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# THE AUTOMOBILE AND TECHNICAL REGULATIONS

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## 1 Introduction

Amid growing interest in environmental and energy issues, various countries are continuing to tighten regulations. In addition, concerns over measuring real driving emissions (RDE) triggered by the emissions scandal have prompted Japan and Europe to take the lead in establishing RDE regulations. At the same time, China and various other countries around the world are working on regulations aimed at encouraging the spread of EVs and other zero emission vehicles (ZEVs). In terms of safety regulations, progress has been made in the study of criteria for vehicle-to-everything (V2X), cybersecurity, software updates, and autonomous driving.

## 2 Overall Trends

### 2.1. Japan

The United Nations Economic Commission for Europe (UNECE) World Forum for Harmonization of Vehicle Regulations (WP.29) adopted the Regulation on Blind Spot Information Systems (BSIS) in heavy-duty vehicles to warn against side collisions in March 2019, and the Regulation on Advanced Emergency Braking Systems (AEBS) in June of the same year. Japan has also decided to introduce those regulations. In response to the diesel vehicle emissions scandal, a government review panel is drafting guidelines on the prohibition of illegal devices (defeat devices) and the scope of protection control. The panel is also evaluating the introduction of the RDE testing already in place in Europe. The Central Environment Council is looking at introducing particulate number (PN, the number of PM particles) regulations as it prepares to release its 14th report. Legislation covering the public notice and other aspects of the 2025 heavy-duty vehicle fuel economy standards was amended, and fuel economy labels complying with the new standards will be mandatory as of April 2023.

### 2.2. U.S.

Federal government departments and agencies have been actively working on advanced technologies that go beyond automobile engineering to also address the social infrastructure as a whole, as shown by the release of the fourth revision of a non-binding guidance on autonomous driving that covers the entire transportation sector. The Environmental Protection Agency (EPA) has started applying the Tier 3 emissions regulations, a stricter equivalent of the California Low-Emission Vehicle (LEV) III regulations. The California Air Resources Board (CARB) made various amendments, including the addition of the LEV III malfunction thresholds to the onboard diagnostics (OBD) II regulation, and detailed provisions on the diagnostics requirements for hybrid vehicles. Much stronger emissions regulations for heavy-duty vehicles, as well as provisions on the mandatory sale of zero emission trucks (ZETs), have come under consideration. In September 2019, the EPA and the National Highway Traffic Safety Administration (NHTSA) issued the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One, which preempts the unilateral California Corporate Average Fuel Economy and greenhouse gas (GHG) regulations for the 2021 to 2026 model years. The final rule detailing the regulations is expected to be issued in March 2020. In terms of recycling and substances of environmental concern (SOCs), the EPA regulation to ban the use of the current air conditioner refrigerant (R134a) in compact vehicles sold in the U.S. starting with the 2021 model year was rejected in court, but remains in effect until the EPA issues a new regulation.

### 2.3. Europe

In November 2019, amendments and new requirements to the European General Safety Regulation (GSR) were issued, defining various stricter passive safety regulations scheduled to come into effect starting in 2022. These include the mandatory installation of advanced safety technologies (e.g., AEBS, intelligent speed assis-

tance (ISA), lane keeping assist (LKA), emergency stop signal (ESS), cameras, sonar and other sensors providing detection when reversing, driver drowsiness warnings, and advanced driver distraction warnings), the introduction of full lap frontal impact tests (UN R137) and pole side impact tests (UN R135), as well as an expanded pedestrian protection head impact area. The introduction of the Worldwide Harmonized Light Vehicles Test Procedure (WLTP) and of the RDE regulations in conjunction with the coming into effect of Euro 6c, as well as the application of the revised procedures for the evaporative emissions test method starting in September 2019 have been determined. For the WLTP, establishing regulations that follow up on the new test cycle and procedures under the UN framework and extend to other items (such as low temperature test methods) is being assessed. The European Commission is actively participating in those assessments with an eye toward incorporating them in EU regulations. Taking the introduction of the WLTP regulations into account, the New European Driving Cycle (NEDC)-based CO<sub>2</sub> regulations enacted in 2020 (regulation values of 95 g/km for light-duty passenger vehicles and 147 g/km for light-duty commercial vehicles) will, in light of the introduction of the WLTP, be replaced by WLTP-based values starting in 2021. The WLTP-based regulation values have been determined for the stricter post-2020 CO<sub>2</sub> regulations to be introduced in two stages in 2025 and 2030. The EU acoustic vehicle alerting system (AVAS) requirements in the vehicle exterior noise regulations have been revised, and will impose a prohibition on installing pause switches to new models in September 2021 and to existing vehicles in September 2023.

## **2. 4. Other Regions**

In China, event data recorder (EDR) standards are being drafted, but their official promulgation has been delayed. Recommended standards for advanced safety technologies such as blind spot detection (BSD), advanced driver assistance systems (ADAS) and lane keeping assist systems (LKA) are also being drafted. The China 6 environmental regulation has been issued. Both that regulation and the China 6b regulation coming into effect nationwide in July 2020 are stricter than Euro 6. In Taiwan, safety standards based on UN regulations are updated and newly adopted annually. With respect to environmental standards, stricter CAFE fuel economy regulations and the Euro 6c/VI emissions requirements have prompted the decision to strengthen evaporative

emissions to a period of 48 hours (two days). Both safety and the environment have precedence in ASEAN nations. In Australia, the Australian Design Rules (ADR), which include unique requirements, are being harmonized with UN regulations. A new certification system was scheduled to apply in July 2020, but the stagnation of the economy has led to putting its application on hold until July 2021.

## **2. 5. United Nations**

### **(1) Harmonization of Standards**

WP29, the body that promotes international harmonization of automotive technical standards, meets regularly to discuss the 1958 and the 1998 Agreements. The aim of the 1958 agreement, currently signed by 56 European and other countries as well as 1 region, is to use UN regulations to establish uniform technical standards for vehicles and obtain mutual recognition of those standards. There are currently (as of February 2020) 152 such UN regulations. More recently, UN R152 covering advanced emergency braking systems (AEBS) was issued in February 2020. The 1998 Agreement went into effect in August 2000 as a means of establishing and realizing Global Technical Regulations (GTRs), and currently includes 38 participating countries and 1 participating region. In 2018, electric vehicle safety (EVS) was added to the already established 20 items covered by GTRs.

### **(2) International Whole Vehicle Type Approval (IWVTA)**

The Japanese government proposed the creation of the IWVTA scheme at WP.29 to extend the current 1958 Agreement-based mutual recognition of approval for devices, parts and systems to cover the whole vehicle. Revision 3 of the 1958 Agreement, which integrates IWVTA, went into effect in September 2017. The regulation implementing the IWVTA scheme (UN R0) came into effect in July 2018, and mutual recognition between countries that adopted it became possible in March 2019. In addition, the first revision in the series (UN R0.01) was officially issued in September 2019. However, some items necessary for vehicle certification are not covered by the IWVTA scheme (emissions, for example), which means that even with IWVTA certification, compliance inspections for the missing items will be required in individual countries. WP.29 will continue its efforts to finalize a complete IWVTA.

