

Truss Tester

User Guide



PITSCO
EDUCATION

60007 V0312

Materials Included

- Truss Tester
- 4 angle blocks: 15°, 20°, 25°, and 30°
- Bolt

Items Required (not included)

- Trusses for testing*
- Structure Testing Instrument
- Safety glasses

* Trusses can be made of balsa wood or basswood and can be double-width trusses. They should be no taller than 5-1/2 inches tall.

Safety

When using the Truss Tester, be sure to wear safety glasses. Read the Safety Note on page 9.

Setting up the Truss Tester

Note: If using the software that comes with the Structure Testing Instrument, please refer to the software instructions in its user guide.

1. Place the Structure Testing Instrument (STI) on a level, stable surface and plug it into an electrical outlet (Figure 1).
2. Place the bolt down through the bottom of the Truss Tester (Figure 2). Place it on the center of the STI and tighten the bolt (Figure 3). Make sure the sides of the Truss Tester, which each have a line of holes, face the front and back of the STI.



Figure 1



Figure 2



Figure 3

3. Select the angle block that fits the angle of your truss (Figure 4). If your truss is flat on top, use the flat side of any of the four blocks (Figure 5).

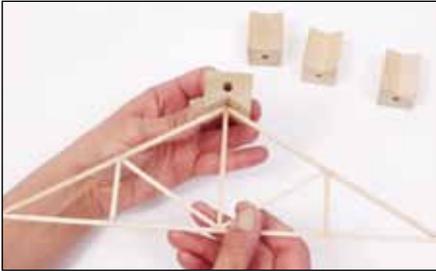


Figure 4

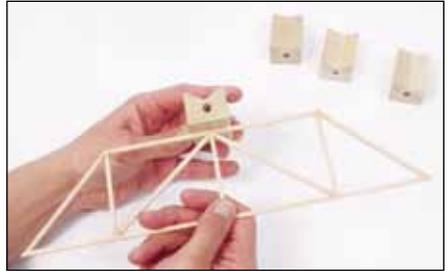


Figure 5

4. Place the STI's span columns into the span column support, one on either side of the center. Move them to where they will support the truss being tested about an inch on both sides (Figure 6).

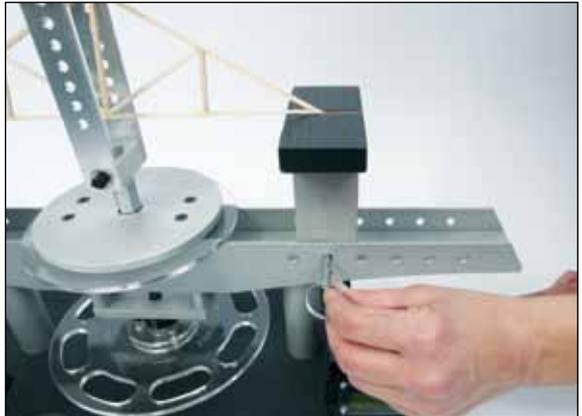


Figure 6

5. Loosen the bar at the top of the Truss Tester by turning each thumbscrew counterclockwise and removing it and the washer (Figure 7).



Figure 7

6. Only one side of the tester will fall down to the side (Figure 8). If the side you unscrewed doesn't come down, replace the thumbscrew and washer and unscrew the other side.
7. Take the bar removed in Step 5 and insert it into the tester hole that you think will make the block the appropriate height for the truss (Figure 9). Slide the chosen angle block onto the bar (Figure 10).



Figure 8



Figure 9

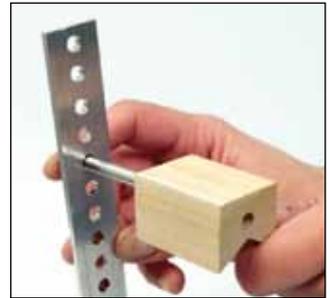


Figure 10

8. Place the tester under the block and onto the STI (Figure 11). Make sure the hole selected fits the truss – move the block up or down as needed.

