

637452

REPORT NUMBER 301L-GTL-04-005

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 301L
FUEL SYSTEM INTEGRITY**

**LANDROVER IN THE UK
2004 LANDROVER FREELANDER, MPV
NHTSA NO. C40602**

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



OCTOBER 4, 2004

FINAL REPORT

PREPARED FOR

**U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6118 (NVS-220)
WASHINGTON, D.C. 20590**

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10/04/04

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[Signature]

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10/18/04

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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2004 Landrover Frøelander MPV was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 301 testing to determine if the vehicle was in compliance with the requirements of the standard. The purpose of this standard is to reduce deaths and injuries occurring from fires that result from fuel spillage during and after motor vehicle crashes, and resulting from ingestion of fuels during siphoning.

- 1.1 The test vehicle was a 2004 Landrover Freeland MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: SALNY22254A [REDACTED]

B. NHTSA No.: C40602

C. Manufacturer: LANDROVER IN THE UK

D. Manufacture Date: 01/04

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 301 testing on September 22, 2004.

SECTION 2

COMPLIANCE TEST RESULTS SUMMARY

2.0 TEST RESULTS

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure, TP-301-02 dated 8 November 1994 and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-301-02, "Fuel System Integrity".

Based on the test performed, the 2004 Landrover Freelander MPV appears to meet the lateral impact requirements of FMVSS 301 testing.

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of testing on the 2004 Landrover Freelander.

SUMMARY OF RESULTS

Vehicle's NHTSA No.: C40602 Test Model: FREELANDER
Test Date.: 09/22/04 Time: 16:45 Temperature 78 ° F

Vehicle Model Year, Make, Model and Body Style:

2004 LANDROVER FREELANDER MPV

Vehicle Test Weight: 4108 lbs.; Impact Velocity: 19.7 mph

Type of Front Occupant Restraint System Installed in Test Vehicle:

Driver's DSP: TYPE 2 BELT WITH FRONTAL AIR BAG IN STEERING WHEEL

Right Passenger's DSP: TYPE 2 BELT WITH FRONTAL AIR BAG IN DASH

Stoddard solvent spillage from Vehicle's Fuel System: None

REMARKS:

RECORDED BY: *J. [Signature]*

DATE: 09/22/04

APPROVED BY: *D. [Signature]*

DATA SHEET 1 **TEST VEHICLE SPECIFICATIONS**

TEST VEHICLE INFORMATION:

NHTSA No.: C40602
 Year/Make/Model/Body Style: 2004 LANDROVER FREELANDER
 Engine Data: 2.5 LITER 174HP 24 VALVE ALUMINUM V6
 Transmission Data: 5 SPEED AUTOMATIC
 Final Drive Data: ALL WHEEL DRIVE
 Major Options: NONE
 Date Received: 09/13/04; Odometer Reading: 20 miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: LANDROVER IN THE UK
 Date of Manufacture: 01/04
 VIN: SALNY22254A
 GVWR: 2060 kg (4542 lbs.); GAWR Front: 1080 kg (2381 lbs.) GAWR Rear: 1120 kg (2469 lbs.)

DATA FROM VEHICLE'S TIRE PLACARD:

Location of Placard on Vehicle: DRIVER'S "B" PILLAR
 Tire Pressure With Maximum Capacity Vehicle Load —
 Front: 30 psi; Rear: 30 psi
 Recommended Tire Size: P195/80R15, P215/65R16, P225/55R17, P235/50R18
 Recommended Cold Tire Pressure: Front = 207 kPa (30 psi) Rear = 207 kPa (30 psi)
 Size of Tires on Test Vehicle: P215/65R16
 Type of Spare Tire: FULL SIZE P195/80R15

Vehicle Capacity Data —

Type of Front Seat(s): BUCKET
 Number of Occupants: Front = 2; Mid = 0 Rear = 3; Total = 5

A. VEHICLE CAPACITY WEIGHT (VCW) =	<u>950</u> lbs.
B. Number of Occupants x 150 lbs. =	<u>750</u> lbs.
RATED CARGO AND LUGGAGE WEIGHT (RCLW) = A - B =	<u>200</u> lbs.

RECORDED BY: [Signature]

DATE: 09/22/04

APPROVED BY: [Signature]

DATA SHEET 2 PRE-TEST DATA

WEIGHT OF TEST VEHICLE:

A. As Received At Laboratory (Maximum Fluids) —

Right Front = 474 kg (1045 lbs.) Right Rear = 347 kg (764 lbs.)

Left Front = 462 kg (1018 lbs.) Left Rear = 347 kg (765 lbs.)

TOTAL FRONT = 936 kg (2063 lbs.) TOTAL REAR = 694 kg (1529 lbs.)

% of TOTAL = 57 % % of TOTAL = 43 %

TOTAL DELIVERED WEIGHT = 1629 kg (3592 lbs.)

B. Calculation of Target Test Weight —

1. Total Delivered Weight = 1629 kg (3592 lbs.)

2. Rated Cargo & Lugg. Weight (RCLW) = 91 kg (200 lbs.)

3. Weight of 2 Dummies (164 lbs. each) = 149 kg (328 lbs.)

TARGET TEST WEIGHT = 1 + 2 + 3 = 1869 kg (4120 lbs.)

C. Vehicle, Dummies and 91 kg (200 lbs.) of Cargo Weight —

Right Front = 505 kg (1113 lbs) Right Rear = 430 kg (948 lbs)

Left Front = 493 kg (1087 lbs) Left Rear = 435 kg (960 lbs)

TOTAL FRONT = 998 kg (2200 lbs) TOTAL REAR = 865 kg (1908 lbs)

% of TOTAL = 54 % % of TOTAL = 46 %

TOTAL TEST WEIGHT = 1863 kg (4108 lbs)

Weight of Ballast secured in cargo area = 110 kg (243 lbs)

Type of Ballast: SALT BAGS

Method of Securing Ballast: VEHICLE SEAT BELTS

Vehicle Components Removed for Weight Reduction:

NONE

DATA SHEET 2 **PRE-TEST DATA CONTINUED**

TEST VEHICLE ATTITUDE:

As Delivered — Right Front: 792 mm (31.2 inches)
 Left Front: 790 mm (31.1 inches)
 Right Rear: 803 mm (31.6 inches)
 Left Rear: 800 mm (31.5 inches)

As Tested — Right Front: 785 mm (30.9 inches)
 Left Front: 782 mm (30.8 inches)
 Right Rear: 767 mm (30.2 inches)
 Left Rear: 762 mm (30.0 inches)

Vehicle's Wheelbase = 2557 mm (101 inches)

FUEL SYSTEM DATA:

Fuel System Capacity Listed in Owner's Manual = 64 liters (16.9 gallons)
 Usable Capacity Figure Furnished By COTR = 64 liters (16.9 gallons)

Test Volume Range (91 to 94% of Usable Capacity) —

58 liters (15.4 gallons) TO 60 liters (15.9 gallons)

ACTUAL TEST VOLUME = 59 liters (15.6 gallons) (with entire fuel system filled)

Test Fluid Type: Stoddard solvent

Test Fluid Specific Gravity: .7583

Test Fluid Kinematic Viscosity: 1.7 centistokes at 77° F

Test Fluid Color: BLUE ("red" is preferred)

Type of Vehicle Fuel Pump: ELECTRIC

Electric Fuel Pump Operation with Ignition Switch ON and Engine OFF —
YES

Details of Fuel System: HIGH PRESSURE ELECTRIC FUEL PUMP
SUPPLY TO FUEL INJECTORS WITH LOW PRESSURE RETURN LINE
TO FUEL TANK.

REMARKS:

RECORDED BY: [Signature]

DATE: 09/22/04

APPROVED BY: [Signature]

DATA SHEET 3
POST IMPACT DATA

TYPE OF TEST: 301L
TEST DATE: 09/22/04 ; TIME: 16:45 ; TEMP.: 78 °F
VEH. NHTSA NO.: C40802 ; VIN: SALNY22254A

REQUIRED IMPACT VELOCITY RANGE: 18.9 to 19.9 mph

ACTUAL IMPACT VELOCITY: (speed traps located within 5 feet of impact plane)

Trap No. 1 = 19.7 mph Trap No. 2 = 19.7 mph
Average Impact Speed = 19.7 mph

REMARKS:

RECORDED BY: [Signature]

DATE: 09/22/04

APPROVED BY: [Signature]

DATA SHEET 4
SUMMARY OF FMVSS 301 DATA

TEST VEHICLE NHTSA NO.: C40602 ; TEST DATE: 09/22/04

VEHICLE YEAR/MAKE/MODEL/BODY STYLE:
2004 LANDROVER FREELANDER MPV

TYPE OF IMPACT: 301L

STODDARD SOLVENT SPILLAGE MEASUREMENT:

A. From impact until vehicle motion ceases —

Actual = 0 oz. Maximum Allowable = 1 ounce

B. For 5 minute period after vehicle motion ceases —

Actual = 0 oz. Maximum Allowable = 5 ounces

C. For next 25 minutes —

Actual = 0 oz. Maximum Allowable = 1 oz./minute

D. Provide Spillage Details: NONE

REMARKS:

RECORDED BY: *[Signature]*

DATE: 09/22/04

APPROVED BY: *[Signature]*

DATA SHEET 5 **STATIC ROLLOVER TEST DATA:**

A. Test Phase = 0° to 90°

Determination of Stoddard Solvent
Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1
minutes, 35 seconds

(Specified Range Is 1 to 3
minutes)

2. FMVSS 301 Position Hold
Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 35 seconds

4. NEXT WHOLE MINUTE INTERVAL =
7 minutes

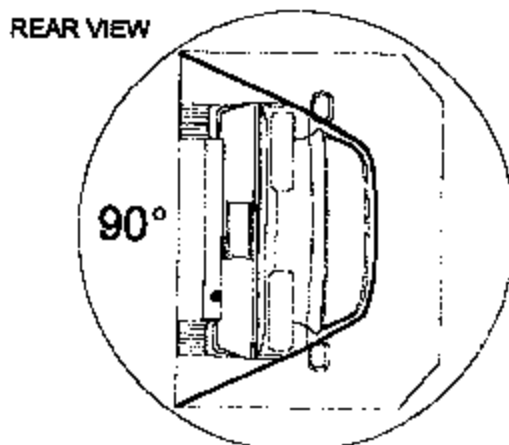
Actual Test Vehicle Stoddard Solvent
Spillage:

1. First 5 minutes from onset of
rotation = 0 oz.
(5 oz. allowed)

2. 6th minute = 0 oz.
(1 oz. allowed)

3. 7th minute = 0 oz.
(1 oz. allowed)

4. 8th minute (If required) = N/A oz. (1 oz. allowed)



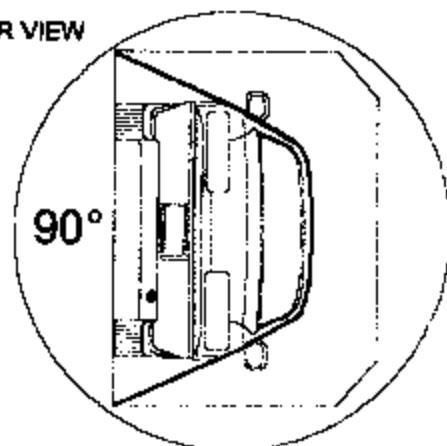
Provide Details of Stoddard Solvent Spillage Locations — NONE

DATA SHEET 5 CONTINUED

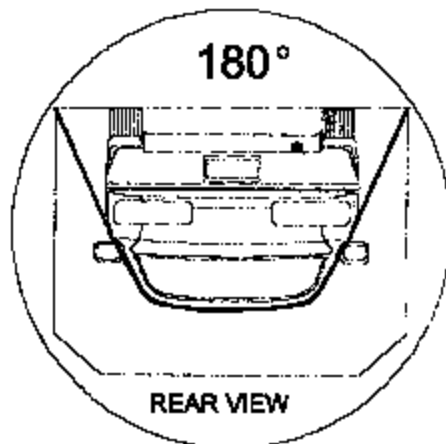
B. Test Phase = 90° to 180°

Determination of Stoddard
Solvent Collection Time Period:1. Rollover Fixture 90°
Rotation Time = 1 minutes,
35 seconds(Specified Range is 1 to 3
minutes)2. FMVSS 301 Position Hold
Time = 5 minutes, 0 seconds3. TOTAL = 6 minutes, 35 seconds4. NEXT WHOLE MINUTE INTERVAL =
7 minutesActual Test Vehicle Stoddard
Solvent Spillage:1. First 5 minutes from onset of
rotation = 0 oz.
(5 oz. allowed)2. 6th minute = 0 oz.
(1 oz. allowed)3. 7th minute = 0 oz.
(1 oz. allowed)4. 8th minute (if required) = N/A oz. (1 oz. allowed)Provide Details of Stoddard Solvent Spillage Locations — NONE

REAR VIEW



180°

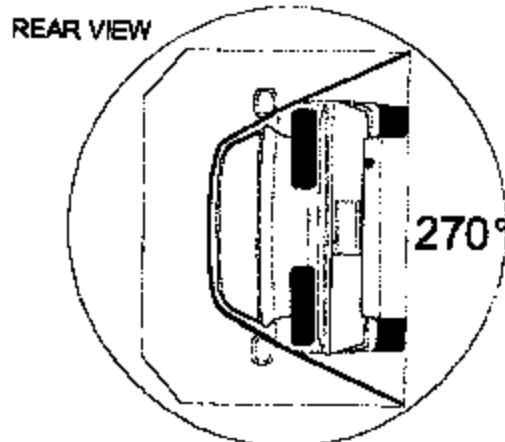
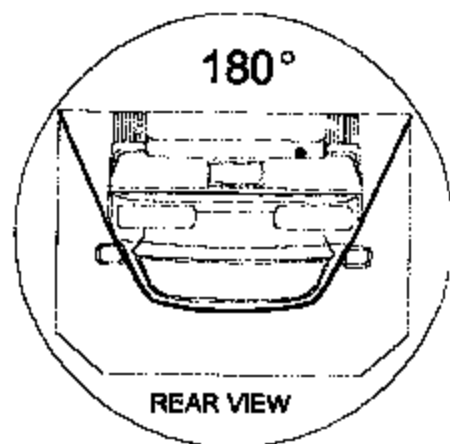


DATA SHEET 5 CONTINUED

C. Test Phase = 180° to 270°

Determination of Stoddard
Solvent Collection Time Period:

1. Rollover Fixture 90°

Rotation Time = 1 minutes,
22 seconds(Specified Range Is 1 to 3
minutes)2. FMVSS 301 Position Hold
Time = 5 minutes, 0 seconds3. TOTAL = 6 minutes, 22 seconds4. NEXT WHOLE MINUTE
INTERVAL = 7 minutesActual Test Vehicle Stoddard
Solvent Spillage:1. First 5 minutes from onset of
rotation = 0 oz.
(5 oz. allowed)2. 6th minute = 0 oz.
(1 oz. allowed)3. 7th minute = 0 oz.
(1 oz. allowed)4. 8th minute (if required) = N/A oz. (1 oz. allowed)Provide Details of Stoddard Solvent Spillage Locations — NONE

DATA SHEET 5 CONTINUED

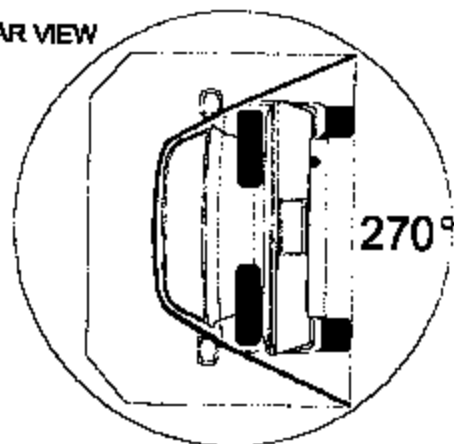
D. Test Phase = 270° to 360°

Determination of Stoddard
Solvent Collection Time Period:

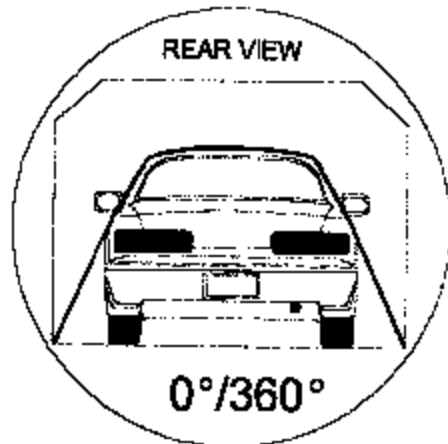
1. Rollover Fixture 90°

Rotation Time = 1 minutes,
44 seconds(Specified Range Is 1 to 3
minutes)2. FMVSS 301 Position Hold
Time = 5 minutes, 0 seconds3. TOTAL = 6 minutes, 44 seconds4. NEXT WHOLE MINUTE INTERVAL =
7 minutesActual Test Vehicle Stoddard
Solvent Spillage:1. First 5 minutes from onset of
rotation = 0 oz.
(5 oz. allowed)2. 6th minute = 0 oz.
(1 oz. allowed)3. 7th minute = 0 oz.
(1 oz. allowed)4. 8th minute (if required) = N/A oz. (1 oz. allowed)Provide Details of Stoddard Solvent Spillage Locations — NONE

