



**Vehicle Attachment 12 – 2010 Dodge Ram Pickup Truck
Airbag Control Module Data**

Mount Vernon, WA; 05/23/2013

HWY13MH012

(16 pages)

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	1D7RV1GT8AS
User	ladines
Case Number	13007187
EDR Data Imaging Date	05/29/2013
Crash Date	05/23/2013
Filename	1D7RV1GT8AS_ACM.CDRX
Saved on	Wednesday, May 29 2013 at 11:07:23
Collected with CDR version	Crash Data Retrieval Tool 10.2
Reported with CDR version	Crash Data Retrieval Tool 10.2
EDR Device Type	Airbag Control Module
Event(s) recovered	None

Comments

See Attached Notes:

Data included in this report should be effectively applied and verified to a situational complete crash analysis by traditional reconstruction methods to determine the validity and applicability to the crash under investigation and should not be considered and/or used as a standalone method of reconstruction and/or reporting.

I have imaged/supervised imaging of the raw data found in this Crash Data Retrieval system report. The successful retrieval of the data and production of this report is an indication that the procedures necessary to properly collect this data have been followed and the data was properly imaged or downloaded. The report has been saved for printing in "PDF" format using the latest version of the CDR software available to me at this time and I have also provided the investigating agency media containing the raw data file of the underlying CDR System file for discovery and/or later reprinting as necessary. I have indicated to the investigating officer that the report includes a Data Limitations section and that portion of the report may indicate conditions or characteristics of the data that may be, on the surface, confusing or require a more complete analysis by other means. I have also informed the officer that the data may be affected by conditions or vehicle characteristics described in the Data Limitations section of the report or in other related reference material. For that reason, data included in this report should be effectively applied and verified to a situational complete crash analysis by traditional reconstruction methods to determine the validity and applicability to the crash under investigation and should not be considered and/or used as a standalone method of reconstruction and/or reporting.

I have also informed the investigating officer that, before a court and legal proceeding, the raw data file should be re-opened in the latest available version of the CDR software to ensure the most recent, complete translation of the data is used at trial.

Detective: Curt Ladines
Sergeant: Jerry Cooper

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Major Accident Investigation Team
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Monroe, WA. 98272
(360) 805-1160 - Ladines
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Data Limitations

AIRBAG CONTROL MODULE (ACM) DATA LIMITATIONS:

GENERAL INFORMATION:

CAUTION: During Bench top imaging, make sure the ACM is not moved, tilted or turned over while connected to and powered by the CDR Interface Module. Also, after a CDR imaging process, wait 2 minutes after power is removed from the ACM before attempting to move the module. Not following these general ACM guidelines for bench top imaging could cause new events to be recorded in the ACM.

The ACM current fault status will be altered if the ACM is powered-up without having all of the other vehicle inputs connected (e.g., bench top imaging). This situation will occur when the CDR tool is connected directly to the ACM. This will not affect the stored fault data information in any of the Event Records. Always make a note in the CDR case comments section when an ACM bench top imaging process is being performed.

The recorded Event will contain Pre-Crash data.

- T0 (where '0' is subscript) (-0.1 sec.) is defined as either:
 - The last sample point in the vehicle data buffer when the ACM commanded a deployment
 - The algorithm wakeup.
 - Please note that the algorithm wakeup may be different for front, side, and roll-over events and their associated parameters.
- The VIN is captured by the ACM and then recorded as the Original VIN after 10 consecutive ignition cycles of capturing the same number. Once it has been recorded, this number cannot be modified.
- As the VIN may be used to determine the configuration of the restraint system, it is imperative that the correct VIN be entered into the CDR software during the imaging process.

CDR FILE INFORMATION:

Event(s) Recovered definitions:

- None - There are no stored events in the Airbag Control Module (ACM)
- Not Retrievable - Event Data may be stored in the ACM but is not retrievable by the CDR tool.
- For Continental ACMs:
 - Event Record 1 - Data from an event is stored in the ACM (not necessarily in chronological order)
 - Event Record 2 - Data from another event is stored in the ACM (not necessarily in chronological order)
 - Event Record 3 - Data from another event is stored in the ACM (not necessarily in chronological order) (for modules with 3 stored events)
- For all other ACMs:
 - Most Recent Event - Data of the most recent event is displayed in the report
 - 1st Prior Event - Two events are stored in the ACM, Data displayed is of the first prior event.
 - 2nd Prior Event - Three events are stored in the ACM, Data displayed is of the second prior event.
 - Etc., (for modules with 3 to 5 stored events)

CDR RECORD INFORMATION:

- The following table provides an explanation of the sign notation for data elements that may be included in this CDR report.

