SURFACE VEHICLE STANDARD

J534™	OCT2021
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Lubrication Fittings

RATIONALE

Mass flow rate test was added to test methods and performance requirements. Corrected the dimension line for L3 in Figure 6 for the minimum full thread dimension. Corrected L4 dimension line in Figures 7 and 8 for overall height per the 2005 revision. Added SAE J846 to SAE publication references. Moved special adapter figures (Figures 10 through 13) to Appendix A. Made a number of grammatical and editorial changes.

1. SCOPE

This SAE Standard covers complete general and dimensional specifications for the various types of lubrication fittings and related threaded components intended for general application in the automotive and allied fields.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

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 +1 724-776-4970 (outside USA), www.sae.org.

SAE J476 Dryseal Pipe Threads

SAE J846 Coding Systems for Identification of Fluid Conductors and Connectors

2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B117 Method of Salt Spray (Fog) Testing

3. PACKAGING AND MARKING

3.1 Protection

By a method agreed between purchaser and supplier, the lubrication tip and threads (both internal and external) shall be protected by the manufacturer from nicks and scratches detrimental to their function. Fittings shall be protected to prevent entrance of dirt or other contaminants prior to assembly, for parts distribution, handling, and storage. If caps and plugs are used, they shall not be made of paper.

3.2 SAE J846 Part Identification Number (PIN)

By agreement between the purchaser and supplier, the PIN from SAE J846 may be used to abbreviate the ordering of lubrication fittings. The lubrication fitting PIN consists of a connector style designation code and a style and material modifier. For an example of a lubrication fitting PIN, see Figure 1. Lubrication fittings deviate from SAE J846 by not including the size designation. The size details are included in the connector style designation code.

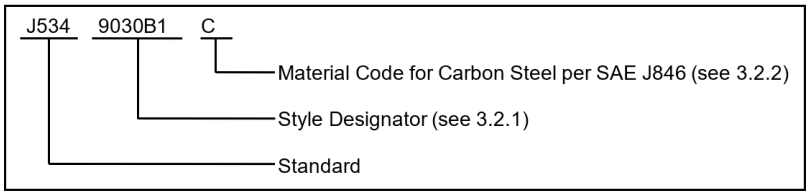

Figure 1 - Lubrication fitting PIN example

3.2.1 Style Designation Code

Lubrication fittings are designated according to SAE J846. The connector designation consists of a basic code symbolizing, in sequence, the following: (a) the connector type, (b) the connector shape, and (c) the connector end connections. For a style designation code example, see Figure 2. The style designation code for each fitting can be found in Table 1 in SAE J846.

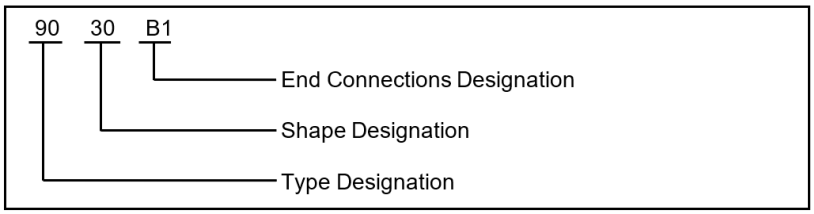

Figure 2 - Lubrication fitting style designation code

3.2.2 Material Modifiers

Modifiers are added to the code to provide additional information. Suffixes are to be added to indicate the style and material. (Refer to SAE J846 for more complete information.)

4. TEST METHODS AND PERFORMANCE REQUIREMENTS

4.1 Test Conditions

4.1.1 Temperature

Unless otherwise specified, tests shall be conducted at ambient temperature of 25 °C ± 10 °C.

4.1.2 Test Fluids

Unless otherwise specified, tests shall be conducted using NLGI (National Lubricating Grease Institute) #2 lithium grease.

4.1.3 Test Fittings

At the start of each test, special care should be taken to ensure an unused fitting is tested.

4.2 Opening Pressure

The check valve shall not require more than 3.1 MPa to open and allow lubricant to flow from the threaded end of the fitting.

