

REPORT NUMBER 114-GTL-09-007

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 114 THEFT PROTECTION

GENERAL MOTORS CORP.
2009 CADILLAC CTS, PASSENGER CAR
NHTSA NO. C90101

GENERAL TESTING LABORATORIES, INC.
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June 2, 2009

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 2009 Cadillac CTS 4-door passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-114-03-DRAFT-GTL-REVC for the determination of FMVSS 114 compliance. Test failures identified were as follows: None		
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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF TEST

A model year 2009 Cadillac CTS passenger car was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 114 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS 114 specifies requirements to decrease the likelihood that a vehicle is stolen, or accidentally set in motion.

1.1 The test vehicle was a 2009 Cadillac CTS Passenger Car. The vehicle was identified as follows:

A. Vehicle Identification Number: 1G6DG577790130497

B. NHTSA No.: C90101

C. Manufacturer: GENERAL MOTORS CORP.

D. Manufacture Date: 08/08

E. Color: Gold Mist

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 114 testing on May 15, 2009.

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-114-03-DRAFT-GTL-REVC and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-114-03-Draft, "Theft Protection and Rollaway Prevention".

2.1 SUMMARY OF RESULTS

Test data indicate the FMVSS 114 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 114 testing on the 2009 Cadillac CTS.

FMVSS 114, THEFT PROTECTION
DATA SHEET 1 – VEHICLE IDENTIFICATION

TEST DATE: 05/15/09 LAB.: General Testing Laboratories
 CONTRACT: DTNH22-06-C-00032 VEH. NHTSA NO.: C90101
 VIN: 1G6DG577790130497 BUILD DATE: 08/08

MY/MAKE/MODEL/BODY STYLE: 2009 Cadillac CTS

TRANSMISSION TYPE:
 Automatic X; Manual ; Other (describe:)

DRIVE TRAIN TYPE:
 Front Wheel ; Rear Wheel X; 4-Wheel

FUEL TANK LEVEL: 100 (% OF max.) MILEAGE: 607

VEHICLE STARTING SYSTEM:

Location of the starting system:
On Right Side of Steering Column

Selectable settings:
Off/Lock, Accessory, On/Run, Start

Explain how the system is activated:
The system is activated and ready to start whenever a valid key transmitter is located within the vehicle.

KEY

Description of the key:
Electronic Key FOB with imbedded code

STARTING SYSTEM ACTIVATION

Describe how the key is inserted into the starting system:
Starting System is ready to be activated anytime a valid key transmitter is located within the vehicle.

Describe how the key is used to activate the starting system:
When a valid key is located within the vehicle turn knob on the right side of the steering column.

Describe how the key is removed from the starting system:
Shift control must be in "PARK" with engine off and key transmitter away from vehicle.

FMVSS 114, THEFT PROTECTION
DATA SHEET 1 continued

GEAR SELECTION CONTROL

Describe the gear selection control:

Center Console mounted Shift Lever with park release button on front side of lever.

Describe how the gear selection control is activated:

Depress service brake pedal, pull in park release button on front of shifter while moving gear selector to desired position.

Describe all of the selectable settings:

Park, Reverse, Neutral, Drive with +/-

IMMOBILIZER

Is the vehicle equipped with an immobilizer YES X NO

Describe the immobilizer device and how it prevents vehicle theft (if equipped):

Immobilizer system is activated whenever key transmitter with code is not present within vehicle. With immobilizer activated the engine will not start.

OPTIONAL RELEASE DEVICES

Describe if the vehicle is equipped with optional release devices:

N/A

OPTIONAL RELEASE DEVICES:

Key Removal Gear Selection Control None X Other

VEHICLE FLUIDS

Check all vehicle fluids and adjust to the proper levels for operation: Full

VEHICLE TIRE PLACARD INFORMATION

Vehicle Mfg. Recommended Tire Inflation Pressure

(kPa): Front 240 Rear 240

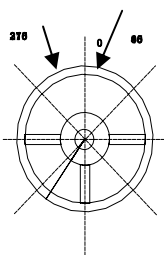
TIRE INFLATION PRESSURES:

Measured (kPa): LF 240 LR 240 RF 240 RR 240

WEIGHT

Vehicle Curb Weight(kg): 1912 Weight of Driver (kg): 90 (target = 91kg)

