

From: Ron Abbink [mailto:rg.abbink@gmail.com]
Sent: Tuesday, March 02, 2010 6:18 PM
To: TREN E1 CONSULTATION TRANSPORTS
Subject: Re: Revision of the Community legislation on the recording equipment in road transport (tachographs)

Ron Abbink wrote 1-3-2010 23:03:
Revision of the Community legislation on the recording equipment in road transport (tachographs)

Questionnaire:

The current legislation Council Regulation (EEC) No 3821/85 and its annexes contain very detailed technical prescriptions on the recording equipment and in particular on the digital tachograph. While this may be convenient for control officers and drivers who change regularly from vehicle to vehicle, it leaves manufacturers not much room for innovation and improvement of the equipment.

Question 1 - Is it important that equipment of different manufacturers functions in exactly the same way?

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YES it's important that all tachographs should function in the same way, so that there's no learning curve (and room for inevitable error) for drivers who switch vehicles frequently.
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Or should legislation focus on essential requirements and give manufacturers more freedom to develop solutions and improve the equipment?

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- No, that's hardly possible: What it should record is already required by law.
- How it's operated is another question. Given the DIN slot size, the small display and the limited amount of buttons it's very hard to come up with a more user friendly way of operating the tachograph.

- BUT since it's permitted for the tachograph to interact over the CAN-bus there's a way to come up with a way better user interface:

There are lots of different onboard computer systems on the market. They could provide a better user interface for input of data to the tachograph (bigger display, graphical user interface, alpha-numeric keyboard or touchscreen).

This doesn't have to compromise the security of the tachograph since the onboard computer only will be a different way to input data, but would not be taking over any of the (secure) functions of the tachograph.

There should be a standardised question-answer protocol, so tachographs of all manufactures will interact exactly the same way with onboard computers.

So for instance, instead of choosing from a list of countries by pressing an up/down button (with only 1 country visible in the display of the tachograph at a time) the driver now selects from an on-screen list of all countries. The onboard computer send the answer to the tachograph, which will handle the input the same way as if the driver has pressed a couple of buttons to make the same choice.

Of course such an onboard computer will be OPTIONAL.

It could just be a better interface for entering data in the same sort of tachograph.

As required by regulation the tachograph itself still will keep buttons and a menu structure for entering such data.

All drivers without an onboard computer system still will be using the tachograph in the way they're now used to

- This has also the advantage that the driver has to answer identical questions only once instead of twice. (E.g. both tachograph and onboard computer ask for the type of activity when the truck is stopped. Etc. etc.).
- And options which are hidden deep in the menu of the tachograph (like 'Ferry') could be presented in a logical flow of data the driver has to input on his onboard computer anyway

Example of a query: (Stop, "Q: place & reason?": "Rotterdam, Ferry" (stop at ferry toll booth). This leads to an accounting question "paying by account P&O"; Second stop noticed after movement: "on ferry?" > "no, waiting (to board)" (is simultaneous input 'waiting' for the tachograph); Third stop after boarding "on ferry?" > Yes "cabin" > Yes > counts as Rest (Tachograph automatically set to "Ferry and Rest" at time of boarding).

If such a communication between tachograph and onboard computer is stimulated lots of other functions will be spreading faster than they are doing now.

For example, integration between GPS navigation and tachograph: The destination is set, the computer knows from the tachograph that there is 1:30 hour driving time left at the moment. With the current speed and the prognosed traffic jams ahead (info via RDS or 3G data) the driver is presented with a map with a couple of rest area's (from the POI database) he probably can reach within that time. Given that most rest areas are packed at night the driver doesn't wait till the last option.

- Less chance for an error in converting the local time to UTC. The driver can always use local time, the computer will convert and pass the UTC time on to the tachograph. (Local time being the time at country of origin, similar as with the analogue tachograph. Not being the current time locally).

Also a big screen on a onboard computer can show the data of several days at once in lots of visual ways, depending on how the driver wants it. This will give him far better insight than the small print out of drivers activities, V-diagram and D1/D2-diagram.

Together with entered destinations in the GPS system this could lead to a 'knowledge and support system' where he could plan ahead better and be more productive. And comply with regulations easier.

