

REPORT NO. 118-KAR-07-002

**SAFETY COMPLIANCE TESTING  
FOR FMVSS 118**

**Power-Operated Window, Partition,  
And Roof Panel Systems**

2007 JEEP WRANGLER UNLIMITED SAHARA  
4-DOOR MPV

NHTSA NO. C70317

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**October 04, 2007**

Final Report

PREPARED FOR:  
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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
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16. <i>Abstract</i>  Compliance tests were conducted on the subject 2007 Jeep Wrangler Unlimited Sahara 4-Door MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP118-05 for the determination of FMVSS 118 compliance.  Test failures identified were as follows:  None			
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## **1. PURPOSE OF COMPLIANCE TEST**

Tests were conducted on a 2007 Jeep Wrangler Unlimited Sahara 4-Door MPV, manufactured by Daimler Chrysler Corporation to determine compliance with FMVSS 118 "Power-Operated Window, Partition, and Roof Panel Systems". 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.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-118-05, dated March 24, 2005, and corresponding KARCO Engineering test procedure KTP-118, dated March 16, 2004. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

## **2. TEST PROCEDURE AND DATA SUMMARY**

A 2007 Jeep Wrangler Unlimited Sahara 4-Door MPV was subjected to FMVSS 118 compliance testing. The tests were conducted at KARCO Engineering in Adelanto, California on October 04, 2007. FMVSS 118 Compliance testing was performed in the following sequence:

- Vehicle Receiving Photographs
- Test Vehicle Check-in
- Power Window, Partitions and Roof Panel Identification/Documentation
- Interior, Exterior and Remote Control Switch Identification/Documentation
- Pre-Test Operation of all Power Windows, Partitions and Roof Panels
- Photograph Vehicle Ignition Switch and Master and Individual Power Window, Partition and Roof Panel Switches
- Perform Ignition Switch off Test
- Perform Ignition Key Removed Test
- Perform Exterior Key Locking System Test
- Perform Remote Control System Test
- Perform Reversal System Test

## DATA SUMMARY

VEHICLE			
YEAR	2007	MAKE	Jeep
MODEL	Wrangler Unlimited Sahara	BODY STYLE	4-Door MPV
NHTSA NO.	C70317	VIN	1J8GA59197L174901
TEST DATE:	10/04/07		

## SWITCH ACTUATION

WINDOWS, PARTITIONS, ROOF PANEL SWITCHES	INTERIOR KEY LOCKING SYSTEM		EXTERIOR LOCKING SYSTEM (PASS / FAIL)
	IGNITION KEY OFF (PASS/FAIL)	IGNITION KEY REMOVED (PASS/FAIL)	
<b>MASTER SWITCH PANEL</b>			
Left Front (LF)	PASS	PASS	N/A
Right Front (RF)	PASS	PASS	N/A
Left Rear (LR)	N/A	N/A	N/A
Right Rear (RR)	N/A	N/A	N/A
Tail Gate (TG)	N/A	N/A	N/A
Partition	N/A	N/A	N/A
Roof Panel (RP)	N/A	N/A	N/A
<b>INDIVIDUAL SWITCHES</b>			
Left Front (LF)	PASS	PASS	N/A
Right Front (RF)	PASS	PASS	N/A
Left Rear (LR)	N/A	N/A	N/A
Right Rear (RR)	N/A	N/A	N/A
Tail Gate (TG)	N/A	N/A	N/A
Partition (P)	N/A	N/A	N/A
Roof Panel (RP)	N/A	N/A	N/A

**REMARKS:** The master switch control panel is located in the center of the dash and includes the individual left front window switch. Vehicle passed as soon as ignition "off" test was performed.

## DATA SUMMARY...(CONTINUED)

### REMOTE ACTUATION DEVICE

VEHICLE ORIENTATION REMOTE ACTUATION DEVICE	NON-LINE OF SIGHT REMOTE (METERS)	LINE OF SIGHT REMOTE (METERS)
FRONT	N/A	N/A
DRIVER SIDE	N/A	N/A
PASSENGER SIDE	N/A	N/A
REAR	N/A	N/A

### WPRP OBSTRUCTION FORCE REVERSAL

WINDOW, PARTITION, ROOF PANEL	FORCE TO REVERSE (NEWTONS)	DISTANCE WINDOW, PARTITION, OR ROOF PANEL OPENED ON REVERSAL (mm)
LEFT FRONT (LF)	N/A	N/A
RIGHT FRONT (RF)	N/A	N/A
LEFT REAR (LR)	N/A	N/A
RIGHT REAR (RR)	N/A	N/A
PARTITION (P)	N/A	N/A
ROOF PANEL (RP)	N/A	N/A
TAIL GATE (TG)	N/A	N/A

**REMARKS:** This vehicle is not equipped with automatic power window up feature. This vehicle is not equipped with a remote actuation device that allows the windows to be opened.

