

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	1B3LC56R78N*****
User	
Case Number	
EDR Data Imaging Date	
Crash Date	
Filename	SAMPLE_CHRYSLER.CDRX
Saved on	Wednesday, June 16 2010 at 15:31:48
Imaged with CDR version	Crash Data Retrieval Tool 3.5
Reported with CDR version	Crash Data Retrieval Tool 19.0
Reported with Software Licensed to (Company Name)	Thorn Consulting Services
EDR Device Type	Airbag Control Module
Event(s) recovered	Most Recent Event

## Comments

Vehicle: 2008 Dodge Avenger  
Cable used: F00K108226

## Data Limitations

### AIRBAG CONTROL MODULE (ACM) DATA LIMITATIONS:

#### GENERAL INFORMATION:

CAUTION: During direct-to-module imaging where the Airbag Control Module (ACM) is disconnected and removed from a vehicle, make sure the ACM is not moved, tilted or turned over while connected to and powered by the CDR Interface Module (with appropriate adaptors in place, where required). 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 direct-to-module imaging could cause new events to be recorded in the ACM.

- For additional definitions, please refer to the CDR Help File Glossary.
- 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 Tool during the imaging process.
- For Fiat vehicles, the "Read VIN from Vehicle" feature in the CDR Tool will not work. The VIN will have to be manually entered.
- Delta-V is first available starting with some 2010 MY vehicles.
  - On vehicles not equipped with side impact sensing, Lateral acceleration and Delta-V will not be available.
  - Lateral acceleration is also not available for the 2008-2009 MY Chrysler Town and Country/ Dodge Grand Caravan/Lancia Voyager and 2010 MY Dodge Journey and Fiat Freemont even when equipped with side impact sensing.
  - Longitudinal and Lateral Delta-V are not available for the 2010-2012 MY Chrysler Town and Country/ Dodge Grand Caravan/Lancia Voyager.
- The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. All directional references to sign notation are from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

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
Steering Input*	Steering wheel turned counter clockwise
Angular Rate	Left to Right Rotation/Clockwise rotation around the longitudinal axis
Yaw Rate**	Counter clockwise rotation

\* The Steering Input for the following vehicles has a positive sign notation for the steering wheel turned clockwise:

- o 2006 - 2007 Grand Cherokee
- o 2006 - 2007 Commander
- o 2005 - 2010 300, Magnum, and Charger
- o 2008 - 2010 Challenger

\*\*The Yaw Rate for the 2011-2012 MY RAM has a positive sign notation for clockwise rotation.

#### **CDR FILE INFORMATION:**

- For ACMs that store non-deployment events, an event will be stored when the delta V is approximately 5 mph (8 km/h) or greater within a 150 ms interval.
- For non-NAFTA ACMs that control pedestrian protection devices, a non-deployment event will be stored when the pedestrian protection devices are activated.

#### **Event(s) Recovered definitions:**

- None - There are no stored events in the 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)
- For TRW modules:
  - If there is a side impact, two EDR events may be stored for the one side impact event. The second event may be recorded due to the Lateral Delta V exceeding 5 mph (8 km/h) within a 150 ms interval after the side deployment occurred.
- For some Fiat vehicles:
  - Two EDR events may be stored for one impact event. The second event may be recorded due to the deployment of the frontal airbag, 3<sup>rd</sup> stage passenger.
- During an event, if power to the ACM is lost, all or part of the event data record may not be recorded. An indication may be observed in the recorded data 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 /Pre-Crash Recorder Status.
- For 2010-2012 MY Dodge Journey and 2010-2012 MY Chrysler Town and Country/Dodge Grand Caravan/Lancia Voyager, a non-deployment event will also display "Interrupted" for the Vehicle Event/Pre-Crash Recorder Status. This non-deployment event can be distinguished from a power loss by:
  - In the System Status at Event and Deployment Command Data section, Event/Deployment Recorder Status will display "Interrupted".
  - In the Deployment Command Data section, a value of "No" will be displayed for each deployment data element.

#### **SYSTEM STATUS AT RETRIEVAL:**

- Original VIN - 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 changed.

#### **SYSTEM CONFIGURATION AT RETRIEVAL:**

- The System Configuration data tables indicate the components that the ACM for a particular vehicle monitors and/or controls.
- Active Head Restraint (AHR) - This refers to the active head restraint systems that are electronically controlled by the ACM. AHRs may activate but not store an EDR Record if the delta V does not exceed the minimum delta V threshold. It is possible that the AHRs may activate after the EDR record has been stored and written, based on achieving the minimum delta V. This condition will result in an EDR but no record of the AHR activation in the CDR report. Activation of only the AHRs, if stored, will be a non-deployment event.

#### **SYSTEM STATUS AT EVENT (if applicable):**

- Event Number -
  - 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.
- Event Signal Transmission, Complete - "Yes" indicates that the ACM has sent the automatic collision notification (ACN) message.
- Odometer at Event - Vehicle odometer at the time of the event
- Operation via Energy Reserve Only - "Yes" indicates that the ACM had lost power at or before T0 and was only operating on energy reserve at T0.
- Side Fuel Cutoff, Activated - Applicable to the Fiat 500, "Yes" indicates that the ACM has sent the automatic collision notification (ACN) message.
- System Voltage at Event, ECU - Voltage at the ACM as measured by the ACM.

