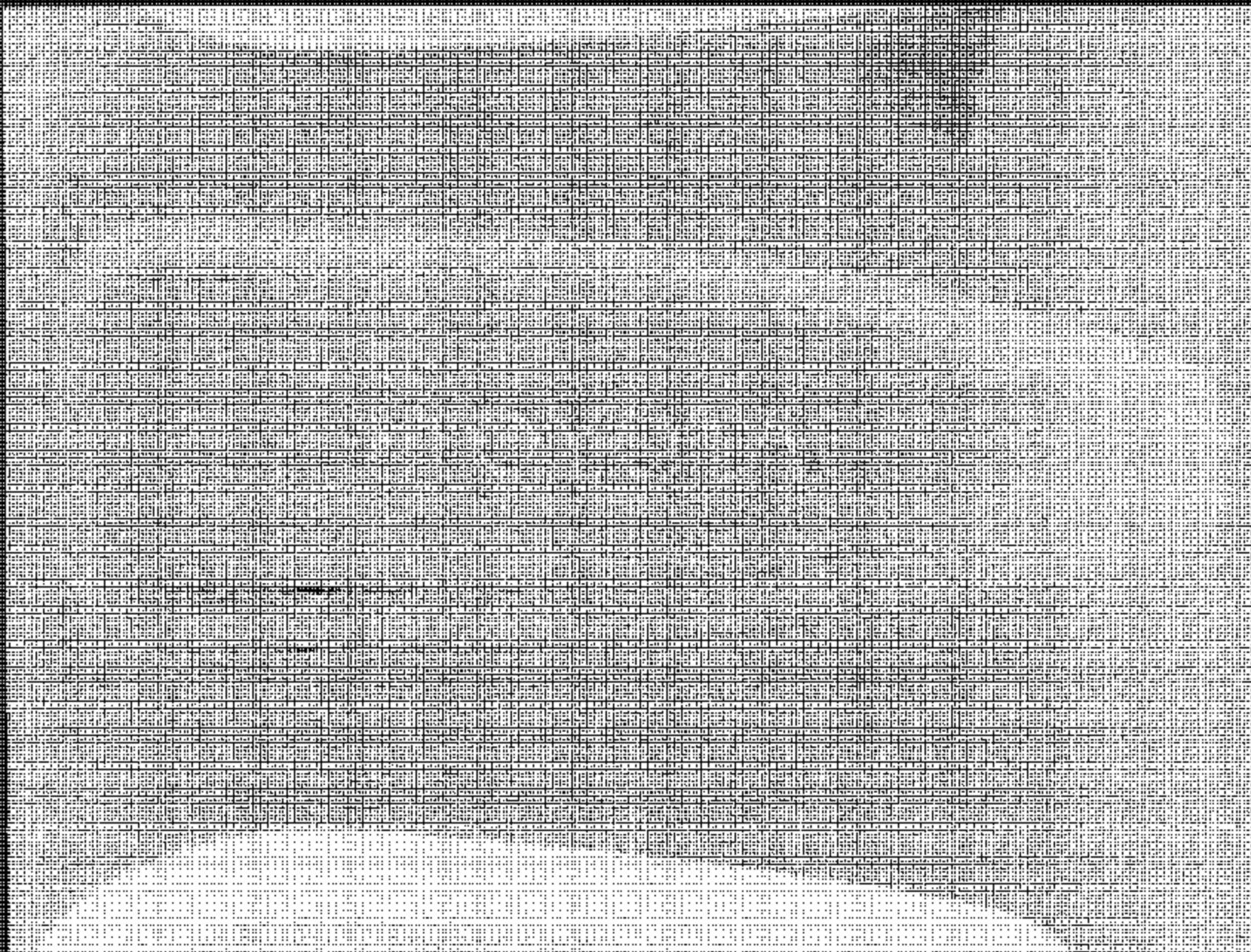
2-05 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.11  
TIRE SHOWING CONSTRUCTION



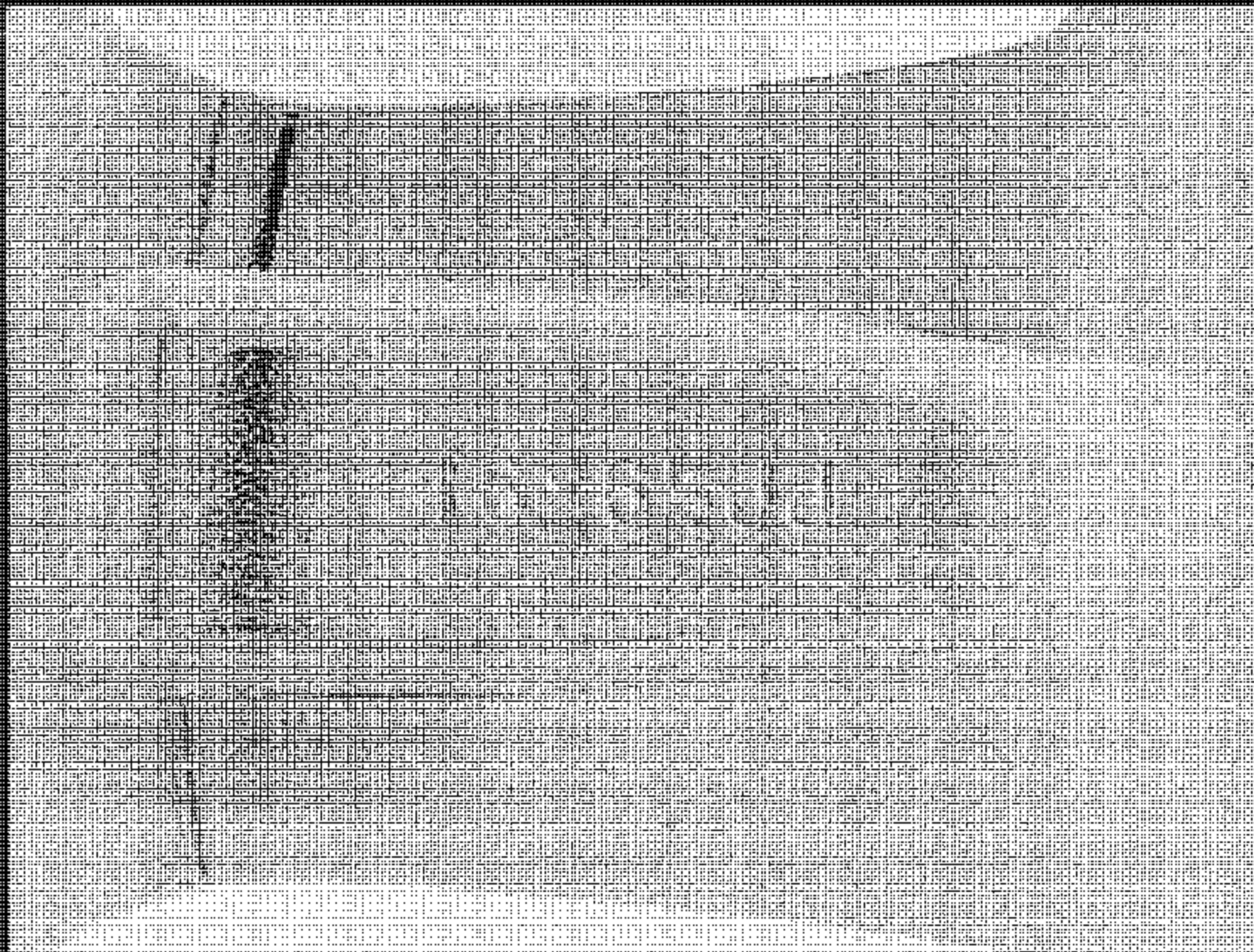
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.12  
RIM CONTOUR FOR FULL RIM CROSS SECTION



