



# HERITAGE DICTIONARY OF HISTORIC VEHICLES

A COMPILATION OF PROFESSIONAL TERMS FOR THE PRESERVATION,  
CONSERVATION AND AUTHENTIC RESTORATION OF HISTORIC VEHICLES



COMPILED AND WRITTEN BY DR. GUNDULA TUTT

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BEN ERICKSON, CARSTEN MÜLLER, PROF. DR. KARL HEINRICH HUCKE, NORBERT SCHROEDER,  
THOMAS WIRTH AND JULIAN WESTPFAHL

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# HAGERTY<sup>®</sup>

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by Miles C. Collier  
REVS Institute

**The discussion about** historical vehicles is just starting to gain sufficient scholarly momentum to attract the variety of discussion and argumentation that is required for a field to advance from eccentric hobby to mainline and consequential research. Such creative ferment, if it is to be useful, must rely on a common understanding of terminology and concepts. This difficult and rather non-glamorous task has been taken on by one of the first-rate scholars in this new field of historical and legacy automobiles, Gundula Tutt.

Gundula is practicing conservator of some of the most important automobiles in the world. Her understanding of not just the structure and concepts of this world is undergirded by consummate knowledge of praxis, the care, and use protocols that are likewise evolving. Daniel Miller in *Car Cultures* notes that “[i]n the case of every other aspect of material culture with an equivalent presence in the world the literature seemed to be at least to some degree commensurate with the importance of the object in question ... But it was as if ... [the car] had not yet been made legitimate as a topic to focus upon.” And if we are to focus on the automobile as material culture and as one of the most significant legacy artifacts of our time, we need a common lexicon with agreed and commonly accepted terminology.

And this is what Gundula has given us. For those of us who have been working with old cars as legacy

artifacts, we have been conscious of the tangential feeling out process for terminology through making a point or asking a question. Do we mean “original” or “authentic”? In the finest tradition of things that are alive in the world, terminology is always in flux, evolving, and changing. So, the work of the lexicographer is never finished. Like any collection, lexical completeness is also a vain aspiration. But what we can expect is a work of conscientious consideration that achieves the goal of being useful. Gundula Tutt has achieved just that.

A careful reading of the glossary begins to outline the main considerations of our field. The thoughtful discussion of each term offers us a “best practices” approach. Indeed, a whole exposition of restoration, conservation, and activation objectives come to light as we peruse and think about the entries. Much understanding can be extracted from this book. Indeed, the random process of examining entries allows us to perceive a connection between and among terminology that then opens us to new possibilities and avenues of thought.

Gundula has always struck me as a meticulous and committed worker in our field. She proves it once again with her “Heritage Dictionary for Historic Vehicles”. This volume is a necessity for all practitioners in the arena of historical vehicles, whether the historian, restorer, or dealer.



## To speak in precise language

To clearly communicate and discuss historic vehicles without misunderstandings, it is essential that we develop an unambiguous terminology. The purpose of this glossary is to promote serious conversation and discussion about all aspects of historic vehicles by offering a consistent vocabulary and definitions of key terms. The glossary therefore explains definitions for the historical understanding, description, legal identity, maintenance, **restoration**, evaluation, and the establishment of **authenticity** of historic vehicles. It is necessary that we approach these terms without idealizing them or imposing our own tastes. Introducing professional wording cannot be about respecting or disrespecting specific vehicles or procedures, but rather about calling each thing by a precise and accurate name. This is especially true for the specialized terminology which the historic vehicle community has adopted from the field of cultural heritage in recent years. As the concepts and definitions evolve, we will be updating, expanding and developing this professional glossary in the future.

The wording is closely aligned with internationally established professional terms that have been developed and defined since the 1960<sup>s</sup> in the world of cultural heritage. Since then, these have become

part of numerous national and international standards, legislative wording, conventions relating to cultural heritage protection, and prescriptions for good professional practice<sup>1</sup>. The European Standard DIN EN 15898 of 2011-12 and the VDI Guideline 3798, following these standards, have legal status in several countries. Important cornerstones also have been set in the UNESCO Standards, International Charters on the preservation of Technical Heritage, professional definitions issued by the International Council of Museums (ICOM) and the ICOM Committee for Conservation (ICOM CC)<sup>2</sup>.

HISTORIC AMERICAN ENGINEERING RECORD (HAER)

The English text and official version of the Charter of Turin, adopted in 2012 by the Fédération Internationale des Véhicules Anciens (FIVA), was printed in 2016 in the official anniversary publication “FIVA – The First Fifty Years”. The current version of the FIVA Technical Code (revised in 2020) is based on the official text of the Charter, along with an early version of this glossary. Our intention is a consistent terminology in all three documents.

## Structure of the Glossary

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**The glossary's terms** are arranged according to context, not alphabetically. There is an alphabetical index of the terms at the end of the book, so they can easily be located on the corresponding pages.

The examples used in the text serve solely to illustrate each individual term and do not reflect any opinions or conclusions regarding vehicles, projects, or companies. Figures and photos in the text that were not submitted by the contributors to this text are presented as large citations, according to European copyright legislation for not-for-profit scientific publications. In accordance with the European copyright legislation, the sources of all image captions are acknowledged in end notes.

### Artifact

An **artifact** is an object created, shaped, or modified by a human being (thus something “artificially produced”, as suggested by the derivation of the term).

### Cultural asset

Objects/**artifacts** regarded as cultural assets possess cultural value for today’s society, as well as generations to come, because they give testimony about human development and history.

**Material cultural heritage** means movable or immovable objects that have been made, modified, or shaped by human beings and that provide us with insight into historical, social, artistic, scientific, architectural, or technical human developments. These can be individually or serially produced objects, or also larger facilities and constructions<sup>3</sup>.

**Intangible cultural assets** are the intellectual achievements, traditions, and lore of human beings<sup>4</sup>.

Terms like **mobile technical heritage**, **automobile heritage**, or **motor vehicle heritage** initially were coined in the professional vocabulary of cultural heritage science<sup>5</sup>. **Mobile technical heritage** includes self-powered rail vehicles, water craft, aircraft, as well as land vehicles<sup>6</sup>.

Classification as a cultural asset is also part of the guidelines for licensing historic vehicles and operating them on public roads in several countries (for example in Germany, France, and Switzerland). In those countries, it marks a central criterion for vehicles qualified for a veteran license and driving them on public roads<sup>7</sup>.

Basically, historic vehicles can be regarded as cultural assets because they had a significant impact on social, cultural, technological, industrial, and economic development during their **period of normal use**. It is not only technical parameters that play a role, but also the design, materials, and manufacturing processes used, as well as changes in society brought about by the use of motor vehicles. The same applies for vehicles having been used at significant events, by a specific person, or in context with a particular place. This also includes alterations or conversions that reflect the circumstances and historic context in which they were made.

#### Examples:

- vehicles with innovative technical designs such as early electric cars, Wankel engines, or anti-lock (ABS) brakes
- vehicles such as the Ford Model T that stimulated mass motorization and industrial production

- Commercial and transport vehicles, which transformed national and international trade
- Vehicles being part of a **special** cultural context like the VW “hippie van” or lowriders like the 1964 Chevrolet Impala known as the “Gypsy Rose”<sup>8</sup>
- Vehicles modified to transport competition cars or adapted to accompany events like the Tour de France bicycle race
- Micro-cars like the BMW Isetta or Goggomobil that helped drive the development of Germany’s post WWII economic recovery
- Vehicles used for agriculture, including the portable engine or the Lanz Company’s Bulldog tractors, which effectively transformed the agrarian economy
- Military vehicles like the Willys Jeep and armored vehicles (such as the Peugeot Autoblindé or the Sherman tank), which shaped the conduct of war in the 20<sup>th</sup> Century

Other relevant parameters can be the use of an individual car in an artistic context and/or by a prominent owner.

**Examples:**

- the Porsche 550 Spyder James Dean was driving when he died
- the DeLorean DMC-12, which served as a prop in the film “Back to the Future”



The same can apply for modifications relating to special historic events and social or political circumstances.

**Examples** (vehicles converted to gasogene during the war):

- a 1957 Cadillac Coupe DeVille whose dashboard had been converted in such a way so as to smuggle people from the GDR to West Berlin
- the 1910 Gräff & Stift Phaeton used by Archduke Franz Ferdinand of Austria when he was assassinated at Sarajewo in 1914, which led to the outbreak of World War I. the bullet holes from the attack can still be seen in the vehicle today

*Motor vehicles have significantly changed our way of life, our society and our economy. One example is by providing new and improved ways to transport and trade goods.<sup>54</sup>*

*Even when simple everyday items were made in large quantities, they can be valuable material sources for the culture and living conditions of past societies.<sup>55</sup>*



## Historical and material sources

Sources for research can include texts, objects, or even verified oral communications that provide insight into historical events. Material resources in the same context are objects from the working environment, daily routines, art, and technology that help us to gain information about the past. Examples could be a building, arrowhead, plow, article of clothing, or, of course, also a vehicle.

For technological objects such as vehicles, it is not only the object itself that provides information about the state of technology or new technological developments of a historical period. The materials used in their construction also give insights into workmanship, procedures, and the tools used to produce it, thus helping us to understand the industrial and working conditions of the time. In the

same way, modifications made during an object's **phase of normal use** provide us with information about the circumstances of the era and its social, economic, and even political conditions.

Signs of wear and use give evidence about the manner and the purpose in which a vehicle was operated. In a broader context, all motor vehicles also provide information about the global social changes brought about by individual mobility.

### Examples:

- methods developed for the mass production of vehicles, which altered the whole economy, the working environment, the society, and consumption patterns in a myriad of ways



*Rita Hayworth supporting a "Scrap Drive" to collect materials for war production in 1942. Many cars were deprived of their chrome parts and modified during WWII due to the circumstances of the time.<sup>56</sup>*

- new materials for the automotive industry such as fuels, alloys, rubber compounds, metallurgy, paints which in the following were employed also in a lot of other industries and products
- infrastructures related to vehicle mobility (manufacturing plants, road networks, parking structures, service stations, garages, dealerships, scrapyards)
- individualized mass mobility, which has drastically changed human coexistence and can be seen in urban and topographic structures (like commuting to work from suburban housing areas, holiday travel, superhighway service areas, the motel)
- traffic regulation and legislation (traffic signal systems, road signs, parking meters, traffic control centers, speed limits, driver's license regulations, fines)
- developments in trade, the construction industry, agriculture, and general economic activity brought about by commercial vehicles (such as trucks or transporting goods, construction vehicles, tractors)
- more safety for our communities (by using motorized fire trucks, police vehicles, or ambulances)
- the transformation brought about in warfare by motor vehicles (such as tanks and other mobile weapons systems, troop transports, mobile supply, and paramedic units)

## Nationally important cultural assets<sup>9</sup>

By the start of the 20<sup>th</sup> Century, many countries already acknowledged that certain historical objects were so unique and valuable to national traditions and culture that their loss would represent major harm to their society and heritage. This also includes special historic motor vehicles, which became recognized as nationally valuable cultural assets. However, there is a basic difference between a motor vehicle being regarded as a historic **artifact** (and therefor eligible for a veteran license) and individual historic vehicles that are recognized as a nationally valuable cultural asset. In the US, vehicles of such special importance are listed in the American National Historic Vehicle Register<sup>10</sup>.

So, for example, in the criteria compiled for vehicles to become part of the American National Historic Vehicle Register include:

- Associative Value – Event: A vehicle associated with an event or events that are important in automotive or American history
- Associative Value – Person: A vehicle associated with the lives of significant persons in automotive or American history
- Design or Construction: A vehicle that is distinctive and based on design, engineering, craftsmanship, or aesthetic value
- Informational Value: A vehicle of a particular type that was the first or last produced, has an element of rarity as a survivor of its type, or is among the most well-preserved or thoughtfully restored surviving examples

Similar principles also refer to vehicles owned by publicly or privately financed collections or other institutions responsible for the safeguarding of cultural heritage. While this practice has been commonplace in state-funded museums for many decades, this may be less considered by private owners or the automotive trade.

It is therefore apparent that only a limited number of historic vehicles qualify as a nationally valuable cultural asset. The American National Historic Vehicle Register has added four significant vehicles per year since 2014 to a total of 29 vehicles through 2021<sup>11</sup>.

## Charter

In non-governmental organizations, a charter serves as their basic document and guideline. It is not a binding law, but a foundation document based on agreement and a commitment to common goals.

Important Charters referring to the preservation, maintenance, and **restoration** of historical technical objects have been developed by the International Council of Monuments and Sites (ICOMOS) and The International Committee for the Conservation of the Industrial Heritage (TICCIH)<sup>12</sup>.

