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## Emergency Power Supply

The emergency power supply feature provides basic functionality to the SAM during failure modes.

- **Power Failure**—loss of main power supply to SAM Cab or SAM Chassis
- **SAM Microprocessor Failure**—nonfunction of the main microprocessor due to microprocessor component failure, memory damage, or crystal damage
- **CAN Communication Failure**—cabin CAN communication failure between the SAM Cab and SAM Chassis due to a damaged cable, loose connections, application failure, or damage to a transceiver

The emergency power supply feature ensures that in the event of a SAM failure, the vehicle can be driven off the road and kept conspicuous until help arrives. The driver has control of this feature in that, when the ignition switch is in the ON position, the emergency power outputs remain on in their predefined states as listed in **Table 10-1**, **Table 10-2**, **Table 10-3**, and **Table 10-4**. When the ignition switch is turned off, the outputs are shut off as listed in **Table 10-5**.

When the SAM Cab fails, all gauges in the instrumentation control unit (ICU) drop to zero because power to the ICU is lost. Do not shut off the engine until the vehicle is safely off the highway; the engine cannot be restarted when the SAM Cab fails.

When the SAM Chassis fails, the turn signal indicators flash alternately. The engine can be restarted when the SAM Chassis fails.

### ***Load Disconnect Switch***

The load disconnect switch (LDS) is an optional feature that is used to break (or open) the connection between the battery and the powernet distribution box (PNDB), and the connection between the battery and the auxiliary powernet distribution box (if equipped). The load disconnect switch has one or two LEDs, depending on the number of PNDB with cutoff devices it switches. The LEDs are marked MAIN or AUXILIARY (if equipped). Rotating the LDS knob from OFF to ON causes the contacts to close and turns on the LED light, confirming that the contacts have closed. Rotating the LDS knob from ON to OFF causes the contacts to open and turns off the LED light, confirming that the contacts have opened.

Rotate the load disconnect knob to OFF when the vehicle will be parked for more than three days to avoid excessive draw on the battery. It is important that the ignition switch be in the off position before turning the load disconnect knob.

NOTE: When the load disconnect switch is opened, the clock and radio settings are lost.

The load disconnect switch is mounted in one of three locations:

- on the floor of the cab to the left of the driver's seat (**Figure 10-1**)
- near the battery box
- at the back of the cab