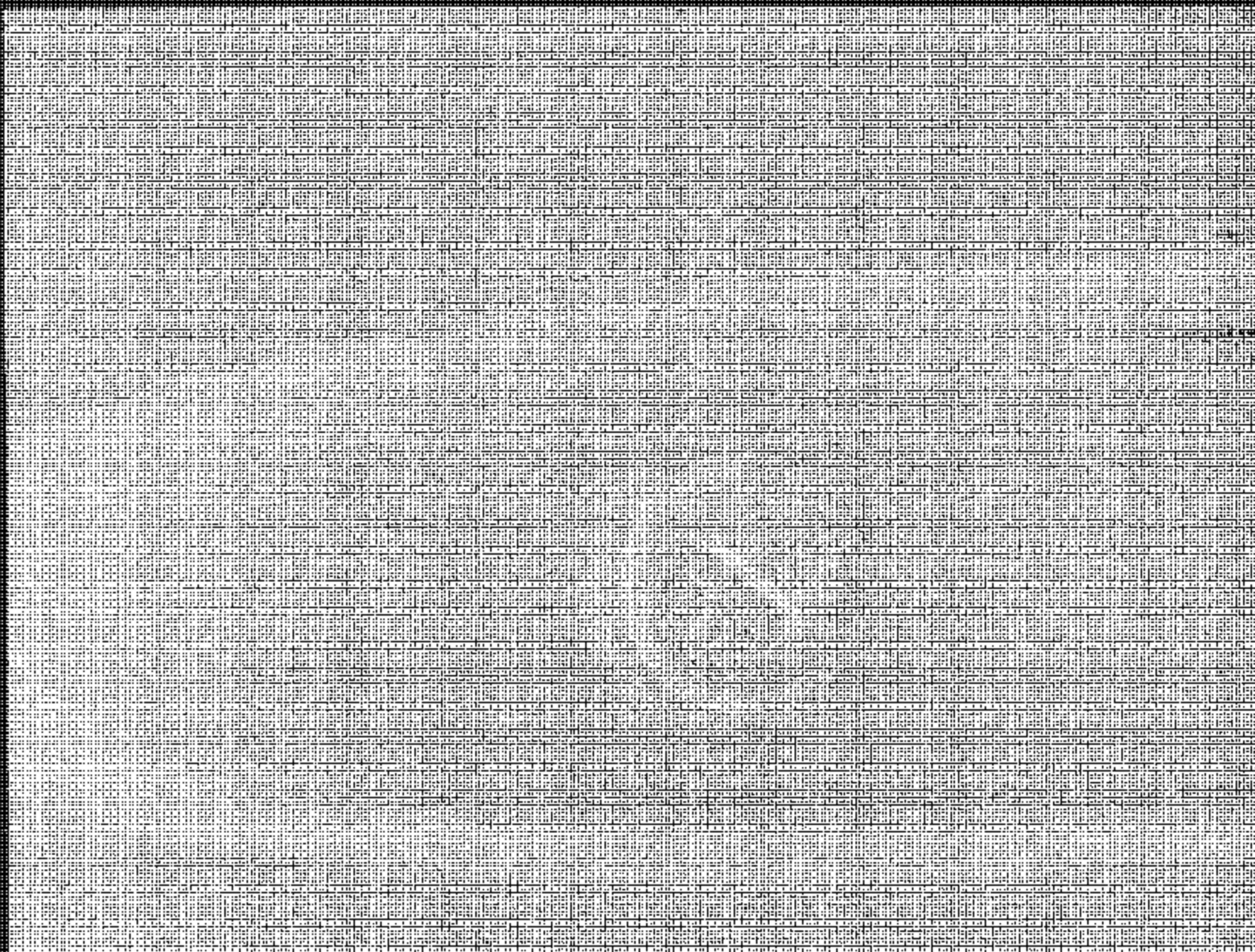
2005 TOYOTA AVALON  
NHTSA NO. C25104  
FMVSS NO. 110

FIGURE 5.13  
RIM SHOWING MANUFACTURER



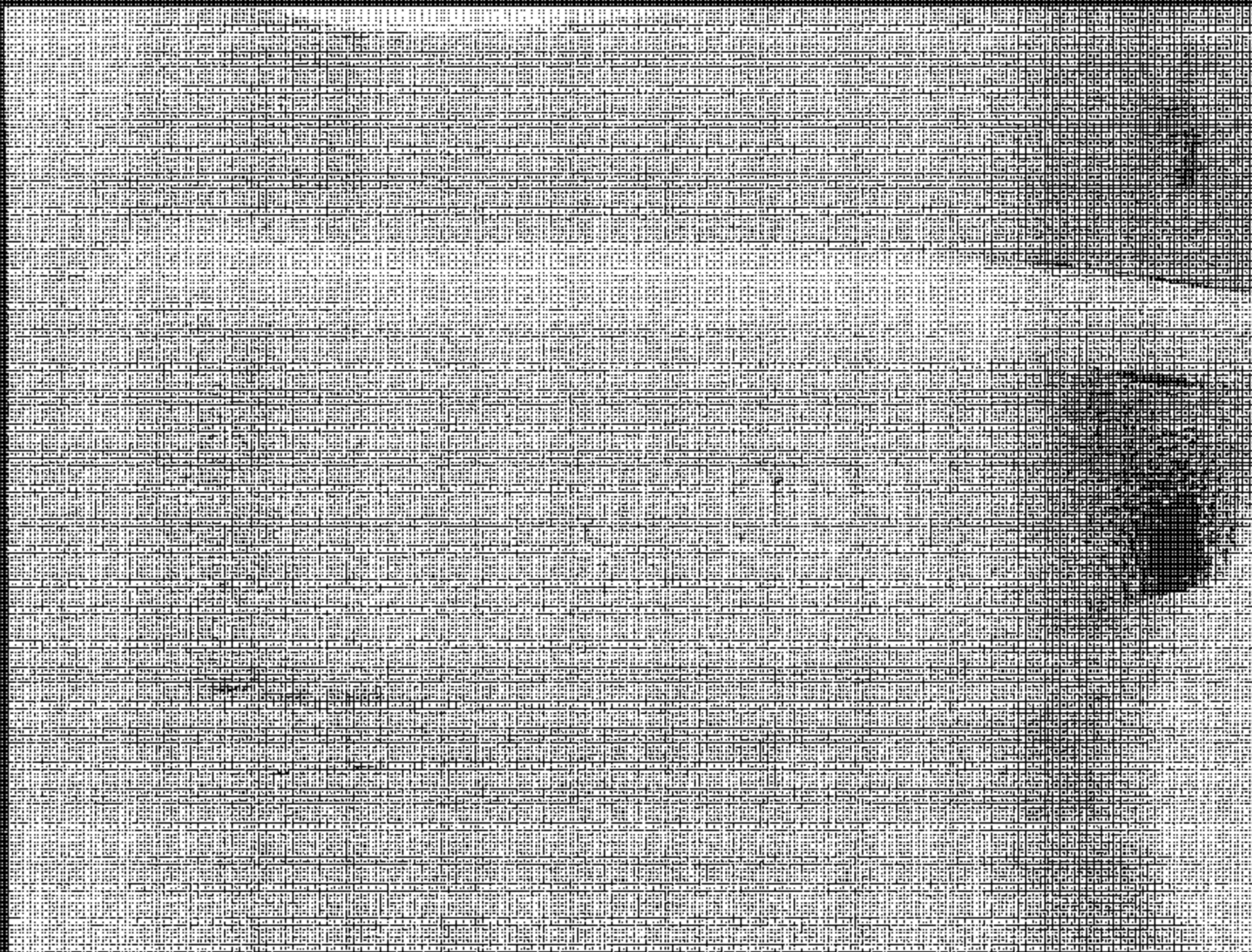
2005 TOYOTA AVALON  
NHTSA NO. C35104  
FMVSS NO. 110