### **(3) Regulations on Automated Driving**

The new proposed regulation for automated lane keep-

ing systems (ALKS) in the context of level 3 or higher autonomous driving studied by the Working Party on Automated/Autonomous and Connected Vehicles (GRVA) group under WP.29 is scheduled for approval at WP.29 in June 2020. Discussions on safety evaluations, recording devices and safety criteria currently in use targeted at level 3 autonomous driving are also underway. Standards applicable to automotive cybersecurity and standards to implement software updates are also being drafted.

## **3 Japan**

### **3. 1. Vehicle Safety**

#### **(1) Progress of Safety Measures**

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is gradually assessing the regulation of the items to focus on among the four pillars of vehicle safety measures, namely (a) addressing accidents involving children or the elderly, (b) measures for the safety of pedestrians and automobile occupants, (c) measures to address grievous accidents involving heavy-duty vehicles, and (d) addressing new technologies such as automated driving, raised in its June 2016 compilation on the course of future automobile safety measures.

#### **(2) Strengthening of Safety Regulations and Harmonization of Criteria**

Based on the 1958 Agreement, the MLIT is revising Japanese technical standards in line with revisions to UN standards. In 2019, standards concerning rear blind spot information monitors (BSIS) for heavy-duty vehicles and collision mitigation braking systems (AEBS) for passenger and other vehicles, were introduced.

#### **(3) Autonomous Driving**

In 2019, the revised Road Traffic Act and the Road Transport Vehicle Act were passed, and safety regulations on autonomously operated devices, recording devices, and compliance certification for cybersecurity task management systems came into effect in April 2020. Safety technology guidelines have been issued to address items for which there is no formulated international standard.

### **3. 2. Emissions**

(1) In May 2017, the 13th Future Policy for Vehicle Emission Reduction report submitted to the Minister of the Environment by the Central Environmental Council of Japan, called for the introduction of PM regulations equivalent to those of diesel vehicles for direct injection

gasoline vehicles and of measures against fuel evaporative emissions applying to refueling at stations starting in 2020. At the same time, it extended the number of parking test days as a measure for parked vehicles, establishing a strengthening of vehicle regulations in that same year. Moreover, the introduction of PN regulations is under consideration for the 14th report to be released in 2020.

(2) Guidelines on the prohibition of illegal control in diesel passenger and other vehicles to prevent a diesel vehicle emissions scandal are being drafted, and the introduction of the RDE test is also under assessment.

### **3. 3. Fuel Economy**

The tighter fuel economy standards set to apply in 2020 for passenger vehicles and 2022 for light-duty trucks will be measured using the current test cycle (JC08). However, it was also made mandatory for the catalog and other documents to indicate the Worldwide harmonized Light vehicles Test Cycles (WLTC) overall fuel economy value as well as the fuel economy values in urban, suburban and highway driving environments. Legislation covering ordinances and other legislation applying to the 2025 heavy-duty vehicle fuel economy standards was amended, and fuel economy labels complying with the new standards will be mandatory as of April 2023. At the same time, the constant values for aerodynamic drag and rolling resistance used in the existing 2015 standards have been updated with actual measured values, while the details of fuel economy simulations were revised to reflect the latest real-world conditions. While the current Tokyo driving mode (JE05) and the interurban test cycles will remain in use, the ratio assigned to each mode was modified. This strengthens the standards by 13.4% for trucks and 14.3% for buses compared to the 2015 heavy-duty vehicle fuel economy standards.

### **3. 4. Substances of Concern**

In May 2019, the ninth meeting of the Conference of the Parties to the Stockholm Convention (COP-9) adopted a decision to include the perfluorooctanoic acid (PFOA) fluorine compound, its salts, and PFOA-related compounds in Annex A to the Convention (chemicals to eliminate). Consequently, perfluorooctanoic acid (PFOA), its salts, and PFOA-related compounds will become prohibited Class I Specified Chemical Substances in the Chemical Substances Control Act. Due to the need for additional study on matters such as specifying essential uses, the prohibition is expected to apply in December 2020.

## 4 The U.S. and Canada

### 4. 1. Vehicle Safety in the U.S.

- (1) V2X communication: In December 2019, the Federal Communications Commission (FCC) issued a notice of proposed rulemaking to make the dedicated short-range communication (DSRC) 5.9 GHz band available for Wi-Fi and cellular vehicle-to-everything (C-V2X) uses.
- (2) Autonomous driving: The Automated Vehicles 4.0 policy guidelines for autonomous driving were announced in January 2020.
- (3) In February 2019, an official notice withdrawing the draft proposal (issued December 13, 2012) to make EDRs mandatory was published.
- (4) In April 2019, an official notice withdrawing the draft proposal (issued June 21, 2012) to harmonize the Federal Motor Vehicle Safety Standards (FMVSS) 205 with GTR No. 6 (Glass) was published.
- (5) In May 2019, an official notice withdrawing the draft proposal (issued April 16, 2012) to add electronic throttle requirements to the standard on accelerator control systems (FMVSS 124) was published.
- (6) In September 2019, a request for public comment concerning the addition of a rear seat belt reminder to the standard on occupant crash protection (FMVSS 208).
- (7) In October 2019, a request for public comment on permitting a camera monitoring system (CMS) in the standard on rear visibility (FMVSS 111).

### 4. 2. Emissions in the U.S.

#### (1) Federal Regulations

The EPA has implemented Tier 3 regulations that are largely harmonized with the California LEV III regulations. In addition, the OBD regulations have also been brought in lines with those of California. In response to the emissions scandal, they tighten evaluations of emissions control system and also add a road test to the certification test. Spurred by the below mentioned proposal from California, work on drafting Low NO<sub>x</sub> standards targeting the 2027 model year has begun.

#### (2) California

- (a) **ZEV II regulations amendments:** Compliance is required for plug-in hybrid electric vehicles, electric vehicles, and fuel cell vehicles starting with the 2018 model year, and requirements con-

cerning the number of vehicles are becoming more stringent every year. The state government kept the regulations covering up to the 2025 model year unchanged, and decided on a policy to examine tighter regulations for the 2026 and subsequent model years.

- (b) **Emissions regulations:** The LEV III regulations were implemented, and corporate average fuel economy regulations are being strengthened every year. In addition, PM regulations are also being tightened in stages, to 3 mg/mile from the 2017 model year, and 1 mg/mile from the 2025 model year.

- (c) **OBD II regulations:** In conjunction with the October 2019 revision of the OBD II regulation for heavy-duty vehicles, the diagnostics frequency requirements were clearly stipulated, and the engine start-stop system execution tracing requirements, the over-the-air (OTA) reprogramming requirements, and quoted SAE standards were optimized.