- System Voltage at Event, Bussed - Voltage of the vehicle system, communicated on the communication bus to other electronic modules in the vehicle.
- Temperature, Outside - Ambient Air Temperature.
- Time, Airbag Warning Lamp On - This is a cumulative time. It indicates the total amount of time that the ACM has requested the Airbag Warning Lamp be turned on.
- This time does not include the warning lamp bulb check time, which occurs at every ignition cycle
- Time from event 1 to 2 -
  - If only one event is stored, either a value of 0 or >5 may be displayed for this data element.
  - If multiple events exist in the EDR, the time from event 1 to event 2 is defined as:
    - For Bosch and TRW modules, the time from the prior recorded event (even if it has been overwritten) to the current recorded event.
    - For Continental modules, the time from the prior existing recorded event (as long as it is still displayed in the CDR report) to the current recorded event. If the prior event in a multi-event condition is overwritten by a subsequent event, the multi-event status will no longer be displayed.
- Time, Operation System Time - This is a cumulative lifetime timer for the ACM. It indicates the total amount of time the ACM has been powered up.
- Total Number of Events -
  - 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, including those non-deployment events that have been overwritten by a subsequent event, for all other applicable vehicles.
- VIN at Event, Last 8 Digits- Last 8 digits of the VIN of the vehicle at the time the ACM records the event.

#### **STATUS OF THE DATA IN THE MOST RECENT EVENT (if applicable):**

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 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.

#### **DEPLOYMENT COMMAND DATA (if applicable):**

- A "Yes" for a particular item in the Deployment Command Data section of the report indicates that the ACM commanded the deployment /activation of the associated device.
- Deployment of Seatbelt Pretensioners is not stored in the EDR for the 2010 MY vehicles that utilize a TRW ACM. Assessment of the seatbelt pretensioners' deployment status in these vehicles must be made by physical inspection in the vehicle.

#### **DTCs PRESENT AT START OF EVENT (if applicable):**

- If any DTCs (diagnostic trouble codes) are present in the ACM at the start of the event, these will be listed in this section. A dealership service manual can be used to decode the DTCs.

#### **PRE-CRASH DATA:**

- The recorded Event may contain Pre-Crash data. Pre-Crash data from the various electronic control modules in the vehicle is transmitted to the Airbag Control Module via the vehicle's communication bus.
- 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.
- (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.
- The MIL (Malfunction Indicator Lamp) Status for the various recorded systems indicates the requested 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. 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.
- ABS Activity - "Yes" indicates an active ABS event in which the ABS is actively controlling the brakes.
- ABS MIL- 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.
- Accelerator Pedal, % Full - This indicates the actual position of the accelerator pedal.
- Brakes:

- Brake Lamps On - "On" indicates that the brake lamps/CHMSL are illuminated.
- Brake Switch #2 Status - "On" indicates that the brake pedal is depressed.
- Braking System, Intervention by ESP - "Yes" indicates that the stability control system has engaged the brakes.
- Braking System, Intervention Enabled "Yes" indicates that the ESC system is functional.
- Braking System, Emergency Braking - "Yes" indicates that panic brake assist is active.
- Braking System, Maximum Braking -- "Yes" indicates that ABS is active on all 4 wheels.
- Panic Brake Assist Active - "Yes" indicates that all four of the brake circuits are undergoing ABS control.
- Service Brake - "On" indicates that the brake pedal is depressed.
- Cruise Control:
  - Cruise Control System/Status - "On" indicates that the Cruise Control system is turned on.
  - Cruise Control Engaged/Active - "Engaged"/"Yes" indicates the Cruise Control system is actively controlling vehicle speed. "Not Engaged"/"No" indicates the system is NOT controlling vehicle speed.
- Electronic Brake/Stability Control information:
  - ESC/ESP MIL - This indicates the ESC/ESP fault indication lamp status. It will only be "On" when there is a fault or thermal mode shutdown in the ESC/ESP system. The ESC/ESP module DTC's should be read and recorded for final system interpretation.
  - ESP Lamp - 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 "Yes", then an ESP, Traction Control or Trailer Sway Control (if equipped) event was active at the time of data capture.
  - ESP Disabled - "Yes" indicates that ABS & ESP have been disabled by the driver or due to system performance.
  - ESP/ESC Functional/Active - "YES" indicates that the ESP system is functional and has no faults.
  - ESC System Status - "OK" indicates no faults in the ABS or ESC system that affect the system functionality; "ABS Fault" indicates a fault in the ABS system and "ESC Fault" indicates a fault in the ESC system.
  - Engine Torque Applied - "No" indicates 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.
  - Stability Control - This is the status of the ESC symbol - "car with squiggly lines" indicator lamp. "On" indicates that the ESC system is functional. "Off" indicates that the ESC system was turned off either by the driver or due to a fault or thermal mode shutdown. "Engaged" indicates an active ESC/TCS event.
  - Traction Control Intervention Active - "Yes" indicates that the traction control system is actively controlling the vehicle's wheels.
- Engine RPM - 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.
- Engine Throttle, % Full - This indicates the actual position of the Engine Throttle blade.
- ETC -
  - 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. (Max. ~ 77%)
  - ETC Lamp - Lamp "ON" indicates there is an active Electronic Throttle DTC.
  - ETC Lamp Flashing - "Yes" indicates that the ETC is in the limp-in mode.
- PCM MIL - This indicates the PCM fault indicator lamp status. It will only be "On" when there is a fault in the PCM. The Powertrain Control Module DTC's should be read and recorded for final system interpretation.
- Raw Manifold Pressure - This indicates engine load in kPa.
- Speed, Vehicle Indicated - This indicates the average of the drive wheels. 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. On the 2008 - 2009 Dodge Grand Caravan, 2008-2009 Chrysler Town and Country and 2009 Dodge Journey, the speed resolution is 2 kph. On all other vehicles, the resolution is 1 kph. On some vehicles capable of speeds in excess of 255km/h (about 158mph), the actual vehicle speed may have exceeded the reporting range. It is always prudent to check the reported wheel speeds and other parameters to confirm the Speed, Vehicle indicated value(s).
- Tire Information:
  - XX where LF = Left Front Tire, RF = Right Front Tire, LR = Left Rear Tire, and RR = Right Rear Tire.
  - Tire X Location - This indicates the location of the tire pressure sensor data being displayed for that time stamp. Default is used to indicate that the location of the tire pressure sensor is unknown or there is no tire pressure sensor in that 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 X Pressure/Tire Pressure Status, XX - This indicates the actual pressure status of the Tire Location defined in the previous column (Tire X Location) or by the values for XX. Possible values are LOW, NORMAL, HIGH, or SNA for this parameter. Vehicles with Base Tire Pressure Monitoring systems may display NORMAL even though these vehicles do not send actual pressure values across the communication bus.
  - Tire X Pressure/Tire Pressure, XX (psi) - This indicates the actual tire pressure value of the Tire Location defined in the previous column (Tire X Location) or by the values for XX. 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.
  - Wheel Speed, XX - This indicates the speed value (in revolutions per minute) of a particular tire as denoted by XX.
  - For the following vehicles, the tire location, if displayed, may not be accurate if the tires have been rotated:
    - 2011-2012 MY Jeep Wrangler
    - 2010-2012 MY Jeep Patriot
    - 2010-2012 MY Chrysler 200
    - 2010-2012 MY Jeep Compass
  - Tire pressure is not stored in the EDR for the following vehicles. If a value is displayed, it may not be accurate:
    - 2011-2012 MY Jeep Grand Cherokee
    - 2011-2012 MY Dodge Durango

