SMD REWORK STATION

MODEL 3005

INSTRUCTION MANUAL

MAGNUM

CONTENTS

ABBREVIATIONS

PCB	Printed Circuit Board
SMD	Surface Mount Device
PCU	Portable Configuration Unit
PCCU	Portable Configuration and Calibration Unit

TERMINOLOGY

Reset PCU	Switch unit off then on.
Reset PCCU	Switch unit off then on.
Reset Station	Switch unit off then on.
Configuring	Transfer parameters from one device to another
Calibrating	Correcting measurements against a known accurate source
Calibrating Jigs	Jigs into which the soldering iron and hot air pencil are inserted so the temperature can be measured for calibration purposes

FEATURES

- MICROPROCESSOR CONTROLLED 3005 STATION
- 1005 85W HOT AIR PENCIL WITH AIR FLOW BUTTON
- 1002/80W SOLDERING IRON WITH SOFT GRIP
- MOULDED POWER CORD
- 1.5MM ROUND AND 3MM FLAT AIR NOZZLES
- FINE SOLDERING IRON TIP
- TWO CAST IRON SPRING STANDS
- SMD REMOVAL KIT

GENERAL INFORMATION

The 3005 Station is designed for SMD rework and repair
The Hot Air Pencil can be used to remove components and the
Soldering iron can be used to replace components
The user can adjust the following functions:
Temperature range of the Hot Air Pencil, Soldering iron and the
Percentage of air flow
The PCU can lock all the parameters including the energy saving mode
The PCCU automatically calibrates the Hot Air Pencil and the Soldering iron

ACCESSORIES

- **PCCU** Portable Configuration and Calibration Unit
  Used to calibrate the Hot Air Pencil and the Soldering iron of the Station to an accurate certified source
- **PCU** Portable Configuration Unit
  Used as a storage device for downloading parameters from a PC onto the 3005 Station
- **NOZZLES** Custom made

SAFETY PRECAUTIONS

- Do not use the unit near any flammable gases, paper, liquids or dangerous materials
- Never touch the heated nozzle or allow the hot air to blow against your skin
- Never obstruct air flow as this can damage the heating element
- Take all the appropriate safety precautions when using the 3005 Station and handpieces
- No liability is undertaken by the manufacturer for applications other than those in the operating instructions, or for any applied modifications.

STARTUP

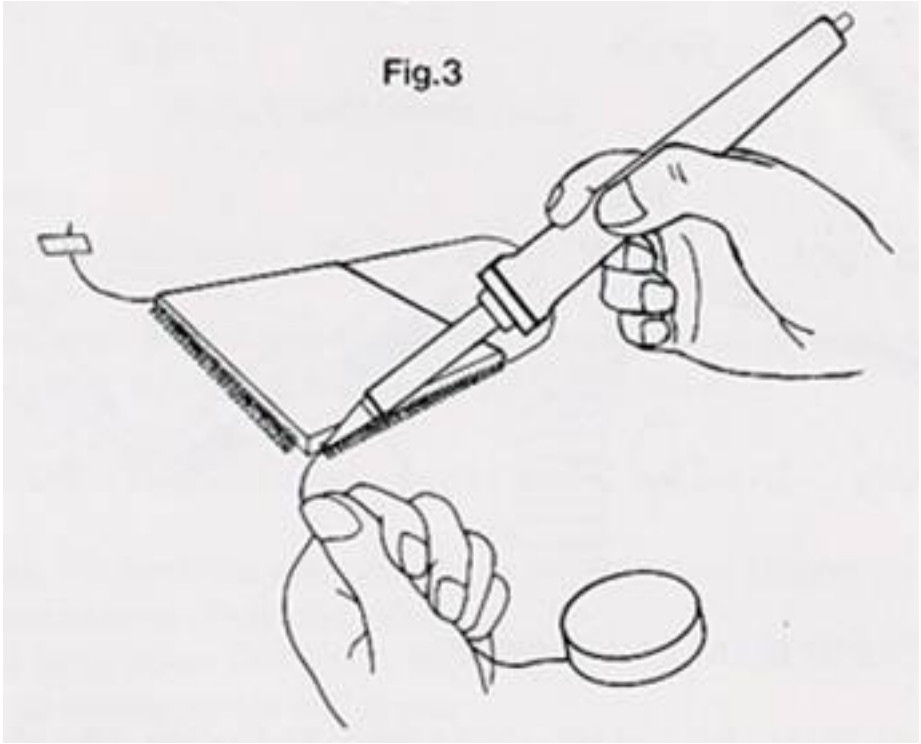
- Connect power cord, Soldering iron, Hot Air Pencil and insert them into their spring holders
- Switch on the 3005 Station.
- The °C (or °F) will appear on the LED display and the Microprocessor will do a 30 second self diagnosis test in which time any fault will be displayed as Err 1 to 4 (1=S/iron cold, 2=S/iron overheat, 3= H/air cold, 4= H/air overheat)
- The 3005 SMD Rework Station will automatically start with the factory settings (S/iron 350°, H/air 400°, Air flow at 60% and energy saving active).

