

November 24, 2015

Mr. Jeffrey L. Quandt, Chief  
Office of Defects Investigation, NVS-213  
U.S. Department of Transportation

National Highway Traffic Safety Administration (NHTSA)  
Office of Defects Investigation (ODI)  
Room W48-312  
1200 New Jersey Avenue SE  
Washington, D.C. 20590

Reference: NVS-213swm; PE15-030

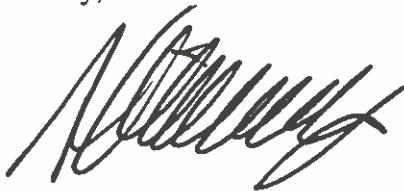
Dear Mr. Quandt:

Attached is FCA US LLC's ("FCA US") response of the referenced information request. The attached constitutes a full submission to PE15-030.

FCA US is submitting to the Chief Counsel's Office, via courier for next day delivery with a request for confidentiality, additional detailed information responsive to PE15-030.

By providing the information contained herein, FCA US is not waiving its claim to attorney work product and attorney-client privileged communications.

Sincerely,



Stephen Williams  
Director – Safety Compliance and Product Analysis

Attachment and Enclosures

**Preliminary Statement**

On April 30, 2009 Chrysler LLC, the entity that manufactured and sold the certain vehicles that may be discussed in this Information Request, filed a voluntary petition for relief under Chapter 11 of Title 11 of the United States Bankruptcy Code.

On June 10, 2009, Chrysler LLC sold substantially all of its assets to a newly formed company later known as Chrysler Group LLC. Pursuant to the sales transaction, Chrysler Group LLC assumed responsibility for safety recalls pursuant to the 49 U.S.C. Chapter 301 for vehicles that were manufactured and sold by Chrysler LLC prior to the June 10, 2009 asset sale.

On June 11, 2009, Chrysler LLC changed its name to Old Carco LLC. The assets of Old Carco LLC that were not purchased by Chrysler Group LLC, as well as the liabilities of Old Carco that were not assumed, remain under the jurisdiction of the United States Bankruptcy Court – Southern District of New York (In re Old Carco LLC, et al., Case No. 09-50002).

Effective December 15, 2014, Chrysler Group LLC changed its name to FCA US LLC.

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**Note: Unless indicated otherwise in the response to a question, this document contains information up to October 6, 2015, the date this information request was received.**

**This attachment contains FCA US LLC's ("FCA US") full response to PE15-030 as agreed upon with the National Highway Traffic Safety Administration's ("NHTSA") Office of Defect Investigations ("ODI") in an email from Jeffrey Quandt on October 21, 2015. The scope of this response was revised as follows:**

- **The peer vehicles in this IR response will be limited to the 2014 MY Dodge Durango. Responses to the following questions will remove the peer vehicles entirely: Q8, Q9, Q10, Q11, Q13 and Q15.**
  - **The subject systems will include all systems that relate to shifting the subject vehicle.**
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1. **State, by model and model year, the number of subject and peer vehicles FCA has manufactured for sale or lease in the United States or federalized territories. Separately, for each subject and peer vehicle manufactured to date by FCA, state the following:**
  - a. **Vehicle identification number (VIN);**
  - b. **Make;**
  - c. **Model;**
  - d. **Model Year;**
  - e. **Date of manufacture;**
  - f. **Date warranty coverage commenced;**
  - g. **Shifter type (e.g., monstable, polystable, etc.);**
  - h. **Whether the vehicle has the Hill Start Assist feature; and**
  - i. **The State in the United States, or federalized territory, where the vehicle was originally sold or leased (or delivered for sale or lease).**

**Provide the table in Microsoft Access 2010, or a compatible format, entitled "PRODUCTION DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.**

A1. The subparts (a) through (i) are located in ENCLOSURE 1 and titled PRODUCTION DATA.accdb.

2. **State by model, model year and alleged defect subcategories the number of each of the following, received by FCA, or of which FCA is otherwise aware, which relate to, or may relate to, the alleged defect in the subject and peer vehicles:**
  - a. **Consumer complaints, including those from fleet operators;**
  - b. **Field reports, including dealer field reports;**
  - c. **Reports involving a crash, injury or fatality;**
  - d. **Property damage claims;**
  - e. **Third-party arbitration proceedings where FCA is or was a party to the arbitration; and**
  - f. **Lawsuits, both pending and closed, in which FCA is or was a defendant or codefendant.**

**For subparts "a" through "f" state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).**

**In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and FCA's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "f," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.**

