

# BlackJack SolderWerks BK5050 Repairing System

## INSTRUCTION MANUAL

Thank you for purchasing the BlackJack BK5050 Repairing System.

Please read this manual before operating the equipment.

Keep manual in accessible place for future reference.

**NOTE: Please remove the screw located at the center of the bottom part of the main unit. This screw holds the pumps in place during shipping. Failing to remove this screw prior to use can cause damage to the unit**

|                                |                        |
|--------------------------------|------------------------|
| Station Dimensions:            | 188(w)x126(h)x250(d)mm |
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| Power consumption:             | 500W peak              |
| Temperature range:             | 100°C - 480°C          |
| Heating element:               | Metal Heating Coil     |
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| Heating Element/Power:         | Ceramic Heater / 75W   |
| Voltage                        | 24V                    |

## PRODUCT DESCRIPTION

The BlackJack BK5050 Repairing System is a multipurpose reworking system that incorporates a Hot-Air Gun and Soldering Iron.

The Hot air gun is equipped with our BlackJack SolderWerks Hot-air triple protection system, which provides (1) **System cool-down**, (2) **Auto System Sleep**, and (3) **Overheat Protect**. The **System cool-down** feature removes the residual heat from nozzle when the Hot-air function is switched off, this will let the nozzle cool down more rapidly and pro-long the life of the heating element. The **Auto System Sleep** feature puts hot-air gun in sleep mode when the hot-air gun has been left unattended. The **Overheat Protect** feature effectively shuts off power to the heater when an overheat in the handle has been detected.

The Soldering iron uses a high powered ceramic heating element that is compatible with lead free soldering. The replaceable tip design allows versatility to tackle and soldering job.

## SPECIFICATIONS

| Main Station         |                                |
|----------------------|--------------------------------|
| Station Dimensions:  | 188(w)x126(h)x250(d)mm         |
| Hot air gun:         |                                |
| Power consumption:   | 500W peak                      |
| Temperature range:   | 100°C - 480°C                  |
| Heating element:     | Metal Heating Core             |
| Pump Type/ Capacity: | Diaphragm Pump, 23L/min. (max) |

| Soldering Iron:        |                      |
|------------------------|----------------------|
| Temperature range:     | 200°C - 480°C        |
| Heating Element/Power: | Ceramic Heater / 75W |
| Voltage                | 24V                  |

Specifications are subject to change without prior notice

## SAFETY PRECAUTIONS

**CAUTION: Improper usage can cause serious injury to personnel and/or damage to equipment. For personnel safety, please follow these precautions:**

- Check each component after opening the package to make sure everything is in good condition. Do not use this item if visible damage is seen, report the issue to your vendor.
- Power off unit and unplug the device when moving the device from one location to another.
- Do not subject the main unit to physical shock
  - Never drop or sharply jolt the unit.
  - Contains delicate parts that may break if the unit is dropped.
- Always connect power to a grounded receptacle.
- Tip temperature may reach as high as 480°C when switched ON.
  - Do not use the device near flammable materials.
  - Do not touch heated parts which may include tips, nozzles, barrels.
- Disconnect from power source if the unit will not be used for a long periods. Switch off power during short breaks.
- Use only genuine replacement parts.
- Soldering process produces smoke — use on well ventilated place.
- Do not try to alter or repair unit, bring to a qualified service center for repairs.

