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Cooperative Engineering Program

SAE J115 JAN87

Safety Signs

SAE Recommended Practice
Reaffirmed January 1987

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SAFETY SIGNS

1. PURPOSE: This recommended practice establishes uniformity of safety signs to promote safety of persons associated with off-highway work machines.
2. SCOPE: This recommended practice 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, and specialized mining machinery as defined in SAE J116 MAY79. This recommended practice is suitable for application to tools, machines, and machinery used in the specified categories.
3. DEFINITIONS:
 - 3.1 Hazard: A source of danger to a person on or near a machine.
 - 3.2 Safety Sign: Information affixed to a machine to alert persons to hazards which can cause personal injury.
 - 3.2.1 Permanent Safety Sign: Information affixed to the machine to warn against a hazard inherent in the machine or that might be created during reasonably anticipated machine usage. The sign is to be permanently attached to the machine so that it cannot be readily removed.
 - 3.2.2 Temporary Safety Sign: Sign affixed to the machine to warn against a temporary hazard created by situations such as shipment or repair. The sign is temporarily attached to the machine and can be readily removed when the hazard is eliminated.
 - 3.3 Panel: Area of safety sign having a distinctive background color different from the other areas of the sign or which is clearly delineated by a line or border.

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- 3.3.1 Signal Word Panel: Distinctive area of the safety sign that alerts the viewer to a hazard.
- 3.3.2 Message Word Panel: Area of the safety sign which explains the hazard and/or provides instructions to avoid the hazard.
- 3.3.3 Pictorial Panel: Area of the safety sign that explains pictorially the hazard and/or provides instructions to avoid the hazard.
- 3.4 Signal Word: Distinctive word on safety sign that alerts viewer to existence and relative degree of hazard.
- 3.4.1 DANGER: Denotes an extreme intrinsic hazard exists which would result in high probability of death or irreparable injury if proper precautions are not taken. Signs with this signal word are to be limited to the most extreme situations.
- 3.4.2 WARNING: Denotes a hazard exists which can result in injury or death if proper precautions are not taken. Signs normally are to use this signal word.
- 3.4.3 CAUTION: Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury if proper precautions are not taken. Signs with this signal word should be used only when the information presented cannot be more appropriately provided in the user's manual.
- 3.5 Safety Sign Colors: Specified colors used on safety signs which are approximately the same color as follows:

<u>Color</u>	<u>Reference Munsell Number</u>
Black	N2.0/ or lower
Red	7.5R4.0/14
White	N9.0/or higher
Yellow	5.0Y8.0/12

- 3.6 Safety Alert Symbol: A pictorial symbol which indicates that the sign involves personal safety. The symbol is to conform with SAE J284a (June, 1975).

4. FORMAT:

- 4.1 A safety sign shall consist of a signal word panel plus a message panel and/or a pictorial panel. These panels are to be arranged to permit the reader to logically proceed from the general to the specific information (from signal word panel to pictorial panel to message panel).

4.2 A safety alert symbol shall precede the signal word in the signal word panel. The minimum height of the safety alert symbol shall equal or exceed the signal word letter height.

4.3 The sign shall be distinctive on the machine. A contrasting margin or border may be used on the sign to achieve the distinctiveness.

4.4 The message panel, if used, should include a message that is concise and readily understood.

5. SAFETY SIGN COLORS:

5.1 Signs with Danger Signal Word:

5.1.1 Signal word panel shall have red background and white lettering. Background may be any suitable shape as long as it is predominant.

5.1.2 Message panel shall have white background and red lettering.

5.2 Signs with Warning Signal Word:

5.2.1 Signal word panel shall have black background and yellow lettering.

5.2.1 Message panel shall have yellow background and black lettering.

5.3 Signs with Caution Signal Word:

5.3.1 Signal word panel shall have black background and yellow lettering.

5.3.2 Message panel shall have yellow background and black lettering.

5.4 Safety Alert Symbol: Triangle portion shall be the same color as the signal word panel lettering and the exclamation mark portion shall be the same color as the signal word background.

5.5 Pictorial Panel: Any combination of the colors defined in paragraph 3.5 may be used.

5.6 Color Options:

5.6.1 If the effectiveness of the safety is significantly improved due to background contrast, the background and letter colors specified in paragraphs 5.1, 5.2, and 5.3 may be reversed.

