

REPORT NUMBER 110-GTL-04-003

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

**HYUNDAI MOTOR COMPANY
2004 HYUNDAI XG350, PASSENGER CAR
NHTSA NO. C40500**

**GENERAL TESTING LABORATORIES, INC.
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SEPTEMBER 1, 2004

FINAL REPORT

PREPARED FOR

**U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590**

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9/30/04

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| 16. Abstract Compliance tests were conducted on the subject 2004 Hyundai XG350 passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110-02 for the determination of FMVSS 110 compliance. Test failures identified were as follows: NONE | | |
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SECTION 1

INTRODUCTION

1.0 PURPOSE OF COMPLIANCE TEST

A 2004 Hyundai XG350 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 2004 Hyundai XG350 4-door passenger car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: KMHFU45E04A273719

B. NHTSA No.: C40500

C. Manufacturer: HYUNDAI MOTOR COMPANY

D. Manufacture Date: MAR/06/03

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 110 testing during the time period July 19-30, 2004.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 GENERAL

The 2004 Hyundai XG350 4-door passenger car, NHTSA No. C40500, was subjected to FMVSS No. 110 testing during the time period July 19-30, 2004.

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 96.6 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: 2004 HYUNDAI XG350 PASSENGER CAR
 VEHICLE NHTSA NO.: C40500 ; VIN: KMHFU45E04A273719
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 07/19/04

REQUIREMENT

PASS/FAIL

TIRE LOAD LIMITS AND PLACARD

The vehicle is equipped with tires that meet the requirements of FMVSS 109. (FMVSS 110, S4.1)

PASS

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)

PASS

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)

PASS

The placard must be permanently affixed to the glove compartment door or equally accessible location; and display the required information. (FMVSS 110, S4.3)

PASS

No inflation pressure other than the maximum permissible inflation pressure is specified unless as required. (FMVSS 110, S4.3.1)

PASS

RIM DIMENSIONS

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))

PASS

DEFLATED TIRE RETENTION

Each rim shall retain the deflated tire until the vehicle can be stopped. (FMVSS 110, S4.4.1(b))

PASS

Statement of indication of compliance or noncompliance to FMVSS 110 and data reference:
THE HYUNDAI XG350 APPEARS TO COMPLY WITH THE REQUIREMENTS OF
FMVSS 110.

REMARKS:

RECORDED BY: [Signature]
 APPROVED BY: [Signature]

DATE: 07/19/04

DATA SHEET 2 TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 07/19/04

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2004 HYUNDAI XG350

MANUFACTURE DATE: MAR/06/03 NHTSA NO.: C40500 BODY COLOR: RED

VIN: KMHFU45E04A273719 VEHICLE TYPE: PASSENGER CAR

GVWR 2120 kg (4674 lbs) GAWR(Fr) 1230 kg (2712 lbs) GAWR(Rr) 1095 kg (2414 lbs)

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

ENGINE DATA: 6 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 - P205/60R16 Mfr. - MICHELIN

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

| | | | | | |
|---|-----------------------|---|-----------------------|---|-------------------|
| X | Air Conditioning | X | Traction Control | X | Clock |
| X | Tinted Glass | | All Wheel Drive | | Roof Rack |
| X | Power Steering | X | Cruise 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 |
| X | 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/CD | | Other - |

REMARKS:

RECORDED BY: [Signature]

DATE: 07/19/04

APPROVED BY: [Signature]

DATA SHEET 3

CURB WEIGHT WITH OPTIONS, NORMAL LOAD, VEHICLE MAXIMUM LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2004 HYUNDAI XG350 PASSENGER CARVEHICLE NHTSA NO.: C40500 ; VIN: KMHFU45E04A273719LABORATORY: GENERAL TESTING LABORATORIESTEST DATE: 07/19/04

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids FullTire Pressure: LF 240 KPA (35 psi) LR 240 KPA (35 psi)
RF 240 KPA (35 psi) RR 240 KPA (35 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

| | | | |
|--|-------------------------|-----------------------------------|------------------------|
| LF | <u>528 KG (1165 LB)</u> | LR | <u>326 KG (719 LB)</u> |
| RF | <u>534 KG (1177 LB)</u> | RR | <u>315 KG (694 LB)</u> |
| Front Axle <u>1062 KG (2342 LB)</u> | | Rear Axle <u>641 KG (1413 LB)</u> | |
| Total Vehicle <u>1703 KG (3755 LB)</u> | | | |

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 3Occupant 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 Axes

| | | | |
|--|-------------------------|---------------------------------|------------------------|
| LF | <u>577 KG (1271 LB)</u> | LR | <u>378 KG (834 LB)</u> |
| RF | <u>582 KG (1284 LB)</u> | RR | <u>370 KG (816 LB)</u> |
| Frt Axle <u>1159 KG (2555 LB)</u> | | Rr Axle <u>748 KG (1650 LB)</u> | |
| Total Vehicle <u>1907 KG (4205 LB)</u> | | | |

DATA SHEET 3 – CONTINUED

(5) Calculated Vehicle Normal Load on the Tire

Front Tires (measured front axle normal load/2) = 580 KG (1279 LB)Rear Tires (measured rear axle normal load/2) = 374 KG (825 LB)

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

| | Front | Rear |
|---|-------------------------|-------------------------|
| Installed Tire Size | <u>P205/60R16</u> | <u>P205/60R16</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>N/A</u> | <u>N/A</u> |
| Max. Load Rating on Sidewall (Obtain from approved reference manual) | <u>N/A</u> | <u>N/A</u> |
| High Speed Test Load (88% of sidewall max. load rating) | <u>N/A</u> | <u>N/A</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>N/A</u> <u>N/A</u> |

C. MEASURED VEHICLE WITH FULL OCCUPANT LOAD

| | | | |
|---------------|--------------------------|-----------|-------------------------|
| LF | <u>588</u> KG (1296 LB) | LR | <u>422</u> KG (931 LB) |
| RF | <u>607</u> KG (1339 LB) | RR | <u>426</u> KG (939 LB) |
| Front Axle | <u>1195</u> KG (2635 LB) | Rear Axle | <u>848</u> KG (1870 LB) |
| Total Vehicle | <u>2043</u> KG (4505 LB) | | |

DATA SHEET 3 - CONTINUED

D. VEHICLE MAXIMUM LOAD ON THE TIRE

- (1) Vehicle Capacity Weight (from Placard) 390 KG (860 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)) 50 KG (110 LB)
- (5) Measured Maximum Load on Axles
- | | | | |
|--|-------------------------|---------------------------------|-------------------------|
| LF | <u>592 KG (1305 LB)</u> | LR | <u>454 KG (1001 LB)</u> |
| RF | <u>600 KG (1322 LB)</u> | RR | <u>448 KG (987 LB)</u> |
| Frt Axle <u>1192 KG (2627 LB)</u> | | Rr Axle <u>902 KG (1988 LB)</u> | |
| Total Vehicle <u>2093 KG (4615 LB)</u> | | | |

- (6) Calculated Vehicle Maximum Load on the Tire
- Front Tires (measured front axle max. load/2) = 596 KG (1314 LB)
- Rear Tires (measured rear axle max. load/2) = 451 KG (994 LB)
- (7) Maximum Load Rating on Tire Sidewall (obtain data from B.(6))

| | Front | Rear |
|--|--------------------------|--------------------------|
| Installed Tire Size | <u>P205/60R16</u> | <u>P205/60R16</u> |
| Max. Load Rating on Sidewall | <u>670 KG (1477 LBS)</u> | <u>670 KG (1477 LBS)</u> |
| Optional Tire Size(s) | <u>N/A</u> | <u>N/A</u> |
| Max Load Rating on Sidewall (obtain from approved reference manual) | <u>N/A</u> | <u>N/A</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 Rear Tires | PASS/FAIL <u>PASS</u> <u>PASS</u> |
| Optional Tires; [(6) < (7)] | Front Tires Rear Tires | <u>N/A</u> <u>N/A</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 390 kg (860 lbs) with P205/60R16 tire at
240 kPa (35 psi) on tire label.
- (2) Condition Load on Tire/Axle
- | | | | | | |
|---------------------------------|-----|--------------|--------------------------|-----|--------------|
| LF | 592 | KG (1305 LB) | LR | 454 | KG (1001 LB) |
| RF | 600 | KG (1322 LB) | RR | 448 | KG (987 LB) |
| Frt Axle 1192 KG (2627 LB) | | | Rr Axle 902 KG (1988 LB) | | |
| Total Vehicle 2093 KG (4615 LB) | | | | | |

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

| | Front | Rear |
|--|--------------------------|--------------------------|
| Displayed Tire Size | <u>P205/60R16</u> | <u>P205/60R16</u> |
| Recommended Inflation Pressure | <u>240 kPa (35 psi)</u> | <u>240 kPa (35 psi)</u> |
| Tire Load Rating (obtained from 2004 Tire and Rim Association Yearbook) | <u>615 KG (1356 LBS)</u> | <u>615 KG (1356 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: 07/19/04

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)
Vehicle loaded with 4 occupants with P205/60R16 tires at 230 kPa (33 psi) front, 210 kPa (30 psi) rear recommended inflation pressures listed on the tire placard.

- (2) Condition Load on Tire/Axle

| | | | | | |
|--|-----|--------------|---------------------------------|-----|-------------|
| LF | 586 | KG (1292 LB) | LR | 404 | KG (891 LB) |
| RF | 591 | KG (1302 LB) | RR | 395 | KG (870 LB) |
| Frt Axle <u>1177KG (2594 LB)</u> | | | Rr Axle <u>799 KG (1761 LB)</u> | | |
| Total Vehicle <u>1975 KG (4355 LB)</u> | | | | | |

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

| | Front | Rear |
|--|--------------------------|--------------------------|
| Displayed Tire Size | <u>P205/60R16</u> | <u>P205/60R16</u> |
| Recommended Inflation Pressure | <u>230 kPa (33 psi)</u> | <u>210kPa (30 psi)</u> |
| Tire Load Rating (obtained from 2004 Tire and Rim Association Yearbook) | <u>803 KG (1329 LBS)</u> | <u>578 KG (1274 LBS)</u> |

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

| | |
|-------------------------|------------------|
| Front Tires [(2) < (3)] | <u>PASS/FAIL</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: 07/19/04

APPROVED BY:

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2004 HYUNDAI XG350 PASSENGER CAR

