This publication is distributed by the National Highway Traffic Safety Administration in the interest of information exchange. 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.

Prepared By:  Doris Beebe

Approved By:  

Accepted By:  

Acceptance Date:  3/26/09
--- | --- | --- 
401-STF-09-002 | | 

4. Title and Subtitle


5. Report Date

March 26, 2009

6. Performing Organization Code

STF

7. Author(s)

Jack Stewart, Compliance Test Technician  
Kenneth H. Yates, Safety Compliance Engineer

8. Performing Organization Report Number

STF-DOT-09-401-002

9. Performing Organization Name and Address

U. S. DOT San Angelo Test Facility  
131 Comanche Trail, Building 3527  
Goodfellow AFB, Texas  76908

10. Work Unit No. (TRAIS)


11. Contract or Grant No.


12. Sponsoring Agency Name and Address

United States Department of Transportation  
National Highway Traffic Safety Administration  
Office of Vehicle Safety Compliance, NVS 220  
1200 New Jersey Avenue, SE  
Washington, DC  20590

13. Type of Report and Period Covered

Final Test Report  
January 27, 2009


NVS-220

15. Supplementary Notes


16. Abstract

Compliance tests were conducted on the subject 2009 Hyundai Genesis four-door passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-401-01 for the determination of FMVSS 401 compliance. Test failures identified were as follows: NONE.

17. Key Words

Compliance Testing  
Safety Engineering  
FMVSS 401

18. Distribution Statement

National Highway Traffic Safety Administration  
Technical Information Services Division  
NPO-411, Room E12-100  
1200 New Jersey Avenue, S.E.  
Washington, DC  20590  
Email: tis@dot.gov  
FAX: 202-493-2833

19. Security Classification (of this report)

UNCLASSIFIED

20. Security Classification (of this page)

UNCLASSIFIED

21. No. of Pages

28

22. Price

UNCLASSIFIED

Form DOT F 1700.7 (8-72)
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1    Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2    Test Procedure and Discussion of Results</td>
<td>2</td>
</tr>
<tr>
<td>3    Test Data</td>
<td>3</td>
</tr>
<tr>
<td>Test Data Summary</td>
<td>4</td>
</tr>
<tr>
<td>Test Preparation Information</td>
<td>5</td>
</tr>
<tr>
<td>Manual Trunk Release Operation</td>
<td>6</td>
</tr>
<tr>
<td>4    Test Equipment List and Calibration Information</td>
<td>8</td>
</tr>
<tr>
<td>5    Photographs</td>
<td>9</td>
</tr>
</tbody>
</table>

**Figure**

- 5.1 Front of Vehicle
- 5.2 Left Side View of Vehicle
- 5.3 Right Side View of Vehicle
- 5.4 Left Rear Quarter View
- 5.5 Right Rear Quarter View
- 5.6 Vehicle Certification Label
- 5.7 Vehicle Trunk Compartment Interior
  Showing Original Equipment Installed
- 5.8 Vehicle Trunk Compartment Manual Release Mechanism
- 5.9 Release Mechanism with Test Equipment Attached
- 5.10 Test Observer in Trunk Compartment
- 5.11 Trunk Lid Exterior
- 5.12 Release Mechanism inside Closed Trunk

6 Owner’s Manual Page ........................................ 22
SECTION 1

INTRODUCTION

1.1 PURPOSE OF COMPLIANCE TEST

A 2009 Hyundai Genesis four-door passenger car was tested to determine if the vehicle was in compliance with the requirements of FMVSS 401. All tests were conducted in accordance with NHTSA/Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-401-01 dated August 8, 2007.

1.2 TEST VEHICLE

The test vehicle was a 2009 Hyundai Genesis four-door passenger car. Nomenclatures applicable to the test vehicle are:

A. Vehicle Identification Number: KMHGC46E89U025598
B. NHTSA Number: C90501
C. Manufacturer: Hyundai Motor Company
D. Manufacture Date: 07/2008

1.3 TEST DATE

The test vehicle was tested January 27, 2009.
SECTION 2

TEST PROCEDURE AND DISCUSSION OF RESULTS

2.1 TEST PROCEDURE

Prior to test, the test vehicle was inspected for completeness and systems operability, including battery capability and trunk closure function. The vehicle was then photographically documented as required by the NHTSA/OVSC Test Procedure. The owner’s manual was reviewed, and pertinent trunk release information was noted.

The rear trunk manual release system stationary vehicle tests were conducted with an occupant enclosed in the trunk compartment with the lid shut. An assistant was present and prepared to release the occupant if necessary. The compartment was evaluated with all removable equipment furnished by the manufacturer stowed in accordance with vehicle label instructions.

