

ACPE-03

Pedal Misapplication Cases from EDR Perspective

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Purpose of EDR Data Analysis

◀ Purpose of Analysis

- ☑ To consider what driver's pedal misapplication(P.M.) type during stop or driving
- ☑ EDR data was analyzed to check pedal misapplication accidents in Korea.

◀ Outline for EDR

- ☑ Accident investigation reports and EDR data on pedal misapplication accident reports submitted by manufacturers in Korea were used.
- ☑ 64 cases submitted by 11 manufacturers from March to May 2023 were analyzed.
- ☑ Analyzed vehicle speed, accelerator pedal manipulation, and steering angle from pre-crash data in the EDR data
 - (Stopped) The vehicle was stopped 5 seconds before the accident
 - (Driving) The vehicle was driving 5 seconds before the accident

P.M. Accident Case

◀ Accident Case - Stopped

- ☑ Collisions with vehicles and trees in front of the parking lot due to unintended acceleration
- ☑ The driver claims that the vehicle suddenly accelerated with loud engine noise while stopping
- ☑ On the EDR record, APS is 99% and the brake pedal is not pressed



P.M. Accident Case

Accident Case - Driving

- ☑ The driver was trying to park the vehicle in a parking lot on the right.
- ☑ But, the driver claims that the brake pedal was operated but the vehicle suddenly accelerated without braking
- ☑ According to the EDR and Video analysis, the driver entered the parking lot with the right steering and operated the accelerator pedal

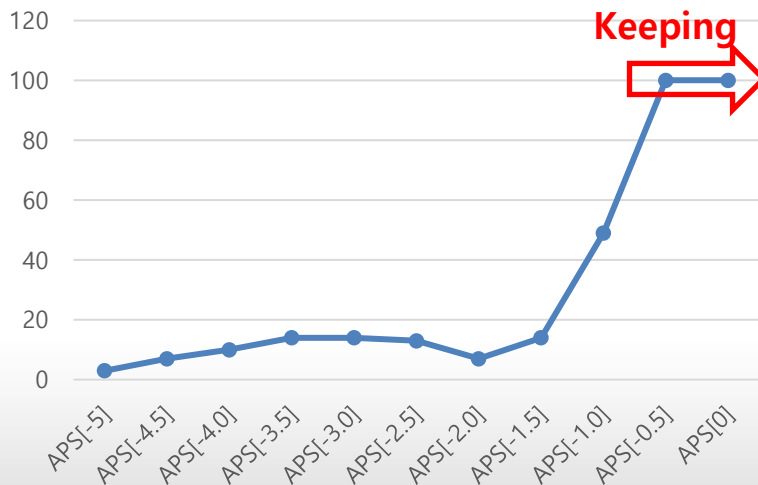


P.M. Accident Cases Analysis using EDR

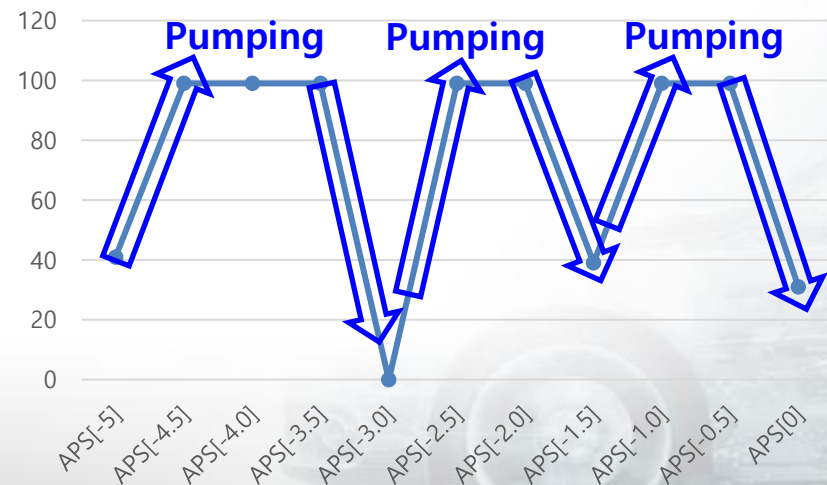
EDR Data Analysis(Gas pedal)

- ☑ There are two types of APS records in the EDR for pedal misapplication
- ☑ (Type 1: **Keeping**) Driver presses the accelerator pedal continuously and keeps it pressed at full throttle
- ☑ (Type 2 : **Pumping**) Repeated pedal misapplication causes the gas pedal to pump, and the pumping speed tends to increase after the initial pedal misapplication.

