

## Improving the effectiveness of road side checks:

# Roadside / drive-by testing

an integral part for the improvement of  
noise regulation enforcement



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# General

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## Enforcement of Noise regulations:

- (1) Type approval (OE + RESS), incl. COP
- (2) Sale / Shops
- (3) Roadside checks



# General

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## Main reasons why PTW's are too noisy in real life:

- Ageing effects of the silencers / damages
- PTW's / Silencers are noisy „off-cycle“
- Use of **illegal Exhaust Systems** (esp. **RESS**)

## ACEM (2003):

**50 % of all PTW's in Europe: illegal equiped**



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# General

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## Kinds of illegal exhaust systems:

- Not type approved (e.g. with faked TA markings)
- Type approved, but the saled system is not in line with TA results (→ failes COP)
- System manipulated by driver after sale



# General

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## Specific problems:

(a) ‚Sophisticated systems‘

→ stationary noise: OK

drive-by L<sub>wot</sub>: up to 10 dB(A) above limit

Several investigations by an German motorcycle journal and by BASt indicate that those systems seem to be a widespread problem



# General

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## (b) Easy manipulable exhaust systems

→ the silencer is designed in a way it can be easily turned from legal to illegal by the owner

Instructions how to remove e.g. the dB-Eater are very easy to find in the World Wide Web.



# Future Improvements

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## **(1) Type approval**

Ann. 3, target acc.

ASEP

Additional requirem.  
(all parts must be welded)

„covers“:

→ defeat devices

→ off-cycle

→ easy manipulations

unsolved problem:

it's unlikely to avoid all ‚easy manipulations‘



# Future Improvements

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## (2) Sale / Shop Enforcement (national legislation)

→ Check of TA marks/labelling and COP (by testing)

### unsolved problems:

- Internet sale (→ no access to retailer)
- Detection of all illegal + ‚sophisticated systems‘ is impossible (only spot tests by TAA, journals etc.)
- Manipulations after sale





# Conclusion

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Even after

(1) Improvements in TA (ECE-R41 + RESS) and

(2) Strengthening of sale /shop enforcement

→ still illegal noisy exhaust systems on the roads!  
(faked TA, ‚sophisticated‘ and manipulated)

→ roadside enforcement by police is needed

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## (3) Roadside checks

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### Today:

German Police can do roadside enforcement by testing the stationary noise of the vehicle

### Stationary noise test detects:

- Extreme ageing effects + damages  
(stationary test also introduced into roadworthiness inspections)
- ‚basic‘ illegal systems + rough manipulations



## (3) Roadside checks

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BUT:

Field studies in Germany showed that **only 1/3** of the illegal or manipulated systems can be detected by stationary tests!

In particular:

„sophisticated systems“ can't be detected!



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## (3) Roadside checks

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### Limitation of stationary noise test

- strong demand of German Police to provide an additional drive-by enforcement test
- Germany prepares to introduce a drive-by / roadside test (acc. to the current Annex 3 test procedure + limit value) into nat. legislation soon
- BASt and TÜV Nord currently investigating the test specifications (e.g. tolerances)



## (3) Roadside checks

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### Requirements for roadside enforcement by Police:

- simple test procedure (stationary or current drive-by)
- reference value (determined during TA)

### Problem in future:

→ Annex 3 according to ISO-362-2 is far too complicated and therefore isn't applicable for roadside tests



# (3) Roadside checks

GRB IG ECE-R41  
20.02.2007

## Simple approach:

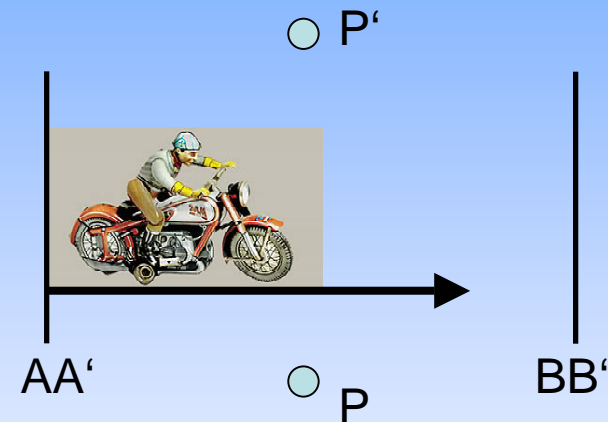
→ Entrance speed  $V_{AA', \text{enf.}}$

(e.g. 40 or 50 km/h)

→ one **Gear**<sub>enf</sub>

(e.g. lowest gear of Annex 3)

→ reference value  $L_{\text{wot, enf.}}$



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## (3) Roadside checks

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Implementation of an roadside / drive-by test into **national legislation** based on the TA reference values  $V_{AA', enf.}$ ,  $gear_{enf}$  and  $L_{wot, enf.}$

→ Values must be provided by TA documents  
(→ stated in the registration doc. like the stationary noise ref. value)

All other test specifications will be set within **national legislation** (e.g. test side, tolerances)

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# S u m m a r y

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## German requests for improvement of TA

(ECE-R41 + RESS):

- Additional TA requirements to avoid easy manipulation of exhaust systems (e.g. removal of dB-Eater) → no screws, only welded parts
- Introducing ASEP as a mandatory part of TA



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# S u m m a r y

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- Supplying reference values to allow Contracting Parties to introduce a roadside / drive-by enforcement test into national legislation (→ improving the effectiveness of road side checks)

Other improvements can be covered by national legislation (e.g. strenghtening of sale enforcement)



Thank you  
for your attention !



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