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Saudi Standards, Metrology and Quality Org. (SASO)



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**Road vehicles - Transmission shift position sequence,
starter interlock, and transmission braking effect**

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1- Scope and field and application

This standard specifies the technical requirements for the transmission shift position sequence, a starter interlock, and for a braking effect of automatic transmissions, to reduce the likelihood of shifting errors, to prevent starter engagement by the driver when the transmission is in any drive position, and to provide supplemental braking at speeds below 40 km/h.

This standard applies to passenger cars, multi-purpose passenger vehicles, trucks, and buses.

2- Terms and definitions

For the purposes of this standard, the following terms and definitions are applied:

2.1 Passenger car

A motor vehicle with motive power, designed for carrying 10 persons or less including the driver and their luggage, except a low-speed vehicle, multipurpose passenger vehicle, or trailer.

2.2 Multipurpose passenger vehicle

A motor vehicle with motive power, designed to carry 10 persons or less or goods equivalent by weight which is constructed either on a truck chassis or with special features for occasional off-road operation. except a low-speed vehicle or trailer

2.3 Truck

A motor vehicle with motive power, designed primarily for the transportation of property, special purpose equipment, or towing a trailer except a trailer.

2.4 Bus

A motor vehicle with motive power, designed for carrying more than 10 persons, except a trailer.

3- Technical requirements

3.1 Automatic transmissions

3.1.1 Location of transmission shift positions on passenger cars

A neutral position shall be located between forward drive and reverse drive positions.

3.1.1.1 Transmission shift levers

a) If a steering-column-mounted transmission shift lever is used, movement from neutral position to forward drive position shall be clockwise.

b) If the transmission shift lever sequence includes a park position, it shall be located at the end, adjacent to the reverse drive position.

3.1.2 Transmission braking effect

In vehicles having more than one forward transmission gear ratio, one forward drive position shall provide a greater degree of engine braking than the highest speed transmission ratio at vehicle speeds below 40 km/h.

3.1.3 Starter interlock

The engine starter shall be inoperative when the transmission shift position is in a forward or reverse drive position, except as following:

3.1.3.1 After the driver has activated the vehicle's propulsion system:

a) The engine may stop and restart automatically when the transmission shift position is in any forward drive gear;

b) The engine may not automatically stop when the transmission is in reverse gear; and

c) The engine may automatically restart in reverse gear only if the vehicle satisfies (1) and (2):

1) When the engine is automatically stopped in a forward drive shift position and the driver selects Reverse, the engine restarts immediately whenever the service brake is applied.

2) When the engine is automatically stopped in a forward drive shift position and the driver selects Reverse, the engine does not start automatically if the service brake is not applied.

3.1.3.2 Notwithstanding 3.1.3.1, the engine may stop and start at any time after the driver has activated the vehicle's propulsion system if the vehicle can meet the requirements specified in paragraphs (a) and (c):

a) For passenger cars, multi-purpose passenger vehicles, trucks and buses with a GVWR less than or equal to 4,500 kg

The vehicle's propulsion system can propel the vehicle in the normal travel mode in all forward and reverse drive gears without the engine operating.

b) For passenger cars, multipurpose passenger vehicles, trucks and buses with a GVWR greater than 4,536 kg

The vehicle's propulsion system can propel the vehicle in the normal travel mode in Reverse and at least one forward drive gear without the engine operating.

c) If the engine automatically starts while the vehicle is traveling at a steady speed and steady accelerator control setting, the engine does not cause the vehicle to accelerate.

3.1.3.3 If the transmission shift position is in Park, automatically stopping or restarting the engine shall not take the transmission out of Park.

3.1.4 Identification of shift positions and of shift position sequence

3.1.4.1 Except as specified in 3.1.4.3, if the transmission shift position sequence includes a park position, identification of shift positions, including the positions in relation to each other and the position selected, shall be displayed in view of the driver whenever any of the following conditions exist:

a) The ignition is in a position where the transmission can be shifted; or

b) The transmission is not in park.

3.1.4.2 Except as specified in 3.1.4.3, if the transmission shift position sequence does not include a park position, identification of shift positions, including the positions in relation to each other and the position selected, shall be displayed in view of the driver whenever the ignition is in a position in which the engine is capable of operation.

3.1.4.3 Such information need not be displayed when the ignition is in a position that is used only to start the vehicle.

3.1.4.4 All of the information required to be displayed by 3.1.4.1 or 3.1.4.2 shall be displayed in view of the driver in a single location.

At the option of the manufacturer, redundant displays providing some or all of the information may be provided.

3.2 Manual transmissions

Identification of the shift lever pattern of manual transmissions, except three forward speed manual transmissions having the standard “H” pattern, shall be displayed in view of the driver at all times when a driver is present in the driver's seating position.

Bibliography

- [1] 49 Subtitle B-Chapter V-Part 571-Subpart B Section 102
(FMVSS 571.102) "Transmission shift position sequence, starter interlock, and transmission braking effect".