LABEL 000000000PRINTER001000000CC EX OBJECT/READ;FILE SOURCEFILE=SYMBOL/CANDE;END;◆ OBJECT /READ

SYMBOL/CANDE

NO SAVE LOGOFF 5400 0650
" LOAD 5802 6000
VERBS 9036 9000
PRNT NEWS/CANDE 101 8900 - 101 9900

```
COMMENT  * TITLE: B5500/B5700 MARK XIV SYSTEM RELEASE                    *     00000100
         * FILE ID: SYMBOL/CANDE  TAPE ID: SYMBOL2/FILE000               *     00000101
         * THIS MATERIAL IS PROPRIETARY TO BURROUGHS CORPORATION         *     00000102
         * AND IS NOT TO BE REPRODUCED, USED, OR DISCLOSED               *     00000103
         * EXCEPT IN ACCORDANCE WITH PROGRAM LICENSE OR UPON             *     00000104
         * WRITTEN AUTHORIZATION OF THE PATENT DIVISION OF               *     00000105
         * BURROUGHS CORPORATION, DETROIT, MICHIGAN 48232                *     00000106
         *                                                               *     00000107
         * COPYRIGHT (C) 1971, 1972 BURROUGHS CORPORATION                *     00000108
         *  AA320206   AA386657                                          *;    00000109
 BEGIN % CANDE/TSHARER LAST REVISION 11-72                                     00001000
DEFINE   VFINISHED     = 00#;                                                  00001100
DEFINE   VHELLO        = 01#;                                                  00001200
DEFINE   VBREAK        = 02#;                                                  00001300
DEFINE   VWRU          = 03#;                                                  00001400
DEFINE   VLINECLEAR    = 04#;                                                  00001500
DEFINE   VDISKCHUNK    = 05#;                                                  00001600
DEFINE   VDISCONNECT   = 06#;                                                  00001700
DEFINE   VINPUTDATA    = 07#;                                                  00001800
DEFINE   VBREAKCLEAR   = 08#;                                                  00001900
DEFINE   VRESTARTIT    = 09#;                                                  00001950
DEFINE   VMCPUSE       = 10#;                                                  00002000
DEFINE   VLISTNEWS     = 12#; % DUMMY CALL IN HITHERE                          00002050
DEFINE   VMCPMSG       = 14#;                                                  00002100
DEFINE   VCOOLIT       = 15#;                                                  00002110
DEFINE   VMCPOK        = 16#;                                                  00002120
DEFINE   VTEACHER      = 25#;                                                  00002200
DEFINE   VINPUT        = 26#;                                                  00002300
DEFINE   VDISPATCH     = 27#;                                                  00002400
DEFINE   VDISKREAD     = 28#;                                                  00002500
DEFINE   VRESTART      = 29#;                                                  00002600
DEFINE   VOOPS         = 30#;                                                  00002700
DEFINE   VDOGCATCHER   = 31#;                                                  00002800
DEFINE   VCOMPILEIT    = 32#;                                                  00002900
DEFINE   VSETUPFILES   = 33#;                                                  00003000
DEFINE   VERROR        = 34#;                                                  00003100
DEFINE   VCLOSEWORKTABLE= 35#;                                                 00003200
DEFINE   VCHNGPSWD     = 36#;                                                  00003300
DEFINE   VTIME         = 37#;                                                  00003301
DEFINE   VCC           = 38#;                                                  00003310
DEFINE   VCHNGNAME     = 39#;                                                  00003312
DEFINE   VMONITORR     = 40#;                                                  00003314
DEFINE   VSET          = 41#;                                                  00003316
DEFINE   VSSFILE       = 42#;                                                  00003318
DEFINE   VEQUATE       = 43#; % LABEL EQUATION                                 00003320
DEFINE   VSTATUSCHECK  = 44#;                                                  00003330
DEFINE   VSSMSG        = 50#;                                                  00003400
DEFINE   VPDIT         = 51#;                                                  00003500
DEFINE   VCOPY         = 52#;                                                  00003600
DEFINE   VSEQ          = 53#;                                                  00003700
DEFINE   VBYE          = 54#;                                                  00003800
DEFINE   VMAKE         = 55#;                                                  00003900
DEFINE   VLIST         = 56#;                                                  00004000
DEFINE   VEXECUTE      = 57#;                                                  00004100
DEFINE   VLOAD         = 58#;                                                  00004200
DEFINE   VSAVE         = 59#;                                                  00004300
DEFINE   VREMOVE       = 61#;                                                  00004500
DEFINE   VCHANGE       = 62#;                                                  00004600
DEFINE   VRENAME       = 63#;                                                  00004700
DEFINE   VWHATS        = 64#;                                                  00004800
```

```
DEFINE    VTYPE          = 65#;                                          00004900
DEFINE    VGUARD         = 67#;                                          00005100
DEFINE    VLOCK          = 68#;                                          00005200
DEFINE    VTAPE          = 69#;                                          00005300
DEFINE    VPRINT         = 70#;                                          00005400
DEFINE    VCHARGE        = 71#;                                          00005450
DEFINE    VSCHEDULE      = 72#;                                          00005500
DEFINE    VSTATUSSTOP    = 73#;                                          00005600
DEFINE    VLFILES        = 74#;                                          00005700
DEFINE    VUPDATE        = 75#;                                          00006390
DEFINE    VREPLACE       = 76 #;                                         00006395
DEFINE         CALL(CALL1)=IAM:=0#;  % FOR UNUSED CASE STMTS             00006400
          %                                                             00006500
INTEGER        COMMON;                                                  00006600
SAVE ARRAY L[0:30];                                                     00006700
DEFINE         STUFF=L#;                                                00006800
DEFINE         FF = [18:15]#, CF = [33:15]#;      %F FIELD & C FIELD    00007600
DEFINE         CR=0#, LF=3"100001"#, CRLF=1#, NOCRLF=3"100000"#;        00007700
DEFINE         NO = NOT#;                                               00007800
DEFINE         MAXLINES =48 #;      % NO OF LOGICAL LINES TO BE HANDLED. 00007900
DEFINE         IDLETIME = 360000#;                                      00008000
DEFINE         LLWORDS  =100#;      % NO OF WORDS PER LOGICAL LINE.      00008100
DEFINE         TBLSZ =20#;          % WRKTBL SEGS MAX (17+CHKPOINT).     00008200
REAL           DISKBOTTOM;          % FOR DIRECTORY SEARCHES.            00008300
                                                                        00008400
DEFINE         NUMOFVERBS = 49#,                                        00008500
               NUMOFTYPES =11#,       % NUMBER. OF TYPE WORDS          00008600
     % VOID                                                             00008700
     % VOID                                                             00008750
               NUMOFRESWRDS = 30 #;  % NO. OF RESERVED WORDS (NOT VERBS) 00008800
BOOLEAN        FLAGS;                                                   00008900
          %                                                             00009000
DEFINE         WECANUSEDATA = FLAGS.[1:1] #                             00009100
             , NODATA       = FLAGS.[2:1] #                             00009200
             , NODATAREQUESTED = FLAGS.[3:1] #                          00009300
             , NOFILES      = FLAGS.[4:1] #                             00009400
             , NOTANKS      = FLAGS.[5:1] #                             00009500
             , WENEEDTOCOOLIT = FLAGS.[6:1]#                            00009510
             , TIMETOOKLINES  = FLAGS.[7:1]#                            00009520
 ;BOOLEAN DOGSAROUND %%%%%%%%%%%%%%%%%%  TEMP  %%%%%%%%%%%%%%%%%%%%%  00009600
               ;                                                        00009700
DEFINE         TELETYPE  = 0#,                                          00009730
               CONRAC    = 1#,                                          00009740
               TC500     = 2#,                                          00009750
               BIDS      = 3#;                                          00009760
%PAGE                                                                   00009800
          %                                                             00009900
SAVE     ARRAY TTYINPUT [0:29];          % INPUT DATA FROM LINEMTNCE.   00010000
SAVE ARRAY     WORK [0:59];               % I/O PROCESSING AREA          00010100
REAL           DATAOFFSETT,  DATAWORDS,  DATADISKLOC;                   00010200
REAL           ROWINUSE,DOGCATCHERS,ROWCOUNT,TIMENOW;                   00010300
REAL          NUDCOUNT;                                                 00010350
REAL           MSGFILELOC;     % CONTAINS ABS DISK LOC MESAGES.         00010400
REAL           TANKFILE;  % DISK ADDR OF TANK/DISK.                     00010500
REAL           TANKSIZE;  % ROW SIZE OF TANK FILE.                      00010600
     % VOID                                                             00010700
REAL           LL       ,      % LOGICAL LINE NO CURRENTLY BEING HANDLED. 00010800
               LLPREV   ,      % LOGICAL LINE NO PREVIOUSLY HANDLED.    00010900
               CLOCK    ,      % CONTAINS PROCESSOR TIME USED.          00011000
               CLOCKPREV,      % PREVIOUS PROCESSOR TIME USED.          00011100
```

```
                WAITBIT  ,      % WAIT INDICATOR FOR NEXTEVENT.                  00011200
                REASON   ,      % REASON FOR THIS EVENT ENTRY.                   00011300
                ASTOR    ,      % CONTAINS # FOR TTY RESPONSE                    00011400
                DATE     ,      % DATE--MM/DD/YY                                 00011500
                SPOCNTRL ,      % SPO CONTROL VARIABLE                           00011600
                IAM      ,      % CALLING PROCEDURE NO. OR NEXT OPERATION.       00011700
                DOING    ,      % CALLER"S CASE OR SWITCH VALUE.                 00011800
                WANT     ,      % REQUESTED OPERATION NO.                        00011900
                ERRSW    ,      % IF AN ERROR IS ENCOUNTERED.                    00012000
                BASE     ,      % BASE OF LL SCRATCH AREA.                       00012100
                TEMP     ,      % TEMPORARY WORDS USED BY A PROCEDURE.           00012200
                PARAM    ,      % PARAMETER COUNT BEING PASSED TO PROCEDURE      00012300
                WAITFOR  ,      % CONDITION REQD BEFORE RETURNING.               00012400
                PREVRCW  ,      % POINTS AT LATEST RCW FOR THIS LINE.            00012500
                SREG     ;      %"STACK" REGISTER FOR ACCESSING ARRAY WDS.      00012600
        %                                                                       00012700
REAL            SCW, RCW;   %  STACK CONTROL WORD, RETURN CONTROL WORD.        00012800
REAL            STACKSIZE,PROCESSLIMIT,IOLIMIT,CORESIZE,COMMONVALUE;            00012810
REAL            WORKADRS,WORKENDADRS; % POINTERS TO WORK ARRAY                  00012820
DEFINE  %                                                                       00012900
                SCWWAITBITS =  [10:7] #, %                                      00013000
                SCWWAIT  = SCW.[10:7] #, %                                      00013100
                SCWPREV  = SCW.[17:8] #, %                                      00013200
                SCWBASE  = SCW.[25:8] #, %                                      00013300
                SCWDOING = SCW.[33:7] #, %                                      00013400
                SCWIAM   = SCW.[40:8] #, %                                      00013500
        %                                                                       00013600
                RCWSREG  = RCW.[03:8] #, %                                      00013700
                RCWPARAM = RCW.[11:7] #, %                                      00013800
                RCWTEMP  = RCW.[18:7] #, %                                      00013900
                RCWBASE  = RCW.[25:8] #, %                                      00014000
                RCWDOING = RCW.[33:7] #, %                                      00014100
                RCWIAM   = RCW.[40:8] #; %                                      00014200
        DEFINE ESPTABLESIZE = 40#; % INCREASE THIS IF "NO ROOM" ERRORS          00014300
        ARRAY ESPTABLE[0:ESPTABLESIZE]; % ESP SEGMENTS FOR LABEL EQUATION        00014310
        ARRAY           CTRANDBASE [0:15];                                      00014500
        ARRAY           DOGHOUSE [0:MAXLINES];                                  00014600
        ALPHA ARRAY     VERBTABLE [0:2*NUMOFVERBS],                             00014700
                        TYPETABLE [0:NUMOFTYPES],                               00014800
                        RESWRDTABLE [0:NUMOFRESWRDS+1];                         00014900
        REAL    ARRAY EVENTS    [0:4];                  % OUR EVENT AREA,      00015000
        REAL    ARRAY EVENT     [0:20];                  % MCP EVENT AREA.      00015100
        REAL    ARRAY USRBASE   [0:20]; % DISK ADDRESSES OF USERS/CANDE FILE     00015110
        DEFINE  USROWSIZE = USRBASE[20]#; % SEGMENTS/ROW FOR USERS/CANDE FILE    00015120
        DEFINE  %                                                               00015200
                        EVENTLL      = EVENTS[0].[25:8] #                       00015300
                      , EVENTREASON = EVENTS[0].[18:7] #                        00015400
                        ; %                                                     00015500
        REAL    ARRAY LINE      [0:MAXLINES,0:LLWORDS];  % LOGICAL LINE  INFO.  00015600
        COMMENT:      THE FOLLOWING DEFINES ARE USED TO ACCESS LINE ARRAYWORDS; 00015700
        DEFINE        TBASE =0#;    % BASE FOR TBL ENTRIES                     00015800
        DEFINE        SBASE = 49#; % PROCEDURE STACK BASE                      00015900
        DEFINE  %                                                               00016000
                LLINFO    = A[11] #,      % LINE CONTROL INFORMATION,           00016100
                LLDISKREAD= A[12] #,      % ADDRESS OF DISK SEG TO BE READ.     00016200
                WAITINGSCW= A[13] #,      % HOLDS CURR SCW DURING A WAIT.       00016300
                MSGPOINTER= A[14] #,      %                                    00016400
                MSGPTR    = A[14] #,      %                                    00016500
                MSGPTRLOC = 14    #,      %                                    00016510
                USERLOC   = A[15] #,      % ADDR OF USER REC                    00016600
```

```
USERCODE  = A[16] #,     %                                          00016700
UCLOC      = 16#,                                                  00016800
RLCW      = A[17] #,     % STORED VALUE OF CURRENT LCW             00016900
CHARGE    = A[18] #,     % CHARGE CODE IF USED.                    00017000
LOGONTIME = A[19] #,     %                                        00017100
PTIME     = A[20] #,     % PROCESSOR TIME USED ON THIS LL.         00017200
PTLOC     =   20  #,     % LOCATION OF THIS LINES PTIME.           00017300
INPUTCTR  = A[21] #,     % NUMBER OF INPUTS WE RECVD.              00017400
FILENAME  = A[22] #,     %  NAME OF THE "WORK" FILE                00017500
DEVICE    = A[23] #,     % TYPE OF REMOTE TERMINAL                 00017600
PREVMSG   = A[24] #,     % MESSAGE BEFORE NO DISK OCCURRED         00017650
INCREMENT = A[24] #,     %                                        00017700
SEQLAST   = A[25] #,                                              00017800
SEQIN     = A[26] #,                                              00017900
LASTRECORD= A[27] #,     % DATA FILE RECORD COUNT                  00018000
TABLEINFO = A[28] #,     %  CONTROL WORD FOR WORK TABLE            00018100
UPDATEBIT = A[28].[23:1] #, % UPDATE IN PROGRESS                   00018110
TPDKREL   = TABLEINFO.[24:6] #,    % REL SEG ADDR                  00018200
TPREC     = TABLEINFO.[30:2]#,     %  ID WD REC IN SEG            00018300
TPENTRY   = TABLEINFO.[32:4]#,     %  WHICH OF 10 IN REC           00018400
TPCOUNT   = TABLEINFO.[36:12]#,    %  NUMBER OF ENTRIES            00018500
WRKTBLADR = A[29] #,     % ABS DISK ADDR FOR WORK FILE             00018600
TPDKADR   = WRKTBLADR + TPDKREL #, % CURR WRK FILE ADDR           00018700
FILETYPE  = A[30] #,     %  TYPE OF FILE WORKING ON                00018800
SOURCEFILE= A[31] #,     % NAME OF CURRENT SOURCE FILE             00018900
ESP1      = A[32] #,     %  ADDRESS OF FIRST ESP SEG              00019000
ESP2      = A[33] #,     %  SECOND ESP SEGMENT                    00019100
RUN1      = A[34] #,     %  FIRST NAME OF THING RUNNING           00019200
RUN2      = A[35] #,     %  LAST NAME OF THING RUNNING            00019300
OBJECTFILE= A[36] #,     %  NAME OF CURRENT OBJECT FILE           00019400
LIBMSGCTR = A[37] #,     % NO OF LIBMTNCE MSGS,                    00019500
ETIME     = A[38] #,     % EXECUTION TIME.                         00019550
SCHEDNAME = A[39] #, % NAME OF SCHEDULE FILE                       00019560
TIMELIMITS= A[39] #, % AUTHORIZED TIME PERIOD                      00019600
NOTIFYBIT = A[39].[2:1] #, % "ON" WHEN NOTIFIED                    00019602
NOTIFIED  = BOOLEAN(NOTIFYBIT) #,                                 00019604
NOTIFYTIME  = A[40] #,                                            00019606
TIMERESTRICTBIT = A[39].[3:1] #,                                  00019608
RESTRICTEDLANGUAGES   = A[41] #,                                  00019610
RESTRICTEDVERBS = A[42]#, % AND A[43]                             00019620
GRACEPERIOD = 0.25 #,                                             00019622
IOTOT = A[44] #, % TOTAL IO TIME FOR THIS LL                      00019624
COMMONCELL = A[45] #,                                             00019626
CHKSEQNMBR = A[46] #, % NEXT SEQ NO. FOR BLOCK XMISSN             00019627
OPTIONBITS = A[47] #, % USERS "SPECIAL" OPTIONS                    00019628
ESPWORD   = A[48] #, % LABEL EQUATION INFO                        00019630
ESPFLAG   = ESPWORD.[1:1]#,                                       00019632
ESPCOUNT  = ESPWORD.[2:8]#,                                       00019634
FIRSTESP  = ESPWORD.[20:28]#;                                     00019636
%                                                                 00019700
BOOLEAN ARRAY LLCONTROL [0:MAXLINES];          % LOGICAL LINE CONTROL, 00019800
COMMENT:  THE FOLLOWING DEFINES ACCESS LLCONTROL;                 00019900
DEFINE    LCW       = LLCONTROL[LL] #,  % LINE CONTROL WORD,      00020000
          LOGGEDON          = LCW.[01:1] #  %                     00020100
        , ALLDONE           = LCW.[02:1] #  %                     00020200
        , BUSYLINE          = LCW.[03:1] #  %                     00020300
        , IDLELINE          = NOT BUSYLINE #%                     00020400
        , INITIATEDWHILEBUSY = LCW.[04:1] #  %                    00020500
        , SEQMODE           = LCW.[05:1] #  %                     00020600
        , EQUATED           = LCW.[06:1] #  % LABEL EQUATED       00020700
```

```
          , DATAENABLED          = LCW.[07:1] #  %                                00020800
          , INQUIRY              = LCW.[08:1] #  %                                00020900
          , RESTARTNEEDED        = LCW.[09:1] #  %                                00021000
          , WRITEASTERISK        = LCW.[10:1] #  %                                00021100
          , FILESOK              = LCW.[11:1] #  %                                00021200
          , GOODOBJ              = LCW.[12:1] #  %                                00021300
          , BOJMSG               = LCW.[13:1] #  %                                00021400
          , EOJMSG               = LCW.[14:1] #  %                                00021500
          , RUNNING              = LCW.[15:1] #  %                                00021600
          , COMPILING            = LCW.[16:1] #  %                                00021700
          , LIBMTNCE             = LCW.[17:1] #  %                                00021800
          , ALLMCPMSG            = LCW.[13:5] #  %                                00021900
          , DISCONNECTING        = LCW.[18:1] #  %                                00022000
          , BREAKORWRU           = LCW.[19:1] #  %                                00022100
          % :15                   :34             :47:50                          00022200
          , RESTART              = LCW.[20:1] #  %                                00022300
          , SAVEDWHILEINITBUSY   = LCW.[21:1] #  %                                00022400
          , D@GLICENSE           = LCW.[22:1] #  %                                00022500
          , LOGGINGON            = LCW.[23:1] #  %                                00022510
          , NODISKMCP            = LCW.[24:1] #  %                                00022520
          , CONTINUEBIT          = LCW.[25:1] #                                   00022530
          , MONITORBIT           = LCW.[26:1] #                                   00022540
          , NOSTOP               = LCW.[27:1] #  %DONT STOP SCHD. ON ERR          00022550
          , SCHEDULINE           = LCW.[28:1] #  %                                00022580
          , SCHEDULINR           = REAL(SCHEDULINE) #  %                         00022585
          , NOSAVE               = LCW.[29:1] #  %                                00022590
          , ALLTHINGS            = LCW.[30:18]#  %                                00022600
          , THINGSLAST           = LCW.[30:06]#  %                                00022700
          , THINGSLINK           = LCW.[36:06]#  %                                00022800
          , THINGSTODO           = LCW.[42:6] #  %                                00022900
          ;                                                                       00023000
DEFINE    B = BOOLEAN #;                                                        00023100
DEFINE    R = REAL    #;                                                        00023200
DEFINE    CONCISEBIT      = ORTIONBITS.[1:1]#,                                  00023202
          CONCISE         = B(CONCISEBIT)#,                                     00023204
          HELPFULBIT      = OPTIONBITS.[2:1]#,                                  00023206
          HELPFUL         = B(HELPFULBIT)#,                                     00023208
          QUICKLOGBIT     = OPTIONBITS.[3:1]#,                                  00023210
          QUICKLOG        = B(QUICKLOGBIT)#,                                    00023212
          QUICKBYEBIT     = OPTIONBITS.[4:1]#,                                  00023214
          QUICKBYE        = B(QUICKBYEBIT)#,                                    00023216
          ALLOWMSGBIT     = OPTIONBITS.[5:1]#,                                  00023218
          ALLOWMSG        = B(ALLOWMSGBIT)#,                                    00023220
          CCLONGBIT       = OPTIONBITS.[6:1]#,                                  00023230
          CCLONG          = B(CCLONGBIT)#,                                      00023240
          HELPTOGGLE      = OPTIONBITS.[7:1]#,                                  00023250
          NORETRY         = OPTIONBITS.[8:1]#,                                  00023260
          UNLOCKTOGGLE    = OPTIONBITS.[9:1]#;                                  00023270
DEFINE    LEFTARROW = "←" #;                                                    00023300
DEFINE    QMARK = 12 #;              % 12 = 14 OCT = QUESTION MARK               00023400
DEFINE    WORDS = "W" #,  CHARS = "C" #;                                        00023500
DEFINE    INC(INC1)= INC1:= INC1+1 #;                                           00023600
DEFINE    UPS = SI := SI + 1 #,                                                 00023700
          UPD = DI := DI + 1 #,                                                 00023800
          UPT = TALLY := TALLY + 1 #;                                           00023900
DEFINE    INCB(INCB1) = INCB1 := BOOLEAN (REAL (INCB1) + 1) #;                  00024000
DEFINE    DECR(DECR1) = DECR1 := DECR1 - 1 #;                                   00024100
DEFINE    DECB(DECB1) = DECB1 := BOOLEAN (REAL (DECB1) - 1) #;                  00024200
DEFINE    MATCH(MATCH1,MATCH2)= IF REAL(BOOLEAN(MATCH1)                         00024300
                                EQV BOOLEAN(MATCH2))                            00024400
```

```
                              = REAL(NOT FALSE) THEN #;               00024500
         DEFINE      COMPAR(COMPAR1,COMPAR2) =                        00024510
                     REAL(BOOLEAN(COMPAR1) EQV BOOLEAN(COMPAR2))=REAL(NOT FALSE)#;00024520
         DEFINE          TEN8 = 100000000 #;   %  TEN TO THE EIGHTH   00024600
         DEFINE          GOERR(GOERR1,GOERR2)=BEGIN ERRSW:=GOERR1;MSGPOINTER:=%00024700
                           GOERR2; WANT:=WAITFOR:=0; IAM:=VERROR; GO EXIT; END#;   00024800
         DEFINE          SCHEDERROR =                                 00024810
                            BEGIN                                     00024820
                            LINECLEAR(LCW,A[*]); SCWBASE:=BASE:=SBASE;   00024830
                            WORK[0]:=REAL(NOT FALSE); MSGPTR:=0;      00024840
                            IAM := VTEACHER; DOING:=1;                00024850
                            GO TO EXIT;                               00024860
                            END#;                                     00024870
         DEFINE SCRAMBLE(SCRAMBLE1,SCRAMBLE2)=(-2×                    00025000
             ((SCRAMBLE1.[1:23]+SCRAMBLE1.[24:24]) MOD MODULUS × MODULUS +   00025100
              (SCRAMBLE2.[1:23]+SCRAMBLE2.[24:24]) MOD MODULUS)+      00025200
            DISKBOTTOM)#,                                             00025300
          MODULUS=13#, DIRMOD=169#;                                   00025400
         REAL SYSTEM;                                                 00025500
         ARRAY           SCANPTR[0:(LLWORDS-SBASE)]; % POINTERS TO WORK ARRAY   00026000
         %***************************************************************00027000
         COMMENT         DOCUMENT                                     00027110
                         THE ARRAY TOBEDONE IS USED TO STORE THINGS THAT HAVE TO BE00027120
                         DONE FOR A LINE BUT MUST WAIT BECAUSE THE LINE IS BUSY AND00027130
                         CANNOT HANDLE THIS INFO NOW.                 00027140
                         TOBECONTROL = CONTROL WORD AS FOLLOWS        00027150
                         3:6 = COUNT OF NUMBER OF ROWS USED.          00027160
                         12:36= BITS INDICATING ROW USED IF ON. BIT 47 = ROW 0.   00027170
                         EACH ROW CONTAINS:                           00027180
                         WORD 0 = 3:6 = NEXT ROW WITH INFO FOR THIS LOGICAL LINE.  00027190
                                  12:36= AND WORD TO TURN OFF BIT IN TOBECONTROL.  00027200
                            1-15= 10 WORDS INPUTDATA AND 5 WORDS OF EVENTS INFO.   00027210
                         ;                                            00027220
         REAL            TOBECONTROL;                                 00027300
         REAL ARRAY      TOBEDONE [0:35,0:20];                        00027400
         %**************************************************************%00027500
                 BEGIN % TO SEGMENT THE INIT CODE.                    00029900
         %**************************************************************%00030000
         PROCEDURE       DISKIO (REASON)        " 33:7=REASON NO, 40:8= LOGICAL LINE.00030100
                             "(READFLAG)        " 1 = READ,  0 = WRITE.   00030200
                             "(A)               " DISK I/O AREA.      00030300
                             "(OFFSET)          " OFFSET INTO I/O AREA,   00030400
                             "(SIZE)            " NO OF WORDS TO READ/WRITE.  00030500
                             "(DISKADDRESS);                          00030600
                 %                                                    00030700
         VALUE           REASON, READFLAG, OFFSET, SIZE, DISKADDRESS; 00030800
         REAL            REASON, READFLAG, OFFSET, SIZE, DISKADDRESS; 00030900
         REAL            A;    % ARRAY[0] + OFFSET = AREA WHERE I/O STARTS.   00031000
              %NOTE%           % IF OFFSET NEQ 0 THEN A+OFFSET-1 GETS DESTROYED.****00031100
                         COMMUNICATE (-1);                            00031200
         %***************************************************************00031210
         REAL COMM2; % USED TO STORE COMMUNICATE(-2) TO RELEASE CODE SEGMENT   00031220
         %**************************************************************%00031300
         PROCEDURE       NEXTEVENT (WAITBIT,CLOCK,A);  % A[0]= 0:1-FLAG BIT = 0.   00031400
                         %                           %        1:1-SIGN BIT = 0.   00031500
         REAL            WAITBIT, CLOCK;             %        2:2-DO NOT TOUCH.   00031600
         ARRAY           A[0];                       %       18:7-REASON NO.      00031700
                 BEGIN LABEL DUMMY;                                   00031750
                       COMMUNICATE (-2);             %       25:8-LOGICAL LINE.   00031800
                 END;                                                 00031850
```

```
COMMENT        %                                                                00031900
               WHEN THIS PROCEDURE IS CALLED:                                   00032000
                    WAITBIT MUST BE 1 IF WE WILL WAIT FOR AN EVENT,             00032100
                                    0 IF WE DO NOT WISH TO WAIT.                00032200
               WHEN THE MCP RETURNS TO THE PROGRAM:                             00032300
                    WAITBIT WILL BE 1 IF AN EVENT IS BEING RETURNED,            00032400
                                    0 IF NO EVENT AND NO WAIT;                  00032500
%***************************************************************************%00032600
REAL PROCEDURE GETESPDISK;  COMMUNICATE (-3);                                   00032700
%***************************************************************************%00032800
PROCEDURE FORGETESPDISK(ADDR); VALUE ADDR; REAL ADDR; COMMUNICATE(-4);          00032900
%***************************************************************************%00033000
PROCEDURE REQUESTINPUT(BUFF); ARRAY BUFF[0]; COMMUNICATE(-5);                   00033100
%***************************************************************************%00033200
% REAL PROCEDURE GETUSERDISK (N); VALUE N; REAL N; COMMUNICATE (-6);            00033300
%***************************************************************************%00033400
PROCEDURE FORGETUSERDISK (A,N); VALUE A,N; REAL A,N; COMMUNICATE (-7);          00033500
%***************************************************************************%00033600
PROCEDURE DISKWAIT(IO,AREA,WDS,ADDR);                                           00033700
          VALUE    IO,WDS,ADDR;                                                00033800
          REAL     IO,WDS,ADDR;                                                00033900
          ARRAY    AREA[0];                                                    00034000
          COMMUNICATE (-8);                                                    00034100
%***************************************************************************%00034200
% PROCEDURE CONTROLCARD (R,A); VALUE R; ARRAY A[0]; REAL R;                     00034300
%           COMMUNICATE (-9); % REASON=R.[33:7], LL=R.[40:8]                   00034400
%***************************************************************************%00034500
% PROCEDURE SETUSER (CODE); VALUE CODE; REAL CODE; COMMUNICATE (-10);           00034600
%***************************************************************************%00034700
DEFINE   DISKOUT(DISKOUT1,DISKOUT2)= %                                          00034800
         DISKIO(LL&13[33:41:7],0,WORK[0],0,DISKOUT2,DISKOUT1)#;                 00034900
%***************************************************************************%00035000
DEFINE        DISKWRITE(DISKWRITE1) = %                                         00035100
                 DISKIO(LL&13[33:41:7],00,WORK[0],00,30,DISKWRITE1) #;          00035200
%***************************************************************************%  00035300
PROCEDURE TWXOUT (R,A,N,T); VALUE R,N,T; REAL R,A,N,T;                          00035400
          IF NOT DISCONNECTING THEN % WRITES ARE O.K.                           00035500
             COMMUNICATE (-12);  % T.CF=# OF LFS,T.FF=1 FOR NO CR               00035600
%***************************************************************************%  00035700
REAL LITOUTSTORE; % KEEPS CHARACTERS BEING OUTPUT BY LITOUT                     00035750
%***************************************************************************%00035775
PROCEDURE     LITOUT (X,CR);  VALUE X,CR;  REAL X,CR;                           00035800
%*************************************************************               00035900
   BEGIN                                                                        00036000
   STREAM PROCEDURE BLANK(X,Y);                                                 00036050
      BEGIN                                                                     00036100
      SI:=X; DI:=Y; DS:=WDS; DI:=DI-8; SI:=SI-8;                                00036150
      7(IF SC#"0" THEN JUMP OUT; DS:=LIT" "; SI:=SI+1);                         00036200
      END;                                                                      00036250
   BLANK(X, LITOUTSTORE);                                                       00036300
   TWXOUT(LL, LITOUTSTORE, 8, CR);                                              00036350
   END LITOUT;                                                                  00036400
%*********************************************************%                   00036500
PROCEDURE  CC15 (R,F,N,L,U,T,X); VALUE R,F,N,L,U,T,X;                           00036600
           REAL R,F,N,L,U,T,X;                                                  00036700
            COMMUNICATE (-15);                                                  00036800
DEFINE COM15(COM151,COM152,COM153,COM154,COM155,COM156)                         00036820
       =CC15(COM151,COM152,COM153,COM154,COM155,COM156,0)#;                     00036840
DEFINE COM157=CC15#;                                                            00036860
%***************************************************************************%00036900
```

```
DEFINE FIND(FIND1,FIND2,FIND3,FIND4,FIND5)                                    00037000
       =COM15(FIND1,FIND2,FIND3,FIND4,FIND5,15)#;                             00037100
%--------------------------------------------------------------------------- 00037200
   COMMENT--ON RETURN:                                                        00037300
   EVENTS[1]= PROTECT CODE (SAME AS ALGOL SEARCH)                             00037400
         [2].[1:1]= INTERLOCK                                                 00037500
            .[18:15]= HEADER ADDR                                             00037600
            .[36:6]= FILE TYPE                                                00037700
            .[42:6]= OPEN COUNT                                               00037800
         [3]= EOF COUNT                                                       00037900
         [4]= ADDR OF 1ST RECORD;                                             00038000
%************************************************************%               00038100
DEFINE  MAKEFILE =COM15#;                                                     00038200
   %  EVENTS[1]= ADDR OF 1ST RECORD                                           00038300
   %  EVENTS[2]= HEADER ADDR                                                  00038400
%*********************************************************************       00038500
DEFINE STAATUS(STAATUS1,STAATUS2,STAATUS3,STAATUS4)=                          00038510
   CC15(STAATUS1,13,STAATUS2,STAATUS3,STAATUS4,0,0)#;                         00038520
   % ON RETURN:                                                              00038530
   % EVENTS[1]=PROCESS TIME ( -1 IF NOT RUNNING )                            00038540
   % EVENTS[2]=IO TIME                                                       00038550
   % EVENTS[3]=CONTENTS OF R+27 ( IF COMPILING )                             00038560
%*****************************************************                       00038900
PROCEDURE LOGON (LCW,A);  BOOLEAN LCW;  ARRAY A[0];                           00039000
         BEGIN LABEL DUMMY;                                                   00039050
         LOGGEDON := TRUE;                                                    00039100
         LOGONTIME := TIME(1);  % SAVE START TIME.                            00039150
         ESP1 := GETESPDISK;  ESP2 := GETESPDISK;                             00039200
             IF NOT SCHEDULINE THEN % LET SCHED CALL LOGON.                   00039290
         COM15(LL&13[33:41:7],2,USERCODE,CHARGE,0,IDLETIME);                  00039300
         END  LOGON;                                                          00039400
%*********************************************************************       00039500
PROCEDURE LOGOFF(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                           00039600
         BEGIN LABEL DUMMY;                                                   00039610
         IF LOGGEDON THEN %ESP TO GIVE BACK.                                  00039620
         BEGIN  LOGGEDON := FALSE;                                            00039700
         IF ESP1 NEQ 0 THEN FORGETESPDISK(ESP1);                              00039800
         IF ESP2 NEQ 0 THEN FORGETESPDISK(ESP2);                              00039900
         COM15(LL&13[33:41:7],2,USERCODE,CHARGE.[1:41],1,3600);               00040000
         END IF LOGGEDON;                                                     00040050
         END  LOGOFF;                                                         00040100
%*********************************************************************       00040200
DEFINE  SCHEDGOTO(SCHEDGOTO1)=                                                00040205
         COM15(LL&13[33:41:7],9,SCHEDGOTO1,0,0,0)#;                           00040210
%*********************************************************************       00040215
DEFINE  REQUESTIP(REQUESTIP1)=                                                00040220
         COM15(REQUESTIP1&13[33:41:7],10,0,0,0,0)#;                           00040225
%*********************************************************************       00040230
DEFINE  SCHEDSTAT(SCHEDSTAT1)=                                                00040235
         COM15(LL&IAM[33:41:7],11,SCHEDSTAT1,USERCODE,0,0)#;                  00040240
%*********************************************************************       00040245
DEFINE  SCHEDSTOP(SCHEDSTOP1)=                                                00040250
         COM15(LL&IAM[33:41:7],12,SCHEDSTOP1,USERCODE,0,0)#;                  00040255
%*********************************************************************       00040260
PROCEDURE DISCONNECTED(LL); VALUE LL; REAL LL; COMMUNICATE (-16);             00040300
 PROCEDURE RUNJOB(L,A,D); VALUE L,D; REAL L,A,D; COMMUNICATE(-19);            00040400
PROCEDURE READTAPE(R,N,F,U);VALUE R,N,F,U; REAL R,N,F,U;                      00040500
         COMMUNICATE(-15);                                                    00040600
%*****************************************************                       00040700
 DEFINE REMOVEFILE(REMOVEFILE1,REMOVEFILE2,REMOVEFILE3)=                      00040800
```

```
   COM15(REMOVEFILE1,3,REMOVEFILE2,REMOVEFILE3,0,0)#;                    00040900
%**************************************************************************00041000
 DEFINE CHANGEFILE(CHANGEFILE1,CHANGEFILE2,CHANGEFILE3,                   00041100
   CHANGEFILE4,CHANGEFILE5)=COM15(CHANGEFILE1,5,CHANGEFILE2,              00041200
   CHANGEFILE3,CHANGEFILE4,CHANGEFILE5)#;                                 00041300
%**************************************************************************00041400
 DEFINE REPLACE(REPLACE1,REPLACE2,REPLACE3,REPLACE4,REPLACE5,REPLACE6)=   00041500
   COM157(REPLACE1,4,REPLACE2,REPLACE3,REPLACE4,REPLACE5,REPLACE6)#;      00041600
%**************************************************************          00041700
DEFINE  SECURE(SECURE1,SECURE2,SECURE3)%                                  00041800
          =COM157(LL&14[33:41:7],7,SECURE1,USERCODE,USERCODE,             00041900
            SECURE2,SECURE3)#;                                            00042000
%**************************************************************************00043000
PROCEDURE CCCOM(LL,UC,C); VALUE LL,UC,C; REAL LL,UC,C;                    00043100
   COMMUNICATE(-17); % CARRIAGE CONTROL COMMUNICATE (C=1,LONG)            00043200
%**************************************************************************00049700
        BEGIN % TO SEGMENT THE NEGATIVE COMMUNICATES.                     00049800
%**************************************************************          00049900
STREAM   PROCEDURE MOVE (N)"NO  OF"(WC)"W=WDS, C=CHR FROM"(A)" TO "(B);   00050000
%**************************************************************************00050100
VALUE          N, WC;                                                     00050200
        BEGIN                                                             00050300
LOCAL           T;                                                        00050400
                SI←LOC N; SI←SI+6; DI←LOC T; DI←DI+7; DS←CHR;             00050500
                DI← B; SI←LOC WC; SI←SI+7;                                00050600
                IF SC= "W" THEN                                           00050700
           BEGIN   SI← A; DS← N WDS;                                      00050800
                   T(DS←32 WDS; DS←32 WDS);                               00050900
           END  OF WORD MOVER                                             00051000
                ELSE                                                      00051100
           BEGIN   SI← A; DS← N CHR;                                      00051200
                   T(DS←32 CHR; DS←32 CHR);                               00051300
           END  OF CHAR MOVER                                             00051400
           END  OF MOVE;                                                  00051500
      %**************************************************************     00051600
      STREAM PROCEDURE BLANK(X);                                          00051700
      %**************************************************************     00051800
            BEGIN                                                         00051900
               DI:=X;  SI:=X;                                             00052000
             7(IF SC="0" THEN ELSE JUMP OUT; DS:=LIT" "; UPS;)            00052100
           END  STREAM BLANK;                                             00052200
      %**************************************************************************00054300
      INTEGER  STREAM PROCEDURE DECCONV (OCTV);                           00054400
      VALUE          OCTV;                                              00054500
           BEGIN SI←LOC OCTV; DI←LOC DECCONV; DS←8 DEC;                   00054600
           END  OF DECIMAL CONVERT;                                       00054700
      %**************************************************************************00054800
      PROCEDURE BLACKOUT;                                                 00054900
      %**************************************************************************00055000
         BEGIN REAL I;                                                    00055100
         STREAM PROCEDURE BO(I,W); VALUE I;                               00055200
            BEGIN                                                         00055300
            SI:=LOC I; SI:=SI+7; DI:=W; DS:=CHR;                          00055400
             7(SI:=SI-1; DS:=CHR);                                        00055500
            END STREAM PROCEDURE BO;                                      00055600
         FOR I:="M","W","#","$","@" DO                                    00055700
            BEGIN                                                         00055800
            BO(I,WORK);                                                   00055900
            TWXOUT(LL,WORK[0],8,CR);                                      00056000
            END;                                                          00056100
```

```
   END PROCEDURE BLACKOUT;                                                    00056200
%**************************************************************************% 00056300
STREAM PROCEDURE   CLEAR(A,N);   VALUE N;                                   00056400
%**************************************************************************% 00056500
        BEGIN                                                               00056600
COMMENT  CLEARS A + N WORDS STARTING AT A + 1;                              00056700
            DI:=A;  DS:=8 LIT "0000";  SI:=A;  DS:=N WDS;                   00056800
        END  CLEAR;                                                         00056900
%**************************************************************************00057000
STREAM PROCEDURE TIMEUSED(W,HMSTX); VALUE HMSTX;                            00057100
%**************************************************************************00057200
        BEGIN LOCAL SV;                                                     00057300
            DI:=W;  SI:=LOC HMSTX;                                          00057400
            DS:=2 CHR;  DS:=6 LIT " HRS, ";                                 00057500
            DS:=2 CHR;  DS:=6 LIT " MIN, ";                                 00057600
            DS:=2 CHR;  DS:=1 LIT ".";                                      00057700
            DS:=1 CHR ;  DS:=5 LIT " SEC.";                                 00057800
            DS:=25LIT" ";                                                   00057900
            DI:=W; DS:=18FILL; SV:=DI;                                      00058000
            SI:=SV; DI:=W; DS:=LIT" "; DS:=25CHR; DS:=LIT LEFTARROW;        00058100
   % VOID                                                                   00058200
        END  TIMEUSED;                                                      00058300
%**************************************************************************00058400
STREAM PROCEDURE TIMEOFDAY(W,HMSTX);  VALUE HMSTX;                          00058500
%**************************************************************************00058600
        BEGIN                                                               00058700
            DI:=W;  DS:=LIT" ";  SI:=LOC HMSTX;                             00058800
            DS:=2 CHR;  DS:=LIT ":";  DS:=2 CHR;                            00058900
            SI:=SI+3;                                                       00059000
            IF SC="A" THEN DS:=4 LIT" AM." ELSE DS:=4 LIT" PM.";            00059100
            DI:=W; DS:=2FILL;                                               00059200
        END  TIMEOFDAY;                                                     00059300
%**************************************************************************00059400
REAL PROCEDURE TIMECONV(T,B);  VALUE T,B;  REAL T;  BOOLEAN B;              00059500
%**************************************************************************00059600
        BEGIN                                                               00059700
REAL            AP;                                                         00059800
INTEGER         HRS, MIN, SEC, TSEC;                                        00059900
REAL STREAM PROCEDURE ST(H,M,S,T,X);                                        00060000
        BEGIN                                                               00060100
            DI:=LOC ST; SI:=H; DS:=2 DEC; SI:=M; DS:=2 DEC;                 00060200
            SI:=S; DS:=2 DEC; SI:=T; DS:=1 DEC;                             00060300
            SI:=X; SI:=SI+7; DS:=CHR;                                       00060400
        END  STREAM ST;                                                     00060500
            HRS := T DIV 216000;                                            00060600
            MIN :=(T DIV   3600) MOD 60;                                    00060700
            SEC :=(T DIV     60) MOD 60;                                    00060800
            TSEC:=(T DIV      6) MOD 10;                                    00060900
            IF HRS GTR 11 THEN AP:= "P" ELSE AP:= "A";                      00061000
            IF HRS GTR 12 THEN HRS:=HRS-12;                                 00061100
            IF B THEN IF HRS LSS 01 THEN HRS:= 12;                          00061200
            TIMECONV:=ST(HRS,MIN,SEC,TSEC,AP);                              00061300
        END  TIMECONV;                                                      00061400
%**************************************************************************00061800
REAL PROCEDURE MAKEFN(FT,LL); VALUE LL,FT; REAL LL,FT;                      00061900
%**************************************************************************00062000
   BEGIN                                                                    00062100
      REAL STREAM PROCEDURE FN(FT,LL); VALUE LL,FT;                         00062200
        BEGIN                                                               00062300
          SI:=LOC FT; SI:=SI+5; DI:=LOC FN; DS:=3CHR;                       00062400
```

```
      SI:=LOC LL; DS:=3DEC; DS:=2LIT" ";                                00062500
      END STREAM PROCEDURE FN;                                          00062600
   MAKEFN:=FN(FT,(LL+SYSTEM));                                          00062700
   END PROCEDURE MAKEFN;                                                00062800
%*******************************************************%              00062900
PROCEDURE   CHKPT (A);  ARRAY A[0];                                     00063000
%*******************************************************%              00063100
  BEGIN LABEL DUMMY;                                                    00063200
   RLCW := REAL(LCW); % SAVE TOGGLES IN STACK                           00063210
   MOVE(40,WORDS,A[TBASE],WORK[10*TPREC]);                              00063300
   DISKOUT(TPDKADR,10*TPREC+40);                                        00063400
  END  CHKPT;                                                           00063500
%*******************************************************              00063600
PROCEDURE  CANCELCKPT(A);  ARRAY A[0];                                  00063700
  BEGIN LABEL DUMMY;                                                    00063800
  RLCW := REAL(LCW); % SAVE TOGGLES IN STACK                            00063810
   TABLEINFO := 0;                                                      00063900
   A[TBASE+10] := TEN8;                                                 00064000
   MOVE(30,WORDS,A[TBASE+10],WORK[0]);                                  00064100
   DISKWRITE(WRKTBLADR);                                                00064200
  END  CANCELCKPT;                                                      00064300
%*************************************************************************00064400
REAL PROCEDURE DATECONV(DATE); VALUE DATE; REAL DATE;                   00064500
%*************************************************************************00064600
   BEGIN                                                                00064700
   REAL M,D,Y; ARRAY L[0:15];                                           00064800
%.....................................................................00064900
   INTEGER  STREAM PROCEDURE OCTCONV (DECV);                            00065000
   VALUE         DECV;                                                  00065100
            BEGIN SI←LOC DECV; DI←LOC OCTCONV; DS←8 OCT;                00065200
            END  OF OCTAL CONVERT;                                      00065300
%.....................................................................00065400
   FILL L[*] WITH 0,31,60,91,121,152,182,213,244,274,305,335,366;       00065500
   M:=DECCONV(DATE); D:=OCTCONV(M,[30:18]); Y:=OCTCONV(M,[18:12]);      00065600
   IF D GTR 60 THEN IF Y.[46:2] NEQ 0 THEN D:=D+1;                      00065700
   Y:=M.[18:12]; M:=0; DO M:=M+1 UNTIL D LEQ L[M] OR M=12;              00065800
   D:=DECCONV(D-L[M-1]); M:=DECCONV(M);                                 00065900
   DATECONV:="0/00/00"&M[1:37:11]&D[18:36:12]&Y[36:36:12];              00066000
   END PROCEDURE DATECONV;                                              00066100
%*************************************************************          00066900
DEFINE MAKEDATE =                                                       00067000
DATE:="/00/00"&(DATE:=TIME(5))[1:13:11]&DATE[18:24:12]&DATE[36:36:12]#; 00067100
%*************************************************************%         00068700
REAL STREAM PROCEDURE  FNONLY(W1,W2,F,S); VALUE F,S;                    00068800
%*************************************************************%         00068900
  BEGIN                                                                 00069000
LABEL  SPRED, EXIT;                                                     00069100
   DI := W1;                                                            00069200
   DS := 5 LIT "FILE:";                                                 00069300
   SI := LOC F; UPS;                                                    00069400
   TALLY := 5;                                                          00069500
   CI := CI + S;                                                        00069600
   GO TO SPRED;                                                         00069700
   DS := 6 CHR;                                                         00069800
   TALLY := 11;                                                         00069900
   GO TO EXIT;                                                          00070000
 SPRED:                                                                 00070100
   6(IF SC = ALPHA THEN ELSE JUMP OUT;                                  00070200
      DS := CHR; UPT);                                                  00070300
 EXIT:                                                                  00070400
```

```
      DS := 2 LIT " ="; TALLY := TALLY + 2;                                  00070500
      FNONLY := TALLY;                                                       00070600
      S := DI;                                                               00070700
      SI := LOC S;                                                           00070800
      DI := W2;                                                              00070900
      DS := WDS;                                                             00071000
    END OF FNONLY;                                                           00071100
%************************************************************%              00073500
PROCEDURE    GENFILINE (FN, FT); VALUE FN, FT; REAL FN, FT;                  00073600
%************************************************************%              00073700
    BEGIN                                                                    00073800
REAL  X, D;                                                                  00073900
%.....................................................................       00074000
REAL STREAM PROCEDURE TYPEONLY (W,T,S); VALUE W,T,S;                         00074100
    BEGIN                                                                    00074200
LABEL  SPRED, EXIT;                                                          00074300
LOCAL  X;                                                                    00074400
      DI :=W;                                                                00074500
      DS:=6 LIT " TYPE:"; TALLY := 10;                                       00074600
      SI := LOC T;                                                           00074700
      UPS;                                                                   00074800
      CI := CI + S;                                                          00074900
      GO TO SPRED;                                                           00075000
      DS := 7 CHR;                                                           00075100
      TALLY := 17;                                                           00075200
      GO TO EXIT;                                                            00075300
 SPRED:                                                                      00075400
      7(IF SC = ALPHA THEN ELSE JUMP OUT;                                    00075500
          DS := CHR; UPT));                                                  00075600
                DS := LIT " ";                                               00075700
 EXIT:                                                                       00075800
      DS := 4 LIT " -- ";                                                    00075900
      TYPEONLY := TALLY;                                                     00076000
    END OF TYPEONLY;                                                         00076100
%.....................................................................       00076200
      X := FNONLY (L[0], D, FN, 0);                                          00076300
      X := X + TYPEONLY (D, FT, 0);                                          00076400
      TWXOUT (LL, L[0], X, NOCRLF);                                          00076500
    END OF GENFILINE;                                                        00076600
%************************************************************************%  00078500
PROCEDURE      ERROR(S,LCW,A); VALUE S; REAL S; BOOLEAN LCW; ARRAY A[0];     00078600
               FORWARD;                                                      00078800
%************************************************************************   00078900
REAL PROCEDURE DOGSLOOSE;                                                    00079000
%************************************************************************   00079100
          BEGIN                                                              00079200
REAL            LL,T;                                                        00079300
LABEL           COLLECT,EXIT;                                                00079400
                FOR LL:=MAXLINES STEP -1 UNTIL 0 DO                          00079600
                IF T:=DOGHOUSE[LL] NEQ 0 THEN                                00079700
                   IF CTRANDBASE[ROWINUSE] NEQ T THEN                        00079800
                      IF NO DOGLICENSE THEN GO TO COLLECT;                   00079900
                DOGSAROUND := DOGCATCHERS GTR 0;                             00080000
                WECANUSEDATA := NO DOGSAROUND;                               00080100
                IF WECANUSEDATA THEN % O.K. TO RETURN DISK.                  00080200
            BEGIN  %  FIXUP TANK/DISK HEADER.                                00080300
                DISKWAIT(1,WORK[*],30,TANKFILE);                             00080400
                CLEAR(WORK[10],15);                                          00080500
                WORK[ROWINUSE+10]:=CTRANDBASE[ROWINUSE];                     00080600
                WORK[0] := ROWINUSE & (ROWCOUNT:=1) [18:33:15];              00080700
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```
            DISKWAIT(0,WORK[*],30,TANKFILL);                                    00080800
            FOR T:=0 STEP 1 UNTIL 15 DO                                         00080900
        BEGIN  %  DONT GIVE AWAY THE CURRENT ROW.                               00081000
            IF T NEQ ROWINUSE AND CTRANDBASE[T] NEQ 0 THEN                      00081100
        BEGIN  %  GIVE BACK UNUSED DISK.                                        00081200
            FORGETUSERDISK(CTRANDBASE[T],TANKSIZE);                             00081300
            CTRANDBASE[T] := 0;                                                 00081400
        END  GIVEBACK;                                                          00081500
        END  FOR LOOP;                                                          00081600
        END  FIXUP TANK HEADER;                                                 00081700
            GO EXIT;                                                            00081800
    COLLECT:                                                                    00081900
            DOGCATCHERS := DOGCATCHERS+1;                                       00082000
            DOGLICENSE  := TRUE;                                                00082100
            DOGSLOOSE   := LL;                                                  00082200
    EXIT:END  DOGSLOOSE;                                                        00082300
%***************************************************************************00082400
REAL PROCEDURE FINDALETTER(WORD,TABLE,TABLESIZE);                               00082500
%***************************************************************************00082510
VALUE WORD,TABLESIZE; REAL WORD,TABLE,TABLESIZE;                                00082520
BEGIN LABEL DUMMY;                                                              00082600
REAL STREAM PROCEDURE FNDALETTER(WORD,TABLE,TABLESIZE);                         00082610
VALUE WORD,TABLESIZE;                                                           00082700
% ROUTINE COMPARES "WORD" WITH ENTRIES IN ARRAY "TABLE"                         00082800
% 1ST CHR.OF EACH "TABLE" ENTRY=NO.OF CHRS.IN WORD ([1:1]=1 IF COMPILER)00082900
% "TABLE" SHOULD BE "TABLE[1]" TO USE RETURNED VALUE AS INDEX TO "TABLE"00083000
  BEGIN LOCAL SV,T,SGN; LABEL FOUND,EXIT;;                                      00083100
  SI:=TABLE; SV:=SI; TALLY:=1;                                                  00083200
  TABLESIZE(DI:=LOC SGN; DS:=ZON; % SAVE ZONE BITS                              00083300
  SI:=SV; SI:=SI+1; DI:=LOC WORD; DI:=DI+1; % POINT TO 1ST CHRS.                00083400
  IF SC = DC THEN JUMP OUT TO FOUND;                                            00083500
  TALLY:=TALLY+1; SI:=SV; SI:=SI+8; SV:=SI);                                    00083600
  TALLY:=0; FNDALETTER:=TALLY; GO TO EXIT; % IF NOT FOUND                       00083700
FOUND:                                                                          00083800
  T:=TALLY; SI:=LOC T; DI:=LOC FNDALETTER; DS:=WDS;                             00083900
  SI:=LOC SGN; DI:=LOC FNDALETTER; DS:=ZON; % TRANSFER SIGN                     00084000
EXIT:                                                                           00084100
  END STREAM PROCEDURE FNDALETTER;                                              00084200
FINDALETTER:=FNDALETTER(WORD,TABLE,TABLESIZE);                                  00084210
END PROCEDURE FINDALETTER;                                                      00084220
%***************************************************************************00084300
REAL PROCEDURE FINDAWORD(WORD,TABLE,TABLESIZE);                                 00084400
%***************************************************************************00084410
VALUE WORD,TABLESIZE; REAL WORD,TABLE,TABLESIZE;                                00084420
BEGIN LABEL DUMMY;                                                              00084500
REAL STREAM PROCEDURE FNDAWORD(WORD,TABLE,TABLESIZE);                           00084510
VALUE WORD,TABLESIZE;                                                           00084600
% ROUTINE COMPARES "WORD" WITH ENTRIES IN ARRAY "TABLE"                         00084700
% 1ST CHR.OF EACH "TABLE" ENTRY=NO.OF CHRS.IN WORD ([1:1]=1 IF COMPILER)00084800
% 1ST CHR. OF "WORD" = NO. OF CHRS. INPUT BY USER ( MAX. = 7 )                  00084900
% "TABLE" SHOULD BE "TABLE[1]" TO USE RETURNED VALUE AS INDEX TO "TABLE"00085000
  BEGIN LOCAL SV,WRDSIZ,TBLSIZ,SGN; LABEL FOUND,EXIT;;                          00085100
  SI:=LOC WORD; DI:=LOC WRDSIZ; DI:=DI+7; DS:=CHR; % WORD SIZE                  00085200
  SI:=TABLE; SV:=SI; TALLY:=1;                                                  00085300
  TABLESIZE(DI:=LOC SGN; DS:=ZON; % SAVE ZONE BITS                              00085400
  SI:=SV; DI:=LOC TBLSIZ; DI:=DI+7; DS:=NUM; % LENGTH OF TABLE ENTRY            00085500
  SI:=LOC WRDSIZ; SI:=SI+7; DI:=LOC TBLSIZ; DI:=DI+7;                           00085600
  IF SC GEQ DC THEN % WRDSIZ AT LEAST AS LARGE AS TBLSIZ                        00085700
    BEGIN                                                                       00085800
    SI:=SV; SI:=SI+1; DI:=LOC WORD; DI:=DI+1; % POINT TO ACTUAL CHRS.           00085900
```

```
      IF WRDSIZ SC = DC THEN JUMP OUT TO FOUND;                              00086000
      END;                                                                   00086100
   TALLY:=TALLY+1; SI:=SV; SI:=SI+8; SV:=SI);                                00086200
   TALLY:=0; FNDAWORD:=TALLY; GO TO EXIT; % IF NOT FOUND                     00086300
FOUND:                                                                       00086400
   WRDSIZ:=TALLY; SI:=LOC WRDSIZ; DI:=LOC FNDAWORD; DS:=WDS;                 00086500
   SI:=LOC SGN; DI:=LOC FNDAWORD; DS:=ZON;  % TRANSFER SIGN                  00086600
EXIT:                                                                        00086700
   END STREAM PROCEDURE FINDAWORD;                                           00086800
FINDAWORD:=FNDAWORD(WORD,TABLE,TABLESIZE);                                   00086810
END PROCEDURE FINDAWORD;                                                     00086820
%************************************************************************* 00087602
PROCEDURE ENTERESP(LL,ADRS,A);VALUE LL,ADRS; REAL LL,ADRS; ARRAY A[0];       00087603
%************************************************************************* 00087604
% THIS PROCEDURE IS USED TO KEEP TRACK OF ESP DISK SEGMENTS ALLOCATED        00087605
% FOR LABEL EQUATION USEAGE. EACH LOGICAL LINE HAS A VARIABLE CALLED         00087606
% "ESPWORD" WHICH IS COMPRISED OF:                                           00087607
%          ESPFLAG = ESPWORD.[1:1] ( ON WHEN ESPTABLE IS FULL )              00087608
%          ESPCOUNT= ESPWORD.[2:8] ( NUMBER OF ENTRIES IN ESPTABLE )         00087609
%          FIRSTESP= ESPWORD.[20:28] (1ST ESP ADDRESS FOR LBL. EQN. )        00087610
% EACH ENTRY IN "ESPTABLE" IS COMPRISED OF:                                  00087611
%          ESPTABLE[I].[1:1] (MARKS THIS WORD IN USE )                       00087612
%          ESPTABLE[I].[2:8] (LOGICAL LINE USING THIS WORD )                 00087613
%          ESPTABLE[I].[20:28] (ADDRESS OF ESP SEGMENT IN USE )              00087614
% "ESPTABLE" IS DECLARED [0:ESPTABLESIZE]                                    00087615
% WHEN A POSITIVE VALUE FOR LL IS PASSED TO THIS PROCEDURE, AN               00087616
% ENTRY IS PLACED IN ESPTABLE FOR THAT LINE AND ESPCOUNT IS INCREMENTED.     00087617
% ESPFLAG IS TURNED ON IN THE EVENT THAT THE ESPTABLE IS COMPLETELY          00087618
% FILLED. WHEN A NEGATIVE VALUE FOR LL IS PASSED TO THIS PROCEDURE,          00087619
% AND A NON-NEGATIVE VALUE FOR ADRS IS PASSED, THE ENTRIES FOR THE           00087620
% SPECIFIED LINE ARE REMOVED FROM THE TABLE, AND ESPWORD IS RESET            00087621
% TO ZERO. WHEN BOTH LL AND ADRS ARE NEGATIVE, THE ENTRIES FOR THE           00087622
% SPECIFIED LINE ARE REMOVED FROM THE TABLE AND THE ESP SEGEMENTS            00087623
% ADDRESSED BY EACH TABLE ENTRY ARE RETURNED TO THE SYSTEM. ESPWORD          00087624
% IS ALSO RE-SET TO ZERO.                                                    00087625
   BEGIN                                                                     00087626
   BOOLEAN DELINK,FORGET; REAL I,WORD; LABEL EXIT;                           00087628
   DELINK := BOOLEAN(LL.[1:1]); LL:=ABS(LL);                                 00087630
   FORGET := BOOLEAN(ADRS.[1:1]); ADRS:=ABS(ADRS);                           00087632
   FOR I:=0 STEP 1 UNTIL ESPTABLESIZE DO                                     00087634
   IF DELINK THEN                                                            00087636
      BEGIN                                                                  00087638
      IF BOOLEAN((WORD:=ESPTABLE[I]).[1:1]) THEN % VALID ENTRY               00087640
      IF WORD.[2:8]=LL THEN % ENTRY FOR THIS LINE                            00087642
         BEGIN                                                               00087644
         ESPCOUNT := ESPCOUNT - 1;                                           00087646
         IF FORGET THEN                                                      00087648
         IF (WORD:=WORD.[20:28]) NEQ 0 THEN FORGETESPDISK(WORD);             00087650
         ESPTABLE[I]:=0;                                                     00087652
         IF ESPCOUNT = 0 THEN % NO MORE ENTRIES FOR THIS LINE                00087654
            BEGIN                                                            00087656
            ESPWORD := 0; GO TO EXIT;                                        00087658
            END;                                                             00087660
         END; % IF ENTRY FOR THIS LINE                                       00087662
      END % IF DELINK                                                        00087664
   ELSE                                                                      00087666
      BEGIN % ENTERING NEW VALUE IN TABLE                                    00087668
      IF NOT BOOLEAN(ESPTABLE[I].[1:1]) THEN % AVAILABLE WORD                00087670
         BEGIN                                                               00087672
         ESPTABLE[I] := -ADRS & LL[2:40:8];                                  00087674
```

```
            ESPCOUNT := ESPCOUNT + 1;                                          00087676
            GO TO EXIT;                                                        00087678
            END; % IF AVAILABLE WORD                                           00087680
         END; % IF ENTERING NEW VALUE                                          00087682
      ESPFLAG := 1; % NO ROOM IN TABLES                                        00087684
EXIT:                                                                          00087686
      END PROCEDURE ENTERESP;                                                  00087688
%**************************************************************************** 00087700
REAL PROCEDURE SCAN(PTR,STACKWORD,COMPVALUE,WORKENDADRS,PNTR);                 00087800
%**************************************************************************** 00087810
VALUE COMPVALUE,WORKENDADRS;                                                   00087820
REAL PTR,STACKWORD,COMPVALUE,WORKENDADRS,PNTR;                                 00087830
BEGIN LABEL DUMMY;                                                             00087900
REAL STREAM PROCEDURE SCN(PTR,STACKWORD,COMPVALUE,WORKENDADRS,PNTR);           00087910
VALUE COMPVALUE,WORKENDADRS;                                                   00088000
   BEGIN LOCAL SV,DV,T; LABEL BLNKS,EXIT;                                      00088100
   % PUTS A TOKEN INTO STACKWORD                                               00088200
   % RETURNS 1,2,3 OR 5 FOR ALPHANUMERIC,NUMERIC,SPECIAL,END OF RECORD         00088300
   DI:=WORKENDADRS; DS:=LIT LEFTARROW; % MARK END OF RECORD                    00088400
   SI:=PTR; SI:=SI+5; SI:=SC; % STARTING ADDRESS FOR SCAN                      00088500
% VOID                                                                        00088600
BLNKS:                                                                         00088700
   IF SC=" " THEN % IGNORE ALL BLANKS                                          00088800
      BEGIN                                                                    00088900
      SI:=SI+1; GO TO BLNKS;                                                   00089000
      END;                                                                     00089100
   IF SC="," THEN % IGNORE ALL COMMAS                                          00089200
      BEGIN                                                                    00089300
      SI:=SI+1; GO TO BLNKS;                                                   00089400
      END;                                                                     00089500
   SV:=SI; SI:=LOC SV; DI:=PNTR; DS:=WDS; SI:=SV; DI:=STACKWORD;               00089510
   IF SC = LEFTARROW THEN % CHECK FOR END OF RECORD                            00089600
      BEGIN                                                                    00089700
      SV:=SI;      SI:=LOC SV;       SI:=SI+5;                                 00089800
      DV:=DI; DI:=LOC WORKENDADRS; DI:=DI+5;                                   00089900
      IF 3 SC = DC THEN % END OF RECORD                                        00090000
         BEGIN                                                                 00090100
         DI:=DV; DS:=7LIT"8000000"; DS:=LIT LEFTARROW;                         00090200
         TALLY:=5; SCN:=TALLY; SI:=SV; GO TO EXIT;                             00090300
         END; %                                                                00090400
      SI:=SV; DI:=DV;                                                          00090500
      END; % IF LEFTARROW                                                      00090600
   IF SC=ALPHA THEN IF SC LEQ "9" THEN % LETTER OR DIGIT                       00090700
      BEGIN                                                                    00090800
      IF SC GEQ "0" THEN IF SC LEQ "9" THEN;                                   00090900
      IF TOGGLE THEN % DIGIT STRING                                            00091000
         BEGIN                                                                 00091100
         TALLY:=2; SCN:=TALLY; % CODE FOR DIGIT STRING                         00091200
         TALLY:=1; SI:=SI+1;                                                   00091300
         7(IF SC GEQ "0" THEN IF SC LEQ "9" THEN;                              00091400
         IF TOGGLE THEN ELSE JUMP OUT;                                         00091500
         SI:=SI+1; TALLY:=TALLY+1);                                            00091600
         T:=TALLY; SI:=SI-T; DS:= T OCT; GO TO EXIT;                           00091700
         END; % IF DIGIT STRING                                                00091800
      TALLY:=1; SCN:=TALLY; % CODE FOR ALPHANUMERIC STRING                     00091900
      DV:=DI; DS:=8LIT"0       "; DI:=DI-7; TALLY:=0;                          00092000
      7(IF SC = ALPHA THEN ELSE JUMP OUT;                                      00092100
      IF SC GTR COMPVALUE THEN JUMP OUT;                                       00092200
      DS:=CHR; TALLY:=TALLY+1);                                                00092300
      T:=TALLY; SV:=SI; SI:=LOC T; SI:=SI+7; DI:=DV; DS:=CHR; % LENGTH         00092400
```

```
      SI:=SV;                                                                  00092500
      63(IF SC=ALPHA THEN ELSE JUMP OUT,                                       00092600
      IF SC GTR COMPVALUE THEN JUMP OUT; SI:=SI+1);                            00092700
      GO TO EXIT;                                                              00092800
      END; % IF ALPHA                                                          00092900
   TALLY:=3; SCN:=TALLY; % CODE FOR SPECIAL CHARACTER                          00093000
   DS:=7LIT"8000000"; DS:=CHR; % RIGHT JUSTIFIED                               00093100
EXIT:                                                                         00093200
   SV:=SI; SI:=LOC SV; DI:=PTR; DS:=WDS; % NEXT ADDRESS                       00093300
   END STREAM PROCEDURE SCN;                                                  00093400
SCAN:=SCN(PTR,STACKWORD,COMPVALUE,WORKENDADRS,PNTR);                          00093410
END PROCEDURE SCAN;                                                           00093420
%*************************************************************************** 00093500
BOOLEAN PROCEDURE YOUFINDAVERB(STACK,VERBLOC,NUMOFVERBS);                     00093600
%*************************************************************************** 00093610
VALUE NUMOFVERBS; REAL STACK,VERBLOC,NUMOFVERBS;                              00093620
BEGIN                                                                         00093630
LABEL L;                                                                      00093640
BOOLEAN STREAM PROCEDURE YOUFNDAVERB(STACK,VERBLOC,NUMOFVERBS);               00093700
VALUE                      NUMOFVERBS;                                        00093800
   BEGIN                                                                      00093900
   LABEL          FOUND, AWAY;                                                00094000
   LOCAL          T, SAVD;                                                    00094100
   DI := VERBLOC; SI := STACK;                                                00094200
   NUMOFVERBS(IF SC GEQ DC THEN                                               00094300
      BEGIN SAVD := DI; SI:=SI-1; DI := LOC T; DI := DI + 7;                  00094400
      DS := CHR; DI := SAVD;                                                  00094500
      IF T SC = DC THEN JUMP OUT TO FOUND;                                    00094600
      DI := SAVD;                                                             00094700
      END;                                                                    00094800
   SI := STACK;                                                               00094900
   DI := DI + 15);                                                            00095000
   GO AWAY;                                                                   00095100
FOUND: SI := SAVD; SI := SI + 7; DI := STACK;                                 00095200
   DS := WDS; TALLY := 1;   % REPLACE VERB WITH DEFINITION                    00095300
   YOUFNDAVERB:=TALLY;                                                        00095400
AWAY: END OF YOUFINDAVERB;                                                    00095500
YOUFINDAVERB:=YOUFNDAVERB(STACK,VERBLOC,NUMOFVERBS);                          00095510
END PROCEDURE YOUFINDAVERB;                                                   00095520
%*************************************************************************** 00095600
REAL STREAM PROCEDURE ADDRESS(W);                                             00095700
   BEGIN SI:=W; ADDRESS:=SI; END;                                             00095800
%*************************************************************************** 00095900
STREAM PROCEDURE STICK(P,A,ENDADRS); VALUE P,ENDADRS;                         00096000
%*************************************************************************** 00096100
   BEGIN LOCAL SV,DV; LABEL EXIT;                                             00096200
   % TRANSFERS SS MESSAGE FROM WORK ARRAY                                     00096300
   DI:=A; DS:=8LIT" "; SI:=A; DS:=14 WDS; % BLANK 15 WORDS                    00096400
   DI:=ENDADRS; % INSERT RECORD MARKER DS:=LIT LEFTARROW;                      00096500
   SI:=P; DI:=A;                                                              00096600
   2(60(IF SC=LEFTARROW THEN                                                  00096700
      BEGIN                                                                   00096800
      SV:=SI; SI:=LOC SV; SI:=SI+5;                                           00096900
      DV:=DI; DI:=LOC ENDADRS; DI:=DI+5;                                      00097000
      IF 3SC=DC THEN JUMP OUT 2 TO EXIT; % END OF RECORD                      00097100
      SI:=SV; DI:=DV;                                                         00097200
      END;                                                                    00097300
   DS:=CHR));                                                                 00097400
EXIT:                                                                         00097500
   END STREAM PROCEDURE STICK;                                                00097600
```

```
%*****************************************************************************00097610
BOOLEAN PROCEDURE FIXERROR(SADRS,EADRS);                                        00097612
VALUE SADRS,EADRS; REAL SADRS,EADRS;                                            00097613
BEGIN LABEL DUMMY;                                                              00097614
BOOLEAN STREAM PROCEDURE FXERROR(SADRS,EADRS); VALUE SADRS,EADRS;               00097615
% SADRS IS STARTING ADDRESS OF USERS INPUT RECORD                               00097616
% EADRS IS ADDRESS OF END OF USERS INPUT                                        00097618
% ROUTINE CHECKS SYNTAX OF "FIX" REQUESTS                                       00097620
   BEGIN LOCAL SV,D; LABEL EXIT;                                                00097622
   SI:=SADRS; TALLY:=1;                                                         00097624
   20(IF SC LSS "0" THEN SI:=SI+1 ELSE JUMP OUT); % SCAN TO DIGIT               00097626
   IF TOGGLE THEN GO EXIT; % NO DIGITS                                          00097628
   8(IF SC LSS "0" THEN JUMP OUT;IF SC GTR "9" THEN JUMP OUT; SI:=SI+1);        00097630
   20(IF SC=" " THEN SI:=SI+1 ELSE JUMP OUT); % SCAN TO CHR.                    00097632
   IF TOGGLE THEN GO TO EXIT; % EMPTY FIELD                                     00097634
   DI:=LOC D; DI:=DI+7; DS:=CHR; % SAVE DELIMITER                               00097636
   IF SC=D THEN GO TO EXIT; % NO STRING                                         00097638
   IF SC = LEFTARROW THEN                                                       00097640
      BEGIN                                                                     00097642
      SV:=SI; SI:=LOC SV; SI:=SI+5; DI:=LOC EADRS; DI:=DI+5;                    00097644
      IF 3SC=DC THEN % LEFT ARROW REPLACEMENT                                   00097646
         BEGIN TALLY:=0; GO EXIT; END ELSE SI:=SV;                              00097648
      END; % IF LEFTARROW                                                       00097650
   63(IF SC=LEFTARROW THEN % CHECK FOR END OF RECORD                            00097652
      BEGIN                                                                     00097654
      SV:=SI; SI:=LOC SV; SI:=SI+5; DI:=LOC EADRS; DI:=DI+5;                    00097656
      IF 3SC=DC THEN JUMP OUT TO EXIT ELSE SI:=SV;                              00097658
      END;                                                                      00097660
   IF SC NEQ D THEN SI:=SI+1 ELSE JUMP OUT);                                    00097662
   IF TOGGLE THEN GO EXIT; % MISSING 2ND DELIMITER                              00097664
   TALLY:=0;                                                                    00097666
EXIT:                                                                           00097668
   FXERROR:=TALLY;                                                              00097670
   END STREAM PROCEDURE FXERROR;                                                00097672
FIXERROR:=FXERROR(SADRS,EADRS);                                                 00097674
END PROCEDURE FIXERROR;                                                         00097676
%*****************************************************************************00097700
PROCEDURE SCANNER(STRTADRS,A,LCW,ENDADRS); VALUE STRTADRS,ENDADRS;              00097800
%*****************************************************************************00097900
REAL STRTADRS,ENDADRS; BOOLEAN LCW; ARRAY A[0];                                 00098000
   BEGIN                                                                        00098100
   % MAIN CANDE SCANNER                                                        00098200
   % RETURNS TYPE OF INPUT IN A[BASE].[3:3] -                                  00098300
   %   0 = COMMENT ( INPUT STARTS WITH QUOTE )                                  00098400
   %   1 = VERB    ( INPUT STARTS WITH A VERB )                                 00098500
   %   2 = NUMBER  ( INPUT STARTS WITH A NUMBER )                               00098600
   %   3 = SPECIAL ( INPUT STARTS WITH A SPECIAL CHARACTER )                    00098700
   %   4 = SSMSG   ( INPUT IS AN SS MESSAGE )                                   00098800
   %   5 = NULL INPUT                                                           00098900
   % WHEN INPUT TYPE = 2 ( NUMBER ) -                                          00099000
   %   A[BASE+1] = OCTAL NUMBER                                                 00099100
   %   A[BASE+2] =                                                              00099200
   %      0 = MORE INFORMATION FOLLOWS NUMBER                                   00099300
   %      1 = NO INFORMATION FOLLOWS NUMBER ( DELETION )                        00099400
   %      3 = A "FIX" REQUEST                                                   00099500
   % RETURNS NUMBER OF TOKENS IN STACK IN A[BASE].[33:15]                       00099600
   % RETURNS NUMBER OF "VERBS" FOUND IN A[BASE].[18:15]                        00099700
   % FOR EACH VERB -                                                           00099800
   %   A [VERBLOCATION ].[33:15] = NUMERIC CODE ASSOCIATED WITH VERB            00099900
   %   A [VERBLOCATION ].[18:15] = NUMBER OF PARAMETERS FOR THE VERB            00100000
```

```
      REAL I, K, P, S, MS, TYPE, VERBS, PLUSORMINUS;                          00100100
      BOOLEAN ERRFLG,PLUS;                                                    00100200
      LABEL NULL,STARTCOM,LOOKFERPARAMS,TOOLONG,SNEAKIN,GENSEQ,               00100300
      FIXCHECK,SETERROR,FINISH,EXIT;                                          00100400
      DEFINE ERRV = 3"000000000000036"&3[1:46:2]#;                            00100500
      DEFINE SEQV = 3"000060000000065"&3[1:46:2]#;                            00100600
      MS := S := BASE + 1; % INITIALIZE STACK INDICES                         00100700
      P := STRTADRS; % ADDRESS OF WORK[1];                                    00100800
NULL:                                                                         00100900
      IF TYPE:=SCAN(P,A[S],"Z",ENDADRS,SCANPTR[S-SBASE])=5 THEN % EOR         00101000
         BEGIN                                                                00101100
         A[BASE] := 0 & 5[3:45:3]; % NULL RECORD                              00101200
         GO TO EXIT;                                                          00101300
         END;                                                                 00101400
      IF TYPE=2 THEN % INPUT STARTS WITH NUMBER                               00101500
         BEGIN % CHECK FOR DELETION (NUMBER FOLLOWED BY END OF RECORD)        00101600
         K:=P; A[S:=S+1] :=                                                   00101700
         IF SCAN(P,I,"Z",ENDADRS,SCANPTR[S-SBASE])=5 AND K=P THEN 1 ELSE 0;   00101710
         A[BASE] := 2 & 2[3:45:3]; % OCTAL NUMBER CODE AND STACK SIZE         00101800
         GO TO EXIT;                                                          00101900
         END; % IF RECORD STARTS WITH NUMBER                                  00102000
      %.....................................................................   00102100
      IF TYPE=1 THEN % ALPHANUMERIC TOKEN                                     00102200
         BEGIN                                                                00102300
STARTCOM:                                                                     00102400
         PLUSORMINUS:=0;                                                      00102500
         IF YOUFINDAVERB(A[S],VERBTABLE[0],NUMOFVERBS) THEN % C&E VERB        00102600
            BEGIN                                                             00102700
            MS := S; % SAVE STACK LOCATION OF VERB                            00102800
            VERBS := VERBS + 1; % INCREMENT VERB COUNT                        00102900
            IF A[S],[33:15]=VSSMSG THEN % SS MESSAGE                          00103000
               BEGIN                                                          00103100
               IF VERBS NEQ 1 THEN GO TO SETERROR; % MUST BE FIRST VERB       00103200
               IF SCAN(P,A[S:=S+1],"9",ENDADRS,SCANPTR[S-SBASE]) GTR 2 THEN   00103300
               GO TO SETERROR;                                                00103310
               STICK(P,L,ENDADRS); % TRANSFER MESSAGE TO ARRAY "L"            00103400
               A[BASE] := 0 & 4[3:45:3]; % CODE FOR SSMSG                     00103500
               GO TO EXIT;                                                    00103600
               END; % IF SS MESSAGE                                           00103700
            IF BOOLEAN(A[S],[8:1]) THEN % "SPECIAL" VERB - STOP SCANNING      00103800
            IF VERBS NEQ 1 THEN % "SPECIAL" VERBS NOT ALLOWED AFTER ";"       00103900
               BEGIN                                                          00103910
               A[S]:=VERBTABLE[A[S],[9:9]]; GO TO SETERROR;                   00103920
               END ELSE GO TO FINISH;                                         00103930
LOOKFERPARAMS:                                                                00104000
            IF (S:=S+1) GEQ PREVROW THEN % DONT CLOBBER STACK                 00104100
               BEGIN                                                          00104200
TOOLONG:       ERRSW := "TOOMUCH";                                            00104300
               MSGPTR := 30;                                                  00104400
               GO TO SETERROR;                                                00104500
               END;                                                           00104600
            IF TYPE:=SCAN(P,A[S],"9",ENDADRS,SCANPTR[S-SBASE])=5 THEN         00104700
            GO TO FINISH;                                                     00104710
            IF TYPE=3 THEN % PARAMETER IS SPECIAL CHARACTER                   00104800
               BEGIN                                                          00104900
               PLUSORMINUS := 0;                                              00105000
               IF A[S] = ";" THEN % END OF LOGICAL REQUEST                    00105100
                  BEGIN                                                       00105200
SNEAKIN:          IF TYPE:=SCAN(P,A[S],"Z",ENDADRS,SCANPTR[S-SBASE])=5 THEN   00105300
                  GO TO FINISH;                                               00105310
```

```
            IF TYPE=1 THEN % ALPHANUMERIC TOKEN FOLLOWS ";"                    00105400
               BEGIN                                                           00105500
               A[MS] := A[MS] & (S-MS-1)[18:33:15]; % PARAMETER COUNT          00105600
               MS := S; % NEXT VERB LOCATION                                   00105700
               GO TO STARTCOM;                                                 00105800
               END; % IF ALPHANUMERIC STRING FOLLOWS ";"                       00105900
            IF TYPE=3 THEN % SPECIAL CHARACTER FOLLOWS ";"                     00106000
               BEGIN                                                           00106100
               IF A[S]=";" THEN GO TO SNEAKIN; % REDUNDANT                     00106200
               IF A[S]="""" THEN GO TO FINISH; % COMMENT AFTER ";"             00106300
               IF A[S]="+" THEN GO TO GENSEQ; % RESEQ SHORTHAND                00106400
               END; % IF SPECIAL CHARACTER FOLLOWS ";"                         00106500
            GO TO SETERROR; % NOTHING ELSE ALLOWED AFTER ";"                   00106600
            END; % IF PARAMETER = ";"                                          00106700
         IF A[S]="-" THEN PLUSORMINUS:=2 ELSE                                  00106800
         IF A[S]="+" THEN PLUSORMINUS:=3;                                      00106850
         GO LOOKFERPARAMS; % SAVE ALL SPECIAL CHARACTERS                       00106900
         END; % IF PARAM IS A SPECIAL CHARACTER                                00106950
      IF TYPE=1 THEN % ALPHANUMERIC PARAMETER                                  00107000
         BEGIN                                                                 00107050
         PLUSORMINUS:=0;                                                       00107100
         GO LOOKFERPARAMS;                                                     00107150
         END; % IF ALPHANUMERIC PARAMETER                                      00107200
      % TYPE = 2 , NUMERIC PARAMETER                                          00107250
      IF PLUSORMINUS GTR 0 THEN % SIGNED NUMBER                                00107300
         BEGIN                                                                 00107350
         A[S] := A[S] & PLUSORMINUS[1:46:2]; % SIGNED NUMBER                   00107400
         IF NOT PLUS THEN A[S:=S-1] := A[S+1]; PLUS := FALSE;                  00107450
         END;                                                                  00107500
         PLUSORMINUS := 0;                                                     00107550
         GO LOOKFERPARAMS;                                                     00107600
         END; % IF A CANDE VERB                                                00107650
      MATCH(A[S],[6:42],"FIX    ") GO TO FIXCHECK;                             00107700
      GO TO SETERROR; % ALPHA STRING NOT A VERB OR A "FIX"                     00107750
      END; % IF TOKEN IS ALPHANUMERIC                                          00107800
   IF TYPE=3 THEN % TOKEN IS A SPECIAL CHARACTER                               00107850
      BEGIN                                                                    00107900
      IF A[S]="+" THEN % SEQUENCE REQUEST                                      00107950
         BEGIN                                                                 00108000
GENSEQ:  PLUSORMINUS := 3; % NEXT PARAM WILL BE INCREMENT                      00108050
         MS := S; % MARK STACK LOCATION OF "SEQ" VERB                          00108100
         VERBS := VERBS + 1; PLUS := TRUE;                                     00108150
         A[S] := SEQV; % REPLACE "+" WITH SEQUENCE VERB CODE                   00108200
         GO LOOKFERPARAMS;                                                     00108250
         END; % IF; "+"                                                        00108300
      IF A[S]="*" THEN % A "FIX" REQUEST                                       00108350
         BEGIN                                                                 00108400
FIXCHECK:                                                                      00108450
         IF TYPE:=SCAN(P,A[S],"9",ENDADRS,SCANPTR[S-SBASE]) NEQ 2 THEN         00108500
         GO TO SETERROR;                                                       00108510
         IF (S:=S+1) GEQ PREVRCW THEN GO TO TOOLONG;                           00108550
         A[S] := 3; % DENOTES A "FIX"                                          00108600
         A[BASE] := 2 & 2[3:45:3]; % "FIX" CODE AND PARAM. COUNT               00108650
         GO TO EXIT;                                                           00108700
         END; % IF "FIX"                                                       00108750
      IF A[S]=";" THEN GO TO NULL; % INPUT STARTS WITH ";"                     00108800
      IF A[S]="""" THEN % COMMENT                                              00108850
         BEGIN                                                                 00108900
         A[BASE] := 0;                                                         00108950
         GO TO EXIT;                                                           00109000
```

