REPORT NUMBER 202a-GTL-10-001

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 202aS HEAD RESTRAINTS – STATIC REQUIREMENTS

FORD MOTOR CO.
2010 LINCOLN MKS, PASSENGER CAR
NHTSA NO. CA0209

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

August 5, 2010

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVE., SE
WASHINGTON, D.C. 20590

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16. Abstract Compliance tests were conducted on the subject, 2010 Lincoln MKS 4-door Passenger Car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-202aS-00 for the determination of FMVSS 202a compliance. Test failures identified were as follows: NONE		
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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2010 Lincoln MKS Passenger Car was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 202a testing to determine if the vehicle was in compliance with the requirements of the standard. The purpose of this standard is to establish requirements for head restraints to reduce the frequency and severity of neck injury in rear end and other collisions.

1.1 The test vehicle was a 2010 Lincoln MKS Passenger Car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1LNHL9DR0AG603297

B. NHTSA No.: CA0209

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 08/09

E. Color: Cinnamon Metallic

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 202a testing during the time period June 28 through July 13, 2010.

SECTION 2

COMPLIANCE TEST RESULTS

2.0 TEST RESULTS

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-202aS-00 dated 22 December 2004.

Based on the test performed, the 2010 Lincoln MKS Passenger Car appeared to meet the requirements of FMVSS 202a testing.

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST DATA

The following data sheets document the results of testing on the 2010 Lincoln MKS Passenger Car.

DATA SHEET 1 (1 of 2)
SUMMARY OF RESULTS

VEH. MOD YR/MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS PASSENGER CAR

VEH. NHTSA NO.: CA0209 ; VIN: 1LNHL9DR0AG603297

VEH. BUILD DATE: 08/09 ; TEST DATE: June 28-July 13, 2010

TEST LABORATORY: GENERAL TESTING LABORATORIES

OBSERVERS: G. FARRAND, J. LATANE

A. VISUAL INSPECTION OF TEST VEHICLE

Upon receipt for completeness, function, and discrepancies or damage which might influence the testing.

RESULTS: OK for testing. Due to manufacture date of vehicle, rear DSP's are not required to meet 202a requirements.

B. DIMENSIONAL REQUIREMENTS	**PASS**	**FAIL**	**N/A**
Driver's Side	X		
Passenger's Side	X		
Rear Designated Seating Positions	X		

C. OWNER'S MANUAL	**PASS**	**FAIL**
	X	

D. REMOVABILITY	**PASS**	**FAIL**	**N/A**
Driver's Side	X		
Passenger's Side	X		
Rear Designated Seating Positions	X		

E. NON-USE POSITION	**PASS**	**FAIL**	**N/A**
Rear Designated Seating Positions			X

DATA SHEET 1 (2 of 2)
SUMMARY OF RESULTS

F.	**ENERGY ABSORPTION TEST**	**PASS**	**FAIL**	**N/A**
	Driver's Side			
	Passenger's Side			
	Rear Designated Seating Positions	X		
G.	**HEIGHT RETENTION TEST**	**PASS**	**FAIL**	**N/A**
	Driver's Side	X		
	Passenger's Side			X
	Rear Designated Seating Positions			X
H.	**BACKSET RETENTION TEST**	**PASS**	**FAIL**	**N/A**
	Driver's Side			
	Passenger's Side	X		
	Rear Designated Seating Positions			

RECORDED BY: G. FARRAND DATE: 07/13/10

APPROVED BY: D. MESSICK

DATA SHEET 2 (1 of 2)
DIMENSIONAL REQUIREMENTS FOR FIXED HEAD RESTRAINTS

VEH. NHTSA NO.: CA0209 TEST DATE: June 28, 2010

Seat Location: REAR DRIVER

Height Measurement

SAE J826 three-dimensional manikin torso angle: 25°

Striker to H-Point (mm): 253 Striker to H-Point angle: Down
Height, H (mm): 778 X **PASS** **FAIL**

H > or = 800 mm for front seats.
H > or = 750 mm for rear seats with head restraints.

If the head restraint is less than the required height, check for passage of the 25 mm diameter sphere.

Width Measurement

If the manikin is moved between the Height measurement and the Width measurement, re-record the torso angle, striker to H-Point distance and angle.

Width is measured 65 mm below the measured Height, H.

Height, Hw (= H – 65): 713
Width, W (mm): 208 X **PASS** **FAIL**

Width must be greater than or equal to 170 mm. If a vehicle has a front center designated seating position the front outboard head restraints must be greater than or equal to 254 mm.

Backset Measurement (Front Head Restraints Only)

Position the HRMD and record the following measurements.

HRMD torso angle: _____

Striker to H-Point (mm): _____ Striker to H-Point angle: _____
Backset, B (mm): _____ PASS FAIL

Backset must be less than or equal to 55 mm.

DATA SHEET 2 (2 of 2)
DIMENSIONAL REQUIREMENTS FOR FIXED HEAD RESTRAINTS

Gap Measurement

Number of gaps within the gap measurement zone: None

Least dimension of each gap (measured with a steel tape): 0

Size of each gap (measured with the spherical head form): 0

Gap Size None X PASS FAIL

Gaps must be less than or equal to 60 mm.

RECORDED BY: J. Latane DATE: 06/28/10

APPROVED BY: G. Farrand

DATA SHEET 2 (1 of 2)
DIMENSIONAL REQUIREMENTS FOR FIXED HEAD RESTRAINTS

VEH. NHTSA NO.: CA0209 TEST DATE: June 28, 2010

Seat Location: REAR PASSENGER

Height Measurement

SAE J826 three-dimensional manikin torso angle: 24°

Striker to H-Point (mm): 250 Striker to H-Point angle: Down
Height, H (mm): 780 X **PASS** **FAIL**

H > or = 800 mm for front seats.
H > or = 750 mm for rear seats with head restraints.

If the head restraint is less than the required height, check for passage of the 25 mm diameter sphere.

Width Measurement

If the manikin is moved between the Height measurement and the Width measurement, re-record the torso angle, striker to H-Point distance and angle.

Width is measured 65 mm below the measured Height, H.

Height, Hw (= H – 65): 715
Width, W (mm): 206 X **PASS** **FAIL**

Width must be greater than or equal to 170 mm. If a vehicle has a front center designated seating position the front outboard head restraints must be greater than or equal to 254 mm.

Backset Measurement (Front Head Restraints Only)

Position the HRMD and record the following measurements.

HRMD torso angle: _____

Striker to H-Point (mm): _____ Striker to H-Point angle: _____
Backset, B (mm): _____ PASS FAIL

Backset must be less than or equal to 55 mm.

DATA SHEET 2 (2 of 2)
DIMENSIONAL REQUIREMENTS FOR FIXED HEAD RESTRAINTS

Gap Measurement

Number of gaps within the gap measurement zone: None

Least dimension of each gap (measured with a steel tape): 0

Size of each gap (measured with the spherical head form): 0

Gap Size None X PASS FAIL

Gaps must be less than or equal to 60 mm.

RECORDED BY: J. Latane DATE: 06/28/10

APPROVED BY: G. Farrand

DATA SHEET 2a (1 of 2)
DIMENSIONAL REQUIREMENTS FOR ADJUSTABLE HEAD RESTRAINTS

VEH. NHTSA NO.: CA0209 TEST DATE: 06/28/10

Seat Location: FRONT PASSENGER

Height Measurement

SAE J826 three-dimensional manikin torso angle: 24°

Striker to H-Point (mm): 170 mm (Ahead) Striker to H-Point angle: Down

Position the head restraint in the highest position of vertical adjustment.
Height, Hh (mm): 839 mm X **PASS** **FAIL**

Hh > or = 800 mm for front seats.

If the head restraint is less than the required height, check for passage of the 25 mm diameter sphere. N/A

Position the head restraint in the lowest position of vertical adjustment.
Height, Hl (mm): 800 mm X **PASS** **FAIL**

Hl > or = 750 mm for front seats and rear seats with head restraints.

If the head restraint is less than the required height, check for passage of the 25 mm diameter sphere. N/A

Width Measurement

If the manikin is moved between the Height measurement and the Width measurement, re-record the torso angle, striker to H-Point distance and angle.

Position the head restraint in the highest position of vertical adjustment.

Width is measured 65 mm below the measured Height, Hh.

Height, Hw (= Hh – 65): 774 mm

Width, W (mm): 207 mm X **PASS** **FAIL**

Width must be greater than or equal to 170 mm. If a vehicle has a front center designated seating position the front outboard head restraints must be greater than or equal to 254 mm. N/A

DATA SHEET 2a (2 of 2)
DIMENSIONAL REQUIREMENTS FOR ADJUSTABLE HEAD RESTRAINTS

Backset Measurement (Front Head Restraints Only)

Position the HRMD and record the following measurements.

HRMD torso angle: 24.2°

Striker to H-Point (mm): 170 mm Striker to H-Point angle: Down

Position the head restraint at a height greater than or equal to 750 mm and less than or equal to 800 mm for front head restraints. Exception: head restraint with lowest position higher than 800 mm, adjust to lowest position.

Backset, B (mm): 24 mm X PASS FAIL

Backset must be less than or equal to 55 mm.

Gap Measurement

Position the head restraint in the lowest position of vertical adjustment.

Number of gaps within the gap measurement zone: None

Least dimension of each gap (measured with a steel tape): N/A

Size of each gap (as measured with the spherical head form):

Gap Size N/A X PASS FAIL

Gaps must be less than or equal to 60 mm.

REMARKS:

RECORDED BY: J. LATANE DATE: 06/28/10

APPROVED BY: G. FARRAND

DATA SHEET 2a (1 of 2)
DIMENSIONAL REQUIREMENTS FOR ADJUSTABLE HEAD RESTRAINTS

VEH. NHTSA NO.: CA0209 TEST DATE: 06/28/10

Seat Location: FRONT DRIVER

Height Measurement

SAE J826 three-dimensional manikin torso angle: 24°

Striker to H-Point (mm): 180 mm (Ahead) Striker to H-Point angle: Down

Position the head restraint in the highest position of vertical adjustment.
Height, Hh (mm): 840 mm X **PASS** **FAIL**

Hh > or = 800 mm for front seats.

If the head restraint is less than the required height, check for passage of the 25 mm diameter sphere. N/A

Position the head restraint in the lowest position of vertical adjustment.
Height, Hl (mm): 800 mm X **PASS** **FAIL**

Hl > or = 750 mm for front seats and rear seats with head restraints.

If the head restraint is less than the required height, check for passage of the 25 mm diameter sphere. N/A

Width Measurement

If the manikin is moved between the Height measurement and the Width measurement, re-record the torso angle, striker to H-Point distance and angle.

Position the head restraint in the highest position of vertical adjustment.

Width is measured 65 mm below the measured Height, Hh.

Height, Hw (= Hh – 65): 775 mm

Width, W (mm): 210 mm X **PASS** **FAIL**

Width must be greater than or equal to 170 mm. If a vehicle has a front center designated seating position the front outboard head restraints must be greater than or equal to 254 mm. N/A

DATA SHEET 2a (2 of 2)
DIMENSIONAL REQUIREMENTS FOR ADJUSTABLE HEAD RESTRAINTS

Backset Measurement (Front Head Restraints Only)

Position the HRMD and record the following measurements.

HRMD torso angle: 23.9°

Striker to H-Point (mm): 180 mm Striker to H-Point angle: Down

Position the head restraint at a height greater than or equal to 750 mm and less than or equal to 800 mm for front head restraints. Exception: head restraint with lowest position higher than 800 mm, adjust to lowest position.

Backset, B (mm): 10 mm X PASS _____ FAIL

Backset must be less than or equal to 55 mm.

Gap Measurement

Position the head restraint in the lowest position of vertical adjustment.

Number of gaps within the gap measurement zone: None

Least dimension of each gap (measured with a steel tape): N/A

Size of each gap (as measured with the spherical head form):

Gap Size N/A X PASS _____ FAIL

Gaps must be less than or equal to 60 mm.

