

ODOMETER MANIPULATION

Regarding
imported vehicles
from Germany

JULY
2018

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FOREWORD

This study was initiated by the RDW, the Netherlands Vehicle Authority and the Vereniging Aanpak Tellerfraude (VAT), Association against Odometer Fraud. The following parties are represented in VAT: BOVAG, RAI Vereniging, VNA and ANWB. In VAT, parties in the sector work together with RDW to limit and prevent odometer fraud.

This research is part of the spearhead plan of the collaboration between the parties mentioned above. The study took almost a year to complete and more than 5,000 cars were physically inspected. Subsequently, “suspicious” cars were further investigated, and dozens of experts and stakeholders were questioned and interviewed. This was truly a ‘major’ study.

The stakes are high. In 2017, fraud caused by altering the mileage of cars cost the Dutch consumer 396 million euros. Especially with cross-border trade, there is an ultimate opportunity for fraudsters to manipulate the odometer reading. Germany is the country from which most cars are imported.

The good news resulting from this study is that we have now established the facts. This was the objective of the study and this has been achieved. The not so good news is that odometer fraud is, as anticipated, extensive and that there is no short-term solution.

This study clearly brings to light an evidence-based situation. A Dutch buyer is eight times more likely to pay too much for a used car imported from Germany than when buying a used car in the Netherlands. Car buyers are seriously disadvantaged by altering the odometer. First of all, the real value of the vehicle is lower than the value with a reversed odometer reading, but also the maintenance costs will be higher.

Both in the Netherlands and in Germany, the manipulation of odometers is a punishable offence. Nevertheless, at least one in five cars imported from Germany has a manipulated odometer. These are huge numbers and as far as we are concerned, action must be taken.

We particularly wish to express our gratitude to the employees at the RDW inspection stations who have participated in this study with a great deal of interest and passion. In an already very busy period, they have intensively checked more than 5,000 additional cars for odometer fraud. They provided the basis for this study.

Martin Huisman



Paul Dietz



REASON

It is generally agreed that odometer manipulation in cross-border trade (i.e. imported vehicles) is above average. The two foreign countries Dutch people purchase most cars from are Germany (60%) and Belgium (20%). Apart from these countries there is a wide range of different countries from which cars are imported. The so-called 80/20 rule applies here.

In the Netherlands as well as in Belgium, odometer readings are registered centrally when the car is serviced and at each (periodic) inspection. This provides the possibility to detect illogical meter readings more easily. Agreements have been made with Belgium to exchange odometer readings of imported vehicles. This has demonstrably led to a reduction in the occurrence of odometer manipulation between the two countries.

Germany doesn't have a complete central registration of odometer readings yet. It is also unknown what the exact extent of the odometer manipulation in cross-border trade is. Estimates of odometer manipulation in vehicles imported from Germany vary between 10% and 50% (in the Netherlands this is 2.75%). However, no representative research has ever been conducted on the matter. Nor is it known how this fraud is committed. From the perspective of protecting the Dutch consumer against odometer manipulation, the number one priority is to achieve as much transparency as possible in the field of odometer readings for cars originating from Germany.

The reason for starting this study into odometer manipulation in cars imported from Germany came from the lack of statistical evidence and the missing background of the scale of the fraud.



An aerial photograph of a two-lane asphalt road winding through a dense forest. A white car is driving on the road. The text is overlaid in the upper left quadrant.

**IT IS GENERALLY AGREED THAT
ODOMETER MANIPULATION
IN CROSS-BORDER TRADE IS
ABOVE AVERAGE.**

MANAGEMENT SUMMARY

The purpose of this study was to establish the scale of vehicles with manipulated odometers imported from Germany. The objective was also to investigate how odometer manipulation can take place and what the bottlenecks are in combating odometer manipulation in vehicles imported from Germany. To achieve this goal, VAT and RDW commissioned a study by a research agency, Significant, and a detective agency, International Security Partners (ISP).

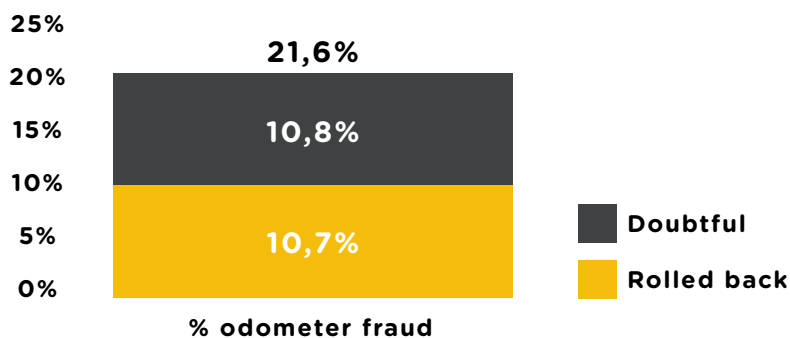
SCALE OF THE ODOMETER MANIPULATION

More than 5,000 vehicles imported from Germany were examined at RDW inspection stations during the sample period. Subsequently the cars that did not meet the requirements were then further examined on the basis of their license number.

The first conclusion was that it is difficult to establish odometer manipulation based on the car itself, even for professionals who work with cars on a daily basis. For a consumer, it is virtually impossible to determine odometer manipulation if the odometer was carefully rolled back. Especially previously registered odometer readings in external databases were decisive in this study. These readings are stored, for instance, in a warranty system by an importer or by a government agency as a result of an inspection.

Due to the limitations of the detection methods, not all odometer manipulations are detectable. This means that the estimates of odometer manipulation are an underestimation of the actual odometer manipulation, simply because not every odometer manipulation can be recognised.

Based on the assessments during the import inspections and the further investigation, the following estimate for the share of odometer manipulation with vehicles imported from Germany has been established as statistically representative:



Share of odometer manipulation in cars imported from Germany

Odometer manipulation in cars imported from Germany is estimated at 21.6%. 10.7% thereof was unequivocally established based on odometer readings and for 10.8% of those vehicles there is reasonable doubt about the correctness of the odometer reading.

HOW DOES ODOMETER MANIPULATION TAKE PLACE

Odometer manipulation is sold in two ways. One is through advertisement on the Internet. The other is through the import of vehicles by car dealers, who themselves roll back the odometer or have this done by a “fixed” contact person. The latter is most common.

The actual offenders generally are not involved in car trading, but are active in the area of car electronics. The offenders do not usually have a car company nor are they affiliated with umbrella organisations.

Rolling back odometers can be done from **€50** per vehicle. Different fees are heard for rolling back an odometer, depending on the type of customer (private or trade), type of car and equipment used. In other words, market forces are at play. The fees range from **€50** to **€400**. The gain in value of a car as a result of an altered odometer lies between **€1,000** and **€4,000** depending on the type of car and the market value.

Information obtained from interviews with experts shows that the majority of the odometers of the vehicles imported from Germany are rolled back in the Netherlands. Characteristics of the (suspected) offenders are that the company name, business address and/or directors change regularly. The companies/persons involved are almost never associated only with odometer manipulation. The actual offenders are often 'small' multiple criminal persons/companies. Especially the clients of these offenders are of interest, these are the traders or individuals who commission the alteration of the odometer.

Furthermore, the car traders who buy and resell these cars play a role. They are sometimes unaware yet at other times very much aware of the incorrect odometer. Often, however, they are consciously naive and if they think carefully, they know it is not right. This is a persistent attitude which is not uncommon in relation to odometer fraud. Trading these vehicles does not constitute a criminal offence in itself. However, it does indirectly contribute to odometer fraud. German selling parties also fall into this category. They get an above-average price for a car to be exported to the Netherlands and odometer fraud is the only really plausible reason.

CONSEQUENCES

In the Netherlands, the chance that someone buys a Dutch car with a rolled back odometer has been reduced to **2.76%**. The current study showed at least **21.6%** of the cars imported from Germany has a rolled back odometer. This means that the chance of buying a car with a rolled back odometer is eight times higher when buying a car imported from Germany.

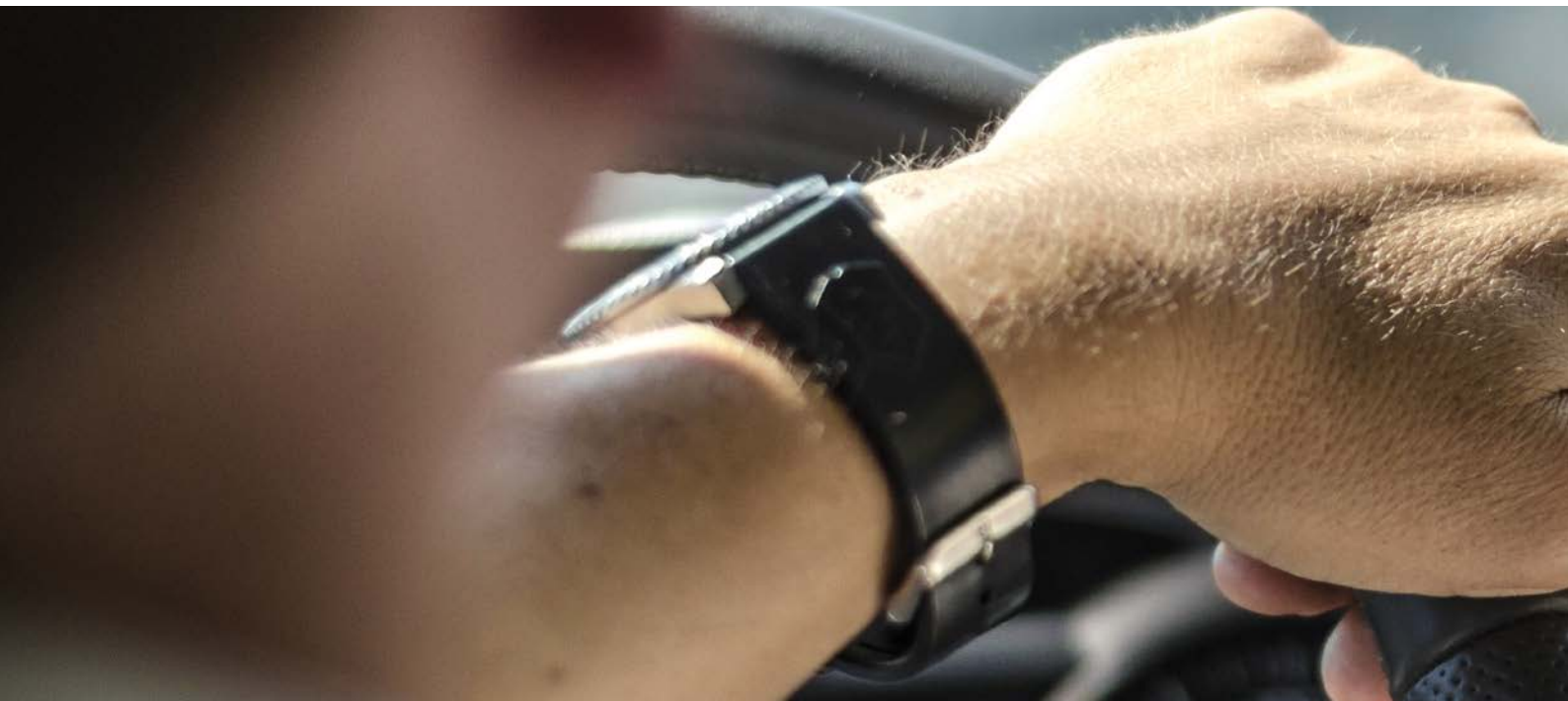
An earlier study by VAT showed that the average loss per vehicle with a rolled back odometer is **€1,500**. The cost to Dutch consumers in 2017 related to vehicles imported from Germany amounted to **42 million** euros.

Actually achieving an effective approach to odometer manipulation requires a series of measures. In addition to actually arresting the offenders, the Dutch consumer must be informed about the extent of odometer manipulation, and traders and resellers must be persuaded to stop participating in the trading of a car with a rolled back odometer. This approach is being implemented. However, it is crucial that information from Germany becomes available on the historical odometer readings of imported cars. Since October 2017 German inspection stations and garages are able to register odometer readings in a central database, since 20 May 2018 this registration is mandatory.¹ It will take a while before an historic range of odometer readings has been built up. In addition the obligation to register odometer readings only applies to vehicles with a PTI obligation. In the first few years of a vehicle this obligation is not applicable and registration of odometer readings is voluntary.

¹ See also Directive 2014/45/EC and 2014/46/EC


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▲ APPROXIMATELY 60% OF THE CARS IMPORTED IN THE NETHERLANDS COME FROM GERMANY AND 20% FROM BELGIUM (RDW, 2018)

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INTRODUCTION

As of 1 January 2014, committing fraud with vehicle odometer readings is a criminal offence in the Netherlands. All RDW accredited dealerships are legally obliged to report odometer readings at PTI inspections and during maintenance and repair work.

The odometer reading database is managed by RDW. Registering the odometer reading more often reduces the possibility of rolling back the odometer. With the aid of the series of meter readings, it can be determined in some cases whether a meter reading indicated by the dealership is logical. If this is not the case, this is registered in the vehicle register. Everyone can request the status of the odometer reading of a vehicle. This makes it particularly uninteresting to manipulate odometers of vehicles. As a result, the percentage of cars with rolled back odometers has been greatly reduced for Dutch vehicles in recent years. While more than 116,000 vehicles with a rolled back odometer were discovered in 2014, this was reduced to 70,000 vehicles in 2017.

Registration of odometer readings is still not required in many countries. The result is that it is possible to import vehicles with manipulated meters to the Netherlands. This leads to a loss for Dutch consumers and businesses, both in terms of purchase and during maintenance. A previous study by VAT showed that the average damage amounts to **€1,500** per vehicle. Approximately 60% of the cars imported in the Netherlands come from Germany and 20% from Belgium (RDW, 2018). At the government level, agreements have been made with Belgium to prevent odometer manipulation by exchanging registered odometer readings when vehicles are imported. In Germany, the obligation of a central registration of odometer readings does not yet exist.

Odometer manipulation causes serious damage to buyers of vehicles. In the first place, the actual value of the vehicle is lower than the value with a reversed odometer reading, but the maintenance costs can also be higher than expected. In order to effectively implement policies to reduce odometer manipulation with vehicles imported from Germany and, if possible, to make proper agreements with the German government, it is important to obtain an accurate and reliable indication of the number of cars imported from Germany with a rolled back odometer. It is also desirable to gain insight into the structure of the odometer manipulation network and the profiles of the organisations involved.

DESIGN OF THE STUDY

In this study, VAT and RDW worked together with two research agencies, Significant and International Security Partners (ISP). While Significant conducted a study on more than 5,000 vehicles imported from Germany, ISP carried out a qualitative investigation into odometer manipulation and the persons and organisations responsible for odometer manipulation.

The purpose of the study is therefore twofold:

- A.** Providing a reliable and accurate picture of the percentage of manipulated vehicles when importing from Germany (passenger cars and small delivery vehicles up to 3,500 kilogrammes)
- B.** Providing insight into the manner in which odometer manipulation is carried out and insight into the organisations involved

Both study objectives require a different approach. The first study objective is quantitative and requires a methodological approach. The second study objective is qualitative and requires an investigative approach. Therefore, it was decided to commission two agencies. Significant focuses on the accurate and reliable determination of the scale of odometer manipulation with vehicles imported from Germany. ISP investigates how odometers are manipulated and investigates networks of organisations involved in odometer manipulation.





PART A OF THE STUDY

For the first study objective, Significant, RDW and ISP jointly developed a method for the indicative determination of odometer manipulation by RDW inspectors during the inspection of vehicles to be imported from Germany. These initial assessments by RDW inspectors were verified for a sample survey in a further investigation with central registrations of odometer readings at dealers and/or importers. The results of this sample survey confirm (and in some cases also reject) suspicions of odometer manipulation. This provided insight into the accuracy of the initial assessments and allowed for a statistical translation into the entire population of vehicles imported from Germany. The further investigation was carried out jointly by VAT and Significant, whereby the final estimate of the occurrence of odometer manipulation was performed by Significant and included in this report.

The study was supervised by a steering group chaired by the Vereniging Aanpak Tellerfraude. In addition, representatives from the Vehicle Technology division and the Registration and Information division/ Information Provision department participated in the steering group on behalf of RDW as well as representatives from both research agencies.