FIGURE 5.14  
RIM SHOWING SIZE



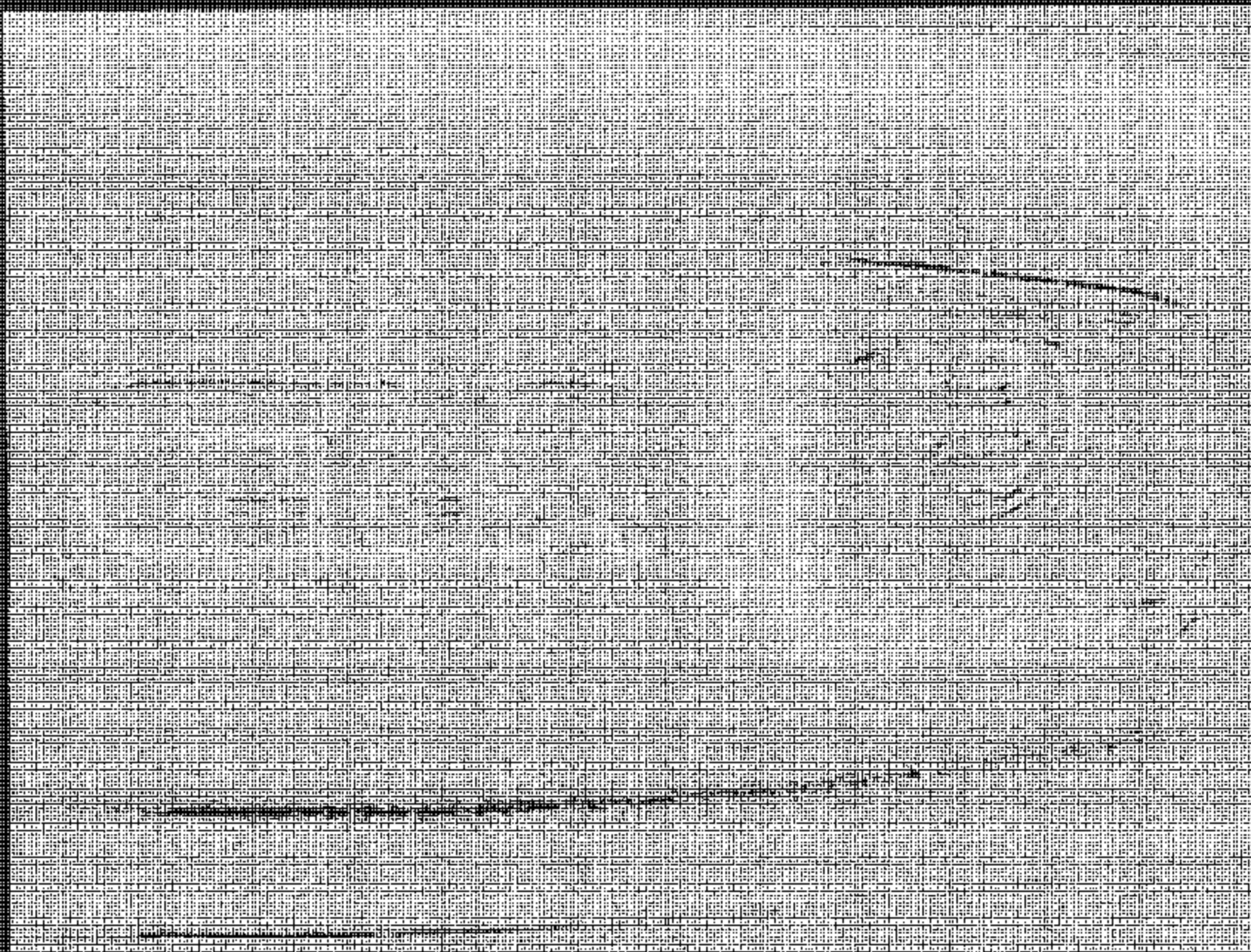
2006 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.15  
RIM DATE CODE



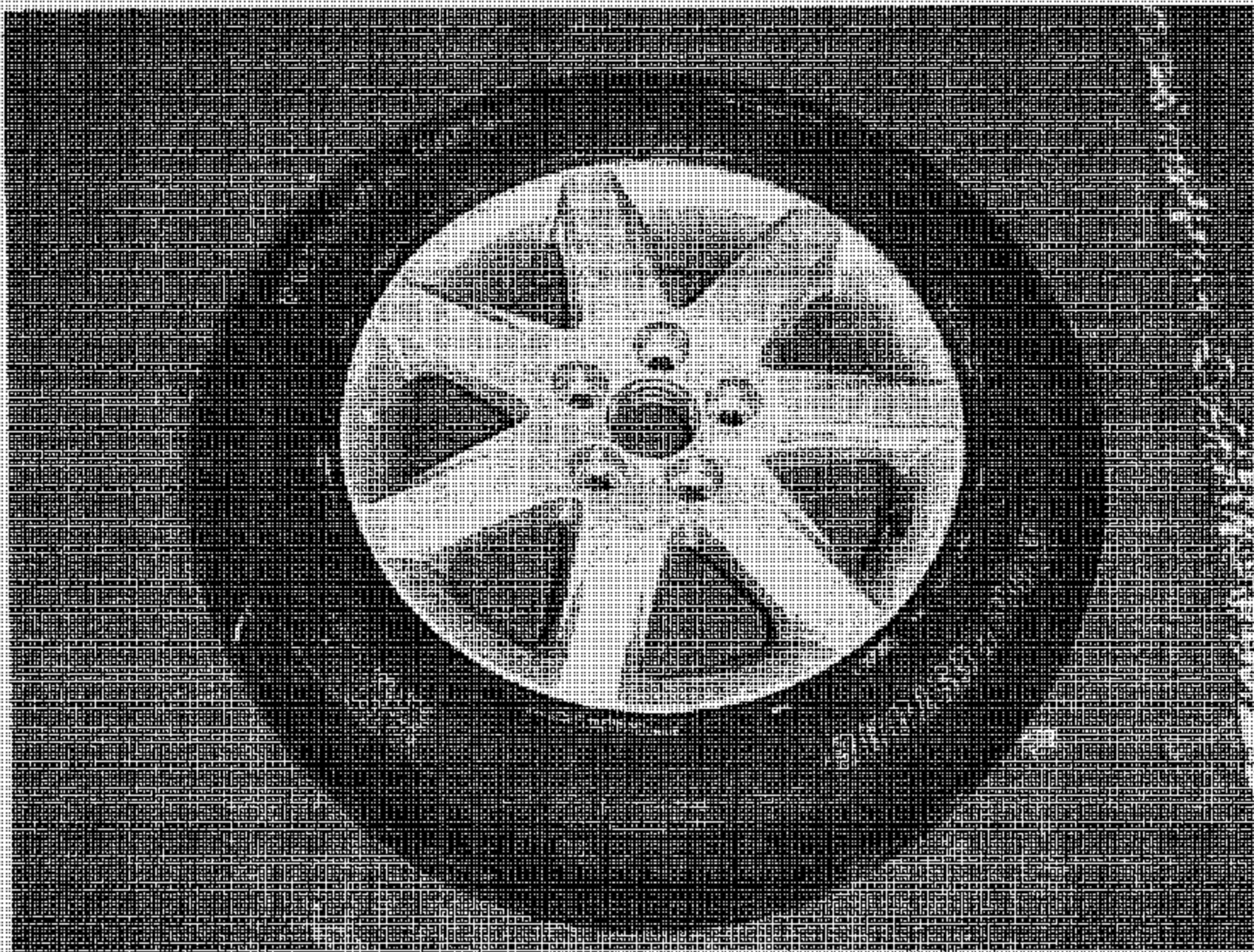
2005 TOYOTA AVALON  
NHTSA NO. C5310A  
FMVSS NO. 110

