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The Engineering Society For Advancing Mobility Land Sea Air and Space®

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SAE J1298 SEP88

Hydraulic Systems Diagnostic Port Sizes and Locations

SAE Standard
Revised September 1988

Submitted for Recognition as
National Standard

The Engineering Society For Advancing Mobility Land Sea Air and Space®
400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

OFF-HIGHWAY MACHINERY STANDARD

Submitted for recognition as an American National Standard

SAE J1298

Issued April 1980
Revised September 1988

Superseding J1298 AUG83

HYDRAULIC SYSTEMS DIAGNOSTIC PORT SIZES AND LOCATIONS

1. PURPOSE:

To establish recommended diagnostic port sizes for use in measuring hydraulic fluid temperature, pressure, flow, and for obtaining fluid samples.

2. SCOPE:

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This standard applies to self-propelled work machines as referenced in SAE J1116 JUN86.

3. SIZE AND TYPE OF PORT:

3.1 Temperature, Pressure, and Sampling: The port size for measuring temperature, pressure, and for obtaining fluid samples shall be 9/16-18 UNF-2B SAE J514 "O" ring port (0.375 in OD tube) or M14 x 1.5 ISO 6149 Port (8 mm OD tube).

3.2 Flow Measurement: Flow measurement ports shall be adequate for the flow to be measured. Sizes below 25.4 mm (1 in) tube shall be SAE J514 or ISO 6149 "O" ring port while 25.4 mm (1 in) and above shall be SAE J518 4-bolt flange port face.

4. APPLICATION GUIDELINES:

4.1 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.

4.2 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 so 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 4021-1977, Sampling Fluid from Pressurized Lines.

4.3 Accessibility:

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

4.3.2 A free access area of a minimum radius of 75 mm (2.9 in) around centerline of port and 200 mm (7.9 in) from port surface should be provided.

The phi (Ø) symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.

RATIONALE:

Not applicable.

RELATIONSHIP OF SAE STANDARD TO ISO STANDARD:

Not applicable.

REFERENCE SECTION:

SAE J514 APR80, Hydraulic Tube Fittings

SAE J518 DEC87, Hydraulic Flanged Tube, Pipe, and Hose Connections, 4-Bolt Split Flange Type

SAE J1116 JUN86, Categories of Off-Road Self-Propelled Work Machines

ISO 6149

APPLICATION:

This standard applies to self-propelled work machines as referenced in J1116 JUN86.

COMMITTEE COMPOSITION:

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