



SURFACE VEHICLE INFORMATION REPORT

J3081™

MAR2026

Issued 2015-04
Revised 2026-03

Superseding J3081 OCT2020

Heavy Vehicle Controls Prioritization and Conflict Resolution

RATIONALE

The document is being updated to acknowledge the implementation of new technology, including Advanced Driver Assistance Systems (ADAS) and Autonomous Driver Systems (ADS).

1. SCOPE

This document is written to address acceleration and deceleration control issues related to heavy-duty trucks and buses greater than 10000 GVW.

1.1 Purpose

Establish criteria and rationale for prioritized response to operator control inputs in order to enable acceptable operation of heavy vehicles, especially in cases where there may be conflicting priorities.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada), www.sae.org.

SAE J1939 Serial Control and Communications Heavy-Duty Vehicle Network - Top-Level Document

2.1.2 ISO Publications

Copies of these documents are available online at www.iso.org/store.

ISO 26262 Road Vehicles - Functional Safety

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2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Information Report.

2.2.1 Code of Federal Regulations (CFR) Publications

Copies of these documents are available online at www.ecfr.gov.

49 CFR Part 571 Federal Motor Vehicle Safety Standards

2.2.2 NHTSA Publications

Available from National Highway Traffic Safety Administration, 1200 New Jersey Avenue SE, Washington, DC 20590, Tel: 1-888-327-4236, www.nhtsa.gov.

Standard No. 105 Hydraulic and Electric Brake Systems

Standard No. 121 Air Brake Systems

Standard No. 124 Accelerator Control Systems

3. TRADITIONAL MECHANICAL CONTROL SYSTEMS

Traditionally, operator control of commercial vehicles has been accomplished with a variety of mechanical devices.

1. Accelerator pedal coupled to mechanical governor
2. Brake treadle—pneumatic valve control of brake chambers
3. Engine brakes and drive line retarders
4. Shift selector—typically lever or cable coupling to shift forks
5. Mechanical clutches
6. Steering wheel—geared coupling to steer arms

Care has been taken in the design of these systems to achieve acceptable operation while avoiding the addition of costly redundancy. In general, the goal is to bring the vehicle to a controlled stop, out of harm's way, in the event of failure of a significant control system component. At least in North America, the goal has not been to provide redundancy that would permit mission completion.

For example, in case of a stuck accelerator or governor, the operator can operate the clutch and/or shift to neutral while applying the brakes if necessary. The brake system is split front rear so that complete loss of braking capability is unlikely. The steering system is possibly the most critical control system. It is for this reason that significant effort is put into assuring the robustness and reliability of the mechanical components used within this system.