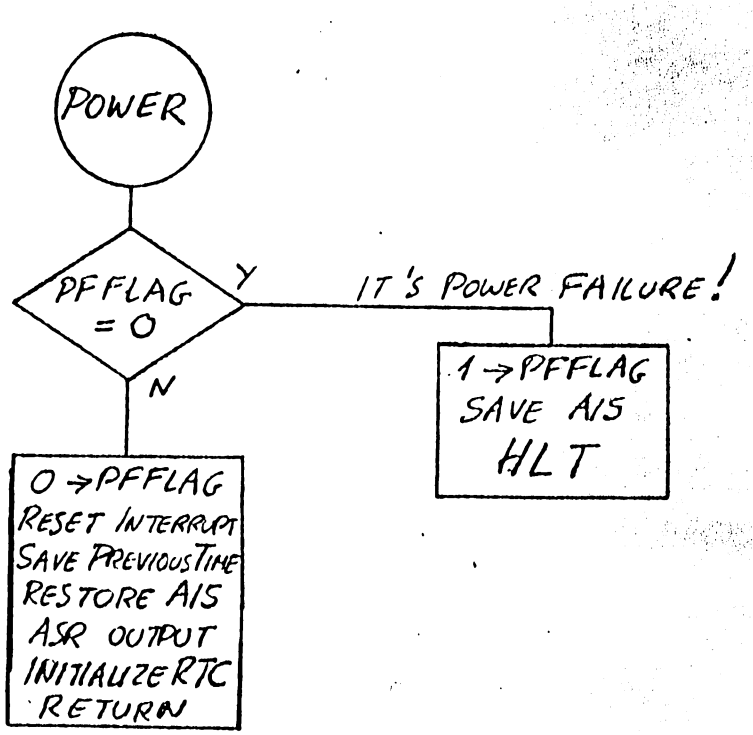
P855 START /1020

```
                                IDENT    REALTM
                    ASM 02
                        *THIS PRØGRAM ASKS FØR THE TIME TØ
                        *BE TYPED IN, AFTER THAT IT WILL PRINT
                        *THE TIME THE MØMENT THE "INT" BUTTØN
                        *IS PRESSED. IT STØPS ØN PØWER FAILURE
                        *AFTER RESTART TIME SHØULD BE TYPED
                        *AGAIN.
                        ASR      EQU      /10
                        INIFL    EQU      *
0000                    INIFLG   RES      1
0002                    PFFLAG   RES      1
0004                    MINITS   RES      1
0006                    MINI60   RES      1
0008  0D0A              STRMES   DATA     /D0A,/7F7F,'TYPE TIME; HH.MM'

000A  7F7F
000C  5459
000E  5045
0010  2054
0012  494D
0014  453B
0016  2048
0018  482E
001A  4D4D
001C  0D0A                       DATA     /D0A,0
001E  0000
0020  BCA0              START    MLK      9
0022  0000  F                    DATA     PØWER,0,TIMER,0,/FF7F
0024  0000
0026  0000  F
0028  0000
002A  FF7F
002C  0000  F                    DATA     MSKLIN,-3000,BUTTØN,STRMES
002E  F448
0030  0000  F
0032  0008  R
0034  BC41                       MS       8,/40 THIS SETS UP THE
0036  0040
                        *ADDRESSES FØR THE H.W. INT. LEVELS.
0038  87A0                       LDKL     A15,/200
003A  0200
                        *STACK FRØM /100---/200.
003C  4500                       WIM      A5
                        *(A5)=ALL ØNES, EXCEPT BIT 8
003E  8141                       ST       A1,INIFLG (A1)>0
0040  0000  R
0042  8241                       ST       A2,PFFLAG (A2)=0
0044  0002  R
0046  8241                       ST       A2;MINITS
0048  0004  R
004A  42D0                       CIØ      A2,1,ASR ØUTPUT MØDE
                        *(A9)=ADDRESS ØF DATA TØ BE PRINTED
                        *
                        *NØW WAIT FØR INTERRUPT:
004C  8140              WAIT     LD       A1,INIFL
004E  0000  R
0050  5C06                       RB(4)    WAIT
0052  0101                       LDK      A1,1
0054  41D0                       CIØ      A1,1,ASR INPUT
0056  5F02              WAIT2    RB       WAIT2
```