The study was conducted in accordance with the approach shown in Figure 1 on the next page. In the first phase, indicators were developed for determining odometer manipulation during the import inspection, and a registration tool was developed to register the assessment of these indicators. At 13 of the 16 RDW inspection stations with substantial volumes of cars from Germany offered for inspection, the inspectors carried out an assessment during the import inspection. This resulted in the assessment of 5,218 vehicles imported from Germany. The assessment was translated into four odometer reading categories:

- A. an illogical odometer reading
- B. a probably illogical odometer reading
- C. a probably logical odometer reading
- D. a logical odometer reading

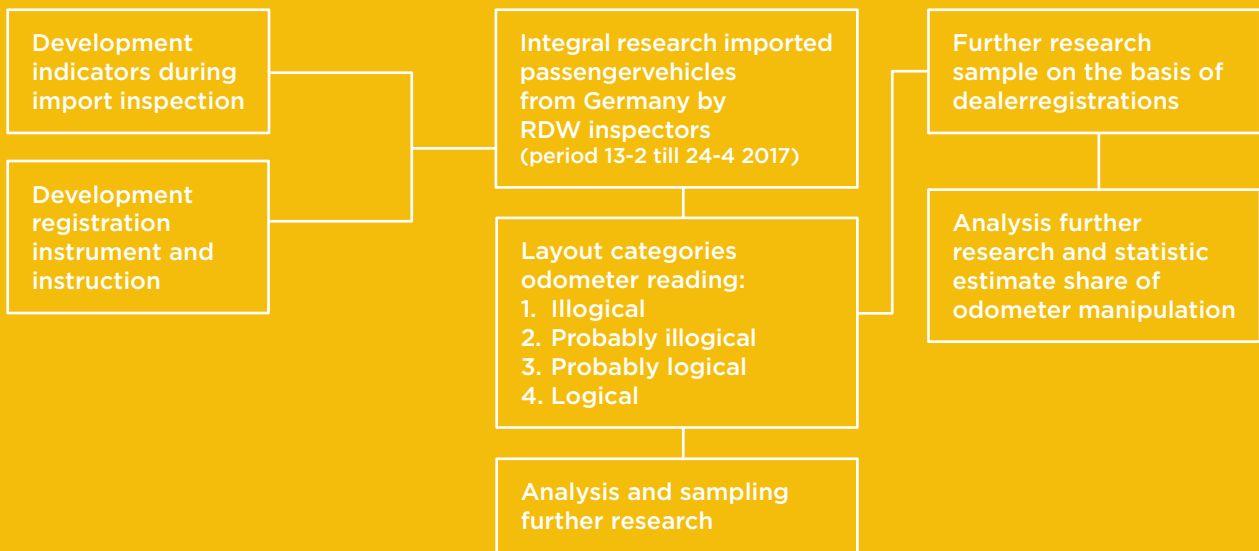
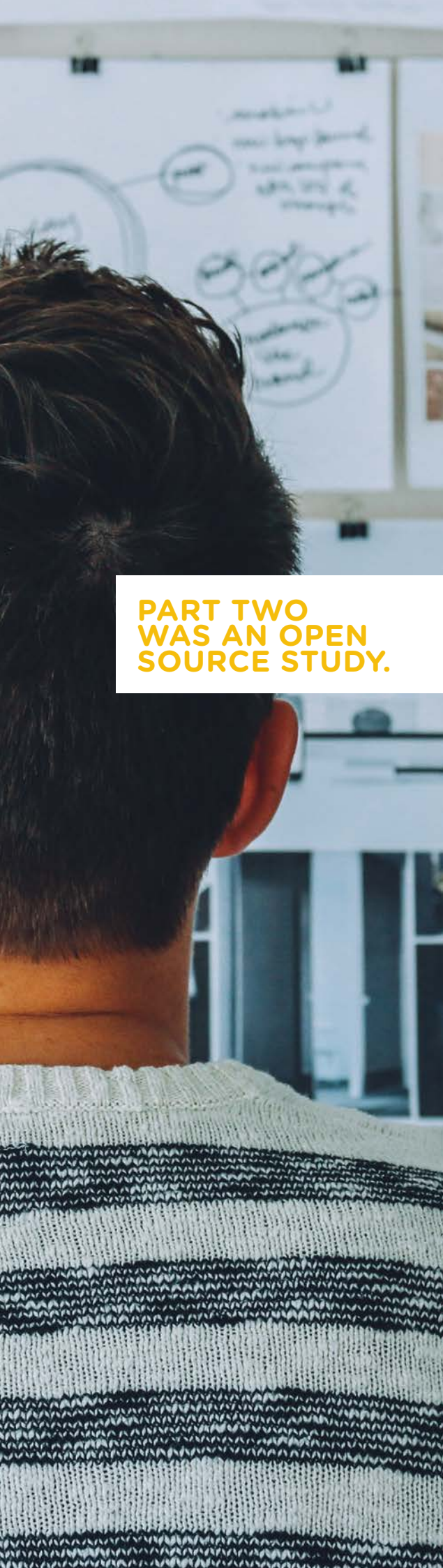


Figure 1: Approach of the study

Not all RDW inspection stations were involved in the study. Inspection stations with a low volume of vehicles imported from Germany were not included since barely any routine can be created because of the incidental nature of the assessment of odometer manipulation, which would not benefit the quality of these assessments. Appendix A 1 shows the list of inspection stations and the number of vehicles offered for import from Germany. It also explains the selection of inspection stations that participated in the study.

For a sample of the vehicles in the category “probably illogical” and “probably logical”, further research was carried out for a total of 673 vehicles on the availability of odometer reading history at dealers and/or importers. The odometer reading history of 304 vehicles could be found, which allowed determining with certainty whether it concerned odometer manipulation or whether there was reasonable doubt about the correctness of the odometer reading. The results of the random sample were subsequently applied to the entire population of vehicles inspected by the RDW inspectors, resulting in the estimates of the scale of odometer manipulation.



PART TWO WAS AN OPEN SOURCE STUDY.

PART B OF THE STUDY

Two types of research were carried out to achieve the second study objective. Part one consisted of conducting interviews with, among others, victims of odometer manipulation, detectives and with employees of the RDW testing stations. Part two was an open source study. This included consulting Internet sources regarding the offering of odometer manipulation, equipment used to manipulate odometer readings and the method of rolling back odometers.

Several research steps were carried out in order to gain insight into the backgrounds of odometer manipulation in vehicles imported from Germany. This included talking to experts of involved RDW stations who have a great deal of insight into traders and vehicle owners who offer their vehicles for inspection at RDW. From the network of RDW employees, other relevant persons were also consulted, such as detectives who are or have been involved in investigations into odometer manipulation. Furthermore, several other parties involved were interviewed, such as importers, car companies and an affected car dealer.

In addition to interviews with people who are involved in the subject in different ways from their daily practice, extensive research of sources and information analysis were carried out. For instance, a number of (anonymised) example reports of affected consumers were made available by the National Information Centre on Vehicle Crime (Landelijk Informatiecentrum Voertuigcriminaliteit, LIV). The contents of these reports were analysed. The companies mentioned in the interviews that are linked to and/or prosecuted and/or convicted for involvement in odometer manipulation were also extensively investigated.

In addition, information was obtained from a fellow research agency from Germany. Due to its investigative activities, this research agency is well-informed of all kinds of vehicle crime in Germany. The study steps are explained hereafter. The design of the study is described in more detail in Appendix B1. It discusses, among other things, anonymity and the conduction of the interviews as well as the open source research.



▲ IT IS VERY DIFFICULT TO DETERMINE WITH CERTAINTY WHETHER THE ODOMETER OF A VEHICLE WAS MANIPULATED.

PART A

STUDY INTO THE ACTUAL ROLLBACK RATE (SIGNIFICANT)

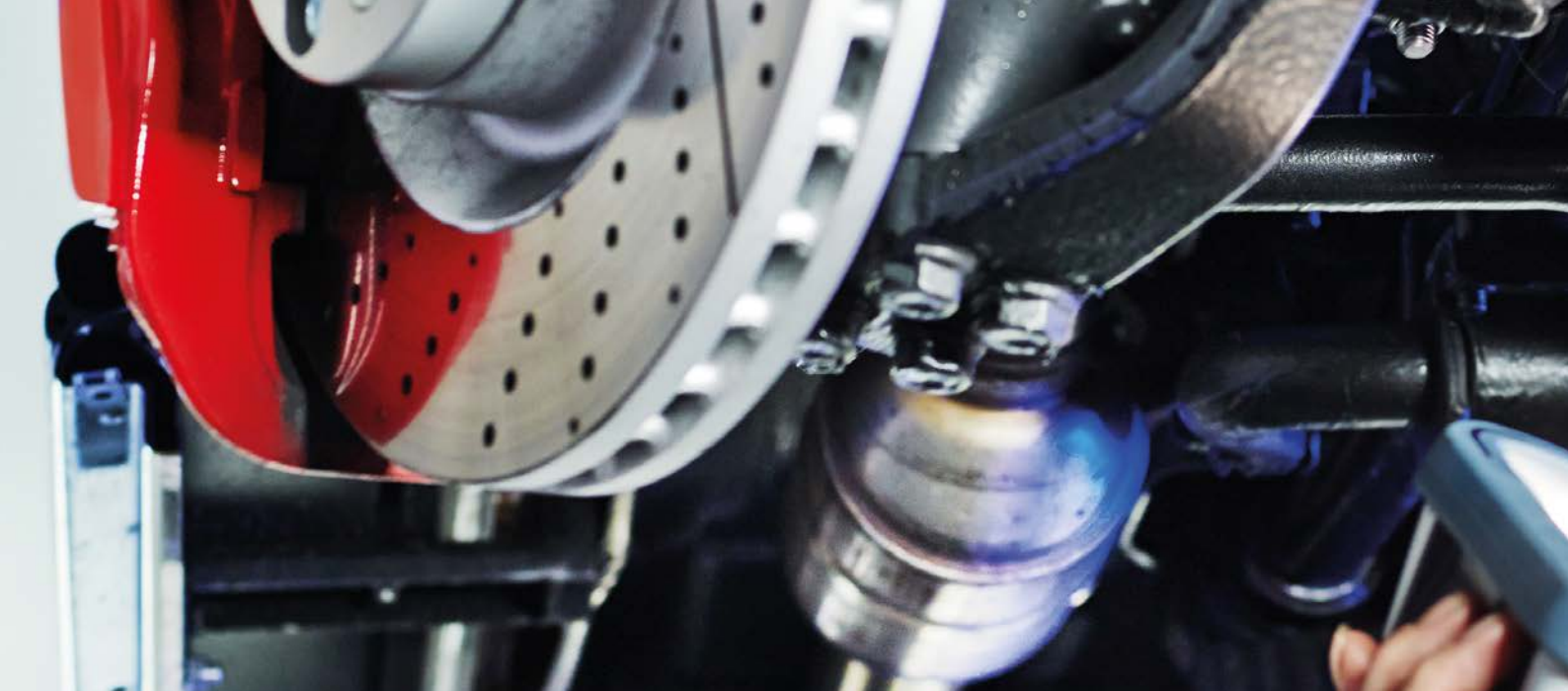
1. INDICATORS, REGISTRATION AND RESULT ASSESSMENT AT THE INSPECTION STATIONS

1.1 LIMITATIONS IN DETERMINING ODOMETER MANIPULATION

It is very difficult to determine with certainty whether the odometer of a vehicle was manipulated. Modern vehicles are equipped with an electronic registration system. The electronic internal registration of the vehicle regularly records meter readings as well as error messages and incidents. These registrations can be read out with special equipment, which can determine a possible odometer manipulation. These registrations are only available in vehicles from a certain year of manufacture and the available equipment is not able to read the registrations for all vehicles since the read-out method is brand-dependent. In addition, non-detectable manipulation of these electronic odometer readings has proved possible. This means that currently, this instrument is still limited for determining odometer manipulation. RDW has issued an invitation to tender for the development and supply of equipment that offers more possibilities in this respect.

An odometer reading registered in the past compared to the current odometer reading of the vehicle can also demonstrate odometer manipulation. If during a previous registration of the vehicle's odometer reading, for example, a service interval or a warranty repair, a higher odometer reading is detected than the current reading on the dashboard, this also constitutes unambiguous evidence of counter manipulation. For vehicles from Germany, no central administration of these odometer readings is available, as a result of which this check cannot be fully performed. Another limitation of this method is that if a higher current odometer reading is found, it may still involve odometer manipulation. For instance, if an odometer reading was registered two years ago that was 10,000 kilometres lower than the actual meter reading, it is still possible that 100,000 kilometres have been driven with the vehicle during those two years and that the odometer has been rolled back 90,000 kilometres. In other words, odometer manipulation cannot be detected this way in all situations, however, it can clearly demonstrate whether the current reading is lower than a previously registered odometer reading.

Sometimes, a (strong) indication of odometer manipulation can be obtained based on other information. This is the case, for example, when a German PTI report is available for a German vehicle with a higher odometer reading than the current reading. A comparable indication can be derived from a chart of the lubrication or oil changes, which includes the recorded odometer readings. Sometimes odometer readings are also written on the timing belt housing when the timing belt has been replaced. Determining odometer manipulation in this way is possible to a limited extent. If there is a German PTI report showing a higher odometer reading, it is usually not kept in the vehicle during the inspection. This also applies for lubrication charts/oil changes. Finding odometer readings written on the timing belt is rare these days. A missing German PTI report for a vehicle that is still valid for a certain period of time does raise a suspicion of odometer manipulation because this period would be taken into account for the PTI inspection when presenting this report.



Therefore, the person offering the vehicle for inspection has an interest in presenting a German PTI report. However, this cannot be regarded with certainty as odometer manipulation because the report could also have been lost during previous transactions.

In all other cases, it involves the presence or absence of suspicious circumstances that are indicative of odometer manipulation, but do not offer any certainty based on the information available at that time. This may include wear and tear on the point of entry, upholstery and steering wheel that are not in accordance with the odometer reading, wear and tear on brake discs that are not in accordance with the odometer reading, persons offering the vehicle who have given rise to suspicion of odometer manipulation based on previous transactions, or an odometer reading which is not probable given the year of manufacture and the type of car. It is clear that odometer manipulation cannot be unambiguously established based on these grounds.

Therefore, in the design of the study it was decided to first classify the imported vehicles based on an assessment by RDW inspectors into the following categories of odometer manipulation:

- A. an illogical odometer reading
- B. a probably illogical odometer reading
- C. a probably logical odometer reading
- D. a logical odometer reading



1.2 ESTABLISHING ODOMETER MANIPULATION INDICATORS

In the first phase of the study, Significant, ISP and RDW looked for the indicators that can be used during an import inspection to determine an indication of odometer manipulation. The starting point was that it had to be quick and easy for the inspectors to assess these indicators. A lot of attention was paid to minimising the extra work for the inspectors when assessing odometer manipulation. This required the research on the indicators to fit in the regular course of an import inspection and not require any additional technical operations.

This resulted in the registration system described in Appendix A2. The registration included:

A. Hard indicators:

1. Determination of odometer manipulation by electronic means
2. A German PTI report showing a higher odometer reading
3. A service booklet or lubrication chart showing a higher odometer reading

B. Soft indicators:

1. Technical indicators, such as wear and tear on the steering wheel, seat/upholstery, point of entry, brake discs
2. An absent but still valid German PTI inspection report
3. The odometer reading does not correspond to the year of manufacture
4. The person offering the vehicle has previously been associated with odometer manipulation

Naast de registratie van deze feitelijke gegevens is de keurmeester ook gevraagd een eigen oordeel te vormen of bij het voertuig sprake is van tellermanipulatie en dat oordeel te registreren.

In addition to the registration of this factual data, the inspector was also asked to form his own opinion about whether the vehicle was subject to odometer manipulation and to register this opinion.

This registration system was tested in a pilot project for feasibility and the possibility to gain insight into odometer manipulation. A course of action was also developed to prevent and, in certain cases, limit aggression of persons offering a vehicle who are present during the inspection.

1.3 REGISTRATION TOOL AND PREPARATION FOR THE STUDY AT INSPECTION STATIONS

In order to limit the amount of time spent on the odometer manipulation assessment, a registration tool was developed in Excel that can easily be completed by the inspectors during the regular administrative work for the import inspection. This instrument used barcodes to read in file numbers and guided the person completing the registration in a structured way through the assessment questions. The fields to be completed were automatically highlighted and the input was checked instantly. In case of detected input errors, a notification was shown immediately with a request to correct the errors. The registrations carried out were automatically sent to a central processing point at Significant upon closing the program. Appendix A2 shows an example of this registration instrument.

The method was explained during a meeting with all Technical Officer Specialists from the RDW inspection stations. They informed their fellow Technical Officers (inspectors) of the working method. In addition, all inspection stations involved provided a day of support to the project in order to solve questions and problems during the assessment and the registration. The study was conducted in the period from mid-February to the end of March 2017.

1.4 RESULTS BASED ON THE STUDY AT THE INSPECTION STATIONS

The study yielded useful data for 5,218 light motor vehicles and small delivery vehicles up to 3,500 kg imported from Germany. Figure 2 below shows that with this, the intended number of 5,000 was amply achieved. The numbers of vehicles registered per week are shown in Figure 3, which provides a reasonably stable picture and thus underpins the representativeness of the sample. The volumes drop somewhat at the end, as some branches started later and therefore ended later as well. At the branch level, these numbers fluctuate a bit more strongly for statistical reasons, especially for inspection stations that normally inspect small volumes of vehicles imported from Germany.