REMARKS:

RECORDED BY: J. LATANE DATE: 06/28/10

APPROVED BY: G. FARRAND

DATA SHEET 3
OWNER'S MANUAL

VEH. NHTSA NO.: CA0209 TEST DATE: 06/28/10

Emphasize that all occupants should place their head restraint in a proper position prior to operating the vehicle in order to prevent the risk of serious injury.

PASS X FAIL _____

Description of the head restraint system and identification of which seats are equipped.

PASS X FAIL _____

If the head restraint is removable, instructions on how to properly remove and reinstall using a deliberate action distinct from any act necessary for adjustment.

PASS X FAIL _____ N/A _____

Warning that all head restraints must be reinstalled properly to protect occupants.

PASS X FAIL _____

Describe the adjustment of the head restraints and/or seat back to achieve proper head restraint position relative the head. The description must include the following:

1) a presentation and explanation of the main components of the vehicle's head restraints

2) the basic requirements for proper head restraint operation, including an explanation of the actions that may affect the proper functioning of the head restraints.

3) the basic requirements for proper positioning of a head restraint in relation to an occupant's head position, including information regarding the proper positioning of the center of gravity of an occupant's head in relation to the head restraint.

PASS X FAIL _____

Include copies of relevant pages from the owner's manual in the final report.

REMARKS:

RECORDED BY: G. FARRAND DATE: 06/28/10

APPROVED BY: D. MESSICK

DATA SHEET 4
REMOVABILITY

VEH. NHTSA NO.: CA0209 TEST DATE: 06/28/10

Are the head restraints removable? X **YES** **NO**

If removable, does removal REQUIRE an action distinct from actions to adjust the head restraint?
X **YES (PASS)** **NO (FAIL)**

Description of action(s) for head restraint adjustment:

1. Raise the head restraint by pulling up on the head restraint.
2. Lower the head restraint by pressing and holding in the large release button while pushing down on the head restraint.

Description of distinct action for removal:

Simultaneously press and hold both the release button and the small remove button while also pulling up on the head restraint.

REMARKS:

RECORDED BY: G. FARRAND DATE: 06/28/10

APPROVED BY: D. MESSICK

DATA SHEET 5
ENERGY ABSORPTION TEST

VEH. NHTSA NO.: CA0209 TEST DATE: 07/13/10

Seat Location: REAR DRIVER Type of head restraint: FIXED

Test Number: 6761

635 mm Height Measurement for lower boundary of the impact zone

SAE J826 three-dimensional manikin torso angle: 25°

Striker to H-Point (mm): 253 mm Striker to H-Point angle: Down

Description of equipment or method used to rigidly fix the seat back: Telescoping steel tube screwed into top of seat back and rear floor of vehicle.

Accelerometer identification: FZ03 Accelerometer type/brand: ENDEVCO

Last calibration date: 07/10

Head form vertical angle (-2° - +2°): 0.0

Distance between head form and target location (> or = 25 mm): 30 mm

Impact velocity (23.6 kph ± 0.5 kph): 23.55 KpH

Impact location: Centerline of Headrest, 658 mm up from SRP

Maximum deceleration (< or = 785 m/s² (80 g)): 34.g **PASS** X **FAIL**

REMARKS:

RECORDED BY: G. FARRAND DATE: 07/13/10

APPROVED BY: D. MESSICK

DATA SHEET 6
HEIGHT RETENTION TEST
(ADJUSTABLE HEAD RESTRAINTS ONLY)

VEH. NHTSA NO.: CA0209 TEST DATE: 07/09/10

Seat Location: DRIVER Test Number: 6755, 6756

Pre-test measurements

SAE J826 Manikin torso angle: 24° Top of Head Restraint Height (mm): 840 mm

Striker to H-Point (mm): 180 mm Striker to H-Point angle: Down

Description of height retention lock: Push button lock on left side head restraint post.

Test measurements

Initial load (50 N ± 1 N): 51 N Initial Displacement, D1 (mm): 9.1 mm

Initial Displacement (D1) < 25 mm 9.1 mm **PASS** X **FAIL**

Maximum load (495 N ± 5 N): 500 N Maximum Displacement, D2 (mm): 30.2 mm

Return load (50 N ± 1 N): 51 N Return Displacement, D3 (mm): 11.2 mm

Total displacement (D3-D1) < 13 mm: 2.1 mm **PASS** X **FAIL**

REMARKS:

RECORDED BY: G. FARRAND DATE: 07/09/10

APPROVED BY: D. MESSICK

DATA SHEET 7
BACKSET RETENTION TEST

VEH. NHTSA NO.: CA0209 TEST DATE: 07/13/10

Seat Location: FRONT PASSENGER Type of head restraint: ADJUSTABLE

Test Number: 6120, 6121, 6122, 6123

Pre-test measurements

SAE J826 Manikin torso angle: 24° Top of Head Restraint Height (mm): 839 mm

Striker to H-Point (mm): 170 mm Striker to H-Point angle: Down

Displacement torso reference line

Test device back pan angle: 24°

Distance from the H-point to the initial location of the load (0.290 ± 0.013 m): .29 m

Initial load (N): 1286 N Initial moment (373 ± 7.5 Nm): 373 Nm

Backset retention and strength

Distance from the H-point to the head form tangency point (m): 735 m

Initial load (N): 51 N Initial moment (37 ± 0.7 Nm): 37 Nm

Initial head form displacement, D1 (< or = 25 mm): 12.2 mm **PASS** X **FAIL**

Load range to generate a 373 ± 7.5 Nm rearward moment (N): 507 N

Actual load applied (N): 507N Resultant moment (Nm): 373 Nm

Maximum Head form displacement, D2 (< or = 102 mm): 58 mm **PASS** X **FAIL**

Final head form displacement, D3 (mm): 98.1 mm
measured at (37 ± 0.7 Nm)

Total displacement (D3-D1) < 13 mm : 8.5 mm **PASS** X **FAIL**

Maximum applied load (> or equal to 885 N): 888 N **PASS** X **FAIL**

REMARKS:

RECORDED BY: G. FARRAND DATE: 07/13/10
APPROVED BY: D. MESSICK

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 – INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
HRMD	RONA KINETICS & ASSOCIATES LTD.	HRMD 0-62	N/A	N/A
J826 MANIKIN	ALDERSON RESEARCH LABS	3 DM/92	N/A	N/A
INCLINOMETER	MITUTOYO	PRO 360	BEFORE USE	BEFORE USE
STEEL TAPE	STANLEY	33-890	04/10	04/11
TORPEDO LEVEL	SANDS	500	BEFORE USE	BEFORE USE
FORCE GAUGE	CHATILLON	DPPN-50 870	BEFORE USE	BEFORE USE
LEVEL, LASER	BLACK & DECKER	360	BEFORE USE	BEFORE USE
LEVEL, LASER	SEAN & STEPHEN CORP	90º, 45º	BEFORE USE	BEFORE USE
LEVEL, LASER	GAERTNER	2789-A	BEFORE USE	BEFORE USE
ACCELEROMETER	ENDEVCO	FZ03	07/10	07/11
LOAD CELL	SENSOTEC	257818	07/10	07/11
LOAD CELL	INTERFACE	27246	02/10	02/11
LOAD CELL	INTERFACE	38068	02/10	02/11
STRING POT	WALDALE	102	BEFORE USE	BEFORE USE
STRING POT	CELESCO	69	BEFORE USE	BEFORE USE

SECTION 5
PHOTOGRAPHS

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.1
LEFT SIDE VIEW OF VEHICLE

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

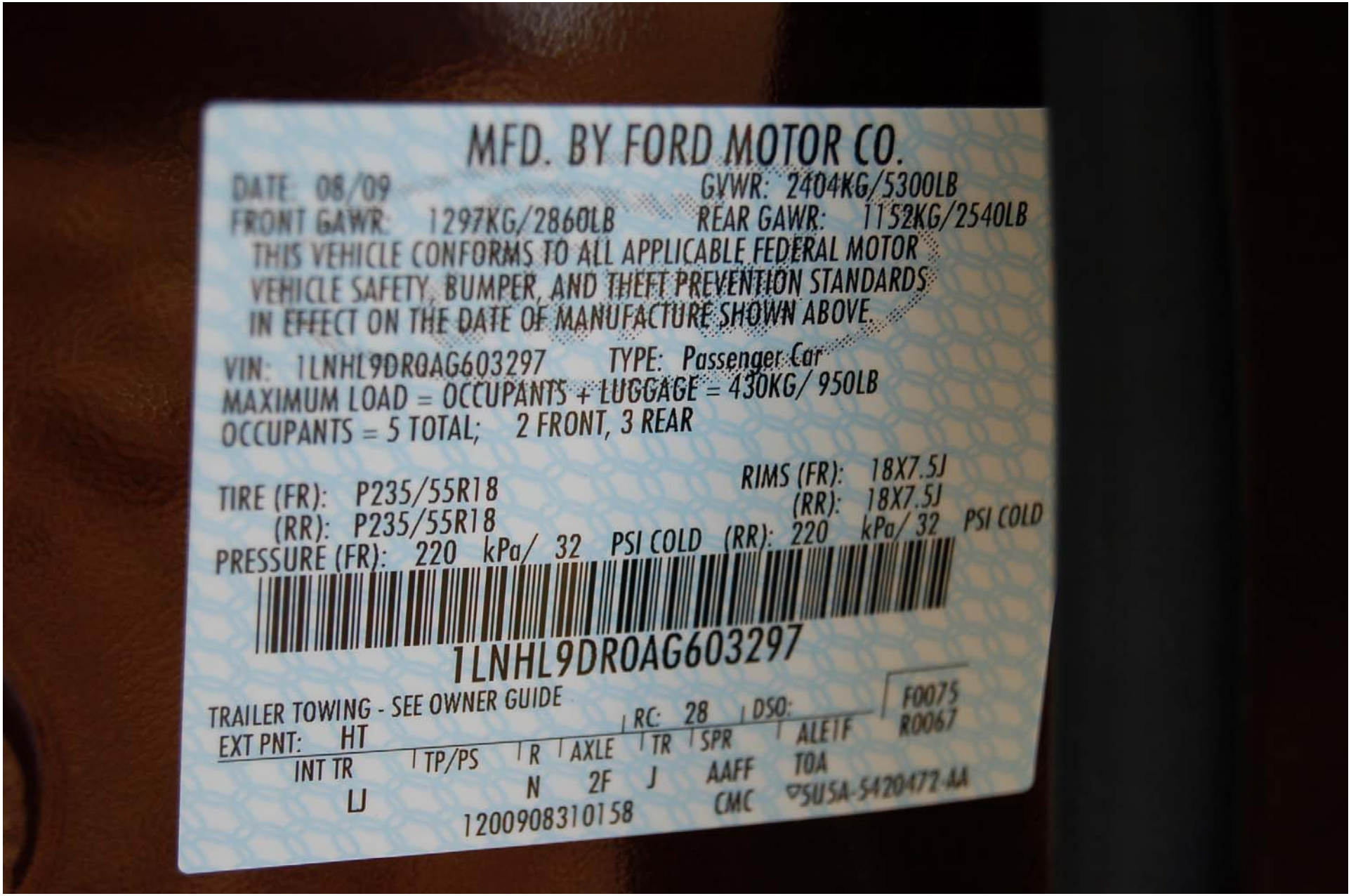
FIGURE 5.2
RIGHT SIDE VIEW OF VEHICLE

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.3
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.4
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



2010 LINCOLN MKS
NHTSA NO. CA0209
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FIGURE 5.5
VEHICLE CERTIFICATION LABEL

