

On-board Recorders: The “Black Boxes” of the Trucking Industry

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KEYWORDS

Highway

CHOOSE 3:

On-board	Accountability
Recorders	Parameters
Tachograph	Incentive
Parameters	

INTRODUCTION

From 1995 to 1997, the number of fatalities resulting from accidents involving large trucks increased from 5,091 to 5,355.¹ Most crashes involving automobiles and trucks occur in broad daylight, on straight and dry pavement, during normal weather, and with no indication of alcohol or drug use.

In the last four years especially, there has been an outcry across the country from various transportation, safety and trucking groups for a reduction in the number of accidents and deaths on the nation’s highways involving trucks. Ongoing national hearings are being held by the United States House of Representatives Ground Transportation Subcommittee to examine this issue. In the past month, such heavy hitters as National Private Truck Council’s President John McQuaid and Phyllis F. Sheinberg, Associate Director, Transportation Issues, Resources, Community and Economic Development, have been testifying before the committee.

A COMPLEX ISSUE

It is agreed throughout the industry that improving truck safety is a complex issue. Accidents cause not only injuries and death, but they also increase worker compensation costs, insurance premiums, property and personal injury claims, and vehicle downtime and repairs.

Even the most experienced and safest drivers are subject to the whims of other drivers on the road and to unanticipated changes in the weather. However, some factors that have been identified as causes of some of these accidents, including driver error, inattention, or fatigue.

The on-board recorder has evolved into a tool that companies can use to help their drivers become safer drivers. The real-time data that these devices generate point up the deficiencies of less skilled drivers and the strengths of safer, more experienced drivers. When combined with safety training, driver incentive programs, and coaching using this data, companies are producing safer drivers.

CAPABILITIES OF ON-BOARD RECORDERS

On-board recorders are the “black boxes” of the trucking industry. With today’s technology, everything that drivers do in their job can be recorded in real-time. When combined with GPS systems, these systems provide a total picture of the drivers’ day — how they drove and where they were at any given moment.

Safety related reporting capabilities include speeding violations, DOT hours of service violations, sudden decelerations, and exceeding company safety parameters. In particular, those units with the electronic tachograph capability graphically show simultaneous engine and vehicle speed, and show how a vehicle was driven for a 24-hour period. (See Figure 1.) This function identifies driver compliance with speed limit changes along routes. It also profiles basic driving habits. For example, if the graph shows that the vehicle's speed decreased suddenly but the engine speed did not, the driver may have been tailgating and had to slam on the brakes to avoid an accident.