The procedure used consists of the following steps:

1. Determine the means by which a trapped person within the trunk would escape from the compartment, e.g. pull of a T-handled release mechanism, rotation of fixed lever release mechanism, push of a button, etc.
2. For informational purposes, install a linear force transducer to the release mechanism determined above and record the force required to be applied by the trapped occupant to escape.
3. Verify that the release mechanism is visible in the darkened trunk S4.2(a), and determine method used, e.g. phosphorescence or auxiliary lighting. Some time may be required to allow for the eyes to adjust to the darkened environment within the trunk compartment. Photograph if possible the lighted release mechanism.
4. With the vehicle stationary and no key in the ignition (representing unoccupied vehicle), actuate the release mechanism and verify that the trunk lid releases from all latching positions. Record force required during 3 attempts to release trunk latching mechanism.
5. Repeat step 4 above, except with the engine idling (time with trunk lid latched not to exceed 30 seconds).

2.2 DISCUSSION OF RESULTS

The force required to release the trunk lid did not exceed eighteen (18) Newtons on any attempt. The data indicate compliance of the test vehicle’s manual trunk release system for the No Key in Ignition and the Idling Vehicle trunk release tests.
SECTION 3
TEST DATA
MODEL YEAR/MAKE/MODEL/BODY STYLE: 2009 Hyundai Genesis 4-door passenger car

VEHICLE NHTSA NUMBER: C90501   VIN: KMHGC46E89U025598

GVWR: 2,200 kg (4,850 lbs)   DATE OF MANUFACTURE: 07/2008

TEST LAB: U. S. DOT San Angelo Test Facility   TEST DATE: January 27, 2009

<table>
<thead>
<tr>
<th>Description</th>
<th>PASS/FAIL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic or Manual release mechanism inside the trunk compartment.</td>
<td>S4.1</td>
<td>PASS</td>
</tr>
<tr>
<td>If manual release, lighting feature is included.</td>
<td>S4.2(a)</td>
<td>PASS</td>
</tr>
<tr>
<td>Except as provided by S4.3(b), actuation of release mechanism required by S4.1 completely releases trunk lid from all latching positions of the trunk lid latch.</td>
<td>S 4.3(a)</td>
<td>PASS</td>
</tr>
</tbody>
</table>

REMARKS: None

RECORDED BY: Jack R. Stewart   DATE: January 27, 2009

APPROVED BY: Kenneth H. Yates
DATA SHEET 2
TEST PREPARATION INFORMATION

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2009 Hyundai Genesis 4-door passenger car

VEHICLE NHTSA NUMBER: C90501 TEST DATE: January 27, 2009

TRUNK LOCATION: Rear

NUMBER OF TRUNK LATCHING POSITIONS: One

INTERIOR TRUNK RELEASE: Manual

EQUIPPED WITH POWER CLOSURE ASSISTING DEVICE: No

OWNER’S MANUAL DESCRIPTION OF TRUNK RELEASE: Yes

REMOVABLE EQUIPMENT DELIVERED IN TRUNK:

   SPARE TIRE: Yes SIZE: T135/90D17
   TIRE JACK: Yes
   LUG WRENCH: Yes

REMARKS: None

RECORDED BY: Jack R. Stewart DATE: January 27, 2009

APPROVED BY: Kenneth H. Yates
MODEL YEAR/MAKE/MODEL/BODY STYLE: 2009 Hyundai Genesis 4-door passenger car

VEHICLE NHTSA NUMBER: C90501  TEST DATE: January 27, 2009

Method used to actuate interior trunk release: Rotating cable lever

Can test personnel enter trunk and be closed within? Yes

Size of occupant: 5’ 10”, large frame

Is there access to the trunk compartment by folding down rear seat or partition? No (see remarks)

Does release mechanism require electric power? No

Can release mechanism be easily seen inside the closed trunk? Yes

Method used by vehicle manufacturer to ensure that release mechanism is visible in the closed trunk compartment: Phosphorescence

Laboratory test method used to determine visibility of release mechanism: Trunk entry
## MANUAL TRUNK RELEASE OPERATION

