



**ROADWORTHINESS TEST
FOR MOPEDS AND MOTORCYCLES**
A proposal from Industry

Association des Constructeurs Européens de Motocycles
ACEM



Manufacturers

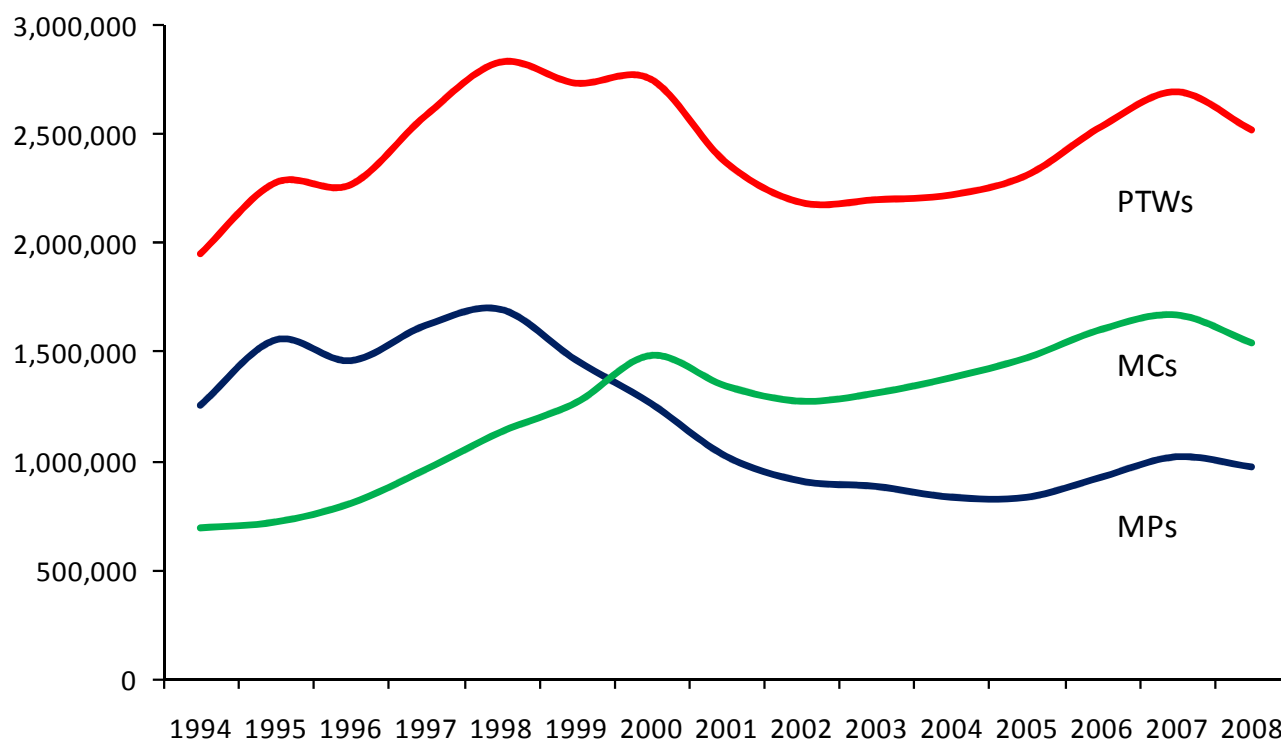
Associations

Brands represented in ACEM

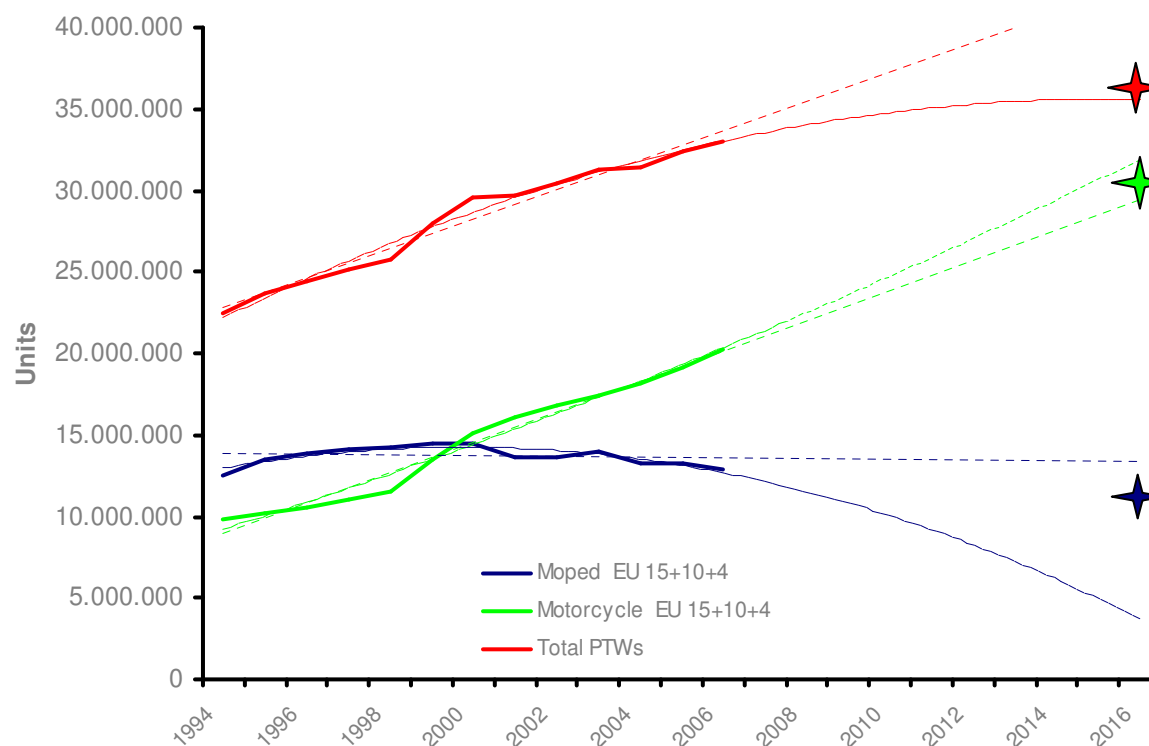
Aprilia, BMW, Buell, Cagiva, Derbi, Ducati, Gilera, Harley-Davidson, Honda, Husqvarna, Kawasaki, Ktm, Laverda, MBK, Motoguzzi, Montesa, MV Agusta, Peugeot, Piaggio, Scarabeo, Suzuki, Triumph, Vespa, Yamaha

- ACEM, the Motorcycle Industry in Europe, is the professional body representing the interests and combined skills of 12 powered two wheeler (PTWs) manufacturers producing a total of 26 motorcycle and moped brands, and 15 national associations out of 13 European countries.
- The members of ACEM are responsible for 90% of the production and up to 95% of the European powered two-wheeler (PTW) market.
- The product range goes from small 50cc town vehicles, up to motorcycles of 1000cc and over. Our products are divided into different segments such as moped, scooter, super-sport, touring, commuter, custom, traditional and off-road bikes.