- A2. FCA US has conducted a reasonable and diligent search of the normal repositories of such information. FCA US has identified a total of 1066 reports which relate to, or may relate to, the alleged defect in the subject vehicles, which represent 883 unique VINs.
- a. FCA US identified 730 consumer complaints (Customer Assistance Inquiry Request or CAIR and Customer Promoter Score or CPS) which relate to, or may relate to, the alleged defect in the subject vehicles, which represent 669 unique VINs.
  - b. FCA US identified 224 field reports which relate to, or may relate to, the alleged defect in the subject vehicles, which represent 212 unique VINs.
  - c. FCA US identified 140 reports involving a crash, with 35 injuries reported, and zero reports of fatality which relate to, or may relate to, the alleged defect in the subject vehicles, which represent 101 unique VINs for crashes and 23 unique VINs for injuries.
  - d. FCA US identified 137 reports of property damage claims which relate to, or may relate to the alleged defect in the subject vehicles, which represent 99 unique VINs.
  - e. FCA US identified one report of third-party arbitration proceedings where FCA is or was a party to the arbitration which relates to, or may relate to the alleged defect in the subject vehicles, which represents one unique VIN.
  - f. FCA US identified 111 legal claims, both pending and closed, in which FCA is or was a defendant or codefendant that relate to, or may relate to the alleged defect in the subject vehicles, which represent 111 unique VINs.
3. **Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No.2, state the following information:**
- a. **FCA's file number or other identifier used;**
  - b. **The category of the item, as identified in Request No.2 (i.e., consumer complaint, field report, etc.);**
  - c. **Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;**
  - d. **Vehicle's VIN;**
  - e. **Vehicle's make, model and model year;**
  - f. **Vehicle's mileage at time of incident;**
  - g. **Incident date;**
  - h. **Report or claim date;**
  - i. **Whether a crash is alleged;**
  - j. **Whether property damage is alleged;**
  - k. **Number of alleged injuries, if any;**
  - l. **Number of alleged fatalities, if any;**
  - m. **The direction of movement, if known;**
  - n. **Whether the report alleges movement after attempting to shift to Park: 1) while the operator was still in the vehicle; 2) immediately after the operator exited the vehicle; 3) following a short delay after the operator exited the vehicle; 4) following a long delay after the operator exited the vehicle; 5) any combination of the above; or 6) time from shift to vehicle movement is unknown;**

- o. FCA's assessment of whether the report alleges one or more incidents of unpowered rollaway (i.e., incidents occurring with the engine oft);**
- p. FCA's assessment of whether the report alleges one or more incidents of powered rollaway (i.e., incidents occurring with the engine running);**
- q. FCA's assessment of whether the report alleges difficulty shifting to Park;**
- r. Whether the incident was investigated by FCA;**
- s. Whether the dealer or FCA identified a vehicle fault that caused or contributed to the incident, with a short description of the fault;**
- t. A summary of all subject system repairs performed after the alleged incident(s); and**
- u. FCA's assessment of the most likely cause of the incident.**

**Provide this information in Microsoft Access 2010, or a compatible format, entitled "REQUEST NUMBER TWO DATA." See Enclosure 1, Data Collection Disc, for a preformatted table that provides further details regarding this submission.**

A3. The subparts (a) through (u) are located in ENCLOSURE 3 and titled REQUEST NUMBER TWO DATA.accdb.

In order to identify the claims detailed in the response to Q3, subpart (t), FCA US searched the normal repositories of such information. Using the incident date gathered in response to Q3, subpart (g), FCA US created a bracketed service search for Labor Operations ("LOP") for the subject systems. An individual search was run for each VIN with a time window that opened on the incident date, Q3, subpart (g), and closed on the date of the LOP search, November 17, 2015. The LOPs used within this search are identified in Table 1 and the results were added to the REQUEST NUMBER TWO DATA access database under the column for subpart (t).

<b>LOP</b>	<b>LOP Description</b>
219501	Valve Body
217527	Automatic Gearshift Selector Cable
854121	Trouble Not Found Transmission Drivability
217513	Gearshift Knob
210103	Automatic Transmission Shifter
854120	Trouble Not Found Transmission Mechanical
210060	Transmission replacement 8HP70
210062	Transmission replacement 845RE
217524	Manual Release Cable

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081977 Electronic Shifter Module

088045 Ignition Switch

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Table 1: LOPs used for Q3, subpart (t)

- 4. Produce copies of all documents, including photographs, videos, and EDR downloads, related to each item within the scope of Request No.2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method FCA used for organizing the documents. Describe in detail the search methods and search criteria used by FCA to identify the items in response to Request No.2.**

A4. FCA US has conducted a reasonable and diligent search of the normal repositories of such information. Documents related to each item within the scope of Q2 were gathered by using information such as vehicle model, model year, and a keyword search using words reasonably related to the reports sought by this Information Request. The results of this search were then subjected to an eyes-on review to determine if they relate to, or may relate to the alleged defect

A copy of the available documents related to each item within the scope of Q2 can be found in ENCLOSURE 4.

ENCLOSURE 4 contains folders with a copy of the available consumer complaints, legal claims and legal summaries. The customer complaint summaries are submitted in one .pdf file and the related documents are arranged in folders by complaint number. Legal summaries are arranged in folders by the claimant name.

The words used to search for items within the scope of Q2 are shown below in Table 2. A report had to match a word from each category to be returned for review. All results returned from the keyword search were subjected to an eyes-on review to determine if they relate to, or may relate to the alleged defect. Please note that the term "roll" is included in both categories. Therefore, any report with the term "roll" was returned and subjected to an eyes-on review.