FMVSS 114, THEFT PROTECTION
DATA SHEET 2

REQUIREMENT S5.1.1	PASS	FAIL
Engine cannot be started without using the key <u> X </u> Yes <u> </u> No	X	
<p>With key removed, steering wheel locks: Yes: <u> X </u> No: <u> </u></p> <p>Identify locking position(s) on wheel using arrow(s)</p> <p>Clockwise: <u> 4 </u> (degrees) Counterclockwise: <u> 1 </u> (degrees)</p> <div style="text-align: right; margin-right: 50px;">  </div>		
<p>Key removal prevents forward self-mobility: Yes: <u> X </u> No: <u> </u></p> <p>If yes describe: Vehicle will not start without key in vehicle and the steering locks.</p>		
When key is removed from the starting system, starting of the engine or motor and either steering or self mobility is prevented. YES	X	

REMARKS:

FMVSS 114, THEFT PROTECTION
DATA SHEET 2 continued

REQUIREMENT S5.1.3	PASS	FAIL
<p>An audible warning is activated whenever the key is in any starting system position with the exception of "on" and "start" and the door closest to the driver's designated seating position is opened.</p> <p style="text-align: right;">Yes <u> X* </u> No _____</p> <p>NOTE: *An audible alarm is sounded if the driver door is opened and closed following an engine shutdown and the key device remains inside the vehicle interior. On all subsequent driver's door openings, the audible warning will sound as long as the key device remains inside the vehicle interior and the driver's door is open.</p> <p>Identify ALL key/starting system position setting: <u>Off/Lock, Accessory, On/Run, Start</u></p>	X	

REQUIREMENT S5.1.4	PASS	FAIL
<p>With the vehicle engine or motor shut down and the transmission gear selection control in any position other than "park";</p> <p>The steering wheel can rotate without locking? Yes <u> X </u> No _____</p>	X	
<p>The vehicle is free to roll forward? Yes <u> X </u> No _____</p>	X	

REMARKS:

RECORDED BY: G. Farrand
APPROVED BY: D. Messick

DATE: 05/15/09

FMVSS 114, ROLLAWAY PREVENTION
DATA SHEET 3
(for vehicles equipped with transmission with a "park" position)

VEH. NHTSA NO.: C90101

TEST DATE: 05/15/09

REQUIREMENT S5.2.1	PASS	FAIL
<p>The starting system prevents key removal in ALL gear selection control positions except "park". Yes <u> X </u> No _____</p> <p>Can the gear selection control be placed between each gear selection position and will it remain there without assistance? Yes _____ No <u> X </u></p> <p>If yes, can the key be removed from the starting system? Yes _____ No _____</p> <p>If the key can be removed from the vehicle starting system when the gear selection control is not locked in "park", a mechanism shall exist which, upon key removal, the vehicle transmission or gear selection control shall become locked in "park" as the direct result of removing the key. If such a mechanism exists, describe the mechanism and its function:</p>	X	

REQUIREMENT S5.2.2	PASS	FAIL
<p>The gear selection control is locked in the "park" position when the key is removed from the starting system. Yes <u> X </u> No _____</p>	X	

REMARKS:

DATA SHEET 3 continued

REQUIREMENT S5.2.3	PASS	FAIL
<p><u>ELECTRICAL FAILURE (Battery Discharge)</u></p> <p>In the event of an electrical failure, key removal from the starting system when the transmission or gear selection control is not locked in “park” is permitted”. Yes <u>X</u> No _____</p> <p>The vehicle is equipped with an override device that permits key removal from the starting system when the transmission or gear selection control is not locked in “park”. Yes _____ No <u>X</u></p> <p>If yes, select the type of override device equipped: Opaque Cover _____ No Cover _____</p> <p>Describe the override device design and mode of activation (if equipped):</p>	X	
	X	
	N/A	
<p>FILL IN THE SECTION BELOW THAT APPLIES:</p> <p><u>VERRIDE WITH AN OPAQUE COVER:</u></p> <p>The opaque surface cover prevents sight of and use of override device. Yes _____ No _____</p> <p>The opaque surface cover can only be removed by using a screwdriver or other tool. Yes _____ No _____</p> <p>As a direct result of removing the key from starting system, the following is prevented: Steering _____ or Self-Mobility _____</p> <p><u>VERRIDE WITH NO COVER</u></p> <p>The override device requires the use of a tool to activate. Yes _____ No _____</p> <p>Simultaneous activation of the override device and removal of key from starting system is required. Yes _____ No _____</p> <p>As a direct result of removing the key from the starting system, the following is prevented: Steering _____ or Self-Mobility _____</p>	N/A	