- (d) **Low NO<sub>x</sub> standards for heavy-duty vehicles:** Low NO<sub>x</sub> standards, including the prolongation of useful life, are under consideration. The idea of a two-phase strengthening of regulations from the 2024 model year, and then the 2027 model year, has been suggested.

- (e) **Provisions on the mandatory sale of zero emission trucks (ZETs):** Legislation that will impose mandatory quotas on the number of ZETs sold is being drafted. A gradual increase of the quotas starting with the 2024 model year is under consideration.

### 4. 3. Fuel Economy and GHG Regulations in the U.S.

#### (1) CAFE and GHG Regulations

The EPA and NHTSA have reviewed the regulations for the 2021 to 2027 model years. In September 2019, they issued the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One, which preempts the unilateral California regulations. In March 2020, the SAFE Vehicle Rule regulation raising the fuel economy and GHG regulation values by about 1.5% for the annual rate was issued.

#### (2) Phase 2 Fuel Economy Standards for Heavy-Duty Vehicles

The Phase 2 standards to come into effect in three stages in 2021, 2024, and 2027 were announced. Test

methods include the stipulation of a new cycle average-based test and a required powertrain for hybrid vehicles (HVs).

#### **4. 4. Substances of Concern in the U.S.**

In 2016, the federal Toxic Substances Control Act (TSCA) was updated, broadening EPA authority and otherwise strengthening its powers to enable more effective gathering and management of information concerning risks related to existing chemical substances. The use of substances of concern, copper, and copper alloys in brake friction material will be gradually prohibited (5% from 2021, and 0.5% from 2025 onward). The EPA regulation to ban the use of the current air conditioner refrigerant (R134a) in compact vehicles sold in the U.S. starting with the 2021 model year was rejected in court, but remains in effect until the EPA issues a new regulation. A proposed rule to prohibit five persistent, bioaccumulative, and toxic (PBT) chemicals, including flame retardant decaBDE, was released in June 2019, and the final rule is expected to be issued at the end of 2020. The Safer Consumer Products (SCP) regulations have come into force in California, with restricted substances and products covered by the regulations specified every year.

#### **4. 5. Canada**

##### **(1) Vehicle Safety**

A regulation making it mandatory to provide instructions on how to contact Transport Canada in the vehicle owner's manual was issued in July 2019 and will come into effect in September 2020.

##### **(2) Emissions**

The Canadian federal government has adopted its own Tier 3 regulations equivalent to those of the U.S. As with the current Tier 2, vehicles with the U.S. Tier 3 certification sold in Canada do not need to acquire the Canadian certification. Similarly, at the end of 2017, the Quebec provincial government issued ZEV regulations equivalent to the California ZEV II, to come into effect starting with the 2018 model year. British Columbia is also considering introducing ZEV regulations starting with the 2020 model year.

##### **(3) Fuel Economy and GHG Regulations**

As in the U.S., GHG regulations were strengthened starting with the 2017 model year, but a higher multiplier has been set for advanced technology vehicles.

##### **(4) Substances of Concern**

Regulations mandating reporting and labeling for headlamps and other products containing mercury have

been enacted. Following in the footsteps of the U.S., Canada banned the use of the current refrigerant (R134a) in light-duty vehicles starting with the 2021 model year. The Canadian Ministry of the Environment has prohibited the use of asbestos starting in January 2019.

## **5 Europe**

### **5. 1. Whole Vehicle Type Approval (WVTA)**

The new regulation (EU 2018/858), which completely revamps the framework for the type approval of motor vehicles in the EU established by European Directive 2007/46/EC, was issued in June 2018. The regulations will apply to new models on September 1, 2020. It incorporates many policies that correct issues in the current vehicle type certification system, including improving the quality of inspections, imposing market surveillance on countries, and tighter mutual monitoring by countries in the Eurozone and the European Commission. The requirements for the disclosure of OBD data and repair and maintenance information stipulated in the previous emissions-related regulations were also carried over to this new framework. The European Commission issued guidelines on the inspection criteria when the special approval procedure for new technology (request based on Article 20 of Directive 2007/46/EC or Article 39 of Regulation (EU) 2018/858) are applied to Level 3 and 4 autonomous driving.

### **5. 2. Vehicle Safety**

On November 27, 2019, the European Commission officially issued Regulation (EU) 2019/2144, the amended the General Safety Regulation (GSR) designed to strengthen safety to achieve the intermediate 2020 to 2030 targets (reducing road deaths by 50%) set for the Vision Zero (reducing road deaths to almost zero by 2050) plan. It will come into effect on July 6, 2022.

### **5. 3. Emissions**

#### **(1) Light-Duty Vehicles**

At the end of 2018, the European General Court ruled that the determination of the conformity factors (CFs) used to assess compliance with RDE under the current Euro 6 emissions regulation represents a de facto change to the regulation that goes beyond the authority vested in the European Commission by the European Parliament and the Council of the European Union, and annulled said CFs. Consequently, the European Commission is now concurrently revising the Euro 6 regulation and discussing the next stage post-Euro 6 regulation. In 2018,

the second revision of the WLPT made the inspection criteria for AES/BES more stringent, and made the operational criteria clearer. With respect to the WLTP, the examination involving following up on the establishment of the new test cycle and procedures under the UN framework (Phase 1) with the addition of items such as a low temperature, durability, and market test methods, as well as OBD regulations (Phase 2) is still underway. The European Commission is actively taking the lead in those activities with an eye toward both incorporating them in EU regulations and ensuring that they integrate EU aims.

## **(2) Heavy-Duty Vehicles**

The Euro VI Stage E amendment supplementing the Euro VI regulation currently in effect with regulations on cold start conditions as well as an evaluation method and limits for particle numbers, when a portable emissions measurement system (PEMS) is used for was finalized. It will apply to new models as of January 2021, and to all models as of January 2022. There are calls to install on-board devices to monitor and record fuel and energy consumption, load capacity, and mileage.

## **5. 4. CO<sub>2</sub> (Fuel Economy)**

### **(1) Light-Duty Vehicles**

In conjunction with the introduction of the WLTP regulations in September 2017, manufacturers have replaced their current NEDC compliance rate for 2020 with WLTP-based values, which will be applied the following year, in 2021. In the context of the legislation concerning stricter post-2020 CO<sub>2</sub> regulations to be introduced in two stages in 2025 and 2030 (reduction of 15% in 2025, and 37.5% in 2030, compared to 2021 levels), ZEV and zero-level emission vehicle (ZLEV) credits (a relaxation of CO<sub>2</sub> target values for manufacturers who exceed a set share of ZLEVs), have been approved.

### **(2) Heavy-Duty Vehicles**

Fuel economy and CO<sub>2</sub> values for commercial heavy-duty vehicles exceeding 7.5 t have been determined using the Vehicle Energy Consumption calculation TOol (VECTO) simulation tool. These values will be validated through tests using mass-produced vehicles that will be required starting in July 2020.

