

REPORT NUMBER 111-GTL-06-005

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 111 REARVIEW MIRRORS

HONDA OF CANADA MFG.,
DIVISION OF HONDA CANADA INC.
2006 HONDA RIDGELINE, TRUCK
NHTSA NO. C65300

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



JULY 28, 2006

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

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:

Debbie Messick

Approved By:

Grant Stewart

Approval Date:

7/28/06

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:

John Finnegan

Acceptance Date:

7/28/06

Technical Report Documentation Page

1. Report No. 111-GTL-06-005	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A
4. Title and Subtitle Final Report of FMVSS 111 Compliance Testing of 2006 HONDA RIDGELINE, TRUCK NHTSA No. C65300		5. Report Date July 28, 2006
		6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-06-111-005
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		10. Work Unit No. (TRAIS) N/A
		11. Contract or Grant No. DTNH22-01-C-11025
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 7 th Street, S.W., Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report June 22-23, 2006
		14. Sponsoring Agency Code NVS-220
15. Supplementary Notes		
16. Abstract Compliance tests were conducted on the subject, 2006 Honda Ridgeline Truck in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-111V-00 for the determination of FMVSS 111 compliance. Test failures identified were as follows: None		
17. Key Words Compliance Testing Safety Engineering FMVSS 111		18. Distribution Statement Copies of this report are available from NHTSA Technical Information Services (TIS) Room 2336 (NP0-405) 400 7 th St., S.W. Washington, DC 20590 Telephone No. (202) 366-4947
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 52	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

TABLE OF CONTENTS

SECTION		PAGE
1	Purpose of Compliance Test	1
2	Compliance Test Procedure and Results Summary	2
3	Compliance Test Data	4
4	Test Equipment List	21
5	Photographs	22
	5.1 Left Side View of Vehicle	
	5.2 Right Side View of Vehicle	
	5.3 $\frac{3}{4}$ Frontal View From Left Side of Vehicle	
	5.4 $\frac{3}{4}$ Rear View From Right Side of Vehicle	
	5.5 Vehicle Certification Label	
	5.6 Vehicle Tire Information Label	
	5.7 Driver Side Rearview Mirror and Mounting	
	5.8 Passenger Side Rearview Mirror and Mounting	
	5.9 Inside Rearview Mirror and Mounting	
	5.10 Photo of Vehicle in Test Set-up with Viewing Instrument	
	5.11 Reflectance Test Set-up	
	5.12 Breakaway Test Set-up	
	5.13 Inside Mirror Right Eye Field of View	
	5.14 Inside Mirror Left Eye Field of View	
	5.15 Outside Mirror Right Eye Field of View	
	5.16 Outside Mirror Left Eye Field of View	
6	Force vs. Displacement Plots	39
7	Eye Point Locations Submitted by the Vehicle Manufacturer	47

SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2006 Honda Ridgeline Truck was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 111 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-111V-00 dated 28 October 1999 and General Testing Laboratories, Inc. (GTL) Test Procedure, "Rearview Mirrors – Passenger Vehicles, Multipurpose Vehicles, Trucks, Buses and Motorcycles".

1.1 TEST VEHICLE

The test vehicle was a 2006 Honda Ridgeline Truck. Nomenclature applicable to the test vehicle are:

- A. Vehicle Identification Number: 2HJYK16206H531467
- B. NHTSA No.: C65300
- C. Manufacturer: HONDA OF CANADA MFG., DIVISION OF HONDA CANADA INC.
- D. Manufacture Date: 07/05

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 111 testing on June 22-23, 2006.

SECTION 2

COMPLIANCE TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 COMPLIANCE TEST PROCEDURE

The Honda Ridgeline was subjected to FMVSS 111 compliance testing on June 22-23, 2006. The following tests were conducted using the FMVSS 111 test procedure.

2.1 INSPECTION

Inspected the installation of the inside and outside rearview mirrors. Made note of mirror types and any evidence of defects or imperfections that could influence test results.

2.2 MOUNTING ADEQUACY TEST

INSIDE MIRROR (S5.1.2)

Determined that the mirror was securely mounted and measured the positive and negative angles of adjustment for both the vertical and horizontal directions.

OUTSIDE MIRRORS (S5.2.2 and S5.3)

Determined that the mirrors were securely mounted and that the driver's side mirror could be tilted in both horizontal and vertical directions from the driver's seating position. Determined that the passenger's side mirror could be horizontally and vertically adjusted and measured the positive and negative horizontal and vertical angles of adjustment for all outside mirrors. Inspected all outside mirrors to ensure they were free of sharp points or edges that could contribute to pedestrian injury.

2.3 FIELD OF VIEW TEST

INSIDE REARVIEW MIRROR (S5.1.1)

Determined that the mirror provided a field of view with an included horizontal angle measured from the projected eye point of at least 20 degrees, and a sufficient vertical angle to provide a view of a level road surface extending to the horizon beginning at a point not greater than 61m (200 feet) to the rear of the vehicle when the vehicle was occupied by the driver and four passengers or the designed occupant capacity, if less.

SECTION 2 CONTINUED

OUTSIDE REARVIEW MIRROR - DRIVER'S SIDE (S5.2)

Determined that the mirror provided the driver a view of a level road surface extending to the horizon from a line, perpendicular to a longitudinal plane tangent to the driver's side of the vehicle at the widest point, extending 2.4 meters (8 feet) out from the tangent plane 10.7 meters (35 feet) behind the driver's eyes, with the seat in the rearmost position.

Verified that the mirror was not obscured by the un-wiped portion of the windshield.

2.4 REFLECTANCE TEST

The average reflectance of each mirror was determined in accordance with SAE Recommended Practice J954, OCT 84. Reflectance of the inside rear view mirror was determined for both the day and night mode settings.

2.5 BREAKAWAY TEST

INSIDE REARVIEW MIRROR (S5.1.2)

The mirror was subjected to longitudinal forces not exceeding 400 N (90 lb) to verify that the mirror mounting would deflect, collapse, or breakaway without leaving sharp edges.

2.6 UNIT MAGNIFICATION AND CONVEX MIRROR TESTS

PASSENGER CARS (S5.3 AND S5.4)

Utilizing a spherometer, the radius of curvature of all mirrors was measured. The test verified that the driver's side rearview mirror and inside rearview mirror were flat mirrors of unit magnification.

The passenger's side mirror was a convex mirror and was properly marked at the lower edge of the mirror's reflective surface with the words, "**Objects in Mirror Are Closer Than They Appear.**"

2.7 SUMMARY OF RESULTS

Based on the tests performed, the test vehicle appears to be in compliance with the requirements of FMVSS 111.

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of testing on the 2006 Honda Ridgeline.

DATA SUMMARY SHEET
FMVSS 111 – REARVIEW MIRRORS

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK

VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467

VEH. BUILD DATE: 07/05 TEST DATE: JUNE 22-23, 2006

TEST LABORATORY: GENERAL TESTING LABORATORIES

OBSERVERS: GRANT FARRAND, JIMMY LATANE

OUTSIDE DRIVER SIDE MIRROR

	PASS	FAIL	COMMENTS
STABLE SUPPORT	X		See Remarks
DOES NOT PROTRUDE BEYOND VEHICLE BODY	X		Mirror does protrude farther than the widest part of the vehicle body but the protrusion is required to meet the field of view requirements.
NOT OBSCURED BY UNWIPED PORTION OF WINDSHIELD	X		
ADJUSTABLE BY TILTING	X		
ADJUSTABLE FROM DRIVER SEAT	X		
FREE OF SHARP EDGES	X		
FIELD-OF-VIEW	X		
REFLECTANCE	X		
UNIT MAGNIFICATION	X		

INSIDE REARVIEW MIRROR

	PASS	FAIL	COMMENTS
STABLE SUPPORT	X		See Remarks
ADJUSTABLE BY TILTING	X		
FIELD-OF-VIEW	X		
REFLECTANCE	X		
BREAKAWAY	X		
UNIT MAGNIFICATION	X		

OUTSIDE PASSENGER SIDE MIRROR (if required)

	PASS	FAIL	COMMENTS
STABLE SUPPORT	X		See Remarks
ADJUSTABLE BY TILTING	X		
REFLECTANCE	X		
FREE OF SHARP EDGES	X		
UNIT MAGNIFICATION or			
CONVEX	X		

REMARKS: The Honda Ridgeline which is a truck is tested to the requirements of a passenger car.

This vehicle is equipped with an outside passenger side rear view mirror that is not required by FMVSS No. 111. Each passenger car whose inside rear view mirror does not meet the field of view requirements of the standard shall have an outside mirror of unit magnification or a convex mirror installed on the passenger's side.