The subject 2007 Jeep Wrangler Unlimited Sahara 4-Door MPV appeared to meet the requirements of FMVSS 118.



### 3. TEST DATA

**DATA SHEET NO. 1  
VEHICLE IDENTIFICATION**

VEHICLE			
YEAR	2007	MAKE	Jeep
MODEL	Wrangler Unlimited Sahara	BODY STYLE	4-Door MPV
NHTSA NO.	C70317	VIN	1J8GA59197L174901
TEST DATE:	10/04/07		

**Identify Vehicle equipped WPRP and WPRP controls**

	LEFT FRONT	LEFT REAR	RIGHT FRONT	RIGHT REAR	TAIL GATE	PARTITION	ROOF PANEL
Power Windows	X	X	X	X	N/A	N/A	N/A
Interior Switches	X	X	X	X	N/A	N/A	N/A
Master Control Panel	X	X	X	X	N/A	N/A	N/A
Exterior Switches	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Remote Controller	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Auto-Reverse	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Master Control Panel Location:** Dash

**Remote Control:** None

**Window Switch Design:** Master Control Switches – Flush Mounted Rocker Switch push down to open, pull up to close.  
Individual Window Switches – Flush Mounted Rocker Switch push down to open, pull up to close.

**Exterior Control Switch:** None

**Sunroof:** N/A

**REMARKS:** Master control panel switch is located in the middle of the dash. Individual switches are located in the dash and the center consol. On this vehicle the reversal feature is not required because the windows appear to meet the operational requirements of FMVSS 118 paragraph S.4.

RECORDED BY: MATTHEW S. HUBBARD DATE: 10/04/07  
APPROVED BY: MICHAEL L. DUNLAP DATE: 10/04/07

**DATA SHEET NO. 2  
IGNITION KEY OFF TEST**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

Pre-Test Check: Window, Partition, Roof Panel Systems operate with Ignition Switch in "ON" Position		YES	X	NO			
Pre-Test Check: Window, Partition, Roof Panel Systems operate with Ignition Switch in "ACCESSORY" Position		YES		NO	X		
WINDOW SWITCHES	DOORS CLOSED		LEFT DOOR OPEN		RIGHT DOOR OPEN		PASS/ FAIL
	INOP.	OPER.	INOP.	OPER.	INOP.	OPER.	
<b>MASTER</b>							
Left Front (LF)	N/A	X	X	N/A	X	N/A	PASS
Right Front (RF)	N/A	X	X	N/A	X	N/A	PASS
Left Rear (LR)	N/A	X	X	N/A	X	N/A	PASS
Right Rear (RR)	N/A	X	X	N/A	X	N/A	PASS
Tail Gate (TG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Partition (P)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panel (RP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>INDIVIDUAL</b>							
Left Front (LF)	N/A	X	X	N/A	X	N/A	PASS
Right Front (RF)	N/A	X	X	N/A	X	N/A	PASS
Left Rear (LR)	N/A	X	X	N/A	X	N/A	PASS
Right Rear (RR)	N/A	X	X	N/A	X	N/A	PASS
Tail Gate (TG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Partition (P)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panel (RP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>REMARKS:</b> The master left front switch is the same as the individual left front switch. The master right front switch is the same as the individual left front switch. Test was performed with key in the "Lock" position. For the pre-test check in the "Accessory" position the key was moved from the "Lock" position to the "Accessory" position without cycling through the "On" position or starting the engine. Vehicle passed as soon as ignition "off" test was performed.							