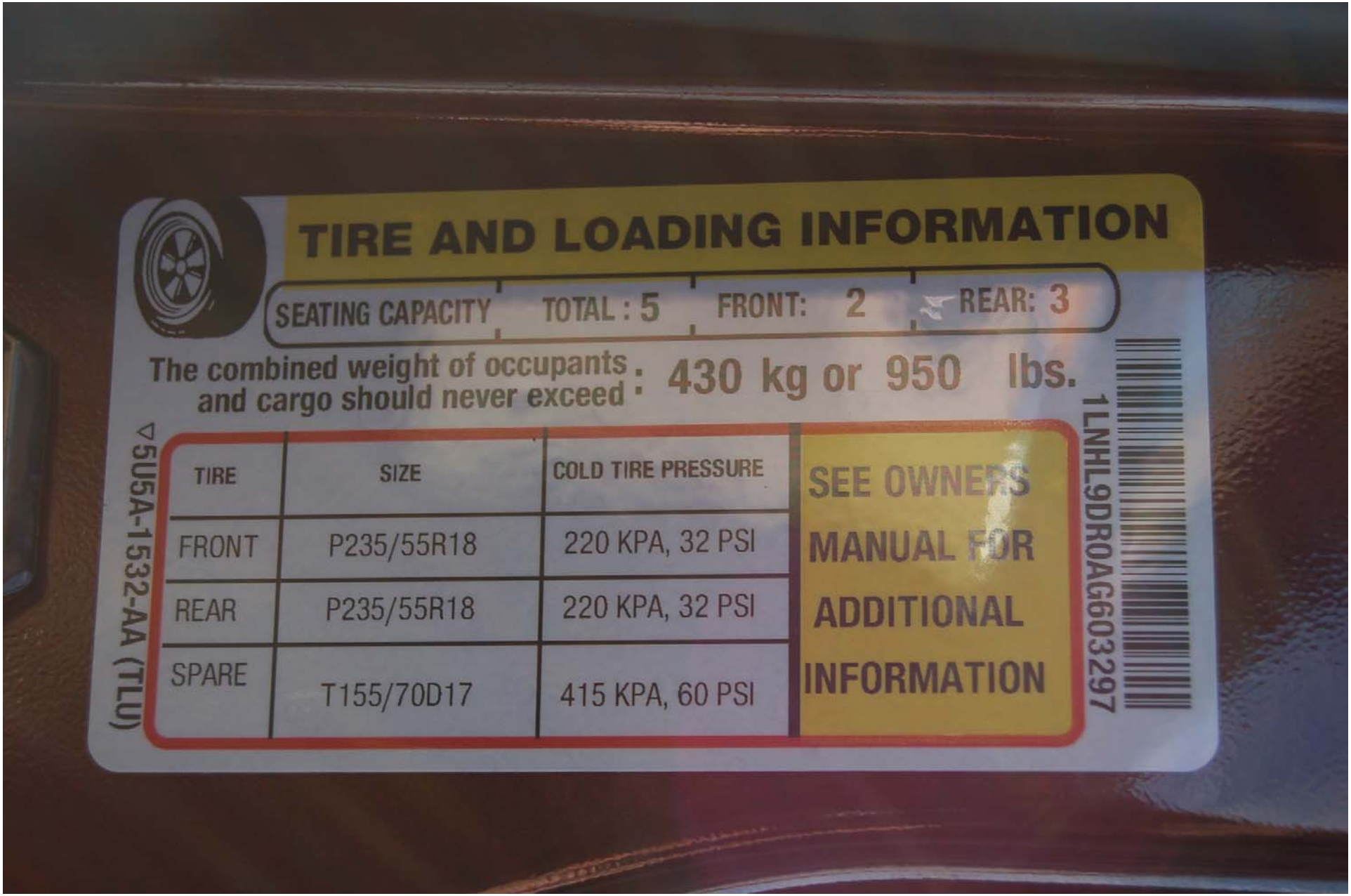

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FIGURE 5.6
VEHICLE TIRE INFORMATION LABEL

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.7
PRE-TEST VIEW OF DRIVER SEAT HEAD RESTRAINT IN LOWEST POSITION

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.8
PRE-TEST VIEW OF DRIVER SEAT HEAD RESTRAINT IN HIGHEST POSITION

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.9
PRE-TEST VIEW OF PASSENGER SEAT HEAD RESTRAINT IN LOWEST POSITION

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.10
PRE-TEST VIEW OF PASSENGER SEAT HEAD RESTRAINT IN HIGHEST POSITION

2010 LINCOLN MKS
NHTSA NO. CA0209
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FIGURE 5.11
HEAD RESTRAINT ADJUSTMENT BUTTON

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FIGURE 5.12
HEAD RESTRAINT REMOVE BUTTON

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FIGURE 5.13
WIDTH MEASUREMENT OF FRONT HEAD RESTRAINT

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FIGURE 5.14
WIDTH MEASUREMENT OF DRIVER HEAD RESTRAINT

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FIGURE 5.15
SAE J826 MANIKIN IN DRIVER SEAT

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.16
HRMD IN DRIVER SEAT

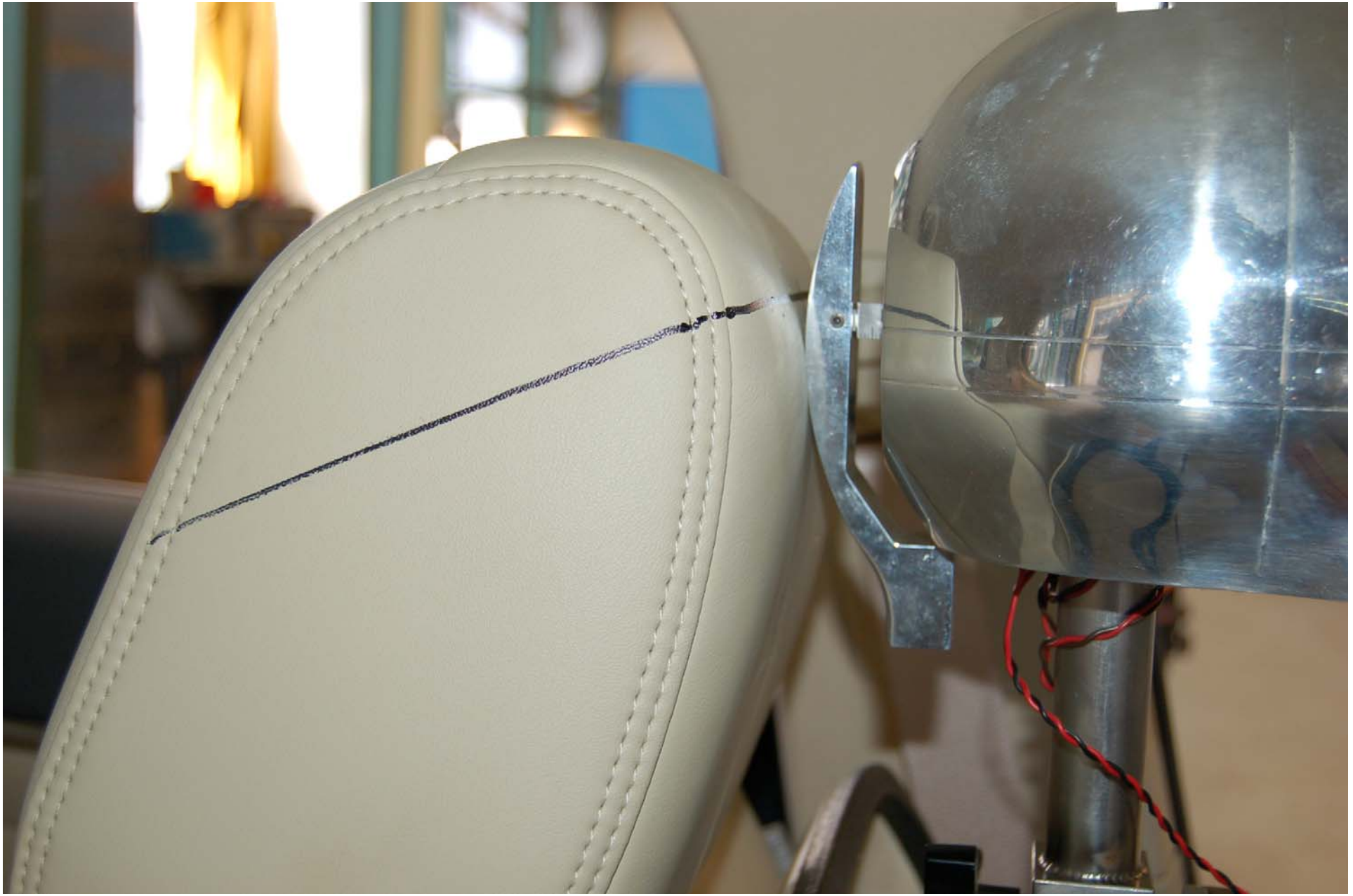

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FIGURE 5.17
MEASUREMENT OF DRIVER BACKSET

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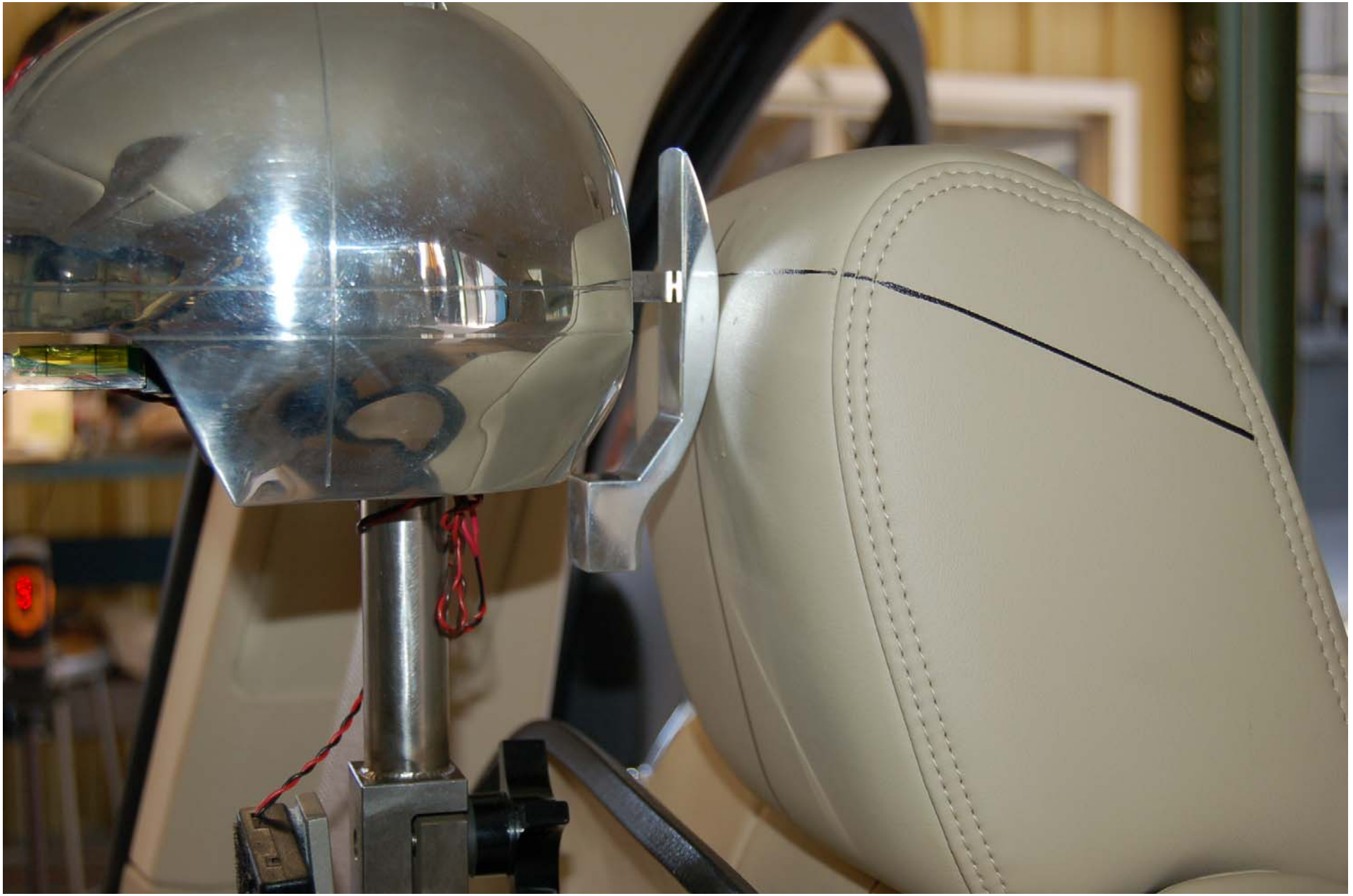
FIGURE 5.18
SAE J826 MANIKIN IN FRONT PASSENGER SEAT

