

# KIPOR Inverter Generator Troubleshooting Guide

<b>Customer:</b>	<b>When was it sold?</b>
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<b>Case #:</b>	<b>Generator: KGE</b>	<b>serial #</b>
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Step one is to determine the problem? Once you have this information, go to the related section.

## Section 1- Fuel related problems

1. Fuel leak
2. Fuel flow
3. Stepping motor
4. Valve adjustment

## Section 2- Generator won't start

1. No Start, Cranks, has spark & fuel.
2. Choke pin
3. Alternator
4. Ignition timing

## Section 3- No Start, no spark.

1. No Start, Cranks, has no spark.
2. Low oil switch
3. Spark plug
4. Ignition winding
5. Ignition coil

## Section 4- No Start, no crank. (3000-3500Ti only)

1. No start- no crank
2. Battery low ( does not hold a charge)
3. No electric start

## Section 5- No AC Output (Inverter series)

1. No AC

## **Section 1-**

### **1- Fuel Leak**

For the 3000/3500Ti, it could be the valve or it could be the tank leaking between the brass fitting and the plastic tank. Both are replaceable. Determine which is leaking and either part is replaceable.

Result:

For all generators, check all fuellines, valve, pump and carburetor

Result:

**2- Fuel Flow.** Open the drain screw on the bottom of the carburetor, do you get a steady flow of fuel? If so, there is no blockage. If no fuel flow, blockage may be the case. It is possible that you have a partial blockage which allows fuel to flow to the carb, giving the appearance of a steady supply, when in fact it is there but is not enough to meet the demand of the engine. Check for kinks in the fuel line.

Result:

It is also possible that there is a blockage in the carb. Try removing the bowl on the bottom of the carb and then removing the float and turning on the fuel. This will allow fuel to flow freely thru the carb. This is a very simple process. However, it may be easier to remove the carburetor first. Be careful to not damage the gasket. Clean the parts and replace them and try again to see if the unit will run properly. It could also be a plugged fuel filter. For the 1000 and 2000Ti it is located in the gas tank where the fuel line is connected. For the 3000Ti you have to take the fuel valve off and it should come out attached to the valve.

Result:

For the 1000 and 2000Ti there is a vacuum gas pump. This pump is activated by a vacuum tube connected to the motor housing situated under the carburetor. Make sure that this tube is connected properly.



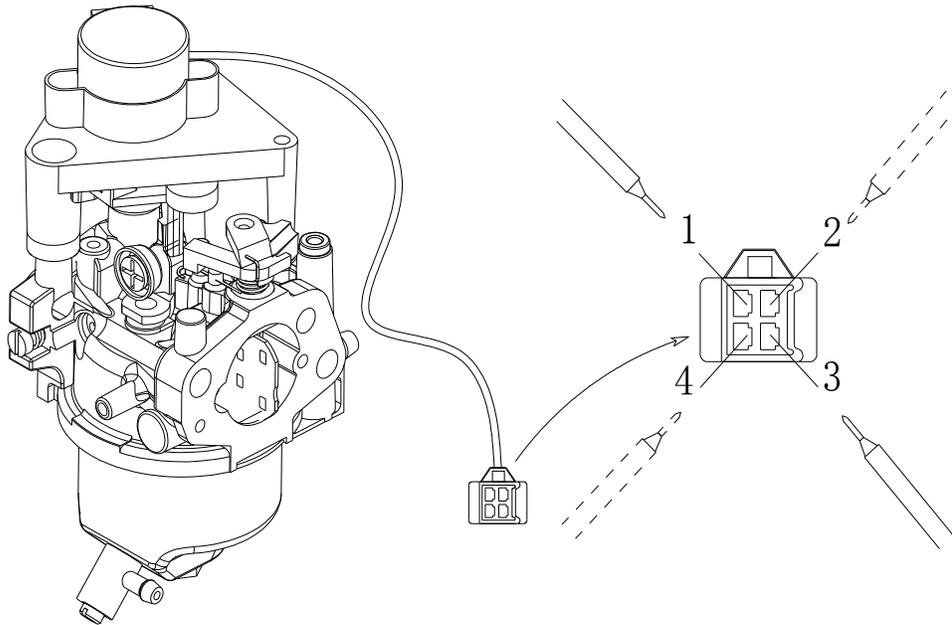
**3- Stepping Motor (Electric Throttle Actuator)** Does the stepping motor respond when the inverter module is trying to change the engine speed when more load is applied? Does the stepping motor try to adjust the carb and is unable to or does the carb respond properly to the stepping motor but it still makes no difference? Depending on your answer, it could be the stepping motor or the carb. Spaying WD40 on the linkage and moving it manually might free it up.

