

M&B Machine, Inc.
Basic Learning Center BLC-100 Installation Instructions

Tools needed:

2 – 9/16” wrenches
5/32” Allen wrench
2 – 7/16” wrenches
Framing square

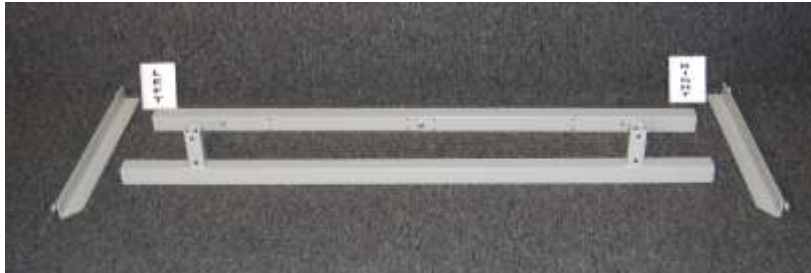
Hardware Kit:

Hardware BLC (Parts)	Qty.	Required for:
¼-20 kep nuts	4	Board mount rails
¼-20 x 2 ¾” hex bolts	4	Board mount rails
3/8-16 kep nuts	18	Base Rear Center, L&R Upright, Upright Brace, Boom Stem Tube, Projector pivot block, boom stem
3/8-16 x ½” hex bolts	2	Boom stem jamb bolts
3/8-16 x 1 ¼” hex bolts	8	Base Ends
3/8-16 x 2 ½” hex bolts	10	Base Rear Center, Boom stem, Projector pivot block, L&R Upright
3/8-16 x 2 ¾” hex bolts	4	Upright Brace
3/8-16 x 3” carriage bolts	8	Boom stem tube, Cross tubes
Base End (left)	1	
Base End (right)	1	
Base front bar	1	
Base rear bar	2	
Board mount rails	2	
Boom (differs by brand of projector)	1	
Boom stem	1	
Boom stem tube	1	
Cross tube	2	
Projector pivot block	1	
Projector clamp bracket	1	
Projector mounting plate	1	
Boom slide ears	2	
Upright brace	2	
Vertical tube (left)	1	
Vertical tube (right)	1	
Boom end cap	1	

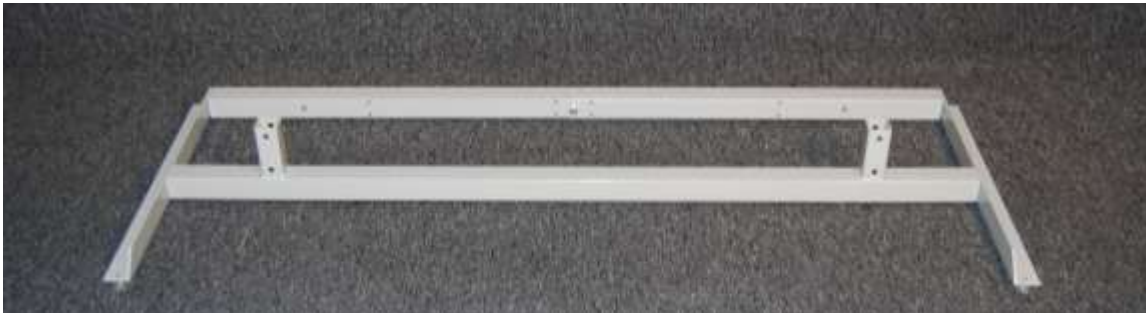
Installation/assembly steps:

Assemble the base:

1. Locate the following parts:
 - a. two base rear bars (note – these are solid steel, very heavy).
 - b. base front bar
 - c. left and right ends
 - d. one 3/8-16 x 2 1/2" hex bolt
 - e. one 3/8-16 kep nut
 - f. eight 3/8-16 x 1 1/4" hex bolts
2. Assemble the rear bar by mating the two offset ends together, use 3/8-16 x 2 1/2" hex bolt with 3/8-16 kep nut to fasten.
3. Lay out the pieces as shown on a padded area.



4. Insert the 3/8-16 x 1 1/4" hex bolts through the left and right ends into the base front and rear bars. Tighten bolts securely.