DATA SHEET 1 (1 of 2)
VEHICLE INSPECTION AND IDENTIFICATION

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK
VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467
VEH. BUILD DATE: 07/05 TEST DATE: JUNE 22-23, 2006
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

TYPES OF REARVIEW MIRRORS:

INSIDE REARVIEW: FLAT GLASS MIRROR WITH MANUAL ADJUST

DRIVER'S SIDE OUTSIDE: FLAT GLASS 4-WAY ELECTRICALLY ADJUSTABLE

PASSENGER'S SIDE OUTSIDE: CONVEX 4-WAY ELECTRICALLY ADJUSTABLE

OTHER: _____

DESIGNATED SEATING CAPACITY: 5

LOCATION AND DESCRIPTION OF MANUFACTURER PROVIDED REFERENCE POINT
FOR EYE POINT MEASUREMENT: FRONT DRIVER OUTBOARD SEAT MOUNTING
BOLT CENTERLINE

LOCATION OF DRIVER SEATING REFERENCE POINT (SRP): N/A

REMARKS: No defects or imperfections of the mirrors were noted.

DATA SHEET 1 (2 of 2)

MANUFACTURER EYE POINT LOCATION COORDINATES (SEE SECTION 7)

	X	Y	Z
LEFT EYE	390 mm	174 mm	995 mm
RIGHT EYE	390 mm	239 mm	995 mm

RESULTS OF RECEIVING INSPECTION:

PASS X
 FAIL
 CONDITIONAL

CONDITIONS:

GENERAL VEHICLE INFORMATION:

GVWR: 2745 kg
 FRONT GAWR: 1410 kg
 REAR GAWR: 1475 kg
 UNLOADED WEIGHT: 2036 kg
 CARGO WEIGHT: 350 kg
 TOTAL RATED LOAD: 690 kg

REMARKS:

RECORDED BY: Grant Farrand DATE: 06/23/06 APPROVED BY: Debbie Messick

DATA SHEET 2 (1 of 2)
FMVSS 111 MOUNTING ADEQUACY TEST

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK
 VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467
 VEH. BUILD DATE: 07/05 TEST DATE: JUNE 22, 2006
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

MIRROR MOUNTING PROVIDES A STABLE SUPPORT:

	PASS	FAIL	CONDITIONAL
INSIDE REARVIEW MIRROR	X		
DRIVER'S SIDE OUTSIDE MIRROR	X		
PASSENGER SIDE OUTSIDE MIRROR	X		

CONDITIONS:

OUTSIDE MIRRORS FREE OF SHARP POINTS OR EDGES (PASS/FAIL): PASS

MIRRORS ARE ADJUSTABLE IN BOTH THE VERTICAL AND HORIZONTAL DIRECTIONS:

	PASS	FAIL	CONDITIONAL
INSIDE REARVIEW MIRROR	X		
DRIVER'S SIDE OUTSIDE MIRROR	X		
PASSENGER SIDE OUTSIDE MIRROR	X		

CONDITIONS:

DRIVER'S SIDE OUTSIDE MIRROR ADJUSTABLE FROM THE DRIVER'S SEATED POSITION (PASS/FAIL): PASS

DATA SHEET 2 (2 of 2)

ADJUSTMENT ANGLE	V+	V-	H+	H-
INSIDE REARVIEW MIRROR	33°	60°	30°	22°
DRIVER'S SIDE OUTSIDE MIRROR	14.5°	7.0°	9°	11°
PASSENGER SIDE OUTSIDE MIRROR	14.4°	9°	8°	10°

CONDITIONS: OUTSIDE MIRRORS ARE REFERENCED TO THE REAR EDGE OF THE HOUSING.

TEST RESULTS: PASS X FAIL

REMARKS:

RECORDED BY: Grant Farrand

DATE: 06/23/06

APPROVED BY: Debbie Messick

DATA SHEET 3 (1 of 2)
 FMVSS 111 FIELD-OF-VIEW TEST

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK
 VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467
 VEH. BUILD DATE: 07/05 TEST DATE: JUNE 23, 2006
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

INSIDE REARVIEW MIRROR (S5.1.1)

E = Distance from center of mirror to projected eye point= .682 m

A = Distance from rear of vehicle to projected eye point location= 3.60 m

X1 = Distance from rear of vehicle to field to view grid = 7.75 m

Z1 = Vertical distance to lowest point of field of view at distance X1= .84 m

Z2 = Height of center of mirror = 1.56 m

X2 = Distance from rear of vehicle where the road surface is first visible

$$X2 = [(Z2 \times X1) + (Z1 \times A)] / (Z2 - Z1) = \underline{21.0 \text{ m}} \text{ (61 m maximum)}$$

YL, YR = Distance to driver's left or right of vehicle's centerline at the location of the field of view grid or markers

MONOCULAR DATA (ALR & ARL Are Angles)				
EYE LOCATION	YL	YR	ALR	ARL
LEFT EYE POINT	1.98 m	2.04 m		10.2°
RIGHT EYE POINT	2.98 m	1.38 m	14.7°	

REMARKS:

DATA SHEET 3 (2 of 2)

CALCULATED HORIZONTAL AMBINOCULAR VIEW ANGLE (AB)

$$ALR = \text{TAN} - [1YLR/(X1 + A)] \quad ARL = \text{TAN} - [1YRL/(X1 + A)]$$

$$\text{ANGLE AB} = \text{ANGLE ALR} + \text{ANGLE ARL} = \underline{24.9^\circ} \text{ (20 degrees minimum)}$$

TEST RESULTS: PASS X FAIL _____

DRIVER SIDE MIRROR (S5.2)

MIRROR OBSCURED BY UNWIPED PORTION OF WINDSHIELD? (Y/N) _____ NO _____

HEIGHT OF TARGET DISC ON MIRROR: _____ 1308 mm _____

DISTANCE OF TARGET DISC ON MIRROR FROM VEHICLE TANGENT PLANE: 914mm

TARGET DISC LOCATION RELATIVE TO VEHICLE TANGENT PLANE: _____ outboard
X Inboard

ENTIRE TRIANGULAR TEST TARGET AREA ON SCREEN VISIBLE? (Y/N) _____ NO* _____

*Bottom inside corner of triangle is obscured by left rear fender flare. FMVSS 111 allows the area to be partially obscured by the rear body contour.

MIRROR PROTRUDES BEYOND VEHICLE TANGENT PLANE? (Y/N) _____ YES _____

PROTRUSION REQUIRED TO MEET FIELD OF VIEW REQUIREMENTS? (Y/N) YES

TEST RESULTS PASS X FAIL _____

PASSENGER SIDE MIRROR (S5.3 OR MFG. OPTION) – MFG. OPTION

PASSENGER SIDE MIRROR TYPE (convex or unit magnification) _____ CONVEX _____

REMARKS:

RECORDED BY: Grant Farrand

DATE: 06/22/06

APPROVED BY: Debbie Messick

DATA SHEET 4 (1 of 4)
FMVSS 111 REFLECTANCE TEST

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK
VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467
VEH. BUILD DATE: 07/05 TEST DATE: JUNE 23, 2006
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE

INSIDE MIRROR:

TYPE OF MIRROR:

2 POSITION PRISMATIC X ; ELECTROCHROMATIC _____

ELECTRO/MECHANICAL _____; LIQUID CRYSTAL _____

OTHER: (Specify) _____

DESCRIPTION OF TEST APPARATUS: GTL REFLECTOMETER

MIRROR DESCRIPTION: 250 mm X 57 mm HIGH FLAT GLASS MIRROR WITH 2 POSITION DAY/NIGHT

VOLTAGE READING FROM CALIBRATION (Average Value): 10.000

VOLTAGE READING FROM LIGHT REFLECTED BY DAY MIRROR (Average Value): 9.030

REFLECTANCE (Day) = Voltage (Refl)/Voltage (Cal) = 0. 903 x 100 = 90 percent
(Minimum Requirement = 35 percent)

VOLTAGE READING FROM CALIBRATION (Average Value) = 10.000

VOLTAGE READING FROM LIGHT REFLECTED BY NIGHT MIRROR (Average Value): 2.434

REFLECTANCE (Night) = Voltage (Refl)/Voltage (Cal) = 0. 243 x 100 = 24 percent
(Minimum Requirement = 4 percent)

NOTE: If meter reading directly in percent is used, record only percent

DATA SHEET 4 (3 of 4)

DRIVER'S SIDE MIRROR:

TYPE OF MIRROR: UNIT MAGNIFICATION X

OTHER (Specify): _____

MIRROR DESCRIPTION: 200 mm WIDE X 155 mm HIGH FLAT GLASS MIRROR WITH
4-WAY POWER ADJUSTMENT.VOLTAGE READING FROM CALIBRATION (Average Value): 10.000VOLTAGE READING FROM LIGHT REFLECTED BY MIRROR (Average Value):
 6.040REFLECTANCE = Voltage (Refl)/Voltage (Cal) = 0. 604 x 100 = 60 percent
(Minimum Requirement = 35 percent)

NOTE: If meter reading directly in percent is used, record only percent

OBSERVATIONS: _____

TEST RESULTS FOR DRIVER SIDE MIRROR:

PASS X FAIL

REMARKS:

DATA SHEET 4 (4 of 4)

PASSENGER'S SIDE MIRROR:

TYPE OF MIRROR: UNIT MAGNIFICATION _____ CONVEX X

OTHER (Specify): _____

DESCRIPTION OF TEST APPARATUS: GTL REFLECTOMETER

MIRROR DESCRIPTION: 200 mm WIDE X 155 mm HIGH CONVEX GLASS MIRROR WITH 4-WAY POWER ADJUST.