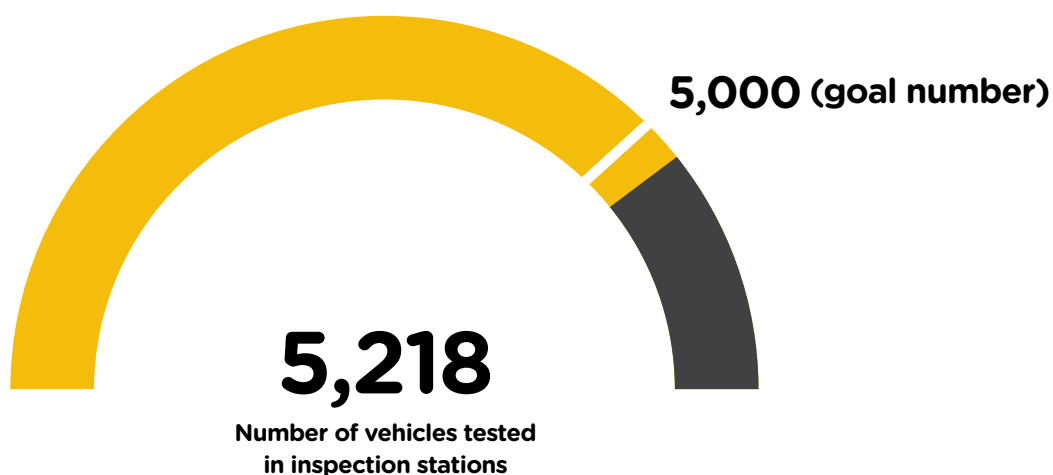


Figure 2: Number of vehicles to be imported from Germany offered for inspection tested in the study

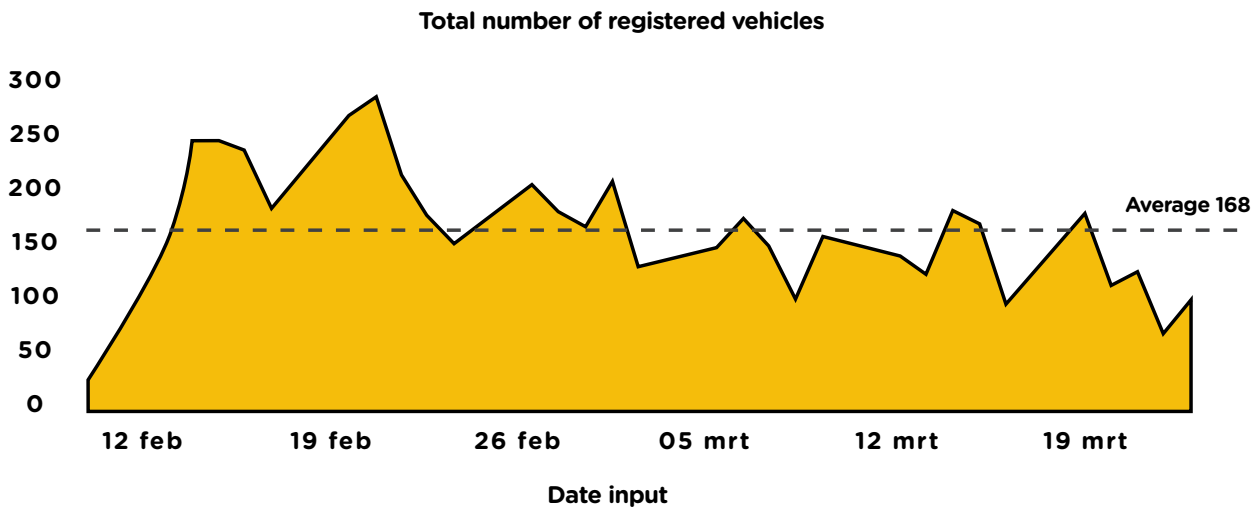


Figure 3: Number of registered vehicles per week during the study period

1.4.1 MEASUREMENT AND VALIDATION OF REPRESENTATIVENESS

Figure 4 below shows the number of vehicles assessed from the target group per inspection station. These quantities are determined primarily by the fluctuating supply, but also by the proportion of vehicles offered that were actually assessed by the inspectors. During the study, it became apparent that, due to the large workload and sometimes also the organisational coordination within the inspection station, not all vehicles from the target group offered from Germany could be assessed. This results in some differences in the proportion of offered vehicles that were assessed, however, following the progress of the study shows that this has not led to selective failures and therefore does not affect the representativeness.

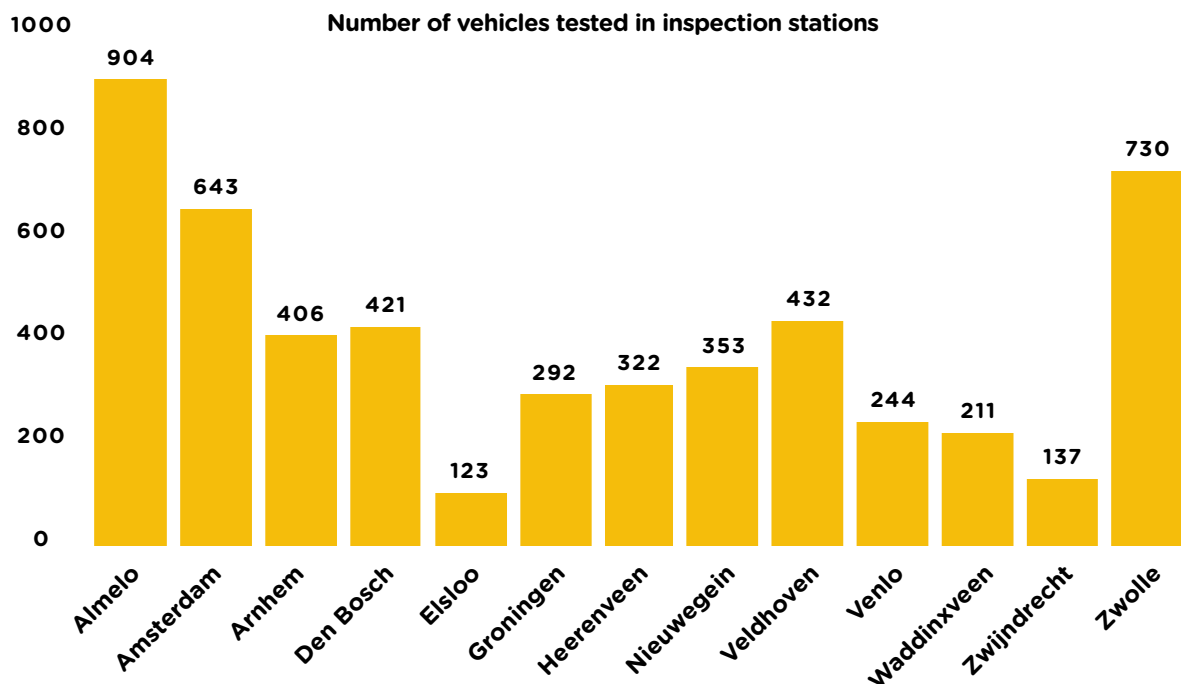


Figure 4: Number of vehicles tested per inspection station

Figure 5 below shows the number of vehicles per inspection station expressed in the number of weeks of average supply for that specific inspection station. It shows that the shares of tested vehicles vary but are still very substantial and provide a stable picture with the exception of an outlier up and down.

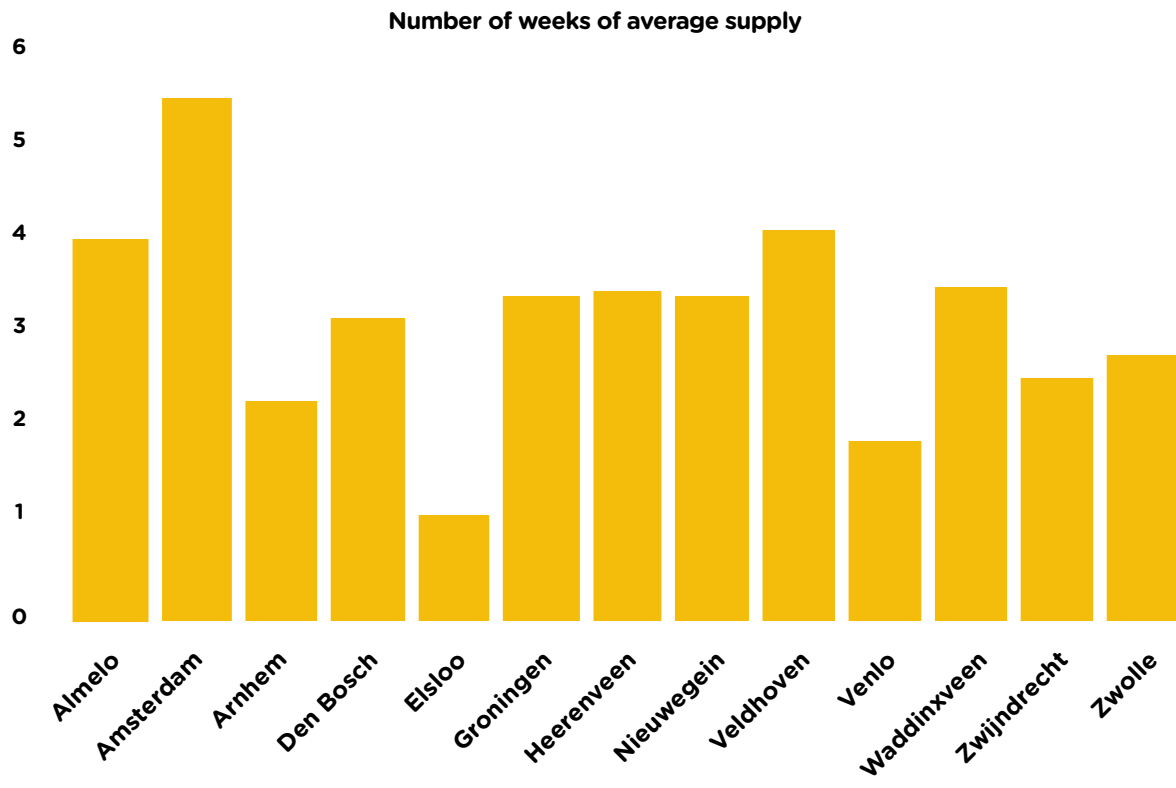
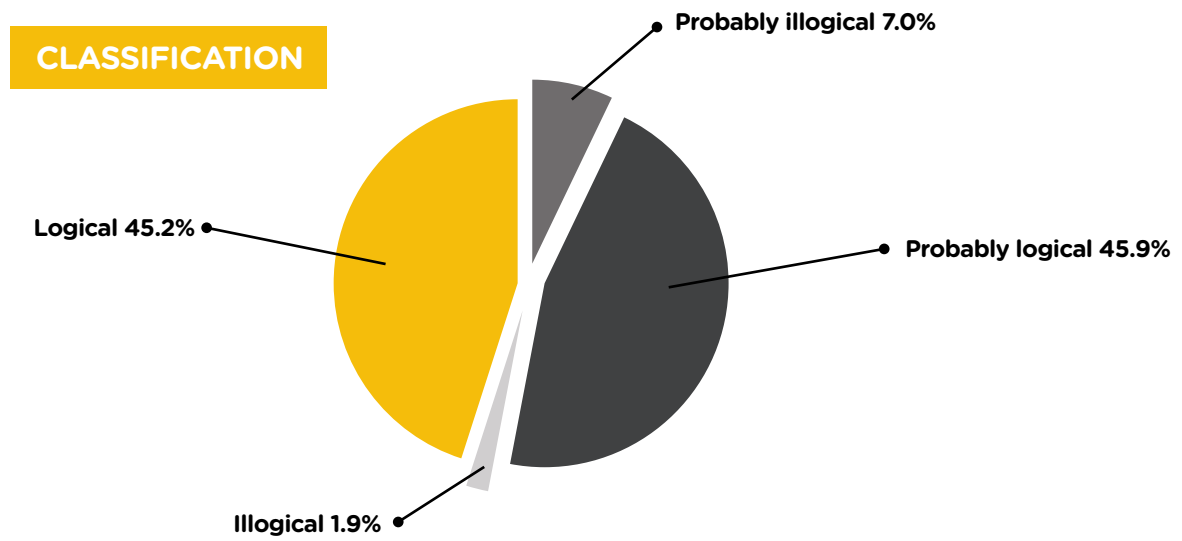


Figure 5: Tested vehicles expressed in the number of weeks of average supply



1.4.2 CLASSIFICATION INTO CATEGORIES

Based on the registered assessments, the vehicles tested were divided into four categories for the meter reading on the basis of the criteria specified in Appendix A3. For the vehicles in the study, this results in the following classification.



This classification is indicative and information from the further investigation provides a definitive estimate for the occurrence of odometer manipulation.

Figure 6: Classification based on the assessments of the RDW inspectors





2. FURTHER INVESTIGATION AND RESULTS

The results of the assessments performed by the RDW inspectors are indicative. This assessment took place during the import inspection and has been limited to easily observable variables. Therefore, a further in-depth investigation was carried out, which provides a statistically better substantiated estimate of the occurrence of odometer manipulation. This chapter describes this further investigation.

2.1 IMPLEMENTATION OF THE FURTHER INVESTIGATION

The outcome of the investigation at the inspection stations is categorised according to the classes: “illogical”, “probably illogical”, “probably logical” and “logical”. If the category for a vehicle resulted in “illogical”, it has unequivocally been established that it involves odometer manipulation. Therefore, this category can be omitted from the further investigation. In the “logical” category, no indication at all has been found that it involves a case of odometer manipulation, so this category has also been omitted from the further investigation. Two random samples were taken from the remaining vehicles, each with more than 300 vehicles in the category “probably logical” and “probably illogical”.

For this sample of vehicles, it was verified on the basis of the Vehicle Identification Number (VIN) at dealers and importers whether historical odometer readings were known for the vehicle. These historical odometer readings allow a comparison to be made with the odometer reading upon import. If a historical odometer reading is higher than the odometer reading upon import, it involves odometer manipulation. The historical odometer readings can also show that the odometer was manipulated prior to the import from Germany by showing a lower reading at a later date in the series. In this respect, the comment made in 2.1 also applies here. A monotonically increasing series of odometer readings means that odometer manipulation cannot be determined from these odometer readings, however, this does not mean that no odometer manipulation has taken place. In the case of many kilometres travelled between two registered odometer readings and only a small increase in the odometer reading, the counter has indeed been rolled back during that period, but this cannot be deduced from the odometer readings.

In the “probably logical” category, 342 vehicles were examined; for 150 of these vehicles, a historical odometer overview could be found. In the “probably illogical” category, 332 vehicles were examined, for 154 of which a historical odometer overview was found. This means that a further investigation based on the historical odometer readings was carried out for 304 vehicles. If an odometer reading is lower than the odometer reading on an earlier date during the entire odometer reading history, the vehicle is labelled as a vehicle with rolled back odometer. If less than 10 kilometres per day have been driven since the last odometer reading in comparison with the odometer reading upon import, it is considered doubtful. The other vehicles are labelled “logical”.



2.2 RESULTS OF THE FURTHER INVESTIGATION

Table 1 below shows the results of the further investigation. Noteworthy is that of the investigated vehicles in the category “probably logical”, odometer manipulation has been detected in 15% of the cases while there is doubt in 21% of the cases. Similarly, in the category “probably illogical”, 55% can be labelled logical based on the further investigation. Both classifications thus appear to provide a limited indication of odometer manipulation, which can be corrected with the results of the further investigation.

ASSESSMENT				
Category	Logical	Rolled back	Doubtful	Total
Probably logical	96	23	31	150
	64%	15%	21%	100%
Probably illogical	84	40	30	154
	55%	26%	19%	100%

Table 1: Results of the further investigation

These results allow weighing the qualification for all vehicles assessed by the RDW inspectors. A vehicle with an odometer reading classified as “logical” is labelled logical and a vehicle with the classification “illogical” as a vehicle with a manipulated odometer. In addition, a vehicle classified as “probably logical” is labelled a vehicle with a manipulated odometer for 15% and as doubtful for odometer manipulation for 21%. Similarly, a vehicle classified as “probably illogical” is counted as a vehicle with a manipulated odometer in 26% of the cases and as doubtful for odometer manipulation in 19% of the cases. The results arising therefrom are presented in the next chapter.



3. ESTIMATE OF ODOMETER MANIPULATIONS AND OTHER CONCLUSIONS

The results presented in this chapter for odometer manipulation in vehicles imported from Germany must be interpreted as a lower limit for the actual occurrence of odometer manipulation. There are two reasons for this:

- A.** Odometer manipulation within the margin of the last known reading before import is not detectable
- B.** There may also be vehicles with manipulated odometers in the “logical” category, which was not further investigated

Both reasons justify an analysis in which the indication “doubtful” resulting from the further investigation is taken into account.

3.1 ESTIMATE OF THE SCALE OF THE ODOMETER MANIPULATION IN VEHICLES IMPORTED FROM GERMANY

Figure 7 below shows the estimate for the odometer manipulation share of vehicles imported from Germany.

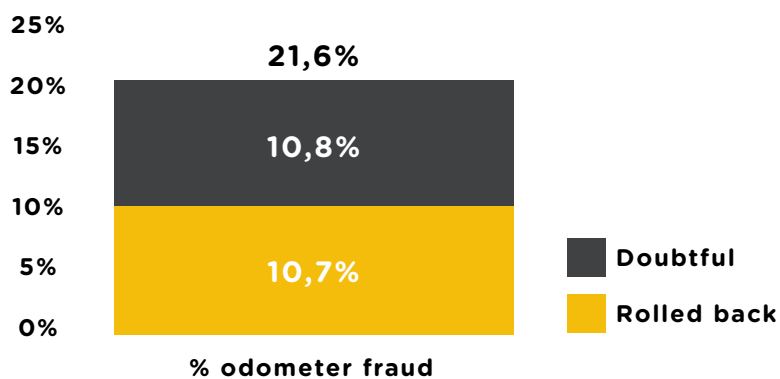


Figure 7: Estimate for the odometer manipulation share of vehicles imported from Germany

The number of kilometres rolled back cannot be determined accurately based on historical meter readings. It can be determined that the last meter reading is lower than the previous one. The difference in kilometres between these two odometer readings is a lower limit for the actual number of kilometres rolled back. The number of kilometres driven by the vehicle between these two dates must be added to this number, however, this number is unknown. Figure 8 provides an overview of the minimum number of kilometres the vehicles with manipulated odometers were rolled back. In 20% of the vehicles for which this could be determined, the odometer had been rolled back at least 50,000 kilometres and in 67%, this was more than 10,000 kilometres.