- 2010-2012 MY Dodge Challenger
- 2011-2012 MY Chrysler Town and Country
- 2011-2012 MY Dodge Grand Caravan
- 2010-2012 MY Ram
- Tire Pressure Monitor Indicator Lamp - "On" indicates a fault in the tire pressure monitoring system. The TPM module DTC's should be read and recorded for final system interpretation.
- "T0" ("Time zero" where '0' is seen as subscript) is defined as "beginning of the crash event". T0 is the time at which the ACM algorithm is activated, a specific Delta-V is exceeded, or a non-reversible restraint device is deployed. T0 may be defined differently for front, side, rear and roll-over events.
  - If multiple algorithm decisions (i.e.: frontal, side, rear and/or rollover) are made before the first recorded event ends, all of those events are part of the same event record and "T0" is defined as the "T0" from the first recorded event.
  - In the Pre-Crash data tables, the relative time marker "-0.1s" represents the last set of data captured in the buffer prior to "T0."
- Transmission/Shifter Position -
  - Gear Status - This indicates the current transmission gear.
  - PRND/PRNDL Status - This indicates the status of the Shifter Position.
  - Reverse Gear - For manual transmission vehicles only, "Yes" indicates the transmission is in the reverse gear.
  - Shift Gear Position - This indicates the current transmission gear/Shifter Position.
- Vehicle Data Recorder Complete - Due to the interruption of data recording in one section, this data element may display "Interrupted" for all sections when some data sections are actually complete.

#### **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 may 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 cannot be imaged by the CDR tool, but may be imaged by the supplier.
- For 2006 & 2007 MY, some PT Cruiser models may contain EDR data that cannot be imaged by the CDR tool, but may be imaged by the supplier
- 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\_r025