RECORDED BY: **MATTHEW S. HUBBARD** DATE: **10/04/07**

APPROVED BY: **MICHAEL L. DUNLAP** DATE: **10/04/07**

**DATA SHEET NO. 3  
IGNITION KEY REMOVED TEST**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

WINDOW SWITCHES	DOORS CLOSED		LEFT DOOR OPEN		RIGHT DOOR OPEN		PASS/FAIL
	INOP.	OPER.	INOP.	OPER.	INOP.	OPER.	
<b>MASTER</b>							
Left Front (LF)	N/A	X	X	N/A	X	N/A	PASS
Right Front (RF)	N/A	X	X	N/A	X	N/A	PASS
Left Rear (LR)	N/A	X	X	N/A	X	N/A	PASS
Right Rear (RR)	N/A	X	X	N/A	X	N/A	PASS
Tail Gate (TG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Partition (P)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panel (RP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>INDIVIDUAL</b>							
Left Front (LF)	N/A	X	X	N/A	X	N/A	PASS
Right Front (RF)	N/A	X	X	N/A	X	N/A	PASS
Left Rear (LR)	N/A	X	X	N/A	X	N/A	PASS
Right Rear (RR)	N/A	X	X	N/A	X	N/A	PASS
Tail Gate (TG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Partition (P)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panel (RP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**REMARKS:** The master left front switch is the same as the individual left front switch. The master right front switch is the same as the individual right front switch. Vehicle passed as soon as ignition "off" test was performed.

RECORDED BY: **MATTHEW S. HUBBARD**

DATE: **10/04/07**

APPROVED BY: **MICHAEL L. DUNLAP**

DATE: **10/04/07**

**DATA SHEET NO. 4  
EXTERIOR KEY LOCKING SYSTEM**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

EXTERIOR LOCKING CONTROL SWITCH TEST				
Can Any WPRP Be Operated by Directly Using A Key in an Exterior Locking Control Switch?	Yes	N/A	No	X
If Yes: Is Continuous Activation of the Switch Required	Yes	N/A	No	X

**IDENTIFY WINDOW, PARTITION AND ROOF PANEL POSITIONS WHICH ARE OPERABLE WITH EXTERIOR KEY.**

LOCATION	OPERABLE W/KEY		CONTINUOUS ACTION		PASS / FAIL
	YES	NO	YES	NO	
LEFT FRONT (LF)	N/A	N/A	N/A	N/A	N/A
RIGHT FRONT (RF)	N/A	N/A	N/A	N/A	N/A
LEFT REAR (LR)	N/A	N/A	N/A	N/A	N/A
RIGHT REAR (RR)	N/A	N/A	N/A	N/A	N/A
PARTITION (P)	N/A	N/A	N/A	N/A	N/A
ROOF PANEL (RP)	N/A	N/A	N/A	N/A	N/A
TAIL GATE (TG)	N/A	N/A	N/A	N/A	N/A

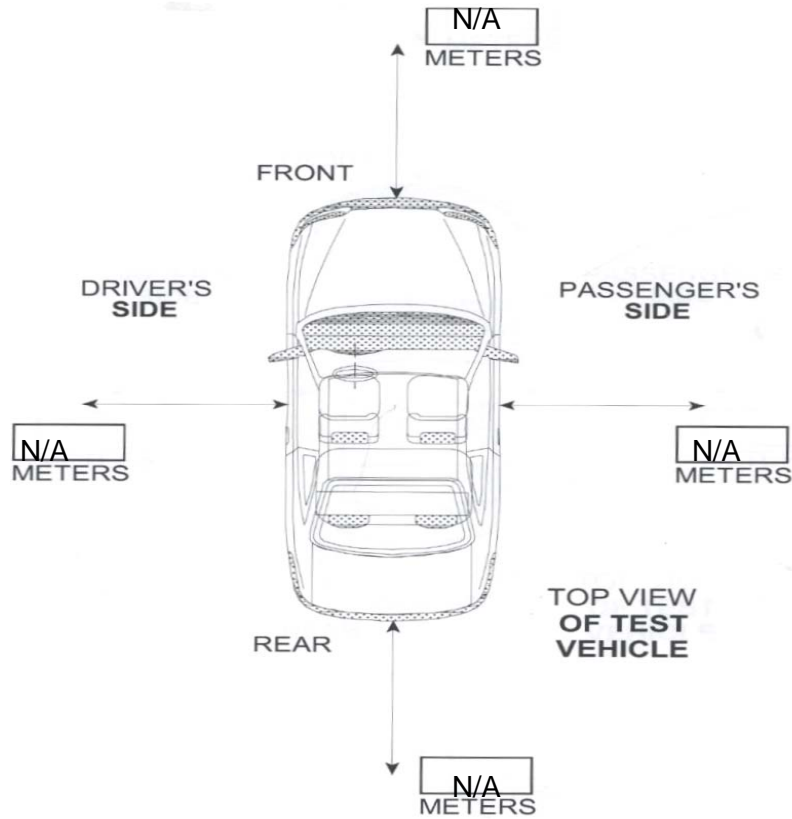
**REMARKS:** Vehicle is not equipped with an exterior key locking system capable of opening windows.

