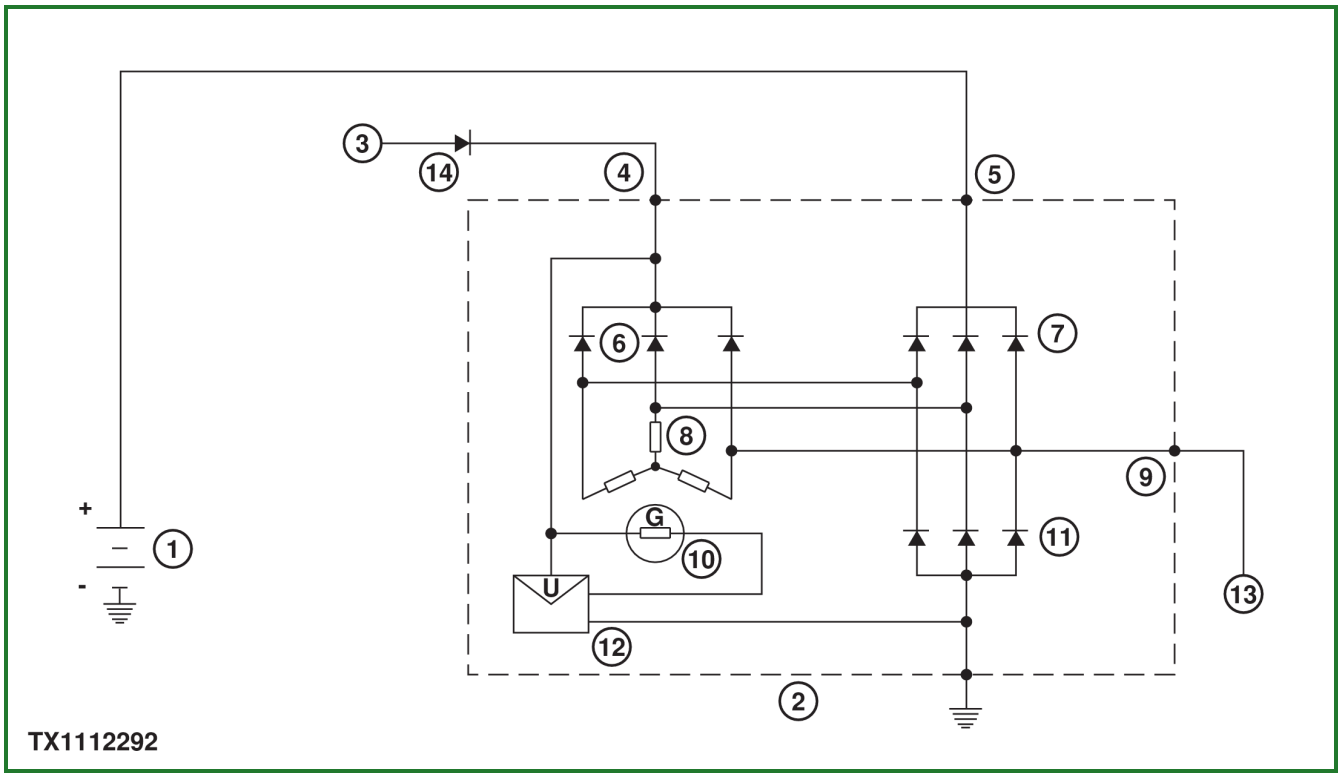
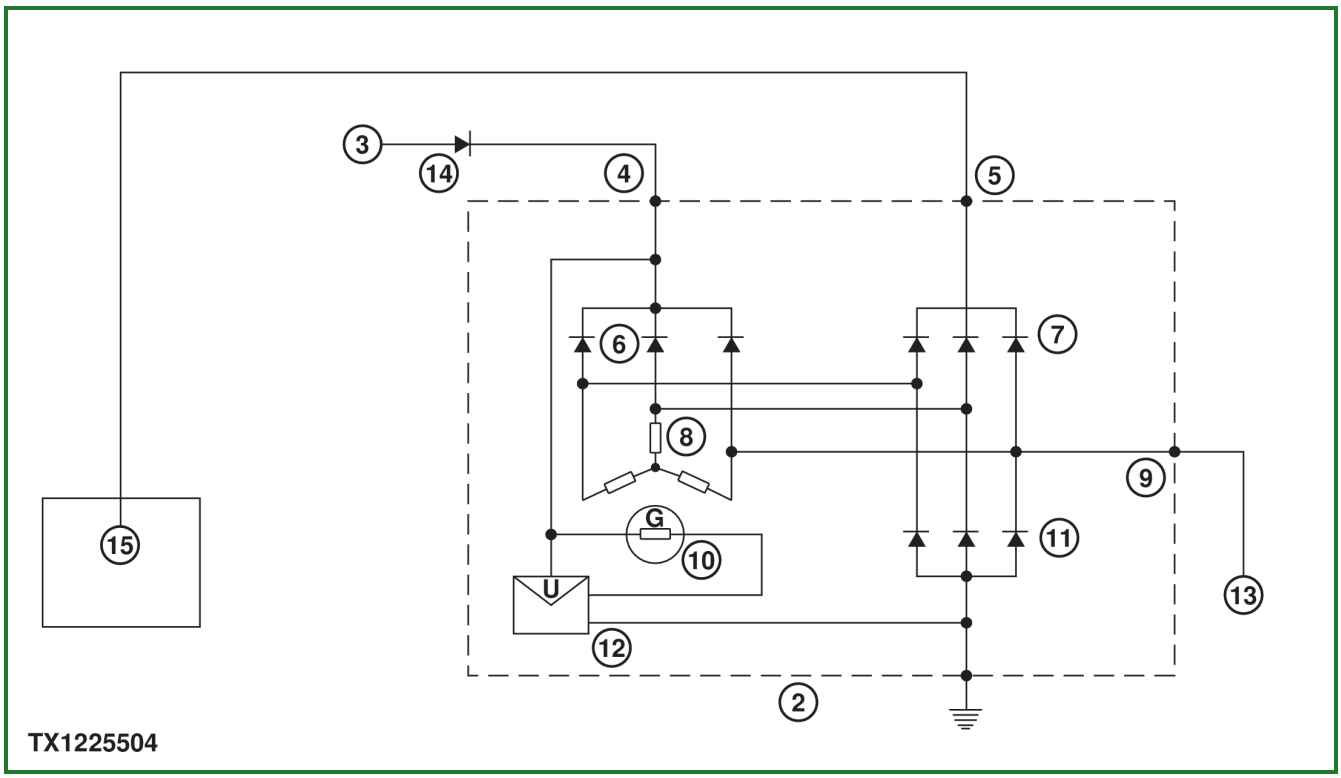
Alternator Test



