REPORT NUMBER 118-GTL-10-004

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 118 POWER-OPERATED WINDOW, PARTITION AND ROOF PANEL SYSTEMS

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

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

June 24, 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

Prepared By: Digitally signed by Debbie Messick
DN: cn=Debbie Messick, c=US, o=GTL, email=gtl@general-testing.com

Approved By: Digitally signed by Grant Farrand
DN: cn=Grant Farrand, c=US, o=GTL, email=gtl@general-testing.com

Approval Date: 06/24/10

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:

Acceptance Date: 6/24/10

Technical Report Documentation Page

1. Report No. 118-GTL-10-004	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A
4. Title and Subtitle Final Report of FMVSS 118 Compliance Testing of a 2010 LINCOLN MKS PASSENGER CAR NHTSA No. CA0209		5. Report Date June 24, 2010 6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-10-118-004
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. DTNH22-06-C-00032
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Enforcement Office of Vehicle Safety Compliance (NVS-220) 1200 New Jersey Ave., S.E., Washington, DC 20590		13. Type of Report and Period Covered Final Test Report May 11, 2010 14. Sponsoring Agency Code NVS-221
15. Supplementary Notes		
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-118-06 for the determination of FMVSS 118 compliance. Test failures identified were as follows: None		
17. Key Words Compliance Testing Safety Engineering FMVSS 118	18. Distribution Statement Copies of this report are available from NHTSA Technical Information Services (TIS) Room W45-212 (NPO-411) 1200 New Jersey Ave., S.E. Washington, DC 20590 Telephone No. (202) 366-4947	
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 58	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

Form DOT F 1700.7 (8-72)

TABLE OF CONTENTS

SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF TEST

A model year 2010 Lincoln MKS Passenger Car was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 118 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS 118 specifies requirements for power-operated window, partition, and roof panel systems to minimize the likelihood of death or injury from their accidental operation.

1.1 The test vehicle was a 2010 Lincoln MKS Passenger Car. The vehicle was identified as follows:

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. 118 testing on May 11, 2010.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 TEST PROCEDURE

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure TP-118-06 dated 12 April 2006 and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-118-03A, “Power Operated Window, Partition and Roof Panel Systems”.

FMVSS 118 Compliance Testing was performed in the following sequence:

A. Test Vehicle Identification/Documentation
B. Power Window, partition and roof panel identification/documentation
C. Interior, exterior and remote control switch identification/documentation
D. Pre-test operation of all power windows, partitions and roof panels
E. Photograph vehicle and interior, exterior and remote control devices
F. Perform Interior Locking System Off Test
G. Perform Interior Locking System with Key Removed Test
H. Perform Exterior Locking System Test
I. Perform Remote Actuation Device Test
J. Perform Occupant Compartment Actuation Device Test(Sphere Test/Pull up or Pull Out Test)
K. Perform Automatic Reversal System Test

2.1 SUMMARY OF RESULTS

The power window operational test resulted in no anomalies being noted. Test data indicate the FMVSS 118 requirements appear to have been satisfied. All test data resulting from the tests were recorded on test data sheets in Section 3.

SECTION 3

TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of FMVSS 118 testing on the 2010 Lincoln MKS.

FMVSS 118
COMPLIANCE DATA SUMMARY SHEET

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS

VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297

VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09

LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

REQUIREMENT	PASS	FAIL	N/A
S4 Interior Locking system in Off Position(s)	X		
S4 Interior Locking System with Key Removed	X		
S4 Exterior Locking System			X
S4 Remote Actuation Device			*
S6 Occupant Compartment Actuation Devices (Sphere Test/Pull Up or Pull Out Test)	X		
S5 Automatic Reversal System	X		

REMARKS: * Does not meet S4 requirements for remote actuation, therefore it must meet the requirements of S5 for auto reversal.

Vehicle utilizes a smart key push-button ignition system.

RECORDED BY: G. Farrand DATE: 05/11/10

APPROVED BY: D. Messick

WPRP PRE-OPERATIONAL CHECK

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

Identify power-operated WPRP and WPRP actuation devices

	LEFT FRONT	LEFT REAR	RIGHT FRONT	RIGHT REAR	TAIL GATE	PARTITION	ROOF PANEL
Power WPRP Installed	X	X	X	X			
Individual Interior Actuation Devices	X	X	X	X			
Master Control Panel Actuation Devices	X	X	X	X			
WPRP Operated by Exterior Locking System							
WPRP Operated by Remote Control	X	X	X	X			
WPRP with Auto-Reverse Capability	X	X	X	X			
WPRP with Express-Up Capability	X	X	X	X			

Master Control Panel Location: Driver's Door Panel

Exterior Locking System Location: Driver's Door Handle

Remote Control Type: ( ) Line of Sight (X) Non-line of Sight ( ) Both

WPRP Actuation Device Design (Toggle, Rocker, Push/Pull (Lever) or describe other):

Master Control Panel Push/Pull
Individual Window Push/Pull
Roof Panel
Vents

Interior Locking System Key Positions (clockwise): Keyless-Go, Push Button Start with Off/Lock, Accessory, On, Start

All WPRP open/close cycles are satisfactory with key in "ON" position:
(X) YES ( ) NO If NO, compliance test shall not proceed

All WPRP open/close cycles are satisfactory with key in "ACCESSORY" position:
(X) YES ( ) Not Applicable –No power to WPRP's

REMARKS:

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

DATA SHEET 1
INTERIOR LOCKING SYSTEM TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

Key lock position at start of test execution: (X) ON ( ) ACCESSORY, Then to:
Key lock off position during test execution: (X) LOCK (X) OFF ( ) ACCESSORY

ACTUATION DEVICES	DOORS CLOSED		LEFT DOOR OPEN		RIGHT DOOR OPEN		PASS/ FAIL
	INOP.	OPER.	INOP.	OPER.	INOP.	OPER.	
MASTER CONTROL PANEL ACTUATION DEVICES							
Left Front (LF)		X	X		X		P
Right Front (RF)		X	X		X		P
Left Rear (LR)		X	X		X		P
Right Rear (RR)		X	X		X		P
Vent Window(s)							
Tail Gate (TG)							
Partition (P)							
Roof Panel (RP)							
INDIVIDUAL ACTUATION DEVICES							
Left Front (LF)		X	X		X		P
Right Front (RF)		X	X		X		P
Left Rear (LR)		X	X		X		P
Right Rear (RR)		X	X		X		P
Vent Window(s)							
Tail Gate Window							
Partition Window							
Roof Panel Window							

REMARKS:

RECORDED BY: G. Farrand DATE: 05/11/10

APPROVED BY: D. Messick

DATA SHEET 2
INTERIOR LOCKING SYSTEM WITH KEY REMOVED TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

Key lock position at start of test execution: (X) ON ( ) ACCESSORY, Then to: off, park and door(s) open.

ACTUATION DEVICES	DOORS CLOSED		LEFT DOOR OPEN		RIGHT DOOR OPEN		PASS/ FAIL
	INOP.	OPER.	INOP.	OPER.	INOP.	OPER.	
MASTER CONTROL PANEL ACTUATION DEVICES							
Left Front (LF)	*		X		X		P
Right Front (RF)	*		X		X		P
Left Rear (LR)	*		X		X		P
Right Rear (RR)	*		X		X		P
Tail Gate (TG)							
Vent Windows(s)							
Partition (P)							
Roof Panel (RP)							
INDIVIDUAL ACTUATION DEVICES							
Left Front (LF)	*		X		X		P
Right Front (RF)	*		X		X		P
Left Rear (LR)	*		X		X		P
Right Rear (RR)	*		X		X		P
Vent Window(s)							
Tail Gate Window							
Partition Window							
Roof Panel Window	*		X		X		P

REMARKS: *Vehicle has push button “keyless go” system and vehicle must be turned off, in park and door opened to remove key code from vehicle system.

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

DATA SHEET 3
EXTERIOR LOCKING SYSTEM TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

Is vehicle equipped with an exterior locking system that can close any of the power windows, partitions, or roof panels? ( ) YES (X) NO

Location of exterior locking system: _____

Describe how the exterior locking system is activated: _____

Identify the windows, partitions or roof panels that can be closed by the exterior system. Also, in each case, identify whether continuous activation of the locking system is required.

WINDOW, PARTITION AND ROOF PANEL IDENTIFICATION	EXTERIOR LOCKING SYSTEM		EXTERIOR LOCKING SYSTEM (PASS/FAIL)*
	OPERABLE (YES/NO)	CONTINUOUS ACTIVATION REQUIRED (YES/NO)	
LEFT FRONT (LF)			
RIGHT FRONT (RF)			
LEFT REAR (LR)			
RIGHT REAR (RR)			
VENT WINDOW(S)			
PARTITION(P)			
ROOF PANEL (RP)			
TAIL GATE (TG)			

*NOTE: Continuous activation of the locking system is required for each WPRP to pass the exterior locking system safety standard requirement.

REMARKS:

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

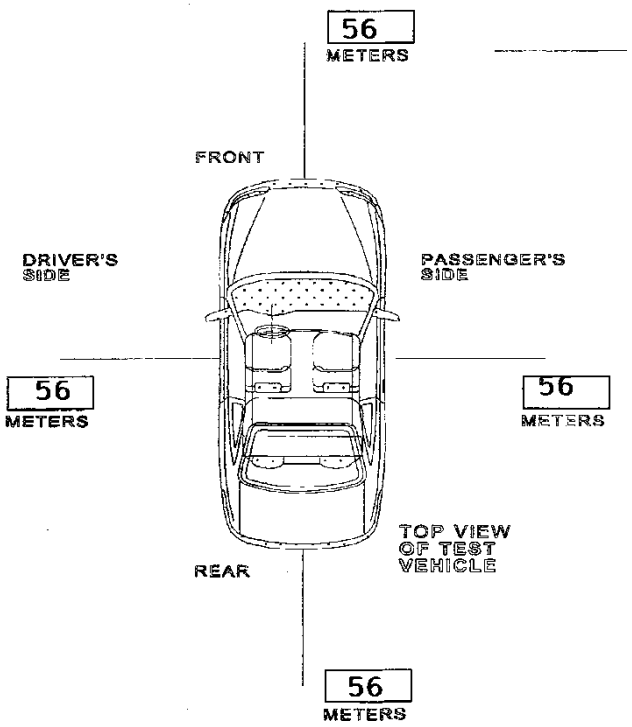
DATA SHEET 4
REMOTE ACTUATION DEVICE

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

Type of remote actuation device installed on vehicle (check one):
(X) Non Line-Of-Site ( ) Line-of-Site

Measured range of Operation:
Record the maximum operating distance of the remote actuation device in the boxes below. The range of operation shall not exceed six meters for a **Non Line-of-Site Device** or eleven meters for a **Line-of-Site Device** in any measured direction and continuous activation of the remote actuation device is required until all operable windows, partitions, or roof panels are completely closed.

Pass/Fail N/A



REMARKS: *Continuous activation is not required and distance for non-line-of-site device is exceeded, therefore all WPRP's must meet reversal pinch force requirements of S5.
See Data Sheet 7 for reversal forces.

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

DATA SHEET 5
OCCUPANT COMPARTMENT ACTUATION DEVICE TEST
SPHERE TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

ACTUATION DEVICES	APPLICABLE (YES/NO*)	SPHERE ACTIVATED ACTUATION DEVICE CLOSES WPRP (YES/NO)	TEST RESULT PASS/FAIL	COMPLIANCE REQUIRED (Y/N**)
MASTER CONTROL PANEL ACTUATION DEVICES				
Left Front (LF)	Yes	No	Pass	Yes
Right Front (RF)	Yes	No	Pass	Yes
Left Rear (LR)	Yes	No	Pass	Yes
Right Rear (RR)	Yes	No	Pass	Yes
Tail Gate (TG)				
Vent Window(s)				
Partition (P)				
Roof Panel (RP)				
INDIVIDUAL ACTUATION DEVICES				
Left Front (LF)	Yes	No	Pass	Yes
Right Front (RF)	Yes	No	Pass	Yes
Left Rear (LR)	Yes	No	Pass	Yes
Right Rear (RR)	Yes	No	Pass	Yes
Vent Window(s)				
Tail Gate(TG)				
Partition(P)				
Roof Panel (RP)				

*This requirement does not apply to actuation devices that are mounted in a vehicle's roof, headliner, or overhead console and that can close a window, partition, or roof panel only by continuous rather than momentary switch actuation or actuation devices that comply with the reversing requirement of FMVSS 118, S5.
** Requirement is effective 1 October 2008. Early compliance is voluntary and test results are used for information only.

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

DATA SHEET 6
OCCUPANT COMPARTMENT ACTUATION DEVICE TEST
FOR POWER-OPERATED WINDOWS ONLY
PULL UP OR PULL OUT TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

ACTUATION DEVICES	SWITCH ORIENTATION A – horizontal B – vertical C - angled	CLOSES POWER-OPERATED WINDOW ONLY IF: PULL UP OR PULL OUT	TEST RESULT PASS/FAIL	COMPLIANCE REQUIRED (Y/N**)
MASTER CONTROL PANEL ACTUATION DEVICES				
Left Front (LF)	A	Pull Up	Pass	Yes
Right Front (RF)	A	Pull Up	Pass	Yes
Left Rear (LR)	A	Pull Up	Pass	Yes
Right Rear (RR)	A	Pull Up	Pass	Yes
Vent Window(s)				
INDIVIDUAL ACTUATION DEVICES				
Left Front (LF)	A	Pull Up	Pass	Yes
Right Front (RF)	A	Pull Up	Pass	Yes
Left Rear (LR)	A	Pull Up	Pass	Yes
Right Rear (RR)	A	Pull Up	Pass	Yes
Vent Window(s)				

** Requirement is effective 1 October 2008. Early compliance is voluntary and test results are used for information only.

