# Massachusetts State Police <br> Collision Reconstruction Report 



| CASE \# | 2011-CAR-000556 |
| :---: | :---: |
| Related Case\# | 2011-0C6-005536 |


| Requesting Agency: |  | MSP Holden |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Date Rec'd: | 28 Dec 2011 | Time Rec'd: | 0800 | Class: | Traffic, Crash - MV PI |
| Primary Investigating Officer: | Sergeant Stephen Kelly | Agency | MSP Holden |  |  |
| Reconstructionist Assigned: | Lieutenant Andrew S Klane, \#1301 | Team | Central |  |  |
| Collision <br> Occurred: | City/Town | County | Day | Date | Time |
|  | STERLING | WORCESTER | Wednesday | 02 Nov 2011 | $\mathbf{0 5 : 2 6}$ |

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Massachusetts State Police<br>Collision Analysis and Reconstruction Section<br>485 Maple Street<br>Danvers, MA 01923<br>cars.reports@state.ma.us

Commonwealth of Massachusetts Collision Analysis and Reconstruction Section

2011-CAR-000556 Collision Reconstruction Report


| Owner: Veh \# 1 |  |
| :--- | :--- |
| Commonwealth of Massachusetts |  |
| Office of Admin and Finance | Seat Position: |
| Boston | MA 02133 |
| DOB: | Safety System: |
| Sex: | Airbag Status: |
| Lic Num: | Airbag Switch: |
| Lic State: | Eject Code: |
| Restrictions: | Trap Code: |
| CDL END: | Injury Status: |
|  | Transported: |
| Medical Examiner: | MedicalFac. |
| Body Removed To: | ME Notified and Came To: |
| Citation/Charge(s) | Next of Kin Notified By: |

Driver: Veh \# 1

| Murray, Timothy |  |  |
| :--- | :--- | :--- |
| 470 Worcester Rd |  |  |
| Framingham | MA 01702 |  |
| DOB: | $06 / 07 / 1968$ |  |
| Sex: | Male |  |
| Lic Num: | S25720482 |  |
| Lic State: | MA |  |
| Restrictions: |  |  |
| CDL END: |  |  |
|  |  |  |
| Medical Examiner: |  |  |
| Body Removed To: |  |  |
| Citation/Charge(s) |  |  |


| Seat Position: $1-$ Front seat - left seat (or |  |
| :--- | :--- |
| Safety System: $0-$ None used |  |
| Airbag Status: $1-$ Deployed - Front |  |
| Airbag Switch: $99-$ Unknown |  |
| Eject Code: | $0-$ Not ejected |
| Trap Code: | $0-$ Not trapped |
| Injury Status: $4-$ Possible (non-fatal) |  |
| Transported: $1-$ Not transported |  |
| MedicalFac. |  |
| ME Notified and Came To: |  |
|  | Next of Kin Notified By: |

## Commonwealth of Massachusetts

 Collision Analysis and Reconstruction Section
## Narrative

By Lieutenant Andrew S Klane 1301

It should be noted that the following synopsis is a brief outline or general view of the facts surrounding this incident.

1. On 11/2/2011 at approximately 0526 hrs, vehicle \#1 was traveling south on Rte 190 in the town of Sterling at approximately the 11.6 mile marker. The operator of vehicle \#1 failed to maintain control of the vehicle. Vehicle \#1 traveled off of the west shoulder of the roadway, traveling approximately 140 feet in the grass median at a shallow angle prior to striking a rock ledge, which was located parallel to the travel way. Vehicle \#1 rotated clockwise and rolled over before coming to rest on its wheels facing southeast approximately 232 feet south of the impact with the rock ledge.
2. The operator of Vehicle \#1 received superficial injuries in this collision. He was evaluated at the scene by Sterling EMS at which time he signed a refusal for medical treatment form.

# Massachusetts State Police Collision Analysis \& Reconstruction Section 

## INVESTIGATION

1. At the Request of Lieutenant Colonel Timothy P. Alben, this Officer arrived at the State Police General Headquarters on 12/28/2011 at approximately 0800 hrs to image and analyzes the data contained in the Powertrain Control Module (PCM) and the Airbag Control Module (ACM) of vehicle \#1, 2007 Ford Crown Victoria VIN \# 2FAHP71W47X129872.
2. Vehicle \#1 was located at the State Police Fleet Section Garage. With the assistance of Tpr Edward O'Hara \#2428, C.A.R.S, the PCM and ACM from vehicle \#1 were successfully imaged. This Officer also performed a vehicle inspection.
3. In preparation for analyzing the Imaged data, this Officer reviewed the crash report prepared by Sgt Stephen Kelly \#2197 (2011-0C6-005536) as well as the collision scene photographs taken by Tpr Colleen Tanguay of the Crime Scene Services Section.

## ROADWAY

4. Rte 190 southbound in Sterling consists of 2 southbound travel lanes each measured to be approximately 12 feet in width. A breakdown lane measuring approximately 11 feet in width is present. A snow shelf measuring approximately 20 feet in width is located to the west of the breakdown lane. A grass shoulder measuring approximately 21 feet in width is located to the west of the breakdown lane. A rock ledge is located parallel and adjacent to the grass shoulder. On the east side of the roadway there is a 23 foot wide snow shelf located to the east of the left travel lane. A grass shoulder and median is also present. Rte 190 in the area of this collision is generally free of any curvature of the roadway. There is a slight left bearing curve north of the area of this collision.
5. According to the report generated by Sgt Stephen Kelly, the weather condition was clear, the lighting condition was nighttime with no artificial lighting and the road surface was icy in the area of this collision.


## VEHICLE INSPECTION

6. Vehicle \#1 was inspected by this Officer on $12 / 28 / 2011$ at the MA State Police Fleet Section garage in Framingham. To summarize this inspection, vehicle \#1 sustained contact damage to the bumper (right front), right front quarter, right front lower control arm and spindle assembly, passenger side front and rear doors, and the right rear quarter from initial contact with the rock ledge.
7. There was secondary contact damage to the left rear quarter and left rear door from contact with the ledge during rotation. Vehicle \#1 sustained damage due to rolling over to the roof, hood, right rear quarter, " $B$ " and " $C$ " pillars on the passenger side, trunk, rear bumper, left rear quarter and the " $C$ " pillar on the driver's side. Vehicle \#1 sustained induced damage to the driver's door and the left front quarter. The left front, right front and right rear rims were bent from contact with the rock ledge and rollover.
8. Inspection of the headlamp bulbs depict hot shock indicating the headlights were incandescent at the time of impact. Inspection of the tail lamps indicates that the right rear taillight marker lamp was incandescent. The right rear brake lamp filament did not show any signs of hot shock. The examination of the left rear tail lamp was inconclusive.
9. Inspection of the vehicle tires indicates that the vehicle was fitted with Goodyear Eagle Ultra P23555R17 on the left front, right front and right rear. The left rear was fitted with a Goodyear Eagle RSA P23555R17. These tires are the appropriate OEM size for the vehicle. The left front tire had 8/32 of tread and was flat at inspection. The left rear tire had $11 / 32$ of tread and was inflated to 24 PSI at inspection. The right front tire had $7 / 32$ of tread and was flat at inspection. The right rear tire had 9/32 of tread and was flat at inspection. The spare tire (Goodyear Ultra P23555R17) had 11/32 of tread and was inflated to 43 PSI at inspection.

## VEHICLE \#1 EDR DATA

10. Vehicle \#1 is equipped with a Supplemental Restraint System (SRS), which includes an Airbag Control Module (ACM) which includes an Event Data Recorder (EDR). Vehicle \#1 is also equipped with a Powertrain Control Module (PCM), which also includes an Event Data Recorder (EDR).
11. On 12/28/2011 at approximately 0913 HRS, I conducted an EDR investigation on Vehicle \#1's PCM and ACM at the GHQ, Framingham garage, where Vehicle \#1 had been impounded since shortly after this collision. There was no power to the vehicle, the battery was broken away and the electrical wiring was damaged. The PCM and ACM, including their wiring harnesses and plugs were undamaged and intact. The PCM and ACM were directly accessed utilizing the Ford PCM Adapter while the modules were mounted in the vehicle. (See attached Crash Data Retrieval [CDR] reports.)

## VEHICLE \#1 ACM EDR DATA

12. Vehicle \#1's ACM EDR does not record pre-impact data, such as speed and braking etc. The ACM EDR data was successfully downloaded with no fault or invalidity codes. The CDR report file information indicates that there was a frontal deployment event recorded and a side deployment event recorded. (See attached ACM CDR Report.)

## System Status at Retrieval Data

13. The system status at retrieval data indicates that there was one deployment event recorded. The longitudinal velocity change is reported to be -22.67 MPH . The algorithm run time was reported to be 712.8 milliseconds. There were no restraint system faults present at the time of the recorded deployments.

## System Status at Frontal Deployment Data

14. At deployment the ignition key had been on for 2,540 seconds ( 42.33 minutes). The operator's seatbelt switch was reported as unbuckled. The passenger's seatbelt status was listed as unbuckled. The passenger's occupant classification status was reported as empty. The operator's seat was in the rearward position. The deployment was a two stage deployment event. The driver's first stage deployment time was reported to be 19.2 milliseconds. The drivers second stage deployment time was 29.6 milliseconds. Both the operator's and right front seat passenger seatbelt pre-tensioner deployment times were reported as "N/A" (not deployed). The deployment record was complete and the data was locked.

## System Status at Side Trigger Event

15. At the side trigger event the ignition key had been on for 2,540 seconds ( 42.33 minutes). The operator's seatbelt switch was reported as unbuckled. The passenger's seatbelt status was listed as unbuckled. The passenger's occupant classification status was reported as empty. The operator's seat was in the rearward position.
16. Both the driver and passenger side airbag deployment times were listed as "N/A". Both the driver and passenger pre-tensioner deployment time are listed as " $N / A$ ".

## Longitudinal Crash Pulse Graph and Table

17. The maximum recorded longitudinal cumulative change in velocity (Delta-V) in the crash pulse data table and graph is reported to be -15.23 MPH at 68.8 milliseconds after algorithm enable (AE). The maximum recorded time for longitudinal crash pulse data in the graph and table is 70.4 milliseconds.

## ANALYSIS OF VEHICLE \#1 RCM EDR DATA

18. Vehicle \#1's SRS system was functioning as designed at the time of this collision. The vehicle had been on for 42.33 minutes. The operator's and the right front seat passenger's seatbelt pre-tensioners did not fire. The operator's seatbelt was unbuckled. The right front passenger's seat was unoccupied. The operator's frontal airbag was commanded to deploy. The right front passenger frontal airbag was not commanded to deploy as designed. A side airbag deployment was commanded, but no side airbags deployed.
19. Vehicle \#1's ACM EDR reported the maximum change in longitudinal velocity to be 22.67 MPH . This reported change in velocity is a moderate change in velocity for Vehicle \#1 and its occupant. This reported change in longitudinal velocity is most probably under reported due to rotation of Vehicle \#1 during the collision as well as the way that the longitudinal velocity is determined over time by the ACM.

## VEHICLE \#1 PCM EDR DATA

## PCM EDR Access

20. The PCM EDR data was successfully downloaded with no fault or invalidity codes. The data indicates that there was a Restraint Deployment Signal (RDS) received by the PCM from the Supplemental Restraint System (SRS). Analysis of the recovered data and the circumstances of this collision indicate that the recorded data is related to this collision. This PCM records a maximum of 25.2 seconds of data, 20.2 seconds prior to RDS and 5 seconds after RDS.

## PCM EDR Data

21. The EDR data indicates that the RDS occurred at buffer address \#EA0000B0, relative time 0.2 in the PCM EDR report. The key on timer indicates that at RDS, Vehicle \#1's ignition was on for a minimum time of approximately 63.75 seconds ( 1.06 minutes). The key on timer was reported as 63.75 seconds throughout the entire recording, which indicates that the reported data is complete and had not been overwritten.
22. A review and analysis of the EDR data indicates that the airbag deployment occurred approximately at buffer address \#EA000780, relative time -3.4 seconds prior to the RDS in the PCM EDR report. Vehicle \#1's speed at deployment was reported to be 92 MPH. Vehicle \#1s brake switch was reported to be on at deployment, but was off . 2 seconds prior to deployment and was off . 2 seconds after deployment.
23. At 16.8 seconds prior to deployment ( 20.2 seconds prior to RDS), Vehicle \#1's speed was reported as 75 MPH , the accelerator pedal was at 27 percent, the engine throttle was at 19.5 percent, the brake switch was off, the ABS was not active and the transmission was reported as Not Neutral.
24. At 2.0 seconds prior to deployment Vehicle \#1's speed is reported as 93 MPH , the accelerator pedal is 81 percent, the throttle is at 98.5 percent. The brake switch is off. The transmission is "Not Neutral". The ABS has changed to Active, from Not Active at 2.2 seconds prior to deployment.
25. At . 4 seconds prior to deployment, Vehicle \#1's speed is reported to be 108 MPH , the maximum speed reported in the report. The accelerator pedal is reported at 100 percent. The throttle is reported at 98.5 percent. The brake switch and transmission parameters remain unchanged. The ABS remained active.
26. At . 2 seconds prior to deployment Vehicle \#1's speed is reported as 99 MPH , down from the 108 MPH reported at .4 seconds prior to deployment. The accelerator pedal is 100 percent; the throttle is at 98.5 percent. The brake switch is off. The transmission is "Not Neutral". The ABS remained active.
27. At deployment, Vehicle \#1's speed decreased to 92 MPH , the accelerator pedal remained at 100 percent. The throttle was 98.5 percent. The brake switch changed from off at .2 seconds prior to deployment to on at deployment. The transmission parameters remain unchanged. The ABS remained active. The engine speed was 3,677 RPM.
28. At . 2 seconds after deployment, Vehicle \#1's speed decreased to 56 MPH from 92 MPH at deployment. The accelerator pedal decreased to 2 percent from 100 percent at deployment. The throttle decreased to 47.5 percent from 98.5 percent at deployment. The brake switch changed from on at deployment to off .2 seconds after deployment. The transmission changed to Neutral from Not Neutral at deployment. The ABS remained active.
29. After deployment Vehicle \#1's reported speeds drop down to 0 MPH at RDS. The accelerator pedal drops down to 0 percent at RDS and the throttle drops to 4.5 percent at RDS. The brake switch remains off to RDS.