VOLTAGE READING FROM CALIBRATION (Average Value): 10.000

VOLTAGE READING FROM LIGHT REFLECTED BY MIRROR (Average Value): 5.270

REFLECTANCE (Day) = Voltage (Ref)/Voltage (Cal) = 0. 527 x 100 = 53 percent
(Minimum Requirement = 35 percent)

NOTE: If meter reading directly in percent is used, record only percent

OBSERVATIONS: _____

TEST RESULTS FOR PASSENGER SIDE MIRROR:

PASS X FAIL _____

REMARKS:

RECORDED BY: Grant Farrand

DATE: 06/23/06

APPROVED BY: Debbie Messick

DATA SHEET 5
FMVSS 111 BREAKAWAY TEST

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK

VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467

VEH. BUILD DATE: 07/05 TEST DATE: JUNE 23, 2006

TEST LABORATORY: GENERAL TESTING LABORATORIES

OBSERVERS: GRANT FARRAND, JIMMY LATANE

MOUNTING OF MIRROR (INSIDE) DESCRIPTION:

MIRROR IS MOUNTED TO WINDSHIELD GLASS THROUGH A DUAL BALL LINK JOINT.

THE WINDSHIELD MOUNT IS ATTACHED TO GLASS WITH HIGH STRENGTH ADHESIVE.

THE BALL LINK IS ATTACHED TO THE WINDSHIELD MOUNT WITH A SPRING CLIP.

Requirement: the mirror shall deflect, collapse or break away when it is subjected to a force of 400 N or less.

TEST NO	LOAD DIRECTION (Vertical/Horizontal)	MAXIMUM FORCE (N)	PASS	FAIL
1 (GTL 5572)	0°/90°	44	X	
2 (GTL 5573)	+45°/90°	44	X	
3 (GTL 5574)	+45°/+45°	160	X	
4 (GTL 5575)	+45°/-45°	124	X	
5 (GTL 5576)	-45°/-45°	155	X	
6 (GTL 5577)	-45°/90°	69	X	
7 (GTL 5578)	-45°/+45°	111	X	

REMARKS: WINDSHIELD RAKE 34°

SPRING MOUNTING CLIP BENT ON TEST #5573 AND WAS STRAIGHTENED BEFORE TEST # 5574

DESCRIPTION OF MIRROR MOVEMENT (DEFLECT, COLLAPSE OR BREAKAWAY): BALL LINK JOINTS MOVE OR LINK SEPARATES FROM WINDSHIELD MOUNT DUE TO SPRING CLIP RELEASING.

X-Y PLOTTER DATA I.D. NUMBER GTL TEST #5572 THROUGH 5578

TEST RESULTS: PASS X FAIL

RECORDED BY: Grant Farrand

DATE: 06/23/06

APPROVED BY: Debbie Messick

DATA SHEET 6 (1 of 3)
FMVSS 111 UNIT MAGNIFICATION AND CONVEX MIRROR TESTS

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK

VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467

VEH. BUILD DATE: 07/05 TEST DATE: JUNE 23, 2006

TEST LABORATORY: GENERAL TESTING LABORATORIES

OBSERVERS: GRANT FARRAND, JIMMY LATANE

DESCRIPTION OF TEST APPARATUS: GTL SPHEROMETER

DRIVER'S SIDE and INSIDE REARVIEW MIRRORS:

DRIVER SIDE MIRROR:

TEST POSITION	DIAL READINGS
1	.0000
2	.0000
3	.0000
4	.0000
5	.0000
6	.0000
7	.0000
8	.0000
9	.0000
10	.0000

INSIDE MIRROR:

TEST POSITION	DIAL READINGS
1	.0000
2	.0000
3	.0000
4	.0000
5	.0000
6	.0000
7	.0000
8	.0000
9	.0000
10	.0000

All dial indicator readings for unit magnification mirrors must be zero.

TEST RESULTS: PASS X FAIL _____

DATA SHEET 6 (2 of 3)

PASSENGER'S SIDE REARVIEW MIRROR:

CONVERSION DATA TABLE FROM SPHEROMETER DIAL
READING TO RADIUS OF CURVATURE

TEST POSITION	DIAL READINGS (Inches)	RADIUS OF CURVATURE (mm)	DEVIATION BETWEEN THE AVERAGE RADIUS OF CURVATURE AND THE TEST POSITION RADIUS OF CURVATURE (mm)	PERCENT DEVIATION FROM THE AVERAGE RADIUS OF CURVATURE
1	.0055	1290		
2	.0059	1206		
3	.0053	1333	+93.5	+7.5%
4	.0061	1170	-69.5	-5.6%
5	.0055	1290		
6	.0060	1178		
7	.0058	1231		
8	.0058	1231		
9	.0059	1206		
10	.0057	1260		
Average Radius of Curvature – A summation of Column 3 divided by 10: <u>1239.5</u> (mm)			Greatest percent Deviation From the Average Radius Of Curvature – From Column 5: <u>7.5</u> %	

IF CONVEX, ARE THERE ANY DISCONTINUITIES IN THE SLOPE OF THE SURFACE OF THE MIRROR:

YES _____ NO X

IF CONVEX, ARE THE WORDS, "OBJECTS IN THE MIRROR ARE CLOSER THAN THEY APPEAR" PRESENT?

YES X NO _____

IF CONVEX, MEASURE LETTER HEIGHT OF ABOVE WORDS: 5.0 mm

IF CONVEX, LETTERS ARE NOT LESS THAN 4.8 mm OR MORE THAN 6.4 mm HIGH

YES X NO _____

IF CONVEX, THE AVERAGE RADIUS OF CURVATURE IS NOT LESS THAN 889 mm AND NOT MORE THAN 1651 mm:

YES X NO _____

DATA SHEET 6 (3 of 3)

IF CONVEX, THE GREATEST PERCENT DEVIATION FROM THE AVERAGE RADIUS OF CURVATURE IS ± 12.5 PERCENT:

YES X NO

IF UNIT MAGNIFICATION, ALL DIAL READINGS ARE ZERO ± 0 .

YES NO N/A X

TEST RESULTS:

PASS X FAIL

RECORDED BY: Grant Farrand

DATE: 06/23/06

APPROVED BY: Debbie Messick

DATA SHEET 7
FMVSS 111 MIRROR REFLECTIVE SURFACE AREA TEST

VEH. MOD YR/MAKE/MODEL/BODY: 2006 HONDA RIDGELINE TRUCK
 VEH. NHTSA NO: C65300; VIN: 2HJYK16206H531467
 VEH. BUILD DATE: 07/05 TEST DATE: JUNE 23, 2006
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

DATA TABLE FOR SURFACE AREA

MIRRORS	AREA	REQUIREMENT MPVs, TRUCKS, BUSES (OTHER THAN SCHOOL), GVWR \leq 4536 kg	REQUIREMENT MPVs, TRUCKS, BUSES (OTHER THAN SCHOOL), GVWR 4536 kg	PASS/FAIL
Driver Outside	290 cm ²	126 cm ²	323 cm ²	PASS
Passenger Outside	290 cm ²	126 cm ²	323 cm ²	PASS

MIRRORS LOCATED SO AS TO PROVIDE DRIVER A VIEW TO THE REAR:
 LEFT SIDE (Y/N) YES
 RIGHT SIDE (Y/N) YES

TEST RESULTS: PASS X FAIL _____

REMARKS:

RECORDED BY: Grant Farrand

DATE: 06/23/06

APPROVED BY: Debbie Messick

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
COMPUTER	AT&T	U86D66	BEFORE USE	BEFORE USE
CAMERA MOUNT TEST FIXTURE	GTL	N/A	BEFORE USE	BEFORE USE
A/D INTERFACE	METRABYTE	CT91	BEFORE USE	BEFORE USE
SIGNAL CONDITIONER	METRYBYTE	EXP-RES	BEFORE USE	BEFORE USE
LOAD CELL	SENSOTEC	41/571-07 257818	01/06	01/07
INCLINOMETER	MITUTOYO	PRO360	BEFORE USE	BEFORE USE
LINEAR POTENTIOMETER	CELESCO	15/369	BEFORE USE	BEFORE USE
PRECISION STEEL SCALE	STARRETT	C416R	05/06	05/07
CAMERA	NIKON	N/A	N/A	N/A
REFLECTOMETER	GTL	N/A	BEFORE USE	BEFORE USE
SPHEROMETER	GTL	N/A	BEFORE USE	BEFORE USE

SECTION 5
PHOTOGRAPHS



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.1
LEFT SIDE VIEW OF VEHICLE



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.2
RIGHT SIDE VIEW OF VEHICLE



