Type approval reform: a once-in-a-decade opportunity to improve Europe's failing testing system

What should Europe do post-#dieselgate?

April 2016

A briefing by TRANSPORT & ENVIRONMENT

Summary

The new type approval proposal aims to reform the existing type-approval framework in the EU, ie, how new vehicles and components are tested before they are put on the market to ensure they comply with EU safety and environmental rules. Once approved these may be sold without restrictions throughout the EU single market.

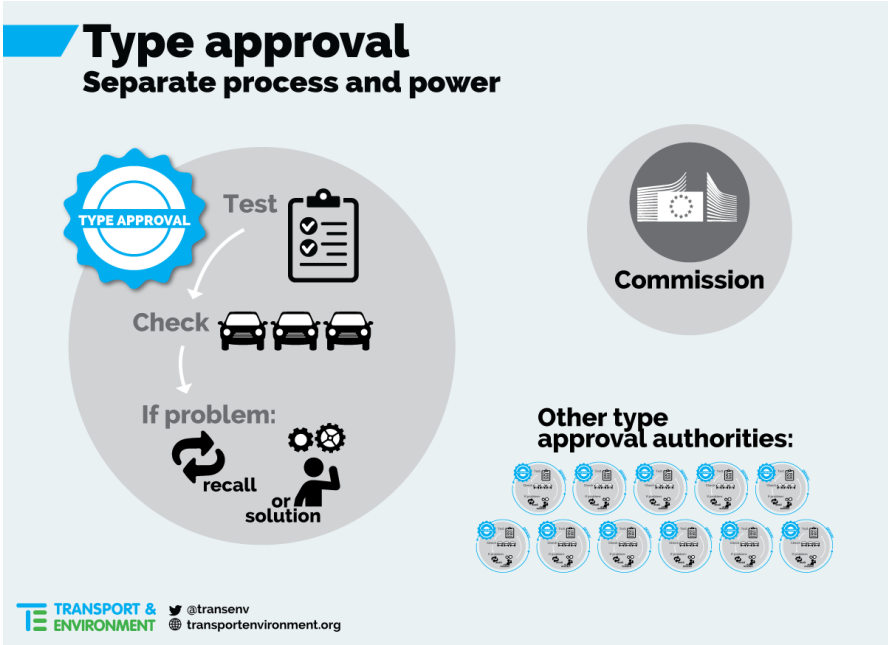
The type approval framework regulation (TAFR) proposal is a good start, introducing much needed provisions to increase independence and quality controls of testing services as well as European tests to check compliance of cars on the road. However, to be truly effective, the following elements are necessary:

- Better oversight on national regulators through spot checks on national type approvals, and audits and sanctions of national agencies performed at EU level
- A comprehensive market surveillance programme to check cars throughout their life and ensure that test results from models submitted for type approval do not systematically differ from vehicles on the road
- These activities should be done by a new EU Type Approval Panel run by representatives from key stakeholders (Commission, member states, industry and civil society) and funded by a €10 charge on new vehicles sold
- Stricter enforcement of the ban on defeat devices that require carmakers to disclose the information and authorities to approve the derogation
- Increased transparency and access to data on type approvals and vehicles performance across Europe

This proposal is a once-in-a-decade opportunity to strengthen the European vehicle and component testing system. The reform is necessary to rebuild lost consumer trust, reinstate the level playing field for all industry and, at last, enforce existing safety and environmental laws for the benefit of Europeans and their health. TAFR should empower all 28 member states and the Commission to police the EU single market and bring into compliance the vehicles used on Europe's roads.

1. Today's failing system in Europe

EU rules approving vehicles (cars, trucks, trailers, etc) and their parts for sale in the EU are known as type-approval. Only once a new vehicle has been type-approved - confirming that it meets all EU safety and environmental standards – can it be sold. Under the current system national type approval authorities