REAR VIEW



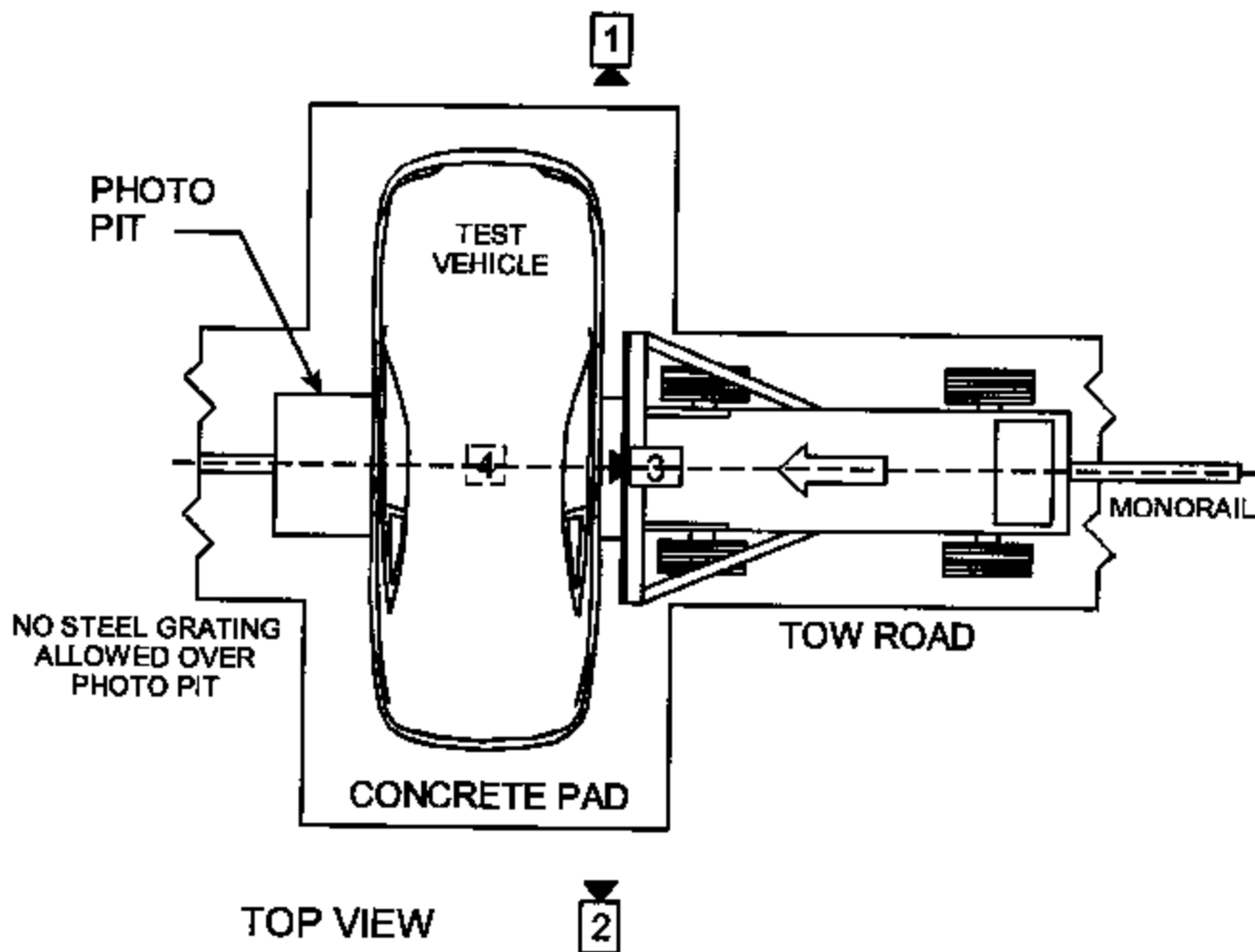
REAR VIEW



DATA SHEET 6 CAMERA LOCATION

VEHICLE NHTSA NO.: C40602

TEST DATE: 09/22/04



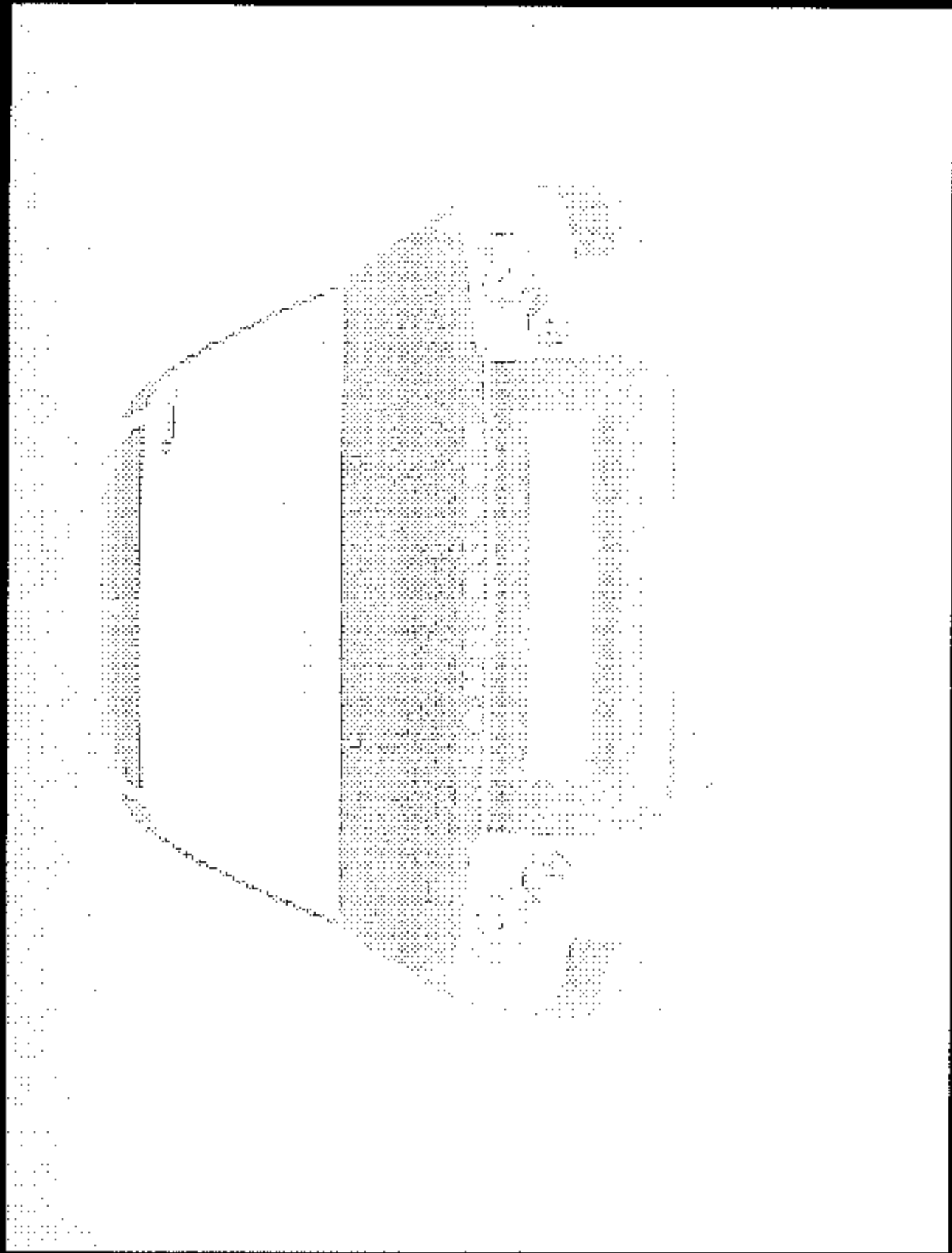
- CAMERA 1 – FRONT SIDE VIEW OF VEHICLE DURING CRASH
- CAMERA 2 – REAR SIDE VIEW OF VEHICLE DURING CRASH
- CAMERA 3 – OVERHEAD VIEW OF ENTIRE IMPACT
- CAMERA 4 – UNDERBODY VIEW OF FUEL TANK LOCATED IN PIT

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

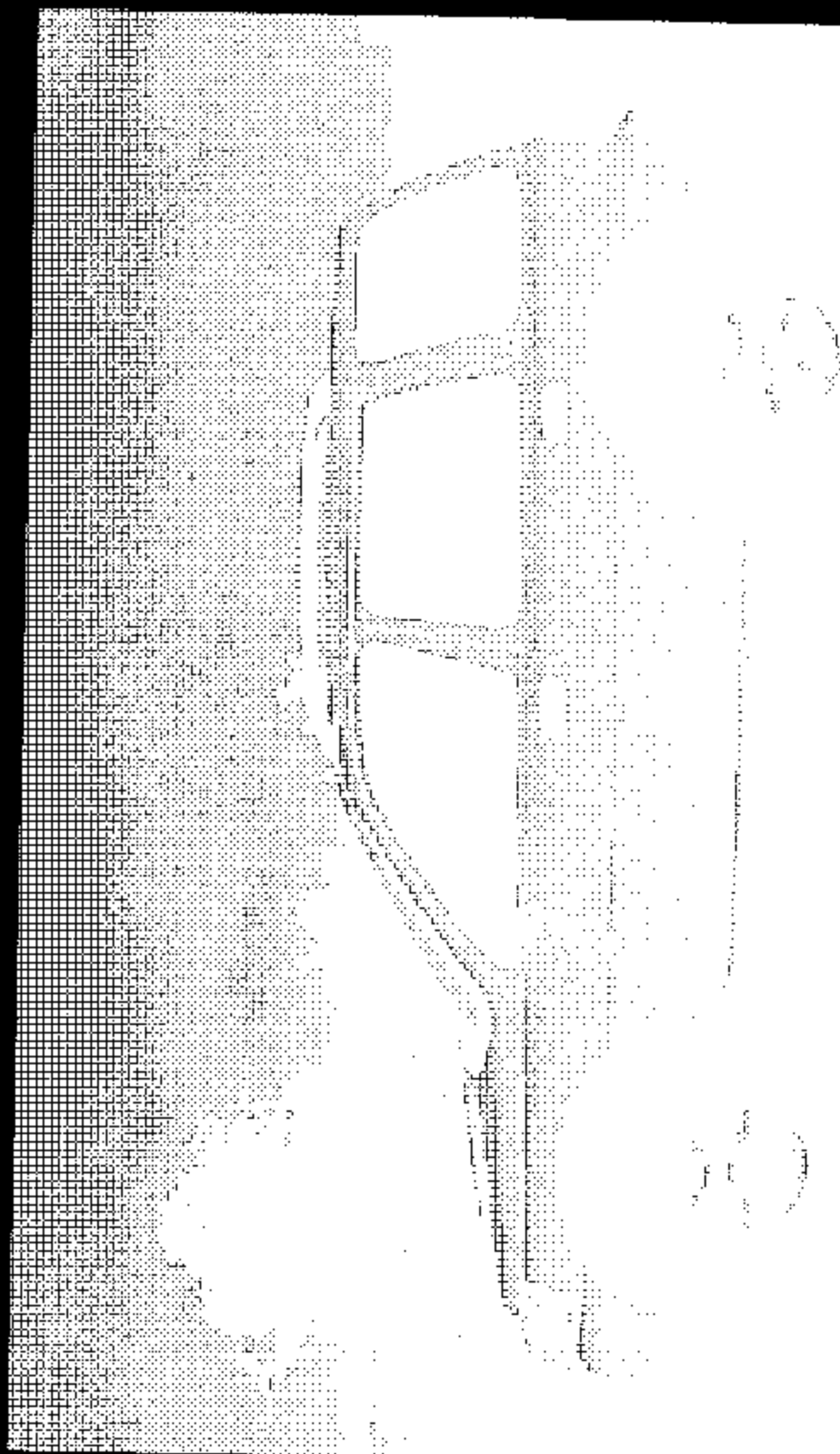
EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
COUNTER/TIMER	RACAL-DANA	994343	07/04	07/05
COUNTER/TIMER	SYSTRON DONNER	19 353- 116	07/04	07/05
SPEED TRAP 2	GTL ST1	N/A	09/04	09/05
SPEED TRAP 3	GTL ST2	N/A	09/04	09/05
STOP WATCH	ACCUSPLIT	ACT 1 A&B	07/04	07/05
STOP WATCH	ACCUSPLIT	ACT 2 A&B	07/04	07/05
SCALES	INTERCOMP	199744	07/04	07/05
TIRE PRESSURE GAUGE	WEKSLER	0-100	01/04	02/05
STEEL SCALES	STARRETT	C416R	01/04	02/05
STEEL TAPE	STANLEY	GF2	01/04	02/05
LEVEL	STANLEY	42-449	01/04	02/05
TEMP. INDICATOR	OMEGA	B/5562/14/1	03/04	03/05
TEMP. RECORDER	OMEGA	B/5562/14/1	03/04	03/05

SECTION 5
PHOTOGRAPHS



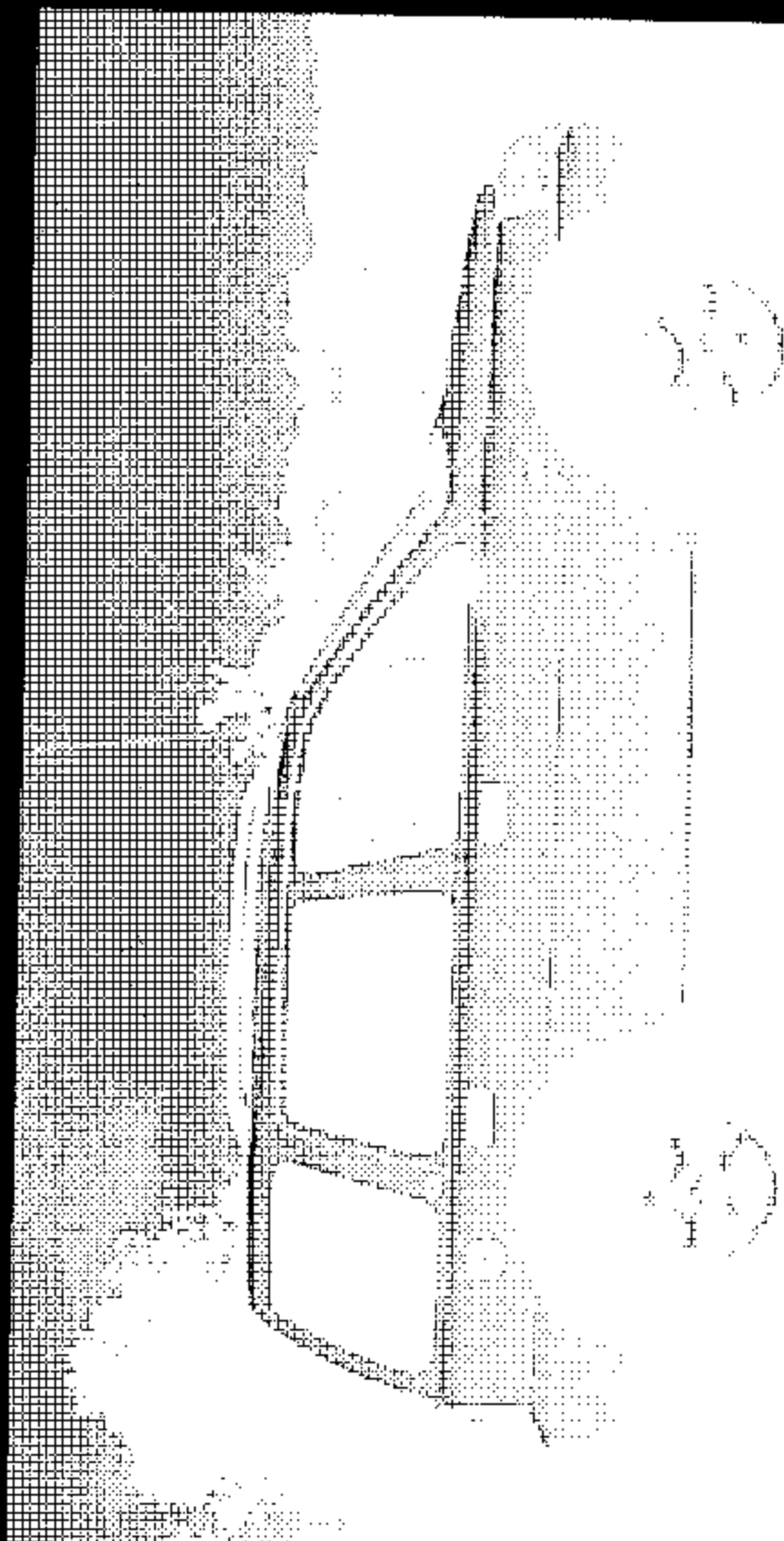
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.1
FRONT VIEW OF VEHICLE PRE-TEST



