

INTRODUCING LONGER AND OR HEAVIER VEHICLE COMBINATIONS (LZV'S) IN THE NETHERLANDS, A LONG AND HEAVY PROCESS

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ABSTRACT

Introducing longer and/or heavier vehicle combinations in a densely populated country like the Netherlands showed to be a long and difficult task, as the political decisionmaking was troubled by aspects like safety, local politics and intermodal competition. It took some seven years before the first combination was on the road and running. Still there are only four combinations participating and operating.

Now the first conclusions can be drawn. First it shows that due to the long list of requirements of participation, most interested companies do not apply or don't take the risk of participation. Second: in viewing just the use of containerised loads, heavier vehicle combinations provide relatively more efficiency-improvement in this test than longer ones. Next to that, already during the process of getting the combinations on the road, it was noticed that the consequences of introducing longer and or heavier vehicle combinations reach out much further than just the road and the driver, but to the complete logistic chain.

INTRODUCTION

The Dutch government started a project to get information regarding the problems and benefits in practice of longer and/or heavier vehicle combinations in the Netherlands. It took 7 years before the first combination was up and running on the streets and highways in the Netherlands. Due to political, emotional, legal and other barriers the project has been faced with a lot of setbacks and delay .

The Dutch government started thinking about the project due to a number of trends:

Rapid growth in road transport, a very densely populated country, an ever-increasing congestion problem and a fast growing largest port of the world. There was at first a request from the transport branch, which was criticized for being not realistic. It was followed by a request for shippers, transporters and the port of Rotterdam. This made the ministry, facing increasing problems, aware of the potential influence of this solution. There was a lot to investigate, though.

Items that were really demanding attention were safety, road wear , European Union legal barriers, international vehicle regulation and the comparison to other modalities as short sea shipping, rail and inland shipping.

The studies took about a year and some results to be mentioned were:

Longer vehicles don't need different traffic lights settings due to their long length;

Longer vehicles sometimes have trouble crossing rail-roads if they have fully automated traffic barriers;

The steepest railroad crossings provide probably extra trouble

If a combination has more than two turning points they become less stable when running in daily traffic and turning corners;

The heavier vehicles need an additional amount of power to keep up with traffic and to prevent traffic jams;

For safety reasons it is important to have additional attention for both vehicle and driver to reach a higher level of both active and passive safety.

After a period of two years the studies resulted in the decision that a pilotproject was worth trying and an extra set of requirements was formulated. A format for testing the vehicle combinations in the Netherlands was made up.

This comprised testing for a short while in a limited number on specific roads. A lot of additional demands were formulated and transporters were requested to apply. Then in 1997 the Parliament showed their concern for environment and the competition to other modalities by requesting the Ministry to add additional demands resulting in a limitation for a driving range of 50 kilometres and the demand that it should be allowed only to and from an intermodal terminal.

After the elections the aspect of safety was questioned again by the present Minister and a period of about a year passed by allowing the SWOV research institute to perform an additional study on safety. In the meantime transporters were withdrawing their application.

In spring 1999 the Minister decided the project could continue, if additional requirements were added to the already existing list.

After formulating another additional set of requirements (see appendix 1 for almost all of them,) it was decided to allow three categories: "Heavier" (60 tons, not exceeding permitted length), "Longer" (not exceeding permitted weights but allowing length to be 25, 25 meters) and longer and heavier (60 tons, length 25,25 meters).

Next step was to allow transporters to apply. This resulted in 25 applications, of which were 21 to be called realistic. After selecting the maximum of 15 transporters (the limited allowed number) in March 2000 we could start with the preparation of the real field test.

Aims of this test are multiple: we have had a lot of investigations done regarding competition to other modalities, environmental benefit, safety, et cetera, but we wanted to know the practical possibilities and bottlenecks of this kind of combinations in the Netherlands. Next to it we wanted to know the pros and cons for further policymaking regarding longer and/or heavier vehicle combinations and the effect in the logistic chain of these combinations.

