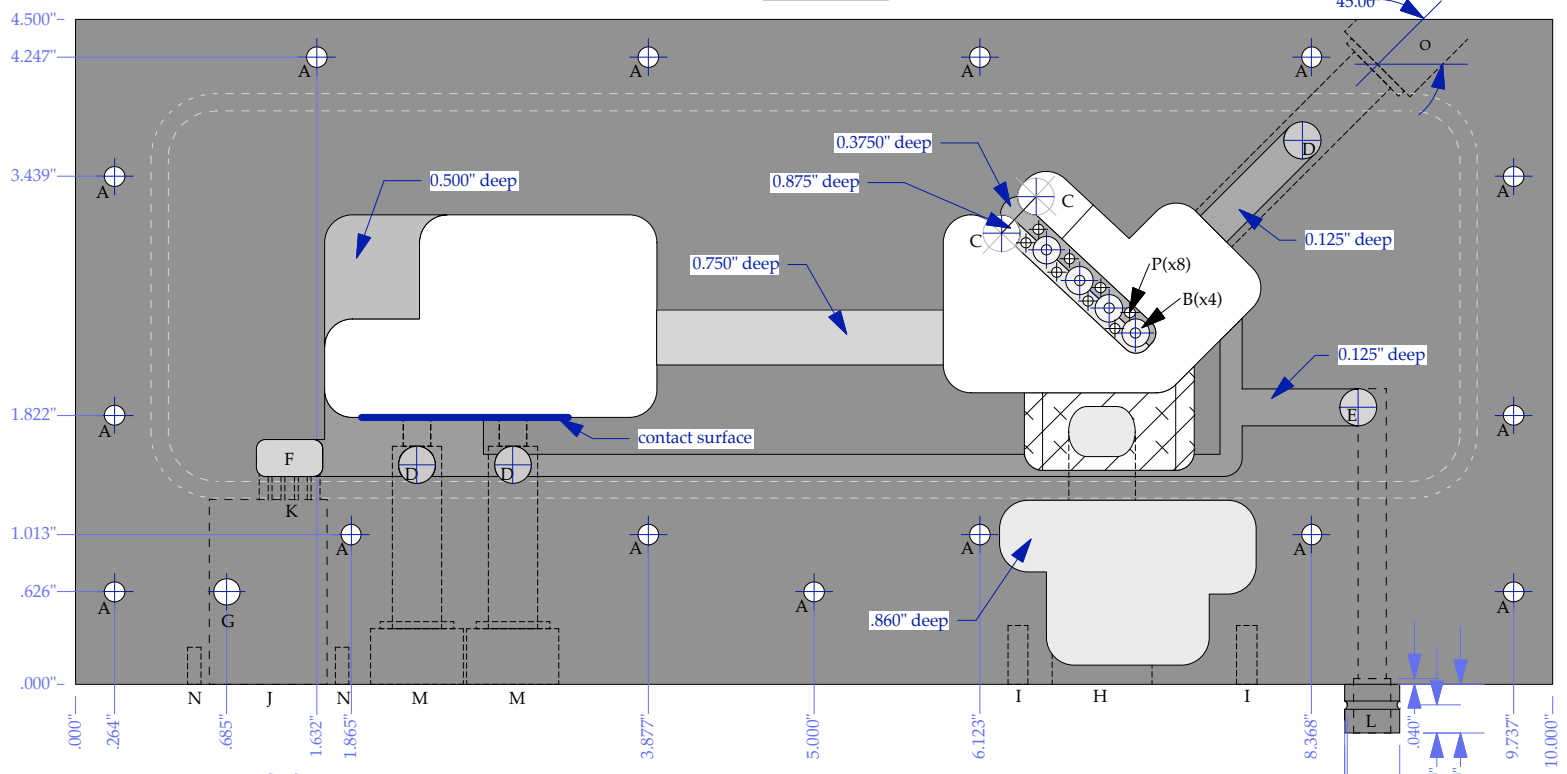
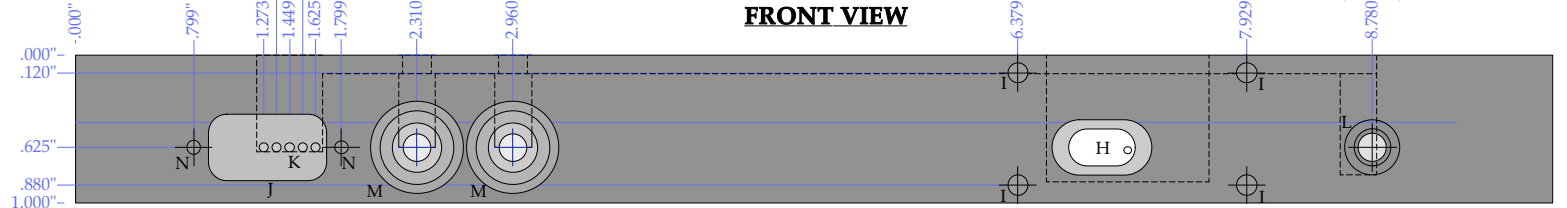