Charters especially referring to historic railway equipment (The Riga Charter, 2005)<sup>13</sup> and historic ships (The Barcelona Charter 2005)<sup>14</sup> have been adopted by international associations dedicated to preservation and active use of these kinds of historic technical objects. A similar document, developed by The Aero Club Deutschland (The Braunschweig Charter, 2015)<sup>15</sup> applies to historic aircraft.

Since its adoption in 2012, The Charter of Turin summarizes key principles for the responsible preservation, use, and **restoration** of historic vehicles.



Compiled and adopted by the *Fédération Internationale des Véhicules Anciens*, it also has become the basis of their Technical Code for historic vehicles. These documents now inform good professional practice for all international FIVA representatives, like for example the Historic Vehicle Association (HVA) in the US. Going beyond FIVA, the Charter of Turin also can be used as guideline for any enthusiast when it comes to a well-considered preservation, **restoration**, and use of classic vehicles.

## Historic vehicle

In the USA, different states use different definitions in their traffic registration as a historic vehicle. Nevertheless, some requirements are fairly uniform across the nation, including:

*The auto road through the “Tunnel Log” in Sequoia National Park was cut in 1938. It illustrates in a very special way how motor mobility shaped the world around us.<sup>17</sup>*



Luigi Colani presents his design study of a silo truck in 2002.<sup>58</sup>

- the vehicle has to be at least 20 years old, although 30 in some instances
- it is driven primarily to automobile exhibitions, parades, club activities, etc., or to garages for maintenance
- and it is not used for general transportation

Apart from these basic definitions, specific regulations vary from state to state.

The *Fédération Internationale des Véhicules Anciens* (FIVA) provides similar definitions to their international partners. According to the FIVA Technical Code<sup>6</sup>, a historic vehicle is defined as

- a mechanically propelled vehicle
- at least 30 years old
- preserved and maintained in a historically correct condition
- not used as a means of daily transport
- therefore is part of our technical and cultural heritage

Historic trailers, caravans, or sidecars which have no drivetrain of their own are defined as historic accessories to the related vehicles and likewise included under the above considerations.

Without legislative endorsement, however, such determinations by a non-government organization like FIVA have no legal force. In the international arena, there are many divergent definitions grounded in national traffic legislation.

In addition to that, in the perspective of cultural heritage, bureaucratic restrictions, like a minimum age of 30 years, may not be regarded as appropriate. Instead, each case and its individual history should be considered separately in its own context. For example, prototypes introducing innovative technical features, unusual design studies, or vehicles which have been part of important events may be considered “historic” and witnesses of technical or social heritage even before they meet this formal age requirement.

#### Examples:

- the 2002 Colani Spitzer-Silo Truck designed by Luigi Colani
- the Gina Light Vision design study presented by BMW in 2008

## Oldtimer and Youngtimer

The term “Oldtimer” of course has a rather odd and pejorative sound to an English speaker, but in countries like Austria, Switzerland, Germany, and the Netherlands it is a commonly used term to describe historic vehicles produced or initially licensed at least thirty years ago. In Germany, however, this term is even established in the official legal definitions for vehicle licensing. It refers to a vehicle which is

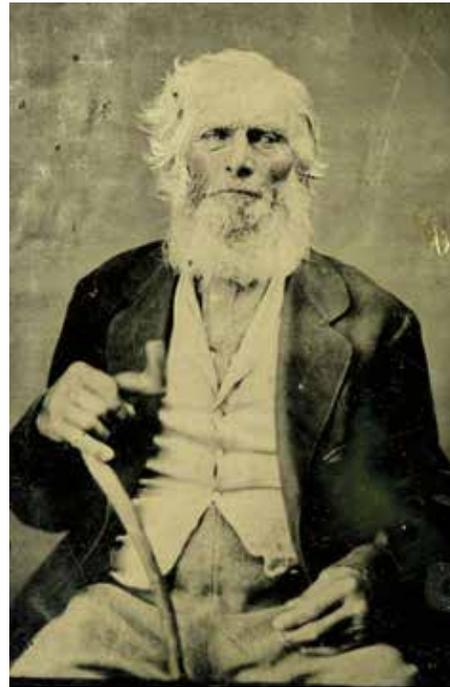
- at least 30 years old
- conserved and maintained in a historically accurate condition
- used and driven to foster the awareness of the technical cultural heritage
- in good condition and maintenance
- has no relevant missing parts
- shows no relevant traces of accidents or unprofessional repairs

Additionally,

- its main components have to be in initial configuration or in a condition according to its time of normal use or replaced with parts matching the specifications of its time of normal use
- its period configuration must not be affected or changed by additional equipment and fittings

Recently, the derivative term “Youngtimer” has become common in German-speaking countries too, but has not yet officially been recognized in a legal context. It refers to vehicle models between 20 and 29 years old (not yet 30, in other words) which largely vanished from active use today. These are currently in transition between normal use and entering the phase of conscious preservation and collections. The Fédération Internationale des Véhicules Anciens (FIVA) provides a similar definition to their international partners.

In the context of international communication, it will be useful to know about these “idiosyncratic” terms used mainly by German-speaking enthusiasts. Nevertheless, it is better to avoid using them, as “Oldtimer” and “Youngtimer” are not properly understood in the context of vehicles in most countries.



*... a real american "oldtimer" ...<sup>59</sup>*

## Manufacturer

A **manufacturer** is the natural person or legal entity that develops and builds a product or causes it to be built, subsequently marketing it under the manufacturer’s own name or brand. This name or brand is also usually used to register the product with licensing authorities. Typically, the company responsible for its construction or for assembling its main components/parts is regarded to be the **manufacturer** of a vehicle. At the same time, this is customarily the same person/company that owns the trademark and the rights to the design of a particular vehicle model.

In some cases, models that are largely comparable to one another may be produced by different **manufacturers** – for example, where multiple inter-

national production sites and partners produce the same model. In such cases, different supply parts and components are usually processed, resulting in slightly different configurations. It is therefore important to know the individual **manufacturer** in order to determine the accurate historical configuration details of the vehicle.

#### Examples:

- the Ford Model A manufactured in Detroit and the Ford Model A manufactured at the same time in Cologne. Both vehicles bear identical brand names (Ford) and model designations (Model A) but were constructed under the responsibility of different **manufacturers** (Ford Motor Company in Detroit and Ford Motor Company AG in Cologne). In such a case, somewhat different supply parts and components are processed, resulting in slightly different configurations between the vehicles produced in Cologne and Detroit.
- the Austin 7 model manufactured in the 1930<sup>s</sup> in Longbridge, UK and the Austin 7 license models built at the same time by Willis Overland Crossley in Berlin, the latter having left-hand steering
- the Alpine-Renault A110 was manufactured in four different counties: France, Mexico, Brazil, and Bulgaria. The cars were marketed under different names, but all used the same model designation and differ substantially from one another.

A special case occurs when modifications are made to the chassis of an existing vehicle. Since the resulting vehicle is then considered to be “newly

built”, the person who carried out the modification is considered to be its **manufacturer** and is also registered accordingly.

#### Examples:

- the “BMW-Veritas” models, built on modified frames of pre-war BMW 303 and 328 models<sup>17</sup>

## Context

In linguistics (where this term initially was coined), **context** refers to all elements in and around communication that contribute to the understanding of an expression in the given situation.

Adapted for cultural studies, the term is used to describe all parameters that contribute to understanding the origin, form, and meaning of an object or an idea. Applied to a vehicle, the circumstances of its creation and use, the “state of the art” in engineering, craftsmanship, production processes and materials, contemporary design and taste, as well as political and social factors have to be regarded. Understanding a vehicle also as a historic object and part of cultural heritage, as well as the individual circumstances of its **period of normal use**, are as important as details on its creation and state of delivery.

## Examination

To examine a historic vehicle means taking a close and objective look at various issues and aspects related to it –for example by collecting knowledge of its materials, condition, function, and many other details. To understand and correctly evaluate the vehicle as a whole, it is usually necessary to also re-

gard the vehicle’s individual history, historic use(s), provenance, as well as sources related to it and its overall context. The information gained should be collected and kept up with the documentation of the vehicle for at least as long as it materially exists, so it can be used for assessments or as the basis for planning repairs, conservation, or **restoration** measures.

To enable in-depth examination, it sometimes may be necessary to disassemble components or take material samples, which can alter the historic fabric of a vehicle. Such procedures should be minimally invasive and disturb the current state as little as possible, following the principle to intervene “as much as necessary and as little as possible”.

## History and Provenance

The **history** of an **artifact** comprises all the things that have happened to it. From the practical point of view, this means all things that can be known or investigated about it from the time of its inception to the present. Looking at a technical object like a motor vehicle, this may even reach out to historical context, technical developments and planning that took place before it was actually manufactured. All information about a vehicle’s history should be compiled and documented to accompany the vehicle. Even if the vehicle ceases to materially exist, these documents still can serve as important sources for research and should be archived accordingly.

One important aspect of a vehicle’s history is its **provenance** — which, narrowly understood, is the history of ownership from inception or delivery until the present, but also includes any significant people associated with the vehicle.. This includes names of owners as well as dates and places of

ownership. Initially coined in the professional language of art history, the term provenance is based on the assumption that any object, but more importantly a significant object or cultural asset or work of art, has an existence beyond that of any individual owner. Owners are, in that sense, custodians.

**Provenance** is important because

- the clear and proven continuity of ownership (or “chain of title”) helps to verify that the vehicle is genuine, meaning that it has the legal identity it claims to have
- if there are gaps in the continuity of ownership, this can raise questions about the identity, condition or possible modifications of the vehicle
- it may determine whether a vehicle was stolen or improperly acquired at some point in its **history**
- depending on the case, proof about present or past owners of importance will add to the significance of the vehicle. This is also illustrated by what is known as “Associative Value”, one of the criteria for possible inclusion in the American National Historic Vehicle Register. (see also: **nationally important cultural assets** on page 13)

A report of a vehicle’s **provenance** should be carefully researched by, for example, studying historical records, documents, photographs, and physical evidence from the vehicle itself. Unlike other historical objects, the ownership of vehicles usually is recorded by governmental authorities. These records are an important part of provenance research of

vehicles. Provenance documentation should be assembled and documented in a sustainable way and accompany the vehicle. Even if the vehicle ceases to materially exist, these documents still can serve as important sources for research and should be archived accordingly.

Historically, the **provenance** of vehicles has not always been considered important, as it's rarely of interest in relation to a "used car" in its **period of normal use**. But it will become particularly important in the collection phase of its existence.

Depending on the individual case, a clear and well-documented **provenance** can significantly add to the vehicle's historic and also monetary value.

**Provenance** and **history** often get intermingled in popular usage, as for example significant events a historic vehicle participated in are part of its history, but not of its provenance (= chain of ownership). The same applies when people mistakenly consider the era and historical context of an object as part of its provenance instead of part of its history. (see also: **documentation** on this page)

## Documentation

The documentation is a compilation of verified information covering all important aspects of a historic vehicle, including its materials, components, events in its history, written material, certificates, images, drawings, and information from other sources. Seriously researched and well-assembled documentation will positively affect appraisals and also serves as the basis for maintenance, **restoration** plans, and research.

Materials and methods for documentation include:

- official documents relating to purchase, previous and current licensing, custom receipts, etc.
- documents and sources that have been handed down with the vehicle (for example, maintenance booklets, manuals, spare parts catalogs, invoices, customs receipts, correspondence, etc.)
- drawings, photographs, or other pictorial documents
- documents and research findings on provenance that provide information on previous owners and the individual history of the vehicle
- expert appraisals, examination reports, and publications,
- records about the vehicle's condition, technical configuration, material condition, and originality
- results of scientific investigations or analysis
- descriptions and details on maintenance, conservation, and **restoration** measures applied

## The four “stages of life” of a vehicle

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### The initial state: when the vehicle is manufactured and delivered

The “initial state” is merely a brief snapshot in the life of a vehicle. As soon as it is put into operation, individual changes arise from wear, repairs, or modifications in technology, materials, and design. As a result, models identically assembled in serial production gradually develop distinctive differences from one another. Thus, over time, they will develop individual characteristics that reflect their unique service life and history.

This especially applies to hand-crafted one-off vehicles that from their inception display individual workmanship and manual processing compared to other examples based on the same model. The same is true of course for particular technical interpretations or a unique design to be found in custom-built vehicles.

Changes to the initial state will occur even when a vehicle has been securely stored directly after production and never been driven since. In such cases, while aging processes may proceed more slowly and use-related wear and tear is not an issue, there is a gradual increase of storage-related deterioration over time (e.g., tires will become brittle or deflate and develop flat spots, lubricants will dry and moving parts may get stuck, rubber, leather and plastic

components will slowly deteriorate, etc.) Bit by bit, the vehicle’s initial state will significantly change, it will age and transform into a no longer operable, static object.

The parts belonging to the initial state and are just precisely those that were assembled at the time the vehicle was manufactured (i.e., **matching numbers** in a sense extended beyond just technical parts).