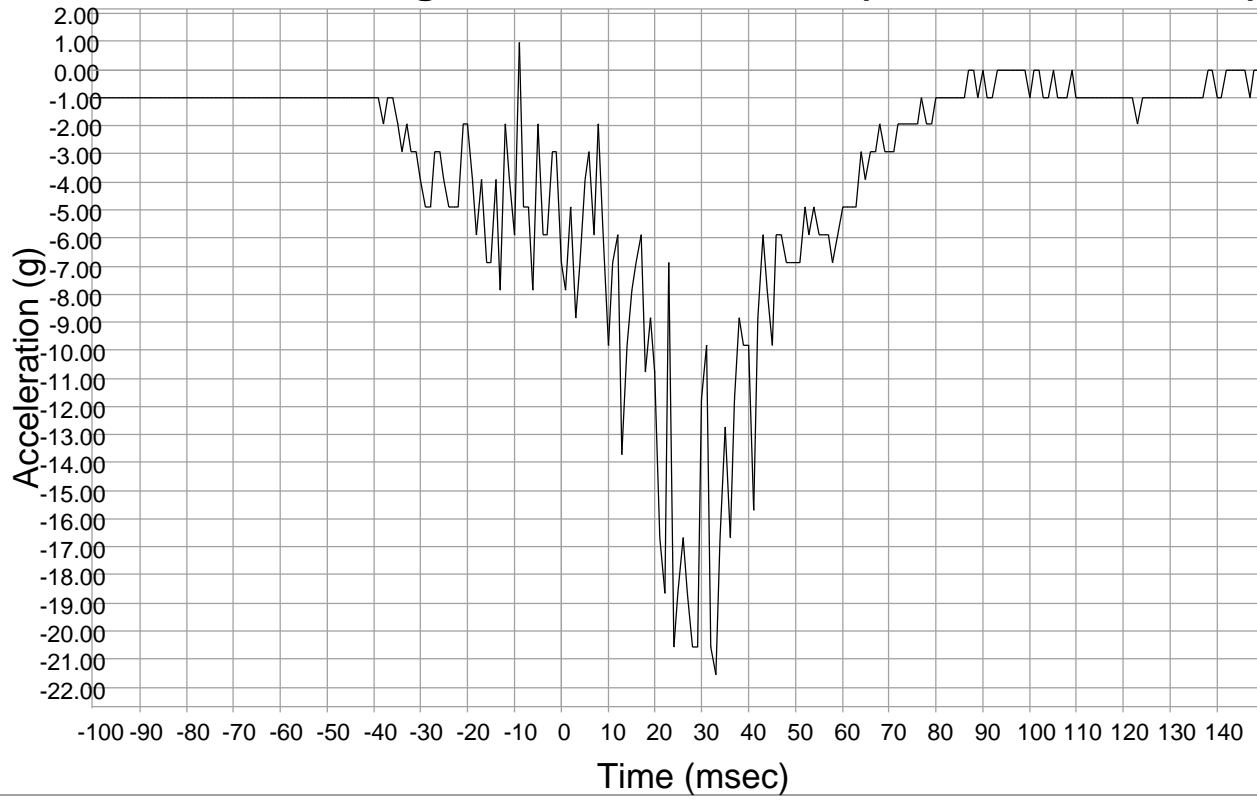
### System Status at Retrieval

Original VIN	1B3LC56R78N*****
Airbag Control Module Part Number	56054100AD
Airbag Control Module Serial Number	TEGMF131801223a
Airbag Control Module Supplier	TRW

### System Configuration at Retrieval

Configured for Driver Seatbelt Switch	No
Configured for Front Center Seatbelt Switch	No
Configured for Front Passenger Seatbelt Switch	No
Configured for 2nd Row Left Seatbelt Switch	No
Configured for 2nd Row Center Seatbelt Switch	No
Configured for 2nd Row Right Seatbelt Switch	No
Configured for 3rd Row Left Seatbelt Switch	No
Configured for 3rd Row Center Seatbelt Switch	No
Configured for 3rd Row Right Seatbelt Switch	No
Configured for Driver Knee Airbag	No
Configured for Left Curtain #1	Yes
Configured for Right Curtain #1	Yes
Configured for Left Curtain #2	No
Configured for Right Curtain #2	No
Configured for Front Driver Seatbelt Pretensioner	Yes
Configured for Front Center Seatbelt Pretensioner	No
Configured for Front Passenger Seatbelt Pretensioner	Yes
Configured for 2nd Row Left Seatbelt Pretensioner	No
Configured for 2nd Row Center Seatbelt Pretensioner	No
Configured for 2nd Row Right Seatbelt Pretensioner	No
Configured for 3rd Row Left Seatbelt Pretensioner	No
Configured for 3rd Row Center Seatbelt Pretensioner	No
Configured for 3rd Row Right Seatbelt Pretensioner	No
Configured for Left Side Sensor #1	Yes
Configured for Left Side Sensor #2	Yes
Configured for Left Side Sensor #3	No
Configured for Right Side Sensor #1	Yes
Configured for Right Side Sensor #2	Yes
Configured for Right Side Sensor #3	No
Configured for Left Up Front Sensor	Yes
Configured for Right Up Front Sensor	Yes
Configured for Front Driver Digressive Load Limiter	No
Configured for Front Passenger Digressive Load Limiter	No
Configured for Driver Seat Track Position Sensor	Yes
Configured for Front Passenger Seat Track Position Sensor	Yes
Configured for Passenger Airbag Disable Switch	No
Configured for Front Passenger Occupant Classification System	No

### Longitudinal Crash Pulse (Most Recent Event)



### Longitudinal Crash Pulse (Most Recent Event)

Time (msec)	Longitudinal Acceleration (g)
-100	-0.98
-99	-0.98
-98	-0.98
-97	-0.98
-96	-0.98
-95	-0.98
-94	-0.98
-93	-0.98
-92	-0.98
-91	-0.98
-90	-0.98
-89	-0.98
-88	-0.98
-87	-0.98
-86	-0.98
-85	-0.98
-84	-0.98
-83	-0.98
-82	-0.98
-81	-0.98
-80	-0.98
-79	-0.98
-78	-0.98
-77	-0.98
-76	-0.98
-75	-0.98
-74	-0.98
-73	-0.98
-72	-0.98
-71	-0.98
-70	-0.98
-69	-0.98
-68	-0.98
-67	-0.98
-66	-0.98
-65	-0.98
-64	-0.98
-63	-0.98
-62	-0.98
-61	-0.98
-60	-0.98
-59	-0.98
-58	-0.98
-57	-0.98
-56	-0.98
-55	-0.98
-54	-0.98
-53	-0.98
-52	-0.98
-51	-0.98

Time (msec)	Longitudinal Acceleration (g)
-50	-0.98
-49	-0.98
-48	-0.98
-47	-0.98
-46	-0.98
-45	-0.98
-44	-0.98
-43	-0.98
-42	-0.98
-41	-0.98
-40	-0.98
-39	-0.98
-38	-1.96
-37	-0.98
-36	-0.98
-35	-1.96
-34	-2.94
-33	-1.96
-32	-2.94
-31	-2.94
-30	-3.92
-29	-4.90
-28	-4.90
-27	-2.94
-26	-2.94
-25	-3.92
-24	-4.90
-23	-4.90
-22	-4.90
-21	-1.96
-20	-1.96
-19	-3.92
-18	-5.88
-17	-3.92
-16	-6.86
-15	-6.86
-14	-3.92
-13	-7.84
-12	-1.96
-11	-3.92
-10	-5.88
-9	0.98
-8	-4.90
-7	-4.90
-6	-7.84
-5	-1.96
-4	-5.88
-3	-5.88
-2	-2.94
-1	-2.94