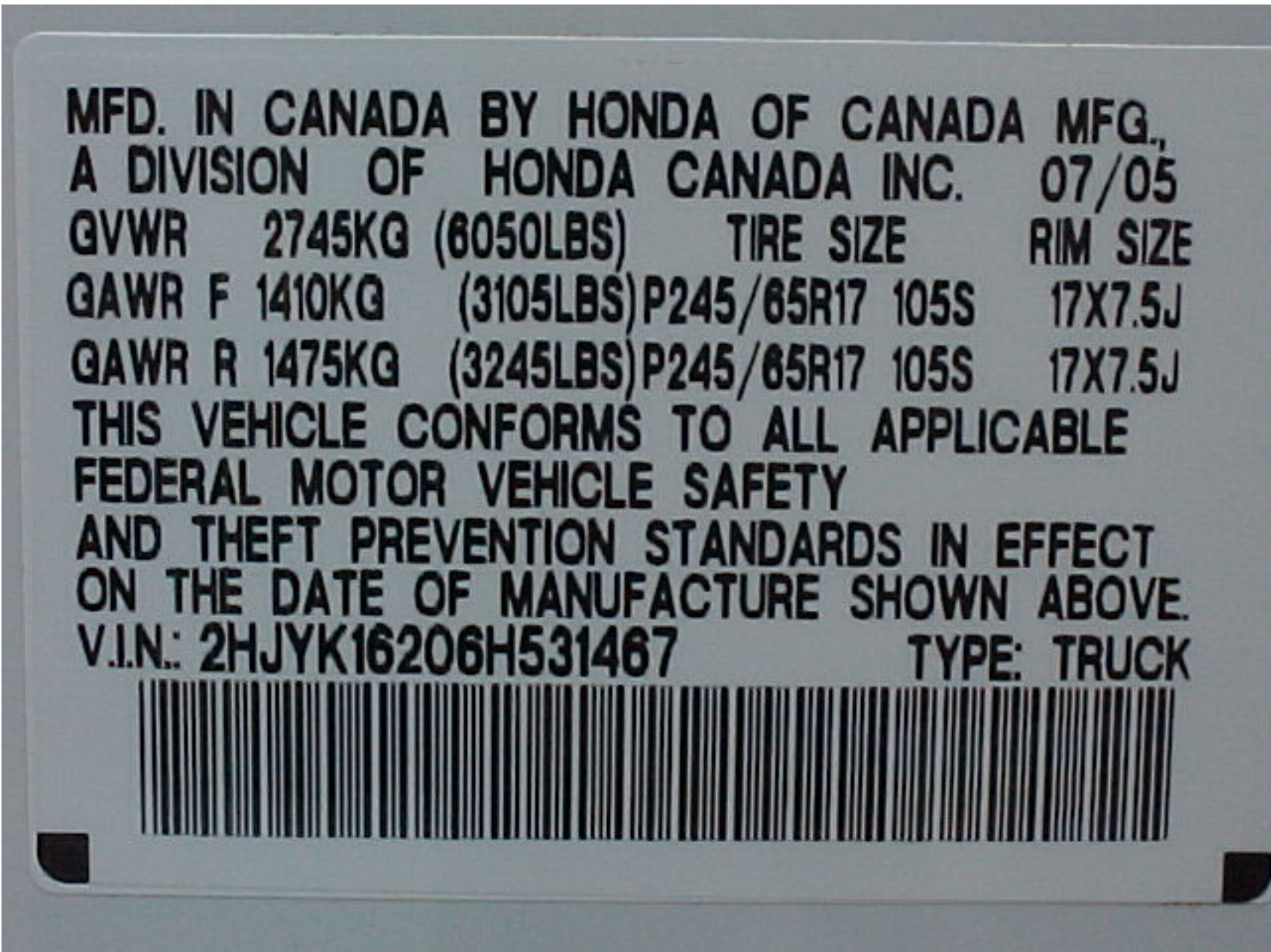
2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.3
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.4
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.5
VEHICLE CERTIFICATION LABEL



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.6
VEHICLE TIRE INFORMATION LABEL



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.7
DRIVER SIDE REARVIEW MIRROR AND MOUNTING



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.8
PASSENGER SIDE REARVIEW MIRROR AND
MOUNTING



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.9
INSIDE REARVIEW MIRROR AND MOUNTING



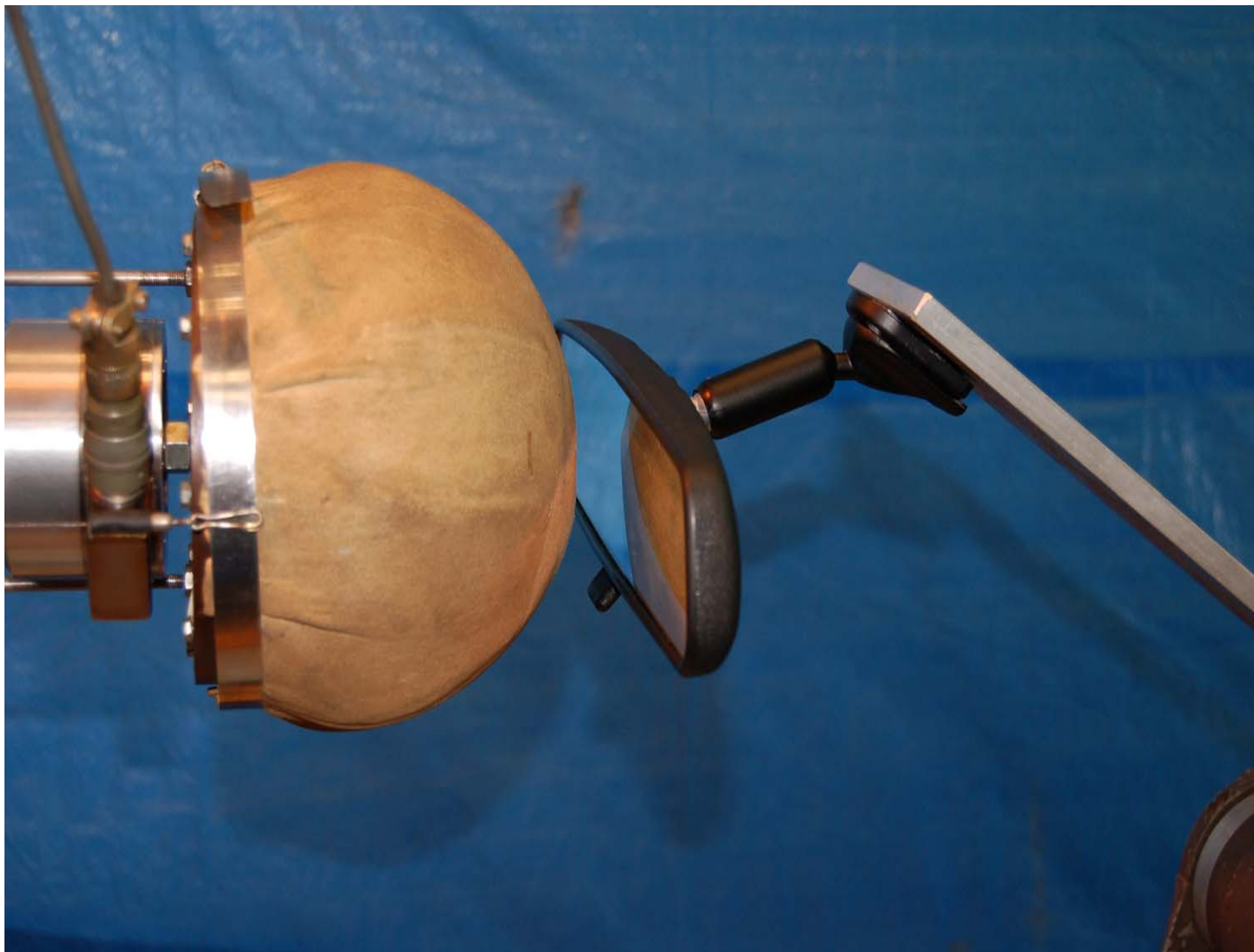
2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.10
PHOTO OF VEHICLE IN TEST SET-UP WITH VIEWING
INSTRUMENT



