

(R) SAFETY SIGNS

- 1. Scope**—This SAE Standard establishes signal words, color combinations, letter sizes, and durability requirements for permanently and temporarily affixed safety signs for off-road, self-propelled work machine categories of construction, general purpose industrial, forestry, agricultural tractors, and specialized mining machinery as defined in SAE J1116. This document is suitable for application to tools, machines, and machinery used in the specified categories.
- 1.1 Purpose**—This document establishes uniformity of safety signs to promote safety of persons associated with off-highway work machines.
- 2. References**
- 2.1 Applicable Publications**—The following publications form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of SAE publications shall apply.
- 2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.
- SAE J284—Safety Alert Symbol for Agricultural Construction and Industrial Equipment
SAE J1116—Categories of Off-Road Self-Propelled Work Machines
- 2.2 Related Publications**—The following publications are provided for information purposes only and are not a required part of this document.
- 2.2.1 ANSI PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.
- ANSI Z535.3—Criteria for Safety Symbols
ANSI Z535.4—Product Safety Signs and Labels
- 2.2.2 ISO PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.
- ISO 11684—Tractors, machinery for agriculture and forestry, powered lawn and garden equipment—
Safety signs and hazard pictorials—General Principles
ISO 9244—Earth-moving machinery—Safety signs and hazard pictorials—General principles

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3. Definitions

3.1 Colors—Colors used on safety signs are defined as follows in Table 1:

TABLE 1—COLORS FOR USE ON SAFETY SIGNS

Color	Reference Munsell Number
Black	N2.0/or lower
Red	7.5R4.0/14
White	N9.0/or higher
Yellow	5.0Y8.0/12
Orange	5.0YR6.0/15

3.2 Hazard—A source of potential injury to a person.

3.3 Panel—Area of the safety sign having a distinctive background color different from adjacent areas of the sign, or which is clearly delineated by a line, border, or margin.

3.3.1 SIGNAL WORD PANEL—Area of the safety sign that contains the signal word and the safety alert symbol.

3.3.2 MESSAGE PANEL—Area of the safety sign that contains the word messages which identify the hazard, indicate how to avoid the hazard, and advise of the probable consequence of not avoiding the hazard. When a pictorial is used to convey any of these messages, the message(s) conveyed by the pictorial are not required to be repeated in word form in the message panel.

3.3.3 PICTORIAL PANEL—Area of the safety sign that contains the pictorial.

3.4 Pictorial—A graphic representation intended to convey a message without the use of words. It may represent a hazard, a hazardous situation, a precaution to avoid a hazard, a result of not avoiding a hazard, or any combination of these messages.

3.5 Safety Alert Symbol—A symbol which indicates a potential personal safety hazard. It is composed of an equilateral triangle surrounding an exclamation mark and conforms to SAE J284.

3.6 Safety Sign—A visual alerting device in the form of a decal, label, placard, or other marking such as an embossing, stamping, etching, or other process which advises the observer of the nature and degree of the potential hazard(s) which can cause injury or death. It can also provide safety precautions or evasive actions to take, or provide other directions to eliminate or reduce the hazard.

3.6.1 PERMANENT SAFETY SIGN—Information affixed to a product to warn against potential exposure to hazards inherent in the normal use of or associated with the product, or which might be created during reasonably anticipated product use. The sign shall be attached to the product so that it cannot be easily removed.

3.6.2 TEMPORARY SAFETY SIGN—Information affixed to the product or its container to warn of a temporary hazard created by situations such as shipment, setup, service, or repair. Temporary safety signs are removed when the hazard no longer exists.

3.7 Signal Word—The word that designates a degree or level of hazard seriousness. The signal words are DANGER, WARNING, and CAUTION.

3.7.1 DANGER—indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

- 3.7.2 **WARNING**—indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- 3.7.3 **CAUTION**—indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

4. Sign Format

- 4.1 **Panels**—A safety sign consists of a signal word panel plus a message panel. A pictorial panel may be used to communicate parts, or all, of the elements of a message panel (see 3.3.2 Message Panel).
- 4.2 **Panel Arrangement**—The sign panels can be either in a horizontal or vertical arrangement (Figure 2 through Figure 5). The figures, as shown are sample formats. Actual size, layout, and proportion may vary depending on application requirements.
- 4.3 **Safety Alert Symbol**—A safety alert symbol shall precede the signal word. The base of the safety alert symbol shall be on the same horizontal line as the base of the letters of the signal word. The height of the safety alert symbol shall equal or exceed the signal word letter height.
- 4.4 **Word Message**—The word message should be concise and readily understood.
- 4.4.1 Multiple messages should be provided with sufficient space between them, when feasible, to prevent them from blending together visually.
- 4.4.2 When detailed instructions, precautions, or consequences require lengthy word messages, it shall be permissible to refer the user to the proper instruction manual.
- 4.5 **Pictorial**—The pictorial should be readily understood and should effectively communicate the message. (See Appendix A for Guidelines.)

