

Guideline

for the
test of conformity of vehicles
in operation in connection
with the
EC type approval
(exhaust emission)

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1 Purpose

Directive 70/220/EEC in its valid version regulates tasks and responsibilities in connection with the test of conformity of vehicles in operation for the type approving authority as well as for the type approval owners.

The guideline does not restrict the possibilities and necessities for action determined by the directive.

It is the objective of this guideline – in the following referred to as GL-, to describe the execution of the conformity check of vehicles in operation that way, that comprehensible sequences and thus calculable decisions are guaranteed in the realization of the procedure.

2 Scope of application

The scope of application of this GL is restricted to the type approvals granted by the German Federal Bureau of Motor Vehicles according to Directive 70/220/EEC in its valid version.

3 Definitions

Information provided by the manufacturer:

The information provided by the manufacturer includes:

- Relevant monitoring data, which were determined in compliance with the applicable requirements and test procedures, as well as relevant details on each checked vehicle, for example status of the vehicle, way of use so far, maintenance condition and other decisive factors (see Annex 1);
- - relevant information about maintenance and repair measures;
- - other appropriate inspections and observations, which the manufacturer recorded, including in particular records of the OBD system.

Relevant monitoring test data

As long as there is no (other) reproducible test procedure, by means of which a continuous data determination over the whole period to be considered is guaranteed, the relevant monitoring test data are determined by checks according to type I according to the directive.

For these tests, a procedure is applied, which fulfills the statistical criteria according to Enclosure 4 of Annex I of the directive.


Geographical market penetration:

The information provided by the manufacturer and the relevant monitoring test data must ensure, that conformity of the vehicles in operation is guaranteed related to geographical market penetration.

It shows, that fuel qualities - and here in particular the sulfur content is of interest – greatly vary in the EC. EC states therefore can be listed in two regions:

- Region I: Fuel according to 98/70/EC, Annex. III and IV, respectively
- Region II: Fuel according to 98/70/EC, Annex. I and II, respectively

Farther-reaching geographical influences within these regions are not recognizable. The check of vehicle emission in only one location of the respective region covers the whole spectrum of the deviations to be expected within the respective region.

The manufacturer has to select the vehicles in  that region, in which he/she has the highest share in sales.

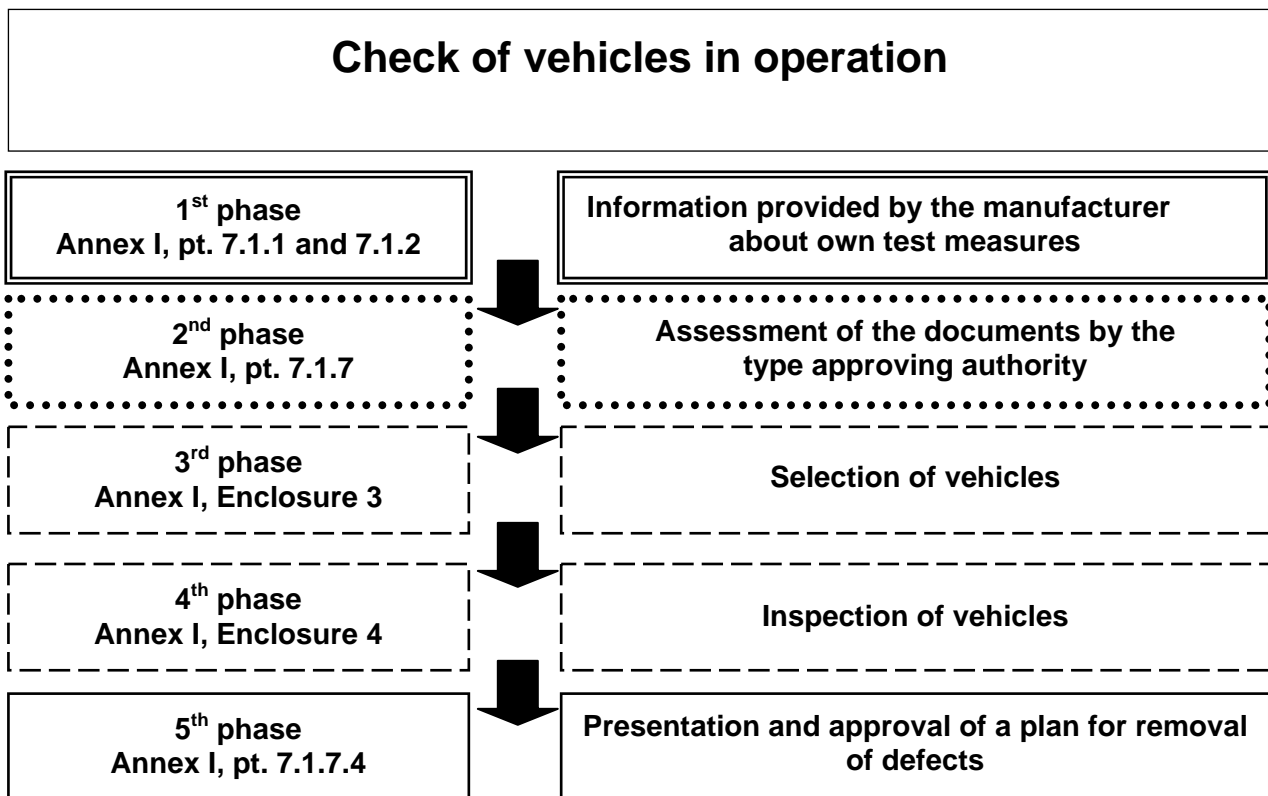
In the other European region, proof of conformity by means of test type I can be renounced. In these cases, other relevant information, checks and observations (in particular records of details of the OBD system) have to be referred to.