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.19
HRMD IN FRONT PASSENGER SEAT



2010 LINCOLN MKS
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FMVSS NO. 202a

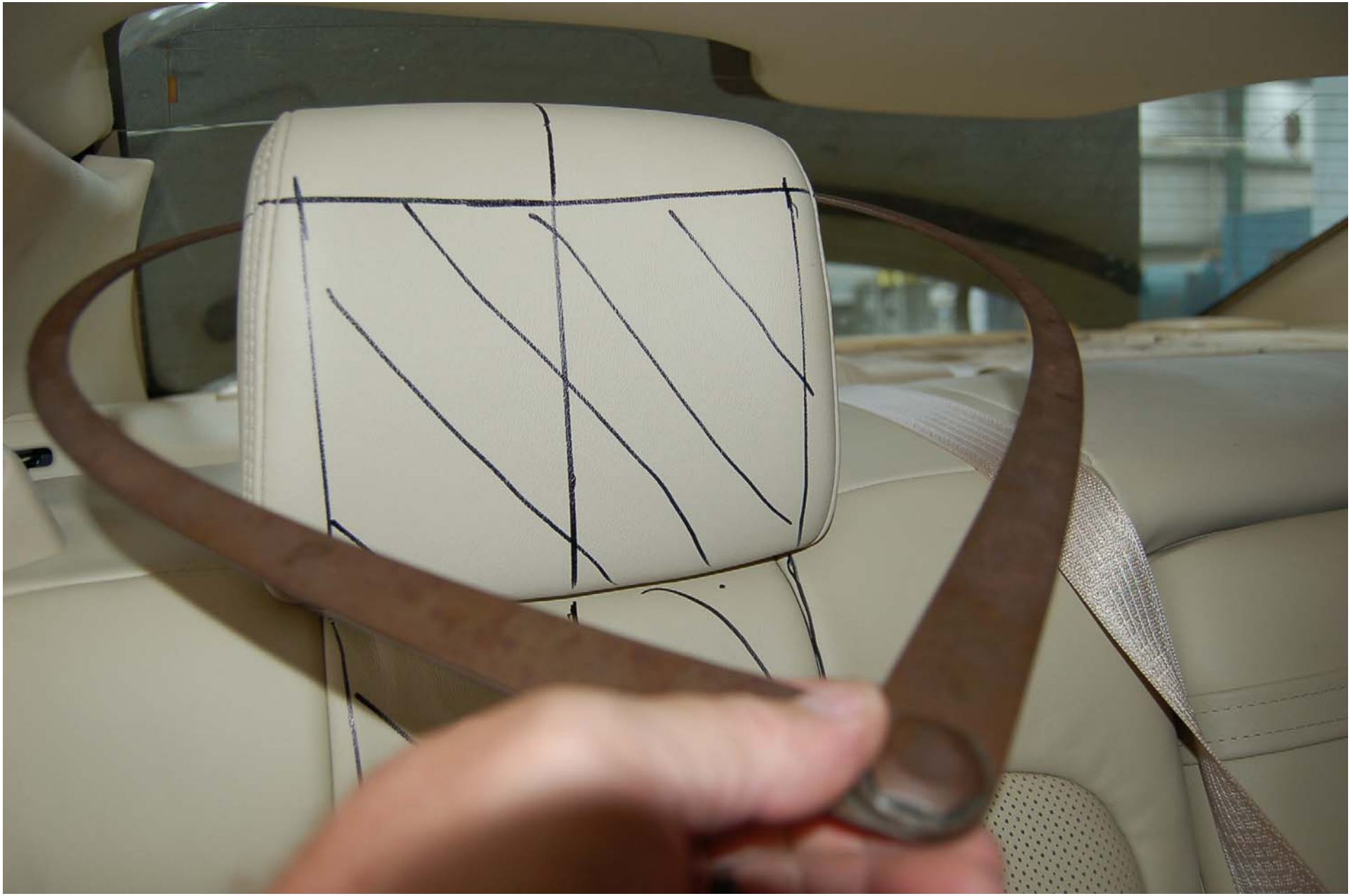
FIGURE 5.20
MEASUREMENT OF FRONT PASSENGER BACKSET

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.21
PRE-TEST VIEW OF REAR DRIVER HEAD RESTRAINT

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.22
PRE-TEST VIEW OF REAR PASSENGER HEAD RESTRAINT



2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.23
WIDTH MEASUREMENT OF REAR HEAD RESTRAINT

2010 LINCOLN MKS
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FMVSS NO. 202a

FIGURE 5.24
SAE J826 MANIKIN IN REAR DRIVER SEAT

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FMVSS NO. 202a

FIGURE 5.25
SAE J826 MANIKIN IN REAR PASSENGER SEAT

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FIGURE 5.26
PRE-TEST SET-UP FOR HEIGHT RETENTION

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FMVSS NO. 202a

FIGURE 5.27
PRE-TEST SET-UP FOR HEIGHT RETENTION

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FMVSS NO. 202a

FIGURE 5.28
HEAD FORM CONTACT

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.29
HEAD FORM CONTACT AT 10% LOAD

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.30
HEAD FORM CONTACT AT FULL LOAD

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FMVSS NO. 202a

FIGURE 5.31
HEAD FORM AFTER RELEASE

2010 LINCOLN MKS
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FMVSS NO. 202a

FIGURE 5.32
HEAD FORM AT 10% POST TEST LOAD

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FMVSS NO. 202a

FIGURE 5.33
PRE-TEST SET-UP FOR BACKSET RETENTION

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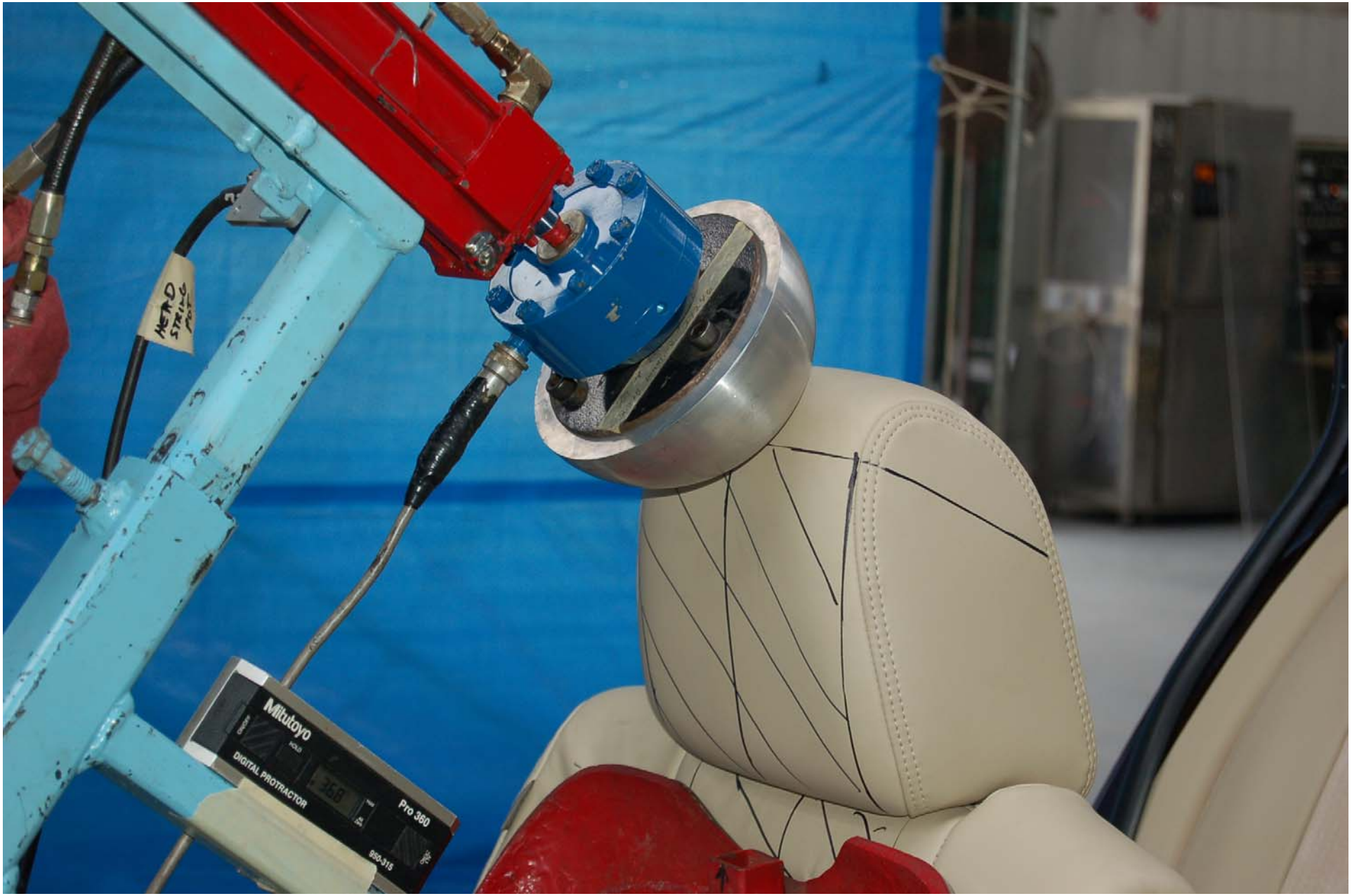
FMVSS NO. 202a

FIGURE 5.34
BACK PAN AT 373 Nm LOAD



2010 LINCOLN MKS
NHTSA NO. CA0209
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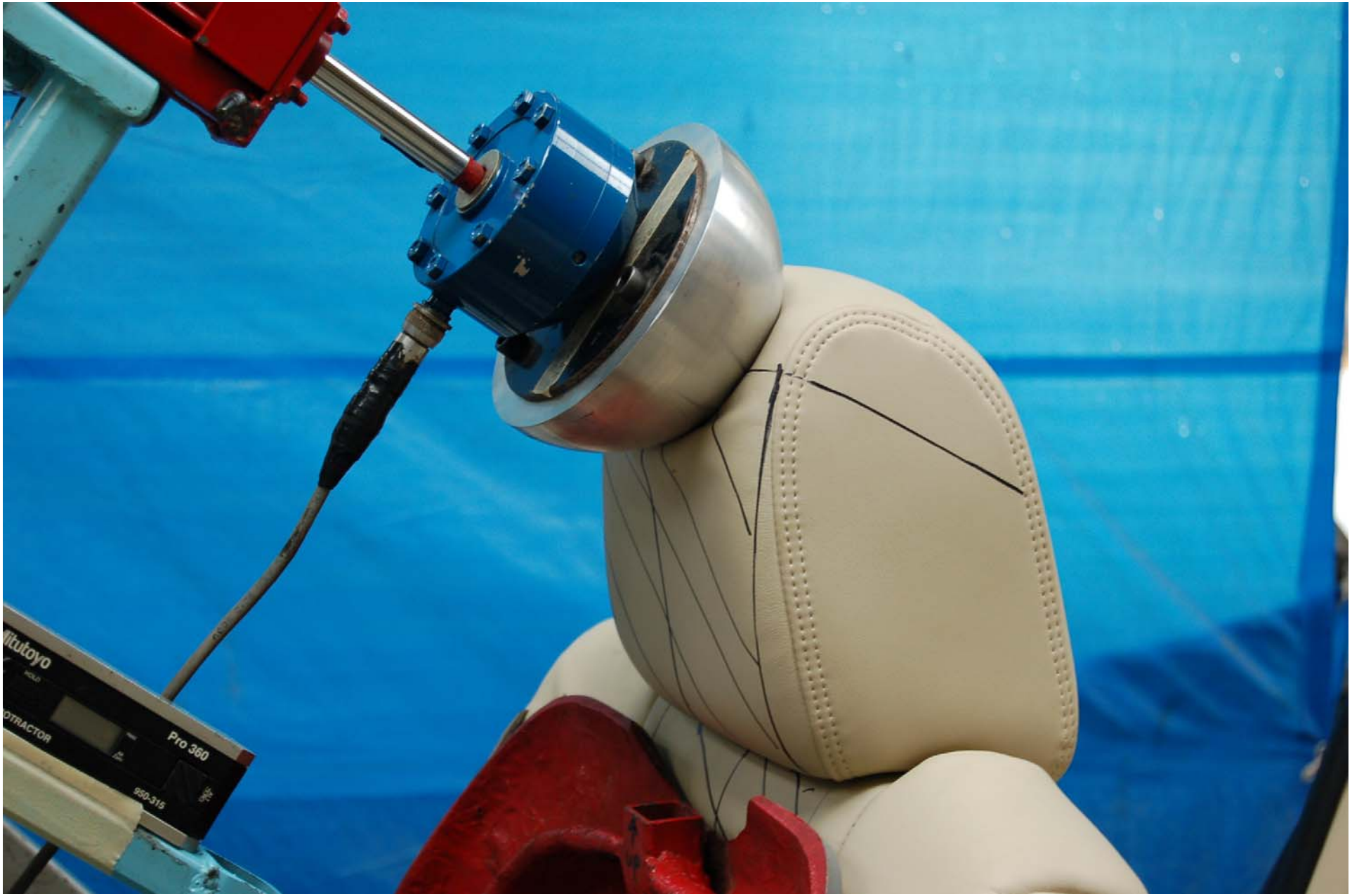
FIGURE 5.35
HEAD RESTRAINT AT 37 Nm LOAD



