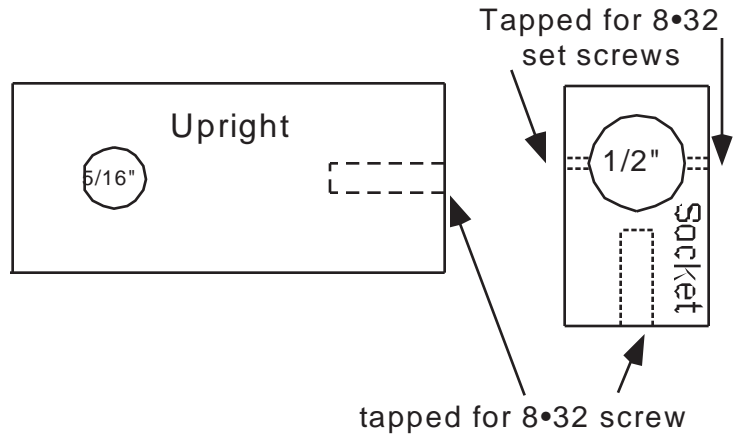
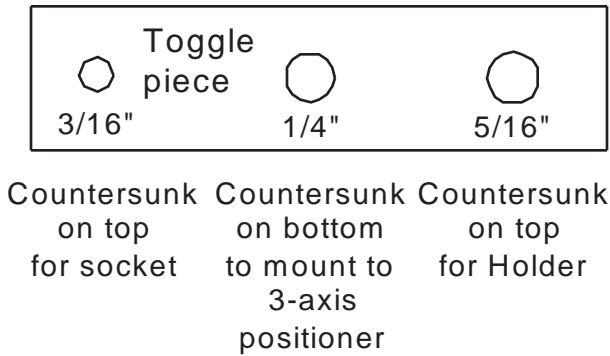
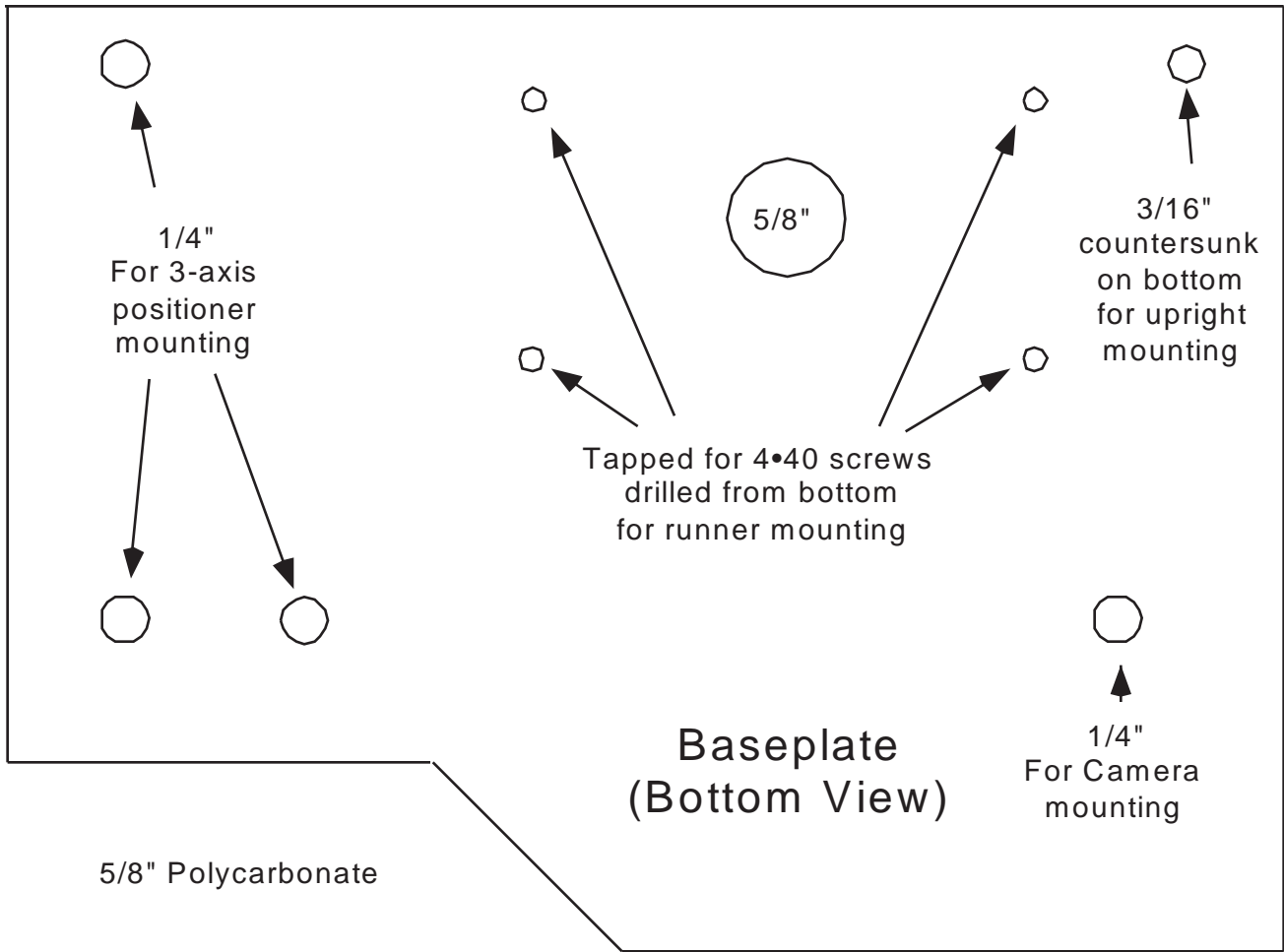


