

	<b>SURFACE VEHICLE STANDARD</b>	<b>SAE</b>	<b>J1298 AUG2010</b>
		Issued 1980-04 Revised 2010-08	
		Superseding J1298 MAY2008	
Connections for Fluid Power and General Use - Hydraulic Couplings - Diagnostic Port Sizes and Locations			

## RATIONALE

This SAE project is intended to accommodate the withdrawal of SAE J2244.

## FOREWORD

SAE J1298 has been revised to update the metric and inch stud end standards to current specifications.

### 1. SCOPE

SAE J1298 covers the recommended diagnostic port sizes for use in measuring hydraulic fluid temperature, pressure, flow, and for obtaining fluid samples. See SAE J1502 for the detailed coupling specifications.

#### 1.1 Application

This SAE Standard applies to self-propelled work machines as referenced in SAE J1116.

### 2. REFERENCES

#### 2.1 Applicable Documents

The following documents contain provisions which, through reference in this text, constitute provisions on this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated as follows. Members of IEC and ISO maintain registers of currently valid international standards.

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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](http://www.sae.org).

- SAE J518 Hydraulic Flanged Tube, Pipe, and Hose Connections, Four-Bolt Split Flange Type
- SAE J1116 Categories of Off-Road Self-Propelled Work Machines
- SAE J1502 Connections for Fluid Power and General Use—Hydraulic Couplings—Diagnostic
- SAE J1926-2 Connections for General Use and Fluid Power—Ports and Stud Ends with ASME B1.1 Threads and O-Ring Sealing—Part 2: Heavy-Duty (S Series) Stud Ends

### 2.1.2 ISO Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

- ISO 4021 Hydraulic fluid power—Particle contamination analysis—Extraction of fluid samples from lines of an operating system
- ISO 5598 Fluid power systems and components—Vocabulary
- ISO 6149-2 Connections for fluid power and general use—Ports and stud ends with ISO 261 metric threads and O-ring sealing—Part 2: Heavy-duty (S) series stud ends—Dimensions, design, test methods and requirements
- ISO 6162 Hydraulic fluid power - Flange connectors with split or one-piece flange clamps and metric or inch screws
- ISO 11926-2 Connections for fluid power and general use—Ports and stud ends with ISO 263 inch threads and O-ring sealing—Part 2: Heavy duty (S) series stud ends—Dimensions, design, test methods and requirements (This document is technically equivalent to SAE J1926-2.)

## 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 Publication

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](http://www.sae.org).

- SAE J515 Specification for O-Ring Materials Used with Hydraulic Connectors

### 2.2.2 ISO Publication

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

- ISO 8925 Earth Moving Machinery-Diagnostic Ports

### 3. DEFINITIONS

For the purpose of this document, the definitions given in ISO 5598 and the following definition apply.

#### 3.1 QUICK ACTION

The joining of two components in a fashion with only hands and without wrenches and other mechanical means.

### 4. REQUIREMENTS

#### 4.1 Size and Type of Port

##### 4.1.1 Temperature, Pressure, and Sampling

The port size for measuring temperature, pressure, and for obtaining fluid samples shall be M14x1.5 per ISO 6149-2 or shall be 9/16-18 UNF-2B per SAE J1926-2 (ISO 11926-2).

##### 4.1.2 Flow Measurement

Flow measurement ports shall be adequate for the flow to be measured. Sizes below 25.4 mm tube shall be ISO 6149-2 or SAE J1926-2 (ISO 11926-2), and size 25.4 mm and above shall be to SAE J518 (ISO 6162), four bolt flange.

### 5. APPLICATION GUIDELINES

#### 5.1 Number of Diagnostic Points

The number of diagnostic checking points will be determined by the manufacturer and should be commensurate with the complexity of the system being checked and the economics required.

#### 5.2 Location

At least one diagnostic port should be located at the main system relief valve. However, consideration should be given to the following locations: pump inlet and outlet, valve inlet and outlet, valve work ports, filter inlet and outlet, actuator inlet and outlet, cooler inlet and outlet, and in each circuit with a relief valve.

The preferred port location is in the component; however, it must be readily and safely accessible which might often require it to be located in a line.

The ports should be located in the fluid stream to minimize any condition which might influence inaccuracies in readings.

Diagnostic ports intended for the removal of representative fluid samples should be located in a turbulent flow section of the system and conform to ISO 4021.

#### 5.3 Accessibility

5.3.1 Test ports should be accessible with common tools without the removal of any component other than sealing caps and access panels or plates.

5.3.2 A free access area of a minimum radius of 75 mm around centerline of port and 200 mm from port surface should be provided.