## VEHICLE \#1 PCM EDR DATA ANALYSIS

30. Examining Vehicle \#1's PCM data indicates that the impact between Vehicle \#1 and the rock ledge wall occurred at approximately address \#EA000780, approximately at 3.4 seconds prior to the RDS.
31. The data indicates that the speed of Vehicle \#1 at impact with the ledge was approximately 92 MPH . At the time of impact between Vehicle \#1 and the rock ledge, Vehicle \#1's accelerator pedal was at 100 percent, its brake switch was on and its ABS system was active.
32. The data indicates no significant braking prior to impact with the rock ledge. The ABS system was active at impact with the rock ledge and for approximately 2 seconds prior to impact.
33. The maximum speed recorded by Vehicle \#1's PCM prior to this collision was 108 MPH at 3.8 seconds before RDS and .40 seconds prior to impact with the rock ledge.
34. The data shows that at 16.8 seconds prior to deployment ( 20.2 seconds prior to RDS), Vehicle \#1's speed was 75 MPH.
35. After the impact, the reported EDR speed data drops dramatically, eventually to 0 MPH before the airbag RDS is commanded. The decrease in the reported speeds for Vehicle \#1 between the initial impact with the rock ledge and the RDS indicate that the ACM was still monitoring Vehicle \#1 for additional restraint deployment events prior to issuing the RDS to the PCM.

## SUMMARY OF FACTS

36. Vehicle \#1 was traveling southbound on Rte 190 at speeds ranging from a low of 75 mph to a high of 99 mph while on the roadway, before traveling off of the west shoulder of the roadway.
37. Vehicle \#1 traversed a distance of approximately 140 feet at a shallow angle across the grass shoulder before striking the rock ledge.
38. The speed of vehicle \#1 at impact with the rock ledge was approximately 92 mph . This impact was at a slight angle almost parallel to the rock ledge.
39. Vehicle \#1 traveled an additional 232 feet in a southerly direction while rotating clockwise, rolling over and coming to final rest facing southeast on the grass shoulder.
40. EDR data indicates that the maximum speed recorded was 108 mph approximately .4 seconds prior to impact with the rock ledge.
41. EDR data indicates that there was no braking prior impact.
42. EDR data indicates that the longitudinal delta V was reported as 22.67 mph . This is most likely under reported due to the rotation of the vehicle as well as other collision related factors.
43. EDR data indicates that vehicle \#1 had its engine running for approximately 42.33 minutes.
44. EDR data indicates that the driver's seatbelt was unbuckled.

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 | 2FAHP71W47X129872 |
| :--- | :--- |
| User | LT. A.S. KLANE \#1301, MSP-CARS |
| Case Number | 2011-CAR-00556 |
| EDR Data Imaging Date | $12 / 28 / 2011$ |
| Crash Date | $11 / 02 / 2011$ |
| Filename | 2011-CAR-000556 2FAHP71W47X129872 ACM.CDRX |
| Saved on | Wednesday, December 28 2011 at 09:22:11 |
| Collected with CDR version | Crash Data Retrieval Tool 4.3 |
| Reported with CDR version | Crash Data Retrieval Tool 4.3 |
| EDR Device Type | Airbag Control Module |
| Event(s) recovered | Frontal Deployment <br> Side deployment |

## Comments

12/28/2011, 0910 HRS
GHQ GARAGE, FRAMINGHAM.
2007 FORD CROWN VICTORIA.
MA REG. 169-GPO. MSP \#9200.
1 VEHICLE C-16, RT. 190SB STERLING.
IMPACT DAMAGE TO RIGHT FRONT CORNER AND SIDE. ROLLOVER ENTIRE.
P235/55R17. OEM.
NO POWER. ELECTRICAL SYSTEM DAMAGED.
ATTEMPTS THROUGH PCM AND ACM MOUNTED IN VEHICLE.
PCM ADAPTER UTILIZED AS REQUIRED.

## Data Limitations

The retrieval of this data has been authorized by the vehicle's owner, or other legal authority such as a subpoena or search warrant, as indicated by the CDR tool user on Wednesday, December 282011 at 09:22:11.

## Limitations that are important for users of the Bosch Crash Data Retrieval (CDR) tool on this Ford product to know

Disclaimer: Ford Motor Company Restraint Control Modules (RCM's) were designed to record deceleration data for the purpose of understanding the approximate input data the Restraint Control Module used to determine whether or not to deploy restraint devices. Ford Motor Company RCM's were not designed for the purpose of assisting accident reconstructionists. Ford RCM modules do not record vehicle speed, throttle position, brake on-off, and other data desired by accident reconstructionists, which may be recorded in some 1999 model year and later General Motors modules. There is a second module in the vehicle, the Powertrain Control Module (PCM) which may record vehicle speed, brake, and throttle information. Proper precautions must be taken when reading the RCM not to spoliate the data in the PCM. Those precautions are discussed later in this document.

The time series deceleration data recorded by Ford's module during a crash is mathematically integrated into a partial Delta V by the Bosch tool. Delta_V is the change in velocity during the recording time and is NOT the speed the vehicle was traveling before the accident.

Accident reconstructionists must be aware of the limitations of the data recorded in Ford's control modules and should compare the recorded data with the physical evidence at the accident scene using professional accident reconstruction techniques (i.e. vehicle crush characteristics, momentum analysis. etc.) before making any assumptions about the import and validity of the data recorded in the module with respect to the crash event being analyzed. The following describes specific limitations that must be considered when analyzing recorded data.

1. There may be no deceleration data recorded in the module.

Loss of power (cut wires, damaged battery, crushed fuse box) to the module during or immediately after the crash may prevent the crash data from being written to NVM (non-volatile memory). A backup power supply within the module has sufficient power to continue to analyze the deceleration data and deploy restraint devices if needed, but there is limited backup power for recording.
2. If there are no deployment times recorded, but airbags or other restraint devices are observed to have deployed, the recorded data that you read after that event are most likely from a prior event. This module family does utilize backup power left over after any deployment to attempt to record information from the crash, and is much more likely to get a recording than prior modules, but it is still theoretically possible that there may not be any recording from a new event in which power is lost.
3. The recorded Longitudinal Delta V may understate or overstate the total Delta_V under certain circumstances.
3.1. This module has two different displays with Delta V information. The cumulative longitudinal Delta V shown in the system status section of the report reflects the change in forward velocity that the sensing system experienced from the point of algorithm entry to algorithm exit. The cumulative longitudinal Delta V may understate the Delta V slightly because the algorithm does not begin until the deceleration reaches a pre-specified level of approximately 2 G's, so the first one or two milliseconds of actual Delta V may not be included in the total.
3.2. If the acceleration levels measured exceed the sensor range of $+/-40 \mathrm{G}$ 's, the data may be clipped and the area under the curve beyond +/-40G's will not be integrated in to the cumulative Delta V .
3.3. In addition to the cumulative Delta V, this module records and displays a time series up to 192 data points of longitudinal vehicle acceleration at 0.8 millisecond intervals from which a partial Delta V is calculated and displayed. The 192 data points consist of 64 data points post deployment, 1 at deployment, and 127 prior to deployment. Depending upon the time from algorithm wake up to deployment, the duration of the data in the graph may not be sufficient to reach the maximum or final Delta V of the collision.
3.4. The cumulative longitudinal Delta V is more likely than the graph to represent the Delta V of the complete crash because it will typically be over a longer duration. One purpose of looking at the graph is to determine if the G level exceeded the sensor range of $+/-40 \mathrm{G}$ 's which would lead to under or over reporting Delta V.
3.5. The cumulative longitudinal Delta V is not the total resultant Delta V in anything other than a pure frontal collision. If the collision is angular, you must determine the Principal Direction of Force and divide by the cosine of the PDOF angle from frontal to get the total resultant Delta V.
3.6. The "Cumulative Delta $V$ during the algorithm run time accurately reports observed delta-V for the period the RCM's decision making algorithm runs which may, in some cases, be longer than the actual crash pulse for a given event. For that reason, the reported Delta V may be different than a reconstruction based calculated Delta V for a given event. For example, during heavy slowing, such as braking or wheels locked from damage after the initial contact phase in a crash, the vehicle is capable of slowing as much as 2 mph per 100 milliseconds. If the algorithm runs for another 100 milliseconds beyond the end of the normally observed crash pulse, the data recorded may reflect an over reported event Delta $\vee$ inasmuch as it includes the 2 mph from post contact braking observed while the system was still active. Similarly, after contact a vehicle may continue through the contact area to rest and may experience some level of positive X axis acceleration during that period. Even over a short period, some of that positive $X$ axis acceleration may be observed by the RCM while the algorithm is still running and that may cause an under reporting of the delta-V relative to what may be calculated by a reconstructionist. Users should compare the reported algorithm run time to a normal crash duration of approximately $100-150 \mathrm{~ms}$. If the algorithm run time is significantly longer than the reconstruction estimated crash duration, you may want to consider accounting for after contact acceleration - whether X positive or negative - where appropriate. End users using the crash pulse graph to estimate the event Delta V, should not include any speed loss accumulated as a function of braking prior to algorithm wake up in the event Delta V."
4. Event Recording Complete will indicate if data from the recorded event has been fully written to the RCM memory or if it has been interrupted and not fully written. Even if the event Recording Complete is "no", the data may still be valid. In general, fields with nonzero data written in them have been written successfully. The exception is passenger airbag occupant classification, which when unwritten displays "empty".
5. The module is not intended to record longitudinal acceleration/deceleration in a side-impact event. If the side impact generates a longitudinal deceleration component sufficient to wake up the frontal deployment algorithm, there may be a recording of longitudinal deceleration.
6. If there is any question that the restraint system did not perform as it was designed to perform, please read the system only through the diagnostic link connector. The Bosch CDR kit provides a connector to plug directly into the restraint control module. The Bosch CDR RCM Interface Cable connects only power, ground, and memory readout pins to the relevant vehicle restraint control module. The other pins normally connected to inputs, like sensors, and outputs, such as airbags, are not connected to anything when you use the RCM Interface Cable connector to plug directly into the module. Since the vehicle restraint control module is constantly monitoring airbag system readiness, it will detect that the connection to the input sensors and output airbags has been lost. The restraint control module will write a new diagnostic trouble code into memory for each device that is not connected. These new diagnostic trouble codes could potentially overwrite previously written diagnostic trouble codes present prior to the accident and spoil evidence necessary to determine if the restraint system performed in the accident as it was designed to perform. Not only could this prevent Ford from being able to determine if the system performed as it was designed to perform, but, regardless of innocent inadvertence, you could be charged with evidence spoliation in any litigation that may arise out of the accident. If you cannot read the module out
through the diagnostic link connector, and if you suspect improper system performance, contact Ford Motor Company and request their assistance to read the module out with a proper vehicle simulator attached. If you choose to read out through the module small connector, Ford recommends that you do so in the vehicle and that you leave the second large connector plugged into the vehicle wiring harness to minimize the number of new diagnostic trouble codes created.

## POWERTRAIN CONTROL MODULE DATA SPOLIATION CAUTIONS:

When reading the RCM users must use caution to not spoil data in the PCM. This Restraint Control Module does not record vehicle speed, braking, or throttle inputs prior to or during a collision event. There is a Powertrain Control Module (PCM) in this vehicle which records vehicle speed, brake, throttle angle and other parameters in a Data Recording Device (DRD), an EEPROM chip, whenever the key is in the run position. The PCM is intended to lock the recording if an airbag or safety belt pretensioner has deployed, and the vehicle data bus stays up long enough for the deploy signal from the RCM to reach the PCM. If the deploy signal has not reached the PCM and the PCM is powered, the DRD data can be overwritten by new data. If there is any doubt as to the PCM deployment lock status, the user must proceed with the understanding that the data may not be locked and could be overwritten if key power is turned on. It is recommended that the PCM not be key powered until it the EEPROM memory can be properly read out by a special procedure that prevents data from being overwritten. To read PCM data, follow the instructions in the CDR help file to determine which cable and adapter to use and how to connect to Ford PCMs for the purpose of downloading DRD data. The Bosch PCM readout cables and adapter are not included in the CDR kit and can be purchased directly from Bosch or through an authorized CDR tool distributor.

The PCM also has a diagnostic trouble code history kept in Keep Alive Memory (KAM). KAM is a form of RAM memory powered directly from the battery and is preserved as long as there is battery power to the PCM (the ignition key does not have to be on). If all power is removed from the PCM or the PCM exits flash mode after reading the Data Recording Device, KAM is cleared. The reader must make a judgment as to which data, DRD or KAM, is more likely to provide useful data for the situation at hand.

It has been Ford's experience that the DRD data is more useful than the KAM data when:

1. The airbag has deployed and it is likely that the DRD is locked and has data
2. Power was lost in the crash and KAM is already cleared due to power loss
3. Power has been depleted subsequent to the crash and KAM is already lost.
4. Crash damage makes it likely there are multiple codes in KAM due to accident damage which were not likely to be present before the crash, where it is difficult to isolate codes present before the crash that may have contributed to the cause of the crash.

The KAM data may be more valuable when there has been no airbag deployment and it is likely the key has been left on after the event such that no useful data is likely to remain in the DRD.

If there is insufficient information to make a judgment per the above, Ford's experience is that the DRD data is more likely to have significance, and that it is better to prioritize reading the DRD data first. To preserve the DRD data, unplug the PCM connectors while the RCM is being read.

## AIRBAG MODULE DATA SOURCES:

All RCM recorded data is measured, calculated, and stored internally, sensors external to the RCM include the following:

1. The Driver and Passenger Belt Switch Circuits are wired directly to the RCM
2. The Driver's Seat Track Position Switch Circuit is wired directly to the RCM.
3. The Side Impact Sensors (if equipped) are located at the base of the B-pillars and are wired directly to the RCM
4. The Occupant Classification Sensor is located in the front passenger seat and transmits data directly to the RCM on a dedicated high-speed CAN bus.
5. Front Impact Sensors (right and left) are located on top of radiator support bracket.