Type 1: Press the pedal all the way down.



Type 2: Pumping the gas pedal

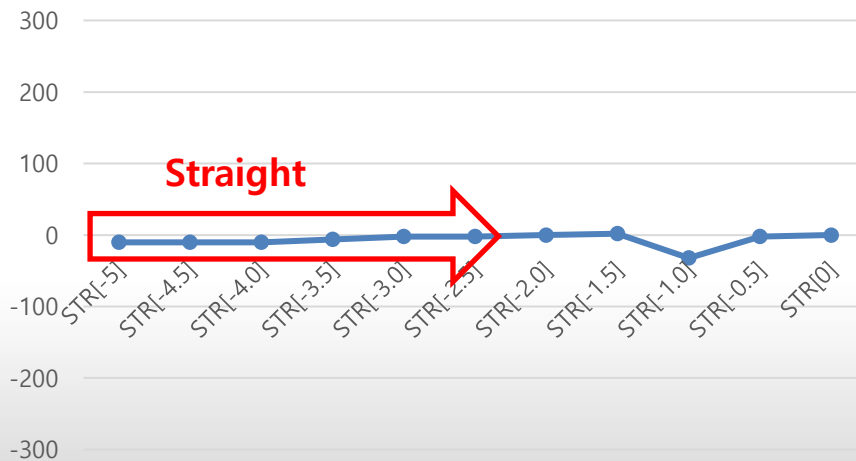


P.M. Accident Cases Analysis using EDR

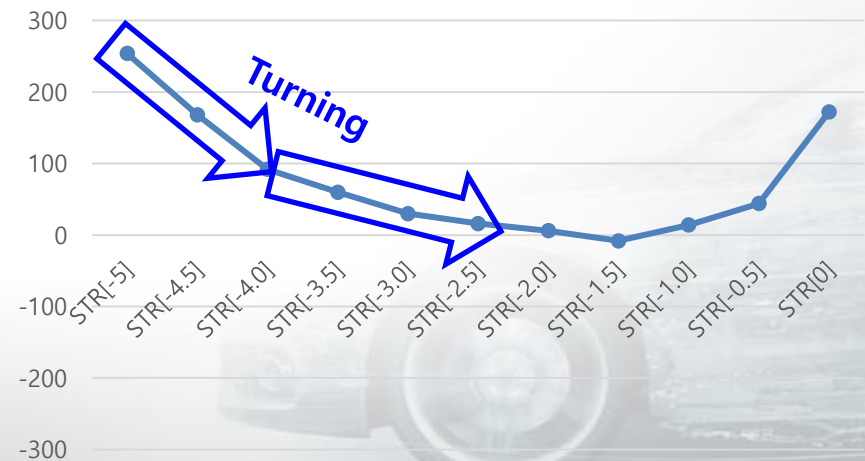
EDR Data Analysis(Steering angle)

- ☑ There are two situations of steering records in the EDR for pedal misapplication
- ☑ (Situation 1: Straight) Steering angle changed below ± 45 degrees between 5 seconds and 2.5 seconds before the accident
- ☑ (Situation 2: Turning) Steering angle change exceeded ± 45 degrees between 5 seconds and 2.5 seconds before the accident.