# **IMPORTANT:**

**REMOVE THE SCREW** located at the center of the bottom part of the main unit. This screw holds the pump in place during transportation. Failing to remove the screw before using the equipment can cause damage to the

## Initial Setup

### **1. Main Unit**

**REMOVE THE SCREW** located at the center of the bottom of the main unit. This screw holds the pump in place during transportation. It should be replaced in the event that you ever ship your BK5050 system

**WARNING: Failure to remove the screw before using the equipment can cause damage to the unit**

### **2. Soldering Iron**

1. Install the solder wire to the soldering iron holder as seen.



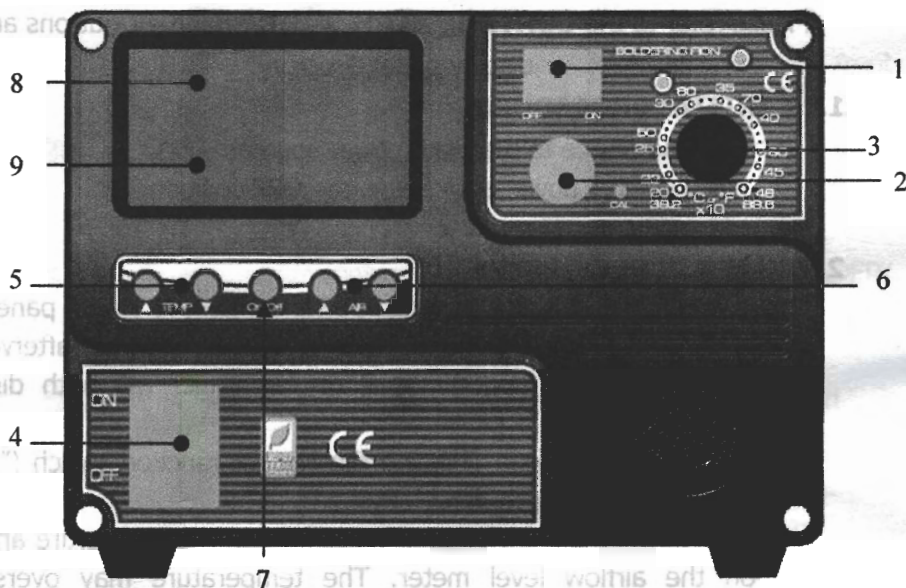
2. Connect the soldering iron cord assembly to the 6-pin output terminal found at the lower middle portion of the main unit.
3. Place the soldering iron to the soldering iron stand as shown above.

### **3. Mechanical Arm (\*optional accessory)**

Attach the mechanical arm to the top left side of the unit. Three square nuts are available for the mechanical arm expansion. To attach the mechanical arm follow these steps:

1. Slide all three nuts to the back.
2. Match the first hole to the first nut, Attach the first screw but do not tighten it.
3. Slowly slide the mechanical arm platform until the second hole matches with the second nut. Again attach the second screw but do not tighten it.
4. Slowly slide the mechanical arm platform until the third hole matches with the third nut. Attach the screws and tighten all three screws.
5. Attach the hot air gun to the mechanical arm. For easy hands free reworking.

# CONTROL PANEL GUIDE



## LEGEND:

- 1 — Solder Iron Power Switch
- 2 — Soldering Iron Receptacle
- 3 — Soldering Iron Temperature Control knob
- 4 — Hot Air Gun Main Power Switch
- 5 — Hot Air Gun Temperature Adjustment Buttons
- 6 — Hot Air Gun Airflow Adjustment Buttons
- 7 — Hot Air Gun Function on/off switch (Hot Air /Cool down)
- 8 — Hot Air Gun Actual/Set Temperature Display
- 9 — Hot Air Gun Airflow Display.

## IMPORTANT:

Make sure the equipment is placed on a flat stable surface and all the heat-generating components placed on their respective holders or stands. Ensure all terminal connections are properly secured.

# OPERATING GUIDELINES

Please refer to the **CONTROL PANEL GUIDE** page for buttons and display panel directory.