## **5. 5. Recycling and SOCs**

The end-of-life vehicles (ELV) Directive (2000/53/EC) restricted and reduced the use of four types of heavy metals (lead, mercury, cadmium, and hexavalent chromium) for passenger vehicles and light-duty commercial ve-

hicles. The gradual prohibition of uses that have been exempted due to the lack of substitute technologies, such as the lead in the solder for compound glass or in aluminum or copper alloys is being considered. The Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulation has made the registration and reporting of chemical use to government authorities, as well as the disclosing information to users of chemicals, mandatory ((EC) No. 1907/2006). Any usage restrictions on chemical substances related to automotive products will generally be handled under this regulation. With respect to restricted substances (Annex 17), the prohibition of phthalic acid esters is being followed up by assessments on banning the PFHxS and PFHxA fluorine compounds, as well as the D4, D5 and D6 siloxanes used as silicon raw material. The classifying, labeling, and packaging (CLP) regulation, which stipulates the requirements for the classification, labeling, and packaging of hazardous substances, is currently in force and applies to items such as puncture repair sealants, adhesives, oils, and window washer fluid ((EC) No. 1272/2008). The CLP regulation was further amended, and will gradually make notifying a poison center of the information on the SDS mandatory starting in 2021. The existing Biocides Directive (98/8/EC) was revised as a biocidal products regulation and any chemical substances applied to vehicle parts as a biocide are subject to the usage restrictions and information disclosure requirements ((EU) No. 528/2012).

## **5. 6. Vehicle Exterior Noise**

The AVAS requirements in the vehicle exterior noise regulations have been revised and will prohibit the installation of pause switches on new models in September 2021 and on existing vehicles in September 2023.

## **5. 7. Russia**

In the Eurasian Customs Union (EACU), the Technical Regulation of the Customs Union (TR CU), a common approval system based on Russian regulations, is in effect. The mandatory installation of the Russian version of the European eCall system (ERA GLONASS) has come into effect ahead of Europe. The application of the Euro 6b regulation began with new models in January 2020 and will be extended to existing vehicles in January 2023. For heavy-duty vehicles, the Euro V standards were applied to new models in January 2018 and to existing vehicles in January 2019. The addition of new impact safety requirements to the full lap frontal impact (UN R 137) and pole side impact (UN R 135) tests, as well as a

strengthening of emissions regulations, are under consideration.

## **6 Central and South America**

### **6.1. Mexico**

#### **(1) Vehicle Safety**

Regulations from major areas (U.S., EU, UN and others) on basic safety systems for light-duty vehicles (head restraints, seats, seat belts, controls and indicators, speedometers, mirrors, hood latches, defrosters and defoggers, wipers and washer fluid, lamps, tires, brakes, and windows) came into effect with the 2017 model year. Regulations on frontal and side collision, ABS, and seat belt reminder (SBR) regulations will come in effect from the 2020 model year for new models and the 2021 model year for all models. Additional safety regulation items (three-point seat belts, BAS, TPMS, AFS, ESC, pedestrian protection, ISOFIX, CRS, LDWS, EDR, ACC, pole side impacts, and AEBS) are also under consideration for light-duty vehicles.

#### **(2) Emissions**

Emissions regulations contained in U.S. and European laws (equivalent to Tier 2-Bin 7 and Euro 4) have been introduced. The introduction of emissions regulations for heavy-duty diesel vehicles equivalent to U.S. 2007 or Euro V in July 2019, and to U.S. 2010 or Euro VI in 2021 has been determined.

#### **(3) CO<sub>2</sub> (Fuel Economy)**

Fuel economy regulations modeled on the US CAFE are in effect.

### **6.2. Brazil**

#### **(1) Vehicle Safety**

ESC and SBR will come into effect in January 2020. Daytime running lamps (DRL), side turn signals, and emergency stop signals (ESS) will come into effect in 2021. The identification of control and indicators will apply as of 2021, pedestrian protection as of 2025, and pole side impacts as of 2026. The UN regulations and FMVSS are accepted as alternative performance requirements.

#### **(2) Emissions**

A decision to strengthen the regulations from the current L6 to L7 and to the next stage L8 was reached, and the timing of their application has been revised to introduce L7 one year earlier, starting in January 2021, and L8 two years earlier, in January 2023. Changes cover stricter regulation values and durability requirements, PM regulations for direct injection gasoline vehicles,

evaporative emissions test method, the addition of on-board refueling vapor recovery (ORVR), and more stringent OBD requirements. In addition, RDE requirements are also included, with only monitoring required in the L7 regulations, and compliance required in the L8 regulations. As a next step, detailed RDE/OBD rules will be examined.

#### **(3) CO<sub>2</sub> (Fuel Economy)**

The second stage of fuel economy regulations modeled on the US CAFE will come in effect in 2021.

#### **(4) Noise**

The rules on acceleration noise in the noise regulations will be strengthened in three phases. The first phase will come into effect in 2022.

### **6.3. Chile**

#### **(1) Vehicle Safety**

Safety requirements for electric vehicles came into force in November 2019. Requirements for acoustic vehicle alerting systems will apply from July 2022. Regulations for light-duty passenger vehicles will apply in October 2020 for ABS and in October 2021 for ESC. An official notice issued for heavy-duty vehicles has finalized the application of regulations on safety glass, brakes, and seat belts starting in February 2020, and to seats, seat belt anchorages, as well as fuel tanks starting in February 2022.

#### **(2) Emissions**

Emissions regulations equivalent to Euro 5 or the U.S. Tier 2-Bin 5 are currently in effect for light-duty diesel and gasoline vehicles, and a strengthening of the regulations to Euro 6 was being considered. The regulations were approved and issued in the latter half of 2020, and are anticipated to apply 24 months after the issuance of the regulation, in the latter half of 2022, for new models and 30 months after issuance, in the first half of 2023, for existing vehicles. Moving the heavy-duty vehicles regulations up to Euro VI, possibly as early as 2022, is under consideration.

#### **(3) Noise**

A noise certification system for light-duty vehicles registered in July 2019 and later has been put into effect. It covers acceleration and stationary noise, with acceleration noise based on UN R51.03 (although the UN R51.02 test method is also accepted), and stationary noise based on UN R51.02.

## **6. 4. Argentina**

### **(1) Vehicle Safety**

Requirements for the installation of rear seat head restraints and three-point seat belts, ESC, and onboard fire extinguishers, have been gradually implemented starting in January 2019. Furthermore, the implementation of stricter pole side impact, SBR, pedestrian protection, AEBS, and head restraint requirements (introduction of FMVSS 202a) between 2025 and 2030 is under consideration.

### **(2) Emissions**

Regulations equivalent to Euro 5 are in effect. Revising the COP regulations to expand the scope of covered imported vehicles is also being considered (only vehicles produced in Argentina are currently covered). Fuel economy certification and the affixing of labels have been implemented. A fuel consumption tax is also scheduled to be examined for one year starting in 2020. Euro V-equivalent regulations are in effect for heavy-duty diesel vehicles, and moving up to Euro VI-equivalent regulations is being considered.