SETTINGS

- In order to set the desired temperature for the soldering iron press the top button (channel 1) the dots will start flashing
- During this period the control knob can be turned to set the new temperature
- Press the middle button (channel 2) to change the hot air temperature
- Press the lower button (channel 3) to change the air flow
- The above settings will only take effect after the dots stop flashing (+- 4 seconds) and the display returns to actual value
- The corresponding LED will indicate which channel is being displayed
- The air flow can be intermittently activated by pressing the button on the handpiece or continuously by switching the air pump switch on the station
- When the airflow is off (intermittent mode) the Microprocessor automatically reduces the temperature to save energy and conserve the heating element. The temperature will be restored when the air flow resumes.

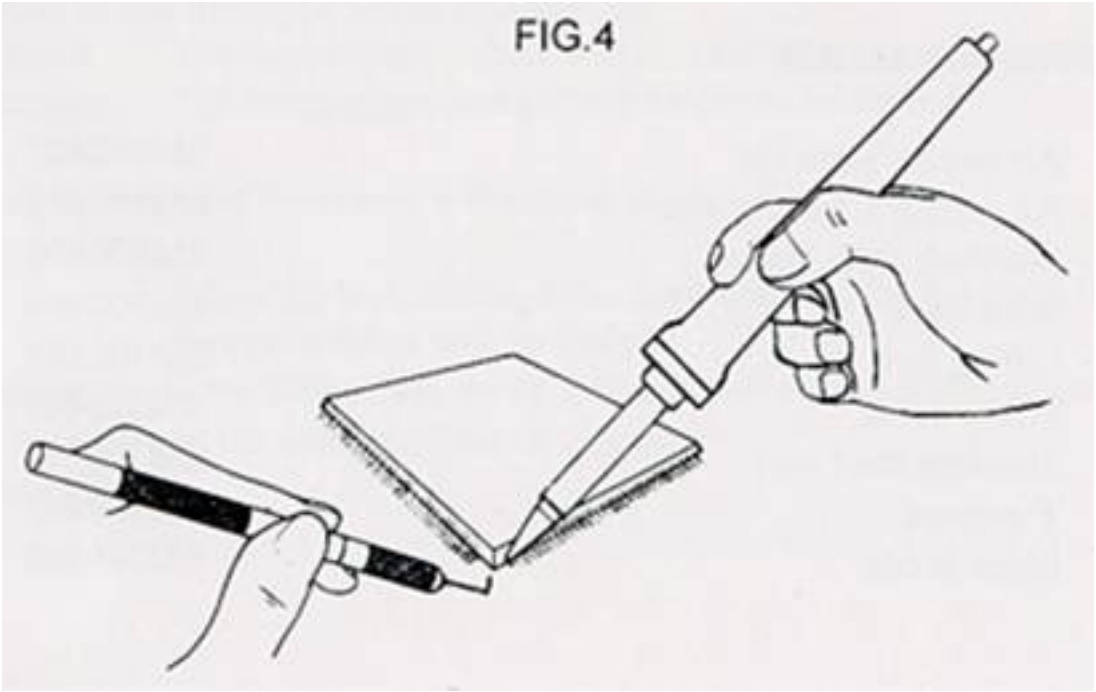
REMOVING QFP/SOP

Pass the stainless steel wire through and under the legs of the QFP or SOP and fix to the PCB with adhesive tape (fig 2) Blow hot air onto the leads nearest the edge of the hand holding the wire and carefully draw the wire outwards along the surface of the PCB so that it sweeps between the PCB and the legs of the QFP/SOP (fig 3)



