Title:	**Format of Repair Information, Use Case of the European Council for Motor Trades and Repairs (CECRA)**
Terse Description:	The use of repair information by garages
Version:	1.0
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Summary:

The following is a description of the current diagnostics and repair scenario in garages.

In view of increasing vehicle complexity there exist problems regarding the supply and use of technical information. Thus, a lot of foreign-brand garages are not able to repair/maintain vehicles in a proper way.

Additional problems arise due to the fact that technical data are delivered by different software programmes and most of the time CD ROM contains lots of information which garages do not need for current repairs. However, the garages have to pay for the whole packages of information. With regard to the quantity of contained information CD ROM are so expensive that garages are not able to use them.

Conclusion:

At the moment, technical information are neither available in the necessary extend nor available at fair prices (based on the extend) with a common user surface.

Scope:

Initially emission-related information though it is required and expected that this will include information related to symptoms of for example "non start" and "cut-out".

Through Block Exemption Replacement, whole vehicle information.

Security-related information, protected by the ISO Standard 15764 "Extended data Link Security".

Actors:

Vehicle manufacturers or agents to operate web sites. Garages (independent repairers and franchise dealer)

Assumptions:

The emission directive already requires the availability of repair information. It is an assumption that the directive will be adapted in order to distribute data with a common standard format at minimum via the Internet.

It is a further assumption that the replacement to the Block Exemption Regulation will require the same provisions for whole vehicle.

Whilst restricted initially to light vehicles it is an assumption that the same provisions will be made for heavy duty vehicles.

Non-technical factors: Copyright issues are briefly addressed.

Introduction:

CECRA, the European Council for Motor Trades and Repairs, is the European federation of the professional associations representing the interests of the motor trade and repair. CECRA is composed of professional national member organisations in the sector of distribution, maintenance and repair of cars, industrial vehicles and motorcycles. The membership of CECRA is made up of 19 associations from 16 countries and represents about 280.265 businesses, employing some 2.137.774 staff. The total number of vehicles on the roads in the Member countries is approx. 177.911.000.

Diagnosis:

Accurate diagnosis is a fundamental part of the repair. The staff of our garages are trained to listen to the customer, to make their own observations and to interrogate the OBD port before making a decision. They may then, guided by their experience or information (but limited by the current level of available information) make further tests and measurements to reach a conclusion. On occasions it will not be possible to effect a repair because of the accessibility or availability of the required part. If a fault is indicated by the OBD, mechanics are trained to check the wiring and connectors before replacing the part. They also know that the indicated OBD fault may not be related to the present fault which is likely to be fundamental such as a cut-out, non-start, over-heating.

A symptom-led diagnostic section on the web site would be most useful.

Security:

The matter "anti-theft devices" may not be used to withhold necessary repairs. Garages (independent repairer/franchise dealer) should be able to program modern ECU in such a way that a successful repair/maintenance/service is ensured without affecting the sector of anti theft devices.

The information required:

For each replaceable part:

An image of the component	
An image showing its location	
A simple circuit diagram showing its connections to the ECU	if electrical
A simple diagram showing its connections	if mechanical/hydraulic
A description of its major functions followed by its ancillary functions	
A description of tests to confirm its	at the component or in the harness.

functionality	
Its part number	to facilitate a replacement
Access information	what parts have to be removed to reach to component
Job time	
Common faults	their symptoms and remedies
Re-calls	we can help to alert customers
Training material	
Owner's handbook	

Timeliness of Information:

On the part of the customer looked forward to receive the complete service, that means repair/maintenance. It should be imperative for manufacturers to enable garages to give good service on vehicles. This works best when garages have access to the information in time.

How indexed:

Process Sequence:

Definitions

➢ **Information data**
The "information data" contains the real technical information. It can be subject to payment.

➢ **Description data**
The "description data" is only a description of the contents of the "information data". If the access to "information data" is free, it can be used directly as "description data". But if the "information data" is not accessible (e.g., because it is supplied only after payment), it is needed for the "description data" as catalogue information for searchers and selective lists.

➢ **Data providers**
Data providers are those who have a title to property of the data.

➢ **Data suppliers**
Data suppliers are those who distribute the data (e.g., sales of CR-ROMs, operation of an Internet page). Data providers may and will in most cases be also data suppliers.

Key Points

Workshops need the most different kinds of technical data to solve concrete problems. Such data is supplied in different formats with different user surfaces on different media according to the provider.