VEHICLE NHTSA NO.: C40500 ; VIN: KMHFU45E04A273719

LABORATORY: GENERAL TESTING LABORATORIES

TEST DATE: 07/19/04

| | | |
|----|--|--------------------------------|
| | | PASS/FAIL |
| A. | Description of Placard: <u>Self Adhesive decal</u> | <u>Pass</u> |
| B. | Description of Placard Location: <u>Driver's Door</u> | <u>Pass</u> |
| | Permanently Affixed (X) YES () NO | |
| C. | Enter Information from Placard: | |
| | Vehicle Capacity Weight - <u>390 KG (860 LBS)</u> | |
| | Designated Seating Capacity (DSC) - <u>5</u> | <u>Pass</u> |
| | Expressed In— | |
| | (1) Total No. of Occupants (X) Yes () No | |
| | (2) Terms of Occupants for Each Seat Location (X) YES () NO | <u>Pass</u> |
| | Manufacturer's Recommended Cold Tire Inflation Pressure for Maximum Load Vehicle Weight: | |
| | FRONT - <u>240 kPa (35 psi)</u> | REAR - <u>240 kPa (35 psi)</u> |
| | All Other Recommended Inflation Pressures: <u>Front 230 kPa 33 psi, Rear 210 kPa 30 psi</u> | |
| | All Other Recommended Loading Conditions: <u>Inflation pressures above are for loading up to 4 occupants.</u> | |
| | Manufacturer's Recommended Size Designation: <u>P205/60R16 94H</u> | |
| | All Other Manufacturer's Recommended Size Designation: <u>None</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: *S. Armand*DATE: 07/19/04APPROVED BY: *D. Missic*

DATA SHEET 6 VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2004 HYUNDAI XG350 PASSENGER CAR
 VEHICLE NHTSA NO.: C40500 ; VIN: KMHFU45E04A273719
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 07/20/04

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>P205/60R16</u> | <u>P205/60R16</u> | <u>P205/60R16</u> |
| Tire Load Index/Speed Symbol | <u>94-H</u> | <u>94-H</u> | <u>94-H</u> |
| Maximum Inflation Pressure | <u>340 kPa (50 psi)</u> | <u>340 kPa (50 psi)</u> | <u>340 kPa(50psi)</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>MICHELIN</u> | <u>MICHELIN</u> | <u>MICHELIN</u> |
| Tube or Tubeless | <u>Tubeless</u> | <u>Tubeless</u> | <u>Tubeless</u> |
| Treadwear/Traction/Temp. Grades | <u>400-A-A</u> | <u>400-A-A</u> | <u>400 -A-A</u> |
| Sidewall (Plies & Composition) | <u>1 polyester</u> | <u>1 polyester</u> | <u>1 polyester</u> |
| Tread (Plies & Composition) | <u>1 polyester</u> <u>2 steel</u> <u>1 polyamide</u> | <u>1 polyester</u> <u>2 steel</u> <u>1 polyamide</u> | <u>1 polyester</u> <u>2 steel</u> <u>1 polyamide</u> |
| Serial Number: | Left Front - <u>DOT ED7R-FRTX-0403</u> Right Front - <u>DOT ED7R-FRTX-0403</u> Left Rear - <u>DOT ED7R-FRTX-0403</u> Right Rear - <u>DOT ED7R-FRTX-0403</u> Spare - <u>DOT ED7R-FRTX-0403</u> | | |

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

REMARKS:

RECORDED BY: [Signature] DATE: 07/20/04

APPROVED BY: [Signature]

DATA SHEET 6 RIM DIMENSIONS

VEHICLE MAKE/MODEL/BODY STYLE: 2004 HYUNDAI XG350 PASSENGER CAR
 VEHICLE NHTSA NO.: C40500 ; VIN: KMHFU45E04A273719
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 07/20/04

A. Rim Size & Flange

| | Tire Size | Specfd. Rims | Measured Width of Rims | Measured Height of Rims | PASS/ FAIL |
|--------------|-------------------|------------------------|------------------------------|-------------------------------|---------------|
| Right Front: | <u>P205/60R16</u> | <u>5.5 to 7.5 Jx16</u> | <u>6.0"</u> | <u>16"</u> | <u>Pass</u> |
| Left Rear: | <u>P205/60R16</u> | <u>5.5 to 7.5 Jx16</u> | <u>6.0"</u> | <u>16"</u> | <u>Pass</u> |

REFERENCE USED: 2004 Tire and Rim Association Yearbook

B. Trade Stamps, Marks, Symbols: HYUNDAI

Rim Manufacturer's Name or Label: HYUNDAI LABEL

Other Rim/Wheel Marking: 6J x 16 -46, 52910-39600, S401, NO.2 J

Rim Inspection Comments: Says Made In Korea

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: 07/20/04

APPROVED BY: [Signature]

DATA SHEET 7 DEFLATED TIRE RETENTION

VEHICLE MAKE/MODEL/BODY STYLE: 2004 HYUNDAI XG350 PASSENGER CAR
 VEHICLE NHTSA NO.: C40500 ;VIN: KMHFU45E04A273719
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 07/29/04

Tire Pressures: LF 240 kPa (35 psi) LR 240 kPa (35 psi)
 (cold) RF 240 kPa (35 psi) RR 240 kPa (35 psi)

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

 LF 596 kg (1313 lb) LR 447 kg (986 lb)
 RF 594 kg (1310 lb) RR 455 kg (1003 lb)
 Front Axle 1190 kg (2623 lb) Rear Axle 902 kg (1989 lb)

TOTAL VEHICLE 2092 kg (4612 lb)

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

A. Retention Test Left Front:

Odometer (START): 187 km (116 miles) Fuel Level: Full

Tire Pressure: 240 kPa (35 psi)

Ambient Temperature: 26.1 degrees C (79 F)

Wind Speed: 4.8 kmph (3.0 mph)

Size of Deflation Opening: 2.8 cm (1.1 in.) in diameter

Speed: 95.2 kmph (59.2 mph)

Deceleration Rate: 1.68 mpsps avg. (5.5 fpsps)

Distance Traveled After Initial Release of Air: 205 m (673 ft)

Distance of Deviation: < .6 m (<2 ft)

Description of Bead Separation, Outboard: None

Description of Bead Separation, Inboard: None

NOTE: Tire did not rotate on rim.

DATA SHEET 7 continued DEFLATED TIRE RETENTION

B. Retention Test Right Rear:

Odometer (START): 182 km (119 miles) Fuel Level: Full

Tire Pressure: 240 kPa (35 psi)

Ambient Temperature: 26.6 degrees C (80 F)

Wind Speed: 6.4 kmph (4 mph)

Size of Deflation Opening: 2.54 cm (1.0 in.) in diameter

Speed: 96.1 kmph (59.7 mph)

Deceleration Rate: 2.44 mpsps avg. (8 fpsps)

Distance Traveled After Initial Release of Air: 155 m (509 ft)

Distance of Deviation: <.6 m (<2 ft)

Description of Bead Separation, Outboard: None

Description of Bead Separation, Inboard: None

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: [Signature]

DATE: 07/30/04

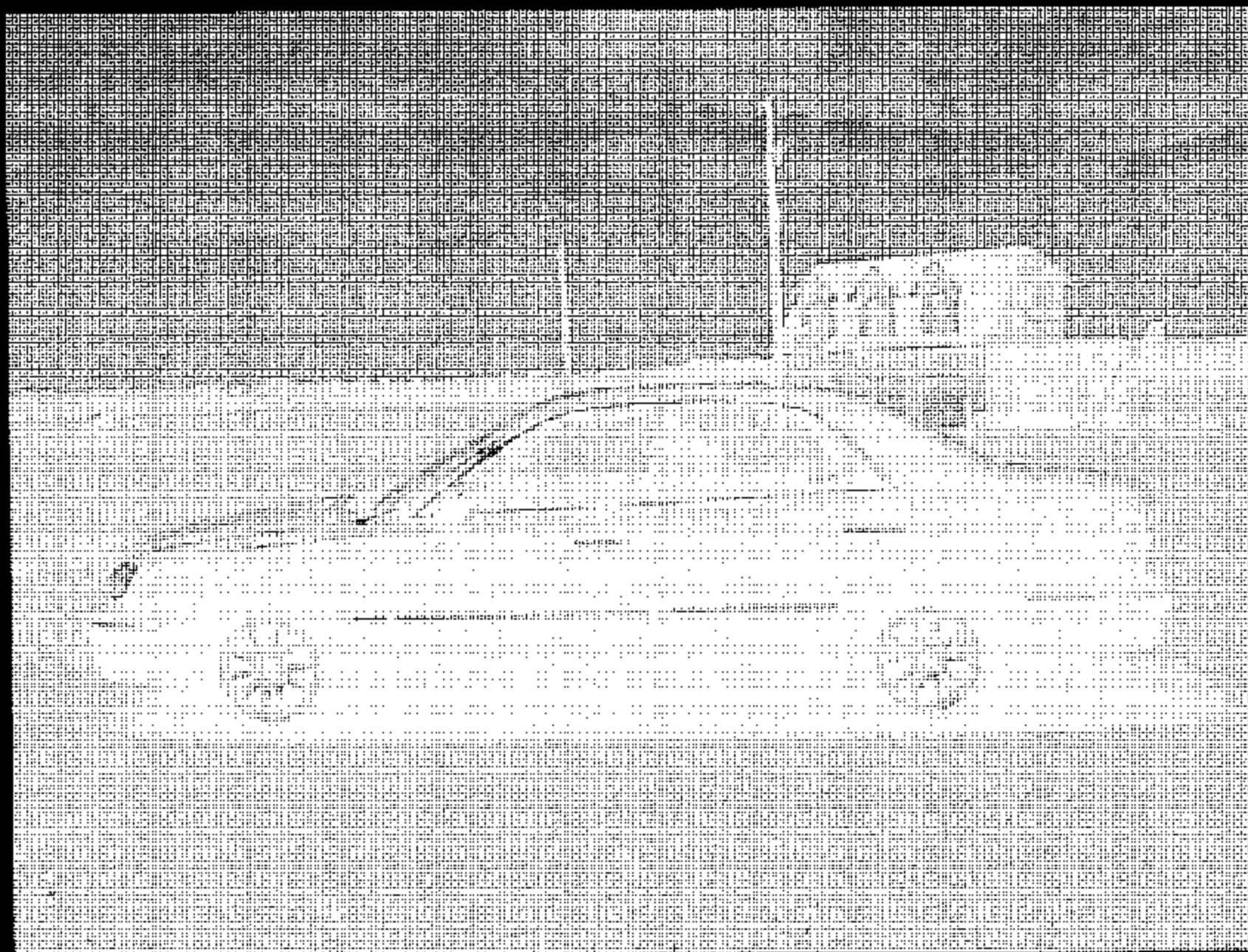
APPROVED BY: [Signature]

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

| EQUIPMENT | DESCRIPTION | MODEL/ SERIAL NO. | CAL. DATE | NEXT CAL. DATE |
|---------------------------------|-------------|----------------------|---------------|-------------------|
| PAD SCALES | #1 199744LF | 199744LF | 07/04 | 07//05 |
| | #2 199744RF | 199744RF | 07/04 | 07//05 |
| | #3 199744LR | 199744LR | 07/04 | 07//05 |
| | #4 199744RR | 19974RR | 07/04 | 07//05 |
| PRESSURE TRANSDUCER | BLH | D-HF #65409 | BEFORE USE | BEFORE USE |
| SURFACE LEVEL | STANLEY | 641186 | 02/04 | 02/05 |
| DATA ACQUISITION COMPUTER | GEO1 | N/A | BEFORE USE | BEFORE USE |
| ANEMOMETER | HASTINGS | RM-1 | 05/04 | 05/05 |
| SLIP RING ASSEMBLY | GTL | N/A | BEFORE USE | BEFORE USE |
| DECELEROMETER | GTL | N/A | BEFORE USE | BEFORE USE |
| INCLINOMETER | STARRETT | 002 | 02/04 | 02/05 |
| VBOX | RACELOGIC | VB2 #004337 | BEFORE USE | BEFORE USE |

