



Utilization of Battery Disconnect on a Final Tier IV Machine

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Most new Final Tier IV machines that use DEF (Diesel Emission Fluid) have a red or green light located at the disconnect switch informing the operator that it is OK to shut it off if the light is not illuminated. The light indicates that the DEF purge process is in process making power available to the ECU (Engine Control Unit) and the DCU (Dosing Control Unit) to evacuate the fluid out of the injectors and lines and return it to the tank. This is done to avoid expansion damage to the system during freezing temperatures. Early machines that use DEF do not have this light, but do inform the operator to wait 5 minutes before shutting down the battery disconnect. It is just as imperative that they follow these instructions.

During summer temperatures, it is still important to wait for the light to go out, because DEF will crystalize when the water evaporates. Manufacturers do not want DEF fluid to remain in the lines for prolonged time allowing the fluid to dehydrate. The crystallization of the DEF will plug the injectors and lines when the unit is started. The evaporation and crystallization can also occur in the DEF tank when a machine is parked for an extended amount of time. In this case the suction screen will prevent the contaminants from entering the active systems and may need to be cleaned or maintained more often.

Tier IV machines using DEF also have a separate set of codes used to determine if the machine has a problem with the SCR (Selective Catalytic Reduction). These codes monitor the SCR system, and if a code is generated, it will start a 4-hour timer that will allow the machine to run at full power until the timer runs out. When the timer expires, the machine will derate the engine to 50% until the issue is corrected and the code is cleared. The machine must work for 40 cumulative hours without any SCR system codes to re-set the 4-hour timer. If a code for the SCR system is generated during the countdown to timer re-set, the timer cumulative hours is set to zero.

Prematurely shutting off the battery disconnect prior to complete system evacuation will set a code that will re-set the timer to zero. For this reason, it's important to allow the evacuation process to complete before shutting down the disconnect, even if you're not planning on letting the unit sit for an extended amount of time.



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