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          END;                                                                  00109050
SETERROR:                                                                       00109100
       A[MS+1] := A[S]; % PLACE ERRONEOUS TOKEN IN 1ST PARAM. POSITION          00109150
       A[MS] := ERRV; % CALL ON ERROR ROUTINE                                   00109200
       VERBS := VERBS + 1;                                                      00109250
       ERRFLG := TRUE;                                                          00109300
       S := MS + 2; % ADJUST FOR CORRECT PARAMETER COUNT                        00109350
       END; % IF TOKEN IS A SPECIAL CHARACTER                                   00109400
FINISH:                                                                         00109450
   A[MS] := A[MS] & (S=MS-1)[18:33:15]; % PARAMETER COUNT                       00109500
   A[BASE] := (S=BASE-1) & VERBS[18:33:15] &                                    00109550
   REAL(ERRFLG)[17:47:1] & 1[3:45:3];                                           00109600
EXIT:                                                                           00109650
   END PROCEDURE SCANNER;                                                       00109700
%***************************************************************************** 00109750
BOOLEAN STREAM PROCEDURE CHECKBIT(N,LST); VALUE N;                              00109800
BEGIN SI:=LST; SKIP SB; SKIP N SB; IF SB THEN TALLY:=1;                         00109900
CHECKBIT:=TALLY; END STREAM PROCEDURE CHECKBIT;                                 00110000
%***************************************************************************** 00200000
REAL PROCEDURE  CHANGEWHICH(A);  ARRAY A[0];                                    00200100
  BEGIN                                                                         00200200
REAL  T, S, WHICH;                                                              00200300
LABEL  BADPARAM,GETYPE,BADTYPE,BADWORD,EXIT;                                    00200400
BOOLEAN SRC,OBJ;                                                                00200410
  IF T := A[SREG:=BASE-A[BASE]].FF = 0 THEN                                     00200500
  BEGIN  WHICH := 0; A[BASE] := "NOPARAM";                                      00200600
     SREG := BASE; MSGPTR := 10;                                                00200700
     GO EXIT                                                                    00200800
  END;                                                                          00200900
   S := SREG;                                                                   00201000
   INC(SREG);                                                                   00201100
   IF T = 1 THEN                                                                00201200
  BEGIN                                                                         00201300
   MATCH(WHICH:=0&A[SREG][6:6:42],"PASSWOR") WHICH:=5                           00201400
   ELSE MATCH(WHICH,"NAME   ") WHICH:=6                                         00201500
   ELSE GO BADPARAM;                                                            00201600
   GO EXIT;                                                                     00202100
  END;                                                                          00202200
   MATCH(A[SREG],[6:42],"TYPE   ")                                              00202300
  BEGIN  WHICH := 1;                                                            00202400
GETYPE:                                                                         00202500
   MATCH(A[INC(SREG)],[6:42],"TO     ") INC(SREG);                              00202600
   IF A[SREG].[3:3] NEQ 0 THEN                                                  00202700
  BEGIN                                                                         00202800
     IF A[BASE+1] := ABS(FINDAWORD(A[SREG],TYPETABLE[1],                        00202900
        NUMOFTYPES)) = 0 THEN                                                   00203000
  BEGIN                                                                         00203100
BADTYPE:                                                                        00203200
     WHICH := 0; MSGPTR := 20;                                                  00203300
     GO EXIT                                                                    00203400
  END                                                                           00203500
  END  ELSE                                                                     00203600
   IF A[SREG] = ":" THEN                                                        00203700
  BEGIN                                                                         00203800
     IF A[BASE+1] := ABS(FINDALETTER(A[INC(SREG)],                              00203900
                          TYPETABLE[1], NUMOFTYPES))                            00204000
          = 0 THEN GO BADTYPE;                                                  00204100
  END  ELSE  GO BADPARAM;                                                       00204200
   GO EXIT                                                                      00204300
  END;     % OF TYPE ANALYSIS                                                  00204400
```

```
      IF A[SREG].[3:3] = 0 THEN GO BADPARAM;                                00204500
      MATCH(A[SREG].[6:42],"SOURCE ")                                       00204510
    BEGIN                                                                   00204515
      IF OBJ THEN GO BADPARAM;                                              00204520
      SRC := TRUE; INC(SREG);                                               00204525
    END;                                                                    00204530
      MATCH(A[SREG].[6:42],"OBJECT ")                                       00204535
    BEGIN                                                                   00204540
      IF SRC THEN GO BADPARAM;                                              00204545
      OBJ := TRUE; INC(SREG);                                               00204550
    END;                                                                    00204555
      IF FINDAWORD(A[SREG], RESWRDTABLE[1],                                 00204600
            NUMOFRESWRDS) NEQ 0 THEN                                        00204700
    BADWORD:                                                                00204800
     BEGIN                                                                  00204900
      WHICH:=0; MSGPTR:=29; GO EXIT;                                        00205000
     END;                                                                   00205100
      A[BASE] := A[SREG].[6:42]; % MUST BE FILE NAME                        00205200
      WHICH := 2;                                                           00205300
      MATCH(A[INC(SREG)].[6:42],"TYPE    ") GO GETYPE;                      00205400
      MATCH(A[SREG].[6:42],"LOCK    ")                                      00205500
     BEGIN  WHICH := 4;                                                     00205600
       INC(SREG);                                                           00205700
     END  ELSE  WHICH := 3;                                                 00205800
      MATCH(A[SREG].[6:42],"TO      ")  INC(SREG);                          00205900
      IF A[SREG].[3:3] = 0 THEN GO BADPARAM;                                00206000
      IF FINDAWORD(A[SREG], RESWRDTABLE[1],                                 00206100
            NUMOFRESWRDS) NEQ 0 THEN GO BADWORD;                            00206200
      IF COMPAR(A[SREG].[6:42],"FACTOR ") OR                                00206205
         COMPAR(A[SREG].[6:42],"SF     ") THEN                              00206210
     BEGIN INC(SREG); WHICH := 7; % CHANGING SAVE FACTOR                    00206215
      MATCH(A[SREG].[6:42],"TO      ") INC(SREG); % OPTIONAL WORD           00206220
      A[BASE+1]:=IF SRC THEN 1 ELSE IF OBJ THEN 2 ELSE 0;                   00206225
      IF A[SREG].[3:3] = 0 THEN % NUMBER                                    00206230
     BEGIN A[BASE+2] := A[SREG]; GO TO EXIT;                                00206235
     END ELSE GO BADPARAM;                                                  00206240
     END; % IF "FACTOR"                                                     00206245
      IF (A[BASE+1]:=A[SREG].[6:42]).[42:6] NEQ " " THEN % TOO LONG         00206300
         BEGIN                                                              00206310
            WHICH:=0; MSGPTR:=42; GO EXIT;                                  00206320
         END;                                                               00206330
    EXIT:                                                                   00206400
      IF WHICH NEQ 0 THEN                                                   00206500
      IF T NEQ SREG - S THEN                                                00206600
     BEGIN  WHICH := 0;  SREG := S+T;                                       00206700
       MSGPTR := 10;                                                        00206800
     END ELSE                                                               00206900
     BEGIN                                                                  00206910
         IF WHICH NEQ 7 AND (SRC OR OBJ) THEN                               00206920
         BEGIN                                                              00206930
         A[SREG]:=(IF SRC THEN "SOURCE " ELSE "OBJECT ")& 6[3:45:3];        00206940
   BADPARAM:                                                                00206950
         WHICH:=0; MSGPTR:=8;                                               00206960
         END;                                                               00206970
     END;                                                                   00206980
      ERRSW := A[SREG];                                                     00207000
      CHANGEWHICH := WHICH;                                                 00207100
   COMMENT COMPILER CHECK;                                                  00207110
     IF WHICH EQL 1 OR WHICH EQL 2 THEN % COMPILER NAME SPECIFIED           00207112
     IF CHECKBIT((A[BASE+1]-1) DIV 1, RESTRICTEDLANGUAGES) THEN             00207114
```

```
   BEGIN CHANGEWHICH := 0; MSGPTR :=49; END;                              00207116
  END  OF  CHANGEWHICH;                                                   00207200
%#*************************************************************          00224400
BOOLEAN PROCEDURE TIMECHK(LCW,A); BOOLEAN LCW; ARRAY A[0];                00224500
%*************************************************************          00224600
COMMENT CHECK USERS TIME PERIOD FROM 24 BIT STRING;                       00224700
BEGIN INTEGER TIM1,TIM2,SKP; BOOLEAN OK; LABEL EXIT;                      00224800
    %*********************************                                   00224900
BOOLEAN STREAM PROCEDURE TIMCK(STRG,SKP,TIM1); VALUE STRG;                00225000
    %*********************************                                   00225100
BEGIN LOCAL SK; LABEL EXIT;                                               00225200
  SI:=LOC STRG; SI:=SI+4; % POINT TO 24 BIT "TIME" STRING                 00225300
  DI:=LOC STRG; DS:=4 CHR; % EXTEND TO 48 BITS                            00225400
  SI:=SKP; DI:=LOC SK; DS:=WDS; % NO OF BITS TO SKIP (CRNT,TIME)          00225500
  SI:=LOC STRG; SKIP SK SB; % POINT TO CURRENT HOUR                       00225600
  IF SB THEN TALLY:=1; TIMCK:=TALLY; TALLY:=SK;                           00225700
  24(IF SB THEN JUMP OUT ELSE % FIND 1ST "ON" BIT POSITION                00225800
    BEGIN SKIP SB; TALLY:=TALLY+1; END); % COUNT EACH BIT SKIPPED         00225900
  IF TOGGLE THEN ELSE GO TO EXIT; % NO BITS "ON"                          00226000
  SK:=TALLY; SI:=LOC SK; DI:=TIM1; DS:=WDS; % 1ST "ON" BIT POSITION       00226100
  TALLY:=TALLY+1; % POSITION OF NEXT BIT                                  00226200
  SK:=TALLY; SI:=LOC SK; DI:=SKP; DS:=WDS;                                00226300
EXIT: END STREAM PROCEDURE TIMCK;                                         00226400
    %*********************************                                   00226500
REAL STREAM PROCEDURE NEXTIME(STRG,SKP,REM); VALUE STRG,SKP,REM;          00226600
    %*********************************                                   00226700
BEGIN SI:=LOC STRG; SI:=SI+4; DI:=LOC STRG; DS:=4CHR; %EXTEND             00226800
  DI:=LOC NEXTIME; SI:=LOC STRG; SKIP SKP SB; % POINT TO NEXT BIT         00226900
  REM(IF SB THEN BEGIN SKIP SB; TALLY:=TALLY+1; END                       00227000
    ELSE JUMP OUT); % FIND NEXT "0" BIT                                   00227100
  TALLY:=TALLY+SKP; NEXTIME:=TALLY;                                       00227200
END STREAM PROCEDURE NEXTIME;                                             00227300
    %*********************************                                   00227400
PROCEDURE TIMEMSG(STRTIME,FINTIME,OK);                                    00227500
    %*********************************                                   00227600
VALUE STRTIME,FINTIME,OK; INTEGER STRTIME,FINTIME; BOOLEAN OK;            00227700
BEGIN                                                                     00227800
    %*********************************                                   00227900
STREAM PROCEDURE MSG1(WORK);                                              00228000
    %*********************************                                   00228100
BEGIN DI:=WORK;                                                           00228200
  DS:=49LIT"SORRY,YOU ARE NOT SCHEDULED FOR TIME AT THIS HOUR";           00228300
END MSG1;                                                                 00228400
    %*********************************                                   00228500
STREAM PROCEDURE MSG2(WORK,STRTIME,FINTIME); VALUE STRTIME,FINTIME;       00228600
    %*********************************                                   00228700
BEGIN DI:=WORK;                                                           00228800
  DS:=33LIT"YOUR NEXT SCHEDULED TIME IS FROM ";                           00228900
  SI:=LOC STRTIME; DS:=4 DEC; DS:=4 LIT " TO ";                           00229000
  SI:=LOC FINTIME; DS:=4 DEC;                                             00229100
END MSG2;                                                                 00229200
    %*********************************                                   00229300
STREAM PROCEDURE MSG3(WORK);                                              00229400
    %*********************************                                   00229500
BEGIN DI:=WORK;                                                           00229600
  DS:=40LIT"PLEASE CALL BACK AT YOUR SCHEDULED TIME.";                    00229700
END MSG3;                                                                 00229800
    %*********************************                                   00229900
STREAM PROCEDURE MSG4(WORK,FINTIME); VALUE FINTIME;                       00230000
    %*********************************                                   00230100
```

```
BEGIN DI:=WORK;                                                          00230200
  DS:=42LIT"YOU ARE SCHEDULED TO USE THE SYSTEM UNTIL ";                 00230300
  SI:=LOC FINTIME; DS:=4 DEC;                                            00230400
END MSG4;                                                                00230500
    %************************************                                00230600
  IF OK THEN                                                             00230700
    BEGIN MSG4(WORK,FINTIME); TWXOUT(LL,WORK[0],46,2); END ELSE           00230800
    BEGIN MSG1(WORK); TWXOUT(LL,WORK[0],49,2);                           00230900
    MSG2(WORK,STRTIME,FINTIME); TWXOUT(LL,WORK[0],45, 2);                00231000
    MSG3(WORK); TWXOUT(LL,WORK[0],40,2); END;                            00231100
END TIMEMSG;                                                             00231200
    %************************************                                00231300
    %************************************                                00231400
  IF REAL(BOOLEAN(TIMELIMITS,[24:24]) EQV                                00231500
    BOOLEAN(REAL(NOT FALSE),[24:24])) EQL REAL(NOT FALSE) % ALL ON       00231600
  OR TIMELIMITS,[24:24] EQL 0 THEN % NO BITS ON                          00231700
    BEGIN TIMECHK:=TRUE; TIMERESTRICTBIT:=REAL(FALSE); GO EXIT; END;     00231800
  TIM1:=0; TIM2:=SKP:=TIME(1)/216000 - 0.5; % CURRENT TIME               00231900
  OK:=TIMCK(TIMELIMITS,SKP,TIM1); TIM1:=(TIM1 MOD 24) × 100;             00232000
  TIM2:=(NEXTIME(TIMELIMITS,SKP,TIM2:=24-SKP+TIM2) MOD 24)×100;          00232100
  TIMEMSG(TIM1,TIM2,OK); % SEND APPROPRIATE MESSAGE                      00232200
  TIMERESTRICTBIT := REAL(TRUE); NOTIFYBIT := REAL(FALSE);               00232300
  NOTIFYTIME := 0; TIMECHK := OK;                                        00232400
EXIT: END PROCEDURE TIMECHK;                                             00232500
%*************************************************************************00234600
PROCEDURE OUTPUTNUMBERS(LCW,A); BOOLEAN LCW; ARRAY A[0];                 00234700
%*************************************************************************00234800
   BEGIN                                                                 00234900
   % FORMATS SEQUENCE NUMBERS FOR SPECIAL DEVICES                        00235000
   % ","     CLEARS SCREEN                                               00235100
   % "4"     HOMES CURSER ( CONRAC ONLY )                                00235200
   % "1"     LINE ERASE   ( CONRAC ONLY )                                00235300
   % ">"     SHIFT OUT CHARACTER                                         00235400
   % QMK     SHIFT IN  CHARACTER                                         00235500
   % "≠"     SHIFT CONTROL CHARACTER                                     00235600
   % "*"     LINE FEED (CONRAC ONLY)                                     00235700
   % "-"     CARRIAGE RETURN                                             00235800
   % ARROW   END OF TEXT CHARACTER                                       00235900
   REAL I,PTR,LST,INC; BOOLEAN LF;                                       00236000
   %.....................................................................00236100
   REAL STREAM PROCEDURE ADDRESS(W);                                     00236200
     BEGIN SI:=W; ADDRESS:=SI; END;                                      00236300
   %.....................................................................00236400
   STREAM PROCEDURE CONVERTANDFORM(PTR,N); VALUE N;                      00236500
   %.....................................................................00236600
     BEGIN LOCAL V,SV;                                                   00236700
     % CONVERTS SEQUENCE NUMBER TO DECIMAL FORM AND BLANKS                00236800
     % LEADING ZEROS, UPDATES PTR AT FINISH                              00236900
     SI:=LOC N; DI:=LOC V; DS:=8DEC; DI:=DI-8; DS:=7FILL;                00237000
     SI:=LOC V; DI:=PTR; DI:=DI+5; DI:=DC;                               00237100
     8(IF SC=" " THEN SI:=SI+1 ELSE DS:=CHR);                            00237200
     SV:=DI; SI:=LOC SV; DI:=PTR; DS:=WDS;                               00237300
     END STREAM PROCEDURE CONVERTANDFORM;                                00237400
   %.....................................................................00237500
   STREAM PROCEDURE PUTCHAR(PTR,N,CHAR); VALUE N,CHAR;                   00237600
   %.....................................................................00237700
     BEGIN LOCAL SV;                                                     00237800
     % TRANSFERS "N" CHARACTERS FROM "CHAR" AND UPDATES                   00237900
     % PTR AT FINISH                                                     00238000
     SI:=LOC CHAR; DI:=PTR; DI:=DI+5; DI:=DC;                            00238100
```

```
      SI:=SI+8; SI:=SI-N; DS:=N CHR;                                          00238200
      SV:=DI; SI:=LOC SV; DI:=PTR; DS:=WDS;                                   00238300
      END STREAM PROCEDURE PUTCHAR;                                           00238400
   LST:=SEQLAST; INC:=INCREMENT; PTR:=ADDRESS(WORK[0]);                       00238500
   IF DEVICE=BIDS THEN PUTCHAR(PTR,1,",");  % CLEAR THE SCREEN               00238600
   IF (LF:=DEVICE=CONRAC) THEN PUTCHAR(PTR,1,"4");  % HOME THE CURSER        00238700
   FOR I:=1 STEP 1 UNTIL 10 DO % WRITE OUT 10 SEQUENCE NUMBERS               00238800
      BEGIN                                                                  00238900
      PUTCHAR(PTR,2,">≠");  % SHIFT OUT, SHIFT CONTROL                       00239000
      CONVERTANDFORM(PTR,(LST:=LST+INC));  % FORMED SEQUENCE NUMBER          00239100
      PUTCHAR(PTR,2,(12)&("≠")[36:42:6]);  % SHIFT CONTROL, SHIFT OUT        00239200
      IF I LSS 10 THEN % FORM CARRIAGE RETURN AND LINE FEED                  00239300
         BEGIN                                                               00239400
         PUTCHAR(PTR,1,"-");  % CARRIAGE RETURN                             00239500
         IF LF THEN PUTCHAR(PTR,1,"*");  % LINE FEED                        00239600
         END;                                                                00239700
      END I LOOP;                                                            00239800
   PUTCHAR(PTR,1,LEFTARROW);  % TERMINATE STRING WITH ETX                     00239900
   CHKSEQNMBR:=LST;  % LAST SEQUENCE NUMBER TO BE TRANSMITTED                00240000
   TWXOUT(LL,WORK[0],200,-1);  % SEND SEQUENCE STRING                       00240100
   END PROCEDURE OUTPUTNUMBERS;                                              00240200
%*************************************************************************00900000
%    FORWARD DECLARATIONS GO HERE.                                          00900100
%*************************************************************************00900200
PROCEDURE BYE(LCW,A);  BOOLEAN LCW;  ARRAY A[0];  FORWARD;                   00900300
PROCEDURE  GETSOMETHINGTODO(LCW,A); BOOLEAN LCW; ARRAY A[0]; FORWARD;        00900400
PROCEDURE  SSMSG;  FORWARD;                                                  00900500
PROCEDURE  REMEMBERTHIS(LCW); BOOLEAN LCW; FORWARD;                          00900600
PROCEDURE     MCPMSG(LCW,A);  BOOLEAN LCW;  ARRAY A[0]; FORWARD;             00900700
PROCEDURE  LINECLEAR(LCW,A); BOOLEAN LCW; ARRAY A[0]; FORWARD;               00900800
PROCEDURE  SETUPFILES(LCW,A); BOOLEAN LCW; ARRAY A[0]; FORWARD;              00900900
PROCEDURE DOGCATCHER(LCW,A); BOOLEAN LCW; ARRAY A[0]; FORWARD;               00900910
%*************************************************************************00901000
REAL PROCEDURE GETPSWD(WORK,STACK,MAX,EADRS);                                00901005
%*************************************************************************00901006
VALUE MAX,EADRS; REAL STACK,MAX,EADRS,WORK;                                  00901007
BEGIN LABEL DUMMY;                                                           00901008
REAL STREAM PROCEDURE GTPSWD(WORK,STACK,MAX,EADRS); VALUE MAX,EADRS;         00901009
%*************************************************************************00901010
COMMENT SPECIAL SCANNER FOR OBTAINING PASSWORD AND/OR CHARGE                 00901015
WHICH MAY START WITH A DIGIT AND CONTAIN SPECIAL CHARACTERS;                 00901020
   BEGIN LOCAL SV,DV,DN,H,N; LABEL LOOP,EXIT;                                00901025
   DI:=EADRS; DS:=LIT LEFTARROW; % END OF RECORD MARK                        00901030
   SI:=WORK; DI:=STACK; DN:=DI;                                              00901035
   63(IF SC=" " THEN SI:=SI+1 ELSE JUMP OUT);                                00901040
   IF TOGGLE THEN GO TO EXIT; % BLANK RECORD                                 00901045
   IF SC="H" THEN % CHECK FOR "HELLO"                                        00901050
      BEGIN                                                                  00901055
      DI:=LOC H; DS:=5LIT"HELLO"; DI:=DI-5;                                  00901060
      IF 5SC=DC THEN ELSE SI:=SI-5;                                          00901065
      END;                                                                   00901070
   MAX(DI:=DN; DS:=8LIT"0       "; DI:=DI-7;                                00901075
LOOP:                                                                        00901080
   IF SC=" " THEN BEGIN SI:=SI+1; GO TO LOOP; END;                           00901085
   IF SC="," THEN BEGIN SI:=SI+1; GO TO LOOP; END;                           00901090
   IF SC=LEFTARROW THEN % CHECK FOR END OF RECORD                            00901095
      BEGIN                                                                  00901100
      SV:=SI; SI:=LOC SV; SI:=SI+5;                                          00901105
      DV:=DI; DI:=LOC EADRS; DI:=DI+5;                                       00901110
      IF 3SC=DC THEN JUMP OUT TO EXIT;                                       00901115
```

```
      SI:=SV; DI:=DV;                                                    00901120
      END;                                                               00901125
    DS:=CHR; TALLY:=1;                                                   00901130
    6(IF SC=" " THEN JUMP OUT; IF SC="," THEN JUMP OUT;                  00901135
      IF SC=LEFTARROW THEN                                               00901140
        BEGIN                                                            00901145
        SV:=SI; SI:=LOC SV; SI:=SI+5;                                    00901150
        DV:=DI; DI:=LOC EADRS; DI:=DI+5;                                 00901160
        IF 3SC=DC THEN;                                                  00901170
        SI:=SV; DI:=DV; IF TOGGLE THEN JUMP OUT;                         00901180
        END;                                                             00901190
      DS:=CHR; TALLY:=TALLY+1);                                          00901200
    H:=TALLY; SV:=SI; SI:=LOC H; SI:=SI+7; DI:=DN; DS:=CHR; % SIZE       00901210
    DI:=DI+7; DN:=DI; SI:=SV;                                            00901220
    TALLY:=N; TALLY:=TALLY+1; N:=TALLY); % END "MAX" LOOP                00901230
EXIT:                                                                    00901240
    TALLY:=N; GTPSWD:=TALLY;                                             00901250
    END STREAM PROCEDURE GTPSWD;                                         00901260
  GETPSWD:=GTPSWD(WORK,STACK,MAX,EADRS);                                 00901270
  END PROCEDURE GETPSWD;                                                 00901280
  %**********************************************************************% 01000000
  PROCEDURE     HITHERE (LCW, A); BOOLEAN LCW; ARRAY A[0];               01000100
  %**********************************************************************% 01000200
    BEGIN                                                                01000300
    STREAM PROCEDURE  ANS(W),                                            01000900
      BEGIN  DI := W;                                                    01001000
      DS := 24 LIT "ENTER USER CODE, PLEASE-";                           01001100
      END  ANS;                                                          01001200
    STREAM PROCEDURE LNO(W,T,UC,LL); VALUE T,LL;                         01001300
      BEGIN                                                              01001400
      LABEL  AFT,EVE;                                                    01001500
      DI := W;                                                           01001600
      SI := LOC T; SI := SI+7;                                           01001700
      IF SC = "A" THEN DS := 14 LIT "GOOD MORNING, "                     01001800
      ELSE                                                               01001900
        BEGIN  SI := LOC T;                                              01002000
        IF SC LSS "1" THEN                                               01002100
          BEGIN  UPS;                                                    01002200
          IF SC LSS "6" THEN                                             01002300
AFT:        DS := 16 LIT "GOOD AFTERNOON, "                              01002400
          ELSE                                                           01002500
EVE:        DS := 14 LIT "GOOD EVENING, "                                01002600
          END                                                            01002700
        ELSE                                                             01002800
          BEGIN                                                          01002900
          UPS;                                                           01003000
          IF SC = "2" THEN GO AFT ELSE GO EVE;                           01003100
          END;                                                           01003200
        END;                                                             01003300
      SI := UC; SI := SI + 1;                                            01003400
      DS := 15 CHR;                                                      01003500
      DS := 18 LIT " YOU HAVE STATION ";                                 01003600
      SI := LOC LL; DS := 2 DEC;                                         01003700
      DS := 4 LIT " ";                                                   01003800
      END  OF  LNO;                                                      01003900
    STREAM PROCEDURE  PSWRD (W);                                         01004000
      BEGIN                                                              01004100
      LOCAL  T;                                                          01004200
      DI := W;                                                           01004300
      DS:=17LIT"AND YOUR PASSWORD";                                      01004400
```

```
% VOID                                                                  01004500
   END  PSWRD;                                                         01004600
STREAM PROCEDURE  CHRG(W);                                             01004700
   BEGIN                                                               01004800
   DI := W;                                                            01004900
   DS := 18 LIT "ENTER CHARGE CODE=";                                  01005000
   END  CHRG;                                                          01005100
LABEL START,ERR,BAD,EXIT,SCHED,CASE4,STARTANEW;                        01005200
LABEL WINDUP,PSWD,LOGGON,CHARG,NEXTBLOCK;                              01005300
INTEGER       I;                                                       01005400
REAL T,USR,FIL;                                                        01005500
BOOLEAN MTCH;                                                          01005510
CASE DOING OF                                                          01005600
   BEGIN                                                               01005700
      BEGIN   % CASE 0 ..............................................  01005800
      IF LOGGEDON THEN                                                 01005900
         BEGIN                                                         01006000
         IF SCHEDULINE THEN  GOERR("HELLO  ",40);                      01006100
         IF FILENAME NEQ 0 THEN                                        01006110
          IF TPCOUNT NEQ 0 OR FILENAME NEQ SOURCEFILE THEN             01006120
           IF NOT NOSAVE THEN                                          01006130
              BEGIN                                                    01006140
              NOSAVE:=TRUE; GOERR("NO SAVE",48);                       01006150
              END;                                                     01006160
         CLEAR(A[BASE],3); % ZERO OUT 4 WORDS OF STACK                 01006170
         T:=GETPSWD(WORK[1],A[BASE+1],3,WORKENDADRS); % "HELLO" INPUT  01006200
         IF T GTR 0 THEN % GOT SOMETHING AFTER "HELLO"                 01006300
         COMMENT PROCEDURE "BYE" DOES NOT DISCONNECT WHEN              01006400
         A[BASE] GEQ 50, DOES NOT PRINT MESSAGES WHEN                  01006500
         A[BASE] GEQ 100;                                              01006600
            BEGIN A[BASE]:=124+T;                                      01006700
            BYE(LCW,A[*]); LOGOFF(LCW,A[*]);                           01006800
            GO TO PSWD;                                                01006900
            END;  % IF PARAMETERS TO HELLO                             01007000
         A[BASE] := 75; % FLAG AS HELLO                                01007100
         BYE(LCW, A[*]);  LOGOFF(LCW,A[*]);                            01007200
         IAM := VHELLO;                                                01007300
         WANT := WAITFOR := 0;                                         01007400
         END; % IF HELLO                                               01007500
      IOTOT := ETIME := PTIME := INPUTCTR := 0;                        01007600
      IF SCHEDULINE THEN                                               01007700
         BEGIN                                                         01007800
         A[BASE]:=126; A[BASE+1]:=USERCODE;                            01007900
         GO TO PSWD;                                                   01008000
         END; % IF LOGGEDON                                            01008100
START:   IF NOT LOGGINGON THEN                                         01008200
         BEGIN                                                         01008300
STARTANEW: ANS(WORK);                                                  01008400
         TWXOUT(LL, WORK[0], 24, NOCRLF);                              01008500
         LOGGINGON := TRUE;                                            01008600
         END;                                                          01008700
      DOING := 1;                                                      01008800
      FILESOK := FALSE;                                                01008900
      WAITFOR := VINPUT;                                               01009000
      A[BASE]:=TEMP:=5;                                                01009100
      END  OF CASE 0; % ..............................................01009200
      BEGIN  % CASE 1   ..............................................01009300
      CLEAR(A[BASE],3); % ZERO OUT 4 WORDS OF STACK                    01009310
      T:=GETPSWD(WORK[1],A[BASE+1],3,WORKENDADRS); LOGGINGON:=TRUE;    01009400
      IF T = 0 THEN GO TO ERR; % NO INPUT                              01009500
```

```
            IF YOUFINDAVERB (A[BASE+1],VERBTABLE[0],NUMOFVERBS) THEN          01009600
               BEGIN IF A[BASE+1].CF NEQ VHELLO THEN                          01009700
               IF A[BASE+1].CF = VBYE THEN                                    01009800
                  BEGIN                                                       01009900
                  IAM := VBYE; USERCODE := "GONE    ";                        01010000
                  IOTOT := ETIME := PTIME := INPUTCTR := 0;                   01010100
                  DOING := A[BASE] := 0;                                      01010200
                  GO EXIT                                                     01010300
                  END % IF BYE                                                01010400
               ELSE                                                           01010500
               LITOUT("FUNNY..",1); % IF NOT HELLO                            01010600
ERR:           MSGPTR := 21;                                                  01010700
               GO TO STARTANEW;                                               01010800
               END; % IF A VERB ( OR NO INPUT )                               01010900
            A[BASE] := 124 + I;                                               01011000
            IF T LSS 2 THEN % NO PASSWORD GIVEN YET                           01011100
               BEGIN PSWRD(WORK);                                             01011200
               TWXOUT(LL,WORK[0],17,1);                                       01011300
PSWD:          IF A[BASE] LSS 126 THEN % NO PASSWORD GIVEN YET                01011400
               BLACKOUT;                                                      01011500
               END;                                                           01011600
            I:= ((A[BASE+1].[6:21] + A[BASE+1].[27:21]) MOD 29) + 1;          01011700
NEXTBLOCK:                                                                    01011710
            LLDISKREAD := USRBASE[I DIV USROWSIZE]+(I:=I MOD USROWSIZE);      01011800
            DOING := 2;                                                       01011900
            WANT := VDISKREAD;                                                01012000
            TEMP := 7;                                                        01012100
            END  CASE  1; % ..................................................01012200
            BEGIN   % CASE 2 .................................................01012300
            FOR T := 0 STEP 2 UNTIL 28 DO                                     01012400
            MATCH(WORK[T],A[BASE+1].[6:42])                                   01012500
               BEGIN                                                          01012600
               USR := WORK[T+1].[33:15]; % RELATIVE DISK ADDRESS              01012700
               USERLOC:=USRBASE[USR DIV USROWSIZE]+(I:=USR MOD USROWSIZE);    01012710
               LLDISKREAD := USERLOC;                                         01012720
               WANT := VDISKREAD;                                             01012800
               DOING := 3;                                                    01012900
               GO EXIT                                                        01013000
               END;                                                           01013100
            IF (I:=WORK[1].[18:15]) GTR 0 THEN GO TO NEXTBLOCK; %LINK         01013110
            WORK[1] := "********"; % IF NOT MATCHED                           01013200
            DOING := 3;                                                       01013300
            END  CASE  2; % ..................................................01013400
            BEGIN   % CASE 3 .................................................01013500
            RESTRICTEDLANGUAGES:=WORK[8];                                     01013600
            MOVE(2,WORDS,WORK[9],RESTRICTEDVERBS);                            01013700
            IF SCHEDULINE THEN                                                01013800
               BEGIN                                                          01013810
               LOGON(LCW,A[*]); GO TO SCHED;                                  01013820
               END;                                                           01013830
            USERCODE:=WORK[1];                                                01013900
            A[BASE+6]:=WORK[2]; % SAVE PASSWORD                               01014000
            CHARGE:=WORK[3];                                                  01014100
            TIMELIMITS:=WORK[7];                                              01014110
            OPTIONBITS:=WORK[11]; % USERS "SPECIAL" OPTIONS                   01014200
            MOVE(2,WORDS,WORK[4],A[BASE+4]); % NAME FROM USERS FILE           01014210
            IF A[BASE] GTR 125 THEN GO TO CASE4; % HAVE PASSWORD              01014300
% VOID                                                                        01014400
            DOING := 4;                                                       01014500
            WAITFOR := VINPUT;                                                01014600
```

STUPID

```
            END  CASE  3; %  ..................................................01014700
            BEGIN   % CASE 4 ..................................................01014800
            IF A[BASE] LSS 126 THEN % NO PASSWORD GIVEN YET                   01014900
            A[BASE]:=125+GETPSWD(WORK[1],A[BASE+2],2,WORKENDADRS);            01015000
CASE4:      LOGGINGON := FALSE;                                               01015100
            MATCH(USERCODE,A[BASE+1],[6:42])                                  01015200
            MATCH(A[BASE+6],A[BASE+2],[6:42]) % PASSWORD                      01015300
               BEGIN                                                          01015400
               MATCH(A[SBASE],USERCODE) MTCH := TRUE;                         01015500
               IF RESTART AND NOT MTCH THEN % SCRATCH "OLD" WRK FILES         01015600
                  BEGIN                                                       01015605
                  USR:=A[SBASE]; T:=LL&13[33:41:7]; FIL:=MAKEFN("1S",LL);     01015610
                  REMOVEFILE(T,FIL,USR);                                      01015615
                  REMOVEFILE(T,FIL.[6:36],USR);                               01015620
                  REMOVEFILE(T,FIL&"P"[12:42:6],USR);                         01015625
                  REMOVEFILE(T,FIL&"T"[12:42:6],USR);                         01015630
                  END;                                                        01015635
               IF NOT RESTART OR RESTART AND NOT MTCH THEN % CHECK TIME       01015700
               IF NOT TIMECHK(LCW,A) THEN                                     01015800
                  BEGIN WORK[0]:="$0      "; WORK[0].[12:6]:=LEFTARROW;       01015900
                  TWXOUT(LL,WORK[0],3,-1); % DISCONNECT THE LINE              01016000
                  IAM:=WANT:=WAITFOR:=0; GO TO EXIT;                          01016100
                  END;                                                        01016200
               IF CHARGE = 0 THEN % CHARGE CODE NEEDED                        01016300
                  BEGIN IF A[BASE] = 127 THEN % CHARGE ALREADY INPUT          01016400
                     BEGIN CHARGE := A[BASE+3].[6:42];                        01016500
                     GO TO LOGGON;                                            01016600
                     END % IF A[BASE]=127                                     01016700
                  ELSE % ASK FOR IT                                           01016800
                     BEGIN                                                    01016900
CHARG:               CHRG(WORK); TWXOUT(LL,WORK[0],18,NOCRLF);                01017000
                     WAITFOR:=VINPUT;                                         01017100
                     DOING := 5;                                              01017200
                     GO EXIT;                                                 01017300
                     END; % ASKING FOR CHARGE                                 01017400
                  END % IF CHARGE = 0                                         01017500
               ELSE GO TO LOGGON;                                             01017600
               END; % IF MATCHED                                              01017700
BAD:        USERCODE := 0;                                                    01017800
            LITOUT("BADCODE",1);                                              01017900
            MSGPTR := 21;                                                     01018000
            GO TO STARTANEW;                                                  01018100
            END CASE4; %  .....................................................01018200
            BEGIN % CASE 5 ....................................................01018300
            T:=GETPSWD(WORK[1],CHARGE,1,WORKENDADRS); CHARGE.[1:5]:=0;         01018400
            IF T = 0 THEN GO TO CHARG; % MUST INPUT SOMETHING                 01018500
LOGGON:     LOGON(LCW,A[*]);                                                  01018600
            IOTOT := ETIME := PTIME := INPUTCTR := 0;                         01018700
            WAITFOR := IAM := VLISTNEWS;                                      01018800
            FIND(LL&IAM[33:41:7],0,"NEWS    ","CANDE  ","SITE    ");         01018900
            DOING := 6;                                                       01019000
            END CASE5; %  .....................................................01019100
            BEGIN  % CASE 6 ...................................................01019200
            IF EVENTS[1] LEQ 0 THEN GO TO WINDUP; % NO FILE                   01019300
            LLDISKREAD := EVENTS[4];                                          01019400
            WANT := VDISKREAD;                                                01019500
            DOING := 7;                                                       01019600
            END CASE6; %  .....................................................01019700
            BEGIN  % CASE 7 ...................................................01019800
            TWXOUT(LL,WORK[0],72,CRLF);                                       01019900
```

IF WORK[10].[6:42] NEQ 0 THEN
TWXOUT(LL, WORK[10], 72, CRLF);

— with NEWS/CANDE

