APR

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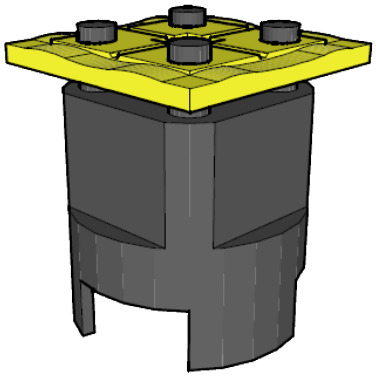
Required Calibration & Adjustment Tools

ACK-MFG, Metric Feeler Gauges



SCS-LAT, Laser Adjustment Tool

SCS-PMK

5400-0040

4100-0172

5400-0039

4100-0173

4100-0175

4100-0174

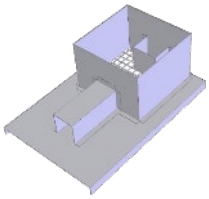
SCS-CALKIT

Sold separately

5400-0020

9025-9000

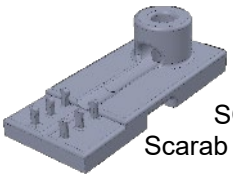
5300-0019



7050-2262

NZA-SRS-CAL

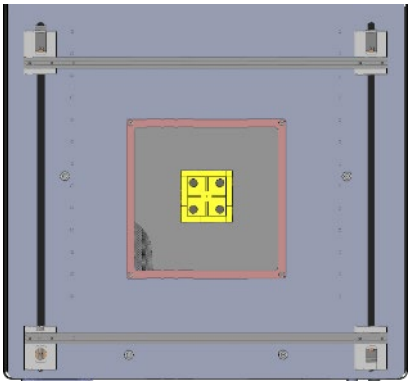
SCS-RFF,
Scarab Reflow Fixture



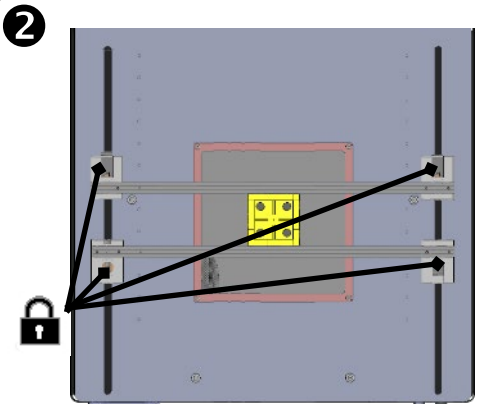
SCS-AFF,
Scarab Airflow Fixture

5300-0017

Setting the Home Position

1. 

Install the Laser Adjustment Tool (SCS-LAT)

2. 

Lock the SCS-LAT into place

3. 

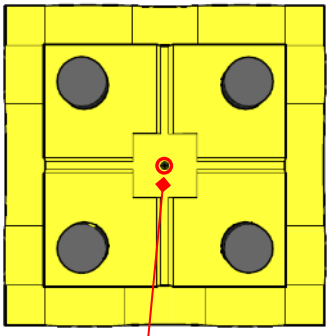
Move the vacuum nozzle to a spot roughly centered over the SCS-LAT

4. 

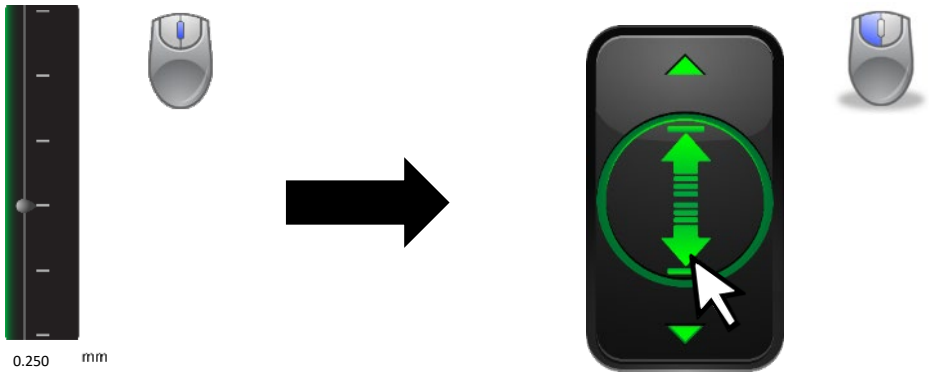
Manually drive head down until nozzle is approximately 2mm above SCS-LAT

5. 

Center the vacuum nozzle over cone at the center of the SCS-LAT



Top View

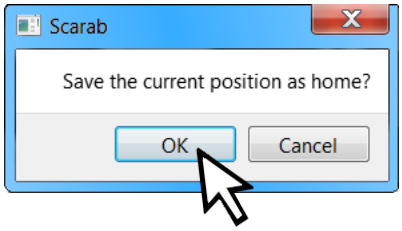


Adjust slide bar to 0.250mm, drive head down, center nozzle on the cone.

6

Press Motion Control Icon

7

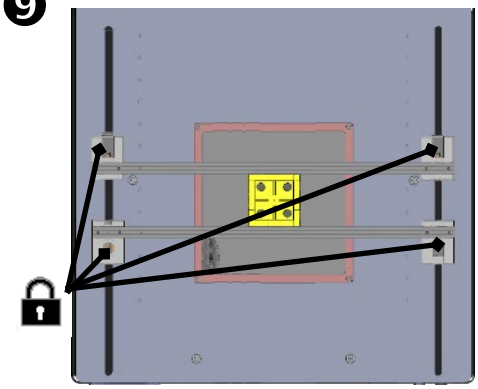


Save Home Position

8

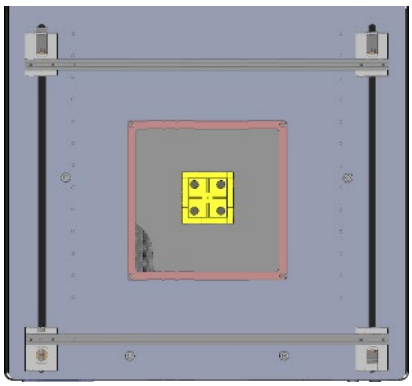
Press Max Z Button

9

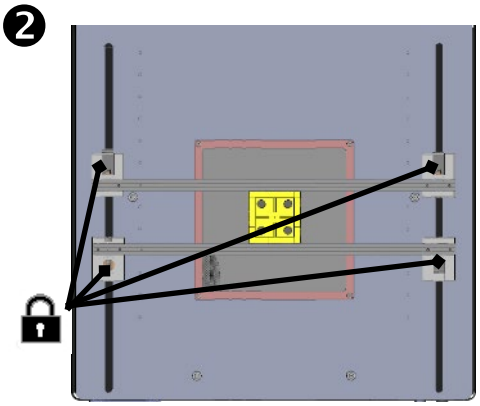


Unlock & Remove the SCS-LAT

Crosshair Laser Setup

1. 

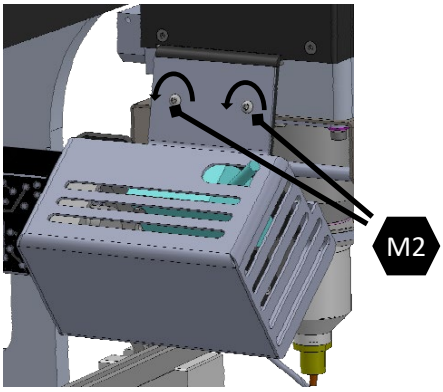
Install the Laser Adjustment Tool (SCS-LAT)

2. 

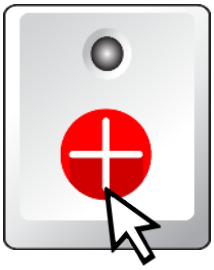
Lock the SCS-LAT

3. 

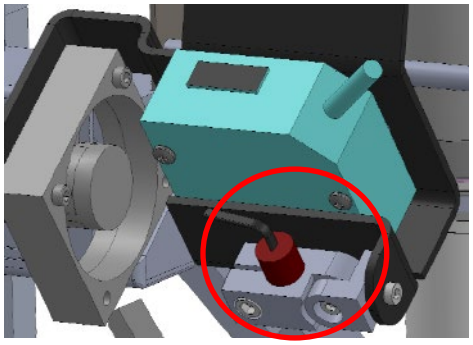
Press Home Button

4. 

Remove the laser assembly cover

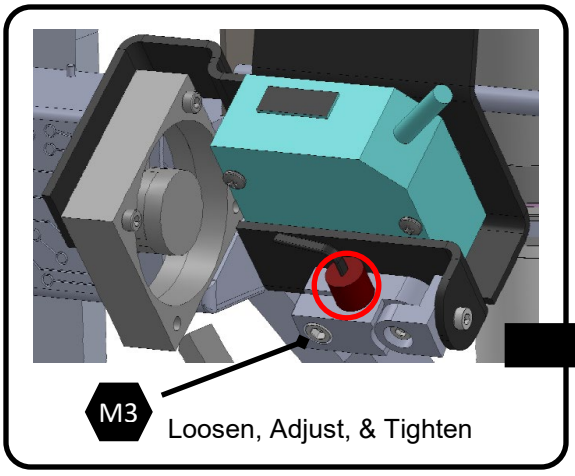
5. 

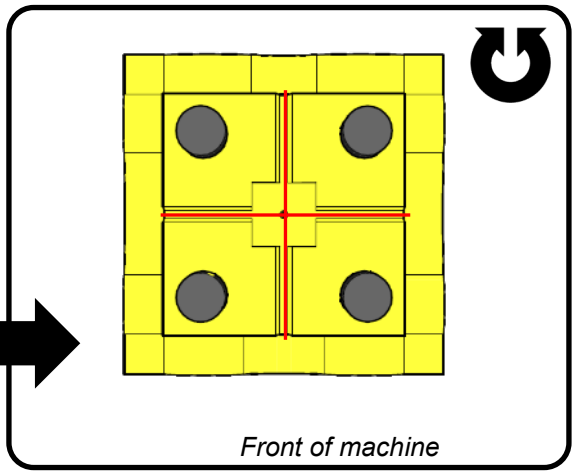
Activate Laser Crosshair

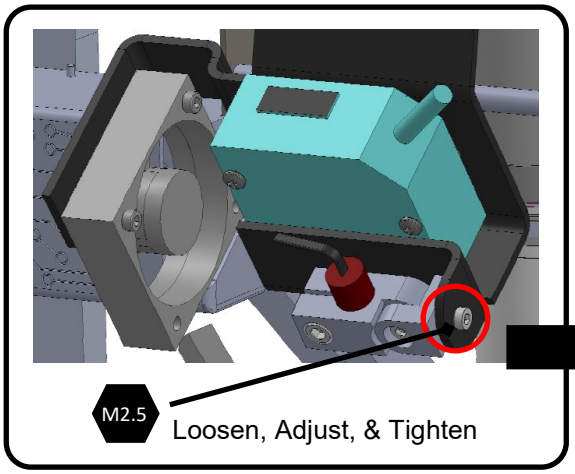
6. 