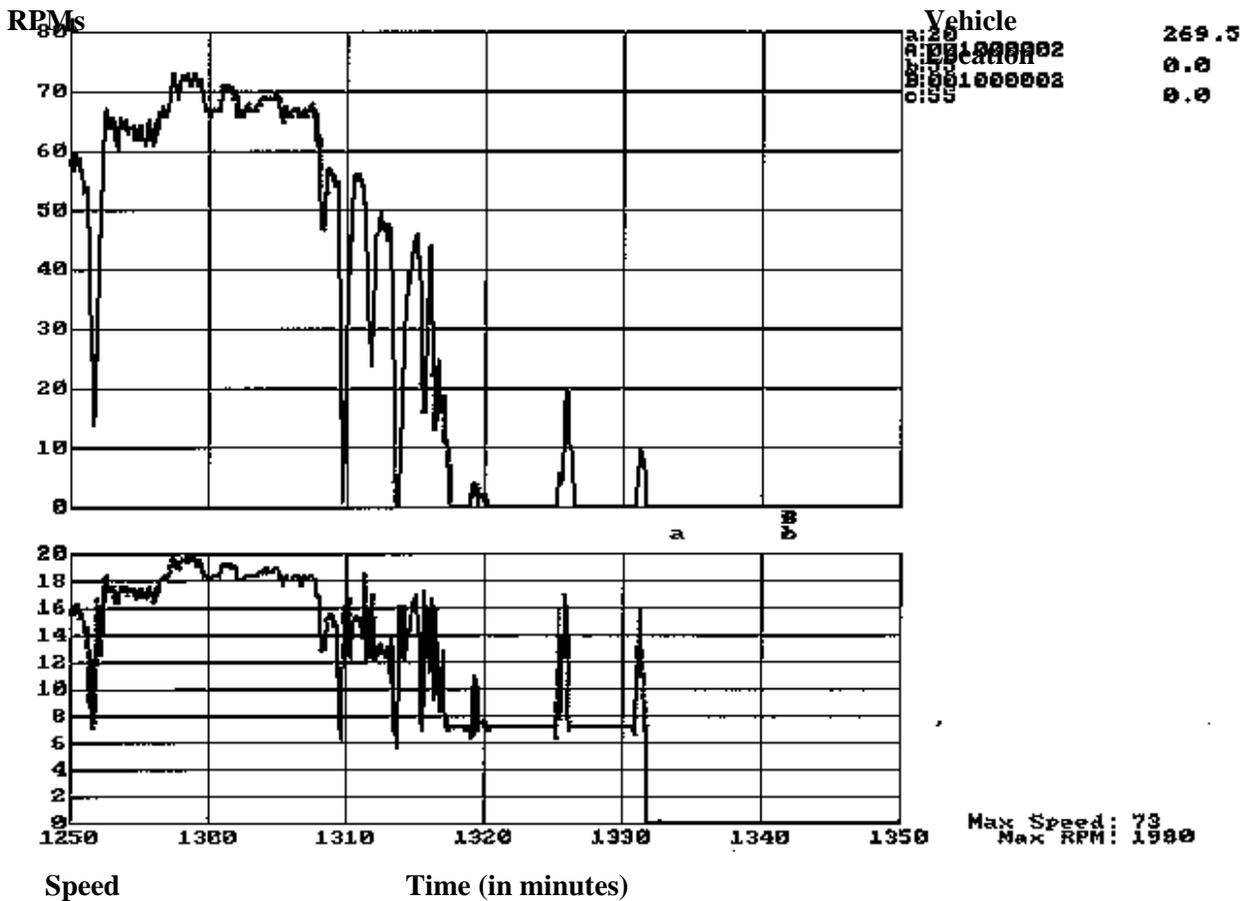


Figure 1: This tachograph shows a representation of the vehicle's speed (top) and the engine's rpm (bottom) in a ten minute period.

Ideally, this objective data is used as a coaching tool to help drivers become safer, more efficient drivers. In the case of an accident, the data can be used to exonerate the innocent driver.

Today's recorders do much more than their initial purpose of automating DOT logs. Some devices now act as "on-board coaches"; they provide immediate feedback to the driver by emitting visual and audible signals when they are exceeding pre-set company safety parameters or approaching impending hours of service violation. If drivers do exceed legal hours, it is reflected on the downloaded data as part of a DOT Violations Report. Routing and scheduling changes may be necessary to help drivers avoid exceeding legal hours.

COACHING DRIVERS

On-board recorders can record speeding violations, sudden decelerations and braking incidents and other unsafe driving habits. If the data for one driver repeatedly shows these incidents or other violations, the prudent transportation manager uses this data as a coaching tool to improve this driver's performance. Likewise, for the safest drivers, these same reports and graphs can be used to reward good driving habits.

As part of their 5-point Journey Management approach, Schlumberger Oil Field Services now requires that all their vehicles have onboard recorders. Since the primary working environments for these vehicles is remote exploration oil well sites and much travel is done at night, fatal accidents were not rare occurrences. Combined with Defensive Driver Training, the onboard recorders have reduced the number of deaths from vehicle accidents significantly in one year. Mark Corrigan and Philippe Regnault of Schlumberger stated that "driver training and safety systems remain critical elements to lower the risk of oil field service fatalities."⁵

ON-BOARD RECORDERS AS MOTIVATORS

Modern behavioral psychologists contend that the ultimate reward in motivation is the feeling of self-worth, a job well done, and personal growth. Frederick Herzberger said that the most important motivator factors are recognition for the achievement, the work itself, responsibility and growth or advancement.⁴

With the on-board recorders, drivers are more accountable than ever for their job performance. Companies can use the data to either motivate and reward their drivers and or to punish them. Those companies who have the best safety records have used the data positively and have successfully instituted driver incentive programs. One large food distributor has been using on-board recorders coupled with a reward system for 13 years. This company was able to share \$50,000 in saved operating costs with its drivers. Those drivers with the fewest violations and safest driving history received the greatest share of the money.

PERCEPTION IS EVERYTHING

The effectiveness of on-board recorders and the data they produce depends on the way that the devices are positioned to the drivers. If the drivers perceive them as "Big Brother" which collects data to monitor them for punitive purposes, driver performance suffers. If, however, drivers know that they will be rewarded for good performance, they will strive to drive within the company parameters. This, in turn, motivates them to be safer drivers.

From the outset, management needs to position the recorders as a tool to help drivers be more productive and drive more safely rather than as a way to catch drivers making mistakes. The on-board recording industry has found that training is the key to using recorders correctly and to their maximum potential. All levels of the organization should attend training, and it is helpful for drivers to be trained right alongside management. This helps drivers feel like an integral part of the team and that they share the same goals as management. Ideally, on-site training should be delivered by a driver who is well respected by his peers.

CONCLUSION

As the transportation industry struggles with how to reduce the number of accidents involving trucks, it is becoming apparent that on-board recorders can play a large part in this effort. Companies with the best safety records have a three-pronged approach of safety awareness programs, safety training, and measurement of driving performance with on-board recorders.

If positioned and used correctly as a training and coaching tool, managers and drivers working together can improve safety, productivity and profitability by using the data gathered by the recorder to help drivers improve their driving skills.

ACKNOWLEDGEMENTS

Special thanks to Mark Corrigan, Director of QHSE Worldwide, Schlumberger Oil Field Services.

Thanks to the following Cadec Corporation employees for their help and input:

Karen Hilyard, Marketing Communication Specialist

Gerry Kirouac, Training Manager

Ellen Lehrer, Technical Writer

Tom Lemke, Vice President of Sales and Marketing

Keith O'Brien, Regional Sales Manager

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² Kohn, Alfie; "Rewards Produce Temporary Compliance"; *Small Business Forum*, (Winter, 1994/95).

³ Corrigan, Mark and Regnault, Philippe; *Applying Journey Management in the Service Sector*, SPE 47703, (copyright 1998).

BIOGRAPHY

Les Dole is President and CEO of Cadec Corporation in Londonderry, NH. Formerly, he was Corporate Director of Worldwide Sales at Digital Equipment Corporation where he was responsible for the development and success of the company's international sales.