Vehicle family:

Vehicle families are defined by fundamental layout parameters, which is common for all vehicle types of the family. This includes the following parameters:

- Combustion system (2-stroke, 4-stroke, rotary piston);
- Number of cylinders;
- Shape of the motor (series, V, star, horizontal, etc.);
- Injection (indirect, direct);
- Type of cooling (air, water, oil);
- Gas exchange (atmosphere, excess pressure);
- Fuel (gasoline, diesel, NG, LPG, etc.), vehicles, which can be operated with two types of fuel, are allocated to the group, the fuel of which they use predominantly;
- Type of the catalyst (three-way catalyst or other);
- Particle filter (with or without);
- Exhaust gas return (with or without).
- Displacement quantity range (biggest cubic capacity – 30 %)

4 Responsibilities



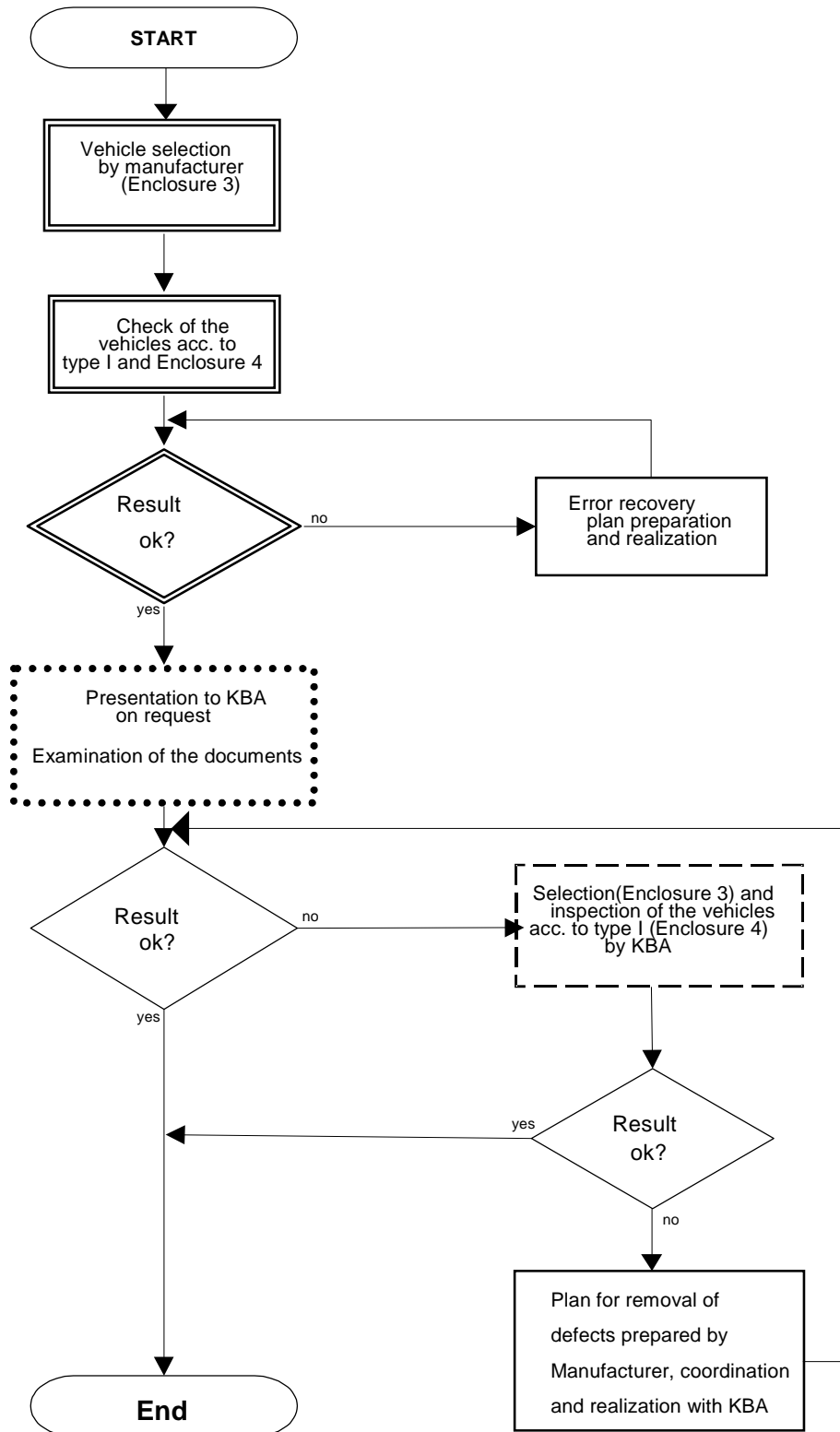
The determination and compilation of any information required for monitoring of vehicles in operation is incumbent on the owner of the EC type approval of the affected vehicle types (phase 1).

The test of conformity of vehicle families on operation, which received a type approval according to the directive of the German Federal Bureau of Motor Vehicles [*Kraftfahrt-Bundesamt - KBA*], is carried out by the KBA, subdepartment 424 (phase 2 to 4).

If there are discrepancies in the assessment of the information provided, the KBA can instruct the Technical Service with the clarification, which carried out the exhaust type approval inspection.

The type approval owner is responsible for the preparation and realization of a possibly required plan for removal of defects. Before its realization, the plan for removal of defects has to be agreed with the KBA (phase 5).

5 Description of the procedure



5.1 Duties of the manufacturer/type approval owner

5.1.1 Scope of information

The information collected by the manufacturer must be that comprehensive, that efficiency after commissioning can be checked under normal operating conditions and in a manner, which satisfies the geographical market penetration of the manufacturer.

5.1.2 Selection criteria

5.1.2.1 Test vehicle

The vehicle must belong to a vehicle type,

- for which the KBA has granted a relevant type approval;
- which is a member of the checked vehicle family;
- for which the type approval according to this directive was granted, and
- for which a certificate of conformity (CoC) according to Directive 70/156/EEC is present.

It must be registered in the community and used in the checked region.

Exceptions:

The vehicle shows indications of an extraordinary use (e.g. racing, overloading, wrong fueling or further improper use) or further factors (e.g. unauthorized interventions), which could affect the emission reduction performance. For vehicles equipped with an OBD system, the data stored in the computer with regard to error code and driven distance are considered. A vehicle is not selected for inspection, when the information stored in the computer indicates, that the vehicle was used further after storage of an error code and no comparatively speedy repair was executed.