SECTION 5
PHOTOGRAPHS



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.1
LEFT SIDE VIEW OF VEHICLE



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.2
RIGHT SIDE VIEW OF VEHICLE



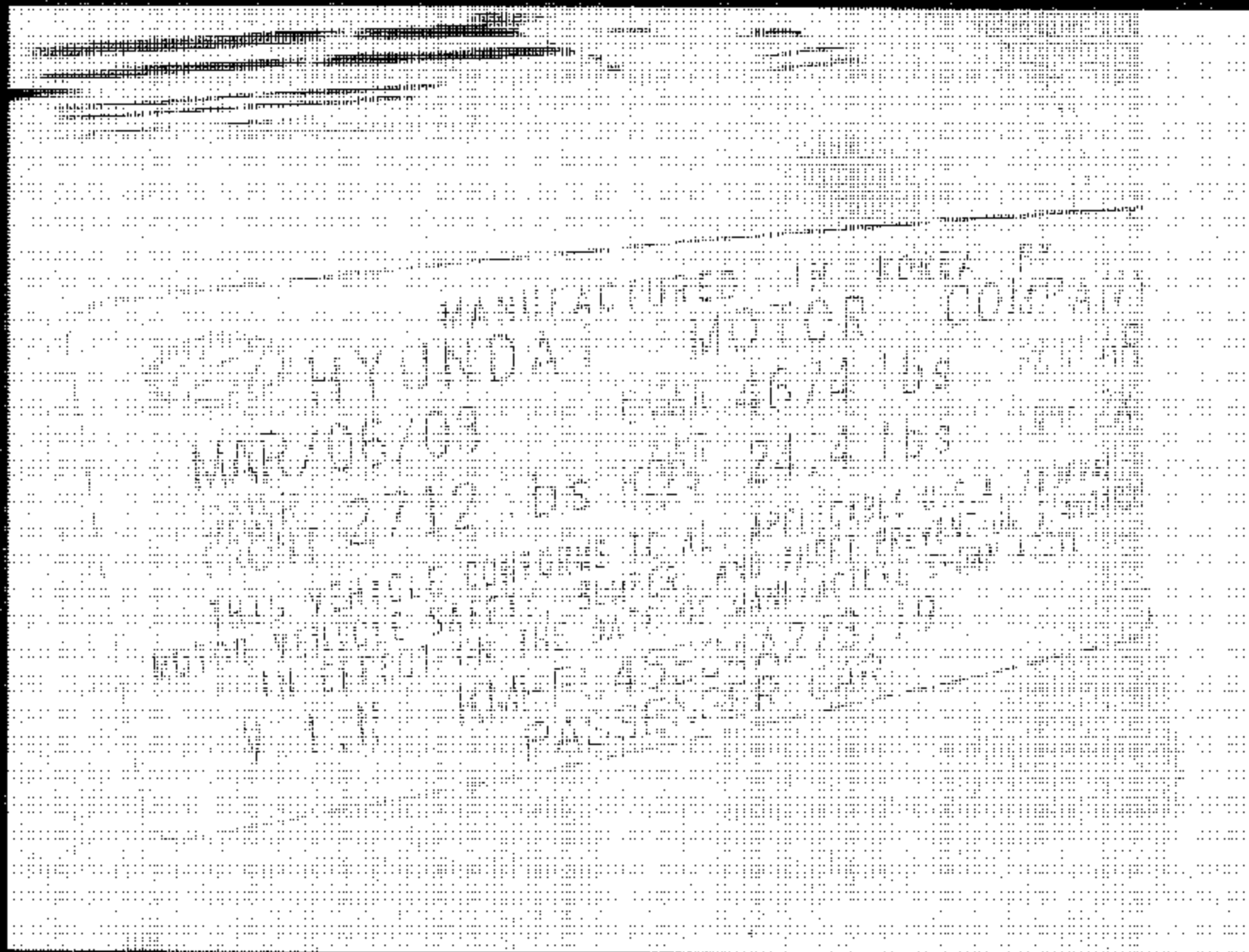
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 119

FIGURE 5.3
3/4 FRONTAL VIEW FROM LEFT SIDE OF
VEHICLE



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.4
¾ REAR VIEW FROM RIGHT SIDE OF
VEHICLE



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.5
VEHICLE CERTIFICATION LABEL



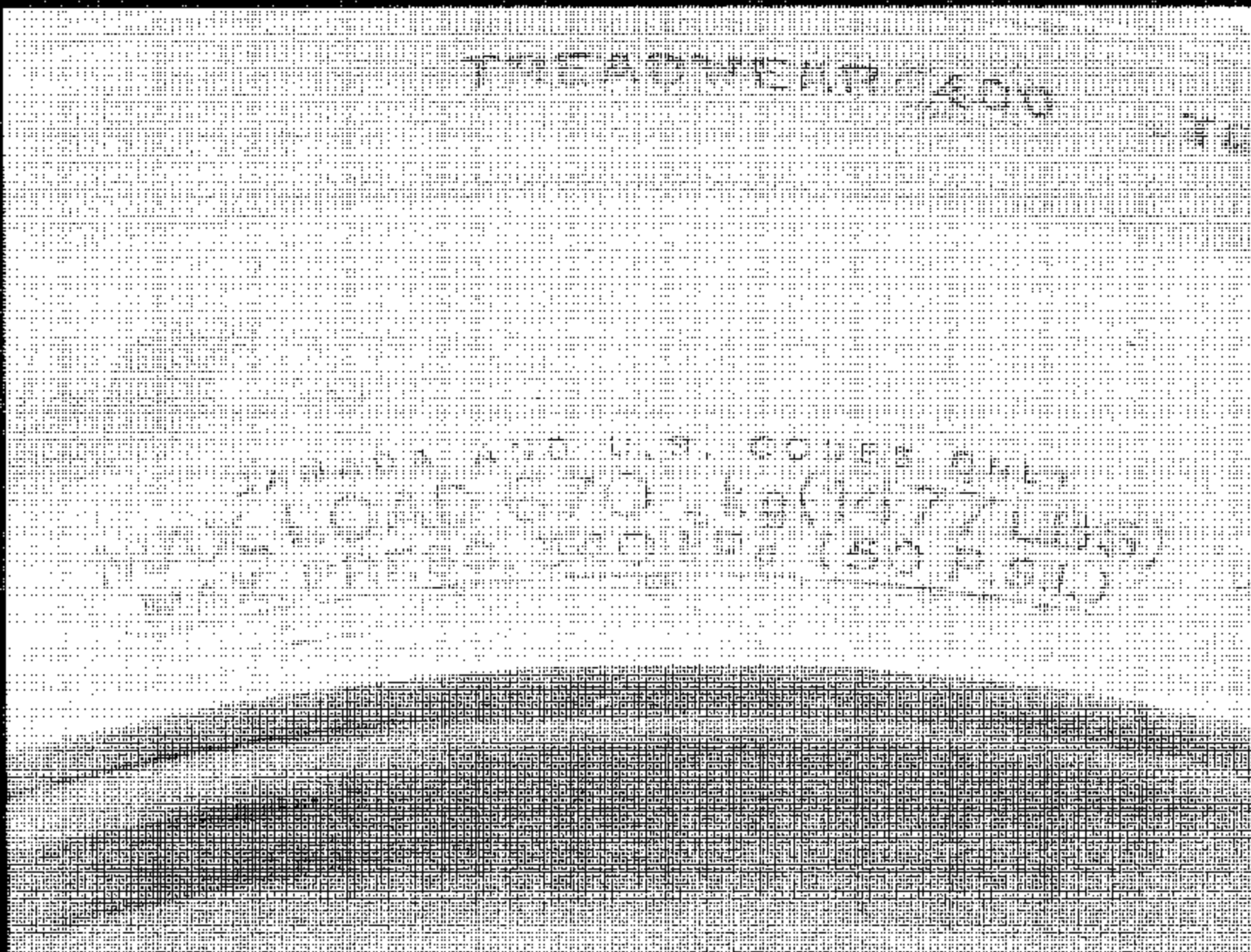
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.7
TIRE SHOWING BRAND, MODEL AND
SIZE



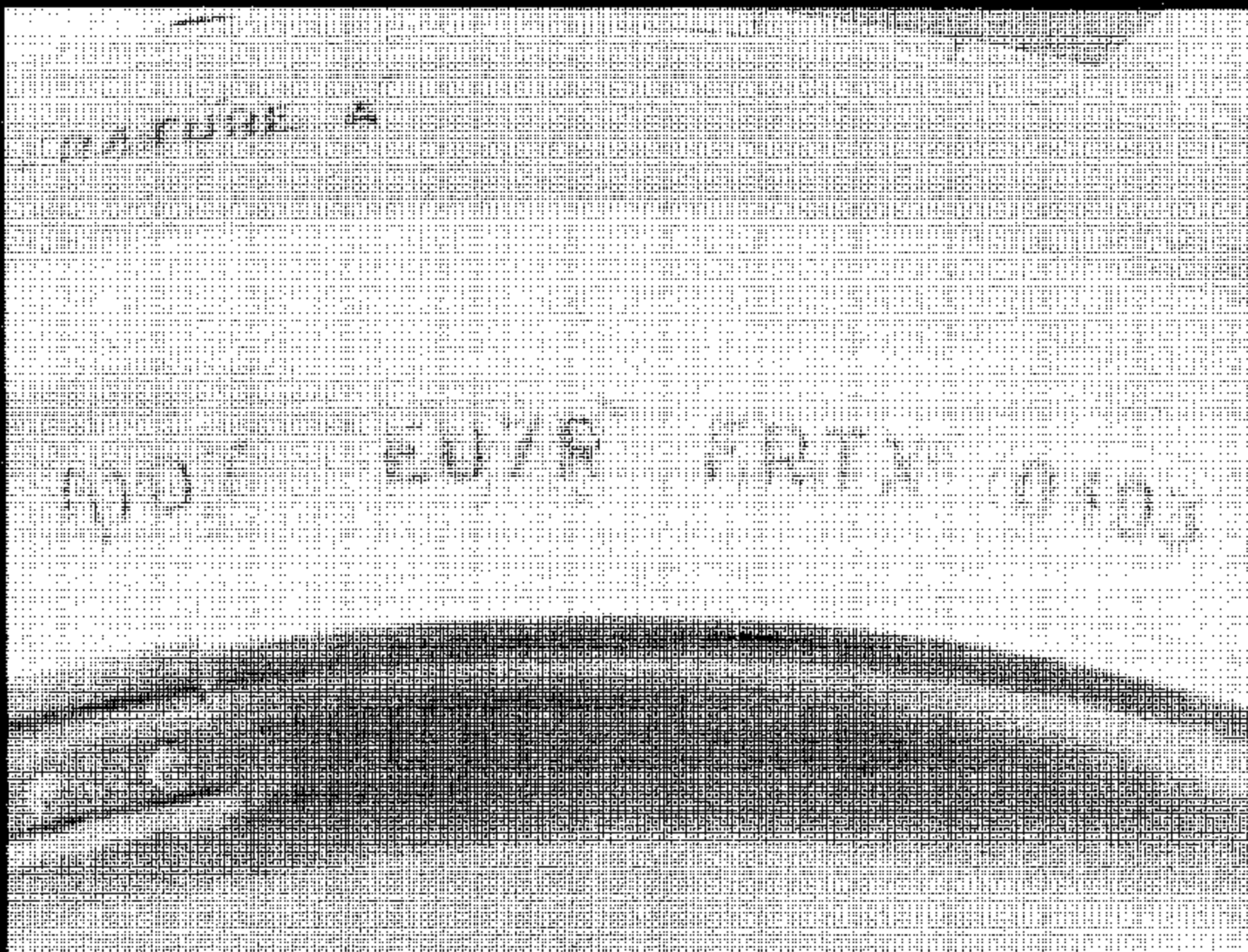
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.8
TIRE SHOWING SIZE, LOAD INDEX AND
SPEED RATING



