

## ASSESSMENT OF CAR UTILIZATION PARAMETERS ON THE BASIS OF TACHOGRAPH IS COMPUTER ANALYSIS

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**Summary.** This thesis introduces the practical use of computer systems analyzing drivers' time of work and optimization of route in a private transportation company (PFT) on the route PL-A-PL. There were proven some differences between legal regulations of the European treaty AETR and European Union regulation WE nr 561/2006 from 15<sup>th</sup> of March 2006, and exploitation practice.

**Key words:** logistics, international transport, tachographs, vehicles' exploitation

### INTRODUCTION

In the day of widespread computerization and automation in management of Transportation Company, each carrier wants to know the process of vehicles' exploitation. He is also interested, how much do vehicles cost him and what he needs to do in order to make them cheaper in exploitation. This is the necessary knowledge in efficient and economical management of group of Lorries. Analogue and digital tachographs, programmes to read data and management systems enable to acquire information which is priceless in efficient managing of Transportation Company. So far in transport there were used analogue tachographs. However, the European Committee decided to implement modern digital registering appliances, so called digital tachographs. Digital tachographs register and store e.g. information about driver's time of work, which can be reproduced afterwards, using an appropriate chip card.

The European Committee twice was forced to change the time of going into effect the duty of using digital tachographs in vehicles registered on the area of UE for the first time. Initially, it was supposed to be 5<sup>th</sup> of August 2004, but an eventual time was fixed to 1<sup>st</sup> of May 2006 (regulation WE nr 561/2006). Modern tachographs protect user from the risk of recording new data on the old ones, which is losing older information.

Data from tachographs are useful not only for inspection, but mostly can provide the trader with useful information. Information about parameters of vehicles' exploitation can be used in the process of planning and managing this exploitation.

The same data can be used to calculate salaries and to control. On the basis of these data trader can analyze parameters of vehicles' exploitation such as consumption of fuel, driver's style of drive and also to check driver's time of work and the route of the vehicle.

#### PURPOSE OF RESEARCH

The purpose of executed research was an analysis of driver's time of work in international transportation logistics, according to requirements of the European treaty AETR and Regulation of the European Parliament nr 561/2006 from 15<sup>th</sup> of March 2006.

#### OBJECTS OF RESEARCH

The object of research was a car make VOLVO FH 520 of a private transportation company headquartered in Warsaw.

This company specialises in service of highly processed articles, food consumer goods, quickly rotating, of wide product range, especially clothes, footwear, athletic articles, cosmetics etc.

It offers a complex shipment-transportation service, using car transport in international and national traffic.

It also possesses a modern train of cars, including semi articulated lorries mark Mercedes and Volvo with semi trailers and closed box vehicles.

All cars fulfill European environmental standards Euro 3. All vehicles are equipped with a system of satellite navigation GPS, which helps to monitor the trucking without delay

#### SUBJECTS OF RESEARCH

The subject of research was an analysis of drivers' time of work in a logistics company TRANSPORT & LOGISTYKA in an international transport on the route Poland-Austria-Poland.

There was analysed the time of work of two drivers in team driving a car mark VOLVO FH 520, in specified time interval (according to regulations of AETR treaty).

There was also analysed time of work of all drivers employed in this company in the long term.

There were analysed recordings on drivers' filling cards, which were confronted with data recorded on tachographs' dials.

#### METHODICS OF RESEARCH

In the research there were used data from tachographs' dials confronted with legal regulations concerning drivers' time of work according to the treaty AETR and regulation (WE) nr 561/2006 from 15<sup>th</sup> of March 2006.

Dials were analysed using a computer programme TachoScan of the company TRANSPORT & LOGISTYKA taking into account:

- visualization of events on team dials in one month of work,
- drivers and utilization of car in team drive,
- drivers' time of work in time order of dials (detailed-monthly),
- drivers' time of work on their shift,
- driver's offences (in 24-hours time) in monthly apprehension according to AETR,
- drivers offences linked with time of work during the 24-hours (listing),
- listing of offences of all drivers employed in TRANSPORT & LOGISTYKA company, linked with a continuous drive (annual listing),
- weekly listing of drivers' time of work according to AETR,
- fortnightly listing of time of work,
- driver's time of work in time order of dials, considering time of work at night,
- time of car's exploitation on a basis of tachographs' dials and readings of deck counter covered distance.

In the methodics of research there was used a computer programme Microsoft AutoRoute Navigation, in order to designate an optimum transit on route Marki – Vienna – Marki considering the distance of the route and time of transit.

#### ANALYSIS OF RESULTS

While analyzing the data recorded on tachographs' dials, it was stated that during drive of two-drivers team on the route Marki – Vienna – Marki there weren't contravened standards of drivers' time of work, included in AETR treaty.

Both drivers kept proper standards considering the time of continuous drive during 24-hours. In each 24-hours driver is entitled to at least 11 hours of continuous rest. In case of drivers on this route, there was over 13 hours of continuous rest for each of them. The legislator stated that in case of working at night for at least 4 hours, time of work cannot exceed 10 hours in each 24-hours. These requirements were also fulfilled by drivers.

While analyzing other reports about drivers' time of work from TRANSPORT & LOGISTYKA company, not connected directly with route Marki – Vienna – Marki, it was stated that the most frequent offences are: exceeding the time of continuous drive and shortening a compulsory break, connected with 24-hours time of work.

In analysed reports from TRANSPORT & LOGISTYKA company these are the most frequently appearing offences committed by drivers. On account of the fact, an employer is responsible for obeying the standard of time of work by drivers; there is a question, whether drivers answer before the employer for breaking the law. It concerns only these drivers, who are employed in the company on the contract of employment. The rest of drivers — who make transportation within a commission contract or their own economic activity - they are personally responsible for obeying these norms by themselves.

Some of the cases of contravening the time of continuous drive during 24-hours, result from objective reasons, such as problems with finding a parking lot, where it is possible to stop the vehicle safely. This time is estimated for a few minutes (e.g. 11, 22, 17 minutes) and can omitted from the inspector's point of view. Characteristic is the fact that contravening rules don't appear in weekly, fortnightly and monthly listings of time of drive and rest according to AETR treaty.

As far as it is known, the legislator left a way to omit ruling regulations in regulation nr 3820/85, provided that it doesn't threaten the safety of traffic and in order to reach a suitable

berth, to protect the safety of people, vehicle and load". Reasons for making such decision should be written on a dial.

Analysis of the length of the route Marki – Vienna – Marki have proved that an optimum route fixed using Microsoft AutoRoute Navigation programme is 209 km shorter than the route recorded on drivers' road cards. In this particular case, the reason of such differences can be a detour of road nr 938, caused by indeflnited reason.

## CONCLUSION

Using TachoScan programme to acquire data included in dials has proved that making such a comprehensive analysis without using technically advanced software would be difficult and laborious. In the day of increased transportations done by trucks, opportunities of analyzing exploitation parameters of vehicle and controlling drivers' time of work become essential tool for employers and services responsible for the safety of traffic.

Analysis of data from tachographs using a computer eases conditions for better and cheaper utilization of car park in a transportation company. An exemplification can be a possibility to calculate fuel consumption, based on the length of the route listed using tachograph's dials, as well as optimization of time of drive on the particular route on the basis of compared data from a few tachographs from various vehicles making a transit on analysed route.

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