<b>Keyword Category 1</b>	<b>Keyword Category 2</b>
% roll	gear shift
in park	shifter
into park	shifted
out of park	shifting
parking	rolled away
parked	moving

rollaway	% moved
roll away	% roll
	rolled down
	rolled back

Table 2: Keyword Search Terms

5. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by FCA to date that relate to, or may relate to, the alleged defect in the subject and peer vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. FCA's claim number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number(s);
- h. Problem code(s);
- i. Diagnostic trouble code(s);
- j. Replacement part number(s) and description(s);
- k. Concern stated by customer;
- l. Cause as stated on the repair order;
- m. Correction as stated on the repair order; and
- n. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "WARRANTY DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

- A5. The subparts (a) through (n) are located in ENCLOSURE 5 and titled WARRANTY DATA.accdb. Diagnostic Trouble Code ("DTC") information is not normally captured as part of the warranty system records for a claim. These codes may be available if the technician enters them into the narrative manually, but are not required from the technician, nor are the codes able to be pulled automatically.

6. Describe in detail the search methods and search criteria used by FCA to identify the claims in response to Request No.5, including the labor operations, problem codes, diagnostic trouble codes, part numbers and any other pertinent parameters used.

Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions, diagnostic trouble codes and diagnostic trouble code descriptions applicable to the alleged defect in the subject and peer vehicles. State whether the diagnostic trouble codes are automatically reported to the warranty database electronically or manually entered into the warranty database by a claims administrator.

State, by make and model year, the terms of the new vehicle warranty coverage offered by FCA on the subject and peer vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered).

- A6. In order to identify the claims detailed in the response to Q5, FCA US searched the normal repositories utilizing the Labor Operations associated with the transmission, shifter, valve body, gearshift knob, manual park release lever, transmission drivability, and gearshift cable. The Labor Operations and descriptions are found in Table 3.

LOP	LOP Description
219501	Valve Body
217527	Automatic Gearshift Selector Cable
854121	Trouble Not Found Transmission Drivability
217513	Gearshift Knob
210103	Automatic Transmission Shifter
854120	Trouble Not Found Transmission Mechanical
210060	Transmission replacement 8HP70
210062	Transmission replacement 845RE
217524	Manual Release Cable
081977	Electronic Shifter Module

Table 3: LOPs Used to Search Warranty Claims

A list of all LOPs, LOP descriptions, DTCs and DTC descriptions potentially related to the alleged defect in the subject vehicles is located in ENCLOSURE 6 and titled Service Info.pdf. As stated in the response to Q5, DTC information is not normally captured as part of the warranty system records for a claim. DTC information may be available, if the technician enters into the narrative manually, but is not required from the technician, nor are DTC's able to be pulled automatically.

In order to identify which of these warranty items related to the alleged defect a keyword search using words reasonably related to the reports sought by this Information Request was applied. This keyword search narrowed the search from all LOPs completed to those completed for reasons that are reasonably related to the alleged defect. The results of this search were then subjected to an eyes-on review to determine if they relate to, or may relate to the alleged defect. The words used to search for items within the scope of Q6 are shown below in Table 4. A report that matched any keyword from this table was returned for an eyes-on review.

<b>Keyword Category 1</b>
% roll
in park
into park
out of park
Parking
Parked
Rollaway
roll away
in to park

**Table 4: Warranty Keyword Search**

New vehicle warranty coverage offered by FCA US on the subject and peer vehicles is basic limited warranty, 3 years/36,000 miles, powertrain limited warranty 5 years/100,000 miles, corrosion limited warranty for outer panels 5 years/100,000 miles and road side assistance 5 years/100,000 miles.

- 7. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject and peer vehicles, that FCA has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also, include the latest draft copy of any communication that FCA is planning to issue within the next 120 days.**
- A7. FCA US response to Q7 is located in ENCLOSURE 7 and contains the results of a search for documents that FCA US has issued externally that relate to, or may relate to, the alleged defect in the subject vehicles. The document and description is listed below in Table 5. FCA US has conducted a reasonable and diligent search of the normal repositories of such information.

<b>Supporting Document(s)</b>	<b>Description</b>	<b>Affected Vehicle</b>
08-072-14	Service Bulletin for Electronic Shifter Module (ESM)	Peer Vehicles – 2014 MY
21-027-15 REV. C	Service Bulletin for Transmission Shift Enhancements	Subject and Peer Vehicles – 2015 MY

**Table 5: Documents Shared Externally**

Service Bulletin 08-072-14 affects peer vehicles. The symptom the customer may experience is the inability to shift the vehicle out of park. This condition can be corrected by turning off the vehicle and allowing all of the modules to go to sleep. Once the modules have gone through a key cycle the DTC will go from active to stored and then the vehicle can be shifted out of park. On further inspection DTCs P0607-00-ECU INTERNAL PERFORMANCE and P0928-00-BTSI CONTROL may be found active or stored.

Service Bulletin 21-027-15 REV. C affects both subject and peer vehicles. The symptom the customer may experience is an erroneous Malfunction Indicator Lamp (“MIL”) Illumination. Upon further investigation, the technician may find a DTC stored in the TCM memory.