REV 1 REALTM 2




MESSAGE TO BE PRINTED:

TIME IS NOW:

WHEN THIS IS ANSWERED, COMPUTE TIME POWER WAS LOST & PRINT:

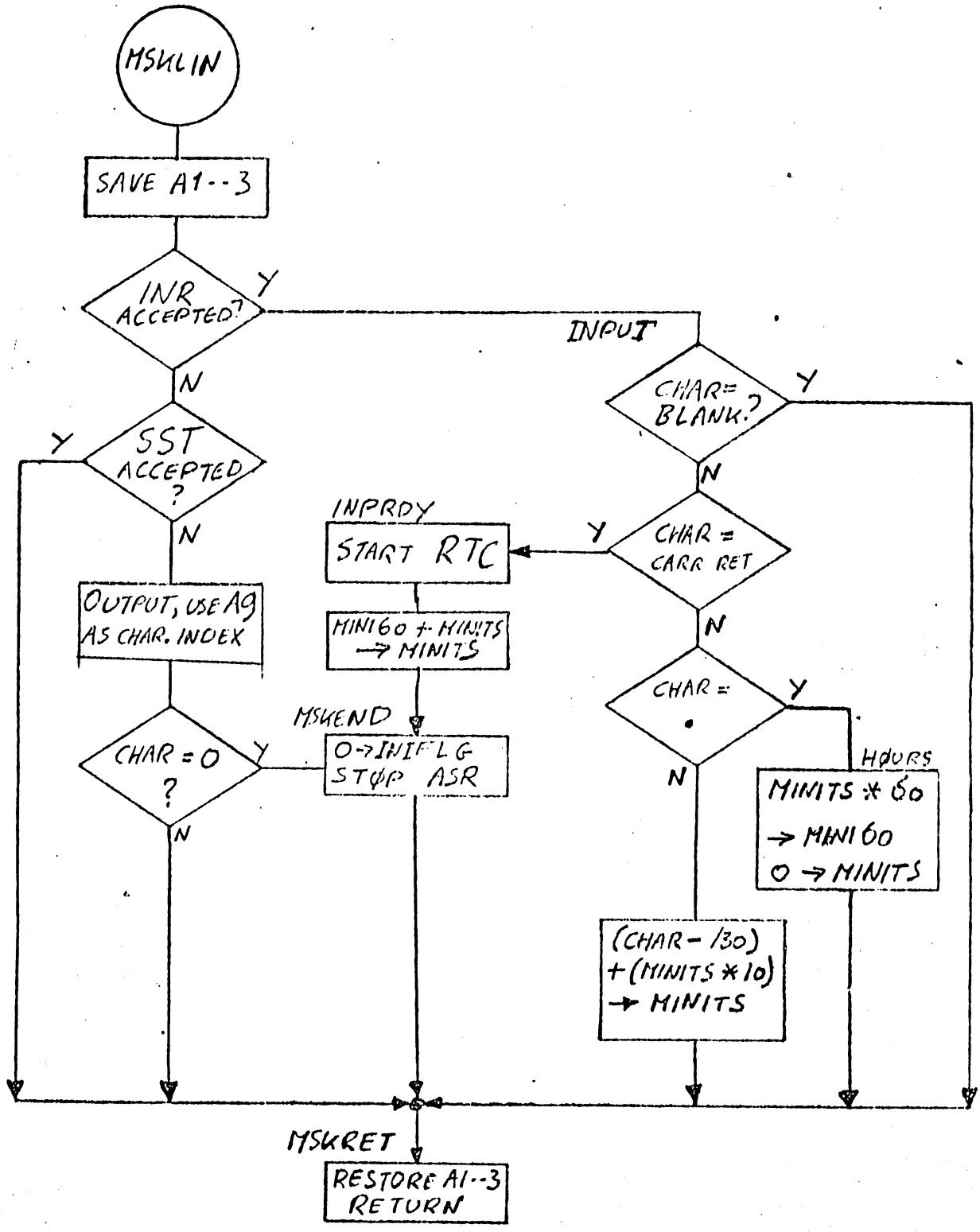
POWER DROP FROM .... TO .....

