

Informal document No. **GRB-45-3**  
(45th GRB, 20-22 February 2007  
agenda item 2.2.1.3.)

# Report of the GRB informal Working Group on ASEP

Transmitted by the Chairman of the Informal Group

# Reminder: why ASEP

- Annex 3 covers the part of the engine map with lower revs
- Decision made to have Additional Sound Emission Provisions to cover a wider part of the engine map (higher revs).

# Meetings:

1. Amsterdam; 2005 November
2. The Hague; 2006 January
3. Geneva; 2006 February
4. Geneva; 2006 September
5. The Hague 2006 November
6. Geneva, behind this GRB

Task Force: 4 meetings: Geneva, Tokyo,  
Trondheim, Detroit

# Very helpful: ToR

3. The informal group **shall develop** a complementary test method and evaluation criteria for insertion into Annex 10. The complementary test method shall cover the noise emission under higher engine speeds and loads than the proposed procedure in TRANS/WP.29/GRB/2005/5, as amended.

***(no 'if', just: do it)***

# GRB 44: where did we stand

Measurement method (Taskforce)

ASEP applies for all M1 and N1 vehicles

Knowing what to do:

- Data processing

- Limits

- Text mainbody

- Homologation

# GRB 44: what did we get

Time, but not for ever  
So we had to hurry up

And we did

# GRB 44: we promised

Try to have a system this meeting, as a preliminary proposal.

We kept our promise: Yes, we tried

**BUT**

# BUT

We can not deliver the method yet.

Good news: Fresh data

Bad news:

It showed how complex it is



# Complexity

It's all about relation revs and sound level

Japan, Germ. OICA:

Mediate 5-6 dB each 1000 revs

So, it looks easy to take a point and draw  
a line

# Complexity

Vehicles behave very different

Vehicles vary in max engine speed  
(turbo vs revs)

And also vehicles with 12/1000 revs  
Even ending up with 120 db(A)

# So

1.

We have to make the Unification Theory  
and the Great Unification Method

2.

We have to value behavior  
(is a fighter jet acceptable)

# Progress

- meeting this week (promise: more data available)
- Next meeting early this spring
- OICA event would be helpful
- Result: ASEP framework ready this summer

# Other Issues

Boundary conditions

Open pipe devices

Homologation

# Boundary Conditions

Acceleration:

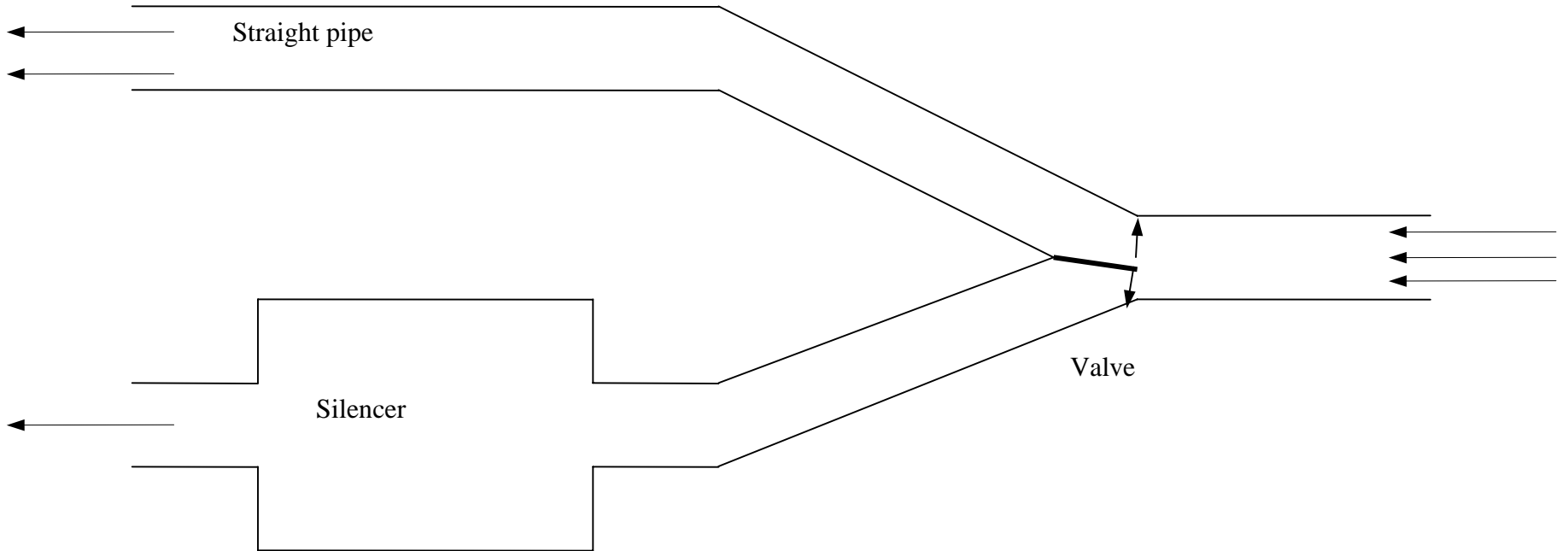
Majority: 3.5 m/s<sup>2</sup>

Issue: GTI class round this border

Easy to get them over the border

Result: tested in 3<sup>e</sup> gear: do we want that  
(also common preference for 2<sup>e</sup> gear)

# Open pipe devices



# Open Pipe Devices

Valves as such: nothing wrong with it

We learned from CLEPA that you even need them to lower the noise

(very useful presentation, should be in GRB)



