Typical Bender operation – Normal mode  
Creating multiple pieces of a shape with N lines,

1. Shear and start
   1. Reset head angle
   2. Retract head/forming tool until interrupt
   3. Shear Extend until sensor interrupt / shear Retract until sensor interrupt
   4. Extend head/forming tool until interrupt
   5. Feed ‘X’ length, standardized to move past center pin
2. Lines x N
   1. Feed
      1. While materialFed < length\*, feed
      2. Every feed counter interrupt goes to previous step, increment on every interrupt
      3. When materialFed >= length, move to bend
   2. Bend
      1. While materialBent < bend\*\*, bend
      2. Every bend counter interrupt goes to previous step, increment on every interrupt
      3. When materialBent >= bend, unbend to reset
         1. Count on interrupt to tell us the starting position, or do we need a counter?
   3. Repeat step 2 N times, once for each line
3. Finish
   1. Retract
      1. Retract head/forming tool
      2. Retract rebar ‘X’ length, standardized to bring correct length from shear
   2. Cut
      1. Shear Extend until sensor interrupt / Shear Retract until sensor interrupt
      2. Extend head/forming tool until interrupt
      3. Reset head angle
      4. Feed ‘X’ length, standardized to move past center pin
      5. Increment runCount, return to Step 2 if runCount <= totalPieces

\*Length formula: (length + lengthCompensation) \* feedScale \* barSizeModifier  
\*\*Bend formula: (bend + bendCompensation) \* centerPinModifier (?) barBendModifier  
  
length = length programmed per line  
lengthCompensation = compensation programmed per line  
feedScale = systemwide modifier, programmed from settings  
barSizeModifier = system adjustment for different sizes of rebar (4/8” vs 5/8”, etc)  
bend = bend programmed per line

bendCompensation = bend compensation programmed per line

centerPinModifier = bend compensation for different center pin sizes

barBendModifier = bend compensation for different sizes of rebar