**Parts from the vehicle’s period of delivery** have to be differentiated from that. These meet the model’s manufacture specification and make, but were taken from other vehicles of the same production or manufactured by then as approved spare parts.

### The period of normal use: the service life of a vehicle

The **period of normal use** is the time span in which an object, in our case a vehicle, is employed as a normal article of daily use – starting with the date when it is put into operation for the first time. During this period, a vehicle is maintained, serviced, and repaired, or adapted to changing practical circumstances and usage requirements. It gradually loses monetary value due to age and increased wear and tear, and is traded as a more or less well-preserved used car.

*Even if they are assembled in mass production, vehicles from the same series only remain similar in their components, technical parameters and appearance for a short moment after their assembly.<sup>60</sup>*



All parts and materials that were present at the time of its manufacture plus those from its normal period of use belong to what is called the **historic fabric** of the vehicle<sup>18</sup>.

Spare and replacement parts manufactured in that period can be called “historic spare parts”, or, if they have not been used, **old stock parts**.

Modifications made on a vehicle in this period can provide important information and proof about its history, its use, and the circumstances of the time, and they are part of what is regarded as the **historic original** in the criteria of cultural heritage (see also: **original** on page 23).

Regarding the individual circumstances of a vehicle’s history, the real **period of normal use** can be significantly longer than the 10-15-year time span that sometimes is formally assumed to be “in period” (for example by FIVA).

The same applies to official classifications in different countries, formally assuming a rather arbitrarily fixed time span of around 10 years for “the normal service life” of a vehicle.

Looking at historic vehicles from the angle of cultural heritage, such assessments must be based on the individual case and on indicators as described in this glossary.

(see also: **phase of neglect** and **collection phase** on page 22)

#### **Examples:**

- cuban taxis with a **phase of normal use** that lasts up to the present day. These American luxury cars of the 1940<sup>s</sup> and 50<sup>s</sup> are still kept operational for “simple daily working use”. This includes just basic and



very pragmatic repairs or refurbishments with mostly Russian spare parts. This is an expression of Cuba's peculiar political and economic situation and therefore a document of the local cultural history<sup>59</sup>.

- vehicles over 30 years old that still are driven as normal, everyday means of transport without being regarded, traded, or licensed as a historic vehicle
- fire trucks are often maintained to a very high standard and are expected to be in normal use for decades

### **The phase of neglect or phase of oblivion: the death of the used car**

At the end of the **period of normal use**, a vehicle usually is no longer seen as having usefulness or monetary value and put out of service as obsolete, worn out, or no longer functioning. By this point, the number of vehicles initially produced by the corresponding model is greatly reduced because many of them are dismantled and scrapped. That is why only some survive by being stored, put away, or abandoned and forgotten. Commonly remaining without adequate care and protection, they frequently develop severe storage deterioration and loss of material substance. This is the moment when a used car's existence usually ends.

### **The collection phase: looking at the vehicle in a different way**

If a vehicle survives the **phase of neglect**, it may be rediscovered and again brought back to operable condition after some time. In most cases, however, this is not done to use it as a normal means of

*Top left and middle: This VW Beetle was regularly registered and used as a daily driver car by its first owner from 1955 until the 2010s. Therefore, it was in the "phase of normal use" for more than 50 years.<sup>61</sup>*

*Bottom left page: Other vehicles, like this VW Beetle built in 1952, were taken out of service after a much shorter normal service life, to be abandoned and forgotten. They thus entered the "phase of neglect" much sooner.<sup>62</sup>*



*A meticulous restoration, being done in the collection phase, clearly shows that the vehicle is now seen and treated differently than a car in normal use.<sup>63</sup>*

everyday transport, but as a special historic object, collection piece, or some other form of emotion-laden object.

Over time this may lead to ...

- ... an increase in monetary value of these now rare vehicles, traded sometimes far beyond their initial price when they were new;
- ... investing resources for preservation and **restoration**, with no rational or economical basis compared to the market value of a corresponding used car or the vehicle's final utility value;

- ... the vehicle qualifying for special licensing, insurance, and conditions for active use that are distinct from those applied to normal means of transport;
- ... them being allowed to participate in special events for historic vehicles;
- ... becoming part of a collection;
- ... being researched and described like a historic **artifact**;
- ... (in some cases) a vehicle being taken out of its original functional context and presented as a static object in a museum.

Each of these parameters clearly indicates that a vehicle is no longer in its **period of normal use** but has entered the **collection phase**, even if it also continues to be used for driving.

Modifications coming from the **collection phase** do not belong to the historic **original** (see also **original** on this page).

Whether they may become of interest at some later point in the vehicle's (continuing) collection history may only be judged with appropriate historical distance and with time interval.

Components that have been manufactured in the collection phase as fairly exact copies of historic components are called **authentic repro or reproduction parts**.

## **Original, in original state, in original condition**

In cultural studies, art history, and the preservation of cultural heritage, it has long been recognized that the form, equipment, and decoration of historic objects (like for example buildings, interiors, ceremonial garments, or even complex musical instru-

ments like pipe organs) often undergo changes and modifications in their **period of normal use**. These illustrate its changing function and uses and can provide important information about the historical circumstances of its **service life**.

In this context, for example, VDI Norm 9837, released in 2021 by the German Society of Engineers defines as **original**: an object defined through the characteristic feature of material **authenticity** and its individual historicity and adds: “*The testimonial value of an original is based on the specific circumstances of its genesis, its cultural significance, and its historical functions, and usually is not limited to its initial state*”.

Put into a more common language and applied to historic vehicles, this means:

Key characteristics for being **original** are the historic substance (= material aspects of originality) as well as history, provenance, use, and functions (= immaterial aspects of originality) from the individual vehicle’s phase of normal use. At the same time, this shows that “clones” like vehicles built more or less identically and in mass production will develop individual characteristics during their service life, which then are individual testimonies to their history and historic originality.

Of course, a crucial misunderstanding becomes obvious about the way the term **original** has been misinterpreted and colloquially twisted in the historic vehicle community, since it was “borrowed” from the defined wording of cultural heritage. This now leads to the term being used more or less vaguely and often synonymously with what professionally has to be referred to as the **initial state** (see also: **initial state** on page 20).

Although each vehicle has a clearly defined **initial state** (= the technical and material config-



uration at its time of delivery), in the course of its individual history and use it may well go through various different phases, including modifications in equipment and configuration. So looking at vehicles as objects of historic origin and significance, there rarely will be THE one and only **original state**, even when the model initially was produced in industrial scale and number. Instead, we have to do justice to each individual vehicle as a **historic original**. Possible (of course historically proven) configurations it went through in the course of its **service life**, then are recognized as **known historic states** of the individual vehicle. These, of course, include the design, components and materials coming from its **initial state**, augmented by modifications and traces of use coming from its **period of normal use**. Modifications coming from the **period of normal use** can be important testimonials of provenance, for technical, social, political or economic circumstances in the vehicle’s **history**. These can be distinguished and described as the different **known historic states** in the vehicle’s timeline and documentation.

*Additions and repairs that have been done in the course of a restoration can, for example, be documented graphically in a simple manner. In this way the changes can be traced over the long term.<sup>64</sup>*

### Examples:

- a 1950 Ferrari race car, which has been technically altered and fitted to match different competition regulations during its **period of normal use**
- changing a damaged engine of a vehicle in its **period of normal use**, either by using a period spare engine of the same type/**manufacturer**, a suitable engine from another vehicle (not necessarily of the same type) or an engine of a different type/**manufacturer**. Of course, depending on the variant chosen at the time, the result may differ significantly from the individual vehicle's initial condition. However, each variant, if provenly carried out in normal phase of use, must be classified from today's perspective as belonging to the vehicle's historical original.
- a Citroën Traction Avant (like a lot of other French cars during World War II) was fitted with a Gazogene system to derive fuel from burning wood, as fossil fuels were prohibited for civilian use under the German occupation. This significant modification is not only a testimony of history, but also belongs to the historic original of that car.

However, the historic **original** only refers to things which in fact originate from the very vehicle's **initial phase** and **service life**. Components or materials added, exchanged, or renewed in the **collection phase** (i.e. after the **period of normal use**) do not belong to the historic original, even if they are executed with **authentic** working techniques and comply with one of the vehicle's **known historic states** (see also: **authentic** on this page, **restoration** on page 37,

and **special** on page 47). Whether traces from the **collection phase** may become interesting sources for the (ongoing) life of the vehicle in this phase of its existence can only be judged after an appropriate period of time and with what may be called "historical distance".

## Authentic, historically accurate, complying with the historic template

These terms are used to describe supplements, repairs, or **restoration** treatments that take place during **the collection phase** (that is, subsequent to the **phase of normal use**), employing materials and methods which do not change the historic features, components, and design of the individual vehicle. In other words: replacing worn parts, reworking surfaces, and restoring components in a way that follows their appearance and make in the **period of normal use** by at the same time staying as close as possible to a **known historic state** of the individual vehicle.

### Examples:

- replacing a wiring harness which is no longer safe for operation by a copy made from materials that correspond to the original as closely as possible
- re-manufacturing a historic gearbox, complying in specifications, design, and materials as closely as possible with the historic template, to use it as replacement for a similar component which has been lost or damaged
- replacing sheet metal following the shape, materials, and make of damaged or lost parts of the body



*1940 Rosengart LR 539, in well-preserved historic condition: The car still bears most of its first paintwork and the first interior.<sup>65</sup>*

**Authentic** does not include changes in technical specifications, form/design, or characteristic driving properties which do not clearly relate to the individual vehicle's configuration and one of its known **historic states**. This explicitly also applies to changes that just would have been possible at that time (but never have been applied to the vehicle in question during its **service life**) or just relate to another vehicle of that model or period (see also: **special** on page 47).

#### **Examples:**

- Mounting a supercharger after the **period of normal use** is not regarded as authentic, if this individual vehicle did not have such a component in its **period of normal use**. Even if a related part was available then and could be taken from another car of the same model or from historic stock, adding it to a vehicle in the **collection phase** will not qualify as **authentic**. In-

stead, this will be a kind of “historicizing” tuning, since the modification has been executed after the phase of normal use.

- adding an electric fan to the engine that was delivered without one
- using foam cushions, staples, vinyl, or other modern upholstery materials in pre-war cars

### **The known historic identity: Genuine and forgery (fake)**

Basic principle: The identity of a vehicle comes with its initial state and normally is determined by the **manufacturer**. From a legal point of view, this identity usually is linked also to a single component of the vehicle, which was delivered with it (typically the frame/chassis<sup>20</sup>). This is to ensure that the individual historic identity will be used only for the one vehicle it belongs to from the beginning<sup>21</sup>. A vehicle manufactured more than 30 years ago, complying with

the relevant specifications and provenly identified in this way will be designated a vehicle of **known historic identity**<sup>22</sup>.

In most countries, a vehicle legally licensed in its **period of normal use** enjoys grandfathered protection to be used to the present day, even if it no longer meets current licensing requirements<sup>23</sup>. But this protection is directly linked to its **known historic identity**, which cannot be transferred to another specimen.

Generally, every vehicle is **genuine** simply because it materially exists. The important question is whether it is correctly identified and named – that is, whether a particular vehicle is actually what it is claimed to be.

According to legal understanding (which is the key point here), a vehicle is **genuine** only if its designated identity corresponds to its correctly assigned chassis/frame number, VIN (vehicle identification number), or, in some special cases, other legally valid means of identification<sup>24</sup>. A historic vehicle complying to this will be recognized as having a **known historic identity**.

Possibly surprising at first glance, this applies in the same way to **copies** and **replicas**. But these are **genuine** only if they are designated as the reproductions they are (including the true name of their producer and their very own date of built) and do not try and “hijack” the historic identity and designation of their antetype.

**Copies, replicas, and specials** must be regarded as **forges** as soon as someone deliberately claims the identity, provenance, or historic narrative from another (usually historic) vehicle in connection with their display, communication, or sale<sup>25</sup>.

Thus, the question as to whether a vehicle is **genuine** or not relates to the component that legally

“holds” the related identity, as well as the proof that this complies with the identity and historic continuity claimed.

In “the real world”, we will find vehicles that are undisputedly **genuine** by containing the one component determining the identity they claim. But at the same time, due to extensive damage, renovation treatments, or for other reasons, they may hardly contain parts and materials that actually came from their **initial state** or **period of normal use**. In the eye of legality, this does not make them a **fake** and they still have to be addressed as **genuine**. But of course, looking at this from the angle of cultural heritage, vehicles like this have lost major parts of their material **originality**.

Conversely, a large number of **original** components belonging to the vehicle described in the example above may have been put together and complemented to make another vehicle, but without using the component conveying the identity in the legal sense. While its material state may be considered much more **original** than in the first case, it will not qualify to claim the legal identity of the vehicle from which the parts have been taken.

