



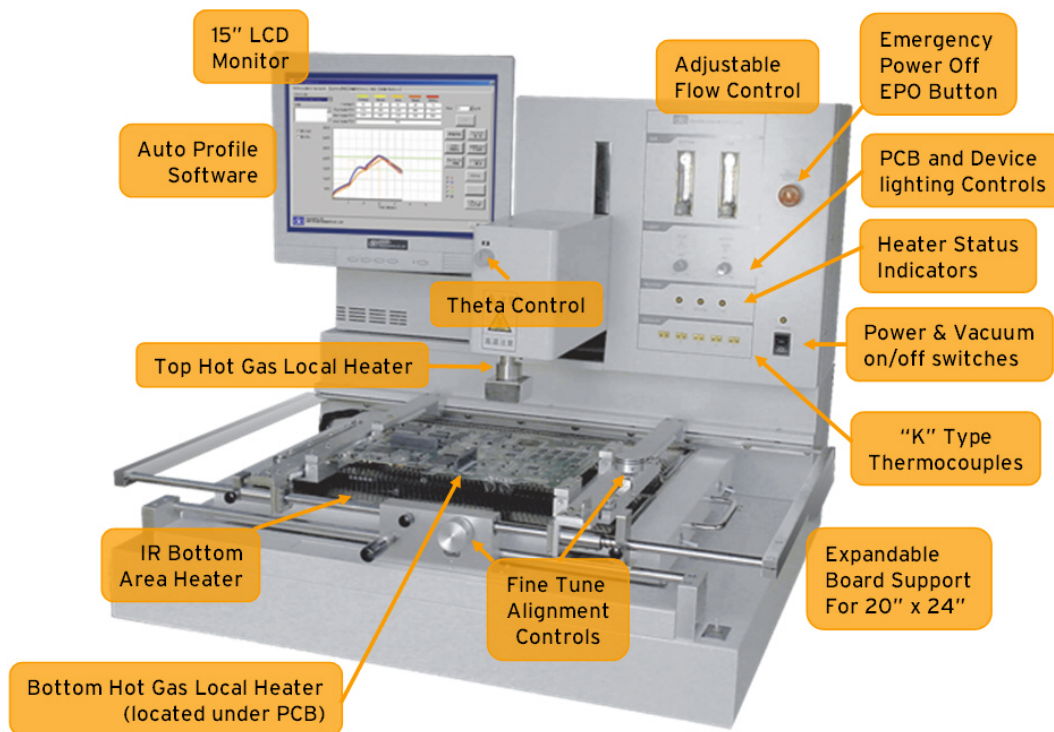
"The Inspection & Rework Specialists"

DEN-ON RD-500 Series

BGA/SMT Repair Solutions

for Lead-Free and Eutectic Rework

Rework Demonstrations Follow Along Notes



Demonstration Follow Along Notes

RD-500 Series Rework Profile Development Demo

- Setup and develop a profile
- Learn the AutoProfile hardware and software operations
- Edit and save an optimized profile

RD-500 Series Rework Profile Execution Demo

- How to run a Remove and Reflow Profile

RD-500 Series Rework Profile Development Demo: *(Follows demonstration file)*

1. Boot the RD-500 System computer
2. Double-click on the **System Operating Software Icon**
3. Insert the PCB to be reworked into the board holder
4. Select and install a suitable Nozzle to rework a specific part
5. Instrument the component by attaching 1 to 5 thermocouples
6. Select the **Auto Profile Tab** to enter the **Auto Profile Menu** and begin teaching a new profile
7. Select a **Nozzle Size** and **Air Flow Rate** from the **Nozzle size/Flow Pick List**
8. Use the **scroll bar** to select a **preset** from the list
9. De-select all *unused Thermal Couples* by un-checking the **S? Check Boxes** that do not apply.
10. Select the **Optics tab** to enter the **Optics / Video Menu**
11. Click the **OPTICS ARM Button** (**NOTE:** This will swing the optics arm into position)
12. Mouse-click and drag the **Wide / Zoom Scroll Bar** to adjust the size of the video display area.
 - a. Adjust upper/lower lighting (for best alignment viewing of component + board site)
 - b. Zoom out / Auto Focus (for good viewing of nozzle + board site)
 - c. Align nozzle with board site X, Y
 - d. Align theta
13. Select the **Auto Profile Tab** to enter the **Auto Profile Menu**
14. Click the **START Button** to initialize the *Phase 1* of the **Profile Learn** operations
 - a. **NOTE:** You can Click on any portion of the graph to determine the **temperature** and **ramp rate** (time/temperature) at that location
15. Once the **Learn Profile** has completed, click the **Save As Button** to store the learned profile information.
 - a. Enter a **Name** for this learned process and click the **OK Button** to save data.