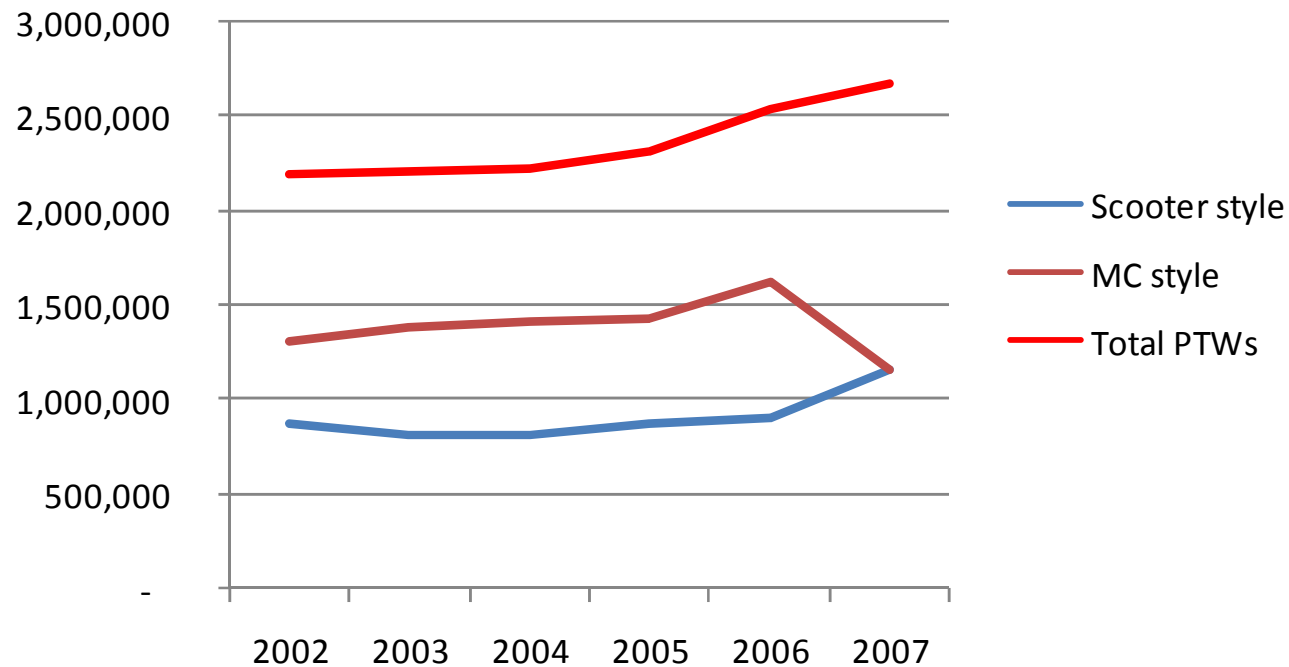
EU PTW main segments - Last 15 years



PTW Fleet Evolution and Forecast

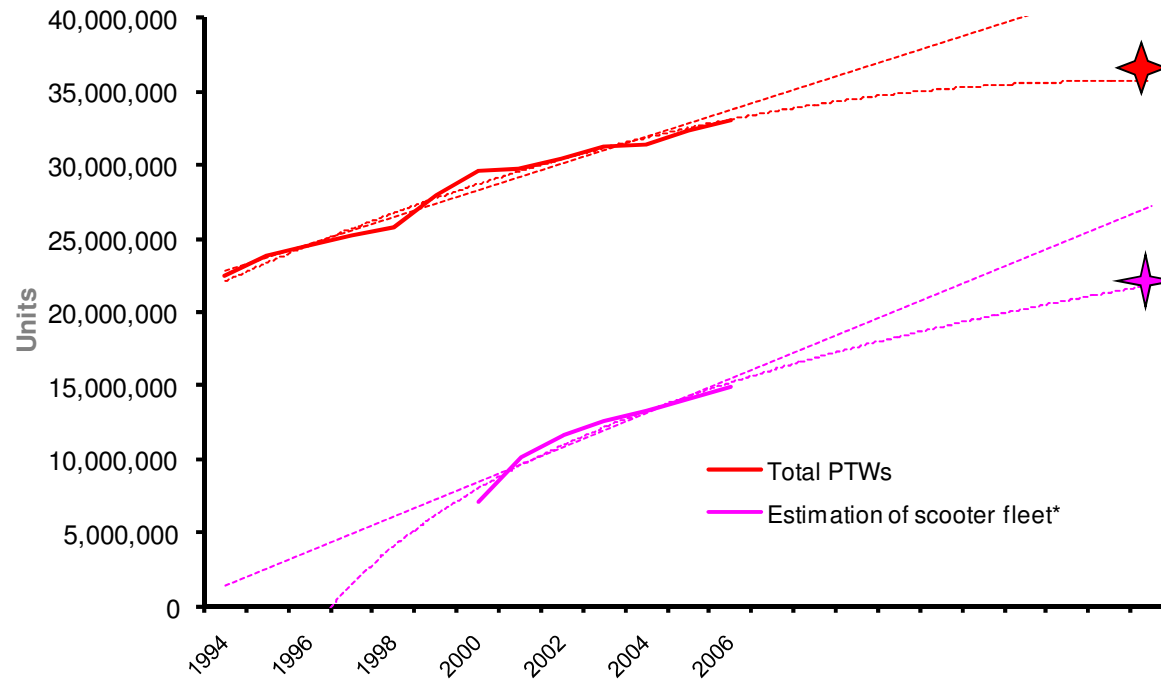


- 10 years outlook PTWs **37 million units** (+ 12 % vs. 2006)
 - Motorcycles: **26 million units** (+29 % vs. 2006)
 - Mopeds : **11 million units** (-14 % vs. 2006)



Significant increase of Scooter style: + 33 % over the period

Due to increased demand of “urban mobility PTWs”



10 years outlook scooters: **20 million units** (+43% vs. 2006)



ROADWORTHINESS TESTS

Why and How?