TOP VIEW



FRONT VIEW



NOTES:

- A. 8-32 tapped, threads on both sides. Drill hole through part, and tap through, or tap at least 0.375" usable thread on each side. (x11)
- B. 2-56 clearance through with counterbore to 0.970" deep (leaving 0.030" of material to bottom of part). (x4)
- C. Plunge holes $\varnothing 0.250"$ at these locations first, before cutting out inner cavity. See additional note 3.
- D. Hole $\varnothing 0.250"$, 0.625" deep. Details of bottom not important. (x3)
- E. Hole $\varnothing 0.250"$, 0.809" deep. Details of bottom not important.
- F. Rectangular cavity 0.450" x 0.250" x 0.655" deep (through holes J), corner fillets $\varnothing 0.125"$.
- G. Hole $\varnothing 0.177"$ through part.
- H. 0.450" x 0.250" rectangular slot (with $\varnothing 0.250"$ fillets) through to main cavity (2" deep). In addition, 0.675" x 0.375" rectangular slot (with $\varnothing 0.375"$ fillets) through to prism pocket (0.25" deep).
- I. 8-32 tapped, 0.400" deep. Details of bottom not important.
- J. Rectangular cavity 0.800" x 0.450" x 1.250" deep, corner fillets $\varnothing 0.250"$.
- K. Holes $\varnothing 0.063"$ through to cavity F (1.43" deep). Predrill 1.25" deep so bit won't wander. These holes should be made before cavity J is cut. (x5)
- L. Drill hole $\varnothing 0.190"$, 2.0" deep; details of bottom not important. Then ream $\varnothing 0.250"$, 0.040" deep, flat bottom. External feature is a 0.33" tall, $\varnothing 0.372"$ cylinder which has a channel cut using a $1/32"$ radius milling cutter. This channel is centered 0.190" from end of feature and has a depth of 0.017".
- M. Drill hole for 8-32 loose ($\varnothing 0.185"$) clearance through to inner cavity. Then counterbore to $\varnothing 0.332"$, 1.610" deep, flat bottom. Then counterbore $\varnothing 0.500"$, 0.425" deep relief with flat bottom, and $\varnothing 0.625"$, 0.375" deep counterbore. Tap hole 3/8-24 so usable threads extend to at least 1" below outermost surface of part. (x2)
- N. 4-40 tapped, at least 0.25" usable thread. (x2)
- O. Hole angled 45° with respect to back surface, centered on hole D, and 0.688" below top of piece. All depths measured from top right corner. First drill through to main cavity $\varnothing 0.345 \pm 0.001"$. Then counterbore $\varnothing 0.500"$, 1.103" deep relief with flat bottom and $\varnothing 0.625"$, 1.053" deep counterbore. Tap as in M.
- P. $\varnothing 0.070"$ hole through part. (Cut after arm has been machined to 0.5" thick to avoid wandering of drill bit.) (x8)

ADDITIONAL NOTES:

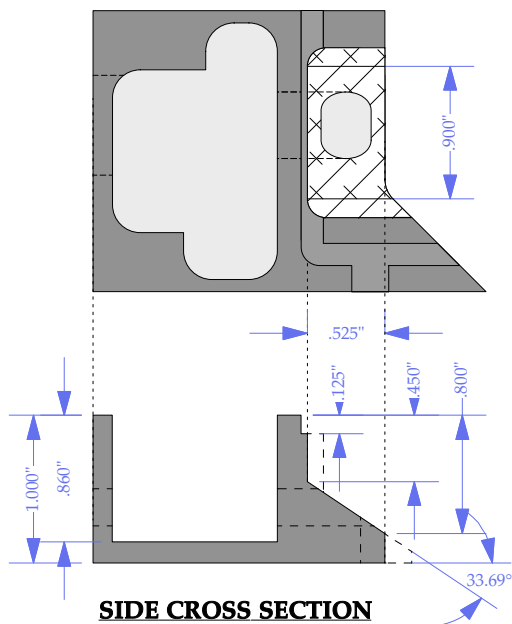
1. Material is 6061-T6 aluminum. Starting block is 4.5" x 10" x 1".
2. Standard tolerance is 0.005" unless otherwise noted.
3. Cut holes A and B first. Secure part to supporting base using holes A (to support part) and holes B (to support arm), then cut main cavity through part, plunging first at locations C.
4. Surfaces marked "contact surface" must be made very flat (finishing pass with end mill, as little chatter as possible).
5. See attached drawing for selected details (ramp and arm).
6. This extended cavity is very similar to the original, short design.

EXTENDED UNIBODY LITTROW LASER – MAIN CAVITY

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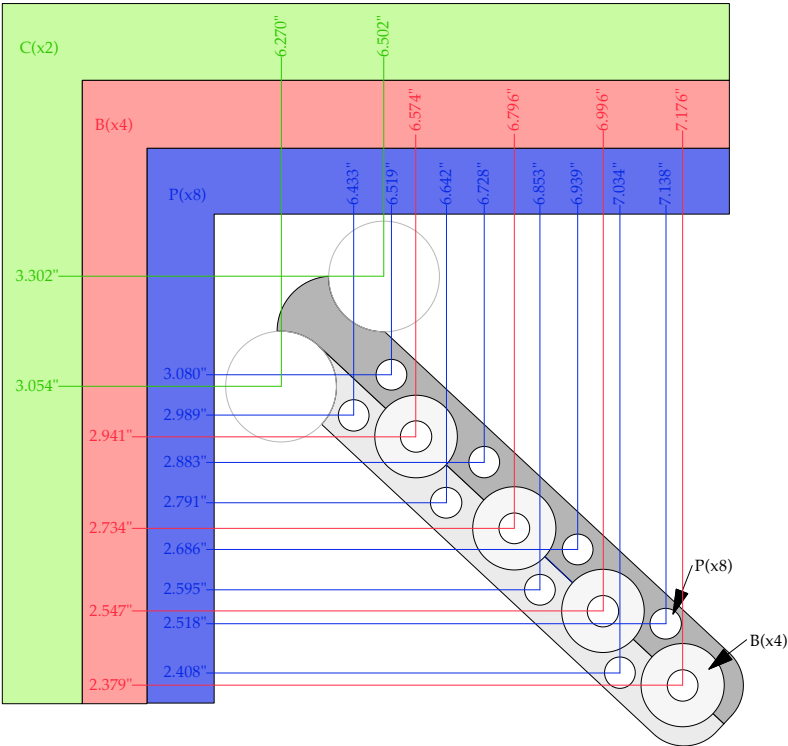
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RAMP DETAIL



33.69 degree angle cut made using Ø 0.25" end mill from above. Use many repeated CNC passes to make ramp as smooth as possible.

ARM DETAIL



(Dimensions measured from lower left hand corner of cavity body)

EXTENDED UNIBODY LITTROW LASER -- DETAIL

E. COOK, P. MARTIN, D. STECK

3/24/11