Question 2 - Should the legislation on the tachograph already foresee the integration of the digital tachograph into an open in-vehicle platform?

Yes.

Not just one way information from the tachograph towards other devices. But -as described above- a two way communication, where the other devices cannot alter data in the tachograph (for security reasons) but only can act as an interface for operating the tachograph

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If so, what other regulatory applications should be integrated in this platform (e.g. e-toll, recorder for accident investigation, e-call, speed control) and why?

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- YES, all above.

- But the tachograph should be limited to recording the data it is recording right now.
- And even then, info like speed and RPM profiles are management tools. These only make real sense if you store some other info with it as well:

If one is using an engine break on a downhill one should be high on his RPM's. If engine break status is not recorded and management is assuming level terrain they could get the impression that the driver doesn't drive economically.

And a speedprofile -or even a V-diagram- does make more sense if management gets the simultaneous onboard computer info about loaded weight and uphill/downhill gradient sensors.as well (forgetting traffic congestion, which is hard to record).

So although they seem nice management info bonuses all this extra info should better be recorded by an onboard computer system.

- If there will be legislation in the future for a obligatory accident recorder and/or 'localizational variable speed' control it will take some time to develop failsafe devices for that.

In the very far future they all will be integrated in one black box "control device & data recorder" (like on airplanes), but they should start of as separate devices which will share information over the CAN-bus.

- Off course all toll collecting devices should be integrated in 1 universal box. Stimulated (rather 'forced') by the EU.

- GPS navigation & traffic information is already being bundled with onboard computersystems, which record data for accounting, maintenance etc.

Would it be interesting for fleet management to have a real-time "tracking and tracing" function?

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or other applications related to safety or security of transport, or to law enforcement, to have a real-time "tracking and tracing" function?

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In what other industry are workers being monitored to such an extent?

- Regarding to traffic management systems: It's OK if the GPS navigation sends centralized traffic control it's destination and chosen path. But that data should be anonymised, not connected to any specific vehicle

So far systems with autonomous bots have been more effective than 1 centralized traffic predicting and routing system. Simply to many options to calculate.
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Is a regulatory approach deemed appropriate in order to facilitate widespread introduction?

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The mentioned advantages are mostly on the side of the control organisations. Given the extra costs and the very narrow margins in transport there should not be a push towards this.

- But short range data communication via WLAN probably will get cheaper soon, be more interesting and -later on- reach scale of mass where it will be affordable for all.

- Wide Range via 3G-data however will stay more expensive for long (less scale of mass).

- If that however is pushed as well, than the data transmission unit should be separate from the tachograph. So data transmission will be available to other devices with just 1 subscription for all the separate data traffic streams (from the onboard computer and/or traffic info systems).

Question 4 - What is your practical experience? Are there any obstacles for speedy download of data?

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Question 5 - How could the equipment be changed in order to make controls more efficient?

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- If WLAN will become cheaper, at some point this could become obligatory. to make moving control vehicles a thing of the near future.

- The focus should be to intercept the really heavy offenders. Therefore all trucks could be scanned at certain points along the roads. Depending on how long it will take to analyse all data and pick out the real offenders farther downstream the road the culprit should be picked out traffic by motorized police and escorted to a parking area for further investigation.

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- Combined data of all these readings (national or even shared Europe wide) should be an indication which companies should get extra attention on the next mobile scan. And especially should get a control at their offices.
- And on the opposite side, show which companies there's probably less reason to do an inspection.

That should provide for a better level playing field, where everybody has to stick to the regulations.

Question 6 - Is the current security level proportional? Can and should there be other sources of motion? Could the authenticated time/speed/positioning data provided by the future European "GPS" system, Galileo, be used as a second and independent source of motion to ensure security of data?

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Question 7 - In case a vehicle is only occasionally used in the scope of Regulation (EC) No 561/2006, for example when exceeding from time to time the radius set in some exceptions, should it be possible to use different means of recording activities?

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Off course.

It's gotten ridiculous now, where people who only drive for a little part of their working days have to use a tachograph.

