

# Service Reference

## Topic: Diode Checkout Procedure

*Please read all the instructions listed below carefully to familiarize yourself with the project before attempting to perform any of the work or unpacking any further.*

Diodes are used in electrical circuits to restrict the 'backflow' of current. In this mode they are much like check valves that do not allow fluid to flow backwards. The diode performs its job, but does consume approximately 0.7 volt or less. This voltage drop across the diode is referred to as the forward voltage or  $V_f$ .

A diode will generate heat as it operates. As an example, if the current flow is 10 amps, the dissipated heat is approximately:  $I \times V_f$  or 20 amps x 0.7 volts = 14 VA = 14 watts. Thus, the diode needs an appropriate heat sink.

Diodes can fail to operate or function. In some cases, the diode will fail in the 'closed' position, which will allow the back flow of current. If the diode fails in the 'open' position, then no current can flow.

### Required Materials

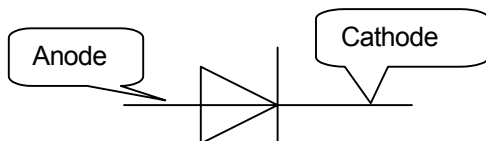
- Flashlight

### Required Tools

- Digital VOM

**Generally it is not necessary to remove the diode from its place in order to check or visually inspect it. You must follow your company's lockout and tagout procedures and turn off the DC rectifier.**

1. Use a VOM with the diode continuity check option. Place red test lead on the anode side of the diode and the black test lead on the cathode side of the diode. The VOM should display 0.7 volts or less.



2. Reverse the lead; if the meter reads OL, then the diode is OK.
3. If the diode has failed in the closed, or shorted position, then 0+ volts is displayed.

4. If the diode has failed in the open position, then the meter will display OL in Step #1 and Step #2.
5. Visually inspect the diode for dark scorch marks, heat stress, etc.
6. Visually inspect the bolted connections of the diode and ensure a compression washer is used.

**For more information** see the original manual that came with the equipment or call UFS at the phone number shown above.