4.3 Lubricant Leakage Tests

The fitting shall be tested utilizing a test setup according to Figure 3. Lubricant shall be forced into the fitting until the pressure reaches 3.5 MPa. The pressure shall remain at 3.5 MPa for 60 seconds. After 60 seconds, relieve the pressure and evaluate the amount of leakage. The leakage through the ball check shall not exceed 2 cc. After completing the test at 3.5 MPa, the test shall be repeated at 34.5 MPa using the same fitting.

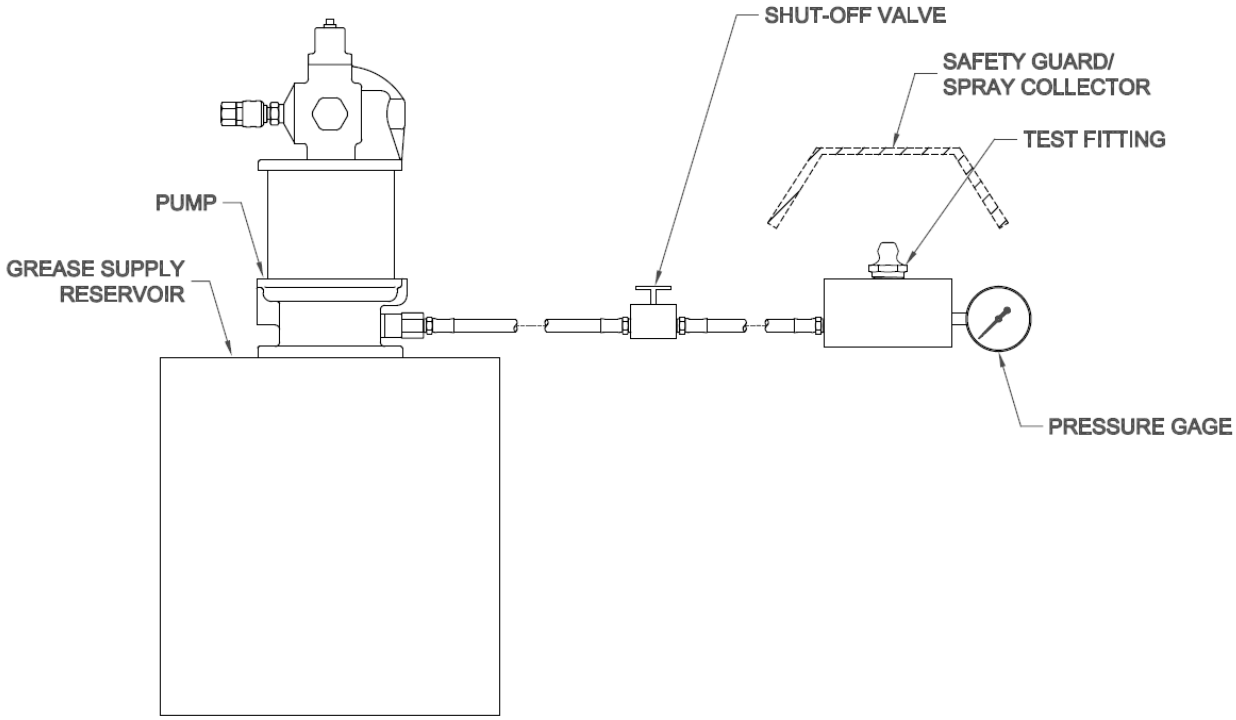

Figure 3 - Lubricant leakage test setup

4.4 Blowout Test

The power lubrication system shall be charged to a pressure of 34.5 MPa. The power control valve shall be opened, and lubricant shall be discharged through the fitting for a period of 5 seconds. The coupling shall be disconnected from the inlet tip of the fitting, and the fitting ball-check and spring shall be examined. The ball-check shall have returned to the closed position and there shall be no evidence of loosening, damage, or blowout of component parts.