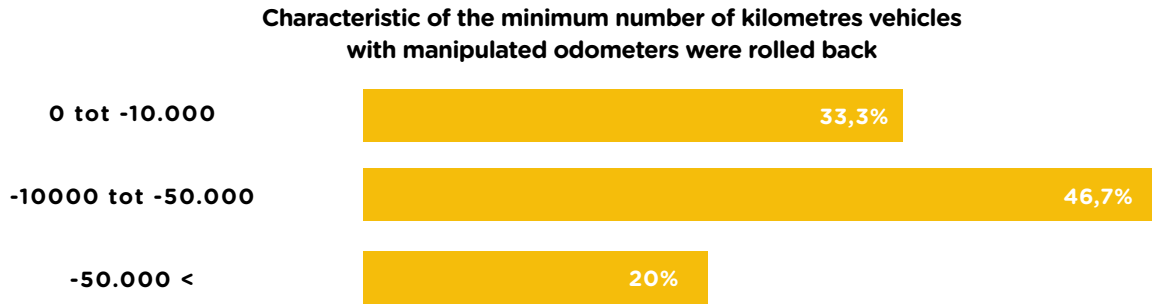


Figure 8: Characteristic of the minimum number of kilometres vehicles with manipulated odometers were rolled back

Figure 9 below shows the ten brands with the largest volume of vehicles in the study. The share of odometer manipulation is estimated for each brand, divided into the share for which it was determined with certainty and the proportion for which there is reasonable doubt. Since it concerns a random sample, the estimate of the share of odometer manipulation will contain a statistical inaccuracy. The figure shows an upper limit and lower limit for this statistical inaccuracy by means of the upper and lower dark orange lines. When these lines are closer together for a certain brand, the estimate is more accurate. For the major brands, odometer manipulation is most common in Toyota, Citroën, Ford and Renault.

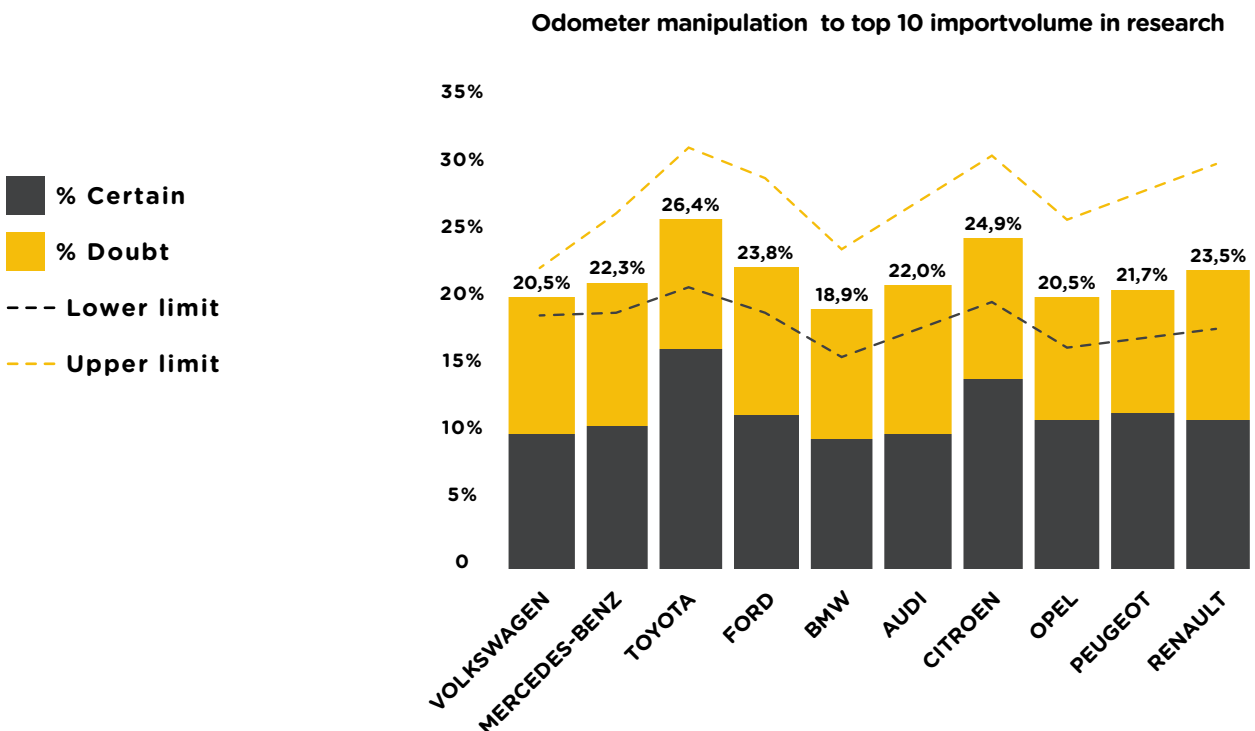


Figure 9: Estimated odometer manipulation for the 10 brands with the most vehicles in the sample

The top 10 brands with the largest estimated odometer manipulation are shown in Figure 10. A selection was applied for brands with at least 100 vehicles in the sample to ensure the statistical accuracy is high enough for meaningful estimates. Figure 10 also shows that the estimates of odometer manipulation for Toyota, Citroën, Ford and Renault are the highest. It is also clear that there are already three brands among the top 10 with an estimated odometer manipulation below the average for the entire population. In other words: the distinction for the occurrence of odometer manipulation at the brand level is very limited. Appendix A4 shows the results for all brands.

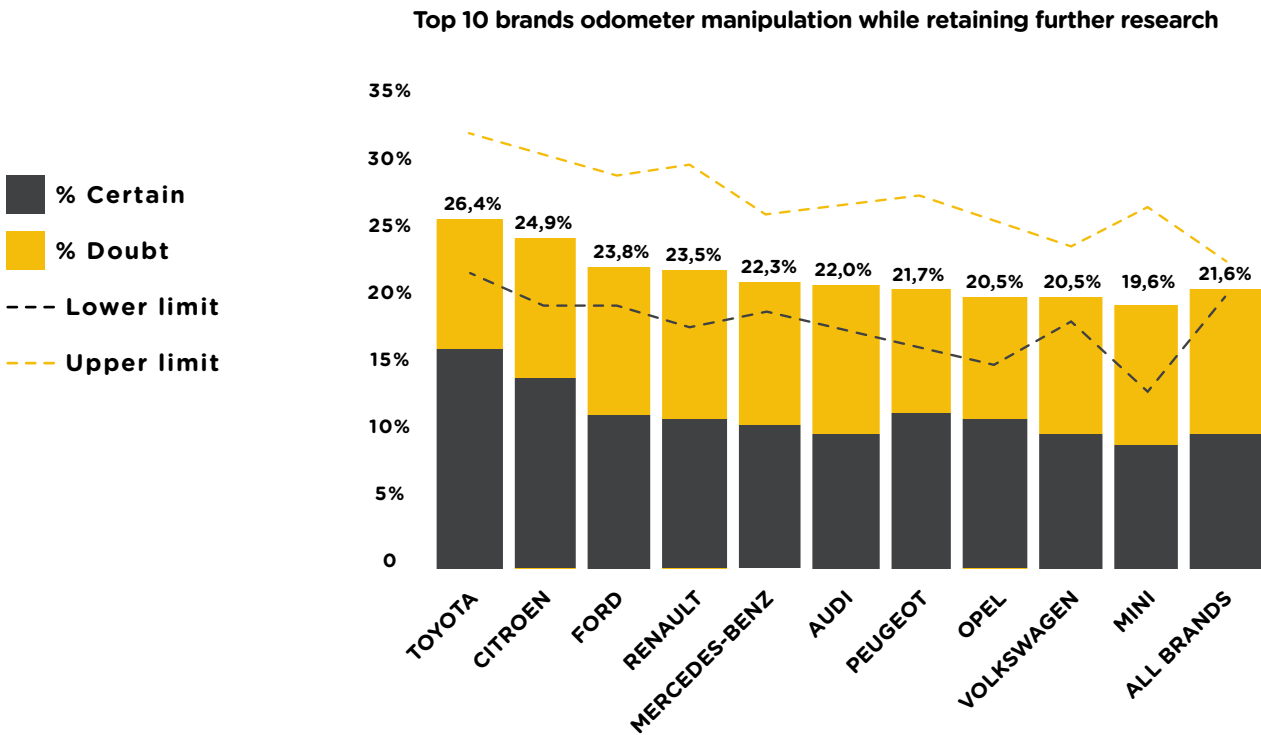


Figure 10: Estimated odometer manipulation for the 10 brands with the highest estimate

At the model level, a clearer distinction can be observed between the odometer manipulation estimates. The number of vehicles tested per model, however, is smaller than the number per brand, which results in greater statistical inaccuracies. Among the top ten models with the highest odometer manipulation estimates, a selection was made on models with at least 30 vehicles in the study. Figure 11 on the next page shows the ten models with the highest estimated odometer manipulation. The Toyota Aygo is by far the model with the most frequent odometer manipulation. The share of proven odometer manipulation is also highest for this model (25%). The estimates for the Peugeot 107, the Citroën C1 and the Ford Focus are relatively reliable and the odometer manipulation is also relatively high. These results indicate that odometer manipulation is certainly also common with smaller cars. All models in this top 10 have an estimated odometer manipulation higher than the estimate for the national average.

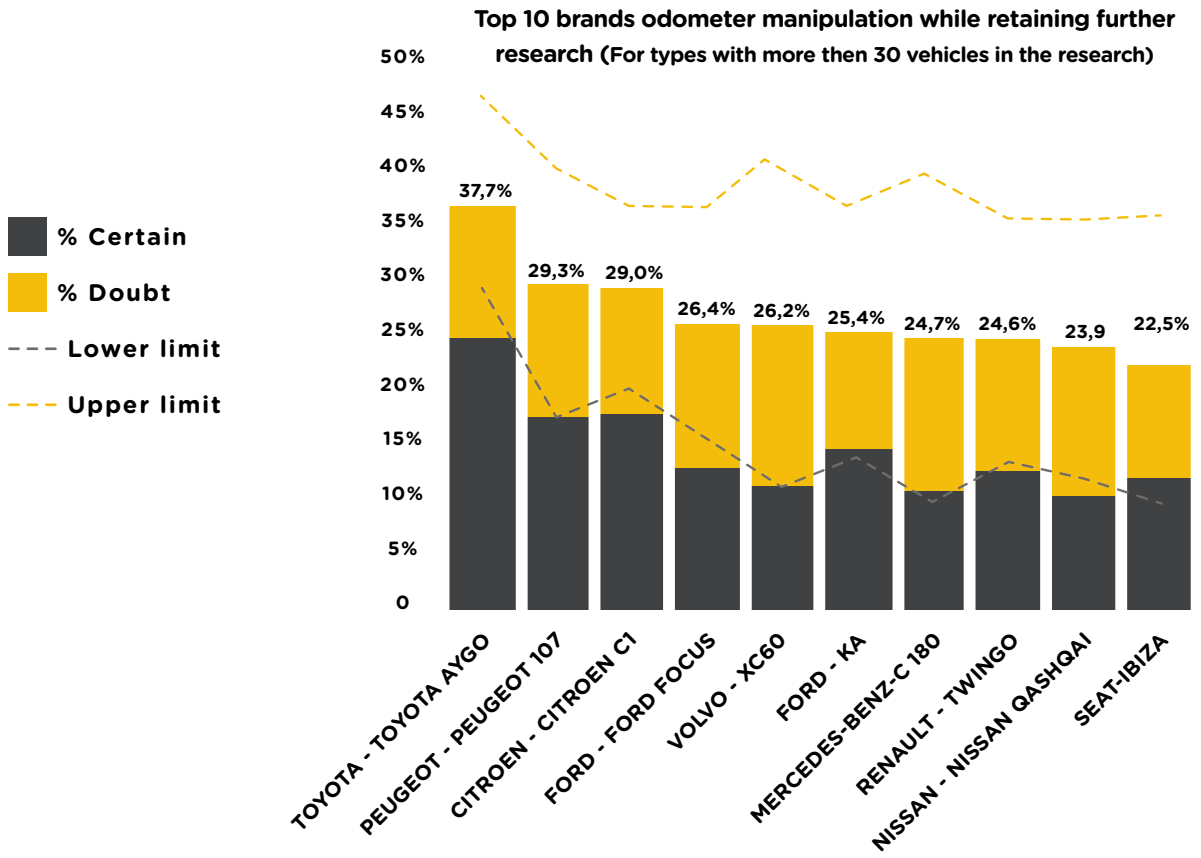


Figure 11: Top 10 models with manipulated odometers based on results including further research



Figure 12 provides an overview of the share of odometer manipulation per location where the vehicle was offered for import inspection. The relatively high percentage of vehicles with manipulated odometers offered in Zwolle stands out. Because the numbers offered here are also significant (730 in the study), the share of manipulated odometers has been determined accurately. The relatively high proportion of vehicles offered in Zwijndrecht may possibly be explained by the smaller number of vehicles assessed. The shares of vehicles with manipulated odometers offered in Waddinxveen and Elsloo are also less accurate due to the smaller numbers. In Heerenveen and especially Almelo, odometer manipulation is relatively rare in vehicles from Germany offered for import inspection.

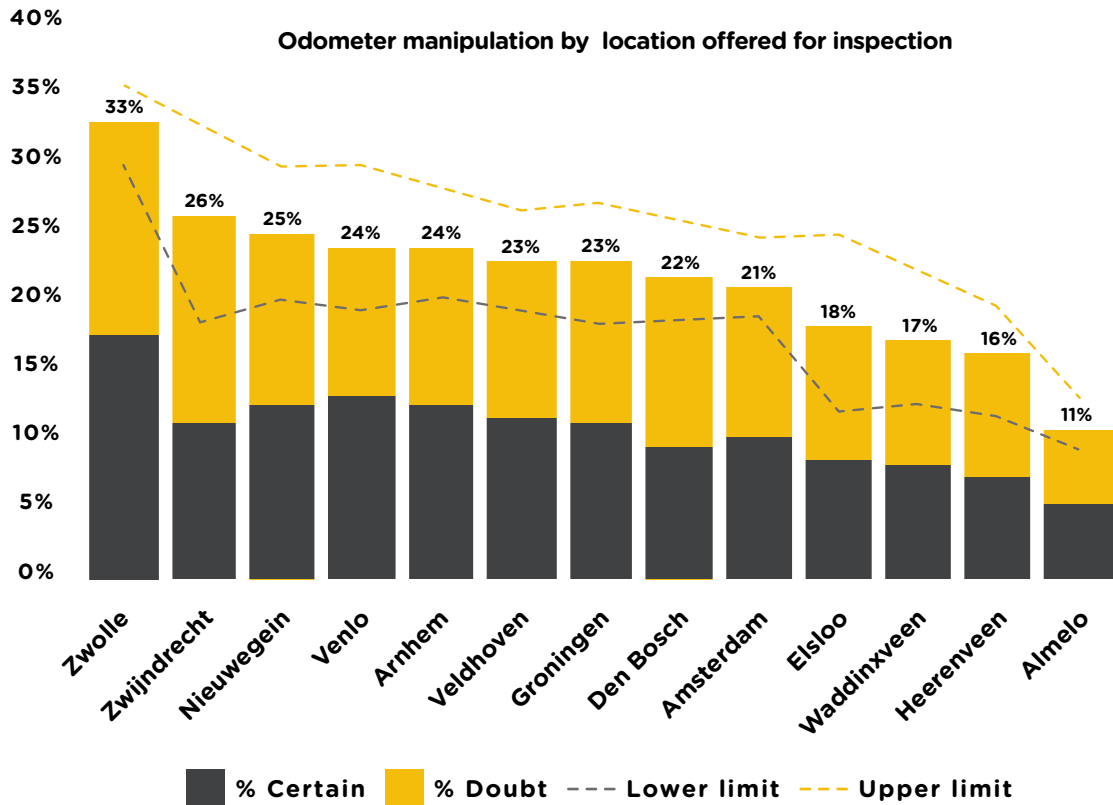


Figure 12: Odometer manipulation in vehicles imported from Germany according to the RDW location they are offered

3.2 CONCLUSIONS

The occurrence of odometer manipulation in vehicles imported from Germany is estimated at 21.6%. 10.7% thereof was unequivocally established based on odometer readings and for 10.8% of those vehicles there is reasonable doubt about the correctness of the odometer reading.

Odometer manipulation is relatively more common with the brands Toyota, Citroën, Ford and Renault. High shares of odometer manipulation are also observed in other brands, but the statistical accuracy thereof is too low to draw conclusions. The models with the highest estimated odometer manipulation are the Toyota Aygo, the Peugeot 107, the Citroën C1 and the Ford Focus. The fact that it concerns smaller cars is striking. It applies once again that there are more models with a relatively high share of odometer manipulation, however, due to the small numbers, no statistical conclusion can be drawn. At the inspection station in Zwolle, the number of cars imported from Germany with manipulated odometers offered for inspection is remarkably higher than average, while the opposite is true for the inspection station in Almelo, where this share is relatively low.



PART B

INVESTIGATION INTO THE BACKGROUND OF ODOMETER MANIPULATION (ISP)

1. MODUS OPERANDI

This study shows that different methods are used to manipulate odometers (modus operandi).