Annual Conference – ACEM 2008

“ACEM calls for the inclusion of PTWs in the scope of Roadworthiness Tests Directive (96/96/EC).”



Vehicle Registration

- All Motor Vehicles put on the market must be TA
- Control mechanism is the **Registration**: vehicles cannot be registered if not TA
- Once registered, the owner
 - Can use the vehicles on public roads for years,
 - May (or may not) decide to service it
- Consequently, the Motor Vehicle may (or may not) maintain its safety and environmental TA characteristics,



Roadworthiness Test

- **Roadworthiness Test**, or **Vehicle Inspection** ensures a vehicle is still conforms to minimum safety & environment requirements
- Typical intervals are 4 years after the first registration and then every 2 years
- MPs and MCs
 - Do not fall under the scope of Directive 96/96/EC on RWT
 - Are regulated at national level only in some EU Member States
- Other Member States are evaluating the possibility to introduce new national requirements on this subject.

“For the past two years CITA has been leading a research project called ‘Autofore’ on the future options for roadworthiness enforcement in Europe

Final report of the ‘Autofore’ project recommended that more frequent periodic technical inspections of older cars, inspection of electronically controlled systems and periodic inspection of motorcycles are immediate steps that could be taken to improve road safety and environmental protection according to a recent European study.

On the basis of available accident data and economic analysis, the ‘AUTOFORE’ report recommends in the short term –

... Adding motorcycles and mopeds to the list of vehicle classes that should be inspected periodically”



PTW ROADWORTHINESS TESTS

OVERVIEW OF NATIONAL REQUIREMENTS WITHIN E.U. COUNTRIES

Country	Periodic inspection for PTWs		Comments / Details
	Safety	Environment	
Austria	✓	✓	No exhaust emission test for 2-stroke 2-wheelers; for 4-stroke: CO at idle rpm: max. 4,5Vol.%
Belgium	✗	✗	<ul style="list-style-type: none"> •Latest PTW periodic inspection discussions date back to 2002 •Recent discussions on roadside speed checks for mopeds
Cyprus			
Czech Republic	✓	✗	Only MC
Denmark	✓	✗	<ul style="list-style-type: none"> •Only MC •Discussions on MC exhaust/noise emission inspection
Estonia	✓	✓ (only noise)	Only MC
Finland	✗	✗	Preparatory discussions to introduce inspection programme for MC
France	✗	✗	Inter-ministerial WG recommended periodic inspection for PTWs (MPs first, MCs later) – main aim is to tackle tampering of MPs which has safety (and environmental) implications
Germany	✓	✓	Only MC (see separate slide)
Greece	✗	✗	Ministerial WG established to prepare introduction of RWT for PTWs
Hungary	✓	✓ (only noise)	Only MC
Ireland			
Italy	✓	✓	See separate slide
Latvia	✓	✓	
Lithuania			
Luxembourg	✓	✗	Only MC
Malta			
Netherlands	✗	✗	
Poland	✓	✓	Only MC

✓ : Yes

✗ : No



Country	Periodic inspection for PTWs		Comments / Details
	Safety	Environment	
Portugal	✗	✗	
Slovakia	✓	✗	
Slovenia	✓	✗	
Spain	✓	✓	•See separate slide
Sweden	✓	✓ (only noise)	Only applied to motorcycles (not mopeds)
Switzerland	✗	✗	Discussions on PTW exhaust/noise emission inspection
UK	✓	✓ (only noise)	MC and MP

✓ : Yes

✗ : No

Note: Table updated at July 2007

EU balance on PTW periodic inspection:

Safety 15/27 Member Countries

Environment 8/27 Member Countries

Opportunity for harmonisation of minimum requirements?