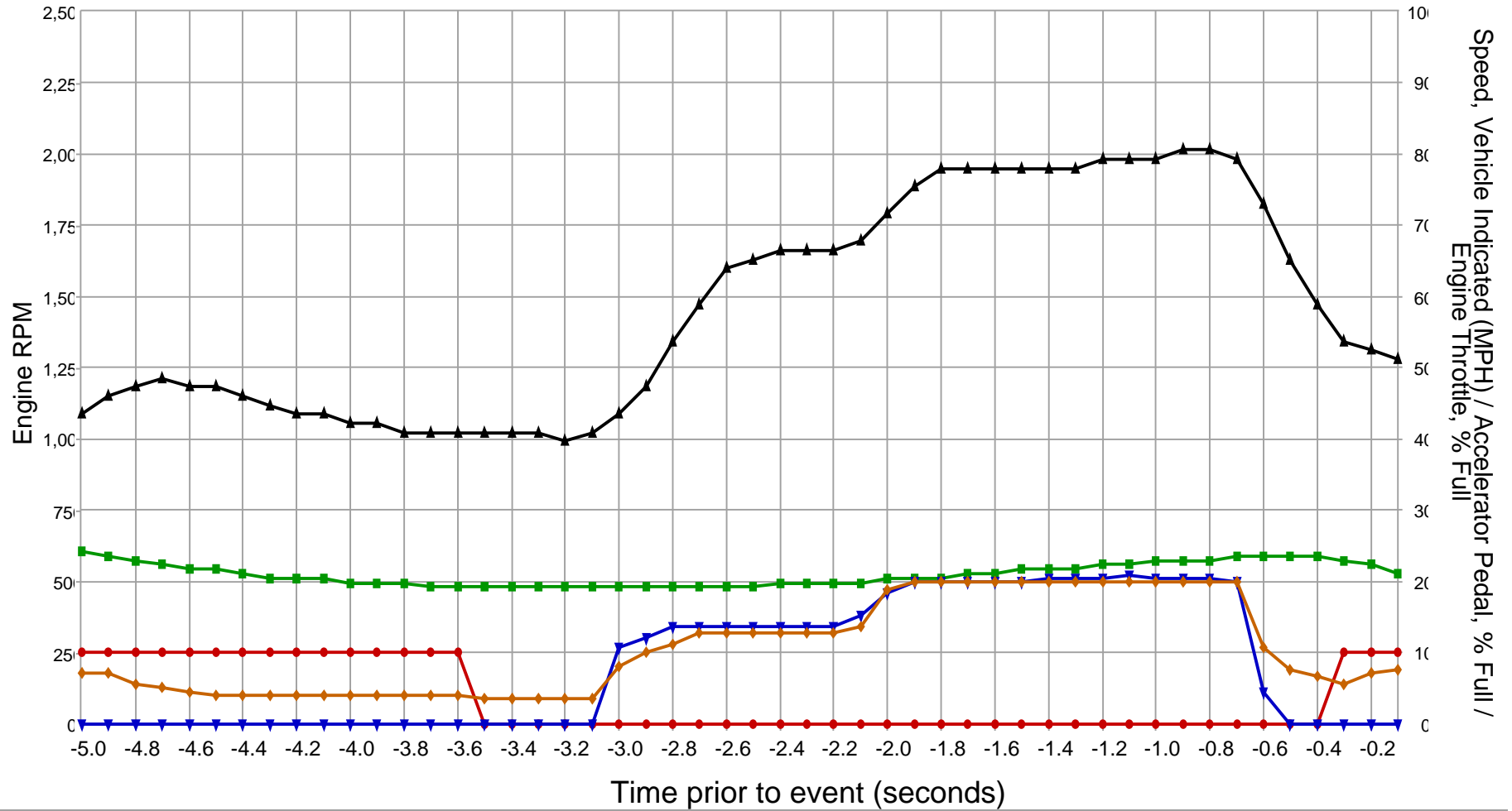
Time (msec)	Longitudinal Acceleration (g)
0	-6.86
1	-7.84
2	-4.90
3	-8.82
4	-6.86
5	-3.92
6	-2.94
7	-5.88
8	-1.96
9	-5.88
10	-9.80
11	-6.86
12	-5.88
13	-13.73
14	-9.80
15	-7.84
16	-6.86
17	-5.88
18	-10.78
19	-8.82
20	-10.78
21	-16.67
22	-18.63
23	-6.86
24	-20.59
25	-18.63
26	-16.67
27	-18.63
28	-20.59
29	-20.59
30	-11.76
31	-9.80
32	-20.59
33	-21.57
34	-16.67
35	-12.75
36	-16.67
37	-11.76
38	-8.82
39	-9.80
40	-9.80
41	-15.69
42	-8.82
43	-5.88
44	-7.84
45	-9.80
46	-5.88
47	-5.88
48	-6.86
49	-6.86



### Longitudinal Crash Pulse (Most Recent Event)

Time (msec)	Longitudinal Acceleration (g)	Time (msec)	Longitudinal Acceleration (g)
50	-6.86	100	-0.98
51	-6.86	101	0.00
52	-4.90	102	0.00
53	-5.88	103	-0.98
54	-4.90	104	-0.98
55	-5.88	105	0.00
56	-5.88	106	-0.98
57	-5.88	107	-0.98
58	-6.86	108	-0.98
59	-5.88	109	0.00
60	-4.90	110	-0.98
61	-4.90	111	-0.98
62	-4.90	112	-0.98
63	-4.90	113	-0.98
64	-2.94	114	-0.98
65	-3.92	115	-0.98
66	-2.94	116	-0.98
67	-2.94	117	-0.98
68	-1.96	118	-0.98
69	-2.94	119	-0.98
70	-2.94	120	-0.98
71	-2.94	121	-0.98
72	-1.96	122	-0.98
73	-1.96	123	-1.96
74	-1.96	124	-0.98
75	-1.96	125	-0.98
76	-1.96	126	-0.98
77	-0.98	127	-0.98
78	-1.96	128	-0.98
79	-1.96	129	-0.98
80	-0.98	130	-0.98
81	-0.98	131	-0.98
82	-0.98	132	-0.98
83	-0.98	133	-0.98
84	-0.98	134	-0.98
85	-0.98	135	-0.98
86	-0.98	136	-0.98
87	0.00	137	-0.98
88	0.00	138	0.00
89	-0.98	139	0.00
90	0.00	140	-0.98
91	-0.98	141	-0.98
92	-0.98	142	0.00
93	0.00	143	0.00
94	0.00	144	0.00
95	0.00	145	0.00
96	0.00	146	0.00
97	0.00	147	-0.98
98	0.00	148	0.00
99	0.00	149	0.00

