Overview of Road Vehicle Compliance in Japan

Nobutoshi HORIE
Director, Automobile Recall Technical Verification Department,
National Traffic Safety and Environment Laboratory
Comprehensive measures for Compliance from design to usage stage

MLIT and NALTEC carry out comprehensive operations from design process and new vehicles to the usage stage and implements rapid and reliable measures to introduce new technology and discover defects.

- **Design**
  - **Developing feasible regulation**
    - Use the actual conditions and technological information of automobiles to examine the content to be standardized and formulate plans for safety and environmental standards.

- **New vehicles**
  - **Type approval test**
    - Prevent the distribution of faulty vehicles by carrying out regulations compliance examinations related to type approvals at test tracks and collision test facilities.

- **Usage process**
  - **Vehicle inspections**
    - Guarantee regulations compliance during the usage process by examining the regulations compliance of over 7 million cases per year at the 93 vehicle inspection stations nationwide.
  - **Technical verification for recalls**
    - Reject vehicles that do not comply with regulations by technically verifying the causes of vehicle defects and recall measures.

Formulation of standards focused also on the usage stage and Swift implementation of recalls based on relevant information, improvement of type designation examination methods.

- Practical use at research sections
- Promotion of the acquisition of international standards for Japanese technology by formulating highly effective standards and proposing international standards.
- Vast amount of inspection information
- Analysis of failure rate for specific examination items
- Development of appropriate and efficient examination methods for innovative technology.
Organization

Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Road Transport Bureau
- Environmental Policy Division
  - General management of traffic pollution control regulations
- Engineering Policy Division
  - General management of safety regulations
  - Harmonization of vehicle regulations
- Type Approval and Recall Division
  - Certification affairs concerning type approval of motor vehicles and devices
  - General management of recall
- Maintenance Service Division
  - General management of motor vehicle inspection affairs
  - Supervision of motor vehicle repair business

District Transport Bureau
- Transport Branch Office, Office for Motor Vehicle Inspection and Registration
  (The number of office: 93)

National Agency for Automobile and Land Transport Technology (NALTEC former NTSEL)*

- Automobile Type Approval Test Department
- Automobile Recall Technical Verification Department
- Automobile Research Department

* Specified independent administrative agencies controlled by MLIT

(The number of office: 93)
feasible regulations: Emission

Emission regulation for Heavy Duty Vehicles

- The current regulations for HDVs based on WHDC have been applied since Oct. 2016.
- The emission limit values are 0.4g/kWh for NOx and 0.010g/kWh for PM.

Emission regulation for Passenger Vehicles

- The new regulations for PVs based on WLTC have been applied since Oct 2018.

<Gasoline vehicles>

<Diesel vehicles>
Note) The explanation given below concerns commercial motor vehicles and reference to legal provisions gives only the outline thereof, not the text itself.

Motor vehicles must not be put into operational use unless they conform to safety regulations. (Art. 40 to 42 of the Road Vehicle Act (hereinafter the articles referred to are those of the same Act))

The user of a motor vehicle must keep it in conformity with safety regulations by having it checked & maintained. (Art. 47)

- The maintenance include: (1) daily maintenance; (2) periodic maintenance; and (3) ad-hoc maintenance to be performed as necessary according to how it is used and type of the vehicle.

(1) Daily maintenance

- The user of a commercial vehicle or the person who operates it must conduct daily check and necessary maintenance of the vehicle once a day before the start of its operation. (para. 2, Art. 47-2)

(2) Periodic maintenance

- The user of a motor vehicle must periodically check the vehicle and maintain it as necessary. (Art. 48)

(3) Periodic technical inspection (PTI)

- A motor vehicle must not be put into operational use unless it has been inspected for compliance with safety regulations and issued a safety regulations conformity certificate. (Art. 58)

(4) Other maintenance

- The manufacturer of motor vehicles must endeavor to provide technical information on vehicles necessary for maintenance other than daily and periodical maintenance to the users of motor vehicles. (Art. 57-2)

Maintenance order

- If a vehicle is not in compliance with safety regulations, the authority can issue a maintenance order to the user of the vehicle. (para. 1, Art. 54)
- If the user does not obey the maintenance order, the authority can take a disposition to forbid them to use the motor vehicle. (para. 2, Art. 54)

The person who violates the order will be punished by a fine not more than 500,000 yen (para. 7, Art. 109).

