



Corona Supplies Ltd

for all your corona needs

GX 10, 20, & 30 - Generator Fault Lamps & Conditions.

WARNING

High voltages are present within the corona generator

Very high voltages are present within the corona treater station

Fault finding should only be carried out by qualified personnel

Corona Supplies service department should be contacted if in any doubt

Fault - The interlock lamp does not illuminate.

- Ensure the treater is closed including all the access doors and windows.
- Ensure that the ozone extraction fan is running. Also check that the fan is rotating in the correct direction as indicated by an arrow on the motor cover.
- Ensure that the Emergency stop button has not been depressed.
- Check that the indicator bulb or LED has not failed.
- Refer to the circuit diagram. Verify that all the relevant cable connections are secure, and not damaged.
- Check for 24Vdc across TB2/1 and TB2/4 on the power supply PCB.
- **Switch off the generator.** Locate the terminal box where all the interlock switches are terminated (on the treater). Remove the cover. Check the continuity of each switch or sensor. Check/replace switch or sensor as necessary. **Warning:- Do not bypass any safety interlock switch because high voltage is present when corona discharge takes place. Any bypassed switches could damage the generator, or cause severe injury to the operators.**

Fault - The up to speed lamp does not illuminate.

- Check the treater base roll(s) are rotating at the same speed as the line rollers. **Note: On webs with low tension or high slip it is possible for the web to slide over the treater rolls, causing the treater rolls to stop or only turn slowly.**
- Check that the indicator bulb or LED has not failed.
- Check for 24Vdc across TB2/1 and TB2/4 on the power supply PCB.
- **Magnetic Sensor** – If the base rolls have been recently removed. Check that they have been re-fitted correctly. Check that the polarity of the magnets alternate around the base roll (North (Blue) - South (Red) - North - South).

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- **Magnetic sensor** – Check the distance of the magnets from the sensor. The gap should not exceed 10mm.
- **Inductive Sensor (Orange)** – Check the distance of the sensing disc or roller from the sensor. The gap should not exceed 2mm.
- Refer to the circuit diagram. Verify that all the relevant cable connections are secure and not damaged.

Fault – Treat on lamp does not illuminate.

- Check the Interlock lamp is illuminated.
- Check the Up To Speed lamp is illuminated.
- Check that the start button has been pressed and the Start lamp is illuminated.
- Check the power potentiometer on the front panel is above zero.
- Check the skip (standby) contacts are closed (SKT 4 pins A & B). Pins A & B in the plug connected to SKT 4 should either be shorted with a wire link or if controlled remotely the contact connected to these pins should be closed.
- Check that the air inlet filter on the generator is clean. Check that the fan is rotating. Check for a closed contact on the thermal switch located on the side of the inverter stack.
- Ensure all of the relays are closing. Set the output control potentiometer located on the door to minimum. Switch on the generator, and press the start button. Immediately two relays (RL1 & RL4) inside the generator can be seen and heard to close. After a predetermined time of approximately two seconds the remaining two relays (RL2 & RL3) should also close. The closing of these relays is determined by the voltage feedback PCB. If one or more relays fail to close, then this feedback PCB needs to be checked. It is located inside the generator close to the inverter control card. It has a single 10 way orange plug and socket across one length, and is sited at the top of the generator.
- Check the semiconductor fuse FS3. **Switch off the generator.** Inside the lower right hand side of the generator is a semiconductor fuse approximately 70mm long and 7mm in diameter. This fuse is rated as follows. **GX10** – 6 Amps (6CT) **GX20** – 10 Amps (10CT) **GX30** – 12 Amps (12CT)
- Using a multi-meter set to the resistance (Ohms) scale, probing across this fuse should indicate 0 . If a larger resistance is shown then the fuse should be removed and again tested, this time out of circuit. If there is still a high resistance then the fuse will need to be replaced.

Fault - During treatment or whilst increasing the output power the trip lamp lights or there is little or no corona discharge.

This could be for a number of reasons so all the following need to be checked.

- Excessive air gap. For ceramic dielectrics the air gap between the electrode and the treater roll, with the web removed, should be set to 1 – 1.5mm. For other dielectrics this gap should be 2mm.
- Pin holed or cracked dielectrics (Rollers, Ceramic electrodes etc).
- Dirty or cracked insulators.
- The HT connection (between the HT transformer insulator and the electrode(s)) may be loose.
- The HT transformer is incorrectly tapped.

Cont/d...

- The electrode discharge area is too small for the high power being used.
- A recently replaced dielectric sleeve has been cut too short.
- The humidity is too high leading to excess moisture inside the treater station.
- Dirty front plate or loose primary connections on the HT transformer.
- Worn treater roll bearings.
- If the treater roll has recently been changed, and the roll was not supplied by Corona Supplies Ltd., the dielectric constant of the new roll covering may be unsuitable.

Fault - The generator keeps tripping the circuit breaker when the start button is pressed.

This fault is more common on the GX10 or 20.

- **Switch off the generator.** Inside the lower right hand side of the generator is a semiconductor fuse approximately 70mm long and 7mm in diameter. This fuse is rated as follows.
- **GX10** – 6 Amps (6CT)
- **GX20** – 10 Amps (10CT)
- **GX30** – 12 Amps (12CT)
- Using a multimeter set to the resistance (Ohms) scale, probing across this fuse should indicate 0Ω. If a larger resistance is shown then the fuse should be removed and again tested, this time out of circuit. If there is still a high resistance then the fuse will need to be replaced. **Before switching the generator back on, continue with the following test.**
- Below the semiconductor fuse there is a resistor. Probing across this resistor with an Ohms check should indicate a resistance of 10Ω. If the resistance is above this or open circuit the resistor will need replacing. **Note: the GX30 does not have this resistor fitted.**
- If the circuit breaker trips again after the above has been checked / rectified the following should be checked

Note: Due to the high operating frequency of the inverter the following tests can only be carried out using a true RMS multimeter i.e. Fluke 87, 17x or 28x series.

- Switch on the isolator/circuit breaker. Ensure the interlock and up to speed lamps are lit. **Do not press the start button.** On the bottom of the inverter control PCB located inside the generator are 4 x 2 way plugs. These plugs deliver the firing pulses to the mosfets. If you measure across the two terminals of each plug identified as TB4, TB5, TB6 and TB7 you should monitor approximately 11 or 12Vac. If the voltage has dropped to below 8Vac, then the inverter assembly is defective and will need to be replaced or repaired.
- There could also be a short circuit on the output so go through the checks for the HT transformer. Also check for a short circuit on the inductor and output capacitor inside the generator.