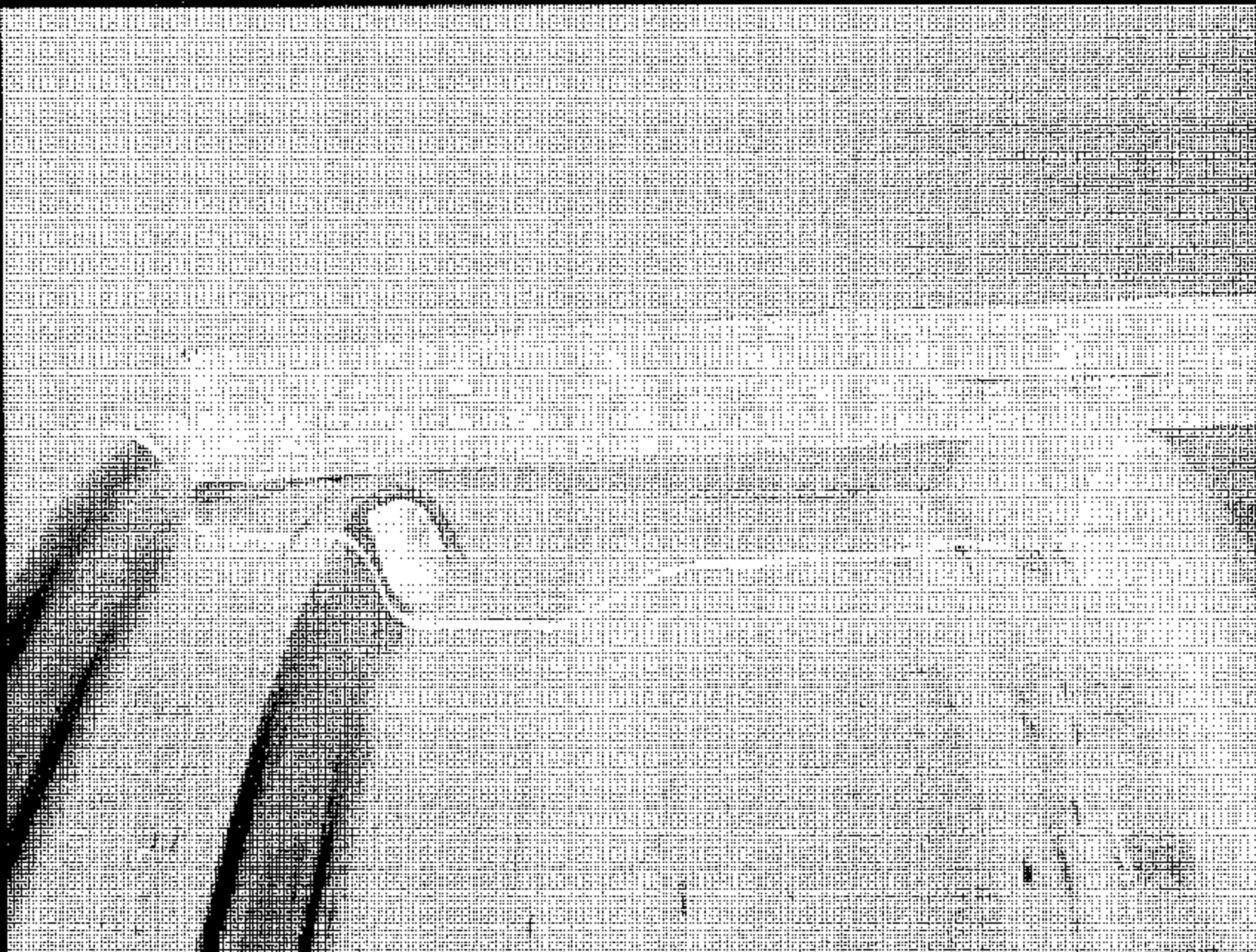
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.8
TIRE SHOWING MAX LOAD RATING AND
MAX INFLATION PRESSURE



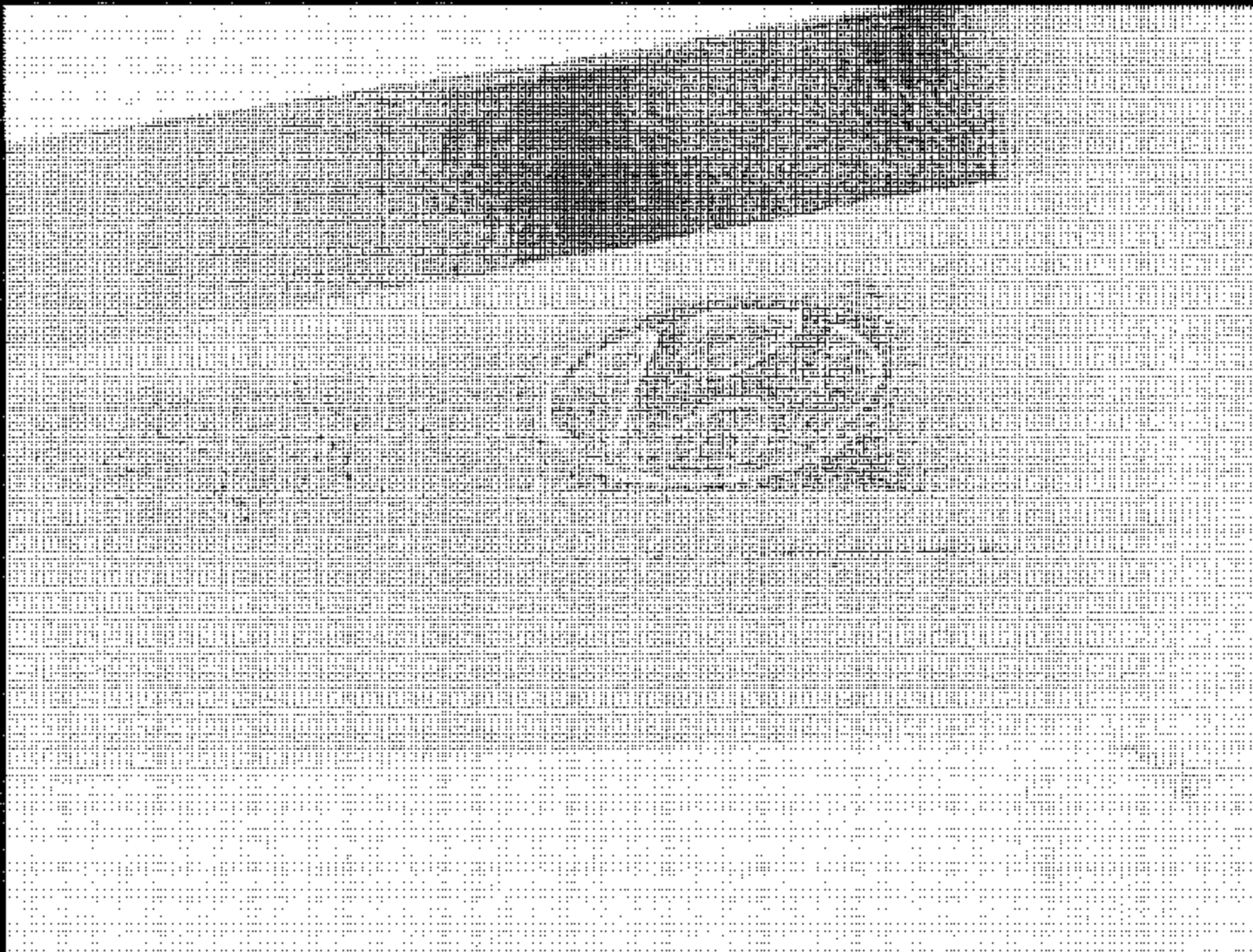
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.1D
TIRE SHOWING SERIAL NUMBER



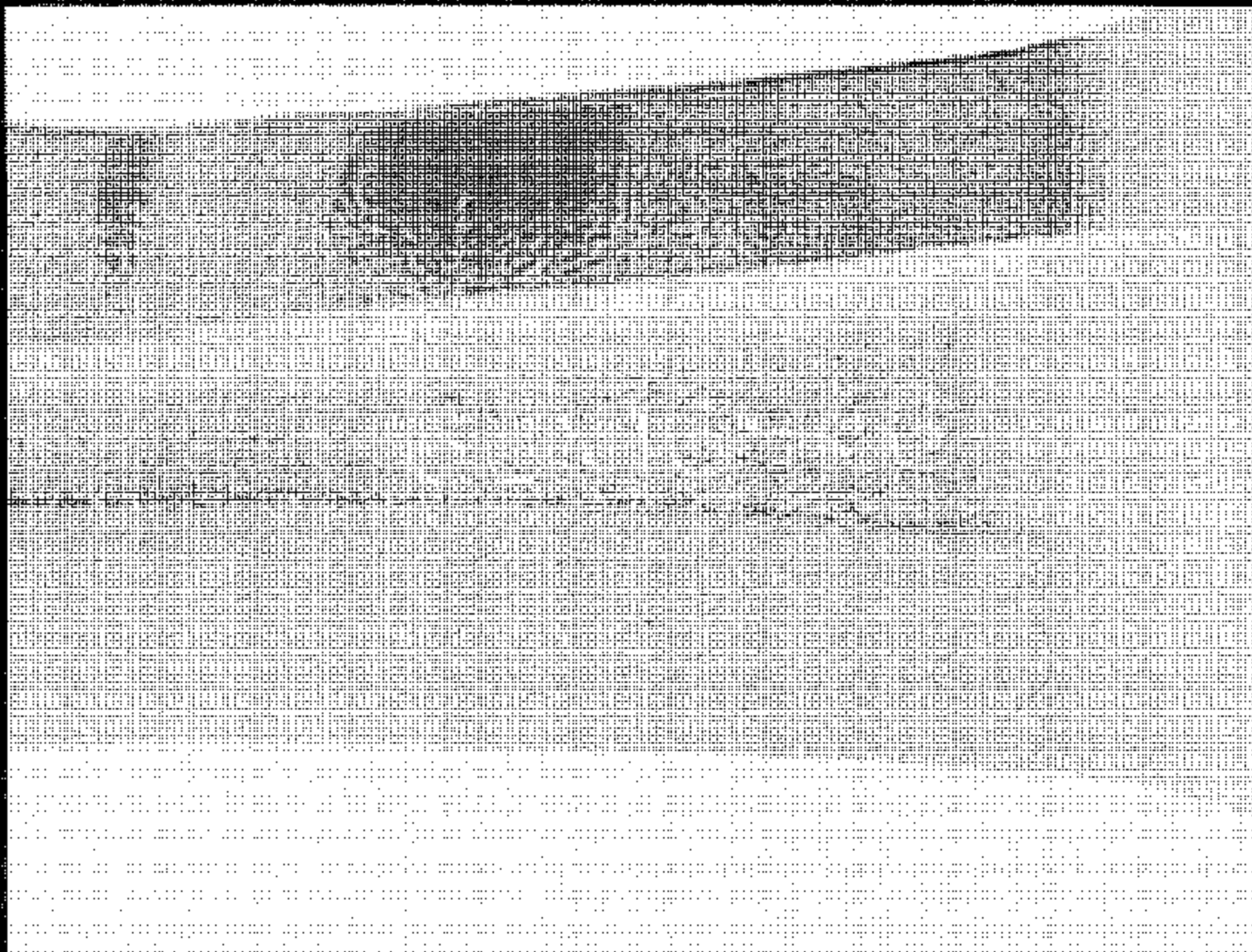
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.11
VIEW OF RIM CONTOUR



