Towards the Introduction of UNR78 Motorcycle Brake Regulations

JAMA Motorcycle Sub-committee

Japan Automobile Manufacturers Association, Inc.

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UNR78:Motorcycle Brake Performance Regulations in APMRA

UNR78: Motorcycle Brake Performance Regulation is included in the technical requirements of APMRA Phase 2.

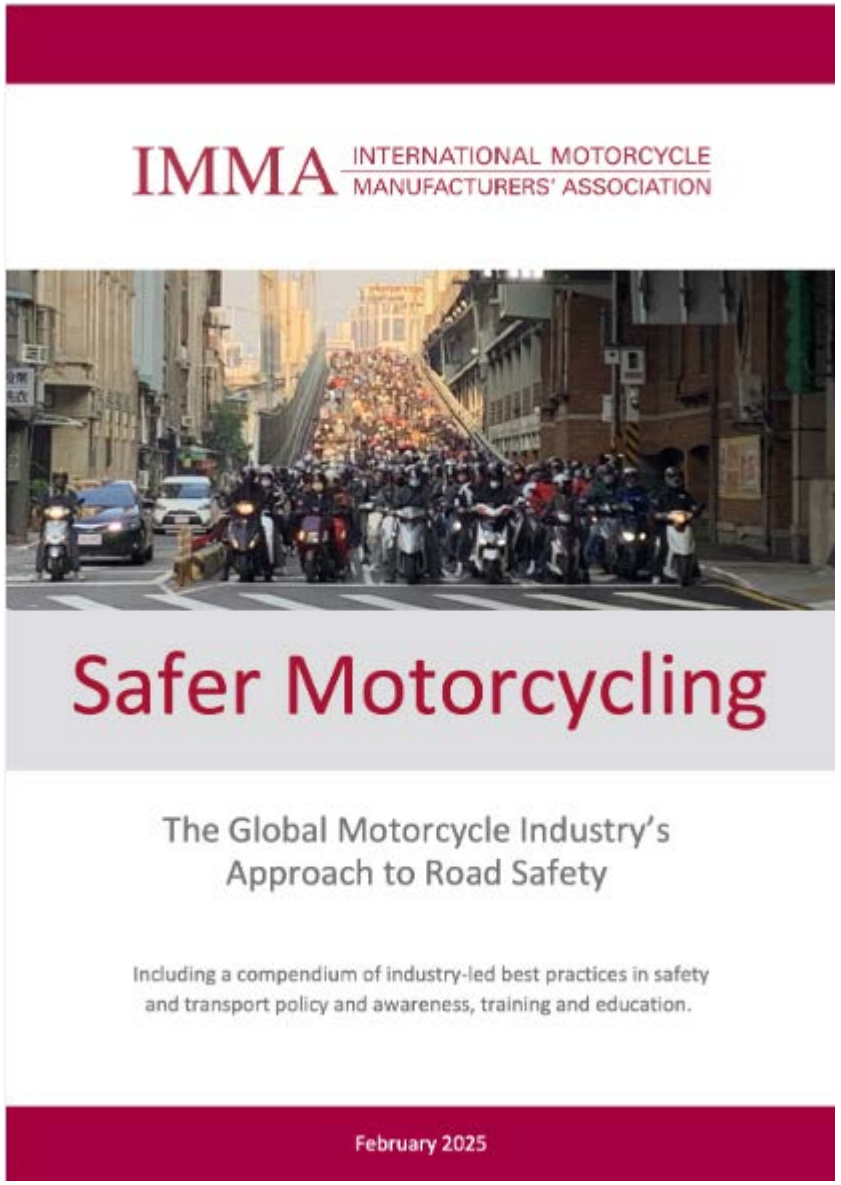
ASEAN MRA Phase2 Technical Requirements (under discussion)

Reflex Reflectors	R3	Motorcycle Helmet	R22	Braking (L category)	R78
Rear Registration Plate Lamps	R4	Reversing Lamps	R23	Rear View Mirrors (L category)	R81
Direction Indicators	R6	External Projections	R26	Gas-Discharge Headlamps	R98
Front and Rear Position Lamps, Stop Lamps End-outline Marker	R7	Driver operated control	R60	Gas-Discharge Light Sources	R99
Electromagnetic Compatibility	R10	Filament Lamps	R37	Headlamps (emitting an asymmetrical passing-beam)	R112
Door Latches and Hinges	R11	Light (L category)	R50	Headlamps emitting a symmetrical passing-beam	R113
Steering Mechanism	R12	Instalation of Light (L category)	R53		
Front fog Lamps	R19	Protection Against Unauthorized Use (L category)	R62		

As of 2019

UNR78 specifies technical requirements for braking performance, and advanced braking systems (ABS, CBS) are not mandatory requirements; they are included as "if fitted" requirements.