REMARKS:

DATA SHEET 3 continued

REQUIREMENT S5.2.4	PASS	FAIL
<p><u>GEAR SELECTION CONTROL OVERRIDE DEVICE</u></p> <p>The vehicle is equipped with an override device that allows the user to move the gear selection control from “park” after the key has been removed from the starting system. Yes_____ No <u>X</u></p> <p>If yes, select the type of override device that is equipped: Override operated with a: Key_____ Opaque Cover_____ No Cover_____</p> <p>Describe the override device design and mode of activation (if equipped):</p> <p>FILL IN THE SECTION BELOW THAT APPLIES:</p> <p><u>VERRIDE OPERATED WITH KEY:</u></p> <p>The key is required to operate the override device that allows the user to move the gear selection control from “park” after the key has been removed from the starting system. Yes_____ No_____</p> <p><u>VERRIDE WITH AN OPAQUE COVER</u></p> <p>The opaque surface cover prevents sight of and use of override device. Yes_____ No_____</p> <p>The opaque surface cover can only be removed by using a screwdriver or other tool. Yes_____ No_____</p> <p>As a direct result of removing the key from the starting system, the following is prevented: Steering_____ or Self-Mobility_____</p> <p><u>VERRIDE WITH NO COVER</u></p> <p>The override device requires the use of a tool to operate. Yes_____ No_____</p> <p>Simultaneous activation of the override device and removal of key from starting system is required. Yes_____ No_____</p> <p>As a direct result of removing the key from the starting system, the following is prevented: Steering_____ or Self-Mobility_____</p>	<p>X</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>	

REMARKS:

DATA SHEET 3 continued

REQUIREMENTS S5.3	PASS	FAIL
<u>VEHICLE FACING UPHILL ON 10% GRADE</u>		
With the key in the "off" position, the transmission will shift out of "park" without the service brake being applied. Yes_____ No <u>X</u>	<u>X</u>	
With the key in the "acc" position, the transmission will shift out of "park" without the service brake being applied. Yes_____ No <u>X</u>	<u>X</u>	
With the key in the "on" position (engine off), the transmission will shift out of "park" without the service brake being applied. Yes_____ No <u>X</u>	<u>X</u>	
With the key in the "start" position, the transmission will shift out of "park" without the service brake being applied. Yes_____ No <u>X</u>	<u>X</u>	
With the key in the "other" position (please specify), the transmission will shift out of "park" without the service brake being applied. Yes_____ No_____	<u>N/A</u>	
Does the key stay between starting system positions without being held by operator? If so, please describe. Yes_____ No <u>X</u>	<u>X</u>	
Brake force readings (force required to allow the transmission to shift out of "park"):		
The vehicle is equipped with adjustable pedals: Yes_____ No <u>X</u>		
Fore Position: Reading 1 <u>26.7 N</u> Reading 2 <u>26.7 N</u> Reading 3 <u>26.7 N</u> Reading 4 <u>26.7 N</u> Reading 5 <u>26.7 N</u> Avg. <u>26.7 N</u>	Aft Position (if applicable) Reading 1 _____ Reading 2 _____ Reading 3 _____ Reading 4 _____ Reading 5 _____ Avg. _____	<u>X</u>

REMARKS:

RECORDED BY: G. FarrandDATE: 05/15/09APPROVED BY: D. Messick

SECTION 4
TEST EQUIPMENT LIST

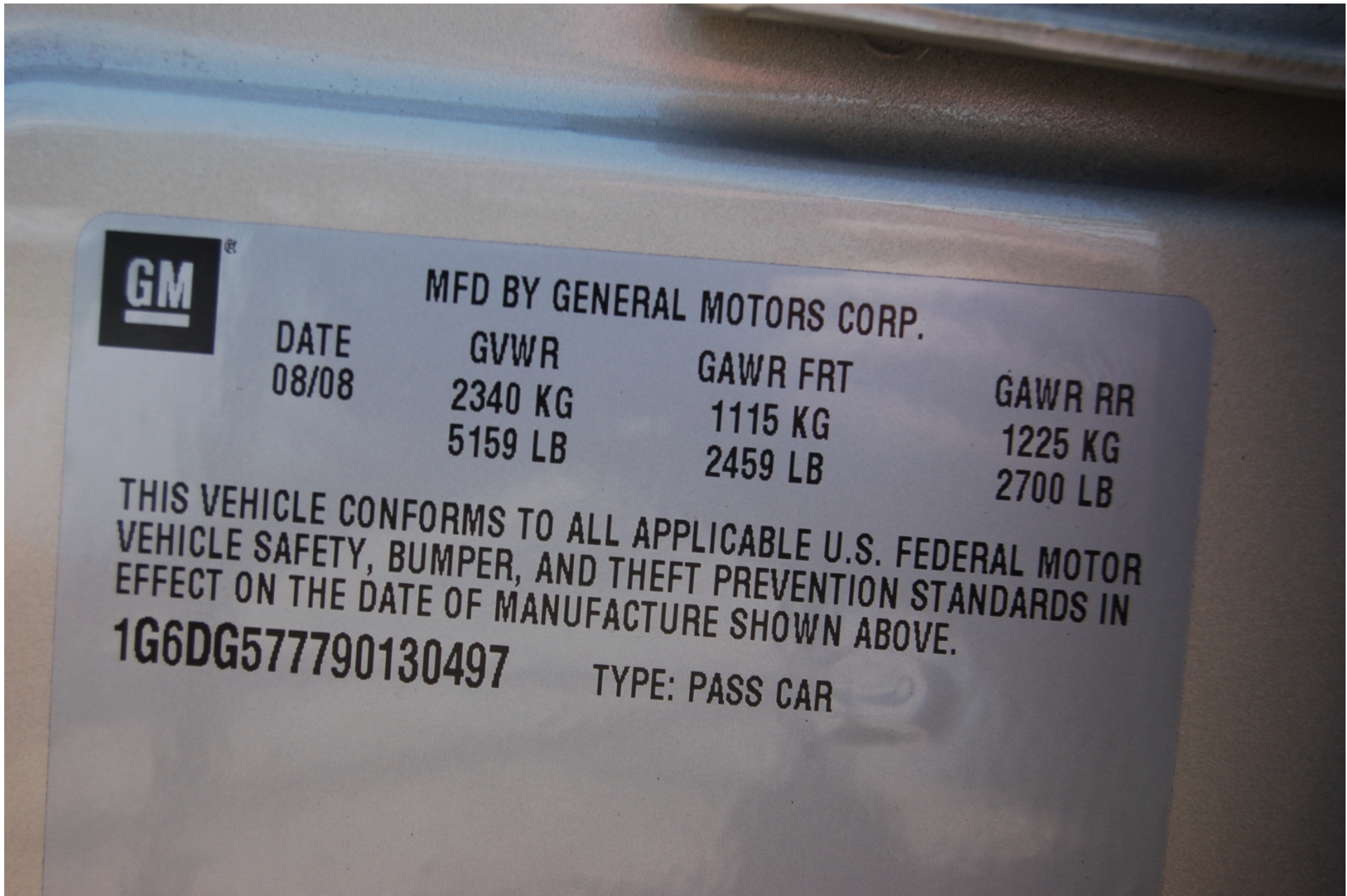
ITEM	MFR	MODEL	S/N	CAL. PERIOD	DATE OF NEXT CALIB.	REMARKS
SLR DIGITAL CAMERA	NIKON	D50	N/A	N/A	N/A	
TIRE PRESSURE GAUGE	WESKLER	45-0/100	107	12 MO.	03/10	
INCLINOMETER	MITUTOYO	PRO 360	950-315	N/A	BEFORE USE	
STEEL TAPE	STANLEY	FAT MAX	33-890	12 MO.	03/10	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	04/10	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	04/10	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	04/10	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	04/10	
SPRING SCALE	CHATILLON	DPP-10	4729	12 MO.	04/10	