Result:

Measuring the resistance of stepping motor leading wires

Specified resistance	1 and 3 45~55Ω
	2 and 4 45~55Ω

Replace the stepping motor if the resistance value exceeds the specified range.



Result: Resistance 1 and 3: Resistance 2 and 4:

**4- Valves.** It is also possible that they have improperly adjusted valves. The required clearance is listed in the owner's manual. Check and adjust if necessary.

Result:

## **Section 2-**

### **1-No Start, Cranks, has spark & fuel.**

Do any lights come on while trying to start? If so, which ones?

Yes:	No:
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Does it "fire" and begin to run, and then die? Or does it never "fire"?

Result:
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**2- Choke pin (3000-3500Ti only).** It's possible that the choke pin that fell out. Look under the choke plate for a pin operating the choke mechanism. If not, change the choke plate and the choke cable.

Result:
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**3- Alternator.** It could be the alternator. At the inverter, disconnect the large 6p plug that has only 5 wires. With the meter in "Diode Checking" mode, check continuity between the two white wires (pins 3 & 6). Reading must be 0.000.

Reading:
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**4- Ignition Timing.** It could be ignition timing. Does it backfire or occasionally fire and then die? This cannot currently be checked without disassembly. But if it occasionally backfires, it is a likely the cause.

Yes:	No:
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## **Section 3-**

### **1- No Start, Cranks, has no spark.**

#### **For 1000-2000Ti**

Do you hear a click when you turn the engine switch to on?

Yes:	No:
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If no, the micro switch is not operating properly. It could be a wire stopping it from moving or could be dirty. Clean with a non flammable pressurized cleaner like electrical contact cleaner. If it still doesn't operate, change the micro switch.

#### **For all models**

Do any lights come on while trying to start?

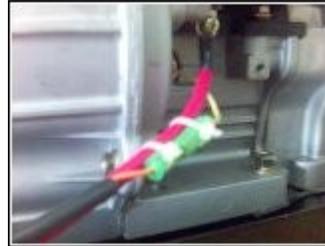
Yes:	No:	Which one:
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**2- Low Oil Switch.** It could be the low oil switch if the low oil light is coming on and the unit will not start. The oil switch might be stuck. 1- Check the oil level. 2- Unplug the oil switch and run the engine for 2 minutes. 3- Reconnect the oil switch with the engine running. 4- Check for a damaged wire (shorting to ground). The wire is orange coming out of the ignition module. It connects to a yellow wire near the motor that passes thru the crankcase. 5- Remove the control panel and disconnect the 10p plug that goes into the back of the ignition module. Check for continuity between the orange wire and ground. There should be none. It should show O.L. for "Open Line". If there is continuity, either the wire is shorted or pinched somewhere, or the switch is faulty

**Low oil switch connector for 1000-2000Ti  
Orange -Yellow/green.  
Bottom right door opened**



**Low oil switch connector for 3500Ti older  
green model-connectors. Right side under  
the starter.**



**Low oil switch connector for 3000Ti new  
model. Orange wires- bottom right  
behind the battery.**



Result:
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**3- Spark plug.** Check, adjust or change the spark plug.

Result:

**4- Ignition Windings.** It could be the ignition system. Remove the control panel and unplug the 10p connector that goes to the ignition module (module with 3 lights). Check continuity between ground and green. There should be continuity. Check continuity between ground and yellow. There should be in the area of 86 ohms resistance. If either or both of these are faulty, there could be a loose wire or bad ignition winding. This requires complete disassembly.