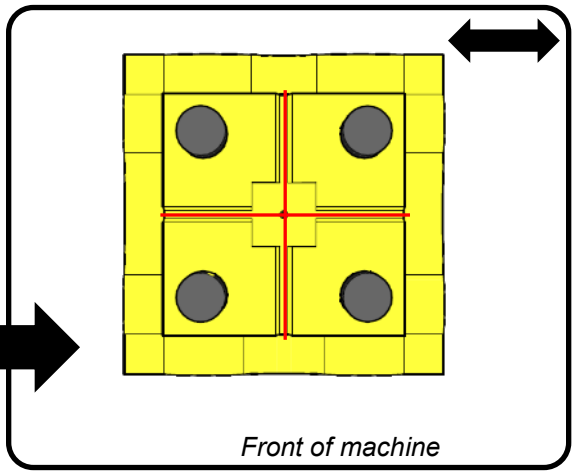
Adjust the crosshair laser (SCS-CALM). Ensure the laser is flush with the bottom of the bracket

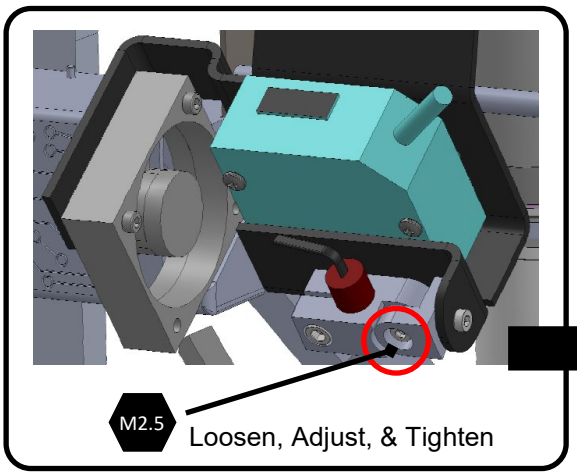
Laser Radiation Warning
Do not stare into the beam or view directly with optical instruments.
Laser components are sealed and replaced in their entirety.

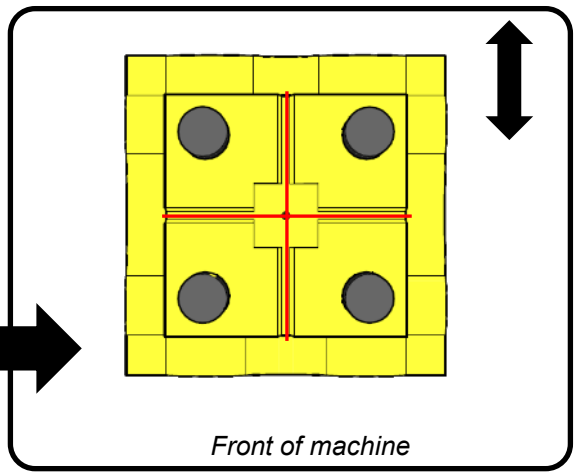




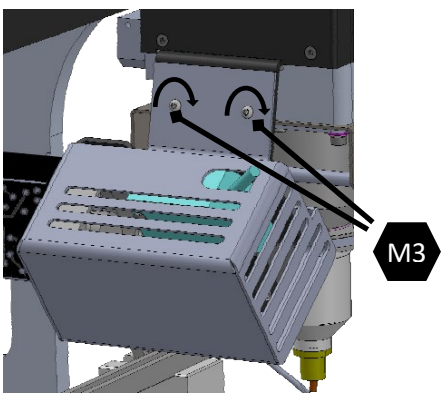






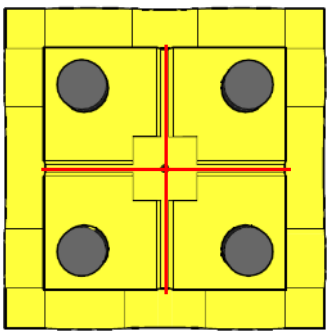


7



Attach the laser assembly cover

8



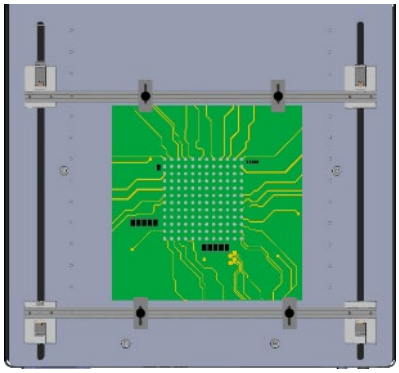
Activate laser and verify location.
Repeat if necessary.

Calibrating the Laser Height Sensor (SCS-HSLM)

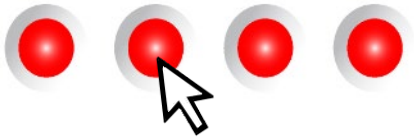
1

Press Home Button

2



Load PCBA into Board Holder



Go to Motion Control Screen

4

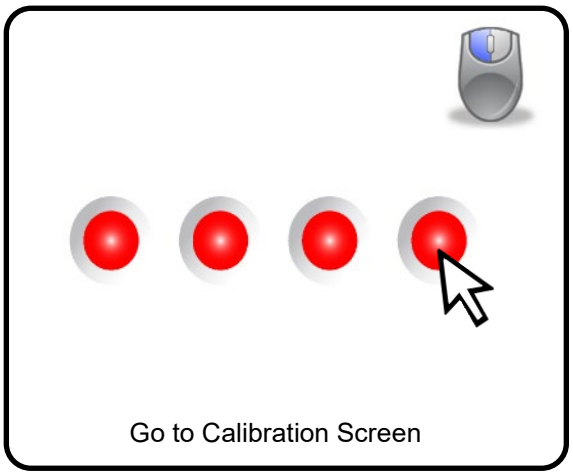
Jog head to right limit

Press Min Z Button

The reflow head is stopping below the normal height, please check if PCBA is correctly loaded.

OK

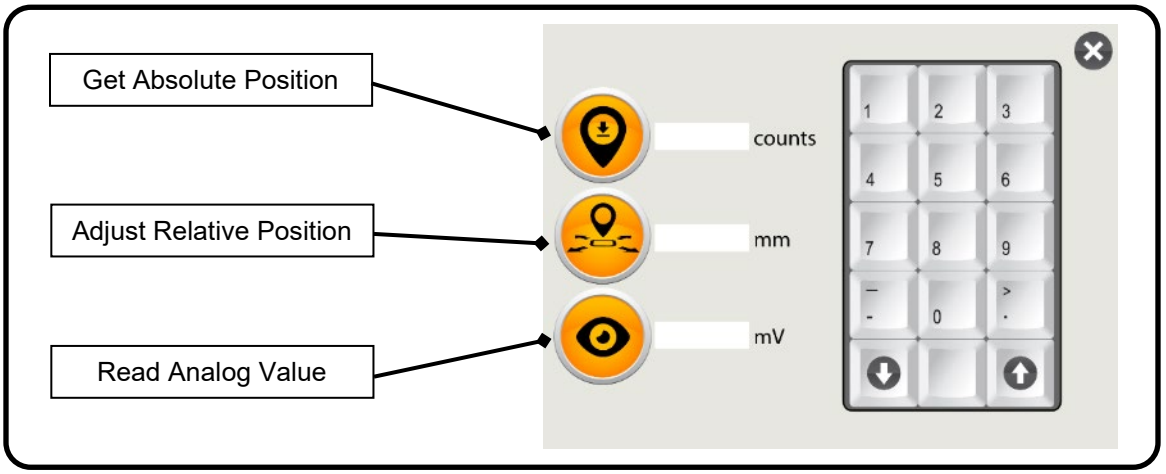
Laser Radiation Warning
Do not stare into the beam or view directly with optical instruments.
Laser components are sealed and replaced in their entirety.