5.6.2 Message panel background and letter colors may be any combination of the colors defined in paragraph 3.5

6. LETTER SIZE AND STYLE:

6.1 Sans-Serif Gothic upper case lettering such as Standard Medium, Folio Medium, News Gothic Bold, or equivalent is recommended.

6.2 Minimum letter height should be one unit in height for every 500 units of safe viewing distance from the safety sign.

6.2.1 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.

6.2.2 Safe viewing distance for the signal word panel should include a reasonable hazard avoidance reaction time. Message safe viewing distance may be different than the distance for a signal word panel.

7. DURABILITY:

7.1 Permanent Signs:

7.1.1 Permanent safety signs shall have reasonable life for the anticipated machine operating environment. Users should be instructed to ensure safety signs are installed, properly maintained, and replaced as necessary.

7.1.2 Permanent safety signs are considered to have reasonable life when the safety sign has good color, letter, and pictorial legibility when viewed at distances described in paragraph 6.2 for not less than five years. Exterior durability is based on vertical exposure tests for weatherability in the extreme climates of the United States or a 2000 h test, ASTM-G-23-69 Section 4 for Carbon Arc, or ASTM-G-26-70 Section 4 for Xenon Arc Weatherometer Test. Other test methods may be used providing the method ensures equal or superior sign durability.

7.1.3 Permanent sign installation on the machine should be in accordance with the sign manufacturer's recommended procedure considering the selection and preparation of the substratum and the environment in which the machine operates.

7.2 Temporary Signs:

7.2.1 Sign shall have durability limits sufficient to cover the time during machine storage, repair, or shipment.

7.2.2 Instructions should be included on the temporary sign to remove it when the hazard no longer exists.

8. PLACEMENT: Safety signs shall be in the immediate vicinity of the hazard, readily visible so the viewer can avoid the hazard or take appropriate action. Placement of the sign should provide protection for the sign where possible from abrasion, damage, or obstruction from mud, dirty oil, etc.

9. SLOW MOVING MACHINE WARNING SIGNS: These signs are to conform with SAE J943 (January, 1970).

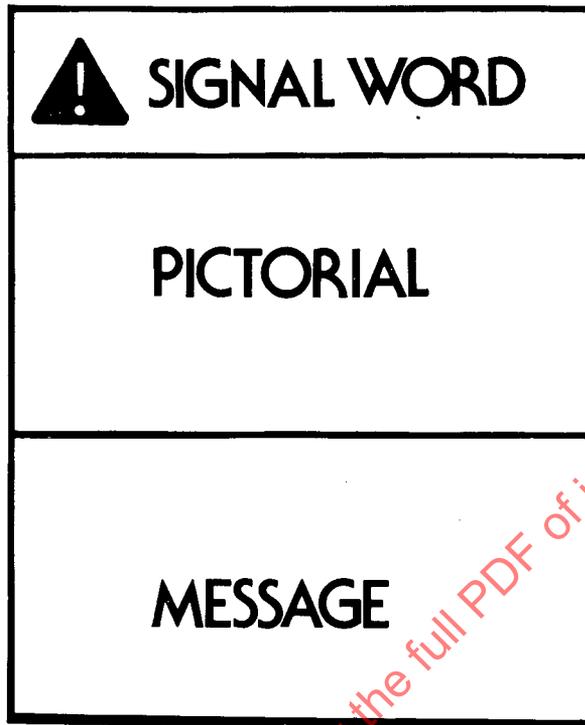


FIG. 1 - EXAMPLE OF SAFETY SIGN FORMAT
(PANEL ARRANGEMENT AND SIZE NOT SPECIFIED)

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RATIONALE:

Not applicable.

RELATIONSHIP OF SAE STANDARD TO ISO STANDARD:

Not applicable.

REFERENCE SECTION:

SAE J284a, Safety Alert Symbol for Agricultural, Construction and Industrial Equipment

SAE J943, Slow-Moving Vehicle Identification Emblem

SAE J1116 MAY79, Categories of Off-Road Self-Propelled Work Machines

ASTM-G-23-69 Section 4

ASTM-G-26-70 Section 4

APPLICATION:

This recommended practice 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, and specialized mining machinery as defined in SAE J1116. This recommended practice is suitable for application to tools, machines, and machinery used in the specified categories.

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