```lua
-- Langmuir Systems
-- www.langmuirsystems.com

firstPierceTime = 0 --this is an extra delay added to the first pierce as needed by some machines
version = 1.6

local function isEmpty(s)
   return s == nil or s == ''
end

function OnAbout(event)
   ctrl = event:GetTextCtrl()
   ctrl:AppendText("Post for CrossFire PRO and CrossFire using FireControl Software\n")
   ctrl:AppendText("\n")
   ctrl:AppendText("For CrossFire PRO and CrossFire w/powered z-axis add-on, be sure to set Pierce Height, Plunge Rate,
and Cut Height values in order to activate IHS sequence. There is a 1 inch rapid retract move after each cut loop by
default.\n")
   ctrl:AppendText("\nFor CrossFire without powered Z-axis, Pierce Height and Cut Height must be both set to 0 to disable
IHS.\n")
end

function OnInit()
   programSpeed = 0 -- variable overridden with fastest cut speed
   post.SetOptions(post.ARC_SEGMENTS)
   post.SetCommentChars ("()", "[]")  --make sure ( and ) characters do not appear in system text
   post.Text ("(v".. version .."-sc)\n")
   post.Text ("G90 G94\n")
   post.Text ("G17\n")
   if(scale == metric) then
      post.Text ("G21 (Units: Metric)\n") --metric mode
   else
      post.Text ("G20 (Units: Inches)\n") --inch mode
   end
   post.TextDirect ("H0\n") -- thc OFF, Machine in control of Z

   bigArcs = 1 --stitch arc segments together
   minArcSize = 0.05 --arcs smaller than this are converted to moves
   firstPierce = firstPierceTime

   -- post.Text ("G0 Z", (safeZ * scale), "\n") --*************************Added Raize Tool Move Z RapidClearance
   -- post.Text ("G4 P0.5\n") -- *************************************Added Pause


   post.Text ("G38.2 Z-5.0 F50.0\n") -- *********************************ADDED Auto Zero Down
   post.Text ("G38.4 Z0.5 F20.0\n") -- *********************************ADDED Auto Zero Up           Auto Zero At
Start I may switch this back to manual Zero with above Code Only
   post.Text ("G92 Z0.0\n") -- *****************************************ADDED Auto Zero Value Set
   post.Text ("G0 Z", (safeZ * scale), "\n") -- *************************Added Raize Tool Move Z RapidClearance
   post.Text ("G4 P0.5\n") -- *********************************************Added Pause



end

function OnFinish()

   post.Text ("M5 M30\n")
   post.Text ("(PS" .. programSpeed .. ")\n")
end

function OnRapid()
   if (math.hypot(endX - currentX, endY - currentY) < 0.001) then return end
   if(endX > 1e30) then return end
   post.Text ("G0")
   post.ModalNumber (" X", endX * scale, "0.0###")
   post.ModalNumber (" Y", endY * scale, "0.0###")

   if toolType <= 2 then -- *********************************************ADDED ADDS Z MOVEMENT TO GCODE
      post.ModalNumber (" Z", endZ * scale, "0.0###") -- **************ADDED ADDS Z MOVEMENT TO GCODE
   end
   post.Eol()
end

function OnMove()

   if(currentX ~= endX or currentY ~= endY) then
      post.Text ("G1")
      post.ModalNumber (" X", endX * scale, "0.0###")
      post.ModalNumber (" Y", endY * scale, "0.0###")

      if toolType <= 2 then -- *****************************************ADDED ADDS Z MOVEMENT TO GCODE
         post.ModalNumber (" Z", endZ * scale, "0.0###") -- **********ADDED ADDS Z MOVEMENT TO GCODE
      end

      post.ModalNumber (" F", feedRate * scale, "0.0###")
      post.Eol()
      if(feedRate * scale > programSpeed and leadinType == 0) then
         programSpeed = feedRate * scale
      end
   end
end
```

```lua
function OnArc()
    if(arcAngle <0) then
        post.Text ("G3")
    else
        post.Text ("G2")
    end
    post.NonModalNumber (" X", endX * scale, "0.0###")
    post.NonModalNumber (" Y", endY * scale, "0.0###")


    if toolType <= 2 then -- *****************************************ADDED ADDS Z MOVEMENT TO GCODE
        post.ModalNumber (" Z", endZ * scale, "0.0###") -- **************ADDED ADDS Z MOVEMENT TO GCODE
    end

    post.Text (" I")
    post.Number ((arcCentreX - currentX) * scale, "0.0###")
    post.Text (" J")
    post.Number ((arcCentreY - currentY) * scale, "0.0###")
    post.ModalNumber (" F", feedRate * scale, "0.0###")
    post.Eol()

    if(feedRate * scale > programSpeed and leadinType == 0) then