Assemble the uprights

5. Locate the following parts:
 - a. Left and right vertical tube
 - b. Upright braces
 - c. Four 3/8-16 x 2 1/2" hex bolts
 - d. Four 3/8-16 x 2 3/4" hex bolts
 - e. Eight 3/8-16 kep nuts
6. Insert the left and right vertical tubes over the tube stubs on the base unit. Make sure that the crossbar tabs are facing each other as shown.
7. From the front, insert the 3/8-16 x 2 1/2" hex bolts through the holes in the bottom of the upright tubes and secure with kep nuts. **DO NOT TIGHTEN AT THIS TIME.**
8. Install braces on the back side of the upright tubes. Insert 3/8-16 x 2 3/4" bolts through both upright and base rear bar from front to back. Secure with kep nights. **DO NOT TIGHTEN AT THIS TIME.**



Installing the crossbars

9. Locate the following parts:
 - a. Top and bottom crossbar
 - b. Four 3/8-16 x 3" carriage bolts.
 - c. Four 3/8-16 kep nuts.

10. Install crossbars in tabs located on left and right uprights. **NOTE:** Half moon notch at both ends of cross bar goes towards rear of unit. This is for wire management at later time.



11. Insert carriage bolts from top to bottom and secure with kep nuts. **DO NOT TIGHTEN AT THIS TIME.**

Assemble the boom stem tube

12. Locate the following parts:
 - a. Boom stem tube
 - b. Four 3/8-16 x 3" carriage bolts
 - c. Four 3/8-16 kep nuts
 - d. Two 3/8-16 x 1/2" hex bolts.

13. Insert 3/8-16 x 1/2" hex bolts into two weld nuts located on the boom stem tube. Only insert 2-3 turns for now.



14. Locate the series of holes in the center of the crossbars. Insert four 3/8-16 x 3" carriage bolts through tabs in boom stem tube into holes in cross bars and fasten with kep nuts. **Please Note:** Boom stem tube placement on the crossbars should be adjusted to the right, left or middle depending on the projector you are using. Lens offset in the projector will determine the proper mounting placement.

Square and tighten

15. **SQUARE THE UPRIGHTS, CROSSBAR AND BASE TO EACH OTHER AND TIGHTEN ALL HARDWARE AT THIS TIME.**

Assemble the projector boom stem

16. Locate the following parts:

- a. Boom
- b. Boom stem
- c. Four 3/8-16 x 2 1/2" hex bolts.



17. Insert bolts through the boom and thread into the top plate of the boom stem. Insert the boom stem into the boom stem tube which is attached to the unit. Adjust the height of the boom stem for projector image and tighten 3/8-16 x 1/2" bolts on the back of boom tube to secure.



Assemble the Projector Mount

18. Locate the following parts:

- a. Two Boom slide ears
- b. Project clamp bracket (u shaped)
- c. Projector pivot block
- d. Projector mounting plate (the projector mounting plate may look different depending on manufacturer of projector)
- e. Projector end cap
- f. Five 3/8-16 x 4" hex bolts
- g. One 3/8-16 x 2 1/2" hex bolt
- h. Six 3/8-16 kep nuts
- i. Four 1/4-20 x 1/2 flat head socket head cap screws.



Note: you may want to align projector plate with projector to determine proper projector alignment due to lens offset prior to completely assembling this unit.

19. Mount projector clamp bracket to the projector mounting plate using four 1/4-20 x 1/2" flat head socket head cap screws with a 5/32 Allen wrench. Insert projector pivot block into the projector clamp bracket and secure with 3/8-16 x 2 1/2" hex bolt with kep nut. **DO NOT TIGHTEN AT THIS TIME**, tighten when projector is installed and adjusted properly. Insert 4" bolt through pointed end of boom slide ear, through pivot block and into other boom slide ear. Install kep nut. Insert other four 4" bolts through boom slide ears and secure with kep nuts.



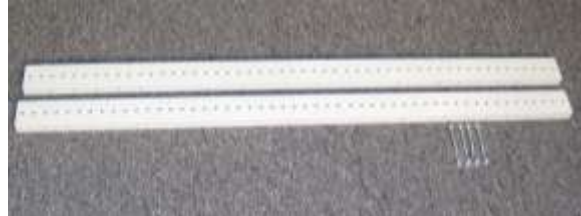
20. Slide projector assembly over end of projector boom, noting direction and offset of projector lens for correct alignment.



21. Install boom end cap at end of projector boom.

Assemble mounting rails

22. Locate the following:
- Board mounting rails
 - Four $\frac{1}{4}$ -20 x $2\frac{3}{4}$ " hex bolts
 - Four $\frac{1}{4}$ -20 kep nuts.



23. Install board mounting rails onto tabs on frame assembly. Note a dimple in the end of the rail indicates the bottom of the rail and ensure both rails are installed with that dimple down for correct board alignment. Secure rails using the multiple holes available to allow for your desired board height.

24. Ensure all hardware is tightened.