## **1. INITIAL PROCEDURES**

1. Plug the device to the main power source.
2. Make sure all power switches in the OFF position

## **2. HOT AIR REWORKING**

1. Turn ON the Hot Air Gun main power switch ("4"). The panel will initially display the "ESD SAFE" in a scrolling manner, afterwards the temperature and air level display panel will both display "OFF".
2. Start the hot air gun pressing the Hot air function switch ("7") , The unit will now be in rework mode.
3. The system's default setting would be 100°C temperature and 51 on the airflow level meter. The temperature may overshoot momentarily but will automatically adjust itself to reach the desired (actual) value.
4. Set air pressure by pressing the airflow control buttons ("6").
5. Adjust hot air gun temperature by pressing hot air temperature Control buttons ("5").
6. Allow 1-2 minutes for the temperature to stabilize before reworking.
7. After reworking, press the hot air function switch to off position (de-pressed) . This will start the **System cool-down** function by blowing air at full speed to accelerate cooling down of hot air gun.
8. The cooling function will automatically stop once the temperature of the hot air gun goes below 100 degrees Celsius.
9. The panel will display "OFF" on both the temperature and airflow level indicating that the device can already be switched OFF.
10. Turn OFF the device and unplug the unit from the power source.

**IMPORTANT:** It is strongly advised to increase the airflow level when higher temperature is needed. This is to protect the heating element inside the handle from excessive heat .

# OPERATING GUIDELINES

## **3. SOLDERING IRON**

1. Connect the Soldering Iron to the receptacle located at the front of the control panel ("2" from the CONTROL PANEL GUIDE).
2. Follow the initial procedures.
3. Then activate the "SOLDER IRON" power switch ("1" from control panel).
4. Adjust the soldering iron temperature using the SOLDER/DESOLDER TEMPERATURE ADJUSTMENT knob ("3" from the control panel).
5. Start Soldering iron when the desired temperature is reached.

## SPECIAL FUNCTIONS AND FEATURES

### **BlackJack SolderWerks® Hot Air Triple Protection System**

1. **System cool-down** — This feature draws the heat out of the nozzle before turning off the pump. By decreasing the residual heat of the nozzle we prolong the life of the heating element and eliminate potential heat damage to other equipments .

#### **Activating the automated system cool down feature**

- Place the Hot air gun on its holder.
  - Switch Hot air gun function switch to cool down mode.
  - The unit will immediately blow maximum air at room temperature this will quickly cool down the nozzle.
  - It will then turn off the pump when the temperature at the nozzle has fallen below 100 degrees Celsius.
2. **Auto System Sleep** — This offers protection in case of operator neglect and as a power saving feature.
    - In case the operator forgets to turn off the unit, the Auto Sleep system activates (5 minutes default) by enabling the **system cool-down mode**, before putting the system into sleep mode (pump and heater are inactive). This feature also acts as power save mode and heater protection. When the hot air has been idle for some time it shuts the Hot air gun off, It easily reverts back to previous system setting once the operator picks up the hot air gun.
    - This feature is activated by default, with a preset 5 minute stand-by timer. The standby timer will begin countdown once the hot air gun is placed on its dock , when the timer expires the system will go to **system cool-down mode** before displaying four dashes on the Hot air temperature and Air flow display. The dashes "- - - -" indicate that the system is in sleep mode. Picking up the nozzle will automatically awaken the system.

## **SPECIAL FUNCTIONS AND FEATURES**

### **Changing countdown time before Stand-by Mode**

1. Switch the unit ON ("4" Hot Air Gun Main Power Switch).
2. Press and hold air flow increase button while the banner is scrolling.
3. Display panel, will initially indicate 'L05', which means the device will switch to sleep mode if the nozzle is docked on the handle and remained idle for 5 minutes (default).
4. Adjust the timer by pressing the temperature adjust buttons.
5. Press air flow decrease button to confirm.

### **Notes:**

- Time is configurable from 1 to 20 minutes (default 5 minutes).
  - The device has a switch located at the handle (cradle), which activates the countdown before the system goes to sleep.
3. **Overheat Protect**— This offers automatic protection in case overheat in the handle is detected, There is a built in heat sensitive fuse that unlatches when overheat is detected. When it is activated the power to the heating element is cut off. It will wait for the handle and nozzle to cool down before it deactivates. It is recommended to activate the **System cool-down** feature and wait for the entire hand piece to cool to room temperature before using the equipment if Overheat Protect system becomes active.