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

DATA SHEET 7
WPRP PHYSICAL CONTACT REVERSAL CAPABILITY

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

WPRP's equipped with reversal capability: Yes
WPRP's that must meet reversal requirement: All
Locking System Position: Off/Lock

GTL Test #	Window, Partition, Roof Panel	Test Rod Placement in Window, Partition or Roof Panel	Test Rod Size/Deflection	Window, Partition or Roof Panel Opening Before/After Closing (mm)	Maximum Force Measured on Test Rod (Newtons)	Window, Partition, or Roof Panel Reversing Distance (mm)	Pass/Fail*
6602	L.F. Window	Top	6mm/ 65N/mm	116/287	94	287	P
6603	L.R. Window	Top	6mm/ 65N/mm	123/253	99	253	P
6604	R.R.Window	Top	6mm/ 65N/mm	70/250	102	250	**
6605	R.R.Window	Top	6mm/ 65N/mm	70/247	94	247	P
6606	R.F. Window	Top	6mm/ 65N/mm	150/250	108	285	**
6607	R.F. Window	Top	6mm/ 65N/mm	68/285	97	285	P
6608	R.F. Window	Top	6mm/ 65N/mm	70/285	98	285	P
6609	L.F. Window	Top	100mm/ 20N/mm	30/290	76	290	P
6610	L.R. Window	Top	100mm/ 20N/mm	120/255	71	255	P
6611	R.R.Window	Top	100mm/ 20N/mm	85/250	70	250	P
6612	R.F. Window	Top	100mm/ 20N/mm	20/280	77	280	P
6613	L.F. Window	Top	25mm/ 65N/mm	148/293	120	293	***
6614	L.F. Window	Top	25mm/ 65N/mm	130/275	123	275	***
6615	L.F. Window	Top	25mm/ 20N/mm	118/278	81	278	***
6616	L.F. Window	Top	25mm/ 10N/mm	152/270	63	270	***
6617	L.F. Window	Top	200mm/ 20N/mm	10/280	85	280	P
6618	L.R. Window	Top	200mm/ 20N/mm	20/255	73	255	P

*WPRP must reverse direction before contacting or exerting a squeezing force of 100 Newtons. Upon such reversal, the WPRP must open to one of the following positions.

A. A position that is at least as open as the position at the time closing was initiated
B. A position that is not less than 125 mm more open than the position at the time the window reversed direction, or
C. A position that permits a semi-rigid cylindrical rod that is 200 mm in diameter to be placed through the opening at the same contact point(s) used in 12.5.

REMARKS: ** Test was re-run a second time with a pass
*** Test was performed to gather data only.

NOTE: Additional reversal force data requested by COTR from Ford confirms values less than 100N.

RECORDED BY: G. Farrand DATE: 05/11/10
APPROVED BY: D. Messick

SECTION 4
TEST EQUIPMENT LIST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 LINCOLN MKS
VEHICLE NHTSA NO: CA0209 VIN: 1LNHL9DR0AG603297
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 08/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/11/10

ITEM	MFR	MODEL	S/N	CAL. PERIOD	DATE OF LAST CALIB.	REMARKS
SLR DIGITAL CAMERA	NIKON	D50	N/A	N/A	N/A	
PINCH FORCE SENSOR	SENSOR DEVELOPMENTS, INC.	10293	179104	12 MO.	04/10	

REMARKS:

RECORDED BY: G. FARRAND DATE: 05/11/10

APPROVED BY: D. MESSICK

SECTION 5

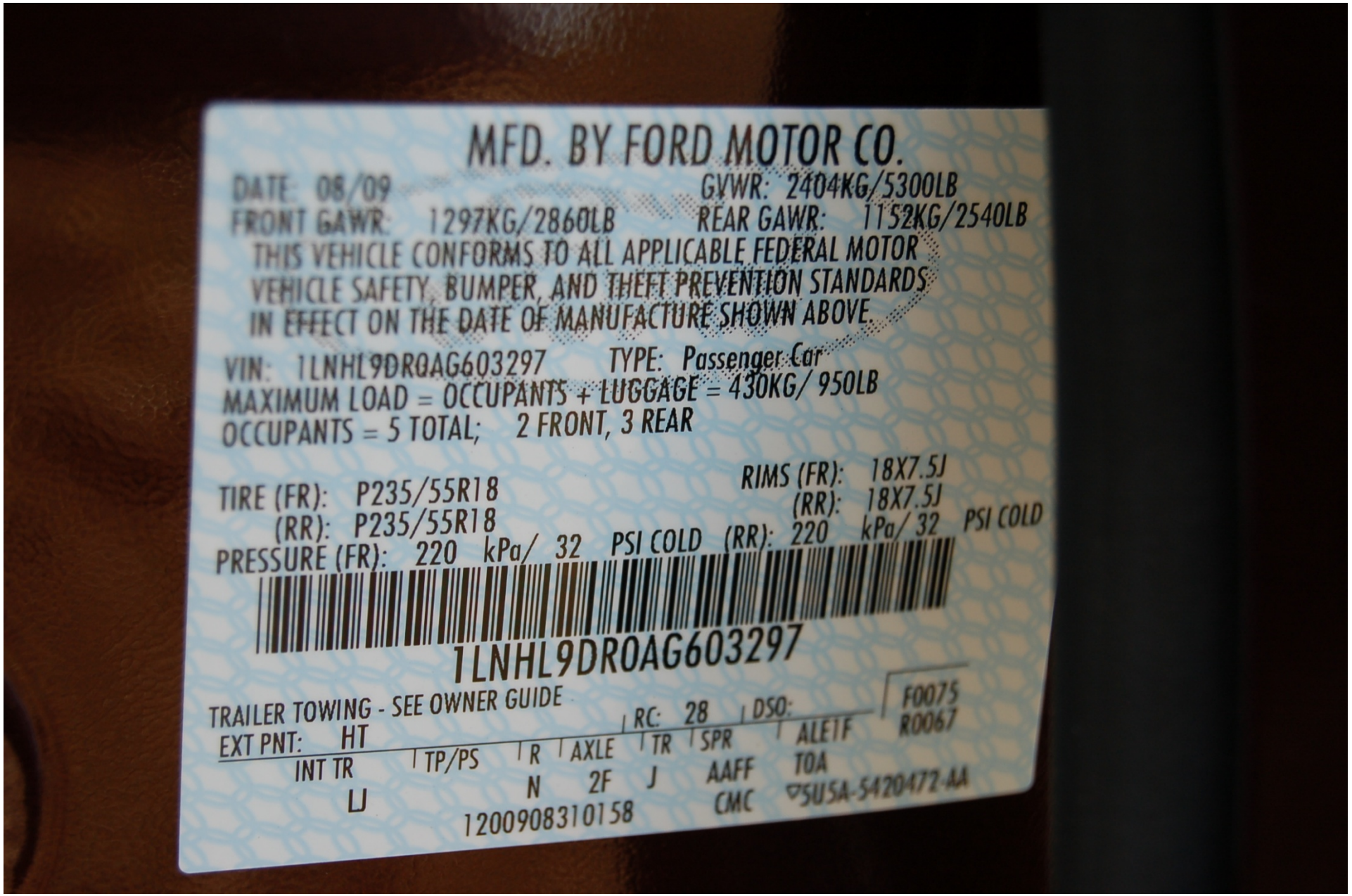
PHOTOGRAPHS

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE

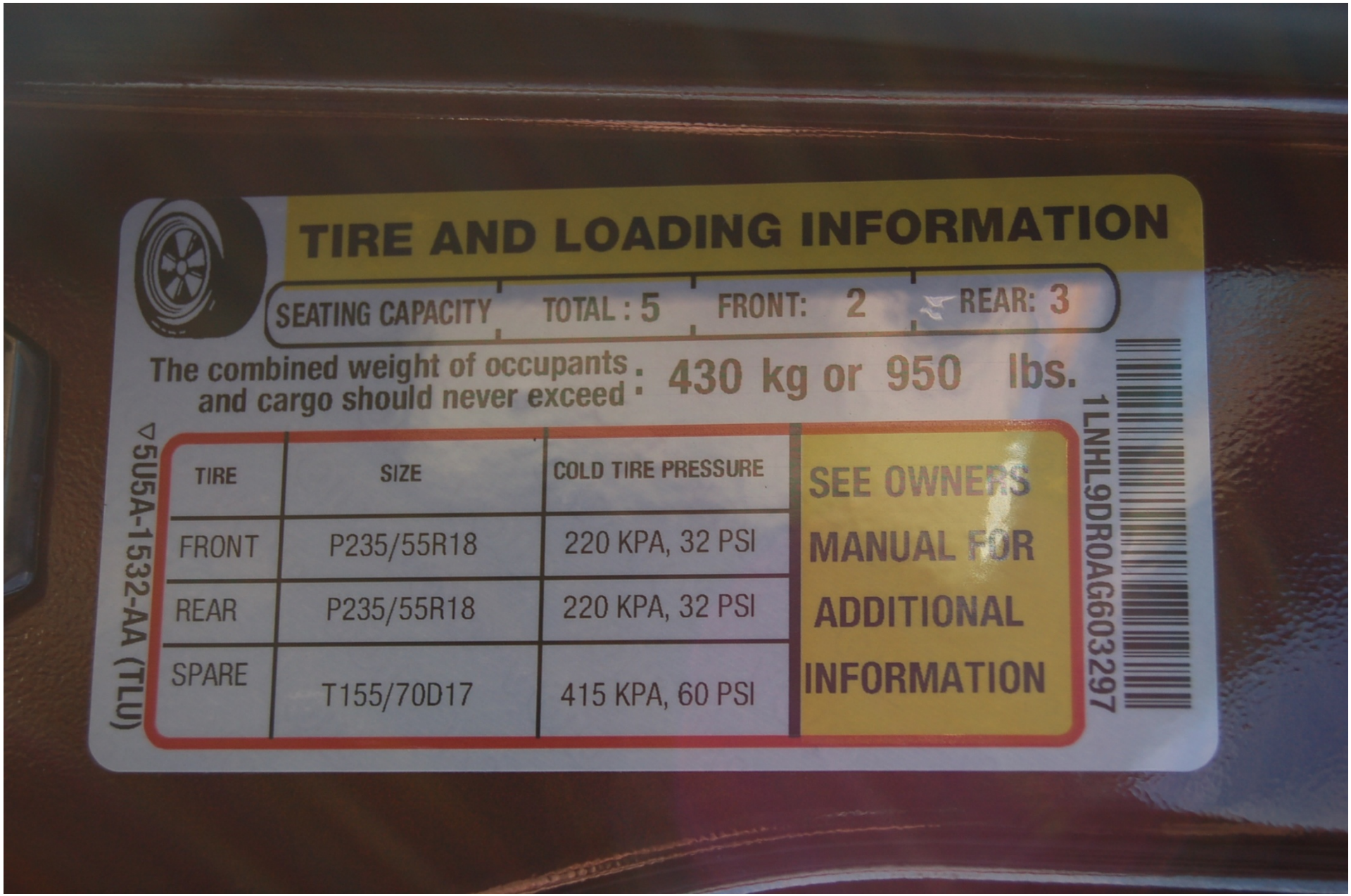
2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.2
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.3
CLOSE-UP VIEW OF VEHICLE CERTIFICATION LABEL



2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.4
CLOSE-UP VIEW OF TIRE INFORMATION LABEL

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.5
MASTER CONTROL SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.6
CLOSE-UP VIEW OF RIGHT FRONT POWER WINDOW SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.7
CLOSE-UP VIEW OF LEFT REAR POWER WINDOW SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.8
CLOSE-UP VIEW OF RIGHT REAR POWER WINDOW SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.9
REMOTE CONTROL

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.10
SPHERE TEST ON MASTER SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.11
SPHERE TEST ON RIGHT FRONT SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.12
SPHERE TEST ON LEFT REAR SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.13
SPHERE TEST ON RIGHT REAR SWITCH

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.14
INSTRUMENTATION TEST SET-UP

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.15
FORCE TEST INSTRUMENT SET-UP ON LEFT FRONT WINDOW

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.16
FORCE TEST INSTRUMENT TEST AT 100 MM

2010 LINCOLN MKS
NHTSA NO. CA0209
FMVSS NO. 118

FIGURE 5.17
FORCE TEST INSTRUMENT TEST AT 200 MM

SECTION 6
OWNER'S MANUAL INFORMATION

Auxiliary power point can be found in the following location:

- On the center console
- Inside the utility compartment
- On the rear of the center console accessible from the rear seat

Do not use the power point for operating the cigarette lighter element (if equipped).