System Status at Time of Data Retrieval

| Vehicle Identification Number | 2FAHP71W47X129872 |
| :--- | ---: |
| Module Serial Number | 0624158 U |
| Restraints Control Module Part Number | 7W73-14B321-BA |
| Restraints Control Module Software Version Number | 0 |
| Restraints Control Module Software Date | September 7, 2005 |
| Longitudinal velocity change during algorithm run time (MPH) | -22.67 |
| Algorithm run time (msec) | 712.8 |
| Deployment Counter | 1 |
| Restraints System Faults Present at time of deployment. | No |

## System Status At Frontal Deployment

| Ignition Cycle Key On Timer at Start of Frontal Event (sec) | 2540 |
| :--- | ---: |
| Driver's Belt Switch Circuit Status | Unbuckled |
| Passenger's Belt Switch Circuit Status | Unbuckled |
| Driver seat forward of switch point | Rearward |
| Passenger occupant classification status | Empty |
| Driver First Stage Deployment Time (msec) | 19.2 |
| Driver Second Stage Deployment Time (msec) | 29.6 |
| Passenger First Stage Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Passenger Second Stage Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Driver Pretensioner Time Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Passenger Pretensioner Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Driver Column Device Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Frontal Event Record Locked | Yes |
| Frontal Event Recording Complete | Yes |

## System Status At Side Deployment

| Ignition Cycle Key On Timer at Start of Side Event (sec) | 2540 |
| :--- | ---: |
| Driver's Belt Switch Circuit Status | Unbuckled |
| Passenger's Belt Switch Circuit Status | Unbuckled |
| Driver seat forward of switch point | Rearward |
| Passenger occupant classification status | Empty |
| Driver Side Airbag Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Passenger Side Airbag Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Driver Pretensioner Time Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Passenger Pretensioner Deployment Time (msec) | $\mathrm{N} / \mathrm{A}$ |
| Side Event Record Locked | Yes |
| Side Event Recording Complete | Yes |

## 



Crash Pulse Data

| Milliseconds | Long. Acceleration (Gs) | Long. Cumulative Delta V (MPH) |
| :---: | :---: | :---: |
| -82.4 | -0.41 | -0.01 |
| -81.6 | -0.41 | -0.01 |
| -80.8 | -0.41 | -0.02 |
| -80.0 | -0.41 | -0.03 |
| -79.2 | 0.00 | -0.03 |
| -78.4 | -0.41 | -0.04 |
| -77.6 | -0.41 | -0.04 |
| -76.8 | -0.41 | -0.05 |
| -76.0 | -0.82 | -0.07 |
| -75.2 | -0.41 | -0.07 |
| -74.4 | -0.41 | -0.08 |
| -73.6 | -0.82 | -0.09 |
| -72.8 | -0.41 | -0.10 |
| -72.0 | -0.41 | -0.11 |
| -71.2 | -0.82 | -0.12 |
| -70.4 | -0.82 | -0.14 |
| -69.6 | -0.82 | -0.15 |
| -68.8 | -0.82 | -0.17 |
| -68.0 | -0.82 | -0.18 |
| -67.2 | -0.82 | -0.20 |
| -66.4 | -0.82 | -0.21 |
| -65.6 | -0.82 | -0.22 |
| -64.8 | -0.41 | -0.23 |
| -64.0 | -0.41 | -0.24 |
| -63.2 | -0.41 | -0.25 |
| -62.4 | -0.41 | -0.25 |
| -61.6 | -0.41 | -0.26 |
| -60.8 | -0.41 | -0.27 |
| -60.0 | -0.41 | -0.27 |
| -59.2 | -0.41 | -0.28 |
| -58.4 | -0.41 | -0.29 |
| -57.6 | -0.41 | -0.30 |
| -56.8 | -0.41 | -0.30 |
| -56.0 | -0.41 | -0.31 |
| -55.2 | -0.41 | -0.32 |
| -54.4 | -0.41 | -0.33 |
| -53.6 | -0.41 | -0.33 |
| -52.8 | -0.41 | -0.34 |
| -52.0 | -0.41 | -0.35 |
| -51.2 | -0.41 | -0.35 |
| -50.4 | -0.41 | -0.36 |
| -49.6 | -0.82 | -0.38 |
| -48.8 | -0.82 | -0.39 |
| -48.0 | -0.82 | -0.41 |
| -47.2 | -0.82 | -0.42 |
| -46.4 | -0.82 | -0.43 |
| -45.6 | -0.82 | -0.45 |
| -44.8 | -0.82 | -0.46 |
| -44.0 | -0.82 | -0.48 |
| -43.2 | -0.82 | -0.49 |


| Milliseconds | Long. Acceleration (Gs) | Long. Cumulative Delta V (MPH) |
| :---: | :---: | :---: |
| -42.4 | -0.41 | -0.50 |
| -41.6 | -0.82 | -0.51 |
| -40.8 | -0.82 | -0.53 |
| -40.0 | -0.82 | -0.54 |
| -39.2 | -0.82 | -0.56 |
| -38.4 | -0.82 | -0.57 |
| -37.6 | -0.82 | -0.59 |
| -36.8 | -0.82 | -0.60 |
| -36.0 | -1.24 | -0.62 |
| -35.2 | -1.24 | -0.64 |
| -34.4 | -0.82 | -0.66 |
| -33.6 | -0.41 | -0.67 |
| -32.8 | -0.41 | -0.67 |
| -32.0 | -0.41 | -0.68 |
| -31.2 | -0.41 | -0.69 |
| -30.4 | -0.41 | -0.69 |
| -29.6 | 0.00 | -0.69 |
| -28.8 | 0.00 | -0.69 |
| -28.0 | 0.00 | -0.69 |
| -27.2 | -0.82 | -0.71 |
| -26.4 | 0.00 | -0.71 |
| -25.6 | 0.41 | -0.70 |
| -24.8 | 0.41 | -0.69 |
| -24.0 | 0.00 | -0.69 |
| -23.2 | -0.41 | -0.70 |
| -22.4 | 0.00 | -0.70 |
| -21.6 | 0.00 | -0.70 |
| -20.8 | -0.41 | -0.71 |
| -20.0 | -0.41 | -0.72 |
| -19.2 | -0.41 | -0.72 |
| -18.4 | -0.82 | -0.74 |
| -17.6 | -0.82 | -0.75 |
| -16.8 | -0.82 | -0.77 |
| -16.0 | -0.82 | -0.78 |
| -15.2 | -0.82 | -0.80 |
| -14.4 | -1.24 | -0.82 |
| -13.6 | -0.82 | -0.83 |
| -12.8 | -0.41 | -0.84 |
| -12.0 | -0.41 | -0.85 |
| -11.2 | 0.00 | -0.85 |
| -10.4 | -0.41 | -0.85 |
| -9.6 | 0.00 | -0.85 |
| -8.8 | 0.82 | -0.84 |
| -8.0 | 0.41 | -0.83 |
| -7.2 | 0.00 | -0.83 |
| -6.4 | 0.00 | -0.83 |
| -5.6 | 0.00 | -0.83 |
| -4.8 | 0.00 | -0.83 |
| -4.0 | 0.00 | -0.83 |
| -3.2 | 0.00 | -0.83 |
| -2.4 | -0.82 | -0.85 |
| -1.6 | 0.41 | -0.84 |
| -0.8 | -0.41 | -0.85 |


| Milliseconds | Long. Acceleration (Gs) | Long. Cumulative Delta V (MPH) |
| :---: | :---: | :---: |
| 0.0 | -3.30 | -0.90 |
| 0.8 | -4.12 | -0.98 |
| 1.6 | -5.36 | -1.07 |
| 2.4 | -6.60 | -1.19 |
| 3.2 | -7.83 | -1.32 |
| 4.0 | -8.66 | -1.48 |
| 4.8 | -4.54 | -1.56 |
| 5.6 | -6.60 | -1.67 |
| 6.4 | -7.83 | -1.81 |
| 7.2 | -3.71 | -1.87 |
| 8.0 | -0.82 | -1.89 |
| 8.8 | -4.12 | -1.96 |
| 9.6 | -0.82 | -1.98 |
| 10.4 | 8.66 | -1.82 |
| 11.2 | 4.12 | -1.75 |
| 12.0 | -13.61 | -1.99 |
| 12.8 | -11.55 | -2.19 |
| 13.6 | -7.42 | -2.32 |
| 14.4 | -9.90 | -2.50 |
| 15.2 | -23.92 | -2.92 |
| 16.0 | -28.45 | -3.42 |
| 16.8 | 11.96 | -3.21 |
| 17.6 | 8.66 | -3.05 |
| 18.4 | -28.87 | -3.56 |
| 19.2 | -28.45 | -4.06 |
| 20.0 | -32.58 | -4.63 |
| 20.8 | -40.41 | -5.34 |
| 21.6 | -40.41 | -6.05 |
| 22.4 | -16.08 | -6.33 |
| 23.2 | 8.25 | -6.19 |
| 24.0 | 3.71 | -6.12 |
| 24.8 | -22.68 | -6.52 |
| 25.6 | -26.80 | -6.99 |
| 26.4 | -17.73 | -7.30 |
| 27.2 | -18.14 | -7.62 |
| 28.0 | -32.16 | -8.18 |
| 28.8 | -37.11 | -8.84 |
| 29.6 | -37.11 | -9.49 |
| 30.4 | -40.41 | -10.20 |
| 31.2 | 7.42 | -10.07 |
| 32.0 | 40.41 | -9.36 |
| 32.8 | 40.41 | -8.65 |
| 33.6 | -31.75 | -9.21 |
| 34.4 | -35.05 | -9.82 |
| 35.2 | 34.64 | -9.21 |
| 36.0 | 1.65 | -9.18 |
| 36.8 | -16.49 | -9.47 |
| 37.6 | 4.12 | -9.40 |
| 38.4 | 31.75 | -8.84 |
| 39.2 | -4.54 | -8.92 |
| 40.0 | 20.21 | -8.57 |
| 40.8 | 1.24 | -8.55 |
| 41.6 | -18.97 | -8.88 |


| Milliseconds | Long. Acceleration (Gs) | Long. Cumulative Delta V (MPH) |
| :---: | :---: | :---: |
| 42.4 | 9.07 | -8.72 |
| 43.2 | 9.48 | -8.55 |
| 44.0 | -7.42 | -8.68 |
| 44.8 | -11.55 | -8.89 |
| 45.6 | -39.59 | -9.58 |
| 46.4 | -37.11 | -10.23 |
| 47.2 | 0.00 | -10.23 |
| 48.0 | 0.41 | -10.23 |
| 48.8 | 8.66 | -10.07 |
| 49.6 | 18.56 | -9.75 |
| 50.4 | -9.07 | -9.91 |
| 51.2 | -21.03 | -10.28 |
| 52.0 | -8.66 | -10.43 |
| 52.8 | 7.83 | -10.29 |
| 53.6 | -9.07 | -10.45 |
| 54.4 | -28.04 | -10.94 |
| 55.2 | -21.86 | -11.33 |
| 56.0 | -9.48 | -11.49 |
| 56.8 | -18.56 | -11.82 |
| 57.6 | -29.28 | -12.33 |
| 58.4 | -26.39 | -12.79 |
| 59.2 | -16.91 | -13.09 |
| 60.0 | -11.13 | -13.29 |
| 60.8 | -8.66 | -13.44 |
| 61.6 | -21.86 | -13.82 |
| 62.4 | -28.45 | -14.32 |
| 63.2 | -27.22 | -14.80 |
| 64.0 | -7.42 | -14.93 |
| 64.8 | 3.71 | -14.86 |
| 65.6 | 3.71 | -14.80 |
| 66.4 | 0.82 | -14.78 |
| 67.2 | -6.60 | -14.90 |
| 68.0 | -14.85 | -15.16 |
| 68.8 | -3.71 | -15.23 |
| 69.6 | 7.83 | -15.09 |
| 70.4 | -2.47 | -15.13 |

## 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.

| 0000 | 30 | $30 \quad 30$ | 32 | 46 | 41 | 48 | 50 | 37 | 31 | 57 | 34 | 37 | 58 | 31 | 32 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0010: | 39 | $38 \quad 37$ | 32 | 03 | BB | FF | 00 | 60 | D9 | 00 | 00 | F8 | 29 | 05 | 44 |
| 0020: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0030 | OE | 22 OE | 2B | 39 | 56 | 0A | 12 | 03 | CC | 30 | 30 | 07 | 0D | 26 | C |
| 0040 | BC | BC BC | OD | 20 | 20 | BC | BC | BC | BC | BC | BC | BC | BC | BC | 0 |
| 0050: | 00 | 00 BC | BC | BC | 05 | 80 | 37 | 57 | 37 | 33 | 02 | 00 | B5 | 1C | C4 |
| 0060: | 09 | 3200 | BB | FF | DB | FD | 7 C | 01 | EF | 61 | 56 | 1D | EF | 61 | 56 |
| 0070: | 1D | $32 \quad 34$ | 31 | 38 | 30 | 35 | 39 | 2D | 41 | 41 | 20 | 20 | AD | A8 | 94 |
| 0080 | 8F | 5550 | 42 | 3E | 62 | 41 | 00 | 00 | 00 | E8 | FF | 87 | ED | 4F | FC |
| 0090: | OF | C0 02 | 20 | 10 | 08 | 04 | 00 | 00 | 00 | 00 | 00 | C0 | FF | OF | C0 |
| OOA0 : | 00 | 0000 | 0C | 00 | 00 | 00 | 00 | 30 | 01 | 88 | 8B | 73 | 29 | 19 | 02 |
| 00B0 : | 30 | 0188 | 8B | 73 | 29 | 19 | 02 | 20 | 01 | 88 | 8B | 73 | 29 | 19 | 02 |
| 00C0 | 20 | 0188 | 8B | 73 | 29 | 19 | 02 | BC | 21 | 00 | 00 | 00 | 00 | 0 | 0 |
| 00D0 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 00E0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 00F0 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0100: | 00 | 0030 | 36 | 32 | 34 | 31 | 35 | 38 | 55 | 30 | 30 | 35 | 31 | 39 | 30 |
| 0110 | 36 | 4330 | 30 | 35 | 31 | 38 | 33 | 32 | 36 | 30 | 30 | 34 | 43 | 34 | 34 |
| 0120: | 30 | 3330 | 30 | 34 | 43 | 43 | 32 | 38 | 31 | 65 | 85 | 82 | 51 | 07 | 62 |
| 0130: | 63 | 12 C 3 | B6 | 8A | 00 | 28 | 00 | 00 | 00 | 84 | 6D | 03 | 00 | 00 | 00 |
| 0140: | 03 | 00 1C | 00 | 00 | 00 | 03 | 00 | 19 | 00 | 00 | 00 | 00 | 00 | 02 | 1 |
| 0150: | 80 | 6D 1C | 00 | 00 | 00 | 03 | 00 | 1C | 00 | 00 | 00 | 03 | 00 | 9 |  |
| 0160: | 00 | 0000 | 00 | 01 | 81 | 4E | 00 | AB | A3 | 8A | 00 | F2 | 09 | C3 | 6 |
| 0170: | 8A | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 05 | 00 | 00 | 00 | 00 | 00 |
| 0180 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0190 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 01A0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | O |
| 01B0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 01C0 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 01D0 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 01E0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 01F0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0200 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0210 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0220: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0230: | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0240: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0250: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0260: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0270: | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0280: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 40 | 00 | 00 |
| 0290: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 02A0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 1 |
| 02B0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 33 | 33 | 00 | 01 |
| 02C0: | AA | F0 7F | 03 | 33 | 41 | 42 | 39 | 38 | 39 | 38 | 44 | 20 | 00 | 00 | 00 |
| 02D0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 02E0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 02F0: | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0300: | 00 | 01 0A | 02 | 02 | 01 | 00 | 01 | 00 | 02 | 00 | 06 | 00 | 14 | 01 | 00 |
| 0310: | 00 | 0000 | 05 | 06 | 04 | 01 | 02 | 05 | 05 | 04 | 06 | 23 | 00 | 00 | 00 |
| 0320: | CC | 0100 | 00 | 00 | 00 | 00 | 00 | 55 | 00 | 00 | 00 | E8 | 03 | 00 | 05 |
| 0330: | 25 | 0208 | 02 | C2 | 33 | C4 | 00 | C0 | 01 | 44 | 00 | A0 | 00 | 84 | 03 |
| 0340: | 86 | 0199 | 02 | 7 F | 03 | 19 | 00 | 9A | 01 | FE | FF | C3 | 00 | 77 | 01 |
| 0350: | 08 | 0220 | 03 | 8F | 01 | 84 | 03 | D0 | 07 | 20 | 03 | FE | FF | E8 | 03 |
| 0360: | F4 | 0185 | 00 | 64 | 00 | 14 | 00 | BD | 00 | BD | 00 | 00 | 00 | 07 | 07 |



