About Truck ECMs

A truck Engine Control Module, or the ECM, is often times referred to as the engine's "brain". The ECM is a computer that is attached to the side of the engine with functions such as receiving data from different sources on the truck (input) as well as reporting events or conditions (output). The ECM of a truck can store data about a particular event such as a sudden deceleration or a snapshot of a record which occurred. Sophisticated ECM's have been around since the early 1990 and were originally intended for mechanics and fleet managers to troubleshoot their trucks and/or maintain an efficient fleet operation. Because of this, ECM's have been developed with programmable software that can record specific data about the truck's operation. It is important to keep in mind that ECMs were not designed specifically for accident reconstructionists.

The truck ECM is not like an airplane "black box" or even a passenger vehicle's Airbag Control Module, both of which record as a result of an crash. The truck ECM "may" record an event that occurred sometime near the crash event. The expert must fully examine all the surrounding evidence and treat data from the ECM as a tool while understanding the limitations of the data. In addition specific data extraction protocols such as relevant truck parameter documentation and Below is an brief overview of the different truck Engine Control Modules commonly found in our accident reconstruction investigations.

Detroit Diesel ECMs – Generally these ECMs can provided an abundance of useful data from a hard brake incident and/or a last stop record such speed, engine rpm, brake application, clutch position, engine load, cruise control operation, trip date, trip distance, fuel etc. which can be extracted with Detroit Diesel's Diagnostic Link Software.

Cummins ECMs – Very similar to what can be captured in Detroit Diesel's with the exception of not having a last stop record, Cummins ECM can capture up to three sudden deceleration events, with data such as speed, clutch, brake, engine load, etc.

Caterpillar ECMs – Dependence of the model of the engine the Caterpillar ECMs can provide a data from quick stop event which can be stored up to 44 seconds prior to the event and records engine hours, engine rpm, throttle position, clutch switch position, brake switch position, cruise control status, and vehicle speed for 44 seconds before the event and 15 seconds after. Or certain engines only store alive snapshot of this data during a fault code experience by the engine.

Mack ECMs – Since 1998 the VMAC software has been able to retrieve data on their ECMs such as Trip time, fuel, distance, moving time, fuel, distance, cruise time, fuel, distance, faults, fault count, fault time, hard braking occurrences, maximum trip MPH and RPM, severe over RPM occurrences and values. Mack ECMs are often two units in the truck have to be extracted by a Mack truck authorized service technician.

International ECMs – These ECM's do not store as much information as Detroit , Cummins and Mack, however they can provide useful information about the accident truck such as parameter settings and fault codes that can be useful.

Volvo ECM's - Unlike Detroit, Cummins and Mack, Volvo ECMs do not record a sudden deceleration incident. These ECM's can record a "snapshot" which may include speed and rpm when and engine fault code condition is realized.