# 350,000 & 600,000 BTU Heaters made by Desa® Master, Reddy, Dayton, Koehring, Knipco, & Others

## Troubleshooting - Problem Solving

**Observed Problem**
Motor starts, but heater will not ignite

**Possible Cause**
If No Spark Observed at Spark Plug

**A. Spark plug has incorrect gap**
**B. Defective transformer or transformer not grounded properly.**
**C. Cracked spark plug**

**Possible Cause**
If Spark Observed at Spark Plug

**D. Incorrect fuel pump pressure**
**E. Defective fuel solenoid valve**
**F. Fuel line leak on suction side of pump**
**G. Dirty or damaged nozzle**
**H. Dirty fuel filter**

**Test Procedures**

**A. Spark Plug has incorrect gap**

1. Unplug heater.
2. Remove upper shell of heater
3. Remove spark plug from burner head
4. Check gap between spark plug electrodes with feeler gage. Correct gap for spark plug is .05/.06 inch. Reset gap if needed.
5. Follow steps in procedure "B" to test for spark at spark plug electrodes.

**B. Defective transformer**

1. Unplug heater.
2. Remove upper shell of heater.
3. Remove spark plug from burner head. Make sure spark plug is properly gapped (see test procedure "A" for spark plug gap)
4. Check to make sure the transformer is properly grounded by the 2 mounting screws. Look for loose fasteners, corrosion, broken tabs, etc.
5. Connect the transformer secondary lead to the spark plug.
6. Establish a good ground between the spark plug body and heater. To do this, attach a grounding wire to heater shell. Clip grounding wire to grounding (outer) electrode on spark plug. Use insulated pliers to hold spark plug at spark plug hex. Note: Only use pliers with plastic or rubber sleeved handles.
7. Connect heater to electrical supply
8. Look for spark between electrodes. If the ground is good and there is no spark between electrodes, the transformer is defective.

*Note*: No spark between electrodes may be caused by cracked porcelain on spark plug. Before replacing transformer, see test procedure "C". If porcelain on spark plug is not cracked, proceed with replacing defective transformer.

**C. Cracked spark plug**

Follow steps under **DEFECTIVE TRANSFORMER** procedure, to test for spark at spark plug electrodes. If spark is seen at any place on the spark plug other than the electrodes, the porcelain insulator is cracked. Replace spark plug.

**D. Defective fuel solenoid valve**

1. Remove upper shell of heater
2. Check for fuel flow to nozzle. Do this by turning thermostat knob to warmest position and connecting heater to electrical supply. With motor running, look through air openings on rear of combustion chamber. See if nozzle is spraying out fuel. If nozzle is spraying out fuel, solenoid valve is working properly. If nozzle is not spraying out fuel, unplug heater and follow steps below to determine if solenoid valve is defective.
3. Disconnect yellow and white wires from solenoid valve.
4. Set ohmmeter on the 250VAC position.
5. Connect ohmmeter test leads to yellow and white wires that were connected to solenoid valve.
6. Connect heater to electrical supply. If 120VAC is being sent to solenoid valve and fuel pump pressure is correct, the solenoid valve is defective. Replace defective solenoid valve.

**E. Fuel line leak on suction side of pump**

Check all fuel lines on the suction side of the pump for tightness. An air leak in one of these fittings can allow air to enter the system. This will result in improper pump pressure.