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3.2. Compatibility and interoperability

There is no compatibility between the old "analogue" tachograph and the digital tachograph: the analogue system continues to function with paper charts, the digital system uses tachograph smart cards. This side by side of two independent systems may lead to less efficient controls.

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So what. The analogue tachograph will become extinct one day.

Only when the controlling officers who still can read an analogue tachograph become extinct sooner than that and there are relative (to now and to the total fleet at that time) only just a few left they should be forced to go digital.

.

On the other hand, Council Regulation (EEC) No 3821/85 foresees strict interoperability criteria for the introduction of new digital tachographs and tachograph cards on the market. That means that new digital equipment has always to be fully interoperable with all the digital tachograph equipment that is already in the field.

However, some adaptations to technical progress of the recording equipment may lead to interoperability problems, and therefore to the necessity to introduce a new generation of recording equipment. In this case, the question arises to what extent a new generation should be compatible with the current digital tachograph generation.

Three options can be envisaged:

Option 1: No new generation of recording equipment should be introduced; make full interoperability with the current system of digital tachographs a strict requirement for all future developments.

Option 2: Foresee a new generation of recording equipment, but make sure that at least driver cards (or other parts of the equipment) can be used with the current generation of digital tachographs and the new generation of recording equipment (backwards compatibility).

Option 2 off course. Driver cards only last 5 years, so it won't take long to gradually upgrade requirements for driver cards along the years.

Option 3: Foresee a new generation of recording equipment without any requirement on the compatibility.

Question 8 - Which option do you prefer?

In case you prefer option 2: What are the most important issues for compatibility between a new generation of tachographs and the current digital tachograph,

If the law doesn't change, then the interface on the tachograph itself should also stay similar (small adaptations only). See Question 1

and what other parts of the equipment, apart from driver cards, should be compatible in your view?

All devices should be connectible over the CAN-bus. Sooner or later there will be an updated CAN-bus version 3.0.(instead of the current 2.x). Towards then everything should evolve in a natural matter.

If for instance the protocol between a newer model tachograph and the onboard computer needs extra options than that could probably be arranged with new software and or - firmware.

All other additions (see Questions 2) will gradually add to the onboard platform.

At some point one has to take bigger steps, from a platform version -say- 1.4 towards a 2.0. And later from a 2.2.3 to a 3.01 version.

Question 9 - Should the legislation specify how new equipment has to be introduced in the field? Should a retrofit be possible, mandatory or take place in case of replacement of defective equipment?

See Question 8 (3.2)

What are the essential steps for the introduction of new equipment?

Should type approval for tachographs fall under the general type approval scheme for vehicles?

no comment

Question 10 - Should it be possible to carry out field tests before type approval is requested, while maintaining the same security standards? How should field test be limited (geographically, number of equipments, duration of the field test, etc.)?

no comment

Question 11 - Which option do you prefer and if you prefer option 2 or 3, for which parts: seals, downloading equipment, control equipment, calibration tools, etc.?

no comment

Question 12 - Is the current way of updating the specifications on the tachograph satisfying? Who should be responsible for the updating of the technical requirements? What is your preferred option?

no comment

Question 13 - Should the trustworthiness of workshops be improved? If so, how? How can conflicts of interest be avoided for workshops that are living from delivering services to individual clients but play at the same time an important role in the security of the recording equipment?

no comment

Question 14 - What kind of data should be entered manually by the driver? What kind of information should be recorded automatically by the recording equipment? Is it appropriate to record more precisely the location (via GPS or GNSS for example)?

.

- Probably by now GPS chips are so inexpensive that even different GPS chips in several devices could be simpler (tachograph, onboard computer for tracing with integrated or connected sat navigation).

This opposed to the shared communication device mentioned in my answer at Question 3.

- Once GPS data is available to the tachograph (either over CAN-bus or by dedicated chip) there would be no more need for manually entering a country each day.

Also the driver could show a policeman that the speed offence half an hour ago was just at the other side of the border. Or the breaches against EU regulations 3 weeks ago where made while he was far into Russia.

- On the other hand, just one more Big Brother aspect...