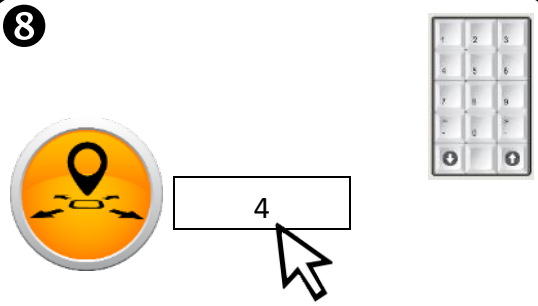
Go to Calibration Screen

7

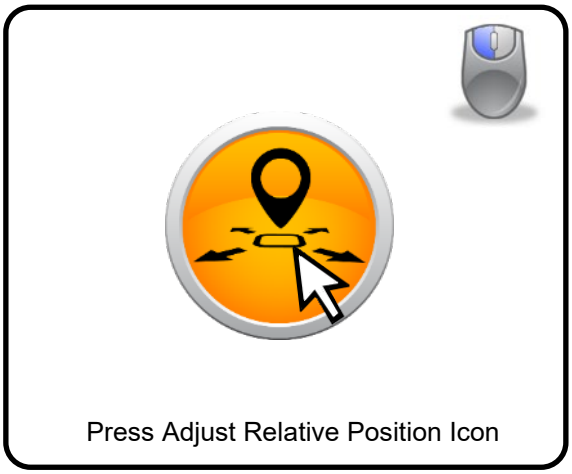
Press Motion Control Icon



8

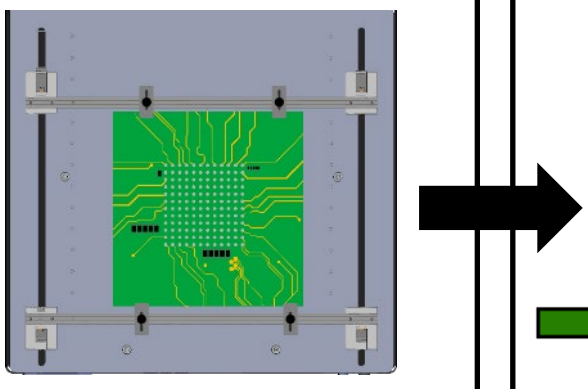


Use the keypad to enter **4** next to the Adjust Relative Position Icon

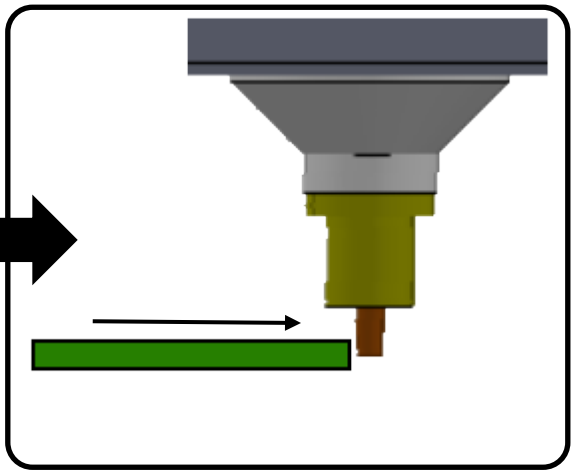


Press Adjust Relative Position Icon

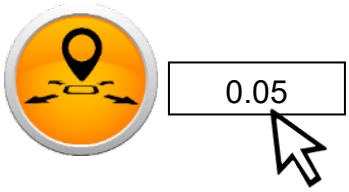
10



Slide PCBA right until it contacts nozzle

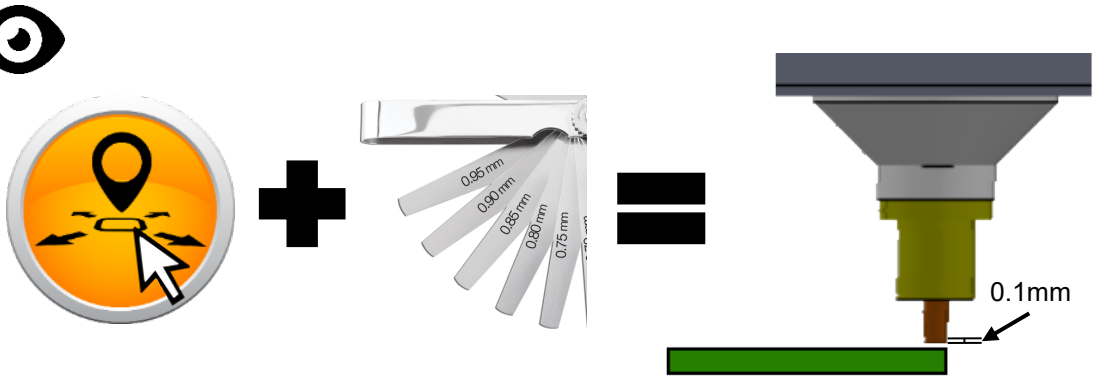


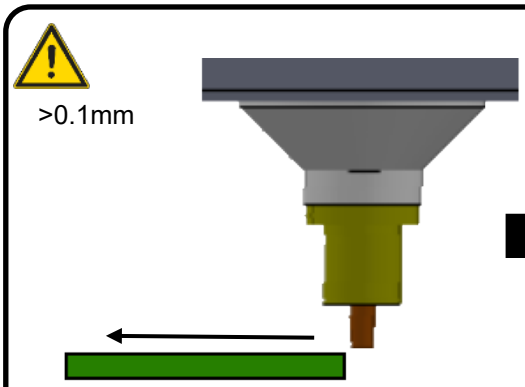
11



Use the keypad to enter **0.05** next to the Adjust Relative Position Icon

Press Adjust Relative Position Icon





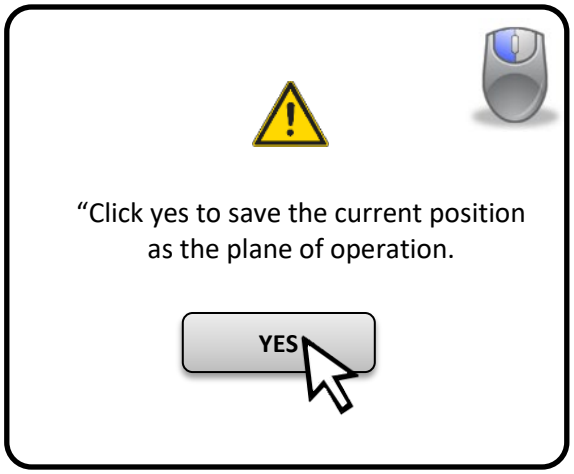
Press and Hold. Repeat 10

12

Press Save Work Surface Location Icon

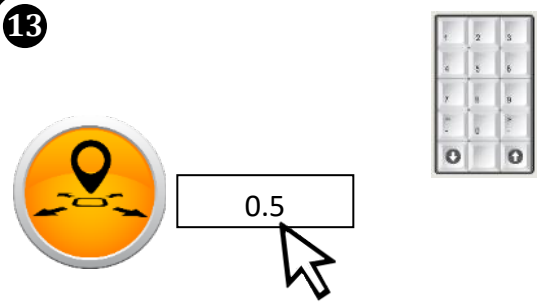
“Has the vacuum nozzle been positioned 0.1mm above the reference?

YES



Part 2

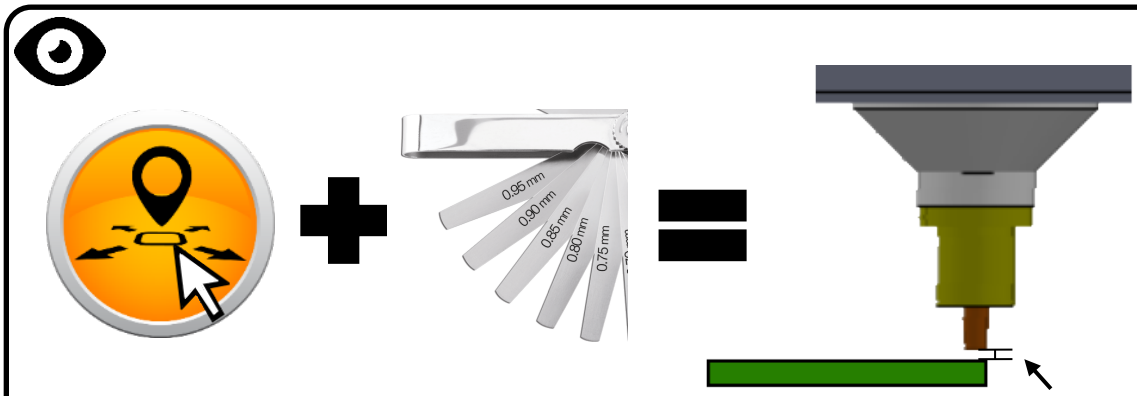
13



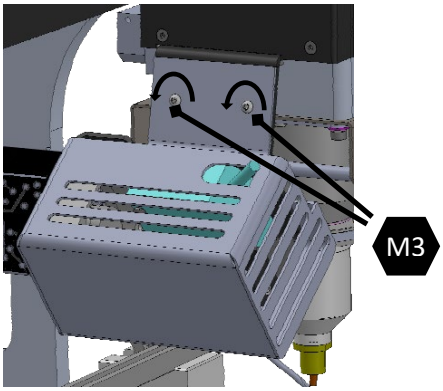
Use the keypad to enter **0.5** next to the Adjust Relative Position Icon

14

Press Adjust Relative Position Icon

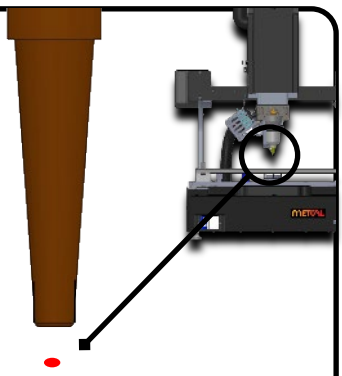


15



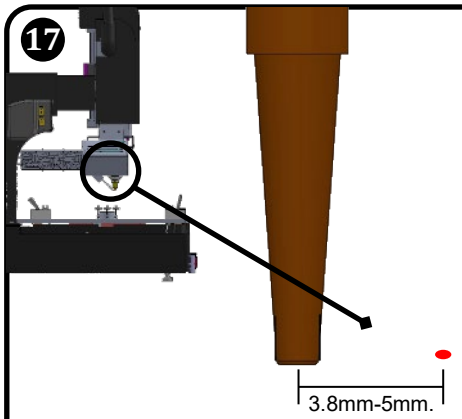
Remove the laser assembly cover

16



Verify laser position, center of nozzle

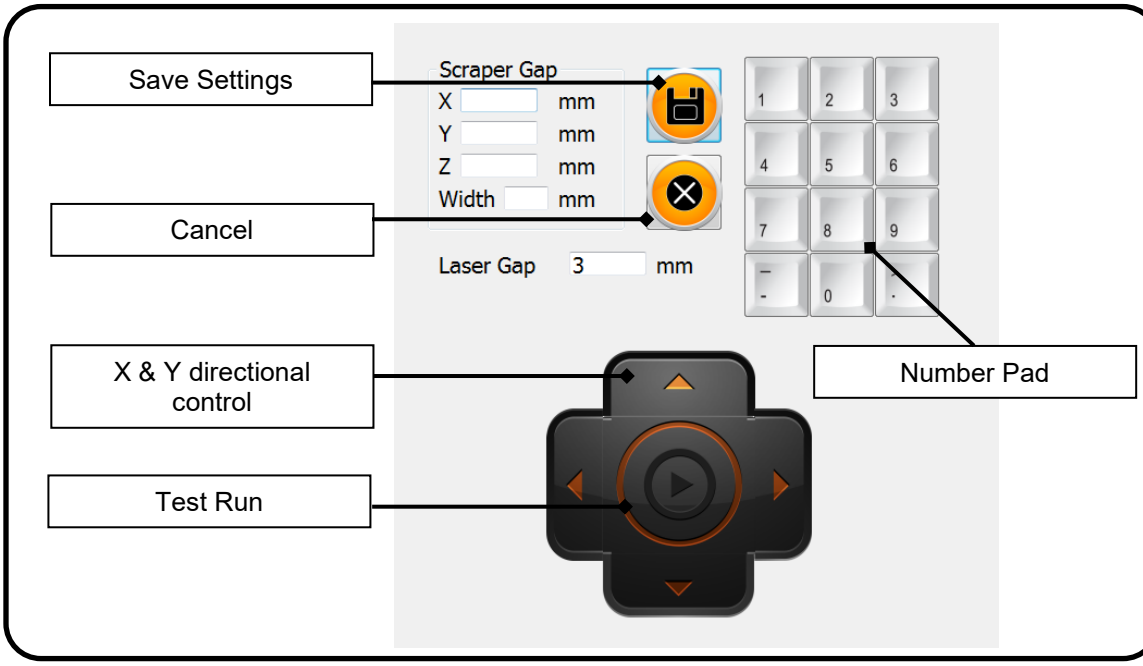
17



Verify laser position, measure and record.

18

Press Glue Remover Icon



19

Laser Gap 3 mm

Enter value from **17**

20

Save Settings & Close Panel

Laser Radiation Warning
Do not stare into the beam or view directly with optical instruments.
Laser components are sealed and replaced in their entirety.