SECTION 5
PHOTOGRAPHS



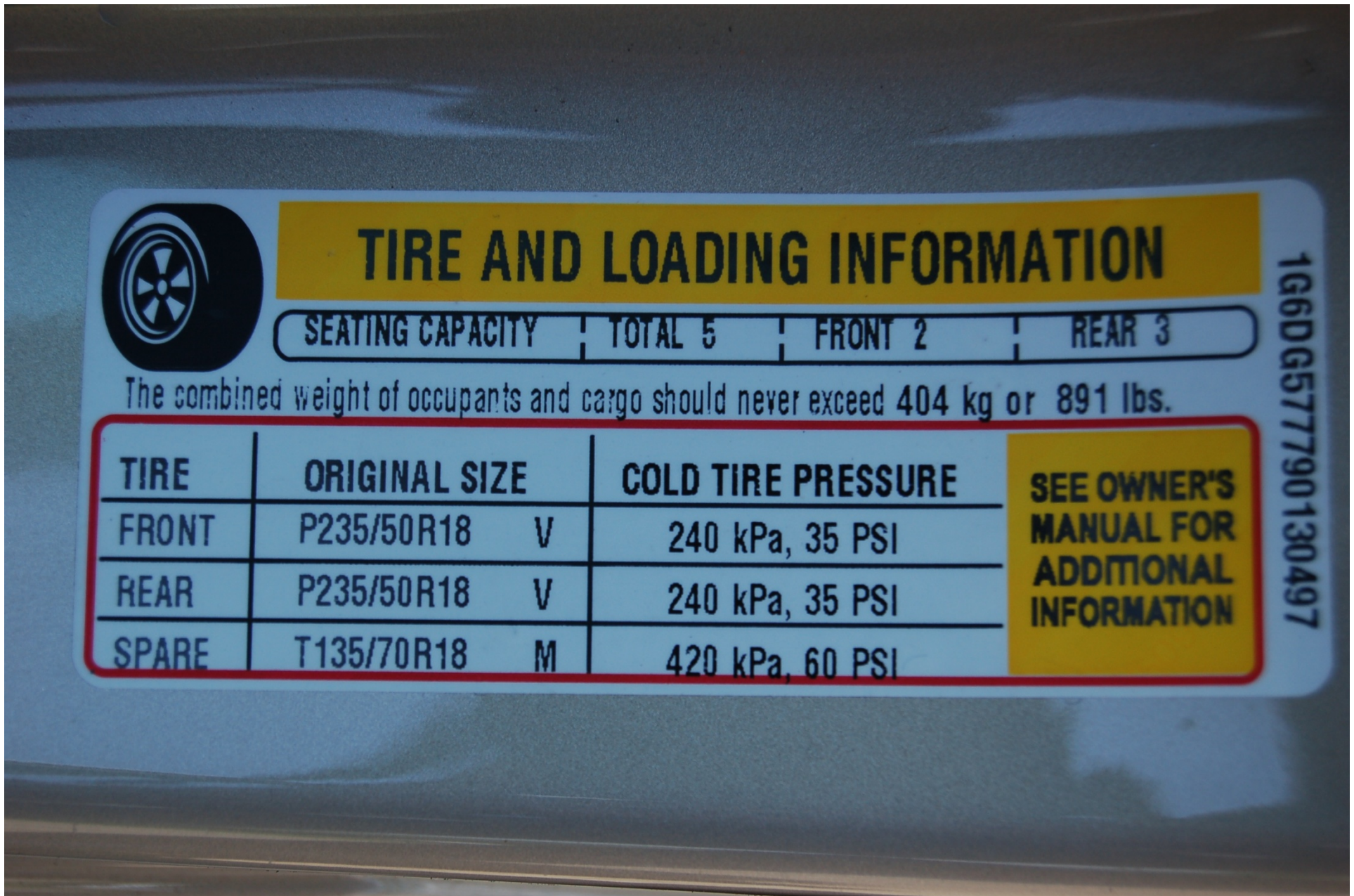
2009 CADILLAC CTS
NHTSA NO. C90101
FMVSS NO. 114

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



2009 CADILLAC CTS
NHTSA NO. C90101
FMVSS NO. 114

FIGURE 5.2
VEHICLE CERTIFICATION LABEL



2009 CADILLAC CTS
 NHTSA NO. C90101
 FMVSS NO. 114

FIGURE 5.3
 VEHICLE TIRE INFORMATION LABEL



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FMVSS NO. 114

FIGURE 5.4
CLOSE-UP VIEW OF IGNITION KEY



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FMVSS NO. 114

FIGURE 5.5
STARTING SYSTEM CONTROL



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NHTSA NO. C90101
FMVSS NO. 114

FIGURE 5.6
TRANSMISSION GEAR SELECTION CONTROL



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NHTSA NO. C90101
FMVSS NO. 114

FIGURE 5.7
ELECTRONIC DISPLAY WITH KEY REMOVED



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NHTSA NO. C90101
FMVSS NO. 114

FIGURE 5.8
ELECTRONIC DISPLAY WITH ENGINE OFF AND GEAR SELECTOR
OUT OF PARK



2009 CADILLAC CTS
NHTSA NO. C90101
FMVSS NO. 114

FIGURE 5.9
ELECTRONIC DISPLAY WITH KEY REMOVED FROM VEHICLE WHILE
RUNNING