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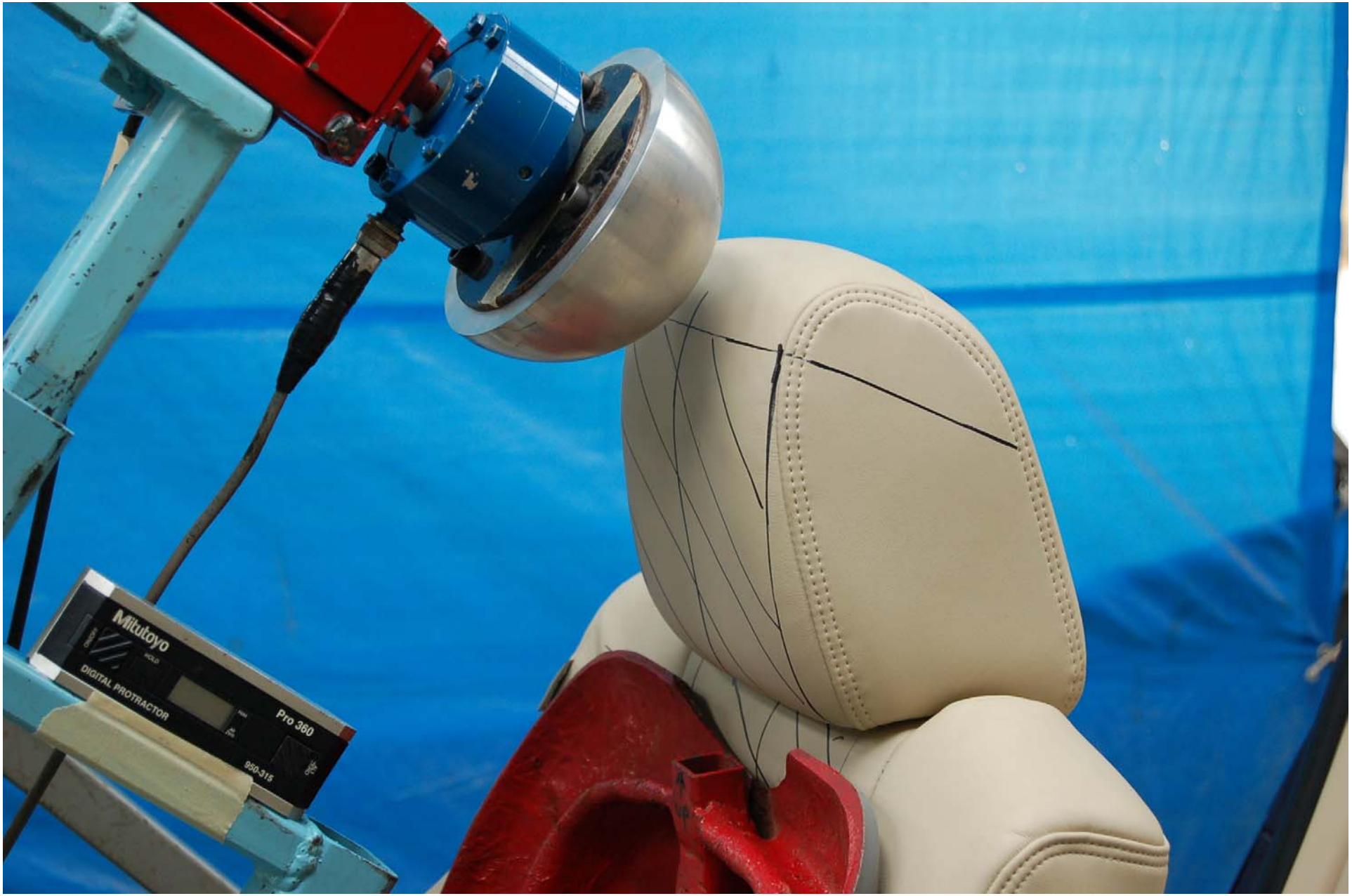
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.36
HEAD RESTRAINT AT 373 Nm LOAD



2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.37
HEAD RESTRAINT AFTER RELEASE OF 373 Nm LOAD

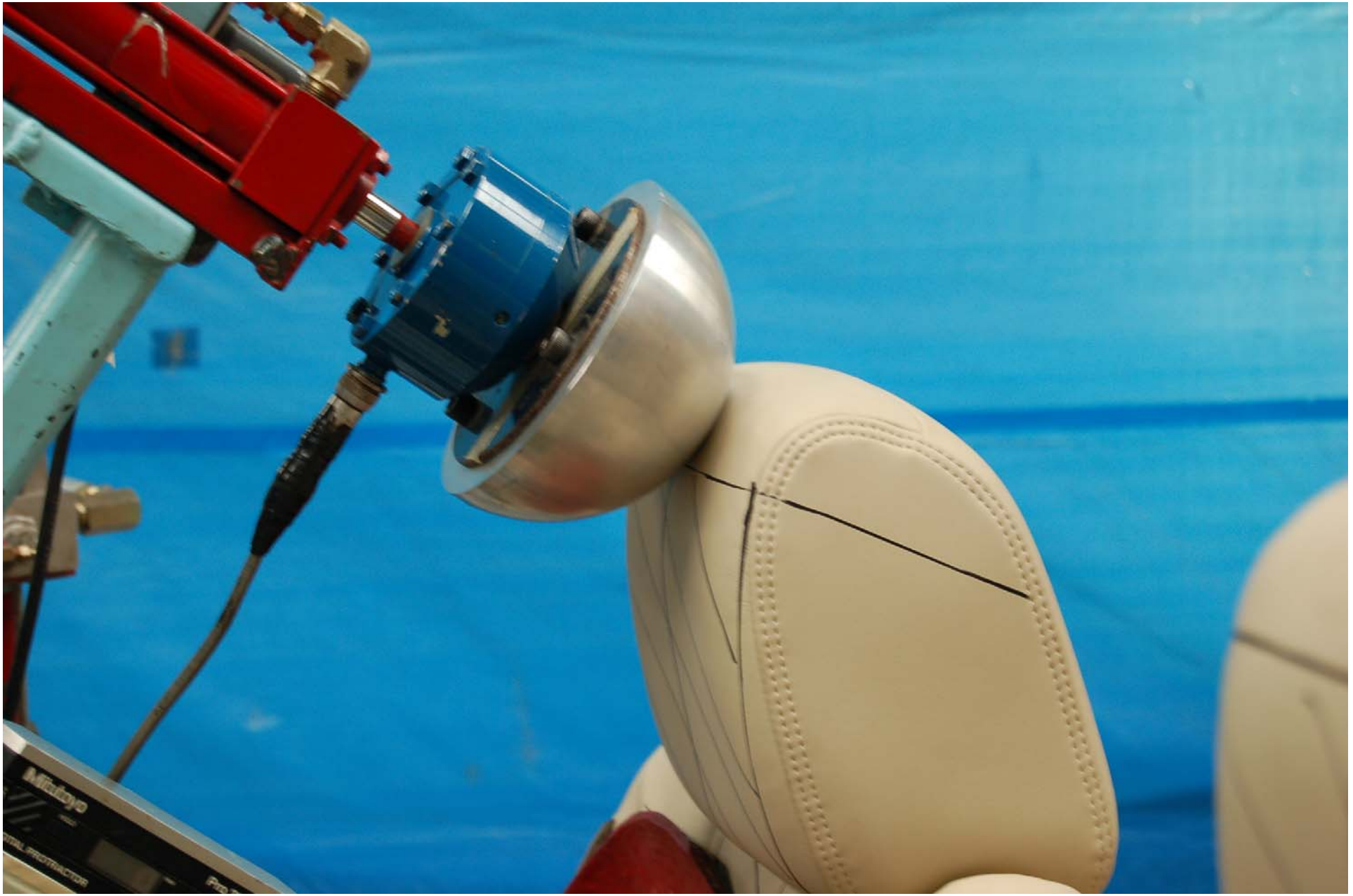


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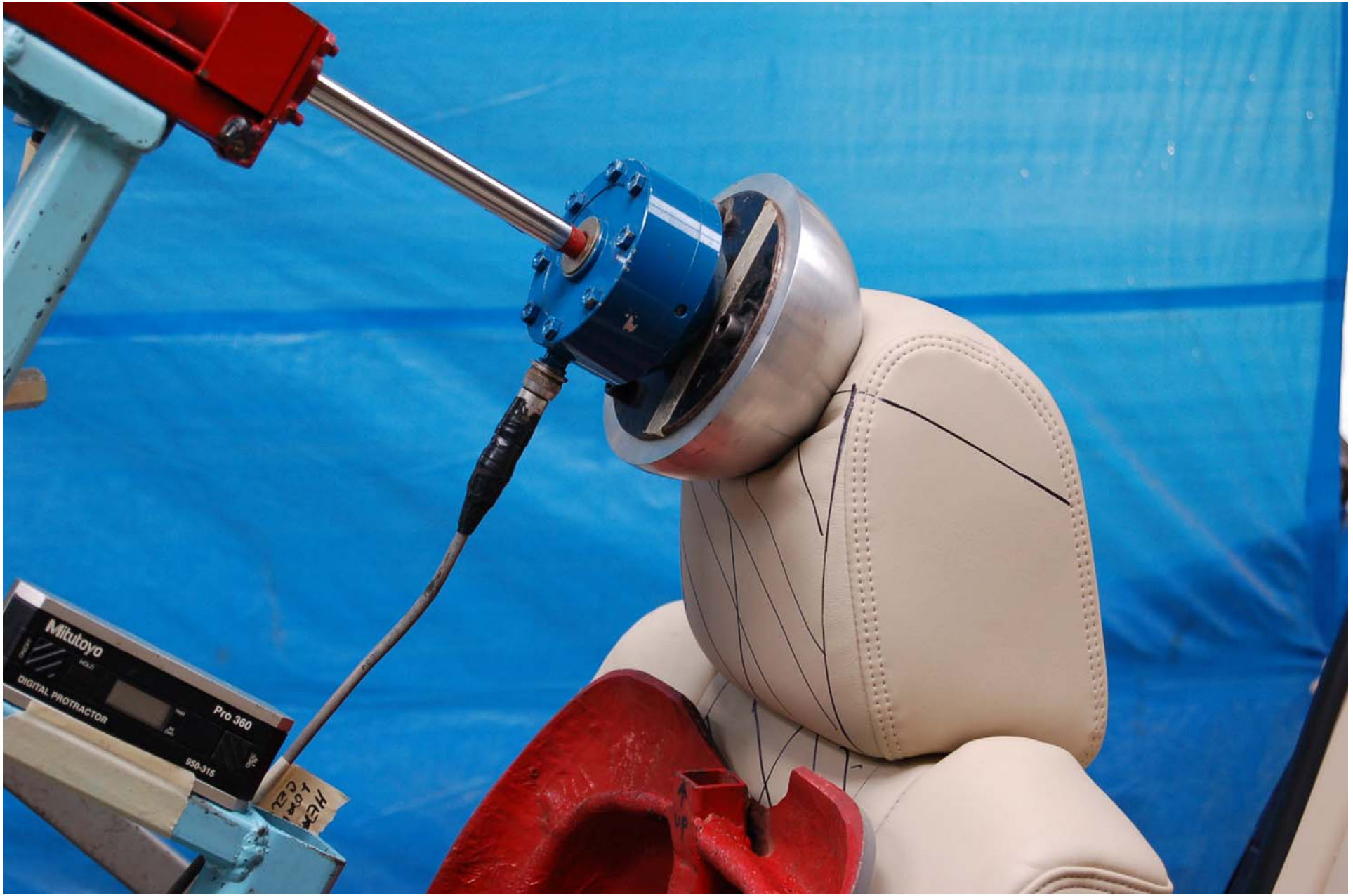
FIGURE 5.38
HEAD RESTRAINT AT 37 Nm POST LOAD