21

Press Motion Control Icon

22

Press Get Absolute Position Icon
& Record the Value

23

Press Read Analog Value Icon &
Record the Value

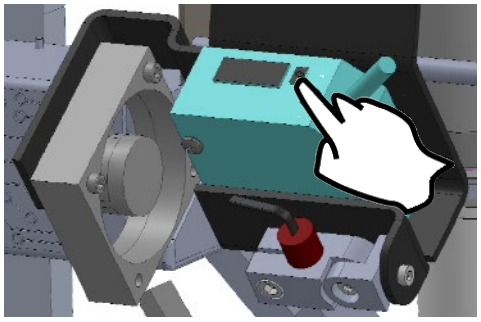
24

Use the keypad to enter **0.6** next to the
Adjust Relative Position Icon

25

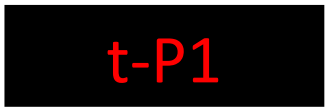
Press Adjust Relative Position Icon

26



Press and hold the TUNE button for 3 sec
until “TUNE” blinks, then release

27

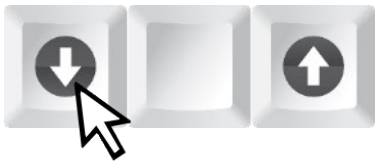


“t-P1” appears

28

Press Up button for 3 sec

29



Press Down a until motor stops

30

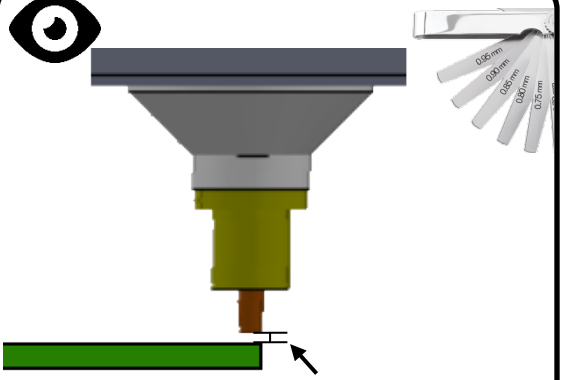
Press Get Absolute Position Icon

31

22 5000

30 5000 ±75

Compare Get Absolute Position from step 22 to Get Absolute Position from step 30



32

Press Read Analog Value Icon & Record the Value

33

23 3000

32 3000 ±8

Compare Read Analog Value from step 23 to Read Analog Value from step 32

Step 22 = Step 30 ±75

Step 23 = Step 32 ±8

Calibration Complete

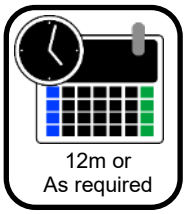
Step 22 ≠ Step 30 ±75

Step 23 ≠ Step 32 ±8

Repeat 13

External Thermocouple Calibration

- Required:
  - K type thermocouple simulator



K type
thermocouple tester

Set knob to 250°C

1

- Left click the thermocouple calibration icon

2

- The current temperature will be displayed

3

- Plug the K type thermocouple tester into the matching external thermcouple connector

4

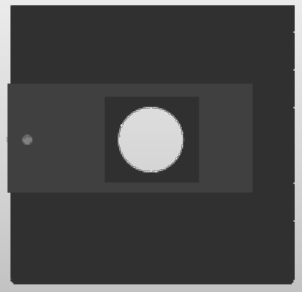
- Right click the thermocouple to calibrate selected thermocouple.

5

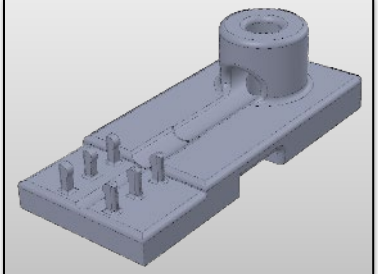
- The current temperature will be displayed
- Left to cycle to next thermocouple
- Repeat until each thermocouple has been calibrated.

Reflow Blower Calibration Setup

5400-0020

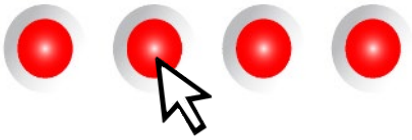


9025-9000



SCS-AFF

1



Go to Motion Control Screen

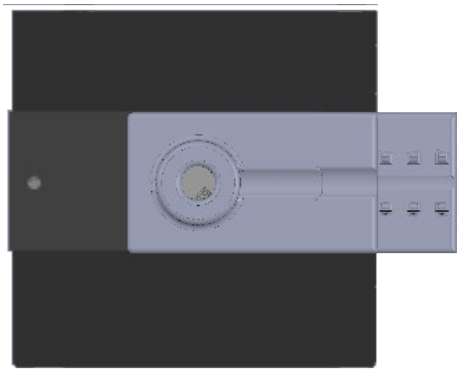
2

Press Home Button

3

Attach SRN-11 to nozzle assembly

4



Load SCS-AFF onto 9025-9000

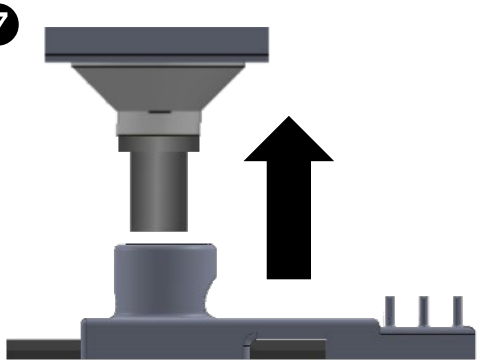
5

Press Min Z Button

6

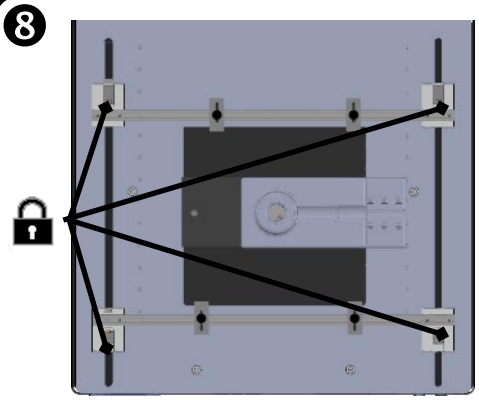
Raise head 25mm.

7



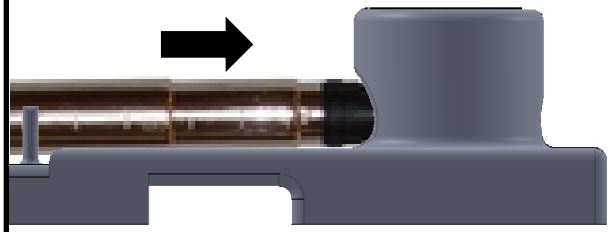
Raise fixture into nozzle assembly.

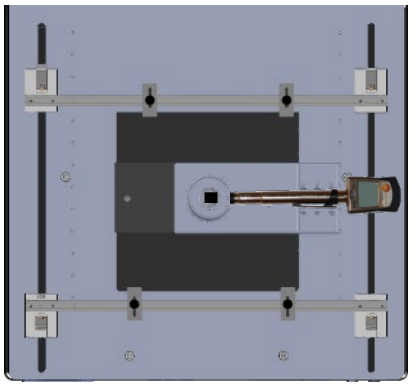
8



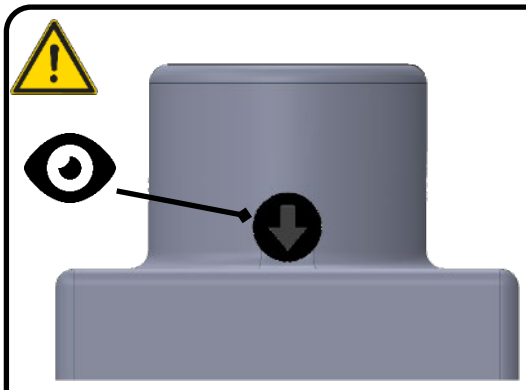
Slide rails underneath fixture and lock.

9

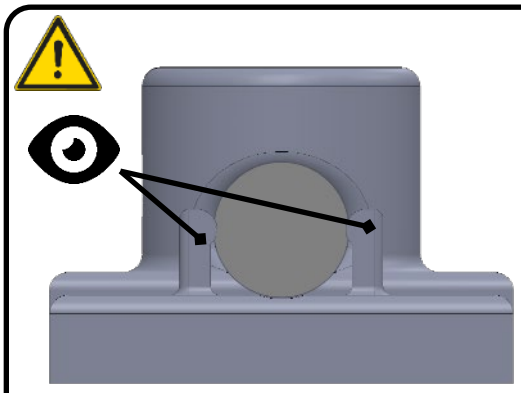




Insert 5400-0020 in the SCS-AFF



Verify arrow pointing down.

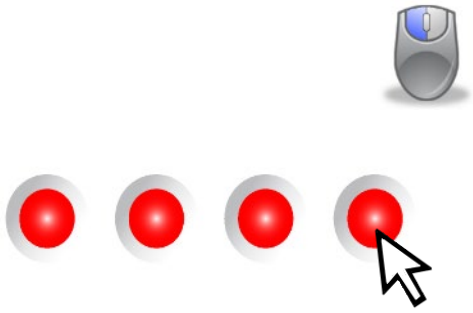


Verify alignment pins are in grooves of 5400-0020.