        programSpeed = feedRate * scale
    end
end


function OnPenDown()
    post.TextDirect ("\n")
    ihs = pierceHeight ~= 0 and cutHeight ~= 0 --enable IHS if both pierce and cut are non-zero
    if (ihs) then
        post.TextDirect ("G92 Z0.\n") -- reset Z to 0
        post.TextDirect ("G38.2 Z".. post.FormatNumber(-5 * 25.4 * scale, "0.0##") .." F".. post.FormatNumber(100 * 25.4 *
scale, "0.0##") .."\n") -- IIHS Fast Down
        post.TextDirect ("G38.4 Z".. post.FormatNumber(0.5 * 25.4 * scale, "0.0##") .." F".. post.FormatNumber(20 * 25.4 *
scale, "0.0##") .."\n") -- IIHS Slow Up
        post.TextDirect ("G92 Z"..post.FormatNumber(0, "0.0##") .."\n") -- reset Z to IHS 0
        post.TextDirect ("G0 Z"..post.FormatNumber(0.02 * 25.4 * scale, "0.0##") .." (IHS Backlash)\n") -- reset Z to IHS 0
        post.TextDirect ("G92 Z"..post.FormatNumber(0, "0.0##") .."\n") -- reset Z to IHS 0

        post.TextDirect ("G0 Z"..post.FormatNumber(pierceHeight * scale, "0.0##") .." (Pierce Height)\n") -- Z to Pierce
    end
    -- if toolType <= 2 then -- *********************************************ADDED ADDS Z MOVEMENT TO GCODE   Work In progress
Didnt like how long it took to Route auto Zeroed z Axis Each time it dropped.

    --      post.Text ("G38.2 Z-5.0 F50.0\n") -- ******************************ADDED Auto Zero Down
    --      post.Text ("G38.4 Z0.5 F20.0\n") -- ******************************ADDED Auto Zero Up
    --      post.Text ("G92 Z0.0\n") -- **************************************ADDED Auto Zero Value Set
    --      post.Text ("G0 Z", (safeZ * scale), "\n") -- *******************Added Raize Tool Move Z RapidClearance
    --      post.Text ("G4 P0.5\n") -- **************************************Added Pause
    --
    --   end


    post.Text ("M3\n") -- fire torch

    if toolType <= 2 then -- ***********************************************ADDED ADDS Z MOVEMENT TO GCODE

        post.Text ("G1 Z", endZ * scale, " F", plungeRate * scale, "\n") -- *ADDED ADDS Z MOVEMENT TO GCODE Enter Material
        post.Text ("G4 P0.5\n") -- *****************************************Added Pause
    end

    if (pierceDelay + firstPierce > 0.001) then -- pierce delay
        post.Text ("G4 P")
        post.Number (pierceDelay + firstPierce,"0.###")
        firstPierce = 0
        post.Eol()
    end

    if (ihs) then
        post.TextDirect ("G1 Z"..post.FormatNumber(cutHeight * scale, "0.0##") .." F".. post.FormatNumber(plungeRate *
scale, "0.0##") .." (Cut Height)\n") -- Z to Cut
    end
    if toolType <= 2 then -- ***********************************************ADDED ADDS Z MOVEMENT TO GCODE This turns Off
Torch Height Control In The Machine
        post.TextDirect ("H0\n") -- thc OFF, Machine in control of Z *******ADDED ADDS Z MOVEMENT TO GCODE Unless Plasma
tool is being used you dont want any H1 In GCode
    else -- ***********************************************************ADDED ADDS Z MOVEMENT TO GCODE
        post.TextDirect ("H1\n") -- thc ON, THC in control of Z ***********ADDED ADDS Z MOVEMENT TO GCODE
    end -- ***********************************************************ADDED ADDS Z MOVEMENT TO GCODE


end


function OnPenUp()
    ihs = pierceHeight ~= 0 and cutHeight ~= 0 --enable IHS if both pierce and cut are non-zero
    post.Text ("H0\n") -- thc OFF, Machine in control of Z
    post.Text ("M5\n")

    if toolType <= 2 then -- **********************************************************ADDED
```

```lua
        post.Text ("G4 P0.5\n") -- ***********************************************Added Pause
        post.Text ("G0 Z", (safeZ * scale), "\n") -- *****************************Added Raize Tool Move Z RapidClearance
        post.Text ("G4 P0.5\n") -- ***********************************************Added Pause
    end
    if (endDelay > 0) then
        post.Text ("G4 P")
        post.Number (endDelay,"0.###")
        post.Eol()
    end
    if (ihs) then
        post.TextDirect ("G0 Z" .. post.FormatNumber(25.4 * scale, "0.0##") .. "\n") -- Z to rapid height

    end
    post.CancelModalNumbers()
end


function OnDrill()
    OnRapid()
    OnPenDown()
    endZ = drillZ
    OnMove()
    OnPenUp()
    endZ = safeZ
    OnRapid()

end
```