```
WINDUP:  IF CCLONG THEN CCCOM(LL,USERCODE,1); % SET LONG CARRIAGE        01019910
         IF QUICKLOG THEN GO TO SCHED; % DONT PRINT GREETINGS           01019920
         WORK[0] := DATE;                                               01020000
         TIMEOFDAY(WORK[1],T:=TIMECONV(LOGONTIME,TRUE));                01020100
         TWXOUT(LL,WORK[0],18,1);                                       01020200
         LNO(WORK[0],T,A[BASE+4],LL);                                   01020300
              TWXOUT(LL,WORK[0],52,2);                                  01020400
SCHED:   IF NOT RESTART THEN LINECLEAR(LCW,A[*]);                       01020500
         WRITEASTERISK:=TRUE; NOSTOP:=FALSE;                            01020600
         FILENAME := 0;                                                 01020700
         DOING := WANT := 0;                                            01020800
         SOURCEFILE := OBJECTFILE := 0;                                 01020900
         IAM := IF RESTART THEN 0 ELSE VSETUPFILES,                     01021000
         GO EXIT                                                        01021100
         END  CASE  7; % ..............................................01021200
      END  ALL CASES;                                                   01021300
EXIT:                                                                   01021400
   END  OF  HITHERE;                                                    01021500
%***************************************************%                 02000000
PROCEDURE  BREAK(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                     02000100
%***************************************************%                 02000200
         BEGIN                                                          02000300
LABEL  T;                                                               02000350
              WRITEASTERISK := TRUE;                                    02000400
              IF R(ALLMCPMSG) = 0 THEN LINECLEAR(LCW,A[*]) ELSE         02000500
              IAM := 0;                                                 02000600
         END  BREAK;                                                    02000700
%***************************************************%                 03000000
PROCEDURE  WRU(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                       03000100
%***************************************************%                 03000200
         BEGIN                                                          03000300
LABEL  T;                                                               03000350
              WRITEASTERISK := TRUE;                                    03000400
              INITIATEDWHILEBUSY := TRUE;                               03000500
              BREAKORWRU:=TRUE;% WANT:=WAITFOR:=VLINECLEAR;             03000600
              IF REAL(ALLMCPMSG)=0 THEN IAM:=0 ELSE                     03000700
              MATCH(RUN2,"CANDE  ") IAM:=0 ELSE                         03000800
              WANT:=WAITFOR:=VMCPMSG;                                   03000810
         END  WRU;                                                      03000900
%***********************************************************************04000000
PROCEDURE  LINECLEAR(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                 04000100
%***********************************************************************04000200
   BEGIN                                                                04000300
   LABEL EXIT;                                                          04000400
   IF RUNNING THEN MATCH(RUN2,"CANDE  ") GO EXIT;                       04000410
   BUSYLINE                 := FALSE;                                   04000500
   INITIATEDWHILEBUSY       := FALSE;                                   04000600
   SAVEDWHILEINITBUSY       := FALSE;                                   04000700
   RESTARTNEEDED            := FALSE;                                   04000800
   ALLMCPMSG                := FALSE;                                   04000900
   DISCONNECTING            := FALSE;                                   04001000
   RESTART                  := FALSE;                                   04001100
   SEQMODE                  := FALSE;                                   04001200
   HELPTOGGLE               := 0;                                       04001300
   DATAENABLED              := FALSE;                                   04001400
   BREAKORWRU               := FALSE;                                   04001500
   INQUIRY := FALSE; CONTINUEBIT:=FALSE;                                04001600
   SCWPREV := PREVRCW := LLWORDS; BASE := SBASE;                        04001700
   WANT := WAITFOR := WAITINGSCW := LLINFO := 0;                        04001800
   WHILE REAL(THINGSTODO) GTR 0 DO GETSOMETHINGTUDO(LCW,A[*]);          04001900
```

```
    CLEAR(A[SBASE],30); % FOR REPLACIT                                    04002000
    IF EQUATED THEN ENTERESP(-LL,-0,A[*]); % GIVE BACK ESP DISK           04002010
    EQUATED := FALSE;                                                     04002020
    MSGPTR := 18;                                                         04002100
EXIT: IAM:=0;                                                             04002200
    END PROCEDURE LINECLEAR;                                              04002300
%*********************************************************************** 05000000
PROCEDURE INITIALIZECTRANDBASE;                                           05000100
%*********************************************************************** 05000200
        BEGIN                                                             05000300
STREAM PROCEDURE USERSDATE(L,DAT);                                        05000310
    BEGIN                                                                 05000315
    DI:=L; DS:=23LIT"USERS/CANDE FILE DATED ";                            05000320
    SI:=DAT; DS:=8CHR; DS:=LIT"←";                                        05000325
    END USERSDATE;                                                        05000330
REAL USERFILEHEADER;                                                      05000350
                CLEAR(CTRANDBASE[0],15);  %     REMOVE                    05000400
                CLEAR(WORK[0],59);        % ANY GARBAGE.                  05000500
                MSGFILELOC := EVENTS[2].[20:28];                          05000600
                TANKFILE   := ABS(EVENTS[3]);                             05000700
                USERFILEHEADER := EVENTS[2].[5:15];                       05000800
                SYSTEM:=(EVENTS[2].[2:2])×(100);                          05000860
                ROWINUSE   := 15;                                         05000900
                NOFILES    := FALSE;                                      05001000
                USERSDATE(L,EVENTS[4]); TWXOUT(0,LL0],32,1); % ACCESS DATE05001010
                DISKWAIT(1,WORK[*],30,USERFILEHEADER);                    05001020
                USROWSIZE:=(WORK[8] DIV WORK[0].[42:6])×WORK[0].[42:6];   05001030
                MOVE(20,WORDS,WORK[10],USRBASE[*]); % DISK ROW ADDRESSES  05001040
                LOCK(USRBASE[*]); % MAKE READ ONLY ARRAY                  05001050
                IF EVENTS[3] GTR 0 THEN % OLD TANKS EXIST.                05001100
            BEGIN                                                         05001200
                DISKWAIT(1,WORK[*],30,TANKFILE);                          05001300
                MOVE(16,WORDS,WORK[10],CTRANDBASE[0]);                    05001400
                TANKSIZE := WORK[8];                                      05001500
                ROWINUSE := WORK[6].CF;                                   05001600
                ROWCOUNT := WORK[6].FF;                                   05001700
                NOTANKS := FALSE;                                         05001750
            END;                                                          05001800
            END  INITIALIZECTRANDBASE;                                    05001900
%*********************************************************************** 05002000
PROCEDURE     DISKCHUNK;                                                  05002100
%*********************************************************************** 05002200
            BEGIN                                                         05002300
REAL            XTRADSK;                                                  05002400
BOOLEAN         TANKNOTPRESENT;                                           05002500
                IF NOFILES THEN % SET UP THE FILE ADDRESSES.              05002700
            BEGIN                                                         05002800
                TANKNOTPRESENT := EVENTS[3] LEQ 0;                        05002900
                INITIALIZECTRANDBASE;                                     05003000
            END  ELSE TANKNOTPRESENT := TRUE;                             05003100
                IF CTRANDBASE[ROWINUSE] NEQ EVENTS[1] THEN                05003200
            BEGIN  %  MUST REALLY BE A NEW CHUNK.                         05003300
                ROWINUSE.[44:4] := ROWINUSE + 1;                          05003400
                IF CTRANDBASE[ROWINUSE] NEQ 0 THEN                        05003500
            BEGIN                                                         05003600
                XTRADSK := CTRANDBASE[ROWINUSE];                          05003700
                ROWCOUNT := ROWCOUNT -1;                                  05003800
            END;                                                          05003900
                CTRANDBASE[ROWINUSE] := EVENTS[1];                        05004000
                ROWCOUNT   := ROWCOUNT + 1;                               05004100
```

```
                IF TANKNOTPRESENT THEN DISKWAIT(1,WORK[*],30,TANKFILE);   05004200
                WORK[6] := ROWINUSE & ROWCOUNT [18:33:15];                05004300
                MOVE(16,WORDS,CTRANDBASE[0],WORK[10]);                    05004400
                TANKSIZE:=WORK[8]; DISKWAIT(0,WORK[*],30,TANKFILE);       05004500
          END   REMEMBERING NEW CHUNK;                                    05004600
                DOGSAROUND:=DOGSAROUND OR ROWCOUNT GTR 13;                05004700
                IF XTRADSK GTR 0 THEN % GIVE IT BACK.                     05004800
                   FORGETUSERDISK(XTRADSK,TANKSIZE);%                     05004900
                IAM := 0;                                                 05005000
          END   OF NEW DISK CHUNK;                                        05005200
%*****************************************************************************06000000
PROCEDURE  DISCONNECT(LCW,A); BOOLEAN LCW; ARRAY A[0];                    06000100
%*****************************************************************************06000200
          BEGIN                                                           06000300
BOOLEAN STREAM PROCEDURE SPECIAL(N,W,T); VALUE N,T;                       06000400
          BEGIN                                                           06000500
               SI := LOC T; SI := SI+1; DI := W;                          06000600
               IF N SC = DC THEN TALLY := 1;                              06000700
               SPECIAL := TALLY;                                          06000800
          END  SPECIAL;                                                   06000900
               IF NOT BOOLEAN (DOING) THEN                                06001000
          BEGIN                                                           06001100
               WHILE R(THINGSTODO) GTR 0 DO GETSOMETHINGTODO(LCW,A[*]);   06001200
               DISCONNECTING := B(DOING := 1);                            06001300
               BREAKBRWRU := TRUE;                                        06001400
          END;                                                            06001500
               IF DOGLICENSE THEN % TANK FILE CLEAN UP IN PROGRESS        06001510
                  BEGIN                                                   06001520
                  DOGHOUSE[LL]:=0;                                        06001530
                  DOGCATCHER(LCW,A[*]);                                   06001540
                  IAM := VDISCONNECT;                                     06001550
                  END;                                                    06001560
               IF REASON = VTEACHER THEN                                  06001600
                  IF SPECIAL(3,WORK[1],"BYE----") THEN                    06001700
                     DEVICE := REAL(NOT FALSE);                           06001800
               IF REASON = VMCPMSG THEN                                   06001900
          BEGIN                                                           06002000
               SREG:=BASE+LIBMSGCTR;                                      06002100
               MCPMSG(LCW,A[*]);                                          06002200
               IAM := VDISCONNECT;                                        06002300
          END  MCPMSG;                                                    06002400
               IF (WAITFOR:=REAL(NOT(FALSE))= DEVICE                      06002500
                     AND REAL(ALLMCPMSG)=0 )                              06002550
                  OR SCHEDULINE                                           06002600
                THEN                                                      06002650
          BEGIN                                                           06002700
               LINECLEAR(LCW,A[*]); DISCONNECTING := FALSE;               06002800
               IF USERCODE NEQ 0 THEN                                     06002900
          BEGIN                                                           06002910
               IF NOT SCHEDULINE THEN                                     06002920
          BEGIN                                                           06002930
               A[BASE] := 150; BYE(LCW,A[*]); % SCRATCH WORK FILES        06002940
          END BYEING OFF;                                                 06002950
               LOGOFF(LCW,A[*]);                                          06002960
          END LOGGING OFF;                                                06002970
               LCW:=FALSE; CLEAR(A[TBASE],SBASE-TBASE-1);                 06003000
               IAM := 0; DISCONNECTED(LL);                                06003100
          END  IF DONE WITH THIS LINE;                                    06003200
          END  DISCONNECT;                                                06003300
%*****************************************************************************07000000
```

```
PROCEDURE INPUTDATA (LCW,A);                                                07000100
%********************************************************************%07000200
         BOOLEAN LCW; ARRAY A[0] ;                                          07000300
         BEGIN                                                              07000400
LABEL   T;                                                                  07000450
              WECANUSEDATA    := NO DOGSAROUND;                             07000500
              NODATAREQUESTED:= TRUE ;                                      07000600
              DATAOFFSETT     := EVENTS [1];                                07000700
              DATAWORDS       := EVENTS [2];                                07000800
              DATADISKLOC     := EVENTS [3] & ROWINUSE [36:44:4];           07000900
              NODATA:=(DATAWORDS LEQ 0 OR DATAOFFSETT GEQ 29);             07001000
              IAM := WANT :=0;                                              07001100
         END  KLUDGE INPUTDATA;                                             07001400
%********************************************************************%07001500
PROCEDURE     BUILDADATAEVENT;                                              07001600
%********************************************************************%07001700
         BEGIN                                                              07001800
DEFINE        INPUTLL=[10:8]#, INPUTCHAR=[33:15]#, INPUTQMARK=[1:1]#;       07001900
LABEL         EXIT;                                                         07002000
REAL COUNT;                                                                 07002010
BOOLEAN STREAM PROCEDURE FLAGBIT(W);                                        07002100
         BEGIN                                                              07002200
              SI:=W; IF SB THEN TALLY:=1; FLAGBIT:=TALLY;                   07002300
         END  FLAGBIT;                                                      07002400
STREAM PROCEDURE INCOMPLETEMSG(WORK);                                       07002410
BEGIN DI:=WORK; DS:=27LIT"YOUR REQUEST IS INCOMPLETE."; END;                07002420
              IF FLAGBIT(TTYINPUT[DATAOFFSETT]) THEN                        07002500
                 BEGIN  LL:=0; REASON:=13; GO EXIT END;                     07002600
              IF DOGSAROUND THEN % BAD NEWS.                                07002700
         BEGIN                                                              07002800
              EVENTREASON := REASON := VDOGCATCHER;                         07002900
              EVENTLL     := LL     := DOGSLOOSE;                           07003000
              IF LL GTR 0 THEN GO EXIT;                                     07003100
         END  DOGSAROUND;                                                   07003200
         BEGIN                                                              07003300
              LL := (ERRSW := TTYINPUT[DATAOFFSETT]).INPUTLL;               07003400
              EVENTS[3]:= DATADISKLOC;                                      07003500
              EVENTS[2]:= REASON:=((WORK[0]:=ERRSW.INPUTCHAR)+7).[40:5];07003600
              EVENTS[1]:= DATAOFFSETT:= DATAOFFSETT + 1;                    07003700
              MOVE (REASON, WORDS, TTYINPUT[DATAOFFSETT], WORK[1]);         07003800
              WORKADRS := ADDRESS(WORK[1]);                                 07003820
              COUNT := (WORK[0]-1).[39:9];                                  07003840
              WORKENDADRS:=(WORKADRS+COUNT.[40:5])&COUNT[30:45:3];          07003850
              NODATA:=(DATAOFFSETT := DATAOFFSETT + REASON) GEQ 29;         07003900
              IF (DATAWORDS:= DATAWORDS - REASON - 1) LSS 1 THEN            07004000
                 NODATA := TRUE;                                            07004100
              EVENTS[0].[18:15]:= %                                         07004200
               (ERRSW & (REASON:= VINPUT-ERRSW.INPUTQMARK)[3:41:7])         07004300
                                       .[3:15];                             07004400
               IF REASON = VTEACHER AND CONTINUEBIT THEN % NO DISKREAD      07004410
                 BEGIN INCOMPLETEMSG(WORK); TWXOUT(LL,WORK[0],27,1);        07004420
                 LL:=0; REASON := 13; END; % IF WAITING                     07004430
              IF REASON=VTEACHER THEN                                       07004440
              IF SEQMODE AND NOT DISCONNECTING THEN REASON:=VINPUT;         07004450
  IF LL GTR MAXLINES THEN BEGIN  LL:=0; REASON:=13; END;                    07004800
         END  NO DOGS AROUND;                                               07004900
 EXIT:   END OF BUILDING A DATA EVENT;                                      07005000
%**************************************************************            09000000
PROCEDURE  RESTARTIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                       09000100
%**************************************************************            09000200
```

```
  BEGIN                                                                  09000300
REAL  T;                                                                 09000400
LABEL BAD,FINDCHKPT,MAKESURE,CASE8,CASE9,EXIT;                           09000500
BOOLEAN STREAM PROCEDURE FINDFLAG(SEGMENT);                              09000502
   BEGIN LOCAL SV; LABEL EXIT; SI:=SEGMENT;                              09000504
   30(SV:=SI; IF SB THEN                                                 09000506
      BEGIN TALLY:=1; FINDFLAG:=TALLY; JUMP OUT TO EXIT; END;            09000508
      SI:=SV; SI:=SI+8);                                                 09000510
EXIT: END STREAM PROCEDURE FINDFLAG;                                     09000512
STREAM PROCEDURE FLAGMESSAGE(WORK,FILNAM,USERCODE,DISKADDRESS);          09000514
VALUE FILNAM,USERCODE,DISKADDRESS;                                       09000516
   BEGIN                                                                 09000518
   DI:=WORK; DS:=14LIT"FLAG BIT:FILE ";                                  09000520
   SI:=LOC FILNAM; 2(SI:=SI+1; DS:=7CHR; DS:=LIT"/"); DI:=DI-1;          09000522
   DS:=17LIT" AT DISK ADDRESS "; DS:=8DEC;                               09000524
   DS:=16LIT" FILE DISCARDED.";                                          09000526
   END STREAM PROCEDURE FLAGMESSAGE;                                     09000528
STREAM PROCEDURE  OK(W);                                                 09000600
  BEGIN                                                                  09000700
   DI := W;                                                              09000800
   DS:=12 LIT "WORKFILE OK.";                                            09000900
  END OK;                                                                09001000
STREAM PROCEDURE SPEC(WRK,SEQ,FIX);  VALUE SEQ,FIX;                      09001010
      BEGIN                                                              09001020
         DI:=WRK; DS:=20 LIT "INPUT RESTORED THRU ";                     09001030
         FIX(DS:=7 LIT "FIX AT ");                                       09001040
         SI:=LOC SEQ;  FIX:=DI;  DS:=8 DEC;                              09001050
         DI:=FIX; DS:=7 FILL; DI:=FIX; SI:=FIX;                          09001060
         8(IF SC=" " THEN SI:=SI+1 ELSE DS:=CHR);                        09001070
         DS:=16 LIT "    ";                                              09001080
      END STREAM;                                                        09001090
  CASE DOING OF                                                          09001100
 BEGIN                                                                   09001200
 BEGIN   % CASE 0                                                        09001300
            IF BOOLEAN(EVENTS[1].[2:1]) THEN                             09001310
            BEGIN                                                        09001320
            SCHEDULINE := TRUE;                                          09001322
            CHARGE:=EVENTS[3];                                           09001323
            USERCODE   := EVENTS[1].[6:42];                              09001324
            SCHEDNAME := EVENTS[2].[6:42]; % NAME OF SCHEDULE FILE       09001325
            DEVICE     := TELETYPE;                                      09001326
          END                                                            09001328
         ELSE DEVICE := EVENTS[2];                                       09001330
            IF EVENTS[1].[1:2]=1 THEN %SCHEDULE LOG ON (NOT RESTART)     09001340
               IAM:=VHELLO                                               09001350
            ELSE                                                         09001360
  IF NOTANKS THEN                                                        09001400
   IAM := VHELLO                                                         09001500
  ELSE                                                                   09001600
  BEGIN                                                                  09001700
 FILESOK := FALSE; BASE := SBASE;                                        09001800
            A[BASE]:=EVENTS[1].[6:42];   % SAVE USERCODE                 09001900
  RESTART := TRUE;                                                       09002000
  TEMP := DOING := 1;                                                    09002100
  WANT := VHELLO;                                                        09002200
  END;                                                                   09002300
  END  CASE  0;                                                          09002400
  BEGIN   % CASE 1   GOT HIM LOGGED IN                                   09002500
COMMENT CHECK TIME RESTRICTIONS (NOT CHECKED IN HITHERE ON RESTART);      09002510
  IF R(B(TIMELIMITS.[24:24]) EQV B(R(NOT FALSE).[24:24])) EQL             09002511
```

```
R(NOT FALSE) OR TIMELIMITS.[24:24] EQL 0 THEN ELSE                    09002512
TIMERESTRICTBIT := REAL(TRUE);                                        09002513
 RESTART := FALSE;                                                    09002600
  IF USERCODE NEQ A[BASE] THEN                                        09002700
BEGIN                                                                 09002800
  IAM := VSETUPFILES;                                                 09002900
  DOING := TEMP := 0;                                                 09003000
  GO EXIT                                                             09003100
END;                                                                  09003200
              IF SCHEDULINE THEN                                      09003210
                %TEMPORARY UNTIL WE KNOW WHAT TO DO                   09003220
                  GOERR("P*L*O*P",40);                                09003230
 A[TBASE+10] := TEN8;                                                 09003300
 T := MAKEFN("1P",LL);                                                09003400
 FIND(LL&IAM[33:41:7],0,T,USERCODE,USERCODE);                         09003500
 DOING := 2;                                                          09003600
 WAITFOR := IAM;                                                      09003700
END  CASE  1;                                                         09003800
BEGIN   % CASE 2                                                      09003900
 IF EVENTS[1] NEQ 7 THEN                                              09004000
BEGIN                                                                 09004100
BAD:                                                                  09004200
  FILENAME := DOING := WAITFOR := 0;                                  09004300
  IAM := VSETUPFILES;                                                 09004400
  GO EXIT                                                             09004500
 END;                                                                 09004600
 A[BASE] := (WRKTBLADR:=EVENTS[4])-1;      % ADDR OF FIRST REC        09004700
  A[BASE+1] := 0;                                                     09004800
FINDCHKPT:                                                            09004900
  LLDISKREAD := A[BASE] + INC(A[BASE+1]);                             09005000
 TEMP := 2;                                                           09005100
 DOING := 3;                                                          09005200
 WANT := VDISKREAD;                                                   09005300
END  CASE  2;                                                         09005400
BEGIN   % CASE 3                                                      09005500
 IF FINDFLAG(WORK) THEN                                               09005510
    BEGIN                                                             09005515
    FLAGMESSAGE(WORK,MAKEFN("1P",LL),USERCODE,(A[BASE]+A[BASE+1]));   09005520
    TWXOUT(0,WORK[0],70,1);                                           09005525
    GO TO BAD;                                                        09005530
    END;                                                              09005535
 A[BASE+2] := 0;                                                      09005600
 IF WORK[0] = TEN8 THEN                                               09005700
BEGIN                                                                 09005800
  GOODOBJ := BOOLEAN(WORK[7].[12:1]);                                 09005810
  FILENAME := WORK[12];                                               09005900
  INCREMENT := WORK[14];                                              09006000
  SEQLAST := WORK[15];                                                09006100
  SEQIN := WORK[16];                                                  09006200
           LASTRECORD := WORK[17] + 1; % RECORD COUNT                 09006250
  TABLEINFO := WORK[18];                                              09006300
  FILETYPE := WORK[20];                                               09006400
  SOURCEFILE := WORK[21];                                             09006500
  GO MAKESURE;                                                        09006600
END;                                                                  09006700
 IF WORK[10] NEQ TEN8 THEN                                            09006800
 IF WORK[20] NEQ TEN8 THEN                                            09006900
  IF A[BASE+1] GEQ TBLSZ THEN GO BAD                                  09007000
   ELSE                                                               09007100
BEGIN                                                                 09007200
```

```
      MOVE(10,WORDS,WORK[20],A[TBASE]);                                  09007300
      GO FINDCHKPT                                                       09007400
    END                                                                  09007500
     ELSE                                                                09007600
    BEGIN                                                                09007700
      A[BASE+2] := 20;                                                   09007800
      MOVE(10,WORDS,WORK[10],A[TBASE]);                                  09007900
      GOODOBJ := BOOLEAN(WORK[27].[12:1]);                               09007910
    END                                                                  09008000
     ELSE                                                                09008100
    BEGIN                                                                09008200
     MOVE(10,WORDS,WORK[0],A[TBASE]);                                    09008300
      A[BASE+2] := 10;                                                   09008400
      GOODOBJ := BOOLEAN(WORK[17].[12:1]);                               09008410
      FILENAME := WORK[22];                                              09008500
     INCREMENT := WORK[24];                                              09008600
     SEQLAST := WORK[25];                                                09008700
     SEQIN := WORK[26];                                                  09008800
              LASTRECORD := WORK[27] + 1; % RECORD COUNT                 09008850
      TABLEINFO := WORK[28];                                             09008900
    END;                                                                 09009000
     LLDISKREAD := A[BASE] + INC(A[BASE+1]);                             09009100
     TEMP := 3;                                                          09009200
     DOING := 4;                                                         09009300
     WANT := VDISKREAD;                                                  09009400
    END  CASE  3;                                                        09009500
    BEGIN   % CASE 4                                                     09009600
     IF A[BASE+2] = 20 THEN                                              09009700
    BEGIN                                                                09009800
      FILENAME := WORK[2];                                               09009900
      INCREMENT := WORK[4];                                              09010000
      SEQLAST := WORK[5];                                                09010100
      SEQIN := WORK[6];                                                  09010200
              LASTRECORD := WORK[7] + 1;  % RECORD COUNT                 09010250
      TABLEINFO := WORK[8];                                              09010300
      FILETYPE := WORK[10];                                              09010400
      SOURCEFILE := WORK[11];                                            09010500
    END  ELSE                                                            09010600
    BEGIN                                                                09010700
      FILETYPE := WORK [0];                                              09010800
      SOURCEFILE := WORK[1];                                             09010900
    END;                                                                 09011000
   MAKESURE:                                                             09011100
     OBJECTFILE := 0;                                                    09011200
     FIND[LL&IAM[33:41:7],0,SOURCEFILE,USERCODE,USERCODE);               09011300
     DOING := 5;                                                         09011400
     WAITFOR := IAM;                                                     09011500
    END  CASE  4;                                                        09011600
    BEGIN   % CASE 5                                                     09011700
     IF EVENTS[1] NEQ 7 THEN GO BAD;                                     09011800
     A[BASE] := EVENTS[3];  % SOURCEFILE EOFPTR                          09011850
     T := MAKEFN("1T",LL);                                               09011900
     FIND(LL&IAM[33:41:7],0,T,USERCODE,USERCODE);                        09012000
     WAITFOR := IAM;                                                     09012100
     TEMP := 1;                                                          09012110
     DOING := 6;                                                         09012120
    END  CASE 5;                                                         09012130
    BEGIN   % CASE 6                                                     09012140
     IF EVENTS[1] NEQ 7 THEN GO BAD;                                     09012150
     IF FILETYPE NEQ 8 THEN  % NOT DATA FILE                             09012160
```

```
      IF A[BASE] GEQ 0 THEN  % SOURCEFILE NOT EMPTY                    09012170
      BEGIN                                                            09012180
       LLDISKREAD := EVENTS[4];  % ADDRESS OF "1T" FILE                09012190
       WANT := VDISKREAD;                                              09012200
       DOING := 7;                                                     09012210
       GO TO EXIT;                                                     09012215
       END;                                                            09012220
       GO TO CASE8;                                                    09012221
     END  CASE 6;                                                      09012230
     BEGIN   % CASE 7                                                  09012240
       IF WORK[1]=TEN8 THEN                                            09012250
       BEGIN                                                           09012260
       A[BASE] := CONCISEBIT;                                          09012270
       CONCISEBIT := 1;                                                09012280
       WORK[0] := 0;                                                   09012290
       WORK[1] := (LL+SYSTEM) & 1[8:47:1];                             09012300
       WORK[2] := WORK[4] := ERRSW := USERCODE;                        09012310
       WORK[3] := A[BASE+1] := SOURCEFILE;                             09012320
       A[BASE+2] := FILENAME;                                          09012330
       RUN1 := "LOAD    ";                                             09012340
       RUN2 := "CANDE   ";                                             09012350
       WANT := VDISPATCH;                                              09012360
       DISKWRITE(ESP1);                                                09012370
       LITOUT("WAIT=  ",NOCRLF);                                       09012380
       SOURCEFILE := FILENAME := 0;                                    09012390
       TEMP := 3;                                                      09012400
       DOING := 8;                                                     09012410
       END ELSE GO CASE8;                                              09012420
     END  CASE 7;                                                      09012430
     BEGIN   % CASE 8;                                                 09012440
       CONCISEBIT := A[BASE];                                          09012450
       SOURCEFILE := A[BASE+1];                                        09012460
       FILENAME := A[BASE+2];                                          09012470
CASE8:                                                                 09012480
     IF GOODOBJ THEN                                                   09012510
        BEGIN                                                          09012520
        FIND(LL&IAM[33:41:7],0,SOURCEFILE.[6:36],USERCODE,USERCODE);   09012530
        DOING := 9; WAITFOR := IAM;                                    09012540
        END ELSE GO TO CASE9;                                          09012550
     END  CASE 8;                                                      09012560
     BEGIN   % CASE 9                                                  09012570
     IF EVENTS[1]=7 THEN OBJECTFILE:=SOURCEFILE.[6:36] ELSE GOODOBJ:=FALSE;09012580
CASE9:                                                                 09012590
     OK(WORK);                                                         09012600
     TWXOUT(LL,WORK[0],12,1);                                          09012700
     IF TPCOUNT NEQ 0 THEN                                             09012710
     BEGIN % TELL USER LINE NUMBER.                                    09012720
        T:=TPENTRY;                                                    09012730
        T:=IF A[T]=TEN8 THEN A[T-1] ELSE A[T];                         09012740
        SPEC(WORK,T.[21:27],REAL(T.[1:2] EQL 3));                      09012750
        TWXOUT(LL,WORK[0],36,2);                                       09012760
     END TELLING LINE NUMBER;                                          09012770
      LINECLEAR(LCW,A[*]);                                             09012800
      IF SOURCEFILE = FILENAME THEN                                    09012900
     BEGIN                                                             09013000
       T := MAKEFN("1S",LL);                                           09013100
       MAKEFILE(LL&13[33:41:7],1,T,USERCODE,FILETYPE,-2);              09013200
     END;                                                              09013300
      FILESOK := TRUE;                                                 09013400
     END  CASE 9;                                                      09013500
```

```
      END  ALL  CASES;                                                    09013600
     EXIT:                                                               09013700
      END  RESTARTIT;                                                    09013800
1    %*******************************************************************%14000000
2    PROCEDURE     MCPMSG (LCW,A); BOOLEAN LCW; ARRAY A[0];              14001000
3    %*******************************************************************%14002000
4       BEGIN                                                           14003000
5       LABEL SETT,EXIT;                                                14004000
6       REAL T;                                                         14005000
7                                                                       14006000
8       STREAM PROCEDURE MAKEBOJMSG(W,N); VALUE N;                      14007000
9          BEGIN                                                        14008000
10         DI:=W;        DS:=11 LIT " RUNNING.  ";                      14009000
11         N(DI:=DI-10; DS:=10 LIT "COMPILING.");                       14010000
12         END MAKEBOJMSG;                                              14011000
13                                                                      14012000
14      STREAM PROCEDURE SQUASH(A,C); VALUE C;                          14013000
15         BEGIN LABEL E,L; LOCAL TOG;                                  14014000
16         SI:=A; DI:=A; TALLY:=1; TOG:=TALLY; TALLY:=0;                14015000
17         2(36(IF SC = " " THEN                                        14016000
18    L:       BEGIN SI:=SI+1;                                          14017000
19            IF SC = " " THEN GO TO L;                                 14018000
20            SI:=SI-1;                                                 14019000
21            END;                                                      14020000
22         IF SC=C THEN                                                 14021000
23            BEGIN                                                     14022000
24            TOG(SI:=SI+19); TOG:=TALLY;                               14023000
25            END;                                                      14024000
26         IF SC = LEFTARROW THEN JUMP OUT 2 TO E;                      14025000
27         DS:=CHR));                                                   14026000
28    E:   2(DS:=36LIT" ");                                             14027000
29         END SQUASH;                                                  14028000
30                                                                      14029000
31      STREAM PROCEDURE EXAMINE(WORK,L);                               14030000
32         BEGIN LOCAL T; LABEL L1,EXIT;                                14031000
33         SI:=WORK; DI:=L; DI:=DI+8;                                   14032000
34         6( % 6 WORDS MAXIMUM IN OUTPUT ARRAY L                       14033000
35    L1:  IF SC=" " THEN                                               14034000
36            BEGIN                                                     14035000
37            SI:=SI+1; GO TO L1;                                       14036000
38            END;                                                      14037000
39         IF SC=LEFTARROW THEN JUMP OUT TO EXIT;                       14038000
40         IF SC=ALPHA THEN                                             14039000
41            BEGIN                                                     14040000
42            DS:=LIT"0"; DS:=CHR;                                      14041000
43            6(IF SC=ALPHA THEN DS:=CHR ELSE DS:=LIT" ");              14042000
44            20(IF SC=ALPHA THEN SI:=SI+1 ELSE JUMP OUT);              14043000
45            TALLY:=TALLY+1;                                           14044000
46            END                                                       14045000
47         ELSE                                                         14046000
48            BEGIN                                                     14047000
49            SI:=SI+1; GO TO L1;                                       14048000
50            END);                                                     14049000
51    EXIT:                                                             14050000
52         DI:=L; T:=TALLY; SI:=LOC T; DS:=WDS;                         14051000
53         END STREAM PROCEDURE EXAMINE;                                14052000
54                                                                      14052100
55      STREAM PROCEDURE ERRORMESSAGE(WORK);                            14052200
56         BEGIN                                                        14052300
57         DI:=WORK;                                                    14052400
```

```
        DS:=47LIT"SYSTEM ERROR:TASK WAS DISCONTINUED-PLEASE WAIT-";      14052500
        END;                                                             14052600
                                                                         14052700
    %.....................................................................14053000
                                                                         14054000
    IF NOT BOOLEAN(DOING) THEN % FIRST LIBRARY MAINTENANCE CALL          14055000
       BEGIN                                                             14056000
       SREG:=BASE+LIBMSGCTR-A[BASE];                                     14057000
       DOING := 1;                                                       14058000
       END;                                                              14059000
                                                                         14060000
    % EVENTS[1] = 0 FOR EOJ SYNTAX ERRORS.                              14061000
    %             1 FOR EOJ O.K.                                        14062000
    %             2 FOR EOJ DS-ED.                                      14063000
    %             3 FOR DS-ED MESSAGE.                                  14064000
    %             4 FOR BOJ.                                            14065000
    %             5 FOR LIBMTNCE IGNORED.                               14066000
    %             6 FOR LIBMTNCE REMOVED.                               14067000
    %             7 FOR LIBMTNCE CHANGED.                               14068000
    %             8 FOR SECURED FILE.                                   14069000
    %             9 FOR ZIP-ERROR.                                      14070000
    %            10 FOR NOT ON DISK.                                    14071000
    %            11 FOR NOT OBJECT CODE FILE.                           14072000
                                                                         14073000
    IF EVENTS[1] = 4 THEN % BOJ EVENT                                    14074000
       BEGIN                                                             14075000
       IF BOJMSG THEN % INDICATE ACTUAL BOJ                              14076000
          BEGIN                                                          14077000
          MAKEBOJMSG(WORK[0],COMPILING);                                 14078000
          TWXOUT(LL,WORK[0],11,1);                                       14079000
          BOJMSG:=FALSE;                                                 14080000
          END  BOJMSG;                                                   14081000
       IF CONCISE THEN MATCH(RUN2,"CANDE  ") ELSE                        14082000
          BEGIN                                                          14083000
          LITOUT("-BOJ-  ",NOCRLF); LITOUT(RUN1,CRLF);                   14084000
          END;                                                           14085000
       MATCH(RUN1,"PAPER  ") MATCH(RUN2,"CANDE  ")                       14086000
          BEGIN                                                          14087000
          READTAPE(LL&13[33:41:7],8,C,USERCODE);                         14088000
          END;                                                           14089000
       END  BOJ  ELSE                                                    14090000
                                                                         14091000
    IF EVENTS[1] GEQ 5 AND EVENTS[1] LEQ 7 THEN % LIBRARY MAINT.         14092000
       BEGIN                                                             14093000
       IF LIBMTNCE THEN                                                  14094000
          BEGIN                                                          14095000
          A[SREG-LIBMSGCTR]:=EVENTS[IF EVENTS[1]=5 THEN 4 ELSE 1];       14096000
          IF LIBMSGCTR:=LIBMSGCTR-1 LEQ 0 THEN IAM := 0;                 14097000
          END ELSE IAM := 0;                                             14098000
       END  ELSE                                                         14099000
                                                                         14100000
    IF EVENTS[1] = 3 THEN % DS-ED MESSAGE                                14101000
       BEGIN                                                             14102000
       TWXOUT(LL,WORK[0],0,1); % CR/LF BEFORE MSG                        14103000
       SQUASH (WORK[0],":");                                             14104000
       IF RUNNING AND NOT BOOLEAN(HELPTOGGLE) AND NOT SCHEDULINE THEN    14105000
          BEGIN % TRY RUNNING "HELP" PROGRAM                             14106000
          EXAMINE(WORK,L);                                               14107000
          IF          (COMPAR(L[1],"EOF    ") OR CUMPAR(L[1],"PAR    ")) 14108000
                      AND                                                14109000
```

```
                    (COMPAR(RUN2,"CANDE  ") OR COMPAR(RUN2,"DISK   ")) 14110000
               AND                                                     14113000
               L[0] GEQ 5 THEN                                         14114000
                  BEGIN                                                14115000
SETT:             WORK[0]:=L[1]; % MESSAGE TYPE                        14116000
                  WORK[1]:=L[4]; % MFID                                14117000
                  WORK[2]:=L[5]; % FID                                 14118000
                  WORK[3]:=RUN1;                                       14119000
                  WORK[4]:=RUN2;                                       14120000
                  WORK[5]:=LL&FILETYPE[34:42:6];                       14121000
                  IF COMPAR(L[4],SOURCEFILE) THEN                      14122000
                     IF COMPAR(L[5],USERCODE) THEN                     14123000
                        WORK[5].[1:1]:=1; % WORKFILE TOGGLE            14124000
                  WORK[6]:=USERCODE;                                   14125000
                  WORK[7]:=TPCOUNT;                                    14126000
                  WORK[8]:=SOURCEFILE;                                 14127000
                  MOVE(16,WORDS,CTRANDBASE,WORK[10]);                  14128000
                  DISKWRITE(ESP1);                                     14129000
                  HELPTOGGLE:=1;                                       14130000
                  NORETRY:=0;                                          14131000
                  IF BOOLEAN(UPDATEBIT) THEN % UPDATING WORKFILE       14132000
                     BEGIN                                             14133000
                     T:=MAKEFN("1@",LL);                               14134000
                     IF COMPAR(WORK[1],T) OR WORK[1]=0 THEN NORETRY:=1; 14135000
                     END;                                              14136000
                  END % IF COM11 MESSAGE                               14137000
               ELSE % CHECK TERMINALMESSAGEA ERRORS                    14138000
               IF (COMPAR(L[1],"FLAG   ") OR                           14139000
                   COMPAR(L[1],"INVALD ") OR                           14139010
                  (COMPAR(L[1],"IO     ") AND COMPAR(L[2],"ERR    "))) 14139020
               AND                                                     14140000
               (COMPAR(RUN2,"CANDE  ") OR COMPAR(RUN2,"DISK   ")) AND  14141000
               SOURCEFILE NEQ 0 THEN                                   14141100
                  BEGIN                                                14142000
                  L[4]:=L[5]:=0; GO TO SETT;                           14143000
                  END ELSE TWXOUT(LL,WORK[0],72,1);                    14144000
               END ELSE TWXOUT(LL,WORK[0],72,1);                       14145000
            END ELSE                                                   14146000
                                                                       14147000
         IF EVENTS[1] GEQ 8 THEN % MISC. MESSAGES                      14148000
            BEGIN                                                      14149000
            ERRSW := RUN1;                                             14150000
            MSGPTR:=EVENTS[1]+16;                                      14151000
            ALLMCPMSG := FALSE;                                        14152000
            HELPTOGGLE:= RUN1 := RUN2 := IAM := 0;                     14153000
            NORETRY:=0;                                                14154000
            IF NOT BREAKORWRU THEN IAM:=VERROR;                        14155000
            GO TO EXIT;                                                14156000
            END;                                                       14157000
                                                                       14158000
         IF EVENTS[1] LEQ 2 THEN  % EOJ FOR THIS GUY.                  14159000
            BEGIN                                                      14160000
            ETIME := ETIME + EVENTS[3].[16:32];                        14161000
            IOTOT := IOTOT + EVENTS[4].[16:32];                        14162000
            ERRSW:=RUN1;                                               14163000
            COMMONCELL := WORK[8];                                     14164000
            IF COMPAR(RUN1,"HELP   ") AND COMPAR(RUN2,"DISK   ") THEN  14165000
               BEGIN                                                   14166000
               HELPTOGGLE := 0;                                        14167000
               IF BOOLEAN(UPDATEBIT) AND EVENTS[1] = 1 THEN % WORKFILE UPDATE 14168000
```

```
            BEGIN                                                                14169000
            LINECLEAR(LCW,A[*]);                                                 14170000
            TWXOUT(LL,LL,0,2);                                                   14171000
            IF BOOLEAN(NORETRY) THEN CANCELCKPT(A[*])                            14172000
            ELSE LITOUT("OK      ",CRLF);                                        14173000
            NORETRY:=0;                                                          14174000
            IF BOOLEAN(COMMONCELL.[3:1]) THEN                                    14175000
               SOURCEFILE:=MAKEFN("1S",LL);                                      14176000
            WRITEASTERISK:=TRUE;                                                 14177000
            GO TO EXIT;                                                          14178000
            END; % IF UPDATE WAS IN PROGRESS                                     14179000
         NORETRY:=0;                                                             14180000
         IF BOOLEAN(COMMONCELL.[3:1]) THEN SOURCEFILE:=MAKEFN("1S",LL);          14181000
         END; % IF EOJ FOR HELP PROGRAM                                          14182000
      IF EVENTS[1] NEQ 1 AND NOT BREAKORWRU THEN % BAD                           14183000
         BEGIN                                                                   14184000
         MSGPTR:=IF COMPILING THEN 12 ELSE 28;                                   14185000
         IF DOGLICENSE THEN DOGCATCHER(LCW,A[*]);                                14186000
         SCWPREV:=PREVRCW:=LLWORDS;                                              14187000
         INITIATEDWHILEBUSY:=FALSE;                                              14188000
         END % BAD NEWS                                                          14189000
      ELSE                                                                       14190000
         BEGIN                                                                   14191000
         MSGPTR:=0;                                                              14192000
         IF A[BASE+1] := WORK[12] NEQ 0 THEN % CHAIN REQUEST                     14193000
            BEGIN                                                                14194000
            WANT := VDISPATCH;                                                   14195000
            IF A[BASE+1].[42:6] NEQ " " THEN GOERR(A[BASE+1],42);                14196000
            A[BASE+1]:=A[BASE+1].[6:36];                                         14197000
            A[BASE+2] := WORK[13];                                               14198000
            END                                                                  14199000
         END;                                                                    14200000
      TWXOUT(LL,LL,0,2-CONCISEBIT);                                              14201000
      IF (EOJMSG OR EVENTS[1] NEQ 1) AND NOT BOOLEAN(HELPTOGGLE) THEN            14202000
         BEGIN                                                                   14203000
         WRITEASTERISK := FALSE;                                                 14204000
         WORK[0]:=(IF EVENTS[1]=1 THEN "END     " ELSE "ERR     ");              14205000
         MATCH(RUN2,"CANDE  ") WORK[1]:=RUN1 ELSE                                14206000
            BEGIN                                                                14207000
            WORK[1]:=                                                            14208000
               IF COMPILING THEN "COMPILE" ELSE                                  14209000
               IF RUN1.[12:6]=1 THEN FILENAME ELSE                               14210000
               RUN1;                                                             14211000
            END  MATCH CANDE;                                                    14212000
         TIMEUSED(WORK[2],TIMECONV(EVENTS[3].[16:32],FALSE));                    14213000
         BLANK(WORK[1]); SQUASH(WORK[0],""""); BLANK(WORK[0]);                   14214000
         TWXOUT(LL,WORK[0],48,2);                                                14215000
         IF SCHEDULINE THEN                                                      14216000
            IF NOT NOSTOP THEN                                                   14217000
               IF EVENTS[1] NEQ 1 THEN                                           14218000
                  SCHEDERROR; % TERMINATE SCHEDULE                               14219000
         END  IF EOJMSG;                                                         14220000
      IAM := 0;                                                                  14221000
      END  EOJ STUFF;                                                            14222000
                                                                                 14223000
   IF WANT = VDISPATCH THEN % CHAIN REQUEST                                      14224000
      BEGIN                                                                      14225000
      RUN1 := A[BASE+1];                                                         14226000
      RUN2 := A[BASE+2];                                                         14227000
      END  ELSE                                                                  14228000
```

```
    IF WAITFOR:=IAM = 0 THEN % ALL MESSAGES ARE IN                          14229000
       BEGIN                                                                14230000
       ALLMCPMSG := B(LIBMSGCTR:=RUN1:=RUN2:=0);                            14231000
       IF BOOLEAN(HELPTOGGLE) THEN % TRY AND RECOVER                        14232000
          IF NOT SCHEDULINE THEN % PGM.MAY REQUIRE TWX INPUTS               14233000
             BEGIN                                                          14234000
             RUN1:="HELP    ";                                             14235000
             RUN2:="DISK    ";                                             14236000
             WANT:=VDISPATCH;                                               14237000
             COMMONVALUE := ESP1;                                           14238000
             ERRORMESSAGE(WORK); TWXOUT(LL,WORK[0],47,CRLF);                14239000
             END;                                                           14240000
       END  IF ALL DONE;                                                    14241000
EXIT:                                                                       14242000
   END  OF MCPMSG;                                                          14243000
%***************************************************************************14244000
PROCEDURE COOLIT(A);   ARRAY A[0];                                          15000000
%***************************************************************************15001000
BEGIN                                                                       15002000
    STREAM PROCEDURE NODISKMESS(WORK,AMOUNT);  VALUE AMOUNT;                15003000
    BEGIN LOCAL A,B;                                                        15004000
         LABEL L;                                                           15005000
         DI := LOC A; SI := LOC AMOUNT; DS := 8 DEC;                        15005500
         DI:=WORK; SI:=LOC A;                                               15006000
         TALLY := 8;                                                        15007000
    L:   8(IF SC="0" THEN BEGIN SI := SI+1; TALLY := TALLY+63 END           15008000
           ELSE JUMP OUT);                                                  15009000
         B := TALLY; DS := B CHR;                                           15010000
         DS:=35LIT" SEGMENTS OF DISK ARE NOT AVAILABLE";                    15011000
         DS:=8LIT" ";                                                       15012000
    END;                                                                    15012100
    IF LL=0 THEN                                                            15013000
    BEGIN WENEEDTOCOOLIT := TRUE;                                           15014000
         INC(NUDCOUNT);                                                     15015000
    END ELSE                                                                15016000
    BEGIN NODISKMESS(WORK,EVENTS[2]);                                       15017000
         TWXOUT(LL,WORK[0],43,1);                                           15018000
         PREVMSG := MSGPOINTER;                                             15019000
         MSGPOINTER := 47;                                                  15020000
    END;                                                                    15021000
    IAM := WANT := WAITFOR := 0;                                            15022000
END;                                                                        15023000
%***************************************************************************15024000
PROCEDURE MCPOK(A);   ARRAY A[0];                                           16000000
%***************************************************************************16001000
BEGIN                                                                       16002000
    STREAM PROCEDURE OKMESS(WORK);                                          16003000
    BEGIN DI := WORK;                                                       16004000
         DS:=41LIT"DISK SPACE FOUND. YOU ARE RUNNING AGAIN  ";              16005000
    END;                                                                    16006000
    IF LL=0 THEN                                                            16007000
    IF (DECR(NUDCOUNT))=0 THEN                                              16008000
    BEGIN TIMETOOKLINES := TRUE;                                            16009000
         WENEEDTOCOOLIT := FALSE;                                           16010000
    END ELSE                                                                16011000
    IF NUDCOUNT LSS 0 THEN NUDCOUNT := 0 ELSE ELSE                          16012000
    BEGIN OKMESS(WORK);                                                     16013000
         TWXOUT(LL,WORK[0],41,CRLF);                                        16014000
         MSGPOINTER := PREVMSG;                                             16015000
                                                                            16016000
```

```
            PREVMSG := 0;                                                    16017000
        END;                                                                 16018000
        IAM := 0;                                                            16019000
    END;                                                                     16020000
    %*********************************************************************** 16500000
    BOOLEAN PROCEDURE MAKEOKEVENT;                                           16501000
    %*********************************************************************** 16502000
    BEGIN                                                                    16503000
        STREAM PROCEDURE OKMESS(WORK);                                       16504000
        BEGIN DI := WORK;                                                    16505000
            DS := 28 LIT"SYSTEM OK - YOU MAY PROCEED←";                      16506000
        END;                                                                 16507000
        DEFINE A[A1] = LINE[LL,A1]#;                                         16507500
        LABEL EXIT;                                                          16508000
        FOR LL := LLPREV+1 STEP 1 UNTIL MAXLINES DO                          16509000
        IF NODISKMCP THEN                                                    16510000
        BEGIN                                                                16511000
            EVENTS[0] := 0&LL[33:33:15]&VMCPOK[41:33:7];                     16512000
            OKMESS(WORK);                                                    16513000
            TWXOUT(LL,WORK[0],29,CRLF);                                      16514000
            MAKEOKEVENT := TRUE;                                             16515000
            GO TO EXIT;                                                      16516000
        END;                                                                 16517000
        TIMETOOKLINES := MAKEOKEVENT := FALSE;                               16518000
     EXIT:                                                                   16519000
    END;                                                                     16520000
    %*********************************************************************** 25000000
    PROCEDURE TEACHER(LCW,A); BOOLEAN LCW; ARRAY A[0];                       25000100
    %*********************************************************************** 25000200
       BEGIN                                                                 25000300
       REAL T,PTR,INDX,X;                                                    25000400
       LABEL MESAGE, QUIT, EXIT;                                             25000500
       IF SEQMODE OR NOT LOGGEDON THEN GO QUIT;                              25000600
       IF NOT BOOLEAN(DOING) THEN % CASE 0                                   25000700
          BEGIN                                                              25000800
          PTR := WORKADRS; INDX := 1; CLEAR(A[BASE+1],2);                    25000900
          WHILE T NEQ 4 AND INDX LEQ 2 DO % SCAN INPUT RECORD                25001000
             BEGIN                                                           25001100
             T := SCAN(PTR,A[BASE+INDX],"Z",WORKENDADRS,X);                  25001200
             IF A[BASE+1] NEQ QMARK THEN INDX:=INDX+1;                       25001300
             END; % SCAN                                                     25001400
          T := A[BASE+1].[6:42]; % FIRST INPUT AFTER QMK                     25001500
          MATCH(T,"CONTINU") GO QUIT; % IGNORE "CONTINUE" INPUT              25001600
          IF COMPAR(T,"STATUS ") OR T="+" THEN                               25001610
             BEGIN IAM := VSTATUSCHECK; GO TO EXIT; END;                     25001620
          MATCH(T,"DATA    ") % SUCCEEDING INPUT GOES TO DATA FILE           25001700
             BEGIN                                                           25001800
             IF RUNNING OR COMPILING THEN GO TO MESAGE;                      25001900
             IF FILENAME = 0 THEN GOERR("NO FILE",1);                        25002000
             IF FILETYPE NEQ 8 THEN GOERR(T,60); % WRONG TYPE FILE           25002100
             DATAENABLED := TRUE; LITOUT("OK      ",1); GO QUIT;             25002200
             END;                                                            25002300
          MATCH(T,"END     ") % RETURN TO COMMAND MODE                       25002400
             BEGIN                                                           25002500
             IF RUNNING OR COMPILING THEN GO TO MESAGE;                      25002600
             IF NOT DATAENABLED THEN GOERR(T,8);                             25002700
             DATAENABLED := FALSE; WRITEASTERISK:=TRUE; GO QUIT;             25002800
             END;                                                            25002900
          IF NOT SCHEDULINE THEN                                             25003000
             BEGIN                                                           25003100
```

```
            MATCH(T,"TO      ") % SS MESSAGE                                    25003200
               BEGIN                                                            25003300
               IF A[BASE+2].[1:2] GTR 0 THEN GOERR(A[BASE+2],8);                25003400
               STICK(PTR,L,WORKENDADRS);                                        25003500
               SSMSG; LITOUT("#       ",1); GO QUIT;                            25003600
               END;                                                             25003700
            MATCH(T,"TAPE    ") % SWITCH TO PAPER TAPE MODE                     25003800
               BEGIN                                                            25003900
               MATCH(RUN2,"CANDE  ") GOERR("NO PRGM",8);                        25003910
               IF NOT RUNNING THEN GOERR("NOPRGRM",8);                          25003920
               IF DEVICE=CONRAC OR DEVICE=BIDS THEN GOERR(T,56);                25004000
               % PUT YOUR FUNNY TERMINALS HERE                                 25004100
                                                                                25004200
                                                                                25004300
               READTAPE(LL&13[33:41:7],8,0,USERCODE); GO QUIT;                  25004400
               END;                                                             25004500
            END; % IF NOT SCHEDULINE                                            25004600
MESAGE:                                                                         25004700
         IF PREVRCW = BASE LEQ 35 THEN % NOT ENOUGH ROOM                        25004710
         IF INITIATEDWHILEBUSY THEN % ORIGINAL REQUEST INCOMPLETE               25004715
            BEGIN                                                               25004720
            IF RUNNING THEN LITOUT("RUNNING",1) ELSE                            25004725
            IF COMPILING THEN LITOUT("CMPILNG",1) ELSE                          25004730
               BEGIN                                                            25004735
               L[0]:=" STATUS"; BLANK(L[0]); L[1]:="OK      "; BLANK(L[1]);     25004740
               TWXOUT(LL,L[0],11,2-CONCISEBIT);                                 25004745
               END;                                                             25004750
            GO TO QUIT;                                                         25004755
            END;                                                                25004760
         IF DATAENABLED THEN MSGPTR:=68;% YOU ARE IN DATA MODE                  25004770
         LLDISKREAD := MSGPTR DIV 3 + MSGFILELOC;                               25004800
         DOING := 1;                                                            25004900
         WANT := VDISKREAD;                                                     25005000
         END % CASE 0                                                           25005100
      ELSE                                                                      25005200
         BEGIN                                                                  25005300
         IF T := MSGPTR MOD 3 NEQ 0 THEN MOVE(10,WORDS,WORK[T*10],WORK[0]);     25005400
         TWXOUT(LL,WORK[0],64,2 - CONCISEBIT); INQUIRY := FALSE;                25005500
         MSGPTR := REAL(RUNNING OR COMPILING) * MSGPTR;                         25005600
         IF SCHEDULINE THEN                                                     25005700
            IF NOT NOSTOP THEN                                                  25005710
               IF NOT BOOLEAN(SCHEDNAME.[1:1]) THEN                             25005720
                  BEGIN                                                         25005730
                  IAM := VCHANGE;                                               25005740
                  A[BASE] := SCHEDNAME.[6:42];                                  25005750
                  A[BASE+1] := 63; % "ABORTED" FILE TYPE                        25005760
                  FIND(LL&IAM[33:41:7],0,SCHEDNAME.[6:42],                      25005770
                       USERCODE,USERCODE);                                      25005780
                  SCHEDNAME := (-SCHEDNAME); % TERMINATING FLAG                 25005790
                  TEMP := 2; DOING := 1;                                        25005800
                  WAITFOR := IAM;                                               25005810
                  GO TO EXIT;                                                   25005820
                  END ELSE SCHEDGOTO(-1);                                       25005830
QUIT: IAM := 0; INQUIRY := FALSE;                                               25005840
         END; % CASE 1                                                          25005900
EXIT:                                                                           25006000
   END PROCEDURE TEACHER;                                                       25006100
%***************************************************************************%26000000
PROCEDURE     INPUT(LCW,A,TTYINPUT,DKOFFSET,DISKLOC);                          26000100
%***************************************************************************%26000200
```

```
VALUE           DKOFFSET,DISKLOC;                                          26000300
REAL            DKOFFSET,DISKLOC,TTYINPUT;                                 26000400
BOOLEAN         LCW;                                                       26000500
ARRAY           A[0];                                                      26000600
        BEGIN                                                              26000700
REAL STREAM PROCEDURE OUTSUPR(INPUT,OUTPUT); VALUE INPUT;                  26000710
   BEGIN                                                                   26000720
   DI:=LOC INPUT; DS:=7FILL;                                               26000730
   SI:=LOC INPUT; DI:=OUTPUT;                                              26000740
   8(IF SC=" " THEN SI:=SI+1 ELSE                                          26000750
      BEGIN DS:=CHR; TALLY:=TALLY+1; END);                                 26000760
   OUTSUPR:=TALLY;                                                         26000770
   END STREAM PROCEDURE OUTSUPR;                                           26000780
STREAM PROCEDURE PLSWAIT(WORK);                                            26000790
   BEGIN                                                                   26000792
   DI:=WORK; DS:=26LIT"PLEASE WAIT - NO USER DISK";                        26000794
   END STREAM PROCEDURE PLSWAIT;                                           26000795
COMMENT         THIS PROCEDURE SCANS THE INPUT USING SCANNER AND           26000800
                THEN CONTROLS THE PROCESS OF WHAT IS FOUND.                26000900
                IT BUILDS THE TABLES FOR DATA LINES, AND                   26001000
                CALLS ON THE VERB PROCESSORS FOR COMMAND LINES.            26001100
                END COMMENT;                                               26001200
STREAM PROCEDURE FIXERRORMSG(SEQ,L); VALUE SEQ;                            26001210
   BEGIN                                                                   26001220
   DI:=LOC SEQ; DS:=7FILL; SI:=LOC SEQ; DI:=L;                             26001230
   DS:=16LIT"FIX SYNTX ERR @ ";                                            26001240
   8(IF SC=" " THEN SI:=SI+1 ELSE DS:=CHR); DS:=8LIT" ";                   26001250
   END STREAM PROCEDURE FIXERRORMSG;                                       26001260
DEFINE          VERBV     = A[SREG].[40:8] #,                              26001300
                PAR       = A[SREG].[25:8] #,                              26001400
                SWDS      = A[BASE].[40:8] #,                              26001500
                TBLTODK = 2#,                                              26001600
                MOREVERBS = 1 #;                                           26001700
LABEL           CENTRAL,SCAN1,NODISK,EXIT;                                 26001800
REAL            T,E;                                                       26001900
DEFINE          TAB[TAB1] = WORK[TAB1] #;                                  26002000
    CENTRAL:  CASE DOING OF                                                26002100
          BEGIN                                                            26002200
          BEGIN             %  CASE 0                                      26002300
               IF NOT LOGGEDON THEN                                        26002400
          BEGIN                                                            26002500
                IAM := VHELLO;  DOING := 1;                                26002600
    % VOID                                                                 26002650
                GO EXIT                                                    26002700
          END;                                                             26002800
               IF SEQMODE THEN % COULD BE LEFTARROW OR DATA LINE.           26002900
          BEGIN  % CHECK LEFT ARROW.                                       26003000
               IF WORK[0] GTR 1 THEN                                       26003100
          BEGIN  % SEQMODE DATA LINE.                                      26003200
               T:=2;  A[BASE]:=SEQIN:=SEQLAST:=SEQLAST+INCREMENT;          26003300
               IF SCHEDULINE THEN                                          26003310
          BEGIN %SEND OUT SEQ NUMBER. THE MCP WILL NOT DO IT               26003320
               E := OUTSUPR(DECCONV(SEQLAST+INCREMENT),WORK[0]);           26003330
               TWXOUT(LL,WORK[0],E,NOCRLF);                                26003340
          END;                                                             26003350
               IF DEVICE=CONRAC OR DEVICE=BIDS THEN                        26003360
               IF SEQLAST=CHKSEQNMBR THEN OUTPUTNUMBERS(LCW,A[*]);         26003370
          END ELSE T := 5; % NULL INPUT                                    26003400
          END  ELSE                                                        26003500
               IF DATAENABLED THEN % INPUT TO DATA FILE                    26003510
```

```
            BEGIN                                                          26003520
                 A[BASE] := LASTRECORD := LASTRECORD + 1;                  26003530
                 T := 2;                                                   26003540
            END ELSE                                                       26003550
            BEGIN  % NOT SEQ MODE.                                         26003600
                SCANNER(WORKADRS,A[*],LCW,WORKENDADRS);                    26003700
                 SREG := BASE + 1;                                         26003800
                 T:=A[BASE].[3:3];                                         26003900
            END;                                                           26004000
                 CASE T OF  % HANDLE THE INPUT LINE.                       26004100
            BEGIN                                                          26004200
            BEGIN          %  OOPS: SCANNER RETURNED ZERO                 26004300
                           %  WHICH MEANS THERE WAS A COMMENT,            26004400
                           %  SO JUST SKIP IT                             26004500
                 IAM:=WANT:=0;                                             26004600
            END SCANNER CASE 0;                                            26004700
            BEGIN          %  SCANNER = 1 : WE HAVE A VERB                26004800
      COMMENT VERB CHECK;                                                  26004810
        IF CHECKBIT(A[SREG].[9:9] DIV 2,RESTRICTEDVERBS) THEN              26004820
         BEGIN ERRSW:=VERBTABLE[A[SREG].[9:9]]; WANT:=VERROR; MSGPTR:=49;  26004830
          GO TO EXIT; END; % USER IS NOT PERMITTED TO USE VERB;            26004840
                  WRITEASTERISK := TRUE;                                   26004900
                 TEMP:= 1;                                                 26005000
                 PARAM := SWDS;                                            26005100
                 IF WENEEDTOCOOLIT THEN                                    26005120
                 BEGIN DOING := 3;                                         26005140
                      GO TO NODISK;                                        26005160
                 END;                                                      26005180
            SCAN1:  WANT := VERBV;                                         26005200
                 IF VERBV  =  VSEQ THEN IAM:=0 ELSE                        26005250
                 IF A[BASE].[18:15] GTR 1 THEN DOING := MOREVERBS          26005300
                 ELSE  IAM := 0;                                           26005400
            END SCANNER CASE 1;                                            26005500
            BEGIN          %  SCANNER = 2: WE HAVE A SEQ NUMBER,          26005600
                 IF FILENAME = 0 OR                                        26005700
                    NOT FILESOK THEN GOERR("NO FILE",1);                   26005800
                 E := A[SREG]& DISKLOC[4:36:12]                            26005900
                      & DKOFFSET[16:43:5];                                 26006000
                 IF SEQMODE OR DATAENABLED THEN T := 2                     26006100
                 ELSE BEGIN T:=A[SREG+1]; SEQIN:=A[SREG]; END;             26006200
                 E.[1:2] := T;                                             26006300
                 IF T=3 THEN IF FIXERROR(WORKADRS,WORKENDADRS) THEN        26006310
                    BEGIN                                                  26006320
                    FIXERRORMSG(DECCONV(A[SREG]),L); TWXOUT(LL,L[0],24,1); 26006330
                    MSGPTR := 21; IAM := 0; GO TO EXIT;                    26006340
                    END;                                                   26006350
                 COMMENT   NOW PUT PUT ENTRY INTO TABLE;                   26006400
                 NOSAVE := FALSE;                                          26006450
                 GOODOBJ := FALSE;   % OBJ DOES NOT MATCH SOURCE           26006500
                 IF DOGHOUSE[LL] LEQ 0 THEN % FIRST DOG.                   26006600
                    DOGHOUSE[LL] :=CTRANDBASE[ROWINUSE];                   26006700
                 A[TBASE + TPENTRY] := E;                                  26006800
                 INC (TPCOUNT);                                            26006900
                 IF TPENTRY LSS 9 THEN                                     26007000
            BEGIN INC (TPENTRY);                                           26007100
                 A[TPENTRY] := TEN8;                                       26007200
                 IAM := DOING := WANT := 0;                                26007300
            END ELSE                                                       26007400
            BEGIN                                                          26007500
                 DOING := TBLTODK;                                         26007600
```

