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;///Author:- Philip Schmidt
;///date:- 19/03/2007
;///Filename:- Hydro5.spt

;///description:- Program to add in control for the fan in the power supply
;///                this is because I don't want the fan running all the time
;///                only when the pump is running which is when the power
;///                supply will get warm.

;///System inputs
sump   equ    0      ;straight = 1 sw closed bent = 0 sw open
header equ    1      ;straight = 1 sw closed bent = 0 se open
mode   equ    2      ;mode select switch (TRUE = manual mode)
start  equ    3      ;manual mode start
stop   equ    4      ;manual mode stop

;///System outputs
pump   equ    0      ;on = 1 off = 0
fan    equ    1      ;on = 1 off = 0

;///System status bytes ETC
status equ    0      ;memory location of timer reload control bit

;///main routine determines state of mode switch

main   input      mode      ;read in the state of the mode switch
goifz  mnlp1      ;if not pulled low (FALSE) goto main loop1
gosub  mmode      ;if pulled low (TRUE) goto mmode subroutine
goto   main       ;go back to main

mnlp1  gosub      amode      ;if not pulled low (FALSE) goto amode subroutine
goto   main       ;go back to main

;///subroutine for automatic mode
amode  recall      status    ;get data from memory location 0
goifnz amlp1      ;goto auto loop 1 if zero
settimer 0,32767 ;load timer
amlp1  test       0         ;see if timer has reached zero
goifnz  amlp2     ;goto main loop 2 if not zero
stop    0         ;stop timer 0 (probably not needed)
gosub   pumprun  ;run the pump
loadx   0         ;load X with FALSE value (allow timer to be reloaded)
store   status   ;store in memory location 0
goto    amlp3
amlp2  loadx     1         ;load X with TRUE value (stop timer from being reloaded)
store   0        ;store at memory location 0
amlp3  return    main     ;loop back again

;///subroutine for manual mode
mmode  stop       0        ;stop timer 0
loadx  0          ;load X with FALSE value (allow timer to be reloaded)

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store      status      ;store on memory location 0
input      start       ;check status of start switch (PRESSED = TRUE)
goifnz     mmlp1       ;if switch not pressed (FALSE)
goto       mmlp2       ;leave subroutine and return to main
mmlp1      gosub       pumprun ;run the pump
mmlp2      return

; //subroutine to run pump until trigered by either float switch
pumprun
on          pump        ;start the pump running
on          fan         ;start power supply fan

rnlp4      input       sump      ;check the sump float switch
goifnz     rnlp1       ;jump around if OK (not bent ie logic 1)
off        pump        ;otherwise stop pump
off        fan         ;turn off power supply fan
return     ;leave subroutine

rnlp1      input       header    ;check the header tank float switch
goifz     rnlp2       ;jump around if OK (bent ie logic 0)
off       pump        ;otherwise stop pump
off       fan         ;turn off power supply fan
return    ;leave subroutine

rnlp2      input       stop      ;check the stop switch state
goifz     rnlp3       ;jump if not pressed (Closed ie logic 1)
off       pump        ;otherwise stop pump
off       fan         ;turn off power supply fan
return    ;leave subroutine

rnlp3      goto       rnlp4     ;loop back again

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