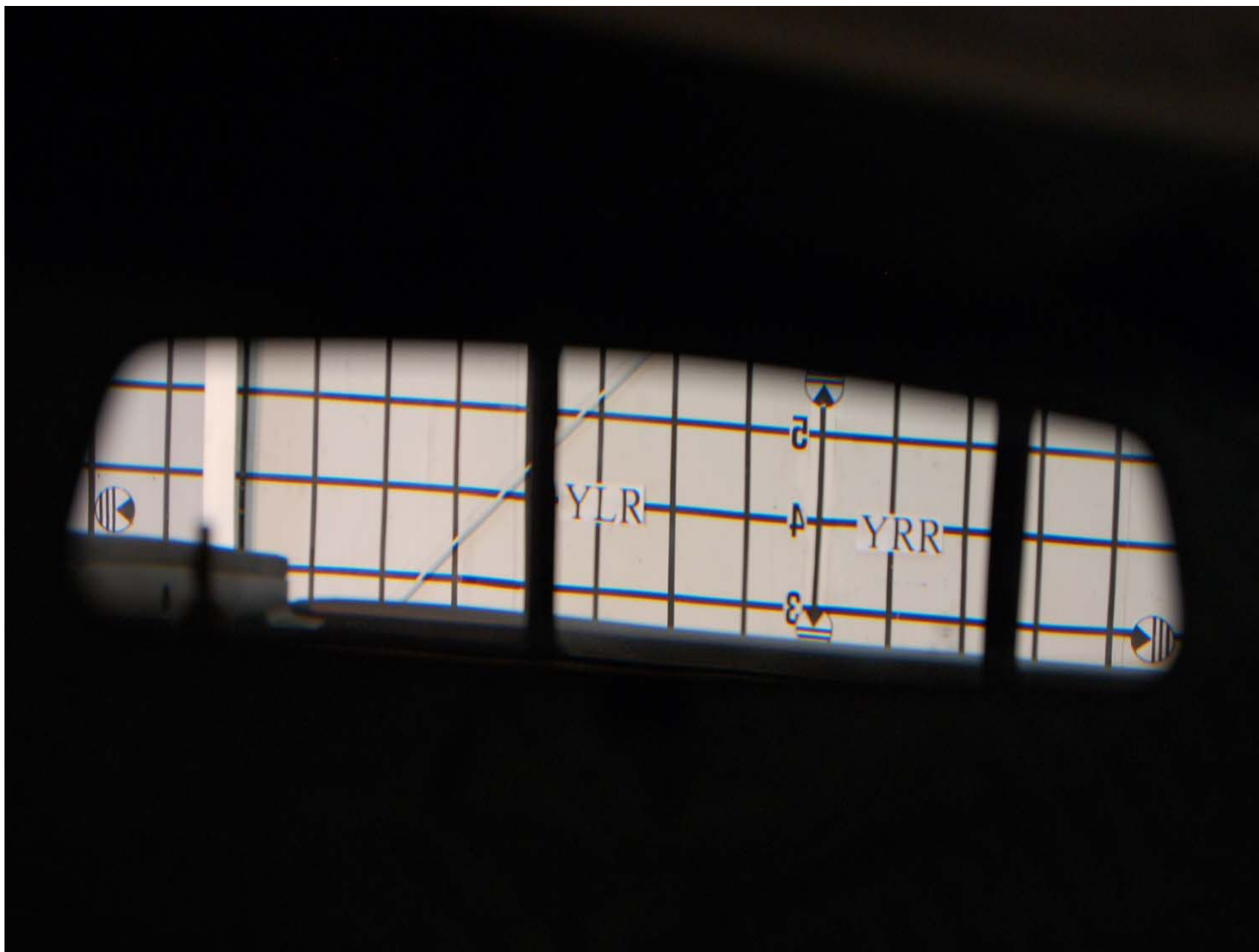
2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.11
REFLECTANCE TEST SET-UP



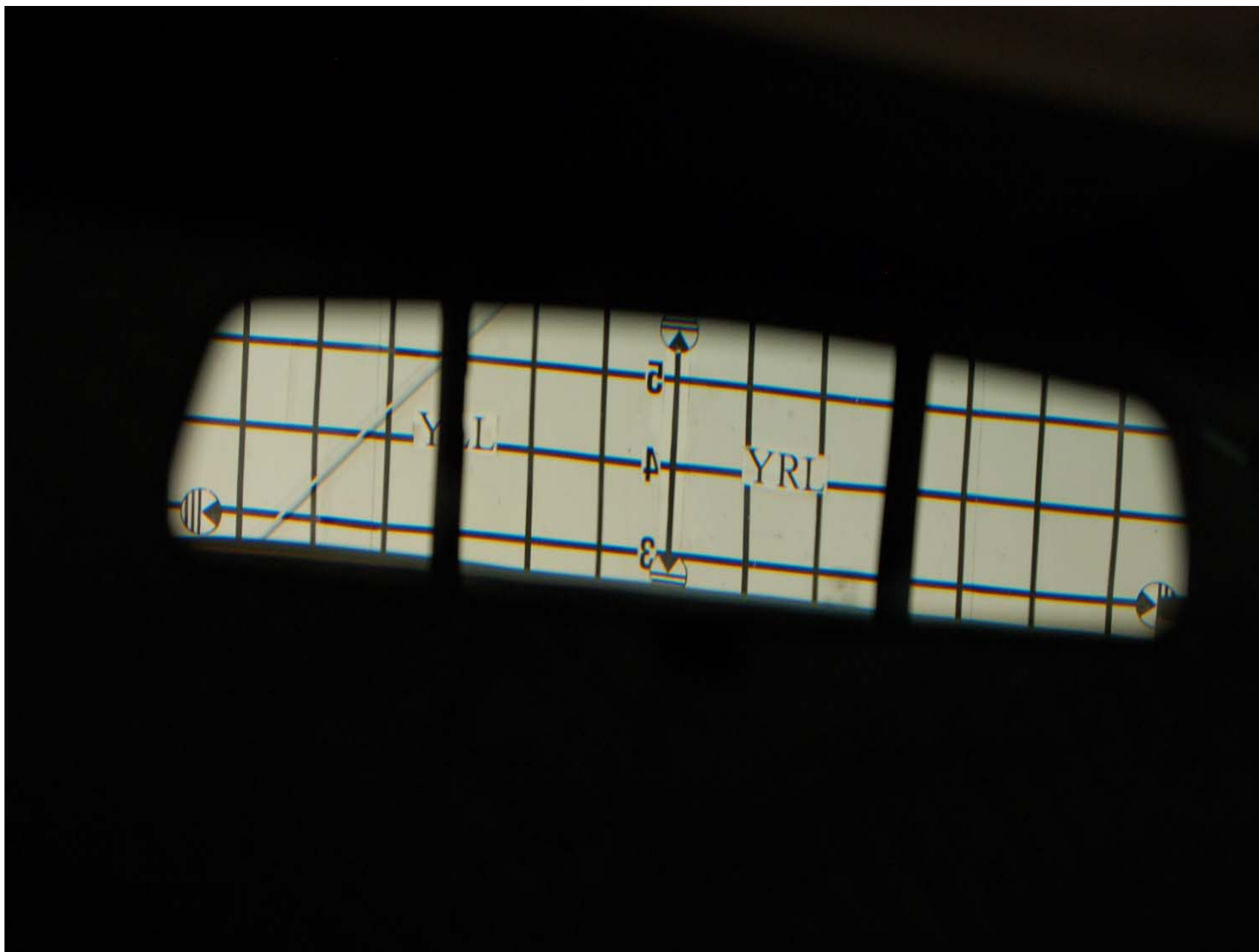
2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.12
BREAK-AWAY TEST SET-UP



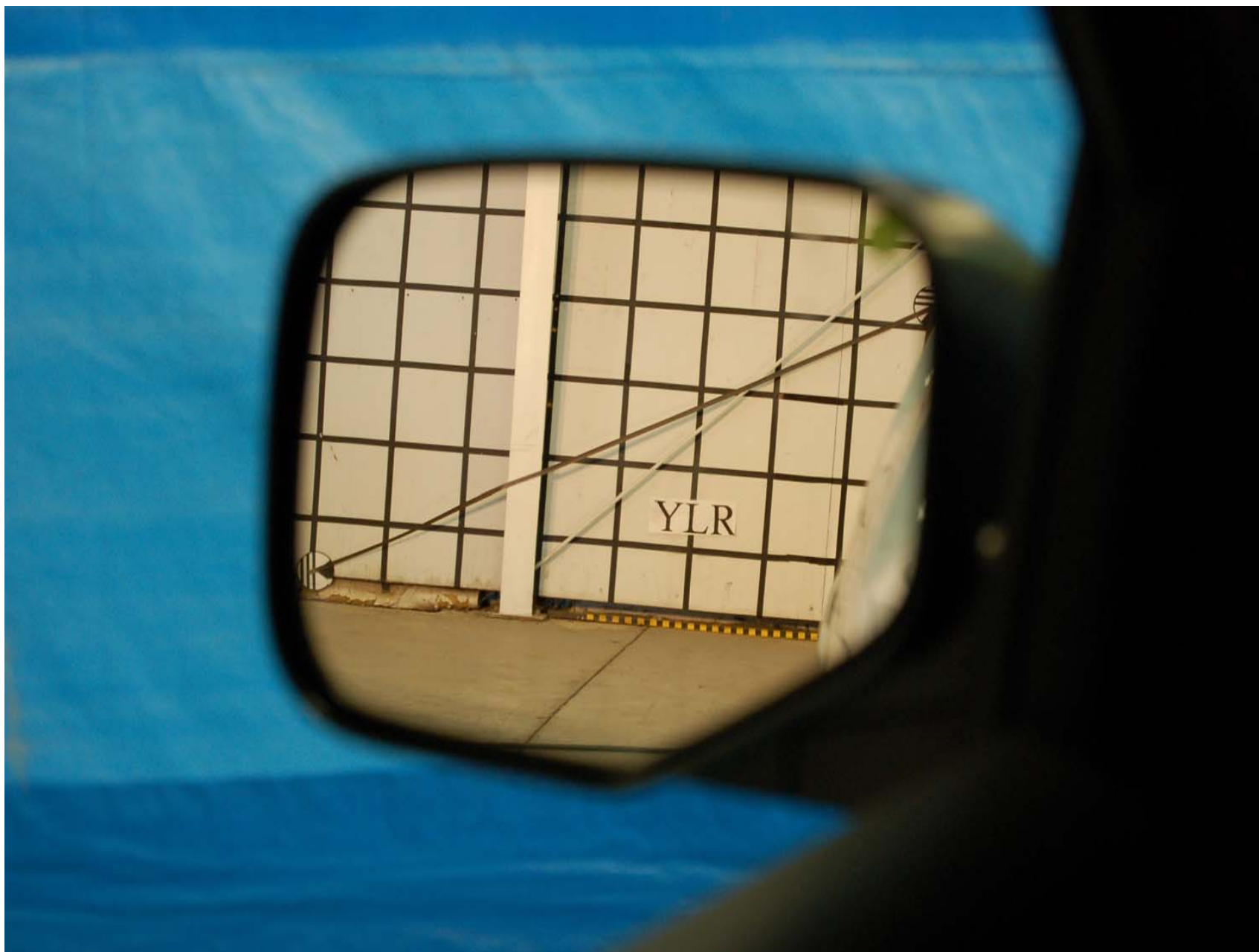
2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.13
INSIDE MIRROR RIGHT EYE FIELD OF VIEW