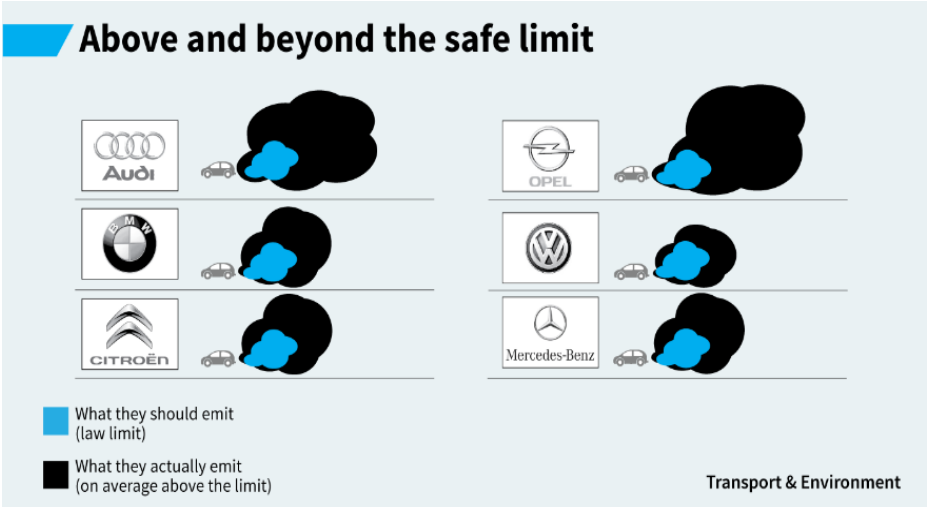
(TAAs; such as KBA in Germany, CNRV in France and VCA in the UK) make all the key decisions. This includes whether to certify a new car; which rules should apply; whether to recall faulty vehicles; and whether to fine car makers for non-compliance. Once an approval is issued the car can be sold anywhere in the EU.

Decisions on whether to issue a type approval are based upon tests overseen by TAAs and performed by technical service (TS) – some of which are part of the same TAA's, while some are operated by the manufacturer. A manufacturer pays for the testing and is free to choose any TAA and approved TS. The testing authorities thus compete for business enabling the carmaker to "shop around" for the optimal offer. Today, only the issuing TAA can withdraw an approval or take action against a manufacturer for non-compliances. Other member states can only temporarily prevent the sale of a model within their own territory if they identify a "serious" safety or environmental issues. The European Commission and Parliament currently have no oversight of the work of TAA's to ensure approvals are issued correctly, in accordance with EU law and to a consistently high standard. This arrangement places a huge responsibility on the issuing TAA to enforce EU laws in the Single Market.

THE CURRENT SYSTEM OF TYPE APPROVAL IS A WILD WEST IN WHICH CARMAKERS BUY THE SERVICES FROM TAA'S AND TS'S THAT FOCUS ON MEETING THE NEEDS OF THEIR CUSTOMER, NOT OPERATING AS INDEPENDENT REGULATORS. THERE IS A RACE TO THE BOTTOM BETWEEN AUTHORITIES KEEN TO MAINTAIN THE CARMAKERS BUSINESS AND FAVOUR THEIR NATIONAL ECONOMIC INTERESTS. SOME REGIONAL AND NATIONAL PUBLIC ADMINISTRATIONS HAVE SHARES IN DIFFERENT CAR MANUFACTURERS, FURTHER REMOVING ANY INCENTIVE TO HOLD THEM TO ACCOUNT.

The 2013 MAC case is a good example to illustrate the problem. Back in 2013, Daimler continued to use an illegal refrigerant in the air conditioning system of its Mercedes cars despite it being outlawed in the EU. The type approval should have been simply withdrawn by the relevant national TAA, in this case the German KBA. But no such action was taken, despite calls from other countries such as France. The Commission was powerless to enforce its regulations. The case is now stuck with the European Council of Justice and is illustrative of a system in which the rules are not effectively enforced.

National authorities have been aware of new cars widely exceeding Euro air pollution and fuel efficiency standards on the road for years but failed to take action. Currently over 90% of new cars fail to meet nitrogen oxides (NOx) pollutant standards [1] (on the right); and the European Environment Agency [2] estimates that 75,000 people die premature in Europe as a result of high concentrations of NO2 (one of NOx), a toxic gas primarily released by diesel vehicles in urban areas. There is also now an average gap of 40% between test and real world fuel efficiency as a result of test manipulation undermining fair competition and consumer trust. The Commission estimates that the annual cost of non-compliant and unsafe automotive products is EUR 12bn.[3] Other major car markets, such as China, are now shifting away from discredited EU regulations seriously undermining the EU industry.