Data Element Name	Positive Sign Notation Indicates
Longitudinal Acceleration	Forward
Delta-V, Longitudinal	Forward
Maximum Delta-V, Longitudinal	Forward
Lateral Acceleration	Left to Right
Delta-V, Lateral	Left to Right
Maximum Delta-V, Lateral	Left to Right
Normal Acceleration	Upward
Vehicle Roll Angle	Left to Right Rotation

- If power to the ACM is lost during an event, all or part of the event data record may not be recorded. Two scenarios may be recorded under this condition:
 - "None" may be displayed in the "Event(s) Recovered" section of the report indicating no pre-crash vehicle data.
 - An event may be displayed in the "Event(s) Recovered" section of the report and "Interrupted" will be displayed for Vehicle Event Recorder Status.
- Note: For the 2010-2012 MY Dodge Journey, Dodge Grand Caravan, Chrysler Town and Country, and Chrysler Grand Voyager, "interrupted" in Vehicle Event Recorder Status/Event Recorder Status indicates either be a non-deployment event or an interrupted deployment event.
- For ACMs that store non-deployment events, the minimum delta V required to store an event is a delta V of 5 mph (8 km/h) within a 150 ms interval.
- Definitions for Data Blocks 1 - 7 and Overall Data Record Complete:
 1. Crash Record (system status and DTCs)
 2. NHTSA Table #1 Vehicle System data
 3. NHTSA Table #1 Longitudinal delta-V
 4. NHTSA Table #2 Vehicle System Data
 5. NHTSA Table #2 Lateral delta-V - will be a NO if vehicle is not equipped with side sensing
 6. ACM angular rate data - will be a NO if vehicle is not equipped with roll-over sensing
 7. Other Vehicle System Data - Chrysler Specific Data
- Overall Data Record Complete - Yes, No is defined based on what the specific vehicle configuration. For example, a NO may be present for a non-applicable data block but a YES may be present for overall data record complete as all of the applicable data is complete.
- For non-NAFTA ACMs that control pedestrian protection devices, a non-deployment event will be also stored when the pedestrian protection devices are activated.
- The Airbag Control Module Configuration indicates the inputs and outputs that the ACM for a particular vehicle monitors and/or controls.
- "Event Number" in the System Status at Event section of the report:
 - Indicates the event number per vehicle ignition cycle for:
 - 2010 - 2012 Sebring, Avenger, Caliber, Nitro, Compass, Liberty, Patriot, Wrangler, and Ram
 - Indicates the overall order of the events for all other applicable vehicles.
- "Total Number of Events Recorded" in the System Status at Event section of the report:
 - Stops incrementing when each event record is recorded by the ACM for:

- 2010 - 2012 Sebring, Avenger, Caliber, Nitro, Compass, Liberty, Patriot, Wrangler, and Ram
- Indicates the total number of events that the ACM has recorded for all other applicable vehicles.
- "Operation System Time at Event (min)" in the System Status at Event section of the report is a lifetime timer for the ACM. It indicates the amount of time, over the ACM's lifetime that the ACM has been powered up.
- "Time from Event 1 to 2 (sec)" in the System Status at Event section of the report indicates the time from t0 of the first event to t0 of the second event. If the value is greater than 5 seconds, ">5" will be displayed.
- Active Head Restraint (AHR) - This refers to the active head restraint systems that are electronically controlled by the ACM.
- For applicable vehicles, a "Yes" for a particular item in the Deployment Command Data section of the report indicates that the ACM commanded the deployment of the associated device. Note: For 2010 MY vehicles equipped with AHR, the AHR deployment will not be recorded in the EDR.
- Vehicle Data (Pre-Crash) is transmitted to the Airbag Control Module, by various vehicle control modules, via the vehicle's communication network.
- On 2006-2009 Ram 2500/3500, the Engine RPM recorded is limited to a maximum of 4080 RPM. On the 2008 - 2010 Dodge Grand Caravan, 2008-2010 Chrysler Town and Country and 2009-2010 Dodge Journey, the engine RPM resolution is 256 rpm. On all other vehicles, the resolution is 32 rpm.
- If a recorded event has Engine RPM equal to SNA and Speed, Vehicle Indicated equals SNA for each time stamp, then the data is default data and the event stored in the ACM is not valid.
- The accuracy of the recorded Speed, Vehicle Indicated will be affected if the vehicle had the tire size or the final drive axle ratio changed from the factory build specifications.
- Speed, Vehicle Indicated is reported as an average of the drive wheels.
- On the 2008 - 2009 Dodge Grand Caravan, 2008-2009 Chrysler Town and Country and 2009 Dodge Journey, the vehicle speed resolution is 2 kph. On all other vehicles, the resolution is 1 kph.
- The MIL (Malfunction Indicator Lamp) Status for the various recorded systems indicates the state of the applicable malfunction indicator lamp at the time that the data was captured. Note: Some fault codes could be stored due to component/system damage from the accident.
- For correct polarity of Maximum Delta-V Longitudinal or Maximum Delta-V Lateral, reference the graph and the table of Delta-V values.
- On vehicles equipped with ETC, "Accelerator Pedal, % Full" and "Engine Throttle, % Full" are relative values - relative pedal position and relative engine throttle. These parameters may record values of less than 100% when the pedal/throttle is actually at its maximum.

NOTE: The appropriate diagnostic tool should be used to read any stored Diagnostic Trouble Codes (DTC's) in the various electronic modules (ACM, PCM, ABS, TCM, etc., where applicable) for use in interpretation of some vehicle specific recorded data.

VEHICLE DATA DEFINITIONS:

Vehicle Event Recorder Status definitions:

- For additional definitions, please refer to the CDR Help File Glossary
- ABS MIL (if equip.) - This indicates the ABS fault indicator lamp status. It will only be "On" when there is a fault in the ABS system. The Electronic brake module DTC's should be read and recorded for final system interpretation.
- ESP MIL (if equip.) - This indicates the ESP/BAS fault indicator lamp status. It will only be "On" when there is a fault or thermal model shutdown in the ESP system. The ESP module DTC's should be read and recorded for final system interpretation.
- ESP Lamp (if equip.) - This is the status of the ESP symbol - "car with squiggly lines" indicator lamp. "On" indicates ESP has been turned off by the driver or has reduced performance and is not an indication of a fault in the system.
- ESP Lamp Flashing Requested (if equip.) - If "Yes", then an ESP, Traction Control or Trailer Sway Control (if equipped) event was active at the time of data capture.
- ESP Disabled (if equip.)- "Yes" indicates that ABS & ESP have been disabled by the driver or due to system performance.
- ESP Functional/Active (if equip.)- "YES" indicates that the ESP system is functional and has no faults.
- Panic Brake Assist Active (if equip.)- "Yes" indicates that all four of the brake circuits are under going ABS control.
- Steering Input (deg) (if equip.):
- Steering Input polarity is positive for right turns on:
 - o 2006 - 2007 Grand Cherokee
 - o 2006 - 2007 Commander
 - o 2005 - 2010 300, Magnum, and Charger
 - o 2008 - 2010 Challenger
- Steering Input polarity is negative for right turns on:
 - o All other vehicles and model years not specified above
- Yaw Rate (deg/sec) (if equip.): All vehicles have negative yaw rate when making a right turn.
- ETC Lamp - Lamp "ON" indicates there is an active Electronic Throttle DTC.
- ETC Lamp Flashing - If "Yes", then the ETC is in the limp-in mode.
- Engine Torque Applied - If "No", then no engine torque output was applied (as in Park/Neutral for Automatic transmissions or clutch depressed on manual or during an ESP/Traction Control event). If "Yes", then engine torque output was applied.
- Tire 1 (2) Location (if equip.)- This indicates the location of the tire pressure sensor data. Default is used to indicate that the location of the tire pressure sensor is unknown or there is no tire pressure sensor in the wheel. Vehicles with Base Tire Pressure Monitoring systems will display SNA for both Tire Locations as these vehicles do not send actual pressure values across the communication bus.
- Tire 1 (2) Pressure Status (if equip.)- This indicates the actual pressure status of the Tire Location defined in the previous column. Possible values are LOW, NORMAL, HIGH, or SNA for this parameter. Vehicles with Base Tire Pressure Monitoring systems will display NORMAL even though these vehicles do not send actual pressure values across the communication bus.
- Tire 1 (2) Pressure (psi) (if equip.)- This indicates the actual tire pressure value of the Tire Location defined. Vehicles with Base Tire Pressure Monitoring systems will display N/A for this parameter as these vehicles do not send actual pressure values across the communication bus.