RECORDED BY: MATTHEW S. HUBBARD DATE: 10/04/07  
 APPROVED BY: MICHAEL L. DUNLAP DATE: 10/04/07

**DATA SHEET NO. 5**  
**MAXIMUM OPERATING RANGE FOR LINE-OF-SIGHT REMOTE**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

If range of operation exceeds 11 meters in any of the below measured directions, the window, partition, and roof panel must meet the reversing requirements of FMVSS 118. Continuous activation of remote device is required to close windows, partition and roof panel YES ( ) NO ( ).



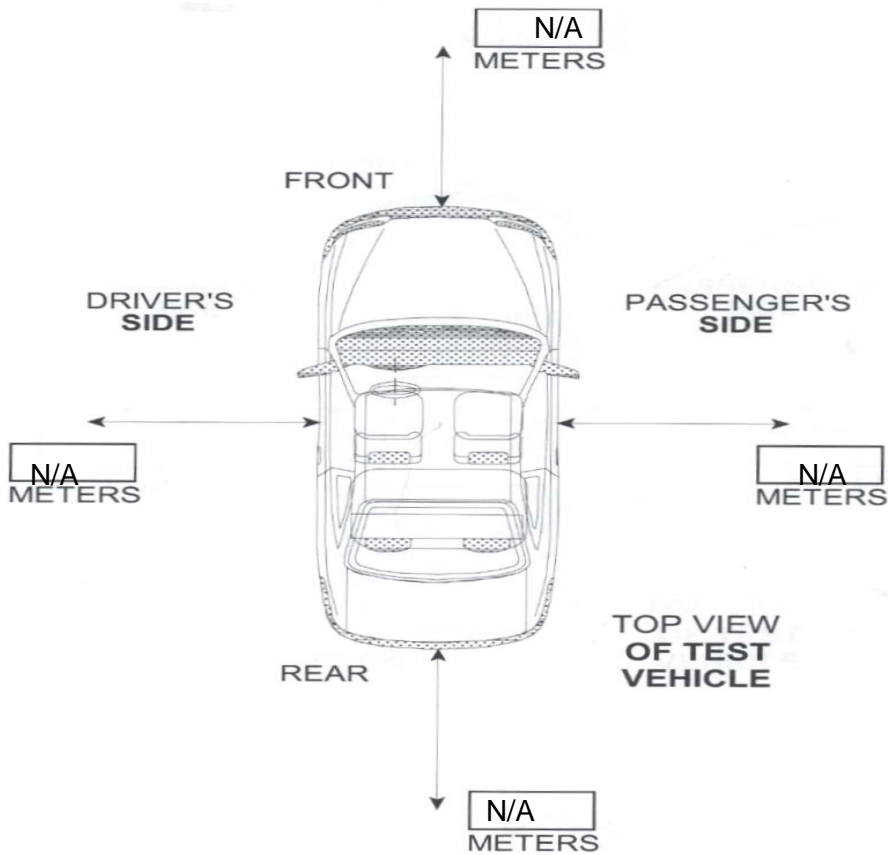
**REMARKS:** The vehicle is not equipped with a remote actuation device that allows the windows to be opened.

RECORDED BY: MATTHEW S. HUBBARD      DATE: 10/04/07  
 APPROVED BY: MICHAEL L. DUNLAP      DATE: 10/04/07

**DATA SHEET NO. 6**  
**MAXIMUM OPERATING RANGE FOR NON-LINE-OF-SIGHT REMOTE**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

If range of operation exceeds 6 meters in any of the below measured directions, the window, partition, and roof panel must meet the reversing requirements of FMVSS 118. Continuous activation of remote device is required to close windows, partition and roof panel YES ( ) NO ( ).