Neither of the above Service Bulletins (08-072-14 and 21-072-15 REV. C) relate to the alleged defect in the subject or peer vehicles.

**8. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect (including any human factors analysis done with regards to what warning indications are provided to the driver) in the subject and peer vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, FCA. For each such action, provide the following information:**

- a. Action title or identifier;**
- b. The actual or planned start date;**
- c. The actual or expected end date;**
- d. Brief summary of the subject and objective of the action;**
- e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and**
- f. A brief summary of the findings and/ or conclusions resulting from the action.**

**For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.**

A8. During design, development and validation, FCA US conducted thorough and complete testing for the Jeep Grand Cherokee park systems used in the 2014 and 2015 MY. FCA US has reviewed the data

supplied by ODI as well as the internal complaints and field reports identified as part of this investigation. Nothing was found suggesting the park system is not performing as designed. Thus, no specific tests or evaluations beyond normal design and development have been conducted as result of information learned during this investigation.

FCA US inspected a vehicle (CAIR # 25998226) and was unable to duplicate the concern. FCA US is in the process of buying back the vehicle which experienced the concern. Once the vehicle is obtained it will be subjected to testing in an attempt to replicate the issue.

The subparts (a) through (f) are located in ENCLOSURE 8 and titled Q8 Testing Summary.pdf.

**9. Describe all modifications or changes made by, or on behalf of, FCA in the design, material composition, manufacture, quality control, supply, or installation of the subject system (including all changes in software), from the start of production to date, which relate to, or may relate to, the alleged defect in the subject and peer vehicles. For each such modification or change, provide the following information:**

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;
- b. A detailed description of the modification or change;
- c. The reason( s) for the modification or change;
- d. The part number( s) (service and engineering) of the original system;
- e. The part number(s) (service and engineering) of the modified system;
- f. Whether the original unmodified system was withdrawn from production and/or sale, and if so, when;
- g. When the modified system was made available as a service system; and
- h. Whether the modified system can be interchanged with earlier production systems.

**Also, provide the above information for any modification or change that FCA is aware of which may be incorporated into vehicle production within the next 120 days.**

A9. The subparts (a) through (h) are located in ENCLOSURE 9 and titled Q9 - Change History CONF BUS INFO.pdf.

**10. Provide detailed descriptions of the design and operation of the subject system for all versions used in the subject and peer vehicles, including:**

- a. The shifter assembly, including how the operator selects Park from initial gear positions of Drive, Neutral and Reverse and how the vehicle is shifted from Park;
- b. How the driver's shift to and from Park is sensed by the shifter and relayed/communicated to the transmission;
- c. All interlocks, audible/visual warnings and other safeguards associated with shifting to and from Park and turning the engine Off when the vehicle is moving or stopped;

- d. How the transmission executes the commanded shift to and from Park, including the electronic and hydraulic circuit diagrams associated with each state;**
- e. The system state diagrams and the functionality of all Auto-Park, Automatic Neutral, and engine Start/Stop button including the control logic when the vehicle is moving and when the vehicle is stopped;**
- f. Describe all software and hardware filtering (including that related to de bounce) and built-in fault maturity mechanisms for ignition/gear shifter signals on both the ignition/gear shifter assemblies and the Transmission Control Module (TCM); and**
- g. How the transmission senses and relays/communicates the actual gear position back to the operator, including any warnings/alerts provided if an attempted shift to Park results in a shift to another gear (e.g., Neutral).**

A10.a. Operator of the subject vehicle selects Park by moving the Gear Shift Module shift lever from the Drive, Neutral, and Reverse to the Park position. The Park position request is transmitted on both CAN bus from the Gear Shift Module (GSM) to the Transmission Control Module ("TCM"). Upon receipt of this message, the TCM commands the transmission into Neutral, vents Park-disengagement pressure and Park is mechanically engaged. Once the transmission park sensor acknowledges Park lever engagement, the TCU transmits the CAN message to illuminate Park on the GSM display and the instrument cluster transmission gear position display. Information for subpart (a) is located in ENCLOSURE 10 and is titled Shifter Operation.pdf

A10.b. GSM shift lever position is electronically sensed by an inductive array on the GSM printed circuit board. GSM lever position ranges are indicated on the GSM component drawing. GSM lever position is transmitted from the GSM and both CAN bus to the TCM. Information for subpart (b) is located in ENCLOSURE 10 and is titled Shifter Operation.pdf.

A10.c. Information on shifter operation and for subpart (c) is located in ENCLOSURE 10 and are titled ~~PE~~ PE 15-030 WK (Grand Cherokee) 9-15-2015 Presentation CBI.pdf and Shifter Operation.pdf respectively. Do we usually have quotes on document names?

While the vehicle is traveling faster than 1.2 mph there are interlocks to prevent the vehicle from shifting into Park preventing possible damage to the drivetrain components and harsh forces on the operator. When this happens, a message is displayed on the Electronic Vehicle Information Center ("EVIC") or Driver Information Display ("DID") "Vehicle Speed Is Too High to Shift", a chime is sounded, and the transmission automatically shifts into Neutral.