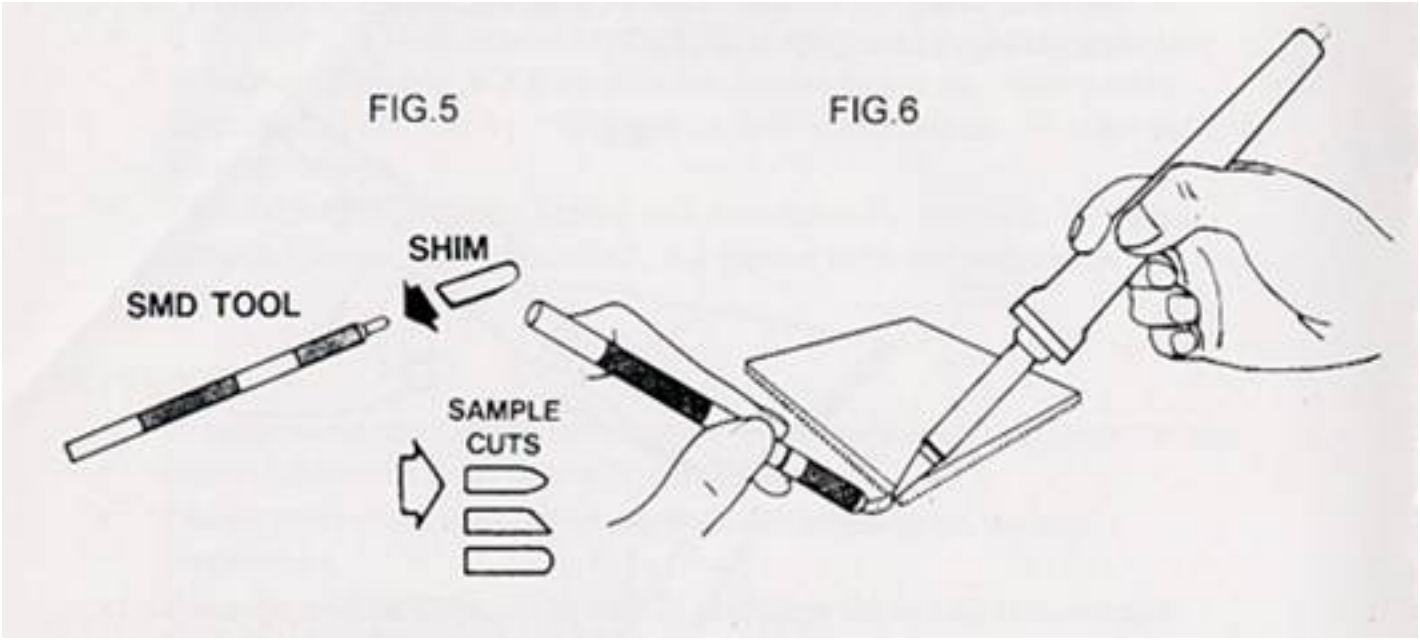
REMOVING QFP/SOP using wire hook

Insert the wire hook into the holder and place under the legs of the IC. Blow hot air onto the legs nearest the hook when the solder melts, carefully move the hook along under the legs. To avoid resoldering move the pencil in one direction only



REMOVING PLCC using steel blade

Insert blade, which can be cut to any shape, into holder and fasten (fig 5)
Apply hot air continuously to both the blade and legs (fig 6)
While the solder melts insert the blade into the edge of the legs and move along. To remove a glued component after desoldering blow hot air onto and under the component then insert the blade under and remove



SOLDERING IRON model 1002/80w

- The Soldering iron is supplied with a high energy 80w element to enable quick thermal transfer to the soldering tip
- A large selection of tips are available for fine pitch circuits
- Always tin soldering tip before replacing in holder
- Clean oxidation with damp sponge

SMD REMOVAL KIT

- Air nozzle 3mm flat SM100402
- Air nozzle 1.5mm round SM100401
- Stainless Steel blade SM300406
- Wire hook SM300409
- Lifting fork SM300407
- Solder braid SM300405
- Stainless steel wire SM300205
- Tweezers SM300402
- Blade holder SM300403

ACCESSORIES

- **PCU** Portable configuration unit
- **PCCU** Portable configuration and calibration unit with Calibrating jigs
- **TIPS** Full range of EW tips for the Soldering iron

PCU Configuration unit

Configuring the PCU

This procedure transfers user data from a PC to the PCU

Equipment required

Personal Computer with Windows 95 or 98, Configuration program on disc, DB-9 Serial cable, RJ-12 to RJ-12 connector cable and PCU