### Pre-Crash Data (Most Recent Event)



- ▲ Engine RPM
- Speed, Vehicle Indicated (MPH)
- Service Brake (0=Off/10=On)
- ▼ Accelerator Pedal, % Full
- ◆ Engine Throttle, % Full

SNA values will not be plotted on the graph

### Pre-Crash Data (Most Recent Event - table 1 of 3)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	Vehicle Event Recorder Status	Engine RPM	Speed, Vehicle Indicated (MPH [km/h])	Engine Throttle, % Full	Accelerator Pedal, % Full	Raw Manifold Pressure (kPa)	Service Brake	Brake Switch #2 Status
-5.0	Complete	1,088	24 [39]	7.1	0.0	38	On	Closed
-4.9	Complete	1,152	24 [38]	7.1	0.0	40	On	Closed
-4.8	Complete	1,184	23 [37]	5.6	0.0	41	On	Closed
-4.7	Complete	1,216	22 [36]	5.1	0.0	38	On	Closed
-4.6	Complete	1,184	22 [35]	4.6	0.0	36	On	Closed
-4.5	Complete	1,184	22 [35]	4.1	0.0	34	On	Closed
-4.4	Complete	1,152	21 [34]	4.1	0.0	32	On	Closed
-4.3	Complete	1,120	21 [33]	4.1	0.0	31	On	Closed
-4.2	Complete	1,088	21 [33]	4.1	0.0	30	On	Closed
-4.1	Complete	1,088	21 [33]	4.1	0.0	30	On	Closed
-4.0	Complete	1,056	20 [32]	4.1	0.0	30	On	Closed
-3.9	Complete	1,056	20 [32]	4.1	0.0	30	On	Closed
-3.8	Complete	1,024	20 [32]	4.1	0.0	29	On	Closed
-3.7	Complete	1,024	19 [31]	4.1	0.0	29	On	Closed
-3.6	Complete	1,024	19 [31]	4.1	0.0	29	On	Closed
-3.5	Complete	1,024	19 [31]	3.6	0.0	29	Off	Open
-3.4	Complete	1,024	19 [31]	3.6	0.0	29	Off	Open
-3.3	Complete	1,024	19 [31]	3.6	0.0	29	Off	Open
-3.2	Complete	992	19 [31]	3.6	0.0	29	Off	Open
-3.1	Complete	1,024	19 [31]	3.6	0.0	28	Off	Open
-3.0	Complete	1,088	19 [31]	8.2	10.7	30	Off	Open
-2.9	Complete	1,184	19 [31]	10.2	12.2	36	Off	Open
-2.8	Complete	1,344	19 [31]	11.2	13.8	46	Off	Open
-2.7	Complete	1,472	19 [31]	12.8	13.8	54	Off	Open
-2.6	Complete	1,600	19 [31]	12.8	13.8	61	Off	Open
-2.5	Complete	1,632	19 [31]	12.8	13.8	63	Off	Open
-2.4	Complete	1,664	20 [32]	12.8	13.8	64	Off	Open
-2.3	Complete	1,664	20 [32]	12.8	13.8	65	Off	Open
-2.2	Complete	1,664	20 [32]	12.8	13.8	65	Off	Open
-2.1	Complete	1,696	20 [32]	13.8	15.3	66	Off	Open
-2.0	Complete	1,792	21 [33]	18.9	18.4	71	Off	Open
-1.9	Complete	1,888	21 [33]	19.9	19.9	82	Off	Open
-1.8	Complete	1,952	21 [33]	19.9	19.9	83	Off	Open
-1.7	Complete	1,952	21 [34]	19.9	19.9	82	Off	Open
-1.6	Complete	1,952	21 [34]	19.9	19.9	82	Off	Open
-1.5	Complete	1,952	22 [35]	19.9	19.9	81	Off	Open
-1.4	Complete	1,952	22 [35]	19.9	20.4	81	Off	Open
-1.3	Complete	1,952	22 [35]	19.9	20.4	82	Off	Open
-1.2	Complete	1,984	22 [36]	19.9	20.4	81	Off	Open
-1.1	Complete	1,984	22 [36]	19.9	20.9	81	Off	Open
-1.0	Complete	1,984	23 [37]	19.9	20.4	82	Off	Open
-0.9	Complete	2,016	23 [37]	19.9	20.4	81	Off	Open
-0.8	Complete	2,016	23 [37]	19.9	20.4	81	Off	Open
-0.7	Complete	1,984	24 [38]	19.9	19.9	81	Off	Open
-0.6	Complete	1,824	24 [38]	10.7	4.6	78	Off	Open
-0.5	Complete	1,632	24 [38]	7.7	0.0	58	Off	Open
-0.4	Complete	1,472	24 [38]	6.6	0.0	46	Off	Open
-0.3	Complete	1,344	23 [37]	5.6	0.0	41	On	Closed
-0.2	Complete	1,312	22 [36]	7.1	0.0	38	On	Closed
-0.1	Complete	1,280	21 [34]	7.7	0.0	39	On	Closed