1.1 HOW ODOMETERS ARE MANIPULATED

In the past, cars were equipped with analogue odometers. These were rolled back using a battery tool or the numbers were given a ‘tap’ with a screwdriver. Nowadays, the manipulation of odometers mainly takes place in a digital manner, by means of special equipment and software. The investigation did not show any differences between the rolling back of odometers in vehicles imported from Germany and other cars. Appendix B3 addresses the equipment required to roll back odometers.

The manipulation of a digital odometer only takes 10 to 20 minutes. A laptop or ‘read-out device’ is connected to the EOBD connector in the vehicle, after which a new odometer reading is entered. The investigation shows that there are different ways to do this: at the customer’s home, in a garage or in a parking lot, or at a company. The required power supply is provided by the vehicle, so no external power supply is necessary.² In other words, the manipulation of an odometer reading can take place anywhere.

THE ROLLING BACK OF ODOMETERS IN CARS IMPORTED FROM GERMANY

The interviews with experts, based on results from research and experiences, demonstrate that the rolling back of odometer readings in vehicles imported from Germany takes place as follows:

- Step 1:** A dealer buys cars in Germany and transports them to the Netherlands on a flatbed vehicle
- Step 2:** The odometer readings are manipulated at the company
- Step 3:** The vehicle is sold
- Step 4:** After the vehicle is sold, it is registered by the RDW

There are various signs that may indicate that odometer readings are mainly manipulated in the Netherlands. A police investigation into companies that sold many vehicles with incorrect meter readings showed that no vehicles were found with manipulated odometer readings at the companies in Germany where the vehicles were purchased. There are also stories that German sellers ask whether the Dutch buyer wants the meter reading on the purchase invoice, because they know that Dutch buyers sometimes prefer not to.

The investigation included an interview with a former employee of a car company. This person stated that almost all vehicles that were traded (imported vehicles, commercial value between **€5,000** and **€10,000**) were brought to a chip tuning company, where the odometer reading was rolled back for **€50** per vehicle. He mentioned that despite the small amount, advanced and expensive software was used for this process.

² Police investigations, however, have shown that perpetrators of odometer manipulation ensure a protected environment: a closed garage, a remote parking lot, etc.

The person interviewed estimated that the odometers of approximately 30 vehicles per week were rolled back by the chip tuning company. According to him, the chance of being caught is very small, because the odometer readings are reversed to a level just above a possibly previously registered odometer reading. This person stated that odometers rolled back this way are virtually undetectable. In addition, this person stated that, in his opinion, no large reputable car companies are involved, but mainly the ‘petty dealers’, small traders. He drew this conclusion based on the fact that various companies of equal size offered their vehicles to the same chip tuning company and they met each other there. The objective of rolling back the odometer readings is to increase the value of the vehicle as well as to stimulate the circulation of the vehicles in stock.

Appendix B2 describes the bottlenecks in the detection of odometer manipulation, as well as experiences of victims of odometer manipulation.

1.2 HOW ODOMETER MANIPULATION IS SOLD

This investigation shows that there are various ways to sell the “service” of manipulating odometers. In addition to a fixed contact with a car dealer, there are also examples where rollback of odometer readings is openly offered on the Internet. The advertiser seems to focus on random consumers and, to a lesser extent, on companies that want to have odometer readings rolled back. We have not been able to determine the size of this market in this study. Appendix B4 provides examples of how odometer manipulation is offered on the Internet. Sometimes, odometer manipulation is offered on the Internet for amounts below **€100**.



1.3 VEHICLES

The import of cars from Germany has increased in recent years by 15 to 20% per year. The reason is that certain sought-after second-hand vehicles in the Netherlands are available in low numbers, while the supply from Germany is large. The most important vehicle models are the smaller vehicles, which are cheap in road tax. This includes vehicles such as the Citroën C1, Toyota Aygo, Toyota Yaris, Volkswagen Up and Kia Picanto. These vehicle models are often offered with a mileage between 50,000 and 80,000 kilometres and sometimes even lower. Apart from this, research on forums and interviews shows that odometer manipulation takes place with all kinds of car brands and models.

1.4 BOTTLENECKS

It is easy to manipulate meter readings unnoticed in vehicles imported from Germany. If evidence is found that a vehicle has a rolled-back odometer, the approach to tackling odometer manipulation can be a bottleneck. Appendix B6 addresses these bottlenecks.

In addition to the legal bottlenecks, odometer manipulation in German vehicles is facilitated because there is no obligation in Europe and Germany to share information and neither is existing information available to RDW once the vehicle is on the market in the Netherlands.



2. PARTIES INVOLVED AND PERPETRATOR PROFILE

A further objective of the investigation was to identify which parties are responsible for committing odometer manipulation, who are involved and whether it involves any networks. All interviews were conducted on the condition that information was processed anonymously. Therefore, no names of persons and/or companies are mentioned in this report.

If we look at the parties involved, there are different categories. The less professional car dealers, the professional car dealers and the official brand channel.

The interviews with employees of RDW, police officers, dealers and importers and background research in public Internet sources have revealed various company names that are related to the rollback of odometer readings. What stood out here was that the same companies were mentioned several times by police, RDW staff and other people while they are also mentioned in posts on the Internet. This group can be categorised as the less professional car dealers.

2.1 PARTIES INVOLVED: LESS PROFESSIONAL CAR DEALERS

These companies are not affected by odometer manipulations, on the contrary, they actually use it regularly.

These companies have a not-so-good reputation among to police, colleagues and Internet forums and are directly associated with odometer manipulation. The phenomenon of odometer fraud almost always comes to the surface in these cases. A number of additional characteristics of these investigated companies:

- They provide no or bad service
- Vehicles are sold without warranty
- The companies are not affiliated with BOVAG
- There are no service booklets or other documents that provide information on the vehicle history
- The company does not offer interested persons the option to take a test drive
- Registration certificates are not shown in the advertisements on the company website or other sales sites
- Plenty of promises are made, but these are not kept
- Manufacture years in the sales advertisements are incorrect
- At the time of purchase, the buyer signs a clause with which the buyer agrees to a fine³ if he decides not to buy the car the day after the purchase

A detailed perpetrator profile is described in Appendix B5.

2.2 PARTIES INVOLVED: PROFESSIONAL DEALERS

Professional dealers suffer from the phenomenon of odometer manipulation, a number of which may be qualified as consciously naive. However, the majority of them have also been surprised by odometer fraud on occasions. The next quote speaks volumes:

³ These clauses state amounts ranging between 10 and 15% of the purchase price.



One of the traders in imported vehicles stated he had been duped some time back by a foreign broker. This broker acted between his company and the selling company. This duped dealer stated that this was the first time he worked with a broker, and he would not do it again in the future. In his case, it concerned a batch of 100 cars (small Toyota cars), of 75 of which the meters turned out to have been rolled back. The damage, although difficult to determine, was estimated at ‘tens of thousands of euros’.

- Quote from the interview with Hans from Apeldoorn (car dealer)

2.3 PARTIES INVOLVED: CAR DEALERS

Interviews with large, reputable importers and car dealers show that odometer manipulation in vehicles imported from Germany is hardly an issue and no disadvantage is experienced because of odometer manipulation. The reason is that they only do business with fixed parties and have access to the vehicle history, including the odometer readings. For the trade in cars within the Netherlands, odometer manipulation is virtually no issue according to the car dealer interviewed, because it is easy to check the vehicle history of these vehicles.

The investigation has not shown in any way that reputable dealers or importers are involved in odometer manipulation. The reasons are that these companies:

- are reliable organisations with a positive reputation
- benefit from transparency and a positive image of the industry
- do not operate within the segment in which vehicles are tampered with: younger vehicles are traded via fixed purchasing channels and companies offer customers a guarantee

2.4 CLIENTS

The investigation does not show a clear dividing line or division of roles between clients and suppliers. It has been demonstrated that companies involved have the odometers rolled back by a third party and there are examples that show that traders take care of the purchase (including the picking up of the vehicles in Germany with a trailer), the rollback of the odometer readings as well as the sale of the vehicle.

In a sense, the private customer can also be considered an ‘unconscious’ client. Some of the companies involved are very competitive because of their own actions. As a result, vehicles with a low odometer reading are offered at a low price. Several of the companies involved have interested buyers who come from all over the country to buy a car.^{4,5} These large numbers cause an increasing supply/demand spiral. The curious thing is that some companies have and maintain that appeal, despite the poor track record that can be found on the Internet.⁶ There are also examples of private customers who ask a car company for a vehicle for a certain price, with a maximum number of kilometres driven. The requested vehicle is then imported from Germany by the car company, and the mileage adjusted accordingly, without the knowledge of the consumer.

The examples in which odometer manipulation (often more carefully formulated such as odometer adjustment) is advertised on the Internet are examples of a clearer relationship between clients and perpetrators as suppliers. Clients here, however, are probably the private customer, who wants to have his meter readings adjusted for a cheap price.

2.3 PERPETRATORS AND NETWORKS

The investigation did not show that there are organised networks of perpetrators, clients, front men and the like. The field research, interviews with detectives, and professionals from the automotive industry show that this mainly concerns small-scale shady businesses. A list of companies and persons found has been handed over to the Enforcement working group of the VAT-RDW collective.

Given the low-threshold nature of committing odometer manipulation, it is not necessary to carry this out in a criminal context or from (complex) criminal networks. It barely requires any specific knowledge or financial strength to manipulate odometers. The equipment required for the manipulation is widely available and inexpensive to purchase. Furthermore, the knowledge required is minimal and the probability of being caught is very small.



I do not have the impression that it concerns organised networks. They are not seasoned super criminals who operate in sophisticated networks. There are no heaps of cash at the homes of the perpetrators; they live by the day, are petty dealers and the money is spent quickly.

- Quote from the interview with the Police

4 There are examples on the Internet of people who travel by public transport through various provinces to be able to buy a second-hand car at an economical price.

5 Because, according to respondents, the local reputation of a car company is an important indicator of the reliability of a company, these ‘shady’ companies depend on customers from outside the local region.

6 This shows that buyers are often reckless when buying a car, are blinded, do not do any research, or take the gamble the car is good.

3. CONCLUSIONS

Based on the investigation the following can be concluded:

There is a big difference in equipment: some devices only adjust the odometer reading on the display, other more advanced devices adjust digital odometer readings in the engine management of a vehicle. The equipment is freely available on the Internet.

Information obtained from interviews with experts shows that the majority of the odometers of the vehicles imported from Germany are not rolled back until after their import in the Netherlands.

Rolling back odometers can be done for amounts as low as **€50** per vehicle. Different amounts are heard for rolling back an odometer, depending on the type of customer (private or trade), type of car and equipment used. The scope of the amount varies between **€50** and **€400**.


The probability of detecting odometer manipulation is small for cars that are imported from Germany. The reason is that in Germany the central registration of odometer readings during the PTI check has become mandatory only very recently. It therefore will take a while before an historic overview of odometer readings has been built up in a central registration. In addition the obligation to register odometer readings only applies to vehicles with a PTI obligation. In the first few years of a vehicle this obligation is not applicable and registration of odometer readings is voluntary. Especially in the first few years in the lifecycle of a vehicle it is important to register odometer readings more often; not only during the PTI but also during other events. Based on the EUCARIS Treaty cross-border exchange of odometer readings registered in Germany is already possible with organisations like RDW, just as currently being done between the Netherlands and Belgium. Currently there is no insight into previous odometer readings registered in Germany and thus no insight into any trend breaks.

In practice, it is not easy to determine with certainty whether odometers of vehicles imported from Germany are actually manipulated. Therefore, the probability the perpetrator is caught and thus the risk is very small.

Odometer manipulation is not one of the priorities within the police. The fragmented focus on and knowledge of this offence within the police lead to a situation in which perpetrators feel safe. The capability of the police organisation to effectively combat odometer manipulation is limited. Due to the lack of knowledge, complaints are not handled adequately thus impeding a targeted investigation. However, no organised networks are involved.

Odometer manipulation sold in two ways. One is advertising on the Internet. The other is the import of vehicles by involved car dealers themselves, who themselves roll back the odometer or have this done by a “fixed” person.

In addition to consumers, professional traders are also duped by odometer manipulation. They are offered cars with rolled back odometers, the odometer manipulation of which cannot always be detected.

A close-up, slightly blurred photograph of a car's speedometer. The speedometer is dark with white numerical markings. A red needle is positioned at the 200 mark. The background is dark and out of focus.

IF THERE IS CHOSEN FOR A IMPORTED CAR FROM GERMANY, THE ODDS ARE EIGHT TIMES AS BIG IT IS A CAR WITH A ROLLED BACK ODOMETER.

PART C

1. KEY FIGURES AND CONCLUSIONS

This last part of the study outlines the key figures on odometer fraud. Furthermore, a number of interpretations are given of the information obtained from the previous parts of this study. Finally, a number of conclusions will be drawn.

1.1 SITUATION IN THE NETHERLANDS

Since its founding in 1991, the private foundation NAP (an initiative of automotive industry parties) has put the phenomenon of odometer manipulation on the agenda. NAP also laid the foundation for the current system of registering odometer readings and assessing the series of odometer readings. Since then, the number of vehicles with a rolled back odometer has been reduced from 48% in 1991 to less than 5% in 2014.

Since 1 January 2014, manipulating odometer readings is a criminal offence in the Netherlands. VAT and RDW have been actively cooperating since the beginning of 2014 in combating odometer manipulation (VAT is the former NAP). From that period onwards, the share of vehicles with a rolled back odometer has continued to decline in the Netherlands.

Odometer readings are required to be registered at fixed times. This also helped to reduce the number of new vehicles whose odometer has been manipulated. Where the number of new trend breaks in 2014 was 116,000, this number was reduced to 70,000 trend breaks in 2017 (RDW, 2018).

The total number of rolled back vehicles in the Netherlands in 2017 was determined to be 264,220 (RDW, 2017). Currently, 2.76% of the fleet in the Netherlands has a rolled back odometer. This number is a combination of the number of vehicles in which a trend break has been detected since 2014 and the number of vehicles that were labelled 'illogical' by the NAP foundation.

1.2 SITUATION IN GERMANY

Since 20 May 2018 there is an obligation in Germany to centrally register odometer readings. Therefore it is not so easy yet to detect any trend breaks. There are no public sources a potential car buyer can consult. Mileage data is often stored at the dealer, for example in warranty systems. However, you are dependent on the cooperation of these parties and that only works if the car has been serviced through these channels. This makes it more interesting for fraudsters to manipulate odometers when importing German cars into the Netherlands.

58% of the total number of vehicles imported into the Netherlands in 2017 came from Germany (RDW, 2018). From this study it emerged that 21.6% of vehicles imported from Germany have a rolled back odometer. Table 1 shows that this amounts to 27,871 vehicles. This study showed that this percentage is an underestimation and that the number of vehicles with a rolled back odometer will actually be higher.

2017	Number of vehicles
Total imported into the Netherlands	221.895
Imported from GER	129.036
Imported from GER with rolled back odometer	27.871

Table 1: Number of vehicles imported into the Netherlands, share from Germany (GER) and share with rolled back odometer from GER. (Source: RDW, 2018)

It can be derived from Table 1 that the probability of purchasing a car with a rolled back odometer:

- is 21.6% if a car imported from Germany is purchased
- is 2.76% when the decision is made to purchase a Dutch car

The above means that the chance of a buying a car with a rolled back odometer is eight times higher when buying a car imported from Germany.

1.3 RATIO OF THE AMOUNT OF THE LOSS

An earlier study by VAT showed that the average damage per vehicle with a rolled back odometer is **€1,500**. Table 2 below shows the amount of the loss in 2017 for odometer manipulation of Dutch cars versus imported cars.

Key figures	Total number of cars	Share of new rolled back cars	Loss amount in 2017
Damage (€) caused by vehicles with odometers rolled back in NL	9.576.362	0,37%	53 million
Damage (€) caused by the import of vehicles	221.895	17,6%	58,8 million
Total	9.798.257		111,8 million

Table 2: Amount of the loss (€) caused by vehicles with rolled back odometers.

Although the loss amounts are almost the same, the relative impact of imported cars is enormous.

Key figures	Total number of cars (Source: RDW, 2018)	Share of rolled back cars	Loss amount in 2017
Damage (€) caused by the import of rolled back vehicles from GER	129.036	21,6%	42 million
Damage (€) caused by the import of rolled back vehicles from BE	41.669	2,2% (Source: RDW, 2018)	1,4 million
Damage (€) caused by the import of rolled back vehicles from other countries	51.190	20%	15,4 million
Total	221.895		58,8 million

Table 3: Amount of the loss (€) caused by vehicles with rolled back odometers imported from Germany (GER), Belgium (BE) and other countries.

Table 3 above shows that of all imported cars in the Netherlands, the import of German cars is the biggest loss item. The largest contamination in terms of odometer manipulation in the Dutch vehicle fleet is caused by cars imported from Germany.



2. OVERALL CONCLUSIONS AND RECOMMENDATIONS

This study was carried out with the two objectives specified below:

- C. Providing a reliable and accurate picture of vehicles with manipulated odometers imported from Germany (passenger cars and small delivery vehicles up to 3,500 kilogrammes)
- D. Providing insight into how odometer manipulation is carried out and insight into the network of the organisations involved.