Situation 1: Straight

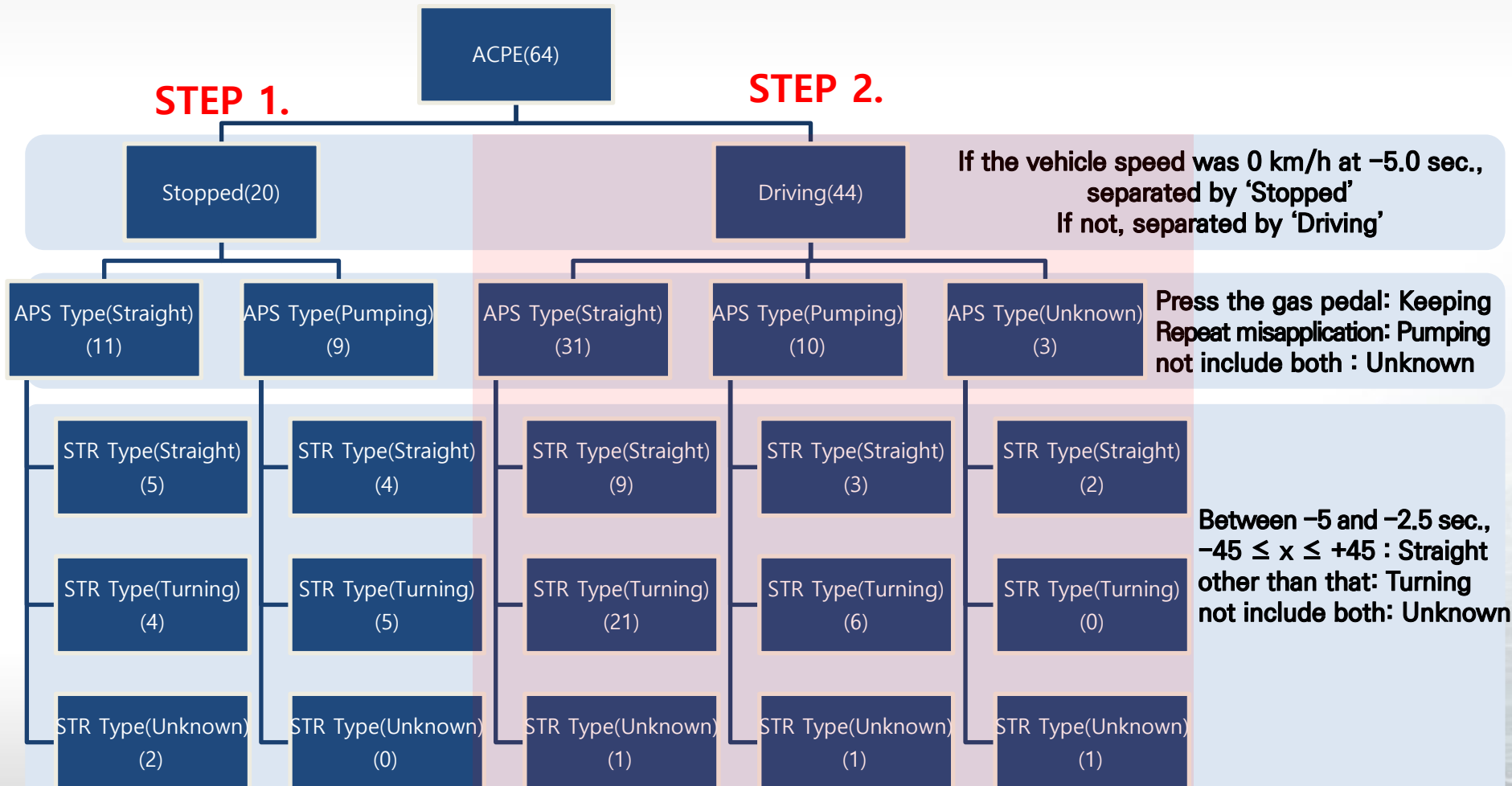


Situation 2: Turning



P.M. Accident Cases Analysis using EDR

EDR Data Analysis



Result of Analysis

Result of Analysis

- ☑ Analyzed data from 64 accidents and confirmed that 44 (68%) occurred(in driving mode).
- ☑ In 42 cases (66%), the gas pedal was kept after the pedal misapplication, but in 20 cases (31%), it was pumping the gas pedal.
- ☑ there were more accidents in which the gas pedal misapplication while driving in a turn, with 23 cases (36%) in a straight line and 36 cases (56%) in a turn.
- ☑ The maximum speed of accidents caused by pedal misapplication during a stop was 44km/h, but the maximum speed of accidents caused by pedal misapplication while driving was 73km/h.
- ☑ In Step 2, it is necessary to consider pedal misapplication in situations that require deceleration while driving, such as parking, entering a building, or entering a curve.



THANK YOU

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