RWT in Germany

- **Timing**
Introduced in 1961
Mopeds excluded
Frequency : 2 years after first registration, then every 2 years
emission inspection introduced in 2006
- **List of Testing/Checks:**

Frame number and plate	Visual checks
Brakes	Optical inspections + practical tests
Tyres	Optical inspections + visual checks
Noise	Optical inspections + possible practical test
Emissions	Practical tests
- **Other minor inspections**
Visual inspections (according to 96/96/EC)



RWT in Italy

- **Timing**

Introduced in 2001 for MPs, MCs, 3Ws and Quadricycles.

Initially focused on vehicle safety characteristics only

Exhaust emissions and Moped maximum speed checks introduced in 2003

Frequency : 4 years after first registration, then every 2 years.

- **Testing**

Braking, lighting equipment, noise, gaseous emissions and maximum speed (mopeds only) are to be checked by instrumental test only

Other inspections according to Directive 96/96/EC, with suitable modifications

(Source: ANCMA 2008)



RWT in Spain

- **Frequency**

Mopeds: 3 years after first registration and then every 2 years

Motorcycles, Quadricycles, 3-wheel Mopeds and Light Quadricycles: 4 years after first registration and then every 2 years

- **List of checks/inspections**

- | | |
|--|---|
| 1) Documents | 10) Audible warning device; |
| 2) Frame number | 11) Only static noise. |
| 3) Registration plate | 12) Exhaust emissions. |
| 4) Frame and plastic parts | 13) Maximum speed for mopeds. |
| 5) Mudguards | 14) Anti-tampering |
| 6) Rear view mirrors | 15) Brakes, test of efficiency on the roller bench. |
| 7) Presence of anti-theft device | 16) Normal turn of the steering axle, handlebar. |
| 8) Presence of speedometer | 17) Tyres: approval mark. |
| 9) Lighting devices homologation markings. | |



RWT in the UK

Frequency

First time three years after first registration, then every year.

List of checks (motorcycles and mopeds)

LIGHTS

Headlight and Tail lights, Direction indicators, Hazard warning system if fitted, red Reflector at the rear.

STEERING

Handlebar and grips securely mounted, no play in the steering mechanism.

BRAKES

Hoses, fluid leaks, drum/disc, ABS warning lights if fitted, pads/shoes not worn beyond limits.

WHEELS & TYRES

Compatibility of Tyres, tread depth and condition.

SUSPENSION

No oil leaks, adequate dampening, no contact with body parts or accessories.

EXHAUST SYSTEM

Stationary test may be required, secure mounting, external conditions of the silencer.

FINAL DRIVE

The chain/belt in good condition, the shaft drive unit free from oil leaks.

MORE CHECKS

Horn, Corrosion, Footrests, Components + body-panels and mudguards securely fitted.

(Source: UK DfT 2008)



RWT in France

- Under preparation for mopeds...
- « Nous estimons qu'un contrôle technique pour l'ensemble du parc des deux-roues se justifie.
- Pour en faciliter la mise en œuvre, il devrait être calqué le plus largement possible sur les procédures existantes pour les véhicules de tourisme. L'objectif est, en effet, de privilégier un contrôle simple, utile et efficace pour plus de sécurité et une meilleure protection des utilisateurs et de l'environnement, à un coût prenant en compte la spécificité de leurs deux-roues. »

(Source: DSCR 2008)



ROADWORTHINESS

Focus on Environment and Safety



The “implementation of an emissions road-worthiness procedure is effective because it targets all fleet vehicles. Additionally, its effects may be demonstrated directly - with no delay that usually occurs from the need to replace fleet vehicles before an improvement is seen (i.e. when improving emission standards of new registrations).

As a result of its application also to Euro 2, RW is one of the most effective measures that can be taken to reduce emissions. The decrease of emissions achieved in 2012 is 5% for HC and 6% for CO saving in the period some 19 kt of HC and 140 kt of CO. For example, the reduction in CO is 8 times higher than changing the durability distance of Euro 3 motorcycles from -30% to +50% or introducing a Euro 3 emission standard for mopeds, and more than 80 times higher than introducing an IUC. For the same reason, it is also a costly measure. The total cost effectiveness however is better than the introduction of some of the emission standards so far.”