10

Power on the 5400-0020

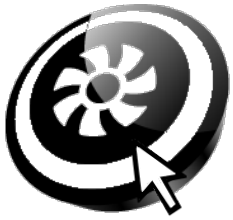
11



Go to the Setup & Calibration Screen

The reflow blower has four settings: low, medium, high, and cool

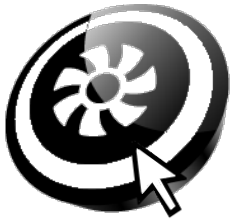
12



1x – Low
2x – Medium
3x – High
4x – Cool

Press Reflow Blower Icon

13



Access Airflow Adjustment

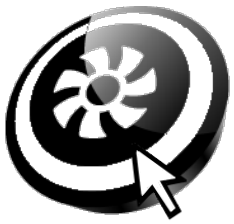
14

Low	**5.5m/s**
Medium	**6.5m/s**
High	**7.5m/s**
Cool	**max**

Tolerance
±0.5

Adjust

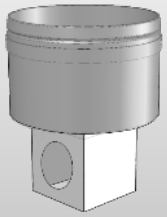
15



Save Settings

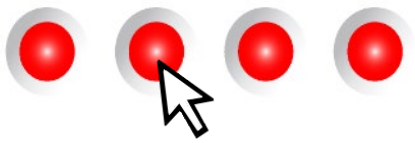
Focus Blower Setup

5400-0020



NZA-SRS-CAL

1

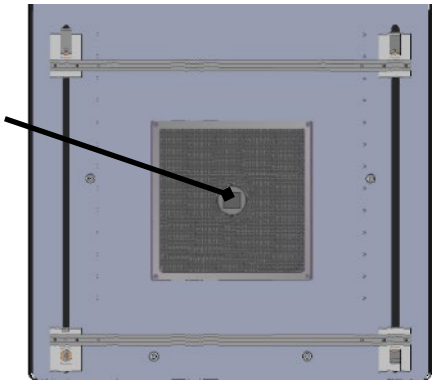


Go to Motion Control Screen

2

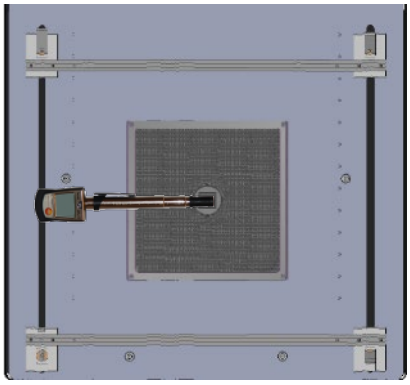
Press Home Button

3



Install NZA-SRS-CAL

4

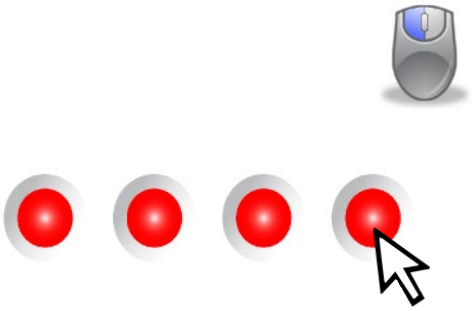


Install 5400-0020 into NZA-SRS-CAL

5

Power on the 5400-0020

6



Go to the Setup & Calibration Screen

7

Access Airflow Adjustment

The focus blower has two settings: active and cool

8

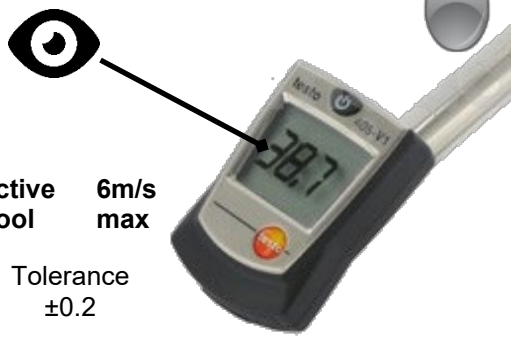
1x – Active
2x – Cool

Press Reflow Blower Icon

9

Access Airflow Adjustment

10



Active **6m/s**
Cool **max**

Tolerance
±0.2

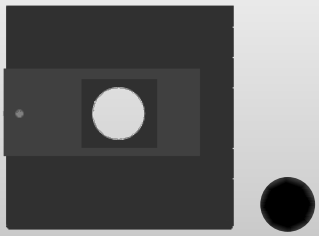
Adjust

11

Save Settings

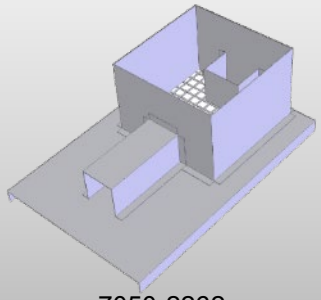
Surround Blower Setup

5400-0020



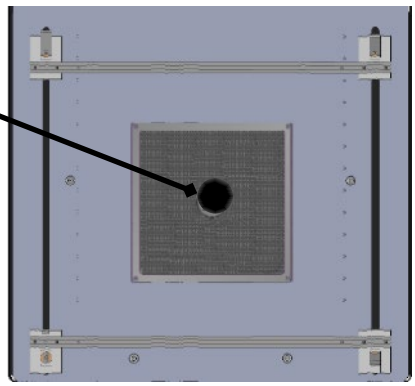
9025-9000

9025-0560



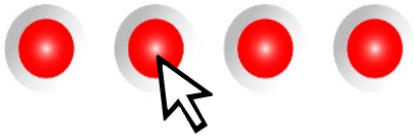
7050-2262

1



Install cover

2

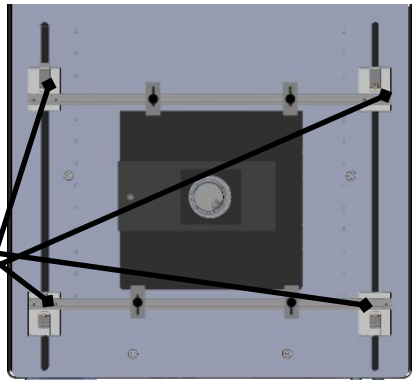


Go to Motion Control Screen

3

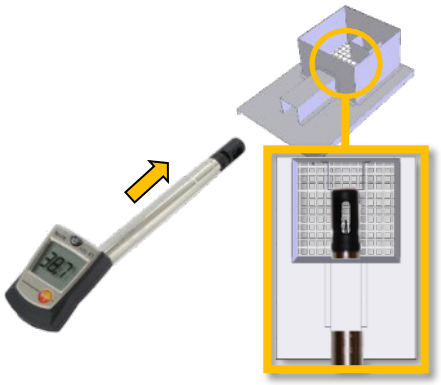
Press Home Button

4

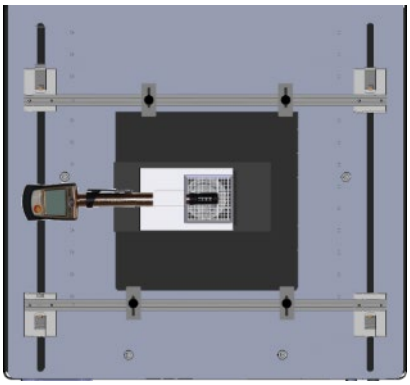


Load 9025-9000 into Board Holder

5



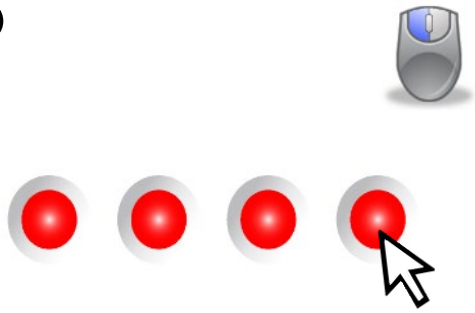
Load 5400-0020 into 7050-2262



6

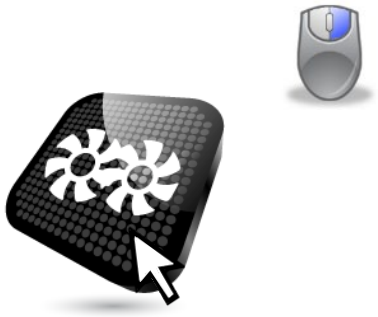
Power on the 5400-0020

7