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Question 15 - Should the Regulation explicitly foresee the use of electronic data exchange on cards that are issued between card issuing authorities?

no comment

Question 16 - Should the Regulation explicitly foresee warnings for the driver in order to enhance compliance with the legislation on driving times and rest periods?

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Yes, but the period should be a choice of the driver (a preference to be stored on his drivers card). Some would like a visual warning 40 minutes ahead and a audio warning 30 and 20 minutes ahead.

Fifteen minutes can simply be too short to be remembered to start looking for a service station (on British motorways for instance...).

But once an advanced onboard computer with GPS coupling is available (like described in Question 1) it should be possible to shut off all warnings from the tachograph and only let the advanced system inform the driver (with messages and alerts all at his preferences). Simply overrule. But if advanced system present, but all preferences set to silent, maybe the original warning from the tachograph can become active again (at least 1 warning, visual and or audio should be active).

Should it

be up to manufacturers' choice to offer such warnings as an optional tool, including additional warnings for other aspects than the continuous driving time?

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If optional OK, as long as each driver can store his preferences on his card.

But the display of the tachograph is very small. And an onboard computer so much better that I don't see any point in it.

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Question 17 - Do you have any other comments or suggestions which you consider should be taken into account during the revision of the European legislation on recording equipment?

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I've read that the roundup to 'driving - full minutes' is going to disappear? I really hope so.

Here's where I read it (article in Dutch) http://www.nieuwsbladtransport.nl/nieuws/id28291-Brussel_maaft_digitale_tachograaf_gebruiksvriendelijker.html 16-12-2009

Everything should be calculated by the second, only totals should be rounded up (or down !). That seems trivial but current practice is unfair.

An example: Driving from 11:59:59 (1 second before noon) and just in time making it to a rest area at 16:29:01 is a driving time of 4:29:02. (just less than 4:30, what a stress...). But it will show on the tachograph as driving from 11:59 till 16:30 (a 1 minute 58 second roundup) equals 4:31 driving time. Enough to get a fine in France...

And apparently the logon of the card to the tachograph is much faster in newer versions (article in Dutch)

http://www.iepvandermeer.nl/argeweb/weblog/2009/36/de_nieuwe_digitach.php 02-09-2009

That should be good news for driver teams frequently changing between driver 1 and driver

2.

- New generation of tachographs should have an expert system for easier complying with regulation (EC) No 561/2006.

First, info given on current tachographs can be wrong sometimes: Some complaints from drivers forum boards:

Two examples where the tachograph will INCORRECTLY show that one has had its 45 minutes break and that a new period of 4:30 hour driving time is available. The driver can think he's in the clear, based on info on the tachographs display, but later on he could get a fine.

1) If one takes a rest of 19 minutes and later on a rest of 28 minutes. The minutes add up to 45+ but the second rest was just below the required 30 minutes minimum.

2) Also if one takes a rest of 30 minutes and later of 15 minutes the tachograph will count this as a full 45 minutes break. That is incorrect because the second break should at least be 30 minutes (to be effective the two breaks should have been in opposite order).

Second, for all the other rules in the regulation (EC) No 561/2006 the tachograph does not give a warning before one doesn't comply with a rule (or sets of rules).

This once more shows the complexity of regulation regulation (EC) No 561/2006. Apparently it is too hard to program an expert system that takes into account all the rules of this regulation. But yet a driver (with often just basic schooling) should comply to it every day, or risk a huge penalty....

So the next generation of tachographs should at least have an expert system that will warn the driver before he starts braking any of the rules in the regulation.

And also show him (both in text and in a graphical printout) what he already has used up so far:

"Today driving time 8:30 hours up till this moment, driving time this week 30, driving time over two weeks 86 (hmmmm, problems ahead in just 4 hours driving time...), already 3 reduced daily rests within last 2 weeks (so an 11 hour daily rest is required from now on) etc etc."

Beyond that there's another step, which will need an even more complex expert system that will advice the driver on fully optimizing the available time.

But that should not be the task of the tachograph, but should be left to onboard computer systems.