**REMARKS:** The vehicle is not equipped with a remote actuation device that allows the windows to be opened.

RECORDED BY:     **MATTHEW S. HUBBARD**          DATE:     **10/04/07**      
APPROVED BY:     **MICHAEL L. DUNLAP**          DATE:     **10/04/07**

**DATA SHEET NO. 7  
AUTO REVERSAL**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

**IDENTIFY WINDOW, PARTITION AND ROOF PANEL POSITIONS WHICH ARE EQUIPPED WITH AUTO REVERSAL.**

Is vehicle equipped with Auto Reversal	YES		NO	X
--	-----	--	----	---

SWITCHES EQUIPPED WITH AUTO REVERSAL	MASTER	INDIVIDUAL
LEFT FRONT (LF)	N/A	N/A
RIGHT FRONT (RF)	N/A	N/A
LEFT REAR (LR)	N/A	N/A
RIGHT REAR (RR)	N/A	N/A
PARTITION (P)	N/A	N/A
ROOF PANEL (RP)	N/A	N/A
TAIL GATE (TG)	N/A	N/A

**REMARKS:** On this vehicle there are no windows equipped with the auto reversal feature. The reversal feature is not required because the window appears to meet the operational requirements of FMVSS 118 paragraph S.4.

RECORDED BY: MATTHEW S. HUBBARD DATE: 10/04/07  
 APPROVED BY: MICHAEL L. DUNLAP DATE: 10/04/07



**DATA SHEET NO. 8  
AUTO REVERSAL**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

Distance window is open from top seam to start position.

N/A

**WPRP OBSTRUCTION FORCE REVERSAL**

LEADING EDGE LEFT FRONT WINDOW	FORCE TO REVERSE (NEWTONS)	DISTANCE WINDOW, PARTITION, OR ROOF PANEL OPENED ON REVERSAL (mm)
5mm semi rigid rod	N/A	N/A
25mm semi rigid rod	N/A	N/A
50mm semi rigid rod	N/A	N/A
100mm semi rigid rod	N/A	N/A
200mm semi rigid rod	N/A	N/A

**REMARKS:** On this vehicle there are no windows equipped with the auto reversal feature. The reversal feature is not required because the window appears to meet the operational requirements of FMVSS 118 paragraph S.4.

RECORDED BY: **MATTHEW S. HUBBARD**

DATE: **10/04/07**

APPROVED BY: **MICHAEL L. DUNLAP**

DATE: **10/04/07**

**DATA SHEET NO. 9  
AUTO REVERSAL**

VEHICLE			
YEAR	<b>2007</b>	MAKE	<b>Jeep</b>
MODEL	<b>Wrangler Unlimited Sahara</b>	BODY STYLE	<b>4-Door MPV</b>
NHTSA NO.	<b>C70317</b>	VIN	<b>1J8GA59197L174901</b>
TEST DATE:	<b>10/04/07</b>		

Distance window is open from top seam to start position.

N/A

**WPRP OBSTRUCTION FORCE REVERSAL**

REAR EDGE LEFT FRONT WINDOW	FORCE TO REVERSE (NEWTONS)	DISTANCE WINDOW, PARTITION, OR ROOF PANEL OPENED ON REVERSAL (mm)
5mm semi rigid rod	N/A	N/A
25mm semi rigid rod	N/A	N/A
50mm semi rigid rod	N/A	N/A
100mm semi rigid rod	N/A	N/A
200mm semi rigid rod	N/A	N/A

**REMARKS:** On this vehicle there are no windows equipped with the auto reversal feature. The reversal feature is not required because the window appears to meet the operational requirements of FMVSS 118 paragraph S.4.

RECORDED BY: MATTHEW S. HUBBARD DATE: 10/04/07

APPROVED BY: MICHAEL L. DUNLAP DATE: 10/04/07

#### **4. PHOTOGRAPHS**

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2007 JEEP WRANGLER UNLIMITED SAHARA Figure 1: Frontal ¾ View From Right Side of Vehicle