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.39
HEAD RESTRAINT WITH 895 N LOAD APPLIED



2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.40
HEAD RESTRAINT WITH 895 N LOAD APPLIED, CLOSE-UP VIEW

2010 LINCOLN MKS
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FMVSS NO. 202a

FIGURE 5.41
HEAD RESTRAINT POST TEST

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NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.42
PRE-TEST SET-UP FOR ENERGY ABSORPTION TEST

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NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.43
PRE-TEST HEAD RESTRAINT FOR ENERGY ABSORPTION

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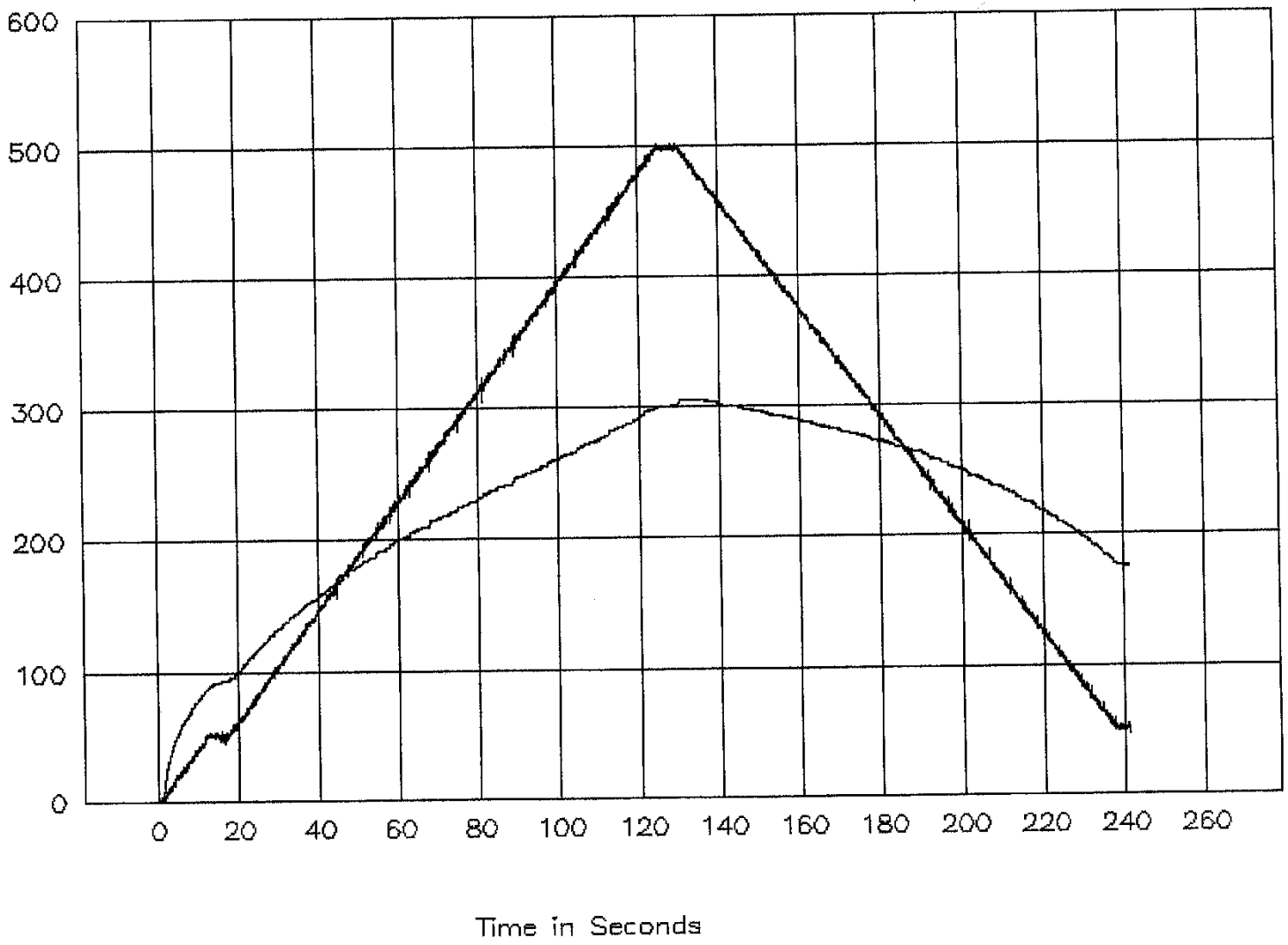
NHTSA NO. CA0209
FMVSS NO. 202a

FIGURE 5.44
POST TEST HEAD RESTRAINT FOR ENERGY ABSORPTION

SECTION 6
TEST PLOTS

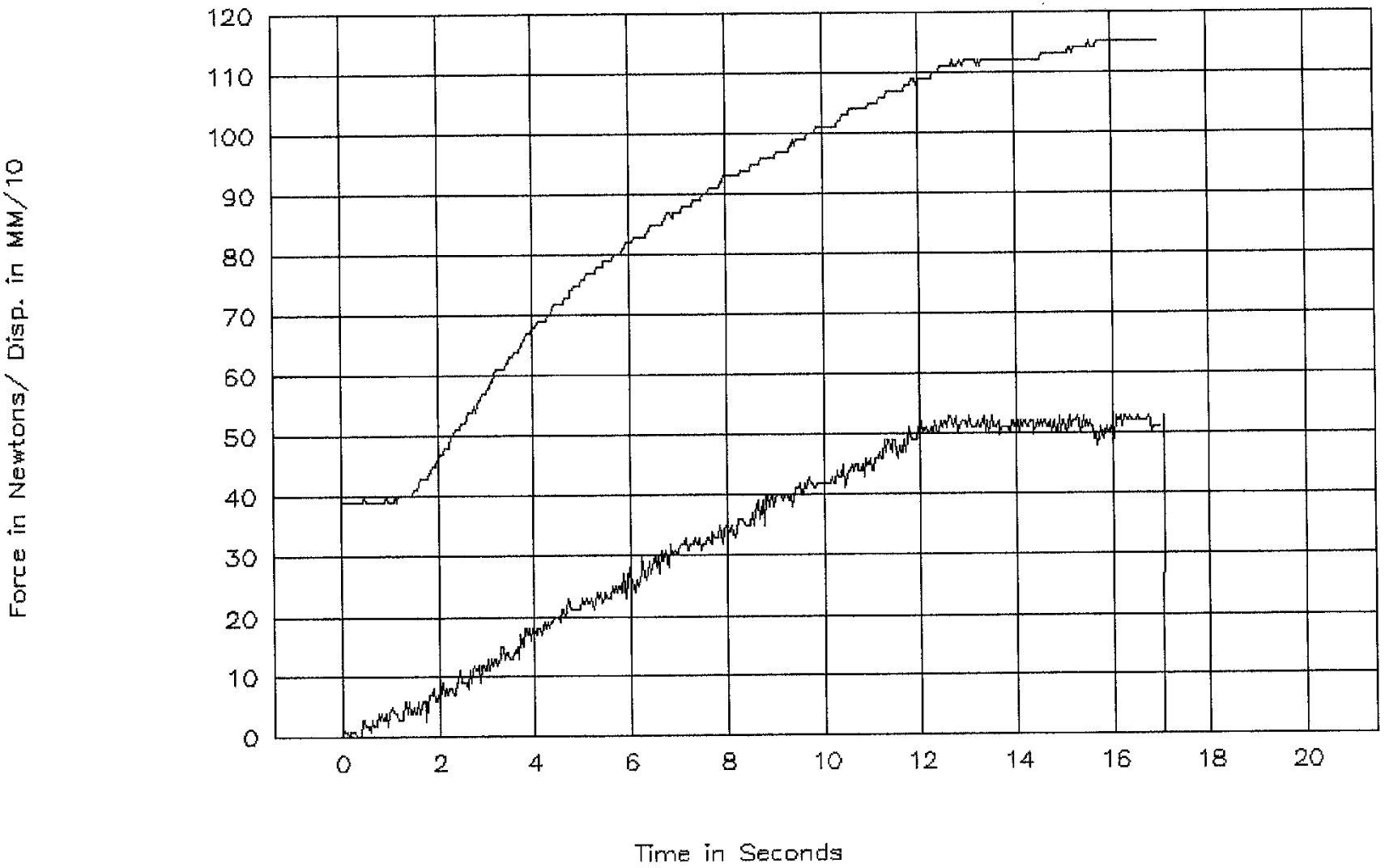
GTL 6755, NHTSA CA0209

202, Head Restraint Retention, Driver.