```
            IF TPREC GTR 0 THEN % GET BACK WHAT WAS WRITTEN BEFORE.    26007700
        BEGIN                                                          26007800
            LLDISKREAD := TPDKADR;                                     26007900
            TEMP := 3; WANT := VDISKREAD;                              26008000
        END  ELSE GO TO CENTRAL;                                       26008100
        END;                                                           26008200
        END SCANNER CASE 2;                                            26008300
        BEGIN          % SCANNER = 3: WE HAVE A SPEC CHAR              26008400
            IAM := C;                                                  26009200
        END SCANNER CASE 3;                                            26009300
        BEGIN   % SCANNER = 4: ITS AN SS MSG                           26009400
            WRITEASTERISK := TRUE;                                     26009500
            SSMSG;                                                     26009600
            IAM := 0;                                                  26009700
        END  CASE  4;                                                  26009800
        BEGIN % CASE 5 - NULL INPUT                                    26009810
            WRITEASTERISK := SEQMODE; % RESPOND IF ENDING SEQ. MODE    26009820
            SEQMODE := FALSE;                                          26009830
            IAM := 0;                                                  26009840
        END CASE 5;                                                    26009850
        END  SCANNER CASES;                                            26009900
        END  CASE 0;                                                   26010000
        BEGIN          %  CASE 1: MOREVERBS                           26010100
            IF WENEEDTOCOOLIT THEN                                     26010110
    NODISK: BEGIN PLSWAIT(WORK);                                       26010120
                TWXOUT(LL,WORK[0],26,1);                               26010130
                WAITFOR := VMCPOK;                                     26010140
                NODISKMCP := TRUE;                                     26010150
                MSGPOINTER := 46;                                      26010160
                GO TO EXIT;                                            26010170
            END;                                                       26010180
            SREG := SREG + (T := PAR + 1);                             26010200
            TEMP := TEMP + T;                                          26010300
            PARAM := PARAM - T;                                        26010400
            WANT  := VERBV;                                            26010500
            IF CHECKBIT(A[SREG],[9:9] DIV 2,RESTRICTEDVERBS) THEN      26010510
               BEGIN                                                   26010520
               ERRSW := VERBTABLE[A[SREG],[9:9]];                      26010530
               WANT := VERROR; MSGPTR := 49;                           26010540
               GO TO EXIT;                                             26010550
               END;                                                    26010560
            IF SWDS = TEMP + PAR THEN IAM := DOING := 0;               26010600
        END  CASE 1;                                                   26010700
        BEGIN          %  CASE 2: TBLTODK                             26010800
            CHKPT(A[*]);                                               26010900
            IF TPREC LSS 2 THEN                                        26011000
              INC(TPREC)                                               26011100
            ELSE                                                       26011200
        BEGIN                                                          26011300
            TPREC := 0;                                                26011400
            INC(TPDKREL);                                              26011500
            IF TPDKREL GTR 14 THEN                                     26011520
               BEGIN LITOUT("(WAIT)",1); WANT:=VUPDATE END;            26011550
        END;                                                           26011600
            TPENTRY := IAM := 0;                                       26011700
        END  CASE 2;                                                   26011800
        GO TO SCAN1;   % CASE 3                                        26011850
        END  ALL CASES;                                                26011900
    EXIT:                                                              26012000
        END  USER INPUT;                                               26012100
```

```
%*************************************************************************%27000000
PROCEDURE DISPATCH(LCW,A); BOOLEAN LCW; ARRAY A[0];                        27000100
%*************************************************************************%27000200
BEGIN % STARTS JOBS                                                        27000300
REAL CHUNKS;                                                               27000400
CLEAR(WORK[0],30);                                                         27000500
WORK[0]:=WORK[14]:=RUN1;      % FIRST NAME.                               27000600
WORK[1]:=WORK[3] :=RUN2;      % SECOND NAME                               27000700
WORK[2]:=0&2[8:38:10];        % EXECUTE CODE                              27000800
WORK[16]:=IF PROCESSLIMIT GTR 0 THEN PROCESSLIMIT ELSE 54000;              27000900
WORK[17]:=IF IOLIMIT GTR 0 THEN IOLIMIT ELSE 54000;                        27001000
IF CORESIZE GTR 0 THEN % CORE ESTIMATE GIVEN                               27001100
   BEGIN                                                                   27001200
   CORESIZE:=IF CORESIZE LSS 2048 THEN 32 ELSE CORESIZE DIV 64;            27001300
   WORK[20]:=CORESIZE & 1[2:47:1]; % CANT EXPAND CORE                      27001400
   END;                                                                    27001500
WORK[21]:=256;                % STACK SIZE                                27001600
WORK[24]:=USERCODE;           % USER CODE                                 27001700
IAM := 0;  WANT := WAITFOR := VMCPMSG; TEMP := 3;                          27001800
MATCH(RUN2.[6:42],"CANDE  ") % CANDE JOB TO RUN                            27001900
   BEGIN                                                                   27002000
   MATCH(RUN1,"QUIKLST") CHUNKS:=2 ELSE                                    27002100
   MATCH(RUN1,"PUNCH  ") CHUNKS:=2 ELSE                                    27002200
   MATCH(RUN1,"LOAD   ") CHUNKS:=3 ELSE                                    27002300
   MATCH(RUN1,"DELETE ") CHUNKS:=3 ELSE                                    27002400
   MATCH(RUN1,"LFILES ") CHUNKS:=3 ELSE                                    27002500
   MATCH(RUN1,"LIST   ") CHUNKS:=5 ELSE                                    27002600
   MATCH(RUN1,"PAPER  ") CHUNKS:=5 ELSE                                    27002700
   CHUNKS:=4;                                                              27002800
   WORK[20]:=(CHUNKS*16) & 1[2:47:1];                                      27002900
   WORK[0].[2:1]:=1; % NOT DS-ABLE                                         27003000
   WORK[1]:=ERRSW;                                                         27003100
   WORK[18]:=1 & SCHEDULINR[46:47:1]; % PRIORITY                           27003200
   WORK[19]:=ESP1;                                                         27003300
   MSGPTR:=45;                                                             27003400
   END                                                                     27003500
ELSE                                                                       27003600
   BEGIN  % MUST BE USER TYPE JOB.                                         27003700
   WORK[21] := STACKSIZE; % COMPILER EST. OR SPEC. VALUE                   27003800
   WORK[19]:=COMMONVALUE;                                                  27003900
   WORK[18] := 4 + REAL(SCHEDULINE);                                       27004000
   EOJMSG := NOT CONCISE; WRITEASTERISK := CONCISE;                        27004100
   IF RUN1.[6:6] = 0 THEN % REQUIRES SHIFTING                              27004200
      BEGIN                                                                27004300
      WORK[0]:=IF RUN1.[12:6]=1 THEN FILENAME ELSE " "&RUN1[6:12:36];      27004400
      END  SHIFT;                                                          27004500
   IF NOT CONCISE AND NOT COMPAR(RUN2,"DISK   ") THEN                      27004600
      LITOUT("RUNNING",3"100002");                                         27004610
   MSGPTR := 44;                                                           27004700
   END  IF NOT CANDE TYPE JOB;                                             27004800
WORK[2].[33:15]:=WORK[18];   % PRIORITY                                    27004900
RUNNING := TRUE;                                                           27005000
STACKSIZE:=PROCESSLIMIT:=IOLIMIT:=CORESIZE:=COMMONVALUE:=0;                27005100
IF EQUATED THEN                                                            27005200
IF NOT( (COMPAR(RUN2,"CANDE  ")) OR (COMPAR(RUN2,"DISK   "))) THEN         27005300
   BEGIN                                                                   27005400
   WORK[13]:=FIRSTESP; % LABEL EQUATION                                    27005500
   ENTERESP(-LL,0,A[*]); % SCRATCH TABLE ENTRIES                           27005600
   EQUATED := FALSE;                                                       27005700
   END;                                                                    27005800
```

```
RUNJOB(LL&WAITFOR[33:41:7],WORK[0],0);                                  27005900
END  OF  DISPATCH;                                                      27006000
%*********************************************************************%28000000
PROCEDURE     DISKREAD(LCW, A);       BOOLEAN  LCW;   ARRAY  A[0];      28000100
%*********************************************************************%28000200
          BEGIN                                                         28000300
LABEL  T;                                                               28000350
               IF NOT B(DOING) THEN  % DO READ INITIATE.                28000400
          BEGIN                                                         28000500
               IF PREVROW - BASE LEQ 33 THEN % AREA IS TOO SMALL.       28000600
          BEGIN                                                         28000700
               ERRSW := "TOOLONG";                                      28000800
               MSGPOINTER := 9;                                         28000900
               ERROR(SREG,LCW,A[*]);                                    28001000
          END  IF NOT ENOUGH ROOM                                       28001100
               ELSE                                                     28001200
          BEGIN                                                         28001300
               TEMP := 31;                                              28001400
               SREG := (DOING:=1) + SREG;                               28001500
               WAITFOR := IAM;                                          28001600
               DISKIO(LL&IAM[33:41:7],1,A[0],SREG,30,LLDISKREAD);       28001700
          END  OF READ INITIATE                                         28001800
          END  ELSE                                                     28001900
          BEGIN  %  READ IS COMPLETE NOW MOVE IT TO WORK.               28002000
               MOVE(30,WORDS,A[SREG],WORK[0]);                          28002100
               IAM := 0;                                                28002200
          END  IF READ COMPLETE;                                        28002300
          END  OF DISKREAD;                                             28002400
%*********************************************************************  30000000
PROCEDURE     OOPS (LCW, A); BOOLEAN LCW; ARRAY A[0];                   30000100
%*********************************************************************  30000200
          BEGIN                                                         30000300
LABEL  T;                                                               30000350
               SREG := BASE - A[BASE];                                  30000400
               ERRSW := A[INC(SREG)];                                   30000500
               MSGPOINTER := 13;                                        30000600
               ERROR (SREG, LCW, A[*]);                                 30000700
          END  OF  OOPS;                                                30000800
%*****************************************************************     31000000
PROCEDURE DOGCATCHER(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                 31000100
%*****************************************************************     31000200
          BEGIN                                                         31000300
LABEL  T;                                                               31000350
               IF NOT BOOLEAN (DOING) THEN                              31000400
          BEGIN  % COLLECT TANK RECORDS.                                31000500
               DOING := TEMP := 1; DOGHOUSE[LL]:=0;                     31000600
               LITOUT("(WAIT) ",NOCRLF);                                31000700
               IF TPCOUNT NEQ 0 THEN WANT := VUPDATE;                   31000800
          END                                                           31000900
               ELSE % COLLECTION FINISHED.                              31001000
          BEGIN                                                         31001100
               DOGLICENSE := FALSE;  IAM := 0;                          31001200
               DOGCATCHERS:= DOGCATCHERS -1;                            31001300
               WECANUSEDATA:=DOGCATCHERS LEQ 0;                         31001400
               LITOUT("PROCEED",CRLF);                                  31001500
          END  IF;                                                      31001600
          END  DOGCATCHER;                                              31001700
%*********************************************************************  32000000
PROCEDURE     COMPILEIT(LCW,A);  BOOLEAN LCW;  ARRAY A[0];              32000100
%*********************************************************************  32000200
```

```
            BEGIN                                                                32000300
      LABEL  T;                                                                  32000350
      %                                                                          32000400
      %           GENERATE THE LABEL EQUATIONS FOR THE COMPILER.                 32000500
      %                                                                          32000600
                  CLEAR(WORK[0],59);                                             32000700
                  WORK[0]:=(WORK[14]:=RUN1).[6:36]; %FIRST NAME                  32000800
                  WORK[1]:=WORK[15]:=USERCODE;      %SECND NAME                  32000900
                  WORK[3]:=10;   WORK[17]:=12;      %FILES TYPE                  32001000
                  WORK[4] :="CODE   "&4[1:43:5];                                 32001100
                  WORK[18]:="CARD   "&4[1:43:5];                                 32001200
                  DISKWRITE(ESP2);  CLEAR(WORK[0],29);                           32001300
      %                                                                          32001400
      %           GENERATE THE OBJECT SKELETON ON THE DISK.                      32001500
      %                                                                          32001600
                  WORK[16]:=WORK[17]:=3"7777777777"; %TIME LIMITS                32001700
                  WORK[18]:=4;                       %PRIORITY                   32001800
                  WORK[20]:=-1;                      %NO CORE EST                32001900
                  WORK[21]:=512;                     %STACK SIZE                 32002000
                  DISKWRITE(ESP1);  CLEAR(WORK[0],29);                           32002100
      %                                                                          32002200
      %           GENERATE THE COMPILER CALLOUT.                                 32002300
      %                                                                          32002400
                  WORK[14]:=ABS(WORK[0]:=RUN2&16[1:43:5]);%-COMPILER.            32002500
                  WORK[01]:=IF RUN1.[6:12]="1S" THEN                             32002600
                            FILENAME ELSE RUN1;  %FILENAME.                      32002700
                  WORK[02]:=4&4[8:38:10]&ESP1[18:33:15];%OBJ.S                   32002800
                  WORK[3]:="DISK   "; WORK[13]:=ESP2;%LBL EQN                    32002900
                  WORK[18]:=4+SCHEDULINR;              % PRIORITY                32003000
                  WORK[19]:=IF COMMONVALUE LSS 0 THEN 1 ELSE 3;                  32003050
                  WORK[22]:=8; WORK[24]:=USERCODE;  %SAVE&USER                   32003100
                  WORK[16] :=                                                    32003110
                 IF PROCESSLIMIT GTR 0 THEN PROCESSLIMIT ELSE 3"7777777777";     32003120
                  WORK[17] :=                                                    32003130
                  IF IOLIMIT GTR 0 THEN IOLIMIT ELSE 3"7777777777";              32003140
                  WORK[21] :=                                                    32003150
                  IF STACKSIZE GTR 0 THEN STACKSIZE ELSE 512;                    32003160
                 STACKSIZE:=PROCESSLIMIT:=IOLIMIT:=CORESIZE:=COMMONVALUE:=0;     32003170
      %                                                                          32003200
      %           NOW TELL CANDE & THE MCP.                                      32003300
      %                                                                          32003400
                  COMPILING := TRUE; WRITEASTERISK := CONCISE;                   32003500
                  BOJMSG := NOT CONCISE; EOJMSG := NOT CONCISE;                  32003510
                  MSGPTR := 43;                                        %DCS      32003550
                  IAM:=0;  WANT:=WAITFOR:=VMCPMSG; TEMP := 3;                    32003600
                  RUNJOB(LL&WAITFOR[33:41:7],WORK[0],0);                         32003700
                  ESP1:=GETESPDISK;  ESP2:=GETESPDISK;                           32003800
            END  OF COMPILEIT;                                                   32003900
      %*************************************************************           33000000
      PROCEDURE  SETUPFILES(LCW,A); BOOLEAN LCW; ARRAY A[0];                     33000100
      %*************************************************************           33000200
        BEGIN                                                                    33000300
      REAL  T;                                                                   33000400
        CASE DOING OF                                                            33000500
        BEGIN                                                                    33000600
        BEGIN   % CASE 0                                                         33000700
        FILESOK := FALSE;                                                        33000800
                  T := MAKEFN("1T",LL);                                          33000900
                  MAKEFILE(LL&IAM[33:41:7],1,T,USERCODE,0,10);                   33001000
                  T := T&"P"[12:42:6];                                           33001100
```

Changes compiler stacks

```
                MAKEFILE(LL&IAM[33:41:7],1,T,USERCODE,0,TBLSZ);                 33001200
                A[BASE] := LASTRECORD := 0;                                     33001300
                TABLEINFO := 3"10000";                                          33001400
                TEMP := 1;                                                      33001500
                DOING := 1;                                                     33001600
                WAITFOR := IAM;                                                 33001700
            END  CASE  0;                                                       33001800
            BEGIN   % CASE 1                                                    33001900
      IF INC(A[BASE]) = 1 THEN                                                  33002000
      IF EVENTS[1] = 0 THEN INC(A[BASE]) ELSE                                   33002050
      BEGIN  WORK[0] := 0;  WORK[1] := TEN8;                                    33002100
        DISKWRITE(EVENTS[1]);  WAITFOR := IAM;                                  33002200
      END  ELSE                                                                 33002300
      BEGIN IF EVENTS[1] = 0 OR A[BASE]=3 THEN        % NO USER DISK           33002310
      BEGIN MSGPOINTER := 46;                                                   33002320
        FILENAME := SOURCEFILE := 0;                                            33002330
        REMOVEFILE(T:=LL&13[33:41:7],MAKEFN("1T",LL),USERCODE);                 33002340
        REMOVEFILE(T,MAKEFN("1P",LL),USERCODE);                                 33002350
      END ELSE                                                                  33002360
      BEGIN  A[TBASE+10] := TEN8;  WRKTBLADR := EVENTS[1];                      33002400
        CANCELCKPT(A[*]);                                                       33002500
       FILESOK := TRUE;                                                         33002600
      END;                                                                      33002650
       IAM := 0;                                                                33002700
      END;                                                                      33002800
      END  CASE  1;                                                             33002900
      END  ALL  CASES;                                                          33003000
      END  SETUPFILES;                                                          33003100
    %***************************************************************************%34000000
    PROCEDURE     ERROR(S,LCW,A);  VALUE S; REAL S; BOOLEAN LCW; ARRAY A[0];34000100
    %***************************************************************************%34000200
      BEGIN                                                                     34000300
      REAL          T;                                                          34000400
      REAL STREAM PROCEDURE MKER(ERRSW,L,CHRTOG,STRTOG,MINTOG,PLSTOG);          34000500
      VALUE ERRSW,CHRTOG,STRTOG,MINTOG,PLSTOG;                                  34000600
        BEGIN LABEL EXIT;                                                       34000700
        SI:=LOC ERRSW; DI:=L; DS:=5LIT"ERR: "; TALLY:=5;                        34000800
        CHRTOG(SI:=SI+7; DS:=1CHR; TALLY:=TALLY+1; JUMP OUT TO EXIT);           34000900
        STRTOG(SI:=SI+1; DS:=7CHR; TALLY:=TALLY+7; JUMP OUT TO EXIT);           34001000
        MINTOG(DS:=LIT"-"; TALLY:=TALLY+1);                                     34001100
        PLSTOG(DS:=LIT"+"; TALLY:=TALLY+1);                                     34001200
        MINTOG:=DI; DS:=8 DEC; DI:=MINTOG; DS:=7FILL;                           34001300
        SI:=MINTOG; BI:=MINTOG;                                                 34001400
        8(IF SC=" " THEN SI:=SI+1 ELSE                                          34001500
          BEGIN DS:=CHR; TALLY:=TALLY+1; END));                                 34001600
    EXIT:                                                                       34001700
        MKER := TALLY;                                                          34001800
        END STREAM PROCEDURE MKER;                                              34001900
      %.....................................................................     34002000
      T:=MKER(ERRSW.[6:42],L,(ERRSW.[1:2]=1),(ERRSW.[6:12] GTR 0),              34002100
      (ERRSW.[1:2]=2),(ERRSW.[1:2]=3));                                         34002200
      TWXOUT(LL,L[0],T,1);                                                      34002300
      WRITEASTERISK := FALSE;                                                   34002400
      T := MSGPTR;                                                              34002500
      LINECLEAR(LCW,A[*]);                                                      34002600
      MSGPTR := T;                                                              34002700
    IF SCHEDULINE OR HELPFUL THEN                                               34002800
        BEGIN % TERMINATE SCHEDULE I/P & EXPLAIN WHY                            34002900
        IAM := VTEACHER; DOING := 1; % DONT SCAN INPUT                          34003000
        LLDISKREAD := MSGPTR DIV 3 + MSGFILELOC;                                34003100
```

```
        WANT := VDISKREAD;                                                    34003200
        WRITEASTERISK := TRUE;                                                34003300
        END;                                                                  34003400
    END ERROR PROCEDURE;                                                      34003500
%*************************************************************%             35000000
PROCEDURE     CLOSEWORKTABLE (LCW, A); BOOLEAN LCW; ARRAY A[0];               35000100
%*************************************************************%             35000200
          BEGIN                                                               35000300
LABEL           CASE1, EXIT;                                                  35000400
                CASE DOING OF                                                 35000500
          BEGIN                                                               35000600
          BEGIN          %  CASE 0                                           35000700
                IF GOODOBJ THEN                                               35000800
                  GOODOBJ := TPCOUNT = 0;                                     35000900
                IF NOT FILESOK THEN GOERR("NO FILE",1);                       35001000
                IF TPENTRY LSS 9 THEN A[TBASE+TPENTRY] := TEN8;               35001100
                IF TPREC GTR 0 THEN                                           35001200
          BEGIN                                                               35001300
                LLDISKREAD := TPDKADR;                                        35001400
                DOING := 1;                                                   35001500
                WANT  := VDISKREAD;                                           35001600
          END  ELSE GO TO CASE1                                               35001700
          END  CASE 0;                                                        35001800
     CASE1:                                                                   35001900
          BEGIN          %  CASE 1                                           35002000
    CHKPT(A[*]);                                                              35002100
      % VOID                                                                  35002200
    IAM := 0;                                                                 35002300
  END  CASE  1;                                                               35002400
  END  ALL  CASES;                                                            35002500
 EXIT:                                                                        35002600
  END  CLOSEWORKTABLE;                                                        35002700
%*************************************************************************%  36000000
PROCEDURE     CHNGPSWD(LCW,A);   BOOLEAN LCW;   ARRAY A[0];                   36000100
%*************************************************************************%  36000200
BEGIN                                                                         36000300
LABEL ERR,EXIT;                                                               36000400
STREAM PROCEDURE  OLDPSWD(W);                                                 36000500
   BEGIN DI:=W; DS:=30LIT"PLEASE ENTER YOUR OLD PASSWORD"; END;               36000600
STREAM PROCEDURE  NEWPSWD(W);                                                 36000700
   BEGIN DI:=W; DS:=28LIT"NEXT ENTER YOUR NEW PASSWORD"; END;                 36000800
STREAM PROCEDURE  VFYPSWD(W);                                                 36000900
   BEGIN DI:=W; DS:=31LIT"PLEASE REPEAT YOUR NEw PASSWORD"; END;              36001000
STREAM PROCEDURE SCANPSWD(W,S,EADRS); VALUE EADRS;                            36001010
   BEGIN LOCAL SV,DV;                                                         36001020
   SI:=W;                                                                     36001030
   DI:=S; DS:=8LIT"0       "; DI:=DI-7;                                       36001040
   7(IF SC = LEFTARROW THEN                                                   36001050
      BEGIN                                                                   36001060
      SV:=SI; SI:=LOC SV; SI:=SI+5;                                           36001070
      DV:=DI; DI:=LOC EADRS; DI:=DI+5;                                        36001080
      IF 3SC=DC THEN JUMP OUT;                                                36001090
      SI:=SV; DI:=DV;                                                         36001100
      END;                                                                    36001110
   IF SC=" " THEN JUMP OUT;                                                   36001115
   IF SC="," THEN JUMP OUT; DS:=CHR);                                         36001120
   END STREAM PROCEDURE SCANPSWD;                                             36001130
%.....%                                                                       36001140
CASE DOING OF                                                                 36001200
   BEGIN                                                                      36001300
```

```
      BEGIN % CASE 0 - REQUESTING CURRENT PASSWORD                          36001400
      IF SCHEDULINE THEN GOERR("CHANGE ",40);                              36001500
      OLDPSWD(WORK); TWXOUT(LL,WORK[0],30,1);                              36001600
      BLACKOUT;                                                            36001700
      CLEAR(A[BASE],2); TEMP:=3; DOING:=1;                                 36001800
      WAITFOR := VINPUT;                                                   36001900
      END CASE 0;                                                          36002000
    %.....................................................................36002100
      BEGIN % CASE 1 - SCANNING FOR CURRENT PASSWORD                       36002200
      SCANPSWD(WORK[1],A[BASE],WORKENDADRS);                               36002300
      MATCH(A[BASE].[6:42],"       ") GO ERR;                              36002400
      NEWPSWD(WORK); TWXOUT(LL,WORK[0],28,1);                              36002500
      BLACKOUT;                                                            36002600
      DOING := 2;                                                          36002700
      WAITFOR := VINPUT;                                                   36002800
      END CASE 1;                                                          36002900
    %.....................................................................36003000
      BEGIN % CASE 2 - SCANNING FOR NEW PASSWORD                           36003100
      SCANPSWD(WORK[1],A[BASE+1],WORKENDADRS);                             36003200
      MATCH(A[BASE+1].[6:42],"       ") GO ERR;                            36003300
      VFYPSWD(WORK); TWXOUT(LL,WORK[0],31,1);                              36003400
      BLACKOUT;                                                            36003500
      DOING := 3;                                                          36003600
      WAITFOR := VINPUT;                                                   36003700
      END CASE 2;                                                          36003800
    %.....................................................................36003900
      BEGIN % CASE 3 - SCANNING FOR VERIFICATION                           36004000
      SCANPSWD(WORK[1],A[BASE+2],WORKENDADRS);                             36004100
      MATCH(A[BASE+1],A[BASE+2]) ELSE GO ERR;                              36004200
      LLDISKREAD := USERLOC;                                               36004300
      WANT := VDISKREAD;                                                   36004400
      DOING := 4;                                                          36004500
      END CASE 3;                                                          36004600
    %.....................................................................36004700
      BEGIN % CASE 4 - USERS/CANDE RECORD IN CORE                          36004800
      MATCH(A[BASE].[6:42],WORK[2]) ELSE GO ERR;                           36004900
      WORK[2]:=A[BASE+1].[6:42];                                           36005000
      DISKWRITE(USERLOC);                                                  36005100
      LLDISKREAD := USRBASE[0]; % USERS/CANDE RECORD ZERO                  36005200
      WANT := VDISKREAD;                                                   36005300
      DOING := 5;                                                          36005400
      END CASE 4;                                                          36005500
    %.....................................................................36005600
      BEGIN % CASE 5 - PUT NEW DATE IN USERS/CANDE FILE                    36005700
      WORK[2]:=DATE;                                                       36005800
      DISKWRITE(USRBASE[0]);                                               36005900
      IAM := 0;                                                            36006000
      END CASE 5;                                                          36006100
    END ALL CASES;                                                         36006200
  GO TO EXIT;                                                              36006300
  ERR:                                                                     36006400
  LITOUT("BADCODE",1); MSGPTR:=21; LINECLEAR(LCW,A[*]);                    36006500
  EXIT:                                                                    36006600
  END PROCEDURE CHANGEPASSWORD;                                            36006700
  %*********************************************************************** 37001000
  PROCEDURE     THYME(LCW,A);                                              37001100
  %*********************************************************************** 37001200
  BOOLEAN       LCW;                                                       37001300
  ARRAY         A[0];                                                      37001400
        BEGIN                                                            37001500
```

```
                LABEL DUMMY;                                                    37001550
                WORK[0] := "USER IS";      BLANK(WORK[0]);                      37001600
                WORK[1] := USERCODE;       BLANK(WORK[1]);                      37001700
                WORK[2]:=DECCONV(LL); WORK[2]:=WORK[2]&"LINE "[6:18:30];        37001710
                BLANK(WORK[2]);                                                 37001720
                TWXOUT(LL,WORK[0],24,CRLF);                                     37001800
                WORK[0] := "TIME IS";      BLANK(WORK[0]);                      37001900
                TIMEOFDAY(WORK[1],TIMECONV(TIME(1),TRUE));                      37002000
                TWXOUT(LL,WORK[0],18,CRLF);                                     37002100
                WORK[0] := "C&E USE";      BLANK(WORK[0]);                      37002200
                TIMEUSED(WORK[1],TIMECONV(PTIME,FALSE));                        37002300
                TWXOUT(LL,WORK[0],33,1);                                        37002400
                WORK[0] := "EXECUTE"; BLANK(WORK[0]);                           37002500
                TIMEUSED(WORK[1],TIMECONV(ETIME,FALSE));                        37002600
                TWXOUT(LL,WORK[0],33,1);                                        37002700
                WORK[0] := "IO TIME"; BLANK(WORK[0]);                           37002800
                TIMEUSED(WORK[1],TIMECONV(IOTOT,FALSE));                        37002900
                TWXOUT(LL,WORK[0],33,1);                                        37003000
                WORK[0] := DATE;                                                37003100
                TWXOUT(LL,WORK[0],8,2);                                         37003200
                IAM := C;                                                       37003300
            END OF THYME;                                                       37003400
        %***************************************************************************38000000
        PROCEDURE CARRIAGE(LCW,A); BOOLEAN LCW; ARRAY A[0];                     38000100
        %***************************************************************************38000200
            BEGIN                                                               38000300
            REAL T;                                                             38000400
            LABEL ERR,EXIT;                                                     38000500
            CASE DOING OF                                                       38000600
            BEGIN                                                               38000700
                BEGIN % CASE 1 SYNTAX CHECK                                     38000710
                IF DEVICE NEQ TELETYPE THEN GOERR("CC      ",56);               38000720
                TEMP:=1; WRITEASTERISK:=TRUE;                                   38000800
                IF A[SREG:=BASE+A[BASE]].[18:15] GEQ 1 THEN                     38000900
                    BEGIN                                                       38001000
                    MATCH(A[SREG:=SREG+1].[6:42],"LONG    ") T:=1 ELSE          38001100
                    MATCH(A[SREG].[6:42],"SHORT   ") T:=0 ELSE GO TO ERR;       38001200
                    END                                                         38001300
                ELSE                                                            38001400
                    BEGIN                                                       38001500
                    A[SREG]:="CC      ";                                        38001600
        ERR:        GOERR(A[SREG],8);                                           38001700
                    END;                                                        38001800
                IF (T=1 AND CCLONG) OR (T=0 AND NOT CCLONG) THEN                38001900
                    BEGIN                                                       38002000
                    IAM:=0; GO TO EXIT;                                         38002100
                    END;                                                        38002200
                A[BASE]:=T; TEMP:=1;                                            38002300
                LLDISKREAD := USERLOC; % USERS/CANDE RECORD LOCATION            38002400
                WANT:=VDISKREAD;                                                38002500
                DOING := 1;                                                     38002600
                END; % CASE 0                                                   38002700
            %...........................................................................38002800
                BEGIN % CASE 1 - USERS/CANDE RECORD IN CORE                     38002900
                CCLONGBIT := REAL(A[BASE]=1);                                   38003000
                WORK[11]:=OPTIONBITS; % UPDATE RECORD                           38003100
                DISKWRITE(USERLOC); % REPLACE USERS/CANDE RECORD                38003200
                CCCOM(LL,USERCODE,A[BASE]);                                     38003300
                IAM := 0;                                                       38003400
                END CASE 1;                                                     38003500
```

```
   END ALL CASES;                                                                38003600
EXIT:                                                                            38003700
   END PROCEDURE CARRIAGE CONTROL;                                               38003800
%*************************************************************                  39000000
PROCEDURE  CHNGNAME(LCW,A); BOOLEAN LCW; ARRAY A[0];                             39000100
%*************************************************************                  39000200
      BEGIN                                                                      39000300
STREAM PROCEDURE NEWNAME(A);                                                     39000400
      BEGIN                                                                      39000500
           DI:=A; DS:=20LIT"ENTER YOUR NEW NAME=";                               39000600
      END  STREAM;                                                               39000700
STREAM PROCEDURE SAVENAME(F,T,EADRS); VALUE EADRS;                               39000800
      BEGIN                                                                      39000900
LOCAL SV,DV; LABEL L;                                                            39001000
           SI:=F; DI:=T; DS:=LIT"0"; DS:=15LIT" "; DI:=DI-15;                    39001100
      L:   IF SC=" " THEN BEGIN SI:=SI+1; GO L  END;                             39001200
           15(IF SC=LEFTARROW THEN                                               39001300
              BEGIN                                                              39001310
              SV:=SI; SI:=LOC SV; SI:=SI+5;                                      39001320
              DV:=DI; DI:=LOC EADRS; DI:=DI+5;                                   39001330
              IF 3SC=DC THEN JUMP OUT;                                           39001340
              SI:=SV; DI:=DV;                                                    39001350
              END;                                                               39001360
           DS:=CHR);                                                             39001370
      END  STREAM;                                                               39001400
LABEL           EXIT;                                                            39001500
                IF SCHEDULINE THEN GOERR("CHANGE ",40);                          39001600
                CASE DOING OF                                                    39001700
           BEGIN                                                                 39001800
           BEGIN  %  CASE 0.                                                     39001900
                NEWNAME(WORK);                                                   39002000
                TWXOUT(LL,WORK[0],20,NOCRLF);                                    39002100
                DOING:=1; WAITFOR:=VINPUT;                                       39002200
           END  CASE 0;                                                          39002300
           BEGIN  %  CASE 1.                                                     39002400
                SAVENAME(WORK[1],A[BASE],WORKENDADRS);                           39002500
                DOING:=TEMP:=2;                                                  39002600
                LLDISKREAD:=USERLOC;                                             39002700
                WANT:=VDISKREAD;                                                 39002800
           END  CASE 1;                                                          39002900
           BEGIN  %  CASE 2.                                                     39003000
                MOVE(2,WORDS,A[BASE],WORK[4]);                                   39003100
                DISKWRITE(USERLOC);                                              39003200
                IAM := 0;                                                        39003300
           END  CASE 2;                                                          39003400
           END  ALL CASES;                                                       39003500
     EXIT:END  CHANGE NAME;                                                      39003600
%*************************************************************************      40000000
PROCEDURE MONITORR(LCW,A); BOOLEAN LCW; ARRAY A[0];                              40000100
%*************************************************************************      40000200
BEGIN                                                                            40000300
REAL PC,WORD;                                                                    40000400
LABEL EXIT;                                                                      40000500
TEMP := 3;                                                                       40000600
CASE DOING OF                                                                    40000700
   BEGIN                                                                         40000800
   %.....................................................................        40000900
      BEGIN % CASE 0 - SYNTAX CHECK                                              40001000
      PC := A[ SREG:=BASE-A[BASE] ].[18:15]; % PARAMETER COUNT                   40001100
      WORD := A[SREG:=SREG+1]; % FIRST PARAMETER                                 40001200
```

```
      IF PC NEQ 1 THEN % WRONG NUMBER OF PARAMETERS                          40001300
         BEGIN                                                               40001400
         IF PC=0 THEN GOERR("FILENAM",6); % FILE NAME REQUIRED               40001500
         GOERR(WORD,8); % ILLEGAL PARAMETER                                  40001600
         END;                                                                40001700
      IF WORD.[3:3]=0 THEN GOERR(WORD,8); % NOT A FILE NAME                  40001800
      IF WORD.[3:3] GTR 6 THEN GOERR(WORD,42); % 6 CHARACTERS MAX            40001900
      IF FINDAWORD(WORD,RESWRDTABLE[1],NUMOFRESWRDS) NEQ 0 THEN              40002000
      GOERR(WORD,29);                                                        40002100
      A[BASE] := WORD := WORD.[6:42]; % STORE FILE NAME                      40002200
      A[BASE+1] := A[BASE+2] := 0; % RESET EVENTS COUNTER AND ERR. LOC.      40002300
      FIND(LL&IAM[33:41:7],0,WORD,USERCODE,USERCODE);                        40002400
      FIND(LL&IAM[33:41:7],0,WORD.[6:36],USERCODE,USERCODE);                 40002500
      DOING := 1; WAITFOR := IAM;                                            40002600
      END; % CASE 0                                                          40002700
    %.....................................................................40002800
      BEGIN % CASE 1 - RESULTS OF DIRECTORY SEARCH                           40002900
      IF EVENTS[1] GEQ 0 THEN % FILE WAS IN DIRECTORY                        40003000
      IF A[BASE+1]=0 THEN    % THIS IS FIRST FILE FOUND                       40003100
      IF A[BASE+2]=0 THEN A[BASE+1]:=A[BASE] % SOURCE VERSION                40003200
      ELSE A[BASE+1]:=A[BASE].[6:36]; % OBJECT VERSION                       40003300
      IF A[BASE+2]:=A[BASE+2]+1 LSS 2 THEN WAITFOR:=IAM ELSE                 40003400
      IF A[BASE+1] NEQ 0 THEN GOERR(A[BASE+1],3) ELSE                        40003500
         BEGIN                                                               40003600
         MAKEFILE(LL&IAM[33:41:7],1,A[BASE],USERCODE,8,200);                 40003700
         DOING:=2; WAITFOR:=IAM;                                             40003800
         END;                                                                40003900
      END; % CASE 1                                                          40004000
    %.....................................................................40004100
      BEGIN % CASE 2 - ADJUST NEW FILE HEADER                                40004200
      IF EVENTS[1] = 0 THEN GOERR("NO DISK",46);                             40004300
      LLDISKREAD:=A[BASE+1]:=EVENTS[2]; % HEADER ADDRESS                     40004400
      DOING := 3; WANT := VDISKREAD;                                         40004500
      END; % CASE 2                                                          40004600
    %.....................................................................40004700
      BEGIN % CASE 3 - HEADER IN CORE                                        40004800
      WORK[0]:=10 & 30[30:36:12] & 300[15:33:15] & 10[1:34:14];              40004900
      WORK[3].[2:10] := 7; % SAVE FACTOR                                     40005000
      WORK[7] := -1; % EOF POINTER                                           40005100
      WORK[9].[43:5] := 20; % NUMBER OF ROWS                                 40005200
      DISKWRITE(A[BASE+1]); % REPLACE HEADER                                 40005300
      LLDISKREAD:=USERLOC; % USERS/CANDE RECORD ADDRESS                      40005400
      DOING := 4; WANT := VDISKREAD;                                         40005500
      END; % CASE 3                                                          40005600
    %.....................................................................40005700
      BEGIN % CASE 4 - USERS/CANDE RECORD IN CORE                            40005800
      MONITORBIT := TRUE;                                                    40005900
      WORK[12] := A[BASE]; % MONITOR FILE NAME                               40006100
      DISKWRITE(USERLOC); % REPLACE RECORD                                   40006200
      IAM := 0;                                                              40006300
      END; % CASE 4                                                          40006400
    END ALL CASES;                                                           40006500
  EXIT:                                                                      40006600
  END PROCEDURE MONITORR;                                                    40006700
  %*********************************************************************41000000
  PROCEDURE SETIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                           41000100
  %*********************************************************************41000200
  BEGIN                                                                      41000300
  REAL NC,PTR,WORD,MAXPTR,TYPE,SETBIT,X;                                     41000400
  LABEL CASE2,EXIT;                                                          41000500
```

```
DEFINE ERR(ERR1,ERR2,ERR3)=                                                    41000700
   BEGIN                                                                       41000800
   ERRSW := ERR1 & ERR2[1:43:5]; MSGPTR := ERR3;                               41000900
   IAM := VERROR; GO TO EXIT;                                                  41001000
   END#;                                                                       41001100
%.....................................................................41004700
CASE DOING OF                                                                  41004900
   BEGIN                                                                       41005000
   %.....................................................................41005100
      BEGIN % CASE 0 - SYNTAX ANALYSIS                                         41005200
      PTR:=WORKADRS; MAXPTR:=WORKENDADRS; NC:=0; % SETUP                       41005300
      WHILE (TYPE:=SCAN(PTR,WORD,"9",MAXPTR,X)) NEQ 5 DO                       41005400
         BEGIN                                                                 41005500
         IF TYPE NEQ 1 THEN  % NOT ALPHA STRING                                41005600
            BEGIN                                                              41005610
            ERR(WORD,WORD.[1:5],8); % INVALID IF NOT SPO AND NUMBER            41005700
            END;                                                               41005710
         NC := NC + 1; WORD.[1:5] := 0;                                        41005730
         MATCH(WORD,"SET    ") SETBIT := 1                                     41005800
         ELSE MATCH(WORD,"RESET  ") SETBIT := 0                                41005900
         ELSE MATCH(WORD,"CONCISE") CONCISEBIT := SETBIT                       41006000
         ELSE MATCH(WORD,"HELPFUL") HELPFULBIT := SETBIT                       41006100
         ELSE MATCH(WORD,"QUICKLOG") QUICKLOGBIT:= SETBIT                      41006200
         ELSE MATCH(WORD,"QUICKBY") QUICKBYEBIT:= SETBIT                       41006300
         ELSE MATCH(WORD,"NOSTOP ")                                            41006400
            BEGIN NOSTOP:=BOOLEAN(SETBIT); IAM:=0; GO EXIT; END                41006410
         ELSE MATCH(WORD,"ALLOWMS") ALLOWMSGBIT:=SETBIT                        41006500
         ELSE MATCH(WORD,"FREEFIL") UNLOCKTOGGLE:=SETBIT                       41006600
         %                                                                     41006700
         %                                                                     41006800
         ELSE MATCH(WORD,"MONITOR") GO TO CASE2 % SET/RESET MONITOR FILE       41006900
         ELSE ERR(WORD,7,8);                                                   41007100
         END WHILE STATEMENT;                                                  41007200
      IF NC LSS 2 THEN ERR("INCMPLT",7,8);                                     41007300
      IF SCHEDULINE THEN                                                       41007310
         BEGIN                                                                 41007320
         IAM:=0; WRITEASTERISK:=TRUE;                                          41007330
         END ELSE                                                              41007340
      BEGIN                                                                    41007350
      LLDISKREAD := USERLOC; % USERS/CANDE RECORD ADDRESS                      41007400
      WANT := VDISKREAD;                                                       41007500
      DOING := 1;                                                              41007600
      END;                                                                     41007650
      END CASE 0;                                                              41007700
   %.....................................................................41007800
      BEGIN % CASE 1 - USERS/CANDE RECORD IN CORE                              41007900
      WORK[11] := OPTIONBITS; % PUT NEW SETTINGS IN RECORD                     41008000
      DISKWRITE(USERLOC); % REPLACE USERS/CANDE RECORD                         41008100
      IAM := 0;                                                                41008200
      WRITEASTERISK := TRUE;                                                   41008300
      END CASE 1;                                                              41008400
   %.....................................................................41008500
      BEGIN % CASE 2 - MONITOR SET/RESET REQUEST                               41008600
CASE2: IF NOT BOOLEAN(SETBIT) THEN % RESET MONITOR                             41008700
         BEGIN                                                                 41008800
         MONITORBIT := FALSE;                                                  41008900
         IAM := 0;                                                             41009000
         WRITEASTERISK := TRUE;                                                41009100
         GO TO EXIT;                                                           41009200
         END;                                                                  41009300
```

```
        LLDISKREAD := USERLOC; % USERS/CANDE RECORD ADDRESS                    41009400
        WANT := VDISKREAD;                                                    41009500
        DOING := 3;                                                           41009600
        END CASE 2;                                                           41009700
    %.....................................................................    41009800
        BEGIN % CASE 3 - USERS/CANDE RECORD IN CORE                           41009900
        IF WORK[12]=0 THEN ERR("MON.FIL",7,2); % NO FILE NAME LISTED          41010000
        A[BASE] := WORK[12]; % SAVE MONITOR FILE NAME                         41010100
        FIND(LL&IAM[33:41:7],0,A[BASE],USERCODE,USERCODE); % SEARCH           41010200
        TEMP := 2; DOING := 4; WAITFOR := IAM;                                41010300
        END CASE 3;                                                           41010400
    %.....................................................................    41010500
        BEGIN % CASE 4 - RESULTS OF DIRECTORY SEARCH                          41010600
        IF EVENTS[1] LEQ 0 THEN ERR(A[BASE],6,2); % NOT ON DISK               41010700
        MONITORBIT := TRUE;                                                   41010800
        LITOUT(A[BASE],NBCRLF); LITOUT(" MONITR",CRLF);                       41010900
        IAM := 0;                                                             41011000
        END CASE 4;                                                           41011100
    %.....................................................................    41011200
        END ALL CASES;                                                        41023300
EXIT:                                                                         41023400
END PROCEDURE SETIT;                                                          41023500
%*********************************************************************      42000000
PROCEDURE SSFILE(LCW,A); BOOLEAN LCW; ARRAY A[0];                             42000100
%*********************************************************************      42000200
BEGIN % PRINT CONTENTS OF SPECIFIED FILE ON TERMINALS                         42000300
REAL I,LIN,PC,REKS,LINMAX,WORD,MAXSREG;                                       42000400
LABEL EXIT;                                                                   42000500
CASE DOING OF                                                                 42000600
    BEGIN                                                                     42000700
        BEGIN % CASE 0 - SYNTAX ANALYSIS                                      42000800
        IF LL NEQ 0 THEN GOERR("SSFILE ",13);                                 42000900
        SREG := BASE - A[BASE];                                               42001000
        PC := A[SREG].[18:15]; MAXSREG := SREG + PC;                          42001100
        A[BASE+3] := 999; % FLAG FOR LINE NUMBER INPUT                        42001200
        FOR SREG := SREG+1 STEP 1 UNTIL MAXSREG DO                            42001300
            BEGIN % PICK UP THE PARAMETERS                                    42001400
            WORD:=A[SREG];                                                    42001500
            IF WORD.[1:5]=0 THEN % LINE NUMBER GIVEN                          42001600
                BEGIN                                                         42001700
                IF WORD GTR MAXLINES THEN GOERR("NOT ON ",8);                 42001800
                IF LINE[WORD,UCLOC]=0 THEN GOERR("NOT ON ",8);                42001900
                A[BASE+3] := WORD;                                            42002000
                END                                                           42002100
            ELSE IF WORD.[3:3] GTR 0 THEN % FILE NAME                         42002200
                BEGIN                                                         42002300
                IF (REKS:=REKS+1) GTR 2 THEN GOERR(WORD,8);                   42002400
                A[BASE+REKS] := WORD.[6:42];                                  42002500
                END                                                           42002600
            ELSE IF WORD NEQ "/" THEN GOERR(WORD,8);                          42002700
            END FOR STATEMENT;                                                42002800
        IF REKS NEQ 2 THEN GOERR("FIL NAM",8);                                42002900
        FIND(LL&IAM[33:41:7],0,A[BASE+1],A[BASE+2],"SITE    ");               42003000
        TEMP := 4; DOING := 1; WAITFOR := IAM;                                42003100
        END CASE 0;                                                           42003200
    %.....................................................................    42003300
        BEGIN % CASE 1 - RESULTS OF DIRECTORY SEARCH                          42003400
        IF EVENTS[1] LSS 0 THEN % NOT ON DISK                                 42003500
            BEGIN                                                             42003600
            WORK[0]:=A[BASE+1]; WORK[1]:=A[BASE+2];                           42003700
```

```
      WORK[2]:=" NOT ON"; WORK[3]:="DISK    ";                          42003800
      FOR I:=0,1,2,3 DO BLANK(WORK[I]);                                  42003900
      TWXOUT(LL,WORK[0],32,1);                                           42004000
      IAM := 0;                                                          42004100
      GO EXIT;                                                           42004200
      END IF NO FILE;                                                    42004300
   LLDISKREAD:=EVENTS[2].[18:15]; % HEADER ADDRESS                       42004400
   WANT := VDISKREAD;                                                    42004500
   DOING := 2;                                                           42004600
   END CASE 1;                                                           42004700
%.....................................................................42004800
   BEGIN % CASE 2 - HEADER IN CORE                                       42004900
   IF (SPOCNTRL:=WORK[7]+1) GTR (I:=WORK[8]*3) THEN SPOCNTRL:=I;         42005000
   IF (A[BASE]:=WORK[10])=0 OR SPOCNTRL=0 THEN % NO RECORDS              42005100
      BEGIN IAM:=0; GO EXIT; END;                                        42005200
   A[BASE+1]:=0; % INITIALIZE SEGMENT POINTER                            42005300
   LLDISKREAD := A[BASE]; % ADDRESS OF FIRST SEGMENT                     42005400
   WANT := VDISKREAD;                                                    42005500
   DOING := 3;                                                           42005600
   END CASE 2;                                                           42005700
%.....................................................................42005800
   BEGIN % CASE 3 - READ DISKFILE                                        42005900
   A[BASE+1] := A[BASE+1] + 1; % INCREMENT SEGMENT COUNTER               42006000
   REKS:=IF (SPOCNTRL:=SPOCNTRL-3) GEQ 0 THEN 3 ELSE 3+SPOCNTRL;         42006100
   LIN := 1; LINMAX := MAXLINES;                                         42006200
   IF A[BASE+3] LSS 999 THEN LIN:=LINMAX:=A[BASE+3]; % NUMBER GIVEN      42006300
   FOR LIN:=LIN STEP 1 UNTIL LINMAX DO IF LINE[LIN,UCLOC] NEQ 0 THEN     42006400
     FOR I:=1 STEP 1 UNTIL REKS DO                                       42006500
       IF I=1 THEN TWXOUT(LIN,WORK[00],72,1) ELSE                        42006600
       IF I=2 THEN TWXOUT(LIN,WORK[10],72,1) ELSE                        42006700
       IF I=3 THEN TWXOUT(LIN,WORK[20],72,1);                            42006800
     IF SPOCNTRL LEQ 0 THEN % END OF FILE OR DISK ROW                     42006900
       BEGIN IAM:=0; GO EXIT; END;                                       42007000
     LLDISKREAD := A[BASE] + A[BASE+1]; % NEXT SEGMENT ADDRESS           42007100
     WANT := VDISKREAD;                                                  42007200
     END CASE 3;                                                         42007300
   END ALL CASES;                                                        42007400
EXIT:                                                                    42007500
END PROCEDURE SSFILE;                                                    42007600
%********************************************************************43000000
PROCEDURE EQUATE(LCW,A); BOOLEAN LCW; ARRAY A[0];                        43000100
%********************************************************************43000200
   BEGIN                                                                 43000300
   REAL I,K,WORD,UNIT,TYPE,NAM,NAM1,NAM2,VERBV,MAXSREG,EUVAL;            43000400
   BOOLEAN DSK,BKUP,EQLTOG,FILTOG,LIBTOG,CHECKTYPE,QUOT,Q1,Q2;           43000500
   BOOLEAN FORMTOG,NOLABEL,FASTOG,SLOWTOG,EUTOG;                         43000510
   LABEL ERR, CHECK, EXIT;                                               43000600
   DEFINE ENTRY = A[BASE+1]#, THISESP = A[BASE+2]#;                      43000700
   %.................................................................43000800
   STREAM PROCEDURE FILEID(ADRS,ARAY,MAX); VALUE ADRS,MAX;               43000900
   %.................................................................43001000
   BEGIN                                                                 43001100
   SI:=ADRS; DI:=ARAY; DI:=DI+1;                                         43001200
   MAX(IF SC=ALPHA THEN BEGIN DS:=CHR; TALLY:=TALLY+1; END               43001300
       ELSE DS:=LIT" ");                                                 43001310
   ADRS:=TALLY; SI:=LOC ADRS; SI:=SI+7; DI:=ARAY; DS:=CHR;               43001400
   END STREAM PROCEDURE FILEID;                                          43001500
CASE DOING OF                                                            43001600
BEGIN                                                                    43001700
BEGIN % CASE 0 ...................................................43001800
```

```
LABEL WAIT;                                                                    43001810
   IF NOT CONTINUEBIT THEN % FIRST CALL ON THE ROUTINE                         43001900
      BEGIN                                                                    43002000
      CONTINUEBIT := TRUE;                                                     43002100
      FIRSTESP:=THISESP:=ESR1; % SAVE FIRST ESP RECORD ADDRESS                 43002200
      ENTRY:=0; TEMP:=3; CLEAR(L[0],29); L[14]:="14";                          43002300
      SREG := BASE - A[BASE]; MAXSREG := SREG + A[SREG].[18:15];               43002400
      END % IF FIRST CALL                                                      43002500
   ELSE                                                                        43002600
      BEGIN                                                                    43002700
      BASE := BASE + 3; % SHIFT UP TO SAVE STACK VALUES                        43002800
      SCANNER(WORKADRS,A[*],LCW,WORKENDADRS);                                  43002900
      BASE := (I:=BASE) -3; % RE-ADJUST BASE FOR THIS PROCEDURE                43003000
      IF BOOLEAN(A[I].[17:1]) THEN % ERROR DURING SCAN                         43003100
         BEGIN                                                                 43003200
         WORD := A[I+2]; MSGPTR := 65; GO TO ERR;                              43003300
         END;                                                                  43003400
      IF (TYPE:=A[I].[3:3]) NEQ 1 THEN % NOT A VERB                            43003500
         BEGIN                                                                 43003600
         IF TYPE=0 OR TYPE=5 THEN GO WAIT; % COMMENT OR NULL                   43003700
         IF TYPE=4 THEN % SSMSG                                                43003800
            BEGIN                                                              43003900
            BASE:=I; SSMSG; BASE:=I-3; LITOUT("#       ",1); GO WAIT;          43004000
            END;                                                               43004100
         WORD:=IF TYPE=2 THEN A[I+1] ELSE A[I+2]; % NUMBER OR SPEC CHR         43004200
         MSGPTR := 65; GO TO ERR;                                              43004300
         END; % IF NOT A VERB                                                  43004400
      IF (VERBV:=A[I+1].[40:8])=VEXECUTE THEN                                  43004500
      MATCH(VERBTABLE[A[I+1].[9:9]].[6:42],"COMPILE") ELSE                     43004510
         BEGIN                                                                 43004600
         PARAM := A[I+1].[18:15]+1; TEMP := 1;                                 43004700
         MOVE(PARAM+1,WORDS,A[1],A[BASE]); % SHIFT LEFT FOR "EXECUTE"          43004800
         WANT := VERBV; IAM := 0; CONTINUEBIT:=FALSE;                          43004900
         DOING := 0;                                                           43005000
         GO TO EXIT;                                                           43005100
         END;                                                                  43005200
      IF VERBV NEQ VEQUATE THEN % WRONG VERB                                   43005300
         BEGIN                                                                 43005400
         WORD := VERBTABLE[A[I+1].[9:9]]; MSGPTR := 65;                        43005500
         GO TO ERR;                                                            43005600
         END;                                                                  43005700
      IF ENTRY=0 THEN % STARTING NEW SEGMENT                                   43005800
         BEGIN                                                                 43005900
         DISKWAIT(1,L,30,THISESP);                                             43006000
         L[29]:=ESP1; % ESTABLISH LINK TO NEXT SEGMENT                         43006100
         DISKWAIT(0,L,30,THISESP);                                             43006200
         CLEAR(L[0],29); L[14]:="14";                                          43006300
         THISESP:= ESP1; % ADDRESS OF NEXT SEGMENT TO BE USED                  43006400
         END % IF ENTRY = 0                                                    43006500
      ELSE DISKWAIT(1,L,30,THISESP), % RECOVER PREVIOUS VALUES                 43006600
      SREG := I+1; MAXSREG := SREG+A[SREG].[18:15];                            43006700
      END; % IF NOT THE FIRST CALL                                             43006800
%.....SYNTAX CHECK.....                                                        43006900
UNIT := 12; MSGPTR := 8; FILTOG:=TRUE; EUVAL:=-1; % INITIALIZE VALUES          43007000
FOR SREG := SREG + 1 STEP 1 UNTIL MAXSREG DO                                   43007100
   BEGIN % EXAMINE INPUT STRING                                                43007200
   LABEL ALPH;                                                                 43007210
   %.....NUMERIC.....                                                          43007300
   WORD := A[SREG];                                                            43007400
   IF QUOT THEN % QUOTED STRING                                                43007410
```

```
            BEGIN                                                          43007500
            IF QUOT AND (EQLTOG OR LIBTOG) THEN % ALLOW QUOTED STRINGS     43007600
               BEGIN                                                       43007605
               FILEID(SCANPTR[SREG-SBASE],WORD,7);                         43007610
               MSGPTR := 66;                                               43007615
               I := SCANPTR[SREG-SBASE]; SREG := SREG + 1;                 43007620
               WHILE SREG LSS MAXSREG AND A[SREG].[6:42] NEQ """" DO       43007625
               SREG := SREG + 1;                                           43007630
               K := SCANPTR[SREG-SBASE];                                   43007635
               IF A[SREG].[6:42] NEQ """" OR                               43007640
               (K.[33:15]-I.[33:15])*8+(K.[30:3]-I.[30:3]) GTR 7 THEN      43007645
               GO TO ERR;                                                  43007650
               GO TO ALPH;                                                 43007655
               END ELSE GO TO ERR;                                         43007660
            END % IF QUOT                                                  43007662
         %.....................................................................43007664
         ELSE IF WORD.[1:5]=0 THEN % UNSIGNED NUMBER                       43007666
            BEGIN                                                          43007668
            IF EUTOG THEN                                                  43007670
               BEGIN                                                       43007672
               IF (EUVAL:=WORD) GTR 19 THEN GO TO ERR;                     43007674
               END                                                         43007676
            ELSE GO TO ERR;                                                43007678
            END % IF UNSIGNED NUMBER                                       43007700
         %.....................................ALPHA.........................43007800
         ELSE IF WORD.[3:3] GTR 0 THEN % ALPHA STRING                      43007900
            BEGIN                                                          43008000
ALPH:       WORD := (NAM:=WORD).[6:42];                                    43008100
            IF FILTOG THEN % LOOKING FOR INTERNAL NAME                     43008200
               BEGIN                                                       43008300
               FILEID(SCANPTR[SREG-SBASE],L[ENTRY+4],63); % INTERNAL NAME  43008400
               FILTOG := FALSE;                                            43008500
               END % IF FILTOG                                             43008600
            ELSE IF EQLTOG THEN % "=" PRECEDED THIS WORD                   43008700
               BEGIN                                                       43008800
               L[ENTRY+1]:=WORD;                                           43008900
               NAM2:=NAM; L[ENTRY]:=0; % ASSUME ENTRY IS FID               43009000
               EQLTOG := NOT(CHECKTYPE:=TRUE);                             43009100
               IF QUOT THEN                                                43009110
                  BEGIN Q2:=TRUE; QUOT:=FALSE; END;                        43009120
               END % IF EQLTOG                                             43009200
            ELSE IF LIBTOG THEN % "/" PRECEDED THIS WORD                   43009300
               BEGIN                                                       43009400
               L[ENTRY]:=L[ENTRY+1]; NAM1:=NAM2; Q1:=Q2;                   43009500
               L[ENTRY+1]:=WORD; NAM2:=NAM;                                43009600
               LIBTOG := FALSE;                                            43009700
               IF QUOT THEN                                                43009710
                  BEGIN Q2:=TRUE; QUOT:=FALSE; END;                        43009720
               END % IF LIBTOG                                             43009800
            ELSE IF CHECKTYPE THEN % CHECK HARDWARE TYPE                   43009900
               BEGIN                                                       43010000
                  MATCH(WORD,"BACKUP ") BKUP:=TRUE                         43010100
               ELSE MATCH(WORD,"BACK   ")                                  43010200
                  BEGIN                                                    43010300
                  IF SREG LSS MAXSREG THEN                                 43010400
                  IF A[SREG+1].[3:3]=2 THEN                                43010500
                  MATCH(A[SREG+1].[6:42],"UP     ")                        43010600
                     BEGIN                                                 43010700
                     BKUP:=TRUE; SREG:=SREG+1;                             43010800
                     END;                                                  43010900
```