Materials and components needed :

1. Polycarbonate sheet of both 3/8" (about 9mm) and 5/8" (about 16 mm) thickness.
2. Machine screws, nuts, and washers. The source is designed to use 4 4•40 screws, 2 8•32 screws, 2 8•32 set screws, 3 10•24 screws with nuts and washers, one M6 screw, one 1/4"•24 screw, and one 1/2"•16 bolt with a washer. The design also uses a standard 1/4"•28 fitting (Upchurch P•202x) and an extra-long 10•32 plug (Upchurch P•550). Similarly sized screws can be substituted as necessary.
3. A 3-axis positioner. The mounting holes in this design are set for a Newport Instruments (Irvine, California, USA) model M-460A-XYZ positioner (right handed) and will need to be moved if a different model is used.
4. A Finnigan MAT Connecting, receptacle, HV, shielded, part # 00004-89626.
5. High voltage insulated wire and a high voltage capable alligator clip.
6. A television camera and macro zoom lens (we use a World Precision Instruments, Sarasota, Florida, USA model COLCAM NTSC with a part# 14469 Navitar 18-108 mm f2.5 Macro Zoom lens), and a high resolution monitor (such as a Sony PVM-14N5U).

Instructions for making and assembling the LCQ source :

1. Print out the templates and attach them to Polycarbonate sheet of the indicated thickness. The runners and holder are made of 3/8" thick (approximately 9mm) thick polycarbonate, and all other pieces are made of 5/8" thick (approximately 16 mm) thick polycarbonate.
2. Cut out the pieces on the indicated lines. Drill the holes of the indicated sizes in the indicated positions. Edge drilled holes (indicated as by dashed lines in the drawings) should be centered in the thickness of the sheet. Thread the indicated holes for the appropriate screw types.
3. Remove the templates and other backing materials from the Polycarbonate.
4. Mount the Runners on the bottom of the Baseplate on either side of the large hole using the 4•40 screws. The ends of the Runners should be flush with the edge of the Baseplate
5. Mount the Upright on the top face of the Baseplate using one 8•32 screw so that one corner of the upright is flush with the corner of the Baseplate.
6. Attach the 3-Axis positioner to the top of the Baseplate through the three indicated holes using the 10•24 screws, nuts, and washers. The fourth hole is not drilled, as the screw there would interfere with attaching the finished source to the slide on the LCQ.
7. Attach the Holder to the Toggle piece. The Holder is designed to be secured by a 1/4"•28 screw of the type used in flangeless fittings. Fittings are held in the holder using an extra-long 10•32 plug.
8. Put the Finnigan HV connector in the hole in the Socket and secure it using the 8•32 set screws. Solder a connecting wire with an alligator clip onto the exposed fitting of the HV connector.
9. Attach the Socket to the Toggle piece so that the wire faces toward the Holder.
10. Attach the Toggle Piece to the 3-axis positioner using a M6 screw.
11. Mount the entire assembly onto the LCQ where the supplied source would normally go. The runners should fit exactly into the slots on the sliding portion of the LCQ, but the fit is very tight so it may be necessary to reposition them slightly or shave off a bit of material. The assembly should be secured with a 1/2"•16 bolt and washer running down through the hole in the center. The slide is secured to the LCQ using a 1/4"•24 screw through the hole in the upright.
12. The camera may be mounted to the source using the hole provided or directly to the LCQ.



3/8" Polycarbonate

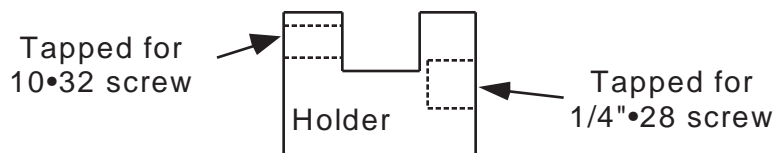
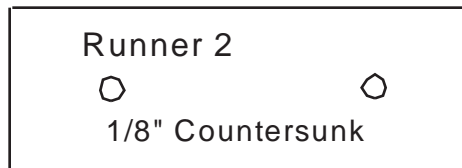
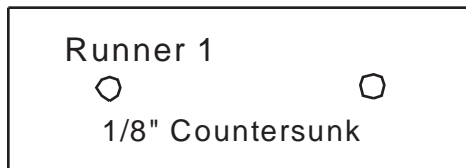


Diagram of Assembled Source

