

(R) FAST FILL FUELING INSTALLATION FOR OFF-ROAD SELF-PROPELLED WORK MACHINES

Foreword—This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

1. Scope—This SAE Standard applies to off-road self-propelled work machines as categorized in SAE J1116.

1.1 Purpose—A fast fueling system incorporates a fueling receiver through which fuel is conveyed to the fuel tank and an automatic shut-off vent to provide automatic fill level control, normal and emergency venting. The purpose of this document is to define the proper installation, position, protection, and size of a fueling receiver and automatic shut-off vent connections.

1.2 Fast fill fueling typically applies to self-propelled machines with a fuel capacity over 380 L or as applicable on machines with less capacity.

2. References

2.1 Applicable Publications—The following publication forms a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

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

SAE J1116—Categories of Off-Road Self-Propelled Work Machines

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

SAE J371—Drain, Fill, and Level Plugs for Off-Road Self-Propelled Work Machines

SAE J476a—Dry Seal Pipe Threads

2.2.2 ANSI PUBLICATION—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI B 1.20.1—NPT Threads

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3. **Installation**

- 3.1** The fuel receiver mounting connection may be 2 in NPTF, flanged or other suitable connection having a 50 mm minimum inside diameter. Where the connection is made directly to the tank, it should be located as near the bottom of the tank as practical to provide submerged filling to limit foam formation. Where mounting the fuel receiver near the bottom of the tank is impractical, a 50 mm minimum inside diameter internal extension line to the bottom of the tank may be used.

Liquid crossover lines between multiple tanks should be minimum 50 mm inside diameter. Extension fill lines between the tank and a remote fuel receiver shall have a 50 mm minimum inside diameter and enter the bottom of the tank so as to provide submerged filling. Total pressure build up at the fuel receiver from fuel head plus friction loss should not exceed 30 kPa at 9 L/s.

- 3.2** The automatic vent connection shall be 2 in NPTF, with the centerline vertical within 5 degrees. Where multiple tanks are used, each tank should be provided with a vent connection.

4. **Position**

- 4.1** The fuel receiver should be accessible from ground level. Its location shall allow unrestricted access by an operator with a fueling hose and nozzle.

- 4.2** The automatic vent connection shall open into the tank vapor space and be located at the highest point on the top of the fuel tank. Any other vent connection shall be closed off when using the fast fill system.

- 5. *Protection***—The fuel receiver and vent must be protected from external damage or mud build up by its location or guards. The guards must not prevent removal of the receiver or vent for repair.

6. **Notes**

- 6.1 *Marginal Indicia***—The change bar (I) 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.

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