To prevent the fuse from being blown, do not use the power point(s) over the vehicle capacity of 12 VDC/180W. If the power point or cigar lighter socket is not working, a fuse may have blown. Refer to *Fuses and relays* in the *Roadside Emergencies* chapter for information on checking and replacing fuses.

To have full capacity usage of your power point, the engine is required to be running to avoid unintentional discharge of the battery. To prevent the battery from being discharged:

- do not use the power point longer than necessary when the engine is not running,
- do not leave battery chargers, video game adapters, computers and other devices plugged in overnight or when the vehicle is parked for extended periods.

Always keep the power point caps closed when not being used.

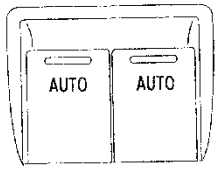
POWER WINDOWS

WARNING: Do not leave children unattended in the vehicle and do not let children play with the power windows. They may seriously injure themselves.

WARNING: When closing the power windows, you should verify they are free of obstructions and ensure that children and/or pets are not in the proximity of the window openings.

Press and pull the switches to open and close windows.

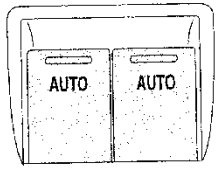
- Press down (to the first detent) and hold the switch to open.
- Pull up (to the first detent) and hold the switch to close.



Rear Window Buffeting: When one or both of the rear windows are open, the vehicle may demonstrate a wind throb or buffeting noise. This noise can be alleviated by lowering a front window approximately two to three inches.

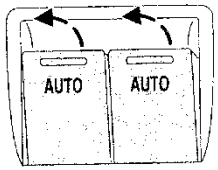
Express-down (One-touch down, all windows)

Allows the windows to open fully without holding the control down. Press the switch completely down to the second detent and release quickly. The window will open fully. Momentarily press the switch to any position to stop the window operation.



Express-up (One-touch up, all windows)

Allows the windows to close fully without holding the control up. Pull the switch completely up to the second detent and release quickly. The window will close fully. Momentarily press the switch to any position to stop the window operation.



Global open windows

You can open the vehicle's windows, and (if equipped) vent the moon roof (power shade opens) by using the control on the remote transmitter.

Press and hold the control on the transmitter for at least two seconds, to begin to open the windows and vent the moon roof (power shade opens). For the transmitter, pressing either the or control on the transmitter will stop all motion.

Note: The ignition must be off and the accessory delay feature must not be activated in order for this feature to operate.

Note: This feature can be disabled or enabled by your authorized dealer.

Global close windows

You can close the vehicle's windows and moon roof (if equipped) by using the control on the remote transmitter.

Press and hold the control on the transmitter for at least two seconds to begin to close the windows and moon roof.

Note: The ignition must be off and the accessory delay feature must not be activated in order for this feature to operate.

Note: This feature can be disabled or enabled by your authorized dealer.

WARNING: To avoid personal injury and vehicle damage, verify that windows and moon roof are free of obstructions before operating and ensure that children and/or pets are not in the proximity of window openings.

Bounce-back

When an obstacle has been detected in the window opening as the window is moving upward, the window will automatically reverse direction and move down. This is known as "bounce-back". If the ignition is turned off (without accessory delay being active) during bounce-back, the window will move down until the bounce-back position is reached.

Security override

To override a bounce-back condition, within two seconds after the window reaches the bounce-back position, pull and hold the switch up and **the window will travel up with no bounce-back or pinch protection.** If the switch is released before the window is fully closed, the window will stop. For example, this can be used to overcome the resistance of ice on the window or seals.

Window lock

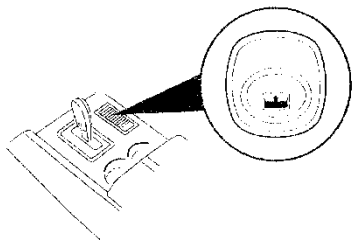
The window lock feature allows only the driver to operate the power windows.

To lock out all the window controls (except for the driver's) press the right side of the control. Press the left side to restore the window controls.

Accessory delay

With accessory delay, the radio, power windows, and moon roof (if equipped) operate for up to 10 minutes after the ignition switch is turned from on to off or until one of the front doors are opened.

POWER REAR SUNSHADE (IF EQUIPPED)



Your vehicle may be equipped with a power rear sunshade that covers the rear window of your vehicle. The control is located in the center console access bin next to the power point.

Press the control to move the shade up or down.

The power sunshade is equipped with an automatic, one-touch, auto down feature. To stop motion at any time during the auto down operation, press the control a second time. To activate the automatic, one-touch, auto down feature, press the control and release quickly.

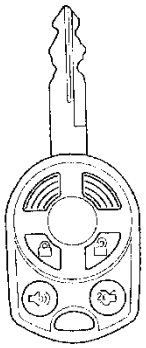
INTERIOR MIRROR

The interior rear view mirror has two pivot points on the support arm which lets you adjust the mirror up or down and from side to side.

WARNING: Do not adjust the mirror while the vehicle is in motion.

KEYS

Integrated Keyhead Transmitters (IKTs) (If equipped)



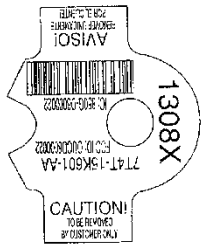
Your vehicle may be equipped with two Integrated Keyhead Transmitters (IKTs). The key blade functions as a programmed key which starts the vehicle and unlocks/locks all the doors. The transmitter portion functions as the remote entry transmitter.

Your IKTs are programmed to your vehicle; using a non-programmed key will not permit your vehicle to start. If you lose one or both of your IKTs, replacements are available through your authorized dealer. Standard SecuriLock® keys without remote entry transmitter functionality can also be purchased from your authorized dealer if desired.

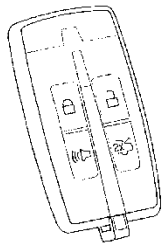
Always carry a spare key with you in case of an emergency.

For more information regarding programming replacement IKTs, refer to the *SecuriLock® passive anti-theft system* section later in this chapter.

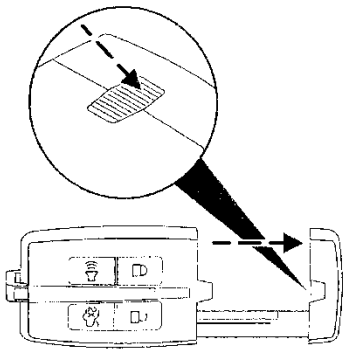
Note: Your vehicle's IKTs were issued with a security tag that provides important vehicle key cut information. It is recommended that you keep the tag in a safe place for future reference.



Intelligent Access Key (IA key) (if equipped)



Your vehicle may be equipped with two Intelligent Access keys which operate the power locks and the remote entry system. You have to have the IA key in the vehicle to activate the push button start system.



The IA key also contains a removable mechanical key blade that can be used to unlock the driver door. To release the mechanical key blade, press the release button on the back of the transmitter and slide the blade out.

Your IA keys are programmed to your vehicle. You cannot enter or start your vehicle with an unprogrammed key. If you lose one or both of your IA keys, replacements are available from your authorized dealer. For more information on programming replacement IA keys, refer to the *SecuriLock® passive anti-theft system* section in this chapter.

Note: Your vehicle's IA backup keys were issued with a security tag that provides important vehicle key cut information. It is recommended that you keep the tag in a safe place for future reference.

POWER DOOR LOCKS

- Press the control to unlock all doors.
- Press the control to lock all doors.

Smart unlocks

This feature helps to prevent you from locking yourself out of the vehicle if your key is still in the ignition.

When you open one of the front doors and you lock the vehicle with the power door lock control (on the driver or passenger door trim panel), all the doors will lock, then all doors will automatically unlock reminding you that your key is still in the ignition.

The vehicle can still be locked, with the key in the ignition, by locking the driver's door with a key, using the control on the transmitter, or locking the vehicle with the keyless entry keypad.

If both front doors are closed, the vehicle can be locked by any method, regardless of whether the key is in the ignition or not.

Smart unlocks for Intelligent Access Keys (if equipped)

The smart unlock feature is intended to prevent you from unintentionally locking your IA key inside your vehicle's passenger compartment or trunk.

When you lock your vehicle using the driver or passenger power door lock control (with the door open), after you close the door the vehicle will search for an IA key in the passenger compartment. If an IA key is found inside the vehicle, all of the doors will immediately unlock and the horn will chirp, indicating that the IA key is inside.

In order to override the smart unlock feature and intentionally lock the IA key inside the vehicle, you can lock your vehicle using your keyless entry keypad or using the control on another IA key. Refer to *Keyless entry system* in this chapter for more information on keyless entry keypad operation.

If your vehicle's perimeter alarm is in the armed state, the smart unlock feature will not allow you to lock your IA key inside the trunk. When the alarm is armed, if the IA key is detected in the trunk, the decklid will

automatically be released when you attempt to close it, and the horn will chirp, as a reminder that the IA key is inside. If you would like to intentionally lock your IA key in the trunk of your vehicle, first disarm the perimeter alarm by unlocking the vehicle, then place the IA key in the trunk, close the trunk, and rearm your perimeter alarm system by locking the vehicle using your keyless entry keypad or another IA key. For more information on arming/disarming of the perimeter alarm system, refer to *Perimeter alarm system* in this chapter.

Opening windows and moon roof (if equipped)

You can open the vehicle's windows, and (if equipped) vent the moon roof (power shade opens) by using the control on the transmitter. Refer to *Power windows* in the *Driver Controls* chapter for more information.

Closing windows and moon roof (if equipped)

You can close the vehicle's windows and moon roof (if equipped) by using the control on the transmitter. Refer to *Power windows* in the *Driver Controls* chapter for more information.

Central locking/Two-stage unlocking

When unlocking the driver door with the key, turn it once toward the rear of the vehicle to unlock that door only, if the two-stage unlocking is enabled. Turn the key a second time to unlock all doors. When locking, turn the key toward the front of the vehicle to lock all doors.

Two-stage unlocking may be disabled and re-enabled (to allow all vehicle doors to unlock simultaneously) by simultaneously pressing the and controls on the transmitter for four seconds.

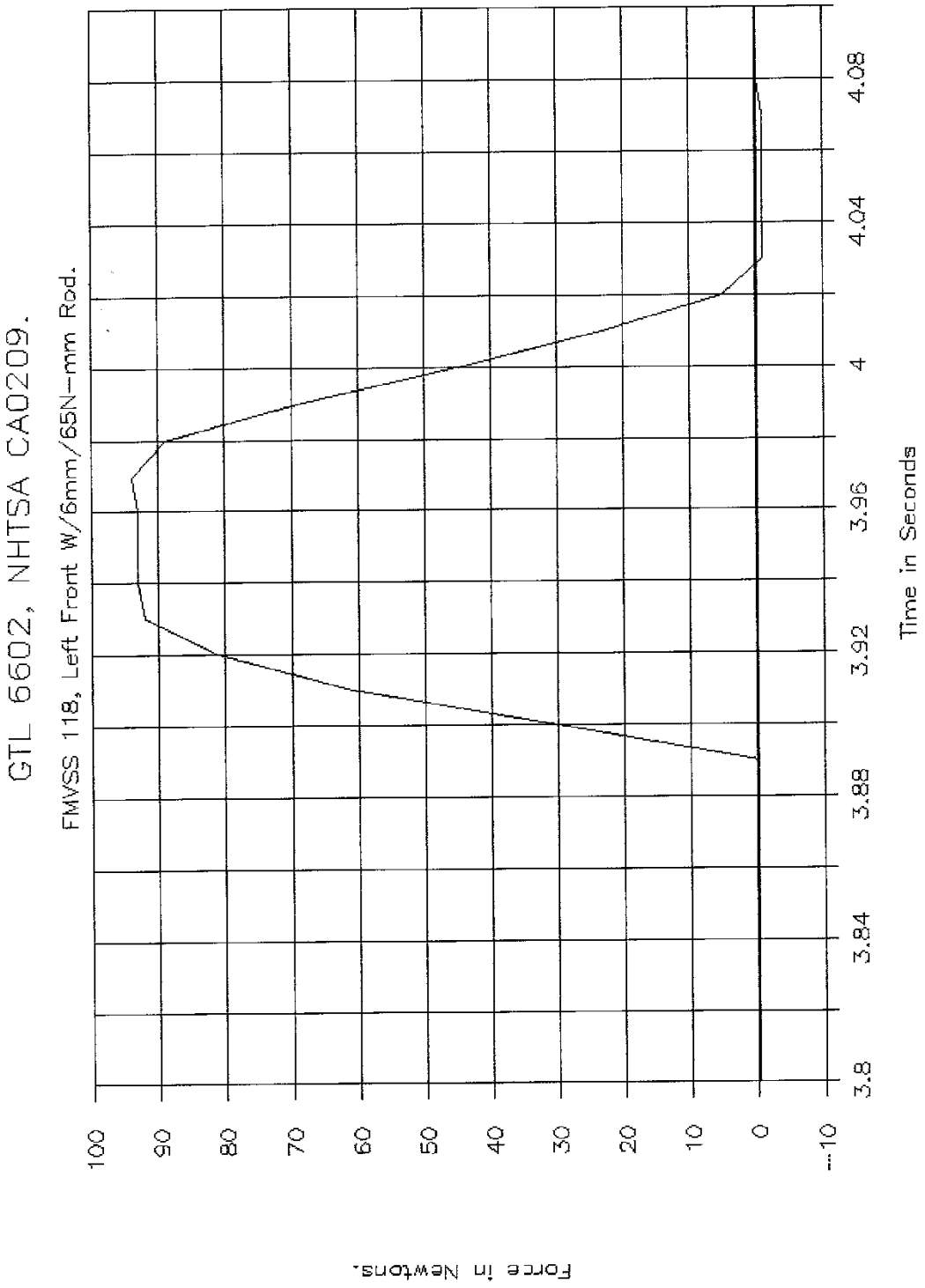
Note: The turn lamps will flash twice to confirm that a change to the feature has occurred.