(So just for the scope of things to come a description:)

Such a system will feed on

- info from the tachograph (available time left, need for certain rest periods etc),*
- information from GPS navigation (destination, distance left to travel, POI's on route for fuel and or rest),*
- traffic information systems (the road ahead has a morning rush hour from 6:00 till 9:30; farther down the road there are roadworks with a traffic slowdown for 11 km's in length),*
- toll pricing information for roads and tunnels*
- a calender (the Just-in-time freight is due at destination between 15:00 and 17:00)*

- truck status info (there's fuel left for 300 km)
-etc etc

The driver now can determine: "Today I'll drive for 10 hours, to get past the metropolitan area tonight and avoid morning rush hour, have a reduced daily rest, take the route over Luxembourg (instead of a slightly shorter route) to fill up with cheap fuel, have a rest as close to 45 minutes as I feel comfortable and then the estimated arrival time at destination will be 16:20. That will give me just 40 minutes for any more delays, or I'll be late for my JiT window." (Already stressing 20 hours in advance...)

Question 18 - Would you like to propose other measures to make the recording equipment more user-friendly and to improve the reliability of controls?

.

Yes.

- If a tachograph is connected to an onboard computer (with alpha-numeric keyboard) it should be made possible to add written explanations also to the drivers card (not only written on the printout). In that way the explanations will stay as an integral part of the data. Even when the data is being checked at the companies office, where the printout would not always be around.

- The software on the laptops for the controlling officers should be made more intelligent. As described at Question 5 it should be easier for them to pick out the real offenders and focus on their biggest offences.

And a driver should always be given the opportunity to a defence, to show specific reasons for his offences.

For example, it should be easy to zoom in on a V-diagram (like on analogue tachographs) to show that he got in a traffic jam at 4:10 hours driving and that that was the reason that he couldn't make it to the rest area he normally would use on that (regular) run.

Regards,

Abbco Transport Consultancy
Haarlemmerweg 305
NL - 1051 LG Amsterdam

Ron Abbink
'a titre personnel'
(because of the deadline mailed from private email address)

Questionnaire:

Here are some important additions, which I forgot in the previous mail.

All additions are easily recognizable because they are breaking the quote line

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- .

3.2. Compatibility and interoperability

There is no compatibility between the old "analogue" tachograph and the digital tachograph: the analogue system continues to function with paper charts, the digital system uses tachograph smart cards. This side by side of two independent systems may lead to less efficient controls.

- .
- So what. The analogue tachograph will become extinct one day.
- Only when the controlling officers who still can read an analogue tachograph become extinct sooner than that and there are relative (to now and to the total fleet at that time) only just a few left they should be forced to go digital.
- .

On the other hand, Council Regulation (EEC) No 3821/85 foresees strict interoperability criteria for the introduction of new digital tachographs and tachograph cards on the market. That means that new digital equipment has always to be fully interoperable with all the digital tachograph equipment that is already in the field. However, some adaptations to technical progress of the recording equipment may lead to interoperability problems, and therefore to the necessity to introduce a new generation of

recording equipment. In this case, the question arises to what extent a new generation should be compatible with the current digital tachograph generation.

Three options can be envisaged:

Option 1: No new generation of recording equipment should be introduced; make full interoperability with the current system of digital tachographs a strict requirement for all future developments.

Option 2: Foresee a new generation of recording equipment, but make sure that at least driver cards (or other parts of the equipment) can be used with the current generation of digital tachographs and the new generation of recording equipment (backwards compatibility).

Option 2 off course. Driver cards only last 5 years, so it won't take long to gradually upgrade requirements for driver cards along the years.

Option 3: Foresee a new generation of recording equipment without any requirement on the compatibility.

Question 8 - Which option do you prefer?

In case you prefer option 2: What are the most important issues for compatibility between a new generation of tachographs and the current digital tachograph,

If the law doesn't change, then the interface on the tachograph itself should also stay similar (small adaptations only). See Question 1

and what other parts of the equipment, apart from driver cards, should be compatible in your view?

All devices should be connectible over the CAN-bus. Sooner or later there will be an updated CAN-bus version 3.0.(instead of the current 2.x). Towards then everything should evolve in a natural matter.