### **(3) Noise**

The noise regulation was updated from UN R51.02 to UN R51.03 and applies to new vehicles as well as to vehicles receiving an expanded certification as of January 2020.

## **6. 5. Columbia**

### **(1) Vehicle Safety**

The installation of ABS, airbags and head restraints for light-duty vehicles, and ABS for heavy-duty vehicles, is mandatory, and the introduction of the UN regulations covering seat belts, seat belt anchorages, brakes, and passenger vehicle tires for light-duty vehicles is under consideration.

### **(2) Emissions**

Regulations equivalent to Euro 2 or U.S. Tier 1 are currently in effect for light-duty gasoline vehicles. There are plans to strengthen them to Euro 4 or the U.S. Tier 2 Bin 8 as of January 1, 2021, one year later than originally scheduled. Regulations equivalent to Euro 4 or The U.S. Tier 2 Bin 9 for light-duty diesel vehicles, and to Euro IV or the U.S. 2004 for heavy-duty diesel vehicles, as well as to Euro V or U.S. 2007 for urban buses, are in effect. In addition, the Euro 6 regulations will be applied to light-duty diesel vehicles, and the Euro VI regulations to heavy-duty diesel vehicles, starting in 2023.

## **6. 6. Ecuador**

### **(1) Vehicle Safety**

The regulation making safety systems mandatory (RTE INEN 034) has been revised and enacted. It mainly introduces the UN regulation, but retains some Ecuador-specific requirements. It has become mandatory to submit documents proving compliance with the various requirements. Even after the certification system began operations, the regulations have frequently been amended, alternative regulations from nations such as Japan, the U.S. or China have been added, and the mandatory installation of ESC on light-duty vehicles has been postponed to the 2020 model year.

### **(2) Emissions**

Regulations equivalent to Euro 3 or U.S. Tier 1 covering light-duty gasoline vehicles have applied to vehicles produced in Ecuador since September 30, 2017. They had already applied to imported vehicles since 2017. The Euro III regulations were scheduled to apply to diesel vehicles in 2020, but this has been postponed and the Euro II regulations are currently in force.

## **6. 7. Uruguay**

### **(1) Vehicle Safety**

Starting in April 2018, the installation of an anchorage system (ISOFIX or LATCH) allowing a child restraint system to be set on the right side of the rear row of seats will become mandatory.

### **(2) Emissions**

The application of emissions regulations equivalent to Euro 5 to passenger vehicles and commercial vehicles from 2021 at customs, and of further emissions regulations equivalent to Euro 6, is being examined. The application of mandatory fuel economy labels for passenger vehicles is also under consideration.

## **6. 8. Peru**

### **(1) Vehicle Safety**

The mandatory installation of ABS, ISOFIX, airbags and other equipment is being considered.

### **(2) Emissions**

The Euro 4 emissions regulations have applied to light-duty vehicles since April 2018. On the same date, Euro IV was applied to heavy-duty vehicles.

## **6. 9. Costa Rica**

### **(1) Emissions**

For light-duty vehicles, regulations equivalent to Euro 4 or the U.S. Tier 2 came in effect from June 2018, but a postponement of the scheduled application of regulations



equivalent Euro 6 or U.S. Tier 3 in January 2021 is under consideration.

## **(2) Noise**

Since April 2016, stationary noise regulations based on independent regulation values and test methods have applied to in-use vehicles.

## **7 Middle East and Africa**

### **7. 1. Gulf Cooperation Council (GCC)**

#### **(1) Vehicle Safety**

The GCC Standardization Organization (GSO) has revised the GSO 42:2015 general safety requirements, and is examining regulations on electric vehicles, CMS, and AEBS. The United Arab Emirates has made the installation of head restraints for all seats and three-point seat belts for outer seats mandatory in 2021 model year vehicles. At the same time, it has also mandated eCall and the phasing in (50% for the 2021 model year, 100% for the 2024 model year) of digital audio broadcast (DAB) for new 2021 and subsequent model year vehicles. Saudi Arabia has prepared DAB legislation based on the United Arab Emirates DAB regulation and is deliberating the date for making it mandatory.

#### **(2) Emissions**

Only the United Arab Emirates had introduced regulations equivalent to Euro 4 for gasoline and diesel vehicles, but Qatar has decided to introduce Euro 4-equivalent regulations starting with the 2021 model year. The United Arab Emirates, Bahrain, and Qatar have announced the application of regulations equivalent to Euro 5 for both gasoline and diesel vehicles starting with the 2022 model year. In a similar vein, Saudi Arabia, which requires more time to make the market fuel improvements (desulfurization) required by Euro 5, is planning to apply those regulations to gasoline vehicles as of the 2023 model year, and to diesel vehicles as of the 2025 model year.

#### **(3) Fuel economy**

In Saudi Arabia, regulations modeled on the U.S. CAFE are in place for all vehicles with a maximum weight of less than 3.5 t, and regulations for 2021 to 2023 were issued at the end of 2019. At the same time, only Saudi Arabia is using its own requirements and a design different from that specified by the GSO GCC authorities for mandatory fuel labels.

### **7. 2. South Africa**

#### **(1) Vehicle Safety**

Updates to the current safety regulations based on those of the UN and Europe were under consideration for implementation starting in 2017, but the postponement until 2020 or later is now likely to be pushed back further.

#### **(2) Emissions**

Raising the current emissions regulations (Euro 2) to Euro 4 from 2020 for new models and 2022 for existing vehicles is being considered, but legislative procedures have been delayed and their introduction remains undetermined. New clean fuel regulations (equivalent to Euro 5) were scheduled to apply starting in 2017, but have been postponed due to delays in improving fuel quality. Based on the lead time needed for improvement and repairs, the local petroleum industry is calling for a postponement until around 2023.

### **7. 3. Egypt**

The adoption of UN regulations (10 items) started in 2010 (Phase 1). The adoption of the next stage of safety items (Phase 2) that had been set to start on September 16, 2016, were postponed on the grounds of revising the items to adopt. How long it will remain postponed is unknown.

### **7. 4. Morocco**

WVTA items or equivalent UN regulations have been adopted since 2010 and applied to all vehicles starting in 2015. Similarly, the Euro 4 emissions regulations are in force, and a notification that Euro 6 will apply to vehicles coming through customs as of 2022 has been issued.

### **7. 5. Algeria**

In April 2015, many regulations requiring the installation of safety systems were issued, and a UN regulation containing approximately 30 items became mandatory. However, due to factors such as the mandating of local investment by automakers and the imposition of quota system on vehicle imports, these regulations effectively act as restrictions on imports.

## **8 Asia**

### **8. 1. China**

#### **(1) Vehicle Safety**

EDR technical standards are being drafted, but their official promulgation has been delayed. Recommended standards on advanced safety technologies such as BSD, ADAS, and LKA are also being prepared. Revised ver-

sions of many existing regulations have been officially promulgated to eliminate discrepancies with international standards. The VIN, WMI and horn regulations apply as of January 2020. The regulations on the installation of lighting devices, fuel tanks, seats, and head restraints come into force in July 2020. For position lights, brake lights, and DRL, the regulations will come into effect in January 2022. The WTO has been notified of noise regulations, and the groundwork to gradually make the acceleration noise regulation values stricter is being laid, but when they will apply remains uncertain.