| 0780 | 8C 8 | 8B 89 | 8480 | 78 | 6D 66 | 65 | 67 | 71 | 7 E | 84 | 91 | 9 | 8B |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0790 | 877 | 7E 78 | 7473 | 74 | 7F 7F | 7E | 7E | 7 E | 7E | 7 E | 7E | 7 | F |
| 07A0: | 7F 7 | 7F 7F | 7F 7E | 7 E | 7D 7D | 7D | 7E | 7E | 7F | 80 | 80 | 8 | 0 |
| 07B0 | 7F 7 | 7E 7E | 7E 7E | 7 E | 7F 80 | 80 | 80 | 7 F | 7 E | 7 E | D |  | E |
| 07 C | 7 | 7E 7F | 7F 7F | 7 E | 7 E 7 E | 7 E | 7 E | 7 F | 80 | 80 | 7 F | 7 | D |
| 07D0 | 7D 7 | 7E 7E | 7F 80 | 82 | 8280 | 7 F | 7D | 7B | 78 | 76 | 76 | 7B | F |
| 07E0 | 838 | 8587 | 8785 | 84 | 80 7C | 7A | 7A | 7B | 7B | 7 C | 7 E | 82 | 4 |
| 07F0: | 838 | 8280 | 7D 7A | 78 | 7678 | 7B | 80 | 82 | 87 | 88 | 85 | 8 | F |
| 080 | 7A 7 | 7677 | 79 7A | 7D | 7E 83 | 86 | 84 | 82 | 7 F | D | 7B |  | B |
| 081 | 7 D 7 | 7 F 81 | 8180 | 7F | 7 E 7 E | 7 E | 7 E | 7 E | 7 F | 80 | 80 | 80 | 0 |
| 0820 | 807 | 7E 7E | 7E 7E | 7 E | 7E 7F | 81 | 81 | 81 | 80 | 7 E | 7B | 7A | 8 |
| 0830: | 787 | 79 7B | 8185 | 85 | 8586 | 82 | 80 | 7 F | 7 C | 7B | 7 C |  | 0 |
| 084 | 87 8 | 8B 8B | 847 E | 7B | 7 C 7 C | 80 | 8A | 8B | 86 | 82 | 80 |  | 9 |
| 085 | 777 | 7981 | 92 A6 | AD | AB A2 | 9B | 8D | 76 | 6D | 59 | 3F | 3 | 8 |
| 0860 | 719 | 94 B7 | CC D9 | CF | A5 90 | 71 | 6 E | 68 | 67 | 6A | 6D | 6D | F |
| 0870: | 828 | 8485 | 8592 | 95 | 98 9B | AB | B8 | BA | B9 | B8 | B6 | 9 | 1 |
| 88 | 6 D 5 | 51 3D | 3F 4C | 68 | 90 A7 | CB | D8 | D2 | C2 | 93 | 1 |  | E |
| 0890 | 425 | 5D 83 | 95 AD | B8 | AD 9E | 72 | 54 | 4C | 4 C | 54 | 6C |  | 97 |
| 08A0 | AB B | BA B8 | AD A1 | 82 | 6050 | 4 C | 4 F | 5B | 6 E | 79 | 8B | 98 | 9B |
| 08B0: | 97 8 | 8B 80 | 7B 7B | 80 | 89 8A | 87 | 83 | 84 | 7E | 7B | 74 | 74 | 6 |
| 08C0 | 787 | 7D 7F | 8588 | 87 | 7E 7B | 7B | 7B | 7A | 77 | 76 | 77 |  | 1 |
| 08D0 | 827 | 7E 7E | 7F 7E | 7 E | 8084 | 85 | 82 | 7D | 7C | 7D | 7B |  | D |
| 08E0 | 7E 8 | 8388 | 8988 | 89 | 7F 7F | 7 F | 7 F | 7 F | 7 F | 7 F | F |  | F |
| 08F0 | 7E 7 | 7 E 7 E | 7E 7F | 7 F | 7F 7F | 7 F | 7E | 7E | 7E | 7E | 7 F | 7 | 0 |
| 090 | 8080 | 8080 | 807 F | 7 F | 7E 7E | 7 E | 7E | 7 F | 80 | 80 | 80 | 80 | F |
| 091 | 7 E 7 | 7D 7D | 7E 7E | 80 | 8081 | 80 | 80 | 7 F | 7 F | 7 F | 80 | 81 | 80 |
| 0920 | 8080 | 8080 | 7E 7E | 7 C | 7A 7A | 7B | 7C | 7E | 82 | 84 | 83 |  | D |
| 0930 | 7 B 7 B | 7B 7B | 7D 82 | 83 | 8484 | 82 | 81 | 7D | 7 C | 7D | 7 |  | 7 E |
| 0940: | 808 | 807 F | 7E 80 | 80 | 8080 | 7 E | 7E | 7D | 7D | 7E | 7E | 80 | 0 |
| 095 | 807 | 7F 7D | 7C 7D | 7 E | 8081 | 81 | 81 | 80 | 7 E | 7D | 7 | 7 | E |
| 0960: | 7 F 8 | 8082 | 01 A5 | A3 | 8A 00 | EC | 09 | 09 | 00 | B3 | B3 |  | 0 |
| 097 | 460 | 00 4B | 0000 | 00 | $00 \quad 00$ | 10 | 20 | 01 | 00 | 00 | B3 |  | E |
| 0980: | 004 | 4300 | 4800 | 00 | 0000 | 00 | 04 | 20 | 02 | 00 | 00 |  | 0 |
| 0990 | 190 | 0018 | 0019 | 00 | 1800 | 18 | 00 | 18 | 00 | 18 | 00 | 25 | 00 |
| 09A0 | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | D8 | D8 | D8 | D8 | D8 | D8 |
| 09B0: | D8 D | D8 D8 | D8 D8 | 1B | 0018 | 00 | 1B | 00 | 1A | 00 | 18 |  | 19 |
| 09C0: | 000 | 0204 | 0104 | 01 | 0101 | 2 F | 00 | 2A | 00 | 59 | 00 |  | 0 |
| 09 D | 090 | 0100 | 00 D4 | 00 | D3 00 | 83 | 00 | D4 | 00 | D3 | 00 | 8 | 0 |
| 09E0 | 1 F 1 | 1E 7F | OB OB | 7D | 7E 87 | 00 | AA | 00 | 33 | 3D | 0 C |  | 0 |
| 09F0: | 7B 0 | 03 FF | 0181 | D0 | 0000 | 54 | 1A | CD | 00 | 01 | 00 |  | 0 |
| OA00: | 000 | 0000 | 0030 | 00 | 00 OA | 05 | 00 | 00 | 30 | 00 | 00 |  | 5 |
| 0A1 | 000 | 0030 | $00 \quad 00$ | OA | 0500 | 00 | 30 | 00 | 00 | 0A | 05 | 0 | 0 |
| 0A20 | 300 | 0000 | OA 05 | 00 | 0002 | 00 | 03 | 00 | 00 | 00 | 00 | 0 | 0 |
| OA30 | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0A40: | 000 | 0000 | $00 \quad 00$ | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0 A | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0A60 | 0000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| 0A70: | 0000 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OA80: | 000 | 0000 | $00 \quad 00$ | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0A90 | 000 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0 AAO | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| $0 \mathrm{AB0}$ : | 0000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OAC0: | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| OAD 0 : | 000 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| OAEO | 0000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OAF0: | 000 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| OB00: | 000 | 0000 | $00 \quad 00$ | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0B10: | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0B20: | 0000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| OB30: | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0B40: | 0000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 0B50: | 000 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0B60: | 0000 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 0B70: | 0000 | 0000 | $00 \quad 00$ | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 0B80 : | 000 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |


| 0B90: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0BA0 : | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 0 | 0 | 0 |
| OBB | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OBC0 | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| OBD0 | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| 0 B | 00 | 0000 | 00 | 00 | 0000 | 00 | 00 | 00 | 00 | 0 | 00 | 0 | 00 |
| OBE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| 0 CO 0 | 50 | F5 A4 | A9 B3 | BF | B2 94 | 88 | 9A | B9 | D2 | E1 | CE | C | E |
| 0C10: | 9 F | 8A 99 | E2 FF | EC | D3 F5 | DE | AD | 90 | 79 | AC | E4 |  | F |
| 0 C 2 | FF | FE FF | FF FF | FF | FF FF | AF | 65 | 04 | 01 | 00 | 5B |  | 1 |
| 0 C 3 | 96 | $72 \quad 74$ | 9C B6 | F4 | FF FF | FE | FF | FF | FE | FF | FE |  | FE |
| 0C40 | F7 | 3800 | 17 6B | 82 | 9381 | 82 | 84 | 84 | 84 | 83 | 83 | 8 | 5 |
| 0C50: | 86 | 8685 | 8586 | 89 | 9095 | 92 | 88 | 86 | 88 | 86 | 84 |  | 1 |
| 0 C 6 | 99 | 9A 90 | 7F 80 | 9B | B2 B2 | 9B | 9B | 7 D | 7D | 7 D | 7D |  | D |
| 0 C 7 | 7D | 7D 7D | 7D 7D | 7D | 7E 7E | 7 E | 7E | 7E | 7D | 7D | 7E |  | F |
| 0 C 80 | 7 F | 7E 7D | 7D 7E | 7 F | 8082 | 82 | 81 | 80 | 7 F | 7E | 7 F | 8 | 3 |
| 0C90: | 83 | 8282 | 81 7E | 80 | 8182 | 84 | 87 | 87 | 84 | 82 | 83 | 8 | 81 |
| 0 CAO | 7 | 7 F 7 E | 7C 7F | 80 | 8082 | 83 | 84 | 86 | 89 | 87 | 86 |  | 4 |
| 0 CB 0 | 79 | 7576 | 7B 7E | 8B | 8F 8D | 8B | 88 | 84 | 80 | 84 | 85 |  | 4 |
| 0 CCO | 91 | 9C 9E | 9E A2 | A3 | 9E 88 | 84 | 87 | 7D | 7D | 7D | 7 |  | C |
| OCD 0 : | 7 C | 7D 7E | 7D 7C | 7C | 7D 7D | 7D | 7 C | 7A | 79 | 78 | 76 | 7 | 9 |
| 0 CE | 7A | 7B 7E | 7F 7E | 7E | 7C 75 | 78 | 7D | 82 | 81 | 83 | 81 |  | 69 |
| 0 CE | 6A | 6C 6D | 7D 88 | 87 | 867 F | 77 | 73 | 71 | 6 F | 72 | 71 |  | 1 |
| ODO | 7E | 6D 65 | 6D 66 | 5B | 6371 | 7 E | 81 | 76 | 4 F | 48 | 6F |  | 4 |
| 0D10: | 7B | 7A 7C | 6653 | 62 | 6D 72 | 80 | 70 | 52 | 35 | 54 | 7A | A | B5 |
| 0D20: | D0 | BE 9D | 8B 70 | 6E | $7 \mathrm{E} \quad 84$ | 6C | 39 | 2D | 37 | 3B | 3B |  | E |
| OD3 | 7 E | 7C 01 | 00 A5 | A3 | 8A 00 | EC | 09 | 2B | 00 | 56 | 0 | A | 0 |
| OD4 | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| 0D50: | 55 | 00 2A | 0000 | 00 | B3 B3 | 00 | 00 | 00 | 00 | 00 | B3 | B | 0 |
| 0D60: | 00 | 4100 | 0800 | 00 | 0000 | 00 | 00 | 00 | 00 | AD | 00 | 0 | 0 |
| 0D7 | 7D | 7 C 45 | 4460 | 5F | 60 5F | 7 E | 87 | 00 | AA | 81 | D0 | 0 | 0 |
| 0D8 | 54 | 1A CD | 0001 | 00 | 0300 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| 0D90: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| ODA0: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| ODB0 | 00 | 0300 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| ODC | 00 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| ODD0: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| ODE0: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| ODF | 00 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| OE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| 0E10: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| OE20: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| OE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| OE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| 0E50: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| 0E60: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 0 |  | 0 |
| OE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| OE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OE90: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OEA0: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| OE | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 |  | 0 |
| 0E | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OED 0 : | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OEE0: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| OEFO: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| OF00: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 0F10: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 |
| 0F20: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0F30: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| OF40: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0F50: | 00 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 0 |
| 0F60: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0F70: | 00 | 0000 | 0000 | 00 | $00 \quad 00$ | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 0F80: | 00 | 0000 | 0000 | 00 | 0000 | 00 | 00 | 00 | 00 | 00 | 00 | 0 | 00 |
| 0F90 | 00 | 0000 | 0000 |  | 0000 |  | 00 | 00 | 00 | 00 | 00 |  | 0 |

OFAO: $000000000 \quad 00 \quad 00 \quad 00 \quad 00$

OFCO: $00000000 \quad 00 \quad 00 \quad 00 \quad 00$
OFDO: $000000000000 \quad 00 \quad 00$


C943 00060109
E200 090769
E217 14 OB 0321
E219 0200
E21A $37 \quad 57 \quad 37 \quad 33$
E221 30363234
E222 $31 \quad 35 \quad 38 \quad 55$
E300 30303032
E301 46414850
E302 37315734
E303 $37 \quad 583132$
E304 $39 \quad 38 \quad 37 \quad 32$

## Disclaimer of Liability

The users of the CDR product and reviewers of the CDR reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Robert Bosch LLC and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Robert Bosch LLC expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the CDR data, CDR software or use thereof.