5.1.2.2 Vehicle description

The records about maintenance must indicate, that the vehicle was properly maintained, i.e. the regular inspections according to the manufacturer's recommendations were executed (also see Enclosure 1).

5.1.2.3 Repairs

There neither were unauthorized larger repairs at the motor nor the vehicle.

5.1.2.4 Fuel

The lead content and sulfur content of the fuel of a vehicle can be checked. The analysis values must comply with the applicable provisions of Directive 98/70/EC. There are no signs for wrong fueling.

5.1.3 Determination of monitoring test data

The relevant monitoring data of the vehicle family according to the directive must cover a range of – depending on what occurs latest – at least 15,000 km or at least six months operating period and – depending on what occurs first – less than 80,000/100,000 km and/or less than five years operating period (inspection period).

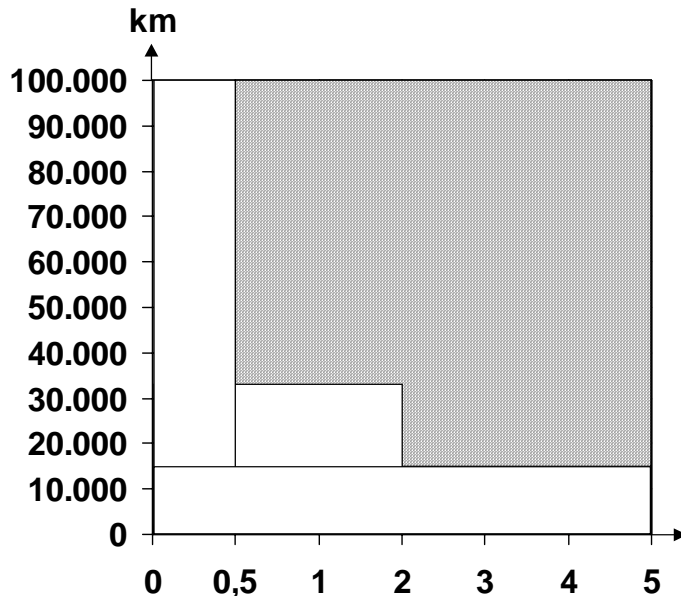
This is achieved by the following monitoring:

1. Monitoring on start of the vehicle operation (CoP monitoring of the series before vehicle delivery);
2. Monitoring at 40 – 100 % of the inspection period.

Überwachungszeitraum

- **Richtlinie 70/220/EWG, Anh. I, Anl. 3, Abs. 2.2**
- Min.: > 15.000 km,
- Min.: > 6 Monate in Betrieb
- Max.: < 80.000 / 100.000 km
- Max.: < 5 Jahre in Betrieb

- **Leitfaden 98/69/EG, Abs. 5.1.3**
- Min.: CoP-Überwachung vor Betriebsbeginn
- Max.: 40 - 100 % der Richtlinienforderung
 - 40 %: > 32.000 / 40.000 km, > 2 Jahre
 - 100 %: < 80.000 / 100.000 km, < 5 Jahre



Überwachungszeitraum	Monitoring period
Richtlinie 70/220/EWG	Directive 70/220/EEC
Anh.I, Anl. 3, Abs. 2.2	Annex I, Enclosure 3, Section 2.2
6 Monate in Betrieb	6 months in operation
5 Jahre in Betrieb	5 years in operation
Leitfaden 98/69/EG, Abs.	Guideline 98/69/EC, Sect.
CoP-Überwachung vor Betriebsbeginn	CoP monitoring before start of operation
~ der Richtlinienforderung	~ of the directive's requirement
Jahre	years

The monitoring test data are determined by means of tests according to type I of the directive in a random sample at first, starting with at least three vehicles of a vehicle family. The number of random samples is staged as follows considering the annual registration figures (type variety, environmental relevance) of a vehicle family:

Registrations/year of the vehicle family	Number of random samples
up to 100.000	1
100.001 - 200.000	2
more than 200.000	3

If the **production figures** per year and vehicle family are lower than 7,500, the manufacturer can renounce the proof of conformity of vehicles in operation via test type I. Within the meaning of this directive it is fundamentally applicable, that the manufacturer is not obliged to a test of conformity of a vehicle, as far as he/she fulfills the set requirements according to section 7.1.2.