### **(2) Emissions**

The China 6 regulations were promulgated for light-duty vehicles. The strengthening of the regulation values will come in two phases, with China 6a coming into effect nationwide starting in July 2020 and China 6b coming into effect in July 2023. Both are stricter than Euro 6. The China 6 regulations came into effect one year ahead of schedule, in July 2019, in some urban areas such as the province of Guangdong. The city of Beijing adopted the China 6b regulations starting in January 2020. For heavy-duty vehicles, the regulations will be strengthened in two phases, with China VIa coming into effect nationwide in July 2021, and China VIb coming into effect in July 2023. Both regulations are equivalent to Euro VI. In urban areas, the China VIa regulations will apply one year early, in July 2020.

### **(3) Fuel economy**

Legislation on the concurrent management of corporate average fuel economy and fuel economy credits for new energy vehicles has been promulgated. It contains stipulations on the method of calculating credits and the submission of fiscal year reports, and came into effect in April 2018. The Chinese Ministry of Industry and Information Technology next-stage fuel economy standards for heavy-duty vehicles will apply to new models in July 2019 and to existing vehicles in July 2021.

### **(4) New Energy Vehicles**

With the spread of new energy vehicles, electric vehicle drive batteries, motors, and charging were added to the vehicle certification procedure and standards for fuel economy and other tests for hybrid vehicles have been included in the regulations implementing the certification. The current recommended standards on drive batteries and safety requirements are scheduled to be integrated and issued as GB requirements. Although the WTO has been notified, the official promulgation is de-

layed.

### **(5) Recycling and SOCs**

The Requirements for Prohibited Substances On Automobiles standard (GB/T 30512 prohibits lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and poly brominated diphenyl ethers, and is under consideration to be upgraded to a compulsory GB. A temporary provision on traceability management for the drive batteries from new energy vehicles (Ministry of Industry and Information Technology [2018] No. 48) aimed at strengthening the recovery traceability management of drive lithium-ion batteries and encouraging reuse was issued in August 2018.

## **8. 2. Hong Kong**

### **(1) Vehicle Safety**

The adoption of resolutions based on those of the UN for parts such as door latches and hinges, lamps and brakes is an ongoing issue on which little progress is being made.

### **(2) Emissions**

The Euro 6b regulations apply to gasoline passenger vehicles with a weight of 3.5 t or less, and the Euro 6c regulations and RDE monitoring came into effect in September 2019. For commercial vehicles and light-duty buses weighing 3.5 t or less, Euro 6b has applied since January 2018 and Euro 6c will be applied in September 2020. The Euro VI regulation applies to commercial vehicles weighing more than 3.5 t and buses exceeding 9 t, and OBD Phase C came into effect in April 2019.

## **8. 3. Taiwan**

### **(1) Vehicle Safety**

Safety standards based on UN regulations are updated and newly adopted annually. Regulations concerning fire prevention in a rear-end collision and the mounting of the fuel tank, as well as requirements mandating SBR for all seats, will apply to new models starting in 2023. The application of some regulations on tell-tales and external projections to existing vehicles has been set to 2026. The eventual introduction of UN regulations covering internal projections, forward visibility, and full lap frontal impact, among others, is under consideration.

### **(2) Environmental Protection**

The Euro VI regulations were scheduled to apply simultaneously to new models and existing vehicles as of September 2019, but this has been postponed to September 2021 for existing vehicles only. With respect to the current Euro 6c/VI regulations, it has been decided to

strengthen the evaporative emissions regulations to 48 hours (two days) as of September 2020, as well as to strengthen the CAFE regulations in 2022. The sixth-stage noise regulation criteria have been issued. As with the UN R51.03 vehicle exterior noise regulations used as a model, application will take place in three stages.

#### **8. 4. Thailand**

##### **(1) Vehicle Safety**

The Thai Industrial Standard Institute (TISI) and Department of Land Transport (DLT) are sharing the work of harmonizing standards with UN regulations and applying new regulations. For passenger vehicles, the DLT has decided to adopt UN R3.02, Retro-reflecting Devices, UN R14.07, Safety Belt Anchorages, UN R17.08, Seat Anchorages and Head Restraints, UN R25.03, Head Restraints, and UNR16-06, Safety Belts and Restraint Systems, as of 2020, as well as UN R13H-00/UN R13, Passenger Car Braking, UN R112.01, Headlamps Emitting an Asymmetrical Passing Beam, UN R6.01, Direction Indicators, and UN R23, Reversing Lights, as of 2021.

##### **(2) Emissions**

Euro 4/IV is in effect for light-duty vehicles, and Euro III is in effect for heavy-duty diesel vehicles. The Office of Industrial Economics (OIE) is planning to apply the Euro 5/V emissions regulations in 2021, and the Euro 6/VI regulations in 2022, to both light- and heavy-duty vehicles.

#### **8. 5. Malaysia**

##### **(1) Vehicle Safety**

Since joining the 1958 Agreement in 2006, Malaysia has been actively making the application of UN regulations mandatory, with approximately 30 UN regulations for items such as seat belts, brakes, and collisions becoming mandatory as of January 2012. The 2018 VTA guidelines have expanded this to another 14 UN regulations, which will apply in 2020 for new models and in 2022 for existing vehicles, and a letter recognizing the 2017 VTA guidelines as the minimum applicable regulations was issued on May 29, 2019. The eCall regulation was under consideration, but a change in government cancelled those discussions.

##### **(2) Environmental Protection**

There are plans to upgrade to Euro 4/IV regulations as of July 2020 for gasoline vehicles, and March 2022 for diesel vehicles. A strengthening of the noise regulations to UN R51.02 or higher for light-duty vehicles and UN R51.01 or higher for heavy-duty vehicles is also planned

for the same timeframe.

#### **8. 6. Indonesia**

Phase 1 of the ASEAN Mutual Recognition Agreement (MRA), which involves integrating UN regulations in the national standards, is being studied. It was decided to apply the Euro 4/IV emissions regulations to all models of gasoline vehicles in 2018 and of diesel vehicles in 2021. More recently, the introduction of regulations and legislation concerning EVs has come under consideration.

#### **8. 7. Singapore**

The Euro 6/VI regulations have been introduced for both gasoline and diesel vehicles. Regulations on PN values for direct injection gasoline vehicles will be strengthened in September 2021.

#### **8. 8. India**

##### **(1) Vehicle Safety**

The Indian Standards (IS) and Automotive Industry Standards (AIS) sets of technical standards are gradually being harmonized with UN regulations. ADAS regulations are currently being examined.