Go to the Setup & Calibration Screen

8



Access Airflow Adjustment

The focus blower has two settings: active and cool

9

1x – Active
2x – Cool

Press Reflow Blower Icon

10

Access Airflow Adjustment

11

Active 2m/s
Cool 7m/s

Tolerance
±0.1

Adjust

12

Save Settings

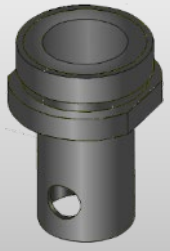
Reflow Heater Calibration

- Required:
  - Heater Calibration Kit; SCS-CALKIT

12M or
As required

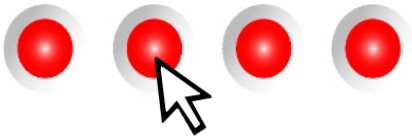
5300-0017

9025-9000



SCS-RFF

1

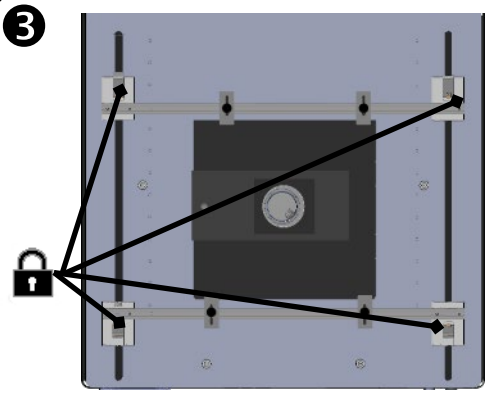


Go to Motion Control Screen

2

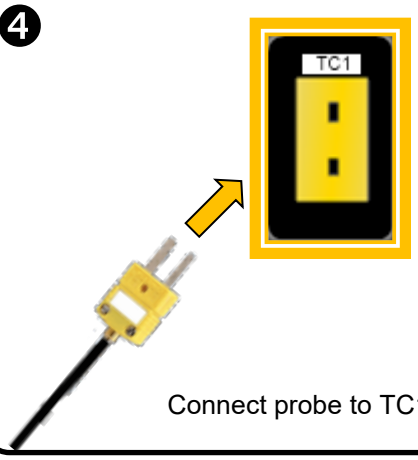
Press Home Button

3



Load 9025-9000 into Board Holder

4

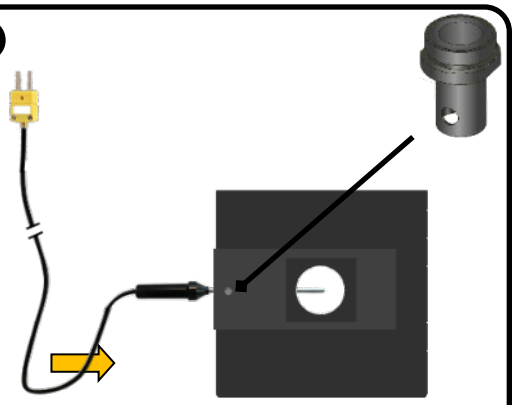


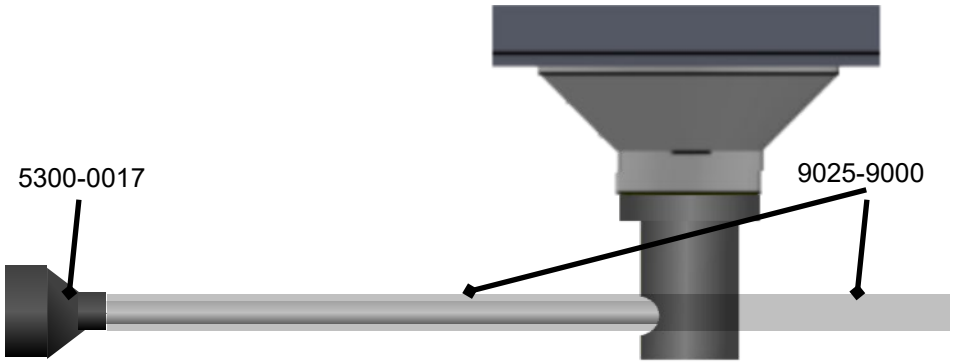
Connect probe to TC1

5

Press Min Z Button

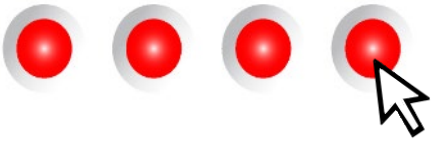
6





Insert TC probe, 5300-0017 through Calibration Plate, 9025-9000 and into SCS-RFF

7



Go to the Setup & Calibration Screen

8

Start Calibration

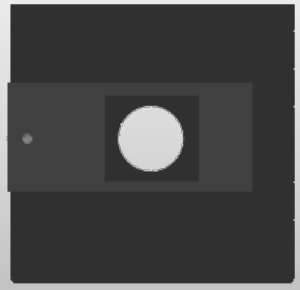
Icon animates during calibration

The system will auto save after completion

Focus Heater Calibration

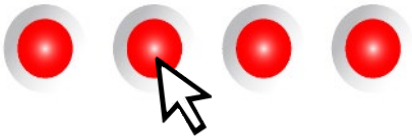
12M or
As required

5300-0017



9025-9000

1

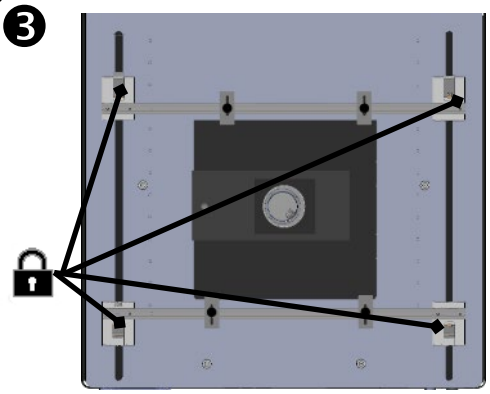


Go to Motion Control Screen

2

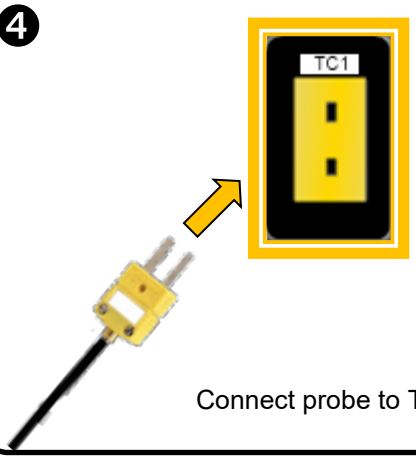
Press Home Button

3



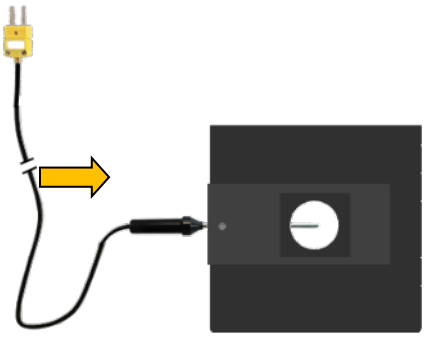
Load 9025-9000 into Board Holder

4



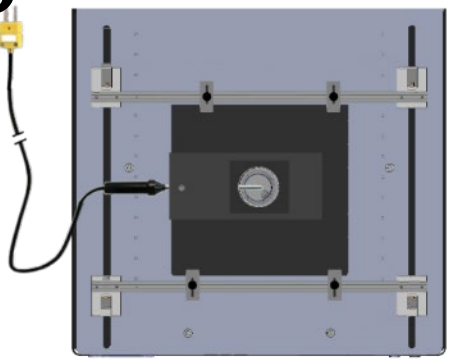
Connect probe to TC1

5

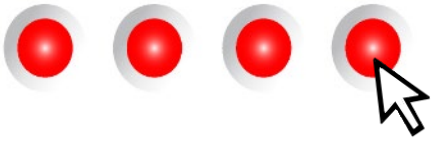


Insert Thermal Probe into 9025-9000

6



7



Go to the Setup & Calibration Screen

8

Start Calibration

Icon animates during calibration

The system will auto save after completion

Surround Heater Calibration

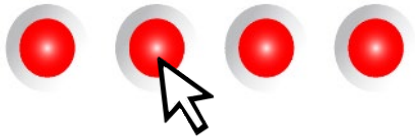
- Required:
  - Heater Calibration Kit; SCS-CALKIT