4.5 Mass Flow Rate

The power lubrication system shall be charged to a pressure of 15.1 MPa. The power control valve shall be opened, and lubricant shall be discharged through the fitting for a period of 5 seconds. Grease shall be collected and weighed. The minimum mass flow rate for all fitting designs at a pressure of 15.1 MPa shall be 7.5 g/s.

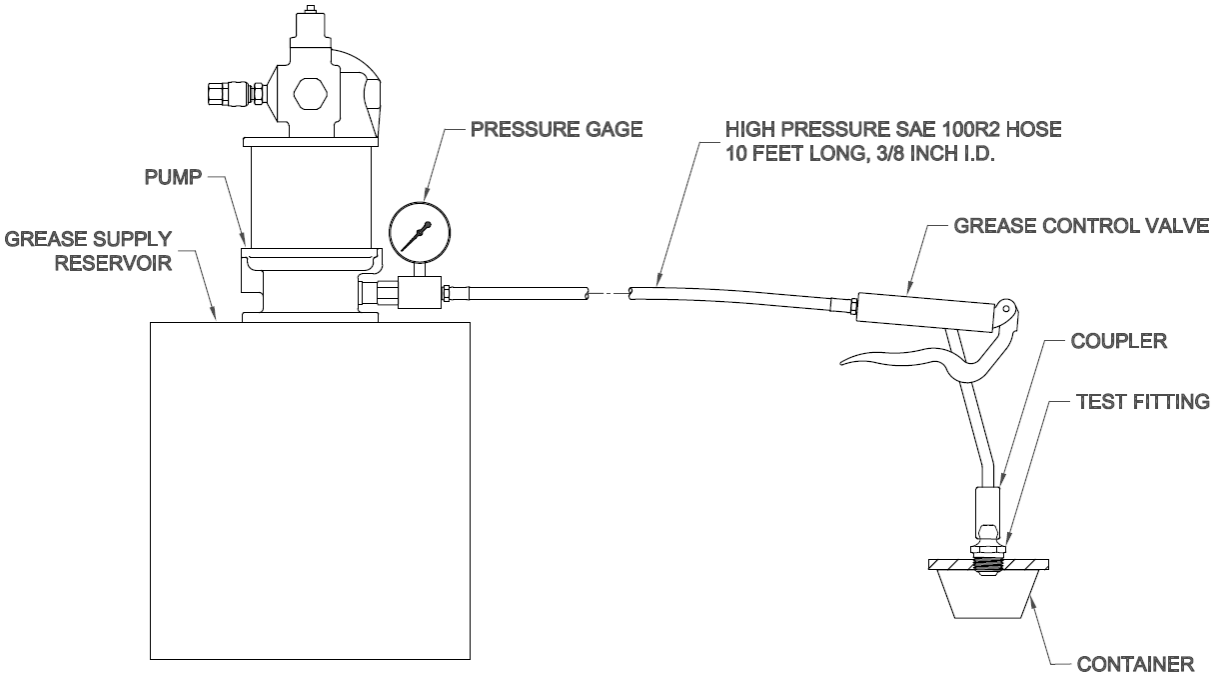

Figure 4 - Blowout test setup

5. GENERAL SPECIFICATIONS

5.1 Dimensions and Tolerances

Except for nominal sizes and thread designations, dimensions and tolerances are given in SI units, as designated in Table 1. Tabulated dimensions shall apply to the finished parts, plated or otherwise processed, as specified by the purchaser. Tolerance on all dimensions not otherwise limited shall be ±0.3 mm. The maximum and minimum across flats dimensions shall be within the commercial tolerance of bar or extruded stock from which the fittings are produced. The minimum across corners dimensions of hexagons shall be 1.092 times the nominal width across flats, but shall not result in a side flat width less than 0.43 times the nominal width across flats.

5.2 Check Valve

All the standard hydraulic lubrication fittings contained herein shall be supplied with check valves. Fittings without valves are not recommended by the lubrication fitting industry.

5.3 Fitting Temperature Rating

Special considerations may be necessary if fittings are used in extreme conditions.

5.4 Contour

Details of contour shall be optional with the manufacturer, provided the dimensions and tolerances in this document are maintained.