SAE International™

SURFACE VEHICLE STANDARD

SAE J1298 MAY2008

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Superseding J1298 APR1997

Connections for Fluid Power and General Use—Hydraulic Couplings—Diagnostic Port Sizes and Locations

RATIONALE

Reviewed the document and updated it. Reference to SAE J2244-2 are removed because that document is being withdrawn and replaced by ISO 6149-2. All references to the year of publication of ISO documents are removed as the users are urged to used the latest edition of the document.

FOREWORD

SAE J1298 has been revised to update the metric and inch stud end standards to new SAE 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 Publications

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.

SAE J518 Hydraulic Flanged Tube, Pipe, and Hose Connections, Four-Bolt Split Flange Type

SAE J1116 JUN86 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 ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, 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 threads and O-ring sealing—Part 2: Heavy-duty (S) series stud ends—Dimensions, design, test methods and requirements

ISO 11926-2 Connections for fluid power and general use—Ports and stud ends with ISO 725 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 document.

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.

SAE J515 Specification for Hydraulic O-Ring Materials, Properties, and Sizes for Metric and Inch Stud Ends, Face Seal Fitting and Four-Screw Flange Tube Connections

2.2.2 ISO Publication

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 6162 Hydraulic fluid power—Four screw split-flange connections for use at pressures of 2.5 MPa to 40 MPa (25 bar to 400 bar)—Type I metric series and type II inch series

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 8 mm tube outside diameter, or shall be 9/16–18 UNF–2B per SAE J1926-2 (ISO 11926-2), 9.52 mm tube outside diameter.

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, 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.