Auto Profile Learning Process: *(Follows demonstration file)*

1. Select the **Development Tab** to enter the final *learning phase* of this process.
 - a. **Note:** This is where process adjustments are made to fine-tune the profile.
 - b. Select the **Profile Name** saved in the last menu from the **Profile Name List Box**.
 - c. **Note:** Text notes can be typed into the **Instruction Text Box** to assist an engineer to pass along details to an operator.
 - d. While in the **Development Menu** manually adjust the profile process as required. To edit, simply type the new values directly into the appropriate data entry areas and click the **Save Profile Button** to accept the new changes:
 - Preheat
 - Ramp 1
 - Soak
 - Ramp 2
 - Reflow
2. **NOTE:** You may wish to duplicate this identical process values to be used in the replace and reflow process. If you wish to use this same profile to remove and replace the part, use the following steps:
 - a. Select the **Removal Radio Button**
 - b. Click the **Save As Button** to save these changes to be used later for "component removal"
 - c. Enter a **Name** for the **Removal Profile**
 - d. Click the **OK Button** to save
3. Select the **Setup Tab** to begin setting up the **Reference Lines** and **Security Options** for saved profiles
 - a. Click the **Upper Temperature Reference Line** to raise or lower upper temp.
 - Adjust as needed
 - b. Select the **Standby Temperature** for the **Area Array Heater**
 - Adjust as needed
 - c. Select the **Placement Force** to be used for the **Part Placement**.
 - a. **Note:** If the part placement force is set too high this may cause the part to move and not be ideally placed as intended.
 - b. Click the **Standby DATA SET Button** to set changes for all new data entered on this page
 - c. Click the **Setup Password Button** to control access to process parameters by password protecting these settings.
 - Enter a password
 - Confirm the new password
 - Click the **OK Button** to save changes
 - d. Select the **Development Tab** again to *view* changes to the **Reference Lines**
 - e. Select the **Inspection Tab** to *verify* profile data in accordance with standards or user defined criteria
 - f. Select the **Profile Name** just ran to confirm **passing standards** identified in the table fields below
 - g. De-select all unused **Thermal Couples** by un-checking the **S? Check Boxes** that do not apply.
 - h. After examining profile data, select the **Print / Review Tab** to compare previously run profiles
 - i. To open the 1st profile, click the **Profile Button**

- j. Choose the file by **Name** and click the **Open Button**
- k. Click the **Overlay Button** to compare profiles by toggling between the profile changes just made and the previously run profiles.
- l. Click the **Remove Overlay Button** to remove or enable (toggle) the overlay and reveal differences
- m. Click the **Close All Button** to close all profiles, when you are finished comparing these profiles.

RD-500 Series Rework Profile Execution Demo: *(Follows demonstration file)*

1. Insert the PCB to be reworked into the board holder
2. Attach 1 to 5 thermocouples to the component site
3. Select and install a suitable Nozzle to rework the failed part
4. Select the **Operation Tab** to run a profile
5. Select a **Profile** from the **Profile Name List Box**
6. Select the **Optics Tab** to pick-up a replacement part from the pick-up tray
7. Click the **Optics Arm Button** to move the arm into place
8. Select a **Nozzle Size** and **Air Flow Rate** from the **Nozzle size/Flow Pick List**
9. Use the **scroll bar** to select a **preset** from the list
10. De-select all *unused* **Thermal Couples** by un-checking the **S? Check Boxes** that do not apply.
11. Select the **Optics tab** to enter the **Optics / Video Menu**
12. Click the **OPTICS ARM Button** (**NOTE:** This will swing the optics arm into position)
13. Mouse-click and drag the **Wide / Zoom Scroll Bar** to adjust the size of the video display area.
 - a. Zoom out / Auto Focus (for good viewing of nozzle + board site)
 - b. Adjust upper/lower lighting (for best alignment viewing of component + board site)
 - c. Align nozzle with board site X, Y
 - d. Align theta
14. Select the **Auto Profile Tab** to enter the **Auto Profile Menu**
15. Click the **START Button** to initialize the *Phase 1* of the **Profile Learn** operations
16. Select Start (to run the component remove profile just created)
17. Discard faulty component in tray
18. Clean and flux board site

Software Menu Tabs:



Operation Tab

The main function of this screen is to operate the RD-500 using profiles that have already been developed. First the board is aligned using the Optics screen, then the user would move to the Operation screen. Here they would find the profile that had already been developed. These profiles would be chosen from a list of names from the pull down menu in Profile Name.

Optics Tab

This software function opens up the viewing screen for aligning component to the board.

When the Optics Tab is pressed, the Vacuum Pick-Up Pump is turned on. When the OPTICS ARM button is clicked the Optics Arm comes out between the Heater Head and the Board Holder. This head contains the prism that allows the look up/look down feature for aligning the nozzle and component to the lands or device on the board.

Development Tab

The Profile Development Tab is used to modify existing profiles or edit profiles during AutoProfile development.

Auto Profile Tab

The Auto Profile Tab is used to develop profiles for boards and devices via feedback from one K type thermocouple sensor.

Setup Tab

The Setup Tab is used to configure password protection that will allow only authorized personnel to create or modify profiles.

Print/Preview Tab

The Print/Preview Tab is used to compare existing profiles by overlaying (superimposing) an active development over top of other saved profiles, for review and/or printing profile data.

NOTE: A useful example would be to compare the differences between a standard Eutectic profile and a Lead-free profile for the same part.

Inspection Tab

The Inspection Tab allows the user to input known profile parameters, save them under a name, and then pull up any profile to see if the profile meets the criteria of the given profile parameters.

- Max Ramp Rate
- Soak Time Temperature and Time Ranges
- Heat (or Reflow) Minimum Temperature Setting and the Time Range
- Peak Temperature