There are also interlocks in place while the vehicle is traveling above 5 mph to prevent the engine from turning off from a single Engine Start-Stop button press that would result in a loss of vehicle power. If it is necessary to turn the vehicle off while it is in motion, this can be accomplished by pressing and holding the Engine Start-Stop button for two seconds or by pressing it three times within two seconds.

To comply with FMVSS114 and prevent occupants from removing the keys from vehicles that are not in Park, the interlock prevents the vehicle from being turned off while the vehicle speed is below 5 mph and the vehicle is not in Park. This interlock is not active in the event of a transmission or shifter error that prevents a shift to Park. If an error is detected that would prevent the vehicle from being

placed in Park, the vehicle can be shut off when the vehicle slows to a stop. At this time the vehicle will be put in Park, as there is now no hydraulic pressure and the park cylinder is released.

The vehicle transmission cannot be shifted when the engine is not running. To shift out of Park in this situation the manual park release lever (MPR) can be used. Instructions for using the MPR can be found in the vehicle owner's manual.

A10.d. Information for subpart (d) is located in ENCLOSURE 10 and is titled PE15-030 Transmission Operation CONF BUS INFO.pdf.

A10.e. Information for subpart (e) is located in ENCLOSURE 10 and is titled PE 15-030 WK (Grand Cherokee) 9-15-2015 Presentation CBI.pdf.

A10.f. The GSM shift lever debounce time, the time required for an event to be registered as an intentional command by the operator, is 30 ms and the shift knob button debounce time is 20 ms. Both of these signals are transmitted from the GSM to the TCM on both CAN buses. The GSM fault maturity mechanisms are detailed in the GSM DTC matrix. Upon receipt of a message from the TCM to the GSM, the message is processed within 10 ms. The appropriate LED in the GSM display is illuminated immediately and if a solenoid is requested to be activated, the solenoids activation time is 20 ms.

To prevent an unintentional shift while driving, a debounce (80 ms) is implemented for the Neutral position while vehicle speed above 3.1 mph. Fault code maturity debounce for CAN communication failure with shift lever is 160 ms. Fault code maturity debounce for handshake failure with shift lever is 100 ms.

The transmission failsafe conditions and their resulted shifts are discussed in presentation PE 15-030 WK (Grand Cherokee) 9-15-2015 Presentation CBI.pdf in ENCLOSURE 10.

A10.g. The transmission communicates the actual gear position back to the operator in two ways.

First, the display of "P" (for Park) occurs in the lighted cluster in full view of the operator through the PRND/S indicator. The "P" is bolded in the cluster PRND/S indicator to clearly indicate to the operator the transmission is in Park. Second, the illuminated shift lever also displays "P" (for Park) when the transmission park lock is engaged. The illumination of "P" in shift lever is brighter and is a contrasting color. These two visual cues inform the driver of the actual transmissions gear that was selected (see Figure 1: PRND/S and Cluster Position Displays.) These actual gear position displays fully comply with FMVSS 101 (Controls and Displays) and FMVSS 102 (Transmission Shift Lever Sequence, Starter Interlock and Transmission Braking Effect.)



Figure 1: PRND/S and Cluster Position Displays

The most common situation where an attempted shift to Park results in a shift to another gear is when the vehicle speed is too high to safely shift into Park, which will occur at any speed above 1.2 mph. In this situation the vehicle will shift into Neutral and display “Vehicle Speed Is Too High to Shift” in the EVIC to inform the operator that their shift was not honored. The vehicle will display Neutral on the shift lever and the EVIC to indicate that the vehicle is in Neutral. The shift attempt must be repeated when the vehicle speed is below 1.2 mph to achieve Park.

Information for subpart (g) is located in ENCLOSURE 10 and is titled PE 15-030 WK (Grand Cherokee) 9-15-2015 Presentation CBI.pdf.

**11. For each version of the subject system used in the subject and peer vehicles, describe and provide video and audio recordings of, all warnings provided to the operator when the driver's door is opened in the following situations:**

- a. The engine is running and the vehicle shifter is in Park;
- b. The engine is running and the vehicle shifter is not in Park; and
- c. The engine is off and the vehicle shifter is not in Park.

A11. The subparts (a) through (c) are located in ENCLOSURE 11 and consist of multiple .wmv video files.

File Name	Description of Content
Red WK Steering_Dash view.wmv	Video showing a 2014 MY Jeep Grand Cherokee warnings to customers when the shifter is in various gears with the door open and shut.
Tan WK Steering_Dash view.wmv	Video showing a 2015 MY Jeep Grand Cherokee warnings to customers when the shifter is in various gears with the door open and shut.

Table 6: Video File Descriptions

The videos provided show the warnings to the operator in many different circumstances including:

- Engine on with the vehicle shifter in the Park position with Park Sense™ both on and off with the door open and closed.

