**2.3.1 Control cabinet arrangement diagram**

**2.3.2.3 Intelligent controller model is HGM6510**

Switch on, off indicator

Scroll up

Stop/ Reset

Manual

Automatic

Unit start button

Switch on

LED alarm lamp

Company logos

LCD display

Load indicator

Switch off

Scroll right

Enter

Scroll down

Scroll left

Stop indicator

Automatic indicator

Manual mode

 Indicator

**3.5Operation procedure**

**3.5.1** **Starting up**

**3.5.1.1** Switch “DC power” to “ON "," idle / rated " to " idle "; then press the" manually select "button on the control panel to enter the" manual mode "

**3.5.1.2** Open the gas valve, connected to the gas source. Press the "start" button, the genset will be started. Automatically determine the starting successful, it will idle run to warm-up the genset. At this time, observe whether the instrument indicate normal.

When the water temperature, oil temperature rise up to 40 ℃, switch the “idle / rated” to “rated”. The unit will grow faster, running at rated speed. At this time, observe whether the instrument indicates normal.

When the engine works normally, the reference values ​​of the parameters:

① Water temperature in the range of 70-85 ℃ is appropriate, shall not be less than 60 ℃, also should not be higher than 90 ° C; (higher than 90 ° C alarms, higher than 95 °C downtime)

②Oil temperature in the range of 70-85 ℃ is appropriate, shall not be higher than 90 °C; (higher than 90 °C alarms but machine not stop)

③The oil pressure should be in the range of 250-550kPa; (less than 200kPa alarms, below 150kPa machine stops)

The above data are for reference only. When the fuel is different types of gas or engine at different operating conditions, the data may be slightly different.

**Notice:**

**Start continuous operation shall not exceed 10 seconds. If first starter unsuccessful, starting again at least 30 seconds after the interval; should immediately stop if the unit fails to start three times. Identify the cause and eliminate before starting again.**

**3.5.2** **Switch on and loading**

**3.5.2 Switch on and loading**

**3.5.2.1** **Basic type gas genset**

Wait until the load indicator lights, close the air switch, and then gradually open the electrical equipment to increase the load, open big first and then open small.

**3.5.2.2 The ATS automatically converted gas genset**

Wait until the load indicator lights, press the "switch to the genset" button, the generating indicator lights shows the load has been transferred to the gas gensets, and then gradually open the electrical equipment to increase the load, open big first and then open small.

**3.5.2****.3****Parallel grid connection gensets**

Wait until the load indicator lights, press the “ON ”button, the unit will detect whether have the mains supply. If there are no mains, the unit switches on, switch on indicator lights. It is a stand-alone mode, the genset can be added or subtracted load. The power factor should be controlled around 0.8 lag; stand-alone run unit should gradually open the electrical equipment to increase the load, open big first and then open small; if have mains supply, the unit is inparallel grid connection mode. The unit will automatically adjust the engine governor (GOV) and generator (AVR) synchronized with the mains, and then switch on. If successful switch on indicator lights, and automatically add load. Users can press the "active power increase" or "active power decrease” according to the actual situation by manually adjust the size of the load (in general, long-running units, the load should be controlled 70% to 85% of the rated power of the unit).

**3.5.3 Stopping**

**3.5.3.1 Uninstall**

Before the unit is shut down, first shed the load. Stand-alone unit through the gradual closure of the electrical equipment to reduce the load. Shut off should the big first and then the small; require the user to the network automatically and run unit by "active power decreases button, power generating units will be gradually decline.

**3.5.3.2 Separating brake**

When gas generator set power down to nearly one fifth of the rated power, the basic gas generator sets can disconnect the air switch quickly; the ATS automatic transformational gas generator sets can press the "Switch to the mains button” to transfer the load to the mains; automatically parallel grid gas generator sets press the “Switch off button”. After the speed increased rapidly, it will be back to the rated speed.

**3.5.3.3 Reduced to idle running**

Gas generator set will run a few minutes at the rated speed, transfer the “idle / rate” switch to the "idle" position, the unit speed quickly reduce to idle run

**3.5.3.4** Shut off the gas ball valve

When the unit water temperature, oil temperature is reduced to below 50 ℃, close the valve of the gas source. The gas remaining in the pipeline will enable the unit to continue to run for 1to 2 minutes. After the gas is depleted, the unit will automatically shut down, and then turn off the power switch of the unit.

**1.During the normal operation of the unit, tour inspection once every half hour, observed oil temperature, water temperature, oil pressure, differential pressure, gas pressure and water, the oil level, make a record on the unit parameters every two hours.**

**2****.When gensets due to speeding, over-current, reverse power, high water temperature, high oil temperature, low oil pressure other malfunction, causing sudden shutdown should immediately cut off the gas source to find the cause of the malfunction and the exclusion only after re-boot.**

**3.When emergency happens, you can press the “emergency stop” button to stop the unit. After processing failure, you must switch the air switch or electrically operated air switch manually to the breaking position, or spin ATS switch manually to zero, then start the gas genset.**

**Special Notice:**

 **After an emergency stop, you must jigger immediately. During the period gas supply and power supply should be cut off to ensure personal safety. Disc crankshaft by hand, while motive pumps pump oil by hand (if any).After the water temperature, oil temperature dropped to below 50 ℃, then check.**