NHTSA NO. C70317

FMVSS NO. 118



Figure 2: Rear ¾ View From Left Side of Vehicle

2007 JEEP WRANGLER UNLIMITED SAHARA  
NHTSA NO. C70317  
FMVSS NO. 118



2	REAR	3
WEIGHT SHOULD NEVER EXCEED LB		
	SPARE	
	P255/70R18	
PSI	240 MPa, 35 PSI	
		7L174901

MFD BY DAIMLERCHRYSLER CORPORATION  
 DATE OF MFR: 3-07  
 GVWR FRONT: 1203 KG 2650 LB  
 GVWR REAR: 1452 KG 3200 LB  
 GVW: 18X7.5  
 GVW: 18X7.5  
 GUAR: WITH RIMS AT WITH RIMS AT  
 GUAR: WITH RIMS AT WITH RIMS AT  
 2450 KG 55400 LB  
 P255/70R18 TIRES  
 240 KPA ( 35 PSI) COLD TIRES  
 P255/70R18 TIRES  
 240 KPA ( 35 PSI) COLD TIRES  
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.  
 VIN: 1J8GA5919ZL174901 TYPE: MPV  
 VEHICLE MADE IN U.S.A. PAINT: PBN TRIM: ESDD  
 4648509

Figure 3: Vehicle Certification Label

2007 JEEP WRANGLER UNLIMITED SAHARA  
 NHTSA NO. C70317  
 FMVSS NO. 118



**TIRE AND LOADING INFORMATION**

SEATING CAPACITY – TOTAL **5** FRONT **2** REAR **3**  
 THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED  
 385 KG OR 850 LB

TIRE	FRONT	REAR	SPARE
ORIGINAL TIRE SIZE	P255/70R18	P255/70R18	P255/70R18
COLD TIRE INFLATION PRESSURE	240 kPa, 35 PSI	240 kPa, 35 PSI	240 kPa, 35 PSI

SEE OWNERS MANUAL FOR ADDITIONAL INFORMATION



7L174901

MFD BY DAIMLERCH  
 DATE OF MFR: 3-07  
 GAHR FRONT: 1203 KI 18  
 GAHR REAR: 1452 KI 18

Figure 4: Tire Information Placard

2007 JEEP WRANGLER UNLIMITED SAHARA  
 NHTSA NO. C70317  
 FMVSS NO. 118



Figure 5: Ignition Switch

2007 JEEP WRANGLER UNLIMITED SAHARA  
NHTSA NO. C70317  
FMVSS NO. 118





FMVSS 118

2007 JEEP WRANGLER  
UNLIMITED SAHARA  
C70317

TEST DATE 10/04/07

POWER WINDOW MASTER SWITCH

2007 JEEP WRANGLER UNLIMITED SAHARA  
NHTSA NO. C70317  
FMVSS NO. 118

Figure 6: Master Power Window Switch



2007 JEEP WRANGLER UNLIMITED SAHARA Figure 7: Left Rear and Right Rear Power Window Switch  
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Figure 9: Overall Test Set-Up

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## 5. DATA PLOTS

**6. COPY OF OWNER'S MANUAL INSTRUCTION FOR USE OF POWER WINDOWS**

**COPY OF OWNER'S MANUAL INSTRUCTIONS FOR USE OF POWER WINDOWS**

VEHICLE			
YEAR	2007	MAKE	Jeep
MODEL	Wrangler Unlimited Sahara	BODY STYLE	4-Door MPV
NHTSA NO.	C70317	VIN	1J8GA59197L174901
TEST DATE:	10/04/07		



**Jeep**

**2007  
OWNER'S  
MANUAL**

**WRANGLER**

## COPY OF OWNER'S MANUAL INSTRUCTIONS FOR USE OF POWER WINDOWS

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### 14 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

#### A WORD ABOUT YOUR KEYS

The keys for your new vehicle are enclosed in a plastic bag with the key code number on it. If you received your keys without the bag, ask your dealer to give you the number. The key code can also be obtained by the dealer from your vehicle invoice.

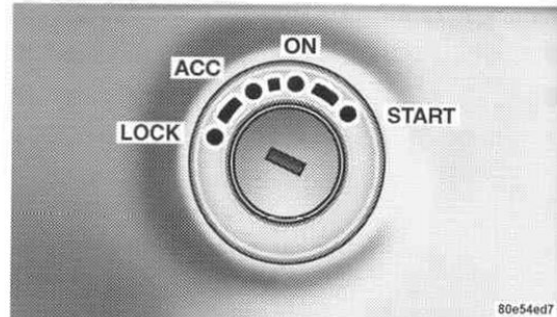
#### Ignition Key Removal

##### Manual Transmission

Turn the ignition switch to the ACC position, push the key and cylinder inward, rotate the key to the LOCK position, and remove the key.

##### Automatic Transmission — If Equipped

Place the shift lever in P (Park). Turn the ignition switch to the ACC position, push the key and cylinder inward, rotate the key to the LOCK position, and remove the key.