##### **(2) Emissions**

The application of the Bharat Stage (BS) IV (equivalent to Euro 4/IV) regulations has been expanded to all cities. The Indian government had decided to skip over the BS V (equivalent to Euro 5/V) and apply BS VI (equivalent to Euro 6/VI) to new models starting in April 2020. In addition, the introduction of RDE is also under consideration.

##### **(3) Fuel economy**

The Indian government has decided to introduce corporate average fuel economy regulations. Stage 1 will apply from 2017 to 2022, and Stage 2 after 2022. Also, the Bureau of Energy Efficiency (BEE) is considering making the originally optional application of fuel economy labels mandatory.

#### **8. 9. Vietnam**

##### **(1) Vehicle Safety**

Decree No. 117 has been issued as a revision of Decree No. 116, which reinforces license acquisition requirements for manufacturers and importers. The acquisition of certification in other countries and lot inspections at customs were made unnecessary for imported vehicles, and COP audits (plant audits) by the authorities became necessary until August 5, 2020. Random inspections will be conducted on imports from countries with a self-certification system.

## **(2) Environmental Protection**

The Euro 4/IV emissions regulations have been introduced. A recycling law aimed at the recovery of waste products (Decision No. 16/2015/QD-TTg) has been enacted and extended in scope to cover components such as oil, batteries, tires, and air conditioners, as well as the entire vehicle.

### **8. 10. The Philippines**

The three-point seat belt, airbag (driver and passenger seats), head restraint (outer seat) and ABS safety systems have been made mandatory, and a further tightening of safety restrictions is being considered. Fuel economy labeling requirements have been introduced, and the affixing of labels will become mandatory in January 2021.

### **8. 11. Brunei**

The three-point seat belt, airbag (driver and passenger seats), head restraint (outer seat) and ABS safety systems have been made mandatory, and additional requirements such as SBRs, ISOFIX anchors, side and curtain airbags and ESC are under consideration.

### **8. 12. Cambodia**

A regulatory certification system based on the ASEAN MRA is being adopted as of 2020, and certified vehicles are required to display an S mark. A gradual adoption of UN regulations is in progress, with UN R30, Pneumatic Tires, UN R43, Glazing, and UN R54, Commercial Vehicle Tyres scheduled for 2020, UN R16 Safety belts and related systems, UN R39, Speedometer Equipment, and UN R46, Indirect Vision Devices scheduled for 2021.

## **9 Oceania**

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### **9. 1. Australia**

#### **(1) Vehicle Safety**

The Australian Design Rules (ADR), which include unique requirements, are being harmonized with UN regulations. Currently, compliance certification for the technical requirements in UN regulations cited in the ADR, or for subsequently issued UN regulations up to the latest version, are generally accepted. Compliance certification for the technical requirements in UN regulations cited in the ADR, or for subsequently issued UN regulations up to the latest version, are accepted. A new certification system (RVSA) was scheduled to apply in July 2020, but the stagnation of the economy has led to putting its application on hold until July 2021.

## **(2) Emissions**

The Euro 5 regulations apply to all light-duty gasoline and diesel vehicles. The Euro V regulations already applied to all heavy-duty diesel vehicles since January 2011, and both the U.S. 2007 regulations and Japanese 2005 regulations (new long-term regulations) are recognized as alternative standards. A government-led examination of next-stage emissions regulations is in progress, but no official announcement has been made.

### **9. 2. New Zealand**

Vehicles that conform to the latest Australian (ADR), Japanese (safety regulations), European (EU/UN regulations) or U.S. (FMVSS) standards are accepted. The Ministry of Transport has released proposed CO<sub>2</sub> regulations to be applied as of 2022. They cover not only new models, but also imported used vehicles, and impose fines for non-compliance. At the same time, a draft CO<sub>2</sub> tax scheme (taxes applied, incentives) to start in 2021 has been proposed.

## **10 Motorcycles**

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### **10. 1. United Nations Regulations**

#### **(1) Vehicle Safety**

The regulation covering the installation of lighting device (UN R53) has been amended with a stipulation on daytime running lights (DRL) and automatic switching of the front lamp. Partial amendments have also been made to the regulations covering tires (UN R75) and brakes (UN R78). In addition, the streamlining of lighting device regulations has led to the publication of new signal (UN R148), lamps (UN R149), and reflector (UN R150) regulations.

#### **(2) Environmental Protection**

Revisions encompassing harmonization with other emissions regulations were made to the UN GTR 2 regulation.

### **10. 2. Japan**

#### **(1) Vehicle Safety**

Lighting devices (UN R50) and Headlamps emitting a symmetrical passing beam (UN R113) were adopted in June 2015 and will apply to new models and existing vehicles starting in June 2020. The period for installation of lighting devices (UN R53) has not been determined. Reflecting amendments to Motorcycle and Moped Braking (UN R78) with respect to advanced brakes, the installation of ABS in vehicles with a displacement exceeding 125 cc and either ABS or a combined brake system

(CBS) in vehicles with a displacement exceeding 50 cc but less than 125 cc will be made mandatory. This will apply to new models as of October 2018, and to existing and imported vehicles as of October 2021.

## **(2) Emissions**

The fourth stage of emissions regulations, which are based on GTR 2, will apply to new models other than Class 1 motor-driven cycles, as of December 2020 and to existing vehicles as of November 2022. Catalyst monitors, which are part of the OBD II requirements will apply to new models starting in December 2024, and to existing vehicles as of November 2026. However, for Class 2 motor-driven cycles this will be delayed by one year, to December 2025 for new models and November 2027 for existing vehicles.

## **(3) Noise**

Motorcycle noise emissions regulations (UN R41.04) are in effect, and the UN R41.05 next-stage noise regulations are under discussion.

### **10.3. U.S.**

#### **(1) Vehicle Safety**

There were no significant changes in the laws or regulations.

#### **(2) Environmental Protection**

Amendments to bring the emissions regulations up to the Euro 5 level are being considered by the federal government and the state of California.

### **10.4. Canada**

In March 2018, the Canadian Motor Vehicle Safety Standards CMVSS 108 (Lighting Systems and Reflective Devices) was amended and enforced as of September 2019.

### **10.5. Europe**

A new uniform vehicle type certification (Whole Vehicle Type Approval [WVTA]) framework regulation ((EU) 168/2013) was issued in 2014, and came into effect in January 2016 for motorcycles. Type approval consists of the framework regulation and the delegated regulations on environmental and propulsion unit performance ((EU) 134/2014, along as amended by (EU) 2016/1824 and (EU) 2018/295), on functional safety ((EU) 3/2014, along as amended by (EU) 2016/1824), and on vehicle construction ((EU) 44/2014, along as amended by (EU) 2016/1824 and (EU) 2018/295), and the implementing regulation ((EU) 901/2014, as amended by (EU) 2016/1825). Delegated regulation ((EU) 2019/129) for the framework regulation was applied in January 2019, and a delegated regulation for

the implementing regulation ((EU) 2020/239) was issued in February 2020 and came into effect in March 2020.

The departure of the U.K. from the European Union (Brexit) will automatically make receiving European WVTA impossible as of January 2021 and will require following the U.K. type approval requirements, which are based on the European WVTA.