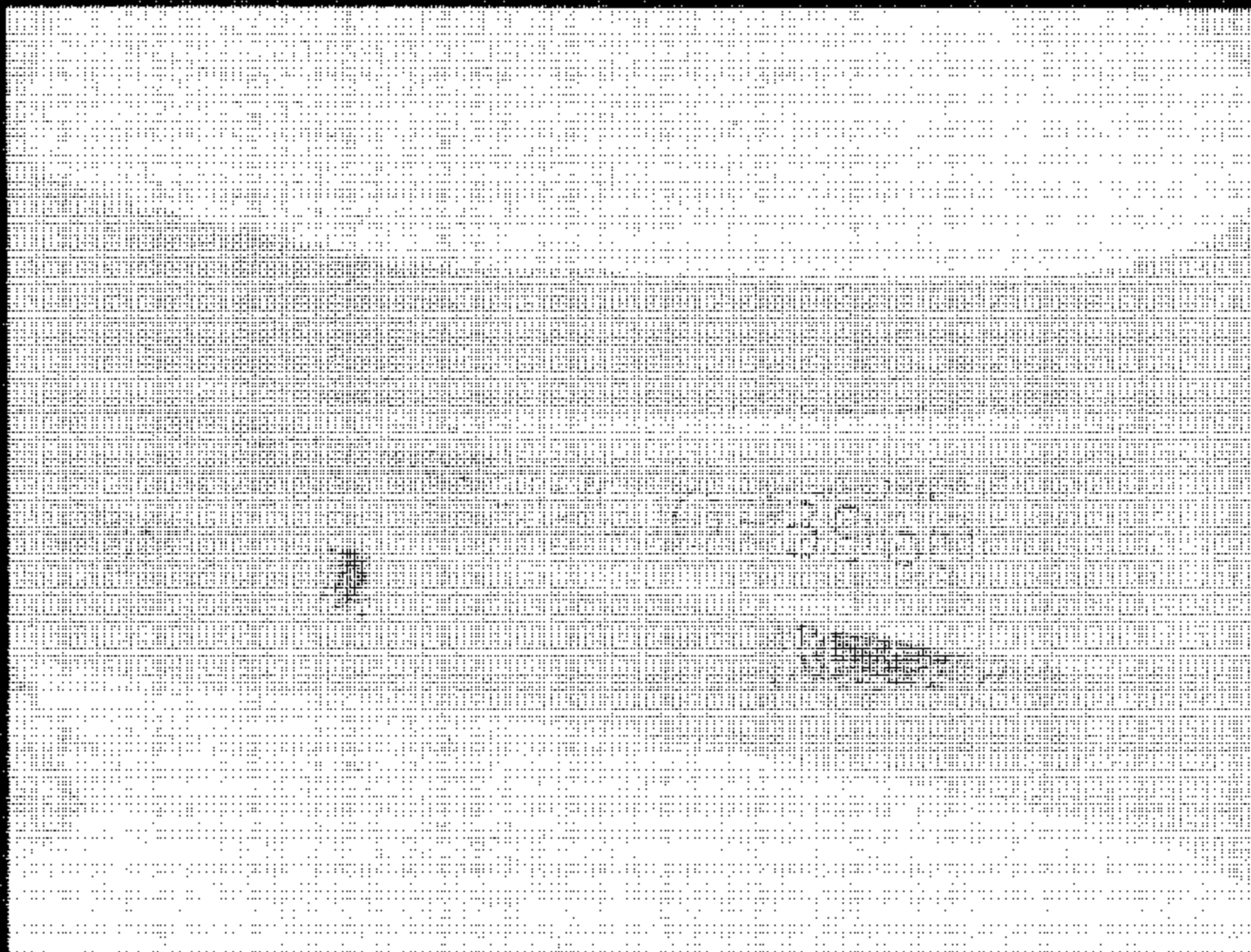
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.12
RIM MARKINGS (MANUFACTURER)



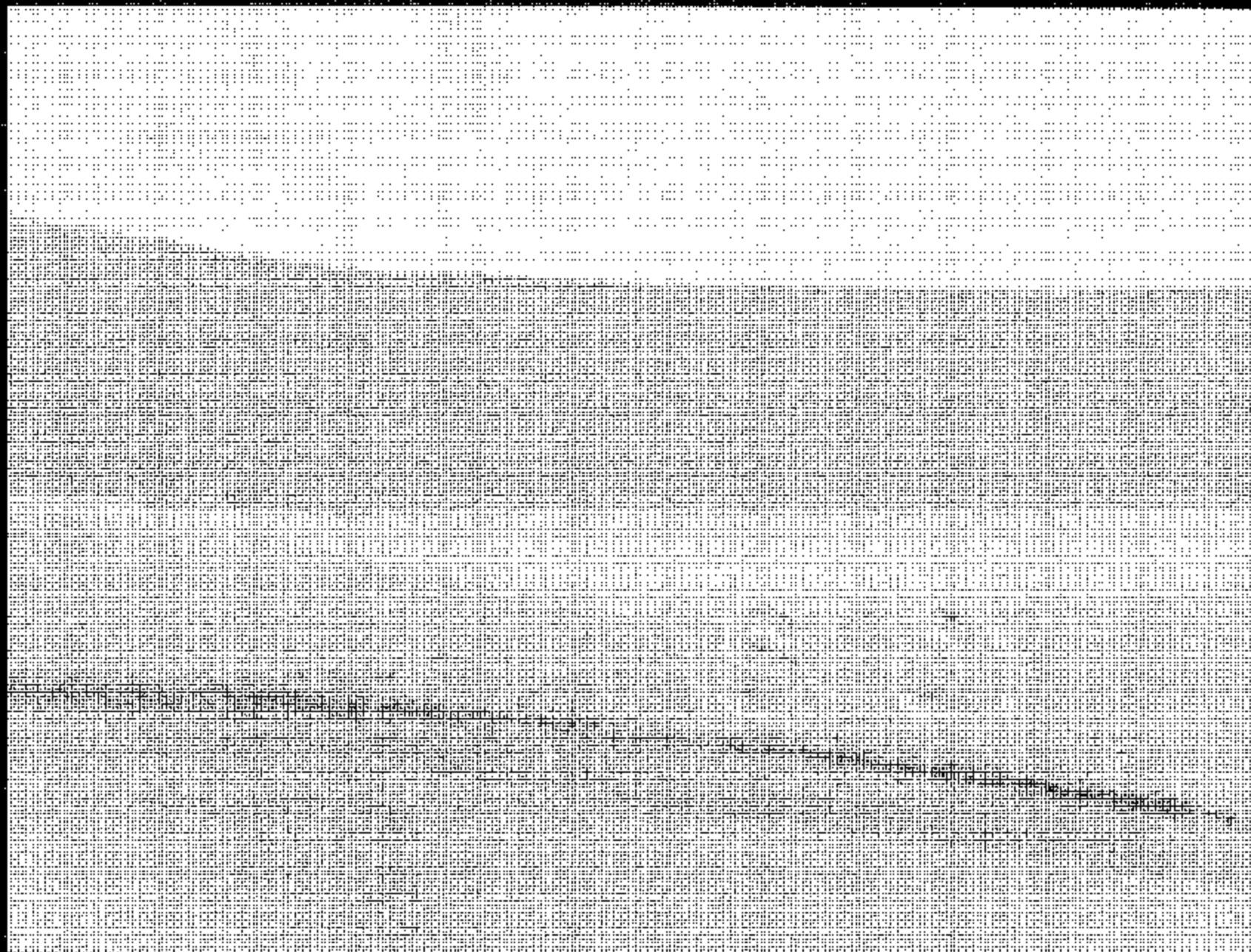
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.13
RIM MARKINGS (SIZE)