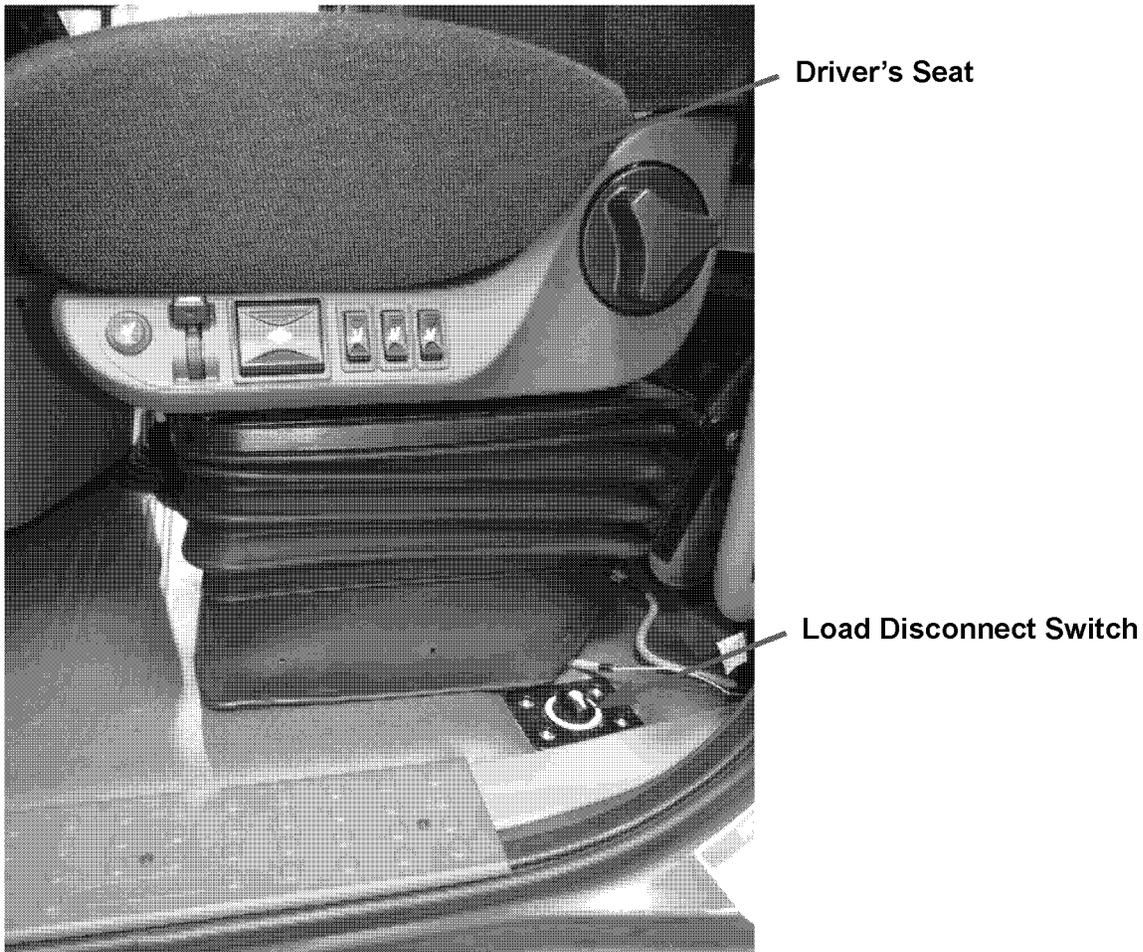


Figure 10-1: Location of the Load Disconnect Switch Inside the Cab

### ***Output Responses to a SAM Failure***

The SAM Cab and SAM Chassis have specific output responses to each type of failure mode.

See **Table 10-1** for the SAM Cab and SAM Chassis output responses when the:

- ignition switch is in the ON position, and the SAM Cab has lost main power supply  
**or**
- ignition switch is in the ON position, and the SAM Cab is not working due to a microprocessor failure

SAM Output Responses to a SAM Cab Failure		
Module	Output	Response
SAM Cab	Dash panel lights, 12 V	Flashing
	Low-beam headlights	On
	Clearance lights	Flashing
	Identification lights	Off
	Side marker lights	Flashing
	Engine ECU (powertrain PDM), ignition	On
	Starter relay	Cannot start vehicle
	Turn signal indicators, ICU	Off
SAM Chassis	Trailer taillights	Flashing
	Rear stop lights	Flashing

**Table 10-1: SAM Output Responses to a SAM Cab Failure**

See **Table 10-2** for the SAM Cab and SAM Chassis output responses when the:

- ignition switch is in the ON position, and the SAM Chassis has lost main power supply **or**
- ignition switch is in the ON position, and the SAM Chassis is not working due to a microprocessor failure

SAM Output Responses to a SAM Chassis Failure		
Module	Output	Response
SAM Cab	Dash panel lights, 12 V	Flashing
	Low-beam headlights	On
	Clearance lights	Flashing
	Identification lights	Flashing
	Side marker lights	Flashing
	Engine ECU (powertrain PDM), ignition	On
	Starter relay	Can start vehicle
	Turn signal indicators, ICU	Flashing alternately
SAM Chassis	Trailer taillights	Flashing
	Rear stop lights	Flashing

**Table 10-2: SAM Output Responses to a SAM Chassis Failure**

See **Table 10-3** for the SAM Cab and SAM Chassis output responses when the ignition switch is in the ON position, and the SAM Cab and SAM Chassis are unable to communicate with each other.

Cabin CAN Datalink Failure		
Module	Output	Response
SAM Cab	Dash panel lights, 12 V	Flashing
	Low-beam headlights	On
	Clearance lights	Flashing
	Identification lights	Flashing
	Side marker lights	Flashing
	Engine ECU (powertrain PDM), ignition	On
	Starter relay	Can start vehicle
	Turn signal indicators, ICU	Flashing alternately
SAM Chassis	Trailer taillights	Flashing
	Rear stop lights	Flashing

**Table 10-3: Cabin CAN Datalink Failure**

See **Table 10-4** for the SAM Cab and SAM Chassis output responses when the:

- SAMs are functioning normally
- ignition switch is in the ON position **and**
- load disconnect switch is open (off position)

SAM Output Responses When the Load Disconnect Switch is Open		
Module	Output	Response
SAM Cab	Dash panel lights, 12 V	Flashing
	Low-beam headlights	On
	Clearance lights	Flashing
	Identification lights	Off
	Side marker lights	Flashing
	Engine ECU (powertrain PDM), ignition	On
	Starter relay	Cannot start vehicle
	Turn signal indicators, ICU	Off
SAM Chassis	Trailer taillights	Off
	Rear stop lights	Off

**Table 10-4: SAM Output Responses When the Load Disconnect Switch is Open**

See **Table 10-5** for the SAM Cab and SAM Chassis output responses when the ignition switch is in the off position. Regardless of the previous failure mode, the emergency power supply feature is deactivated when the ignition switch is in the off position.