This in practice means, for the workshop:
➢ The workshop must search the Internet page (if any) of the manufacturer / provider / information supplier and / or buy a number of CDs.
➢ The workshop has to familiarize itself with the most different types of operation of the various Internet pages / programmes.

- The workshop has to register a number of times, as the case may be.
- The workshop must conclude several agreements with the different providers, as the case may be.
- The workshop has to pay for the whole contents of CDs, whereas it needs only a part of them.

In order to enable the workshop to get a uniform access to all data, the following criteria should be met:
- Separation of the information from the design of the offer.
- Separation between the free description of the data contents and information subject to payment, as the case may be.
- Mode of payment of the data subject to payment.

Starting from this basis, the user surfaces of the existing programmes can be adapted or new user surfaces can be created by third parties.

In order to enable innovations third suppliers must be allowed to distribute the description of the information contents and of the data (if necessary, subject to payment). In this case, those third suppliers can implement their own surfaces and search algorithms. But for reasons of copyright, it should be ensured that they do not need to use the non-encoded version of the information subject to payment.

Conditions

- All the technical information has to be stored in the XML format.
- The structure of the information has to be standardized (general applicable schemes / DTD).
- As regards the information which cannot be represented directly in the XML format, generally accepted formats should be found which are workable in most computers (e.g., image formats GIF and JPEG, document format PDF, presentation format Flash). The programmes for the presentation of such formats should be available free of charge or at low costs. They should already be widespread and have proved to be practicable.
- The data provider has to provide the "description data" free of charge. This corresponds to a catalogue of the "information data" offered by him.
- The data provider offers the (payable or free) "information data" either through an Internet page (access only after payment) or preferably in encoded form (thus unreadable to non-authorized people).
- Various lists (parts, specialized terms, etc.) are put at disposal by a neutral organisation.
- Data providers should agree to a limited number of modes of payment for the "information data" which is not free of charge, e.g.:
    - the "information data" is disseminated free of charge as encoded version. The customer receives his / her free switching code for decoding through an Internet page, or handy, or SMS. This method offers the advantage that also large documents can be distributed through CD-ROMs;
    - the "information data" are available non-encoded on an Internet page. Access and downloading are only possible after payment by the workshop.

Information contents

For each replaceable part:

An image of the component	
An image showing its location	
A simple circuit diagram showing its connections to the ECU	if electrical

A simple diagram showing its connections	if mechanical/hydraulic
A description of its major functions followed by its ancillary functions	
A description of tests to confirm its functionality	at the component or in the harness
Its part number	to facilitate a replacement
Access information	what parts have to be removed to reach to component
Job time	a useful indication of feasibility
Common faults	their symptoms and remedies
Re-calls	we can help to alert customers
Training material	
Owner's handbook	

Access to the information

The access to technical information should be possible in different ways:
➢ Access through the vehicle and / or the component:
  - through the VIN or registration number in conformity with ISO 15031-6 (Remark: is it sure that the vehicle can be identified with the VIN in all countries?)
  - through the model and time of production.
➢ In OBD, through the default code number or the component description.
➢ Through the error-detecting diagram on the basis of symptoms (e.g., non-start).

Primary Process (producing the information)

Neutral body (Working group, and from there the next Organisation)
➢ Develops the data structure.
➢ Draws up lists (e.g., parts implement). The neutral body develops such lists only in English. The lists must be in such a way that they can be complemented by additional languages on the one hand, and by provider-specific designations on the other.
➢ Agree to the auxiliary programme to be used (e.g., Acrobat Reader).
➢ Agree to (a limited numbers of) modes of payment.
➢ Develops a rudimentary Internet page with search engine to find the technical data of all providers. This Internet page serves as a function test. The software should be put at the disposal of others for further development / design modification.

The neutral organisation supplies such information through the Internet and, as the case may be, through CD-Rom.

Data providers
➢ Draw up the technical format on the basis of the data structure which has been developed by the neutral body.
➢ Subdivide, as regards the payable "information data", the technical information into "description data" and "information data".
➢ Complement, as the case may be, the above lists with their specific designations.

Data providers supply such information through the Internet and, as the case may be, through CD-Rom.

Secondary Process (distributing the information)

Data suppliers (they can also be the data providers)

➢ Develop the Internet presentation (as the case may be, on the basis of the software developed by the neutral body).

➢ Develop CD-ROM / DVD versions with programme and data (as the case may be, on the basis of the software developed by the neutral body).

➢ Develop (as the case may be, on the basis of the software developed by the neutral body) a software with data bank that runs locally on a normal PC and reads the raw data of several / all data providers.