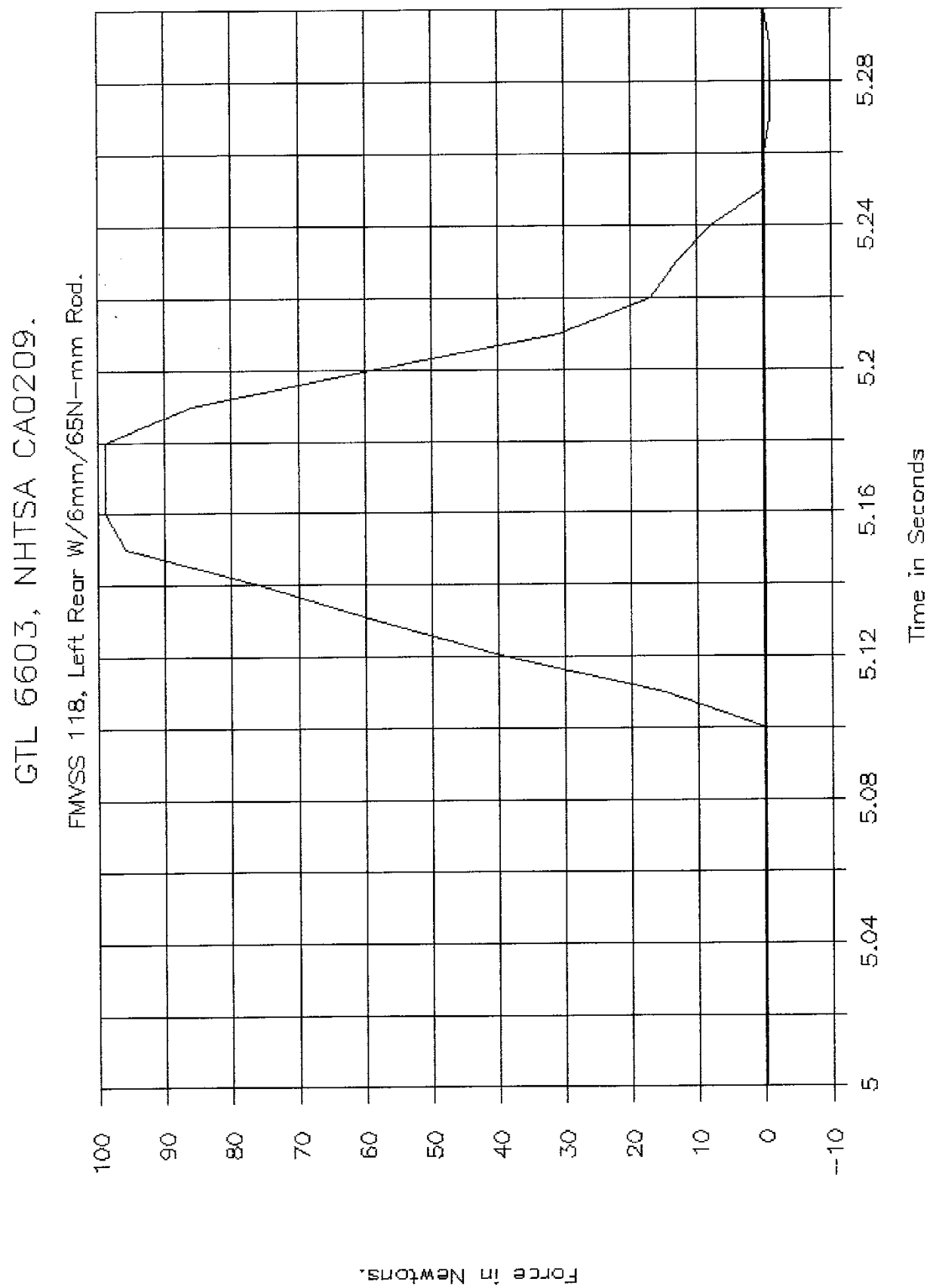
Autolock feature

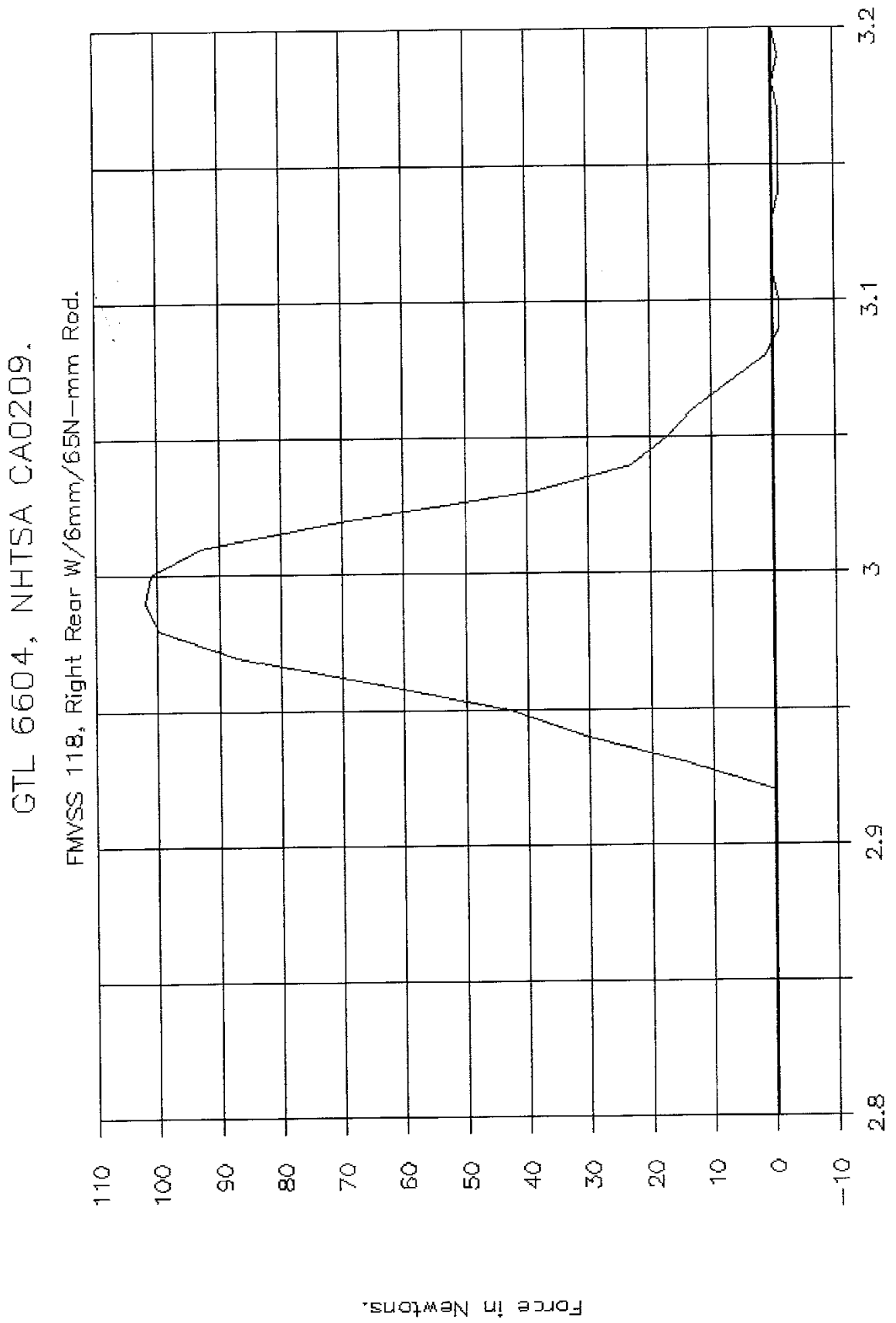
The autolock feature will lock all the doors when:

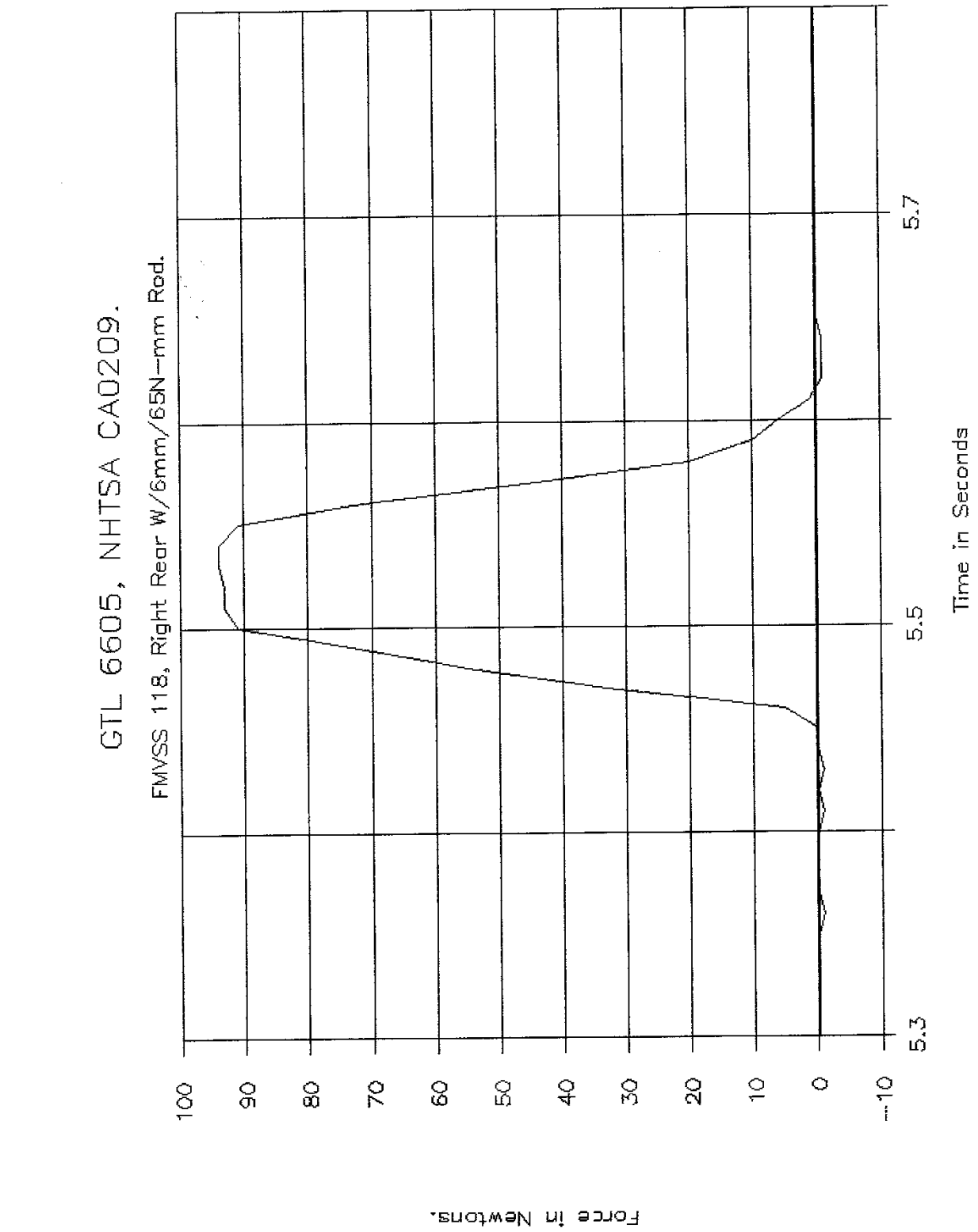
- all the doors are closed,
- the ignition is on,
- you shift into any gear putting the vehicle in motion, and
- the vehicle attains a speed greater than 12 mph (20 km/h).