FIGURE 5.16  
RIM MARKING



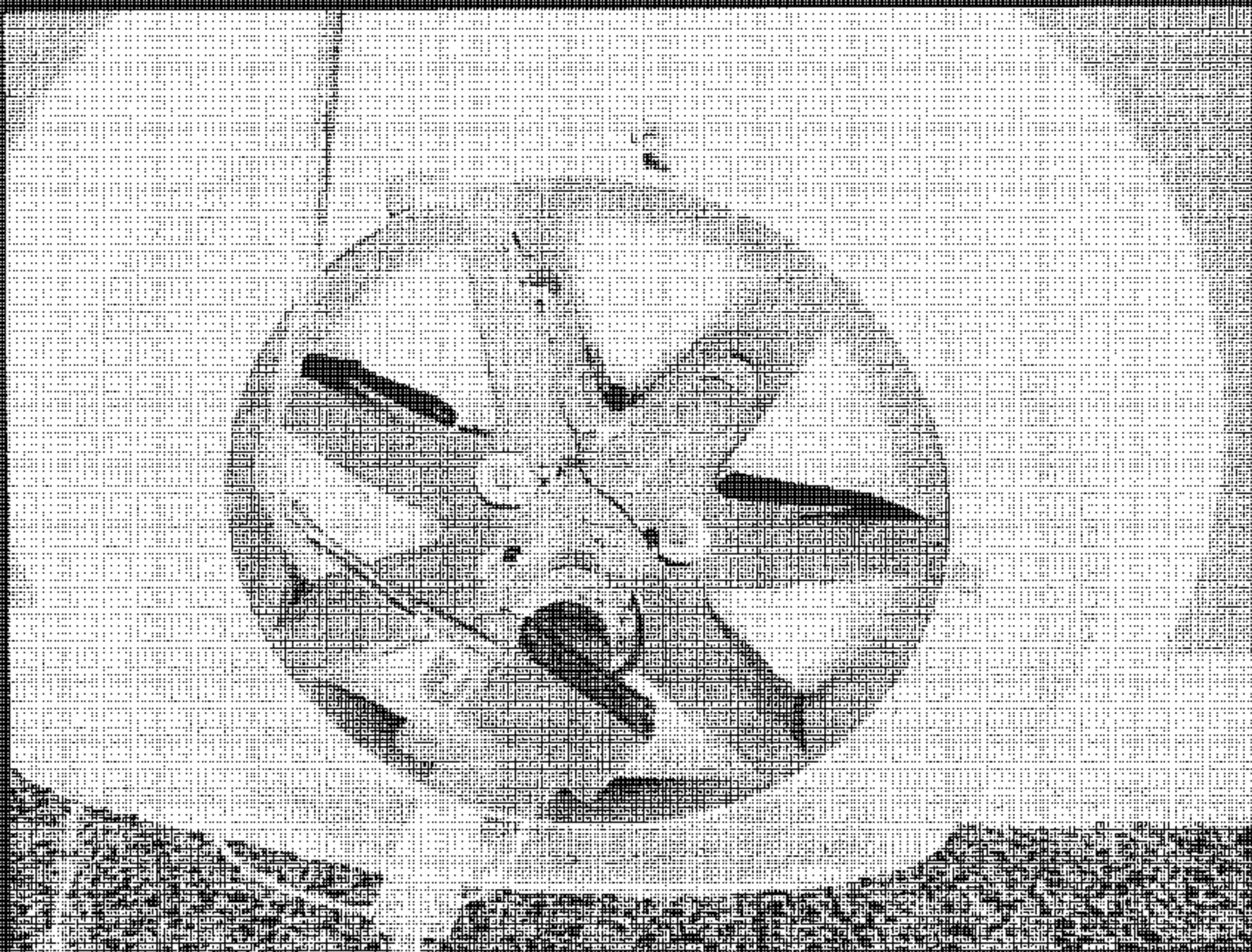
2006 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE S.17  
RIM MARKING



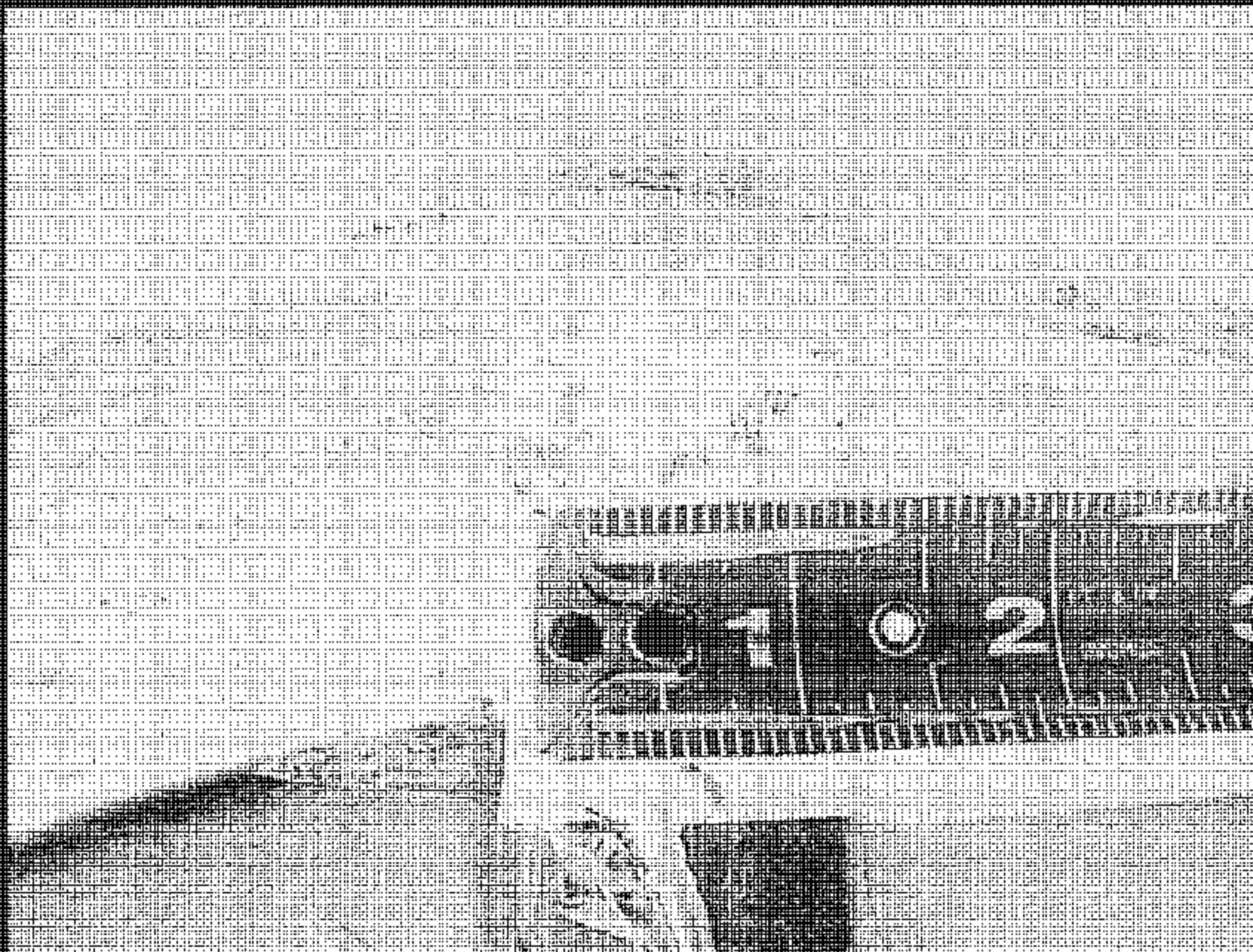
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.18  
SPARE TIRE AND RIM ASSEMBLY



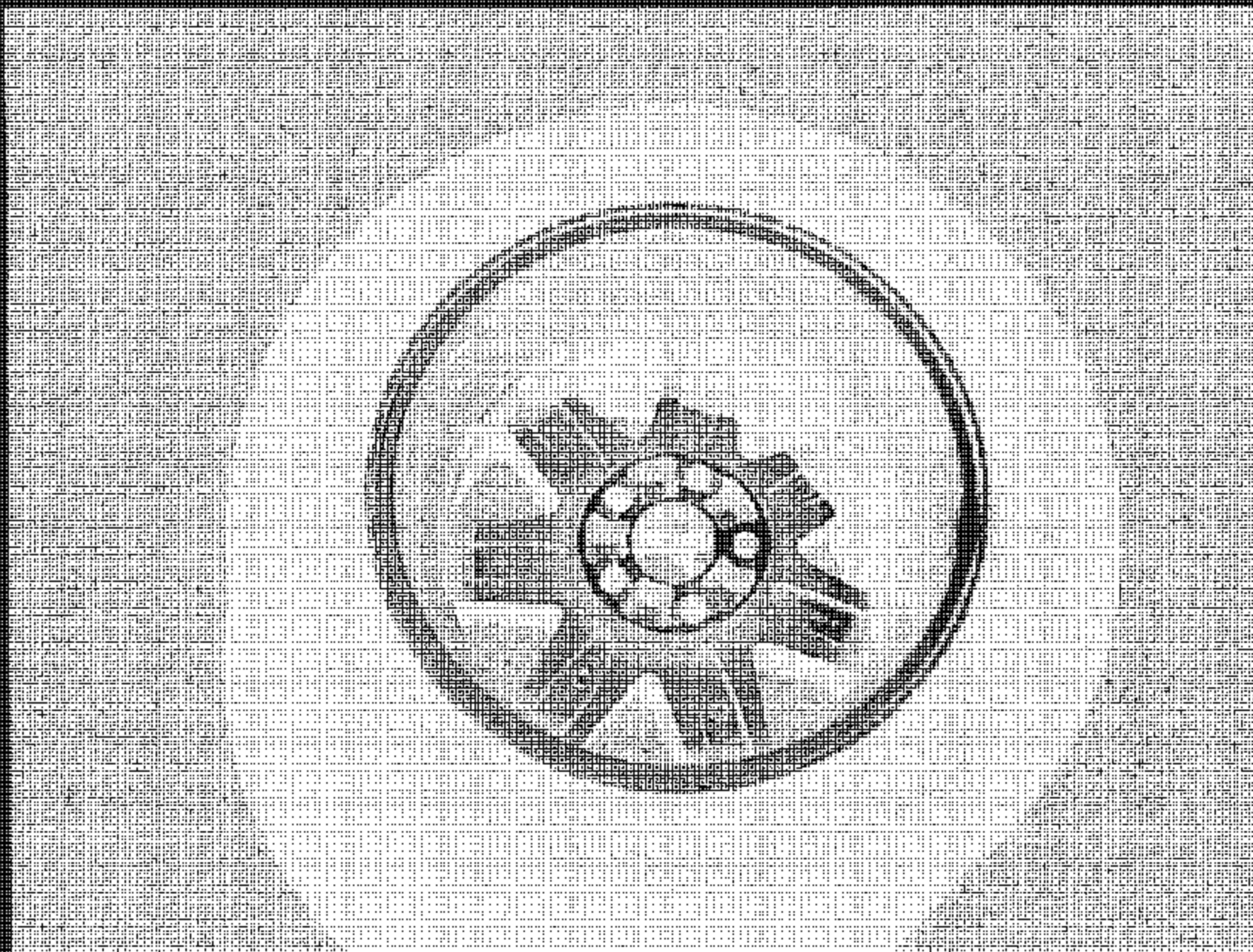
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.10  
OUTSIDE VIEW OF LEFT FRONT TIRE AFTER  
BLOW-OUT