Given the lax system of testing and oversight, it is unsurprising the US Environmental Protection Agency discovered illegal defeat devices on VW cars and is expected to issue fines up to $18bn – despite diesel being a niche market. European authorities had access to the same evidence but simply failed to investigate and no fines or sanctions have been issued by the KBA or VCA that has approved the affected VW vehicles. Testing has shown a large number of other anomalous diesel NOx emissions results but manufacturers claim these are legitimate in Europe as they are permitted to switch off the exhaust treatment system to protect the engine. The same legislation applies in the US but scrutiny of the system is much more thorough – illustrating once again that TAA's fail to adequately scrutinize the vehicle during type approval. The sanctions against VW are not the first to be issued by the US EPA that in recent years has also prosecuted Hyundai-Kia, Ford, Mercedes and recently BMW-Mini that have all been caught fraudulently declaring incorrect fuel efficiency. In Europe such examples simply do not exist.

2. What's on the table

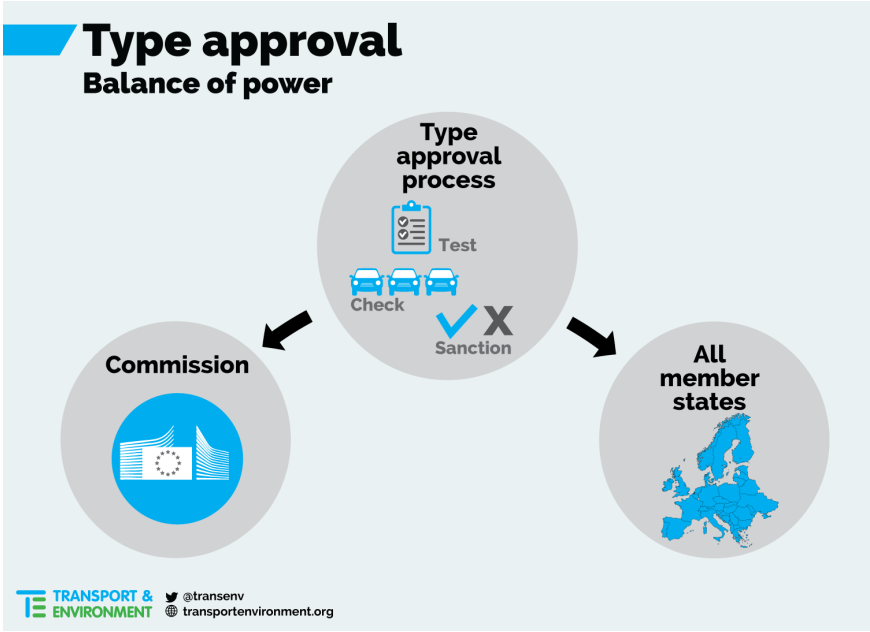
2.1. TAFR in a nutshell

On 27 January 2016 the European Commission presented its proposal to reform the current car testing system in Europe. This type approval framework regulation (TAFR) proposal has correctly identified many of the weaknesses of the current system. It aims to ensuring there is a consistently high quality approvals process with appropriate checks and balances to ensure that expertise throughout member states and the European Commission is utilized to raise standards and police non-compliance. The EC impact assessment puts the benefit of such better supervision and enforcement at EUR 117mln per annum.[4] There are three key reforms:

1. **More independent and accountable technical services** (Chapter XV): The Commission wants to break financial links between technical services and manufacturers by requiring all fees to be collected centrally by the TAA's who will in turn appoint technical services. Technical services will

[1] https://www.transportenvironment.org/publications/dont-breathe-here-tackling-air-pollution-vehicles
[2] http://www.eea.europa.eu/media/newsreleases/many-europeans-still-exposed-to-air-pollution-2015/premature-deaths-attributable-to-air-pollution
[3] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0010&from=EN
[4] Ibid.

also be subject to strict performance standards and regularly audited to ensure independence. While these new provisions are welcome, the proposals fail to impose similar strict requirements on the national TAAs' performance. Instead the Commission has proposed to introduce toothless peer reviews (Art. 71) and a forum for exchange of information on TAFR implementation (Art. 10) - an inadequate response to the current malaise.



2. **More testing of cars already on the road**: Both national agencies and the Commission will be able to carry out spot checks on cars already on the market and in use. The newly proposed (albeit somewhat cumbersome) **safeguard procedure** (Chapter XI) will allow all countries to enforce the law and remove the cars that fail to meet the EU requirements for air quality and safety from the road.