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.14
INSIDE MIRROR LEFT EYE FIELD OF VIEW



2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

FIGURE 5.15
OUTSIDE MIRROR RIGHT EYE FIELD OF VIEW

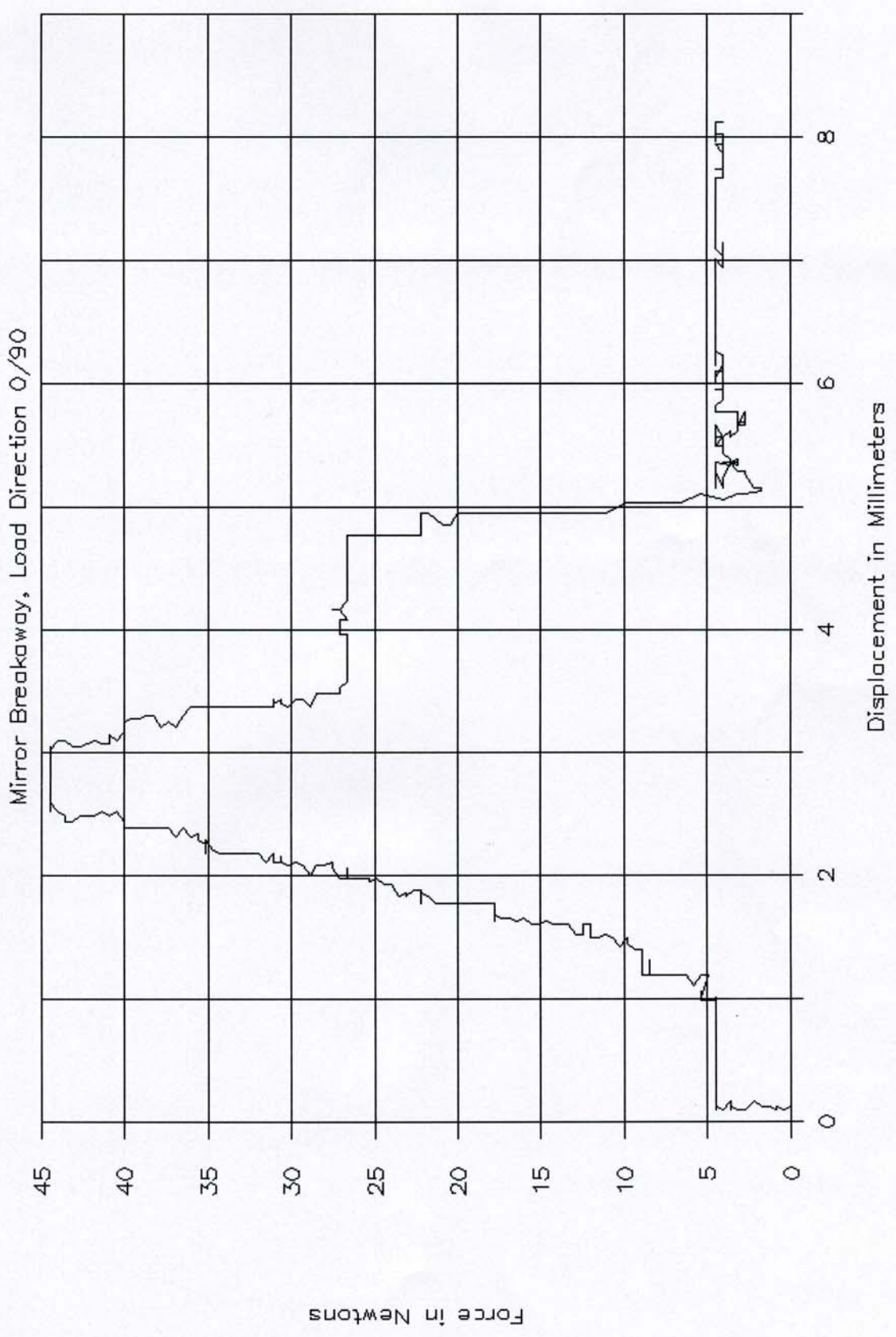


2006 HONDA RIDGELINE
NHTSA NO. C65300
FMVSS NO. 111

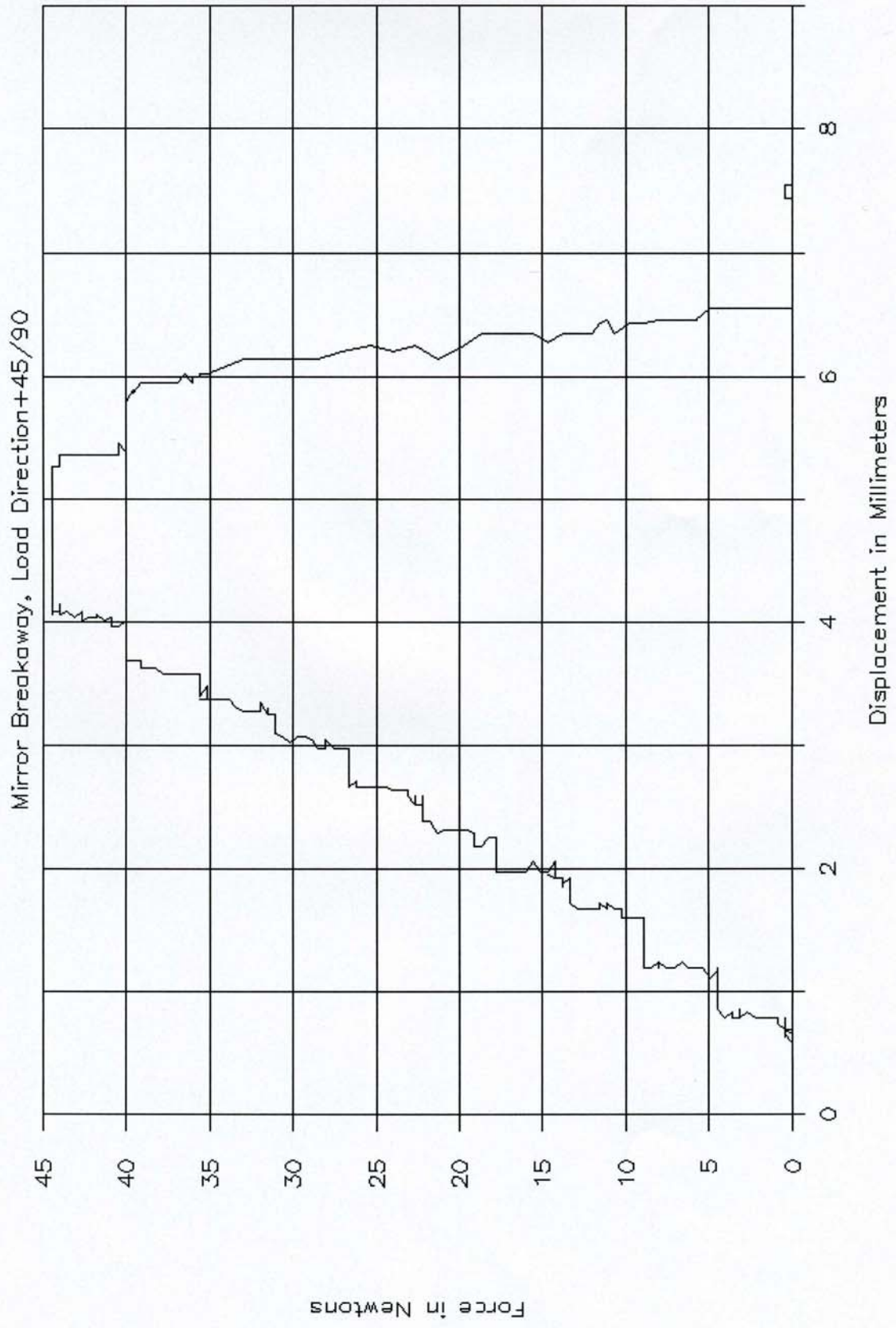
FIGURE 5.16
OUTSIDE MIRROR LEFT EYE FIELD OF VIEW

SECTION 6
FORCE VS. DISPLACEMENT PLOTS

GTL 5572



GTL 5573



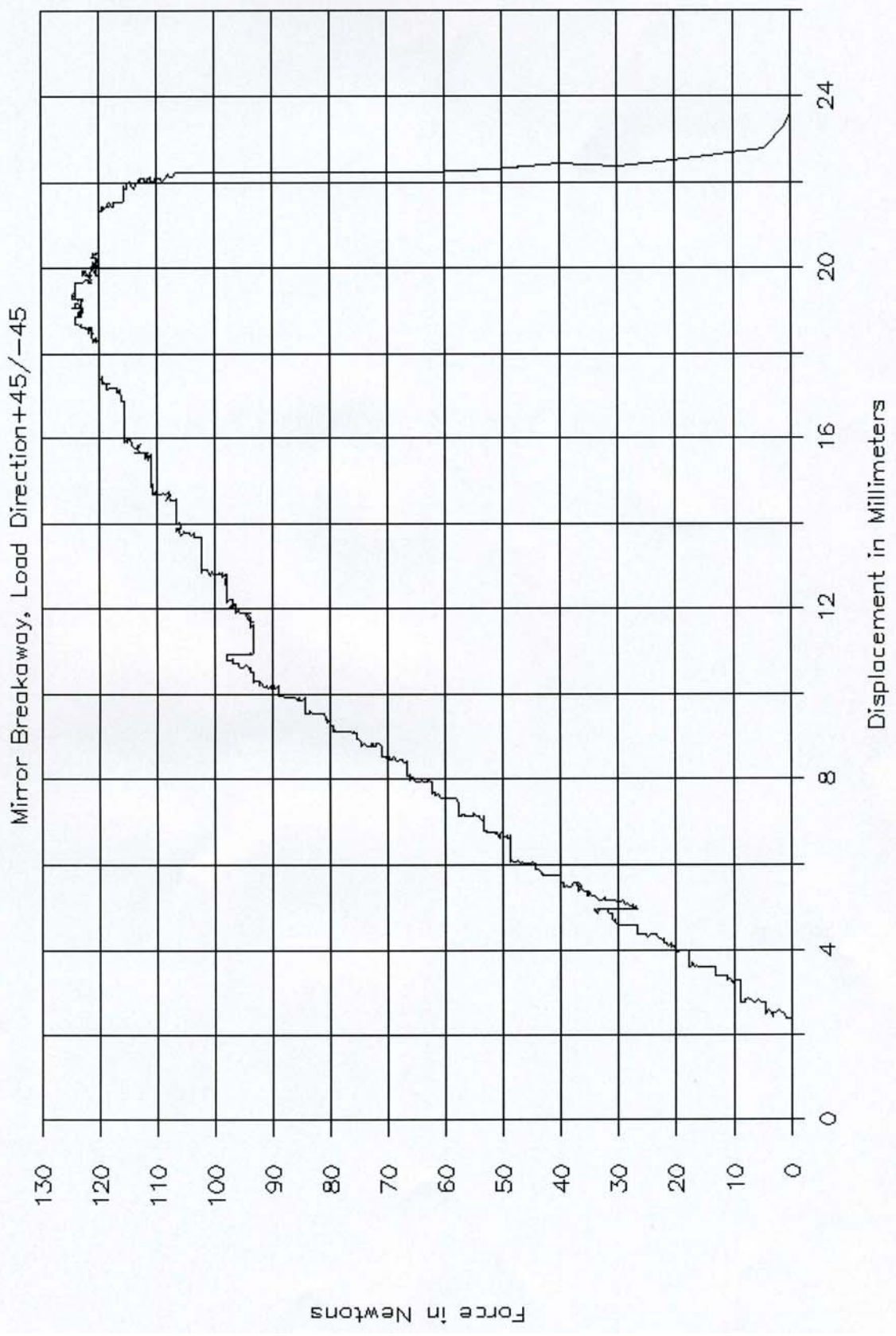
Force in Newtons

Displacement in Millimeters

GTL 5574

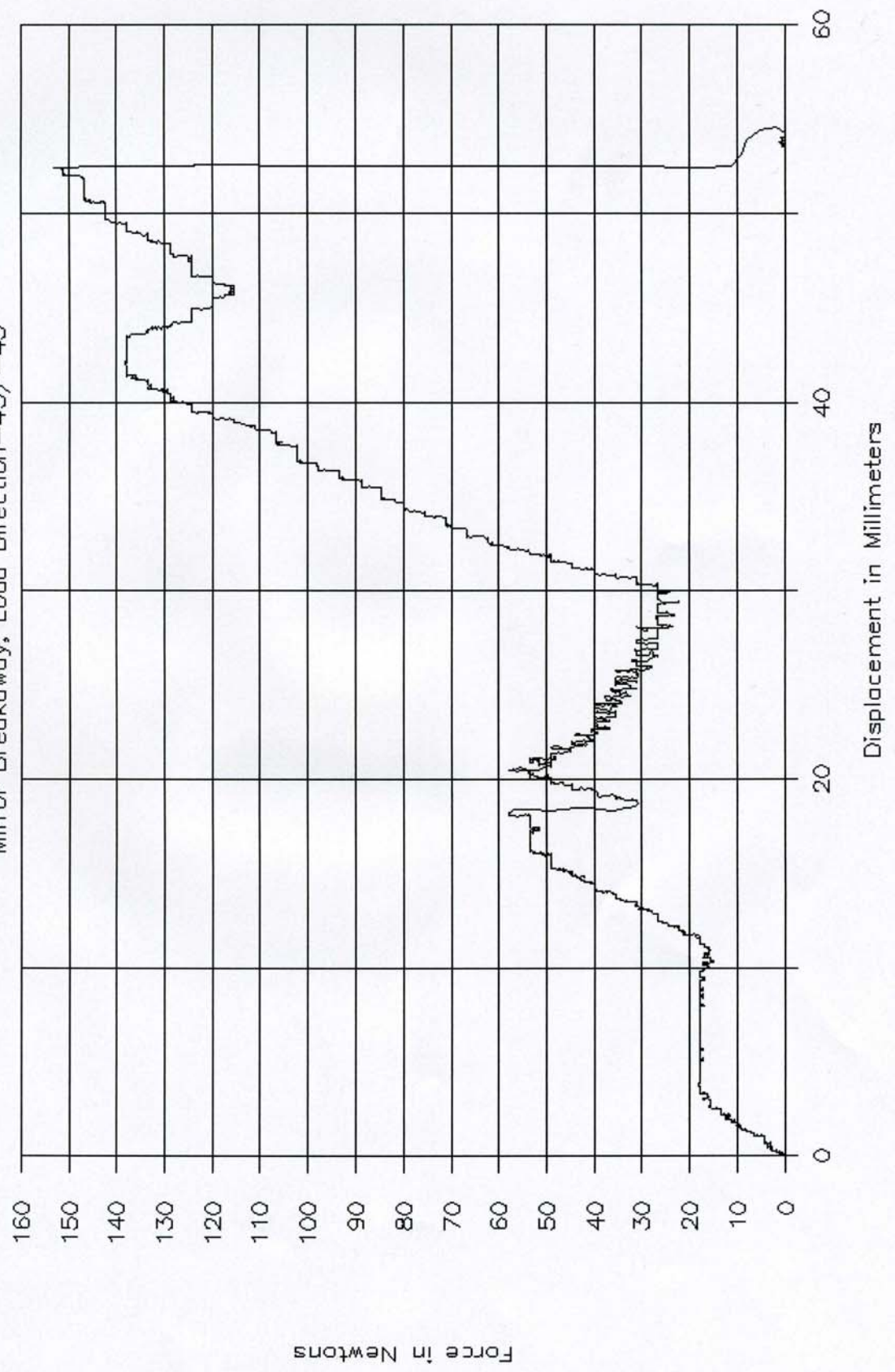


GTL 5575



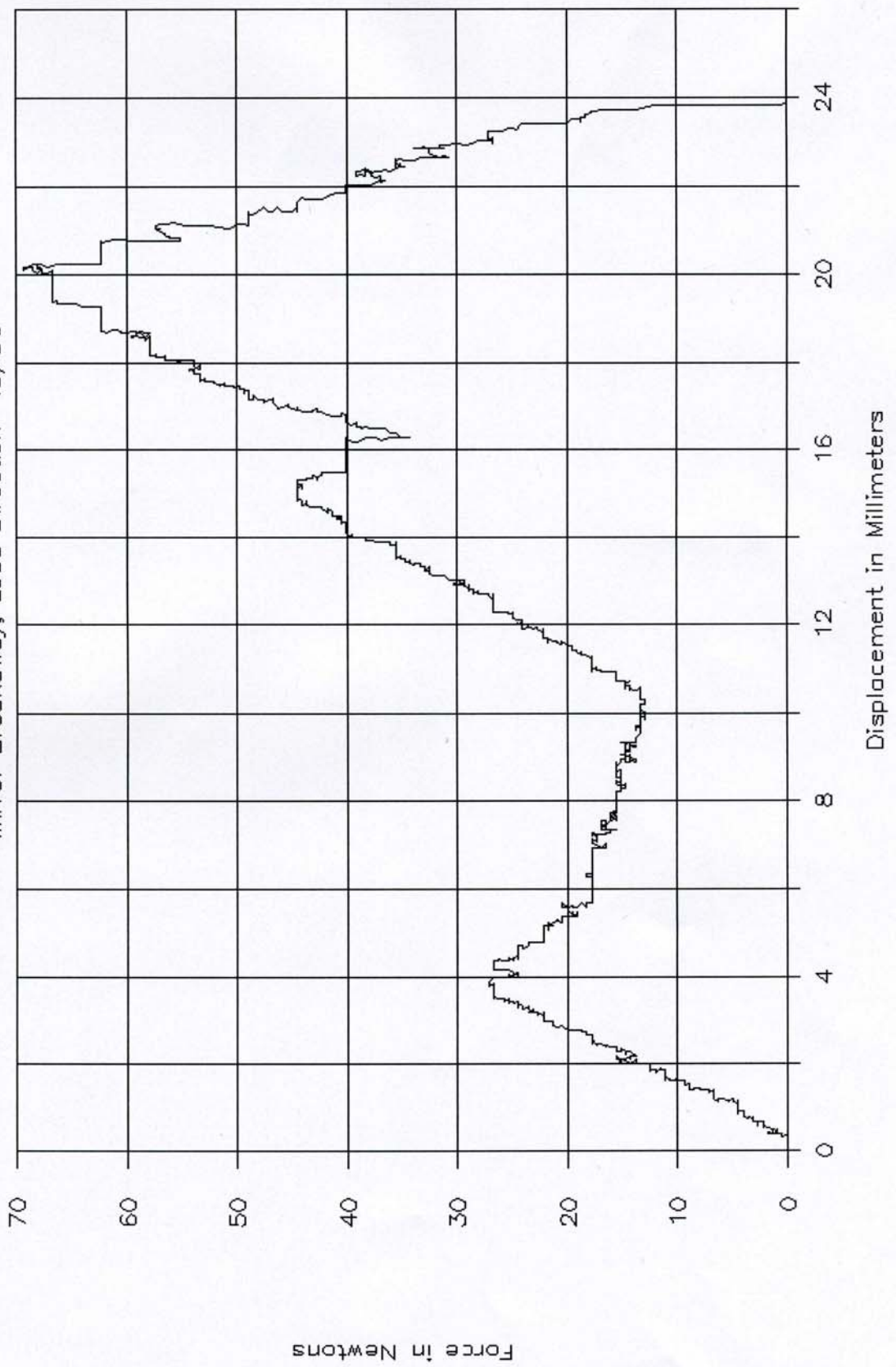
GTL 5576

Mirror Breakaway, Load Direction -45/-45



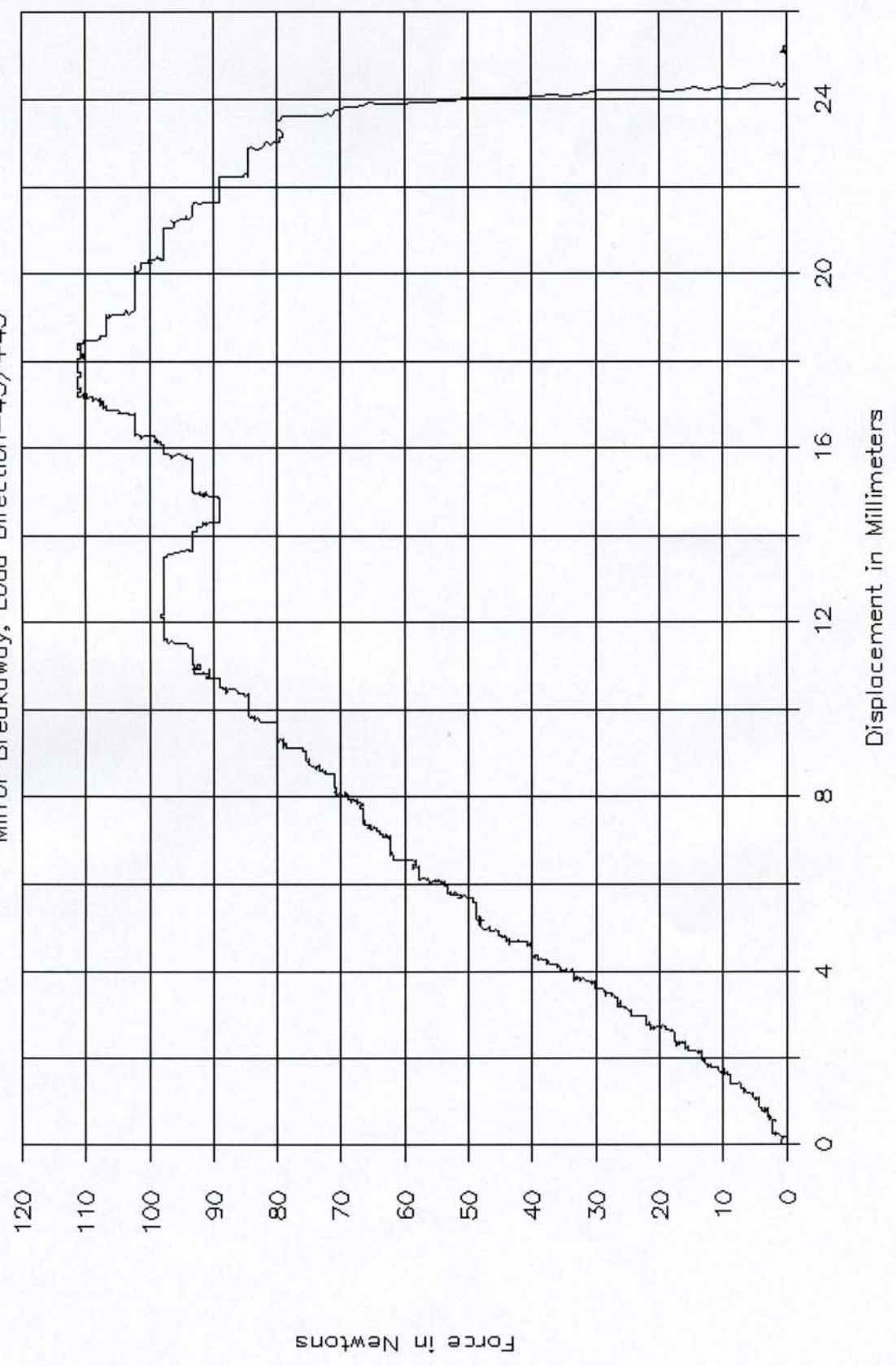