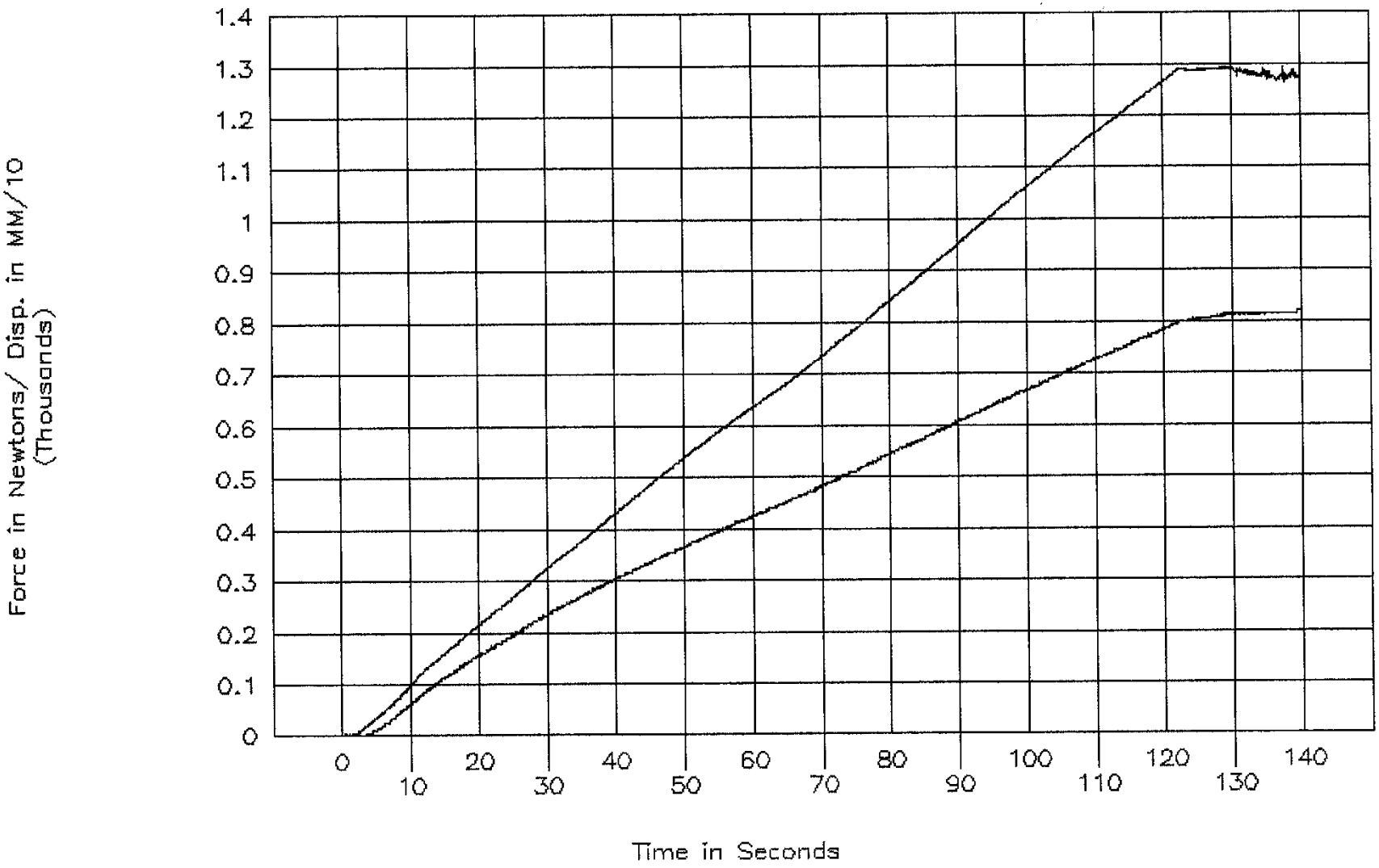
GTL 6756, NHTSA CA0209

202, Head Restraint Retention, Driver



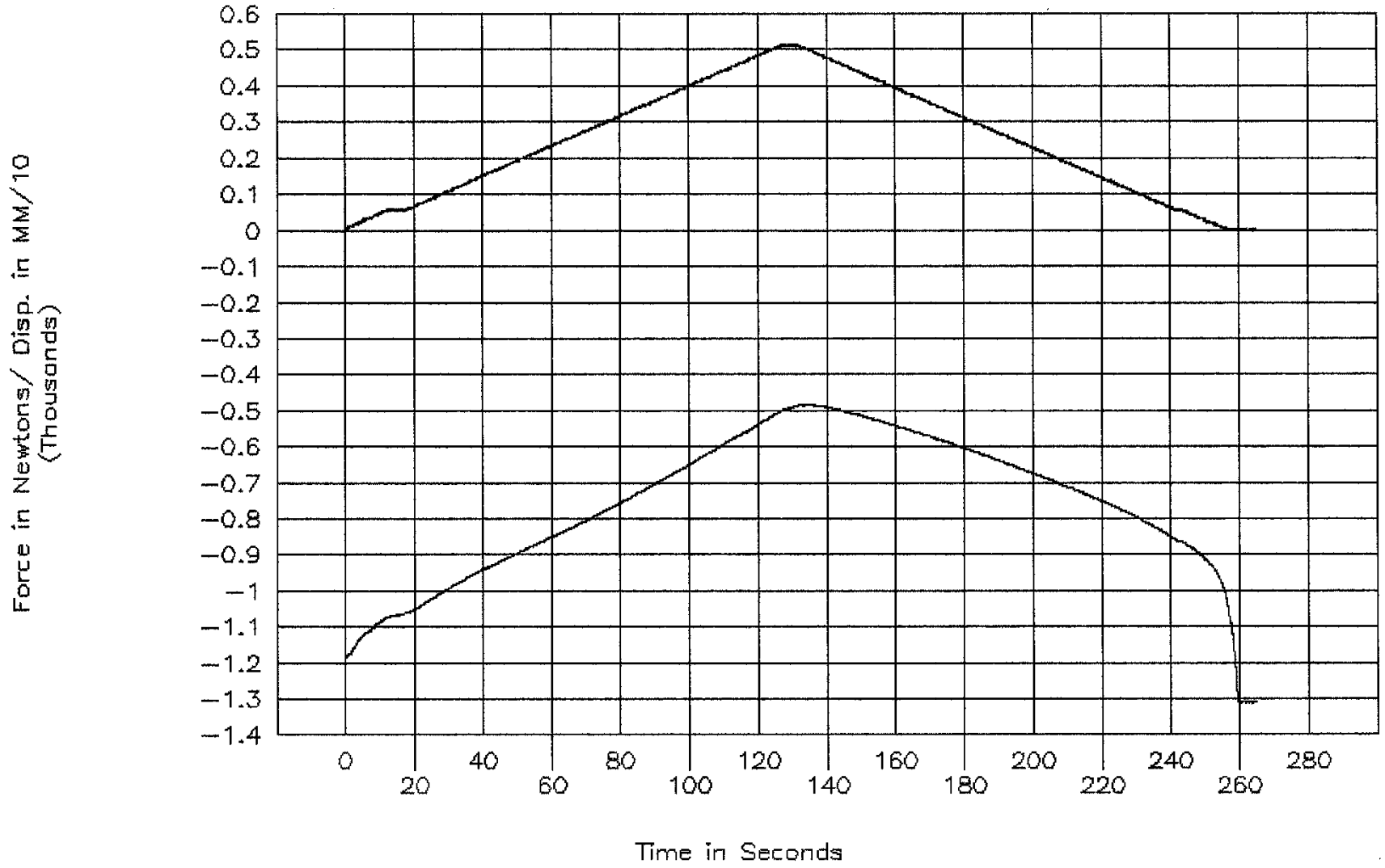
GTL 6757

202, Head Restraint Retention, Back Pan



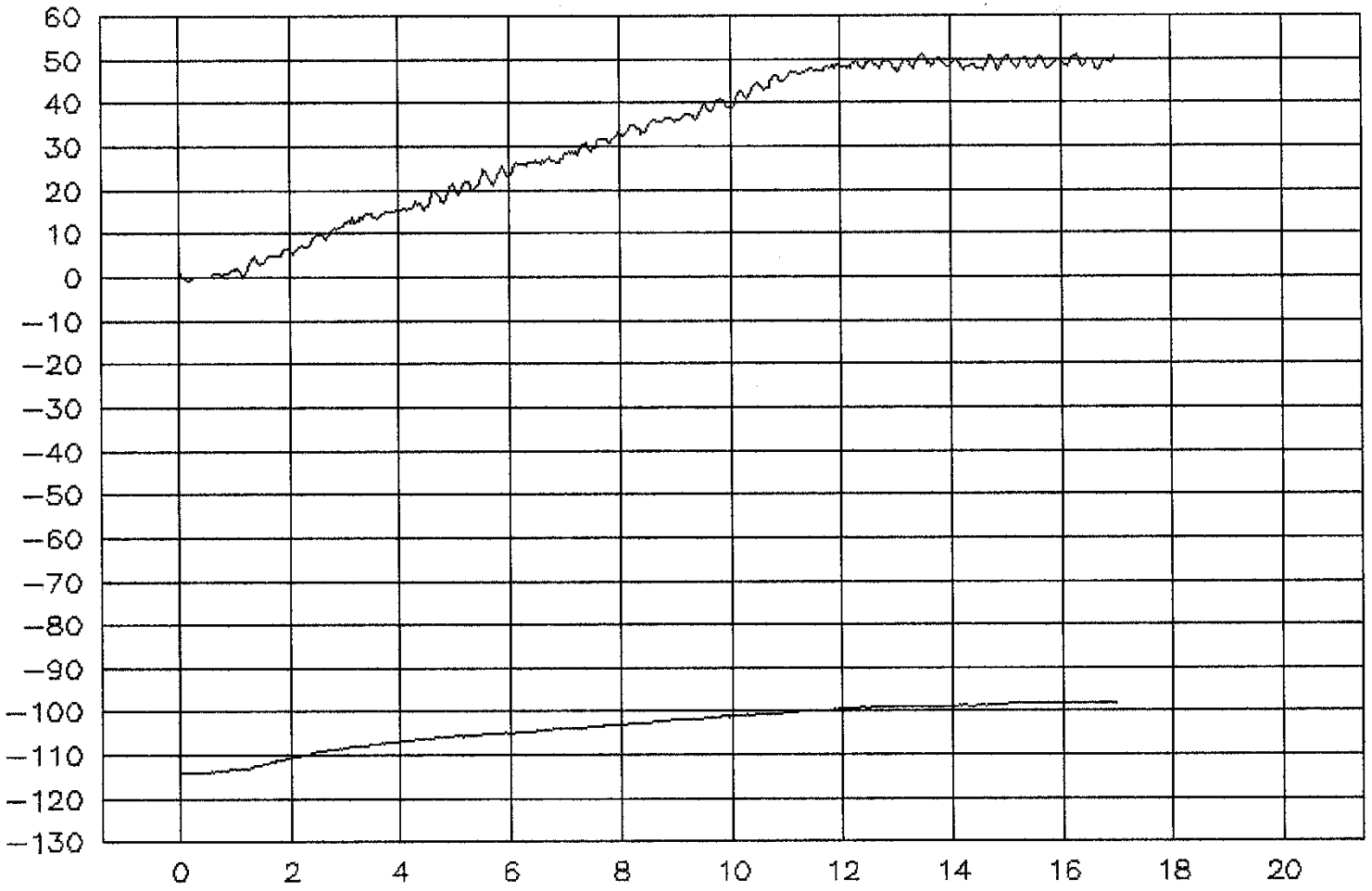
GTL 6758

202, Head Restraint Retention, Headform



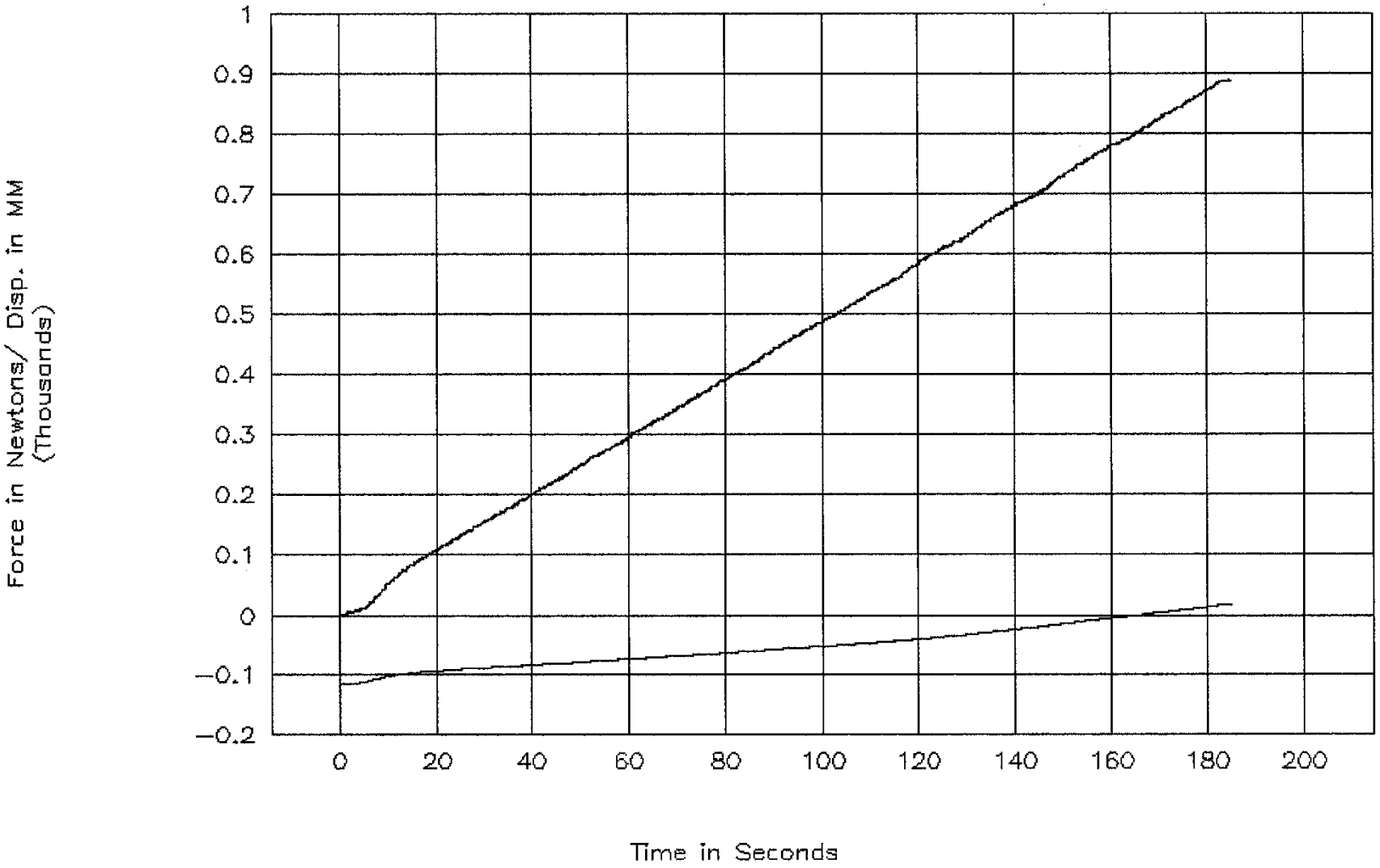
GTL 6759

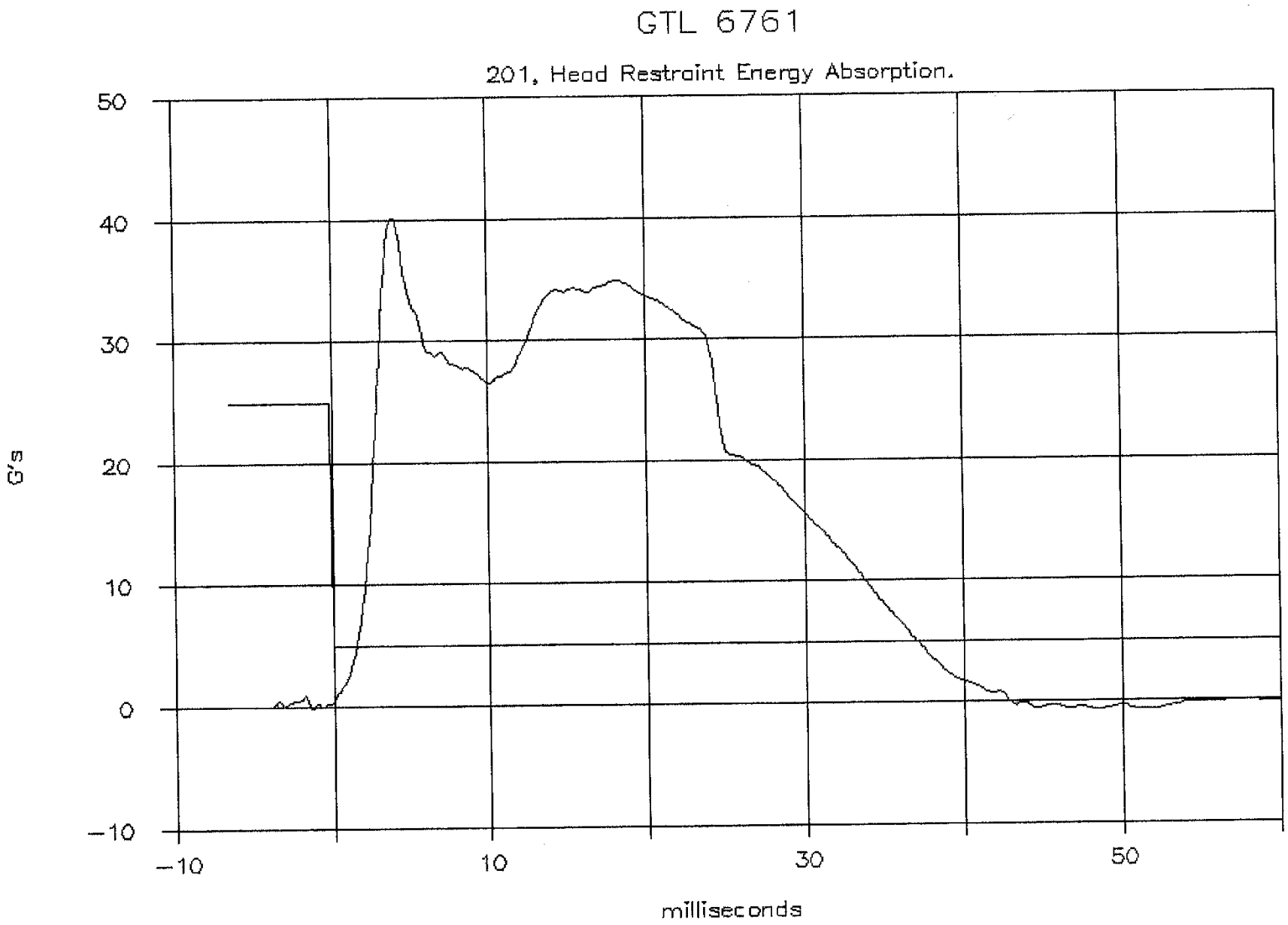
202, Head Restraint Retention, Headform



GTL 6760

202, Head Restraint Retention, Headform




GTL 6761
201, Head Restraint Energy Absorption.
50
40
30
20
10
0
-10
G's
-10
10
30
50
milliseconds

SECTION 7
OWNER'S MANUAL INFORMATION

Disarming the system

You can disarm the system by any of the following actions:

- Unlock the doors by using your transmitter.
- Unlock the doors by using your keyless entry pad.
- Unlock the driver door or all doors using the Intelligent Access (if equipped).
- If equipped with Intelligent Access Key, unlock the driver's door with a key. Turn the key toward the rear of the vehicle to make sure the alarm disarms.
- Turn ignition on.
- Press the control on the transmitter. This will only shut off the horn and parking lamps when the alarm is sounding. The alarm system will still be armed.

Pressing the power door unlock control within the 20 second prearmed mode will return the vehicle to a disarmed state.

If equipped with Integrated Keyhead Transmitter (IKT), if using a key in the driver's door to unlock the vehicle, a chime will sound and the message center will display TO STOP ALARM START VEHICLE when you open the door. You will have 12 seconds to disarm the alarm system using any of the actions above, otherwise the alarm will trigger.

Triggering the anti-theft system

The armed system will be triggered if:

- Any door, the hood or the trunk is opened without using the door key, keypad, Integrated Keyhead Transmitter or Intelligent Access Key.
- Turn the ignition on with an invalid SecuriLock® key or IKT (if equipped).

SEATING

WARNING: Reclining the seatback can cause an occupant to slide under the seat's safety belt, resulting in severe personal injuries in the event of a collision.

WARNING: Do not pile cargo higher than the seatbacks to reduce the risk of injury in a collision or sudden stop.

WARNING: Before returning the seatback to its original position, make sure that cargo or any objects are not trapped behind the seatback. After returning the seatback to its original position, pull on the seatback to ensure that it has fully latched. An unlatched seat may become dangerous in the event of a sudden stop or collision.

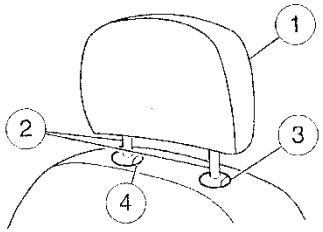
Adjustable head restraints

Your vehicle is equipped with front row outboard head restraints that are vertically adjustable.

WARNING: To minimize the risk of neck injury in the event of a crash, the driver and passenger occupants should not sit in and/or operate the vehicle, until the head restraint is placed in its proper position. The driver should never adjust the head restraint while the vehicle is in motion.

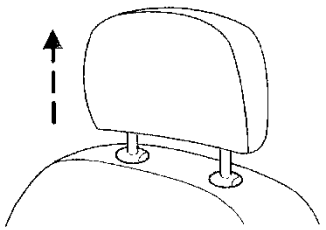
The adjustable head restraints consist of :

- a trimmed energy absorbing foam and structure (1),
- two steel stems (2),
- a guide sleeve adjust/release button (3),
- and a guide sleeve unlock/remove button (4).

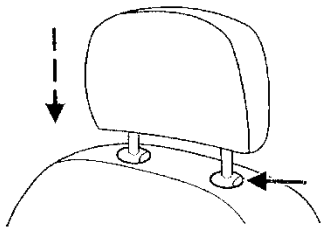


