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INTERNATIONAL
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SURFACE VEHICLE STANDARD

SAE J1298

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Superseding J1298 SEP88

Submitted for recognition as an American National Standard

(R) CONNECTIONS FOR FLUID POWER AND GENERAL USE—HYDRAULIC COUPLINGS—DIAGNOSTIC PORT SIZES AND LOCATIONS

***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.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

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—Hydraulic Diagnostic Couplings
SAE J1926-2—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
SAE J2244-2—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

2.1.2 ISO PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 4021:1992—Hydraulic fluid power—Particle contamination analysis—Extraction of fluid samples from lines of an operating system
ISO 5598:1985—Fluid power systems and components—Vocabulary

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ISO 6149-2:1993—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 (This document is technically equivalent to SAE J2244-2.)

ISO 11926-2:1995—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, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

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, 11 West 42nd Street, New York, NY 10036-8002.

ISO 6162:1994—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 SAE J2244-2 (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 SAE J2244-2 (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.

6. Notes

6.1 Marginal Indicia—The change bar (l) 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 COMMON TESTS TECHNICAL COMMITTEE SC1—HYDRAULIC SYSTEMS AND THE SAE FLUID CONDUCTORS AND CONNECTORS TECHNICAL COMMITTEE SC1—AUTOMOTIVE AND HYDRAULIC TUBE AND FITTINGS