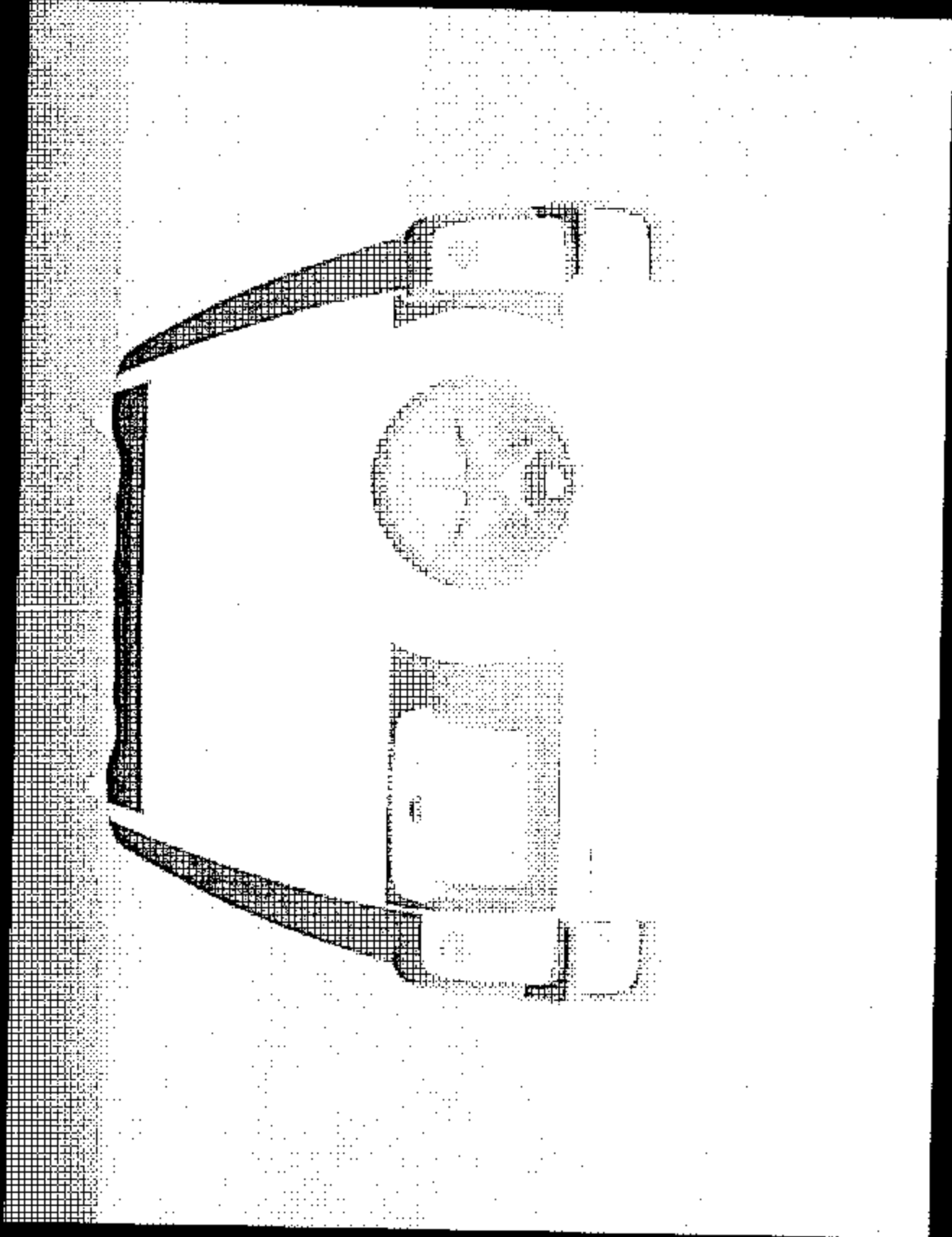
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.2
LEFT SIDE VIEW OF VEHICLE PRE-TEST



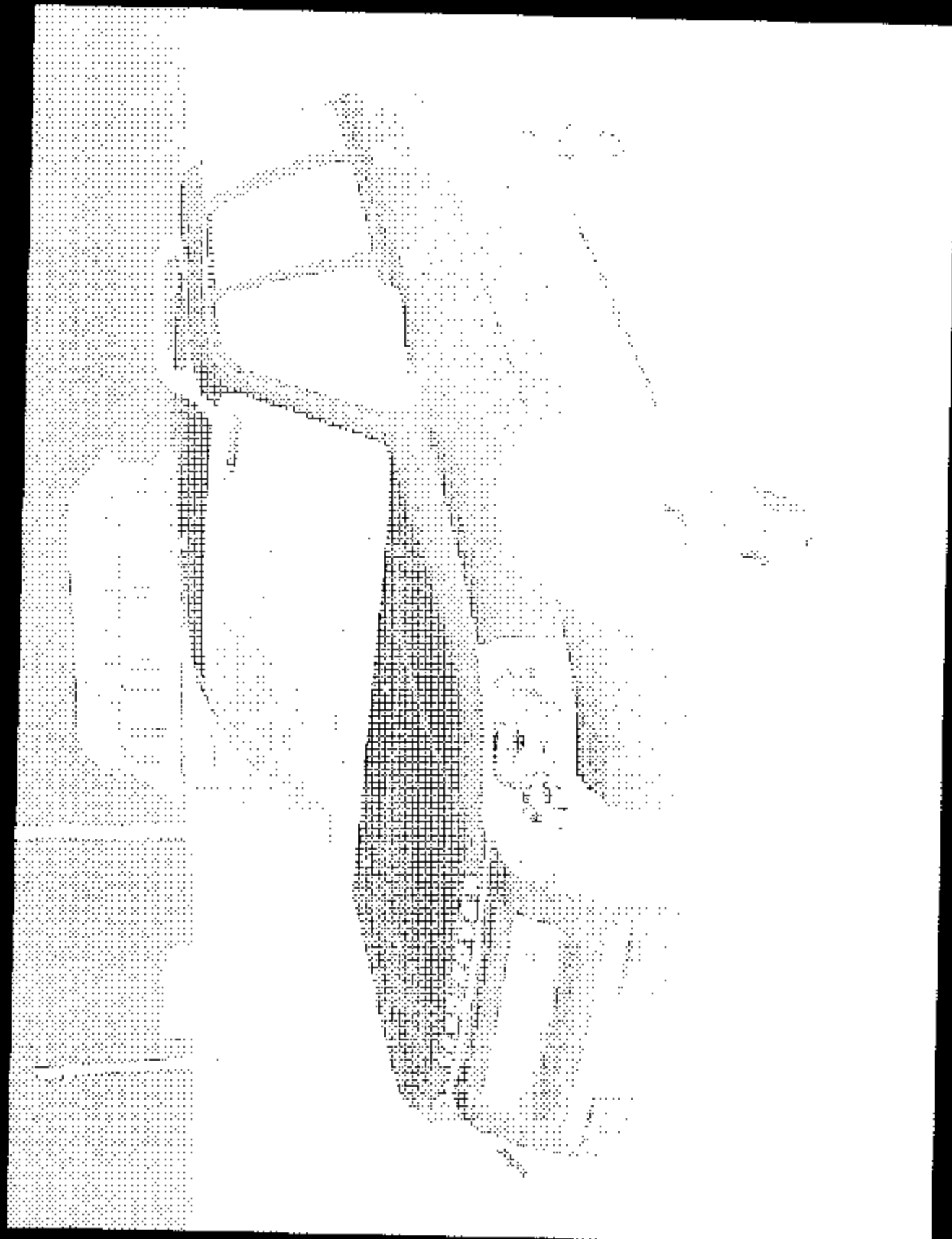
2004 LAND ROVER FREELANDER
NHTSA NO. C40802
FMVSS NO. 301L

FIGURE 5.3
RIGHT SIDE VIEW OF VEHICLE PRE-TEST



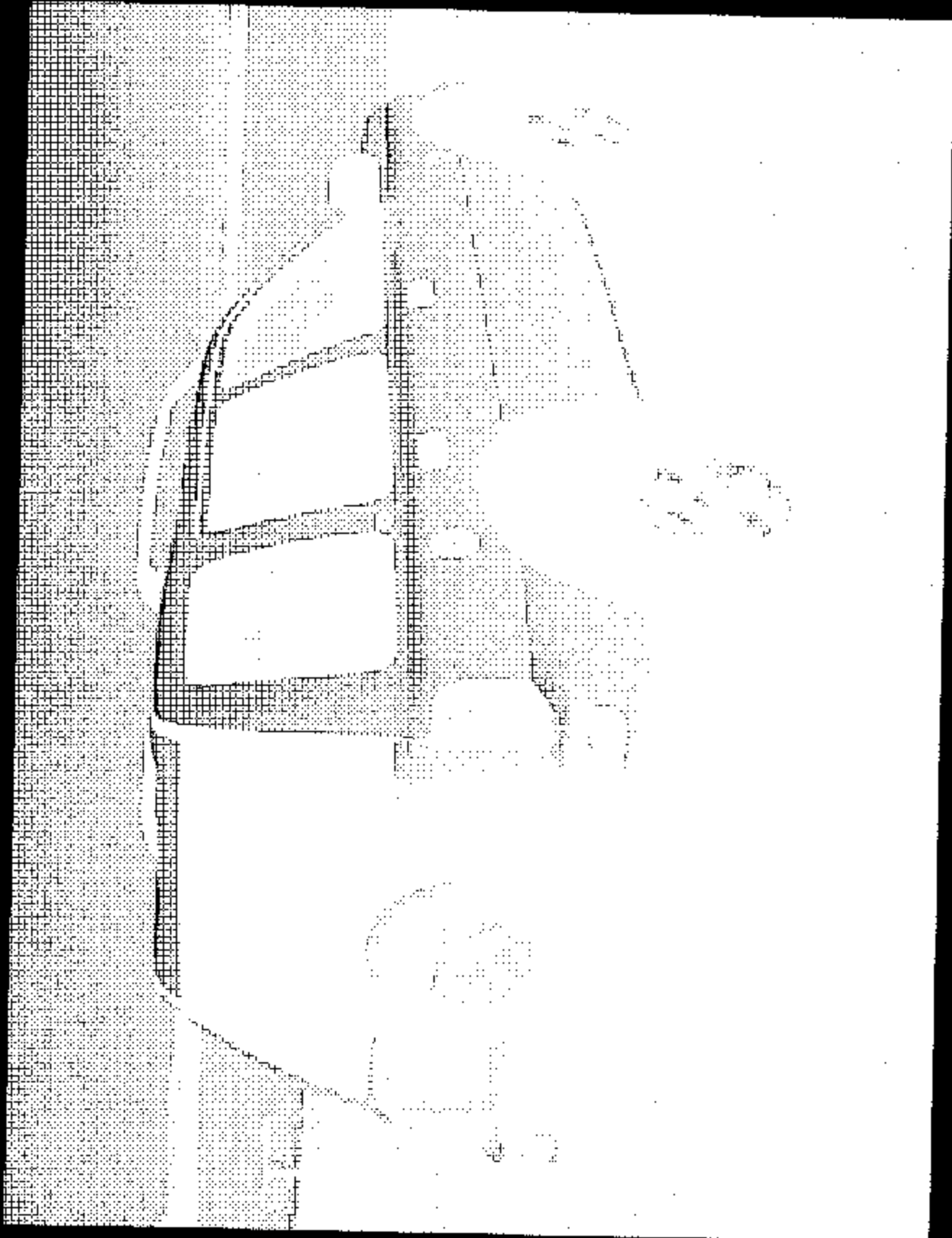
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.4
REAR VIEW OF VEHICLE PRE-TEST



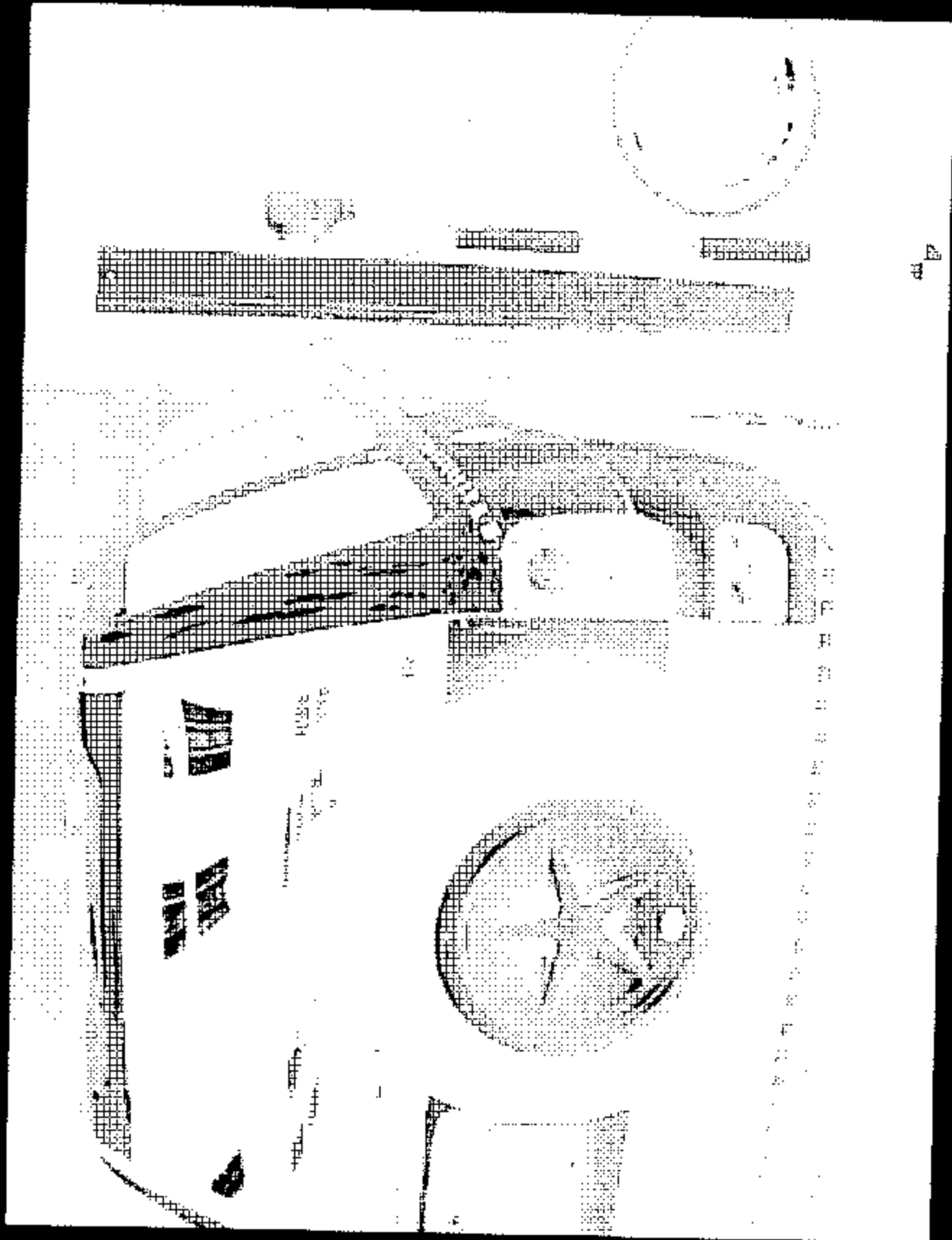
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.5
%FRONTAL VIEW FROM LEFT SIDE OF
VEHICLE PRE-TEST



