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# Performance-Related Heavy Vehicle Charge

# HVC – OVERVIEW

**2017 Edition**

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## CONTENT

1	Introduction .....	2
2	Calculation .....	3
3	Recording equipment .....	4
3.1	Overview .....	4
3.2	The Emotach® recording device .....	4
3.3	Identification card and clearance terminal .....	6
4	From data to billing.....	6
5	Special regulations.....	7
6	Controls .....	7
7	Interoperability .....	8
8	Contact / information .....	8

## 1 Introduction

A performance-related heavy vehicle charge (HVC) was introduced in Switzerland on 1<sup>st</sup> January 2001. This charge replaces the flat-rate heavy vehicle charge that had been levied since 1985 and is based on a law approved by a clear majority of the electorate in September 1998.

The charge must be paid on all Swiss and foreign vehicles (i.e. those registered outside Switzerland) used for freight transport whose total maximum permitted weight exceeds 3.5 tonnes. It is levied on all public highways in Switzerland.

The amount charged is based on the mileage covered, the total maximum permitted weight and the emission rating (Euro class) of the vehicle in question. Since the 1<sup>st</sup> January 2017 the rate amounts between 2.28 and 3.10 cents per tkm. Thereby will be total revenues of approx. 1.6 Mia. Swiss francs per year.

The mileage covered within Switzerland is read off the tachograph that is fitted in almost all vehicles which are subject to the fee. A fee is not charged separately for trailers but in conjunction with the tractor unit. In this case, the rate is calculated according to tariffs for maximum permitted weight on Swiss roads. This maximum permitted weight may be lower than the sum of the maximum total weight of the tractor unit and the trailer since it depends on the type of tractor unit and is subject to the general national weight limit. The national weight limit is 40 tonnes.

The person who is liable for the charge has at the same time a duty to cooperate. Swiss transport companies regularly declare the mileage covered by their vehicles to the Directorate General of Customs. In the case of foreign vehicles, the mileage is automatically declared at the customs post upon leaving Switzerland. The charge is then either paid direct when the driver leaves the country or charged to an account in the transport company's name.

It is the owner of the vehicle (and in the case of foreign vehicles the driver too) who is responsible for ensuring that the declaration made is correct. Equally, he is responsible for ensuring that the recording device is in good working order. This is also part of the principle of obligatory cooperation on the part of persons who are subject to the charge.

No distance-related charge is levied on heavy vehicles used to transport passengers, i.e. buses and coaches, for which a flat-rate charge is levied. Certain vehicles (military vehicles, police vehicles, fire brigade vehicles, etc.) are exempt from the charge.

The system for levying charge is implemented by the customs administration in conjunction with cantonal highways offices, transport companies and authorised assembly points.

The Swiss authorities invested some CHF 290 million to set up the HVC system. This sum included development (toll system, recording device, etc.), procuring and installing the necessary roadside infrastructure (beacons and associated equipment) and procuring the recording devices.

The annual cost of operation, maintenance and additional staff constitutes around 5 - 6% of the total, which is relatively low in comparison with other electronic toll systems.

## 2 Calculation

The HVC is calculated on the basis of the kilometres driven, the total permissible laden weight as well as the emission values of the towing vehicle.

Tariffs:

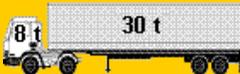
	Fee category 1				Fee category 2		Fee category 3
Emission standard	EURO 0	EURO 1	EURO 2*	EURO 3*	EURO 4	EURO 5	EURO 6
Rate per ton and per kilometre (tkm)	3,10 cents/tkm				2,69 cents/tkm		2,28 cents/tkm

\* 2,79 Rp./tkm for vehicles retrofitted with particle filter systems

The relevant weight for the charge corresponds to the lowest value of the following options:

- total permissible laden weight of the truck plus total permissible laden weight of the trailer  
– for articulated lorries: net weight tractor plus total permissible laden weight semi-trailer or
- total permissible laden weight of the vehicle train or
- national weight limit (40 tons)

The principles of calculation can be explained with the following examples:

Tariff level in cents.				Kilometres driven		Relevant weight <sup>1</sup> towing vehicle and trailer	Charge in CHF
1	2	3					
3.10			X	300	X	 18 t	167.40
	2.69		X	300	X	 34 t	274.40
		2.28	X	300	X	 38 t <sup>2</sup>	259.90
		2.28	X	300	X	 40 t <sup>3</sup>	273.60

Tariff per ton and kilometre (tkm)

Level 1 = fee category 1 (corresponding to emission level EURO 0 / 1 / 2 / 3)

Level 2 = fee category 2 (corresponding to emission level EURO 4 / 5)

Level 3 = fee category 3 (corresponding to emission level EURO 6)

Kilometres driven on the public roads of Switzerland and/or of the Principality of Liechtenstein

<sup>1</sup> Relevant weight: = total permissible laden weight according to the **vehicle registration document**. For combined vehicles (with trailer), the total permissible laden weights are added.