- Cruise Control System - "On" indicates that the Cruise Control system is turned on.
Cruise Control Active - "Yes" indicates the Cruise Control system is actively controlling vehicle speed. "No" indicates the system is NOT controlling vehicle speed.
- (if equip.) - If a parameter name is followed by the words (if equip.), then the parameter is only valid for vehicles equipped with the associated parameter/vehicle system.

APPLICATION INFORMATION:

- 2005 - 2009 Durango's equipped with side airbags have EDR data that can be imaged by the CDR tool. Durango's not equipped with side airbags have EDR Data that might be imaged by the CDR tool and can always be imaged by the supplier.
- For 2005 & 2006 MY, some Chrysler 300, Dodge Magnum, Dodge Charger, Jeep Grand Cherokee, and Jeep Commander models may contain EDR data that can not be imaged by the CDR tool.
- For 2006 & 2007 MY, some PT Cruiser models may contain EDR data that can not be imaged by the CDR tool.
- EDR Data is only recorded for frontal deployments in the following vehicles:
 - 2005-2007 Durango
 - 2006-2007 Ram 1500
 - 2006-2009 Ram 2500/3500 Heavy Duty
 - 2007 Aspen, Caliber, Compass, Patriot, Nitro, Sebring, Wrangler

03001_Chrysler_r012

System Status at Retrieval

Original VIN	1D7RV1GT8AS [REDACTED]
Ignition Cycle, Download	0
Airbag Control Module Part Number	56054623AD
Airbag Control Module Serial Number	TTOMF302900048
Airbag Control Module Supplier	TRW

System Configuration at Retrieval

Configured for Driver Frontal Airbag	Yes
Configured for Passenger Frontal Airbag	Yes
Configured for Driver Knee Airbag	No
Configured for Passenger Knee Airbag	No
Configured for Left Curtain Airbag	Yes
Configured for Left Side Seat Airbag	No
Configured for Right Curtain Airbag	Yes
Configured for Right Side Seat Airbag	No
Configured for Driver Buckle Pretensioner	No
Configured for Driver Retractor Pretensioner	Yes
Configured for Front Passenger Buckle Pretensioner	No
Configured for Front Passenger Retractor Pretensioner	Yes
Configured for Driver Active Head Restraint	No
Configured for Front Passenger Active Head Restraint	No
Configured for Front Passenger Occupant Classification System	No
Configured for Occupant Detection Sensor	No
Configured for Driver Seatbelt Switch	Yes
Configured for Front Passenger Seatbelt Switch	No
Configured for Driver Seat Track Position Sensor	No
Configured for Front Passenger Seat Track Position Sensor	No
Configured for Left Up Front Sensor	Yes
Configured for Right Up Front Sensor	Yes
Configured for Left Side Sensor 1	Yes
Configured for Left Side Sensor 2	Yes
Configured for Left Side Sensor 3	No
Configured for Left Side Sensor 4	Yes
Configured for Left Side Sensor 5	No
Configured for Right Side Sensor 1	Yes
Configured for Right Side Sensor 2	Yes
Configured for Right Side Sensor 3	No
Configured for Right Side Sensor 4	Yes
Configured for Right Side Sensor 5	No

Hexadecimal Data

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR system.

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62 F1 00 00 04 03 03
62 F1 32 35 36 30 35 34 36 32 33 41 44
62 F1 8C 54 54 4F 4D 46 33 30 32 39 30 30 30 34 38
62 F1 54 00 27
62 F1 0B 01 18 00 DB C0 90 80 24 00 00 00 00 00 07 01 03 3F 10 5F FD 54 C7 01 00 FC 00 AF 00 D0
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