- When the door is open and the vehicle is in park the EVIC will display the door ajar telltale.
- Engine on with the vehicle shifter in a position other than Park with Park Sense™ both on and off with the door open and closed.
  - When the door is open and the vehicle shifter is Drive or Neutral position the EVIC will display “Vehicle Not in Park”, display the door ajar telltale and will give an audible chime
  - When the door is open and the vehicle shifter is Reverse position with Park Sense™ off the EVIC will display “Vehicle Not in Park”, display the door ajar telltale and will give an audible chime
    - In Reverse when Park Sense™ on the Park Sense™ display takes priority to notify the operator of objects in the vicinity of the vehicle.

It should be noted that when the vehicle speed is below 5 mph the engine cannot be turned off unless the park system is securely engaged. The warnings shown within the attached videos notify customers that the vehicle is not in Park when they attempt to turn off the vehicle if the shifter is in a position other than Park. FCA US believes that the virtually universal "causal or contributory factor" of unintended vehicle movement in the subject vehicles is the driver's decision to exit the vehicle with the engine running and without confirming that the vehicle is in Park or choosing not to set the parking brake as directed in all documentation provided with the vehicle.

Relative to the alleged inadvertent vehicle movement, the Owner's Manual, User's Guide, Tip Card and Owner's Information DVD for the subject vehicles provide clear and concise instructions to ensure the vehicle is properly placed in Park and contain explicit warnings of what may occur if these instructions are ignored. In addition, the electronic gear position indicator ("PRND/S") will always display the correct gear, informing the operator of the state of the transmission. Further, if the vehicle is left in Reverse, the Reverse lamps will be illuminated.

Excerpts from the Owner's Manual, User's Guide and Tip Card are included in ENCLOSURE 11, which provide FCA US' recommendations relating to the proper use of the monostable gear shifter and the warnings associated with potentially using the Park position as a substitute for applying the parking brake. A copy of the Owner's Information DVD for the 2015 Jeep Grand Cherokee has also been included with FCA US' response to this information request.

**12. Describe all inspection and data collection procedures used by FCA to investigate allegations of property damage, crashes or injuries that may be related to the alleged defect, including whether and how information stored in the Event Data Recorder or other control modules is used.**

A12. FCA US will perform an inspection per an agreed upon written protocol with interested parties. The information collected would consist of; information provided by the Driver, Witnesses, Police Report, wi-TECH diagnostics of the various vehicle modules, pictures of the vehicle's interior, exterior, engine compartment and underbelly, pictures of the accident scene with any associated damage and marks, EDR Data, and the operation of the vehicle's shifter, shifter interlocks, etc., while being monitored by the wi-TECH or Engineering tool. The information gathered by the wi-TECH tool allows us to

determine if any fault codes are active or stored in the various electronic modules, monitor various systems during the inspection as they are operated. EDR Data, if recorded, will provide vehicle specific parameters to review.

**13. Provide the following powertrain operation information for the subject and peer vehicles:**

- a. Engine idle speeds based on operating temperature and auxiliary loads;**
- b. Associated powertrain torques in Drive and Reverse gear positions; and**
- c. Creep speeds on flat/level surfaces.**

A13. The subparts (a) through (c) are located in ENCLOSURE 13 consisting of multiple .pdf files.

- a. Q13 subpart (a) is located in ENCLOSURE 13 and titled 3.6L Engine Idle Speeds Overview.pdf, 5.7L Engine Idle Speeds Overview.pdf, 6.4L Engine Idle Speeds Overview.pdf and 3.0L Diesel WK NAFTA Idle Speeds.pdf.
- b. Q13 subpart (b) is located in ENCLOSURE 13 and titled Engine Torques in Drive and Reverse.pdf.
- c. Q13 subpart (c) is located in ENCLOSURE 13 and titled Creep Speeds.pdf.

**14. Provide service histories related to the subject components, including all software updates, for each of the vehicles associated with the referenced ODI complaints.**

A14. The response to Q14 is located in ENCLOSURE 14 and titled PE15-030 Question 14\_Final.xlsx. Additional documents responsive to Q14 are included in ENCLOSURE 14. It should be noted that the data included in response to Q14 includes service history information up to October 13, 2015.

The PE15-030 Information Request included 51 VOQs, two of which are from vehicles other than the subject or peer vehicles. One of the VOQs not related to the suspect population is for a 2013 Jeep Grand Cherokee and the other is a 2015 Jeep Cherokee. Subsequent to FCA US' receipt of the PE15-030 information request, another VOQ was added by ODI.

After the deletion of the two vehicles outside the suspect vehicle population and the addition of the subsequent VOQ, there are 50 VOQs from owners of 2014 and 2015 Jeep Grand Cherokees. Of the 50 VOQs, 47 have VINs provided by ODI.

CAIR files existed for 24 of the VOQs vehicles regarding allegations that vehicle rolled after being shifted to Park or the vehicles shifting out of Park without input from the drivers.

Thirty of the VOQ vehicles had one or more of the following modules flashed with updated software: Body Control Module, Electronic Shift Control Module and/or Transmission Control Module.