& CONTINUE NORMAL PROGRAM

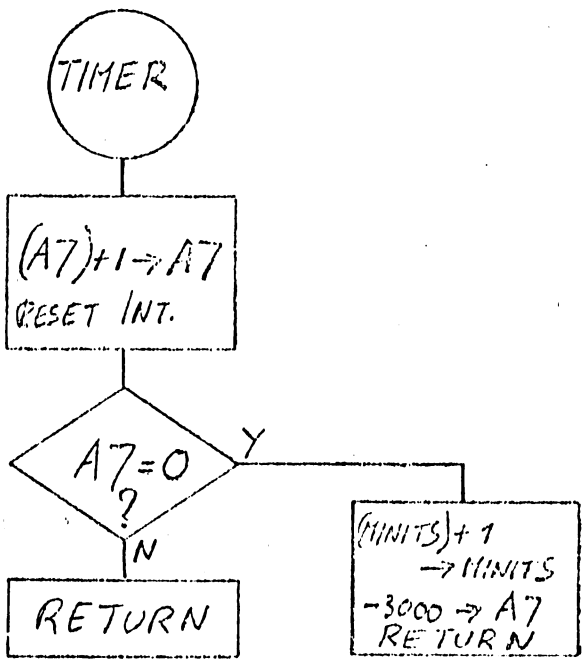
```
00036                          *THIS SECTIØN HANDLES THE ASR INTERRUPTS.
00037  0058  B9BF       MSKLIN  MSR     3,A15 SAVE A1, A2, A3
00038  005A  4910               INR     A1,0,ASR
00039  005C  5000  F            RF(0)   INPUT
00040  005E  49D0               SST     A1,ASR
00041  0060  5000  F            RF(0)   MSKRET
00042                          *IF NØ INR ØR SST, MUST BE ØTR!!
00043  0062  E126               LCR     A1,A9
00044  0064  E921               CCK     A1,0
       0066  0000
00045  0068  5000  F            RF(0)   MSKEND
00046  006A  91A0               ADKL    A9,1
       006C  0001
00047  006E  4110               ØTR     A1,0,ASR
00048  0070  B9BE       MSKRET  MLR     3,A15
00049  0072  F03E               RTN     A15
00050                          *
00051  0074  41FF       INPRDY  CIØ     A1,1,/3F START RTC.
00052  0076  8140               LD      A1,MINI60
       0078  0006  R
00053  007A  9141               ADS     A1,MINITS
       007C  0004  R
00054  007E  8141       MSKEND  ST      A1,INIFLG
       0080  0000  R
00055  0082  4190               CIØ     A1,0,ASR STØP
00056  0084  5F16               RB      MSKRET
00057                          *
00058  0086  217F       INPUT   ANK     A1,/7F
00059  0088  581A               RB(0)   MSKRET SKIP BLANKS
00060  008A  E920               CWK     A1,/A
       008C  000A
00061  008E  5820               RB(0)   MSKRET IGNØRE L.F.
00062  0090  E920               CWK     A1,/D CARR. RETN.
       0092  000D
00063  0094  5822               RB(0)   INPRDY
00064  0096  E920               CWK     A1,/2E PERIØD
       0098  002E
00065  009A  5000  F            RF(0)   HØURS
00066  009C  1930               SUK     A1,/30
00067                          *TYPING ERRØRS ARE NØT CHECKED!
00068  009E  8240               LD      A2,MINITS
       00A0  0004  R
00069  00A2  3A43               SLL     A2,3   *8
00070  00A4  9240               AD      A2,MINITS
       00A6  0004  R
00071  00A8  9204               ADR     A2,A1
00072  00AA  9241               ADS     A2,MINITS
       00AC  0004  R
00073  00AE  5F40               RB      MSKRET
00074                          *
00075  00B0  8240       HØURS   LD      A2,MINITS
       00B2  0004  R
00076  00B4  8108               LDR     A1,A2
00077  00B6  3A46               SLL     A2,6 *64
00078  00B8  3942               SLL     A1,2 *4
00079  00BA  9A04               SUR     A2,A1 *60!
00080  00BC  8241               ST      A2,MINI60
       00BE  0006  R
00081  00C0  0200               LDK     A2,0
00082  00C2  8241               ST      A2,MINITS
       00C4  0004  R
00083  00C6  5F58               RB      MSKRET
```