12M or
As required

5300-0017

9025-9000

1

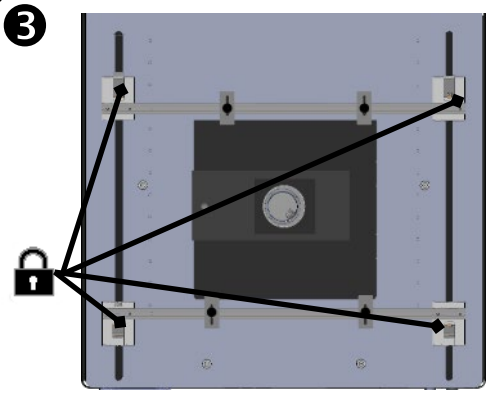


Go to Motion Control Screen

2

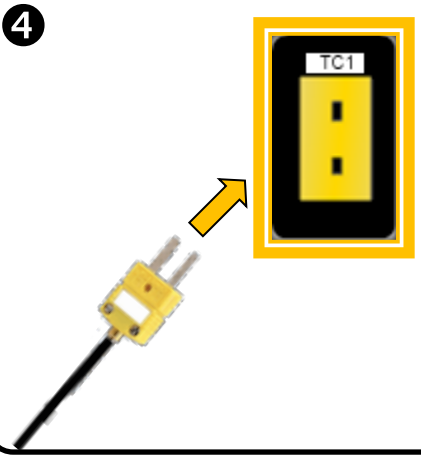
Press Home Button

3

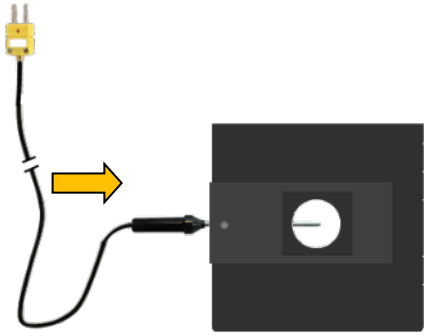


Load 9025-9000 into Board Holder

4

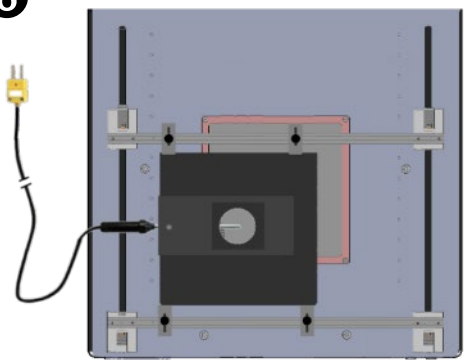


5



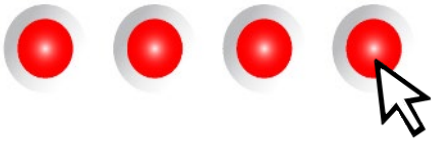
Insert Thermal Probe into 9025-9000

6



Move 9025-9000 into position

7



Go to the Setup & Calibration Screen

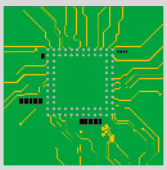
8

Start Calibration

Icon animates during calibration

The system will auto save after completion

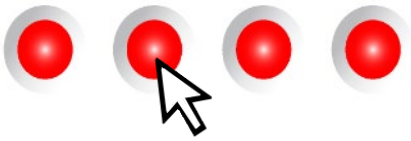
Glue Remover Calibration



APR-MRS Demo PCB

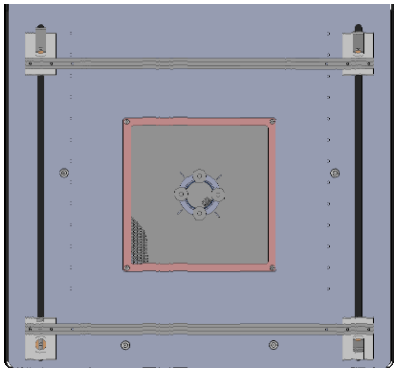
UBS-SCS

❶



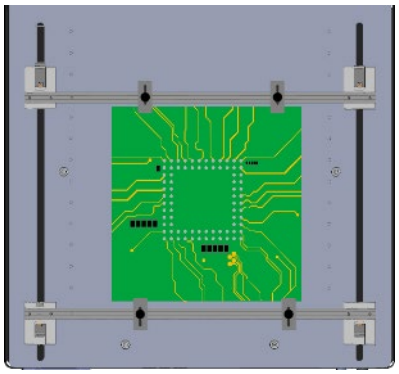
Go to Motion Control Screen

❷



Install under board support

❸



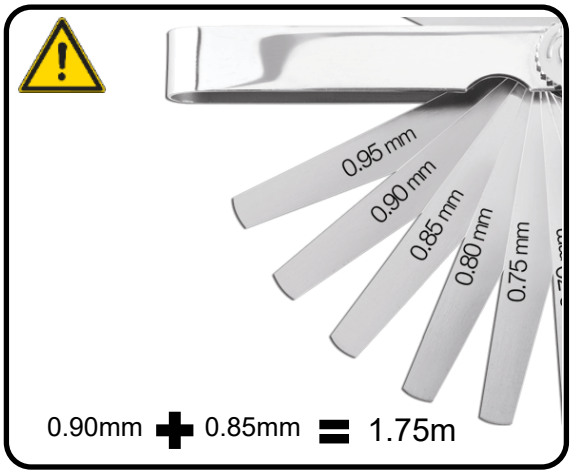
Load PCBA into Board Holder

❹

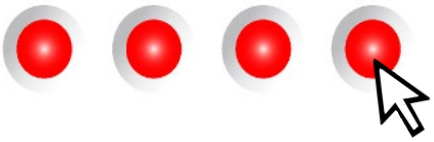
Press Min Z Button

❺

Adjust Z-axis until 1.75mm above reference



6

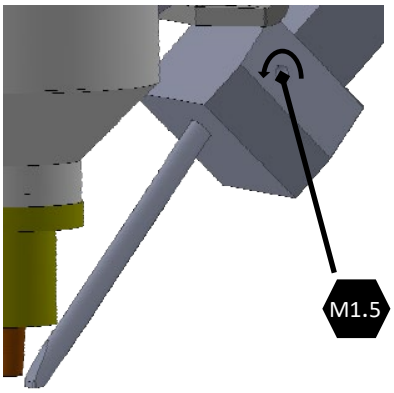


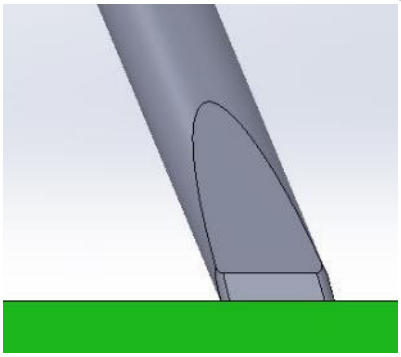
Go to the Setup & Calibration Screen

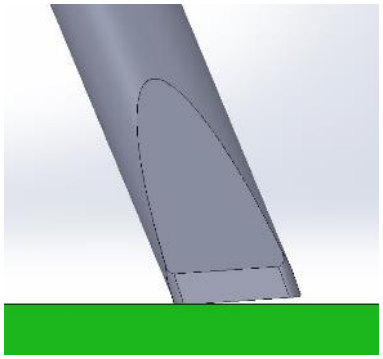
7

Activate Glue Remover

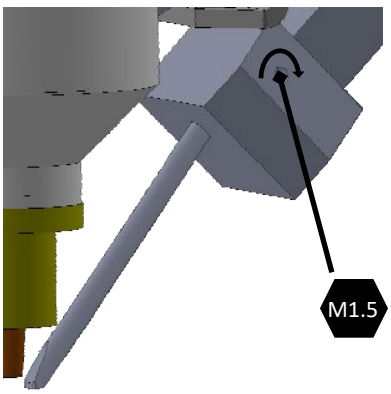
8





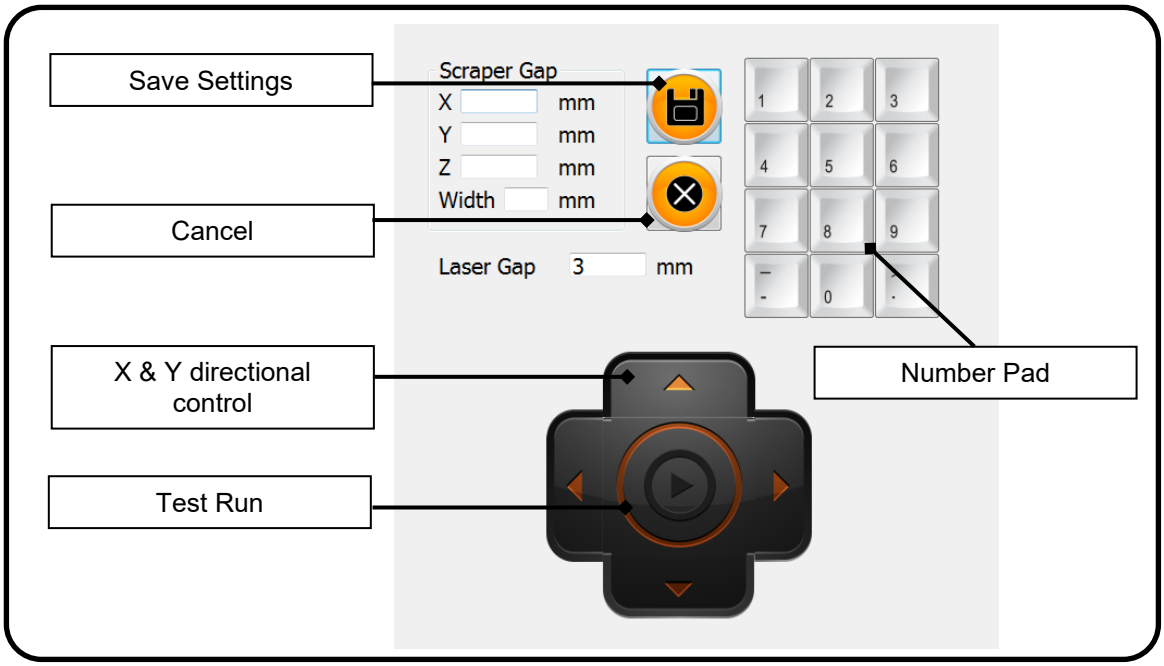


9

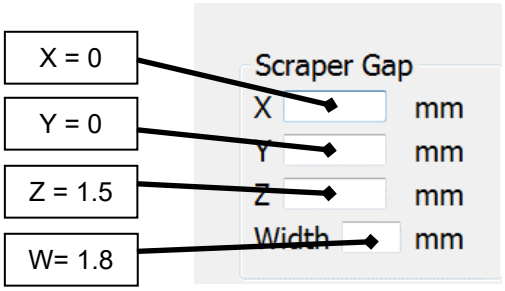


10

Deactivate Glue Remover & Activate Glue Remover Calibration



11

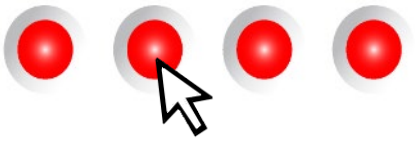


Enter values for X, Y, Z, & Width

12

Save Settings

13

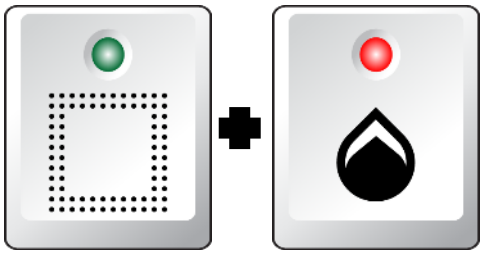


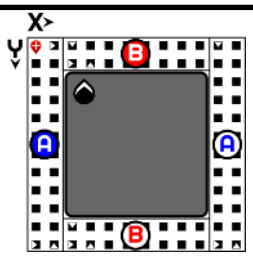
Go to Motion Control Screen

14

Press Home Button

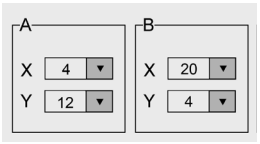
15



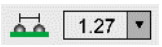


Set Motion Control Parameters

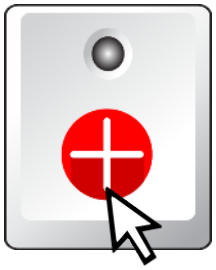
1



2 Set

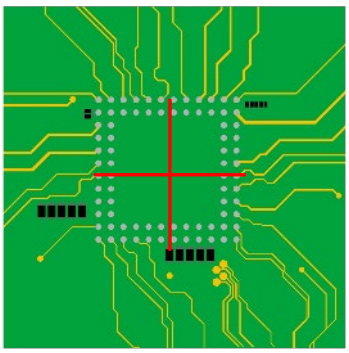


16



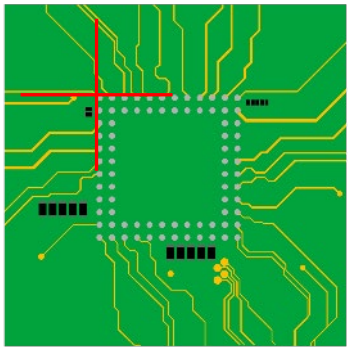
Activate Laser Crosshair

17



Center pad area over the preheater using crosshair laser

18



Move crosshair laser to Start Location

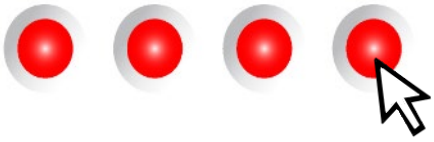
19

Save Start Location

20

Press Min Z Button

21



Go to the Setup & Calibration Screen

22

Activate Glue Remover Calibration

23

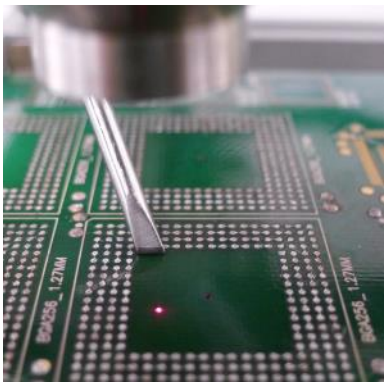
If the unit begins moving and pulsing air (as it would during normal operation,) verify that the glue scraping button is selected, as described in step 15. ***The glue remover calibration test will only work if the glue removal function has been activated.***

24

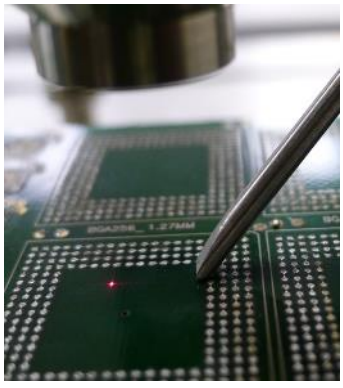
Reposition the glue scraper as shown in the following pictures.

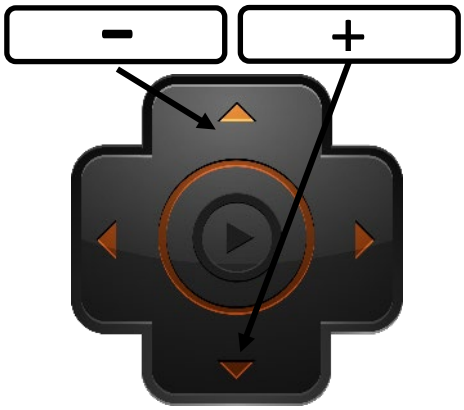
Record the direction and number of button clicks.