#### **(1) Vehicle Safety**

Motorcycles have been excluded for some time, but progress was made on the examination of general safety criteria that also encompass cybersecurity.

#### **(2) Emissions**

In accordance with the delegated regulation ((EU) 2019/129), Euro 5 is set to apply to new models starting in January 2020 and to existing vehicles starting in January 2021. Some OBD Stage II functionality (catalyst monitors) will apply to new models as of January 2024 and to existing vehicles as of January 2025 as part of Euro 5+.

#### **(3) Noise**

The next-stage motorcycle noise regulations (amendments to UN R41.04) are being discussed.

### **10.6. Central and South America**

#### **(1) Brazil**

The mandatory installation of ABS or CBS for vehicles with a displacement below 300 cc (output below 22 kW), and for ABS for those with a displacement of 300 cc or higher (22 kW or more) has gradually been made mandatory, came into effect in 2019. UN regulations on lighting devices and mirrors were used as a basis to amend domestic laws, which were applied to production vehicles and to vehicles clearing customs starting in January 2019. The second-stage PROMOT M4 fuel emissions regulations are in effect, and the application of PROMOT M5 (e.g., stricter regulation values, extended durability distance, the addition of evaporative emissions diurnal testing, aldehydes, and the addition of OBD requirements) are scheduled to apply to new models in January 2023 and to existing vehicles in January 2025. Strengthening the current noise regulations, which are equivalent to those of UN R41.03, to make them equivalent to UN R41.04 is under consideration.

#### **(2) Peru**

The Euro 3 emissions regulations came into effect on January 1, 2017.

#### **(3) Ecuador**

Regulations on safety regulations covering brakes, tires, mirrors, lighting devices, and other comments are

being examined. Emissions and noise regulations are under consideration.

#### **(4) Chile**

Since March 2019, the Euro 3 have become the only emissions regulations in effect. Noise regulations equivalent to UN R41.04 have applied since July 2019.

#### **(5) Columbia**

Emissions regulations were issued in September 2019, and Euro 3-equivalent regulations will apply to domestically produced and imported motorcycles starting in January 2021.

### **10. 7. Middle-East**

#### **(1) Gulf Nations**

Environmental and safety regulations are currently in effect. Since January 2020, the vehicle categories in motorcycle vehicle certification system have complied with those of Europe.

### **10. 8. Asia**

#### **(1) Taiwan**

Safety regulations matching those of Europe have made the installation of ABS or CBS mandatory since January 2019 for new vehicles. The seventh stage emissions regulations (equivalent to Euro 5, with local requirements) will apply to new models as of January 2020 and to existing vehicles as of January 2022. The fuel economy regulations have also been revised and are scheduled to apply from January 2022. The sixth stage noise regulations (equivalent to UN R41.04, with local regulation values applied to close proximity exhaust noise) are in effect.

#### **(2) Indonesia**

Emissions regulations equivalent to Euro 3 are currently in effect, and the application of Euro 4-equivalent regulations starting in 2025 is being examined. The application of UN R41.04-equivalent noise regulations to new models in 2021 and existing vehicles in 2023 is also under consideration.

#### **(3) Malaysia**

The latest UN safety-related regulations covering speedometers (UN R39.01), brakes (UN R70.04), electromagnetic compatibility (UN R10.05) and symmetrical passing beams (UN R113.01) came into effect in January 2020, and only the regulation on the installation of lighting devices is scheduled to apply in January 2022. Emissions regulations equivalent to Euro 4 (Types 1 and 2 only) came into effect in January 2020 for new models and will apply to existing vehicles in January 2022. The

UN R41.04 noise regulations were applied to new models in January 2020 and will apply to existing vehicles in January 2022.

#### **(4) The Philippines**

Safety regulations concerning horns (UN R28), tires (UN R75) and speedometers (UN R39), among others, are under assessment. Euro 3-equivalent regulations are currently in effect, and the introduction of Euro 4-equivalent regulations is being considered. The scheduled introduction of the UN R41.03 noise regulations has been delayed, and introducing UN R41-04 is under consideration.

#### **(5) India**

There are plans to revise the AIS regulations (stands, external projections, and foot rests). The Euro 5-equivalent Bharat Stage (BS) VI emissions regulations came into effect in April 2020, and OBD Stage I was applied at the same time. In addition, the OBD stage II requirements will apply from April 2023. Since March 2019, applications for the IS 3028:1998 noise regulations (equivalent to UN R41.03) and IS 3028:2018 (equivalent to UN R41-04) can be submitted concurrently.

#### **(6) Vietnam**

Harmonization with UN safety regulations is being examined. Making automatic daytime lights, daytime lights, and advanced braking systems (ABS) mandatory is also being studied. Euro 3-equivalent regulations are currently in effect, and strengthening them to Euro 4-equivalent regulations is being considered. The application of fuel economy labels became mandatory in January 2020. Noise regulations only cover close proximity exhaust noise.

#### **(7) Thailand**

Horn safety regulations (equivalent to UN R28.00) came into effect for new models from January 2018 and for existing vehicles from January 2020. Tire regulations (equivalent to UN R75) have applied since January 2019. Enforcing advanced braking systems (ABS/CBS) is under consideration. Seventh stage emissions regulations equivalent to Euro 4 have been in effect since March 2020. The cover all items except OBD. Noise regulations equivalent to UN R41.03 are in effect, and the application of next stage regulations equivalent to UN R41.04 from 2021 is being considered.

#### **(8) China**

Safety regulations concerning horns and electromagnetic compatibility (EMC) were revised. Advanced braking systems will be enforced as of July 2020. The China

IV (equivalent to Euro 4) emissions regulations are currently in effect, and the next-stage China V (equivalent to Euro 5) are under assessment. The fuel economy regulations have been revised and will apply from July 2020. A revision of the noise regulations to make them equivalent to UN R41.04 is being studied.

#### **(9) Hong Kong**

Euro 3-equivalent regulations are currently in effect, and Euro 4-equivalent regulations are scheduled to apply in July 2020. For noise, compliance with either the European regulation (97/24/EC) or Japanese regulation (2001 regulation) is required.

#### **(10) Singapore**

Euro 4-equivalent emissions regulations have applied to vehicles with a displacement exceeding 200 cm<sup>3</sup> since

2018, and to those with a displacement of 200 cm<sup>3</sup> or less since 2020. The introduction of noise regulations equivalent to UN R41.03 is under consideration.

### **10. 9. Oceania**

#### **(1) Australia**

The new Road Vehicle Standards Act (RVSA) was issued. The mandatory installation of front and rear ABS for vehicles above 125 cm<sup>3</sup>, and of either ABS or CBS in the front and rear for smaller vehicles was finalized. It came into effect in November 2019 for new models and will apply to existing vehicles in November 2021 (however, there are provisions that exclude trial, enduro, and trail motorcycles). There were no significant changes in laws and regulations concerning either emissions or noise.