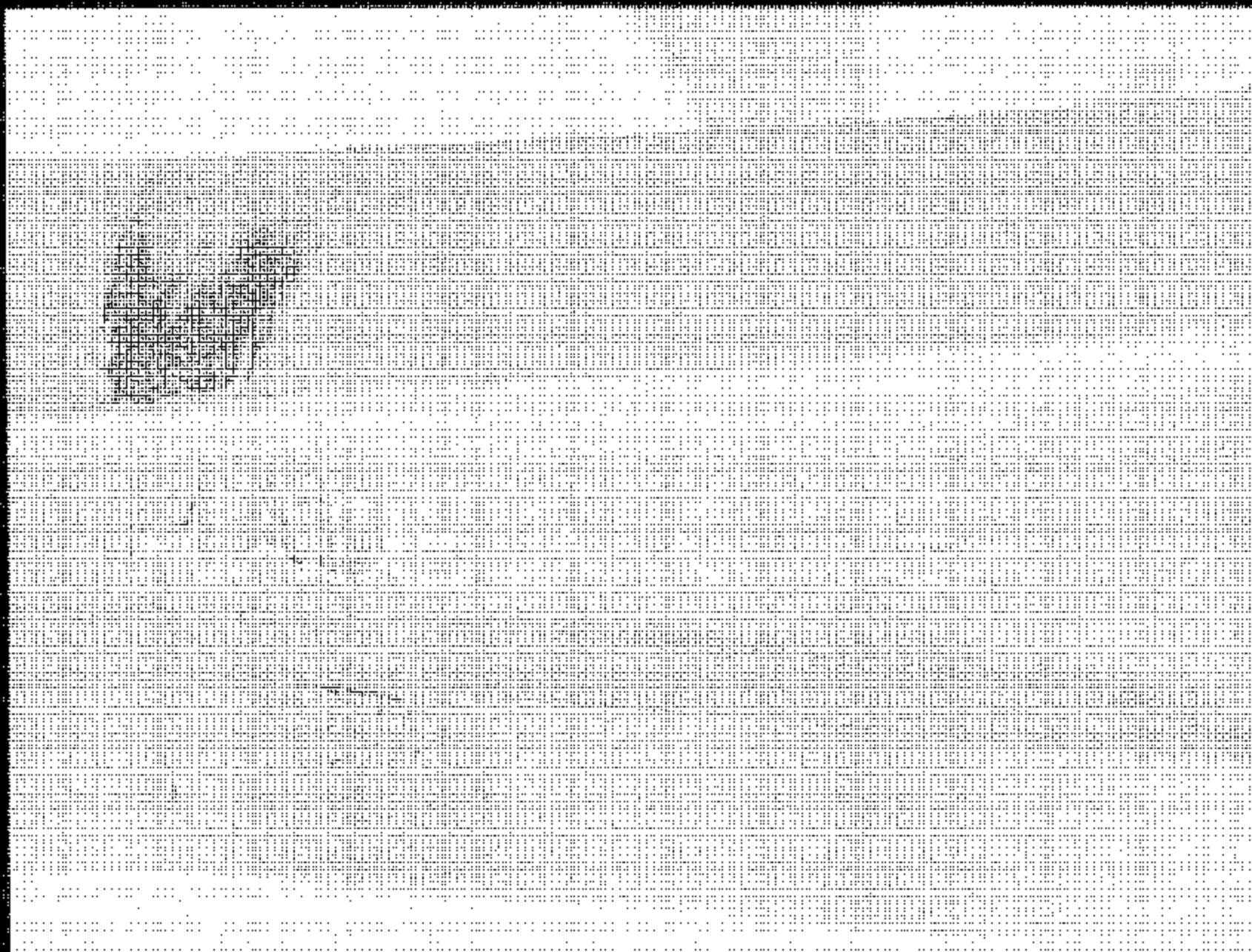
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.14
RIM MARKINGS



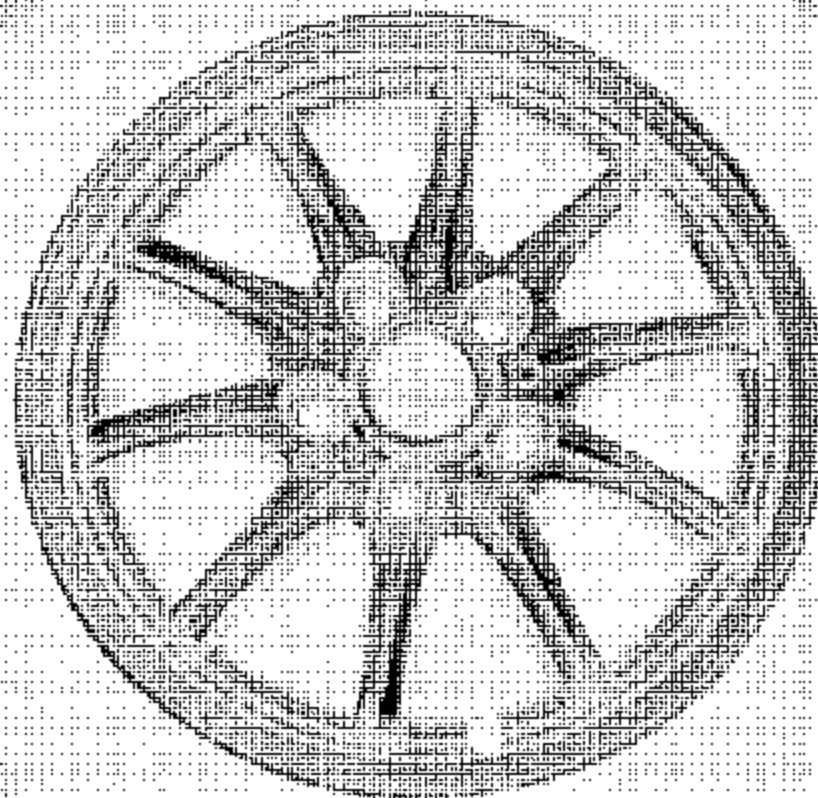
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.15
RIM MARKINGS



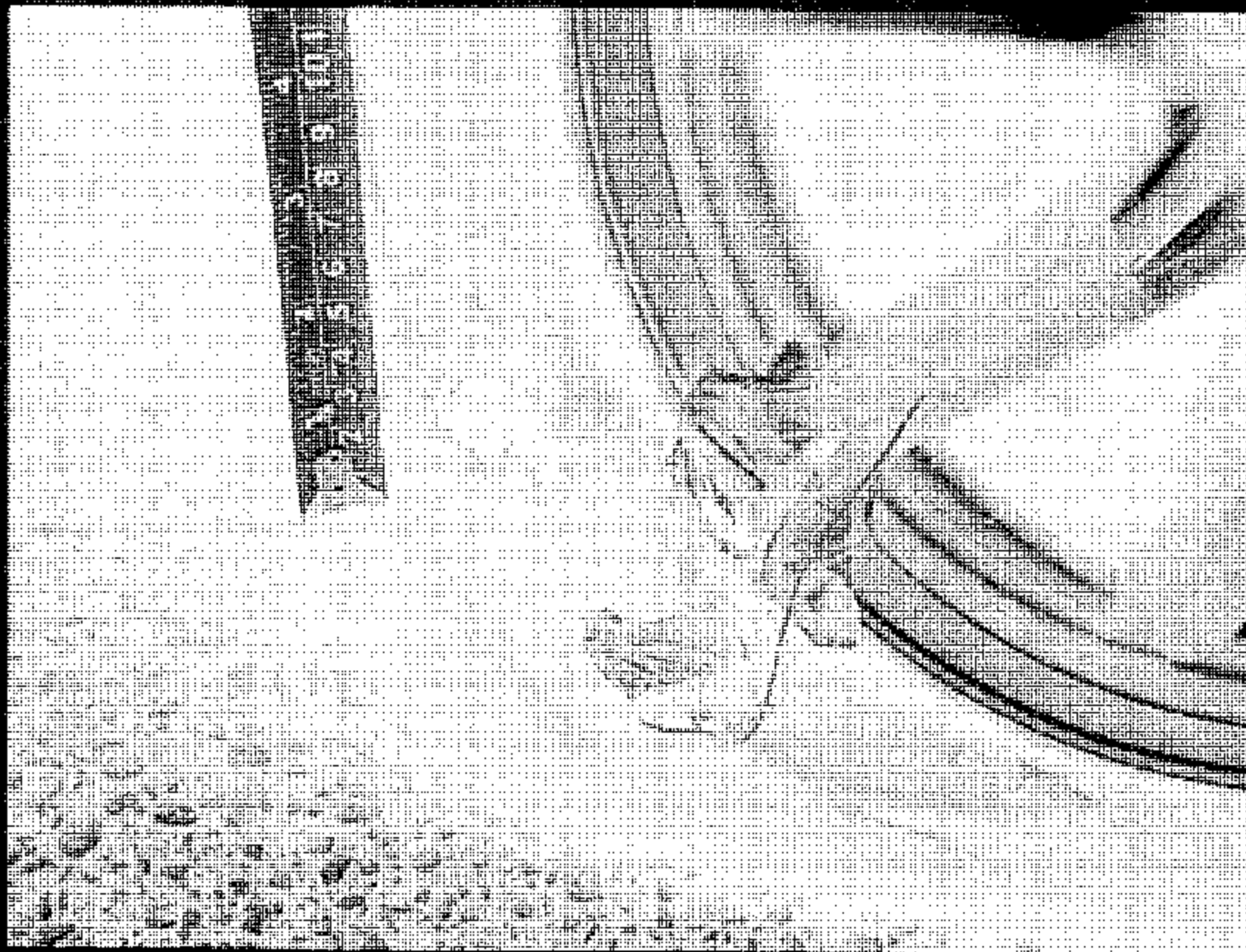
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.16
RIM MARKINGS



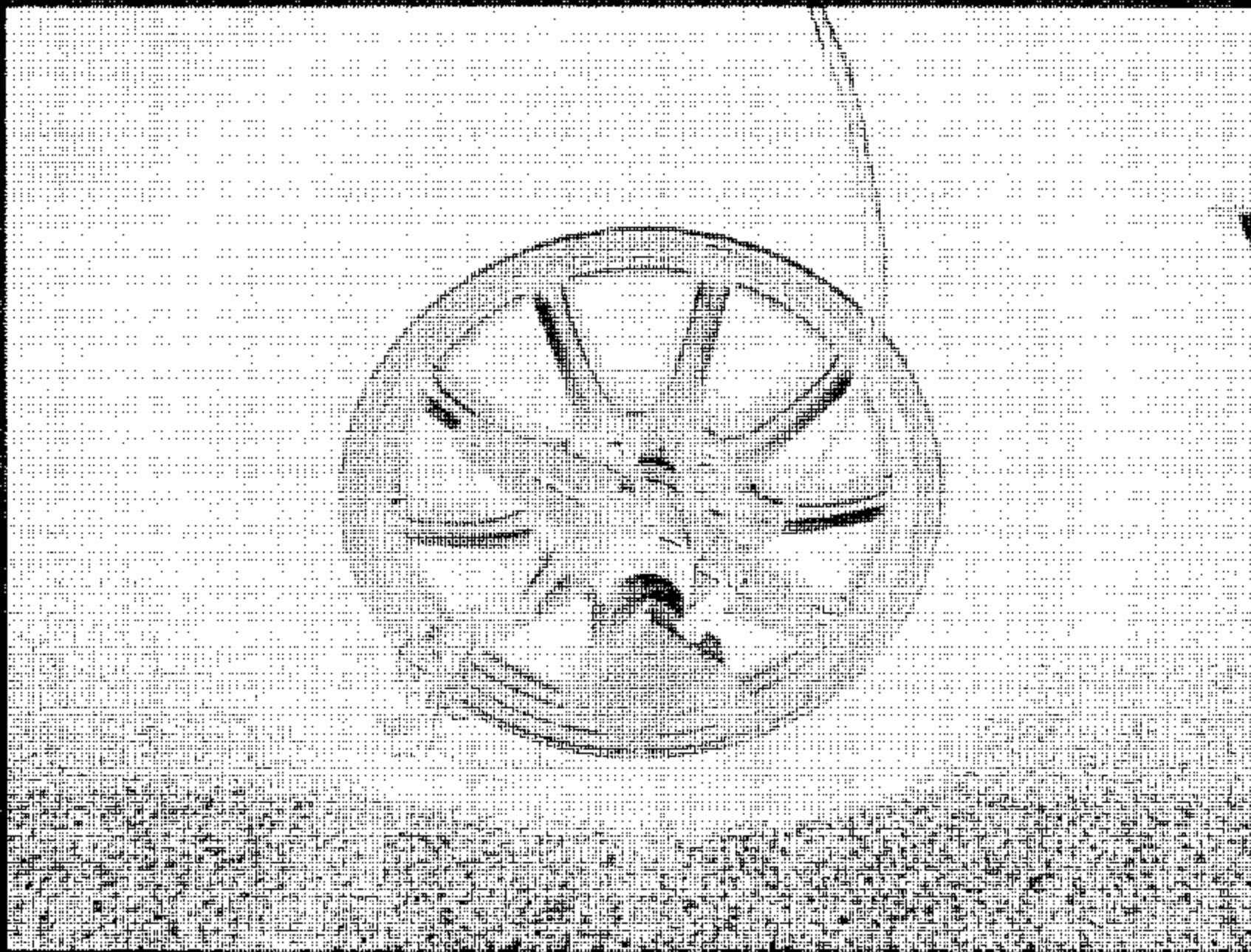
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.17
SPARE TIRE