The test was to be monitored very closely, related to the opposition we faced by a number of groups: the local authorities (afraid for their roads and safety), the government and Parliament (safety and environment, competition to other modalities), European Commission and other EU member states (competition) and organisations of road users (safety).

Aspects included in the monitoring are fuel efficiency, safety, operating efficiency, contribution to lower congestion, bottlenecks in operations and reactions of both drivers and operators. One aspect taken into account is the perception of the vehicle combinations by different parties. Therefore monitoring is not just focused on the "hard" indicators as fuel efficiency, but on the less quantitative aspects as felt safety, too

Before the first fuel gauges were installed, it took some months after starting the combinations. Due to both problems on the side of exemptions (local and regional; governments) and by poor work on the side of the truck constructors and producers of semi-trailers and trailers, most of the applicants took some 7-14 months to get their combinations on the road. Even after 18 months after the first truck started we don't have results over a year of driving.

In the meantime the number of participants is down from 15 to 7, of which 4 are really on the road, one is on the edge of starting and two are reconsidering participation. The remaining participants have withdrawn themselves or are rejected by the selection committee.

Due to the limited number of participants the possibility of generating overall conclusions is very hard, and it looks that the monitoring is heading toward a group of case-studies instead of allowing general conclusions.

There are still some conclusions to be drawn, anyway.

First results of the monitoring show that the use of these combinations has consequences for all parties in the logistic chain and their partners: both shippers as receivers, both transporters as road managers, logistic managers, planners and drivers have to adjust to the larger scale. This is especially true for the "longer and heavier"

combinations, which demand for different planning techniques, more space for turning, special places for container loading, adjustments in software, more loading docks et cetera.

As of February 2002 the resulting benefits on fuel efficiency, congestion, et cetera are not yet clear, but trying to get the project running has provided us with a lot of knowledge regarding the vehicle combinations, the interaction with infrastructure, traffic and logistic flows.

First conclusions:

- Heavier vehicle combinations provide relatively more efficiency-improvement in this test than longer ones
- Driving on the non-expressway could lead to road blockings in heavy traffic;
- Combinations are not just used for shuttling to and from intermodal terminals;
- The consequences of introducing longer and or heavier vehicle combinations reach out much further than just the road and the driver, but in the complete logistic chain;
- Introducing longer and or heavier vehicle combinations demands for more close study before allowing them in densely populated areas with a highly developed logistic infrastructure;
- Allowing transporters to operate longer and or heavier vehicle combinations under a lot of additional demands diminishes the participation. Reconsidering the present additional demands for participants will be necessary if the test is called a success and a next phase will be decided for.

APPENDIX 1

Concept-conditions for the tests with longer and/or heavier lorries.

1. General conditions

In the period starting 1 December 2000 until 1 June 2003 a limited number of tests will be taken with combinations that are:

- A. Heavier than allowed by to the Dutch law, being a Gross Combination Weight of 50.000 kilograms
- B. Longer than allowed by the Dutch law, being 18,75 meter
- C. Combinations being longer and heavier than allowed by the Dutch law, meaning longer than 18,75 meter and heavier than 50.000 kilograms

A maximum number of 15 participants can participate, each of them with only one combination on a maximum of three destinations. The number of participants for category A is limited by 4.

On weekdays between 6.00 am and 10.00 am and when road conditions are dangerous, the combinations are not allowed to be operated.

Combinations carrying dangerous goods or tank containers are excluded from the tests

A firm participating in the tests is obligated to fill in a form regarding the driven trips, which includes:

1. The driven hauls of that day;
2. the carried containers or swap bodies;
3. de weight of the carried goods;
4. the fuel consumption
5. The experienced bottle-necks and special experiences

The participating firm is obligated to send in the forms at least every month to the ministry of transport. The firms are obligated to provide comparable figures on the fuel consumption of the present situation of carrying.