Procedure

Connect the DB-9 plug to the serial port of the PC and the RJ-12 plug to the PCU
Switch on the PC, load disc and either copy configuration program to desktop or run program from disc (slower)
Double click icon, select COM port, click ok
The parameter setting screen will appear
If all the buttons excluding the **exit** button are Grey then the
Communication has not been established i.e wrong COM port.
Cable not connected, unit not switched on or battery dead
Clicking on **Get current values from PCCU** displays all parameters previously stored on the PCU
Clicking on **Restore factory settings** displays all values set at the factory

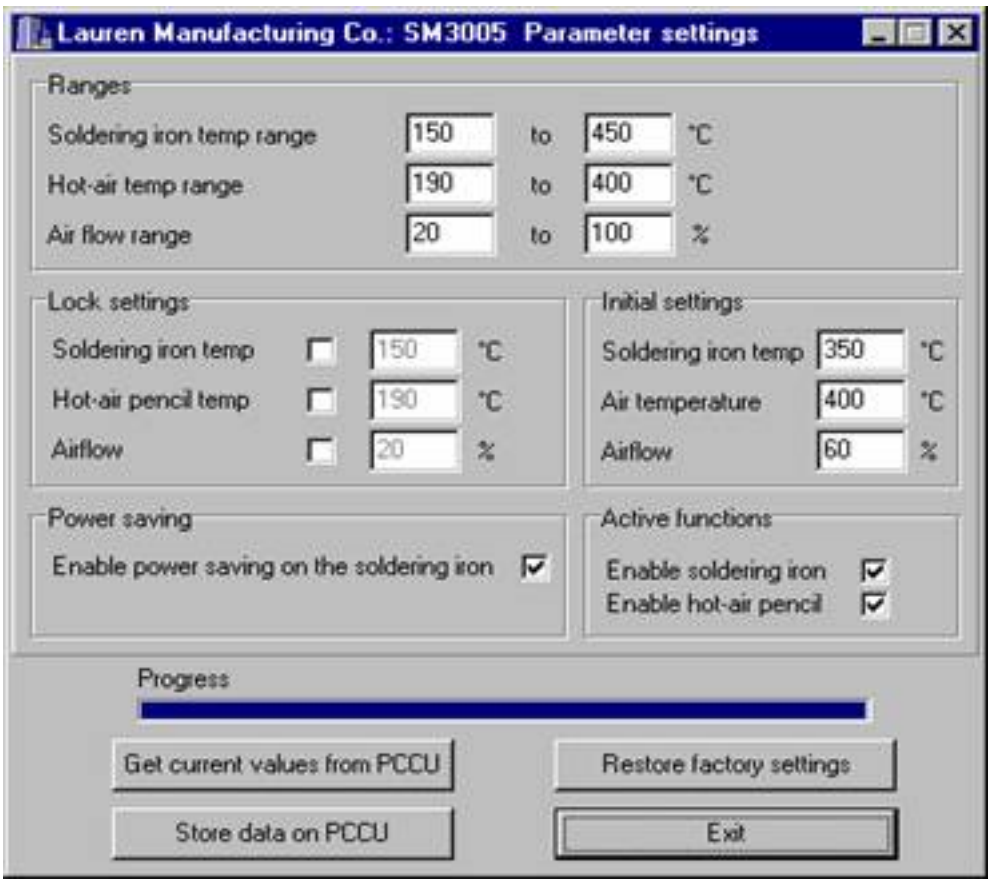
Modify values in the dialogue boxes by selecting

Range block The temperature values within which the unit will function
Lock settings The temperature and airflow values to be locked

Checking the various functions will enable them 4

NOTE When the **lock setting** have been checked the values in the **Range settings** will be ignored

Finally click on the **Store data on PCCU** and wait for the progress bar to stop moving and the completed block to appear
Reset PCU.



Configuring the 3005 Station

This procedure transfers data from the PCU, which has been loaded using a PC, into the 3005 Station.
The PCU can also be used to restore the station to the factory settings

Procedure

- Switch off the 3005 Station
- Insert the RJ-12 plug from PCU into the data input socket of the Station
- Switch on the PCU and then the Station which should display

" **C"** with dots. The dots will disappear within two seconds.

