```
*************************************************************
*                                                           *
*            FinderLaunch - An AppleWorks Init              *
*                                                           *
*       - Prevents Crash to Monitor when AppleWorks         *
*         is Re-launched from the GS/OS Finder after        *
*           previously launching and quitting in            *
*                     a single session.                     *
*                                                           *
*       - Init must be present in the AppleWorks            *
*                  inits directory                          *
*              (e.g. /HD/AppleWorks/AW.Inits)               *
*       - Init Manager must be activated in                 *
*          AppleWorks 'Standard Settings' Menu              *
*                                                           *
*          Version 1.0 (for AppleWorks Version 5.1)         *
*                   (c) 2015 Hugh Hood                      *
*                                                           *
*************************************************************

               TR             ADR            ; truncate bank address

               XC                            ; enable 65C02 code

* Equates *

EMULSTACK      EQU            $100           ; in AuxMEM - $01/0100
Seg00Type      EQU            $FE0           ; memory manager type
                                             ;  $41 = SEG.AM / $52 = SEG.RM (IIGS) /
                                             ;  $58 = SEG.XM / $4D = Deja IIx (Mac)
InitAdr        EQU            $4000          ; load address for Init files
MainZP         EQU            $C008          ; Main Zero Page (AppleWorks)
AuxZP          EQU            $C009          ; Aux Zero Page (UltraMacros)



               ORG            InitAdr        ; ($4000)

********************************
*          Init Header         *
********************************
START
               JMP            IStart         ; skip over header

**--------------------------------------------------------------

               ASC            'mb'           ; Init ID Bytes (AW 5.1)
               DB             $0A            ; Init Version - programmer assigned
                                             ;  e.g. - $0A/1.0 $0B/1.1 $1A/2.6
               STR            'FinderLaunch' ; Init Screen Name (max 18 character)
               HEX            0000           ; Header End Bytes

**------------------------------


IStart         LDA            Seg00Type      ; Memory Manager Type
```

```
                CMP             #$52            ; Is it Apple IIGS? (SEG.RM)
                BNE             Done            ; disregard - IIGS only
                
                SEI                             ; disable interrupts
                LDA             #$7F            ; change value to start halfway
                STA             AuxZP           ; switch in AuxZP and LC
                                                ;  (UltraMacros runs in AuxMEM)
                STA             EMULSTACK       ; store MainZP Stack pointer here
                                                ;  when AuxZP and LC are in use
                
                
                STA             MainZP          ; switch in MainZP and LC
                                                ;  (AppleWorks runs in MainMEM)
                CLI                             ; re-enable interrupts

*-------------------------------------------------------
*
*   NOTE: For background information on this issue, see page 152-153 of the
*          Apple IIe Technical Reference Manual, page 13 of the Apple IIgs
*          Firmware Reference Manual, IIgs Tech Note #88, GS/OS source code
*          for 'GQuit', and GSBug revision notes for Version 1.5b15.
*
* After quitting AppleWorks and returning to the GS/OS Finder, the location,
* $01/100, also called EMULSTACK, [and 'mnemstkptr' in the GS/OS GQuit/P8Quit
* source code] is set to the value of the stack pointer, which will contain
* either a $B2 (AW 5.1) or a $B4 (AW 3.0 with Ultra4).
*
* This value is NOT placed there by AppleWorks, but by GS/OS, which is using
* a routine located at $E0/D8AD in language card Bank 0 memory. This routine
* reads the value of the page 1 stack pointer and saves it at EMULSTACK.
*
* By convention, EMULSTACK is SUPPOSED to receive the value of MAIN zero page
* stack pointer prior to a program's switching in the AUXMEM zero page and
* stack. This allows interrupting programs (and certain IIGS tools), when
* called while the AUXMEM zero page and stack are active, to set the correct
* stack pointer prior to switching back to the MAIN zero page stack to
* accomplish their task(s). AppleWorks, however, does not follow this
* convention when switching between the MAIN and AUXMEM zero page and stack,
* even though UltraMacros, when enabled, makes use of the AUXMEM zero page
* and stack, and obviously must have some other method of preserving the
* respective stack pointers prior to switching back and forth.
*               (Probably MainStackPtr @ $B4FC in Main Memory)
*
* Consequently, upon a SECOND launch of AppleWorks an interrupting program or
* tool will find an INCORRECT value ($B2 or $B4) in EMULSTACK, but will assume
* that it is in fact a valid stack pointer for the MAIN stack, and will make
* use of the stack from $01B2/B4 - $0100 for servicing the interrupt.
*
* Since it is not valid, and very likely to be too 'high' on the stack, the
* end result is that the MAIN zero page stack is corrupted when AppleWorks
* regains control. AppleWorks generally crashes at this point.
*
* By setting EMULSTACK to $7F prior to starting AppleWorks, we can ensure
* that any interrupting routines will ONLY use stack space between $0100-$017F,
* and leaving $0180-$01FF for AppleWorks' exclusive use.
*
```

```
* Credit for this 'technique' belongs to Glen Bredon, who implemented it in
* his PS.16.TO.8 from ProSEL 16 as a pre-launch to ANY ProDOS 8 program
* launched from GS/OS.
*
*-------------------------------------------------------

Done            RTS                             ; back to Init Manager

PatchEnd        EQU             *
                SAV             I.FINDERLAUNCH
                LST             OFF

                END

```