## **CARE AND MAINTENANCE**

### **REPLACING THE HOT AIR HEATING ELEMENT**

The heating element is found in the middle part of the hot air gun. The normal life of a heating element is 1 year under normal operating conditions.

#### **Steps:**

1. Ensure unit is off and is disconnected from main power source.
2. Loosen the 3 screws that secure the handle.
3. Slide off the nozzle.
4. Push out the heating element from the back of the hot air gun.
5. Disconnect the ground wire sleeve.
6. Peel of the protection tube covering the thermal sensor wires, unsolder the wires and detach from the base.
7. Loosen the clip securing the heating element to the base of the hand-piece and slide out the heating element.
8. Insert new heating element and reconnect the thermal sensor wires, use heat-shrink-tubes to avoid shorting of thermal sensor.  
*Be careful not to rub Heating Element wire.*
9. Reconnect the ground wire after replacing the element.
10. Assemble the handle again.

### **SOLDERING IRON TIP CARE**

Always keep the solder-plated section of the tip/nozzle coated with a small amount of solder. Oxide coating on the tip of the nozzle reduces its heat conductivity. Coating the tip with a small amount of fresh solder ensures maximum heat conductivity is obtained.

# **BASIC TROUBLESHOOTING GUIDE**

## **PROBLEM 1: THE UNIT HAS NO POWER**

1. Check if the unit is switched ON.
2. Check the fuse. Replace with the same type if fuse is blown.
3. Check the power cord.
4. Verify that the unit is properly connected to the power source.

## **PROBLEM 2: THE UNIT IS VIBRATING TOO MUCH**

**SOLUTION:** Check if the 4 rubber stubs that hold the pump in place are properly and tightly connected. Unplug the system from the main power source before opening the case to check inside the station.

## **PROBLEM 3: THE UNIT IS VERY NOISY**

### **SOLUTION:**

Make sure the screw at the center of the base of the main unit has been removed. This holds the pump in place during transportation and needs to be removed before using the equipment.

## **PROBLEM 4: AIR PRESSURE LEVEL IS SIGNIFICANTLY LOW NO MATTER HOW HIGH THE AIRFLOW LEVEL IS ADJUSTED**

**Case 1:** Check the mains voltage (AC power source). If the voltage level falls significantly low, about 15-20% lower than the standard, there will also be a noticeable drop in the air pressure level.

### **SOLUTION:**

Please refer to your local power service provider.

**ADDITIONAL SOLUTION:** Check for any tangles in the tube of the hot air gun that can cause the air blockage.

## **PROBLEM 5: TEMPERATURE DISPLAY IS ALWAYS ABOVE 500°C**

**Description:** Constant display of above 500°C temperature from the panel then displays a blinking "OFF" on both sides of the panel after a few minutes.

### **SOLUTION:**

The thermal sensor may be broken and needs to be replaced.

# **BASIC TROUBLESHOOTING GUIDE**

## **PROBLEM 6: ACTUAL AIR TEMPERATURE IS NOT INCREASING**

**Description:** Actual temperature reading is not increasing or decreasing based on desired level. The panel will then display a blinking "OFF" afterwards.

### **SOLUTION:**

The heating element may be broken and needs to be replaced, or the thermal sensor could be shorted.

## **PROBLEM 7: BANNER IS ALWAYS SCROLLING - THE UNIT IS NOT USABLE**

**Description:** The ESD SAFE is just always scrolling from the digital panel, rendering the device unusable.

**SOLUTION:** Turn off the unit wait a few seconds then turn on the unit again.

## **PROBLEM 8: DISPLAY AND OTHER DEVICE OPERATION ISSUES**

**SOLUTION 1:** Turn off the unit wait a few seconds then turn on the unit again.

### **OTHER PROBLEMS NOT MENTIONED:**

Contact the vendor.