3. M**ore EU oversight** (Art. 9): Complementing action at national level, the Commission will be able to carry out spot checks on vehicles in circulation; demand car makers recall faulty cars and impose fines on testing centers and manufacturers, up to €30,000 per car (Art. 90) if the issuing TAA fails to act. The EC Joint Research Centre will be in charge of carrying out compliance and conformity checks for the Commission. It already possesses state of the art vehicle testing laboratories and undertakes approvals for eco-innovations (off-cycle credits).

4. Manufacturers will also have to **disclose** what **software** they use in their engines (Art. 23) in an attempt to strengthen the existing ban on defeat devices such as those used by VW.

5. Better **information sharing** between national TAAs and the Commission on type approvals issued and non-compliances identified on the road.

Germany, that was responsible for approving most VW vehicles, has indicated[5] it is reluctant to share responsibility over type approval with the Commission – but given their misuse of powers and unwillingness of ensure their car companies comply with EU rules their criticism lacks credibility.

3. Still missing in the proposals

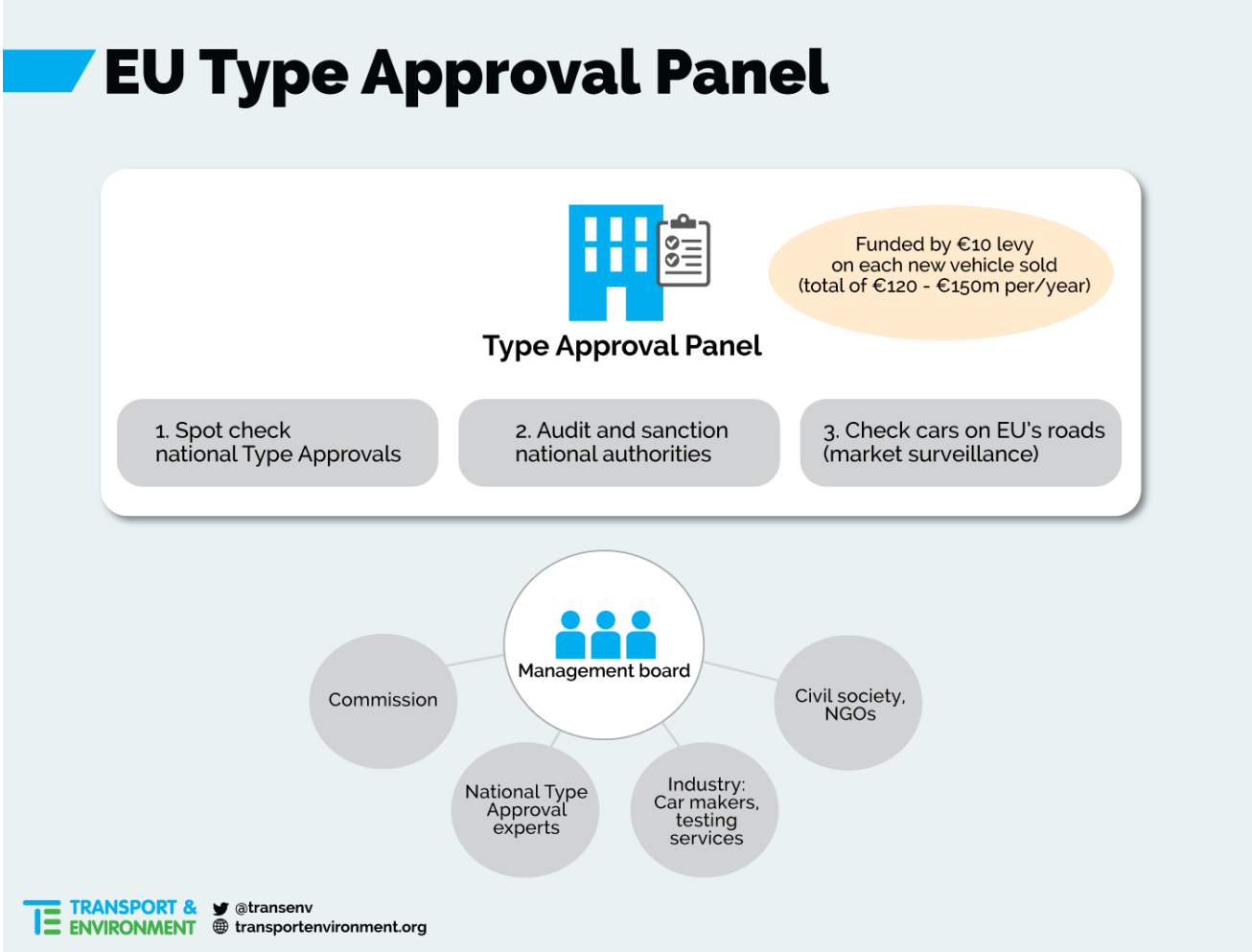
3.1. Better oversight and enforcement of independent testing