Result: Readings: Ground and green:                      Ground and yellow:

**5- Ignition Coil.** Unplug the 10p connector that goes to the ignition module (module with 3 lights). To check the primary side of the ignition coil, check continuity between ground and blue wire. There should be a reading between 0.7 and 3.5 ohms. To check the secondary side of the ignition coil, unplug the spark plug wire and check continuity between the blue wire and spark plug wire. There should be a reading between 12.0 and 21.0 k-ohms. If either or both of these are faulty, there could be a loose wire or bad ignition coil. For 1000 and 2000Ti the coil can be changed. The 3000/3500Ti requires complete disassembly.

Result: Readings: Ground and blue:                      Blue and spark plug wire:

**6- Ignition module.** If all of the above are correct it could be the ignition module. (Module with 3 lights) We have no tests for this module. Change the module.

## **Section 4-**

### **1- No Start, no crank. (3000-3500Ti only)**

Check battery voltage. You should read 12-14 VDC. If not, charge the battery and try starting.

Result:

Check battery connections. They must be clean and tight.

Result:

Check 2p connector just inside the door. It must be plugged in securely.

Result:

Check voltage at the starter relay, before cranking. There should be voltage only at the large post that has the battery cable attached to it. If there is no voltage, check the cable and connections. Turn the key to the start position and check for voltage at the second large terminal (Starter side)

Result:

If voltage is not present at both large posts (12–14 volts), either the relay or the ignition switch is faulty. Disconnect the 2p plug, near the door and check for voltage between the yellow wire and ground making sure the switch is turned to the start position. If voltage is present replace the start relay. If no voltage is present replace the ignition switch.

Result:

If voltage is present at both large posts, the problem is in the starter motor or the cable leading to it. If the first test for the relay checks out OK, make sure the 2p plug is securely reconnected and check voltage at the large post that is connected to the cable that goes to the starter motor while cranking. If there is no voltage, the relay is faulty. Replace it. If there is voltage, and all of the above items are all working properly, the problem is in the starter motor or the cable leading to it. Remove the end panel and check for secure connections and/or damage in the cable. If no damage is found and connections are good, remove the cabinet and check the connection and voltage at the starter. If there is voltage and the connection is good, and no cranking, the starter motor is faulty

Result:

### **2- Battery low (does not hold a charge)**

If the battery will not hold voltage, either the battery or the 12vdc charge circuit is faulty. Check the battery using a battery tester. If faulty, replace the battery. If good, unplug the battery, start the engine with the pull cord and test the voltage at the battery connectors. It should read 12.5 to 13.5volts. If not, remove the control panel and check the fuse on the purple wire. If the fuse is good, the 12vdc regulator is the likely culprit. Either can be replaced.

Result:

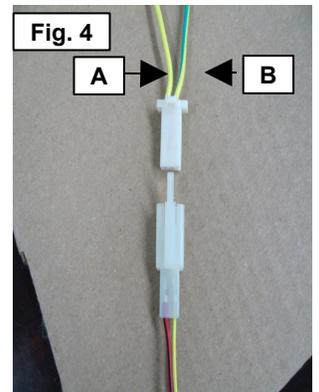
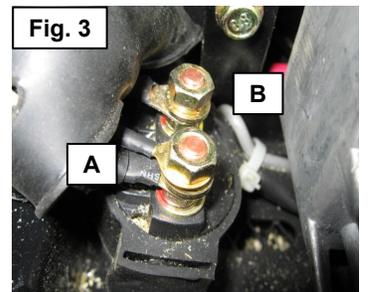
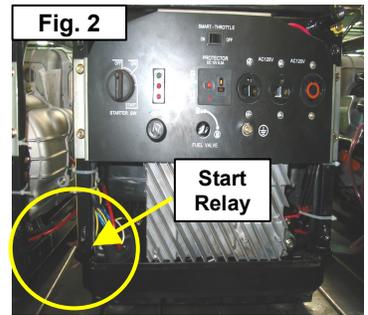
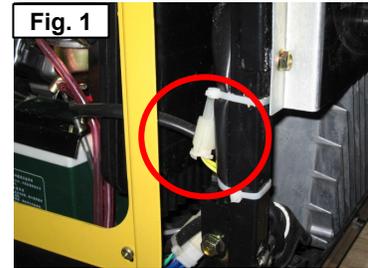
### 3- No Electric Start.