To adjust the head restraint, do the following:

1. Adjust the seatback to an upright driving/riding position.
2. Raise the head restraint by pulling up on the head restraint.



3. Lower the head restraint by pressing and holding the guide sleeve adjust/release button and pushing down on the head restraint.

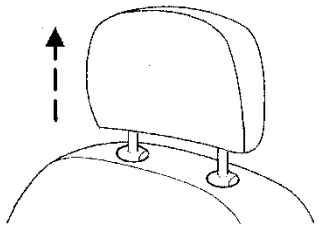


Properly adjust the head restraint so that the top of the head restraint is even with the top of your head and positioned as close as possible to the back of your head. For occupants of extremely tall stature, adjust the head restraint to its full up position.

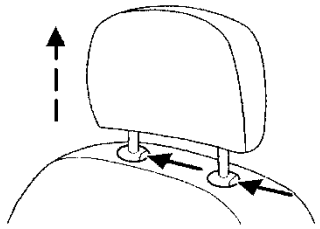
WARNING: The adjustable head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied.

To remove the adjustable head restraint, do the following:

1. Pull up the head restraint until it reaches the highest adjustment position.

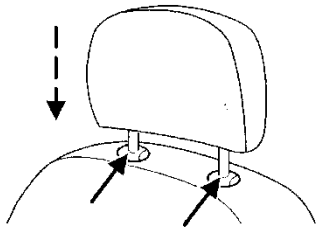


2. Simultaneously press and hold both the adjust/release button and the unlock/remove button, then pull up on the head restraint.



To reinstall the adjustable head restraint, do the following:

1. Insert the two stems into the guide sleeve collars.
2. Push the head restraint down until it locks.



Properly adjust the head restraint so that the top of the head restraint is even with the top of your head and positioned as close as possible to the back of your head. For occupants of extremely tall stature, adjust the head restraint to its full up position.

The easy entry feature can be turned off or on through the vehicle message center. Refer to *Message center* in the *Driver controls* chapter.

REAR SEATS

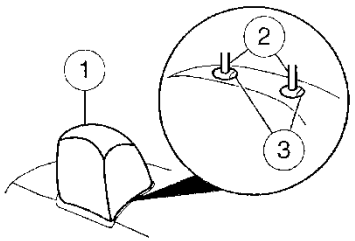
Second-row non-adjustable head restraints

Your vehicle is equipped with second row outboard head restraints that are non-adjustable.

WARNING: To minimize the risk of neck injury in the event of a crash, the driver and passenger occupants should not sit in and/or operate the vehicle, until the head restraint is placed in its proper position. The driver should never adjust the head restraint while the vehicle is in motion.

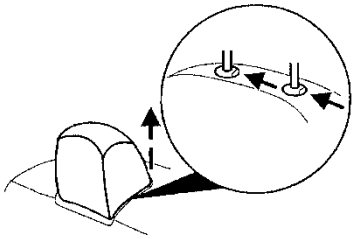
The non-adjustable head restraints consist of:

- a trimmed energy absorbing foam and structure (1),
- two steel stems (2),
- and two guide sleeve unlock/remove buttons (3).



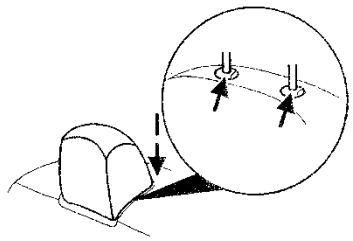
To remove the non-adjustable head restraint, do the following:

1. Simultaneously press and hold both unlock/remove buttons, then pull up on the head restraint.



To reinstall the non-adjustable head restraint, do the following:

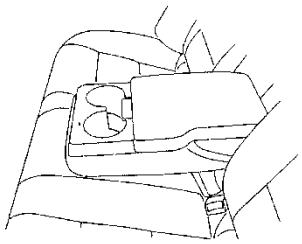
1. Insert the two stems into the guide sleeve collars.
2. Push the head restraint down until it locks.



WARNING: The non-adjustable head restraint is a safety device. It should be installed whenever the seat is occupied.

WARNING: To minimize the risk of neck injury in the event of a crash, head restraints must be installed properly.

Seat-mounted cup holders and armrest storage compartment



Cup holders and a storage compartment are located in the rear seat armrest. To access the cup holders, rotate armrest into use position. To open the storage compartment, pull up on the latch.

WARNING: Use only soft cups in the cupholder. Hard objects can injure you in a collision.