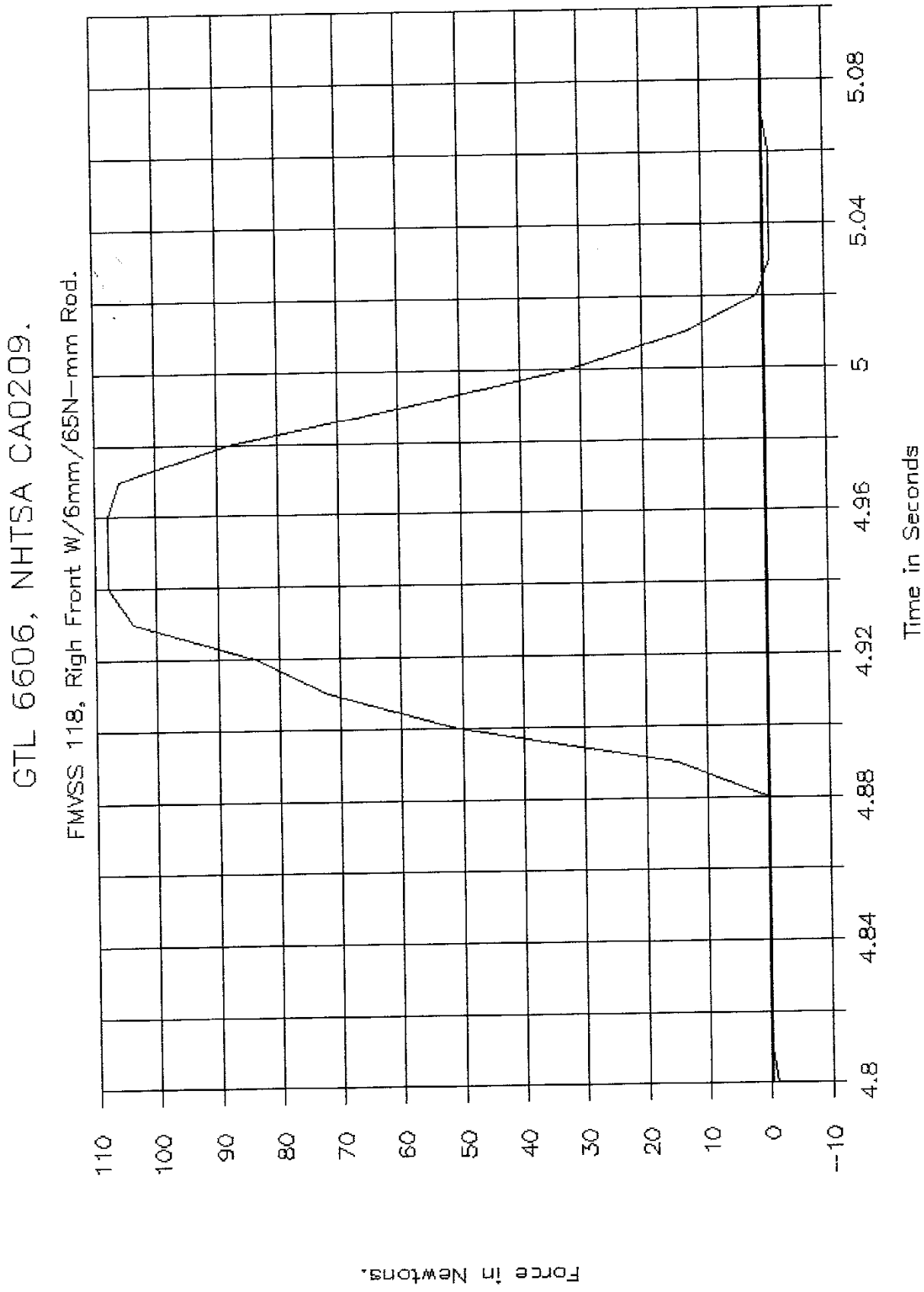
SECTION 7
PLOTS

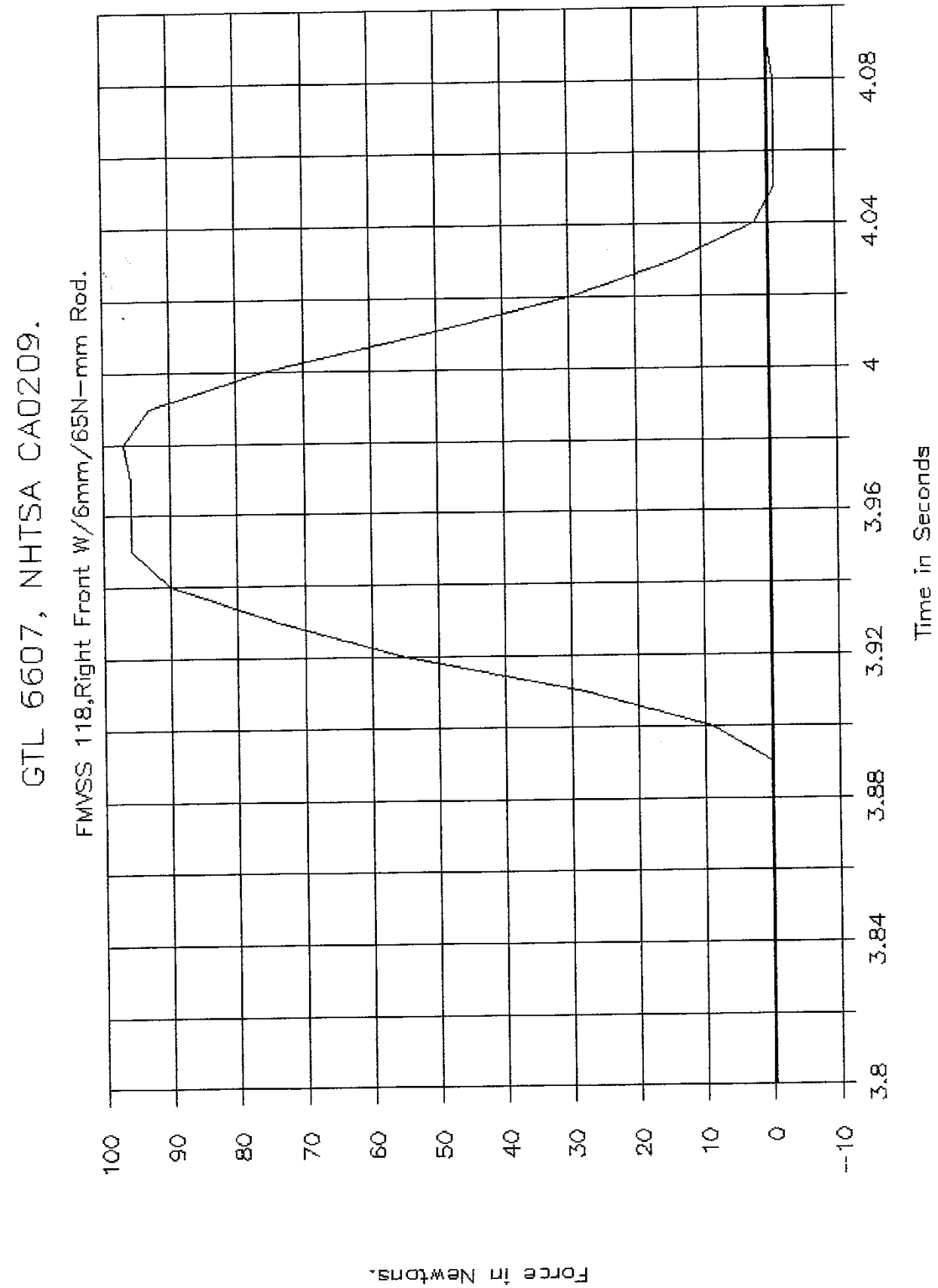

GTL 6602, NHTSA CA0209.
FMVSS 118, Left Front W/6mm/65N-mm Rod.
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
3.8
3.84
3.88
3.92
3.96
4
4.04
4.08
Time in Seconds

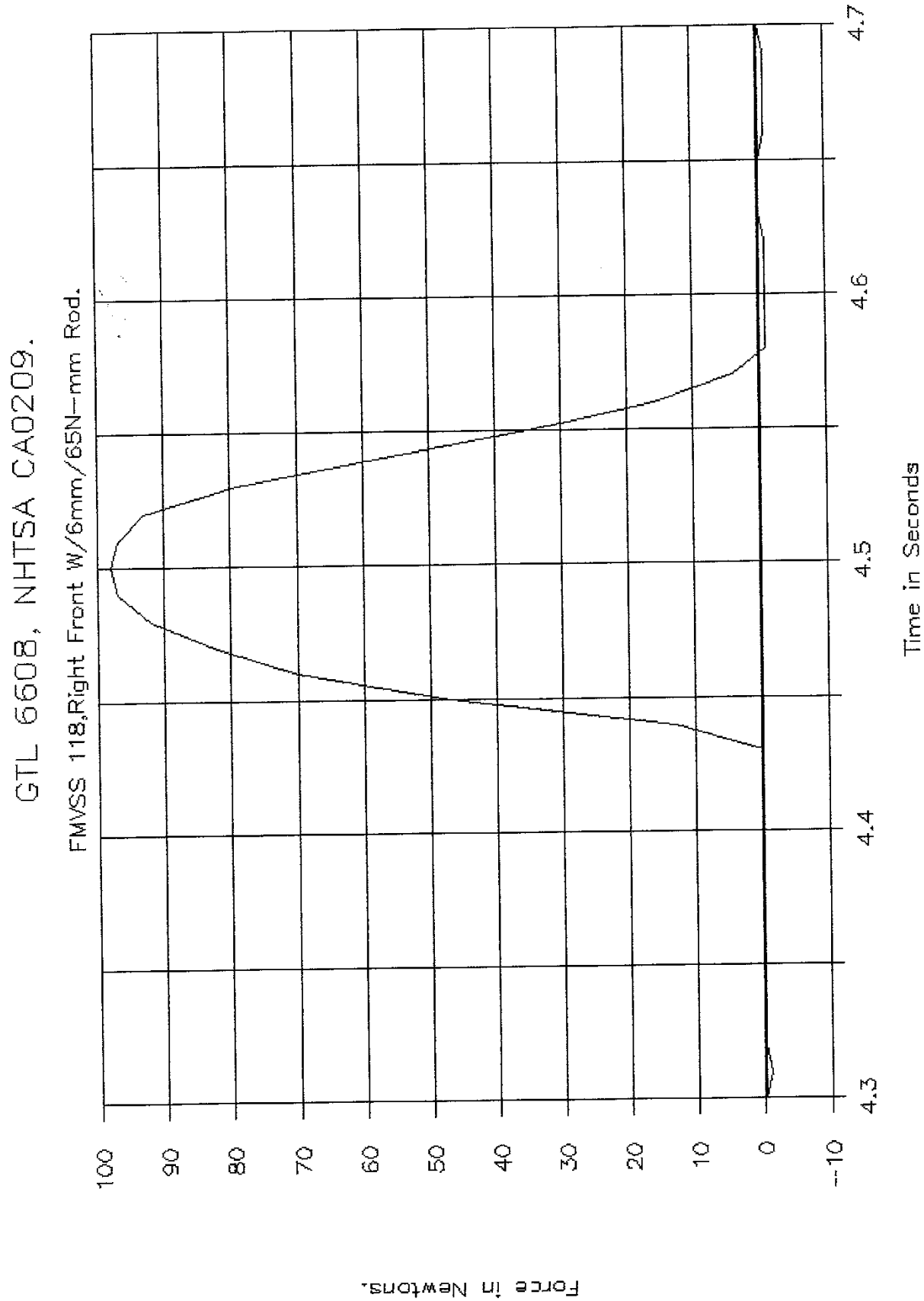

GTL 6603, NHTSA CA0209.
FMVSS 118, Left Rear W/6mm/65N-mm Rod.
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
5
5.04
5.08
5.12
5.16
5.2
5.24
5.28
Time in Seconds

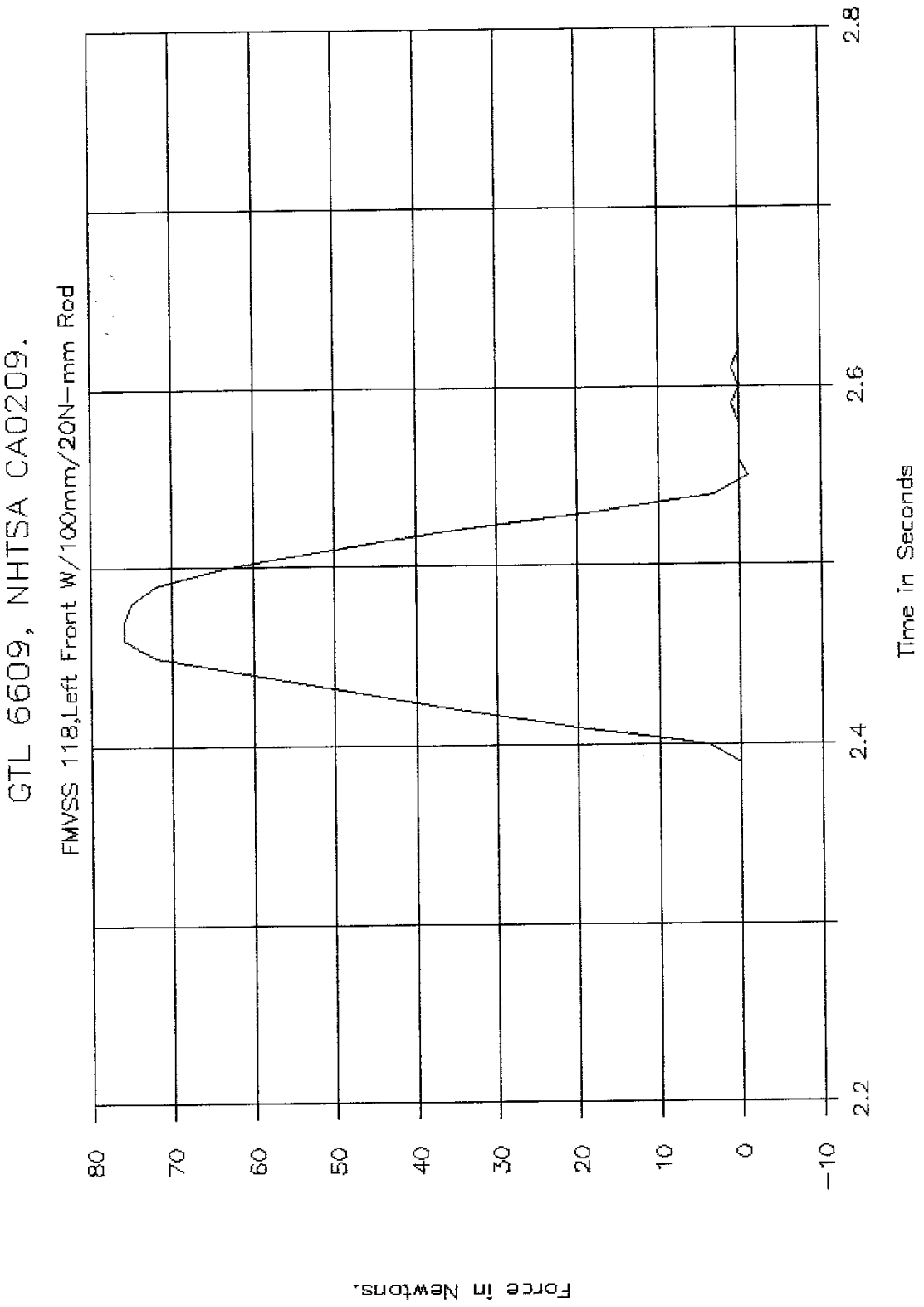

GTL 6604, NHTSA CA0209.
FMVSS 118, Right Rear W/6mm/65N-mm Rod.
Force in Newtons.
110
100
90
80
70
60
50
40
30
20
10
0
-10
2.8
2.9
3
3.1
3.2
Time in Seconds

