Charpy Impact Testing with Instron CeastVIEW VisualIMPACT Software in MTIL

by David Farrow, Fall 2018

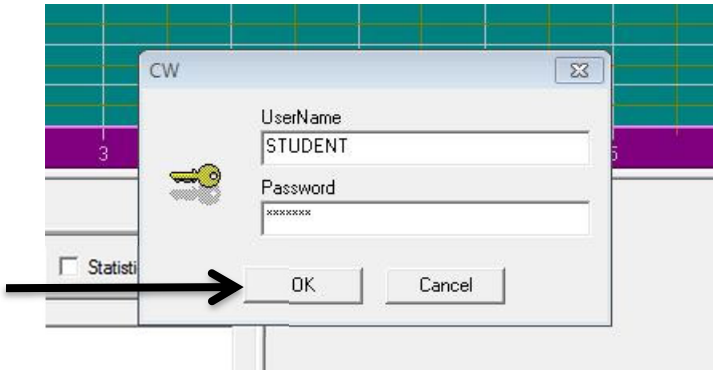
Staff - Power Up Dynatup Model 8250 System:

- Lab compressed air on
- Tower power on
- DAQ box power on
- Door safeties active and functional
- Carriage in up position
- Control box set in Auto and Gravity modes

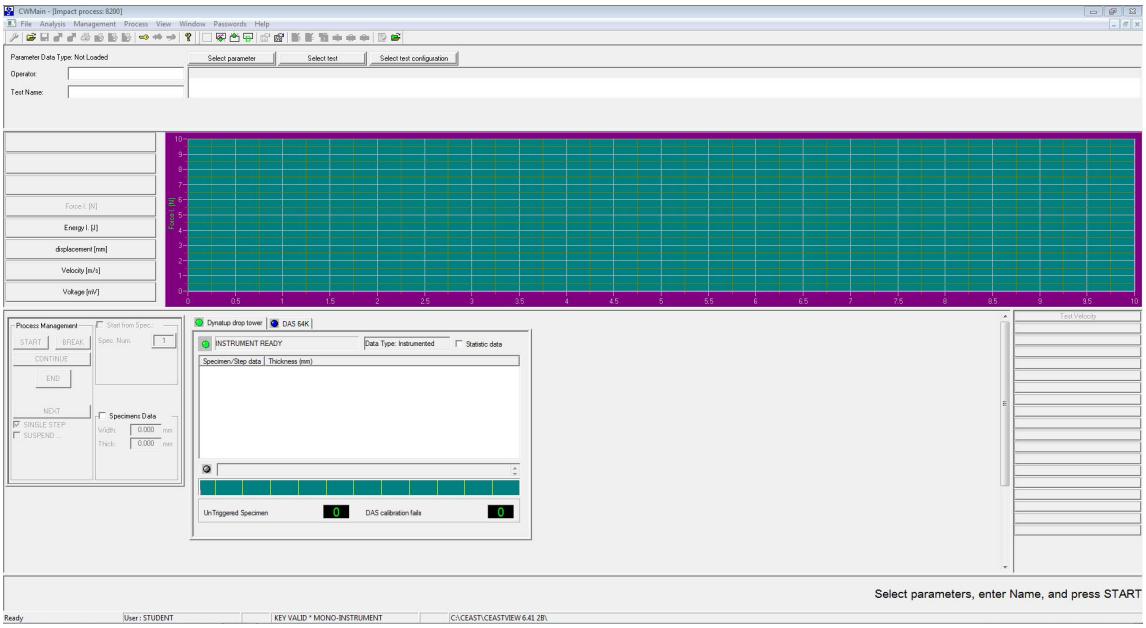
Students - Start Software:

- Start CeastVIEW software from desktop shortcut

- Login with student, student, OK

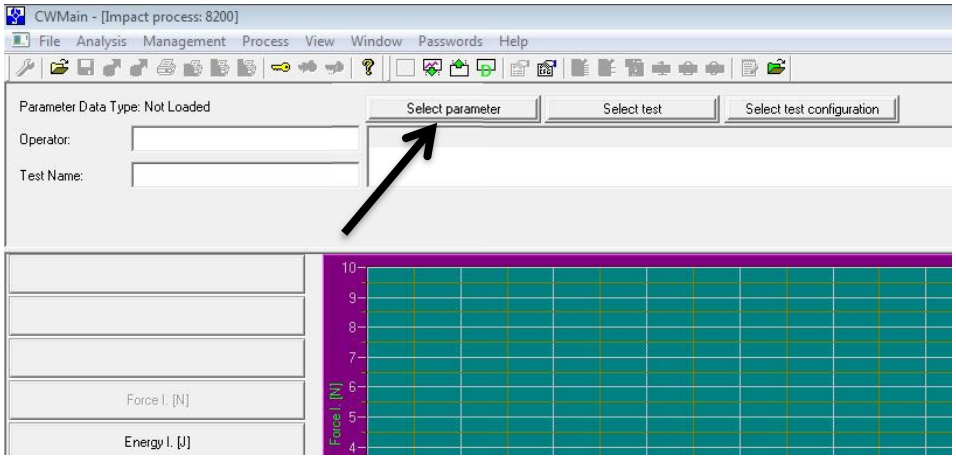


- Test Process screen looks like this:

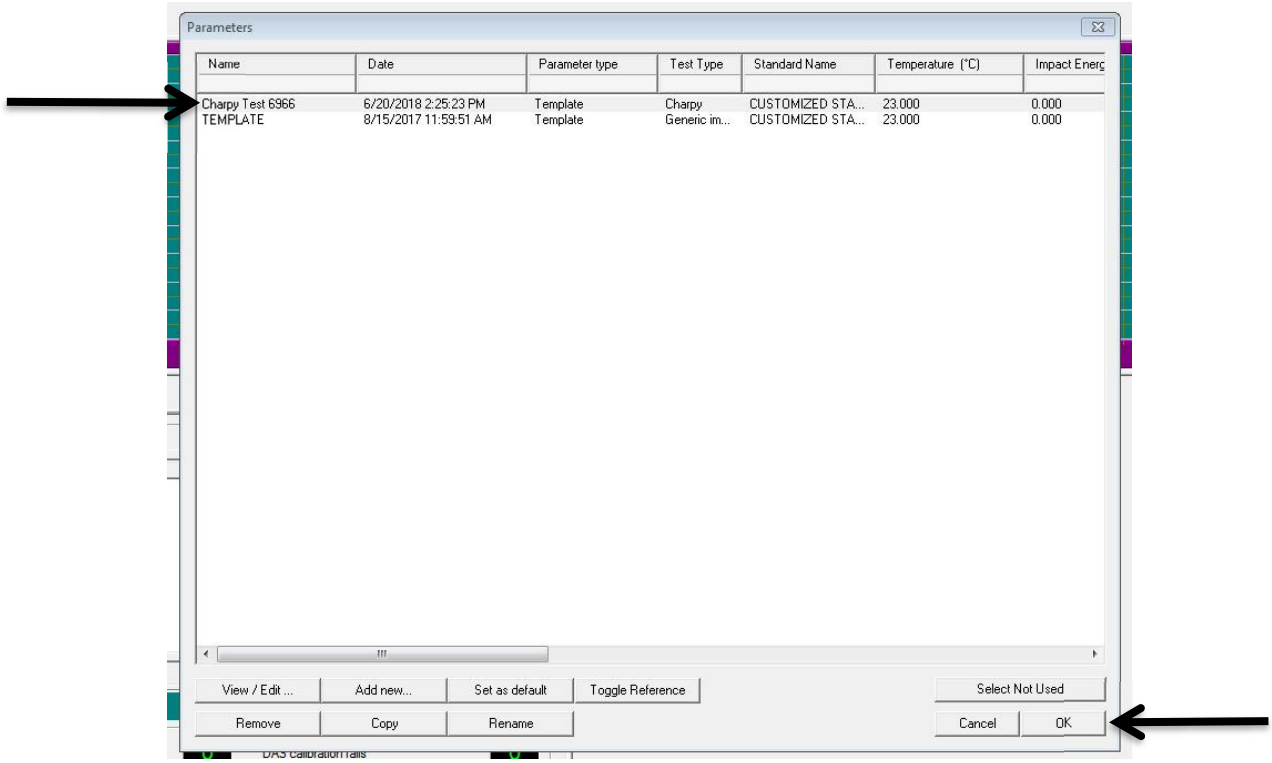


Initiate and Conduct a Test:

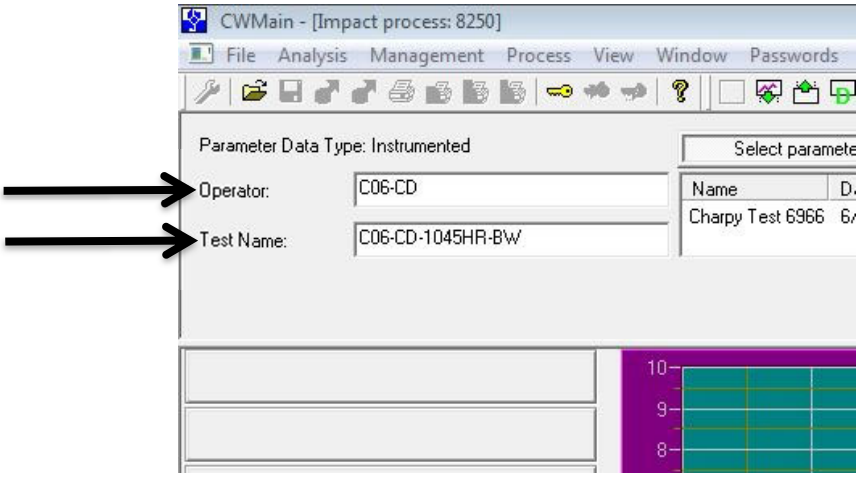
- Select parameter (test template)



