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A Study on Operation Method for Emergency Stop Switch While Driver's Sudden Illness

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In recent years, with the increase of aging society, the numbers of the elderly drivers are also advancing. Even people with illnesses, including the elderly, need to drive in order to maintain and go on their daily live. Therefore, as a safety device to prevent accidents caused by sudden changes in the driver's physical condition. Emergency Driving Stop System (EDSS), which can stop a vehicle when driver's sudden illness occurs while driving by pressing a switch, is beginning to be installed in vehicles such as large commercial bus etc. This study investigated the specification of the current emergency stop switches of HINO S'ELEGA. Furthermore, the operation method of the emergency stop switch that is easy to press when the driver's sudden illness occurs was examined based on an ergonomic analysis. We evaluated the arrangement and shape of the emergency stop switch by questionnaire from the analysis considering the situation when the driver's physical condition suddenly changed. The driver's posture tilted to the right and one with closed eyes were considered as the driver's physical condition while sudden illness.

As a result, it was found that the current position(①−position in figure 1) is hard to push when a driver tilts to the right, and the optimal position of the switch is the front of the center console(②−position in figure 1) near the steering handle. Furthermore, best shape of emergency stop switch is convex shape of 30 mm diameter considering ease of pressing by the palm of the hand and miss operation as shown in figure 2. The characteristics make it easy to press the switch even when the driver's eyes are closed and the posture is tilted to the right due to sudden changes in physical condition.

Fig.1 Candidate position of emergency stop switch (HINO S'ELEGA)

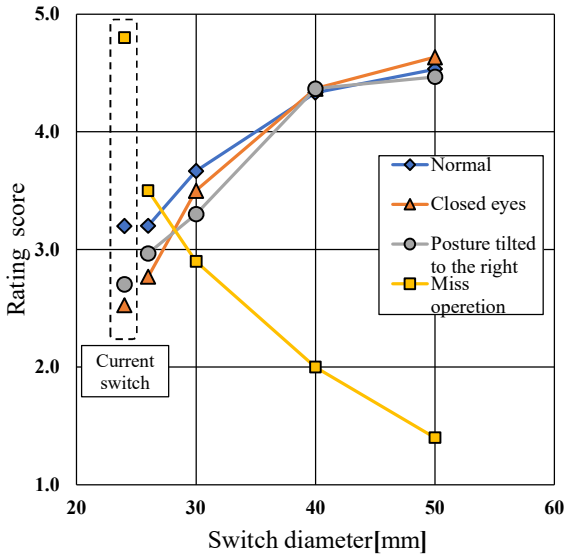

Fig.2 Evaluation by driving posture