The person who violates the disposition will be punished by imprisonment with work for not more than 6 months or a fine of not more than 300,000 yen (para. 2, Art. 108)

The requirement for monthly check was abolished pursuant to the system reform in 2000

The person who violates the above will be punished by imprisonment with work not more than 6 months or a fine not more than 300,000 yen (para. 1, Art. 108)
Vehicle Registration and Inspection System

- Through vehicle inspections, the government checks vehicles at regular intervals to see whether individual vehicle complies with Safety Regulation for Road Vehicles.
- Primary achievements through vehicle inspection system are:
  [1] Prevents air pollution with exhaust emissions,
  [2] Reduces noise from vehicles,
  [3] Raises users’ consciousness of safety and environment,
  [4] Reduces traffic accidents caused by improper maintenance,
  [5] Prevents traffic congestion due to broken-down vehicles,
  [6] Eliminates illegally-transfigured vehicles,

- Safety and environmental level of vehicles cannot be achieved without appropriate maintenance, and Vehicle Inspection System ensures the quality of vehicles under use.

Vehicle Inspection Flow (Periodic Technical Inspection)

1. User
2. Certificated Vehicle Maintenance Service
   - Checks, maintenance, repairs
   - Presentation of the vehicles, records of periodical checks, maintenance and repairs, and other documents are required.
3. Designated Vehicle Maintenance Service
   - Checks, maintenance, and Completion of inspection
   - Presentation of vehicles may be omitted.
   - Safety regulations conformity Certificate. Other documents are required.

Local Transport Branch Office (MLIT)

Renewal of Valid Term of Vehicle Inspection Certification

USER
Benefits of Vehicle Registration and Inspection System

Motor Vehicle Users
- Property protection by certification of ownership
- Secure of safety to trade vehicle
- Decrease of theft risk
- Secure compensation for the traffic accident victims by certain provision of Automobile Liability Security

Government
- Avoidance of unconformity vehicle with regulations through certain inspection
- Certain implementation of recall
- Secure of tax gathering by certain taxation
- Avoidance of illegal import and illegal dump

Private Sector
- Development of automobile maintenance service
- Development of used vehicle market
- Decrease of insurance risk for insurance company
Achievement of Environmental Quality regulations for Nitrogen Dioxide (NO2)

〈Air Quality regulation〉
Average of the hourly values for each day: between 0.04 ppm and 0.06 ppm, or less

〈Achievement rate of EQS in FY 2016〉

■ All Japan
- Ambient air pollution monitoring stations: 100% (all 1,243 stations)
  Roadside air pollution monitoring stations: 99.7% (392 of 393 stations)
- Annual average is gradually decreasing

■ Specified areas based on ‘NOx and PM law’ (big city area)
- Ambient air pollution monitoring stations: 100% (all 403 stations)
  Roadside air pollution monitoring stations: 99.5% (214 of 215 stations)
- Annual average is gradually decreasing
Achievement of Environmental Quality regulations for Suspended Particulate Matter (SPM)

⟨Air Quality regulation⟩
Average of the hourly values for each day: 0.10 mg/m³ or less
Hourly values: 0.20 mg/m³ or less

⟨Achievement rate of EQS in FY 2016⟩

■ All Japan
- Ambient air pollution monitoring stations: 100% (all 1,296 stations)
  Roadside air pollution monitoring stations: 100% (all 388 stations)
- Annual average is gradually decreasing

■ Specified areas based on ‘NOx and PM law’ (big city area)
- Ambient air pollution monitoring stations: 100% (all 412 stations)
  Roadside air pollution monitoring stations: 100% (all 218 stations)
- Annual average is gradually decreasing

Source: Ministry of the Environment

![Graph showing attainment rate of air quality standards from 1975 to 2015.](image-url)
New Challenges

Surveillance

Background

- Surveillance was introduced in Japan in 2017, after the Volkswagen emission scandal.

- **Surveillance is conducted to examine whether any irregular defeat devices are installed, by comparing the results of various emission tests.**

- If a defeat device is detected, vehicles must be recalled.