Ignition Key Positions

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**THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 15**

**WARNING!**

Leaving children in a vehicle unattended is dangerous for a number of reasons. A child or others could be injured. Children should be warned not to touch the parking brake, brake pedal, or the gear selector lever. Do not leave the keys in the ignition. A child could operate power windows, other controls, or move the vehicle.

**CAUTION!**

An unlocked vehicle is an invitation to thieves. Always remove the key from the ignition, and lock all doors when leaving the vehicle unattended.

**Key-In-Ignition Reminder**  
Opening the driver's door when the key is in the ignition, sounds a signal to remind you to remove the key.

**STEERING WHEEL LOCK — IF EQUIPPED**  
Your vehicle may be equipped with a passive steering wheel lock (manual transmission only). This lock prevents steering the vehicle without the ignition key. If the steering wheel is moved a half turn in either direction and the key is not in the ignition, the steering wheel will lock.

**To Manually Lock the Steering Wheel**  
With the engine running, rotate the steering wheel 1/2 revolution from straight ahead position, turn off the engine and remove the key. Rotate the steering wheel slightly in both directions until the lock engages.

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### 16 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

#### To Release the Steering Wheel Lock

Insert the key in the ignition and turn the wheel slightly to the right or left to disengage the lock.

**NOTE:** If you turned the wheel to the right to engage the lock, you must turn the wheel slightly to the right to disengage it. If you turned the wheel to the left to engage the lock, turn the wheel slightly to the left to disengage it.

#### SENTRY KEY IMMOBILIZER SYSTEM

The Sentry Key Immobilizer System (SKIM) prevents unauthorized operation of the vehicle by disabling the engine. The system will shut the engine down after 2 seconds of running if an invalid key is used to start the vehicle. This system utilizes ignition keys which have an electronic chip (transponder) embedded into them. Only keys that have been programmed to the vehicle can be used to start and operate the vehicle for longer than the 2 second validation time period.

The Sentry Key Immobilizer System does not need to be armed or activated. Operation of the system is automatic regardless of whether or not the vehicle is locked or unlocked. During normal operation, the "Security Alarm System Indicator Light" will come on for 3 seconds immediately after the ignition switch is turned on for a bulb check. Afterwards, if the bulb remains on, this indicates a malfunction in the electronics. If the bulb begins to flash immediately after the ignition switch is turned on, this indicates that an invalid key is being used to start the vehicle. Both of these conditions will result in the engine being shut down after 2 seconds of running. Keep in mind that a key which has not been programmed is also considered an invalid key even if it is cut to fit the ignition for that vehicle.

If the "Security Alarm System Indicator Light" comes on during normal vehicle operation (it has been running for

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**THINGS TO KNOW BEFORE STARTING YOUR VEHICLE 17**

longer than 10 seconds) a fault has been detected in the electronics and the vehicle should be serviced as soon as possible.

**NOTE:**

- The Sentry Key Immobilizer System is not compatible with remote starting systems. Use of these systems may result in vehicle starting problems and loss of security protection.
- Mobil Speedpass™, additional Sentry Keys, or any other transponder equipped components on the same keychain will not cause a key-related (Transponder) fault unless the additional part is **physically held against the ignition key** being used when starting the vehicle. Also, cell phones, pagers, or other RF electronics will not cause interference with this system.

All of the keys provided with your new vehicle have been programmed to the vehicle electronics.

**Important Note About Service**

A four digit PIN number is needed to service the Sentry Key Immobilizer System. This number can be obtained from your authorized dealer. However, this number can also be found on your customer invoice that you were given upon receipt of your vehicle.

**Replacement Keys**

**NOTE:** Only keys that have been programmed to the vehicle electronics can be used to start the vehicle. Once a Sentry Key has been programmed to a vehicle, it cannot be programmed to any other vehicle.

At the time of purchase, the original owner is provided with a four digit PIN number. This number is required for dealer replacement of keys. Duplication of keys may be performed at an authorized dealer or by using the Customer Key Programming procedure. This procedure

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## 18 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

consists of programming a blank key to the vehicle electronics. A blank key is one which has never been programmed.