5. Safety Sign Colors

5.1 Signal Word Panels

- 5.1.1 **DANGER**—The word DANGER shall be in white letters on a red background.
- 5.1.2 **WARNING**—The word WARNING shall be in black letters on an orange background.
- 5.1.3 **CAUTION**—The word CAUTION shall be in black letters on a yellow background.
- 5.1.4 **SAFETY ALERT SYMBOL**—The solid triangle portion shall be the same color as the signal word lettering, and the exclamation mark portion shall be the same color as the signal word panel background.

- 5.2 **Message Panel**—The message panel should have either black lettering on a white background or white lettering on a black background.

- 5.3 **Pictorial Panel**—The pictorial panel should normally have a black pictorial on a white background. Other colors may be used for pictorial emphasis, such as red for fire, etc.

- 5.4 **Border**—The border should normally be white. If necessary to achieve better contrast, the border may be black or may be the color of the signal word panel.

Pictorial
Black Pictorial on
White Background

Word Message
Black Lettering on
White Background
or
White Lettering on
Black Background

Border
White or Black or
Color of Signal Panel

Danger

Signal Word—White Lettering/Red Background

Safety Alert Symbols—White Triangle/Red Exclamation Point

**Symbol/Pictorial
Panel**

Word Message

Warning

Signal Word—Black Lettering/Orange Background

Safety Alert Symbols—Black Triangle/Orange Exclamation Point

**Symbol/Pictorial
Panel**

Word Message

Caution

Signal Word—Black Lettering/Yellow Background

Safety Alert Symbol—Black Triangle/Yellow Exclamation Point

Symbol/Pictorial Panel

Word Message

Format can be extended to provide additional space for the word message.

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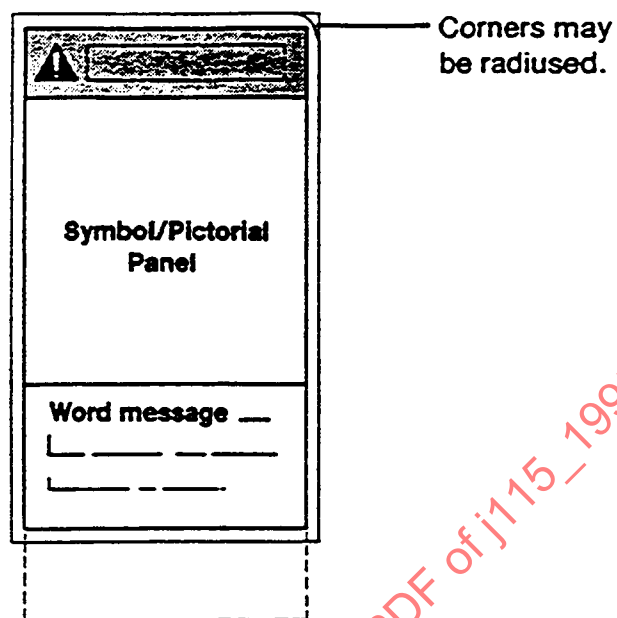