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 | 2FAHP71W47X129872 |
| :--- | :--- |
| User | LT. A.S. KLANE \#1301, MSP-CARS |
| Case Number | 2011-CAR-00556 |
| EDR Data Imaging Date | $12 / 28 / 2011$ |
| Crash Date | $11 / 02 / 2011$ |
| Filename | 2011-CAR-000556 2FAHP71W47X129872 PCM.CDRX |
| Saved on | Wednesday, December 28 2011 at 09:13:17 |
| Collected with CDR version | Crash Data Retrieval Tool 4.3 |
| Reported with CDR version | Crash Data Retrieval Tool 4.3 |
| EDR Device Type | Powertrain Control Module |
| Restraint Deployment Signal <br> Received | Yes |

## Comments

12/28/2011, 0910 HRS
GHQ GARAGE, FRAMINGHAM.
2007 FORD CROWN VICTORIA.
MA REG. 169-GPO. MSP \#9200.
1 VEHICLE C-16, RT. 190SB STERLING.
IMPACT DAMAGE TO RIGHT FRONT CORNER AND SIDE. ROLLOVER ENTIRE.
P235/55R17. OEM.
NO POWER. ELECTRICAL SYSTEM DAMAGED.
ATTEMPTS THROUGH PCM AND ACM MOUNTED IN VEHICLE.
PCM ADAPTER UTILIZED AS REQUIRED.

## Data Limitations

The retrieval of this data has been authorized by the vehicle's owner, or other legal authority such as a subpoena or search warrant, as indicated by the CDR tool user on Wednesday, December 282011 at 09:13:17.

## FORD POWERTRAIN CONTROL MODULE EVENT DATA INTERPRETATION GUIDE

1. This document is intended to assist you in reading the data that has been retrieved from a Powertrain Control Module ("PCM") contained in a Ford vehicle. This document is further intended to provide general guidelines and is not intended to provide information regarding the interpretation of a specific read-out.
2. The data points in the "PCM EDR Data" tables shown in this report occur every 0.2 seconds of time. It should be pointed out that "Relative Time (calc.)" in these tables is calculated based on the 0.2 second time interval and is displayed relative to the receipt of a Restraint Deployment Signal from the RCM. The "Relative Time (calc.)" Information is not data which is retrieved from the PCM but is calculated based on the above information.
3. In the event that one of the vehicle's restraint devices (e.g., the vehicle's airbag or pretensioner) have deployed as a result of a collision, the Restraint Control Module or RCM will send a Restraints Deployment Signal (RDS) to the PCM via the vehicle data bus or through a direct wired connection. If the PCM receives an RDS, it will lock the data. It should be pointed out that the RCM and Vehicle Data Bus both require power for tenths of a second after the collision in order to send a signal or flag to the PCM.
4. If no RDS flag has been received from the RCM and there is still power to the PCM, the PCM data will not lock and the circular buffer will continuously overwrite itself when the vehicle's ignition is in the run position. In this event, data contained in the PCM that was relevant to the collision may be lost. However, if power was lost as a result of the collision, or the ignition key was turned off shortly after the event, there may still be data relating to the collision in the PCM.
5. Finding the data relating to the moment of impact:
a.) With regard to the PCM EDR Data tables where a Restraint Deployment Signal is received, the data is displayed in ordered of the "Relative Time (calc.)" parameter beginning with the oldest recorded frame of data.

The moment of impact can be found by reviewing the data contained in the RDS column. Specifically, the data samples recorded with an RDS flag equal to "Received" in the PCM EDR Data tables signify points recorded after the PCM received the RDS signal from the RCM. If the PCM has received an RDS flag, the moment of impact is typically set at the RDS = "Not Received" in the PCM EDR Data tables reading that immediately precedes a reading of RDS = "Received". The last RDS = "Received" data point signifies the last data point recorded in the event.
b.) With regard to the PCM EDR Data tables where a Restraint Deployment Signal is not received, the data is displayed in order of the "Buffer Address" parameter data beginning with the lowest address value. The PCM buffer is circular and the data point of first address listed in the PCM EDR Data tables does not necessarily signify the beginning of the PCM recording. The start and stop time of the PCM recording could be in the middle of the Table.

The moment of impact usually correlates with a discontinuity of the data listed in the table. If a single, significant discontinuity in the data is found, the data point immediately preceding the discontinuity is likely to be the last data point recorded. This point usually signifies impact time zero. If there is no single significant discontinuity, the data must be examined in detail to determine the largest discontinuity in the largest number of data elements. If no single largest discontinuity can be determined, it may not be possible to determine the moment of impact.
6. The PCM Data Tables further show a column labeled as the "Key on Timer - 63.75 Max (sec)" or PUTMR. The PUTMR shows the length of time that the PCM was functioning for the most recent key cycle. The timer ascends to a maximum value of 63.75 seconds. If the data was not locked by an RDS flag and the ignition key was turned off and on again, the PCM will begin to write new data starting at the beginning of the data table. While it is not common, there are instances where the first portion of the data table has subsequent-key-on, post-crash data; while the latter portion of the data table has data from the key cycle in which the crash occurred. In other rare cases, an event has occurred in less than 25 seconds after key on and older data from prior key cycles has been left in the latter part of the buffer. Review the Key on Timer - 63.75 Max (sec) (PUTMR) data for discontinuities to determine if this has occurred.
7. Data displayed in the Key on Timer - 63.75 Max (sec) column has a resolution of 0.25 seconds and rounds actual data to the nearest 0.25 seconds. The data points occur every 0.2 seconds.

| Actual time | Key on Timer display |
| :--- | :--- |
| 0.0 | 0.0 |
| 0.2 | 0.25 |
| 0.4 | 0.50 |
| 0.6 | 0.50 |
| 0.8 | 0.75 |
| 1.0 | 1.00 |

8. Recorded Vehicle Speed is proportional to transmission output shaft speed and accuracy can be affected if the vehicle has had the tire size or inflation pressure or the final drive axle ratio changed from the factory build specifications.

PCM Data Source:

- All PCM recorded data is fed directly from sensors to the PCM where raw signals are processed, and stored internally, except for the following parameters which are transmitted via the vehicle's communication network:

\author{

- Stability Control <br> - Traction Control <br> - ABS <br> - Restraint Deployment Signal
}

PCM Module Information
Vehicle Identification Number (from PCM) 2FAHP71W47X129872
PCM File Name (calibration level) FCHG2PZ.HEX*
PCM Part Number 7W7A-12A650-VC

2FAHP71W47X129872 PCM EDR Crash Data - RDS Received


| PCM E | Data (1) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Buffer Address (Hex) | Relative Time (calc.) (Seconds) | Restraint <br> Deployment <br> Signal <br> (Received / <br> Not Received) | Speed, Vehicle Indicated (MPH [km/h]) | Accelerator Pedal \% Full (\%) | Engine Throttle \% Full (\%) | Brake Switch (On / Off) | Brake SC De-ac <br> (On / Off) | ABS <br> (Active / Inactive) | Transmission Neutral <br> (Neutral / Not Neutral) |
| EA000240 | -20.2 | Not Received | 75 [121] | 27 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA000250 | -20.0 | Not Received | 75 [121] | 27 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA000260 | -19.8 | Not Received | 75 [121] | 27 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA000270 | -19.6 | Not Received | 75 [121] | 27 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA000280 | -19.4 | Not Received | 75 [121] | 27 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA000290 | -19.2 | Not Received | 75 [121] | 27 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA0002A0 | -19.0 | Not Received | 75 [121] | 27.5 | 19.5 | OFF | OFF | Not Active | Not Neutral |
| EA0002B0 | -18.8 | Not Received | 75 [121] | 28 | 20 | OFF | OFF | Not Active | Not Neutral |
| EA0002C0 | -18.6 | Not Received | 75 [121] | 27.5 | 20 | OFF | OFF | Not Active | Not Neutral |
| EA0002D0 | -18.4 | Not Received | 75 [121] | 27 | 20 | OFF | OFF | Not Active | Not Neutral |
| EA0002E0 | -18.2 | Not Received | 75 [121] | 27 | 20 | OFF | OFF | Not Active | Not Neutral |
| EA0002F0 | -18.0 | Not Received | 75 [121] | 28 | 20 | OFF | OFF | Not Active | Not Neutral |
| EA000300 | -17.8 | Not Received | 75 [121] | 29 | 20.5 | OFF | OFF | Not Active | Not Neutral |
| EA000310 | -17.6 | Not Received | 76 [122] | 28.5 | 20.5 | OFF | OFF | Not Active | Not Neutral |
| EA000320 | -17.4 | Not Received | 76 [122] | 28.5 | 20.5 | OFF | OFF | Not Active | Not Neutral |
| EA000330 | -17.2 | Not Received | 76 [122] | 28.5 | 20.5 | OFF | OFF | Not Active | Not Neutral |
| EA000340 | -17.0 | Not Received | 76 [122] | 32 | 23 | OFF | OFF | Not Active | Not Neutral |
| EA000350 | -16.8 | Not Received | 76 [122] | 34.5 | 26 | OFF | OFF | Not Active | Not Neutral |
| EA000360 | -16.6 | Not Received | 76 [122] | 35 | 27 | OFF | OFF | Not Active | Not Neutral |
| EA000370 | -16.4 | Not Received | 77 [124] | 32.5 | 25 | OFF | OFF | Not Active | Not Neutral |
| EA000380 | -16.2 | Not Received | 77 [124] | 32.5 | 25.5 | OFF | OFF | Not Active | Not Neutral |
| EA000390 | -16.0 | Not Received | 77 [124] | 67 | 68 | OFF | OFF | Not Active | Not Neutral |
| EA0003A0 | -15.8 | Not Received | 77 [124] | 70.5 | 99 | OFF | OFF | Not Active | Not Neutral |
| EA0003B0 | -15.6 | Not Received | 77 [124] | 62.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0003C0 | -15.4 | Not Received | 78 [126] | 55.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0003D0 | -15.2 | Not Received | 78 [126] | 53 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0003E0 | -15.0 | Not Received | 78 [126] | 53 | 91.5 | OFF | OFF | Not Active | Not Neutral |
| EA0003F0 | -14.8 | Not Received | 78 [126] | 53 | 64.5 | OFF | OFF | Not Active | Not Neutral |
| EA000400 | -14.6 | Not Received | 79 [127] | 53 | 48.5 | OFF | OFF | Not Active | Not Neutral |
| EA000410 | -14.4 | Not Received | 79 [127] | 52 | 45.5 | OFF | OFF | Not Active | Not Neutral |
| EA000420 | -14.2 | Not Received | 79 [127] | 52 | 44.5 | OFF | OFF | Not Active | Not Neutral |
| EA000430 | -14.0 | Not Received | 79 [127] | 52 | 51 | OFF | OFF | Not Active | Not Neutral |
| EA000440 | -13.8 | Not Received | 80 [129] | 52 | 97.5 | OFF | OFF | Not Active | Not Neutral |
| EA000450 | -13.6 | Not Received | 80 [129] | 52 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000460 | -13.4 | Not Received | 80 [129] | 57.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000470 | -13.2 | Not Received | 81 [130] | 57.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000480 | -13.0 | Not Received | 81 [130] | 57.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000490 | -12.8 | Not Received | 82 [132] | 57 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0004A0 | -12.6 | Not Received | 82 [132] | 56 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0004B0 | -12.4 | Not Received | 82 [132] | 55 | 99 | OFF | OFF | Not Active | Not Neutral |
| EA0004C0 | -12.2 | Not Received | 82 [132] | 54.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0004D0 | -12.0 | Not Received | 83 [134] | 54.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0004E0 | -11.8 | Not Received | 83 [134] | 54.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0004F0 | -11.6 | Not Received | 83 [134] | 54.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000500 | -11.4 | Not Received | 84 [135] | 53 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000510 | -11.2 | Not Received | 84 [135] | 53 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000520 | -11.0 | Not Received | 84 [135] | 53 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000530 | -10.8 | Not Received | 85 [137] | 52.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000540 | -10.6 | Not Received | 85 [137] | 52.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000550 | -10.4 | Not Received | 85 [137] | 51 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000560 | -10.2 | Not Received | 86 [138] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000570 | -10.0 | Not Received | 86 [138] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000580 | -9.8 | Not Received | 86 [138] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000590 | -9.6 | Not Received | 86 [138] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0005A0 | -9.4 | Not Received | 87 [140] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0005B0 | -9.2 | Not Received | 87 [140] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0005C0 | -9.0 | Not Received | 87 [140] | 50 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0005D0 | -8.8 | Not Received | 87 [140] | 50 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0005E0 | -8.6 | Not Received | 88 [142] | 50 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0005F0 | -8.4 | Not Received | 88 [142] | 50 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000600 | -8.2 | Not Received | 88 [142] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000610 | -8.0 | Not Received | 89 [143] | 50.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000620 | -7.8 | Not Received | 89 [143] | 51 | 98.5 | OFF | OFF | Not Active | Not Neutral |