### Pre-Crash Data (Most Recent Event - table 2 of 3)

(the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	ABS MIL (if equip.)	ESP MIL (if equip.)	ESP Lamp (if equip.)	ESP Lamp Flashing Requested (if equip.)	ESP Functional (if equip.)
-5.0	Off	Off	Off	No	No
-4.9	Off	Off	Off	No	No
-4.8	Off	Off	Off	No	No
-4.7	Off	Off	Off	No	No
-4.6	Off	Off	Off	No	No
-4.5	Off	Off	Off	No	No
-4.4	Off	Off	Off	No	No
-4.3	Off	Off	Off	No	No
-4.2	Off	Off	Off	No	No
-4.1	Off	Off	Off	No	No
-4.0	Off	Off	Off	No	No
-3.9	Off	Off	Off	No	No
-3.8	Off	Off	Off	No	No
-3.7	Off	Off	Off	No	No
-3.6	Off	Off	Off	No	No
-3.5	Off	Off	Off	No	No
-3.4	Off	Off	Off	No	No
-3.3	Off	Off	Off	No	No
-3.2	Off	Off	Off	No	No
-3.1	Off	Off	Off	No	No
-3.0	Off	Off	Off	No	No
-2.9	Off	Off	Off	No	No
-2.8	Off	Off	Off	No	No
-2.7	Off	Off	Off	No	No
-2.6	Off	Off	Off	No	No
-2.5	Off	Off	Off	No	No
-2.4	Off	Off	Off	No	No
-2.3	Off	Off	Off	No	No
-2.2	Off	Off	Off	No	No
-2.1	Off	Off	Off	No	No
-2.0	Off	Off	Off	No	No
-1.9	Off	Off	Off	No	No
-1.8	Off	Off	Off	No	No
-1.7	Off	Off	Off	No	No
-1.6	Off	Off	Off	No	No
-1.5	Off	Off	Off	No	No
-1.4	Off	Off	Off	No	No
-1.3	Off	Off	Off	No	No
-1.2	Off	Off	Off	No	No
-1.1	Off	Off	Off	No	No
-1.0	Off	Off	Off	No	No
-0.9	Off	Off	Off	No	No
-0.8	Off	Off	Off	No	No
-0.7	Off	Off	Off	No	No
-0.6	Off	Off	Off	No	No
-0.5	Off	Off	Off	No	No
-0.4	Off	Off	Off	No	No
-0.3	Off	Off	Off	No	No
-0.2	Off	Off	Off	No	No
-0.1	Off	Off	Off	No	No

**Pre-Crash Data (Most Recent Event - table 3 of 3)**  
 (the most recent sampled values are recorded prior to the event)

Time Stamp (sec)	ETC Lamp (if equip.)	ETC Lamp Flashing (if equip.)	Engine Torque Applied	Cruise Control System	Cruise Control Active
-5.0	Off	No	Yes	Off	No
-4.9	Off	No	Yes	Off	No
-4.8	Off	No	Yes	Off	No
-4.7	Off	No	Yes	Off	No
-4.6	Off	No	Yes	Off	No
-4.5	Off	No	Yes	Off	No
-4.4	Off	No	Yes	Off	No
-4.3	Off	No	Yes	Off	No
-4.2	Off	No	Yes	Off	No
-4.1	Off	No	Yes	Off	No
-4.0	Off	No	Yes	Off	No
-3.9	Off	No	Yes	Off	No
-3.8	Off	No	Yes	Off	No
-3.7	Off	No	Yes	Off	No
-3.6	Off	No	Yes	Off	No
-3.5	Off	No	Yes	Off	No
-3.4	Off	No	Yes	Off	No
-3.3	Off	No	Yes	Off	No
-3.2	Off	No	Yes	Off	No
-3.1	Off	No	Yes	Off	No
-3.0	Off	No	Yes	Off	No
-2.9	Off	No	Yes	Off	No
-2.8	Off	No	Yes	Off	No
-2.7	Off	No	Yes	Off	No
-2.6	Off	No	Yes	Off	No
-2.5	Off	No	Yes	Off	No
-2.4	Off	No	Yes	Off	No
-2.3	Off	No	Yes	Off	No
-2.2	Off	No	Yes	Off	No
-2.1	Off	No	Yes	Off	No
-2.0	Off	No	Yes	Off	No
-1.9	Off	No	Yes	Off	No
-1.8	Off	No	Yes	Off	No
-1.7	Off	No	Yes	Off	No
-1.6	Off	No	Yes	Off	No
-1.5	Off	No	Yes	Off	No
-1.4	Off	No	Yes	Off	No
-1.3	Off	No	Yes	Off	No
-1.2	Off	No	Yes	Off	No
-1.1	Off	No	Yes	Off	No
-1.0	Off	No	Yes	Off	No
-0.9	Off	No	Yes	Off	No
-0.8	Off	No	Yes	Off	No
-0.7	Off	No	Yes	Off	No
-0.6	Off	No	Yes	Off	No
-0.5	Off	No	Yes	Off	No
-0.4	Off	No	Yes	Off	No
-0.3	Off	No	Yes	Off	No
-0.2	Off	No	Yes	Off	No
-0.1	Off	No	Yes	Off	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.