TX1112292-UN: Alternator Test—Fused Power Excitation

LEGEND:

1 - Battery
2 - Alternator
3 - Switched Power
4 - Excitation Terminal (marked D+)
5 - B+
6 - Exciter Diodes
7 - Positive Diodes
8 - Stator
9 - AC Terminal (marked W)
10 - Excitation Winding (field)
11 - Negative Diodes
12 - Regulator
13 - To Display Module (voltage indicator)
14 - Alternator Excitation Diode



TX1225504-UN: Alternator Test—Engine Control Unit (ECU) Excitation

LEGEND:
2 - Alternator
3 - Switched Power
4 - Excitation Terminal (marked D+)
5 - B+
6 - Exciter Diodes
7 - Positive Diodes
8 - Stator
9 - AC Terminal (marked W)
10 - Excitation Winding (field)
11 - Negative Diodes
12 - Regulator
13 - To Display Module (voltage indicator)
14 - Alternator Excitation Diode
15 - Engine Control Unit (ECU)

12 V System

1. Complete the following checks before beginning alternator test procedure:

   - Check condition of belt, looking for belt damage or belt slippage.
   - Check battery state of charge.
   - Check both positive and negative electrical connections at the alternator and battery/batteries. Connections must be tight and free of corrosion.

   Proper belt operation, battery condition, and electrical connections are an essential part of the charging system and must be in good condition before proceeding with alternator test.

2. Turn off all electrical loads on machine, such as blower fan in cab and all vehicle lights, to test charging system at low electrical load.

3. Start engine and set engine speed to slow idle. Measure Vdc at B+ terminal on the alternator.

   1. If the voltage is greater than 13.5 volts [Note: For 12 V systems with maintenance-free batteries, B+ voltage should be 14.1 Vdc or greater.] and there are no active diagnostic trouble codes (DTCs) for alternator excitation issues, then the alternator is operating properly. Go back