Motorcycle Industries Position on Advanced Braking Systems



- **CBS and ABS are both advanced braking technologies designed to enhance PTW safety under different conditions. Each system offers unique advantages depending on vehicle type, rider behaviour, and road conditions.**
- **While ABS brings advantages in certain scenarios, it is equally important to recognize the strengths of CBS, particularly for smaller-displacement motorcycles and in markets where riders predominantly use the rear brake *(*)***
- **Correct rider training remains essential to realize the full potential of PTW brakes, as any advanced system can inadvertently foster over-confidence if misunderstood. The effectiveness of ABS and CBS alike is influenced by riding patterns and the operating environment, for example, roads mainly composed of dirt or gravel.**
- **When determining which system is best for a given vehicle and market, factors such as customer expectations, intended vehicle usage, primary road infrastructure, rider training and related considerations should be weighed.**

(*) **Investigation of Rider's behavior at accident & Advanced Brake System - Experiment in Thailand.**

Created from Safer Motorcycling: The Global Motorcycle Industry's Approach to Road Safety – IMMA

Reference: Comparison of Advanced Braking System characteristics for M/C

Motorcycle brake systems can be broadly categorized into three types: standard, ABS*, and CBS**.The characteristics of each are summarized in the table below:

(ABS*:Anti-Lock Braking system, CBS**:Combined Braking system)

	System Characteristics	For which users	Riding Skills required of users	Regarding Braking Distance
Standard	Standard Brake System	-	-	-
ABS	A system that adds anti-lock functionality to the standard Brake. It reduces the risk of tire -locking and falling during sudden braking while moving straight. Different from 4-wheeler, attempting to steer while ABS is activated causes the Motorcycle to fall. Therefore, obstacle avoidance is impossible.	For users capable of applying strong braking in emergencies	The riding skill required to perform emergency braking at a level that activates the ABS is necessary.	Basically the same as Standard Brake system. However, braking distance increases slightly when ABS activates.It also increases further on low-friction surfaces like unpaved roads.
CBS	A system that adds a front-rear linkage mechanism to the standard setup. When the rear brake is applied, the front brake also works in tandem to prevent increased stopping distance.	For users who rarely use the front brake or have difficulty operating it well. (Common among small-displacement motorcycles)	Front brakes engage automatically when operating the rear brakes, eliminating the need for advanced riding skills.	Basically the same as Standard Brake system. However, when operating only the rear brake, the stopping distance is longer than when operating both front and rear brakes.

Advanced Brake System (ABS, CBS) Adoption Status: Japan, Europe

Japan introduced advanced braking systems in consideration of harmonizing standards with Europe.

■ Advanced Brake System Application Requirements (Same Requirements as Europe*)

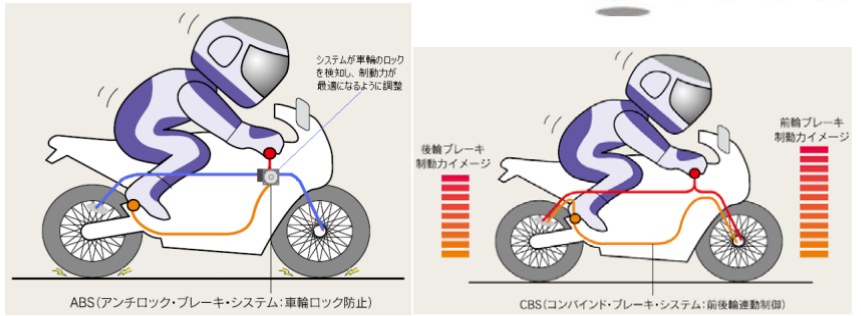
Engine Displacement	Advanced Brake System Application Requirements
50cc - 125cc	ABS or CBS
125cc＜	ABS

*In Japan, 2 wheeler under 50cc are excluded.

■Effective Date:

New Vehicles: October 1, 2018 ～
Continuing Production Vehicles: October 1, 2021 ～

Excerpt from MLIT JAPAN website 国土交通省



二輪車の先進制動システム（イメージ）

（注意事項）

- ✓ アンチロックブレーキシステム（ABS）は、緊急時に強いブレーキを掛ける際や濡れて滑りやすくなっている路面でのブレーキの際等に車輪のロックを防止することで、直進時において、運転者が転倒を恐れずに最適なブレーキを掛けることができるシステムです。
- ✓ また、コンバインドブレーキシステム（CBS）は、前後輪のブレーキを連動させることで、運転者が一方のブレーキのみを操作した場合等でも、前後輪に適切な制動力が得られるシステムです。
- ✓ いずれのシステムも、運転を支援するための装置であり、ブレーキそのものの性能を向上させたり、あらゆる状況の下で有効に機能するものではなく、機能にも限界があるため、システムを過信することなく、運転者自身による安全運転を心掛ける必要があります。

Website link：Press Release by MLIT Jan 21 2015 (JAPANESE)

■The Background of ABS and CBS Introduction in Europe

- A cost-benefit analysis was conducted during the consideration of introducing advanced braking systems in Europe. As a result, CBS was also deemed effective based on the characteristics and usage patterns of small-displacement vehicles.
  Consequently, ABS or CBS became mandatory for vehicles 125cc and below.
- Therefore, under the UNR78 braking regulations for motorcycles, ABS is not a mandatory requirement; it is only a requirement if fitted.

Our suggestion

We would like to share the information, including data, to support government's consideration of appropriate regulations that take into account the traffic conditions of each country and region.

Please consult the motorcycle manufacturers' association in each country.

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