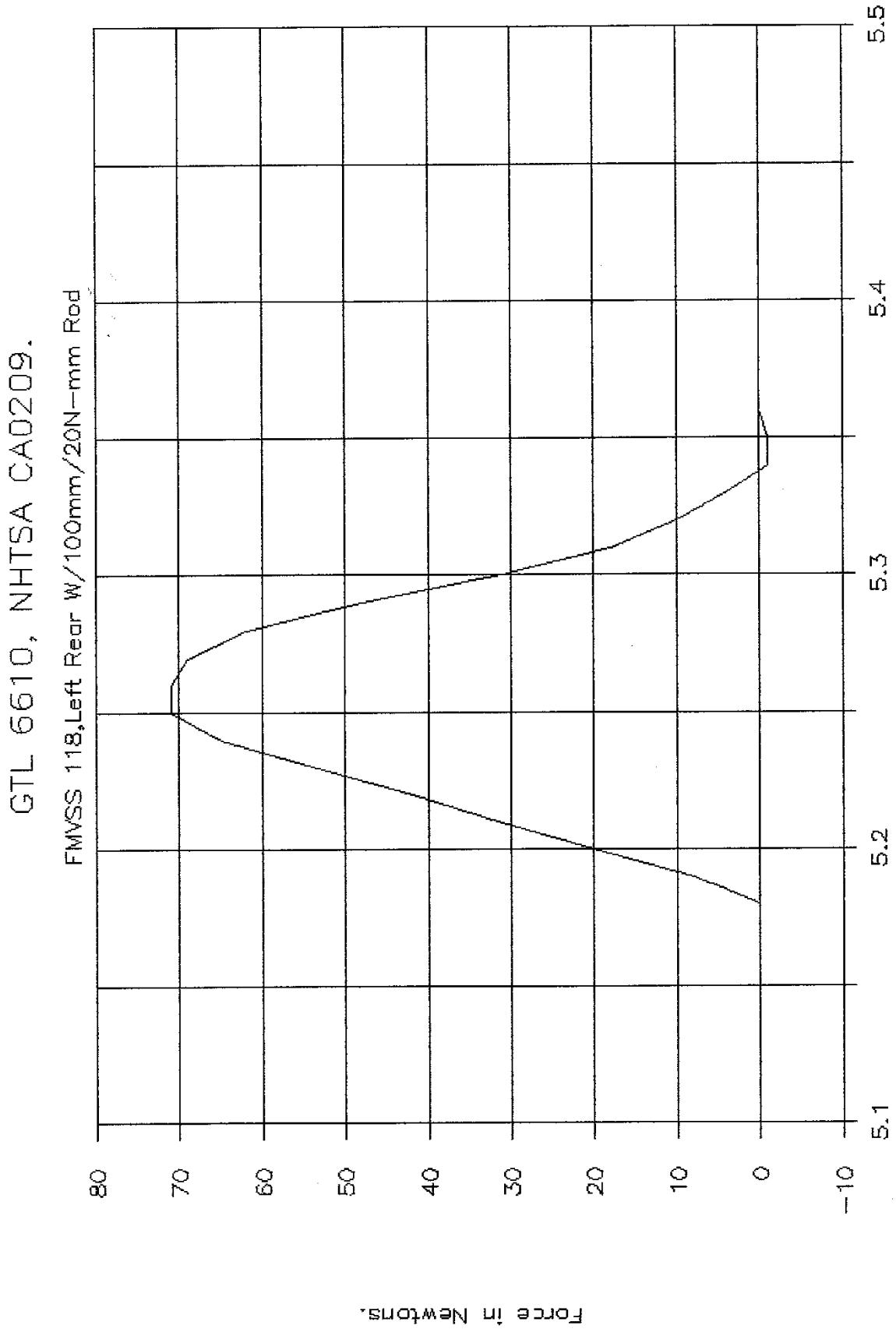

GTL 6605, NHTSA CA0209.
FMVSS 118, Right Rear W/6mm/65N-mm Rod.
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
5.3
5.5
5.7
Time in Seconds

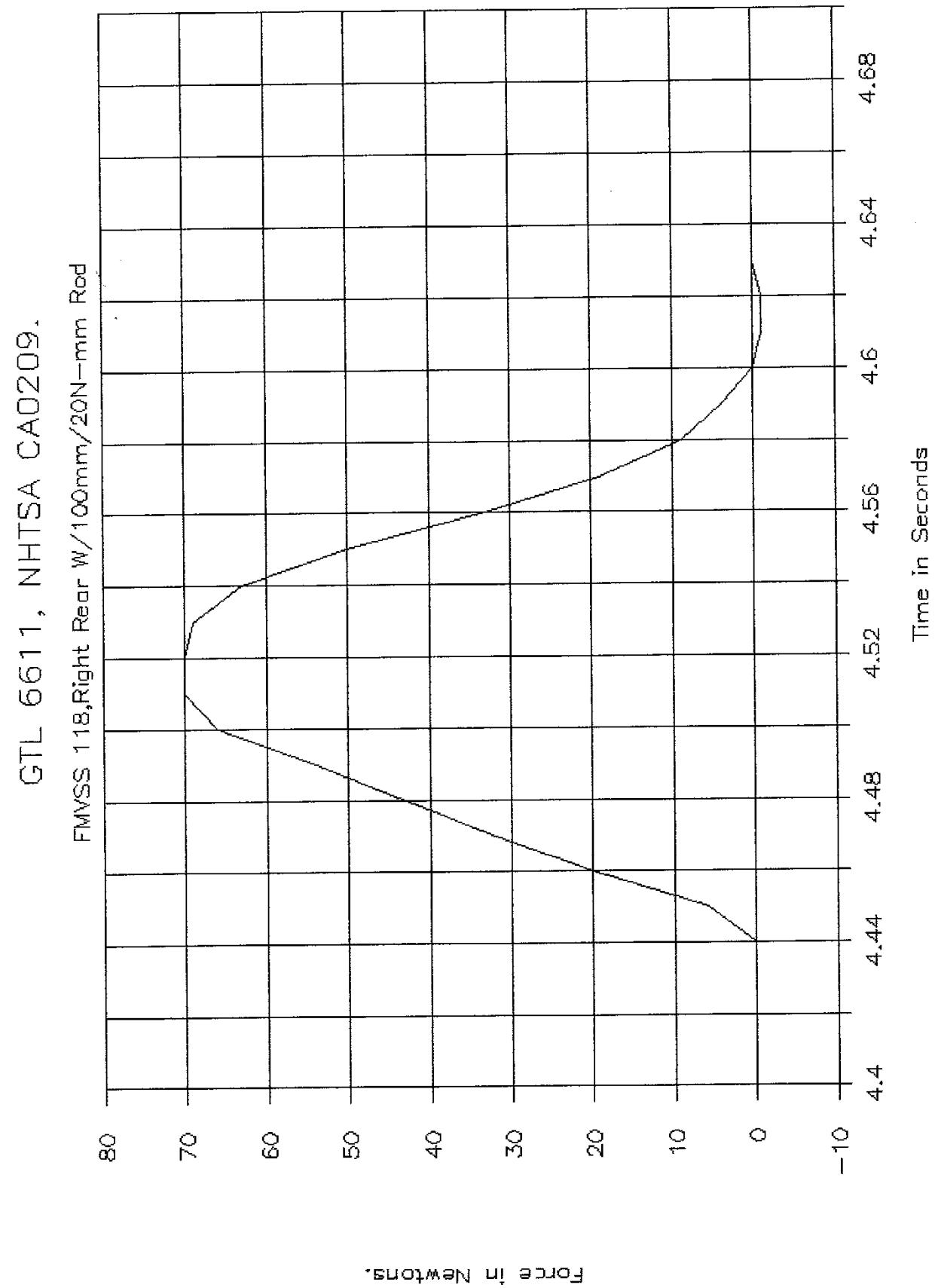

GTL 6606, NHTSA CA0209.
FMVSS 118, Righ Front W/6mm/65N-mm Rod.
Force in Newtons.
110
100
90
80
70
60
50
40
30
20
10
0
-10
4.8
4.84
4.88
4.92
4.96
5
5.04
5.08
Time in Seconds

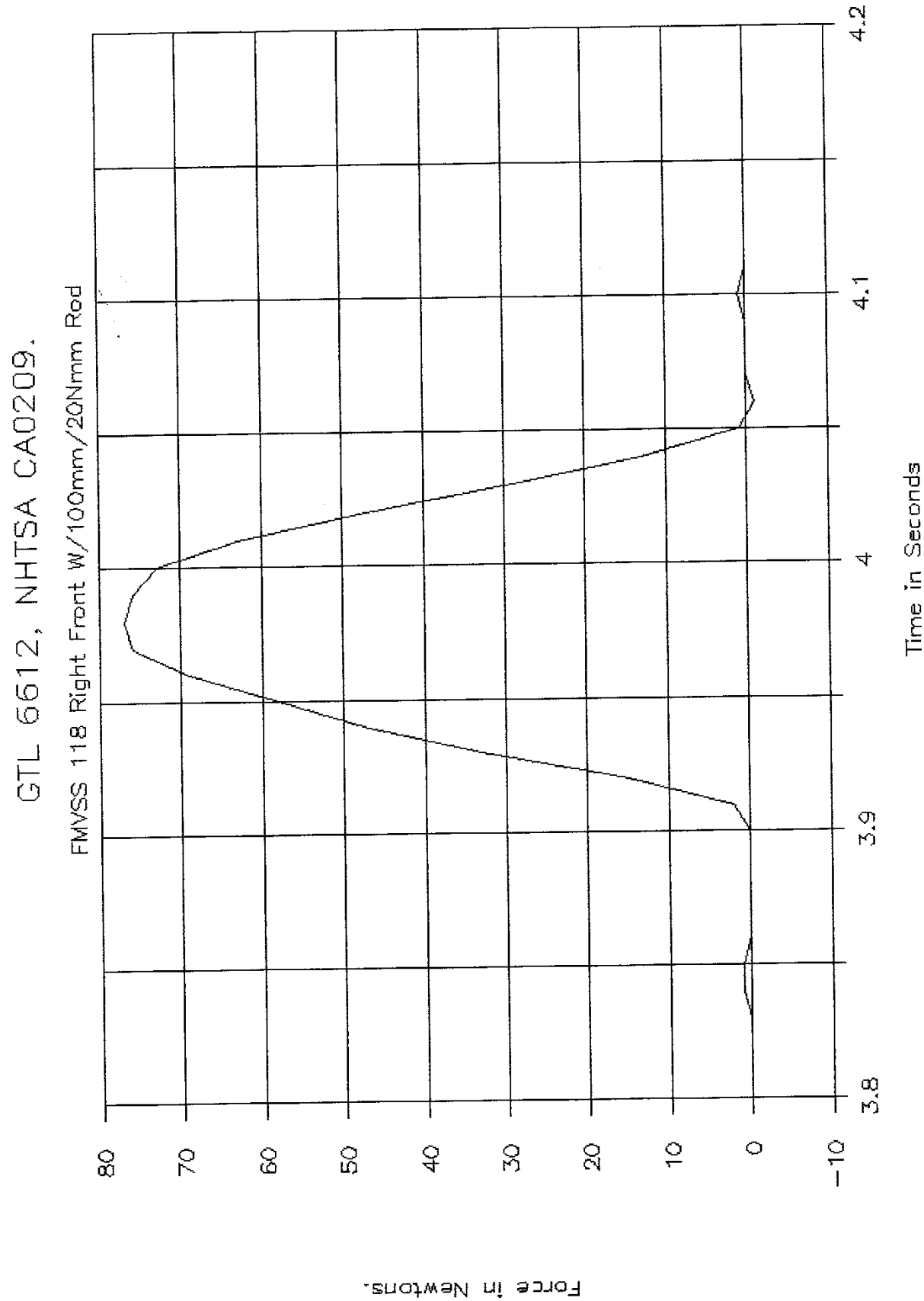

GTL 6607, NHTSA CA0209.
FMVSS 118,Right Front W/6mm/65N-mm Rod.
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
3.8
3.84
3.88
3.92
3.96
4
4.04
4.08
Time in Seconds