```
      END % IF "BACK UP"                                                  43011000
   ELSE MATCH(WORD,"REMOTE ") UNIT:=14                                    43011100
   ELSE MATCH(WORD,"DISK   ")                                             43011200
      BEGIN                                                               43011300
      UNIT:=IF BKUP THEN IF UNIT=0 THEN 22 ELSE 15 ELSE 12;               43011400
      BKUP := FALSE;                                                      43011500
      END                                                                 43011600
   ELSE MATCH(WORD,"SERIAL ") UNIT := 12                                  43011700
   ELSE MATCH(WORD,[6:30],"PRINT") UNIT:=1                                43011800
   ELSE MATCH(WORD,"PUNCH  ") UNIT := 0                                   43011900
   ELSE MATCH(WORD,"CARD   ") UNIT := 0                                   43012000
   ELSE MATCH(WORD,"RANDOM ") UNIT := 10                                  43012100
   ELSE MATCH(WORD,"UPDATE ") UNIT := 13                                  43012200
   ELSE MATCH(WORD,"PAPER  ") UNIT := 7                                   43012300
   ELSE MATCH(WORD,"SPO    ") UNIT := 11                                  43012400
   ELSE MATCH(WORD,"FAST   ")                                             43012410
      IF SLOWTOG THEN GO ERR ELSE FASTOG:=TRUE                            43012420
   ELSE MATCH(WORD,"SLOW   ")                                             43012430
      IF FASTOG THEN GO ERR ELSE SLOWTOG:=TRUE                            43012440
   ELSE MATCH(WORD,"EU     ") EUTOG:=TRUE                                 43012450
   ELSE MATCH(WORD,"TAPE   ")                                             43012500
      BEGIN                                                               43012600
      IF UNIT NEQ 7 THEN % PAPER TAPE                                     43012700
      UNIT:=IF BKUP THEN IF UNIT=0 THEN 20 ELSE 6 ELSE 2;                 43012800
      BKUP := FALSE;                                                      43012900
      END % IF TAPE                                                       43013000
   ELSE MATCH(WORD,"FORM   ") FORMTOG:=TRUE                               43013002
   ELSE MATCH(WORD,"NOLABEL") NOLABEL:=TRUE                               43013004
   ELSE MATCH(WORD,"COPY   ")                                             43013010
      BEGIN                                                               43013015
      IF UNIT=0 THEN UNIT:=22 ELSE % PUNCH TO PUD                         43013020
      IF UNIT=2 THEN UNIT:=0 ELSE % TAPE TO PBT                           43013025
      IF UNIT=1 OR UNIT=12 THEN UNIT:=15; % PRINT TO PBD                  43013030
      IF SREG LSS MAXSREG THEN                                            43013035
      IF (WORD:=A[SREG+1]),[1:5]=0 THEN                                   43013040
      IF WORD LEQ 256 THEN                                                43013045
         BEGIN                                                            43013050
         L[ENTRY+3],[15:8] := WORD*REAL(WORD NEQ 0);                      43013055
         SREG:=SREG+1;                                                    43013060
         END                                                              43013065
      ELSE GO ERR;                                                        43013070
      END                                                                 43013075
         ELSE GO ERR;                                                     43013100
         END % IF CHECKTYPE                                               43013200
      ELSE GO ERR;                                                        43013300
      END % IF ALPHA STRING                                               43013400
   ELSE                                                                   43013500
   %.....SPECIAL CHR.....43013600
      BEGIN                                                               43013700
      IF WORD = "=" THEN EQLTOG := NOT EUTOG                              43013800
      ELSE IF WORD="/" THEN LIBTOG := TRUE                                43013900
      ELSE IF WORD="'" THEN QUOT:=TRUE                                    43013910
      ELSE GO ERR;                                                        43014000
      END; %IF SPECIAL CHARACTER                                          43014100
   END WHILE STATEMENT;                                                   43014200
%.....END SCAN.....43014300
IF NOT CHECKTYPE THEN % INCOMPLETE REQUEST                                43014400
   BEGIN                                                                  43014500
   WORD:="INCMPLT"; MSGPTR := 66; GO ERR;                                 43014600
   END;                                                                   43014700
```

```
      IF NOLABEL THEN                                                          43014710
         UNIT:=IF UNIT=2 THEN 9 ELSE IF UNIT=7 THEN 8 ELSE UNIT;               43014720
      UNIT:=UNIT & REAL(FORMTOG)[42:47:1];                                     43014730
      L[ENTRY+3].[42:6]:=UNIT; L[ENTRY+12]:=0;                                 43014800
      IF DSK:=(UNIT=10 OR UNIT=12 OR UNIT=13) THEN % DISK                      43014900
         BEGIN                                                                 43015000
         IF L[ENTRY]=0 THEN % MUST HAVE BOTH NAMES FOR DISK                    43015100
            BEGIN                                                              43015200
            L[ENTRY]:=L[ENTRY+1]; NAM1:=NAM2; Q1:=Q2;                          43015300
            L[ENTRY+1]:=NAM2:=USERCODE;                                        43015400
            END;                                                               43015500
         IF NOT Q1 THEN % NOT QUOTED STRING                                    43015510
            BEGIN                                                              43015520
            IF (WORD:=L[ENTRY]).[42:6] NEQ " " THEN                            43015600
            IF WORD.[6:6] NEQ 0 THEN                                           43015700
               BEGIN                                                           43015800
               MSGPTR := 42; GO TO ERR;                                        43015900
               END;                                                            43016000
            IF FINDAWORD(NAM1,RESWRDTABLE[1],NUMOFRESWRDS) NEQ 0 THEN          43016200
               BEGIN MSGPTR := 29; GO TO ERR; END;                             43016300
            END;                                                               43016310
            IF EUVAL GEQ 0 THEN L[ENTRY+12].[18:5]:=EUVAL+1 ELSE               43016320
            IF (FASTOG OR SLOWTOG) THEN                                        43016330
               L[ENTRY+12].[16:2] := 1 + REAL(SLOWTOG);                        43016340
         END; % IF DISK                                                        43016400
      DISKWAIT(0,L,30,THISESP); % WRITE OUT THIS SEGMENT                       43016500
      IF ENTRY=0 THEN % STARTING NEW SEGMENT                                   43016600
         BEGIN                                                                 43016700
         ENTERESP(LL,THISESP,A[*]); % ENTER SEGMENT ADDRESS IN TABLE           43016800
         IF BOOLEAN(ESPFLAG) THEN % NO ROOM IN ESPTABLE FOR THIS ENTRY         43016900
            BEGIN                                                              43017000
            WORD:="NO ROOM"; MSGPTR := 64; GO ERR;                             43017100
            END;                                                               43017200
         THISESP := ESP1; ESP1 := GETESPDISK; EQUATED := TRUE;                 43017300
         END; % IF STARTING NEW SEGMENT                                        43017400
      ENTRY := IF ENTRY=0 THEN 14 ELSE 0; % 2 EQUATIONS PER SEGMENT            43017500
      IF DSK THEN MATCH(NAM2,[6:42],USERCODE) ELSE % OUTSIDE FILE              43017600
         BEGIN                                                                 43017700
         FIND(LL&IAM[33:41:7],0,NAM1,NAM2,USERCODE);                           43017800
         A[BASE]:=NAM1;                                                        43017900
         DOING := 1; WAITFOR := IAM; GO TO EXIT;                               43018000
         END;                                                                  43018100
   WAIT:                                                                       43018200
      GO TO CHECK;                                                             43018500
      END; % CASE 0                                                            43018600
      %.....................................................................    43018700
      BEGIN % CASE 1 = RESULTS OF DIRECTORY SEARCH                             43018800
      IF EVENTS[1] LSS 0 THEN % FILE NOT IN DIRECTORY                          43018900
         BEGIN                                                                 43019000
         WORD:=A[BASE]; MSGPTR := 67; GO TO ERR;                               43019100
         END;                                                                  43019200
   CHECK:                                                                      43019250
      DOING:=0; WAITFOR:=VINPUT;                                               43019300
      IF SCHEDULINE THEN REQUESTIP(LL) ELSE                                    43019310
         BEGIN                                                                 43019320
         I:=0; K:=REAL(THINGSLINK);                                            43019330
         WHILE I LSS REAL(THINGSTODO) DO                                       43019340
            BEGIN                                                              43019350
            I:=I+1;                                                            43019360
            IF TOBEDONE[K,16].[18:7]=VINPUT THEN                               43019370
```

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            BEGIN                                                          43019380
            TOBEDONE[K,16].[18:7]:=VEQUATE;                                43019390
            IAM := WANT := WAITFOR := 0;                                   43019400
            GO TO EXIT;                                                    43019410
            END;                                                           43019420
          K:=TOBEDONE[K,0].[3:6];                                          43019430
          END;                                                             43019440
        END;                                                               43019450
    GO TO EXIT;                                                            43019460
    END; % CASE 1                                                          43019470
    END ALL CASES;                                                         43019500
ERR:                                                                       43019600
    ERRSW := WORD;                                                         43019700
    IF EQUATED THEN ENTERESP(-LL,-0,A[*]); % GIVE BACK ESP DISK            43019800
    IAM := VERROR;                                                         43019900
    EQUATED := FALSE; CONTINUEBIT := FALSE;                                43020000
EXIT:                                                                      43020100
    END PROCEDURE EQUATE;                                                  43020200
%**********************************************************************44000000
PROCEDURE STATUSCHECK(LCW,A); BOOLEAN LCW; ARRAY A[0];                     44000100
%**********************************************************************44000200
BEGIN                                                                      44000300
REAL CPU,IO,SEQ;                                                           44000400
LABEL NOTRUNNING,EXIT;                                                     44000500
%.....44000600
STREAM PROCEDURE MESSAGE(WORK,CPU,IO,CMP,R27); VALUE CPU,IO,CMP,R27;       44000700
%.....44000800
    BEGIN LOCAL SV1,SV2;                                                   44000900
    DI:=WORK; DS:=8LIT" "; SI:=WORK; DS:=9WDS; % BLANK ARRAY               44001000
    DI:=WORK; DS:=4LIT"CPU="; SV1:=DI; SI:=LOC CPU;                        44001100
    2(DS:=2CHR; DS:=6LIT" HRS, ";                                          44001200
      DS:=2CHR; DS:=6LIT" MIN, ";                                          44001300
      DS:=2CHR; DS:=LIT"."; DS:=CHR; DS:=6LIT" SEC.%";                     44001400
      DI:=SV1; DS:=18FILL; SV2:=DI; SI:=SV2; DI:=SV1;                      44001500
      26(IF SC="%" THEN JUMP OUT ELSE DS:=CHR);                            44001600
      SI:=LOC IO; DS:=4LIT" IO="; SV1:=DI); DI:=DI-4;                      44001700
    CMP(DS:=10LIT" AT SEQ # "; SV1:=DI; SI:=LOC R27;                       44001800
        DS:=8DEC; DS:=LIT"%"; DI:=SV1; DS:=7FILL; SV2:=DI;                 44001900
        SI:=SV2; DI:=SV1; 8(IF SC="%" THEN JUMP OUT ELSE DS:=CHR));        44002000
    DS:=25LIT" ";                                                          44002100
    END STREAM PROCEDURE MESSAGE;                                          44002200
CASE DOING OF                                                              44002300
    BEGIN                                                                  44002400
      BEGIN % CASE 0 - INITIAL CHECK                                       44002500
      IF RUNNING OR COMPILING THEN                                         44002600
      IF RUN1 NEQ 0 AND RUN2 NEQ 0 THEN                                    44002700
        BEGIN                                                              44002800
        A[BASE+3]:=REAL(COMPILING);                                        44002900
        IF RUNNING THEN                                                    44003000
          BEGIN                                                            44003100
          IF (A[BASE]:=RUN1).[6:6]=0 THEN % REQUIRES SHIFTING              44003200
            BEGIN                                                          44003300
            A[BASE]:=IF RUN1.[12:6]="1" THEN FILENAME ELSE                 44003400
            " "&RUN1[6:12:36];                                             44003500
            END;                                                           44003600
          A[BASE+1]:=MATCH(RUN2,"CANDE  ") USERCODE ELSE RUN2;             44003700
          A[BASE+2]:=USERCODE;                                             44003800
          END % IF RUNNING                                                 44003900
        ELSE                                                               44004000
          BEGIN                                                            44004100
```

```
            A[BASE]:=RUN2; % COMPILER NAME                                          44004200
            A[BASE+1]:=IF RUN1.[6:12]="IS" THEN FILENAME ELSE RUN1;                 44004300
            A[BASE+2]:=-USERCODE; % NEGATIVE IF COMPILING                           44004400
            END; % IF COMPILING                                                     44004500
          STAATUS(LL&IAM[33:41:7],A[BASE],A[BASE+1],A[BASE+2]);                     44004600
          WAITFOR := IAM;                                                           44004700
          TEMP := 4;                                                                44004800
          DOING := 1;                                                               44004900
          GO TO EXIT;                                                               44005000
          END;                                                                      44005100
NOTRUNNING:                                                                         44005200
      WORK[0]:="NO JOBS"; BLANK(WORK[0]);                                           44005300
      WORK[1]:="RUNNING"; BLANK(WORK[1]);                                           44005400
      TWXOUT(LL,WORK[0],16,1);                                                      44005500
      INQUIRY:=FALSE;                                                               44005600
      IAM := 0;                                                                     44005700
      END; % CASE 0                                                                 44005800
    %.....                                                                          44005900
      BEGIN % CASE 1 - RESULTS OF INQUIRY                                           44006000
      IF EVENTS[1] LSS 0 THEN GO TO NOTRUNNING;                                     44006100
      CPU:=TIMECONV(EVENTS[1],FALSE);                                               44006200
      IO:=IF EVENTS[2]=REAL(NOT FALSE) THEN 0 ELSE                                  44006300
          TIMECONV(EVENTS[2],FALSE);                                                44006400
      IF BOOLEAN(A[BASE+3]) THEN % COMPILING                                        44006500
      IF (SEQ:=EVENTS[3]) = REAL(NOT FALSE) THEN A[BASE+3]:=0;                      44006600
      MESSAGE(WORK,CPU,IO,A[BASE+3],SEQ);                                           44006700
      TWXOUT(LL,WORK[0],80,1);                                                      44006800
      INQUIRY:=FALSE;                                                               44006900
      IAM := 0;                                                                     44007000
      END CASE 2;                                                                   44007100
    END ALL CASES;                                                                  44007200
EXIT:                                                                               44007300
END PROCEDURE STATUSCHECK;                                                          44007400
 %**********************                                                           50000000
PROCEDURE  SSMSG;                                                                   50000100
  BEGIN                                                                             50000200
DEFINE  A[A1]=LINE[LL,A1]#;                                                         50000300
STREAM PROCEDURE  FRM(F,T,UC,LL); VALUE UC,LL;                                      50000400
  BEGIN                                                                             50000500
      SI := LOC UC; UPS;                                                            50000600
      DI := T;                                                                      50000700
      DS := 8 LIT "** FROM ";                                                       50000800
      DS := 7 CHR;                                                                  50000900
    DS := 2 LIT "(";                                                                50001000
    SI := LOC LL;                                                                   50001100
    DS := 2 DEC;                                                                    50001200
    DS := 5 LIT "):  ";                                                             50001300
      SI := F;                                                                      50001400
    DS:=15 WDS;                                                                     50001500
    END FRM;                                                                        50001600
PROCEDURE  SPOUT(LCW,A,T); VALUE T; BOOLEAN LCW; ARRAY A[0];                       50001700
                           REAL T;                                                  50001800
    BEGIN                                                                           50001900
LABEL XIT;                                                                          50002000
STREAM PROCEDURE  BZY(W,UC,LL); VALUE UC,LL;                                        50002100
  BEGIN                                                                             50002200
    DI := W;                                                                        50002300
    SI := LOC UC;                                                                   50002400
    UPS;                                                                            50002500
    DS := 7 CHR;                                                                    50002600
```

"#FROM␣"

get rid of spaces.

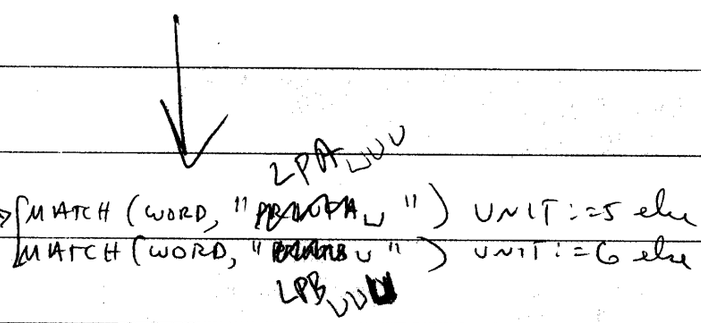
120 CHR

```
        DS := LIT "(";                                                  50002700
        SI := LOC LL;                                                   50002800
        DS := 2 DEC;                                                    50002900
        DS := 6 LIT ") BUSY";                                           50003000
      END  BZY;                                                         50003100
        IF IDLELINE OR ALLOWMSG THEN TWXOUT(LL,WORK[0],144,2)           50003200
        ELSE                                                            50003300
      BEGIN                                                             50003400
       IF RUNNING THEN MATCH("CANDE  ",RUN2) ELSE                       50003500
      BEGIN                                                             50003600
        BZY(WORK[20],USERCODE,LL);                                      50003700
        TWXOUT(T,WORK[20],16,1);                                        50003800
       GO XIT                                                           50003900
      END;                                                              50004000
       EVENTS[0] := 0&LL[25:40:8]&VSSMSG[18:41:7];                      50004100
       MOVE (4,WORDS,WORK[10],EVENTS[1]);                               50004200
        REMEMBERTHIS(LCW);                                              50004300
       END;                                                             50004400
    XIT:                                                                50004500
      END SPOUT;                                                        50004600
    LABEL  ERR, EXIT;                                                   50004700
    BOOLEAN  GOTONE;                                                    50004800
    REAL  T,WORD;                                                       50004900
        %************: START HERE                                      50005000
      FRM(L,WORK,USERCODE,LL);                                          50005100
      T := LL;                                                          50005200
       IF (WORD:=A[BASE+2]).[3:3] = 0 THEN                              50005300
     BEGIN                                                              50005400
      IF LL := WORD GTR MAXLINES THEN GO ERR;                           50005500
      IF LOGGEDON THEN SPOUT(LCW,A[*],T) ELSE GO ERR;                   50005600
      GO EXIT                                                           50005700
     END;                                                               50005800
      IF T = 0 THEN                                                     50005900
        MATCH(WORD.[6:42], "ALL     ")                                  50006000
     BEGIN                                                              50006100
        FOR LL := 1 STEP 1 UNTIL MAXLINES DO                            50006200
      IF USERCODE NEQ 0 THEN                                            50006300
     BEGIN                                                              50006400
      SPOUT(LCW,A[*],T);                                                50006500
      GOTONE := TRUE;                                                   50006600
     END;                                                               50006700
      IF NOT GOTONE THEN GO ERR;  GO EXIT                               50006800
     END;                                                               50006900
      FOR LL := 0 STEP 1 UNTIL MAXLINES DO                              50007000
      IF LOGGEDON THEN                                                  50007100
       MATCH(WORD.[6:42], LINE[LL, UCLOC])                              50007200
     BEGIN  SPOUT(LCW,A[*],T);                                          50007300
        GOTONE := TRUE;                                                 50007400
     END;                                                               50007500
      IF GOTONE THEN GO EXIT;                                           50007600
    ERR:                                                                50007700
      LL := T;                                                          50007800
      LITOUT("NOT ON ",1);                                              50007900
      WRITEASTERISK := FALSE;                                           50008000
    EXIT:                                                               50008100
      LL := T;                                                          50008200
     END  SSMSG;                                                        50008300
%*************************************************************%         51000000
PROCEDURE  PDIT (LCW, A); BOOLEAN LCW; ARRAY A[0];                      51000100
%*************************************************************%         51000200
```

```
  BEGIN                                                                  51000300
LABEL  GETIT, EXIT;                                                      51000400
INTEGER       I;                                                         51000500
REAL STREAM PROCEDURE FORM(T,F);                                         51000600
     BEGIN                                                               51000700
          SI := F;  DI := T;  UPS;                                       51000800
          IF SC LSS "0" THEN                                             51000900
     BEGIN                                                               51000950
          DS:=LIT" "; DS:=7CHR; TALLY:=1;                                51001000
     END  ELSE                                                           51001010
          IF SC EQL "0" THEN % OBJECTFILE.                               51001020
     BEGIN  UPS;                                                         51001030
          IF SC LSS "0" THEN % NOT WRKFILE                               51001040
          BEGIN DS:=2LIT" *"; DS:=6CHR; TALLY:=1; END;                   51001050
     END  IF OBJECT FILE;                                                51001060
          FORM:=TALLY;                                                   51001090
     END OF FORM;                                                        51001100
               CASE DOING OF                                             51001200
          BEGIN                                                          51001300
          BEGIN % CASE 0.                                                51001400
               A[BASE]:=MODULUS; DOING:=1;                               51001500
               A[BASE+1] := 0;      % USED FOR ADDR SECOND HALF.         51001600
               A[BASE+2] := 0;      % USED FOR ADDR LINK.                51001700
               SREG      := BASE+3;% BUFFER POINTER.                     51001800
               TEMP      := 11;     % ALLOW 8 WDS BUFFER.                51001900
          END  CASE 0;                                                   51002000
          BEGIN % CASE 1. (FIRST HALF OF BLOCK)                          51002100
               A[BASE]   :=(I:=A[BASE])-1;                               51002200
               IF I=0 THEN GO EXIT;                                      51002300
               LLDISKREAD:=A[BASE+1]:=I:=SCRAMBLE(I,USERCODE);           51002400
               WANT :=VDISKREAD;                                         51002500
               DOING:=2;                                                 51002600
          END  CASE 1;                                                   51002700
          BEGIN % CASE 2. (FIRST HALF IN).                               51002800
               A[BASE+2]:=WORK[2].FF; % ADDR LINK                        51002900
               A[BASE+1]:=A[BASE+1]+1;% ADDR SECOND HALF.                51003000
               GO GETIT;                                                 51003100
          END  CASE 2;                                                   51003200
          BEGIN % CASE 3. (ANY HALF IN).                                 51003300
     GETIT:                                                              51003400
               FOR I:=0 STEP 3 UNTIL 27 DO                               51003500
               IF WORK[I+1]=USERCODE THEN                                51003600
          BEGIN                                                          51003700
               SREG:=FORM(A[SREG],WORK[I])+SREG;                         51003800
               IF SREG-BASE GTR 10 THEN                                  51003900
          BEGIN % PRINT THE LINE.                                        51004000
               SREG:=BASE+3;                                             51004100
               MOVE(8,WORDS,A[SREG],L[0]);                               51004200
               TWXOUT(LL,L[0],64,1);                                     51004300
          END  PRINTING;                                                 51004400
          END  FOR;                                                      51004500
               IF LLDISKREAD:=A[BASE+1] GTR 1000 THEN                    51004600
          BEGIN % GET SECOND HALF BLOCK.                                 51004700
               A[BASE+1]:=0;                                             51004800
               DOING:=3;                                                 51004900
               WANT:=VDISKREAD;                                          51005000
          END  ELSE                                                      51005100
               IF LLDISKREAD:=A[BASE+2] GTR 1000 THEN                    51005200
          BEGIN                                                          51005300
               A[BASE+2]:=0;                                             51005400
```

```
                A[BASE+1]:=LLDISKREAD;                                          51005500
                DOING:=2;                                                       51005600
                WANT:=VDISKREAD;                                                51005700
            END  ELSE DOING:=1;                                                 51005800
            END  CASE 3;                                                        51005900
            BEGIN % CASE 4,  (WRAPUP).                                          51006000
      EXIT:     IF SREG-BASE GTR 3 THEN                                         51006100
            BEGIN                                                               51006200
                I:=SREG-BASE-3; SREG:=BASE+3;                                   51006300
                MOVE(I,WORDS,A[SREG],L[0]);                                     51006400
                TWXOUT(LL,L[0],(I*8),CRLF);                                     51006500
            END  IF LEFTOVERS;                                                  51006600
                IAM:=0;                                                         51006700
            END  CASE 4;                                                        51006800
            END  ALL CASES;                                                     51006900
            END  OF  PDIT;                                                      51007000
%***************************************************************************52000000
PROCEDURE COPYIT(LCW,A); BOOLEAN LCW; ARRAY A[*];                               52000100
%***************************************************************************52000200
BEGIN                                                                           52000300
COMMENT HANDLES CANDE VERBS:                                                    52000400
   APPEND,  COPY,  DELETE,  MERGE,  PUNCH,  RESEQ,  RMERGE;                     52000500
REAL  INPCOUNT,  OUTCOUNT,  PREVNUMBER,  WORD,  UNIT,  UNITNUMBER,              52000600
FILNAM1,  FILNAM2,  FILNAM3,  SAVEWORD,  NPARAMS,  VERB;                        52000700
LABEL EXIT,ERROR;                                                               52000800
BOOLEAN TOGWORD,WINDUP;                                                         52000900
DEFINE                                                                          52001000
REVERSETOG      = TOGWORD.[01:1]#,  RESEQVERB       = TOGWORD.[02:1]#,          52001100
RESEQPARAM      = TOGWORD.[03:1]#,  HAVEMINUS       = TOGWORD.[04:1]#,          52001200
HARDCOPY        = TOGWORD.[05:1]#,  NOTWORKFILE     = TOGWORD.[06:1]#,          52001300
HAVEINPUTFILE   = TOGWORD.[07:1]#,  LIBTOG          = TOGWORD.[08:1]#,          52001400
SAVETOG         = TOGWORD.[09:1]#,  HAVERESEQRANGE  = TOGWORD.[10:1]#,          52001500
HAVEINCREMENT   = TOGWORD.[11:1]#,  HAVENEWBASE     = TOGWORD.[12:1]#,          52001600
HAVEOUTPUTFILE  = TOGWORD.[13:1]#,  LASTPARAM       = TOGWORD.[14:1]#;          52001700
CASE DOING OF                                                                   52001800
   BEGIN                                                                        52001900
      BEGIN % CASE 0                                                            52002000
      LABEL RESTART;                                                            52002010
      NPARAMS := (A[SREG:=BASE-A[BASE]]).FF; % PARAMETER COUNT                  52002100
      VERB := IF A[BASE]=0 THEN "COPY    " ELSE,                                52002200
      VERBTABLE[A[SREG].[9:9]].[6:42]; % GET VERB NAME FROM TABLE               52002300
      MATCH(VERB,"DELETE ") % SEE IF REFERS TO WORK FILE FIRST                  52002400
      IF NPARAMS=0 OR NPARAMS=1 AND A[SREG+1].[6:42]="ALL     " THEN            52002500
         BEGIN % SCRATCH THE WORKFILE                                           52002600
         DOING := OBJECTFILE := 0; GOODOBJ := FALSE;                            52002700
         SOURCEFILE := MAKEFN("1S",LL); % "1S" FILE NAME                        52002800
         MAKEFILE(LL&13[33:41:7],1,SOURCEFILE,USERCODE,FILETYPE,0);             52002900
         IAM := VSETUPFILES; WRITEASTERISK := TRUE; GO TO EXIT;                 52003000
         END; % IF DELETING THE WORKFILE                                        52003100
      MATCH(VERB,"PUNCH  ") % PAPER TAPE                                        52003200
         BEGIN                                                                  52003300
         IF SCHEDULINE THEN GOERR("PUNCH  ",40);                                52003400
         IF DEVICE=CONRAC OR DEVICE=BIDS THEN GOERR("PUNCH  ",56);              52003500
         % PUT YOUR FUNNY TERMINALS HERE                                       52003600
                                                                                52003700
                                                                                52003800
         HARDCOPY := TRUE;                                                      52003900
         END; % IF PUNCH VERB                                                   52004000
      IF FILETYPE=8 THEN % TYPE DATA FILE                                       52004100
         BEGIN                                                                  52004200
```

```
      MATCH(VERB,"MERGE  ") GOERR("MERGE  ",57);                          52004300
      MATCH(VERB,"RMERGE ") GOERR("RMERGE ",57);                          52004400
      END; % IF DATA FILE                                                 52004500
   IF TPCOUNT GTR 0 THEN % WORK FILE NEEDS UPDATING                       52004600
      BEGIN                                                               52004700
      LITOUT("WAIT.  ",NOCRLF); TEMP:=1; WANT:=VUPDATE;                   52004800
      GO TO EXIT;                                                         52004900
      END;                                                                52005000
   MATCH(VERB,"RMERGE ") % REVERSE MERGE                                  52005100
      BEGIN                                                               52005200
      REVERSETOG := TRUE; VERB := "MERGE  ";                              52005300
      END;                                                                52005400
   CLEAR(WORK[0],29); % ZERO OUT THE "WORK" ARRAY                         52005500
   MATCH(VERB,"RESEQ  ") % SET DEFAULT OPTIONS                            52005600
      BEGIN                                                               52005700
      RESEQVERB := TRUE;                                                  52005800
      WORK[5] := -1; % DEFAULT LOWER BOUND FOR RESEQ                      52005900
      WORK[6] := 100000000; % DEFAULT UPPER BOUND FOR RESEQ               52006000
      WORK[7] :=  WORK[8] := 100; % DEFAULT BASE AND INCR. FOR RESEQ.      52006100
      END;                                                                52006200
   WORK[9] := MAKEFN("1S",LL); % DEFAULT OUTPUT FILE NAME                 52006300
   FILNAM1 := WORK[10] := SOURCEFILE; % DEFAULT SOURCE FILE NAME          52006400
   FILNAM2 := WORK[2] := USERCODE;                                        52006500
   INPCOUNT := 0; OUTCOUNT := 20; PREVNUMBER := -1;                       52006600
RESTART:                                                                  52006610
   %.....................................................................52006700
   WHILE (INPCOUNT LSS NPARAMS) OR WINDUP DO % PICK UP ALL PARAMS         52006800
   %.....................................................................52006900
      BEGIN                                                               52007000
      LABEL UNSIGNED,NEGATIVE;                                            52007010
      IF WINDUP THEN % FINISHING UP LAST PARAMETER                        52007020
         BEGIN                                                            52007030
         WINDUP:=FALSE; GO TO UNSIGNED;                                   52007040
         END;                                                             52007050
      SREG := SREG + 1; % ADVANCE "STACK" POINTER                         52007100
      INPCOUNT := INPCOUNT + 1; % COUNT THIS PARAMETER                    52007200
      WORD := A[SREG]; %  TRANSFER PARAMETER                              52007300
      %.....................................................................52007400
      IF WORD.[3:3] GTR 0 THEN % PARAMETER IS A LETTER STRING             52007500
      %.....................................................................52007600
         BEGIN                                                            52007700
         WORD.[1:5] := 0; % ZERO OUT "CODE" PORTION                       52007800
         MATCH(WORD,"END    ") % CONVERT TO EOFMARK                       52007900
            BEGIN                                                         52008000
            WORD := 100000000;                                            52008100
            GO TO UNSIGNED;                                               52008200
            END;                                                          52008300
         MATCH(WORD,"PRINTER") UNIT := 2 ELSE                             52008400
         MATCH(WORD,"PUNCH  ") UNIT := 3 ELSE                             52008500
         MATCH(WORD,"TAPE   ") UNIT := 4 ELSE                             52008600
         UNIT := 0;                                                       52008700
         IF UNIT GTR 0 THEN % HARD COPY REQUESTED                         52008800
            BEGIN                                                         52008900
            MATCH(VERB,"COPY   ") ELSE GO ERROR;                          52009000
            IF HARDCOPY THEN GO ERROR; % REDUNDANT                        52009100
            IF NOT HAVEMINUS THEN GO ERROR; % MISSING "TO"                52009200
            IF HAVEOUTPUTFILE THEN GO ERROR;                              52009300
            UNITNUMBER := UNIT; % SAVE UNIT NUMBER                        52009400
            HARDCOPY := TRUE;                                             52009500
            HAVEMINUS := FALSE;                                           52009600
```



```
   END % IF UNIT GTR 0                                                    52009700
ELSE MATCH(WORD,"RESEQ  ")                                                52009800
   BEGIN                                                                  52009900
   IF RESEQVERB OR RESEQPARAM THEN GO ERROR;                              52010000
   RESEQPARAM := TRUE;                                                    52010100
   WORK[5] := -1; % DEFAULT LOWER BOUND FOR RESEQ                         52010200
   WORK[6] := 100000000; % DEFAULT UPPER BOUND FOR RESEQ                  52010300
   WORK[7] := WORK[8] := 100; % DEFAULT BASE AND INCR.                    52010400
   PREVNUMBER := -1; % RESET COMPARISON VALUE                             52010500
   IF SAVETOG THEN % NUMBER STORED IN SAVEWORD                            52010600
      BEGIN                                                               52010700
      IF OUTCOUNT := OUTCOUNT+1 GTR 29 THEN                               52010800
      GOERR("TOOMANY",30);                                                52010900
      WORK[OUTCOUNT] := SAVEWORD;                                         52011000
      SAVETOG := FALSE;                                                   52011100
      END; % IF SAVETOG;                                                  52011200
   END % IF "RESEQ"                                                       52011300
ELSE MATCH(WORD,"TO     ")                                                52011400
   BEGIN                                                                  52011500
   IF HAVEMINUS THEN GO ERROR; % REDUNDANT                                52011600
   HAVEMINUS := TRUE;                                                     52011700
   END % IF "TO"                                                          52011800
ELSE MATCH(WORD,"LIBRARY")                                                52011900
   BEGIN                                                                  52012000
   IF LIBTOG THEN GO ERROR; % REDUNDANT                                   52012100
   IF NOT HAVEINPUTFILE THEN GOERR(WORD,55); % NO FIRST NAME              52012200
   LIBTOG := TRUE;                                                        52012300
   END % IF "LIBRARY"                                                     52012400
ELSE IF LIBTOG THEN % SHOULD BE SECOND NAME OF FILE                       52012500
   BEGIN                                                                  52012600
   MATCH(VERB,"DELETE ") GOERR(WORD,39); % OUTSIDE FILE                   52012700
   MATCH(VERB,"RESEQ  ") GOERR(WORD,39); % OUTSIDE FILE                   52012800
   IF HAVEOUTPUTFILE THEN GOERR(WORD,39);                                 52012900
   FILNAM2 := WORD; % SAVE SECOND NAME OF FILE                            52013000
   LIBTOG := FALSE;                                                       52013100
   END % IF LIBTOG                                                        52013200
ELSE IF HAVEINPUTFILE THEN % MIGHT BE OUTPUT FILE                         52013300
   BEGIN                                                                  52013400
   MATCH(VERB,"COPY   ") ELSE GO ERROR;                                   52013500
   IF NOT HAVEMINUS THEN GO ERROR ELSE HAVEMINUS:=FALSE;                  52013600
   IF HARDCOPY THEN GO ERROR;                                             52013700
   IF HAVEOUTPUTFILE THEN GO ERROR;                                       52013800
   IF (FILNAM3:=WORD).[42:6] NEQ " " THEN GOERR(WORD,42);                 52013900
   HAVEOUTPUTFILE := TRUE;                                                52014000
   NOTWORKFILE := TRUE;                                                   52014100
   END % IF HAVEINPUTFILE                                                 52014200
ELSE                                                                      52014300
   BEGIN % SHOULD BE INPUT FILE NAME                                      52014400
   IF HAVEMINUS THEN GO ERROR;                                            52014500
   IF COMPAR(VERB,"DELETE ") OR COMPAR(VERB,"RESEQ  ") THEN               52014510
      BEGIN                                                               52014520
      IF COMPAR(WORD,FILENAME) THEN GOERR("WRKFILE",62);                  52014600
      NOTWORKFILE := TRUE;                                                52014700
      END;                                                                52014800
   FILNAM1 := WORD;                                                       52014810
   HAVEINPUTFILE := TRUE;                                                 52014900
   END; % IF FILENAME                                                     52015000
   END % IF PARAMETER IS A "STRING"                                       52015100
ELSE                                                                      52015200
%.....                                                                    52015300
```

```
            IF WORD.[1:2]=1 THEN % PARAMETER IS A "SPECIAL" CHARACTER      52015400
            %.....................................................................52015500
               BEGIN                                                          52015600
               IF WORD.[42:6]="/" THEN                                        52015700
                  BEGIN                                                       52015800
                  IF LIBTOG THEN GO ERROR; LIBTOG:=TRUE;                      52015900
                  END                                                         52016000
               ELSE  IF WORD.[42:6]="-" THEN                                  52016100
                  BEGIN                                                       52016200
                  IF HAVEMINUS THEN GO ERROR; HAVEMINUS:=TRUE;                52016300
                  END                                                         52016400
               ELSE GO ERROR; % FUNNY CHARACTER                               52016500
               END % IF A SPECIAL CHARACTER                                   52016600
            ELSE                                                              52016700
            %.....................................................................52016800
            IF WORD.[1:5]=0 THEN % AN UNSIGNED NUMBER                         52016900
            %.....................................................................52017000
               BEGIN                                                          52017100
UNSIGNED:                                                                     52017200
               IF HAVEMINUS THEN % SHOULD BE NEGATIVE NUMBER                  52017300
                  BEGIN                                                       52017400
                  WORD := -WORD; HAVEMINUS := FALSE; GO TO NEGATIVE;          52017500
                  END;                                                        52017600
               IF SAVETOG THEN % ALREADY HAVE A NUMBER STORED IN "SAVEWORD"    52017700
                  BEGIN                                                       52017800
                  IF RESEQPARAM THEN                                          52017900
                     BEGIN                                                    52018000
                     IF HAVERESEQRANGE THEN GOERR(WORD,59);                   52018100
                     IF LASTPARAM THEN WORK[7]:=SAVEWORD                      52018200
                     ELSE GOERR(WORD,59);                                     52018300
                     END % IF RESEQPARAM                                      52018400
                  ELSE IF RESEQVERB THEN % BASE OR RANGE L.B.                 52018500
                     BEGIN                                                    52018600
                     IF HAVERESEQRANGE AND HAVENEWBASE THEN GOERR(WORD,59);   52018700
                     IF HAVERESEQRANGE OR LASTPARAM THEN                      52018800
                        BEGIN                                                 52018900
                        WORK[7] := SAVEWORD;                                  52019000
                        HAVENEWBASE := TRUE;                                  52019100
                        END                                                   52019200
                     ELSE                                                     52019300
                        BEGIN                                                 52019400
                        WORK[5] := WORK[6] := SAVEWORD; % RESEQ ONE RECORD    52019500
                        HAVERESEQRANGE := TRUE;                               52019600
                        END;                                                  52019700
                     END % IF RESEQVERB                                       52019800
                  ELSE                                                        52019900
                     BEGIN                                                    52020000
                     OUTCOUNT := OUTCOUNT + 1;                                52020100
                     IF OUTCOUNT GTR 29 THEN GOERR("TOOMANY",30);             52020200
                     WORK[OUTCOUNT] := SAVEWORD;                              52020300
                     END;                                                     52020400
                  END; % IF SAVETOG                                           52020500
               SAVEWORD := WORD; % SAVE THIS NUMBER                           52020600
               SAVETOG := TRUE;                                               52020700
               END % IF PARAMETER IS AN UNSIGNED NUMBER                       52020800
            ELSE                                                              52020900
            %.....................................................................52021000
            IF WORD.[1:2]=2 THEN % PARAMETER IS A NEGATIVE NUMBER             52021100
            %.....................................................................52021200
               BEGIN                                                          52021300
```

```
NEGATIVE:                                                                52021400
          IF NOT SAVETOG THEN GOERR(WORD,11); % MISSING LOWER BOUND      52021500
          IF PREVNUMBER GEQ SAVEWORD THEN GOERR(SAVEWORD,58);            52021600
          IF SAVEWORD GEQ ABS(WORD) THEN GOERR(WORD,58);                 52021700
          IF RESEQVERB OR RESEQPARAM THEN                                52021800
             BEGIN                                                       52021900
             IF HAVERESEQRANGE THEN GO ERROR;                            52022000
             WORK[5] := SAVEWORD; % LOWER BOUND FOR RESEQ                52022100
             WORK[7] := SAVEWORD; % BASE FOR RESEQ;                      52022200
             SAVETOG := FALSE;                                           52022300
             WORK[6] := ABS(WORD); % UPPER BOUND FOR RESEQ               52022400
             HAVERESEQRANGE := TRUE;                                     52022500
             END % IF RESEQVERB OR RESEQPARAM                            52022600
          ELSE                                                           52022700
             BEGIN                                                       52022800
             IF OUTCOUNT:=OUTCOUNT+1 GTR 28 THEN GOERR("TOOMANY",30);    52022900
             WORK[OUTCOUNT] := SAVEWORD;                                 52023000
             SAVETOG :=FALSE;                                            52023100
             PREVNUMBER := ABS(WORK[OUTCOUNT:=OUTCOUNT+1]:=WORD);        52023200
             END; % IF NOT A RESEQ PARAMETER                             52023300
          END % IF PARAMETER IS A NEGATIVE NUMBER                        52023400
       ELSE                                                              52023500
       %.....................................................................52023600
       IF WORD.[1:2]=3 THEN % PARAMETER IS A "+" NUMBER                   52023700
       %.....................................................................52023800
          BEGIN                                                          52023900
          IF NOT(RESEQVERB OR RESEQPARAM) THEN GO ERROR;                 52024000
          IF HAVEINCREMENT THEN GO ERROR; % REDUNDANT                    52024100
          IF SAVETOG THEN % HAVE AN UNSIGNED NUMBER IN "SAVEWORD"        52024200
             BEGIN                                                       52024300
             IF RESEQPARAM AND HAVERESEQRANGE THEN GOERR(SAVEWORD,59);   52024400
             WORK[7] := SAVEWORD; % NEW BASE                             52024500
             SAVETOG := FALSE;                                           52024600
             HAVENEWBASE := TRUE;                                        52024700
             END; % IF SAVETOG                                           52024800
          WORK[8] := WORD.[6:42]; % RESEQ INCREMENT                      52024900
          HAVEINCREMENT := TRUE;                                         52025000
          END; % IF PARAMETER IS A "+" NUMBER                            52025100
       %.....................................................................52025200
       END WHILE STATEMENT; % NO MORE PARAMETERS                         52025300
       %.....................................................................52025400
       IF SAVETOG THEN IF NOT LASTPARAM THEN % NUMBER LEFT IN SAVEWORD   52025500
          BEGIN LASTPARAM:=WINDUP:=TRUE; GO TO RESTART; END;             52025600
       IF RESEQVERB OR RESEQPARAM THEN IF WORK[5]=0 THEN WORK[5]:=-1;    52025610
       IF HARDCOPY THEN % OUTPUT TO PERIPHERIAL UNIT                     52025700
          BEGIN                                                          52025800
          WORK[9] := 0 & UNITNUMBER[6:42:6] &                            52025900
          (IF HAVEINPUTFILE THEN FILNAM1 ELSE FILENAME)[12:6:36];        52026000
          END % IF HARDCOPY ("PUNCH" VERB ASSUMES REMOTE OUTPUT)         52026100
       ELSE IF NOTWORKFILE THEN % WORKING WITH EXTERNAL FILE             52026200
       WORK[9]:=IF HAVEOUTPUTFILE THEN FILNAM3 ELSE FILNAM1              52026300
       ELSE                                                              52026400
          BEGIN % USING THE WORKFILE                                     52026500
          IF FILENAME=0 THEN GOERR("NO FILE",1);                         52026600
          IF NOT HAVEINPUTFILE THEN % CHECK VERBS REQUIRING FILES        52026700
             BEGIN                                                       52026800
             MATCH(VERB,"MERGE  ") GOERR(VERB,6);                        52026900
             MATCH(VERB,"APPEND ") GOERR(VERB,6);                        52027000
             END;                                                        52027100
          IF RESEQVERB AND FILETYPE=8 THEN GOERR("RESEQ  ",57);          52027200
```

```
      IF RESEQVERB AND FILETYPE=1 THEN % RESEQ BASIC FILE                52027210
      IF HAVENEWBASE AND HAVERESEQRANGE THEN GOERR("BASIC  ",15);        52027220
      END; % IF USING THE WORKFILE                                       52027300
    WORK[3] := FILNAM1;                                                  52027400
    WORK[4] := FILNAM2;                                                  52027500
    OUTCOUNT := OUTCOUNT - 20; % ACTUAL PARAMETER COUNT                  52027600
    IF RESEQVERB THEN                                                    52027700
    IF HAVERESEQRANGE AND HAVENEWBASE THEN % CALL MERGE, NOT RESEQ       52027800
      BEGIN                                                              52027900
      WORK[11]:=WORK[5]; % DELETION RANGE                                52028000
      WORK[21]:=IF WORK[5]=-1 THEN 0 ELSE WORK[5];                       52028010
      WORK[22] := -WORK[12] := WORK[6];                                  52028100
      VERB := "MERGE  "; WORK[10] := FILNAM1;                            52028200
      OUTCOUNT := 2;                                                     52028300
      REVERSETOG := TRUE;                                                52028400
      END;                                                               52028500
    WORK[1]:=(LL+SYSTEM)&OUTCOUNT[27:42:6]&R(FILETYPE=8)[3:47:1]         52028600
    &R(REVERSETOG)[5:47:1]&R(NOT HAVEINPUTFILE)[6:47:1]                  52028700
    & (CONCISEBIT)[8:47:1];                                              52028710
      RUN1 := VERB; RUN2 := "CANDE  "; ERRSW := USERCODE; TEMP := 4;     52028800
      LITOUT("WAIT.  ",NOCRLF); A[BASE+3]:=REAL(TOGWORD);                52028900
      IF HAVEINPUTFILE OR HAVEOUTPUTFILE THEN % SEARCH DIRECTORY         52029000
        BEGIN                                                            52029100
        IF HAVEINPUTFILE THEN                                            52029200
          BEGIN                                                          52029300
          A[BASE] := 2; A[BASE+1] := FILNAM1;                            52029400
          FIND(LL&IAM[33:41:7],0,FILNAM1,FILNAM2,USERCODE);              52029500
          END;                                                           52029600
        IF HAVEOUTPUTFILE THEN                                           52029700
          BEGIN                                                          52029800
          A[BASE]:=1+2×REAL(HAVEINPUTFILE);                              52029900
          A[BASE+2] := FILNAM3;                                          52030000
          END;                                                           52030100
        DOING := 1;                                                      52030200
        WAITFOR := IAM;                                                  52030300
        END % IF INPUT/OUTPUT FILES SPECIFIED                            52030400
      ELSE                                                               52030500
        BEGIN % REFERS TO WORK FILE                                      52030600
        IF RESEQVERB AND FILETYPE=1 THEN RUN1:="RESEQB ";                52030700
      % VOID                                                             52030800
      % VOID                                                             52030900
      % VOID                                                             52031000
        WANT := VDISPATCH;                                               52031100
        A[BASE]:=RUN1;                                                   52031200
        DOING := 2;                                                      52031300
        END;                                                             52031400
      EOJMSG := NOT CONCISE;                                             52031500
      WRITEASTERISK := CONCISE;                                          52031600
      DISKWRITE(ESP1);                                                   52031700
      END; % CASE 0                                                      52031800
    %.....................................................................52031900
      BEGIN  % CASE 1                                                    52032000
      LABEL DUMMY;                                                       52032010
      TOGWORD := BOOLEAN(A[BASE+3]); % RECOVER TOGGLES                   52032100
      IF A[BASE] NEQ 1 THEN % INPUT FILE SEARCH                          52032200
        BEGIN                                                            52032300
        IF EVENTS[1] LEQ 0 THEN GOERR(A[BASE+1],2);                      52032400
        IF EVENTS[2].[36:6] = 8 THEN                                     52032500
          BEGIN                                                          52032600
          MATCH(RUN1,"RESEQ  ") GOERR(A[BASE+1],57);                     52032700
```

```
            MATCH(RUN1,"MERGE  ") GOERR(A[BASE+1],57);                          52032800
            END;                                                                52032900
         IF EVENTS[2].[36:6]=1 AND RESEQVLRB THEN % BASIC RESEQ                 52033000
            BEGIN                                                               52033010
            IF HAVERESEQRANGE AND HAVENEWBASE THEN GOERR("BASIC  ",15);         52033020
            RUN1:="RESEQB ";                                                    52033030
            END;                                                                52033040
         IF A[BASE]=3 THEN % WAITFOR OUTPUT FILE SEARCH                         52033100
            BEGIN                                                               52033200
            FIND(LL&IAM[33:41:7],0,A[BASE+2],USERCODE,USERCODE);                52033300
            A[BASE] := 1; WAITFOR := IAM; GO TO EXIT;                           52033400
            END; % IF WAITING FOR OUTPUT FILE                                   52033500
         END % IF A[BASE] NEQ 1                                                 52033600
      ELSE                                                                      52033700
         BEGIN  % CHECKING OUTPUT FILE                                          52033800
         IF EVENTS[1] GTR 0 THEN GOERR(A[BASE+2],3);                            52033900
         END; % IF A[BASE] = 1;                                                 52034000
      ERRSW := USERCODE;                                                        52034100
      WANT := VDISPATCH;                                                        52034200
      A[BASE] := RUN1;                                                          52034300
      DOING := 2;                                                               52034400
      END CASE 1;                                                               52034500
   %.....................................................................52034600
      BEGIN % CASE 2 - ADJUST AFTER CANDE JOB EOJ                               52034700
      LABEL DUMMY;                                                              52034710
      IF EVENTS[1]=1 THEN % EOJ OK                                              52034800
         BEGIN                                                                  52034810
         VERB:=A[BASE]; TOGWORD := BOOLEAN(A[BASE+3]);                          52034820
         IF NOT ( HARDCOPY OR NOTWORKFILE) THEN % WORK FILE ALTERATION          52034830
            BEGIN                                                               52034840
            IF FILETYPE=8 THEN % TYPE DATA FILE                                 52034850
            MATCH(VERB,"APPEND ") LASTRECORD :=                                 52034860
            LASTRECORD + COMMONCELL.[21:27] ELSE                                52034870
            MATCH(VERB,"COPY   ") LASTRECORD:=COMMONCELL.[21:27];               52034880
            SOURCEFILE:=MAKEFN("1S",LL); GOODOBJ:=FALSE; NOSAVE:=FALSE;         52034890
            END;                                                                52034900
         END; % IF EOJ OK                                                       52035000
      IAM:=0; IF BREAKORWRU THEN LINECLEAR(LCW,A[*]);                           52035100
      END; % CASE 2                                                             52035200
   END ALL CASES;                                                               52035300
GO TO EXIT;                                                                     52035400
ERROR: GOERR(WORD,8);                                                           52035500
EXIT:                                                                           52035600
END PROCEDURE COPYIT;                                                           52035700
%***************************************************************************53000000
PROCEDURE     SEQ(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                            53000100
%***************************************************************************53000200
      BEGIN                                                                     53000300
REAL STREAM PROCEDURE OUTSUPR(INPUT,OUTPUT); VALUE INPUT;                       53000400
   BEGIN                                                                        53000450
   DI:=LOC INPUT; BS:=7FILL;                                                    53000500
   SI:=LOC INPUT; DI:=OUTPUT;                                                   53000550
   8(IF SC=" " THEN SI:=SI+1 ELSE                                               53000600
      BEGIN DS:=CHR; TALLY:=TALLY+1; END);                                      53000700
   OUTSUPR:=TALLY;                                                              53000800
   END STREAM PROCEDURE OUTSUPR;                                                53000900
PROCEDURE     SEQCOM(LL,SEQWORD); VALUE LL, SEQWORD; REAL LL, SEQWORD;          53001000
              COMMUNICATE (-14);                                                53001100
REAL          PC, I, WORD, SEQNO, INCR, SEQOUT;                                 53001200
LABEL         ERR, EXIT;                                                        53001300
```

```
                ERRSW := "SEQ     ";  MSGPTR := 8; SEQNO:=INCR:=-1;          53001400
                IF FILENAME = 0 THEN GOERR("NO FILE",1);                    53001500
                IF DEVICE = TC500 THEN GOERR("SEQUENC",56);                 53001520
                IF FILETYPE=8 THEN GOERR("DATA    ",57);                    53001540
                IF PC := A[SREG:=BASE=A[BASE]].FF GEQ 3 THEN                53001600
                   BEGIN MSGPTR := 16;  GO ERR;  END;                       53001700
                WHILE I LSS PC DO                                           53001800
           BEGIN                                                            53001900
                I := I + 1;                                                 53002000
                IF (WORD := A[INC(SREG)]).[2:4] = 0 THEN                    53002100
                   SEQNO := WORD.[21:27]                                    53002200
                ELSE IF WORD.[1:2] = 3 THEN                                 53002300
                   INCR := WORD.[21:27]                                     53002400
                ELSE GO ERR;                                                53002500
           END  WHILE I;                                                    53002600
                IF SEQNO = 0 OR INCR GTR 500000 OR INCR = 0 THEN GO ERR;    53002700
                IF INCR NEQ -1 THEN                                         53002800
                   BEGIN INCREMENT := INCR;  SEQLAST := SEQIN;  END;        53002900
                IF SEQNO NEQ -1 THEN SEQOUT := SEQNO                        53003000
                   ELSE  SEQOUT := SEQLAST + INCREMENT;                     53003100
                SEQLAST := SEQOUT - INCREMENT;                              53003150
                IF SCHEDULINE THEN                                          53003200
           BEGIN %SEND OUT SEQ NUMBER FOR SCHEDULE LINES                    53003250
                I := OUTSUPR(DECCONV(SEQOUT),WORK[0]);                      53003300
                TWXOUT(LL,WORK[0],I,NUCRLF);                                53003350
           END                                                              53003400
                ELSE IF DEVICE=CONRAC OR DEVICE=BIDS THEN % SEND SEQUENCE   53003410
                OUTPUTNUMBERS(LCW,A[*])                                     53003420
                ELSE SEQCOM(LL,SEQOUT&INCREMENT[2:29:19]);                  53003500
      % VOID                                                               53003600
                WRITEASTERISK := FALSE;                                     53003700
                SEQMODE := TRUE;  IAM := 0;  GO EXIT;                       53003800
      ERR:      ERROR(SREG,LCW,A[*]);                                       53003900
      EXIT:END  SEQ VERB;                                                   53004000
    %***************************************************************       54000000
    PROCEDURE BYE (LCW,A);   BOOLEAN LCW;   ARRAY A[0];                     54000100
    %***************************************************************       54000200
           BEGIN                                                            54000300
    LABEL SKIP, EXIT;                                                       54000400
    REAL       T;                                                           54000500
                IF A[BASE] LSS 100 THEN                                     54000550
           BEGIN      % NOT A HELLO[NEWUSER] CALL                           54000560
                IF USERCODE=IAM:=0 THEN GO EXIT;                            54000600
                IF FILENAME NEQ 0 THEN                                      54000610
                 IF TPCOUNT NEQ 0 OR FILENAME NEQ SOURCEFILE THEN           54000620
                  IF NOT NOSAVE THEN                                        54000630
           BEGIN                                                            54000640
                NOSAVE:=TRUE; GOERR("NO SAVE",48);                          54000650
           END;                                                             54000660
                IF QUICKBYE THEN                                            54000670
                   BEGIN                                                    54000675
                   LITOUT("BYE     ",1); GO SKIP;                           54000680
                   END;                                                     54000690
                WORK[0] := "ON FOR ";  BLANK(WORK[0]);                      54000700
                TIMEUSED(WORK[1],TIMECONV(TIME(1)-LOGONTIME,FALSE));        54000800
                 IF NOT SCHEDULINE THEN                                     54000890
                TWXOUT(LL,WORK[0],33,CRLF);                                 54000900
                WORK[0] := "C&E USE";  BLANK(WORK[0]);                      54001000
                TIMEUSED(WORK[1],CHARGE:=TIMECONV(PTIME,FALSE));            54001050
                TWXOUT(LL,WORK[0],33,CRLF);                                 54001100
```

```
                    WORK[0] := "EXECUTE";  BLANK(WORK[0]);                          54001150
                    TIMEUSED(WORK[1],TIMECONV(ETIME,FALSE));                        54001200
                    TWXOUT(LL,WORK[0],33,CRLF);                                     54001250
                     WORK[0] := "IO TIME"; BLANK(WORK[0]);                          54001260
                     TIMEUSED(WORK[1],TIMECONV(IOTOT,FALSE));                       54001270
                    TWXOUT(LL,WORK[0],33,CRLF);                                     54001280
                    WORK[0] := "OFF AT ";  BLANK(WORK[0]);                          54001300
                    TIMEOFDAY(WORK[1],TIMECONV(TIME(1),TRUE));                      54001400
                     IF NOT SCHEDULING THEN                                         54001490
                    TWXOUT(LL,WORK[0],18,CRLF);                                     54001500
                    WORK[0] := "GOODBYE";  BLANK(WORK[0]);                          54001600
                    WORK[1] := USERCODE;   BLANK(WORK[1]);                          54001700
                    TWXOUT(LL,WORK[0],16,CRLF);                                     54001800
                    WORK[0]:=DATE;                                                  54001810
        % VOID                                                                      54001820
                    TWXOUT(LL,WORK[0],8,11);                                        54001830
        SKIP:       WRITEASTERISK:=FALSE; WORK[0]:="$←      ";                     54001900
                    IF A[BASE] LSS 50 THEN   % NOT HELLO                            54002000
                       BEGIN                                                        54002050
                       TWXOUT(LL,WORK[0],3,-1); % DISCONNECT THE LINE               54002100
                       IF NOT SCHEDULING THEN GO EXIT; % REM.WK.FIL IN DISCNCT      54002110
                       END;                                                         54002120
                END;                                                                54002150
                     CHARGE := TIMECONV(PTIME,FALSE);                               54002175
                    T:=LL&13[33:41:7];                                              54002200
                    REMOVEFILE(T,SOURCEFILE:=MAKEFN("1S",LL),USERCODE);             54002300
                    REMOVEFILE(T,SOURCEFILE.[6:36],USERCODE);                       54002400
                    REMOVEFILE(T,SOURCEFILE&"P"[12:42:6],USERCODE);                 54002500
                    REMOVEFILE(T,SOURCEFILE&"T"[12:42:6],USERCODE);                 54002600
                    REMOVEFILE(T,SOURCEFILE&"Q"[12:42:6],USERCODE);                 54002700
                    SOURCEFILE.[36:12] := 01;                                       54002800
                    REMOVEFILE(T,SOURCEFILE&"P"[12:42:6],USERCODE);                 54002900
                     IF SCHEDULING THEN DISCONNECT(LCW,A);                          54002950
                    FILESOK := B(FILENAME:=0); TPCOUNT := 0;                        54003000
            EXIT: END  BYE;                                                         54003100
        %***************************************************************************55000000
        PROCEDURE MAKENEWFILE(A); ARRAY A[0];                                       55001000
        %***************************************************************************55002000
           BEGIN                                                                    55003000
           LABEL NEXT,ERR,EXIT;                                                     55004000
           REAL T,MAXSREG;                                                          55005000
                                                                                    55006000
           DEFINE                                                                   55007000
           NAMEWORD      = A[BASE]#,      % FILE NAME                              55008000
           TYPEWORD      = A[BASE+1]#,    % FILE TYPE                              55009000
           SEARCHCOUNT   = A[BASE+2]#,    % NUMBER OF DIRECTORY SEARCHES           55010000
           SAVESIZE      = 3#;            % NUMBER OF WORDS USED ABOVE              55011000
                                                                                    55012000
           DEFINE ERROR(ERROR1)=                                                    55013000
              BEGIN                                                                 55014000
              MSGPTR:=ERROR1; GO TO ERR;                                            55015000
              END#;                                                                 55016000
                                                                                    55017000
           STREAM PROCEDURE MSG(AREA,TOG); VALUE TOG;                               55018000
              BEGIN                                                                 55019000
              LABEL XT;                                                             55020000
              DI:=AREA;                                                             55021000
              TOG(DS:=15LIT" DUPLICATE NAME"; JUMP OUT TO XT);                      55022000
                  DS:=15LIT" CREATED       ";                                      55023000
        XT:   END STREAM PROCEDURE MSG;                                             55024000
```

```
CASE DOING OF                                                                  55025000
BEGIN                                                                          55026000
                                                                               55027000
   BEGIN % CASE 0 - SYNTAX CHECK                                               55028000
   IF FILENAME NEQ 0 THEN                                                      55029000
      IF TPCOUNT NEQ 0 OR FILENAME NEQ SOURCEFILE THEN                         55030000
         IF NOT NOSAVE THEN                                                    55031000
            BEGIN                                                              55032000
            NOSAVE := TRUE; GOERR("NO SAVE",48);                               55033000
            END;                                                               55034000
   MAXSREG := A[SREG:=BASE-A[BASE]].[18:15] + SREG;                            55035000
   CLEAR(A[BASE],SAVESIZE); % ZERO OUT "STACK" WORDS                           55036000
   FOR SREG:=SREG+1 STEP 1 UNTIL MAXSREG DO                                    55037000
      BEGIN                                                                    55038000
      IF A[SREG].[3:3] NEQ 0 THEN % ALPHABETIC STRING                          55039000
         BEGIN                                                                 55040000
         IF NAMEWORD=0 THEN NAMEWORD:=A[SREG] ELSE                             55041000
         IF TYPEWORD=0 THEN TYPEWORD:=A[SREG] ELSE                             55042000
         ERROR(8);                                                             55043000
         END % IF ALPHABETIC STRING                                            55044000
      ELSE IF A[SREG]=":" THEN                                                 55045000
         BEGIN                                                                 55046000
         IF TYPEWORD=0 AND SREG LSS MAXSREG THEN                               55047000
         IF A[SREG:=SREG+1].[3:3] GTR 0 THEN                                   55048000
            BEGIN                                                              55049000
            IF (T:=FINDALETTER(A[SREG],TYPETABLE[1],NUMOFTYPES))#0 THEN        55050000
               BEGIN                                                           55051000
               TYPEWORD:= T&1[1:47:1]; % MARK ALREADY CHECKED                  55052000
               GO TO NEXT;                                                     55053000
               END; % IF IN THE TYPETABLE                                      55054000
            END; % IF ALPHABETIC STRING                                        55055000
         ERROR(8);                                                             55056000
         END % IF ":"                                                          55057000
      ELSE ERROR(8); % NO OTHER INPUTS ALLOWED                                 55058000
NEXT:                                                                          55059000
      END SREG LOOP;                                                           55060000
                                                                               55061000
   IF NAMEWORD=0 THEN GOERR("NO NAME",6); % NO FILE NAME GIVEN                 55062000
   IF NAMEWORD.[3:3] GTR 6 THEN GOERR(NAMEWORD,42);                            55063000
   IF FINDAWORD(NAMEWORD,RESWRDTABLE[1],NUMOFRESWRDS) NEQ 0 THEN               55064000
      GOERR(NAMEWORD,29);                                                      55065000
   IF TYPEWORD = 0 THEN TYPEWORD :=7 ELSE % DEFAULT IS SEQUENCE                55066000
      BEGIN                                                                    55067000
      IF NOT BOOLEAN(TYPEWORD.[1:1]) THEN % NOT PREVIOUSLY LOCATED             55068000
         BEGIN                                                                 55069000
         IF (T:=FINDAWORD(TYPEWORD,TYPETABLE[1],NUMOFTYPES))=0 THEN            55070000
         GOERR(TYPEWORD,20);                                                   55071000
         END;                                                                  55072000
      TYPEWORD := ABS(T);                                                      55073000
      IF CHECKBIT(TYPEWORD-1,RESTRICTEDLANGUAGES) THEN                         55073100
         GOERR(TYPETABLE[TYPEWORD].[6:42], 49);                                55073200
      END; % CHECKING FILE TYPE                                                55074000
                                                                               55075000
   NAMEWORD.[1:5]:=0;                                                          55076000
   GENFILINE(NAMEWORD,TYPETABLE[TYPEWORD]);                                    55077000
   FIND(LL&IAM[33:41:7],0,NAMEWORD,USERCODE,USERCODE);          % SRC           55078000
   FIND(LL&IAM[33:41:7],0,NAMEWORD.[6:36],USERCODE,USERCODE); % OBJ             55079000
   FILESOK := FALSE;                                                           55080000
   TEMP := SAVESIZE;                                                           55081000
   DOING := 1;                                                                 55082000
```

```
      WAITFOR := IAM;                                                          55083000
      END; % CASE 0                                                            55084000
    %.....................................................................     55085000
      BEGIN % CASE 1 - RESULTS OF DIRECTORY SEARCH                             55086000
      IF EVENTS[1] GEQ 0 THEN NAMEWORD.[1:1]:=1; % ERROR FLAG                  55087000
      IF (SEARCHCOUNT:=SEARCHCOUNT+1)=2 THEN                                   55088000
         BEGIN                                                                 55089000
         MSG(WORK,NAMEWORD.[1:1]); % BUILD MESSAGE FOR USER                    55090000
         TWXOUT(LL,WORK[0],15,1);                                              55091000
         IF BOOLEAN(NAMEWORD.[1:1]) THEN % ERROR                               55092000
            BEGIN                                                              55093000
            LINECLEAR(LCW,A[*]);                                               55094000
            MSGPTR := 3;                                                       55095000
            WRITEASTERISK := TRUE;                                             55096000
            IF SCHEDULINE THEN                                                 55097000
               IF NOT NOSTOP THEN SCHEDERROR; % TERMINATE SCHEDULE             55098000
            GO TO EXIT;                                                        55099000
            END;                                                               55100000
         FILENAME := NAMEWORD.[6:42];                                          55101000
         FILETYPE := TYPEWORD;                                                 55102000
         LASTRECORD := 0;                                                      55103000
         SOURCEFILE := MAKEFN("1S",LL);                                        55104000
         MAKEFILE(LL&13[33:41:7],1,SOURCEFILE,USERCODE,FILETYPE,-2);           55105000
         GOODOBJ := FALSE;                                                     55106000
         NOSAVE := FALSE;                                                      55107000
         OBJECTFILE := 0;                                                      55108000
         SEQLAST := SEQIN := 0;                                                55109000
         INCREMENT := 100;                                                     55110000
         IAM := VSETUPFILES;                                                   55111000
         DOING := 0;                                                           55112000
         END % IF ALL SEARCHES DONE                                            55113000
      ELSE                                                                     55114000
         BEGIN                                                                 55115000
         WAITFOR := IAM;                                                       55116000
         GO TO EXIT;                                                           55117000
         END;                                                                  55118000
      END CASE 1;                                                              55119000
    END ALL CASES;                                                             55120000
    GO TO EXIT;                                                                55121000
                                                                               55122000
    ERR: GOERR(A[SREG],8);                                                     55123000
                                                                               55124000
    EXIT:                                                                      55125000
      END PROCEDURE MAKENEWFILE;                                               55126000
    %**********************************************************************%56000000
    PROCEDURE     LISTIT (LCW,A);     BOOLEAN  LCW;  ARRAY  A[0];              56000100
    %**********************************************************************%56000200
    BEGIN                                                                      56000300
    LABEL  PRNT,  CASES,  CASE4,  ERR,  EXIT;                                  56000400
    REAL     PREVW,  WORD,  TYPE,  CHAR,  PC,  I,  WI;                         56000500
    BOOLEAN  LIB,  SQUASH,  CHANGES,  NUMBERED,  DISPLAY;                      56000600
    STREAM PROCEDURE NOCHGMSG(WORK);                                           56000700
      BEGIN                                                                    56000800
      DI:=WORK; DS:=29LIT"NO CHANGES SINCE LAST UPDATE.";                      56000900
      END;                                                                     56001000
    CASE DOING OF                                                              56001100
      BEGIN                                                                    56001200
      %.....................................................................,56001300
         BEGIN   % DOING = 0                                                   56001400
         PREVW := -1; % ALLOW 0 AS PARAMETER.                                  56001500
```

```
        WORK[2]:=WORK[4]:=USERCODE; WORK[3]:=SOURCEFILE;                    56001600
        PC := A[ SREG := BASE - A[BASE]].FF;                               56001700
        MATCH(VERBTABLE[A[SREG].[9:9]].[6:42]."DISPLAY")                   56001710
           BEGIN DISPLAY := TRUE; GO TO PRNT; END;                         56001720
        IF IAM = VPRINT THEN                                               56001800
           BEGIN                                                           56001900
PRNT:      IAM := VLIST;                                                   56002000
           A[BASE] := 0;                                                   56002100
           WRITEASTERISK := TRUE;                                          56002200
           END;                                                            56002300
        WI:=21;                                                            56002400
        WHILE I LSS PC DO % PICK UP ALL PARAMETERS                         56002500
           BEGIN  INC(I);                                                  56002600
           WORD := A[INC(SREG)];                                           56002700
           IF WORD.[2:4] = 0 THEN TYPE := 0    % NUMBER OR -NUMBER.        56002800
         ELSE                                                              56002900
           IF WORD.[1:2] = 3 THEN TYPE := 1    % +NUMBER.                  56003000
         ELSE                                                              56003100
           IF WORD.[1:2] = 1 THEN TYPE := 2    % SPECIAL CHARACTER.        56003200
         ELSE                                                              56003300
           TYPE := 3;  % ALPHA WORD.                                       56003400
CASES:     CASE TYPE OF                                                    56003500
              BEGIN                                                        56003600
              %.............................................................56003700
                 BEGIN  % TYPE = 0.                                        56003800
                 IF PREVW GEQ PREVW:=ABS(WORD) THEN GO ERR;                56003900
                 WORK[WI]:=IF CHAR="-" THEN CHAR:="-"ABS(WORD) ELSE WORD;  56004000
                 IF INC(WI) GTR 30 THEN GO ERR;                            56004100
                 END  CASE 0;                                              56004200
              %.............................................................56004300
              GO TO ERR;  % TYPE = 1                                       56004400
              %.............................................................56004500
                 BEGIN   % TYPE = 2.                                       56004600
                 LIB:=(CHAR:=WORD.CF)="/";                                 56004700
                 IF CHAR = "*" THEN SQUASH    := TRUE                      56004800
               ELSE                                                        56004900
                 IF CHAR = "#" THEN NUMBERED := TRUE                       56005000
               ELSE                                                        56005100
                 IF CHAR = "$" THEN CHANGES  := TRUE;                      56005200
                 END  CASE 2;                                              56005300
              %.............................................................56005400
                 BEGIN   % TYPE = 3. ALPHA WORD.                           56005500
                 WORD.[1:5]:= 0;                                           56005600
                 MATCH(WORD, "END    ")                                    56005700
                    BEGIN                                                  56005800
                    A[SREG] := WORD := TEN8;                               56005900
                    TYPE := 0;                                             56006000
                    GO TO CASES;                                           56006100
                    END;                                                   56006200
                 MATCH (WORD, "FILES  ")     % LIST FILES                  56006300
                    BEGIN                                                  56006400
                    IAM := VLFILES;                                        56006500
                    COMMONCELL := PC-I;                                    56006600
                    GO EXIT;                                               56006700
                    END;                                                   56006800
                 MATCH(WORD,"TO     ") CHAR := "-"                         56006900
               ELSE                                                        56007000
                 MATCH(WORD,"CHANGES") CHANGES:=TRUE                       56007100
               ELSE                                                        56007200
                 MATCH(WORD,"SQUASHE") SQUASH :=TRUE                       56007300
```

```
            ELSE                                                                56007400
              MATCH(WORD,"NUMBERE") NUMBERED :=TRUE                             56007500
            ELSE                                                                56007600
                BEGIN % NOT SPECIAL WORD - MUST BE FILE NAME.                   56007700
                WORK[3 + REAL(LIB)] := WORD;                                    56007800
                LIB := FALSE;                                                   56007900
                WORK[2] := 0;                                                   56008000
                END  HANDLING FILE NAME;                                        56008100
              END    OF CASE 3;                                                 56008200
          %.....................................................................56008300
          END   ALL CASES;                                                      56008400
        END   ALL PARAMETERS;                                                   56008500
      IF WORK[3] = 0 THEN GOERR("NOFILE ", 1);                                  56008600
      IF (PC:=WI-21)=0 THEN                                                     56008700
        BEGIN                                                                   56008800
        IF TPCOUNT = 0 THEN % UPDATE NOT REQUIRED                               56008900
          BEGIN                                                                 56009000
          IF CHANGES THEN % NO CHANGES IF TPCOUNT=0                             56009100
            BEGIN                                                               56009200
            NOCHGMSG(WORK);                                                     56009300
            TWXOUT(LL,WORK[0],29,1);                                            56009400
            IAM := 0;                                                           56009500
            GO TO EXIT;                                                         56009600
            END;                                                                56009700
          END % IF TPCOUNT = 0                                                  56009800
        ELSE IF NOT CHANGES THEN % LIST PROGM. NEEDS PARAMS                     56009900
          BEGIN                                                                 56010000
          WORK[21] := 0;                                                        56010100
          WORK[22] := TEN8 & 3[1:46:2];                                         56010200
          PC := 2;                                                              56010300
          END;                                                                  56010400
        END; % IF PC = 0                                                        56010500
      MOVE (16,WORDS,CTRANDBASE[0],WORK[5]);                                    56010600
      DOGHOUSE[LL] := WORK[0] := 0;                                             56010700
      WORK[1]:=(LL+SYSTEM)  & PC[27:42:6] & R(CHANGES)[1:47:1]                  56010800
              & R(SQUASH)[2:47:1] & R(FILETYPE=8)[3:47:1]                       56010900
              & R(NUMBERED)[4:47:1] & R(WORK[2] NEQ 0)[6:47:1]                  56011000
              & R(DISPLAY)[7:47:1] & R(MONITORBIT)[9:47:1];                     56011010
      IF WORK[2] NEQ 0 AND TPCOUNT GTR 0 THEN WORK[4]:=USERLOC;                 56011020
      DISKWRITE(ESP1);                                                          56011100
      RUN1 := IF TPCOUNT=0 OR WORK[2]=0 THEN "QUIKLST" ELSE "LIST    ";         56011200
      RUN2 := "CANDE  "; ERRSW := USERCODE;                                     56011300
      IF WORK[2] NEQ 0 THEN   % MEANS LIST THE WORKFILE.                        56011400
        BEGIN                                                                   56011500
        WANT := VCLOSEWORKTABLE;                                                56011600
        ERRSW := FILENAME;                                                      56011700
        DOING := 1;                                                             56011800
        IF TPCOUNT NEQ 0 THEN UPDATEBIT := 1; % UPDATE IN PROGRESS              56011900
        IF A[BASE] NEQ 0 THEN % PRINT HEADING                                   56012000
          BEGIN                                                                 56012100
          TWXOUT (LL,WORK[0],0,2);                                              56012200
          GENFILINE (FILENAME, TYPETABLE[FILETYPE]);                            56012300
          GO TO CASE4;                                                          56012400
          END;                                                                  56012500
        END % IF WORKFILE                                                       56012600
      ELSE                                                                      56012700
        BEGIN % FILE NAME GIVEN                                                 56012800
        FIND(LL&IAM[33:41:7],0,WORK[3],WORK[4],USERCODE);                       56012900
        A[BASE+1] := WORK[3]; % SAVE FILE NAME                                  56013000
        TEMP := DOING := 3;                                                     56013100
```

```
      WAITFOR := IAM;                                                    56013200
      GO TO EXIT;                                                        56013300
      END;                                                               56013400
   END  CASE  0;                                                         56013500
%.....................................................................  56013600
   BEGIN   % DOING = 1                                                  56013700
   WANT := VDISPATCH; ERRSW := USERCODE;                                56013800
   DOING := 2;                                                          56013900
   END  CASE  1;                                                        56014000
%.....................................................................  56014100
   BEGIN   % DOING = 2                                                  56014200
   IF BOOLEAN(UPDATEBIT) AND EVENTS[1] = 1 THEN % UPDATE OK             56014210
      BEGIN                                                             56014220
      CANCELCKPT(A[*]); SOURCEFILE := MAKEFN("1S",LL);                  56014300
      END;                                                              56014310
   IAM:=0; IF BREAKORWRU THEN LINECLEAR(LCW,A[*]);                      56014400
   END  CASE 2;                                                         56014500
%.....................................................................  56014600
   BEGIN  % DOING = 3                                                   56014700
   IF EVENTS[1] LEQ 0 THEN GOERR(A[BASE+1], 2);                         56014800
   IAM := VDISPATCH; ERRSW := USERCODE;                                 56014900
   IF A[BASE] NEQ 0 THEN % PRINT HEADING                                56015000
      BEGIN                                                             56015100
      TWXOUT(LL,WORK[0],0,2);                                           56015200
      I := FNONLY(L[0],PC,ERRSW:=A[BASE+1],1);                          56015300
      TWXOUT(LL,L[0],I,NOCRLF);                                         56015400
      GO TO CASE4;                                                      56015500
      END;                                                              56015600
   END CASE 3;                                                          56015700
%.....................................................................  56015800
      BEGIN  % DOING = 4 (DUMMY CASE)                                   56015900
CASE4:                                                                  56016000
      EOJMSG:=TRUE;  WRITEASTERISK:=FALSE;                              56016100
      TIMEOFDAY(WORK[1],TIMECONV(TIME(1),TRUE));                        56016200
      WORK[0]:=DATE;  TWXOUT(LL,WORK[0],18,2);                          56016300
      END CASE 4;                                                       56016400
   %.....................................................................56016500
   END  ALL  CASES;                                                     56016600
GO EXIT;                                                                56016700
ERR: GOERR(WORD,8);                                                     56016800
EXIT:                                                                   56016900
END OF LISTIT;                                                          56017000
%**********************************************************************57000000
PROCEDURE EXECUTE(LCW,A); BOOLEAN LCW; ARRAY A[0];                      57001000
%**********************************************************************57002000
   BEGIN                                                                57003000
                                                                        57004000
   % HANDLER FOR "RUN","EXECUTE" AND "COMPILE" REQUESTS                 57005000
                                                                        57006000
   REAL T,MAXSREG;                                                      57007000
   LABEL CASE1,CHKTYPE,RUNN,ERR,EXIT;                                   57008000
   DEFINE                                                               57009000
   VERBWORD             = A[BASE]#,          % VERB "NAME"             57010000
   NAMEWORD(NAMEWORD1)  = A[BASE+1+NAMEWORD1]#, % MFID,FID              57011000
   TYPEWORD             = A[BASE+3]#,        % FILE TYPE               57012000
   COMMONWORD           = A[BASE+4]#,        % COMMON VALUE            57013000
   STACKWORD            = A[BASE+5]#,        % STACK SIZE              57014000
   COREWORD             = A[BASE+6]#,        % CORE LIMIT              57015000
   PROCESSWORD          = A[BASE+7]#,        % PROCESS LIMIT           57016000
   IOWORD               = A[BASE+8]#,        % I/O LIMIT               57017000
```

```
    SEARCHTYPE          = A[BASE+9].[33:15]#,   % TYPE FROM HEADER          57018000
    SEARCHCOUNT         = A[BASE+9].[18:15]#,   % NUMBER OF SEARCHES        57019000
    SEARCHTOGGLE        = A[BASE+9].[01:01]#,   % TOGGLE FOR CASE2          57020000
    SAVESIZE            = 10#;                  % WORDS USED ABOVE          57021000
                                                                            57022000
    DEFINE TRANSFEREQUATIONVALUES =                                         57023000
       BEGIN                                                                57024000
       COMMONVALUE    := COMMONWORD;                                        57025000
       STACKSIZE      := STACKWORD;                                         57026000
       CORESIZE       := COREWORD;                                          57027000
       PROCESSLIMIT   := PROCESSWORD;                                       57028000
       IOLIMIT        := IOWORD;                                            57029000
       END#;                                                                57030000
                                                                            57031000
    DEFINE ERROR(ERROR1) =                                                  57032000
       BEGIN                                                                57033000
       MSGPTR:=ERROR1; GO TO ERR;                                           57034000
       END#;                                                                57035000
                                                                            57036000
                                                                            57037000
CASE DOING OF                                                               57038000
BEGIN                                                                       57039000
   BEGIN % CASE 0 = SYNTAX CHECK                                            57040000
   LABEL TYP;                                                               57041000
   REAL WORD;                                                               57042000
   BOOLEAN WITHTOGGLE,LIBTOGGLE;                                            57043000
   BOOLEAN PROCEDURE FINDNUMBER(A,MAXSREG); VALUE MAXSREG;                  57044000
   REAL MAXSREG; ARRAY A[0];                                                57045000
      BEGIN                                                                 57046000
      % "SREG" WILL POINT TO THE LOCATION OF THE NUMBER IF THERE IS ONE      57047000
      % "FINDNUMBER" WILL BE TRUE IF A NUMBER IS LOCATED                    57048000
      % "=" CHARACTERS ARE SKIPPED (OPTIONAL CHARACTERS)                    57049000
      FINDNUMBER:=FALSE; % MARK AS ERROR AT START                           57050000
      FOR SREG:=SREG+1 STEP 1 UNTIL MAXSREG DO                              57051000
         BEGIN                                                              57052000
         IF A[SREG].[1:5]=0 THEN % NUMERIC INPUT                            57053000
            BEGIN                                                           57054000
            MAXSREG:=0; FINDNUMBER:=TRUE;                                   57055000
            END                                                             57056000
         ELSE IF NOT(A[SREG].[1:2]=1 AND A[SREG]="=") THEN MAXSREG:=0;      57057000
         END;                                                               57058000
      SREG:=SREG-1; % BACK UP FROM END OF "FOR" STATEMENT                   57059000
      END PROCEDURE FINDNUMBER;                                             57060000
                                                                            57061000
   CLEAR(A[BASE+1],SAVESIZE-1); % ZERO OUT "STACK" WORDS                    57062000
   MAXSREG := A[SREG:=BASE+A[BASE]].[18:15] + SREG;                         57063000
   VERBWORD:= VERBTABLE[A[SREG].[9:9]].[6:42]; % VERB NAME FROM TABLE       57064000
   FOR SREG := SREG+1 STEP 1 UNTIL MAXSREG DO                               57065000
      BEGIN % EXAMINE THE PARAMETERS                                        57066000
      IF A[SREG].[3:3] GTR 0 THEN % ALPHABETIC STRING                       57067000
         BEGIN                                                              57068000
         WORD := A[SREG].[6:42];                                            57069000
         IF WITHTOGGLE THEN % "WITH" PRECEEDED THIS WORD                    57070000
            BEGIN                                                           57071000
            MATCH(WORD,"LISTING")                                           57072000
               BEGIN                                                        57073000
               MATCH(VERBWORD,"COMPILE") COMMONWORD:=-1 ELSE ERROR(8);      57074000
               END                                                          57075000
            ELSE                                                            57076000
               BEGIN % CHECK LABEL EQUATION VALUES                          57077000
```

```
                IF NOT FINDNUMBER(A,MAXSREG) THEN ERROR(8);                    57078000
                MATCH(WORD,"STACK  ") STACKWORD  := A[SREG].[36:12] ELSE       57079000
                MATCH(WORD,"CORE   ") COREWORD   := A[SREG].[33:15] ELSE       57080000
                MATCH(WORD,"PROCESS") PROCESSWORD:= A[SREG]*60      ELSE       57081000
                MATCH(WORD,"IO     ") IOWORD     := A[SREG]*60      ELSE       57082000
                MATCH(WORD,"COMMON ") COMMONWORD := A[SREG]         ELSE       57083000
                GOERR(WORD,8); % NONE OF THE ABOVE                             57084000
                END; % CHECKING LABEL EQUATION VALUES                          57085000
             END % IF WITHTOGGLE                                               57086000
          ELSE MATCH(WORD,"WITH   ") WITHTOGGLE := TRUE                        57087000
          ELSE MATCH(WORD,"LIBRARY")                                           57088000
             BEGIN                                                             57089000
             IF LIBTOGGLE OR NAMEWORD[0]=0 THEN ERROR(8);                      57090000
             LIBTOGGLE := TRUE;                                                57091000
             END                                                               57092000
          ELSE                                                                 57093000
             BEGIN % CHECK FOR FILE TYPES,FILE NAMES                           57094000
             IF T:=FINDAWORD(A[SREG],TYPETABLE[1],NUMOFTYPES)#0 THEN           57095000
                BEGIN % WORD IS A FILETYPE                                     57096000
TYP:            IF TYPEWORD NEQ 0 THEN ERROR(8); % DUP TYPE                    57097000
                IF NOT BOOLEAN(I,[1:1]) THEN GOERR("TYPE   ",19);              57098000
                TYPEWORD:=ABS(T);                                              57099000
                IF CHECKBIT(TYPEWORD-1,RESTRICTEDLANGUAGES) THEN               57100000
                ERROR(49); % USER IS NOT PERMITTED THIS LANGUAGE               57101000
                END % IF FILE TYPE                                             57102000
             ELSE                                                              57103000
                BEGIN % CHECK FILE NAMES                                       57104000
                IF NAMEWORD[REAL(LIBTOGGLE)] NEQ 0 THEN ERROR(8);              57105000
                IF NOT LIBTOGGLE THEN % MFID, 6 CHRS,MAXIMUM                   57106000
                IF WORD.[42:6] NEQ " " THEN ERROR(42); % 6 CHRS MAX            57107000
                NAMEWORD[REAL(LIBTOGGLE)]:=WORD;                               57108000
                END % FILE NAME CHECK                                          57109000
             END % FILE TYPE OR FILE NAME                                      57110000
          END  % ALPHABETIC STRING                                             57111000
       ELSE IF A[SREG]="/" THEN                                                57112000
          BEGIN                                                                57113000
          IF LIBTOGGLE OR NAMEWORD[0]=0 THEN ERROR(8);                         57114000
          LIBTOGGLE:=TRUE;                                                     57115000
          END                                                                  57116000
       ELSE IF A[SREG]=":" THEN % COMPILER NAME ABBREVIATION                   57117000
          BEGIN                                                                57118000
          IF SREG=MAXSREG THEN ERROR(8) ELSE WORD:=(A[SREG:=SREG+1]);          57119000
          IF T:=FINDALETTER(WORD,TYPETABLE[1],NUMOFTYPES)#0 THEN GO TYP;       57120000
          ERROR(20); % NOT FILE TYPE;                                          57121000
          END                                                                  57122000
       ELSE ERROR(8); % NO OTHER ENTRIES ACCEPTABLE                            57123000
       END SREG LOOP;                                                          57124000
                                                                               57125000
    TEMP := SAVESIZE; % SAVE SPACE IN "STACK" FOR VARIABLES                    57126000
    IF NAMEWORD[0]=0 THEN % DEFAULT IS THE WORK FILE                           57127000
       IF FILENAME=0 THEN GOERR("NO FILE",1);                                  57128000
    IF TPCOUNT NEQ 0 THEN % WORK FILE HAS BEEN ALTERED                         57129000
       BEGIN                                                                   57130000
       WANT := VUPDATE;                                                        57131000
       LITOUT("WAIT,  ",NOCRLF);                                               57132000
       DOING := 1;                                                             57133000
       GO TO EXIT;                                                             57134000
       END;                                                                    57135000
    GO TO CASE1; % NO UPDATE REQUIRED                                          57136000
    END CASE 0;                                                                57137000
```