- A.
 - The share of odometer manipulation in cars imported from Germany is estimated at a minimum of 21.6%. For 10.7% of these vehicles this has been determined with certainty, for 10.8% there is reasonable doubt about the meter reading. This percentage is an underestimation.
 - In this study, it stood out that many of the cars with a rolled back odometer were smaller cars.
 - The probability that a Dutch consumer is faced with odometer manipulation is eight times higher if the car was imported from Germany.
 - The cars imported from Germany represent an annual loss for the Dutch consumer of 42 million euros.
 - In the area of odometer fraud, the Dutch vehicle fleet is “contaminated” with manipulated cars imported from Germany (in 2017, 0.4% new vehicles of which the odometer was manipulated in the Netherlands versus 21.6% new, manipulated cars on the Dutch road from Germany).
 - Traders and dealers who import cars from Germany that carry out quality checks and who all trade in cars that have not been manipulated are being duped by the odometer manipulation.
 - It is complicated to determine with certainty whether the odometer of a vehicle imported from Germany was manipulated. Determining odometer manipulation is difficult, even for experts:
 - » Provided that the perpetrator has concealed it well, the car will not show any signs of odometer manipulation
 - » Even advanced reading equipment cannot detect well-executed manipulation
 - » Access to sources such as warranty systems of importers and dealer systems is limited
 - » Even if this access is available, the car may have been serviced outside the brand channel

- B.
 - The perpetrators are not organised in networks and are often small businesses or individuals.
 - There are shady unprofessional traders who know that cars with manipulated odometers are traded. However, this can never be the volume that represents the 21.6% of the manipulated cars from Germany.
 - The manipulated cars are sold or traded privately in the intermediate trade.
 - Both in Germany and in the Netherlands people and companies are involved that do not roll back the odometers themselves and have not given any instructions for this, but they could know that this has happened (consciously naive).
 - If there are suspicions that the odometer of a vehicle has been rolled back, this is often difficult to prove based on evidence. If there is evidence of odometer manipulation, the way to tackle it proves to be a bottleneck. This is due to the lack of knowledge by the police and the courts, the long lead time and ultimately a low chance of success.
 - A consumer cannot be expected to know whether the odometer of a car imported from Germany has been manipulated or not. At most, proof can be requested such as service booklets.



**BY REACHING AGREEMENTS ON
A COMPLETE REGISTRATION AND
EXCHANGE OF ODOMETER READINGS,
ODOMETER FRAUD CAN BE REDUCED.**

RECOMMENDATIONS

In the Netherlands, odometer fraud has fallen from 48% in 1991 to 5% in 2014 to 2.76% in 2018. The only reason for this decrease is continuous attention and the pursuit of a database that is as pure as possible, from which information products are created to inform consumers. This study demonstrates the need to come to additional agreements with Germany. By reaching agreements on a complete registration and exchange of odometer readings, odometer fraud can be reduced. The EUCARIS Treaty offers possibilities for the latter.

Registration systems for maintenance and warranty from dealers, importers and manufacturers provided opportunities for detecting odometer manipulation on import. A more open access could allow transparency.

APPENDIX A 1

PARTICIPATING INSPECTION STATIONS AND REGISTRATION

The selection of the inspection stations to be involved in the investigation was made based on Table 1 showing the number of vehicles offered for import inspection from Germany. The inspection stations in Waddinxveen and Zwijndrecht were included because of the pilot there with equipment that reads the electronics of the vehicle. This equipment makes it easier to make a reliable assessment on odometer manipulation with the vehicle, although it is not always conclusive.

Location of inspection station	Vehicles offered (1 Jan-14 Oct 2016)	Average per week	Selection for investigation
Almelo	9.245	225	Yes
Amsterdam	4.722	115	Yes
Arnhem	7.678	187	Yes
Den Bosch	5.536	135	Yes
Elsloo	4.751	116	Yes
Groningen	3.605	88	Yes
Heerenveen	3.924	96	Yes
Lelystad	14	0	No
Nieuwegein	4.388	107	Yes
Rijen	2.449	60	No
Roosendaal	1.911	47	No
Schiedam	2.482	61	No
Veldhoven	4.294	105	Yes
Venlo	5.327	130	Yes
Waddinxveen	2.571	63	Yes (crashcube)
Zwijndrecht	2.247	55	Yes (crashcube)
Zwolle	10.821	264	Yes
TOTAL	75.965	1.854	
TOTAL (selection)	69.109	1.686	

Table 1: Overview of vehicles offered for import inspection per inspection station and selection for the investigation

APPENDIX A 2

REGISTRATION

For the registration of all data in the assessment by an RDW inspector, an Excel application has been developed as shown in Figure 1 below.

significant. Versie 2.3

Formulier leegmaken

Wardrive
2-11-2017
Scan barcode van Duitse import

Locatie
Datum aanbieding
Dossier nummer
Tellersand dashboard

Nieuwe eigenaar?
 Handelaar Particulier

Elektronisch uitgelezen tellerstand?
elektronisch uitgelezen (crashcube/vincube)?
 Nee Ja

Tellersand crashcube/vincube

Is er een andere indicatie van een tellerstand?
Andere indicatie tellerstand
 Onderhoudsboekje / facturen Overige stand onder motorkap
 Smeekkaart historische tellerstand Smeekkaart tellerstand volgende beurt
 Geen

Tellersand
Datum

Is er een APK (TUV) rapport aanwezig?
APK (TUV) rapport
 Nee Ja

Meest recente tellersand
meest recente datum

Welke elementen lijken niet te kloppen in combinatie met de tellersand

- Slijtage van het stuur
- Vervanging/slijtage van stoel/instep
- Remschijven versleten/vervangen
- APK geldig zonder rapport
- Km stand niet overeenstemming met bouwjaar
- Aanbieder eerder in verband gebracht met tellerfraude

Expert opinion

- Logische tellerstand
- Twijfel over tellerstand
- Onlogische tellerstand

Heeft de klant toestemming gegeven om RDW gegevens te gebruiken?
Eventuele toelichting

Toestemming koppeling gegevens RDW
 Toestemming Geen toestemming

Registreren

Hulp nodig? Klik hier

Na openen van het bestand, druk op inhoud inschakelen.

Figure 1: Registration form for the assessment of odometer manipulation

This form was used by the inspectors to register specific data for the assessment of odometer manipulation during the import inspection. It is an interactive form which guides the person completing it through the registration process by means of automatic checks, highlighting fields to be filled in and the appearance of explanations. After all fields of the form have been completed, the registered data are first stored locally in a secured worksheet and, following completion, automatically sent to Significant by e-mail.

For privacy reasons, the identification of the vehicle takes place based on the file number of the import inspection, as a result of which no direct personal data are recorded or sent. Importing the file number takes place via a barcode on the paper file. Table 2 below shows the explanations on the various fields, as they appear on the screen when they are filled in.

Input field	Explanation
Location	<p>Instruction: Enter the RDW location where the German imported vehicle is offered.</p> <p>Technical: This field will not be emptied after saving the registration.</p>
Date of offering	<p>Instruction: Enter the date on which the German imported vehicle is offered.</p> <p>Technical: The date is set automatically to today's date.</p>
File number	<p>Instruction: Select this field and scan the barcode on your work order.</p> <p>Technical: After 'registering' or 'emptying' the form, this field is automatically selected. This is a required field.</p>
Odometer reading dashboard	<p>Instruction: Enter the odometer reading as shown on the dashboard.</p> <p>Technical: This required field will appear after the barcode is scanned.</p>
New owner	<p>Instruction: Enter whether the new owner is a trader or private person. If it concerns a known 'fraudulent' trader, you can specify this in the explanation.</p> <p>Technical: This is a required field.</p>
Electronic reading of the odometer reading?	<p>Instruction: Waddinxveen and Alphen run a trial with the electronic reading of vehicles. Select "yes" if the CrashCube or VinCube has been used.</p> <p>Technical: This selection is set to "no" by default.</p>
Odometer CrashCube/ VinCube	<p>Instruction: Enter the most reliable odometer reading, which is read from the CrashCube/VinCube.</p> <p>Exceptions:</p> <p>(1) no reading possible, register: n/a.</p> <p>(2) if the odometer readout reads "0000", register this readout.</p> <p>Technical: The field can be used for recording an odometer reading, "0000" and n/a.</p>
Is there a different odometer readout?	<p>Instruction: Enter an odometer reading that you can find in the vehicle imported from German. If multiple odometer readings are available, enter the most reliable one.</p> <p>Select "other position under the bonnet" if, for example, there is an odometer reading written on the timing belt or brake fluid reservoir.</p> <p>Select "none" if there are no other written indications of an odometer reading.</p> <p>Technical: This is a required field.</p>
Odometer reading Date	<p>Instruction: Enter the date that corresponds to the (other indication) odometer reading, if available.</p> <p>Technical: The field can be left blank if the date is unknown.</p>

Table 2: Fields and explanation/instruction in the registration form

Input field	Explanation
Is there a (German) PTI report?	Instruction: Check whether there is a (German) PTI report for the vehicle.
Most recent odometer reading	Instruction: Enter the odometer reading stated on the (German) PTI report. Technical: If the odometer reading cannot be derived from the report, this field can be left blank.
Most recent odometer reading	Instruction: Enter the date stated on the (German) PTI report. Technical: The field can be left blank if the date is unknown.
Which elements do not seem to be in line with the odometer reading?	Instruction: Check the elements that do not match the dashboard odometer reading. Technical: Multiple options may be selected.
Expert opinion	Instruction: Enter your own professional opinion on the dashboard odometer reading: “Logical odometer reading”: when a dashboard odometer reading seems consistent with the appearance of the car, without clear signs of odometer manipulation “Doubts about odometer reading”: when there are reasons to doubt the dashboard odometer reading without there being any clear signs, or “Illogical odometer reading”: when there are clear signs of odometer manipulation with the dashboard odometer In addition to the factual indicators mentioned above, also include the intuitive feeling and special circumstances in your assessment and clarify these in the explanatory field. Technical: This is a required field.
Has the customer given permission to use RDW data?	Instruction: At the intake counter, the customer has indicated whether he or she grants permission to use the RDW data for this investigation. His/her choice is written down on the file in pen. Permission: the data in this tool will be linked to other RDW data later in the investigation using the file number. No permission: the above data are used anonymously for the sample, without the RDW data. Technical: Completing this field is mandatory. Questions about the permission: We do not actively communicate with the customer about the content of this investigation. If the customer has any questions about the research, answer them honestly. However, clearly state that the investigation is not intended to prosecute individual cases.
Possible explanation	Instruction: Here you enter the information for which the form does not provide the option. This could, for instance, include information about a known ‘fraudulent’ trader or a trader whose vehicles all have the same odometer reading, etc. Technical: This field has no limit and can be used freely. It is not a mandatory field.

APPENDIX A 3

CLASSIFICATION BASED ON ASSESSMENT BY INSPECTION STATIONS

The classification into categories took place based on the following registered variables:

- A. Expert opinion
- B. German PTI report or electronic readout
- C. Lubrication chart or service booklet
- D. Other soft indicators (wear and tear on the steering wheel, seat, brake discs, valid PTI without report, etc.)

Based on the score for these variables, a value will be assigned, which is added for each assessed vehicle. Table 3 below shows these values.

Assessed variable	Classification value
Expert opinion	Logical: 1000 Doubt: 2000 Illogical: 3000
PTI or electronic	Logical: 100 Illogical: 200 No indication: 300
Lubrication chart or service booklet	Logical: 10 Illogical: 20 No indication: 30
Other soft indicators	No indicator specified: 1 One or more indicators specified: 2

Table 3: Classification values on assessed variables

These classification values can be used to assign a code to each assessed vehicle that is translated into the categories according to Table 4: illogical, probably illogical, probably logical and logical. If there is no score in a line below an indicator in this table, it is not relevant for the final assessment, in view of the scores in the previous columns.

Expert opinion	PTI or electronic	Lubrication chart, Service booklet	Soft indicators	Classification	Coding
Logical	Logical			Logical	11xx
Logical	Illogical			Probably logical	12xx
Logical	No indication	Logical		Logical	131x
Logical	No indication	Illogical		Probably logical	132x
Logical	No indication	No indication	Logical	Logical	1331
Logical	No indication	No indication	Illogical	Probably logical	1332
Doubt	Logical			Probably logical	21xx
Doubt	Illogical			Probably illogical	22xx
Doubt	No indication	Logical		Probably logical	231x
Doubt	No indication	Illogical		Probably illogical	232x
Doubt	No indication	No indication	Logical	Probably logical	2331
Doubt	No indication	No indication	Illogical	Probably illogical	2332
Illogical	Logical			Probably illogical	31xx
Illogical	Illogical			Illogical	32xx
Illogical	No indication	Logical		Probably illogical	331x
Illogical	No indication	Illogical		Illogical	332x
Illogical	No indication	No indication	Logical	Probably illogical	3331
Illogical	No indication	No indication	Illogical	Illogical	3332

Table 4: Summary overview of the classification based on indicators

APPENDIX A 4

ODOMETER MANIPULATION ESTIMATE PER BRAND AND PER MODEL

The table below shows the estimates for odometer manipulation for all brands included in the study.

Brand	Number of the brand	Odometer manipulation estimate			Inaccuracy	
		% certain	% doubt	%total	lower limit	upper limit
ADRIA	1	15,3%	20,7%	36,0%	0,0%	100,0%
ADRIA MOBIL	1	26,0%	19,5%	45,5%	0,0%	100,0%
ALFA ROMEO	27	18,1%	12,1%	30,1%	12,8%	47,5%
ALPINA	3	15,3%	20,7%	36,0%	0,0%	90,3%
ASTON-MARTIN	2	7,7%	10,3%	18,0%	0,0%	71,2%
AUDI	285	10,0%	12,0%	22,0%	17,2%	26,8%
BAVARIA	1	15,3%	20,7%	36,0%	0,0%	100,0%
BENTLEY	3	15,3%	20,7%	36,0%	0,0%	90,3%
BMW	373	8,7%	10,3%	18,9%	15,0%	22,9%
BUERSTNER	8	11,5%	15,5%	27,0%	0,0%	57,8%
CADILLAC	1	15,3%	20,7%	36,0%	0,0%	100,0%
CAPRON	3	15,3%	20,7%	36,0%	0,0%	90,3%
CHALLENGER	1	15,3%	20,7%	36,0%	0,0%	100,0%
CHEVROLET	28	10,4%	12,4%	22,9%	7,3%	38,4%
CHRYSLER	1	15,3%	20,7%	36,0%	0,0%	100,0%
CITROEN	225	13,8%	11,0%	24,9%	19,2%	30,5%
DACIA	10	7,7%	10,3%	18,0%	0,0%	41,8%
DAEWOO	3	13,8%	13,4%	27,2%	0,0%	77,5%
DAF	1	0,0%	0,0%	0,0%	0,0%	0,0%
DAIHATSU	24	14,6%	12,8%	27,5%	9,6%	45,3%
DAIMLERCHRYSLER	3	18,9%	20,3%	39,2%	0,0%	94,4%

Table 5: Odometer manipulation estimate per brand and per model

Brand	Number of the brand	Odometer manipulation estimate			Inaccuracy	
		% certain	% doubt	%total	lower limit	upper limit
DETHLEFFS	6	12,8%	17,2%	30,0%	0,0%	66,7%
FERRARI	1	0,0%	0,0%	0,0%	0,0%	0,0%
FIAT	185	8,9%	8,5%	17,4%	12,0%	22,9%
FORD	283	11,6%	12,2%	23,8%	18,9%	28,8%
HONDA	34	7,2%	9,7%	16,9%	4,3%	29,6%
HYMER	10	6,1%	8,3%	14,4%	0,0%	36,2%
HYUNDAI	82	7,7%	8,4%	16,1%	8,1%	24,0%
INFINITI	1	0,0%	0,0%	0,0%	0,0%	0,0%
ISUZU	1	0,0%	0,0%	0,0%	0,0%	0,0%
IVECO	5	9,2%	12,4%	21,6%	0,0%	57,7%
JAGUAR	5	29,2%	12,4%	41,6%	0,0%	84,8%
JAGUAR CARS	2	7,7%	10,3%	18,0%	0,0%	71,2%
JAGUAR LAND ROVER	4	11,5%	15,5%	27,0%	0,0%	70,5%
JEEP	2	15,3%	20,7%	36,0%	0,0%	100,0%
KARMANN MOBIL	1	15,3%	20,7%	36,0%	0,0%	100,0%
KIA	61	12,4%	10,7%	23,1%	12,5%	33,7%
KNAUS	3	10,2%	13,8%	24,0%	0,0%	72,3%
LADA	1	0,0%	0,0%	0,0%	0,0%	0,0%
LANCIA	3	13,8%	13,4%	27,2%	0,0%	77,5%
LAND ROVER	26	7,5%	9,5%	17,0%	2,5%	31,4%
LEXUS	2	0,0%	0,0%	0,0%	0,0%	0,0%
LMC	1	0,0%	0,0%	0,0%	0,0%	0,0%
MASERATI	4	11,5%	15,5%	27,0%	0,0%	70,5%
MAZDA	63	9,2%	9,5%	18,6%	9,0%	28,2%
MERCEDES-AMG	4	15,3%	20,7%	36,0%	0,0%	83,0%

Brand	Number of the brand	Odometer manipulation estimate			Inaccuracy	
		% certain	% doubt	%total	lower limit	upper limit
MERCEDES-BENZ	424	10,6%	11,6%	22,3%	18,3%	26,2%
MINI	117	9,1%	10,6%	19,6%	12,4%	26,8%
MITSUBISHI	24	11,7%	14,5%	26,3%	8,7%	43,9%
NISSAN	96	10,1%	12,2%	22,3%	13,9%	30,6%
OPEL	224	11,1%	9,4%	20,5%	15,2%	25,8%
PEUGEOT	206	11,8%	9,9%	21,7%	16,0%	27,3%
POESSL	7	4,4%	5,9%	10,3%	0,0%	32,8%
PORSCHE	33	10,1%	13,1%	23,2%	8,8%	37,6%
POSSL	1	0,0%	0,0%	0,0%	0,0%	0,0%
RENAULT	161	11,0%	12,5%	23,5%	16,9%	30,0%
ROLLS ROYCE	1	0,0%	0,0%	0,0%	0,0%	0,0%
ROVER	1	15,3%	20,7%	36,0%	0,0%	100,0%
SAAB	6	9,4%	10,1%	19,6%	0,0%	51,3%
SEAT	98	11,2%	9,8%	21,0%	12,9%	29,1%
SKODA	37	9,7%	12,2%	21,9%	8,6%	35,2%
SMART	6	7,7%	10,3%	18,0%	0,0%	48,7%
SUBARU	3	10,2%	13,8%	24,0%	0,0%	72,3%
SUZUKI	94	9,9%	9,1%	19,0%	11,1%	27,0%
TOYOTA	251	16,2%	10,2%	26,4%	20,9%	31,8%
VOLKSWAGEN	946	10,1%	10,4%	20,5%	17,9%	23,1%
VOLVO	113	8,5%	10,9%	19,4%	12,2%	26,7%
WEINSBERG	1	15,3%	20,7%	36,0%	0,0%	100,0%
WESTFALIA	3	15,3%	20,7%	36,0%	0,0%	90,3%
WESTFALIA VAN CONVERSION	1	15,3%	20,7%	36,0%	0,0%	100,0%
WIESMANN	1	15,3%	20,7%	36,0%	0,0%	100,0%

APPENDIX B 1

DESIGN OF THE ISP STUDY

INTERVIEWS WITH EMPLOYEES OF THE RDW INSPECTION STATIONS

The aim of the interviews was to include the experiences and observations that RDW employees gained during the statistical study in the first study phase (see Chapter 1 Introduction) in the follow-up study into the nature and backgrounds of odometer manipulation. In addition, we came into contact with other relevant sources of information through the network of professionals within RDW. Examples of this are police detectives who made contact and requested information from the local RDW stations for the purpose of criminal investigations.