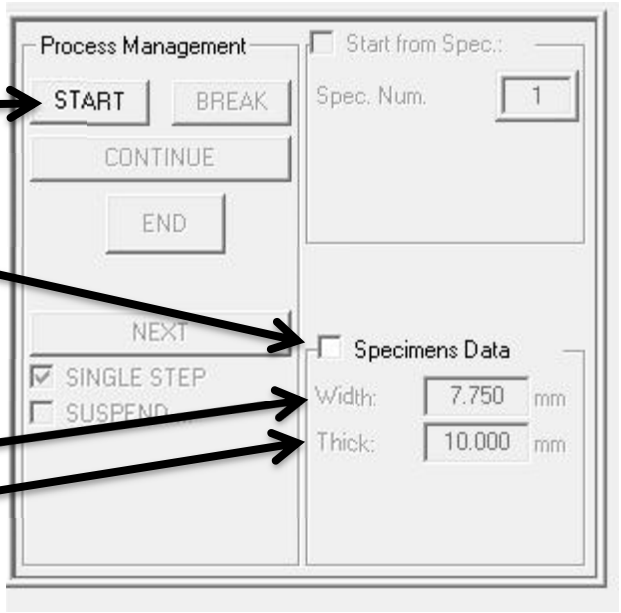
- Choose Charpy Test, OK



- Enter Operator (disciplinesection-group) e.g. C06-CD
- Enter Test Name (disciplinesection-group-material-temperature)
- Material = 1045HR, 2024-T4, 6061-T6
- Temperature = RT, 0C, BW
- Example: C06-CD-1045HR-BW

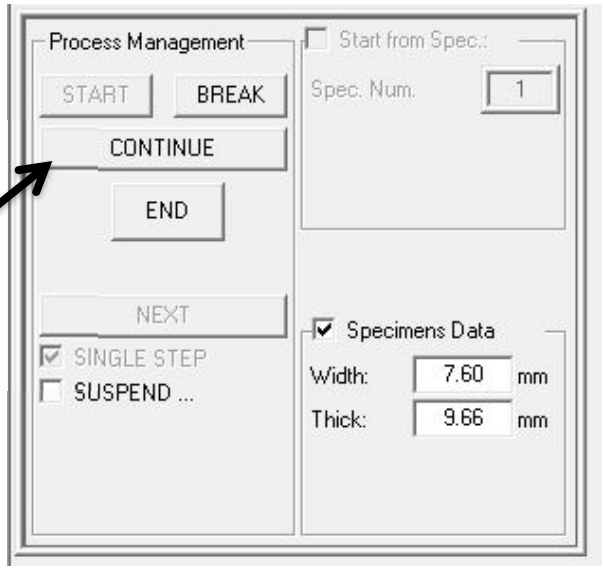


- START (first)
- Enable Specimens Data
- Enter specimen Width
- Enter specimen Thickness

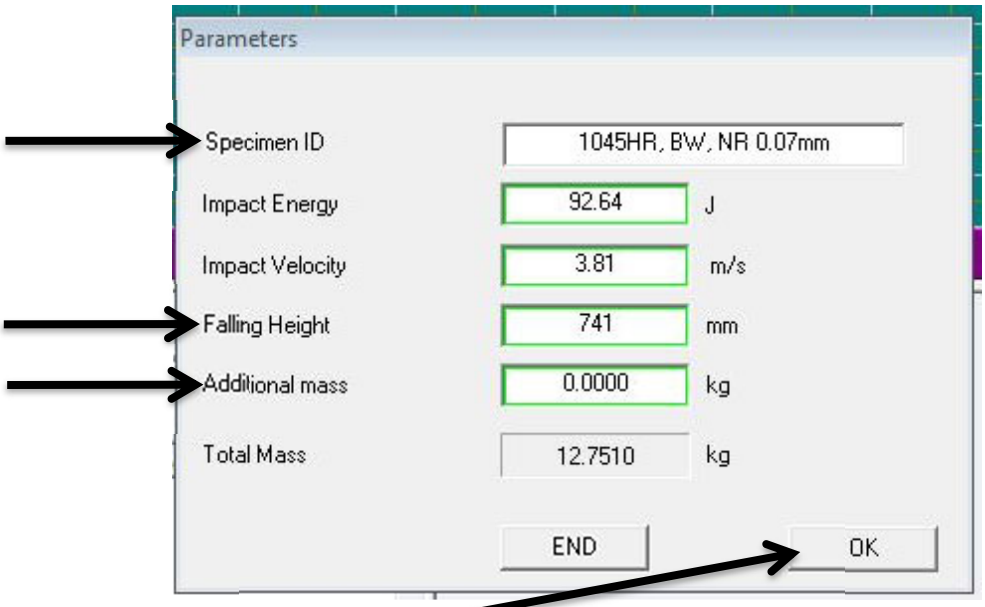


Note: Width = Height - Notch Depth

- CONTINUE (last)