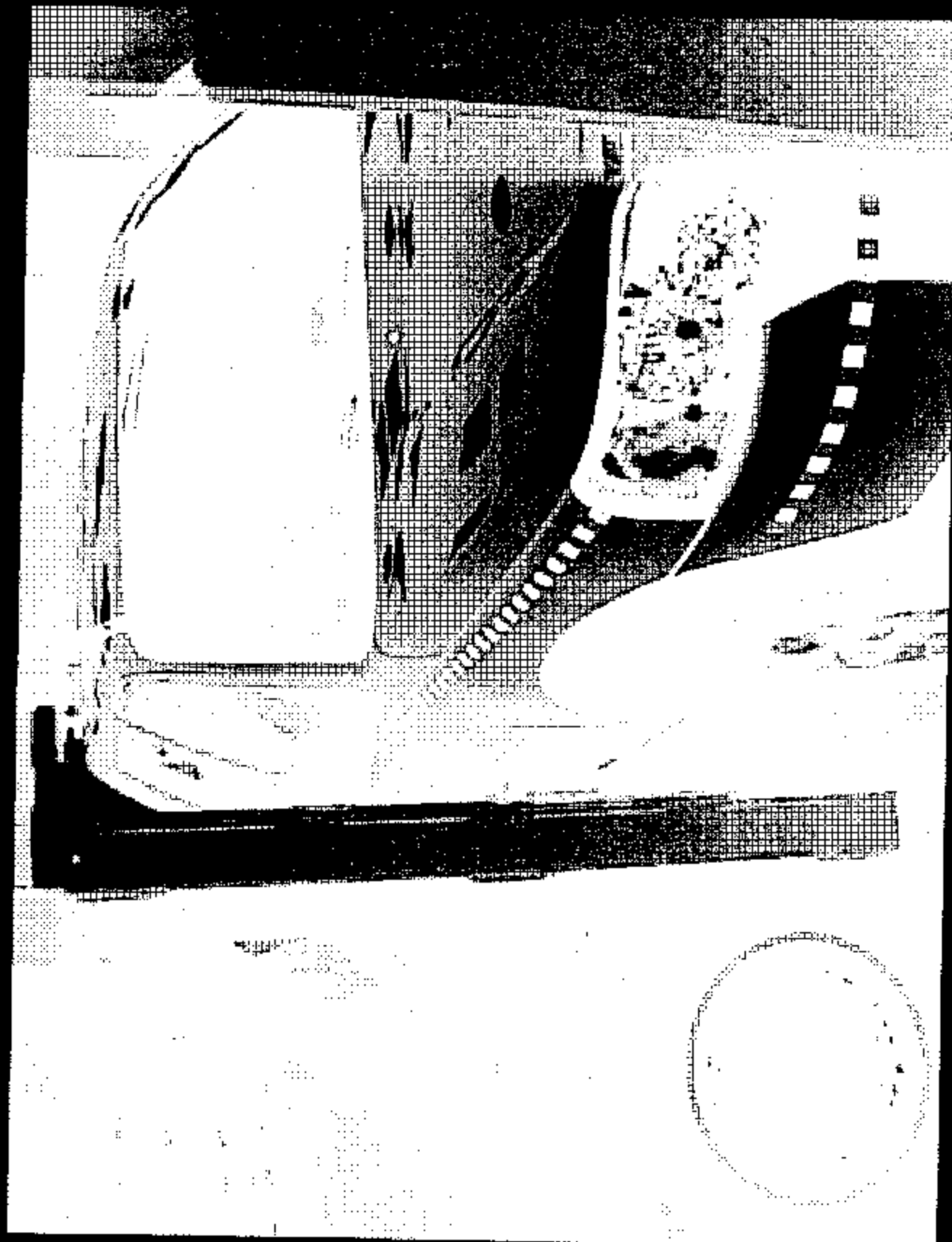
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.6
¾ REAR VIEW FROM RIGHT SIDE FO VEHICLE
PRE-TEST



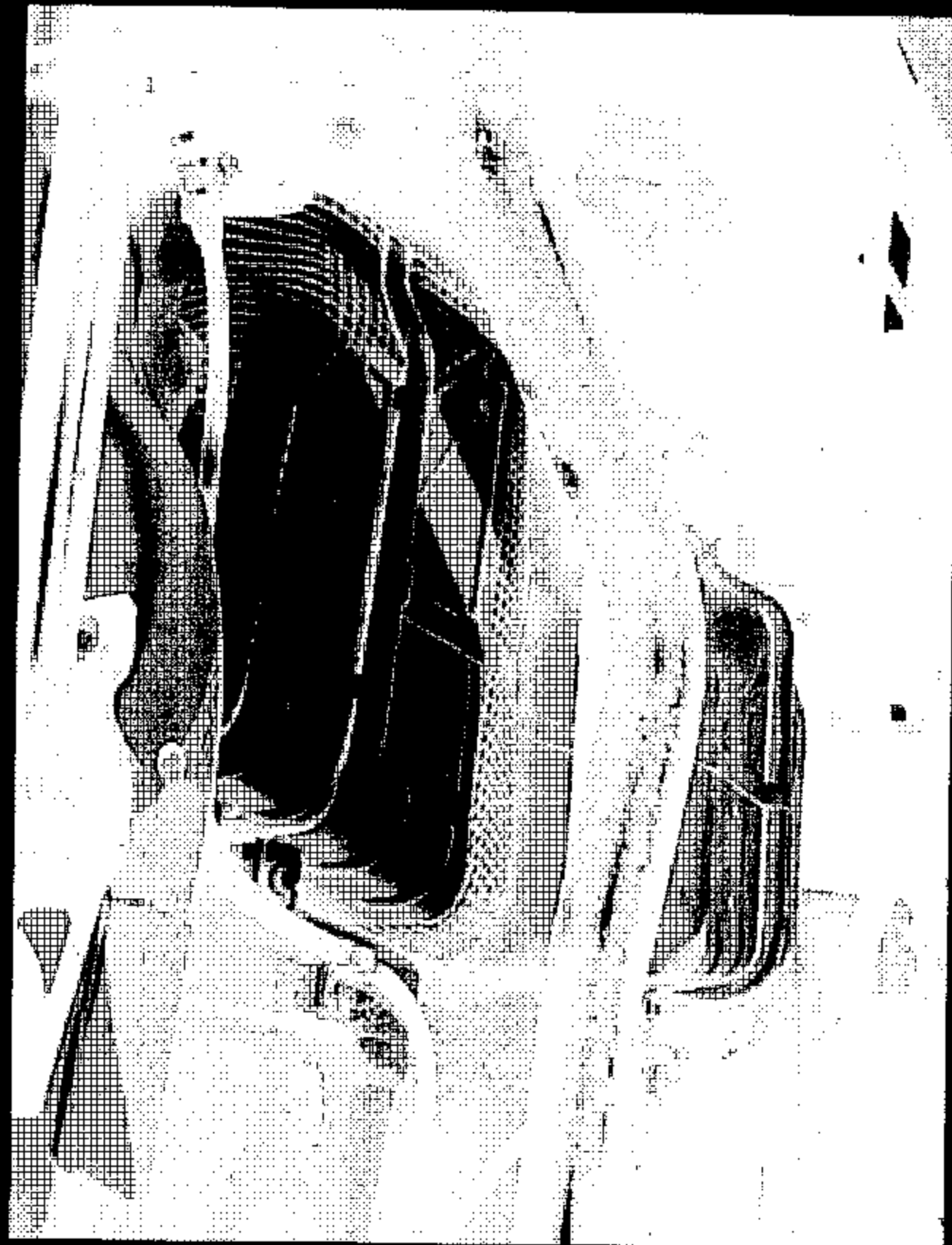
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.7
LEFT VIEW OF VEHICLE/BARRIER PRE-TEST



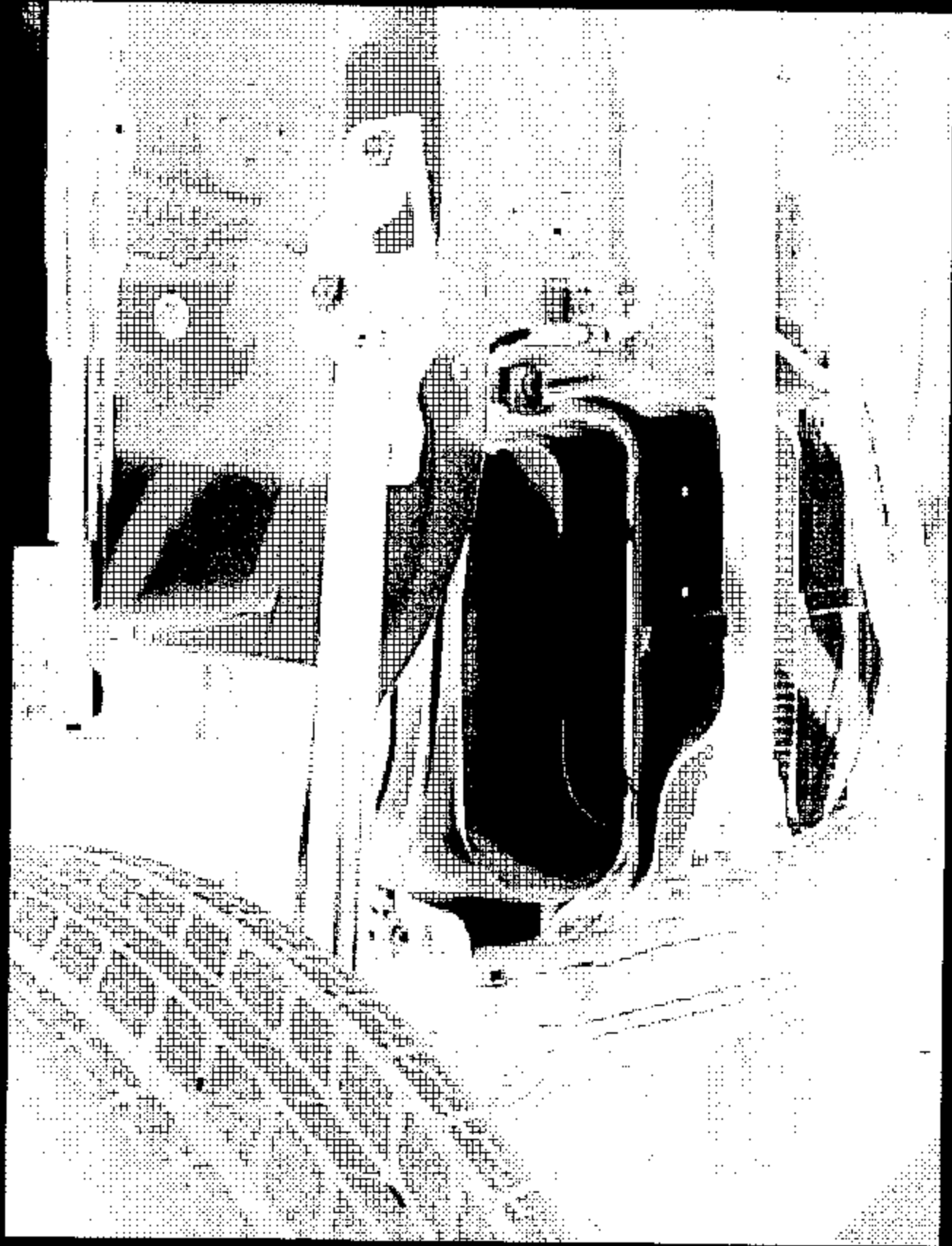
2004 LAND ROVER FREELANDER
NHTSA NO. C40802
FMVSS NO. 301L

FIGURE 5.8
RIGHT VIEW OF VEHICLE/BARRIER PRE-TEST



2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.9
UNDERBODY VIEW OF FUEL TANK RIGHT VIEW
PRE-TEST



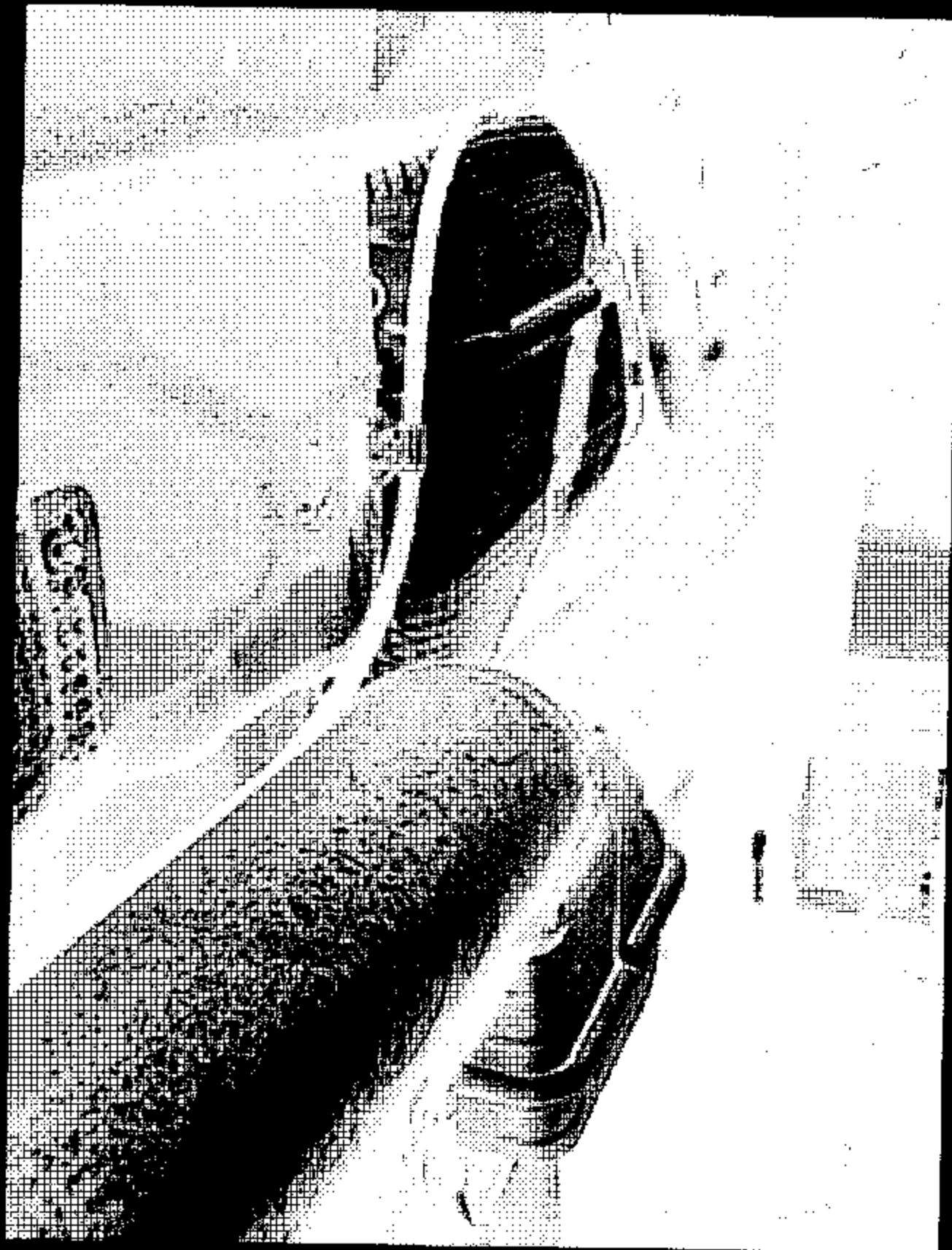
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.10
UNDERBODY VIEW OF FUEL TANK LEFT VIEW
PRE-TEST



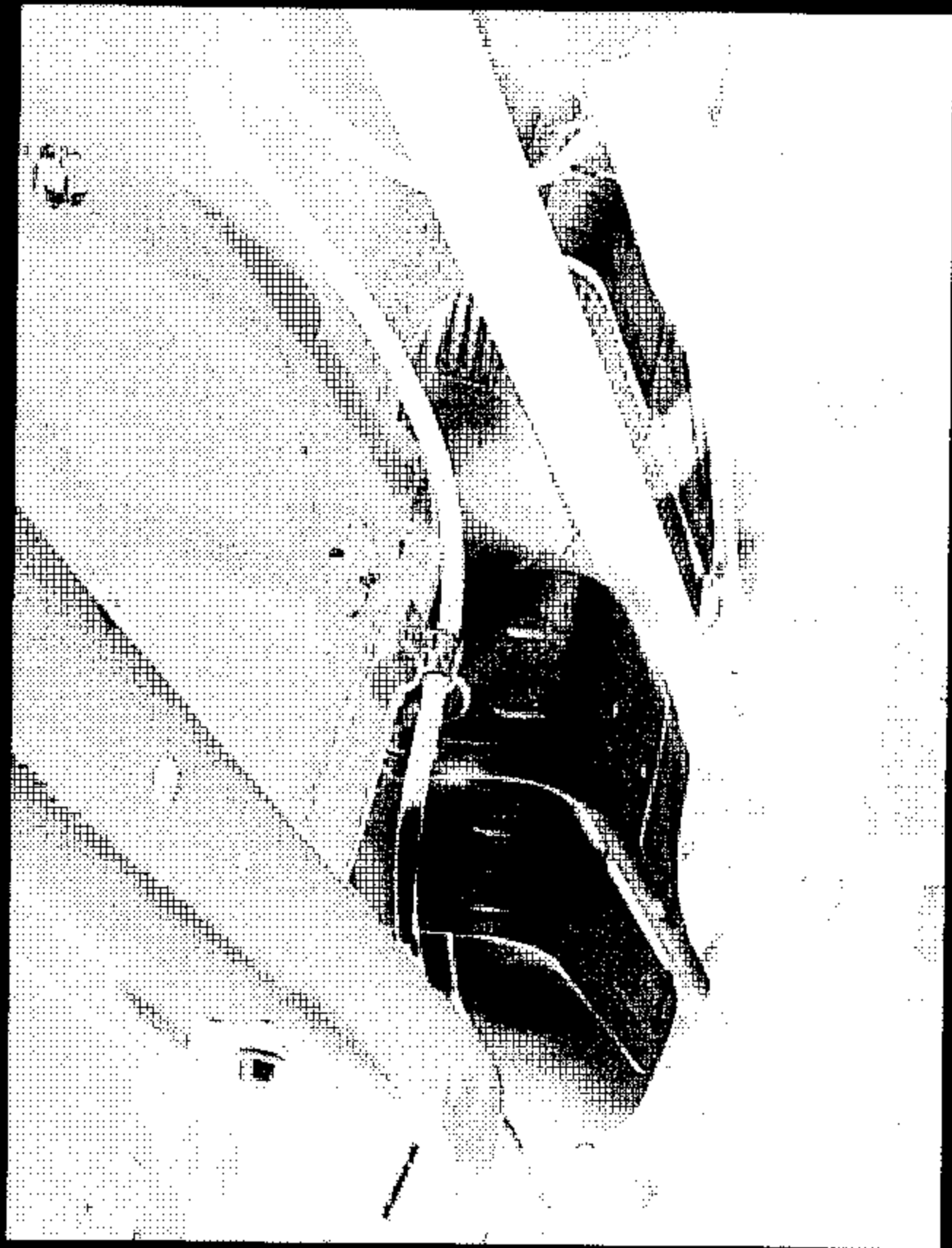
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.11
UNDERBODY VIEW OF FUEL TANK $\frac{3}{4}$ RIGHT
REAR VIEW PRE-TEST