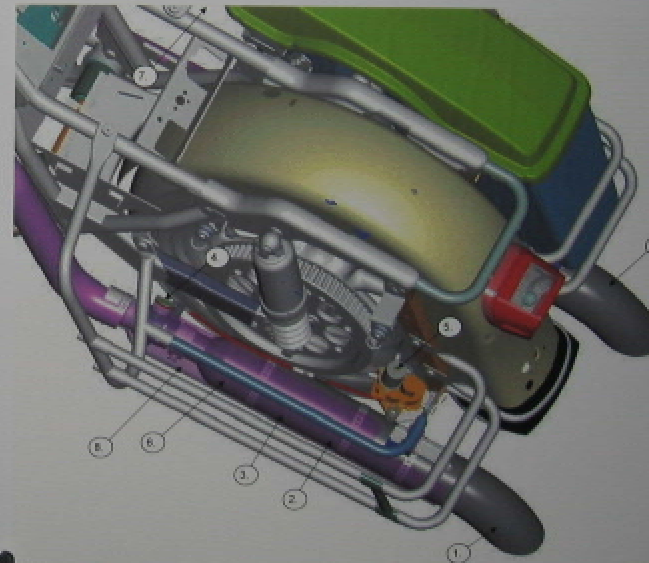
# Harley Davidson

## Electrically Controlled Exhaust System

A high performance exhaust system with excellent sound quality was developed as an OE replacement. An ECM controlled, cable driven exhaust valve controls exhaust flow for improved sound quality and engine performance while remaining noise compliant.

No.	Item	Concern	Solution
1	Muffler Diameter	Muffler style must be compatible with OE	3.5" diameter muffler shell fits within OE envelop
2	Fiberglass liner	Sound Quality improvement and Chrome surface discoloration	Double wrap fiberglass shell liner improves sound quality and minimizes chrome discoloration
3	2" Dia. Perforated Core Tube	Engine Performance and Sound Quality	Low backpressure design
4	Valve Assembly	Improve performance and Sound Quality	Computer controlled valve in exhaust system
5	Valve Actuator	Precise control of the valve is needed to meet regulatory and sound quality targets	Actuator receives signal from the vehicle engine control unit.
6	Catalytic Converter	Control of Tailpipe emissions	"3-way" double spiral wound catalytic converter
7	ECM	Ensure proper position/operation of valve	Computer controlled algorithm
8	Full Coverage Heat Shield	Valve must be cosmetically invisible	Full coverage heat shield covers valve and muffler

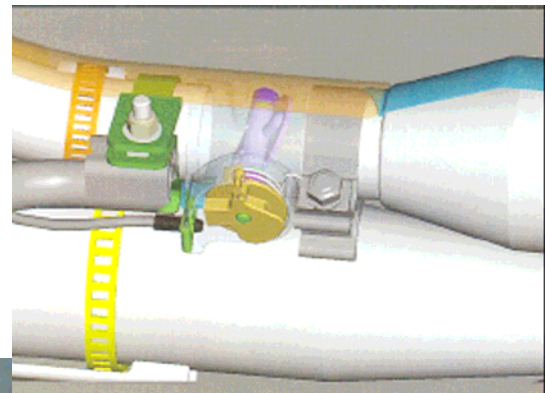
Information supplied by Harley-Davidson Motor Company



# Left above: it says

A high performance exhaust system with excellent sound quality was developed as an OEM replacement. An ECM controlled cable driven exhaust valve controls the exhaust flow for improved sound quality and engine performance ***while remaining noise compliant.***

# Control flap



**MM INFORMATIE**

**H**et is de bedoeling dat de motor van de motor... (text continues)

**INNOVATIEVE TECHNIEK**  
De nieuwe motor... (text continues)

**REGELKLEP**  
Deze klep... (text continues)

**UNIEKE EISEN DOOR DE JAREN**  
De motor... (text continues)

Motor	Model	17 jaar (2000)
125	175 cc	175 cc
150	150 cc	150 cc
175	175 cc	175 cc
200	200 cc	200 cc

**UNIEKE EISEN DOOR DE JAREN**  
De motor... (text continues)

Motor	Model	17 jaar (2000)
125	175 cc	175 cc
150	150 cc	150 cc
175	175 cc	175 cc
200	200 cc	200 cc

## REGELKLEP

Kan in het uitlaatsysteem niet alleen zorgen voor meer koppel bij lage toeren, tegenwoordig wordt zo'n klep steeds vaker gebruikt om bij kritieke toeren-tallen (lees: het toerental waarbij de motor gekeurd wordt) het geluidsniveau terug te dringen.

## Dutch → English

Can not only be used in the exhaust system to increase torque at low rpm, nowadays such control flap is used more and more to attenuate the noise at **critical engine speeds** (read: the engine speed at which the motorcycle is being **type approved**)

# By the way (1)

If you allow this, how can you ask your police to enforce?

## By the way (2)

Can't there be an agreement of the Type Approval Authorities to ban these cycle beaters from our market?

To protect the public.

They are working for the public interest.

# Exhaust Devices N1 Vehicles

- Common on exclusive cars
- As with everything it will be used in to the common fleet
- Because there is a customer demand
- So: regulation is relevant

# What does it means for ASEP

- Every gap in the regulation will be used
- What is not strictly forbidden will be done
  
- So the regulation must be very clear and strict.



# Homologation

GRB decided: The ASEP demands apply for every vehicle.

Should every vehicle be tested:

Japan: yes

others: no

As long it's not a GTR: no problem (?)

**WILL BE CONTINUED**

**THANK YOU!**