REV 1 REALTM 4

THIS FLOWCHART IS FOR THE PROGRAM ON PAGE (4)



```
00001                          *THIS PROGRAM INCREMENTS "MINITS" ONCE
00002                          *PER MINUTE, USING THE MAINS-RTC.
00003  0000  20F7      TIMER   RIT       /1B
00004  0002  1701              ADK       A7,1
00005  0004  5000  F           RF(0)     MINUTE
00006  0006  F03E              RTN       A15
00007                          *
00008  0008  8720      MINUTE  LDKL      A7,-3000
       000A  F448
00009  000C  9041              IM        MINITS
       000E  0000  F
00010  0010  F03E              RTN       A15
```




REALTM 6

```
00095  00DA  20DF
00096  00DC  BB3F
00097  00DE  82C0
       00E0  0004  R
00098  00E2  9AA0
       00E4  05A0
00099  00E6  5200  F
00100  00E8  82C1
       00EA  0004  R
00101  00EC  5700  F
00102  00EE  92A0
       00F0  05A0
00103  00F2  B9A0
00104  00F4  0030
       00F6  0030
       00F8  0030
00105  00FA  9AA0
       00FC  0258
00106  00FE  5204
00107  0100  1101
00108  0102  5F0A
00109  0104  92A0
       0106  0258
00110  0108  9AA0
       010A  003C
00111  010C  5204
00112  010E  1201
00113  0110  5F0A
00114  0112  92A0
       0114  003C
00115  0116  9AA0
       0118  000A
00116  011A  5204
00117  011C  1301
00118  011E  5F0A
00119  0120  92A0
       0122  003A
00120
00121
00122
00123  0124  E141
       0126  0000  F
00124  0128  E241
       012A  0000  F
00125  012C  E341
       012E  0000  F
00126  0130  E2C1
       0132  0000  F
00127  0134  81A0
       0136  0000  F
00128  0138  0100
00129  013A  41D0
00130  013C  BB3E
00131  013E  F03E
00132
00133  0140  0D7F
       0142  7F0D
       0144  0A00
       0146  002E
       0148  0000
       014A  0D00
00134  014C
00135
00136
```

```
BUTTØN   RIT      /F RESET BTN. IN,.
         MSR      6,A15 SAVE A1--A6 IN STACK
         LD       A10,MINITS

         SUKL     A10,1440 24 HØURS!!!!

         RF(2)    SAMDAY IF LESS
         ST       A10,MINITS

         RF       NEXDAY
SAMDAY   ADKL     A10,1440

NEXDAY   MLK      3
         DATA     /30,/30,/30 THREE ASCII ZERØ'
            S


         SUKL     A10,600 TENS ØF HØURS

         RF(2)    *+6 LESS THEN THAT
         ADK      A1,1
         RB       *-8 AGAIN IF NØT LESS
         ADKL     A10,600

         SUKL     A10,60  UNITS ØF HRS.

         RF(2)    *+6
         ADK      A2,1
         RB       *-8
         ADKL     A10,60

         SUKL     A10,10 TENS ØF MINS.

         RF(2)    *+6
         ADK      A3,1
         RB       *-8
         ADKL     A10,/3A

*THE REMAINDER IN (A10) IS MADE PØSITIVE BY
*ADDING 10 (=/A), AND ASCII BY ADDING /30
*IN THIS WAY /3A IS ØBTAINED
         SC       A1,TIMESS+5

         SC       A2,TIMESS+6

         SC       A3,TIMESS+8

         SC       A10,TIMESS+9

         LDKL     A9,TIMESS

         LDK      A1,0
         CIØ      A1,1,ASR
         MLR      6,A15 RESTØRE A1--A6
         RTN      A15
*
TIMESS   DATA     /D7F,/7F0D,/A00,/2E,0,/D00

REALTM (7)
ORIGINAL
NOT NUMBERED

PØWER    RES      1
*HERE THE PRØGRAM "PØWER" MUST GØ
         END      START