We suddenly find ourselves in the middle of a conundrum about what constitutes originality or identity with the historical examples of the Ship of Theseus, Jeannot’s Knife, or Georges Washington’s Axe<sup>26</sup>. The mere focus on just one component representing the legal identity of a historic vehicle may appear confusing and a bit “beyond common sense”. But the foremost goal of licensing legislation is that each **genuine (known historic) identity** can be used only for the one vehicle it belongs to.

Agreed legal procedures and a clear delineation between **genuine** and **fake** can only be provided by this kind of formal construction. It is therefore



*This copy of a Bugatti T35 built by the English company Wolseley/Teal instead should be considered a real Teal with its own history and fan base. A genuine Teal should not be decorated with Bugatti company badges, a fake history or even fraudulent documents claiming it to be a Bugatti.<sup>66</sup>*

extremely important to understand the difference between a vehicle's **legal genuineness** and its **material** or **immaterial originality**. (see also: **original** on page 23)

**Examples:**

- two Mercedes-Benz 300SL “Gullwing” both comply with the legal definition of **genuine** (= each contains its initial frame & correct identity), but one of the cars contains significantly more **original** fabric than the other. Still, both cars must be regarded as **genuine** Mercedes 300SL, on the basis of their **known legal identity**<sup>27</sup>.
- a 2009 Pur Sang Argentina **copy** of a car produced by Bugatti in 1929 has to be regarded a **genuine** “2009 Pur Sang”, as

long as this very designation consequently is used for its description, display, and merchandising. However, any claim that this car should be a 1929 Bugatti Type 35, possibly by also using a historic Bugatti chassis number, will transform it into a **forgery**.

- the streamline-body Mercedes-Benz 500K (W29) **special**, currently shown at the Technik Museum Speyer. The historic template for this **special**, built on the chassis of a Mercedes-Benz Cabriolet A in 1986, was the 1935 Mercedes 500K custom-bodied by Erdmann & Rossi for the King of Iraq. Even though the car on display now looks more or less like its Erdmann & Rossi antetype, it has to be addressed with the identity &

*This special follows the shape and construction of an 1935 Erdmann-&-Rossi streamlined car, but was built on the chassis of a different Mercedes-Benz 500K. Therefore, it can never take the place of the car initially built for the Iraqi king. Instead, it will always retain the identity of the car donating the chassis, which initially had a completely different body. In the allover context, we also could also call this vehicle a tribute car ...<sup>67</sup>*



number of the prewar chassis used as a basis in 1986. This means this **special** can never take the place of the genuine 1935 Erdmann & Rossi vehicle, which (according to current knowledge) is considered lost.

- the 1907 Thomas Flyer 4-60 “New York – Paris”, listed in the National Historic Vehicle Register. This car has been extensively refurbished, reworked, and artificially patinated in the 1960<sup>s</sup>, so a considerable amount of the original substance has been either removed, altered, or thoroughly worked over. Nevertheless, the chassis initially belonging to this car has been identified still being with it, thus providing its legal and historic continuity as the **genuine** 1907 winner car.

## Matching numbers

This term refers to major components coming from the initial state of a vehicle and bearing numeric or alphanumeric marks from their production. As different companies used their very own “numbering” systems, not all of the main components will necessarily have been labeled, stamped, or bear the same number. The markings and their context have to be examined and identified for the related vehicle on the basis of delivery papers, archive materials, or other proven sources. If they correspond and comply with the markings found on the vehicle’s parts today, the components and the vehicle are regarded to have **matching numbers**.

However, there is no generally accepted and legally binding definition of this term, which usually applies to at least frame/chassis and engine. Sometimes also the gearbox number can be verified

as from the initial state. With coachbuilt bodies, the body components and related parts are often stamped with the same number. Since this designation is usually understood as an indicator for the special **originality** of a vehicle, it should also be exactly stated for the case in question which components are referred to.

## Barn find

This term has increasingly been used over the past twenty years to describe vehicles that emerge from the **phase of oblivion** without having been changed, worked on, or **restored**. **Barn find** thus does not describe a clearly delineated condition, but instead tries to say “in as found, untouched state”.

Even though **barn find** suggests a condition of exceptional historic **originality**, it must be kept in mind that the related vehicles often have suffered substantial deterioration and material loss due to poor storage conditions in their **phase of oblivion**. Their technical components may be no longer operable and incomplete, while parts have been essentially changed, damaged, or eaten away by corrosion, humidity, mildew, pests, or other destructive effects. Many **barn finds** underwent various treatments before they were “found” and shown in public, and are no longer good examples of historic originality. However, recent years also have seen a fair number of intentionally and artificially “aged” vehicles labeled as **barn finds**.

The blurred and sometimes arbitrary use of this rather colloquial term illustrates that it aims more on a picturesque appearance than on what the vehicle represented in its **period of normal use** and the related **original**, then still operable condition.

On the other hand, vehicles that have undergone no deliberate changes since the moment they were decommissioned can be important reference objects despite neglect and decay. In most cases, these vehicles still show the unmolested traces of the period production processes and materials, **original** configurations of technical parts, traces of how they were operated, and many more details from their **history**. Important material references and **sources** like that are usually erased on specimens that have undergone **restoration** or other treatments.

### Examples:

- the “Lady of the Lake”, a 1925 Bugatti Brescia Type 22 that was salvaged after being submerged in the Lago Maggiore for more than 73 years
- some of the vehicles from the Baillon Collection before they were auctioned in 2015 were in a remarkably untouched state of neglect
- “The last Horch”, built by the factory in 1953 on the basis of a 1938 Horch 830 BL chassis. After being rediscovered in Texas, it has been on display in as-found state at the Audi Museum in Ingolstadt since 2008.

In the last years some **barn finds** have reached exceptional sale prices, for example those sold in 2015 at the auction of the Baillon Collection. To a certain extent, this may be rooted more in the public’s emotional response to those so-called “absolutely untouched” vehicles being dramatically staged in picturesque decay, than in a deeper understanding of historic **originality**.

This also is reflected in a current trend of technically overhauling such “as found” vehicles to put





*1927 Detra model 4/14 convertible in barnfind condition.<sup>68</sup>*

them back on the road. In most cases, this is done without applying any further care or stabilizing treatments to the other “non-technical” original parts.

Looking at these cars with their vulnerable cracking and chipping coachwork and frazzled, delicate interiors, being rapidly “consumed” by short-sighted and careless operation, sometimes resembles “zombie cars” or “driving corpses”.

This raises crucial questions: Can this way of handling actually be considered “**preservation**”, like it is usually claimed? Does this kind of treatment and display really represent a **known historic state** of the vehicle, which is derived from its **period of normal use**?

It is important to keep in mind that the key aspects of a vehicle, represented by its material, historical, technical, and functional dimensions, always are connected and therefore should be considered together. The deteriorated “**barn find** look” usually does not derive from normal use and driving, but from long-term neglect and poor storage conditions. Because of that, the technical components are no longer functional in most cases. So, keeping the body, the interior, and other components in their “as found” state and at the same time overhauling the mechanical parts to bring them back to operable condition will clearly create a disrupted and incongruent state. In cases like this, it will be extremely challenging to develop a treatment concept that balances historic **originality** with **conservation** as well as the supplementing/overhauling measures that will be necessary to make the vehicle drivable, and which at its conclusion will coherently merge all these aspects.

#### **Examples:**

- the 1956 Maserati A6G Gran Sport Frua from the Baillon Collection<sup>28</sup>
- a 1928 Bentley 4.5-litre drop head that had been disassembled and stored in and around a London house since the 1960<sup>5</sup>. The car has been reassembled, technically overhauled, and put into operation in 2015<sup>29</sup>. (see also: **preservation** on page 36, **conservation** on page 36 and **patina** on page 33)

## Terms relating to a vehicle's historic fabric

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Principle: The core points of the following terms can be clearly defined, however certain overlaps and gradual transitions may exist between some of the phenomena mentioned.

### Maintained in aged, well-kept condition

There can be no general rule about to which degree signs of wear and use will have to be regarded as tolerable or even as treasured traces of history, or when they should be considered indicators of neglect and decay. Instead, only a precise, individual consideration of the vehicle's **history, provenance,** and **context** can help in the evaluation and decision.

As a rule of thumb, traces coming from use during the **service life** of a vehicle and from normal material aging may have historical value and can bear witness to the period of manufacture and normal use of the vehicle in question. An **aged, well-kept condition,** of course, will include **repairs** and touch-ups from the **period of normal use,** as well as **authentic** additions that have been made later, as long as they comply with usual maintenance. This applies in particular to the replacement of wear parts such as tires, brake pads, spark plugs, and similar components.

Depending on the individual case and on the **known historic state** the vehicle is intended to demonstrate, this always has to be considered and discussed in detail (see also: **patina** on page 33 and **historical and material sources** on page 11).

For example, when looking at a hearse, the radiance of dignity and reverence which is so important during its **period of normal use** may be a decisive factor. This may lead to perceiving obvious signs of wear and tear as quite disturbing for a “well-preserved” impression and the overall statement of the vehicle. This is especially true for changes and aging of the fabric, which may not be related to normal operation, but are damages coming from the **phase of neglect**<sup>30</sup>.

In relation to a tractor, for example, the situation is quite different, as such a vehicle has actually experienced signs of use and wear from the very first moment of its **period of normal use,** which are self-evident for its designated operation.

At the same time, however, the actual age of the vehicle must also be taken into account because it is (at least without possessing a time machine) virtually impossible for a vehicle built 80, 90, or 100 years ago, that is substantially **original,** not to show significant signs of aging today. These issues will



*Top left: Traces of normal (racing) use on the Alfa Romeo of Gastone Count Brilli-Peri, at the 1925 Grand Prix of Italy.<sup>69</sup>*

usually be less prominent on a specimen that was built only 30 years ago and has just achieved veteran status. With vehicles of more recent date of build, it will be an important to protect and preserve their well-kept condition from their **period of normal use** as long as possible.

#### **Examples:**

- a 1900 Renault Type C displayed at the Louwman Museum in The Hague<sup>31</sup>
- a 1971 Porsche 917, which is part of the Collier Collection in Naples, FL<sup>32</sup>

## **Patina**

This term refers to changes in materials to be found on the vehicle that come from normal use, normal

maintenance, and care and in accordance with their normal aging<sup>33</sup>.

#### **Examples:**

- traces of normal use and wear
- marks on surfaces coming from recurring cleaning and care
- tarnishing of metals
- rubbing, fading, or discoloration in textiles
- leather and artificial leathers becoming brittle, fading, or discoloring
- yellowing, brittleness, and cracks in coatings coming from normal aging and wear
- embrittling and fading of plastics

The historic vehicle community's colloquial language frequently asserts the importance of "preserving the patina". While aiming in the right direction, this however illustrates a misunderstanding of **preservation**. The historic materials to be found on a vehicle, of course, may display traces of aging and use = **patina**. But safeguarding its **originality** is less about emphasizing and preserving "picturesque" superficial age marks, but generally about conserving and preserving the **original** fabric, materials, and **context** bequeathed from the vehicle's **period of normal use**.

Therefore, a serious discussion about **patina** should not drift into a "worship of decay", disregarding the vehicle's overall **context** and coherence regarding also other, equally important criteria like technical functionality, the initial design intention or the vehicle's historic background.

(see also: **barn find** on page 30).



## Artificially created patination effects

This term refers to surface treatments that mimic the look of aged materials, but have been artificially produced and consciously applied. In this context, we should carefully avoid the colloquial expression artificial patina, as it suggests an equivalence between such treatments and the genuine **patina**-phenomena, that actually come from the vehicle's history.

Such treatments are now and again applied to vehicles freshly **restored** or **renovated** with modern materials (for example, using today's water-based vehicle paints or modern upholstery materials), which even over time will not develop a **patina** like the materials historically used.

### Examples:

- new paintwork that was intentionally scratched with abrasives or beaten with a chain to imitate traces of use and wear marks

- application of glazes or paint to artificially simulate discoloration or soiling
- chemical treatments to generate stains or corrosion

Depending on the individual case, however, **artificially created patination effects** can be justified to integrate supplemented areas into adjoining areas with genuine historic surfaces. Discreet partial **restorations** covered up like that should be done in a **reversible** way whenever possible or by using materials complying with the historic fabric present. In addition to that, the related areas should be **documented** in detail.

(see also: **restoration** on page 37 and **reversible** on page 42)

*Opposite page, left: The torn original upholstery of a Bugatti T49 cannot be considered patina. Instead, the condition has to be clearly designated as damage, as the car cannot be used any longer without complete destruction of the seats.<sup>70</sup>*

*Opposite page, top right: Changes due to longterm neglect like on the body of this 1956 Opel Olympia Rekord Caravan cannot be considered as patina. They do not derive from normal use and normal aging, but rather from a severe lack of care and maintenance.<sup>71</sup>*

## Dirt

This term refers to deposits that are not a part of the vehicle and that can be removed without causing damage to its material substance.