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%.....                                                                  57138000
    BEGIN % CASE 1 - WORKFILE UPDATED                                   57139000
CASE1:                                                                  57140000
   MATCH(VERBWORD,"COMPILE") % COMPILE ONLY                             57141000
      BEGIN                                                             57142000
      IF NAMEWORD[0]=0 THEN % COMPILE THE WORKFILE                      57143000
         BEGIN                                                          57144000
         NAMEWORD[0]:=SOURCEFILE;                                       57145000
         NAMEWORD[1]:=USERCODE;                                         57146000
         IF TYPEWORD=0 THEN % FILE TYPE NOT SPECIFIED                   57147000
            BEGIN                                                       57148000
            TYPEWORD := FILETYPE; % USE WORK FILE TYPE                  57149000
CHKTYPE:    IF NOT BOOLEAN((T:=TYPETABLE[TYPEWORD]).[1:1]) THEN         57150000
               GOERR("TYPE    ",19); % NOT COMPILER TYPE                57151000
            IF CHECKBIT(TYPEWORD-1,RESTRICTEDLANGUAGES) THEN            57151100
               GOERR(T.[6:42],49);                                      57151200
            END;                                                        57152000
         END % IF WORKFILE OR BRANCH FROM BELOW                         57153000
      ELSE IF SEARCHCOUNT=0 THEN % DIRECTORY SEARCH NOT EXECUTED        57154000
         BEGIN                                                          57155000
         IF NAMEWORD[1] NEQ 0 THEN % CHECK OUTSIDE FILE                 57156000
            BEGIN                                                       57157000
            MATCH(NAMEWORD[1],USERCODE) ELSE GOERR(NAMEWORD[1],8);      57158000
            END                                                         57159000
         ELSE NAMEWORD[1]:=USERCODE;                                    57160000
         FIND(LL&IAM[33:41:7],0,NAMEWORD[0],NAMEWORD[1],USERCODE);      57161000
         SEARCHTOGGLE:=1; % STOP PROCESSING ON SEARCH ERROR             57162000
         SEARCHCOUNT := 1;                                              57163000
         DOING := 2;                                                    57164000
         WAITFOR := IAM;                                                57165000
         GO TO EXIT;                                                    57166000
         END % IF DIRECTORY SEARCH WAS NOT EXECUTED                     57167000
      ELSE                                                              57168000
         BEGIN % DIRECTORY SEARCH FINISHED, FILE IS IN DIRECTORY        57169000
         IF TYPEWORD = 0 THEN TYPEWORD := SEARCHTYPE; % FROM HEADER     57170000
         GO TO CHKTYPE;                                                 57171000
         END; % IF SEARCH WAS EXECUTED SUCCESSFULLY                     57172000
                                                                        57173000
      % CALL OUT THE COMPILER                                          57174000
                                                                        57175000
      RUN1 := NAMEWORD[0];                                              57176000
      RUN2:=TYPETABLE[TYPEWORD].[6:42]; % COMPILER NAME                 57177000
      TRANSFEREQUATIONVALUES; % LABEL EQUATION ENTRIES                  57178000
      WANT := VCOMPILEIT;                                               57179000
      DOING := 3; % RETURN AFTER COMPILING                              57180000
      GO TO EXIT;                                                       57181000
      END; % IF COMPILING                                               57182000
                                                                        57183000
   % "RUN" OR "EXECUTE" VERB                                           57184000
                                                                        57185000
   IF NAMEWORD[0]=0 THEN % EXECUTE THE WORK FILE                        57186000
      BEGIN                                                             57187000
      NAMEWORD[0]:=SOURCEFILE;                                          57188000
      NAMEWORD[1]:=USERCODE;                                            57189000
      IF TYPEWORD=0 THEN TYPEWORD:=FILETYPE; % USE WORK FILE TYPE       57190000
      IF NOT GOODOBJ THEN % NOT THE CORRECT OBJECT FILE                 57191000
         BEGIN                                                          57192000
         MATCH(VERBWORD,"EXECUTE") GOERR("NO OBJ.",17);                 57192100
         SEARCHCOUNT:=3; % AVOID DIRECTORY SEARCH AFTER COMPILE         57193000
         GO TO CHKTYPE; % COMPILE THE SOURCE                            57194000
```

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      END; % IF NOT A GOOD OBJECT FILE                                          57195000
    NAMEWORD[0]:=" "&OBJECTFILE[6:12:36]; % IN CASE SOURCE REMOVED              57196000
    GO TO RUNN; % OBJECT FILE IS OK                                             57197000
    END % IF THE WORKFILE                                                       57198000
  ELSE IF SEARCHCOUNT=0 THEN % SEARCH FOR OBJECT FILE FIRST                     57199000
    BEGIN                                                                       57200000
    IF NAMEWORD[1]=0 THEN NAMEWORD[1]:=USERCODE; % FID NOT SPECIFIED            57201000
    FIND(LL&IAM[33:41:7],0,NAMEWORD[0].[6:36],NAMEWORD[1],USERCODE);            57202000
    SEARCHCOUNT := 1;                                                           57203000
    DOING := 2;                                                                 57204000
    WAITFOR := IAM;                                                             57205000
    GO TO EXIT;                                                                 57206000
    END % INITIATING SEARCH FOR OBJECT                                          57207000
  ELSE IF SEARCHCOUNT=1 THEN % RESULTS OF OBJECT SEARCH                         57208000
    BEGIN                                                                       57209000
    IF EVENTS[1] LEQ 0 THEN % NO OBJECT IN DIRECTORY                            57210000
      BEGIN                                                                     57211000
      MATCH(NAMEWORD[1],USERCODE) ELSE GOERR("NO OBJ.",17);                     57212000
      MATCH(VERBWORD, "EXECUTE")      GOERR("NO OBJ.",17);                      57212100
      FIND(LL&IAM[33:41:7],0,NAMEWORD[0],NAMEWORD[1],USERCODE);                 57213000
      SEARCHCOUNT := 2;                                                         57214000
      SEARCHTOGGLE := 1; % STOP PROCESSING IF NO SOURCE                         57215000
      DOING := 2;                                                               57216000
      WAITFOR := IAM;                                                           57217000
      GO TO EXIT;                                                               57218000
      END; % IF OBJECT VERSION NOT ON DISK                                      57219000
    GO TO RUNN; % OBJECT FILE ON DISK                                           57220000
    END % RESULTS OF OBJECT SEARCH                                              57221000
  ELSE IF SEARCHCOUNT=2 THEN % SOURCE IS IN DIRECTORY                           57222000
    BEGIN                                                                       57223000
    IF TYPEWORD=0 THEN TYPEWORD:=SEARCHTYPE;                                    57224000
    GO TO CHKTYPE; % COMPILE THE SOURCE                                         57225000
    END; % IF SOURCE WAS PRESENT IN DIRECTORY                                   57226000
RUNN:                                                                           57227000
    RUN1:=NAMEWORD[0],[6:36];                                                   57228000
    RUN2:=NAMEWORD[1];                                                          57229000
    TRANSFEREQUATIONVALUES; % LABEL EQUATION VALUES                             57230000
    WANT := VDISPATCH;                                                          57231000
    IAM := 0;                                                                   57232000
    GO TO EXIT;                                                                 57233000
    END CASE 1;                                                                 57234000
%.....57235000
    BEGIN % CASE 2 - RESULTS OF DIRECTORY SEARCH                                57236000
    IF BOOLEAN(SEARCHTOGGLE) THEN % STOP PROCESSING ON NEGATIVE SEARCH          57237000
      IF EVENTS[1] NEQ 7 THEN GOERR(NAMEWORD[0],2); % NOT IN LIBRARY            57238000
    IF (T:=EVENTS[2].[36:6]) GTR NUMOFTYPES THEN T:=0;                          57239000
    SEARCHTYPE:=T;                                                              57240000
    GO TO CASE1;                                                                57241000
    END CASE 2;                                                                 57242000
%.....57243000
    BEGIN % CASE 3 - AFTER COMPILING                                            57244000
    MATCH(NAMEWORD[0],SOURCEFILE)                                               57245000
      BEGIN % COMPILED THE WORKFILE                                             57246000
      OBJECTFILE:=SOURCEFILE.[6:36];                                            57247000
      GOODOBJ :=  TRUE;                                                         57248000
      CANCELCKPT(A[*]);                                                         57249000
      END;                                                                      57250000
    MATCH(VERBWORD,"COMPILE") ELSE GO TO RUNN;                                  57251000
    IAM := 0;                                                                   57252000
    END CASE 3;                                                                 57253000
```

```
      END ALL CASES;                                                                57254000
                                                                                    57255000
      GO TO EXIT;                                                                   57256000
                                                                                    57257000
      ERR: ERRSW:=A[SREG]; WANT:=WAITFOR:=0; IAM:=VERROR;                           57258000
                                                                                    57259000
      EXIT:                                                                         57260000
         END PROCEDURE EXECUTE;                                                     57261000
      %*************************************************************************%58000000
      PROCEDURE LOADIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                             58001000
      %*************************************************************************%58002000
      BEGIN                                                                         58003000
      DEFINE NAMEWORD     = A[BASE]   #,                                            58004000
             TYPEWORD     = A[BASE+1]#,                                             58005000
             RECORDCOUNT  = A[BASE+2]#,                                             58006000
             OBJECTNAME   = A[BASE+3]#,                                             58007000
             DISKTOGGLE   = A[BASE+4]#,                                             58008000
             SAVESIZE     = 5#;                                                     58009000
                                                                                    58010000
      DEFINE ERR(ERR1,ERR2)=                                                        58011000
         BEGIN                                                                      58012000
         ERRSW:=ERR1; MSGPTR:=ERR2; GO TO ERROR;                                    58013000
         END#;                                                                      58014000
                                                                                    58015000
      LABEL CASE3, ERROR, EXIT;                                                     58016000
      REAL T;                                                                       58017000
                                                                                    58018000
      CASE DOING OF                                                                 58019000
         BEGIN                                                                      58020000
            BEGIN   % CASE 0 - SYNTAX CHECK                                         58021000
            IF FILENAME NEQ 0 THEN                                                  58022000
               IF TPCOUNT NEQ 0 OR FILENAME NEQ SOURCEFILE THEN                     58023000
                  IF NOT NOSAVE THEN                                                58024000
                     BEGIN                                                          58025000
                     NOSAVE:=TRUE; ERR("NO SAVE",48);                               58026000
                     END;                                                           58027000
            SREG := BASE - A[BASE];                                                 58028000
            CLEAR(A[BASE],SAVESIZE-1),                                              58029000
            TEMP := SAVESIZE;                                                       58030000
            IF A[SREG].[18:15] NEQ 1 THEN ERR("NAME   ",6);                         58031000
            IF (T:=A[SREG:=SREG+1].[3:3])=0 THEN ERR("NAME   ",6);                  58032000
            IF T GTR 6 THEN ERR(0,42);                                              58033000
            IF FINDAWORD(A[SREG],RESWRDTABLE[1],NUMOFRESWRDS)>0 THEN ERR(0,8);      58034000
            NAMEWORD := A[SREG].[6:42];                                             58035000
            FIND(LL&IAM[33:41:7],0,NAMEWORD,USERCODE,USERCODE);                     58036000
            DOING := 1;                                                             58037000
            WAITFOR := IAM;                                                         58038000
            END  CASE  0;                                                           58039000
         %..................................................................        58040000
            BEGIN % CASE 1 - RESULTS OF SEARCH FOR SOURCE FILE                      58041000
            IF EVENTS[1] NEQ 7 THEN ERR(NAMENCRD,2);                                58042000
            IF (T:=EVENTS[2].[36:6]) LEQ NUMOFTYPES THEN TYPEWORD:=T;               58043000
            RECORDCOUNT := EVENTS[3] + 1; % RECORD COUNT                            58044000
            IF NOT CONCISE THEN GENFILINE(NAMEWORD,TYPETABLE[TYPEWORD]);            58045000
            FIND(LL&IAM[33:41:7],0,NAMEWORD.[6:36],USERCODE,USERCODE);              58046000
            WAITFOR := IAM;                                                         58047000
            DOING := 2;                                                             58048000
            END  CASE  1;                                                           58049000
         %..................................................................        58050000
            BEGIN % CASE 2 - RESULTS OF SEARCH FOR OBJECT FILE OR SETUPFILES        58051000
```

```
      IF NOT BOOLEAN(DISKTOGGLE) THEN                                          58052000
         IF EVENTS[1]=7 THEN OBJECTNAME := NAMEWORD.[6:36];                    58053000
      IF FILESOK THEN CANCELCKPT(A[*]) ELSE                                    58054000
         BEGIN                                                                 58055000
         IF NOT BOOLEAN(DISKTOGGLE) THEN % NO RETRY FOR DISK                   58056000
            BEGIN                                                              58057000
            DISKTOGGLE := 1;                                                   58058000
            WANT := VSETUPFILES;                                               58059000
            DOING := 2;                                                        58060000
            END                                                                58061000
         ELSE                                                                  58062000
            BEGIN                                                              58063000
            ERR("NO DISK",46); % NO USER DISK                                  58064000
            GO TO EXIT;                                                        58065000
            END;                                                               58066000
         END;                                                                  58067000
      IF NOT CONCISE THEN LITOUT("LOADING",NOCRLF);                            58068000
      IF TYPEWORD = 8 THEN % TYPE DATA FILE                                    58069000
         BEGIN                                                                 58070000
         IF NOT CONCISE THEN                                                   58071000
            BEGIN                                                              58072000
            TWXOUT(LL,L[0],0,2);                                               58073000
            L[0] := "ND LOAD" & "E"[1:43:5];                                   58074000
            TWXOUT(LL,L[0],8,1);                                               58075000
            END;                                                               58076000
         WRITEASTERISK := TRUE;                                                58077000
         GO TO CASE3;                                                          58078000
         END;                                                                  58079000
      WORK[3] := NAMEWORD;                                                     58080000
      WORK[0] := 0;                                                            58081000
      WORK[1] := (LL+SYSTEM)  & CONCISEBIT[8:47:1];                            58082000
      WORK[2] := WORK[4] := ERRSW := USERCODE;                                 58083000
      RUN1 := "LOAD   ";                                                       58084000
      RUN2 := "CANDE  ";                                                       58085000
      WANT := VDISPATCH;                                                       58086000
      DISKWRITE(ESP1);                                                         58087000
      WRITEASTERISK := CONCISE;                                                58088000
      EOJMSG        := NOT CONCISE;                                            58089000
      GOODOBJ:=B(SOURCEFILE:=FILENAME:=FILETYPE:=LASTRECORD:=0);               58090000
      DOING := 3;                                                              58091000
      GO TO EXIT;                                                              58092000
      END CASE 2;                                                              58093000
   %.....................................................................58094000
      BEGIN % CASE 3 - RETURN AFTER LOAD OR BRANCH ON DATA FILE                58095000
      IF COMMONCELL.[2:1]=0 THEN % LOAD WAS OK                                 58095100
         BEGIN                                                                 58095200
CASE3:                                                                         58096000
         FILENAME    := SOURCEFILE := NAMEWORD;                                58097000
         FILETYPE    := TYPEWORD;                                              58098000
         GOODOBJ     := (OBJECTFILE:=OBJECTNAME) NEQ 0;                        58099000
         LASTRECORD  := RECORDCOUNT;                                           58100000
         NOSAVE      := FALSE;                                                 58101000
         SEQLAST     := SEQIN := 0;                                            58102000
         INCREMENT   := 100;                                                   58103000
         T:=MAKEFN("1S",LL);                                                   58104000
         MAKEFILE(LL&13[33:41:7],1,T,USERCODE,FILETYPE,0);                     58105000
         END;                                                                  58105100
      IAM := 0;                                                                58106000
      END  CASE  3;                                                            58107000
   END  ALL  CASES;                                                            58108000
```

```
GO TO EXIT;                                                                    58109000
ERROR:                                                                         58110000
   IF ERRSW=0 THEN ERRSW:=A[SREG];                                             58111000
   IAM := VERROR;                                                              58112000
   WANT := WAITFOR := 0;                                                       58113000
EXIT:                                                                          58114000
   END PROCEDURE LOADIT;                                                       58115000
%*************************************************************************    59000000
PROCEDURE SAVER(LCW,A); BOOLEAN LCW; ARRAY A[0];                               59000100
%*************************************************************************    59000200
BEGIN                                                                          59000300
LABEL ERR,CASE1,FINISHED,EXIT;                                                 59000400
REAL T,F;                                                                      59000500
DEFINE DEFAULTSAVEFACTOR = 7#;                                                 59000600
CASE DOING OF                                                                  59000700
   BEGIN                                                                       59000800
      BEGIN % CASE 0 - SYNTAX ANALYSIS                                         59000900
      IF FILENAME=0 THEN % NO WORK FILE                                        59001000
         BEGIN                                                                 59001100
         ERRSW:="NO FILE"; MSGPTR := 1; GO TO ERR;                             59001200
         END;                                                                  59001300
      IF (T:=A[SREG:=BASE-A[BASE]].[18:15]) GTR 1 THEN % TOO MANY PARAMS       59001400
         BEGIN                                                                 59001500
         ERRSW:= A[SREG+2]; MSGPTR := 4; GO TO ERR;                            59001600
         END;                                                                  59001700
      IF T=0 THEN A[BASE] := -1 ELSE                                           59001800
      IF (A[BASE]:=A[SREG+1]).[1:5] NEQ 0 THEN % NOT UNSIGNED NUMBER           59001900
         BEGIN                                                                 59002000
         ERRSW:=A[BASE]; MSGPTR:=4; GO TO ERR;                                 59002100
         END;                                                                  59002200
      TEMP := 1;                                                               59002300
      IF TPCOUNT = 0 THEN GO TO CASE1; % WORK FILE ALREADY UPDATED             59002400
      WANT := VUPDATE;                                                         59002500
      DOING := 1;                                                              59002600
      LITOUT("WAIT=  ",NOCRLF);                                                59002700
      END; % CASE 0                                                            59002800
   %.....................................................................       59002900
      BEGIN % CASE 1 - WORKFILE UPDATED                                        59003000
CASE1:                                                                         59003100
      IF NOT CONCISE THEN GENFILINE(FILENAME,TYPETABLE[FILETYPE]);             59003200
      MATCH(FILENAME,SOURCEFILE) % FILE ALREADY SAVED                          59003300
         BEGIN                                                                 59003400
         FIND(LL&IAM[33:41:7],0,FILENAME,USERCODE,USERCODE);                   59003500
         DOING := 3;                                                           59003600
         WAITFOR := IAM;                                                       59003700
         END                                                                   59003800
      ELSE                                                                     59003900
         BEGIN                                                                 59004000
         T:=LL&VMCPMSG[33:41:7];                                               59004100
         F:=IF A[BASE] LSS 0 THEN DEFAULTSAVEFACTOR ELSE A[BASE];              59004200
         REPLACE(T,SOURCEFILE,USERCODE,                                        59004300
           FILENAME,USERCODE,F&FILETYPE[32:42:6]&UNLOCKTOGGLE[31:47:1]);       59004400
         IF GOODOBJ THEN                                                       59004500
         REPLACE(T,SOURCEFILE,[6:36],USERCODE,                                 59004600
           FILENAME,[6:36],USERCODE,                                           59004700
             F&FILETYPE[32:42:6]&UNLOCKTOGGLE[31:47:1])                        59004710
         ELSE REMOVEFILE(T,FILENAME,[6:36],USERCODE);                          59004800
         WANT:=WAITFOR:=VMCPMSG;                                               59004900
         DOING := PARAM := LIBMSGCTR := 2;                                     59005000
         LIBMTNCE := TRUE;                                                     59005100
```

```
            END;                                                                    59005200
         END; % CASE 1                                                              59005300
      %.....................................................................59005400
         BEGIN % CASE 2 - RESULTS OF FILE REPLACE                                   59005500
         IF A[BASE+1] NEQ 7 THEN % NOT REPLACED - PROBABLY FILE IN USE              59005600
            BEGIN                                                                   59005700
            ERRSW:="IGNORED"; MSGPTR := 22; GO TO ERR;                              59005800
            END;                                                                    59005900
         T:=MAKEFN("1S",LL);                                                        59006000
         MAKEFILE(LL&13[33:41:7],1,T,USERCODE,FILETYPE,0);                          59006100
         SOURCEFILE:=FILENAME;                                                      59006200
         IF GOODOBJ THEN OBJECTFILE:=FILENAME.[6:36];                               59006300
         IF FILESOK THEN CANCELCKPT(A[*]);                                          59006400
      FINISHED:                                                                     59006500
         LITOUT("SAVED. ",2=CONCISEBIT);                                            59006600
         WRITEASTERISK := FALSE;                                                    59006700
         IAM := 0;                                                                  59006800
         END; % CASE 2                                                              59006900
      %.....................................................................59007000
         BEGIN % CASE 3 - RESULTS OF DIRECTORY SEARCH                               59007100
         IF EVENTS[1] LEQ 0 THEN                                                    59007200
            BEGIN                                                                   59007300
            ERRSW := FILENAME; MSGPTR := 67; GO TO ERR;                             59007400
            END;                                                                    59007500
        IF EVENTS[2].[36:6] NEQ FILETYPE OR A[BASE] GEQ 0 OR                        59007600
           BOOLEAN(UNLOCKTOGGLE) THEN % CHANGE HEADER                               59007610
            BEGIN                                                                   59007700
            LLDISKREAD := A[BASE+1] := EVENTS[2].[18:15]; % HEADER ADDRESS          59007800
            WANT := VDISKREAD;                                                      59007900
            TEMP := 2;                                                              59008000
            DOING := 4;                                                             59008100
            END                                                                     59008200
         ELSE GO TO FINISHED;                                                       59008300
         END; % CASE 3                                                              59008400
      %.....................................................................59008500
         BEGIN % CASE 4 - HEADER IN CORE                                            59008600
         WORK[4].[36:6]:=FILETYPE;                                                  59008700
         IF A[BASE] GEQ 0 THEN WORK[3].[2:10]:=A[BASE]; % SAVE FACTOR               59008800
         IF BOOLEAN(UNLOCKTOGGLE) THEN                                              59008810
            IF WORK[5].[1:1]=0 THEN % NOT GUARDED                                   59008820
               WORK[5] := WORK[6] := 12;                                            59008830
         DISKWRITE(A[BASE+1]);                                                      59008900
         IF GOODOBJ AND (A[BASE] GEQ 0 OR BOOLEAN(UNLOCKTOGGLE)) THEN               59009000
            BEGIN % CHANGE OBJECT HEADER                                            59009100
            FIND(LL&IAM[33:41:7],0,FILENAME.[6:36],USERCODE,USERCODE);              59009200
            DOING := 5;                                                             59009300
            WAITFOR := IAM;                                                         59009400
            END                                                                     59009500
         ELSE GO TO FINISHED;                                                       59009600
         END; % CASE 4                                                              59009700
      %.....................................................................59009800
         BEGIN % CASE 5 - RESULTS OF OBJECT DIRECTORY SEARCH                        59009900
         IF EVENTS[1] LEQ 0 THEN GO TO FINISHED;                                    59010000
         LLDISKREAD := A[BASE+1] := EVENTS[2].[18:15];                              59010100
         WANT := VDISKREAD;                                                         59010200
         DOING := 6;                                                                59010300
         END; % CASE 5;                                                             59010400
      %.....................................................................59010500
         BEGIN % CASE 6 - OBJECT HEADER IN CORE                                     59010600
         WORK[3].[2:10]:=A[BASE];                                                   59010700
```

```
        IF BOOLEAN(UNLOCKTOGGLE) THEN                                   59010710
           IF WORK[5].[1:1]=0 THEN % NOT GUARDED                        59010720
              WORK[5] := WORK[6] := 12;                                 59010730
        DISKWRITE(A[BASE+1]);                                           59010800
        GO TO FINISHED;                                                 59010900
        END; % CASE 6                                                   59011000
     END ALL CASES;                                                     59011100
GO TO EXIT;                                                             59011200
ERR:                                                                    59011300
WANT:=WAITFOR:=0; IAM:=VERROR;                                          59011400
EXIT:                                                                   59011500
END PROCEDURE SAVER;                                                    59011600
%***************************************************************************61000000
PROCEDURE     REMOVE(LCW,A);      BOOLEAN LCW;   ARRAY A[0];            61000100
%***************************************************************************61000200
        BEGIN                                                           61000300
BOOLEAN          S, O;                                                  61000400
REAL             WC,PC,I,X;                                             61000500
LABEL            WRKFILE,ERR,EXIT;                                      61000600
                 IF BOOLEAN(DOING) THEN %CHECK RESULTS.                 61000610
           BEGIN   WC:=A[SREG];                                         61000618
                 FOR I:=0 STEP 1 UNTIL WC DO                            61000626
           BEGIN                                                        61000634
                 IF X:=A[BASE+I] NEQ 6 THEN                             61000642
                 IF X.[6:6] NEQ 0 THEN                                  61000650
           BEGIN                                                        61000658
                 LITOUT("ERR:   ",NOCRLF);                              61000666
                 LITOUT(X,CRLF);  MSGPTR:=2;                            61000674
           END   IF;  END FOR;                                          61000682
                 IAM:=0;  GO EXIT;                                      61000690
           END   CHECKING RESULTS;                                      61000698
                 S := O := B(WC:=1);                                    61000700
                 IF PC := A[SREG:=BASE-A[BASE]].FF = 0 THEN             61000800
        BEGIN                                                           61000900
WRKFILE:           FILENAME := IAM := 0;                                61001000
                   TPCOUNT:=SOURCEFILE:=0;                              61001100
                   GO EXIT;                                             61001200
        END;                                                            61001300
                 IF PC GTR 10 THEN A[SREG+1] := "TOOMANY";              61001400
                 WHILE I LSS PC DO                                      61001500
           BEGIN                                                        61001600
                 I := I+1;  X:=A[SREG+I].[6:42];                        61001700
                 IF X.[42:6] NEQ " " THEN % ILLEGAL PARAMETER.          61001800
           BEGIN                                                        61001900
                 ERRSW := X;                                            61002000
                 MSGPOINTER := 42; % 6 CHRS MAX                         61002100
ERR:             ERROR(SREG+I,LCW,A[*]);                                61002200
                 GO EXIT;                                               61002300
           END   IF ILLEGAL PARAMETER;                                  61002400
                 MATCH(X,"SOURCE ")BEGIN S:=TRUE; O:=FALSE; END ELSE    61002500
                 MATCH(X,"OBJECT ")BEGIN O:=TRUE; S:=FALSE; END ELSE    61002600
           BEGIN % IF WE GOT HERE WORD IS NOT SOURCE OR OBJECT.          61002700
                 MATCH(X, SOURCEFILE) GOERR("WRKFILE", 14);             61002800
                 IF YOUFINDAVERB(X&7[3:45:3],VERBTABLE[0],NUMOFVERBS) THEN 61002810
                    GOERR(X,5);                                         61002820
                 IF S THEN BEGIN A[BASE+WC]:=X;          INC(WC); END;  61002900
                 IF O THEN BEGIN A[BASE+WC]:=X.[6:36]; INC(WC); END;    61003000
           END   IF A LEGAL PARAMETER;                                  61003100
           END   OF ALL PARAMETERS;                                     61003200
                 IF WC LEQ 1 THEN %NO FILE NAMES SPECIFIED              61003210
```

```
            BEGIN                                                                61003220
                 IF 0 THEN GOODOBJ:=B(OBJECTFILE:=0)                             61003230
                 ELSE GO TO WRKFILE;                                             61003240
                 IAM:=0; GO EXIT;                                                61003250
            END;                                                                 61003260
                 DOING:=1;  WANT:=WAITFOR:=VMCPMSG;                              61003900
                 LIBMTNCE:=TRUE; A[INC(SREG)]:=WC:=PARAM:=LIBMSGCTR:=WC-1;       61004000
                 FOR I:=1 STEP 1 UNTIL WC DO                                     61004100
                    REMOVEFILE(LL&WAITFOR[33:41:7],A[BASE+I],                    61004200
                         USERCODE);                                              61004300
          EXIT:                                                                  61004400
               END  OF REMOVE PROCEDURE;                                         61004500
      %******************************************************************************%62000000
      PROCEDURE      CHANGE(LCW,A);   BOOLEAN LCW;    ARRAY A[0];              62000100
        BEGIN                                                                    62000200
      %*********  START OF CHANGE  CODE                                         62000300
      LABEL  EXIT;                                                               62000400
      REAL T;                                                                    62000410
         TEMP := 4;                                                              62000500
         CASE DOING OF                                                           62000600
        BEGIN                                                                    62000700
        BEGIN   % CASE 0                                                         62000800
         CASE CHANGEWHICH(A[*]) OF                                               62000900
      BEGIN                                                                      62001000
        BEGIN                                                                    62001100
         IAM := VERROR;                                                          62001200
         GO EXIT                                                                 62001300
        END;                                                                     62001400
        BEGIN   % WHICH=1--WORKFILE TYPE                                         62001500
         IF FILENAME = 0 THEN GOERR("NO FILE",1);                                62001600
          IF FILETYPE=8 AND A[BASE+1] NEQ 8 THEN GOERR("DATA    ",61);           62001650
         FILETYPE := A[BASE+1];                                                  62001700
         TEMP := MAKEFN("1S",LL);                                                62001800
         FIND(LL&IAM[33:41:7],0,TEMP,USERCODE,USERCODE);                         62001900
         TEMP := 3;                                                              62002000
         DOING := 5;                                                             62002100
         WAITFOR := IAM;                                                         62002200
        END;                                                                     62002300
        BEGIN   % WHICH=2--FILENAME TYPE                                         62002400
         FIND(LL&IAM[33:41:7],0,A[BASE],USERCODE,USERCODE);                      62002500
         DOING := 1;                                                             62002600
         WAITFOR := IAM;                                                         62002700
        END;                                                                     62002800
        BEGIN   % WHICH=3--NAME TO NAME                                          62002900
         FIND(LL&IAM[33:41:7],0,A[BASE+1],USERCODE,USERCODE);                    62003000
         DOING := 3;  WAITFOR := IAM;                                            62003100
        END;                                                                     62003200
        BEGIN   % WHICH=4--LOCK                                                  62003300
         GOERR("LOCK    ",15);                                                   62003400
         COMMENT                                                                 62003500
           PUT                                                                   62003600
             LOCK                                                                62003700
               STUFF                                                             62003800
                 HERE;                                                           62003900
        END;                                                                     62004000
        BEGIN   % WHICH=5--PASSWORD                                              62004100
         IF LL=0 THEN GOERR("PASWORD",49);                                       62004110
         IAM := VCHNGPSWD;                                                       62004200
         DOING := 0;                                                             62004300
         GO EXIT                                                                 62004400
```

```
      END;                                                                  62004500
      BEGIN  % WHICH=6 -- CHANGE NAME...                                    62004520
       IF LL=0 THEN GOERR("NAME   ",49);                                    62004530
           IAM:=VCHNGNAME; GO EXIT;                                         62004540
      END CASE 6;                                                           62004560
      BEGIN  % WHICH = 7, CHANGE SAVE "FACTOR"                              62004562
       IF A[BASE+1]=2 THEN A[BASE]:=0&A[BASE][12:6:36];                     62004564
       FIND(LL&IAM[33:41:7],0,A[BASE],USERCODE,USERCODE);                   62004566
       DOING := 7;                                                          62004568
       WAITFOR := IAM;                                                      62004570
      END;                                                                  62004572
      END  WHICH  CASES;                                                    62004600
      END  CASE  0;                                                         62004700
      BEGIN   % CASE 1- GET HEADER(CHANGE TYPE)                             62004800
       T:=(IF SCHEDULINE AND BOOLEAN(SCHEDNAME.[1:1]) THEN 0 ELSE 7);       62004900
       IF EVENTS[1] LSS T THEN GOERR(A[BASE],2);                            62004910
       LLDISKREAD := A[BASE+2] := EVENTS[2].FF;                             62005000
       WANT := VDISKREAD;                                                   62005100
       DOING := 2;  TEMP := 3;                                              62005200
      END  CASE  1;                                                         62005300
    BEGIN   % CASE 2                                                        62005400
       WORK[4].[36:6] := A[BASE+1];                                         62005500
       DISKWRITE(A[BASE+2]);                                                62005600
       IF SCHEDULINE THEN                                                   62005610
          IF BOOLEAN(SCHEDNAME.[1:1]) THEN % TERMINATING SCHEDULE           62005620
             BEGIN                                                          62005630
             IAM := WANT := WAITFOR := 0;                                   62005640
             SCHEDGOTO(-1);                                                 62005650
             GO TO EXIT;                                                    62005660
             END;                                                           62005670
       MATCH(A[BASE],FILENAME) IF FILETYPE NEQ 8 THEN                       62005700
      BEGIN  FILETYPE := A[BASE+1];                                         62005800
       MATCH(FILENAME,SOURCEFILE)                                           62005900
       ELSE                                                                 62006000
      BEGIN  FIND(LL&IAM[33:41:7],0,SOURCEFILE,USERCODE,USERCODE);          62006100
        DOING := 5;  WAITFOR := IAM;                                        62006200
        GO EXIT                                                             62006300
      END;                                                                  62006400
      END;   IAM := 0;                                                      62006500
      END  CASE  2;                                                         62006600
      BEGIN   % CASE 3 - CHANGING NAMES                                     62006700
       IF EVENTS[1] GEQ 0 THEN GOERR(A[BASE+1],3);                          62006800
       A[BASE+4] := (A[BASE+2] := A[BASE+1]).[6:36];                        62006900
       A[BASE+3] := (A[BASE+1] := A[BASE]).[6:36];                          62007000
       CHANGEFILE(LL&VMCPMSG[33:41:7],A[BASE+1],USERCODE,                   62007100
         A[BASE+2],USERCODE);                                               62007200
       CHANGEFILE(LL&VMCPMSG[33:41:7],A[BASE+3],USERCODE,                   62007300
         A[BASE+4],USERCODE);                                               62007400
       TEMP := 3;                                                           62007500
       WANT := WAITFOR := VMCPMSG;                                          62007600
       LIBMINCE := TRUE;                                                    62007700
       PARAM := LIBMSGCTR := 2;                                             62007800
       DOING := 4;                                                          62007900
      END  CASE  3;                                                         62008000
      BEGIN   % CASE 4                                                      62008100
       IF A[BASE+3] NEQ 7 THEN GOERR("CANNOT ",2);                          62008200
       MATCH(FILENAME,A[BASE+1])                                            62008300
      BEGIN                                                                 62008400
         FILENAME := A[BASE+2];                                             62008500
         MATCH(A[BASE+1],SOURCEFILE)                                        62008600
```