If in the determined data deviations from the limit values predetermined by the directive should occur, then the statistical procedure according to Enclosure 4 to Annex I of the directive is to be applied for the inspections.

The inspections have to be executed in parallel to manufacturing of the types of a vehicle family, periodically with an interval of max. 18 months, as far as the changes executed with the respective vehicle type have effects on exhaust emissions.

5.1.4 Error recovery plan

5.1.4.1 Reason

As far as the manufacturer in his/her monitoring recognizes, that either more than one vehicle from one vehicle family with a restricted exhaust component for the same reason exceeds the limit value stated under 3.2.1 or 3.2.2 of Enclosure 4 of Annex I or the inspection according to Enclosure 4 is to be classified as "not ok", then he/she has to prepare an error recovery plan.

5.1.4.2 Deadline

The error recovery plan is to be prepared 60 working days after determination at the latest, unless further inspections for exact fixing of the deviation require an extension.

5.1.4.3 Application

The measures have to refer to all vehicles, which probably have the same error cause. It has to be checked, whether the type approval information packages have to be changed.

5.1.4.4 Notifications

Copies of all notifications of the manufacturer in connection with the error recovery plan are compiled and prepared for inspection.

5.1.4.5 Scope of the error recovery plan

The manufacturer gives the plan a clearly identifying number or designation.

A description of each vehicle type included into the error recovery plan.

A description of the specific changes, novelties, repairs, corrections, adjustments or further modifications, which have to be carried out to achieve conformity of the vehicle, including a short summary of the data and technical inspections, on which the decision of the manufacturer with regard to the measures to be taken for correction of the non-compliance is based.

A description of the method according to which the vehicle owners are informed.

If necessary a description of the proper maintenance or use, which is declared a precondition, so that repairs are executed within the scope of the error recovery plan, as well as an explanation of the reasons, which cause these preconditions. Conditions of maintenance and use must only be determined, when they are demonstrably associated with non-compliance and error recovery.

A description of the procedure, according to which the vehicle owners have to proceed, that the non-compliance is corrected. This includes the date, after which the error recovery can be executed, the estimated time the shop requires for repair and the statement of the respective repair shop.

A copy of the information transferred to the vehicle owner.

A short description of the systems, according to which it is proceeded, to ensure an appropriate supply with components or systems for execution of the error recovery action. It has to be stated, when the supply with components or systems will be sufficient to start the measures.

A copy of all instructions, which are to be transferred to the repair personnel.

A description of the effects of the proposed removal measures to emissions, fuel consumption, driving behaviour and safety of each vehicle type falling in the error recovery plan, including data, technical inspections, etc., on which these conclusions are based.

If a callback is included in the error recovery plan, a description of the method for recording the repair has to be presented to the type approval authority. If a label is used, a sample of it has to be presented.

5.2 Duties of the type approving authority

5.2.1 Control of the monitoring measures

The KBA executes the test of conformity of vehicles in operation on the basis of the

- relevant monitoring data, which were determined in accordance with the applicable requirements and test procedures, as well as complete details for each checked vehicle, for example status of the vehicle, type of use so far, maintenance condition and other decisive factors;
 - relevant information about maintenance and repair measures;
 - other appropriate tests and observations,
- provided by the manufacturer, which he/she recorded, in particular including records of the OBD system.

The first test of a vehicle family can be initiated by KBA as random sample six months after the first time placement into circulation of vehicle types of the vehicle family. Within three months after inquiry of KBA, the manufacturer must provide all necessary documents for the test of conformity of vehicles in operation. There is no obligation to report for the manufacturer, as long as the KBA has not made an inquiry.

5.2.2 Assessment of the information

The information collected by the manufacturer must be that comprehensive, that the efficiency of the limitation of the exhaust emissions of the vehicles after commissioning can be checked under normal operating conditions and in a way, which satisfies the geographical market penetration.