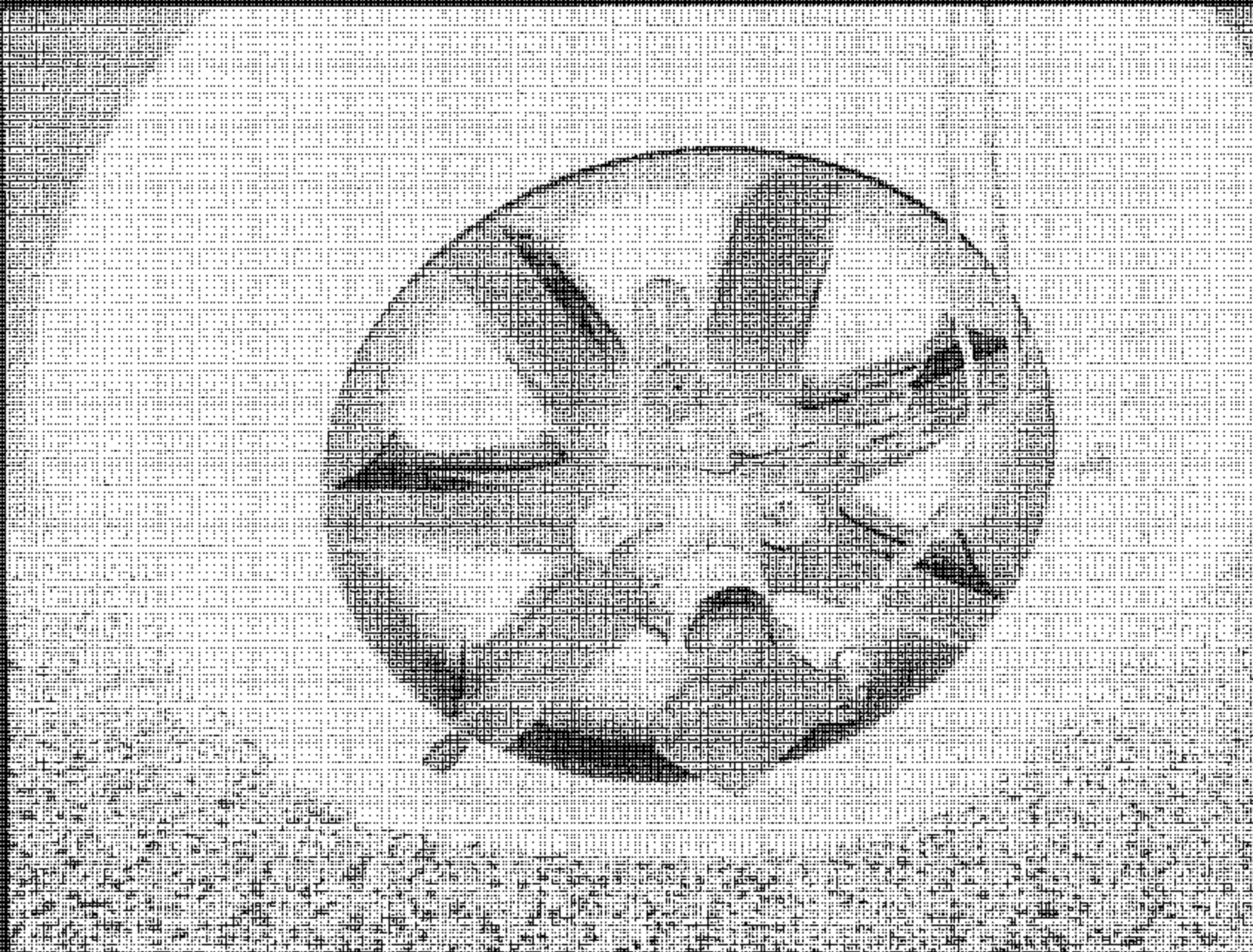
2305 TOYOTA AVALON  
NHTSA NO. C25104  
FMVSS NO. 110

FIGURE 5.20  
CLOSE-UP OF BLOWN-OUT TIRE WITH RULER  
NEXT TO HOLE



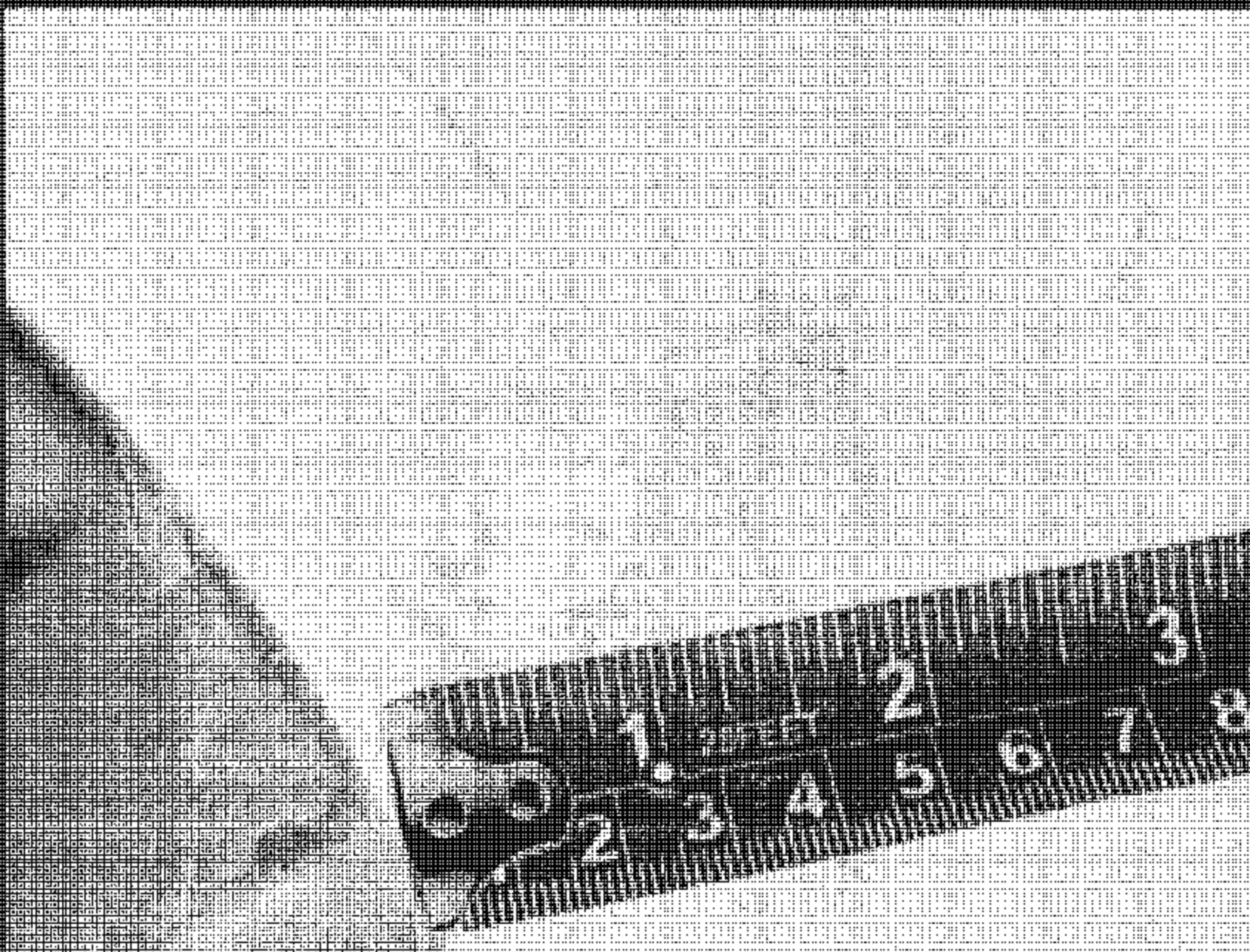
2005 TOYOTA AVALON  
NHTSA NO. C56104  
FMVSS NO. 110