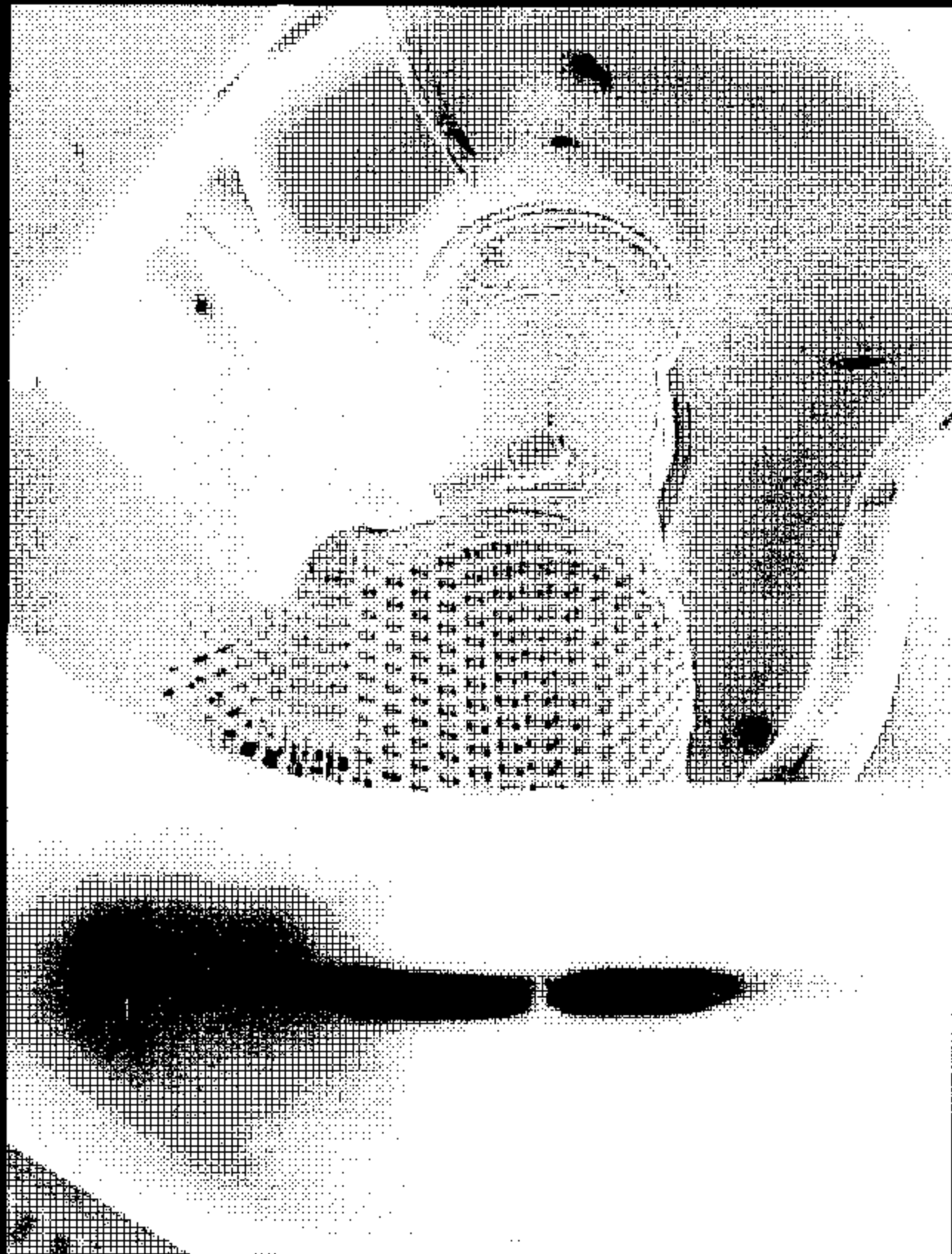
2004 LAND ROVER FREELANDER
NHTSA NO. C40802
FMVSS NO. 301L

FIGURE 5.12
UNDERBODY VIEW OF FUEL TANK ¾ LEFT
FRONT VIEW PRE-TEST



2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.13
UNDERBODY VIEW OF FUEL TANK ¾ RIGHT
FRONT VIEW PRE-TEST

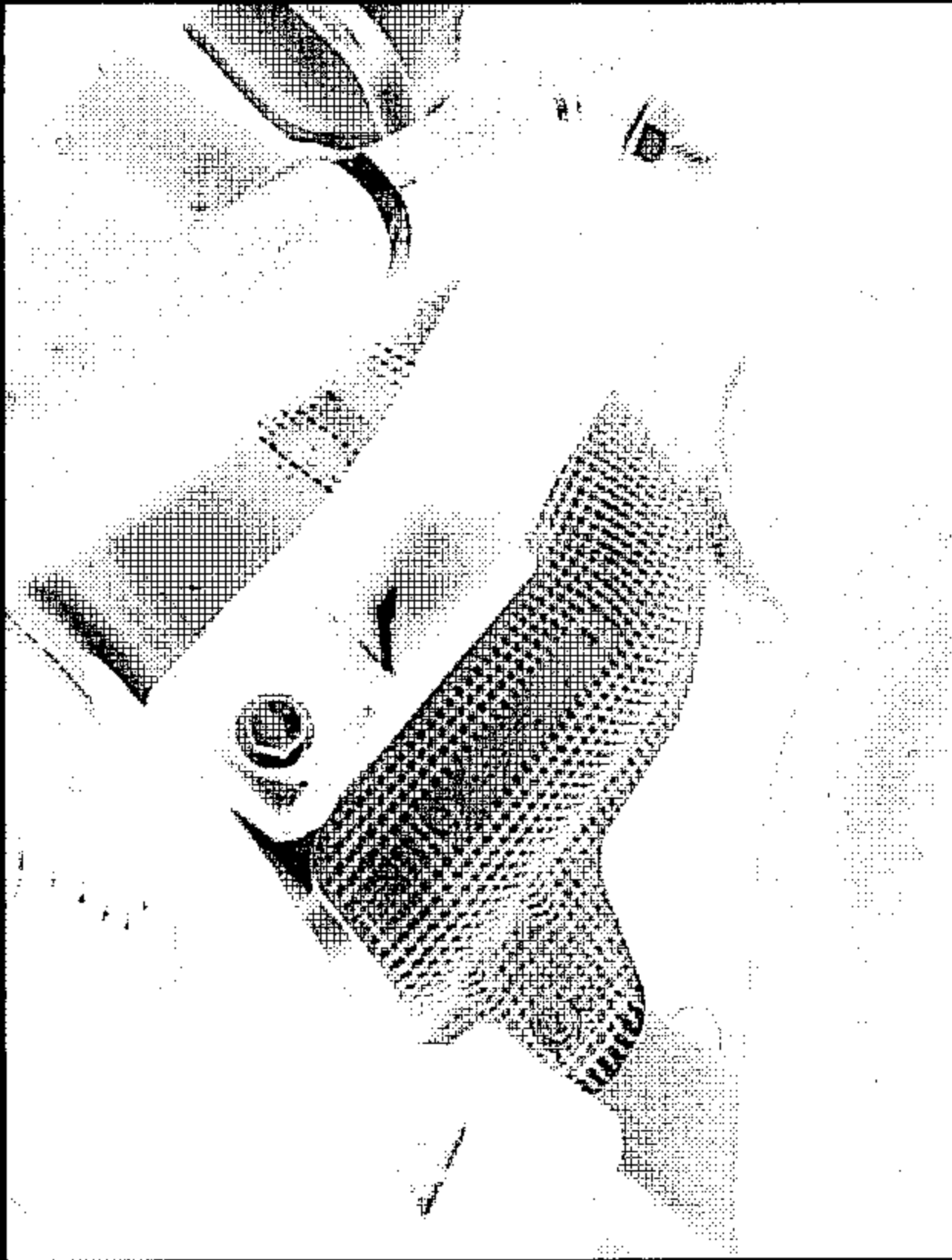


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FIGURE 5.14
UNDERBODY VIEW OF FUEL FILL HOSE AT
TANK PRE-TEST

FIGURE 5.15
UNDERBODY VIEW OF FUEL FILL HOSE
PRE-TEST

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FIGURE 5.16
UNDERBODY VIEW OF FUEL LINES AT TANK
PRE-TEST



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FIGURE 6.17
UNDERBODY VIEW OF FUEL LINES AT REAR
PRE-TEST



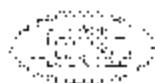
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FIGURE 5.18
UNDERBODY VIEW OF FUEL LINES AT FRONT
PRE-TEST



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FIGURE 5.19
UNDERBODY VIEW OF FUEL LINES TO ENGINE
PRE-TEST



BUILT BY LAND ROVER IN THE UK

DATE: 04/04 GVWR: 2060KG (4542LB)

GVW FRONT: 1030KG 2281LB

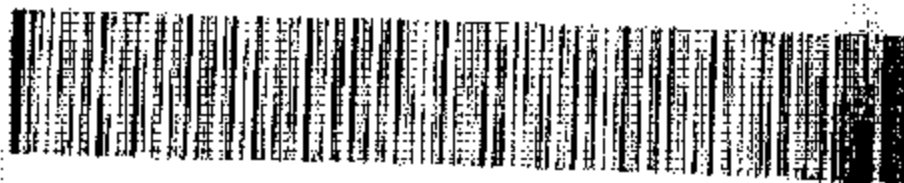
195/65R15 TIRES, 5.50X15 RIMS, AT 207KPA (30PSI) COLD
215/65R16 TIRES, 6.00X16 RIMS, AT 207KPA (30PSI) COLD
225/55R17 TIRES, 7.00X17 RIMS, AT 207KPA (30PSI) COLD
235/50R18 TIRES, 7.00X18 RIMS, AT 207KPA (30PSI) COLD

GVW REAR: 1120KG 2469LB

195/65R15 TIRES, 5.50X15 RIMS, AT 207KPA (30PSI) COLD
215/65R16 TIRES, 6.00X16 RIMS, AT 207KPA (30PSI) COLD
225/55R17 TIRES, 7.00X17 RIMS, AT 207KPA (30PSI) COLD
235/50R18 TIRES, 7.00X18 RIMS, AT 207KPA (30PSI) COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE
US FEDERAL VEHICLE MOTOR SAFETY AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