If for instance the protocol between a newer model tachograph and the onboard computer needs extra options than that could probably be arranged with new software and or - firmware.

All other additions (see Questions 2) will gradually add to the onboard platform.

At some point one has to take bigger steps, from a platform version -say- 1.4 towards a 2.0. And later from a 2.2.3 to a 3.01 version.

Question 9 - Should the legislation specify how new equipment has to be introduced in the field? Should a retrofit be possible, mandatory or take place in case of replacement of defective equipment?

See Question 8 (3.2)

What are the essential steps for the introduction of new equipment?

Should type approval for tachographs fall under the general type approval scheme for vehicles?

no comment

Question 10 - Should it be possible to carry out field tests before type approval is requested, while maintaining the same security standards? How should field test be limited (geographically, number of equipments, duration of the field test, etc.)?

no comment

Question 11 - Which option do you prefer and if you prefer option 2 or 3, for which parts: seals, downloading equipment, control equipment, calibration tools, etc.?

no comment

Question 12 - Is the current way of updating the specifications on the tachograph satisfying? Who should be responsible for the updating of the technical requirements? What is your preferred option?

no comment

Question 13 - Should the trustworthiness of workshops be improved? If so, how? How can conflicts of interest be avoided for workshops that are living from delivering services to individual clients but play at the same time an important role in the security of the recording equipment?

no comment

Question 14 - What kind of data should be entered manually by the driver? What kind of information should be recorded automatically by the recording equipment? Is it appropriate to record more precisely the location (via GPS or GNSS for example)?

.

- Probably by now GPS chips are so inexpensive that even different GPS chips in several devices could be simpler (tachograph, onboard computer for tracing with integrated or connected sat navigation).

This opposed to the shared communication device mentioned in my answer at Question 3.

- Once GPS data is available to the tachograph (either over CAN-bus or by dedicated chip) there would be no more need for manually entering a country each day.

Also the driver could show a policeman that the speed offence half an hour ago was just at the other side of the border. Or the breaches against EU regulations 3 weeks ago were made while he was far into Russia.

- On the other hand, just one more Big Brother aspect...

.

Question 15 - Should the Regulation explicitly foresee the use of electronic data exchange on cards that are issued between card issuing authorities?

no comment

Question 16 - Should the Regulation explicitly foresee warnings for the driver in order to enhance compliance with the legislation on driving times and rest periods?

.
Yes, but the period should be a choice of the driver (a preference to be stored on his drivers card). Some would like a visual warning 40 minutes ahead and a audio warning 30 and 20 minutes ahead.

Fifteen minutes can simply be too short to be remembered to start looking for a service station (on British motorways for instance...).

But once an advanced onboard computer with GPS coupling is available (like described in Question 1) it should be possible to shut off all warnings from the tachograph and only let the advanced system inform the driver (with messages and alerts all at his preferences). Simply overrule. But if advanced system present, but all preferences set to silent, maybe the original warning from the tachograph can become active again (at least 1 warning, visual and or audio should be active).

Should it

be up to manufacturers' choice to offer such warnings as an optional tool, including additional warnings for other aspects than the continuous driving time?

.
If optional OK, as long as each driver can store his preferences on his card.

But the display of the tachograph is very small. And an onboard computer so much better that I don't see any point in it.

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Question 17 - Do you have any other comments or suggestions which you consider should be taken into account during the revision of the European legislation on recording equipment?

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I've read somewhere that the roundup to 'driving - full minutes' is going to disappear? I really hope so.

Everything should be calculated by the second, only totals should be rounded up (or down !). That seems trivial but current practice is unfair.

An example: Driving from 11:59:59 (1 second before noon) and just in time making it to a rest area at 16:29:01 is a driving time of 4:29:02. (just less than 4:30, what a stress...). But it will show on the tachograph as driving from 11:59 till 16:30 (a 1 minute 58 second roundup) equals 4:31 driving time. Enough to get a fine in France...