FIGURE 5.21  
INSIDE VIEW OF LEFT FRONT TIRE AFTER  
BLOW OUT



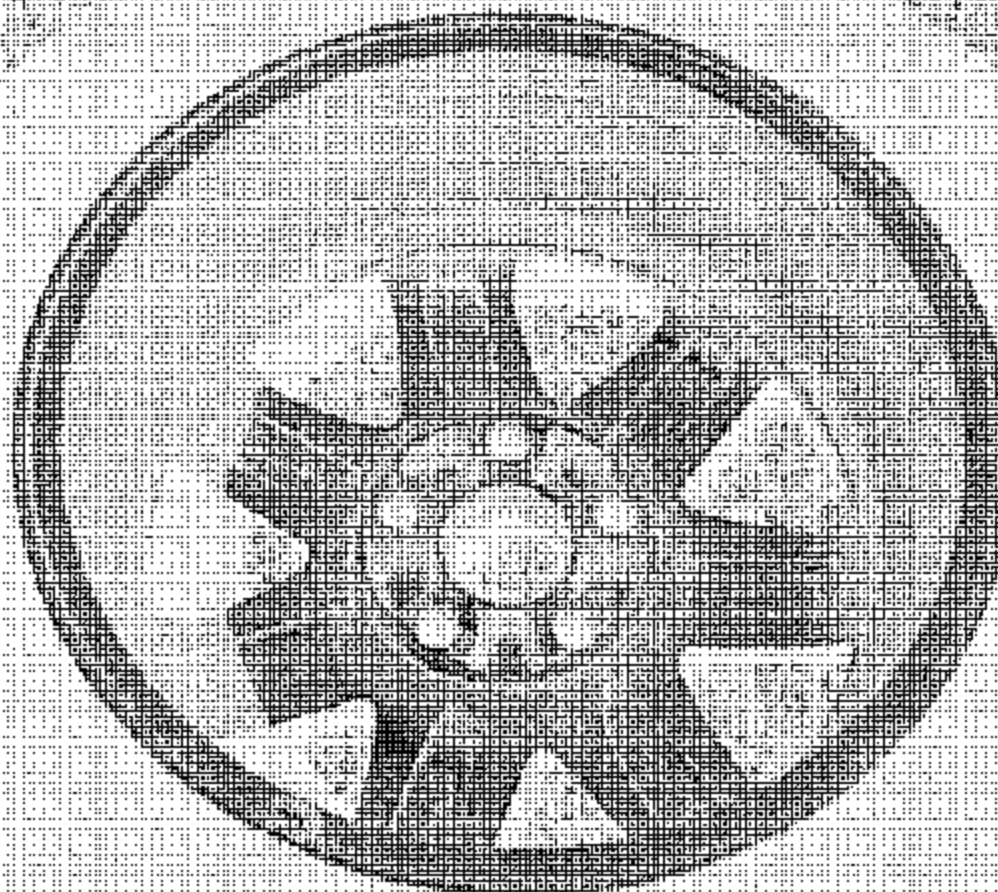
2005 TOYOTA AVALON  
NHTSA NO. C35104  
FMVSS NO. 110

FIGURE 5.22  
OUTSIDE VIEW OF RIGHT REAR TIRE AFTER  
BLOW OUT



2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 4.23  
CLOSE-UP OF BLOWN-OUT TIRE WITH RULER  
NEXT TO HOLE



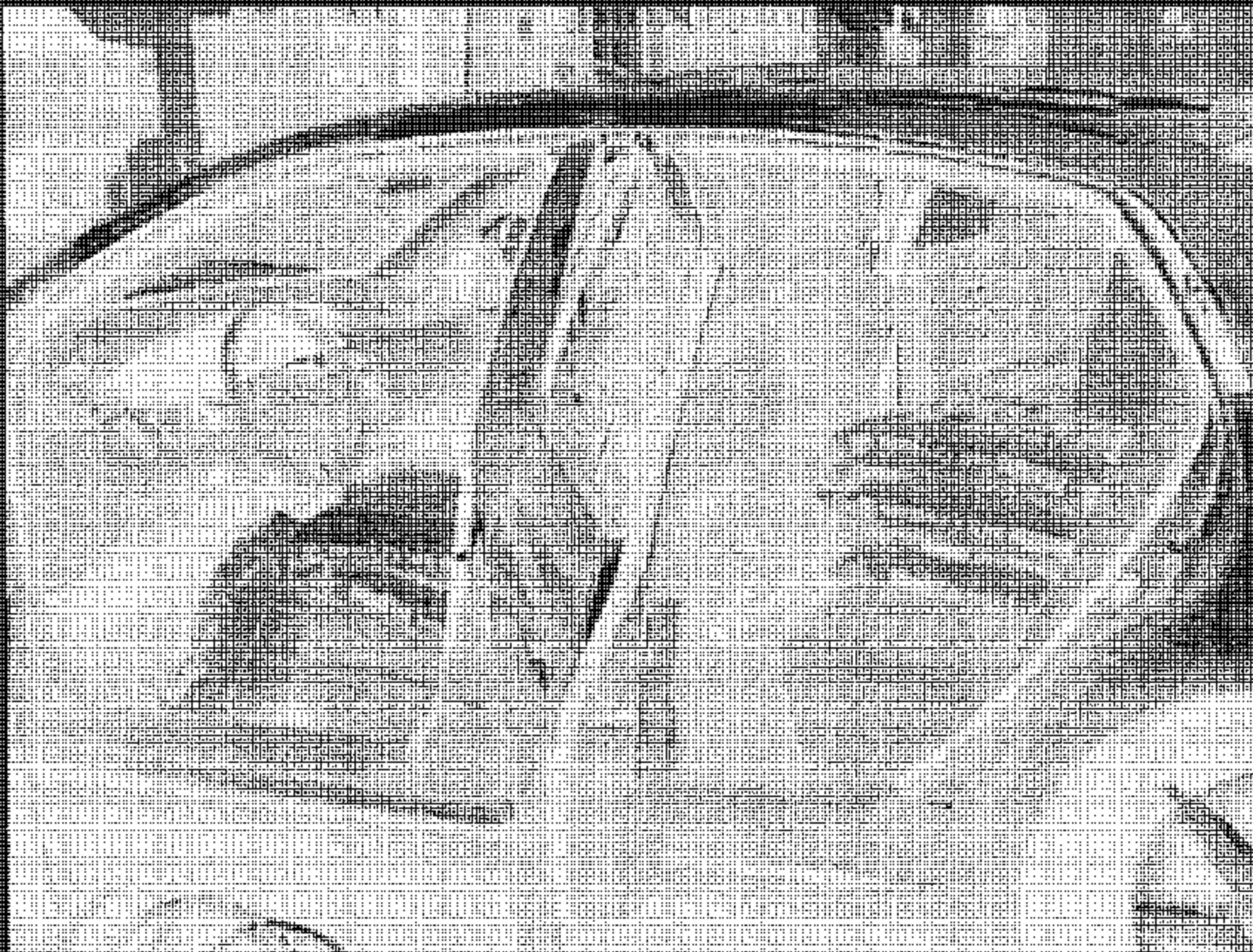
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5-24  
INSIDE VIEW OF RIGHT REAR TIRE AFTER  
BLOW OUT