| Buffer Address (Hex) | Relative Time (calc.) <br> (Seconds) | Restraint <br> Deployment <br> Signal <br> (Received / <br> Not Received) | Speed, Vehicle Indicated (MPH [km/h]) | Accelerator Pedal \% Full (\%) | Engine Throttle \% Full (\%) | Brake <br> Switch <br> (On / Off) | Brake SC De-ac (On / Off) | ABS <br> (Active / Inactive) | Transmission Neutral <br> (Neutral / <br> Not Neutral) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EA000630 | -7.6 | Not Received | 89 [143] | 96 | 99 | OFF | OFF | Not Active | Not Neutral |
| EA000640 | -7.4 | Not Received | 89 [143] | 98 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000650 | -7.2 | Not Received | 89 [143] | 98.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000660 | -7.0 | Not Received | 90 [145] | 98.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000670 | -6.8 | Not Received | 89 [143] | 98 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA000680 | -6.6 | Not Received | 89 [143] | 95 | 99 | OFF | OFF | Not Active | Not Neutral |
| EA000690 | -6.4 | Not Received | 89 [143] | 97.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0006A0 | -6.2 | Not Received | 90 [145] | 97.5 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0006B0 | -6.0 | Not Received | 91 [146] | 100 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0006C0 | -5.8 | Not Received | 91 [146] | 95.5 | 99 | OFF | OFF | Not Active | Not Neutral |
| EA0006D0 | -5.6 | Not Received | 91 [146] | 74 | 98.5 | OFF | OFF | Not Active | Not Neutral |
| EA0006E0 | -5.4 | Not Received | 93 [150] | 81 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA0006F0 | -5.2 | Not Received | 95 [153] | 77 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA000700 | -5.0 | Not Received | 97 [156] | 95 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA000710 | -4.8 | Not Received | 100 [161] | 96.5 | 99 | OFF | OFF | Active | Not Neutral |
| EA000720 | -4.6 | Not Received | 99 [159] | 99 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA000730 | -4.4 | Not Received | 97 [156] | 98 | 99 | OFF | OFF | Active | Not Neutral |
| EA000740 | -4.2 | Not Received | 102 [164] | 100 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA000750 | -4.0 | Not Received | 104 [167] | 100 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA000760 | -3.8 | Not Received | 108 [174] | 100 | 98.5 | OFF | OFF | Active | Not Neutral |
| EA000770 | -3.6 | Not Received | 99 [159] | 100 | 99 | OFF | OFF | Active | Not Neutral |
| EA000780 | -3.4 | Not Received | 92 [148] | 100 | 98.5 | ON | OFF | Active | Not Neutral |
| EA000790 | -3.2 | Not Received | 56 [90] | 2 | 47.5 | OFF | OFF | Active | Neutral |
| EA0007A0 | -3.0 | Not Received | 49 [79] | 0 | 10.5 | OFF | OFF | Active | Neutral |
| EA0007B0 | -2.8 | Not Received | 35 [56] | 0 | 11.5 | OFF | OFF | Active | Neutral |
| EA0007C0 | -2.6 | Not Received | 8 [13] | 0 | 8 | OFF | OFF | Active | Neutral |
| EA0007D0 | -2.4 | Not Received | 1 [2] | 0 | 7.5 | OFF | OFF | Active | Neutral |
| EA0007E0 | -2.2 | Not Received | 1 [2] | 0 | 7 | OFF | OFF | Active | Neutral |
| EA0007F0 | -2.0 | Not Received | 0 [0] | 0 | 6.5 | OFF | OFF | Active | Neutral |
| EA000010 | -1.8 | Not Received | 2 [3] | 0 | 6 | OFF | OFF | Not Active | Neutral |
| EA000020 | -1.6 | Not Received | 1 [2] | 0 | 6 | OFF | OFF | Not Active | Neutral |
| EA000030 | -1.4 | Not Received | 2 [3] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000040 | -1.2 | Not Received | 1 [2] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000050 | -1.0 | Not Received | 0 [0] | 0 | 5 | OFF | OFF | Not Active | Neutral |
| EA000060 | -0.8 | Not Received | 0 [0] | 0 | 5 | OFF | OFF | Not Active | Neutral |
| EA000070 | -0.6 | Not Received | 1 [2] | 0 | 5 | OFF | OFF | Not Active | Neutral |
| EA000080 | -0.4 | Not Received | 2 [3] | 0 | 5 | OFF | OFF | Not Active | Neutral |
| EA000090 | -0.2 | Not Received | 0 [0] | 0 | 5 | OFF | OFF | Not Active | Neutral |
| EA0000A0 | 0.0 | Not Received | 0 [0] | 0 | 4.5 | OFF | OFF | Not Active | Neutral |
| EA0000B0 | 0.2 | Received | 0 [0] | 0 | 4.5 | OFF | OFF | Not Active | Neutral |
| EA0000C0 | 0.4 | Received | 1 [2] | 0 | 4.5 | OFF | OFF | Not Active | Neutral |
| EA0000D0 | 0.6 | Received | 0 [0] | 0 | 4.5 | OFF | OFF | Not Active | Neutral |
| EA0000E0 | 0.8 | Received | 0 [0] | 0 | 4.5 | OFF | OFF | Not Active | Neutral |
| EA0000F0 | 1.0 | Received | 1 [2] | 0 | 4.5 | OFF | OFF | Not Active | Neutral |
| EA000100 | 1.2 | Received | 1 [2] | 0 | 5 | OFF | OFF | Not Active | Neutral |
| EA000110 | 1.4 | Received | 0 [0] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000120 | 1.6 | Received | 0 [0] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000130 | 1.8 | Received | 1 [2] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000140 | 2.0 | Received | 0 [0] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000150 | 2.2 | Received | 2 [3] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000160 | 2.4 | Received | 1 [2] | 0 | 5.5 | OFF | OFF | Not Active | Neutral |
| EA000170 | 2.6 | Received | 0 [0] | 0 | 6 | OFF | OFF | Not Active | Neutral |
| EA000180 | 2.8 | Received | 0 [0] | 0 | 6 | OFF | OFF | Not Active | Not Neutral |
| EA000190 | 3.0 | Received | 0 [0] | 0 | 6 | OFF | OFF | Not Active | Not Neutral |
| EA0001A0 | 3.2 | Received | 0 [0] | 0 | 6.5 | OFF | OFF | Not Active | Not Neutral |
| EA0001B0 | 3.4 | Received | 0 [0] | 0 | 6.5 | OFF | OFF | Not Active | Not Neutral |
| EA0001C0 | 3.6 | Received | 0 [0] | 0 | 2.5 | OFF | OFF | Not Active | Not Neutral |
| EA0001D0 | 3.8 | Received | 0 [0] | 0 | 9 | OFF | OFF | Not Active | Not Neutral |
| EA0001E0 | 4.0 | Received | 0 [0] | 0 | 9.5 | OFF | OFF | Not Active | Not Neutral |
| EA0001F0 | 4.2 | Received | 0 [0] | 0 | 9.5 | OFF | OFF | Not Active | Not Neutral |
| EA000200 | 4.4 | Received | 0 [0] | 0 | 9.5 | OFF | OFF | Not Active | Not Neutral |
| EA000210 | 4.6 | Received | 0 [0] | 0 | 9.5 | OFF | OFF | Not Active | Not Neutral |
| EA000220 | 4.8 | Received | 0 [0] | 0 | 9.5 | OFF | OFF | Not Active | Not Neutral |
| EA000230 | 5.0 | Received | 0 [0] | 0 | 9.5 | OFF | OFF | Not Active | Not Neutral |

## 

PCM EDR Data (2)

| Buffer Address <br> (Hex) | Relative Time (calc.) <br> (Seconds) | Transmission <br> - Reverse <br> (Reverse / <br> Not Reverse) | Speed Control (On / Off) | Engine RPM <br> (RPM) | Driveline Torque Commanded ( $\mathrm{N}-\mathrm{m}$ ) | Driveline <br> Torque Actual (N-m) | Traction Control <br> (Active / Inactive) | Stability Control <br> (Active / Inactive) | Key On Timer 63.75 Max (sec) <br> (Seconds) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EA000240 | -20.2 | Not Reverse | OFF | 2175 | 168 | 102 | Not Active | Not Active | 63.75 |
| EA000250 | -20.0 | Not Reverse | OFF | 2174 | 167 | 102 | Not Active | Not Active | 63.75 |
| EA000260 | -19.8 | Not Reverse | OFF | 2180 | 168 | 102 | Not Active | Not Active | 63.75 |
| EA000270 | -19.6 | Not Reverse | OFF | 2185 | 169 | 103 | Not Active | Not Active | 63.75 |
| EA000280 | -19.4 | Not Reverse | OFF | 2180 | 167 | 101 | Not Active | Not Active | 63.75 |
| EA000290 | -19.2 | Not Reverse | OFF | 2185 | 168 | 102 | Not Active | Not Active | 63.75 |
| EA0002A0 | -19.0 | Not Reverse | OFF | 2189 | 169 | 102 | Not Active | Not Active | 63.75 |
| EA0002B0 | -18.8 | Not Reverse | OFF | 2192 | 175 | 107 | Not Active | Not Active | 63.75 |
| EA0002C0 | -18.6 | Not Reverse | OFF | 2193 | 175 | 107 | Not Active | Not Active | 63.75 |
| EA0002D0 | -18.4 | Not Reverse | OFF | 2192 | 176 | 107 | Not Active | Not Active | 63.75 |
| EA0002E0 | -18.2 | Not Reverse | OFF | 2200 | 176 | 107 | Not Active | Not Active | 63.75 |
| EA0002F0 | -18.0 | Not Reverse | OFF | 2196 | 175 | 106 | Not Active | Not Active | 63.75 |
| EA000300 | -17.8 | Not Reverse | OFF | 2203 | 180 | 110 | Not Active | Not Active | 63.75 |
| EA000310 | -17.6 | Not Reverse | OFF | 2207 | 182 | 111 | Not Active | Not Active | 63.75 |
| EA000320 | -17.4 | Not Reverse | OFF | 2209 | 183 | 112 | Not Active | Not Active | 63.75 |
| EA000330 | -17.2 | Not Reverse | OFF | 2213 | 182 | 111 | Not Active | Not Active | 63.75 |
| EA000340 | -17.0 | Not Reverse | OFF | 2217 | 196 | 120 | Not Active | Not Active | 63.75 |
| EA000350 | -16.8 | Not Reverse | OFF | 2224 | 213 | 132 | Not Active | Not Active | 63.75 |
| EA000360 | -16.6 | Not Reverse | OFF | 2228 | 238 | 148 | Not Active | Not Active | 63.75 |
| EA000370 | -16.4 | Not Reverse | OFF | 2232 | 235 | 146 | Not Active | Not Active | 63.75 |
| EA000380 | -16.2 | Not Reverse | OFF | 2244 | 227 | 141 | Not Active | Not Active | 63.75 |
| EA000390 | -16.0 | Not Reverse | OFF | 2248 | 282 | 178 | Not Active | Not Active | 63.75 |
| EA0003A0 | -15.8 | Not Reverse | OFF | 2318 | 307 | 193 | Not Active | Not Active | 63.75 |
| EA0003B0 | -15.6 | Not Reverse | OFF | 2712 | 278 | 177 | Not Active | Not Active | 63.75 |
| EA0003C0 | -15.4 | Not Reverse | OFF | 3079 | 284 | 206 | Not Active | Not Active | 63.75 |
| EA0003D0 | -15.2 | Not Reverse | OFF | 3296 | 315 | 250 | Not Active | Not Active | 63.75 |
| EA0003E0 | -15.0 | Not Reverse | OFF | 3400 | 292 | 248 | Not Active | Not Active | 63.75 |
| EA0003F0 | -14.8 | Not Reverse | OFF | 3393 | 279 | 240 | Not Active | Not Active | 63.75 |
| EA000400 | -14.6 | Not Reverse | OFF | 3612 | 297 | 271 | Not Active | Not Active | 63.75 |
| EA000410 | -14.4 | Not Reverse | OFF | 3633 | 306 | 282 | Not Active | Not Active | 63.75 |
| EA000420 | -14.2 | Not Reverse | OFF | 3615 | 308 | 283 | Not Active | Not Active | 63.75 |
| EA000430 | -14.0 | Not Reverse | OFF | 3318 | 283 | 234 | Not Active | Not Active | 63.75 |
| EA000440 | -13.8 | Not Reverse | OFF | 2938 | 369 | 239 | Not Active | Not Active | 63.75 |
| EA000450 | -13.6 | Not Reverse | OFF | 2989 | 322 | 211 | Not Active | Not Active | 63.75 |
| EA000460 | -13.4 | Not Reverse | OFF | 2990 | 322 | 209 | Not Active | Not Active | 63.75 |
| EA000470 | -13.2 | Not Reverse | OFF | 2990 | 325 | 210 | Not Active | Not Active | 63.75 |
| EA000480 | -13.0 | Not Reverse | OFF | 2986 | 322 | 207 | Not Active | Not Active | 63.75 |
| EA000490 | -12.8 | Not Reverse | OFF | 2936 | 329 | 207 | Not Active | Not Active | 63.75 |
| EA0004A0 | -12.6 | Not Reverse | OFF | 2827 | 327 | 204 | Not Active | Not Active | 63.75 |
| EA0004B0 | -12.4 | Not Reverse | OFF | 2746 | 324 | 202 | Not Active | Not Active | 63.75 |
| EA0004C0 | -12.2 | Not Reverse | OFF | 2642 | 318 | 199 | Not Active | Not Active | 63.75 |
| EA0004D0 | -12.0 | Not Reverse | OFF | 2494 | 326 | 205 | Not Active | Not Active | 63.75 |
| EA0004E0 | -11.8 | Not Reverse | OFF | 2424 | 323 | 203 | Not Active | Not Active | 63.75 |
| EA0004F0 | -11.6 | Not Reverse | OFF | 2435 | 315 | 198 | Not Active | Not Active | 63.75 |
| EA000500 | -11.4 | Not Reverse | OFF | 2448 | 316 | 198 | Not Active | Not Active | 63.75 |
| EA000510 | -11.2 | Not Reverse | OFF | 2454 | 318 | 200 | Not Active | Not Active | 63.75 |
| EA000520 | -11.0 | Not Reverse | OFF | 2462 | 319 | 200 | Not Active | Not Active | 63.75 |
| EA000530 | -10.8 | Not Reverse | OFF | 2470 | 317 | 199 | Not Active | Not Active | 63.75 |
| EA000540 | -10.6 | Not Reverse | OFF | 2478 | 318 | 200 | Not Active | Not Active | 63.75 |
| EA000550 | -10.4 | Not Reverse | OFF | 2491 | 318 | 199 | Not Active | Not Active | 63.75 |
| EA000560 | -10.2 | Not Reverse | OFF | 2490 | 318 | 200 | Not Active | Not Active | 63.75 |
| EA000570 | -10.0 | Not Reverse | OFF | 2499 | 319 | 200 | Not Active | Not Active | 63.75 |
| EA000580 | -9.8 | Not Reverse | OFF | 2517 | 320 | 201 | Not Active | Not Active | 63.75 |
| EA000590 | -9.6 | Not Reverse | OFF | 2515 | 317 | 199 | Not Active | Not Active | 63.75 |
| EA0005A0 | -9.4 | Not Reverse | OFF | 2530 | 317 | 199 | Not Active | Not Active | 63.75 |
| EA0005B0 | -9.2 | Not Reverse | OFF | 2536 | 318 | 199 | Not Active | Not Active | 63.75 |
| EA0005C0 | -9.0 | Not Reverse | OFF | 2551 | 318 | 199 | Not Active | Not Active | 63.75 |
| EA0005D0 | -8.8 | Not Reverse | OFF | 2551 | 319 | 200 | Not Active | Not Active | 63.75 |
| EA0005E0 | -8.6 | Not Reverse | OFF | 2562 | 317 | 198 | Not Active | Not Active | 63.75 |
| EA0005F0 | -8.4 | Not Reverse | OFF | 2568 | 316 | 198 | Not Active | Not Active | 63.75 |
| EA000600 | -8.2 | Not Reverse | OFF | 2580 | 316 | 198 | Not Active | Not Active | 63.75 |
| EA000610 | -8.0 | Not Reverse | OFF | 2584 | 315 | 197 | Not Active | Not Active | 63.75 |
| EA000620 | -7.8 | Not Reverse | OFF | 2592 | 317 | 198 | Not Active | Not Active | 63.75 |