- The National Traffic Safety and Environment Laboratory (NTSEL), together with MLIT, is responsible for conducting surveillance.

Tested vehicles

- Around Kongoji Temple
- Around Jindaiji Temple
Outline of Surveillance

- Vehicles of M1 or N1 categories will be selected by MLIT for surveillance tests.
- Vehicles are selected based on data including registration information.
- Six vehicles have been surveyed so far.
- Vehicles to be surveyed shall be new or almost new to avoid any effects from deterioration.
- Nitrogen oxides (NOx) are evaluated.
- NTSEL conducts emission tests and evaluations as follows:
  1. Difference between two modes
  2. Comparison between on-track and in-laboratory tests
  3. Evaluation of J-RDE test
Evaluation of J-RDE test

- The regulation value of J-RDE from 2022 in Japan was applied to this study.
- All tested vehicles met the regulation.
- Based on the surveillance results it was concluded that there were no defeat devices installed on the tested vehicles.

Results of Surveillance (J-RDE)

![Graph showing NOx emissions for different vehicles.]

**Future Direction**

- **Improvement of RDE test procedure**
  The RDE test is almost applicable in Japan, although some improvement is necessary. Continuous efforts to improve the effectiveness of the test method are necessary.

- **Other issues to conduct surveillance**
  Develop the process of selecting vehicles for testing by 2022 when the RDE test becomes mandatory.
New Challenges ② New Vehicle Inspection by utilizing OBD

**Problem Point**
- Conventional inspection
  - Chassis check by looking
  - Brake tester, Exhaust gas probe check
- Electric device failure cannot be detected by conventional inspection method.

**New Vehicle Inspection Method by using OBD**

**Scope / Schedule**
- **Scope**
  - New models of passenger car, Bus and Truck since 2021 (Import Car 2022)
    1. ADAS (Advanced driver-assistance systems)
      - ABS, ESC, BAS, AEB and AVAS
    2. ACSF
      - Enhanced-Lane Keeping, Lane changing
    3. Exhaust gas reduction systems
- **Date of enforcement**
  - 2024 (Import Car 2025)

**New Challenges**

- **AEB, ACC equipped in new passenger cars in Japan**

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<th>Year</th>
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<th>ACC</th>
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<td>2014</td>
<td>10.4%</td>
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<td>38.7%</td>
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<td>66.2%</td>
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* AEB: Autonomous Emergency Braking
  ACC: Adaptive Cruise Control

**OBD is...**

- OBD (On-Board Diagnostics) is equipped with new car.
- OBD monitor and record a trouble of electric devices.

**Problem Point**

- Electric device failure cannot be detected by conventional inspection method.

**Submission of list of DTC which is related to inconformity for regulations (“Specific DTC”) from OEMs**

**Authorized scan tool in which information of Specific DTC is installed.**

**At the inspection**

If Specific DTC is detected by authorized scan tool, the vehicle is rejected at the inspection.
Japanese ePTI system and Role of OEMs, NALTEC and DGs

OEM

Technical Information

Communication protocol Definition Documents of each Type

NALTEC

Develop

R-DTC Query Application

Inspectors (NALTEC, DG)

Scan Tool

Free download

PC

VCI

Mobile device

R-DTCs list

Submit

1. Code
2. Vehicle Type
3. Variant
4. ECU No.
5. Communication Protocol
6. DTC
7. DTC Description etc.

R-DTC Database

NALTEC

Send DTCs

Result

Use the database for Audit of DGs, etc.

MLIT

Scan Tool

PC

VCI

Mobile device

OBD port

Diagnostic device

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Conclusion

- MLIT and NALTEC/NTSEL carry out comprehensive and unified measures as formulating feasible regulations, new vehicle type approval, periodic technical inspections for using vehicle and analyzing defect through recall verification.

- Improvements in the air quality are advancing through the collaborative efforts of vehicle users, repair technicians (private garages), manufacturers and authorities.

- We are also challenging new issues such as development of new technologies and (emission) scandals.

- We would like to consider revisions to new regulations and test methods in collaboration with UN/ECE, national authorities and agencies.