Interviews were conducted with the managers and Technical Officer Specialist as well as Technical Officers of a number of inspection stations that contributed to the statistical study. During this statistical study, the odometer readings of vehicles imported from Germany were assessed at 13 RDW inspection stations based on predetermined odometer manipulation indicators. These odometer manipulation indicators were established after several interviews with RDW employees.

INTERVIEWS WITH OTHER PERSONS INVOLVED

In addition to interviews with RDW specialists, in-depth interviews were held with representatives from other relevant parties:

- Various police officers from the police organisation, including:
 - » Tactical Investigation Operations Specialists
 - » Financial Economic Crimes Detective
 - » Digital Investigation Operations Specialists Team
 - » Team Leader of the Regional Criminal Investigation Department
- A representative of the National Information Centre on Vehicle Crime (LIV)
- Representatives of two major car importers
- A nationally operating car dealer

OPEN SOURCE RESEARCH

Extensive open source research has been conducted, during which Internet sources were consulted with regard to:

- Offering odometer manipulation by perpetrators on the Internet
- Equipment used to manipulate odometer readings
- The methods used to roll back odometers
- Notifications from private individuals (based on anonymised reports from private individuals provided by the LIV)
- The profile of companies (possibly) involved in odometer manipulation, which emerged from the interviews⁷

⁷ These legal entities are not mentioned in the research report, because this information was shared in confidence by respondents and this is not part of the research objective.

ANALYSIS OF INFORMATION PROVIDED BY GERMAN FELLOW RESEARCH AGENCY DETEKTEI KURTZ

A German research agency was also consulted and the information provided by them was analysed and processed in this research report. The information provided mainly related to legislation, experiences with odometer manipulation in Germany, equipment used for this purpose and parties that may be involved. Costs charged to roll back the odometer of a vehicle were also discussed.

ANONYMITY OF INTERVIEWED PERSONS AND (POSSIBLE) PARTIES INVOLVED

Several involved persons contributed to the research by making information available and cooperating in interviews. This concerns parties involved such as RDW employees, police officers, importers and car dealers. They were all interviewed under the strict condition that their anonymity and the anonymity of the companies and individuals mentioned in the interviews will remain guaranteed. Therefore, no names of sources or names of (probably)⁸ involved companies/individuals are shown in this report.

8 Probably involved companies/individuals relates to companies/individuals that are associated with odometer manipulation, or where investigations have taken place or are still taking place, but which has not resulted in a conviction because odometer manipulation could not be proven or because the investigation has not yet been completed.

APPENDIX B 2

ODOMETER MANIPULATION AND VICTIMS

1. ODOMETER MANIPULATION AND VICTIMS

The victim of odometer manipulation is primarily the private buyer who buys a second-hand vehicle in good faith, not knowing that the vehicle has driven far more kilometres than shown on the dashboard. The damage this causes comprises:

- Reduced value of the vehicle, because the number of kilometres driven largely determines the price of the vehicle
- Higher level of wear and tear on parts of the vehicle. As a result, the vehicle will be at the garage sooner and costs for maintenance and repairs will be higher
- Increased risk with regard to road safety: because of the actual number of kilometres driven, the condition of the vehicle may be very different than what the odometer reading indicates

Reports⁹ and research on posts on Internet forums show that the affected private buyers can mainly be divided into the following profiles:

- **The naive buyer:** ignorant buyers who are not aware of malpractices in the second-hand car industry and therefore do not investigate the name and reputation of the car dealer
- **The blinded buyer:** who is blinded by the attractive low price of the desired vehicle and therefore accepts everything to get that one vehicle
- **The bargain hunter:** conscious buyer who realises it is a gamble to buy a vehicle for a low price from a certain dealer and has no further expectations regarding the quality of the vehicle
- **The unknowing buyer:** a buyer who works carefully and verifies the company where he or she wants to buy the vehicle, but nevertheless buys a vehicle with a manipulated odometer position, since this is nearly impossible to tell from the vehicle itself

Research in public sources and interviews with those involved show that consumers handle the risk of becoming or the fact that they are victims of odometer manipulation differently. Some consumers still buy a vehicle from a trader or importer, even though the company in question has a bad reputation with regard to reliable meter readings and bad reviews on the Internet are plentiful.

There are also experiences from the police that even when it was established in the context of a criminal investigation that consumers were duped and they were personally invited to report this, the willingness to report was low, often because of the alleged risk of reprisals. And there are experiences at RDW stations that consumers react resignedly if they are told that the vehicle they offer for inspection has an incorrect odometer reading.

⁹ These are reports from private individuals made available by the LIV.

However, there are also known situations in which affected consumers take action if they find out they have been duped by odometer manipulation. There are several examples of legal proceedings that have taken place, in which affected consumers (whether or not represented by a special interest organisation) use all the possibilities to assert their rights. In this context, there are also examples where consumers, much to their frustration, were sent away from the police station, stating that this was a civil matter and not a police matter. According to the police officers interviewed, the latter is due to a lack of knowledge on the matter at the service desk.

There are various options for vehicle owners to check historic odometer readings. One of these options is the NAP report, in which RDW records odometer readings in the event of:

- Registration of a vehicle
- PTI cancellation
- Service interval or repairs carried out by RDW approved companies, as of **€150**
- Inclusion in the company stock
- Export
- Disassembly
- Re-registration



In December 2013, I bought a Renault Kangoo 1.36 16V Privilege. The car was registered in the Netherlands in November 2013 with an odometer reading of 61,460. I even received a service booklet. There was a sticker under the bonnet stating that the timing belt had been replaced at 40,000 km. The strange thing was that this was not specified in the service booklet, so I started making phone calls. When I contacted the garage specified in the service booklet, it was confirmed that the car had never been serviced at that garage. The booklet and the sticker turned out to be falsified. When I asked for the odometer history at the same garage, I found out that in February 2013, the odometer reading was 102,858. The selling party was, of course, nowhere to be found.

- Interview with Peter from Utrecht (consumer)



When I bought a car from Germany, I made sure that the maintenance papers were included to avoid any problems. It all looked fine (in my opinion). The first time I was at my own garage, it became immediately clear that there was a suspicion that the odometer reading had been tampered with. They told me they could see this from the wear on the brake discs. They were completely worn, which should not have been the case at this meter reading. After immediately contacting the garage where I had bought the car, I was told that this was not possible. I was shown the papers, this was the proof. After a lot of mutual contact with the German police, luckily I was able to cancel the purchase. Such crooks.

- Interview with Janine from Nijmegen (consumer)



In 2014, I bought an Aygo with 40,000 km on the odometer. The visible wear and tear corresponded to the mileage. The rust, a known fact for that model, was no surprise. The booklet looked real. We could not find the address of the place where the maintenance was performed, but in those days so many companies went belly up that this did not immediately ring any alarm bells. After a while, the car continued to make a squealing noise. After a check at my garage, it became apparent that the wear and tear of the car (the brake discs that were almost broken) did not match the low meter reading. After research, for which I am still very grateful to the many dealers in Germany, Toyota Germany, the National Police of Germany and several people at different inspection stations, it turned out that the odometer reading had been rolled back some 75,000 km. The only way for the dealer to respond was to take back the car, although he was very rude and insulting.

- Interview with Henk Jan from Heerhugowaard (consumer)

2. THE PROCESS OF IMPORTING VEHICLES FROM GERMANY

When a vehicle is imported from Germany, the following phases are completed:

- The vehicle is purchased in Germany by an importer or a Dutch car dealer
- If the vehicle has been maintained by a dealer in Germany, the historical odometer readings have been entered into brand-specific dealer systems. If the vehicle was not maintained by a dealer in Germany, no or hardly any odometer readings can be found in such systems
- When the imported vehicle is presented to RDW for registration in the Netherlands, the registration plate is read and registered. This is actually the first known odometer reading of the vehicle in the Netherlands. An exception to this is when the vehicle was previously registered in the Netherlands (a so-called re-import vehicle)

3. INDICATORS AND DETERMINING ODOMETER MANIPULATION

Indicators of odometer manipulation are characteristics based on which odometer manipulation is suspected and can be demonstrated. Although odometer manipulation is punishable both in the Netherlands and in Germany, it is not always easy to determine whether the odometer reading is actually incorrect. Since today's vehicles are often equipped with an electronically readable engine management system, it is possible with the correct equipment to read out historical odometer readings from the vehicle. However, in the case of a carefully rolled back odometer, this is not visible. In addition, there are several brand-related databases, where historical odometer readings of the vehicle are stored. However, these are not freely accessible. If historical data can be retrieved, odometer manipulation can be demonstrated based on a so-called trend break. This means that an odometer reading recorded in the past is higher than the more recent reading.

With regard to vehicles imported from Germany, determining the correctness of an odometer reading is made more difficult because:

- It is only mandatory in Germany to register odometer readings in a central registration system¹⁰ during PTI
- In Germany odometer registration only became mandatory in May 2018
- Persons other than the brand dealer do not have access to databases of brand-specific dealers/manufacturers which contain odometer readings
- There is no legal basis for RDW to specifically check odometer readings of vehicles that are offered to RDW.

¹⁰ Establishing a central overview of odometers readings in Germany is complicated by the fact that there are various inspection bodies in Germany, in contrast to the situation in the Netherlands.

- The EUCARIS Treaty offers a legal base for the cross-border exchange of information on odometer readings during re-registration. Checks before re-registration are not included under this legal base.



Most ‘nerds’ are capable of digital manipulation, however, this requires a real ‘specialist nerd’. The specialist nerd can digitally manipulate an entire vehicle and this cannot be traced. The reality, however, is that manipulation by the ‘normal nerd’ often takes place in one or a few places, after which we can determine in 80% of cases that digital tampering has occurred.

- Quote from RDW employee

There are several indicators that can provide more clarity about the odometer reading of the imported vehicle. These include, for instance:

- An odometer reading on the sales invoice from Germany
- Lubrication charts and service booklets
- On PTI reports drawn up in Germany containing the odometer reading
- Information from service booklets

If there is possibly an incorrect odometer reading, this may become apparent from:

- Signs of use compared to a relatively low mileage on the odometer, such as wear marks on the steering wheel, seat and upholstery of the vehicle
- A remarkably low mileage in relation to the age of the vehicle
- A series of vehicles that are presented to RDW for inspection by the same dealer, all with the same odometer reading

COMPLICATIONS WHEN DETERMINING ODOMETER MANIPULATION

The interviews with the experts involved show that establishing a realistic odometer reading by means other than electronic reading or factory information from a database can be complicated because:

- Signs of wear are influenced by the type of driver and the purpose for which the vehicle was used. Vehicles used commercially for small distances during which the driver frequently gets into and out of the car, for example, show relatively much wear and tear. Such circumstances are rarely known for vehicles imported from Germany
- The materials used in vehicles from cheaper segments are often of an inferior quality. This manifests itself, for example, in wear marks of the upholstery of a vehicle
- Some wear-sensitive parts can easily be replaced
- It is not uncommon for service booklets to be missing
- Service booklets are traded. They are stolen from cars, for instance, during test drives, and service booklets are forged
- Missing service booklets may be an indicator of an incorrect odometer reading, such documents are not required to register a vehicle. It has been established that various garages file the documents until the vehicle is actually traded
- On many occasions, the inspection report of an imported vehicle is missing because many garage businesses in the Netherlands deliver vehicles with a new PTI inspection report by default. Since the remaining PTI validity period does not need to be copied, keeping a German inspection report in the vehicle has no added value¹¹

¹¹ This requires submission of the original PTI report during registration with RDW.

APPENDIX B 3

REQUIRED EQUIPMENT

Nowadays, virtually all cars are equipped with digital odometers. In addition, data about the vehicle are stored in the vehicle at various locations, including the meter readings, depending on the vehicle.

This study shows that the digital manipulation of an odometer does not always have to be more difficult than in the time of the analogue odometers. Although it is less physical and more electronic, different types of equipment are available, which make it possible to adjust odometer readings. The pricing of such equipment varies widely, see the figures below. The quality differences include, for example, the extent to which the odometer readings in the vehicle can be adjusted (think of airbags, keys, etc.).



Figure left: ENIGMA tool. For sale on this website for **€7,009.77**
Figure right: the Autel Maxiscan MS509. For sale here for **€45.00 € 45,00¹²**

Both devices - and these are just a few examples - are freely available and can be ordered via the Internet. They hardly require any specialist knowledge, since the devices are self-explanatory with a clear menu. However, for those who need it, the manufacturers also provide manuals for their use on their websites and there are demo videos on platforms such as YouTube.

The cheaper devices, however, are suitable for personal use at best. The risk of rolling back odometers of cars of external parties (customers) against payment with an inexpensive device is too great. In practice, the ENIGMA tool is apparently needed to make this into a “business”. The name of this tool is mentioned several times by people who have experience in rolling back counters.



One of the many YouTube videos that demonstrate the use of the Enigma tool.

¹² This device was found and confiscated by the police during a criminal investigation.

