



SURFACE VEHICLE RECOMMENDED PRACTICE	J1930™	AUG2024
	Issued	1988-06
	Revised	2024-08
Superseding J1930 MAR2017		
Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to ISO 15031-2		

RATIONALE

This SAE Recommend Practice supersedes SAE J1930 MAR2017 and is technically equivalent to ISO 15031-2. This document provides guidelines for industry standard terms, definitions, abbreviations, and acronyms to enable common terminology for diagnostic tools and publications.

FOREWORD

As the number of sophisticated electrical and electronic (E/E) systems on motor vehicles has increased, the number of terms, abbreviations, and acronyms which describe various components of these systems has increased enormously. To bring some order to the proliferation of such terms, abbreviations, and acronyms, the Vehicle E/E Diagnostic Systems Committee has prepared this document.

The nomenclature used to convey automotive service information is being standardized in order to more accurately convey information to technicians faced with the diagnosis and repair of increasingly complex vehicles.

To be properly descriptive, each type of automotive nomenclature requires a consistent methodology. This document is concerned with a methodology for naming objects and systems and with the set of words from which names are built.

The methodology allows objects and systems to be completely described without ambiguity. It also is able to generate names which distinguish among similar objects or systems without confusion, but with brevity. Using terms which are well-defined within the context of the automotive service industry, the methodology allows already existing imprecise names to be suitably changed and future names to be assigned in a predictable way which will reliably convey meaning to the technician.

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1. SCOPE

1.1 Purpose

This SAE Recommended Practice supersedes SAE J1930 MAR2017 and is technically equivalent to ISO 15031-2. This document is applicable to all light-duty gasoline and diesel passenger vehicles and trucks, and to heavy-duty gasoline vehicles. Specific applications of this document include diagnostic, service and repair manuals, bulletins and updates, training manuals, repair databases, underhood emission labels, and emission certification applications.

This document should be used in conjunction with SAE J1930DA Digital Annexes, which contain all of the information previously contained within the SAE J1930 tables.

These documents focus on diagnostic terms applicable to electrical/electronic systems, and therefore also contain related mechanical terms, definitions, abbreviations, and acronyms.

Even though the use and appropriate updating of these documents is strongly encouraged, nothing in these documents should be construed as prohibiting the introduction of a term, abbreviation, or acronym not covered by these documents.

Certain terms have already been in common use and are readily understood by manufacturers and technicians, but do not strictly follow the methodology of this document. The SAE J1930 committee may approve these terms that already may be considered industry standards. These terms fall into three categories:

- a. Acronyms that do not logically fit the term.
- b. Acronyms existing at the component level, i.e., their terms contain the base word or noun that describes the generic item that is being further defined.
- c. Acronyms for terms that appear to contain the base word, but are frequently used as a modifier to another base word. (This use may possibly be thought of as following the methodology since the acronym is normally used as a modifier.)

2. NORMATIVE REFERENCES

This document, in conjunction with SAE J1930DA, provides standardization of terms and definitions for the listed specifications.

2.1 Applicable Documents

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

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 +1 724-776-4970 (outside USA), www.sae.org.

SAE J1930DA J1930 Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms Web Tool Spreadsheet

2.1.2 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 15031-2 Road vehicles - Communication between vehicle and external equipment for emissions-related diagnostics - Part 2: Guidance on terms, definitions, abbreviations and acronyms

2.2 Related Publications

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

2.2.1 SAE Publications

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

SAE J1979 E/E Diagnostic Test Modes

NOTE: Equivalent to ISO 15031-5.

SAE J2012 Diagnostic Trouble Code Definitions

NOTE: Equivalent to ISO 15031-6.

SAE J2012DA Digital Annex of Diagnostic Trouble Code Definitions and Failure Type Byte Definitions

2.2.2 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>

ISO 15031-5:2015 (Ed. 3) Road vehicles -- Communication between vehicle and external equipment for emissions-related diagnostics -- Part 5: Emissions-related diagnostic services

ISO 15031-6:2015 (Ed. 3) Road vehicles -- Communication between vehicle and external equipment for emissions-related diagnostics -- Part 6: Diagnostic trouble code definitions

3. HOW TO USE THIS DOCUMENT

Refer to SAE J1930DA Appendices A through D for approved terms, SAE J1979 PID Acronyms, Glossary, and Control Module Naming. Appendix E contains figures to assist in the identification of the proper terms. Appendix F is provided as a Historical Reference for Acronym usage in previous SAE J1930 documents.

If no base matching term can be found in SAE J1930DA, use Section 4 to construct a new name, and request approval from the SAE J1930 committee using the Revision Request instructions in this document. Modifiers can be added to existing terms following the methodology described in Section 4.