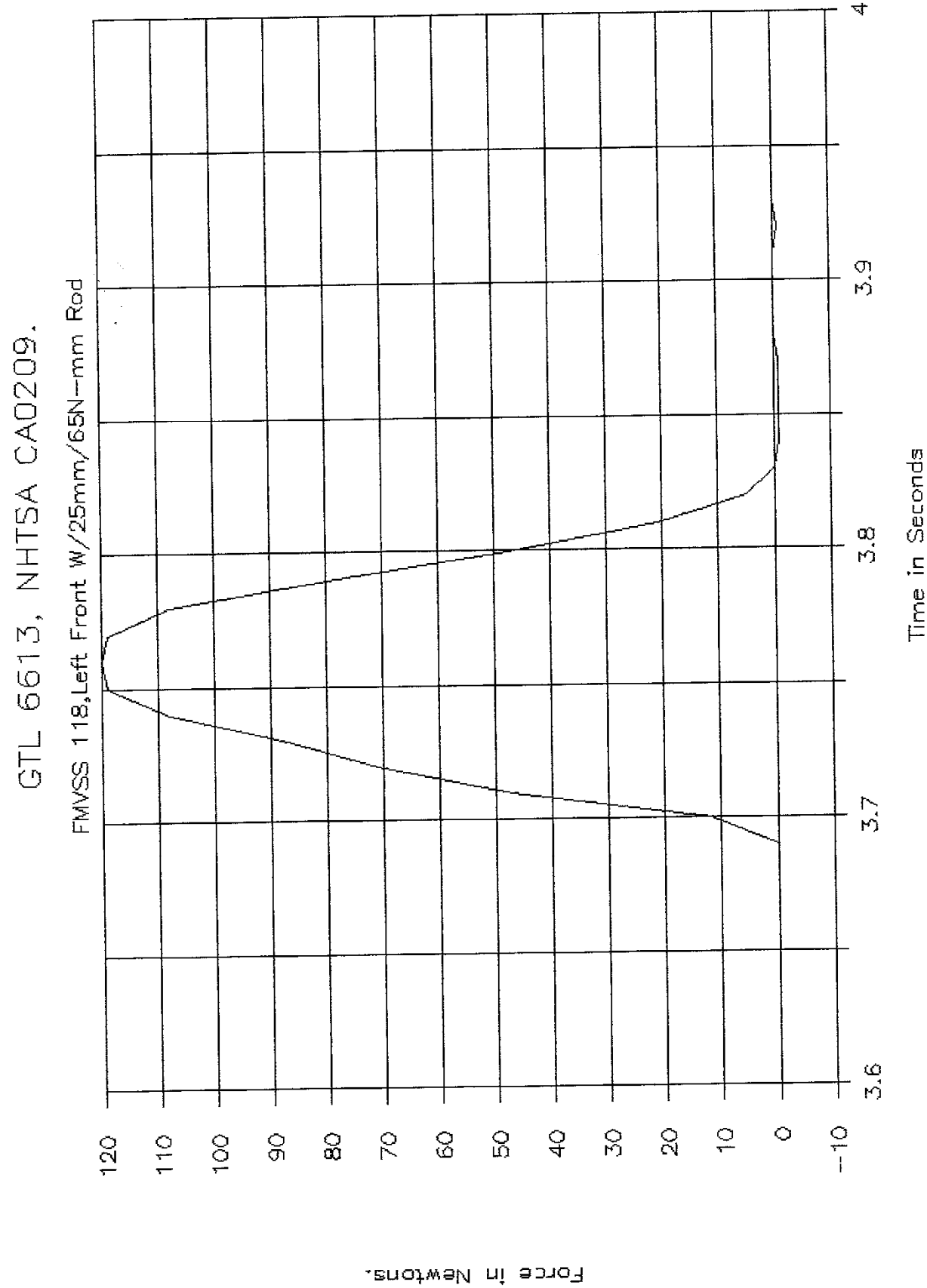

GTL 6608, NHTSA CA0209.
FMVSS 118,Right Front W/6mm/65N-mm Rod.
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
4.3
4.4
4.5
4.6
4.7
Time in Seconds

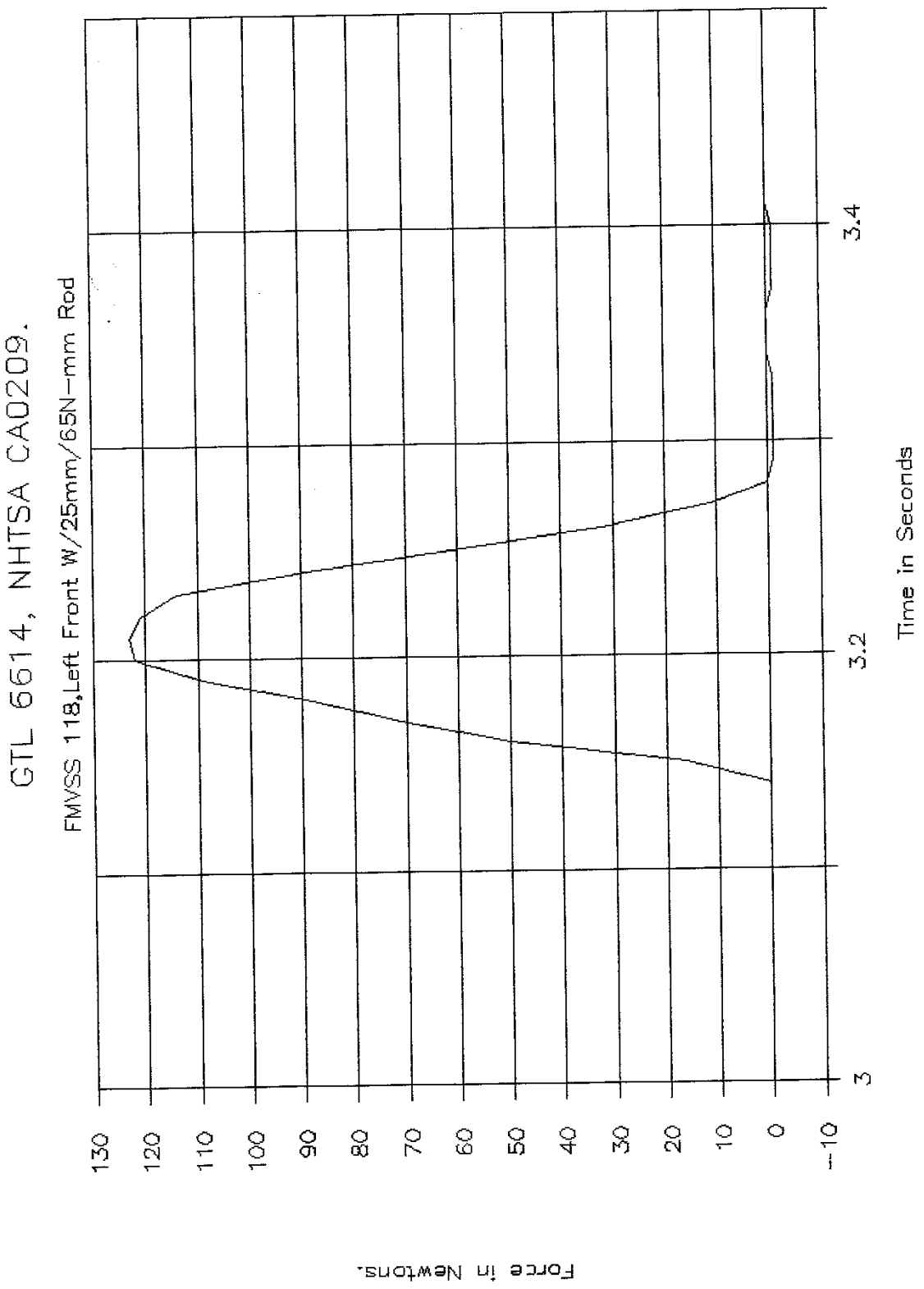

GTL 6609, NHTSA CA0209.
FMVSS 118,Left Front W/100mm/20N-mm Rod
Force in Newtons.
80
70
60
50
40
30
20
10
0
-10
2.2
2.4
2.6
2.8
Time in Seconds

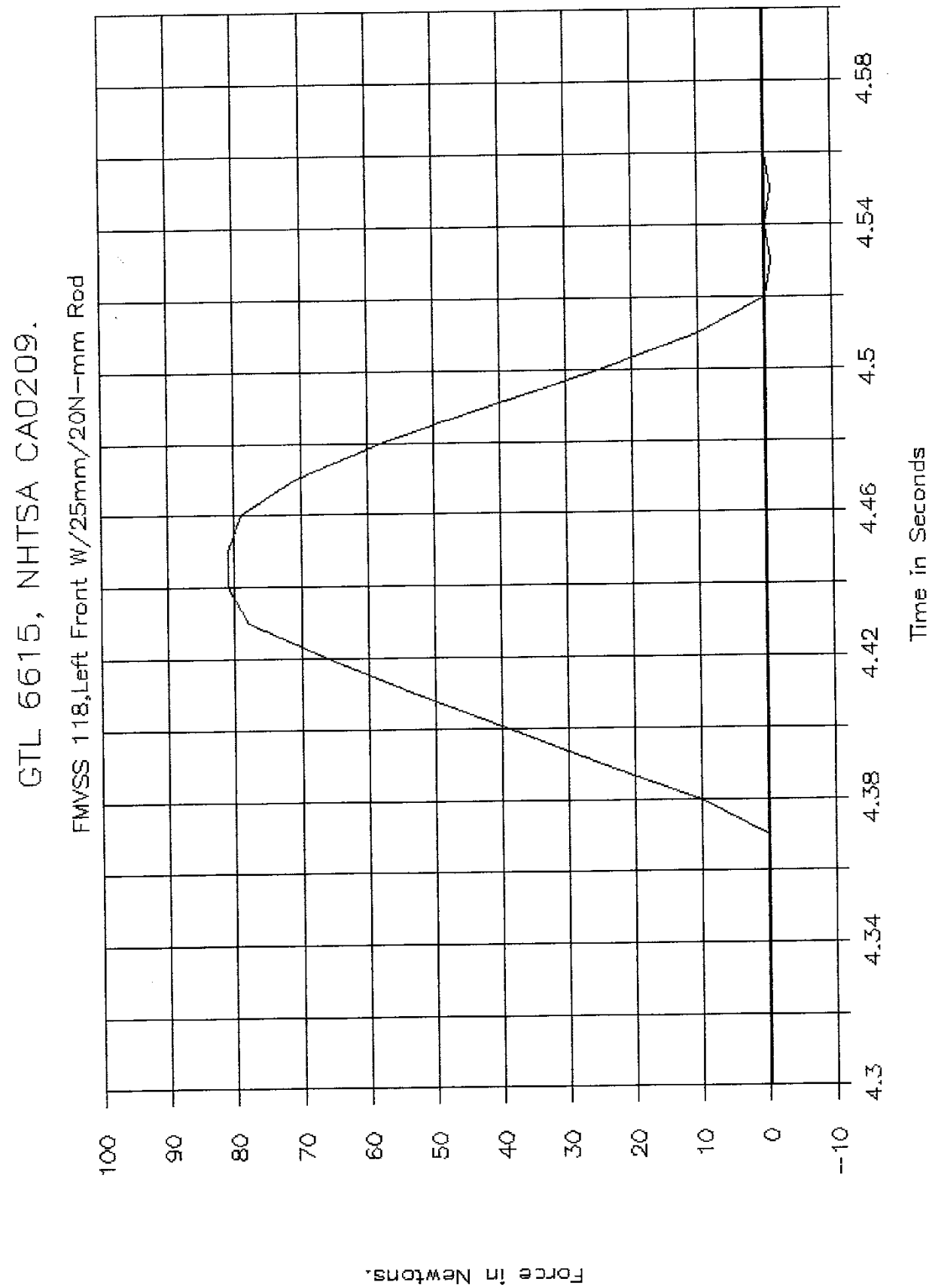

GTL 6610, NHTSA CA0209.
FMVSS 118,Left Rear W/100mm/20N-mm Rod
Force in Newtons.
80
70
60
50
40
30
20
10
0
-10
5.1
5.2
5.3
5.4
5.5
Time in Seconds