Check battery voltage. Should be 12-14 VDC, if not, charge the battery and try starting.

Check battery connections. They must be clean and tight.

Check the plug connections on the back of the ignition switch.

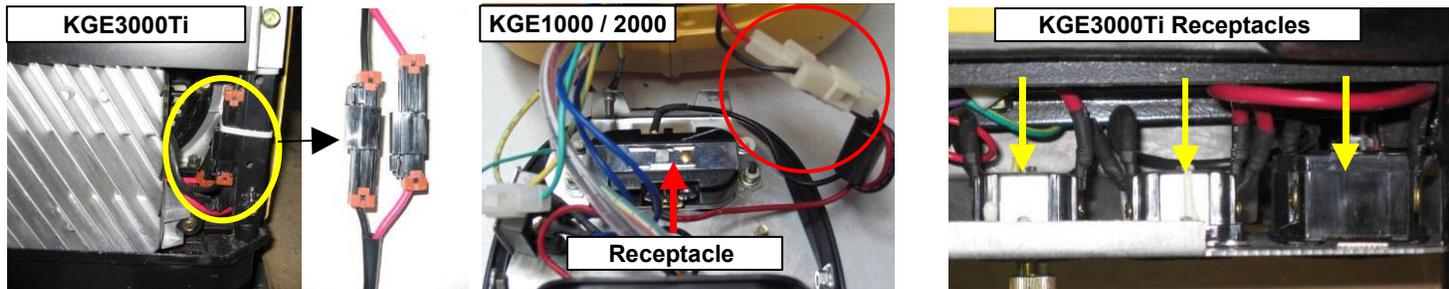
1. If all of the above are correct you will need to remove the front control end panel and check 2p connector, it must be plugged in securely. (fig. 1)
2. Check voltage at the starter relay (bottom left side fig. 2) before cranking. There should be (12–14 volts) only at the large post that has the battery cable attached to it- Fig. 3-A. If there is no voltage, check the cable and connections. Turn the key to the start position and check for voltage at the starter terminal (fig. 3-B)
3. If voltage is not present (12–14 volts) either the relay or the ignition switch is faulty. Disconnect the 2p plug, near the door and check for voltage between the yellow wire (fig. 4-A) and the yellow w/green strip, ground wire (fig. 4-B) there should be (12–14 volts) when the ignition switch in the start position. If voltage is present replace the start relay. If no voltage is present replace the ignition switch. If voltage is present at both large posts, the problem is in the starter motor or the cable leading to it.
4. If the first tests for the relay and ignition switch checks out OK, then make sure the 2p plug is securely reconnected. Remove the cabinet and check the connection and voltage at the starter. If there is no voltage, check the cable and connection. If there is voltage and the connection is good, and no cranking, the starter motor is faulty,



## **Section 5-**

### **1- No AC Output (Inverter series)**

This could be a loose wire from the inverter to the receptacles. On KGE3000Ti, remove the end panel and look down by the lower, right corner, as they face the control panel. On the KGE1000 and 2000Ti this is located behind the control panel. Check to see if the red and black wires are securely plugged in and the wires are securely attached to the receptacles.



If no problems are found on the steps above;

Next, there is a large 6 position connector that actually has only 5 wires in it, that plugs into the back of the inverter.

Unplug the connector from the inverter and start the engine, check voltage between pins 1 & 4, between pins 2 & 4, and between pins 1 & 2. They should be approximately 300vac at each test. If one or more of the three tests fail, the problem is either a damaged wire harness or a defective alternator. If the wire harness is the problem, look for and repair the damage. If the alternator is the problem, the stator and rotor will need to be replaced. If all three tests are OK, the problem is likely the inverter.