4. METHODOLOGY

This naming methodology of describing objects and systems uses modifiers attached to base words. Appropriate modifiers are added to a base word until an object or system is uniquely specified.

4.1 Naming Objects

When building names, select the most descriptive base word from the Glossary of Terms (refer to SAE J1930DA, Appendix D). Add modifiers as necessary or as desirable within the context, in the order of most significance to least significance. The most significant word will be the base word, which denotes the basic function of the object. The most significant modifier will be adjacent to the base word, the second most significant will be next to that modifier, and so on until the least significant modifier is added. For the sake of future clarity, an additional modifier can be added to a name at any time, even if there is no present conflict with another object name. Example 1 illustrates how modifiers can be added to build the name "Instrumentation Engine Coolant Temperature Sensor."

When naming an object, it is tempting to choose the first modifiers according to the initial purpose for which the object was designed, but this will not always result in the name which is most helpful in the long run to a service technician. The information a technician needs is most often supplied by a term which describes a functional attribute, not purpose.

MODIFIERS				BASE WORD	
What is its purpose?	Where is it?	Which Temp?	What does it sense?	What is it?	
			Temperature	Sensor	Most generic
		Coolant	Temperature	Sensor	
	Engine	Coolant	Temperature	Sensor	Most specific
Instrumentation	Engine	Coolant	Temperature	Sensor	
Least <-----				SIGNIFICANCE	-----> Most

Example 1 - Modifier usage example

To ensure accuracy, always check the Glossary definitions of base words and modifiers before including them in a name. The Glossary is intended for diagnostic purposes, but provides only electrical/electronic terms for base words. Base words which describe nonelectrical objects (e.g., bolt, screw, bumper) should be used as in the past. Often, names for these objects are created by attaching the appropriate electrical/electronic object name to the mechanical base word. When using a common multiple word modifier, refer to SAE J1930DA to be sure that the modifier is acceptable or if it should be replaced with a more precise term.

4.1.1 Base Words

The base word is the most generic term in a name. Simply stated, it answers the question, "What is this object?" In answering this question, the base word does not include information about the location or function of an object within a particular system. Specific information like this is provided by modifiers that are added to the base word. The following are examples of base words: diode, engine, module, motor, pump, relay, sensor, solenoid, switch, valve. The base word is always a noun and the last term in a name.

4.1.2 Modifiers

Modifiers provide functional/applicational meaning, system differentiation, and locational/directional information. Modifiers usually express nonelectrical ideas to describe base words which, in turn, convey electrical/electronic meaning. The range of modifiers is not limited and is used as necessary to uniquely describe an object in light of present knowledge, past experience, and potential future conflicts.

Although modifiers are used as adjectives, they are not necessarily terms which would normally be classified as adjectives. While neither "Air" nor "Flow" is an adjective, the meaning of "Airflow Valve" is clear to technicians; it is the name of a valve which regulates the flow of air. Both modifiers are nouns functioning as adjectives because of their position.

System modifiers can be added to object names to describe an object's purpose. When using a system name as a modifier in an object name, the word "System" is not included. For example, the device that directs the exhaust gases in the Exhaust Gas Recirculation (EGR) System is named "Exhaust Gas Recirculation (EGR) Valve."

4.1.3 Technological Terms

Technologically specific terms tend to lengthen names without adding a corresponding level of useful service information about the function of an object. Add an appropriate technological modifier to a name only when it describes the primary difference between two objects. For example, the "thick film" technology used to construct the internal circuit of an Airflow Sensor should not be identified in the object's name. However, if necessary for clarity, it would be appropriate to differentiate the relation to a specific external provision by adding "Hot Wire" to "Airflow Sensor."

A technological term should be the first modifier conversationally (farthest from the base word, the position of least significance), unless a directional modifier is also present.

4.2 Naming Systems

When constructing a name for a system, consider it to be a combination of a “concept” and the word “System.” Develop the concept name according to the rules for object naming and add the word “System.” Keep in mind that a concept’s most basic attribute is its purpose and that this attribute is described by the term closest to the word “System.” For example, “recirculation” is the basic attribute of the Exhaust Gas Recirculation (EGR) concept. The group of components that embody the concept are together named the “EGR System.”

4.3 Shortened Names

Techniques of shortening, including acronyms and abbreviations, are often necessary when space is limited and when names become awkwardly long. It is preferable to create a name first and its shortened form later, rather than the other way around.

Abbreviations and acronyms may be constructed not only of the letters of the alphabet, but of numbers, space characters, punctuation marks (such as “/” and “-”), subscripts, and any other ASCII characters. Treat the individual acronyms, modifier abbreviations, and base word abbreviations as words, separating them by space characters.