GTL 5577

Mirror Breakaway, Load Direction -45/90



GTL 5578

Mirror Breakaway, Load Direction -45/+45



SECTION 7

EYE POINT LOCATIONS SUBMITTED BY THE VEHICLE MANUFACTURER

FMVSS 111 EYE POINT LOCATIONS

Make: HONDA Model: RIDGELINE Year: 2006

Coordinate System:

X = Longitudinal Dimension
Y = Lateral Dimension
Z = Vertical Dimension

Positive Values are as follows:

X = Forward of Reference Point
Y = Outboard of Reference Point (to driver's side)
Z = Above Reference Point

Provide Reference/Body Fiducial Point that dimensions below are measured from. **Point must be easily accessible and usable by test laboratory personnel, i.e. seat track mounting bolt, seat belt anchorage bolt, door latch "B" pillar striker.** (Provide sketch of reference point if necessary.)

COORDINATES*	LEFT SIDE MIRROR		INSIDE MIRROR		RIGHT SIDE MIRROR	
	LE1 (left eye)	RE1 (right eye)	LE2	RE2	LE3	RE3
X	390	390	390	390	390	390
Y	174	239	174	239	174	239
Z	995	995	995	995	995	995
Mirror Mfr.,	MMUS		DONNELLY		MMUS	
Model (Part No).	LX<USA> (76250-SJC-A012-M2)		LX<USA,CANADA> EX, EX+S/R <USA> EX+L <CANADA> (76400-SJC-A010-M5)		LX<USA> (76200-SJC-A012-M2)	
	EX<USA> (76250-SJC-A112-M2)				EX<USA> (76200-SJC-A112-M2)	
	EX, EX+S/R <USA> EX+L <CANADA> (76250-SJC-A212-M2)		EX, EX+S/R <USA> EX+L <CANADA> (76400-SJC-A111-M5)		EX, EX+S/R <USA> EX+L <CANADA> (76200-SJC-A212-M2)	
	LX<CANADA> (76250-SJC-C011-M2)				LX<CANADA> (76200-SJC-C011-M2)	

* All dimensions in mm