### Examples:

- bird droppings
- mud stains
- deposits of dust or grease
- sweat stains on upholstery

In individual cases, however, soiling may become so firmly embedded into the material that it cannot be removed without destroying the historic fabric. Then we may consider them as having become part of the vehicle's fabric and treat them as a synonym to **patina**.

## Damage

**Damage** is defined as changes that significantly limit normal use of the vehicle or even make it impossible to safely operate it. This also includes deterioration resulting from neglect or poor storage conditions. In addition to that, the term **damage** applies to phenomena, which will entail a rapid progression of material loss and other destructive effects when the vehicle is operated, as well as changes caused by lack of care and long-term neglect.

**Damages** are not part of the **patina**.

### Examples:

- significant corrosion, especially when it involves structural components
- failing mechanical parts
- corroded electrical installations

- deformations in the body relating to an accident
- tears in seats that will become larger when used
- areas of chipping paint which will fall off when the vehicle is driven (see also: **barn find** on page 30).

## Terms relating to treatments applied

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### Preservation (preventive)

Basic principle: the historic fabric and material **originality** of a vehicle cannot be recreated. Once they have been lost, modified, or removed, they only can be imitated in a more or less **authentic** way.

**Preservation** refers to maintaining and protecting a vehicle against damage and deterioration, and therefore safeguarding its materials and current state. **Preservation** measures will not modify its appearance or intervene into its historic fabric, but aim on the best possible protection and environment to maintain the as-is condition. This approach sometimes is also referred to as **preventive conservation**.

#### Examples:

- appropriate storage conditions, especially with regard to temperature, humidity, and exposure to UV light
- preventing and controlling pest infestations
- proper service and care for tires, batteries, and other technical components
- cleaning without abrading or damaging the fabric

To a certain extent and depending on the case, careful driving operation also may be regarded as a

**preservation** measure. This will provide lubrication to relevant components, keep the mechanical parts from getting stuck, and prevent damage due to long-term storage.

### Conservation (stabilizing)

Basic principle: the historic fabric and material **originality** of a vehicle cannot be recreated. Once they have been lost, modified or removed, they only can be imitated in a more or less **authentic** way.

**Conservation** measures will stop or at least significantly delay changes, material loss and decay. But unlike **restoration**, they will not alter, remove, or replace historic fabric belonging to the vehicle. Properly applied, no (or just minimal) traces of **conservation** interventions will be visible after treatment.

Other than in **restoration**, the materials and techniques traditionally used in the manufacture and **repair** of a vehicle may not be suitable for minimal-invasive **conservation** treatments on a fully assembled vehicle especially when conserving aged materials. So, for example, traditional paint materials will not provide the necessary properties and adhesive power to stabilize and reattach areas of chipping historic paint. Furthermore, **conservation** measures should be carried out in a **reversible**



*A steady and suitable surrounding climate and good storage conditions are, in addition to regular maintenance and care, essential for the long-term preservation of historic vehicles, as well as those in active use.<sup>72</sup>*

manner, at least insofar as practically possible. This means that the measures applied, and the materials introduced can be separated from the historic fabric again without causing damage. Thus, it will be possible to repeat a treatment even after a longer period of time without the accumulations of prior treatment causing further damage.

In many cases, this requires that modern formulations will have to be used for conservation measures, which is taken into account in Article 6 of the Charter of Turin. All materials used must be precisely adjusted to the specific issues found on the individual vehicle.

**Examples:**

- adding diagonal cross-bracing for timber-frame vehicles to reinforce instability in the frame construction
- fastening loose components
- backing tears in seat covers
- applying corrosion protection coatings on bare metal surfaces
- stabilizing and attaching areas of chipping paints

### **Restoration (authentically supplementing and maintaining in operable state)**

Basic principle: The actual historic fabric and material originality of a vehicle cannot be re-created. Once they have been lost, modified, or removed, their appearance only can be imitated in a more or less authentic way.

Being committed to **authenticity**, a **restoration** will not change the historic design, techni-

cal features, or characteristic driving properties of a vehicle. Therefore, preference should be given to working techniques and materials that correspond to those historically used on the vehicle.

If one considers the experience of more than a hundred years of modern art conservation science, it becomes clear that every **restoration** and addition of missing parts is associated with unavoidable, at least minor inaccuracies. In any case, today's experts are always "children of their time" and insights into the innumerable details of historical conditions, and production processes can never be achieved completely from today's perspective, even with the most precise research. Therefore, all interventions in a historic vehicle will always involve a certain degree of interpretation by the person working on it. All the more speculative additions or arbitrary changes in particular should be clearly avoided in order to actually **restore** the **authenticity** of the vehicle and not spoil it. To spare the irretrievable historic fabric, careful judgement and the principle of "only intervening as much as necessary and as little as possible" should be the guideline here too.

Sufficient and clearly structured documentation also of the condition existing before the treatment makes this comprehensible, also with regard to future interventions. In this way, a distinction can be made between the actual historic material substance and details that relate to earlier **restorations**. (see also: **documentation** on page 19)

The aim of a **restoration** is to illustrate a **known historic state** of the vehicle (which, depending on the case and the vehicle's history, may or may not be the **initial state**). To achieve this, it is not always necessary to completely overhaul all components and areas of a vehicle.

Instead, a **restoration** project must balance a number of factors to come together to form a historically coherent whole. These interventions start with a detailed examination of the present condition of the vehicle, based on knowledge about the vehicle and its context (was the vehicle maintained in fairly well condition with only partial damage? Heavily deteriorated through neglect? altered or defaced by earlier measures in the collection phase? Which of the possibly different known historic states shall be shown? Etc.). Such a project requires a complex series of many small decisions made during the **restoration** process. The intervention should not exclusively focus on refurbishing and completing the components in an **authentic** way, but also may employ **conservation** measures to safeguard original fabric and **reconstructed** components to replace damaged or missing parts.

(see also: **reconstruction** on page 43, **conservation** on page 36 and **renovation** on page 40)

#### Examples:

- the custom-built 1930 Mercedes 710 SS GP10 **Malcolm Campbell**, delivered in “Blue Bird Blue” body color (Campbell’s very own “heraldic color”) with individual technical details like for example the fuel pipes running along the outside of the body. In 1945 and still in normal use, the vehicle was modified, which among other things included repositioning the fuel pipes to the inside the body and repainting the car in white. In 1949 the car in took part in one of the first significant race events after World War II in this configuration.



An in-depth examination of the car revealed large areas of the “Blue Bird Blue” being preserved behind the seat, so the idea came up to match this iconic first color and repaint the car. To achieve a historically coherent configuration that also would require changing the technical components and the body back to the initial configuration, so the decision-making process has to reach far beyond “just a paint job”.

A **restoration** will not necessarily have to aim on displaying the initial, delivery condition of a vehicle. Instead, regarding its individual **service life** and **context**, it may be more interesting to show a later state, connected with an important event, a **special** owner, or other significant circumstances. In doing so, it should aim on authentically depicting a known historic state in a coherent way. These choices should be well-documented. However, we have to keep in mind that all **restoration** measures aiming

*Above: The 1930 Mercedes 710 SS GP10. Malcolm Campbell’s mechanic racing in 1945. At that time, the car had been painted white. In this configuration, deriving from the phase of normal use, the methanol fuel line was remodeled to run inside of the body.<sup>73</sup>*



*The same Mercedes 710 SS GP10 "Malcolm Campbell", as shown on the left, but 13 years earlier and in its primary condition. At that time the car was painted blue, with the methanol fuel line running on the outside of the body above the chassis rail.<sup>74</sup>*

on displaying a previous state will irretrievably remove or modify fabric that belongs to the vehicle's history as well. All related measures should therefore be carefully considered and planned before decisions are made and carried out.

(see also: **original** on page 23, **authentic** on page 25 and **reversible** on page 42)

#### **Examples:**

- 1973 Ducati 750SS that was repeatedly modified for racing in its **period of normal use** is **restored** following the configuration in which it successfully raced at the 1976 Bol D'Or
- a 1929 Bugatti T43 was fitted with a new coachbuilt body in 1930. This historic **special** today is maintained in this **known historic state**

## Repair (focusing on operability)

Repair refers to refurbishing or overhauling damaged and worn parts or replacing missing components. The ultimate goal of a repair is to regain full functionality of the vehicle, but does not necessarily require **preserving** the historic fabric and the **authenticity** of the vehicle. Make and materials used often correspond to modern procedures and standards, but not to materials and working techniques used in its **period of normal use**.

We must distinguish here between ...

- ... a **pragmatic repair** that does make the vehicle work again, but the methods used do not comply with the standards of professional or long-term durable work;
- ... a **professional repair** that will use materials and working techniques that correspond to the current professional state of the craft. It will re-establish the full functionality of the related components or make them even more durable than before the deterioration occurred.

### Examples:

- replacing a damaged engine with another suitable unit coming from a different model or a different **manufacturer**. The **repair** focuses solely on whether the replacement engine fits appropriately and the vehicle functions again.
- Damaged bearings are replaced with spare parts made of modern material.
- Two components are simply connected with a piece of wire instead of a screw, which is a **pragmatic repair**.



*A functional, but in the sense of the Charter of Turin, with its standards of craftsmanship and authenticity, but rather questionable repair of the hand throttle train of a 1906 REO Speedwagon.<sup>75</sup>*

- replacing the partially damaged original wing of a VW Beetle by a ready-made spare part, (available today in modern sheet metal or even made of laminated glass fiber) = a professional repair using modern spare parts. Contrast this with **restoration**, which would recondition the historic component using traditional craft techniques and sparing as much of the fabric as possible.

## Renovation (refurbishing beyond a known historic state)

In the colloquial jargon of vehicle enthusiasts, this kind of work often is equated with **restoration** and misleadingly referred to as “complete **restoration**” or “**restoration** to concours condition”. In a professional context, however, we must clearly distinguish between these terms.

**Renovation** refers to all interventions done in the collection phase that does not aim at represent-

*This 1941 Ford pickup truck was built as a "workhorse" just before WWII. It has been completely renovated and now presents itself in an allover condition that's "better than new".<sup>76</sup>*



ing a **known historic state** of the individual vehicle. Here, not just deliberate, obvious modifications play a role (see also: **modern specials** on page 47), but also less conspicuous reinterpretations or so-called “improvements” to the historic technical features, driving characteristics, and design.

This refers to the design, the technical configuration, and all other features belonging to the vehicle that do not correspond to those that were present when it was delivered or in its **period of normal use**.

In contrast to **restoration**, such **renovation** measures also aim beyond the treatment of losses and damage. Instead, an attempt is made to “improve” **original** characteristics of the vehicle that

are, at least from the perspective of the current owner, perceived as “deficiencies”. One example is uneven gap dimensions in a vehicle’s bodywork, which can be traced back already to its **initial state** and may even be visible in period photographs of the vehicle. In the perception of the **period of normal use**, these did not represent a flaw, but with today’s perspective of the **collection phase**, these **original** characteristics may be “corrected”.

#### **Examples:**

- perfecting the gap dimensions in the body that derive from the time of manufacture
- the conversion of the power supply from 6 to 12 volts

- the use of more modern braking systems
- the installation of more modern gearboxes
- the use of steering aids not available in the **period of normal use** (such as EZ PowerSteering)
- installation of seat heaters, radios, or power windows when they were not available in the **period of normal use**

But of course, to be able to drive a historic vehicle on public roads today, mandatory **renovations** like adding a license plate light and rearview mirrors, adapting air conditioning systems to coolants permissible today, or adjusting it to work with unleaded fuels can be necessary. These adjustments include modifying the exhaust valves and seats to accept unleaded fuel and changing the diaphragm material in the mechanical fuel pump to accept ethanol additives in the fuel. The same applies to using wearing parts like tires, spark plugs, rubber seals, belts, or light bulbs from modern production. In such cases, the original parts removed should be kept with the car as a reference to their historic type and make and the principle of “only intervening as much as necessary and as little as possible” should be used as a guideline.

## Reversible, reversibility

Reversible means that a procedure is carried out in a way that will not damage, change, or lose historic fabric, so the intervention may be completely turned back to the state before it was performed. To spare as much of the historic fabric, and of course within the scope of what is practically possible, the materials and methods used for **conservation** and **restoration** treatments should be carried out **reversibly**.



Again, this requires decisions based on careful consideration on a case-by-case basis.

### Examples:

- adding a license plate light, license plate holder, or rear-view mirror often can be done in a **reversible** way (i.e., without drilling a hole in the vehicle’s historic fabric) by constructing a special bracket that can use existing holes
- It will not be possible to make sheet metal additions to damaged or corroded body parts in a fully reversible way. Although the inserted areas can be cut out again, changes will remain compared to the condition before the intervention. In such cases it is appropriate to plan the treatment in a way that only affects as little as possible of the historic fabric (for example using heat protection to reduce affecting adjacent metal parts, wooden substructures, or surrounding original paint).