Study on possible new measures concerning motorcycle emissions
Final Report
LAT November 2008

“One measure that was found very cost-effective in the previous LAT/AUTh study was the establishment of a periodic road-worthiness test. Although this was not reassessed in the current study, it is repeated that road-worthiness testing is a very suitable measure in controlling emissions from motorcycles.”

“Finally, the introduction of a periodical road-worthiness procedure was also considered as a cost-effective measure, which would also have a significant effect on anti-tampering control.”

“To maintain initial construction standards, the vehicle needs to undergo regular maintenance and servicing. Currently, a majority of Member States have introduced PTWs periodic inspection for safety and, increasingly, for environmental reasons. The Motorcycle Accident In-Depth Study (MAIDS) confirms that lack of proper vehicle maintenance is a contributing factor in PTW accidents (5% of all PTW contributing factors). Periodic inspections reduce the incidence of safety related defects to tyres, brakes and lights, particularly those of which the owner is unaware of and are likely to discourage tampering of mopeds. ACEM therefore supports the inclusion of PTWs in the scope of Directive 96/96/EC.”



MAIDS data (reminder, see www.maids-study.eu)

Primary Accident Contributing Factors (main cause of the accident)

- Vehicle factors: 0,3% of all cases

Secondary Accident Contributing Factors (contributing to the accident)

- Vehicle factors:
 - PTWs: 1,6 % of all cases (**5% of all contributing factors**)
 - 72% of all PTW vehicle failures were related to the tyre
 - 11 related to brakes problems (1.2%)

“MAIDS data indicates that tampering in order to increase performance was observed by visual inspection in 17.8% of all L1 (moped) cases. This item is most probably under-reported as the MAIDS teams could not perform in-depth technical inspections of the vehicles involved in accidents. MAIDS figures further indicate that a large number of L1 fatal accidents (40%) occur at travel speeds greater than 50 km/h...

Following the integrated approach, ACEM supports technical measures addressing tampering should always be accompanied by measures in the area of behavior, through controls carried out by authorities. These can be translated into periodic inspections (currently, PTWs are not included in the scope of directive 96/96/EC).”

Survey on motorcycle tyres

All tyres equipping any motor vehicles should be type-approved



On 12 July 2007 the results of the first survey made by Milan Police on 5.000 motorcycles were presented to stakeholders.

Results:

1 PTW out of 5 is equipped with non type-approved tyres !



PTW ROADWORTHINESS

Inclusion in Directive 96/96

Proposal

1. Braking systems

1.1. to 1.1.3

1.1.7.

1.1.11. to 1.1.16.

1.2. to 1.2.2.

1.6

2. Steering

3. Visibility

4. Lamps, reflectors and electrical equipment

5. Axles, wheels, tyres, suspension

6. Chassis and chassis attachments

7. Other equipment

8.1 Noise

8.2 Exhaust emissions

- Average Km/year vary significantly, mainly dependant of vehicle class and type of usage:
 - 50 cc: 2800 (Fr, GEMA; It, Doxa) scooter style
 - 125 cc: 4400 (idem) scooter style
 - >125 cc: 5300 (idem) motorcycle style

Nevertheless, always substantially lower than passenger cars!

Therefore, proposal to apply intervals of 4 years after the first registration and then every 2 years as a minimum requirement.



Conclusion & Recommendation

- To meet type approval, and high safety and environmental performance standards, Manufacturers develop more complex technologies
- To maintain these high standards, the vehicle needs to be properly maintained and serviced
- A growing number of Member States have introduced PTW periodic inspection (a majority for safety, a growing number for environment)
- Industry promotes the inclusion of PTWs in the scope of Directive 96/96/EC with appropriate periodicity (taking into account vehicle specificities) and requirements for
 - 1) Safety (Tyres, Brakes, Lights, Anti-tampering)
 - 2) Environment (Exhaust emissions, Noise)



Expected benefits

1. Safety:

- Periodic inspection would reduce the incidence of safety related defects of the tyres, the brakes and the lights, particularly those of which the owner is unaware
- Periodic inspection addresses the growing number of urban commuters, less motivated by technical features and maintenance
- Periodic inspection is likely to discourage tampering of mopeds

2. Environment:

- Periodic inspection will contribute to maintain polluting and noise emissions controls installed as OE
- Periodic inspection will ensure durability requirement and reduce tampering
- Periodic inspection will reduce the use of illegal RESS.