Whilst the Commission proposal addresses one of the weaknesses in the current system (that car makers contract TS's), they can still choose which TAA will approve the vehicle with the risk that national authorities will compete for business and/or support a national company. If this flexibility for the manufacturer is to be

[5] Add reference

retained there must be a much more effective system of audits and checks on TAAs' performance to ensure, and publicly demonstrate, that approvals are being issued to a consistently high standard using a common approach. There must also be sanctions for both the manufacturer and TAA in the event of serious or persistent non-compliance or erroneous approvals.

To avoid the risk of substandard TAA's and protect consumers and the environment from faulty products, an **EU Type Approval Panel** should be established. The Panel – similarly to those set up for various private public partnerships under the Horizon 2020 programme – will consist of representatives from the Commission, national TAAs, manufacturers, testing services, driver and consumer groups and NGOs. It will be run by a management board and its activities (listed below) will be funded by a EUR 10 administrative charge on every new vehicle sold in the EU (which would bring between EUR 120 and 150 mln annually based on the current vehicle sales). This panel will expand on the Forum for Exchange of Information on Enforcement proposed for national regulators and the Commission in Article 10.



The key responsibilities of the Panel will include:

1. Spot check type approvals issued nationally: the Panel would be well placed to perform such spot checks issued by different TAAs by re-testing some new models (JRC labs already have best of art testing technology and can be used for this purpose) out of around 100 car models type approved each year.
2. Auditing the national TAA's and their approval processes. In the event of serious and/or persistent errors in the approval process the Panel must have the right to temporarily remove the right of a TAA to approve vehicles. For example, Art. 71 on peer reviews must be strengthened to introduce a similar joint audit system proposed for testing services in Article 77 – whereby seconded experts

from at least two member states and the Commission, under the auspices of the new Panel, audit the work of each of the 28 TAAs every two years with clear sanctions in case of failures to enforce the EU law rigorously and wrongly issued approvals. Such independent auditing can be done by either seconded national experts or independent consultants (e.g. retired employees from national regulators).

3. To coordinate and provide funding for national market surveillance activities (see section 3.2 below)

3.2. Enhanced and comprehensive market surveillance

While Articles 8 and 29 on market surveillance and conformity of production respectively strengthen the hopelessly inadequate current requirements, much clearer obligations to check compliance of new vehicles and vehicles already on the road must be included. The EC impact assessment highlights that market surveillance in member states has failed. National authorities either lack resources or incentives to verify how cars, trucks and their parts that are already in use perform - today's legislation does not oblige them to carry out any checks and most do not. The new EU Type Approval Panel should support a comprehensive market surveillance programme of vehicles on EU roads.

Art. 29 should require national TAAs that issued the relevant type approval to re-test 1 in 3 new models taken at random from the manufacturers' production facilities or dealerships. This should be done by a different testing service than the one that performed the original testing and apply best available/latest testing technology (e.g. RDE using PEMS in case of air pollutant emissions). Cooperation on the above proposed Panel should help avoid duplication of such checks.

Art. 8 should require national market surveillance authorities to perform checks on 20% of all models that are already in use annually. This should be done at different mileages throughout the average lifetime of a vehicle and use the latest testing technologies (e.g. Real-world Driving Emissions (RDE) test in case of NOx emissions).

The budget of the new Type Approval Panel should be used to support these widespread market surveillance activities across member states. Member states will be able to apply for the funds to either carry out a national spot check programme, or a joint one involving a number of countries to increase effectiveness and reduce costs. An EU coordination will avoid duplication and cover more vehicles and components. In the absence of adequate funding history demonstrates market surveillance will simply not happen.

It is an illusion that the performance measured at type approval on a prototype vehicle will remain the same throughout vehicle's life on the road. Shifting focus more to checking cars in use, identifying failing components and models and requiring them to be recalled would significantly strengthen the system. Improved vehicle surveillance is the most effective tool to deter manufacturers from optimizing (and even cheating) laboratory tests, and instead deliver safety and environmental standards in real life.

3.3. Strengthen the ban on defeat devices

The definition of defeat devices is largely the same in Europe and the US – which outlaw devices except in specifically-defined circumstances, such as to protect engine from damage or for safety concerns (the derogations are defined in EU law in Art. 5(2) of Regulation 715/2007/EC). However, recent research[6] shows there are significant differences in enforcement and implementation of the ban on defeat devices between the US and EU. Unlike in the US, in the EU there are no provisions that: 1) require manufacturers to disclose

[6] http://www.theicct.org/briefing-defeat-devices-us-eu-vehicle-emissions-regulations

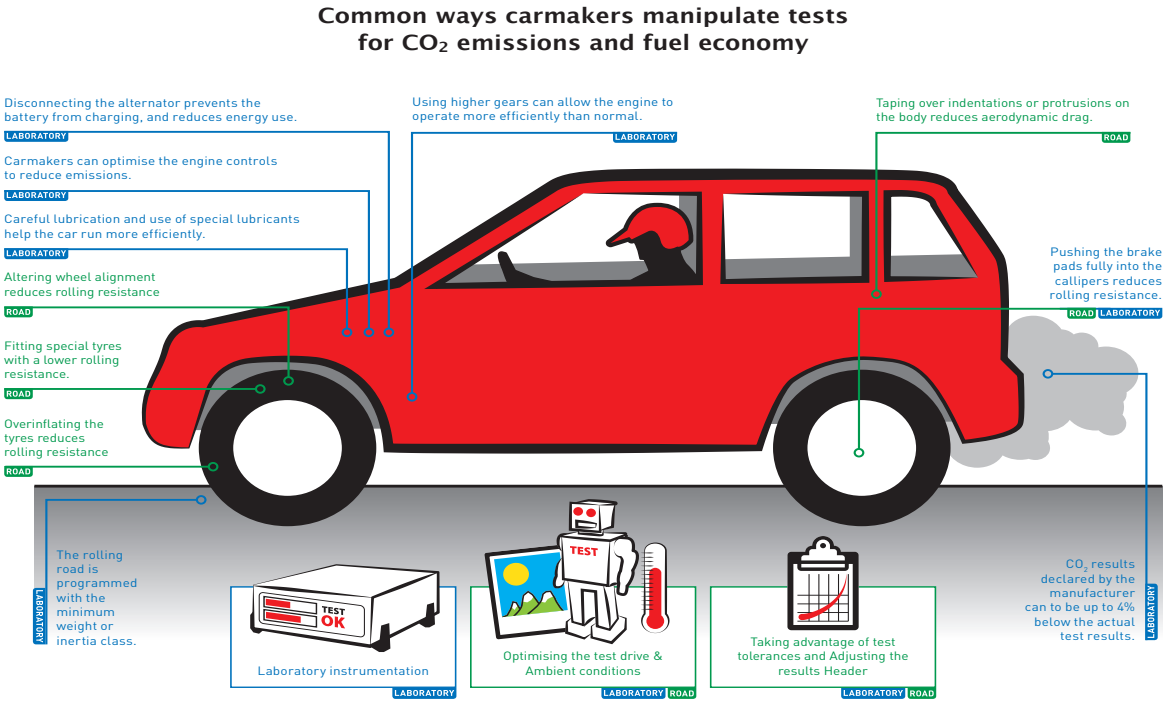
the presence of defeat devices and justify their use; and, 2) for authorities to evaluate and approve or reject the use of these devices by verifying the legitimacy of the claims to use alternative engine control strategy.

Article 23 and related annexes I and III must be amended to end this legal loophole. VW now shamelessly claim that they have not breached the law in Europe and did not install defeat devices in their 8.5 million affected European cars. Other manufacturers implicated in Europe - Renault, Opel, Ford and Daimler, also make reference to the derogations that allow switching off emission abatement technology without any scrutiny or questions asked by the national regulators.

MANUFACTURERS COULD NOT CLAIM IT IS LEGITIMATE TO SWITCH OFF THE BRAKING SYSTEM TO PRESERVE THE LIFE OF THE BRAKE PADS. SO THEY SHOULD NOT BE ABLE TO CLAIM IT'S OK TO SWITCH OFF AFTER-TREATMENT SYSTEMS THAT CONTROL EMISSIONS OF TOXIC POLLUTANTS.