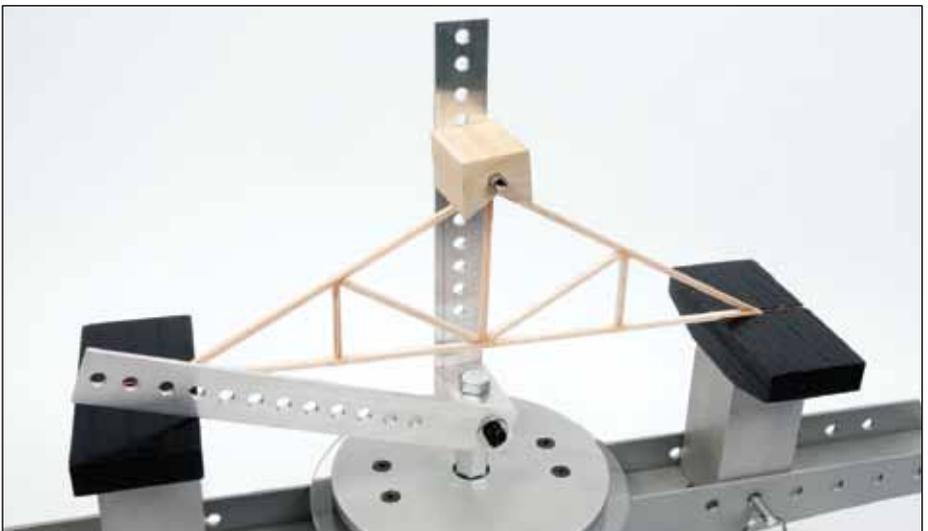


Figure 11

9. Lift the other side of the tester in place against the block and secure it with the second thumbscrew (Figure 12).

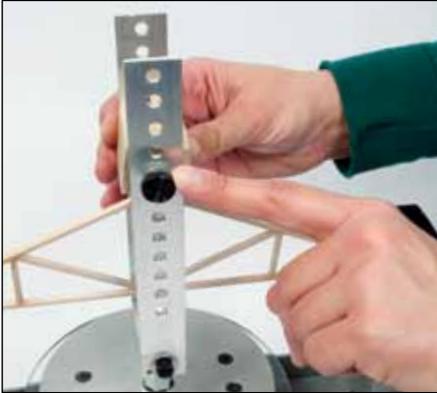


Figure 12



Figure 13

10. Above the STI's digital display, push the Zero button (Figure 14). The display will show both the force and peak loads, which is indicated here as "Force Lbf" and "Peak Lbf." ("Lbf" means "force pound.")



Figure 14

11. Select which unit of measurement you wish to use: pound, kilogram, or newton. To do this, push the Select button, and you will see these three options alternate on the screen. When you see the measurement you want, press Select (Figure 15). The tester will return to the force and peak load display.



Figure 15

12. To apply force to the structure, slowly turn the force wheel counterclockwise (Figure 16). Continue to apply pressure depending on which kind of test you do. Choose from the following:
- Nondestructive test: Using the force wheel, slowly and continuously apply force to the structure until the measured force reading begins to drop and no longer tracks the peak force. You might hear a slight crack or pop come from the structure when this occurs. At this point, the structure cannot bear any more load without continuing to damage the structure. Stop applying force.
 - Destructive test: Apply force until the structure is broken.

Caution: Do not exceed 800 pounds of pressure when testing or the tester may be damaged.



Figure 16

13. If you aren't using the included software, record the force readings from the test.

14. Turn the thumbscrews counterclockwise to loosen them (Figure 17).
15. Remove the tested truss. (Figure 18).



Figure 17

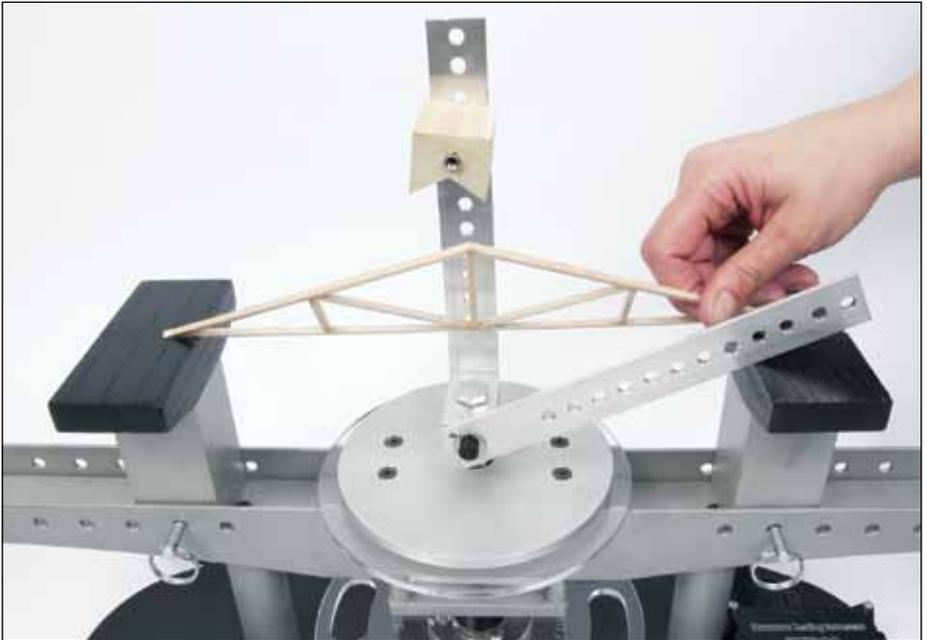


Figure 18

16. Press the Zero button (Figure 19). Test the remaining trusses following the instructions that start with Step 3.



Figure 19

Safety Note

Teachers should provide adequate supervision when leading this activity in the classroom. As needed, teachers should implement general safety requirements, including but not limited to the following: eye protection, proper ventilation, and instruction on the use of hand tools. Furthermore, teachers should implement the safety requirements required by their district and/or state in combination with the safety requirements mentioned in this user guide. Pitsco, Inc. is not responsible for bodily injury or property damage resulting from the misuse of its products or the teacher's failure to implement proper safety within the classroom.



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