DOING=3

DOING=4

```
        BEGIN  SOURCEFILE := A[BASE+2];                                          62008700
             TEMP := MAKEFN("1S",LL);                                            62008800
             MAKEFILE(LL&13[33:41:7],1,TEMP,USERCODE,FILETYPE,0);                62008900
             IF GOODOBJ THEN OBJECTFILE := A[BASE+4];                            62009000
        END;                                                                     62009100
        END;                                                                     62009200
         IAM := 0;                                                               62009300
        END  CASE  4;                                                            62009400
        BEGIN    % CASE 5 - CHANGING SOURCEFILE TYPE                             62009500
         IF EVENTS[1] NEQ 7 THEN GOERR("ARRGH  ",24);                            62009600
         LLDISKREAD := A[BASE+2] := EVENTS[2].FF;                                62009700
         WANT := VDISKREAD;                                                      62009800
         DOING := 6;  TEMP := 3;                                                 62009900
        END  CASE  5;                                                            62010000
        BEGIN    % CASE 6 - FINISH SOURCEFILE TYPE                               62010100
         WORK[4].[36:6] := A[BASE+1];                                            62010200
         DISKWRITE(A[BASE+2]);                                                   62010300
         IAM := 0;                                                               62010400
        END  CASE  6;                                                            62010500
        BEGIN  % CASE 7 - CHANGING SAVE FACTOR                                   62010600
         IF EVENTS[1] NEQ 7 THEN GOERR(A[BASE],2);                               62010700
         LLDISKREAD := A[BASE+3] := EVENTS[2].FF; % SAVE ADDRESS                 62010800
         WANT := VDISKREAD;                                                      62010900
         DOING := 8;                                                             62011000
        END; % CASE 7                                                            62011100
        BEGIN  % CASE 8 - HEADER NOW IN CORE                                     62011200
         WORK[3].[2:10] := A[BASE+2]; % REPLACE SAVE FACTOR                      62011300
         DISKWRITE(A[BASE+3]); % REPLACE HEADER                                 62011400
         IF A[BASE+1] NEQ 0 THEN                                                 62011500
        BEGIN IAM := 0; GO TO EXIT;                                              62011600
        END;                                                                     62011700
         T := 0 & A[BASE][12:6:36]; % OBJECT FILE NAME                           62011800
         FIND(LL&IAM[33:41:7],0,T,USERCODE,USERCODE);                            62011900
         WAITFOR := IAM;                                                         62012000
         DOING := 9;                                                             62012100
        END; % CASE 8                                                            62012200
        BEGIN  % CASE 9                                                          62012300
         IF EVENTS[1] NEQ 7 THEN % NO OBJECT VERSION                             62012400
        BEGIN IAM := 0; GO TO EXIT;                                              62012500
        END;                                                                     62012600
         LLDISKREAD := A[BASE+3] := EVENTS[2].FF; % SAVE ADDRESS                 62012700
         WANT := VDISKREAD;                                                      62012800
         DOING := 10;                                                            62012900
        END; % CASE 9;                                                           62013000
        BEGIN  % CASE 10 - HEADER NOW IN CORE                                    62013100
         WORK[3].[2:10] := A[BASE+2]; % REPLACE SAVE FACTOR                      62013200
         DISKWRITE(A[BASE+3]); % REPLACE HEADER                                 62013300
         IAM := 0;                                                               62013400
        END; % CASE 10                                                           62013500
        END ALL CASES;                                                           62013600
    EXIT:                                                                        62013700
    END CHANGE VERB;                                                             62013800
    %************************************************************************%  63000000
    PROCEDURE     RENAMEIT (LCW, A);  BOOLEAN LCW;  ARRAY A[0];                  63000100
    %************************************************************************%  63000200
              BEGIN                                                              63000300
    LABEL          EXIT;                                                        63000400
                   CASE DOING OF                                                 63000500
              BEGIN                                                              63000600
              BEGIN    % CASE 0                                                  63000700
```

```
                IF FILENAME = 0 THEN  GOERR    ("NOFILE ", 1);                  63000800
                SREG := BASE - A[BASE];                                         63000900
                IF A[SREG].FF=0 THEN GOERR("FILENAM",6);                        63001000
                IF A[INC(SREG)].[3:3] = 0 THEN GOERR(A[SREG],8);                63001100
                IF A[SREG].[3:3]=7 THEN GOERR(A[SREG],42);                      63001150
                IF FINDAWORD(A[SREG], RESWRDTABLE[1],                           63001200
                     NUMOFRESWRDS) NEQ 0 THEN GOERR(A[SREG],29);                63001300
                FIND (LL&IAM[33:41:7],0,A[SREG].[6:42],                         63001400
                          USERCODE, USERCODE);                                  63001500
                DOING := 1;                                                     63001600
                WAITFOR := IAM;                                                 63001700
           END  CASE  0;                                                        63001800
           BEGIN    % CASE 1                                                    63001900
                IF EVENTS[1] GEQ 0 THEN GOERR(A[SREG],3);                       63002000
                MATCH(FILENAME,SOURCEFILE)                                      63002100
           BEGIN                                                                63002200
                 WANT := VCOPY;                                                 63002300
           END;                                                                 63002400
                 FILENAME := A[SREG].[6:42]&" "[42:42:6];                       63002500
                IAM := 0;                                                       63002600
           END  CASE  1;                                                        63002700
           END  ALL  CASES;                                                     63002800
      EXIT:                                                                     63002900
           END  OF  RENAMEIT;                                                   63003000
%***************************************************************************64000000
PROCEDURE WHATSIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                              64000100
%***************************************************************************64000200
BEGIN                                                                           64000300
LABEL CASE1,EXIT;                                                               64000400
REAL TM,TP,DATE;                                                                64000500
%.....................................................................          64000600
STREAM PROCEDURE MSG(L,FILNAM,WRKTOG,TYPE,NREKS,DATE,TM,SAVEF);                 64000700
%.....................................................................          64000800
VALUE FILNAM,WRKTOG,TYPE,NREKS,DATE,TM,SAVEF;                                   64000900
   BEGIN LOCAL SV; LABEL EXIT;                                                  64001000
   DI:=L; DS:=8LIT" "; SI:=L; DS:=9WDS;                                         64001100
   DI:=L; DS:=5LIT"FILE "; SI:=LOC FILNAM; SI:=SI+1;                            64001200
   7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                                     64001300
   WRKTOG(DS:=11LIT" (WORKFILE)");                                              64001400
   DS:=7LIT", TYPE "; SI:=LOC TYPE; SI:=SI+1;                                   64001500
   7(IF SC=" " THEN JUMP OUT ELSE DS:=CHR);                                     64001600
   DS:=2LIT", "; SV:=DI;                                                        64001700
   SI:=LOC NREKS; DS:=8DEC; DI:=SV; DS:=7FILL; SI:=SV; DI:=SV;                  64001800
   8(IF SC=" " THEN SI:=SI+1 ELSE DS:=CHR);                                     64001900
   DS:=8LIT" RECORDS";                                                          64002000
   WRKTOG(JUMP OUT TO EXIT);                                                    64002100
   DS:=10LIT", CREATED "; SI:=LOC DATE; DS:=8CHR;                               64002200
   SI:=LOC TM; BS:=2LIT" ("; SV:=DI; DS:=4DEC;                                  64002300
   DI:=SV; DS:=3FILL; SI:=SV; DI:=SV;                                           64002400
   4(IF SC=" " THEN SI:=SI+1 ELSE DS:=CHR); DS:=2LIT") ";                       64002500
   DS:=3LIT"SF="; SV:=DI;                                                       64002600
   SI:=LOC SAVEF; BS:=4DEC; DI:=SV; DS:=3FILL; SI:=SV; DI:=SV;                  64002700
   4(IF SC=" " THEN SI:=SI+1 ELSE DS:=CHR);                                     64002800
EXIT: DS:=8LIT" ";                                                              64002900
   END STREAM PROCEDURE MSG;                                                    64003000
%.....................................................................          64003100
CASE DOING OF                                                                   64004400
   BEGIN                                                                        64004500
      BEGIN   % CASE 0                                                          64004600
      SREG := BASE - A[BASE];                                                   64004700
```

```
      TEMP := 2;                                                          64004800
      IF A[BASE] := A[SREG].FF = 0 THEN % NO PARAMS, WANTS WRKFIL         64004900
         BEGIN                                                            64005000
         IF FILENAME = 0 THEN GOERR("NO FILE",1); % NO WORKFILE           64005100
         IF TPCOUNT GTR 0 THEN % UPDATE REQUIRED                          64005200
            BEGIN                                                         64005300
            WANT := VUPDATE;                                              64005400
            LITOUT("WAIT.  ",1);                                          64005500
            DOING := 1;                                                   64005600
            GO TO EXIT;                                                   64005700
            END % IF WORKFILE NEEDS UPDATE                                64005800
         ELSE A[BASE+1] := SOURCEFILE;                                    64005900
         END % IF WORKFILE REQUESTED                                      64006000
      ELSE IF A[BASE] GTR 1 THEN % CHECK FOR "OBJECT"                     64006100
      MATCH(A[SREG:=SREG+1].[6:42],"OBJECT ")                             64006200
      A[BASE+1]:=0 & A[SREG+1][12:6:36] ELSE GOERR(A[SREG],8)             64006300
      ELSE A[BASE+1] := A[SREG+1].[6:42];                                 64006400
      GO TO CASE1;                                                        64006500
      END; % CASE 0                                                       64006600
   %.....................................................................64006700
      BEGIN  % CASE 1                                                     64006800
      A[BASE+1] := SOURCEFILE;                                            64006900
CASE1:                                                                    64007000
      FIND(LL&IAM[38:41:7],0,A[BASE+1],USERCODE,USERCODE);                64007100
      WAITFOR := IAM;                                                     64007200
      DOING := 2;                                                         64007300
      END; % CASE 1                                                       64007400
   %.....................................................................64007500
      BEGIN  % CASE 2                                                     64007600
      IF EVENTS[1] LEQ 0 THEN GOERR(A[BASE+1],2);                         64007700
      LLDISKREAD := EVENTS[2].FF; % HEADER ADDRESS                        64007800
      WANT := VDISKREAD;                                                  64007900
      DOING := 3;                                                         64008000
      END; % CASE 2                                                       64008100
   %.....................................................................64008200
      BEGIN  % CASE 3,  HEADER NOW IN CORE                                64008300
      DATE := DATECONV(WORK[3].[30:18]);                                  64008400
      IF TP:=WORK[4].[36:6] GTR NUMOFTYPES THEN TP:=0;                    64008500
      TM:=WORK[1].[25:23]; % CREATION TIME                                64008600
      TM:=TM DIV 216000*100+TM DIV 3600 MOD 60 DIV 1;                     64008700
      IF A[BASE] = 0 THEN % WANTS WORKFILE SPECS                          64008800
      MSG(L,FILENAME,TRUE,TYPETABLE[FILETYPE],WORK[7]+1,                  64008900
      DATE,TM,WORK[3].[2:10])                                             64009000
      ELSE % WANTS NAMED FILE SPECS                                       64009100
      MSG(L,A[BASE+1],FALSE,TYPETABLE[TP],WORK[7]+1,                      64009200
      DATE,TM,WORK[3].[2:10]);                                            64009300
      TWXOUT(LL,L[0],80,1);                                               64009400
      IAM := 0;                                                           64009500
      END CASE 3;                                                         64009600
   END ALL CASES;                                                         64009700
EXIT:                                                                     64009800
END PROCEDURE WHATSIT;                                                    64009900
%*************************************************************************65000000
PROCEDURE TYPEIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                         65001000
%*************************************************************************65002000
   BEGIN                                                                  65003000
   REAL T;                                                                65004000
   LABEL EXIT;                                                            65005000
                                                                          65006000
   IF FILENAME=0 THEN GOERR("NO FILE",1);                                 65007000
```

```
    T := A[SREG:=BASE=A[BASE]].[18:15]; % PARAMETER COUNT                    65008000
    IF T GTR 1 THEN GOERR(A[SREG+2],8);                                     65009000
    IF A[SREG:=SREG+1].[3:3]=0 THEN GOERR(A[SREG],8);                       65010000
    IF T:=FINDAWORD(A[SREG],TYPETABLE[1],NUMOFTYPES) NEQ 0 THEN             65011000
       BEGIN % ENTRY IS IN THE TYPE TABLE                                   65012000
       T:=ABS(T);                                                           65013000
       IF FILETYPE=8 AND T NEQ 8 THEN GOERR(A[SREG],61);                    65014000
       IF CHECKBIT(T-1,RESTRICTEDLANGUAGES) THEN                            65014100
          GOERR(TYPETABLE[T].[6:42], 49);                                   65014200
       FILETYPE := T;                                                       65015000
       IAM := 0;                                                            65016000
       END                                                                  65017000
    ELSE GOERR(A[SREG],8);                                                  65018000
EXIT:                                                                       65019000
    END PROCEDURE TYPEIT;                                                   65020000
%***********************************************************              67000000
PROCEDURE  GUARDIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                         67000100
%***********************************************************              67000200
  BEGIN                                                                     67000300
LABEL  T;                                                                   67000350
   IF TPCOUNT NEQ 0 THEN                                                    67000400
  BEGIN                                                                     67000500
     LITOUT("WAIT.  ",NOCRLF);                                              67000600
     WANT := VUPDATE;                                                       67000700
  END  ELSE                                                                 67000800
  BEGIN                                                                     67000900
     RUN1 := "GUARD  ";                                                     67001000
     RUN2 := "DISK   ";                                                     67001100
     IAM := VDISPATCH;                                                      67001200
     LITOUT("WAIT   ",NOCRLF);                                              67001210
  END;                                                                      67001300
  END  GUARDIT;                                                             67001400
%***********************************************************************68000000
PROCEDURE LOCKIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                           68000100
%***********************************************************************68000200
BEGIN                                                                       68000300
REAL I,PC,IMAX,WORD;                                                        68000400
BOOLEAN LOK,UNLK,PUB,WORKFILE,NAM1,NAM2,SRC,OBJ,WTH;                        68000500
LABEL RESTRT,SELECT,SECUR,CHECK,ERR1,ERR2,EXIT;                             68000600
CASE DOING OF                                                               68000700
   BEGIN                                                                    68000800
      BEGIN % CASE 0 - SYNTAX ANALYSIS                                      68000900
      PC := A[SREG:=BASE=A[BASE]].[18:15]; % PARAMETER COUNT                68001000
      I := VERBTABLE[A[SREG].[9:9]].[6:42]; % VERB NAME                     68001100
      MATCH(I,"UNLOCK ") UNLK := TRUE ELSE                                  68001110
      MATCH(I,"PUBLIC ") PUB  := TRUE ELSE LOK := TRUE;                     68001120
      MATCH(FILENAME,0) ELSE % GOOD WORKFILE                                68001200
         BEGIN                                                              68001300
         A[BASE+1] := FILENAME; % DEFAULT FILE NAME                         68001400
         WORKFILE := TRUE;                                                  68001500
         END;                                                               68001600
      IF PC=0 THEN % NO PARAMETERS                                          68001700
         BEGIN                                                              68001800
         IF NOT WORKFILE THEN GOERR("NOFILE ",1); % NO WORK FILE            68001900
         NAM1:=TRUE; A[BASE]:=0; % ASSUME WORK FILE NAME                    68002000
         GO TO SELECT; % NO FURTHER SYNTAX ANALYSIS                         68002100
         END;                                                               68002200
       A[BASE]:=(I:=SREG+1)&(IMAX:=SREG+PC)[18:33:15]&                      68002300
       R(PUB)[15:47:1]&R(LOK)[16:47:1]&R(UNLK)[17:47:1];                    68002310
RESTRT:                                                                     68002320
```

```
FOR I:=I STEP 1 UNTIL IMAX DO                                                  68002400
   BEGIN                                                                       68002500
   IF A[I].[3:3]=0 THEN GO ERR1; % NO LETTER STRING                            68002600
   WORD := A[I].[6:42];                                                        68002700
   MATCH(WORD,"SOURCE ")                                                       68002800
      BEGIN                                                                    68002900
      IF SRC OR OBJ OR WTH THEN GO ERR1; % INVALID PARAMETER                   68003000
      SRC := TRUE;                                                             68003100
      END                                                                      68003200
   ELSE MATCH(WORD,"OBJECT ")                                                  68003300
      BEGIN                                                                    68003400
      IF SRC OR OBJ OR WTH THEN GO ERR1; % INVALID PARAMETER                   68003500
      OBJ := TRUE;                                                             68003600
      END                                                                      68003700
   ELSE MATCH(WORD,"WITH   ")                                                  68003800
      BEGIN                                                                    68003900
      IF UNLK OR PUB OR WTH THEN GO ERR1; % INVALID PARAMETER                  68004000
      IF NOT(NAM1 OR WORKFILE) THEN GOERR("NOFILE ",1);                        68004100
      NAM1 := WTH := TRUE; % LOCK THE WORK FILE IF NAME NOT GIVEN              68004200
      END                                                                      68004300
   ELSE IF WTH THEN % LOOKING FOR GUARD FILE NAME                              68004400
      BEGIN                                                                    68004500
      IF NAM2 THEN GO ERR1; % NAME ALREADY GIVEN                               68004600
      A[BASE+2] := WORD; % SAVE GUARD FILE NAME                                68004700
      NAM2 := TRUE;                                                            68004800
      END                                                                      68004900
   ELSE IF NOT NAM1 THEN % NAME OF FILE TO BE LOCKED                           68005000
      BEGIN                                                                    68005100
      A[BASE+1] := WORD;                                                       68005200
      NAM1 := TRUE;                                                            68005300
      END                                                                      68005400
   ELSE                                                                        68005500
      BEGIN                                                                    68005510
      A[BASE].[33:15]:=I; GO TO SELECT;                                        68005520
      END;                                                                     68005530
   END I LOOP;                                                                 68005600
A[BASE]:=0; % END OF PARAMETER LIST                                            68005610
SELECT:                                                                        68005700
   IF NOT NAM1 OR (WTH AND NOT NAM2) THEN GOERR("INCMPLT",6);                  68005800
   IF UNLK THEN A[BASE+3]:=A[BASE+4]:=3"14" ELSE                               68005900
   IF LOK  THEN A[BASE+3]:=A[BASE+4]:=    0 ELSE                               68005910
      BEGIN                                                                    68005920
      A[BASE+3]:=3"14"; A[BASE+4]:=0;                                          68005930
      END;                                                                     68005940
   IF WTH THEN % CHECK FOR GUARD FILE                                          68006000
      BEGIN                                                                    68006100
      A[BASE+5] := REAL(SRC) & REAL(OBJ)[46:1]; % SAVE TOGGLES                 68006200
      FIND(LL&IAM[33:7],0,A[BASE+2],USERCODE,USERCODE);                        68006300
      TEMP := 6;                                                               68006400
      DOING := 1;                                                              68006500
      WAITFOR := IAM;                                                          68006600
      GO TO EXIT;                                                              68006700
      END; % IF "WTH"                                                          68006800
SECUR:                                                                         68006900
   IF NOT OBJ THEN SECURE(A[BASE+1],A[BASE+3],A[BASE+4]); % SOURCE             68007000
   IF NOT SRC THEN SECURE(A[BASE+1].[6:36],A[BASE+3],A[BASE+4]); %OBJ          68007100
   TEMP := 1;                                                                  68007200
   PARAM := IF SRC OR OBJ THEN 1 ELSE 2;                                       68007300
   LIBMSGCTR := PARAM;                                                         68007400
   LIBMTNCE := TRUE;                                                           68007500
```

```
      DOING := 2;                                                          68007600
      WANT := WAITFOR := VMCPMSG;                                          68007700
      GO TO EXIT;                                                          68007800
      END CASE 0;                                                          68007900
    %.....................................................................68008000
      BEGIN % CASE 1 - RESULTS OF DIRECTORY SEARCH                         68008100
      IF EVENTS[1] NEQ 7 THEN % GUARD FILE NOT PRESENT                     68008200
         BEGIN                                                             68008300
         WORD := -A[BASE+2];                                               68008400
         MSGPTR := 36;                                                     68008500
         GO ERR2;                                                          68008600
         END;                                                              68008700
      IF EVENTS[2].[36:6] NEQ 9 THEN % NOT "LOCK" FILE                     68008800
         BEGIN                                                             68008900
         WORD := -A[BASE+2];                                               68009000
         MSGPTR := 63;                                                     68009100
         GO ERR2;                                                          68009200
         END;                                                              68009300
      OBJ := BOOLEAN(A[BASE+5].[46:1]);                                    68009400
      SRC := BOOLEAN(A[BASE+5].[47:1]);                                    68009500
      A[BASE+3] := -A[BASE+2]; % GUARD FILE FIRST NAME                     68009600
      A[BASE+4] := USERCODE;  % GUARD FILE SECOND NAME                     68009700
      GO TO SECUR;                                                         68009800
      END CASE 1;                                                          68009900
    %.....................................................................68010000
      BEGIN % CASE 2 - RESULTS OF LIBRARY MAINTENANCE                      68010100
      IF A[BASE+1] NEQ 7 THEN % SECURITY MAINTENANCE IGNORED               68010200
         BEGIN                                                             68010300
         WORD := A[BASE+1];                                                68010400
         MSGPTR := 36;                                                     68010500
         GO ERR2;                                                          68010600
         END;                                                              68010700
CHECK:                                                                     68010710
         IF A[BASE]=0 THEN IAM:=0 ELSE                                     68010800
         BEGIN                                                             68010810
         I:=A[BASE].[33:15]; IMAX:=A[BASE].[18:15];                        68010820
         PUB :=B(A[BASE].[15:1]); LOK:=B(A[BASE].[16:1]);                  68010830
         UNLK:=B(A[BASE].[17:1]);                                          68010840
         GO TO RESTRT;                                                     68010850
         END;                                                              68010860
       GO TO EXIT;                                                         68010900
       END CASE 2;                                                         68011000
    END ALL CASES;                                                         68011100
ERR1:                                                                      68011200
ERRSW := A[I];                                                             68011300
MSGPTR := 8;                                                               68011400
IAM := VERROR;                                                             68011500
GO TO EXIT;                                                                68011600
ERR2:                                                                      68011700
LITOUT("ERR:   ",NOCRLF);                                                  68011800
LITOUT(WORD,CRLF);                                                         68011900
GO TO CHECK; % CHECK FOR MORE PARAMETERS                                   68012000
EXIT:                                                                      68012100
END PROCEDURE LOCKIT;                                                      68012200
%*******************************************************************69000000
PROCEDURE  TAPEIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                         69000100
%*******************************************************************69000200
BEGIN                                                                      69000300
REAL  T,WORD;                                                              69000400
BOOLEAN  SQ;                                                               69000500
```

```
LABEL  EXIT;                                                                    69000600
IF SCHEDULINE THEN  GOERR("TAPE    ",40);                                       69000700
IF DEVICE=CONRAC OR DEVICE=BIDS THEN GOERR("TAPE    ",56);                      69000800
CASE DOING OF                                                                   69000900
   BEGIN                                                                        69001000
   %.............................................................................69001100
      BEGIN   % CASE 0                                                          69001200
      IF FILENAME = 0 THEN GOERR("NO FILE",1);                                  69001300
      A[BASE+2] := A[BASE+1] := 100; % SEQ. PARAMETERS                          69001400
      IF T := A[SREG:=BASE-A[BASE]].FF NEQ 0 THEN % PARAMETERS GIVEN            69001500
         BEGIN                                                                  69001600
            DO BEGIN                                                            69001700
            IF (WORD:=A[INC(SREG)]).[3:3] NEQ 0 THEN %CHR. STRING               69001800
            MATCH(WORD.[6:42],"SEQ    ") SQ := TRUE                             69001900
            ELSE  GOERR(WORD,8)                                                 69002000
            ELSE IF WORD.[1:2] = 0 THEN A[BASE+1] := WORD.[21:27]               69002100
            ELSE IF WORD.[1:2] = 3 THEN A[BASE+2] := WORD.[30:18]               69002200
            ELSE GOERR("       "&WORD[6:42:6],8);                               69002300
            END  UNTIL DECR(T) LEQ 0;                                           69002400
         IF NOT SQ THEN GOERR("WHAT.  ",34);                                    69002500
         END;                                                                   69002600
      WORK[0] := 0;                                                             69002700
      WORK[1] := (LL+SYSTEM)&(REAL(FILETYPE=8))[3:47:1];                        69002800
      WORK[2] := USERCODE;                                                      69002900
      WORK[3] := SOURCEFILE;                                                    69003000
      WORK[7] := IF SQ THEN A[BASE+1] ELSE 0; % BASE FOR SEQ;                   69003100
      WORK[8] := A[BASE+2]; % INCREMENT FOR SEQ                                 69003200
      DISKWRITE(ESP1);                                                          69003300
      RUN1 := "PAPER  ";                                                        69003400
      RUN2 := "CANDE  ";                                                        69003500
      ERRSW := USERCODE;                                                        69003600
      WANT := VDISPATCH;                                                        69003700
      DOING := 1;                                                               69003800
      END; % CASE 0                                                             69003900
   %.............................................................................69004000
      BEGIN % CASE 1                                                            69004100
      IF EVENTS[1] = 1 THEN % EOJ OK                                            69004200
         BEGIN                                                                  69004300
         SOURCEFILE := MAKEFN("1S",LL);                                         69004400
         GOODOBJ := FALSE;                                                      69004500
         END;                                                                   69004600
      IAM := MSGPTR := 0;                                                       69004700
      WRITEASTERISK := TRUE;                                                    69004800
 % VOID                                                                        69004900
      END; % CASE 1                                                             69005000
   END ALL CASES;                                                               69005100
EXIT:                                                                           69005200
END PROCEDURE TAPEIT;                                                           69005300
%***********************************************************                   71000000
PROCEDURE  CHARGEIT(LCW,A); BOOLEAN LCW; ARRAY A[0];                            71000100
%***********************************************************                   71000200
            BEGIN                                                               71000300
 % VOID                                                                        71000400
 % VOID                                                                        71000500
LABEL       EXIT;                                                               71000600
REAL        T;                                                                  71000700
            IF SCHEDULINE THEN GOERR("CHARGE ",40);                             71000750
            IF A[SREG:=BASE-A[BASE]].FF NEQ 1 THEN                              71000800
                GOERR("NO CODE",7);                                             71000900
            T := IF A[INC(SREG)].[3:3] = 0 THEN                                 71001000
```

```
                DECCONV(A[SREG].[21:27]) ELSE  A[SREG].[6:42];          71001100
            CHARGE := TIMECONV(PTIME,FALSE);                            71001150
            LOGOFF(LCW,A[*]);                                           71001160
            L@GONTIME := TIME(1);                                       71001170
            CHARGE := T;                                                71001180
            IOTOT:=ETIME:=PTIME:=INPUTCTR:=0;                           71001190
            LOGON(LCW,A[*]);                                            71001200
            WRITEASTERISK := TRUE;                                      71001300
            IAM := 0;                                                   71001400
    EXIT;                                                               71001500
        END  CHARGEIT;                                                  71001600
%***************************************************************      72000000
PROCEDURE SCHEDULE(LCW,A);    BOOLEAN LCW;  ARRAY A[0];                 72000100
%***************************************************************      72000200
BEGIN                                                                   72000300
LABEL     ERR, EXIT;                                                    72000400
BOOLEAN   AFTER, LIB, TOIT;                                             72000500
REAL      WORD, TYPE, PC, I;                                            72000600
          CASE DOING OF                                                 72000700
     BEGIN  % CASES.                                                    72000800
     BEGIN   % CASE C                                                   72000900
            IF TPCOUNT NEQ 0 THEN   % NEED MERGE.                       72001000
        BEGIN                                                           72001100
            LITOUT("WAIT.  ",NOCRLF);                                   72001200
             TEMP:=1; WANT:=VUPDATE;                                    72001300
        END  ELSE                                                       72001400
        BEGIN                                                           72001500
            CLEAR(WORK[0],29);                                          72001600
            WORK[1] := LL&VMCPMSG[33:41:7];                             72001700
            WORK[5]:=SOURCEFILE;                                        72001800
            WORK[4]:=WORK[6]:=USERCODE;                                 72001900
            WORK[7] := MAKEFN("9S",LL);                                 72002000
            WORK[9]:=CHARGE;                                            72002050
            PC:=A[SREG:=BASE-A[BASE]].FF;                               72002100
            WHILE I LSS PC DO    % PICK UP ALL PARAMETERS.              72002200
    BEGIN                                                               72002300
            INC(I);  WORD:=A[INC(SREG)];                                72002400
            TYPE := IF WORD.[2:4] = 0 THEN 0  % N OR -N,                72002500
            ELSE    IF WORD.[1:2] = 3 THEN 1  % +N.                     72002600
            ELSE    IF WORD.[1:2] = 1 THEN 2  % SPECIAL CHAR,           72002700
            ELSE 3;                           % ALPHA WORD,             72002800
            CASE TYPE OF                                                72002900
    BEGIN                                                               72003000
    BEGIN  % PARAM IS  N, -N                                            72003100
            IF NOT AFTER THEN  GOERR(DECCONV(ABS(WORD)),8);             72003200
            IF WORD LSS 800 OR WORD GTR 2400 OR                         72003300
                DECCONV(WORD).[36:6] GTR 5 THEN  GOERR("TIME   ",41);   72003400
            WORK[8] := WORD;  AFTER := FALSE;                           72003500
    END N CASE;                                                         72003600
            GOERR(DECCONV(WORD),8);  % PARAM IS  +N                     72003700
    BEGIN           % CASE 2,   (SPECIAL CHAR)                         72003800
            IF (LIB:=(WORD.CF="/")) AND TOIT THEN GOERR("NO USER",39);  72003900
    END CASE 2;                                                         72004000
    BEGIN           % CASE 3,   (ALPHA WORD)                           72004100
            WORD := WORD.[6:42];                                        72004200
            MATCH(WORD,"TO      ")  AFTER:=LIB:=NOT (TOIT:=TRUE)        72004300
    ELSE                                                                72004400
            MATCH(WORD,"AFTER   ")  LIB:=TOIT:=NOT (AFTER:=TRUE)        72004500
    ELSE                                                                72004600
            MATCH(WORD,"CHARGE ")                                       72004620
```

```
                BEGIN INC(1); WORD:=A[INC(SREG)];                                72004640
                WORK[9]:=IF WORD.[3:3] GTR 0 THEN % ALPHA                        72004645
                WORD.[6:42] ELSE DECCONV(WORD.[6:42]); END                       72004650
        ELSE %                                                                   72004660
             IF TOIT THEN  WORK[3] := WORD                                       72004700
        ELSE IF LIB  THEN  WORK[6] := WORD                                       72004800
        ELSE               WORK[5] := WORD;                                      72004900
        END CASE 3;                                                              72005000
        END ALL CASES;                                                           72005100
        END ALL PARAMS;                                                          72005200
             IF WORK[5] = 0 THEN  GOERR("NO FILE",1);                            72005300
             IF WORK[3] = 0 THEN  GOERR("NO FILE",38);                           72005400
             IF WORK[3].[42:6] ≠ " " THEN GOERR(WORK[3],42);                     72005450
             FIND(LL&IAM[33:41:7],0,A[BASE]:=WORK[5],WORK[6],USERCODE);          72005500
             A[BASE+1] := WORK[3];  DISKWRITE(ESP1);                             72005600
             TEMP := 2;  DOING := 1;  WAITFOR := IAM;                            72005700
        END IF TPCOUNT;                                                          72005800
   END DOING 0;                                                                  72005900
   BEGIN   % DOING = 1,  RETURN AFTER FIND ON INPUT FILE.                        72006000
        IF EVENTS[1] LSS 0 THEN  GOERR(A[BASE],2);  % DOES NOT EXIST.           72006100
        IF EVENTS[1] = 0 THEN  GOERR(A[BASE],24);  % SECURED FILE.              72006200
        FIND(LL&IAM[33:41:7],0,A[BASE+1],USERCODE,USERCODE);                     72006300
        DOING := 2;  WAITFOR := IAM;                                             72006400
   END DOING 1;                                                                  72006500
   BEGIN   % DOING = 2,  RETURN AFTER FIND ON OUTPUT FILE.                       72006600
        IF EVENTS[1] GEQ 0 THEN  GOERR(A[BASE+1],3);                             72006700
            LITOUT("WAIT.  ",NOCRLF);                                            72006750
            EOJMSG := NOT CONCISE; WRITEASTERISK := CONCISE;                     72006760
        RUN1 := "SCHEDUL";  RUN2 := "CANDE  ";  IAM := VDISPATCH;                72006800
        ERRSW:=USERCODE; % USED BY DISPATCH.                                     72006850
        END  DOING 2;                                                            72006900
        END ALL CASES DOING OF;                                                  72007000
EXIT:   END OF SCHEDULE;                                                         72007100
%************************************************************************;      73000000
PROCEDURE  SCHEDSTATUS (LCW,A);  BOOLEAN LCW;  ARRAY A[0];                       73000100
%************************************************************************;      73000200
BEGIN                                                                            73000300
REAL T;                                                                          73000400
LABEL EXIT;                                                                      73000500
%.....................................................................           73000600
REAL STREAM PROCEDURE STMESS(W,N,E1,E2); VALUE E1,E2;                            73000700
%.....................................................................           73000800
        BEGIN LOCAL DV; LABEL ERR,SCH,RUN,EXT,DUN;                               73000900
        DI:=W; CI:=CI+E1; GO ERR; GO ERR; GO SCH; GO RUN; GO DUN;                73001000
        DS:=8LIT"ABORTED."; TALLY:=8; GO EXT;                                    73001010
DUN:    DS:=5LIT"DONE.";        TALLY:=5;  GO TO EXT;                            73001100
SCH:    DS:=10LIT"SCHEDULED."; TALLY:=10; GO TO EXT;                             73001200
RUN:    DS:=8LIT"RUNNING(";     TALLY:=9;  DV:=DI;                               73001300
        DI:=LOC E2; DS:=7FILL; DI:=DV; SI:=LOC E2;                               73001400
        8(IF SC=" " THEN SI:=SI+1 ELSE                                           73001500
          BEGIN DS:=CHR; TALLY:=TALLY+1; END);                                   73001600
        DS:=LIT")"; GO TO EXT;                                                   73001700
ERR:    DS:=4LIT"ERR:"; SI:=N; SI:=SI+1; DS:=7CHR; TALLY:=11;                    73001800
EXT:    STMESS := TALLY;                                                         73001900
        END STREAM PROCEDURE STMESS;                                             73002000
     CASE DOING OF                                                               73002100
        BEGIN                                                                    73002200
            BEGIN   % CASE 0                                                     73002300
            IF (T:=A[SREG:=BASE-A[BASE]]).FF NEQ 1 OR                            73002400
            A[INC(SREG)].[3:3] = 0 THEN  GOERR("NAME    ",6);                    73002500
```

```
            A[SREG].[1:5] := 0;                                                    73002600
            MATCH(VERBTABLE[T.[9:9]],[6:42],"STATUS ")                             73002700
            SCHEDSTAT(A[SREG]) ELSE SCHEDSTOP(A[SREG]));                           73002800
            WAITFOR := IAM; DOING := 1;                                            73002900
            END CASE 0;                                                            73003000
         %.....................................................................73003100
            BEGIN   % CASE 1                                                       73003200
            IF EVENTS[1] LEQ 1 THEN                                                73003300
               BEGIN                                                               73003400
               MSGPOINTER := EVENTS[1] + 36;                                       73003500
               END;                                                                73003600
            WRITEASTERISK:=FALSE;                                                  73003700
            T:=STMESS(WORK[0],A[SREG],EVENTS[1],DECCONV(EVENTS[2]));               73003800
            TWXOUT(LL,WORK[0],T,1);                                                73003900
            IAM := 0;                                                              73004000
            END CASE 1;                                                            73004100
         END ALL CASES;                                                            73004200
EXIT:                                                                              73004300
   END OF SCHEDSTAT;                                                               73004400
%**********************************************************************74000000
PROCEDURE LISTFILE(LCW,A); BOOLEAN LCW; ARRAY A[0];                                74000100
%**********************************************************************74000200
BEGIN                                                                              74000300
DEFINE                                                                             74000400
UNK = SPECS.[ 1:1]#,  BAS = SPECS.[ 2:1]#,  ALG = SPECS.[ 3:1]#,                   74000500
COB = SPECS.[ 4:1]#,  FTR = SPECS.[ 5:1]#,  TSP = SPECS.[ 6:1]#,                   74000600
XAL = SPECS.[ 7:1]#,  SEQ = SPECS.[ 8:1]#,  DAT = SPECS.[ 9:1]#,                   74000700
LOK = SPECS.[10:1]#,  INF = SPECS.[11:1]#,  C68 = SPECS.[12:1]#;                   74000800
DEFINE                                                                             74000900
SRC = SPECS.[47:1]#,  OBJ = SPECS.[46:1]#,  LKD = SPECS.[45:1]#,                   74001000
UNL = SPECS.[44:1]#,  SUL = SPECS.[43:1]#,  PUB = SPECS.[42:1]#;                   74001100
BOOLEAN FROM, TOO, SPECS, LITERAL, HAVELITERAL, HAVEOUTPUT,                        74001200
HAVEUSER;                                                                          74001300
REAL I, PC, WORD, NAMECOUNT, TYPE;                                                 74001400
LABEL RUNIT, GETOBJECT, ERR, EXIT;                                                 74001500
%.....................................................................74002900
STREAM PROCEDURE HEADING(WORK);                                                    74003000
%.....................................................................74003100
   BEGIN                                                                           74003200
   DI:=WORK; DS:=39LIT"NAME     TYPE      RECS SEGS    CREATED    ";               74003300
   DS:=41LIT"ACCESSED  W/R  W/B  S-F LOCKD BY          ";                         74003400
   END STREAM PROCEDURE HEADING;                                                   74003500
%.....................................................................74003600
STREAM PROCEDURE OUTFORMAT                                                         74003700
(WORK,FILNAM,FILTYP,RECS,SEGS,CDAT,ADAT,WPR,WPB,SAVFAC,SECNAM,AFLG);               74003800
%.....................................................................74003900
VALUE FILNAM,FILTYP,RECS,SEGS,CDAT,ADAT,WPR,WPB,SAVFAC,SECNAM,AFLG;                74004000
   BEGIN LOCAL DV;                                                                 74004100
   DI:=WORK; SI:=LOC FILNAM;                                                       74004200
   2(SI:=SI+1; DS:=7CHR; DS:=LIT" "); % FILE NAME AND TYPE                         74004300
   2(DS:=5DEC; DV:=DI; DI:=DI-5; DS:=4FILL; DI:=DV); % RECS AND SEGS               74004400
   DS:=2LIT" "; DS:=8CHR; % CREATION DATE                                          74004500
   DS:=3LIT" "; AFLG(DI:=DI-3; DS:=3LIT" * ");                                     74004600
   DS:=8CHR; % ACCESSED DATE                                                       74004700
   3(DS:=5DEC; DV:=DI; DI:=DI-5; DS:=4FILL; DI:=DV);                               74004800
   SI:=SI+1; DS:=2LIT" "; DS:=7CHR; DS:=9LIT" "; % SECURITY NAME                   74004900
   END STREAM PROCEDURE OUTFORMAT;                                                 74005000
%.....................................................................74005100
PROCEDURE PRINTIT(FILNAM,FILTYP);VALUE FILNAM,FILTYP;REAL FILNAM,FILTYP;           74005200
%.....................................................................74005300
```

```
    BEGIN REAL I, SECNAM; LABEL SUMM;                                          74005400
    SECNAM := IF BOOLEAN(WORK[5].[1:1]) THEN WORK[5].[6:42] & LOCKED           74005500
    ELSE IF WORK[5]=12 AND WORK[6] NEQ 12 THEN "PUBLIC "                       74005600
    ELSE IF WORK[5]=12 AND WORK[6]=12 THEN "UNLOCKD"                           74005610
    ELSE "       ";                                                            74005620
    FOR I:=10 STEP 1 UNTIL 29 DO IF WORK[I]=0 THEN GO TO SUMM;                 74005700
SUMM:                                                                          74005710
    OUTFORMAT(L,FILNAM,FILTYP,(WORK[7]+1),((I-10)*WORK[8]),                    74005800
    DATECONV(WORK[3].[30:18]),DATECONV(WORK[3].[12:16]),                       74005900
    WORK[0].[1:14],WORK[0].[15:15],WORK[3].[2:10],SECNAM,FALSE);               74006000
    TWXOUT(LL,L[0],72,1);                                                      74006100
    END PROCEDURE PRINTIT;                                                     74006200
%.....................................................................          74006300
REAL STREAM PROCEDURE CHK(FIELD); VALUE FIELD;                                 74006400
%.....................................................................          74006500
    BEGIN % COUNT NUMBER OF BITS ON IN FIELD                                   74006600
    SI:=LOC FIELD; SI:=SI+5;                                                   74006700
    18(IF SB THEN TALLY:=TALLY+1; SKIP SB);                                    74006800
    CHK:=TALLY;                                                                74006900
    END STREAM PROCEDURE CHK;                                                  74007000
%.....................................................................          74007100
BOOLEAN STREAM PROCEDURE MASK(BIT); VALUE BIT;                                 74007110
    BEGIN                                                                      74007120
      DI:=LOC MASK; BIT(SKIP DB); DS:=SET;                                     74007130
    END MASK;                                                                  74007140
%.....................................................................          74007150
CASE DOING OF                                                                  74007200
    BEGIN                                                                      74007300
    BEGIN % CASE 0 - SYNTAX ANALYSIS                                           74007400
    LABEL DUMMY;                                                               74007410
    PC := COMMONCELL; % TRANSFERRED FROM PROCEDURE "LISTIT"                    74007500
    CLEAR(WORK,29); % ZERO OUT WORK ARRAY                                      74007600
    WORK[2]:=WORK[4]:=USERCODE; WORK[6]:="TELETYP"; % DEFAULT OPTIONS          74007700
    NAMECOUNT := 20; % POINTER FOR FILE NAMES                                  74007800
    WHILE I LSS PC DO                                                          74007900
      BEGIN                                                                    74008000
      I := I + 1;                                                              74008100
      IF (WORD:=A[SREG:=SREG+1]).[1:2]=1 THEN                                  74008200
        IF WORD="/" THEN WORD:="FROM    " & 4[3:45:3];                         74008300
      IF WORD.[3:3]=0 THEN GO ERR ELSE WORD.[1:5]:=0;                          74008400
      MATCH(WORD,"LITERAL")                                                    74008500
        IF HAVELITERAL THEN GO ERR ELSE LITERAL:=TRUE                          74008600
      ELSE MATCH(WORD,"TO      ")                                              74008700
        IF HAVEOUTPUT THEN GO ERR ELSE TOO:=TRUE                               74008800
      ELSE MATCH(WORD,"FROM    ")                                              74008900
        IF HAVEUSER THEN GO ERR ELSE FROM:=TRUE                                74009000
      ELSE IF TOO THEN                                                         74009100
        IF HAVEOUTPUT THEN GO ERR ELSE                                         74009200
          BEGIN WORD[6]:=WORD; TOO:=NOT(HAVEOUTPUT:=TRUE); END                 74009300
      ELSE IF FROM THEN                                                        74009400
        IF HAVEUSER THEN GO ERR ELSE                                           74009500
          BEGIN WORD[4]:=WORD; FROM:=NOT(HAVEUSER:=TRUE); END                  74009600
      ELSE IF LITERAL THEN                                                     74009700
        IF HAVELITERAL THEN GO ERR ELSE                                        74009800
          BEGIN WORD[5]:=WORD; LITERAL:=NOT(HAVELITERAL:=TRUE); END            74009900
      ELSE MATCH(WORD,"PRINTER")                                               74010000
        IF HAVEOUTPUT THEN GO ERR ELSE                                         74010100
          BEGIN WORD[6]:=WORD; HAVEOUTPUT :=TRUE; END                          74010200
      ELSE IF TYPE:=FINDAWORD(WORD&7[1:43:5],RESWRDTABLE[0],18) # 0 THEN       74010300
          SPECS:=SPECS OR MASK(TYPE+29*REAL(TYPE GTR 12))                      74010400
```

```
      ELSE % ASSUME IT IS A FILE NAME                                          74011900
         BEGIN                                                                 74012000
         IF (NAMECOUNT:=NAMECOUNT+1) GTR 29 THEN GOERR("TOOMANY",30);          74012100
         WORK[NAMECOUNT] := WORD; % SAVE FILE NAME                             74012200
         END;                                                                  74012300
      END WHILE STATEMENT;                                                     74012400
   IF   FROM  THEN GOERR("FROM   ",8);                                         74012500
   IF   TOO   THEN GOERR("TO     ",8);                                         74012600
   IF LITERAL THEN GOERR("LITERAL",8);                                         74012700
   IF CHK(SPECS,[1:12]) GTR 1 THEN GOERR("FILTYPE",31);                        74012800
   IF CHK(SPECS,[42:4]) GTR 1 THEN GOERR("SECURTY",8);                         74012900
   IF CHK(SPECS,[46:2]) GTR 1 THEN GOERR("SRC-OBJ",8);                         74013000
   TEMP := 7;                                                                  74013100
   IF (NAMECOUNT:=NAMECOUNT-21) = 0 THEN % ONE FILENAME SPECIFIED              74013200
   IF (PREVRCW-BASE) GTR 41 THEN % ENOUGH ROOM IN STACK                        74013300
      BEGIN % LET CANDE DO THE I/O                                             74013400
      A[BASE] := 7; % LOOP COUNTER                                             74013500
      A[BASE+1] := WORK[21]; % SAVE FILE NAME IN STACK                         74013600
      A[BASE+7] := WORK[4];  % SAVE USERNAME                                   74013700
      FIND(LL&IAM[33:41:7],0,WORK[21],WORK[4],USERCODE); % SRC                 74013800
      FIND(LL&IAM[33:41:7],0,WORK[21],[6:36],WORK[4],USERCODE); % OBJ          74013900
      DOING := 2;                                                              74014000
      WAITFOR := IAM;                                                          74014100
      GO TO EXIT;                                                              74014200
      END;                                                                     74014300
   WORK[3] := REAL(SPECS);                                                     74014400
   WORK[7] := NAMECOUNT;                                                       74014500
   DISKWRITE(ESR1);                                                            74014600
   IF HAVEOUTPUT THEN % OUTPUT MEDIA SPECIFIED                                 74014700
   MATCH(WORK[6],"PRINTER") ELSE                                               74014800
   MATCH(WORK[6],"TELETYP") ELSE                                               74014900
      BEGIN % DISK FILE NAME                                                   74015000
      FIND(LL&IAM[33:41:7],0,WORK[6],USERCODE,USERCODE);                       74015100
      A[BASE+1] := WORK[6]; % SAVE OUTPUT FILE NAME                            74015200
      DOING := 1;                                                              74015300
      WAITFOR := IAM;                                                          74015400
      GO TO EXIT;                                                              74015500
      END;                                                                     74015600
   GO RUNIT; % TO PRINTER OR TELETYPE                                          74015700
   END; % CASE 0                                                               74015800
%.....................................................................          74015900
   BEGIN % CASE 1 - SEARCH FOR OUTPUT FILE ON DISK                             74016000
   IF EVENTS[1] GEQ 0 THEN GOERR(A[BASE+1],3); % ALREADY PRESENT               74016100
RUNIT:                                                                         74016200
   RUN1 := "LFILES "; RUN2 := "CANDE  "; ERRSW := USERCODE;                    74016300
   IAM := VDISPATCH;                                                           74016400
   EOJMSG := NOT CONCISE;                                                      74016500
   WRITEASTERISK := CONCISE;                                                   74016600
   GO TO EXIT;                                                                 74016700
   END; % CASE 1                                                               74016800
%.....................................................................          74016900
   BEGIN % CASE 2 - SEARCH FOR FILE NAME                                       74017000
   I := A[BASE] := A[BASE] - 2;                                                74017100
   A[BASE+I] := EVENTS[1]; A[BASE+I+1] := EVENTS[2],[18:15]; % HDR ADRS.       74017200
   IF I GTR 3 THEN % WAIT FOR OBJECT FILE RESULT                               74017300
      BEGIN                                                                    74017400
      WAITFOR := IAM;                                                          74017500
      GO TO EXIT;                                                              74017600
      END;                                                                     74017700
   IF A[BASE+3] LEQ 0 AND A[BASE+5] LEQ 0 THEN GOERR(A[BASE+1],2);             74017800
```

```
      TIMEOFDAY(WORK[2],TIMECONV(TIME(1),TRUE));                                74017900
      WORK[0] := DATE; WORK[1] := A[BASE+7];  BLANK(WORK[1]); % USERNAME        74018000
      TWXOUT(LL,WORK[0],26,1);                                                  74018100
      HEADING(WORK); TWXOUT(LL,WORK[0],72,1);                                   74018200
      WRITEASTERISK := TRUE;                                                    74018300
      IF A[BASE+5] LEQ 0 THEN GO GETOBJECT; % SOURCE VERSION NOT ON DISK        74018400
      LLDISKREAD := A[BASE+6];                                                  74018500
      WANT := VDISKREAD;                                                        74018600
      DOING := 3;                                                               74018700
      GO EXIT;                                                                  74018800
      END; % CASE 2                                                             74018900
%.....                                                                          74019000
      BEGIN % CASE 3 - SOURCE FILE HEADER IN CORE                               74019100
      IF (I:=WORK[4].[36:6]) GTR NUMOFTYPES THEN I:=0;                          74019200
      PRINTIT(A[BASE+1],TYPETABLE[I]);                                          74019300
      IF A[BASE+3] LEQ 0 THEN                                                   74019400
         BEGIN                                                                  74019500
         IAM := 0; GO TO EXIT;                                                  74019600
         END;                                                                   74019700
GETOBJECT:                                                                      74019800
      LLDISKREAD := A[BASE+4];                                                  74019900
      WANT := VDISKREAD;                                                        74020000
      DOING := 4;                                                               74020100
      GO TO EXIT;                                                               74020200
      END; % CASE 3                                                             74020300
%.....                                                                          74020400
      BEGIN % CASE 4 - OBJECT HEADER IN CORE                                    74020500
      IF (I:=WORK[4].[36:6]) GTR NUMOFTYPES THEN I := 0;                        74020600
      I := "OBJ( ) " & TYPETABLE[I][30:0:6];                                    74020700
      PRINTIT(A[BASE+1],I);                                                     74020800
      IAM := 0;                                                                 74020900
      GO TO EXIT;                                                               74021000
      END CASE 4;                                                               74021100
      END ALL CASES;                                                            74021200
ERR:  ERRSW := A[SREG]; MSGPTR := 8; IAM := VERROR;                             74021300
EXIT:                                                                           74021400
END PROCEDURE LISTFILES;                                                        74021500
%***************************************************************              75000000
PROCEDURE UPDATE(LCW,A);  BOOLEAN LCW;  ARRAY A[0];                             75000100
%***************************************************************              75000200
BEGIN                                                                           75000300
     LABEL DUMMY;                                                               75000350
          CASE DOING OF                                                         75000400
     BEGIN                                                                      75000500
          IF TPCOUNT=0 THEN IAM:=0 ELSE % CASE 0.                               75000600
     BEGIN    % CASE 0                                                         75000700
          WORK[0] := DOGHOUSE[LL] := 0;                                         75000800
          WORK[1] := (LL+SYSTEM)&R(FILETYPE=8)[3:47:1]                          75000900
          &R(MONITORBIT)[9:47:1];                                               75000910
          WORK[2]:=USERCODE; WORK[4]:=USERLOC;                                  75001000
          WORK[3] := SOURCEFILE;                                                75001100
          MOVE(16,WORDS,CTRANDBASE[0],WORK[5]);                                 75001200
          ERRSW := USERCODE;                                                    75001300
          RUN1 := "LIST    "; RUN2 := "CANDE   ";                               75001400
          WANT := VCLOSEWORKTABLE;  DOING := 1;                                 75001500
          DISKWRITE(ESP1);                                                      75001600
     END CASE 0;                                                                75001700
     BEGIN    % CASE 1                                                         75001800
          WANT := VDISPATCH;  DOING := 2; ERRSW := USERCODE;                    75001900
          UPDATEBIT := 1; % MARK UPDATE IN PROGRESS                             75001910
```

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      END CASE 1;                                                                  75002000
      BEGIN   % CASE 2                                                             75002100
      IF EVENTS[1] = 1 THEN % EOJ OK                                               75002200
         BEGIN                                                                     75002210
         SOURCEFILE := MAKEFN("1S",LL);                                            75002220
         CANCELCKPT(A[*]);                                                         75002300
         END;                                                                      75002310
      IAM:=0; IF BREAKORWRU AND NOT DOGLICENSE THEN LINECLEAR(LCW,A[*]);           75002320
      END CASE 2;                                                                  75002400
      END ALL CASES;                                                               75002500
END CLEANWORKFILE;                                                                 75002600
%**************************************************************************      76000000
REAL PROCEDURE SPECSCAN                                                            76000100
   (IADR,OADR,SIZ,VOCAB,VSIZE,WHICH,FTOG,EADRS);                                   76000110
VALUE VSIZE,FTOG,EADRS;                                                            76000200
REAL IADR,OADR,SIZ,VSIZE,WHICH,FTOG,EADRS;                                         76000300
ARRAY VOCAB[0];                                                                    76000310
BEGIN                                                                              76000320
LABEL L;                                                                           76000330
REAL STREAM PROCEDURE SPCSCAN                                                      76000340
   (IADR,OADR,SIZ,VOCAB,VSIZE,WHICH,FTOG,EADRS);                                   76000350
VALUE VSIZE,FTOG,EADRS;                                                            76000360
BEGIN LOCAL T,SV,DV,COMA; LABEL NEXT,LETTER,NUMBR,FIIL,EXIT;                       76000400
COMMENT SPECIAL SCANNER FOR "FIND/REPLACE" INSTRUCTIONS.                           76000500
  RETURNS A VALUE ( TO SPECSCAN ) OF:                                              76000600
    1 = "INSTRUCTION"                                                              76000700
    2 = DELIMITED STRING                                                           76000800
    3 = SEQUENCE NUMBER,                                                           76000900
    4 = SEQUENCE NUMBER FOLLOWED BY "-" ( SEQUENCE RANGE ),                        76001000
    5 = END OF RECORD WITH CONTINUATION CHARACTER (",")                            76001100
    6 = END OF STATEMENT                                                           76001200
    7 = FILE NAME                                                                  76001210
    10= ERROR (MISSING STRING DELIMITER OR STRING TOO LONG)                        76001300
    11= ERROR (FIND/REPLACE "INSTRUCTION" TOO LONG)                                76001400
    12= ERROR (FIND/REPLACE "INSTRUCTION" NOT RECOGNIZED)                          76001500
    13= ERROR (SEQUENCE NUMBER TOO LONG)                                           76001600
    14=MISSING FILE NAME                                                           76001610
  POSITION OF "INSTRUCTION" RETURNED TO "WHICH":                                   76001700
    0 = "FIND"                                                                     76001800
    1 = "REPLACE"                                                                  76001900
    2 = "FIRST"                                                                    76002000
    3 = "LITERAL"                                                                  76002100
    4 = "WITH"                                                                     76002200
    5 = "ARROW"                                                                    76002300
    6 = "PRINT"                                                                    76002400
    7 = "END"                                                                      76002500
    8 = "SEQUENCE"                                                                 76002600
    9 = "TEXT"                                                                     76002700
    10= "FILE"                                                                     76002710
    11= "SITE"                                                                     76002720
END OF COMMENT;                                                                    76002800
  SI:=IADR; SI:=SI+5; SI:=SC; TALLY:=6; COMA:=TALLY;                               76002900
NEXT: IF SC=" " THEN BEGIN SI:=SI+1; GO NEXT; END; % SKIP OVER BLANKS              76003000
  IF SC=LEFTARROW THEN % END OF RECORD                                             76003100
    BEGIN                                                                          76003200
    SV:=SI; SI:=LOC SV; SI:=SI+5;                                                  76003210
    DV:=DI; DI:=LOC EADRS; DI:=DI+5;                                               76003220
    IF 3 SC=DC THEN % END OF RECORD                                                76003230
      BEGIN                                                                        76003240
      TALLY:=COMA; SPCSCAN:=TALLY; GO TO EXIT;                                     76003250
```

```
    END;                                                                  76003260
  SI:=SV; DI:=DV;                                                         76003270
  END;                                                                    76003280
IF SC="," THEN % COULD BE A CONTINUATION CHARACTER                        76003300
  BEGIN TALLY:=5; COMA:=TALLY; SI:=SI+1; GO TO NEXT; END;                 76003400
TALLY:=6; COMA:=TALLY; % NOT A CONTINUATION                               76003500
FTOG(JUMP OUT TO FIIL); % JUMP TO FILENAME SCANNER                        76003550
IF SC=ALPHA THEN % COULD BE ALPHABET, DIGIT OR "QMARK"                    76003600
  BEGIN IF SC LSS "0" THEN GO TO LETTER;                                  76003700
  IF SC GTR "9"  THEN ELSE GO TO NUMBR;                                   76003800
  END IF ALPHA;                                                           76003900
  %.....                                                                  76004000
% MUST BE A DELIMITER                                                     76004100
DI:=LOC T; DI:=DI+7; DS:=CHR; % SAVE THE DELIMETER                        76004200
SV:=SI; SI:=LOC SV; DI:=OADR; DS:=WDS; % STARTING ADDRESS                 76004300
SI:=SV; TALLY:=10; SPCSCAN:=TALLY; TALLY:=0;                              76004400
63(IF SC=LEFTARROW THEN                                                   76004500
   BEGIN                                                                  76004510
   SV:=SI; SI:=LOC SV; SI:=SI+5; DI:=LOC EADRS; DI:=DI+5;                 76004520
   IF 3SC=DC THEN JUMP OUT TO EXIT ELSE SI:=SV;                           76004530
   END;                                                                   76004550
IF SC=T THEN JUMP OUT; % 2ND DELIMITER                                    76004600
   TALLY:=TALLY+1; SI:=SI+1);                                             76004700
IF TOGGLE THEN ELSE % TOO LONG                                            76004800
  BEGIN TALLY:=10; SPCSCAN:=TALLY; GO EXIT; END;                          76004900
SI:=SI+1; SV:=SI; % SKIP OVER 2ND DELIMITER, SAVE ADDRESS                 76005000
I:=TALLY; SI:=LOC T; DI:=SIZ; DS:=WDS; % SIZE                             76005100
SI:=LOC SV; DI:=IADR; DS:=WDS; % NEXT ADDRESS                             76005200
TALLY:=2; SPCSCAN:=TALLY; % CODE FOR DELIMITED STRING                     76005300
GO TO EXIT;                                                               76005400
  %.....                                                                  76005500
LETTER: % SHOULD BE AN "INSTRUCTION"                                      76005600
  SV:=SI; TALLY:=0; % SAVE STARTING ADDRESS                               76005700
  SI:=LOC SV; DI:=OADR; DS:=WDS; SI:=SV;                                  76005800
  9(IF SC LEQ "9" THEN ELSE JUMP OUT;                                     76005900
    IF SC=ALPHA THEN ELSE JUMP OUT; SI:=SI+1; TALLY:=TALLY+1);            76006000
  IF TOGGLE THEN % TOO LONG                                               76006100
    BEGIN TALLY:=11; SPCSCAN:=TALLY; GO EXIT; END;                        76006200
  DV:=SI; SI:=LOC DV; DI:=IADR; DS:=WDS; % NEXT ADDRESS                   76006300
  T:=TALLY; SI:=LOC T; SI:=SI+7; % SIZE OF "INSTRUCTION"                  76006400
  IF SC LSS "3" THEN % 3 CHARACTERS MINIMUM                               76006500
    BEGIN TALLY:=12; SPCSCAN:=TALLY; GO EXIT; END;                        76006600
  % NOW CHECK INPUT STRING AGAINST VOCABULARY                            76006700
  DI:=VOCAB; DV:=DI; TALLY:=0;                                            76006800
  VSIZE(SI:=SV; IF T SC = DC THEN JUMP OUT;                               76006900
        DI:=Dv; DI:=DI+8; DV:=DI; TALLY:=TALLY+1);                        76007000
  IF TOGGLE THEN ELSE % NO MATCH                                          76007100
    BEGIN TALLY:=12; SPCSCAN:=TALLY; GO EXIT; END;                        76007200
  T:=TALLY; SI:=LOC T; DI:=WHICH; DS:=WDS;                                76007300
  TALLY:=1; SPCSCAN:=TALLY; % CODE FOR "INSTRUCTION";                     76007400
  GO TO EXIT;                                                             76007500
    %.....                                                                76007600
NUMBR: % SHOULD BE A SEQUENCE NUMBER                                      76007700
  SV:=SI; SI:=LOC SV; DI:=OADR; DS:=WDS; % STARTING ADDRESS               76007800
  SI:=SV; TALLY:=0;                                                       76007900
  9(IF SC GTR "9"  THEN JUMP OUT;                                         76008000
    IF SC LSS "0" THEN JUMP OUT; SI:=SI+1; TALLY:=TALLY+1);               76008100
  IF TOGGLE THEN ELSE % TOO LONG                                          76008200
    BEGIN TALLY:=13; SPCSCAN:=TALLY; GO EXIT; END;                        76008300
  T:=TALLY; 63(IF SC=" " THEN SI:=SI+1 ELSE JUMP OUT);                    76008400
```