<sup>2</sup> For separately matriculated articles: = net weight of the tractor and total permissible laden weight of the semi-trailer

<sup>3</sup> The national weight limit is 40 tons (therefore, this limit applies to the collection of the fee).

### 3 Recording equipment

#### 3.1 Overview

All **Swiss vehicles** that are subject to the charge must be fitted with a recording device. A total of some 55,000 heavy vehicles fall into this category. Exceptions are made only in a few cases, which must be justified.

Each **foreign vehicle** that crosses the border into Switzerland for the first time is allotted an identification card specifically for that vehicle, which will then allow formalities to be completed simply and quickly at future border-crossings. Foreign vehicles may also be fitted with a recording device but this is not obligatory.

Domestic Vehicles	Foreign Vehicles
<p>Mandatory equipped with: On Board Unit</p> 	<p>In principle using: ID-Card &amp; clearance terminal</p> 
<p>In approved exceptional cases: Declaration of the road performance with form</p> 	<p>Voluntary equipped with: On Board Unit</p> 

#### 3.2 The Emotach® recording device

This recording device automatically notes the mileage covered within Switzerland using an electrical link to the tachograph. In addition to the distance recorded, the vehicle's position is also monitored using GPS and a motion sensor. These two controls show whether the tachograph signal is interrupted or tampered with. This machine can only be fitted in authorised assembly points.





When the vehicle crosses the border the mileage counter is automatically switched on or off. This function is activated by a short-range microwave radio link using radio beacons installed above the road at the border crossing points, a type of radio technology called dedicated short-range communication (DSRC). DSRC has been standardised throughout Europe for electronic monitoring with a view to levying vehicle taxes.

The driver has to note on his recording device if and when a trailer has been coupled to or uncoupled from the tractor unit. To do this the driver can either insert a chipcard containing the trailer data into the recording device, choose the appropriate model from a list of trailers already used or enter the trailer data manually using a keyboard.

Trailer data can only be entered when the vehicle is stationary. The recorder notes the time, date, maximum permitted trailer weight and the mileage status. In addition, the recorder incorporates a simple trailer recognition function which reminds the driver to enter the trailer data in case he forgets to do so.

For monitoring purposes the recording device, which is mounted behind the windscreen, has a luminous display that is visible from outside the vehicle whereby it can be seen from a distance whether the device is switched on and whether the addition of a trailer has been recorded.

The recording device costs around CHF 1,000. The Directorate General of Customs provides the **first device** for each vehicle subject to HVC free of charge. It also replaces faulty recorders without charge. The transport company must pay for the installation of the first recorder, however, which costs between CHF 300 and CHF 700 depending upon the type of vehicle. In the case of a faulty recorder, the Directorate General of Customs pays a global amount for replacing it.

Swiss transport companies are obliged to forward the recorded data to the Directorate General of Customs at regular intervals. To do this, a special chipcard is inserted into the recording device which copies all the recorded data. The loaded card is then sent by post to the Directorate General of Customs. Alternatively, the data can be read off from the special chipcard on to the company's own computer and the declaration can be sent in by e-mail (Internet declaration).

Owners of foreign vehicles may equip them with an on-board unit on a voluntary basis. In order to have on-board units installed in their vehicles, owners must commit themselves to handle them properly and fulfil the following conditions:

- opening of a HVC account with the Directorate General of Customs
- deposit of an adequate security
- installation of the on-board unit at own expense at an authorized workshop in Switzerland or in the Principality of Liechtenstein.

The declaration data is directly read out every time the vehicle leaves the country (beacon communication), and the charge is billed monthly.

### 3.3 Identification card and clearance terminal

Drivers of foreign vehicles not fitted with a recording device must register the relevant details concerning their vehicle the first time they cross the border: registration number, country of registration, the vehicle's owner, maximum permitted weight, emission rating and invoice address. The driver must be able to prove that the information he provides is accurate. The master data for the vehicle are then stored in a central database and the driver is given an identification card for the vehicle.



From then on, each time the vehicle enters Switzerland the driver goes to a clearance terminal. He inserts the identification card into the machine and enters the mileage and the presence or not of a trailer. The name of the customs post, the date and the time of entry into Switzerland are automatically added.



When all the data have been entered the driver selects a method of payment for the HVC. The most popular method of payment is via fuel cards (UTA, DKV, Shell, Esso, etc.), which are checked online at the terminal. It is also possible to open a special HVC account with the customs or to pay cash.

All the data is transmitted to a central computer. The driver receives two copies from the clearance terminal. One copy is handed in when the vehicle leaves the country and the other is for the driver's files.