2. Conditions for the routes

1. The hauls have to be part of intermodal transport and therefore has a starting point or destination a terminal for combined transport.
2. The hauls have a maximum length of 50 km. For the Rotterdam harbour area, the Waalhaven will be the point of orientation;
3. The routes consist mainly of roads with a separate infrastructure for cyclists and other slow traffic. A maximum of 5 km of the roads of every route does not have a separate infrastructure.
4. No living or shopping area may be part of the route;
5. The connecting point of an expressway has to have a hard shoulder of at least 250 m.
6. In the routes for the combinations as stated by 1.B or 1.C, a railroad crossing is not allowed when trains are allowed to exceed the speed of 40 km/h.
7. In the routes for the combinations as stated by 1.B or 1.C., an overtaking prohibition is valid for all vehicles allowed to drive faster than 50 km/h.

3. Obligated characteristics of the combinations

- A. Combinations, described at 1.A, can have a maximum combination weight of 60.000 kg.
- B. Combinations, described at 1.B, can have a maximum combination length of 25,25 m
- C. Combinations, described at 1.C, can have a maximum combination weight of 60.000 kg and a maximum length of 25,25 m

Each combination has to be tested by the Dutch government on compliance with the law and the additional technical requirements as stated below:

1. All vehicles being part of the combination have an ABS.
2. The combination is stable in all driving conditions
3. The area of view on the right side of the combination has a width of at least 5 m, while the combination is turning to the right in a turn with a 14,5 m maximum radius.
4. The combination has a maximum of two turning points
5. The side of the combination is covered with closed side panels, in compliance with 89/227
6. The tractor is provided with a front run under protection as described in ECE Regulation 93
7. The axles are provided with anti splash and spray devices, conform Guideline 89/297
8. The engine power is at least 5 kW per ton of the maximum Gross Combination Weight
9. The axle pressure does not exceed the maximum allowed on other combinations
10. The combination is provided a side marking conform ECE Regulation 104
11. The turning radius is at a maximum of 14,5 m outside, 8 m inside radius.

4 Demands for the driver

The driver has to have a valid drivers license, as well as all the papers and licenses as prescribed by the law.

In addition to these demands:

1. The driver has at least 5 years of driving experience with lorries with a minimum gross vehicle weight;
2. The driver was not involved in any accident
3. The driver has successfully completed the certification for the driving of the longer and heavier lorries. Special attention is given to the awareness to other road users and the mentality of the driver.

All applicants participating in the tests have to pay all the costs that result from the application and the resulting actions, like the costs for the exemptions of every community.

TABLES & FIGURES

ALLOWED COMBINATIONS

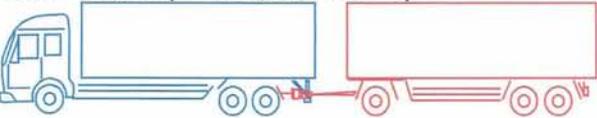
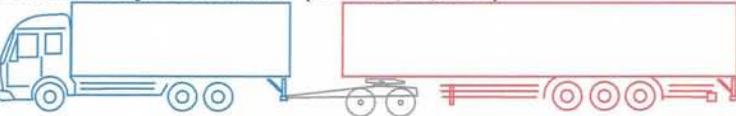
Category Heavier	
H1	<p>Tractor + semitrailer (60 tons; 16,50 m)</p> 
H2	<p>Truck + trailer (60 tons; 18,75 meter)</p> 
Category Longer	
L1	<p>Tractor + semitrailer + midaxletrailer (60 tons;25,25 m)</p> 
L2	<p>Tractor and two semitrailers, "B-double" (60 tons;25,25 m)</p> 
L3	<p>Truck + dolly + semitrailer (60 tons;25,25 m)</p> 



Figure 1 – The most inventive combination of this project (a special form of B-double), the combination of Overdevest, was used for the logo of this Congress