| Buffer Address (Hex) | Relative Time (calc.) <br> (Seconds) | Transmission <br> - Reverse <br> (Reverse / <br> Not Reverse) | Speed Control (On / Off) | Engine RPM <br> (RPM) | Driveline Torque Commanded ( $\mathrm{N}-\mathrm{m}$ ) | Driveline Torque Actual ( $\mathrm{N}-\mathrm{m}$ ) | Traction Control <br> (Active / Inactive) | Stability Control <br> (Active / Inactive) | Key On Timer 63.75 Max (sec) <br> (Seconds) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EA000630 | -7.6 | Not Reverse | OFF | 2602 | 324 | 203 | Not Active | Not Active | 63.75 |
| EA000640 | -7.4 | Not Reverse | OFF | 2762 | 318 | 199 | Not Active | Not Active | 63.75 |
| EA000650 | -7.2 | Not Reverse | OFF | 3262 | 300 | 206 | Not Active | Not Active | 63.75 |
| EA000660 | -7.0 | Not Reverse | OFF | 3655 | 318 | 253 | Not Active | Not Active | 63.75 |
| EA000670 | -6.8 | Not Reverse | OFF | 3833 | 278 | 240 | Not Active | Not Active | 63.75 |
| EA000680 | -6.6 | Not Reverse | OFF | 3936 | 288 | 259 | Not Active | Not Active | 63.75 |
| EA000690 | -6.4 | Not Reverse | OFF | 4034 | 357 | 328 | Not Active | Not Active | 63.75 |
| EA0006A0 | -6.2 | Not Reverse | OFF | 4066 | 363 | 334 | Not Active | Not Active | 63.75 |
| EA0006B0 | -6.0 | Not Reverse | OFF | 4089 | 364 | 336 | Not Active | Not Active | 63.75 |
| EA0006C0 | -5.8 | Not Reverse | OFF | 4095 | 363 | 334 | Not Active | Not Active | 63.75 |
| EA0006D0 | -5.6 | Not Reverse | OFF | 4130 | 356 | 327 | Not Active | Not Active | 63.75 |
| EA0006E0 | -5.4 | Not Reverse | OFF | 4188 | 356 | 330 | Not Active | Not Active | 63.75 |
| EA0006F0 | -5.2 | Not Reverse | OFF | 4278 | 346 | 319 | Not Active | Not Active | 63.75 |
| EA000700 | -5.0 | Not Reverse | OFF | 4329 | 344 | 318 | Not Active | Not Active | 63.75 |
| EA000710 | -4.8 | Not Reverse | OFF | 4426 | 340 | 314 | Not Active | Not Active | 63.75 |
| EA000720 | -4.6 | Not Reverse | OFF | 4348 | 355 | 328 | Not Active | Not Active | 63.75 |
| EA000730 | -4.4 | Not Reverse | OFF | 4368 | 363 | 336 | Not Active | Not Active | 63.75 |
| EA000740 | -4.2 | Not Reverse | OFF | 4490 | 347 | 320 | Not Active | Not Active | 63.75 |
| EA000750 | -4.0 | Not Reverse | OFF | 4565 | 339 | 312 | Not Active | Not Active | 63.75 |
| EA000760 | -3.8 | Not Reverse | OFF | 4664 | 339 | 312 | Not Active | Not Active | 63.75 |
| EA000770 | -3.6 | Not Reverse | OFF | 4178 | 392 | 365 | Not Active | Not Active | 63.75 |
| EA000780 | -3.4 | Not Reverse | OFF | 3677 | 394 | 368 | Not Active | Not Active | 63.75 |
| EA000790 | -3.2 | Not Reverse | OFF | 3100 | 434 | 414 | Not Active | Not Active | 63.75 |
| EA0007A0 | -3.0 | Not Reverse | OFF | 2799 | 32 | 19 | Not Active | Not Active | 63.75 |
| EA0007B0 | -2.8 | Not Reverse | OFF | 2505 | 27 | 20 | Not Active | Not Active | 63.75 |
| EA0007C0 | -2.6 | Not Reverse | OFF | 2319 | 25 | 32 | Not Active | Not Active | 63.75 |
| EA0007D0 | -2.4 | Not Reverse | OFF | 2155 | -11 | -94 | Not Active | Not Active | 63.75 |
| EA0007E0 | -2.2 | Not Reverse | OFF | 1984 | -33 | -155 | Not Active | Not Active | 63.75 |
| EA0007F0 | -2.0 | Not Reverse | OFF | 1919 | -21 | -122 | Not Active | Not Active | 63.75 |
| EA000010 | -1.8 | Not Reverse | OFF | 1734 | -24 | -127 | Not Active | Not Active | 63.75 |
| EA000020 | -1.6 | Not Reverse | OFF | 1558 | -21 | -120 | Not Active | Not Active | 63.75 |
| EA000030 | -1.4 | Not Reverse | OFF | 1335 | 1 | -57 | Not Active | Not Active | 63.75 |
| EA000040 | -1.2 | Not Reverse | OFF | 1190 | 0 | -59 | Not Active | Not Active | 63.75 |
| EA000050 | -1.0 | Not Reverse | OFF | 1196 | -5 | -76 | Not Active | Not Active | 63.75 |
| EA000060 | -0.8 | Not Reverse | OFF | 1224 | -26 | -136 | Not Active | Not Active | 63.75 |
| EA000070 | -0.6 | Not Reverse | OFF | 1034 | 0 | -63 | Not Active | Not Active | 63.75 |
| EA000080 | -0.4 | Not Reverse | OFF | 1075 | -12 | -94 | Not Active | Not Active | 63.75 |
| EA000090 | -0.2 | Not Reverse | OFF | 1057 | 5 | -45 | Not Active | Not Active | 63.75 |
| EA0000AO | 0.0 | Not Reverse | OFF | 1116 | 15 | -17 | Not Active | Not Active | 63.75 |
| EA0000B0 | 0.2 | Not Reverse | OFF | 1116 | 5 | -46 | Not Active | Not Active | 63.75 |
| EA0000C0 | 0.4 | Not Reverse | OFF | 1014 | -23 | -124 | Not Active | Not Active | 63.75 |
| EA0000D0 | 0.6 | Not Reverse | OFF | 916 | -19 | -114 | Not Active | Not Active | 63.75 |
| EA0000E0 | 0.8 | Not Reverse | OFF | 681 | -21 | -119 | Not Active | Not Active | 63.75 |
| EA0000FO | 1.0 | Not Reverse | OFF | 496 | -17 | -106 | Not Active | Not Active | 63.75 |
| EA000100 | 1.2 | Not Reverse | OFF | 400 | -1 | -63 | Not Active | Not Active | 63.75 |
| EA000110 | 1.4 | Not Reverse | OFF | 508 | 19 | -7 | Not Active | Not Active | 63.75 |
| EA000120 | 1.6 | Not Reverse | OFF | 410 | 70 | 131 | Not Active | Not Active | 63.75 |
| EA000130 | 1.8 | Not Reverse | OFF | 497 | 77 | 152 | Not Active | Not Active | 63.75 |
| EA000140 | 2.0 | Not Reverse | OFF | 668 | 35 | 35 | Not Active | Not Active | 63.75 |
| EA000150 | 2.2 | Not Reverse | OFF | 624 | 51 | 83 | Not Active | Not Active | 63.75 |
| EA000160 | 2.4 | Not Reverse | OFF | 576 | -1 | -64 | Not Active | Not Active | 63.75 |
| EA000170 | 2.6 | Not Reverse | OFF | 398 | 17 | -14 | Not Active | Not Active | 63.75 |
| EA000180 | 2.8 | Not Reverse | OFF | 276 | 20 | 53 | Not Active | Not Active | 63.75 |
| EA000190 | 3.0 | Not Reverse | OFF | 217 | 28 | 95 | Not Active | Not Active | 63.75 |
| EA0001A0 | 3.2 | Not Reverse | OFF | 277 | 70 | 334 | Not Active | Not Active | 63.75 |
| EA0001B0 | 3.4 | Not Reverse | OFF | 148 | 107 | 510 | Not Active | Not Active | 63.75 |
| EA0001C0 | 3.6 | Not Reverse | OFF | 148 | 47 | 264 | Not Active | Not Active | 63.75 |
| EA0001D0 | 3.8 | Not Reverse | OFF | 0 | 252 | 1693 | Not Active | Not Active | 63.75 |
| EA0001E0 | 4.0 | Not Reverse | OFF | 0 | 233 | 1555 | Not Active | Not Active | 63.75 |
| EA0001F0 | 4.2 | Not Reverse | OFF | 0 | 231 | 1540 | Not Active | Not Active | 63.75 |
| EA000200 | 4.4 | Not Reverse | OFF | 0 | 231 | 1535 | Not Active | Not Active | 63.75 |
| EA000210 | 4.6 | Not Reverse | OFF | 0 | 231 | 1535 | Not Active | Not Active | 63.75 |
| EA000220 | 4.8 | Not Reverse | OFF | 0 | 231 | 1535 | Not Active | Not Active | 63.75 |
| EA000230 | 5.0 | Not Reverse | OFF | 0 | 231 | 1535 | Not Active | Not Active | 63.75 |