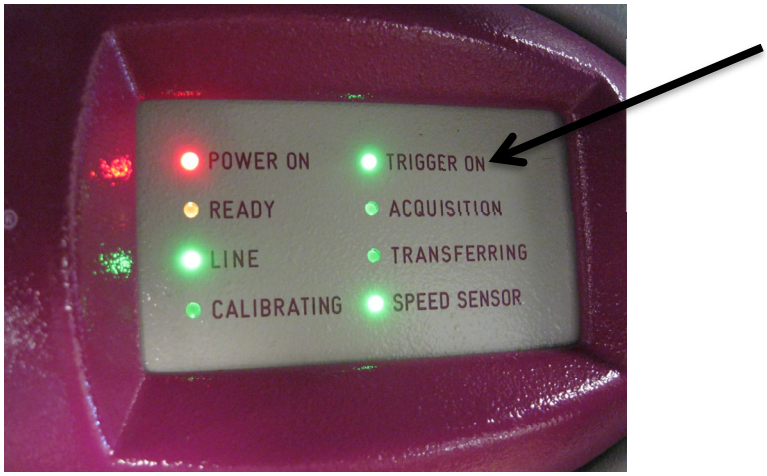


- Enter Specimen ID as material, temperature, and notch radius
- *Measure anvil spacing (will be recorded as 40mm in datafile)*
- *Measure and enter falling height (drop height)*
- Verify added mass as 0 kg and nominal total mass as 12.751 kg

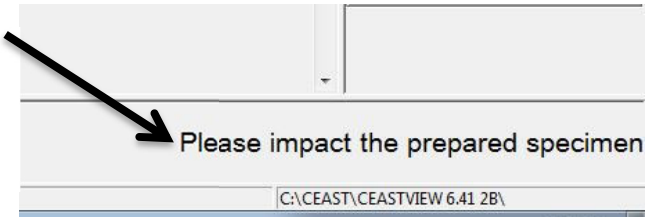


- OK

- DAQ box green Trigger On lamp should illuminate (wait for this)

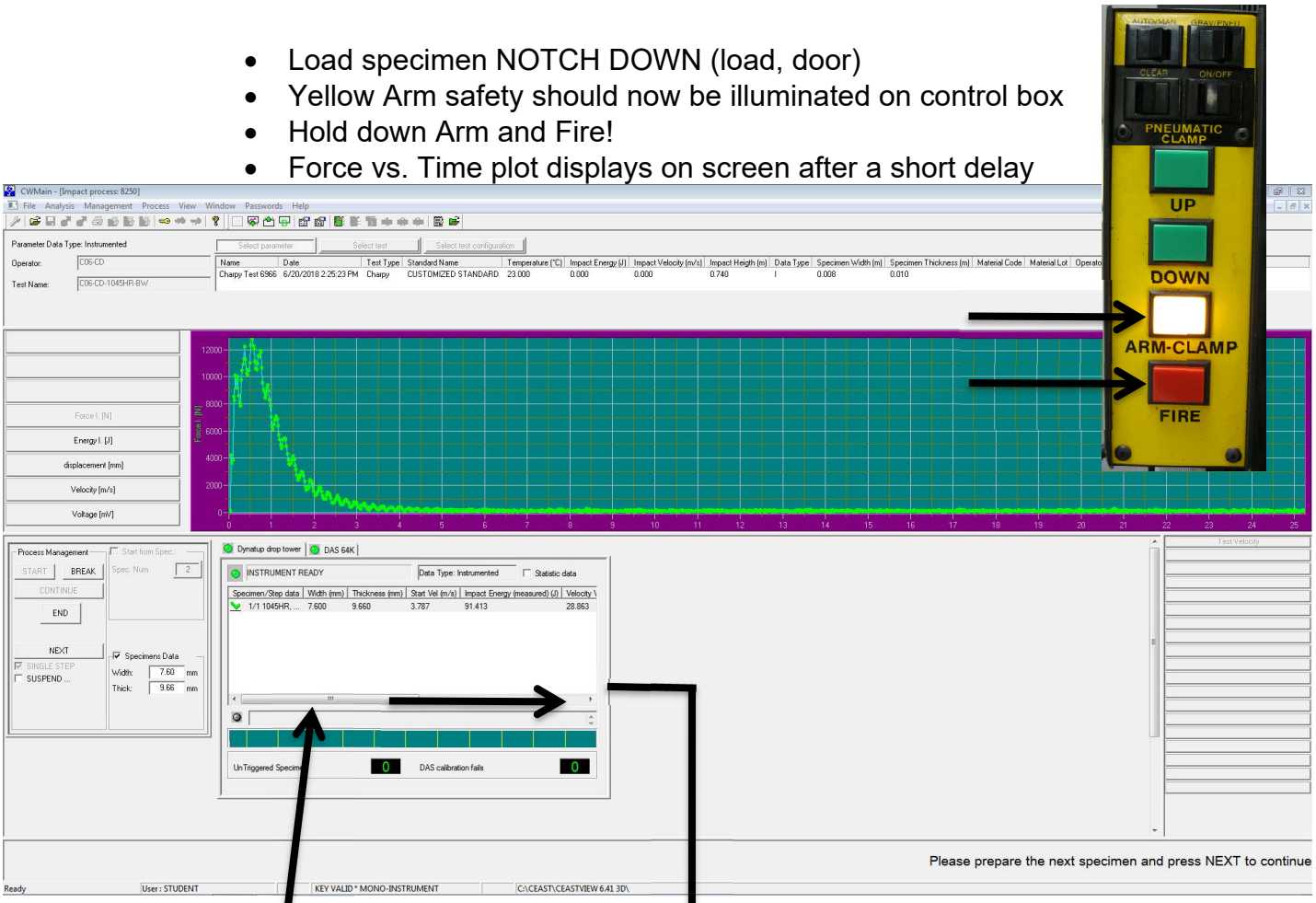


- Screen Message:

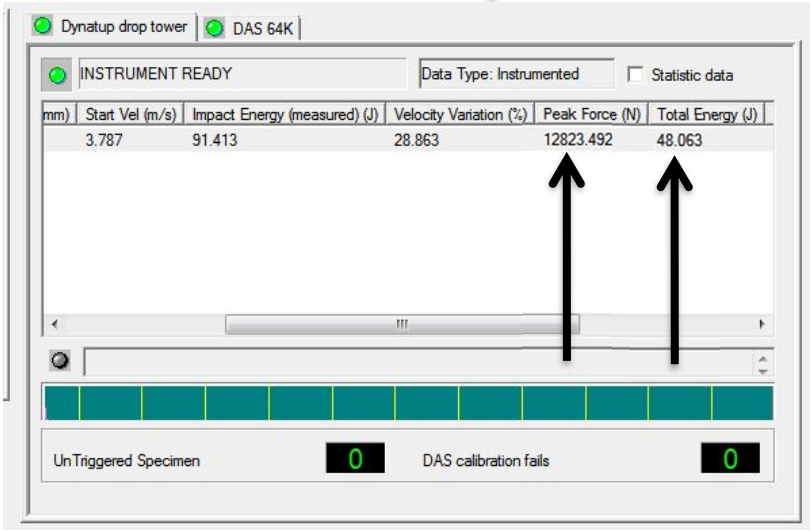


- Prepare to load specimen

- Load specimen NOTCH DOWN (load, door)
- Yellow Arm safety should now be illuminated on control box
- Hold down Arm and Fire!
- Force vs. Time plot displays on screen after a short delay



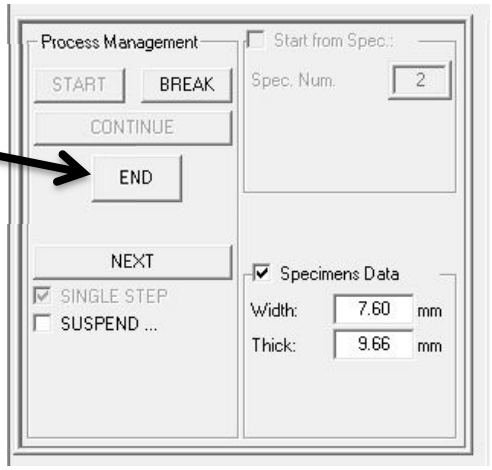
- Scroll right to note Peak Force and (tentative) Total Energy absorbed



- Enter these data on whiteboard vs. test temperature
- Carriage should auto-return to top position

Critical step:

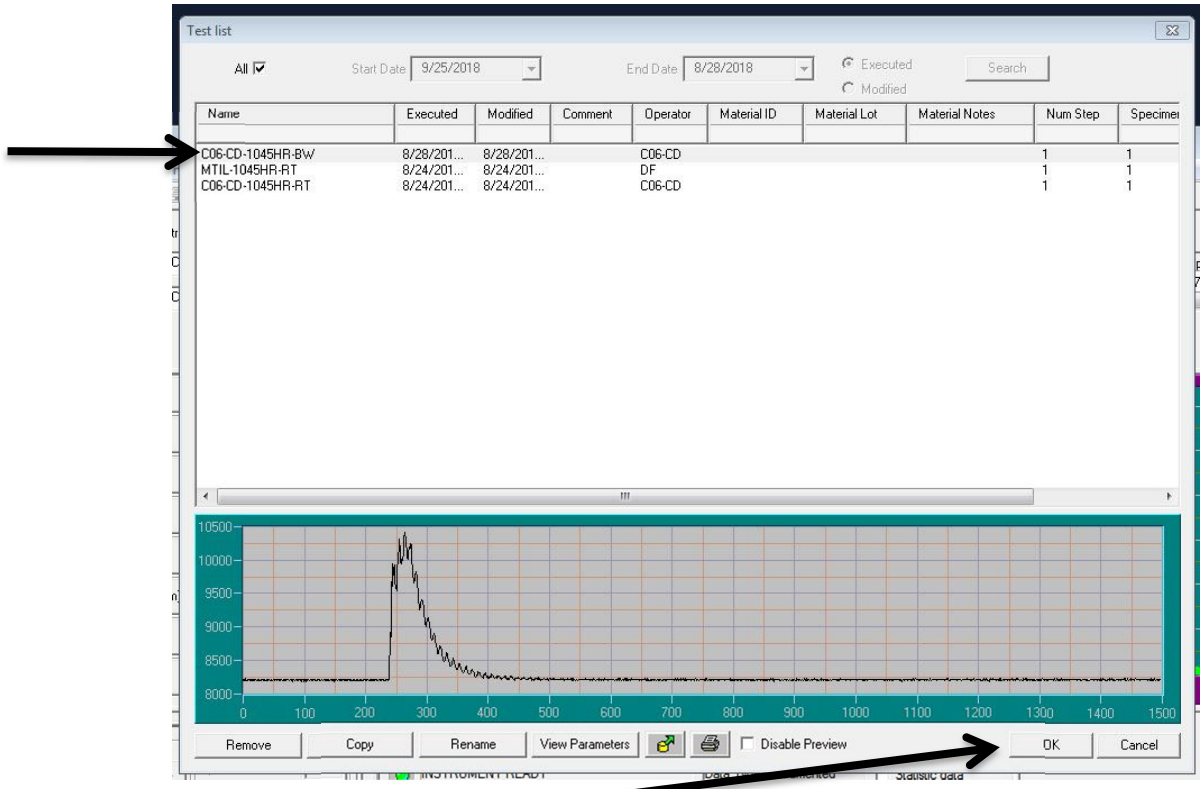
- END



- Unload and collect specimen
- Mark specimen (temperature)