FIGURE 2—THREE-PANEL SIGN—VERTICAL FORMAT

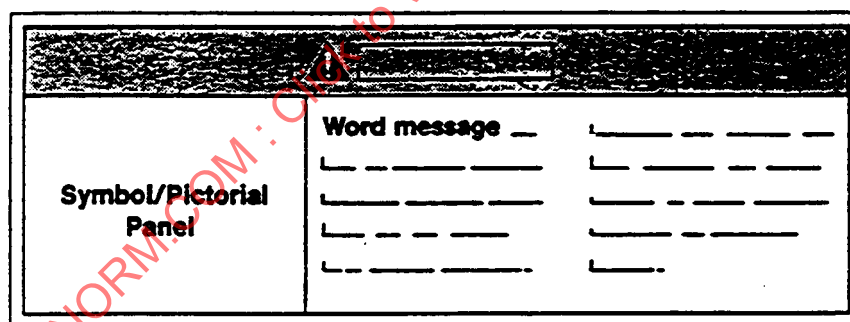


FIGURE 3—THREE-PANEL SIGN—HORIZONTAL FORMAT

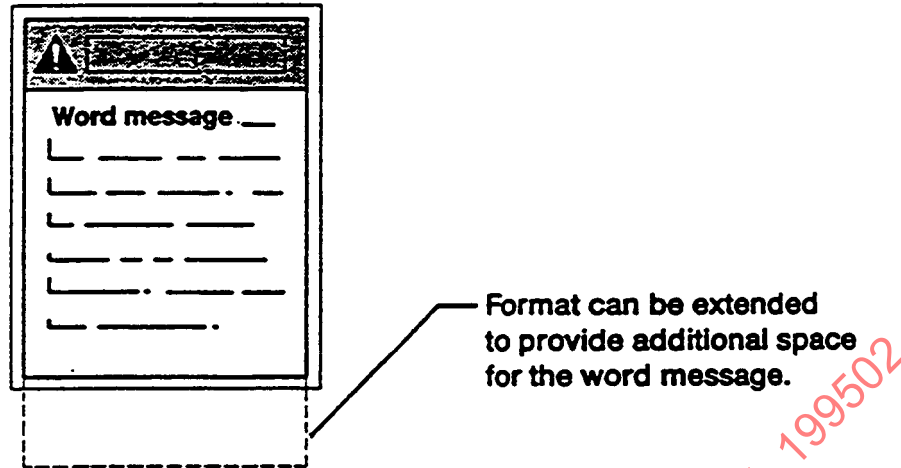


FIGURE 4—TWO-PANEL SIGN—VERTICAL FORMAT

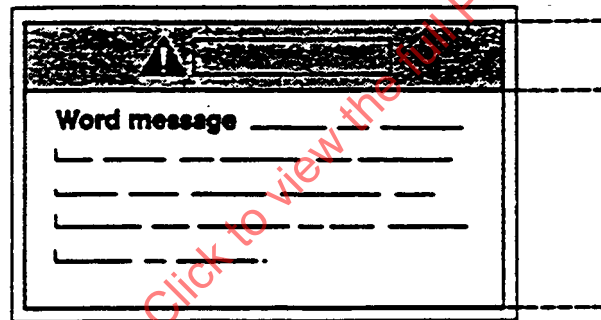


FIGURE 5—TWO-PANEL SIGN—HORIZONTAL FORMAT

5.5 Color Options

- 5.5.1 MESSAGE AND PICTORIAL PANELS—When special circumstances limit the use of sign colors to two colors, the colors assigned to the signal word panel may also be used for the message and pictorial panels provided that the panel colors contrast with the background color of the product.

6. Letter Style and Size

6.1 Letter Style

- 6.1.1 Signal words shall be uppercase Sans Serif letters.
- 6.1.2 Message panel lettering shall be Sans Serif. Letters may be in uppercase only, or in combinations of uppercase and lowercase letters as deemed appropriate.
- 6.1.3 Examples of acceptable lettering styles are: Medium, Folio Medium, News Gothic Bold, Helvetica Bold, or equivalent.

6.2 Letter Size

- 6.2.1 Lettering shall be of a size that enables a person with normal vision, including corrected vision, to read the safety sign at a safe viewing distance from the hazard.
- 6.2.2 Safe viewing distance for the signal word shall take into consideration a reasonable hazard avoidance reaction time.
- 6.2.3 Safe viewing distance for the message panel wording may be different from the safe viewing distance for the signal word.
- 6.2.4 Signal word letter height should be at least 50% greater than the selected height of the message panel wording.
- 6.2.5 Minimum letter height shall not be less than 6 mm for a signal panel word nor less than 3 mm for a message panel word (uppercase letter).

7. Sign Placement

7.1 Location—Safety signs shall be placed such that they will:

- a. Be readily visible to the intended viewer
- b. Alert the viewer to the potential hazard in time to take appropriate action.

7.2 Protection—When feasible, placement of the sign should provide protection from foreseeable damage, fading, or visual obstruction caused by abrasion, ultraviolet light, or substances such as lubricants, chemicals, and dirt.

8. Expected Life and Maintenance

8.1 Durability—A safety sign is considered permanent if, after exposure tests for weatherability on a southern-facing surface, angled 45 degrees from horizontal in South Florida or Central Arizona for a period of at least 2 years, the sign remains legible when viewed at distances described in 6.2 and shows no appreciable discoloration, fading, cracking, blistering, delamination, loss of adhesion, or change in dimensions.

8.2 User Instructions—Instructions shall be provided in the Operator's Manual regarding the maintenance and replacement of safety signs.

9. Pictorials

9.1 Recognition—Pictorials may be used as a supplement or replace word messages on a safety sign. Pictorials should provide the viewer with an immediate opportunity to recognize an existing hazard.

10. Notes

10.1 Marginal Indicia—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE HUMAN FACTORS TECHNICAL COMMITTEE SC2—
MACHINE DISPLAYS AND SYMBOLS