```
    IF SC="-" THEN % SEQUENCE RANGE SPECIFIED                          76008500
      BEGIN SI:=SI+1; TALLY:=4; END ELSE TALLY:=3;                     76008600
    SV:=SI; SI:=LOC SV; DI:=IADR; DS:=WDS; % NEXT ADDRESS              76008700
    SI:=LOC T; DI:=SIZ; DS:=WDS; % SIZE OF FIELD                       76008800
    SPCSCAN:=TALLY; GO TO EXIT;                                        76008900
    %.....76008905
  FIIL:  % LOOKING FOR A FILE NAME                                     76008910
    SV:=SI; SI:=LOC SV; DI:=OADR; DS:=WDS; % START OF STRING           76008915
    SI:=SV; TALLY:=0;                                                  76008920
    IF SC=ALPHA THEN ELSE % MISSING FILE NAME                          76008925
      BEGIN TALLY:=14; SPCSCAN:=TALLY; GO TO EXIT; END;                76008930
    7(IF SC=ALPHA THEN ELSE JUMP OUT; SI:=SI+1; TALLY:=TALLY+1);       76008935
    IF SC="/" THEN % SECOND NAME GIVEN                                 76008945
      BEGIN SI:=SI+1; TALLY:=TALLY+1; % SKIP OVER "/"                  76008950
      7(IF SC=ALPHA THEN ELSE JUMP OUT; SI:=SI+1; TALLY:=TALLY+1);     76008960
      END;                                                             76008965
    SV:=SI; SI:=LOC SV; DI:=IADR; DS:=WDS; % NEXT ADDRESS              76008970
    T:=TALLY; SI:=LOC T; DI:=SIZ; DS:=WDS; % SIZE OF FILE NAME         76008975
    TALLY:=7; SPCSCAN:=TALLY; GO EXIT; % CODE FOR FILE NAME            76008980
  EXIT:                                                                76009000
  END STREAM PROCEDURE SPCSCAN;                                        76009100
  SPECSCAN:=SPCSCAN                                                    76009110
     (IADR,OADR,SIZ,VOCAB,VSIZE,WHICH,FTOG,EADRS);                     76009120
  END PROCEDURE SPECSCAN;                                              76009130
  %*****************************************************************76009200
  PROCEDURE REPLACEIT(LCW,STACK); BOOLEAN LCW; ARRAY STACK[0];         76009300
  %*****************************************************************76009400
  BEGIN                                                                76009500
  COMMENT ROUTINE TO CHECK SYNTAX AND PACK INFORMATION INTO STACK.     76009600
    STACK CODE:                                                        76009700
      STACK[BASE+1].[01:01] (1 = "FILE     " INSTRUCTION RECEIVED)     76009710
      STACK[BASE+1].[02:01] (1 = INPUT  FILE SPECIFIED )               76009720
      STACK[BASE+1].[03:01] (1 = OUTPUT FILE SPECIFIED )               76009730
      STACK[BASE+1].[04:01] (1 = "SITE     " INSTRUCTION RECEIVED)     76009740
      STACK[BASE+1].[05:01] (1 = "FIND     " INSTRUCTION RECEIVED)     76009800
      STACK[BASE+1].[06:01] (1 = "REPLACE  " INSTRUCTION RECEIVED)     76009900
      STACK[BASE+1].[07:011 (1 = "FIRST    " INSTRUCTION RECEIVED)     76010000
      STACK[BASE+1].[08:01] (1 = "LITERAL  " INSTRUCTION RECEIVED)     76010100
      STACK[BASE+1].[11:01] (1 = "PRINT    " INSTRUCTION RECEIVED)     76010200
      STACK[BASE+1].[12:01] (1 = "SEQUENCE" INSTRUCTION RECEIVED)      76010300
      STACK[BASE+1].[17:01] (1 = "TEXT     " INSTRUCTION RECEIVED)     76010400
      STACK[BASE+1].[18:01] (1 = REPLACE OR FIND STATEMENT COMPLETE)   76010500
      STACK[BASE+1].[19:01] (1 = FIRST REPLACE INSTRUCTION RECVD)      76010600
      STACK[BASE+1].[20:04] ( STRING COUNT )                           76010700
      STACK[BASE+1].[24:24] ( TOTAL SIZE OF STATEMENT ( NO. OF CHARACTERS 76010800
    4 CHARACTER CODE PRECEEDS EACH "STRING" IN STACK:                  76010900
      1ST CHARACTER = TYPE OF STRING ( 2, 3 OR 4 )                     76011000
      2ND CHARACTER = 1 IF "FIRST" ONLY, 0 IF ALL ( FOR REPLACE )      76011100
      3RD CHARACTER = 1 IF "LITERAL" COMPARISON, 0 IF NOT              76011200
      4TH CHARACTER = SIZE ( NO OF CHARACTERS IN STRING ).             76011300
    THE ROUTINE USES MESAGE/CANDE RECORDS MSGVAL THRU MSGVAL+6         76011400
  END OF COMMENT;                                                      76011500
  DEFINE WRD   = STACK[BASE+1] #,                                      76011600
         FTOG = WRD.[01:01] #,                                         76011610
        INFIL = WRD.[02:01] #,                                         76011620
       OUTFIL = WRD.[03:01] #,                                         76011630
         SITE = WRD.[04:01] #,                                         76011640
          FND  = WRD.[05:01] #,                                        76011700
          REP  = WRD.[06:01] #,                                        76011800
          FRST = WRD.[07:01] #,                                        76011900
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          LIT   = WRD.[08:01] #,                                                  76012000
          PRNT  = WRD.[11:01] #,                                                  76012100
          SEQ   = WRD.[12:01] #,                                                  76012200
          TEXT  = WRD.[17:01] #,                                                  76012300
          OK    = WRD.[18:01] #,                                                  76012400
          FREP  = WRD.[19:01] #,                                                  76012500
        STRGCNT = WRD.[20:04] #,                                                  76012600
          TSIZ  = WRD.[24:24] #,                                                  76012700
          PREV  = STACK[BASE] #;                                                  76012800
      ARRAY VOCAB[0:18];                                                          76012900
      DEFINE MSGVAL = 50 #, A = STACK #;                                          76013000
      INTEGER X;                                                                  76013100
      REAL IADR,OADR,AROADR,ENDADR,TYPE,SIZ,VSIZ,WHICH;                           76013200
      LABEL EXIT,CASE1;                                                           76013300
          %***************************************************************************76013400
      REAL STREAM PROCEDURE ERRVALUE(OADR); VALUE OADR;                           76013500
          %***************************************************************************76013600
      BEGIN % EXTRACT STRING FOR ERROR MESSAGE                                    76013700
        SI:=OADR; DI:=LOC ERRVALUE; DS:=8LIT"0       "; DI:=DI-7;                 76013800
        7(IF SC=ALPHA THEN DS:=CHR ELSE JUMP OUT);                                76013900
      END STREAM PROCEDURE ERRVALUE;                                              76014000
          %***************************************************************************76014100
      REAL STREAM PROCEDURE CNVERT(OADR,SIZ); VALUE OADR,SIZ;                     76014200
          %***************************************************************************76014300
      BEGIN SI:=OADR; DI:=LOC CNVERT; DS:=SIZ OCT;                                76014400
      END STREAM PROCEDURE CNVERT;                                                76014500
          %***************************************************************************76014600
      STREAM PROCEDURE CLEARSTACK(STACK,TSIZ); VALUE TSIZ;                        76014700
          %***************************************************************************76014800
      BEGIN % ZERO OUT THE STACK TO AVOID POSSIBLE FLAG BIT ERRORS;               76014900
      LOCAL T1,T2;                                                                76015000
        SI:=LOC TSIZ; SI:=SI+6;                                                   76015100
        DI:=LOC T1; DI:=DI+7; DS:=CHR; DI:=LOC T2; DI:=DI+7; DS:=CHR;             76015200
        DI:=STACK; % SHOULD POINT TO STACK[BASE+2]                                76015300
        T1(2(DS:=32LIT"0")); T2(DS:=LIT"0");                                      76015400
      END STREAM PROCEDURE CLEARSTACK;                                            76015500
          %***************************************************************************76015600
      STREAM PROCEDURE SETL(L,AROADRS,ENDADRS);                                   76015700
          %***************************************************************************76015800
      BEGIN LOCAL SV;                                                             76015900
        DI:=L; DS:=8LIT"9"; DS:= LIT LEFTARROW;                                   76016000
         DS:=7LIT"0"; DS:=LIT "≠";                                                76016010
         DS:=7LIT"0"; DS:=LIT "=";                                                76016020
         DS:=7LIT"0"; DS:=LIT "<";                                                76016030
         DS:=7LIT"0"; DS:=LIT ">";                                                76016040
         DS:=7LIT"0"; DS:=LIT "≤";                                                76016050
         DS:=7LIT"0"; DS:=LIT "≥";                                                76016060
        SI:=L; SV:=SI; SI:=LOC SV; DI:=ENDADRS; DS:=WDS;                          76016100
        SI:=SV; SI:=SI+8; SV:=SI; SI:=LOC SV; DI:=AROADRS; DS:=WDS;               76016200
      END STREAM PROCEDURE SETL;                                                  76016300
          %***************************************************************************76016400
      STREAM PROCEDURE SAVEIT(STACK,OLDSIZ,OADR,ADDSIZ,TYPE,NEWSIZ);              76016500
          %***************************************************************************76016600
      VALUE OLDSIZ,OADR,ADDSIZ,TYPE,NEWSIZ;                                       76016700
      COMMENT SAVE STRING AND PREFIX IN STACK;                                    76016800
      BEGIN LOCAL T1,T2,LT;                                                       76016900
        SI:=LOC OLDSIZ; SI:=SI+6; % CHARACTERS TO SKIP OVER                       76017000
        DI:=LOC T1; DI:=DI+7; DS:=CHR; DI:=LOC T2; DI:=DI+7; DS:=CHR;             76017100
        DI:=STACK; DI:=DI+16; % SKIP OVER 1ST 2 WORDS                             76017200
        T1(2(DI:=DI+32)); DI:=DI+T2; % SKIP OVER PREVIOUS STRINGS                 76017300
```

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    SI:=LOC TYPE; SI:=SI+7; DS:=CHR; % STRING TYPE ( 2,3,4 OR 7 )          76017400
    SI:=STACK; SI:=SI+9;                                                  76017500
    SKIP SB; IF SB THEN DS:=LIT"1" ELSE DS:=LIT"0"; % "FIRST" CODE        76017600
    LT:=DI; SKIP SB; IF SB THEN DS:=LIT"1" ELSE DS:=LIT"0"; % "LITERAL"   76017700
    SI:=LOC ADDSIZ; SI:=SI+7; DS:=CHR; % SIZE OF STRING                   76017800
    SI:=OADR; DS:=ADDSIZ CHR; % TRANSFER STRING                            76017900
    SI:=LOC NEWSIZ; SI:=SI+4; DI:=STACK; DI:=DI+12; DS:=4 CHR;            76018000
  % CHECK FOR ALL BLANKS IN TYPE 1 STRINGS                                76018010
    SI:=LOC TYPE; SI:=SI+7; IF SC="1" THEN                                76018020
      BEGIN SI:=OADR; ADDSIZ(IF SC=" " THEN SI:=SI+1 ELSE JUMP OUT);      76018030
      IF TOGGLE THEN % ALL BLANKS, MUST BE IN "LITERAL" MODE              76018040
        BEGIN DI:=LT; DS:="1"; END;                                       76018050
      END;                                                                76018060
  END STREAM PROCEDURE SAVEIT;                                            76018100
    %*****************************************************************   76018200
  STREAM PROCEDURE SETVOCAB(VOCAB);                                       76018300
    %*****************************************************************   76018400
  BEGIN DI:=VOCAB;  DS:=32LIT"FIND    REPLACE FIRST   LITERAL ";          76018500
    DS:=48LIT"WITH    ARROW   PRINT   END     SEQUENCETEXT    ";          76018600
    DS:=16LIT"FILE    SITE    ";                                          76018610
    DS:=48LIT"NEQ     EQL     LSS     GTR     LEQ     GEQ     ";          76018620
  END STREAM PROCEDURE SETVOCAB;                                          76018700
    %*****************************************************************   76018800
  CASE DOING OF                                                           76019100
  BEGIN                                                                   76019200
  BEGIN % CASE 0                                                          76019300
  LABEL LOOP,STRING,ERROR;                                                76019400
    IF NOT CONTINUEBIT THEN % FIRST CALL ON THE ROUTINE                   76019500
      BEGIN STACK[BASE+1]:=0; CONTINUEBIT:=TRUE; PREV:=-1; END;           76019600
    IF PREVRCW = BASE LEQ 34 THEN % NOT ENOUGH ROOM                       76019700
      BEGIN CLEARSTACK(STACK[BASE+2],TSIZ);                               76019800
      GOERR("NO ROOM",MSGVAL);                                            76019900
      END;                                                                76020000
    IADR:=ADDRESS(WORK[1]); % ADDRESS OF INPUT RECORD                     76020100
     SETVOCAB(VOCAB); VSIZ:=18; % SET UP VOCABULARY                       76020200
    SETL(L,AROADR,ENDADR); % LOCATION OF 8 NINES AND LEFT ARROW           76020300
  LOOP: % START OF SYNTAX CHECK                                           76020400
    TYPE:=SPECSCAN(IADR,OADR,SIZ,VOCAB,VSIZ,WHICH,FTOG,WORKENDADRS);%SNTX 76020500
    MSGPTR := MSGVAL ; % "ERROR IN FIND/REPLACE STATEMENT                 76020600
    IF TYPE=1 THEN % AN "INSTRUCTION"                                     76020700
      BEGIN IF WHICH LSS 2 THEN % "FIND" OR "REPLACE"                     76020800
        BEGIN IF FND+REP NEQ 0 THEN GO ERROR; % REDUNDANT                 76020900
        IF WHICH=0 THEN IF FREP=1 THEN GO ERROR ELSE FND:=1               76021000
        ELSE % WHICH = 1                                                  76021100
          BEGIN REP:=1; FREP:=1; END;                                     76021200
        FRST:=0; LIT:=0; OK:=0;                                           76021300
        END % IF WHICH LSS 2                                              76021400
      ELSE IF WHICH LSS 6 THEN % "FIRST","LITERAL","WITH" OR "ARROW"      76021500
        BEGIN IF REP+FND NEQ 1 THEN GO ERROR;                             76021600
        IF WHICH LSS 4 THEN % "FIRST" OR "LITERAL"                        76021700
          BEGIN IF STRGCNT NEQ 0 THEN GO TO ERROR;                        76021800
          IF WHICH=2 THEN IF FRST=1 THEN GO TO ERROR ELSE FRST:=1         76021900
          ELSE IF LIT=1 THEN GO TO ERROR ELSE LIT:=1;                     76022000
          END % IF WHICH LSS 4                                            76022100
        ELSE IF WHICH=4 THEN GO TO LOOP % "WITH" (OPTIONAL WORD )         76022200
        ELSE % WHICH = 5 ( "ARROW" )                                      76022300
          BEGIN OADR:=AROADR; SIZ:=1; TYPE:=2; GO TO STRING;              76022400
          END % IF WHICH = 5                                              76022500
        END % IF WHICH LSS 6                                              76022600
      ELSE IF WHICH=6 THEN % "PRINT"                                      76022700
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      BEGIN IF PRNT=1 THEN GO TO ERROR; PRNT:=1; TEXT:=0; SEQ:=0;          76022800
      END % IF WHICH = 6                                                   76022900
    ELSE IF WHICH=7 THEN % "END"                                           76023000
      BEGIN OADR:=ENDADR; SIZ:=8; TYPE:=3; GO TO STRING;                   76023100
      END % IF WHICH=7                                                     76023200
    ELSE IF SEQ+TEXT NEQ 0 AND WHICH LSS 10 THEN GO TO ERROR               76023300
    ELSE IF WHICH=8 THEN SEQ := 1                                          76023400
    ELSE IF WHICH=9 THEN TEXT:= 1                                          76023405
    ELSE IF WHICH=10 THEN % FILE INSTRUCTION                               76023410
      BEGIN IF FREP=1 THEN GO ERROR; FTOG:=1;                              76023415
      IF INFIL=0 AND PRNT=0 THEN INFIL:=1                                  76023420
      ELSE IF OUTFIL=0 THEN OUTFIL:=1                                      76023425
      ELSE GO TO ERROR; % TOO MANY FILES SPECIFIED                         76023430
      END % IF WHICH = 10                                                  76023435
        ELSE IF WHICH=11 THEN SITE:=1                                      76023440
        ELSE IF WHICH LEQ 17 THEN                                          76023450
         BEGIN OADR:=AROADR+(WHICH-11);                                    76023460
               SIZ:=1; TYPE:=2;                                            76023470
               GO TO STRING;                                               76023480
         END;                                                              76023490
    GO TO LOOP;                                                            76023500
  END % IF TYPE=1                                                          76023600
  ELSE IF TYPE LSS 5 THEN % A STRING OR SEQUENCE NUMBER                    76023700
STRING:                                                                    76023800
    BEGIN IF TYPE=2 THEN % A STRING                                        76023900
      BEGIN IF FND+REP NEQ 1 THEN GO TO ERROR;                             76024000
      IF REP=1 THEN % A REPLACE STRING                                     76024100
        BEGIN STRGCNT:=STRGCNT + 1;                                        76024200
        IF SIZ=0 AND STRGCNT=1 THEN GO TO ERROR;                           76024210
        TYPE := STRGCNT; % TELL SAVEIT WHETHER OLD OR NEW STRING           76024300
        IF STRGCNT=2 THEN % HAVE BOTH OLD AND NEW STRINGS                  76024400
          BEGIN REP:=0; STRGCNT:=0; OK:=1; END;                            76024500
        END % IF A REPLACE STRING                                          76024600
      ELSE OK:=1; % IF A "FIND" STRING                                     76024700
      END % IF TYPE = 2                                                    76024800
    ELSE % A SEQUENCE NUMBER, TYPE = 3 OR 4                                76024900
      BEGIN X:=CNVERT(OADR,SIZ);                                           76025000
      IF X LEQ PREV THEN GO TO ERROR ELSE PREV:=X; % CHECK NUMBER          76025100
      END IF A SEQ NO;                                                     76025200
    X:=TSIZ + SIZ + 4; % TOTAL NO. OF CHARACTERS TO BE ADDED               76025300
    IF X GTR 230 THEN % NOT ENOUGH ROOM                                    76025400
      BEGIN CLEARSTACK(STACK[BASE+2],TSIZ); CONTINUEBIT := FALSE;          76025500
      GOERR("TOOLONG",MSGVAL);                                             76025600
      END % IF X GTR 230                                                   76025700
    ELSE SAVEIT(STACK[BASE],TSIZ,OADR,SIZ,TYPE,X); % STORE STRING          76025800
    GO TO LOOP;                                                            76025900
    END % IF TYPE LSS 5                                                    76026000
  ELSE IF TYPE = 5 THEN % A CONTINUATION CHARACTER AND LEFT ARROW          76026100
    BEGIN TEMP := 32; WAITFOR := VINPUT;                                   76026200
    IF SCHEDULINE THEN REQUESTIP(LL); GO TO EXIT;                          76026210
    END % IF TYPE = 5                                                      76026300
  ELSE IF TYPE = 6 THEN % CALL OUT THE PROGRAM                             76026400
    BEGIN                                                                  76026500
    CONTINUEBIT := FALSE;                                                  76026600
    IF SOURCEFILE=0 AND INFIL=0 THEN                                       76026610
      BEGIN CLEARSTACK(STACK[BASE+2],TSIZ); GOERR("NO FILE",MSGVAL);       76026620
      END;                                                                 76026630
    TEMP := 3;                                                             76026700
    IF NOT BOOLEAN(OK) THEN                                                76026800
      BEGIN CLEARSTACK(STACK[BASE+2],TSIZ);                                76026900
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      GOERR("INCOMPL",MSGVAL);                                          76027000
      END;                                                              76027100
    CLEAR(WORK[0],29);                                                  76027200
    MOVE(30, WORDS, STACK[BASE+1], WORK[0]);                            76027300
    DISKWRITE(ESP2);                                                    76027400
    CLEARSTACK(STACK[BASE+2],TSIZ);                                     76027500
    IF TPCOUNT NEQ 0 THEN                                               76027600
      BEGIN                                                             76027700
      LITOUT("WAIT.  ",NOCRLF);                                         76027800
      DOING := 1;                                                       76027900
      WANT := VUPDATE;                                                  76028000
      GO TO EXIT;                                                       76028100
      END                                                               76028200
    ELSE GO TO CASE1;                                                   76028300
    END % IF TYPE = 6                                                   76028400
  ELSE IF TYPE=7 THEN % FILE NAME                                       76028410
    BEGIN                                                               76028415
    X := TSIZ + SIZ + 4; % NO OF CHARACTERS TO BE ADDED                 76028420
    IF X GTR 230 THEN % NOT ENOUGH ROOM                                 76028425
      BEGIN CLEARSTACK(STACK[BASE+2],TSIZ); CONTINUEBIT:=FALSE;         76028430
      GOERR("TOOLONG",MSGVAL);                                          76028435
      END % IF X GTR 230                                                76028440
    ELSE SAVEIT(STACK[BASE],TSIZ,OADR,SIZ,TYPE,X);                      76028445
    FTOG!=0;                                                            76028450
    GO TO LOOP;                                                         76028455
    END % IF TYPE = 7                                                   76028460
  ELSE % MUST BE AN ERROR                                               76028500
    BEGIN                                                               76028600
    MSGPTR := MSGVAL + TYPE - 9;                                        76028700
  ERROR:                                                                76028800
    TEMP := 3;                                                          76028900
    CLEARSTACK(STACK[BASE+2],TSIZ);                                     76029000
    CONTINUEBIT := FALSE;                                               76029100
    GOERR(ERRVALUE(OADR),MSGPTR);                                       76029200
    END IF AN ERROR;                                                    76029300
  END CASE 0;                                                           76029400
  BEGIN % CASE 1                                                        76029500
  CASE1:                                                                76029600
    CLEAR(WORK[0],29);                                                  76029700
    WORK[0]:=ESP2;                                                      76029800
    WORK[3]:=MAKEFN("1S",LL);                                           76029900
    WORK[4]:=WORK[6]:=USERCODE;                                         76030000
    WORK[5]:=SOURCEFILE;                                                76030100
    WORK[7] := FILETYPE; % CHECK FOR TYPE DATA FILES                    76030150
    RUN1:=IF BOOLEAN(FND) THEN "FIND    " ELSE "REPLACE";               76030200
    RUN2:=IF BOOLEAN(FND) THEN "DISK    " ELSE "CANDE   ";              76030300
    ERRSW:=USERCODE;                                                    76030400
    DISKWRITE(ESP1);                                                    76030500
    IF BOOLEAN(FND) THEN                                                76030600
       BEGIN                                                            76030700
       IAM:=VDISPATCH; COMMONVALUE:=ESP1; LITOUT("WAIT    ",NOCRLF);    76030710
       END                                                              76030720
     ELSE                                                               76030730
       BEGIN                                                            76030740
      WANT:=VDISPATCH;DOING:=2;IF NOT CONCISE THEN LITOUT("WAIT.  ",1),76030750
       END;                                                             76030760
   EOJMSG := NOT CONCISE; WRITEASTERISK := CONCISE;                     76030800
   % VOID                                                              76030900
    GO TO EXIT;                                                         76031000
  END CASE 1;                                                           76031100
```

```
BEGIN % CASE 2                                                                  76031200
LABEL DUMMY;                                                                    76031210
  IF COMMONCELL.[2:1] = 0 THEN % NORMAL EOJ                                     76031300
    BEGIN                                                                       76031400
    IF BOOLEAN(FREP) THEN                                                       76031500
     IF COMMONCELL.[21:27] NEQ 0 THEN % SUBSTITUTIONS MADE                      76031600
      BEGIN                                                                     76031700
      SOURCEFILE := MAKEFN("1S",LL);                                            76031800
      GOODOBJ := FALSE;                                                         76031900
      CANCELCKPT(A[*]);                                                         76032000
      END;                                                                      76032100
    WRITEASTERISK:=TRUE;                                                        76032200
    END % IF EOJ OK                                                             76032300
  ELSE                                                                          76032400
    BEGIN % ERROR EOJ                                                           76032500
    IF SCHEDULINE AND BOOLEAN(FREP) AND NOT NOSTOP THEN SCHEDERROR;             76032600
    LINECLEAR(LCW,A[*]);                                                        76032700
    MSGPTR := MSGVAL;                                                           76032800
    WRITEASTERISK := FALSE;                                                     76032900
    END ; % IF ERROR EOJ                                                        76033000
  IAM := WANT := WAITFOR := 0;                                                  76033100
END CASE 2;                                                                     76033200
END ALL CASES;                                                                  76033300
EXIT:                                                                           76033400
END PROCEDURE REPLACIT;                                                         76033500
%***************************************************************************%90016000
PROCEDURE     REMEMBERTHIS (LCW);                                               90017000
%***************************************************************************%90018000
BOOLEAN       LCW;                                                              90019000
        BEGIN                                                                   90020000
DEFINE        CTR = [3:6] #, USEDOROPEN = [12:36] #;                            90021000
REAL STREAM PROCEDURE   BITNUMBER (T);                                          90022000
VALUE         T;                                                                90023000
        BEGIN                                                                   90024000
LABEL           L;                                                              90025000
                SI:= LOC T;     SI:= SI+2;                                      90026000
              6(IF SC= """ THEN BEGIN SI:=SI+1; TALLY:=TALLY+6; END             90027000
                ELSE                                                            90028000
              6(IF SB THEN BEGIN SKIP 1 SB; TALLY:=TALLY+1; END                 90029000
                ELSE                                                            90030000
                JUMP OUT 2 TO L));                                              90031000
          L:    BITNUMBER:= TALLY;                                              90032000
        END   STREAM;                                                           90033000
              %                                                                 90034000
REAL          LINK, W, T,S;                                                     90035000
              S := TOBECONTROL;                                                 90036000
              TOBECONTROL.USEDOROPEN:= R(B(W:= TOBECONTROL.USEDOROPEN)          90037000
                        OR NOT B(T:=R(NOT B(W+1) OR B(W))));                    90038000
              IF LINK:= 35 - BITNUMBER (T) LSS 0 THEN                           90039000
        BEGIN                                                                   90040000
              LITOUT("NOTDONE",CRLF);  TOBECONTROL := S;                        90041000
        END   IF NOTREMEMBERED ELSE                                             90042000
        BEGIN                                                                   90043000
              THINGSTODO := B(W := R(THINGSTODO) + 1);                          90044000
              IF W GTR 1 THEN TOBEDONE[R(THINGSLAST),0].CTR := LINK;            90045000
              TOBEDONE[LINK,0]              := T&LINK[1:40:8];                  90046000
              THINGSLAST:= B(LINK);                                             90047000
              IF W = 1 THEN THINGSLINK:= B(LINK);                               90048000
              MOVE (15,WORDS,WORK[0],TOBEDONE[LINK,1]);                         90049000
              MOVE (5,WORDS,EVENTS[0],TOBEDONE[LINK,16]);                       90050000
```

```
                INC(TOBECONTROL.CTR);                                          90051000
                IF TOBECONTROL.CTR GTR 20 THEN WECANUSEDATA := FALSE;          90052000
            END  IF REMEMBERED;                                                90053000
            END  OF REMEMBERTHIS;                                              90054000
%***************************************************************************%90055000
PROCEDURE     GETSOMETHINGTODO (LCW,A); BOOLEAN LCW; ARRAY A[0];               90056000
%***************************************************************************%90057000
            BEGIN                                                              90058000
DEFINE          CTR = [3:6] #, USEDOROPEN = [12:36] #;                         90059000
REAL LINK, W, TL, I, COUNT, LCOUNT, LMAX;                                      90060000
LABEL           AGAIN, EXIT;                                                   90061000
                LMAX:=REAL(THINGSTODO);                                        90061100
      AGAIN:    LCOUNT:=LCOUNT+1;                                            90062000
                TL := REAL(THINGSLAST);                                        90063000
                LINK:=R(THINGSLINK);DECB(THINGSTODO);                          90064000
                THINGSLINK:=B(I:=(W:=TOBEDONE[LINK,0]).CTR);                   90065000
                TOBECONTROL.USEDOROPEN:= % TURN OFF THE BIT FOR ROW[LINK]      90066000
                        R(B(TOBECONTROL.USEDOROPEN) AND B(W));                 90067000
                MOVE (15,WORDS,TOBEDONE[LINK,01],WORK[0]);                     90068000
                MOVE (05,WORDS,TOBEDONE[LINK,16],EVENTS[0]);                   90069000
                IF EVENTREASON=VINPUT OR EVENTREASON=VTEACHER OR               90069010
                EVENTREASON=VEQUATE THEN                                       90069015
                   BEGIN                                                       90069020
                   WORKADRS := ADDRESS(WORK[1]);                               90069030
                   COUNT := (WORK[0]-1).[39:9];                                90069040
                   WORKENDADRS:=(WORKADRS+COUNT.[40:5])&COUNT[30:45:3];        90069050
                   END;                                                        90069060
                DECR(TOBECONTROL.CTR);                                         90070000
                IF TOBECONTROL.CTR LEQ 20 THEN WECANUSEDATA := TRUE;           90071000
                REASON:= EVENTREASON;                                          90072000
                IF SAVEDWHILEINITBUSY THEN                                     90073000
            BEGIN  %  GET THAT ONE FIRST.                                      90074000
                IF REASON LSS VINPUT OR REASON = WAITINGSCW.SCWWAITBITS        90075000
                THEN SAVEDWHILEINITBUSY := FALSE ELSE                          90076000
            BEGIN  %  THIS ISNT IT.                                            90077000
                IF LCOUNT GTR LMAX THEN                                        90077100
                   BEGIN                                                       90077200
                   REASON:=VERROR; ERRSW:="SYS.ERR"; BUSYLINE:=FALSE;          90077300
                   LINE[LL,MSGPTRLOC]:=28; % TASK WAS DISCONTINUED             90077400
                   GO TO EXIT;                                                 90077500
                   END;                                                        90077600
                REMEMBERTHIS(LCW);  GO AGAIN;                                  90078000
            END;                                                               90079000
                WHILE I NEQ TL DO                                              90080000
                IF W:=TOBEDONE[I,16].[18:7] LSS VINPUT                         90081000
                OR W = WAITINGSCW.SCWWAITBITS THEN                             90082000
                   BEGIN                                                       90083000
                        SAVEDWHILEINITBUSY:=TRUE;  GO EXIT;                    90084000
                   END  ELSE I:=TOBEDONE[I,0].CTR;                             90085000
            END  IF SAVEDWHILEINITBUSY;                                        90086000
  EXIT:     END  OF GETSOMETHINGTODO;                                          90087000
%***************************************************************************%90088000
PROCEDURE FINISHED (LCW, A);  BOOLEAN LCW;  ARRAY A[0];                        90089000
%***************************************************************************%90090000
            BEGIN                                                              90091000
            LABEL RESTRT, EXIT;                                                90091100
%.........................................................................      90091200
STREAM PROCEDURE PLSLOGOFF(WORK);                                              90091300
BEGIN DI:=WORK;                                                                90091400
  DS:=45LIT"YOUR SCHEDULED TIME IS UP. PLEASE LOG OFF AS ";                    90091500
```

```
  DS:=17LIT"SOON AS POSSIBLE.";                                          90091600
END PLSLOGOFF;                                                           90091700
%.....................................................................90091800
STREAM PROCEDURE TELLHIMBYE(WORK);                                       90091900
BEGIN DI:=WORK;                                                          90092000
  DS:=47LIT"SORRY,BUT YOU ARE PAST YOUR SCHEDULED TIME AND ";            90092100
  DS:=23LIT"WE MUST DISCONNECT YOU.";                                    90092200
END TELLHIMBYE;                                                          90092300
%.....................................................................90092400
BOOLEAN STREAM PROCEDURE TIMEOK(N,A); VALUE N,A;                         90092500
BEGIN SI:=LOC A; SI:=SI+4; N(SKIP SB);                                   90092600
  IF SB THEN TALLY:=1; TIMEOK:=TALLY;                                    90092700
END TIMEOK;                                                              90092800
%.....................................................................90092900
              ALLDONE         := TRUE ;                                  90093000
  IF BOOLEAN(TIMERESTRICTBIT) THEN % USER HAS RESTRICTED TIME PERIOD     90093100
  IF NOT TIMEOK(ENTIER(TIMENOW:=TIME(1)/216000),TIMELIMITS) THEN         90093200
  IF NOT NOTIFIED THEN % USER IS NOT AWARE HIS TIME IS UP                90093300
    BEGIN PLSLOGOFF(WORK); TWXOUT(LL,WORK[0],62,2);                      90093400
    NOTIFYBIT := REAL(TRUE); NOTIFYTIME := TIMENOW; END                  90093500
  ELSE                                                                   90093520
    BEGIN IF TIMENOW - NOTIFYTIME GTR GRACEPERIOD THEN                   90093600
      BEGIN TELLHIMBYE(WORK); TWXOUT(LL,WORK[0],70,2); NOSAVE:=TRUE;     90093700
     LINECLEAR(LCW,A[*]); A[BASE]:=0;  BYE(LCW,A[*]); GO EXIT; END; END;90093800
              IF INITIATEDWHILEBUSY THEN                                 90094000
          BEGIN                                                          90095000
              IF LLINFO NEQ 0 THEN WAITINGSCW := LLINFO                  90096000
                 ELSE WAITINGSCW.SCWWAITBITS := 0;                       90097000
              INITIATEDWHILEBUSY := BOOLEAN(LLINFO:=0);                  90098000
              IF SAVEDWHILEINITBUSY THEN GO RESTRT ELSE GO EXIT;         90099000
          END;                                                           90100000
              BUSYLINE        := FALSE;                                  90101000
      % VOID                                                            90102000
      % VOID                                                            90103000
              IF REAL (THINGSTODO) = 0 THEN                              90104000
          BEGIN                                                          90105000
              ALLMOPMSG := FALSE;                                        90106000
              LIBMSGCTR := 0;                                            90107000
              IF SCHEDULINE THEN REQUESTIP(LL)                           90107100
              ELSE                                                       90107200
              IF WRITEASTERISK THEN                                      90108000
                TWXOUT(LL,ASTOR,1,1);                                    90109000
              WRITEASTERISK:=FALSE;  GO EXIT;                            90110000
          END;                                                           90111000
          COMMENT: SOMETHING HAS BEEN REMEMBERED;                        90112000
      RESTRT:  RESTARTNEEDED := TRUE;                                    90113000
              GETSOMETHINGTODO(LCW,A[*]);                                90114000
      EXIT:END;                                                          90115000
                                                                         90116000
%*********************************************************************%90117000
DEFINE        BUILDSCW =SCW:=0&WAITFOR[10:41:7]&PREVRCW[17:40:8]&BASE     90118000
                       [25:40:8]&DOING[33:41:7]&IAM[40:40:8]&1[1:46:2]   90119000
                       #;                                                90120000
DEFINE        BUILDRCW =RCW:=SCW&SREG[03:40:8]&PARAM[11:41:7]&TEMP       90121000
                       [18:41:7]&DOING[33:41:7]&IAM[40:40:8]&2[1:46:2]   90122000
                       #;                                                90123000
DEFINE        STORERCW =A[PREVRCW:=SCWPREV-1]:= RCW #;                   90124000
                       %                                                 90125000
DEFINE        RECALLRCW=BEGIN RCW     :=A[PREVRCW:=SCWPREV];             90126000
                              PARAM   :=RCWPARAM;                        90127000
```

```
                        TEMP    :=RCWTEMP ;                                     90128000
                        BASE    :=RCWBASE ;                                     90129000
                        DOING   :=RCWDOING;                                     90130000
                        IAM     :=RCWIAM  ;                                     90131000
                        SREG    :=RCWSREG;                                      90132000
                        PREVRCW:=PREVRCW +1;                                    90133000
                        WANT    :=WAITFOR:=0;                                   90134000
                    END OF RECALLRCW #;                                         90135000
%PAGE                                                                           90136000
            %                                                                   90137000
%***************************************************************************%90138000
BOOLEAN  PROCEDURE ANOTHEROPERATION (LCW, A);                                   90139000
%***************************************************************************%90140000
BOOLEAN         LCW;                                                            90141000
ARRAY           A[0];                                                           90142000
        BEGIN                                                                   90143000
LABEL           L1;                                                             90144000
                IF IAM NEQ 0 THEN                                               90145000
    L1:  BEGIN   COMMENT THIS PROCEDURE WILL BE RECALLED;                       90146000
                BUILDRCW; STORERCW;                                             90147000
             END  %  PROCEDURE IS NOW IDLE AND CAN BE RESTARTED;                90148000
                ELSE                                                            90149000
                DOING := 0;                                                     90150000
                SREG:=BASE := BASE + TEMP + PARAM;                              90151000
                IAM := WANT;                                                    90152000
                BUILDSCW;                                                       90153000
                IF WANT NEQ 0 THEN                                              90154000
             BEGIN   COMMENT A NEW PROCEDURE IS TO BE GIVEN CONTROL;            90155000
                A [BASE] := PARAM;                                              90156000
                DOING := WANT := 0;                                             90157000
             END        THE NEW PROCEDURE IS NOW READY TO BE CALLED;            90158000
                TEMP := PARAM := 0;                                             90159000
                IF WAITFOR NEQ 0 THEN                                           90160000
             BEGIN   COMMENT WE MUST WAIT BEFORE THIS LINE CAN CONTINUE;        90161000
                IF IAM NEQ 0 THEN GO TO L1; COMMENT MAKE LINE IDLE;             90162000
                ANOTHEROPERATION := FALSE;                                      90163000
                WAITINGSCW       := SCW;                                        90164000
             END        LINE WILL NOW WAIT ON EVENTQUE                          90165000
                ELSE                                                            90166000
             BEGIN   COMMENT NO WAIT IS REQUIRED;                               90167000
                IF (ANOTHEROPERATION := NOT ALLDONE) AND IAM EQL 0 THEN         90168000
             BEGIN   COMMENT RESET RETURN INFO;                                 90169000
                RECALLRCW;  WAITINGSCW:=BUILDSCW;                               90170000
             END        WE CAN NOW RETURN TO THE LAST UNFINISHED PROCEDURE;     90171000
             END        IF LINE DID NOT HAVE TO WAIT;                           90172000
             END        OF ANOTHEROPERATION;                                    90173000
%***************************************************************************%90174000
PROCEDURE       HANDLETHISLINE(LCW, A);                                         90175000
%***************************************************************************%90176000
BOOLEAN         LCW;                                                            90177000
ARRAY           A[0];                                                           90178000
        BEGIN                                                                   90179000
LABEL           RESTART, AGAIN, EXIT;                                           90180000
    RESTART:                                                                    90181000
                IAM := WANT := WAITFOR := TEMP := PARAM := 0;                   90182000
                ALLDONE := FALSE;                                               90183000
                RESTARTNEEDED := FALSE;                                         90184000
                IF WAITINGSCW.SCWWAITBITS = REASON                              90185000
                OR WAITINGSCW.SCWWAITBITS = R(NOT FALSE).[41:7]                 90186000
                THEN                                                            90187000
```

```
BEGIN   COMMENT: SOMEONE IS WAITING FOR THIS EVENT;                    90188000
     SCW := WAITINGSCW;                                                90189000
     WAITINGSCW := 0;                                                  90190000
     PREVRCW := SCWPREV;                                               90191000
END                                                                    90192000
     ELSE                                                              90193000
BEGIN   COMMENT: WE WERE NOT WAITING FOR IT SO;                        90194000
     WANT := REASON;                                                   90195000
     IF IDLELINE THEN                                                  90196000
BEGIN   COMMENT: MUST BE A NEW EVENT FOR THIS LINE;                    90197000
     IF NOT LOGGEDON THEN                                              90198000
BEGIN                                                                  90199000
     CHARGE:= "1;                                                      90201000
END  LOGGING ON THE SYSTEM;                                            90202000
     BUSYLINE := TRUE;                                                 90203000
     BASE     := SBASE;                                                90204000
     PREVRCW  := LLWORDS;                                              90205000
END                                                                    90206000
     ELSE                                                              90207000
BEGIN                                                                  90208000
     IF REASON=VTEACHER THEN % DONT PERMIT MULTIPLE INQUIRIES          90208100
        IF INQUIRY THEN GO EXIT ELSE INQUIRY := TRUE;                  90208200
     IF REASON LSS VINPUT AND NOT INITIATEDWHILEBUSY THEN              90209000
BEGIN                                                                  90210000
     INITIATEDWHILEBUSY := TRUE;                                       90211000
     LLINFO := SCW := WAITINGSCW;                                      90212000
     BASE   := SCWBASE + 1;                                            90213000
     PREVRCW := SCWPREV - 1;                                           90214000
END                                                                    90215000
     ELSE                                                              90216000
BEGIN                                                                  90217000
     IF R(THINGSTODO) GTR 2 THEN                                       90218000
BEGIN                                                                  90219000
     LITOUT("NOTDONE",CRLF);                                           90220000
END  ELSE                                                              90221000
BEGIN                                                                  90222000
     REMEMBERTHIS (LCW);                                               90223000
     IF REASON = LLINFO.SCWWAITBITS                                    90224000
     OR REASON LSS VINPUT THEN SAVEDWHILEINITBUSY := TRUE;             90225000
END  IF REMEMBERED;                                                    90226000
     GO EXIT;                                                          90227000
END     REASON VS 15;                                                  90228000
END     IDLE OR NOT;                                                   90229000
     BUILDSCW;                                                         90230000
     A[PREVRCW] := BUILDRCW;                                           90231000
END     WAITING OR NOT;                                                90232000
%--------------------------------------------------------------------- 90233000
AGAIN:                                                                 90234000
     IF NOT ANOTHEROPERATION (LCW, A[*]) THEN GO EXIT;                 90235000
        COMMENT: IF WE GOT TO HERE IT MEANS THERE IS SOMETHING         90236000
                 THAT CAN BE INITIATED FOR THIS LINE NOW.              90237000
                 "IAM" IS SET TO THE CASE VALUE WHICH WILL CALL        90238000
                 OUT THE APPROPRIATE PROCEDURE, SO= LETS TRYIT;        90239000
     CASE IAM OF                                                       90240000
BEGIN                                                                  90241000
     FINISHED(LCW, A[*]);% 00 - LAST THING DONE ON LINE.               90242000
     HITHERE(LCW,A[*]);  % 01 - DIAL UP.                               90243000
     BREAK   (LCW,A[*]); % 02 - BREAK OCCURRED.                        90244000
     WRU     (LCW,A[*]); % 03 - WHO ARE YOU RECD.                      90245000
     LINECLEAR(LCW,A[*]);% 04 - CLEAR LINE AFTER 02 OR 03.             90246000
```

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        DISKCHUNK;              % 05 - NEW CHUNK OF DISK.                90247000
        DISCONNECT(LCW,A[*]);%06 - DISCONNECT OCCURRED.                 90248000
        INPUTDATA(LCW,A[*]);% 07 - INPUT DATA IS IN OUR BUFFER.         90249000
    BEGIN                       % 08 - BREAK FINISHED.                   90250000
        MSGPTR:=18;  % I AM THE GENIE ...                               90250100
        IAM:=WANT:=WAITFOR:=0;                                          90250200
    END BREAKCLEAR;                                                     90250300
        RESTARTIT(LCW,A[*]);    % 09 - AFTER H/L SAVE WRKFILE           90251000
        IAM:=WAITFOR:=EVENTS[1]; % 10 - MCP USE.                        90252000
        MAKEDATE;               % 11 - DATE CHANGED.                    90253000
        HITHERE(LCW,A[*]);  % 12 (RETURN FROM NEWS/CANDE FIND)          90254000
        CALL(NOTUSED);      % 13 -                                      90255000
        MCPMSG(LCW,A[*]);   % 14 - HANDLES MCP MESSAGES ABOUT JOBS      90256000
        COOLIT(A[*]);           % 15                                    90257000
        MCPOK(A[*]);            % 16                                    90258000
        CALL(NOTUSED);          % 17 -                                  90259000
        CALL(NOTUSED);          % 18 -                                  90260000
        CALL(NOTUSED);          % 19 -                                  90261000
        CALL(NOTUSED);          % 20 -                                  90262000
        CALL(NOTUSED);          % 21 -                                  90263000
        CALL(NOTUSED);          % 22 -                                  90264000
        CALL(NOTUSED);          % 23 -                                  90265000
        CALL(NOTUSED);          % 24 -                                  90266000
        TEACHER(LCW,A[*]);      % 25 - WANTS ELABORATION.               90267000
        INPUT(LCW,A[*],WORK[1],EVENTS[1],EVENTS[3]); % USER INPUT      90268000
        DISPATCH(LCW, A[*]);    % 27 - FIRES UP RUNNERS.                90269000
        DISKREAD (LCW, A[*]);   % 28 - READS DISK FOR PROCEDURES        90270000
        CALL(NOTUSED);          % 29 -                                  90271000
        OOPS(LCW,A[*]);         % 30 - ERR DURING SCAN                  90272000
        DOGCATCHER(LCW,A[*]);   % 31 - DOGCATCHER.                      90273000
        COMPILEIT(LCW,A[*]);    % 32 - COMPILE IT.                      90274000
        SETUPFILES(LCW,A[*]);   % 33 - SET UP ON HELLO                  90275000
        ERROR(SREG,LCW,A[*]);   % 34 - ERROR HANDLER                    90276000
        CLOSEWORKTABLE(LCW,A[*]);% 35 - TO MAKE SURE TABLE IS TIDY      90277000
        CHNGPSWD(LCW,A[*]);     % 36 - CHANGE PASSWORD                  90278000
        THYME(LCW,A[*]);        % 37 - TIME                             90279000
        CARRIAGE(LCW,A[*]);     % 38 - CARRIAGE CONTROL.                90280000
        CHNGNAME(LCW,A[*]);     % 39 - CHANGENAME                       90281000
        MONITORR(LCW,A[*]);     % 40 -                                  90282000
        SETIT(LCW,A[*]);        % 41 - "SET" & "RESET"                  90283000
        SSFILE(LCW,A[*]);       % 42 TRANSMIT FILE                      90284000
        EQUATE(LCW,A[*]);       % LABEL EQUATION                        90285000
        STATUSCHECK(LCW,A[*]);  % 44 - STATUS OF RUNNING JOB            90286000
        CALL(NOTUSED);          % 45 -                                  90287000
        CALL(NOTUSED);          % 46 -                                  90288000
        CALL(NOTUSED);          % 47 -                                  90289000
        CALL(NOTUSED);          % 48 -                                  90290000
        CALL(NOTUSED);          % 49 -                                  90291000
    BEGIN                       % 50 - SEND SS MSGS                     90292000
        MOVE (4,WORDS,EVENTS[1],WORK[10]);                              90293000
        TWXOUT(LL,WORK[0],112,2);                                       90294000
        IAM := 0;                                                       90295000
    END;                                                                90296000
        PDIT(LCW,A[*]);         % 51 - LIST FILES                       90297000
        COPYIT (LCW,A[*]);      % 52 - COPY.                            90298000
        SEQ(LCW,A[*]);            % 53 - WANTS SEQ #S.                  90299000
%       :15                     :40                                     90300000
        BYE (LCW,A[*]);         % 54 - BYE.                             90301000
        MAKENEWFILE(A[*]);      % 55 - MAKE                             90302000
        LISTIT (LCW, A[*]);     % 56 - LIST                             90303000
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                EXECUTE(LCW,A[*]);          % 57 - RUN,COMPILE OR EXECUTE    90305000
                LOADIT (LCW, A[*]);         % 58 - LOAD                       90307000
                SAVER  (LCW, A[*]);         % 59 - SAVE                       90308000
                CALL(NOTUSED);              % 60                              90310000
                REMOVE (LCW, A[*]);         % 61 - REMOVE                     90312000
                CHANGE(LCW,A);              % 62 - CHANGE.                    90313000
                RENAMEIT  (LCW, A[*]);      % 63 - RENAME                     90314000
                WHATSIT (LCW, A[*]);        % 64 - PRINT FILE TYPE            90315000
                TYPEIT (LCW, A[*]);         % 65 - CHANGE TYPE                90316000
                CALL(NOTUSED);              % 66                              90317000
                GUARDIT(LCW,A[*]);          % 67 - GUARD(MAKE LOCK)           90318000
                LOCKIT(LCW,A[*]);           % 68 - LOCK OR UNLOCK             90319000
                TAPEIT(LCW,A[*]);           % 69 - PAPER TAPE                 90320000
                LISTIT(LCW,A[*]);           % 70 - PRINT(NO HDING)            90321000
                CHARGEIT(LCW,A[*]);         % 71 - CHARGE CODE                90322000
                SCHEDULE(LCW,A[*]);         % 72 - SCHEDULE A TASK.           90322100
                SCHEDSTATUS(LCW,A[*]);      % 73 - SCHED STATUS/STOP          90322200
                LISTFILE(LCW,A[*]);         % 74 - LIST FILES.                90322300
                UPDATE(LCW,A[*]);           % 75 - UPDATE WORK FILE           90322400
                REPLACEIT(LCW,A[*]);        % 76 - REPLACEMENT ROUTINE        90322500
            END  OF CASE  SOMETHING MORE MAY BE NEEDED;                       90323000
                IF RESTARTNEEDED THEN GO RESTART ELSE GO AGAIN;               90324000
        EXIT:                                                                 90325000
            END  OF HANDLETHISLINE;                                           90326000
        %*************************************************************       90327000
        PROCEDURE   RUNCANDE;                                                 90328000
        %*************************************************************       90329000
            BEGIN                                                             90330000
        LABEL       HAVEVENT;                                                 90331000
                    DO              %  THE LOOP STARTS HERE                   90332000
            BEGIN                                                             90333000
                IF NODATA AND WECANUSEDATA THEN                               90334000
                IF NODATAREQUESTED THEN                                       90335000
            BEGIN                                                             90336000
                REQUESTINPUT (TTYINPUT [*]);                                  90337000
                NODATAREQUESTED := FALSE;                                     90338000
            END;                                                              90339000
                IF TIMETOUKLINES THEN                                         90339100
                IF MAKEOKEVENT THEN GO TO HAVEVENT;                           90339200
                WAITBIT:=REAL(NODATA);                                        90340000
                NEXTEVENT (WAITBIT, CLOCK, EVENT [*]);                        90341000
                IF BOOLEAN (WAITBIT) THEN                                     90342000
            BEGIN                                                             90343000
                MOVE (5,WORDS,EVENT[0],EVENTS[0]);                            90344000
                LL    :=EVENTLL;                                              90345000
                IF REASON:=EVENTREASON = VMCPMSG THEN                         90346000
    % VOID 90347001.                                                         90347000
                  MOVE(15,WORDS,EVENT[4],WORK[0]);                            90348000
                IF REASON=VHELLO THEN                                         90348100
                  IF LINE[LL,13].SCWWAITBITS NEQ REASON THEN                  90348200
                    LINE[LL,23] := EVENTS[2]; % TERMINAL TYPE                 90348300
            END  ELSE BUILDADATAEVENT;                                        90349000
                IF LL GTR MAXLINES THEN                                       90350000
            BEGIN LL:=0; REASON:=13; END; %BAD LINE NUMBER                    90351000
                IF REASON=VHELLO AND LOGGINGON THEN                           90352000
            BEGIN LL:=0; REASON:=13; END;                                     90353000
        HAVEVENT:                                                             90353500
                IF LLPREV NEQ LL THEN                                         90354000
            BEGIN   COMMENT A DIFFERENT USER IS GOING TO USE TIME;            90355000
                IF LLPREV NEQ  0 THEN                                         90356000
```

```
            BEGIN   COMMENT CHARGE PREV USER FOR HIS TIME;                    90357000
                LINE[LLPREV,PTLOC]:=CLOCK-CLOCKPREV+LINE[LLPREV,PTLOC];       90358000
            END     IF USER TO BE CHARGED;                                    90359000
                LLPREV:=LL;                                                   90360000
                CLOCKPREV:=CLOCK;                                             90361000
            END     IF NEW USER TO BE HANDLED;                                90362000
                IF REASON NEQ 13 THEN % THROW AWAY #13,BAD LUCK.              90363000
                HANDLETHISLINE(LCW,LINE[LL,*]);                               90364000
            END  OF LOOP UNTIL FALSE;                                         90365000
            END  RUNCANDE;                                                    90366000
        %*************************************************************************90367000
        PROCEDURE INITIALIZECANDE;                                            90367100
        %*************************************************************************90367200
            BEGIN LABEL DUMMY;                                                90367300
            STREAM PROCEDURE SETUPCOMM2(COMM2);                               90367400
               BEGIN DI:=COMM2;                                               90367410
                     DS:=8 LIT"0881894(";          % 3"0010103110110435"      90367420
                     DS:=  LIT"="; DI:=DI+4;       % 3"75"                    90367430
                     SI:=LOC COMM2; SI:=SI+5; DS:=3 CHR;                      90367440
               END;                                                           90367450
            REAL STREAM PROCEDURE ADDRESS(W);                                 90367500
               BEGIN SI:=W; ADDRESS:=SI; END;                                 90367510
        %.....................................................................  90367600
        %*************************************************************************90367610
        PROCEDURE SPOLOGON(LCW,A); BOOLEAN LCW; ARRAY A[0];                   90367620
        %*************************************************************************90367630
           BEGIN                                                              90367640
           REAL VRB,N;                                                        90367650
           STREAM PROCEDURE SETBIT(N,WORD); VALUE N;                          90367660
              BEGIN LOCAL N1;                                                 90367670
              SI:=LOC N; SI:=SI+6; DI:=LOC N1; DI:=DI+7; DS:=CHR;             90367680
              DI:=WORD; N1(DI:=DI+8); SKIP N DB; DS:=SET;                     90367690
              END;                                                            90367700
                                                                              90367710
           ESP1 := GETESPDISK;                                                90367720
           ESP2 := GETESPDISK;                                                90367730
           USERCODE := "SPO     ";                                            90367740
           LOGGEDON := TRUE;                                                  90367750
           LINECLEAR(LCW,A[*]);                                               90367760
           FILESOK := FALSE;                                                  90367770
           FILL WORK[*] WITH                                                  90367780
              "1SEQ     ", "5HELLO  ", "3BYE     ", "4TAPE    ",             90367790
              "5PUNCH   ", "6CHARGE ", "3SCHEDUL", "6STATUS ",               90367800
              "4STOP    ", "2CC     ", "3SET    ", "5RESET   ",               90367810
              "4TIME    ", "7MONITOR";                                       90367820
           FOR VRB := 0 STEP 1 UNTIL 13 DO                                    90367830
              BEGIN                                                           90367840
              N := WORK[VRB];                                                 90367850
              IF YOUFINDAVERB(N, VERBTABLE[0], NUMOFVERBS) THEN               90367860
                 BEGIN                                                        90367870
                 N := (N,[9:9]) DIV 2;                                        90367880
                 SETBIT(N+1, RESTRICTEDVERBS);                                90367890
                 END;                                                         90367900
              END;                                                            90367910
           END PROCEDURE SPOLOGON;                                            90367920
                    MAKEDATE;                                                 90368000
        COMMENT VERBTABLE[WORD],[6:3] IS USED AS A FLAG FOR                   90368010
         SCANNER ( FOR "SPECIAL" VERB );                                      90368020
                    FILL VERBTABLE[*] WITH                                    90369000
                         "1LIST    ", 3"3000000000000070",  % #56             90370000
```

```
        "1RUN    ", 3"3000020000000071",  % #57                    90371000
        "4SAVE   ", 3"3000040000000073",  % #59                    90372000
        "1SEQ    ", 3"3000060000000065",  % #53                    90373000
        "1EXECUTE", 3"3000100000000071",  % #57                    90374000
        "2DO     ", 3"3000100000000071",  % #57 = EXECUTE          90375000
        "4MAKE   ", 3"3000140000000067",  % #55                    90376000
        "4LOAD   ", 3"3000160000000072",  % #58                    90377000
        "1COMPILE", 3"3000200000000071",  % #57                    90378000
        "6REMOVE ", 3"3000220000000075",  % #61                    90379000
        "6CHANGE ", 3"3000240000000076",  % #62                    90380000
        "6RENAME ", 3"3000260000000077",  % #63                    90381000
        "4FILES  ", 3"3000300000000063",  % #51                    90382000
        "5WHATS  ", 3"3000320000000100",  % #64 ALSO               90383000
        "6CREATE ", 3"3000340000000067",  % #55 ALSO               90384000
        "5HELLO  ", 3"3010360000000001",  % 01                     90385000
        "4TYPE   ", 3"3000400000000101",  % #65                    90386000
        "3BYE    ", 3"3000420000000066",  % #54,                   90387000
        "4COPY   ", 3"3000440000000064",  % #52                    90388000
        "5MERGE  ", 3"3000460000000064",  % #52, ALSO              90389000
        "5RESEQ  ", 3"3000500000000064",  % #52, ALSO              90390000
        "6DELETE ", 3"3000520000000064",  % #52, ALSO              90391000
        "6APPEND ", 3"3000540000000064",  % #52, ALSO              90392000
        "3ADD    ", 3"3000540000000064",  % 52,ALSO                90393000
        "2TO     ", 3"3000600000000062",  % 50                     90394000
        "2SS     ", 3"3000620000000062",  % 50,ALSO                90395000
        "5GUARD  ", 3"3000640000000103",  % 67                     90396000
        "4LOCK   ", 3"3000660000000104",  % 68                     90397000
        "6UNLOCK ", 3"3000700000000104",  % 68,ALSO                90398000
        "4TAPE   ", 3"3000720000000105",  % 69                     90399000
        "1PRINT  ", 3"3000740000000106",  % 70                     90400000
        "5PUNCH  ", 3"3000760000000064",  % 52,ALSO                90401000
        "6CHARGE ", 3"3001000000000107",  % 71                     90402000
        "3SCHEDUL", 3"3001020000000110",  %72                      90402100
        "6STATUS ", 3"3001040000000111",  %73                      90402200
        "4STOP   ", 3"3001060000000111",  %73, ALSO               90402300
        "4TIME   ", 3"3001100000000045",  %37                     90402400
        "1UPDATE ", 3"3001120000000113",  % 75                    90402860
        "3REPLACE", 3"3011140000000114",  % 76                    90402870
        "4FIND   ", 3"3011160000000114",  % 76 ALSO               90402880
        "2CC     ", 3"3001200000000046",  % 38                    90402890
        "6RMERGE ", 3"3001220000000064",  % 52 ALSO               90403000
        "1DISPLAY", 3"3001240000000070",  % 56                    90403100
        "3SET    ", 3"3011260000000051",  % 41                    90403200
        "5RESET  ", 3"3011300000000051",  % 41 ALSO               90403300
        "7MONITOR", 3"3001320000000050",  % 40                    90403400
        "6SSFILE ", 3"3001340000000052",  % 42                    90403410
        "2EQUATE ", 3"3001360000000053",  % 43                    90403420
        "6PUBLIC ", 3"3001400000000104",  % 68 ALSO               90403430
        "7*******", 0; % LAST ENTRY                                90403900
LOCK(VERBTABLE[*]); % MAKE READ ONLY ARRAY                        90403950
FILL TYPETABLE[*] WITH "7UNKNOWN",                                 90404000
        "EBASIC  ",                                                90405000
        "EALGOL  ",                                                90406000
        "ECOBOL  ",                                                90407000
        "GFORTRAN",                                                90408000
        "ETSPOL  ",                                                90409000
        "FXALGOL ",                                                90410000
        "3SEQ    ",                                                90411000
        "4DATA   ",                                                90412000
        "4LOOK   ",                                                90413000
```

Switch?

Verbs

Data Documents/Inc.

```
                "4INFO    ",                                                    90413100
                "GCOBOL68";                                                     90413900
                LOCK(TYPETABLE[*]); % MAKE READ ONLY ARRAY                      90413950
                FILL RESWRDTABLE[*] WITH "7UNKNOWN",                            90414000
1               "5BASIC   ", % 1                                                90415000
1               "5ALGOL   ", % 2                                                90416000
1               "5COBOL   ", % 3                                                90417000
1               "7FORTRAN", % 4                                                 90418000
1               "5ISPOL   ", % 5                                                90419000
1               "6XALGOL  ", % 6                                                90420000
1               "3SEQ     ", % 7                                                90421000
1               "4DATA    ", % 8                                                90422000
3               "4LOCK    ", % 9                                                90423000
                "4INFO    ", % 10                                               90424000
                "7COBOL68", % 11                                                90425000
                "6PUBLIC ", % 12                                                90426000
                "7SOLEUSE", % 13                                                90427000
                "7UNLOCKE", % 14                                                90428000
                "6LOCKED ", % 15                                                90429000
                "6OBJECT ", % 16                                                90430000
                "6SOURCE ", % 17  % 1 - 17 ARE POSITION DEPENDENT               90431000
                "4CARDS  ", % 18                                                90432000
                "4DISK   ", % 19                                                90433000
                "3END    ", % 20                                                90434000
                "5ERRORS ", % 21                                                90435000
                "4FILES  ", % 22                                                90436000
                "4FROM   ", % 23                                                90437000
                "7LIBRARY", % 24                                                90438000
                "7PRINTER", % 25                                                90438100
2               "5PUNCH  ", % 26                                                90438200
3               "5RESEQ  ", % 27                                                90438300
2               "4TAPE   ", % 28                                                90438400
2               "4TYPE   ", % 29                                                90438500
                "4WITH   ", % 30                                                90438600
                "7*******"; % 31                                                90439000
                LOCK(RESWRDTABLE[*]); % MAKE READ ONLY ARRAY                    90439100
                 SETUPCOMM2(COMM2);                                             90439200
                 ASTOR.[1:5] := "#";                                            90440000
                SPOLOGON(LLCONTROL[0],LINE[0,*]);                               90441000
                FLAGS := (NOT FALSE) & FALSE[6:6:2];                            90442000
                WORK[0]:=0; DISKWAIT(1,WORK[*],30,0);                           90442100
                DISKBOTTOM:=WORK[4]-2; %INITIALIZE IT.                          90442200
                WORK[0]:=0; WORKADRS:=ADDRESS(WORK[1]);                         90442300
                WORKENDADRS := ADDRESS(WORK[9]);                                90442400
            END INITIALIZECANDE;                                                90442600
                INITIALIZECANDE;                                                90443000
                RUNCANDE;                                                       90444000
            END PROCEDURES BLOCK;                                               90445000
        END COMMUNICATES BLOCK;                                                 90446000
    END ARRAYS BLOCK.                                                           90447000
END;END.          LAST CARD ON OCRDING TAPE                                     99999999
```

```
LABEL  000000000PRINTER001000000CC EX OBJECT/READ;FILE SOURCEFILE=SYMBOL/CANDE;END;←                    OBJECT /READ
```