C3M-01 Body Hinge

Parts:

Part	Quantity	Manufacturing Method
Long Arm	2	Waterjet, mill
Short Arm	2	Waterjet, mill
Gas Arm Linkage	4	Waterjet, mill
Mounting Bracket Spacer	10	Waterjet, mill

Procedures:

Arms

1. Using part drawings, write G-code for waterjet to cut arms out of a single piece of 3/16” thick Aluminum bar.
    a. [insert details about programming here]
    b. Note that mounting holes are not to final size
2. In SDC, use mill to drill mounting holes to final size (M8)
    a. First, ensure all sharp edges have been filed before handling parts
    b. Mount all arms in a vertical stack in the mill clamp, all with end aligned with the end of the clamp
    c. Using cylindrical edgefinder, zero x off the end of the clamp and y off the exposed long edge of the bars on the other side of the clamp. Remember to use appropriate speed for edgefinder (500RPMs)
    d. Verify zeros and switch to 8.4mm bit (or Q in American drill bits). Enlarge holes to final size, using appropriate speed for material and drill size. Also remember to use cutting oil!
    e. Note: if carefully done, the mounting bracket spacer can be cut the same way using the same origin, without the need to re-zero.

Mounting Bracket Spacers

1. Using part drawing, write G-code to cut spacers out of 1/8” Aluminum sheet.
    a. Holes are final size
    b. Note that these are cut from the same stock as the gas arm linkage
2. Test fit M6 bolts through the holes of each spacer
    a. Mark pieces with holes that require reaming
3. In SDC, use mill to drill holes to final size (M6)
    a. Follow procedure above for zeroing
    b. Use 6.3mm bit (or E in American drill bits) to enlarge holes to final size

Gas Arm Spacer

1. Using part drawing, write G-code to cut gas arm spacer out of ⅛” Aluminum sheet
    a. Holes are not to final size
    b. Some spacers with have countersunk holes; obviously, this is not done using the waterjet
2. In SDC, use drill press to finish holes
    a. Note: while this is not ideal in terms of accuracy, this part would be difficult to clamp and zero in a drill press due to its shape
    b. Carefully locate each hole, using sufficient clamping in each case (at least two clamps located on opposite sides of the hole
    c. Drill holes to final size using 6.3mm drill bit (or E in American sizes)
        i. Refer to part drawings to carefully countersink necessary holes
    d. Test fit gas arm linkages to arms using M6 bolts
        i. If the holes don’t line up on any pieces, use a marker to mark where interference occurs, then repeat step C as necessary