### Vehicle Stationary (0 km/h)

<table>
<thead>
<tr>
<th>Force in Newtons Required to Release Trunk Lid (no requirement)</th>
<th>Trunk Released from All Latching Positions</th>
<th>Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO KEY IN IGNITION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attempt 1</td>
<td>16.6</td>
<td>Yes</td>
</tr>
<tr>
<td>Attempt 2</td>
<td>16.4</td>
<td>Yes</td>
</tr>
<tr>
<td>Attempt 3</td>
<td>17.4</td>
<td>Yes</td>
</tr>
<tr>
<td>Average</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>ENGINE IDLING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attempt 1</td>
<td>17.0</td>
<td>Yes</td>
</tr>
<tr>
<td>Attempt 2</td>
<td>16.0</td>
<td>Yes</td>
</tr>
<tr>
<td>Attempt 3</td>
<td>16.7</td>
<td>Yes</td>
</tr>
<tr>
<td>Average</td>
<td>16.6</td>
<td></td>
</tr>
</tbody>
</table>

### TEST RESULTS

**PASS**

**REMARKS:** There is no entry or exit access to the trunk area by way of the rear seat except for a 7”x7” opening through the rear seat behind the rear seat armrest. There is a “Trunk Lid Control Button” located inside the vehicle glove box that is used to prevent unauthorized access into the trunk. The “Emergency Trunk Safety Release” works properly with the “Trunk Lid Control Button” in either of its two positions.

**RECORDED BY:** Jack R. Stewart  
**DATE:** January 27, 2009  
**APPROVED BY:** Kenneth H. Yates
### SECTION 4

#### TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO</th>
<th>CAL. DATE</th>
<th>NEXT CAL. DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGITAL FORCE GAGE</td>
<td>WAGNER INSTRUMENTS FORCE TEN</td>
<td>SERIAL #10363</td>
<td>8/6/2008</td>
<td>8/6/2009</td>
</tr>
</tbody>
</table>
SECTION 5
PHOTOGRAPHS
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO.401

FIGURE 5.2
LEFT SIDE VIEW OF VEHICLE
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401

FIGURE 5.3
RIGHT SIDE VIEW OF VEHICLE
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401

FIGURE 5.4
LEFT REAR QUARTER VIEW
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401

FIGURE 5.6
VEHICLE CERTIFICATION LABEL
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401

FIGURE 5.7
VEHICLE TRUNK COMPARTMENT INTERIOR
SHOWING ORIGINAL EQUIPMENT INSTALLED
VEHICLE TRUNK COMPARTMENT MANUAL RELEASE MECHANISM
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401

FIGURE 5.9
RELEASE MECHANISM WITH TEST EQUIPMENT ATTACHED
2009 HYUNDAI GENESIS NHTSA NO. C90501
NHTSA NO. C90501
FMVSS 401

FIGURE 5.10
TEST OBSERVER IN TRUNK COMPARTMENT
FIGURE 5.11
TRUNK LID EXTERIOR

2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401
2009 HYUNDAI GENESIS
NHTSA NO. C90501
FMVSS NO. 401

FIGURE 5.12
RELEASE MECHANISM INSIDE CLOSED TRUNK
FEATURES OF YOUR VEHICLE

WARNING
Make sure no objects or people are near the rear of the vehicle when opening the trunk.

CAUTION
Make certain that you close the trunk before driving your vehicle. Possible damage may occur to the trunk lift cylinders and attached hardware if the trunk is not closed prior to driving.

WARNING
The trunk lid should be always kept completely closed while the vehicle is in motion. If it is left open or ajar, poisonous exhaust gases may enter the car and serious illness or death may result.

CLOSING THE TRUNK
To close, lower the trunk lid, then press down on it until it locks. To be sure the trunk lid is securely fastened, always check by trying to pull it up.

EMERGENCY TRUNK SAFETY RELEASE
Your vehicle is equipped with an emergency trunk release cable located inside the trunk. The lever glows in the dark when the trunk lid is closed. If someone is inadvertently locked in the trunk, pulling this handle will release the trunk latch mechanism and open the trunk.
Features of your vehicle

⚠️ WARNING
- No one should be allowed to occupy the trunk of the vehicle at any time. If the trunk is partially or totally latched and the person is unable to get out, severe injury or death could occur due to lack of ventilation, exhaust fumes and rapid heat build-up, or because of exposure to cold weather conditions. The trunk is also a highly dangerous location in the event of a crash because it is not a protected occupant space but is a part of the vehicle's crush zone.
- Your vehicle should be kept locked and keys be kept out of the reach of children. Parents should teach their children about the dangers of playing in trunks.

※ NOTICE
Close the trunk, and keep the trunk lid control button in the OFF (not depressed) position before washing the vehicle in an automatic car wash.

Trunk lid control button
The trunk lid control button located in the vehicle glove box is used to prevent unauthorized access to the trunk.
- When the trunk lid control button is ON (depressed), the trunk can be unlocked with the trunk lid release lever and the transmitter (or smart key).
- When the trunk lid control button is OFF (not depressed), the trunk can be unlocked with the master key (or the mechanical key of the smart key) only.