- Press the **Function** button on the PCU until the **configure** LED is lit (Or restore factory settings LED if required)
- Press the **Execute** button
- The **Busy** LED will turn on for a second and "**Con"** will be displayed on the Station.
- When the **Busy** LED turns off, unplug the PCU and **Reset** the Station.
- The new parameters have now been downloaded

PCCU configuration and calibration unit

Configuration Procedure

- This procedure is the same as the PCU above.

Calibration Procedure

- This allows for the calibration of the Soldering iron and the Hot air pencil to a known calibrated source (Type K thermocouple simulator)

Calibrating the PCCU

- If required this procedure can be done by the factory.

Equipment required (This section can be omitted if PCCU is pre-calibrated)

- PCCU unit **,**Type K thermocouple simulator with input cable
- PC with calibration program loaded from the disc supplied
- Female DB-9 serial cable, RJ-12 to RJ-12 connector.

Procedure

- Connect the PCCU to the PC using the serial cable
- Connect the thermocouple simulator to the Soldering iron input of the PCCU.
- Load the **Calibration program** on the PC, select the correct Com port and reset the PCCU.
- The screen on the PC will start with a instruction to connect the simulator to the soldering iron input (if this does not happen try another Com port, check serial cable and PCCU)
- Follow the instructions on the PC and **only click the OK button when the simulator's temperature has been set to the requested temperature and instructions to change inputs have been carried out.**
- If, at any time the procedure is interrupted, the **Calibration will be invalid and has to be restarted.**

IT IS VERY IMPORTANT THE ABOVE PROCEDURE IS CARRIED OUT CORRECTLY.

Calibrating the 3005 Station

This procedure automatically calibrates the 3005 Station's Soldering iron and Hot air pencil to the PCCU, which has been precalibrated to a certified source.

Equipment required

- A calibrated PCCU
- The 3005 station with the Soldering iron and Hot air pencil
- The Soldering iron and Hot air pencil calibration jigs
- The RJ-12 to RJ-12 connecting cable

Note: The calibration procedure must be carried out in a closed environment, as the slightest breeze will affect the accuracy.

Procedure

- Connect the PCCU with the RJ-12 cable to the 3005 Station.
- Connect the thermocouple plugs to the correct inputs
- Connect the Soldering iron and Hot air pencil to the Station and insert into their respective jig's.
- Switch on the PCCU
- Switch on the 3005 Station
- The dots will disappear within two seconds but the **C or F** will remain.
- If this does not happen the connection or the cable is faulty.
- Press the **Function** button on the PCCU until the calibrate LED is lit.
- Press the **Execute** button on the PCCU.
- **If all the LED's on the PCCU light up, then there is a fault and the PCCU has to be recalibrated.**
- If everything is ok then the **Busy** LED will light and the calibration procedure will start.
- Calibration consists of six phases: Warming up, and calibrating of the following temperature points, 100 °C, 200 °C, 300 °C, 400 °C and 500 °C.
- The duration of the procedure is determined by the factory (± 20 minutes)
- During calibration the display on the Station cycles through three values :
- The setpoint temperature (shown when the dots are flashing)
- The temperature of the Soldering iron measured by the PCCU (shown when the Soldering iron LED is on)
- The temperature of the Hot air pencil measured by the PCCU (shown when the Hot air pencil LED is on)
- The procedure will stop if the temperature measured by the PCCU is out of specification.
- If **the Calibrate, Configure, Busy** and **Complete** LED light up, then the Soldering iron is out of specification.
- If the **Calibrate, Reset to factory setting, Busy** and **Complete** LED light up then the Hot air pencil is out of specification.

-

Causes of failure

- The calibration jig, heating element, sensor, or wiring may be faulty.
- Check that the Soldering iron and Hot air pencil are properly inserted in their jig's
- When the calibration is complete the **Complete** LED on the PCCU will light and the Station will display **CAL**
- Disconnect the Station and jig's from the PCCU.

- **Reset the 3005 Station for new values to take effect.**

SPECIFICATIONS

Mains input voltage: **220V – 240V 50/60Hz**

Power consumption: **0.6 Amps** **fuse 1A f/b**

Output power: **24V 85W + 24V85W**

Air flow: **1.5 to 6.5 litres/min**

Temperature: **Soldering iron 100° to 450° ± 4 °C**
Hot air pencil 180° to 480° ±10 °C

Dimensions: **L 250mm W 250mm H 105**

Weight: **4 KGS (8.8LBS)**

Manufactured and Designed by Lauren Manufacturing Co.
Software designed by Spline Technologies.