```

```
SYMBØL TABLE

ASR      0010  A   INIFL    0000  R   INIFLG   0000  R   PFFLAG   0002  R
MINITS   0004  R   MINI60   0006  R   STRMES   0008  R   START    0020  R
PØWER    014C  R   TIMER    00C8  R   MSKLIN   0058  R   BUTTØN   00DA  R
WAIT     004C  R   WAIT2    0056  R   INPUT    0086  R   MSKRET   0070  R
MSKEND   007E  R   INPRDY   0074  R   HØURS    00B0  R   MINUTE   00D0  R
SAMDAY   00EE  R   NEXDAY   00F2  R   TIMESS   0140  R

        ASS.ERR.    00000
:EØF
```

```
00000                                IDENT    PØWER
                        ASM 02
00001                        *THIS PRØGRAM IS LØADED ØN TØP ØF "REALTM"
00002                        *WHICH SHØULD BE LØADED WITH A BASE =/1000!
00003                                AØRG     /114C
00004                        PØWER   EQU      *
00005                        START   EQU      /1020
00006                        PFFLAG  EQU      /1002
00007                        *
00008   114C  20EF                    RIT      /17
00009   114E  8140                    LD       A1,PFFLAG
        1150  1002
00010   1152  5000  F                 RF(0)    FAIL
00011   1154  BBC0                    ML       7,START+2
        1156  1022
00012   1158  87A0                    LDKL     A15,SPCSTK SPECIAL STACK
        115A  0000  F
00013   115C  81A0                    LDKL     A9,RESMES
        115E  0000  F
00014   1160  F03E                    RTN      A15
00015                        *
00016   1162  0000           SPCSTK   DATA     0,/FC00,START+24
        1164  FC00  PSW.
        1166  1038  P
00017                        *
00018   1168  FFFF           RESMES   DATA     /FFFF,/FFFF,/FFFF,/FFFF,/D0A
        116A  FFFF
        116C  FFFF
        116E  FFFF
        1170  0D0A
00019   1172  5245                    DATA     'RESTARTED, TIME NØW;',0
        1174  5354
        1176  4152
        1178  5445
        117A  442C
        117C  2054
        117E  494D
        1180  4520
        1182  4E4F
        1184  573B
        1186  0000
00020                        *
00021   1188  9041           FAIL     IM       PFFLAG
        118A  1002
00022   118C  207F                    HLT
00023                        *
00024                        END      END
```

From Symbol Table of "REALTM

REALTM (8)

```
SYMBØL TABLE

PØWER    114C  A   START    1020  A   PFFLAG   1002  A   FAIL     1188  A
SPCSTK   1162  A   RESMES   1168  A   END      0000  R

        ASS.ERR.    00000
:EØF
```

```
:EØF
A::EØF

EXIT
ØBJCT TAPE ØN READER. THINK ØF BASE !
          IDENT     REALTM

:EØS
```

(A9) = /1000
(base for REALTM

```
ØBJCT TAPE ØN READER. THINK ØF BASE !
          IDENT     PØWER

EØS

TYPE TIME: HH.MM
13.33

13.33
13.33
13.33
13.33
13.33
13.34
```

← IPL loaded again. base in A9 not touched because "POWER" is not relocatable, it will always load from /114C upwards.

→ PANEL "LOCKED" & PULL THE PLUG

```
P
```

Wrong!

```
RESTARTED. TIME NØW: 14.44

14.44
14.44
```

← PLUG BACK IN AGAIN!

```
RESTARTED. TIME NØW: 15.55

15.55
15.55
```

memory map:

