

Annex 3: Summary of the enforcement measures available for controlling the noise emitted by powered two-wheelers within the ECE Regulatory framework.

1. Introduction

The powered two-wheeler (PTW) noise problem is associated with the presence of illegal exhaust silencers on the vehicles and, in a number of cases, to the way in which the vehicle is ridden.

Exhausts are illegal for a variety of reasons:

- they have been incorrectly maintained or have not been replaced when necessary
- they have been modified by the owner
- they have been replaced with an illegal replacement
- they were intended for “race use only”

The objective of this document is to summarise the measures currently available for controlling noise from PTWs which, taken together, should prevent all but the most determined lawbreaker using an illegal vehicle on the road.

2. Original equipment

In the ECE, the equipment fitted to the PTW at the first type approval is approved under Regulation 41, on the basis of a drive-by test, in which the vehicle is tested under load. If the vehicle passes this test, it is then tested in a stationary mode, in order to obtain a reference sound-level value.

The purpose of the stationary test and the reference value is to provide the necessary data for enforcement authorities that wish to repeat the test at some point later in the vehicle's life, in order to see if it is still in type approval condition. Typically, such a test is foreseen at the roadside during a noise control. The sound level in dB(A) and the engine revolutions used in the type approval stationary tests have to be marked on the vehicle.

A failed stationary test could mean that:

- either the manufacturer is not producing his product in conformity with the type approved vehicle
- or that the exhaust system has been inappropriately modified by the owner.

In the first case, the authorities have an immediate recourse to the Conformity of Production provisions in the ECE Regulations. These enable Contracting Parties to query the continued validity of the type approval certificate with the Contracting Party which issued it. In the event that an audit of the manufacturer shows that there has been an infringement of the approval, the certificate can be withdrawn and sales stopped.

In the second case, the authorities have recourse to national legislation covering the use of illegal vehicles on the road.

3. Replacement Exhaust Silencing Systems (RESS)

The reasons for which riders fit non-original exhaust systems (RESS) are fully covered in IMMA's publication "Motorcycle noise: a curious silence". The key point here is that, in many cases, the RESS sold to the public are not legal, despite the fact that Regulations exist to control their sound output.

In the ECE regulatory system, Regulation 92 governs the type approval of any exhaust system which is not covered by the original Regulation 41 approval of the vehicle. Regulation 92 covers:

- the condition of the test vehicle, because it might not be new in the case of an old model
- the basic pass/fail drive-by test, in which the vehicle is tested under load and the requirement is based on a back-to-back comparison with the original equipment exhaust
- the stationary test, for vehicles which have passed the drive-by test.

The Regulation requires that the sound level values obtained using the two methods (drive-by and stationary) shall not exceed the values measured when the vehicle is fitted with the original silencing system during either test.

Once approved, the RESS has to be marked with the international approval mark and labelled by its manufacturer, indicating the type(s) of motor cycle(s) for which it has been granted the approval. There are also detailed packaging requirements for RESS.

As with the original equipment, the validity of the approval can be controlled by the stationary test and the plate on the vehicle, because it must not exceed the value recorded with the original equipment. The same two enforcement options also apply:

- Conformity of production procedures against the manufacturer of the RESS
- national legislation on the use of illegal vehicles

The procedures in Regulation 92 are based on the assumption that RESS have to be developed for individual vehicles, with a reasonable extension of an approval to similar vehicles. This is the reason for the back-to-back test. A casual glance at any specialist magazine will reveal that the "extension of approval" to cover other types of motorcycle with one RESS approval has become an elastic concept. IMMA is aware of an approval which covers 50 models of motorcycle with one RESS approval, the technical validity of this is at least questionable.

The case of silencers marked "Not for road use" is also covered by these provisions. If the silencer does not have an approval mark it is illegal per se. If it cannot pass the stationary test, it is illegal. An appropriate clarification of the regulations could also make the use of a silencer bearing those words an offence in itself.

4. Owner modification

Apart from exchanging the exhaust system, owners can also modify their exhausts by removing components or making adjustments to the manufacturers settings. While it is theoretically possible that such changes might make the vehicle quieter, experience shows that inevitably the result of such modifications is that the sound level increases.

In either case, the stationary test will reveal the vehicles which are no longer in the condition in which the original type approval was issued.

National legislation against the use of illegal vehicles covers such cases.

5. Summary flowchart

These enforcement options are summarised in the flowchart contained in *Annex5*.