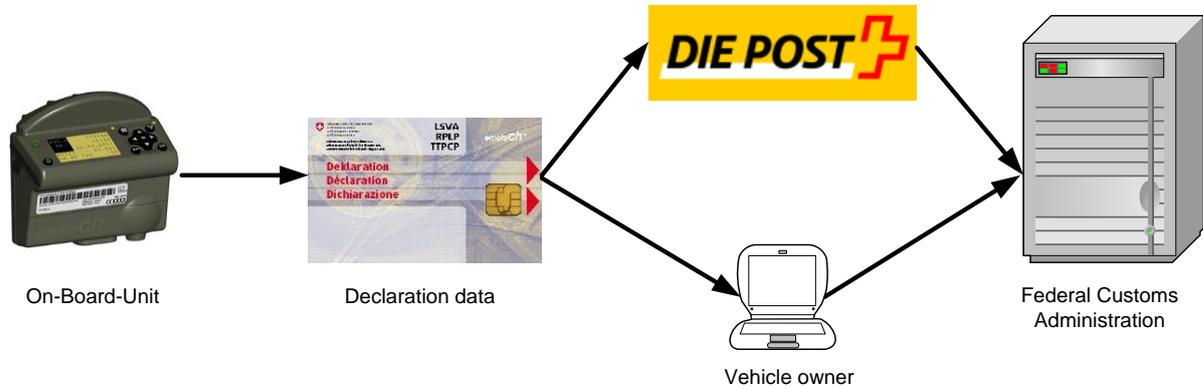
Exit formalities depend on the method of payment chosen. If payment is guaranteed (through a fuel card or an HVC account) the driver only has to present his copy of the data registered on entering Switzerland, plus his mileage with his signature to the customs authority. The driver only has to leave his vehicle if the charge must be paid for in cash.

## 4 From data to billing

The Cantons provide the Federal Customs Administration (FCA) with substantial support. They collect the HVC of all vehicles which have to be assessed on the basis of flat rates (e.g. coaches). With regard to the vehicles which are assessed on the basis of their performance, they record and up-date basic vehicle data and transmit it to the central information system of the FCA. This Information System (IS) is the core of HVC collection, as it contains all information relevant for registration, control and billing.

The relevant period for charge collection is the calendar month. Owners of vehicles which are subject to the HVC have to read the data (of the previous month) at the beginning of each calendar month from the OBU to a chipcard. The files have, then, to be transmitted to

the FCA either by chipcard (per mail) or electronically (per modem, Internet). The fleet owners can use the data also for the management of their truck fleets. At the FCA, the data (declaration of the vehicle owners) is fed into the Information System (IS), where it becomes subject to plausibility tests. The checked and, if necessary, corrected data will then form the basis for the calculation of the charge and the billing. The charge is due 60 days after the end of the registration period, and the bills have to be paid within 30 days.



## 5 Special regulations

- Travels in unaccompanied combined transport (UCT)
- Transports of raw wood
- Transports of unpacked milk
- • Transports of agricultural productive livestock.

Further information can be found at [www.lsva.ch](http://www.lsva.ch).

## 6 Controls

Swiss vehicles may cover thousands of miles within the country without ever crossing the border. In order to ensure that the declarations made are accurate various security functions have been included in the design of the recording devices. For example, the recorder has a motion sensor, a GPS receiver and an electronic link to the vehicle.



Furthermore, the Customs Administration checks that the HVC declaration is correct with fixed and mobile monitoring points in traffic. The data from the recording device is transmitted via the DSRC radio link by the current 27 fixed monitoring installations on the Swiss motorway network and is automatically compared with the data (number plate, vehicle length, etc.) captured electronically by the installation.

Foreign vehicles or ones without a recording device are recognised via the number plate. A vehicle used on the remainder of the road network can be deployed and is not bound to any specific location. The data gathered by the stationary and mobile monitoring points is sent back to the central HVC IT system to be further processed and penalise any violations.

The cantonal police corps also conducts controls in favour of HVC as they see fit. These are often combined with other measures to monitor heavy goods traffic (work time and rest periods, weight, alcohol, etc.).

## **7 Interoperability**

The HVC recording device can be used also in Austria based on the joint DSRC technology. In contrast, on-board units from foreign toll systems cannot be used for collecting the HVC due to the absence of the distance recording function.

However, the HVC system is being expanded to make it compatible with the European Electronic Toll Service (EETS), with the result that foreign vehicles can enter and pay the HVC via the EETS from 2020. In the EETS, vehicle holders choose their own EETS provider, but the provider in question has to be authorised for the individual toll systems. The EETS provider is the sole contact and contracting party of the vehicle holder, and he/she can comply not only with the HVC but also with his/her toll duties in other European toll systems with the provider's help. EETS providers equip their clients with an authorised interoperable recording device for that purpose.

Vehicle holders without an HVC on-board unit who do not want to use the interoperable service of an EETS provider still have the option of using the HVC clearance terminals at border customs offices.

## **8 Contact / information**

Further information as well as details about contacting us can be found at [www.lsva.ch](http://www.lsva.ch).