If according to the directive the KBA determines on the basis of the tests,

- that conformity after commissioning is satisfactory, no further measures are taken;
or
- that the information clearly states, that on account of negative test results determined by the manufacturer an error recovery plan was prepared already and that the recovery of the errors was started already, except for monitoring of error recovery, no further measures are taken or
- that the information or conformity of vehicles in operation is insufficient, the inspection of vehicles according to Enclosure 3 with fulfillment of the statistical criteria of Enclosure 4 of Annex I is initiated.

5.2.3 Measures

If in the tests by the KBA it is determined, that

- either more than one vehicle from a vehicle family with a restricted exhaust component for the same reason exceeds the limit value stated under 3.2.1 or 3.2.2 of Enclosure 4 of Annex I
- or the check according to Enclosure 4 is to be classified as "not ok",

then the manufacturer has to prepare a plan for removal of defects according to the requirements of the error removal plan according to 5.1.4.

5.2.3.1 Effectiveness

Appropriately conceived and necessary inspections of components and vehicles, in which the proposed modification, repair or novelty was executed, are carried out to proof the effectiveness of the replacement, repair or modification.

5.2.3.2 Documents

Of each vehicle called back and repaired and the shop executing the repair, an account is to be kept.

5.2.3.3 Certification

Repairs and/or changes or the addition of new devices are noted in a certification, which has to be handed over to the vehicle owner.

6 Additional valid documents

- EC Directives in their respectively valid version: 70/156/EEC, 70/220/EEC
- DIN EN ISO 9000 cont.

7 Documentation

This GL is subject to documentation requirement. The original remains in the Federal Bureau of Motor Vehicles, Department 424, and is archived for 5 years after replacement by a later revision.

8 Updating

Changes in this GL are amicably executed between the participants (type approval owner and type approving authority) under the direction of the KBA.

This GL is respectively updated by replacement sheets or a new version.

Valid version: 08.12.2003

9 Distribution list

Reg 4, 41, 42, 424

The check
Agreement of vehicles situated in business (Exhaust pollutant)
in accordance with the guideline 70/220/EEC I . F. 98/69/EC

Relevant details on every checked vehicle

1 *Vehicle*

- 1.1 Vehicle type:
- 1.1.1 Gearbox type (manual, machine):
- 1.1.2 power train (standard, all wheel drive):

- 1.2 VIN.:
- 1.3 Official characteristic
- 1.4 Day of the first registration:
- 1.5 Mileage (min. 15.000 to max. 80.000/100.000 km):

2 *Use*

- 2.1 Use of the vehicle (e.g. normal operation, van, running):

- 2.2 Use of the vehicle abroad (west-, east, Southern Europe, other):
 - 2.2.1 Operated abroad (frequently, seldom):

- 2.3 Towing jaw:
 - 2.3.1 Towing (rare, frequent):

- 2.4 Is the vehicle equipped with not standard tires? :
- 2.5 Tire size designation:

3 Maintenance

- 3.1 Have the maintenances/inspections regularly been carried out according to manufacturer recommendation in a subject workshop? :
- 3.2 Has this one shown a malfunction to warning bulb "exhaust gas"? :
- 3.3 Was the vehicle repaired by a subject workshop in the need? :
- 3.3.1 Driving route between advertisement and repair:
- 3.3.2 Which work was executed? :
- 3.4 Were unscheduled maintenances or guarantee, fairness or service performances carried out? :
- 3.4.1 Which area was treated?
- Ignition system
 - Injection system
 - Gearbox/power transmission
 - Muffler
 - Cooling system
 - Fuel tank
 - Exhaust emission control system
 - OBD
 - Check advertisements
 - Engine general

4 Unusual features

- 4.1 Have special fittings or changes been carried out in the following areas?
- Exhaust system
 - Camshaft
 - Valve timing
 - Fuel plant
 - Attachments
- 4.2 Were fuel additives added by the adapter?
- 4.3 Was the vehicle ever tangled up into a crash?
Which repairs were executed?