**NOTE:** When having the Sentry Key System serviced, bring all vehicle keys to the dealer.

### Customer Key Programming

You can program new keys to the system if you have two valid keys by doing the following:

1. Cut the additional Sentry Key Transponder blank(s) to match the ignition switch lock cylinder key code.
2. Insert the first valid key into the ignition switch and turn the ignition switch ON for at least 3 seconds but no longer than 15 seconds. Turn the ignition switch OFF and remove the first key.
3. Insert the second valid key and turn the ignition switch ON within 15 seconds. After ten seconds, a chime

will sound and the "Security Alarm System Indicator Light" will begin to flash. Turn the ignition switch OFF and remove the second key.

4. Insert a blank Sentry Key into the ignition switch and turn the ignition switch ON within 60 seconds. After 10 seconds, a single chime will sound. The "Security Alarm System Indicator Light" will stop flashing, turn on for 3 seconds; then turn off.

The new Sentry Key has been programmed. Repeat this process to program up to a total of 8 keys.

### General Information

The Sentry Key Immobilizer System complies with FCC rules part 15 and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

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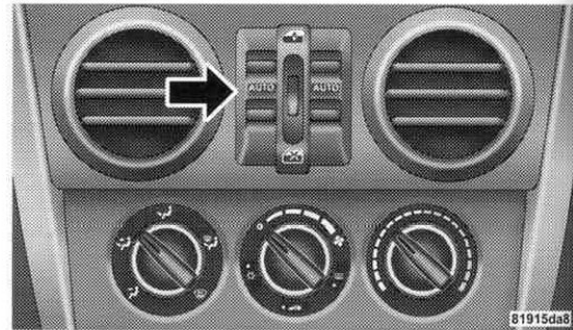
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## 32 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

### WINDOWS

#### Power Windows — If Equipped

The power window switches are located on the instrument panel center stack (below the radio). The top left switch controls the left front window and the top right switch controls the right front window. The lower left switch controls the left rear passenger window (4 door models), and the lower right switch controls the right rear passenger window (4 door models). The switches will continue to function for up to 10 minutes after the ignition key has been removed, or until a door is opened.



Power Window Switches

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**Auto Down**

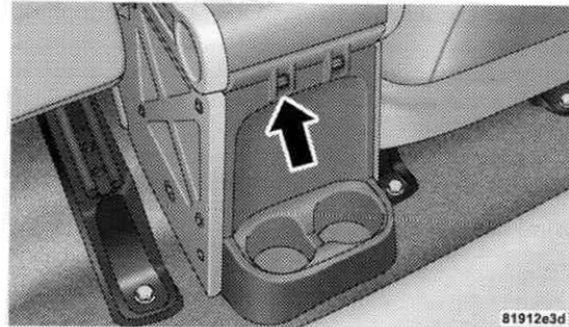
Both the driver and front passenger window switch has an "Auto Down" feature. Press the window switch past the first detent, release, and the window will go down automatically. To cancel the "Auto Down" movement, operate the switch in either the up or down direction and release the switch.

To stop the window from going all the way down during the auto-down operation, pull up on the switch briefly.

To open the window part way, press to the first detent and release it when you want the window to stop.

The power window switches remain active for 10 minutes after the ignition has been turned off. Opening either front door will cancel this feature.

The rear passenger window switches (if equipped) are located on the back of the center floor console.



Rear Power Window Switches (4 Door)

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## 34 THINGS TO KNOW BEFORE STARTING YOUR VEHICLE

### Window Lockout Switch (4 Door Models Only)

The window lockout switch (located between the window switches) allows you to disable the rear window switches that are located on the back of the center floor console. To disable the window controls, press the window lockout button downward. To enable the window controls, press the window lockout button upward.

### Wind Buffeting

Wind buffeting can be described as the perception of pressure on the ears or a helicopter type sound in the ears. Your vehicle may exhibit wind buffeting with the windows down in certain open or partially open positions. This is a normal occurrence and can be minimized by adjusting window opening.

### REAR SWING GATE

The vacuum fluorescent (VF) display located in the odometer area displays the word "gATE" as a warning when the swing gate is not completely closed. When the vehicle is not moving, and the swing gate is not completely closed, the VF display will show the word "gATE."

If any other active warnings are present, they will be shown in the VF display and will also continue to be shown. If the vehicle is moving, three single chimes will be heard when the rear swing gate is open (one chime for each door display cycle). After this, the VF display will continue to show the word "gATE" in sequence only (no chimes).

If the trip/reset button is pressed while the VF warnings are being displayed, the VF display will revert to normal and only displaying the odometer/trip odometer mile