*A blatant example of a renovation of a Mercedes-Benz W 111 that includes numerous modernizations and “improvements”. The changes include all technical components, as well as the body and interior.<sup>77</sup>*

## Different kinds of modifications and reproductions

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*An authentic, science-based reconstruction of a Celtic chariot in the Swiss National Museum.<sup>78</sup>*

### Reconstruction of whole vehicles and reconstruction of parts

The **reconstruction** of a historic object serves primarily educational or scientific purposes and is based on scholarly research and verified findings.

The **reconstruction** of a historic vehicle can be material or virtual and does not necessarily need to emulate its **initial state**. On the scientific objective, it may be more interesting to actually illustrate a later point in the **service life** of the vehicle (for example, with a competition car that has been modified several times throughout its career).

**Reconstructions**, of course, will not be a substitute for their historic antetype and never be able to claim its **known historic identity**. Because they are newly built vehicles, in a legal sense they will be identified according to their date of manufacture. This also may restrict their use on public roads, according to the licensing requirements in different countries.

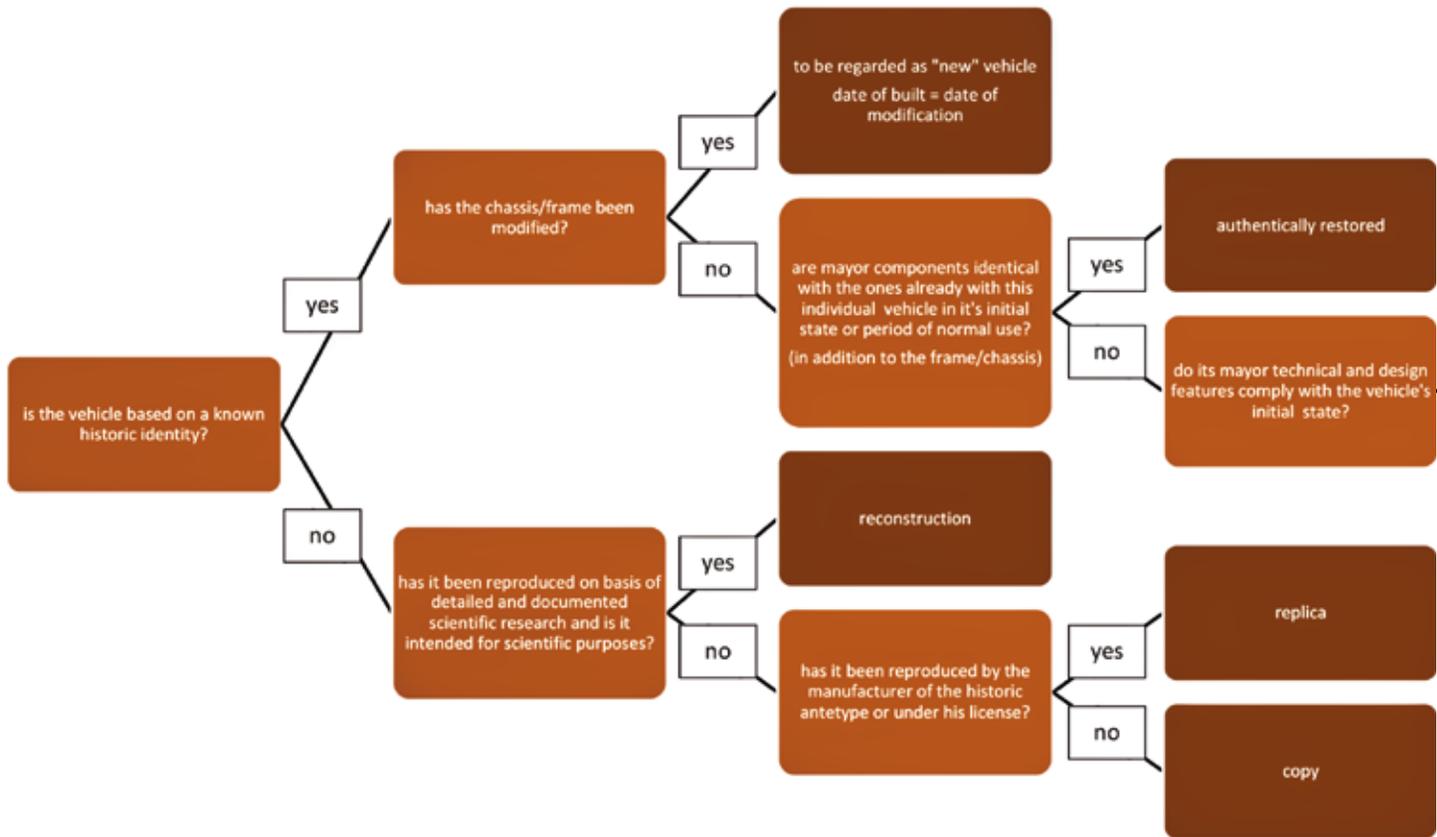
**Reconstructed** vehicles shall be clearly documented and marked as such.

Procedures described above usually refer to a historic object that no longer exists or is handed down in severely fragmented condition. **Reconstructing** it with the greatest possible scientific, technical,



material, and craftsmanship accuracy, will not include using components or fragments of the historic antetype. Instead, these have to be preserved and protected as unmolested material sources and reference.

The historic object in question therefore is newly built “from scratch”, as precisely as possible in accordance with the findings of detailed scholarly research. This includes the meticulous evaluation of material, pictorial, and written sources, oral tra-

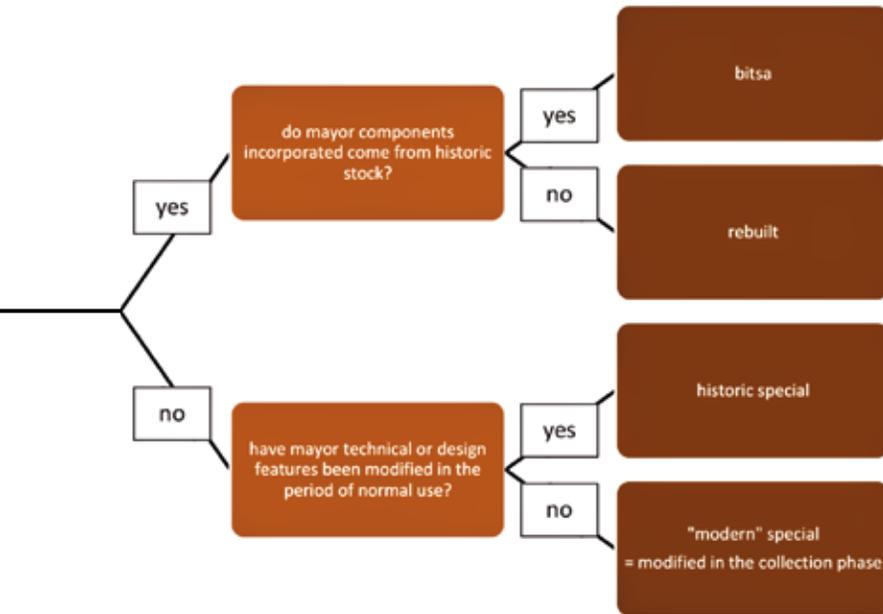


ditions, as well as knowledge about the materials, production technologies, and workmanship used in its manufacture. Only by observing these principles, can the reconstruction provide scientifically reliable results, for example about its historic properties and functionality<sup>24</sup>.

**Reconstructions** of historic motor vehicles according to the above principles so far have been carried out only in few exceptional cases.

#### Examples:

- the reconstruction of a Roman galley and its experimental operation on the Danube River (this ship called Regina now contributes to practical research on Roman military and seafaring technology in late antiquity)<sup>35</sup>
- the reconstruction of a Celtic chariot as it was used around 450 BCE (carried out in 1993 to gain scientific understanding about Celtic battle technology)<sup>36</sup>



- the reconstruction of an Egyptian chariot as it was used about 3,500 years ago (constructed in 2013 to experimentally research Egyptian military technology of the time)<sup>37</sup>
- the built reconstruction of Guédelon Castle, a full-size medieval fortress including several annexes (this French project is still in progress, researching 13<sup>th</sup>-Century architecture, construction, and artisanal techniques)<sup>38</sup>

It is important to distinguish between the complete reconstruction of a vehicle from individual **reconstructed** parts and components made to replace or restore missing or broken components of a vehicle of **known historic identity**. Here of course it is crucial as well to manufacture them as closely as possible to the historic antetype, whether it be in dimensions, materials, or make. In this context, a significant effort of historically informed re-engineering may be necessary to achieve a make and functionality true to the **original**. Faithfully reproducing parts is a recognized instrument in **restoration**, not only for historic vehicles but also for other cultural assets. In many cases, this provides the only way to **authentically** maintain the vehicle as a whole, including its functionality, when **original** spare parts cannot be obtained anymore.

Reconstructed parts should not only comply with the dimensions, details, and look of their historic templates, but also the materials, make, and technological “state of the art” as exactly as possible. They should not be made “better” than their historic antetypes, as this may not only change **original** characteristics of the vehicle, but also can impose problems like increased wear or damage to adjacent original parts.

#### Examples:

- reproducing a cog belonging to the gearbox of a vehicle built in the 1910<sup>s</sup> by using modern casting techniques. Today’s processes did not create the same unevenness and small cavities like in the template, leading to less lubricant adhering to the surface. In active use, the (possibly unintentionally) perfected replacement part caused severe abrasion,

rapid wear, and eventual destruction of the adjacent original gears.

- In the 1960<sup>s</sup>, attempts were made to replace the easily corroding steel clappers of church bells with “better” examples made of stainless steel. However, the now much harder clappers made the bronze bells crack, so they became severely damaged in short time.
- using polyurethane foam in remaking historic seats instead of metal springs, horsehair, and cotton batting. This significantly changes the support of the seats, how they absorb impacts and bumps, and how they wear.

In practice, of course, there are natural limits to the precision of every **reconstruction**. So, for example, an original template without signs of wear or damage may not be available, it may no longer be possible to trace all details about the original manufacturing procedures, materials may not be available anymore, or the resources of the project may be limited in other ways. Nevertheless, serious **reconstruction**, whether it be for an entire vehicle or individual parts, should always aim for the greatest possible accuracy.

Since every **reconstruction** and remanufacture involves inevitable inaccuracies, reproduced parts should not be used as templates for further reproductions in the future. Otherwise, there is a great danger that imprecisions will add up. Therefore, reconstructed parts should be permanently marked to distinguish them from actual original components.

Since 2002, such markings have been effectively implemented in the **restoration** of historic rail



*1920s Amilcar CGSS biplace sport from the Baillon collection in largely destroyed condition when it was auctioned in 2015. Its proven historic identity, linked to the original chassis, can serve as a basis for rebuilding the car.<sup>30</sup>*

vehicles. Examples of the marking system used by railroad specialists can be found in the appendix to the Charter of Turin<sup>39</sup>.

## Rebuilt

Principle: **Rebuilding** a vehicle can solely be done on the basis of its **known historic identity** and the component legally “holding” it (usually the frame/chassis)<sup>40</sup>, (see also: **special** on page 47, **copy and replica** on page 51). This of course means, there only can be a single **rebuild** of the individual vehicle, carrying on its historic and legal identity.

At the same time, the transition between a **re-built** and a **restoration** cannot always be defined with absolute precision. **Rebuilding** usually refers to a vehicle that has been largely destroyed and of which just a small amount of historical fabric and components (but, in any case, the one representing its historic identity) has remained. Other than for a **reconstruction**, however, **rebuilding** a vehicle usu-

ally is not dedicated to mainly scientific or educational purposes and the related scholarly accuracy.

Therefore, various vehicles that have been **rebuilt** are not so much based on in-depth research, proven findings, and a **known historic state**, but contain a fair amount of guesswork, free interpretation, and modification.

#### Examples:

- 1939 Auto Union Typ D race car, rebuilt on the basis of the initial chassis in 2014
- a 1901 Lohner Porsche Mixte, rebuilt on its original chassis in 2018, after the car was heavily damaged in a fire
- In some cases, a historic frame or chassis serves as basis to recreate the appearance and technical specifications of another vehicle than the one initially delivered with it. As this does not correspond with a **known historic state** of the initial vehicle connected with this **known historic identity**, the result will not be considered as a **rebuilt**, but a **special**.

(see also: **reconstruction** on page 43, **special** on page 47, **restoration** on page 37 and the **flowchart illustration**)

When **rebuilding** a vehicle, it is rather common to also use **original** components from other vehicles of similar type and age, or related spare parts from old stock. Of course, these should match the specifications of the components **originally** present, so an **authentic** result will be obtained. Areas which cannot be supplemented with old stock parts will have to be completed using **reconstructed** parts copied as faithfully as possible to the original. Such a “puz-

zle” put together from historic parts coming from different sources and reconstructed pieces also can be called a **bitsa** (assembled from different bits).