APPENDIX B 4

OFFERS OF ODOMETER MANIPULATION

There are plenty of offers for odometer manipulation all over the Internet. See the examples below:

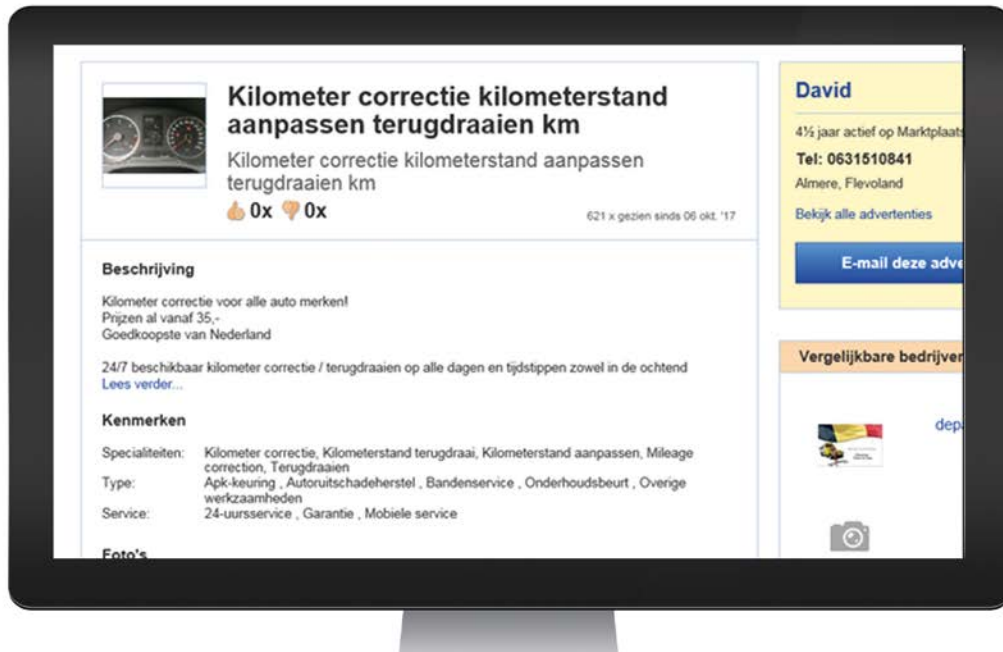


Figure 1: Marktplaats advertisement offering the adjustment of odometer readings¹³

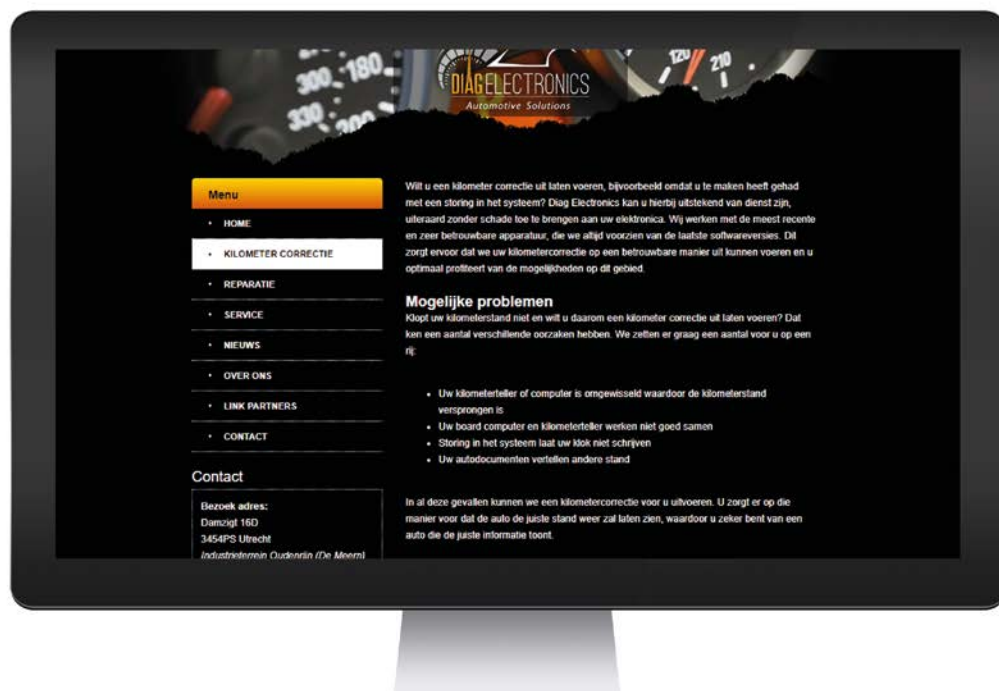


Figure 2: Mileage correction is offered, with the provider indemnifying himself against any liability on the same page.

¹³ The telephone number shown in this advertisement is linked to chip tuning on the Internet and also leads to a nine-second YouTube video showing the odometer reading on a dashboard jumping from 156,147 to 141,001 kilometres (<https://www.youtube.com/watch?v=oW6sXSoHE1E>).



Figure 3: www.kilometercorrectie.nl

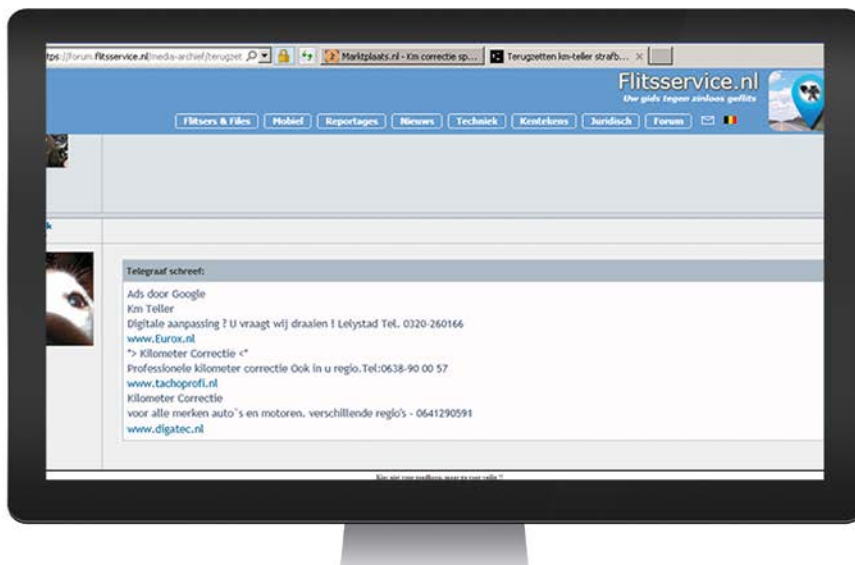


Figure 4: Offer for odometer manipulation in Lelystad: "you ask, we roll back!"

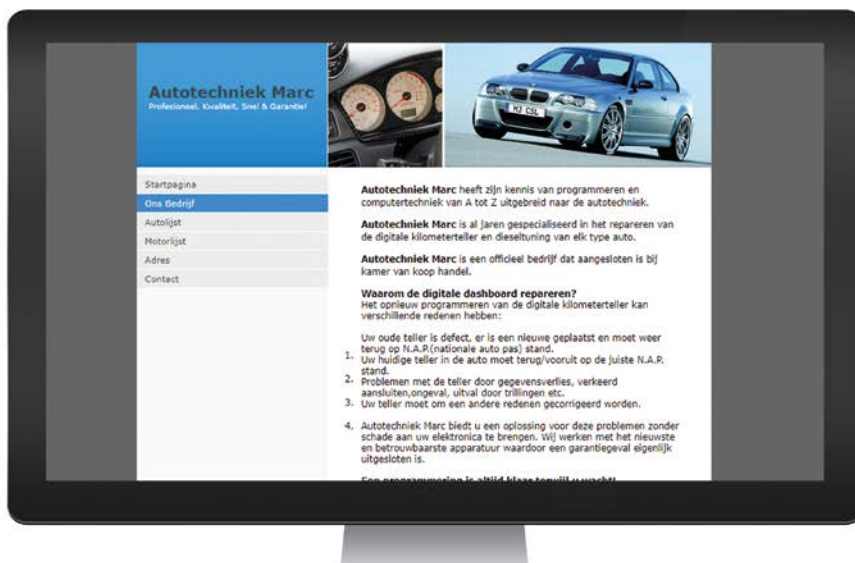


Figure 5: "reprogramming the digital odometer", according to the website http://www.autotechniek-marc.nl/

APPENDIX B 5

DETAILED PERPETRATOR PROFILE

On the companies that have been analysed, specific background research was performed into:

- **Company profile:** date of establishment, trade names, number of employees and owner
- **Range of vehicles:** type of cars and size of company stock
- **Reputation on the Internet:** forums and experiences

In the background research on the mentioned companies that engage in odometer manipulation it stands out that:

- The number of companies involved seems to be actually lower than the number of company names specified in forums and by interviewed persons. For example, different company names are mentioned that often refer to the same company. However, these companies have regularly changed company names. The companies involved often change their name (every year/two years); in fact, it always concerns the same owner. This allowed reducing the approximately 35 trade names found to 15 different owners behind the companies.
- Several of companies no longer exist (no longer registered with the Chamber of Commerce) or are still registered but have their website offline.¹⁴
- It mostly involves companies operating in the purchase and sale of used cars, car wash and companies involved in vehicle repair.
- The companies use a complex business structure.
- The companies not only change names but also location and directors. This makes it difficult to determine the company history.
- No links could be established between the various individually identified companies and from this point of view, we cannot speak of organised networks.
- Most of these companies are located in the east of the country. The Apeldoorn region, for instance, is mentioned extensively, also by the persons interviewed who work at completely different locations in the country.

SIZE OF THE COMPANY

Most of these companies have only one employee according to the Chamber of Commerce.

Based on the associated company websites, these are mainly companies with a company stock of between 25 and 50 vehicles. A few companies have a larger company stock. Forums often show that the victims had to deal with various people at the company so that there is a suspicion that in practice, more people work there than are registered with the Chamber of Commerce. This is confirmed by interviews with police officers who are or have been involved in related investigations.

¹⁴ These factors make it complicated to determine against whom legal proceedings should be started and almost impossible to assess whether taking legal proceedings will ultimately be successful.

No distinction is made in the study between companies that trade imported vehicles and those that trade non-imported vehicles. The reason is that:

- People who were interviewed often did not know whether the vehicles were Dutch or imported
- Forums show that the companies mentioned often trade both imported and non-imported vehicles and do not make any distinction themselves

PROFILE OF THE COMPANY OWNERS

The profile of the directors of the companies mentioned was also studied. The study does not show that large organisations are involved. For instance:

- Most of the company owners were born and raised in the vicinity of the business location
- Most of the owners are native Dutch people
- Of the 15 identified company owners, only two have a home registered in their name. These are modest homes with a purchase price of between **€160,000** and **€190,000**. In addition, there is one owner who has a home with a mortgage in the name of his management company. The remaining 12 company owners do not have registered property.
- 10 out of 15 business owners live in a rented property owned by a local housing corporation.¹⁵
- Some registered business owners are very young (sometimes just 20 years old).
- Of two owners it has been established that the address at which their company is registered concerns homes that are located at a caravan park. There are no mortgages on these homes.
- Some company owners of which it has been determined they live in a house owned by the local housing corporation have (family) ties with the company owners who live in a caravan park. This is evidenced by management changes in the company history of certain companies.

OPEN INTERNET SOURCES RESEARCH

Research on the Internet, which primarily focused on information about the image and reputation of the companies mentioned, shows that the companies are seldom exclusively associated with odometer manipulation. The companies are almost all companies that operate in the same segment: older used cars at (relatively) low prices. At the same time, this is also their corporate characteristic: offering used vehicles at bottom prices compared to the competition. A shady picture emerges from the companies, which is underpinned by the following circumstances:

- They provide no or bad service
- Vehicles are sold without warranty
- The companies are not affiliated with BOVAG
- There are no service booklets or other documents that provide information on the vehicle history
- The company does not offer interested persons the option to take a test drive
- Registration certificates are not shown in the advertisements on the company website or other sales sites
- Plenty of promises are made, but these are not kept
- Manufacture years in the sales advertisements are incorrect

¹⁵ This may have consequences for redress in legal proceedings filed by victims. The redress possibilities will in many cases be very limited.

- At the time of purchase, the buyer signs a clause with which the buyer agrees to a fine¹⁶ if he decides not to buy the car the day after the purchase wanneer hij daags na de aankoop besluit de auto toch niet te kopen
- If critical questions are asked or when returning after the car has defects shortly after the purchase, the buyer will be rudely removed from the premises by the trader and approached in a rude manner
- After the purchase document is signed, a stamp is placed with information that the buyer agrees that the vehicle may show defects and possibly have an incorrect odometer reading.

The findings from the background study are very similar to the information of the interviewees. The interviews mainly mentioned characteristics such as:

- Companies with few or no registered employees
- Several dozen vehicles on sale
- Inspire fear by exhibiting antisocial and aggressive behaviour¹⁷
- People with a smooth chat: amicable and friendly until the sale is completed. If a customer comes back with a complaint, the customer is 'kicked' from the site
- People - always with a strong link to caravan parks - who know exactly what they need to do to avoid problems, such as frequently changing the company name
- To be described as shady traders who are always involved in all kinds of trades (such as scrap metal or thrift shops)

16 These clauses state amounts ranging between 10 and 15% of the purchase price.

17 Both towards customers and the police.

APPENDIX B 6

LEGAL FRAMEWORKS AND PENALISATION

Both in the Netherlands and in Germany, odometer manipulation is punishable.

PENALISATION IN THE NETHERLANDS

With effect from 1 January 2014, odometer manipulation is punishable in the Netherlands.

Article 70m of the Road Traffic Act establishes the following on the matter:

“It is prohibited for anyone to change the numerical value or the functioning of the odometer of categories of motor vehicles determined by Order in Council, which have to be registered or have it changed in such a manner that the distance indicated on the odometer does not correspond to the actual distance covered by that motor vehicle.”

Violation of the prohibition is punishable (offence)¹⁸ under Article 176:

“Violation of Article 70m shall be punished with a term of imprisonment not exceeding one year or a fine of the fourth category.”

PENALISATION IN GERMANY

In Germany, odometer manipulation (in German: Tachomanipulation) has been prohibited by law since 18 August 2005¹⁹, on the initiative of the automotive association ADAC. The corresponding penalties are a prison sentence of one year or a fine²⁰. A condition for the penalisation is that deliberate manipulation has taken place and that this has influenced the transaction between seller and buyer. In practice, the agreed transaction is often largely based on the odometer reading of the vehicle.

The programming of computer software to perform this manipulation is also punishable in Germany.

The consumer affected by odometer manipulation can challenge the purchase agreement with the seller up to three years after the purchase. With regard to second-hand vehicles, the particularity is that a seller can only be held liable for up to one year after purchase, which may lead to a reversal of the purchase agreement or adjustment of the conditions (price).

The complexity of establishing tampering with odometers of vehicles, especially when it concerns a vehicle imported from Germany, has been addressed in the previous chapters. Once it has been established that the odometer reading of a vehicle has been manipulated, there are several options for dealing with the person responsible. These include:

- Criminal law approach
- Civil law approach
- Administrative approach

¹⁸ See Article 178 of the Road Traffic Act 1994

¹⁹ Article 263 of the German Criminal Code

²⁰ Article 22b of the German Road Traffic Act

1. CRIMINAL LAW APPROACH

Despite the fact that odometer manipulation is now a criminal offence, in the Netherlands the subject gets little attention from the police and the courts. As a result, there is a lack of broad knowledge and experience on the subject. This means that complaints are not handled adequately and the offence is often considered a civil-law affair.²¹ In addition, there is no coordinated approach to odometer manipulation by the police and the courts, as a result of which the rare investigations into odometer manipulation per region are accommodated in different areas of expertise (Tactical Investigation, Financial Economic Crimes or Digital Investigation Team).

If a report about odometer manipulation is registered, the chance that police capacity is actually made available for a follow-up investigation is limited for a variety of reasons.

An internal memo from the police, made available for the investigation, states the following about the possibility of criminal investigation into odometer manipulation:

“If there is indeed a suspicion of violation of Article 70m of the Road Traffic Act 1994, the possibilities of a successful investigation are limited”

POLICE INVESTIGATION

Because there is no coordination on the subject and, as far as we know, only a few investigations into odometer manipulation are initiated, there are few specialists within the police in the field of odometer manipulation. Police officers gain knowledge because they have been or have been involved in a single investigation, but the chance that this knowledge will be applied in future research is very small. What increases the chances of an investigation is when the odometer manipulation is part of a larger investigation involving other, more serious offences²² of a particular perpetrator or offender group, as a result of which the investigation into odometer manipulation must then be seen in the context of the larger investigation.

²¹ As a result, it cannot be excluded that there is a high ‘dark number’ with regard to the scale of odometer manipulation.

²² Examples include investigations into money laundering, forgery, participation in a criminal organisation, etc.

COMPLICATIONS IN POLICE INVESTIGATIONS INTO ODOMETER MANIPULATION

In police investigations into odometer manipulation, the police often run into the following complicating factors:

- Administration such as purchase invoices, sales invoices, PTI reports and service booklets of companies suspected of odometer manipulation is often missing or is a mess. This information is often crucial to prove odometer manipulation.
- Based on the degree of penalisation, odometer manipulation is considered too petty a crime to use certain investigation methods. This changes when an investigation into odometer manipulation is initiated as part of an investigation into more serious crimes.
- The turnaround time of an investigation into odometer manipulation is often very long, especially when it involves vehicles imported from Germany. This is due, for example, to the foreign reactions to international requests for legal assistance.²³
- - Because of the vehicle registration system in the Netherlands, it is possible that an individual who in practice is (or used to be) the owner of a certain vehicle cannot be administratively linked to the vehicle. The reason is that in the Netherlands, it is not required to include a vehicle in the company stock between the import and the sale.²⁴ This makes it possible that after its import, a vehicle is traded various times in the Netherlands without the owners having been administratively registered anywhere. As a result, it is possible that the odometer reading has been manipulated, but the actual perpetrator of odometer manipulation may never be linked to the vehicle as the (former) owner.

2. CIVIL LAW APPROACH

Another option to deal with perpetrators of odometer manipulation is through a civil law procedure. Multiple positive results have been achieved in the past, meaning it can be an effective approach. In such procedures, there is a reasonable chance that an injured party is ultimately compensated. At the same time, such procedures have a long lead time and therefore require a lot of energy, effort and patience of the affected person.

3. ADMINISTRATIVE APPROACH

The internal police/Public Prosecution memorandum also mentions the option of an administrative approach. It states that, for each case, consideration must be given to whether a criminal or administrative approach is used. The memorandum mentions as an example of an administrative approach the intensive monitoring of the companies mentioned and/or being confronted with the statistical distinction, for which companies can be held responsible.

²³ In the case of an international request for legal assistance, account must be taken of an initial response to the request between nine months and one year.

²⁴ If a vehicle is included in the company stock, registration and reporting are mandatory, thus revealing the owner of the vehicle.



ODOMETER MANIPULATION

Since 1 January 2014, manipulating odometer readings is a criminal offence in the Netherlands. The registration of odometer readings in a central database is since then mandatory. Germany has the obligation since 20 May 2018 to centrally register odometer readings. There is however no exchange between odometer readings between the Netherlands and Germany by import. This makes it possible to manipulate odometers when vehicles are imported from Germany.

This research showed that the share of imported vehicles from Germany with a manipulated odometer was estimated at least 21,6%, this percentage is an underestimation. It can be said that the chance a Dutch consumer gets to deal with odometer manipulation is eight times as large when the vehicle has German origin. Also can be determined that odometer manipulation is complicated to observe and that the legal approach is a bottleneck.