3.4. Tighten testing vehicle specifications

In Europe, type approval is conducted on pre-production models. These are specially prepared so-called "Golden Vehicles" carefully configured for the tests. For example, special and often overinflated tyres are used; wheels are aligned to minimize rolling resistance; high quality lubricants used; brakes adjusted; aerodynamics improved by removing roof strips and off-side wing mirrors and weight minimized, etc (image below). The tested vehicle only bares a loose resemblance to the one coming off a production line.



Back in 2013, T&E tested cars for their CO2 emissions using the official procedure (NEDC cycle) but without utilising flexibilities and specially preparing the car; this produced results 19-28% higher than type approval values.[7] It is the role of conformity of production (CoP) to ensure the similarity between type approved vehicles and those coming out of production line, but these requirements today are too weak and remain the responsibility of the manufacturer without any independent checks.

[7] TNO 2012a, Road load determination of passenger cars, TNO report TNO 2012 R10237, Delft

Utilization of test flexibilities has a huge impact on the test results. The TAFR must tighten the specifications on what constitutes a representative vehicle, to ensure the model that is tested is as close as possible to the one driven on the roads later. In particular, TAAs should be legally required to ensure that the way prototypes are prepared does not lead to results that are systematically lower than would be achieved on the road – Articles 7, 23, 24 and 91 should be amended accordingly.

3.5. Online register with type approval data

The current type approval system is shrouded in unnecessary secrecy to the extent that it is even difficult to find out which authority has approved which vehicle. The current proposal slightly improves the situation by introducing better exchange of information among national TAAs and Commission. However, a common register with all type approval information is still lacking. The existing provisions on data and transparency must be significantly strengthened by:

1. Building on the existing ETAES database, a single digital database with the information on all type approvals issued (as contained on individual Certificates of Conformity) should be put together
2. Public access to these information, as a presumption to ensure that e.g. consumer groups and environmental organizations can use such data in their work; different levels of data security can be applied whereby national authorities get access to full information (including commercially sensitive data that is already today given to the authorities), while third parties get partial access
3. One of the key difficulties for effective market surveillance of cars on the road (for checking air pollutant and CO2 emissions in particular) is car makers' manipulation of chassis dynamometer testing, artificially increasing the weight of vehicles in particular (through road load coefficients, which are not publically disclosed to the authorities). In the US these are publically accessible and checked by the authorities, similar provisions should be introduced in the EU to increase transparency of testing parameters.

The above will enhance the long-needed transparency in the system of testing cars in Europe. The Netherlands is assembling an online register of all type approval information its agency (RDW) holds. This is a welcome initiative but would only give a very limited amount of data on vehicles and parts approved in the Netherlands – a comprehensive pan-EU database should be established instead.

4. Conclusions

The new type approval regulation proposal is a once-in-a-decade opportunity to restore consumer trust and ensure a level playing field for industry following the VW emissions scandal, especially considering the huge cost of uncompliant vehicles and components to the EU economy. To be effective, the new TAFR should include the following:

1. **Better oversight**: The current race to the bottom among national Type Approval Authorities must be ended by effective oversight and performance auditing at EU level.

2. **Independence**: If carmakers are to continue choosing their testers, an EU Type Approval Panel should be put in place to ensure checks and balances on the national type approval processes and bring long needed independence and accountability to the EU testing system.

3. **Rigour**: Vehicles must be tested throughout their lifecycle on the road, to ensure they continue to perform as demonstrated through type approval. Clear enforcement of the defeat device ban should be introduced to avoid cheating of lab tests and non-compliance on the road.

4. **Transparency**: One single European register with public access to all type approvals issued across Europe and related information must be put together by the Commission. Independent

stakeholders, such as MEPs and civil society organisations, should actively participate in the new testing framework.

The time to act is now. We need a comprehensive reform to fix the failed European testing system, to restore consumer trust, to bring compliance with safety and environmental laws, to create a level playing field and prevent our automotive industry from being marred by future scandals.

Further information

Julia Poliscanova
Manager, Clean Vehicles and Air Quality
Transport & Environment
Julia.poliscanova@transportenvironment.org
Tel: +32(0)2 851 02 18