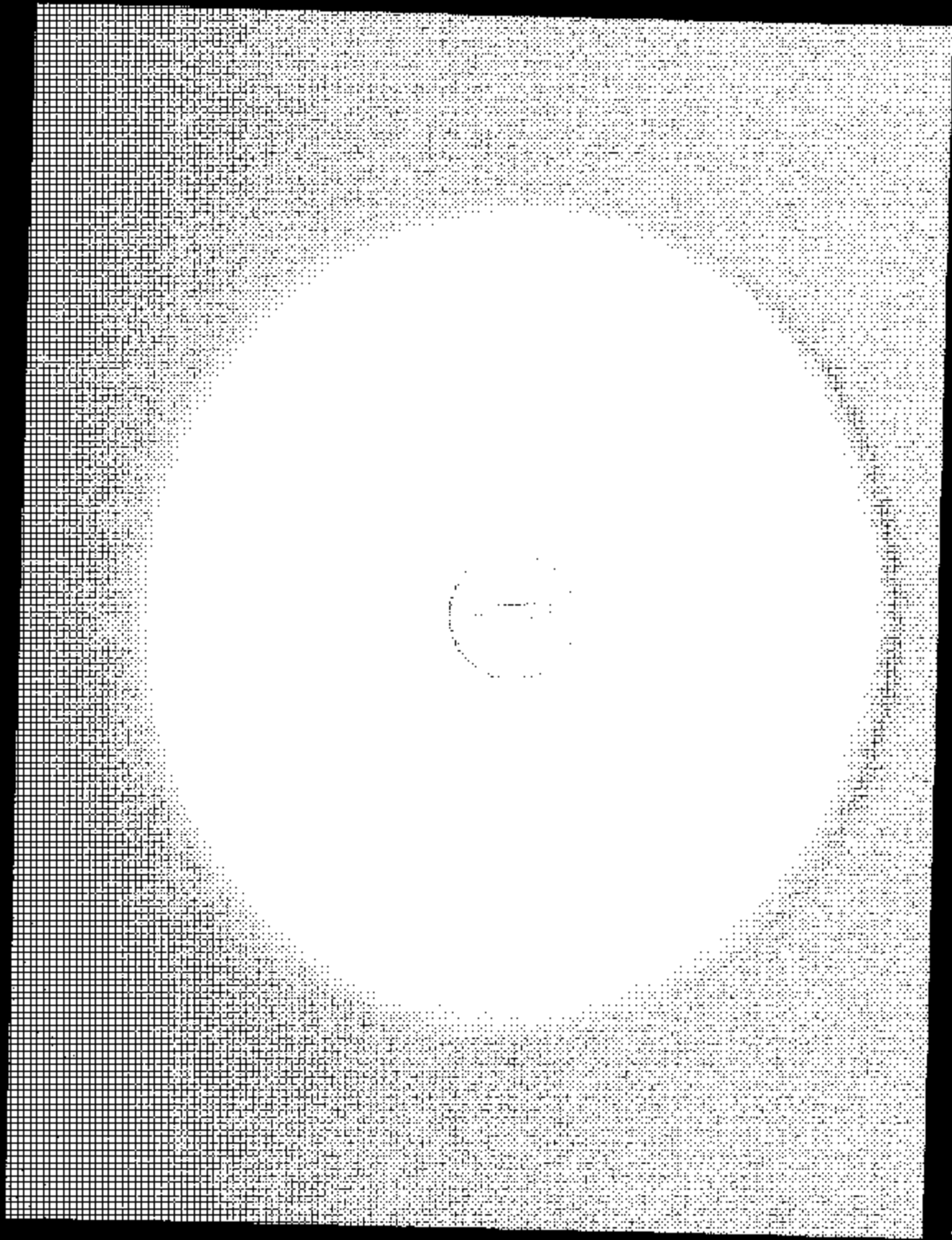
SALNY22254A



TYPE: MPV PAINT: 603 TRIM: TV

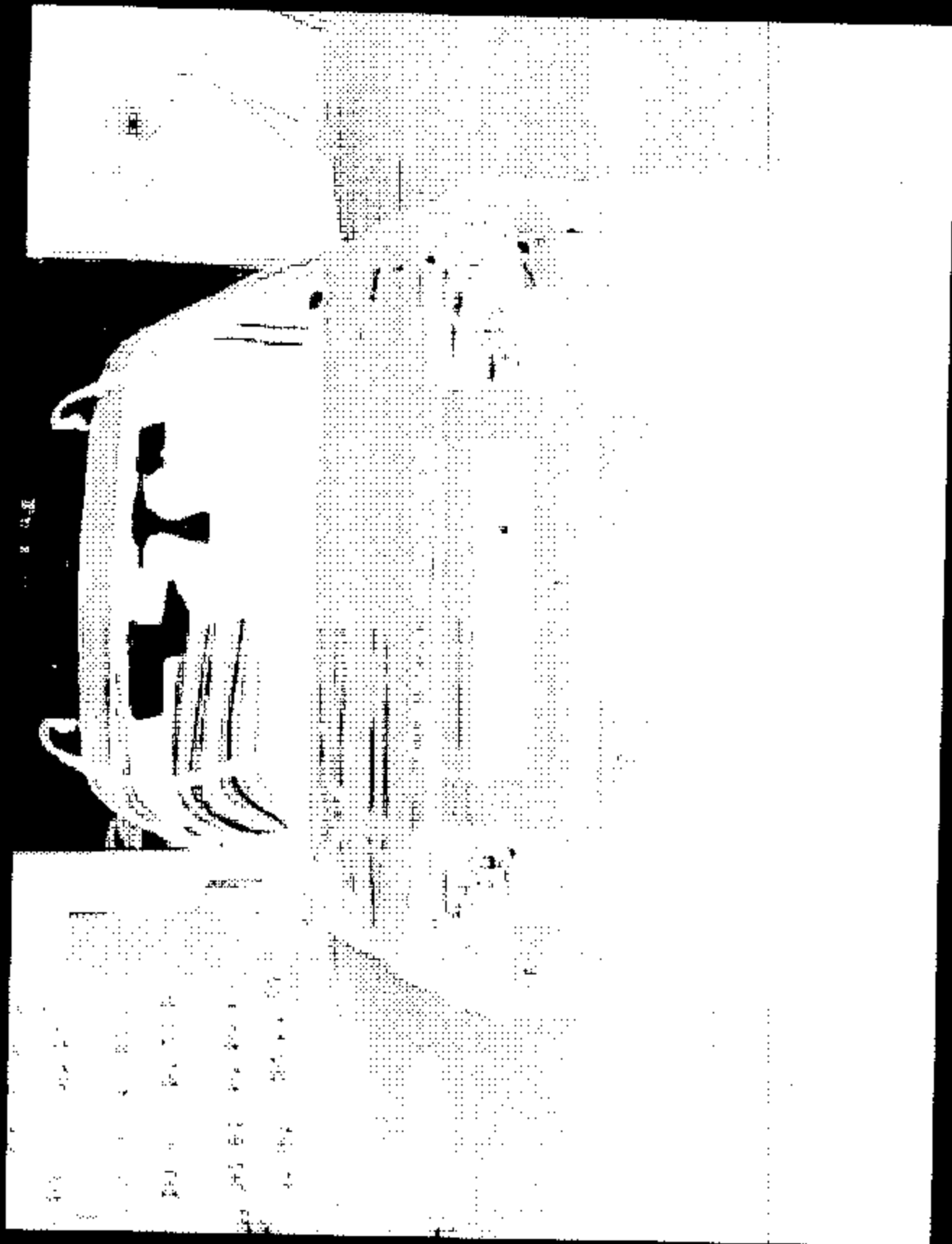
FIGURE 5.20
VEHICLE CERTIFICATION AND TIRE
INFORMATION LABEL

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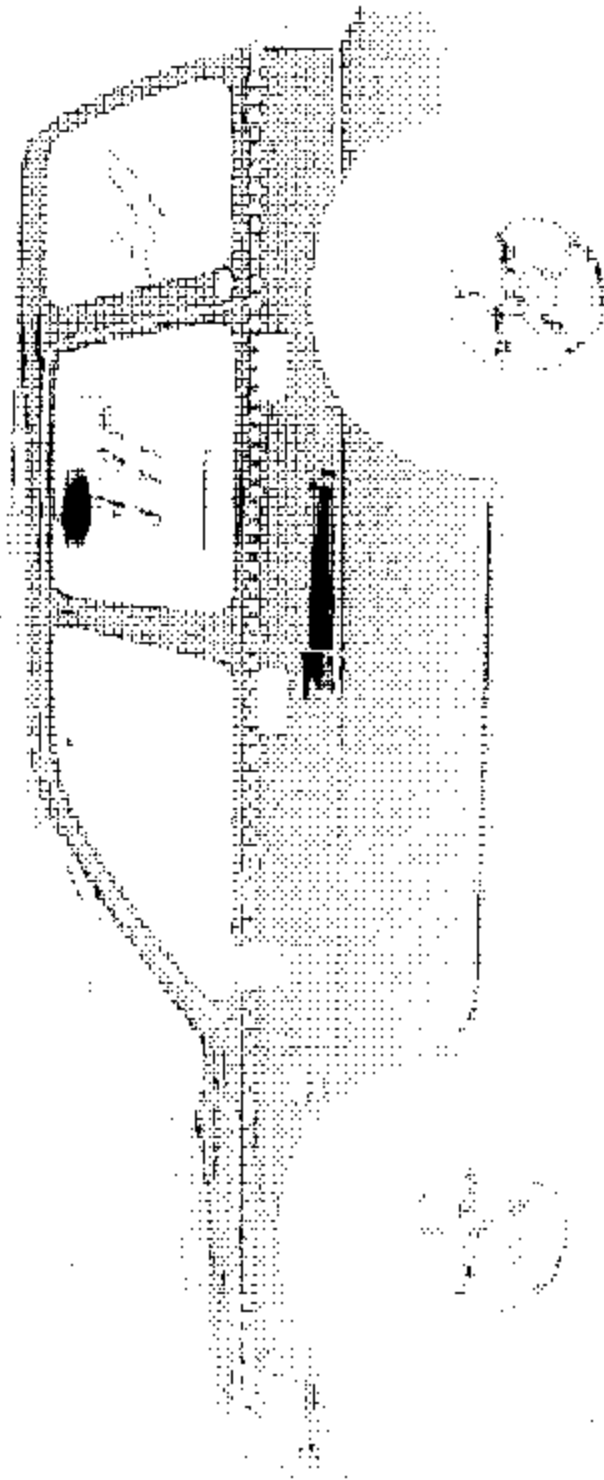
2004 LAND ROVER FREELANDER
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FIGURE 5.21
VEHICLE FUEL CAP PRE-TEST



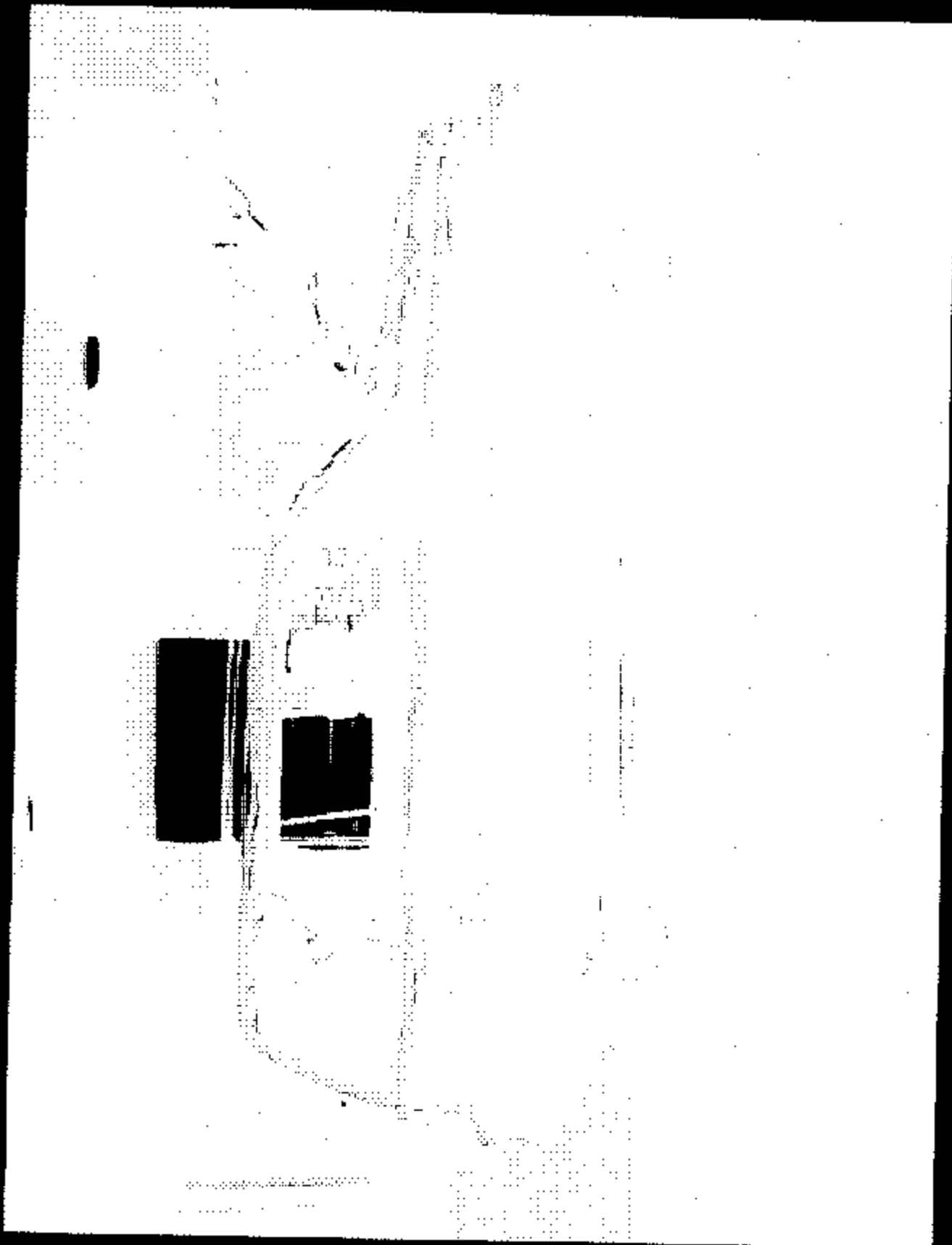
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NHTSA NO. C40602
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FIGURE 5.22
FRONT VIEW OF VEHICLE POST TEST



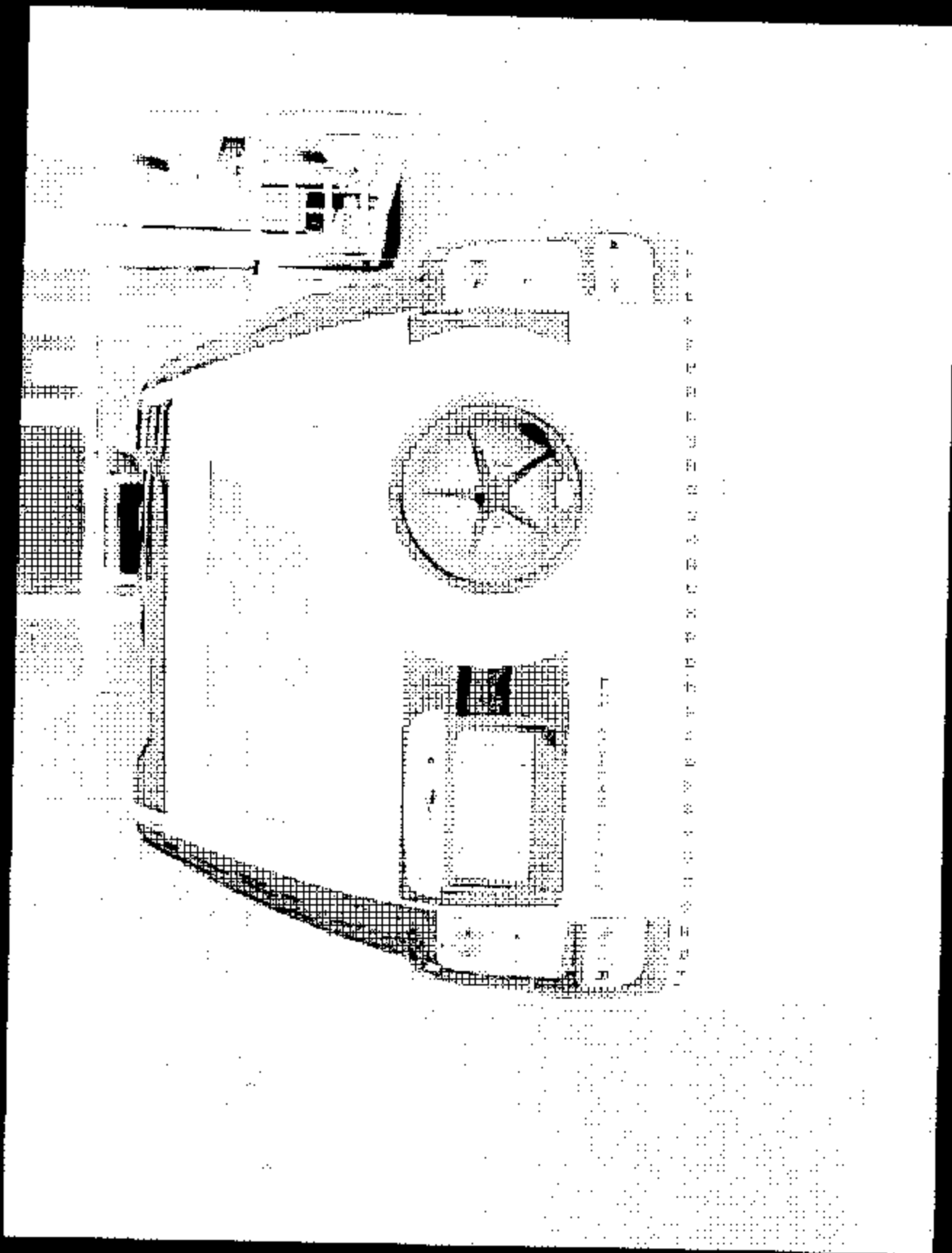
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FIGURE 5.23
LEFT SIDE VIEW OF VEHICLE POST TEST



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FIGURE 5.24
RIGHT SIDE VIEW OF VEHICLE POST TEST
POST TEST



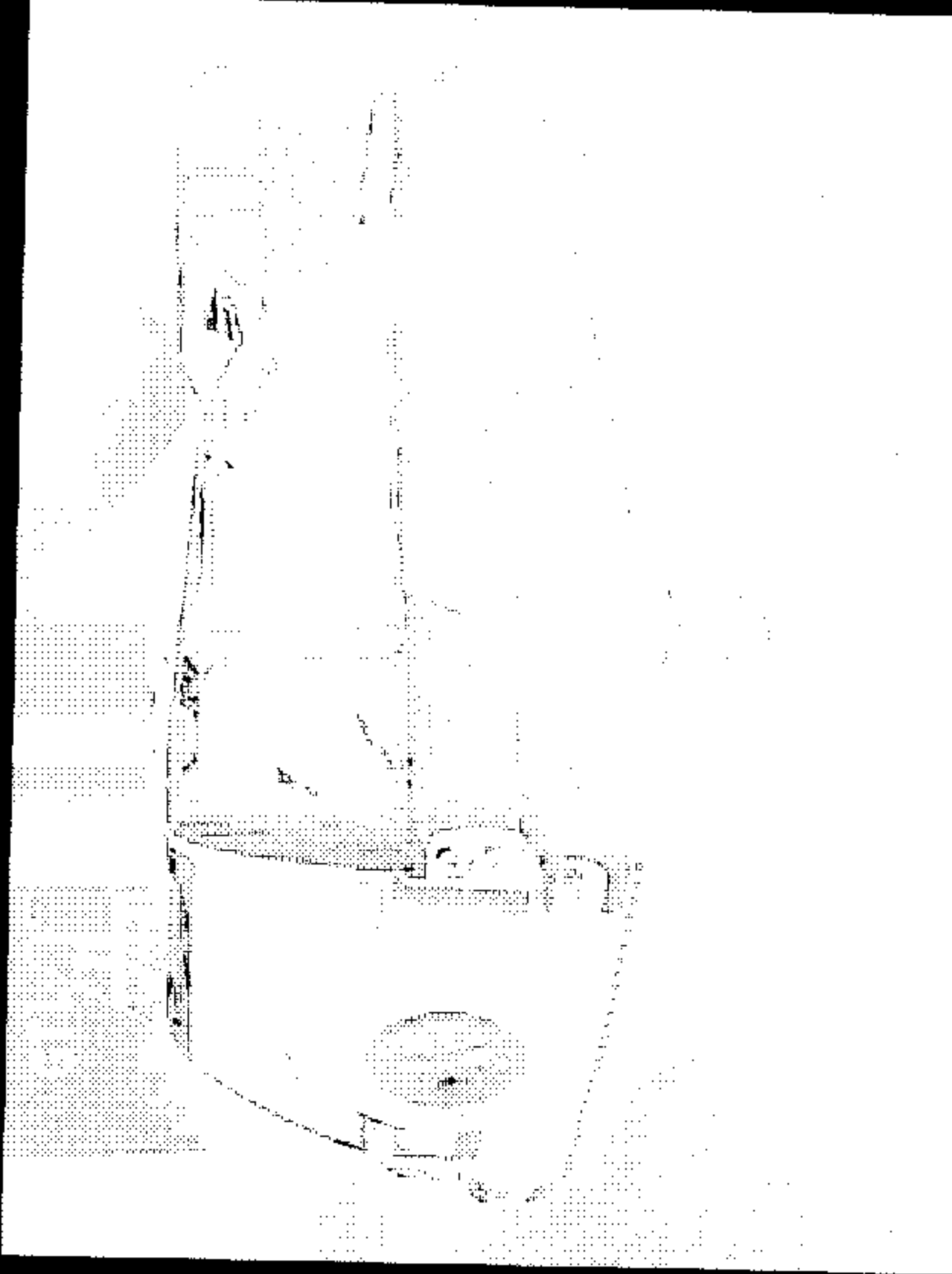
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NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.25
REAR VIEW OF VEHICLE POST TEST



