SURFACE VEHICLE STANDARD

J1493	SEP2013
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Guarding of Starter System Energization

RATIONALE

This standard has been revised to clarify that Agricultural Tractors are included in the scope. The 2013 revision to SAE J1116 removed Agricultural Tractors from the scope of that standard however provided a means to continue to include Agricultural Tractors in SAE standards that are also applicable to agricultural tractors.

1. SCOPE

This SAE Standard describes guarding to help prevent hazardous machine movement caused by activation of the starter motor by bypassing the starter control system.

This document is applicable to off-road, self-propelled work machines, as identified in SAE J1116 and Agricultural Tractors as defined in ANSI/ASAE S390 which have the potential for hazardous machine movement as a result of bypassing the starter control system and powering of the starter motor.

2. REFERENCES

2.1 Applicable Document

The following publication forms 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 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 J1116 Categories of Off-Road Self-Propelled Work Machines

2.1.2 ASABE Publication

Available from ASABE, 2950 Niles Road, St. Joseph, MI 49085-9659. Tel: 269-428-6324, www.asabe.org.

ANSI/ASAE S390 Definitions and Classifications of Agricultural Field Equipment

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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Fax: 724-776-0790
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http://www.sae.org/technical/standards/J1493_201309

3. DEFINITIONS

3.1 HAZARDOUS MACHINE MOVEMENT

Unexpected machine movement resulting from power supplied to the starter motor with the machine ground drive or work function drive engaged which has the potential to cause injury.

3.2 STARTER CONTROL SYSTEM

The system consisting of the components used for controlling battery power to the starter motor. These components typically include the start switch, neutral switch, solenoid and relay.

3.3 STARTER MOTOR SOLENOID

The power relay that supplies power to the starter motor from the battery.

3.4 TERMINAL

The electrical connection point such as a stud or a spade, connecting the cable and the device including the uninsulated portion of the cable which is connected to the device.

3.5 COIL TERMINAL

The terminal used to connect the starter control system circuit to the starter motor solenoid, terminal (1) in Figure 1.

3.6 BATTERY TERMINAL

The terminal used to connect the battery cable to the starter motor solenoid to operate the starter motor, terminal (2) in Figure 1.

3.7 MOTOR TERMINAL

The terminal used to connect the starter motor solenoid to the starter motor, terminal (3) in Figure 1.

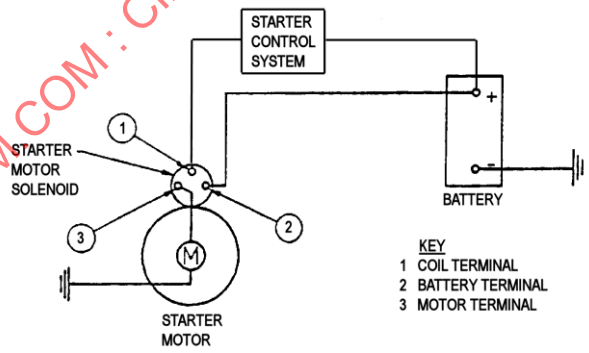

FIGURE 1 - TYPICAL STARTER CIRCUIT

4. REQUIREMENTS

4.1 Guarding of the starter motor solenoid shall prevent the electrical connection of battery jumper cable clamps to the motor terminal (3). Guarding of the starter motor solenoid shall also prevent electrical connection, by using pliers or a flat rigid conductor such as a screwdriver, between the battery terminal (2) and either the coil terminal (1) or the motor terminal (3). Guarding by location or other means determined by risk assessment to be effective are acceptable protection means.

Removable guarding shall be fastened in place with a device that requires a tool for removal or to open.