Seventeen of the 50 vehicles with VOQs provided by NHTSA did not have a service history for the subject components.

There are four VOQ vehicles that had the following parts replaced because the customers made an allegation of their vehicle rolling while in Park or because of a drivability issue:

- One vehicle had the Transmission Valve Body replaced (ODI # 10662308);
- One vehicle had the Electronic Shifter replaced (ODI # 10676998);
- One Vehicle had the Electronic Shifter replaced and subsequently had a Transmission replaced (ODI # 10759066); and
- One vehicle had the Electronic Shifter replaced for an unrelated complaint (ODI #: 10711893).

Of the 47 VOQs provided by ODI which had VINs, 44 of them had no parts replaced to correct the alleged defect. Only three of them had a replacement of a subject component in an attempt to address the customer complaint.

**15. Furnish FCA's assessment of each of the three elements of the alleged defect in the subject and peer vehicles, including:**

- a. **All circumstances FCA has identified that could result in the subject system shifting to, or remaining in, Neutral when the driver attempts to shift to Park;**
- b. **All vehicle design and human factors causal or contributory factor(s) related to the potential for unintentional/unexpected shift to Neutral when a driver is attempting to park a subject vehicle, include specific event sequence diagrams for the operator control actions/inputs necessary for each scenario described;**
- c. **The causal or contributory factor(s);**
- d. **The failure mechanism(s);**
- e. **The failure mode(s);**
- f. **The risk to motor vehicle safety that it poses;**
- g. **What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject system was malfunctioning; and**
- h. **The reports included with this inquiry.**

A15. The electronic monostable shifter featured in the subject vehicles is the exact same component used by other vehicle manufacturers. This shifter meets all applicable FMVSS and design requirements. The electronic monostable shifter does, however, operate and feel different than previous shifter designs. To assist operators in acclimating to the electronic monostable shifter design, FCA US includes a Tip Card with each vehicle. This Tip Card states, in part:

“The electronic shift lever in this vehicle does not slide like a conventional shifter. Instead, the shift lever is spring loaded and moves forward or rearward, always returning to the center position after desired gear is selected. You may find moving the lever to shift requires less effort, and travels a shorter distance than other shifters with which you are familiar.”

As noted in response to Q11, FCA US communicates proper use of the monostable shifter to our customers in multiple ways, including a Tip Card, the Owner’s Manual, User’s Guide and an

Owner's Information DVD that includes a specific section about shifter operation. There are also audio and visual cues inside the vehicle during operation to guide the customer through the use of this monstable shifter, and signal the operator of actual transmission gear position. Following the instructions provided by FCA US to customers will always result in a gear position as commanded by the operator, and no instance where the operator is not alerted to the actual gear position.

Any situation in which a subject vehicle shifts to or remains in Neutral after an attempted shift to Park by the operator warrants a message informing the operator of an error or that the request made by the operator cannot be honored. The shift attempt would be followed by a message displayed, an audible chime and a shift into Neutral or no shift attempt. Examples of when a shift to Park would not be honored include:

- If the vehicle speed is too high to safely shift into Park, any speed above 1.2 mph, the vehicle will shift into Neutral and display "Vehicle Speed Is Too High to Shift" to inform the operator that their shift was not honored. In this situation the vehicle will display Neutral on the shift knob and instrument cluster. The shift attempt must be repeated when the vehicle speed is below 1.2 mph to achieve Park.
- During a limp home mode where the valve body cannot control park actuation it will display a "Service Transmission" error, sound a chime, and when the vehicle is slowed to near a stop it will show "Turn Off Vehicle to Achieve Park" to inform the operator that they need to turn off the vehicle to achieve Park. Also, any attempts to shift to Park using the shifter would not be honored because the system is not able to perform such a shift.
- If the vehicle is in Neutral and loses connection with the shifter or shifter button it will stay in the last selected gear and display a "Service Shifter" message on the instrument cluster, sound a chime, and when the vehicle is slowed to near a stop it will then display a "Turn Off Vehicle to Achieve Park" message to inform the operator that they need to turn off the vehicle to achieve Park.
- Abnormal and extensive physical damage to any of the components that make up the park system. There are many errors and messages that could or would be shown in this situation. The transmission and park system in the subject vehicles is constantly monitoring and cross checking the status and position of the park system components to make sure that any requested shifts result in the proper movement. If there was damage to a component that did not allow the park system to engage, it is likely that a message would be displayed and an error code stored for diagnostics. This circumstance would also present mechanical damage that would be seen by a dealer or vehicle inspector who was attempting to determine the cause of the improper system performance.

Additional details for the above situations, where a shift will not be honored, can be found in the documents included in ENCLOSURE 10.

The subject vehicles are designed not to, and will not, shift out of Park while the engine is turned off. The park system operates on the hydraulic pressure of the engine, mechanical spring

pressure, and electronics to hold the park rod and pawl in or out of the Park position. Without hydraulic pressure on the parking rod, which is only available when the engine is on, the pressure from the park return spring will keep the park pawl engaged with the planetary park gear. This will keep the vehicle firmly in Park and prevent it from moving.

