

# Westbond Wedge-Wedge Wire Bonder



West Bonder 7476E is an ultrasonic/thermosonic wedge-wedge wire bonder designed to interconnect wire leads to semi-conductor, hybrid or microwave devices. The machine bonds gold wires ranging from 0.0007 in. to 0.002 in. Bonds are made by the wedge-wedge technique using ultrasonic energy to add work piece heat for gold wire. Wire is clamped and threaded diagonally under the bonding wedge, allowing independent feeding action but requiring front-to-back bonding direction. The bonding tool is guided manually by the operator using hand/eye reference to bond targets and elevations.

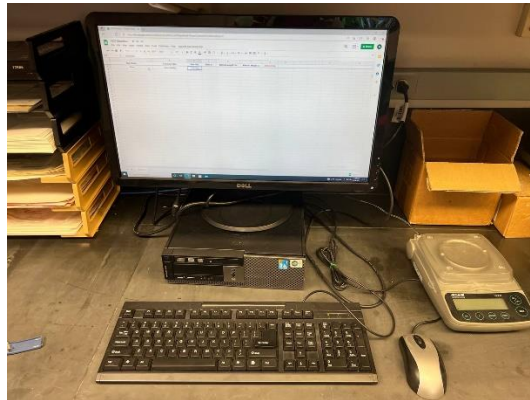
Embodied in this tool is a new and unique West-Bond three-axis micromanipulator in which the entire mechanism is arrayed above the work plane, so that there is now no limit to the size of a work piece. Each of the X, Y, and Z axes is straight-line and purely orthogonal, and each can be braked pneumatically on signal. In this application, all axes are braked during the ultrasonic bond time to aid operator control. Dual counterweights balance the pantograph arm and the tool support individually, and they are complemented by an adjustable spring to counterbalance different tool assemblies.

The range of movement of the tool by manipulator control is 0.5625 in. vertically and 0.6250 in. in horizontal directions with an 8/1 ratio of mechanical advantage.

- 1- Check out the Wire Bonder key from the office. Ask NCF Staff to help you with it.



- 2- Log in to the spread sheet available on the computer at the NCF office. Note down your name and the date you checked out the key.



- 3- Open the air supply valve and check the pressure gauge.

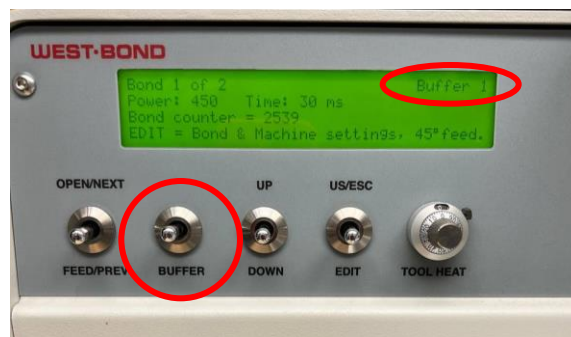


- 4- Log in to the logbook and note down the information required.

- 5- Use the key to switch on the system. Next power-up the system using the power switch.



- 6- Use the buffer switch to change the buffer number.



Each of the buffers holds the bond settings and bonds per wire data. By assigning a buffer number for your sample, you won't need to set up the parameters again in your next usage.

- 7- After finding the desired buffer number, press “EDIT” button to page through the available menus. The “NEXT/PREV” switch can perform the same function for scrolling through the menus.  
You can use “ESC” switch anytime to leave the edit sequence at any time and return to the main screen.



## 8- Programming

To adjust any number or option, use the “UP/DOWN” switch.

**Note!** The system will not bond on the EDIT mode.

### Bond Settings:

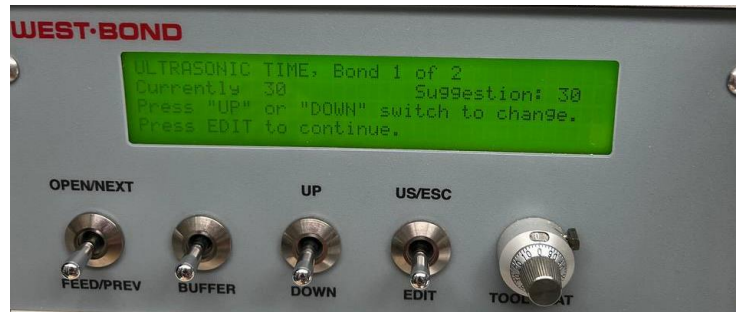
- **BONDS PER WIRE:** Select number of bonds per wire for the current buffer. (MAX: 21)



- **ULTRASONIC POWER:** Specify the ultrasonic power level for a specific bond. The bond number is displayed the upper left position of the screen. The power level ranges from 0 to 999. The suggested power is an arbitrary starting point.