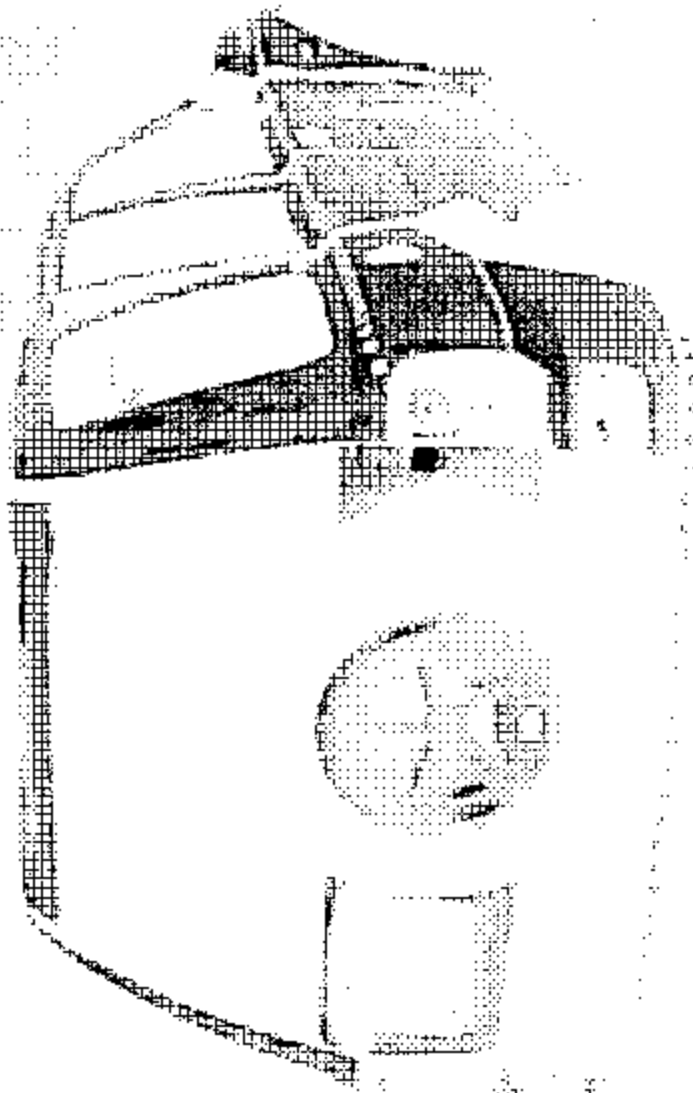
2004 LAND ROVER FREELANDER
NHTSA NO. C40302
FMVSS NO. 301L

FIGURE 5.26
¾ FRONTAL VIEW FROM LEFT SIDE OF
VEHICLE POST TEST



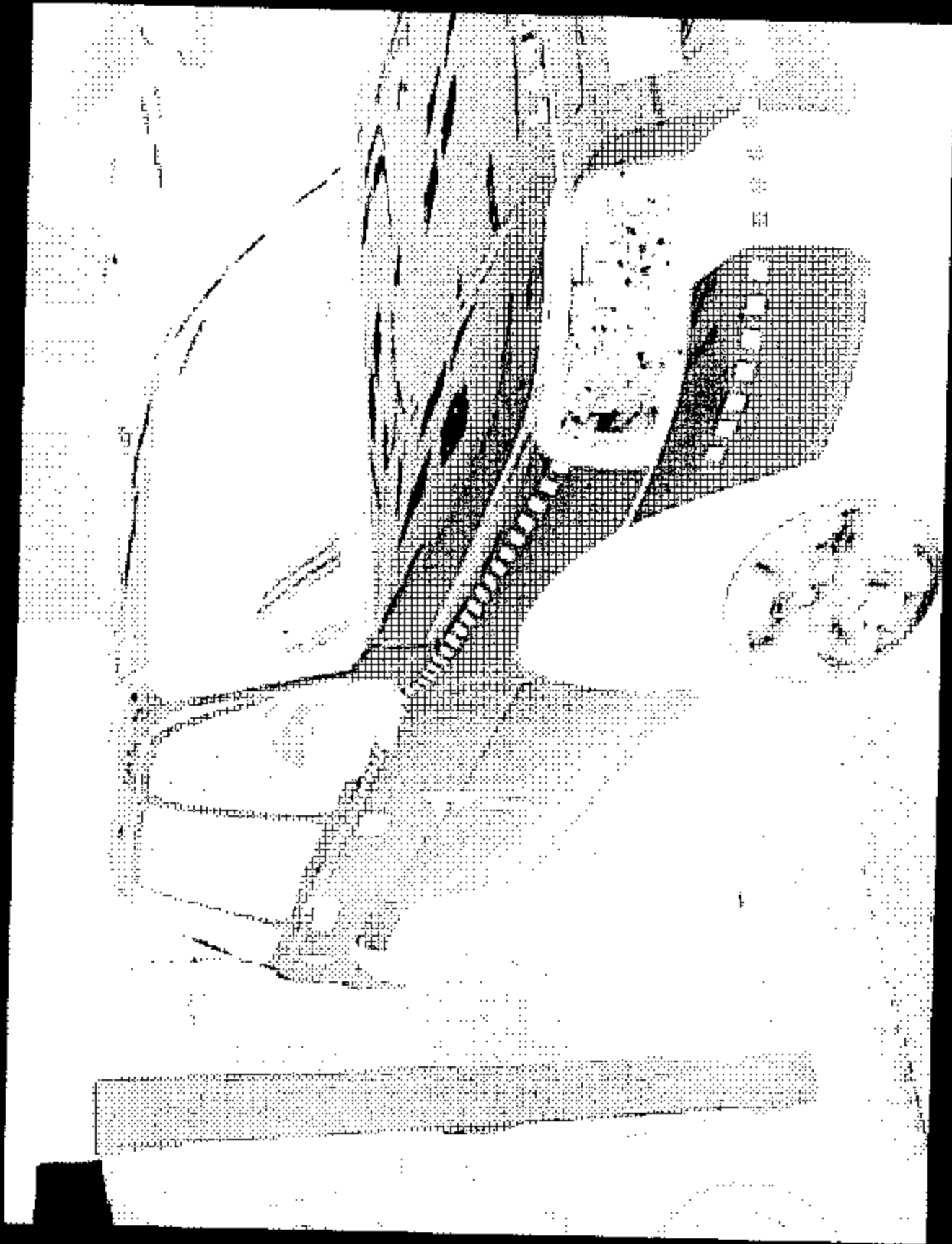
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FMVSS NO. 301L

FIGURE 5.27
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE
POST TEST



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FIGURE 5.28
LEFT VIEW OF VEHICLE/BARRIER POST TEST



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FIGURE 5.29
RIGHT VIEW OF VEHICLE/BARRIER POST TEST



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FIGURE 5.30
UNDERBODY OF FUEL TANK RIGHT VIEW
POST TEST



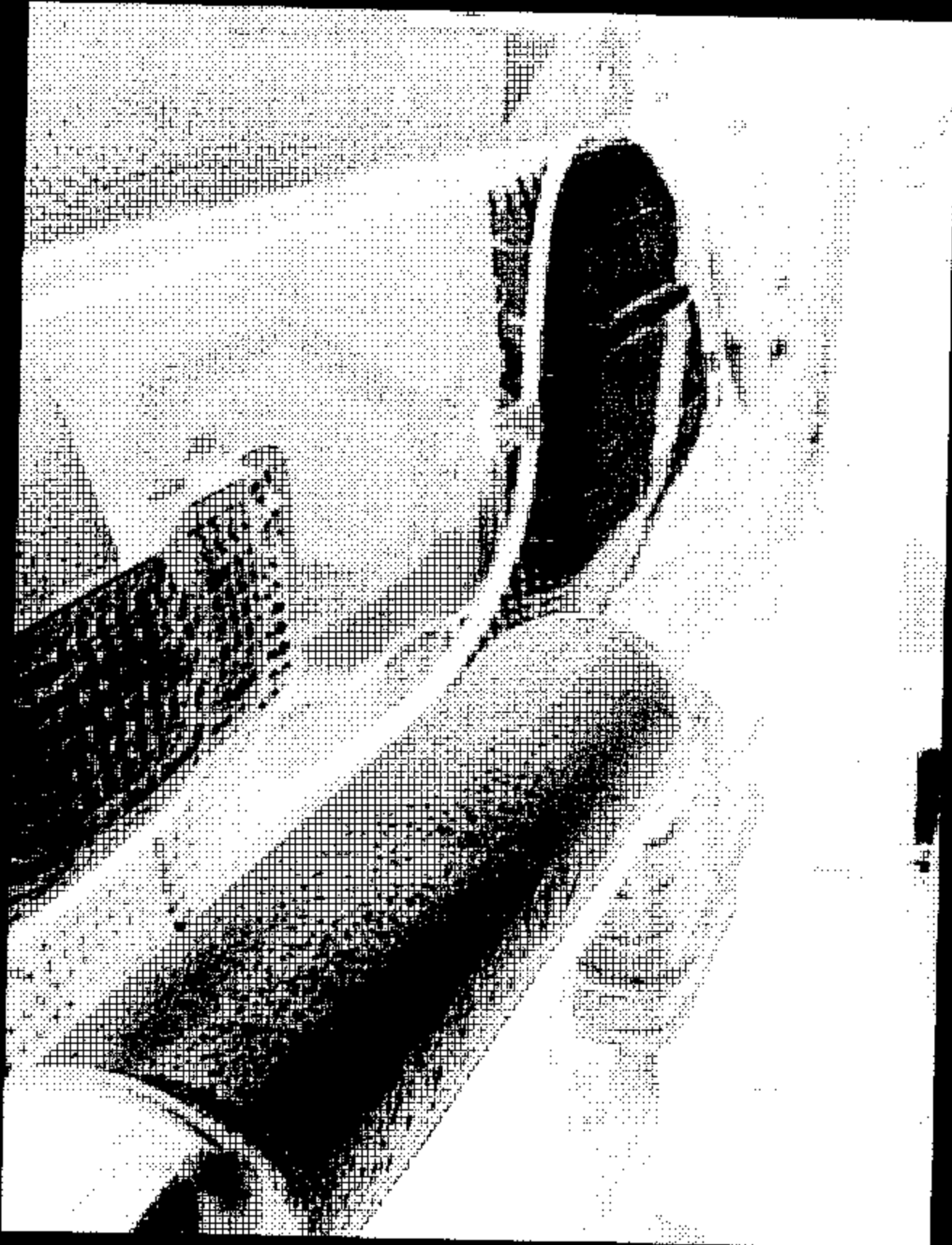
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FIGURE 5.31
UNDERBODY VIEW OF FUEL TANK LEFT VIEW
POST TEST



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FIGURE 5.32
UNDERBODY VIEW OF FUEL TANK ¾ RIGHT
REAR VIEW POST TEST



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FIGURE 5.33
UNDERBODY VIEW OF FUEL TANK ¾ LEFT
FRONT VIEW POST TEST



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FIGURE 5.34
UNDERBODY VIEW OF FUEL TANK $\frac{3}{4}$ RIGHT
FRONT VIEW POST TEST



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FIGURE 5.35
UNDERBODY VIEW OF FUEL TANK ¾ LEFT
REAR VIEW POST TEST



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FIGURE 5.36
UNDERBODY VIEW OF FUEL LINES AT TANK
POST TEST



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FIGURE 5.37
UNDERBODY VIEW OF FUEL LINES AT REAR
POST TEST



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FIGURE 5.38
UNDERBODY VIEW OF FUEL LINES AT FRONT
POST TEST



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FIGURE 5.39
UNDERBODY VIEW OF FUEL LINES TO ENGINE
POST TEST



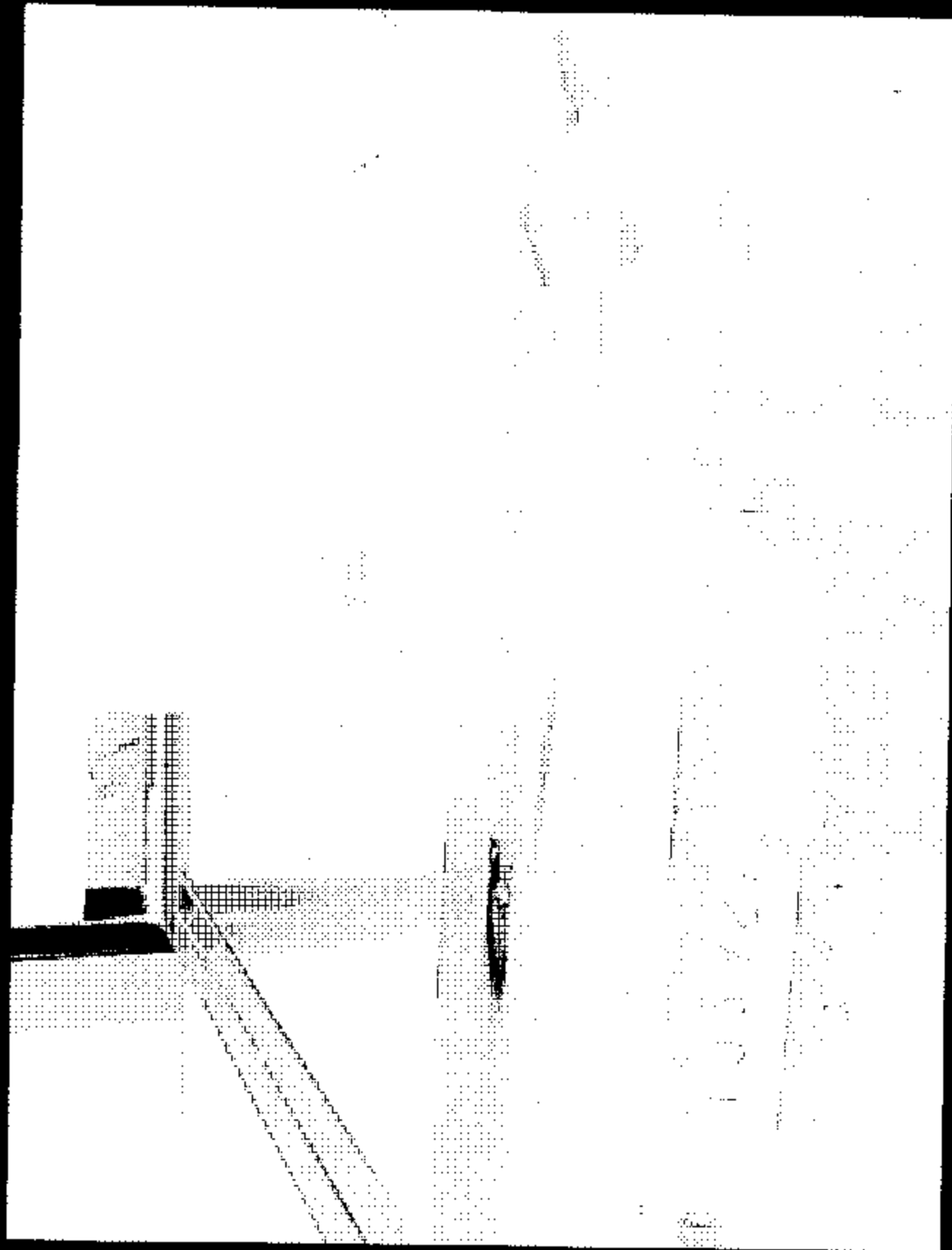
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FIGURE 5.40
UNDERBODY VIEW OF FUEL FILL HOSE AT
TANK POST TEST



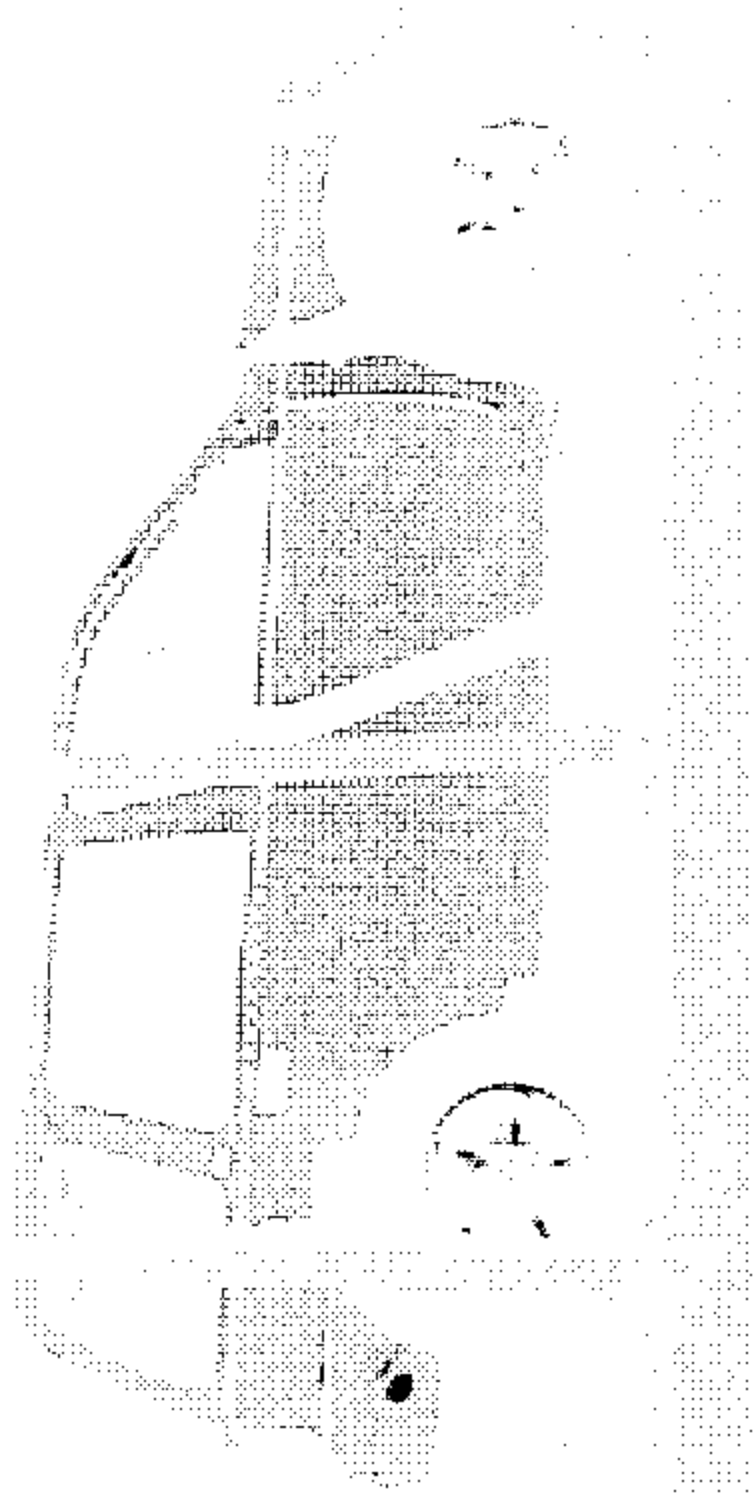
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
FMVSS NO. 301L

