



SURFACE VEHICLE RECOMMENDED PRACTICE

J2191™

NOV2023

Issued 1997-02
Revised 2014-02
Reaffirmed 2023-11

Superseding J2191 JAN2019

Recommended Practice for Identification of Standardized Truck and Tractor Electrical Circuits

RATIONALE

The SAE J2191 document is being revised to provide additional circuit ID nomenclature to the Supplemental Circuit Identifications for the following sections: Power, Instrumentation, Monitoring (Warn Sys), Control (Fuel, Engine, Cruise), Serial/Data Communication, Operator Convenience, Entertainment, Navigation, Accessories, Emergency/Vision, and Engine Accessories.

SAE J2191 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE document defines a recommended practice for implementing circuit identification for electrical power and signal distribution systems of the Class 8 trucks and tractors. This document provides a description of a supplemental circuit identifier that shall be utilized in conjunction with the original equipment manufacturer's primary circuit identification as used in wire harnesses but does not include electrical or electronic devices which have pigtailed. The supplemental circuit identifier is cross-referenced to a specified subsystem of the power and signal distribution system identified in Section 5.

1.1 Purpose

This document will provide a common method of identifying circuit function for commercially available Class 8 vehicles. It will guide the service technician in diagnosing vehicle electrical subsystems. The identification method will supplement component OEM circuit identification for each major subsystem.

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.

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2.1.1 SAE Publications

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

SAE J1587	Electronic Data Interchange Between Microcomputer Systems in Heavy-Duty Vehicle Applications
SAE J1708	Serial Data Communications Between Microcomputer Systems in Heavy-Duty Vehicle Applications
SAE J1922	Powertrain Control Interface for Electronic Controls Used in Medium- and Heavy-Duty Diesel On-Highway Vehicle Applications
SAE J1939-11	Physical Layer, 250K bits/s, Twisted Shielded Pair
SAE J1939-15	Reduced Physical Layer, 250K bits/sec, Un-shielded Twisted Pair (UTP)
SAE J2284	High-Speed CAN (HSC) for Vehicle Applications at 500 KBPS

3. DEFINITIONS

3.1 ELECTRICAL CIRCUIT

An electrical circuit includes all of the components and connecting cables, starting from the electrical energy source, going to the functional component(s) and the return route through the energy source.

3.2 GROUND

An electrical conductor used as a common return for an electric circuit(s) and with a relative zero potential.

3.3 HARNESS

A group of two or more conductors bundled together.

3.4 WIRING

Collectively, the cable, terminations, and supporting accessories used in the electrical distribution system.

3.5 ORIGINAL EQUIPMENT MANUFACTURER

Truck/Engine/Transmission/etc. Manufacturer

4. CIRCUIT IDENTIFICATION SYSTEM

4.1 Primary Circuit Identification

The OEM method of circuit identification will be known as the primary circuit identification system.

4.2 Supplemental Circuit Identification

The supplemental circuit identification system is a four character code with the first two characters referencing a general subsystem and the second two characters referencing a more specific circuit function. The subsystems and circuit functions can be found in the list of general categories shown as follows:

- a. Braking/Traction System (Air System)
- b. Charging
- c. Control (Fuel, Engine, Cruise, After Treatment)
- d. Emergency/Vision/Collision Avoidance
- e. Engine Accessories
- f. Ground
- g. HVAC
- h. Instrumentation, Monitoring (Warning Systems)
- i. Lighting Systems
- j. Operator Convenience, Entertainment, Navigation, Accessories
- k. Power
- l. Serial/Data Communication
- m. Trailer Systems
- n. Transmission and Drive Train (Rear Axles)
- o. Body Functions
- p. Hybrid

4.3 Separator

The “#” character is to be used to separate the primary OEM circuit identifier from the supplemental suffix. The single space on each side of the “#” character is required for improved clarity.

4.4 Application

The methods used to apply the supplemental circuit identification to the cables shall be specified by the OEMs.

4.4.1 Test

The application durability of the supplemental circuit characters must meet the OEMs specification for abrasion and fluid resistance.