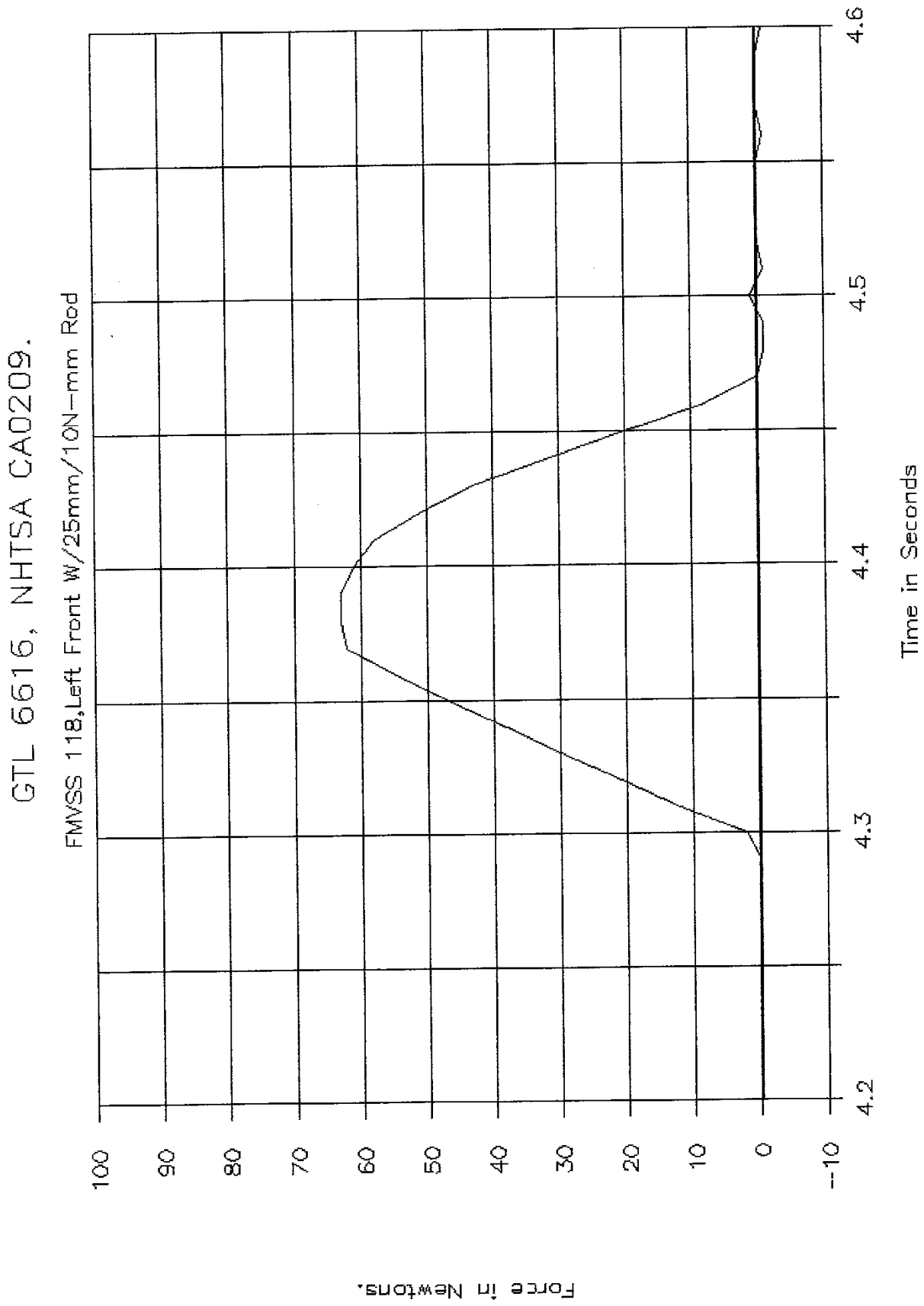

GTL 6611, NHTSA CA0209.
FMVSS 118,Right Rear W/100mm/20N-mm Rod
Force in Newtons.
80
70
60
50
40
30
20
10
0
-10
4.4
4.44
4.48
4.52
4.56
4.6
4.64
4.68
Time in Seconds

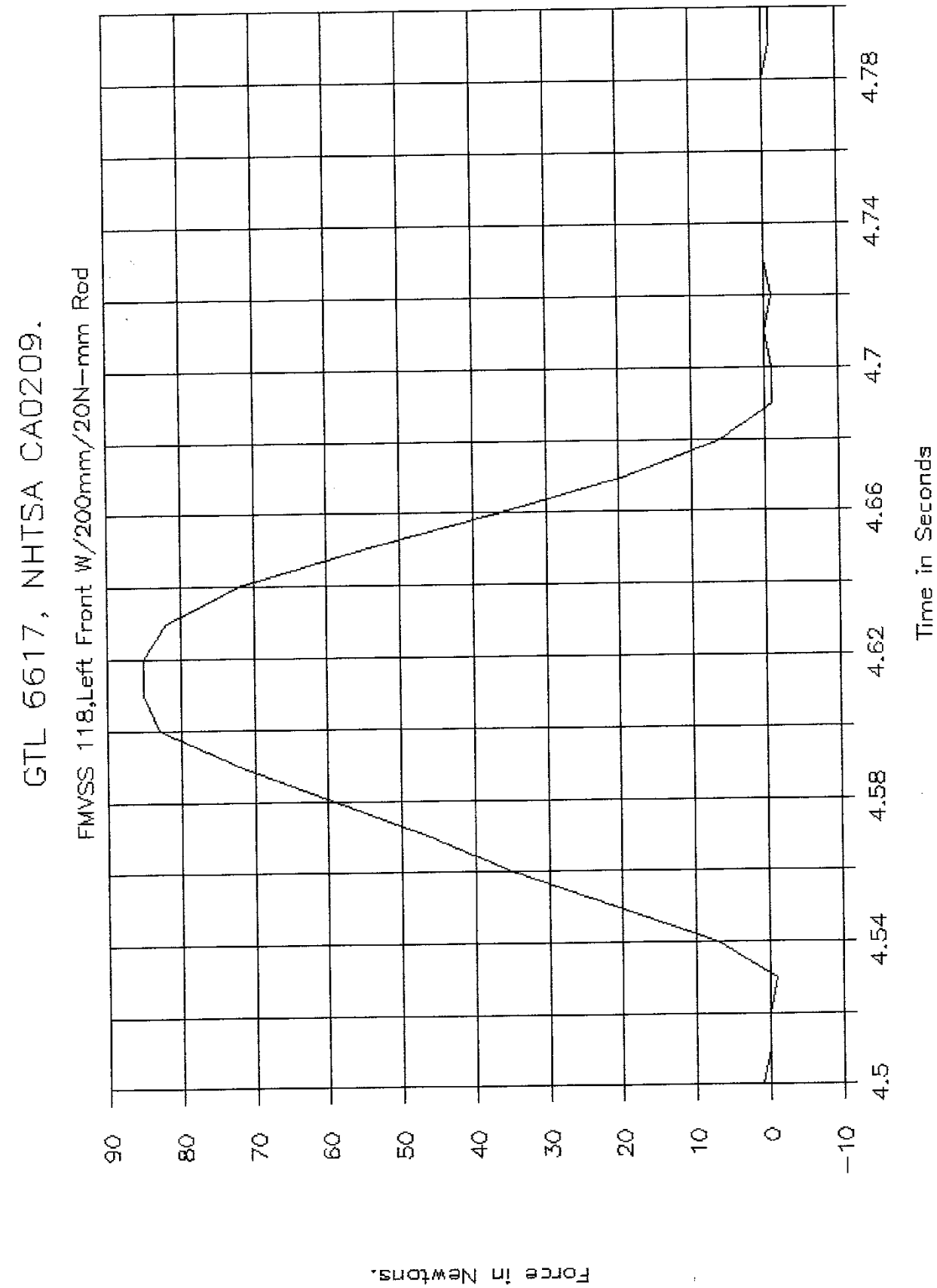

GTL 6612, NHTSA CA0209.
FMVSS 118 Right Front W/100mm/20Nmm Rod
Force in Newtons.
80
70
60
50
40
30
20
10
0
-10
3.8
3.9
4
4.1
4.2
Time in Seconds

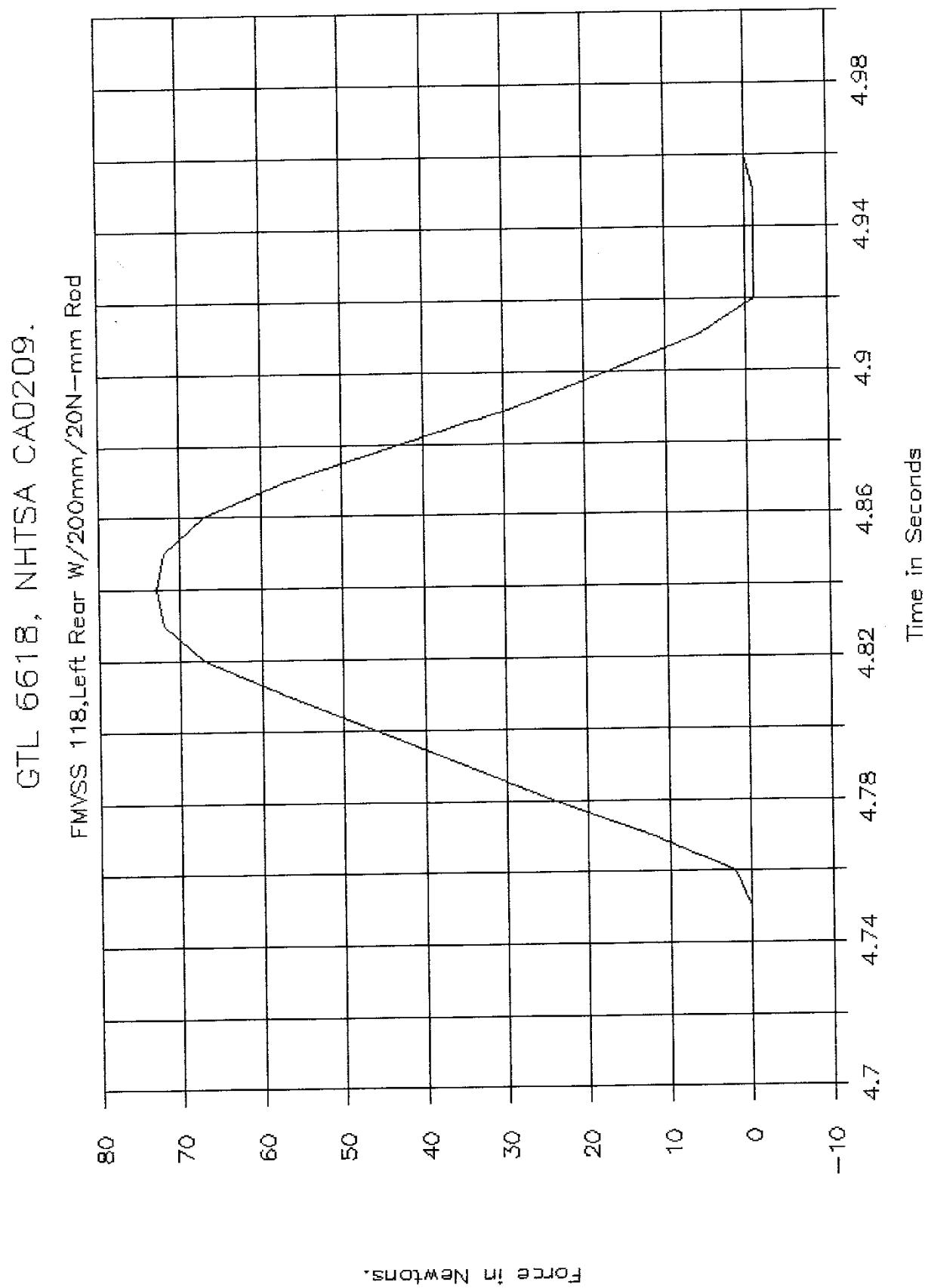

GTL 6613, NHTSA CA0209.
FMVSS 118,Left Front W/25mm/65N-mm Rod
Force in Newtons.
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
3.6
3.7
3.8
3.9
4
Time in Seconds


GTL 6614, NHTSA CA0209.
FMVSS 118,Left Front W/25mm/65N-mm Rod
Force in Newtons.
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
3
3.2
3.4
Time in Seconds


GTL 6615, NHTSA CA0209.
FMVSS 118,Left Front W/25mm/20N-mm Rod
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
4.3
4.34
4.38
4.42
4.46
4.5
4.54
4.58
Time in Seconds


GTL 6616, NHTSA CA0209.
FMVSS 118,Left Front W/25mm/10N-mm Rod
Force in Newtons.
100
90
80
70
60
50
40
30
20
10
0
-10
4.2
4.3
4.4
4.5
4.6
Time in Seconds


GTL 6617, NHTSA CA0209.
FMVSS 118,Left Front W/200mm/20N-mm Rod
Force in Newtons.
90
80
70
60
50
40
30
20
10
0
-10
4.5
4.54
4.58
4.62
4.66
4.7
4.74
4.78
Time in Seconds


GTL 6618, NHTSA CA0209.
FMVSS 118,Left Rear W/200mm/20N-mm Rod
Force in Newtons.
80
70
60
50
40
30
20
10
0
-10
4.7
4.74
4.78
4.82
4.86
4.9
4.94
4.98
Time in Seconds