There are no known vehicle design or human factors that are causal or contributory to the potential for unintentional/unexpected shift to Neutral when a driver is attempting to park a subject vehicle. However by design, if the vehicle speed is too high to safely shift into Park, any speed above 1.2 mph, the vehicle will shift into Neutral and display "Vehicle Speed Is Too High to Shift" to inform the operator that their attempted shift was not honored. In this situation the vehicle will display Neutral on the shift knob and instrument cluster. The shift attempt must be repeated when the vehicle speed is below 1.2 mph to achieve Park.

The vast majority (87%) of all reports provided in response to Q2 generally describe dissatisfaction with the shifter technology that did not result in crash, injury or property damage. These reports do not describe malfunctions of the shifter. These reports express difficulty achieving the desired gear without having to view the displays and other indicators for confirmation that the desired gear has been achieved. It is believed that these and the other complaints, including those alleging rollaway events, are due to the operator shifting into an improper gear. Despite the replacement of various components on a small number of subject vehicles, FCA US has not identified a design or manufacturing condition that would prevent an operator from safely placing the vehicle in park when desired, preventing any inadvertent movement.

FCA US investigates allegations of inadvertent vehicle motion at the time of the complaint. In all cases, inspection found that (i) the shift mechanism functioned properly; (ii) the transmission park lock would hold the vehicle on an incline and (iii) the cluster and shifter displays were correctly showing the gear that corresponds to the current shifter position. FCA US has also reviewed each of the complaints made to ODI. FCA US' assessment of these complaints is consistent with its internal data.

FCA US believes that the allegations of immediate rearward vehicle movement after an attempted shift to Park are instances where the operator actually shifted to Reverse instead of Park. Allegations in which the vehicle did not immediately roll and proceeded in a downhill direction are likely instances where Neutral was selected instead of Park. Lastly, allegations in which the vehicle moved forward appear to be instances where the Drive position was selected. It should be noted that the compendium of data contained within this response relies exclusively on non-technical recollections of an event. This information cannot be relied on to draw any conclusions regarding a design or manufacturing defect in the subject vehicles. FCA US does not consider the submitted material alleging inadvertent vehicle movement of the subject vehicles to exhibit a "failure mode" as that term is ordinarily used by NHTSA in the Vehicle Safety Act context, because the vehicle has not "failed" to operate as intended by its design. In each of these circumstances, it is apparent the operator did not confirm the transmission gear position after a shift by looking at the shift position indicators prominently displayed on the cluster and at the top of the shift lever being used by the operator during the shift movement.

In addition, the vehicle design provides many safeguards against the risk of inadvertent vehicle movement, including the need to engage the gear selector button when shifting; the end of travel stoppage; the tactile feedback from the gear shift selector when the gear is properly engaged in Park; and the visual PRND/S indicators on the cluster and shifter.

Any driver who attempts to exit the vehicle without properly achieving park will receive visual and audible warnings. Some or all of the following may be present in these cases:

- Vehicle cannot be shut off using the Engine Start-Stop button;
- Audible chime when the Engine Start-Stop button is pressed;
- Message saying "Vehicle Not in Park" when the driver's door is open under certain conditions;
  - In Reverse, Park Sense takes display priority to notify the operator of objects in the vicinity of the vehicle.
- Reverse lights are illuminated when the vehicle is in Reverse;
- Backup camera is active when the vehicle is in Reverse;
- Vehicle will likely move immediately if it is in gear when the operators foot is removed from the brake;
- Shifter is illuminating a selection other than "P";
- Instrument cluster is displaying a selection other than "P"; and
- An audible chime when the driver opens their door to exit the vehicle.

FCA US has found no evidence to suggest a defect in the subject vehicle population. Indeed, the Agency has acknowledged the interaction between the driver and the vehicle is the critical factor in events like those at issue here, and that such events do not involve any "defect" in the vehicle itself:

"Proper and complete shifting of the automatic transmission into Park is an oft-repeated, but critical task associated with safe motor vehicle operation. All automatic transmissions with mechanical park lock engagement can be improperly or incompletely shifted to that position. Because it was recognized that proper driver input is necessary to engage the park lock system, the lack of this input was considered to represent a potential contributing factor in incidents upon which this investigation was based."

Inadvertent movement is easily avoided by responding to any of the various cues designed to ensure that the operator properly places the vehicle in the Park position. These include: (1) the end of travel stoppage; (2) the visual PRND/S indicator on the cluster; and (3) the visual PRND/S indicator on the shifter. In addition and as stated in the Owner's Manual in the Starting and Operating section, "Unintended movement of a vehicle could injure those in or near the vehicle. As with all vehicles, you should never exit a vehicle while the engine is running. Before exiting a vehicle, always apply the parking brake, shift the transmission into PARK, turn the engine OFF, and remove the Key Fob."

FCA US believes that the subject vehicles are neither defective nor do they present an unreasonable risk to motor vehicle safety.

Mr. Jeffrey L. Quandt  
Reference: NVS-213swm; PE15-030  
November 24, 2015

ATTACHMENT

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