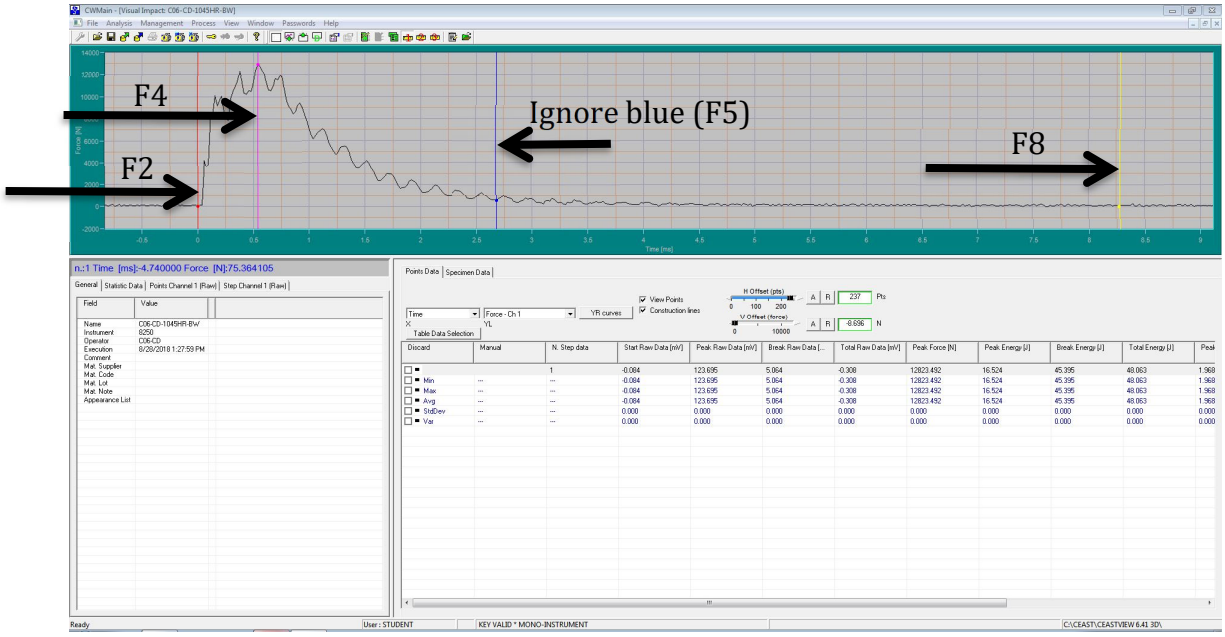
Process and Export Data to File:

- Pull down File menu, Open
- Choose test to process by filename

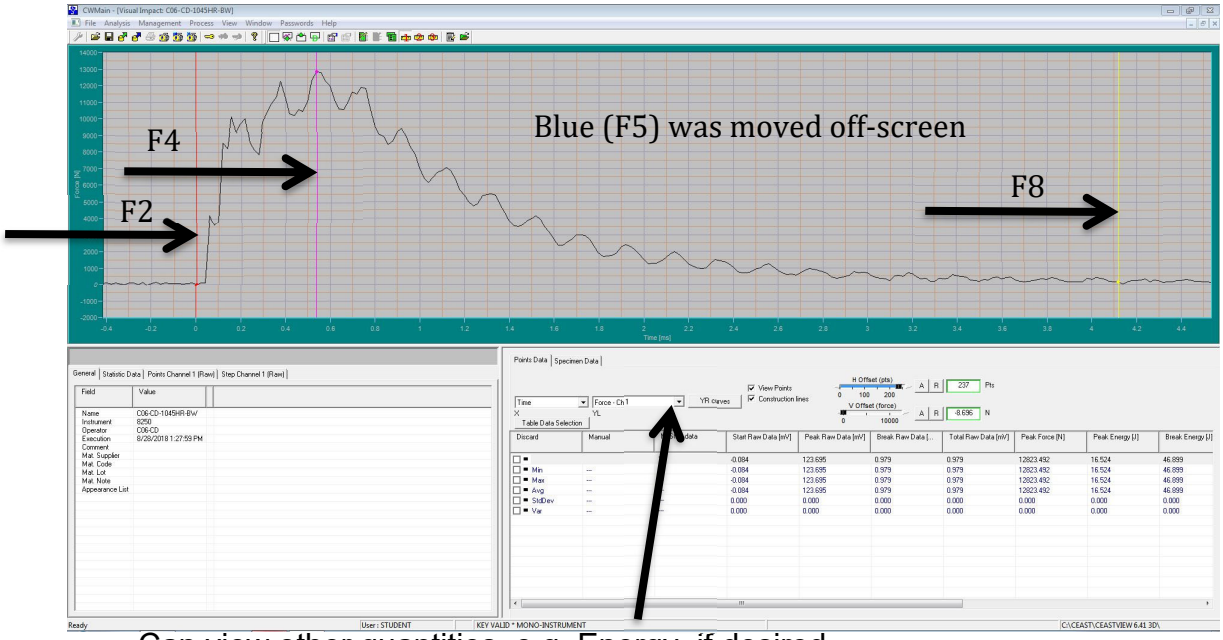


- OK

- Click on Force trace to locate red cursor, THEN drag it; F keys mark events

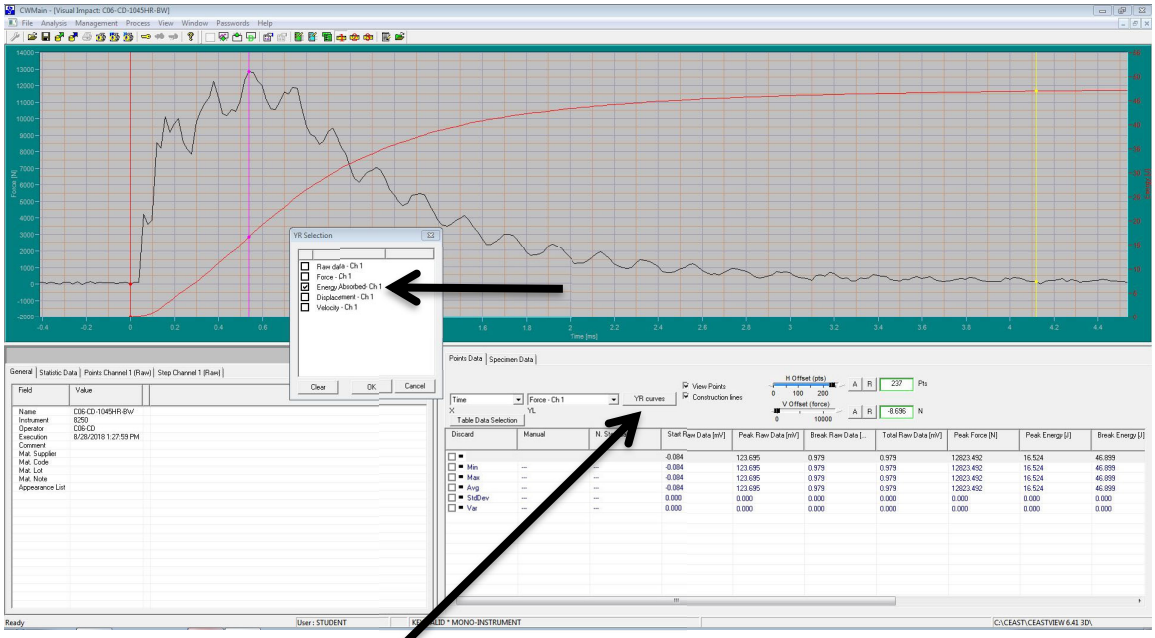


- **F2 = Start Time (Red)**
- **F4 = Peak Force (Purple)**
- Ignore blue break cursor (F5) if it shows (can move off-screen)
- **F8 = End (Total) Time (Yellow---where force returns to zero)**
- **CTRL F12 = Zoom out, CTRL F11 = Zoom in, CTRL F10 = Zoom Box**
- Right click on plot for other plot options, if needed
- Mark three points of interest: Start (red), Peak (purple), and End (yellow)