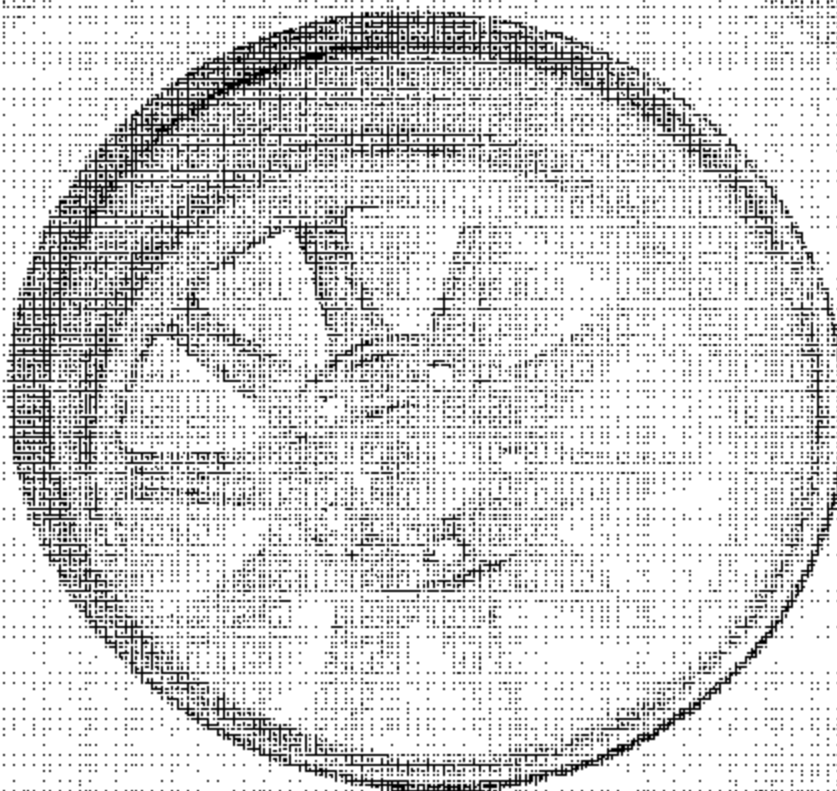
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.18
LEFT FRONT TIRE AFTER BLOW-OUT
WITH RULER NEXT TO HOLE



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.19
OUTSIDE VIEW OF LEFT FRONT TIRE
AFTER BLOW-OUT



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.20
INSIDE VIEW OF LEFT FRONT TIRE
AFTER BLOW-OUT



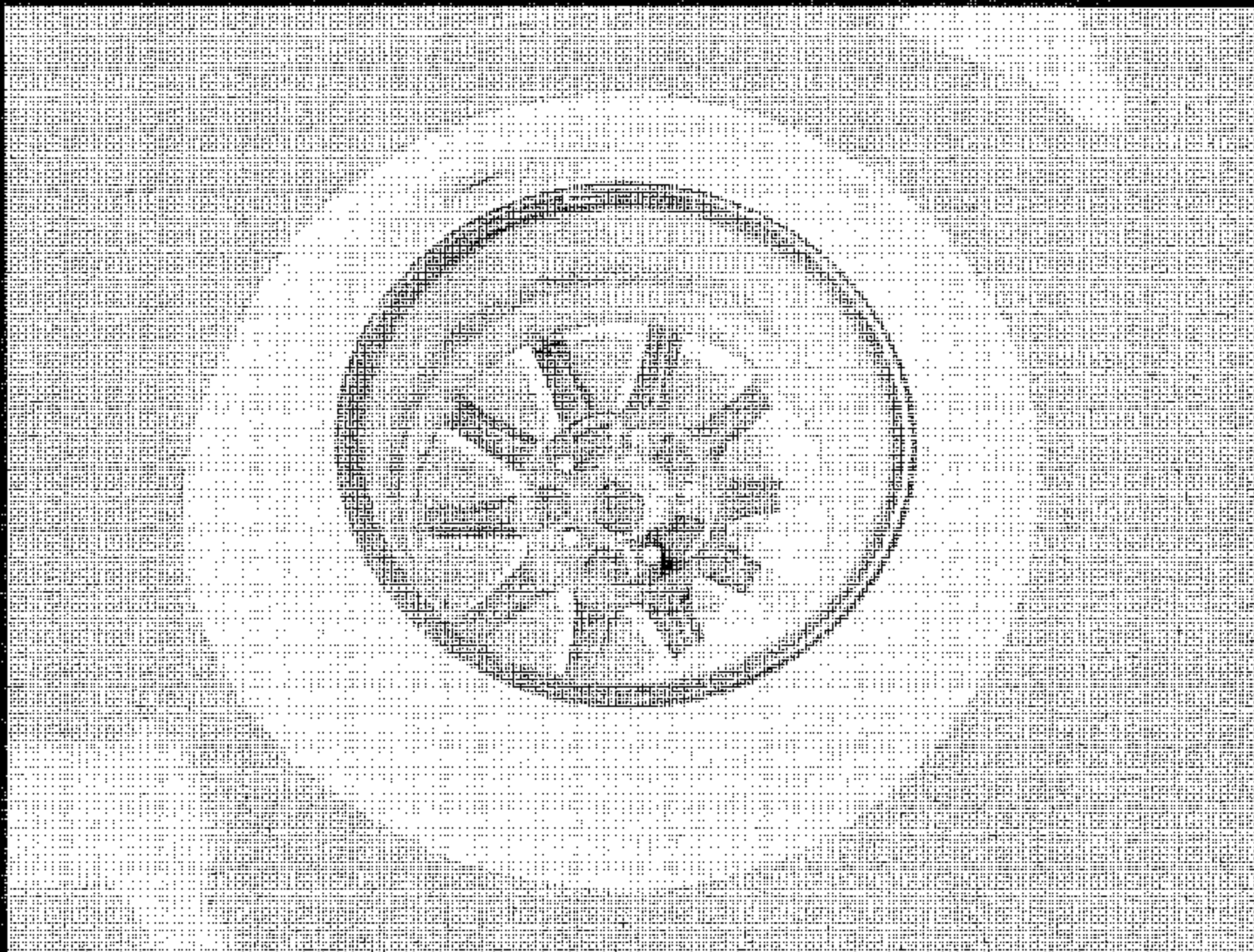
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.21
RIGHT REAR TIRE AFTER BLOW-OUT
WITH RULER NEXT TO HOLE



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.22
OUTSIDE VIEW OF RIGHT REAR TIRE
AFTER BLOW-OUT



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.23
INSIDE VIEW OF RIGHT REAR TIRE
AFTER BLOW-OUT



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.24
VEHICLE BALLASTED FOR NORMAL LOAD



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

FIGURE 5.25
VEHICLE BALLASTED FOR MAXIMUM
LOAD



2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

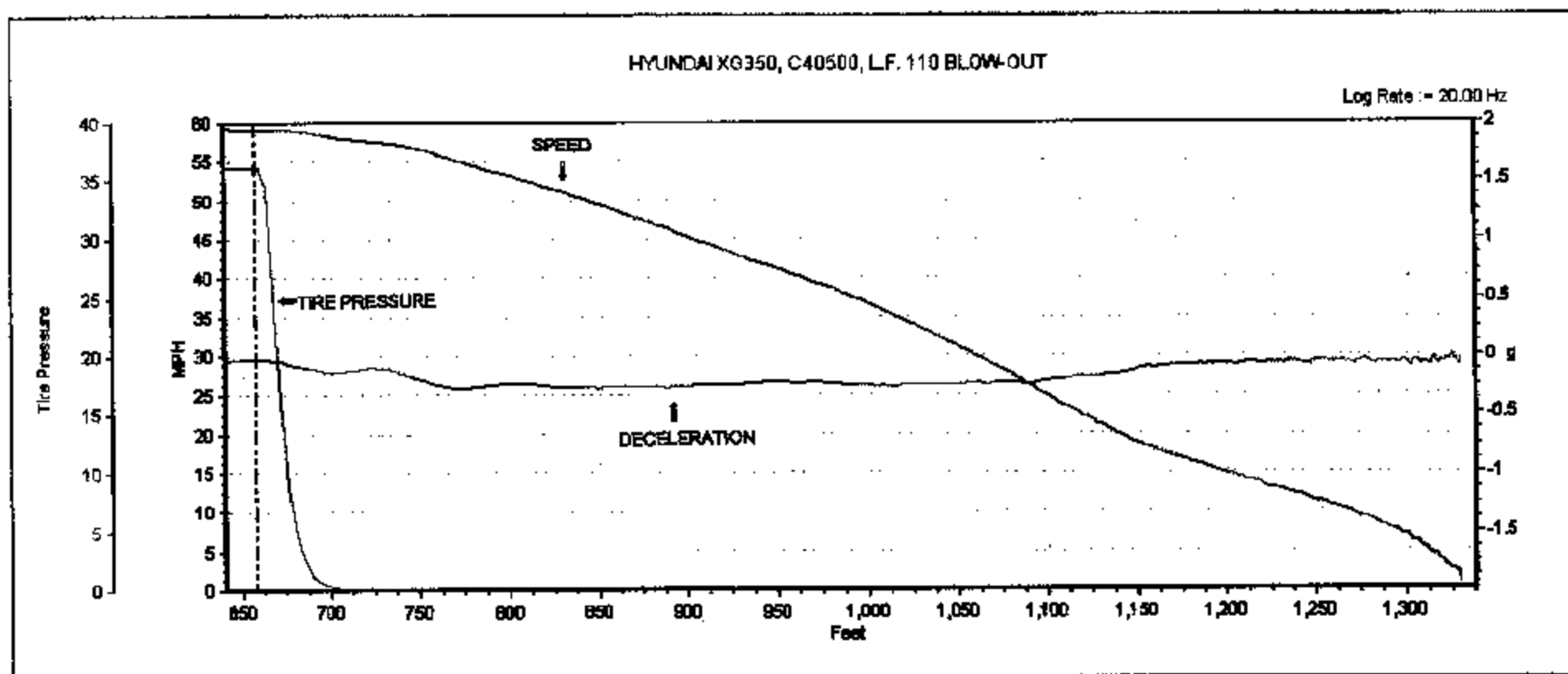
FIGURE 5.26
VEHICLE BALLASTED FOR CARGO



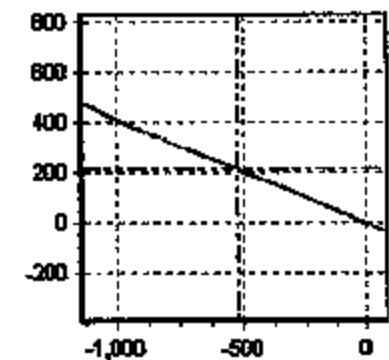
2004 HYUNDAI XG350
NHTSA NO. C40500
FMVSS NO. 110