5A 87 02 27 01 54 FF 41 48 39 30 30 35 36 30 35 34 31 30 30 41 44

5A 88 31 42 33 4C 43 35 36 52 37 38 4E 2A 2A 2A 2A 2A 2A

5A 90 31 42 33 4C 43 35 36 52 37 38 4E 2A 2A 2A 2A 2A 2A

61 E1 54 45 47 4D 46 31 33 31 38 30 31 32 32 33

61 EA 00 98 02 DB 4C 0F

73 E2 0A 0A BA 9B 0E 0B E4 9B 0C 0B E4 D4 15 0B E4 9B 02 0B E4 9B 0A 0B E4 9B 06 0B E4 9B 2A  
0B E4 9B 2E 0B E4

61 02 00 00 00 00 00 00 00 00 00 00 00 00 00

71 02 01 00 CC 01 28 22 00 04 29 D7 2D 17 31 0F 00 8C 00

71 02 01 01 CC 01 29 24 00 04 29 D8 2D 17 2F 0E 00 8C 00

71 02 01 02 CC 01 2A 25 01 04 26 DA 2D 17 33 0B 00 8C 00

71 02 01 03 CC 01 2E 26 00 04 27 D9 2D 17 3A 0D 00 80 00

71 02 01 04 CC 01 33 26 01 04 2A D7 2D 17 48 0F 00 80 00

71 02 01 05 CC 01 39 26 00 04 2F D1 39 1C 61 15 09 80 00

71 02 01 06 CC 01 3E 26 00 04 43 BF 5E 2F 65 27 27 80 00

71 02 01 07 CC 01 3F 25 01 04 42 BF 60 30 65 27 28 80 00

71 02 01 08 CC 01 3F 25 00 04 42 BF 60 30 65 27 28 80 00

71 02 01 09 CC 01 3E 25 00 05 42 BF 60 30 66 27 28 80 00

71 02 01 0A CC 01 3E 24 00 04 42 BF 61 30 65 27 29 80 00

71 02 01 0B CC 01 3E 24 00 04 42 C0 60 30 65 27 28 80 00

71 02 01 0C CC 01 3D 23 01 04 42 C0 60 30 66 27 28 80 00

71 02 01 0D CC 01 3D 23 00 04 42 C0 60 30 65 27 28 80 00

71 02 01 0E CC 01 3D 23 00 04 42 C0 5F 30 65 27 27 80 00

71 02 01 0F CC 01 3D 22 00 04 42 C0 5F 30 66 27 27 80 00

71 02 01 10 CC 01 3D 22 00 04 42 BF 5F 00 67 27 27 80 00

71 02 01 11 CC 01 3D 21 00 04 42 BF 5F 30 68 27 27 80 00

71 02 01 12 CC 01 3B 21 01 04 43 BF 5F 30 66 27 27 80 00

71 02 01 13 CC 01 38 21 00 05 40 C2 5D 2F 59 25 24 80 00

71 02 01 14 CC 01 35 20 00 04 35 CB 56 2B 52 1B 1E 80 00

71 02 01 15 CC 01 34 20 00 04 34 CD 53 2A 51 19 1B 80 00

71 02 01 16 CC 01 34 20 00 04 34 CD 53 2A 51 19 1B 80 00  
71 02 01 17 CC 01 34 20 01 04 34 CD 53 2A 50 19 1B 80 00  
71 02 01 18 CC 01 33 1F 00 04 34 CD 53 2A 4F 19 1B 80 00  
71 02 01 19 CC 01 32 1F 00 04 34 CD 53 2A 4C 19 1B 80 00  
71 02 01 1A CC 01 2E 1F 00 04 34 CD 53 2A 44 19 1B 80 00  
71 02 01 1B CC 01 2A 1F 00 04 31 D0 54 2A 39 16 1B 80 00  
71 02 01 1C CC 01 25 1F 01 04 2E D2 50 28 2D 14 18 80 00  
71 02 01 1D CC 01 22 1F 00 05 2A D6 4E 27 25 10 15 80 00  
71 02 01 1E CC 01 20 1F 00 04 22 DF 39 1D 23 07 00 80 00  
71 02 01 1F CC 01 1F 1F 00 04 22 DE 30 18 24 07 00 80 00  
71 02 01 20 CC 01 20 1F 00 04 22 DF 2D 17 24 07 00 80 00  
71 02 01 21 CC 01 20 1F 01 04 22 DF 2D 00 24 07 00 80 00  
71 02 01 22 CC 01 20 1F 00 04 22 DE 2D 17 24 07 00 80 00  
71 02 01 23 CC 01 20 1F 01 04 22 DE 2D 17 24 08 00 8C 00  
71 02 01 24 CC 01 20 1F 00 04 22 DE 2D 17 24 08 00 8C 00  
71 02 01 25 CC 01 20 20 00 04 22 DE 2D 17 24 08 00 8C 00  
71 02 01 26 CC 01 21 20 01 04 22 DE 2D 17 25 08 00 8C 00  
71 02 01 27 CC 01 21 20 00 05 22 DE 2D 17 25 08 00 8C 00  
71 02 01 28 CC 01 22 21 00 04 22 DE 2D 17 26 08 00 8C 00  
71 02 01 29 CC 01 22 21 00 04 23 DE 2D 17 26 08 00 8C 00  
71 02 01 2A CC 01 23 21 00 04 23 DE 2D 17 27 08 00 8C 00  
71 02 01 2B CC 01 24 22 01 04 23 DE 2D 17 28 08 00 8C 00  
71 02 01 2C CC 01 25 23 00 04 23 DE 2E 17 2A 08 00 8C 00  
71 02 01 2D CC 01 25 23 00 04 23 DD 2D 17 2D 09 00 8C 00  
71 02 01 2E CC 01 26 24 00 04 24 DC 2E 17 30 0A 00 8C 00  
71 02 01 2F CC 01 25 25 00 04 25 DB 2D 17 33 0B 00 8C 00  
71 02 01 30 CC 01 24 26 01 04 29 D8 2D 17 32 0E 00 8C 00  
71 02 01 31 CC 01 22 27 00 05 28 D8 2E 17 2F 0E 00 8C 00  
7F 31 31 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
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