X-axis adjustment



Y-axis adjustment





C

25

# of button clicks ✖ 0.25mm ✖ *Direction = **X-axis Value**

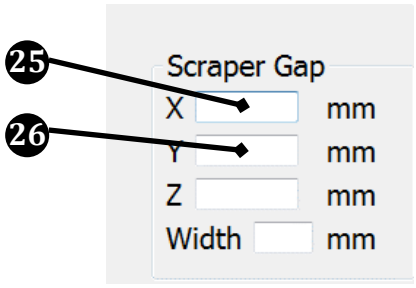
*Direction ◀ = -1 ▶ = 1

26

# of button clicks Calibration ✖ 0.25mm ✖ *Direction = **Y-axis Value**

*Direction ▲ = -1 ▼ = 1

27



Enter values from 25 & 26

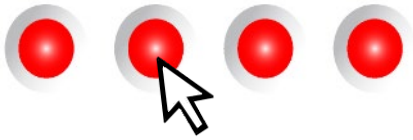
28

Save Settings

29

Deactivate Glue Remover

30



Go to Motion Control Screen

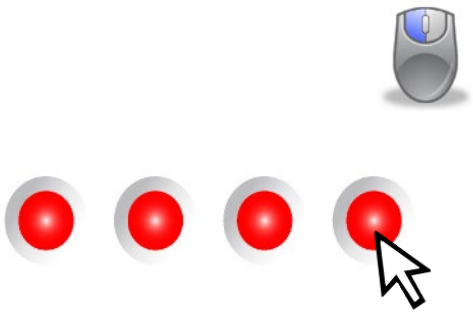
31

Go to Start Location

32

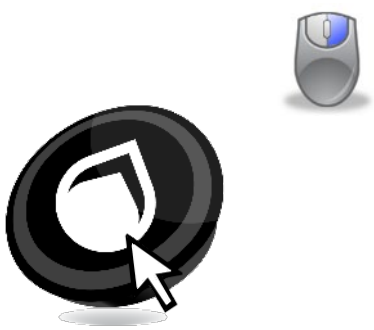
Press Min Z Button

33



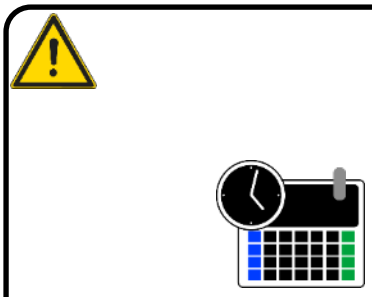
Go to the Setup & Calibration Screen

34

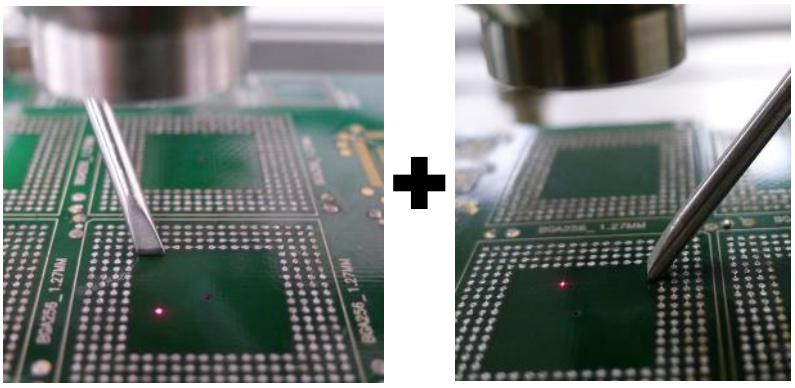


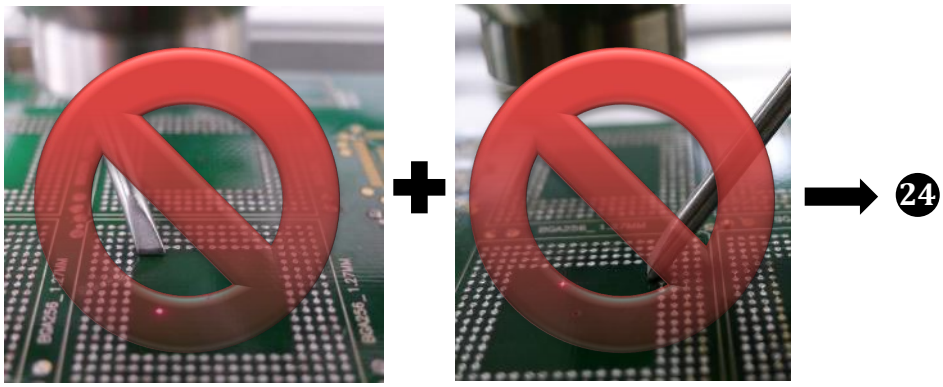
Activate Glue Remover Calibration

35



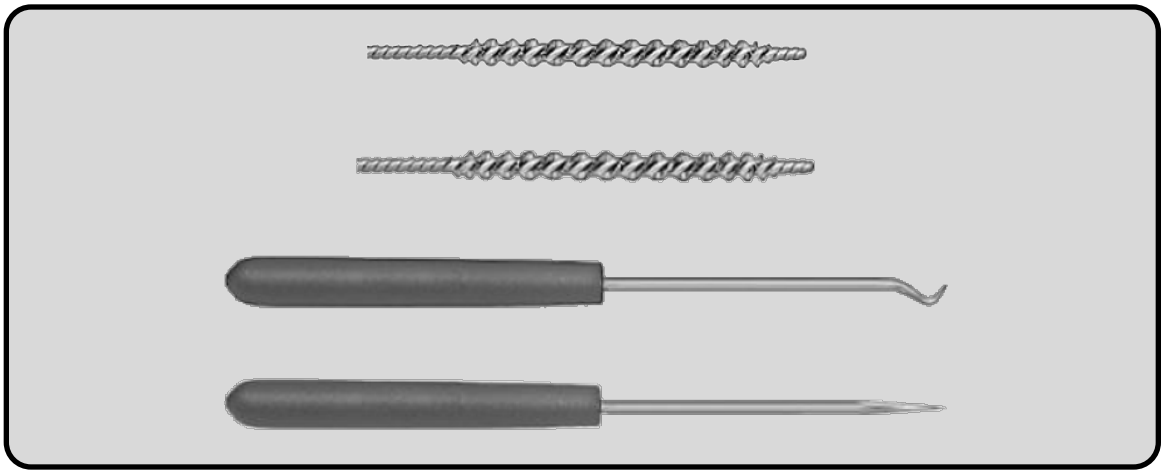
12 months or as needed



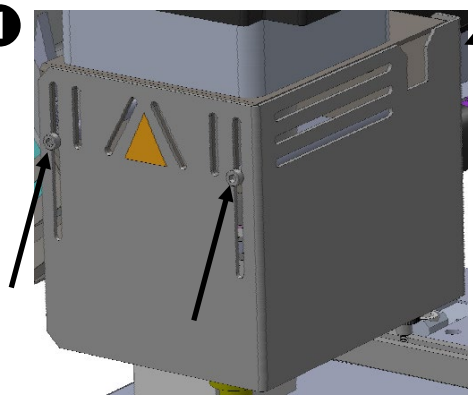


24

Solder Path Cleaning

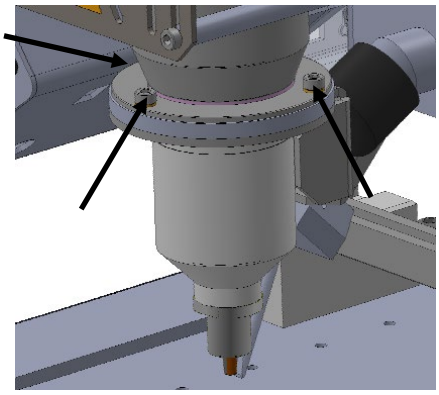


1



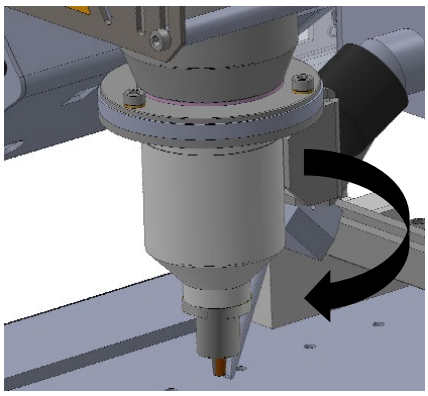
Remove M3 screws

2



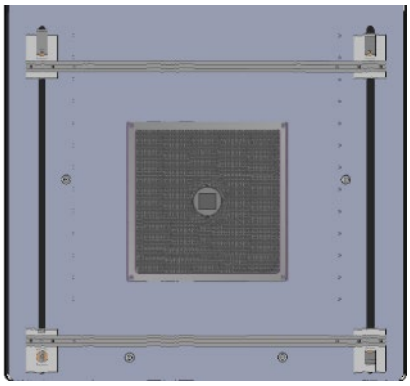
Loosen screws

3



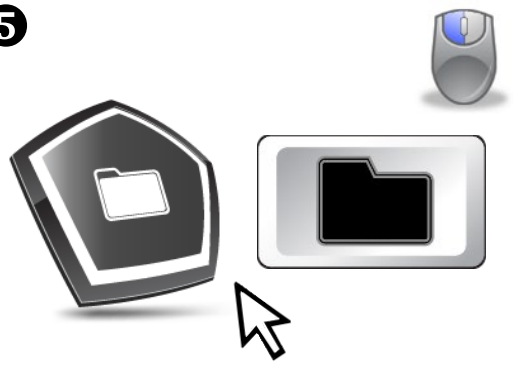
Rotate Assembly

4



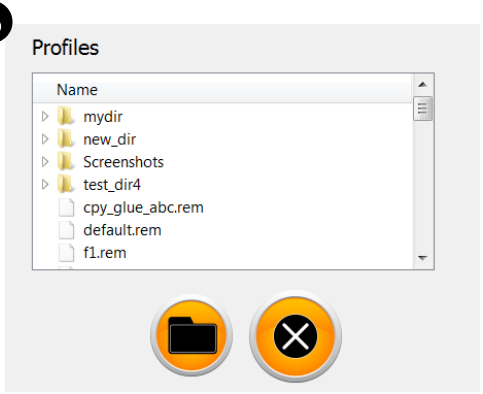
Cover the preheater

5



Press the Open Profile Icon

6



Select the CleanSCS.rem

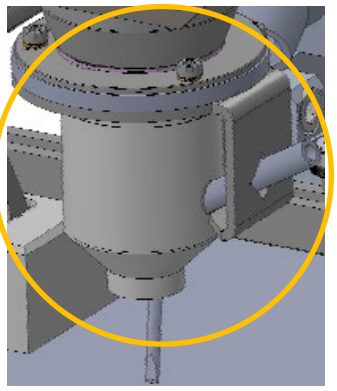
7

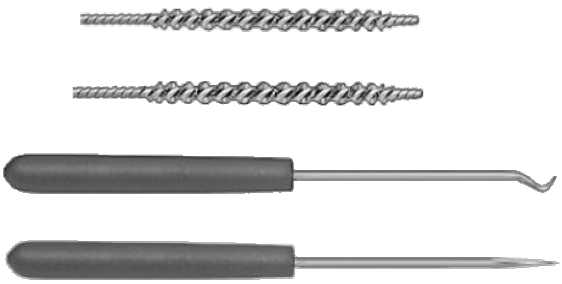
Press the Open Icon

8

Run the Profile

9





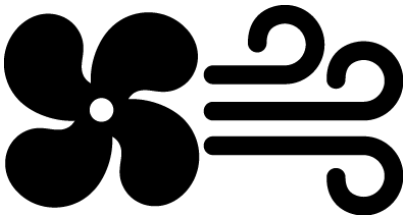
Clean the vacuum tube.

Tube will be **hot.**

10

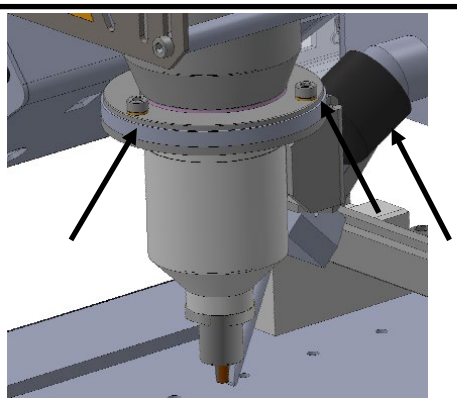
Stop the Profile

11



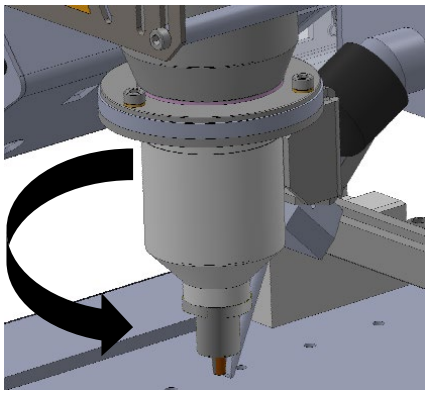
Allow System to Cool

12



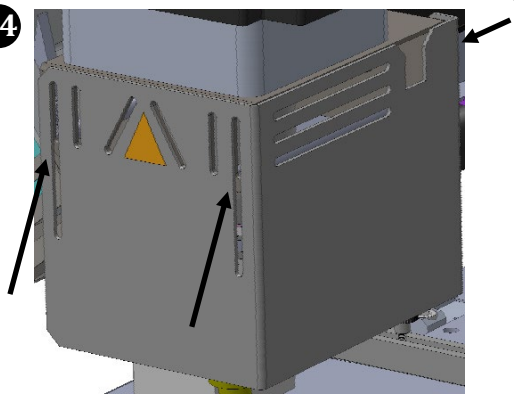
Align tube to rubber cup and tighten screws

13



Rotate Assembly

14



Replace screws