

Date: August 4, 1979

File Reference: D.I.B. "E" - No. 1549

File Duration: Permanent

To: All Gravely Dealers, Branches and Distributors

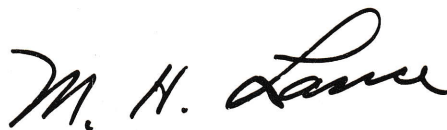
Subject: **3 Amp Electrical System on Kohler Engines**

The Kohler engines equipped with the 3 amp electrical system have a diode built in the stator wire. The diode changes the electrical system from AC to DC.

If the battery is connected with reverse polarity, it will burn out the diode.

The diode is available as a repair part under part number 32005.

Enclosed is a copy of Kohler Engine Service Bulletin #123 which provides the Service Information on the 3 amp electrical system. The Kohler Bulletin also covers units with headlights. These areas of the instructions would not apply to Gravely.



M.H. Lance, CSE  
Manager, Customer Service

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SERVICE GUIDE FOR 3 AMP, 70 WATT ALTERNATOR

Use the guide below when servicing engines equipped with 3 amp, 70 watt alternator systems. This guide has been prepared to help speed the checking procedure when servicing the alternator.

The 3 amp, 70 watt system can be identified from other Kohler systems by the two differently colored lead wires coming from the stator. The yellow lead wire is from the lighting windings and the black lead wire is from the charging windings. The 3 amp, 70 watt system also has four or five magnets in the magnet ring on the flywheel and does not use a regulator-rectifier. To change AC to DC, the 3 amp system has a diode in the battery charging lead.

Precautions:

1. Make sure battery is connected with the right polarity. Stator and diode damage will result if connected with wrong polarity.
2. Do not operate AC lighting circuits with less than 70 watt lamp load as this causes the lighting circuit to be overloaded, resulting in shortened bulb life.

SERVICE GUIDE (continued)

Type of Failure

No lighting

Test

1. Disconnect lighting lead from wiring harness. Measure open circuit voltage with AC voltmeter from lighting lead to ground with engine running at 3000 RPM.

Test Result

- 1a. 15 Volts or more.

Conclusion

- 1a. Stator O.K., wiring harness may be shorted.

2. Check resistance of lighting winding lead to ground.

- 2a. 0.5 ohms.
- 2b. Zero ohms.
- 2c. Infinity ohms.

- 2a. Stator O.K.
- 2b. Stator shorted.
- 2c. Stator open or broken lead.

NOTE: ALWAYS ZERO VOLT AND OHMMETERS ON EACH SCALE BEFORE TESTING OR INACCURATE READINGS WILL RESULT.

SERVICE GUIDE

Type of Failure

No charge to battery.

Test

1. Check battery voltage across the battery terminals using DC voltmeter with engine running at 3000 RPM.

Test Result

1a. Voltage over 13.5.  
1b. Voltage 12.5 or less.

Conclusion

1a. Stator and battery O.K., battery charged.  
1b. Stator or diode defective.

2. Disconnect battery charging lead from battery, measure DC voltage from charging lead to ground with engine running at 3000 RPM. (Warning: Lead will be high voltage when engine not loaded).

2a. Voltage over 45.

2a. Stator winding O.K.

3. With charging lead disconnected from battery check resistance to ground of battery charge lead.

A. In one direction resistance should read infinity ohms (open circuit).

3a. Resistance low both directions.

3a. Diode shorted.

B. With ohmmeter leads reversed some resistance should be measured (about mid-scale on R X 1).

3b. Resistance high both directions

3b. Diode or stator winding open.

C. Cut the sleeving on the battery charge lead to expose the diode connections. Check resistance on the stator side of diode to ground. (Should be 1 ohm).

3c. Zero ohms.  
3d. Infinity ohms.

3c. Shorted winding.  
3d. Open winding or broken lead.