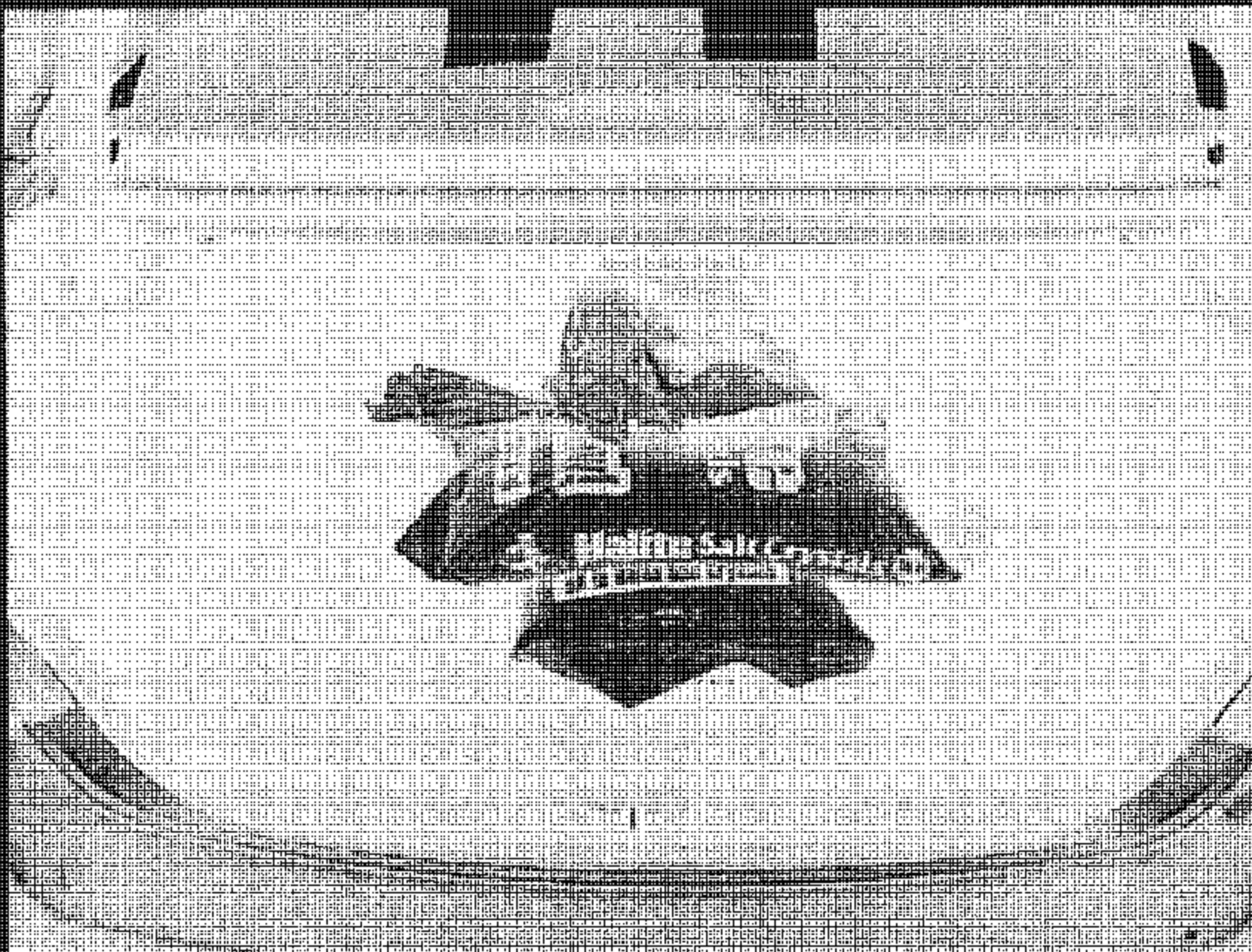
2005 TOYOTA AVALON  
NHTSA NO. C35104  
FMVSS NO. 110

FIGURE 5.25  
VEHICLE ON SCALES, BALLASTED FOR  
MAXIMUM LOAD



2005 TOYOTA AVALON  
NHTSA NO. C35104  
FMVSS NO. 110

FIGURE 5.26  
VEHICLE BALLASTED FOR NORMAL LOAD



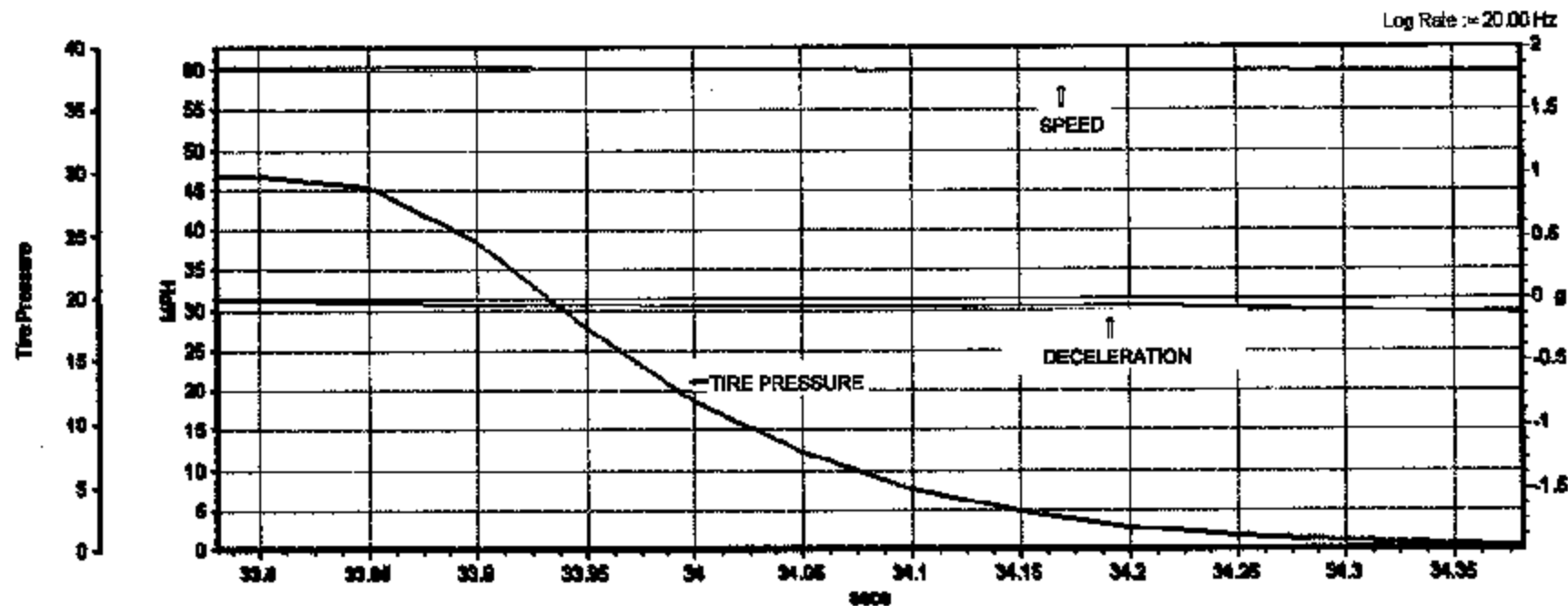
2005 TOYOTA AVALON  
NHTSA NO. C55104  
FMVSS NO. 110

FIGURE 5.27  
VEHICLE BALLASTED FOR CARGO

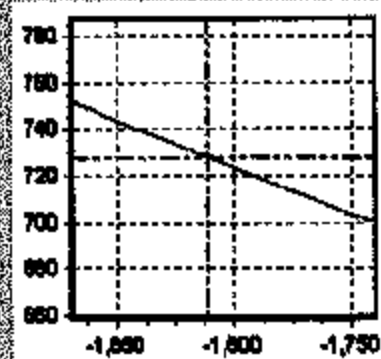
SECTION 8  
TEST PLOTS

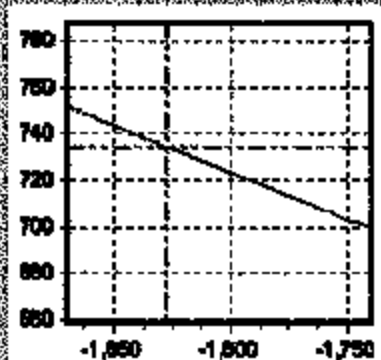


Toyota Avalon, C55104, Right Rear 110 Blow-out



Run Time	0 minute 51.35 secs		
Center (msec)	33.35		
Speed (MPH)	60.18		
Longitudinal Acceleration (g)	0.002		
Q	0.000		
Q	0.000		
Tire Pressure PSI (PSI)	29.732		
Brake Trigger (ON/OFF)	0		
Satellites (Number of)	9		