FIGURE 5.41
UNDERBODY VIEW OF FUEL FILL HOSE POST
TEST



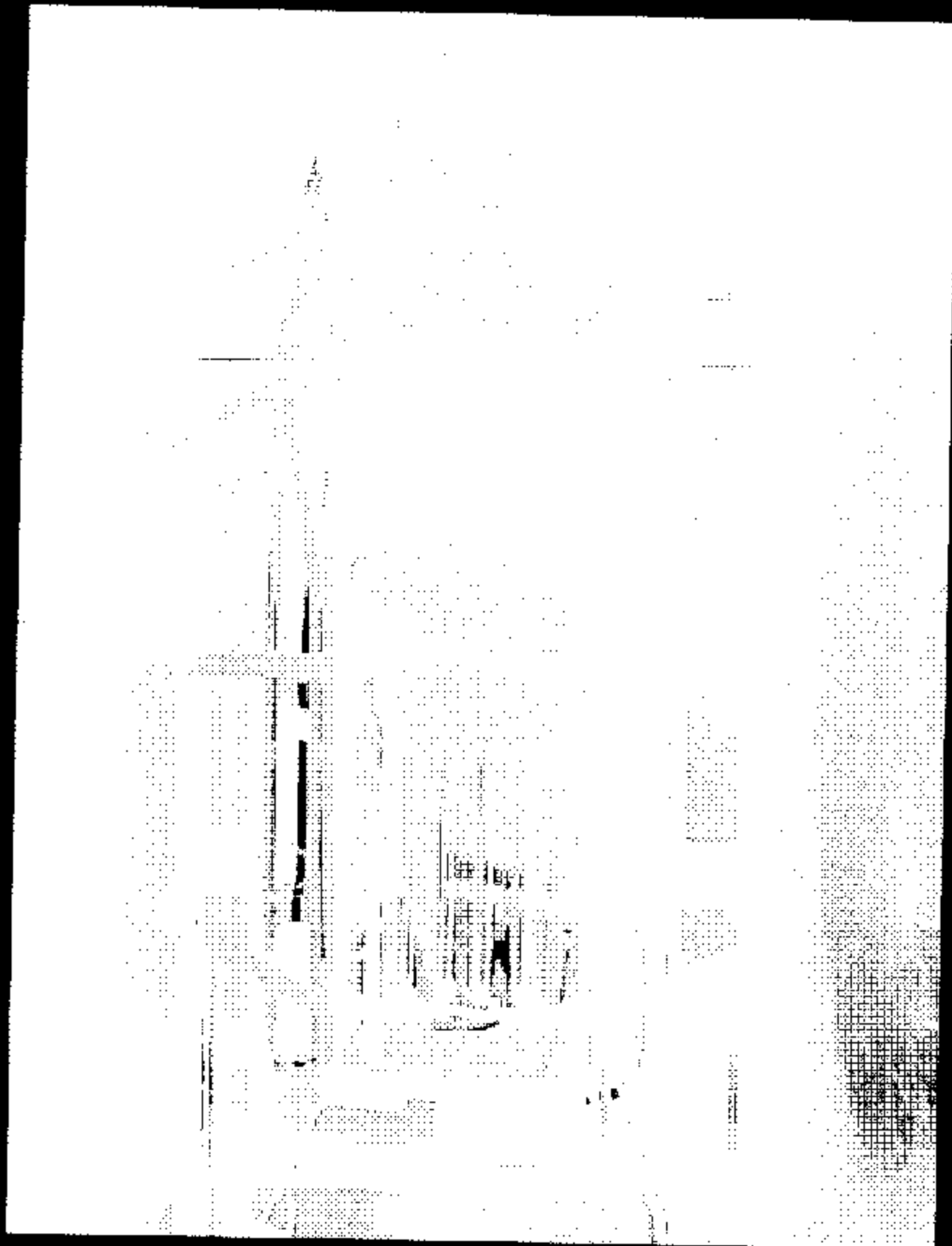
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NHTSA NO. C40802
FMVSS NO. 301L

FIGURE 5.42
SPEED COUNTERS POST TEST



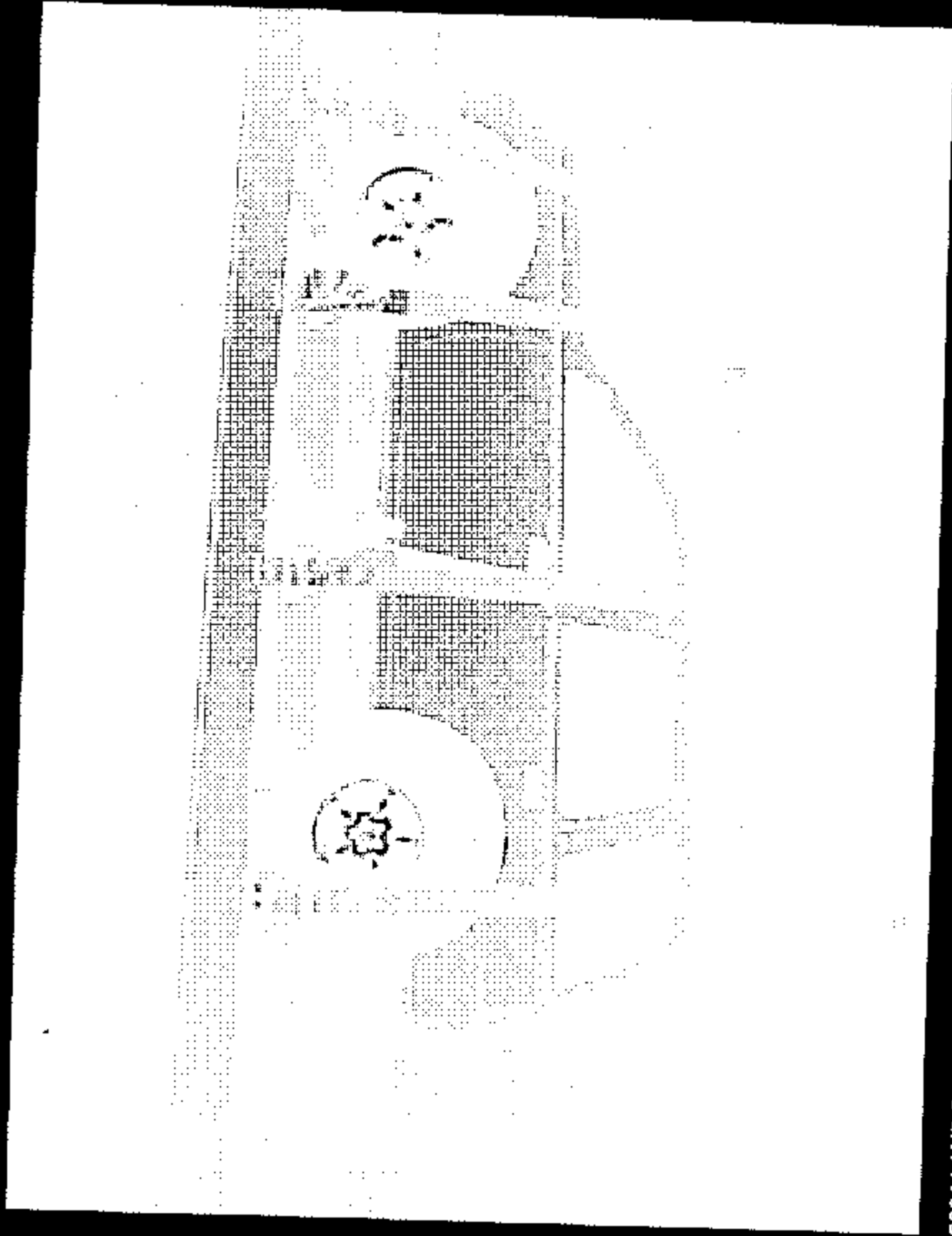
2004 LAND ROVER FREELANDER
NHTSA NO. C40602
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FIGURE 5.43
VEHICLE IN ROLLOVER FIXTURE AT 0°



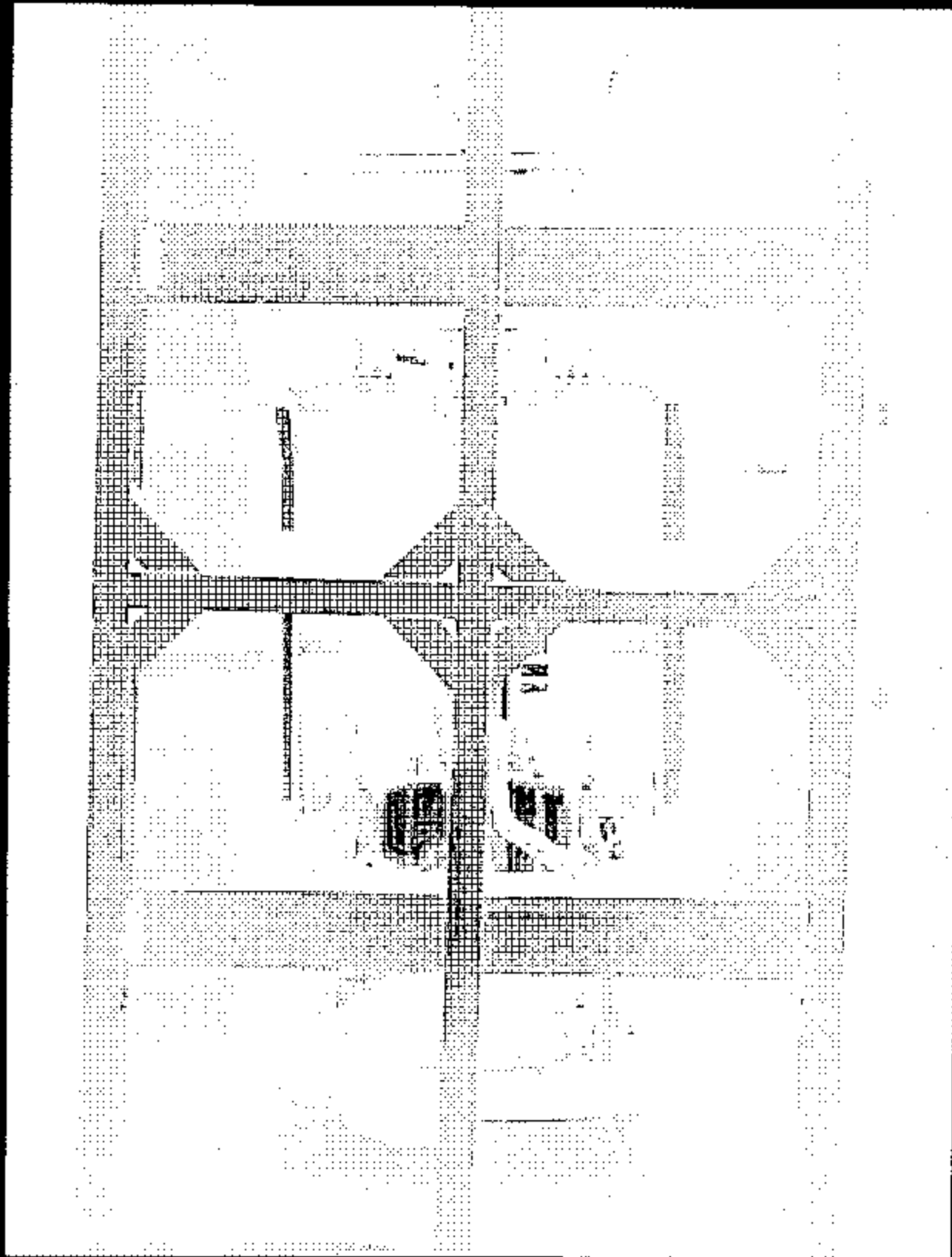
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FIGURE 5.44
VEHICLE IN ROLLOVER FIXTURE AT 80°



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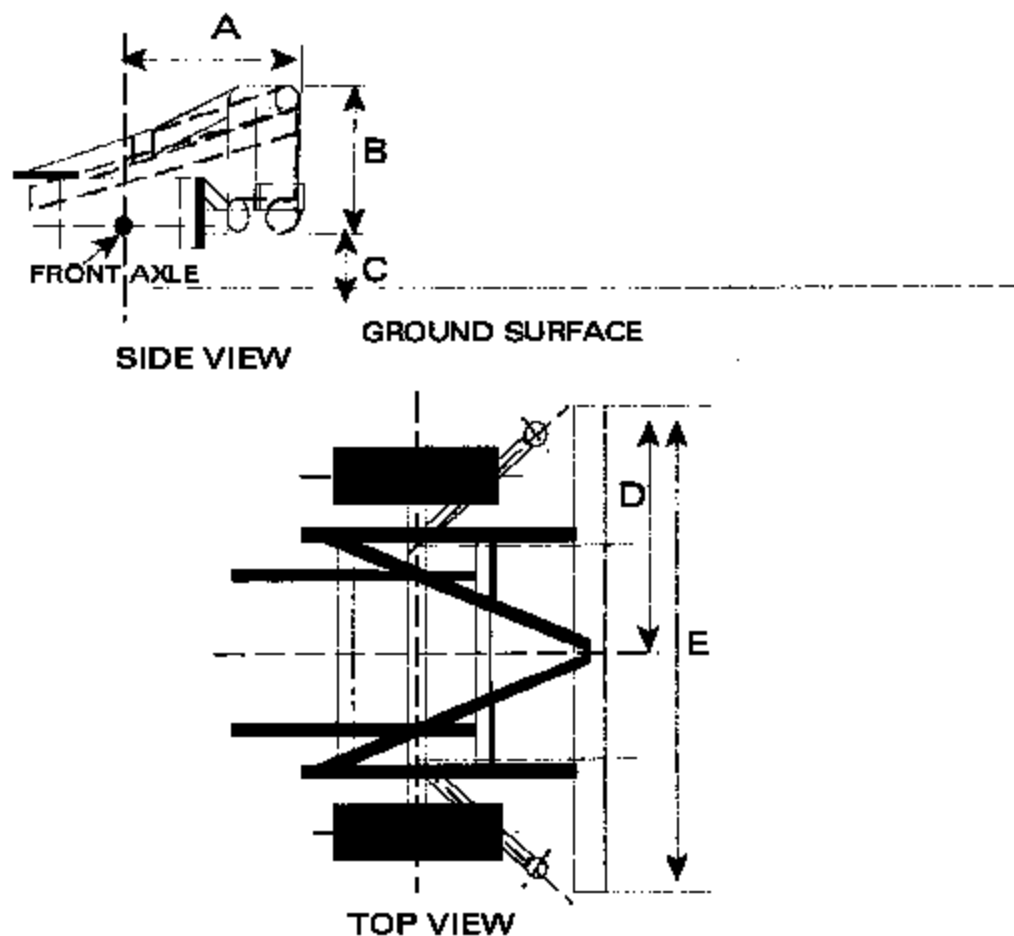
FIGURE 5.45
VEHICLE IN ROLLOVER FIXTURE AT 180°



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FIGURE 5.46
VEHICLE IN ROLLOVER FIXTURE AT 270°

SECTION 6
BARRIER INFORMATION



DIMENSIONS SHOWN IN TABLE ON NEXT PAGE

NOTES:

1. Face Plate 0.50 in. (19mm) thick cold rolled steel
2. All Inner Reinforcements 4.0 x 2.0 x 0.19 in. (102 x 51 x 5mm) Steel Tubing
3. Impact Surface above shown without .75 x 48 x 96 in. Plywood Face attached

LETTER	INCHES	MILLIMETERS
A	20.5*	521*
B	60.0	1524
C	5.0	127
D	39.0	991
E	78.0	198

TEST SET-UP OF COMMON CARRIAGE WITH 60" x 78" FLAT FACE IMPACT SURFACE INSTALLED:

LEFT FRONT WEIGHT 1075
 RIGHT FRONT WEIGHT 1075
 LEFT REAR WEIGHT 887
 RIGHT REAR WEIGHT 887

TOTAL WEIGHT 3924

* EXCLUDING 3/4" PLYWOOD FACE

DIMENSIONS FOR GTL 60" x 78" FLAT FACE IMPACT SURFACE