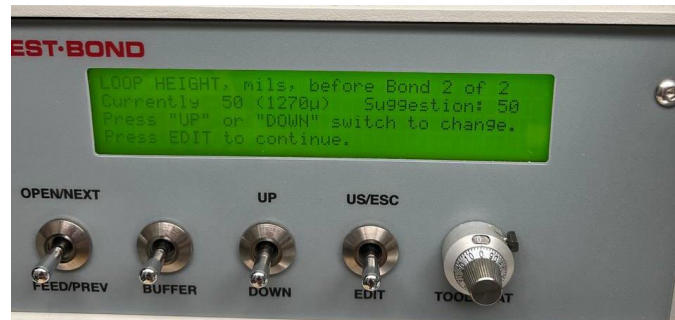
- **ULTRASONIC TIME:** Specify the ultrasonic time, in milliseconds, for a specified bond number displayed upper right portion of the screen. The suggested time is an arbitrary starting point.



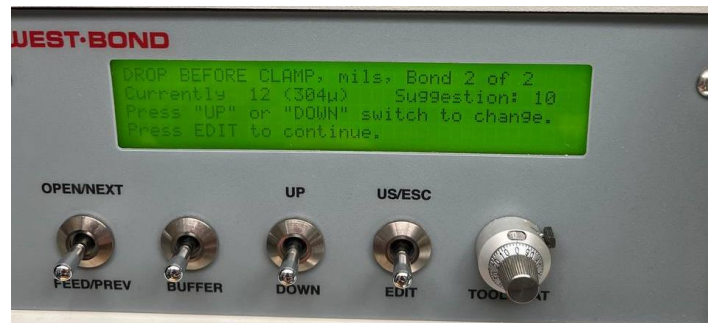
**Note:** The bonds are more responsive to a power level increase than a time increase.



- **LOOP HEIGHT:** Specify the wire height at which an audible beep, which assists in producing consistent loop height, will occur.



- **DROP BEFORE CLAMP:** Use this to specify the distance below the apex of the tool path at which the clamp should close on the wire.



**Note:** After completing the first bond, the clamps will be open allowing the operator to travel upward.

- **WIRE PULL:** Allows the operator to increase and decrease the distance the clamp blades pull back to break the wire after the terminating bond.



**Note:** Ask NCF Staff to help you with changing this parameter. Excessive wire pull may cause the wire to become unthreaded.

- **WIRE TAIL:** Allows the operator to increase or decrease the length of the tail.

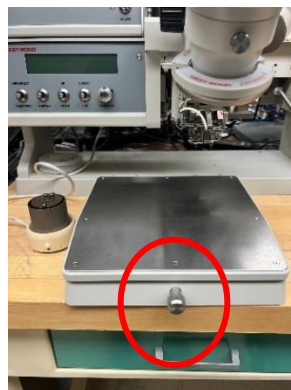


*The rest of the parameters are the machine settings, and they are global for all the buffers. These parameters are infrequently changed. If the application changes significantly, some modifications are required. Please ask NCF Staff in case your application requires changes of these parameters.*

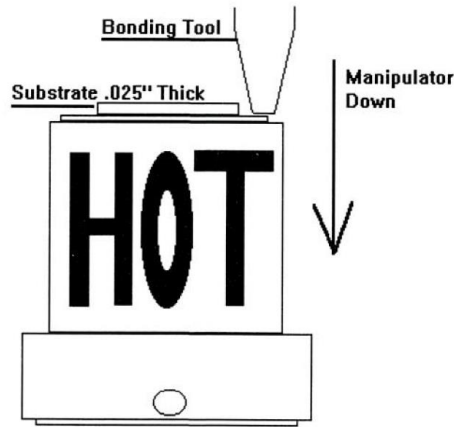
- 9- After setting up the program for the buffer, you need to set up your sample on the sample holder. Keep the holder away from the clamp and loosen the screws by using the L key, which you can find in the drawer below the system. Then put your die on the holder and secure it by putting the screw back. Make sure your sample is tightened and secured on the holder.



- 10- Lower the stage to the zero level and put the holder on the stage. Then raise the stage by using the knob.



**NOTE:** Raise the stage to the point that the clamp would be placed lower than the sample surface and above the holder (Check the picture below). Try to use the side of your sample to adjust the height.



**11-** Turn on the microscope lights and use the arm to make the first bond. You will hear a beep sound after the first bond. Then raise the arm and drop it on the second point of interest. Once you finished the number of bonds you already set in "BONDS PER WIRE", bring the clamp to the focus point of camera. By this way, you can see the status of the wire on the screen beside the system.



### Shutting Down Procedure

- 1- Lower the stage to the zero level and take the holder away from the clamp.
- 2- Use the L key to loosen the screws and take your sample out. Tighten the screws after.
- 3- Turn off the microscope lights and the monitor.
- 4- Power-off the system by using the power switch.
- 5- Switch off the system and log off from the logbook.
- 6- Close the air supply valve. The gauge pressure will take a few minutes to drop.
- 7- Take the key to the NCF office and check it in using the computer system in the NCF office.