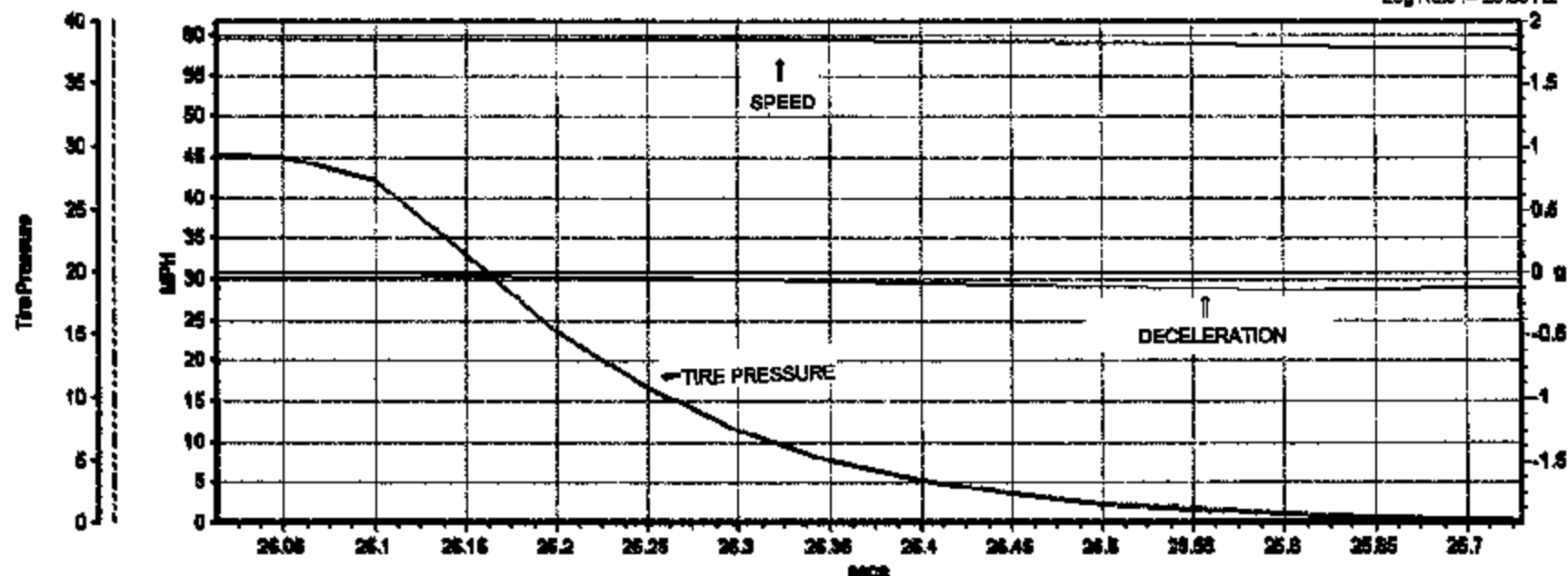
Run Time	0 minute 51.25 secs			
Owner (Pos)	1376.30			
Speed (MPH)	60.24			
Longitudinal Acceleration (g)	-0.016			
Q	0.000			
Q	0.000			
Tire Pressure PSI (PSI)	29.690			
Brake Trigger (ON/OFF)	0			
Satellites (Number of)	9			

File Edit Smoothing Graph Type Select Run Graph Properties Start/End &amp; Save

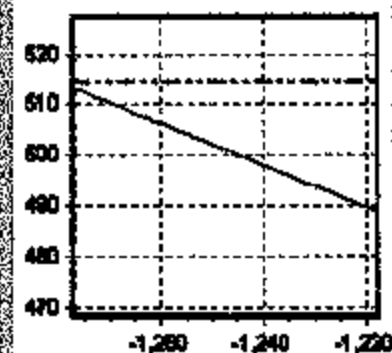


Toyota Avalon, C55104, Left Front 110 Blow-out

Log Rate := 20.00 Hz



Run Time	0 minute 50.10 secs		
Order (secs)	24.65		
Speed (MPH)	59.49		
Longitudinal Acceleration (g)	-0.052		
0	0.000		
0	0.000		
Tire Pressure PSI (PSI)	29.317		
Brake Trigger (ON/OFF)	0		
Satellites (Number of)	8		



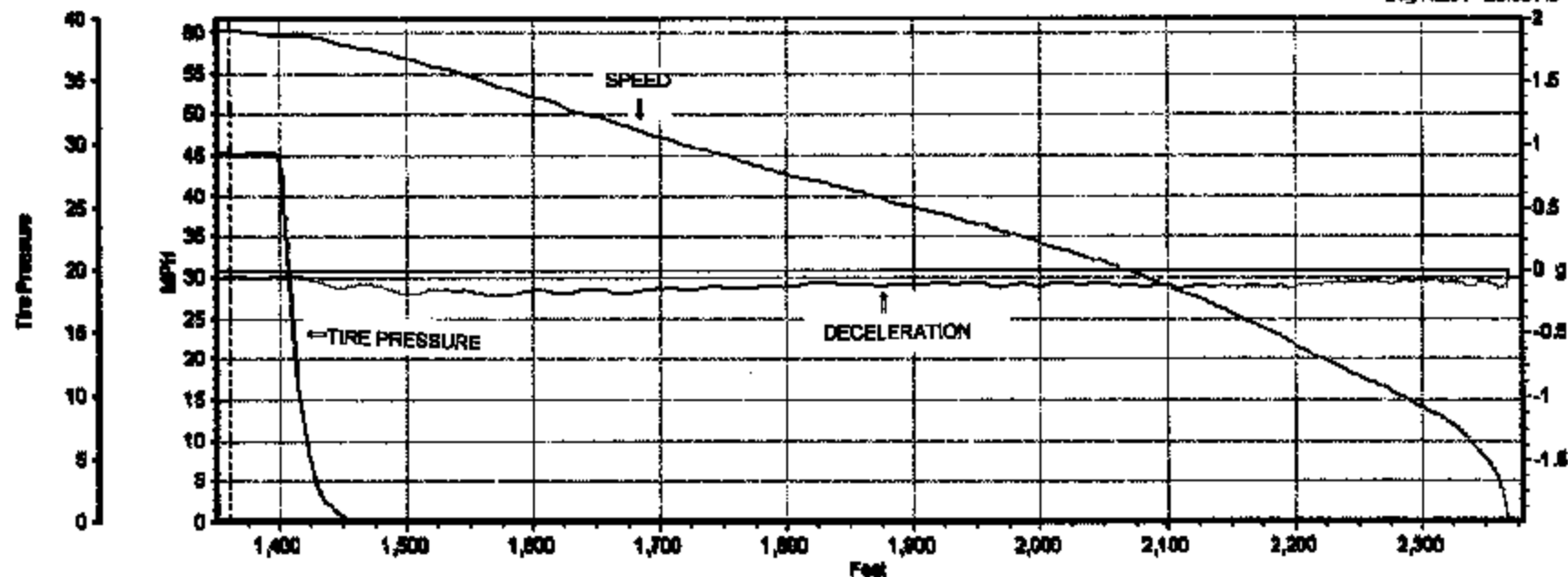
# Speed Vs Distance Graph

File Edit Smoothing Graph Type Select Run Graph Properties Window Peak & Valley



Toyota Avalon, C55104, Left Front 110 Blow-out

Log Rate := 20.00 Hz



Run Time	0 minute 80.10 secs			
Center (Feet)	1351.10			
Speed (MPH)	59.91			
Longitudinal Acceleration (g)	-0.041			
0	0.000			
0	0.000			
Tire Pressure PSI (PSI)	29.248			
Brake Trigger (ON/OFF)	0			
Satellites (Number of)	8			