Like in the case of a **restoration**, a **rebuilt** should reliably refer to a known historic state of the historic vehicle it represents. Especially when it comes to vehicles which have been modified in their **period of normal use** and of course always depending on the individual case, this does not necessarily need to be narrowed down to its **initial state**.

Materials and parts used should be selected and manufactured complying as closely as possible with the parts included in this very vehicle related to the **known historic state** that shall be illustrated by the **rebuilt**. This of course only can be obtained based on very precise information about the vehicle’s details, whether it be the technical components, their configuration and layout, the design, historic materials, or exact make. These may not be available in every case, so speculative supplements and (even well-informed) assumptions may have an impact on the **authenticity** of the final result.

## Special

Major components (but not the frame/chassis) of a vehicle with **known historic identity** have been significantly modified after it was assembled and delivered. The result is called a **special**.

This term is not officially known to licensing legislation, but nevertheless has been widely used relating to such vehicles already before World War II. A **special** is always based on a documented historical identity (that is, including the part that carries this identity – normally frame or chassis). **Special** refers to vehicles having undergone modifications or



complete changes of one or more of its main components (i.e. engine, transmission, front suspension/steering system, rear suspension, body) that change the design, technical properties, or typical driving characteristics.

Vehicles whose chassis have been modified cannot be included into the category **special** because the licensing legislation in most countries will consider them as “newly manufactured” and the connection to the model initially built on the related frame/chassis is removed. Instead, their initial history will have to be considered erased and starting from scratch. They then will have to be licensed according to the date this modification took place.

Considering the above details, it is necessary to distinguish between ...

- ... historic **specials** modified in the **period of normal use**. The related modifications today belong to the historic original of the related vehicle.
- ... historic **specials** modified after the **period of normal use**. According to the FIVA Technical Code<sup>41</sup>, these **specials** will be considered historic vehicles 30 years after the modification and identified as **specials** by the date of modification. Depending on the details of different national legislations, such vehicles may also then be eligible for a veteran license. In such a

*The “Bu-Merc,” was a 1939 Buick Century, modified to a race car by Phil Shafer and Byron Jersey. It has been preserved in this historic configuration until the present day. It is a historic special, which in has its own individual history.<sup>31</sup>*



*Unlike the Teal on page 28, this is a VW Beetle modified in 1988 to resemble a Bugatti. For this special, a conversion kit produced by Hamburger Auto Zubehör G. Kühn GmbH (HAZ) was used. It retains its identity as a VW Beetle.<sup>82</sup>*

case, the owner must usually provide proof of the date the modification took place.

- ... historic specials modified after the **period of normal use** of the vehicle in question, but not yet 30 years ago. Even if specials like this may copy a historic “look”, according to FIVA criteria and according to the legislation in most countries, these vehicles are not yet eligible for a historic license.

**Examples** of historic specials modified during the **period of normal use** of the vehicle:

- a 1933 Riley with standard closed body was modified to a cabriolet in 1936 (now

bearing the designation “Riley Special 1933/1936”)

- a 1939 Buick Century whose frame and technical components were modified and optimized for racing directly after delivery<sup>42</sup>. In addition to that, also the body of a Mercedes SSK that had been involved in an accident was fitted to the car. In the following, it became known as the “1939 Buick-Mercedes” and nicknamed “The Bu-Merc”. According to the FIVA Technical Code it will be designated as “1939 Buick Century Special”.

**Examples** of historic **specials** modified after the **period of normal use** of the vehicle:

- Riley special based on a 1933 Riley standard model with closed body, which has been modified in 1970 to look like a Riley Cabriolet from 1936 (even if this modification could have been done in the same way already in the **period of normal use** of the car, it has to be designated correctly as “Riley **Special** 1933/1970”).
- “Bugatti-like” kit car based on a 1969 VW Beetle that has been modified in 1988. These modifications done in the collection phase of the VW, using a conversion kit produced by Hamburger Auto Zubehör G. Kühn GmbH (also known as “Hazard” or “HAZ”) and does not comply in style and make with modifications known from this Beetle’s **period of normal use**. According to the FIVA Technical Code it has to be designated “VW-HAZ special 1969/1988”. (see also: **copy** on page 51)

**Examples** of “modern” specials, which have been just modified within the last 29 years:

- 1935 Bentley 3½-liter sedan modified in 2011, imitating a 1929 model with open body (now to be designated as “Bentley 3½-litre special 1935/2011”).
- In 1998, the rolling chassis of a 1928 Frazer-Nash was equipped with a 1917 Curtiss Aircraft Engine, refitted with a new body and transformed into a chain-driven 1998 Curtiss-Frazer-Nash Special.

A vehicle modified to more or less accurately mimic the design of another (historic) vehicle can be called a “**tribute car**”. **Specials** like this usually are built after the template already attained collector or cult status.

**Examples:**

- the modification of a 1931 Ford Model A (delivered with a standard closed body) to a **special** following the design of a historically known 1931 Model A Speedster, done 2010 by CM Companies GmbH (the result will be designated “Ford Model A CM Companies **Special** 1931/2010”)<sup>43</sup>
- the modification of a standard 1962 VW 1200 Beetle to the look of Herbie (starring in the Love Bug movie series), which was done in 2014 by DLS Mobile (this car is now designated as “VW 1200 DLS **Special** 1962/2014”).

With regard to all **specials**, the time of modification(s) should be transparently determined, proven, and documented. When a vehicle is designated as a **special**, the related year(s) shall be stated after



the car’s original manufacturing year as in the above examples.

Regulations regarding modifications on vehicles after the **period of normal use** are significantly stricter in Europe than they are in the United States. European legislation may allow a historic license for this kind of vehicle if the modification was done at least 30 years ago and at the same time complied with the licensing rules for new vehicles at that time. Modifications that did not comply with roadworthiness legislation at the time they were executed will not be allowed for driving on public roads also after 30 years. Therefore, many hot rods, street rods, and custom cars will not be eligible for driving in Europe, regardless of their age and date of modification.

*One of countless “Love Bug” tribute cars, this example is built on a 1978 VW Beetle.<sup>83</sup>*



*Replica of a 1937 Horch 853 Coupé, known as "Manuela". Its historic template was built by Erdmann & Rossi for the German race driver Bernd Rosemeyer. It is considered a replica because, according to Horch Classic GmbH, the manufacturer who made this replica in 2012, it was built under license from Audi, the legal successor of the Horch company.<sup>84</sup>*

## Reproductions: copy and replica

Basic principle: **Copies** and **replicas** are **reproductions** of historic vehicles constructed outside the initial model's period of production. These have not been manufactured on the basis of a **known historic identity** (i.e., without the part that legally "holds" it, usually the frame/chassis<sup>44</sup>). Therefore, they must not take over the historic succession and entitlement of their templates. Instead, **reproductions** have to be communicated, traded, and licensed for traffic using their own (repro)identity, date of build, and (repro)**manufacturer**. Otherwise, they will have to be regarded as forgeries.

In order to delineate them from the historical templates, it is important that all **reproductions** are documented and clearly marked.

Unlike a **reproduction**, **rebuilt**s and **specials** are based on a **known historic identity**, as they include the part that legally represents it. (see also: **rebuild** on page 46, **special** on page 47 and the **flowchart illustration** on page 43).

To distinguish **reproductions** from **reconstructions**, we have to bear in mind that a **reproduction** is not committed to scholarly research and scientific accurateness, but to more or less exactly imitate the appearance of the historic template. If you take a closer look at **reproductions** of historic vehicles, this refers in detail to materials, tools, and production techniques used. So for example, most reproduction chassis of pre-war cars have not been drop-forged like it was done in the time, modern welding techniques and other procedures not available before will be used, sheet metal, plating, electric cables, paints, and upholstery materials follow a different make and composition and many more. Depending on the case, **reproductions** may also incorporate parts from historic production, which does not correspond to the basics of a **scientific reconstruction** "from scratch". (see also: **reconstruction** and the **flowchart illustration** on page 43)

**Reproductions** that have not been made by the **manufacturer** of the initial model (or under its license) are called **copies**.

The term **replica**, on the other hand, was already introduced in the 19<sup>th</sup> century for works of art reproduced by the artist himself or officially approved as meeting his criteria of accuracy and quality<sup>45</sup>. In relation to vehicles subject to trademark and copyright legislation, this means only if the initial

**manufacturer** (or someone under its license) **reproduces** a historic vehicle, can the result be called a **replica**. Despite the often careless and imprecise use of this term, **replicas** are a subset of **copies** that must be precisely named according to their particular copyright status.

Thirty years after manufacture, a reproduced vehicle is recognized by FIVA as historic and can obtain a FIVA ID Card based on its own identity, correct name of (repro)**manufacturer**, and the year of its reproduction<sup>46</sup>. Legally, however, this is dealt with differently in different countries, importantly affecting whether a vehicle like this can be licensed and driven on public roads.

Looking further in detail, it is important to distinguish between ...

- ... historic **reproductions** that are at least 30 years old. Always in reference to their actual age and true year of construction, these are considered to have acquired their own history and their own historical identity in the meantime according to the FIVA Technical Code<sup>47</sup>. In Europe, they can only be legally licensed for use on public roads if they complied with the traffic regulations in force at their (actual) date of built. In such a case, they can also obtain a veteran license after 30 years have passed, but of course always relating to their actual date of assembly and (repro-)**manufacturer**.
- ... “modern” **reproductions** less than 30 years old. These are not yet considered historic under FIVA rules and classified as “modern” vehicles<sup>48</sup>. After 30 years, they may be able to acquire a historic status

and license, but of course always relating to their actual date of assembly and (repro-)**manufacturer**<sup>49</sup>. In Europe and other countries, they may not be eligible for driving on public roads if they do not comply with the safety and traffic regulations in force at the time of their manufacture. This still applies after 30 years have passed, and the vehicle then also may not be able to get a veteran license.

**Examples** of historic **copies** (= not produced by the **manufacturer**, who built the historic template) that are more than 30 years old in 2021):

- **copies** of 1930<sup>s</sup> Bugatti race cars, manufactured by Teal since the 1960<sup>s</sup>. Under FIVA rules, such a vehicle has since acquired its own historical identity as a historic **reproduction**, but of course always in the name of its repro-**manufacturer** (= Teal) and followed by its true year of assembly<sup>50</sup>.
- different **copies** of Mercedes W06 SSK, which have been manufactured on the basis of newly built chassis in the 1980<sup>s</sup>

**Examples** for historic **replicas** (= produced by the same **manufacturer** who built the historic template and more than 30 years old in 2021):

- Benz Patent-Motorwagen from the 1890<sup>s</sup>, replicated by Daimler-Benz in the 1930<sup>s</sup>
- 1949 Frazer Nash TT RRS, – initially developed and sold in the 1930<sup>s</sup>, Frazer Nash built **replicas** of this model in 1949
- Auburn Speedster 851, in 1935, 110 of these cars were constructed. In 1968, the Auburn Company built 14 **replicas** of this type.

**Examples** for “modern” **copies** (= not produced by the **manufacturer** who built the historic template that are not yet 30 years old in 2021):

- **reproductions** of Mercedes, Bugatti, Alfa Romeo, or Indian vehicles, reproduced by Pur Sang Argentina since 1992
- Porsche 356 Speedsters and 550 Spiders made by Chamonix NC Cars since 1992
- AC Cobra **reproductions** by Weineck Cobra Motorenbau and others since 2000

**Examples** for modern **replicas** (= produced by the **manufacturer** who built the historic template that are not yet 30 years old in 2021):

- Several **replicas** of the Melkus RS 1000 racecar have been made since 2006 (by Melkus Sportwagen & Fahrzeugpflege, the legal successor of the initial **manufacturer**)
- **replicas** of various 1930<sup>s</sup> Horch vehicles which have been produced under license from AUDI (legal successor to the Horch brand) until 2016
- a **replica** of a 1904 Horch Tonneau 14/17 PS, which was built under license from Audi in 2015

## Terms that should be avoided in connection with historic vehicles

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### Facsimile

Facsimile appears in a “Glossary of Terms” referring to race cars, compiled by Denis Jenkinson in the 1980<sup>51</sup>. He describes the term similar to **replica** or **copy**, but at the same time implies a nearness to forgery. However, his solitary, idiosyncratic interpretation is not supported by the professional vocabulary of cultural and art history this term was “borrowed” from. His definitions should therefore not be used since they only create misunderstandings and confusion.