4.3.1 Acronyms

Specific definitions of acronyms vary, but for the purpose of this document, an acronym is a memorable combination of the first letters of the words of a name. While abbreviations are useful in text where space is limited, acronyms are particularly convenient for shortening verbal communication in addition to written materials. For this reason, acronyms are often pronounceable, which also makes them easy to remember. They are especially useful if a name is long and bulky both on paper and in conversation.

Use acronyms as modifiers or base words within names, such as “EGR System” and “Primary ECM.” Do not use them as entire names, like “EGRS.” Acronyms and other modifiers may be combined in any meaningful order to modify a base word. The following are examples of acceptable uses of acronyms:

EGR System EGRT Sensor Low Speed FC Switch High Speed FC Switch

Because there is a limited number of useful letter combinations for acronyms, new acronyms should be created for only the most commonly used terms. Also, avoid creating new acronyms by adding letters to those that already exist. For example, when using the acronym “FC” (Fan Control), do not add “H” or “L” to indicate “High Speed” or “Low Speed.” Instead, use additional modifiers.

Usually, the first letters of each word of a name are used to build an acronym, but if a particular word is of little significance, it may be omitted (“United States of America” becomes “USA”). Also, more than the first letter of each word may be used (“Radio Detecting and Ranging” becomes “RADAR”). An acronym like “USA” which contains three letters or fewer may have its letters spoken separately, but a longer acronym such as “RADAR” must be pronounceable or its purpose will be defeated.

All of the letters of an acronym should be capitalized. Acronyms should not contain periods. Until an acronym is widely well-known, it should be accompanied by the spelled-out form when necessary for accurate reader comprehension in any given context.

In the very rare cases of strong historical meaning across all manufacturers, the rules for naming and acronym usage may be broken. For example, “AIR” is the approved acronym for “Secondary Air Injection,” instead of “SAI.” In fact, because there is no approved name “Primary Air Injection,” the term “Secondary Air Injection” would be considered inappropriate. Despite this, historical precedent renders “AIR” and “Secondary Air Injection” the most easily understood terms. “AIR” originally meant “Air Injection Reactor.” However, vehicles no longer necessarily use a separate air injector reactor, but instead might have additional air injected to the catalytic converter. Because of the similarity to the previous system, technicians have expressed a strong desire to retain “AIR” rather than “SAI.”

Before using a new acronym, be sure to check SAE J1930DA for any conflicts with acronyms already in use.

4.3.2 Abbreviations

Use abbreviations to shorten base words and directional modifiers in written materials. Unlike an acronym, an abbreviation should have only its first letter capitalized and should end with a period. Wire colors are an exception to the rules of capitalization and punctuation. As in the past, they should continue to be completely capitalized in text and not followed by a period (for example, “a BLK wire”). Currently identified abbreviations for base words and modifiers are found in SAE J1930DA.

4.4 Indexing of Name

Service information index designers consider the importance of each term in a name and select the most appropriate word(s) to index. They most frequently index base words, following each by its modifier(s) to enhance users' retrieval. This document allows the designer flexibility to choose the indexed word(s), while it describes, in detail, the methodology for the conversational word order in text and illustrations. For example, the designer can conform to the methodology of this document and provide the user with the effective retrieval of the conversational name “Left Front Wheel Speed Sensor” by indexing it as “Sensor, Left Front Wheel Speed.”

4.5 Alphanumeric Descriptors

Sections 4.1, 4.2, and 4.3 describe the appropriate methodology to completely describe objects and systems without ambiguity. This section includes naming objects (with base words, modifiers, and technological terms), naming systems, and building shortened names.

An “alphanumeric descriptor” can be used in information delivered to the end-user of a scan tool having an eight-character display limitation. An alphanumeric descriptor is not recommended for general use, but can be built from a Recommended Term by replacing position modifier words with numeric digits, and omitting certain self-evident letters.

Alphanumeric position modifiers in an alphanumeric descriptor should be positioned to follow the base word, rather than the conversational practice of preceding the base word.

Example 2 illustrates how several Recommended Terms and Acronyms can be further shortened into alphanumeric descriptors. The following guidelines should be followed when using or developing alphanumeric descriptors:

- a. First, consult SAE J1930DA to determine if the term has already been defined.
- b. If the term is not included, build a suitable term using 4.1 or 4.2. Then, shorten the term using 4.3.
- c. If the resultant term is too long for a scan tool with an eight-character display limitation, build an Alphanumeric Descriptor for electronic delivery according to the pattern shown in Example 2.
- d. Delete or replace characters as required.
- e. Omit spaces depending on the display limitation.

EXAMPLE: FUEL PRES becomes FUELPRES.

- f. Consult SAE J1930DA for a matching Alphanumeric Descriptor.
- g. If SAE J1930DA does not contain a matching Alphanumeric Descriptor, request an addition using the SAE J1930DA Revision Request instructions in this document.