## 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.

|  | 32 | 46 | 41 | 48 | 50 | 37 | 31 | 57 | 34 | 37 | 58 | 31 | 32 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0000100D | 32 | FF | FF | FF |  |  |  |  |  |  |  |  |  |  |  |  |
| 00001004 | 46 | 43 | 48 | 47 | 32 | 50 | 5A | 2E | 48 | 45 | 58 | 2A |  |  |  |  |
| 000010054: | 37 | 57 | 37 | 41 | 56 | 43 | 20 | 2A |  |  |  |  |  |  |  |  |
| OEA000000: | 05 | 00 | AO | 5B | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | , | 0 |  |  |
| OEA000010 | 00 | 00 | 0C | 1B | 19 | 01 | E8 | 01 | 2C | 01 | 81 | 00 | F8 | F | 00 | 31 |
| OEA000020: | 00 | 00 | 0C | 18 | 59 | 01 | EB | 00 | 9D | 01 | 88 | 00 | F8 | FF | 00 | 7 A |
| OEA000030: | 00 | 00 | 0B | 14 | DD | 02 | 01 | 00 | EE | 01 | C7 | 00 | F8 | FF | 00 | 4 |
| OEA000040: | 00 | 00 | 0B | 12 | 97 | 02 | 00 | 00 | 4E | 01 | C5 | 00 | F8 | F | 00 | 3F |
| OEA000050 | 00 | 00 | 0A | 12 | AE | 01 | FB | 00 | 00 | 01 | B4 | 00 | F8 | F | 00 | 8E |
| OEA000060: | 00 | 00 | 0A | 13 | 21 | 01 | E6 | 00 | 00 | 01 | 78 | 00 | F8 | FF | 00 | B |
| OEA000070: | 00 | 00 | 0A | 10 | 26 | 02 | 00 | 00 | 85 | 01 | C1 | 00 | F8 | FF | 00 | 80 |
| OEA000080: | 00 | 00 | 0A | 10 | CB | 01 | F4 | 01 | 20 | 01 | A2 | 00 | F8 | FF | 00 | B |
| OEA000090: | 00 | 00 | 0A | 10 | 83 | 02 | 05 | 00 | 00 | 01 | D3 | 00 | F8 | F | 0 | 1 |
| OEA0000A0: | 00 | 00 | 09 | 11 | 70 | 02 | OF | 00 | 37 | 01 | EF | 00 | F8 | FF | 0 | 47 |
| OEA0000B0: | 00 | 00 | 09 | 11 | 71 | 02 | 05 | 00 | 31 | 01 | D2 | 01 | F8 | FF | 00 | 2 |
| OEA0000C0: | 00 | 00 | 09 | OF | D7 | 01 | E9 | 00 | 73 | 01 | 84 | 01 | F8 | FF | 00 | 37 |
| OEA0000D0: | 00 | 00 | 09 | OE | 51 | 01 | ED | 00 | 35 | 01 | 8E | 01 | F8 | F | 0 | EE |
| OEA0000E0 | 00 | 00 | 09 | 0A | A5 | 01 | EB | 00 | 00 | 01 | 89 | 01 | F8 | FF |  | DA |
| OEA0000F0: | 00 | 00 | 09 | 07 | C1 | 01 | EF | 00 | 7E | 01 | 96 | 01 | F8 | FF | 00 | 32 |
| OEA000100: | 00 | 00 | 0A | 06 | 42 | 01 | FF | 00 | 4C | 01 | C1 | 01 | F8 | FF | 00 | A8 |
| OEA000110: | 00 | 00 | 0B | 07 | F1 | 02 | 13 | 00 | 00 | 01 | F9 | 01 | F8 | FF | 00 | F6 |
| OEA000120: | 00 | 00 | 0B | 06 | 68 | 02 | 46 | 00 | 00 | 02 | 83 | 01 | F8 | F | 0 | 2 |
| OEA000130: | 00 | 00 | 0B | 07 | C5 | 02 | 4D | 00 | B8 | 02 | 98 | 01 | F8 | FF | 0 | 90 |
| OEA000140: | 00 | 00 | 0B | 0A | 6E | 02 | 23 | 00 | 00 | 02 | 23 | 01 | F8 | FF | 00 | 3B |
| OEA000150: | 00 | 00 | 0B | 09 | BF | 02 | 33 | 00 | CD | 02 | 53 | 01 | F8 | FF | 00 | DE |
| OEA000160: | 00 | 00 | 0B | 08 | FF | 01 | FF | 00 | 43 | 01 | C0 | 01 | F8 | FF | 0 | F2 |
| OEA000170: | 00 | 00 | OC | 06 | 37 | 02 | 11 | 00 | 00 | 01 | F2 | 01 | F8 | FF | 0 | 9 |
| OEA000180: | 00 | 04 | 0C | 04 | 50 | 02 | 14 | 00 | 00 | 02 | 35 | 01 | F8 | FF | 00 | 7 |
| OEA000190: | 00 | 04 | OC | 03 | 65 | 02 | 1C | 00 | 00 | 02 | 5F | 01 | F8 | F | 00 | 11 |
| OEA0001A0: | 00 | 04 | OD | 04 | 54 | 02 | 46 | 00 | 00 | 03 | 4E | 01 | F8 | FF | 00 | 6 |
| OEA0001B0: | 00 | 04 | OD | 02 | 51 | 02 | 6B | 00 | 00 | 03 | FE | 01 | F8 | FF | 00 | 6 |
| OEA0001C0: | 00 | 04 | 05 | 02 | 51 | 02 | 2 F | 00 | 00 | 03 | 08 | 01 | F8 | FF | 00 | 70 |
| OEA0001D0: | 00 | 04 | 12 | 00 | 00 | 02 | FC | 00 | 00 | 08 | 9D | 01 | F8 | F | 00 | 4F |
| OEA0001E0: | 00 | 04 | 13 | 00 | 00 | 02 | E9 | 00 | 00 | 08 | 13 | 01 | F8 | FF | 00 | EB |
| OEA0001F0: | 00 | 04 | 13 | 00 | 00 | 02 | E7 | 00 | 00 | 08 | 04 | 01 | F8 | FF | 00 | C |
| OEA000200: | 00 | 04 | 13 | 00 | 00 | 02 | E7 | 00 | 00 | 07 | FF | 01 | F8 | FF | 0 | 02 |
| OEA000210: | 00 | 04 | 13 | 00 | 00 | 02 | E7 | 00 | 00 | 07 | FF | 01 | F8 | F | 0 | 02 |
| OEA000220: | 00 | 04 | 13 | 00 | 00 | 02 | E7 | 00 | 00 | 07 | FF | 01 | F8 | FF | 0 | 02 |
| OEA000230: | 00 | 04 | 13 | 00 | 00 | 02 | E7 | 00 | 00 | 07 | FF | 01 | F8 | FF | 00 | 02 |
| OEA000240: | 36 | 04 | 27 | 21 | FC | 02 | A8 | 25 | 42 | 02 | 66 | 00 | F8 | FF | 0 | 12 |
| OEA000250: | 36 | 04 | 27 | 21 | FA | 02 | A7 | 25 | 4B | 02 | 66 | 00 | F8 | FF | 0 | 0C |
| OEA000260: | 36 | 04 | 27 | 22 | 10 | 02 | A8 | 25 | 5B | 02 | 66 | 00 | F8 | FF | 0 | E4 |
| OEA000270: | 36 | 04 | 27 | 22 | 25 | 02 | A9 | 25 | 5C | 02 | 67 | 00 | F8 | FF | 00 | CC |
| OEA000280: | 36 | 04 | 27 | 22 | 0F | 02 | A7 | 25 | 65 | 02 | 65 | 00 | F8 | FF | 00 | DD |
| OEA000290: | 36 | 04 | 27 | 22 | 25 | 02 | A8 | 25 | 6F | 02 | 66 | 00 | F8 | FF | 00 | BB |
| OEA0002A0: | 37 | 04 | 27 | 22 | 35 | 02 | A9 | 25 | 77 | 02 | 66 | 00 | F8 | FF | 00 | A1 |
| OEA0002B0: | 38 | 04 | 28 | 22 | 42 | 02 | AF | 25 | 82 | 02 | 6B | 00 | F8 | FF | 00 | C |
| OEA0002C0: | 37 | 04 | 28 | 22 | 45 | 02 | AF | 25 | 90 | 02 | 6B | 00 | F8 | FF | 00 | C |
| OEA0002D0: | 36 | 04 | 28 | 22 | 3E | 02 | B0 | 25 | 98 | 02 | 6B | 00 | F8 | FF | 00 | 6B |
| OEA0002E0: | 36 | 04 | 28 | 22 | 61 | 02 | B0 | 25 | A0 | 02 | 6B | 00 | F8 | FF | 00 | 0 |
| OEA0002F0: | 38 | 04 | 28 | 22 | 52 | 02 | AF | 25 | AE | 02 | 6A | 00 | F8 | FF | 00 | 41 |
| OEA000300: | 3A | 04 | 29 | 22 | 6D | 02 | B4 | 25 | B9 | 02 | 6E | 00 | F8 | FF | 00 | OF |
| OEA000310: | 39 | 04 | 29 | 22 | 7C | 02 | B6 | 25 | C7 | 02 | 6F | 00 | F8 | FF | 00 | F0 |
| OEA000320: | 39 | 04 | 29 | 22 | 84 | 02 | B7 | 25 | D1 | 02 | 70 | 00 | F8 | FF | 00 | DC |
| OEA000330: | 39 | 04 | 29 | 22 | 94 | 02 | B6 | 25 | E3 | 02 | 6 F | 00 | F8 | FF | 00 | BC |
| OEA000340: | 40 | 04 | 2E | 22 | A3 | 02 | C4 | 25 | F7 | 02 | 78 | 00 | F8 | FF | 00 |  |

OEAOOO350 OEA000360 OEA000370 OEA000380 OEA000390 0EAOOO3AO: OEA0003B0: 0EA0003C0 0EA0003D0 OEA0003E0 OEA0003F0 OEAOOO400 OEA000410 OEAOOO420 OEAOOO430 OEAOOO440 OEAOOO450 OEA000460 OEA000470 OEA000480: OEA000490: OEA0004A0 OEA0004B0 OEAOOO4CO 0EA0004D0 OEA0004E0 OEA0004F0 OEA000500 OEA000510 OEA000520 OEA000530: OEA000540: OEA000550: OEA000560: OEA000570 OEA000580 OEA000590 OEA0005A0 0EA0005B0 OEA0005C0: 0EA0005D0 OEAOO05E0: 0EA0005F0 OEA000600: OEA000610: OEA000620 OEA000630 OEA000640 OEAOOO650 OEA000660: OEA000670 OEA000680 OEA000690 0EA0006A0 0EA0006B0 OEA0006C0 OEA0006D0 OEA0006E0 OEA0006F0 OEA000700 OEA000710 OEA000720 OEA000730: OEA000740: OEA000750 OEA000760: OEA000770: OEA000780: OEA000790 OEA0007A0:

45043422 C2 02 D5 26 OE 028400 F8 FF 0017 46043622 DO 02 EE 2630029400 F8 FF 00 BB $410432 \quad 22$ E1 02 EB 2649029200 F8 FF 00 9F 410433231202 E 326 5F 02 8D 00 F8 FF 0063 $\begin{array}{llllllllllllll}86 & 04 & 88 & 23 & 20 & 03 & 1 A & 26 & 8 C & 02 & B 2 & 00 & \mathrm{~F} & \mathrm{FF} \\ 0 & 00 & 31\end{array}$ 8D $04 \mathrm{C} 62439033326 \quad 9702 \mathrm{C} 1 \quad 00 \mathrm{~F} 8 \mathrm{FF} 00$ 9F 7D 04 C5 2A 61031626 9F 02 B1 00 F8 FF 00 A 7 6F 04 C5 30 1D 03 1C 26 D6 02 CE 00 F8 FF 0099 6A 04 C 533 FF 03 3B 26 F 602 FA 00 F 8 FF 00 CE 6A 04 B7 $352203242717 \quad 02 \mathrm{~F} 8 \quad 00 \mathrm{~F} 8 \mathrm{FF} 00$ 2E 6A $0481 \quad 35030317 \quad 271 \mathrm{~F} \quad 02 \mathrm{~F} 0 \quad 00 \mathrm{~F} 8 \mathrm{FF} 0090$ 6A $04 \quad 6138 \quad 6 \mathrm{~F} 03292762030 \mathrm{~F} \quad 00 \mathrm{~F} 8 \mathrm{FF} 00 \mathrm{CC}$ 6804 5B 38 C3 $033^{32} 27$ 7F 03 1A 00 F8 FF 00 4F
 68046633 D7 03 1B 27 B8 02 EA 00 F8 FF 0044 $68 \quad 04$ C3 2D E9 037127 DC 02 EF 00 F8 FF 00 5C $6804 \mathrm{C} 5 \quad 2 \mathrm{E}$ B4 0342281402 D 300 F 8 FF 00 A 0 $7304 \mathrm{C} 5 \quad 2 \mathrm{E}$ B7 034228 3D $02 \mathrm{D} 1 \quad 00 \mathrm{~F} 8 \mathrm{FF} 00$ 6B 7304 C 52 E B9 0345287102 D 200 F 8 FF 0031 $7304 \mathrm{C} 5 \quad 2 \mathrm{E}$ A6 $0342 \quad 28 \quad 95 \quad 02 \mathrm{CF} 00 \mathrm{~F} 8 \mathrm{FF} 0026$ 7204 C 5 2D DF 034928 C 702 CF 00 F 8 FF 00 B 6 $7004 \mathrm{C} 5 \quad 2 \mathrm{C} 2 \mathrm{~B} 034728 \mathrm{E} 902 \mathrm{CC} 00 \mathrm{~F} 8 \mathrm{FF} 0050$ 6E 04 C6 2A EA 0344291502 CA 00 F8 FF 00 6C 6D $04 \mathrm{C} 5 \quad 294803$ 3E 29 3E 02 C 700 F 8 FF 00 F 1 6D 04 C5 26 F7 0346197202 CD 00 F 8 FF 0003 6D 04 C 525 DE 0343298502 CB 00 F 8 FF 00 OF 6D 04 C5 26 OD 03 3B 29 B8 02 C6 00 F8 FF 00 B9 6A 04 C5 26 3F 03 3C 29 DD 02 C6 00 F8 FF 0064 6A 04 C5 $2657 \quad 03$ 3E 2A 01 02 C8 00 F8 FF 0023 6A 04 C 5267803 3F 2A 2D 02 C 800 F 8 FF 00 D 5 6904 C5 26 99 03 3D 2A 5302 C7 00 F8 FF 00 6904 C5 26 B8 03 3E 2A 7302 C8 00 F8 FF 0051 6604 C 526 ED 03 3E 2A 9F 02 C 700 F 8 FF 00 F 4 6504 C 526 E 903 3E 2A C0 02 C8 00 F8 FF 00 D7 6504 C 527 OB 03 3F 2A E4 02 C 800 F 8 FF 00 8F $6504 \mathrm{C} 5 \quad 27540340$ 2B 0 A 02 C9 00 F8 FF 00 1D 6504 C 5274 C 03 3D 2B 3002 C 700 F 8 FF 0004
 6504 C 527 A 103 3E 2B 7302 C 700 F 8 FF 00 6B 6404 C 527 DC 03 3E 2B 9402 C 700 F 8 FF 0010 6404 C 527 DC 03 3F 2B BA 02 C 800 F 8 FF 00 E 8 6404 C 5280903 3D 2B DD 02 C 600 F 8 FF 00 9B 6404 C 5282003 3C 2C 0102 C 600 F 8 FF 0060 $6504 \mathrm{C} 5 \quad 285103$ 3C 2C $23 \quad 02 \mathrm{C} 600 \mathrm{~F} 8 \mathrm{FF} 00$ 0C 6504 C 528 5E 03 3B 2C 4302 C 500 F 8 FF 00 E 1 6604 C 5288003 3D 2C 6F 02 C 600 F 8 FF 00 8F C 004 C 628 A 703442 C 8102 CB 00 F 8 FF 00 EF C4 $04 \mathrm{C} 5 \quad 2 \mathrm{~B} \quad 27 \quad 03$ 3E 2C 9902 C 700 F 8 FF 00 5B C5 04 C5 32 F9 03 2C 2C BC 02 CE 00 F8 FF 0069 C5 04 C5 39 1B 03 3E 2C D6 02 FD 00 F8 FF 00 E5
 BE 04 C6 3D 7F 0320 2C 6B 030300 F8 FF 0005 C3 $04 \mathrm{C} 5 \quad 3 \mathrm{~F} \quad 090365$ 2C 90034800 F 8 FF 00 C 6 C3 04 C5 3F 8803 6B 2C D8 03 4E 00 F8 FF 00 F3 C8 $04 \mathrm{C} 5 \quad 3 \mathrm{~F}$ E5 03 6C 2D $470350 \quad 00 \mathrm{~F} 8 \mathrm{FF} 00$ 1E BF 04 C 6 3F FC 03 6B 2D 59034 E 00 F 8 FF 0000 9404 C 5408703642 D 92034700 F 8 FF 0075 A2 04 C 541 EE 0364 2E 6A 03 4A 00 FC FF 00 9F 9A 04 C5 42 D9 03 5A 2F AB 03 3F 00 FC FF 00 0E BE $04 \mathrm{C} 5 \quad 43 \mathrm{~A} 4 \quad 03 \quad 58 \quad 30 \quad 92 \quad 03 \quad 3 \mathrm{E} 00 \mathrm{FC}$ FF 0039 C1 04 C 64528035431 DB 03 3A 00 FC FF 00 6D C6 $04 \mathrm{C} 543 \mathrm{EF} 0363 \quad 31 \quad 56 \quad 0348 \quad 00$ FC FF 00 OC C4 $04 \mathrm{C} 64440 \quad 03$ 6B 30 A6 $0350 \quad 00 \mathrm{FC}$ FF 00 5C C8 04 C5 46 C8 04 C 54753035334 0E 033800 FC FF 0007
 C8 $04 \mathrm{C} 6 \quad 41 \quad 490388 \quad 31 \mathrm{BE} 03 \mathrm{6D} 00 \mathrm{FC} F \mathrm{FF} 00 \mathrm{FF}$ C8 05 C5 397503 8A 2D E8 037000 FC FF 00 B0 04005 F 30 6F 03 B 2 1C 3A 03 9E 00 FC FF 0057 0000152 B BC 02201861021300 FC FF 0059

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OEAOOO7CO: 00001024 3B 021903 E4 022000 FC FF 0072
OEAOOO7DO: 0000 OF 21 AD 01 F5 00 A3 01 A2 00 FC FF 00 EC
OEAOOO7EO: 00 OO OE 1F 0201 DF 0052016500 FC FF 00 3E
OEAOOO7FO: 0000 OD 1D FB 01 EB 0000018600 FC FF 00 6D

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