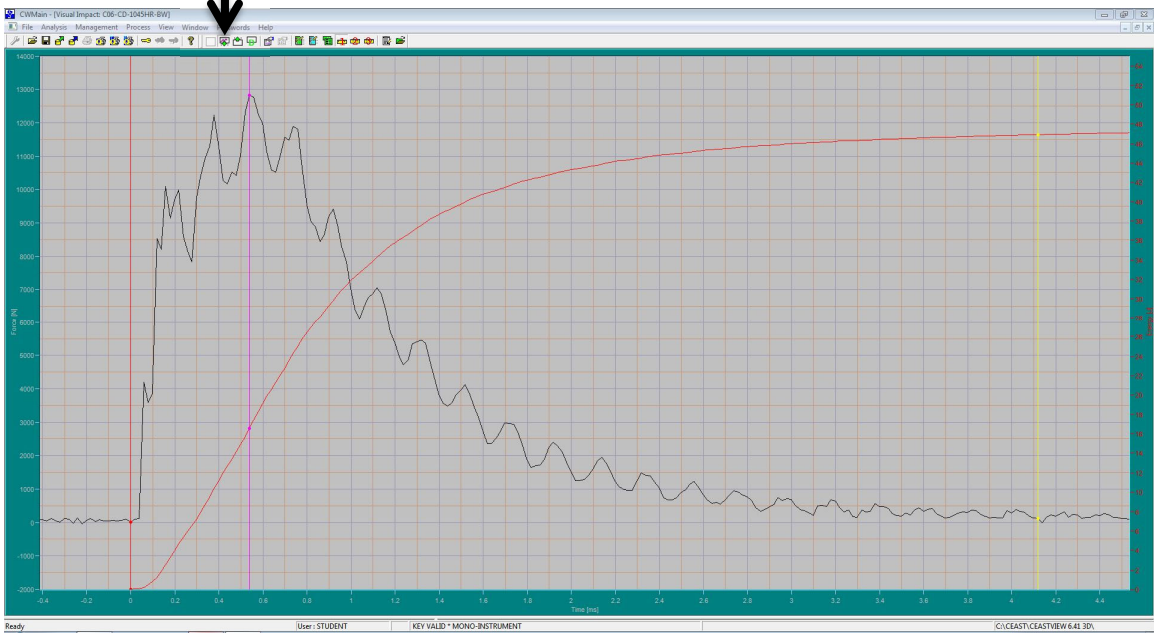


- Can view other quantities, e.g. Energy, if desired
- **Skip to page 9**

- Optional - It is useful to plot Force and Energy together vs. Time:

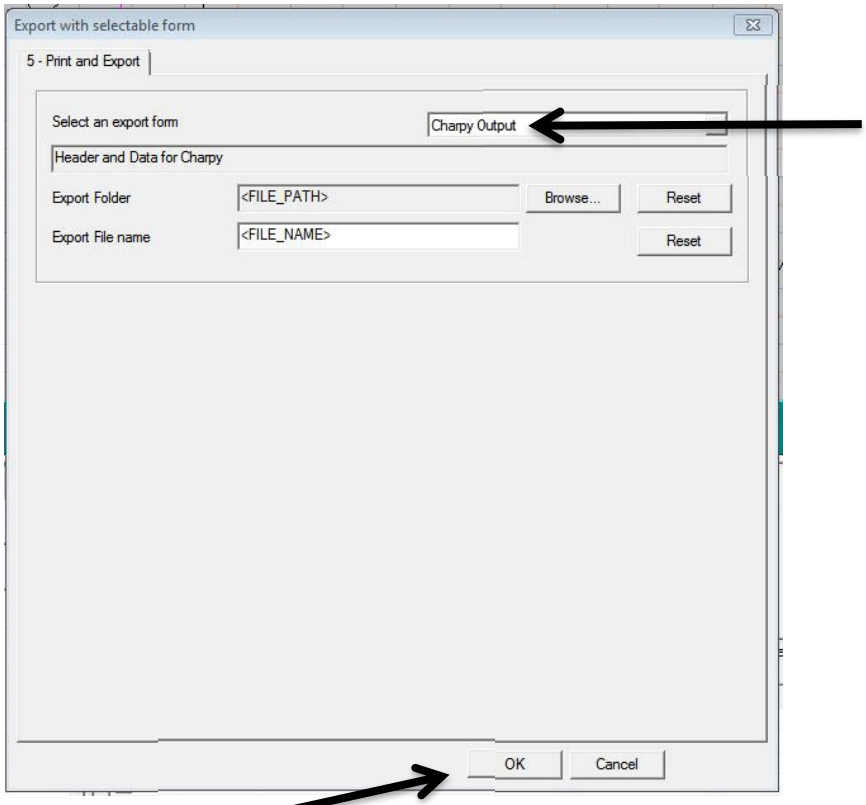


- Use YR curves to overlay Energy Absorbed plot
- Toggle large plot from toolbar with arrowed tool:

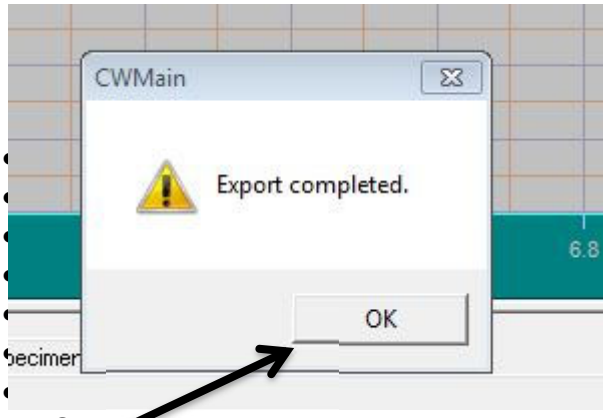


- Here are Force and Energy vs. Time plotted large for teaching

- Pull down File menu, Export Test Data, use Charpy Output form

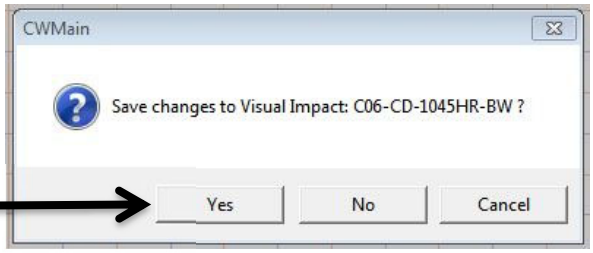


- OK



- OK

- Pull down File, Close



- Yes to Save changes

- ***Initiate next test---with new filename, START (top of page 3)***