.
Here's where I read it (article in Dutch) http://www.nieuwsbladtransport.nl/nieuws/id28291-Brussel_maaft_digitale_tachograaf_gebruiksvriendelijker.html 16-12-2009

And apparently the logon of the card to the tachograph is much faster in newer versions (article in Dutch)

http://www.iepvandermeer.nl/argeweb/weblog/2009/36/de_nieuwe_digitach.php 02-09-2009

That should be good news for driver teams frequently changing between driver 1 and driver 2.

New generation of tachographs should have an expert system for easier complying with regulation (EC) No 561/2006.

First, info given on current tachographs can be wrong sometimes: Some complaints from drivers forum boards:

Two examples where the tachograph will INCORRECTLY show that one has had its 45 minutes break and that a new period of 4:30 hour driving time is available. The driver can think he's in the clear, based on info on the tachographs display, but later on he could get a fine.

1) If one takes a rest of 19 minutes and later on a rest of 28 minutes. The minutes add up to 45+ but the second rest was just below the required 30 minutes minimum.

2) Also if one takes a rest of 30 minutes and later of 15 minutes the tachograph will count this as a full 45 minutes break. That is incorrect because the second break should at least be 30 minutes (to be effective the two breaks should have been in opposite order).

Second, for all the other rules in the regulation (EC) No 561/2006 the tachograph does not give a warning before one doesn't comply with a rule (or sets of rules).

This once more shows the complexity of regulation regulation (EC) No 561/2006. Apparently it is too hard to program an expert system that takes into account all the rules of this regulation. But yet a driver (with often just basic schooling) should comply to it every day, or risk a huge penalty....

So the next generation of tachographs should at least have an expert system that will warn the driver before he starts braking any of the rules in the regulation.

And also show him (both in text and in a graphical printout) what he already has used up so far:

"Today driving time 8:30 hours up till this moment, driving time this week 30, driving time over two weeks 86 (hmmmm, problems ahead in just 4 hours driving time...), already 3 reduced daily rests within last 2 weeks (so an 11 hour daily rest is required from now on) etc etc."

Beyond that there's another step, which will need an even more complex expert system that will advice the driver on fully optimizing the available time.

But that should not be the task of the tachograph, but should be left to onboard computer systems.

(So just for the scope of things to come a description:)

Such a system will feed on

- info from the tachograph (available time left, need for certain rest periods etc),*
- information from GPS navigation (destination, distance left to travel, POI's on route for fuel and or rest),*
- traffic information systems (the road ahead has a morning rush hour from 6:00 till 9:30; farther down the road there are roadworks with a traffic slowdown for 11 km's in length),*
- toll pricing information for roads and tunnels*
- a calender (the Just-in-time freight is due at destination between 15:00 and 17:00)*
- truck status info (there's fuel left for 300 km)*
- etc etc*

The driver now can determine: "Today I'll drive for 10 hours, to get past the metropolitan area tonight and avoid morning rush hour, have a reduced daily rest, take the route over Luxembourg (instead of a slightly shorter route) to fill up with cheap fuel, have a rest as close to 45 minutes as I feel comfortable and then the estimated arrival time at destination will be 16:20. That will give me just 40 minutes for any more delays, or I'll be late for my JiT window." (Already stressing 20 hours in advance...)

Question 18 - Would you like to propose other measures to make the recording equipment more user-friendly and to improve the reliability of controls?

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Yes.

- If a tachograph is connected to an onboard computer (with alpha-numeric keyboard) it should be made possible to add written explanations also to the drivers card (not only written on the printout). In that way the explanations will stay as an integral part of the data. Even when the data is being checked at the companies office, where the printout would not always be around.

- The software on the laptops for the controlling officers should be made more intelligent. As described at Question 5 it should be easier for them to pick out the real offenders and focus on their biggest offences.

That's along the line of an expert system as described above.

And a driver should always be given the opportunity to a defence, to show specific reasons for his offences.

For example, it should be easy to zoom in on a V-diagram (like on analogue tachographs) to show that he got in a traffic jam at 4:10 hours driving and that that was the reason that he couldn't make it to the rest area he normally would use on that (regular) run.

Regards,

Abbco Transport Consultancy
Haarlemmerweg 305
NL - 1051 LG Amsterdam

Ron Abbink
'a titre personnel'