The term facsimile in its true sense refers primarily to historical books or drawings (for example the Gutenberg Bible). It describes an extremely accurate **copy** that includes all details of the template, including all changes, losses, and damage. Such meticulous **copies** are usually made of unique, very sensitive historical objects. Using the facsimile instead of the original specimen will avoid deterioration and damage resulting from permanent exhibition or repeated handling. The aim is thus not to forge, but to safeguard the irreplaceable historical original. Such a one-to-one **copy** of the actual, aged condition must, of course, be clearly marked as such.

To the best of our current knowledge, an actual facsimile has never yet been produced in the field of historic vehicles.

### Neologisms and other “homemade terms”

In recent years and, especially in the commercial area, fascinating word combinations and flowery phrases have been created for procedures and makes, that do not actually comply with the principles of historic vehicles. Overall, however, such linguistic inventions are mostly arbitrary and haphazard and for that reason should not be used in a professional context.

The following list of exemplary designations is of course not in the least complete:

#### ■ continuation car, continuation vehicle

These terms are sometimes used to refer to modern **replicas** and **copies**. Their **manufacturers**, who are often the producers of the original model, claim to produce these vehicles exactly to the initial specifications and designs. On closer inspection, however, these vehicles are often equipped with modified technical features (e.g. more modern engines or catalytic converters, even modern electric drives), so that they hardly share any “continuities” with their

*Right page: Facsimile page from the “Codex Manesse“ (a medieval manuscript written and illuminated around 1330). A facsimile is as close as possible to the artifact’s present condition. It is clearly visible that this type of reproduction includes all the losses and damages of the template.<sup>85</sup>*

historic antetypes beyond their external form. Since these terms, usually invented and disseminated by the **manufacturers** of such actually new vehicles, are in practice quite vague and often misleading. They should not be used in professional descriptions of historic vehicles.

- **restomod-treatment**<sup>52</sup>, **new-tech restoration**<sup>53</sup>, **hybrid restoration**, and other “home-made” terms

Such designations are introduced to give an official sounding name to measures that upgrade historic vehicles with modern components, mixing different historic states or other unclear procedures. The range of interventions and changes connoted is very generally vague. Ultimately, however, such mixed conditions contradict the basic concept of **restoration**, which is to authentically illustrate a historic vehicle in a known historic state. Moreover, in many countries





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GERMAN UNESCO COMMISSION  
Located at this portal are important basic documents on various subjects related to cultural heritage. Access via: <http://www.unesco.org/new/en/unesco/resources/publications/>, session of May 24, 2021

EUROPEAN FEDERATION OF ASSOCIATIONS OF INDUSTRIAL AND TECHNICAL HERITAGE  
This is a platform for the promotion of contacts and cooperation among charitable associations working voluntarily in the area of research and preservation of technical cultural assets in Europe. Experiences and knowledge are exchanged and joint activities are coordinated at this site. Access via: <http://www.e-faith.org>, session of May 24, 2021

HAER COLLECTION at the Library of Congress (searchable online) <https://www.nps.gov/hdp/coll.htm> and <http://www.loc.gov/pictures/collection/hh/>  
The permanent collection of architectural, engineering, and landscape documentation at the Library of Congress consists of measured and interpretive drawings,

large-format black and white and color photographs, written historical and descriptive data, and original field notes.

ICOMOS (Conseil International des Monuments et des Sites): Open Archive

This archive is a professional and institutional information platform in the area of preservation of historical monuments. All scientific documents prepared by ICOMOS are deposited and centralized here. It also serves as a specialized archive open to the international scientific community in the area of cultural heritage preservation. Access via: <http://openarchive.icomos.org>, session of May 24, 2021

ICOMOS (Conseil International des Monuments et des Sites): Documentation Center

In 1965, this archive was established as an international documentation center for the preservation and restoration of architectural heritage. This was done at the initiative of UNESCO. Access via <https://www.icomos.org/en/about-the-centre/530-home-documentation-centre-2>, session of May 24, 2021

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## Notes

- 1 other than general dictionaries like the MERRIAM-WEBSTER THESAURUS or the OXFORD ENGLISH DICTIONARY, which serve as universal and orthographic references and relate to the common written language, professional terminology is more detailed and has specific connotations
- 2 Many of the specialized terms developed by the organizations mentioned were collected in European Standard DIN EN 15898: 2011-12 (Conservation of cultural property – Main general terms and definitions) and carried over in a binding fashion in 2011 in the official directives of 31 countries (see DIN EN 15898:2011-12, p. 3).
- 3 ODENDAHL, 2005
- 4 Details of this are found at <https://www.unesco.de/kultur-und-natur/immaterielles-kulturerbe>, session of October 13, 2019
- 5 For example the terminology approved by the EUROPEAN FEDERATION OF ASSOCIATIONS OF INDUSTRIAL AND TECHNICAL HERITAGE, <http://www.e-faith.org>, session of June 20, 2021
- 6 see for example the US NATIONAL HISTORIC PRESERVATION ACT of 1966 (as amended through 2006). Or, as an example for the legislations in Europe, which may slightly differ from country to country, see the GERMAN KULTURGUT- SCHUTZGESETZ (Cultural Heritage Protection Act, 2016), <http://www.kulturgut-schutz-deutschland.de/SharedDocs/Downloads/DE/HandreichungKGGSG.pdf?blob=publicationFile&v=2> session of June 21, 2021; Comparable regulations also exist in many other countries
- 7 see RICHTLINIE FÜR DIE BEGUTACHTUNG VON OLD-TIMERN 2011 (VERKEHRBLATT Vol. 7 – 2011, p. 258)
- 8 <https://www.historicvehicle.org/cultural-icon-gypsy-rose>, session of October 10, 2019
- 9 see for example the US NATIONAL HISTORIC PRESERVATION ACT of 1966 (as amended through 2006) or, as an example for the legislations in Europe, which slightly differ from country to country, see the German Kulturgut-Schutzgesetz (Cultural Heritage Protection Act, 2016), [http://www.kulturgutschutz-deutschland.de/DE/AllesZumKulturgutschutz/Kulturgutschutzgesetz/neuekulturgutschutzgesetz\\_node.html](http://www.kulturgutschutz-deutschland.de/DE/AllesZumKulturgutschutz/Kulturgutschutzgesetz/neuekulturgutschutzgesetz_node.html), session of June 21, 2021 Comparable regulations also exist in many other countries
- 10 <https://www.govtrack.us/congress/bills/116/s2455/text/is> And <https://fiva.org/en/peters-introduces-the-national-historic-vehicle-register-act/>
- 11 See NATIONAL HISTORIC VEHICLE REGISTER, which is part of the the HISTORIC AMERICAN ENGINEERING RECORD
- 12 TICCIH, 2003 and TICCIH, 2011
- 13 FEDECRAIL, 2005
- 14 EMH, 2005
- 15 DAEC 2015
- 16 FÉDÉRATION INTERNATIONALE DES VÉHICULES ANCIENS, 2020, p. 3
- 17 SIMONS, Rainer, 2011
- 18 In the same way, for example, the two towers crowning the 13th century cathedral of Cologne

which were in fact added in the 19th Century – while these of course do not belong to the initial, medieval construction (“time of production”), they are as much a part of the historic original as the Dome’s most valuable heritage, the reliquary shrine of the Three Kings, which was manufactured only in the 14th Century. The same applies for a number of extraordinary stained-glass windows added to the building in the 18th Century.

- 21 These cars usually were left behind by their American owners in 1959 when they fled the country in the wake of the Cuban Revolution. In Cuba, many of them have been kept in normal use up to the present day and serve as taxi cabs, etc.
- 19 These cars usually were left behind by their American owners in 1959 when they fled the country in the wake of the Cuban Revolution. In Cuba, many of them have been kept in normal use up to the present day and serve as taxi cabs, etc.
- 20 Although this has been handled differently in different countries in the past, the valid legal interpretation has been adjusted over time, so that today the identity as a rule is regarded being linked to the frame or chassis of a vehicle.
- 21 In some very special situations, legal procedures may allow to transfer the identity of a (for example irreparably damaged) chassis, etc. to a replacement part of similar make. But then strict regulations have to be observed, which usually do not apply in the cases described here.
- 22 In case the chassis is modified after the period of normal use, the date this measure is executed will become the new “date of manufacture” of the car according to the FIVA Technical Code and also the legislation in many countries.
- 23 Despite a basic protection of their historic configuration, adaptations may be prescribed with regard to some particularly safety-relevant details
- 24 Although this has been handled differently in different countries in the past, the valid legal interpretation has been adjusted over time, so that today the identity, as a rule, is regarded to be linked to the frame or chassis of a vehicle.
- 25 Under special circumstances, legal procedures may allow the transfer of the identity of a (for example irreparably damaged) chassis, etc.... to a replacement part of similar make. But then strict regulations have to be observed (usually including scrapping the

initial part), which normally do not apply to cases as described here.

Just referring to a historic title (without providing evidence or expert scrutiny of the component that legally “contains” the historic identity being included) may in many countries not be regarded as being sufficient for acknowledging a known historic identity.

- 26 WIKIPEDIANS, p. 576ff.
- 27 For example, two Mercedes 300SL at the Gooding & Co. auction in Scottsdale January 2014, lots 42 (unrestored) and 122 (restored) <https://sportscardigest.com/mercedes-benz-featured-at-2014-gooding-scottsdale/>
- 28 see for example <https://www.artcurial.com/en/lot-maserati-a6g-2000-gran-sport-berlinetta-frua-1956-2651-58>, session of June 26, 2021
- 29 <https://www.dailymail.co.uk/news/article-3220852/The-build-Bentley-Incredibly-rare-1928-car-taken-apart-kept-BOXES-50-years-finally-restored-former-glory.html>
- 30 The fact that some historic hearses kept by car enthusiasts today show a (sometimes intentionally created) look of decay usually is not rooted in a particularly untouched state of preservation, but refers to a “reinterpretation” of the vehicle following current “morbid” trends in popular culture
- 31 <https://www.louwmanmuseum.nl/en/Ontdekken/Ontdek-de-collectie/renault-type-c>, session of October 9, 2019
- 32 <https://revsinstitute.org/the-collection/1971-porsche-917>, session of October 9, 2019
- 33 BRACHERT, Thomas: “Patina, Vom Nutzen und Nachteil der Restaurierung”, Munich 1985, p. 9ff. (this book published in 1985 is acknowledged as the first comprehensive scholarly publication on the topic of patina).
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- 34 For example, KAISER, Joachim: “Reparieren, Restaurieren, Erhalten: altes Schiff, was nun?”, bulletin of the FKY (Newsletter of the German Classic Yacht Club – FKY), no. 9/1998, p. 2
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- 41 Although this has been handled differently in different countries in the past, the valid legal interpretation has been adjusted over time, so that today the identity as a rule is regarded as being linked to the frame or chassis of a vehicle.
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- 45 See also TATE PAPERS no. 8, Autumn 2007
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- 49 One of the rare cases in which this was decided differently related to a Mercedes 710 SS racecar, whose original chassis had been shortened to the dimensions of an SSK chassis in the 1960s. Although this modification had since acquired its own historic identity and registration, the current owner decided to have the chassis lengthened back to the configuration of its period of use (i.e. a Mercedes SS) and have the initial SS body rebuilt. After intensive discussion, this intervention in the chassis was finally recognized as a restoration to an authentic condition, as the car now again corresponds to an known historic state from its period of normal use.
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## Image sources

(We still have to completely redo that, according to the pictures we finally choose, the same for the captions)

- 54 Image source: [https://i.wheelsage.org/pictures/prochie/stewart\\_six\\_truck/autowp.ru\\_prochie\\_stewart\\_six\\_truck\\_1.jpg](https://i.wheelsage.org/pictures/prochie/stewart_six_truck/autowp.ru_prochie_stewart_six_truck_1.jpg), session vom 18. 10. 2019
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- 68 *Image source: Gundula Tutt*
- 69 *Image source: Privatarchiv*
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**IN THE CLASSIC CAR COMMUNITY TODAY**, there is a confusion of language of Babylonian proportions. While passion can be communicated in lyrical tones, facts demand precise wording. Expert opinions and appraisals typically toss around terms like condition, originality, or patina – whose meanings are considered depending on one's experiences and perspectives.

Meaningful discussions, however, become more difficult when the same vocabulary gets lost in this broad panorama of free interpretations. Recently, the difficulties have been magnified because terms from the spectrum of art and cultural assets have found their way into the world of historic vehicles. These terms have been separated from their established definitions, although they are anchored as legally valid standards in international norms, agreements, laws, or treaties on the protection of cultural property. This new Heritage Dictionary incorporates these terms of art and cultural heritage, following their established international definitions, as well as reviewing and clarifying many commonly used automotive terms.

Everyone who is interested in and passionate about historic vehicles can draw on this work for a more precise reference for differentiating and describing conditions and approaches. It adds precision and a common understanding to the growing discussion about historic vehicles as valuable and significant cultural assets.

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