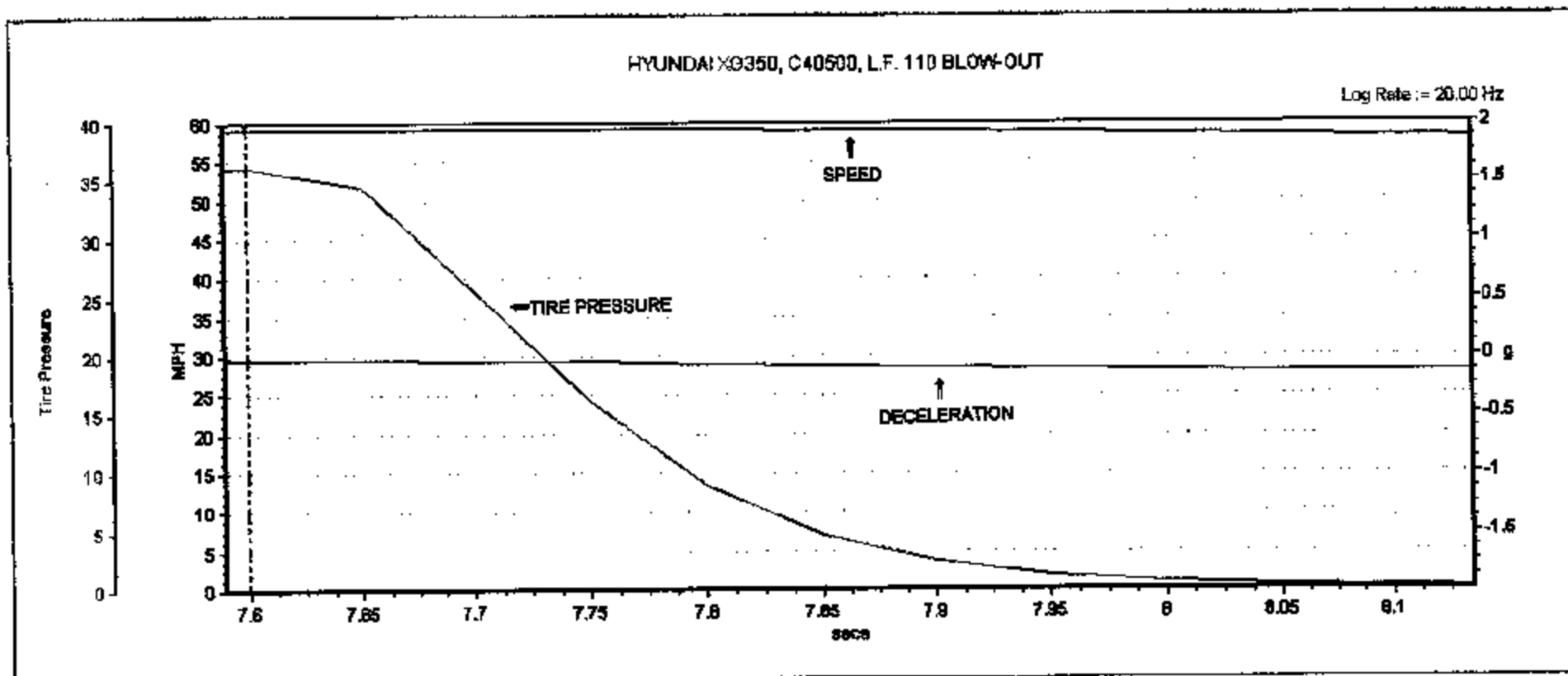
FIGURE 5.27
VIEW OF VEHICLE ON SCALES

SECTION 6
TEST PLOTS

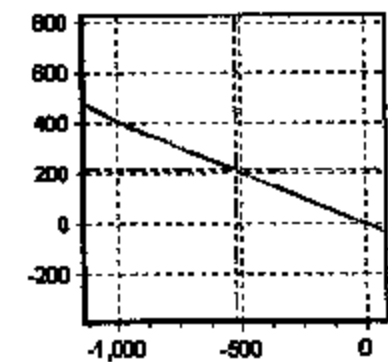


| | | | |
|-------------------------------|----------------------|--|--|
| | VBOX_001.VBO (run 1) | | |
| Run Time | 0 minute 30.30 secs | | |
| Cursor (Feet) | 656.79 | | |
| Speed (MPH) | 59.19 | | |
| Tire_Press (PSI) | 36.139 | | |
| Longitudinal Acceleration (g) | -0.026 | | |
| Lateral Acceleration (g) | -0.013 | | |
| Height (Feet) | -106.070 | | |
| Vertical Velocity (MPH) | 0.000 | | |
| Satellites (Number of) | 10 | | |

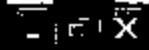




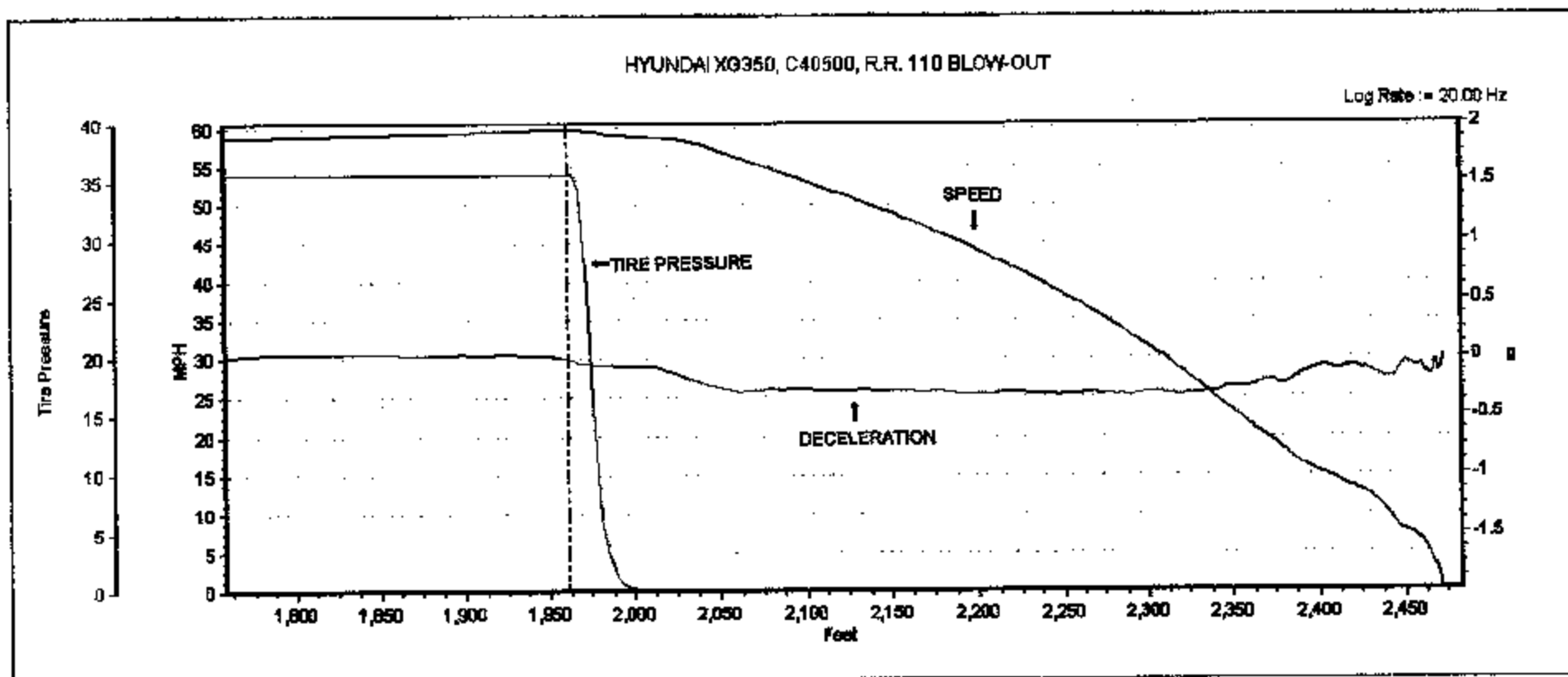
| | | | | |
|-------------------------------|----------------------|--|--|--|
| | VBOX_001.VBO (run 1) | | | |
| Run Time | 0 minute 30.30 secs | | | |
| Cursor (secs) | 7.59 | | | |
| Speed (MPH) | 59.18 | | | |
| Tire_Press (PSI) | 36.133 | | | |
| Longitudinal Acceleration (g) | -0.026 | | | |
| Lateral Acceleration (g) | -0.010 | | | |
| Height (Feet) | -106.070 | | | |
| Vertical Velocity (MPH) | 0.000 | | | |
| Satellites (Number of) | 10 | | | |



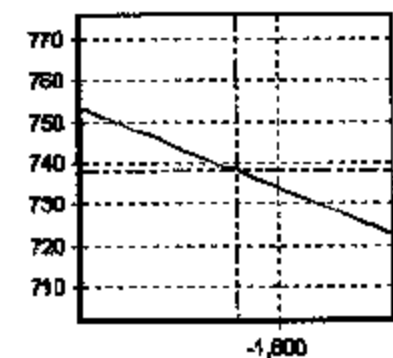
Speed Vs Distance Graph

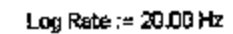


File Edit Smoothing Graph Type Select Run Graph Properties Start/Finish & Splits



| | | | | |
|-------------------------------|---------------------|--|--|--|
| | VBOX_001.VBO | | | |
| Run Time | 0 minute 47.50 secs | | | |
| Cursor (Feet) | 1960.55 | | | |
| Speed (MPH) | 59.65 | | | |
| Tire Press (PSI) | 35.601 | | | |
| Longitudinal Acceleration (g) | -0.023 | | | |
| Lateral Acceleration (g) | -0.004 | | | |
| Height (Feet) | -97.820 | | | |
| Vertical Velocity (MPH) | 0.000 | | | |
| Satellites (Number of) | 9 | | | |





| | | | | |
|-------------------------------|---------------------|--|--|--|
| | VBOX_001.VBO | | | |
| Run Time | 0 minute 47.50 secs | | | |
| Cursor (secs) | 31.19 | | | |
| Speed (MPH) | 59.68 | | | |
| Tire Press (PSI) | 35.590 | | | |
| Longitudinal Acceleration (g) | -0.034 | | | |
| Lateral Acceleration (g) | -0.006 | | | |
| Height (Feet) | -97.002 | | | |
| Vertical Velocity (MPH) | 0.000 | | | |
| Satellites (Number of) | 9 | | | |

